WORK ORDER NO. 1894552

A/E CONTRACT NO.
N40085-24-D-2500

Marine Corps Barracks - Repair by Replacement

At the

MCB Camp Lejeune – French Creek

P1634RR

Final RFP Submittal – Volume 1 of 2 (Parts 1-5)

COMMONWEALTH OF VIRGINIA
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For Commander, NAVFAC Mid-Atlantic
Date: April 6, 2026 James E. Donahue, R.A.

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PART TWO - GENERAL REQUIREMENTS

RFP ORGANIZATION OUTLINE

Marine Corps Barracks – Repair by Replacement
P1634RR
FY27
Category Code 72111

MCB Camp Lejeune – French Creek Jacksonville, NC

This RFP establishes a standard design approach for the Marine Corps Barracks Initiative and is organized based on the following:

Part 2 – Requirements established for specific Marine Corps Installation

Part 3 "A" – Requirements established as the standard design

NOTE: In sections where there are site specific requirements indicated, only those requirements that are associated with the project location are applicable.

Part 3 "B" – Requirements specific to the project site(s) to supplement sections of Part 3A that are not standard design requirements

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SECTION 01 14 00

WORK RESTRICTIONS
11/22, CHG 5: 05/25

PART 1 GENERAL

1.1 SUBMITTALS

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. Submittals not having a "G" or "S" classification are 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 00.05 22 CONSTRUCTION SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

List of Contact Personnel

1.2 SPECIAL SCHEDULING REQUIREMENTS

a. The Contractor shall comply with all special scheduling requirements as described in the Part 3 of this DB RFP.

b. Permission to interrupt any Activity roads, railroads, and/or utility service must be requested in writing a minimum of 15 calendar days prior to the desired date of interruption.

1.3 CONTRACTOR ACCESS AND USE OF PREMISES

1.3.1 Activity Regulations

Ensure that Contractor personnel employed on the Activity become familiar with and obey Activity regulations including safety, fire, traffic and security regulations. Keep within the limits of the work and avenues of ingress and egress. Wear appropriate personal protective equipment (PPE) in designated areas. Do not enter any restricted areas unless required to do so and until cleared for such entry. Ensure all Contractor equipment, including delivery vehicles, are clearly identified with their company name.

1.3.1.1 Subcontractors and Personnel Contacts

Provide a list of contact personnel of the Contractor and subcontractors including addresses and telephone numbers for use in the event of an emergency. As changes occur and additional information becomes available, correct and change the information contained in previous lists.

1.3.1.2 Installation Access

Obtain access to Navy installations through participation in the Defense Biometrics Identification System (DBIDS). Requirements for Contractor employee registration, and transition for employees currently under Navy Commercial Access Control System (NCACS), are available at https://www.cnic.navy.mil/Operations-and-Management/Base-Support/DBIDS/. No fees are associated with obtaining a DBIDS credential.

Participation in the DBIDS is not mandatory, and Contractor personnel may apply for One-Day Passes at the Base Visitor Control Office to access an installation.

The following are specific details regarding contractor personnel requirements. For the most up-to-date information regarding Base Access please visit https://www.lejeune.marines.mil/Base-Access/.

1.3.1.2.1 Registration for DBIDS

Registration for DBIDS is available at https://www.cnic.navy.mil/Operations-and-Management/Base-Support/DBIDS/. Procedure includes:

a. Present a letter or official award document (i.e. DD Form 1155 or SF 1442) from the Contracting Officer, that provides the purpose for access, to the base Visitor Control Center representative.

b. Present valid identification, such as a passport or Real ID Act-compliant state driver's license.

c. Provide completed SECNAV FORM 5512/1 to the base Visitor Control Center representative to obtain a background check. This form is available for download at https://www.cnic.navy.mil/Operations-and-Management/Base-Support/DBIDS/.

d. Upon successful completion of the background check, the Government will complete the DBIDS enrollment process, which includes Contractor employee photo, fingerprints, base restriction and several other assessments.

e. Upon successful completion of the enrollment process, the Contractor employee will be issued a DBIDS credential, and will be allowed to proceed to worksite.

1.3.1.2.2 DBIDS Eligibility Requirements

Throughout the length of the contract, the Contractor employee must continue to meet background screen standards. Periodic background screenings are conducted to verify continued DBIDS participation and installation access privileges. DBIDS access privileges will be immediately suspended or revoked if at any time a Contractor employee becomes ineligible.

An adjudication process may be initiated when a background screen failure results in disqualification from participation in the DBIDS, and Contractor employee does not agree with the reason for disqualification. The Government is the final authority.

1.3.1.2.3 DBIDS Notification Requirements

a. Immediately report instances of lost or stolen badges to the Contracting Officer.

b. Immediately collect DBIDS credentials and notify the Contracting Officer in writing under the following circumstances:

(1) An employee has departed the company without having properly

returned or surrendered their DBIDS credentials.

(2) There is a reasonable basis to conclude that an employee, or former employee, might pose a risk, compromise, or threat to the safety or security of the Installation or anyone therein.

1.3.1.2.4 One-Day Passes

Personnel applying for One-Day passes at the Base Visitor Control Office are subject to daily mandatory vehicle inspection, and will have limited access to the installation. The Government is not responsible for any cost or lost time associated with obtaining daily passes or added vehicle inspections incurred by non-participants in the DBIDS.

1.3.1.3 No Smoking Policy

Smoking is prohibited within and outside of all buildings on installation, except in designated smoking areas. This applies to existing buildings, buildings under construction and buildings under renovation. Discarding tobacco materials other than into designated tobacco receptacles is considered littering and is subject to fines. The Contracting Officer will identify designated smoking areas.

1.3.2 Working Hours

Regular working hours shall be 0600-1800, Monday through Friday, excluding Government holidays.

1.3.3 Work Outside Regular Hours

Work outside regular working hours requires COR approval. Provide written request at least 5 work days prior to such work to allow arrangements to be made by the Government for inspecting the work in progress. During periods of darkness, the different parts of the work shall be lighted in a manner approved by the COR.

1.3.4 Occupied and Existing Buildings

Work will be around existing buildings which are occupied. Do not enter the buildings without prior approval of the Contracting Officer. Secure existing buildings and contents at all times. Provide temporary closures as needed to maintain security as directed by the Contracting Officer.

1.3.5 Utility Cutovers and Interruptions

a. The Contractor shall coordinate a minimum of 14 calendar days prior to any planned utility cutover / interruption. Make utility cutovers and interruptions during normal working hours. Existence, size, and location of the utilities are not guaranteed by the survey provided by the government. Verify the location of all utilities prior to construction.

b. Ensure that new utility lines are complete, except for the connection, before interrupting existing service.

c. Interruption to water, sanitary sewer, storm sewer, telephone service, electric service, air conditioning, heating, fire alarm, compressed air, shall be considered utility cutovers. This time limit includes time for deactivation and reactivation.

d. Operation of Station Utilities: The Contractor shall not operate nor disturb the setting of control devices in the station utilities system, including water, sewer, electrical, and steam services. The Government will operate the control devices as required for normal conduct of the work. Notify the Contracting Officer giving reasonable advance notice when such operation is required.

e. Connection to Existing Sanitary Sewer Line: Provide positive verification that the existing line conveys sanitary sewer; verify line is not incorrectly connected to a storm drain.

f. The existing buildings and their contents must be kept secure at all times. Provide temporary closures as required to maintain security as directed by the Contracting Officer.

g. Minimize outage duration for utility cut-overs and tie ins to the maximum extent possible.

1.4 SECURITY REQUIREMENTS

Contract Clause "FAR 52.204-2 Security Requirements and Alternate II," "FAC 5252.236-9301, Special Working Conditions and Entry to Work Area," apply.

1.5 EMERGENCY UNEXPLODED ORDNANCE (UXO) RESPONSE

In the event that UXO, as defined in 40 CFR 260 is encountered during the construction activities that are deemed to be a threat to human health or the environment, Camp Lejeune Military Police and EOD professionals shall be immediately contacted to conduct an emergency response. Additionally, immediately contact the Contracting Officer if UXO is encountered. An evaluation of this scenario and procedures, with contract numbers, shall be included in the Health and Safety Plan (HASP) for the fieldwork.

1.5.1 3R TRAINING

All Contractor personnel performing ground disturbing activities must complete contractor awareness training related to recognizing UXO. This training (3R TRAINING) is available online at: http://www.lejeune.marines.mil/OfficesStaff/EnvironmentalMgmt/TrainingVideo.aspx

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SECTION 01 20 00

PRICE AND PAYMENT PROCEDURES
11/20, CHG 5: 02/25

PART 1 GENERAL

1.1 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.

U.S. ARMY CORPS OF ENGINEERS (USACE)

EP 1110-1-8	(2021) Engineering and Design -- Construction Equipment Ownership and Operating Expense Schedule

1.2 SUBMITTALS

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. Submit the following in accordance with Section 01 33 00.05 22 CONSTRUCTIONSUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Schedule of Prices; G

1.3 SCHEDULE OF PRICES

1.3.1 Data Required

Within 15 calendar days of notice of award, prepare and deliver to the COR a Schedule of Prices (construction Contract) Provide a detailed breakdown of the Contract price, giving quantities for each of the various kinds of work, unit prices, and extended prices. Evenly distribute the costs across the associated construction activities. Contractor overhead and profit including salaries for field office personnel, if applicable, must be proportionately spread over all pay items and not included as individual pay items. Schedule of prices shall be separated by individual building numbers with subtotals for each building.

1.3.2 Payment Schedule Instructions

Payments will not be made until the Schedule of Prices has been submitted to and accepted by the Contracting Officer. For design phase progress payment(s), the Schedule of Prices or Earned Value Report from the Cost Loaded CPM must include detailed design activities and general (summarized) approach for the construction phase(s) of the project. The Schedule of Prices or Earned Value Report must be fully developed with detailed construction line items as design progresses. The complete design and construction Schedule of Prices or Earned Value Report must be submitted and accepted prior to starting construction work.

Additionally, the Schedule of Prices must be separated as follows:

a. Primary Facilities Cost Breakdown:

Defined as work on the primary facilities out to the 5 foot line. Work out to the 5 foot line includes construction encompassed within a theoretical line 5 foot from the face of exterior walls and includes attendant construction, such as pad mounted HVAC cooling equipment, cooling towers, and transformers placed beyond the 5 foot line.

b. Supporting Facilities Cost Breakdown:

Defined as site work, including incidental work, outside the 5 foot line.

1.4 CONTRACT MODIFICATIONS

In conjunction with the Contract Clause DFARS 252.236-7000 Modification Proposals-Price Breakdown, and where actual ownership and operating costs of construction equipment cannot be determined from Contractor accounting records, base equipment use rates upon the applicable provisions of the EP 1110-1-8.

1.5 CONTRACTOR'S INVOICE AND CONTRACT PERFORMANCE STATEMENT

1.5.1 Content of Invoice

Requests for payment will be processed in accordance with the Contract Clause FAR 52.232-27 Prompt Payment for Construction Contracts and FAR 52.232-5 Payments Under Fixed-Price Construction Contracts. Invoices not completed in accordance with contract requirements will be returned to the Contractor for correction of the deficiencies. Include the documents listed below in the requests for payment.

a. The Contractor's invoice, on NAVFAC Form 7300/30 furnished by the Government, showing in summary form, the basis for arriving at the amount of the invoice. Form 7300/30 must include certification by Quality Control (QC) Manager as required by the Contract.

b. The Estimate for Voucher/ Contract Performance Statement on NAVFAC Form 4330/54 furnished by the Government. Use NAVFAC Form 4330, unless otherwise directed by the Contracting Officer, on NAVFAC Contracts when a Monthly Estimate for Voucher is required.

c. Contractor's Monthly Estimate for Voucher and Contractors Certification (NAVFAC Form 4330) with Subcontractor and supplier payment certification. Other documents, including but not limited to, that need to be received prior to processing payment include the following submittals as required. These items are still required monthly even when a pay voucher is not submitted.

d. Monthly Work-hour report.

e. Updated Construction Progress Schedule and tabular reports required by the contract.

f. Contractor Safety Self Evaluation Checklist.

g. Updated submittal register.

h. Solid Waste Disposal Report.

i. Certified payrolls.

j. Updated testing logs.

k. Other supporting documents as requested.

1.5.2 Submission of Invoices

Monthly invoices and supporting forms for work performed through the anniversary award date of the Contract must be submitted to the Contracting Officer within 5 calendar days of the date of invoice. For example, if Contract award date is the 7th of the month, the date of each monthly invoice must be the 7th and the invoice must be submitted by the 12th of the month.

1.6 PAYMENTS TO THE CONTRACTOR

Payments will be made on submission of itemized requests by the Contractor which comply with the requirements of this section, and will be subject to reduction for overpayments or increase for underpayments made on previous payments to the Contractor.

1.6.1 Obligation of Government Payments

The obligation of the Government to make payments required under the provisions of this Contract will, at the discretion of the Contracting Officer, be subject to reductions and suspensions permitted under the FAR and agency regulations including the following in accordance with FAR 32.103 Progress Payments Under Construction Contracts:

a. Reasonable deductions due to defects in material or workmanship;

b. Claims which the Government may have against the Contractor under or in connection with this Contract;

c. Unless otherwise adjusted, repayment to the Government upon demand for overpayments made to the Contractor; and

d. Failure to maintain accurate "as-built" or record drawings in accordance with FAR 52.236.21 and the contract.

e. Failure to submit accurate monthly schedule updates in accordance with the contract.

1.6.2 Payment for Onsite and Offsite Materials

Progress payments may be made to the Contractor for materials delivered on the site, for materials stored off construction sites, or materials that are in transit to the construction sites under the following conditions:

a. FAR 52.232-5(b) Payments Under Fixed Price Construction Contracts.

b. Materials delivered on the site, but not installed, and off-site materials to be considered for progress payment must be major high cost, long lead, special order, or specialty items, not susceptible to deterioration or physical damage in storage or in transit to the construction site. Examples of materials acceptable for payment consideration include, but are not limited to, structural steel,

non-magnetic steel, non-magnetic aggregate, equipment, machinery, large pipe and fittings, precast/prestressed concrete products, plastic lumber (e.g., fender piles/curbs), and high-voltage electrical cable. Materials not acceptable for payment include consumable materials such as nails, fasteners, conduits, gypsum board, glass, insulation, and wall coverings.

c. Provide the Contracting Officer with documentation (e.g., Purchase Orders or Material Contracts) to justify payment for materials in advance of installation. When appropriate, include the Defense Priorities and Allocations System (DFAS) ratings (e.g., DX or DO) on purchase orders or material contracts to ensure timely delivery.

d. Materials to be considered for progress payment prior to installation must be specifically and separately identified in the Contractor's estimates of work submitted for the Contracting Officer's approval in accordance with Schedule of Prices requirement of this Contract. Requests for progress payment consideration for such items must be supported by documents establishing their value (e.g., paid invoices) and that the title requirements of the clause at FAR 52.232-5 Payments Under Fixed-Price Construction Contracts have been met.

e. Ensure materials are adequately insured and protected from theft and exposure. Provide insurance documentation (e.g., Builder's Risk Insurance) which covers the overall value of the materials to be paid in advance of installation.

f. Provide a written consent from the surety company with each payment request for offsite materials.

g. Materials to be considered for progress payments prior to installation must be stored either in Hawaii, Guam, Puerto Rico, or the Continental United States. Other locations are subject to written approval by the Contracting Officer.

h. Materials in transit to the job site or storage site are not acceptable for payment.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SECTION 01 30 00

ADMINISTRATIVE REQUIREMENTS
11/20, CHG 5: 02/25

PART 1 GENERAL

1.1 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.

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1	(2024) Safety -- Safety and Occupational Health (SOH) Requirements

1.2 SUBMITTALS

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. Submit the following in accordance with Section 01 33 00.05 20 CONSTRUCTION SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

View Location Map

Progress and Completion Pictures

Design Submittal Packaging

Performance Assessment Plan (PAP)

1.3 VIEW LOCATION MAP

Submit, prior to or with the first digital photograph submittals, a sketch or drawing indicating the required photographic locations. Update as required if the locations are moved.

1.4 PROGRESS AND COMPLETION PICTURES

Photographically document site conditions prior to start of construction operations. Provide monthly, and within one month of the completion of work, digital photographs, 1600x1200x24 bit true color minimum resolution in JPEG file format showing the sequence and progress of work. Take a minimum of 20 digital photographs each week throughout the entire project from a minimum of ten different viewpoints selected by the Contractor unless otherwise directed by the Contracting Officer. Submit with the monthly invoice two sets of digital photographs, each set on a separate compact disc (CD) or data versatile disc (DVD), cumulative of all photos to date. Indicate photographs demonstrating environmental procedures. Provide photographs for each month in a separate monthly directory and name each file to indicate its location on the view location sketch. Also provide the view location sketch on the CD or DVD as a digital file. Include a date designator in file names. Photographs provided are for unrestricted use by the Government.

1.5 MINIMUM INSURANCE REQUIREMENTS

Provide the minimum insurance coverage required by FAR 28.307-2 Liability, during the entire period of performance under this contract. Provide other insurance coverage as required by State law.

1.6 ELECTRONIC MAIL

a. The Contractor is required to establish and maintain electronic mail (email) capability along with the capability to open various electronic attachments in Microsoft, Adobe Acrobat, and other similar formats.

b. Within 10 days after contract award; the Contractor shall provide the Contracting Officer a single (only one) email address for the ROICC office to send communications related to this contract correspondence. The ROICC office may also use email to notify the Contractor of base access conditions when emergency conditions warrant, such as hurricanes, terrorist threats, etc.

c. Multiple email addresses are not authorized.

d. It is the Contractor's responsibility to make timely distribution of all ROICC email within its own organization, including field office(s).

e. The Contractor shall promptly notify the Contracting Officer, in writing, of any changes to their email address.

1.7 SUPERVISION

1.7.1 Superintendent Qualifications

Provide a project superintendent with a minimum of 10 years experience in construction with at least 5 of those years as a superintendent on projects similar in size and complexity on each project site. The individual must be familiar with the requirements of EM 385-1-1 and have experience in the areas of hazard identification and safety compliance. The individual must be capable of interpreting a critical path schedule and construction drawings. The qualification requirements for the alternate superintendent are the same as for the project superintendent. The Contracting Officer may request proof of the superintendent's qualifications at any point in the project if the performance of the superintendent is in question.

For projects where the superintendent is permitted to also serve as the Quality Control (QC) Manager as established in Section01 45 00 QUALITY CONTROL, the superintendent must have qualifications in accordance with that section.

1.7.2 Minimum Communication Requirements

Have at least one qualified superintendent, or competent alternate, capable of reading, writing, and conversing fluently in the English language, on the job-site at all times during the performance of Contract work. In addition, if a Quality Control (QC) representative is required on the Contract, then that individual must also have fluent English communication skills.

1.7.3 Duties

The project superintendent is primarily responsible for managing subcontractors and coordinating day-to-day production and schedule adherence on the project. The superintendent is required to attend Red Zone meetings, partnering meetings, and quality control meetings. The superintendent or qualified alternative must be on-site at all times during the performance of this contract until the work is completed and accepted.

1.7.4 Non-Compliance Actions

The Project Superintendent is subject to removal by the Contracting Officer for non-compliance with requirements specified in the contract and for failure to manage the project to ensure timely completion. Furthermore, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders is acceptable as the subject of claim for extension of time or excess costs or damages by the Contractor.

1.8 PRECONSTRUCTION MEETING

Upon completion of design and design acceptance by the government, prior to commencing any work at the site, coordinate with the Contracting Officer a time and place to meet for the Preconstruction Meeting. The purpose of this meeting is to discuss and develop a mutual understanding of the administrative requirements of the Contract including but not limited to: daily reporting, invoicing, value engineering, safety, base-access, outage requests, hot work permits, schedule requirements, quality control, schedule of prices or earned value report, shop drawings, submittals, cybersecurity, prosecution of the work, government acceptance, final inspections and contract close-out. Contractor must present and discuss their basic approach to scheduling the construction work and any required phasing.

1.8.1 Attendees

Contractor attendees must include the Project Manager, Superintendent, Site Safety and Health Officer (SSHO), Quality Control Manager and major subcontractors.

1.9 POST AWARD KICKOFF (PAK) MEETING

Immediately after award, coordinate with the Contracting Officer a time and place for the PAK Meeting. The PAK meeting must be held within 35 calendar days after contract award and prior to commencing work. If mutually agreed upon by the Contractor and the Government, the PAK Meeting may be held concurrently with the Design Presentation/Design Development Meeting or Concept Design Workshop (CDW) whichever is required.

1.9.1 PAK Meeting Outcomes

a. Integrate the Contractor and all client representatives into the project team.

b. Achieve consensus from the project team on any issues and concerns

with the Contractor's technical proposal and the User's functional requirements. Confirm the design is within the project budget.

c. Review the administrative requirements of the contract that are critical during the design phase.

d. Establish clear lines of communication and points of contact for Government and Contractor team members.

e. Obtain an acceptable conceptual design including floor and site plans, signed by the client, Contractor and other key team members.

f. Review the project design schedule and design package requirement, design submittal packaging, and preliminary construction schedule in accordance with Section 01 32 17.00 20 COST-LOADED NETWORK ANALYSIS SCHEDULE (NAS). Discuss design milestones and events that will be included in the Quality Control Communication Plan.

g. Establish clear expectations and schedules for facility turnover, providing DD Form 1354 asset management records, eOMSI submittals, Guiding Principle Validation, Third Party Certification (if applicable), and training of Government maintenance personnel.

h. Establish procedure for design packages reviews, Contractor's resolution to comments, and Government's role in review of packages.

i. Establish clear expectations for the Concept Design Workshop as established in UFGS 01 31 19.05 20 CONCEPT DESIGN WORKSHOP (CDW).

1.9.2 PAK Meeting Contractor Attendees

The following Contractor personnel must attend the PAK meeting in person; Project Manager, Project Scheduler, Lead Designer-of-Record (DOR), Design Staff responsible for each architectural/engineering discipline when facility design is discussed, Superintendent, QC Manager, and the DQC Manager and the Commissioning Authority (CA). Optional attendees include: Principal, Assistant Project Manager, major subcontractors and specialized supplemental QC personnel.

1.10 FACILITY TURNOVER PLANNING MEETINGS (Red Zone Meetings)

Meet with the Government to identify strategies to ensure the project is carried to expeditious closure and turnover to the Client. Start planning the turnover process at the Pre-Construction Conference meeting with a discussion of the Red Zone process and convene at regularly scheduled Red Zone Meetings beginning at approximately 75 percent of project completion. Include the following in the facility Turnover effort:

1.10.1 Red Zone Checklist

a. Contracting Officer's Technical Representative (COTR) will provide the Contractor a copy of the Red Zone Checklist template.

b. Prior to 75 percent completion, modify the Red Zone Checklist template by adding or deleting critical activities applicable to the project and assign planned completion dates for each activity. Submit the modified Red Zone Checklist to the Contracting Officer. The Contracting Officer may request additional activities be added to the Red Zone Checklist at any time as necessary.

1.10.2 Meetings

a. Conduct regular Red Zone Meetings beginning at approximately 75 percent project completion, or three to six months prior to Beneficial Occupancy Date (BOD), whichever comes first.

b. The Contracting Officer will establish the frequency of the meetings, which is expected to increase as the project completion draws nearer. At the beginning, Red Zone meetings may be every two weeks then increase to weekly towards the final month of the project.

c. Using the Red Zone Checklist as a Plan of Action and Milestones (POAM) and basis for discussion, review upcoming critical activities and strategies to ensure work is completed on time.

d. During the Red Zone Meetings discuss with the COTR any upcoming activities that require Government involvement.

e. Maintain the Red Zone Checklist by documenting the actual completion dates as work is completed and update the Red Zone Checklist with revised planned completion dates as necessary to match progress. Distribute copies of the current Red Zone Checklist to attendees at each Red Zone Meeting.

1.11 PARTNERING

Contractor shall host the partnering session within 45 calendar days of contract award. To most effectively accomplish this Contract, the Contractor and Government must form a cohesive partnership with the common goal of drawing on the strength of each organization in an effort to achieve a successful project without safety mishaps, conforming to the Contract, within budget and on schedule. The partnering team must consist of personnel from both the Government and Contractor including project level and corporate level leadership positions. Key Personnel from the supported command, end user, NAVFAC, PWD, FEAD/ROICC, Contractor, key subcontractors and the Designer of Record (DOR) (regardless of whether the contract is a design-build or a design-bid-build) are required to participate in the Partnering process.

1.11.1 Facilitated (Formal) Partnering

a. Within 35 calendar days after award and prior to the start of work, host a Formal Partnering session with key personnel from the project team including both Contractor and Government personnel. All costs associated with the Partnering session including the third-party independent Facilitator Consultant, meeting room and other incidental items are the responsibility of the Contractor.

b. Before the Facilitated (Formal) Partnering session, coordinate with the Facilitator all requirements for incidental items (such as audio-visual equipment, easels, flipchart paper, colored markers, note pads, pens/pencils, colored flash cards) and have these items available at the Partnering session. Provide copies of any documents required for distribution to all attendees. Participants will bear their own costs for meals, lodging and transportation associated with Partnering.

c. The Initial Partnering Session must be a duration of one day and be

held at a location off base as agreed to by the Contracting Officer. Partnering session may take place concurrently with the Post-Award Kickoff Meeting.

d. Facilitator must be experienced in conducting corporate Partnering sessions and must be a third-party independent facilitating consultant - not an employee of the Contractor. The Facilitator is responsible for leading all aspects of the Partnering session necessary to achieve the Partnering goal.

e. An outcome of the Partnering session must be an escalation matrix agreed upon by both the Government and Contractor, which identifies key Government and Contractor decision makers by name and anticipated decision durations.

f. Host follow-on Partnering Sessions at three- to six-month intervals or more frequently if needed and lasting generally a half day or less. Attendees need only be those required to resolve current issues. The same Facilitator used in the Initial Partnering session must lead the follow-on sessions unless an alternative is permitted by the Contractor Officer. All costs associated with follow-on Partnering sessions are the responsibility of the Contractor.

1.12 PERFORMANCE ASSESSMENT PLAN (PAP)

The Performance Assessment Plan (PAP) will be used to document design innovation and budget management, provide performance feedback to the Contractor, and as a basis for interim and final evaluations in the Contractor Performance Appraisal Reporting System (CPARS) on-line database.

It is the intent of the Government to establish the PAP based on tangible, measurable indicators of outstanding contractor performance, and on commitments made in the Contractor's proposal. The initial PAP may be found on the NAVFAC Design-Build Request for Proposal website in RFP PART 6 Attachments or on the Whole Building Design Guide at: https://www.wbdg.org/dod/ufgs/ufgs-01-30-00.. Review and finalize the initial PAP during the Partnering Session. During the initial Partnering Session, the Government, the Contractor, the Designer-of-Record, and the Client will establish the PAP. Following the establishment of the PAP, the Contractor will present it, with his input, for update and discussion at projects meetings which discuss project performance. Submit an updated PAP on a monthly basis with the invoice for that period as a minimum.

1.13 MOBILIZATION

Mobilize to the jobsite within 30 calendar days of final site or building design approval. Mobilize is defined as having equipment AND having a physical presence of at least one person from the contractor's team on the jobsite.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SECTION 01 31 19.05 20

CONCEPT DESIGN WORKSHOP (CDW)
02/21

PART 1 GENERAL

1.1 SUMMARY

This document includes post-award requirements for the concept design workshop.

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor Quality Control approval. Submittals with an "S" are for inclusion in the Sustainability eNotebook, in conformance with Section 01 33 29 REQUIREMENTS AND REPORTING. Submit the following in accordance with Section 01 33 00.05 20 CONSTRUCTION SUBMITTAL PROCEDURES and 01 33 10.05 20 DESIGN SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

CDW Facilitator Experience Resume; G

CDW Preliminary Concept Designs; G

CDW Report; G

1.3 CONCEPT DESIGN WORKSHOP (CDW)

Provide a CONCEPT DESIGN WORKSHOP that meets the following requirements:

1.3.1 CDW General Requirements

a. Methodology. Conduct a CDW for this project. This effort will examine programmatic functions, review project requirements, ensure life and operational safety requirements are met, analyze alternate design concepts, expose and resolve project issues, and develop the final conceptual design.

b. Facilitator. Provide a Facilitator who is experienced in conducting Concept Design Workshops. Submit a CDW Facilitator Experience Resume to the Contracting Officer describing experience with facilitation including a minimum of three examples. He or she will be responsible for leading the team in a timely manner, making sure issues are addressed and resolved during the CDW, documenting meetings held throughout the CDW, organizing concept design documents for on-site presentations and endorsement, and providing the Concept Design Workshop Report.

c. Contractor's Design Team. The primary functions of the Design Team will be to investigate, develop and present alternate design solutions. The entire Design Team must participate in all phases of the Concept Design Workshop and assist the Facilitator in developing the Concept Design Workshop Report.

d. Concept Design Workshop Report. Summarize the workshop including the various concepts developed and presented. Include a copy of the signature/endorsement sheet prepared and signed at the end of the on-site CDW.

e. Award Amount. Confirm the final concept is within the contract award amount.

1.3.2 CDW Procedures

a. Preliminary Work.

b. Complete the following prior to the on-site workshop:

(1) Review the contract documents and references explaining the project scope and history.

(2) Prepare and submit, at least 14 days in advance of the CDW, electronic copies of (2) CDW Preliminary Concept Designs and a Basis of Design.

(3) As a minimum, include the following in the CDW Preliminary Concept Design:

(a) Site Plan - 2 concepts
(b) Building Floor Plans - 2 concepts
(c) Building Elevations - 2 concepts
(d) Mechanical Plans - 2 concepts
(e) Electrical Plans - 2 concepts

(4) Make arrangements for and provide an appropriately sized conference room convenient to the project site and Users for use by the Design Team and government participants during the workshop.

(5) Incorporate any government comments received prior to the CDW into a revised Concept #1 and provide at least 20 hard copies of the revised Concept #1 documents for distribution at the workshop. If there are no revisions to the CDW Preliminary Concept Design provide at least 20 hard copies of the original Concept #1 documents for distribution at the workshop.

(6) Facilitator conducts meeting with NAVFAC representatives before the CDW to review preparations, relationships, and the status of work to be accomplished.

c. On-Site Workshop.

d. On-site CDWs are typically conducted over five working days with minimal breaks throughout the workshop. The Design Team can expect longer than normal workdays. Accomplish the following during the on-site CDW.

(1) On the first day of the workshop, meet with the using activity, Station and other Government representatives. The Facilitator will describe the CDW process and review the workshop agenda. The User(s) may provide a functional presentation to review User(s) requirements to aid in further development of the conceptual design.

(2) Present the revised Concept #1 and respond to questions.

(3) Conduct a comment/creative session to generate ideas to improve the conceptual design within the award amount. Document or request User and Government comments in writing so they may be considered, responded to, and presented at subsequent presentations.

(4) Develop a new concept design based on comments and feedback received from the Concept #1 presentation on the first day of the CDW. Include drawings, sketches, and other graphics as necessary to describe the concept design. Prepare at least 20 hard copies for distribution at all presentations.

(5) Repeat applicable steps as necessary. Three concepts are typically required.

(6) The final concept must include the following:

(a) Site Plan: Show the layout of the proposed facility in relation to major landmarks. Show all buildings, access roads, parking, pedestrian walkways, roads, sidewalks, landscaping, and major utilities. Indicate major dimensions and orientation. Provide a building code analysis, relating the proposed building site, size, and construction type to maximum allowable limits of the International Building Code.

(b) Building Floor Plans: Provide floor plans depicting functional utilization of spaces including furniture and equipment layouts. Show room sizes or dimensions. Provide a Life Safety Code analysis with the floor plan to identify required life safety and egress features.

(c) Perspective Sketches: Provide at least one sketch to show a perspective of major buildings. Show the proposed form and massing, construction materials and colors on the sketches.

(d) Mechanical Plans: Provide plans to show the essential work and intent of the design. Include HVAC systems, equipment layouts and locations, zones, etc.

(e) Electrical Plans: Provide plans to show the essential work and intent of the design.

(f) Basis of Design: Describe the intent of the design by discipline. Address material quality, energy efficiency and life cycle costs.

(g) Sustainable Design: Demonstrate ability to achieve identified Guiding Principle sustainability goals and also Third Party Certification sustainability goals, if applicable.

(7) Prepare 20 hard copies of the final concept for distribution at the final presentation.

(8) Submit the Concept Design Workshop Report with all items included in the final concept design and the following:

(a) Endorsements: Include a copy of the signature/endorsement sheet.

(b) Comments: Include comments and resolutions concerning the final concept design.

(c) Executive Summary: Summarize the workshop including the various concepts developed and presented to include detailed costs and detailed scope of all additions and deductions from RFP.

(d) Special Design Features: Identify any special design features, e.g., pile foundations, physical security, intrusion detection systems, access control, etc.

(e) Architectural Compatibility Statement: Identify architectural style, materials, color scheme, and indicate their compatibility with installation planning and design concepts established in the Base Exterior Architectural Plan.

(f) Environmental Summary: Provide a summary identifying any environmental issues, listing completed actions and items requiring further coordination, waivers or permits.

(g) Supporting Project Documentation: Provide backup documentation supporting development of the concept design, layout, and special features. Include project scope discussion, comment/resolution sheets, meeting minutes, function analysis work sheets, and economic and technical analyses if alternatives evaluated.

(9) Except for final comments, responses and endorsements, the final report shall be prepared on site, before the final presentation.

(10) Conduct a comprehensive presentation of the final concept. Obtain user signatures on an endorsement sheet, signifying approval of the final concept design, subject to any final comments and agreed upon resolutions at the final presentation meeting.

(11) Endorsement sheet must include a statement confirming that the final concept is within the contract award amount and performance period.

1.3.3 CDW Report

Within 14 calendar days of completion of the on-site Concept Design Workshop, submit an electronic copy of the Concept Design Workshop Report as one file in .PDF format to the Contracting Officer. Report must include confirmation that the final concept is within the contract award amount and performance period.

1.3.4 CDW Meeting Attendees

The following Contractor personnel must attend the CDW: Project Manager, Lead Designer of Record, Design Staff representing each architectural/engineering/design discipline, Superintendent, QC and DQC Managers, cost estimator, and Major Subcontractors that are agreed to as

necessary and authorized to conclude the CDW.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

-- End of Section --

SECTION 01 31 23.13 20

ELECTRONIC CONSTRUCTION AND FACILITY SUPPORT CONTRACT MANAGEMENT SYSTEM (eCMS)
08/23, CHG 1: 02/24

PART 1 GENERAL

1.1 CONTRACT ADMINISTRATION

Utilize the Naval Facilities Engineering Systems Command's (NAVFAC's) Electronic Construction and Facility Support Contract Management System (eCMS) for the transfer, sharing, and management of electronic technical submittals and documents. The web-based eCMS is the designated means of transferring technical documents between the Contractor and the Government. Paper media or email submission, including originals or copies, of the documents are not permitted unless identified within the contract.

All government contracting specialist/officer, legal, and command communications will remain the same.

1.2 USER PRIVILEGES

The Contractor's key staff may be provided access to eCMS. Contact the COR for eCMS account access. Project roles and system roles will be established to control each user's menu, application, and software privileges, including the ability to create, edit, or delete objects. Additional project roles may be assigned for workflow. The COR makes the final decision on roles for the project. User's ability to view, edit documents may be lowered at the discretion of the COR.

Only one eCMS user account is required regardless of the number of user's projects. Notify the COR within seven calendar days if a contractor user is no longer associated with company or project so they can remove them from any open record and inactivate them from the project.

1.2.1 eCMS Subcontractor Users

If the contractor's user is a subcontractor, the subcontractor must be registered under the name of their company and email. For example it is common for contractors to contract Quality Control Managers. The QC Manager's account should be under their company's name and email reducing the number of eCMS accounts required.

For Design Build, the contractor's Designer of Record Architectural Engineer will be given a single account. Only one account per AE is required. The role of the AE is determined by the project role assigned by the COR. The contractor is to request their AE staff be placed into the AE-KTR-DOR project role.

1.2.2 Users with Multiple Roles

Users may have multiple roles associated with their account within eCMS. Roles are used in workflow. When a user is added to the project, they will be assigned the default role when the user was created. Contact the COR to change or add roles to the user for the project.

1.2.3 Loss of Privilege

Users may lose privilege to access eCMS at the discretion of the Contracting Officer. The eCMS is a collaborative system that allows flexibility of use and does not restrict all inappropriate user actions. User activities are logged into eCMS in visible and background data collection. Users found to use eCMS in an inappropriate action may have their eCMS access revoked. Examples include, but not limited to, fraudulent representations, sharing user accounts with others, and changing approved records without the consent of the COR. Depending on the severity of the infraction, the users can lose eCMS access for a period of time, permanently for the project, or lose eCMS access for any project. The contractor may appeal the suspension in writing to the contracting officer within 14 calendar days of notice. The appeal must identify the infraction, supporting information, and steps to ensure the infraction will not happen in the future.

1.3 SUBMITTALS

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. Submittals not having a "G" or "S" classification are 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 00.05 20 CONSTRUCTION SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

List of Contractor's Personnel; G

For Division 1 government approved Pre-Construction submittals, combine into a single Pre-Construction Submittal Package. Annotated with SD Type of SD-01. Pre-Construction submittal package approval date will be used as a KPI.

1.4 SYSTEM REQUIREMENTS AND CONNECTIVITY

1.4.1 General

NAVFAC eCMS requires a web-browser (platform-neutral) and Internet connection. For best results, recommend using browser in InPrivate/Incognito mode; Internet speeds greater than 40mbps when uploading files, computers with high RAM and Solid State Drives, "White List" eCMS website, Zip or Split files for better uploading. Non-NAVFAC Users are not to use VPN when using eCMS per NAVFAC IT.

The use of eCMS is required by the Contractor and all associated costs and time necessary to utilize eCMS will be borne by the Contractor with no allowance for time extensions and at no additional cost to the government.

1.4.2 Contractor Personnel List

Within 20 calendar days of contract award, provide to the Contracting Officer a list of Contractor's personnel who will have the responsibility for the transfer, sharing and management of electronic design, submittals, RFIs, daily reports, and other files and will require access to the eCMS. Project personnel roles which must be filled as applicable in the eCMS, include, at a minimum, the Contractor's Project Manager (KTR-PM), Designer

of Record (AE-KTR-DOR), Superintendent (KTSUPT), Quality Control (QC) Manager (KTR-QC), Principal (KTR-PRIN), and Site Safety and Health Officer (KTR-SSHO). Notify the COR immediately of any personnel changes to the project. The Contracting Officer reserves the right to perform a security check on all potential users.

Provide the following information:

Company Name

Name (First, Last)

Email Address

Project Role (CQM, SSHO, Superintendent, CM, PM, Principal)

Existing or New eCMS User

1.5 SECURITY CLASSIFICATION

In accordance with Department of Navy guidance, all military construction contract data are unclassified, unless specified otherwise by a properly designated Original Classification Authority (OCA) and in accordance with an established Security Classification Guide (SCG). Refer to the project's OCA when questions arise about the proper classification of information.

In conformance with the Freedom of Information Act (FOIA), DoD INSTRUCTION 5200.48 CONTROLLED UNCLASSIFIED INFORMATION (CUI), and DoD requirements, any unclassified project documentation uploaded into the eCMS must be designated either "U - UNCLASSIFIED" (U) or "CUI - CONTROLLED UNCLASSIFIED INFORMATION" (CUI).NAVFAC eCMS must only be used for the transaction of unclassified information associated with construction projects. Controlled Unclassified Identification (CUI) documents may be loaded into eCMS with the appropriate markings.

1.5.1 Markings on CUI Documents

Contractor's proprietary information, or documents determined by the originator in accordance with CUI guidance, should be marked CUI. Proprietary information not marked CUI can be released under the Freedom of Information Act (FOIA). Apply the appropriate markings before any document is uploaded into eCMS. Markings are not required on Unclassified U documents.

1.6 eCMS UTILIZATION

Establish, maintain, and update data and documentation in the eCMS throughout the duration of the contract. Utilize eCMS to transfer all submittals, RFIs, daily reports, and other files required by contract to be forwarded to the government.

Full eCMS use is required. All Submittals/Information to use eCMS Modules including, but not limited to, RFIs, Daily Reports, Meeting Minutes, Communications, Issues, Punch Lists, Checklists, and Flysheets, unless otherwise directed by the COR or Contracting Officer.

1.6.1 Restricted Information

Personally Identifiable Information (PII) transmittal such as credit card, driver's license, passport, social security, and payroll number are not permitted in eCMS. Name, address, and email are permitted. Pre-negotiation information such as cost estimates that require formal negotiations are not allowed. For example, proposed changes over the SAP level of $250k require formal negotiations. Cost estimates for LEAN, ULTRA LEAN, and Design Changes under the SAP level are at the discretion of the COR's or Contract Specialist/Officer's direction. The eCMS must only be used for the transaction of unclassified information associated with construction projects. Controlled Unclassified Identification (CUI) documents may be loaded into eCMS with the appropriate markings. Uploading of files directly into the Documents folder is not allowed. All documents must be uploaded using an eCMS module.

1.6.2 Naming Convention for Files

Titles of files uploaded are to be descriptive of the purpose and content of the file. For example RFI_ROOF_Leak.doc or for submittals, SUB_LIGHT_FIXTURE.pdf. Titles of file to be uploaded must only contain uppercase letters, lowercase letters, numbers, hyphens (-), underscores (_) and periods (.). Use of any other characters is not allowed and may create an error. When practicable, adding the record number to the title is desired. For example RFI_XYZ12345_ROOF_Leak.doc. Uploading files with the same title will create a new revision in eCMS. Original revision is Rev 0, the first revision is Rev 1. Uploaded files are to use the default file location regardless of the module used unless directed by the COR.

Table 1 also identifies which eCMS application is to be used in the transmittal of data (these are subject to change based on the latest software configuration).

Table 1 - Project Documentation Types

SUBJECT/NAME	REMARKS	eCMS APPLICATION
As-Built Drawings	Locations of sensitive areas must be labeled as either "Controlled Area" or "Restricted Area" and may be shown on unclassified documents with the approval from Site Security Manager	Submittals
Building Information Modeling (BIM)	Locations of sensitive areas must be labeled as either "Controlled Area" or "Restricted Area" and may be shown on unclassified documents with the approval from Site Security Manager	Submittals
Construction Permits	Refer to rules of the issuing activity, state or jurisdiction	Submittals

SUBJECT/NAME	REMARKS	eCMS APPLICATION
Construction Schedules (Activities and Milestones)		Submittals
Construction Schedules		Submittals
Construction Schedules (3-Week Look ahead)	Import the schedule file into the scheduling application, and select "Approve" to establish a new schedule baseline	Meeting Minutes
DD 1354 Transfer of Real Property	When applicable, required for final billing.	Submittals
Daily Production Reports	Provide weather conditions, crew size, man-hours, equipment, and materials information	Daily Report
Daily Quality Control (QC) Reports	Provide QC Phase, Definable Features of Work Identify visitors	Daily Report
Designs and Specifications	Locations of sensitive areas must be labeled as either "Controlled Area" or "Restricted Area" and may be shown on unclassified documents with the approval from Site Security Manager	Submittals
Environmental Notice of Violation (NOV), Corrective Action Plan	Refer to rules of the issuing activity, state or jurisdiction	Submittals
Environmental Protection Plan (EPP)		Submittals
Invoice (Supporting Documentation)	Applies to supporting documentation only. Invoices are submitted in Wide-Area Workflow (WAWF)	Submittals
Jobsite Documentation, Bulletin Board, Labor Laws, SDS	Redact any PII information when loaded into eCMS	Submittals
Meeting Minutes		Meeting Minutes

SUBJECT/NAME	REMARKS	eCMS APPLICATION
Modification Documents	Provide final modification documents for the project. Upload into Modifications RFPs folder	Communications
Operations & Maintenance Support Information (OMSI/eOMSI), Facility Data Worksheet	1. Locations of sensitive areas must be labeled as either "Controlled Area" or "Restricted Area" and may be shown on unclassified documents with the approval from Site Security Manager 2. Design reviews will be performed in existing "Dr Checks"	Submittals
Photographs	Subject to base/installation restrictions	Submittals
QCM Initial Phase Checklists		Meeting Minutes or Checklists
QCM Preparatory Phase Checklists		Meeting Minutes or Checklists
Quality Control Plans		Submittals
QC Certifications		Submittals
QC Punch List		Punch Lists
Red-Zone Checklist		Punch List or Checklists
Rework Items List		Punch Lists
Request for Information (RFI) Post-Award		RFIs
Safety Plan		Submittals
Safety - Activity Hazard Analyses (AHA)		Submittals
Safety - Mishap Reports		Daily Report

SUBJECT/NAME	REMARKS	eCMS APPLICATION
Shop Drawings	Locations of sensitive areas must be labeled as either "Controlled Area" or "Restricted Area" and may be shown on unclassified documents with the approval from Site Security Manager	Submittals
Storm Water Pollution Prevention (Notice of Intent - Notice of Termination)	Refer to rules of the issuing activity, state or jurisdiction	Submittals
Submittals and Submittal Register		Submittals
Testing Plans, Logs, and Reports		Submittals
Training/Reference Materials		Submittals
Training Records (Personnel)	Redact any PII information if storing in eCMS	Submittals
Utility Outage/Tie-In Request/Approval		Submittals
Warranties/BOD Letter		Submittals
Quality Assurance Reports		Checklists (Government initiated)
Non-Compliance Notices		Non-Compliance Notices (Government initiated)
Other Government-prepared documents		GOV ONLY
Letters to government contracting, claims, REAs, and other contracting officer communications	eCMS is not the primary tool to use in contracting officer communications. eCMS can only store documents or letters after the submission to the contracting officer is made.	Communications

SUBJECT/NAME	REMARKS	eCMS APPLICATION
All Othere Documents	Refer to FOIA guidelines and contact the FOIA official to determine whether exemptions exist	As applicable

1.6.3 RFIs Module

Create contractor RFIs using eCMS RFIs module. The contractor must confirm the numbering convention with the COR if different than eCMS default.

If the government (GOV) Response has "No" Cost or Schedule Impact, this reply is given with the expressed understanding that it does not constitute a basis for any change in the amount or time of subject contract. Information provided in this response does not authorize work not currently included in the contract. If GOV Response is "Yes" or "Potentially" then this response may require a change to the contract. If the contractor disagrees with either the government's No Cost determination or No Schedule impact determination, or both, the contractor has 14 calendar days to notify the COR and Contracting Officer in writing.

1.6.4 Submittals Module

Create contractor submittals using eCMS Submittals module. The contractor must confirm the numbering convention with the COR if different than eCMS default.

1.6.5 Submittal Packages Module

Create submittal packages using the eCMS Submittal Packages module in lieu of or in addition to Related Objects. Submittal Packages track completion of the packaged submittals and is used in NAVFAC HQ's KPIs. Submittal packages are defined as internal submittals approved by Designer of Records and external submittals approved by the government.

1.6.6 Communications Module

Create communications using the eCMS Communications module. The Communications module is used to create or document communications that are not a part of other eCMS modules. Use of Communications module will memorialize information into an eCMS record file. The following are Types of Communications:

Email

Memo to File

Face to Face

Telephone

Web Collaboration

Photos

Other Documents

Other

Unless directed by the COR, upload documents or files that do not have a corresponding eCMS module. Choose "Photos" Type for Photos and "Other Documents" for all other documents.

1.6.7 Issues Module

Create or respond to issues using the eCMS Issues module. Respond to CPARS issues using the Issues module.

1.6.8 Meeting Minutes Module

Create or respond to Meeting Minutes using the eCMS Meetings module.

Document required contractual meetings. Dates of meetings are used in NAVFAC KPIs. Minimum meetings in eCMS include the following:

Post Award Kickoff (PAK)

Pre-construction (Pre Con)

Initial and Preparatory Three Phases of Control

Quality Control (QC)

1.6.9 Potential Change Items Module

Not used.

1.6.10 Daily Report Module

Create Daily Reports using the eCMS Daily Report Module. The contractor must confirm the numbering convention with the COR if different than eCMS default.

1.6.11 Punchlists Testing Logs (Legacy)

Punchlist Testing Logs is a legacy program that is being replaced by the Punch Lists Module. This module is to be used for reference of past projects. Use the Punch Lists Module for all future work.

1.6.12 Punch Lists Module

The eCMS Punch Lists module is useful more than just for Punchlists. The module includes the capability of batch editing, create items from Optical Character Recognition (OCR) plans, assign tasks and track completion of individual items.

Create the following using the Punch Lists module:

Rework Items List

DFOW List

Punch-Out Inspection

Pre-Final Punchlist Inspection

Final Punchlist Inspection

Testing Logs

1.6.13 FWD UltraLean COAR RFP Module

Not used.

1.6.14 Non-Compliance Notices (NCN) Module

Respond to Non-Compliance Notices listed in the Non-Compliance Notices module.

1.6.15 Checklists

Use Checklist listed in the contractor's eCMS menu and as directed by the COR. Checklists capture data and is used in dashboards and KPIs.

1.6.15.1 Partnering Team Health Survey Checklist

Contractor must use the eCMS checklist to document the partnering team health survey. Partnering Team Health Survey is in accordance with the Partnering Specification of this contract.

1.6.16 Flysheets

Use Flysheets listed in the contractor's eCMS menu, if available, and as directed by the COR. Flysheets allow the contractor to print out information from other systems and upload into eCMS. The eCMS will use OCR to capture the information as data. Flysheets capture data and used in dashboards and KPIs.

1.6.17 eCMS Outage

In the case where eCMS is unavailable for 8 hours or more, paper or email may be used in the interim to maintain project schedule.

Once the system is operational, all final records are required to be recreated using the appropriate module. Subject/title of the record to include the type of record i.e., RFI/Submittal/Daily Report/Communication/Other, the identification number(s), and the statement "Processed Outside of eCMS". Example, "RFI 001 Processed Outside of eCMS".

1.6.18 User Account Activity

NAVFAC eCMS captures user data and activities that are directly related to the user's account. The user agrees through the use of eCMS, their account activities will be captured and can be displayed on eCMS printed reports.

1.7 QUALITY ASSURANCE

Requested Government response dates on Submittals must be in accordance with the terms and conditions of the Contract unless previously agreed by the COR. Requesting response dates earlier than the required review and

response time, without concurrence by the Government COR, may be cause for rejection.

Incomplete submittals will be rejected without further review and must be resubmitted. Required Government response dates for resubmittals must reflect the date of resubmittal, not the original submittal date.

All submittals and associated attachments must be transmitted to the Government via the COR. Transmittals are no longer required when using eCMS since approval status is tracked on the submittal. Transmittal forms can be attached to submittals if approved by the COR. Submittals requiring government approval are "Transmitted For" "Approval". Submittals requiring contractor approved submittals, including those designated for Contractor Quality Control approval or Information Only, are "*Transmitted For" "Information Only" in the Submittal Module. Provide and sign the QC certification or approving statement on the attachment per submittal specification section. When Submittal Packages are required, use eCMS Submittal Packages after creating individual submittals. Importing Submittals from the Submittal Register is optional. Contact the COR for the data conversion requirements.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SECTION 01 32 17.00 20

COST-LOADED NETWORK ANALYSIS SCHEDULES (NAS)
05/25

PART 1 GENERAL

1.1 DEFINITIONS

The cost-loaded Network Analysis Schedule (NAS) is a tool to manage the project, both for Contractor and Government activities. The NAS is also used to report progress, evaluate time extensions, and provide the basis for progress payments.

For consistency, when scheduling software terminology is used in this section, the terms in Oracle Primavera's scheduling programs are used.

1.2 NAS REQUIREMENTS PRIOR TO THE START OF WORK

1.2.1 Preliminary Scheduling Meeting

Before preparation of the Baseline NAS, and prior to the start of work, meet with the Contracting Officer to discuss the proposed NAS and the requirements of this section. Propose projected data dates for monthly update NAS for the project and incorporate each monthly update submittal into the submittal register. Discuss required forms, terminology, and submittal requirements of this section and other requirements related to schedule management for this contract. Use the NAVFAC-provided Preliminary Scheduling Meeting Guideline in the completion of the intended mutual understanding.

1.2.2 Baseline NAS

Submit the Baseline NAS within 30 calendar days after contract award. Data date must be set to contract award date and no progress recorded for any activity. Only bonds and the required Preliminary Scheduling Meeting may be recorded as complete prior to acceptance of the Baseline NAS. The acceptance of a Baseline NAS is a condition precedent to:

a. The Contractor starting demolition work or construction stage(s) of the contract.

b. Processing Contractor's invoices(s) for any items other than bonds.

c. Review of any NAS updates. The contractor is still required to submit monthly NAS updates. Without an accepted baseline NAS, the Government may return Monthly NAS update as received for record.

Submittal of the Baseline NAS is the Contractor's certification that the submitted NAS meets the requirements of the Contract Documents and represents the Contractor's plan on how the work will be accomplished. Provide all items listed in paragraph REQUIRED TABULAR REPORTS AND NATIVE P6 XER FILES with baseline NAS submittal.

1.2.3 Baseline NAS

1.2.3.1 Baseline NAS

Submit the Baseline NAS at the Post-Award Kickoff (PAK) Meeting or within 30 calendar days after contract award whichever occurs first. The Baseline NAS must include detailed design activities and a general approach to construction, including summary activities for required phasing and definable areas. Summary Construction activities must not exceed duration of 60 calendar days, unless approved otherwise by Contracting Officer. Data date must be set to contract award date and no progress recorded for any activity.

Only bonds and the required Preliminary Scheduling Meeting may be recorded as complete prior to acceptance of the Baseline NAS. The acceptance of a Baseline NAS is a condition precedent to:

a. The Contractor submitting the first design submittal.

b. Processing Contractor's invoices(s)other than that for the bonds.

1.2.3.2 Post-Award Kickoff (PAK) Meeting and Baseline NAS

Present the Baseline NAS at the PAK Meeting. Be prepared to discuss the NAS logic emphasizing how the NAS satisfies the design package requirements and incorporates the required government review periods for each design submittal.

1.2.3.3 Construction Baseline NAS

Submit the detailed Construction Baseline NAS prior to the pre-final design submittal. The pre-final design submittal will not be reviewed until a Construction Baseline NAS is submitted.

The acceptance of the Construction Baseline NAS is a condition precedent to:

a. The contractor starting demolition work or construction stage(s) of the contract.

b. Processing Contractor's invoices for demolition or construction activities.

c. Review of any construction phase NAS updates.

Submittal of the Construction Baseline NAS must be the Contractor's certification that the submitted NAS meets the requirements of the Contract Documents, and represents the Contractor's plan on how the work will be accomplished. Provide all items listed in paragraph REQUIRED TABULAR REPORTS AND NATIVE P6 XER FILES with baseline NAS submittal.

1.3 WEEKLY LOOK AHEAD SCHEDULE

1.3.1 Quality Control and Production Integration with NAS

Submit the first Look Ahead Schedule 30 days after contract award and continue to submit weekly until contract completion.

Transmit the Weekly Look Ahead Schedule Submittal to the Contracting

Officer on the first day of the current week that the Look Ahead Schedule covers and at least one working day prior to any Quality Control meetings. Contractor is required to provide all attendees at meetings with a copy of the Look Ahead Schedule. A Look Ahead Schedule is required to be submitted weekly regardless of whether a meeting is held or not.

1.3.2 Weekly Look Ahead Schedule Requirements

Prepare and issue a Four-Week Look Ahead Schedule to provide a more detailed day-to-day plan of upcoming work identified on the current Network Analysis Schedule. Requirements include:

a. For each Look Ahead Schedule activity, identify parent NAS activity number(s). The parent NAS activity is the activity in the NAS that would incorporate the Look Ahead Schedule activity requirement and scope of work.

b. Update schedule each week to show the planned work for the following four-week period. Also include previous week, as-built work, showing actual start and finish dates.

c. Include upcoming outages, closures, preparatory meetings, and initial meetings, testing and inspections.

d. Identify any offsite fabrication and production activities.

e. Clearly identify Longest Path activities on the Weekly Look Ahead Schedule. Include a key or legend that distinguishes longest path activities. Include all Longest Path activity NAS start/finish dates exceeded and occurring during this period.

f. Identify responsibility for each activity.

g. The detail work plans are to be bar chart type schedules, derived from but maintained separately from the Project NAS on an electronic spreadsheet program and printed on 11 by 17 inch sheets as directed by the Contracting Officer.

h. Activities must not exceed 5 working days in duration and have sufficient level of detail to assign crews, tools and equipment required to complete the work.

i. For design-build: Identify any design production and quality control activities, meetings, and charrettes.

j. Look Ahead activities are not limited to only onsite work. Include submittal, offsite fabrication, and procurement activities. Include design activities, meetings, and coordination when part of scope.

k. Upload the Weekly Look Ahead Schedules to eCMS as a submittal by the date and time required.

1.4 MONTHLY NETWORK ANALYSIS

Submittal of Monthly NAS is the Contractor's certification that the submitted NAS meets the requirements of the Contract Documents and represents the Contractor's plan on how the work will be accomplished. Provide all items listed in paragraph REQUIRED TABULAR REPORTS AND NATIVE P6 XER FILES with the monthly NAS submittal.

1.4.1 Monthly Update Meeting

Meet with Government representative(s) at monthly intervals to review and agree on the information presented in the Monthly NAS Update. The Monthly Update Meeting must be a separate and distinct meeting from other meetings required of the contract. As a minimum, accomplish the following with each meeting held monthly:

a. Prior to the meeting, provide an agenda of proposed topics to be discussed to include but not limited to narrative report and items listed in paragraph REQUIRED TABULAR REPORTS. Document agenda and minutes with Meeting Minutes object in eCMS for each monthly update meeting.

b. The Approved Designated Project Scheduler must present the NAS data using Oracle Primavera P6 software and have baseline NAS, monthly update NAS, and Time Impact Analysis native files available to review as necessary.

c. Review Time Impact Analysis.

d. Document action items in eCMS Meeting Minutes for necessary revisions to Monthly NAS Update and to address any delays and or problem areas in a timely manner.

1.4.2 Monthly NAS Updates

a. The submission of an accepted, updated NAS to the Government is a condition precedent to the processing of the Contractor's invoice.

b. Regardless of whether an invoice is being submitted monthly, or no project progress occurred, an updated NAS (or with new data date) must be submitted monthly to the Government. The Monthly NAS update must be submitted within 5 calendar days of the data date.

c. Regardless of whether a baseline or other NAS is submitted and accepted, an updated NAS must be submitted monthly to the Government. Monthly updates submitted before the baseline being accepted may be returned as received for record.

d. Provide all items listed in paragraph REQUIRED TABULAR REPORTS AND NATIVE P6 XER FILES, with each monthly NAS update submittal.

e. Activity progress must incorporate as-built events as they occurred and correspond to records including but not limited to submittals and daily production and quality control reports.

f. Software Settings: Handle NAS calculations through Retained Logic, not Progress Override. Out of Sequence progress is not allowed. Relationships must be changed to reflect as-built relationships. Show all activity durations and float values in days. Show activity progress using Remaining Duration. Set default activity type to "Task Dependent".

g. Updated NAS must reflect current Contract Completion Date and contract value in accordance with all conformed contract modifications issued prior to data date of NAS update.

1.4.3 As-Built NAS

As a condition precedent to the release of retention and making final payment, submit an "As-Built NAS," as the last NAS update showing all activities at 100 percent completion. This NAS must reflect the exact manner in which the project was actually constructed.

1.5 CORRESPONDENCE AND TEST REPORTS

Reference NAS Activity IDs that are being addressed in each correspondence (e.g., letters, Submittals, Requests for Information (RFIs), e-mails, meeting minute items, Production and QC Daily Reports, material delivery tickets, photographs) and test report (e.g., concrete, soil compaction, weld, pressure).

1.6 ADDITIONAL NETWORK ANALYSIS SCHEDULE REQUIREMENTS

Other specification sections may include additional NAS related requirements, including systems to be inspected, tested and commissioned, and submittal procedures. Those requirements must be incorporated into the NAS.

1.7 SUBMITTALS

Government approval/acceptance is required for submittals with a "G" or "S" classification. Submittals not having a "G" or "S" classification are for Contractor Quality Control approval. Submittals not having a "G" or "S" classification are 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 00.05 20 CONSTRUCTION SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Baseline NAS; G

Construction Baseline NAS; G

Designated Project Scheduler; G

SD-07 Certificates

Weekly Look Ahead Schedule

Monthly NAS Updates; G

SD-11 Closeout Submittals

As-Built NAS; G

1.8 SOFTWARE

Prepare and maintain project NAS using Oracle Primavera P6 software in a version compatible with Government's current version. Submit XER files exported as version 17 or earlier. Importing data into P6 using data conversion techniques or third party software is cause for rejection of the submitted NAS. NAS with Performing Organizational Breakdown Structure (POBS) data in any form other than column is cause for rejection. NAS must be scheduled by using the Schedule command after last entry in Oracle

Primavera P6 prior to export for submission to the Government.

1.9 DESIGNATED PROJECT SCHEDULER

Within 30 calendar days of contract award, submit to the Contracting Officer for approval an individual who will serve as the Designated Project Scheduler. Include a copy of the candidate's resume with qualifications. The Designated Project Scheduler is subject to removal by the Contracting Officer for non-compliance with the requirements specified in the Contract. Payment request will not be processed without an approved Designated Project Scheduler.

1.9.1 Qualifications

The Designated Project Scheduler must have served as a scheduler and prepared and maintained at least three previous NAS for projects, at least one within the last 5 years of similar size and complexity to this contract, using Oracle Primavera P6.

1.9.2 Duties

Duties of the Designated Project Scheduler include to be actively involved and be responsible for the following:

a. Prepare Baseline NAS.

b. Prepare monthly NAS updates.

c. Prepare tabular reports.

d. Prepare Time Impact Analysis (TIA) as necessary.

e. Provide certification of contract compliance for each NAS and TIA submittal transmitted to government for review.

f. Participate with the Prime Contractor and Government Representative in a monthly teleconference call, and scheduled with sufficient time to support the Monthly Network Analysis Updates process, to discuss project status, NAS updates, critical activities, potential delays, and contract modifications impacting any project progress. Have a computer with P6 software available during the meeting.

1.10 NETWORK SYSTEM FORMAT

Prepare the NAS in accordance with the following Primavera P6 settings and parameters. Deviation from these settings and parameters, without prior consent of the Contracting Officer, is cause for rejection of NAS submittal.

1.10.1 NAS Activity Properties and Level of Detail

1.10.1.1 Activity Identification and Organization

a. Identify design and construction activities planned for the project and other activities that could impact project completion if delayed in the NAS.

b. Each activity must have a unique name.

c. Identify administrative type activity/milestones, including all pre-construction submittal and permit requirements prior to demolition or construction stage.

d. Include durations for procurement, Contractor quality control, acceptance testing and training in the NAS.

e. Include the Government approval time required for the submittals that require Government Approval, as indicated in Section 01 33 00.05 22 CONSTRUCTION SUBMITTAL PROCEDURES Section 01 33 10.05 20 DESIGN SUBMITTAL PROCEDURES.

f. Create separate activities for each Phase, Area, Floor Level and Location the activity is occurring.

g. Do not use activities to represent non-work type reference (e.g., Serial Letter, Request for Information) in NAS. When RFIs need to be included in NAS, identify Non-work reference with use of added Activity codes (e.g, RFI code, Serial Letter Code). Document use of added activity codes in narrative report.

Activity categories included in the NAS are specified below.

1.10.1.2 Activity Logic

a. With the exception of the Contract Award and Contract Completion Date (CCD) milestone activities, activity must not be open-ended; each activity must have at least one predecessor and at least one successor.

b. Activities must not have open start or open finish (dangling) logic.

c. Do not use lead or lag logic without Contracting Officer prior approval. Request for approval must be submitted at the required Preliminary Scheduling Meeting for use in the Baseline NAS and at the required Monthly Network Analysis Update Meeting for use in a monthly updated NAS.

d. Minimize redundant logic ties.

e. Once an activity exists on the NAS it must not be deleted or renamed to change the scope of the activity and must not be removed from the NAS logic without approval from the Contracting Officer. Request for approval must be submitted with the required Monthly NAS Update Narrative.

f. While an activity cannot be deleted, where said activity is no longer applicable to the NAS, but must remain within the logic stream for historical record, change the activity original and remaining duration to zero and clearly label "(NO LONGER REQUIRED)" after the Activity Name.

(1) Document any such change in the activities' "Notebook," including a date and explanation for the change.

(2) The ID number for a "NO LONGER REQUIRED" activity must not be re-used for another activity.

g. No activity can be added to the NAS without the prior approval from

the Contracting Officer. Request for approval must be submitted at the required Monthly Network Analysis Update Narrative for use in a monthly updated NAS.

h. Activity Type for all activities except for milestones must be set to "Task Dependent". "Level of Effort" Activity Type is not allowed.

i. Duration Type for all activities except for milestones must be set to "Fixed Duration & Units".

j. Percent Complete Type for all activities including milestones must be set to "Physical".

1.10.1.3 Longest Path Activity Baseline Limitation

For P6 settings, critical activities are defined as being on the Longest Path. Longest Path (Critical) Activities must not make up more than 30 percent of all activity within the Construction Baseline NAS.

1.10.1.4 Assigned Calendars

All NAS activity must be assigned calendars that reflect required and anticipated non-work days.

Total work hours/day for all defined calendars is set to 8.

1.10.1.5 Activity Categories

1.10.1.5.1 Design Activities

Design activities must include design decision points and design submittal packages, including critical path submittals for Fast Tracked Phases. Review times for design development packages must be included in the NAS. Refer to Section 01 33 10.05 20 DESIGN SUBMITTAL PROCEDURES, for specific requirements.

1.10.1.5.2 Pre-construction Activities

Examples of pre-construction activities include, but are not limited to, bond approval, permits, pre-construction submittals and approvals. Include pre-construction activities that are required to be completed prior to the Contractor starting the demolition or construction stage of work.

1.10.1.5.3 Procurement Activities

Include activities necessary to manage the ordering, fabrication, and delivery of material and equipment. Procurement activities must not have a duration in excess of 60 calendar days without prior approval by the Contracting Officer. Include within sequence of off-site assembly and fabrication any quality control and testing being performed.

Examples of procurement activities include, but are not limited to: Material/equipment submittal preparation, submittal and approval of material/equipment; material/equipment fabrication and delivery, and material/equipment on-site. As a minimum, separate procurement activities must be provided for critical items, long lead items, items requiring Government approval and material/equipment procurement for which payment will be requested in advance of installation. Show each delivery with

relationship tie to the Construction Activity specifically for the delivery.

1.10.1.5.4 Government Activities

Government and other agency activities that could impact progress must be clearly identified. Government activities include, but are not limited to; Government approved submittal reviews, Government conducted inspections/tests, environmental permit approvals by State regulators, utility outages, Design Start, Construction Start (including Design/Construction Start for each Fast-Track Phase, and delivery of Government Furnished Material/Equipment.

1.10.1.5.5 Construction Quality Management (CQM) Activities

The Preparatory and Initial Phase meetings for each Definable Feature of Work identified in the Contractor's Quality Control Plan must be included in the Weekly Look Ahead Schedules. Preparatory and Initial phase meetings are not required in the NAS, but can be represented by a start milestone linked to successor parent Construction Activity. The Follow-up Phase must be represented by the Construction Activities themselves in the NAS.

1.10.1.5.6 Construction Activities

On-site construction activities that are the responsibility of the Contractor or Contractor's subcontractors must not have a duration in excess of 20 working days without prior approval by the Contracting Officer. Contractor activities must be driven by calendars that reflect Saturdays, Sundays and all Federal Holidays as non-work days, unless otherwise defined in this contract. Federal Holidays are as defined in Federal Law 5 USC 6103.

1.10.1.5.7 Turnover and Closeout Activities

Include activities or milestones for items on the NAVFAC Red Zone Checklist/POAM that are applicable to this project. As a minimum, include required Contractor testing, required Government acceptance inspections on equipment, Pre-Final Inspection, Punch List Completion, Final Inspection and Acceptance. Add an unconstrained start milestone for the initial NAVFAC Red Zone - Facility Turnover Planning Meeting at approximately 75 percent construction contract completion or six months prior to Contract Completion Date (CCD), whichever is sooner. Include a separate NAVFAC Red Zone - Facility Turnover Planning Meeting Milestone for each phase if the contract requires construction to be completed in phases.

1.10.1.5.8 Testing of HVAC - DALT, TAB, and PVT Activities

Include in the baseline NAS and subsequent updates, activities and milestones associated with Government acceptance of HVAC and Domestic Hot Water Recirculating Systems’ Duct Air Leakage Test (DALT), Testing, Adjusting, and Balancing (TAB) and Performance Verification Test (PVT) as required and in accordance with Section 23 05 93 TESTING, ADJUSTING AND BALANCING FOR HVAC and Section 23 09 00 INSTRUMENTATION AND CONTROL FOR HVAC.

a. Identify the general area or location(s) for Government Acceptance Testing of DALT, TAB and PVT.

b. Incorporate into the baseline NAS, time periods required for advance notification of work and Government submittal review in accordance with Section 01 33 00.05 20 CONSTRUCTION SUBMITTAL PROCEDURES, Section 23 05 93 TESTING, ADJUSTING AND BALANCING FOR HVAC, paragraph SEQUENCING AND SCHEDULING and Section 23 09 00 INSTRUMENTATION AND CONTROL FOR HVAC, paragraph PROJECT SEQUENCING.

c. Include the following, for each building as NAS activities or milestones:

(1) Pre-DALT/TAB/PVT Meeting

(2) Design Review Report, Government review

(3) TAB Pre-Field Engineering Plan, Government review

(4) DALT Field Work

(5) Pre-Final DALT Report(s), Government review

(6) DALT Field Acceptance Testing

(7) Certified Final DALT Report, Government review

(8) Start-Up Testing

(9) Start-Up Testing Report, Government review

(10) Draft As-Built Drawings, Government review

(11) Control Contractors PVT Plan, Government review

(12) Equipment Suppliers PVT Plan, Government review

(13) Proportional Balancing TAB Field Work

(14) Certified TAB Report of Proportional Balancing, Government review

(15) Endurance Testing, Government review

(16) PVT Field Work

(17) Proportional Balancing TAB Field Acceptance Testing

(18) Season 1 TAB Field Work

(19) Certified TAB Report of Season 1, Government review

(20) Season 1 TAB Field Acceptance Testing

(21) PVT Report, Government review

d. Include in the baseline schedule, the following cost-loaded activities. These activities will be successors to the Substantial Completion Milestone and predecessors to the Project Completion Milestone as defined in paragraph PROJECT COMPLETION MILESTONE.

(1) Post-Occupancy Endurance Testing, Government review

(2) Post-Occupancy PVT Field Work

(3) Season 2 TAB Field Work

(4) Certified TAB Report of Season 2, Government review

(5) Season 2 TAB Field Acceptance Testing

(6) Final PVT Report, Government review

1.10.1.5.9 Commissioning Activities

Include in the baseline NAS activities and milestones associated with Commissioning.

a. Identify the general area or location(s) of systems for Commissioning Inspection and Testing

b. Incorporate into the baseline NAS time periods for Government submittal review

1.10.1.6 Contract Milestones and Constraints

1.10.1.6.1 Project Start Date Milestones

Include as the first activity on the NAS a start milestone titled, "Contract Award", which must have a Mandatory Start constraint equal to the Contract Award Date.

1.10.1.6.1.1 Design Phase Completion Milestone

Include an unconstrained finish milestone on the NAS titled, "Design Phase Completion". Design Phase Completion is defined as the point in time when all design requirements are complete and approved. Duration for Government review and approval must be included as predecessor activities to Design Phase Completion.

1.10.1.6.1.2 Post-Award Kickoff (PAK) meeting Milestone

Include an unconstrained finish milestone on the NAS titled, "Post-Award Kickoff Meeting". The Post Award Kickoff Meeting may be a single day, or it may range over several days. The intent is to cover all PAK topics, including Partnering and Concept Design Workshop (if required) in one continuous session.

1.10.1.6.2 Pre-Construction Meeting Milestone

Include an unconstrained finish milestone on the NAS titled, "Pre-Construction Meeting". The Pre-Construction meeting may be a single day, or it may range over several days. The intent to cover all the Pre-Con topics, including Partnering and DD1354.

1.10.1.6.3 Preconstruction Submittals Finish Milestone

Include an unconstrained finish milestone on the NAS titled, "Preconstruction Submittals". This milestone is complete when all required preconstruction submittals have been reviewed and approved by the Government.

1.10.1.6.4 Contractor Mobilization Finish Milestone

Include an unconstrained finish milestone on the NAS titled, "Contractor Mobilization".

1.10.1.6.5 NAVFAC Red Zone - Facility Turnover Planning Meeting Milestones

See paragraph TURNOVER AND CLOSEOUT ACTIVITIES above.

1.10.1.6.6 Substantial Completion Milestone

Include an unconstrained finish milestone on the NAS titled "Substantial Completion." Substantial Completion is defined as the point in time the Government would consider the project ready for beneficial occupancy wherein by mutual agreement of the Government and Contractor, Government use of the facility is allowed while construction access continues in order to complete remaining items (e.g., punch list and other close out submittals). Include a separate Substantial Completion Milestone for each phase if the contract requires construction to be completed in phases.

1.10.1.6.7 DD-1354 Finish Milestone

Add unconstrained finish milestone, titled "DD-1354" and scheduled 30 calendar days prior to Substantial Completion, whenever a Form DD-1354 is required in accordance with Section 01 20 00 PRICE AND PAYMENT PROCEDURES. Include a separate DD-1354 Finish Milestone for each phase if the contract requires construction to be completed in phases.

1.10.1.6.8 Project Completion Milestone

Include an unconstrained finish milestone on the NAS titled "Project Completion." Project Completion is defined as the point in time all contract requirements are complete and verified by the Government with a successful Final Inspection in accordance with Section 01 45 00 QUALITY CONTROL. This milestone must have the Contract Completion Date (CCD) milestone as its only successor.

1.10.1.6.9 Contract Completion Date (CCD) Milestone

Last NAS entry must be an unconstrained finish milestone titled "Contract Completion (CCD: DD-MM-YY)." DD-MM-YYYY is the current contract completion date at data date, day-month-year corresponding to P6 Must Finish By Date. NAS milestone updates of Project Completion finish date for longest path must reflect calculated float as positive or negative based on CCD. Calculation of NAS updates must be such that if the finish of the "Project Completion" milestone falls after the contract completion date, then negative float is calculated on the longest path. If the finish of the "Project Completion" milestone falls before the contract completion date, the float calculation must reflect positive float on the longest path.

1.10.1.6.10 Additional Milestones

Provide up to five additional milestones as required by Contracting Officer.

1.10.1.7 Work Breakdown Structure & Activity Code

At a minimum, establish a Work Breakdown Structure (WBS) and provide

activity codes identified as follows:

1.10.1.7.1 Work Breakdown Structure (WBS)

Group all activities and milestones within appropriate WBS elements/levels including, at a minimum, the following:

a. Project Milestones:

(1) Management Milestones

(2) Project Administrative Meetings

(3) Permits

(4) Design Phase

(5) Design Submittals and Reviews Milestones

b. Pre-Construction Phase:

(1) Submittals and Reviews

(2) Procurement

(3) Mobilization

c. Construction Phase: Create multiple elements/levels in accordance with project specific definable features of work including in WBS descending order as follows:

(1) General Area

(a) Type of Work Item

1. Location

d. Project Closeout: Include activity items such as, but not limited to, Punchlist, Demobilization, O&M, As-built Drawings, Training, and As-built NAS.

e. Modifications: Create Conformed and Non-Conformed elements/levels under Modification WBS. Create multiple elements/levels as the project progresses identified by issue and Fragnet placed in Conformed for modifications issued prior data date, or Non-Conformed for issues not modified to contract prior data date.

f. Removed Activity: Activity is "removed" by remaining within logic sequence, eliminating duration and adding "(NO LONGER REQUIRED)" after Activity Name in Activity Table.

g. Commissioning & Testing:

(1) Specific area/locations of commissioning

(2) Final Testing

(3) Training

1.10.1.7.2 Responsibility Code

Use "RESP" for Activity Code Name. All activities in the project NAS must be identified with the resource, including business name, for completing the task. Activities must not belong to more than one responsible party.

1.10.1.7.3 Activity Category Code

Use "CAT" for Activity Code Name for the following Project Level activity codes:

a. Assign "PROC" value to Procurement type activity

b. Assign "PRE-CON" value to Pre-construction activity

c. Assign "CONS" value to Construction type activity

d. Assign "TEST" value to dedicated testing type activities

e. Assign "CX" value to dedicated Commissioning type activities

f. Assign "CLOS" value to dedicated Close Out type activity

g. Assign "OTHR" to other activity not otherwise designated

h. Assign "DSGN" value to Design type activity

1.10.1.7.4 Additional Activity Codes

Provide up to an additional five activity codes as required by the Contracting Officer

1.10.1.8 Adverse Weather Lost Work Days

Use the National Oceanic and Atmospheric Administration's (NOAA) Summary of Monthly Normals report to obtain the historical average number of days each month with precipitation, using a nominal 30-year, greater than 0.10 inch precipitation amount parameter, as indicated on the Station Report for the NOAA location closest to the project site as the basis for establishing a "Weather Calendar" showing the number of anticipated non-workdays for each month due to adverse weather, in addition to Saturdays, Sundays and all Federal Holidays as non-work days.

Assign the Weather Calendar to any activity that could be impacted by adverse weather. The Contracting Officer will issue a modification in accordance with the contract clauses, giving the Contractor a time only extension for the difference of days between the anticipated and actual adverse weather delay if the number of actual adverse weather delay days exceeds the number of days anticipated for the month in which the delay occurs and the adverse weather delayed activities are on the longest path to contract completion in the period when delay occurred. A lost workday due to weather conditions is defined as a day in which the Contractor cannot work at least 50 percent of the day on the impacted activity. Impacts resulting from adverse weather must be documented in Narrative Report for the month that it occurred.

Make changes to P6 project calendars to reflect as-built conditions where work occurred where originally anticipated as non-work days, and where work did not occur (lost work day).

1.10.1.9 Cost Loading

The Project Network Analysis Schedule (NAS) must be cost-loaded and will provide the basis for progress payments. Earned Value Reports must be derived from and correspond to cost loaded NAS. Use the Critical Path Method (CPM) and the Precedence Diagram Method (PDM) to satisfy time and cost applications.

Sum of all costs assigned to activities must equal the current contract value as of the data date of the baseline or update NAS. Activity cost loading must be without front-end loading. Provide additional documentation if requested by the Contracting Officer.

1.10.1.9.1 Cost Loading Activities

a. Cost load construction activities. Define construction activities as on-site work activities that can be traced directly to the construction, alteration, demolition, repair of a project facility, infrastructure, or sitework.

b. Assign costs for materials which payment will be requested in advance of installation, including their quantities, to their respective procurement activities that were approved by the Contracting Officer. Assign labor costs, including their quantities, for material and equipment paid for after installation to their respective construction activities.

c. Costs for mobilization will not be paid as individual pay items with the exception of batch plant set-up, mobilization of dredging equipment or other similar labor-intensive situations. If payment for mobilization costs are approved, assign costs for demobilization activities. The value of demobilization activities must not be less than 40 percent of the total costs for mobilization activities. If not approved as a separate line item, evenly disperse over construction activities the costs for mobilization and demobilization.

d. The value of commissioning, testing, and closeout WBS section may not be less than 10 percent of the total costs for procurement and construction activities.

e. ALL activities assigned Government responsibility will have Zero Cost. No contractor cost should be assigned to an activity designated as a Government responsibility.

f. Do not include field overhead positions as individual cost loaded activities. Evenly disperse non-construction costs (e.g., meetings, presentations, submittals, surveys, haul road or storage yard maintenance, dust control, security) and profit to construction activities assigned to the Construction Phase WBS level.

g. If assigning resources to activities, setting for Calculate costs from units in Resources tab must be unchecked.

1.10.1.9.2 Partial Payment

Breakdown unit of measure and cost must be defined within P6 Activity Detail Expenses for partial payment of any cost loaded activity. Lump sum cost loaded activity will not be partially paid.

1.10.2 NAS Software Settings and Restrictions

a. Activity Constraints: Date/time constraint(s), other than those required by the contract, are not allowed unless accepted by the Contracting Officer. Identify any constraints proposed and provide an explanation for the purpose of the constraint in the Narrative Report as described in paragraph REQUIRED TABULAR REPORTS.

b. Default Progress Data Disallowed: Actual Start is date work begins on activity with intent to pursue work to substantial completion. Actual Finish is date work is substantially complete to point where successor activity can begin. Actual dates on the NAS must correspond with activity dates reported on the Contractor Quality Control and Production Reports.

c. At a minimum, include the following settings and parameters in P6 NAS preparation:

(1) General: Define or establish Calendars and Activity Codes at the "Project" level, not the "Global" level.

(2) Admin Drop-Down Menu, Admin Preferences, Time Periods Tab:

(a) Set time periods for P6 to 8.0 Hours/Day, 40.0 Hours/Week, 172.0 Hours/Month and 2000.0 Hours/Year.

(b) Use assigned calendar to specify the number of work hours for each time period: Must be checked.

(3) Admin Drop-Down Menu, Admin Preferences, Earned Value Tab:

(a) Technique for computing performance percent complete: Use "Activity percent Complete"

(b) Technique for computing Estimate to Complete: Use "PF = 1".

(c) Earned Value Calculation: Use "Budgeted values with current dates".

(4) Project Level, Dates Tab:

(a) Set "Must Finish By" date to "Contract Completion Date", and set "Must Finish By" time to 05:00pm.

(5) Project Level, Defaults Tab:

(a) Duration Type: Set to "Fixed Duration & Units".

(b) Percent Complete Type: Set to "Physical".

(c) Activity Type: Set to "Task Dependent".

(d) Calendar: Set to "Standard 5 Day Workweek". Calendar must reflect Saturday, Sunday and all Federal holidays as non-work days. Alternative calendars may be used with Contracting Officer approval.

(6) Project Level, Calculations Tab:

(a) Default Price/Unit for activities without resource or role Price/Units: Set to "$1/h".

(b) Activity percent complete based on activity steps: Must be Checked.

(c) Link Budget and At Completion for not started activities: Must be Checked.

(d) Reset Remaining Duration and Units to Original: Must be Selected.

(e) Subtract Actual from At Completion: Must be Selected.

(f) Recalculate Actual units and Cost when duration percent complete changes: Must be Checked.

(g) Update units when costs change on resource assignments: Must be Unchecked.

(h) Link Actual to Date and Actual This Period Units and Cost: Must be Checked.

(7) Project Level, Settings Tab:

(a) Define Critical Activities: Check "Longest Path".

(8) Work Breakdown Structure Level, Earned Value Tab:

(a) Technique for Computing Performance Percent Complete: "Activity percent complete" is selected.

(b) Technique for Computing Estimate to Complete (ETC): "PF = 1" is selected.

1.10.3 Required Tabular Reports and Native P6 XER Files

Include the following reports with the Baseline, Monthly Update and any other required NAS submittals:

a. Time Scaled Logic NAS

Provide formatted 11 by 17-inch Time-scaled Logic NAS in color and landscape-oriented with each NAS submittal. Clearly show activities on the longest path setting Gantt chart longest path activity bars to red. Group activities by WBS and sort by finish date in ascending order. Include the following information in column form for each activity and include accompanying Gantt chart:

(1) Activity ID

(2) Activity Name

(3) Original Duration

(4) Remaining duration

(5) Physical Percent Complete

(6) Start Date

(7) Finish Date

(8) Total Float

(9) Project-level Calendar

b. Previous Monthly Update Comparison Time Scaled Logic NAS (Submit with all Monthly NAS Update Submittals.)

Provide formatted 11 by 17-inch Time-scaled Logic NAS in color and landscape-oriented with each monthly NAS update submittal. Clearly show activities on the current month longest path setting Gantt chart longest path activities bars to red. Show previous month activities as yellow bars and previous month milestones in yellow within Gantt chart. Sort by finish date in ascending order. Filter activities for longest path. Maintain and assign the accepted previous monthly NAS update or the accepted baseline NAS for the first update submittal as the baseline and primary baseline in P6 before printing the NAS. Include the following information in column form for each activity and include accompanying Gantt chart:

(1) Activity ID

(2) Activity Name

(3) Original Duration

(4) Current Month Remaining Duration

(5) Current Month Start Date

(6) Previous Month Update Start Date (BL Project Start)

(7) Start Date Delta between Current Month and Previous Month (Variance - BL Project Start Date)

(8) Current Month Finish Date

(9) Previous Month Finish Date (BL Project Finish)

(10) Finish Date Delta between Current Month and Previous Month (Variance - BL Project Start Date)

(11) Current Month Total Float

c. P6 native XER file: Include the back-up native .xer program file compatible with the current Government version of Primavera P6. Each native NAS file must have a unique file name to include project name and data date using (yyyy-mm-dd) convention. Each native NAS must have a unique Project ID and Project Name.

d. Log Report: P6 Scheduling/Leveling Report.

e. Narrative Report: Identify and justify:

Each entry in the Narrative Report must cite the respective Activity ID and Activity Name, the date and reason for any changes, and description of the change.

(1) Provide Project Summary Data in format below:

(a) Data Date _____

(b) Award Date: _____

(c) Original Project Duration: _____ days post Award Date

(d) Current Project Duration: _____ days post Award Date

(e) Time percent elapsed: _____ percent at data date

(f) Original CCD: _____

(g) Current CCD: _____ (thru MOD _____)

(h) Anticipated CCD: _____ (___ calendar days early/late)

(i) Original Contract Value: $_____

(j) Current Contract Value: $_____

(k) Invoiced Amount: $_____ (____ percent)

(l) Cost Growth: ____ percent

(m) NAS Growth: ____ percent

(n) There are a total of _____ activities, _____ activities complete (____ percent), ____ activities in progress (____ percent), _____ activities not started (____ percent). Of the in progress and not started activities; ____ (____ percent) are on the longest path. The longest path has duration of _____ calendar days from data-date to anticipated project completion.

(2) Progress made in each area of the project;

(3) Longest Path;

(4) Date/time constraint(s), other than those required by the contract

(5) Listing of all changes made between the previous monthly NAS update and current monthly NAS update include as a minimum: added or deleted activities, original and remaining durations for activities that have not started, logic (sequence constraint lag/lead), milestones, planned sequence of operations, longest path, calendars or calendar assignments, and cost loading. Identify any other changes that relate to calculations within Oracle Primavera P6;

(6) Any decrease in previously reported activity Earned Amount;

(7) Pending items and status thereof, including permits, changes orders, and time extensions;

(8) Status of Contract Completion Date and interim milestones;

(9) Status of Projected Completion Milestone and account of difference in calendar days between previous update Projected Completion Milestone

(10) Current and anticipated delays listing Activity Names and IDs for impacted activities(describe cause of delay and corrective actions(s) and mitigation measures to minimize);

(11) Description of current and potential future NAS problem areas.

(12) Identification of any weather and restricted lost time as compared to anticipated weather for the month and anticipated restricted days for which the update is submitted. Impacts resulting from adverse weather must be documented in tabular form showing the calendar month (or billing period) with the days on which construction activity incurred Lost Work Days due to adverse weather. In narrative form, describe the adverse weather cause such as precipitation measurement, temperature, wind or other influencing factors, and why work was impacted. Identify the construction activity(s) by ID and Name that was (were) scheduled, impacted.

f. Earned Value Report: Derive from and correspond to P6 cost loaded Monthly NAS Update. List all activities having a budget amount cost loaded. Compile total earnings on the project from notice to proceed to current progress payment request. Show on the report for each activity:

(1) Current budget;

(2) Previous Physical Percent Complete;

(3) To-Date Physical Percent Complete;

(4) Previous Earned Value;

(5) To-Date Earned Value;

(6) Cost This Period;

(7) Cost to Complete.

g. Schedule Variance Control (SVC) Diagram: With each NAS submission, provide a SVC diagram representing only the current file showing 1) A Cash Flow Curve indicating planned project cost based on each of projected early and projected late activity finish dates and 2) one curve for Earned Value to-date. Revise Cash Flow Curves when the contract is modified, or as directed by the Contracting Officer Include a legend on report clearly indication 3 curves: early finish, late finish, and earned-value to date.

Use the following settings in Activity Usage Profile Options:

(1) In the Data section, under Display, the radio box for Cost must be selected.

(2) In the Data section, under Filter for Bars/Graphs, the checkbox for Total must be checked.

(3) In the Show Bars/Curves section:

(a) Under the By Date column, the checkboxes for Baseline, Actual and Remaining Late must be checked. The checkboxes for Budgeted and Remaining Early must be unchecked.

(b) Under the Cumulative column, the checkboxes for Baseline, Actual and Remaining Late must be checked. The checkboxes for Budgeted and Remaining Early must be unchecked.

(c) Set the color for Baseline to green.

(d) Set the color for Actual to blue.

(e) Set the color for Remaining Late to red.

(4) In the Show Earned Value Curves section, the checkboxes for Planned Value Cost, Earned Value Cost and Estimate at Completion must be unchecked.

h. Logic Diagram showing timescale from data date to 60 days after data date with filter for longest path. Leave Group By selection blank and sort by finish date in ascending order.

i. Logic Diagram showing timescale from data date to contract completion date with filter for longest path. Leave Group By selection blank and sort by finish date in ascending order.

j. Baseline or Monthly Update Checklist as applicable completed and certified by Qualified Scheduler. Contractor Baseline Project Schedule Review, Contractor Monthly Update Schedule Review, and Contractor Baseline Project Schedule, and General Commissioning/HVAC Review Checklist. Checklists can be found on the Whole Building Design Guide website as Related Materials to UFGS 01 32 17.00 20.

k. Screen shot PDF of Primavera P6 Time Periods Settings referenced in paragraph NAS SOFTWARE SETTINGS AND RESTRICTIONS, list item c.(2): ADMIN DROP-DOWN MENU, ADMIN PREFERENCES, TIME PERIODS TAB

l. Screen shot PDF of Primavera P6 Earned Value Settings referenced in paragraph NAS SOFTWARE SETTINGS AND RESTRICTIONS, list item c.(3): ADMIN DROP-DOWN MENU, ADMIN PREFERENCES, EARNED VALUE TAB

1.11 CONTRACT MODIFICATION

1.11.1 Time Impact Analysis (TIA)

Submit a Time Impact Analysis with each cost and time proposal for a proposed change. TIA must illustrate the influence of each change or delay on the Contract Completion Date or milestones. No time extensions will be granted nor delay damages paid unless a delay occurs which consumes all available Project Float, impacts the longest path, and extends the Projected Completion beyond the Contract Completion Date.

a. Each TIA must be in both narrative and NAS form. The narrative must:

(1) Define the scope and conditions of the change;

(2) Provide start and finish dates of impact to longest path;

(3) Identify and include any accepted NAS referenced in TIA and any changes made to accepted NAS to prepare additional NAS included in the TIA;

(4) Successor(s) and predecessor(s) activities to impact period;

(5) Responsible party;

(6) Describe how the impact originated;

b. The TIA submission must consist of at least three native XER files:

(1) Fragnet used to define the scope of the changed condition

(2) Most recent accepted baseline NAS or monthly NAS update as of the time of the impact start date. If the data date of this NAS is different than the start date of impact, update this NAS to show all activity progress as of the time of the impact start. The impact start date is identified as the time when an existing activity is impeded for either starting or finishing. This NAS must have a data date that is the same as the identified start date of impact in "a.(2)". Identify any changes made to most recent accepted NAS.

(3) The impacted NAS that has the Fragnet inserted in the updated NAS from "b.(2)" and the NAS scheduled using the Schedule command in Oracle Primavera P6 so that the new completion date is determined.

c. For claimed as-built project delay, the inserted Fragnet TIA method must be modified to account for as-built events known to occur after the data date of NAS update used. Updated NAS for periods following the impact start date will be used and included in submittal to evaluate how the project progressed (as-built) through the finish of impact. Impact to longest path must be determined for each following update period.

d. All TIAs must include any mitigation, and must determine the apportionment of the overall delay assignable to each individual delay. Apportionment must provide identification of delay type and classification of delay by compensable and non-compensable events. The associated narrative must clearly describe analysis methodology used, and the findings in a chronological listing beginning with the earliest delay event.

(1) Identify and classify types of delay defined as follows:

(a) Force majeure delay (e.g., weather delay): Any delay event caused by something or someone other than the Government or the Contractor, or the risk of which has not been assigned solely to the Government or the Contractor. If the force majeure delay is on the longest path, in absence of other types of concurrent delays, the Contractor is granted an extension of contract time, classified as a non-compensable event.

(b) A Contractor-delay: Any delay event caused by the Contractor, or the risk of which has been assigned solely to the Contractor. If the contractor-delay is on the longest path, in absence of other types of concurrent delays, Contractor is not granted extension of contract time, and classified as a non-compensable event. Where absent other types of delays, and having impact to project completion, Contractor must provide to Contracting Officer a Corrective Action Plan identifying plan to mitigate delay.

(c) A Government-delay: Any delay event caused by the Government, or the risk of which has been assigned solely to the Government. If the Government-delay is on the longest path, in absence of other types of concurrent delays, the Contractor is granted an extension of contract time, and classified as a compensable event.

(2) Functional concurrency must be used to analyze concurrent delays, where: separate delay issues delay project completion, do not necessarily occur at same time, rather occur within same monthly NAS update period at minimum, or within same as-built period under review. If a combination of functionally concurrent delay types occurs, it is considered Concurrent Delay, which is defined in the following combinations:

(a) Government-delay concurrent with contractor-delay: excusable time extension, classified non-compensable event.

(b) Government-delay concurrent with force majeure delay: excusable time extension, classified non-compensable event.

(c) Contractor-delay concurrent with force majeure delay: excusable time extension, classified non-compensable event.

(3) Pacing delay reacting to another delay (parent delay) equally or more critical than paced activity must be identified prior to pacing. Contracting Officer will notify Contractor prior to pacing. Contractor must notify Contracting Officer prior to pacing. Notification must include identification of parent delay issue, estimated parent delay time period, paced activity(s) identity, and pacing reason(s). Pacing Concurrency is defined as follows:

(a) Government-delay concurrent with contractor-pacing: excusable time extension, classified compensable event.

(b) Contractor-delay concurrent with Government-pacing: inexcusable time extension, classified non-compensable event

e. Submit electronic files containing the narrative and the Native XER NAS files used and or referenced in the time impact analysis.

1.12 PROJECT FLOAT

Project Float is the length of time between the Project Completion Milestone and the Contract Completion Date. Project Float available in the NAS will not be for the exclusive use of either the Government or the Contractor.

The use of Resource Leveling is prohibited. Techniques used for the purpose of artificially adjusting activity durations to consume float and influence longest path are prohibited.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SECTION 01 33 00.05 20

CONSTRUCTION SUBMITTAL PROCEDURES
05/14, CHG 5: 03/23

PART 1 GENERAL

1.1 RELATED REQUIREMENTS

This section covers construction submittals that are not included in the design submittals. Submit design submittals in accordance with Section 01 33 10.05 20 DESIGN SUBMITTAL PROCEDURES. When using Unified Facility Guide Specifications (UFGS) sections that reference Section 01 33 00.05 22 CONSTRUCTION SUBMITTAL PROCEDURES, change reference to this section, Section 01 33 00.05 20 CONSTRUCTION SUBMITTAL PROCEDURES.

1.2 SUBMITTAL DESCRIPTIONS (SD)

Submittal requirements are specified in UFGS in Part 2, GENERAL REQUIREMENTS; in references in Part 4 PERFORMANCE TECHNICAL SPECIFICATIONS; and in UFGS in Part 5, PRESCRIPTIVE SPECIFICATIONS. Submittals that are identified by SD numbers use descriptions of items included in submittal packages and titles as follows:

SD-01 Preconstruction Submittals

Certificates of insurance.

Surety bonds.

List of proposed subcontractors.

List of proposed products.

Construction progress schedule.

Network Analysis Schedule (NAS)

Submittal register.

Schedule of prices or earned value report.

Health and safety plan.

Work plan.

Quality control and commissioning plans.

Environmental protection plan.

SD-02 Shop Drawings

Drawings, diagrams and schedules specifically prepared to illustrate some portion of the work.

Diagrams and instructions from a manufacturer or fabricator for use in producing the product and as aids to the Contractor for integrating the product or system into the project.

Drawings prepared by or for the Contractor to show how multiple systems and interdisciplinary work will be coordinated.

SD-03 Product Data

Catalog cuts, illustrations, schedules, diagrams, performance charts, instructions and brochures illustrating size, physical appearance and other characteristics of materials or equipment for some portion of the work.

Samples of warranty language when the contract requires extended product warranties.

Manufacturer's data certifying and demonstrating that specific product, process, and/or conditions complies with applicable Guiding Principle GP) or Third Party Certification (TPC) criteria.

SD-04 Samples

Physical examples of materials, equipment or workmanship that illustrate functional and aesthetic characteristics of a material or product and establish standards by which the work can be judged.

Color samples from the manufacturer's standard line (or custom color samples if specified) to be used in selecting or approving colors for the project.

Field samples and mock-ups constructed on the project site establish standards by which the ensuing work can be judged. Includes assemblies or portions of assemblies which are to be incorporated into the project and those which will be removed at conclusion of the work.

SD-05 Design Data

Calculations, mix designs, analyses or other data pertaining to a part of work.

SD-06 Test Reports

Report signed by authorized official of testing laboratory that a material, product or system identical to the material, product or system to be provided has been tested in accord with specified requirements. (Testing must have been within three years of date of contract award for the project.)

Report which includes findings of a test required to be performed by the Contractor on an actual portion of the work or prototype prepared for the project before shipment to job site.

Report which includes finding of a test made at the job site or on sample taken from the job site, on portion of work during or after installation.

Investigation reports.

Daily checklists.

Final acceptance test and operational test procedure.

SD-07 Certificates

Statements signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements. Must be dated after award of project contract and clearly name the project.

Document required of Contractor, or of a supplier, installer or subcontractor through Contractor, the purpose of which is to further quality of orderly progression of a portion of the work by documenting procedures, acceptability of methods or personnel qualifications.

Confined space entry permits.

Text of posted operating instructions.

SD-08 Manufacturer's Instructions

Preprinted material describing installation of a product, system or material, including special notices and Material Safety Data sheets concerning impedances, hazards and safety precautions.

SD-09 Manufacturer's Field Reports

Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.

Factory test reports.

SD-10 Operation and Maintenance Data

Data that is furnished by the manufacturer, or the system provider, to the equipment operating and maintenance personnel. This data is needed by operating and maintenance personnel for the safe and efficient operation, maintenance and repair of the item.

SD-11 Closeout Submittals

Documentation to record compliance with technical or administrative requirements or to establish an administrative mechanism.

Special requirements necessary to properly close out a construction contract. For example, Record Drawings, As-built drawings, DD Form 1354, Guiding Principles Validation or Sustainability Third Party Certification (TPC), Sustainability eNotebook (including all of components) and eOMSI submittals. Also, submittal requirements necessary to properly close out a major phase of construction on a multi-phase contract.

1.3 SUBMITTALS

The use of a "G" following a submittal indicates that an approval action is required, either by the Government or by the Contractor's Designer of Record (DOR) or QC Specialist.

The use of an "S" following a submittal indicates separate but simultaneous submittal is required as part of federally mandated sustainability requirements. Refer to Section 01 33 29 SUSTAINABILITY REQUIREMENTS AND REPORTING for "S" submittal requirements.

Submit the following in accordance with the requirements of this section.

SD-01 Preconstruction Submittals

Submittal Register Format; G

1.3.1 Submittal Register

The submittal register must be prepared during the initial design stages of the project and indicate each design and construction submittal. Maintain an electronic version of the submittal register as work progresses. The DOR must assist the DQC in preparing the submittal register by determining all project submittals that require DOR approval. The Contractor proposed submittal register format must include all types of information pertinent to the submittal process and be approved by the Contracting Officer prior to the first submission.

1.4 CONSTRUCTION QUALITY CONTROL

1.4.1 Contractor Reviewing, Certifying, Approving Authority

The QC organization is responsible for reviewing and certifying that submittals are in compliance with the contract requirements.

a. In RFP PART 4 PERFORMANCE TECHNICAL SPECIFICATIONS (PTS), there are UFGS specification sections required to be submitted as part of the design submittal. Unless specified otherwise in this section, the Contractor's DOR is the approving authority for submittals listed in these specifications with a "G" designation, unless the DOR delegates to Contractor Quality Control approval. RFP Part 4 PTS sections also include submittals identified for DOR approval that are not denoted with a "G" designation, these submittals cannot be delegated for Contractor Quality Control approval.

b. If RFP PART 5 PRESCRIPTIVE SPECIFICATIONS are utilized in this RFP, the Contractor's DOR is the approving authority for submittals listed with a "G" designation, unless the DOR delegates to Contractor Quality Control approval, excluding those submittals listed in the paragraph Submittals Reserved for Government Approval.

c. DOR must approve construction submittals that are incorporated in the design submittal prior to being submitted to the Government for design submittal approval. Indicate approval of these construction submittals on the accompanying submittal transmittal forms and the submittal register for each design submittal package. In addition, the DOR professional stamp on the final design submittal indicates approval of construction submittals combined with the design submittal.

d. Submittal items identified in RFP PARTS 2, 4, and 5 that are not identified with a "G" designation or not designated for DOR approval (in RFP Part 4) are for Contractor Quality Control approval.

e. Construction submittals that are approved by the DOR or certified by the QC are required to be submitted to the Government for for record only, except when the RFP requires the design and construction submittals to be combined in Section 01 33 10.05 20 DESIGN SUBMITTAL PROCEDURES or where specified in the paragraph SUBMITTALS RESERVED FOR GOVERNMENT SURVEILLANCE of this section within 7 days of approval.

f. In addition to other approvals that may be required, provide review and approval of Guiding Principles Validation and TPC Submittals by Design-Build team's Sustainability or TPC Professional. Provide this approval prior to including in any Government-reviewed submittal.

1.4.2 Submittals Reserved for Government Surveillance

Surveillance submittals are approved by the Contractor in accordance with paragraph CONTRACTOR REVIEWING, CERTIFYING, APPROVING AUTHORITY, but provide the Government the opportunity to oversee critical project issues.

If during the Government surveillance of construction submittals, items are brought to the Contractor's attention as non-compliant, the Contractor must correct the submittal and construction to comply with the requirements of the RFP. Stamp surveillance submittals "APPROVED" by the DOR or QC Specialist and "FOR SURVEILLANCE ONLY." Submit the following Government surveillance submittals, prior to starting work for construction submittal items, and after the completion of the work for reports submittals items.

a. Submit fire protection shop drawings, data sheets, calculations, preliminary test reports, and certificates pertaining to the following systems: spray-applied fire proofing and fire stopping, exterior fire alarm reporting systems, interior fire alarm detection systems and releasing systems, and fire suppression systems including fire pumps, standpipe systems, and controllers.

b. Submit geotechnical related submittals pertaining to the soils investigations (reports and soils analysis), foundations (shallow and deep), pavements structure design, test pile and production pile testing and installation.

c. Submit conveying related submittals pertaining to elevators, escalators, weight handling equipment, lifts, and conveyors.

d. Submit roofing shop drawings, product data sheets, design data, test reports, certificates and warranties pertaining to materials and systems used to make up the roof system.

e. Submit shop drawings, product data, and installer qualifications for the following exterior underground mechanical systems: steam, hot-water, chilled water, and condenser water.

f. Submit shop drawings, data sheets, calculations, and installer qualifications as described in Part 4, D50 ELECTRICAL.

g. Submit telecommunications shop drawings, as described in Part 4, D50 ELECTRICAL, for coordination with the Base Communications office.

h. Submit Performance Verification and Acceptance Testing submittals listed in the PTS and referenced UFGS.

i. Submit all Interim Special Inspection Reports on a bi-weekly basis until work requiring special inspections is complete.

j. Submit all Structural Observation Reports and the Final Report of Special Inspections.

k. Submit Final Guiding Principle Validation and TPC sustainability documentation.

l. Submit the exterior enclosure barrier drawings.

m. Submit building enclosure testing results for air tightness and the infrared thermography results if air barrier deficiencies are identified. Describe actions taken to correct building enclosure deficiencies at each location.

1.4.3 Submittals Reserved for Government Approval

The Government is the approving authority for submittals with a "G" designation in RFP Part 2 GENERAL REQUIREMENTS specification sections. Comply with additional Government approval requirements for Environmental submittals, as specified in RFP Part 2, Section 01 57 19 TEMPORARY ENVIRONMENTAL CONTROLS.

In addition to the Government approvals required by RFP Part 2, GENERAL REQUIREMENTS, the following submittals must be certified by the QC Manager and the DOR, and approved by the Contracting Officer.

a. Transformers

b. Medium Voltage Cable

c. Emergency Generators

d. Automatic Transfer Switches

e. Uninterruptible Power Supplies

f. Electronic Security Systems

g. Fire Protection related submittals pertaining to spray-applied fire proofing and fire stopping, exterior fire alarm reporting systems, interior fire alarm and detection systems, and fire suppression systems including fire pumps and standpipe systems.

h. Section 23 09 13 INSTRUMENTATION AND CONTROL DEVICES FOR HVAC and Section 23 09 23.02 BACNET DIRECT DIGITAL CONTROL FOR HVAC AND OTHER BUILDING CONTROL SYSTEMS

i. Division 33 and 27 Telecom in Part 6, for coordination with the Base Communications Office

j. Section 23 05 93 TESTING, ADJUSTING, AND BALANCING FOR HVAC

k. Fire Protection Systems: Performance Verification Plan (PVT), Final Acceptance Test Reports, and Life Safety / Fire Protection Certification

l. Electrical systems: Performance Verification Plan (PVT) in accordance

with Part 4, D50 ELECTRICAL.

m. Section 25 05 11 CYBERSECURITY FOR FACILITY-RELATED CONTROL SYSTEMS

n. Section 27 10 00 BUILDING TELECOMMUNICATIONS CABLING SYSTEM

o. Section 33 82 00 TELECOMMUNICATIONS OUTSIDE PLANT (OSP)

1.4.3.1 Scheduling for Government Approved Submittals

Except as specified otherwise, allow review period, beginning when Government receives submittal from the QC organization, of 20 working days for return of submittal to the Contractor. Period of review for submittals with Contracting Officer approval begins when Government receives submittal from QC organization. Period of review for each resubmittal is the same as for initial submittal.

1.4.3.2 Government Approval Defined

Submittals marked "approved" indicate a quality assurance (QA) review has been performed. Government review or approval of any portion of the submittal does not relieve the Contractor from responsibility for meeting the contract requirements or for any error that may exist, because under the Quality Control (QC) requirements of this contract, the Contractor is responsible for ensuring information contained within each submittal accurately conforms with the requirements of the contract documents. Furthermore, Government review or approval of a submittal is not to be construed as a complete check.

1.4.4 Constraints

a. Submittals must be complete for each definable feature of work; submit components of definable feature interrelated as a system at the same time.

b. Approval of a separate material, product, or component does not imply approval of assembly in which item functions.

1.4.5 Design Change and Variation

The Contractor must limit change and variation to items that will be advantageous to the Government. Submit proof that the change or variation is needed and provide the same or better level of quality as the design that the Government originally reviewed or approved. Design change is considered prior to Government approval of the final design and variation is considered after Government approval of final design.

1.4.5.1 Design Changes

Design changes must meet the minimum requirements of the solicitation and the accepted proposal. Any changes to the design from what was previously reviewed by the Government during any phase of the design process prior to Government approval of the Final Design must be approved by the DOR and Government before the design change may be incorporated into the design documents. Design changes must be requested in accordance with Section 01 33 10.05 20 DESIGN SUBMITTAL PROCEDURES.

1.4.5.2 Variations

Variations from contract requirements including the solicitation, the accepted proposal, and the final design, require Government approval. Variations must be approved by the DOR prior to submitting written request to the Government for approval.

1.4.5.2.1 Considering Variations

Discuss the proposed variation with the Contracting Officer after consulting with the DOR prior to submission to help ensure functional and quality requirements are met and minimize potential rejections and re-submittals. When contemplating a variation which results in lower cost, consider submitting the variation as a Value Engineering Change Proposal (VECP) in accordance with FAR 52.248-3 Value Engineering-Construction. Specifically point out variations from contract requirements in transmittal letters and variation submittal as applicable. Failure to receive prior Government approval for deviations may result in the Government requiring rejection and removal of such work at no additional cost to the Government.

1.4.5.2.2 Submitting Variations

When submitting a variation, deliver the written request and submittal clearly marked as a variation on all pages to the Contracting Officer in the form of a Request for Information (RFI) to include documentation illustrating the nature and features of the variation including any necessary technical submittals and why the variation is desirable and beneficial to Government. Request must also include any savings to the government with estimate of savings amount. Provide written documented analysis and approval from the DOR.

The Contracting Officer will indicate an approval or disapproval of the variation request; and if not approved as submitted, will indicate the Government's reasons therefor. Any work done before such approval is received is performed at the Contractor's risk.

1.4.5.2.3 Warranting Variations Are Compatible

When proposing a variation for approval, the Contractor, including its Designer(s) of Record, warrants that the contract documents have been reviewed to establish that the variation, if incorporated, is compatible with the design intent and operational requirements.

1.4.6 Contractor's Responsibilities

Ensure no work has begun until submittals for that work have been "approved" or "approved as noted."

If changes are necessary to returned submittals, make such revisions required by the Reviewer and resubmit all submittal items on the transmittal sheet in accordance with the procedures in this Section. No item of work requiring a submittal change is to be accomplished until the changed submittals are approved.

1.4.7 QC Organization Responsibilities

Stamp each sheet of each submittal with QC certifying statement or approving statement, except that data submitted in bound volume or on one

sheet printed on two sides may be stamped on the front of the first sheet only. Circle at least one of the three types in the statement.

a. When approving authority is Contracting Officer, QC organization will certify submittals, assure proper signatures, and forward to Contracting Officer with the following certifying statement:

"I hereby certify that the (equipment) (material) (article) shown and marked in this submittal is that proposed to be incorporated with contract Number (insert contract number here), is in compliance with the contract documents, can be installed in the allocated spaces, and is submitted for Government approval.

RFP Part Two Submittals:

Certified by QC Manager _____, Date _____
(QC Manager)

RFP Part Four and Part Five Submittals:

Certified by DOR _____, Date _____

Certified by QC Manager _____, Date _____"

(1) Sign certifying statement or approval statement. The person signing certifying statements must be QC organization member designated in the approved QC plan. The signatures must be in original ink. Stamped signatures are not acceptable.

(2) Update submittal register database as submittal actions occur and maintain the submittal register at project site until final acceptance of all work by Contracting Officer.

(3) Retain a copy of approved submittals at project site, including Contractor's copy of approved samples.

b. When the Approving Authority is the Designer of Record, the DOR must approve, professionally stamp, sign, and date submittals. DOR stamp on construction submittals or submission of design documents that include construction submittals indicates DOR approval for construction. QC organization must certify submittals, assure proper signatures, and forward to Contracting Officer with the following certifying statement:

"I hereby certify that the (equipment) (material) (article) shown and marked in this submittal is that proposed to be incorporated with contract Number (insert contract number here), is in compliance with the contract requirements, can be installed in the allocated spaces, and is submitted for DOR approval.

RFP Part Four and Part Five Submittals:

Approved by DOR _____, Date _____

Certified by QC Manager _____, Date _____"

(1) Sign certifying statement or approval statement. The person signing certifying statements must be QC organization member designated in the approved QC plan. The signatures must be in

original ink. Stamped signatures are not acceptable.

(2) Update submittal register database as submittal actions occur and maintain the submittal register at project site until final acceptance of all work by Contracting Officer.

(3) Send copies of final DOR or QC Specialist approved and signed submittals that are identified in this section for Government surveillance to the Contracting Officer. Stamp copies "For Surveillance Only."

1.4.8 Government's Responsibilities

When approving authority is the Contracting Officer, the Government will:

a. Note date on which submittal was received from QC Manager, on each submittal.

b. Review submittals for compliance with contract documents.

1.4.8.1 Government Actions

Submittals will be returned with one of the following notations:

a. Submittals marked "approved" or "approved as submitted" authorize Contractor to proceed with work covered.

b. A submittal marked "not reviewed" will be returned with an explanation of the reason it was not reviewed.

c. Submittals marked "approved as noted" or "approval except as noted; resubmission not required" authorize Contractor to proceed with work as noted provided Contractor takes no exception to the notations.

d. Submittals marked "revise and resubmit" or "disapproved" indicate submittal is incomplete or does not comply with design concept or requirements of the contract documents and must be resubmitted with appropriate changes. No work is allowed to proceed for this item until resubmittal is approved.

e. Submittals required for surveillance will be returned only if corrective actions are required.

1.5 FORMAT OF SUBMITTALS

1.5.1 Transmittal Form

Transmit submittals with transmittal form prescribed by Contracting Officer and standard for the project.

1.5.1.1 Combined Design and Construction Submittal Notification

Indicate on the design submissions transmittal form, which construction submittals have been combined with the design documents. Coordinate transmittal form list of combined design and construction submittals with submittal register to indicate DOR approval of all combined submittals.

1.5.1.2 Sustainable Design and Construction Submittals

On all projects, provide sustainability submittals in accordance with requirements of this document, specification Section 01 33 29 SUSTAINABILITY REQUIREMENTS AND REPORTING and FC 1-300-09N, "Navy and Marine Corps Design Procedures". Specific submittal requirements are also identified in technical sections of the specifications. Separate out data demonstrating compliance with construction sustainability requirements and submit separately but concurrently.

1.5.2 Identifying Submittals

When submittals are provided by a Subcontractor, the Prime Contractor is to prepare, review and stamp with Contractor's approval all specified submittals prior to submitting for Government approval.

Identify submittals, except sample installations and sample panels, with the following information permanently adhered to or noted on each separate component of each submittal and noted on transmittal form. Mark each copy of each submittal identically, with the following:

a. Project title and location.

b. Construction contract number.

c. Date of the drawings and revisions.

d. Name, address, and telephone number of subcontractor, supplier, manufacturer and any other subcontractor associated with the submittal.

e. Section number of the specification section by which submittal is required.

f. Submittal description (SD) number of each component of submittal.

g. When a resubmission, add alphabetic suffix on submittal description, for example, submittal 18 would become 18A, to indicate resubmission.

h. Product identification and location in project.

1.5.3 Format for SD- 02 Shop Drawings

a. Shop drawings are not to be less than 8 1/2 by 11 inches nor more than 30 by 42 inches, except for full size patterns or templates. Prepare drawings to accurate size, with scale indicated, unless other form is required. Drawings are to be suitable for reproduction and be of a quality to produce clear, distinct lines and letters with dark lines on a white background.

b. Present 8 1/2 by 11 inches sized shop drawings as part of the bound volume for submittals required by section. Present larger drawings in sets.

c. Include on each drawing the drawing title, number, date, and revision numbers and dates, in addition to information required in paragraph IDENTIFYING SUBMITTALS of this section.

d. Number drawings in a logical sequence. Each drawing is to bear the

number of the submittal in a uniform location adjacent to the title block. Place the Government contract number in the margin, immediately below the title block, for each drawing.

e. Reserve a blank space, no smaller than 3 inches the right-hand side of each sheet for the Government disposition stamp.

f. Dimension drawings, except diagrams and schematic drawings; prepare drawings demonstrating interface with other trades to scale. Use the same unit of measure for shop drawings as indicated on the contract drawings. Identify materials and products for work shown.

g. Include the nameplate data, size and capacity on drawings. Also include applicable federal, military, industry and technical society publication references.

1.5.4 Format of SD - 03 Product Data and SD - 08 Manufacturer's Instructions

a. Present product data submittals for each section as a complete bound volume. Include table of contents, listing page and catalog item numbers for product data.

b. Indicate, by prominent notation, each product which is being submitted; indicate specification section number and paragraph number to which it pertains.

c. Supplement product data with material prepared for project to satisfy submittal requirements for which product data does not exist. Identify this material as developed specifically for project, with information and format as required for submission of SD-07 Certificates.

d. Provide product data in metric dimensions. Where product data are included in preprinted catalogs with English units only, submit metric dimensions on separate sheet.

e. Include the manufacturer's name, trade name, place of manufacture, and catalog model or number on product data. Also include applicable federal, military, industry and technical society publication references. Should manufacturer's data require supplemental information for clarification, submit as specified for SD-07 Certificates.

f. Where equipment or materials are specified to conform to industry and technical society reference standards of the organizations such as American National Standards Institute (ANSI), ASTM International (ASTM), National Electrical Manufacturer's Association (NEMA), Underwriters Laboratories (UL), and Association of Edison Illuminating Companies (AEIC) submit proof of such compliance. The label or listing by the specified organization is acceptable evidence of compliance. In lieu of the label or listing, submit a certificate from an independent testing organization, competent to perform testing, and approved by the Contracting Officer. State on the certificate that the item has been tested in accordance with the specified organization's test methods and that the item complies with the specified organization's reference standard.

g. Collect required data submittals for each specific material, product,

unit of work, or system into a single submittal and marked for choices, options, and portions applicable to the submittal. Mark each copy of the product data identically. Partial submittals will not be accepted for expedition of construction effort.

h. Submit manufacturer's instructions prior to installation.

1.5.5 Format of SD - 04 Samples

Furnish samples in sizes below, unless otherwise specified or unless the manufacturer has prepackaged samples of approximately same size as specified:

a. Sample of Equipment or Device: Full size.

b. Sample of Materials Less than 2 by 3 inches: Built up to 8 1/2 by 11 inches.

c. Sample of Materials Exceeding 8 1/2 by 11 inches: Cut down to 8 1/2 by 11 inches and adequate to indicate color, texture, and material variations.

d. Sample of Linear Devices or Materials: 10 inch length or length to be supplied, if less than 10 inches. Examples of linear devices or materials are conduit and handrails.

e. Sample of Non-Solid Materials: 1.6 pints. Examples of non-solid materials are sand and paint.

f. Color Selection Samples: 2 by 4 inches. Where samples are specified for selection of color, finish, pattern, or texture, submit the full set of available choices for the material or product specified. Sizes and quantities of samples are to represent their respective standard unit.

g. Sample Panel: 4 by 4 feet.

h. Sample Installation: 100 square feet.

i. Samples Showing Range of Variation: Where variations in color, finish, pattern, or texture are unavoidable due to nature of the materials, submit sets of samples of not less than three units showing extremes and middle of range. Mark each unit to describe its relation to the range of the variation.

j. Reusable Samples: Incorporate returned samples into work only if so specified or indicated. Incorporated samples are to be in undamaged condition at time of use. Recording of Sample Installation: Note and preserve the notation of area constituting sample installation but remove notation at final clean-up of project.

When color, texture or pattern is specified by naming a particular manufacturer and style, include one sample of that manufacturer and style, for comparison.

1.5.6 Format of SD - 05 Design Data and SD - 07 Certificates

Provide design data and certificates on 8 1/2 by 11 inches paper. Provide a bound volume for submittals containing numerous pages.

1.5.7 Format of SD-06 Test Reports and SD - 09 Manufacturer's Field Reports

Provide reports on 8 1/2 by 11 inches paper in a complete bound volume. Indicate by prominent notation, each report in the submittal. Indicate specification number and paragraph number to which it pertains.

1.5.8 Format of SD - 10 Operation and Maintenance Data (O&M)

Comply with the requirements specified in Section 01 78 23 OPERATION AND MAINTENANCE DATA for O&M Data format.

1.5.9 Format of SD - 01 Preconstruction Submittals and SD - 11 Closeout Submittals

When submittal includes a document, which is to be used in project or become part of project record, other than as a submittal, do not apply Contractor's approval stamp to document, but to a separate sheet accompanying document.

Provide all dimensions in administrative submittals in English. Where data are included in preprinted material with English units only, submit metric dimensions on separate sheet.

1.6 QUANTITY OF SUBMITTALS

1.6.1 Quantity of Submittals Reserved for Government Approval

Submit four copies of submittals of shop drawings requiring review and approval by Contracting Officer.

1.6.2 Quantity of Submittals Reserved for Government Surveillance

Submit three copies of submittals specified for surveillance to the Contracting Officer. Submit two additional copies of elevator submittals directly to the NAVFAC Elevator Specialist responsible for the NAVFAC elevator certification of the project.

1.6.3 Electronic Submittals

Where practicable, in lieu of hard copy copies, construction submittals may be transmitted electronically with approval from the Contracting Officer.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

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(a)	(b)	(c)	(d)	(e)	(f)		(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		01 14 00	SD-01 Preconstruction Submittals															
			List of Contact Personnel	1.3.1.1														
		01 20 00	SD-01 Preconstruction Submittals															
			Schedule of Prices	1.3	G													
		01 30 00	SD-01 Preconstruction Submittals															
			View Location Map	1.3														
			Progress and Completion	1.4														
			Pictures															
			Design Submittal Packaging	1.9.1														
			Performance Assessment Plan	1.12														
			(PAP)															
		01 31 19.05 20	SD-01 Preconstruction Submittals															
			CDW Facilitator Experience	1.3.1	G													
			Resume															
			CDW Preliminary Concept	1.3.2	G													
			Designs															
			CDW Report	1.3.3	G													
		01 31 23.13 20	SD-01 Preconstruction Submittals															
			List of Contractor's Personnel	1.4.2	G													
		01 32 17.00 20	SD-01 Preconstruction Submittals															
			Baseline NAS	1.2.2	G													
			Baseline NAS	1.2.3.1	G													
			Construction Baseline NAS	1.2.3.3	G													
			Designated Project Scheduler	1.9	G													
			SD-07 Certificates															
			Weekly Look Ahead Schedule	1.3														

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		01 32 17.00 20	Monthly NAS Updates	1.4.2	G													
			SD-11 Closeout Submittals															
			As-Built NAS	1.4.3	G													
		01 33 00.05 20	SD-01 Preconstruction Submittals															
			Submittal Register	1.3.1	G													
		01 33 10.05 20	SD-01 Preconstruction Submittals															
			Consolidated RFP Documents	2.1	G													
			Submittal Register	1.6.5	G													
			SD-04 Samples															
			Rendering	1.12.3	G													
			SD-05 Design Data															
			Design Drawings	1.8	G													
			Specifications	1.10	G													
			Basis of Design	1.11	G													
			Design Submittals	2.2	G													
			Project Rendering	1.12	G													
			BIM Project Execution Plan (PxP)	1.9	G													
			Design Model	1.9	G													
			Visual Review Report	1.9	G													
			Clash Detection Report	1.9	G													
			SD-11 Closeout Submittals															
			Record Documents	1.13	G													
			DD Form 1354	1.13.3	G													
			Record Model	1.9	G													
		01 33 29	SD-01 Preconstruction Submittals															

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		01 33 29	Preliminary High Performance	1.5.3.2	G													
			and Sustainable Building Checklist															
			Sustainability Action Plan	1.4.1	G													
			Preliminary Sustainability	1.5.3.2	G													
			eNotebook															
			SD-05 Design Data															
			Interim Design High Performance	1.5.3.2	G													
			and Sustainable Building Checklist															
			Interim Design Sustainability	1.5.3.2	G													
			eNotebook															
			Final Design High Performance	1.5.3.2	G													
			and Sustainable Building Checklist															
			Final Design Sustainability	1.5.3.2	G													
			eNotebook															
			SD-06 Test Reports															
			Third-Party Certification Design	1.5.3.2	G													
			Compliance Report															
			SD-11 Closeout Submittals															
			Final High Performance and	1.5.3.2	G													
			Sustainable Building Checklist															
			Final Sustainability eNotebook	1.5.3.2	G													
			Amended Final Sustainability	1.5.3.2	G													
			eNotebook															
			Amended Final High	1.5.3.2	G													
			Performance and Sustainable															
			Building Checklist															

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		01 33 29	Third-Party Certification	3.2	G													
			Certificate, Assessment, or															
			Validation and Compliance Report															
		01 35 13	SD-04 Samples															
			Model Unit	3.1.3														
		01 35 26	SD-01 Preconstruction Submittals															
			Accident Prevention Plan (APP)	1.9.1	G													
			Design															
			Accident Prevention Plan (APP)	1.9.2	G													
			Construction															
			Final IAQ Management Plan	1.18	S													
			Indoor Air Quality (IAQ)	1.18	G													
			Management Plan															
			SD-06 Test Reports															
			Accident Reports	1.14.3	G													
			LHE Inspection Reports	1.14.4														
			Monthly Exposure Reports	1.5	G													
			Notifications and Reports	1.14														
			SD-07 Certificates															
			Activity Hazard Analysis (AHA)	1.10	G													
			Certificate of Compliance	1.14.5														
			Contractor Safety Self-Evaluation	1.6														
			Checklist															
			Hot Work Permit	1.11.1														
			Hot Work Permit	1.15														
			License Certificates	1.16														

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		01 35 26	Portable Gauge Operations	1.16.1	G													
			Planning Worksheet															
			Radiography Operation Planning	1.16.1	G													
			Work Sheet															
			Standard Lift Plan	1.9.4.2	G													
			Standard Lift Plan	1.14.5.2	G													
			Critical Lift Plan	1.9.4.3	G													
			Critical Lift Plan	1.14.5.2	G													
			Confined Space Entry Permit	1.11.1														
		01 45 00	SD-01 Preconstruction Submittals															
			Contractor Quality Control (CQC)	1.5.2	G													
			Plan															
			Additional Requirements For	1.5.2.2	G													
			Design Quality Control (DQC) Plan															
			SD-05 Design Data															
			Design Quality Control	1.12.2														
			Discipline-Specific Checklists	1.5.2.2														
			Design Quality Control	1.6.4.2														
			Documentation (DQCD)															
			SD-06 Test Reports															
			Verification Statement	1.12.3														
			SD-07 Certificates															
			Certificate Of Readiness	1.6.7.1	G													
		01 45 35	SD-01 Preconstruction Submittals															
			Written NDT Practices	3.1.2														
			SD-06 Test Reports															

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		01 45 35	Special Inspection Daily Reports	3.1.1														
			Special Inspection Daily Reports	3.1.2														
			Special Inspection Biweekly	3.1.1														
			Reports															
			SD-07 Certificates															
			AISC Certified Steel Fabricator	2.1														
			Steel Truss Plant Quality	2.1														
			Assurance Program															
			AC472 Accreditation	2.1														
			Certified Plant	2.1														
			Certificate of Compliance	2.1														
			Special Inspector	1.5	G													
			Qualification Records for	3.1.2														
			Nondestructive Testing															
			Technicians															
			SD-11 Closeout Submittals															
			Interim Report	3.1.2	G													
			Comprehensive Final Report	3.1.2	G													
		01 50 00	SD-01 Preconstruction Submittals															
			Construction Site Plan	1.3	G													
			Traffic Control Plan	3.3.1	G													
			Haul Road Plan	2.2.1	G													
			Contractor Computer	1.8.1.4	G													
			Cybersecurity Compliance															
			Statements															

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ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAG # RAPH	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
							SUBMIT	APPROVAL NEEDED BY	MATERIAL NEEDED BY	ACTION CODE	DATE OF ACTION	DATE FWD TO APPR AUTH/ DATE RCD FROM CONTR	DATE FWD TO OTHER REVIEWER	DATE RCD FROM OTH REVIEWER	ACTION CODE	DATE OF ACTION		
(a)	(b)	(c)	(d)	(e)	(f)		(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)	(r)
		01 50 00	Contractor Temporary Network	1.8.6	G													
			Cybersecurity Compliance															
			Statements															
			SD-03 Product Data															
			Backflow Preventers	1.4	G													
			SD-06 Test Reports															
			Backflow Preventer Tests	3.4														
			SD-07 Certificates															
			Backflow Tester	1.4.1														
			Backflow Preventers	1.4														
		01 57 19	SD-01 Preconstruction Submittals															
			Storage Material Inventory	1.5.2														
			Preconstruction Survey	1.6.1														
			Environmental Manager	1.6.4														
			Qualifications															
			Environmental Protection Plan	1.7	G													
			Dirt and Dust Control Plan	1.7.9.2														
			Stormwater Pollution Prevention	3.2.1.1	G													
			Plan															
			Stormwater Notice of Intent	3.2.1.2														
			Spill Prevention Control And	3.15.2	G													
			Countermeasure (SPCC) Plan															
			SD-06 Test Reports															
			Monthly Solid Waste Disposal	1.11.1	G													
			Report															
			Inspection Reports	3.2.1.3														

SUBMITTAL REGISTER

CONTRACT NO.

TITLE AND LOCATION
Marine Corps Barracks - Repair by Replacement

CONTRACTOR

ACTIVITY NO	TRANSMITTAL NO	SPEC SECT	DESCRIPTION ITEM SUBMITTED	PARAGRAPH #	CLASSIFICATION	GOVT OR A/E REVWR	CONTRACTOR: SCHEDULE DATES			CONTRACTOR ACTION			APPROVING AUTHORITY				MAILED TO CONTR/ DATE RCD FRM APPR AUTH	REMARKS
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		01 57 19	Laboratory Analysis	3.7.1.1.2														
			SD-07 Certificates															
			ECATTS Certificate Of	1.4.1.2	G													
			Completion															
			Employee Training Records	1.6.5	G													
			Certificate of Competency	1.6.5.1														
			SD-11 Closeout Submittals															
			Contractor Hazardous Material	3.8.1	G													
			Inventory Log															
			Regulatory Notifications	1.6.2	G													
			Assembled Employee Training	1.6.5	G													
			Records															
			Solid Waste Management Permit	1.11	G													
			Stormwater Pollution Prevention	3.2.1.4	G													
			Plan Compliance Notebook															
			Stormwater Notice of Termination	3.2.1.5	G													
			As-Built Topographic Survey	3.2.1.5														
			Waste Determination	3.7.1	G													
			Documentation															
			Project Solid Waste Disposal	3.7.2.1	G													
			Documentation Report															
			Sales Documentation	3.7.2.1	G													
			Contractor Certification	3.7.2.1														
			Hazardous Waste/Debris	3.7.3.1	G													
			Management															

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		01 57 19	Disposal Documentation for	3.7.3.6	G													
			Hazardous and Regulated Waste															
		01 74 19	SD-01 Preconstruction Submittals															
			Construction Waste Management	1.6	G													
			Plan															
			SD-06 Test Reports															
			Quarterly Reports	1.8.2														
			Annual Report	1.8.3														
			SD-11 Closeout Submittals															
			Final Construction Waste	1.9	S													
			Diversion Report															
		01 78 00	SD-03 Product Data															
			Warranty Management Plan	1.7.1														
			Warranty Tags	1.7.5														
			Final Cleaning	3.5														
			Spare Parts Data	1.5														
			SD-08 Manufacturer’s Instructions															
			Instructions	1.7.1														
			SD-10 Operation and Maintenance															
			Data															
			Operation and Maintenance	3.4	G													
			Manuals															
			SD-11 Closeout Submittals															
			As-Built Drawings	3.2	G													
			Record Drawings	3.3	G													

SUBMITTAL REGISTER

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Marine Corps Barracks - Repair by Replacement

CONTRACTOR

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		01 78 00	Warranted Equipment and	1.7.1														
			Materials															
			Final Approved Shop Drawings	3.7	G													
			Certification of EPA Designated	2.2	G													
			Items															
			Certification Of USDA Designated	2.3	G													
			Items															
			Interim DD FORM 1354	3.6.3	G													
			High Performance and	3.6.3	G													
			Sustainable Building (HPSB)															
			Checklist															
			Equipment Inventory Update	3.1	G													
			As-Built Exterior Finish Material	1.8	G													
			Schedule And Submittals															
		01 78 23	SD-10 Operation and Maintenance															
			Data															
			Facility Data Workbook	1.4	G													
			Training Plan	3.1.1	G													
			Training Outline	3.1.3	G													
			Training Content	3.1.2	G													
			Operation And Maintenance	3.2.1	G													
			Manual, Progress Submittal															
			Operation And Maintenance	3.2.2	G													
			Manual, Prefinal Submittal															
			Operation And Maintenance	3.2.3	G													
			Manual, Final Submittal															

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CONTRACT NO.

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Marine Corps Barracks - Repair by Replacement

CONTRACTOR

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		01 78 23	SD-11 Closeout Submittals															
			Training Video Recording	3.1.4	G													
			Validation of Training Completion	3.1.6	G													
			Training Plan	3.1.1	G													
			Record Drawings And Utility	1.6.6.7	G													
			Systems															
		01 78 24.00 20	SD-11 Closeout Submittals															
			Facility Data Workbook (FDW),	1.3.1	G													
			Progress Submittal															
			Facility Data Workbook (FDW),	1.3.2	G													
			Prefinal Submittal															
			Facility Data Workbook (FDW),	1.3.3	G													
			Final Submittal															
		01 78 30.00 22	SD-11 Closeout Submittals															
			GIS Data Deliverables	2.3	G													

SECTION 01 33 10.05 20

DESIGN SUBMITTAL PROCEDURES
05/17, CHG 7: 03/25

PART 1 GENERAL

1.1 SUMMARY

This section includes requirements for Contractor-originated design documents and design submittals.

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.

U.S. DEPARTMENT OF DEFENSE (DOD)

FC 1-300-09N	(2024; with Change 1, 2025) Navy and Marine Corps Design
UFC 1-200-01	(2022; with Change 4, 2024) DoD Building Code
UFC 1-300-08	(2026) Criteria for Transfer and Acceptance of DoD Real Property
UFC 4-010-06	(2023) Cybersecurity of Facility-Related Control Systems

1.3 UFC 1-200-02

UFC 1-200-01 requires compliance with UFC 1-200-02, "High Performance and Sustainable Building Requirements".

1.4 GENERAL DESIGN REQUIREMENTS

Contractor-originated design documents must provide a project design that complies with the Request For Proposal (RFP), FC 1-300-09N, UFC 1-200-01, the Core UFCs, and other UFC's listed above.

1.5 SUBMITTALS

Submit design submittals, including shop drawings used as design drawings, to the Government for approval. The use of a "G" following a submittal indicates that a Government approval action is required. Submit the following in accordance with this section and Section 01 33 00.05 20 CONSTRUCTION SUBMITTAL PROCEDURES.

Submittals with an "S" are for inclusion in the Sustainability eNotebook in conformance to Section 01 33 29 SUSTAINABILITY REQUIREMENTS AND REPORTING for "S" submittal requirements. Submit the following in accordance with this section and Section 01 33 00.05 20 CONSTRUCTION SUBMITTAL PROCEDURES.

SD-01 Preconstruction Submittals

Consolidated RFP Documents; G

Submittal Register; G

SD-04 Samples

Final Framed Rendering and Copies; G

SD-05 Design Data

Design Drawings; G

Specifications; G

Basis of Design; G

Design Submittals; G

Project Rendering; G

BIM Project Execution Plan (PxP); G

Design Model; G

Visual Review Report; G

Clash Detection Report; G

SD-11 Closeout Submittals

Record Documents; G

DD Form 1354; G

Final Record Model; G

1.6 DESIGN QUALITY CONTROL

1.6.1 Contractor Reviewing and Certifying Authority

The QC organization is responsible for reviewing and certifying that design submittals are in compliance with the contract requirements.

1.6.2 Government Approving Authority

The Contracting Officer is the approving authority for design submittals.

1.6.3 Designer of Record Certifying Authority

The Designer of Record (DOR), as registered and defined in FC 1-300-09N, is the design certifying authority. The DOR accepts responsibility for design of work in each respective design discipline, by stamping and approving final construction drawings submitted to the Government approval authority.

1.6.4 Contractor Construction Actions

Upon submission of sealed and signed design documents certified by the

DOR, Design Quality Control (DQC) Manager and the Quality Control (QC) Managers, the Contractor may proceed with material and equipment purchases, fabrication and construction of any elements covered by that submittal.

1.6.5 Contractor's Responsibilities

a. Designate a lead licensed architect or engineer to be in responsible charge to coordinate the design effort of the entire project. This lead architect or engineer must coordinate all design segments of the project to assure consistency of design between design disciplines.

b. With the Designer of Record, verify site information provided in the RFP. In addition, provide additional field investigations and verification of existing site conditions as may be required to support the development of design and construction of the project.

c. Indicate on the transmittal form accompanying submittal which design submittals are being submitted as shop drawings.

d. Advise Contracting Officer of variations, as required by paragraph DESIGN CHANGE AND VARIATIONS.

e. Provide an updated, cumulative submittal register with each design package that identifies the design and construction submittals required by that design package and previous submittals.

f. Refer to Section 01 33 29 SUSTAINABILITY REQUIREMENTS AND REPORTING for Contractor's responsibilities for Guiding Principle Validation and Third Party Certification.

g. Refer to Section 01 78 24.00 20 FACILITY DATA WORKBOOK (FDW) for Contractor's eOMSI responsibilities.

h. Refer to Section 01 91 00.15 22 TOTAL BUILDING COMMISSIONING for design review responsibilities of the commissioning provider.

1.6.6 QC Organization Responsibilities

a. The QC Manager must certify design submittals for compliance with the contract documents. The DOR stamp on drawings indicates approval from the DOR.

b. QC organization must certify submittals forwarded by the Designer of Record (DOR) to the Contracting Officer, circling at least one of the three types in the statement, with the following certifying statement:

"I hereby certify that the (equipment) (material) (article) shown and marked in this submittal is that proposed to be incorporated with Contract Number (insert contract number here), is in compliance with the contract documents, and is submitted for Government approval.

Certified by DQC Manager _____, Date _____

Certified by QC Manager _____, Date _____"

c. Sign certifying statement. The persons signing certifying statements must be the QC organization members designated in the approved QC plan. The signatures must be in original ink. Stamped signatures are

not acceptable.

d. Update submittal register as submittal actions occur and maintain the submittal register at project site until final approval of all work by Contracting Officer.

e. Retain a copy of approved submittals at project site.

1.6.7 Government Responsibilities

The Government will:

a. Note date on which submittal was received from QC manager, on each submittal.

b. Perform a quality assurance (QA) review of submittals. Government will notify Contractor when comments for that design package are posted and ready for Contractor evaluation and resolution.

c. Upon submittal of final design package and resolution of comments by the Contractor, the Government will sign final design package, when approved, and return electronic copy of signed design documents to the Contractor.

1.6.7.1 Actions Possible

Submittals will be returned with one of the following notations:

a. Submittals may be marked "approved." Submittals marked "approved" indicate a quality assurance (QA) review has been performed. Government review or approval of any portion of the proposal or final design does not relieve the Contractor from responsibility for meeting the contract requirements or for any error that may exist, because under the Quality Control (QC) requirements of this contract, the Contractor is responsible for ensuring information contained within each submittal accurately conforms with the requirements of the contract documents. Furthermore, Government review or approval of a submittal is not to be construed as a complete check.

b. Submittals marked "not reviewed" indicate submittal has been previously reviewed and approved, is not required, does not have evidence of being reviewed and certified by Contractor, or is not complete. Submittal will be returned with an explanation of the reason it is not reviewed. Resubmit submittals returned for lack of review by Contractor or for being incomplete, with appropriate action, coordination, or change.

c. Submittals marked "revise and resubmit" or "disapproved" indicate submittal is incomplete or does not comply with design concept or requirements of the contract documents and must be resubmitted with appropriate changes. If work has been started on the unacceptable portion of the design submittal, the Contractor must propose corrective action. No further work is allowed to proceed until the issue is resolved in a manner satisfactory to the Government.

1.7 DESIGN DOCUMENTS

Provide design documents that include basis of design, design drawings, and design specifications, reports, and submittal register in accordance

with FC 1-300-09N, Navy and Marine Corps Design Procedures.

The Contractor is required to make product, material, and system selections during the project design and indicate these choices on the design documents. Accomplish this by submitting design drawings and specifications that include proprietary submittal information such as manufacturers name, product names, model numbers, product data, manufactures information, provided optional features, appropriate connections, fabrication, layout, and product specific drawings. Adherence to RFP submittal requirements and provision of DOR approved construction submittal information on the design submittals - eliminates the need for follow-on traditional construction submittals after the final design is approved.

Refer to Section 01 33 00.05 20 CONSTRUCTION SUBMITTAL PROCEDURES for requirements pertaining to Contractor proposed design changes or variations.

1.8 DESIGN DRAWINGS

Prepare, organize, and present design drawings in accordance with the requirements of FC 1-300-09N, Navy and Marine Corps Design Procedures.

Submit all CAD files for the final drawings on CD-ROM or DVD disks in AutoCAD (*.DWG) format. Drawing files must be full files, uncompressed and unzipped.

1.8.1 Design Drawings Used as Shop Drawings

Design drawings may be prepared more like shop drawings to minimize construction submittals after final design is approved. If the Contractor chooses or is required to include the construction submittal information on the design documents, indicate proprietary information on the design drawings as necessary to describe the products, materials, or systems that are to be used on the project. Construction submittal information included directly in the design drawings must be approved by the DOR. All design documents must be professionally signed in accordance with FC 1-300-09N, Navy and Marine Corps Design Procedures.

1.8.2 Drawing Format For Design Drawings Used as Shop Drawings

The Contractor-originated drawings will be used as the basis for the record drawings. Shop drawings included as design documents must comply with the same drawing requirements such as drawing form, sheet size, layering, lettering, and title block used in design drawings.

1.8.3 Identification of Design Drawings Used as Shop Drawings

The Contractor's transmittal letter and submittal register must indicate which design drawings are being submitted as shop drawings.

1.8.4 Naval Facilities (NAVFAC) Engineering Command Drawing Numbers

Number the final Contractor-originated design drawings consecutively with NAVFAC drawing numbers. Determine the total number of sheets required for the complete set of drawings before requesting the NAVFAC drawing numbers from the Contracting Officer.

1.8.5 Seals and Signatures on Documents

All final Contractor-originated design drawings must be signed, dated, and bear the seal of the registered architect or the registered engineer of the respective discipline in accordance with FC 1-300-09N. This seal must be the seal of the Designer of Record for that drawing, and who is professionally registered for work in that discipline. A principal or authorized licensed or certified employee must electronically sign and date final drawings and cover sheet, in accordance with FC 1-300-09N. The design drawing coversheets must be sealed and signed by the lead licensed architect or engineer of the project design team. Indicate the Contractor's company name and address on the drawing coversheets of each design submittal. Application of the electronic seal and signature accepts responsibility for the work shown thereon.

1.8.6 Units of Measure

Utilize English Inch-Pound units of measure on the design documents

1.9 BUILDING INFORMATION MANAGEMENT/MODELING (BIM)

Include BIM submittals as required by and complying with FC 1-300-09N:

a. BIM Project Execution Plan (PxP)

b. Design Model

c. Visual Review Report

d. Clash Detection Report

e. Record Model (With Record Documents)

1.10 SPECIFICATIONS

Provide a Contractor-originated design specification that in conjunction with the drawings, demonstrates compliance with requirements of the RFP. The specified products, materials, systems, and equipment that are approved by the DOR; submitted to the Government by the Contractor; and reviewed by the Contracting Officer must be used to construct the project. UFGS sections contained in RFP Part 2 become a part of the Contractor-originated Division 01 specification without modification. Specification Sections contained in RFP Part 5 become a part of the Contractor-originated specification without modification.

1.10.1 Specifications Components and Format

The Contractor must prepare design specifications that include a UFGS specification for each product, material, or system on the project. If the Contractor chooses or is required above to combine design and construction submittal information on the design documents, provide a UFGS specification and also proprietary information such as catalog cuts and manufacturers data that demonstrates compliance with the RFP. Organize the specifications using Construction Specification Institute (CSI) MasterFormat™ unless the Contracting Officer requires a UniFormat organization. Navy's use of system specifications takes precedence over CSI MasterFormat component breakdown and related component specifications. Provide project specifications to include the following:

a. Provide the specification cover sheet with the professional seal and signature of the lead licensed architect or engineer of the project design team. Indicate the Contractor's company name and address on the specification coversheet.

b. Table of contents for entire specification.

c. Individual UFGS specification sections for each product, material, and system required by the RFP. Edit UFGS sections in accordance with RFP Part 4, PTS Section Z-10, Design Submittals.

d. If proprietary information is provided or required, include a coversheets for the product, material, or system information that is being proprietarily specified. This information is to follow the related UFGS specification.

e. If proprietary information is provided or required, include highlighted and annotated Catalog Cuts, Manufacturer's Product Data, Tests, Certificates, Manufactures information and letters for each product, material, or system that is being proprietary specified.

f. Coordinated submittal register for all products, materials and systems with each design submittal. Provide a cumulative register that identifies the design and construction submittals required by each design package along with previous design submittals. The DOR must assist in developing the submittal register by determining which submittal items are required to be approved by the DOR. Complete all fields in the final submittal register in order to obtain Government approval of the final design. Submittal register to include separate but simultaneous delivery and approval of design or data required to fulfill sustainability requirements by Section 01 33 29 SUSTAINABILITY REQUIREMENTS AND REPORTING.

1.10.2 Specifications Section Source Priority

Choose UFGS sections that describe the products, materials, and systems that are used on the project. Use current UFGS sections that are available on the Whole Building Design Guide website (available at this website: https://www.wbdg.org/ufgs and give priority to the Unified Tri-Service UFGS sections (no spec number suffix) and UFGS that are prepared by NAVFAC (.00 20 suffix). Only use a UFGS section prepared by another DoD Component (.00 10, and .00 30 suffix), if an applicable NAVFAC prepared specification section does not exist. Do not use Army (.00 10 suffix) specifications from Division 22 through Division 28. If no applicable UFGS technical specification exists to meet your project requirements, consult with the NAVFAC Component for guidance and create a new UFGS specification in accordance with UFS 1-300-02, Unified Facilities Guide Specifications (UFGS) Format Standard.

1.10.3 Fire Protection Specifications

Specifications pertaining to spray-applied fire proofing and fire stopping, exterior fire alarm reporting systems, interior fire alarm and detection systems, and fire suppression systems, including fire pumps and standpipe systems must be either prepared by, or reviewed and approved by the Fire Protection DOR.

1.10.4 Identification of Manufacturer's Product Data Used with 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 RFP.

Coordinate with Section 01 78 24.00 20 FACILITY DATA WORKBOOK (FDW) for Contractor's eOMSI responsibilities.

1.10.5 Specification Software

Submit the final specification source files in SpecsIntact.

1.11 BASIS OF DESIGN

Prepare, organize, and present basis of design in accordance with the requirements of FC 1-300-09N. The basis of design must be a presentation of facts at the Concept Design Workshop to demonstrate the concept of the project is fully understood and the design is based on sound engineering principles. Provide design analyses for each discipline and include the following:

a. Basis of design that includes:

(1) An introductory description of the project concepts that addresses the salient points of the design;

(2) An orderly and comprehensive documentation of criteria and rationale for system selection; and

(3) The identification of any necessary licenses and permits that are anticipated to be required as a part of the design or construction process. The "Permits Record of Decision" (PROD) form provided must be used for recording permits.

b. Code and criteria search must identify all applicable codes and criteria and highlight specific requirements within these codes and criteria for critical issues in the facility design.

c. Calculations as specified and as needed to support this design.

d. Sustainability eNotebook: Maintain up-to-date documentation of analysis and calculations relative to sustainable design requirements. Refer to Section 01 33 29 SUSTAINABILITY REQUIREMENTS AND REPORTING and FC 1-300-09N for requirements.

e. Completed Draft and Final High Performance and Sustainable Building (HPSB) Checklist, formerly known as the NAVFAC Sustainable and Energy Data Record Card (NSEDRC). Template can be found at: https://www.wbdg.org/dod/sustainability/tracking-reporting.

f. Provide an exterior enclosure vapor pressure analysis, hygrothermal analysis, and written/graphic descriptions for each unique wall and roof assembly used as part of exterior enclosure barriers.

g. Section titled "Antiterrorism" that documents the antiterrorism features

h. Fall Protection Analysis

i. Draft and Interim DD Form 1354 that document the real property assets of the project. Refer to RECORD DOCUMENTS paragraphs in this section for requirements.

j. eOMSI Facility Data Workbook (FDW)

k. Section titled "Cybersecurity" that documents the cybersecurity design and construction of facility-related control system requirements.

1.11.1 Basis of Design Format

The basis of design for each design discipline must include a cover page indicating the project title and locations, contract number, table of contents, tabbed separations for quick reference, and bound in separate volumes for each design discipline.

1.11.2 Design Calculations

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

1.11.3 Fall Protection Analysis

Eliminate fall hazards in the facility or if not feasible provide control measures to protect personnel conducting maintenance work after completion of the project. Identify fall hazards in the Basis of Design with the Design Development and Prefinal submittals. The analysis must describe how fall hazards are considered, eliminated, prevented or controlled to prevent maintenance personnel from exposure to fall hazards while performing work at heights. Refer to RFP Part 2, Section 01 35 26 GOVERNMENTAL SAFETY REQUIREMENTS for fall hazard protection requirements.

1.11.4 Cybersecurity Basis of Design

Provide a single submittal indicating criteria and describe requirements for integrating cybersecurity in the design and construction of the facility-related control systems in accordance with UFC 4-010-06. The basis of design must describe specific guidance for control systems with the assigned Confidentiality, Integrity and Availability (C-I-A) impact ratings and shall list the security controls with recommendations and justifications for future tailoring of the security control set.

1.12 PROJECT RENDERING

Provide a full color photo-realistic architectural rendering of the primary facade or facades of the facility. Depict the final, approved facility design and accurately illustrate the proposed final constructed facility including but not limited to, massing, fenestration pattern, material selections, colors, textures, landscaping, paving, and to the extent directed - the surrounding context.

Renderings created using traditional casein painted techniques or computer generated renderings are acceptable. Develop computer generated

renderings using a current rendering engine suitable to produce photo-realistic images. Renderings created solely in BIM or CAD authoring software are not acceptable.

Renderings must include realistic advanced lighting characteristics (natural and synthetic) and true ambient lighting and shading characteristics. Provide images that are sharp in detail and resolution through proper anti-aliasing techniques. Material maps must be comprised of advanced techniques and practices to ensure materials are an exact representation of the facility product/finish selections.

1.12.1 Preliminary Rendering Planning

Provide planning PDF drawings of the facility to exhibit the proposed rendering appearance. Submit not less than 3 alternative views for review and approval to determine the most advantageous view. The Preliminary rendering submittal must display the following characteristics of the final rendering;

a. Selection of primary facade(s)

b. Point of view (aerial, eye-level, elevated, etc.)

c. Close-up or wide angle

d. Extent of surrounding context

Adjust view and resubmit if an alternative to the submitted views is required for the rendering planning approval. Submit rendering planning submittal during the Preliminary Design Submittal.

1.12.2 Prefinal Rendering

Submit three hard copies of the prefinal rendering to indicate compliance with planning decisions, establish level of detail and rendering elements to be employed such as people, cars, vegetation/trees. Indicate proposed colors, textures, foreground and background. Use processes and printing equipment that will be used on the final rendering. Submit Prefinal rendering submittal for approval with the Prefinal Design Submittal.

1.12.3 Final Rendering

Provide the final rendering submission that complies with the following requirements:

a. The rendering must be a full vignette and fully developed. Approximate finished size must be a minimum of 24 by 30 inches with a 16 by 20 inches minimum inside mat dimension.

b. Provide final original color rendering, two full size high resolution reproductions of the original rendering, and two sets of the digital master images on DVD media. Original and reproductions must be mounted on acid free heavy illustration board and double-matted with complimentary colored, acid free mat boards. Frame rendering(s) with contemporary polished metal frames and single strength, non-glare glass. Print the Project name, location, Architect/Engineer firm's name on the matting. On the back of the renderings and reproductions, indicated the project name, the location, the contract number, and the date of reproduction.

c. Match the exterior color scheme approved for the facility.

d. Provide photo-realistic quality rendering elements such as people, cars, vegetation/trees, and so forth.

e. Provide digitally reproductions of the rendering using a minimum 600 dpi resolution for print reproduction on 24 by 36 inch stock with no loss of fidelity, quality or detail from the master image.

f. Provide each set of digital master images in both TIF and JPEG formats. Save JPEG images using the highest quality setting (minimum compression). Provide the following as a minimum;

(1) One set including the unit insignia(s) for the tenant activity, the service insignia (Navy, Marine Corps, Army, or Air Force), the name of the facility, name of installation, and the names of the contractor and design professional.

(2) One set including the image only, without any identifying information other than that which may be depicted as a part of the building signage within the rendering.

g. Submit the final rendering for approval 30 days after the Final Design Submittal approval. Ship the rendering, the digital copies and the digital files in resilient packaging to ensure damage free delivery.

1.13 RECORD DOCUMENTS

1.13.1 Record Drawings

The as-built modifications must be accomplished by electronic drafting methods on the Contractor-originated DWG design drawings to create a complete set of record drawings.

a. For each record drawing, provide CAD drawing identical to signed Contractor-originated PDF drawing, that incorporates modifications to the as-built conditions. In addition, copy initials and dates from the Contracting Officer approved .PDF documents to the title block of the record CAD.DWG drawings. The RFP reference or definitive drawings are not required for inclusion in the record set of drawings.

b. After all as-built conditions are recorded on the CAD.DWG files, produce a PDF file of each individual record drawing in conformance with FC 1-300-09N. Electronic signatures are not required on record drawings.

c. Provide a searchable electronic copy of the photo documentation used in the QC Daily Reports. Refer to Section 01 45 00 QUALITY CONTROL.

1.13.2 Source Documents

Provide the specifications, basis of design, reports, surveys, record model, calculations, and any other contracted documents on the CD-ROM or DVD disk with the record drawings.

1.13.3 DD Form 1354

Prepare a Draft and Interim DD Form 1354, TRANSFER AND ACCEPTANCE OF

MILITARY REAL PROPERTY, in accordance with UFC 1-300-08. Coordinate the identification of quantities of appropriate asset construction categories with the Contracting Officer and the RPAO.

a. The Government will provide the Initial Draft DD Form 1354, Transfer and Acceptance of Military Real Property filled in with the appropriate Real Property Unique Identifiers (RPUID) and related construction Category Codes to summarize the designed real property assets that apply to this contract. Modify and include any necessary changes to the DD Form 1354 when meeting with the Contracting Officer and the Real Property Accounting Officer during the Pre Construction Meeting and the Project Closeout Meetings. The Contractor must provide the Interim DD Form 1354 that uses the appropriate division of the RPUIDs/ Category Codes to represent the final constructed facility and include all associated cost.

(1) Coordinate the Contractor's Price and Payment structure with the structure of the RPUIDs/ Category Codes.

(2) Divide detailed asset breakdown into the RPUIDs and related construction Category Codes and populate associated costs which represent all aspects of the work. Where assets diverge into multiple RPUID/Category Codes, divide the asset and provide the proportion of the assets in each RPUID/ Category Code. Assets and related RPUID/ Category Codes may be modified by the Contracting Officer as necessary during course of the work.

(3) Coordinate identification and proportion of these assets with the Government Real Property Accounting Officer.

(4) Cost data accumulated under this section are required in the preparation of DD Form 1354.

b. After award of the contract but prior to commencement of any work, meet with the Contracting Officer to discuss and develop a clear understanding relative to the administration of the Draft and Interim DD Form 1354 Submittal.

c. Draft DD Form 1354. DOR must determine quantities of applicable real property assets broken out by construction categories and submit a "Draft DD Form 1354" for Government approval as a part of the Basis of Design included with the Prefinal Design submittal. "Draft DD Form 1354" must include all quantities and units of measure, but does not require cost breakdown. The Real Property Accountable Officer (RPAO) will provide the first draft of the DD1354 to the contractor with RPUIDs and CCNS on it.

d. Interim DD Form 1354. Coordinate with the DOR and update the Draft DD Form 1354 submission to include any additional assets, improvements, or alterations that occurred during construction. Use the Draft DD Form 1354 and the Section 01 20 00 PRICE AND PAYMENT PROCEDURES to identify costs. Submit Interim DD Form 1354 to the Government for approval 30 days prior to the Beneficial Occupancy Date (BOD). Attach completed NAVFAC High Performance and Sustainable Building (HPSB) Checklist to DD1354, in accordance with Section 01 33 29 SUSTAINABILITY REQUIREMENTS AND REPORTING. If modifications to the Interim DD Form 1354 are required by the Government, the corrected version must be submitted prior to the BOD.

Coordinate with Section 01 20 00 PRICE AND PAYMENT PROCEDURES for construction categories and associated category codes. The Contractor's Schedule of Prices must allocate the total cost of construction to the appropriate category codes.

When documenting demolition work, the DD Form 1354 must list the quantitative data associated with this work as a negative value to show the cost should be deleted from the Navy asset data store. Coordinate with the Installation Real Property POC to assist in determining the negative value for demolition work.

There are two ways to account for the demolition portion of the project and to document the reduction of real property: (1) attach an Authorization for Demolition form 18 (Service-specific) to the DD Form 1354 to document category codes and quantities of demolished real property. These should be listed separately from constructed/transferred item numbers; or, (2) indicate, as additional DD Form 1354 item numbers, all demolished real property facility numbers and category codes using negative numbers (shown in parenthesis) for units of measure, and in block 18 indicate N/A for costs. Disposal cost within the footprint of the project is added into total construction cost of new facility prompting the demolition.

1.13.4 Record Model

Provide Record Model in accordance with FC 1-300-09N.

1.14 REQUEST FOR INFORMATION

Submit copies of all completed Request for Information (RFI) correspondences to the Contracting Officer within 5 working days of the RFI completion.

PART 2 PRODUCTS

2.1 CONSOLIDATED RFP DOCUMENTS

Within four weeks after contract award, provide three electronic and hard copies of consolidated RFP documents incorporating the Contractor's Proposal and all RFP amendments and revisions that are contained in the contract award. Identify the changes to the RFP with the "Red-lining" or "Track Changes" feature of SpecsIntact or MS Word to highlight the pre-award modifications to the contract. Identify the amendment source at each addition and deletion by annotation, such as footnote or reference in parenthesis.

2.2 DESIGN SUBMITTALS

Complete the Contractor-originated design submittals as defined by this contract, and coordinate with the approved design network analysis schedule.

Refer to Section 01 33 29 SUSTAINABILITY REQUIREMENTS AND REPORTING for sustainable design submittals.

2.2.1 Design Submittal Packages

The Government prefers to review for Quality Assurance (QA) as few submittal packages as possible. Site and Building Design Submittal Packages are required, however Critical Path Design Submittals are acceptable if they are substantiated as having an impact to the critical path in the Government approved Network Analysis Schedule. A Critical Path submittal must include all design analyses, drawings, specifications and product data required to fully describe the project element for Government review.

Examples of project elements that may be submitted as Critical Path Design Submittal Packages are: Master Plan Design, Demolition Design, Foundation Design, Structural Design, Building Enclosure Design, Remaining Work Design, Furniture/Equipment Design, long lead items, or any other construction activity or project element that can be organized into a submittal package that can be reviewed and approved by the Government without being contingent upon subsequent design submittals.

2.2.1.1 Site Design

The Site Design typically includes the following components:

a. Demolition

b. Site work including Environmental

c. Geotechnical

2.2.1.2 Building Design

The Building Design typically includes the following components:

a. Foundation

b. Structural

c. Building Enclosures

d. Remaining Work

e. Furniture/Equipment

2.2.2 Required Design Submittals

Provide the following Design Submittal packages. Provide comprehensive, multi-discipline design packages that include design documentation for project elements, fully developed to the design stage indicated, and in accordance with FC 1-300-09N, except where specified otherwise.

a. Concept Design presented at Concept Design Workshop

b. Design Development - Government Progress QA. 21 calendar day Government review time.

c. Prefinal (100 percent) Design - Government Progress QA. 21 calendar day Government review time.

d. Final Design - Government QA. 21 calendar day Government review time for submittals requiring Government approval prior to construction.

2.2.3 Review Copies of Design Submittal Packages

a. Provide bound copies of each design submittal package for review to the following reviewers. Addresses for mailing will be furnished at the PAK meeting.

(1) 2 paper copies to the NAVFAC component and 1 electronic copies of the Final submittals.

(2) 3 paper copies of drawings 11x17 half size and 1 electronic copy to the Activity Public Works Officer (PWO).

(3) CM - 3 half-size (11x17) drawings

b. Provide the same quantities of copies for resubmittals, as required for each design submittal.

2.2.4 Design Submittal Review Schedule

Use the time frames for Government submittal review identified in the RFP. For construction scheduling purposes add additional time to the identified minimum review time periods to allow for the following scheduling conditions:

(1) Submittals received after noon will be logged in on the following business day.

(2) Federal holidays, including the period between Christmas and New Year's Day, will be considered non-working days for Government personnel in reviewing design submittals and attending design related meetings.

(3) Postpone delivery if Government personnel to receive the submittal are unavailable. Assure in advance of the submittal delivery it can be received.

(4) Postpone delivery when heightened security restricts access to the Base. Coordinate heightened security requirements in advance with the CM.

(5) Period of review for a resubmittal is the same as the initial submittal. Review time for resubmittals caused by non-conformance, do not result in a change in contract duration or cost.

2.2.5 Distribution of Approved Final Design Drawings and Specification to Government Representatives

Submit within 14 calendar days of receiving the Government Approved Final Design Documents, which includes any Critical Path Final Design Document Packages, electronic and hardcopy(s) of these final documents to Government representatives for use during the construction of the project. If Critical Path Submittal Packages are used, provide coversheets and index to identify each sheet and how this Critical Path Submittal Package fits into the overall project. Provide the number and

type of copies of the final design documents to the following Government representative:

a. One electronic and two hard copy(s) to the Project Manager

b. One electronic and one hard copy to the Construction Manager

c. One electronic and 3 paper copies of drawings 11x17 half size Activity Public Works Officer

2.3 IDENTIFICATION OF DESIGN SUBMITTALS

Provide a title sheet to clearly identify each submittal, the completion status, and the date. The title sheet must use the standard format indicated in the FC 1-300-09N for title sheets. The title sheet must be unique to a particular design submittal. Submit the project title sheet with design status and date for the design submittals.

2.3.1 Critical Path Submittal Title Sheet

Identify Critical Path submittals as such and include a title sheet indicating the type of critical path submittal, the level of completion of the individual drawings, and which drawings are approved for construction.

2.3.2 Construction Document Validation

All CAD design documents used to construct the facility must bear a visible and legible AutoCAD generated plotstamp in the lower right-hand margin of each drawing. The plotstamp information on the jobsite construction documents must match the plotstamp information contained on the following development stages of the design documents:

a. The Final Critical Path Submittal or the Final Design Submittal professionally signed by the DOR and submitted for Government approval.

b. The Final Critical Path Submittal or the Final Design Submittal drawings that have been approved by the Government. This development stage may be combined with "c." below, if issued at the same time.

c. The Final Critical Path or Final Design drawings that have been included in the contract by modification.

d. The Final Critical Path or Final Design drawings which include subsequent revisions to the design documents that have been included in the contract by modifications.

Issue new drawings for construction which bear the current plotstamp once a new development stage of the design documents has been accomplished. Design documents which do not bear a plotstamp that matches the corresponding plotstamp exhibited on the design documents described above, are not allowed to be used for the construction of the project. The plotstamp must bear the date and time of the plot, at a minimum. Maintain a plotstamp record at the jobsite that lists the applicable plotstamp information for each drawing through each stage of development described above.

PART 3 EXECUTION

3.1 CONTRACTOR'S RESOLUTION OF COMMENTS

Provide written responses to all written comments by the Government. Resubmittal of an unacceptable design submittal must be a complete package that includes all the required, specified components of that design submittal. When required by the Government, Contractor resubmittal of design package, due to nonconformance to the contract, is not a delay in the contract.

3.2 DESIGN CHANGE AND VARIATIONS

A design change is when the design is revised from what was reviewed by the Government during any phase of the design process prior to Government approval of the Final Design. A variation is any portion of the design that differs from the requirements of the solicitation, accepted proposal, or final design after Government approval of the Final Design. Design changes and variations require Government approval and only variations that are advantageous to the Government will be considered. Refer to Section 01 33 00.05 20 CONSTRUCTION SUBMITTAL PROCEDURES for further explanation and requirements of design change and variation. Discuss design changes and variations with the Contracting Officer before submission to address functional and quality requirements are met and minimize rejections and resubmittals. When contemplating a design change or variation that results in lower cost, consider submission of the variation as a Value Engineering Change Proposal (VECP).

The Contractor must immediately notify the Government of all potential design changes and variations via a Request for Information (RFI) which must be clearly marked as "DESIGN CHANGE" or "VARIATION" to the Contracting Officer. Design changes or variations that the Contractor asserts will require a contract modification to adjust the cost/price or schedule are not allowed to be incorporated in the design during any phase of the design process without prior documented approval from the Contracting Officer. Contractors will not receive compensation for any unauthorized design changes or variations which have been included in the Government approved Final Design. Include the following information in the design change and variation submittal:

a. Indicate the RFP Parts, sections, and paragraphs affected by this design change or variation,

b. The scope of work of the design change or variation,

c. The reason for the proposed change,

d. Explanations of how the variation is advantageous to the Government.

e. Indicate which upcoming design submittal will be affected by the subject design change,

f. Explanation of contract cost/price and schedule impacts or provide an affirmative statement indicating that the design change or variation will not have an impact on the contract cost/price or schedule.

g. Coordination measures proposed to incorporate the design change or variation into the construction.

h. Upon request by the Contracting Officer, submit a cost proposal prepared using the UniFormat Work Breakdown Structure for all design changes and variations that have cost or schedule impacts. Submit a proposal that provides cost breakdown of each UniFormat system or subsystem that is applicable to the design change or variation. Utilize the units of measure indicated in the UniFormat Structure at the NAVFAC DB RFP website, https://www.wbdg.org/navy/ndbm.

3.3 THE CONTRACT AND ORDER OF PRECEDENCE

3.3.1 Contract Components

The contract consists of the solicitation, the approved proposal, and the final design.

3.3.2 Order of Precedence

In the event of conflict or inconsistency between any of the below described portions of the conformed contract, precedence must be given in the following order:

a. Any portions of the proposal or final design that exceed the requirements of the solicitation.

(1) Any portion of the proposal that exceeds the final design.

(2) Any portion of the final design that exceeds the proposal.

(3) Where portions within either the proposal or the final design conflict, the portion that most exceeds the requirements of the solicitation has precedence.

b. The requirements of the solicitation, in descending order of precedence:

(1) Standard Form 1442, Price Schedule, and Davis Bacon Wage Rates.

(2) Part 1 - Contract Clauses.

(3) Part 2 - General Requirements.

(4) Part 3 including Part 3B - Project Program Requirements.

(5) Part 5 - Prescriptive Specifications exclusive of performance specifications.

(6) Part 4 - Performance Specifications exclusive of prescriptive specifications.

(7) Part 6 - Attachments.

c. Within Part 3 - Project Program Requirements Section 5.0 ROOM REQUIREMENTS provides detailed requirements on a room by room basis that further defines requirements that are in addition to the ENGINEERING SYSTEMS REQUIREMENTS SECTION.

3.3.2.1 Government Review or Approval

Government review or approval of any portion of the proposal or final

design does not relieve the Contractor from responsibility for errors or omissions with respect thereto.

-- End of Section --

SECTION 01 33 29

SUSTAINABILITY REQUIREMENTS AND REPORTING
02/21, CHG 1: 08/25

PART 1 GENERAL

1.1 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. For references without a year, use the current published version.

COUNCIL ON ENVIRONMENTAL QUALITY (CEQ) (WHITE HOUSE)

HPSB Guiding Principles	Guiding Principles for Sustainable Federal Buildings and Determining Compliance with the Guiding Principles for Sustainable Federal Buildings

GREEN BUILDING INITIATIVE (GBI)

GBI DOD GP Compliance	(2017) GBI Department of Defense Guiding Principles Compliance Program for New Construction

INTERNATIONAL CODE COUNCIL (ICC)

ICC IgCC	(2018) International Green Construction Code

U.S. DEPARTMENT OF AGRICULTURE (USDA)

FSRIA 9002	Farm Security and Rural Investment Act Section 9002 (USDA BioPreferred Program)

U.S. DEPARTMENT OF DEFENSE (DOD)

UFC 1-200-02	(2020; Change 3, 2025) High Performance and Sustainable Building Requirements
UFC 3-410-01	(2025; with Change 1, 2025) Heating, Ventilating, and Air Conditioning Systems
UFC 3-600-01	(2016; with Change 6, 2021) Fire Protection Engineering for Facilities

U.S. DEPARTMENT OF ENERGY (DOE)

Energy Star	Energy Star Energy Efficiency Labeling System (FEMP)
FEMP	Federal Energy Management Program (FEMP) Energy-Efficient Product Procurement

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

10 CFR 433.300	Subpart C - Green Building Certification for Federal Buildings
40 CFR 247	Comprehensive Procurement Guideline for Products Containing Recovered Materials

1.2 SUMMARY

This section includes requirements for Sustainability documentation and reporting submittals per the federally mandated High Performance and Sustainable Building (HPSB) or HPSB "Guiding Principles" (GP), and Third-Party Certification (TPC) requirements, in accordance with UFC 1-200-02 High Performance and Sustainable Building Requirements, and other identified requirements.

1.3 SUBMITTALS

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. Submittals not having a "G" or "S" classification are 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 00.05 20 CONSTRUCTION SUBMITTAL PROCEDURES and Section 01 33 10.05.20 DESIGN SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Preliminary High Performance and Sustainable Building Checklist; G

Sustainability Action Plan; G

Preliminary Sustainability eNotebook; G

SD-05 Design Data

Interim Design High Performance and Sustainable Building Checklist; G

Interim Design Sustainability eNotebook; G

Final Design High Performance and Sustainable Building Checklist; G

Final Design Sustainability eNotebook; G

SD-06 Test Reports

Third-Party Certification Design Compliance Report; G

SD-11 Closeout Submittals

Final High Performance and Sustainable Building Checklist; G

Final Sustainability eNotebook; G

Amended Final Sustainability eNotebook; G

Amended Final High Performance and Sustainable Building Checklist; G

Third-Party Certification Certificate, Assessment, or Validation and Compliance Report; G

1.4 GUIDING PRINCIPLES VALIDATION (GPV)

Guiding Principles Validation (GPV) is the project delivery team's self-assessment of UFC 1-200-02 compliance requirements, which includes meeting Federally-required tracking and reporting requirements, in order to report a sustainable Federal building. The use of a third-party certification is an additional and separate requirement.

Provide the following sustainability activities and documentation to verify achievement of HPSB Guiding Principles Validation (GPV):

a. Refer to Attachment 1, HPSB Checklist, at the end of this specification checklist. Each building requires individual HPSB Checklist tracking.

b. Annotations to HPSB Checklist have been provided for reference. No changes to goals stated in the HPSB Checklist are allowed without approval from the Contracting Officer, in accordance with Section 01 33 00.05 20 CONSTRUCTION SUBMITTAL PROCEDURES and Section 01 33 10.05 20 DESIGN SUBMITTAL PROCEDURES, paragraph DESIGN CHANGE AND VARIATION. Immediately bring to the attention of the Contracting Officer any project changes that impact meeting the approved HPSB Guiding Principles Requirements for this project. Demonstrate the change will not increase the life-cycle cost and maintains or improves the building performance.

c. Documentation of all work required to incorporate the applicable HPSB Guiding Principles requirements indicated on the HPSB Checklist and in this contract, including all "S" submittals.

d. Sustainability Action Plan.

e. Design and construction related documentation for the project Sustainability eNotebook and keep updated with regularly-scheduled Construction Quality Control Meetings. Include design and construction related documentation containing the following components:

(1) HPSB Checklist(s)

(2) Sustainability Action Plan

(3) Documentation illustrating HPSB Guiding Principles Requirements compliance, including "S" submittals

1.4.1 Sustainability Action Plan

Include the following information in the Sustainability Action Plan:

a. Analysis of each HPSB Guiding Principles Requirement and how project will comply. Final government approved narrative(s) must be included in the HPSB Checklist submittal.

b. Name and contact information for: Contractor's Point of Contact (POC) ensuring sustainability goals are accomplished and documentation is assembled. For TPC that include on-site visit by third party representative, provide list of required attendees.

c. Indoor Air Quality plan.

1.4.2 Calculations

Provide all design data, calculations, product data, labels and product certifications required in this specification to demonstrate compliance with the HPSB Guiding Principles Requirements.

1.5 SUSTAINABILITY SUBMITTALS

Provide HPSB Checklist and other documentation in the Sustainability eNotebook to indicate compliance with the sustainability requirements of the project.

1.5.1 High Performance Sustainable Building (HPSB) Checklist

Provide construction documentation that provides proof of, and supports compliance with, the completed HPSB Checklist.

1.5.1.1 HPSB Checklist Submittals

Submit updated HPSB Checklist with each Sustainability eNotebook submittal. Include the final HPSB Checklist(s) with the interim DD1354 Real Property Record Submittal.

1.5.2 "S" Submittals for Sustainability Documentation

"S" submittals are the sustainability documentation requirements cited in the various sections of this contract. Submit the GPV and TPC sustainability documentation required in this section as "S" submittals in all affected UFGS Sections.

a. Highlight GPV and TPC compliance data in "S" submittal.

b. Add "S" submittals to the Sustainability eNotebook only after submittal approval, and bookmark them as required in paragraph SUSTAINABILITY ENOTEBOOK below.

c. Ensure all approved "S" submittals are included in each Sustainability eNotebook submittal.

1.5.3 Sustainability eNotebook

The Sustainability eNotebook is an electronic organizational file that serves as a repository for all required sustainability submittals. To support documentation of compliance with an approved HPSB and TPC checklist, provide and maintain a comprehensive and current Sustainability eNotebook. Include all required data in Sustainability eNotebook, to support full compliance with the HPSB Guiding Principles Requirements, including:

a. HPSB checklist

b. Sustainability Action Plan

c. Calculations

d. Labels

e. "S" submittals

f. Certifications, assessments, or validations and compliance report

g. TPC documentation required in paragraph THIRD-PARTY CERTIFICATION (TPC).

1.5.3.1 Sustainability eNotebook Format

Provide Sustainability eNotebook in the form of an Adobe PDF file; bookmark each HPSB Guiding Principles Requirement, and each TPC requirement, and sub-bookmark at each document. Match format to HPSB Guiding Principles numbering system indicated herein. Maintain up-to-date information, such as spreadsheets, templates, with each current submittals. For TPC projects, provide a second Table of Contents using TPC numbering system, for maintaining documentation unique to TPC.

Contracting Officer may deduct from the monthly progress payment accordingly if Sustainability eNotebook information is not current and on track per project goals.

1.5.3.2 Sustainability eNotebook Submittal Schedule

Provide Sustainability eNotebook Submittals at the following milestones of the project:

a. Preliminary Sustainability eNotebook

b. Submit preliminary Sustainability eNotebook with updated Preliminary High Performance and Sustainable Building Checklist and TPC checklist at the first post award meeting in accordance with Section 01 30 00 ADMINISTRATIVE REQUIREMENTS.

c. Interim Design Sustainability eNotebook

d. Submit updated Sustainability eNotebook with updated Interim Design High Performance and Sustainable Building Checklist with TPC Checklist with the Final design, in accordance with Section 01 33 10.05 20 DESIGN SUBMITTAL PROCEDURES. If issues relating to achieving the sustainability goals of the project are subsequently identified, identify reasons and mitigation from DOR, and resubmit to the Contracting Officer for approval.

e. Final Design Sustainability eNotebook

f. Submit updated Sustainability eNotebook with updated Final Design High Performance and Sustainable Building Checklist with TPC Checklist with the final design, in accordance with Section 01 33 10.05 20 DESIGN SUBMITTAL PROCEDURES. If issues relating to achieving the sustainability goals of the project are subsequently identified, identify reasons and mitigation from DOR, and resubmit to the Contracting Officer for approval.

g. Third-Party Certification Design Compliance Report

h. Obtain Third-Party Certification Design Compliance Report after final design submittal is approved. Submittal must indicate 100 percent compliance with applicable design requirements. File approved submittal in the Sustainability eNotebook.

i. Construction Quality Control Meetings.

j. Provide up-to-date GP and TPC documentation in the Sustainability eNotebook and TPC Online tool for each meeting.

k. Final Sustainability eNotebook

l. Submit updated Sustainability eNotebook with updated Final High Performance and Sustainable Building Checklist with TPC Checklist, in accordance with Section 01 33 00.05 20 CONSTRUCTION SUBMITTAL PROCEDURES at Beneficial Occupancy Date (BOD). Final progress payment retainage may be held by Contracting Officer until Final Sustainability construction phase documentation is complete.

m. Amended Final Sustainability eNotebook

n. Amend and resubmit the Amended Final Sustainability eNotebook with Amended Final High Performance and Sustainable Building Checklist and amended TPC Checklist, to include post-occupancy corrections, updates, and requirements. Final progress payment retainage may be held by Contracting Officer until amended final sustainability documentation is complete. Submit electronic copy of the Amended Final Sustainability eNotebook Submittal to the Contracting Officer no later than 30 days after final GP, TPC determination.

1.6 DOCUMENTATION REQUIREMENTS

a. Incorporate each of the following HPSB Guiding Principles requirements into project and provide documentation that proves compliance with each listed requirement. Items below are organized by HPSB Guiding Principles. For life-cycle cost analysis requirements, one document with all analyses is acceptable, with Contracting Officer approval.

b. For each of the following paragraphs that require the use of products listed on Government-required websites, provide documentation of the process used to select products, or process used to determine why listed products do not meet project performance requirements.

1.6.1 Integrated Design Process

For the submittal documentation below, demonstrate compliance with UFC 1-200-02.

1.6.1.1 Design Submittal Documentation

a. List the sustainability integrated design team, and a description of their roles in all stages of a project's planning and delivery:

(1) Include Contractor's Sustainability Coordinators; Architecture and Engineering disciplines involved on the project, and the DOR in charge of the overall project and each discipline;

Construction Subcontractors and the company representatives that align with each architectural and engineering discipline, Planning, Public Works, Environmental Specialist and other appropriate installation personnel.

(2) Describe their roles and responsibilities and plan-of-action for how each team member will be involved to achieve the project sustainability requirements, and how the Contractor will coordinate with Government personnel.

(3) Maintain an up-to-date list with descriptions throughout the project.

b. Provide narratives that:

(1) Indicate each performance goal cited in UFC 1-200-02 paragraph "Integrated Design Process", along with other comprehensive design goals and ensures incorporation and integration of these goals throughout the planning, design, construction, and life cycle of the building..

(2) Demonstrate integration of the goals into design and construction.

(3) Demonstrate collaboration with other providers, such as Commissioning Provider and Third- Party Certifier.

1.6.2 Commissioning (Cx)

Develop and incorporate Commissioning requirements into the documents, and provide final commissioning report. Refer to Section 01 91 00.15 22 TOTAL BUILDING COMMISSIONING and related documents for commissioning requirements.

1.6.3 Optimize Energy Performance

For the submittal documentation below, demonstrate compliance with UFC 1-200-02.

1.6.3.1 Design Submittal Documentation

a. Narrative that provides a summary of:

(1) The decision-making process for considering and implementing passive strategies, as defined by UFC 1-200-02, prior to designing active and mechanical systems.

(2) The decision-making process leading to the selection of at least three energy-efficient solutions (for each system contributing to the energy footprint of the building) to be analyzed; and the selected design solution(s)

(3) The specific energy standard and version utilized; and the software used in the analysis

(4) The calculated energy consumption and energy use intensity (EUI in kBTU/sf/yr) of the baseline building and the proposed design alternatives

b. A minimum of the following energy modeling files and summaries for the

baseline and proposed alternatives:

(1) Input, schedules and libraries; and output

(2) Calculated energy use by energy type

(3) Calculated energy use by building system

c. The life-cycle cost analysis input and output files for the baseline and the proposed alternatives

1.6.3.2 Construction Submittal Documentation

Provide revised energy modeling for actual system constructed.

1.6.4 Energy Efficient Products

Provide only energy-using products that are Energy Star Certified by the Environmental Protection Agency (EPA) or that meet or exceed the efficiency standard designated by the Federal Energy Management Program (FEMP). Where Energy Star or FEMP requirements have not been established, provide most efficient products that are life-cycle cost-effective. Provide only energy using products that meet FEMP requirements for low standby power consumption. Energy efficient products can be found at: https://www.energystar.gov/.

For construction submittal documentation, provide proof that product is labeled energy efficient and complies with the cited requirements.

1.6.5 On-Site Renewable Energy Generation

For the submittal documentation below, demonstrate compliance with UFC 1-200-02.

1.6.5.1 Design Submittal Documentation

Provide life-cycle cost analysis (LCCA). When found to be LCCE, do one of the following options:

a. Provide design drawings and calculations that demonstrate total on-site renewable energy as an annual percentage of proposed building energy consumption in kBTU/year; and provide equipment ratings, and calculations that demonstrate the generation capacity of the system in kBTU/year for thermal and kwh for electricity.

b. Provide documentation that renewable energy development at the Installation level is planned.

1.6.6 Solar Domestic Hot Water (SDHW)

For the submittal documentation below, demonstrate compliance with UFC 1-200-02.

1.6.6.1 Design Submittal Documentation

Provide life-cycle cost analysis (LCCA). When found to be LCCE, provide design drawings and calculations that demonstrate total on-site renewable energy as an annual percentage of proposed building energy consumption in kBTU/year; and provide equipment ratings, and calculations that

demonstrate the generation capacity of the system in kBTU/year for thermal.

1.6.7 Building-level Power Metering

Provide building-level meters for electricity, natural gas, and steam where applicable.

1.6.7.1 Design Submittal Documentation

Provide design drawings that highlight meter locations on the site.

1.6.7.2 Construction Submittal Documentation

Provide documentation of meter communication with the base-wide meter monitoring system, and manufacturer's data validating compatibility with base-wide system and component advanced meter requirements.

1.6.8 Indoor Water Use

Provide Construction Documentation proof that fixtures are labeled EPA WaterSense, for products available with EPA WaterSense labeling; for all other fixtures, proof they comply with EPA WaterSense efficiency requirements.

1.6.9 Indoor Water Metering

Provide building-level meters for potable water use. Provide the requirements cited in the following paragraphs:

1.6.9.1 Design Submittal Documentation

Provide design drawings that highlight meter locations on the site.

1.6.9.2 Construction Submittal Documentation

Provide documentation of meter communication with the base-wide meter monitoring system, and manufacturer's data validating compatibility with base-wide system and component advanced meter requirements.

1.6.10 Outdoor Water Use

When there is no permanent irrigation system beyond plant establishment period, this element is met.

Where new irrigation is required beyond plant establishment period, provide only non-potable sources. Provide meters. Provide the requirements cited in the following paragraphs:

1.6.10.1 Design Submittal Documentation

a. Provide design drawings and analysis that identify the non-potable water source used and demonstrate the non-potable water source is appropriate for landscape irrigation, and that highlight meter locations on the site.

b. Provide life-cycle cost analysis (LCCA).

1.6.10.2 Construction Submittal Documentation

Provide documentation of meter communication with the base-wide meter monitoring system, and manufacturer's data validating compatibility with base-wide system and component advanced meter requirements.

1.6.11 Outdoor Water Meters

Provide meters for outdoor systems that use potable water. Provide the requirements cited in the following paragraphs:

1.6.11.1 Design Submittal Documentation

a. Provide design drawings that highlight meter locations on the site.

b. Provide life-cycle cost analysis (LCCA).

1.6.11.2 Construction Submittal Documentation

Provide documentation of meter communication with the base-wide meter monitoring system, and manufacturer's data validating compatibility with base-wide system and component advanced meter requirements.

1.6.12 Alternative Water

Use alternative sources of water to replace potable water usage, when life-cycle cost-effective and to the extent permitted by local laws and regulations.

1.6.12.1 Design Submittal Documentation

a. Provide design drawings and calculations that demonstrate the alternative water sources used, potable water savings as compared to non-alternative water sourcing, and projected annual potable water savings.

b. Provide life-cycle cost analysis (LCCA).

1.6.13 Stormwater Management

Develop and incorporate stormwater requirements into the documents. Service processes, as proof of this tracking requirement.

1.6.14 Ventilation and Thermal Comfort

For the submittal documentation below, demonstrate compliance with UFC 1-200-02 and UFC 3-410-01.

1.6.14.1 Design Submittal Documentation

Provide design drawings and calculations that demonstrate HVAC systems and the building envelope have been designed to meet the requirements.

1.6.15 Daylighting

For the submittal documentation below, demonstrate compliance with UFC 1-200-02.

1.6.15.1 Design Submittal Documentation

a. Provide floor plans and elevations that demonstrates all required illumination levels, including automated and daylighting controls, and daylighting where people regularly occupy and gather.

b. Provide design analysis delineating requirements, to include compliant reflective surface locations and shading devices (where applicable).

1.6.16 Moisture Control

Provide the following:

1.6.16.1 Design Submittal Documentation

Provide drawings of building envelope details, HVAC humidity controls, and design calculations..

1.6.16.2 Construction Submittal Documentation

Ensure construction materials are separated and protected in accordance with other sections in this contract document, with adequate humidity controls during construction. In accordance with Section 01 78 23 OPERATION AND MAINTENANCE DATA, includes plan for ongoing building moisture control.

1.6.17 Reduce Volatile Organic Compounds (VOC) (Low-Emitting Materials)

Meet the requirements of Table 3-1 at the end of this specification.

For Construction submittal documentation, provide certifications or labels that demonstrate compliance with cited requirements, based on the attached TABLE 3-1.

1.6.18 Indoor Air Quality During Construction

Prior to construction, create indoor air quality plan. Develop and implement an IAQ construction management plan during construction and flush building air before occupancy.

For new construction and for renovation of unoccupied existing buildings, meet the requirements of ICC IgCC 1001.3.1.5 (10.3.1.5) Indoor Air Quality (IAQ) Construction Management. Coordinate with moisture control requirements in Section 01 45 00 QUALITY CONTROL.

Provide documentation showing that after construction ends and prior to occupancy, HVAC filters were replaced and building air was flushed out in accordance with the cited standard.

1.6.19 Recycled Content

Comply with 40 CFR 247. Refer to: https://www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program for assistance identifying products cited in 40 CFR 247. Selected products must comply with non-proprietary requirements of the Federal Acquisition Regulation and must meet performance requirements.

1.6.19.1 Construction Submittal Documentation

a. Provide manufacturers' documents stating the recycled content by material, or written justification for claiming one of the exceptions allowed on the cited website.

b. Substitutions: Submit for Government approval for proposed alternative products or systems that provide equivalent performance and appearance and have greater contribution to project recycled content requirements. For all such proposed substitutions, submit with the Sustainability Action Plan accompanied by product data demonstrating equivalence.

c. In order to complete compliance with FAR 52.223-9 Estimate of Percentage of Recovered Material Content for EPA Designated Items, refer to submittal requirement for recycled/recovered material content in Section 01 78 00 CLOSEOUT SUBMITTALS.

1.6.20 Bio-Based Products

Provide products and materials composed of the highest percentage of bio-based materials (including rapidly renewable resources and certified sustainably harvested products), consistent with FSRIA 9002 USDA BioPreferred Program, to the maximum extent possible without jeopardizing the intended end use or detracting from the overall quality delivered to the end user and when available at a reasonable cost. Use only supplies and materials of a type and quality that conform to applicable specifications and standards.

Comply with FSRIA 9002 USDA BioPreferred Program. Refer to www.biopreferred.gov for the product categories and BioPreferred Catalog. Selected products must comply with non-proprietary requirements of the Federal Acquisition Regulation and must meet performance requirements. Provide the following documentation:

a. USDA BioPreferred label for each product; for bio-based products used on project but not listed with BioPreferred program, provide bio-based content and percentage.

b. In order to complete compliance with FAR 52.223-1 Biobased Product Certification, refer to submittal requirement for biobased products in Section 01 78 00 CLOSEOUT SUBMITTALS, paragraphs CERTIFICATION OF EPA DESIGNATED ITEMS and CERTIFICATION OF USDA DESIGNATED ITEMS.

1.6.21 Waste Material Management (Recycling – Design)

For the submittal documentation below, demonstrate compliance with UFC 1-200-02.

For design submittal documentation, provide drawing showing an appropriately sized and placed dedicated storage area for recyclables.

1.6.22 Waste Material Management (Recycling – Construction)

Divert demolition and construction debris in accordance with Section 01 74 19 CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.

1.6.23 Address Risk

For design submittal documentation, provide narrative of decisions for design associated with scoped requirements.

1.6.24 Additional Sustainability Requirements

Provide the additional sustainability requirements cited in this paragraph.

1.6.24.1 Third-Party Certification (TPC) Documentation

Third-Party Certification certificate, assessment, or validation, and compliance report requirements are in addition to all requirements under header above GUIDING PRINCIPLES VALIDATION (GPV).

1.6.24.1.1 TPC Registration Required

Register and achieve Third-Party Certification (TPC), by meeting all TPC and project requirements to achieve GBI DOD GP Compliance, or Government-approved equivalent TPC sustainability certification, assessment, or validation. An equivalent TPC organization must demonstrate equivalency for Government consideration and meet the requirements of 10 CFR 433.300, prior to use on the project. Third-Party Certification is met when Government receives TPC organization certificate, assessment, or validation and compliance report.

Register project with TPC organization using the following format and content:

a. Project Title First Line: Building Owner (US Army, US Air Force, US Navy or US Marine Corps), Building Name (if known)

b. Project Title Second Line: MILCON P#, DD1391 Project Name

c. Project Address: UIC (Installation code), Category code, RPUID (Real Property Unique Identifier) Number

d. Project Owner Organization: US Army, US Air Force, US Navy or US Marine Corps

e. Primary Contact, Project Owner: Executing DOD Service's Project Manager or Design Manager

f. Building Owner Organization: US Army, US Air Force, US Navy or US Marine Corps

g. Building Owner Organization Project Number

h. Additional Contact, Building Owner: Public Works Officer or Designee.

1.6.24.1.2 TPC Management and Certification

Execute the following TPC Certification, assessment, or validation requirements:

a. Refer to GBI DOD GP Compliance Checklist.

b. Immediately bring to the attention of the Contracting Officer any project changes that impact meeting the approved TPC Requirements for

this project. Demonstrate the change will not increase the life-cycle cost and maintains or improves the building performance.

c. Complete all design and construction work to incorporate the applicable TPC Requirements.

d. Maintain the design and construction related information in the Sustainability eNotebook pertaining to additions and changes to the approved sustainability requirements. Maintain the Sustainability eNotebook in electronic format. Refer to explanation in the paragraph SUSTAINABILITY eNOTEBOOK. Provide the following components in the Sustainability eNotebook, in addition to the GPV components listed above:

(1) TPC Checklist

(2) Completed TPC forms. Transmit by the method required by TPC organization.

(3) Copy of all correspondence with the TPC organization. Provide proof of TPC registration.

(4) Documentation illustrating compliance with TPC requirements and additional documentation as requested by the Third Party certifier.

(5) TPC Award Certificate, assessment or validation and compliance report.

e. Provide the following information in the Sustainability Action Plan. Provide this TPC information in addition to the Sustainability Action Plan items above:

(1) Planned method to achieve each TPC requirement.

(2) Provide analysis of each TPC credit and how project will comply.

(3) Provide names and contact information for: Contractor sustainability point of contact (POC) and other names of sustainability professionals on the Contractor's Staff responsible for ensuring TPC sustainability goals are accomplished and documentation is assembled. It is recommended the construction team has a member with a current TPC credential, when available, that matches the TPC system and variation specialty pursued for the certification. When retained, this team member must be engaged and keep this credential current over the duration of the entire project schedule.

(4) TPC vendor's project identification and number.

f. Bear all costs associated with designing, constructing, demonstrating, and documenting that project complies with approved TPC requirements, including but not limited to:

(1) Registration, review, certification, assessment, or validation fees.

(2) Online (or offline with secure facilities) TPC management and documentation.

(3) Obtaining TPC certification, assessment, or validation based on Government-approved sustainability goals.

(4) Design and construction work required to incorporate TPC requirements.

(5) Submittals required to demonstrate compliance with Government approved TPC checklists.

g. Provide all design data, calculations, product data, and certifications, assessments, or validations required in this specification to demonstrate compliance with the TPC Requirements.

h. Provide all online (or offline, with secure facilities) TPC management and documentation.

i. Provide all required responses to third party organization.

j. Facilitate and participate in required TPC site visit. Coordinate with the Executing DOD Service's Project Manager and Design Manager, to determine participating team members. Include Commissioning provider on applicable projects.

k. Provide TPC Certificate, assessment, or validation. Provide TPC compliance report that includes level achieved and reasons for non-compliance or not applicable elements. Use the following format to create the Plaque, Certificate, assessment, or validation, compliance report, and Letter of Congratulations. Forward to parties designated by Contracting Officer:

(1) Certificate, Assessment, or Validation:

(2) Project title, first line: P-(X); (1391 Project Name). Project title, second line: UIC (installation code)

(3) Letter of Congratulation (when provided):

(4) Address letter to the Facility's Installation Commander Name. Address the letter to an individual person.

(5) Compliance Report:

(6) Title page must cite Project title: P-(X); (1391 Project Name); Final Building Name if known; UIC (installation code); Owner Service; User organization if known; date of compliance.

(7) Include TPC scoresheet if applicable.

l. Once Final Certification is achieved, turn over Administrative rights to online TPC to the Public Works Office or designee, contact information provided by the Contracting Officer.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 SUSTAINABILITY COORDINATION

Provide sustainability focus and coordination at all meetings to achieve sustainability goals. Coordinate meeting requirements with other UFGS Sections meeting requirements in this project. Ensure the designated TPC accredited sustainability professional responsible for GP and TPC documentation participates in these meetings to coordinate documentation completion. Review GP and TPC sustainability requirements, HPSB Checklist and TPC documentation, Sustainability Action Plan, and completeness status of Sustainability eNotebook, and TPC status at the following meetings:

a. Pre-Construction Conference

b. Construction Quality Control Meetings

c. Refer to Section 01 30 00 ADMINISTRATIVE PROCEDURES for Post Award Meetings.

d. Post Award Meeting

e. Design Quality Assurance Meetings

f. Design Complete Review Meetings

g. Conduct review no later than 60 days after final design complete submission and identify any outstanding issues that affect correct completion of all documentation requirements, and actions that will achieve requirements. Conduct corrective actions.

h. TPC On-site Visit

i. Execute, coordinate, and facilitate on-site visit by third-party representative no later than 60 days before final turnover, or as required by TPC organization, whichever is greater.

j. Facility Turnover Meetings

k. Conduct review no later than 60 days before final turnover and identify any outstanding issues that affect correct completion of all documentation and final TPC certification, assessment or validation, and actions that will achieve requirements. Conduct corrective actions prior to turnover, to ensure all requirements are achieved.

3.2 THIRD-PARTY CERTIFICATION CERTIFICATE, ASSESSMENT, OR VALIDATION AND COMPLIANCE REPORT

Finalize the process requirements and obtain the TPC Certificate, assessment, or validation, and compliance report, indicating completion of the project's sustainability goals. Include TPC compliance report with final TPC scoresheet as applicable.

Provide one original framed copy of the certificate, assessment, or validation, mounted in 1 inch deep metal frames, with double matt, and wire hangers, in location approved by Contracting Officer. Deliver one original certificate, assessment, or validation, and compliance report to Contractor Officer, unless otherwise instructed.

3.3 TABLE 3-1 VOLATILE ORGANIC COMPOUNDS (VOC) (LOW EMITTING MATERIALS) REQUIREMENTS

TABLE 3-1 Volatile Organic Compounds (VOC) (Low Emitting Materials) Requirements

Source: ICC IgCC Chapter 8 (Materials) (Interior Applications Only)

MATERIAL CATEGORY	EMISSIONS REQUIREMENT		MATERIALS WITH ADDED VOC REQUIREMENT	EMISSIONS REQUIREMENTS
Adhesives and Sealants	**CDPH/EHLB/Standard method V1.1 (California Section 01350)** (Use "office" or "classroom" space limits for all applications)	or	Adhesives (carpet, resilient, wood flooring; base cove; ceramic tile; drywall and panel; primers) Sealants (acoustical; firestop; HVAC Air duct; primers) Caulks	**SCAQMD Rule 1168** (Use "other" category for HVAC duct sealant) (for firestop adhesive, UFC 3-600-01 overrides conflicting requirements)
			Aerosol adhesives	**Section 3 of Green Seal Standard GS-36** (except: cleaners, solvent cements, and primers used with plastic piping and conduit in plumbing, fire suppression, and electrical systems; HVAC air duct sealants when the application space air temp is less than 40 F (4.5 C).

TABLE 3-1 Volatile Organic Compounds (VOC) (Low Emitting Materials) Requirements

Source: ICC IgCC Chapter 8 (Materials) (Interior Applications Only)

MATERIAL CATEGORY	EMISSIONS REQUIREMENT		MATERIALS WITH ADDED VOC REQUIREMENT	EMISSIONS REQUIREMENTS
Paints and Coatings	**CDPH/EHLB/Standard method V1.1 (California Section 01350)** (Use "office" or "classroom" space limits for all applications)	or	Flat and nonflat, nonflat high-gloss, specialty, basement specialty, fire-resistive, floor, low-solids, rust preventative, wood, reflective wall coatings; concrete/masonry sealers; primers; sealers; undercoaters; shellacs (clear and opaque); stains; varnishes; conjugated oil varnish; lacquer; clear brushing lacquer	**Green Seal Standard GS-11**

TABLE 3-1 Volatile Organic Compounds (VOC) (Low Emitting Materials) Requirements

Source: ICC IgCC Chapter 8 (Materials) (Interior Applications Only)

MATERIAL CATEGORY	EMISSIONS REQUIREMENT		MATERIALS WITH ADDED VOC REQUIREMENT	EMISSIONS REQUIREMENTS
Paints and Coatings	**CDPH/EHLB/Standard method V1.1 (California Section 01350)** (Use "office" or "classroom" space limits for all applications)	or	Concrete curing compounds; dry fog, faux finishing, graphic arts (sign paints), industrial maintenance, mastic texture, metallic pigmented, multicolor, recycled coatings; pretreatment wash primers, reactive penetrating sealers; specialty primers, wood preservatives, and zinc primers	**California Air Resources Board (CARB) Suggested Control Measure for Architectural Coatings** or **SCAQMD Rule 1113r**
Paints and Coatings	**CDPH/EHLB/Standard method V1.1 (California Section 01350)** (Use "office" or "classroom" space limits for all applications)	or	High-temperature coatings; stone consolidants; swimming-pool coatings; tub- and tile-refining coatings; and waterproofing membranes	**California Air Resources Board (CARB) Suggested Control Measure for Architectural Coatings**

TABLE 3-1 Volatile Organic Compounds (VOC) (Low Emitting Materials) Requirements

Source: ICC IgCC Chapter 8 (Materials) (Interior Applications Only)

MATERIAL CATEGORY	**EMISSIONS REQUIREMENT**		**MATERIALS WITH ADDED VOC REQUIREMENT**	**EMISSIONS REQUIREMENTS**
Floor Covering Materials	For carpet, all locations: **CDPH/EHLB/Standard Method V1.1 (California Section 01350)** or label for **Section 9** of **CDPH/EHLB/Standard Method V1.1 (California Section 01350)**		none	none
Insulation	**CDPH/EHLB/Standard method V1.1** (California Section 01350) (Use "office" or "classroom" space limits for all applications)		none	none

TABLE 3-1 Volatile Organic Compounds (VOC) (Low Emitting Materials) Requirements

Source: ICC IgCC Chapter 8 (Materials) (Interior Applications Only)

MATERIAL CATEGORY	EMISSIONS REQUIREMENT		MATERIALS WITH ADDED VOC REQUIREMENT	EMISSIONS REQUIREMENTS
Composite Wood, Wood Structural Panel, and Agrifiber Products, no added urea-formaldehyde resins including laminating adhesives for composite wood and agrifiber assemblies - particleboard, medium density fiberboard (MDF), wheatboard, strawboard, panel substrates, door cores	Third-party certification (approved by CARB) of **California Air Resource Board's (CARB) regulation**, Airborne Toxic Control Measure to Reduce Formaldehyde Emissions from Composite Wood Products	or	none	**CDPH/EHLB/Standard method V1.1** (California Section 01350) (Use "office" or "classroom" space limits for all applications) (except: Structural panel components such as plywood, particle board, wafer board, and oriented strand board identified as "EXPOSURE 1," "EXTERIOR," or "HUD-APPROVED" are considered acceptable for interior use.)
Office Furniture Systems and Seating installed prior to occupancy	**ANSI/BIFMA X7.1 ANSI/BIFMA X7.1:** (95-percent of installed office furniture system workstations and seating units) **Section 7.6.2 of ANSI/BIFMA e3** (50-percent of office furniture system workstations and seating units)		none	none

TABLE 3-1 Volatile Organic Compounds (VOC) (Low Emitting Materials) Requirements Source: ICC IgCC Chapter 8 (Materials) (Interior Applications Only)				
MATERIAL CATEGORY	**EMISSIONS REQUIREMENT**		**MATERIALS WITH ADDED VOC REQUIREMENT**	**EMISSIONS REQUIREMENTS**
Ceiling and Wall assemblies and systems including: acoustical treatments; ceiling panels and tiles; tackable wall panels and coverings; wall coverings; wall and ceiling paneling and planking	**CDPH/EHLB/Standard method V1.1 (California Section 01350)** (Use "office" or "classroom" space limits for all applications)		none	none

-- End of Section --

The provided HPSB Checklist serves as the minimum compliance level for Federal Guiding Principles. Additional analysis is to be completed to determine final compliance pathways for each Guiding Principle.

NAVFAC HIGH PERFORMANCE AND SUSTAINABLE BUILDING CHECKLIST -- GOALS

PROJECT INFORMATION

Work Order No.: _____ FY _____ MILCON P No. / Customer Reference No.: VARIES

Project Title: FY26 USMC Barracks 2030 Program

Location UIC/Name: MCB Camp Lejeune

NAVFAC Project Manager: _____ Project Design Level: _____

Facility Area: _____ U/M: _____ Category Code: _____ Facility #: _____

AE Contract # & T.O. _____ AE Firm Sustainability Coordinator: _____

AE Firm Name: _____

Project Phase: ☐ Design Start / PDA ☐ Solicitation Documents Complete

Construction Contract Award Date (P): _____ BOD (P): _____

SUSTAINABILITY DATA - GUIDING PRINCIPLES for SUSTAINABLE DEVELOPMENT

Use this form to collect Design Goals information to be recorded on the Sustainable and Energy Tab in eProjects

NOTE: 1. Mark "N/A" only when at least one of the listed justifications is applicable, and mark those justifications. Otherwise, mark "Yes."
2. If project is for more than one building for which tracking is required, complete a separate form for each building.

PRELIMINARY PROJECT INFORMATION

1 How many buildings are included in this project? _____

2 New building or stand-alone addition >/=10,000 GSF

-OR-

Existing building renovation (including additions) >/=10,000 GSF, and with a cost >$3M and 50% Estimated Replacement Cost (ERC)? Yes ☑ No ☐

3 Identify the building to be tracked in this tab: USMC Barrack

DESIGN DEVELOPMENT - DOCUMENTATION OF COMPLIANCE WITH GUIDING PRINCIPLES

I. Employ Integrated Design Principles

1 Integrated Design Goals — In Compliance ☑ Yes ☐ N/A

N/A due to
☐ Mission preclusion ☐ Building/site issue
☐ Not LCCE ☐ Renovation only: not part of scope
☐ Installation/region issue

2 Commissioning Goals — In Compliance ☑ Yes ☐ N/A

N/A due to
☐ Mission preclusion ☐ Building/site issue
☐ Not LCCE ☐ Renovation only: not part of scope
☐ Installation/region issue

(i) Systems commissioned

II. Optimize Energy Performance

3. Energy Efficiency Goals — In Compliance ☑ Yes ☐ N/A

Energy savings likely to be less than 30%. Final energy savings goal must be supported with additional Life Cycle Cost Analysis as required in Part 2 specification 01 33 29 Sustainability Requirements and Reporting.

N/A due to
☐ Mission preclusion ☐ Building/site issue
☐ Not LCCE ☐ Renovation only: not part of scope
☐ Installation/region issue

(i) Energy Savings Below Baseline % _____ To be determined based on final design

(ii) Energy Standard

☐ ASHRAE 90.1-2013 (06NOV16+) ☐ IECC
☐ ASHRAE 90.1-2016 ☐ OTHER:

C. Energy Efficient Products

Goals In Compliance ☑ Yes ☐ N/A

N/A due to

☐ Mission preclusion ☐ Building/site issue
☐ Not LCCE ☐ Renovation only: not part of scope
☐ Installation/region issue

4. Renewable Energy

Goals In Compliance ☐ Yes ☐ N/A

Life Cycle Cost Analysis to be completed per UFC 1-200-02

N/A due to

☐ Mission preclusion ☐ Building/site issue
☐ Not LCCE ☐ Renovation only: not part of scope
☐ Installation/region issue

A. Renewable energy technology types

☐ Geothermal ☐ Daylighting (quantified passive)
☐ Ground Source Heat Pumps ☐ Mechanical (i.e., direct water pumping)
☐ Solar Photovoltaic ☐ Micro-hydro
☐ Solar Thermal - domestic hot water ☐ Concentrating (sterling)
☐ Solar Thermal - space conditioning ☐ Wind

(i) Annual % of total load _____

(ii) System size (kwatts) _____

B. Solar Hot Water Percentage - 30% target

Goals In Compliance ☐ Yes ☐ N/A

Life Cycle Cost Analysis to be completed per UFC 1-200-02

N/A due to

☐ Mission preclusion ☐ Building/site issue
☐ Not LCCE ☐ Renovation only: not part of scope
☐ Installation/region issue

(i) Annual % of total load _____

(ii) System size (kBTU/Year) _____

5. Meter (Energy)

Goals In Compliance ☑ Yes ☐ N/A

N/A due to

☐ Mission preclusion ☐ Building/site issue
☐ Not LCCE ☐ Renovation only: not part of scope
☐ Installation/region issue

6. Energy Use Intensity kBTU/Sq Ft/Year

(i) Total Design Energy Use Intensity (EUI): kBTU/Sq Ft/Year _____

To be calculated based on final building area

III. Protect and Conserve Water

7. Indoor Water Use

A. Water-Efficient Products

Goals In Compliance ☑ Yes ☐ N/A

N/A due to

☐ Mission preclusion ☐ Building/site issue
☐ Not LCCE ☐ Renovation only: not part of scope
☐ Installation/region issue

(i) Total Design Indoor Water Use Intensity (WUI): Gallons/Sq Ft/Year _____

To be calculated based on final building area

B. Indoor Water Meter

Goals In Compliance ☑ Yes ☐ N/A

N/A due to

☐ Mission preclusion ☐ Building/site issue
☐ Not LCCE ☐ Renovation only: not part of scope
☐ Installation/region issue

8. Outdoor Water Use

A. Outdoor Water Meter (for 25,000 SF of irrigation)

(i) Is there a permanent irrigation system serving more than 25,000 SF of landscaping?

☐ Yes ☑ No

(ii) Water Meter

Goals In Compliance ☑ Yes ☐ N/A

N/A due to

☐ Mission preclusion ☐ Building/site issue
☐ Not LCCE ☐ Renovation only: not part of scope
☐ Installation/region issue

B. Water-efficient landscape

Goals In Compliance ☑ Yes ☐ N/A

N/A due to

☐ Mission preclusion ☐ Building/site issue
☐ Not LCCE ☐ Renovation only: not part of scope
☐ Installation/region issue

9. Alternative Water Use (indoor or outdoor water)

Goals In Compliance ☐ Yes ☐ N/A

Life Cycle Cost Analysis to be completed per UFC 1-200-02

N/A due to

☐ Mission preclusion ☐ Building/site issue
☐ Not LCCE ☐ Renovation only: not part of scope
☐ Installation/region issue

Methods Proposed:

☐ Air Handler Condensate Capture ☐ Reclaimed Water
☐ Grey Water ☐ Treated Wastewater
☐ Harvested Rainwater ☐ OTHER:

10. Stormwater Management - update the LID Data tab

IV. Enhance Indoor Environmental Quality

11. Ventilation and Thermal Comfort

A. Ventilation

Goals In Compliance ☑ Yes ☐ N/A

N/A due to

☐ Mission preclusion ☐ Building/site issue
☐ Not LCCE ☐ Renovation only: not part of scope
☐ Installation/region issue

B. Thermal Comfort

Goals In Compliance ☑ Yes ☐ N/A

N/A due to

☐ Mission preclusion ☐ Building/site issue
☐ Not LCCE ☐ Renovation only: not part of scope
☐ Installation/region issue

12. Daylighting and Lighting Controls

A. Daylight

Goals In Compliance ☑ Yes ☐ N/A

N/A due to

☐ Mission preclusion ☐ Building/site issue
☐ Not LCCE ☐ Renovation only: not part of scope
☐ Installation/region issue

B. Automatic dimming controls

Goals In Compliance ☑ Yes ☐ N/A

N/A due to

☐ Mission preclusion ☐ Building/site issue
☐ Not LCCE ☐ Renovation only: not part of scope
☐ Installation/region issue

13. Indoor Air Quality

A. Moisture Control

Goals In Compliance ☑ Yes ☐ N/A

N/A due to

☐ Mission preclusion ☐ Building/site issue
☐ Not LCCE ☐ Renovation only: not part of scope
☐ Installation/region issue

B. Low-Emitting Materials

Goals In Compliance ☑ Yes ☐ N/A

N/A due to

☐ Mission preclusion ☐ Building/site issue
☐ Not LCCE ☐ Renovation only: not part of scope
☐ Installation/region issue

C. Indoor Air Quality during Construction

Goals In Compliance ☑ Yes ☐ N/A

N/A due to

☐ Mission preclusion ☐ Building/site issue
☐ Not LCCE ☐ Renovation only: not part of scope
☐ Installation/region issue

14. Occupant Health and Wellness

Goals In Compliance ☑ Yes ☐ N/A

N/A due to

☐ Mission preclusion ☐ Building/site issue
☐ Not LCCE ☐ Renovation only: not part of scope
☐ Installation/region issue

V. Reduce the Environmental Impact of Materials

15. Material Content and Performance

A. Resource Conservation and Recovery Act (RCRA) Section 6002 (recycled content)

Goals In Compliance ☑ Yes ☐ N/A

N/A due to

☐ Mission preclusion ☐ Building/site issue
☐ Not LCCE ☐ Renovation only: not part of scope
☐ Installation/region issue

B. Farm Security and Rural Investment Act (FSRIA) section 9002 (Biobased content)

Goals In Compliance ☑ Yes ☐ N/A

N/A due to

☐ Mission preclusion ☐ Building/site issue
☐ Not LCCE ☐ Renovation only: not part of scope
☐ Installation/region issue

16. Waste Management

Goals In Compliance ☑ Yes ☐ N/A

N/A due to

☐ Mission preclusion ☐ Building/site issue
☐ Not LCCE ☐ Renovation only: not part of scope
☐ Installation/region issue

17. Waste Diversion - 60% target

Goals In Compliance ☑ Yes ☐ N/A

N/A due to

☐ Mission preclusion ☐ Building/site issue
☐ Not LCCE ☐ Renovation only: not part of scope
☐ Installation/region issue

(i) Percent diverted _____

VI. Assess and Consider Climate Change Risks

18. Address Climate Change Risk

Goals In Compliance ☑ Yes ☐ N/A

N/A due to

☐ Mission preclusion ☐ Building/site issue
☐ Not LCCE ☐ Renovation only: not part of scope
☐ Installation/region issue

THIRD PARTY CERTIFICATION INFORMATION

Is this building pursuing Third Party Certification? ☑ Yes ☐ No

N/A due to ☐ Installation/region issue ☐ Mission preclusion ☐ Renovation only: not part of scope

Sustainability Third Party Certification Rating

Third Party Certification Rating System and Level

☐ USGBC LEED Certified
☐ USGBC LEED Silver
☐ USGBC LEED Gold
☐ USGBC LEED Platinum
☐ USGBC "Guiding Principles Assessment"
☐ OTHER

☐ GBI Green Globes 1 Globe
☐ GBI Green Globes 2 Globe
☐ GBI Green Globes 3 Globe
☐ GBI Green Globes 4 Globe
☑ GBI "Guiding Principles Compliance"

i. Third Party Certification Rating system - Other

SECTION 01 35 13

SPECIAL PROJECT PROCEDURES
11/20, CHG 2: 08/25

PART 1 GENERAL

1.1 SUBMITTALS

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. Submit the following in accordance withSECTION 01 33 00.05 20 CONSTRUCTION SUBMITTAL PROCEDURES and SECTION 01 33 10.05 20 DESIGN SUBMITTAL PROCEDURES:

SD-04 Samples

Model Unit

PART 2 PRODUCTS

PART 3 EXECUTION

3.1 MODEL UNIT

Prior to placement of material orders for components of the BEQ 2+0 living suites and the installation of those components throughout the project, the Contractor must complete the construction of the components of the model unit, and gain the approval of the Contracting Officer for the materials and workmanship therein.

3.1.1 Model Unit Description

Provide a model unit to consist of one standard 2+0 room in its entirety to show all of the different levels of completion required below. The model unit must be constructed at the location agreed upon with the Contracting Officer and a part of the permanent structure as indicated.

3.1.2 Model Unit Requirements

Adhere to the following requirements for model construction:

a. Construct the model unit of the approved materials submitted. The QC Manager and Organization must approve and process submittals in accordance with Section 01 33 00. 20 SUBMITTAL PROCEDURES. Do not procure, fabricate, or install materials prior to approval by the Contracting Officer.

b. The Contracting Officer retains the right to disapprove and reject materials or items which are not in compliance with the project drawings and specifications.

c. After approval of initial product submittals, provide full size samples of these components in the required color, and in sufficient quantity to completely outfit the model unit. Provide full size samples as dictated by the construction schedule for installation of those components in the model unit. Do not order or approve production of materials beyond those required for the model unit,

until the full size samples have been installed in the model unit and approved by the Contracting Officer.

d. Proceed immediately with construction of the model unit after the Contracting Officer acknowledges the required product submittals are approved.

e. Provide temporary utilities and climate control necessary to construct, inspect, approve, and maintain the model unit.

f. Prior to completion and approval of the model unit, and with written permission to start from the Contracting Officer, the Contractor may perform general sitework and run major utility lines for the rest of the project.

3.1.3 Model Unit Levels of Completion

Exhibit and secure approval of model unit at the following levels of completion:

a. Level 1 (Pre-Finished Level) - Model unit construction within a completed building exterior must exhibit plumbing, ductwork, electrical locations, exposed framing, and windows. Leave walls and floors unfinished but ready for application of final finish. Upon completion of this level, model unit must be available to the Government for a period of five working days for inspection.

b. Level 2 (Finished Level) - Model unit construction must exhibit all materials, completely finished as specified, including fixtures, wall and floor finishes, cabinets, and shelving. Upon completion, the model unit must be available to the Government for a period of 15 working days for inspection.

3.1.4 Model Unit Scheduling

Manage all activities associated with the approval of the model unit to include material selection, procurement, fabrication, Government review periods, and any rework independent of the project's critical path. The project schedule must treat the model unit approval process as a preliminary activity. Delays incurred in achieving final approval of the model unit will not be a basis for an extension to the overall project completion date.

-- End of Section --

SECTION 01 35 26

GOVERNMENTAL SAFETY REQUIREMENTS
05/24, CHG 1: 05/25

PART 1 GENERAL

1.1 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.

AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS (ASHRAE)

ASHRAE 52.2	(2017; Addenda B 2020; Errata 1 2020; Addenda C 2022; Errata 2 2024; Addenda D 2025) Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size

AMERICAN SOCIETY OF SAFETY PROFESSIONALS (ASSP)

ANSI/ASSP A10.34	(2021) Protection of the Public on or Adjacent to Construction Sites
ANSI/ASSP A10.44	(2020) Control of Energy Sources (Lockout/Tagout) for Construction and Demolition Operations
ANSI/ASSP Z490.1	(2016) Criteria for Accepted Practices in Safety, Health, and Environmental Training
ASSP Z359.16	(2016) Safety Requirements for Climbing Ladder Fall Arrest Systems

ASTM INTERNATIONAL (ASTM)

ASTM D6245	(2012) Using Indoor Carbon Dioxide Concentrations to Evaluate Indoor Air Quality and Ventilation
ASTM D6345	(2010) Standard Guide for Selection of Methods for Active, Integrative Sampling of Volatile Organic Compounds in Air
ASTM F855	(2020) Standard Specifications for Temporary Protective Grounds to Be Used on De-energized Electric Power Lines and Equipment

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)

IEEE 1048	(2016) Guide for Protective Grounding of Power Lines

INTERNATIONAL SAFETY EQUIPMENT ASSOCIATION (ISEA)

ANSI/ISEA Z89.1	(2014; R 2019) American National Standard for Industrial Head Protection

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

NEMA Z535.2	(2011; R 2017) Environmental and Facility Safety Signs

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 10	(2026) Standard for Portable Fire Extinguishers
NFPA 51B	(2024) Standard for Fire Prevention During Welding, Cutting, and Other Hot Work
NFPA 70	(2023; ERTA 1 2024; TIA 24-1; TIA 25-2) National Electrical Code
NFPA 70E	(2024) Standard for Electrical Safety in the Workplace
NFPA 241	(2022; ERTA 22-1) Standard for Safeguarding Construction, Alteration, and Demolition Operations

SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION (SMACNA)

ANSI/SMACNA 008	(2007) IAQ Guidelines for Occupied Buildings Under Construction, 2nd Edition

TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA)

TIA-222	(2018H; Add 1 2019) Structural Standard for Antenna Supporting Structures and Antennas and Small Wind Turbine Support Structures

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1	(2024) Safety -- Safety and Occupational Health (SOH) Requirements

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

10 CFR 20	Standards for Protection Against Radiation
29 CFR 1910	Occupational Safety and Health Standards
29 CFR 1910.146	Permit-required Confined Spaces
29 CFR 1915	Confined and Enclosed Spaces and Other Dangerous Atmospheres in Shipyard Employment
29 CFR 1926	Safety and Health Regulations for

	Construction
49 CFR 173	Shippers - General Requirements for Shipments and Packagings
CPL 2.100	(1995) Application of the Permit-Required Confined Spaces (PRCS) Standards, 29 CFR 1910.146

1.2 DEFINITIONS

The following definitions are for the convenience of the reader. If there is a referenced document in the text of this specification section, that is the document that should define terms for that paragraph. If further clarification is needed, contact the Contracting Officer.

1.2.1 Site Safety and Health Officer (SSHO)

A Contractor Employee that is responsible for overseeing and ensuring implementation of the prime Contractor's Safety and Occupational Health (SOH) program according to the Contract, EM 385-1-1, applicable federal, state, and local requirements.

1.2.1.1 Level One SSHO

A designated employee with full-time SOH responsibility that meets and follows the requirements of EM 385-1-1.

1.2.1.2 Level Two SSHO

A designated employee with Level Two SSHO responsibility that meets and follows the requirements of EM 385-1-1. Level Two SSHOs cannot be assigned to projects that have a residual Risk Assessment Code (RAC) of high or extremely high.

1.2.1.3 Level Three SSHO

A designated Qualified Person or Competent Person with SOH responsibility that meets and follows the requirements of EM 385-1-1. Level 3 SSHOs cannot be assigned to projects that have a residual RAC of high or extremely high.

1.2.1.4 Alternate SSHO

An employee that meets the definition of the contract-required level SSHO, but is not the primary SSHO.

1.2.2 Competent Person (CP)

The CP is a person designated in writing, who, through training, knowledge and experience, is capable of identifying, evaluating, and addressing existing and predictable hazards in the working environment or working conditions that are unsanitary, hazardous, or dangerous to personnel, and who has authorization to take prompt corrective measures to eliminate them.

1.2.3 Competent Person, Confined Space

The CP, Confined Space, is a person meeting the competent person requirements as defined EM 385-1-1 Appendix Q, with thorough knowledge of

OSHA's Confined Space Standard, 29 CFR 1910.146, and designated in writing to be responsible for the immediate supervision, implementation and monitoring of the confined space program, who through training, knowledge and experience in confined space entry is capable of identifying, evaluating and addressing existing and potential confined space hazards and, who has the authority to take prompt corrective measures with regard to such hazards.

1.2.4 Competent Person, Cranes and Rigging

The CP, Cranes and Rigging, as defined in EM 385-1-1 Appendix Q, is a person meeting the competent person requirements, who has been designated in writing to be responsible for the immediate supervision, implementation and monitoring of the Crane and Rigging Program, who through training, knowledge and experience in crane and rigging is capable of identifying, evaluating and addressing existing and potential hazards and, who has the authority to take prompt corrective measures with regard to such hazards.

1.2.5 Competent Person, Excavation/Trenching

A CP, Excavation/Trenching, is a person meeting the competent person requirements as defined in EM 385-1-1 Appendix Q and 29 CFR 1926, who has been designated in writing to be responsible for the immediate supervision, implementation and monitoring of the excavation/trenching program, who through training, knowledge and experience in excavation/trenching is capable of identifying, evaluating and addressing existing and potential hazards and, who has the authority to take prompt corrective measures with regard to such hazards.

1.2.6 Competent Person, Fall Protection

The CP, Fall Protection, is a person meeting the competent person requirements as defined in EM 385-1-1 Appendix Q and in accordance with ASSP Z359.0, who has been designated in writing by the employer to be responsible for immediate supervising, implementing and monitoring of the fall protection program, who through training, knowledge and experience in fall protection and rescue systems and equipment, is capable of identifying, evaluating and addressing existing and potential fall hazards and, who has the authority to take prompt corrective measures with regard to such hazards.

1.2.7 Competent Person, Scaffolding

The CP, Scaffolding is a person meeting the competent person requirements in EM 385-1-1 Appendix Q, and designated in writing by the employer to be responsible for immediate supervising, implementing and monitoring of the scaffolding program. The CP for Scaffolding has enough training, knowledge and experience in scaffolding to correctly identify, evaluate and address existing and potential hazards and also has the authority to take prompt corrective measures with regard to these hazards. CP qualifications must be documented including experience on the specific scaffolding systems/types being used, assessment of the base material that the scaffold will be erected upon, load calculations for materials and personnel, and erection and dismantling. The CP for scaffolding must have a documented minimum of 8-hours of scaffold training to include training on the specific type of scaffold being used (e.g. mast-climbing, adjustable, tubular frame), in accordance with EM 385-1-1 Section 22.B.02.

1.2.8 Competent Person (CP) Trainer

A competent person trainer as defined in EM 385-1-1 Appendix Q, who is qualified in the training material presented, and who possesses a working knowledge of applicable technical regulations, standards, equipment and systems related to the subject matter on which they are training Competent Persons. A competent person trainer must be familiar with the typical hazards and the equipment used in the industry they are instructing. The training provided by the competent person trainer must be appropriate to that specific industry. The competent person trainer must evaluate the knowledge and skills of the competent persons as part of the training process.

1.2.9 High Risk Activities

High Risk Activities are activities that involve work at heights, crane and rigging, excavations and trenching, scaffolding, electrical work, and confined space entry.

1.2.10 High Visibility Accident

A High Visibility Accident is any mishap which may generate publicity or high visibility.

1.2.11 Load Handling Equipment (LHE)

LHE is a term used to describe cranes, hoists and all other hoisting equipment (hoisting equipment means equipment, including crane, derricks, hoists and power operated equipment used with rigging to raise, lower or horizontally move a load).

1.2.12 Medical Treatment

Medical Treatment is treatment administered by a physician or by registered professional personnel under the standing orders of a physician. Medical treatment does not include first aid treatment even when provided by a physician or registered personnel.

1.2.13 Near Miss

A Near Miss is a mishap resulting in no personal injury and zero property damage, but given a shift in time or position, damage or injury may have occurred (e.g., a worker falls off a scaffold and is not injured; a crane swings around to move the load and narrowly misses a parked vehicle).

1.2.14 Operating Envelope

The Operating Envelope is the area surrounding any crane or load handling equipment. Inside this "envelope" is the crane, the operator, riggers and crane walkers, other personnel involved in the operation, rigging gear between the hook, the load, the crane's supporting structure (i.e. ground or rail), the load's rigging path, the lift and rigging procedure.

1.2.15 Qualified Person (QP)

The QP is a person designated in writing, who, by possession of a recognized degree, certificate, or professional standing, or extensive knowledge, training, and experience, has successfully demonstrated their ability to solve or resolve problems related to the subject matter, the

work, or the project.

1.2.16 Qualified Person, Fall Protection (QP for FP)

A QP for FP is a person meeting the definition requirements of EM 385-1-1 Appendix Q, and ASSP Z359.2 standard, having a recognized degree or professional certificate and with extensive knowledge, training and experience in the fall protection and rescue field who is capable of designing, analyzing, and evaluating and specifying fall protection and rescue systems.

1.2.17 Recordable Injuries or Illnesses

Recordable Injuries or Illnesses are any work-related injury or illness that results in:

a. Death, regardless of the time between the injury and death, or the length of the illness;

b. Days away from work (any time lost after day of injury/illness onset);

c. Restricted work;

d. Transfer to another job;

e. Medical treatment beyond first aid;

f. Loss of consciousness; or

g. A significant injury or illness diagnosed by a physician or other licensed health care professional, even if it did not result in (a) through (f) above

1.2.18 Government Property and Equipment

Interpret "USACE" property and equipment specified in USACE EM 385-1-1 as Government property and equipment.

1.2.19 Load Handling Equipment (LHE) Accident or Load Handling Equipment Mishap

A LHE accident occurs when any one or more of the eight elements in the operating envelope fails to perform correctly during operation, including operation during maintenance or testing resulting in personnel injury or death; material or equipment damage; dropped load; derailment; two-blocking; overload; or collision, including unplanned contact between the load, crane, or other objects. A dropped load, derailment, two-blocking, overload and collision are considered accidents, even though no material damage or injury occurs. A component failure (e.g., motor burnout, gear tooth failure, bearing failure) is not considered an accident solely due to material or equipment damage unless the component failure results in damage to other components (e.g., dropped boom, dropped load, or roll over). Document an LHE mishap or accident using the NAVFAC prescribed Navy Crane Center (NCC) accident form.

1.3 SUBMITTALS

Government Acceptance or Approval does not remove responsibility from the Contractors for their actions or liability.

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. Submittals not having a "G" or "S" classification are 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 00.05 20 CONSTRUCTION SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Accident Prevention Plan (APP) Design; G

Accident Prevention Plan (APP) Construction; G

Final IAQ Management Plan; S

Indoor Air Quality (IAQ) Management Plan; G

SD-06 Test Reports

Accident Reports; G

LHE Inspection Reports

Monthly Exposure Reports; G

Notifications and Reports

SD-07 Certificates

Activity Hazard Analysis (AHA); G

Certificate of Compliance

Contractor Safety Self-Evaluation Checklist

Hot Work Permit

License Certificates

Portable Gauge Operations Planning Worksheet; G

Radiography Operation Planning Work Sheet; G

Standard Lift Plan; G

Critical Lift Plan; G

Confined Space Entry Permit

1.4 PUBLIC HEALTH EMERGENCIES

In the event of a declared public health emergency, follow safety precautions as required by the Occupational Safety and Health Administration (OSHA) www.osha.gov, the Centers for Disease Control and Prevention (CDC) www.cdc.gov, and as required by federal, state and local requirements.

1.5 MONTHLY EXPOSURE REPORTS

Provide a Monthly Exposure Report and attach to the monthly billing request. This report is a compilation of employee-hours worked each month for all site workers, both Prime and subcontractor. Failure to submit the report may result in retention of up to 10 percent of the voucher.

1.6 CONTRACTOR SAFETY SELF-EVALUATION CHECKLIST

Contracting Officer will provide a "Contractor Safety Self-Evaluation checklist" to the Contractor at the preconstruction meeting. Complete the checklist monthly and submit with each request for payment voucher. An acceptable score of 90 or greater is required. Failure to submit the completed safety self-evaluation checklist or achieve a score of at least 90 may result in retention of up to 10 percent of the voucher. The Contractor Safety Self-Evaluation checklist can be found on the Whole Building Design Guide website at www.wbdg.org/dod/ufgs/ufgs-01-35-26

1.7 REGULATORY REQUIREMENTS

In addition to the detailed requirements included in the provisions of this Contract, comply with the most recent edition of USACE EM 385-1-1, and the following federal, state, and local laws, ordinances, criteria, rules and regulations at the date of the Solicitation for this Contract. Submit matters of interpretation of standards to the appropriate administrative agency for resolution before starting work. Where the requirements of this specification, applicable laws, criteria, ordinances, regulations, and referenced documents vary, the most stringent requirements govern.

1.7.1 Subcontractor Safety Requirements

For this Contract, neither Contractor nor any subcontractor may enter into Contract with any subcontractor that fails to meet the following requirements. The term subcontractor in this and the following paragraphs means any entity holding a Contract with the Contractor or with a subcontractor at any tier.

1.7.1.1 Experience Modification Rate (EMR)

Subcontractors on this Contract must have an effective EMR less than or equal to 1.10, as computed by the National Council on Compensation Insurance (NCCI) or if not available, as computed by the state agency's rating bureau in the state where the subcontractor is registered, when entering into a subcontract agreement with the Prime Contractor or a subcontractor at any tier. The Prime Contractor may submit a written request for additional consideration to the Contracting Officer where the specified acceptable EMR range cannot be achieved. Relaxation of the EMR range will only be considered for approval on a case-by-case basis for special conditions and must not be anticipated as tacit approval. Contractor's Site Safety and Health Officer (SSHO) must collect and maintain the certified EMR ratings for all subcontractors on the project and make them available to the Government at the Government's request.

1.7.1.2 OSHA Days Away from Work, Restricted Duty, or Job Transfer (DART) Rate

Subcontractors on this Contract must have a DART rate, calculated from the

most recent, complete calendar year, less than or equal to 3.4 when entering into a subcontract agreement with the Prime Contractor or a subcontractor at any tier. The OSHA Dart Rate is calculated using the following formula:

(N/EH) x 200,000

Where:

N = number of injuries and illnesses with days away, restricted work, or job transfer

EH = total hours worked by all employees during most recent, complete calendar year

200,000 = base for 100 full-time equivalent workers (working 40-hours per week, 50 weeks per year)

The Prime Contractor may submit a written request for additional consideration to the Contracting Officer where the specified acceptable OSHA Dart rate range cannot be achieved for a particular subcontractor. Relaxation of the OSHA DART rate range will only be considered for approval on a case-by-case basis for special conditions and must not be anticipated as tacit approval. Contractor's Site Safety and Health Officer (SSHO) must collect and maintain self-certified OSHA DART rates for all subcontractors on the project and make them available to the Government at the Government's request.

1.8 SITE QUALIFICATIONS, DUTIES, AND MEETINGS

1.8.1 Site Safety and Health Officer (SSHO)

1.8.1.1 Qualifications of SSHO

All SSHOs will have met the training, experience requirements identified in the EM 385-1-1 and this Contract.

1.8.1.2 Duties of SSHO

All SSHOs will carry out the roles and responsibilities as identified in this Contract and the EM 385-1-1. All SSHOs will be designated on an ENG Form 6282, provided by the Contracting Officer. Superintendent, QC Manager, and SSHO are subject to dismissal if their required duties are not being effectively carried out. If either the Superintendent, QC Manager, or SSHO are dismissed, project work will be stopped and will not be allowed to resume until a suitable replacement is approved and the above duties are again being effectively carried out.

1.8.1.3 Safety Meetings

Conduct safety meetings to review past activities, plan for new or changed operations, review pertinent aspects of appropriate AHA (by trade), establish safe working procedures for anticipated hazards, and provide pertinent Safety and Occupational Health (SOH) training and motivation. Conduct meetings at least once a month for all supervisors at the project location. The SSHO, supervisors, or foremen must conduct meetings at least once a week for the trade workers. Document meeting minutes to include the date, persons in attendance, subjects discussed, and names of individual(s) who conducted the meeting. Maintain documentation on-site

and furnish copies to the Contracting Officer on request. Notify the Contracting Officer of all scheduled meetings 7 calendar days in advance.

1.8.2 Roles and Responsibilities of Prime Contractor and SSHO

The Prime Contractor and SSHO must ensure that the requirements of all applicable OSHA and EM 385-1-1 are met for the project. The Prime Contractor must ensure an SSHO or an equally qualified Alternate SSHO(s) is at the worksite at all times to implement and administer the Contractor's safety program and Government accepted Accident Prevention Plan. If the required SSHO has to temporarily (that is, up to 24 hours / 1 day) leave the site of work due to unforeseen or emergency situations, a Level One, Two, or Three SSHO may be used in the interim and must be on the site of work at all times when work is being performed.

If the SSHO must be off-site for a period longer than 24 hours / 1 day, a qualified alternate that meets the contract requirements must be onsite.

a. Prime contractor must ensure all SSHOs will:

(1) Are designated on an ENG Form 6282.

(2) Meet minimum training and experience requirements identified in EM 385-1-1.

(3) Execute roles and responsibilities identified in EM 385-1-1.

1.8.3 Additional Requirements

The Level SSHO must not serve as the Quality Control Manager.

The SSHO must have completed a 40-hour contract safety awareness course based on the content and principles of EM 385-1-1, and instructed in accordance with the guidelines of ANSI/ASSP Z490.1, by a trainer meeting the qualifications of paragraph QUALIFIED TRAINER REQUIREMENTS. If the SSHO does not have a current certification, certification must be obtained within 60 days, maximum, of Contract award.

1.8.4 Competent Person Qualifications

Provide Competent Persons in accordance with EM 385-1-1, Appendix Q and herein. Competent Persons for high risk activities include confined space, cranes and rigging, excavation/trenching, fall protection, and electrical work. The CP for these activities must be designated in writing, and meet the requirements for the specific activity (i.e. competent person, fall protection).

The Competent Person identified in the Contractor's Safety and Health Program and accepted Accident Prevention Plan, must be on-site at all times when the work that presents the hazards associated with their professional expertise is being performed. Provide the credentials of the Competent Persons(s) to the Contracting Officer for information in consultation with the Safety Office.

1.8.5 Competent Person for Confined Space Entry

Provide a CP for Confined Space Entry who meets the requirements of EM 385-1-1 and herein. The CP for Confined Space Entry must supervise the entry into each confined space in accordance with EM 385-1-1.

When the work involves marine operations that handle combustible or hazardous materials, this qualified person shall be a NFPA certified marine chemist.

1.8.6 Competent Person for the Health Hazard Control and Respiratory Protection Program

Provide a competent person meeting the requirements of EM 385-1-1 who is:

a. Capable by education, specialized training and/or experience of anticipating, recognizing, and evaluating employee exposure to hazardous chemical, physical and biological agents in accordance with USACE EM 385-1-1, Section 6.

b. Capable of specifying necessary controls and protective actions to ensure worker health.

1.8.7 Competent Person for Scaffolding

Provide a Competent Person for Scaffolding who meets the requirements of EM 385-1-1, Section 22.B.02 and herein.

1.8.8 Competent Person for Fall Protection

Provide a Competent Person for Fall Protection who meets the requirements of EM 385-1-1, Section 21.C.04, 21.B.03, and herein.

1.8.9 Qualified Trainer Requirements

Individuals qualified to instruct the 40-hour contract safety awareness course, or portions thereof, must meet the definition of a Competent Person Trainer as defined in the EM 385-1-1, and, at a minimum, possess a working knowledge of the following subject areas: EM 385-1-1, Electrical Standards, Lockout/Tagout, Fall Protection, Confined Space Entry for Construction; Excavation, Trenching and Soil Mechanics, and Scaffolds in accordance with 29 CFR 1926.

Instructors are required to:

a. Prepare class presentations that cover construction-related safety requirements.

b. Ensure that all attendees attend all sessions by using a class roster signed daily by each attendee. Maintain copies of the roster for at least 5 years. This is a certification class and must be attended 100 percent. In cases of emergency where an attendee cannot make it to a session, the attendee can make it up in another class session for the same subject.

c. Update training course materials whenever an update of the EM 385-1-1 becomes available.

d. Provide a written exam of at least 50 questions. Students are required to answer 80 percent correctly to pass.

e. Request, review and incorporate student feedback into a continuous course improvement program.

1.8.10 Preconstruction Meetings

a. Contractor representatives who have a responsibility or significant role in accident prevention on the project must attend the preconstruction meeting. This includes the project superintendent, Site Safety and Occupational Health Officer, quality control manager, or any other assigned safety and health professionals who participated in the development of the APP (including the Activity Hazard Analyses (AHAs) and special plans, program and procedures associated with it).

b. Discuss the details of the submitted APP to include incorporated plans, programs, procedures and a listing of anticipated AHAs that will be developed and implemented during the performance of the Contract. This list of proposed AHAs will be reviewed and an agreement will be reached between the Contractor and the Contracting Officer as to which phases will require an analysis. In addition, establish a schedule for the preparation, submittal, and Government review of AHAs to preclude project delays. The creation of the APP and Schedule will be created after being given Notice to Proceed.

c. Deficiencies in the submitted APP, identified during the Contracting Officer's review, must be corrected, and the APP re-submitted for review prior to the start of construction. Work is not permitted to begin until an APP is established that is acceptable to the Contracting Officer.

1.8.11 Safety Meetings

Conduct safety meetings to review past activities, plan for new or changed operations, review pertinent aspects of appropriate AHA (by trade), establish safe working procedures for anticipated hazards, and provide pertinent Safety and Occupational Health (SOH) training and motivation. Conduct meetings at least once a month for all supervisors at the project location. The SSHO, supervisors, foremen, or CDSOs must conduct meetings at least once a week for the trade workers. Document meeting minutes to include the date, persons in attendance, subjects discussed, and names of individual(s) who conducted the meeting. Maintain documentation on-site and furnish copies to the Contracting Officer on request. Notify the Contracting Officer of all scheduled meetings 7 calendar days in advance.

1.9 ACCIDENT PREVENTION PLAN (APP)

1.9.1 Accident Prevention Plan (APP) Design

Provide a site-specific Accident Prevention Plan (APP), including Activity Hazard Analyses (AHA), in accordance with EM 385-1-1, ENG Form 6293, for the design team to follow during site visits and investigations. For subsequent visits, update the plan if there are changes in the personnel who will be attending, or the tasks to be performed. Submit the APP for review and acceptance by the Government at least 15 calendar days prior to the start of the design field work after being given Notice to Proceed. Field work must not begin until the design APP is accepted by the Contracting Officer. Prior to the start of construction incorporate the Design APP into the Construction APP so that one site specific APP exists for the project and submit to the Contracting Officer for acceptance.

If the design scope includes borings or other subsurface investigations, include in the APP the type of field investigation and verification techniques, such as visual, local utility locating service scanning and

third party subcontractor scanning, potholing, or hand digging within two feet of a known utility that will be required. Mark underground utilities before starting any ground-disturbing actions. Notify the Contracting Officer 15 days prior to the start of soil borings or sub-surface investigations.

1.9.2 Accident Prevention Plan (APP) Construction

Submit the Accident Prevention Plan (APP) for review and acceptance by the Government at least 15 calendar days prior to the start, after being given Notice to Proceed. A competent person must prepare the written site-specific APP. Prepare the APP in accordance with the format and requirements of EM 385-1-1, ENG Form 6293, and herein. The APP must be job-specific and address any unusual or unique aspects of the project or activity for which it is written. The APP must interface with the Contractor's overall safety and occupational health program referenced in the APP in the applicable APP element, and made site-specific. Describe the methods to evaluate past safety performance of potential subcontractors in the selection process. Also, describe innovative methods used to ensure and monitor safe work practices of subcontractors. The Government considers the Prime Contractor to be the "controlling employer" for all worksite safety and health of the subcontractors. Contractors are responsible for informing their subcontractors of the safety provisions under the terms of the Contract and the penalties for noncompliance, coordinating the work to prevent one craft from interfering with or creating hazardous working conditions for other crafts, and inspecting subcontractor operations to ensure that accident prevention responsibilities are being carried out. The APP must be signed in accordance with the APP and ENG Form 6293 Accident Prevention Plan Worksheet. The SSHO must provide and maintain the APP and a log of signatures by each subcontractor foreman, attesting that they have read and understand the APP, and make the APP and log available on-site to the Contracting Officer. If English is not the foreman's primary language, the Prime Contractor must provide an interpreter.

Submit the APP to the Contracting Officer within 30 calendar days of Contract award and not less than 10 calendar days prior to the date of the preconstruction conference for acceptance. Work cannot proceed without an accepted APP. Once reviewed and accepted by the Contracting Officer, the APP and attachments will be enforced as part of the Contract. Disregarding the provisions of this Contract or the accepted APP is cause for stopping of work, at the discretion of the Contracting Officer, until the matter has been rectified. Continuously review and amend the APP, as necessary, throughout the life of the Contract. Changes to the accepted APP must be made with the knowledge and concurrence of the Contracting Officer, project superintendent, SSHO and Quality Control Manager. Incorporate unusual or high-hazard activities not identified in the original APP as they are discovered. Should any severe hazard exposure (i.e., imminent danger) become evident, stop work in the area, secure the area, and develop a plan to remove the exposure and control the hazard. Notify the Contracting Officer within 24 hours of discovery. Eliminate and remove the hazard. In the interim, take all necessary action to restore and maintain safe working conditions in order to safeguard onsite personnel, visitors, the public (as defined by ANSI/ASSP A10.34), and the environment.

1.9.3 Names and Qualifications

Provide plans in accordance with the requirements outlined in EM 385-1-1,

including the following:

a. Names and qualifications (resumes including education, training, experience and certifications) of site safety and health personnel designated to perform work on this project to include the designated Site Safety and Health Officer and other competent and qualified personnel to be used. Specify the duties of each position.

b. As a minimum, designate and submit qualifications of Competent Persons (CP) for each of the following major areas: excavation; scaffolding; fall protection; hazardous energy; confined space; health hazard recognition, evaluation and control of chemical, physical and biological agents; and personal protective equipment and clothing to include selection, use and maintenance. Designate and submit qualifications for additional CPs as applicable to the work performed under this Contract.

1.9.4 Plans

Provide plans in the APP in accordance with the requirements outlined in EM 385-1-1, including the following:

1.9.4.1 Confined Space Entry Plan

Develop a confined or enclosed space entry plan in accordance with EM 385-1-1, applicable OSHA standards 29 CFR 1910, 29 CFR 1915, and 29 CFR 1926, OSHA Directive CPL 2.100, and any other federal, state and local regulatory requirements identified in this Contract. Identify the qualified person's name and qualifications, training, and experience. Delineate the qualified person's authority to direct work stoppage in the event of hazardous conditions. Include procedure for rescue by Contractor personnel and the coordination with emergency responders. (If there is no confined space work, include a statement that no confined space work exists and none will be created.)

1.9.4.2 Standard Lift Plan (SLP)

Plan lifts to avoid situations where the operator cannot maintain safe control of the lift. Prepare a written SLP in accordance with EM 385-1-1, Section 16.A.03, using Form 16-2 for every lift or series of lifts (if duty cycle or routine lifts are being performed). The SLP must be developed, reviewed and accepted by all personnel involved in the lift in conjunction with the associated AHA. Signature on the AHA constitutes acceptance of the plan. Maintain the SLP on the LHE for the current lift(s) being made. Maintain historical SLPs for a minimum of three months.

1.9.4.3 Critical Lift Plan - Crane or Load Handling Equipment

Provide a Critical Lift Plan as required by EM 385-1-1, Section 16.H.01, using Form 16-3. In addition, Critical Lift Plans are required for the following:

a. Lifts over 50 percent of the capacity of barge mounted mobile crane's hoist.

b. When working around energized power lines where the work will get closer than the minimum clearance distance in EM 385-1-1 Table 16-1.

c. For lifts with anticipated binding conditions.

d. When erecting cranes.

1.9.4.3.1 Critical Lift Plan Planning and Schedule

Critical lifts require detailed planning and additional or unusual safety precautions. Develop and submit a critical lift plan to the Contracting Officer 30 calendar days prior to critical lift. Comply with load testing requirements in accordance with EM 385-1-1, Section 16.F.03.

1.9.4.3.2 Lifts of Personnel

In addition to the requirements of EM 385-1-1, Section 16.H.02, for lifts of personnel, demonstrate compliance with the requirements of 29 CFR 1926.1400 and EM 385-1-1, Section 16.T.

1.9.4.4 Multi-Purpose Machines, Material Handling Equipment, and Construction Equipment Lift Plan

Multi-purpose machines, material handling equipment, and construction equipment used to lift loads that are suspended by rigging gear, require proof of authorization from the machine OEM that the machine is capable of making lifts of loads suspended by rigging equipment. Written approval from a qualified registered professional engineer, after a safety analysis is performed, is allowed in lieu of the OEM's approval. Demonstrate that the operator is properly trained and that the equipment is properly configured to make such lifts and is equipped with a load chart.

1.9.4.5 Fall Protection and Prevention (FP&P) Plan

The plan must be in accordance with the requirements of EM 385-1-1, Section 21.D and ASSP Z359.2, be site specific, and address all fall hazards in the work place and during different phases of construction. Address how to protect and prevent workers from falling to lower levels when they are exposed to fall hazards above 6 feet. A competent person or qualified person for fall protection must prepare and sign the plan documentation. Include fall protection and prevention systems, equipment and methods employed for every phase of work, roles and responsibilities, assisted rescue, self-rescue and evacuation procedures, training requirements, and monitoring methods. Review and revise, as necessary, the Fall Protection and Prevention Plan documentation as conditions change, but at a minimum every six months, for lengthy projects, reflecting any changes during the course of construction due to changes in personnel, equipment, systems or work habits. Keep and maintain the accepted Fall Protection and Prevention Plan documentation at the job site for the duration of the project. Include the Fall Protection and Prevention Plan documentation in the Accident Prevention Plan (APP).

1.9.4.6 Excavation Plan

Identify the safety and health aspects of excavation, and provide and prepare the plan in accordance with EM 385-1-1, Section 25.A.

1.9.4.7 Lead, Cadmium, and Chromium Compliance Plan

Identify the safety and health aspects of work involving lead, cadmium and chromium, and prepare in accordance with Section 02 83 00 LEAD REMEDIATION.

1.9.4.8 Asbestos Hazard Abatement Plan

Identify the safety and health aspects of asbestos work, and prepare in accordance with Section 02 82 00 ASBESTOS REMEDIATION.

1.9.4.9 Polychlorinated Biphenyls (PCB) Plan

Identify the safety and health aspects of Polychlorinated Biphenyls work, and prepare in accordance with Sections 02 84 33 REMOVAL AND DISPOSAL OF POLYCHLORINATED BIPHENYLS (PCBs) and 02 61 23 REMOVAL AND DISPOSAL OF PCB CONTAMINATED SOILS.

1.9.4.10 Site Demolition Plan

Identify the safety and health aspects, and prepare in accordance with Section 02 41 00 DEMOLITION and referenced sources. Include engineering survey as applicable.

1.10 ACTIVITY HAZARD ANALYSIS (AHA)

Before beginning each activity, task or Definable Feature of Work (DFOW) involving a type of work presenting hazards not experienced in previous project operations, or where a new work crew or subcontractor is to perform the work, the Contractor(s) performing that work activity must prepare an AHA. AHAs must be developed by the Prime Contractor, subcontractor, or supplier performing the work, and provided for Prime Contractor review and approval before submitting to the Contracting Officer. AHAs must be signed by the SSHO, Superintendent, QC Manager and the subcontractor Foreman performing the work. Format the AHA in accordance with EM 385-1-1 or as directed by the Contracting Officer. Submit the AHA for review at least 15 working days prior to the start of each activity task, or DFOW. The Government reserves the right to require the Contractor to revise and resubmit the AHA if it fails to effectively identify the work sequences, specific anticipated hazards, site conditions, equipment, materials, personnel and the control measures to be implemented.

AHAs must identify competent persons required for phases involving high risk activities, including confined entry, crane and rigging, excavations, trenching, electrical work, fall protection, and scaffolding.

1.10.1 AHA Management

Review the AHA list periodically (at least monthly) at the Contractor supervisory safety meeting, and update as necessary when procedures, scheduling, or hazards change. Use the AHA during daily inspections by the SSHO to ensure the implementation and effectiveness of the required safety and health controls for that work activity.

1.10.2 AHA Signature Log

Each employee performing work as part of an activity, task or DFOW must review the AHA for that work and sign a signature log specifically maintained for that AHA prior to starting work on that activity. The SSHO must maintain a signature log on site for every AHA. Provide employees whose primary language is other than English, with an interpreter to ensure a clear understanding of the AHA and its contents.

1.11 DISPLAY OF SAFETY INFORMATION

1.11.1 Safety Bulletin Board

Prior to commencement of work, erect a safety bulletin board at the job site. Where size, duration, or logistics of project do not facilitate a bulletin board, an alternative method, acceptable to the Contracting Officer, that is accessible and includes all mandatory information for employee and visitor review, may be deemed as meeting the requirement for a bulletin board. Include and maintain information on safety bulletin board as required by EM 385-1-1, Section 01.A.07. Additional items required to be posted include:

a. Confined space entry permit.

b. Hot work permit.

1.11.2 Safety and Occupational Health (SOH) Deficiency Tracking System

Establish a SOH deficiency tracking system that lists and monitors the status of SOH deficiencies in chronological order. Use the tracking system to evaluate the effectiveness of the APP. A monthly evaluation of the data must be discussed in the QC or SOH meeting with everyone on the project. The list must be posted on the project bulletin board and updated daily, and provide the following information:

a. Date deficiency identified;

b. Description of deficiency;

c. Name of person responsible for correcting deficiency;

d. Projected resolution date;

e. Date actually resolved.

1.12 SITE SAFETY REFERENCE MATERIALS

Maintain safety-related references applicable to the project, including those listed in paragraph REFERENCES. Maintain applicable equipment manufacturer's manuals.

1.13 EMERGENCY MEDICAL TREATMENT

Contractors must arrange for their own emergency medical treatment in accordance with EM 385-1-1. The Government has no responsibility to provide emergency medical treatment.

1.14 NOTIFICATIONS AND REPORTS

1.14.1 Mishap Notification

Notify the Contracting Officer as soon as practical, but no more than twenty-four hours, after any mishaps, including recordable accidents, incidents, and near misses, as defined in EM 385-1-1 Appendix Q, any report of injury, illness, or any property damage. For LHE or rigging mishaps, notify the Contracting Officer as soon as practical but not more than four hours after mishap. The Contractor is responsible for obtaining appropriate medical and emergency assistance and for notifying fire, law

enforcement, and regulatory agencies. Immediate reporting is required for electrical mishaps, to include Arc Flash; shock; uncontrolled release of hazardous energy (includes electrical and non-electrical); load handling equipment or rigging; fall from height (any level other than same surface); and underwater diving. These mishaps must be investigated in depth to identify all causes and to recommend hazard control measures.

Within notification include Contractor name; Contractt title; type of Contract; name of activity, installation or location where accident occurred; date and time of accident; names of personnel injured; extent of property damage, if any; extent of injury, if known, and brief description of accident (for example, type of construction equipment used and PPE used). Preserve the conditions and evidence on the accident site until the Government investigation team arrives on-site and Government investigation is conducted. Assist and cooperate fully with the Government's investigation(s) of any mishap.

1.14.2 Accident Notification

Notify the Contracting Officer in accordance with the EM 385-1-1 Accident Reporting Timeline.

Table
Accident Reporting Required Timeline

Accident Type	Notify KO or COR	Complete Final Accident Report on ENG 3394 and provide to KO or COR
Fatality, in-patient hospitalization, amputation, eye loss, or property damage over $600,000.	Immediately, no later than (NLT) 8 Hours	Within 7 Days
All other accidents and near misses	Immediately, no later than (NLT) 24 Hours	Within 7 Days

Within notification include Contractor name; Contract title; type of Contract; name of activity, installation or location where accident occurred; date and time of accident; names of personnel injured; extent of property damage, if any; extent of injury, if known, and brief description of accident (for example, type of construction equipment used and PPE used). Preserve the conditions and evidence on the accident site until the Government investigation team arrives on-site and Government investigation is conducted. Assist and cooperate fully with the Government's investigation(s) of any accident or near miss.

1.14.3 Accident Reports

a. Conduct an accident investigation for recordable injuries and illnesses, property damage, and near misses as defined in EM 385-1-1, to establish the root cause(s) of the accident. Complete the applicable NAVFAC Contractor Incident Reporting System (CIRS), and electronically submit via the NAVFAC Enterprise Safety Applications Management System (ESAMS). Complete and submit an accident investigation report in ESAMS within 7 days for accidents as defined

by EM 385-1-1. Complete the investigation report within 30 days. Accidents must include a written report submitted as an attachment in ESAMS using the following outline:

(1) Summary description to include:

(a) process

(b) findings

(c) outcomes

(2) Root Cause

(3) Direct Factors

(4) Indirect and Contributing Factors

(5) Corrective Actions

(6) Recommendations

All accidents are reportable, regardless of whether or not it is recordable.

a. Conduct an accident investigation for recordable injuries and illnesses, property damage, and near misses as defined in EM 385-1-1, to establish the root cause(s) of the accident. All accidents are reportable, regardless of whether or not it is recordable. Complete the applicable USACE Accident Report, ENG Form 3394, and provide the report to the Contracting Officer within 7 calendar days of the accident. The Contracting Officer will provide copies of any required or special forms. All accidents are reportable, regardless of whether or not it is recordable.

b. Near Misses: For Navy Projects, complete the applicable documentation in NAVFAC Contractor Incident Reporting System (CIRS), and electronically submit via the NAVFAC Enterprise Safety Applications Management System (ESAMS).

c. Conduct an accident investigation for any load handling equipment accident (including rigging accidents) to establish the root cause(s) of the accident. Complete the Load Handling Equipment (LHE) Accident Report (Crane and Rigging Accident Report) form and provide the report to the Contracting Officer within 30 calendar days of the accident. Do not proceed with crane operations until cause is determined and corrective actions have been implemented to the satisfaction of the Contracting Officer. The Contracting Officer will provide a blank copy of the accident report form.

1.14.4 LHE Inspection Reports

Submit LHE inspection reports required in accordance with EM 385-1-1 and as specified herein with Daily Reports of Inspections.

1.14.5 Certificate of Compliance and Pre-lift Plan/Checklist for LHE and Rigging

1.14.5.1 Certificate of Compliance

Provide a Certificate of Compliance for LHE utilized to perform work under this Contract in accordance with Section 16-7 of the EM 385-1-1. Post completed certificate on the crane.

1.14.5.2 Pre-Lift Plans

Develop either a Standard Lift Plan (SLP) or Critical Lift Plan (CLP) as required in accordance with EM 385-1-1. Utilize the Standard Lift Plan ENG Form 6203 for routine crane lifts and use the Critical Lift Plan ENR Form 6213 for non-routine crane lifts requiring more detailed planning and additional safety precautions, as defined by Section 16-2j of the EM 385-1-1. Submit lift plans to the Contracting Officer for approval within 15 calendar days in advance of planned lift.

1.15 HOT WORK PERMIT

1.15.1 Permit and Personnel Requirements

Submit and obtain a written permit prior to performing "Hot Work" (i.e., welding or cutting) or operating other flame-producing/spark producing devices, from the Fire Division. A permit is required from the Explosives Safety Office for work in and around where explosives are processed, stored, or handled. Contractors are required to meet all criteria before a permit is issued. Provide at least two 20 pound 4A:20 BC rated extinguishers for normal "Hot Work". The extinguishers must be current inspection tagged, and contain an approved safety pin and tamper resistant seal. It is also mandatory to have a designated FIRE WATCH for any "Hot Work" done at this activity. The Fire Watch must be trained in accordance with NFPA 51B and remain on-site for a minimum of 1 hour after completion of the task or as specified on the hot work permit.

When starting work in the facility, require personnel to familiarize themselves with the location of the nearest fire alarm boxes and place in memory the emergency Fire Division phone number. Report any fire, no matter how small, to the responsible Fire Division immediately.

1.15.2 Work Around Flammable Materials

Obtain permit approval from a NFPA Certified Marine Chemist, or Certified Industrial Hygienist for "Hot Work" within or around flammable materials (such as fuel systems or welding/cutting on fuel pipes) or confined spaces (such as sewer wet wells, manholes, or vaults) that have the potential for flammable or explosive atmospheres.

Whenever these materials, except beryllium and chromium (VI), are encountered in indoor operations, local mechanical exhaust ventilation systems that are sufficient to reduce and maintain personal exposures to within acceptable limits must be used and maintained in accordance with manufacturer's instruction and supplemented by exceptions noted in EM 385-1-1.

1.16 RADIATION SAFETY REQUIREMENTS

Submit License Certificates, employee training records, and Leak Test

Reports for radiation materials and equipment to the Contracting Officer and Radiation Safety Office (RSO), and Contracting Oversight Technician (COT) for all specialized and licensed material and equipment proposed for use on the construction project (excludes portable machine sources of ionizing radiation including moisture density and X-Ray Fluorescence (XRF)). Maintain on-site records whenever licensed radiological materials or ionizing equipment are on Government property.

Protect workers from radiation exposure in accordance with 10 CFR 20, ensuring any personnel exposures are maintained As Low As Reasonably Achievable.

1.16.1 Radiography Operation Planning Work Sheet

Submit a Gamma and X-Ray Radiography Operation Planning Work Sheet to Contracting Officer 14 days prior to commencement of operations involving radioactive materials or radiation generating devices. For portable machine sources of ionizing radiation, including moisture density and XRF, use and submit the Portable Gauge Operations Planning Worksheet instead. The Contracting Officer and COT will review the submitted worksheet and provide questions and comments.

Contractors must use primary dosimeters process by a National Voluntary Laboratory Accreditation Program (NVLAP) accredited laboratory.

1.16.2 Site Access and Security

Coordinate site access and security requirements with the Contracting Officer and COT for all radiological materials and equipment containing ionizing radiation that are proposed for use on a government facility. For gamma radiography materials and equipment, a Government escort is required for any travels on the Installation. The Navy COT or Government authorized representative will meet the Contractor at a designated location outside the Installation, ensure safety of the materials being transported, and will escort the Contractor for gamma sources onto the Installation, to the job site, and off the Installation. For portable machine sources of ionizing radiation, including moisture density and XRF, the Navy COT or Government authorized representative will meet the Contractor at the job site.

Provide a copy of all calibration records, and utilization records to the COT for radiological operations performed on the site.

1.16.3 Loss or Release and Unplanned Personnel Exposure

Loss or release of radioactive materials, and unplanned personnel exposures must be reported immediately to the Contracting Officer, RSO, and Base Security Department Emergency Number.

1.16.4 Site Demarcation and Barricade

Properly demark and barricade an area surrounding radiological operations to preclude personnel entrance, in accordance with EM 385-1-1, Nuclear Regulatory Commission, and Applicable State regulations and license requirements, and in accordance with requirements established in the accepted Radiography Operation Planning Work Sheet.

Do not close or obstruct streets, walks, and other facilities occupied and used by the Government without written permission from the Contracting

Officer.

1.16.5 Security of Material and Equipment

Properly secure the radiological material and ionizing radiation equipment at all times, including keeping the devices in a properly marked and locked container, and secondarily locking the container to a secure point in the Contractor's vehicle or other approved storage location during transportation and while not in use. While in use, maintain a continuous visual observation on the radiological material and ionizing radiation equipment. In instances where radiography is scheduled near or adjacent to buildings or areas having limited access or one-way doors, make no assumptions as to building occupancy. Where necessary, the Contracting Officer will direct the Contractor to conduct an actual building entry, search, and alert. Where removal of personnel from such a building cannot be accomplished and it is otherwise safe to proceed with the radiography, position a fully instructed employee inside the building or area to prevent exiting while external radiographic operations are in process.

1.16.6 Transportation of Material

Comply with 49 CFR 173 for Transportation of Regulated Amounts of Radioactive Material. Notify Local Fire authorities and the site Radiation Safety Officer (RSO) of any Radioactive Material use.

1.16.7 Schedule for Exposure or Unshielding

Actual exposure of the radiographic film or unshielding the source must not be initiated until after 5 p.m. on weekdays.

1.16.8 Transmitter Requirements

Adhere to the base policy concerning the use of transmitters, such as radios and cell phones. Obey Emissions control (EMCON) restrictions.

1.17 CONFINED SPACE ENTRY REQUIREMENTS

Confined space entry must comply with EM 385-1-1, 29 CFR 1926, 29 CFR 1910, and Directive CPL 2.100. Any potential for a hazard in the confined space requires a permit system to be used.

1.17.1 Entry Procedures

Prohibit entry into a confined space by personnel for any purpose, including hot work, until the qualified person has conducted appropriate tests to ensure the confined or enclosed space is safe for the work intended and that all potential hazards are controlled or eliminated and documented. Comply with EM 385-1-1, Section 34 for entry procedures. Hazards pertaining to the space must be reviewed with each employee during review of the AHA.

1.17.2 Forced Air Ventilation

Forced air ventilation is required for all confined space entry operations and the minimum air exchange requirements must be maintained to ensure exposure to any hazardous atmosphere is kept below its action level.

1.17.3 Sewer Wet Wells

Sewer wet wells require continuous atmosphere monitoring with audible alarm for toxic gas detection.

1.17.4 Rescue Procedures and Coordination with Local Emergency Responders

Develop and implement an on-site rescue and recovery plan and procedures. The rescue plan must not rely on local emergency responders for rescue from a confined space.

1.18 CONSTRUCTION INDOOR AIR QUALITY (IAQ) MANAGEMENT PLAN

Submit an IAQ Management Plan within 15 calendar days after design Contract award. Revise and resubmit Plan as required by the Contracting Officer. Make copies of the final plan available to all workers on site. Include provisions in the Plan to meet the requirements specified below and to ensure safe, healthy air for construction workers and building occupants. Submit Final IAQ Management Plan for inclusion in the Sustainability eNotebook, in accordance with Section 01 33 29 SUSTAINABILITY REQUIREMENTS AND REPORTING.

1.18.1 Requirements During Construction

Provide for evaluation of indoor Carbon Dioxide concentrations in accordance with ASTM D6245. Provide for evaluation of volatile organic compounds (VOCs) in indoor air in accordance with ASTM D6345. Use filters with a Minimum Efficiency Reporting Value (MERV) of 8 in permanently installed air handlers during construction.

1.18.1.1 Control Measures

Meet or exceed the requirements of ANSI/SMACNA 008 to help minimize contamination of the building from construction activities. The five requirements of this manual which must be adhered to are described below:

a. HVAC protection: Isolate return side of HVAC system from surrounding environment to prevent construction dust and debris from entering the duct work and spaces.

b. Source control: Use low emitting paints and other finishes, sealants, adhesives, and other materials as specified. When available, cleaning products must have a low VOC content and be non-toxic to minimize building contamination. Utilize cleaning techniques that minimize dust generation. Cycle equipment off when not needed. Prohibit idling motor vehicles where emissions could be drawn into building. Designate receiving/storage areas for incoming material that minimize IAQ impacts.

c. Pathway interruption: When pollutants are generated use strategies such as 100 percent outside air ventilation or erection of physical barriers between work and non-work areas to prevent contamination.

d. Housekeeping: Clean frequently to remove construction dust and debris. Promptly clean up spills. Remove accumulated water and keep work areas dry to discourage the growth of mold and bacteria. Take extra measures when hazardous materials are involved.

e. Scheduling: Control the sequence of construction to minimize the

absorption of VOCs by other building materials.

1.18.1.2 Moisture Contamination

a. Remove accumulated water and keep work dry.

b. Use dehumidification to remove moist, humid air from a work area.

c. Do not use combustion heaters or generators inside the building.

d. Protect porous materials from exposure to moisture.

e. Remove and replace items which remain damp for more than a few hours.

1.18.2 Requirements After Construction

After construction ends and prior to occupancy, conduct a building flush-out or test the indoor air contaminant levels. Flush-out must be a minimum 2 weeks with MERV-13 filtration media as determined by ASHRAE 52.2 at 100 percent outside air. Air contamination testing must be consistent with EPA's current Compendium of Methods for the Determination of Air Pollutants in Indoor Air. After building flush-out or testing and prior to occupancy, replace filtration media. Filtration media must have a MERV of 13 as determined by ASHRAE 52.2.

1.19 SEVERE STORM PLAN

In the event of a severe storm warning, the Contractor must comply with the applicable Storm Plan and:

a. Secure outside equipment and materials and place materials that could be damaged in protected areas.

b. Check surrounding area, including roof, for loose material, equipment, debris, and other objects that could be blown away or against existing facilities.

c. Ensure that temporary erosion controls are adequate.

PART 2 PRODUCTS

2.1 CONFINED SPACE SIGNAGE

Provide permanent signs integral to or securely attached to access covers for new permit-required confined spaces. Signs for confined spaces must comply with NEMA Z535.2. Provide signs with wording: "DANGER--PERMIT-REQUIRED CONFINED SPACE, DO NOT ENTER" in bold letters a minimum of one inch in height and constructed to be clearly legible with all paint removed. The signal word "DANGER" must be red and readable from 5 feet.

PART 3 EXECUTION

3.1 CONSTRUCTION AND OTHER WORK

Comply with EM 385-1-1, NFPA 70, NFPA 70E, NFPA 241, the APP, the AHA, Federal and State OSHA regulations, and other related submittals and activity fire and safety regulations. The most stringent standard prevails.

PPE is governed in all areas by the nature of the work the employee is performing. Use personal hearing protection at all times in designated noise hazardous areas or when performing noise hazardous tasks. Safety glasses must be worn or carried/available on each person. Mandatory PPE includes:

a. Head Protection that meets ANSI/ISEA Z89.1

b. Long Pants

c. Appropriate Safety Footwear

d. Appropriate Class Reflective Vests

3.1.1 Worksite Communication

Employees working alone in a remote location or away from other workers must be provided an effective means of emergency communications (i.e., cellular phone, two-way radios, land-line telephones or other acceptable means). The selected communication must be readily available (easily within the immediate reach) of the employee and must be tested prior to the start of work to verify that it effectively operates in the area/environment. Develop an employee check-in/check-out communication procedure to ensure employee safety.

3.1.2 Hazardous Material Use

Each hazardous material must receive approval from the Contracting Office or their designated representative prior to being brought onto the job site or prior to any other use in connection with this Contract. Allow a minimum of 10 working days for processing of the request for use of a hazardous material.

3.1.3 Hazardous Material Exclusions

Notwithstanding any other hazardous material used in this Contract, radioactive materials or instruments capable of producing ionizing/non-ionizing radiation (with the exception of radioactive material and devices used in accordance with EM 385-1-1 such as nuclear density meters for compaction testing and laboratory equipment with radioactive sources) as well as materials which contain asbestos, mercury or polychlorinated biphenyls, di-isocyanates, lead-based paint, and hexavalent chromium, are prohibited. The Contracting Officer, upon written request by the Contractor, may consider exceptions to the use of any of the above excluded materials. Low mercury lamps used within fluorescent lighting fixtures are allowed as an exception without further Contracting Officer approval. Notify the Radiation Safety Officer (RSO) prior to excepted items of radioactive material and devices being brought on base.

3.1.4 Unforeseen Hazardous Material

Contract documents identify materials such as PCB, lead paint, and friable and non-friable asbestos and other OSHA regulated chemicals (i.e., 29 CFR Part 1910.1000). If material(s) that can be hazardous to human health upon disturbance are encountered during demolition, repair, renovation, or construction operations, stop portions of work that would disturb the material and notify the Contracting Officer immediately. Within 14

calendar days the Government will determine if the material is hazardous. If material is not hazardous or poses no danger, the Government will direct the Contractor to proceed without change. If material is hazardous and handling of the material is necessary to accomplish the work, the Government will issue a modification.

3.2 UTILITY OUTAGE REQUIREMENTS

Apply for utility outages at least 30 days in advance. At a minimum, the written request must include the location of the outage, utilities being affected, duration of outage, any necessary sketches, and a description of the means to fulfill energy isolation requirements in accordance with EM 385-1-1. In accordance with EM 385-1-1, where outages involve Government or Utility personnel, coordinate with the Government on all activities involving the control of hazardous energy.

These activities include, but are not limited to, a review of Hazardous Energy Control Program (HECP) and HEC procedures, as well as applicable Activity Hazard Analyses (AHAs). In accordance with EM 385-1-1 and NFPA 70E, work on energized electrical circuits must not be performed without prior Government authorization. Government permission is considered through the permit process and submission of a detailed AHA. Energized work permits are considered only when de-energizing introduces additional or increased hazard or when de-energizing is infeasible.

3.3 OUTAGE COORDINATION MEETING

After the utility outage request is approved and prior to beginning work on the utility system requiring shut-down, conduct a pre-outage coordination meeting in accordance with EM 385-1-1. This meeting must include the Prime Contractor, the Prime and subcontractors performing the work, the Contracting Officer, and the All parties must fully coordinate HEC activities with one another. During the coordination meeting, all parties must discuss and coordinate on the scope of work, HEC procedures (specifically, the lock-out/tag-out procedures for worker and utility protection), the AHA, assurance of trade personnel qualifications, identification of competent persons, and compliance with HECP training in accordance with EM 385-1-1. Clarify when personal protective equipment is required during switching operations, inspection, and verification.

3.4 CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT)

Provide and operate a Hazardous Energy Control Program (HECP) in accordance with EM 385-1-1, 29 CFR 1910, 29 CFR 1915, ANSI/ASSP A10.44, NFPA 70E.

3.4.1 Safety Preparatory Inspection Coordination Meeting with the Government or Utility

For electrical distribution equipment that is to be operated by Government or Utility personnel, the Prime Contractor and the subcontractor performing the work must attend the safety preparatory inspection coordination meeting, which will also be attended by the Contracting Officer's Representative, and required by EM 385-1-1. The meeting will occur immediately preceding the start of work and following the completion of the outage coordination meeting. Both the safety preparatory inspection coordination meeting and the outage coordination meeting must occur prior to conducting the outage and commencing with lockout/tagout procedures.

3.4.2 Lockout/Tagout Isolation

Where the Government or Utility performs equipment isolation and lockout/tagout, the Contractor must place their own locks and tags on each energy-isolating device and proceed in accordance with the HECP. Before any work begins, both the Contractor and the Government or Utility must perform energy isolation verification testing while wearing required PPE detailed in the Contractor's AHA and required by EM 385-1-1. Install personal protective grounds, with tags, to eliminate the potential for induced voltage in accordance with EM 385-1-1.

3.4.3 Lockout/Tagout Removal

Upon completion of work, conduct lockout/tagout removal procedure in accordance with the HECP. In accordance with EM 385-1-1, each lock and tag must be removed from each energy isolating device by the authorized individual or systems operator who applied the device. Provide formal notification to the Government (by completing the Government form if provided by Contracting Officer's Representative), confirming that steps of de-energization and lockout/tagout removal procedure have been conducted and certified through inspection and verification. Government or Utility locks and tags used to support the Contractor's work will not be removed until the authorized Government employee receives the formal notification.

3.5 FALL PROTECTION PROGRAM

Establish a fall protection program, for the protection of all employees exposed to fall hazards. Within the program include company policy, identify roles and responsibilities, education and training requirements, fall hazard identification, prevention and control measures, inspection, storage, care and maintenance of fall protection equipment and rescue and evacuation procedures in accordance with EM 385-1-1.

3.5.1 Training

Institute a fall protection training program. As part of the Fall Protection Program, provide training for each employee who might be exposed to fall hazards and using personal fall protection equipment. Provide training by a competent person for fall protection in accordance with EM 385-1-1, Section 21.C. Document training and practical application of the competent person in accordance with EM 385-1-1, Section 21.C.04 and ASSP Z359.2 in the AHA.

3.5.2 Fall Protection Equipment and Systems

Enforce use of personal fall protection equipment and systems designated (to include fall arrest, restraint, and positioning) for each specific work activity in the Site Specific Fall Protection and Prevention Plan and AHA at all times when an employee is exposed to a fall hazard. Protect employees from fall hazards as specified in EM 385-1-1.

Provide personal fall protection equipment, systems, subsystems, and components that comply with EM 385-1-1 Section 21.I, 29 CFR 1926.500 Subpart M,ASSP Z359.0, ASSP Z359.1, ASSP Z359.2, ASSP Z359.3, ASSP Z359.4, ASSP Z359.6, ASSP Z359.7, ASSP Z359.11, ASSP Z359.12, ASSP Z359.13, ASSP Z359.14, ASSP Z359.15, ASSP Z359.16 and ASSP Z359.18.

3.5.2.1 Additional Personal Fall Protection Measures

In addition to the required fall protection systems, other protective measures such as safety skiffs, personal floatation devices, and life rings, are required when working above or next to water in accordance with EM 385-1-1. Personal fall protection systems and equipment are required when working from an articulating or extendible boom, swing stages, or suspended platform. In addition, personal fall protection systems are required when operating other equipment such as scissor lifts. The need for tying-off in such equipment is to prevent ejection of the employee from the equipment during raising, lowering, travel, or while performing work.

3.5.2.2 Personal Fall Protection Equipment

Only a full-body harness with a shock-absorbing lanyard or self-retracting lanyard is an acceptable personal fall arrest body support device. The use of body belts is not acceptable. Harnesses must have a fall arrest attachment affixed to the body support (usually a Dorsal D-ring) and specifically designated for attachment to the rest of the system. Snap hooks and carabineers must be self-closing and self-locking, capable of being opened only by at least two consecutive deliberate actions and have a minimum gate strength of 3,600 lbs in all directions. Use webbing, straps, and ropes made of synthetic fiber. The maximum free fall distance when using fall arrest equipment must not exceed 6 feet, unless the proper energy absorbing lanyard is used. Always take into consideration the total fall distance and any swinging of the worker (pendulum-like motion), that can occur during a fall, when attaching a person to a fall arrest system. Equip all full body harnesses with Suspension Trauma Preventers such as stirrups, relief steps, or similar in order to provide short-term relief from the effects of orthostatic intolerance in accordance with EM 385-1-1.

3.5.3 Fall Protection for Roofing Work

Implement fall protection controls based on the type of roof being constructed and work being performed. Evaluate the roof area to be accessed for its structural integrity including weight-bearing capabilities for the projected loading.

a. Low Sloped Roofs:

(1) For work within 6 feet from unprotected edge of a roof having a slope less than or equal to 4:12 (vertical to horizontal), protect personnel from falling by the use of conventional fall protection systems (personal fall arrest/restraint systems, guardrails, or safety nets) in accordance with EM 385-1-1, Section 21 and 29 CFR 1926.500. A safety monitoring system is not adequate fall protection and is not authorized.

(2) For work greater than 6 feet from the unprotected roof edge, addition to the use of conventional fall protection systems the use of a warning line system is also permitted, in accordance with 29 CFR 1926.500 and EM 385-1-1, Section 21.L.

b. Steep-Sloped Roofs: Work on a roof having a slope greater than 4:12 (vertical to horizontal) requires a personal fall arrest system, guardrails with toe-boards, or safety nets. This requirement also applies to residential or housing type construction.

3.5.4 Horizontal Lifelines (HLL)

Provide HLL in accordance with EM 385-1-1, Section 21.I.08.d.2. Commercially manufactured horizontal lifelines (HLL) must be designed, installed, certified and used, under the supervision of a qualified person, for fall protection as part of a complete fall arrest system which maintains a safety factor of 2 (29 CFR 1926.500). The competent person for fall protection may (if deemed appropriate by the qualified person) supervise the assembly, disassembly, use and inspection of the HLL system under the direction of the qualified person. Locally manufactured HLLs are not acceptable unless they are custom designed for limited or site specific applications by a Registered Professional Engineer who is qualified in designing HLL systems.

3.5.5 Guardrails and Safety Nets

Design, install and use guardrails and safety nets in accordance with EM 385-1-1, Section 21.F.01 and 29 CFR 1926 Subpart M.

3.5.6 Rescue and Evacuation Plan and Procedures

When personal fall arrest systems are used, ensure that the mishap victim can self-rescue or can be rescued promptly should a fall occur. Prepare a Rescue and Evacuation Plan and include a detailed discussion of the following: methods of rescue; methods of self-rescue or assisted-rescue; equipment used; training requirement; specialized training for the rescuers; procedures for requesting rescue and medical assistance; and transportation routes to a medical facility. Include the Rescue and Evacuation Plan within the Activity Hazard Analysis (AHA) for the phase of work, in the Fall Protection and Prevention (FP&P) Plan, and the Accident Prevention Plan (APP). The plan must be in accordance with the requirements of EM 385-1-1, ASSP Z359.2, and ASSP Z359.4.

3.6 WORK PLATFORMS

3.6.1 Scaffolding

Provide employees with a safe means of access to the work area on the scaffold. Climbing of any scaffold braces or supports not specifically designed for access is prohibited. Comply with the following requirements:

a. Scaffold platforms greater than 20 feet in height must be accessed by use of a scaffold stair system.

b. Ladders commonly provided by scaffold system manufacturers are prohibited for accessing scaffold platforms greater than 20 feet maximum in height.

c. An adequate gate is required.

d. Employees performing scaffold erection and dismantling must be qualified.

e. Scaffold must be capable of supporting at least four times the maximum intended load, and provide appropriate fall protection as delineated in the accepted fall protection and prevention plan.

f. Stationary scaffolds must be attached to structural building

components to safeguard against tipping forward or backward.

g. Special care must be given to ensure scaffold systems are not overloaded.

h. Side brackets used to extend scaffold platforms on self-supported scaffold systems for the storage of material are prohibited. The first tie-in must be at the height equal to 4 times the width of the smallest dimension of the scaffold base.

i. Scaffolding other than suspended types must bear on base plates upon wood mudsills (2 in x 10 in x 8 in minimum) or other adequate firm foundation.

j. Scaffold or work platform erectors must have fall protection during the erection and dismantling of scaffolding or work platforms that are more than 6 feet.

k. Delineate fall protection requirements when working above 6 feet or above dangerous operations in the Fall Protection and Prevention (FP&P) Plan and Activity Hazard Analysis (AHA) for the phase of work.

3.6.2 Elevated Aerial Work Platforms (AWPs)

Workers must be anchored to the basket or bucket in accordance with manufacturer's specifications and instructions (anchoring to the boom may only be used when allowed by the manufacturer and permitted by the CP). Lanyards used must be sufficiently short to prohibit worker from climbing out of basket. The climbing of rails is prohibited. Lanyards with built-in shock absorbers are acceptable. Self-retracting devices are not acceptable. Tying off to an adjacent pole or structure is not permitted unless a safe device for 100 percent tie-off is used for the transfer.

Use of AWPs must be operated, inspected, and maintained as specified in the operating manual for the equipment and delineated in the AHA. Operators of AWPs must be designated as qualified operators by the Prime Contractor. Maintain proof of qualifications on site for review and include in the AHA.

3.7 EQUIPMENT

3.7.1 Material Handling Equipment (MHE)

a. Material handling equipment such as forklifts must not be modified with work platform attachments for supporting employees unless specifically delineated in the manufacturer's printed operating instructions. Material handling equipment fitted with personnel work platform attachments are prohibited from traveling or positioning while personnel are working on the platform.

b. The use of hooks on equipment for lifting of material must be in accordance with manufacturer's printed instructions. Material Handling Equipment Operators must be trained in accordance with OSHA 29 CFR 1910, Subpart N.

c. Operators of forklifts or power industrial trucks must be licensed in accordance with OSHA.

3.7.2 Load Handling Equipment (LHE)

The following requirements apply. In exception, these requirements do not apply to commercial truck mounted and articulating boom cranes used solely to deliver material and supplies (not prefabricated components, structural steel, or components of a systems-engineered metal building) where the lift consists of moving materials and supplies from a truck or trailer to the ground; to cranes installed on mechanics trucks that are used solely in the repair of shore-based equipment; to crane that enter the activity but are not used for lifting; nor to other machines not used to lift loads suspended by rigging equipment. However, LHE accidents occurring during such operations must be reported.

a. Equip cranes and derricks as specified in EM 385-1-1, Section 16.

b. Notify the Contracting Officer 15 working days in advance of any LHE entering the activity, in accordance with EM 385-1-1, Section 16.A.02, so that necessary quality assurance spot checks can be coordinated. Prior to cranes entering federal activities, a Crane Access Permit must be obtained from the Contracting Officer. A copy of the permitting process will be provided at the Preconstruction Meeting. Contractor's operator must remain with the crane during the spot check. Rigging gear must be in accordance with OSHA, ASME B30.9 Standards safety standards.

c. Comply with the LHE manufacturer's specifications and limitations for erection and operation of cranes and hoists used in support of the work. Perform erection under the supervision of a designated person (as defined in ASME B30.5). Perform all testing in accordance with the manufacturer's recommended procedures.

d. Comply with ASME B30.5 for mobile and locomotive cranes, ASME B30.22 for articulating boom cranes, ASME B30.3 for construction tower cranes, ASME B30.8 for floating cranes and floating derricks, ASME B30.9 for slings, ASME B30.20 for below the hook lifting devices and ASME B30.26 for rigging hardware.

e. When operating in the vicinity of overhead transmission lines, operators and riggers must be alert to this special hazard and follow the requirements of EM 385-1-1 Section 11, and ASME B30.5 or ASME B30.22 as applicable.

f. Do not use crane suspended personnel work platforms (baskets) unless the Contractor proves that using any other access to the work location would provide a greater hazard to the workers or is impossible. Do not lift personnel with a line hoist or friction crane. Additionally, submit a specific AHA for this work to the Contracting Officer. Ensure the activity and AHA are thoroughly reviewed by all involved personnel.

g. Inspect, maintain, and recharge portable fire extinguishers as specified in NFPA 10, Standard for Portable Fire Extinguishers.

h. All employees must keep clear of loads about to be lifted and of suspended loads, except for employees required to handle the load.

i. Use cribbing when performing lifts on outriggers.

j. The crane hook/block must be positioned directly over the load. Side

loading of the crane is prohibited.

k. A physical barricade must be positioned to prevent personnel access where accessible areas of the LHE's rotating superstructure poses a risk of striking, pinching or crushing personnel.

l. Maintain inspection records in accordance by EM 385-1-1, Section 16.D, including shift, monthly, and annual inspections, the signature of the person performing the inspection, and the serial number or other identifier of the LHE that was inspected. Records must be available for review by the Contracting Officer.

m. Maintain written reports of operational and load testing in accordance with EM 385-1-1, Section 16.F, listing the load test procedures used along with any repairs or alterations performed on the LHE. Reports must be available for review by the Contracting Officer.

n. Certify that all LHE operators have been trained in proper use of all safety devices (e.g. anti-two block devices).

o. Take steps to ensure that wind speed does not contribute to loss of control of the load during lifting operations. At wind speeds greater than 20 mph, the operator, rigger and lift supervisor must cease all crane operations, evaluate conditions and determine if the lift may proceed. Base the determination to proceed or not on wind calculations per the manufacturer and a reduction in LHE rated capacity if applicable. Include this maximum wind speed determination as part of the activity hazard analysis plan for that operation.

p. On mobile cranes, lifts where the load weight is greater than 90 percent of the equipment's capacity are prohibited.

q. Follow FAA guidelines when required based on project location.

3.7.3 Machinery and Mechanized Equipment

a. Proof of qualifications for operator must be kept on the project site for review.

b. Manufacture specifications or owner's manual for the equipment must be on-site and reviewed for additional safety precautions or requirements that are sometimes not identified by OSHA or USACE EM 385-1-1. Incorporate such additional safety precautions or requirements into the AHAs.

3.7.4 Base Mounted Drum Hoists

a. Operation of base mounted drum hoists must be in accordance with EM 385-1-1 and ASSP A10.22.

b. Rigging gear must be in accordance with applicable ASME/OSHA standards.

c. When used on telecommunication towers, base mounted drum hoists must be in accordance with TIA-1019, TIA-222, ASME B30.7, 29 CFR 1926.552, and 29 CFR 1926.553.

d. When used to hoist personnel, the AHA must include a written standard operating procedure. Operators must have a physical examination in accordance with EM 385-1-1 Section 16.B.05 and trained, at a minimum,

in accordance with EM 385-1-1 Section 16.U and 16.T. The base mounted drum hoist must also comply with OSHA Instruction CPL 02-01-056 and ASME B30.23.

e. Material and personnel must not be hoisted simultaneously.

f. Personnel cage must be marked with the capacity (in number of persons) and load limit in pounds.

g. Construction equipment must not be used for hoisting material or personnel or with trolley/tag lines. Construction equipment may be used for towing and assisting with anchoring guy lines.

3.7.5 Use of Explosives

Explosives must not be used or brought to the project site without prior written approval from the Contracting Officer. Such approval does not relieve the Contractor of responsibility for injury to persons or for damage to property due to blasting operations.

Storage of explosives, when permitted on Government property, must be only where directed and in approved storage facilities. These facilities must be kept locked at all times except for inspection, delivery, and withdrawal of explosives.

3.8 EXCAVATIONS

Soil classification must be performed by a competent person in accordance with 29 CFR 1926 and EM 385-1-1.

3.8.1 Utility Locations

Provide a third party, independent, private utility locating company to positively identify underground utilities in the work area in addition to any station locating service and coordinated with the station utility department.

3.8.2 Utility Location Verification

Physically verify underground utility locations, including utility depth, by hand digging using wood or fiberglass handled tools when any adjacent construction work is expected to come within 3 feet of the underground system.

3.8.3 Utilities Within and Under Concrete, Bituminous Asphalt, and Other Impervious Surfaces

Utilities located within and under concrete slabs or pier structures, bridges, parking areas, and the like, are extremely difficult to identify. Whenever Contract work involves chipping, saw cutting, or core drilling through concrete, bituminous asphalt or other impervious surfaces, the existing utility location must be coordinated with station utility departments in addition to location and depth verification by a third party, independent, private locating company. The third party, independent, private locating company must locate utility depth by use of Ground Penetrating Radar (GPR), X-ray, bore scope, or ultrasound prior to the start of demolition and construction. Outages to isolate utility systems must be used in circumstances where utilities are unable to be positively identified. The use of historical drawings or GIS does not

alleviate the Contractor from meeting this requirement.

3.9 ELECTRICAL

Perform electrical work in accordance with EM 385-1-1.

3.9.1 Electrical Work

As described in EM 385-1-1, electrical work is to be conducted in a de-energized state unless there is no alternative method for accomplishing the work. In those cases obtain an energized work permit from the Contracting Officer. The energized work permit application must be accompanied by the AHA and a summary of why the equipment/circuit needs to be worked energized. Underground electrical spaces must be certified safe for entry before entering to conduct work. Cables that will be cut must be positively identified and de-energized prior to performing each cut. Attach temporary grounds in accordance with ASTM F855 and IEEE 1048. Perform all high voltage cable cutting remotely using hydraulic cutting tool. When racking in or live switching of circuit breakers, no additional person other than the switch operator is allowed in the space during the actual operation. Plan so that work near energized parts is minimized to the fullest extent possible. Use of electrical outages clear of any energized electrical sources is the preferred method.

When working in energized substations, only qualified electrical workers are permitted to enter. When work requires work near energized circuits as defined by NFPA 70, high voltage personnel must use personal protective equipment that includes, as a minimum, electrical hard hat, safety footwear, insulating gloves and electrical arc flash protection for personnel as required by NFPA 70E. Insulating blankets, hearing protection, and switching suits may also be required, depending on the specific job and as delineated in the Contractor's AHA. Ensure that each employee is familiar with and complies with these procedures and 29 CFR 1910.

3.9.2 Qualifications

Electrical work must be performed by QP with verifiable credentials who are familiar with applicable code requirements. Verifiable credentials consist of State, National and Local Certifications or Licenses that a Master or Journeyman Electrician may hold, depending on work being performed, and must be identified in the appropriate AHA. Journeyman/Apprentice ratio must be in accordance with State, Local requirements applicable to where work is being performed.

3.9.3 Arc Flash

Conduct a hazard analysis/arc flash hazard analysis whenever work on or near energized parts greater than 50 volts is necessary, in accordance with NFPA 70E.

All personnel entering the identified arc flash protection boundary must be QPs and properly trained in NFPA 70E requirements and procedures. Unless permitted by NFPA 70E, no Unqualified Person is permitted to approach nearer than the Limited Approach Boundary of energized conductors and circuit parts. Training must be administered by an electrically qualified source and documented.

3.9.4 Grounding

Ground electrical circuits, equipment and enclosures in accordance with NFPA 70 to provide a permanent, continuous and effective path to ground unless otherwise noted by EM 385-1-1.

Check grounding circuits to ensure that the circuit between the ground and a grounded power conductor has a resistance low enough to permit sufficient current flow to allow the fuse or circuit breaker to interrupt the current.

3.9.5 Testing

Temporary electrical distribution systems and devices must be inspected, tested and found acceptable for Ground-Fault Circuit Interrupter (GFCI) protection, polarity, ground continuity, and ground resistance before initial use, before use after modification and at least monthly. Monthly inspections and tests must be maintained for each temporary electrical distribution system, and signed by the electrical CP or QP.

-- End of Section --

SECTION 01 42 00

SOURCES FOR REFERENCE PUBLICATIONS
05/24

PART 1 GENERAL

1.1 REFERENCES

Various publications are referenced in other sections of the specifications to establish requirements for the work. These references are identified in each section by document number, date and title. The document number used in the citation is the number assigned by the standards producing organization (e.g., ASTM B564 Standard Specification for Nickel Alloy Forgings). However, when the standards producing organization has not assigned a number to a document, an identifying number has been assigned for reference purposes.

1.2 ORDERING INFORMATION

The addresses of the standards publishing organizations whose documents are referenced in other sections of these specifications are listed below, and if the source of the publications is different from the address of the sponsoring organization, that information is also provided.

AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE)
1801 Alexander Bell Drive
Reston, VA 20191
Ph: 800-548-2723; 703-295-6300
Email: customercare@asce.org
Internet: https://www.asce.org/

AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS (ASHRAE)
180 Technology Parkway NW
Peachtree Corners, GA 30092
Ph: 404-636-8400 or 800-527-4723
Fax: 404-321-5478
E-mail: ashrae@ashrae.org
Internet: https://www.ashrae.org/

AMERICAN SOCIETY OF SAFETY PROFESSIONALS (ASSP)
520 N. Northwest Highway
Park Ridge, IL 60068
Ph: 847-699-2929
E-mail: customerservice@assp.org
Internet: https://www.assp.org/

AMERICAN WATER WORKS ASSOCIATION (AWWA)
6666 W. Quincy Avenue
Denver, CO 80235 USA
Ph: 303-794-7711 or 800-926-7337
Fax: 303-347-0804
Internet: https://www.awwa.org/

ASTM INTERNATIONAL (ASTM)
100 Barr Harbor Drive, P.O. Box C700
West Conshohocken, PA 19428-2959

Ph: 610-832-9500
Fax: 610-832-9555
E-mail: service@astm.org
Internet: https://www.astm.org/

COUNCIL ON ENVIRONMENTAL QUALITY (CEQ) (WHITE HOUSE)
722 Jackson Place
Washington DC 20506
Internet: https://www.whitehouse.gov/administration/eop/ceq

GREEN BUILDING INITIATIVE (GBI)
7805 SW 40th Ave. #80010
Portland, Oregon 97219
Ph: 503-274-0448
Email: info@thegbi.org
Internet: https://www.thegbi.org/

GREEN SEAL (GS)
601 13th St NW 12th Floor
Washington, DC 20005
Ph: 202-872-6400
Fax: 202-872-4324
E-mail: greenseal@greenseal.org
Internet: https://www.greenseal.org/

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY (IEPA)
1021 North Grand Avenue, East
PO Box 19276
Springfield, IL 62794-9276
Ph: 217-782-3397
Internet: https://epa.illinois.gov/

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)
445 and 501 Hoes Lane
Piscataway, NJ 08854-4141
Ph: 732-981-0060 or 800-701-4333
Fax: 732-981-9667
E-mail: onlinesupport@ieee.org
Internet: https://www.ieee.org/

INTERNATIONAL CODE COUNCIL (ICC)
200 Massachusetts Ave, NW Suite 250
Washington, DC 20001
Ph: 800-786-4452 or 888-422-7233
Fax: 202-783-2348
E-mail: order@iccsafe.org
Internet: https://www.iccsafe.org/

INTERNATIONAL SAFETY EQUIPMENT ASSOCIATION (ISEA)
1101 Wilson Blvd, Suite 1425
Arlington, VA 22209-1762
Ph: 703-525-1695
Fax: 703-528-2148
Internet: https://safetyequipment.org/

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)
1300 North 17th Street, Suite 900
Arlington, VA 22209

Ph: 703-841-3200
Email: communications@nema.org
Internet: https://www.nema.org

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)
1 Batterymarch Park
Quincy, MA 02169-7471
Ph: 800-344-3555
Fax: 800-593-6372
Internet: https://www.nfpa.org

SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION (SMACNA)
4201 Lafayette Center Drive
Chantilly, VA 20151-1219
Ph: 703-803-2980
Fax: 703-803-3732
Internet: https://www.smacna.org/

TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY (TAPPI)
15 Technology Parkway South, Suite 115
Peachtree Corners, GA 30092
Ph: 800-332-8686 or 770-446-1400
Fax: 770-446-6947
E-mail: memberconnection@tappi.org
Internet: http://www.tappi.org

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8725 John J. Kingman Road
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Internet: http://www.dla.mil

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Fax: 703-605-6880
TDD: 703-487-4639
E-mail: info@ntis.gov
Internet: https://www.ntis.gov/

U.S. DEPARTMENT OF DEFENSE (DOD)
Order DOD Documents from:
Room 3A750-The Pentagon
1400 Defense Pentagon
Washington, DC 20301-1400
Ph: 703-571-3343
Fax: 215-697-1462
E-mail: customerservice@ntis.gov
Internet: https://www.ntis.gov/
Obtain Military Specifications, Standards and Related Publications from:
Acquisition Streamlining and Standardization Information System (ASSIST)
Department of Defense Single Stock Point (DODSSP)
Document Automation and Production Service (DAPS)
Building 4/D
700 Robbins Avenue
Philadelphia, PA 19111-5094
Ph: 215-697-6396 - for account/password issues
Internet: https://assist.dla.mil/online/start/; account registration required
Obtain Unified Facilities Criteria (UFC) from:
Whole Building Design Guide (WBDG)
National Institute of Building Sciences (NIBS)
1090 Vermont Avenue NW, Suite 700
Washington, DC 20005
Ph: 202-289-7800
Fax: 202-289-1092
Internet:
https://www.wbdg.org/ffc/dod/unified-facilities-criteria-ufc

U.S. DEPARTMENT OF TRANSPORTATION (DOT)
1200 New Jersey Ave., SE
Washington, DC 20590
Ph: 202-366-4000
Internet: https://www.transportation.gov/

U. S. GREEN BUILDING COUNCIL (USGBC)
2101 L St NW, Suite 600
Washington, DC 20037
Ph: 202-828-7422
Internet: https://new.usgbc.org/

WALLCOVERINGS ASSOCIATION (WA)
35 E wacker Dr Suite 850

Chicago, IL 60611
Ph: 312-224-2574
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PART 2 PRODUCTS

Not used

PART 3 EXECUTION

Not used

-- End of Section --

SECTION 01 45 00

QUALITY CONTROL
08/23, CHG 3: 08/25

PART 1 GENERAL

1.1 REFERENCES

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

ASTM INTERNATIONAL (ASTM)

ASTM C1077	(2024) Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation
ASTM D3666	(2016) Standard Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials
ASTM D3740	(2019) Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
ASTM E329	(2023) Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection
ASTM E543	(2021) Standard Specification for Agencies Performing Non-Destructive Testing

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1	(2024) Safety -- Safety and Occupational Health (SOH) Requirements
ER 1110-3-12	(2021) Military Engineering and Design Quality Management

U.S. DEPARTMENT OF DEFENSE (DOD)

FC 1-300-09N	(2024; with Change 1, 2025) Navy and Marine Corps Design

1.2 PAYMENT

Separate payment will not be made for providing and maintaining an effective Quality Control program. Include all associated costs in the applicable Pricing Schedule item.

1.3 SUBMITTALS

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. Submittals not having a "G" or "S" classification are 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 00.05 20 CONSTRUCTION SUBMITTAL PROCEDURES.

SD-01 Preconstruction Submittals

Contractor Quality Control (CQC) Plan; G

Additional Requirements For Design Quality Control (DQC) Plan; G

SD-05 Design Data

Design Quality Control

Discipline-Specific Checklists

Design Quality Control Documentation (DQCD)

SD-06 Test Reports

Verification Statement

SD-07 Certificates

Certificate Of Readiness; G

1.4 GENERAL REQUIREMENTS

Establish and maintain an effective quality control (QC) system that complies with FAR 52.246-12 Inspection of Construction. QC is comprised of plans, procedures, and organization necessary to produce an end product that complies with the Contract requirements. The QC system covers all design and construction operations, both onsite and offsite, and must be keyed to the proposed design and construction sequence. The Quality Control Manager, Superintendent, Site Safety and Health Officer (SSHO), and all on-site supervisors are responsible for the quality of work and are subject to removal by the Contracting Officer for non-compliance with the quality requirements specified in the Contract. The Quality Control Manager must maintain a physical presence at the work site at all times and is the primary individual responsible for all quality control.

1.5 QUALITY CONTROL (QC) PROGRAM REQUIREMENTS

Establish and maintain a QC program as described in this section. This QC program is a key element in meeting the objectives of the Commissioning Process (Cx). The QC program consists of a QC Organization, QC Plan, QC Plan Meeting(s), a Coordination and Mutual Understanding Meeting, QC meetings, three phases of control, submittal review and approval, testing, completion inspections, QC certifications, independent Special Inspections in accordance with Section 01 45 35 SPECIAL INSPECTIONS, and documentation necessary to provide materials, equipment, workmanship, fabrication, construction and operations that comply with the requirements of this Contract. The QC program must cover on-site and off-site work and be keyed to the work sequence. No construction work or testing may be performed unless the QC Manager is on the work site. The QC Manager must report to an officer of the firm and not be subordinate to the Project

Superintendent or the Project Manager. The QC Manager, Project Superintendent and Project Manager must work together effectively. Although the QC Manager is the primary individual responsible for quality control, all individuals will be held responsible for the quality of work on the job.

1.5.1 Meetings

1.5.1.1 Quality Control Plan Meeting

Prior to submission of the QC Plan, the Contractor may request a meeting with the Contracting Officer to discuss the QC Plan requirements of this Contract.

The purpose of this meeting is to develop a mutual understanding of the QC Plan requirements prior to plan development and submission and to agree on the Contractor's list of Definable Feature of Work (DFOW).

1.5.1.2 Coordination and Mutual Understanding Meeting

After the Preconstruction Conference, before start of design or construction, and prior to acceptance by the Government of the CQC Plan, meet with the Contracting Officer and discuss the Contractor's quality control system. During the meeting, a mutual understanding of the system details must be developed, including the forms for recording the CQC operations, design activities, control activities, testing, administration of the system for both onsite and offsite work, and the interrelationship of Contractor's Management and control with the Government's Quality Assurance. Minutes of the meeting will be prepared by the QC Manager and signed by the Contractor, the Architect/Engineer (A/E), and the Government. Provide a copy of the signed minutes to all attendees and incorporate into the relevant QC Plan. At a minimum the Coordination and Mutual Understanding Meeting must be repeated when a new QC Manager is appointed. There can be other occasions when subsequent conferences will be called by either party to reconfirm mutual understandings or address deficiencies in the CQC system or procedures which can require corrective action by the Contractor.

1.5.1.2.1 Purpose

The purpose of this meeting is to develop a mutual understanding of the QC details, including documentation, administration for on-site and off-site work, design intent, Cx in accordance with Section 01 91 00.15 22 TOTAL BUILDING COMMISSIONING, environmental requirements and procedures, coordination of activities to be performed, Special Inspections, and the coordination of the Contractor's management, production, and QC personnel. At the meeting, the Contractor must explain in detail how three phases of control will be implemented for each DFOW, as well as how each DFOW will be affected by each management plan or requirement as listed below:

a. Waste Management Plan.

b. Procedures for noise and acoustics management.

c. Environmental Protection Plan.

d. Environmental regulatory requirements.

e. Cx Plan requirements in accordance with Section 01 91 00.15 22 TOTAL BUILDING COMMISSIONING.

f. Special Inspections.

g. Indoor Air Quality (IAQ) Management Plan.

1.5.1.2.2 Coordination of Activities

Coordinate activities included in various sections to assure efficient and orderly installation of each component. Coordinate operations included under different sections that are dependent on each other for proper installation and operation. Schedule construction operations with consideration for indoor air quality as specified in the IAQ Management Plan.Coordinate Special Inspections.

1.5.1.2.3 Attendees

As a minimum, the Contractor's personnel required to attend include an officer of the firm, the Project Manager, Project Superintendent, QC Manager, Alternate QC Manager, Special Inspector, Commissioning Provider (CxC), and subcontractor representatives. Each subcontractor who will be assigned QC responsibilities must have a principal of the firm at the meeting.

1.5.1.3 Quality Control (QC) Meetings

After the start of construction, conduct weekly QC meetings led by the QC Manager at the work site with the Project Superintendent, the Special Inspector, and the other personnel as necessary. The QC Manager is to prepare the minutes of the meeting and provide a copy to the Contracting Officer within 2 working days after the meeting. The Contracting Officer may attend these meetings. As a minimum, accomplish the following at each meeting:

a. Review the minutes of the previous meeting.

b. Review the schedule and the status of work and deficiencies/rework. Review the most current approved schedule (in accordance with schedule specification) and the status of work and deficiencies/rework.

c. Review the status of submittals and Request For Information (RFIs).

d. Review the work to be accomplished in the next 3 weeks as defined by the schedule section paragraph WEEKLY LOOK AHEAD in Section 01 32 17.00 20 COST-LOADED NETWORK ANALYSIS SCHEDULES (NAS) and all quality control documentation required for that work.

e. Review Testing Plan and Log including status of tests performed since last QC Meeting.

f. Resolve QC and production problems. Discuss status of pending change orders.

g. Address items that may require revising the QC Plan.

h. Review Accident Prevention Plan (APP) and effectiveness of the safety program.

i. Review environmental requirements and procedures.

j. Review Environmental Management Plan.

k. Review Waste Management Plan.

l. Review the status of training completion.

m. Review Cx Plan and progress. Review Issues Log and resolution.

n. Review IAQ Management Plan.

1.5.2 Contractor Quality Control (CQC) Plan

Submit no later than 30 days after Contract Award, the CQC Plan proposed to implement the requirements FAR 52.246-12 Inspection of Construction. Design and Construction will be permitted to begin only after acceptance of the CQC Plan and other Contract requirements. Design work is not permitted to start prior to approval of a Design Quality Control Plan.

1.5.2.1 Content of Contractor Quality Control (CQC) Plan

Provide a CQC Plan, prior to start of construction that includes a table of contents, with major sections identified, pages numbered sequentially, and that documents the proposed methods and responsibilities for accomplishing quality control during the construction of the project. The CQC Plan must at a minimum include the following sections:

a. A description of the quality control organization and acknowledgment that the CQC staff will implement the three phase control system for all aspects of the work specified.

b. An organizational chart showing the quality control organization with individual names and job titles and lines of authority up to an executive of the company at the home office.

c. NAMES AND QUALIFICATIONS: Names and qualifications, in resume format, (including position titles and durations for qualifying experiences) for each person in the QC organization. Include the Construction Quality Management (CQM) for Contractors course certifications for the QC personnel as required by the paragraph CONSTRUCTION QUALITY MANAGEMENT TRAINING.

d. DUTIES, RESPONSIBILITY AND AUTHORITY OF QC PERSONNEL: Duties, responsibilities, and authorities of each person in the QC organization.

e. OUTSIDE ORGANIZATIONS: A listing of outside organizations, such as architectural and consulting engineering firms, that will be employed by the Contractor and a description of the services these firms will provide.

f. APPOINTMENT LETTERS: Letters signed by an officer of the firm appointing the QC Manager and Alternate QC Manager, Design Quality Control Manager, CxC, and stating that they are responsible for implementing and managing the QC program as described in this Contract. Include in this letter the responsibility of the QC Manager and Alternate QC Manager to implement and manage the three phases of control, and their authority to stop work that is not in compliance

with the Contract. Letters of direction are to be issued by the QC Manager to all other QC Specialists or quality control representatives outlining their duties, authorities, and responsibilities. Include copies of the letters in the QC Plan.

g. SUBMITTAL PROCEDURES AND INITIAL SUBMITTAL REGISTER: Procedures for reviewing, approving, scheduling, and managing submittals, including those of subcontractors, designers of record, consultants, architect-engineers (AE), offsite fabricators, suppliers, and purchasing agents. Provide the name(s) of the person(s) in the QC organization authorized to review and certify submittals prior to approval. Provide the initial submittal of the Submittal Register as specified in Section 01 33 00.05 20 CONSTRUCTION SUBMITTAL PROCEDURES.

h. TESTING LABORATORY INFORMATION: Testing laboratory information required by the paragraph ACCREDITATION REQUIREMENTS, as applicable.

i. TESTING PLAN AND LOG: A Testing Plan and Log that includes the tests required, associated feature of work required, referenced by the specification paragraph number requiring the test, the frequency, and the person responsible for each test.

j. Procedures to complete design and construction deficiencies from identification through acceptable corrective action. Establish verification procedures that identified deficiencies have been corrected. This phase is performed prior to beginning work on each definable feature of work, after all required plans, documents, materials are approved, and after copies are at the work site.

k. Reporting procedures, including proposed reporting formats.

l. Procedures for submitting and reviewing design changes/variations prior to submission to the Contracting Officer.

m. LIST OF DEFINABLE FEATURES: A Definable Feature of Work (DFOW) is a task that is separate and distinct from other tasks and has control requirements and work crews unique to that task. A DFOW is identified by different trades or disciplines, or it is work by the same trade in a different environment. A DFOW is by definition any item or activity on the construction schedule, and the schedule specification provides direction regarding how the DFOWs are to be structured. Include in the list of DFOWs for all activities on the Construction Schedule. Provide separate DFOWs in the Network Analysis Schedule for each design development stage and submittal package. Although each section of the specifications can generally be considered as a definable feature of work, there are frequently more than one definable features under a particular section. Identify the specification section number and schedule activity ID for each DFOW listed. The DFOW list will be reviewed in coordination with the construction schedule and agreed upon during the Coordination and Mutual Understanding Meeting.

n. PROCEDURES FOR PERFORMING AND TRACKING THE THREE PHASES OF CONTROL: Identify procedures used to ensure the three phases of control to manage the quality on this project. For each Definable Feature of Work (DFOW), a Preparatory and Initial phase checklist will be filled out during the Preparatory and Initial phase meetings. Conduct the Preparatory and Initial Phases and meetings with a view towards obtaining quality construction by planning ahead and identifying potential problems for each DFOW.

o. Coordinate scheduled work with Special Inspections required by Section 01 45 35 SPECIAL INSPECTIONS, the Statement of Special Inspections and the Special Inspections Project Manual. Where the applicable code issued by the International Code Council (ICC) calls for inspections by the Building Official, the Contractor must include the inspections in the Quality Control Plan and must perform the inspections required by the applicable ICC. The Contractor must perform these inspections using independent qualified inspectors. Include the Special Inspections Project Manual requirements in the QC Plan.

p. PROCEDURES FOR COMPLETION INSPECTION: Procedures for identifying and documenting the completion inspection process. Include in these procedures the responsible party for punch out inspection, pre-final inspection, and final acceptance inspection.

q. TRAINING PROCEDURES AND TRAINING LOG: Procedures for coordinating and documenting the training of personnel required by the Contract.

r. ORGANIZATION AND PERSONNEL CERTIFICATIONS LOG: Procedures for coordinating, tracking and documenting all certifications required for entities such as subcontractors, testing laboratories, suppliers, and personnel. The QC Manager will ensure that certifications are current, appropriate for the work being performed, and will not lapse during any period of the Contract that the work is being performed.

1.5.2.2 Additional Requirements for Design Quality Control (DQC) Plan

The following additional requirements apply to the DQC Plan:

a. Submit and maintain a DQC Plan as an effective quality control program which assures that all services required by this Contract are performed and provided in a manner that meets professional architectural and engineering quality standards. As a minimum, all documents must be technically reviewed by competent, independent reviewers identified in the DQC Plan. The same element that produced the product may not perform the Design Quality Control Review. Correct errors and deficiencies in the design documents prior to submitting them to the Government.

b. Include the design schedule in the master project schedule, showing the sequence of events involved in carrying out the project design tasks within the specific Contract period. Schedule must include sufficient detail to identify all major design tasks, including those that control the flow of work. Include review and correction periods associated with each item. Schedule must be a forward planning as well as a project monitoring tool. The schedule reflects calendar days and not dates for each activity. If the schedule is changed, submit a revised schedule reflecting the change within 7 calendar days.

c. Include in the DQC Plan the discipline-specific checklists to be used during the design and quality control of each submittal. Submit at each design phase as part of the project documentation these completed discipline-specific checklists. ER 1110-3-12 provides some useful information in developing checklists.

d. Implement the DQC Plan by a Design Quality Control Manager who has the responsibility of being cognizant of and assuring that all documents on the project have been coordinated and who coordinates work with and

reports to the Contracting Officer via the QC Manager. Notify the Contracting Officer, in writing, of the name of the individual and the name of an alternate person assigned to the position.

e. Provide Quality Control Documentation procedures such as QC review sets and QC comments to demonstrate that cross checking of all engineering disciple's design drawings and specifications has taken place. The QC review documentation must exhibit a checking process of the design documents for completeness, accuracy, and constructability.

f. Names of the individuals, including their respective firm names, who will be serving as the Designer of Record (DOR) in their respective design discipline.

g. Submit a formal Communication Plan that indicates the frequency of design meetings and what information is covered in those meetings, key design decision points tied to the Network Analysis Schedule and how the DOR plans to include the Government in those decisions, peer review procedures, interdisciplinary coordination, design review procedures, and comment resolution.

The Communication Plan must emphasize key decisions and possible problems the Contractor and Government may encounter during the design phase of the project. Provide a plan to discuss design alternatives and design coordination with the stakeholders at the key decision points as they arise on the project. Identify individual stakeholders and suggested communication methods that will be employed to expedite and facilitate each anticipated critical decision. Communication methods may include: Concept Design Workshop, over-the-shoulder review meetings, presentation at client's office, lifecycle cost analysis presentation, technical phone conversation, and formal review meeting. The design portion of the Communication Plan must be written by the DQC Manager and confirmed during the Post Award Kick-off Partnering. Update the Communication Plan at every Partnering meeting.

h. A statement of Life Safety and Fire Protection Features Inspections and Testing must be prepared by the Fire Protection DOR. Examples of life safety and fire protection features include, but are not limited to, water distribution systems including fire pumps and fire hydrants, fire resistive assemblies such as fire rated walls/partitions, through penetration firestop systems, spray-applied fireproofing of structural components, fire alarm and detection systems, fire suppression and standpipe systems, means of egress components, emergency and exit lighting fixtures. The plan must include a listing of the individuals, approved agencies or firms that will be retained for conducting the required inspections and tests accompanied by a description of individual inspector's experience, and a copy of all required certifications. Additional copies of this plan must be submitted to the NAVFAC Fire Protection Engineer and the Installation Fire Chief. This plan must include the following:

(1) Comprehensive list of systems, components or features to be inspected and tested.

(2) Description of performance verification testing activities for each system or component.

(3) Procedures and schedules for functional performance tests of all systems requiring functional testing.

i. Procedures for ensuring the design documents are submitted in accordance with FC 1-300-09N, Navy and Marine Corps Design Procedures and other procedures to ensure disciplines have been properly coordinated to eliminate conflicts.

1.5.3 Acceptance of the Quality Control (QC) and Design Quality Control (DQC) Plan

The Contracting Officer's acceptance of the Contractor QC Plan and Design Quality Control Plan is required prior to the start of construction. The Contracting Officer reserves the right to require changes in the QC and DQC Plan and operations as necessary, including removal or addition of personnel, to ensure the specified quality of work. The Contracting Officer reserves the right to interview any member of the QC and DQC organization at any time to verify the submitted qualifications. All QC and DQC organization personnel are subject to acceptance by the Contracting Officer. The Contracting Officer may require the removal of any individual for non-compliance with quality requirements specified in the Contract.

1.5.4 Preliminary Construction Work Authorized Prior to Acceptance

The only construction work that is authorized to proceed prior to the acceptance of the QC Plan is mobilization of storage and office trailers, temporary utilities, and surveying with specific prior approval of the Contracting Officer.

1.5.5 Notification of Changes

Notify the Contracting Officer, in writing, of any proposed changes in the QC Plan or changes to the QC organization personnel. Proposed changes are subject to acceptance by the Contracting Officer.

1.5.6 Special Inspections

Perform all required Special Inspections per Section 01 45 35 SPECIAL INSPECTIONS, the statement of Special Inspections and the Schedule of Special Inspections.

1.6 QUALITY CONTROL (QC) ORGANIZATION

1.6.1 Personnel Requirements

The requirements for the CQC organization are a Site Safety and Health Officer (SSHO), QC Manager, a Design Quality Manager, and enough qualified personnel to ensure safety and Contract compliance. The SSHO reports directly to a senior project (or corporate) official independent from the QC Manager. The SSHO will also serve as a member of the CQC Staff Personnel identified in the technical provisions as requiring specialized skills to assure the required work is being performed properly. The CQC staff always maintains a presence at the site during progress of the work and have complete authority and responsibility to take any action necessary to ensure Contract compliance. The CQC staff will be subject to acceptance by the Contracting Officer. Provide adequate office space, filing systems and other resources as necessary to maintain an effective and fully functional CQC organization. Promptly complete and furnish all letters, material submittals, shop drawing submittals, schedules, and all other project documentation to the CQC organization. The CQC organization

is responsible for always maintaining these documents and records at the site, except as otherwise acceptable to the Contracting Officer.

1.6.2 Quality Control (QC) Manager

1.6.2.1 Duties

Provide a QC Manager at the work site to implement and manage the QC program. The QC Manager must be employed by the Prime Contractor. The only duties and responsibilities of the QC Manager are to manage and implement the QC program on this Contract. The QC Manager must attend the partnering meetings, QC Plan Meetings, Coordination and Mutual Understanding Meeting, conduct the QC meetings, perform the three phases of control, perform submittal review and approval, ensure testing is performed and provide QC certifications and documentation required in this Contract. The QC Manager is responsible for managing and coordinating the three phases of control and documentation performed by testing laboratory personnel and any other inspection and testing personnel required by this Contract. The QC Manager is the manager of all QC activities. The QC manager is responsible for notifying the Special Inspector of activities which require their review. The QC manager is responsible for coordinating the Special Inspection activities, see paragraph CONTRACTOR'S QUALITY CONTROL (QC) MANAGER, in Section 01 45 35 SPECIAL INSPECTIONS.

1.6.2.2 Qualifications

The QC Manager must be an individual with a minimum of 10 years combined experience in the following positions: Project Superintendent, QC Manager, Project Manager, Project Engineer or Construction Manager on similar size and type construction Contracts which included the major trades that are part of this Contract. The individual must have at least 2 years experience as a QC Manager. The individual must be familiar with the requirements of EM 385-1-1 and have experience in the areas of hazard identification, safety compliance, and sustainability.

The QC Manager and all members of the QC organization must be capable of reading, writing, and conversing fluently in the English language.

1.6.2.3 Construction Quality Management Training

In addition to the above experience and education requirements, the QC Manager Alternate QC Manager, Superintendent, QC Specialist, and DQCM must have completed the CQM for Contractors course. If the QC Manager does not have a current certification, obtain the CQM for Contractors course certification within 90 days of award. This course is periodically offered by the Naval Facilities Engineering Systems Command and the Army Corps of Engineers. Contact the Contracting Officer for information on the next scheduled class.

The Construction Quality Management Training certificate expires after 5 years. If the QC Manager's certificate has expired, retake the course to remain current.

1.6.3 Organizational Changes

Maintain the QC staff with personnel as required by the specification section at all times. When it is necessary to make changes to the QC staff, revise the CQC Plan to reflect the changes and submit the changes to the Contracting Officer for acceptance.

1.6.4 Design Quality Control (DQC) Manager

The DQC Manager must be a member of the QC organization, must coordinate actions with the QC Manager, and must not be subordinate to the Project Superintendent or the Project Manager. The DQC Manager may also act as the CxC if all CxC qualifications are met.

1.6.4.1 Qualifications

a. A minimum of 5 years experience as a design Architect or Engineer on similar size and type designs / or design-build Contracts. Provide education, experience, and management capabilities on similar size and type Contracts.

b. Be a registered professional engineer or architect with an active registration. Provide proof of registration as part of the resume submittal package.

c. Complete the US Army Corps of Engineers (USACE) course entitled "Construction Quality Management (CQM) for Contractors."

d. Must be a person who has verifiable engineering or architectural design experience and is a registered professional engineer or architect.

1.6.4.2 Responsibilities

a. Be responsible for the design integrity, professional design standards, and all design services required.

b. Be a member of the DOR firm but may not be the DOR or the person stamping and approving final construction drawings or approving submittals.

c. Be responsible for development of the design portion of the QC Plan, incorporation and maintenance of the approved Design Schedule, and the preparation of DQC Reports and minutes of all design meetings.

d. Participate in the Post Award Kick-Off, all design planning meetings, design presentations, partnering, and QC meetings.

e. Implement the DQC Plan and must remain on staff involved with the project until completion of the project.

f. Be cognizant of and assure that all design documents on the project have been developed in accordance with the Contract.

g. Provide Design Quality Control Documentation (DQCD) which indicates design coordination of the engineering disciplines. Submit DQCD with the pre-final and final design submittals as required in Section 01 33 10.05 20 DESIGN SUBMITTAL PROCEDURES.

h. Develop the submittal register. Coordinate with each DOR to determine what items need to be submitted, and who needs to approve.

i. Provide QC certification for design compliance.

j. Certify and sign statement on each invoice that all work to be paid to the DOR under the invoice has been completed in accordance with the Contract requirements.

k. Prepare weekly DQC Reports that document the work the design team accomplished that week.

l. Coordinate all training requirements with the QC and in accordance with Section 01 78 23 OPERATION AND MAINTENANCE DATA.

1.6.5 Alternate Quality Control (QC) Manager Duties and Qualifications

Designate an alternate for the QC Manager at the work site to serve in the event of the designated QC Manager's absence. The period of absence may not exceed 2 weeks at one time, and not more than 30 workdays during a calendar year. The qualification requirements for the Alternate QC Manager must be the same as for the QC Manager.

1.6.6 Designer of Record (DOR) Qualifications

The DOR must be a registered design professional, retained by the Prime Contractor, responsible for the overall design and review of submittal documents prepared by others. The DOR is registered or licensed to practice their respective design profession as defined by the statutory requirements of the professional registration laws in the state in which the design professional works. The DOR cannot serve as the DQC Manager.

1.6.7 Commissioning

Commissioning (Cx) is a systematic, quality-focused process for delivery of a project focusing on verifying and documenting all commissioned systems and assemblies are installed, tested, and operating as they were planned and designed to meet the project requirements. The Quality Control requirements outlined in this specification section are key in supporting the objectives of the Cx process, specifically coordinating testing, documenting, and verifying proper system operation. Properly executed the Quality Control support of Cx ensures timely execution of necessary tasks to deliver the fully commissioned and operating systems in coordination with the overall construction and project schedule.

Provide Cx in addition to the quality control requirements of this section and not as a substitute for quality control requirements. The QC Manager is responsible for carrying out the three phases of control while ensuring the functional performance and integrated systems tests are coordinated with the Cx provider as required for each system to be commissioned.

1.6.7.1 Certificate of Readiness

The QC Manager must issue a Certificate of Readiness for Government approval for each system to be commissioned. Schedule Functional Performance Tests for each system only after the Certificate of Readiness has been approved by the Government for the system. The Certificate of Readiness certifies that all required inspections have been completed and deficiencies that were identified through any prior review, inspection, or test activity have been corrected before the start of Functional Performance Tests. Refer to Cx requirements in Section 01 91 00.15 22 TOTAL BUILDING COMMISSIONING for a list of systems to be commissioned and detailed requirements for the Cx provider.

1.6.8 Quality Control (QC) Specialists

1.6.8.1 Fire Protection QC Specialist (FPQC)

Provide a Fire Protection Quality Control Specialist (FPQC) within the QC organization to perform quality control related activities as specified herein on fire protection and life safety systems installed under this Contract.

1.6.8.1.1 Qualifications

The FPQC must have the following qualifications:

a. Be a registered Professional Engineer (P.E.) licensed by a Licensing Board in the United States, the District of Columbia, Guam or Puerto Rico, having passed the National Council of Examiners for Engineering and Surveying (NCEES) examination specifically in the discipline of Fire Protection Engineering.

b. Have a minimum of 5 years of Fire Protection Engineering experience on projects of similar relevance and complexity to the fire protection work specified under this Contract.

c. Other than the contractual obligations with the Prime Contractor, the FPQC must have no other business relationship (i.e., employee, owner, partner, operating officer, distributor, salesman, technical representative, family relationship, or financial investment) with the Prime Contractor or subcontractors.

d. Be employed by an independent engineering firm or company or be the Fire Protection Engineer on the Prime Contractor's Design-Build team. The firm may identify multiple, to a maximum of five, licensed Fire Protection Engineers for the performance of the duties under this Contract but must submit the names and qualifications for Government approval for all individuals identified prior to them performing any work under this Contract. These individuals may not be substituted without prior approval from the Contracting Officer.

1.6.8.1.2 Responsibilities

FPQC duties and responsibilities:

a. Assist in the development of the QC Plan including the Testing Plan and Log and executing the three phases of control for work involving the installation and testing of fire protection and life safety systems as an extension of the QC Manager.

b. Participate in project QC Meetings. Participate in Preparatory and Initial Phase meetings and perform and Follow-up inspections for work involving the installation and testing of fire protection and life safety systems.

c. Review and certify that all submittals pertaining to fire protection and life safety systems are complete and accurate prior to submission to the Government for approval. The FPQC Specialist is responsible for ensuring submittals are complete and accurate and all corrections have been made prior to submission to the Government. The Government reserves the right to reject any submittal that has not first been reviewed and certified by the FPQC and so marked, in writing,

attesting to such review and completeness of the submittal.

d. The Government reserves the right to reject any submittal or construction that is not in compliance to Contract. Government reviews do not relieve the Contractor responsibility for providing adequate quality control measures and do not constitute or imply acceptance of Contract variation.

e. Perform construction surveillance in accordance with the Schedule of Fire Protection System Inspections. Construction surveillance includes but is not limited to performing periodic on-site inspections during construction at specified milestones, performing a pre-final inspection of installed systems and witnessing functional testing; and participating and documenting in an on-site final acceptance inspection of fire protection and life safety systems with the Government FPE.

f. Document inspection results on a FPQC report prepared each day inspections are performed. The report must include a description of the visual inspection or observation performed, a written summary of findings, a conclusion on compliance with the Contract documents, and signature of the FPQC Specialist. In person inspection must be documented via video (.mp4) or photo (.jpeg). Video/photographic documentation must include before and after conditions and physical measurements. Forward the FPQC daily report to the QC Manager who must include the report with the submission of their daily QC Report to the Government each day. Every site visit by the FPQC must be documented on a FPQC daily report.

1.6.8.1.3 Schedule of Fire Protection System Inspections

A schedule, prepared by the Fire Protection DOR, which lists each of the required visual inspections and observations required by the FPQC. The schedule is included at the end of this UFGS section.

1.6.8.2 Mechanical QC Specialist (MQC)

Provide a Mechanical Quality Control Specialist (MQC) within the QC organization to perform quality control related activities as specified herein on the mechanical systems installed under this Contract.

1.6.8.2.1 Qualifications

The MQC must have the following qualifications:

a. Be a registered Professional Engineer (P.E.) licensed by a Licensing Board in the United States, the District of Columbia, Guam or Puerto Rico, having passed the National Council of Examiners for Engineering and Surveying (NCEES) examination specifically in the discipline of Mechanical Engineering with HVAC & Refrigeration depth or equivalent at time of licensure.

b. Have a minimum of 5 years of Mechanical Engineering experience on projects of similar relevance and complexity to the mechanical systems work specified under this Contract, specifically in field inspections and field testing of installed systems and components. Experience must be separate from design work and construction administration experience such as original design work and construction submittal reviews.

c. Other than the contractual obligations with the Prime Contractor, the MQC must have no other business relationship (i.e., employee, owner, partner, operating officer, distributor, salesman, technical representative, family relationship, or financial investment) with the Prime Contractor or subcontractors.

d. Be employed by an independent engineering firm or company and must not be a Mechanical Engineer on the Prime Contractor's Design-Build team. The firm may identify multiple, to a maximum of five, licensed Mechanical Engineers for the performance of the duties under this Contract but must submit the names and qualifications for Government approval for all individuals identified prior to them performing any work under this Contract. These individuals must not be substituted without prior approval from the Contracting Officer.

1.6.8.2.2 Responsibilities

MQC duties and responsibilities:

a. Assist in the development of the QC Plan including the Testing Plan and Log and executing the three phases of control for work involving the installation and testing of mechanical systems as an extension of the QC Manager.

b. Participate in project QC Meetings. Participate in Preparatory and Initial Phase meetings and perform and Follow-up inspections for work involving the installation and testing of mechanical systems.

c. Review and certify that all submittals pertaining to mechanical systems are complete and accurate prior to submission to the Government for approval. The MQC Specialist is responsible for ensuring submittals are complete and accurate and all corrections have been made prior to submission to the Government. The Government reserves the right to reject any submittal that has not first been reviewed and certified by the MQC, in addition to the QC Manager, and so marked, in writing, attesting to such review and completeness of the submittal in accordance with Section 01 33 00.05 20 CONSTRUCTION SUBMITTAL PROCEDURES.

d. The Government reserves the right to reject any submittal or construction that is not in compliance to Contract. Government reviews do not relieve the Contractor responsibility for providing adequate quality control measures and do not constitute or imply acceptance of Contract variation.

e. Perform construction surveillance and inspections concurrent with installation of Mechanical DFOW, full-time during equipment start-up and the field work specified in Section 23 05 93 TESTING, ADJUSTING, AND BALANCE FOR HVAC SYSTEMS and Section 23 09 00 INSTRUMENTATION AND CONTROL FOR HVAC, and full-time during HVAC and Plumbing commissioning functional performance testing, DALT and TAB acceptance testing, and final inspection. Construction surveillance includes, but is not limited to, participating in and documenting of on-site Government field acceptance testing with the Contracting Officer's Technical Representative.

f. Document inspection results on an MQC report prepared each day

inspections are performed. The report must include a description of the visual inspection or observation performed, a written summary of findings, a conclusion on compliance with the Contract documents, and signature of the MQC Specialist. In person inspections must be documented via video (mp4) or photo (jpeg). Video/photographic documentation must include before and after conditions and physical measurements. Forward the MQC daily report to the QC Manager and directly to the Contracting Officer. QC Manager must include the report with the submission of their daily QC Report to the Government each day. Every site visit by the MQC must be documented on a daily MQC report.

1.6.8.3 Telecommunications Systems QC (TSQC) Specialist

Provide a TSQC Specialist within the QC organization to perform quality control related activities as specified herein on the telecommunication systems installed under this Contract.

1.6.8.3.1 Qualifications

The TSQC must have the following qualifications:

a. Have a minimum of 10 years experience in telecommunications systems installation.

1.6.8.3.2 Responsibilities

TSQC responsibilities and duties:

a. Participate in project QC Meetings. Participate in Preparatory and Initial Phase meetings and perform and Follow-up inspections for work involving the installation and testing of telecommunication systems.

b. Review and certify that all submittals pertaining to telecommunication systems are complete and accurate prior to submission to the Government for approval. The TSQC Specialist is responsible for ensuring submittals are complete and accurate and all corrections have been made prior to submission to the Government. The Government reserves the right to reject any submittal that has not first been reviewed and certified by the TSQC, in addition to the QC Manager, and so marked, in writing, attesting to such review and completeness of the submittal in accordance with Section 01 33 00.05 20 CONSTRUCTION SUBMITTAL PROCEDURES.

1.7 SUBMITTAL AND DELIVERABLES REVIEW AND APPROVAL

Procedures for submission, review and approval of submittals are described in Section 01 33 00.05 20 CONSTRUCTION SUBMITTAL PROCEDURES. Procedures must include field verification of relevant dimensions and component characteristics by the QC organization prior to submittal being sent to the Contracting Officer. The CQC organization is responsible for certifying that all submittals and deliverables are in compliance with the Contract. When Section 01 91 00.15 22 TOTAL BUILDING COMMISSIONING are included in the Contract, the submittals required by those sections have to be coordinated with Section 01 33 00.05 20 CONSTRUCTION SUBMITTAL PROCEDURES to ensure adequate time is allowed for each type of submittal required.

1.8 THREE PHASES OF CONTROL

CQC enables the Contractor to ensure that the construction, including that of subcontractors and suppliers, complies with the requirements of the Contract. At least three phases of control must be conducted by the QC Manager to adequately cover both on-site and off-site work for each definable feature of the construction work as follows:

1.8.1 Preparatory Phase

Document the results of the preparatory phase actions by separate minutes prepared by the QC Manager and attach to the daily CQC report. Instruct applicable workers as to the acceptable level of workmanship required to meet Contract specifications.

Notify the Contracting Officer at least 2 business days in advance of each preparatory phase meeting. The meeting will be conducted by the QC Manager and attended by the QC Specialists, the Project Superintendent, the CxC, the Special Inspector and the foreman responsible for the DFOW. When the DFOW will be accomplished by a subcontractor, that subcontractor's foreman must attend the preparatory phase meeting. This phase is performed prior to beginning work on each definable feature of work, after all required plans/documents/materials are approved/accepted, and after copies are at the work site. Perform the following prior to beginning work on each DFOW:

a. Review each paragraph of the applicable specification sections, reference codes, and standards. Make available during the prepatory inspection a copy of those sections of referenced codes and standards applicable to that portion of the work to be accomplished in the field. Maintain and make available in the field for use by Government personnel until final acceptance of the work.

b. Review the Contract drawings.

c. Verify that field measurements are as indicated on construction or shop drawings or both before confirming product orders, to minimize waste due to excessive materials.

d. Verify that appropriate shop drawings and submittals for materials and equipment have been submitted and approved. Verify receipt of approved factory test results, when required.

e. Review the testing plan and ensure that provisions have been made to provide the required QC testing.

f. Examine the work area to ensure that the required preliminary work has been completed and complies with the Contract and ensure any deficiencies/rework items in the preliminary work have been corrected and confirmed by the Contracting Officer.

g. Review coordination of product/material delivery to designated prepared areas to execute the work.

h. Examine the required materials, equipment and sample work to ensure that they are on hand and conform to the approved shop drawings and submitted data and are properly stored.

i. Check to assure that all materials and equipment have been tested,

submitted, and approved.

j. Discuss specific controls to be used, construction methods, construction tolerances, workmanship standards, and the approach that will be used to provide quality construction by planning ahead and identifying potential problems for each DFOW. Ensure any portion of the plan requiring separate Contracting Officer acceptance has been approved.

k. Review the APP and appropriate Activity Hazard Analysis (AHA) to ensure that applicable safety requirements are met, and that required Safety Data Sheets (SDS) are submitted.

l. Review the Cx requirements in accordance with Section 01 91 00.15 22 TOTAL BUILDING COMMISSIONING and ensure all preliminary work items have been completed and documented.

m. Discussion of procedures for controlling quality of the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work.

n. Discuss schedule and execution of the initial control phase and confirmation or construction quality compliance.

o. Review Special Inspections required by Section 01 45 35 SPECIAL INSPECTION, the Statement of Special Inspections and the Schedule of Special Inspections.

1.8.2 Initial Phase

Notify the Contracting Officer at least 2 business days in advance of each initial phase. When construction crews are ready to start work on a DFOW, conduct the initial phase with the Project Superintendent, the Special Inspector and the foreman responsible for that DFOW. Observe the initial segment of the DFOW to ensure that the work complies with Contract requirements. Document the results of the initial phase in the daily CQC Report and in the Initial Phase Checklist. Repeat the initial phase for each new crew to work on-site when acceptable levels of specified quality are not being met. Indicate the exact location of initial phase for definable feature of work for future reference and comparison with follow-up phases. Perform the following for each DFOW:

a. Check work to ensure that it is in full compliance with Contract requirements. Review minutes of the preparatory meeting.

b. Verify adequacy of controls to ensure full Contract compliance. Verify required control inspection and testing comply with the Contract.

c. Establish level of workmanship and verify that it meets the minimum acceptable workmanship standards. Compare with required sample panels as appropriate.

d. Resolve any workmanship issues.

e. Ensure that testing is performed by the approved laboratory.

f. Check work procedures for compliance with the APP and the appropriate AHA to ensure that applicable safety requirements are met.

g. Review project specific work plans (i.e., Cx, HAZMAT Abatement, Stormwater Management) to ensure all preparatory work items have been completed and documented.

h. Coordinate scheduled work with Special Inspections required by Section 01 45 35 SPECIAL INSPECTIONS, the Statement of Special Inspections and the Schedule of Special Inspections.

1.8.3 Follow-Up Phase

Perform the following for on-going DFOW daily, or more frequently as necessary, until the completion of each DFOW. The Final Follow-Up for any DFOW will clearly note in the daily report the DFOW is completed, and all deficiencies/rework items have been completed in accordance with the paragraph DEFICIENCY/REWORK ITEMS LIST. Each DFOW that has completed the Initial Phase and has not completed the Final Follow-up must be included on each daily report. If no work was performed on that DFOW for the period of that daily report, it must be so noted. Document all Follow-Up activities for DFOWs in the daily CQC Report:

a. Ensure the work including control testing complies with Contract requirements until completion of that particular work feature. Record checks in the CQC documentation.

b. Maintain the quality of workmanship required.

c. Ensure that testing is performed by the approved laboratory.

d. Ensure that deficiencies/rework items are being corrected. Conduct final follow-up checks and correct all deficiencies prior to the start of additional features of work which may be affected by the deficient work.

e. Do not build upon nor conceal non-conforming work.

f. Assure manufacturers' representatives have performed necessary inspections if required and perform safety inspections.

g. Review the Cx requirements in accordance with Section 01 91 00.15 BUILDING COMMISSIONING.

h. Coordinate scheduled work with Special Inspections required by Section 01 45 35 SPECIAL INSPECTIONS, the Statement of Special Inspections and the Schedule of Special Inspections.

1.8.4 Additional Preparatory and Initial Phases

Conduct additional preparatory and initial phases on the same DFOW if the quality of on-going work is unacceptable, if there are changes in the applicable QC organization, if there are changes in the on-site production supervision or work crew, if work on a DFOW has not started within 45 days of the initial preparatory meeting or has resumed after 45 days of inactivity, or if other problems develop.

1.8.5 Notification of Three Phases of Control for Off-Site Work

Notify the Contracting Officer at least 2 weeks prior to the start of the preparatory and initial phases.

1.8.6 Deficiency/Rework Items List

The QC Manager must maintain a list of work that does not comply with the Contract, identifying what items need to be corrected, the activity ID number associated with the item, the date the item was originally discovered, the date the item will be corrected by, and the date the item was corrected.

The QC Manager reviews the list at each weekly QC Meeting:

a. There is no requirement to report a deficiency/rework item that is corrected the same day it is discovered.

b. No successor task may be advanced beyond the preparatory phase meeting until all deficiencies/rework items have been cleared by the QC Manager and concurred with by the Contracting Officer. This must be confirmed as part of the Preparatory Phase activities.

c. Attach a copy of the "Deficiency/Rework Items List" to the last daily CQC Report of each month.

d. The Contractor is responsible for including those items identified by the Contracting Officer.

e. All deficiencies/rework items must be confirmed as corrected by the QC Manager, and concurred by the Contracting Officer, prior to commencement of any completion inspections per paragraph COMPLETION INSPECTIONS unless specifically exempted by the Contracting Officer.

f. Non-Compliance with these requirements is grounds for removal in accordance with paragraph ACCEPTANCE OF THE QUALITY CONTROL (QC) and DESIGN QUALITY CONTROL (DQC) PLAN.

g. All delays, concurrent or related to failure to manage, monitor, control, and correct deficiencies/rework items are entirely the responsibility of the Contractor and can not be made the subject, or any component of any request for additional time or compensation.

1.9 TESTING

Perform specified or required tests to verify that control measures are adequate to provide a product which conforms to Contract requirements. Upon request, furnish to the Government duplicate samples of test specimens for possible testing by the Government. Testing includes operation and acceptance tests when specified. Procure the services of an U.S. Army Corps of Engineers approved testing laboratory or establish an approved testing laboratory at the project site. Perform the following activities and record and provide the following data:

a. Verify that testing procedures comply with Contract requirements.

b. Verify that facilities and testing equipment are available and comply with testing standards.

c. Check test instrument calibration data against certified standards.

d. Verify that recording forms and test identification control number system, including all test documentation requirements, have been

prepared.

e. Record results of all tests taken, both passing and failing on the CQC report for the date taken. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test. If approved by the Contracting Officer, actual test reports are submitted later with a reference to the test number and date taken. Provide an information copy of tests performed by an offsite or commercial test facility directly to the Contracting Officer. Failure to submit timely test reports as stated results in nonpayment for related work performed and disapproval of the test facility for this Contract.

1.9.1 Accreditation Requirements

Construction materials testing laboratories must be accredited by a laboratory accreditation authority and must submit a copy of the Certificate of Accreditation and Scope of Accreditation. The laboratory's scope of accreditation must include the appropriate ASTM standards (ASTM E329, ASTM C1077, ASTM D3666, ASTM D3740, ASTM E543) listed in the technical sections of the specifications. Laboratories engaged in Hazardous Materials Testing must meet the requirements of OSHA and EPA. The policy applies to the specific laboratory performing the actual testing, not just the Corporate Office.

1.9.2 Laboratory Accreditation Authorities

Laboratory Accreditation Authorities include the National Voluntary Laboratory Accreditation Program (NVLAP) administered by the National Institute of Standards and Technology at https://www.nist.gov/nvlap, the American Association of State Highway and Transportation Officials (AASHTO) Accreditation Program at http://www.aashtoresource.org/aap/overview, International Accreditation Services, Inc. (IAS) at https://www.iasonline.org/, U.S. Army Corps of Engineers Materials Testing Center (MTC) at https://www.erdc.usace.army.mil/Media/Fact-Sheets/Fact-Sheet-Article-View/Article/476661/materials-testing-center/, the American Association for Laboratory Accreditation (A2LA) program at https://a2la.org/, the Washington Association of Building Officials (WABO) at https://www.wabo.org/ (Approval authority for WABO is limited to projects within Washington State), and the Washington Area Council of Engineering Laboratories (WACEL) at https://www.wacel.org/lab-accreditation-and-inspection-agency-audit-programs/laboratory-accreditation-program/(Approval authority by WACEL is limited to projects within Facilities Engineering Command (FEC) Washington geographical area).

1.9.3 Capability Check

The Contracting Officer retains the right to check laboratory equipment in the proposed laboratory and the laboratory technician's testing procedures, techniques, and other items pertinent to testing, for compliance with the standards set forth in this Contract. Laboratories utilized for testing soils, concrete, asphalt, and steel must meet criteria detailed in ASTM D3740 and ASTM E329.

1.9.4 Test Results

Cite applicable Contract requirements, tests or analytical procedures used. Provide actual results and include a statement that the item tested

or analyzed conforms or fails to conform to specified requirements. If the item fails to conform, notify the Contracting Officer immediately. Conspicuously stamp the cover sheet for each report in large red letters "CONFORMS" or "DOES NOT CONFORM" to the specification requirements, whichever is applicable. Test results must be signed by a testing laboratory representative authorized to sign certified test reports. Furnish the signed reports, certifications, and other documentation to the Contracting Officer via the QC Manager. Furnish a summary report of field tests at the end of each month, in accordance with paragraph DOCUMENTATION AND INFORMATION FOR THE CONTRACTING OFFICER.

1.9.5 Test Reports and Monthly Summary Report of Tests

Furnish the signed reports, certifications, and a summary report of field tests at the end of each month to the Contracting Officer. Attach a copy of the summary report to the last daily CQC Report of each month. Provide a copy of the signed test reports and certifications to the Operation and Maintenance Support Information (OMSI) preparer for inclusion into the OMSI documentation, in accordance with Sections 01 78 23 OPERATION AND MAINTENANCE DATA and 01 78 24.00 20 FACILITY DATA WORKBOOK (FDW).

1.10 COMPLETION INSPECTIONS

1.10.1 Punch-Out Inspection

Near the completion of all work or any increment thereof, established by a completion time stated in the Contract Clause entitled "Commencement, Prosecution, and Completion of Work," or stated elsewhere in the specifications, the QC Manager must conduct an inspection of the work and develop a "punch list" of items which do not conform to the approved drawings, specifications, and Contract. Include in the punch list any remaining items on the "Deficiency/Rework Items List", that were not corrected prior to the Punch-Out Inspection as approved by the Contracting Officer in accordance with the paragraph DEFICIENCY/REWORK ITEMS LIST. Include within the punch list the estimated date by which the deficiencies will be corrected. Provide a copy of the punch list to the Contracting Officer.

The QC Manager, or staff, must make follow-on inspections to ascertain that all deficiencies have been corrected. All punch list items must be confirmed as corrected by the QC Manager and concurred by the Contracting Officer. Once this is accomplished, notify the Government that the facility is ready for the Government "Pre-Final Inspection".

1.10.2 Pre-Final Inspection

The Government and QC Manager will perform this inspection to verify that the facility is complete and ready to be occupied. A Government "Pre-Final Punch List" will be documented by the QC Manager as a result of this inspection. The QC Manager will ensure that all items on this list are corrected and concurred by the Contracting Officer prior to notifying the Government that a "Final" inspection with the Client can be scheduled. All items noted on the "Pre-Final" inspection must be corrected and concurred by the Contracting Officer in a timely manner and be accomplished before the Contract completion date for the work, or any increment thereof, if the project is divided into increments by separate completion dates unless exceptions are directed by the Contracting Officer.

1.10.3 Final Acceptance Inspection

Notify the Contracting Officer at least 14 calendar days prior to the date a final acceptance inspection can be held. State within the notice that all items previously identified on the pre-final punch list will be corrected and acceptable, along with any other unfinished Contract work, by the date of the final acceptance inspection. The Contractor must be represented by the QC Manager, the Project Superintendent, and others deemed necessary. Attendees for the Government will include the Contracting Officer, other Government QA personnel, and personnel representing the Client. Failure of the Contractor to have all Contract work acceptably complete for this inspection will be cause for the Contracting Officer to bill the Contractor for the Government's additional inspection cost in accordance with the Contract Clause entitled "Inspection of Construction."

1.11 QUALITY CONTROL (QC) CERTIFICATIONS

1.11.1 Contractor Quality Control (CQC) Report Certification

Contain the following statement within the CQC Report: "On behalf of the Contractor, I certify that this report is complete and correct and equipment and material used, and work performed during this reporting period is in compliance with the Contract drawings and specifications to the best of my knowledge, except as noted in this report."

1.11.2 Completion Certification

Upon completion of work under this Contract, the QC Manager must furnish a certificate to the Contracting Officer attesting that "the work has been completed, inspected, tested and is in compliance with the Contract." Provide a copy of this final QC Certification for completion to the preparer of the Operation & Maintenance (O&M) documentation.

1.11.3 Invoice Certification

Furnish a certificate to the Contracting Officer with each payment request, signed by the QC Manager, attesting that as-built drawings are current, coordinated and attesting that the work for which payment is requested, including stored material, complies with Contract requirements.

1.12 DOCUMENTATION AND INFORMATION FOR THE CONTRACTING OFFICER

Maintain current and complete records of on-site and off-site QC program operations and activities.

Contact the Contracting Officer for sample forms or print from RMS-QCS as needed. Prior to commencing work on construction, the Contractor must obtain a copy set of the current report forms. The report forms will consist of the Contractor Quality Control (CQC) Report, CQC Report (Continuation Sheet), Contractor Production Report, Contractor Production Report (Continuation Sheet), Preparatory Phase Checklist, Initial Phase Checklist, Testing Plan and Log, and Rework Items List. Unless otherwise provided by the Contracting Officer, Contractor may use the forms provided as related material located at www.wbdg.org/dod/ufgs/ufgs-01-45-00.

1.12.1 Construction Documentation

Prepare a Construction Production Report and a Contractor Quality Control

Report for each day that work is performed. Attach the Construction Production Report to the Contractor Quality Control Report prepared for the same day. Maintain current and complete records of on-site and off-site QC program operations and activities.
Account for each calendar day throughout the life of the Contract.

The Project Superintendent and the QC Manager must prepare and sign the Contractor Production and CQC Reports, respectively. Every space on the forms must be filled in. Use N/A if nothing can be reported in one of the spaces. The reporting of work must be identified by terminology consistent with the construction schedule. In the "Remarks" sections of the reports, enter pertinent information including directions received, problems encountered during construction, work progress and delays, conflicts or errors in the drawings or specifications, field changes, safety hazards encountered, instructions given and corrective actions taken, delays encountered, a record of visitors to the work site, quality control problem areas, deviations from the QC Plan, construction deficiencies encountered, and meetings held. For each entry in the report(s), identify the Schedule Activity No. that is associated with the entered remark.

1.12.2 Quality Control Activities

CQC and Contractor Production reports will be prepared daily to maintain current records providing factual evidence that required quality control activities and tests have been performed. Include in these records the work of subcontractors and suppliers on an acceptable form that includes, as a minimum, the following information:

a. The name and area of responsibility of the Contractors and any subcontractors.

b. Operating plant/equipment with hours worked, idle, or down for repair.

c. Work performed each day, giving location, description, and by whom. When a Network Analysis Schedule (NAS) is used, identify each item of work performed each day by NAS activity number.

d. Control phase activities performed. Preparatory, and Initial phase Checklists associated with the DFOW referenced to the construction schedule. Follow-up phase activities identified to the DFOW. If testing or specific QC Specialist activities are associated with the Follow-up phase activities for a specific DFOW note this and include those reports.

e. Test and control activities performed with results and references to specifications and drawings requirements. Identify the control phase (Preparatory, Initial, Follow-up). List of deficiencies noted, along with corrective action in accordance with the paragraph DEFICIENCY/REWORK ITEMS LIST.

f. Quantity of materials received at the site with statement as to acceptability, storage, and reference to specifications and drawings requirements.

g. Submittals and deliverables reviewed, with Contract reference, by whom, and action taken.

h. Offsite surveillance activities, including actions taken.

i. Job safety evaluations stating what was checked, results, and instructions or corrective actions.

j. Instructions given/received and conflicts in plans and specifications.

k. Provide documentation of design quality control activities. For independent design reviews, provide, as a minimum, identification of the Design Quality Control Review team and their review comments, responses and the record of resolution of the comments.

1.12.3 Verification Statement

Indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. Cover both conforming and deficient features and include a statement that equipment and materials incorporated in the work and workmanship comply with the Contract.

Furnish the original and one copy of these records in report form to the Government by 10:00 AM the next working day after the date covered by the report. As a minimum, prepare and submit one report for every 7 days of no work and on the last day of a no work period. All calendar days need to be accounted for throughout the life of the Contract. The first report following a day of no work will be for that day only. Reports need to be signed and dated by the QC Manager. Include copies of test reports and copies of reports prepared by all subordinate quality control personnel within the QC Manager Report.

1.12.4 Reports from the Quality Control (QC) Specialist(s)

Document inspection results on a QC specialist report prepared each day work is performed in their area of responsibility. The report must include a description of the visual inspection or observation performed, a written summary of findings, a conclusion on compliance with the Contract documents, and signature of the QC Specialist. In person inspections must be documented with Video/photographs. Video/photographic documentation of deficiencies must include before and after conditions and physical measurements, as necessary. Forward the QC daily report to the QC Manager who must include the report with the submission of their daily QC Report to the Government each day. Every site visit by the QC Specialist must be documented on a QC Specialist daily report.

1.12.5 Quality Control Validation

Establish and maintain the following in an electronic folder. Divide folder into a series of tabbed sections as shown below. Ensure folder is updated at each required progress meeting.

a. CQC Meeting minutes in accordance with paragraph QUALITY CONTROL (QC) MEETINGS.

b. All completed Preparatory and Initial Phase Checklists, arranged by specification section, further sorted by DFOW referenced to the construction schedule. Submit each individual Phase Checklist the day the phase event occurs as part of the CQC daily report.

c. All milestone inspections, arranged by Activity Number referenced to

the construction schedule.

d. An up-to-date copy of the Testing Plan and Log with supporting field test reports, arranged by specification section referenced to the DFOW to which individual reports results are associated. Individual field test reports will be submitted within 2 working days after the test is performed in accordance with the paragraph QUALITY CONTROL ACTIVITIES. Monthly Summary Report of Tests: Submit the report as an electronic attachment to the CQC Report at the end of each month.

e. Copies of all Contract modifications, arranged in numerical order. Also include documentation that modified work was accomplished.

f. An up-to-date copy of the paragraph DEFICIENCY/REWORK ITEMS LIST.

g. Cx documentation in accordance with Section 01 91 00.15 22 TOTAL BUILDING COMMISSIONING.

h. Special Inspection reports.

i. Upon commencement of Completion Inspections of the entire project or any defined portion, maintain up-to-date copies of all punch lists issued by the QC staff to the Contractor and subcontractors and all punch lists issued by the Government in accordance with the paragraph COMPLETION INSPECTIONS.

1.12.6 Testing Plan and Log

As tests are performed, the CxC and the QC Manager will record on the "Testing Plan and Log" the date the test was performed and the date the test results were forwarded to the Contracting Officer. Attach a copy of the updated "Testing Plan and Log" to the last daily CQC Report of each month. Provide a copy of the final "Testing Plan and Log" to the preparer of the Operation & Maintenance (O&M) documentation.

1.12.7 As-Built Drawings

The QC Manager must ensure the as-built drawings, required by Section 01 78 00 CLOSEOUT SUBMITTALS are kept current on a daily basis and marked to show deviations which have been made from the Contract drawings. The as-built drawings document commences with the QC Manager ensuring all amendments, or changes to the Contract prior to Contract award are accurately noted in the initial document set creating the accurate baseline of the Contract prior to any work starting. Ensure each deviation has been identified with the appropriate modifying documentation (e.g., PC No., Modification No., Request for Information No.). The QC Manager or QC Specialist assigned to an area of responsibility must initial each revision. Upon completion of work, the QC Manager will furnish a certificate attesting to the accuracy of the as-built drawings prior to submission to the Contracting Officer.

1.13 NOTIFICATION ON NON-COMPLIANCE

The Contracting Officer will notify the Contractor of any detected non-compliance with the Contract. Take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, is deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until

satisfactory corrective action has been taken. No part of the time lost due to such stop orders will be made the subject of a claim for extension of time for excess costs or damages by the Contractor.

1.14 DELIVERY, STORAGE, AND HANDLING

Designate receiving/storage areas for incoming material to be delivered according to installation schedule and to be placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication. Store and handle materials in a manner as to prevent loss from weather and other damage. Keep materials, products, and accessories covered and off the ground, and store in a dry, secure area. Prevent contact with material that may cause corrosion, discoloration, or staining. Protect all materials and installations from damage by the activities of other trades.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

SCHEDULE OF FIRE PROTECTION SYSTEM INSPECTIONS BY FPQC SPECIALIST

1. INSTRUCTIONS for FPQC Specialist:

Perform surveillance of fire protection system installation during construction and during pre-final and final acceptance inspections. Surveillance includes either visual inspections or observations performed by the FPQC as indicated in the following Schedule of Fire Protection System Inspections. Check boxes in the schedule indicate the inspections or observations that are applicable to this project, which must be performed and documented by the FPQC.

Surveillance of fire protection system inspections is divided into three phases:

Surveillance During Construction – Includes periodic on-site visits by the FPQC during construction

Pre-Final Acceptance Inspection – FPQC must be onsite during pre-final acceptance inspection

Final Acceptance inspection – FPQC must be onsite during final acceptance inspection

2. INSPECTION TYPE

VISUAL INSPECTION:

Perform on-site visual inspections as indicated in the Schedule of Fire Protection System Inspections as construction progresses to confirm work conforms with the contract requirements including but not limited to verifying proper installation of equipment and materials in accordance with applicable codes. Where work will be covered up by finished walls and ceilings, inspections must be scheduled and performed when work is still visible.

OBSERVATION:

Observe component and system testing in person on-site as indicated in the Schedule of Fire Protection System Inspections. Confirm testing is completed in accordance with applicable codes and that testing was successful.

DOCUMENTATION:

Document all inspections and observations in the FPQC Report in accordance with UFGS 01 45 00. Document any deficiencies and all work observed that has been successfully performed in accordance with the contract documents. Record deficiencies in the rework list.

SCHEDULE OF FIRE PROTECTION SYSTEM INSPECTIONS BY FPQC SPECIALIST

PERFORM SURVEILLANCE DURING CONSTRUCTION

~ FIRE SUPPRESSION SYSTEM ~

PERFORM TASK IF CHECKED	TASK	INSPECTION TYPE	DESCRIPTION
☒	1. Verify proper installation of underground service main and service; laterals, thrust blocks, tie-rods and connection to above ground piping.	**VISUAL INSPECTION**	✓ Visually inspect materials ✓ Visually inspect installation
☒	2. Verify proper orientation of fire hydrants and fire department access	**VISUAL INSPECTION**	✓ Visually inspect installation and orientation
☒	3. Verify proper installation of interior and exterior attachments, coatings, and vortex plate prior to filling fire protection water tank (if required)	**VISUAL INSPECTION**	✓ Visually inspect fire protection water tank installation
☒	4. Hydrostatic/leak test for underground piping	**OBSERVE**	✓ Verify proper test method ✓ Confirm test was successful
☒	5. Hydrostatic/leak test for above ground piping prior to ceiling installation	**OBSERVE**	✓ Verify proper test method ✓ Confirm test was successful
☒	6. Underground system flush prior to connection to the riser	**OBSERVE**	✓ Verify system was properly flushed
☒	7. Forward flow test for Backflow preventer	**OBSERVE**	✓ Verify proper test method ✓ Confirm test was successful
☒	8. Suction pipe flush prior to fire pump startup (if fire pump is required)	**OBSERVE**	✓ Verify system was properly flushed
☒	9. Hydrostatic test fire pump suction and discharge piping (if fire pump is required)	**OBSERVE**	✓ Verify proper test method ✓ Confirm test was successful
☒	10. Fire pump startup (if fire pump is required)	**OBSERVE**	✓ Confirm successful startup
☒	11. Verify proper installation of sprinkler piping prior to wall or ceiling installation	**VISUAL INSPECTION**	✓ Inspect pipe hangars, bracing, sprinkler heads ✓ Inspect for sprinkler obstructions; damaged, painted or covered heads ✓ Verify proper location of control valves, drains, vents, backflow, test header ✓ Verify proper component mounting heights
☒	12. Document inspections and observations in FPQC Report	**DOCUMENT**	✓ Submit report for each day inspections or observations occur ✓ Annotate deficiencies and satisfactory work observed ✓ Record rework items in FPQC report

SCHEDULE OF FIRE PROTECTION SYSTEM INSPECTIONS BY FPQC SPECIALIST

~ SPECIAL FIRE SUPPRESSION SYSTEM ~			
PERFORM TASK IF CHECKED	TASK	INSPECTION TYPE	DESCRIPTION
☐	1. Verify proper installation of gaseous fire suppression system	**VISUAL INSPECTION**	✓ Inspect gas cylinders, initiating controls, shutdowns, aborts, and visual warning
☐	2. Verify proper installation of IR hangar detector	**VISUAL INSPECTION**	✓ Inspect detector and nozzle layout ✓ Inspect for obstructions, abort stations ✓ Inspect riser piping
☒	3. Verify proper installation of elevator fire protection	**VISUAL INSPECTION**	✓ Inspect elevator recall functions ✓ Inspect two-way communication
☒	4. Verify proper installation of fire suppression in secure spaces (if applicable)	**VISUAL INSPECTION**	✓ Inspect location of sprinkler piping and sprinklers
☐	5. Document inspections and observations in FPQC Report	**DOCUMENT**	✓ Submit report for each day inspections or observations occur ✓ Document deficiencies and satisfactory work observed in FPQC Report ✓ Record deficiencies in rework list
~ PASSIVE FIRE PROTECTION SYSTEMS ~			
PERFORM TASK IF CHECKED	TASK	INSPECTION TYPE	DESCRIPTION
☒	1. Verify proper construction of fire rated assemblies	**VISUAL INSPECTION**	✓ Inspect partitions for proper fire rated construction per design ✓ Inspect doors and door hardware for proper fire rating ✓ Inspect glass for proper fire rating
☒	2. Verify proper installation of fireproofing (if fireproofing is required)	**VISUAL INSPECTION**	✓ Inspect for use of proper fireproofing materials ✓ Inspect for cracking, spalling or delaminating ✓ Inspect for proper application thickness
☒	3. Verify proper installation of firestopping	**VISUAL INSPECTION**	✓ Inspect to confirm firestopping system is UL tested or an engineering judgement has been obtained and submitted ✓ Inspect for use of proper firestopping materials ✓ Inspect penetrations through fire rated walls, partitions and ceilings ✓ Inspect construction joints and gaps

SCHEDULE OF FIRE PROTECTION SYSTEM INSPECTIONS BY FPQC SPECIALIST

☒	4. Document inspections and observations in FPQC Report	**DOCUMENT**	✓ Submit report for each day inspections or observations occur ✓ Document deficiencies and satisfactory work observed in FPQC Report ✓ Record deficiencies in rework list

~ FIRE ALARM SYSTEMS ~

PERFORM TASK IF CHECKED	TASK	INSPECTION TYPE	DESCRIPTION
☒	1. Verify proper installation of fire alarm system after conduit is installed and wiring pulled, but before devices are installed	**VISUAL INSPECTION**	✓ Inspect conduit, wiring, conduit fill, wire type ✓ Inspect installation heights of back boxes
☒	2. Document inspections and observations in FPQC Report	**DOCUMENT**	✓ Submit report for each day inspections or observations occur ✓ Document deficiencies and satisfactory work observed in FPQC Report ✓ Record deficiencies in rework list

~ END OF SURVEILLANCE DURING CONSTRUCTION SECTION

PERFORM DURING PRE-FINAL ACCEPTANCE INSPECTION

PERFORM TASK IF CHECKED	TASK	INSPECTION TYPE	DESCRIPTION
☒	1. Inspect all fire protection systems and all life safety features	**VISUAL INSPECTION**	✓ Verify proper installation of fire protection and life safety systems
☒	2. Witness functional testing of all fire protection and life safety systems	**OBSERVE**	✓ Verify proper testing is performed on fire protection and life safety systems
☒	3. Identify deficiencies that require correction	**VISUAL INSPECTION**	✓ Document deficiencies in FPQC Report and record in rework list
☒	4. Verify rework items have been corrected	**VISUAL INSPECTION**	✓ Record re-inspection results on FPQC Report
☒	5. Document results of pre-final inspection and photograph unsatisfactory conditions	**DOCUMENT**	✓ Document results of pre-final inspection in FPQC Report
☒	6. Certify installation and operation of all fire protection and life safety systems conform to the contract documents	**DOCUMENT**	✓ Provide separate letter certifying conformance with contract requirements

~ END OF PRE-FINAL INSPECTION SECTION

PERFORM DURING FINAL ACCEPTANCE INSPECTION

SCHEDULE OF FIRE PROTECTION SYSTEM INSPECTIONS BY FPQC SPECIALIST

PERFORM TASK IF CHECKED	TASK	INSPECTION TYPE	DESCRIPTION
☒	1. Verify proper installation and operation of all fire protection systems and all life safety features	**VISUAL INSPECTION**	✓
☒	2. Note any deficiencies identified by Government FPE on deficiency list	**DOCUMENT**	✓ Document deficiencies identified by Government FPE on deficiency list
☒	3. Verify all deficiencies have been corrected	**VISUAL INSPECTION**	✓ Inspect rework to confirm all deficiencies have been corrected
☒	4. Certify that all deficiencies have been corrected	**DOCUMENT**	✓ Document inspection results on FPQC Report

~ END OF FINAL ACCEPTANCE INSPECTION SECTION

SECTION 01 45 35

SPECIAL INSPECTIONS
05/24

PART 1 GENERAL

1.1 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.

AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE)

ASCE 7-22	(2022; Supp 1 2023; Supp 2 2023; Supp 3 2025) Minimum Design Loads and Associated Criteria for Buildings and Other Structures

INTERNATIONAL CODE COUNCIL (ICC)

ICC IBC	(2024) International Building Code

U.S. DEPARTMENT OF DEFENSE (DOD)

UFC 3-301-01	(2023; with Change 6, 2026) Structural Engineering
UFC 3-301-02	(2023; with Change 1, 2025) Design of Risk Category V Structures, National Strategic Military Assets

1.2 GENERAL REQUIREMENTS

Perform Special Inspections in accordance with the Statement of Special Inspections, Schedule of Special Inspections, Chapter 17 of ICC IBC, and UFC 3-301-01. The Statement of Special Inspections and Schedule of Special Inspections are included as an attachment to this specification. Special Inspections are to be performed by an independent third party and are intended to ensure that the work of the Prime Contractor is in accordance with the Contract Documents and applicable building codes. Special inspections do not take the place of the three phases of control inspections performed by the Contractor's QC Manager or any testing and inspections required by other sections of the specifications.

1.3 DEFINITIONS

1.3.1 Continuous Special Inspections

Continuous Special Inspections is the constant monitoring of specific tasks by a special inspector. These inspections must be carried out continuously over the duration of the particular tasks.

1.3.2 Perform

Perform these tasks for each weld, fastener or bolted connection, and noted required verification.

1.3.3 Observe

Observe these items randomly during the course of each work day to insure that applicable requirements are being met. Observe these Special Inspections items on a periodic daily basis. Operations need not be delayed pending these inspections.

1.3.4 Special Inspector (SI)

A qualified person retained by the Contractor and approved by the Contracting Officer as having the competence necessary to inspect a particular type of construction requiring Special Inspections. The SI must be an independent third party hired directly by the Prime Contractor.

1.3.5 Associate Special Inspector (ASI)

A qualified person who assists the SI in performing Special Inspections but who must perform inspection under the direct supervision of the SI and who cannot perform inspections without the SI on site.

1.3.6 Third Party

A Special inspector must not be an employee of the Contractor or of any Sub-Contractor performing the work to be inspected.

1.3.7 Contracting Officer

The Government official having overall authority for administrative contracting actions. Certain contracting actions may be delegated to the Contracting Officer's Representative (COR).

1.3.8 Quality Control (QC) Manager

An individual retained by the Prime Contractor and qualified in accordance with the Section 01 45 00 QUALITY CONTROL having the overall responsibility for the Contractor's QC organization.

1.3.9 Structural Engineer of Record (SER)

A registered design professional retained by the Prime Contractor responsible for the overall design and review of submittal documents prepared by others. The SER is registered or licensed to practice their respective design profession as defined by the statutory requirements of the professional registration laws in the state in which the design professional works. The SER is also referred to as the Engineer of Record (EOR) in design documents.

1.3.10 Statement of Special Inspections (SSI)

A document developed by the SER identifying the materials, systems, components and work required to have Special Inspections. This statement is included at the end of this specification.

1.3.11 Schedule of Special Inspections (SSI)

A schedule which lists each of the required Special Inspections, the extent to which each Special Inspection is to be performed, and the required frequency for each in accordance with ICC IBC Chapter 17. This schedule is included at the end of this specification.

1.3.12 Designated Seismic Systems (DSS)

Those nonstructural components that require design in accordance with ASCE 7-22 Chapter 13 and for which the component importance factor, Ip, is greater than 1.0. This designation applies to systems that are required to be operational following the Design Earthquake for RC I - IV structures and following the MCER for RC V structures. All systems in RC V facilities designated as MC-1 in accordance with UFC 3-301-02 are considered part of the Designated Seismic Systems.

1.3.13 Definable Feature of Work (DFOW)

An inspection group that is separate and distinct from other inspection groups, having inspection requirements or inspectors that are unique.

1.4 SUBMITTALS

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. Submit the following in accordance with Section 01 33 00.05 20 DESIGN SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Special Inspections Agency's Written NDT Practices with method and evidence of regular equipment calibration where applicable

SD-06 Test Reports

Special Inspection Daily Reports

Special Inspection Biweekly Reports

SD-07 Certificates

AISC Certified Steel Fabricator

Steel Truss Plant Quality Assurance Program

AC472 Accreditation

Precast Concrete Institute (PCI) Certified Plant

Certificate of Compliance

Special Inspector Qualifications; G

Qualification Records for Nondestructive Testing Technicians

SD-11 Closeout Submittals

Interim Report of Special Inspections from each DFOW; G

Comprehensive Final Report of Special Inspections; G

1.5 SPECIAL INSPECTOR QUALIFICATIONS

Submit qualifications for each special inspector according to the

following certification requirements. The Government will consider alternate equivalent certification upon request. Without written acceptance deviations to the following qualifications are not approved.

1.5.1 Steel Construction and High Strength Bolting

1.5.1.1 Special Inspector

a. ICC Structural Steel and Bolting Special Inspector certificate with one year of related experience, or

b. Registered Professional Engineer with 3 years of related experience

1.5.1.2 Associate Special Inspector

Engineer-In-Training with one year of related experience.

1.5.2 Welding Structural Steel

1.5.2.1 Special Inspector

a. ICC Structural Welding Special Inspector certificate with one year of related experience, or

b. AWS Certified Welding Inspector

1.5.2.2 Associate Special Inspector

AWS Certified Associate Welding Inspector

1.5.3 Nondestructive Testing of Welds

1.5.3.1 Special Inspector

NDT Level III Certificate

1.5.3.2 Associate Special Inspector

NDT Level II Certificate plus one year of related experience

1.5.4 Cold Formed Steel Framing

1.5.4.1 Special Inspector

a. ICC Structural Steel and Bolting Special Inspector certificate with one year of related experience, or

b. ICC Commercial Building Inspector with one year of experience, or

c. Registered Professional Engineer with 3 years related experience

1.5.4.2 Associate Special Inspector

Engineer-In-Training with one year of related experience.

1.5.5 Concrete Construction

1.5.5.1 Special Inspector

a. ICC Reinforced Concrete Special Inspector Certificate with one year of related experience, or

b. ACI Concrete Construction Special Inspector, or

c. Registered Professional Engineer with 3 years of related experience

1.5.5.2 Associate Special Inspector

a. ACI Concrete Construction Special Inspector-in-Training, or

b. Engineer-In-Training with one year of related experience

1.5.6 Prestressed Concrete Construction

1.5.6.1 Special Inspector

a. ICC Prestressed Concrete Special Inspector Certificate with one year of related experience, or

b. PCI Quality Control Technician/Inspector Level II Certificate with one year of related experience, or

c. Registered Professional Engineer with 3 years of related experience

1.5.6.2 Associate Special Inspector

a. PCI Quality Control Technician/Inspector Level I Certificate with one year of related experience, or

b. Engineer-In-Training with one year of related experience

1.5.7 Post-tensioned Concrete Construction

1.5.7.1 Special Inspector

a. PTI Level 2 Unbonded PT Inspector Certificate, or

b. Registered Professional Engineer with 3 years of related experience

1.5.7.2 Associate Special Inspector

a. PTI Level 1 Unbonded PT Inspector Certificate with one year of related experience, or

b. Engineer-In-Training with one year of related experience

1.5.8 Masonry Construction

1.5.8.1 Special Inspector

a. ICC Structural Masonry Special Inspector Certificate with one year of related experience, or

b. Registered Professional Engineer with 3 years of related experience

1.5.8.2 Associate Special Inspector

Engineer-In-Training with one year of related experience.

1.5.9 Wood

1.5.9.1 Special Inspector

a. ICC Commercial Building Inspector Certificate with one year of related experience, or

b. ICC Residential Building Inspector with one year of experience, or

c. Registered Professional Engineer with 3 years of related experience

1.5.9.2 Associate Special Inspector

Engineer-In-Training with one year of related experience.

1.5.10 Verification of Site Soil Condition, Fill Placement and Load-Bearing Requirements

1.5.10.1 Special Inspector

a. ICC Soils Special Inspector Certificate with one year of related experience, or

b. National Institute for Certification in Engineering Technologies (NICET) Soils Technician Level II Certificate in Construction Material Testing, or

c. Geologist-In-Training with 3 years of related experience, or

d. Registered Professional Engineer with 3 years of related experience

1.5.10.2 Associate Special Inspector

a. NICET Soils Technician Level I Certificate in Construction Material Testing with one year of related experience, or

b. Engineer-In-Training with one year of related experience

1.5.11 Deep Foundations

1.5.11.1 Special Inspector

a. NICET Soils Technician Level II Certificate in Construction Material Testing, or

b. Geologist-In-Training with 3 years of related experience, or

c. Registered Professional Engineer with 3 years of related experience

1.5.11.2 Associate Special Inspector

a. NICET Soils Technician Level I Certificate in Construction Material Testing with one year of related experience, or

b. NICET Geotechnical Engineering Technician Level I Construction or Generalist Certificate with one year of related experience, or

c. Engineer-In-Training with one year of related experience

1.5.12 Sprayed Fire-Resistive Material

1.5.12.1 Special Inspector

a. ICC Spray-applied Fireproofing Special Inspector Certificate, or

b. ICC Fire Inspector I Certificate with one year of related experience, or

c. Registered Professional Engineer or Architect with related experience

1.5.12.2 Associate Special Inspector

Engineer-In-Training with one year of related experience

1.5.13 Intumescent Fire-Resistive Coatings

1.5.13.1 Special Inspector

a. ICC Spray-applied Fireproofing Special Inspector Certificate, or

b. ICC Fire Inspector I Certificate with one year of related experience, or

c. Registered Professional Engineer or Architect with related experience

1.5.13.2 Associate Special Inspector

Engineer-In-Training with one year of related experience.

1.5.14 Exterior Insulation and Finish System (EIFS)

1.5.14.1 Special Inspector

a. Association of the Wall and Ceiling Industry (AWCI) EIFS Inspector Certificate, or

b. Exterior Design Institute Certificate, or

c. Registered Professional Engineer or Architect with related experience

1.5.14.2 Associate Special Inspector

Engineer-In-Training with one year of related experience.

1.5.15 Fire-Resistant Penetrations and Joints

1.5.15.1 Special Inspector

a. Passed the UL Firestop Exam with one year of related experience, or

b. Passed the FM Firestop Exam with one year of related experience, or

c. Passed the International Firestop Council Exam with one year of

related experience, or

d. Registered Professional Engineer with related experience

1.5.15.2 Associate Special Inspector

Engineer-In-Training with one year of related experience.

1.5.16 Smoke Control

1.5.16.1 Special Inspector

a. Associated Air Balance Council (AABC) Technician Certification with one year of related experience, or

b. Registered Professional Engineer with related experience

1.5.16.2 Associate Special Inspector

Engineer-In-Training with one year of related experience.

PART 2 PRODUCTS

2.1 SPECIAL INSPECTION OF FABRICATED ITEMS

Special Inspection of fabricator's work performed in the fabricator's shop is required to be inspected in accordance with the Statement of Special Inspections and the Schedule of Special Inspections unless the fabricator is certified by the approved agency to perform such work without Special Inspections. Submit the following certifications to the Contracting Officer for information to allow work performed in the fabricator's shop to not be subjected to Special Inspections.

AISC Certified Steel Fabricator.

Truss Plate Institute (TPI) steel truss plant quality assurance program certification.

International Accreditation Service, AC472 Accreditation

Precast Concrete Institute (PCI) Certified Plant, Group C - Commercial (Structural) Products

At the completion of fabrication, submit a certificate of compliance, to be included with the comprehensive final report of Special Inspections, stating that the materials supplied and work performed by the fabricator are in accordance with the construction documents.

PART 3 EXECUTION

3.1 RESPONSIBILITIES

3.1.1 Quality Control Manager

a. Supervise all Special Inspectors required by the Contract Documents and the IBC.

b. Verify the qualifications of all the Special Inspectors.

c. Verify the qualifications of all fabricators.

d. Maintain a 3-ring binder for the Special Inspector's special inspection daily reports and special inspection biweekly reports. This binder must be located in a conspicuous place in the project trailer/office to allow review by the Contracting Officer and the SER.

e. Maintain a rework items list that includes discrepancies noted on the Special Inspector's daily report.

3.1.2 Special Inspectors

a. Inspect all elements of the project which the special inspector is qualified to inspect and which are identified in the Schedule of Special Inspections.

b. Attend preparatory phase meetings related to the Definable Feature of Work (DFOW) which the Special Inspector is qualified to inspect.

c. Submit Special Inspection agency's written NDT practices for the monitoring and control of the agency's operations, to include the following:

(1) The agency's procedures for the selection and administration of inspection personnel, describing the training, experience and examination requirements for qualification and certification of inspection personnel.

(2) The agency's inspection procedures, including general inspection, material controls, and visual welding inspection.

d. Submit Qualification Records for Nondestructive Testing Technicians for nondestructive testing (NDT) technicians designated for the project.

e. Submit NDT procedures and equipment calibration records for NDT to be performed and equipment to be used for the project.

f. Submit a copy of the special inspection daily reports to the QC Manager.

g. Report discrepancies that are observed during Special Inspections to the QC Manager for correction. If discrepancies are not corrected before the special inspector leaves the site the observed discrepancies must be documented in the daily report.

h. Submit a biweekly Special Inspection Report until all inspections are complete. A report is required for each biweekly period in which Special Inspections activity occurs, and must include the following:

(1) A brief summary of the work performed during the reporting time frame.

(2) Changes from and discrepancies with the drawings, specifications and mechanical or electrical component certification that were observed during the reporting period.

(3) Discrepancies which were resolved or corrected.

(4) A list of nonconforming items requiring resolution.

(5) All applicable test result, including nondestructive testing reports.

i. At the completion of each DFOW requiring Special Inspections, submit an interim report of Special Inspections that documents the Special Inspections completed for that DFOW. Identify the inspector responsible for each item inspected and corrections of all discrepancies noted in the daily reports. The interim report of Special Inspections must be signed and dated and it must indicate the certification of the Special Inspector qualifying them to conduct the inspection.

j. At the completion of the project, submit a comprehensive final report of Special Inspections that documents the Special Inspections completed for the project and corrections of all discrepancies noted in the daily reports. The comprehensive final report of Special Inspections must be signed and dated and it must indicate the certification of the Special Inspector qualifying them to conduct the inspection.

3.1.3 Structural Engineer of Record (SER)

a. Develop the Statement of Special Inspections and the Schedule of Special Inspections as defined in Chapter 17 of ICC IBC. Submit the Statement of Special Inspections and the Schedule of Special Inspections for approval by the Contracting Officer.

The Statement of Special Inspections must include the following information:

(1) List of Architectural Components that are part of the Designated Seismic System.

(2) List of Mechanical Components that are part of the Designated Seismic System.

(3) List of the Electrical Components that are part of the Designated Seismic System.

(4) List of periodic walk-down inspections required by UFC 3-301-01.

(5) List of elements that are part of the Disproportionate Collapse Mitigation System, unless the structure is assigned to Collapse Resistant Design Category (CRDC) 'A'.

Develop Schedule of Special Inspections using the template located on the Whole Building Design Guide website at: www.wbdg.org/dod/ufgs/ufgs-01-45-35

b. Perform a final walk-down inspection of the mechanical and electrical components that are part of the designated seismic system to ensure that the nonstructural components satisfy life safety mounting requirements as defined in the Statement of Special Inspections.

c. Submit a report of the final walk-down inspection that includes the following:

(1) Record of/observations from final site visit.

(2) Documentation that all required inspections were performed in accordance with the Statement of Special Inspections.

(3) Documentation that the Designated Seismic Systems were installed in accordance with the construction documents and the requirements of ICC IBC Chapter 17, as modified by UFC 3-301-01 or UFC 3-301-02.

3.2 DEFECTIVE WORK

Check work as it progresses, but failure to detect any defective work or materials must in no way prevent later rejection if defective work or materials are discovered, nor obligate the Contracting Officer to accept the defective work or materials.

-- End of Section --

SECTION 01 50 00

TEMPORARY CONSTRUCTION FACILITIES AND CONTROLS
11/20, CHG 3: 08/24

PART 1 GENERAL

1.1 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.

AMERICAN WATER WORKS ASSOCIATION (AWWA)

AWWA C511	(2017; R 2021) Reduced-Pressure Principle Backflow Prevention Assembly

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 70	(2023; ERTA 1 2024; TIA 24-1; TIA 25-2) National Electrical Code
NFPA 241	(2022; ERTA 22-1) Standard for Safeguarding Construction, Alteration, and Demolition Operations

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1	(2024) Safety -- Safety and Occupational Health (SOH) Requirements

1.2 SUBMITTALS

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. Submittals not having a "G" or "S" classification are 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 00.05 22 CONSTRUCTION SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Construction Site Plan; G

Traffic Control Plan; G

Haul Road Plan; G

Contractor Computer Cybersecurity Compliance Statements; G

Contractor Temporary Network Cybersecurity Compliance Statements; G

SD-03 Product Data

Backflow Preventers; G

SD-06 Test Reports

Backflow Preventer Tests

SD-07 Certificates

Backflow Tester Certification

Backflow Preventers Certificate of Full Approval

1.3 CONSTRUCTION SITE PLAN

Prior to the start of work, submit for Government approval a site plan showing the locations and dimensions of temporary facilities (including layouts and details, equipment and material storage area (onsite and offsite), and access and haul routes, avenues of ingress/egress to the fenced area and details of the fence installation. Identify any areas which may have to be graveled to prevent the tracking of mud. Indicate if the use of a supplemental or other staging area is desired. Show locations of safety and construction fences, site trailers, construction entrances, trash dumpsters, temporary sanitary facilities, and worker parking areas.

1.4 BACKFLOW PREVENTERS CERTIFICATE

Certificate of Full Approval from FCCCHR List, University of Southern California, attesting that the design, size and make of each backflow preventer has satisfactorily passed the complete sequence of performance testing and evaluation for the respective level of approval. Certificate of provisional Approval will not be acceptable.

1.4.1 Backflow Tester Certificate

Prior to testing, submit to the Contracting Officer certification issued by the State or local regulatory agency attesting that the backflow tester has successfully completed a certification course sponsored by the regulatory agency. Tester must not be affiliated with a company participating in other phases of this Contract.

1.4.2 Backflow Prevention Training Certificate

Submit a certificate recognized by the State or local authority that states the Contractor has completed at least 10 hours of training in backflow preventer installations. The certificate must be current.

1.5 CONDITION OF READINESS (COR) LEVELS FOR WEATHER

The Condition of Readiness (COR) is based on the weather forecast and the potential for sustained winds 50 knots (58 mph) or greater. Contact the Contracting Officer for the current COR.

Monitor weather conditions a minimum of twice a day and take appropriate actions according to the approved Emergency Plan in the accepted Accident Prevention Plan, EM 385-1-1 Emergency Plan requirements and the instructions below.

Unless otherwise directed by the Contracting Officer, comply with:

a. Condition FOUR (Sustained winds of 58 mph or greater expected within 72 hours): Normal daily jobsite cleanup and good housekeeping

practices. Collect and store in piles or containers scrap lumber, waste material, and rubbish for removal and disposal at the close of each work day. Maintain the construction site including storage areas, free of accumulation of debris. Stack form lumber in neat piles less than 3.3 feet high. Remove all debris, trash, or objects that could become missile hazards. Review requirements pertaining to "Condition THREE" and continue action as necessary to attain "Condition FOUR" readiness. Contact Contracting Officer for weather and COR updates and completion of required actions.

b. Condition THREE (Sustained winds of 58 mph or greater expected within 48 hours): Maintain "Condition FOUR" requirements and commence securing operations necessary for "Condition ONE" which cannot be completed within 18 hours. Cease all routine activities which might interfere with securing operations. Commence securing and stow all gear and portable equipment. Make preparations for securing buildings. Reinforce or remove formwork and scaffolding. Secure machinery, tools, equipment, materials, or remove from the jobsite. Expend every effort to clear all missile hazards and loose equipment from general base areas. Contact Contracting Officer for weather and COR updates and completion of required actions. Review requirements pertaining to "Condition TWO" and continue action as necessary to attain "Condition THREE" readiness.

c. Condition TWO (Sustained winds of 58 mph or greater expected within 24 hours): Secure the jobsite, and leave Government premises.

d. Condition ONE. (Sustained winds of 58 mph or greater expected within 12 hours): Contractor access to the jobsite and Government premises is prohibited.

1.6 TRAILERS OR STORAGE BUILDINGS

Trailers or storage buildings will be permitted, where space is available, subject to the approval of the Contracting Officer. The trailer or building shall be in good condition, free from visible damage, rust, and deterioration, and meet all applicable safety requirements. Trailers shall be roadworthy and comply with all appropriate State and local vehicle requirements. Failure to maintain storage trailers or buildings to these standards shall result in the removal of non-complying units at the Contractor's expense. A sign not smaller than 24 by 24 inches shall be conspicuously placed on the trailer depicting the company name, business phone number, and emergency phone number. Trailers shall be anchored to resist high winds and must meet applicable state and local standards for anchoring mobile trailers.

Trailers that are placed outside of project boundaries will require base site approval and NEPA review. Any temporary trailer utilities outside the project boundary limit also will require base site approval and NEPA review. Allow 30 days for approval processing and NEPA documentation.

1.7 STORAGE AREAS

The Contract Clause entitled "FAR 52.236-10, Operations and Storage Areas" applies.

1.8 CYBERSECURITY DURING CONSTRUCTION

{For Reference Only: This subpart (and its subparts) relates to AC-18,

SA-3, CCI-00258.} Meet the following requirements throughout the construction process.

1.8.1 Contractor Computer Equipment

Contractor owned computers may be used for construction. When used, contractor computers must meet the following requirements:

1.8.1.1 Operating System

The operating system must be an operating system currently supported by the manufacturer of the operating system. The operating system must be current on security patches and operating system manufacturer required updates.

1.8.1.2 Anti-Malware Software

The computer must run anti-malware software from a reputable software manufacturer. Anti-malware software must be a version currently supported by the software manufacturer, must be current on all patches and updates, and must use the latest definitions file. All computers used on this project must be scanned using the installed software at least once per day.

1.8.1.3 Passwords and Passphrases

The passwords and passphrases for all computers must be changed from their default values. Passwords must be a minimum of eight characters with a minimum of one uppercase letter, one lowercase letter, one number and one special character.

1.8.1.4 Contractor Computer Cybersecurity Compliance Statements

Provide a single submittal containing completed Contractor Computer Cybersecurity Compliance Statements for each company using contractor owned computers. Contractor Computer Cybersecurity Compliance Statements must use the template published at https://www.wbdg.org/dod/ufgs/ufgs-01-50-00. Each Statement must be signed by a cybersecurity representative for the relevant company.

1.8.2 Temporary IP Networks

Temporary Contractor-installed IP networks may be used during construction. When used, temporary contractor-installed IP networks must meet the following requirements:

1.8.2.1 Network Boundaries and Connections

The network must not extend outside the project site and must not connect to any IP network other than IP networks provided under this project or Government furnished IP networks provided for this purpose. Any and all network access from outside the project site is prohibited.

1.8.3 Government Access to Network

Government personnel, as defined, prescribed, and identified by the Contracting Officer, must be allowed to have complete and immediate access to the network at any time in order to verify compliance with this specification. If there is a Government agency responsible for network

access, identify that agency.

1.8.4 Temporary Wireless IP Networks

1.8.4.1 Contractor Provided Wi-Fi Network

Provide standalone Wi-Fi network for authorized Government personnel. Network access must be available throughout the jobsite and for the entire Contract period. The Government will use the Wi-Fi service for coordination in the field and related activities. Do not attach or connect the temporary Wi-Fi network to Government networks or systems unrelated to construction activities.

Password information must adhere to requirements outlined in Paragraph PASSWORDS AND PASSPHRASES. Provide password and Wi-Fi network name (SSID) to the Contracting Officer for Government personnel access. Wi-Fi performance must be capable of handling bandwidth to support Government and Contractor activities, including drawing and model access onsite. Provide a point of contact for reporting Wi-Fi outages.

1.8.4.2 Temporary Wireless IP Networks Security

In addition to the other requirements on temporary IP networks, temporary wireless IP (WiFi) networks must not interfere with existing wireless network and must use WPA2 security. Network names (SSID) for wireless networks must be changed from their default values.

1.8.5 Passwords and Passphrases

The passwords and passphrases for all network devices and network access must be changed from their default values. Passwords must be a minimum 8 characters with a minimum of one uppercase letter, one lowercase letter, one number and one special character.

1.8.6 Contractor Temporary Network Cybersecurity Compliance Statements

Provide a single submittal containing completed Contractor Temporary Network Cybersecurity Compliance Statements for each company implementing a temporary IP network. Contractor Temporary Network Cybersecurity Compliance Statements must use the template published at https://www.wbdg.org/dod/ufgs/ufgs-01-50-00. Each Statement must be signed by a cybersecurity representative for the relevant company. If no temporary IP networks will be used, provide a single copy of the Statement indicating this.

PART 2 PRODUCTS

2.1 TEMPORARY SIGNAGE

2.1.1 Bulletin Board

Prior to the commencement of work activities, provide a clear weatherproof covered bulletin board not less than 36 by 48 inches in size for displaying the Equal Employment Opportunity poster, a copy of the wage decision contained in the Contract, Wage Rate Information poster, Safety and Health Information as required by EM 385-1-1 and other information approved by the Contracting Officer. Coordinate requirements herein with 01 35 26 GOVERNMENTAL SAFETY REQUIREMENTS. Locate the bulletin board at the project site in a conspicuous place easily accessible to all

employees, and in location as approved by the Contracting Officer.

2.1.2 Project Identification Signs

The requirements for the signs, their content, and location are as indicated. Erect signs within 15 days after receipt of the notice to proceed. Correct the data required by the safety sign daily, with light colored metallic or non-metallic numerals.

2.1.3 Warning Signs

Post temporary signs, tags, and labels to give workers and the public adequate warning and caution of construction hazards according to the EM 385-1-1. Attach signs to the perimeter fencing every 150 feet warning the public of the presence of construction hazards. Signs must require unauthorized persons to keep out of the construction site. Correct the data required by safety signs daily. Post signs at all points of entry designating the construction site as a hard hat area.

2.2 TEMPORARY TRAFFIC CONTROL

2.2.1 Haul Roads

Construct access and haul roads necessary for proper prosecution of the work under this Contract in accordance with EM 385-1-1. Construct with suitable grades and widths; avoid sharp curves, blind corners, and dangerous cross traffic. Submit haul road plan for approval. Provide necessary lighting, signs, barricades, and distinctive markings for the safe movement of traffic. The method of dust control, although optional, must be adequate to ensure safe operation at all times. Location, grade, width, and alignment of construction and haul roads are subject to approval by the Contracting Officer. Lighting must be adequate to assure full and clear visibility for full width of haul road and work areas during any night work operations.

2.2.2 Barricades

Erect and maintain temporary barricades to limit public access to hazardous areas. Barricades are required whenever safe public access to paved areas such as roads, parking areas or sidewalks is prevented by construction activities or as otherwise necessary to ensure the safety of both pedestrian and vehicular traffic. Securely place barricades clearly visible with adequate illumination to provide sufficient visual warning of the hazard during both day and night.

2.3 FENCING

Provide fencing along the construction site and at all open excavations and tunnels to control access by unauthorized personnel. Safety fencing must be highly visible to be seen by pedestrians and vehicular traffic. All fencing must meet the requirements of EM 385-1-1. Remove the fence upon completion and acceptance of the work.

2.4 TEMPORARY WIRING

Provide temporary wiring in accordance with EM 385-1-1, NFPA 241 and NFPA 70. Include monthly inspection and testing of all equipment and apparatus.

2.5 BACKFLOW PREVENTERS

Certificate of Full Approval from FCCCHR List, University of Southern California, attesting that the design, size and make of each backflow preventer has satisfactorily passed the complete sequence of performance testing and evaluation for the respective level of approval. Certificate of Provisional Approval is not acceptable.

Reduced pressure principle type conforming to the applicable requirements AWWA C511. Provide backflow preventers complete with flanged ductile iron, bronze, brass mounted gate valve and strainer, stainless steel or bronze, internal parts.

PART 3 EXECUTION

3.1 EMPLOYEE PARKING

Construction Contract employees must park privately owned vehicles in an area designated by the Contracting Officer. Employee parking must not interfere with existing and established parking requirements of the Government installation.

3.2 AVAILABILITY AND USE OF UTILITY SERVICES

3.2.1 Temporary Utilities

a. The Contract clause related to utilities applies. Reasonable amounts of water and electricity from the nearest outlet will be provided free of charge for pursuance of work within a facility under this contract. If the nearest available outlet cannot be utilized by the Contractor because of improper voltage, insufficient current, improper pressure, incompatible connectors, etc., it shall be the responsibility of the Contractor to provide temporary utilities as required.

b. Reasonable amounts of utilities for contractor trailers and storage buildings will be made available to the Contractor, when available. The Contractor shall be responsible for providing transformers, electrical service poles and drops for electrical services, and backflow preventer devices on connections to domestic water lines. Final taps and tie-ins to the Government utility grid will be made by the Contractor after approval by the Contracting Officer. Tap-in cost, if any, shall be the responsibility of the Contractor. Under no circumstances will taps to base fire hydrants be allowed for obtaining domestic water.

c. Any and all utilities outside the established site boundary in support of trailers or temporary facilties will require both a Site Approval and REIR, which can either be routed separately from the trailer approvals or under the same request.

3.2.2 Energy and Utilites Conservation

The Contractor shall carefully conserve utilities furnished without charge. The Contractor, at his own expense and in a manner satisfactory to the Contracting Officer, shall install and maintain all necessary temporary connections and distribution lines and remove the same prior to final acceptance of the construction.

3.2.3 Location of Underground Utilites

Location and Protection of underground utilities shall be the responsibility of the Contractor. Where existing-to-remain piping, utilities, and underground obstructions of any type are indicted in locations to be traversed by new piping, ducts, and other excavations the elevations of the existing utilities and obstructions shall be determined before the new work is completed.

a. In addition, the Contractor will be responsible for obtaining the services of a professional utility locator prior to digging. Contractor will provide documentation that the site has been surveyed and checked for underground utilities. All utilities must be located, including but not limited to power, water, sewer, storm drains, fiber optics, T.V. cable, telephone, and intrusion detection wiring. A set of known utility drawings will be available in the ROICC office for review to assist the locator.

b. It is mandatory that the Contractor also contact the Base Telephone Office (451-2531) prior to accomplishing any digging at Camp Lejeune. The Contractor is responsible in locating telephone lines.

c. It is mandatory that the Contractor also contact Charter Communications, cable TV service prior to accomplishing any digging at Camp Lejeune, to ensure that all buried cable lines are identified. Contact Mr. Olin Criswell at 353-8677 for assistance.

d. It is mandatory that the contractor also contact the North Carolina One-Call Center to coordinate the location of underground natural gas infrastructure. North Carolina 811, Inc. can be reached at 811 on a touch-tone phone in the state of North Carolina or toll-free at 1.800.632.4949 if calling from out of state.

3.2.4 Damage to Underground Utilities

Immediate notice shall be delivered to the Contracting Officer of any damage. The Contractor shall make temporary repairs immediately, and shall provide permanent repairs as soon as practicable. For any additional work required by reason of conflict between the new and existing work, an adjustment in contract price will be made in accordance with Contract clause entitled "Differing Site Conditions", if appropriate.

3.2.5 Sanitation

Provide and maintain within the construction area minimum field-type sanitary facilities in accordance with EM 385-1-1. Locate the facilities behind the construction fence or out of the public view. Clean units and empty wastes at least once a week or more frequently into a municipal, district, or station sanitary sewage system, or remove waste to a commercial facility. Obtain approval from the system owner prior to discharge into a municipal, district, or commercial sanitary sewer system. Penalties or fines associated with improper discharge will be the responsibility of the Contractor. Coordinate with the Contracting Officer and follow station regulations and procedures when discharging into the station sanitary sewer system. Maintain these conveniences at all times. Include provisions for pest control and elimination of odors. Government toilet facilities will not be available to Contractor's personnel.

3.2.6 Telephone

Make arrangements and pay all costs for telephone facilities desired.

3.2.7 Fire Protection

Provide temporary fire protection equipment for the protection of personnel and property during construction. Remove debris and flammable materials daily to minimize potential hazards.

3.3 TRAFFIC PROVISIONS

3.3.1 Traffic Control Plan

If during the performance of work, it becomes necessary to modify vehicular traffic patterns at any locations, notify the Contracting Officer at least 15 calendar days prior to the proposed modification date, and provide a Traffic Control Plan detailing the proposed controls to traffic movement for approval. The plans shall be in accordance with State and local regulations and the MUTCD, Part VI. Make all notifications and obtain any permits required for modification to traffic movements outside Station'a jurisdiction. Provide cones, signs, barricades, lights, or other traffic control devices and personnel required to control traffic.

3.3.2 Dust Control

Dust control methods and procedures must be approved by the Contracting Officer. Coordinate dust control methods with 01 57 19 TEMPORARY ENVIRONMENTAL CONTROLS.

3.4 REDUCED PRESSURE BACKFLOW PREVENTERS

Provide an approved reduced pressure backflow prevention assembly at each location where the Contractor taps into the Government potable water supply.

Perform backflow preventer tests using test equipment, procedures, and certification forms conforming to those outlined in the latest edition of the Manual of Cross-Connection Control published by the FCCCHR Manual. Test and tag each reduced pressure backflow preventer upon initial installation (prior to continued water use) and. Tag must contain the following information: make, model, serial number, dates of tests, results, maintenance performed, and signature of tester. Record test results on certification forms conforming to requirements cited earlier in this paragraph.

3.5 CONTRACTOR'S TEMPORARY FACILITIES

Contractor is responsible for security of their property. Provide adequate outside security lighting at the temporary facilities. Trailers must be anchored to resist high winds and meet applicable state or local standards for anchoring mobile trailers. Coordinate anchoring with EM 385-1-1. The Contract Clause entitled "FAR 52.236-10, Operations and Storage Areas" and the following apply:

3.5.1 Administrative Field Offices

Provide and maintain administrative field office facilities within the construction area at the designated site. Government office and warehouse

facilities will not be available to the Contractor's personnel.

In the event a new building is constructed for the temporary project field office, it must be a minimum 12 feet in width, 16 feet in length and have a minimum of 7 feet headroom. Equip the building with approved electrical wiring, at least one double convenience outlet and the required switches and fuses to provide 110-120 volt power. Provide a work table with stool, desk with chair, two additional chairs, and one legal size file cabinet that can be locked. The building must be waterproof, supplied with a heater, have a minimum of two doors, electric lights, a telephone, a battery-operated smoke detector alarm, a sufficient number of adjustable windows for adequate light and ventilation, and a supply of approved drinking water. Provide approved sanitary facilities. Screen the windows and doors and provide the doors with deadbolt type locking devices or a padlock and heavy-duty hasp bolted to the door. Door hinge pins must be non-removable. Arrange the windows to open and to be securely fastened from the inside. Protect glass panels in windows by bars or heavy mesh screens to prevent easy access. In warm weather, provide air conditioning capable of maintaining the office at 50 percent relative humidity and a room temperature 20 degrees F below the outside temperature when the outside temperature is 95 degrees F. Unless otherwise directed by the Contracting Officer, remove the building from the site upon completion and acceptance of the work.

3.5.2 Storage Area

Construct a temporary 6 foot high chain link fence around trailers and materials. Include plastic strip inserts, colored green, so that visibility through the fence is obstructed. Fence posts may be driven, in lieu of concrete bases, where soil conditions permit. Do not place or store trailers, materials, or equipment outside the fenced area unless such trailers, materials, or equipment are assigned a separate and distinct storage area by the Contracting Officer away from the vicinity of the construction site but within the installation boundaries. Trailers, equipment, or materials must not be open to public view with the exception of those items which are in support of ongoing work on the current day. Do not stockpile materials outside the fence in preparation for the next day's work. Park mobile equipment, such as tractors, wheeled lifting equipment, cranes, trucks, and like equipment within the fenced area at the end of each work day.

Keep fencing in a state of good repair and proper alignment. If the Contractor elects to traverse grassed or unpaved areas which are not established roadways with construction equipment or other vehicles, cover the grassed or unpaved areas with a layer of gravel as necessary to prevent rutting and the tracking of mud onto paved or established roadways; gravel gradation must be at the Contractor's discretion. Mow and maintain grass located within the boundaries of the construction site for the duration of the project. Grass and vegetation along fences, structures, under trailers, and in areas not accessible to mowers must be edged or trimmed neatly.

3.5.3 Appearance of Trailers

a. Trailers must be roadworthy and comply with all appropriate state and local vehicle requirements. Trailers which are rusted, have peeling paint or are otherwise in need of repair will not be allowed on Installation property. Trailers must present a clean and neat exterior appearance and be in a state of good repair.

b. Maintain the temporary facilities. Failure to do so will be sufficient reason to require their removal at the Contractor's expense.

3.5.4 Trailers or Storage Buildings

a. Trailers or storage buildings will be permitted, where space is available, subject to the approval of the Contracting Officer.

b. Mount a sign not smaller than 13.78 by 13.78 inches on the trailer or building that shows the company name, business phone number, emergency phone number and conforms to the following requirements and sketch:

Graphic panel	Aluminum, painted blue
Copy	Screen painted or vinyl die-cut, white
Typeface	Univers 65 u/lc
See Sketch No. 01500 (graphic).	

3.5.5 Safety Systems

Protect the integrity of all installed safety systems or personnel safety devices. Obtain prior approval from the Contracting Officer if entrance into systems serving safety devices is required. If it is temporarily necessary to remove or disable personnel safety devices in order to accomplish Contract requirements, provide alternative means of protection prior to removing or disabling any permanently installed safety devices or equipment and obtain approval from the Contracting Officer.

3.5.6 Weather Protection of Temporary Facilities and Stored Materials

Take necessary precautions to ensure that roof openings and other critical openings in the building are monitored carefully. Take immediate actions required to seal off such openings when rain or other detrimental weather is imminent, and at the end of each workday. Ensure that the openings are completely sealed off to protect materials and equipment in the building from damage.

3.5.6.1 Building and Site Storm Protection

When a warning of gale force winds is issued, take precautions to minimize danger to persons, and protect the work and nearby Government property. Precautions must include, but are not limited to, closing openings; removing loose materials, tools and equipment from exposed locations; and removing or securing scaffolding and other temporary work. Close openings in the work when storms of lesser intensity pose a threat to the work or any nearby Government property.

3.6 TEMPORARY PROJECT SAFETY FENCING

As soon as practicable, but not later than 15 days after the date established for commencement of work, furnish and erect temporary project safety fencing at the work site. Maintain the safety fencing during the life of the Contract and, upon completion and acceptance of the work, remove from the work site.

3.7 DUMPSTERS

Equip dumpsters with a secure cover and paint the standard installation color. Keep dumpster closed, except when being loaded with trash and debris. Empty site dumpsters at least once a week, or as needed to keep the site free of debris and trash. If necessary, provide 55 gallon trash containers painted the darker installation color to collect debris in the construction site area. For large demolitions, large dumpsters without lids are acceptable, but must not have debris higher than the sides before emptying.

3.8 CLEANUP

Remove construction debris, waste materials, packaging material and the like from the work site daily. Any dirt or mud which is tracked onto paved or surfaced roadways must be cleaned away. Store all salvageable materials resulting from demolition activities within the fenced area described above or at the supplemental storage area. Neatly stack stored materials not in trailers, whether new or salvaged.

3.9 RESTORATION OF STORAGE AREA

Upon completion of the project remove the bulletin board, signs, barricades, haul roads, and all other temporary products from the site. After removal of trailers, materials, and equipment from within the fenced area, remove the fence. Restore areas used during the performance of the Contract to the original or better condition. Remove gravel used to traverse grassed areas and restore the area to its original condition, including top soil and seeding as necessary.

-- End of Section --

SECTION 01 57 19

TEMPORARY ENVIRONMENTAL CONTROLS
08/22, CHG 2: 08/25

PART 1 GENERAL

1.1 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.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY (IEPA)

35 IAC 900-901	Title 35 of Illinois Administrative Code, Subtitle H: Noise, Chapter I: Pollution Control Board

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

EPA SW-846	(Third Edition; Update VII) Test Methods for Evaluating Solid Waste: Physical/Chemical Methods

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1910.1053	Respirable Crystalline Silica
29 CFR 1910.1200	Hazard Communication
29 CFR 1926.1153	Respirable Crystalline Silica
40 CFR 50	National Primary and Secondary Ambient Air Quality Standards
40 CFR 60	Standards of Performance for New Stationary Sources
40 CFR 63	National Emission Standards for Hazardous Air Pollutants for Source Categories
40 CFR 64	Compliance Assurance Monitoring
40 CFR 82	Protection of Stratospheric Ozone
40 CFR 112	Oil Pollution Prevention
40 CFR 122.26	Storm Water Discharges (Applicable to State NPDES Programs, see section 123.25)
40 CFR 152	Pesticide Registration and Classification Procedures
40 CFR 152 - 186	Pesticide Programs
40 CFR 241	Guidelines for Disposal of Solid Waste

40 CFR 243	Guidelines for the Storage and Collection of Residential, Commercial, and Institutional Solid Waste
40 CFR 258	Subtitle D Landfill Requirements
40 CFR 260	Hazardous Waste Management System: General
40 CFR 261	Identification and Listing of Hazardous Waste
40 CFR 261.7	Residues of Hazardous Waste in Empty Containers
40 CFR 262	Standards Applicable to Generators of Hazardous Waste
40 CFR 262.11	Hazardous Waste Determination and Recordkeeping
40 CFR 263	Standards Applicable to Transporters of Hazardous Waste
40 CFR 264	Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
40 CFR 265	Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
40 CFR 266	Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities
40 CFR 268	Land Disposal Restrictions
40 CFR 273	Standards for Universal Waste Management
40 CFR 273.2	Standards for Universal Waste Management - Batteries
40 CFR 273.3	Standards for Universal Waste Management - Pesticides
40 CFR 273.4	Standards for Universal Waste Management - Mercury Containing Equipment
40 CFR 273.5	Standards for Universal Waste Management - Lamps
40 CFR 273.6	Applicability - Aerosol Cans
40 CFR 279	Standards for the Management of Used Oil
40 CFR 300	National Oil and Hazardous Substances Pollution Contingency Plan
40 CFR 300.125	National Oil and Hazardous Substances

	Pollution Contingency Plan - Notification and Communications
40 CFR 302	Designation, Reportable Quantities, and Notification
40 CFR 355	Emergency Planning and Notification
40 CFR 372	Toxic Chemical Release Reporting
40 CFR 403	General Pretreatment Regulations for Existing and New Sources of Pollution
40 CFR 745	Lead-Based Paint Poisoning Prevention in Certain Residential Structures
40 CFR 761	Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions
49 CFR 171	General Information, Regulations, and Definitions
49 CFR 172	Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements
49 CFR 172.101	Hazardous Material Regulation-Purpose and Use of Hazardous Material Table
49 CFR 173	Shippers - General Requirements for Shipments and Packagings
49 CFR 178	Specifications for Packagings

WASHINGTON STATE ADMINISTRATIVE CODE (WAC)

WAC-173-303	Washington Dangerous Waste Regulations
WAC-173-303-573	Standards for Universal Waste Management
WAC-173-303-573(2)	Standards for Universal Waste Management - Batteries
WAC-173-303-573(3)	Standards for Universal Waste Management - Mercury-containing Equipment
WAC-173-303-573(5)	Standards for Universal Waste Management - Lamps
WAC-173-443	Hydrofluorocarbons (HFCs) and Other Fluorinated Greenhouse Gases

WISCONSIN DEPARTMENT OF NATURAL RESOURCES (WDNR)

s. NR 415, Wis. Adm. Code	Control of Particulate Emissions

1.2 DEFINITIONS

1.2.1 Class I and II Ozone Depleting Substance (ODS)

Class I ODS is defined in Section 602(a) of The Clean Air Act. A list of Class I ODS can be found on the EPA website at the following weblink. https://www.epa.gov/ozone-layer-protection/ozone-depleting-substances.

Class II ODS is defined in Section 602(s) of The Clean Air Act. A list of Class II ODS can be found on the EPA website at the following weblink. https://www.epa.gov/ozone-layer-protection/ozone-depleting-substances.

1.2.2 Contractor Generated Hazardous Waste

Contractor generated hazardous waste is materials that, if abandoned or disposed of, may meet the definition of a hazardous waste. These waste streams would typically consist of material brought on site by the Contractor to execute work, but are not fully consumed during the course of construction. Examples include, but are not limited to, excess paint thinners (i.e., methyl ethyl ketone, toluene), waste thinners, excess paints, excess solvents, waste solvents, excess pesticides, and contaminated pesticide equipment rinse water.

1.2.3 Electronics Waste

Electronics waste is discarded electronic devices intended for salvage, recycling, or disposal.

1.2.4 Environmental Pollution and Damage

Environmental pollution and damage is the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade the environment aesthetically, culturally or historically.

1.2.5 Environmental Protection

Environmental protection is the prevention/control of pollution and habitat disruption that may occur to the environment during construction. The control of environmental pollution and damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material as well as other pollutants.

1.2.6 Hazardous Debris

As defined in paragraph SOLID WASTE, debris that contains listed hazardous waste (either on the debris surface, or in its interstices, such as pore structure) in accordance with 40 CFR 261. Hazardous debris also includes debris that exhibits a characteristic of hazardous waste in accordance with 40 CFR 261.

1.2.7 Hazardous Materials

Hazardous material is any material that: Is defined in 49 CFR 171, listed in 49 CFR 172, regulated as a hazardous material in accordance with 49 CFR 173; or requires a Safety Data Sheet (SDS) in accordance with

29 CFR 1910.1200; or during end use, treatment, handling, packaging, storage, transportation, or disposal meets or has components that meet or have potential to meet the definition of a hazardous waste as defined by 40 CFR 261 Subparts A, B, C, or D. Designation of a material by this definition, when separately regulated or controlled by other sections or directives, does not eliminate the need for adherence to that hazard-specific guidance which takes precedence over this section for "control" purposes. Such material includes ammunition, weapons, explosive actuated devices, propellants, pyrotechnics, chemical and biological warfare materials, medical and pharmaceutical supplies, medical waste and infectious materials, bulk fuels, radioactive materials, and other materials such as asbestos, mercury, and polychlorinated biphenyls (PCBs).

1.2.8 Hazardous Waste

Hazardous Waste is any material that meets the definition of a solid waste and exhibits a hazardous characteristic (ignitability, corrosivity, reactivity, or toxicity) as specified in 40 CFR 261, Subpart C, or contains a listed hazardous waste as identified in 40 CFR 261, Subpart D, or meets a state, local, or host nation definition of a hazardous waste.

1.2.9 Installation Pest Management Coordinator

Installation Pest Management Coordinator (IPMC) is the individual officially designated by the Installation Commander to oversee the Installation Pest Management Program and the Installation Pest Management Plan.

1.2.10 Land Application

Land Application means spreading or spraying discharge water at a rate that allows the water to percolate into the soil. No sheeting action, soil erosion, discharge into storm sewers, discharge into defined drainage areas, or discharge into the "waters of the United States" must occur. Comply with federal, state, and local laws and regulations.

1.2.11 Municipal Separate Storm Sewer System (MS4) Permit

MS4 permits are those held by municipalities or installations to obtain NPDES permit coverage for their stormwater discharges.

1.2.12 National Pollutant Discharge Elimination System (NPDES)

The NPDES permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States.

1.2.13 Oily Waste

Oily waste are those materials that are, or were, mixed with Petroleum, Oils, and Lubricants (POLs) and have become separated from that POLs. Oily wastes also means materials, including wastewaters, centrifuge solids, filter residues or sludges, bottom sediments, tank bottoms, and sorbents which have come into contact with and have been contaminated by, POLs and may be appropriately tested and discarded in a manner which is in compliance with other state and local requirements.

This definition includes materials such as oily rags, "kitty litter" sorbent clay and organic sorbent material. These materials may be land filled provided that: It is not prohibited in other state regulations or

local ordinances; the amount generated is "de minimus" (a small amount); it is the result of minor leaks or spills resulting from normal process operations; and free-flowing oil has been removed to the practicable extent possible. Large quantities of this material, generated as a result of a major spill or in lieu of proper maintenance of the processing equipment, are a solid waste. As a solid waste, perform a hazardous waste determination prior to disposal. As this can be an expensive process, it is recommended that this type of waste be minimized through good housekeeping practices and employee education.

1.2.14 Pesticide

Pesticide is any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest, or intended for use as a plant regulator, defoliant or desiccant.

1.2.15 Pesticide Treatment Plan

A plan for the prevention, monitoring, and control to eliminate pest infestation.

1.2.16 Pests

Pests are arthropods, birds, rodents, nematodes, fungi, bacteria, viruses, algae, snails, marine borers, snakes, weeds and other organisms (except for human or animal disease-causing organisms) that adversely affect readiness, military operations, or the well-being of personnel and animals; attack or damage real property, supplies, equipment, or vegetation; or are otherwise undesirable.

1.2.17 Project Pesticide Coordinator

The Project Pesticide Coordinator (PPC) is an individual who resides at a Civil Works Project office and who is responsible overseeing of pesticide application on project grounds.

1.2.18 Regulated Waste

Regulated waste are solid wastes that have specific additional federal, state, or local controls for handling, storage, or disposal.

1.2.19 Sediment

Sediment is soil and other debris that have eroded and have been transported by runoff water or wind.

1.2.20 Solid Waste

Solid waste is a solid, liquid, semi-solid or contained gaseous waste. A solid waste can be a hazardous waste, non-hazardous waste, or non-Resource Conservation and Recovery Act (RCRA) regulated waste. Types of solid waste typically generated at construction sites may include:

1.2.20.1 Debris

Debris is non-hazardous solid material generated during the construction, demolition, or renovation of a structure that exceeds 2.5-inch particle size that is: a manufactured object; plant or animal matter; or natural geologic material (for example, cobbles and boulders), broken or removed

concrete, masonry, and rock asphalt paving; ceramics; roofing paper and shingles. Inert materials may not be reinforced with or contain ferrous wire, rods, accessories and weldments. A mixture of debris and other material such as soil or sludge is also subject to regulation as debris if the mixture is comprised primarily of debris by volume, based on visual inspection.

1.2.20.2 Clean Construction and Demolition Debris (CCDD)

As defined by the Illinois Environmental Protection Agency, CCDD is uncontaminated broken concrete without protruding metal bars, bricks, rock, stone, or reclaimed asphalt pavement generated from construction or demolition activities. When uncontaminated soil is mixed with any of these materials, the uncontaminated soil is considered CCDD.

1.2.20.3 Green Waste

Green waste is the vegetative matter from landscaping, land clearing and grubbing, including, but not limited to, grass, bushes, scrubs, small trees and saplings, tree stumps and plant roots. Marketable trees, grasses and plants that are indicated to remain, be re-located, or be re-used are not included.

1.2.20.4 Material Not Regulated As Solid Waste

Material not regulated as solid waste is nuclear source or byproduct materials regulated under the Federal Atomic Energy Act of 1954 as amended; suspended or dissolved materials in domestic sewage effluent or irrigation return flows, or other regulated point source discharges; regulated air emissions; and fluids or wastes associated with natural gas or crude oil exploration or production.

1.2.20.5 Non-Hazardous Waste

Non-hazardous waste is waste that is excluded from, or does not meet, hazardous waste criteria in accordance with 40 CFR 261.

1.2.20.6 Recyclables

Recyclables are materials, equipment and assemblies such as doors, windows, door and window frames, plumbing fixtures, glazing and mirrors that are recovered and sold as recyclable, wiring, insulated/non-insulated copper wire cable, wire rope, and structural components. It also includes commercial-grade refrigeration equipment with Freon removed, household appliances where the basic material content is metal, clean polyethylene terephthalate bottles, cooking oil, used fuel oil, textiles, high-grade paper products and corrugated cardboard, stackable pallets in good condition, clean crating material, and clean rubber/vehicle tires. Metal meeting the definition of "lead contaminated" or "lead based paint contaminated" may be included as recyclable only if the metal is handled and transported in accordance with regulations, and the facility receiving the material is permitted and authorized to accept and process lead contaminated materials. Paint cans that meet the definition of empty containers in accordance with 40 CFR 261.7 may be included as recyclable if sold to a scrap metal company.

1.2.20.7 Surplus Soil

Surplus soil is existing soil that is in excess of what is required for

this work, including aggregates intended, but not used, for on-site mixing of concrete, mortars, and paving. Contaminated soil meeting the definition of hazardous material or hazardous waste is not included and must be managed in accordance with paragraph HAZARDOUS MATERIAL MANAGEMENT.

1.2.20.8 Scrap Metal

This includes scrap and excess ferrous and non-ferrous metals such as reinforcing steel, structural shapes, pipe, and wire that are recovered or collected and disposed of as scrap. Scrap metal meeting the definition of hazardous material or hazardous waste is not included.

1.2.20.9 Wood

Wood is dimension and non-dimension lumber, plywood, chipboard, hardboard. Treated or painted wood that meets the definition of lead contaminated or lead based contaminated paint is not included. Treated wood includes, but is not limited to, lumber, utility poles, crossties, and other wood products with chemical treatment.

1.2.21 Surface Discharge

Surface discharge means discharge of water into drainage ditches, storm sewers, or creeks meeting the definition of "waters of the United States". Surface discharges from construction sites are discrete, identifiable sources and require a permit from the governing agency. Comply with federal, state, and local laws and regulations.

The term "Surface Discharge" implies that the water is discharged with possible sheeting action and subsequent soil erosion may occur. Waters that are surface discharged may terminate in drainage ditches, storm sewers, creeks, or "waters of the United States" and would require a permit to discharge water from the governing agency. All projects with land disturbances greater than or equal to one acre in total area must have a National Pollution Discharge Elimination System (NPDES) Construction Site Activity Storm Water Permit to discharge surface water from a construction site, issued by the Illinois Environmental Protection Agency. All projects with discharge of dredged or fill material to waters of the United States must have a Section 401 Water Quality Permit issued by the Illinois Environmental Protection Agency.

The term "Surface Discharge" implies that the water is discharged with possible sheeting action and subsequent soil erosion may occur. Waters that are surface discharged may terminate in drainage ditches, storm sewers, creeks, or "waters of the United States". All projects with land disturbances greater than or equal to one acre in total area must have a National Pollution Discharge Elimination System (NPDES) Construction Site Activity Storm Water Permit, issued by the Indiana Department of Environmental Management. All projects with discharge of dredged or fill material to waters of the United States must have a Section 401 Water Quality Permit issued by the Indiana Department of Environmental Management.

The term "Surface Discharge" implies that the water is discharged with possible sheeting action and subsequent soil erosion may occur. Waters that are surface discharged may terminate in drainage ditches, storm

sewers, creeks, or "waters of the United States". All projects with land disturbances greater than or equal to one acre in total area must have a National Pollution Discharge Elimination System (NPDES) Construction Site Activity Storm Water Permit, issued by the Wisconsin Department of Natural Resources (WDNR). All projects with discharge of dredged or fill material to waters of the United States must comply with Sections 404 and 401 of the Clean Water Act, including obtaining all required permits and approvals.

1.2.22 Wastewater

Wastewater is the aqueous liquid waste generated by a project, to include both domestic wastewater (sewage) and industrial wastewater.

1.2.22.1 Stormwater

Stormwater is any precipitation in an urban or suburban area that does not evaporate or soak into the ground, but instead collects and flows into storm drains, rivers, and streams.

1.2.23 Waters of the United States

Waters of the United States means Federally jurisdictional waters, including wetlands, that are subject to regulation under Section 404 of the Clean Water Act or navigable waters, as defined under the Rivers and Harbors Act.

1.2.24 Wetlands

Wetlands are those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

1.2.25 Universal Waste

The universal waste regulations streamline collection requirements for certain hazardous wastes in the following categories: batteries, pesticides, mercury-containing equipment (for example, thermostats), and lamps (for example, fluorescent bulbs). The rule is designed to reduce hazardous waste in the municipal solid waste (MSW) stream by making it easier for universal waste handlers to collect these items and send them for recycling or proper disposal. These regulations can be found at 40 CFR 273.

1.2.26 Location Specific Universal Waste

Any of the following dangerous waste that are subject to the universal waste requirements of WAC-173-303-573: Batteries as described in WAC-173-303-573(2)); Lamps as described in WAC-173-303-573(5); Mercury-containing equipment as described in WAC-173-303-573(3).

1.2.27 Dangerous Waste

Waste defined as dangerous waste in accordance with WAC-173-303. This includes, but is not limited to, hazardous waste, extremely hazardous waste and state-only dangerous waste.

1.2.28 Encountered Waste

Material that is of Government origin that becomes a waste during construction at or on Government property. This term includes both foreseen and unforeseen Government waste discovered at the worksite.

1.2.29 Firewood

Raw, woody material cut into short lengths and burned to produce energy.

1.2.30 Fugitive Dust

Particulate matter or any visible air contaminant (smoke, dust, or fume) other than uncombined water that is not collected by a capture system and emitted from a stack, but is released to the atmosphere at the point of generation.

1.2.31 Ozone Depleting Substance (ODS) Substitute

Any chemical or product, whether existing or new, that is used by any person as an EPA-approved replacement for a Class I or Class II ODS in a given refrigeration or air-conditioning end-use.

1.2.32 Prohibited Substances

Prohibited substitutes perform a function previously performed by a class I substance or class II substance and any substitute subsequently adopted to perform that function including, but not limited to, hydrofluorocarbons that are listed as prohibited in WAC-173-443-040.

1.2.33 Refrigerant

Any substance consisting in part or whole of a Class I or Class II ODS, or an ODS substitute that is used for heat transfer purposes and provides a cooling effect.

1.2.34 Refuse

Includes, but is not limited to garbage, rubbish, trash, some soils, and non-painted demolition and construction debris. The Government will designate refuse. When designated as "refuse," the Government has determined the waste is not "Dangerous Waste."

1.2.35 Sewage

Liquid waste designated by the Government as "domestic sanitary sewage" and normally discharged through domestic sanitary sewage systems. Liquids designated as "sewage" include human body waste, and wastewater from sinks, showers, laundries, dishwashers, and garbage disposals when these liquids use only chemicals approved by the Government for discharge into the sanitary sewer.

1.2.36 Spill Event

A spill is any release of oil or hazardous substances to the water or ground that is not controlled or permitted. This includes any spilling, leaking, pumping, emitting, discharging, injecting, escaping, leaching, disposing, or dumping of liquid or solid material that is not authorized in writing by the Contracting Officer.

1.2.36.1 Reportable Release

A reportable release means any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment of a known or unknown material or hazardous substance that poses an immediate threat to human health or the environment to the air, soil, or water. Reportable releases are: a sheen of oil on the water; a violation of the Installation's or project's water permit (NPDES permit); a sewage spill that threatens human health or the environment or that reaches the stormwater system or any waterbody; a Comprehensive Environmental Response, Compensation, and Liability Act reportable quantity for hazardous/toxic substances (40 CFR 302); an air or hazardous substance release that is a threat to human health or the environment, or released outside the facility boundaries; any discharge from an underground storage tank regulated under WAC 173-360; or oil spilled to the ground or to permeable secondary containment of 42 gallons and greater.

1.2.36.2 Non-emergency Spill Event

A non-emergency spill event is a discharge of a known material or any hazardous substance that does not pose an immediate threat to human health or the environment, can be cleaned up as part of normal housekeeping by the personnel who discovered the spill, and is not released on the soil or into any waterway inlet (for example, storm drain) or outside Navy property boundaries.

1.2.37 Timber, Merchantable

Any raw material yielded by a forest that is of a size, quality and condition suitable for marketing under given economic conditions, even if it is situated such that it is not immediately accessible for logging.

1.2.38 Nonroad Engine

Nonroad engines are any internal combustion engine that, by itself or in or on a piece of equipment, is portable or transportable, meaning designed to be and capable of being carried or moved from one location to another. Indicia of transportability include, but are not limited to, wheels, skids, carrying handles, dolly, trailer, or platform. This definition is based on the principle of mobility and portability, and includes engines installed on (1) self-propelled equipment, (2) equipment that is propelled while performing its function, or (3) equipment that is portable or transportable, as indicated by the presence of wheels, skids, carrying handles, dolly, trailer, or platform. Examples of regulated applications include farm tractors, excavators, bulldozers, wheel loaders, backhoe loaders, road graders, diesel lawn tractors, logging equipment, portable generators, skid steer loaders, or forklifts.

1.2.39 Critical Root Zone (CRZ)

The critical root zone is the area around and under a tree where the majority of its roots are located. The CRZ is usually measured as a circle with a radius of 1.5 foot for every inch of the tree's diameter at breast height (DBH), and a depth of 24 inches.

1.2.40 Landfill-Controlled Waste

Waste containing harmful substances but not designated as dangerous in accordance with WAC-173-303 that are screened by a receiving facility to ensure that it meets the requirements of their operating permit. Examples include petroleum-contaminated soil, abrasive blast grit, street or dry-dock sweepings, treated wood, oily debris, and waste containing free liquids as determined by the Paint Filter Liquids Test method 9095.

1.3 SUBMITTALS

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. Submittals not having a "G" or "S" classification are 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 00.05 22 CONSTRUCTION SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Storage Material Inventory

Preconstruction Survey

Environmental Manager Qualifications

Environmental Protection Plan; G

Dirt and Dust Control Plan

Stormwater Pollution Prevention Plan (SWPPP); G

Stormwater Notice of Intent (for NPDES coverage under the general permit for construction activities)

Spill Prevention Control And Countermeasure (SPCC) Plan; G

SD-06 Test Reports

Monthly Solid Waste Disposal Report; G

Inspection Reports

Laboratory Analysis

SD-07 Certificates

ECATTS Certificate Of Completion; G

Employee Training Records; G

Certificate of Competency

SD-11 Closeout Submittals

Contractor Hazardous Material Inventory Log; G

Regulatory Notifications; G

Assembled Employee Training Records; G

Solid Waste Management Permit; G

Stormwater Pollution Prevention Plan Compliance Notebook; G

Stormwater Notice of Termination (for NPDES coverage under the general permit for construction activities); G

As-Built Topographic Survey

Waste Determination Documentation; G

Project Solid Waste Disposal Documentation Report; G

Sales Documentation; G

Contractor Certification

Hazardous Waste/Debris Management; G

Disposal Documentation for Hazardous and Regulated Waste; G

1.4 ENVIRONMENTAL PROTECTION REQUIREMENTS

Provide and maintain, during the life of the contract, environmental protection as defined. Plan for and provide environmental protective measures to control pollution that develops during construction practice. Plan for and provide environmental protective measures required to correct conditions that develop during the construction of permanent or temporary environmental features associated with the project. Protect the environmental resources within the project boundaries and those affected outside the limits of permanent work during the entire duration of this Contract. Comply with federal, state, and local regulations pertaining to the environment, including water, air, solid waste, hazardous waste and substances, oily substances, and noise pollution.

Tests and procedures assessing whether construction operations comply with Applicable Environmental Laws may be required. Analytical work must be performed by qualified laboratories; and where required by law, the laboratories must be certified.

1.4.1 Training in Environmental Compliance Assessment Training and Tracking System (ECATTS)

1.4.1.1 Personnel Requirements

The Environmental Manager is responsible for environmental compliance on projects. The Environmental Manager, must complete applicable ECATTS training modules (installation specific or general) prior to starting respective portions of on-site work under this Contract. If personnel changes occur for any of these positions after starting work, replacement personnel must complete applicable ECATTS training within 14 days of assignment to the project.

1.4.1.2 Certification

Submit an ECATTS certificate of completion for personnel who have completed the required ECATTS training. This training is web-based and can be accessed from any computer with Internet access using the following instructions.

Register for NAVFAC Environmental Compliance Assessment, Training, and Tracking System, by logging on to https://environmentaltraining.ecatts.com/. Obtain the password for registration from the Contracting Officer.

1.4.1.3 Refresher Training

This training has been structured to allow contractor personnel to receive credit under this contract and to carry forward credit to future contracts. Ensure the Environmental Manager review their training plans for new modules or updated training requirements prior to beginning work. Some training modules are tailored for specific state regulatory requirements; therefore, Contractors working in multiple states will be required to retake modules tailored to the state where the contract work is being performed.

1.4.2 Conformance with the Environmental Management System

Perform work under this contract consistent with the policy and objectives identified in the installation's Environmental Management System (EMS). Perform work in a manner that conforms to objectives and targets of the environmental programs and operational controls identified by the EMS. Support Government personnel when environmental compliance and EMS audits are conducted by escorting auditors at the Project site, answering questions, and providing proof of records being maintained. Provide monitoring and measurement information as necessary to address environmental performance relative to environmental, energy, and transportation management goals. In the event an EMS nonconformance or environmental noncompliance associated with the contracted services, tasks, or actions occurs, take corrective and preventative actions. In addition, employees must be aware of their roles and responsibilities under the installation EMS and of how these EMS roles and responsibilities affect work performed under the contract.

Coordinate with the installation's EMS coordinator to identify training needs associated with environmental aspects and the EMS, and arrange training or take other action to meet these needs. Provide training documentation to the Contracting Officer. The Installation Environmental Office will retain associated environmental compliance records. Make EMS Awareness training completion certificates available to Government auditors during EMS audits and include the certificates in the Employee Training Records. See paragraph EMPLOYEE TRAINING RECORDS.

1.5 SPECIAL ENVIRONMENTAL REQUIREMENTS

1.5.1 Mid-Atlantic

Comply with the following state, regional, and local requirements.

1.5.1.1 North Carolina

1.5.1.1.1 Camp Lejeune

1.5.1.1.1.1 Removal of Waste from Camp Lejeune

Procedures for managing environmental media at Marine Corps Base Camp Lejeune (MCBCL) are outlined in the Environmental Standard Operating Procedure (ESOP), dated June 20, 2024, provided in this Section. Surplus material, and other construction debris shall be taken off-base for disposal, in accordance with the MCBCL ESOP, Resource Conservation and Recovery Act (RCRA), and North Carolina Solid Waste regulations. A minimum 5 day advanced written notice shall be provided to the contracting Office of the Contractor’s intention to dispose of rubbish and debris off-base. Disposal at sites or landfills not holding a valid state of North Carolina permit is specifically prohibited. The prohibition also applies to sites where a permit may have been applied for but not yet obtained. If construction debris has been disposed off-base at a site without state permits or not in accordance with regulatory requirements, the Contractor is to remove, transport, and relocate the debris to a state-approved site at the Contractor’s expense. Any fines, penalties, or fees related to the illegal disposal of construction debris will be paid for by the Contractor, not the Government. All soil taken off its originating site must be screened for construction debris and other trash prior to transport off the project site.

1.5.1.1.1.2 Surplus Soils Disposal for Camp Lejeune & MCAS New River

Prior to transportation of surplus soil off its originating site, mechanically screen all surplus soil to remove all objects greater than 3 inches and deleterious material. Deleterious material consists of organic debris such as roots, stumps, timber, and construction debris. Construction debris shall include, but is not limited to wood, plastic, glass, concrete, brick, and metal. Dispose of deleterious material and objects larger than 3 inches in accordance with state and federal regulations, and applicable contract requirements. Construction debris, to include hazardous- and non-hazardous waste cannot and shall not be reburied or left on-site, but rather properly disposed in accordance with the MCBCL ESOP, RCRA, and other federal and state regulations.

a. Mechanical screening of soil is required and means and methods must be included within the Environmental Protection Plan and Waste Management Plan. Spreading material out on the ground in lifts, for example, and manually removing debris larger than 3 inches is an adequate method to visually inspect soil prior to leaving a site. Observing an excavator direct load into a dump truck is not considered an acceptable method of screening soil.

b. Any suspect munitions-related items identified should immediately be called into emergency response (911) or Blackburn (910-451-3064/4449) for proper identification, in accordance with MCO 8020.10. Munitions-related items should be reported to the Contracting Officer, and subsequently to the Explosives Safety Officer (ESO) and Installation's Environmental Management Division (910-451-5003). Base Explosives Ordnance Disposal (EOD)will make the proper notifications to the Explosive Safety Officer (ESO). The Contracting Officer should report the incident to the Installation Environmental Management Division (EMD) as soon as possible to assist in determining if follow-on unexploded ordnance (UXO) construction support actions are

warranted.

c. Soil cannot be disposed off-base without proper waste documentation (i.e., hazardous or non-hazardous waste manifest signed by a Base representative designated in writing by the Commanding General to sign manifests). Under no circumstances shall a contractor sign on behalf of the government on a waste profile or a waste manifest. Surplus soil must be properly characterized, manifested, and disposed of at a permitted landfill or incinerated, as designated by the MCBCL ESOP and allowed by State and Federal regulations (minimum of full suite TCLP (VOCs, SVOCs, pesticides/herbicides/PCBs, and metals), ignitability, corrosivity, and reactivity, and TPH-GRO and TPH-DRO in accordance with Environmental Protection Agency (EPA) Method SW-846 for every 1,000 cubic yards. Additional testing requirements may be requested by the receiving facility. All sample results must be reviewed and approved by the Contracting Officer.

Soil should be reused on its originating construction footprint. As there are currently no regulations regarding management and disposal of PFAS-impacted soil, all PFAS-impacted media should be managed so as tominimize the future impacts to the environment, should they become regulated. If PFAS-impacted soil needs to leave the originating site, it must be properly characterized, manifested, and disposed of at a permitted subtitle D or C landfill (lined landfill) per the MCBCL ESOP. Waste manifests must clearly indicate that PFAS compounds are present. The Base landfill cannot accept PFAS-impacted soil. Testing requirements for PFAS-impacted soil will be dictated by the receiving facility.

Copies of all waste manifests must be retained by the Installation EMD Resource Conservation and Recovery Section, the transporter, and the receiving facility for a minimum of 3 years in accordance with 40 CFR 262.40(a).

If contaminated soils are suspected or confirmed through presence of UXO,odors, or visual staining, or known as identified in the project drawings (i.e., constructing in a known impacted area) affected soils must be properly tested, manifested, and disposed of in accordance with RCRA regulations

Environmental Management Division (EMD)Points of Contact:
EMD Administrative Assistant: (910) 451-5003

Environmental Quality Branch:
Environmental Restoration Program Manager, Thomas Richard:
(910)451-9641, Thomas.Richard@usmc.mil

Environmental Conservation Branch:
National Environmental Policy Act (NEPA) Program Manager, Jessi Baker:(910-)451-4542, Jessi.Baker@usmc.mil

d. Soils brought from off-Base must be received from a permitted borrow pit or permitted soils land-farm. Analytical data must be provided upon request.

Petroleum impacted soils excavated from a construction site to be removed from the project site for any reason must be analyzed using EPA methods 8260 & 8270 to confirm that contaminant levels are below the lesser of the soil to groundwater (STG) or residential maximum

soil contaminant concentration levels (MSCCs) before being considered for "unrestricted use". Current version of MSCC Tables are available at NCDEQ website https://deq.nc.gov/about/divisions/waste-management/ust/guidance-documents. Petroleum impacted soils above the lesser of their respective STG or residential MSCCs must be properly disposed at an appropriate permitted disposal facility.

If soils are brought from any other on-base source a soil characterization must be completed using US Environmental Protections Agency (EPA) methods 6010 (metals), 8260 (VOCs), 8270 (SVOCs), and 1633 (PFAS) must be used to confirm that contaminant levels are below the lesser of the STG or residential MSCCs (See NCDEQ website).

If soils brought from any other off-base source a soil characterization must be completed using US Environmental Protections Agency (EPA) methods 6010 (metals), 8260 (VOCs), 8270 (SVOCs), 8081 (pesticides), 8151 (herbicides), and 1633 (PFAS) must be used to confirm that contaminant levels are below the lesser of the STG or residential MSCCs (See NCDEQ website). Sampling data can be provided to IR program contacts if you are unsure if soil analytical data meets acceptance criteria.

1.5.2 Material Storage

Store plastic bags in 55 gallon covered drum(s). Do not seal the drum(s). Provide a label with a description of the contents and note on the label "TO BE DISPOSED OF BY RASO". Apply the label to the exterior surface of the cover and site of the drum(s). Provide a record copy of the label for each drum storage material inventory to the Contracting Officer.

1.6 QUALITY ASSURANCE

1.6.1 Preconstruction Survey and Protection of Features

This paragraph supplements the Contract Clause PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS. Prior to start of any onsite construction activities, perform a Preconstruction Survey of the project site with the Contracting Officer, and take photographs showing existing environmental conditions in and adjacent to the site. Submit a report for the record. Include in the report a plan describing the features requiring protection under the provisions of the Contract Clauses, which are not specifically identified on the drawings as environmental features requiring protection along with the condition of trees, shrubs and grassed areas immediately adjacent to the site of work and adjacent to the Contractor's assigned storage area and access route(s), as applicable. The Contractor and the Contracting Officer will sign this survey report upon mutual agreement regarding its accuracy and completeness. Protect those environmental features included in the survey report and any indicated on the drawings, regardless of interference that their preservation may cause to the work under the Contract.

1.6.2 Regulatory Notifications

Provide regulatory notification requirements in accordance with federal, state and local regulations. In cases where the Government will also provide public notification (such as stormwater permitting), coordinate with the Contracting Officer. Submit copies of regulatory notifications

to the Contracting Officer at least 30 days prior to commencement of work activities. Typically, regulatory notifications must be provided for the following (this listing is not all-inclusive): demolition, renovation, NPDES defined site work, construction, removal or use of a permitted air emissions source, and remediation of controlled substances (asbestos, hazardous waste, lead paint).

1.6.3 Environmental Brief

Attend an environmental brief to be included in the preconstruction meeting. Provide the following information: types, quantities, and use of hazardous materials that will be brought onto the installation; and types and quantities of wastes/wastewater that may be generated during the Contract. Discuss the results of the Preconstruction Survey at this time.

Prior to initiating any work on site, meet with the Contracting Officer and installation Environmental Office to discuss the proposed Environmental Protection Plan (EPP) or equipment local requirement. Develop a mutual understanding relative to the details of environmental protection, including measures for protecting natural and cultural resources, required reports, required permits, permit requirements (such as mitigation measures), and other measures to be taken.

1.6.4 Environmental Manager

Appoint in writing an Environmental Manager for the project site. The Environmental Manager is directly responsible for coordinating contractor compliance with federal, state, local, and installation requirements. The Environmental Manager must ensure compliance with Hazardous Waste Program requirements (including hazardous waste handling, storage, manifesting, and disposal); implement the EPP; ensure environmental permits are obtained, maintained, and closed out; ensure compliance with Stormwater Program requirements; ensure compliance with Hazardous Materials (storage, handling, and reporting) requirements; and coordinate any remediation of regulated substances (lead, asbestos, PCB transformers). This can be a collateral position; however, the person in this position must be trained to adequately accomplish the following duties: ensure waste segregation and storage compatibility requirements are met; inspect and manage Satellite Accumulation areas; ensure only authorized personnel add wastes to containers; ensure Contractor personnel are trained in 40 CFR requirements in accordance with their position requirements; coordinate removal of waste containers; and maintain the Environmental Records binder and required documentation, including environmental permits compliance and close-out. Submit Environmental Manager Qualifications to the Contracting Officer.

1.6.5 Employee Training Records

Prepare and maintain Employee Training Records throughout the term of the contract meeting applicable 40 CFR requirements. Provide Employee Training Records in the Environmental Records Binder. Submit these Assembled Employee Training Records to the Contracting Officer at the conclusion of the project, unless otherwise directed.

Train personnel to meet EPA and state requirements. Conduct environmental protection/pollution control meetings for personnel prior to commencing construction activities. Conduct additional meetings for new personnel and when site conditions change. Include in the training and meeting agenda: methods of detecting and avoiding pollution; familiarization with

statutory and contractual pollution standards; installation and care of devices, vegetative covers, and instruments required for monitoring purposes to ensure adequate and continuous environmental protection/pollution control; anticipated hazardous or toxic chemicals or wastes, and other regulated contaminants; recognition and protection of archaeological sites, artifacts, waters of the United States, and endangered species and their habitat that are known to be in the area.

1.6.5.1 Pest Control Training

Trained personnel in pest control. Conduct a pest control meeting for personnel prior to commencing construction activities. Conduct additional meetings for new personnel and when site conditions change. Include in the training and meeting agenda: methods of detecting and pest infestation; familiarization with statutory and contractual pest control standards; installation and care of devices, and instruments, if required, for monitoring purposes to ensure adequate and continuous pest control; anticipated hazardous or toxic chemicals or wastes, and other regulated contaminants; recognition and protection of waters of the United States, and endangered species and their habitat that are known to be in the area. Provide a Certificate of Competency for the personnel who will be conducting the pesticide application and management of pest control.

1.6.6 Non-Compliance Notifications

The Contracting Officer will notify the Contractor in writing of any observed noncompliance with federal, state or local environmental laws or regulations, permits, and other elements of the Contractor's EPP. After receipt of such notice, inform the Contracting Officer of the proposed corrective action and take such action when approved by the Contracting Officer. The Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. FAR 52.242-14 Suspension of Work provides that a suspension, delay, or interruption of work due to the fault or negligence of the Contractor allows for no adjustments to the contract for time extensions or equitable adjustments. In addition to a suspension of work, the Contracting Officer may use additional authorities under the contract or law.

1.7 ENVIRONMENTAL PROTECTION PLAN

The purpose of the EPP is to present an overview of known or potential environmental issues that must be considered and addressed during construction. Incorporate construction related objectives and targets from the installation's EMS into the EPP. Include in the EPP measures for protecting natural and cultural resources, required reports, and other measures to be taken. Meet with the Contracting Officer or Contracting Officer Representative to discuss the EPP and develop a mutual understanding relative to the details for environmental protection including measures for protecting natural resources, required reports, and other measures to be taken. Submit the EPP not less than 60 calendar days before scheduled final site or building design approval. Revise the EPP throughout the project to include any reporting requirements, changes in site conditions, or contract modifications that change the project scope of work in a way that could have an environmental impact. No requirement in this section will relieve the Contractor of any applicable federal, state, and local environmental protection laws and regulations. During Construction, identify, implement, and submit for approval any additional requirements to be included in the EPP. Maintain the current version onsite.

The EPP includes, but is not limited to, the following elements:

1.7.1 General Overview and Purpose

1.7.1.1 Descriptions

A brief description of each specific plan required by environmental permit or elsewhere in this Contract.

1.7.1.2 Duties

The duties and level of authority assigned to the person(s) on the job site who oversee environmental compliance, such as who is responsible for adherence to the EPP, who is responsible for spill cleanup and training personnel on spill response procedures, who is responsible for manifesting hazardous waste to be removed from the site (if applicable), and who is responsible for training the Contractor's environmental protection personnel.

1.7.1.3 Procedures

A copy of any standard or project-specific operating procedures that will be used to effectively manage and protect the environment on the project site.

1.7.1.4 Communications

Communication and training procedures that will be used to convey environmental management requirements to Contractor employees and subcontractors.

1.7.1.5 Contact Information

Emergency contact information contact information (office phone number, cell phone number, and e-mail address).

1.7.2 General Site Information

1.7.2.1 Drawings

Drawings showing locations of proposed temporary excavations or embankments for haul roads, stream crossings, jurisdictional wetlands, material storage areas, structures, sanitary facilities, storm drains and conveyances, and stockpiles of excess soil.

1.7.2.2 Work Area

Work area plan showing the proposed activity in each portion of the area and identify the areas of limited use or nonuse. Include measures for marking the limits of use areas, including methods for protection of features to be preserved within authorized work areas and methods to control runoff and to contain materials on site, and a traffic control plan.

Show where any fuels, hazardous substances, solvents, or lubricants will be stored. Provide a spill plan to address any releases of those materials.

1.7.3 Management of Natural Resources

a. Land resources

b. Tree protection

c. Replacement of damaged landscape features

d. Temporary construction

e. Stream crossings

f. Fish and wildlife resources

g. Wetland areas

1.7.4 Protection of Historical and Archaeological Resources

a. Objectives

b. Methods

1.7.5 Stormwater Management and Control

a. Ground cover

b. Erodible soils

c. Temporary measures

(1) Structural Practices

(2) Temporary and permanent stabilization

d. Effective selection, implementation and maintenance of Best Management Practices (BMPs).

e. Stormwater Pollution Prevention Plan (SWPPP).

1.7.6 Protection of the Environment from Waste Derived from Contractor Operations

This item consists of the management procedures for hazardous waste to be generated. The elements of those procedures will coincide with the Installation Hazardous Waste Management Plan when within an installation. The Contracting Officer will provide a copy of the Installation Hazardous Waste Management Plan as applicable.

As a minimum, include the following:

a. List of the types of hazardous wastes expected to be generated

b. Procedures to ensure a written waste determination is made for appropriate wastes that are to be generated

c. Sampling/analysis plan, including laboratory method(s) that will be used for waste determinations and copies of relevant laboratory certifications

d. Methods and proposed locations for hazardous waste accumulation/storage (that is, in tanks or containers)

e. Management procedures for storage, labeling, transportation, and disposal of waste (treatment of waste is not allowed unless specifically noted)

f. Management procedures and regulatory documentation ensuring disposal of hazardous waste complies with Land Disposal Restrictions (40 CFR 268)

g. Management procedures for recyclable hazardous materials such as lead-acid batteries, used oil, and similar

h. Used oil management procedures in accordance with 40 CFR 279; Hazardous waste minimization procedures

i. Plans for the disposal of hazardous waste by permitted facilities; and Procedures to be employed to ensure required employee training records are maintained.

1.7.7 Prevention of Releases to the Environment

Procedures to prevent releases to the environment

Notifications in the event of a release to the environment

1.7.8 Regulatory Notification and Permits

List what notifications and permit applications must be made. Some permits require up to 180 days to obtain. Demonstrate that those permits have been obtained or applied for by including copies of applicable environmental permits. The EPP will not be approved until the permits have been obtained.

1.7.9 Clean Air Act Compliance

1.7.9.1 Environmental Protection Plan

An Air Pollution Control Plan detailing provisions to assure that dust, debris, materials, trash, do not become airborne and travel off the project site. The air pollution control plan must include a dust control plan. Air pollution control must comply with s. NR 415, Wis. Adm. Code.

1.7.9.2 Haul Route

Submit truck and material haul routes along with a Dirt and Dust Control Plan for controlling dirt, debris, and dust on Installation roadways. As a minimum, identify in the plan the subcontractor and equipment for cleaning along the haul route and measures to reduce dirt, dust, and debris from roadways.

1.7.9.3 Pollution Generating Equipment

Identify air pollution generating equipment or processes that may require federal, state, or local permits under the Clean Air Act. Determine requirements based on any current installation permits and the impacts of the project. Provide a list of all fixed or mobile equipment, machinery or operations that could generate air emissions during the project to the

Installation Environmental Office (Air Program Manager). Ensure required permits are obtained prior to installing and operating applicable equipment/processes.

1.7.9.4 Stationary Internal Combustion Engines

Identify portable and stationary internal combustion engines that will be supplied, used or serviced. Comply with 40 CFR 60 Subpart IIII, 40 CFR 60 Subpart JJJJ, 40 CFR 63 Subpart ZZZZ, and local regulations as applicable. At minimum, include the make, model, serial number, manufacture date, size (engine brake horsepower), and EPA emission certification status of each engine. Maintain applicable records and log hours of operation and fuel use. Logs must include reasons for operation and delineate between maintenance/testing, emergency, and non-emergency operation.

1.7.9.5 Refrigerants

Identify management practices to ensure that heating, ventilation, and air conditioning (HVAC) work involving refrigerants complies with 40 CFR 82 requirements. Technicians must be certified, maintain copies of certification on site, use certified equipment and log work that requires the addition or removal of refrigerant. Any refrigerant reclaimed is the property of the Government, coordinate with the Installation Environmental Office to determine the appropriate turn in location.

1.7.9.6 Air Pollution-engineering Processes

Identify planned air pollution-generating processes and management control measures (including, but not limited to, spray painting, abrasive blasting, demolition, material handling, fugitive dust, and fugitive emissions). Log hours of operations and track quantities of materials used.

1.7.9.7 Compliant Materials

Provide the Government a list of SDSs for all hazardous materials proposed for use on site. Materials must be compliant with all Clean Air Act regulations for emissions including solvent and volatile organic compound contents, and applicable National Emission Standards for Hazardous Air Pollutants requirements. The Government may alter or limit use of specific materials as needed to meet installation permit requirements for emissions.

1.8 LICENSES AND PERMITS

Obtain licenses and permits required for the construction of the project and in accordance with FAR 52.236-7 Permits and Responsibilities. Notify the Government of all equipment that may require permits or special approvals that the Contractor plans to use on site. This paragraph supplements the Contractor's responsibility under FAR 52.236-7 Permits and Responsibilities.

1.9 ENVIRONMENTAL RECORDS BINDER

Maintain on-site a separate three-ring Environmental Records Binder and submit at the completion of the project. Make separate parts within the binder that correspond to each submittal listed under paragraph CLOSEOUT SUBMITTALS in this section.

1.10 PESTICIDE DELIVERY, STORAGE, AND HANDLING

1.10.1 Delivery and Storage

Deliver pesticides to the site in the original, unopened containers bearing legible labels indicating the EPA registration number and the manufacturer's registered uses. Store pesticides according to manufacturer's instructions and under lock and key when unattended.

1.10.2 Handling Requirements

Formulate, treat with, and dispose of pesticides and associated containers in accordance with label directions and use the clothing and personal protective equipment specified on the labeling for use during each phases of the application. Furnish SDSs for pesticide products.

1.11 SOLID WASTE MANAGEMENT PERMIT

Provide the Contracting Officer with written notification of the quantity of anticipated solid waste or debris that is anticipated or estimated to be generated by construction. Include in the report the locations where various types of waste will be disposed or recycled. Include letters of acceptance from the receiving location or as applicable; submit one copy of the receiving location state and local Solid Waste Management Permit or license showing such agency's approval of the disposal plan before transporting wastes off Government property.

1.11.1 Monthly Solid Waste Disposal Report

Monthly, submit a solid waste disposal report to the Contracting Officer. For each waste, the report will state the classification (using the definitions provided in this section), amount, location, and name of the business receiving the solid waste.

1.12 FACILITY HAZARDOUS WASTE GENERATOR STATUS

Meet the regulatory requirements of this generator designation for any work conducted within the boundaries of this Installation. Comply with provisions of federal, state, and local regulatory requirements applicable to this generator status regarding training and storage, handling, and disposal of construction derived wastes.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

3.1 PROTECTION OF NATURAL RESOURCES

Minimize interference with, disturbance to, and damage to fish, wildlife, and plants, including their habitats. Prior to the commencement of activities, consult with the Installation Environmental Office as applicable, regarding rare species or sensitive habitats that need to be protected. The protection of rare, threatened, and endangered animal and plant species identified, including their habitats, is the Contractor's responsibility.

Preserve the natural resources within the project boundaries and outside the limits of permanent work. Restore to an equivalent or improved condition upon completion of work that is consistent with the requirements of the Installation Environmental Office or as otherwise specified. Confine construction activities to within the limits of the work indicated or specified.

3.1.1 Flow Ways

Do not alter water flows or otherwise significantly disturb the native habitat adjacent to the project and critical to the survival of fish and wildlife, except as specified and permitted.

3.1.2 Vegetation

Except in areas to be cleared, do not remove, cut, deface, injure, or destroy trees or shrubs without the Contracting Officer's permission. Do not fasten or attach ropes, cables, or guys to existing nearby trees for anchorages unless authorized by the Contracting Officer. Where such use of attached ropes, cables, or guys is authorized, the Contractor is responsible for any resultant damage.

Protect existing trees and critical root zones (CRZ) that are to remain to ensure they are not injured, bruised, defaced, or otherwise damaged by construction operations. Remove displaced rocks from uncleared areas. Coordinate with the Contracting Officer and Installation Environmental Office to determine appropriate action for trees and other landscape features scarred or damaged by equipment operations.

3.1.3 Streams

Stream crossings must allow movement of materials or equipment without violating water pollution control standards of the federal, state, and local governments. Construction of stream crossing structures must be in compliance with all required permits including, but not limited to, Clean Water Act Section 404, and Section 401 Water Quality.

The Contracting Officer's approval and appropriate permits are required before any equipment will be permitted to ford live streams. In areas where frequent crossings are required, install temporary culverts or bridges. Obtain Contracting Officer's approval prior to installation. Remove temporary culverts or bridges upon completion of work, and repair the area to its original condition unless otherwise required by the Contracting Officer.

3.2 STORMWATER

Do not discharge stormwater from construction sites to the sanitary sewer. If the water is noted or suspected of being contaminated, it may only be released to the storm drain system if the discharge is specifically permitted. Obtain authorization in advance from the Installation Environmental Office for any release of contaminated water.

3.2.1 Construction General Permit

Provide a Construction General Permit as required by 40 CFR 122.26 or the State of North Carolina General Permit. Under the terms and conditions of the permit, install, inspect, maintain BMPs, prepare stormwater erosion and sediment control inspection reports, and submit SWPPP inspection

reports. Maintain construction operations and management in compliance with the terms and conditions of the general permit for stormwater discharges from construction activities.

3.2.1.1 Stormwater Pollution Prevention Plan

Submit a project-specific Stormwater Pollution Prevention Plan (SWPPP) to the Contracting Officer for approval, prior to the commencement of work. The SWPPP must meet the requirements of 40 CFR 122.26 and the North Carolina State General Permit for stormwater discharges from construction sites.

Include the following:

a. Comply with terms of the state general permit for stormwater discharges from construction activities. Prepare SWPPP in accordance with state requirements.

b. Select applicable BMPs from EPA Fact Sheets located at https://www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater#constr or in accordance with applicable state or local requirements.

c. Include a completed copy of the Notice of Intent, BMP Inspection Report Template, and Stormwater Notice of Termination, except for the effective date.

3.2.1.2 Stormwater Notice of Intent for Construction Activities

Submit the approved NOI and appropriate permit fees onto the appropriate federal or state agency for approval. No land disturbing activities may commence without permit coverage. Maintain an approved copy of the SWPPP at the onsite construction office, and continually update as regulations require, reflecting current site conditions.

Comply with additional state and local requirements.

3.2.1.3 Inspection Reports

Submit "Inspection Reports" to the Contracting Officer in accordance with the State of North Carolina Construction General Permit.

3.2.1.4 Stormwater Pollution Prevention Plan Compliance Notebook

Create and maintain a three ring binder of documents that demonstrate compliance with the Construction General Permit. Include a copy of the permit Notice of Intent, proof of permit fee payment, SWPPP and SWPPP update amendments, inspection reports and related corrective action records, copies of correspondence with the the North Carolina State Permitting Agency, and a copy of the permit Notice of Termination in the binder. At project completion, the notebook becomes property of the Government. Provide the compliance notebook to the Contracting Officer.

3.2.1.5 Stormwater Notice of Termination for Construction Activities

Submit a Notice of Termination to the Contracting Officer for approval once construction is complete and final stabilization has been achieved on all portions of the site for which the permittee is responsible. Once approved, submit the Notice of Termination to the appropriate state or

federal agency. Prepare as-built topographic survey information required by the permitting agency for certification of the stormwater management system, and provide to the Contracting Officer.

3.2.2 Erosion and Sediment Control Measures

Provide erosion and sediment control measures in accordance with state and local laws and regulations. Preserve vegetation to the maximum extent practicable.

The Contractor's best management practices must also be in accordance with the State of Illinois National Pollutant Discharge Elimination System (NPDES) Storm Water Pollution Prevention requirements. Any temporary measures must be removed after the area has been stabilized.

The Contractor will be responsible for providing erosion and sediment control measures in accordance with Federal, State, and local laws and regulations. The erosion and sediment controls selected and maintained by the Contractor must be such that water quality standards are not violated as a result of the Contractor's construction activities. The area of bare soil exposed at any one time by construction operations should be kept to a minimum. The Contractor must construct or install temporary and permanent erosion and sediment control best management practices (BMPs). BMPs may include, but not be limited to, vegetation cover, stream bank stabilization, slope stabilization, silt fences, construction of terraces, interceptor channels, sediment traps, inlet and outfall protection, diversion channels, and sedimentation basins. The Contractor's best management practices must also be in accordance with the State of Indiana National Pollutant Discharge Elimination System (NPDES) Storm Water Pollution Prevention requirements. Any temporary measures must be removed after the area has been stabilized.

The Contractor will be responsible for providing erosion and sediment control measures in accordance with Federal, State, and local laws and regulations. The erosion and sediment controls selected and maintained by the Contractor must be such that water quality standards are not violated as a result of the Contractor's construction activities. The area of bare soil exposed at any one time by construction operations should be kept to a minimum. The Contractor must construct or install temporary and permanent erosion and sediment control best management practices (BMPs). BMPs may include, but not be limited to, vegetation cover, stream bank stabilization, slope stabilization, silt fences, construction of terraces, interceptor channels, sediment traps, inlet and outfall protection, diversion channels, and sedimentation basins. The Contractor's best management practices must also be in accordance with the State of Wisconsin National Pollutant Discharge Elimination System (NPDES) Storm Water Pollution Prevention requirements. Any temporary measures must be removed after the area has been stabilized.

Erosion control inspection reports may be compiled as part of a stormwater pollution prevention plan inspection reports.

3.2.3 Work Area Limits

Mark the areas that need not be disturbed under this Contract prior to commencing construction activities. Mark or fence isolated areas within the general work area that are not to be disturbed. Protect monuments and markers before construction operations commence. Where construction operations are to be conducted during darkness, all markers must be

visible in the dark. Personnel must be knowledgeable of the purpose for marking and protecting particular objects.

3.2.4 Contractor Facilities and Work Areas

Place field offices, staging areas, stockpile storage, and temporary buildings in areas designated on the drawings or as directed by the Contracting Officer. Move or relocate the Contractor facilities only when approved by the Government. Provide erosion and sediment controls for onsite borrow and spoil areas to prevent sediment from entering nearby waters. Control temporary excavation and embankments for plant or work areas to protect adjacent areas.

3.2.5 Municipal Separate Storm Sewer System (MS4) Management

Comply with the Installation's MS4 permit requirements. Comply with local requirements.

3.3 SURFACE AND GROUNDWATER

3.3.1 Cofferdams, Diversions, and Dewatering

Construction operations for dewatering, removal of cofferdams, tailrace excavation, and tunnel closure must be constantly controlled to maintain compliance with existing state water quality standards and designated uses of the surface water body. Comply with the State of North Carolina water quality standards and anti-degradation provisions. Do not discharge excavation ground water to the sanitary sewer, storm drains, or to surface waters without prior specific authorization in writing from the Installation Environmental Office or Contracting Officer. Discharge of hazardous substances will not be permitted under any circumstances. Use sediment control BMPs to prevent construction site runoff from directly entering any storm drain or surface waters.

The Contractors diversions and dewatering operations must comply with the state of Illinois water quality standards and anti-degradation provisions, Section 404 of the Clean Water Act, and the Section 401 Water Quality Certification for this project.

All construction dewatering effluent must be treated prior to discharge. All construction dewaterting effluent must be anticipated to be PFAS impacted and sampled, tested, and treated to no-detect levels. Discharge of hazardous substances will not be permitted under any circumstances.

3.3.2 Waters of the United States

Do not enter, disturb, destroy, or allow discharge of contaminants into waters of the United States.

3.3.3 Stream Crossings

Comply with the State of Illinois water quality standards and anti-degradation provisions, Section 404 of the Clean Water Act, and the Section 401 Water Quality Certification for construction of stream crossing for this project.

3.4 PROTECTION OF CULTURAL RESOURCES

3.4.1 Archaeological Resources

Existing archaeological resources within the work area are shown on the drawings. Protect these resources and be responsible for their preservation during the life of the Contract. If, during excavation or other construction activities, any previously unidentified or unanticipated historical, archaeological, and cultural resources are discovered or found, activities that may damage or alter such resources will be suspended. Resources covered by this paragraph include, but are not limited to: any human skeletal remains or burials; artifacts; shell, midden, bone, charcoal, or other deposits; rock or coral alignments, pavings, wall, or other constructed features; and any indication of agricultural or other human activities. Upon such discovery or find, immediately notify the Contracting Officer so that the appropriate authorities may be notified and a determination made as to their significance and what, if any, special disposition of the finds should be made. Cease all activities that may result in impact to or the destruction of these resources. Secure the area and prevent employees or other persons from trespassing on, removing, or otherwise disturbing such resources. The Government retains ownership and control over archaeological resources.

3.5 AIR RESOURCES

Equipment operation, activities, or processes will be in accordance with 40 CFR 64 and state air emission and performance laws and standards.

3.5.1 Preconstruction Air Permits

Notify the Air Program Manager, through the Contracting Officer, at least 6 months prior to bringing equipment, assembled or unassembled, onto the Installation, so that air permits can be secured. Necessary permitting time must be considered in regard to construction activities. Clean Air Act (CAA) permits must be obtained prior to bringing equipment, assembled or unassembled, onto the Installation.

Confirm that these permits have been obtained.

3.5.2 Oil or Dual-fuel Boilers and Furnaces

Provide product data and details for new, replacement, or relocated fuel fired boilers, heaters, or furnaces to the Installation Environmental Office (Air Program Manager) through the Contracting Officer. Data to be reported include: equipment purpose (water heater, building heat, process), manufacturer, model number, serial number, fuel type (oil type, gas type) size (MMBTU heat input). Provide in accordance with paragraph PRECONSTRUCTION AIR PERMITS.

3.5.3 Burning

Burning is prohibited on the Government premises.

3.5.4 Class I and II ODS Prohibition

Class I and II ODS are Government property and must be returned to the Government for appropriate management. Coordinate with the Installation Environmental Office to determine the appropriate location for turn in of

all reclaimed refrigerant.

3.5.5 Venting of Refrigerant

Accidental venting of a refrigerant is a release and must be reported immediately to the Contracting Officer. Intentional venting of refrigerants (including most Non-ODS substitute refrigerants) is prohibited per 40 CFR 82.

3.5.6 EPA Certification Requirements

Heating and air conditioning technicians must be certified through an EPA-approved program. Maintain copies of certifications at the employees' places of business; technicians must carry certification wallet cards, as provided by environmental law.

3.5.7 Dust Control

Keep dust down at all times, including during nonworking periods. Sprinkle or treat, with dust suppressants, the soil at the site, haul roads, and other areas disturbed by operations. Dry power brooming will not be permitted. Instead, use vacuuming, wet mopping, wet sweeping, or wet power brooming. Air blowing will be permitted only for cleaning nonparticulate debris such as steel reinforcing bars. Only wet cutting will be permitted for cutting concrete blocks, concrete, and bituminous concrete. Do not unnecessarily shake bags of cement, concrete mortar, or plaster. Since these products contain Crystalline Silica, comply with the applicable OSHA standard, 29 CFR 1910.1053 or 29 CFR 1926.1153 for controlling exposure to Crystalline Silica Dust.

3.5.7.1 Particulates

Dust particles, aerosols and gaseous by-products from construction activities, and processing and preparation of materials (such as from asphaltic batch plants) must be controlled at all times, including weekends, holidays, and hours when work is not in progress. Maintain excavations, stockpiles, haul roads, permanent and temporary access roads, plant sites, spoil areas, borrow areas, and other work areas within or outside the project boundaries free from particulates that would exceed 40 CFR 50, state, and local air pollution standards or that would cause a hazard or a nuisance. Sprinkling, chemical treatment of an approved type, baghouse, scrubbers, electrostatic precipitators, or other methods will be permitted to control particulates in the work area. Sprinkling, to be efficient, must be repeated to keep the disturbed area damp. Provide sufficient, competent equipment available to accomplish these tasks. Perform particulate control as the work proceeds and whenever a particulate nuisance or hazard occurs. Comply with state and local visibility regulations.

3.5.7.2 Abrasive Blasting

Blasting operations cannot be performed without prior approval of the Installation Air Program Manager. The use of silica sand is prohibited in sandblasting.

Provide tarpaulin drop cloths and windscreens to enclose abrasive blasting operations to confine and collect dust, abrasive agent, paint chips, and other debris. Perform work involving removal of hazardous material in accordance with 29 CFR 1910.

3.5.8 Odors

Control odors from construction activities. The odors must be in compliance with state regulations and local ordinances and may not constitute a health hazard.

Odors must be controlled at all times. The odors must not cause a health hazard and must be in compliance with State of Indiana regulations and ordinances.

Odors must be controlled at all times. The odors must not cause a health hazard and must be in compliance with State of Wisconsin regulations and local ordinances.

3.6 WASTE MINIMIZATION

Minimize the use of hazardous materials and the generation of waste. Include procedures for pollution prevention/ hazardous waste minimization in the Hazardous Waste Management Section of the EPP. Obtain a copy of the installation's Pollution Prevention/Hazardous Waste Minimization Plan for reference material when preparing this part of the EPP. If no written plan exists, obtain information by contacting the Contracting Officer. Describe the anticipated types of the hazardous materials to be used in the construction when requesting information.

3.6.1 Salvage, Reuse and Recycle

Identify anticipated materials and waste for salvage, reuse, and recycling. Describe actions to promote material reuse, resale or recycling. To the extent practicable, all scrap metal must be sent for reuse or recycling and will not be disposed of in a landfill.

Include the name, physical address, and telephone number of the hauler, if transported by a franchised solid waste hauler. Include the destination and, unless exempted, provide a copy of the state or local permit (cover) or license for recycling.

3.6.2 Nonhazardous Solid Waste Diversion Report

Maintain an inventory of nonhazardous solid waste diversion and disposal of construction and demolition debris. Submit a report to the Contracting Officer on the first working day after each fiscal year quarter, starting the first quarter that nonhazardous solid waste has been generated. Include the following in the report:

Construction and Demolition (C&D) Debris Disposed	cubic yards as appropriate
C&D Debris Recycled	cubic yards as appropriate
C&D Debris Composted	cubic yards as appropriate
Total C&D Debris Generated	cubic yards as appropriate

Construction and Demolition (C&D) Debris Disposed	cubic yards as appropriate
Waste Sent to Waste-To-Energy Incineration Plant (This amount should not be included in the recycled amount)	cubic yards as appropriate

3.7 WASTE MANAGEMENT AND DISPOSAL

3.7.1 Waste Determination Documentation

Complete a Waste Determination form (provided at the pre-construction conference) for Contractor-derived wastes to be generated. All potentially hazardous solid waste streams that are not subject to a specific exclusion or exemption from the hazardous waste regulations (e.g., scrap metal, domestic sewage) or subject to special rules, (lead-acid batteries and precious metals) must be characterized in accordance with the requirements of 40 CFR 262.11 or corresponding applicable state or local regulations. Base waste determination on user knowledge of the processes and materials used, and analytical data when necessary. Consult with the Installation environmental staff for guidance on specific requirements. Attach support documentation to the Waste Determination form. As a minimum, provide a Waste Determination form for the following waste (this listing is not exhaustive): oil- and latex -based painting and caulking products, solvents, adhesives, aerosols, petroleum products, and containers of the original materials.

3.7.1.1 Sampling and Analysis of Waste

3.7.1.1.1 Waste Sampling

Sample waste in accordance with EPA SW-846. Clearly mark each sampled drum or container with the Contractor's identification number, and cross reference to the chemical analysis performed.

3.7.1.1.2 Laboratory Analysis

Follow the analytical procedure and methods in accordance with the 40 CFR 261. Provide analytical results and reports performed to the Contracting Officer. Coordinate all activities with Installation Hazardous Waste Manager.

3.7.1.1.3 Analysis Type

Identify hazardous waste by analyzing for the following characteristics: ignitability, corrosivity, reactivity, toxicity based on TCLP results.

3.7.2 Solid Waste Management

3.7.2.1 Project Solid Waste Disposal Documentation Report

Provide copies of the waste handling facilities' weight tickets, receipts, bills of sale, and other sales documentation. In lieu of sales documentation, a statement indicating the disposal location for the solid waste that is signed by an employee authorized to legally obligate or bind the firm may be submitted. The sales documentation Contractor

certification must include the receiver's tax identification number and business, EPA or state registration number, along with the receiver's delivery and business addresses and telephone numbers. For each solid waste retained for the Contractor's own use, submit the information previously described in this paragraph on the solid waste disposal report. Prices paid or received do not have to be reported to the Contracting Officer unless required by other provisions or specifications of this Contract or public law.

3.7.2.2 Control and Management of Solid Wastes

Pick up solid wastes, and place in covered containers that are regularly emptied. Do not prepare or cook food on the project site. Prevent contamination of the site or other areas when handling and disposing of wastes. At project completion, leave the areas clean. Employ segregation measures so that no hazardous or toxic waste will become co-mingled with non-hazardous solid waste. Transport solid waste off Government property and dispose of it in compliance with 40 CFR 260, state, and local requirements for solid waste disposal. A Subtitle D RCRA permitted landfill is the minimum acceptable offsite solid waste disposal option. Verify that the selected transporters and disposal facilities have the necessary permits and licenses to operate. Solid waste disposal offsite must comply with most stringent local, state, and federal requirements, including 40 CFR 241, 40 CFR 243, and 40 CFR 258.

Manage hazardous material used in construction, including but not limited to, aerosol cans, waste paint, cleaning solvents, contaminated brushes, and used rags, in accordance with 49 CFR 173.

3.7.3 Control and Management of Hazardous Waste

Do not dispose of hazardous waste on Government property. Do not discharge any waste to a sanitary sewer, storm drain, or to surface waters or conduct waste treatment or disposal on Government property without written approval of the Contracting Officer and Installation Hazardous Waste Manager.

3.7.3.1 Hazardous Waste/Debris Management

Identify construction activities that will generate hazardous waste or debris. Provide a documented waste determination for resultant waste streams. Identify, label, handle, store, and dispose of hazardous waste or debris in accordance with federal, state, and local regulations, including 40 CFR 261, 40 CFR 262, 40 CFR 263, 40 CFR 264, 40 CFR 265, 40 CFR 266, and 40 CFR 268.

Manage hazardous waste in accordance with the approved Hazardous Waste Management Section of the EPP. Store hazardous wastes in approved containers in accordance with 49 CFR 173 and 49 CFR 178. Hazardous waste generated within the confines of Government facilities is identified as being generated by the Government. Prior to removal of any hazardous waste from Government property, hazardous waste manifests must be signed by personnel from the Installation Environmental Office. Do not bring hazardous waste onto Government property. Provide the Contracting Officer with a copy of waste determination documentation for any solid waste streams that have any potential to be hazardous waste or contain any chemical constituents listed in 40 CFR 372-SUBPART D.

3.7.3.2 Waste Storage/Satellite Accumulation/90 Day Storage Areas

Accumulate hazardous waste at satellite accumulation points and in compliance with 40 CFR 262 and applicable state or local regulations. Individual waste streams will be limited to 55 gallons of accumulation (or one quart for acutely hazardous wastes). If the Contractor expects to generate hazardous waste at a rate and quantity that makes satellite accumulation impractical, the Contractor may request a temporary 90-day or 180-day, as appropriate, accumulation point be established. Submit a request in writing to the Contracting Officer and provide the following information (Attach Site Plan to the Request):

Contract Number	
Contractor	
Haz/Waste or Regulated Waste POC	
Phone Number	
Type of Waste	
Source of Waste	
Emergency POC	
Phone Number	
Location of the Site	

Attach a Waste Determination form for the expected waste streams. Allow 10 working days for processing this request. Additional compliance requirements (e.g., training and contingency planning) that may be required are the responsibility of the Contractor. Barricade the designated area where waste is being stored and post a sign identifying as follows:

"DANGER - UNAUTHORIZED PERSONNEL KEEP OUT"

3.7.3.3 Hazardous Waste Disposal

3.7.3.3.1 Responsibilities for Contractor's Disposal

Provide hazardous waste manifest to the Installations Environmental Office for review, approval, and signature prior to shipping waste off Government property.

3.7.3.3.1.1 Services

Provide service necessary for the final treatment or disposal of the hazardous material or waste in accordance with 40 CFR 260 - 40 CFR 279, local, and state, laws and regulations, and the terms and conditions of the Contract within 60 days after the materials have been generated. These services include necessary personnel, labor, transportation, packaging, detailed analysis (if required for disposal or transportation, include manifesting or complete waste profile sheets, equipment, and compile documentation).

3.7.3.3.1.2 Samples

Obtain a representative sample of the material generated for each job done to provide waste stream determination.

3.7.3.3.1.3 Analysis

Analyze each sample taken and provide analytical results to the Contracting Officer. See paragraph WASTE DETERMINATION DOCUMENTATION.

3.7.3.3.1.4 Labeling

During waste accumulation label all containers in accordance with 40 CFR 262. Prior to offering a waste for off-site transport, determine the Department of Transportation's (DOT's) proper shipping names for waste in accordance with 49 CFR 172 (each container requiring disposal) and demonstrate to the Contracting Officer how this determination is developed and supported by the sampling and analysis requirements contained herein. Label all containers of hazardous waste with the words "Hazardous Waste" or other words to describe the contents of the container in accordance with 40 CFR 262 and applicable state or local regulations.

3.7.3.3.2 Contractor Disposal Turn-In Requirements

Hazardous waste generated must be disposed of in accordance with the following conditions to meet installation requirements:

a. Drums must be compatible with waste contents and drums must meet DOT requirements for 49 CFR 173 for transportation of materials.

b. Band drums to wooden pallets.

c. No more than three 55 gallon drums or two 85 gallon over packs are to be banded to a pallet.

d. Band using 1-1/4 inch minimum band on upper third of drum.

e. Provide label in accordance with 49 CFR 172.101.

f. Leave 3 to 5 inches of empty space above volume of material.

3.7.3.4 Universal Waste Management

Manage the following categories of universal waste in accordance with federal, state, and local requirements and installation instructions:

a. Batteries as described in 40 CFR 273.2

b. Lamps as described in 40 CFR 273.5

c. Mercury-containing equipment as described in 40 CFR 273.4

d. Aerosol cans as described in 40 CFR 273.6

e. Pesticides as described in 40 CFR 273.3

e. Installation specific

Mercury is prohibited in the construction of this facility, unless

specified otherwise, and with the exception of mercury vapor lamps and fluorescent lamps. Dumping of mercury-containing materials and devices such as mercury vapor lamps, fluorescent lamps, and mercury switches, in rubbish containers is prohibited. Remove without breaking, pack to prevent breakage, and transport out of the activity in an unbroken condition for disposal as directed.

3.7.3.5 Electronics End-of-Life Management

Recycle or dispose of electronics waste, including, but not limited to, used electronic devices such computers, monitors, hard-copy devices, televisions, mobile devices, in accordance with 40 CFR 260-262, state, and local requirements, and installation instructions.

3.7.3.6 Disposal Documentation for Hazardous and Regulated Waste

Contact the Contracting Officer or designated representative for the facility RCRA identification number that is to be used on each manifest.

Submit a copy of the applicable EPA and or state permit(s), manifest(s), or license(s) for transportation, treatment, storage, and disposal of hazardous and regulated waste by permitted facilities. Hazardous or toxic waste manifests must be reviewed, signed, and approved by the Contracting Officer before the Contractor may ship waste. To obtain specific disposal instructions, coordinate with the Installation Environmental Office. Refer to location special requirements for the Installation Point of Contact information.

3.7.4 Releases/Spills of Oil and Hazardous Substances

3.7.4.1 Response and Notifications

Exercise due diligence to prevent, contain, and respond to spills of hazardous material, hazardous substances, hazardous waste, sewage, regulated gas, petroleum, lubrication oil, and other substances regulated in accordance with 40 CFR 300. Maintain spill cleanup equipment and materials at the work site. In the event of a spill, take prompt, effective action to stop, contain, curtail, or otherwise limit the amount, duration, and severity of the spill/release. In the event of any releases of oil and hazardous substances, chemicals, or gases; immediately (within 15 minutes) notify the Installation Fire Department, the Installation Command Duty Officer, the Installation Environmental Office, the Contracting Officer and the state or local authority.

Submit verbal and written notifications as required by the federal (40 CFR 300.125 and 40 CFR 355), state, local regulations and instructions. Provide copies of the written notification and documentation that a verbal notification was made within 20 days. Spill response must be in accordance with 40 CFR 300 and applicable state and local regulations. Contain and clean up these spills without cost to the Government.

3.7.4.2 Clean Up

Clean up hazardous and non-hazardous waste spills. Reimburse the Government for costs incurred including sample analysis materials, clothing, equipment, and labor if the Government will initiate its own spill cleanup procedures, for Contractor- responsible spills, when: Spill cleanup procedures have not begun within one hour of spill

discovery/occurrence; or, in the Government's judgment, spill cleanup is inadequate and the spill remains a threat to human health or the environment.

3.7.5 Mercury Materials

Immediately report to the Environmental Office and the Contracting Officer instances of breakage or mercury spillage. Clean mercury spill area to the satisfaction of the Contracting Officer.

Do not recycle a mercury spill cleanup; manage it as a hazardous waste for disposal.

3.7.6 Wastewater

3.7.6.1 Disposal of Wastewater

Disposal of wastewater must be as specified below.

3.7.6.1.1 Treatment

Do not allow wastewater from construction activities, such as onsite material processing, concrete curing, foundation and concrete clean-up, water used in concrete trucks, and forms to enter water ways or to be discharged into the stormwater system or sanitary sewer system.. Dispose of the construction- related waste water off-Government property in accordance with 40 CFR 403, state, regional, and local laws and Prior to disposal, submit a WIS to the Installation Environmental Office and have the results reviewed and approved by the Contracting Officer prior to being discharged or disposed of off- Government property.

3.7.6.1.2 Surface Discharge

Surface discharge in accordance with federal, state, and local laws and regulations.

3.7.6.1.3 Land Application

Water generated from the flushing of lines after hydrostatic testing must be land- applied in accordance with federal, state, and local laws and regulations for land application.

3.8 HAZARDOUS MATERIAL MANAGEMENT

Include hazardous material control procedures in the Accident Prevention Plan (APP), in accordance with Section 01 35 26 GOVERNMENTAL SAFETY REQUIREMENTS. Address procedures and proper handling of hazardous materials, including the appropriate transportation requirements. Do not bring hazardous material onto Government property that does not directly relate to requirements for the performance of this contract. Submit an SDS and estimated quantities to be used for each hazardous material to the Contracting Officer prior to bringing the material on the installation. Typical materials requiring SDS and quantity reporting include, but are not limited to, oil and latex based painting and caulking products, solvents, adhesives, aerosol, and petroleum products. Use hazardous materials in a manner that minimizes the amount of hazardous waste generated. Containers of hazardous materials must have National Fire Protection Association labels or their equivalent. Certify that hazardous materials removed from the site are hazardous materials and do not meet

the definition of hazardous waste, in accordance with 40 CFR 261 and state and installation requirements.

3.8.1 Contractor Hazardous Material Inventory Log

Submit the "Contractor Hazardous Material Inventory Log"(found at: https://www.wbdg.org/dod/ufgs/forms-graphics-tables), which provides information required by (EPCRA Sections 312 and 313) along with corresponding SDS, to the Contracting Officer at the start and at the end of construction (30 days from final acceptance), and update no later than January 31 of each calendar year during the life of the contract. Keep copies of the SDSs for hazardous materials onsite. At the end of the project, provide the Contracting Officer with copies of the SDSs, and the maximum quantity of each material that was present at the site at any one time, the dates the material was present, the amount of each material that was used during the project, and how the material was used.

The Contracting Officer may request documentation for any spills or releases, environmental reports, or off-site transfers.

3.9 PREVIOUSLY USED EQUIPMENT

Clean previously used construction equipment prior to bringing it onto the project site. Equipment must be free from soil residuals, egg deposits from plant pests, noxious weeds, and plant seeds. Consult with the U.S. Department of Agriculture jurisdictional office for additional cleaning requirements.

3.10 CONTROL AND MANAGEMENT OF ASBESTOS-CONTAINING MATERIAL (ACM)

Manage and dispose of asbestos- containing waste in accordance with all applicable federal, state, and local requirements. Manifest asbestos-containing waste and provide the manifest to the Contracting Officer. Notifications to the regulatory authorities and Installation Air Program Manager are required before starting any asbestos work.

3.11 CONTROL AND MANAGEMENT OF LEAD-BASED PAINT (LBP)

Manage and dispose of lead-contaminated waste in accordance with 40 CFR 745. Manifest any lead-contaminated waste and provide the manifest to the Contracting Officer.

3.12 CONTROL AND MANAGEMENT OF POLYCHLORINATED BIPHENYLS (PCBs)

Manage and dispose of PCB-contaminated waste in accordance with 40 CFR 761.

3.13 CONTROL AND MANAGEMENT OF LIGHTING BALLAST AND LAMPS CONTAINING PCBs

Manage and dispose of contaminated waste in accordance with 40 CFR 761.

3.14 MILITARY MUNITIONS

In the event military munitions, as defined in 40 CFR 260, are discovered or uncovered, immediately stop work in that area and immediately inform the Contracting Officer.

3.15 PETROLEUM, OIL, LUBRICANT (POL) STORAGE AND FUELING

POL products include flammable or combustible liquids, such as gasoline, diesel, lubricating oil, used engine oil, hydraulic oil, mineral oil, and cooking oil. Store POL products and fuel equipment and motor vehicles in a manner that affords the maximum protection against spills into the environment. Manage and store POL products in accordance with EPA 40 CFR 112, and other federal, state, regional, and local laws and regulations. Use secondary containments, dikes, curbs, and other barriers, to prevent POL products from spilling and entering the ground, storm or sewer drains, stormwater ditches or canals, or navigable waters of the United States. Describe in the EPP (see paragraph ENVIRONMENTAL PROTECTION PLAN) how POL tanks and containers must be stored, managed, and inspected and what protections must be provided. Storage of oil, including fuel, on the project site is not allowed. Fuel must be brought to the project site each day that work is performed.

3.15.1 Used Oil Management

Manage used oil generated on site in accordance with 40 CFR 279. Determine if any used oil generated while onsite exhibits a characteristic of hazardous waste. Used oil containing 1,000 parts per million of solvents is considered a hazardous waste and disposed of at the Contractor's expense. Used oil mixed with a hazardous waste is also considered a hazardous waste. Dispose in accordance with paragraph HAZARDOUS WASTE DISPOSAL.

3.15.2 Oil Storage Including Fuel Tanks

Provide secondary containment and overfill protection for oil storage tanks. A berm used to provide secondary containment must be of sufficient size and strength to contain the contents of the tanks plus 5 inches freeboard for precipitation. Construct the berm to be impervious to oil for 72 hours that no discharge will permeate, drain, infiltrate, or otherwise escape before cleanup occurs. Use drip pans during oil transfer operations; adequate absorbent material must be onsite to clean up any spills and prevent releases to the environment. Cover tanks and drip pans during inclement weather. Provide procedures and equipment to prevent overfilling of tanks. If tanks and containers with an aggregate aboveground capacity greater than 1320 gallons will be used onsite (only containers with a capacity of 55 gallons or greater are counted), provide and implement a Spill Prevention Control and Countermeasure (SPCC) plan meeting the requirements of 40 CFR 112. Do not bring underground storage tanks to the installation for Contractor use during a project. Submit the SPCC plan to the Contracting Officer for approval.

Monitor and remove any rainwater that accumulates in open containment dikes or berms. Inspect the accumulated rainwater prior to draining from a containment dike to the environment, to determine there is no oil sheen present.

3.16 INADVERTENT DISCOVERY OF PETROLEUM-CONTAMINATED SOIL OR HAZARDOUS WASTES

If petroleum-contaminated soil, or suspected hazardous waste is found during construction that was not identified in the Contract documents, immediately notify the Contracting Officer. Do not disturb this material until authorized by the Contracting Officer.

3.17 PEST MANAGEMENT

In order to minimize impacts to existing fauna and flora, coordinate with the Installation Pest Management Coordinator (IPMC) or Project Pesticide Coordinator (PPC), through the Contracting Officer, at the earliest possible time prior to pesticide application. Discuss integrated pest management strategies including prevention of invasive species as applicable with the IPMC and receive concurrence from the IPMC through the Contracting Officer prior to the application of any pesticide associated with these specifications. Provide Installation Project Office Pest Management personnel the opportunity to be present at meetings concerning treatment measures for pest or disease control and during application of the pesticide. The use and management of pesticides are regulated under 40 CFR 152 - 186.

3.17.1 Application

Apply pesticides using a state-certified pesticide applicator in accordance with EPA label restrictions and recommendation. The certified applicator must wear clothing and personal protective equipment as specified on the pesticide label. The Contracting Officer will designate locations for water used in formulating. Do not allow the equipment to overflow. Inspect equipment for leaks, clogging, wear, or damage and repair prior to application of pesticide.

3.17.2 Pesticide Treatment Plan

Include and update a pesticide treatment plan, as information becomes available. Include in the plan the sequence of treatment, dates, times, locations, pesticide trade name, EPA registration numbers, authorized uses, chemical composition, formulation, original and applied concentration, application rates of active ingredient (that is, pounds of active ingredient applied), equipment used for application and calibration of equipment. Comply with 40 CFR 152-189, state, regional, and local pest management record-keeping and reporting requirements as well as any additional Installation Project Office specific requirements in conformance with DA AR 200-1 Chapter 5, Pest Management, Section 5-4 "Program requirements" for data required to be reported to the Installation.

3.18 CHLORDANE

Evaluate excess soils and concrete foundation debris generated during the demolition of housing units or other wooden structures for the presence of chlordane or other pesticides prior to reuse or final disposal.

3.19 SOUND INTRUSION

Make the maximum use of low-noise emission products, as certified by the EPA. Blasting or use of explosives are not permitted without written permission from the Contracting Officer, and then only during the designated times. Confine pile-driving operations to the period between 8 a.m. and 4 p.m., Monday through Friday, exclusive of holidays, unless otherwise specified.

Keep construction activities under surveillance and control to minimize environment damage by noise. Comply with the provisions of the State of North Carolina rules.

Keep construction activities under surveillance and control to minimize environment damage by noise. Comply with the provisions of the State of Illinois rules given in 35 IAC 900-901.

3.20 POST CONSTRUCTION CLEANUP

Clean up areas used for construction in accordance with Contract Clause: "Cleaning Up". Unless otherwise instructed in writing by the Contracting Officer, remove traces of temporary construction facilities such as haul roads, work area, structures, foundations of temporary structures, stockpiles of excess or waste materials, and other vestiges of construction prior to final acceptance of the work. Grade parking area and similar temporarily used areas to conform with surrounding contours.

-- End of Section --

SECTION 01 74 19

CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL
02/19, CHG 3: 11/21

PART 1 GENERAL

1.1 DEFINITIONS

1.1.1 Co-mingle

The practice of placing unrelated materials together in a single container, usually for benefits of convenience and speed.

1.1.2 Construction Waste

Waste generated by construction activities, such as scrap materials, damaged or spoiled materials, temporary and expendable construction materials, and other waste generated by the workforce during construction activities.

1.1.3 Demolition Debris/Waste

Waste generated from demolition activities, including minor incidental demolition waste materials generated as a result of Intentional dismantling of all or portions of a building, to include clearing of building contents that have been destroyed or damaged.

1.1.4 Disposal

Depositing waste in a solid waste disposal facility, usually a managed landfill or incinerator, regulated in the US under the Resource Conservation and Recovery Act (RCRA).

1.1.5 Diversion

The practice of diverting waste from disposal in a landfill or incinerator, by means of eliminating or minimizing waste, or reuse of materials.

1.1.6 Final Construction Waste Diversion Report

A written assertion by a material recovery facility operator identifying constituent materials diverted from disposal, usually including summary tabulations of materials, weight in short-ton.

1.1.7 Recycling

The series of activities, including collection, separation, and processing, by which products or other materials are diverted from the solid waste stream for use in the form of raw materials in the manufacture of new products sold or distributed in commerce, or the reuse of such materials as substitutes for goods made of virgin materials, other than fuel.

1.1.8 Reuse

The use of a product or materials again for the same purpose, in its

original form or with little enhancement or change.

1.1.9 Salvage

Usable, salable items derived from buildings undergoing demolition or deconstruction, parts from vehicles, machinery, other equipment, or other components.

1.1.10 Source Separation

The practice of administering and implementing a management strategy to identify and segregate unrelated waste at the first opportunity.

1.2 CONSTRUCTION WASTE (INCLUDES DEMOLITION DEBRIS/WASTE)

Divert a minimum of 60 percent by weight of the project construction waste and demolition debris/waste from the landfill or incinerator. Follow applicable industry standards in the management of waste. Apply sound environmental principles in the management of waste. (1) Practice efficient waste management when sizing, cutting, and installing products and materials and (2) use all reasonable means to divert construction waste and demolition debris/waste from landfills and incinerators and to facilitate the recycling or reuse of excess construction materials.

1.3 CONSTRUCTION WASTE MANAGEMENT

Implement a Construction Waste Management Program for the project. Take a pro-active, responsible role in the management of construction waste, recycling process, disposal of demolition debris/waste, and require all subcontractors, vendors, and suppliers to participate in the Construction Waste Management Program. Establish a process for clear tracking, and documentation of construction waste and demolition debris/waste.

1.3.1 Implementation of Construction Waste Management Program

Develop and document how the Construction Waste Management Program will be implemented in a Construction Waste Management Plan. Submit a Construction Waste Management Plan to the Contracting Officer for approval. Construction waste and demolition debris/waste materials include un-used construction materials not incorporated in the final work, as well as demolition debris/waste materials from demolition activities or deconstruction activities. In the management of waste, consider the availability of viable markets, the condition of materials, the ability to provide material in suitable condition and in a quantity acceptable to available markets, and time constraints imposed by internal project completion mandates.

1.3.2 Oversight

The Quality Control Manager, as specified in Section 01 45 00 QUALITY CONTROL, is responsible for overseeing and documenting results from executing the Construction Waste Management Plan for the project.

1.3.3 Special Programs

Implement special programs involving rebates or similar incentives related to recycling of construction waste and demolition debris/waste materials. Retain revenue or savings from salvaged or recycling, unless otherwise directed. Ensure firms and facilities used for recycling, reuse, and

disposal are permitted for the intended use to the extent required by federal, state, and local regulations.

1.3.4 Special Instructions

Provide on-site instruction of appropriate separation, handling, recycling, salvage, reuse, and return methods to be used by all parties at the appropriate stages of the projects. Designation of single source separating or commingling will be clearly marked on the containers.

1.3.5 Waste Streams

Delineate waste streams and characterization, including estimated material types and quantities of waste, in the Construction Waste Management Plan. Manage all waste streams associated with the project. Typical waste streams are listed below. Include additional waste steams not listed:

a. Land Clearing Debris

b. Asphalt

c. Masonry and CMU

d. Concrete

e. Metals (Includes, but is not limited to, banding, stud trim, ductwork, piping, rebar, roofing, other trim, steel, iron, galvanized, stainless steel, aluminum, copper, zinc, bronze.)

f. Wood (nails and staples allowed)

g. Glass

h. Paper

i. Plastics (PET, HDPE,PVC,LDPE,PP,PS, Other)

j. Gypsum

k. Non-hazardous paint and paint cans

l. Carpet

m. Ceiling Tiles

n. Insulation

o. Beverage Containers

1.4 SUBMITTALS

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. Submittals not having a "G" or "S" classification are 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 00.05 20 CONSTRUCTION SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Construction Waste Management Plan; G

SD-06 Test Reports

Quarterly Reports

Annual Report

SD-11 Closeout Submittals

Final Construction Waste Diversion Report; S

1.5 MEETINGS

Conduct Construction Waste Management meetings. After award of the Contract and prior to commencement of work, schedule and conduct a meeting with the Contracting Officer to discuss the proposed Construction Waste Management Plan and to develop a mutual understanding relative to the management of the Construction Waste Management Program and how waste diversion requirements will be met.

The requirements of this meeting may be fulfilled during the coordination and mutual Understanding meeting outlined in Section 01 45 00 QUALITY CONTROL. At a minimum, discuss and document waste management goals at following meetings:

a. Preconstruction meeting.

b. Regular Quality Control meetings.

c. Work safety meeting (if applicable).

1.6 CONSTRUCTION WASTE MANAGEMENT PLAN

Submit Construction Waste Management Plan within 45 calendar days after notice to proceed. Revise and resubmit Construction Waste Management Plan as necessary, in order for construction to begin. Manage demolition debris/waste or deconstruction materials in accordance with the approved construction waste management plan.

An approved Construction Waste Management Plan will not relieve the Contractor of responsibility for compliance with applicable environmental regulations or meeting project cumulative waste diversion requirement. Ensure all subcontractors receive a copy of the approved Construction Waste Management Plan. The plan demonstrates how to meet the project waste diversion requirement. Also, include the following in the plan:

a. Identify the names of individuals responsible for waste management and waste management tracking, along with roles and responsibilities on the project.

b. Actions that will be taken to reduce solid waste generation, including coordination with subcontractors to ensure awareness and participation.

c. Description of the regular meetings to be held to address waste management.

d. Description of the specific approaches to be used in recycling/reuse of the various materials generated, including the areas on site and equipment to be used for processing, sorting, and temporary storage of materials.

e. Name of landfill and incinerator to be used.

f. Identification of local and regional re-use programs, including non-profit organizations such as schools, local housing agencies, and organization that accept used materials such as material exchange networks and resale stores. Include the name, location, phone number for each re-use facility identified, and provide a copy of the permit or license for each facility.

g. List of specific materials, by type and quantity, that will be salvaged for resale, salvaged and reused on the current project, salvaged and stored for reuse on a future project, or recycled. Identify the recycling facilities by name, address, and phone number.

h. Identification of materials that cannot be recycled or reused with an explanation or justification, to be approved by the Contracting Officer.

i. Description of the means by which materials identified in item (g) above will be protected from contamination.

j. Description of the means of transportation of the recyclable materials (whether materials will be site-separated and self-hauled to designated centers, or whether mixed materials will be collected by a waste hauler and removed from the site).

k. Copy of training plan for subcontractors and other services to prevent contamination by co-mingling materials identified for diversion and waste materials.

Distribute copies of the waste management plan to each subcontractor, Quality Control Manager Environmental Manager, and the Contracting Officer.

1.7 RECORDS (DOCUMENTATION)

1.7.1 General

Maintain records to document the types and quantities of waste generated and diverted though re-use, recycling and sale to third parties; through disposal to a landfill or incinerator facility. Provide explanations for materials not recycled, reused or sold. Collect and retain manifests, weight tickets, sales receipts, and invoices specifically identifying diverted project waste materials or disposed materials.

1.7.2 Accumulated

Maintain a running record of materials generated and diverted from landfill disposal, including accumulated diversion rates for the project. Make records available to the Contracting Officer during construction or incidental demolition activities. Provide a copy of the diversion records to the Contracting Officer upon completion of the construction, incidental demolitions or minor deconstruction activities.

1.8 REPORTS

1.8.1 General

Maintain current construction waste diversion information on site for periodic inspection by the Contracting Officer. Include in the quarterly reports, annual reports and final reports: the project name, contract information, information for waste generated, diverted and disposed of for the current reporting period and show cumulative totals for the project. Reports must identify quantifies of waste by type and disposal method. Also include in each report, supporting documentation to include manifests, weigh tickets, receipts, and invoices specifically identifying the project and waste material type and weighted sum.

1.8.2 Quarterly Reporting

Provide cumulative reports at the end of each quarter (December, March, June, and September, corresponding with the federal fiscal year for reporting purposes). Submit quarterly reports not later than 15 calendar days after the preceding quarter has ended. Submit Quarterly Reports to the appropriate office or identified point of contact.

1.8.3 Annual Reporting

Provide a cumulative construction waste diversion report annually. Submit annual report not later than 30 calendar days after the preceding fourth quarter has ended. Provide copy of annual construction waste diversion report to the installation POC.

1.9 FINAL CONSTRUCTION WASTE DIVERSION REPORT

A Final Construction Waste Diversion Report is required at the end of the project. Provide Final Construction Waste Diversion Report 60 days prior to the Beneficial Occupancy Date (BOD). The final Construction Waste Diversion Report must be included in the Sustainability eNotebook in accordance with Section 01 33 29 SUSTAINABILITY REQUIREMENTS AND REPORTING.

1.10 COLLECTION

Collect, store, protect, and handle reusable and recyclable materials at the site in a manner which prevents contamination, and provides protection from the elements to preserve their usefulness and monetary value. Provide receptacles and storage areas designated specifically for recyclable and reusable materials and label them clearly and appropriately to prevent contamination from other waste materials. Keep receptacles or storage areas neat and clean.

Train subcontractors and other service providers to either separate waste streams or use the co-mingling method as described in the Construction Waste Management Plan. Handle hazardous waste and hazardous materials in accordance with applicable regulations and coordinate with Section 01 57 19 TEMPORARY ENVIRONMENTAL CONTROLS. Separate materials by one of the following methods:

1.10.1 Source Separation Method

Separate waste products and materials that are recyclable from trash and sort as described below into appropriately marked separate containers and

then transport to the respective recycling facility for further processing. Deliver materials in accordance with recycling or reuse facility requirements (e.g., free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process). Separate materials into the category types as defined in the Construction Waste Management Plan.

1.10.2 Co-Mingled Method

Place waste products and recyclable materials into a single container and then transport to an authorized recycling facility, which meets all applicable requirements to accept and dispose of recyclable materials in accordance with all applicable local, state and federal regulations. The Co-mingled materials must be sorted and processed in accordance with the approved Construction Waste Management Plan.

1.10.3 Other Methods

Other methods proposed by the Contractor may be used when approved by the Contracting Officer.

1.11 DISPOSAL

Control accumulation of waste materials and trash. Recycle or dispose of collected materials off-site at intervals approved by the Contracting Officer and in compliance with waste management procedures as described in the waste management plan. Except as otherwise specified in other sections of the specifications, dispose of in accordance with the following:

1.11.1 Reuse

Give first consideration to reusing construction and demolition materials as a disposition strategy. Recover for reuse materials, products, and components as described in the approved Construction Waste Management Plan. Coordinate with the Contracting Officer to identify onsite reuse opportunities or material sales or donation available through Government resale or donation programs. Sale of recovered materials is not allowed on the Installation. Consider the use of surplus industrial supply broker services, who match entities with reusable or repurpose industrial materials with entities with need of such materials.

1.11.2 Recycle

Recycle non-hazardous construction and demolition/debris materials that are not suitable for reuse. Track rejection of contaminated recyclable materials by the recycling facility. Rejected recyclables materials will not be counted as a percentage of diversion calculation. Recycle all fluorescent lamps, HID lamps, mercury (Hg) -containing thermostats and ampoules, and PCBs-containing ballasts and electrical components as directed by the Contracting Officer. Do not crush lamps on site as this creates a hazardous waste stream with additional handling requirements.

1.11.3 Waste

Dispose by landfill or incineration only those waste materials with no practical use, economic benefit, or recycling opportunity.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used. -- End of Section --

SECTION 01 78 00

CLOSEOUT SUBMITTALS
05/19, CHG 1: 08/21

PART 1 GENERAL

1.1 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.

ASTM INTERNATIONAL (ASTM)

ASTM E1971	(2024) Standard Guide for Stewardship for the Cleaning of Commercial and Institutional Buildings

GREEN SEAL (GS)

GS-37	(2017) Cleaning Products for Industrial and Institutional Use

U.S. DEPARTMENT OF DEFENSE (DOD)

FC 1-300-09N	(2024; with Change 1, 2025) Navy and Marine Corps Design
FC 2-000-05N	Facility Planning for Navy and Marine Corps Shore Installations (current)
UFC 1-300-08	(2026) Criteria for Transfer and Acceptance of DoD Real Property

1.2 DEFINITIONS

1.2.1 As-Built Drawings

As-built drawings are the marked-up drawings, maintained by the Contractor on-site, that depict actual conditions and deviations from the Contract Documents. These deviations and additions may result from coordination required by, but not limited to: contract modifications; official responses to submitted Requests for Information (RFI's); direction from the Contracting Officer; design that is the responsibility of the Contractor, and differing site conditions. Maintain the as-builts throughout construction as red-lined hard copies on site and red-lined PDF files. These files serve as the basis for the creation of the record drawings.

1.2.2 Record Drawings

The record drawings are the final compilation of actual conditions reflected in the as-built drawings.

Produce the record drawings from the Record Model(s) and do not include annotations indicating revisions.

1.2.3 Final Approved Shop Drawings

The final approved shop drawings are all approved submittals created during the execution of the project. All submittals, regardless of the approving authority, shall be submitted. Include the submittal cover sheet and all relevant attachments for all submittals. Each submittal shall be saved as a separate file or have its own unique folder if a submittal includes attachments of multiple files or file types. Include a PDF copy of the completed submittal register.

1.2.4 Record Model

A model reflecting approved changes during construction including red-lines, requests for information (RFI's), and contract modifications. Include updated construction phase facility/site data for components.

1.3 SOURCE DRAWING FILES

Request the full set of electronic drawings, in the source format, for Record Drawing preparation, after award and at least 30 days prior to required use.

1.3.1 Terms and Conditions

Data contained on these electronic files must not be used for any purpose other than as a convenience in the preparation of construction data for the referenced project. Any other use or reuse is at the sole risk of the Contractor and without liability or legal exposure to the Government. The Contractor must make no claim and waives to the fullest extent permitted by law, any claim or cause of action of any nature against the Government, its agents or sub consultants that may arise out of or in connection with the use of these electronic files. The Contractor must, to the fullest extent permitted by law, indemnify and hold the Government harmless against all damages, liabilities or costs, including reasonable attorney's fees and defense costs, arising out of or resulting from the use of these electronic files.

These electronic CAD drawing files are not construction documents. Differences may exist between the CAD files and the corresponding construction documents. The Government makes no representation regarding the accuracy or completeness of the electronic CAD files, nor does it make representation to the compatibility of these files with the Contractor hardware or software. In the event that a conflict arises between the signed and sealed construction documents prepared by the Government and the furnished Source drawing files, the signed and sealed construction documents govern. The Contractor is responsible for determining if any conflict exists. Use of these Source Drawing files does not relieve the Contractor of duty to fully comply with the contract documents, including and without limitation, the need to check, confirm and coordinate the work of all contractors for the project. If the Contractor uses, duplicates or modifies these electronic source drawing files for use in producing construction data related to this contract, remove all previous indicia of ownership (seals, logos, signatures, initials and dates).

1.4 SUBMITTALS

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. Submittals not having a "G" or "S"

classification are 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 00.05 20 CONSTRUCTION SUBMITTAL PROCEDURES:

SD-03 Product Data

Warranty Management Plan

Warranty Tags

Final Cleaning

Spare Parts Data

SD-08 Manufacturer's Instructions

Posted Instructions

SD-10 Operation and Maintenance Data

Operation and Maintenance Manuals; G

SD-11 Closeout Submittals

As-Built Drawings; G

Record Drawings; G

Warranted Equipment and Materials

Final Approved Shop Drawings; G

Certification of EPA Designated Items; G

Certification Of USDA Designated Items; G

Interim DD FORM 1354; G

High Performance and Sustainable Building (HPSB) Checklist; G

Equipment Inventory Update; G

As-Built Exterior Finish Material Schedule And Submittals; G

1.5 SPARE PARTS DATA

Submit two copies of the Spare Parts Data list.

a. Indicate manufacturer's name, part number, and stock level required for test and balance, pre-commissioning, maintenance and repair activities. List those items that may be standard to the normal maintenance of the system.

b. At acceptance of commissioning, ensure the required stock level is supplied as indicated in subparagraph a for maintenance and repair activities through the facilities warranty period. Provision of spare parts does not relieve the Contractor of responsibilities listed under the contract guarantee provisions.

1.6 QUALITY CONTROL

Additions and corrections to the contract drawings must be equal in quality and detail to that of the originals. Line colors, line weights, lettering, layering conventions, and symbols must be the same as the original line colors, line weights, lettering, layering conventions, and symbols.

1.7 WARRANTY MANAGEMENT

1.7.1 Warranty Management Plan

Develop a warranty management plan which contains information relevant to FAR 52.246-21 Warranty of Construction. At least 30 days before the planned pre-warranty conference, submit one set of the warranty management plan. Include within the warranty management plan all required actions and documents to assure that the Government receives all warranties to which it is entitled. The plan narrative must contain sufficient detail to render it suitable for use by future maintenance and repair personnel, whether tradesmen, or of engineering background, not necessarily familiar with this contract. The term "status" as indicated below must include due date and whether item has been submitted or was accomplished. Submit warranty information, made available during the construction phase, to the Contracting Officer for approval prior to each monthly pay estimate. Assemble approved information in a binder and turn over to the Government upon acceptance of the work. The construction warranty period must begin on the date of project acceptance and continue for the full product warranty period. Conduct a joint 4 month and 9 month warranty inspection, measured from time of acceptance; with the Contractor, Contracting Officer and the Customer Representative. The warranty management plan must include, but is not limited to, the following:

a. Roles and responsibilities of personnel associated with the warranty process, including points of contact and telephone numbers within the organizations of the Contractors, subcontractors, manufacturers or suppliers involved.

b. For each warranty, the name, address, telephone number, and e-mail of each of the guarantor's representatives nearest to the project location.

c. A list and status of delivery of Certificates of Warranty for extended warranty items, including roofs, HVAC balancing, pumps, motors, transformers, and for commissioned systems, such as fire protection and alarm systems, sprinkler systems, and lightning protection systems.

d. Warranted Equipment and Materials list for each warranted equipment, item, feature of construction or system indicating:

(1) Name of item.
(2) Model and serial numbers.
(3) Location where installed.
(4) Name and phone numbers of manufacturers or suppliers.
(5) Names, addresses and telephone numbers of sources of spare parts.
(6) Warranties and terms of warranty. Include one-year overall warranty of construction, including the starting date of warranty of construction. Items which have warranties longer than one year must be indicated with separate warranty expiration dates.

(7) Cross-reference to warranty certificates as applicable.
(8) Starting point and duration of warranty period.
(9) Summary of maintenance procedures required to continue the warranty in force.
(10) Cross-reference to specific pertinent Operation and Maintenance manuals.
(11) Organization, names and phone numbers of persons to call for warranty service.
(12) Typical response time and repair time expected for various warranted equipment.

e. The plans for attendance at the 4 and 9 month post-construction warranty inspections conducted by the Government.

f. Procedure and status of tagging of equipment covered by warranties longer than one year.

g. Copies of instructions to be posted near selected pieces of equipment where operation is critical for warranty or safety reasons.

1.7.2 Performance Bond

The Performance Bond must remain effective throughout the construction and warranty period.

a. In the event the Contractor fails to commence and diligently pursue any construction warranty work required, the Contracting Officer will have the work performed by others, and after completion of the work, will charge the remaining construction warranty funds of expenses incurred by the Government while performing the work, including, but not limited to administrative expenses.

b. In the event sufficient funds are not available to cover the construction warranty work performed by the Government at the Contractor's expense, the Contracting Officer will have the right to recoup expenses from the bonding company.

c. Following oral or written notification of required construction warranty repair work, respond in a timely manner. Written verification will follow oral instructions. Failure to respond will be cause for the Contracting Officer to proceed against the Contractor.

1.7.3 Pre-Warranty Conference

Prior to contract completion, and at a time designated by the Contracting Officer, meet with the Contracting Officer to develop a mutual understanding with respect to the requirements of this section. At this meeting, establish and review communication procedures for Contractor notification of construction warranty defects, priorities with respect to the type of defect, reasonable time required for Contractor response, and other details deemed necessary by the Contracting Officer for the execution of the construction warranty In connection with these requirements and at the time of the Contractor's quality control completion inspection, furnish the name, telephone number and address of a licensed and bonded company which is authorized to initiate and pursue construction warranty work action on behalf of the Contractor. This point of contact must be located within the local service area of the warranted construction, be continuously available, and be responsive to Government inquiry on warranty work action and status. This requirement does not

relieve the Contractor of any of its responsibilities in connection with other portions of this provision.

1.7.4 Contractor's Response to Construction Warranty Service Requirements

Following oral or written notification by the Contracting Officer, respond to construction warranty service requirements in accordance with the "Construction Warranty Service Priority List" and the three categories of priorities listed below. Submit a report on any warranty item that has been repaired during the warranty period. Include within the report the cause of the problem, date reported, corrective action taken, and when the repair was completed. If the Contractor does not perform the construction warranty within the timeframe specified, the Government will perform the work and back charge the construction warranty payment item established.

a. First Priority Code 1. Perform onsite inspection to evaluate situation, and determine course of action within 4 hours, initiate work within 6 hours and work continuously to completion or relief.

b. Second Priority Code 2. Perform onsite inspection to evaluate situation, and determine course of action within 8 hours, initiate work within 24 hours and work continuously to completion or relief.

c. Third Priority Code 3. All other work to be initiated within 3 work days and work continuously to completion or relief.

d. The "Construction Warranty Service Priority List" is as follows:

Code 1-Life Safety Systems
(1) Fire suppression systems.
(2) Fire alarm system(s) in place in the building.

Code 1-Air Conditioning Systems
(3) Recreational support.
(4) Air conditioning leak in part of building, if causing damage.
(5) Air conditioning system not cooling properly.

Code 1-Doors
(6) Overhead doors not operational, causing a security, fire, or safety problem.
(7) Interior, exterior personnel doors or hardware, not functioning properly, causing a security, fire, or safety problem.

Code 3-Doors
(8) Overhead doors not operational.
(9) Interior/exterior personnel doors or hardware not functioning properly.

Code 1-Electrical
(10) Power failure (entire area or any building operational after 1600 hours).
(11) Security lights
(12) Smoke detectors

Code 2-Electrical
(13) Power failure (no power to a room or part of building).
(14) Receptacle and lights (in a room or part of building).

Code 3-Electrical

(15) Street lights.

Code 1-Gas
(16) Leaks and breaks.
(17) No gas to family housing unit or cantonment area.

Code 1-Heat
(18) Area power failure affecting heat.
(19) Heater in unit not working.

Code 2-Kitchen Equipment
(20) Dishwasher not operating properly.
(21) All other equipment hampering preparation of a meal.

Code 1-Plumbing
(22) Hot water heater failure.
(23) Leaking water supply pipes.

Code 2-Plumbing
(24) Flush valves not operating properly.
(25) Fixture drain, supply line to commode, or any water pipe leaking.
(26) Commode leaking at base.

Code 3 -Plumbing
(27) Leaky faucets.

Code 3-Interior
(28) Floors damaged.
(29) Paint chipping or peeling.
(30) Casework.

Code 1-Roof Leaks
(31) Temporary repairs will be made where major damage to property is occurring.

Code 2-Roof Leaks
(32) Where major damage to property is not occurring, check for location of leak during rain and complete repairs on a Code 2 basis.

Code 2-Water (Exterior)
(33) No water to facility.

Code 2-Water (Hot)
(34) No hot water in portion of building listed.

Code 3-All other work not listed above.

1.7.5 Warranty Tags

At the time of installation, tag each warranted item with a durable, oil and water resistant tag approved by the Contracting Officer. Attach each tag with a copper wire and spray with a silicone waterproof coating. Also, submit two record copies of the warranty tags showing the layout and design. The date of acceptance and the QC signature must remain blank until the project is accepted for beneficial occupancy. Show the following information on the tag.

Type of product/material	
Model number	
Serial number	
Contract number	
Warranty period from/to	
Inspector's signature	
Construction Contractor	
Address	
Telephone number	
Warranty contact	
Address	
Telephone number	
Warranty response time priority code	
WARNING - PROJECT PERSONNEL TO PERFORM ONLY OPERATIONAL MAINTENANCE DURING THE WARRANTY PERIOD.	

1.8 EXTERIOR FINISHES

Submit the As-Built Exterior Finish Material Schedule and Submittals Prepare and provide the final approved exterior finish material submittals created during the execution of the project. All submittals, regardless of the approving authority, shall be submitted. Include a finish schedule documenting all the exterior finish materials that were installed on the project, the submittals/shop drawings themselves, and all relevent attachements for the submittals. This should be in a seperate document in PDF format included on the CD or DVD with the Record Drawings 30 days after BOD. Provide the following information in the finish schedule:

(1) Contract Number
(2) Project Number
(3) Building Number
(4) Building Name
(5) District
(6) Submittal Number
(7) Specification Division
(8) Description
(9) Product
(10) Manufacturer

(11) Size
(12) Color
(13) Other
(14) Location
(15) Comments

PART 2 PRODUCTS

2.1 RECORD DRAWINGS

Prepare the CAD drawing files in AutoCAD Release 2026 format compatible with a Windows 11 operating system.

2.1.1 Additional Drawings

If additional drawings are required, prepare them using the specified electronic file format applying the same graphic standards specified for original drawings. The title block and drawing border to be used for any new final record drawings must be identical to that used on the contract drawings.

2.2 CERTIFICATION OF EPA DESIGNATED ITEMS

Submit the Certification of EPA Designated Items as required by FAR 52.223-9 Estimate of Percentage of Recovered Material Content for EPA Designated Items and FAR 52-223-17 Affirmative Procurement of EPA designated items in Service and Construction Contracts. Include on the certification form the following information: project name, project number, Contractor name, license number, Contractor address, and certification. The certification will read as follows and be signed and dated by the Contractor. "I hereby certify the information provided herein is accurate and that the requisition/procurement of all materials listed on this form comply with current EPA standards for recycled/recovered materials content. The following exemptions may apply to the non-procurement of recycled/recovered content materials:

a. The product does not meet appropriate performance standards;

b. The product is not available within a reasonable time frame;

c. The product is not available competitively (from two or more sources);

d. The product is only available at an unreasonable price (compared with a comparable non-recycled content product)."

Record each product used in the project that has a requirement or option of containing recycled content in accordance with SECTION 01 33 29 SUSTAINABILITY REQUIREMENTS AND REPORTING, noting total price, total value of post-industrial recycled content, total value of post-consumer recycled content, exemptions (a, b, c, or d, as indicated), and comments. Recycled content values may be determined by weight or volume percent, but must be consistent throughout.

2.3 CERTIFICATION OF USDA DESIGNATED ITEMS

Submit the Certification of USDA Designated Items as required by FAR 52-223-1 Bio-based Product Certifications and FAR 52.223-2 Affirmative Procurement of Biobased Products Under Service and Construction Contracts. Include on the certification form the following information:

project name, project number, Contractor name, license number, Contractor address, and certification. The certification will read as follows and be signed and dated by the Contractor. "I hereby certify the information provided herein is accurate and that the requisition/procurement of all materials listed on this form comply with current USDA standards for biobased materials content. The following exemptions may apply to the non-procurement of biobased content materials:

a. The product does not meet appropriate performance standards;

b. The product is not available within a reasonable time frame;

c. The product is not available competitively (from two or more sources);

d. The product is only available at an unreasonable price (compared with a comparable bio-based content product)."

Record each product used in the project that has a requirement or option of containing biobased content in accordance with SECTION 01 33 29 SUSTAINABILITY REQUIREMENTS AND REPORTING, noting total price, total value of post-industrial recycled content, total value of post-consumer recycled content, exemptions (a, b, c, or d, as indicated), and comments. Biobased content values may be determined by weight or volume percent, but must be consistent throughout.

2.4 PDF AS-BUILT FILES

Provide electronic PDF "plots" of all contract drawings sheets associated with the as-built drawing submittal. Compile and organize the PDF set to match the contract drawings.

2.5 REDLINES AND MARKUPS

Provide PDFs of the current working redlines and/or markups complying with the as-builts drawing and markup requirements contained in this specification.

2.6 AS-BUILT OR ADVANCED MODELING RE-SUBMISSION REQUIREMENTS

If elements of an as-built submittal or advanced modeling package are rejected, provide the following for each re-submission, in addition to any information required in Section 01 33 00.05 20 CONSTRUCTION SUBMITTAL PROCEDURES:

a. Re-submit all components required under paragraph As-Builts or Advanced Modeling Package, including a new Advanced Modeling Submittal Checklist and updated content in response to Government comments.

b. Provide a copy of all Government review comments.

c. Provide a disposition/response to each Government review comment for a back-check of the re-submission deliverable.

PART 3 EXECUTION

3.1 EQUIPMENT INVENTORY UPDATE

Submit information for each piece of equipment removed and supplied for use of Camp Lejeune to update the Maximo equipment inventory. For the

purposes of this paragraph, inventoried equipment is defined as equipment listed on the Maximo Equipment Inventory Update form.

3.1.1 Requirements

The contractor shall prepare and submit one Maximo Equipment Inventory Update form for each individual item of inventoried equipment that is demolished, removed, replaced, or installed. (ex: three new condensing units would require the submission of three Equipment Inventory Update forms. The replacement of two existing air handling units with two new air handling units would require the submission of two Equipment Inventory Update forms). The contractor shall prepare and submit a VAV/TAB Room Number List for each VAV/Tab model installed in a single building. Only one Maximo Equipment Inventory Update form is required for each model of VAV or TAB in a single building.

3.1.1.1 Demolition of all equipment in a structure or facility

When all the inventoried equipment in a building or structure is demolished or removed, and not replaced, an Equipment Inventory Update form is not required.

3.1.1.2 Standards

The contractor shall provide accurate, complete, and legible information on all required forms. All required forms shall be completed and delivered to the Contracting Officer on or before the Beneficial Occupancy Date. All information on Equipment Inventory Update forms shall be obtained by visual inspection of equipment data plate(s).

3.1.1.3 Form Preparation

Each required Maximo Equipment Inventory Update form shall contain the following information:

(1) The name and telephone number of an individual who can be contacted for clarification or additional information pertaining to the data on the form.

(2) The date of data collection

(3) The building or structure identification number and the specific location of the equipment within the structure (ex: 3d deck mech room)

(4) A check adjacent to the description of the new or replacement item, and a check adjacent to the supplemental description if applicable (ex: circulating pump and HVAC or steam)

(5) The Maximo number or serial number of the demolished or removed item, if applicable

(6) All applicable data from the equipment data plate

Each Room Number List form shall contain the following information:

(1) The name and telephone number of the individual providing the information

(2) The date the form was completed

(3) The building or structure identification number

(4) A check in the box adjacent to each applicable room number

MAXIMO EQUIPMENT INVENTORY UPDATE

Employee: _____ Phone: _____ Date: ____/____/____

Bldg: _____ Specific Location: _____

__ AC, Computer Room
__ AC, Package
__ AC, Package Terminal
__ Assembly, Trap line
__ Backflow Preventer
__ Boiler
__ Chiller, Air Cooled Recip
__ Chiller, Air Cooled Screw
__ Chiller, Air Cooled Scroll
__ Chiller, Water Cooled Recip
__ Chiller, Water Cooled Screw
__ Compressor, Control Air
__ Compressor, Industrial Air
__ Dryer, Refrigerated Air
__ Exchanger, Heat
__ Evaporator, Freezer
__ Evaporator, Refrigerator
__ Fan, Exhaust
__ Generator
__ Heater, Space
__ Heater, Unit
__ Heat Pump, Geo-Thermal
__ Heat Pump, Indoor Unit
__ Heat Pump, Outdoor Unit
__ Heat Pump, Package
__ Heat Pump, Package Terminal
__ Pump, Circulating, Chilled Water
__ Pump, Circulating, Domestic Water
__ Pump, Circulating, Dual Temp Water
__ Pump, Circulating, Heating Water
__ Pump, Condensate
__ Pump, Sump
__ Regulator, Temperature
__ Tank, Hot Water Storage
__ Tower, Cooling
__ Unit, Air Handling
__ Unit, AC Condensing
__ Unit, Freezer Condensing
__ Unit, Refrigerator Condensing
__ Unit, Fan Coil
__ Unit, TAB (Attach Room No. List)
__ Unit, VAV (Attach Room No. List)
__ Valve, Pressure Reducing
__ Valve, Steam Pilot
__ Water Heater

Demolished/Removed Equipment

Maximo no: _____ or Ser no: _____

New Equipment

Manufacturer: _____

Model no: _____

Ser no: _____

Type: __Elec __Oil __LP Gas __Nat Gas __Steam __Water __Air

Motor Data: HP____ Volts____ Phase____ RLA_____ RPM____ Frame____

Tons____ No. of Motors____ no. of Belts____ Belt size(s)____ CFM____

KW____ Refrig type_____ Refrig Qty_____ Filter Size(s)_____

3.2 AS-BUILT DRAWINGS

Provide and maintain two black line print copies of the PDF contract drawings for As-Built Drawings. Maintain the as-builts throughout construction as red-lined hard copies on site and red-lined PDF files. Submit As-Built Drawings 30 days prior to Beneficial Occupancy Date (BOD).

3.2.1 Markup Guidelines

Make comments and markup the drawings complete without reference to letters, memos, or materials that are not part of the As-Built drawing. Show what was changed, how it was changed, where item(s) were relocated and change related details. These working as-built markup prints must be neat, legible and accurate as follows:

a. Use base colors of red, green, and blue. Color code for changes as follows:

   (1) Special (Blue) - Items requiring special information, coordination, or special detailing or detailing notes.

   (2) Deletions (Red) - Over-strike deleted graphic items (lines), lettering in notes and leaders.

   (3) Additions (Green) - Added items, lettering in notes and leaders.

b. Provide a legend if colors other than the "base" colors of red, green, and blue are used.

c. Add and denote any additional equipment or material facilities, service lines, incorporated under As-Built Revisions if not already shown in legend.

d. Use frequent written explanations on markup drawings to describe changes. Do not totally rely on graphic means to convey the revision.

e. Use legible lettering and precise and clear digital values when marking prints. Clarify ambiguities concerning the nature and application of change involved.

f. Wherever a revision is made, also make changes to related section views, details, legend, profiles, plans and elevation views, schedules, notes and call out designations, and mark accordingly to avoid conflicting data on all other sheets.

g. For deletions, cross out all features, data and captions that relate to that revision.

h. For changes on small-scale drawings and in restricted areas, provide large-scale inserts, with leaders to the applicable location.

i. Indicate one of the following when attaching a print or sketch to a markup print:

   (1) Add an entire drawing to contract drawings

   (2) Change the contract drawing to show changes on the drawing.

   (3) Provided for reference only to further detail the initial design.

j. Incorporate all shop and fabrication drawings into the markup drawings.

3.2.2 As-Built Drawings Content

Show on the as-built drawings, but not limited to, the following information:

a. The actual location, kinds and sizes of all sub-surface utility lines. In order that the location of these lines and appurtenances may be determined in the event the surface openings or indicators become covered over or obscured, show by offset dimensions to two permanently fixed surface features the end of each run including each change in direction on the record drawings. Locate valves, splice boxes and similar appurtenances by dimensioning along the utility run from a reference point. Also record the average depth below the surface of each run.

b. The location and dimensions of any changes within the building structure.

c. Layout and schematic drawings of electrical circuits and piping.

d. Correct grade, elevations, cross section, or alignment of roads, earthwork, structures or utilities if any changes were made from contract plans.

e. Changes in details of design or additional information obtained from working drawings specified to be prepared or furnished by the Contractor; including but not limited to shop drawings, fabrication, erection, installation plans and placing details, pipe sizes, insulation material, dimensions of equipment, and foundations.

f. The topography, invert elevations and grades of drainage installed or affected as part of the project construction.

g. Changes or Revisions which result from the final inspection.

h. Where contract drawings or specifications present options, show only the option selected for construction on the working as-built markup drawings.

i. If borrow material for this project is from sources on Government property, or if Government property is used as a spoil area, furnish a contour map of the final borrow pit/spoil area elevations.

j. Systems designed or enhanced by the Contractor, such as HVAC controls, fire alarm, fire sprinkler, Vapor Intrusion Mitigation System (VIMS), and irrigation systems.

k. Changes in location of equipment and architectural features.

l. Modifications and compliance with FC 1-300-09N procedures.

m. Actual location of anchors, construction and control joints, etc., in concrete.

n. Unusual or uncharted obstructions that are encountered in the contract work area during construction.

o. Location, extent, thickness, and size of stone protection particularly where it will be normally submerged by water.

3.3 RECORD DRAWINGS

Prepare and provide Record Drawings and Source Documents in accordance with FC 1-300-09N. Provide four copies of Record Drawings and Documents on separate CDs or DVDs 30 days after BOD.

3.4 OPERATION AND MAINTENANCE MANUALS

Provide project operation and maintenance manuals as specified in Section 01 78 23 OPERATION AND MAINTENANCE DATA. Provide four electronic copies of the Operation and Maintenance Manual files and one hard copy of the Operation and Maintenance Manuals. Submit to the Contracting Officer for approval within 60 calendar days of the Beneficial Occupancy Date (BOD). Update and resubmit files for final approval at BOD.

3.5 CLEANUP

Provide final cleaning in accordance with ASTM E1971 and submit two copies of the listing of completed final clean-up items. Leave premises "broom clean." Comply with GS-37 for general purpose cleaning and bathroom cleaning. Use only nonhazardous cleaning materials, including natural cleaning materials, in the final cleanup. Clean interior and exterior glass surfaces exposed to view; remove temporary labels, stains and foreign substances; polish transparent and glossy surfaces; vacuum carpeted and soft surfaces. Clean equipment and fixtures to a sanitary condition. Replace filters of operating equipment and comply with the Indoor Air Quality (IAQ) Management Plan. Clean debris from roofs, gutters, downspouts and drainage systems. Sweep paved areas and rake clean landscaped areas. Remove waste and surplus materials, rubbish and construction facilities from the site. Recycle, salvage, and return construction and demolition waste from project in accordance with Section 01 57 19 TEMPORARY ENVIRONMENTAL CONTROLS.

3.6 TRANSFER AND ACCEPTANCE OF MILITARY REAL PROPERY

Requirements/information found in this paragraph is for the development and submitting the Interim DD Form 1354. The requirements/information may be in addition to requirements of other paragraphs/sections (or missing paragraphs/sections) and supersedes any discrepancies or conflicts with information or requirements in other paragraphs/sections. The intent of obtaining copies of the Schedule of Values and base line schedule is to support and validate the development and submission of the DD form 1354 required by this paragraph.

3.6.1 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.

-FC 2-000-05N Facility Planning for Navy and Marine Corps Shore Installations (current)

-UFC 1-300-08 Criteria for Transfer and Acceptance of (DOD) Real Property (current)

-MCICOM Real Property Business Process Narrative (current fiscal year)

3.6.2 Real Property Record

Refer to UFC 1-300-08 for instruction on completing the DD form 1354. Contact the Contracting Officer for any project specific information necessary to complete the DD Form 1354. Government to provide the Draft DD1354 Form at the pre-construction conference

3.6.3 Submittals

The following shall be submitted in accordance with Section entitled Submittal Procedures:

(1) Interim DD Form 1354 with estimated quantities and costs and include supporting information.

a. Submit Interim DD Form 1354 thirty (30) calendar days after pre-construction conference. For Design Build contracts submit thirty (30) calendar days after IFC drawings submitted and accepted by government.

b. Include copy of the detailed breakdown of the contact price, as required in Specification section discussing "Price and Payment Procedures". Schedule of Prices shall be separated by individual building, supporting facility, and supporting utilities with subtotals for each line item listed on Draft DD Form 1354.

c. If overhead or other indirect costs (such as bonds, design, submittals) as a separate line item are included on Schedule of Prices and/or in the Cost-Loaded Network Analysis Schedule, these costs shall be prorated between each building, supporting facility, and supporting utilities listed on Draft DD Form 1354.

d. Include copy of baseline schedule as required in Specification section discussing "Cost Loaded Network Analysis Schedules".

(2) Interim DD Form 1354, Transfer and Acceptance of Military Real Property

a. Submit Interim DD Form 1354 sixty (60) days prior to beneficial occupancy date (or partial BOD for individual building/facilities).

b. Include total cost and actual quantities installed/constructed, and any additional assets, improvements, and alterations from the Draft DD Form 1354. Quantities for utilities should match data provided by GIS submittal (if required).

c. Attach the High Performance and Sustainable Building (HPSB) Checklist for each applicable building to the completed DD 1354, in accordance with Section entitled "Sustainability Requirements and Reporting".

(3) Contractor responsible for providing quantities and cost for each facility listed based upon current contract requirements when submitting Interim DD 1354 sixty (60) days prior to Beneficial Occupancy Date (or partial BOD for phased construction) when government accepts work for use (or work is accepted for government

possession and use). Multiple Interim DD Forms 1354 may be required when a construction contract contains multiple facilities with different turnover dates.

(4) For cost load schedules, add unconstrained finish milestone, titled "DD 1354 - Interim" and scheduled 60 calendar days prior to Substantial Completion whenever an Interim or Final Form DD 1354 is required for individual buildings/facilities.

(5) Provide/verify FF&E/AV costs on back page in block 27.

a. Total of line items, plus noncapitalized items and excluded cost items (other Interim DD Form 1354 and NAVFAC Disposal Form) to add up to contract amount funded by project (minus non-project cost of FF&E/AV).

3.7 FINAL APPROVED SHOP DRAWINGS

Provide 2 copies of Final Approved Shop Drawings on two separate CDs or DVDs within 30 days after BOD.

3.8 PERMIT CLOSEOUT

Stormwater control measures shall be surveyed and certified by the Designer of Record as required per contract and closeout documentation submitted to the government a minimum of 30 days prior to BOD. All contract required permits, including but not limited to the NCG01 and stormwater permit, must be completed and closed out 30 days after BOD.

3.9 DISPOSAL FORMS

Disposal forms are required to be submitted at government acceptance of the completion of the demolition.

-- End of Section --

SECTION 01 78 23

OPERATION AND MAINTENANCE DATA
05/23

PART 1 GENERAL

1.1 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.

AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS (ASHRAE)

ASHRAE GUIDELINE 1.4	(2019) Preparing Systems Manuals for Facilities

ASTM INTERNATIONAL (ASTM)

ASTM E1971	(2024) Standard Guide for Stewardship for the Cleaning of Commercial and Institutional Buildings
ASTM E2166	(2016; R 2023) Standard Practice for Organizing and Managing Building Data

U.S. DEPARTMENT OF DEFENSE (DOD)

FC 1-300-09N	(2024; with Change 1, 2025) Navy and Marine Corps Design

1.2 SUBMITTALS

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. Submittals not having a "G" or "S" classification are 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 00.05 20 CONSTRUCTION SUBMITTAL PROCEDURES:

SD-10 Operation and Maintenance Data

Facility Data Workbook; G

Training Plan; G

Training Outline; G

Training Content; G

Operation And Maintenance Manual, Progress Submittal; G

Operation And Maintenance Manual, Prefinal Submittal; G

Operation And Maintenance Manual, Final Submittal; G

SD-11 Closeout Submittals

Training Video Recording; G

Validation of Training Completion; G

Training Plan; G

Record Drawings And Utility Systems; G

1.3 MEETINGS

To assure that Operation and Maintenance Manual and Facility Data Workbook requirements are being met through the duration of the project, organize the following meetings and discuss the subsequent topics:

1.3.1 Pre-Construction Meeting

At a minimum, discuss the following:

a. The requirement for Operation and Maintenance Manuals and Facility Data deliverables under this contract including coordination meetings

b. Processes and method of gathering Facility Data information during construction

c. Primary roles and responsibilities associated with the development and delivery of the Operation and Maintenance Manuals and Facility Data deliverables, and

d. Identify and agree upon a date and attendance list for the meetings described below:

1.3.2 Operation and Maintenance Manual and Facility Data Workbook Coordination Meeting

Facilitate a meeting after the Pre-Construction Meeting prior to the submission of the Operation and Maintenance Manual Progress Submittal. Meeting attendance must include the Contractor's Operation and Maintenance Manual and Facility Data Workbook Preparer, Designer of Record (DOR), Quality Control Manager, the Commissioning Authority (CxA), the Government's Design Manager (DM), Contracting Officer's Representative, and Government's facility data reviewer. Include any Mechanical, Electrical, and Fire Protection Sub-Contractors.

The purpose of this meeting is to reach a mutual understanding of the scope of work concerning the contract requirements for Operation and Maintenance Manual and coordinate the efforts necessary by both the Government and Contractor to ensure an accurate collection, preparation and timely Government review of Operation and Maintenance Manual.

1.3.3 Submittal Coordination Meeting

Facilitate a meeting following submission and Government review of each design or progress submittal of the Operation and Maintenance Manual and Facility Data Workbook.

a. Include personnel from the Coordination meeting and any additional

personnel identified.

b. The purpose of this meeting is to demonstrate ongoing compliance with the requirements identified in this specification. Discuss Government review comments and unresolved items preventing completion and Government approval of the Operation and Maintenance Manuals and Facility Data Workbook (FDW).

c. The applicable deliverables, along with Government remarks associated with review of these submittals serve as the primary guide and agenda for this meeting.

1.3.4 Facility Turnover Meeting

Include Operation and Maintenance Manual in NAVFAC Red Zone (NRZ) facility turnover meetings as specified in Section 01 30 00, ADMINISTRATIVE REQUIREMENTS.

1.4 FACILITY DATA WORKBOOK

Develop an editable, electronic spreadsheet based on the equipment in the Operation and Maintenance Manuals that contains the information required to start a preventive maintenance program 01 78 24.00 20 FACILITY DATA WORKBOOK (FDW).

1.5 OPERATION AND MAINTENANCE MANUAL MEDIA

Assemble Operation and Maintenance Manual into an electronically bookmarked file using the most current version of Adobe Acrobat or similar software capable of producing PDF file format. Provide compact disks (CD) or data digital versatile disk (DVD) as appropriate, so that each one contains operation, maintenance and record files, project record documents, and training videos. Include a complete bookmarked operation and maintenance directory.

1.5.1 CD or DVD Label and Disk Holder or Case

Provide the following information on the disk label and disk holder or case:

a. Building Number

b. Project Title

c. Activity and Location

d. Construction Contract Number

e. Prepared For: (Contracting Agency)

f. Prepared By: (Name, title, phone number and email address)

g. Include the disk content on the disk label

h. Date

i. Virus scanning program used

1.6 O&M MANUAL CONTENT

Organize the bookmarked Operation and Maintenance Manual into the following Parts in accordance with ASHRAE GUIDELINE 1.4, and as modified and detailed below. Word template for O&M Manual is available at: www.wbdg.org/dod/ufgs/ufgs-01-78-23.

1.6.1 Part 1: Executive Summary

Provide a summary of the information found in the O&M manual including the purpose of the manual and a description of the manual's organization.

1.6.2 Part 2: Facility Design and Construction

1.6.2.1 General Facility and Systems Description

Provide an overview of the intent for design and use of the facility. Provide a PDF of the Record Drawings prepared in accordance with FC 1-300-09N and 01 78 00 CLOSEOUT SUBMITTALS and bookmarked using the sheet title and sheet number. Include uncluttered 11 by 17 inches floor plans with room numbers, type or function of space, and overall facility dimensions on the floor plans. Do not include items such as construction instructions, references, or frame numbers.

Detail the overall dimensions of the facility, number of floors, foundation type, expected number of occupants, and facility Category Code list and generally describe all the facility systems and any special building features (for example, HVAC Controls, Sprinkler Systems, Cranes, Elevators, and Generators). Include photographs marked up and labeled to show key operating components and the overall facility appearance.

1.6.2.2 Basis of Design

Provide a copy of the contract Basis of Design.

1.6.2.3 Contract Documents, RFP, Amendments, and Modifications

Provide the contract construction documents complete, to include specifications, drawings, Request for Proposal, amendments, and modifications.

1.6.2.4 Room Inventory of Real Property and Finishes

Provide a list of installed equipment furnished under this contract. Include all information usually listed on manufacturer's name plate. Include, as applicable, the following information for each piece of equipment installed: description of item, all dimensions, location by room number, model number, serial number, capacity, name and address of manufacturer, name and address of equipment supplier, condition, spare parts list, manufacturer's catalog, and warranty. Real property includes, but is not limited to, floor coverings, wall surfaces, ceiling surfaces, windows, roofing, HVAC filters, plumbing fixtures, and lighting fixtures. Submit the final list 30 days after transfer of the completed facility.

Include spatial data defining actual net square footage and data of each room. Also include the room finish schedule including room names and numbers. Include schedules in the construction drawings in the room inventory. Add a column to each schedule to record what was provided by the contractor during construction. Provide a PDF of room inventory. Key

the designations to the related area depicted on the contract drawings.

1.6.3 Part 3: Facilities, Systems, and Assemblies Information

1.6.3.1 Organization

Bookmark information in this section using the current version of ASTM E2166 Uniformat II, UFGS numbers, and document type as outlined in the example below. Bookmark/tab each item to the third level for easy navigation of the manual.

Example as shown in Table below:

PARTS AND SUBPART NUMBERING
3.1 B20 EXTERIOR CLOSURE (System)
3.1.1 B2030 EXTERIOR DOORS (Subsystem)
3.1.1.1 B2030110 GLAZED DOORS (Component)
3.1.1.1.1 Applicable specifications List in UFGS Format
3.1.1.1.2 Manufacturer's Operations and Maintenance Data
3.1.1.1.3 Approved Submittal
3.1.1.1.4 Coordination/Shop Drawings
3.1.1.1.5 Sequence of Operation for Operating Equipment
3.1.1.1.6 Testing Equipment Information and Performance Data
3.1.1.1.7 Routine Maintenance Requirements
3.1.1.1.8 Repair Procedures
3.1.1.1.9 Emergency Procedures & Locations of Applicable Controls
3.1.1.1.10 Warranties
3.1.1.1.11 Record Drawings and Utility Systems
3.1.1.1.12 Contractor / Supplies Listing and Contact Information

1.6.3.2 Related Specifications

Reference each specification related to the subsystem in this section, and locate the actual specification section in Part 2 of the O&M Manual. List specifications in table format as shown in the below example.

UFGS Number	Specification Title	Page Spec Begins in Part 2

1.6.3.3 Manufacturer's Operations and Maintenance Data

Provide a copy of all manufacturer specifications and cutsheets. Provide text-searchable, high-quality document files from the manufacturer's online or electronic documentation. Color documents are preferred. Provide documents specific to the product(s) installed under this Contract. Provide identification and coverage for the parts of each component, assembly, subassembly, and accessory of the end items subject to replacement. Provide Uniformat II Level 3 identification for D20, D30, D40 installed equipment. When possible, do not submit document files containing multiple product catalogs from the same manufacturer, or product data from multiple manufacturers in the same files. Provide documents directly from the manufacturer whenever possible. Do not provide scanned copies of hardcopy documents. Provide identification and coverage for the parts of each component, assembly, subassembly, and accessory of the end items subject to replacement. Include special hardware requirements, such as requirement to use high-strength bolts and nuts. Identify parts by make, model, serial number, and source of supply to allow reordering without further identification. Provide clear and legible illustrations, drawings, and exploded views to enable easy identification of the items. When illustrations omit the part numbers and description, both the illustrations and separate listing must show the index, reference, or key number that will cross-reference the illustrated part to the listed part. Group the parts shown in the listings by components, assemblies, and subassemblies in accordance with the manufacturer's standard practice. Parts data may cover more than one model or series of equipment, components, assemblies, subassemblies, attachments, or accessories, such as typically shown in a master part catalog.

1.6.3.4 Approved Submittals and Certificates

Provide a copy of all submittals documented with the required approval as applicable for each UFGS specification listed in the table outlined in applicable specifications. Include copies of SD-07 Certificates submittals documented with the required approval, SD-08 Manufacturer's Instructions submittals documented with the required approval, and SD-10 Operation and Maintenance Data submittals documents with the required approval.

1.6.3.5 Approved Coordination/Shop Drawings

Drawings, diagrams and schedules specifically prepared to illustrate some portion of the work. Diagrams and instructions from a manufacturer or fabricator for use in producing the product and as aids to the Contractor for integrating the product or system into the project. Drawings prepared by or for the Contractor to show how multiple systems and interdisciplinary work will be coordinated.

1.6.4 Sequence of Operation for Operating Equipment

Provide record one-line diagrams for each floor, delineating mechanical equipment location within the building. Provide specific instructions, procedures, and illustrations for the following phases of operation for the installed model and features of each system:

1.6.4.1 Safety Precautions and Hazards

List personnel hazards and equipment or product safety precautions for

operating conditions. List all residual hazards identified in the Activity Hazard Analysis provided under Section 01 35 26 GOVERNMENTAL SAFETY REQUIREMENTS. Provide recommended safeguards for each identified hazard. Specify if any certifications or licenses are required to operate the equipment.

1.6.4.2 Operator Prestart

Provide procedures required to install, set up, and prepare each system for use.

1.6.4.3 Startup, Shutdown, and Post-Shutdown Procedures

Provide narrative description for Startup, Shutdown and Post-shutdown operating procedures including the control sequence for each procedure.

1.6.4.4 Normal Operations

Provide Control Diagrams with data to explain operation and control of systems and specific equipment. Provide narrative description of Normal Operating Procedures.

1.6.4.5 Emergency Operations

Provide Emergency Procedures for equipment malfunctions to permit a short period of continued operation or to shut down the equipment to prevent further damage to systems and equipment. Provide Emergency Shutdown Instructions for fire, explosion, spills, or other foreseeable contingencies. Provide guidance and procedures for emergency operation of utility systems including required valve positions, valve locations and zones or portions of systems controlled.

1.6.4.6 Operator Service Requirements

Provide instructions for services to be performed by the operator such as lubrication, adjustment, inspection, and recording gauge readings.

1.6.4.7 Environmental Conditions

Provide a list of Environmental Conditions (temperature, humidity, and other relevant data) that are best suited for the operation of each product, component or system. Describe conditions under which the item equipment should not be allowed to run.

1.6.4.8 Operating Log

Provide forms, sample logs, and instructions for maintaining necessary operating records.

1.6.4.9 Additional Requirements for Equipment Control Systems

Provide Data Package 5 and the following for all control systems:

a. Provide a narrative description on how to perform and apply functions, features, modes, and other operations, including unoccupied operation, seasonal changeover, manual operation, and alarms. Include detailed technical manual for programming and customizing control loops and algorithms.

b. Submit complete controls equipment schedules, full as-built sequence of operations, wiring and logic diagrams, Input/Output Tables, equipment schedules, copies of checkout tests and calibrations performed by the Contractor (not Cx tests), and all associates information.

c. Full points list. Provide a listing of rooms with the following information for each room:

(1) Floor

(2) Room number

(3) Room name

(4) Air handler unit ID

(5) Reference drawing number

(6) Air terminal unit tag ID

(7) Heating or cooling valve tag ID

(8) Minimum cfm

(9) Maximum cfm

d. Full print out of all schedules and set points after testing and acceptance of the system.

e. Full as-built print out of software program.

f. Marking of system sensors and thermostats on the as-built floor plan and mechanical drawings with their control system designations.

1.6.4.10 Testing Equipment Information and Performance Data

Include information on test equipment required to perform specified tests and on special tools needed for the operation, maintenance, and repair of components. Provide final set points.

Include completed prefunctional checklists, functional performance test forms, and monitoring reports. Include recommended schedule for retesting and blank test forms. Provide final set points.

1.6.5 Routine Maintenance Requirements

1.6.5.1 Preventive Maintenance Plan, Schedule, and Procedures

Provide manufacturer's schedule for routine preventive maintenance, inspections, condition monitoring (predictive tests) and adjustments required to ensure proper and economical operation and to minimize repairs. Provide instructions stating when the systems should be retested. Provide manufacturer's projection of preventive maintenance work-hours on a daily, weekly, monthly, and annual basis including requirements by type of activity. For periodic calibrations, provide manufacturer's specified frequency and procedures for each separate operation.

a. Define the anticipated time required to perform each test (work-hours), test apparatus, number of personnel identified by responsibility, and a testing validation procedure permitting the record operation capability requirements within the schedule. Provide a remarks column for the testing validation procedure referencing operating limits of time, pressure, temperature, volume, voltage, current, acceleration, velocity, alignment, calibration, adjustments, cleaning, or special system notes. Delineate procedures for preventive maintenance, inspection, adjustment, lubrication and cleaning necessary to minimize repairs.

b. Repair requirements must inform operators how to check out, troubleshoot, repair, and replace components of the system. Include electrical and mechanical schematics and diagrams and diagnostic techniques necessary to enable operation and troubleshooting of the system after acceptance.

1.6.5.2 Lubrication Data

Include the following preventive maintenance lubrication data, in addition to instructions for lubrication required under paragraph OPERATOR SERVICE REQUIREMENTS:

a. A table showing recommended lubricants for specific temperature ranges and applications.

b. Charts with a schematic diagram of the equipment showing lubrication points, recommended types and grades of lubricants, and capacities. Provide procedural instructions for Oil Sampling for all equipment.

c. A Lubrication Schedule showing service interval frequency.

1.6.6 Repair Procedures

Provide instructions and a list of tools required to repair or restore the product or equipment to proper condition or operating standards. Provide manufacturer's recommended procedures and instructions for correcting problems and making repairs for the installed model and features of each system. Include potential environmental and indoor air quality impacts of recommended maintenance procedures and materials. Specify if any certifications or licenses are required to repair the equipment.

1.6.6.1 Troubleshooting Guides and Diagnostic Techniques

Provide step-by-step procedures to promptly isolate the cause of typical malfunctions. Describe clearly why the checkout is performed and what conditions are to be sought. Identify tests or inspections and test equipment required to determine whether parts and equipment may be reused or require replacement.

1.6.6.2 Wiring Diagrams and Control Diagrams

Provide point-to-point drawings of wiring and control circuits including factory-field interfaces. Provide a complete and accurate depiction of the actual job specific wiring and control work. On diagrams, number electrical and electronic wiring and pneumatic control tubing and the terminals for each type, identically to actual installation configuration and numbering.

1.6.6.3 Removal and Replacement Instructions

Provide step-by-step procedures and a list of required specialty tools and supplies for removal, replacement, disassembly, and assembly of components, assemblies, subassemblies, accessories, and attachments. Provide tolerances, dimensions, settings and adjustments required. Use a combination of text and illustrations.

1.6.6.4 Repair Work-Hours

Provide manufacturer's projection of repair work-hours including requirements by type of craft. Identify, and tabulate separately, repair that requires the equipment manufacturer to complete or to participate.

1.6.6.5 Warranty Information

List and explain the various warranties and clearly identify the servicing and technical precautions prescribed by the manufacturers or contract documents in order to keep warranties in force. Identify if replacement of a subassembly, attachment or accessory requires the entire assembly to be replaced. Include warranty information for primary components of the system. Provide copies of warranties required by Section 01 78 00 CLOSEOUT SUBMITTALS.

1.6.6.6 Extended Warranty Information

List all warranties for products, equipment, components, and sub-components whose duration exceeds one year. For each warranty listed, indicate the applicable specification section, duration, start date, end date, and the point of contact for warranty fulfillment. Also, list or reference the specific operation and maintenance procedures that must be performed to keep the warranty valid. Provide copies of warranties required by Section 01 78 00 CLOSEOUT SUBMITTALS.

1.6.6.7 Record Drawings and Utility Systems

The record drawings are the final compilation of actual conditions reflected in the as-built drawings. Provide record drawings as outlined in 01 78 00 CLOSEOUT SUBMITTALS.

Using Record Source Drawings, show and document details of the actual installation of the utility systems, annotate and highlight the Operation and Maintenance information. Provide the following drawings at a large enough scale to differentiate designated isolation units from surrounding valves and switches.

1.6.6.8 Personnel Training Requirements

Provide information available from the manufacturers that is needed for use in training designated personnel to properly operate and maintain the equipment and systems.

1.6.6.9 Contractor / Supplier Listing and Contact Information

Provide a list that includes the name, address, telephone number, email and website of the General Contractor and each Subcontractor who installed the product or equipment, or system. For each item, also provide the name address and telephone number of the manufacturer's representative and service organization that can provide replacements most convenient to the

project site. Provide the name, address, and telephone number of the product, equipment, and system manufacturers.

1.6.7 Part 4: Facility Operations

1.6.7.1 Completed Facility Operating Plan

Provide a plan that documents that procedures for the operation of systems and assemblies in the facility. The systems that should be included in the Operating Plan include, but are not limited to:

a. Electrical systems and equipment

b. Mechanical systems and equipment

c. Fire Protection systems and equipment

d. Control Systems and equipment

e. Architectural and Structural systems, fixtures, structures, and equipment

f. Vertical transportation such as elevators and escalators

1.6.7.2 Testing Equipment and Special Tool Information

Include information on test equipment required to perform specified tests and on special tools needed for the operation, maintenance, and repair of components. Provide final set points.

1.6.7.3 Testing and Performance Data

Include completed prefunctional checklists, functional performance test forms, and monitoring reports. Include recommended schedule for retesting and blank test forms. Provide final set points.

1.6.7.4 Approved Field Test Reports and Manufacturer's Field Reports

Compile and provide approved Field Test Reports (SD-06) and Manufacturer's Field Reports (SD-09) submittals.

1.6.7.5 Maintenance Plans, Procedures, Checklists, Records, and Spare Parts Inventory

1.6.7.5.1 Maintenance Schedules

Include recommended maintenance schedules for systems and equipment.

1.6.7.5.2 Ongoing Commissioning Operational and Maintenance Record Keeping

Include ongoing commissioning and optimization procedures and documentation to monitor and improve the performance of facility systems.

1.6.7.5.3 Janitorial and Cleaning Plans and Procedures

Include a copy of facility cleaning and janitorial plan with procedures and intended chemicals and equipment.

Provide environmentally friendly cleaning recommendations in accordance

with ASTM E1971.

1.6.7.6 Utility Record Drawings

1.6.7.6.1 Utility Schematic Diagrams

Provide a one-line schematic diagram for each utility system such as power, water, wastewater, and gas/fuel. Schematic diagram must show from the point where the utility line is connected to the mainline up to the 5 foot connection point to the facility. Indicate location or area designation for route of transmission or distribution lines; locations of duct banks, manholes/handholes or poles; isolation units such as valves and switches; and utility facilities such as pump stations, lift stations, and substations.

1.6.7.6.2 Enlarged Connection and Cutoff Plans

Provide enlarged floor plans and provide information between the 5 foot utilities connection point and where utilities connect to facility distribution. Enlarge floor plans/elevations of the rooms where the utility enters the building and indicate on these plans the locations of the main interiors and exterior connection and cutoff points for the utilities. Also enlarge floor plans/elevations of the rooms where equipment is located. Include enough information to enable someone unfamiliar with the facility to locate the connection and cutoff points. Indicate designations such as room number, panel number, circuit breaker, or valve number of each utility and equipment connection and cutoff point, and what that connection and cutoff point controls.

1.6.7.6.2.1 Description of Utility Metering and Monitoring Systems

Provide in narrative format a description of the utility metering and monitoring systems. Include locations, function, and related systems.

1.6.7.6.2.2 Procedures for Tracking Utility Use and Reporting

Procedures for usage reporting and tracking in support of establishing and monitoring utility budgets and costs, and in developing annual energy reports.

1.6.7.6.2.3 One-Line Diagrams and Meter Location of System

Provide one-line diagrams and design drawings that highlight meter locations on the site.

1.6.7.6.3 Spare Parts and Supply Lists

Provide lists of spare parts and supplies required for repair to ensure continued service or operation without unreasonable delays. Special consideration is required for facilities at remote locations. List spare parts and supplies that have a long lead-time to obtain.

1.6.8 Part 5: Training

Provide a copy of training plans used for each type of equipment along with training materials used, arranged in specification sequence. Provide a copy of training records, sign-in sheets, and agendas. Include training and documentation on the updating and continued use of the O&M Manual.

1.6.9 Part 6: Cx Project Report and TAB Report

Provide the final Cx Plan and complete Cx reports with evaluation and testing forms and records for each building system. Include relevant commissioned system assemblies test reports including installers checklists of assemblies. Provide all Cx Progress Reports, issues and resolutions logs with resolution or status of each item, and a list of any open items and seasonal or additional testing required.

1.6.10 Part 7: Regulatory Requirements

Provide information describing regulatory and policies compliance requirements or provide a reference to where it is stored.

1.6.11 Part 8: Permits

Provide information requiring frequently asked questions and associated answers or provide a reference to where it is stored.

1.6.12 Part 9: Operations and Maintenance Manual Approval

Provide a signed document stating that the project O&M Manual has been reviewed and confirming agreement with the approach it presents. Include contact information for the signer for coordination of any future changes.

1.7 SCHEDULE OF OPERATION AND MAINTENANCE DATA PACKAGES

Provide the O&M data packages specified in individual technical sections. O&M Data Packages are one of the components of the O&M Manual. The information required in each type of data package follows:

1.7.1 Package Quality

Documents must be fully legible. Operation and Maintenance data must be consistent with the manufacturer's standard brochures, schematics, printed instructions, general operating procedures, and safety precautions.

1.7.2 Data Package 1

a. Safety precautions and hazards

b. Cleaning recommendations

c. Maintenance and repair procedures

d. Warranty information

e. Extended warranty information

f. Contractor information

g. Spare parts and supply list

1.7.3 Data Package 2

a. Safety precautions and hazards

b. Normal operations

c. Environmental conditions

d. Lubrication data

e. Preventive maintenance plan, schedule, and procedures

f. Cleaning recommendations

g. Maintenance and repair procedures

h. Removal and replacement instructions

i. Spare parts and supply list

j. Parts identification

k. Warranty information

l. Extended warranty information

m. Contractor information

1.7.4 Data Package 3

a. Safety precautions and hazards

b. Operator prestart

c. Startup, shutdown, and post-shutdown procedures

d. Normal operations

e. Emergency operations

f. Environmental conditions

g. Operating log

h. Lubrication data

i. Preventive maintenance plan, schedule, and procedures

j. Cleaning recommendations

k. Troubleshooting guides and diagnostic techniques

l. Wiring diagrams and control diagrams

m. Maintenance and repair procedures

n. Removal and replacement instructions

o. Spare parts and supply list

p. Product submittal data

q. O&M submittal data

r. Parts identification

s. Warranty information

t. Extended warranty information

u. Testing equipment and special tool information

v. Testing and performance data

w. Contractor information

x. Field test reports

1.7.5 Data Package 4

a. Safety precautions and hazards

b. Operator prestart

c. Startup, shutdown, and post-shutdown procedures

d. Normal operations

e. Emergency operations

f. Operator service requirements

g. Environmental conditions

h. Operating log

i. Lubrication data

j. Preventive maintenance plan, schedule, and procedures

k. Cleaning recommendations

l. Troubleshooting guides and diagnostic techniques

m. Wiring diagrams and control diagrams

n. Repair procedures

o. Removal and replacement instructions

p. Spare parts and supply list

q. Repair work-hours

r. Product submittal data

s. O&M submittal data

t. Parts identification

u. Warranty information

v. Extended warranty information

w. Personnel training requirements

x. Testing equipment and special tool information

y. Testing and performance data

z. Contractor information

aa. Field test reports

1.7.6 Data Package 5

a. Safety precautions and hazards

b. Operator prestart

c. Start-up, shutdown, and post-shutdown procedures

d. Normal operations

e. Environmental conditions

f. Preventive maintenance plan, schedule, and procedures

g. Troubleshooting guides and diagnostic techniques

h. Wiring and control diagrams

i. Maintenance and repair procedures

j. Removal and replacement instructions

k. Spare parts and supply list

l. Product submittal data

m. Manufacturer's instructions

n. O&M submittal data

o. Parts identification

p. Testing equipment and special tool information

q. Warranty information

r. Extended warranty information

s. Testing and performance data

t. Contractor information

u. Field test reports

v. Additional requirements for HVAC control systems

1.7.7 Changes to Submittals

Provide manufacturer-originated changes or revisions to submitted data if

a component of an item is so affected subsequent to acceptance of the O&M Data. Submit changes, additions, or revisions required by the Contracting Officer for final acceptance of submitted data within 30 calendar days of the notification of this change requirement.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 TRAINING

Prior to acceptance of the facility by the Contracting Officer for Beneficial Occupancy, provide comprehensive training for the systems and equipment specified in the technical specifications. The training must be targeted for the Facilities Management Specialist, building maintenance personnel, and applicable building occupants. Instructors must be well-versed in the particular systems that they are presenting. Address aspects of the Operation and Maintenance Manual submitted in accordance with Section 01 78 00 CLOSEOUT SUBMITTALS. Training must include classroom or field lectures based on the system operating requirements. The location of classroom training requires approval by the Contracting Officer.

3.1.1 Training Plan

Submit a written training plan to the Contracting Officer for approval at least 60 calendar days prior to the scheduled training. Training plan must be approved by the Quality Control Manager (QC) prior to forwarding to the Contracting Officer. Also, coordinate the training schedule with the Contracting Officer and QC. Include within the plan the following elements:

a. Equipment included in training

b. Intended audience

c. Location of training

d. Dates of training

e. Objectives

f. Outline of the information to be presented and subjects covered including description

g. Start and finish times and duration of training on each subject

h. Methods (e.g. classroom lecture, video, site walk-through, actual operational demonstrations, written handouts)

i. Instructor names and instructor qualifications for each subject

j. List of texts and other materials to be furnished by the Contractor that are required to support training

k. Description of proposed software to be used for video recording of training sessions.

3.1.2 Training Content

The core of this training must be based on manufacturer's recommendations and the operation and maintenance information. The QC is responsible for overseeing and approving the content and adequacy of the training. Spend 95 percent of the instruction time during the presentation on the OPERATION AND MAINTENANCE DATA. Include the following for each system training presentation:

a. Start-up, normal operation, shutdown, unoccupied operation, seasonal changeover, manual operation, controls set-up and programming, troubleshooting, and alarms.

b. Relevant health and safety issues.

c. Discussion of how the feature or system is environmentally responsive. Advise adjustments and optimizing methods for energy conservation.

d. Design intent.

e. Use of O&M Manual Files.

f. Review of control drawings and schematics.

g. Interactions with other systems.

h. Special maintenance and replacement sources.

i. Tenant interaction issues.

3.1.3 Training Outline

Provide the Operation and Maintenance Manual Files (Bookmarked PDF) and a written course outline listing the major and minor topics to be discussed by the instructor on each day of the course to each trainee in the course. Provide the course outline 14 calendar days prior to the training.

3.1.4 Training Video Recording

Record classroom training session(s) on video. Provide to the Contracting Officer two copies of the training session(s) in DVD video recording format. Capture within the recording, in video and audio, the instructors' training presentations including question and answer periods with the attendees. The recording camera(s) must be attended by a person during the recording sessions to assure proper size of exhibits and projections during the recording are visible and readable when viewed as training.

3.1.5 Unresolved Questions from Attendees

If, at the end of the training course, there are questions from attendees that remain unresolved, the instructor must send the answers, in writing, to the Contracting Officer for transmittal to the attendees, and the training video must be modified to include the appropriate clarifications.

3.1.6 Validation of Training Completion

Ensure that each attendee at each training session signs a class roster daily to confirm Government participation in the training. At the completion of training, submit a signed validation letter that includes a sample record of training for reporting what systems were included in the training, who provided the training, when and where the training was performed, and copies of the signed class rosters. Provide two copies of the validation to the Contracting Officer, and one copy to the Operation and Maintenance Manual Preparer for inclusion into the Manual's documentation.

3.1.7 Quality Control Coordination

Coordinate this training with the QC in accordance with Section 01 45 00 QUALITY CONTROL.

3.2 SUBMITTAL SCHEDULING

3.2.1 Operation and Maintenance Manual, Progress Submittal

Submit the Progress submittal when construction is approximately 50 percent complete, to the Contracting Officer for approval. Provide Operation and Maintenance Manual Files (Bookmarked PDF). Include the elements and portions of system construction completed up to this point. The purpose of this submittal is to verify progress is in accordance with contract requirements as discussed during the Operation and Maintenance Manual Coordination Meeting.

3.2.2 Operation and Maintenance Manual, Prefinal Submittal

Submit the 100 percent submittal of the Operation and Maintenance Prefinal Submittal to the Contracting Officer for approval within 60 calendar days of the Beneficial Occupancy Date (BOD). This submittal must provide a complete, working document that can be used to operate and maintain the facility. Any portion of the submittal that is incomplete or inaccurate requires the entire submittal to be returned for correction. Any discrepancies discovered during the Government's review of Operation and Maintenance Progress submittal must be corrected prior to the Prefinal submission. The Prefinal Submittal must include Operation and Maintenance Manual Files (Bookmarked PDF).

3.2.3 Operation and Maintenance Manual, Final Submittal

Submit completed Operation and Maintenance Manual Files (Bookmarked PDF). The Final submittal is due at BOD. Any discrepancies discovered during the Government's review of the Prefinal submittal, including the Field Verification, must be corrected prior to the Final submission.

-- End of Section --

SECTION 01 78 24.00 20

FACILITY DATA WORKBOOK (FDW)
05/23, CHG 1: 11/23

PART 1 GENERAL

1.1 DEFINITIONS AND ABBREVIATIONS

1.1.1 eOMSI

Electronic Operation and Maintenance Support Information

1.1.2 Facility Data Workbook (FDW)

A Microsoft Excel file containing required facility information populated by the Contractor.

1.1.3 Systems

The words "system", "systems", and "equipment", when used in this document refer to as-built systems and equipment.

1.1.4 KTR

An abbreviation for "Contractor."

1.2 OPERATION AND MAINTENANCE MANUAL AND FACILITY DATA WORKBOOK MEETINGS

1.2.1 Pre-Construction Meeting

Meeting requirements are identified in Section 01 78 23 OPERATION AND MAINTENANCE DATA.

1.3 SUBMITTAL SCHEDULING

1.3.1 Facility Data Workbook (FDW), Progress Submittal

Submit the Progress submittal when construction is approximately 50 percent complete, to the Contracting Officer for approval. Provide Facility Data Workbook (Excel). Include the elements and portions of system construction completed up to this point.

The purpose of this submittal is to verify progress is in accordance with contract requirements as discussed during the Operation and Maintenance Manual and Facility Data Workbook Meetings. Field verify a portion of the eOMSI information in accordance with paragraph FIELD VERIFICATION.

1.3.2 Facility Data Workbook (FDW), Prefinal Submittal

Submit the 100 percent submittal of the FDW Prefinal Submittal to the Contracting Officer for approval within 90 calendar days of the Beneficial Occupancy Date (BOD). This submittal must provide a complete, working document that can be used to operate and maintain the facility. Any portion of the submittal that is incomplete or inaccurate requires the entire submittal to be returned for correction. Any discrepancies discovered during the Government's review of FDW Progress submittal must be corrected prior to the Prefinal submission.

1.3.3 Facility Data Workbook (FDW), Final Submittal

Submit completed Facility Data Workbook (Excel). The Final submittal is due at BOD. Any discrepancies discovered during the Government's review of the Prefinal eOMSI submittal, including the Field Verification, must be corrected prior to the Final eOMSI submission.

1.4 UNITS OF MEASURE

Provide FDW utilizing the English Inch-Pound units of measure used in the Government generated contract documents. Refer to Section 01 33 10.05 20 DESIGN SUBMITTAL PROCEDURES.

1.5 SUBMITTALS

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. Submittals not having a "G" or "S" classification are 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 00.05 20 CONSTRUCTION SUBMITTAL PROCEDURES:

SD-11 Closeout Submittals

Facility Data Workbook (FDW), Progress Submittal; G

Facility Data Workbook (FDW), Prefinal Submittal; G

Facility Data Workbook (FDW), Final Submittal; G

PART 2 PRODUCTS

2.1 eOMSI FACILITY DATA WORKBOOK

An initial, pre-edited draft of the Model & Facility Data Matrix tab within the Facility Data Workbook is attached to this Section. The Government will provide this Facility Data Workbook electronically to the Contractor upon award. Add, delete, and update Mastersystems, Systems, and Subsystems that may have changed during construction, or any items that may have been omitted or missed during design, at no additional cost to the Government. Complete the KTR Facility Data File tab based on the selection of Mastersystems, Systems, and Subsystems installed. Download the eOMSI Facility Data Workbook at the following location: https://www.wbdg.org/dod/ufgs/ufgs-forms-graphics-tables. Complete the KTR Facility Data File tab based on the selection of Mastersystems, Systems, and Subsystems installed. The following tabs are included in the eOMSI Facility Data File Workbook and serve the purpose stated:

a. Instructions Tab: Instructions for completing Model & Facility Data Matrix Tab and KTR Facility Data File Tab. If a discrepancy exists between what is required in this Section and the Workbook, the instructions within the workbook take precedence.

b. Model & Facility Data Matrix Tab: - The Matrix lists Required Facility Asset Fields for each SYSTEM and SUBSYSTEM. The Designer of Record selects SYSTEMS and SUBSYSTEMS that are within the project scope, which the Contractor needs to include and populate in KTR Facility

Data File tab. The "Required Facility Asset Field Position Numbers," one through thirty-five, are pre-populated, and are not editable.

c. Required Facility Asset Fields Tab: Defines the 35 Required Facility Asset Field Position Numbers used in Model and Facility Data Matrix and KTR Facility Data File tabs.

d. KTR Sample Facility Data File Tab: Sample KTR eOMSI facility data file. This tab provides an example of the mandatory fields of equipment installed by the Contractor, and populated in the KTR eOMSI Facility Data File Tab, along with their descriptions.

e. KTR Facility Data File Tab: Required eOMSI facility data file deliverable provided to the Government. Provide a separate and unique new row for each facility component or piece of equipment installed. Coordinate with the Government's Contracting Officer's Representative and NAVFAC PW FMD for specific facility component naming convention.

PART 3 EXECUTION

3.1 FIELD VERIFICATION

Field verify Facility Data Workbook information with Contractor and Government personnel. Include the following personnel in this meeting: Contractor's Facility Data Workbook Preparer and Quality Control Manager, and the Government's Contracting Officer's Representative and NAVFAC PW FMD. Request, and provide, an eOMSI Field Verification Meeting no sooner than 14 calendar days after submission of the Progress FDW submittal, and another, no sooner than 14 calendar days after submission of the Prefinal FDW submittal. During this meeting, the Government and Contractor will verify that the Facility Data Workbook is complete and accurate.

Field verify that at least 5 Subsystems under each of the Mastersystems are accurate, for a total of 25 Subsystems. For each of these items, verify that the required facility asset field, as defined in the "Model & Facility Data Matrix" tab, contains the specified data and it is accurate (i.e., item description, manufacturer, model no., serial no.). 100 percent accuracy of eOMSI information. If data discrepancies are discovered amongst the 25 Subsystems verified, resubmit an updated eOMSI FDW, and request a make-up field verification meeting. At the make-up field verification meeting 25 new Subsystems and their associated required facility asset fields will be field verified; the 25 new Subsystems must be 100 percent accurate. Any discrepancies discovered must be corrected prior to next eOMSI Facility Data Workbook Submittal.

(1) D10 - CONVEYING
(2) D20 - PLUMBING
(3) D30 - HVAC
(4) D40 - FIRE PROTECTION
(5) D50 - ELECTRICAL

-- End of Section --

SECTION 01 78 30.00

GIS DATA DELIVERABLES

02/25

PART 1 GENERAL

The primary objective of this section is to provide detailed specifications for collection and delivery of geospatial data commonly referred to as Geographic Information System (GIS) data.

This section shall provide guidance to ensure all GIS data delivered is compatible and will add value to the Marine Corps Base (MCB) Camp Lejeune Installation Geospatial Information and Services (IGI&S) GEOdatabase.

1.1 OBJECTIVE

Point of Contact (POC) for MCB Camp Lejeune

The Points of Contact (POC) for assistance in preparation of GIS deliverables are:

Resident Officer In Charge Of Construction Construction Manager (CM)	Public Works Division GIS Data Manager (SME)
MCAS New River or	1005 Michael Road
Camp Lejeune, NC	Camp Lejeune, NC 28547-2521
(910) 449-5587 / (910) 451-1124	(910) 451-2212

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor Quality Control approval. Submit the following in accordance with Section 01 33 00.05 22 CONSTRUCTION SUBMITTAL PROCEDURES 01 33 00.05 20 CONSTRUCTION SUBMITTAL PROCEDURES:

SD-11 Closeout Submittals

GIS Data Deliverables; G

1.3 GIS DATA REQUEST PACKAGE

Request/Submit a Data Package (DPR)

(1) A DPR Package shall be requested from the CM or Project Manager (PM) upon request.

(2) Request the existing GIS Data, Schema and Domain Properties by means of a Data Request Package (DRP). Receipt of request will include spatial and non-spatial data, as well as the Geospatial Database table structure, schema, domain configurations, attribute format, as well as Meta Data information.

(3) The DRP will be submitted prior to the start of data collection

efforts and again prior to the Final GIS submittal. It is the contractor's responsibility to confirm that all GIS data has been created and delivered utilizing the most up to date IGI&S Geodatabase schema as described in 1.4. This can be achieved by submitting a second DRP 6 - 10 weeks prior to delivery of the GIS Data.

(4) Request only GIS data and or schema for feature classes that are relevant to the contract and within the boundary of project area.

(5) Return the DRP to the CM or PM for sponsorship and submittal to the Installation Geospatial Information & Services (IGI&S) Office as instructed. The email address for submittal is on the IGI&S Data Request form. Receipt of data may take up to 15 - 30 days.

(6) Incomplete forms may delay receipt of the requested GIS data and schema.

1.4 GOVERNMENT GEOSPATIAL SCHEMA

Geospatial data is based on the Spatial Data Standards for Facilities, Infrastructure and Environment (SDSFIE) GEOFidelis Data Model. There are recurring business driven modifications and or adaptations within the SDSFIE schema for the Marine Corps.

(1) All GIS data will be delivered in the schema currently being utilized by the Marine Corps at the time the GIS Data is submitted to the government.

(2) Failure to deliver GIS data in the correct schema will result in the rejection of the data delivered.

1.5 GLOBAL POSITIONING SYSTEM (GPS) REQUIREMENTS AND SPATIAL REFERENCE PROPERTIES

GPS data shall be completed in accordance with the GPS Data Collection and Documentation Standards, Version 4 (or higher version if available at the time of this project) as prepared by Geographic Information Coordinating Council (GICC) Statewide Mapping Advisory Committee (SMAC) and adopted by the North Carolina Geographic Information Coordinating Council.

a. Prior to GPS efforts, ALL underground utilities are to be located utilizing a 3rd party utility locating service to verify and obtain accurate feature locations, sizes, and attributes.

b. Actual spatial and non-spatial conditions in the field always supersede drawings. Locate and field verify all features to ensure attribute data and location is correctly recorded. This includes locating all Underground (UG) utilities utilizing survey grade GPS during the construction phase when the UG utility is in site to capture exact GPS location and elevations.

c. Only benchmarks included in the North Carolina Geodetic Survey Base Station Network are to be used for GPS data collection.

d. Mission planning is essential. Utilize the best Position Dilution of Precision (PDOP) values for data accuracy.

e. Utility data, as identified in paragraph "ATTRIBUTE DATA COLLECTION

AND GPS REQUIREMENTS FOR SPECIFIC FEATURES" will be collected utilizing Survey Grade GPS data collection methods.

f. Infrastructure data, as identified in paragraph "ATTRIBUTE DATA COLLECTION AND GPS REQUIREMENTS FOR SPECIFIC FEATURES" will be collected utilizing Sub-Foot or better GPS data collection methods.

(1) Spatial accuracy requirements for Survey and Sub-Foot grade data collection are as follows:

i Sub-Foot requirements: MetadataID- MetaID000025 Mapping Grade PS

All points shall be within + 12 inches
95 percent accuracy rate for all points.

ii Survey Grade requirements: MetaId000040 Survey Grade GPS

All points shall be within + 1 centimeter
98 percent accuracy rate for all points

g. Make every effort to capture feature locations without using offsets. All Offsets will be noted in the Final Report.

h. The following Geodatabase Coordinate Systems and Spatial Reference Properties should be utilized for MCB Camp Lejeune and surrounding bases which includes MCAS New River:

(1) Transverse Mercator (UTM) Zone 18N
(2) GRS 1980 spheroid
(3) North American Datum 1983 (NAD83) horizontal datum
(4) North American Vertical Datum 1988 (NAVD88) vertical datum.
Domain precision of 1000 which will result in a database accuracy of 1/1000 m

1.6 GIS TOPOLOGY RULES

All data must be created using GIS topology rules for polygons, points, and lines, such as, but not limited to the following examples:

a. Polygons, Polylines and points rules; please reference illustrating topology rules in ArcGIS at www.esri.com.

b. Polygons must not have slivers.

c. All utility or infrastructure system data, which is, but is not limited to, transportation systems, electrical, water, thermal and wastewater collection, etc., will be created using GIS spatial connectivity rules which specify that vertex, edge and endpoints be snapped to features within the correct system. Features will be snapped to the appropriate item.

d. Utility and transportation systems will be created and drawn from source to sink of flow.

e. All GIS Data will be created to represent the real world as constructed. Real life data will be collected, created, and delivered which may or may not represent 100% drawings as field changes are made during construction.

1.7 CREATION OF GEOGRAPHIC DATA DOCUMENTATION (METADATA)

Metadata generation tools included in the ArcGIS suite of software (or equivalent technology) shall be used in the production of the required metadata in XML format. Regardless of the tools used for metadata creation, the Contractor must ensure that the metadata are delivered in XML format and can be easily imported to the MCB Camp Lejeune enterprise geodatabase. Copies of the SDSFIE-M standard can be obtained at https://www.sdsfieonline.org/Standards/Metadata.

PART 2 GIS DATA COLLECTION AND DELIVERABLES GUIDELINES

Collection methods, and geodatabase data will be analyzed by Government Public Work Department GIS personnel for final approval.

2.1 Deliverable Guidelines

a. GIS data will be submitted for all partial deliveries, any phased contract completions, or any time property is transferred to the government. This will include but is not limited to completeness of demolished buildings and other structures as well as all demolished and Abandoned in Place (AIP) Utilities.

b. Prior to any database development, provide the Government with a technical approach document, in PDF format, for review and approval 3-6 months prior to estimated GIS Deliverable.

(1) The technical Approach document will describe in detail the Contractor's technical approach to collecting and developing the GIS Data to be submitted. Include specific procedures, a list of GPS equipment, software and versions that will be utilized, the date on the Data Deliverables Section MM/YYYY, the receipt date of data received via the DRP Request, Details on offsets and include justification, describe any modifications to feature data sets or schema.

2.2 Collection

a. All attributes will be populated in accordance with the "ATTRIBUTE DATA COLLECTION AND GPS REQUIREMENTS FOR SPECIFIC FEATURES" and will be obtained via contract specifications and redlines or as-built drawings.

b. Domain attributes will be in compliance with the geodatabase schema.

c. Do not deliver blank unused features classes in the data with no attributes. Deliver only data pertinent to the contract that will add value to the Geodatabase per this section.

d. Data deliverables will be delivered in the current schema MCBCL is utilizing at the time of GIS Data submittal.

e. Research may be required to be conducted to review historic data, reports and studies in order to verify existing and/or record drawings. Record drawings and reports can be located in the Technical Records Section, Public Works Department at 1005 Michael Street, MCB Camp Lejeune.

f. When requested the contractor is required to provide the GIS technical

consultant point of contact who can answer questions regarding the data deliverable. This should be the person who performed the field work along with the GIS specialist who developed the GIS data.

2.3 Required Reports, Data, and Maps

a. All Data must be submitted for review. This includes but is not limited to the Technical Approach Report; Raw GPS collection files, all working text files, any related documents, GIS data maps, redline or as-builts drawings, and the Personal Geodatabase. All reports and maps will be delivered in a searchable Adobe Portable Document Format (PDF).

(1) For projects that include more than 2 buildings submit a preliminary review of data at 75 percent contract completion to ensure specifications compliance. Submittal must be label "Draft Review."
(2) Print and submit all maps of GIS DATA DELIVERABLES at ANSI C size for all project areas. Data should be labeled with attributes including i.e., building numbers, road names, segment diameters, etc. All GIS data maps should include the date, a legend, scale, contract title, Contract Number, and standard symbology.
(3) All redlines must be submitted on DVD. Print the Redlines civil and utility site plans
(4) Provide a separate GIS data map for communication geospatial data.

b. It is the contractor's responsibility to perform quality assurance prior to providing the government GIS Submittals.

(1) The data will be analyzed for discrepancies in subject content and correct format in accordance with SECTION 01 78 30.00 22 GIS DATA DELIVERABLES section in it entirely.

c. All GIS deliverables will be submitted to the CM or PM and the PWD GIS Office 90 days prior to BOD.

d. GIS data reviews may take up to 30 days to process. Failure to comply with the specification outlines in these sections will result in non-acceptance of GIS data Deliverables.

2.4 Formats, Versions and Guidelines for GIS Data Deliverables

a. All data deliverables will be in the following formats and/or versions.

(1) GIS data will be provided in an ArcGIS 10.8 or higher if a higher version is being used by the Government at the time the GIS data is being submitted. Verify the ArcGIS version, via the CM or PM at the commencement of this contract or when submitting the DRP.
(2) Microsoft Windows 10 operating system or higher dependent on what version is currently being utilizes by the Government at the time the project deliverables are submitted.
(3) Data will be created and delivered by developing and GIS Personal GeoDatabase utilizing ArcGIS 10.8.1 or higher if a higher version is being utilized by the Government at the time the GIS Deliverable is submitted for approval.
(4) All spatial, non-spatial data, text, spreadsheet, database files, reports, maps and other required documentation will be delivered on Digital Versatile Disc read - only memory (DVD-ROM).

b. Owner

All digital files, final hardcopy products, GPS raw data, source data acquired for this project, and related materials, including that furnished by the Government, will become the property of the Government, and will not be issued, posted, distributed, or published by the Contractor. All documentation will be delivered in the final delivery.

Note: No endorsement of software or hardware is implied.

PART 3 ATTRIBUTE DATA COLLECTION AND GPS REQUIREMENTS FOR SPECIFIC FEATURES

GPS and collect attribute data as specified for each feature listed with (GPS) accuracy as described in paragraph "Global Positioning System (GPS) and Spatial Reference Properties". Attribute fields may be associated with Domains, which are utilized to constrain the values allowed in a particular field, attribute table or feature class. Domains must be utilized when populating the feature where required.

3.1 Demolished and Abandoned in Place (AIP) Line and Node Features

For each utility line that is Demolished and or AIP deliver in newly created feature class as defined in this section.

1. Utilizing a blank schema for each specific feature, create a replica of the existing utility segment feature which will be utilized for newly demolished or AIP features. Rename the feature class by adding the word DEMO or AIP in front of the original name, i.e., DEMO.CLJN.CL.ElecUtilSegment, AIP.CLJN.CL.ElecUtilSegment, DEMO.CLJN,CL,WastUtilSegment, AIP.CLJN,CL,WastUtil Segments, etc.

For each **utility Line segment** that has either been demolished or AIP move the feature from the original feature to the newly assigned feature class.

Keep existing attribute information and update the following attributes that apply.

a) Abandoned Date MM-DD-YYYY
b) Abandoned Project Foreign Key Identifier = Contract Number
c) isDemoilished
d) Date Demolished or AIP
e) Operational Status
f) Removed Date

2. For each utility NODE that is Demolished and or AIP features perform the following tasks.

Utilizing a blank schema for each specific feature, create a replica of the existing utility segment feature which will be utilized for newly demolished or AIP features. Rename the feature class by adding the word DEMO in front of the original name, i.e., DEMO.WateUtilNode_WMeter, AIP.WateUtilNode_WMeter, DEMO. WateUtilNode_WSystemValve. AIP. WateUtilNode_WSystemValve, etc

For each **utility Node** that has either been demolished or AIP move the feature to the newly assigned / created feature.

Keeping existing attribute information and update the following attributes that apply.

a) Abandoned Date MM-DD-YYYY
b) Abandoned Project Foreign Key Identifier = Contract Number
c) isDemoilished
d) Date Demolished or AIP
e) Operational Status
f) Removed Date

3.2 Access Control

GPS and collect attribute data as specified for each feature listed with GPS accuracy as described in paragraph "Global Positioning System (GPS) and Spatial Reference Properties." Attribute fields may be associated with Domains, which are utilized to constrain the values allowed in a particular field, attribute table, or feature class. Domains must be utilized when populating the feature where required.

GPS (Survey Grade) and collect the following attributes:

1. AccessControlPoint - The location of a feature, manned or unmanned, intended to selectively restrict entrance to or use of a place or other resource.

   a. Access Control Type - Domain
   b. Contract Number -
   c. Facility Number
   d. Is Manned - Yes / No
   e. Is Range Access - Yes / No
   f. Operational Status - Domain
   g. MetadataID- MetaId000040 Survey Grade GPS

2. Gate - A movable barrier that closes an opening in a fence, wall, or other enclosure or exclosure.

   a. Access Control Type
   b. Built Date
   c. Contract Number
   d. Facility Number
   e. Gate Fabricated Material Type
   f. Gate Top Type
   g. Height Above Surface Level
   h. Height Above Surface Level UOM - Domain
   i. Is Base Entry point - Y/N

3.3 Harbour Area

GPS and collect attribute data as specified for each feature listed with GPS accuracy as described in paragraph "Global Positioning System (GPS) and Spatial Reference Properties." Attribute fields may be associated with Domains, which are utilized to constrain the values allowed in a particular field, attribute table or feature class. Domains must be utilized when populating the feature where required.

GPS (Survey Grade) and collect the following attributes:

1. BoatRampPoint - The partially submerged hard surfaced or non-hard surface structure on a shoreline for launching or retrieving vessels

or vehicles.

a. Contract number -
b. Builtdate -
c. Facility Number -
d. Metadata Identifier -
e. Operational Status - Domain

2. Dock or Wharf - The location of a manmade water-land interface structure often used for access to boats, ships, or barges.

a. AccessType - Domain
b. Built Date -
c. Contract number -
d. Dock Type - Domain
e. Dock Type Use - Domain
f. Metadata Identifier -
g. Operational Status - Domain

3. MarinaArea - A harbor facility for small boats and yachts.

a. Built Date -
b. Category of Craft Facility - Domain
c. Contract number -
d. Metadata Identifier -
e. Operational Status - Domain

3.4 Real Property

GPS and collect attribute data as specified for each feature listed with GPS accuracy as described in paragraph "Global Positioning System (GPS) and Spatial Reference Properties." Attribute fields may be associated with Domains, which are utilized to constrain the values allowed in a particular field, attribute table, or feature class. Domains must be utilized when populating the feature where required.

GPS (Survey Grade) and collect the following attributes:

1. Bridge - The structure erected over a depression or an obstacle such as a body of water, railroad, etc., to provide a pathway for vehicles, rail services, pedestrians or to carry utility services.

a. Builtdate -
b. Contract Number -
c. Facility Number -
d. National Bridge Inventory (NBI) Design Type - Pedestrian, Vehicle, RailRoad, etc
e. MetadataID- MetaId000040 Survey Grade GPS
f. Operational Status - Domain
g. Transportation System Type - Domain

2. Building - The roofed and floored facility enclosed by exterior walls and consisting of one or more levels which includes relocatable, i.e., trailers, etc.

a. Builtdate -
b. Contract Number -
c. Facility Number -
d. Feature Description -Type of building; Storage, Warehouse,

Simulator, Hazmat, Fire Station, etc.
e. Feature Function -
f. Feature Name -
g. Floor Count -
h. MetadataID- MetaId000040 Survey Grade GPS
i. Operational Status - Domain

3. Disposal Area for Structures & Buildings only - The location of a facility asset in the DoD real property inventory for which a disposal action is being or has been taken to physically demolish, remove, or release the DoD of accountability for and control of the asset.

   a. NOTE: Keep original attributes - update the following
   b. Operational Status
   c. Remove date -
   d. Removed ProjectIDFK - Contract number.

4. Fence - The freestanding structure designed to restrict or prevent movement across a boundary. Data will also capture gates associated with Fence structures.

   a. Builtdate -
   b. Contract Number -
   c. Facility Number -
   d. Feature Description -
   e. Feature Name - FENCE / GATE
   f. Fence Design Type - Domain
   g. Fence Fabricated Material Type - Domain
   h. Fence Primary Material Type - Domain
   i. Fence Top Type - Domain
   j. Fence Use Type - Domain
   k. Height -
   l. Height UOM
   m. MetadataID - MetaId000040 Survey Grade GPS
   n. Operational Status - Domain

5. Pavement Section (Slab)- The portion of a pavement branch that differs in some aspect from other sections such that further segmentation is required to uniquely identify that section.

   a. Builtdate -
   b. Contract Number -
   c. Facility Number -
   d. Feature Description - Generator, dumpster, Transformer, etc
   e. Feature Name - SLAB
   f. Operational Status - Domain
   g. Pavement Section Type - Domain
   h. Pavement Surface Type - Domain
   i. MetadataID- MetaId000040 Survey Grade GPS

6. Pavement Airfield Area - The location of a surface feature that comprises a section of a military airfield area.

   a. Apron Type - Domain
   b. Airfield pavement use - Domain
   c. Builtdate -
   d. Contract Number -
   e. Facility Number -
   f. Feature Description - Location

g. Feature Name -
h. Operational Status
i. MetadataID- MetaId000040 Survey Grade GPS
j. Pavement Surface Type - Domain

7. Pavement Parking Area - The area used for parking vehicles not including residential streets and driveways.

a. Builtdate -
b. Contract Number -
c. Facility Number -
d. Feature Description
e. Feature Name - Parking, Driveway, etc
f. Is Paved - Yes / No
g. Operational Status
h. MetadataID- MetaId000040 Survey Grade GPS
i. Pavement Surface Type - Domain

8. Pavement Roadway Area - The surface area that comprise a road area, upon which vehicles drive and park.

a. Builtdate -
b. Contract Number -
c. Feature Description
d. Feature Name - Street Name
e. Is Paved - Yes / No
f. Operational Status
g. MetadataID- MetaId000040 Survey Grade GPS
h. Pavement Surface Type - Domain
i. Road Section Type - Domain

9. Pavement Sidewalk - The paved pedestrian walkway prepared to facilitate travel on foot. It may or may not be adjacent to a street/road.

a. Builtdate -
b. Contract Number -
c. Feature Description
d. Is Paved - Yes / No
e. Material Type
f. MetadataID- MetaId000040 Survey Grade GPS
g. Operational Status - Domain
h. Pavement Surface Type - Domain

10. Pavement Marking Area - A feature used to represent crosswalks

a. Builtdate -
b. Contract Number -
c. Facility Number
d. Feature Description -
e. Feature Name - Pedestrian Crossing Marking
f. MetadataID- MetaId000040 Survey Grade GPS
g. Operational Status - Domain
h. Primary Key Identifier - Street Names

11. Structure Area - The facility, other than a building or linear structure, which is constructed on or in the land.

a. Builtdate -

b. Contract Number -
c. Facility Number
d. Feature Description -
e. Feature Name -
f. MetadataID- MetaId000040 Survey Grade GPS
g. Operational Status - Domain

12. Structure Point - The facility, other than a building or linear structure, which is constructed on or in the land. Signs, monuments, flags, Billboard, etc.

a. Builtdate -
b. Contract Number -
c. Facility Number
d. Feature Description - POI, Sign, Flagpole, bleacher, etc.
e. Feature Name -
f. MetadataID- MetaId000040 Survey Grade GPS
g. Operational Status - Domain

13. Tower Point - The vertical projection, higher than its diameter, generally used for observation, storage, or electronic transmission.

a. Builtdate -
b. Contract Number -
c. Facility Number
d. Feature Description
e. Feature Name -
f. Maximum Height -
g. Height Units of Measure - Domain
h. MetadataID- MetaId000040 Survey Grade GPS
i. Operational Status - Domain

14. Traffic Control Light - A feature used to represent traffic lights and traffic 2070 controller.

a. Builtdate -
b. Contract Number -
c. Facility Number
d. Feature Description - Description of equipment
e. Feature Name - Traffic Control Light , Traffic Control Box, Pedestrian Crossing Pedestals, infrared sensors, etc.
f. MetadataID- MetaId000040 Survey Grade GPS, etc.
g. Operational Status - Domain
h. Primary Key Identifier - Street Names

15. Wall Line - The linear feature used for separation of facilities, ornamental decoration, or structural reinforcement.

a. Builtdate -
b. Contract Number -
c. Facility Number
d. Feature Description - Dumpster, utility, retaining wall, etc
e. Feature Name - Wall
f. Wall Height
g. Wall Height Units of Measure - Domain
h. MetadataID- MetaId000040 Survey Grade GPS
i. Operational Status - Domain
j. Wall Material Type - Domain

16. CLJN.CL. Open Storage - The non-covered and/or covered storage areas, paved or otherwise established, for the storage of general supply materials or the receipt, processing, staging and issue of materials.

    a. Builtdate -
    b. Contract Number -
    c. Facility Number
    d. Feature Description
    e. Feature Name
    f. MetadataID- MetaId000040 Survey Grade GPS
    g. Operational Status - Domain

3.5 Recreation

GPS and collect attribute data as specified for each feature listed with GPS accuracy as described in paragraph "Global Positioning System (GPS) and Spatial Reference Properties." Attribute fields may be associated with Domains, which are utilized to constrain the values allowed in a particular field, attribute table, or feature class. Domains must be utilized when populating the feature where required.

GPS (Survey Grade) and collect the following attributes:

1. Playground - The area designed for children to play outdoors.

    a. Builtdate -
    b. Contract Number -
    c. Facility Number
    d. Feature Description - School, Housing, CDC, etc
    e. Feature Name
    f. MetadataID- MetaId000040 Survey Grade GPS
    g. Operational Status - Domain
    h. Playground Category - Domain

2. Recreation Feature Area - The location of an object or other physical asset associated with a recreation site.

    a. Builtdate -
    b. Contract Number -
    c. Facility Number
    d. Feature Description - Particular Type of Court or rec area
    e. Feature Name
    f. MetadataID- MetaId000040 Survey Grade GPS
    g. isIndoor - Domain
    h. Operational Status - Domain
    i. RecreationFeatureType - Domain

4. Recreation Trail - The path or walkway providing opportunity for physical activities.

    a. Builtdate -
    b. Contract Number -
    c. Facility Number
    d. Feature Description -
    e. Feature Name
    f. Material Type - Domain
    g. MetadataID- MetaId000040 Survey Grade GPS
    h. Operational Status - Domain
    i. Recreational Trail Use - Domain

3.6 Space Mangement

GPS and collect attribute data as specified for each feature listed with GPS accuracy as described in paragraph "Global Positioning System (GPS) and Spatial Reference Properties." Attribute fields may be associated with Domains, which are utilized to constrain the values allowed in a particular field, attribute table, or feature class. Domains must be utilized when populating the feature where required.

AutoCad Conversion from As-built drawings. Do not utilize build drawings as things change during the building process.

1. Interior Floor Plan Line - Floor plan lines that depict walls, doors, etc., for each floor including basement and attic. Floor plans should include permanent fixtures such as toilets, showers, etc., but not furniture and other non-permanent equipment.

    a. Feature Description - Contract Number
    b. Feature Name - Facility Number
    c. Floor Name -
    d. Floor Number - Floor Level
    e. MetadataID - MetaID000005 - Autocadd conversion

2. Facility Interior Space - The location of spaces or rooms within a facility. This part of interior space will provide the following spaces with no access points. It will be a simple poloygon for common spaces, offices, individual rooms, stairways, etc. that are accounted for within the roof cover of the buildings. Several polygons will make up areas per floor.

    a. BuiltDate
    b. Facility number
    c. Feature Description for building - Building name., i.e., BEQ, Gas Station, Admin, Warehouse, etc.
    d. Feature Name; Bed or Barracks room, Bathroom, Classroom, Common Area, Stairwell, Hallway, etc.
    e. Floor Type - Carpet, etc
    f. Floor Number
    g. Gross Floor Area
    h. Gross Floor Area Units of measure
    i. Interior Space type - Domain

3.7 Telecommunications

GPS and collect attribute data as specified for each feature listed with GPS accuracy as described in paragraph "Global Positioning System (GPS) and Spatial Reference Properties." Attribute fields may be associated with Domains, which are utilized to constrain the values allowed in a particular field, attribute table, or feature class. Domains must be utilized when populating the feature where required.

Survey GPS (Survey Grade) and collect the following attributes:

1. Comm Util Segment - The location of a feature used for distribution in a communications network, particularly a cable for the transmission of a signal. Survey grade GPS during the construction phase when the UG utility is in site to capture exact GPS location and elevations.

a. Cable Install Type
b. Cable Material
c. Cable Route
d. Contract Number
e. Feature Name - Direct Buried Lines / Non-Direct Buried Lines, etc
f. Number of Stands
g. Wire Guage

2. CUg Enclosure Access - The location of a communication access point to the related communication underground enclosure.

a. Communication Utility Feature Type - Domain
b. Contract Number
c. Date in Service
d. Enclosure Type - Domain
e. Feature Description
f. Network Type - Domain
g. Operational Status

3. C Pedestal - The location of an above-ground enclosed structure that provides access to buried plant and a place to house utility features.

a. Communication Utility Feature Type - Domain
b. Contract Number
c. Feature Description
d. Feature Name
e. Operational Status - Domain

3.8 Transportation

GPS and collect attribute data as specified for each feature listed with GPS accuracy as described in paragraph "Global Positioning System (GPS) and Spatial Reference Properties." Attribute fields may be associated with Domains, which are utilized to constrain the values allowed in a particular field, attribute table, or feature class. Domains must be utilized when populating the feature where required.

GPS (Survey Grade) and collect the following attributes:

1. RailTrack - The location of a linear portion of the rail network.

a. Builtdate -
b. Contract Number -
c. Facility Number
d. Feature Description -
e. Feature Name
f. MetadataID- MetaId000040 Survey Grade GPS
g. Operational Status - Domain
h. RailerTrackUse - Domain

2. Road Centerline - The center of a roadway, as measured from the edge of the navigable road with the paved or unpaved surface.

a. Feature Name -
b. Full Street Name -
c. Implementation Area - Specific Base
d. Is Paved - Yes / No
e. Legacy Full Street Name

f. One-Way Directionality - Domain
g. Operational Status - Domain
h. Road Class - Domain
i. Speed Limit

3. Sign - The structure that conveys directional, warning, Speed, or other information.

a. Builtdate -
b. Contract Number -
c. Feature Description
d. Feature Name -
e. MetadataID- MetaId000040 Survey Grade GPS
f. Operational Status - Domain
g. Sign Assembly Type - Domain
h. Sign Text -
i. Sign Type - Domain
j. Symbol Code -

3.9 Utilities Electrical

GPS and collect attribute data as specified for each feature listed with GPS accuracy as described in paragraph "Global Positioning System (GPS) and Spatial Reference Properties." Attribute fields may be associated with Domains, which are utilized to constrain the values allowed in a particular field, attribute table, or feature class. Domains must be utilized when populating the feature where required.

GPS (Survey Grade) and collect the following attributes:

1. Alternative Energy Point - The apparatus or device used for the production of energy from a renewable resource.

a. Date in Service
b. Alternative Energy Type - Domain
c. Contract Number
d. Date in Service
e. Facility Number
f. Feature Description
g. Feature Name
h. MetadataID- MetaId000040 Survey Grade GPS, etc.
i. Operational Status - Domain
j. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.
k. Panel Type

2. Alternative Energy Area - The apparatus or device used for the production of energy from a renewable resource.

a. Date in Service
b. Alternative Energy Type - Domain
c. Contract Number
d. Date in Service
e. Facility Number
f. Feature Description
g. Feature Name
h. MetadataID- MetaId000040 Survey Grade GPS, etc.
i. Operational Status - Domain
j. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.
k. Panel Type

3. Elec Util Node_E Airfield Light - The location of an electrical device used to illuminate runways, taxiways, helipads, aprons, and any other aircraft movement area, as well as to guide ground traffic.

    a. Airfield Light Type - Domain
    b. Circuit Identifier - Available upon request CM/PM/PWD Data Manager
    c. Contract Number
    d. Date In Service
    e. Electrical Node Type - Domain
    f. Feature Name
    g. MetadataID- MetaId000040 Survey Grade GPS, etc.
    h. Operational Status - Domain
    i. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.

4. Elec Util Node_E Circuit Breaker - The location of a circuit breaker, an automatically operated electrical switch designed to protect an electrical circuit from damage caused by excess current from an overload or short circuit.

    a. Circuit Identifier - Available upon request CM/PM/PWD Data Manager
    b. Contract Number
    c. Date in Service
    d. Electrical Node Type - Domain
    e. Feature Description
    f. Feature Name
    g. MetadataID- MetaId000040 Survey Grade GPS, etc.
    h. Operational Status - Domain
    i. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.

5. Feat_E Demarcation Point - The location where the electrical service provider Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc. ownership ends.

    a. Contract Number
    b. Date in Service
    c. Electrical Utility Feature Type - Domain
    d. Facility Number
    e. Feature Description
    f. Feature Name
    g. Ground or Surface Relationship - Domain
    h. MetadataID- MetaId000040 Survey Grade GPS, etc.
    i. Operational Status - Domain
    j. Outside Provided Name - OWASA, DUKE, JONES, ONSLOW, etc.

6. Elec Uti lNode_E Exterior Light - The location of a lighting device that is supplied by local distribution systems and is generally the only service for which the electric utility installs, operates and maintains utilization equipment.

    a. Circuit ID - Available upon request CM/PM/PWD Data Manager
    b. Contract Number
    c. Date In Service
    d. Electrical Node Type - Domain
    e. Exterior Light Type - Domain
    f. Feature Description
    g. Has Sensor - Y / N
    h. MetadataID- MetaId000040 Survey Grade GPS, etc.
    i. Mounting Type - Domain

j. Lamp Type
k. Operational Status - Domain
l. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.
m. Voltage
n. Wattage

7. Elec Util Node_E Fuse - The location of a device used to protect electric distribution devices from dangerously high currents, and reduce risk of severe injury for personnel.

a. Circuit Identifier - Available upon request CM/PM/PWD Data Manager
b. Contract Number
c. Date in Service
d. Electrical Node Type - Domain
e. Feature Description
f. Feature Name
g. MetadataID- MetaId000040 Survey Grade GPS, etc.
h. Number of Phases - Domain
i. Operational Status - Domain
j. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.

8. Elec Util Node_E Generator - The location of an available kinetic power source providing electricity.

a. Circuit Identifier - Available upon request CM/PM/PWD Data Manager
b. Contract Number
c. Date in Service
d. Electrical Node Type - Domain
e. Feature Description
f. Feature Name
g. Facility Number
h. Generator Power Source - Domain
i. Generator Type - Domain
j. Is Portable - Domain
k. KVA Rate
l. KW Rate
m. MetadataID- MetaId000040 Survey Grade GPS, etc
n. Operational Status - Domain
o. Voltage

9. Elec Util Node_E Meter - The location of a device that measures the amount of electric energy consumed by the power user.

a. Circuit Identifier - Available upon request CM/PM/PWD Data Manager
b. Contract Number
c. Date In Service
d. Electrical Node Type - Domain
e. Feature Description
f. Feature Name
g. MetadataID- MetaId000040 Survey Grade GPS
h. Is AMI Meter - Y/N
i. Meter Type - Domain
j. Meter Use - Domain
k. Mounting Type - Domain
l. Voltage
m. Operational Status - Domain
n. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.
o. Voltage

10. Elec Util Node_E Open Point - The location of a universal connection node on the network for temporary connection of a portable generator or alternate feed.

    a. Circuit Identifier - Available upon request CM/PM/PWD Data Manager
    b. Contract Number
    c. Date in Service
    d. Electrical Node Type - Domain
    e. Feature Description
    f. Feature Name
    g. MetadataID- MetaId000040 Survey Grade GPS, etc.
    h. Operational Status - Domain
    i. Phase - Domain
    j. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.

11. Elec Util Node_E Substation - A substation is a part of an electrical generation, transmission, and distribution system. Substations transform voltage from high to low, or the reverse, or perform any of several other important functions. Between the generating station and consumer, electric power may flow through several substations at different voltage levels.

    a. Circuit Identifier - Available upon request CM/PM/PWD Data Manager
    b. Contract Number
    c. Date in Service
    d. Electrical Node Type - Domain
    e. Feature Description
    f. Feature Name
    g. Facility Number
    h. MetadataID- MetaId000040 Survey Grade GPS, etc
    i. Number of Available Bays
    j. Number of Circuits
    k. Number of Spare Breakers
    l. Number of Transformers
    m. Operational Status - Domain
    n. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.
    o. Voltage In - Domain
    p. Voltage Out - Domain

12. Elec Util Node_E Switch - The location of a device throughout distribution feeder circuits to redirect power flows to balance loads or for sectionalizing to allow repair of damaged lines or equipment.

    a. Circuit Identifier - Available upon request CM/PM/PWD Data Manager
    b. Contract Number
    c. Date in Service
    d. Electrical Node Type - Domain
    e. Electrical Switch Installation - Domain
    f. Electrical Switch Type - Domain
    g. Feature Description
    h. Feature Name
    i. Number of Phases - Domain
    j. Number of Switches
    k. MetadataID- MetaId000040 Survey Grade GPS, etc.
    l. Operational Status - Domain
    m. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.
    n. Switch Position - Domain

13. Elec Util Node_E Switching Station - A switching station is an

electrical substation with only one voltage level, whose only function are switching actions.

a. Circuit Identifier - Available upon request CM/PM/PWD Data Manager
b. Contract Number
c. Date in Service
d. Electrical Node Type - Domain
e. Feature Description
f. Feature Name
g. MetadataID- MetaId000040 Survey Grade GPS, etc.
h. Operational Status - Domain
i. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.

14. Elec Util Node_E Transformer - The location of an electric distribution or power transformer.

a. Circuit Identifier - Available upon request CM/PM/PWD Data Manager
b. Contract Number
c. Date in Service
d. Electrical Node Type - Domain
e. Feature Description
f. Feature Name
g. MetadataID- MetaId000040 Survey Grade GPS, etc.
h. Mounting Type - Pad / Pole
i. Number of Phases - Domain
j. Operational Status - Domain
k. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.
l. Phase - Domain
m. Primary Voltage
n. Secondary Voltage
o. Total KVA

15. Elec Util Node_E Voltage Regulator - The location of a device that varies the ac supply or source voltage to the customer to maintain the voltage within desired limits.

a. Circuit Identifier - Available upon request CM/PM/PWD Data Manager
b. Contract Number
c. Date In Service
d. Electrical Node Type - Domain
e. Feature Description
f. Feature Name
g. Facility Number
h. Number of Phases - Domain
i. MetadataID- MetaId000040 Survey Grade GPS, etc.
j. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.
k. Operational Status
l. Primary Voltage
m. Secondary Voltage
n. Total KVA

16. CL.Feat_E Guy Anchor Point -The location of an anchor installed in the ground.

a. Contract Number
b. Date In Service
c. Electrical Utility Feature Type - Domain
d. Feature Description
e. Feature Name

f. MetadataID- MetaId000040 Survey Grade GPS, etc.
g. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.
h. Operational Status - Domain

17. Feat_E Pedestal - An aboveground service entrance, allowing maintenance access to the specific utility, usually electric or communications.

    a. Circuit Identifier - Available upon request CM/PM/PWD Data Manager
    b. Contract Number
    c. Date In Service
    d. Electrical Utility Feature Type - Domain
    e. Feature Description
    f. Feature Name
    g. Facility Number
    h. MetadataID- MetaId000040 Survey Grade GPS
    i. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.
    j. Operational Status

18. Feat_E Scada Sensor - The location of a device that is used to remotely measure the status of electrical network components as part of a Supervisory Control and Data Acquisition (SCADA) system.

    a. Circuit Identifier - Available upon request CM/PM/PWD Data Manager
    b. Contract Number
    c. Date in Service
    d. Electrical Utility Feature Type - Domain
    e. Feature Description
    f. Feature Name
    g. Facility Number
    h. MetadataID- MetaId000040 Survey Grade GPS
    i. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.
    j. Operational Status

19. E Support Structure - The location of a structural framework that holds electric devices in an elevated position.

    a. Contract Number
    b. Date in Service
    c. Electrical Utility Feature Type - Domain
    d. Feature Description
    e. Feature Name
    f. Primary Key Identifier - X/Y Coordinates number on pole
    g. Height Above Surface Level
    h. Height Above Surface Level UOM -
    i. Material Type - Domain
    j. MetadataID- MetaId000040 Survey Grade GPS
    k. Operational Status - Domain
    l. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.

20. Feat. E Surface Structure - The location of a structural framework that holds electric devices in a position at or near the ground surface.

    a. Contract Number
    b. Date in Service
    c. Electrical Structure Type - Domain
    d. Electrical Utility Feature Type - Domain
    e. Feature Description

f. Feature Name - Manhole / handhole
g. Ground Surface Relationship
h. MetadataID- MetaID000025 Mapping Grade GPS
i. Operational Status - Domain
j. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.

21. EUg Enclosure Access - The location of an electrical access point to the related electrical underground enclosure.

a. Contract Number
b. Date in Service
c. Diameter
d. Diameter Uom - Domain
e. Electrical Utility Feature Type - Domain
f. Enclosure Type - Domain
g. Feature Description
h. Feature Name - Manhole, handhole, etc.
i. Material Type - Domain
j. MetadataID- MetaId000040 Survey Grade GPS
k. Operational Status - Domain
l. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.

22. Feat_E Substation - The location of a facility in an electrical system where the voltage is reduced from transmission levels to distribution levels. (Polygon)

a. Contract Number
b. Date in Service
c. Electrical Utility Feature Type - Domain
d. Facility Number
e. Feature Description
f. Feature Name
g. MetadataID- MetaId000040 Survey Grade GPS
h. Number of Available Bays
i. Number of Circuits
j. Number of Transformers
k. Operational Status - Domain
l. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.
m. Voltage In
n. Voltage out

23. CL. Elec Util Segment - The location of a linear feature, particularly a cable, that transmits, distributes, or connects customers to electricity. Survey grade GPS during the construction phase when the UG utility is in site to capture exact GPS location and elevations.

a. Cable Insulation - Domain
b. Cable Material - Domain
c. Cable Sheathing - Domain
d. Circuit Id - Available upon request CM/PM/PWD Data Manager
e. Conductor Size
f. Contract Number
g. Date in Service
h. Electrical Segment Type - Domain (Primary / Secondary)
i. Feature Description
j. Feature Name - ELECTRICAL DISTRIBUTION CABLE / EXTERIOR LIGHTING CABLE
k. Ground or Surface Relationship Configuration - Domain (OH/UG)
l. MetadataID- MetaId000040 Survey Grade GPS, etc

m. Neutral Size
n. Number of Conduct
o. Number of Neutral
p. Number of Phase Conductors
q. Number of Phases - Domain
r. Operational Status - Domain
s. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.

24. Elec Util Node_EPanel - A distribution board (also known as panelboard, breaker panel, or electric panel) is a component of an electricity supply system that divides an electrical power feed into subsidiary circuits, while providing a protective fuse or circuit breaker for each circuit in a common enclosure and traffic control box.

a. Circuit Id - Available upon request CM/PM/PWD Data Manager
b. Contract Number
c. Date in Service
d. Electrical Node Type
e. Feature Description - Traffic Control Panel,
f. Feature Name -
g. Function Area - Traffic System
h. Operational Status
i. Number of phases

3.10 Compressed Gas

GPS and collect attribute data as specified for each feature listed with GPS accuracy as described in paragraph "Global Positioning System (GPS) and Spatial Reference Properties." Attribute fields may be associated with Domains, which are utilized to constrain the values allowed in a particular field, attribute table, or feature class. Domains must be utilized when populating the feature where required.

GPS (Survey Grade) and collect the following attributes:

1. CompGasUtilNode_CgCompressor - A mechanical device that increases the pressure of a gas by reducing its volume.

a. Compressed Gas Node Type - Domain
b. Contract Number -
c. Date is Service -
d. Facility Number
e. Feature Description -
f. Feature Name
g. MetadataID- MetaId000040 Survey Grade GPS
h. Operational Status - Domain
i. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc

2. CompGasUtilSegment - The location of a linear feature, particularly a pipeline, used for the distribution of compressed non-heating gas or air. Survey grade GPS during the construction phase when the UG utility is in site to capture exact GPS location and elevations.

a. Compressed Gas Segment Type - Domain
b. Contract Number -
c. Date is Service -
d. Facility Number

e. Feature Description -
f. Feature Name
g. MetadataID- MetaId000040 Survey Grade GPS
h. Operational Status - Domain
i. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.

3.11 POL (Petroleum, Oils & Lubricants)

GPS and collect attribute data as specified for each feature listed with GPS accuracy as described in paragraph "Global Positioning System (GPS) and Spatial Reference Properties." Attribute fields may be associated with Domains, which are utilized to constrain the values allowed in a particular field, attribute table, or feature class. Domains must be utilized when populating the feature where required.

GPS (Survey Grade) and collect the following attributes:

1. Feat_O Service Station - The location of a facility where fuel is dispensed to mobile equipment or vehicles.

   a. Contract Number -
   b. Date is Service -
   c. Facility Number
   d. Feature Description -
   e. Feature Name
   f. MetadataID- MetaId000040 Survey Grade GPS
   g. Operational Status - Domain
   h. POL Utility Feature Type - Domain

2. Pol Util Node_O Dispenser - The location of a machine at a fueling station that is used to pump fuel into vehicles or Aerospace Ground Equipment (AGE).

   a. Contract Number -
   b. Date is Service -
   c. Facility Number
   d. Feature Description -
   e. Feature Name
   f. MetadataID- MetaId000040 Survey Grade GPS
   g. Operational Status - Domain
   h. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.
   i. POL Network Type - Domain
   j. POL Node Type - Domain

3. Pol Util Node_O Meter - The location of a device that measures the volumetric flow rate of fuel passing through the meter.

   a. Contract Number
   b. Date is Service
   c. Facility Number
   d. Feature Description
   e. Feature Name
   f. MetadataID- MetaId000040 Survey Grade GPS, etc.
   g. Meter Type
   h. Operational Status - Domain
   i. POL Network Sub Type - Domain
   j. POL Node Type - Domain

4. Pol UtilNode_O Tank - The location of a container for storage of POL

products at atmospheric pressure.

a. Contract Number
b. Date is Service
c. Facility Number
d. Feature Description
e. Feature Name
f. Ground or Surface Relationship - Domain
g. Is Regulated - Domain
h. MetadataID- MetaId000040 Survey Grade GPS, etc.
i. Nominal Capacity
j. Nominal Capacity UOM - Domain
k. Operational Status - Domain
l. POL Network Sub Type - Domain
m. POL Node Type - Domain
n. Serial Number
o. Storage Tank Product
p. Structure Material
q. Volume
r. Volume UOM - Domain

5. Pol Util Node_O Valve - The location of a network component used to control flow, pressure, and level within fueling systems.

a. Contract Number
b. Date is Service
c. Diameter
d. Diameter UOM - Domain
e. Facility Number
f. Feature Description
g. Feature Name - Valve Type
h. MetadataID- MetaId000040 Survey Grade GPS, etc.
i. Operational Status - Domain
j. POL Network Sub Type - Domain
k. POL Node Type - Domain

6. Pol Util Segment - The location of a linear feature, particularly a pipeline, used for the conveyance of petroleum, oil, and lubricants (POL) product. Survey grade GPS during the construction phase when the UG utility is in site to capture exact GPS location and elevations.

a. Contract Number
b. Date is Service
c. Diameter
d. Diameter UOM - Domain
e. Facility Number
f. Feature Description
g. Feature Name
h. Ground Configuration - Domain
i. MetadataID- MetaId000040 Survey Grade GPS, etc.
j. Material Type
k. Operational Status - Domain
l. POL Network Sub Type - Domain
m. POL Utility Segment Type - Domain

3.12 Sewer

GPS and collect attribute data as specified for each feature listed with GPS accuracy as described in paragraph "Global Positioning System (GPS)

and Spatial Reference Properties." Attribute fields may be associated with Domains, which are utilized to constrain the values allowed in a particular field, attribute table, or feature class. Domains must be utilized when populating the feature where required. GPS during the construction phase when the UG utility is uncovered and is in site to capture exact GPS location and elevations.

GPS (Survey Grade) and collect the following attributes:

1. Feat_SPumpStation - The location of a facility that collects and discharges wastewater via pumps.

    a. Contract Number
    b. Date In Service
    c. Facility Number
    d. Feature Description
    e. Feature Name
    f. MetadataID- MetaId000040 Survey Grade GPS, etc
    g. Has Generator Back up - Domain
    h. Is Main pump - Domain
    i. Network Type - Domain
    j. Nominal Capacity
    k. Nominal Capacity UOM
    l. Number of Pumps
    m. Operational Status - Domain
    n. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.
    o. Utility Network Subtype - Domain
    p. Wastewater Utility Feature Type - Domain

2. Feat_S Scada Sensor - The location of a device that is used to remotely measure the status of wastewater network components as part of a Supervisory Control and Data Acquisition (SCADA) system.

    a. Contract Number
    b. Date In Service
    c. Facility Number
    d. Feature Description
    e. Feature Name
    f. MetadataID- MetaId000040 Survey Grade GPS, etc
    g. Operational Status - Domain
    h. UtilityNetworkSubtype - Domain
    i. Wastewater Utility Feature Type - Domain

3. Feat_S Septic Tank Area - The location of a small-scale anaerobic digester and leach field designed to treat wastewater from an individual facility and is not connected to the wastewater collection system. * Survey Grade GPS all UG locations to ensure exact location of all UG features during construction while items are visible.

    a. Contract Number
    b. Date In Service
    c. Facility Number
    d. Feature Description
    e. Feature Name
    f. MetadataID- MetaId000040 Survey Grade GPS, etc
    g. Nominal Capacity
    h. Nominal Capacity UOM
    i. Septic Type Type - Domain
    j. Volume

k. Volume UOM - Domain
l. Wastewater Utility Feature Type - Domain

4. Feat_S Septic Tank Point - The location of a small-scale anaerobic digester and leach field designed to treat wastewater from an individual facility, and is not connected to the wastewater collection system.

   a. Contract Number
   b. Date In Service
   c. Facility Number
   d. Feature Description
   e. Feature Name
   f. Material Type -
   g. MetadataID- MetaId000040 Survey Grade GPS, etc
   h. Nominal Capacity
   i. Nominal Capacity UOM
   j. Septic Type Type - Domain
   k. Volume
   l. Volume UOM

5. Feat_SUg Enclosure - The location of a subterraneous space that may house various types of aspatial equipment found in a wastewater utility system, and/or allow access to and provide protection of wastewater system facilities and equipment.

   a. Contract Number
   b. Date In Service
   c. Facility Number
   d. Feature Description
   e. Feature Name
   f. MetadataID- MetaId000040 Survey Grade GPS, etc.
   g. Operational Status
   h. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.
   i. Operational Status - Domain
   j. Wastewater Utility Feature Type - Domain

6. S Demarcation Point - The location where the wastewater service provider ownership ends, and the customer ownership begins.

   a. Contract Number
   b. Date In Service
   c. Facility Number
   d. Feature Description
   e. Feature Name
   f. Ground Surface Relationship
   g. MetadataID- MetaId000040 Survey Grade GPS, etc
   h. Operational Status
   i. Outside Provider OWASA, ONSLOW, etc
   j. Operational Status - Domain
   k. Wastewater Utility Feature Type - Domain

7. Feat_SUgEnclosureAccess - The location of a wastewater access point to the related wastewater underground enclosure. Manhole

   a. Contract Number
   b. Date In Service
   c. Diameter
   d. Diameter UOM

e. Facility Number
f. Feature Description
g. Feature Name
h. Ground Configuration - Domain
i. Invert Elevation
j. Invert Elevation UOM - Domain
k. MetadataID- MetaId000040 Survey Grade GPS, etc
l. Number of Pipes
m. Operational Status
n. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.
o. Network Type - Domain
p. Operational Status - Domain
q. Rim Elevation
r. Rim Elevation UOM - Domain
s. Utility Network Subtype - Domain
t. Wastewater Utility Feature Type - Domain

8. WastUtilNode_SCleanOut - The location of a wastewater device access point in a lateral used for maintenance purposes.

a. Contract Number
b. Date In Service
c. Diameter
d. Diameter UOM - Domain
e. Feature Description
f. Feature Name
g. MetadataID- MetaId000040 Survey Grade GPS, etc
h. Material Type
i. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.
j. Operational Status - Domain
k. Wastewater Node Type - Domain

9. WastUtilNode_SFitting - The location of a mechanical device on the wastewater system that caps or plugs a single pipe, or connects two or more pipes.

a. Contract Number
b. Date In Service
c. Diameter
d. Diameter UOM - Domain
e. Feature Description
f. Feature Name
g. Fitting Material - Domain
h. Fitting Type - Domain
i. MetadataID- MetaId000040 Survey Grade GPS, etc
j. Operational Status - Domain
k. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.
l. Wastewater Node Type - Domain

10. WastUtilNode_SGreaseTrap - The location of a tank which separates grease from water, collects the grease for removal, and allows the water to exit.

a. Contract Number
b. Date In Service
c. Feature Description
d. Feature Name
e. MetadataID- MetaId000040 Survey Grade GPS, etc
f. Operational Status - Domain

g. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.
h. Wastewater Node Type - Domain

11. WastUtilNode_SOilWateSepa - The location of a device or structure placed in the wastewater stream to separate water from oil products.

    a. Contract Number
    b. Date In Service
    c. Facility Number
    d. Feature Description
    e. Feature Name - Oil/Water Separator
    f. MetadataID- MetaId000040 Survey Grade GPS, etc
    g. Operational Status - Domain
    h. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.
    i. Wastewater Utility Feature Type - Domain

12. WastUtilNode_SPump - The location of a piece of wastewater equipment that adds energy to a fluid being conveyed through a pipe or other closed conduit.

    a. Contract Number
    b. Date In Service
    c. Diameter
    d. Diameter UOM - Domain
    e. Feature Description
    f. Feature Name
    g. Facility Number
    h. Fitting Material - Domain
    i. Fitting Type - Domain
    j. MetadataID- MetaId000040 Survey Grade GPS, etc
    k. Operational Status - Domain
    l. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.
    m. Wastewater Node Type - Domain

13. WastUtilNode_SReleaseValve - The location of a wastewater device used to purge air from a force main.

    a. Contract Number
    b. Date In Service
    c. Depth
    d. Depth UOM - Domain
    e. Diameter of cover
    f. Diameter UOM - Domain
    g. Feature Description
    h. Feature Name - Air Release Valve
    i. Fitting Material - Domain
    j. Fitting Type - Domain
    k. MetadataID- MetaId000040 Survey Grade GPS, etc
    l. Operational Status - Domain
    m. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.
    n. Valve Type - Domain
    o. Wastewater Node Type - Domain

14. WastUtilNode_SSystemValve - The location of a device that regulates, directs, or controls the flow of wastewater.

    a. Contract Number
    b. Date In Service
    c. Diameter

d. Diameter UOM - Domain
e. Feature Description
f. Feature Name - Valve Type
g. MetadataID- MetaId000040 Survey Grade GPS, etc
h. Operational Status - Domain
i. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.
j. Valve Type - Domain
k. Wastewater Node Type - Domain

15. WastUtilSegment - The location of a feature used for the conveyance of wastewater. Survey grade GPS during the construction phase when the UG utility is in site to capture exact GPS location and elevations.

a. Contract Number
b. Date In Service
c. Diameter of cover
d. Diameter UOM - Domain
e. Feature Description
f. Ground Configuration - Domain
g. Invert Elevation Down Stream
h. Invert Elevation Down Stream UOM - Domain
i. Invert Elevation Up Stream
j. Invert Elevation Up Stream UOM - Domain
k. Is Lined - Domain
l. Water Segment Install Type - Raw, Potable, Fire, Service, AIP, etc
m. Material Type - Domain
n. MetadataID- MetaId000040 Survey Grade GPS, etc
o. Operational Status - Domain
p. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.
q. Pipe Type - Domain
r. Wastewater Segment Type - Domain

3.13 Storm Water

GPS and collect attribute data as specified for each feature listed with GPS accuracy as described in paragraph "Global Positioning System (GPS) and Spatial Reference Properties." Attribute fields may be associated with Domains, which are utilized to constrain the values allowed in a particular field, attribute table, or feature class. Domains must be utilized when populating the feature where required.

GPS (Survey Grade) and collect the following attributes:

1. Feat_Sw Headwall Point - The location of a wall at the end of a culvert or drain to serve one or more of the following purposes: protect fill from scour or undermining; increase hydraulic efficiency, divert direction of flow, and serve as a retaining wall.

a. Contract Number
b. Date In Service
c. Diameter
d. Diameter UOM - Domain
e. Feature Description
f. Feature Name - Headwall
g. MetadataID- MetaId000040 Survey Grade GPS, etc
h. Operational Status - Domain
i. Storm water Utility Feature Type - Domain

2. Storm Util Node_Sw Inlet - A location where storm water is collected

and received into the utility system.

a. Contract Number
b. Date In Service
c. Diameter
d. Diameter UOM - Domain
e. Feature Description
f. Feature Name
g. Inlet Cover Type - Domain
h. Inlet Diameter
i. Inlet Diameter UOM - Domain
j. MetadataID- MetaId000040 Survey Grade GPS, etc
k. Operational Status - Domain
l. Stormwater utility Node Type - Domain

3. Storm Util Node_Sw Oil Wate Sepa - The location of a device or structure placed in the stormwater stream to separate water from oil products.

a. Contract Number
b. Date In Service
c. Diameter
d. Diameter UOM - Domain
e. Feature Description
f. Feature Name - OWS / Drop Inlet, etc
g. MetadataID- MetaId000040 Survey Grade GPS, etc
h. Operational Status - Domain
i. Stormwater Node Type - Domain

4. Feat.SUg Enclosure Access - The location of a Stormwater access point to the related Stormwater underground enclosure.

a. Contract Number
b. Diameter
c. Diameter Unit of Measure
d. Feature Description
e. Feature Name
f. Operational status - Domain

5. Feat_Sw Retention Basin Area - The location of a human-created area installed on, or adjacent to, tributaries of rivers, streams, lakes or bays to protect against flooding and in some cases associated downstream erosion, and to improve water quality by permanently storing runoff.

a. Contract Number
b. Date In Service
c. Feature Description - RETENTION POND, Etc
d. Feature Name -
e. Facility Number
f. Impoundment Type - Domain
g. MetadataID- MetaId000040 Survey Grade GPS, etc
h. Operational Status - Domain
i. Stormwater Permit ID - Number / Date Issued (DDMMYYYY)
j. Stormwater Utility Feature Type - Domain

6. Storm Util Seg - The location of a feature used for the conveyance of stormwater. GPS during the construction phase when the UG utility is uncovered and is in site to capture exact GPS location and elevations.

a. Contract Number
b. Date In Service
c. Diameter
d. Diameter Unit of Measure - Domain
e. Feature Description
f. Feature Name -
g. Invert Elevation
h. Invert Elevation Downstream
i. Invert Elevation Downstream UOM - Domain
j. Invert Elevation Upstream
k. Invert Elevation Upstream UOM - Domain
l. Is French Drain - Domain
m. Open Drain Surface
n. Pipe Material - Domain
o. Pipe Type - Domain
p. MetadataID- MetaId000040 Survey Grade GPS, etc
q. Operational Status - Domain
r. Stormwater Segment Type - Domain

7. Storm Util Seg_Sw Open Drain - The open trench, either natural or manmade, used to convey stormwater flow.

a. Contract Number
b. Date In Service
c. Diameter
d. Diameter UOM - Domain
e. Feature Description
f. Feature Name - Open Ditch, Paved Ditch, Unpaved Ditch, etc
g. Open Drain Surface
h. MetadataID- MetaId000040 Survey Grade GPS, etc
i. Operational Status - Domain
j. Stormwater Segment Type - Domain

8. SwDownspout - The location of a pipe normally attached to the side of a building or structure which conveys rainfall runoff from the roof area to the ground surface or the storm sewer system.

a. Contract Number
b. Date In Service
c. Feature Description
d. Facility Number
e. Feature Name
f. MetadataID- MetaId000040 Survey Grade GPS, etc
g. Operational Status - Domain
h. Stormwater Node Utility Type - Domain

9. SwPump - A mechanical device that either lifts and/or moves stormwater through the system.

a. Contract Number
b. Date In Service
c. Feature Description
d. Facility Number
e. Feature Name
f. MetadataID- MetaId000040 Survey Grade GPS, etc
g. Operational Status - Domain
h. Stormwater Node Utility Type - Domain

3.14 Thermal

GPS and collect attribute data as specified for each feature listed with GPS accuracy as described in paragraph "Global Positioning System (GPS) and Spatial Reference Properties." Attribute fields may be associated with Domains, which are utilized to constrain the values allowed in a particular field, attribute table, or feature class. Domains must be utilized when populating the feature where required.

GPS (Survey Grade) and collect the following attributes:

1. Feat_TUg Enclosure Access - The location of a thermal access point to the related thermal underground enclosure.

    a. Contract Number
    b. Date In Service
    c. Feature Description
    d. Facility Number - Provide Building # that system services If appliable.
    e. Feature Name - Geothermal Vault, etc
    f. MetadataID- MetaId000040 Survey Grade GPS, etc
    g. Operational Status - Domain
    h. Thermal Utility Feature Type - Domain
    i. Thermal Utility Network Subtype - Domain

2. Ther Util Node_T Fitting - The location of a mechanical device that connects two or more pipes, or caps or plugs a single pipe, on the thermal system.

    a. Contract Number
    b. Date In Service
    c. Diameter
    d. Diameter UOM - Domain
    e. Feature Description
    f. Facility Number - Provide Building # that system services If appliable.
    g. Feature Name - Type of Fitting
    h. Fitting Material - Domain
    i. Fitting Type - Domain
    j. MetadataID- MetaId000040 Survey Grade GPS, etc
    k. Operational Status - Domain
    l. Thermal Node Type
    m. Thermal Utility Network Subtype - Domain

3. TherUtilNode_TProdStruc - The location of a facility which produce steam, high-temperature water, low-temperature water, dual-temperature water or chilled water.

    a. Contract Number
    b. Date In Service
    c. Feature Description - Boiler, Geothermal Well, HVAC, etc
    d. Facility Number - Provide Building # that system services If appliable.
    e. Feature Name - Thermal
    f. Fitting Material - Domain
    g. MetadataID- MetaId000040 Survey Grade GPS, etc
    h. Nominal Capacity
    i. Nominal Capacity UOM - Domain
    j. Operational Status - Domain

k. Thermal Node Type
l. Thermal Prod Structure Type - Geothermal Well, Boiler, HVAC, etc
m. Thermal Utility Network Subtype - Domain
n. Volume
o. Volume UOM - Domain

4. Ther Util Node_T System Valve - The location of a device that regulates, directs, or controls the flow of steam or water.

a. Contract Number
b. Date In Service
c. Diameter
d. Diameter UOM - Domain
e. Feature Description
f. Feature Name - Type of Valve
g. MetadataID- MetaId000040 Survey Grade GPS, etc
h. Operational Status - Domain
i. Thermal Node Type - Domain
j. Thermal Utility Network Subtype - Domain
k. Valve Type - Domain

5. TherUtilNode_TPump - The location of a piece of thermal equipment that adds energy to a fluid being conveyed through a pipe or other closed conduit.

a. Contract Number
b. Date In Service
c. Feature Description
d. Feature Name - Type of Pump
e. Facility Number
f. Flow Rate
g. Flow UOM
h. Pump Type - Domain
i. MetadataID- MetaId000040 Survey Grade GPS, etc
j. Operational Status - Domain
k. Thermal Node Type - Domain
l. Thermal Utility Network Subtype - Domain

6. Thermal Utility Segment - The location of a feature used for the conveyance of steam, high-temperature water, low-temperature water, or chilled water. Survey grade GPS during the construction phase when the UG utility is in site to capture exact GPS location and elevations.

a. Contract Number
b. Date In Service
c. Diameter
d. Diameter UOM - Domain
e. Feature Description
f. Feature Name - Type of Line; Geothermal, High Temp, Chilled Condensation, Etc.
g. Ground Configuration - Domain
h. Material Type - Domain
i. MetadataID- MetaId000040 Survey Grade GPS, etc
j. Operational Status - Domain
k. Pipe Type - Domain
l. Thermal Segment Type - Domain

7. T Prod Struc - The location of a facility which produce steam, high-temperature water, low-temperature water, dual-temperature water

or chilled water.

a. Contract Number
b. Date In Service
c. Feature Description
d. Feature Name - Type of Pump
e. Facility Number
f. Nominal Capacity
g. Capacity UOM
h. Pump Type - Domain
i. MetadataID- MetaId000040 Survey Grade GPS, etc
j. Operational Status - Domain
k. Thermal Node Type - Domain
l. Thermal Production Structure Type
m. Thermal Utility Network Subtype - Domain

3.15 Water

GPS and collect attribute data as specified for each feature listed with GPS accuracy as described in paragraph "Global Positioning System (GPS) and Spatial Reference Properties." Attribute fields may be associated with Domains, which are utilized to constrain the values allowed in a particular field, attribute table, or feature class. Domains must be utilized when populating the feature where required.

GPS (Survey Grade) and collect the following attributes:

1. Feat_WUg Enclosure - The location of a subterraneous space that may house various types of aspatial equipment found in a water utility system, and/or allow access to and provide protection of water system facilities and equipment. Point

   a. Contract Number
   b. Date In Service
   c. Feature Description
   d. Feature Name -
   e. Ground Configuration - Domain
   f. MetadataID- MetaId000040 Survey Grade GPS, etc
   g. Lid Material Type - Domain
   h. Operational Status - Domain
   i. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.
   j. Water Utility Feature Type - Domain

2. Feat_W Demarcation Point - The location where the water service provider Owner

   a. Contract Number
   b. Date In Service
   c. Feature Description
   d. Feature Name -
   e. Ground Configuration - Domain
   f. MetadataID
   g. Operational Status - Domain
   h. Outside Provider - OWASA, DUKE, JONES, ONSLOW, etc.
   i. Water Utility Feature Type - Domain

3. Wate Util Node_W Back Prev Device - The location of a feature that is

used to protect water supplies from contamination or pollution.

a. Contract Number
b. Date In Service
c. Diameter
d. Diameter UOM
e. Feature Description
f. Feature Name -
g. MetadataID
h. Operational Status - Domain
i. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.
j. Water Node Type - Domain

4. Wate Uti lNode_W Fire Hydrant - A valved connection on a water supply system having one or more outlets and that is used in firefighting to supply hose and fire department pumpers with water.

a. Contract Number
b. Date In Service
c. Diameter
d. Diameter UOM
e. Feature Description
f. Feature Name - FIRE HYDRANT, WALL HYDRANT, etc
g. Fire Connection Type - Domain
h. Inlet Diameter
i. Inlet Diameter UOM - Domain
j. Is Fire Connection - Domain
k. MetadataID
l. Operational Status - Domain
m. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.
n. Water Node Type - Domain

5. Wate Util Node_W Hydrant - Hydrants not used for firefighting. Secondary uses are flushing main lines and laterals, filling tank trucks, and providing a temporary water source for construction jobs or USMC equipment.

a. Contract Number
b. Date In Service
c. Diameter
d. Diameter UOM
e. Feature Description
f. Feature Name -
g. Ground configuration - Domain
h. Hydrant Purpose - Yard, Vehicle, Water Supply, etc
i. MetadataID
j. Operational Status - Domain
k. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.
l. Water Node Type - Domain

6. Wate Util Node_W Fitting - The location of a mechanical device that connects two or more pipes, or caps or plugs a single pipe, on the water system.

a. Contract Number
b. Date In Service
c. Diameter
d. Diameter UOM
e. Feature Description

f. Feature Name - Type
g. Fitting Type - Domain
h. MetadataID
i. Operational Status - Domain
j. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.
k. Water Node Type - Domain

7. Wate Util Node_W Meter - The location of a device used to measure the quantity and/or rate of water flowing through a pipe, which may be the amount of water used by the customer.

a. Contract Number
b. Date In Service
c. Diameter
d. Diameter UOM
e. Feature Description
f. Feature Name - Meter
g. Is AMI - Domain
h. Manufacture
i. Meter Type - Domain
j. MetadataID
k. Operational Status - Domain
l. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.
m. Water Node Type - Domain

8. Wate Util Node_W Prod Structure - (Treatment Plant) The location of a facility which produces raw or treated water.

a. Contract Number
b. Date In Service
c. Feature Description
d. Feature Name
e. Facility Number
f. MetadataID
g. Operational Status - Domain
h. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.
i. Rated Flow
j. Rated Flow Unit of Measure - Domain
k. Water Network Sub Type - Domain
l. Water Node Type - Domain
m. Water Production Structure Type - Domain

9. Wate Util Node_W Pump - The location of a water related piece of equipment that adds energy to a fluid, such as water, being conveyed through a pipe or other closed conduit.

a. Contract Number
b. Date In Service
c. Feature Description
d. Feature Name
e. Facility Number
f. Operational Status - Domain
g. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.
h. Pump Type - Domain
i. MetadataID- MetaId000040 Survey Grade GPS, etc
j. Water Node Type - Domain

10. W Pump Station - The location of a structure in which one or more pumps operate to maintain flow at adequate pressure within a water

distribution system.

a. Contract Number
b. Date In Service
c. Feature Description
d. Feature Name
e. Facility Number
f. Operational Status - Domain
g. Has Generator Backup - Y / N
h. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.
i. Nominal Capacity
j. Capacity UOM
k. Number of Pumps
l. Has Generator Back up - Y / N
m. MetadataID- MetaId000040 Survey Grade GPS, etc
n. Water Node Type - Domain

11. Wate Util Node_W Relief Valve - The location of a water related device designed to release when the set pressure is exceeded.

a. Contract Number
b. Date In Service
c. Diameter
d. Diameter UOM - Domain
e. Feature Description
f. Feature Name - AIR RELEASE VALVE
g. MetadataID
h. Operational Status - Domain
i. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.
j. Valve Type - Domain
k. Water Node Type - Domain

12. Wate Util Node_W Storage Structure - The location of a facility that store large volumes of water.

a. Contract Number
b. Date In Service
c. Elevation
d. Elevation UOM - Domain
e. Feature Code - Potable / Non-Potable
f. Feature Description
g. Feature Name
h. Facility Number
i. Ground Configuration - Domain
j. Ground Elevation
k. Has Chlorination Injection - Domain
l. MetadataID
m. Overflow Elevation - In Feet / Inches i.e., 23'5"
n. Operational Status - Domain
o. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.
p. Storage tank Product - Domain
q. Storage Tank type - Potable / Non-Potable
r. Top Elevation
s. Top Elevation UOM - Domain
t. Volume
u. Volume UOM
v. Water Node Type - Domain

13. Wate Util Node_W System Valve - The location of a device that

regulates, directs, or controls the flow of water.

a. Contract Number
b. Date In Service
c. Depth
d. Depth UOM - Domain
e. Diameter
f. Diameter UOM - Domain
g. Feature Description
h. Feature Name
i. Facility Number - (facility does this valve services)
j. MetadataID
k. Operational Status - Domain
l. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.
m. Valve Type - Domain
n. MetadataID- MetaId000040 Survey Grade GPS, etc
o. Water Node Type - Domain

14. Water Utility Segment - The location of a feature used for the conveyance of water. Survey grade GPS during the construction phase when the UG utility is in site to capture exact GPS location and elevations.

a. Contract Number
b. Date In Service
c. Depth
d. Depth UOM - Domain
e. Diameter
f. Diameter UOM - Domain
g. Elevation
h. Elevation UOM - Domain
i. Feature Description
j. Feature Name - POTABLE, NON-POTABLE, SERVICE, FIRE, IRRGATION
k. Ground Configuration
l. Invert Elevation Down Stream
m. Invert Elevation Down Stream UOM - Domain
n. Invert Elevation Upstream
o. Invert Elevation Upstream UOM - Domain
p. Lateral Segment Type -
q. Material Type
r. MetadataID- MetaId000040 Survey Grade GPS, etc
s. Operational Status - Domain
t. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.
u. Water Network Subtype - Domain
v. Water Segment Type - Domain

15. WellPoint - The man-made vertical excavation penetrating the surface of the Earth used to extract fluids, gases or thermal energy from the subsurface, collect environmental samples or monitor fluid or gas characteristics, inject fluids, gases or thermal energy into the subsurface, or extract contamination or other impurities from the subsurface.

Each Type of well will be delivered in a separate well feature. Example: Water wells and geothermal wells are not to be combined and delivered in one feature. The delivery requirement would be two separate feature classes. Unique names will be a prefix to the WELLPOINT feature class. i.e., water well point; geothermal well point; sampling well point; monitoring well point, etc.

a. Builtdate
b. Contract Number
c. Depth
d. Depth UOM - Domain
e. Facility Number
f. Feature Description - type of well
g. Feature name
h. MetadataID- MetaId000040 Survey Grade GPS, etc
i. Operational Status - Domain
j. Owner - MCBCL, OWASA, DUKE, JONES, ONSLOW, etc.
k. Water type - Well Type
l. Well capacity
m. Well Capacity UOM - Domain
n. Well Purpose Type - Domain
o. Well Resource Type - Domain

PART 4 NON-COMPLIANCE

Failure to follow the specification outlined in this document will result in non-acceptance of data deliverable.

Note: Geospatial data delivery does not replace record drawing requirements.

PART 5 PRODUCTS

Not Used.

PART 6 EXECUTION

Not Used.

-- End of Section --

SECTION 01 91 00.15 22

TOTAL BUILDING COMMISSIONING
08/24

PART 1 GENERAL

1.1 SUMMARY

The Government has hired an independent Commissioning Firm.

This Section specifies the scope of work for the entire Commissioning Team which includes the scope of work for the Lead Commissioning Specialist, Commissioning Specialists, Designers of Record, Installing Contractors, and Equipment Suppliers. Refer to paragraph COMMISSIONING TEAM for descriptions of Commissioning Team members and assigned responsibilities.

1.2 RELATED REQUIREMENTS

Requirements for building enclosure/envelope commissioning, including requirements for pressure testing a building's air barrier for air leaks, are specified in Section 01 91 19 BUILDING ENCLOSURE COMMISSIONING.

Requirements for testing, adjusting, and balancing (TAB) of heating, ventilating, and air-conditioning (HVAC) air and hydronic distribution systems and domestic hot-water recirculation systems are specified in Section 23 05 93 TESTING, ADJUSTING, AND BALANCING FOR HVAC.

Requirements for calibration and testing of HVAC controls system devices are specified in Section 23 09 00 INSTRUMENTATION AND CONTROL FOR HVAC.

Requirements for instrumentation and control devices for HVAC when combined with a companion DDC Network are specified in Section 23 09 13 INSTRUMENTATION AND CONTROL DEVICES FOR HVAC.

Requirements for protocol-specific requirements for a Direct Digital Control (DDC) building control system based on the ASHRAE 135 protocol, including a tailoring option to require the Niagara Framework, are specified in Section 23 09 23 BACNET DIRECT DIGITAL CONTROL FOR HVAC AND OTHER BUILDING CONTROL SYSTEMS.

1.3 COMMISSIONING LIMITATIONS

Commissioning Requirements specified in this Section are prohibited from fulfilling requirements specified in other Sections. Requirements specified in other Sections are prohibited from fulfilling requirements specified in this Section.

1.4 SYSTEMS TO BE COMMISSIONED

Commissioning must be performed for equipment, systems, and assemblies listed under each systems category in the following paragraphs whether or not listed equipment, system, or assembly is required to be commissioned by any reference related to Sustainability TPC.

Specified equipment, systems, and assemblies are for all commissioned buildings in this project. Refer to items entitled "Sample Strategy" in this Section that must be applied.

1.4.1 Heating, Ventilation, and Air-Conditioning (HVAC) Systems Category

a. Heating, ventilating, air-conditioning, and refrigeration systems (mechanical and passive) and associated controls.

b. Air-curtain systems.

c. Renewable energy systems and energy storage systems

d. Energy and building management and demand-control systems.

1.4.2 Plumbing Systems Category

a. Solenoid Actuated Fixtures.

b. Domestic hot-water systems and controls.

c. Service water pressure-booster pump systems and controls.

d. Water pumping and mixing systems over 5 hp and purification systems.

e. Irrigation system performance that uses more than 1000 gal per day.

f. Renewable energy systems.

1.4.3 Utility Systems Category

a. Whole-building energy utility metering systems.

b. Whole-building water utility metering systems.

1.4.4 Electrical Type I Systems Category

a. Power - cathodic protection systems.

b. Power - distribution systems.

c. Power - service systems.

d. Power - transformers.

1.4.5 Electrical Type II Systems Category

a. 400-Hertz solid-state frequency converters.

b. Energy monitoring for individual energy monitoring of total electrical energy, HVAC systems, interior lighting, exterior lighting, and receptacle circuits.

c. Lighting systems: lighting systems, automatic and manual daylighting controls, occupancy sensing devices, automatic shut-off controls, time switching, lighting control devices, lighting control systems, and dimming systems.

d. Metering: Electrical utility metering systems.

e. Photovoltaic systems.

f. Power systems: automatic receptacles controls.

1.4.6 Building Envelope Systems, Components, and Assemblies Category

a. Building envelope systems including curtain walls, exterior penetrations, exterior air barrier assemblies, exterior windows, exterior doors, and skylights.

b. Roofing including low sloped roofs and steep sloped roofs.

1.5 COMPLEX SYSTEMS

Complex systems are defined as the following systems categories as listed under paragraph SYSTEMS TO BE COMMISSIONED with appropriate qualifiers and are subject to more stringent requirements as specified in this Section.

a. All equipment, systems, and assemblies listed under item entitled "Heating, Ventilation, and Air-Conditioning (HVAC) Systems Category."

b. All equipment, systems, and assemblies listed under item entitled "Plumbing Systems Category" featuring on-board factory packaged controls such as domestic heating hot water systems, domestic solar heating hot water systems, and service water pressure-booster pump systems. Refer to the following paragraph for definition of equipment featuring on-board factory packaged controls.

c. All equipment, systems, and assemblies listed under item entitled "Utility Systems Category."

Equipment featuring on-board factory packaged controls is defined as equipment that is a complex system as defined in paragraph COMPLEX SYSTEMS which features a controller issuing sophisticated logic-based commands to its internal components to accomplish the intent of Plans and Specifications. This equipment may function as either a stand-alone piece of commissioned equipment or may function as part of a commissioned system. This controller may be equipment mounted or may be remote mounted and may or may not interface with a building control system. Examples of equipment meeting and not meeting this definition are provided in the following paragraphs.

a. Equipment meeting this definition includes chillers, boilers provided with or without master controllers, packaged pumping systems, dedicated outside air systems, packaged rooftop units, computer room air conditioners, and air terminal units.

b. Equipment not meeting this definition includes unitary air-conditioners, packaged terminal air-conditioners, and heat pumps.

c. Equipment not meeting this definition, but requiring demonstration of minimum safe motor speed either prior to or during Functional Performance Testing includes variable frequency drives.

1.6 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.

AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS (ASHRAE)

ASHRAE 90.1 - IP	(2019; Errata 1 2019; Errata 2-5 2020; Addenda BY-CP 2020; Addenda AF-DB 2020; Addenda A-G 2020; Addenda F-Y 2021; Errata 6-8 2021; Interpretation 1-4 2020; Interpretation 5-8 2021 Addenda AS-AQ2022) Energy Standard for Buildings Except Low-Rise Residential Buildings

GREEN BUILDING INITIATIVE (GBI)

GBI DOD GP Compliance	(2017) GBI Department of Defense Guiding Principles Compliance Program for New Construction

1.7 SUBMITTALS

Commissioning Submittals are not required to be submitted by the Installing Contractor. Exchange of information between the Commissioning Team specified in this Section must still occur.

1.8 COMMISSIONING TEAM

The Commissioning Team is defined as the entity that must perform all Commissioning Activities specified in this Section for systems listed under paragraph SYSTEMS TO BE COMMISSIONED. The Commissioning Team is composed of the Lead Commissioning Specialist, Commissioning Specialists, Designers of Record, Installing Contractors, Equipment Suppliers, and the Contracting Officer's Technical Representative.

1.8.1 Lead Commissioning Specialist

The Lead Commissioning Specialist (CxC) is defined as the entity that must perform all Commissioning Responsibilities assigned in this Section that includes, but is not limited to, coordinating all aspects of the Commissioning Process; managing all Commissioning Specialists; and submitting all Commissioning Plans, schedules, reports, and documentation directly to the Contracting Officer's Technical Representative as modified in this Section.

1.8.2 Commissioning Specialists

Commissioning Specialists are defined as entities that must perform all Commissioning Responsibilities assigned in this Section that includes, but is not limited to, performing reviews, witnessing that all system components have been installed, that each control device operates, that each equipment piece operates, that complete systems operate, and that interactive systems operate in accordance with Plans and Specifications.

Commissioning Specialists must perform assigned responsibilities for equipment, systems, and assemblies listed under systems categories assigned to them in this Section. Commissioning Specialists are prohibited from performing responsibilities for equipment, systems, and assemblies listed under systems categories assigned to other Commissioning Specialists.

1.8.3 Designers of Record

Designers of Record are defined as entities that must act as design professionals responsible for design of their respective system that is subject to Commissioning. Designers of Record must perform all Commissioning Responsibilities assigned in this Section as directed by the General Contractor.

1.8.4 Installing Contractors

Installing Contractors are defined as the General Contractor's Superintendent or Project Manager; Quality Control Representative; and Mechanical, Controls, Plumbing, Electrical, Test and Balance, Fire Protection, and Building Envelope Sub-Contractors who provide, install, or construct systems in whole or in part for this contract. The General Contractor must provide a Lead Commissioning Representative to manage all Designers of Record, Sub-Contractor Commissioning Representatives, and Equipment Suppliers to accomplish all responsibilities assigned in this Section. Each Sub-Contractor must provide a Commissioning Representative to coordinate and perform all Commissioning Responsibilities for Commissioned equipment, systems, and assemblies provided as part of their respective contract as directed by the General Contractor. Submission of Commissioning related certifications or qualifications for the Lead Commissioning Representative and Installing Contractor Representatives is not required.

Installing Contractors must perform all Commissioning Responsibilities assigned in this Section that includes, but is not limited to, demonstrating performance of all commissioned equipment, systems, and assemblies provided as part of their respective contract and must provide all necessary materials, services, and labor required for successful demonstration as modified in this Section.

1.8.5 Equipment Suppliers

Equipment Suppliers (ES) are defined as factory authorized start-up technicians or factory representatives knowledgeable with start-up, demonstration, and testing of commissioned equipment featuring on-board factory packaged controls provided as part of their respective contract. Each Equipment Supplier must coordinate and perform all Commissioning Responsibilities assigned in this Section as directed by the General Contractor. Submission of Commissioning related certifications or qualifications for Equipment Suppliers is not required. Refer to paragraph COMPLEX SYSTEMS for definition of equipment featuring on-board factory packaged controls's.

Equipment Suppliers must perform all Commissioning Responsibilities assigned in this Section that includes, but is not limited to, demonstrating performance of all commissioned equipment provided as part of their respective contract and must provide all necessary materials, services, and labor required for successful demonstration of all commissioned equipment provided as part of their respective contract as modified in this Section.

1.8.6 Installing Contractors and Equipment Suppliers Coordination

Installing Contractors and Equipment Suppliers must coordinate and share demonstration and testing responsibilities specified in this Section for commissioned equipment featuring on-board factory packaged controls.

Installing Contractors and Equipment Suppliers must simultaneously perform all aspects of demonstration and testing for these types of systems. Refer to paragraph COMPLEX SYSTEMS for definition of equipment featuring on-board factory packaged controls.

1.8.7 Contracting Officer's Technical Representative

The Contracting Officer's Technical Representative (COTR) represents the Government for all elements of the Commissioning Process. The COTR will serve as the single point of contact with the Lead Commissioning Specialist, will receive all Commissioning Submittals, may attend meetings, and may, but is not required to, witness field inspections and testing specified in this Section.

1.9 COMMUNICATIONS

1.9.1 Communications with the Contracting Officer's Technical Representative

Communication with the Contracting Officer's Technical Representative must be through the Lead Commissioning Specialist who acts as the single direct point of contact for all aspects of the Commissioning Process.

1.9.2 Communications between the Commissioning Team

Communications between the Commissioning Team including, but not limited to, verbal communications, schedule information, and exchange of information specified in this Section, must occur directly between the Commissioning Team without requiring interaction of the Contracting Officer's Technical Representative.

1.10 NUMBER OF BUILDINGS AND CONSTRUCTION PHASING

1.10.1 Number Of Buildings

This project includes [__] commissioned buildings.

a. Commissioning Design Reviews specified in this section must be performed as a single review for each submission inclusive of all commissioned buildings in this project. Refer to item entitled "Commissioning Design Reviews" for additional requirements.

b. Construction Phase Site Observations specified in this Section are inclusive of all commissioned buildings in this project. Refer to item entitled "Construction Phase Site Observations" for additional requirements.

c. Construction Phase Functional Performance Testing must be performed during a single continuous occurrence inclusive of all commissioned buildings for each systems category until completion of testing of all systems listed under respective systems category. Refer to item entitled "Construction Phase Functional Performance Testing" for additional requirements.

d. Post-Construction Phase Site Observations specified are inclusive of all commissioned buildings in this project. Refer to item entitled "Post-Construction Phase Site Observations" for additional requirements.

1.10.2 Construction Phasing

This project's construction is not phased.

1.11 ASHRAE STANDARD 90.1 COMMISSIONING COMPLIANCE

ASHRAE Standard 90.1 Commissioning compliance is required for this project.

1.11.1 General Requirements

All Commissioning Activities referred to as "Building Systems Verification and Testing" and "Building Commissioning" in ASHRAE 90.1 - IP as modified in this Section, Commissioning Activities listed in references contained in ASHRAE 90.1 - IP's paragraphs as modified in this Section, and Commissioning Activities specified in this Section must be performed. All Commissioning Activities that are referred to as "optional activities," "guidance," "should activities," "recommendations," "suggested practices," "informative information," or listed as similar designations are mandatory regardless of any qualifiers.

1.11.2 Commissioning Team Responsibilities

The Commissioning Team must, at a minimum, perform all Commissioning Activities specified in the preceding item entitled "General Requirements" and must perform all Commissioning Activities specified in this Section. This Section takes precedence should there be a conflict between requirements listed in this Section and requirements listed in ASHRAE 90.1 - IP or listed in any of its references.

1.12 SUSTAINABILITY THIRD PARTY CERTIFICATION (TPC) COMMISSIONING COMPLIANCE

Sustainability Third Party Certification (TPC) is required for this project.

1.12.1 General Requirements

All Commissioning Activities listed in all references for pursuing Sustainability TPC as modified in this Section and Commissioning Activities specified in this Section must be performed. All Commissioning Activities that are referred to as "optional activities," "guidance," "should activities," "recommendations," "suggested practices," "informative information," or listed as similar designations are mandatory regardless of any qualifiers and whether or not activity is included as total points toward Sustainability TPC.

1.12.2 Commissioning Team Responsibilities

The Commissioning Team must, at a minimum, perform all Commissioning Activities specified in the preceding item entitled "General Requirements," perform Commissioning Activities listed in the reference for pursuing Sustainability TPC, GBI DOD GP Compliance, as modified in this Section, perform Commissioning Activities listed in all of its references as modified in this Section, and perform Commissioning Activities specified in this Section. This Section takes precedence should there be a conflict between requirements listed in this Section and requirements listed in the reference for pursuing Sustainability TPC or listed in any of its references.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 DESIGN PHASE

3.1.1 Design Phase ASHRAE Standard 90.1 Commissioning Compliance

3.1.1.1 General Requirements

Activities must include, but not be limited to, Design Phase Commissioning Activities referred to as "Building Systems Verification and Testing" and "Building Commissioning" in ASHRAE 90.1 - IP as modified in this Section, Design Phase Commissioning Activities listed in references contained in ASHRAE 90.1 - IP as modified in this Section, and Design Phase Commissioning Activities specified in this Section.

3.1.1.2 Lead Commissioning Specialist and Commissioning Specialists Responsibilities

The Lead Commissioning Specialist and Commissioning Specialists must, at a minimum, perform all activities specified under item entitled "Design Phase ASHRAE Standard 90.1 Commissioning Compliance."

3.1.2 Design Phase Sustainability Third Party Certification (TPC) Commissioning Compliance

3.1.2.1 General Requirements

Activities must include, but not be limited to, Design Phase Commissioning Activities listed in the reference for pursuing Sustainability TPC, GBI DOD GP Compliance, as modified in this Section, Design Phase Commissioning Activities listed in all of its references as modified in this Section, and Design Phase Commissioning Activities specified in this Section.

3.1.2.2 Lead Commissioning Specialist and Commissioning Specialists Responsibilities

The Lead Commissioning Specialist and Commissioning Specialists must, at a minimum, perform activities specified in the following paragraphs.

a. The Lead Commissioning Specialist must submit all Design Phase documentation of Commissioning Activities directly to the Sustainability TPC organization as modified in this Section.

b. The Lead Commissioning Specialist and Commissioning Specialists must perform all activities specified under item entitled "Design Phase Sustainability Third Party Certification (TPC)."

3.1.3 Design Phase Commissioning Coordination Meeting

3.1.3.1 General Requirements

A Design Phase Commissioning Coordination meeting must be conducted no later than 30 calendar days prior to the first Plans and Specifications submission or no later than 30 calendar days after approval of

Commissioning Firm certifications and all Commissioning Specialist certifications, whichever occurs last. Meeting topics must include, but not be limited to, the Commissioning Process, contract requirements, lines of communication, roles and responsibilities, schedules, documentation requirements, and logistics as specified in this Section. Meeting must be conducted by conference call.

3.1.3.2 Lead Commissioning Specialist Responsibilities

The Lead Commissioning Specialist must, at a minimum, conduct meeting and prepare meeting minutes complete with Attendance Roster.

3.1.3.3 Designers of Record, Installing Contractors, and Others Responsibilities

Designers of Record and Installing Contractors must attend this meeting. The Contracting Officer's Technical Representative, a User Representative, and a Public Works Department Representative may also attend this meeting.

3.1.4 Design Phase Commissioning Plan

3.1.4.1 General Requirements

The Design Phase Commissioning Plan must be prepared specific to this construction and contents must include, but not be limited to, contents specified in the following paragraphs.

a. Plan purpose.

b. Overview of Commissioning Activities.

c. Commissioning scope.

d. Commissioning Process outline.

e. Detailed description of Commissioning Activities.

f. List of all commissioned equipment, systems, and assemblies.

g. Description of performance criteria.

h. Building information.

i. Contact information for the Lead Commissioning Specialist, Commissioning Specialists, Designers of Record, and Contracting Officer's Technical Representative.

j. Criteria listing including Unified Facilities Criteria and Building Codes and Standards.

k. Description of Commissioning Team members.

l. Roles and responsibilities.

m. Lines of communication.

n. Documentation requirements.

o. Description of Commissioning Plan distribution during the Design Phase

and Construction Phase.

p. Description of Issues and Resolution Logs distribution during the Design Phase and Construction Phase.

q. Description of Commissioning testing document distribution during the Design Phase and Construction Phase.

r. Description of Commissioning report distribution during the Design Phase and Construction Phase.

s. Owner's Project Requirements.

t. Description of the Basis of Design.

u. Description of Plans and Specifications reviews performed by Commissioning Specialists.

v. Examples and descriptions of Site Observation Reports and Issues And Resolution Log.

w. Listing and description of Design Phase and Construction Phase Commissioning meetings.

x. Identification of Commissioning Activities for incorporation into the Project Construction Schedule.

y. Listing of submittals required by Commissioning Specialists.

z. Examples and description of the development of Pre-Functional Checklists and Functional Performance Test Checklists.

aa. Description of Pre-Functional Checks and Functional Performance Testing complete with sample strategies.

ab. Description of Endurance Testing complete with sample strategies.

ac. Listing of Operation and Maintenance Manual requirements.

ad. Description of Systems Manuals.

ae. Description of training requirements.

af. Description of Final Commissioning Report.

3.1.4.2 Lead Commissioning Specialist Responsibilities

The Lead Commissioning Specialist must, at a minimum, prepare and submit the **Design Phase Commissioning Plan** no later than 45 calendar days after approval of Commissioning Specialists certifications.

File one copy of **Approved Design Phase Commissioning Plan** in the Sustainability eNotebook no later than 14 calendar days after receiving approval of the Design Phase Commissioning Plan.

3.1.5 Design Phase Issues And Resolution Log

3.1.5.1 General Requirements

The Design Phase Issues and Resolution Log must be prepared and maintained to track all Commissioning Issues identified by any member of the Commissioning Team. The Design Phase Issues and Resolution Log must be prepared in an electronic format that can be used throughout the Design Phase such that it can be provided to the Government upon request. Design Phase Issues and Resolution Log contents must include, but not be limited to, contents specified in the following paragraphs.

a. Project title and location.

b. Lead Commissioning Specialist's contact information.

c. Issue number.

d. Date issue was discovered.

e. Name of Commissioning Team member identifying the issue.

f. Commissioning Team member responsible for resolving the issue.

g. Current status.

h. Issue description.

i. Pictures of item if available and appropriate.

j. Effects of issue on project or building operation.

k. Possible cause of issue.

l. Proposed resolution.

m. Final resolution and final resolution date.

n. Approvals of issue resolution, including approver's name.

3.1.5.2 Lead Commissioning Specialist Responsibilities

The Lead Commissioning Specialist must prepare and maintain the **Design Phase Issues And Resolution Log** and must submit one electronic copy no later than seven calendar days after the addition of an issue or a change in status of an issue.

3.1.6 Commissioning Design Reviews

3.1.6.1 General Requirements

Commissioning Design Reviews must be performed using Government provided software in accordance with ASHRAE 90.1 - IP and reference for pursuing Sustainability TPC and must include, but not be limited to, review of each submission of the Owner's Project Requirements (OPR), Basis of Design (BOD), and Plans and Specifications specified in the following paragraphs, except for the last submission. Each review must include back-checks of deficiencies identified in preceding reviews. The last submission must include a review of the OPR, BOD, and back-check of deficiencies

identified in preceding reviews, but not a complete Commissioning Design Review.

a. First submission: 35-Percent Documents.

b. Second submission: 65-Percent Documents.

c. Third submission: Pre-Final Documents.

d. Fourth submission: Final Documents.

Commissioning Design Reviews must assess completeness and clarity of the OPR, verify requirements stated in the OPR are addressed in the BOD, and verify Commissioning Aspects of the Plans and Specifications including preparation in accordance with the BOD. The OPR and BOD are for reference only and do not constitute part of this contract. Commissioning Design Reviews must detail compliance with the OPR, must detail compliance with provisions of ASHRAE 90.1 - IP, and must identify deficiencies of commissioned equipment, systems, and assemblies that include, but not be limited to, deficiencies related to the following paragraphs as applicable to this project.

a. Adverse impacts on proper operation and maintenance.

b. Adequate accessibility for proper testing.

c. Proper specification of performance and testing criteria.

d. Proper specification of relevant control sensor and control device locations.

e. Completely, clearly, and correctly developed control sequences.

3.1.6.2 Commissioning Design Review Reports

A Commissioning Design Review Report must be prepared for each Commissioning Design Review. Each deficiency must be listed individually and must be separated into categories corresponding to systems categories listed under paragraph SYSTEMS TO BE COMMISSIONED. Commissioning Design Review Report contents must include, but not be limited to, contents specified in the following paragraphs.

a. Project title, project number, and date of review.

b. Executive summary.

c. List of Plans and Specifications reviewed.

d. Deficiency location.

e. Clear description of deficiencies complete with proposed corrective actions.

f. Relevant observations from similar applications.

g. Clarifying questions related to constructability and maintainability if necessary.

h. Compliance with provisions of ASHRAE 90.1 - IP.

Updated Commissioning Design Review Reports must be prepared to include resolution of outstanding issues reached during Commissioning Design Review meetings.

3.1.6.3 Commissioning Design Review Meetings

A Commissioning Design Review meeting must be conducted no later than 14 calendar days after preparation of each Commissioning Design Review Report to discuss proposed corrective actions and to resolve outstanding issues. The Contracting Officer's Technical Representative may attend these meetings. Meeting must be conducted by conference call.

3.1.6.4 Lead Commissioning Specialist Responsibilities

Lead Commissioning Specialist activities must include, but not be limited to, activities specified in the following paragraphs.

a. Prepare and provide Commissioning Design Review Reports to Designers of Record.

b. Conduct Commissioning Design Review meetings.

c. Update Commissioning Design Review Reports.

d. Prepare and submit **Updated Commissioning Design Review Reports** no later than 14 calendar days after each Commissioning Design Review meeting.

3.1.6.5 Commissioning Specialists Responsibilities

Commissioning Specialists activities must include, but not be limited to, performing Commissioning Design Reviews and attending Commissioning Design Review meetings for equipment, systems, and assemblies listed under systems categories assigned to them in this Section. Commissioning Specialists are prohibited from performing these responsibilities for equipment, systems, and assemblies listed under systems categories assigned to other Commissioning Specialists.

3.1.6.6 Designers of Record Responsibilities

Designers of Record activities must include, but not be limited to, providing written responses to Commissioning Design Review Reports, attending Commissioning Design Review meetings, implementing revisions to Plans and Specifications resulting from resolution of Commissioning Design Reports, and related activities assigned in other Sections.

3.2 CONSTRUCTION PHASE

3.2.1 Construction Phase ASHRAE Standard 90.1 Commissioning Compliance

3.2.1.1 General Requirements

Activities must include, but not be limited to, Construction Phase Commissioning Activities referred to as "Building Systems Verification and Testing" and "Building Commissioning" in ASHRAE 90.1 - IP as modified in this Section, Construction Phase Commissioning Activities listed in references contained in ASHRAE 90.1 - IP as modified in this Section, and Construction Phase Commissioning Activities specified in this Section.

3.2.1.2 Lead Commissioning Specialist and Commissioning Specialists Responsibilities

The Lead Commissioning Specialist and Commissioning Specialists must, at a minimum, perform all activities specified under item entitled "Construction Phase ASHRAE Standard 90.1 Commissioning Compliance."

3.2.2 Construction Phase Sustainability Third Party Certification (TPC) Commissioning Compliance

3.2.2.1 General Requirements

Activities must include, but not be limited to, Commissioning Activities listed in the reference for pursuing Sustainability TPC, GBI DOD GP Compliance, as modified in this Section, Commissioning Activities listed in all of its references as modified in this Section, and Commissioning Activities specified in this Section.

3.2.2.2 Lead Commissioning Specialist and Commissioning Specialists Responsibilities

The Lead Commissioning Specialist and Commissioning Specialists must, at a minimum, perform activities specified in the following paragraphs.

a. The Lead Commissioning Specialist must submit all Construction Phase documentation of Commissioning Activities directly to the Sustainability TPC organization as modified in this Section.

b. The Lead Commissioning Specialist and Commissioning Specialists must perform all activities specified under item entitled "Construction Phase Sustainability Third Party Certification (TPC)."

3.2.3 Construction Phase Sequencing

3.2.3.1 Heating, Ventilation, and Air-Conditioning (HVAC) Systems

Heating, ventilation, and air-conditioning (HVAC) systems activities specified in the following paragraphs must be performed as applicable prior to performing Functional Performance Testing of systems listed under item entitled "Heating, Ventilation, and Air-Conditioning (HVAC) Systems Category" in paragraph SYSTEMS TO BE COMMISSIONED.

a. All equipment, systems, and assemblies have been completed, cleaned, flushed, disinfected, calibrated, tested, and operate in accordance with Plans and Specifications.

b. All Ductwork Air Leakage Testing (DALT) field work, Test and Balance (TAB) field work, Pre-Final TAB Reports, and related prerequisites have been completed, submitted, and approved in accordance with Section 23 05 93 TESTING, ADJUSTING, AND BALANCING FOR MECHANICAL SYSTEMS.

c. All inspections, measurements, and testing of building envelope and roofing systems specified in Section 07 27 10 BUILDING AIR BARRIER SYSTEM have been completed, submitted, and approved.

d. All pressure testing, infrared thermography testing, and fog testing of building envelope and roofing systems specified in Section 01 91 19

BUILDING ENCLOSURE COMMISSIONING have been completed, submitted, and approved.

e. All Pre-Functional Checks have been completed, submitted, and approved.

f. Construction Phase Endurance Testing Report has been completed, submitted, and approved.

g. Certified TAB Report specified in Section 23 05 93 TESTING, ADJUSTING, AND BALANCING FOR MECHANICAL SYSTEMS has been prepared, submitted, and approved.

h. Certified Certificate of Readiness has been completed, submitted, and approved.

All completed Final Functional Performance Test Checklists for commissioned equipment, systems, and assemblies listed under item entitled "Heating, Ventilation, and Air-Conditioning (HVAC) Systems Category" in paragraph SYSTEMS TO BE COMMISSIONED must be submitted and approved prior to the Government performing any Performance Verification Testing specified in
Section 23 09 00 INSTRUMENTATION AND CONTROL FOR HVAC.

3.2.3.2 Electrical Systems

Electrical systems activities specified in the following paragraphs must be performed as applicable prior to performing Functional Performance Testing of systems listed under item entitled "Electrical Type II Systems Category" in paragraph SYSTEMS TO BE COMMISSIONED.

a. All electrical, power generation, and lighting equipment, systems, and assemblies have been completed, calibrated, tested, and operate in accordance with Plans and Specifications.

b. Building Envelope has been enclosed according to contract documents and final construction has been completed.

c. All ceiling tiles, floor coverings, and window coverings have been put in place.

d. All lamps have completed a minimum 100-hour burn-in period.

e. All furniture has been put in place.

f. Certified Certificate of Readiness has been completed, submitted, and approved.

3.2.4 Construction Phase Scheduling

3.2.4.1 General Requirements

Commissioning Activities and other related activities for inclusion into the Project Construction Schedule must include, but not be limited to, activities specified in the following paragraphs.

a. Perform Construction Phase Commissioning Coordination meeting.

b. Submit and approve Construction Phase Interim Commissioning Plan.

c. Submit and approve Construction Phase Final Commissioning Plan.

d. Submit and approve completed Pre-Functional Checklists.

e. Submit and approve final Functional Performance Test Checklists.

f. Perform Construction Phase Site Observations.

g. Perform inspections, measurements, and testing of building envelope and roofing systems specified in Section 07 27 10 BUILDING AIR BARRIER SYSTEM.

h. Perform pressure testing, infrared thermography testing, and fog testing of building envelope and roofing systems specified in Section 01 91 19 BUILDING ENCLOSURE COMMISSIONING.

i. Participate in Construction Phase Endurance Testing.

j. Submit and approve Certified TAB Report specified in Section 23 05 93 TESTING, ADJUSTING, AND BALANCING FOR MECHANICAL SYSTEMS.

k. Submit and approve Certified Certificate of Readiness.

l. Witness Construction Phase Functional Performance Testing.

m. Correct deficiencies discovered during Construction Phase Functional Performance Testing.

n. Re-witness Construction Phase Functional Performance Testing.

o. Provide all Systems Manuals contents.

p. Submit and approve completed Systems Manuals.

q. Perform training.

r. Submit and approve Final Commissioning Report.

s. Perform Post-Construction Phase Site Observations.

t. Participate in Post-Construction Phase Endurance Testing if all requirements and activities for respective system could not be fully or successfully completed during the Construction Phase.

u. Witness Post-Construction Phase Functional Performance Testing if all requirements and activities for respective system could not be fully or successfully completed during the Construction Phase.

v. Correct deficiencies discovered during Post-Construction Phase Functional Performance Testing.

w. Re-witness Post-Construction Phase Functional Performance Testing.

3.2.4.2 Lead Commissioning Specialist Responsibilities

The Lead Commissioning Specialist must request a current Project Construction Schedule from Installing Contractors no later than at the Construction Phase Commissioning Coordination Meeting and must prepare and provide to Installing Contractors a list of Commissioning Activities for

inclusion into the Project Construction Schedule. The Lead Commissioning Specialist must associate each Commissioning Activity to a single construction activity such that if the date of the construction activity changes, the associated Commissioning Activity changes accordingly. List of Commissioning Activities for inclusion into the Project Construction Schedule is not required to be submitted to the Government.

3.2.4.3 Installing Contractors Responsibilities

Installing Contractors must provide a current Project Construction Schedule to the Lead Commissioning Specialist upon receiving request. Installing Contractors must incorporate the list of Commissioning Activities into the Project Construction Schedule and must link each Commissioning Activity to the associated construction activity identified by the Lead Commissioning Specialist such that if the date of the construction activity changes, the associated Commissioning Activity changes accordingly.

Installing Contractors must provide updated Project Construction Schedules to the Lead Commissioning Specialist at least on a monthly basis.

3.2.5 Construction Phase Commissioning Coordination Meeting

3.2.5.1 General Requirements

A Construction Phase Commissioning Coordination meeting must be conducted no later than 90 calendar days after the beginning of construction to discuss topics that include, but not be limited to, the Commissioning Process, contract requirements, lines of communication, roles and responsibilities, Commissioning Activities for inclusion into the Project Construction Schedule, documentation requirements, Inspections and Testing, and logistics specified in this Section. Meeting must be conducted by conference call.

3.2.5.2 Lead Commissioning Specialist Responsibilities

The Lead Commissioning Specialist must, at a minimum, conduct meeting and prepare meeting minutes complete with Attendance Roster.

3.2.5.3 Installing Contractors, Designers of Record, and Other Commissioning Team Member Responsibilities

Installing Contractors and Designers of Record must attend this meeting. The Contracting Officer's Technical Representative, a User Representative, and a Public Works Department Representative may attend this meeting.

3.2.6 Construction Phase Commissioning Progress Meetings

3.2.6.1 General Requirements

Construction Phase Commissioning Progress meetings must be conducted to discuss topics that include, but not be limited to, unresolved Commissioning Issues, status of items specified to be provided to the Lead Commissioning Specialist, and upcoming Commissioning Activities. Number of Construction Phase Commissioning Progress meetings must be conducted for each systems category as specified in the following paragraphs. Meetings must be conducted by conference call.

a. Heating, Ventilation, and Air-Conditioning (HVAC) Systems Category:

Six meetings.

b. Plumbing Systems Category: Two meetings.

c. Utility Systems Category: No meetings.

d. Electrical Type I Systems Category: No meetings.

e. Electrical Type II Systems Category: Two meetings.

f. Building Envelope Systems, Components, and Assemblies Category: Two meetings.

Construction Phase Commissioning Progress meetings are prohibited from being combined with conducting Construction Phase Commissioning Coordination meeting, conducting Site Observations, or witnessing Functional Performance Testing.

3.2.6.2 Commissioning Specialists Responsibilities

Each Commissioning Specialist must, at a minimum, conduct meetings and prepare meeting minutes complete with Attendance Roster for systems categories assigned to them in this Section. Commissioning Specialists are prohibited from performing these responsibilities for systems categories assigned to other Commissioning Specialists.

3.2.6.3 Installing Contractors and Others Responsibilities

Installing Contractors must attend these meetings. The Contracting Officer's Technical Representative, a User Representative, and a Public Works Department Representative may attend these meetings.

3.2.7 Construction Phase Interim Commissioning Plan

3.2.7.1 General Requirements

The Construction Phase Interim Commissioning Plan must be prepared and must be an update to the Design Phase Commissioning Plan and contents must include, but not be limited to, contents specified in the following paragraphs.

a. All contents specified for the Design Phase Commissioning Plan.

b. Basis of Design.

c. Contact information for the entire Commissioning Team.

3.2.7.2 Lead Commissioning Specialist Responsibilities

The Lead Commissioning Specialist must, at a minimum, prepare and submit the **Construction Phase Interim Commissioning Plan** no later than 30 calendar days after the Construction Phase Commissioning Coordination meeting and no later than 14 calendar days prior to performing construction of the building envelope.

3.2.8 Construction Phase Final Commissioning Plan

3.2.8.1 General Requirements

The Construction Phase Final Commissioning Plan must be prepared and must be an update to the Construction Phase Interim Commissioning Plan and contents must include, but not be limited to, contents specified in the following paragraphs.

a. All contents specified for the Construction Phase Interim Commissioning Plan.

b. All Pre-Functional Checklists.

c. All approved final Functional Performance Test Checklists.

3.2.8.2 Lead Commissioning Specialist Responsibilities

The Lead Commissioning Specialist must, at a minimum, perform activities specified in the following paragraphs.

a. Prepare and submit the **Construction Phase Final Commissioning Plan** no later than 30 calendar days prior to performing any Functional Performance Testing.

b. File one copy of **Approved Construction Phase Final Commissioning Plan** in the Sustainability eNotebook no later than 14 calendar days after receiving approval of the Construction Phase Final Commissioning Plan.

3.2.9 Construction Phase Issues And Resolution Log

3.2.9.1 General Requirements

The Construction Phase Issues and Resolution Log must be prepared and maintained to track all Commissioning Issues identified by any member of the Commissioning Team. The Construction Phase Issues and Resolution Log must be prepared in an electronic format that can be used throughout the Construction Phase such that it can be provided to the Government upon request. Construction Phase Issues and Resolution Log contents must include, but not be limited to, contents specified in the following paragraphs.

a. Project title and location.

b. Lead Commissioning Specialist's contact information.

c. Issue number.

d. Date issue was discovered.

e. Name of Commissioning Team member identifying the issue.

f. Commissioning Team member responsible for resolving the issue.

g. Current status.

h. Issue description.

i. Pictures of item if available and appropriate.

j. Effects of issue on project or building operation.

k. Possible cause of issue.

l. Proposed resolution.

m. Final resolution and final resolution date.

n. Approvals of issue resolution, including approver's name.

3.2.9.2 Lead Commissioning Specialist Responsibilities

The Lead Commissioning Specialist must prepare and maintain the **Construction Phase Issues And Resolution Log** and must submit one electronic copy no later than seven calendar days after the addition of an issue or a change in status of an issue.

3.2.10 Pre-Functional Checklists

3.2.10.1 General Requirements

Pre-Functional Checklists must be prepared for all commissioned equipment, systems, and assemblies that are subject to functional performance testing and testing required according to UFGS 01 91 19 BUILDING ENCLOSURE COMMISSIONING. Pre-Functional Checklist contents must include, but not be limited to, contents for physical inspections that demonstrate construction, installation and start-up of equipment, systems, and assemblies is complete. Refer to item entitled "Pre-Functional Checklists" in item entitled "Inspections and Testing" for more information.

Download example Pre-Functional Checklists for Section 01 91 00.15 TOTAL BUILDING COMMISSIONING at the following location: http://www.wbdg.org/ffc/dod/unified-facilities-guide-specifications-ufgs/forms-graphics-tables. Checklists must contain the same level of detail shown in examples, but are not required to match the format of examples.

3.2.10.2 Lead Commissioning Specialist Responsibilities

Lead Commissioning Specialist must provide blank Pre-Functional Checklists to Installing Contractors. Blank Pre-Functional Checklists are not required to be submitted to the Government.

3.2.10.3 Commissioning Specialists Responsibilities

Commissioning Specialists must prepare Pre-Functional Checklists for all equipment, systems, and assemblies listed under systems categories assigned to them in this Section that are subject to functional performance testing and testing required according to UFGS 01 91 19 BUILDING ENCLOSURE COMMISSIONING. Commissioning Specialists are prohibited from performing these responsibilities for equipment, systems, and assemblies listed under systems categories assigned to other Commissioning Specialists.

3.2.11 Functional Performance Test (FPT) Checklists

Functional Performance Test (FPT) Checklists must be prepared for all

commissioned equipment, systems, and assemblies demonstrating performance is in accordance with Plans and Specifications as specified in the following paragraphs. A single final FPT Checklist must be prepared for each equipment piece, system, and assembly except that a single final FPT Checklist may be prepared for use with those that have identical features as modified in the following paragraphs. FPT Checklist contents must include, but not be limited to, step-by-step actions, expected results, and confirmation of compliance with required provisions of ASHRAE 90.1 - IP as modified in the following paragraphs. Refer to item entitled "Construction Phase Functional Performance Testing" for more information.

3.2.11.1 Complex Systems Requirements

FPT Checklists must be prepared for all complex systems as defined in paragraph COMPLEX SYSTEMS. A single FPT Checklist must be prepared for each system except that a single FPT Checklist may be prepared for use with multiple systems that have identical control sequences such as unitary air-conditioners, packaged terminal air-conditioners, and heat pumps.

Contents must include, but not be limited to, contents specified in the following paragraphs and shown in example FPT Checklists for Section 01 91 00.15 TOTAL BUILDING COMMISSIONING available for download at the following location: http://www.wbdg.org/ffc/dod/unified-facilities-guide-specifications-ufgs/forms-graphics-tables. FPT Checklists must contain the same level of detail specified below and as shown in examples, but are not required to match the format of examples.

a. Notable system features including information about such attributes as system sizing and controls to facilitate understanding of system operation.

b. Conclusions and recommendations based on control system feature, point-to-point, actuator, and system operation observations. Conclusions must clearly indicate if system does or does not perform in accordance with requirements of Plans and Specifications. Recommendation must clearly indicate that the system should or should not be accepted by the Government.

c. Test conditions including date, beginning and ending time, and beginning and ending outdoor air conditions.

d. Identification of the equipment involved in the test.

e. Attendees present throughout the entire system test.

f. Control system feature identification including control point description, embedded/visible type, adjustable/monitoring type, actual value, and setpoint value/alarm range.

g. Point-to-point observations including demonstrating system flow meters and sensors have been calibrated and are correctly displayed on the Operator workstation.

h. Actuator operation observations demonstrating actuator responses to commands from the control system.

i. Variable frequency drive observations demonstrating minimum safe motor speed.

j. System operation observations for system-based testing demonstrating each control sequence, operation mode, and alarm condition resulting from control setpoint manipulation. System operation observations must include, but not be limited to, observations specified in the following paragraphs.

(1) Introduction identifying testing methodology.

(2) As-found conditions prior to system manipulation.

(3) Clear list of test items (step numbers).

(4) Design control sequences or interlocks segmented by unique functions.

(5) Intended test procedures following each segmented sequence or interlock identifying the system manipulation required to initiate system response.

(6) Expected system responses.

(7) Space for comments for each test item.

(8) Pass or fail indication for each test.

Performance Verification Tests prepared by the Controls Contractor as specified in Section 23 09 00 INSTRUMENTATION AND CONTROL FOR HVAC are prohibited from fulfilling requirements of this Section.

3.2.11.2 Plumbing Systems Requirements

FPT Checklists must be prepared for all equipment, systems, and assemblies listed under item entitled "Plumbing Systems Category" in paragraph SYSTEMS TO BE COMMISSIONED.

3.2.11.3 Electrical Type I Systems Requirements

FPT Checklists must not be prepared for equipment, systems, and assemblies listed under item entitled "Electrical Type I Systems Category" in paragraph SYSTEMS TO BE COMMISSIONED.

3.2.11.4 Electrical Type II Systems Requirements

FPT Checklists must be prepared for all equipment, systems, and assemblies listed under item entitled "Electrical Type II Systems Category" in paragraph SYSTEMS TO BE COMMISSIONED. FPT Checklists must be system-based and demonstrate end-objective performance in accordance with Plans and Specifications. FPT Checklists must not repeat fundamental performance testing such as resistance measurements required in other Sections.

3.2.11.5 Building Envelope Systems, Components, and Assemblies Requirements

FPT Checklists must not be prepared for equipment, systems, and assemblies listed under item entitled "Building Envelope Systems, Components, and Assemblies Category" in paragraph SYSTEMS TO BE COMMISSIONED.

3.2.11.6 Lead Commissioning Specialist Responsibilities

The Lead Commissioning Specialist must submit **Final Functional Performance Test Checklists** for each systems category listed under paragraph SYSTEMS TO BE COMMISSIONED for which FPT checklists are required to be prepared. FPT checklists must be submitted as a single submittal for each systems category no later than 30 calendar days prior to testing of any system in the respective systems category.

3.2.11.7 Commissioning Specialists Responsibilities

Commissioning Specialists must prepare Final Functional Performance Test Checklists for equipment, systems, and assemblies listed under systems categories assigned to them in this Section for which FPT checklists are required to be prepared. Commissioning Specialists are prohibited from performing these responsibilities for equipment, systems, and assemblies listed under systems categories assigned to other Commissioning Specialists.

3.2.12 Construction Submittals

3.2.12.1 General Requirements

Construction Submittals must be reviewed for all commissioned equipment, systems, and assemblies to the extent necessary to verify that equipment, systems, and assemblies are in compliance with Commissioning Aspects of UFC's referenced by the Design-Build contract and Plans and Specifications as modified in this Section. One review for each commissioned equipment, system, and assembly must be performed coincident with Designers of Record and review must include, but not be limited to, review of shop drawings and equipment performance data. Review of resubmittals is prohibited.

Construction Submittals must be reviewed for all commissioned equipment, systems, and assemblies to the extent necessary to verify that equipment, systems, and assemblies are in compliance with Commissioning Aspects of UFC's referenced by the Design-Build contract, Owner's Project Requirements (OPR), Basis of Design (BOD), and Plans and Specifications as modified in this Section. One review for each commissioned equipment, system, and assembly must be performed coincident with Designers of Record and review must include, but not be limited to, review of shop drawings and equipment performance data. Review of resubmittals is prohibited.

The OPR and BOD are for reference only and do not constitute part of this contract.

3.2.12.2 Construction Submittal Review Reports

A Construction Submittal Review Report must be prepared for all commissioned equipment, systems, and assemblies and contents must include, but not be limited to, contents specified in the following paragraphs.

a. Project title, project number, and date of review.

b. Overview complete goals of the Commissioning-focused submittal review process.

c. Summary of deficiencies.

d. Ongoing record of all Construction Submittals received and reviewed, list of unresolved deficiencies, and record of communications made to resolve deficiencies.

e. Descriptive outline of reviewed construction submittals complete with the Installing Contractor's submittal designation.

f. Clear description of deficiencies complete with supporting documentation.

3.2.12.3 Lead Commissioning Specialist Responsibilities

The Lead Commissioning Specialist activities must include, but not be limited to, activities specified in the following paragraphs.

a. Provide list of shop drawings and equipment performance data that must be reviewed to Installing Contractors.

b. Prepare and provide Construction Submittal review comments to Designers of Record.

c. Prepare and submit **Construction Submittal Review Reports** no later than seven calendar days after completion of each Construction Submittal review.

3.2.12.4 Commissioning Specialists Responsibilities

Commissioning Specialists must perform reviews of Construction Submittals for equipment, systems, and assemblies listed under systems categories assigned to them in this Section. Commissioning Specialists are prohibited from performing these responsibilities for equipment, systems, and assemblies listed under systems categories assigned to other Commissioning Specialists.

3.2.12.5 Designers of Record Responsibilities

Designers of Record activities must include, but not be limited to, receiving and considering for incorporation comments listed in Construction Submittal Review Reports provided by the Lead Commissioning Specialist.

3.2.12.6 Installing Contractors Responsibilities

Installing Contractors must provide all requested Construction Submittals, BOD, and requested supplemental information to the Lead Commissioning Specialist.

3.2.13 Construction Phase Site Observations

3.2.13.1 General Requirements

Construction Phase Site Observations must be performed as specified in the following paragraphs to verify and document Commissioning Aspects of equipment, systems, and assemblies as specified in this Section. Two eight-hour Construction Phase Site Observations must be conducted for each systems category that is not specified in the following paragraphs. Specified number of observations are totals that include all commissioned buildings and all construction phases in this project.

Construction Phase Site Observations are prohibited from being combined with witnessing Functional Performance Testing, but may be combined with Pre-Functional Checklist Verification unless indicated otherwise. Purposes of Site Observations specified in the following paragraphs for each systems category may be combined into a single Site Observation.

3.2.13.2 Heating, Ventilation, and Air-Conditioning (HVAC) Systems Category

Site Observations must be performed for the purposes specified in the following paragraphs.

a. Two eight-hour Site Observations to identify issues that may result in unsuccessful functional performance testing and to verify and document Commissioning Aspects of commissioned equipment, systems, and assemblies listed under this systems category.

b. One eight-hour Site Observation to verify and document HVAC pipe pressure testing.

c. One eight-hour Site Observation to verify and document HVAC pump installation.

d. One eight-hour Site Observation to verify and document compliance with provisions of ASHRAE 90.1 - IP.

3.2.13.3 Plumbing Systems Category

Site Observations must be performed for the purposes specified in the following paragraphs.

a. One eight-hour Site Observation to identify issues that may result in unsuccessful functional performance testing and to verify and document Commissioning Aspects of commissioned equipment, systems, and assemblies listed under this systems category.

b. One eight-hour Site Observation to verify and document Plumbing pipe pressure testing.

c. One eight-hour Site Observation to verify and document Plumbing pump installation.

d. One eight-hour Site Observation to verify and document compliance with provisions of ASHRAE 90.1 - IP.

3.2.13.4 Utility Systems Category

Site Observations must be performed for the purposes specified in the following paragraphs.

a. No Site Observation dedicated to this systems category. Verification and documentation of Commissioning Aspects of commissioned equipment, systems, and assemblies listed under this systems category may be combined with Site Observations for other systems categories.

b. No Site Observation dedicated to this systems category to verify and document compliance with provisions of ASHRAE 90.1 - IP. Verification and documentation of compliance with provisions of ASHRAE 90.1 - IP of commissioned equipment, systems, and assemblies listed under this

systems category may be combined with Site Observations for other systems categories.

3.2.13.5 Electrical Type I Systems Category

Site Observations must be performed for the purposes specified in the following paragraphs.

a. Two eight-hour Site Observations to verify and document Commissioning Aspects and to witness testing performed by independent testing organizations of commissioned equipment, systems, and assemblies listed under this systems category and listed by the Lead Commissioning Specialist to require on-site verification and documentation by Commissioning Specialists. Independent testing organizations typically use tests readily available from testing associations such as the InterNational Electrical Testing Association (NETA).

b. No Site Observation dedicated to this systems category to verify and document compliance with provisions of ASHRAE 90.1 - IP. Verification and documentation of compliance with provisions of ASHRAE 90.1 - IP of commissioned equipment, systems, and assemblies listed under this systems category may be combined with Site Observations for other systems categories.

3.2.13.6 Electrical Type II Systems Category

Site Observations must be performed for the purposes specified in the following paragraphs.

a. Two eight-hour Site Observations to identify issues that may result in unsuccessful functional performance testing and to verify and document Commissioning Aspects of commissioned equipment, systems, and assemblies listed under this systems category.

b. One eight-hour Site Observation to verify and document compliance with provisions of ASHRAE 90.1 - IP.

3.2.13.7 Building Envelope Systems, Components, and Assemblies Category

Site Observations must be performed for the purposes specified in the following paragraphs.

a. One eight-hour Site Observation to verify, document, and witness inspections, measurements, and testing of building envelope and roofing systems performed by independent testing agencies and specified in Section 07 27 10 BUILDING AIR BARRIER SYSTEM.

b. One eight-hour Site Observation to verify, document, and witness pressure testing, infrared thermography testing, and fog testing of building envelope and roofing systems performed by independent testing agencies and specified in Section 01 91 19 BUILDING ENCLOSURE COMMISSIONING.

c. Three eight-hour Site Observation to verify and document that continuous air barrier materials and assemblies are in compliance with requirements of ASHRAE 90.1 - IP while the continuous air barrier is still accessible for inspection and repair.

3.2.13.8 Summary Meetings

A Summary Meeting must be conducted at the conclusion of each Site Observation for the purpose of discussing issues discovered during each Site Observation. Meeting must be conducted on-site with all attendees present.

3.2.13.9 Site Observation Reports

A Site Observation Report must be prepared for each Site Observation for the purpose of documenting issues discovered during each Site Observation.

Site Observation Reports for all equipment, systems, and assemblies listed under item entitled "Electrical Type I Systems Category" in paragraph SYSTEMS TO BE COMMISSIONED must include results of testing performed by independent testing organizations that were witnessed by Commissioning Specialists and test results that were not witnessed by Commissioning Specialists.

3.2.13.10 Lead Commissioning Specialist Responsibilities

The Lead Commissioning Specialist must provide list of equipment, systems, and assemblies listed under item entitled "Electrical Type I Systems Category" in paragraph SYSTEMS TO BE COMMISSIONED that require on-site verification and documentation by Commissioning Specialists to Installing Contractors.

The Lead Commissioning Specialist must submit **Construction Phase Site Observation Reports** complete with Summary Meeting Attendance Roster no later than seven calendar days after Site Observation.

3.2.13.11 Commissioning Specialists Responsibilities

Commissioning Specialist must perform responsibilities specified in the following paragraphs.

a. Each Commissioning Specialist must be responsible to perform Site Observations, conduct Summary Meetings, and prepare Construction Phase Site Observation Reports for equipment, systems, and assemblies listed under systems categories assigned to them in this Section. Commissioning Specialists are prohibited from performing these responsibilities for equipment, systems, and assemblies listed under systems categories assigned to other Commissioning Specialists.

3.2.13.12 Installing Contractors Responsibilities

Installing Contractors must provide Commissioning Specialists access to construction and systems for Site Observations and must attend Summary Meetings.

Installing Contractors must schedule testing to occur in the presence of Commissioning Specialists as specified in the following paragraphs.

a. All equipment, systems, and assemblies listed under item entitled "Electrical Type I Systems Category" in paragraph SYSTEMS TO BE COMMISSIONED and listed by the Lead Commissioning Specialist to require on-site verification and documentation by Commissioning Specialists. Results of testing of equipment, systems, and assemblies listed under item entitled "Electrical Type I Systems Category" in

paragraph SYSTEMS TO BE COMMISSIONED must be provided to the Lead Commissioning Specialist that were witnessed by Commissioning Specialists and that were not witnessed by Commissioning Specialists.

b. Pressure testing, infrared thermography testing, and fog testing specified in Section 01 91 19 BUILDING ENCLOSURE COMMISSIONING and inspections, measurements, and testing specified in Section 07 27 10 BUILDING AIR BARRIER SYSTEM for equipment, systems, and assemblies listed under item entitled "Building Envelope Systems, Components, and Assemblies Category" in paragraph SYSTEMS TO BE COMMISSIONED. Results of all tests, inspections, and measurements must be provided to the Lead Commissioning Specialist that were witnessed by Commissioning Specialists and that were not witnessed by Commissioning Specialists.

3.2.14 Pre-Functional Checks

Pre-Functional Checks must be performed prior to performing Functional Performance Testing of respective system and activities must include, but not be limited to, activities specified in the following paragraphs.

a. Perform Ductwork Air Leak Test (DALT) Acceptance Testing.

b. Perform Testing, Adjusting, and Balancing (TAB) Acceptance Testing.

c. Perform Pre-Functional Checklist Verification.

3.2.14.1 Ductwork Air Leak Test (DALT) Acceptance Testing

3.2.14.1.1 General Requirements

Ductwork Air Leak Test (DALT) Acceptance Testing must be performed for air moving systems provided with ductwork and listed under item entitled "Heating, Ventilation, and Air-Conditioning (HVAC) Systems Category" in paragraph SYSTEMS TO BE COMMISSIONED. DALT Acceptance Testing activities must include, but not be limited to, sequential activities specified in the following paragraphs.

a. Select and document ductwork lengths to be DALT'ed as specified in item entitled "Sample Strategy" below.

b. Provide selection of ductwork lengths to be DALT'ed to Installing Contractors.

c. Perform DALT on ductwork lengths selected to be DALT'ed in accordance with item entitled "Sample Strategy" below and Section 23 05 93 TESTING, ADJUSTING, AND BALANCING FOR MECHANICAL SYSTEMS.

d. Prepare and provide Pre-Final DALT Report in accordance with Section 23 05 93 TESTING, ADJUSTING, AND BALANCING FOR MECHANICAL SYSTEMS.

e. Perform up to one review and documentation of Pre-Final DALT Report.

f. Prepare and submit Pre-Final DALT Report Statement based on review and documentation of Pre-Final DALT Report.

g. Witness and document up to one eight-hour site trip for each building floor to verify accuracy of Pre-Final DALT Report. Make unannounced on-site random selections of ductwork lengths in the Pre-Final DALT Report for verification as specified in item entitled "Sample

Strategy" below.

h. Perform verification of accuracy of Pre-Final DALT Report in accordance with item entitled "Sample Strategy" below and Section 23 05 93 TESTING, ADJUSTING, AND BALANCING FOR MECHANICAL SYSTEMS in presence of Commissioning Specialists.

i. Prepare and provide Certified Final DALT Report in accordance with Section 23 05 93 TESTING, ADJUSTING, AND BALANCING FOR MECHANICAL SYSTEMS.

j. Perform up to one review and documentation of Certified Final DALT Report.

k. Prepare and submit Certified Final DALT Report Statement based on review and documentation of Certified Final DALT Report.

3.2.14.1.2 Sample Strategy

Sample strategy for ductwork lengths selected to be DALT'ed must be 25-percent of ductwork lengths of all mains and branches for supply, return, exhaust, and outside air ductwork for each air moving system regardless of construction classification.

Sample strategy for ductwork lengths selected for verification of accuracy of Pre-Final DALT Report must be 50-percent of ductwork lengths selected to be DALT'ed.

3.2.14.1.3 Unsuccessful Verification and Re-Verification

Verification must be failed for leakage rates that exceed limits specified in Plans and Specifications.

Re-verification must be performed to the extent necessary to successfully verify accuracy of Pre-Final DALT Report. Sequential activities specified in item entitled "General Requirements" above must performed for each additional re-verification.

3.2.14.1.4 Re-Verification Costs

Re-verification costs may be withheld by the Contracting Officer from payments to Installing Contractors. These costs may include salary, travel costs, and per diem associated with re-verification for the Lead Commissioning Specialist, Commissioning Specialists, and Government personnel.

3.2.14.1.5 Pre-Final DALT Report Statement

A Pre-Final DALT Report Statement must be prepared for each review and documentation of Pre-Final DALT Report. Statement contents must include, but not be limited to, contents specified in the following paragraphs.

a. Project title, project number, and date of review(s).

b. Executive summary.

c. List of deficiencies complete with identification of equipment, system, or assembly, allowed leakage, reported leakage, and proposed corrective actions.

d. Copy of Pre-Final DALT Report.

3.2.14.1.6 Lead Commissioning Specialist Responsibilities

The Lead Commissioning Specialist must, at a minimum, perform activities specified in the following paragraphs.

a. Provide selection of ductwork lengths to be DALT'ed to Installing Contractors.

b. Prepare and submit **Construction Phase Site Observation Reports** with submission of Certified Final DALT Report Statement. In addition, provide one copy to Installing Contractors.

c. Prepare and submit **Certified Final DALT Report Statement** no later than no later than 21 calendar days after receipt of Certified Final DALT Report.

3.2.14.1.7 Commissioning Specialists Responsibilities

Commissioning Specialists must, at a minimum, perform activities specified in the following paragraphs.

a. Select and document ductwork lengths to be DALT'ed.

b. Perform review and documentation of Pre-Final DALT Report.

c. Witness and document verification of accuracy of Pre-Final DALT Report.

d. Perform review and documentation of Certified Final DALT Report.

3.2.14.1.8 Installing Contractors Responsibilities

Installing Contractors must, at a minimum, perform activities specified in the following paragraphs.

a. Perform DALT on ductwork lengths selected to be DALT'ed.

b. Prepare and provide Pre-Final DALT Report to the Lead Commissioning Specialist.

c. Perform verification of accuracy of Pre-Final DALT Report.

d. Prepare and provide Certified Final DALT Report to the Lead Commissioning Specialist.

3.2.14.2 Testing, Adjusting, and Balancing (TAB) Acceptance Testing

3.2.14.2.1 General Requirements

Testing, Adjusting, and Balancing (TAB) Acceptance Testing must be performed for equipment, systems, and assemblies listed under item entitled "Heating, Ventilation, and Air-Conditioning (HVAC) Systems Category" in paragraph SYSTEMS TO BE COMMISSIONED. TAB Acceptance Testing activities must include, but not be limited to, sequential activities specified in the following paragraphs.

a. Prepare and provide Certified TAB Report in accordance with Section

23 05 93 TESTING, ADJUSTING, AND BALANCING FOR MECHANICAL SYSTEMS.

b. Perform up to one review and documentation of Certified TAB Report.

c. Prepare and submit Certified TAB Report Statement based on review and documentation of Certified TAB Report.

d. Witness and document up to two eight-hour days during one site trip to verify accuracy of Certified TAB Report. Make unannounced on-site random selections of water data and air data reported in the Certified TAB Report for verification as specified in item entitled "Sample Strategy" below.

e. Perform verification of accuracy of Certified TAB Report in accordance with item entitled "Sample Strategy" below and Section 23 05 93 TESTING, ADJUSTING, AND BALANCING FOR MECHANICAL SYSTEMS in presence of Commissioning Specialists.

f. Prepare and submit TAB Field Acceptance Testing Statement based on documentation of site trip to verify accuracy of Certified TAB Report.

3.2.14.2.2 Sample Strategy

Sample strategy must be as specified in the following paragraphs.

a. Group 1: All chillers, boilers, return fans, computer room units, and air handling units (rooftop and central stations).

b. Group 2: 25 percent of the VAV terminal boxes and associated diffusers and registers.

c. Group 3: 25 percent of the supply diffusers, registers, grilles associated with constant volume air handling units.

d. Group 4: 25 percent of the return grilles, return registers, exhaust grilles and exhaust registers.

e. Group 5: 25 percent of the supply fans, exhaust fans, and pumps.

3.2.14.2.3 Unsuccessful Verification and Re-Verification

Verification must be failed for measurements that exceed tolerances specified in Plans and Specifications of the original measurement reported in the Certified TAB Report.

Re-verification must be performed to the extent necessary to successfully verify accuracy of Certified TAB Report. Sequential activities specified in item entitled "General Requirements" above must performed for each additional re-verification.

3.2.14.2.4 Re-Verification Costs

Re-verification costs may be withheld by the Contracting Officer from payments to Installing Contractors. These costs may include salary, travel costs, and per diem associated with re-verification for the Lead Commissioning Specialist, Commissioning Specialists, and Government personnel.

3.2.14.2.5 Certified TAB Report Statement

A Certified TAB Report Statement must be prepared for each review and documentation of Certified TAB Report. Statement contents must include, but not be limited to, contents specified in the following paragraphs.

a. Project title, project number, and date of review(s).

b. Executive summary complete with acceptance recommendation.

c. List of deficiencies complete with identification of equipment, system, or assembly, allowed flow, verified flow, and proposed corrective actions.

d. Copy of Certified TAB Report(s).

3.2.14.2.6 TAB Field Acceptance Testing Statement

A TAB Field Acceptance Testing Statement must be prepared for each site trip to verify accuracy of Certified TAB Report. Statement contents must include, but not be limited to, contents specified in the following paragraphs.

a. Project title, project number, and date(s) and duration of verification(s).

b. Executive summary complete with acceptance recommendation.

c. List of equipment, systems, and assemblies verified.

d. List of deficiencies complete with identification of equipment, system, or assembly, allowed flow, verified flow, and proposed corrective actions.

3.2.14.2.7 Lead Commissioning Specialist Responsibilities

The Lead Commissioning Specialist must, at a minimum, perform activities specified in the following paragraphs.

a. Prepare and submit **Certified TAB Report Statement** no later than 21 calendar days after receipt of Certified TAB Report. In addition, provide one copy to Installing Contractors.

b. Prepare and submit **TAB Field Acceptance Testing Statement** no later than 14 calendar days after completion of TAB Field Acceptance Testing.

3.2.14.2.8 Commissioning Specialists Responsibilities

Commissioning Specialists must, at a minimum, perform activities specified in the following paragraphs.

a. Perform review and documentation of Certified TAB Report.

b. Witness and document verification of accuracy of Certified TAB Report.

3.2.14.2.9 Installing Contractors Responsibilities

Installing Contractors must, at a minimum, perform activities specified in the following paragraphs.

a. Prepare and provide Certified TAB Report to the Lead Commissioning Specialist.

b. Perform verification of accuracy of Certified TAB Report.

3.2.14.3 Pre-Functional Checklist Verification

3.2.14.3.1 General Requirements

Pre-Functional Checklist Verification must be performed using Pre-Functional Checklists from the approved Construction Phase Final Commissioning Plan by conducting on-site spot-checks to verify accuracy after receipt of completed Pre-Functional Checklists from Installing Contractors. Verification may be combined with Construction Phase Site Observations.

3.2.14.3.2 Number of Trips

The number of trips to the site for the purpose of Pre-Functional Checklist Verification for each systems category must be up to that specified in the following paragraphs. It is encouraged that these trips be combined with Construction Phase Site Observations.

a. Heating, Ventilation, and Air-Conditioning (HVAC) Systems Category: One eight-hour trips.

b. Plumbing Systems Category: No trips. Combine these activities with HVAC Systems Category trip activities.

c. Utility Systems Category: No trip dedicated to this systems category. Verification of commissioned equipment, systems, and assemblies listed under this systems category may be combined with trips for other systems categories.

d. Electrical Type I Systems Category: No trips.

e. Electrical Type II Systems Category: One eight-hour trip.

f. Building Envelope Systems, Components, and Assemblies Category: One eight-hour trip.

3.2.14.3.3 Sample Strategy

20-Percent sample spot-check for all equipment, systems, and assemblies for which Pre-Functional Checklists have been completed. Sample spot-check must include at least one complete item such as one complete unitary air-conditioner.

3.2.14.3.4 Lead Commissioning Specialist Responsibilities

The Lead Commissioning Specialist must provide blank Pre-Functional Checklists to Installing Contractors.

The Lead Commissioning Specialist must submit all **completed Pre-Functional Checklists** and all associated equipment start-up reports for each systems category listed under paragraph SYSTEMS TO BE COMMISSIONED as a single submittal no later than seven calendar days after receipt of all completed checklists for equipment, systems, and assemblies listed under the

respective systems category from Installing Contractors.

3.2.14.3.5 Commissioning Specialists Responsibilities

Commissioning Specialists must perform Pre-Functional Checklist Verifications and then must indicate acceptance of all Pre-Functional Checklist items for equipment, systems, and assemblies listed under systems categories assigned to them in this Section. Commissioning Specialists are prohibited from performing these responsibilities for equipment, systems, and assemblies listed under systems categories assigned to other Commissioning Specialists.

3.2.14.3.6 Installing Contractors Responsibilities

Installing Contractors must complete one Pre-Functional Checklist for each piece of equipment and system. Initial each Pre-Functional Checklist item for their area of responsibility indicating the item's construction, installation, and start-up as applicable has been verified to be complete and is ready for testing.

Installing Contractors must provide completed and initialed Pre-Functional Checklists and all associated equipment start-up reports to the Lead Commissioning Specialist as a single package for each systems category no later than seven calendar days after completion of inspection of all checklist items for each piece of equipment and system.

3.2.15 Construction Phase Endurance Testing

3.2.15.1 General Requirements

Construction Phase Endurance Testing (trending of control system control points) for complex systems as defined in paragraph COMPLEX SYSTEMS must be performed as specified in the following paragraphs. Systems must be operating in full automatic mode and as normally anticipated during occupancy throughout Endurance Testing. Trending must be restarted if any equipment, system, or setpoint is overridden to manual mode at any time during trending.

3.2.15.2 Hardware

Hardware must have sufficient buffer capacity to trend all data throughout Endurance Testing. Trend data uploading during the course of Endurance Testing to ensure all trend data is retained is encouraged. Lost trend data will require retesting of all control points for affected systems.

3.2.15.3 Results Format

Results format of trend data must be provided in a graphical format complete with clear indication of value(s) for y-axis, value for x-axis, and legend identifying each trended control point. The number of control points contained on a single graph must be such that all control points can be clearly visible. Control points must be logically grouped such that related points appear on a single graph. In addition, a separate comma separated value (CSV) file of raw trend data for each trended system must be provided. Each trended control point in CSV file must be clearly identified.

For control points recorded based on change of value, change of value for recording data must be clearly identified for each control point.

3.2.15.4 Construction Phase Endurance Testing Reports

A single Construction Phase Endurance Testing Report must be prepared and contents must include, but not be limited to, an executive summary, review comments for each trended system, trend results for each trended system in graphical format, and raw trend data for all trend results for each trended system.

3.2.15.5 Start, Duration, and Recording Frequency

Starting date and time must be identical for all control points specified to be trended for each system subject to Endurance Testing regardless of specified duration and regardless of specified frequency. Duration of all Endurance Testing must be no less than seven consecutive calendar days.

Recording frequency of data for all control points specified to be trended for each system subject to Endurance Testing must be 15-minutes as modified in this Section. The recording frequency of data for specific control point types must occur at the frequency specified in the following paragraphs.

3.2.15.5.1 Control Points Trended at One Minute Intervals

a. Temperature for supply air, return air, mixed air, supply water, and return water.

b. Temperature entering and leaving all heat transfer devices such as coils, energy recovery wheels, and heat pipes.

c. Temperature for outside air, supply air, return air and exhaust air entering and leaving energy recovery device.

d. Flow for supply air, return air, outside air, chilled water, and HVAC heating hot water.

e. Flow for exhaust air associated with energy recovery.

f. Relative humidity for outside air and return air.

g. Relative humidity for outside air, supply air, return air and exhaust air entering and leaving energy recovery device.

h. Command and status for control dampers and control valves.

i. Speed for fans and pumps.

j. Pressure for fans and pumps.

3.2.15.5.2 Control Points Trended at 15 Minute Intervals

a. Temperature and relative humidity for zones.

b. Temperature and relative humidity for outside air not associated with energy recovery.

c. Pressure relative to the outside for facility.

3.2.15.5.3 Control Points Trended at Change of Position or State

a. Command and status for equipment such as chillers, boilers, pumps, compressors, air handling units, dedicated outside air systems.

b. Operation state for occupied, unoccupied, warm-up, cool-down, timed override, cooling, heating, alarm, and lead-lag duty status change.

c. Command and position for two-position control air dampers.

3.2.15.6 Trended Control Points

Trended control points for each system must demonstrate performance is in accordance with Plans and Specifications. Trended control points must include, but not be limited to, control points listed in Plans and Specifications' points lists.

Trended control points for selected systems, at a minimum, must include control points specified in the following paragraphs. These control points must be trended as applicable to this contract in addition to control points necessary to demonstrate systems perform in accordance with requirements of Plans and Specifications and control points listed in Plans and Specifications' points lists.

3.2.15.6.1 Air-Cooled Chiller Chilled Water System

a. Chiller(s) command and status.

b. Chiller isolation valve(s) command and status.

c. Chilled water pump(s) actual speed.

d. Chilled water pump(s) setpoint and actual differential pressure.

e. Minimum flow bypass control valve command.

f. Minimum system flow setpoint and actual flow.

g. Chilled water supply setpoint and actual temperature.

h. Chilled water return actual temperature.

i. Chilled water actual flow.

j. Outside air actual dry-bulb temperature.

3.2.15.6.2 HVAC Heating Hot Water System with Boiler

a. Boiler(s) command and status.

b. Boiler(s) isolation valve command and status.

c. HVAC heating hot water pump(s) actual speed.

d. HVAC heating hot water pump(s) setpoint and actual differential pressure.

e. Minimum flow bypass control valve command.

f. Minimum system setpoint and actual flow.

g. HVAC heating hot water supply setpoint and actual temperature.

h. HVAC heating hot water return actual temperature.

i. HVAC heating hot water actual flow.

j. Outside air actual dry-bulb temperature.

3.2.15.6.3 HVAC Heating Hot Water System with Steam-to-Hot Water Heat Exchanger

a. Steam control valve(s) command.

b. Heat exchanger isolation valve(s) command and status.

c. HVAC heating hot water pump(s) actual speed.

d. HVAC heating hot water pump(s) setpoint and actual differential pressure.

e. Minimum flow bypass control valve command.

f. Minimum system setpoint and actual flow.

g. HVAC heating hot water supply setpoint and actual temperature.

h. HVAC heating hot water return actual temperature.

i. HVAC heating hot water actual flow.

j. Outside air actual dry-bulb temperature.

3.2.15.6.4 Air Handling Unit with Relief Air Fan

a. Outside air actual dry-bulb temperature.

b. Outside air actual relative humidity.

c. Outside air setpoint and actual airflow.

d. Minimum outside air control damper command.

e. Economizer outside air control damper command.

f. Facility setpoint and actual relative pressure.

g. Return air actual dry-bulb temperature.

h. Return air actual relative humidity.

i. Return air control damper command.

j. Relief air control damper command.

k. Relief air fan actual speed.

l. Mixed air setpoint and setpoint and actual temperature.

m. Preheat coil leaving air setpoint and actual temperature.

n. Preheat coil control actuator command.

o. Cooling coil leaving air setpoint and actual temperature.

p. Cooling coil control valve command.

q. Supply air fan actual speed.

r. Discharge air actual temperature.

s. Supply air fan setpoint and actual static pressure.

3.2.15.6.5 Dedicated Outside Air System (DOAS)

a. Outside air actual dry-bulb temperature.

b. Outside air actual relative humidity.

c. Outside air isolation damper command and status.

d. Outside air setpoint and actual airflow.

e. Energy recovery wheel command, status, and actual speed.

f. Energy recovery wheel's OA bypass control damper command and status.

g. Energy recovery wheel's defrost cycle command and status.

h. Energy recovery wheel's OA discharge air actual dry-bulb temperature.

i. Energy recovery wheel's OA discharge air actual relative humidity.

j. Preheat coil leaving air setpoint and actual temperature.

k. Preheat coil control actuator command.

l. Cooling coil leaving air setpoint and actual temperature.

m. Cooling coil control valve command.

n. Supply air fan actual speed.

o. Reheat coil control valve command.

p. Discharge air setpoint and actual temperature.

q. Supply air fan setpoint and actual static pressure.

r. Facility setpoint and actual relative pressure.

s. Return air actual dry-bulb temperature.

t. Return air actual relative humidity.

u. Energy recovery wheel's EA bypass control damper command and status.

v. Energy recovery wheel's EA discharge air actual dry-bulb temperature.

w. Energy recovery wheel's EA discharge air actual relative humidity.

x. Exhaust air fan actual speed.

y. Exhaust air isolation damper command and status.

3.2.15.6.6 Series Fan-Powered Supply Air Terminal Units

a. Zone setpoint and actual dry-bulb temperature.

b. Zone actual relative humidity.

c. Control damper command.

d. Fan command and status.

e. Heating coil valve command.

f. Airflow actual value.

g. Leaving air actual temperature.

3.2.15.7 Sample Strategy

100-Percent trending of all complex systems as defined in paragraph COMPLEX SYSTEMS equipment, systems, and assemblies as modified in the following paragraphs. Sample strategy for trending less than 100-percent testing must be equally applied to each commissioned building in this project.

a. 100-Percent trending for central plant systems such as chilled water and HVAC heating hot water systems, aircraft pre-conditioned air systems, air handling unit systems including all associated fans except for remote exhaust air fans, dedicated outside air systems including all associated fans except for remote exhaust air fans, and renewable energy system.

b. 20-Percent sample trending for equipment, systems, and assemblies with identical control sequences such as unitary air-conditioners, packaged terminal air-conditioners, and heat pumps.

3.2.15.8 Unsuccessful Trending and Re-Trending

3.2.15.8.1 100-Percent Samples

Trending results must be failed for equipment or systems for which 100-percent sample size are trended if one or more of the trended control points results in discovery of a deficiency or if any equipment, system, or setpoint is overridden to manual mode at any time during trending.

Re-trending must be required to the extent necessary to confirm that deficiencies have been corrected.

3.2.15.8.2 Less than 100-Percent Samples

Trending results must be failed for equipment or systems for which less than 100-percent sample size are trended if one or more of the trended

control points results in discovery of a deficiency or if any equipment, system, or setpoint is overridden to manual mode at any time during trending.

a. Re-trending must be required for only items which experienced initial failures if the failure rate is 5-percent or less, meaning that 5-percent or less of the equipment or systems had at least one deficiency.

b. Re-trending must be required for items which experienced initial failures to the extent necessary to confirm that the deficiencies have been corrected if the failure rate is higher than 5-percent, meaning that more than 5-percent of equipment or systems trended had at least one deficiency. In addition, re-trending of another random sample of the same size as the initial sample for the first time. If the second random sample set has any failures, those failed items must be re-trended and all remaining equipment, systems, and assemblies must be trended to complete 100-percent testing of that system type.

3.2.15.9 Re-Trending Costs

Re-trending costs may be withheld by the Contracting Officer from payments to Installing Contractors. These costs may include salary associated with additional reviews of trend results for the Lead Commissioning Specialist, Commissioning Specialists, and Government personnel.

3.2.15.10 Lead Commissioning Specialist Responsibilities

The Lead Commissioning Specialist must, at a minimum, perform activities specified in the following paragraphs.

a. Provide list of systems that must be trended, control points that must be trended, and reminder of trend results format specified in this Section to Installing Contractors.

b. Provide action plan for correcting failed trend results to Installing Contractors.

c. Provide list of systems that must be re-trended due to failure of trend results or having been provided in an incorrect trend results format to Installing Contractors.

d. Prepare and submit **Construction Phase Endurance Testing Reports** as a single submittal no later than 14 calendar days after preparation of all Endurance Testing Reports. In addition, submit one electronic copy of raw trend data.

3.2.15.11 Commissioning Specialists Responsibilities

Commissioning Specialists must, at a minimum, perform activities specified in the following paragraphs for equipment, systems, and assemblies listed under systems categories assigned to them in this Section. Commissioning Specialists are prohibited from performing these activities for equipment, systems, and assemblies listed under systems categories assigned to other Commissioning Specialists.

a. Select systems that must be trended for samples of less than 100-percent.

b. Prepare list of systems and control points that must be trended.

c. Perform review of all trend results and provide approval or failure disposition.

d. Prepare list of systems that must be re-trended due to failure of trend results or having been provided in an incorrect trend results format.

e. Prepare action plan for correcting failed trend results.

3.2.15.12 Installing Contractors Responsibilities

Installing Contractors must, at a minimum, perform activities specified in the following paragraphs.

a. Provide hardware suitable to obtain trend data for systems and control points identified by Commissioning Specialists.

b. Provide hardware suitable to interface with and obtain trend data from equipment identified by the Lead Commissioning Specialist to require trending that features on-board factory packaged controls. Refer to paragraph COMPLEX SYSTEMS for definition of equipment featuring on-board factory packaged controls.

c. Provide list of equipment and control points that must be trended to Equipment Suppliers who provided equipment featuring on-board factory packaged controls as part of their contract.

d. Collect trend data in the format specified in this Section for specified systems and control points and provide to the Lead Commissioning Specialist.

e. Provide action plan for correcting failed trend results to Equipment Suppliers who provided equipment featuring on-board factory packaged controls as part of their contract.

f. Implement action plan for correcting failed trend results.

g. Re-collect and provide trend data in the format specified in this Section for trend results determined to have failed or determined to have been provided in an incorrect trend results format to the Lead Commissioning Specialist

3.2.15.13 Equipment Suppliers Responsibilities

Equipment Suppliers must, at a minimum, perform activities specified in the following paragraphs.

a. Provide Installing Contractor access, but not interface equipment, to equipment featuring on-board factory packaged controls provided as part of their contract. Refer to paragraph COMPLEX SYSTEMS for definition of equipment featuring on-board factory packaged controls.

b. Provide descriptions to Installing Contractors in clearly understood language (not proprietary code) for all trended control points.

c. Implement action plan for correcting failed trend results for equipment featuring on-board factory packaged controls provided as

part of their contract.

3.2.16 Certified Certificates of Readiness and Certificates of Readiness

3.2.16.1 General Requirements

A single Certified Certificate of Readiness must be prepared for each equipment, system, and assembly subject to Functional Performance Testing and testing required according to UFGS 01 91 19 BUILDING ENCLOSURE COMMISSIONING by reviewing, signing, and dating Certificates of Readiness to indicate each equipment, system, and assembly is complete and ready for testing. Testing of any equipment, system, or assembly is prohibited until after its Certified Certificate of Readiness has been submitted and approved. Government approval of Certified Certificates of Readiness does not constitute the Government's responsibility for equipment, systems, or assemblies being complete and ready for testing.

A single Certificate of Readiness must be prepared for each equipment, system, and assembly subject to Functional Performance Testing and testing required according to UFGS 01 91 19 BUILDING ENCLOSURE COMMISSIONING. Certificate of Readiness contents must include, but not be limited to, contents specified in the following paragraphs to the extent applicable to the specific system being tested.

a. Cover sheet with spaces for signatures and dates by the Lead Commissioning Specialist and by Installing Contractors to indicate each system is complete and ready for testing.

b. Approved Ductwork Air Test (DALT) Reports.

c. Equipment and system start-up reports.

d. Control system start-up reports.

e. Diagnostic test reports.

f. Approved Pre-Final Test and Balance Reports.

g. Completed Pre-Functional Checklists.

3.2.16.2 Lead Commissioning Specialist Responsibilities

The Lead Commissioning Specialist must sign, date, and submit **Certified Certificates of Readiness** for all equipment, systems, and assemblies listed under each systems category listed under paragraph SYSTEMS TO BE COMMISSIONED as a single submittal no later than 14 calendar days prior to testing of any equipment, system, or assembly listed under respective systems category.

3.2.16.3 Commissioning Specialists Responsibilities

Commissioning Specialists must perform reviews of Certificates of Readiness for accuracy to ensure equipment, systems, and assemblies are complete and ready for testing for equipment, systems, and assemblies listed under systems categories assigned to them in this Section. Commissioning Specialists are prohibited from performing these responsibilities for equipment, systems, and assemblies listed under systems categories assigned to other Commissioning Specialists.

3.2.16.4 Installing Contractors Responsibilities

Installing Contractors must prepare, sign, and date Certificates of Readiness indicating equipment, systems, and assemblies are complete and ready for testing. Certificates of Readiness for all equipment, systems, and assemblies listed under each systems category listed under paragraph SYSTEMS TO BE COMMISSIONED must be provided to the Lead Commissioning Specialist as a single package for each systems category.

3.2.17 Construction Phase Functional Performance Testing

3.2.17.1 General Requirements

Construction Phase Functional Performance Testing must be performed for all equipment, systems, and assemblies for which a Functional Performance Test (FPT) Checklist has been prepared. Testing must be performed using approved checklists and all required Commissioning Team participants must be present prior to start of testing. Testing must be aborted and rescheduled to occur at a later date if any Commissioning Team participant is not present or if deficiencies discovered during testing prevent successful completion. Testing of any equipment, system, and assembly is prohibited until after its Certified Certificate of Readiness has been submitted and approved.

All necessary materials and system modifications to simulate actual conditions as close as is practically possible must be provided. Complete all testing by returning affected equipment, systems, and assemblies to pre-test conditions.

3.2.17.2 Complex Systems Requirements

Testing of complex systems as defined in paragraph COMPLEX SYSTEMS in paragraph SYSTEMS TO BE COMMISSIONED must be performed as specified in the following paragraphs.

3.2.17.2.1 Equipment Featuring On-Board Factory Packaged Controls

Testing of equipment featuring on-board factory packaged controls must include, but not be limited to, testing specified in the following paragraphs.

a. Equipment enabling and disabling.

b. Equipment standard and optional control points necessary to accomplish functionality whether or not control points are specified in Plans and Specifications.

c. Equipment standard and optional alarms critical to safe operation whether or not optional alarms are specified in Plans and Specifications.

d. All control points added by Controls Contractor in addition to on-board factory packaged controls whether or not control points are specified in Plans and Specifications.

3.2.17.2.2 Test Setup and Condition Simulation

Test setup must include all necessary materials and system modifications to simulate flows, pressures, temperatures, and other conditions necessary

to perform testing according to specified conditions must be provided.

Condition simulation must be accomplished by temporarily changing control system setpoints. Condition simulation by over-writing control system inputs (actual) values is prohibited unless approved in advance of test by the Contracting Officer's Technical Representative.

3.2.17.2.3 Condition Simulation Methods

Condition simulation methods for equipment, systems, and assemblies listed under item entitled "Heating, Ventilation, and Air-Conditioning (HVAC) Systems Category" in paragraph SYSTEMS TO BE COMMISSIONED that are acceptable are specified in the following paragraphs.

a. When varying static pressures inside ductwork cannot be simulated within the duct, and where a sensor signals the controls system to initiate sequences at various duct static pressures, it is acceptable to simulate the various pressures with a Pneumatic Squeeze-Bulb Type Signaling Device with gauge temporarily attached to the sensing tube leading to the transmitter. It is not acceptable to reset the various setpoints, nor to simulate an electric analog signal unless approved as specified in the preceding paragraphs.

b. Dirty filter pressure drops can be simulated using sheets of cardboard at filter face.

c. Freeze-stat safeties can be simulated by packing portion of sensor with ice.

d. High outside air temperatures can be simulated with a hair blower.

e. High entering cooling coil temperatures can be used to simulate entering cooling coil conditions.

f. Do not use signal generators to simulate sensor signals unless approved by the Contracting Officer's Technical Representative, as noted above, for special cases.

g. Control setpoints can be altered. For example, to see the air conditioning compressor lockout work at an outside air temperature below lockout setpoint, when the outside air temperature is above lockout setpoint, temporarily change the lockout setpoint to be minus 0 degrees above the current outside air temperature. Caution: Setpoints are not to be raised or lowered to a point such that damage to the components, systems, or the building structure and/or contents will occur.

h. Test duct mounted smoke detectors in accordance with the manufacturer's recommendations. Perform testing with air system at minimum airflow condition in ductwork.

i. Test current sensing relays used for fan and pump status signals to control system to indicate unit failure and run status by resetting the setpoint on the relay to simulate a lost belt or unit failure while the unit is running. Confirm that the failure alarm was generated and received at the control system. After the test is performed, return the setpoint to its original setpoint or a setpoint as indicated by the Contracting Officer's Technical Representative.

3.2.17.3 Sample Strategy

3.2.17.3.1 General Requirements

100-Percent testing of all equipment, systems, and assemblies as modified in the following paragraphs. Sample strategy for testing less than 100-percent testing must be equally applied to each commissioned building in this project.

3.2.17.3.2 Complex Systems

Sample strategy for all complex systems as defined in paragraph COMPLEX SYSTEMS must be as specified in the following paragraphs.

a. 100-Percent testing for equipment, systems, and assemblies such as chilled water systems, HVAC heating hot water systems, renewable energy systems, building automation systems, energy management and control systems, aircraft pre-conditioned air systems, air handling unit systems including all associated fans except for remote exhaust air fans, dedicated outside air systems including all associated fans except for remote exhaust air fans, computer room air-conditioning units, whole-building energy monitoring, and whole-building water utility monitoring.

b. 20-Percent sample testing for equipment, systems, and assemblies with identical control sequences such as heat pumps, split system air-conditioning units, and packaged terminal air-conditioner units. Sample must include at least one complete item such as one complete heat pump.

3.2.17.3.3 Plumbing Systems

Sample strategy for all equipment, systems, and assemblies listed under item entitled "Plumbing Systems Category" in paragraph SYSTEMS TO BE COMMISSIONED except plumbing systems defined as complex systems in paragraph COMPLEX SYSTEMS must be as specified in the following paragraphs.

a. 100-Percent testing for equipment, systems, and assemblies such as domestic heating hot water systems, domestic solar heating hot water systems, service water pressure-booster pump systems, process water systems, natural gas systems, and irrigation systems.

b. 20-Percent sample testing for equipment, systems, and assemblies with identical features such as fixtures, semi-instantaneous water heaters, emergency eyewash stations, and vacuum systems. Sample must include at least one complete item such as one complete fixture.

3.2.17.3.4 Electrical Type II Systems

Sample strategy for all equipment, systems, and assemblies listed under item entitled "Electrical Type II Systems Category" in paragraph SYSTEMS TO BE COMMISSIONED except electrical systems defined as complex systems in paragraph COMPLEX SYSTEMS must be as specified in the following paragraphs.

a. 100-Percent testing for equipment, systems, and assemblies such as frequency converters, emergency power off control systems, emergency response systems, electrical utility metering systems, and photovoltaic systems.

b. 20-Percent sample testing for equipment, systems, and assemblies with identical features such as audiovisual systems, automatic receptacles controls, communications systems, energy monitoring, lighting systems, lighting control devices, lighting control systems, and security systems. Sample must include at least one complete item such as lighting in one space.

3.2.17.4 Unsuccessful Testing and Re-Testing

3.2.17.4.1 Unsuccessful Testing of 100-Percent Sample

Testing must be failed for equipment or systems for which 100-percent sample size are tested if one or more of the test procedures results in discovery of a deficiency that cannot be resolved within five minutes during testing.

Re-testing must be witnessed to the extent necessary to confirm that deficiencies have been corrected without negatively impacting the performance of the rest of the system.

3.2.17.4.2 Unsuccessful Testing of Less than 100-Percent Sample

Testing must be failed for equipment or systems for which less than 100-percent sample size are tested if one or more of the test procedures results in discovery of a deficiency, regardless of whether the deficiency is corrected during the sample test.

a. Re-testing must be witnessed of only items which experienced initial failures if the failure rate is 5-percent or less, meaning that 5-percent or less of the equipment or systems had at least one deficiency.

b. Re-testing must be witnessed of items which experienced initial failures to the extent necessary to confirm that the deficiencies have been corrected if the failure rate is higher than 5-percent, meaning that more than 5-percent of equipment or systems tested had at least one deficiency. In addition, testing of another random sample must be witnessed for the same size as the initial sample for the first time. If the second random sample set has any failures, those failed items must be retested and all remaining equipment, systems, and assemblies must be tested to complete 100-percent testing of that system type.

3.2.17.5 Re-Testing Costs

Re-testing costs may be withheld by the Contracting Officer from payments to Installing Contractors. These costs may include salary, travel costs, and per diem associated with re-testing for the Lead Commissioning Specialist, Commissioning Specialists, and Government personnel.

3.2.17.6 Commissioning Team Participants

Participants of Functional Performance Testing must include, but not be limited to, participants specified in the following paragraphs. The Contracting Officer's Technical Representative, Public Works Department Division (PWD) Representatives, and Using Agent's Representatives (Users) may, but are not required to, participate in any testing.

3.2.17.6.1 Heating, Ventilation, and Air-Conditioning (HVAC) Systems

Commissioning Team members participating in Functional Performance Testing of equipment, systems, and assemblies listed under item entitled "Heating, Ventilation, and Air-Conditioning (HVAC) Systems Category" in paragraph SYSTEMS TO BE COMMISSIONED must include, but not be limited to, participants specified in the following paragraphs.

a. Mechanical Commissioning Specialist (CxM).

b. Installing Contractors’ Quality Control Personnel (CQC).

c. Installing Contractors’ Controls Commissioning Representative (CC).

d. Installing Contractors’ TAB Commissioning Representative (TAB).

e. Installing Contractors’ Mechanical Commissioning Representative (MC).

f. Equipment Supplier (ES).

3.2.17.6.2 Plumbing Systems

Commissioning Team members participating in Functional Performance Testing of equipment, systems, and assemblies listed under item entitled "Plumbing Systems Category" in paragraph SYSTEMS TO BE COMMISSIONED must include, but not be limited to, participants specified in the following paragraphs.

a. Mechanical Commissioning Specialist (CxM).

b. Installing Contractors’ Quality Control Personnel (CQC).

c. Installing Contractors’ Controls Commissioning Representative (CC).

d. Installing Contractors’ Plumbing Commissioning Representative (PC).

e. Equipment Supplier (ES).

3.2.17.6.3 Utility Systems

Commissioning Team members participating in Functional Performance Testing of equipment, systems, and assemblies listed under item entitled "Utility Systems Category" in paragraph SYSTEMS TO BE COMMISSIONED must include, but not be limited to, participants specified in the following paragraphs.

a. Mechanical Commissioning Specialist (CxM).

b. Installing Contractors’ Quality Control Personnel (CQC).

c. Installing Contractors’ Controls Commissioning Representative (CC).

d. Installing Contractors’ TAB Commissioning Representative (TAB).

e. Installing Contractors’ Mechanical Commissioning Representative (MC).

f. Installing Contractors’ Plumbing Commissioning Representative (PC).

g. Installing Contractors’ Electrical Commissioning Representative (EC).

h. Equipment Supplier (ES).

3.2.17.6.4 Electrical Type II Systems

Commissioning Team members participating in Functional Performance Testing of equipment, systems, and assemblies listed under item entitled "Electrical Type II Systems Category" in paragraph SYSTEMS TO BE COMMISSIONED must include, but not be limited to, participants specified in the following paragraphs.

a. Electrical Commissioning Specialist (CxE).

b. Installing Contractors' Quality Control Personnel (CQC).

c. Installing Contractors' Electrical Commissioning Representative (EC).

d. Equipment Supplier (ES).

3.2.17.7 Lead Commissioning Specialist Responsibilities

The Lead Commissioning Specialist must, at a minimum, perform activities specified in the following paragraphs.

a. Coordinate logistics with Installing Contractors.

b. Submit **completed Final Functional Performance Test Checklists** for each systems category listed under paragraph SYSTEMS TO BE COMMISSIONED as a single submittal no later than 14 calendar days after successful testing of all systems listed under the respective systems category.

3.2.17.8 Commissioning Specialists Responsibilities

Commissioning Specialists must select systems that must be tested for samples of less than 100-percent and must witness, re-witness, and document all testing for equipment, systems, and assemblies listed under systems categories assigned to them in this Section. Commissioning Specialists are prohibited from performing the responsibilities for equipment, systems, and assemblies listed under systems categories assigned to other Commissioning Specialists.

3.2.17.9 Installing Contractors Responsibilities

Installing Contractors must provide all necessary materials and perform all aspects of testing including modifications to simulate actual conditions for all equipment, systems, and assemblies related to their contract.

3.2.17.10 Equipment Suppliers Responsibilities

Equipment Suppliers must perform all aspects of testing of equipment featuring on-board factory packaged controls provided as part of their contract. Refer to paragraph COMPLEX SYSTEMS for definition of equipment featuring on-board factory packaged controls.

3.2.17.11 Installing Contractors and Equipment Supplier Coordination

Installing Contractors and Equipment Suppliers must simultaneously perform all aspects of testing of equipment featuring on-board factory packaged controls provided as part of their contract.

3.2.18 Systems Manuals

3.2.18.1 General Requirements

Systems Manuals must be prepared for all commissioned equipment, systems, and assemblies and contents must include, but not be limited to, contents specified in the following paragraphs.

a. Executive summary containing overview of design, construction, and operation requirements.

b. Certificate of Occupancy.

c. Approved Construction Phase Commissioning Plan.

d. Approved Construction Phase Issues and Resolution Log.

e. Identification of unresolved deficiencies complete with resolution plan if not included in approved Final Commissioning Report.

f. Final Owner's Project Requirements.

g. Final Basis of Design.

h. Record documents including as-built Plans and Specifications and approved Construction Submittals.

i. Operation and Maintenance Manuals.

j. Maintenance procedures, checklists, and records.

k. Recommended maintenance schedules when schedules are not provided in Operation and Maintenance manuals.

l. Ongoing Commissioning operational and maintenance record keeping procedures to monitor equipment, systems, and assemblies performance.

m. Building and equipment operation schedules.

n. Equipment and system limitations.

o. Emergency procedures.

p. Recommended schedule for sensor and actuator calibration.

q. Recommended re-testing schedule.

r. Blank copy of all approved final Functional Performance Test Checklists.

s. Completed Functional Performance Test Checklists if not included in approved Final Commissioning Report.

t. Equipment warranty information.

u. Installing Contractors and Equipment Suppliers contact information.

v. Training Plans if not included in approved Final Commissioning Report, training materials, and completed Training Attendance Rosters if not

included in approved Final Commissioning Report.

w. Commissioning Design Review Reports if not included in approved Final Commissioning Report.

x. Construction Submittal Review Reports.

y. Approved Final Commissioning Report.

z. All Commissioning reports that are not specified in the preceding paragraphs and are not specified to be included in the approved Final Commissioning Report.

Systems Manual contents for all complex systems as defined in paragraph COMPLEX SYSTEMS, in addition to contents specified in the preceding paragraphs, must include, but not be limited to, contents specified in the following paragraphs.

a. As-built system single line diagrams.

b. As-built sequences of operation and controls drawings.

c. As-built control system setpoints and operating ranges.

3.2.18.2 Lead Commissioning Specialist Responsibilities

The Lead Commissioning Specialist must, at a minimum, provide all review comments to the Installing Contractors for all equipment, systems, and assemblies listed under each systems category as a single package no later than 45 calendar days prior to first training event for any equipment, system, or assembly in respective systems category. Review comments are not required to be submitted to the Government.

3.2.18.3 Commissioning Specialist Responsibilities

Commissioning Specialists must, at a minimum, review and prepare review comments for all Systems Manuals. Commissioning Specialists are prohibited from performing these responsibilities for equipment, systems, and assemblies listed under systems categories assigned to other Commissioning Specialists.

3.2.18.4 Installing Contractors Responsibilities

Installing Contractors must, at a minimum, perform activities specified in the following paragraphs.

a. Prepare and provide all Systems Manuals to the Lead Commissioning Specialist for all equipment, systems, and assemblies listed under each systems category as a single package no later than 60 calendar days prior to first training event for any equipment, system, or assembly in respective systems category.

b. Incorporate all review comments.

3.2.19 Training

3.2.19.1 Training Plans

Training Plans must be prepared for all commissioned equipment, systems,

and assemblies and contents must include, but not be limited to, contents specified in the following paragraphs.

a. List of those who should receive training by position or name.

b. List of systems that require training organized by Specification Section.

c. Outline of training topics that addresses design, construction, operation, and maintenance.

d. Learning objectives and training delivery methods.

e. Planned location of the training sessions (classroom, on-site, and off-site).

f. Minimum duration of each training session.

g. Training materials requirements to be used during the instructional process.

h. Training report, records, and recording requirements.

i. Instructor qualifications.

j. Instructor name and contact information.

k. Criteria for determining whether provided training is acceptable.

l. Blank Training Attendance Rosters.

3.2.19.2 Training

Training must be performed in accordance with Training Plans and in accordance with requirements specified in other Sections.

3.2.19.3 Lead Commissioning Specialist Responsibilities

The Lead Commissioning Specialist must, at a minimum, provide all review comments to the Installing Contractors for all equipment, systems, and assemblies listed under each systems category as a single package no later than 45 calendar days prior to first training event for any equipment, system, or assembly in respective systems category. Review comments are not required to be submitted to the Government.

3.2.19.4 Commissioning Specialist Responsibilities

Commissioning Specialists must, at a minimum, review and prepare review comments for all Training Plans. Commissioning Specialists are prohibited from performing these responsibilities for equipment, systems, and assemblies listed under systems categories assigned to other Commissioning Specialists.

3.2.19.5 Installing Contractors Responsibilities

Installing Contractors must, at a minimum, perform activities specified in the following paragraphs.

a. Prepare and provide all Training Plans to the Lead Commissioning

Specialist for all equipment, systems, and assemblies listed under each systems category as a single package no later than 60 calendar days prior to first training event for any equipment, system, or assembly in respective systems category.

b. Incorporate all review comments.

c. Perform training as specified in the preceding paragraphs.

d. Require all training attendees to sign Training Attendance Rosters.

e. Provide all Approved Training Plans and Completed Training Attendance Rosters to the Lead Commissioning Specialist for all equipment, systems, and assemblies listed under each systems category as a single package no later than 30 calendar days after the last training event for all equipment, systems, and assemblies in respective systems category.

3.2.20 Final Commissioning Report

3.2.20.1 General Requirements

The Final Commissioning Report must be prepared and contents must include, but not be limited to, contents specified in the following paragraphs.

a. Executive summary describing the overall Commissioning Process.

b. Results of the Commissioning Process.

c. Issues And Resolution Log.

d. Commissioning Design Review Reports.

e. Approved Construction Phase Final Commissioning Plan.

f. Approved Pre-Final Test and Balance Reports.

g. Completed Pre-Functional Checklists.

h. Endurance Testing Reports.

i. Completed Functional Performance Test Checklists.

j. Approved Training Plans.

k. Completed Training Attendance Rosters.

l. Indication that equipment, systems, and assemblies meet requirements of the Owner's Project Requirements, Plans and Specifications, and provisions of ASHRAE 90.1 - IP.

m. Indication of plan for completion of any deferred trainings.

n. Identification of all deficiencies complete with corrective actions taken.

o. Identification of all repairs, replacements, and calibrations.

p. Identification of unresolved deficiencies complete with resolution

plan and responsible Commissioning Team member.

q. List and plan for completion of any testing that must be performed during the Post-Construction (Warranty) Phase.

3.2.20.2 Lead Commissioning Specialist Responsibilities

The Lead Commissioning Specialist must, at a minimum, perform activities specified in the following paragraphs.

a. Prepare and submit the **Final Commissioning Report** no later than 30 calendar days after Beneficial Occupancy.

b. File one copy of **Approved Final Commissioning Report** in the Sustainability eNotebook no later than 14 calendar days after receiving approval of the Final Commissioning Report.

3.3 POST-CONSTRUCTION (WARRANTY) PHASE

3.3.1 Post-Construction Phase ASHRAE Standard 90.1 Commissioning Compliance

3.3.1.1 General Requirements

Activities must include, but not be limited to, Post-Construction Phase Commissioning Activities referred to as "Building Systems Verification and Testing" and "Building Commissioning" in ASHRAE 90.1 - IP as modified in this Section, Post-Construction Phase Commissioning Activities listed in references contained in ASHRAE 90.1 - IP as modified in this Section, and Post-Construction Phase Commissioning Activities specified in this Section.

3.3.1.2 Lead Commissioning Specialist and Commissioning Specialists Responsibilities

The Lead Commissioning Specialist and Commissioning Specialists must, at a minimum, perform all activities specified under item entitled "Post-Construction Phase ASHRAE Standard 90.1 Commissioning Compliance."

3.3.2 Post-Construction Phase Sustainability Third Party Certification (TPC) Commissioning Compliance

3.3.2.1 General Requirements

Activities must include, but not be limited to, Post-Construction Phase Commissioning Activities listed in the reference for pursuing Sustainability TPC, GBI DOD GP Compliance, as modified in this Section, Post-Construction Phase Commissioning Activities listed in all of its references as modified in this Section, and Post-Construction Phase Commissioning Activities specified in this Section.

3.3.2.2 Lead Commissioning Specialist and Commissioning Specialists Responsibilities

The Lead Commissioning Specialist and Commissioning Specialists must, at a minimum, perform activities specified in the following paragraphs.

a. The Lead Commissioning Specialist must submit all Post-Construction Phase documentation of Commissioning Activities directly to the Sustainability TPC organization as modified in this Section.

b. The Lead Commissioning Specialist and Commissioning Specialists must perform all activities specified under item entitled "Post-Construction Phase Sustainability Third Party Certification (TPC)."

3.3.3 Post-Construction Phase Issues And Resolution Log

3.3.3.1 General Requirements

The Post-Construction Phase Issues and Resolution Log must be prepared and maintained to track all Commissioning Issues identified by any member of the Commissioning Team. The Post-Construction Phase Issues and Resolution Log must be prepared in an electronic format that can be used throughout the Post-Construction Phase such that it can be provided to the Government upon request. Post-Construction Phase Issues and Resolution Log contents must include, but not be limited to, contents specified in the following paragraphs.

a. Project title and location.

b. Lead Commissioning Specialist's contact information.

c. Issue number.

d. Date issue was discovered.

e. Name of Commissioning Team member identifying the issue.

f. Commissioning Team member responsible for resolving the issue.

g. Current status.

h. Issue description.

i. Pictures of item if available and appropriate.

j. Effects of issue on project or building operation.

k. Possible cause of issue.

l. Proposed resolution.

m. Final resolution and final resolution date.

n. Approvals of issue resolution, including approver's name.

3.3.3.2 Lead Commissioning Specialist Responsibilities

The Lead Commissioning Specialist must prepare and maintain the **Post Construction Phase Issues And Resolution Log** and must submit one electronic copy no later than 14 calendar days after completion of any Post-Construction Phase Commissioning Activity.

3.3.4 Post-Construction Phase Site Observations

3.3.4.1 General Requirements

Post-Construction Phase Site Observations must be performed for each systems category specified in the following item entitled "Number of

Trips" between eight and 10 months after Beneficial Occupancy to verify and document that all commissioned equipment, systems, and assemblies are operating in accordance with the Owner's Project Requirements.

Post-Construction Phase Site Observations are prohibited from being combined with witnessing Post-Construction Phase Functional Performance Testing.

3.3.4.2 Number of Trips

The Number of Post-Construction Phase Site Observations inclusive of all commissioned buildings in this project must be as follows

a. Heating, Ventilation, and Air-Conditioning (HVAC) Systems Category: One eight-hour trip.

b. Plumbing Systems Category: No trips. Combine these activities with HVAC Systems Category trip activities.

c. Utility Systems Category: No trips.

d. Electrical Type I Systems Category: No trips.

e. Electrical Type II Systems Category: One eight-hour trip.

f. Building Envelope Systems, Components, and Assemblies Category: One eight-hour trip.

3.3.4.3 Site Observation Reports

Site Observation Reports must be prepared for each Site Observation for the purpose of documenting issues discovered during Site Observation.

3.3.4.4 Lead Commissioning Specialist Responsibilities

The Lead Commissioning Specialist must, at a minimum, perform activities specified in the following paragraphs.

a. Contact Contracting Officer's Technical Representative no later than 30 calendar days prior to performing Site Observation to schedule attendance of Operations and Maintenance staff and occupants and to make provisions for access to all commissioned equipment, systems, and assemblies.

b. Submit **Post-Construction Phase Site Observation Reports** no later than 14 calendar days after Site Observation.

3.3.4.5 Commissioning Specialists Responsibilities

Commissioning Specialists must, at a minimum, perform activities specified in the following paragraphs for equipment, systems, and assemblies listed under systems categories assigned to them in this Section. Commissioning Specialists are prohibited from performing these responsibilities for equipment, systems, and assemblies listed under systems categories assigned to other Commissioning Specialists.

a. Interview Operations and Maintenance staff.

b. Interview occupants.

c. Determine status of unresolved Commissioning Issues.

d. Compare current operations to operations identified throughout the Commissioning Process.

e. Prepare Post-Construction Phase Site Observation Reports.

3.3.5 Post-Construction Phase Endurance Testing

3.3.5.1 General Requirements

Post-Construction Phase Endurance Testing (trending of control system control points) requirements and activities for each complex system as defined in paragraph COMPLEX SYSTEMS must be performed if all requirements and activities for respective system could not be fully or successfully completed during Construction Phase Endurance Testing.

Post-Construction Phase Endurance Testing requirements and activities must include, but not be limited to, requirements and activities specified for Construction Phase Endurance Testing as modified in the following paragraphs. Systems must be operating as normally anticipated during occupancy throughout Endurance Testing.

3.3.5.2 Post-Construction Phase Endurance Testing Reports

A Post-Construction Phase Endurance Testing Report must be prepared and contents must include, but not be limited to, an executive summary, Commissioning Specialists’ review comments, trend results in graphical format, and raw trend data for all trend results for each trended system.

3.3.5.3 Lead Commissioning Specialist Responsibilities

The Lead Commissioning Specialist must, at a minimum, perform all activities assigned for Construction Phase Endurance Testing and specified in the following paragraphs.

a. Contact Contracting Officer's Technical Representative no later than 30 calendar days prior to performing Endurance Testing to make provisions for access to all commissioned equipment, systems, and assemblies.

b. Coordinate logistics of trend data collection with Installing Contractors.

c. Prepare and submit **Post-Construction Phase Endurance Testing Reports** as a single submittal no later than 14 calendar days after preparation of all Endurance Testing Reports. In addition, submit one electronic copy of raw trend data.

3.3.5.4 Installing Contractors Responsibilities

Installing Contractors must, at a minimum, perform all activities assigned for Construction Phase Endurance Testing and specified in the following paragraphs.

a. Setup trend hardware during one site visit and retrieve trend data and trend hardware as applicable during an additional site visit.

3.3.5.5 Equipment Suppliers Responsibilities

Equipment Suppliers must, at a minimum, perform all activities assigned for Construction Phase Endurance Testing.

3.3.6 Certified Certificates of Readiness and Certificates of Readiness

Certified Certificates of Readiness and Certificates of Readiness are not required for any Post-Construction Phase activity.

3.3.7 Post-Construction Phase Functional Performance Testing

3.3.7.1 General Requirements

Post-Construction Phase Functional Performance Testing must be performed for all commissioned equipment, systems, and assemblies that could not be fully or successfully tested during the Construction Phase. Testing must be performed using approved checklists and all required Commissioning Team participants must be present prior to start of testing. Testing must be aborted and rescheduled to occur at a later date if any Commissioning Team participant is not present or if deficiencies discovered during testing prevent successful completion.

Post-Construction Phase Functional Performance Testing requirements and activities must include, but not be limited to, requirements and activities specified for Construction Phase Functional Performance Testing as modified in paragraphs under paragraph POST-CONSTRUCTION (WARRANTY) PHASE.

3.3.7.2 Commissioning Team Participants

Participants of Functional Performance Testing must include, but not be limited to, participants specified in the following paragraphs. The Contracting Officer's Technical Representative, Public Works Department Division (PWD) Representatives, and Using Agent's Representatives (Users) may, but are not required to, participate in any testing.

a. Lead Commissioning Specialist.

b. Commissioning Specialists.

c. Installing Contractors.

d. Equipment Suppliers.

3.3.7.3 Lead Commissioning Specialist Responsibilities

The Lead Commissioning Specialist must, at a minimum, perform activities specified in the following paragraphs.

a. Contact Contracting Officer's Technical Representative no later than 30 calendar days prior to witnessing Post-Construction Phase Functional Performance Testing to make provisions for access to all commissioned equipment, systems, and assemblies.

b. Coordinate logistics with Installing Contractors.

c. Submit completed Final Functional Performance Test Checklists for each systems category listed under paragraph SYSTEMS TO BE COMMISSIONED as

a single submittal no later than 14 calendar days after successful testing of all systems listed under the respective systems category.

3.3.8 Updated Systems Manuals

3.3.8.1 General Requirements

Updated Systems Manuals must be prepared and must be an update to Systems Manuals prepared during the Construction Phase and contents must include, but not be limited to, changes resulting from Post-Construction Phase Commissioning Activities.

3.3.8.2 Lead Commissioning Specialist Responsibilities

The Lead Commissioning Specialist must, at a minimum, provide all review comments to the Installing Contractors as a single package 45 calendar days after Post-Construction Phase Site Observations or no later than 45 calendar days after Post-Construction Phase Functional Performance Testing, whichever occurs last. Review comments are not required to be submitted to the Government.

3.3.8.3 Commissioning Specialist Responsibilities

Commissioning Specialists must, at a minimum, review and prepare review comments for all Updated Systems Manuals. Commissioning Specialists are prohibited from performing these responsibilities for equipment, systems, and assemblies listed under systems categories assigned to other Commissioning Specialists.

3.3.8.4 Installing Contractors Responsibilities

Installing Contractors must, at a minimum, perform activities specified in the following paragraphs.

a. Prepare and provide all Updated Systems Manuals to the Lead Commissioning Specialist as a single package no later than 30 calendar days after Post-Construction Phase Site Observations or no later than 30 calendar days after Post-Construction Phase Functional Performance Testing, whichever occurs last.

b. Incorporate all review comments.

3.3.9 Updated Final Commissioning Report

3.3.9.1 General Requirements

The Updated Final Commissioning Report must be prepared and must be an update to the Final Commissioning Report prepared during the Construction Phase and contents must include, but not be limited to, changes resulting from Post-Construction Phase Commissioning Activities.

3.3.9.2 Lead Commissioning Specialist Responsibilities

The Lead Commissioning Specialist must, at a minimum, prepare and submit the **Updated Final Commissioning Report** no later than 30 calendar days after completion of all Functional Performance Testing.

File one copy of **Approved Updated Final Commissioning Report** in the Sustainability eNotebook no later than 14 calendar days after receiving

approval of the Updated Final Commissioning Report.

-- End of Section --

PART THREE “A”- PROJECT PROGRAM – Standard Requirements

Project Program

RFP ORGANIZATION OUTLINE

Marine Corps Barracks – Repair by Replacement
P1634RR
FY27
Category Code 72111

MCB Camp Lejeune – French Creek Jacksonville, NC

This RFP establishes a standard design approach for the Marine Corps Barracks Initiative and is organized based on the following:

Part 2 – Requirements established for specific Marine Corps Installation

Part 3 "A" – Requirements established as the standard design

NOTE: In sections where there are site specific requirements indicated, only those requirements that are associated with the project location are applicable.

Part 3 "B" – Requirements specific to the project site(s) to supplement sections of Part 3A that are not standard design requirements

Part 4 – Requirements established as the standard design

Part 5 – Requirements established as the standard design

Part 6 – Documents specific to the project

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Part 3 contains the project description, functional and performance requirements, scope items, and expected quality levels that exceed Part 4. Part 4 identifies design criteria, verification requirements, and performance and quality requirements of products. See "Order of Precedence" paragraph in Part 2 for relationships between all parts of this RFP.

1.0 PROJECT DESCRIPTION

Construct unaccompanied bachelor enlisted quarters (BEQs) as shown below:

Cherry Point – WON1895345: 4 story BEQs to house 1,440 total occupants; three buildings of (480) occupants each

Camp Lejeune:

Hadnot Point – WON 1894554: 3 story BEQs to house 600 total occupants; two buildings of (300) occupants each

French Creek – WON1894552: 3 story BEQ to house 170 total occupants; one building

New River – WON 1894562: 4 story BEQ to house 360 total occupants; one building

Camp Pendleton:

13 Area – WON 1906878: 4-6 story BEQ(s) to house 552 total occupants; number of separate buildings based on site constraints and phasing requirements

24 Area – WON 1906872: 4-6 story BEQ(s) to house 802 total occupants; number of separate buildings based on site constraints and phasing requirements

41 Area – WON 1906873: 4-6 story BEQ(s) to house 722 total occupants; number of separate buildings based on site constraints and phasing requirements

All required spaces and distribution of 2+0 and Accessible room modules per building are identified in the Space Tabulations table in Part 3B, Section 4 of this RFP.

High-rise construction, as classified by the International Building Code (IBC), is not acceptable. Design to ensure that occupied floors and/or roofs remains below the IBC high-rise classification height.

Building materials, building systems and construction methods shall follow the requirements established in the Engineering System Requirements (ESR) located in Part 3A and Part 3B of this RFP and the Performance Technical Specifications (PTS) located in Part 4 of this RFP.

Any reference to Bachelor Enlisted Quarters (BEQ), bachelor housing complexes, barracks, or Unaccompanied Housing (UH) throughout covers the intent of construction for this RFP.

1.1 Project Demolition

Demolition to occur for each installation according to below:

Cherry Point:

Building Demolition (on-site of new construction): BEQs 4312, 4201, 4199, 4294, 4295.

Camp Lejeune

Hadnot Point:

Building Demolition (off-site of new construction): BEQs HP51, HP53, HP55, and HP57

French Creek:

Building Demolition (off-site of new construction): BEQ 1340

New River:

Building Demolition (off-site of new construction): BEQ AS4200, support building AS4201

Building Demolition: AS4024 (New River HIIT Center)

Camp Pendleton

13 Area:

Building Demolition: BEQ 1396, BEQ 1397, BEQ 1398

24 Area:

Building Demolition: BEQ 2408, BEQ 2498, and Building 2404 (Mechanical Building serving BEQ 2408).

Building Demolition (off main site – 14 Area): BEQ 14010, and BEQ 14014

41 Area:

Building Demolition: BEQ 41372, BEQ 41404, Building 41405 (Mechanical Building serving BEQ 41404).

Building Demolition (off main site – 14 Area): BEQ 14030.

See Part 3B Chapter 2 and Chapter 3 for site demolition information and refer to Part 6 Attachments for additional demolition information for each site.

2.0 PROJECT OBJECTIVES

2.1 Mission Statement

The Marine Corps mission for bachelor housing is to provide adequate barracks space and living amenities for all Marine enlisted personnel. The goal is to achieve consistency throughout the Marine Corps with facilities that promote professional development, support unit cohesion and improve the quality of life for all enlisted personnel. Thus the minimum standards set forth in this document maintain the focus of providing housing for a comfortable living environment.

2.2 Facility Function

The function of the Marine Corps 2+0 room Bachelor Housing quarters is to provide unaccompanied military personnel with adequate, comfortable housing. This is a major goal for the Marine Corps, and a critical element in attracting and retaining high caliber personnel.

2.3 Project Specific Priorities

2.3.1 Sustainable Design and Construction

Design and construct project to comply with sustainability requirements identified in Part 2 UFGS Section 01 33 29, *Sustainability Requirements and Reporting*. Additional specific sustainability requirements are found in RFP Part 2, Part 3, and Part 4 sections.

Design and construct project in accordance with UFC 1-200-02, *High Performance and Sustainable Building Requirements*.

2.3.2 Storm Water Management - Low Impact Development (LID

Comply with UFC 3-210-10, *Low Impact Development* and FC 1-300-09N *Navy and Marine Corps Design Procedures*. Additional specific LID and stormwater management requirements are found in RFP Parts 3 and 4, Section G30. In addition to LID, comply with State and Local stormwater regulations.

2.3.3 Energy Efficiency

Incorporate energy efficiency in accordance with UFC 1-200-02, *High Performance and Sustainable Building Requirements*.

2.3.4 Building Commissioning

The designer of record must include the prepared specification sections in the design submittal for the project using the SpecsIntact software, to include intelligence and reporting native to the program.

Cherry Point, Camp Lejeune, and New River: Provide commissioning to meet requirements identified in Section 01 91 00.15 22 *Total Building Commissioning, and* UFC 1-200-02 *High Performance and Sustainable Building Requirements.*

Camp Pendleton: Provide commissioning to meet requirements identified in Section 01 91 00.15 *Building Commissioning* and 01 91 19 *Building Enclosure Commissioning*, and UFC 1-200-02 *High*

Performance and Sustainable Building Requirements.

2.3.5 Accessibility Requirements

Provide barrier-free design in accordance with UFC 1-200-01*, DoD Building Code* (G*eneral Building Requirements)*.

2.3.6 Antiterrorism Criteria

Design to comply with UFC 4-010-01*, DoD Minimum Antiterrorism Standards for Buildings*. A design basis threat and level of protection have not been identified, therefore only the minimum standards found in UFC 4-010-01 apply.

Facility will have an occupancy designated as inhabited and is within a controlled perimeter.

Design to comply with UFC 3-301-01, *Structural Engineering,* for disproportionate collapse mitigation.

2.3.7 Cybersecurity

MCB Camp Pendleton:

Design, acquire, and implement all control system in accordance with the current version of UFC 4-10-06 Cybersecurity of Facility Related Control Systems, UFGS 25 05 11 Cybersecurity for Facility-Related Control Systems, and as required by Naval Facilities Engineering Systems Command (NAVFAC) SW facility- related control systems (FRCS) systems standards.

Incorporate industrial control systems (ICS) security controls located in NIST SP 800-82, Guide to Operational Technology (OT) Security Table 2.

MCB Camp Pendleton Program Manager point of contact is Brian Church (brian.church.ctr@usmc.mil)

MCB Camp Pendleton FRCS ISSM point of contact is Karla Cervantes (karla.cervantes@usmc.mil)

NAVFAC SW CIO2 (ISSM) point of contact is Nailah Williams (nailah.williams.civ@us.navy.mil)

Submit one UFGS 25 05 11 Cybersecurity for Facility-Related Control Systems for each FRCS and tailor to provide deliverables within the scope of demarcation defined in Table 1 below.

Government approval/acceptance is required for pre-construction deliverables. Contractors must submit deliverables prior to the project start date. Below is the list of pre-construction deliverables, those with a “G” classification implies government supplied template. Deliverables not having a “G” classification are for Contractor quality control approval.

- Wireless/Wired Broadcast Communication Request; G
- Multiple Ethernet Connection Device Request; G
- Contractor Computer Cybersecurity Compliance Statements; G
- Contractor Temporary Network Cybersecurity Compliance Statements; G
- Cybersecurity Interconnection Schedule (must submit encrypted); G
- Proposed STG and SRG Applicability Report G
- Pre-Construction Control System Inventory Report (must submit encrypted); G
- Contractor Personnel Certifications

- OT/Control System Acceptance Use Policy (AUP); G
- Network Communications, Ports, Protocols, Services Report; G
- Cybersecurity Network Diagram (must submit encrypted)
- Control System Cybersecurity Documentation
- Wireless Communication Test Report (wireless devices are prohibited)
- Controls System Cybersecurity Testing Procedures
- Antivirus/Antimalware Scan Results
- Software Licenses
- Confidential Password Report
- Software and Configuration Backups (must submit encrypted, or FRCS asset)
- Device Aduit Record Upload (or FRCS asset)
- System Maintenance Tool Software
- Control System Scanning Tools (or FRCS asset)
- STIG, SRG, and Vendor Guide Compliance Results Report (must submit encrypted); G
- Final Control System Inventory Report (must submit encrypted); G
- Integrity Verification Software
- Vulnerability Resolution Report
- Certifications

Submittal Requirements are configuring all installed hardware and software to comply with DoD cybersecurity requirements that will be needed for Risk Management Framework (RMF) authorization in accordance with DODI 8510.01, UFGS 25 05 11 with all applicable DISA STIGs applied. Provide all documentation for system RMF Assessments and Authorization to include all relevant artifacts for installed equipment (hardware & software). Documentation should include the following:

- Hardware and Software (both OS and Applications) STIG
- Provide ACAS (Nessus) and/or Security Controls Automation Protocol (SCAP) scans of installed and configured systems to demonstrate DOD cybersecurity compliance.
- Identify and close/Mitigate category 1 & 2 findings
- System mission Description
- Actual or intended installation platform/location(s)
- Hardware and Software list fi selected, including list of IA or IA enabled devices, if any
- Topology/Architecture/Boundary Diagram that identifies major component(s) and all interconnections.
- Include Ports/Protocols/Services in accordance with DoD PPSM and Category Assurance List (CAL)
- Identify interfaces that cross differing security domains

Provide all technical documentation including as built drawings, software and hardware inventory, standard operation procedures, and cabling diagrams.

Projects reports including system status, problem resolution, unresolved system problems, patch and updates Information Assurance Vulnerability Management (IAVM) Compliance.

Part of the per-construction/design development (35%-50%) and Final (100%) submittal, provide the following pre-construction document deliverables:

Cybersecurity Schedules Template:

- Cybersecurity Interconnection Schedule
- Network Communication, Ports, Protocols, and Services Report

- Wireless and Wired Broadcast Communication Request
- Multiple Ethernet Connection Device Request

Inventory Spreadsheet:

- Device Location
- Control System Info
- Hardware Details
- Operating System and Platform
- Sole or Upstream Network
- Second or Downstream Connectivity
- Device Hardening
- Comments Section

Temporary Network Cybersecurity Compliance Statement (agreement form contractor personnel must read, sign, date to set up a temporary wired or wireless network):

- Select wired or wireless network
- Read and agree to the requirements
- Sign and date
- Print name, position title and company

Contractor Computer Cybersecurity Compliance Template:

- Make/Model (of contractor owned pc)
- Serial Number
- Operating System Type and Version
- Anti-Malware Software Type and Version.

FRCS will supply asset(s) training for contractor personnel, when applicable. Contractor personnel must sign and date the document. Attach additions sheets if needed. Contractor personnel will need to coordinate with FRCS staff to complete required Check-In/Check-Out asset form when required use of FRCS assets is requested.

The Security Control Documents the engineering requirements for the CS/ICS/BCS/UCS Hardware, Software/Firmware: the Platform Enclave and network topology; Operating System Software and multicast filtering, port configuration, status, statistics, mirroring, and security for reliability and redundancy; Field Control Systems software/firmware and various plans required as artifacts for the eMASS RFP ATO Package.

Coordinate ICS security controls, UFC 4-10-06 and UFGS 25 05 11 requirements with CIO2 point of contact. Provide submittals cited in UFC 4-10-06 and UFGS 25 05 11. Implement Control Correlation Identifiers (CCIs) from UFC 4-10-06 identified during the design phase and provided any documentation (e.g., policy, standard operating procedure) required to implement CCI.

Incorporate cybersecurity requirements into all FRCS. The Camp Pendleton will include:

- Heating, Ventilation and Air-Conditioning (HVAC) systems with Direct Digital Control (DDC), which connect to the Base Wide Energy Management Control System (EMCS).
- Advanced Metering Infrastructure (AMI) connects to the Base Wide ESCADA system.
- Water Supervisory Control and Data Acquisition (WSCADA) connect to the Base Wide WSCADA system.
- Within the telecom room, FRCS requires a wall mounted lockable cabinet that meets these dimensions depths 9 27/32” and height 19.5” size 9U and requires receptacles to be made

available for connectivity within the wall mounted cabinet.

Table 1 below includes preliminary impact ratings, proposed connection strategies, and proposed cybersecurity strategies for each FRCS. The NAVFAC Fire and Life Safety (FLS) Authorization Supplement provides the cybersecurity strategy for FLS.

Table 1: FRCS Connection and Cybersecurity Strategies

System	System Owner	C-I-A Impact Ratings	Front-End Monitoring	Connection Strategy/Network	Responsible	ISSM -Point of Contact	Cybersecurity Strategy
EMCS	Cary Anderson	L-L-L	DDC	FRCS Environment	NAVFAC Construction/ FRCS Post	FRCS Post – Karla Cervantes	UFC 4-10-06 + UFGS 25 05 11 + MFR+ECSM 018
AMI	Jennifer Voong	L-L-L	Utility Metering	FRCS Environment	NAVFAC Construction/ FRCS Post	FRCS Post – Karla Cervantes	UFC 4-10-06 + UFGS 25 05 11 + MFR+ECSM 018
ESCADA	Carl Todd	L-M-M	Electrical SCADA	FRCS Environment	NAVFAC Construction/ FRCS Post	FRCS Post – Karla Cervantes	UFC 4-10-06 + UFGS 25 05 11 + MFR+ECSM 018
WSCADA	Joel Haywood	L-M-M	Portable Water SCADA	FRCS Environment	NAVFAC Construction/ FRCS Post	FRCS Post – Karla Cervantes	UFC 4-10-06 + UFGS 25 05 11 + MFR+ECSM 018
FLS	NA	L-M-M	Supervising Station	Antenna WAVES Basewide Environment	NAVFAC Construction/ FRCS Post	FRCS Post – Karla Cervantes	UFC 4-10-06 + UFGS 25 05 11 + MFR+ECSM 018
Electrical Distribution Interior Control System (EDICS)	NA	L-L-L	Electrical Controls	Isolated Systems	NAVFAC Construction/ FRCS Post	FRCS Post – Karla Cervantes	UFC 4-10-06 + UFGS 25 05 11 + MFR+ECSM 018
Elevators and Lift Station (BCS-C/VTS)	NA	L-L-L	Elevator Controller and Lift Controller	Isolated Systems	NAVFAC Construction/ FRCS Post	FRCS Post – Karla Cervantes	UFC 4-10-06 + UFGS 25 05 11 + MFR+ECSM 018

The UFC 4-10-06 provides a 5-Level Control System Architecture. Table 2 below assigns responsibility to either the government or contractor for supplying equipment and configuring the equipment for each level in the 5-level architecture. The contractor is responsible for equipment design for all levels. For the configuration of Level 2B and 3 devices, the government will provide a baseline configuration for servers, network equipment, or an operator for workstations if available. EMCS, AMI, ESCADA, and SWCADA will be designed for integration and include connectivity to the existing base-wide front-end monitoring system (Level 4 – front end). The government will not provide licenses.

Table 2: FRCS 5-Level Equipment and Configuration Responsibilities

System	Level 5		Level 4 (Front-End)		Level 3 (Field Point of Connection)	
	Equipment	Configuration	Equipment	Configuration	Equipment	Configuration
EMCS	N/A	N/A	N/A	N/A	N/A	N/A
AMI	N/A	N/A	N/A	N/A	N/A	N/A
ESCADA	N/A	N/A	N/A	N/A	N/A	N/A
WSCADA	N/A	N/A	N/A	N/A	N/A	N/A

System	Level 2B (Switches)		Level 2 (Field Control System IP)		Level 1-0 (Field Control System Non-IP/ Non-Networked)	
	Equipment	Configuration	Equipment	Configuration	Equipment	Configuration
EMCS	Con	Gov	Con	Con	Con	Con
AMI	Con	Gov	Con	Con	Con	Con
ESCADA	Con	Gov	Con	Con	Con	Con
WSCADA	Con	Con	Con	Con	Con	Con

Provide fully compliant IP/EIA/CEA-852 TCP/IP Router within the FRCS cabinet. Provide managed network switch that integrates into the existing FRCS fiber network. Switch requirements provided by the FRCS Program Manager. The switch must be TAA compliant and procured through an authorized Marine Corps vendor with a trackable supply chain.

The following switch requirements:

- Supports Cisco Ultra Reliable Wireless Backhaul
- Support CDP
- Cisco Unified Industrial Wireless Software Release 17.12.1 or Later
- 4X RP-SMA Antenna Port
- 1X SMA GNSS Antenna Port
- 2X GPIO Ports
- Certified for use with antenna gains up to 15 dBi (5 GHz)
- Supports Self-Identifiable Antennas (SIA)
- 1X 100M/100M/2.5G Multigigabit Ethernet (RJ45)/M12 X-code autosensing PoE+ in (802.3af/at)
- DC power input (micro-fit)
- IEC 60068-2-1 (Cold)
- IEC 60068-2-2 (Dry Heat)
- IEC 60068-2-14 (Change of Temperature)

- IEC 60068-2-30 (Damp Heat)
- IEC 60068-2-6 (Vibration)
- IEC 60068-2-27 (Shock)
- IEC 60068-2-30 (Humidity)
- IEC 60068-2-32 (Freefall)
- IEC 60068-3-3 (Seismic)

FCC 47 CFR Part 15 Class A

- EN 55032 Class A
- VCCI Class A
- AS/NZ CISPR 32 Class A
- CISPR 11, 1

-- End of MCB Camp Pendleton Cybersecurity Requirements --

MCAS New River & Camp Lejeune & MCAS Cherry Point:

Design, acquire and execute all control systems (including systems separate from management utility monitoring and control system) in accordance with UFC 4-010-06 *Cybersecurity of Facility-Related Control Systems* and as required by individual Facilities Engineering Command (FEC) or Installation implementation policy.

Incorporate ICS Security Controls located in NIST 800-82, Appendix G, Table G-1. Design the project using UFGS 25 05 11, *Cybersecurity for Facility-Related Control Systems*. Incorporate elements of the NAVFAC Cybersecurity Hygiene Checklist into contract specifications by using SECTION 25 05 11, CYBERSECURITY FOR FACILITY-RELATED CONTROL SYSTEMS. CIO4 Point of Contact to be utilized in SECTION 25 05 11 is: office code, usually CIO4, contact phone number, and address of NAVFAC CIO POC. Submit Cybersecurity Plan and Cybersecurity Hygiene Report in accordance with SECTION 25 05 11."

As the design progresses, it is the designer's responsibility to verify each facility-related control system (FRCS) requirements applicable to the project. Coordinate with the appropriate cybersecurity point of contact (ISSM) and each Electrical, Mechanical/Plumbing, Fire Protection Engineer led from the design team for any adjustments regarding facility-related control system (FRCS) requirements.

MCAS New River & Camp Lejeune: UFC 04-10-06 Facility-Related Control System Requirements

System	System Owner	ATO	Front-end Monitoring	Connection Strategy/Network	Responsible	ISSM Point of Contacts
EMCS	Chris Maas	EMASS ID: NIPR Tracking ID #2436873 DoD RMF-2415 DITPR-DON: 28135 L-L-L	DDC	USMC Environment	NAVFAC Construction/ FRCS Post	FRCS Post – Ryan Blakley & Katrina Zimmerman
AMI	NA	EMASS ID: NIPR Tracking ID #2436873	Utility Metering	USMC Environment	NAVFAC Construction/ FRCS Post	FRCS Post – Ryan Blakley & Katrina

		DoD RMF-2415 DITPR-DON: 28135 L-L-L				Zimmerman
Fire & Life Safety (FLS)	Nick Stoll	L-M-M	Supervising Station	Digital Telephone Receiver Environment	NAVFAC Construction/ FRCS Post	FRCS Post – Ryan Blakley & Katrina Zimmerman
Electrical Distribution Interior Control System (EDICS)	NA	L-L-L	DDC/ Remote Monitoring	USMC Environment/ Isolated Systems	NAVFAC Construction/ FRCS Post	FRCS Post – Ryan Blakley & Katrina Zimmerman
Building Lighting Controller (BLC)	NA	L-L-L	NA	Enclosed Building Network	NAVFAC Construction/ FRCS Post	FRCS Post – Ryan Blakley & Katrina Zimmerman

MCAS Cherry Point: UFC 04-10-06 Facility-Related Control System Requirements

System	System Owner	ATO	Front-end Monitoring	Connection Strategy/Network	Responsible	ISSM Point of Contacts
EMCS	NA	YES (L-L-L)	DDC	USMC Environment	NAVFAC Construction/ FRCS Post	FRCS Post – Emmit Jakes, Edward Merkel & George Cronk
AMI	NA	YES (L-L-L)	Utility Metering	USMC Environment	NAVFAC Construction/ FRCS Post	FRCS Post – Emmit Jakes, Edward Merkel & George Cronk
Electrical Distribution Interior	NA	L-L-L	DDC/ Remote	USMC Environment/	NAVFAC Construction/	FRCS Post – Emmit Jakes,

Control System (EDICS)			Monitoring	Isolated Systems	FRCS Post	Edward Merkel & George Cronk
Building Lighting Controller (BLC)	NA	L-L-L	NA	Enclosed Building Network	NAVFAC Construction/ FRCS Post	FRCS Post – Emmit Jakes, Edward Merkel & George Cronk
Fire & Life Safety (FLS)	Hoang Nguyen	L-M-M	Supervising Station	NA	NAVFAC Construction/ FRCS Post	FRCS Post – Emmit Jakes, Edward Merkel & George Cronk

2.4 Appropriate Design

Comply with the current version of UFC 4-721-01 *Permanent Party Unaccompanied Housing* and FC 4-721-10N, *Navy and Marine Corps Unaccompanied Housing* for planning and design requirements at the time of award.

2.5 Workflow Process

The facility core shall be centralized to promote an open-flow design. The main building entrance and all staff operations shall be located centrally within the facility. The architectural design of the facility shall avoid the use of obtuse or acute angles in all spaces. Mechanical rooms shall be designed and located to ensure unobstructed access for all maintenance and operational requirements. Sleeping wings shall extend away from the central public areas to the maximum extent permitted by the design and site configurations.

The shared public area shall be centrally located on the first floor, in immediate proximity to vertical circulation. This area shall contain a multipurpose space with direct, barrier-free access to an exterior courtyard. The Duty Desk shall be designed and positioned to support efficient resident check-in, providing direct, unobstructed visual access to the main entrance. Furthermore, the Duty Desk shall be adjacent to all shared public areas to ensure continuous monitoring.

2.5.1 Hours Of Operation

Hours of operation shall be 24-hours a day, 7 days a week.

2.5.2 Staffing/Occupancy

The number of occupants specified in the RFP are identified for programming purposes. Determine occupancy used to design building features, such as structural and egress, as required in applicable

building or life safety codes.

2.6 Special Design Challenges

See Part 3B for information specific to each site.

2.7 Adaptability And Flexibility

Provide a minimum of two adaptable rooms per building on the ground floor level of all new construction for Marines (Permanent Party) Bachelor Housing that meet requirements of ABA Accessibility Standards. Adaptable rooms are included in the total number of required accessible rooms. See Part 3B, Section 4.1 – Space Tabulation for total number of required accessible rooms.

--End of Section--

3.0 SITE ANALYSIS

See Part 3B - Chapter 3 Site Analysis for information specific to each site.

--End of Section--

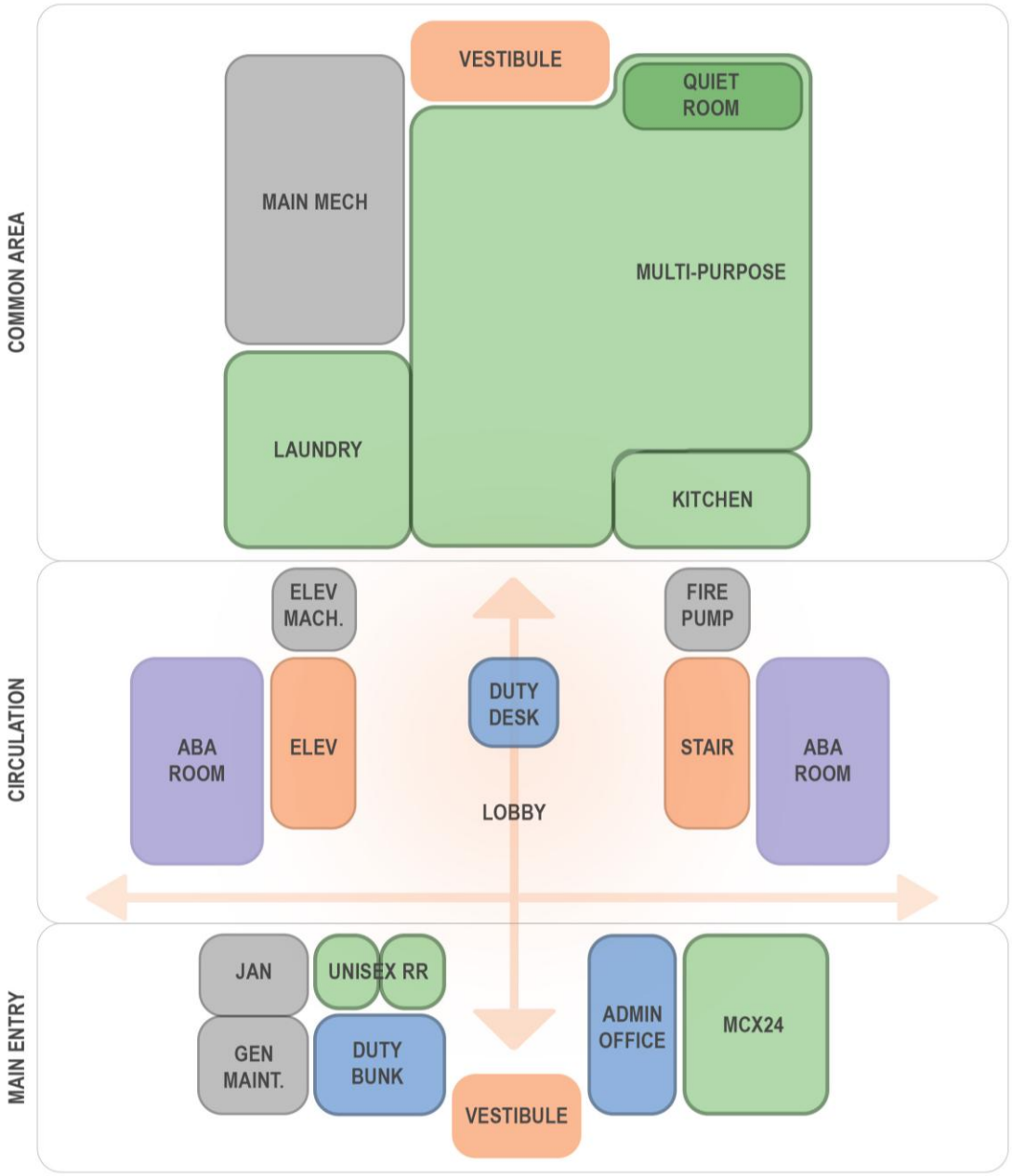
4.0 BUILDING REQUIREMENTS

4.1 Space Tabulation

See Part 3B for information specific to each site.

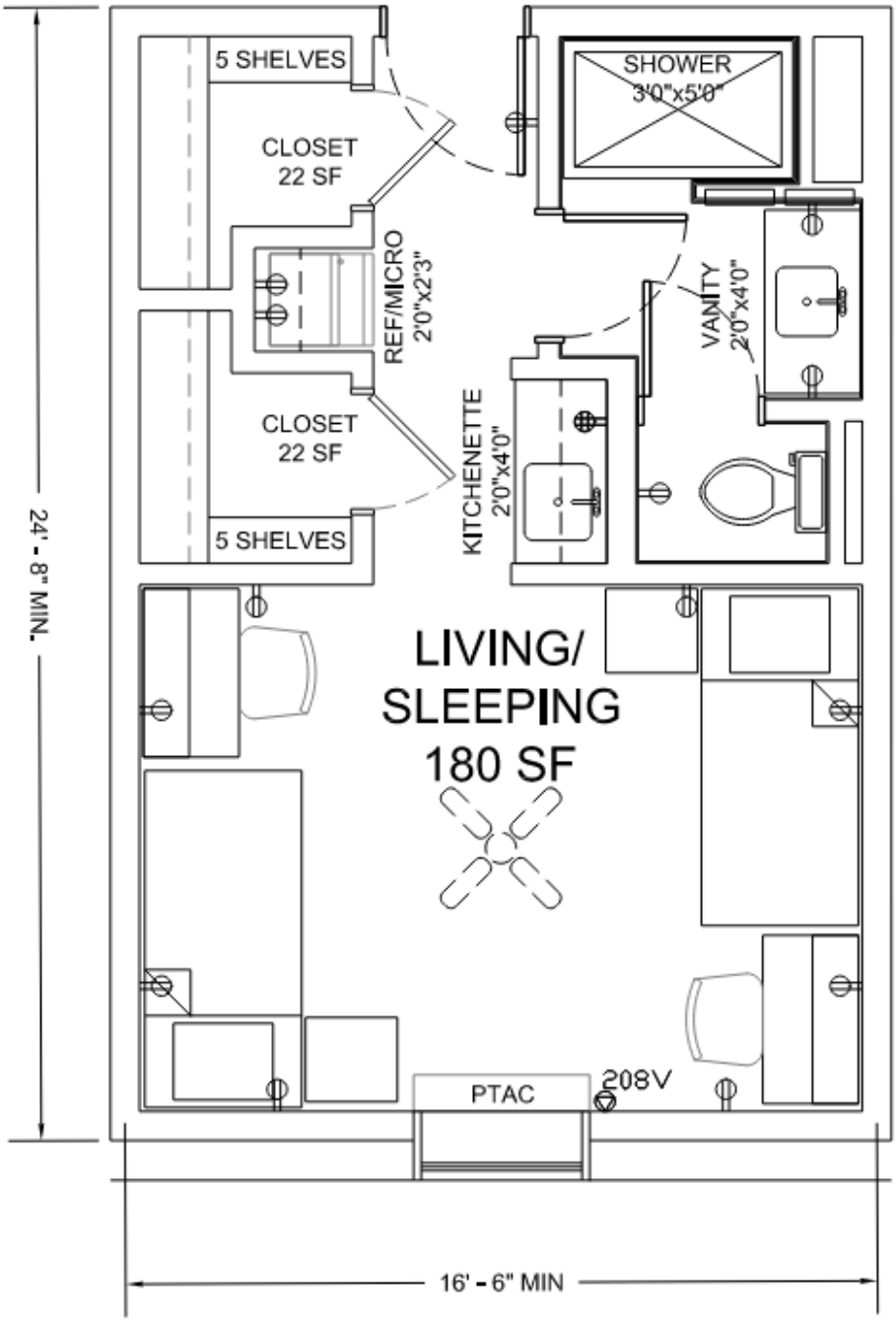
4.2 Space Relationships

See the bubble diagram below for intended adjacencies and access between ground floor entry, circulation, and common areas.

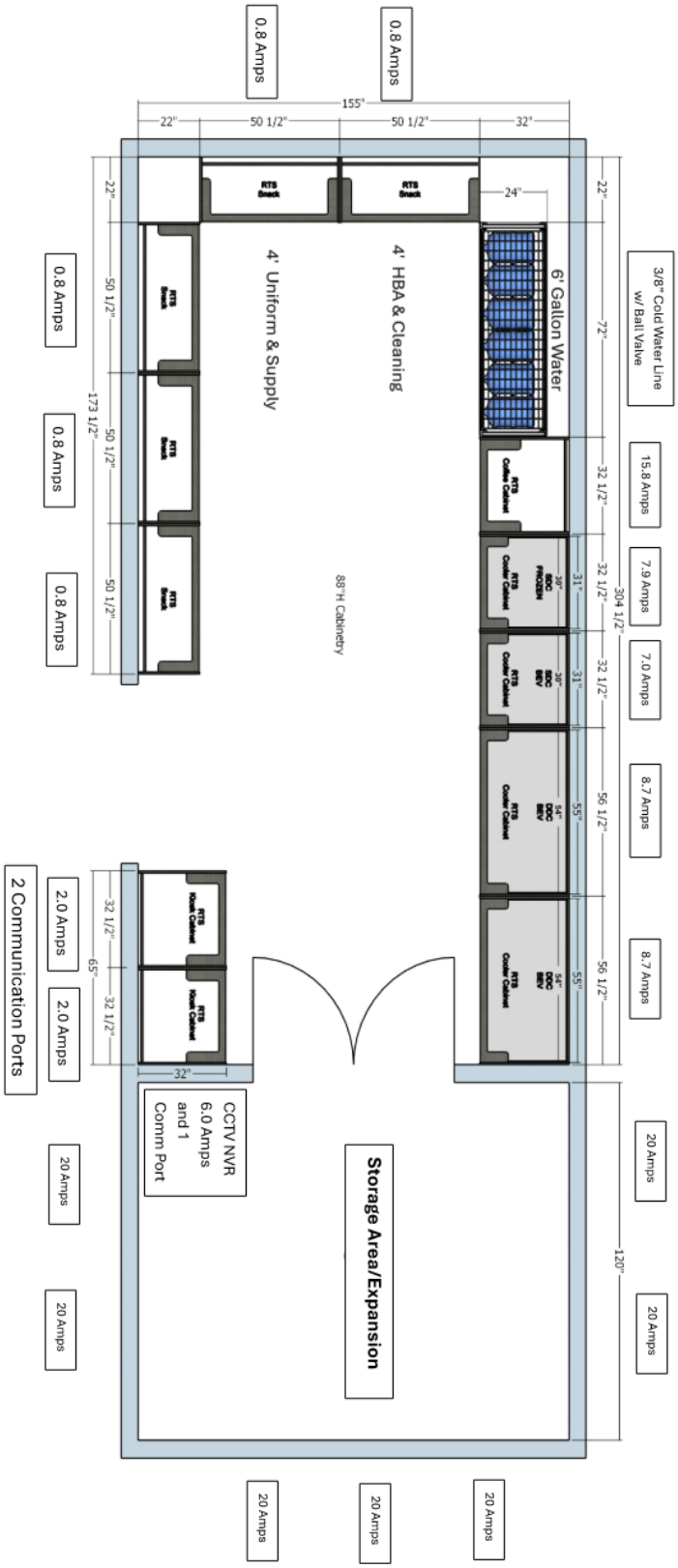


See below for Standard 2+0 Room layout. Plan room dimensions are not fixed but must remain functional. Refer to Part 2, Section 01 35 13 *Special Project Procedures* for module unit requirements.

A typical layout for the Accessible Room module has not been established, but must match the overall proportions of the final Standard 2+0 Room module layout. The Accessible Room must be designed for a single occupant and provide the same spaces required in the Standard 2+0 room that are ABA compliant.



See intended conceptual layout and sizing for the MCX24 below.



4.3 Exterior Character

Refer to Part 6 – BEAP for installation specific requirements on exterior building character. BEQs must be of the same materials, detailing, and general aesthetic as listed below, per installation:

Cherry Point:

No building reference, refer to MCAS Cherry Point Base Exterior Architectural Plan (BEAP)

Camp Lejeune

Hadnot Point: No building reference, refer to MCB Camp Lejeune BEAP

French Creek: No building reference, refer to MCB Camp Lejeune BEAP

New River:

Building AS4010 – P707, located on Schmidt Street, with the exception of windows. Window color should be medium bronze to match other buildings in the district.

Camp Pendleton

No building reference, refer to MCB Camp Pendleton BEAP and Camp Pendleton Requirements (CPR)

5.0 ROOM REQUIREMENTS

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001 - Entry Vestibule

Space Characteristics

Function/adjacencies: Building main entry. See Part 3A - Chapter 4 - Section 4.2 Space Relationships for Bubble Diagram.

Special Dimensions:

Ideal Plan Dimensions: See Part 3B - Chapter 4 - Section 4.1: Space Tabulation for area

Minimum Ceiling Height: 9'-0"

Acoustics:

Access: Exterior, Lobby

Number of Occupants: 0

Other/Special Requirements: Furnishings include, but are not limited to, loose-lay entrance floor mats.

Uniformat Section	Description	Qty	Size	Specific Requirements
B202002	Storefronts			
B202004	Exterior Glazing			
B203001	Solid Doors			Type EA3 (pair)
B203008	Exterior Door Hardware			Type A
C101001	Fixed Partitions			Type A, Type C
C101006	Glazed Partitions and Storefronts			
C102001	Interior Doors			Type A3 (Pair)
C102007	Interior Door Hardware			Type A
C3010	Wall Finishes			Paint ceiling and trim
C302007	Wall base finishes			Resilient wall base
C302010	Hardeners and sealers			Polished, stained concrete
C303002	Gypsum wallboard ceiling finishes			
D30	HVAC			Provide Heating only if required by UFCs or local design requirements for tracked in snow/ice or freeze protection
D40	Fire Protection			Provide complete coverage as required by UFC and NFPA.
D5020	Lighting and Branch Wiring			Provide lighting and controls in accordance with UFC 3-530-01. Provide all associated power requirements for equipment and receptacles in accordance with UFC 3-520-01 and all applicable standards
D503005	Electronic Security Systems			

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002 - Lobby

Space Characteristics

Function/adjacencies: Circulation - See Part 3A - Chapter 4 - Section 4.2 Space Relationships for bubble diagram.

Special Dimensions:

Ideal Plan Dimensions: See Part 3B - Chapter 4 - Section 4.1: Space Tabulation for area

Minimum Ceiling Height: 10'-0"

Acoustics:

Access: Entry, Duty Desk, Corridor

Number of Occupants: 0

Other/Special Requirements: AV items include (1) flat screen display for signage

Uniformat Section	Description	Qty	Size	Specific Requirements
B202004	Exterior Glazing			
C101001	Fixed Partitions			Type C
C101006	Glazed Partitions and Storefronts			
C103003	Markerboards and Tackboards			Enclosed tackboard, 36 inches by 48 inches
C103004	Identifying Devices			Wayfinding signage
C103015	Interior Wall Protection			Wall protection
C3010	Wall Finishes			Paint ceiling and trim
C302007	Wall base finishes			Resilient wall base
C302010	Hardeners and sealers			Polished, stained concrete
C303001	Acoustical ceiling panels			
C303002	Gypsum wallboard ceiling finishes			Gypsum board soffit
C303005	Suspension systems			
D30	HVAC			Provide Heating, Cooling and Ventilation
D40	Fire Protection			Provide complete coverage as required by UFC and NFPA.
D5020	Lighting and Branch Wiring			Provide lighting and controls in accordance with UFC 3-530-01. Provide all associated power requirements for equipment and receptacles in accordance with UFC 3-520-01 and all applicable standards
D503001	Telecommunications Systems			
D503005	ESS/CCTV			

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003 - Circulation - Corridor

Space Characteristics

Function/adjacencies: Circulation

Special Dimensions: 60" wide minimum

Ideal Plan Dimensions: See Part 3B - Chapter 4 - Section 4.1: Space Tabulation for area

Minimum Ceiling Height: 10'-0"

Acoustics:

Access:

Number of Occupants: 0

Other/Special Requirements: Provide windows with view to exterior at corridor ends. Provide odd-numbered rooms on one side of the Corridor and even-numbered rooms on the other side. Provide visual interest by the use of color / material changes in walls and floors, soffits, recessed downlights, and recessed wall surface planes.

Uniformat Section	Description	Qty	Size	Specific Requirements
B202001	Exterior Windows			
C101001	Fixed Partitions			Type C At Drinking Fountains: Type T
C103003	Markerboards and Tackboards			Enclosed tackboard, 36 inches by 48 inches
C103004	Identifying Devices			Wayfinding signage
C103015	Interior Wall Protection			Wall protection
C3010	Wall Finishes			Paint ceiling and trim
C301004	Tile wall finishes			At Drinking Fountains: 48" high porcelain tile
C302007	Wall base finishes			Resilient wall base
C302010	Hardeners and sealers			Polished, stained concrete
C303001	Acoustic ceiling panels			
C303002	Gypsum wallboard ceiling finishes			Gypsum board soffit
C303005	Suspension systems			
D201006	Drinking Fountains			As required per occupancy
D30	HVAC System			Provide Heating, Cooling and Ventilation
D40	Fire Protection			Provide complete coverage as required by UFC and NFPA.
D5020	Lighting and Branch Wiring			Provide lighting and controls in accordance with UFC 3-530-01. Provide all associated power requirements for equipment and receptacles in accordance with UFC 3-520-01 and all applicable standards
D503005	Security Systems			

MCBI - FY 26 DB RFP

004 - Circulation - Stair

Space Characteristics

Function/adjacencies: Circulation

Special Dimensions:

Ideal Plan Dimensions: See Part 3B - Chapter 4 - Section 4.1: Space Tabulation for area

Minimum Ceiling Height: 9'-0" at uppermost level

Acoustics:

Access: Exterior, Corridor, Lobby

Number of Occupants: 0

Other/Special Requirements:

Uniformat Section	Description	Qty	Size	Specific Requirements
B202001	Windows			
B203001	Solid Doors			Type EM3
B203008	Exterior Door Hardware			Type C
C102001	Fixed Partitions			Type C
C102001	Standard Interior Doors			Type W3
C102007	Interior Door Hardware			Type D
C103004	Identifying Devices			Room identification signage; wayfinding signage
C201001	Interior and Exterior Stairs			
C201090	Handrails, Guardrails, and Accessories			Painted handrail
C3010	Wall Finishes			Paint walls and CMU to underside of stair; provide accent paint on one wall on each level; paint trim
C302007	Wall base finishes			Resilient wall base
C302008	Stair finishes			Rubber tile at floors and landings; Rubber treads and risers
D30	HVAC			Provide Heating Only if required per UFCs or local design guidance for freeze protection
D40	Fire Protection			Provide complete coverage as required by UFC and NFPA.
D5020	Lighting and Branch Wiring			Provide lighting and controls in accordance with UFC 3-530-01. Provide all associated power requirements for equipment and receptacles in accordance with UFC 3-520-01 and all applicable standards
D503005	Security Systems			

MCBI - FY 26 DB RFP

005 - Elevator Lobby(s)

Space Characteristics

Function/adjacencies: See Part 3A - Chapter 4 - Section 4.2 Space Relationships for bubble diagram.

Special Dimensions: Minimum 8 feet to wall across from elevator(s)

Ideal Plan Dimensions: See Part 3B - Chapter 4 - Section 4.1: Space Tabulation for area

Minimum Ceiling Height: 10'-0"

Acoustics:

Access: Elevator, Corridor

Number of Occupants: 0

Other/Special Requirements: AV items include (1) flat screen display for digital signage --- at each floor level.

Uniformat Section	Description	Qty	Size	Specific Requirements
C101001	Fixed Partitions			Type C
C103004	Identifying Devices			Wayfinding signage
C3010	Wall Finishes			Paint ceiling and trim
C301005	Wall Coverings			Provide on one wall for wayfinding at each level
C302007	Wall base finishes			Resilient wall base
C302010	Hardeners and Sealers			Polished, stained concrete
C303001	Acoustical ceiling panels			
C303002	Gypsum wallboard ceiling finishes			Gypsum board soffit
C303005	Suspension systems			
D30	HVAC			Provide Heating, Cooling and Ventilation
D40	Fire Protection			Provide complete coverage as required by UFC and NFPA.
D5020	Lighting and Branch Wiring			Provide lighting and controls in accordance with UFC 3-530-01. Provide all associated power requirements for equipment and receptacles in accordance with UFC 3-520-01 and all applicable standards
D503001	Telecommunications Systems			Two-way communication systems required by NFPA 101 for all multi-story accessible facilities.
D503005	Security Systems			
E102009	Audiovisual Equipment			

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006 - Elevator Machine Room

Space Characteristics

Function/adjacencies: Elevator Equipment - See Part 3A - Chapter 4 - Section 4.2 Space Relationships for bubble diagram.

Special Dimensions:

Ideal Plan Dimensions: See Part 3B - Chapter 4 - Section 4.1: Space Tabulation for area

Minimum Ceiling Height: Exposed structure

Acoustics: STC 50

Access: Corridor

Number of Occupants: 0

Other/Special Requirements:

Uniformat Section	Description	Qty	Size	Specific Requirements
C101001	Fixed Partitions			Type C
C102001	Standard Interior Doors			Type M3
C102007	Interior Door Hardware			Type C
C103004	Identifying Devices			Room Identification signage
C3010	Wall Finishes			Paint walls, exposed ceiling structure, trim
C302007	Wall base finishes			Resilient wall base
C302010	Hardeners and sealers			Sealed concrete
D209004	Elevator Sump Pump			Elevator pit sump pump control panel
D30	HVAC			Provide cooling and ventilation in accordance with elevator manu requirements, local guidelines and building code.
D40	Fire Protection			Provide complete coverage as required by UFC and NFPA.
D5020	Lighting and Branch Wiring			Provide lighting and controls in accordance with UFC 3-530-01 and UFC 3-490-06. Provide all associated power requirements for equipment and receptacles in accordance with UFC 3-520-01, UFC 3-490-06, and all applicable standards.
D503001	Telecommunications Systems			Provide a minimum of one work area outlet to the elevator machine room for each elevator. Coordinate the location with the elevator manufacturer/installer.

MCBI - FY 26 DB RFP

101 - 2+0 Room

Space Characteristics

Function/adjacencies: Living and sleeping area for residents.

Special Dimensions:

Ideal Plan Dimensions: See Part 3B - Chapter 4 - Section 4.1: Space Tabulation for area

Minimum Ceiling Height: 9'-0"

Acoustics: Walls: STC 55, Doors: STC 45. Floor/Ceiling assemblies shall have Impact Isolation Class (IIC) of 50 (IIC 45 if field tested).

Access: Doors into living space are accessed from the interior corridors. Closet doors shall not swing into the closets. Toilet room doors shall swing into the toilet rooms.

Number of Occupants: 2

Other/Special Requirements: Refer to Part 3A - Chapter 4 - Section 4.2 for requirements and layout.

Uniformat Section	Description	Qty	Size	Specific Requirements
B202001	Exterior Windows			
B202004	Exterior Glazing			
C101001	Fixed Partitions			Type C Shower and Toilet rooms only: Type T
C102001	Standard Interior Doors			Type W3
C102007	Interior Door Hardware			Room entry door: Type B Closets and Bathroom entry doors: Type D2 Toilet room door: Type E2
C103002	Toilet and Bath Accessories			See Toilet and Bath Accessories Schedule
C103004	Identifying Devices			Room identification sign
C103006	Shelving			
C103008	Counters			Counter with base cabinet at Vanity Counter with base and upper cabinets at Kitchenette
C103009	Cabinets			Base cabinets at Vanity Base and upper cabinets at Kitchenette Upper cabinets above microfridge
C103016	Other Interior Specialties			Ceiling fan
C3010	Wall Finishes			Paint walls, ceiling, trim
C301003	Gypsum wallboard finishes			Cementitious backer board
C301004	Tile wall finishes			Full height porcelain tile at Bathroom
C301090	Other wall finishes			Solid surface shower walls
C302004	Resilient floor finishes			Luxury vinyl plank
C302001	Tile floor finishes			Porcelain tile; solid surface shower pan
C302007	Wall base finishes			Resilient wall base
C303002	Gypsum wallboard ceiling finishes			
D201003	Lavatory			Solid surface, integral type, manual faucet
D201004	Sinks			Undermounted stainless steel
D201005	Showers			
D202001	Water Closet			Floor Mounted, dual-flush valve, manual type
D30	HVAC			Provide Heating, Cooling, Ventilation and Exhaust
D40	Fire Protection			Provide complete coverage as required by UFC and NFPA.
D5010	Electrical Service and Distribution			Provide electrical distribution equipment to support living unit as indicated in ESR D50.

Uniformat Section	Description	Qty	Size	Specific Requirements
D5020	Lighting and Branch Wiring			Provide lighting and controls in accordance with UFC 3-530-01. Provide all associated power requirements for equipment and receptacles in accordance with UFC 3-520-01 and all applicable standards. Provide dedicated power for each appliance.
D503001	Telecommunications Systems			Room Desk Outlets, and WiFi.
D503004	Television Systems			Room Desk Outlets
E1040	Government Furnished Equipment			Refrigerator/Freezer/Microwave
E201002	Window Treatments			Provide dual-roller sunscreen/room darkening shades
E2020	Movable Furnishings			

MCBI - FY 26 DB RFP

102 - Accessible Room

Space Characteristics

Function/adjacencies: Accessible living and sleeping area for residents. See Part 3A - Chapter 4 - Section 4.2 Space Relationships for bubble diagram.

Special Dimensions:

Ideal Plan Dimensions: See Part 3B - Chapter 4 - Section 4.1: Space Tabulation for area

Minimum Ceiling Height: 9'-0"

Acoustics: Walls: STC 55, Doors: STC 45. Floor/Ceiling assemblies shall have Impact Isolation Class (IIC) of 50 (IIC 45 if field tested).

Access: Doors into living space are accessed from the interior corridors. Closet doors shall not swing into the closets. Toilet room doors shall swing into the toilet rooms.

Number of Occupants: 1

Other/Special Requirements: Accessible room is required to be fully ABA compliant for 1 occupant. Refer to most recent Architectural Barriers Act (ABA) for requirements.

Uniformat Section	Description	Qty	Size	Specific Requirements
B202001	Exterior Windows			
B202004	Exterior Glazing			
C101001	Fixed Partitions			Type C Shower and Toilet rooms only: Type T
C102001	Standard Interior Doors			Type W3
C102007	Interior Door Hardware			Room entry door: Type B Closets and Bathroom entry doors: Type D2 Toilet room door: Type E2
C103002	Toilet and Bath Accessories			See Toilet and Bath Accessories Schedule
C103004	Identifying Devices			Room identification sign
C103006	Shelving			
C103008	Counters			Counter with accessible cabinetry at Vanity Counter at Kitchenette
C103009	Cabinets			Accessible Cabinetry
C103016	Other Interior Specialties			Ceiling fan
C3010	Wall Finishes			Paint walls, ceiling, trim
C301003	Gypsum wallboard finishes			Cementitious backer board
C301004	Tile wall finishes			Full height porcelain tile at Bathroom
C301090	Other wall finishes			Solid surface shower walls
C302004	Resilient floor finishes			Luxury vinyl plank
C302001	Tile floor finishes			Porcelain tile; solid surface shower pan
C302007	Wall base finishes			Resilient wall base
C303002	Gypsum wallboard ceiling finishes			
D201003	Lavatory			Solid surface, integral type, manual faucet
D201004	Sinks			Undermounted stainless steel
D201005	Showers			
D202001	Water Closet			Floor Mounted, dual-flush valve, manual type
D30	HVAC			Provide Heating, Cooling, Ventilation and Exhaust.
D40	Fire Protection			Provide complete coverage as required by UFC and NFPA.
D5010	Electrical Service and Distribution			Provide electrical distribution equipment to support living unit as indicated in ESR D50.

Uniformat Section	Description	Qty	Size	Specific Requirements
D5020	Lighting and Branch Wiring			Provide lighting and controls in accordance with UFC 3-530-01. Provide all associated power requirements for equipment and receptacles in accordance with UFC 3-520-01 and all applicable standards. Provide dedicated power for each appliance.
D503001	Telecommunications Systems			Room Desk Outlets, and WiFi.
D503004	Television Systems			Room Desk Outlets
E1040	Government Furnished Equipment			Refrigerator/Freezer/Microwave
E201002	Window Treatments			Provide dual-roller sunscreen/room darkening shades
E2020	Movable Furnishings			

MCBI - FY 26 DB RFP

103 - Duty Desk

Space Characteristics

Function/adjacencies: Desk is manned 24 hours a day. Locate to maintain visibility of ground floor shared spaces and main entry. See Part 3A - Chapter 4 - Section 4.2 Space Relationships for bubble diagram.

Special Dimensions:

Ideal Plan Dimensions: See Part 3B - Chapter 4 - Section 4.1: Space Tabulation for area

Minimum Ceiling Height: 10'-0"

Acoustics:

Access: Lobby, in view of entry and ground floor shared spaces

Number of Occupants: 2

Other/Special Requirements: Furnishings and equipment items include, but are not limited to, task seating.

Uniformat Section	Description	Qty	Size	Specific Requirements
C103004	Identifying Devices			Wayfinding signage
C103008	Counters		20 linear feet	
C103009	Cabinets			Locking drawers beneath counter. Coordinate with wire management feature.
C302010	Hardeners and sealers			Polished, stained concrete
C303001	Acoustical ceiling panels			
C303002	Gypsum wallboard ceiling finishes			Gypsum board soffit
C303005	Suspension systems			
D30	HVAC			Provide Heating, Cooling and Ventilation
D40	Fire Protection			Provide complete coverage as required by UFC and NFPA.
D5020	Lighting and Branch Wiring			Provide lighting and controls in accordance with UFC 3-530-01. Provide all associated power requirements for equipment and receptacles in accordance with UFC 3-520-01 and all applicable standards
D503001	Telecommunications Systems			
E2020	Movable Furnishings			

MCBI - FY 26 DB RFP

104 - Duty Bunk

Space Characteristics

Function/adjacencies: Bunk space for duty staff. See Part 3A - Chapter 4 - Section 4.2 Space Relationships for bubble diagram.

Special Dimensions:

Ideal Plan Dimensions: See Part 3B - Chapter 4 - Section 4.1: Space Tabulation for area

Minimum Ceiling Height: 9'-0"

Acoustics: Walls: STC 52, Doors: STC 45. Floor/Ceiling assemblies shall have Impact Isolation Class (IIC) of 50 (IIC 45 if field tested).

Access: Corridor

Number of Occupants: 1

Other/Special Requirements: Furnishings and equipment items include, but are not limited to, a bed, nightstand, and storage.

Uniformat Section	Description	Qty	Size	Specific Requirements
B202001	Exterior Windows			
B202004	Exterior Glazing			
C101001	Fixed Partitions			Type C
C102001	Interior Doors			Type W3
C102007	Interior Door Hardware			Type B
C103004	Identifying Devices			Room identification signage
C103016	Other Interior Specialties			Ceiling fan
C3010	Wall Finishes			Paint walls, ceiling, trim
C302004	Resilient floor finishes			Luxury vinyl plank
C302007	Wall base finishes			Resilent wall base
C303002	Gypsum wallboard ceiling finishes			
D30	HVAC			Provide Heating, Cooling and Ventilation
D40	Fire Protection			Provide complete coverage as required by UFC and NFPA.
D5020	Lighting and Branch Wiring			Provide lighting and controls in accordance with UFC 3-530-01. Provide all associated power requirements for equipment and receptacles in accordance with UFC 3-520-01 and all applicable standards
D503004	Television Systems			
E201002	Window Treatments			Provide dual-roller sunscreen/room darkening shades
E2020	Movable Furnishings			

MCBI - FY 26 DB RFP

105 - Admin Office

Space Characteristics

Function/adjacencies: Office space for a building manager, locate on an exterior wall near the Duty Desk. See Part 3A - Chapter 4 - Section 4.2 Space Relationships for bubble diagram.

Special Dimensions:

Ideal Plan Dimensions: See Part 3B - Chapter 4 - Section 4.1: Space Tabulation for area

Minimum Ceiling Height: 9'-0"

Acoustics: Walls: STC 52, Doors: STC 45. Floor/Ceiling assemblies shall have Impact Isolation Class (IIC) of 50 (IIC 45 if field tested).

Access: Corridor

Number of Occupants: 1

Other/Special Requirements: Furnishings and equipment items include, but are not limited to, desks, seating, and storage.

Uniformat Section	Description	Qty	Size	Specific Requirements
B202001	Exterior Windows			
C101001	Fixed Partitions			Type C
C101005	Interior Windows			
C102001	Standard Interior Doors			Type W3
C102007	Interior Door Hardware			Type B
C103003	Markerboards and Tackboards			Enclosed tackboard, 36 inches by 48 inches
C103004	Identifying Devices			Room identification signage
C3010	Wall Finishes			Paint walls, ceiling, trim
C302004	Resilient floor finishes			Luxury vinyl plank
C302007	Wall base finishes			Resilient wall base
C303001	Acoustical ceiling panels			
C303005	Suspension systems			
D30	HVAC			Provide Heating, Cooling and Ventilation
D40	Fire Protection			Provide complete coverage as required by UFC and NFPA.
D5020	Lighting and Branch Wiring			Provide lighting and controls in accordance with UFC 3-530-01. Provide all associated power requirements for equipment and receptacles in accordance with UFC 3-520-01 and all applicable standards
D503001	Telecommunications Systems			
E201002	Window Treatments			Exterior windows: Provide dual-roller sunscreen/room darkening shades Interior window: Provide translucent film
E2020	Movable Furnishings			

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106 - Multi-Purpose

Space Characteristics

Function/adjacencies: Gathering space for various activities for residents. See Part 3A - Chapter 4 - Section 4.2 Space Relationships for bubble diagram.

Special Dimensions:

Ideal Plan Dimensions: See Part 3B - Chapter 4 - Section 4.1: Space Tabulation for area

Minimum Ceiling Height: 10'-0"

Acoustics:

Access: Corridor, Quiet Room, Kitchen

Number of Occupants:

Other/Special Requirements: Furnishings and equipment items include, but are not limited to, tables, chairs, soft seating; AV items include , (1) large TV monitor, wall mounted.

Uniformat Section	Description	Qty	Size	Specific Requirements
B202002	Exterior Storefronts			
B202004	Exterior Glazing			
C101001	Fixed Partitions			Type A, Type C
C102001	Interior Doors			Type A3
C102007	Interior Door Hardware			Type A
C103003	Markerboards and Tackboards			Enclosed tackboard, 36 inches by 48 inches
C103004	Identifying Devices			Room identification sign
C3010	Wall Finishes			Paint soffit and trim
C302007	Wall base finishes			Resilient wall base
C302010	Hardeners and sealers			Polished, stained concrete
C303001	Acoustical ceiling panels			
C303002	Gypsum wallboard ceiling finishes			Gypsum board soffit
C303005	Suspension systems			
D30	HVAC			Provide Heating, Cooling and Ventilation
D40	Fire Protection			Provide complete coverage as required by UFC and NFPA.
D5020	Lighting and Branch Wiring			Provide lighting and controls in accordance with UFC 3-530-01. Provide all associated power requirements for equipment and receptacles in accordance with UFC 3-520-01 and all applicable standards
D503001	Telecommunications Systems			
D503004	Television Systems			
D503005	Security Systems			CCTV
E102009	Audiovisual Equipment			
E201001	Fixed Artwork			Acoustic wall panels
E201002	Window Treatments			Provide dual-roller sunscreen/room darkening shades
E2020	Movable Furnishings			

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107 - Quiet Room

Space Characteristics

Function/adjacencies: Designated room within SF of the Multi-Purpose Room; locate so Duty Desk maintains visibility of space. See Part 3A - Chapter 4 - Section 4.2 Space Relationships for bubble diagram.

Special Dimensions:

Ideal Plan Dimensions: See Part 3B - Chapter 4 - Section 4.1: Space Tabulation for area

Minimum Ceiling Height: 9'-0"

Acoustics: STC 50

Access: Multi-Purpose

Number of Occupants: 1

Other/Special Requirements: Furnishings and equipment items include, but are not limited to, desking and soft seating

Uniformat Section	Description	Qty	Size	Specific Requirements
C101001	Fixed Partitions			Type A, Type C
C101006	Glazed Partitions and Storefronts			
C101007	Interior Glazing			
C102001	Standard Interior Doors			Type A3
C102007	Interior Door Hardware			Type A
C103004	Identifying Devices			Room identification signage
C3010	Wall Finishes			Paint walls and trim
C302004	Resilient floor finishes			Luxury vinyl plank
C302007	Wall base finishes			Resilient wall base
C303001	Acoustic ceiling panels			
C303005	Suspension systems			
D30	HVAC			Provide Heating, Cooling and Ventilation
D40	Fire Protection			Provide complete coverage as required by UFC and NFPA.
D5020	Lighting and Branch Wiring			Provide lighting and controls in accordance with UFC 3-530-01. Provide all associated power requirements for equipment and receptacles in accordance with UFC 3-520-01 and all applicable standards
E201001	Fixed Artwork			Acoustic wall panels
E2020	Movable Furnishings			

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108 - MCX24

Space Characteristics

Function/adjacencies: 24/7 Self-service micro-mart offering a broader range of snacks, drinks, hygiene items, and essentials. May include some vending equipment as needed. See Part 3A - Chapter 4 - Section 4.2 Space Relationships for bubble diagram.

Special Dimensions:

Ideal Plan Dimensions: 26 ft x 13 ft. See Part 3A - Chapter 4 - Section 4.2: Space Relationships for space layout. See Part 3B - Chapter 4 - Section 4.1: Space Tabulation for area.

Minimum Ceiling Height: 9'-0"

Acoustics:

Access: Corridor

Number of Occupants: 0

Other/Special Requirements: Furnishings and equipment items include but are not limited to self check out kiosks, coolers/freezers, and shelving

Uniformat Section	Description	Qty	Size	Specific Requirements
C101001	Fixed Partitions			Type C
C102001	Interior Doors			Type W3
C102007	Interior Door Hardware			Type B
C103004	Identifying Devices			Room identification signage
C103008	Counters		8 linear feet	
C103009	Cabinets		8 linear feet	Lockable base cabinets
C3010	Wall Finishes			Paint trim
C302007	Wall base finishes			Resilient wall base
C302010	Hardeners and sealers			Polished, stained concrete
C303001	Acoustical ceiling panels			
C303002	Gypsum wallboard ceiling finishes			Gypsum board soffit
C303005	Suspension systems			
D202005	Outlet Box			Domestic cold water outlet box for coffee maker
D203003	Floor Drains			As required for equipment drainage
D30	HVAC			Provide Heating, Cooling and Ventilation
D40	Fire Protection			Provide complete coverage as required by UFC and NFPA.
D5010	Electrical Service and Distribution			Provide electrical distribution equipment to support MCX24 unit.
D5020	Lighting and Branch Wiring			Provide lighting and controls in accordance with UFC 3-530-01. Provide all associated power requirements for equipment and receptacles in accordance with UFC 3-520-01 and all applicable standards. Provide dedicated power for vending equipment and point of sales equipment. Provide 6 - 20 Amp Receptacles at Storage/Expansion.
D503001	Telecommunications Systems			POS locations
D503005	Security Systems			
E101003	Vending Equipment			
E2020	Movable Furnishings			

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109 - Centralized Kitchen

Space Characteristics

Function/adjacencies: Kitchen space connected and open to the Multi-Purpose room. Separate the two spaces with a bar-height island counter and seating, rather than fixed partitions. See Part 3A - Chapter 4 - Section 4.2 Space Relationships for bubble diagram.

Special Dimensions:

Ideal Plan Dimensions: See Part 3B - Chapter 4 - Section 4.1: Space Tabulation for area

Minimum Ceiling Height: 9'-0"

Acoustics:

Access: Multi-Purpose, Corridor

Number of Occupants:

Other/Special Requirements: Furnishings and equipment items include, but are not limited to, refrigerators, oven/cooktops, microwaves, storage, and counter stools at island. Provide an exterior window above cabinets. Duty Desk to maintain control over kitchen equipment and tool access.

Uniformat Section	Description	Qty	Size	Specific Requirements
B202001	Exterior Windows			
C101001	Fixed Partitions			Type C
C102001	Standard Interior Doors			Type W3
C102007	Interior Door Hardware			Type B
C103004	Identifying Devices			Room identification signage
C103008	Counters		10 linear feet	
C103008	Counters		10 linear feet	Counter island, includes waterfall edge
C103009	Cabinets		10 linear feet	Base cabinets and upper cabinets
C3010	Wall Finishes			Smooth epoxy paint walls, ceiling; paint trim
C302007	Wall base finishes			Resilient wall base
C302010	Hardeners and sealers			Polished, stained concrete
C303001	Acoustical ceiling panels			
C303002	Gypsum wallboard ceiling finishes			Gypsum board soffit above wall cabinets
C303005	Suspension systems			
D201004	Sinks			Undermount, two-compartment, stainless steel, with garbage disposal
D202005	Outlet Box			Domestic cold water outlet box for future equipment
D209003	Grease Interceptor			
D30	HVAC			Provide Heating, Cooling, Ventilation and Exhaust.
D40	Fire Protection			Provide complete coverage as required by UFC and NFPA.
D5020	Lighting and Branch Wiring			Provide lighting and controls in accordance with UFC 3-530-01. Provide all associated power requirements for equipment and receptacles in accordance with UFC 3-520-01 and all applicable standards
E1010	Commercial Equipment			
E1040	Government Furnished Equipment			
E2020	Movable Furnishings			

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110 - Laundry

Space Characteristics

Function/adjacencies: Locate on an exterior wall, with space for dryers against an internal chase. Centralize on the ground floor, adjacent to the Multi-Purpose room. See Part 3A - Chapter 4 - Section 4.2 Space Relationships for bubble diagram.

Special Dimensions:

Ideal Plan Dimensions: See Part 3B - Chapter 4 - Section 4.1: Space Tabulation for area

Minimum Ceiling Height: 9'-0"

Acoustics:

Access: Corridor

Number of Occupants:

Other/Special Requirements: Furnishings and equipment items include, but are not limited to, laundry aid vending, washers and dryers.

Uniformat Section	Description	Qty	Size	Specific Requirements
C101001	Fixed Partitions			Type C
C102001	Standard Interior Doors			Type W3
C102007	Interior Door Hardware			Type B
C103003	Markerboards and Tackboards			Enclosed tackboard, 36 inches by 48 inches
C103004	Identifying Devices			Room identification signage
C103008	Counters		10 linear feet	
C103006	Shelving		10 linear feet	Shelf with hanging rods above counter
C3010	Wall Finishes			Smooth epoxy paint walls, ceilings, and trim
C303002	Gypsum wallboard ceiling finishes			Moisture resistant gypsum board ceiling
C302009	Floor toppings and traffic membranes			Resinous epoxy floor with integral 6 inch base
D201004	Sinks			Two-compartment laundry sink
D202005	Washing Machine connector box			
D203003	Floor Drains			
D209002	Lint Interceptor			
D30	HVAC			Provide Heating, Cooling, Ventilation and Exhaust. Vent Driers directly to outdoors.
D40	Fire Protection			Provide complete coverage as required by UFC and NFPA.
D5020	Lighting and Branch Wiring			Provide lighting and controls in accordance with UFC 3-530-01. Provide all associated power requirements for equipment and receptacles in accordance with UFC 3-520-01 and all applicable standards. Provide NEMA receptacles and dedicated circuits for laundry related loads.
E1040	Government Furnished Equipment			Washers/Dryers
E2020	Movable Furnishings			

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111 - Unisex Restroom

Space Characteristics

Function/adjacencies: Locate near water bottle filling station. See Part 3A - Chapter 4 - Section 4.2 Space Relationships for bubble diagram.

Special Dimensions:

Ideal Plan Dimensions: See Part 3B - Chapter 4 - Section 4.1: Space Tabulation for area

Minimum Ceiling Height: 9'-0"

Acoustics: STC 35

Access: Corridor

Number of Occupants:

Other/Special Requirements: Room to be handicap accessible complying with Architectural Barriers Act Accessibility Standards (ABAAS).

Uniformat Section	Description	Qty	Size	Specific Requirements
C101001	Fixed Partitions			Type T
C102001	Standard Interior Doors			Type W3
C102007	Interior Door Hardware			Type E
C103002	Toilet and Bath Accessories			See Toilet and Bath Accessories Schedule
C103004	Identifying Devices			Room identification signage
C103008	Counters			Counter with sink and no base cabinet
C3010	Wall Finishes			Paint ceilings and trim
C301003	Gypsum wallboard finishes			Cementitious backer board
C301004	Tile wall finishes			Full height porcelain tile
C302001	Tile Floor Finishes			Porcelain tile
C302007	Wall base finishes			Stainless steel cove
C303002	Gypsum wallboard ceiling finishes			Moisture resistant gypsum board ceiling
D201001	Water Closets			Floor mounted, sensor operated, hardwired flush valve
D201003	Lavatories			Sensor operated, hard wired faucet
D203003	Floor Drains			
D30	HVAC			Provide conditioned air via transfer air and provide exhaust
D40	Fire Protection			Provide complete coverage as required by UFC and NFPA.
D5020	Lighting and Branch Wiring			Provide lighting and controls in accordance with UFC 3-530-01. Provide all associated power requirements for equipment and receptacles in accordance with UFC 3-520-01 and all applicable standards. Provide power for lavatories and flush valves.

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112 - General Maintenance

Space Characteristics

Function/adjacencies: Storage space for building supplies and maintenance, controlled by the building manager. See Part 3A - Chapter 4 - Section 4.2 Space Relationships for bubble diagram.

Special Dimensions:

Ideal Plan Dimensions: See Part 3B - Chapter 4 - Section 4.1: Space Tabulation for area

Minimum Ceiling Height: 9'-0"

Acoustics:

Access: Corridor

Number of Occupants: 0

Other/Special Requirements: Furnishings and equipment items include, but are not limited to, open shelving.

Uniformat Section	Description	Qty	Size	Specific Requirements
C101001	Fixed Partitions			Type C
C102001	Standard Interior Doors			Type W3
C102007	Interior Door Hardware			Type C
C103004	Identifying Devices			Room identification sign
C3010	Wall Finishes			Epoxy paint walls; paint ceiling and trim
C302007	Wall base finishes			Resilient wall base
C302010	Hardeners and sealers			Sealed concrete
C303002	Gypsum wallboard ceiling finishes			
D30	HVAC			Provide heating, cooling and ventilation
D40	Fire Protection			Provide complete coverage as required by UFC and NFPA.
D5020	Lighting and Branch Wiring			Provide lighting and controls in accordance with UFC 3-530-01. Provide all associated power requirements for equipment and receptacles in accordance with UFC 3-520-01 and all applicable standards
E2020	Movable Furnishings			

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113 - Janitor

Space Characteristics

Function/adjacencies: Closet with mop sink, mops, mop bucket, brooms, vacuums, and cleaning supplies. See Part 3A - Chapter 4 - Section 4.2 Space Relationships for bubble diagram.

Special Dimensions:

Ideal Plan Dimensions: See Part 3B - Chapter 4 - Section 4.1: Space Tabulation for area

Minimum Ceiling Height: 9'-0"

Acoustics:

Access: Corridor

Number of Occupants: 0

Other/Special Requirements: Furnishings and equipment items include, but are not limited to, storage and shelving

Uniformat Section	Description	Qty	Size	Specific Requirements
C101001	Fixed Partitions			Type C
C102001	Standard Interior Doors			Type W3
C102007	Interior Door Hardware			Type C
C103002	Toilet and Bath Accessories			See Toilet and Bath Accessories Schedule
C103004	Identifying Devices			Room identification signage
C103015	Interior Wall Protection			
C3010	Wall Finishes			Epoxy paint walls, ceilings, and trim
C302007	Wall base finishes			Resilient wall base
C302010	Hardeners and Sealers			Sealed concrete
C303002	Gypsum wallboard ceiling finishes			
D201004	Sinks			Floor mounted mop sink
D203003	Floor Drains			
D30	HVAC			Provide exhaust and transfer air
D40	Fire Protection			Provide complete coverage as required by UFC and NFPA.
D5020	Lighting and Branch Wiring			Provide lighting and controls in accordance with UFC 3-530-01. Provide all associated power requirements for equipment and receptacles in accordance with UFC 3-520-01 and all applicable standards
E2020	Movable Furnishings			

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114 - Main Mechanical Room

Space Characteristics

Function/adjacencies: Mechanical room to support the facility, located on the ground floor. See Part 3A - Chapter 4 - Section 4.2 Space Relationships for bubble diagram.

Special Dimensions:

Ideal Plan Dimensions: See Part 3B - Chapter 4 - Section 4.1: Space Tabulation for area

Minimum Ceiling Height: Exposed structure

Acoustics: STC 60

Access: Exterior

Number of Occupants: 0

Other/Special Requirements:

Uniformat Section	Description	Qty	Size	Specific Requirements
B203001	Solid Doors			Type EM3 (pair)
B203008	Exterior Door Hardware			Type B
B203004	Overhead roll-up and overhead sectional doors			
C101001	Fixed Partitions			Type C
C103004	Identifying Devices			Room identification signage
C3010	Wall Finishes			Paint walls, exposed ceiling structure, trim
C302007	Wall base finishes			Resilient wall base
C302010	Hardeners and sealers			Sealed concrete
D202003	Domestic Water Heaters			
D202003	Water Service Entrance			
D203003	Floor Drains			
D30	HVAC			Provide ventilation and exhaust. Provide Heating Only if required per UFCs or local design guidance for freeze protection
D40	Fire Protection			Provide complete coverage as required by UFC and NFPA.
D5020	Lighting and Branch Wiring			Provide lighting and controls in accordance with UFC 3-530-01. Provide all associated power requirements for equipment and receptacles in accordance with UFC 3-520-01 and all applicable standards
D503001	Telecommunications Systems			Coordinate and provide DDC connectivity.
D503005	Security Systems			

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115 - Mechanical Distribution Room(s)

Space Characteristics

Function/adjacencies: Mechanical rooms for DOAS units, located on each floor above ground level as required.

Special Dimensions:

Ideal Plan Dimensions: See Part 3B - Chapter 4 - Section 4.1: Space Tabulation for area

Minimum Ceiling Height: Exposed structure

Acoustics: STC 50

Access: Corridor

Number of Occupants: 0

Other/Special Requirements:

Uniformat Section	Description	Qty	Size	Specific Requirements
B203004	Overhead roll-up and overhead sectional doors			Installation specific requirement - see ESR
C101001	Fixed Partitions			Type C
C102001	Standard Interior Doors			Type M3 (pair)
C102007	Interior Door Hardware			Type C
C103004	Identifying Devices			Room Identification signage
C3010	Wall Finishes			Paint walls, exposed ceiling structure, trim
C302007	Wall base finishes			Resilient wall base
C302010	Hardeners and sealers			Sealed concrete
D203003	Floor Drains			
D30	HVAC			Provide ventilation and exhaust. Provide Heating Only if required per UFCs or local design guidance for freeze protection
D40	Fire Protection			Provide complete coverage as required by UFC and NFPA.
D5020	Lighting and Branch Wiring			Provide lighting and controls in accordance with UFC 3-530-01. Provide all associated power requirements for equipment and receptacles in accordance with UFC 3-520-01 and all applicable standards
D503001	Telecommunications Systems			Coordinate and provide DDC connectivity.
D503005	Security Systems			

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116 - Main Electrical Room

Space Characteristics

Function/adjacencies: Located on ground floor.

Special Dimensions:

Ideal Plan Dimensions: See Part 3B - Chapter 4 - Section 4.1: Space Tabulation for area

Minimum Ceiling Height: Exposed structure

Acoustics: STC 50

Access: Exterior

Number of Occupants: 0

Other/Special Requirements:

Uniformat Section	Description	Qty	Size	Specific Requirements
B203001	Solid Doors			Type EM3
B203008	Exterior Door Hardware			Type B
C101001	Fixed Partitions			Type C
C102001	Standard Interior Doors			Type W3
C102007	Interior Door Hardware			Type C
C103004	Identifying Devices			Room identification signage
C3010	Wall Finishes			Paint walls, exposed ceiling structure, trim
C302007	Wall base finishes			Resilient wall base
C302010	Hardeners and sealers			Sealed concrete
D30	HVAC			Provide Heating Only if required per UFCs or local design guidance for freeze protection. Provide ventilation cooling if deemed necessary due to heat load of electrical equipment.
D40	Fire Protection			Provide complete coverage as required by UFC and NFPA.
D5010	Electrical Service and Distribution			Provide electrical distribution equipment to support facility as indicated in ESR D50.
D5020	Lighting and Branch Wiring			Provide lighting and controls in accordance with UFC 3-530-01. Provide all associated power requirements for equipment and receptacles in accordance with UFC 3-520-01 and all applicable standards
D503005	Security Systems			
D509003	Grounding Systems			Provide main grounding busbar, ground and bonding connections as required per NFPA 70, NFPA 780, and UFC 3-575-01.

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117 - Electrical Distribution Room(s)

Space Characteristics

Function/adjacencies: Located on each floor above ground level as required. Stack rooms on floors above vertically.

Special Dimensions:

Ideal Plan Dimensions: See Part 3B - Chapter 4 - Section 4.1: Space Tabulation for area

Minimum Ceiling Height: Exposed structure

Acoustics: STC 50

Access: Corridor

Number of Occupants: 0

Other/Special Requirements:

Uniformat Section	Description	Qty	Size	Specific Requirements
C101001	Fixed Partitions			Type C
C102001	Standard Interior Doors			Type W3
C102007	Interior Door Hardware			Type C
C103004	Identifying Devices			Room Identification signage
C3010	Wall Finishes			Paint walls, exposed ceiling structure, trim
C302007	Wall base finishes			Resilient wall base
C302010	Hardeners and sealers			Sealed concrete
D30	HVAC			Provide Heating Only if required per UFCs or local design guidance for freeze protection. Provide ventilation cooling if deemed necessary due to heat load of electrical equipment.
D40	Fire Protection			Provide complete coverage as required by UFC and NFPA.
D5010	Electrical Service and Distribution			Provide electrical distribution equipment to support facility as indicated in ESR D50.
D5020	Lighting and Branch Wiring			Provide lighting and controls in accordance with UFC 3-530-01. Provide all associated power requirements for equipment and receptacles in accordance with UFC 3-520-01 and all applicable standards
D503005	Security Systems			
D509003	Grounding Systems			Provide grounding busbar, ground and bonding connections as required per NFPA 70, NFPA 780, and UFC 3-575-01.

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118 - Main Telecom Room

Space Characteristics

Function/adjacencies: Located on ground floor.

Special Dimensions:

Ideal Plan Dimensions: See Part 3B - Chapter 4 - Section 4.1: Space Tabulation for area

Minimum Ceiling Height: Exposed structure

Acoustics: STC 50

Access: Corridor

Number of Occupants: 0

Other/Special Requirements:

Uniformat Section	Description	Qty	Size	Specific Requirements
C101001	Fixed Partitions			Type C
C102001	Standard Interior Doors			Type W3
C102007	Interior Door Hardware			Type C
C103004	Identifying Devices			Room identification signage
C3010	Wall Finishes			Paint walls, exposed ceiling structure, trim
C301090	Other wall finishes			Plywood
C302007	Wall base finishes			Resilient wall base
C302010	Hardeners and sealers			Sealed concrete
D30	HVAC			Provide dedicated mini split cooling only
D40	Fire Protection			Provide complete coverage as required by UFC and NFPA.
D5010	Electrical Service and Distribution	1		Provide dedicated panelboard in room for 208Y/120V loads in accordance with UFC 3-580-01.
D5020	Lighting and Branch Wiring			Provide lighting and controls in accordance with UFC 3-530-01. Provide all associated power requirements for equipment and receptacles in accordance with UFC 3-520-01 and all applicable standards. Provide receptacles in accordance with UFC 3-580-01. Provide equipment rack power per user requirements.
D503001	Telecommunnications Systems			
D503005	Security Systems			
D509003	Grounding Systems			

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119 - Telecom Distribution Room(s)

Space Characteristics

Function/adjacencies: Located on each floor above ground level as required. Stack rooms on floors above vertically.

Special Dimensions:

Ideal Plan Dimensions: See Part 3B - Chapter 4 - Section 4.1: Space Tabulation for area

Minimum Ceiling Height: Exposed structure

Acoustics: STC 50

Access: Corridor

Number of Occupants: 0

Other/Special Requirements:

Uniformat Section	Description	Qty	Size	Specific Requirements
C101001	Fixed Partitions			Type C
C102001	Standard Interior Doors			Type W3
C102007	Interior Door Hardware			Type C
C103004	Identifying Devices			Room Identification signage
C3010	Wall Finishes			Paint walls, exposed ceiling structure, trim
C301090	Other wall finishes			Plywood
C302007	Wall base finishes			Resilient wall base
C302010	Hardeners and sealers			Sealed concrete
D30	HVAC			Provide dedicated mini split cooling only
D40	Fire Protection			Provide complete coverage as required by UFC and NFPA.
D5010	Electrical Service and Distribution	1		Provide dedicated panelboard in room for 208Y/120V loads in accordance with UFC 3-580-01.
D5020	Lighting and Branch Wiring			Provide lighting and controls in accordance with UFC 3-530-01. Provide all associated power requirements for equipment and receptacles in accordance with UFC 3-520-01 and all applicable standards. Provide receptacles in accordance with UFC 3-580-01. Provide equipment rack power per user requirements.
D503001	Telecommunications Systems			
D503005	Security Systems			
D509003	Grounding Systems			

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120 - Fire Pump Room

Space Characteristics

Function/adjacencies: Located on ground floor. See Part 3A - Chapter 4 - Section 4.2 Space Relationships for bubble diagram.

Special Dimensions:

Ideal Plan Dimensions: See Part 3B - Chapter 4 - Section 4.1: Space Tabulation for area

Minimum Ceiling Height: Exposed structure

Acoustics: STC 50

Access: Corridor

Number of Occupants: 0

Other/Special Requirements: See Part 3A - Chapter 6 - ESR D4020 for fire pump and flow test requirements.

Uniformat Section	Description	Qty	Size	Specific Requirements
B203001	Solid Doors			Type EM3
B203008	Exterior Door Hardware			Type B
C101001	Fixed Partitions			Type C
C102001	Standard Interior Doors			Type M3
C102007	Interior Door Hardware			Type C
C103004	Identifying Devices			Room Identification signage
C3010	Wall Finishes			Paint walls, exposed ceiling structure, trim
C302007	Wall base finishes			Resilient wall base
C302010	Hardeners and sealers			Sealed concrete
D203003	Floor Drains			
D30	HVAC			Provide ventilation and exhaust. Provide Heating Only if required per UFCs or local design guidance for freeze protection.
D40	Fire Protection			Provide complete coverage as required by UFC and NFPA.
D5020	Lighting and Branch Wiring			Provide lighting and controls in accordance with UFC 3-530-01. Provide all associated power requirements for equipment and receptacles in accordance with UFC 3-520-01 and all applicable standards
D503001	Telecommunications Systems			coordinate and provide DDC if required
D503005	Security Systems			
D509002	Emergency Lighting and Power			Provide emergency lighting with 3fc illumination for 120 minute duration in accordance with NFPA 20.

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121 - Fire Riser Room

Space Characteristics

Function/adjacencies: Located on each floor above ground level as required.

Special Dimensions:

Ideal Plan Dimensions: See Part 3B - Chapter 4 - Section 4.1: Space Tabulation for area

Minimum Ceiling Height: Exposed structure

Acoustics:

Access:

Number of Occupants: 0

Other/Special Requirements:

Uniformat Section	Description	Qty	Size	Specific Requirements
C101001	Fixed Partitions			Type C
C102001	Standard Interior Doors			Type M3
C102007	Interior Door Hardware			Type C
C103004	Identifying Devices			Room Identification signage
C3010	Wall Finishes			Paint walls, exposed ceiling structure, trim
C302007	Wall base finishes			Resilient wall base
C302010	Hardeners and sealers			Sealed concrete
D203003	Floor Drains			
D30	HVAC			Provide ventilation and exhaust. Provide Heating Only if required per UFCs or local design guidance for freeze protection
D40	Fire Protection			Provide complete coverage as required by UFC and NFPA.
D5020	Lighting and Branch Wiring			Provide lighting and controls in accordance with UFC 3-530-01. Provide all associated power requirements for equipment and receptacles in accordance with UFC 3-520-01 and all applicable standards
D503005	Security Systems			
D509002	Emergency Lighting and Power			Provide emergency lighting with 3fc illumination for 120 minute duration in accordance with NFPA 20.

6.0 ENGINEERING SYSTEM REQUIREMENTS

6. ENGINEERING SYSTEMS REQUIREMENTS

A10 FOUNDATIONS

SYSTEM DESCRIPTION

Provide the building foundation system in accordance with Unified Facilities Criteria (UFC) 3-301-01, *Structural Engineering* and UFC 3-220-01, *Geotechnical Engineering*. Design foundations to suit subsurface conditions, capable of transmitting all building loads to the ground.

See Engineering Systems Requirements (ESR) Section B10, *Superstructure*, for loading criteria.

For east coast sites refer to specific requirements in chapter 3B.

A10 GENERAL

GOVERNMENT PROVIDED GEOTECHNICAL INFORMATION

Subsurface soil information, including a geotechnical report are included in Part 6 of this RFP.

The included subsurface information is only for the Contractor's information and is not guaranteed to fully represent all subsurface conditions. The Government will not be responsible for any interpretation or conclusion by the Contractor drawn from the data or information.

The included geotechnical report accompanying the subsurface information is provided only to better convey data (boring logs, testing, and other data) or to document observed site conditions. The assumptions, analysis, and recommendations of any accompanying report were developed for preliminary planning purposes only and may not reflect present project requirements. The Contractor is required to retain a Geotechnical Engineer experienced and licensed in the geographic region of the project to interpret the Government provided information as related to the design concept and develop geotechnical requirements to support design and construction.

Anticipate minor variations in subsurface conditions between borings. The Contractor is responsible for costs associated with the site preparation, ground improvement and foundations except as allowed by Contract Clause Federal Acquisition Regulation (FAR) 52.236-2, "Differing Site Conditions". The Contractor's Geotechnical Engineer must perform additional subsurface investigation/testing as required to adequately determine all applicable geotechnical factors including the type and capacity of the project foundations. The Contractor's Geotechnical Engineer is required to evaluate the provided information and any additional information obtained and prepare a report as described in other portions of this RFP. The minimum requirements for the subsurface investigation and report are as required by Facilities Criteria (FC) 1-300-09N with associated references.

Perform the soils investigation at the site for use in the design and construction of the new facilities. Perform, at Contractor's expense, subsurface exploration, investigation, testing, and analysis for the design and construction of features such as the building foundations, pavement section(s), stormwater management facility(ies), and utility structure foundations. Prepare a report including laboratory analysis of samples and recommendations for foundation and pavement design by a Professional Engineer as specified and in accordance with UFC 3-201-01, *Civil Engineering.*

Provide personnel under the supervision of a registered Professional Engineer to inspect excavations and soil/groundwater conditions throughout construction. The Engineer is required to perform pre-construction and periodic site visits throughout construction to assess site conditions. The Engineer, with the concurrence of the Contractor and the Contracting Officer, is required to update the

excavation, sheeting, shoring and dewatering plans as construction progresses to reflect actual site conditions and is required to submit the updated plan and a written report (with professional stamp) at least monthly informing the Contractor and Contracting Officer of the status of the plan and an accounting of Contractor adherence to the plan; specifically addressing any present or potential problems. The Engineer must be available to meet with the Contracting Officer at any time throughout the Contract duration. Provide the services of the Engineer at no additional cost to the Government.

SEISMIC DESIGN

Determine the Seismic Site Classification and seismic design category (SDC) in accordance with UFC 3-301-01, *Structural Engineering*. For planning purposes use the following SDC values which were determined using default site conditions as defined in American Society of Civil Engineers (ASCE) 7, section 11.4.2.1:

Cherry Point	B
Camp Lejeune	B
New River	B
Camp Pendleton	D

Perform a liquefaction assessment in accordance with ASCE 7 and based on the Summary Report and supporting documentation contained in National Center for Earthquake Engineering Research - *NCEER-97-0022, Proceedings of the NCEER Workshop on Evaluation of Liquefaction Resistance of Soils*. Liquefaction assessment must utilize the Maximum Considered Earthquake (MCE) Peak Ground Acceleration (PGA) adjusted for site class effects.

A1010 STANDARD FOUNDATIONS

As determined by the Designer of Record to be applicable, provide a Standard foundation. "Standard Foundations" are shallow or deep foundations as specifically addressed in International Building Code (IBC) Chapter 18. Do not use masonry unit footings, steel grillage footings, timber footings or wood foundations. Treated timber piles may be used if determined acceptable by the Designer of Record. Minimizing the volume of surplus soil generated requiring offsite disposal and minimizing the need for dewatering that must be treated prior to discharge is highly encouraged.

A1020 SPECIAL FOUNDATIONS

As determined by the Designer of Record to be applicable, provide a Special foundation. "Special Foundations" are any foundations that are not specifically "Standard Foundations", or a combination of Standard Foundations and a site improvement/ground modification system. Examples of site improvement/ground modification systems include surcharging, stone columns, rammed aggregate piers, impact densification, compaction grouting, vibroflotation, and other similar systems. As "Special Foundation" techniques or systems typically require the use of specialty contractors, a Professional Engineer must establish installation and acceptance criteria and supervise the installation. The Designer of Record must submit justification for use, including acceptable evidence of previous successful installation in similar conditions, methods and equipment used in their installation, proposed testing and inspection to be used, supporting test data, calculations and any other information related to the structural properties and load capacity of such system. The allowable stresses for piles/piers must not exceed those limitations specified in UFC 1-200-01.

A1030 GROUND FLOOR SLABS

As determined by the Designer of Record, provide soil supported concrete slab on ground. Where slab on ground is below the existing adjacent exterior grade, provide water/dampproofing and a perimeter drainage system to remove ground water from the area immediately adjacent to the buildings. Provide perimeter and under slab insulation in accordance with UFC 3-101-01, *Architecture*.

As determined by the Designer of Record to be applicable, provide a structurally supported slab. Provide for support of all utilities that may be adversely affected by soil consolidation or expansive soils. Provide stainless steel supports sized adequately to support the in-service utility. Where the structurally supported slab is below the existing adjacent exterior grade, provide water/dampproofing and a perimeter drainage system to remove ground water from the area immediately adjacent to the buildings. Provide perimeter and under slab insulation in accordance with UFC 3-101-01, *Architecture*.

--End of Section--

6. ENGINEERING SYSTEMS REQUIREMENTS

A20 BASEMENT CONSTRUCTION

SYSTEM DESCRIPTION

Provide the basement construction in accordance with Unified Facilities Criteria (UFC) 3-301-01, *Structural Engineering*.

A2010 BASEMENT EXCAVATION

A2020 BASEMENT WALLS

Basement walls include exterior walls below the ground floor level of the building, including walls that are below grade, elevator pits and other pits. Provide basement walls constructed of cast-in-place concrete precast concrete or masonry. Provide waterproofing and insulation of basement walls and floor. Provide perimeter drainage for basement walls. Provide for removal of water under basement floor slab.

--End of Section--

6. ENGINEERING SYSTEMS REQUIREMENTS

B10 SUPERSTRUCTURE

SYSTEM DESCRIPTION

Provide the building framing system in accordance with UFC 3-301-01, *Structural Engineering*. Precast concrete tilt-up construction is not allowed.

Importance Factors

Use Risk Category II in Table 2-2 of UFC 3-301-01, *Structural Engineering* for determining Importance Factors for seismic, snow, and wind design for all locations.

Wind

Base the wind design on Exposure C and the following wind speeds (V):

Cherry Point	138 mph
Camp Lejeune	139 mph
New River	137 mph
Camp Pendleton	96 mph

Seismic

See Engineering Systems Requirements (ESR) Section A10, *Foundations*, for seismic criteria.

Snow

Use the following ground snow loads (p_g):

Cherry Point	31 psf
Camp Lejeune	
Hadnot Point	26 psf
French Creek	25 psf
New River	28 psf
Camp Pendleton	4 psf

B1010 FLOOR CONSTRUCTION

The floor construction may include non-composite concrete slabs on form deck on steel joists, non-composite concrete slabs on form deck on steel beams, composite concrete slabs on composite steel deck, cast-in-place concrete slabs on removable forms, or precast concrete slabs.

B1020 ROOF CONSTRUCTION

The roof construction may include steel roof deck on steel joists, steel roof deck on steel beams, non-composite concrete slabs on form deck on steel joists, non-composite concrete slabs on form deck on steel beams, composite concrete slabs on composite steel deck, cast-in-place concrete slabs on removable forms, or precast concrete slabs.

--End of Section--

6. ENGINEERING SYSTEMS REQUIREMENTS

B20 EXTERIOR ENCLOSURE

SYSTEM DESCRIPTION

This system consists of the exterior shell of the facility, which includes all vertical and horizontal exterior closure such as exterior walls, exterior windows, and exterior doors. This system excludes roofing (See System B30, *Roofing*). Include load bearing exterior walls here, and not in System B10, *Superstructure*. Structural frame elements at exterior such as columns, beams, and spandrels are included in Superstructure, with only the applied exterior finishes (e.g., paint, stucco) being included here. Finishes to the inside face of walls which are not an integral part of the wall construction will be included in System C30, *Interior finishes*.

GENERAL SYSTEMS REQUIREMENTS

B2010 EXTERIOR WALLS

Provide cavity wall exterior wall systems composed of the Exterior Closure and Exterior Wall Backup Construction indicated below. Comply with noise mitigation measures required by UFC 3-101-01 *Architecture*, Section 3-8 *Acoustics*.

B201001 EXTERIOR CLOSURE

Provide exterior closure consisting of a combination of brick masonry, concrete unit masonry, or architectural precast concrete to match installation standards referenced in Part 3, Section 4.3 Exterior Character. Provide details consistent with installation specific requirements in Part 6 – Attachments:

Cherry Point: MCAS Cherry Point Base Exterior Architecture Plan (BEAP)

Camp Lejeune and New River: MCB Camp Lejeune BEAP

Camp Pendelton: MCB Camp Pendleton BEAP and Camp Pendleton Requirements (CPR)

B201002 EXTERIOR WALL BACKUP CONSTRUCTION

Provide Exterior Wall Back-up Construction System (back-up systems for Exterior Closure) including cast-in-place concrete or concrete unit masonry as described below:

Exterior bearing walls consisting of metal studs as the primary floor or roof supporting structural element are not permitted.

B201003 INSULATION & VAPOR RETARDER

Provide continuous insulation, vapor retarder, water-resistive barrier, and air barrier to meet or exceed requirements of project's energy savings requirements as indicated by applicable American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) 90.1 calculations called for in UFC 1-200-02, *High Performance and Sustainable Building Requirements*, and meeting minimum building envelope insulation requirements of UFC 3-101-01, *Architecture*.

Provide a continuous air barrier to control air leakage into, and out of conditioned spaces. The air

barrier must encompass all elements of the facility that are exposed to the outside environment or outside environmental conditions such as roof, walls, floors, and compartmentalized unconditioned portions of the facility such as garages, and negatively pressurized spaces. Permanently seal penetrations through the air barrier, joints in the air barrier, adjoining construction, and transitions to different air barrier materials.

Confirm air barrier compliance with Air Barrier Performance Test in RFP Part 4 B20, *Exterior Enclosure*.

Provide thermal envelope performance testing through infrared thermography in accordance with RFP Part 4. Coordinate thermal imaging testing with air barrier testing construction schedule.

Provide a continuous water resistive barrier in accordance with UFC 3-101-01, *Architecture*. The water resistive barrier must resist liquid (bulk) water from being absorbed into the back-up wall assembly if water leaks, penetrates, or seeps past the exterior enclosure cladding system.

Provide a vapor pressure analysis and hygrothermal analysis in accordance with UFC 3-101-01, *Architecture.* Determine if a moisture barrier/ vapor retarder is required and where it would be located. Include analysis and conclusion in the design analysis for the project, refer to Part 2 Section 01 33 10.05 20*, Design Submittal Procedures*. If required by the analysis, provide a moisture barrier/ vapor retarder to restrict the flow of moisture through the exterior enclosure.

Include written and graphic descriptions of exterior enclosure barrier materials and location within the wall as a part of the Contractor provided design analysis. Identify in the analysis the continuous boundary limits of the air barrier and of the zone or zones to be field tested for building air tightness.

Provide contract drawings that indicate each exterior enclosure barrier location and the materials that make up the barriers. Detail the following barrier conditions;

1. Typical conditions at wall sections.

2. Barrier treatment at wall openings.

3. Intersections with other exterior enclosure assemblies and materials. Include intersections at roof and floors.

4. Intersections with counter flashing.

5. Inside and outside corners.

6. Preservation of air and water tightness at anchors for materials that cover the barrier.

7. Treatment to seal barrier penetrations such as conduits, pipes, electric boxes, and fixtures.

8. Indicate air barrier perimeter, if facility is segmented into areas that are not within the air barrier envelope.

B201005 EXTERIOR LOUVERS & SCREENS

Provide exterior louvers and screens, where required, that match the finish of the existing windows and detailed to integrate with the architecture of the building, as appropriate to the design of the building.

B201006 BALCONY WALLS & HANDRAILS

Not used

B201007 EXTERIOR SOFFITS

Provide exterior soffit system of the same material, coating, and finish as the standing seam metal roof system. All materials and details must be compatible with the roofing system.

B201009 EXTERIOR PAINTING AND COATINGS

Provide field applied exterior coatings for all items that are not prefinished, and to prefinished items when required to provide a color other than a standard prefinished color. Refer to Part 6 – Attachments for installation specific requirements on exterior colors.

B201010 EXTERIOR JOINT SEALANTS

Provide exterior application of joint sealants to seal joints and prepare for finish material installation.

B201011 SUN CONTROL DEVICES (EXTERIOR)

Provide fixed horizontal sunshades on the southern face of the building and fixed vertical sunshades on the east and west faces of the building. Sunshades must be integrated into the window system. Sunshade sizes and configuration must be calculated by DOR to provide optimal effectiveness for the building's location and orientation.

B201012 SCREEN WALL

Provide screen walls to screen mechanical units, electrical substations, loading docks, and trash receptacles. Provide screen walls compatible with the exterior architecture of the building. Refer to installation specific BEAP for additional requirements.

B2020 EXTERIOR WINDOWS

Provide windows in each area of the building that is regularly occupied, to enhance the working and living environment, without compromising visual acuity and comfort. Include windows in all room modules, lobbies, corridors, offices, common areas, and similar spaces located on exterior walls. Exterior windows must be prefinished aluminum unless otherwise noted. Windows must meet Antiterrorism requirements (see Part 3, Chapter 2, Section 2.3.6, and UFC 4-010-01) and windborne debris requirements (see ESR B10 and IBC).

If approved by the DOR, the sample window may be installed in an opening in a framed wall, and the mock-up may be left during construction as a cut-away of the installation. For masonry walls, install the sample window in the masonry sample panel.

Provide solid surface window sills.

At exterior walls of stair towers, provide windows at each floor level. Windows must be the same size as 2+0 room module windows. Align windows horizontally at each floor.

B202001 WINDOWS

Provide a minimum of 30% window to wall ratio for each space on an exterior wall, excluding building support spaces. Windows are to be similar in size and scale across the exterior face of the building.

Determine the construction of security windows by evaluating the project program security requirements, using the Military Handbook (MIL-HDBK) 1013/1A, *Design Guidance for Physical Security of Facilities*, to define window requirements.

Provide operable aluminum windows with integral insect screens and locks.

Provide a mockup of one combination window unit for the project to be used for a field mockup test of compliance with American Architectural Manufacturers Association (AAMA) 502 Method A and Method B.

B202002 STOREFRONTS

Provide aluminum storefronts with PVDF finish. Storefronts must be 2-1/2” x 6” to 8” with front-set glazing, reinforced as required to meet AT/FP requirements specified in UFC 4-010-01. Provide aluminum fascia and closure pieces to match exterior window frames.

Doors and Frames: Provide 3’-0” wide X 7’-0” high exterior glazed doors and frames as part of the storefront entrance system. Door glazing must match the storefront glazing.

B202003 CURTAIN WALLS

Not used

B202004 EXTERIOR GLAZING

Provide glazing with a color matching existing adjacent occupied buildings; see Part 3, Chapter 4, Section 4.3 Exterior Character for installation specific building references.

Glazing for windows and storefronts must be low-E, insulating glass units. Insulated glass units must achieve the following thermal performance requirements at minimum:

U-value:	0.31
Solar Heat Gain Coefficient (SHGC):	0.23

All exterior glazing must be reinforced to meet AT/FP requirements specified in UFC 4-010-01.

B202090 OTHER EXTERIOR WINDOWS

Not used

B2030 EXTERIOR DOORS

Provide solid door assemblies other than at the main entrance. Exterior doors and frames must be non-corroding factory-primed. Provide hardware, accessories, heavy duty door bottom sweeps, and wall opening elements such as sills, flashings, and joint sealers.

Provide Maximum Duty Doors – American National Standards Institute/Steel Door Institute

(ANSI/SDI) A250.8, Level 4, physical performance Level A, Model 1.

Paired doors must have a removable center mullion and be furnished with an astragal installed on the door which swings outward or be mainly utilized as exit / entry.

All exterior doors must comply with UFC 4-010-01 DoD Minimum Antiterrorism Standards for Buildings.

Provide door glazing that matches the window glazing.

B203001 SOLID DOORS

Door Types (widths indicated are minimums):

(Type EA3) 3'-0" wide X 7'-0" high glazed aluminum door and frame; see also B202002

(Type EM3) 3'-0" wide X 7'-0" high metal door and metal frame

Exterior doors must be to coursing. Therefore, 7'-0" high door frames with 6'-10" high door leaves are acceptable.

All doors and frames must be A60 galvannealed steel. Raw, cold rolled material on the inside of the hollow metal door, including the unexposed faces and frame, must have a galvannealed coating. Exterior doors and frames must be finished with high performance coatings (two primers – including a zinc phosphate and finish coats).

B203002 GLAZED DOORS

See B202002 – Storefronts for "Doors and Frames".

Clear glazing for doors must be low-E, insulating glass units. Thermal performance must meet or exceed that of the Insulated Glass Units described in B202004 above.

B203004 OVERHEAD ROLL-UP AND OVERHEAD SECTIONAL DOORS

Design doors and opening for mechanical equipment entrance, maintenance, and replacement. Provide lockable doors with automatic operation with protected pushbutton electric controls.

Accomplish door operation by UL Listed electric motor operation with electric controller and an auxiliary hand chain operation. Also provide counterbalance, heavy duty springs, wear strips, full perimeter weather-stripping, continuous button pressure safety operation, electric or infrared safety edge, galvanized hardware, and manufactured trims and closures pieces. Protect the wall door jamb opening with guards designed to resist abuse from the types of material and equipment that are transported through the opening.

Provide steel insulated overhead roll-up doors on the exterior wall of the following spaces:

a. Main Mechanical room
b. (Camp Lejeune only) Mechanical Distribution rooms

Provide powder coat painted finish with custom colors for the door and accessories to match the color scheme specified in installation requirements. Design the steel overhead roll-up slats and door width

to withstanding the design wind loading of American Society of Civil Engineers (ASCE) 7 and operate normally.

B203006 BLAST RESISTANT DOORS

Not used

B203008 EXTERIOR DOOR HARDWARE

Provide the services of a certified door hardware consultant to prepare the door hardware schedule. DOR must conduct a Security Review Meeting with the end users during design in order to finalize the hardware, software, and equipment required to supply the required security throughout the facility.

Refer to Part 3, Chapter 5 Room Requirements for hardware requirements for individual rooms. Door hardware sets to be based on the following:

(Type A) Entry: Key override

(Type B) Storeroom: Keyed, panic exit device where required by code

(Type C) Emergency Exit: Panic exit device, no exterior hardware

Provide hardware keying compatible with the existing base-wide keying system. Provide replacement interchangeable cores compatible with the Best Lock system.

Provide stainless steel door hardware finish.

Door hardware for doors in storefront systems must match the finish of that system.

Provide wall mounted magnetic hold-opens integrated with the fire alarm system to release during an alarm where required by code.

Door hardware must be coordinated with the security system.

--End of Section--

6. ENGINEERING SYSTEMS REQUIREMENTS

B30 ROOFING

B30 GENERAL SYSTEM DESCRIPTION

Provide watertight roof systems compatible with facility function, construction, and service conditions. Provide complete roof system design and construction services for the entire new facility roof system, including all ancillary and incidental work necessary for a complete, new, watertight roof system installation.

Submittal Requirements: Components of a minimum roof submittal include the roof plan, method of drainage, standard details and details unique to the project, wind load calculations and requirements.

Provide a Pre-Design Roofing Conference and Pre-Roofing Conference to ensure roof design and construction is properly coordinated before construction begins.

Built-in gutter systems where drainage passes through an interior space or concealed in the exterior cavity wall is prohibited.

Refer to Unified Facilities Criteria (UFC) 3-110-03, *Roofing*, UFC 3-101-01, *Architecture*, and UFC 1-200-02 *High Performance and Sustainable Building Requirements,* and Base Exterior Architecture Plans (BEAP) for each installation for additional roofing requirements.

B3010 ROOF COVERINGS

B301001 STEEP SLOPE ROOFING SYSTEMS

Steep slope, standing seam metal roofing systems are required. Provide details consistent with listed material and installation specific requirements in Part 6 – Attachments:

<u>Cherry Point:</u> Steel standing seam – MCAS Cherry Point Base Exterior Architecture Plan (BEAP)

<u>Camp Lejeune and New River:</u> Aluminum standing seam – MCB Camp Lejeune BEAP

<u>Camp Pendleton:</u> Steel standing seam – MCB Camp Pendleton BEAP and Camp Pendleton Requirements (CPR)

Steel standing seam: Heavy duty panels must have a minimum thickness of 0.8 mm 0.030 inch, 22 gauge galvanized steel from 50,000 PSI sheet coil conforming with ASTM A653/A653M, Grade C, G90 Coating, and ASTM A924/A924M galvanized or ASTM A792/A792M, CS Type B or C galvalume. Panels are prefinished with a heavy commercial finish conforming to AAMA 621.

Aluminum standing seam: Panel material is 3004 aluminum, ASTM B 209M/209, AND AA ADM1 with a thickness of 1.0 mm with a 0.040 inch minimum.

Individual panels of the installed roof must be removable for replacement of damaged material.

The roof system must be designed and attached to resist wind uplift pressures calculated in accordance with ASCE 7. Uplift resistance must be validated by applicable Factory Mutual (FM), Underwriters Laboratories (UL) or ASTM uplift resistance test procedures.

B301002 LOW SLOPE ROOFING SYSTEMS

Low-slope roofing systems are not permitted.

B301003 ROOF INSULATION AND FILL

Provide roof insulation values no less than in accordance with UFC 1-200-02, *High Performance and Sustainable Building Requirements* and UFC 3-101-01, *Architecture*.

B301004 FLASHINGS AND TRIM

Flashing and sheet metal work includes scuppers, splash pans, and sheet metal roofing.

If steel standing seam, flashings must be Steel Sheet, Zinc-Coated (Galvanized) - ASTM A 653/ A 653M, minimum of 0.70 mm (24 gauge), and a minimum zinc coat weight of 275 g/sm (90 ounces per square foot). Galvanized steel items must have a baked-on, factory applied finish of polyvinylidene fluoride or an equivalent fluorocarbon coating.

If aluminum standing seam, flashings must be Pre-Finished Aluminum. Finish must be baked-on factory applied color coating of polyvinylidene fluoride (PVF2) or other equivalent fluorocarbon coating with a minimum thickness of 0.8 to 1.3 mils.

B301005 GUTTERS AND DOWNSPOUTS

Provide gutters, downspouts, and accessories compatible with roofing material and finish. Concealed (interior) gutters and downspouts are prohibited.

B301006 ROOF OPENINGS AND SUPPORTS

Provide insulated roof hatch and rails or guards.

B301090 OTHER ROOFING

Provide lightning protection, without penetrating the roof membrane or flashing components.

Provide OSHA compliant fall protection where required for roof mounted equipment and openings.

--End of Section--

6. ENGINEERING SYSTEMS REQUIREMENTS

C10 INTERIOR CONSTRUCTION

SYSTEM DESCRIPTION

Interior construction includes interior partitions, interior doors, and fittings.

Provide durable construction appropriate for the building's function as a Marine Corps barracks. Acoustic properties of materials, as well as durability, must be considered during material selection.

GENERAL SYSTEM REQUIREMENTS

The Project is subject to abuse and requires "Impact Resistant" systems be provided. See "Room Requirements" for specific requirements on "Partitions", "Interior Doors", and "Specialties".

C1010 PARTITIONS

Refer to Part 3, Section 5.0 Room Requirements for partition requirements for individual rooms.

The interior construction of exterior walls is to follow the requirements for interior walls.

C101001 FIXED PARTITIONS

Provide fixed interior partitions that extend from finished floor to underside of structure above. Sound-rated partition assemblies shall have a minimum Sound Transmission Coefficient (STC) in accordance with American Society for Testing and Materials (ASTM) E 90 or ASTM E 413 for frequency data. See “Room Requirements” for STC ratings required for individual spaces.

Provide fire rated partitions where required by applicable codes.

Partition types:

(Type A) Aluminum Storefront. See Section 101006.

(Type C) Must be one of the following:

1. Concrete or Concrete Masonry Units (CMU), finished uniformly smooth, with a grout or resin-based block filler. Fill all pinholes and voids and lightly sand prior to final paint finish. Minimum 8” (CMU) at corridors and demising walls between 2+0 and accessible room modules, 6” CMU at all other interior locations
2. Metal studs with impact resistant wall board over ASTM C1629, Level III compliant substrate, and paint finish
3. Other partition assembly tested for compliance with ASTM C1629, Level III compliant substrate for all four testing methods. Provide a wall mock-up to be constructed, tested and approved prior to construction to meet the requirements listed above.

(Type T) Metal studs with cementitious backer board and porcelain tile

In entry vestibule, main lobby, elevator lobbies, corridors, MCX24, and Multi-Purpose room:

If type C1, provide (4) courses of one through-body color honed CMU starting from floor level, and alternate through-body color honed CMU above to ceiling height. Provide bull nose CMU block at corners.

If type C2 or C3, provide 4 inch high impact resistant chair rail between upper and lower portions of the wall.

In building support and utility spaces, provide paint finish only.

C101005 INTERIOR WINDOWS

Provide fixed interior windows of aluminum hollow metal with clear tempered glazing. Size must be 3'-0" wide X 4'-0" high. Provide each window as a complete factory-assembled unit with glass factory or field installed.

Provide solid surface windowsills. Coordinate sill height with users during design.

C101006 GLAZED PARTITIONS & STOREFRONTS

Provide glazed storefront system at the connection between Lobby and Vestibule, and at the Multi-Purpose room. Finish must match that of exterior system. Storefront system must be full height unless otherwise noted.

Doors integrated into storefront system must be 3'-0" wide X 7'-0" high minimum.

Where part of entry vestibule, assembly must comply with UFC 4-010-01 DoD Antiterrorism Standards for Buildings.

C101007 INTERIOR GLAZING

Provide interior tempered clear glazing.

Where part of entry vestibule, glazing must comply with UFC 4-010-01 DoD Antiterrorism Standards for Buildings and ASTM E 1996.

C1020 INTERIOR DOORS

At spaces with sound rating requirements, provide doors meeting the STC requirements for that space shown in Part 3, Chapter 5 Room Requirements and UFC 3-101-01 Architecture. Refer to FC 4-721-01 for additional door and hardware requirements.

C102001 INTERIOR DOORS

Door Types (widths indicated are minimums):

(Type A3) 3'-0" wide X 7'-0" high glazed aluminum door and frame. See Section 101006.

(Type M3) 3'-0" wide X 7'-0" high metal door and frame

(Type W3) 3'-0" wide X 7'-0" high wood door and metal frame

Number and configuration of doors in each space must be in accordance with applicable codes and must be determined by DOR during design.

Provide vision lites in all interior doors in the following spaces and conditions:

a. Corridor to Corridor
b. Corridor to Stair
c. Centralized Kitchen
d. Laundry Room

All interior frames must be painted hollow metal. 7'-0" high door frames with 6'-10" high door leaves are acceptable.

All interior doors must be flush type doors and must be insulated metal or solid core wood as identified in the Room Requirements Charts.

Interior wood doors must comply with the requirements of the Architectural Woodwork Institute Quality Standard. Flush wood doors must be WDMA I.S.1A-04, custom grade, extra heavy duty. Doors must have wood core and solid wood edge bands. Vertical edge bands must be one piece or laminated two-piece solid lumber to match face veneer species for natural finish wood doors. Horizontal edge bands must be solid wood or structural composite lumber. Doors must be factory finished with a polyurethane coating.

Flush Steel doors must be heavy duty, Level 4, physical performance Level A. Doors must be finished with high performance coatings (primer and finish coats).

Provide STC sound rated doors and standard hollow metal door frames with continuous sound/ weather seals around the door to create a sound control door to match the STC rating of the room, unless otherwise noted in Part 3A – Chapter 5: Room Requirements. Provide sound/ weather seals at the top and both sides that are integral with the door frame and drop down door bottom sound/ weather seals must rest on a metal threshold. After installation, test the doors with a flashlight to determine if any gaps in the sound seals allow light to be viewed on the opposite side of the door.

C102002 GLAZED INTERIOR DOORS

See Section C102001.

C102003 FIRE DOORS

Provide interior fire doors of hollow metal frame and wood door construction at widths as required by code, extra heavy grade.

C102007 INTERIOR DOOR HARDWARE

Provide the services of a certified door hardware consultant to prepare the door hardware schedule. DOR must conduct a Security Review Meeting with the end users during design in order to finalize the hardware, software, and equipment required to supply the required security throughout the facility.

Refer to Part 3, Chapter 5 Room Requirements for hardware requirements for individual rooms. Door hardware functions to be based on the following:

(Type A) Interior Vestibule Door: Proximity card reader, key override

(Type B) Room Entry: Proximity card reader, key override

(Type C) Storeroom: Keyed, panic exit device where required by code

(Type D) Passage: Push/Pull hardware, panic exit device where required by code

(Type D2) Passage: Passage lockset with single handle slide bolt architectural hasp

(Type E) Privacy: Keyed, push/pull hardware

(Type E2) Privacy: Push button lock

For (Type A) and (Type B), provide Sargent | Assa Abloy IN100 Aperio® Wireless Access Control, Model 7900 Series Mortise Locks. This hardware is GFGI. Contractor must prepare doors for government installation of hardware. The Design-Build Contractor, its Designer of Record, and a certified door hardware specialist are jointly responsible for the complete integration of all Government Furnished Government Installed (GFGI) hardware and associated access control systems. This collaborative effort must commence at the project's initial design charrette and continue uninterrupted through all subsequent design phases. Key responsibilities include ensuring the seamless integration of GFGI hardware with the door and frame specifications and developing a coordinated design for the access control infrastructure from the communication rooms to all end-point devices. This joint responsibility extends through the final ordering process with the Naval Information Warfare Center (NIWC) and USMC. The final objective is to ensure the seamless integration of all hardware and infrastructure with the door and frame specifications to guarantee full system compatibility and functionality prior to procurement.

Provide lock cores compatible with the BEST system. Coordinate all lock, panic hardware, closer, and keying requirements with the base locksmith.

Provide brushed stainless steel door hardware finish unless otherwise noted. Hardware for doors in storefront systems must match the finish of that system.

All wood doors must have stainless steel kick plates 10” high minimum on both sides.

Provide wall mounted magnetic hold-opens integrated with the fire alarm system to release during an alarm where required by code.

C102091 OTHER INTERIOR PERSONNEL DOORS

Not used

C1030 SPECIALTIES

C103001 COMPARTMENTS, CUBICLES, & TOILET PARTITIONS

Not used.

C103002 TOILET AND BATH ACCESSORIES

Provide brushed stainless-steel toilet and bath accessories per the Toilet and Bathroom Accessories Schedule below:

TOILET & BATHROOM ACCESSORY SCHEDULE				
ACCESSORY	UNISEX RESTROOMS	2+0 ROOM BATHROOMS	ABA ROOM BATHROOMS	JANITOR'S CLOSETS
Dual roll toilet tissue dispenser for each water closet	●	●	●	
Seat cover dispenser for each water closet	●			
Coat hooks for each water closet stall	●			
ABA Grab bars for toilet (in restrooms with multiple stalls, grab bars required only for ABA water closet stall)	●		●	
ABA Grab bars for shower			●	
ABA Shower seat			●	
Break-away shower curtain rod, mounted at height to accommodate a standard 72" length shower curtain.		●	●	
Paper towel dispenser in each room	●			
Electric hand dryers with motion sensors in each room; HEPA filtered, Certified hygenic by NSF and HACCP (same quantity as lavatories)	●			
Mirror at each lavatory or fixture	●			
Semi-recessed mirror front medicine cabinet		●	●	
Full length mirror in each room	●	●	●	

(3) Towel hooks; (2) on bathroom door, and (1) on wall near shower		●	●	
(1) Stainless steel towel bar in each personal closet		●	●	
Soap dispensers at each lavatory or sink fixture	●			
Stainless steel convenience shelf on wall near entrance doors in each room. Minimum dimensions: 6" deep by 36" long.	●			
Sanitary napkin disposal for each water closet	●			
Surface mounted double coat hook (2 required in rooms with showers)		●	●	
Utility shelf integrated with 5 hooks and 4 broom/mop holders				●

C103003 MARKER BOARDS AND TACK BOARDS

Provide tack boards as indicated in RFP Part 3, Chapter 5 Room Requirements. Tack boards are funded as part of the construction contract. Tack boards must be mounted with the lower edge at 42 inches above finished floor.

Coordinate with building construction to include appropriate blocking or structural support for the installation of tack boards.

Tack boards must be enclosed, heavy gauge aluminum, with tackable interior surface, tempered glass sliding doors and lock. Provide selection from full range of manufacturer's finishes. Provide tack board dimensions as indicated.

C103004 IDENTIFYING DEVICES

Design and provide interior wayfinding system and room identification signs on each entrance to each interior room. Signage must identify each space by room number and name. Program with the user/s on the function, naming, and numbering system required for all rooms and spaces throughout, as well as emergency and informational signage throughout the facility. Signage must be modular in nature (structural rail, removable copy inserts, and interlocking end caps/frame/trim) and must have changeable room name sections to accommodate personnel and functional changes.

Signage applied to glass requires a backer plate to match the size, material, finish, and color of the front sign panel.

Room naming and numbering as part of the signage and/or wayfinding system may not be the same naming or numbering as noted in the architectural floor plan. Coordinate and program sign message schedule with users prior to procurement.

Interior signage must demonstrate complete coordination with the facility design, SID and FF&E submittals, assist with identification/branding, and create visual interest. Select and incorporate mixed finishes, materials and graphics to emphasize wayfinding throughout.

Interior room identification signs should coordinate with all other required interior signage (life/safety, regulatory, etc.) as part of a comprehensive sign family.

Incorporate all necessary interior signage as part of the architectural drawings. Interior signage is not collateral equipment. Provide interior directional signage as required for facility wayfinding with directional signage at each corridor on each level. Signs must meet Architectural Barriers Act (ABA) Standards requirements. Refer to Unified Facilities UFC 3-120-01, Design: Sign Standards, for more information and UFC 3-490-06 Elevators for elevator signage requirements.

Signage shop drawings/finishes must be submitted to the NAVFAC Architect and NAVFAC Interior Designer for approval.

C103005 LOCKERS

Not used.

C103006 SHELVING

Provide stainless steel standards and brackets with five (5) heavy–duty, metal wire shelves, 12 inches deep, on one wall, and one (1) metal wire hat rack with one (1) upper and one (1) lower clothes rod, placed on an adjacent wall of each 2+0 room module closet.

Provide ABA compliant shelving as described above in accessible room closets.

Provide (2) 1 inch aluminum Map Rails with vinyl blend cork strip per 2+0 room module, entire length either side.

Provide heavy-duty shelving with clothes hanging rods above counters in Laundry Room.

Built-in fixed shelving and map rails are funded as part of the construction contract.

C103007 FIRE EXTINGUISHER CABINETS

Provide fire extinguisher cabinets. Cabinets must be semi-recessed except in mechanical/electrical spaces where they may be surface-mounted. Coordinate cabinets with interior finishes.

General purpose fire extinguisher cabinet design/location must be in accordance with NFPA 1 and NFPA 10.

C103008 COUNTERS

Provide solid acrylic counter tops and back splashes. Counters must include 4 inch high back splashes and must include 4 inch side splashes where counter abuts walls or adjacent cabinetry. Plastic laminate countertops shall not be permitted. On a scale of 1-7, solid surface material grade for counter tops must be Grade 7 and selected from manufacturer's full range of colors. Material must be a minimum of ½ inch thick with eased leading edge having a minimum 1-1/2 inch edge profile.

<u>Counter only:</u> Solid surface with continuous 4-inch backsplash (entire length and sides). Material must be ½ inch (min) thick. Counter supports must not be visible.

Counters with sinks and no base cabinet: Solid surface counter with continuous 4-inch solid surface backsplash (back and sides where adjacent to wall) and plastic laminate shroud with removable panels to visually hide the plumbing under counter (front and sides). Shroud must be fabricated with a minimum AWI custom grade and a minimum ½ inch thick hardwood plywood substrate material. Counter supports and shroud fasteners must not be visible.

Counters with base cabinet: Solid surface counter with continuous 4-inch high backsplash (length and sides).

Counters with base and upper cabinet: Solid surface counter with continuous solid surface backsplash that extends from counter to underside of the upper cabinet. Backsplash panel(s) to be ¼ inch thick and must extend the full width of cabinetry. Provide continuous 4-inch solid surface sidesplash at sides where adjacent to wall.

Counter Island: 42 inch high, 42 inch deep solid surface counter island with waterfall solid surface side panels. Counter material must be minimum ½ inch thick solid surface with eased leading edge having a minimum 3 inch edge profile. Waterfall must be finished with solid surface on all exposed faces.

C103009 CABINETS

Provide cabinetry and millwork items with associated accessories. Cabinetry must be Architectural Woodwork Institute (AWI) custom grade and have concealed hinges with adjustable standards for shelves. All exposed surfaces must be covered with high pressure plastic laminate. Melamine is not permitted.

Provide self-closing with integral soft close damper hardware for cabinet doors and drawers.

Provide specific cabinetry and storage as noted in Part 3, Chapter 5 Room Requirements and as required by FC 4-721-10N, Navy and Marine Corps Unaccompanied Housing.

Base cabinets at Vanity: 4 inch high apron below sink and minimum three, 8 inch wide drawers, full height either side, for a total of six drawers

Upper cabinets above microfridge: 24 inch deep from front edge of adjacent wall

Accessible Cabinetry: Provide ABA compliant cabinetry of equal storage space as described above in accessible rooms.

C103010 CASEWORK

Refer to FC 4-721-10N, C103008 Counters, and C103009 Cabinets for related requirements.

C103012 FIRESTOPPING PENETRATIONS

Provide firestopping for all through-penetrations, membrane penetrations, and joints in all fire resistance rated barriers. Provide firestopped perimeter joints at intersection of the horizontal fire resistance rated floor assembly and exterior wall assemblies.

All firestopping systems must be performed by one experienced firestop contractor. Experienced firestop contractor is defined as the following:

1. FM Research approved in accordance with FM 4991, or
2. Operating as a UL Certified Firestop Contractor, or

3. A contractor completed the manufacturer accredited firestop specialty contractor program. Certified, licensed, or otherwise qualified by the firestopping manufacturer as having the necessary staff, training, and a minimum of three years of experience in the installation of manufacturer's products in accordance with specified requirements. Submit documentation of this experience. A manufacturer's willingness to sell its firestopping products to the contractor or to a certified installer engaged by the contractor does not in itself confer installer qualifications on the buyer. Individual building system subcontractor, such as Mechanical, Electrical, Plumbing, Gypsum wall, etc., is not permitted to install firestopping systems.

A single complete submittal including Shop Drawings, Product Data, and UL details must be provided for all firestopping systems throughout the entire project.

NAVFAC Mid-Atlantic has a regional firestopping UFGS section for all MIDLANT AOR projects. See Part 6 – Attachments for unedited specification section. Contact NAVFAC MIDLANT FPE for specification file to edit during the design.

C103013 SPRAYED FIRE-RESISTIVE MATERIALS

Provide sprayed fire-resistive materials to the building's structural framing components as required by Building Code to prevent structural failure.

C103014 ENTRANCE FLOOR GRILLES AND MATS

Loose lay floor mats should be provided through FF&E.

Provide (2) permanent "mud chucker" type boot scrapers outside all main entry doors. Locate one boot scraper on either side of the door.

C103015 INTERIOR WALL PROTECTION

Interior corner guards at all outside corners of partitions, full height, from top of base to underside of ceiling. Corner guards must be prefinished, textured, molded plastic over extruded aluminum anchor base, minimum 3 inches per side width, of color matching the wall finish color. Guards must be installed at all outside corners of corridors, office areas, and throughout all occupied portions of each facility.

Provide minimum 4 inch, impact resistant chair rail over continuous aluminum retainer in locations as required by use of partition type C2 in C101001.

In all janitor rooms, provide minimum 48 inch high rigid vinyl wainscot on all gypsum interior walls as applies, capped with vinyl crash rail.

C103016 OTHER INTERIOR SPECIALTIES

Provide a ceiling fan in each Living Unit that meets the requirements of UFC 4-721-01 and FC 4-721-10N.

--End of Section--

6. ENGINEERING SYSTEMS REQUIREMENTS

C20 STAIRS

SYSTEM DESCRIPTION

Provide stairs, including stair construction and stair finishes as required by the building code to provide egress from the building from above or below grade level floors. Stairs must be in accordance with Unified Facility Criteria (UFC) 1-200-01, *DoD Building Code (General Building Requirements)*.

GENERAL SYSTEMS REQUIREMENTS

C2010 STAIR CONSTRUCTION

C201001 INTERIOR AND EXTERIOR STAIRS

Provide interior stairs constructed of steel with concrete filled pans.

Steel stairs must be primed and painted. The underside of landing and stairs exposed to view must be finished with painted gypsum board or a panelized metal system to conceal all fire sprinkler piping and structure. Illumination to be recessed, continuous 4-inch wide LED slot fixtures. Install under the stairs and landing in a continuous line.

If exterior stairs are necessary in the design, provide exterior stairs constructed of cast-in-place reinforced concrete.

C201090 HANDRAILS, GUARDRAILS, AND ACCESSORIES

Provide painted steel handrails and guardrails. Handrails and guardrails must present a smooth, unbroken surface throughout the length of the stair.

Handrails and guardrails must be finished to withstand extreme wear conditions.

Metal ladders and railings complying with Occupational Safety and Health Administration (OSHA) requirements must be provided for access and protection to any mechanical mezzanines, lofts or other similar spaces.

--End of Section--

6. ENGINEERING SYSTEMS REQUIREMENTS

C30 INTERIOR FINISHES

SYSTEM DESCRIPTION

Interior finishes include wall finishes, floor finishes, wall base finishes, and ceiling finishes.

Provide aesthetically pleasing, functional, durable finishes appropriate to the buildings function. Consider acoustic properties of materials, as well as durability and ease of maintenance during material selection. Maximize the use of sustainable materials.

Color selections require the use of wall and floor finish material accents to enhance the color and appearance of the interior design. Provide a wall and floor color design that includes a minimum of two different accents colors throughout the facility. Submit pattern drawings of the accents design with the interior design submittal.

All interior finish products shall be from manufacturers standard running line offerings. Custom fabrications/mixes are not allowed.

Provide industrial coatings on required surfaces. All contractors and subcontractors that perform surface preparation or coating application must be certified by the Society for Protective Coatings (formerly Steel Structures Painting council – SSPC) to the requirements of SSPC QP 1 prior to contract award and must remain certified while performing any surface preparation or coating application as contracted for this project.

GENERAL SYSTEMS REQUIREMENTS

See Part 3 Chapter 5 "Room Requirements" for specific requirements on "Interior Finishes."

C3010 WALL FINISHES

Provide wall finish materials to meet the following requirements.

All primer and paint systems must be the manufacturer’s highest premium quality professional grade. All materials must be moisture and mildew resistant and easily cleaned. Do not use lead or lead-based paint. All exposed surfaces must be level 4 finish.

Paint all interior exposed surfaces including metal items not pre-finished, such as interior grilles, registers, diffusers, access panels, and panel boxes with a minimum of two coats in color to match adjacent surfaces, unless otherwise indicated.

Walls, ceilings, fascias and soffits must receive latex primer and two coats of Architectural Latex. Include a minimum of two paint selections for accent walls as indicated in Part 3 Chapter 5 Room Requirements.

Provide the Government with an additional 5% of the installed quantity of every type of coating and special finish for replacement and maintenance purposes.

Paint sheen schedule as:

Flat:	Ceilings – all locations except Toilet/Wet rooms and Kitchen
Satin or Eggshell:	Walls – all locations except Toilet/Wet rooms and Kitchen
Semi-gloss:	Walls and Ceilings – Toilet/Wet rooms and Kitchen
Semi-gloss Epoxy:	Railings, Utility rooms, Janitor's Closet, Laundry areas, Stairwells, and behind water coolers
Flat:	Structural Steel

C301002 ACRYLIC PLASTER COATING

Not used

C301003 GYPSUM WALLBOARD FINISHES

Cementitious backer board must be used in spaces indicated in the Part 3 Chapter 5 Room Requirements.

C301004 PORCELAIN TILE WALL FINISHES

Provide full height porcelain wall tile on walls in restrooms, bathrooms and shower rooms.

Wall Tile: Provide through body, impervious porcelain rectified wall tile, 6 inch by 12 inch or 12 inch by 12 inch, minimum B or Medium Grade tiles with a wide range of accent colors available. Provide designer decorative accent strips, prefabricated mosaic accent border, or coordinating accessory tile shapes, minimum D or Medium Grade, as an integral part of the porcelain wall tile system. Wall tile shall extend from the floor to the ceiling. Provide grouted-in stainless steel edge protection and transition strips at all inside and outside corners and where tile transitions to other wall finishes.

Provide porcelain tile behind drinking/water fountains on all three (3) walls of water cooler/bottle filler alcove(s) or on the wall directly behind if no alcove is present. Provide 1/8" wide antimicrobial epoxy grout for all wall tile finishes. All wall epoxy grout joints must align with all floor epoxy grout joints.

C301005 WALL COVERINGS

Flexible wall protection designed with decorative digital graphic images to promote the USMC mission and branding must be manufactured with inherent properties for abrasion and impact resistance. Flexible wall protection design(s) must be submitted to the NAVFAC interior designer for approval.

Material must be of a minimum of 35 oz/LY and/or a thickness of .032" minimum construction. Coordinating trim pieces must be available for a finished installation.

Product must contain a protective coating to deter scuffs and stains and be bleach cleanable. A minimum 5-year manufacturer warranty is required.

C301006 ACOUSTICAL PANELS ADHERED TO WALLS

Refer to E201001 Fixed Artwork for acoustical panel requirements.

C301090 OTHER WALL FINISHES

Solid surfacing at Centralized Kitchen: Provide ¼ inch Solid Surface wall panels extending width of counter sink/cook top cabinetry from backsplash to underside of wall cabinets.

Showers: Provide ¼ inch thick solid surface material; material must overlap top of shower pan with an air gap, as required, and extend to ceiling. Locate wall panel seams at corners only. No material seams will be acceptable, except at corners. Provide lap joints at shower seams at corners with solid surface corner trim from floor to ceiling. Provide epoxy seams to match solid surfacing material. Include two recessed solid surface niches (16 inches high) in each shower compartment on shower control wall, for shampoo, soap, etc. Full height solid surface transitions must be provided at adjacent wall surfaces. Extend wall panels in shower areas horizontally beyond the "wet area", to the exterior line of the shower receptor threshold. Provide cementitious ceramic tile backer board substrate behind solid surface shower walls. Install solid surface shower receptors prior to wall system. Provide receptors with a minimum thickness of ½ inch, with a ¾ inch thick area at least 12 inches in diameter at the drain. Receptors must be one-piece, factory formed solid surface shower pans with integral thresholds. Thresholds must have structural supports every 4 inches on center.

Provide full and adequate protection systems for interior finishes as appropriate and indicated in C103015 Interior Wall Protection and in the Room Requirements portion of this RFP. Provide floor-mounted doorstops for all interior doors that do not have automatic closure mechanisms with travel limit adjustment.

Telecomm closets must receive floor-to-ceiling, ¾ inch plywood that is fire-rated, B-grade, sanded face on side and back walls.

C3020 FLOOR FINISHES

Provide flooring transitions/thresholds between specified finishes which are compliant with the Architectural Barriers Act (ABA) Standards horizontal requirements. Provide metal thresholds/transitions for carpet, resilient flooring, terrazzo and sealed concrete locations. Provide marble thresholds/transitions at porcelain floor tile locations. Floor thresholds must be located from inside of door jamb to inside of door strike. All floor material transitions at doorways must be located at closed door center.

All finished floors must meet or exceed NAVFAC COF/DCOF minimum requirements for slip resistance.

All floor finishes must cover the entire floor and fully extend under all equipment and built-in cabinetry.

The contractor will be responsible for properly preparing new concrete slabs per manufacturer’s requirements. The contractor is responsible for concrete slab moisture testing as part of this project and to provide a moisture barrier underlayment or other moisture mitigation system as required by the manufacturer. Special attention is required to eliminate product failure due to slab moisture, adhesive incompatibility, and improper floor prep and installation.

Provide floor finish materials to meet the following requirements.

C302001 TILE FLOOR FINISHES

Provide through-body, minimum 12 inch by 12 inch or 6 inch by 12 inch porcelain floor tile, with coordinating base where indicated. Tile must be non-slip, with a light texture. Texture of tile to be analyzed regarding maintenance and selected based on a minimal maintenance program. Floor slopes to drains to be accommodated without unsightly tile cuts. Provide crack isolation membrane

and complete waterproofing system including the floor / wall transitions for upper floor locations. Provide crack isolation membrane for ground floor locations. Grout joints in a maximum width of 3/16 inch must be provided. Provide grouted-in stainless steel metal transition strips at expansion joints, corners (inside and outside), and transition between floor and wall tile. Provide coordinating epoxy grout conforming with ANSI 118.3 for all tiled floors.

C302002 TERRAZZO FLOOR FINISHES

Provide poured epoxy terrazzo floor system with coordinating base in areas as indicated. Provide epoxy terrazzo system in accordance with the NTMA “epoxy thin set terrazzo specification” and manufacturer specifications, whichever is more stringent. Terrazzo system shall include (but not limited to) moisture vapor primer system, isolation crack membrane, zinc divider strips, and epoxy terrazzo topping. Terrazzo must have an aggregate size of 3/16 inch to 3/8 inch and must include 20% recycled glass aggregate. Terrazzo must have a polished finish. Incorporate three (3) accent colors, and divider strips in a pattern to create interest. Refer to Part 4, C302002 1.2 Resinous Terrazzo for additional requirements.

C302004 RESILIENT FLOOR FINISHES

Provide resilient floor finishes as identified in the Project Program, Room Requirements or as directed below. Include manufacturer's full line of color, texture and pattern selections, including multi-colored materials.

1) Resilient Tile Flooring

Provide luxury vinyl plank with wood grain, , square edge, hospitality look, 4” x 36” size or 6” x 36” size. Minimum of 40 mil wear layer. Heavy-Duty, High-Impact product with protective urethane finish for ease of maintenance a manufacturer's 10-year warranty is required. LVT must have an attached sound acoustic pad/backing or acoustic underlayment in Living/Sleeping rooms.

Provide resilient rubber tile in elevators and high traffic areas for floors with high durability, low maintenance, and high slip-resistance requirements. Rubber tile must be 100% synthetic rubber with through color and slip resistant formulation and surface texture. Include all manufacturer’s standard surface textures and patterns. The product must require no-wax maintenance.

All resilient flooring must be installed per the manufacturer’s instructions. Prior to turning over to the Government, the Contractor must thoroughly clean the new resilient flooring per the manufacturer’s recommended post-installation cleaning instructions.

C302007 WALL BASE FINISHES

Installation method must be per manufacturer’s recommendation for each wall type.

Resilient Wall Base: Wall base must be 6 inch high thermoset rubber base with a millwork profile throughout areas with polished concrete and resilient flooring. Installation of all millwork profile base must be by a millwork or trim molding contractor. Wall base must be 4-inch-high coved rubber in areas with sealed concrete.

Tile Base: Areas with porcelain tiled floor to have a stainless-steel metal cove-shape profile transition strip between floor and wall transitions. Tile wall base units must be pre-formed; cut tiles will not be allowed. Provide stainless steel metal transition cap on top of tile base if integral cove capped tile is not available in selected pattern.

Terrazzo Floor Base: Terrazzo floor base must be 4 inch high, pre-cast with cove. Base must be

finished with a smooth vertical surface and smooth top edge to match adjacent floor finish.

Resinous epoxy floor system must receive 6” high integral cove base to match.

Provide interior floor finishes as indicated in Part 3 Chapter 5 Room Requirements portion of this RFP.

C302008 STAIR FINISHES

Provide resilient rubber tile at landings for floors with high durability, low maintenance, and high slip-resistance requirements. Rubber tile must be 100% synthetic rubber with through color and slip resistant formulation and surface texture. Provide integral treads/risers with contrasting abrasive strip at nosing for stairs. Include all manufacturer's standard surface textures and patterns. The product must require no-wax maintenance. Refer to C302004 Resilient Floor Finishes, Rubber Tile Flooring.

C302009 FLOOR TOPPINGS AND TRAFFIC MEMBRANES

Provide a high performance resinous flooring system, slip resistant, seamless 3/16 inch thick decorative flake, double broadcast with integral 6 inch high cove base appropriate for use as indicated.

C302010 HARDENERS AND SEALERS

Concrete Floor Requirements

Concrete must incorporate integral color admixture throughout the full depth of the slab. The integral stain must be a penetrating, reactive stain that chemically bonds with the concrete to provide permanent, UV-stable coloration that will not wear off, peel, or delaminate. The polished concrete floor system must incorporate a minimum of two (2) distinct integral stain colors to provide intuitive wayfinding and visual interest throughout the space.

All polished and stained concrete floor surfaces must be comprised of 85-95% fine aggregates with a 5-15% blend of cement fine and coarse aggregates and must contain colored pigment integral to the concrete mix. Concrete will be finished to a Class B fine aggregate (salt and pepper) appearance and polished to a Level 2 satin (honed) finish per the Concrete Polishing Council.

Installer must have a minimum of 5 years of experience in polished concrete and have completed at least 3 projects of similar scale and complexity. Prior to full application, an 8' x 8' mock-up of the aggregate exposure and sheen level must be produced for inspection and approval by NAVFAC.

C3030 CEILING FINISHES

Provide ceiling finishes as indicated in Part 3 Chapter 5 Room Requirements portion of this RFP.

C303001 ACOUSTICAL CEILING PANELS

Acoustical Ceiling Tile (ACT) to be 24 inch by 24 inch by 3/4 inch minimum thickness suspended acoustical panel ceiling system. Acoustical panels must have a tegular edge. Grid System must be aluminum or steel non-corroding intermediate-duty 9/16 inch for lay-in acoustical panels with a factory applied white baked enamel.

Finished surface of ceiling tiles must be selected to address acoustic, maintenance, moisture or

impact resistance requirements of the room.

C303002 GYPSUM WALLBOARD CEILINGS

Gypsum Wallboard Ceiling Finishes: Provide Regular Gypsum Board and Moisture Resistant Gypsum Board as indicated in the Part 3 Chapter 5 Room Requirements. Moisture resistant gypsum wall board finished with an epoxy paint must be used in all wet or humid areas include, but not limited to vestibules, toilet rooms, shower areas and laundry.

Soffit – Gypsum board: Provide gypsum board soffits as indicated in RFP Part 3, Chapter 5 Room Requirements. The soffit must be lower than the adjacent ceiling. Provide gypsum board soffits at suspended acoustical ceiling panel system or gypsum board ceiling with 6-inch minimum height offset between materials. Where GWB soffits are included in the Room Requirements Sheet for a space the soffits must comprise a minimum of 30% of the total ceiling area for that space.

C303005 SUSPENSION SYSTEMS

Provide 24” by 24” aluminum or steel non-corroding intermediate-duty standard grid system for lay-in acoustical panels (ASTM C635). Finish must be factory applied white baked enamel. Provide manufacturer’s hold down clips for fire rated assemblies and wall or edge molding. Hang grid system as recommended by manufacturer but with no less than 0.106 inch diameter wires (ASTM A641A, A641M, Class 1), or with one by 3/16 inch galvanized steel straps conforming to ASTM A653A, A653M (for light commercial zinc coating) or ASTM A366A, A366M (with an electrodeposited zinc coating, Type RS). Install suspended grid system with acoustical sealant (ASTM C843, non-staining and ASTM C636). Recycled content must be a minimum of 25%.

--End of Section--

6. ENGINEERING SYSTEMS REQUIREMENTS

D10 CONVEYING

SYSTEM DESCRIPTION

Conveying System(s) include elevators and other conveying systems.

D1010 ELEVATORS AND LIFTS

Design assembly and arrangement of elevator, accessories, and supporting systems in accordance with American Society of Mechanical Engineers/American National Standards Institute (ASME/ANSI) A17.1 and UFC 3-490-06 Elevators. Provide all materials and equipment, including but not limited to elevator cab and hoist equipment, operating and signal fixtures, doors, door and car frames, car enclosure, controllers, motors, guide rails, brackets, and testing.

D101001 GENERAL CONSTRUCTION ITEMS

Provide a traffic analysis.

D101002 PASSENGER ELEVATORS

Provide passenger elevator(s) designed to carry furniture/ equipment items. Provide quantity of elevators according to the total number of building stories per FC 4-721-10N, Chapter 3-15.4. Locate elevator(s) in Lobby area, within visual control of the duty desk.

Provide a minimum of one elevator sized to comply with the International Building Code (IBC) medical stretcher requirement and also designed to vertically transport the largest movable equipment or furniture used on the project.

Derive finishes and fixtures from Manufacturer's selections. Coordinate finishes with the interior architectural design and meet the User's needs and functions. Utilize stainless steel with no. 4 finish wall panels and ceiling panels. Coordinate the design of the elevator machine room with applicable codes and the elevator manufacturer's requirements. Provide resilient rubber tile floor finish; see Section C302004.

Provide hydraulic elevators for elevator travel distances of 44 feet (13.41 meters) or less and electric traction elevators for travel distances greater than 44 feet (13.41 meters). Provide minimum hydraulic elevator car speed of 125 feet per minute (38.1 meters/ minute) for elevator travel distances of 15 feet (4.5 meters) or less and 150 feet/minute (45.7 meters/ minute) for hydraulic elevator travel distances greater than 15 feet (4.5 meters). Provide minimum electric traction elevator car speed of 350 feet per minute (106.6 meters/ minute).

-- End of Section --

6. ENGINEERING SYSTEMS REQUIREMENTS

D20 PLUMBING

Refer to Part 4 Section D20 for performance requirements of the building elements included in the plumbing system.

Refer to Part 6 for site specific design guidelines outlining specific detailed requirements for plumbing systems.

SYSTEM DESCRIPTION

The plumbing system for the BEQ consists of all fixtures, potable cold and hot water piping and equipment, piping insulation, water heating equipment, sanitary waste and vent piping systems, and other specialty piping and equipment within 5 foot (1.5 meter) of the building. Refer to Building Requirements, Space Tabulations Section of the Project Program for building occupancy levels.

GENERAL SYSTEM REQUIREMENTS

Provide working space around all equipment. Provide concrete pads under all equipment. Provide all required fittings, connections and accessories required for a complete and usable system. Install all equipment in accordance with the criteria of PTS section D20 and the manufacturer's recommendations. Design and install in accordance with International Plumbing Code (IPC), UFC 3-420-01, *Plumbing Systems,* UFC 4-720-01, *Permanent Party Unaccompanied Housing*, and FC 4-721-10N 4-721-10*, Navy and Marine Cops Bachelor Housing*. Where the word "should" is used in the manufacturer's recommendations, substitute the word "must".

Include the Domestic Hot Water (DHW) system to list of systems to be commissioned in accordance with Part 2 UFGS Section 01 33 29, *Sustainability Requirements and Reporting*

D2010 PLUMBING FIXTURES

Provide quantity and type of plumbing fixtures required for the occupancy, use, and functions described for this facility. Refer to Room Requirements Section for additional specific requirements for spaces with plumbing fixtures. Provide handicapped fixtures in accordance with the referenced criteria in the Project Program.

D201001 WATER CLOSETS

Refer to Room Requirement Section for the number and type of water closets required.

Provide floor mounted dual-flush valve, manual type water closets in all 2+0 Room bathroom spaces. Accessible Room water closet must be handicapped accessible.

Provide floor mounted, sensor operated, hardwired-flush valve, type water closets in the Unisex Restroom. The Unisex Restroom must be handicapped accessible.

D201002 FLUSH VALVE TYPE HANDICAPPED URINALS

Refer to Room Requirement Section for the number and type of urinals required.

Provide flush valve type handicapped urinals in the Unisex Restroom. Provide WaterSense labeled, 0.5 GPF, urinal flush valves.

D201003 LAVATORIES

Refer to Room Requirement Section for the number and type of lavatories required.

Provide a countertop lavatory made of solid surfacing material in each 2+0 Room, and Accessible Room bathroom space. The countertop lavatory in the 2+0 Room bathrooms must be the integral type.

Provide a wall mounted lavatory made of vitreous china with a straight back in the Unisex Restroom. The wall mounted lavatory in the Unisex Restroom must be handicapped accessible.

Provide washerless, manual, faucets at lavatories in each 2+0 Room bathroom space.

Provide washerless, sensor operated, hardwired, faucets at lavatories in the Unisex Restroom.

Provide WaterSense labeled lavatory faucets with a flow rate of 1.5 GPM in each 2+0 Room bathroom space. Provide lavatory faucets with a flow rate of 0.5 GPM in the Unisex Restroom.

D201004 SINKS

Refer to Room Requirement Section for the number and type of sinks required.

Provide an undermount stainless steel kitchen sink with one compartment in the 2+0 Room service area. Kitchenette sink must be provided with hot and cold-water connections.

Provide an undermount stainless steel kitchen sink with two-compartment in the Centralized Kitchen. Kitchen sink must be provided with hot and cold-water connections and garbage disposal.

Provide kitchen sink faucets with a flow rate of 1.5 GPM.

Provide two compartment laundry sinks in the Laundry room. Laundry sinks must be provided with hot and cold-water connections.

Provide a floor mounted mop sink with hot and cold-water connections in the Janitor's room.

D201005 SHOWERS

Refer to Room Requirement Section for the number of showers required.

Provide solid surface shower pans in each 2+0 Room bathroom and provide solid surface surround shower enclosures with hot and cold-water connections and fittings. The shower heads must be stationary to keep from spraying toward the shower entrance opening and causing water damage. Locate shower heads at a height of 84”. Showerheads must be of the ligature resistant type. Provide shower valve and shower head of commercial quality with a flow rate of 1.75 GPM.

Provide single lever faucets at shower stalls and flow restrictive type showerheads at showers.

D201006 DRINKING FOUNTAINS AND COOLERS

Refer to Room Requirement Section for the number and type of water coolers required.

Provide water coolers with bottle fillers in the common areas near the Unisex Restroom. Provide NSF/ANSI 42 and 53 water filters.

D2020 DOMESTIC WATER DISTRIBUTION

Perform a flow test to determine system requirements.

A preliminary flow test was performed at each site. Refer to Part 6 of the RFP for the flow test results.

D202001 PIPES AND FITTINGS

Provide copper tubing and fittings for above ground and buried piping. No pressure tubing except water service entrance and trap primers is permitted under the floor slab. Press and grooved fittings are prohibited.

D202002 VALVES & HYDRANTS

Provide shutoff valves at domestic water supply to each floor. Provide shutoff valves at water supplies to fixtures and to provide ease of maintenance as required in the IPC. Provide hose bibbs in mechanical room(s) and along the building exterior such that all points along the perimeter can be reached with a 30 meter (100 foot) long hose.

Provide six hose bibbs at the exterior equipment wash, mounted at tabletop level per FC-4-721-10N requirements. Hose bibbs and standpipes must be suitable for outside service. Refer to Part G20 for additional information regarding the exterior equipment wash.

D202003 DOMESTIC WATER EQUIPMENT

Provide a reduced pressure principle type backflow preventer for the building at the domestic water service entrance, including ‘Y’ strainer and isolating valves, inside the Main Mechanical Room unless specified otherwise in base design standards.

Provide a reduced pressure principle type backflow preventer at all domestic make-up water lines inside the Main Mechanical Room and at all make-up water lines to systems containing chemical treatment.

Provide a reduced pressure principle type backflow preventer at all domestic make-up water lines inside the Main Mechanical Room to the temporary irrigation system unless specified otherwise in base design standards.

Refer to ESR G30 for water meter requirements.

Provide a minimum of two (2) high efficiency water heaters, each at 70% of the total load for heating of domestic water. If more than two (2) water heaters are required, each sized for 50% of the total load for heating of domestic water.

Water heaters must be of the direct vent type, atmospheric vented water heaters are not allowed.

Provide a domestic hot water storage tank.

Domestic hot water system must be sized per UFC 3-420-01 Appendix D. Provide domestic hot water temperature actuated thermostatic mixing valve(s). Domestic hot water must be stored in the domestic hot water storage tank at 140 degrees Fahrenheit and mixed with domestic cold water to deliver 131 degrees Fahrenheit throughout the BEQ.

Provide domestic hot water recirculation system with high efficiency recirculation pump and recirculation loop with all associated fixtures, equipment, and appurtenance. Provide an in-line circulator pump for the domestic hot water distribution system. Recirculation system must maintain a minimum of 122 degrees Fahrenheit throughout the recirculation piping and designed to minimize the time to tap to a maximum of 10 seconds.

Provide a domestic water booster system for domestic water distribution within the BEQ if the exterior water flow test determines the need. Booster pumps must be provided with full size bypass.

D202004 INSULATION & IDENTIFICATION

Provide mineral fiber insulation with vapor barrier on domestic hot water supply and recirculation piping. Provide cellular glass insulation with vapor barrier on domestic cold-water supply piping. Provide identification for piping and equipment.

D202005 SPECIALTIES

Provide washing machine connector box, with water hammer arrestors, for clothes washers in the Laundry room. Provide ice maker connector boxes in the Centralized Kitchen and coffee maker connector boxes in the Vending (MCX24) Area.

D202090 OTHER DOMESTIC WATER SUPPLY

Provide piping supports, inspections, disinfection, and testing in accordance with the IPC as modifed and supplemented by UFGS 22 00 00, Plumbing General Purpose.

D2030 SANITARY WASTE

D203001 WASTE PIPE & FITTINGS

Provide cast iron hubless pipe and fittings with rubber compression gasket joints for above ground installations. Provide PVC piping, fittings, and solvent cement for below ground installations. Unless specified otherwise in base design standards, PVC piping allowed for above ground installations when provided with effective noise reduction insulation. PVC piping prohibited in shafts with environmental air ducts.

Provide cleanouts located at each fixture and floor drain.

D203002 VENT PIPE & FITTINGS

Provide cast iron hubless pipe and fittings, with rubber compression gasket joints, or provide PVC piping, fittings, and solvent cement. PVC piping prohibited in shafts with enviromental air ducts.

D203003 FLOOR DRAINS

Provide floor drains in Mechanical room(s), Fire Pump room, Laundry room, plumbing chase areas, vending (MXC24), janitor’s closets, Unisex Restrooms and any other areas required to receive condensate from air handling equipment that is not located in the mechanical room. Provide trap primers on all floor drains and "P" traps that do not regularly receive water. Provide cleanouts for all floor drains.

D203004 SANITARY & VENT EQUIPMENT

Provide a sump pump in the elevator shaft pit as required by UFC 3-490-06.

D2040 RAIN WATER DRAINAGE

See section B30 "Roofing" for rain water drainage systems.

D2070 SYSTEM TESTING AND BALANCING

Provide complete testing and balancing (TAB) of Domestic Water Booster (DWB) system, if provided, and Domestic Hot Water (DHW) supply and distribution systems, and plumbing equipment and performance verification testing (PVT) of all DWB and DWH systems controls systems.

D2090 OTHER PLUMBING SYSTEMS

D209001 SPECIAL PIPING SYSTEMS

Obtain natural gas pressures from the local gas utility provider. Provide any applications and permits and provide the complete natural gas system from the load side of the utility meter to the heating equipment. Contract with the local gas utility provider and coordinate with the Base for installation of piping and appurtenances up to the load side of the meter, refer to Part G30 for additional information. Tie the gas meter into the Building Automation System (BAS) or the existing Advanced Metering Infrastructure (AMI) metering system, if applicable to the base.

D209002 Lint Interceptor

Provide lint interceptors in the Laundry area, external of the washing machine equipment, prior to draining to the sanitary sewer. Lint interceptors must include primary and secondary filter screens and be easily accessible for maintenance.

D209003 Grease Interceptor

Provide a grease interceptor for the Centralized Kitchen area. All drainage from the kitchen sink must be routed through the grease interceptor prior to draining to the sanitary sewer. Provide under-the-sink, Type D, hydromechanical grease interceptor with sufficient access for cleaning and maintaining.

--End of Section--

6. ENGINEERING SYSTEMS REQUIREMENTS

D30 HVAC

Refer to Part 4 Section D30 for performance requirements of the building elements included in the HVAC system.

Refer to Part 6 for site specific design guidelines outlining specific detailed requirements for mechanical systems.

SYSTEM DESCRIPTION

Provide heating, ventilating and air conditioning (HVAC) systems for the BEQ that attains the following objectives: Occupant comfort, Indoor air quality, Acceptable noise levels, Energy efficiency, Reliable operation, and Ease of maintenance. Design and install in accordance with the International Mechanical Code (IMC), including the IMC supplemental requirements within UFC 3-410-01 Hea*ting Ventilation, and Air Conditioning Systems*, UFS 3-410-01 *Heating Ventilation, and Air Conditioning Systems*, UFC 3-401-01, *Mechanical Engineering* and FC 4-721-10N, *Navy and Marine Corps Bachelor Housing*. Refer to Building Requirements, Space Tabulations Section of the Project Program for building occupancy levels.

Any combination of equipment that attains these goals, and meets the requirements outlined below, will be acceptable.

Provide package terminal heat pumps (PTHP) to heat and cool each Plan Unit (i.e., living space). Selection of PTHP must be determined based on efforts to meet project energy savings goals beyond ASHRAE 90.1 minimum efficiency requirements. Refer to Part 5 for prescriptive specification for PTHP units.

Camp Pendleton: All common spaces within the BEQ except for the mechanical room, fire pump room, telecommunication/data/NMCI room, and electrical room, elevator machine room, and other utility rooms must be heated, cooled, and ventilated with positive pressure using DOAS and by one or combination of the following HVAC systems:

DX Package system (Refer to UFCs and local design guidance for design requirements)
DX Split package system (Refer to UFCs and local design guidance for design requirements)
DX VRF system (Refer to UFCs and local design guidance for design requirements)

Camp Lejeune, New River and Cherry Point: All common spaces within the BEQ except for the mechanical room, fire pump room, telecommunication/data/NMCI room, and electrical room, must be heated and cooled by variable air volume (VAV) units utilizing chilled water and heating hot water.

Camp Lejeune, New River and Cherry Point Only: Direct expansion packaged or split systems, VRF, and direct expansion variable air volume systems are not acceptable.

<u>VAV System Description</u>: All VAV terminal units must include hot water reheat coils and be controlled by wall mounted adjustable temperature sensors. Design the hot water piping system for the reheat coils as a reverse return system. All VAV terminal units must be accessible for maintenance in accordance with VAV Terminal Maintenance Accommodations section of UFC 3-410-01. Access to VAV terminal units located above hard ceilings must be through

lockable and hinged ceiling access panel(s) of sufficient size to allow removal of mechanical equipment without damage or demolition of ceiling. Cooling for the VAV terminal units must be provided by a chilled water central station VAV air handling unit (AHU)(s) located in the mechanical room(s). Route all cooling coil condensate from the VAV AHU(s) to a floor drain in the mechanical room. Deliver outside ventilation air for the facility common spaces through the VAV AHU(s) in compliance with the latest edition of ASHRAE 62.1, *Ventilation for Acceptable Indoor Air Quality* -2016 edition.

Maintain the required volume of outside air ventilation through central station VAV AHU units utilizing an air flow measurement station to ensure ventilation requirements are met.

Provide mechanical equipment rooms on each floor and, if necessary, in each wing. For mechanical rooms on each floor, provide a clear path to a freight elevator or other means to remove and replace the equipment with ease. Additionally, provide exterior access in accordance with UFC 3 401-01 or as directed by local design guidance.

Provide series fan powered type VAV terminal units for offices, multi-purpose room, public space lobbies, and corridors. Return air back to the VAV AHUs must be through a ducted return.

Provide series fan powered type VAV terminal units for the laundry room. No conditioned-air from the laundry room may be returned or transferred to other spaces. Return air back to the VAV terminal units must be through return filter grilles.

Ventilation Systems: Provide outside air ventilation rates and systems in accordance with ASHRAE Standard 62.1-2016. Ventilation air to each space must exceed room exhaust air by a minimum of 15% to ensure positive building pressurization.

Deliver conditioned outside air directly to Plan Units through dedicated outdoor air system (DOAS) units. Maintain the required volume of outside air ventilation through DOAS units utilizing an air flow measurement station to ensure ventilation requirements are met.

The ventilation systems must preheat, cool, and reheat all outside ventilation air to neutral conditions prior to entering the space. Route all cooling coil condensate from the DOAS to a floor drain

Provide an independent DOAS system for the multi-purpose room. The ventilation system for the multi-purpose room must be controlled via CO2 sensor(s).

Exhaust Systems: Provide continuous central exhaust air for the Plan Units, bathrooms, janitor's room, public head, and duty office head. The exhaust air for these spaces must be part of a central exhaust system that routes all exhaust air through an energy recovery heat exchanger to exchange heat between the outgoing exhaust air and the incoming ventilation air. Provide continuous exhaust air for the laundry room.

Continuous exhaust air for the public head, duty officer head, and janitor's room must be per ASHRAE standard 62.1. Static pressures for these spaces must be negative as compared to adjacent spaces via transfer air.

Provide Plan Unit exhaust in accordance with Part 6, Plan Unit Exhaust Requirements.

Energy Recovery System: Provide total energy (enthalpy) type energy recovery heat exchangers in the air handling system or DOAS units for recovering energy between the outgoing exhaust air and the incoming ventilation air.

The Telecommunication/Data/NMCI room must be cooled only via a ductless split air conditioner.

Mold and Mildew: The BEQ must have no evidence of mold or mildew due to condensate moisture on indoor surfaces after one year of service.

GENERAL SYSTEM REQUIREMENTS

Provide working space around all equipment in accordance with UFC and local design guideline requirements in Part 6. Provide all required fittings, connections and accessories required for a complete and usable system. Install all equipment in accordance with the most stringent criteria in RFP Section D30 and the manufacturer's recommendations. Where the word "should" is used in manufacturer's instructions, substitute the word "must".

Provide Corrosion Resistance for equipment as indicated in UFC 3-410-01 or in accordance with local design guidelines in Part 6, whichever is more stringent.

Provide air conditioning and heating for spaces as indicated and for the following Design conditions as provided from the 14th Weather Battalion:

Outside Conditions – Camp Lejeune and New River, NC (1%, 99% Occurrence)					
Summer	92	Degrees F dry bulb high ambient	Winter	25	Degrees F
	77	Degrees F wet bulb high ambient			
	88	Degrees F dry bulb high humid			
	79	Degrees F wet bulb high humid			

Outside Conditions – Cherry Point, NC (1%, 99% Occurrence)					
Summer	90	Degrees F dry bulb high ambient	Winter	27	Degrees F
	77	Degrees F wet bulb high ambient			
	87	Degrees F dry bulb high humid			
	79	Degrees F wet bulb high humid			

Outside Conditions – Camp Pendleton, CA (1%, 99% Occurrence)					
Summer	88	Degrees F dry bulb high ambient	Winter	35	Degrees F
	65	Degrees F wet bulb high ambient			
	80	Degrees F dry bulb high humid			
	70	Degrees F wet bulb high humid			

Plan Units, Offices, Laundry Room, Multi-Purpose Room, Janitor's Room,

Corridors, and Storage Rooms Inside Conditions					
Summer			Winter		
	76.0	Degrees F dry bulb		68.0	Degrees F
	50	Percent RH			

NMCI/Data/Telephone Room Inside Conditions					
Summer			Winter		
	75.0	Degrees F dry bulb		45.0	Degrees F
	50	Percent RH			

Mechanical, Electrical, and Fire Pump Room Heating & Ventilating Inside Conditions					
Summer			Winter		
	10.0	Degrees F dry bulb above ambient		45.0	Degrees F
	10	Air changer per hour			

For unoccupied mode, provide the following setback temperatures:

For winter, 10 degrees F lower than indoor heating design conditions, but no lower than 55 degrees F.

For summer, 5 degrees F higher than indoor cooling design conditions, but no higher than 85 degrees F.

Provide supply ventilation for the mechanical room if it contains fuel-fired equipment that is equipped with atmospheric burners, and exhaust ventilation for the electrical room to limit the temperature to no more than 10 degrees F above ambient. Provide exhaust ventilation for the mechanical room if there is no fuel-fired combustion equipment with atmospheric burners present.

Provide summer ventilation rates for the mechanical and electrical room as outlined in UFC 3-410-01 or as indicated in local design guidelines in Part 6.

The mechanical room and fire pump room must be heated with hot water unit heater(s)and controlled by a wall mounted thermostat. Heating is not required at Camp Pendleton for mechanical and fire pump rooms.

The electrical room must be heated by electric unit heater(s) and controlled by a wall mounted thermostat. Heating is not required at Camp Pendleton for electrical rooms.

Coordinate the location of Fire Alarm/Control Panel(s) and provide any cooling needed.

Configure the HVAC system for the BEQ to provide each occupied zone with the choice of heating or cooling year-round unless otherwise indicated. Provide each zone with its own limited range of control, as allowed by the control system central workstation.

Zone the HVAC system as follows:

Each Plan Unit must be a separate zone.

Each office must be a separate zone.

The laundry room must be a separate zone.

The multi-purpose room must be a separate zone.

Corridors must be separate zones.

The telecommunication/data/NMCI room must be a separate zone.

The mechanical room, fire pump room, and the electrical room must each be a separate zone.

Noise levels must comply with the most stringent requirements for Hotels/Motels in the ASHRAE Applications Handbook, UFC 3-450-01, UFC 3-101-01 and SMACNA.

Material and Equipment Qualifications: All materials and equipment must have been in satisfactory commercial or industrial use for 2 years prior to the bid opening. The 2-year use must include applications of equipment and materials under similar circumstances and of similar sizes. The product must have been for sale on the commercial market through advertisements, manufacturer's catalogs, or brochures during the 2-year period.

Provide housekeeping pads and vibration isolators under all floor-mounted equipment.

For sea coast applications provide factory painted finishes in accordance with UFGS specification 23 30 00 HVAC Air Distribution or as indicated in local design guidance in Part 6 whichever is more stringent.

D3020 HEAT GENERATING SYSTEMS

If required to support hydronic heating equipment, provide a heating system consisting of multiple natural gas fired boilers, providing 65 percent of the load with one boiler out of service.

Provide shot type feeder for manual chemical feed for closed loop system.

D302001 BOILERS

Provide packaged gas fired condensing hot water boilers. Each boiler must be rated at or less than 399MBH. Provide primary/secondary pumping system with variable speed primary and secondary pumps. Provide direct venting only.

D302005 EQUIPMENT THERMAL INSULATION

Provide insulation for hot water pumps and other associated heating equipment.

D3030 COOLING GENERATING SYSTEMS

If required to support hydronic cooling equipment, provide an air-cooled chiller using a primary/secondary pumping system with variable speed secondary pumping. Provide a cooling system consisting of 1 chiller providing 100 percent of the load. Locate the air-cooled chiller(s) outside

on a 6 inch thick reinforced concrete housekeeping pad. Provide heat tape for freeze protection of chilled water piping and any other associated appurtenances exposed to weather below 34 degrees F. Provide emergency chiller supply and return connections with isolation valves. Chiller(s) must operate in temperatures down to 20 degrees F.

Provide factory corrosion protection coating on coils.

Provide insulation and vapor barrier on all chilled water equipment.

Provide chiller controls with BACnet communication over IP.

Provide complete start-up and operational testing of chiller equipment.

D303002 DIRECT EXPANSION SYSTEMS

Provide a direct expansion ductless split cooling only type unit for cooling the telecommunications/data/NMCI room(s). The ductless split cooling only unit must cool all telecommunication/data/NMCI equipment loads within the room. Provide with a wall mounted adjustable thermostat and, when BACnet communication protocol unit controls are unavailable, an adjacent wall mounted room air temperature sensor monitored by the DDC system.

D3040 DISTRIBUTION SYSTEMS

D304001 AIR DISTRIBUTION, HEATING & COOLING

Provide insulated, galvanized steel or double wall pre-insulated ductwork constructed, braced, reinforced, installed, supported, and sealed in accordance with the IMC and Sheet Metal and Air Conditioning Contractors' National Association (SMACNA) seal class A standards. Pre-fabricated double wall pre-insulated ductwork must be provided in finished occupied spaces where exposed ceilings exist.

Provide Air Distribution systems using ducted returns (and sound attenuators, if required for noise reduction). Locate terminal units above ceilings and allow for maintenance and removal of units through lockable access panels when installed above hard ceilings.

Provide DOAS units with enthalpy energy recovery heat exchangers on each building level to provide ventilation and exhaust air. Refer to UFC 3-410-01 or local design guidelines in Part 6 for heat exchanger types.

Direct expansion variable air volume systems are not acceptable.

Provide VAV Terminal Units for use with VAV systems.

Provide VAV Fan-Powered Units for use with VAV systems.

Provide grilles, registers, and diffusers. Provide filter grilles for return air at VAV fan powered units.

Sound attenuation in ductwork, including transfer air ducts, must be evaluated and meet UFC 3-410-01 requirements.

Provide HVAC Emergency Shutdown Switches (ESS), as required by UFC 4-010-01 Standard 18, with reset method coordinated with tenant, as a Part 2 User Input Device in UFGS 23 09 13, as follows: Provide emergency shutdown switch assemblies with NEMA 4X rated metal or plastic enclosure suitable for attachment to a standard single gang electrical box and are ADA Compliant and

UL Listed. Provide switches with a mushroom style operator, no less than 40mm diameter, that is push to activate, [turn][key] to reset, and includes two (2) contact blocks rated 10 amperes continuous up to 250 V AC. Provide enclosure cover with hinged transparent lid to eliminate accidental activation of the operator. Emergency shutdown switch shall not require replacement of any portion of the device after activation or reset. Switch enclosure shall be finished in cobalt blue, or equivalent color, with molded raised lettering, no less than 3/8 inch high, of contrasting color stating "HVAC EMERGENCY SHUT-DOWN". Within UFGS 23 09 13 Part 3 User Input Devices include "Shutdown switches shall be mounted at [1067 mm][42 inches] above finished floor, adjacent to fire alarm manual stations or as indicated on the drawings. Provide all wiring in electrical metallic conduit. Conceal conduit in finished areas of new construction and wherever practicable in existing construction. The use of flexible conduit not exceeding [2 m][6 foot] length shall be permitted in device circuits. Run conduit concealed unless specifically indicated otherwise. Provide system wiring, raceways, pull boxes, installation and workmanship as required by NFPA 70 and Section 26 20 00 INTERIOR DISTRIBUTION SYSTEM.

D304003 HOT WATER DISTRIBUTION SYSTEMS

Provide a variable speed primary and variable speed secondary pumping system to serve the HVAC hot water equipment throughout the facility. Each boiler must be provided with one primary pump. Two hot water pumps, located in a mechanical space, must be provided in a parallel duty/standby arrangement. Secondary pumps must be sized for 100% of the building connected hot water flow. Control secondary pumps by variable-speed drive.

Provide insulated type 'K' copper hot water supply and return piping to serve the HVAC equipment throughout the facility. Refer to site specific guidelines in Part 6 for additional specific material requirements.

Provide air control and shot type feeder for manual chemical feed for hot water piping system.

Provide an expansion tank for the hot water piping system.

Provide system flushing and start-up for the hot water piping system.

Provide base mounted or inline circulating pumps with variable frequency drives in accordance with local design guidelines in Part 6.

Provide a temporary bypass for water coils to prevent flushing water from passing through coils during system flushing.

D304006 CHILLED WATER DISTRIBUTION SYSTEMS

For exterior buried chilled water distribution systems, coordinate with Section G30, *Site Civil/Mechanical Utilities*.

Provide a constant speed primary / variable speed secondary pumping system to serve the HVAC chilled water equipment throughout the facility. Two secondary chilled water pumps, located in a mechanical space, must be provided in a parallel duty/standby arrangement. Secondary pumps must be sized for 100% of the building connected chilled water flow. Control secondary pumps by variable-speed drives.

Provide insulated type 'K' copper chilled water supply and return piping to serve the HVAC equipment throughout the facility. Insulate piping with cellular glass insulation. Refer to site specific guidelines in Part 6 for any site specific material requirements. If no guidance is given, either steel or copper piping may be provided.

Provide air control and shot type feeder for manual chemical feed for the chilled water piping system.

Provide an expansion tank for the chilled water piping system.

Provide system flushing and start-up for the chilled water piping system.

Provide base mounted or inline circulating pumps with variable frequency drives in accordance with local design guidelines in Part 6.

Provide a chilled water buffer tank if required to increase system volume to limit the cycling of chiller compressors. Total chilled water system volume must be a minimum of 7 gallons per ton of installed chiller tonnage.

Provide a temporary bypass for water coils to prevent flushing water from passing through coils during system flushing.

D304007 EXHAUST SYSTEMS

Central Exhaust System: Provide a ducted central exhaust ventilation system(s) and exhaust fan(s) to serve all ventilated zones of the facility. Provide exhaust fan(s) as part of the energy recovery section of AHU or DOAS units. The BEQ central exhaust system must capture all Plan Unit, bathroom, and other space exhaust air, and route it through a total energy (enthalpy) type energy recovery heat exchanger before exiting the BEQ in order to gain energy transfer between the incoming ventilation air and outgoing exhaust air.

Multi-Purpose Room Exhaust System**:** Provide an additional centrifugal exhaust fan in the multi-purpose room that is interlocked with the multi-purpose room DOAS. The multi-purpose room exhaust fan must discharge to the outside. Provide positive pressure in the multi-purpose room in accordance with UFC recommendations.

Provide cooktop multi-speed exhaust hood and fan assembly with light. Exhaust fan to be interlocked with cooktop electrical feed to energize fan when cooktop is operating.

Stacked Dryer Exhaust System**:** Exhaust air from the stacked dryers in laundry room must be discharged directly to the outside. Provide a dryer plenum/chase area with a clear walkable path (6 ft - 8 in high x 3 ft -0 in wide) behind the dryers for service and maintenance purposes. Dryers exhaust system must comply with the International Mechanical Codes (IMC) and International Fire Codes (IFC) requirements. Provide a lint trap in the plenum/chase that meets IMC code requirements. Each dryer should have its own dedicated exhaust. Dryer exhaust ducts must route through dryer plenum/chase area to an exterior exhaust louver. Dryer intake air must be drawn into the dryer plenum/chase area through the exterior intake louver and enter the rear of the dryers. This method prevents the need for conditioning dryer makeup air.

D304008 AIR HANDLING UNITS

Provide central station variable-air-volume (VAV) AHU(s) to serve the BEQ common areas. The central station VAV AHU(s) must deliver conditioned air to the VAV terminal units at a constant temperature of 55 degrees Fahrenheit, consider supply air temperature reset for additional energy savings and compliance with ASHRAE 90.1. Provide the central station VAV AHU(s) with a heating coil for pre-heating the outside ventilation air and provide with pre and final filters in accordance with UFC requirements.

DOAS Units: Provide separate and independent DOAS units to serve the ventilation requirements of the BEQ Plan Unit and multipurpose room.

Camp Lejeune, New River and Cherry Point: The DOAS units must be provided with hot and chilled water coils, and must preheat, dehumidify, and reheat ventilation air to neutral conditions prior to delivery within the BEQ. Consider the use of wrap-around heat pipes at the chilled water coil for free reheat as method to improve energy savings, meet ASHRAE 90.1, and reach energy savings goals.

Camp Pendleton: If hydronic heating and cooling systems are not utilized, the DOAS units must be provided with DX heating and cooling and must dehumidify and reheat ventilation air to neutral conditions prior to delivery within the BEQ. If hydronic heating and cooling systems are utilized provide DOAS as indicated above for other sites.

Neutral conditioned air is defined as air that is 70 degrees Fahrenheit. All incoming outside ventilation air must be routed through a total enthalpy heat exchanger that is located upstream of heating and cooling coils to exchange heat between the exhaust air and ventilation air. Provide DOAS units with pre and final filters in accordance with UFC requirements. Provide MERV 8 Filters upstream of each side of the energy recovery heat exchanger. Limit the size of DOAS units that serve Plan Units to less than 5500cfm or 35 sleeping quarters to provide improved resiliency. DOAS units must be in a mechanical room on the floor that they serve.

D3050 TERMINAL & PACKAGE UNITS

D305002 UNIT HEATERS

Provide hot water unit heaters to serve the heating requirements of the mechanical and fire pump rooms. If hydronic heating is not being utilized provide electric unit heaters.

D305005 ELECTRIC HEATING

Provide an electric unit heater(s) for heating electrical room spaces.

D305006 PACKAGE UNITS

Provide high efficiency package terminal heat pumps (PTHP) to heat and cool each Plan Unit as specified in Part 5. No outdoor air is to be provided through the PTHP. Block off or permanently close any outdoor air sections or dampers in the PTHP that provides outdoor air. Outdoor air to the Plan Unit is to be provided directly to the space via DOAS units.

D3060 CONTROLS AND INSTRUMENTATION

D306001 HVAC CONTROLS

D306001 1.1 DIRECT DIGITAL CONTROLS (DDC)

Site Specific Requirements:

Camp Pendleton – BACnet over IP must be utilized. Provide DDC system(s) as indicated below. The building DDC database must be integrated into the site front end, including all required graphics, in accordance with MCBCPEN FRCS standards. Additionally, refer to the CPen FRCS EMCS Point Name Standard in Part 6.

Provide a complete Direct Digital Control (DDC) system to comply with UFGS 23 09 00,

Instrumentation and Control for HVAC, UFGS 23 09 23.02, *BACnet Direct Digital Control for HVAC and Other Building Control Systems,* UFGS 23 09 13, *Instrumentation and Control Devices for HVAC*, and utilize BACnet communication over IP

At Camp Pendleton gas, water, and electric meters are monitored by the AMI system through a compatible ERT for each meter. After installation but prior to government acceptance, FRCS must verify ERT programing and communication on site with the handheld device (CN80 or FC-300). Connection to the Camp Pendleton base AMI system must also be confirmed for all related utility meters.

Camp Lejeune, New River and Cherry Point – Provide DDC system(s) as indicated below and site-specific specifications. At Camp Lejeune and New River utilize the site specific UFGS 23 09 00, 23 09 13 and 23 09 23.13 specification included in Part 6 in lieu of specifications above.

General Requirements

Perform all work in section “23 09 00 Instrumentation and Control for HVAC” directly by a first-tier subcontractor or the prime's mechanical subcontractor. Control system testing personnel must be regularly employed in the testing and calibration of control systems with a minimum of 2 years of experience with on-site system testing and troubleshooting.

Provide integration of the new Direct Digital Control (DDC) system to the existing Utility Monitoring and Control System (UMCS) in compliance with the UMCS's Risk Management Framework (RMF) Authorization to Operate (ATO) and UFGS 25 10 10, *Utility Monitoring and Control System (UMCS) Front End and Integration*.

Provide a DDC system which will communicate with the existing base-wide Energy Monitoring and Control System.

A conduit with Ethernet cabling must be provided from the DDC panel in the Main Mechanical Room to the Main Telecommunication Room.

Provide notebook computer and complete application software with all licenses per UFC requirements.

Provide ASHRAE Standard 135 building controller as the main interface for the building control system.

Provide patch panel in the mechanical equipment room for ease of connection and disconnection of equipment in accordance with local guidelines in Part 6.

Provide panels with locks and alarms. The alarms must be a networked alarm (e.g. switch connected to controller DI) with alarm events recorded remotely for a period not less than one year.

Provide flow rate meters, monitored by the DDC system, for heating hot water and chilled water flow.

Provide air handlers and all terminal units, including VAV boxes, with discharge/supply temperature sensors.

For PTHP unit controls refer to prescriptive specification in part 5. Outside air damper operation must be disabled.

Provide central air handler units and DOAS units with outside air CFM air flow monitoring stations.

When required by local design guidelines in Part 6, provide a DDC option for automatic operation of

building circulating pumps whenever outdoor air temperature is below 35 degrees F or when there is a high potential for freeze damage.

Provide control to automatically start back-up pumps (or other HVAC equipment) if the primary device fails. Rotate primary and back-up HVAC equipment monthly (adjustable) with a lead/lag control routine or as required by local design guidelines.

All submittals for equipment, controllers, sensors, network architecture plans, O&M manuals, BACnet over IP devices, etc., must be reviewed and approved by the FRCS Manager prior to procurement and installation

Meter General Requirements:

Provide meters, monitored by DDC, on the following incoming utilities of the building: gas. If applicable, tie the gas meter into the existing Advanced Metering Infrastructure (AMI) metering system.

For electrical energy monitoring refer to Section D50, *Electrical*, paragraph entitled, *Service Entrance Equipment*.

For potable water meter refer to Section G30, *Site Civil/Mechanical Utilities*, paragraph entitled, *Potable Water Distribution*. Set up trend reports to record data daily and store values in the operator workstation DDC computer.

Provide meters, monitored by DDC, on the following subsystems for water:

Provide meter, monitored by DDC, on reclaimed water subsystem used for total irrigated landscape area with controller in accordance with local design guidelines in Part 6.

For meter of potable water subsystem used for total irrigated landscape area with controller[s], refer to Section G20, *Site Improvements*, paragraph entitled, *Irrigation Systems*.

D3070 SYSTEMS TESTING AND BALANCING

Provide complete Testing and Balancing (TAB) of all air and water distribution systems, and HVAC equipment and performance verification testing (PVT) of all HVAC controls systems.

D307003 HVAC COMMISSIONING

Refer to RFP Part 3 - Project Program, Chapter 2 for Building Commissioning requirements. Mechanical systems to be commissioned, if provided, include HVAC systems and controls, refrigeration systems and controls and renewable energy systems.

D3090 OTHER HVAC SYSTEMS AND EQUIPMENT

D309001 GENERAL CONSTRUCTION ITEMS

Provide seismic restraints (Camp Pendleton only) and Comply with the Anti-Terrorism Criteria for all sites.

Provide access to all mechanical equipment rooms through the building's exterior walls in accordance with UFC 3-401-01 and local design guidelines in Part 6. Coordinate requirements with local public works department.

D309090 OTHER SPECIAL MECHANICAL SYSTEMS

Provide ceiling fans in plan units controlled by wall mounted switch.

For locations located in hurricane prone areas provide AMCA 540 (Impacted by wind borne debris) and AMCA 550 (High velocity wind driven rain resistance) louvers. These requirements apply to all AHU, DOAS and laundry intake and exhaust locations, and all PTHP units.

-- End of Section --

6. ENGINEERING SYSTEMS REQUIREMENTS

D40 FIRE PROTECTION

Refer to Part 4 Section D40 for performance requirements of the building elements included in the fire protection systems.

SYSTEM DESCRIPTION

Provide an integrated fire alarm and mass notification system and suppression system capable of notifying building occupants and controlling any fire that may start inside the facility.

GENERAL SYSTEM REQUIREMENTS

Provide working space around all equipment. Provide concrete pads under all equipment. Provide all required fittings, connections and accessories required for a complete and usable system. Install all equipment in accordance with the criteria of PTS section D40 and the manufacturer's recommendations. Where the word "should" is used in the manufacturer's recommendations, substitute the word "must".

All Design Documents, (i.e., Basis of Design, Building Code/Life Safety Analysis, plans, specifications, and calculations) developed for Section D40 must be prepared by, or under the supervision of the design/build contractor's Qualified Fire Protection Engineer, the Fire Protection Designer of Record (FPDOR). A Qualified Fire Protection Engineer is defined as a registered Professional Engineer (P.E.) who has passed the fire protection engineering written examination administered by the National Council of Examiners for Engineering and Surveys (NCEES).

The QFPE's roles and responsibilities as it pertains to project milestones must be clearly defined in the prime contractor's Design Quality Control Plan (DQCP), subject to government approval prior to the PAK meeting.

The QFPE must be an integral part in every aspect of the design as it relates to fire protection, which includes, but is not limited to, building code analysis, life safety code analysis, design of automatic detection and suppression systems, water supply analysis (including witnessing hydrant flow tests), and a multi-discipline review of the entire project. This review must be a part of the Contractor's design quality control program, included in the design quality control plan, and must be documented and submitted with the design development submittals.

The QFPE must be present, at minimum, for the Post Award Kickoff (PAK) meeting.

Final acceptance testing must be scheduled, at minimum, two weeks after 100% pre-final testing.

Installation drawings, shop drawings or working plans, calculations, other required pre-construction documentation and as-built drawings must be prepared by, or under the direct supervision of a National Institute for Certification in Engineering Technologies (NICET) engineering technician as specified below. NICET engineering technicians must hold a current certification as an engineering technician in the field of Fire Protection Engineering Technology with minimum Level III certification for automatic fire sprinkler and minimum Level IV certification for combined fire alarm and mass notification system.

Provide training for the active systems consisting of two (2) four (4)-hour sessions to accommodate both shifts of the base fire department and allow for rescheduling for unforeseen fire department responses.

D4010 FIRE ALARM AND DETECTION SYSTEMS

Provide a combined fire alarm and mass notification system complete and ready for operation. Equipment, materials, installation, workmanship, inspection, and testing must be in strict accordance with the required and advisory provisions of UFC 3-600-01 and all applicable criteria and standards except as modified herein.

Provide an integrated combined fire alarm and mass notification system capable of notifying building occupants inside the facility. Provide a complete, electrically supervised, addressable intelligent, manual and automatic, annunciated fire alarm and detection system throughout the facility. Provide a voice evacuation type system that also serves as a mass notification system. Provide integrated systems capable of notifying building occupants by means of tones, strobes, prerecorded and live voice announcements. The fire reporting portion of the system must be compatible with the existing base fire reporting system. The individual building mass notification system (MNS) must communicate with the central control units of the wide area MNS to provide status information, receive commands, activate pre-recorded messages, and originate live voice messages. Provide a complete and useable fire alarm system including manual stations, system smoke detectors, duct smoke detectors, audio/visual alarms, digital alarm communicator transmitter, electrical supervision of all sprinkler system alarm and supervisory devices, and electrical supervision of fire pump controllers. Provide carbon monoxide detectors if the facility has combustible fuel burning equipment.

Provide a fire alarm control panel capable of handling a minimum of 500 individually identified sensors within the main control panel. Locate the fire alarm control panel so it is visible from the duty desk. Provide Class A, Style Z Notification Appliance Circuits, Class A, Style 4 Signaling Line Circuits, and Class A, Style A Initiation Device Circuits. Provide back-up amplifiers for combination fire alarm/mass notification systems. The circuit disconnect means (circuit breaker) must be permanently identified at the fire alarm control panel. CAT 6A wiring must be run from the fire alarm control panel to the annunciator within EMT from end to end with one CAT 6A cable per each fire alarm control panel telephone number.

Camp Lejeune and New River: Provided fire alarm control panel manufacturer must be either Simplex, Notifier, or Fire-Lite.

Install a graphic annunciator schematic or laminated 22” x 34” color drawing (site map) of the as-installed Fire Alarm system showing cabling, fire alarm control panel, autonomous control unit(s), notification appliance circuit(s) (NAC), pull stations, terminal cabinet(s), local operator console, annunciator and equipment rooms keyed to floor plans by room number. Provide a different color for each signaling line circuit(s) (SLC), NAC, speaker, remote microphone, and remote annunciator DATA circuit(s). Mount the graphic annunciator or site map adjacent to the fire alarm panel.

Provide and attach a legible typed label on all addressable devices to indicate its address (pull stations, smoke, CO and duct smoke detectors, modules, tampers and waterflow switches, speakers, strobes, and speaker/strobes). Include isolation, control, monitor and relay modules and devices. For any device located above suspended ceiling, attach a legible typed label to the ceiling grid indicating the device nomenclature and address, so a firefighter or mechanic can easily locate the device to perform corrective maintenance.

Install a documentation cabinet adjacent to fire alarm control panel: a steel cabinet with locking, hinge-mounted door prominently labeled "SYSTEM RECORD DOCUMENTS" that stores paper copies of Life Safety, Fire Alarm and Sprinkler As-Built drawings and NFPA 72 Record of Completion in paper format. In addition, a thumb drive with executive software, site-specific software, fire alarm and sprinkler As-Built drawings, NFPA 72 Record of Completion and O & M manuals must be stored inside cabinet. The cabinet must be sized to handle the contents.

Install a Parts Box adjacent to fire alarm control panel: a steel cabinet with locking, hinge-mounted

door where spare parts are securely stored. Place NAVFAC and manufacturers recommended spare parts, and four fuses for each fused circuit inside cabinet. Parts Box must be installed no higher than three feet above finish floor.

Battery box must be installed no higher than 12-inches above finish floor.

Provide low frequency sounder bases for smoke detectors within dwelling areas per NFPA 72. Fire alarm system must be programmed such that activation of a dwelling unit smoke detector causes all detector sounder bases within that unit to alarm and a supervisory signal to be activated at the fire alarm control panel.

Provide weatherproof speaker/strobe inside rooms that have showers to prevent speaker/strobe circuit card components from corroding and shorting out due to steam from the shower.

Provide surface mounted, dual-action, manual pull stations. Manual pull stations must be reset with the use of a key only. Use of a wrench or other device to reset a manual pull station must not be permitted. (No hex key, Allen key, or Allen wrench shall be used to open pull station)

Provide a remote microphone station located in the main lobby. To prevent feedback, program speakers near fire alarm control panel and microphone station to shut off while a microphone is in use.

Install a Knox Box 5-foot above the finished grade at the entrance closest to the fire alarm control panel. The Knox Box must not be monitored by the fire alarm control panel.

Intelligibility test is required after the system installation as part of the preliminary tests and final inspection and acceptance tests. This project has a separate FF&E contractor who installs the furniture systems after the construction contractor. FF&E tremendously affects the fire alarm and mass notification system intelligibility level. To ensure the facility is code compliant prior to building occupancy, the construction contractor is required to conduct another intelligibility test after the completion of FF&E installation and witnessed by the Government. If the fire alarm and mass notification system fails the intelligibility test, the construction contractor must be responsible to modify the system to meet intelligibility requirement in accordance with the contract without incurring additional cost to the Government.

Comply with NFPA 101 and UFGS, coordinating with installation-specific fire department frequencies for testing and installation of DAS/ERCES. Submit the test results to the Contracting Officer prior to the installation. Provide conduits with pull strings and pull boxes from MNS enclosure to at least 2 locations on each floor for MNS speakers for future installation. Coordinate with the Government for locations during the design.

A factory-trained instructor must teach a five-day factory technical training classroom instruction for at least five Government personnel at the manufacturing facility. The technical training must include classroom instruction as well as hands-on programming, troubleshooting and diagnostics exercises in addition to providing the laptop computer and system software, special connecting cable(s), proprietary equipment necessary for the maintenance, testing and reprogramming of the fire alarm equipment and system. Factory training must occur within six months of system acceptance.

Provide all materials and labor necessary to interface the building mass notification system with the existing wide area mass notification system. The base-wide mass notification system panel must be furnished by the government. Provide provisions for the installation of the base-wide notification system. Refer to the Part 6 “USMC Typical MNS-FACP Diagram” for detailed requirements.

<u>Camp Pendleton</u>: The MNS system must be compatible with the existing WAVES base-wide MNS system manufactured by MADAHCOM/Cooper Industries. Provide an 18" X 16" X 10" NEMA 4X

enclosure, adjacent to the MNS panel for the government provided and installed MNS transceiver panel (Cooper Notification TRX-401). The MNS transceiver enclosure must have an aluminum back plate inside to mount the transceiver panel. The NEMA enclosure must be installed adjacent to within 15 ft of the fire alarm/MNS voice panel. A minimum 1-1/2" conduit with LMR 400 cable from the transceiver enclosure to 4 ft. above the roof-line with a roof mounted weather-head must be provided for the antenna installation. The maximum distance from the transceiver enclosure to the weather-head is 200 ft. Longer cable runs require upgrade to LMR 600 type cable. Dedicated 110 VAC power terminated to a 20 Amp breaker must be provided to the lower right area of the MNS transceiver enclosure. All wiring and transceiver components must be in conduit or in the enclosure. A separate junction box containing a terminal strip, with a minimum of four contacts, for the future MNS transceiver connections must be provided. The audio input and normally open relay connections must be fully programmed as a second microphone one way input and all components provided in the MNS voice panel for the future transceiver connection. These connections must be clearly labeled. All dedicated conduit runs must have a pull string and are adequately marked for their future use. Provide a ¾-inch conduit run from the transceiver enclosure to two central locations of the facility. The conduit must be routed to the speaker mounting areas with a flush mounted 4x4x4" EMT box with (decorative) cover; these EMT boxes may also be above false ceilings and clearly marked for MNS. These two speaker locations can be the duty room, administration room, command area, central hallway, day lounge, etc. These speakers must be installed within 150 feet of the transceiver enclosure.

Camp Lejeune: Install a point reporting digital alarm communicator transmitter that is compatible with the Sur-Gard System 5 Multi-platform Digital Telephone Receiver and is programmed to report by points via Contact ID protocol. Install two CAT 6A UTP cables inside one-inch conduit from the fire alarm control panel to the terminal block. Make connections to telephone equipment per the base's telephone requirements. Coordinate with Contracting Officer for the location of the terminal block. A lockout code must not be installed in the hardware, firmware, or software of any fire protection system; in addition, the installer and operator codes must remain as the factory default setting.

MCAS Cherry Point: The MNS system must be compatible with Bosch Communicator. Provide conduits, wires, Bosch Communicator, and fiber converter as depicted in the "MCAS Cherry Point Fire Reporting Diagram" of Part 6.

D4020 FIRE SUPPRESSION WATER SUPPLY AND EQUIPMENT

See Part 6 of this DB RFP for flow test data.

Provide the incoming sprinkler service with a reduced pressure zone (RPZ) backflow preventer.

Camp Lejeune, MCAS New River, and MCAS Cherry Point: Backflow preventers must be located within their respective facilities.

Camp Pendleton: Backflow preventers must be installed exterior to their respective facilities.

It is the responsibility of the awarded contractor to determine the requirement for inclusion of a fire pump or water tank during design using the flow test data provided in Part 6 of this DB RFP. Provide horizontal split-case centrifugal, electric-driven fire pumps where required by criteria.

Camp Lejeune and MCAS New River do not have reliable power. If a fire pump is determined to be required in a facility with unreliable primary power, an emergency backup generator must be provided for the fire pump as a secondary power source. Refer to ESR Section D50 for more information on the emergency power requirements.

Where fire pumps are determined to be required, each building must be provided with its own electric fire pump. A centralized fire pump serving multiple buildings is not acceptable.

Provide a fire department connection (FDC), confirming connection type with the base fire department.

Semi-recessed, general purpose portable fire extinguisher cabinets must be provided where required by NFPA 1 and NFPA 10.

D4030 STANDPIPE SYSTEMS

Provide a Class I standpipe system where required by UFC 3-600-01.The building standpipe system and sprinkler system must be fed from the same supply as a combined system.

Camp Lejeune and MCAS New River: Provide a Class I standpipe system where required by UFC 3-600-01, provide locking Knox 2.5-inch standpipe covers in stairwells and locking 5" Storz connection with cap on a 30 degree elbow no lower than 18 inches above finished grade

D4040 SPRINKLER SYSTEMS

Provide automatic wet-pipe sprinkler protection to provide complete coverage throughout the facility as required by criteria. As this is a residential occupancy, either NFPA 13 or NFPA 13R is applicable per UFC 3-600-01.

Drains and inspector’s test connection must discharge to the exterior. All drains and inspector’s test connections must terminate in a hard surface or concrete splash block to prevent erosion.

Install all valves, tampers, waterflow switch(s) and gauges, so each item is readily accessible and no higher than six feet above finished floor.

Fire sprinkler system piping must be black steel.

Provide the appropriate style and temperature rating of sprinkler as required by criteria.

Install listed corrosion-resistant sprinklers in locations where chemicals, moisture, or other corrosive vapors sufficient to cause corrosion of such devices exist (i.e., shower areas, dwelling unit shower rooms, battery rooms, etc.). Any system components exposed to ambient conditions within 10 miles of a coastline must be corrosion-resistant.

Provide sprinkler gauge installation labels on each sprinkler gauge to help government employees comply with NFPA 25. The labels must indicate that sprinkler gauges have been tested/replaced within five (5) years. (Sticker indicates Date Installed and Test or Replaced)

-- End of Section --

6. ENGINEERING SYSTEMS REQUIREMENTS

D50 ELECTRICAL

SYSTEM DESCRIPTION

See Part 3B section D50 for specific sites.

Provide an interior electrical system consisting of Service Entrance Wiring and Equipment, Distribution and Lighting Panelboards, Dry Type Transformers as required, Conduits, Feeder and Branch Circuits, Motor Control Equipment, Lighting and Branch Wiring, Communications and Alarm Systems, Emergency Lighting, Grounding and Lightning Protection as required, including accessories and devices as necessary and required for a complete and usable system. This section covers installations out to the building 1.5 meter (5 foot) line.

Provide each building with a utility service with radial power distribution. Service voltage(s) are to be determined based on UFC 3-550-01 section 3-5.3 regarding transformer(s) and voltage(s) requirements for Barracks.

Select electrical characteristics of the power system to provide a safe, efficient and economical distribution of power based upon the size and types of electrical loads to be served. Use distribution and utilization voltages of the highest level that is practical for the load to be served.

Provide a minimum of 15 percent spare circuit and load capacity at all levels of the power distribution system including any stand-by power systems. Provide an interior distribution system consisting of insulated conductors in conduit.

Design and installation of the electrical system must be in accordance with UFC, NFPA, and other local Codes and Regulations, including but not limited to the following:

National Fire Protection Association (NFPA) Codes:

NFPA 20	Standard for the Installation of Stationary Pumps for Fire Protection
NFPA 70	National Electrical Code
NFPA 101	Life Safety Code
NFPA 111	Standard on Stored Electrical Energy Emergency and Standby Power Systems
NFPA 780	Standard for the Installation of Lightning Protection Systems Unified Facilities Criteria (UFC):
FC 1-300-09N	Navy and Marine Corps Design Procedures
FC 4-721-10N	Navy and Marine Corps Unaccompanied Housing
UFC 1-200-01	DoD Building Code (General Building Requirements)
UFC 1-200-02	High Performance and Sustainable Building Requirements
UFC 3-501-01	Electrical Engineering

UFC 3-520-01	Interior Electrical Systems
UFC 3-530-01	Interior and Exterior Lighting Systems
UFC 3-550-01	Exterior Electrical Power Distribution
UFC 3-560-01	Operation and Maintenance: Electrical Safety
UFC 3-575-01	Lightning and Static Electricity Protection Systems
UFC-3-580-01	Information and Communications Technology Infrastructure Planning and Design
UFC 4-010-06	Cybersecurity of Facility-Related Control Systems (FRCS)
UFC 4-021-02	Electronic Security Systems

ADDITIONAL DESIGN STANDARDS

Design and installation must be in accordance with the latest version of NFPA 70 National Electrical Code and all applicable Unified Facilities Criteria (UFC), including but not limited to, UFC 3-501-01 “Electrical Engineering”, UFC 3-520-01 “Interior Electrical Systems”, and UFC 3-530-01, “Interior and Exterior Lighting Systems”. All portions of the design associated with the BEQ and surrounding area must further be in accordance with UFC 4-721-01 “Permanent Party Unaccompanied Housing”, and the following Tri-Services Electrical Working Group (TSEWG) criteria. Where the standards discuss best practices and other design alternatives and use the terminology “should” must be read as “must” and be incorporated into the design:

TSEWG TP-1 Electrical Calculation Examples
TSEWG TP-2 Capacitors for Power Factor Correction
TSEWG TP-3 Surge Protector Performance and Evaluation Criteria
TSEWG TP-4 Stationary Battery and Charger Sizing
TSEWG TP-5 Interior Transformer Ratings and Installation
TSEWG TP-6 Low-Voltage Breaker Interrupting Ratings
TSEWG TP-7 Protection System Design
TSEWG TP-8 Equipment Enclosures and Hazardous Locations
TSEWG TP-9 Automatic Transfer Equipment
TSEWG TP-10 Arc Flash Levels for Fused Voltage Inputs to Electricity Meters
TSEWG TP-11 UFC 3-500-10N Best Practices
TSEWG TP-12 UFC 3-500-10N Appendices
TSEWG TP-13 UFC 3-501-03N Load Demand Analyses
TSEWG TP-15 Arc Flash Calculations and Detailed Arc Flash Warning Labels
TSEWG TP-19 Static Uninterruptible Power supply (UPS)

The Designer of Record (DOR) must use NAVFAC details, wherever applicable. The DOR must provide their specific details or modify NAVFAC details where standard NAVFAC details do not capture the intent of the design. Use standard NAVFAC lighting plates, where possible, for all interior and exterior lighting applications. Reference all electrical details utilized within the drawings. Detail bubbles or notes used on the floor plan sheets must clearly reference where in the set of drawings the detail resides. Each detail title must, in-turn, reference where in the plans the detail originates. General details that are not specifically referenced are not allowed. Lighting and power plans must clearly denote diagrammatically all branch circuit information complete with homeruns and raceway graphics to logically group circuits and devices together.

GENERAL SYSTEM REQUIREMENTS

Provide an Electrical System complete in place, tested and approved, as specified throughout this RFP, as needed for a complete, usable and proper installation. Install all equipment in accordance with the criteria of PTS Section D50 and the manufacturer's recommendations. Where the word "should" is used in the manufacturer's recommendations, substitute the word "must".

This section of the RFP includes all electrical work on or within the building out to the five (5) foot line. Electrical site work outside the five (5) foot line is covered in section G40.

SUSTAINABILITY
Provide electrical systems and components that support project sustainability and energy goals.

ANTITERRORISM
Provide bracing of electrical equipment which is suspended and weighs more than 31 pounds.

SEISMIC BRACING
See Part 3B for each site.

ELECTRICAL TESTING
Test new electrical equipment in accordance with NETA acceptance testing specifications. Test existing electrical equipment remaining in service in accordance with NETA maintenance testing specifications.

COMMISSIONING
Commission all systems in accordance with RFP Part 3, Chapter 2, and UFC 1-200-02 High Performance and Sustainable Building Requirements.

Refer to FC 4-721-10N, *Navy and Marine Corps Unaccompanied Housing* for additional Electrical Design criteria.

D5010 ELECTRICAL SERVICE AND DISTRIBUTION

D501001 MAIN TRANSFORMERS

Main transformer(s) are defined in Section G40, *Site Electrical Utilities*.

D501002 SERVICE ENTRANCE EQUIPMENT

Provide underground service into the facility.

Provide a main switchboard or main distribution panel as service equipment.

Provide energy usage monitoring by using digital metering with current transformers on the incoming service equipment. Monitor the total power usage at the service entrance. Monitored output must report to and be compatible with the Direct Digital Controls (DDC) system.

D501003 INTERIOR DISTRIBUTION TRANSFORMERS

Provide dry type transformers as required to step down secondary voltages for general purpose outlets and other low voltage equipment.

D501004 PANELBOARDS

Provide distribution and branch circuit panelboards to serve loads as required. In the main electrical

rooms and floor electrical closets provide panelboards with bolt-on type circuit breakers. Each panelboard must be directly fed from a dedicated circuit breaker in an upstream panel. Use of series-rated breakers is not acceptable. Run individual feeders to each panelboard. Do not use dual or multi-section panelboards. Provide a separate panelboard for the laundry room. Provide a load center style single-phase panelboard to serve the electrical loads in each sleeping unit. Provide a separate panelboard for the MCX24 shop. Provide dedicated panelboards as required by UFC for telecommunications room and fire protection circuits.

Refer to Part 6 Attachments for installation specific electrical design guides for additional requirements.

D501005 ENCLOSED CIRCUIT BREAKERS

Provide enclosed circuit breakers as required for the design. All circuit breakers must be rated for the available fault current.

D501006 MOTOR CONTROL CENTERS

Provide individual motor starters with disconnect switches, combination motor starters, variable speed drives, reduced voltage controllers, and manual motor starters for motor controls as required by mechanical equipment. Provide all circuits and connections for motor control equipment. All disconnects and motor controllers must be rated for the available fault current. Provide fused disconnects or enclosed circuit breakers if higher SCCR is required than can be obtained from a non-fused disconnect.

D501090 OTHER SERVICE AND DISTRIBUTION

Provide transient voltage surge protective devices (SPD) at the service entrance equipment, fire protection panels, lighting panels, panels serving electronic equipment, and as required per NFPA 780 and applicable UFC’s.

D5020 LIGHTING AND BRANCH WIRING

Provide electrical connections for all systems requiring electrical service.

Provide lighting and general purpose receptacles throughout all spaces as required.

All receptacles and equipment must be labeled to indicate the panelboard providing service. Identify each receptacle with panelboard identification and circuit number. Receptacles rated more than 120V must have voltage identified. Use hot stamped or engraved machine printing with black-filled lettering on white field, self-adhesive nameplate attached to face of plate.

Provide dedicated circuits and connections as required in FC 4-721-10N, and for all ancillary office equipment such as but not limited to: printers, fax machines, plotters, copiers, and shredders. In living units, provide a dedicated circuit for each side (resident) of the bedroom, a dedicated circuit for the microwave/refrigerator receptacle, a dedicated circuit for the kitchenette counter receptacle, separate dedicated circuits for the washer and dryer, and a dedicated circuit for the bathroom.

See Chapter 5, "Room Requirements" for additional information.

D502001 BRANCH WIRING

Provide branch wiring consisting of insulated conductors in conduit. Multi-wire branch circuits are not

allowed. Each circuit requiring a neutral conductor must have its own separate dedicated neutral conductor. This does not apply to a circuit that feeds a single piece of equipment such as a clothes dryer.

D502002 LIGHTING EQUIPMENT

Provide a complete lighting system consisting of exit and emergency lighting and area lighting consisting of LED lighting including switches and automatic controls including occupancy sensors, vacancy sensors, daylighting controls, automatic lighting shutoff systems and dimming systems.

Lighting systems must comply with ASHRAE/IESNA 90.1 and Federal Energy Management requirements as dictated by UFC. Light levels must comply with applicable UFCs and FCs. Comply with IESNA and user requirements where light levels are not dictated by UFC or FC. Provide lighting controls as prescribed by UFC 3-530-01 to comply with ASHRAE 90.1 in non-living unit spaces. Lighting correlated color temperature (CCT) for exterior fixtures is 4000K. Lighting CCT for living units is 2700K. Lighting CCT for all other interior spaces is 3500K, Refer to Part 6 Attachments for Marine Base electrical design guides for information specific to each base.

Lighting and controls within living units must comply with UFC 3-530-01, FC 4-721-10N, and Marine Base Camp requirements. Ceiling fan light kits are not allowed. Install lights and fan in a manner that avoids the “strobe effect”.

D5030 COMMUNICATIONS AND SECURITY

The Room Requirements Section identifies locations for communications and security systems and equipment, unless noted otherwise in the following sub-elements.

Provide a complete communications and security infrastructure in accordance with UFC 3-580-01 and FC 4-721-10N. This section summarizes governing criteria and project-specific variances; detailed requirements are provided in sub-elements D503001, D503004, D503005, and D503090. Discipline Designer of Record (DOR) is required to consult the cybersecurity RFP section to ensure adherence to the UFC 04-10-06 compliance criteria.

Project-Specific Variances and Expansions:

- Elimination of telecommunications room positive pressure.
- Permission to combine EF/TR at Level 1 where adjacency allows.
- Addition of RG-6 Quad Shield coaxial cabling to support CATV/Broadband over extended distances from TRs.
- High-mounted WiFi subscriber outlets (18" below ceiling) and desk outlets at 42" AFF.
- Conduit required for all in-room cabling; J-hooks are prohibited.
- All cabling and terminations must comply with UFC 3-580-01 and TIA/EIA standards.

D503001 TELECOMMUNICATIONS SYSTEMS

Provide a complete building entrance facility, backbone distribution system, and horizontal distribution system including, but not necessarily limited to, all wiring, pathway systems, grounding, backboards, connector blocks, protectors for all copper service entrance pairs, patch panels, fiber optic distribution panels, terminators for all fiber optic cables, outlet boxes, telephone jacks, data jacks, cover plates. in accordance with UFC 3-580-01, FC 4-721-10N, and project-specific requirements.

Provide Category 6A Unshielded Twisted Pair (UTP) copper cable for horizontal voice and data

cables.

1. Cable Types

Horizontal cabling:
- Four (4) CAT6A UTP cables per outlet for voice/data in admin areas
- Two (2) CAT6A UTP cables per outlet for WiFi Outlet Locations

Backbone cabling:
- 24 strand single-mode fiber-optic backbone cable to each EF/TR from OSP tie in point
- 25 Pair Copper backbone cabling to each TR from the EF/MTR from OSP tie in point
- 12 strand single-mode fiber-optic backbone cable to each TR from EF/TR
- 25 Pair Copper backbone cabling to each TR from the EF/MTR.

2. BEQ Resident Room Outlet Configurations
- BEQ Resident Room Desk Outlets: Two (2) CAT6A cables with modular jacks and one (1) RG-6 Quad Shield coax cable with F-connector mounted at 42 inches AFF.
- WiFi Subscriber Outlets: Two (2) CAT6A cables only (no RG6) mounted 18 inches below ceiling level.-6) mounted 18 inches below ceiling level.
- All RG6 cabling must be swept to 3 GHz minimum and plenum-rated (CMP).
- Outlet locations must match room layouts in the Appendices.

3. Pathways and Support

- Provide conduit from each outlet to the hallway cable tray; J-hooks are not permitted anywhere in the horizontal distribution system.
- Conduit must be sized in accordance with UFC 3-580-01.
- Install cable tray in corridors as the primary telecommunications pathway.
- Provide conduit and an outlet box for a two-way emergency communication device at the elevator lobby where required by the applicable life safety and building codes. Final device locations and system requirements shall be provided by the Fire Alarm and Life Safety design team.

4. Telecommunications Rooms (TR/EF)

- Provide TRs on each floor per UFC 3-580-01.
- Install racks, grounding systems, and power distribution per UFC.
- Provide one (1) wall-mount cabinet for the FRCS system in the designated TR.

5. Grounding and Bonding

- Provide telecommunications grounding and bonding per TIA607 and UFC 3-580-01.
- Install TMGB in EF/TR and TGB in each TR, bonded to the building grounding electrode system.
- Bond racks, trays, patch panels, and metallic pathways to the nearest TGB.

6. Testing and Labeling

- Test all CAT6A and RG-6QS cabling per TIA-568.4E.
- Label all cables, pathways, and equipment per TIA-606 and project naming conventions.
- Provide complete electronic test reports and as-built documentation at turnover.

D503004 TELEVISION SYSTEMS

Provide a complete CATV system to be owned and maintained by the Government including all interior equipment required to provide high quality TV signals to all outlets with a return path for

interactive television and cable modem access. System must include, but is not necessarily limited to, cables, outlets, and all other parts, components, and equipment necessary to provide a complete and usable system.

Provide a complete CATV infrastructure in accordance with FC 4-721-10N §3-14.7 to support television capability in designated common areas. Provide pathway and cabling only; television equipment and services will be furnished by the Government after turnover.

1. Outlets
   - Provide one CATV outlet in each common area identified in the Room Requirements or as determined through DB coordination.
   - Each outlet must include: One (1) RG6 Quad Shield coaxial cable and two (2) CAT6A cable homerun to the serving TR, conduit pathway where hard ceilings exist, and appropriately sized outlet box.

2. Cabling and Termination
   - Route all television outlet cabling to the serving TR.
   - Terminate RG-6 Quad Shield cabling on a rack-mounted F-connector patch panel.
   - Terminate CAT6A cabling on a rack-mounted patch panel within the same TR.
   - Do not install splitters, amplifiers, passive devices, or active electronics.

3. Testing
   - Test all RG6 Quad Shield coaxial cabling for continuity and signal performance per TIA-568.4E.
   - Include testing documentation in the overall telecommunications test report package.

D503005 SECURITY SYSTEMS

Provide infrastructure to support future Government-installed Electronic Security Systems (ESS). Provide:
- Empty conduit raceways with pull strings
- Outlet boxes with blank cover plates
- Pathways from designated ESS device locations to the serving TR
- Associated power outlets where required by Government direction

No ESS devices, wiring, terminations, or active equipment must be provided under this contract. All ESS hardware will be furnished and installed by the Government’s designated ESS provider.

Coordinate all pathway locations with the Government during design development.

CCTV Infrastructure (Pipe & Wire Only)

Provide all infrastructure required to support a future Closed-Circuit Television (CCTV) system in accordance with FC 4-721-10N §3-14.9, Marine Corps Physical Security Program Manual, MCO 5530.14A, UFC 4-021-02, and UFC 3-580-01, and project security requirements. The Design-Build Contractor is responsible for pathways, boxes, and cabling only. The Government or separate security contractor will furnish and install all cameras, mounting hardware, NVRs, switches, and electronics.

1. CCTV Camera Locations

Provide conduit pathways and cabling infrastructure to support CCTV coverage required by FC 4-721-10N §3-14.9, including but not limited to:

- Building entrances and exits
- Lobby and circulation points
- Common areas as identified in the FC
- Any additional locations identified by Government security personnel during design coordination

The DB Contractor must not determine final camera fields of view—only provide pathways and cabling necessary for future device installation.

2. Interior Camera Rough-In Requirements

At each FC-required interior camera location provide:

- A 4x4 deep box with mud ring at the ceiling level or structure as coordinated with the DB Designer.
- One (1) conduit from the camera box to the nearest TR or intermediate junction box as required.
- Two (2) CAT6A (CMP) cables home-run to the serving TR.
- Cables must terminate on a rack-mounted patch panel in the TR.
- Leave service slack per UFC 3-580-01.

2.1 MCX CCTV Requirements

MCX Facility Video Surveillance Requirements

Buildings that include MCX facilities must have a Network Video Recorder (NVR) installed within the designated storage area. Provide and install a small 9U wall-mounted rack sized to accommodate the NVR. Coordinate the rack location and power requirements with the Contracting Officer and the electrical contractor.

From the NVR location, install eight (8) Category 6A cables to camera locations within the MCX store area. Terminate these cables on a patch panel within the wall-mounted rack. At each camera location, terminate the cable on a Category 6A jack mounted in a faceplate and electrical outlet box.

Coordinate exact camera locations within the store area with the Contracting Officer. Additionally, provide a data drop from the NVR location to the nearest Telecommunications Room (TR) to enable network connectivity for the NVR.

The NVR and all associated cameras are Government-Furnished, Government-Installed (GFGI).

3. Exterior CCTV Pathways (Future-Proofing)

For exterior perimeter and building surveillance points, provide the following infrastructure:

- A 4x4 weather-rated flush-mounted exterior box, installed during rough-in to ensure clean embedded mounting in new construction.
- A conduit pathway from each exterior box to an accessible above ceiling-level junction box inside the building and from the interior Junction box to the nearest cable tray.
- A second set of two (2) CAT6A (CMP) home-run cables to the serving TR, terminating on a rack-mounted patch panel.
- Boxes must remain empty for future camera installation by the CCTV contractor.

Each interior junction box (above ceiling) must include a two-port CAT6A outlet that allows a future CCTV installer to connect the camera via a short patch jumper without modifying the permanent cabling infrastructure.

4. System Electronics (By Others)

- Cameras
- Camera mounts
- NVRs or servers
- Network switches dedicated to CCTV
- Camera licensing or configuration
- Power injectors unless required for pathway validation

These items will be provided by a future Government-contracted security integrator.

5. Coordination Requirements

- Coordinate all CCTV rough-in locations with the Government security authority during design development.
- Ensure conduit routing does not conflict with fire protection pipe, mechanical systems, or architectural features.
- Ensure all above-ceiling junction boxes and pathways remain accessible and code compliant.

6. Testing & Documentation

Test all CAT6A cabling per TIA-568 requirements.

- Label all cables and boxes per TIA-606-C and project naming standards.
- Include rough-in locations and home-run routing in the as-built documentation package.

D503006 INDUSTRIAL CONTROL SYSTEMS (ICS)

The DOR must coordinate and validate requirements with NAVFAC CIO personnel during the design of the ICS systems.

D503090 OTHER COMMUNICATIONS AND ALARM SYSTEMS

Multi Carrier Distributed Antenna System (DAS)

The project must include a Multi Carrier Distributed Antenna System to provide reliable, uniform commercial cellular coverage throughout the facility. The system must function as a neutral host platform capable of supporting multiple commercial wireless carriers concurrently and must deliver consistent voice, LTE, and 5G performance for all end users.

System Intent

The DAS must be designed to provide dependable cellular service throughout all occupied areas of the building. The intent is to ensure stable connectivity, strong and consistent signal levels, and minimal dropped calls for all carriers. The system must be scalable to support future carrier bands or technology advancements without requiring major infrastructure changes.

System Infrastructure Requirements

All DAS headend equipment must be located in the Main Distribution Frame (MDF) and must be installed in standard 19 inch telecommunications racks. ICT room design, including equipment racks, pathways, grounding, and environmental conditions, must follow UFC 3 580 01 requirements for telecommunications spaces.

Floor level DAS remote units must be accommodated within Intermediate Distribution Frames (IDFs)

or designated telecommunications spaces. These remote units must be rack mounted whenever supported by the manufacturer, or mounted on wall brackets only when the hardware form factor does not support rack installation. Ensure adequate pathway capacity, power, grounding, and environmental conditions consistent with Marine Corps ICT infrastructure guidance.

All fiber distribution panels, power supplies, network management components, and RF interface hardware associated with the DAS must be rack mounted in accordance with vendor installation requirements and UFC telecommunications room design criteria.

Coverage and Antenna Layout

Antenna placement must be coordinated by Contractor to achieve uniform RF coverage in corridors, rooms, common areas, stairwells, and building support spaces. Ceiling and architectural coordination must ensure antennas are placed to optimize system performance without interfering with mechanical, electrical, or architectural systems within the facility.

Carrier Coordination

The DAS must be designed to support integration of all major commercial carriers serving the installation. Provide necessary pathways, equipment space, and coordination to allow the DAS integrator and participating carriers to complete signal authorization, connection, and optimization as part of system deployment.

Power and Support Requirements

Dedicated electrical service must be provided to all DAS headend and remote components. Grounding and bonding must be provided in accordance with telecommunications room requirements defined in UFC 3 580 01.

Equipment requiring back up power must be supported by an uninterruptible power supply (UPS) sized to meet DAS vendor specifications.

End User Experience Priority

All aspects of the DAS design must be executed to ensure a superior end user cellular experience across all supported carriers. Ensure sufficient space, pathways, equipment mounting provisions, environmental controls, and access to telecommunications rooms so that the DAS integrator can fully deploy and optimize the system without the need for future modifications to the building infrastructure. The Contractor shall coordinate the final placement of the DAS donor antenna with the Contracting Officer’s Project Manager (PM) during the system design and submittal phase. The antenna location must meet concealment requirements

D5090 OTHER ELECTRICAL SERVICES

D509001 GENERAL CONSTRUCTION ITEMS (ELECTRICAL)

Provide General Construction Items (Electrical) including, but not necessarily limited to, all connections, fittings, boxes and associated equipment needed by this and other sections of this RFP as required for a complete and usable system.

Provide firestopping for conduits and cable trays that penetrate fire-rated walls, fire-rated partitions, or fire-rated floors in accordance with Section C10, Interior Construction.

D509002 EMERGENCY LIGHTING AND POWER

Provide power and wiring for emergency lights and exit lights throughout the facility.

Provide stand-alone emergency lighting units (“bugeyes”) for emergency lighting. Provide battery powered exit signs. Provide all emergency lighting units and exit signs with self-testing and diagnostic control features.

Provide emergency lighting along the path of egress with 90 minutes of backup in accordance with NFPA 101. Provide 120 minutes of backup in the fire pump room in accordance with NFPA 20.

Provide a stand-by generator, portable generator connection, and automatic transfer switch(es) per NEC 700 where the need for a generator is driven by the requirements of other disciplines (e.g. for and electric fire pump stand-by power, for an elevator required as a means of emergency egress) and base power is not reliable as defined by UFC.. Refer to Marine Base electrical design guides for information specific to each base.

Camp Pendleton sites have reliable power. Camp Lejeune and MCAS Cherry Point sites do not have reliable power.

D509003 GROUNDING SYSTEMS

Provide a complete grounding system for the facility electrical and telecommunications systems in accordance with NFPA 70, and NFPA 780 and UFC 3-575-01 if a lightning protection system is required.

Provide a #4/0 AWG bare copper ground counterpoise around the facility, installed in accordance with UFC 3-575-01 and NFPA 780.

Provide an exposed copper ground busbar in the main electrical room and in each satellite electrical room/closet tied to the grounding system.

Telecommunications Grounding and Bonding

Provide a complete telecommunications grounding and bonding system in accordance with:

- TIA-607 (Telecommunications Bonding and Grounding Standard)
- UFC 3-580-01 (Telecommunications Infrastructure)
- NFPA 70 (NEC) Article 250
- Project-wide labeling and administration requirements per TIA-606

Requirements:

1. Telecommunications Main Grounding Busbar (TMGB) must be provided in the EF/TR and bonded to the building grounding electrode system per NEC and TIA-607.

2. Telecommunications Grounding Busbars (TGBs) must be installed in each TR and bonded directly to the TMGB using the Telecommunications Bonding Backbone (TBB) sized per TIA-607 and NEC.

3. All racks, cable tray, ladder rack, backboards, metallic pathways, patch panels, and EAC network equipment must be bonded to the nearest TGB in accordance with TIA-607.

4. Bonding jumpers and conductors must be sized and installed per NEC 250 and TIA-607. Use green-insulated conductors for telecommunications bonding.

5. All grounding and bonding components must be labeled per TIA-606 and coordinated with the overall telecommunications administration scheme.

6. Coordinate grounding system installation with the electrical engineer to ensure a single unified grounding electrode system, free of isolated or floating subsystems.

D509004 LIGHTNING PROTECTION

Perform lightning risk assessment for each building per NFPA 780. A complete lightning protection system must be designed and installed in accordance with UFC 3-575-01, *Lightning and Static Electricity Protection System*, with a UL Lightning Protection Inspection Certificate certified to NFPA 780, including, but not necessarily limited to, strike termination devices, conductors, ground terminals, interconnecting conductors, surge protective devices, and other connectors and fittings required for a complete and usable system.

Do not use the building structural steel for down conductors. Route down conductors concealed inside the structure, not on the building exterior.

Lightning Protection Systems must not void the roof warranty. Refer to Marine Corps Base electrical design guides for additional information specific to each base.

D509005 ELECTRIC HEATING

Provide power wiring and connections as required for all electric heating systems and equipment.

D509006 ENERGY MANAGEMENT CONTROL SYSTEM

Provide power wiring and connections as required for all systems and equipment. Coordinate connection requirements with service entrance energy monitoring equipment.

D509007 PHOTOVOLTAIC ENERGY SYSTEM

Provide KWH meters that are compatible with the existing base AMI system.

Complete a life cycle cost analysis for photovoltaic energy systems in accordance with UFC 1-200-02.

See Part 3B for site specific photovoltaic energy system requirements.

-- End of Section --

6. ENGINEERING SYSTEMS REQUIREMENTS

E10 EQUIPMENT

GENERAL SYSTEMS REQUIREMENTS

E1010 COMMERCIAL EQUIPMENT

Not used

E101003 GOVERNMENT FURNISHED VENDING EQUIPMENT

Design the facility to provide space, utilities, and cooling to accommodate vending equipment as required by the user. Coordinate location of machines and type of products to be provided with the users during design. Coordinate location of wall mounted Laundry Aid vending in the Laundry Room.

E1020 INSTITUTIONAL EQUIPMENT

E102009 GOVERNMENT FURNISHED AUDIOVISUAL EQUIPMENT

Coordinate design requirements with the end user/Command Information technology (IT) personnel.

AV Equipment including electronics potentially connected to data/IT, must be coordinated with design and construction but planned for and funded by the user or Budget Submitting Office sponsoring the user. AV equipment includes, but is not limited to: intercom/sound systems, flat screen displays, TV monitors, and Closed-Circuit Televisions (CCTVs).

E1040 GOVERNMENT FURNISHED EQUIPMENT

See Part 3 – Chapter 5: Room Requirements Sheets

Rough-in and provide connections for Government-furnished equipment such that equipment will operate as intended, including providing miscellaneous items such as plugs, receptacles, wire, cable, conduit, flexible conduit and outlet boxes or fittings.

Government Furnished/Government Installed (GFGI):

GFGI items listed are anticipated at the time of this RFP but may vary slightly at the time of construction – verify final GFGI items and quantities during design. Contractor must carefully coordinate with the Government during design and construction to ensure the facility is properly prepared to receive GFGI items. Government will deliver and install items after the Contractor has completed the work. Part 6, Attachment titled FINAL CTA Marines Furniture Program catalog must be utilized for the list of items and sizes of each.

GFGI items include but are not limited to:

- Refrigerator/Freezer/Microwave (Room Modules, FC minimum 1 each)
- Washers (Laundry, FC minimum 1 per 12 residents)

- Stacked electric dryers (Laundry, FC minimum 2 per 12 residents)
- Microwave (Centralized Kitchen, 2 per 300 sf, 4 per 450 sf)

E1090 OTHER EQUIPMENT

E109002 RESIDENTIAL KITCHEN EQUIPMENT

Provide the following equipment as indicated. Items are part of the Base Bid construction.

Provide the following residential equipment in each 300 sf Centralized Kitchen:

- (2 each) refrigerator/freezer, minimum 25 cu ft, without water dispenser or icemaker, stainless steel finish
- (2 each) 30-inch-wide freestanding electric range, four burner, with self-cleaning feature, stainless steel finish
- (2 each) corresponding exhaust hood for electric range, with built-in LED lighting, stainless steel finish

For 450 sf Centralized Kitchens, provide 4 each of the above equipment.

Outside vented exhaust hood must be coordinated with MEP.

Additional GFGI equipment shown in Part 3A, Chapter 4, Section 4.2, MCX layout.

--End of Section--

6. ENGINEERING SYSTEMS REQUIREMENTS

E20 FURNISHINGS

SYSTEM DESCRIPTION

Furnishings include fixed furnishings are part of the Structural Interior Design (SID) and the design and documentation of all movable furnishings as part of the Furniture, Fixtures, and Equipment (FF&E) Basis of Design Package.

The design and documentation of both are funded as part of the construction contract.

Fixed furnishings (items that are fixed to the structure), such as specialty equipment, blinds/shades, and fixed artwork are part of the base bid construction contract.

The movable furniture and furnishings (FF&E) for this facility may include, but are not limited to freestanding furniture, area/accent rugs, movable artwork, appliances, flat screen TVs (not connected to data), accessories, and other miscellaneous items to support facility functions.

The movable FF&E will be Government Furnished Government Installed (GFGI) and will be coordinated, procured, delivered, and installed by the U.S. Army Corps of Engineers (USACE) and the Activity/Unaccompanied Housing Director (UH). This will occur after the Construction Completion Date (CCD)/Beneficial Occupancy Date (BOD) and is not the responsibility of the general contractor.

The contractor is responsible for designing and developing the SID, including FF&E plans, FF&E programming cost estimates and any other supporting documentation required to support the new GFGI FF&E requirements (Furniture Footprint Plans, Electrical Plans, etc.) as part of the base bid construction contract.

Any Audiovisual (AV) Equipment will not be funded, procured, and installed as part of the FF&E. Refer to Part 3 Section E10 of this RFP.

GENERAL SYSTEMS REQUIREMENTS

Design and provide fixed and movable furnishings for all areas as developed during Activity programming and as indicated in the Room Requirements (refer to Part 3 Chapter 5 of this RFP). Design a complete Furniture, Fixtures, and Equipment (FF&E) Basis of Design Package and prepare supporting plans and procurement data. FF&E items identified in this RFP are to be used as a guideline to assist in establishing the minimum facility requirements and do not relieve the Contractor's Interior Designer from developing a complete design package that incorporates ALL of the Activities FF&E requirements. Design in accordance with specific facility-type United Facilities Criteria (UFC) (i.e. youth center, BEQ) and in conjunction with UFC 03-120-10 *Interior Design*.

Provide the services of an Interior Designer with a minimum of one of the following credentials: National Council for Interior Design Qualification (NCIDQ) certification, or state and/or jurisdiction Interior Design Certification, Registration, or License. This Interior Designer must prepare both the Structural Interior Design (SID) and the FF&E Basis of Design Package and participate in all design charrettes and review meetings to develop the building design and floor plan. The Interior Designer is responsible for coordinating and developing the design of all comprehensive interior design elements (Reflected Ceiling Plan, light fixture selection, acoustical design, interior signage design, built-in millwork design, etc.) with the Architect and other disciplines as applicable.

Closely coordinate all fixed and movable furnishings selections with Parts 3 and 4 Sections C10, Interior Construction, and C30 and E10 of this RFP. Fully integrate the FF&E with the building

systems and finishes.

The Contractor's Interior Designer will be responsible for laying out and quantifying the FF&E items.

The Contractor's Interior Designer is responsible for designing and providing procurement data/specifications for the FF&E Basis of Design. Base the FF&E specifications on the Marines Furniture Program catalog, General Services Administration (GSA) Multiple Award Schedules (MAS), other Federal contracts and complying with priorities found in Federal Acquisitions Regulation (FAR) Part 8.404. The Marines Furniture Program catalog is included in Part 6 Attachments titled FINAL CTA Marines Furniture Program catalog.

INTERIOR DESIGN SUBMITTAL AND MEETING REQUIREMENTS

STRUCTURAL INTERIOR DESIGN (SID)

The SID submittal process must begin following the award of the RFP. The SID submittal includes Interior Design programming documents, Furniture and Equipment Plans, Finish Schedule, Wall/Floor Finish Plans, Wall/Floor finish pattern plans, Finish Legend, FF&E Programming Cost Estimates, interior renderings (to include ceiling, flooring, feature/accent walls, built-in millwork, and furniture), and interior finish/color and material sample binders. Refer to this RFP Part 4 Section Z10 *General Performance Technical Specifications* and Part 2 Section 01 33 10.05 20, *Design Submittal Procedures*.

Provide the following SID meetings and submittals;

a. Concept Design Workshop (CDW) (10%-15%) or Initial Design Meeting: The Contractor's Interior Designer must meet with the Activity to develop the Interior Design SID programming documents, which will include a preliminary Furniture and Equipment Plan and the FF&E Summary List. The Contractor's Interior Designer will provide in-depth room by room interviews to confirm Activity requirements for the new facility(s). These interviews must occur at the Activity's current location, if possible, to include building walk-thru(s). Submit minutes of this meeting to the NAVFAC Interior Designer within 7 days.

b. Design Development (35%-50%) Submittal: The Contractor's Interior Designer must provide a conceptual Finish Schedule, proposing finish materials to be used in all spaces. The Furniture and Equipment Plan and FF&E Summary List should be further developed and included in this submittal.

c. SID "Over the Shoulder" Review: Prior to the Prefinal (100%) Submittal, the Contractor's Interior Designer must meet with the NAVFAC Interior Designer for an "over-the-shoulder" review meeting to present a minimum of (3) options for the interior building finishes/colors/materials. Finishes must display manufacturer's label/specifications and be sent to NAVFAC Interior Designer in a "loose" format for review during the over-the shoulder meeting. This preliminary approval must occur prior to the presentation with the Activity. The over-the-shoulder review meeting is to be held at NAVFAC.

d. Prefinal SID Submittal: The Pre-final submittal must include all NAVFAC/Activity approved finish samples, an updated Furniture and Equipment Plan, Finish Schedule, Wall/Floor Finish Plan, Wall/Floor pattern plans, and Finish Legend for review and approval. The Pre-Final Submittal drawings and all approved finishes must be submitted in both electronic format and 8-1/2" x 11" original hardcopy binder format, using heavy duty plastic sheet protectors.

e. Final Submittal: The Contractor's Interior Designer must incorporate the final approved

Furniture and Equipment Plan, Finish Schedule, Floor Finish Plan and Finish Legend into the Contractor's final drawing set. These drawings and all approved finishes must be submitted in 8-1/2" x 11" binder format, using heavy duty plastic sheet protectors. Three (3) sets of the Final SID Submittal must be distributed one each to the NAVFAC Project Manager, FEAD/ROICC, and the Activity.

STRUCTURAL INTERIOR DESIGN (SID) CONSTRUCTION SUBMITTALS

Substitutions to the SID finishes are not permitted once they have been approved by NAVFAC during the design phase. In the event that revisions are required due to unforeseen conditions such as discontinued product, such revisions must be submitted via the FEAD/ROICC for approval by the NAVFAC Interior Designer before substitutions can be made.

FIXTURES, FURNISHINGS AND EQUIPMENT (FF&E)

The FF&E process must begin approximately with the 35% design submittal. The submittals include fixtures, furnishings, and equipment layout and quantities in accordance with the Activity requirements to produce an optimally functional facility. FF&E are all items that are not fixed to the structure but are fully integrated with the building systems and finishes. Refer to RFP Part 4 Section Z10 *General Performance Technical Specification* and Part 2 Section 01 33 10.05 20, *Design Submittal Procedures*.

Develop design as described and in accordance with the Activity requirements. Include in the design all loose furnishings required to produce an optimum functional facility, consistent with quality commercial design.

For all projects, including fast track projects, the Contractor is responsible for sufficiently scheduling all SID/FF&E submittals early enough to obtain the required government approvals, and meeting all ordering and installation lead times to complete the project by the contract completion date.

These are minimum requirements and the Contractor must provide any/all additional meetings and submittals that may be necessary to support the Interior Design effort/FF&E coordination.

Provide the following FF&E meeting and submittals:

a. FF&E Requirements (Interior Design Orientation) Meeting: This meeting must occur upon completion of the Concept Design Workshop, at NAVFAC, prior to the development of the FF&E Basis of Design Package. The NAVFAC Interior Designer will provide the Contractor's Interior Designer with the required NAVFAC documentation format for the Furniture, Fixtures, and Equipment (FF&E) Basis of Design Package and SID. The GSA MAS can be accessed at https://www.gsa.gov/buying-selling/purchasing-programs/gsa-multiple-award-schedule/gsa-schedule-offerings/mas-categories/furniture-furnishing-category. Minutes of this meeting must be submitted to the NAVFAC Interior Designer within 7 business days.

b. FF&E "Over the Shoulder" Review: Prior to the Preliminary FF&E Basis of Design Submittal, the Contractor's Interior Designer must meet with the NAVAC Interior Designer for an "over-the-shoulder" review to present preliminary FF&E options. These can be presented in a "loose" format for preliminary approval prior to the Activity presentation. The "over-the-shoulder" review meeting is to be held virtually via MS Teams.

c. FF&E Presentation: The Contractor's Interior Designer must present the NAVFAC approved preliminary FF&E options to the Activity for approval. This presentation must include loose format samples and catalog cuts. Sample boards are not required.

d. Preliminary FF&E Basis of Design Submittal: The Preliminary FF&E Basis of Design

submittal is due at Pre-Final design. It must be presented to the Activity and NAVFAC Interior Designer. Submit the following in a 3-ring binder with all the information in sheet protectors:

1. Cover Title Page (project name, project #, submittal date, submittal title)
2. Furniture Footprint Plans coded to the FF&E list and FF&E Basis of Design furnishings product data/specifications sheets.
3. Preliminary Product Data/Specifications Sheets for furniture, furnishings, etc.
4. Catalog cuts and finish samples for all specified items.
5. (1) electronic copy of the preliminary FF&E binder (combined PDF, bookmarked per section of the complete FF&E Submittal and the excel version of the Summary and Specification Workbook).
6. (8x10) binder format FF&E finish/material sample boards.

e. Final FF&E Submittal: Submit the Final FF&E documentation within 30 calendar days following the receipt of review comments on the preliminary FF&E submittal. The Final submittal must incorporate the following:

1. Cover Title Page (project name, project #, submittal date, submittal title)
2. Furniture Footprint Plans coded to the FF&E list and FF&E Basis of Design furnishings product data/specifications sheets.
3. Final Product Data/Specifications Sheets for each product indicating final finish and fabric selections.
4. Catalog cuts and finish samples for all specified items.
5. (1) electronic copy of the preliminary FF&E binder (combined PDF, bookmarked per section of the complete FF&E Submittal and the excel version of the Summary and Specification Workbook).
6. Updates to (8x10) binder format FF&E finish/material sample boards.

E2010 FIXED FURNISHINGS (SID)

Fixed furnishings (SID) are funded as part of the construction project and are not funded as part of FF&E. Each submittal must demonstrate complete coordination with the facility design and with the movable furnishings.

Develop design as described herein and provide storage shelving, equipment racks, and window treatments. Cross reference C10 Interior Construction, and C30 Interior Finishes, for performance requirements.

E201001 FIXED ARTWORK

Design and provide Activity identifying signage and command logo in the main lobby, duty area, or main corridor of each BEQ building. Exact locations to be determined during design. The command logo must be a minimum of 36" diameter and must incorporate mixed materials, colors and finishes such as metal, glass, wood. The identifying signage must consist of raised, brushed aluminum text on stand offs. Text must be a minimum of 6" high, unless approved otherwise. The intent of this fixed artwork is to assist with command identification, branding and to add interest to the space. Incorporate overhead and backlighting to accent the logo.

Design and provide wall mounted 3-dimensional acoustical panels on two walls in the Multi-Purpose room and Quiet room. Acoustical wall panels to be varying colors and shapes. Laser cut 3-dimensional acoustical wall panels must be factory laser cut. Incorporate overhead and backlighting to accent the acoustical wall panels.

The acoustical wall panels must be constructed of 100% wool felt or Polyethylene Terephthalate (PET), as appropriate to accomplish the design intent of the project and acoustical requirements.

Acoustical wall panels must meet all applicable Life Safety/Fire Safety codes and must be submitted to the NAVFAC Interior Designer and Fire Protection Engineer for review and approval. Finish selected from manufacturer's full range of offerings.

The Contractor is responsible for providing all required wall backing to support the Fixed Artwork.

E201002 WINDOW TREATMENTS

Provide window treatments per FC 4-721-10N, *Navy and Marine Corps Unaccompanied Housing*, Chapter 3; General Design Criteria.

Provide all windows and other glazed openings to the exterior of the building with cordless, manually operated double-roller sunscreen and black-out shades.

Shade housing (fascia, valence, and trim) must be located above the window frame as to not conceal the glazing. Recess shade in ceiling at locations where window frame is at same level as ceiling system. All exposed roller shades must be furnished with metal fascia / valance. Provide side channels for black-out shades to prevent light leak / bleeding. Light seal hem bar may be provided in lieu of sill channel.

Shade cloth material and finish must be coordinated with NAVFAC Interior Designer during design-build. The following openness factors must be provided:

Sunscreen: 3% openness

Black-out: 0% openness

Provide interior windows with translucent window film.

E201007 INTERIOR SIGNAGE

All necessary interior signage must be incorporated as part of the architectural drawings. Interior signage is not collateral equipment. Interior signage must demonstrate complete coordination with the facility design, SID and FF&E submittals. Coordinate with section C1000.

E2020 MOVABLE FURNISHINGS

The design of the FF&E Basis of Design Package and the FF&E summary list are funded as part of the construction contract base bid. The purchase and installation of the FF&E will be executed by the Marine Corps through the US Army Corps of Engineers Procurement Center, Huntsville, Alabama.

--End of Section--

6. ENGINEERING SYSTEMS REQUIREMENTS

F10 SPECIAL CONSTRUCTION

SYSTEM DESCRIPTION

Special Construction includes special construction systems.

GENERAL SYSTEMS REQUIREMENTS

F1030 SPECIAL CONSTRUCTION SYSTEMS

Not used

--End of Section--

6. ENGINEERING SYSTEMS REQUIREMENTS

F20 SELECTIVE BUILDING DEMOLITION

GENERAL SYSTEMS REQUIREMENTS

Perform all off-site work necessary to meet the requirements of the project, local codes, reference standards, technical specifications and performance criteria.

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

Coordinate and obtain approval from the Contracting Officer for proposed haul route(s), work site access point(s), utility connections, employee parking location(s) and material laydown and storage area(s).

Contractor must pay all permit application and processing fees in addition to all mitigation fees associated with permitted activities.

F2010 BUILDING ELEMENTS DEMOLITION

See Part 3B - Chapter 6 Selective Building Demolition for information specific to each site.

--End of Section--

6. ENGINEERING SYSTEMS REQUIREMENTS

G10 SITE PREPARATION

See Part 3B for information specific to each site.

--End of Section--

6. ENGINEERING SYSTEMS REQUIREMENTS

G20 SITE IMPROVEMENTS

See Part 3B for information specific to each site.

--End of Section--

6. ENGINEERING SYSTEMS REQUIREMENTS

G30 SITE CIVIL/MECHANICAL UTILITIES

See Part 3B for information specific to each site.

-- End of Section --

6. ENGINEERING SYSTEMS REQUIREMENTS

G40 SITE ELECTRICAL UTILITIES

SYSTEM DESCRIPTION

Demolish the existing electrical distribution system to a point of connection (POC) as dictated by the Marine Base Department or Public Works (DPW). See Part 3B and Part 6 for each Marine Corps Base site new POC. The site electrical utility system consists of all power and telecommunications and fiber optic cabling from the existing distribution system point of connection including all connections, accessories and devices as necessary and required for a complete and usable system. This section covers installations up to within 5 feet (1.5 meters) of new (or existing) building location. See Part 3B - Chapter 6 Selective Building and Utilities Demolition for information specific to each site.

Design and installation of the site electrical utilities must be in accordance with UFC, NFPA, and other Codes and Regulations, to include but not limited to the following:

National Fire Protection Association (NFPA) Codes:

NFPA 20	Standard for the Installation of Stationary Pumps for Fire Protection
NFPA 70	National Electrical Code
NFPA 101	Life Safety Code
NFPA 780	Standard for the Installation of Lightning Protection Systems

Unified Facilities Criteria (UFC):

FC 1-300-09N	Navy and Marine Corps Design Procedures
FC 4-721-10N	Navy and Marine Corps Unaccompanied Housing
UFC 1-200-01	DoD Building Code (General Building Requirements)
UFC 1-200-02	High Performance and Sustainable Building Requirements
UFC 3-501-01	Electrical Engineering
UFC 3-520-01	Interior Electrical Systems
UFC 3-530-01	Interior and Exterior Lighting Systems
UFC 3-550-01	Exterior Electrical Power Distribution
UFC 3-560-01	Operation and Maintenance: Electrical Safety
UFC 3-575-01	Lightning and Static Electricity Protection Systems
UFC-3-580-01	Information and Communications Technology Infrastructure Planning and Design

UFC 4-010-01	DoD Minimum Antiterrorism Standards for Buildings
UFC 4-010-06	Cybersecurity of Facility-Related Control Systems (FRCS)
UFC 4-021-02	Electronic Security Systems

Miscellaneous:

International Building Code (IBC)

Illumination Engineering Society (IES) of North America

IEEE C2 National Electrical Safety Code

ANSI/TIA Standards

BICSI Telecommunications Distribution Methods Manual

BICSI Outside Plant Design Reference Manual

Additional Design Standards:

The Designer of Record (DOR) must use NAVFAC details wherever applicable. Where standard NAVFAC details do not capture the intent of the specific design, the DOR must provide their specific detail or modify the NAVFAC detail in a manner that clearly defines the installation requirements. Utilize standard NAVFAC (NL) and (XL) lighting plates where possible for all interior and exterior lighting applications. Provide more specific details where warranted, but provide a plate or detail for each lighting fixture and pole configuration utilized within the project design. Utilize standard NAVFAC (UG) and (OH) plates for underground structures and overhead pole construction wherever applicable. If directed by the Base Transmission and Distribution personnel, provide standard utility pole details that better captures the type of construction utilized by the Base. As with all standard details, provide more specific details where warranted, but provide a plate or detail for each structure utilized within the project design.

The electrical legend and symbols used throughout the design must be similar to those defined in Appendix D of TSEWG TP-12. Reference all electrical details utilized in the drawings. Detail bubbles or notes used on the site plan sheets must clearly reference where in the set of drawings the detail resides. The detail title must, in-turn, reference where in the plans the detail originates. General details that are not specifically referenced will not be allowed. Coordinate and utilize the same symbol graphic for details on the site electrical and telecommunication plans as the Civil and other site design disciplines drawings employ. Site lighting and power plans must clearly denote diagrammatically all branch circuit information complete with homeruns and raceway graphics to logically group circuits and devices together. Feeders and large branch circuits, or a concentration of branch and signal conduits must be identified using duct bank nomenclature and graphics.

All equipment must be rated for the environment for which it is installed. Exterior mounted equipment must be rated for local coastal, high humidity, marine environment.

Manholes for underground medium voltage distribution systems must only be used with permission from the Activity. Generally, for medium voltage system extensions and radial facility feeds, 4-way above-ground tap boxes (CTCs) using dead-front load-break elbow connectors must be used in lieu of manholes or hand holes. Do not splice medium voltage cable below grade. Provide pre-fabricated

concrete box pads for all pad mounted transformer, switchgear, or CTCs with a minimum 24” depth of pull space and 6” of crushed stone below the pad.

GENERAL SYSTEM REQUIREMENTS

Provide an Electrical System complete in place, tested and approved, as specified throughout this RFP, as needed for a complete, usable and proper installation. Install all equipment in accordance with PTS Section G40 and the manufacturer's recommendations. Where the word "should" is used in the manufacturer's recommendations, substitute the word "must".

Provide site electrical utilities systems and components that support project sustainability goals of Part 2 UFGS Section 01 33 29, *Sustainability Requirements and Reporting*.

G4010 ELECTRICAL DISTRIBUTION

Connect to the existing medium voltage, three-phase, four-wire, 60 Hertz base electrical power system. See Part 3B for overhead or underground point of connection and extend to the project site via underground ductbank to the pad mounted transformer(s). See Part 3B for site specific distribution voltage.

The available fault current at the point of connection will be provided by the government. Do not assume infinite bus.

G401002 TRANSFORMERS

Provide three-phase pad mounted transformer(s) to feed the facility. Refer to UFC 3-550-01 3-5.3 regarding transformer(s) and voltage(s) requirements for Barracks.

See Part 3B for additional requirements for each site.

Provide the following features:

- Dead-Front Design with ANSI specific front plate spacing
- Feed-through loop feed switch
- Three surge arresters for radial feed circuits.
- Biodegradable less-flammable liquid-insulated

G401004 OVERHEAD ELECTRIC CONDUCTORS

See Part 3B for each site.

G401005 TOWERS, POLES, CROSSARMS AND INSULATORS

See Part 3B for each site.

G401006 UNDERGROUND ELECTRIC CONDUCTORS

Provide a medium voltage and a 600 volt secondary underground electrical power distribution systems to meet the connection requirements as indicated in paragraph G4010 "Electrical Distribution". Provide fused cut-outs on connections to overhead distribution systems.

See Part 3B for each site.

G401007 DUCTBANKS, MANHOLES, HANDHOLES AND RACEWAYS

Provide a system of concrete encased ductbanks and handholes for all underground power wiring. All underground structures and covers subject to vehicular traffic must be AASHTO H-20 rated. Do not utilize manholes for power on MCB Camp Lejeune and MCAS New River.

Directional boring is acceptable for electrical underground power wiring per UFC 3-550-01. Directional boring is acceptable for telecommunications per UFC 3-580-01.

See Part 3B for each site.

G401008 GROUNDING SYSTEMS

Provide a complete grounding system for the electrical power distribution system.

G401009 METERING

Provide a separate Kilowatt Demand Meter for each Pad Mounted Transformer. See Part 3B for each Marine Corps Base site standards.

Provide each secondary switchgear or switchboard with a separate digital circuit monitor/analyzer. Provide equipment with capabilities to connect to the existing base monitoring system.

See Marine Corps Base electrical design guides for information specific to each base.

G401011 EQUIPMENT REQUIREMENTS FOR COASTAL AND HIGH HUMIDITY AREAS

Provide exterior equipment designed for coastal and high humidity areas. Provide NEMA 4X minimum 316SS exterior equipment.

G4020 SITE LIGHTING

Provide site lighting for exterior parking lots, access roads, signage, and basketball court. Include underground distribution, handholes, grounding, poles, fixtures and controls as required for a complete and usable system. All exterior lighting must comply with UFC 3-530-01 Interior and Exterior Lighting Systems and Controls.

Maximum correlated color temperature (CCT) for exterior lights must be 4000 Kelvin and must match the CCT of the existing LED luminaires installed on adjacent sites, for a consistent appearance across the campus. Coordinate the CCT of all pole mounted, bollard, and building mounted exterior fixtures such that the color temperature does not deviate more than 10% of the average CCT across the Campus.

G402001 EXTERIOR LIGHTING FIXTURES AND CONTROLS

Provide LED type lighting fixtures, complete with lamps.

Provide an automatic lighting control system for exterior lighting fixtures utilizing lighting contactors or relays, time switches, motion sensors, and photocell switches such that lighting will automatically turn

"ON" and turn "OFF" as required by UFC 3-530-01.

G402003 OTHER AREA LIGHTING

Provide area lighting for sports courts, drying shelter, washing stations, picnic shelters and other recreational areas.

G402004 LIGHTING POLES

Provide poles with anchor base, complete with concrete foundations for site lighting. Provide pole type and construction to match the requirements of the site's Base Exterior Architecture Plan (BEAP). Provide poles with concrete foundation that extends 3 feet above finished ground where subject to vehicular traffic.

The entire pole assembly must meet the wind loading criteria for the site. See Part B10 for wind loads.

G402005 UNDERGROUND ELECTRIC CONDUCTORS

Provide a complete underground distribution system for all site lighting systems.

G402006 DUCTBANKS, MANHOLES AND HANDHOLES

Provide a direct buried underground system including conduits and handholes to meet the connection requirements indicated in paragraph G4020 "Site Lighting".

G402007 GROUNDING SYSTEMS

Provide a complete grounding system for all site lighting systems.

G4030 SITE COMMUNICATION AND SECURITY

Provide a site communication system including, but not necessarily limited to, Voice and Data Telecommunications Systems and Cable Television (CATV) Systems including all conduit and wiring, underground structures, termination equipment, poles and structures, and grounding systems as required for a complete and usable system.

G403001 TELECOMMUNICATIONS SYSTEMS

Provide a complete Outside Plant (OSP) telecommunications system connecting from the First Floor Building Entrance Facility (EF/TR) to the serving Base telecommunications infrastructure in accordance with UFC 3-580-01, base/facility criteria, and applicable industry standards. The OSP system must include all pathways, structures, cables, grounding and bonding, splicing, testing, documentation, and restoration necessary to place the facility into full operational service. Coordinate with G6 for detailed information.

OSP Pathways and Structures

The Outside Plant (OSP) pathway must consist of some concrete-encased duct bank system extending from the Building Entrance Facility/Telecommunications Room (EF/TR) to the G6-designated Base telecommunications connection point, in accordance with UFC 3-580-01 and applicable base standards.

The OSP pathway must include conduits and structures required to accommodate routing, pulling distances, changes in grade or direction, and maintenance requirements. Pathway components must include, but are not limited to:

- 4-inch diameter conduits, in accordance with UFC 3-580-01
- Communications Manholes (CMH)
- Communications Handholes (CHH)

Manholes and handholes must be installed at appropriate intervals, at major changes in direction or elevation, and at locations necessary to support cable pulling, splicing, and future maintenance activities. All OSP structures must be rated for the applicable traffic loading in accordance with ANSI/SCTE 77, where required, and must be installed in accordance with manufacturer's installation requirements, UFC 3-580-01, and applicable base criteria.

Where site conditions warrant and where approved by the G6, 4-inch HDPE conduit installed using horizontal directional drilling (HDD) methods may be utilized in lieu of open-cut trenching.
HDD-installed conduit must meet all UFC 3-580-01 requirements for material, installation, separation, depth, and long-term serviceability.

Innerduct / Textile Fabric Mesh Solution

For underground installation, new fiber optic cable must be installed in either an innerduct, subduct, or textile fabric mesh solution. More than one fiber optic cable may occupy a multi-cell textile fabric mesh solution.
When existing underground pathway conduit systems are reutilized, the preferred solution must be determined based on the installation location and conditions.
Fiber optic cables must never be installed directly into a 4-inch (100-millimeter) duct.

Existing Infrastructure, Relocation, and Bypass

Where existing telecommunications facilities are present within or adjacent to the construction footprint, the OSP system must include all work required to:

- Locate and verify existing OSP and ISP facilities
- Maintain continuous service to all downstream users
- Provide temporary and/or permanent bypass pathways, cables, and splicing
- Perform service cutovers
- Remove and demolish abandoned telecommunications facilities
- Restore all disturbed areas

All such work must be coordinated with the Base Network Enterprise Center (NEC) and performed in compliance with UFC 3-580-01 and base requirements.

Relocation and Bypass Requirements

Individual site locations, conditions, and requirements for OSP relocation, bypass, demolition, cutover, testing, and restoration are identified and described in Part 3B G40. Review G40 of Part 3B to determine the specific scope and requirements applicable to each project location.
Temporary telecommunications connections may be required during construction to maintain service to facilities scheduled for demolition following project completion. Where a temporary connection serves a facility that will be demolished, and where underground installation is not practical or is not warranted due to the temporary nature of the connection, temporary above-ground telecommunications cabling may be utilized, subject to approval by the G6.
All telecommunications infrastructure installation, relocation, bypass, and temporary connection work must be performed in accordance with UFC 3-580-01, base/facility criteria, and applicable Department of Defense and industry standards, unless otherwise approved by the G6. All cutover activities, temporary service provisions, and final removals must be coordinated with the G6.

Although the UFC allows exterior service equipment, this project requires that all telecommunications services enter the building underground only. Overhead drops and staked pedestals are not allowed. The contractor may use their standard methods only where not otherwise restricted. Any variance from the underground-only requirement must be approved by the G6.

G403002 CABLE TV SYSTEMS (CATV)

Provide and install infrastructure for the Cable Television (CATV) system in accordance with UFC 3-580-01 and all applicable standards. Connection to the existing CATV service must be coordinated with the Base Communications Officer G6 and the local CATV provider.
General requirements for exterior and interior CATV systems apply to all facilities under this project. Provide one empty 103 mm (4-inch) conduit with pull string between the exterior connection point and the telecommunications equipment room.

Although the UFC allows exterior service equipment, this project requires that all CATV services enter the building underground only. Overhead drops and staked pedestals are not allowed. The contractor may use their standard methods only where not otherwise restricted. Any variance from the underground-only requirement must be approved by the G6.

G403003 CABLES AND WIRING

Cables and wiring for site telecommunications systems are required as stated in their respective categories.

G403004 DUCTBANKS, MANHOLES AND HANDHOLES

Provide a system of duct banks, manholes, and handholes for site telecommunications.

G403009 GROUNDING SYSTEMS

Provide a complete grounding system for all site communications and security systems.

G403010 INDUSTRIAL CONTROL SYSTEMS (ICS)

Not used.

G409007 PHOTOVOLTAIC ENERGY SYSTEM

See Part 3B D50 for site specific requirements.

-- End of Section --

6. ENGINEERING SYSTEMS REQUIREMENTS

H10 WATERFRONT STRUCTURES

Not used.

--End of Section--

6. ENGINEERING SYSTEMS REQUIREMENTS

H20 GRAVING DRYDOCKS

Not used.

--End of Section--

6. ENGINEERING SYSTEMS REQUIREMENTS

H30 COASTAL PROTECTION

Not used.

--End of Section--

6. ENGINEERING SYSTEMS REQUIREMENTS

H40 NAVIGATION DREDGING AND RECLAMATION

Not used.

--End of Section--

6. ENGINEERING SYSTEMS REQUIREMENTS

H50 WATERFRONT UTILITIES

Not used.

--End of Section--

6. ENGINEERING SYSTEMS REQUIREMENTS

H60 WATERFRONT DEMOLITION

Not used.

--End of Section--

6. ENGINEERING SYSTEMS REQUIREMENTS

H70 WATERFRONT ATFP

Not used.

--End of Section--

PART THREE “B”- PROJECT PROGRAM

Project Program

RFP ORGANIZATION OUTLINE

Marine Corps Barracks – Repair by Replacement
P1634RR
FY27
Category Code 72111

MCB Camp Lejeune – French Creek Jacksonville, NC

This RFP establishes a standard design approach for the Marine Corps Barracks Initiative and is organized based on the following:

Part 2 – Requirements established for specific Marine Corps Installation

Part 3 "A" – Requirements established as the standard design

NOTE: In sections where there are site specific requirements indicated, only those requirements that are associated with the project location are applicable.

Part 3 "B" – Requirements specific to the project site(s) to supplement sections of Part 3A that are not standard design requirements

Part 4 – Requirements established as the standard design

Part 5 – Requirements established as the standard design

Part 6 – Documents specific to the project

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6. ENGINEERING SYSTEMS REQUIREMENTS

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D50 Electrical Power and Lighting
F20 Selective Building Demolition
G10 Site Preparations
G20 Site Improvements
G30 Site Mechanical Utilities
G40 Site Electrical Utilities

Part 3 contains the project description, functional and performance requirements, scope items, and expected quality levels that exceed Part 4. Part 4 identifies design criteria, verification requirements, and performance and quality requirements of products. See "Order of Precedence" paragraph in Part 2 for relationships between all parts of this RFP.

2.0 PROJECT OBJECTIVES

2.6 Special Design Challenges

Phased Construction Required. Contractor required to submit a detailed phasing plan with the design submittal for Government approval

Phase 1: Construct BEQ(s) and associated site amenities.

Allow 120 calendar days for GFGI furniture/equipment and occupancy of residents prior to next phase.

Phase 2: Demolish BEQ 1340

Refer to Part 3 Chapter 3 and Chapter 6 for additional requirements.

<u>Additional Building Commissioning Requirements</u>

The Government will provide details in a revised Section 01 91 00.15 22 *Total Building Commissioning* (currently in Part 2 of this RFP) as design progresses. The DOR must edit the following specification sections (in Part 6 of this RFP) based on project-specific requirements:

- UFGS 01 91 19 *Building Enclosure Commissioning*
- UFGS 23 05 93 *Testing, Adjusting, and Balancing for HVAC*
- CLGS 23 09 00 *Instrumentation and Control for HVAC*
- CLGS 23 09 13 *Instrumentation and Control Devices for HVAC*
- CLGS 23 09 23.*02 BACNET Direct Digital Control for HVAC and other Building Control Systems*
- UFGS 25 05 11.00 *Cybersecurity for Facility-Related Control Systems – Isolated Systems*

Perform all work in section 23 09 00 *Instrumentation and Control for HVAC* by a first-tier subcontractor or the prime's mechanical subcontractor. Control system testing personnel must be regularly employed in the testing and calibration of control systems with a minimum of 2 years of experience with on-site system testing and troubleshooting.

--End of Section--

3.0 SITE ANALYSIS

3.1 Existing Site Conditions

With this project, existing Bachelors Enlisted Quarters (BEQ) Building 1340 will be demolished and replaced. BEQ 1340 is located northwest of the intersection of Dogwood Street and Louis Road in the French Creek section of Marine Corps Base (MCB) Camp Lejeune. BEQ 1340 provides 85 sleeping quarters. The existing building site also contains two (2) bituminous asphalt paved parking lots, two (2) basketball courts, a covered gathering area with a concrete pad and picnic tables, concrete sidewalks, and utilities to support the building.

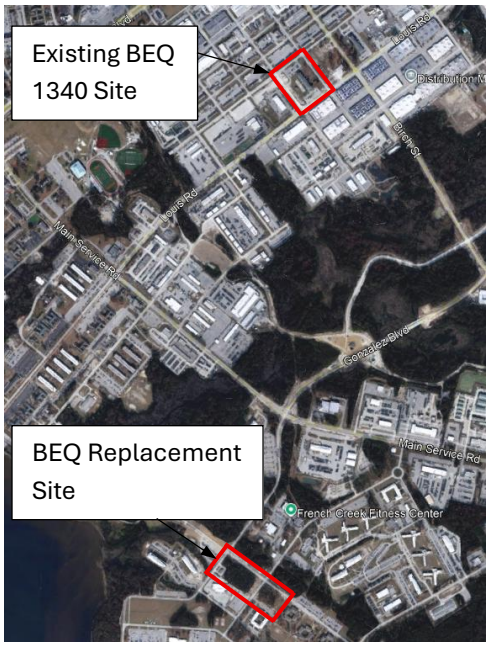

Figure 1 – Vicinity Map

The site selected for construction of the replacement BEQ is located to the southeast of the intersection of Gonzalez Blvd. and Conner Street. The project site includes the area bound on the west by Gonzalez Blvd., the north by Conner Street, the east by the P-1199 project site (FC401, FC402, and FC403), and the south by the French Creek MCX and 8th Engineer Support Battalion building sites. H.M. Smith Boulevard running in a northeast to southwest direction bisects the site, effectively resulting in two land parcels. The Green Clean Auto Spa (Building 1053) in the southwest corner of the project site and the parking lots supporting the buildings along the southern edge of the project site are to remain.

Figure 2 – Site Limits

The project site is in a developed portion of the French Creek area, but the site itself is undeveloped. The portion of the site to the west of H.M. Smith Blvd. is densely wooded with only a small portion of the eastern edge cleared. The portion of the site to the east of H.M. Smith Blvd. is less densely wooded but contains trees over the majority of the area. This portion of the site is cleared of the dense ground cover that is present on the western side of the site.

3.1.1 Natural Constraints

3.1.1.1 Topography

The site is relatively flat with elevations ranging from approximately 24 feet to approximately 21.5 feet. A topographic survey of the project site is included in Part 6.

3.1.1.2 Vegetation / Landscaping

The site is almost fully vegetated with large trees, small shrubs, and dense underbrush on the western side, A small portion of land is cleared west of H.M. Smith Boulevard. This area appears to be a utility corridor.

3.1.1.3 Protection of Natural Resources

A National Environmental Policy Act (NEPA) review was conducted for this project. The purpose of the NEPA review is to present an overview of known or potential environmental issues that must be considered and addressed during construction. Based on this review, it has been determined that this project is categorically excluded (CatEx) from further NEPA documentation including an Environmental Assessment or an Environmental Impact Statement. See Decision Memorandum in Part 6.

Protection of natural resources is defined as minimizing interference with disturbance to, and damage to fish, wildlife and plants, including their habitats. Prior to the commencement of activities, the Contractor must consult with Camp Lejeune Environmental Management Division (EMD), regarding rare species or sensitive habitats that need to be protected. The protection of rare, threatened, and endangered animal and plant species identified, including their habitats, is the Contractor's responsibility.

The Contractor must preserve the natural resources within the project boundaries and outside the limits of permanent work. Restore to an equivalent of improved condition upon completion of the work that is consistent with the requirements of the Camp Lejeune EMD or as otherwise specified. Confine construction activities to within the limits of the work indicated or specified.

3.1.1.4 Climatology

Climatological Conditions: Climate: Humid, Sub-tropical
Temperature: Annual Average Temperature: 72.2°
Rainfall: Average Annual Rainfall: 53.31 inches
Snowfall: Very Seldom
Subject to occasional hurricanes between June and November

3.1.1.5 Wetlands

Not used.

3.1.1.6 Reference Geotechnical Soils Report

A geotechnical investigation report is provided in Part 6 Attachments.

3.1.1.7 Indicate Environmental Restrictions

PFAS contaminant impacted soil and groundwater conditions are present on the project site. The Contractor must provide sampling, testing, and offsite disposal of all surplus PFAS impacted soil media and sampling, testing and onsite treatment of all PFAS impacted construction dewatering effluent as specified.

3.1.1.8 Radon Contamination (Refer to EPA Radon Zone Map)

Not used.

3.1.1.9 Reference Wave, Current and Tide Reports

Not used.

3.1.1.10 Hydrographic Survey

Not used.

3.1.1.11 Unexploded Ordnance (UXO) Survey or Evaluation Reports

Not used.

3.1.1.12 Existing Waterfront Facility (above and underwater) Inspection Reports

Not used.

3.1.1.13 Coral or Other Marine Life Maps/Reports

Not used.

3.1.2 Man made

3.1.2.1 Existing Vehicular Access and Circulation

The existing site currently does not receive vehicular traffic or contain areas for vehicle parking. There are opportunities to provide vehicular access to the site via the surrounding road network. Access to the site could be provided by Gonzales Boulevard on the west, Conner Street on the north, or H.M. Smith Boulevard that bisects the site. Access to all surrounding buildings must be maintained throughout all phases of the project.

3.1.2.2 Site Utilities

Site utility information listed below and shown in Part 6 is based on a Level B Subsurface Utility Engineering (SUE) survey on the west side of H.M. Smith Boulevard, a Level C SUE survey on the east side of H.M. Smith Boulevard and a standard topographic survey encompassing the entire project area. All surveys were performed in December 2025 and January 2026. Base provided GIS utility data was used to supplement on-site survey data.

3.1.2.2.1 Sanitary Sewer

There are two existing sanitary sewer mains that parallel H.M. Smith Blvd. and run through the project site on the northeast side of the road. The northernmost line is a 12-inch gravity main. The southernmost line is an 8-inch force main. The 12-inch gravity main ties to a 24-inch line that parallels the south side of Conner Street (Julian C. Smith Street) and runs through the northern edge of the project site. Another 24-inch gravity main parallels the north side of Conner Street (Julian C. Smith Street) and is off the project site. A 12-inch lateral picking up sanitary flows from adjacent buildings, runs through the southeastern portion of the site. The Camp Lejeune Asset Management Branch has indicated either of the gravity mains on the project site can support the flows generated from this project.

A 10-inch sanitary lateral serving the French Creek MCX runs along the southern edge of the project site. This lateral cuts through a portion of the project site as it ties to the main along H.M. Smith Blvd.

MCB Camp Lejeune owns and operates the sanitary sewer system.

3.1.2.2.2 Water Distribution

There is an existing 8-inch water distribution main that parallels Gonzales Blvd. and runs along the western edge of the project site. Another existing 12-inch water main parallels H.M. Smith Blvd. and runs through the site on the southern side of the road. An 8-inch line branches off this main and runs across the site to the southeast. Laterals from existing off-site buildings, and fire hydrants tie into these mains.

The Camp Lejeune Asset Management Branch has indicated that adequate capacity exists in either main to support the project.

Existing hydrant flow and pressure tests are included in Part 6 “Preliminary Fire Hydrant Flow Test Report”. The condition of the pipes is assumed to be satisfactory.

MCB Camp Lejeune owns and operates the water distribution system.

3.1.2.2.3 Steam

There are two steam lines that run along the eastern edge of the project site. The Camp Lejeune Asset Management Branch has indicated the steam lines are inactive and have been abandoned in place. The Contractor shall remove all abandoned steam lines within the project site and is to assume they are wrapped in asbestos and proper safety procedures for asbestos removal must be followed.

3.1.2.2.4 Natural Gas Service

The A&E will require coordination with Piedmont Natural Gas/Duke Energy to determine service availability. Piedmont will provide natural gas piping to the meter and KTR will provide house pipe from the meter to the building(s).

3.1.2.2.5 Electrical Distribution and Communications/Outside Plant

There are telecommunication and electrical duct banks and overhead electric lines on and in close proximity to the project site. Confirm with the Base Telecom and Public Works Departments before assuming any electrical or telecommunication lines can be relocated. Coordinate demolition and removal of all telecommunications systems with the Base Communications Group via ROICC a minimum of 30 days prior to performing the work at hand.

See ESR G40, Site Electrical Utilities for additional electrical and telecommunications site work requirements.

3.1.2.3 Site Drainage & Stormwater Management

There is an existing storm sewer system near the intersection of H.M. Smith Blvd. and Conner Street. This system carries storm water runoff from the site to the north to an existing stream/wetland area in the wooded lot north of Conner Street. The roof and area drains from the French Creek MCX site tie to a storm sewer system that carries flow to the east towards another existing stream/wetland area.

There are no existing Stormwater Control Measures (SCM) on the project site; however, there are existing State stormwater permits for the French Creek MCX site (Permit number: SW8120302) and the P-1199 redevelopment site (Permit number: SW8211111). SW8120302 permit plans can be found in Part 6. Any site disturbance that encroaches into the permit boundaries of the adjacent sites

will require a modification to that permit. Permit modifications must be reviewed and approved by the North Carolina Department of Environmental Quality (NCDEQ) through the Wilmington Regional Office.

3.1.2.4 Existing Buildings

Building 1053 (Green Clean Auto Spa) is located in the southwestern corner of the project area. Directly south, and outside the project site is the French Creek MCX Mini Mart. The P-1199 development (buildings FC401, FC402, and FC403) lies to the east of the project site. All buildings are operational and access is to be maintained through the life of the project.

3.1.2.5 Existing Waterfront Facilities

Not used

3.1.2.6 Existing Mooring Hardware and Fender System

Not used

3.1.2.7 Existing Dredging

Not used

3.1.2.8 Hazardous Materials and Substances

Refer to Part 6 Attachments for Hazardous Materials Report and Geotechnical Survey Report.

3.1.2.9 Fencing

Not used

3.1.2.10 Adjacent Land Use

On the western corner of the French Creek site is Building 1053 classified as a commercial use, and directly south is Building FC-245, an MCX site, and beside the MCX is a parking lot with diagonal parking slots. East of H.M. Smith Boulevard and south of the east side project site is administrative use.

3.1.2.11 Cultural Resources

Not used

3.1.2.12 AICUZ / Explosive Arcs / HERO Permits

Not used

3.2 Site Development Requirements

3.2.1 Site Improvements

The project will construct a new BEQ to replace the BEQ that is being demolished. The site must

be developed such that the new BEQ building and all other building functional requirements will be constructed in the northwest portion of the site adjacent to the Green Clean Auto Spa (Building 1053) and the French Creek MCX. All site amenities, other than parking, will be provided in the same area of the site as the building. Parking to support the new BEQ will be provided in the area to the southeast of H.M. Smith Blvd.

No preferred site layout has been chosen for this site. The designer of record must take all the requirements into consideration to develop a site plan that meets the requirements of this RFP, UFC 1-200-01 *DoD Building Code,* UFC 3-201-01 *Civil Engineering,* UFC 4-721-01 *Permanent Party Unaccompanied Housing*, FC 4-721-10N *Navy and Marine Corps Unaccompanied Housing,* and other UFCs and FCs referenced.

There is not a defined direction the buildings must face, moreover the orientation of the buildings is a function of the final site layout and accommodating the requirements of this RFP and applicable UFCs and FCs. The buildings must be in the area described above with the following constraints:

- Site new structures a minimum of 39 feet (12 meters) laterally from the closest adjoining building (FC 4-721-10N)
- Site new structures a minimum of 33 feet laterally from adjacent roadways and parking areas (UFC 4-010-01 DoD Minimum Antiterrorism Standards for Buildings)
- Provide a 33-foot unobstructed space around new buildings in accordance with UFC 4-010-01
- Site amenities are to be placed adjacent to the building in the area northwest of H.M. Smith Blvd.

3.2.1.1 Parking

Parking areas must provide a safe environment for pedestrians and drivers and implement measures in accordance with NCDOT Standards and Unified Facilities Criteria. All parking areas will be designed and constructed in accordance with the minimum standards of UFC 4-010-01, *Minimum Antiterrorism Standards for Buildings*, NCDOT Standards, and with the requirements contained in Part 3 Chapter 6 ESR G20.

On-street parking may not be used to meet the minimum parking space requirements. Parking space layout must not require vehicles to back onto any adjacent streets or entrance driveways. All parking must be at 90 degrees with two-way driveway access. Provide ABA accessible spaces within each parking area as required in accordance with Chapter 10 of the US Access Board Guide to the ABA Accessibility Standards for residential dwellings. See Part 3 Chapter 6 ESR G2020 for specific requirements.

Within parking areas, incorporate planting areas and LID features to the maximum extent possible.

Provide parking in accordance with SDDCTEA Pamphlet 55-17, UFC 3-201-01, *Civil Engineering*, and FC 4-721-10N. A minimum of 7 spaces for every 10 residents is required. The new BEQ will provide rooms for 170 occupants; therefore, a minimum of 119 resident parking spaces must be provided. Provide additional motorcycle parking for 5% of resident capacity (9 spaces). Also, provide one (1) dedicated parking space for the Barracks Manager and one (1) dedicated space for Duty Personnel for every barracks. Provide an additional amount of dedicated visitor parking at a rate of 2% of resident capacity (13 spaces). Parking stall, island, and aisle dimensions must be in accordance with Camp Lejeune BEAP, ABA, and UFC requirements with the order of precedence as listed hereon.

Design pavements based on the anticipated daily traffic over the life of the project (25 years) as well as the existing soil conditions at the site. The Designer of Record will need to coordinate with facility users to determine anticipated traffic patterns. Design pavement sections in accordance with UFC 3-201-01, *Civil Engineering*. Provide parking lots of bituminous pavement, porous bituminous pavement is not allowed. Motorcycle parking must be constructed of Portland Cement Concrete pavement.

3.2.1.2 Service Access

Refer to UFC 3-201-01, *Civil Engineering* for requirements and guidance. Design access streets and parking areas to accommodate service vehicles and fire protection equipment, Provide vehicular access to aerial fire apparatus within 33 feet of the new BEQ in accordance with UFC 3-600-01, *Fire Protection Engineering for Facilities*. Specific layouts will be determined during the design process.

Retain and ensure vehicular access to Building 1053, the adjacent Building FC-245, and the 8th ESB Headquarters all throughout the project development period.

3.2.1.3 Pedestrian Access and Circulation (flow, paths, etc.)

Locate and size walkways to efficiently provide safe, accessible, and direct pedestrian access to surrounding outdoor activity areas and facilities for site users. Grade walkways to drain away from buildings and ensure non-slip surfaces are provided. Consider security in all circulation designs.

Construct sidewalks to sizes conforming to those prescribed in FC 4-721-10N.

Provide secure, weather-protected bicycle parking in accordance with FC 4-721-10N, *Navy and Marine Corps Unaccompanied Housing*. Locate service access and parking to avoid disturbing residents. Provide parking entrances for two-way traffic, markings, and signage.

3.2.1.4 Recreational

Provide covered picnic shelter areas equipped with tables and barbecues, fire pits, exterior equipment washdown and drying areas, bicycle storage, and seating areas in compliance with FC 4-721-10N Navy and Marine Corps Unaccompanied Housing, UFC 3-201-02 Landscape Architecture, and the Camp Lejeune BEAP provided in Part 6 including site furnishings in accordance with Part 3 Chapter 6 ESR G204003 Exterior Furnishings.

3.2.1.5 Outdoor Activity Areas

Provide high-intensity interval training (HIIT) areas in compliance with FC 4-721-10N *Navy and Marine Corps Unaccompanied Housing*. Further details are provided in Part 3 Chapter 6 ESR G20.

3.2.1.6 Dumpster Pad and Enclosure

Provide two (2) heavy-duty concrete dumpster pads located outside the required 33-foot unobstructed space. Conceal dumpsters with a decorative, gated structure in accordance with Camp Lejeune BEAP provided in Part 6.

Locate dumpster enclosures for easy accessibility and outside of high visibility areas, while also meeting requirements of UFC 4-010-01.

3.2.1.7 Landscaping

Provide landscaping in compliance with UFC 3-201-02 *Landscape Architecture* and the Camp Lejeune BEAP provided in Part 6 including trees, shrubs, groundcover, and turf. Further details are provided in Part 3 Chapter 6 ESR G2050 Landscaping.

3.2.1.8 Utilities

Design and construct the new utility systems to minimize interruption of the site and adjacent

buildings while meeting basic functional criteria and economizing cost. Place utilities underground in corridors where it is possible to minimize cost and effort of performing maintenance and to minimize environmental disturbance. Avoid any service interruptions to adjacent facilities to the greatest extent possible. Any planned outages must be coordinated with base utilities personnel in advance.

3.2.1.8.1 Sanitary Sewer

It is anticipated the sanitary sewer flows from the new BEQ will be directed to either the 24-inch line that parallels the south side of Conner Street (Julian C. Smith Street) or the 12-inch gravity main that parallels H.M. Smith Blvd. Points of connection to the existing sanitary mains will be dependent upon final building configuration. Provide gravity flow through the building laterals to the final tie-in points along the mains.

The Designer of Record must provide calculations to verify the sanitary sewer collection system has adequate capacity to support the proposed facilities at the connection points

3.2.1.8.2 Water Distribution

It is anticipated that domestic and fire water service to the new buildings will be provided from either the existing 8-inch water distribution main that parallels Gonzales Blvd. or the existing 12-inch water main that parallels H.M. Smith Blvd. Points of connection to the existing water distribution system will be dependent upon final building configuration.

Provide separate building connections for fire and domestic services. Provide valves along the water line at intervals not to exceed 500 feet. Provide a minimum of three valves at each cross and a minimum of two valves at each tee, with one valve being on the branch line.

Provide fire hydrants as required by UFC 3-600-01 Fire Protection Engineering for Facilities.

The Designer of Record must provide calculations to verify the water distribution system has adequate capacity and pressure to support the proposed facilities at the connection points.

3.2.1.8.3 Natural Gas Service

Obtain natural gas pressures from the local gas company, Piedmont Natural Gas (PNG)/Duke Energy. The Contractor is responsible for coordinating with PNG/Duke Energy and the Contracting Officer regarding the natural gas requirements for each facility. A&E must provide PNG/Duke Energy projected loads for Mechanical equipment to size the gas meters. A&E must invite PNG/Duke Energy to perform reviews at all stages of the design process. Provide a complete natural gas system, including any applications and permits. PNG/Duke Energy must be notified 6 months prior to in-service date to install new laterals and meters. PNG/Duke Energy will provide the natural gas to within 5 feet of each facility.

3.2.1.8.4 Electrical Distribution and Communications/Outside Plant

There are telecommunication and electrical duct banks and overhead electrical lines on and in close proximity to the project site. Confirm with the Base Telecom and Public Works Department before assuming any electrical or telecommunication lines can be relocated.

Coordinate demolition and removal of all telecommunications systems with the Base Communications Group via ROICC a minimum of 30 days prior to performing the work at hand.

See ESR G40, Site Electrical Utilities for additional electrical and telecommunications site work requirements.

3.2.1.9 Signage

All dedicated parking spaces (Barracks Manager, Duty Personnel, Visitor, ABA) must be identified with permanent signage designed in accordance with Camp Lejeune BEAP for aesthetics and layout and conforming to MUTCD technical standards for size, color, and reflectivity.
Coordinate signage design for parking and installation with the Public Works Department (PWD) Facilities Operations Branch for approval.

3.2.1.10 Site Drainage & Storm Water Runoff

The project site is located in Onslow County, an NCDEQ Coastal County, and is within the Allegheny River watershed.

The project is not sited within a floodplain. Grade the site to provide positive drainage away from the buildings and paved areas. Comply with the site grading and minimum slope requirements in UFC 3-201-01, *Civil Engineering* and UFC 3-210-10 *Low Impact Development*. Design the stormwater drainage system, including gutters, drains, inlets, culverts, and shallow swales, to convey the anticipated runoff coming from the building roofs and other site areas to an adequate on-site NCDEQ approved SCM. The use of Low Impact Development (LID) practices is mandatory. Examples of site LID practices are the use of bioretention areas, vegetated swales, grass filter strips, and infiltration trenches or basins. Route runoff through the stormwater SCM system prior to discharging to an adequately sized storm sewer pipe to exit the project site through the existing storm sewer network.

Design roof laterals to tie into the underground storm sewer system. Design underground stormwater drainage systems in accordance with UFC 3-201-01.

On-site SCMs must be designed to treat stormwater runoff for peak rate, volume, and quality in accordance with NCDEQ standards. Additionally, the project must meet EISA Section 438 requirements by treating the runoff from the 95th percentile rainfall event as described in UFC 3-210-10. Where NCDEQ and UFC standards conflict, the more stringent regulation applies.

Post-construction stormwater (PCSM) plans will be reviewed and approved by MCB Camp Lejeune Civil Design Branch through their MS4 Stormwater Program. There are no existing stormwater permits on the project site; however, there are existing State stormwater permits for the French Creek MCX site (Permit number: SW8120302) and the P-1199 redevelopment site (Permit number: SW8211111). SW8120302 permit plans can be found in Part 6. Any site disturbance that encroaches into the permit boundaries of the adjacent sites will require a modification to that permit. Permit modifications must be reviewed and approved by the North Carolina Department of Environmental Quality (NCDEQ) through the Wilmington Regional Office. PCSM contact is Jonathan Casey, (910) 451-0775 jonathan.casey@usmc.mil.

Erosion and Sediment Control:

The contractor is responsible for preparing an Erosion and Sediment Control Plan in accordance with Chapter 4 of Title 15A of the North Carolina Administrative Code (T 15A.04) and obtaining final plan and specification approval from NCDEQ. The North Carolina Erosion & Sediment Control Planning and Design Manual must be used when determining control measures.

A completed Financial Responsibility/Ownership Application must be submitted as well as plans and specifications to the MCB Camp Lejeune Civil Design Branch to obtain Financial Responsibility/Ownership signatures and notarization. Camp Lejeune Civil Design Branch will provide a review of the erosion and sediment control plans before submitting them to NCDEQ's Wilmington Regional Office for final approval and permit issuance.

In accordance with General Permit No. NCG010000, sediment basins and traps with drainage areas

of one acre or greater must use outlet structures that withdraw water from the surface.

3.2.1.11 Dewatering

Provide temporary dewatering as required for the project in compliance with federal, state, and local requirements. Provide dewatering system signed and sealed by a professional registered civil engineer. Dispose water in compliance with federal, state, and local requirements.

All construction dewatering effluent must be treated prior to discharge as specified. All construction dewatering effluent must be anticipated to be PFAS impacted and sampled, tested and treated to non-detect levels as specified.

3.2.1.12 Site / Building Demolition

Demolition at the Building 1340 site will include, but not be limited to the following:

- Demolition of existing BEQ 1340. Building must be completely removed, including below grade shallow foundations, slabs and underground utilities. Any deep foundations will be saw cut a minimum of four feet below existing grade. See building as-built drawings in Part 6.
- Demolition of existing site amenities including but not limited to: two basketball courts (including lighting), a covered seating area with concrete slab base, and decorative landscape trees and bushes of varying sizes.
- Existing utility laterals and mechanical equipment, including concrete pads and enclosures, serving the BEQ. Completely remove all utilities to be demolished to the nearest connection point on the main lines to remain. Utilities to be demolished must not be abandoned in place. Coordinate service disconnection with utility providers and the Asset Management Branch. Coordinate the removal of domestic water and sanitary sewer lines with the Public Works Department (PWD).
- Coordinate demolition with the base to protect any underground utilities and structures not noted for demolition. Demolish or relocate utilities, lighting, and other facilities as needed for construction. A site inspection must be conducted by the contractor to verify existing conditions.
- Existing building furniture and equipment are to be demolished by the KTR. KTR is to assume typical BEQ 2+0 room module furniture and standard office furniture in admin spaces for bidding purposes
- Once demolition is complete, KTR must return site to existing grades and seed disturbed areas with approved mix.
- KTR must include deep foundations on as-built drawings.

3.2.1.12.1 Phasing

Demolition of Building 1340 cannot occur until a complete building has been constructed with enough rooms to accommodate the occupants of 1340.

3.2.1.13 Site Clearing

Preserve trees in the area to the maximum extent practical.

Camp Lejeune Forest Management Program has first right of refusal for all merchantable timber on Camp Lejeune. If the first right of refusal is not waived, the Government will, by separate contract, harvest saleable timber from the project site. Design Build Contractor must clear and dispose of remaining timber, limbs, tops, stumps, treetops, and logging slash debris.

If the first right of refusal is waived, timber on the project site noted for clearing and grubbing will

become the property of the Design Build Contractor. Remove all timber from the project site and dispose of it off installation. See G101002 TREE REMOVAL.

Timber removed from the project site will become the property of the Contractor.

Burning will not be permitted.

3.2.1.14 Fencing

Not used

3.2.1.15 Construction Access / Lay down Area

Construction access and laydown area(s) may be established within the project boundaries. Ensure the construction access and laydown area(s) do not affect vehicle and pedestrian access. Government approval of the construction access and laydown area(s) must be obtained prior to mobilization. Adjust construction access and laydown area location(s) with Government approval as needed through different phases of the project.

3.2.1.16 Permits

The Government has obtained site approval from Camp Lejeune for the site but has not applied for nor received any permits. It is the Contractor's responsibility to ensure that all permits necessary for construction have been secured prior to beginning construction. The Contractor is responsible for all permit application fees. The contractor's DOR is responsible for certifying all applicable permits (i.e. water, wastewater, and stormwater). Permits and approvals (in addition to erosion and sediment control mentioned above) required by the State of North Carolina's NCDEQ include, but are not limited to:

- Water Distribution System: The contractor is responsible for submitting a complete design package and Engineer's Report in accordance with Title 15A: 18C.0307 to the NCDEQ and obtaining approval of the "Application for Approval of Engineering Plans and Specifications for Water Supply Systems," prior to constructing any water system services.

A completed Permit Application for Approval must be submitted, as well as an Engineer's Report and plans/specifications, to the MCB Camp Lejeune PWD to obtain Owner signatures.

- Sanitary Sewer: The contractor is responsible for submitting a complete design package to the NCDEQ and obtaining a permit prior to beginning any sewer construction.

A completed Permit Application for Approval must be submitted, as well as plans and specifications to the MCB Camp Lejeune PWD to obtain Owner signatures.

- Air Emission Permits: MCB Camp Lejeune holds a Clean Air Act Title V Construction and Operation Permit issued by NCDAQ The facility is considered a major source for both criteria pollutants and federally listed Hazardous Air Pollutant (HAP). The facility is also subject to North Carolina Toxic Air Pollutant (TAP) regulations to include requirements for facility-wide air dispersion modeling and facility fence line emission limits for certain pollutants.

Any new regulated air emission source(s) will require a modified air quality permit for construction and operation in accordance with the NCDEQ Division of Air Quality (NCDAQ) permitting procedures. The government will prepare a permit application package for all applicable emission sources in the contract. However, the contractor is required to coordinate submission of all Air Emissions Source Specification Data necessary for the preparation of the application package a minimum of 180 calendar days prior to any construction or installation of any emission source point associated with

this project. See PART 2 General Requirements, Specification Section 01 57 19.00 20 TEMPORARY ENVIRONMENTAL CONTROLS, Paragraph 3.2.5, for further information.

3.2.1.17 Sustainable Development

All site development and facilities must be in compliance with UFC 1-200-02, *High Performance and Sustainable Building Requirements,* in addition to applicable UFC and BEAP requirements

3.2.1.18 Antiterrorism Force Protection (ATFP)

Provide standoff distances from installation boundary and unobstructed space as required by UFC 4-010-01.

3.2.1.19 Architectural Barriers Act (ABA) Requirements

Site facilities and infrastructure must be designed and provided in compliance with the Architectural Barriers Act.

3.2.1.20 Master Planning

Not used.

3.2.1.21 Environmental Assessment

Provide a vapor intrusion mitigation system beneath the entire building(s) slab area(s) in accordance with the NAVFAC "Vapor Intrusion Mitigation in Construction of New Buildings Fact Sheet" (https://exwc.navfac.navy.mil/Portals/88/Documents/EXWC/Restoration/er_pdfs/v/navfac-ev-fs-vi-mit-newbldg-201108.pdf?ver=vD_EV1mjXoB8KXMFCY4hRw%3D%3D#:~:text=For%20construction%20of%20new%20buildings,negative%20pressure%20beneath%20the%20slab.). The system will include, as a minimum, a spray-applied vapor barrier; an 8-inch thick AASHTO #57 stone slab base course; sub-slab perforated collection piping and plenum boxes and appropriated vertical riser ventilation piping discharged above the roof line.

--End of Section--

4.0 BUILDING REQUIREMENTS

4.1 Space Tabulation

Camp Lejeune, NC - French Creek - 1 building of (85) 2+0 rooms					
Space Name	**# of spaces**	**Unit SF (Net)**	**Total SF (Net)**	**Total SQM (Net)**	**Remarks**
Building Circulation, included in Net to Gross Factor (size as required by design)					
001 - Entry Vestibule	1	50	50	4.65	FC requirement per 5-3.2.
002 - Lobby	1	500	500	46.45	Client specific request, no FC requirement.
003 - Corridor	TBD	TBD	TBD	TBD	Minimum 60" clear corridors. Final SF as required by building layout and code requirements.
004 - Stair Tower	2	510	1020	94.76	FC requirement per 5-3.2 - 170 per floor x 3 = 510 per stair. To be included in gross SF at 50% per UFC. Quantity of stairs listed is an estimate for a 3 story building. Final SF required by building layout and code requirements.
005 - Elevator Lobby(s)	TBD	TBD	TBD	TBD	(1) per Elevator bank per floor, no FC requirement.
006 - Elevator Machine Room	1	100	100	9.29	(1) on ground floor, no FC requirement.
007 - Elevator	1	85	85	7.90	FC requirement per 5-3.2 - final number of elevators required by total number of building stories.
101 - 2+0 Room	83	300	24900	2313.29	FC requirement per 5-3. See Part 3A - Chapter 4 - Section 4.2 for room layout.
102 - Accessible Room	4	300	1200	111.48	Includes FC requirement for Adaptable Rooms per 2-5 and 5-3.2. ABA requirement per F233.3.1.1 - 5% of the total number of dwelling units shall be accessible.
103 - Duty Desk	1	125	125	11.61	FC requirement per 5-3.2.
104 - Duty Bunk	1	80	80	7.43	FC requirement per 5-3.2.
105 - Admin Office	1	125	125	11.61	FC requirement per 5-3.3.
106 - Multi-Purpose Room	1	1530	1530	142.14	FC requirement per 5-3.2 - 9 SF per occupant.
107 - Quiet Room	1	125	125	11.61	Client specific request, no FC requirement.
108 - MCX24	1	338	338	31.40	Client specific request, no FC requirement. See Part 3A - Chapter 4 - Section 4.2 for conceptual room layout.
109 - Centralized Kitchen	1	300	300	27.87	FC requirement per 5-3.3 - (1) per building, minimum 300 SF per up to 300 occupants, increase by 1 SF per occupant over 300. Final SF required by building layout and code requirements.
110 - Laundry Room	1	708.3	708	65.80	FC requirement per 5-3.2.
111 - Unisex Restroom	2	80	160	14.86	FC requirement per 5-3.2.
Building Support, included in Utility Gross Factor					
112 - General Maintenance Room	TBD	150 MIN	TBD	TBD	FC requirement per 3-15.13 - (1) per building.
113 - Janitor Closet	TBD	90	TBD	TBD	FC requirement per 5-3.2 - (1) per floor.
114 - Main Mechanical Room	1	TBD	TBD	TBD	FC requirement per 5-3.2.
115 - DOAS Mechanical Room	TBD	TBD	TBD	TBD	
116 - Main Electrical Room	1	TBD	TBD	TBD	
117 - Electrical Closet	TBD	TBD	TBD	TBD	Final SF and number of rooms required by building layout and code requirements
118 - Main Telecom Room	1	TBD	TBD	TBD	
119 - Telecom Closet	TBD	TBD	TBD	TBD	Final SF and number of rooms required by building layout and code requirements
120 - Fire Pump Room	1	TBD	TBD	TBD	
121 - Fire Riser Room	1	TBD	TBD	TBD	

Subtotal Net Area	31346	2912.17	
Net to Gross Factor	1.35	1.35	Factor includes selected rooms listed above, as well as walls and structure.
	42318	**3931**	
Utility Gross Factor	1.10	1.10	
TOTAL GROSS AREA	**46549**	**4324.57**	

The design build contractor shall provide actual area in both square feet and square meters in proposals.
Areas provided in this table are the minimum required sizes for each space.
Total gross area is subject to change based on the final number of separate buildings.

6.0 ENGINEERING SYSTEM REQUIREMENTS

6. ENGINEERING SYSTEMS REQUIREMENTS

A10 FOUNDATIONS

SYSTEM DESCRIPTION

Provide the building foundation system in accordance with Unified Facilities Criteria (UFC) 3-301-01, *Structural Engineering* and UFC 3-220-01, *Geotechnical Engineering*. Design foundations to suit subsurface conditions, capable of transmitting all building loads to the ground.

See Engineering Systems Requirements (ESR) Section B10, *Superstructure*, for loading criteria.

A101001 SHALLOW FOUNDATIONS

Ancillary site structures (i.e. dumpster enclosure) may be entirely supported by a shallow foundation system which contain continuous top and bottom reinforcement.

Foundation materials must be compatible with the environment in which they are exposed to and material protection for foundation elements exposed to corrosive soils or chlorides must be provided in accordance with ACI 318 requirements.

The Building and First Floor slab may be supported on shallow foundations if used in conjunction with the requirements of A1020 Special Foundations.

Foundation maximum net allowable bearing capacity(ies) must be calculated and compared using a minimum of three different established methods. In-situ testing is to be utilized to develop geotechnical parameters for the analyses. The minimum foundation bearing depth for frost protection considerations must be determined in accordance with UFC 3-301-01. The minimum wall and column footing widths must be 18 inches and 30 inches, respectfully. Upper and lower bound bearing capacities must be evaluated based on variations in subsurface conditions at the site.

A foundation bearing soil inspection and testing program must be overseen by the Geotechnical engineer of record and a final signed and stamped report Summarizing the subgrade conditions and suitability for foundation support. The Report must be submitted to the government for review and approval.

Design must incorporate measures that limit total and differential settlement to levels that prevent structural or cosmetic damage or impairment of the serviceability and function of the facility or structures, including affected drainage and utilities. The following tolerances must be used in design of the foundation system:

I. Total settlement of shallow foundations must be limited to 1 inch; and
II. Acceptable differential settlement is defined as an angular distortion of less than 1/500 between two points. The angular distortion is defined as the difference in settlement between two points divided by the distance between the points.

Foundation settlement must be estimated and compared using a minimum of three different established methods. Estimation of foundation settlement must be based on foundation loading provided by the structural engineer (the dead and live load components or live load reductions used in the analyses will be Indicated in the calculations), actual foundation sizes, planned site grading changes, and expected fluctuations groundwater levels. In-situ testing is to be utilized to develop geotechnical parameters for design to determine immediate settlements. Laboratory testing on undisturbed samples and/or small strain in-situ testing of cohesive soils must be used to determine

consolidation settlements and the rate of settlement. Settlements associated with planned site grade increases will be evaluated. Upper and lower bound foundation settlements must be evaluated based on variations in subsurface conditions at the site.

A101002 DEEP FOUNDATIONS

The building and first floor slab must be entirely supported by a pile foundation system consisting of either precast pre-stressed concrete piles or auger cast piles.

To allow for attachment of dynamic testing equipment and to allow for potential deeper pile tip bearing elevations due to variability of subsurface conditions, driven test piles must be at least 10 feet longer than the anticipated production pile length. A foundation system using pile caps and grade beams must be provided for the referenced structures. A foundation system using only pile supported grade beams will not be permitted. Foundation material must be compatible with the environment. Material protection for elements exposed to corrosive soils or chlorides must be provided in accordance with ACI 318 or AISC requirements.

The pile axial compressive and tensile capacities must be determined and compared using three different analytical methods. In-situ testing (i.e. cone penetrometer, dilatometer, etc.) Will be used to develop geotechnical parameters for design. Upper and lower bound pile capacities must be evaluated based on variations in subsurface conditions at the site. Time dependent pile capacity conditions (i.e. pile setup); group effects, installation sequencing, refusal driving conditions, etc. Will be evaluated and addressed, as applicable.

The allowable stresses for piles must not exceed those limitations specified in IBC section 1810 deep foundations. The following tolerances must be used in design of the foundation system:

III. Total settlement of deep foundations must be limited to ½ inch under service load conditions as determined by static or dynamic pile load testing, unless the pile design allowable capacity is under 25 tons. If the pile design allowable capacity is less than 25 tons, then total pile settlement must be estimated based on established analytical methods.
IV. Acceptable differential settlement must be defined as an angular distortion of less than 1/500 between two pairs. The angular distortion is defined as the difference in settlement between two points divided by the distance between the points.
V. Lateral deflection of deep foundations must be determined in accordance with IBC Section 1810 Deep Foundations.
VI. Acceptable factor of safety associated with liquefaction potential must meet or exceed table 2-1 in UFC-220-01.
VII. Allowable loads of deep foundation elements must incorporate the factors of safety provided in UFC 3-220-01 table 2-2 and 2-3.

The project structural engineer of record will design and detail the pile foundations in accordance with IBC section 1810.3. The pile structural calculations and details will be submitted to the government for review and approval during the project design development.

To lessen potential pile damage during driving and to reduce near surface ground vibrations, preaugering to a depth of 10 feet below the existing ground surface will be required at each test pile and production pile locations.

A pre-construction and post-construction condition survey must be performed for all existing structures within 200 feet (plan horizontal distance) from any proposed pile driving locations. The condition survey must document any existing cracks and other significant defects on adjacent structures both before and after pile installation. Vibration monitoring must be performed

continuously during the test pile and production pile installation at any existing building structures located within 200 feet of pile driving activities. A minimum of two seismographs must be used during vibration monitoring. Pile installation procedures must be modified as necessary to limit vibrations to less than 0.5 inches per second, resultant peak particle velocity (RPPV), recorded at, or slightly below, the ground surface adjacent to exterior walls of nearby structures (reference USBM RI 8507 structure response and damage produced by ground vibration from surface mine blasting). A test pile program must be overseen by the geotechnical engineer of record and a final signed and stamped report must be submitted to the government for review and approval. All driven test piles will be dynamically monitored during installation and hammer restrikes in accordance with ASTM D4945, *Standard Test Method for High Strain Dynamic Testing of Piles*. The ultimate load capacity of each test pile must be evaluated using CAPWAP analyses. Perform pile static load test(s) as recommended by the contractor's geotechnical engineer and as required by all applicable building codes.

--End of Section--

6. ENGINEERING SYSTEMS REQUIREMENTS

D50 ELECTRICAL

SYSTEM DESCRIPTION

This project includes the demolition and construction of buildings and structures as listed below. Refer to site plans for building locations.

MCB Camp Lejeune - French Creek

- Demolition of Building 1340 including utility feed back to medium voltage disconnecting means (fused cutouts, junction box, medium voltage switch, or feed-through transformer).
- Construction of BEQ to replace demolished barracks.

Design must comply with the following Base Standards at this site:

- Marine Corps Base Camp Lejeune BEAP
- Marine Corps Base Camp Lejeune Electrical Design Guidance
- Camp Lejeune Exterior Light Fixtures and Photocell Control Specifications For Use In All New And Renovation Projects
- Camp Lejeune Local Electric Meter Specs

GENERAL SYSTEM REQUIREMENTS

SEISMIC BRACING
Bracing of electrical equipment to resist seismic events is not required based on site seismic design criteria and building importance factor for the North Carolina sites.

D5010 ELECTRICAL SERVICE AND DISTRIBUTION

D501001 MAIN TRANSFORMERS

Main transformer(s) are defined in Part 3A Section G40, *Site Electrical Utilities*. See Existing Condition Plans in Part 6 for electrical point of connection (POC) location.

D5030 COMMUNICATIONS AND SECURITY

Camp Lejeune French Creek (CLFC) site maintains a Camp Lejeune-specific, written specification for CSI Section 27 10 00 – Structured Cabling, Refer to Part 6. Obtain and incorporate this CLFC Section 27 10 00 specification in its entirety into the project design and contract documents. In the event of a conflict, the CLFC 27 10 00 specification must govern.

Additional CLNC/NRAS Installation-Specific Requirements:

Telecommunications systems must be provided in the following additional spaces at CLNC facilities to support wireless coverage, smart appliance connectivity, and future functional repurposing of spaces:

Corridors – Provide telecommunications outlets and associated cabling to support Wi-Fi access points. Dedicated coverage in corridors is required to provide full-building wireless coverage.

Laundry Rooms – Provide telecommunications outlets to support Wi-Fi access points and network-connected “smart” laundry appliances.

Duty Bunk – Provide a minimum of one telecommunications outlet. This space may be repurposed for administrative functions and must be designed with the same flexibility as other small administrative areas.

Quiet Room – Provide a minimum of one telecommunications outlet to support future administrative or mission-support use.

General Maintenance Room – Provide a minimum of one telecommunications outlet unless the room is confirmed during design to function solely as a small janitorial closet. If the space can accommodate furnishings (e.g., shelving, workbench, desk) or is of sufficient size to be repurposed, telecommunication systems must be provided.

Routing, labeling, and terminations must comply with UFC 3-580-01, TIA-568, TIA-569, and installation-specific requirements.

D5090 OTHER ELECTRICAL SERVICES

D509006 ENERGY MANAGEMENT CONTROL SYSTEM

Camp Lejeune: The utility meter must be compatible with the Camp Lejeune AMR system. Sub-metering of electrical circuits within buildings per ASHRAE 90.1 is not required. The metered data will not be utilized by Camp Lejeune. Utility meter must be on the transformer. Add a meter for DDC per CLGS 23 09 13, paragraph 2.3.13.3.

D509007 PHOTOVOLTAIC ENERGY SYSTEM

The government performed an initial LCCA for a photovoltaic system that satisfies the renewable energy requirement in UFC 1-200-02, 2-3.3 Renewable Energy. The initial results indicate that a photovoltaic energy system is not life cycle cost effective (LCCE) and therefore is not expected to be required for the North Carolina sites. This does not preclude the use of PV in the design for attaining 30% below baseline Energy Optimization required in UFC 1-200-02, 2-3 Optimize Energy Performance.

If a photovoltaic energy system is incorporated into the design as a strategy for Energy Optimization, perform the following:

· Coordinate PV submetering to report independently through the building’s metering system which is reporting to the existing base AMI metering system.

· The PV system must have a zero-export function which does not allow power to back feed without a written utility agreement per IEEE 1547.

· Consider only Facility rated systems interconnected with the main electrical service panel of the building. Utility connected 12,470 V systems must not be used.

At each design submittal, provide an updated LCCA for the minimum capacity photovoltaic (PV) energy systems required if LCCE in accordance with UFC 1-200-02, 2-3.3 Renewable Energy. If determined to be LCCE, notify the contracting officer immediately. This DB RFP does not anticipate that PV will be LCCE under this simple analysis required by 2-3.3 Renewable Energy.

When PV is used to accomplish the 30% below baseline Energy Optimization required in UFC 1-200-

02, 2-3 Optimize Energy Performance, the whole building LCCA (see Chapter 4 of UFC 1-200-02) must reflect that the solution is LCCE. UFC 1-200-02 requires an integrated design approach to any solution.

If a PV energy system is a part of the final design, it must be designed in accordance with UFC 1-200-02 and UFC 3-440-01.

-- End of Section --

6. ENGINEERING SYSTEMS REQUIREMENTS

F20 SELECTIVE BUILDING DEMOLITION

GENERAL SYSTEMS REQUIREMENTS

F2010 BUILDING ELEMENTS DEMOLITION

This project includes the demolition of the following building: BEQ 1340. No free-standing walls shall be allowed. All adjacent structures must be adequately protected. When any unsafe conditions are encountered, work must be halted, the structure secured, and the Public Works Department and NAVFAC Registered Licensed Civil or Structural Engineer notified immediately.

F2010 1.1 GENERAL DEMOLITION

Remove indicated existing structures to four feet below existing grade.

Demolition of buildings includes all structures, foundations, paving, shrubs, and site features associated with the buildings.

After demolition, project site must be prepared for construction of replacement BEQ buildings. The highest standards of safety must be maintained throughout the job. After demolition is completed, the site must be left in a safe, clean, and sanitary condition, ensuring that all foundations, debris, construction materials, furnishings, trash, garbage, etc. are completely removed. If it becomes necessary to fill in any of the excavations, it must be done with fill meeting the standards as set forth in the International Building Code and the Project Specifications. Fill must be inspected by a Registered Licensed Civil or Structural Engineer as to its proper compaction per the International Building Code and Project Specifications.

F2010 1.2 UTILITIES

See Part 3 Chapter 6 Site Analysis for utility demolition. Coordinate utility demolition in accordance with Section 01 14 00 Work Restrictions.

F2010 1.3 DUST CONTROL

Prevent the spread of dust and debris and avoid the creation of a nuisance or hazard in the surrounding area. Dust control must be maintained at all times to the satisfaction of the MCB Camp Lejeune Public Works Department. Prevent the spread of dust and debris and avoid the creation of a nuisance or hazard in the surrounding area.

F2010 1.4 TRAFFIC CONTROL

Provide Traffic Control in accordance with MCB Camp Lejeune Requirements and as required in 01 14 00 Work Restrictions. During demolition, all pedestrian and vehicular traffic must be directed by strategically located flagmen. All pedestrian traffic must be re-routed; vehicular traffic must be stopped completely if conditions deem necessary

F2010 1.5 WEATHER PROTECTION

Weather protection is not required as the structures are to be demolished entirely.

F201001 SUBSTRUCTURE & SUPERSTRUCTURE

No further clarification is required as the structures are to be demolished.

F201002 EXTERIOR CLOSURE

No further clarification required as the structures are to be demolished.

F201003 ROOFING

No further clarification is required as the structures are to be demolished.

F201004 INTERIOR CONSTRUCTION & FINISHES

No further clarification required as the structures are to be demolished.

F201005 CONVEYING SYSTEMS

No further clarification is required as the structures are to be demolished.

F201006 MECHANICAL SYSTEMS

No further clarification required as the structures are to be demolished.

F201007 ELECTRICAL SYSTEMS

No further clarification is required as the structures are to be demolished.

F201008 EQUIPMENT & FURNISHINGS

No further clarification required as the structures are to be demolished.

F201090 OTHER NON-HAZARDOUS SELECTIVE BUILDING DEMOLITION

Not used.

F2020 HAZARDOUS COMPONENT ABATEMENT

The Contractor is responsible to perform its independent surveys and testing before demolition work. The survey reports in Part 6 Attachments are for reference only.

Refer to UFC 3-810-01, Environmental Engineering for Facility Construction for hazardous materials and components requirements.

All abatements must be compliant with Navy/Marine requirements, State requirements, Local requirements and all required permits.

F2020 1.1 PRIVATE QUALIFIED PERSON (PQP)

The Contractor is required to hire, as a first tier subcontractor, a PQP to ensure compliance with the approved work plans and perform independent inspections, testing and verification of the hazardous components work including: asbestos, lead containing paint, cadmium containing paint, chromium containing paint, mercury containing equipment, LLR components, PCBs, animal droppings, molds and spores, hazardous waste storage tanks, and contaminated soil and groundwater.

F2020 1.2 FURNISHINGS

Not Used.

F2020 1.3 ASBESTOS

The Contractor is responsible for performing its own independent surveys and testing before demolition work.

Recently performed survey results are provided in Part 6. Based on those survey results, at a minimum, the following items are considered to contain asbestos:

- 144 mirrors measuring 3 ft x 3 ft in the barracks rooms that are attached with asbestos-containing glue (mastic)
- 1 square feet of gray sealant around shower heads, total quantity of grey sealant from 144 shower heads with asbestos-containing material.
- All underground utility steam lines are assumed to be covered with asbestos-containing material.
    - 200 linear feet of 5” diameter steam pipe
    - 200 linear feet of 4” diameter steam pipe
    - 250 linear feet of 3” diameter steam pipe
    - 250 linear feet of 2” diameter steam pipe

F2020 1.4 LEAD BASED PAINT IN TARGET HOUSING AND CHILD OCCUPIED FACILITIES

Not used.

F2020 1.5 PAINT IN OCCUPIED FACILITIES - LEAD, CADMIUM, CHROMIUM, AND OTHER HAZARDOUS METALS

The Contractor is responsible for performing its own independent surveys and testing before demolition work.

Recently performed survey results are provided in Part 6. Based on those survey results, at a minimum, the following items are considered:

The Occupational Safety and Health Administration (OSHA) Lead Standard (29 CFR 1926.62) is applicable where paints that contain any amount of lead will be disturbed. OSHA considers all paint (since all paint has some level of lead within it) as lead-containing paint (LCP). Thus, all of the paint on the buildings in this project would be considered LCP.

F2020 1.6 LOW LEVEL RADIOACTIVE (LLR) COMPONENTS

Not Used.

F2020 1.7 CHLORDANE

Not Used.

F2020 1.8 POLYCHLORINATED BIPHENYLS (PCB)

The Contractor is responsible for performing its own independent surveys and testing before demolition work.

Recently performed survey results are provided in Part 6. Based on those survey results, at a minimum, the following items are considered:

Assume there are 435 PCB-containing light ballasts in the existing buildings. If fluorescent light ballasts that are not specifically marked “non-PCB containing” ballasts be encountered during demolition/renovation, they must be managed and disposed of in accordance with Toxic Substances Control Act (TSCA) Storage and Disposal Requirements for Fluorescent Light Ballasts.

F2020 1.9 OZONE DEPLETING SUBSTANCES (ODS)

Not Used.

F2020 1.10 ANIMAL DROPPINGS

Prior to starting work, verify the location of animal droppings and obtain additional survey data required to provide a quality comprehensive final design. Perform an animal droppings survey in accordance with FC 1-300-09N, Navy and Marine Corps Design Procedures and UFC 3-810-01, Environmental Engineering for Facility Construction.

Include the animal droppings report in all design submittals. The existence, type, and location of animal droppings is not guaranteed by the survey reports provided. Verify the location of all animal droppings prior to construction.

F2020 1.11 MOLDS AND SPORES

A mold (microbial) assessment survey report is included in Part 6. The microbial assessment survey report has been provided to show the types, conditions and locations of mold.

Prior to starting work, verify the location of mold and obtain additional survey data required to provide a quality comprehensive final design. Perform microbial assessment survey in accordance with FC 1-300-09N, Navy and Marine Corps Design Procedures and UFC 3-810-01, Environmental Engineering for Facility Construction.

Include the mold report in all design submittals. The existence, type, and location of mold is not guaranteed by the survey report provided. Verify the location of mold prior to construction.

F2020 1.12 WASTE CHARACTERIZATION

Perform disposal in accordance with this RFP and plans provided in Part 6.

Recently performed survey results are provided in Part 6.

Based upon the result of the Toxicity Characteristic Leaching Procedure (TCLP) samples, the painted building components of the buildings should not produce construction debris that would need to be reported and handled as a hazardous waste.

It is assumed that all of the metal from the buildings will be salvaged and recycled during the project.

F2020 1.13 RADON

Not Used.

F202001 SUBSTRUCTURE & SUPERSTRUCTURE

Not Used.

F202002 EXTERIOR CLOSURE

Not Used.

F202003 ROOFING

Not Used.

F202004 INTERIOR CONSTRUCTION & FINISHES

Not Used.

F202005 CONVEYING SYSTEMS

Not Used.

F202006 MECHANICAL SYSTEMS

Not Used.

F202007 ELECTRICAL SYSTEMS

Not Used.

F202008 EQUIPMENT & FURNISHINGS

Not Used.

F202090 OTHER HAZARDOUS SELECTIVE BUILDING DEMOLITION

For bidding purposes, assume 250 cubic yards, or 375 tons at 1.5 tons for every cubic yard, for excavation, handling, hauling, temporary stockpiling, sampling, analysis and disposal of contaminants (including, but not limited to, petroleum, PAHs, and metals) impacted soil media to a licensed facility. Assume an additional 10 tons for evacuation, handling, hauling, temporary stockpiling, sampling, analysis, and disposal of PFAS contaminated soil media to a licensed facility.

--End of Section--

6. ENGINEERING SYSTEMS REQUIREMENTS

G10 SITE PREPARATION

SYSTEM DESCRIPTION

Provide site preparation that supports project sustainability goals of UFGS 01 33 29.05 20 Sustainability Reporting for Design Build.

The site preparation activities consist of site clearing, demolition, salvage, relocation, earthwork, and hazardous waste remediation to ready the site for other work associated with the project.

GENERAL SYSTEM REQUIREMENTS

Develop the project site and perform off-site work necessary to meet the requirements of the project, antiterrorism criteria, local codes, reference standards, technical specifications and performance criteria.

A topographic survey along with a Level B Subsurface Utility Engineering (SUE) of the existing site was performed in December 2025 – January 2026 and is included in Part 6. The topographic survey has been provided to show the location of existing facilities, areas of new work required by this RFP and the character of the sites. Prior to starting work, physically verify the location of all existing utilities and obtain additional survey data required to provide a quality final design. Perform a topographic survey in accordance with FC 1-300-09N, *Navy and Marine Corps Design Procedures*. Include the topographic survey in all design submittals. The existence, size, and location of the utilities are not guaranteed by the surveys provided. Verify the location of all utilities prior to construction. Electronic files of the topographic surveys will be provided to the Contractor only after award of the Contract.

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

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

Jurisdictional tidal and non-tidal wetlands have not been identified on the project site.

Coordinate and obtain the Contracting Officer's approval for proposed haul route(s), work site access point(s), employee parking location(s) and material laydown and storage area(s).

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

GOVERNMENT PROVIDED GEOTECHNICAL INFORMATION

Subsurface soil information, including a geotechnical report are included in Part 6.

The included subsurface information is only for the Contractor's information and is not guaranteed to fully represent all subsurface conditions. The Government will not be responsible for any interpretation or conclusion by the Contractor drawn from the data or information.

The included geotechnical report accompanying the subsurface information, such as boring logs or

testing reports, is provided only to better convey data or to document observed site conditions. The assumptions, analysis, and recommendations of any accompanying report were developed for preliminary planning purposes only and may not reflect present project requirements. Retain a Geotechnical Engineer experienced and licensed in the geographic region of the project to interpret the Government provided information as related to the Contractor's own design concept and develop geotechnical requirements to support design and construction.

Anticipate minor variations in subsurface conditions between borings. The Contractor is responsible for costs associated with the site preparation, ground improvement and foundations except as allowed by Contract Clause Federal Acquisition Regulation (FAR) 52.236-2, "Differing Site Conditions". The Contractor's Geotechnical Engineer must perform additional subsurface investigation/testing as required to adequately determine geotechnical factors including the type and capacity of the project foundations. The Contractor's Geotechnical Engineer is required to evaluate the provided information and any additional information obtained and prepare a report as described in other portions of this RFP. The minimum requirements for the subsurface investigation and report are as required by FC 1-300-09N with associated references.

Perform the soils investigation at the site for use in the design and construction of the new facilities. Perform, at Contractor's expense, subsurface exploration, investigation, testing, and analysis for the design and construction of features such as the building foundations, pavement section(s), stormwater management facility(ies), and utility structure foundations. Prepare a report including laboratory analysis of samples and recommendations for foundation and pavement design by a Professional Engineer as specified and in accordance with UFC 3-201-01, *Civil Engineering.*

As a minimum, the successful bidder's Geotechnical Engineer must perform additional subsurface exploration and supplementary laboratory testing as necessary to support the design concept.

The soils that will be exposed after completion of stripping will be soft and at or near the groundwater elevation. Anticipate these marginal subgrade support conditions and incorporate measures into the design and construction procedures to obtain required soil support while maintaining progress for completion on schedule.

Provide personnel under the supervision of a registered Professional Engineer to inspect excavations and soil/groundwater conditions throughout construction. The Engineer is required to perform pre-construction and periodic site visits throughout construction to assess site conditions. The Engineer, with the concurrence of the Contractor and the Contracting Officer, is required to update the excavation, sheeting, shoring and dewatering plans as construction progresses to reflect actual site conditions and is required to submit the updated plan and a written report (with professional stamp) at least monthly informing the Contractor and Contracting Officer of the status of the plan and an accounting of Contractor adherence to the plan; specifically addressing any present or potential problems. The Engineer must be available to meet with the Contracting Officer at any time throughout the Contract duration. Provide the services of the Engineer at no additional cost to the Government.]] [It is important to note that the presence of loose or compressible soils may result in excessive settlement that could impact the performance of surface bearing structures and supporting facilities such as foundations, slabs, pavements, sidewalks, and utilities. The magnitude and duration of consolidation settlement will be dependent on the composition, depth, and thickness of the compressible soils as well as the successful bidder's design concept. The Contractor's Geotechnical Engineer is responsible for evaluating potential global settlement due to designed grade increases and final structural loads. The Contractor's Geotechnical Engineer must develop any settlement mitigation procedures (such as preloading, surcharging, fill monitoring programs, and ground improvement systems) needed to maintain global settlements within tolerable limits. Surcharge material, if required, must remain in place for a minimum of 90 days.

G1010 SITE CLEARING

Install erosion and sediment control devices prior to beginning clearing, grubbing or demolition operations.

If approved by the Government clearing, grubbing and minor demolition may be allowed to accommodate construction equipment within the designated construction laydown area.

Provide a landscape demolition plan including all trees to be removed and to remain.

G101001 CLEARING

Preserve trees in the area to the maximum extent practical.

Camp Lejeune Forest Management Program has first right of refusal for all merchantable timber on Camp Lejeune. If the first right of refusal is not waived, the Government will, by separate contract, harvest saleable timber from the project site. Design Build Contractor must clear and dispose of remaining timber, limbs, tops, stumps, tree tops, and logging slash debris.

If the first right of refusal is waived, timber on the project site noted for clearing and grubbing will become the property of the Design Build Contractor. Remove all timber from the project site and dispose of it off installation. See G101002 TREE REMOVAL.

Timber removed from the project site will become the property of the Contractor.

Burning will not be permitted.

G101002 TREE REMOVAL

In accordance with G101001 CLEARING, remove and dispose of trees as required for project construction.

G101003 STUMP REMOVAL

Remove all stumps under building foundations, roads, parking areas, hard stands, and storage areas as required for project construction to a depth of 5 feet feet below the finished grade.

G101004 GRUBBING

Grub the site to remove all brush and root mats in the upper layer of soil. Remove all roots greater than 3 inches beneath planned structures and pavements.

G101005 SELECTIVE THINNING

Not used.

G101006 DEBRIS DISPOSAL

Waste materials will become the property of the Contractor; transport, dispose of or recycle waste materials in accordance with Part 2 Section 01 57 19, *Temporary Environmental Controls*.

G1020 SITE DEMOLITION & RELOCATIONS

The items to be reused or relocated include topsoil.

G102001 BUILDING MASS DEMOLITION

BEQ 1340 will be demolished with this project. BEQ 1340 is not located on the proposed new construction site

Demolish the existing building[s]. Refer to Section F2020, "Hazardous Component Abatement" for requirements regarding removal of hazardous materials and components.

G102002 ABOVEGROUND SITE DEMOLITION

Completely remove the existing aggregate base materials within the areas where the existing asphalt pavement is demolished. Take care not to mix the existing aggregate base materials with the underlying soils during removal operations. Existing aggregate base materials which are mixed with onsite soils are considered unsatisfactory and must be disposed of by the Contractor at a permitted licensed disposal facility. Use the reclaimed aggregate base material to backfill excavations resulting from the demolition of existing utilities/foundations as well as new utility/ foundation excavations within the planned building and pavement areas.

G102002 1.1 ABOVEGROUND STORAGE TANKS

The project site does not require aboveground storage tank work.

G102003 UNDERGROUND SITE DEMOLITION

Preserve the following underground site elements: all existing utilities required for proposed project and utilities serving facilities not part of this project.

Do not abandon utilities in place. If existing utility lines are to be taken out of service, then the piping and any associated structures must be completely removed. All excavations performed to remove existing utilities and structures must be backfilled with compacted, imported structural fill or on-site crushed concrete or reclaimed aggregate base material.

Remove and relocate existing utility piping, conduits, and utility structures under or within 10 feet of proposed facilities.

G102003 1.1 UNDERGROUND STORAGE TANKS

Not used.

G102004 BUILDING RELOCATION

Not used.

G102005 UTILITY RELOCATION

Comply with the requirements of the utility provider concerning the utility relocation for water, sewer, electric, gas, and telecommunications.

G102006 FENCING RELOCATION

Not used.

G102007 SITE CLEANUP

Rubbish and debris accumulation is not permitted. Where demolition occurs on site, leave the site clean of debris, trash, and other construction waste.

G102007 1.1 SPILLS

In the event of a spill or release of hazardous substances, pollutant, contaminant or oil, notify the Contracting Officer and Camp Lejeune Environmental immediately. Take containment/control actions immediately to minimize the effect of any spill or leak. Perform clean up in accordance with Part 2 Section 01 57 19, *Temporary Environmental Controls*.

G102090 OTHER SITE DEMOLITION & RELOCATIONS

Not used.

G1030 SITE EARTHWORK

G103001 GRADING

Perform site grading in accordance with UFC 3-201-01, *Civil Engineering*. Provide finish floor elevations for new facilities and elevations for mechanical/electrical equipment pads in accordance with UFC 1-200-01, *General Building Requirements* and UFC 3-101-01, *Architecture*.

G103002 COMMON EXCAVATION

Perform excavation on site as required to establish grades and construct the buildings and site features. Perform common excavation with equipment of sufficient size to accomplish the work required. Over excavation of areas to obtain additional satisfactory material for the Contractor's use is not permitted.

G103003 ROCK EXCAVATION

Blasting will not be permitted.

G103004 FILL & BORROW

For each borrow site, provide borrow site testing for hazardous materials characteristics from a composite sample of material, collected in accordance with standard soil sampling techniques. Do not bring material onsite until tests results have been received and approved by the Contracting Officer.

G103004 1.1 REQUIREMENTS FOR OFF SITE SOIL

For each borrow site, provide borrow site testing for hazardous materials characteristics from a composite sample of material, collected in accordance with standard soil sampling techniques. Do not bring material onsite until tests results have been received and approved by the Contracting Officer.

G103005 COMPACTION

Provide proper compaction equipment to meet compaction requirements based on a modified Proctor (ASTM D 1557). The in-situ moisture content of the subsurface material is expected to be higher than the optimum moisture content from a modified Proctor. The Contractor must be prepared to adequately dry the in-situ soils prior to placement as common fill. The compaction requirements for this project are listed below:

Structures, Foundations, and Concrete Slabs: Compact top 12 inches of subgrade and subsequent structural fill to 95 percent of ASTM D 1557.

Roads, parking areas, and retaining walls: Compact top 12 inches of subgrade and subsequent fill to 95 percent of ASTM D 1557.

Green Areas: Compact to 85 percent of ASTM D 1557.

G103006 SOIL STABILIZATION

The following methods of soil stabilization will not be allowed: asphalt, pressure grouting.

G103007 SLOPE

Provide slope stabilization through appropriate grading and site design for a minimum factor of safety of 1.5 or slope that does not exceed the maximum slope in accordance with local code requirements.

G103008 SOIL TREATMENT

Treat the area around the entire foundation of each building for termite control in accordance with the product’s manufacturer's instructions. The contractor must not treat any area within the zone of influence for groundwater wells in accordance with NCDEQ and U.S. EPA regulations.

G103009 SHORING

Provide sheeting and shoring as required to complete the work and in accordance with EM385-1, local codes, or OSHA – whichever is more stringent.

The shoring plan must be signed and sealed by a Professional Engineer registered in the state of North Carolina.

G103010 TEMPORARY DEWATERING

Depending on the time of construction, the presence of groundwater or perched water in the surface soil may present a detrimental effect on site preparation and/or grading operations. Provide pumps, ditching and grading during construction as necessary to prevent conditions that would promote deterioration of the soil, or cause interruptions to the construction progress. All dewatering effluent must be filtered prior to discharge to minimize sediment to surface water.

Refer to Section G10 in part 4 of this RFP for performance requirements associated with this work.

G103011 TEMPORARY EROSION & SEDIMENT CONTROL

Obtain an Erosion and Sediment Control permit required for the proposed work from NCDEQ. Submit

permit application to the Contracting Officer, NAVFAC Civil Reviewer and Base Civil Engineer for approval prior to submitting to NCDEQ.

Construct temporary measures including but not limited to sediment traps, skimmer basins, filter barriers, silt fence, inlet protection, culvert protection, construction entrance, dust suppressors, temporary seeding, and erosion control matting to reduce on-site erosion and off-site runoff and sedimentation. Refer to Section G10 in Part 4 of this RFP for performance requirements associated with this work.

G103090 OTHER SITE EARTHWORK

Procedures for managing environmental media at Marine Corps Base Camp Lejeune (MCBCL) are outlined in the Environmental Standard Operating Procedure (ESOP), dated June 20, 2024, provided in this Section. Surplus material, and other construction debris must be taken off-base for disposal, in accordance with the MCBCL ESOP, Resource Conservation and Recovery Act (RCRA), and North Carolina Solid Waste regulations. A minimum 5 day advanced written notice must be provided to the contracting Office of the Contractor's intention to dispose of rubbish and debris off-base. Disposal at sites or landfills not holding a valid state of North Carolina permit is specifically prohibited. The prohibition also applies to sites where a permit may have been applied for but not yet obtained. If construction debris has been disposed off-base at a site without state permits or not in accordance with regulatory requirements, the Contractor is to remove, transport, and relocate the debris to a state-approved site at the Contractor's expense. Any fines, penalties, or fees related to the illegal disposal of construction debris will be paid for by the Contractor, not the Government. All soil taken off its originating site must be screened for construction debris and other trash prior to transport off the project site.

DISPOSAL OF SURPLUS SOIL
Prior to transportation of surplus soil off its originating site, mechanically screen all surplus soil to remove all objects greater than 3 inches and deleterious material. Deleterious material consists of organic debris such as roots, stumps, timber, and construction debris. Construction debris must include, but is not limited to wood, plastic, glass, concrete, brick, and metal. Dispose of deleterious material and objects larger than 3 inches in accordance with state and federal regulations, and applicable contract requirements. Construction debris, to include hazardous- and non-hazardous waste cannot and must not be reburied or left on-site, but rather properly disposed in accordance with MCBCL, ESOP, RCRA, and other federal and state regulations.

a. Mechanical screening of soil is required and means and methods must be included within the Environmental Protection Plan and Waste Management Plan. Spreading material out on the ground in lifts, for example, and manually removing debris larger than 3 inches is an adequate method to visually inspect soil prior to leaving a site. Observing an excavator direct load into a dump truck is not considered an acceptable method of screening soil.
b. Any suspect munitions-related items identified should immediately be called into emergency response (911) or Blackburn (910-451-3064/4449) for proper identification, in accordance with MCO 8020.10. Munitions-related items should be reported to the Contracting Officer, and subsequently to the Explosives Safety Officer (ESO) and Installation's Environmental Management Division (910-451-5003). Base Explosives Ordnance Disposal (EOD)will make the proper notifications to the Explosive Safety Officer (ESO). The Contracting Officer should report the incident to the Installation Environmental Management Division (EMD) as soon as possible to assist in determining if follow-on unexploded ordnance (UXO) construction support actions are warranted.
   Soil cannot be disposed off-base without proper waste documentation (i.e., hazardous or non-hazardous waste manifest signed by a Base representative designated in writing by the Commanding General to sign manifests). Under no circumstances shall a contractor sign on behalf of the government on a waste profile or a waste manifest.

Surplus soil must be properly characterized, manifested, and disposed of at a permitted landfill or incinerated, as designated by the MCBCL ESOP and allowed by State and Federal regulations (minimum of full suite TCLP (VOCs, SVOCs, pesticides/herbicides/PCBs, and metals), ignitability, corrosivity, and reactivity, and TPH-GRO and TPH-DRO in accordance with Environmental Protection Agency (EPA) Method SW-846 for every 1,000 cubic yards. Additional testing requirements may be requested by the receiving facility. All sample results must be reviewed and approved by the Contracting Officer.

Soil should be reused on its originating construction footprint. As there are currently no regulations regarding management and disposal of PFAS-impacted soil, all PFAS-impacted media should be managed so as to minimize the future impacts to the environment, should they become regulated. If PFAS-impacted soil needs to leave the originating site, it must be properly characterized, manifested, and disposed of at a permitted subtitle D or C landfill (lined landfill) per the MCBCL ESOP. Waste manifests must clearly indicate that PFAS compounds are present. The Base landfill cannot accept PFAS-impacted soil. Testing requirements for PFAS-impacted soil will be dictated by the receiving facility.

Copies of all waste manifests must be retained by the Installation EMD Resource Conservation and Recovery Section, the transporter, and the receiving facility for a minimum of 3 years in accordance with 40 CFR 262.40 (a).

If contaminated soils are suspected or confirmed through presence of UXO,odors, or visual staining, or known as identified in the project drawings (i.e., constructing in a known impacted area) affected soils
must be properly tested, manifested, and disposed of in accordance with RCRA regulations.

Environmental Management Division (EMD)Points of Contact:
EMD Administrative Assistant: (910) 451-5003

Environmental Quality Branch:
Environmental Restoration Program Manager, Thomas Richard:
(910)451-9641, Thomas.Richard@usmc.mil

Environmental Conservation Branch:
National Environmental Policy Act (NEPA) Program Manager, Jessi Baker:
(910-)451-4542, Jessi.Baker@usmc.mil

An Imported Fill Management Plan must be reviewed and approved by Installation Environmental through the contracting office; in addition to requirements listed within the Earthwork specification and applicable CIVIL and LANDSCAPE ARCHITECTURE specifications for this project. The Imported Fill Management Plan must include the following information:

- Fill source location/history (Phase I if available, current aerials, etc.)
- Sampling and Analysis plan
- Analytical lab certifications (lab must be ELAP accredited for each analysis)
- Sample frequency for each analysis
- Resumes of field sampling team
- A table designating screening criteria (Current CT Clean Fill Requirements; all PFAS constituent goals are the detection limit of the laboratory selected for EPA Method 1633)

Soil Import Sampling Requirements:
At least one REPRESENTATIVE 3-point composite sample from EACH area of planned import must be provided to Installation Environmental for review and approval through the Contracting Officer. If the area of planned import changes, another sample must be collected and provided to Installation

Environmental for review and approval. Clean fill borrow source samples must be collected within 3 months of borrow source use.

G1040 CONTAMINATED WASTE REMEDIATION

See Hazardous Material Reports in Part 6.

G1040 1.1 CONTAMINATED SOIL AND GROUNDWATER

A site characterization report is provided in Part 6 attachments C4. Anticipate that all soil and groundwater is PFAS impacted and must be handled, sampled, tested, treated and disposed of as specified.

The Contractor is required to retain a Professional Engineer experienced with soil and groundwater contamination and remediation and licensed in the geographic region of the project, to interpret the Government provided information as related to the design concept and develop environmental related requirements to support design and construction.

The Contractor is responsible for all costs associated with the contaminated waste remediation except as allowed by Contract Clause FAR 52.236-2, "Differing Site Conditions". The Contractor's Professional Engineer must perform additional subsurface investigation/testing as required to adequately determine all applicable environmental factors. The Contractor's Professional Engineer is required to evaluate the provided information and any additional information obtained and incorporate appropriate contaminated waste testing and management requirements into the design. The minimum requirements for the soils investigation and report are as required by UFC 3-810-10N with associated references.

Prior to starting work, conduct any additional testing that may be needed to provide a final design and comply with all applicable federal, regional, state, and local regulations. Refer to UFC 3-810-10N, *Navy and Marine Corps Environmental Engineering For Facility Construction*, for additional requirements and criteria.

G1040 1.2 EXCAVATION

Perform excavation of contaminated material in accordance with North Carolina regulations.

Where excavation extends into groundwater levels, employ dewatering methods on a localized basis to facilitate excavation operations. Collect water generated by dewatering during excavation and test it in accordance with U.S. EPA and North Carolina DEQ regulations.

Dispose of water that contains contaminants above regulatory limits in accordance with Federal, State of North Carolins, and local regulations.

Non-contaminated water may be disposed of on-site in storm drains or adequate outfalls.

G1040 1.3 STOCKPILED SOILS

For stockpiled soils, provide a minimum of one test for every 250 cubic yards (cubic meters) for TPH, BTEX, PCBs and Hazardous Waste Characteristics (based on TCLP testing).

Dispose of contaminated stockpiled materials in accordance with: Federal, State of North Carolina, and local regulations.

Stockpiled soils must be shown and approved on the NCDEQ Erosion and Sediment Control permit.

G1040 1.4 CLEAN FILL

Backfill soils that are determined as clean fill via testing in accordance with the requirements listed in this section.

G1040 1.5 SPILLS

In the event of a spill or release of hazardous substances, pollutant, contaminant or oil, notify the Contracting Officer and Camp Lejeune Environmental immediately. Take containment/control actions immediately to minimize the effect of any spill or leak. Perform clean up in accordance with Part 2 Section 01 57 19, *Temporary Environmental Controls*.

G1040 1.6 DISPOSAL

Waste materials will become the property of the Contractor; transport, dispose of or recycle waste materials in accordance with Part 2 Section 01 57 19, *Temporary Environmental Controls*.

--End of Section--

6. ENGINEERING SYSTEMS REQUIREMENTS

G20 SITE IMPROVEMENTS

SYSTEM DESCRIPTION

Provide site improvements that support project sustainability goals of Part 2 UFGS Section 01 33 29, *Sustainability Requirements and Reporting*.

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

GENERAL SYSTEMS REQUIREMENTS

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

Provide accessibility in conformance with requirements of UFC 1-200-01 , *DoD Building Code (General Building Requirements).*

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

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

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

G2010 ROADWAYS

Provide roadways, as required, to allow for safe, convenient and logical circulation, while discouraging through traffic. Design pavements based on the anticipated daily traffic over the life of the project (25 years) as well as the existing soil conditions at the site.

Provide bituminous concrete or Portland cement concrete (PCC) roadways at the discretion of the Designer of Record. The minimum PCC pavement must be 8-inch concrete surface course over 6-inch aggregate base course. The minimum bituminous concrete pavement section for heavy-duty paving must be 2-inch bituminous surface course, 3-inch bituminous base course, and 12-inch aggregate subbase course. A minimum 12-inch thick sand subbase layer (min. CBR Value 20) underlain by a stabilization geotextile (AASHTO M288 CLASS 1 WOVEN GEOTEXTILE (ELONGATION < 50 PERCENT) SEAMS OVERLAPPED MINIMUM OF 24 INCHES) must be provided beneath all pavements.

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

The specified pavement sections are the minimum acceptable to the Government. The Contractor must include the costs of the minimum specified sections in their base bid.

Permeable pavement and aggregate pavement must not be used.

Provide other roadway improvements including markings and signage as needed.

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

A subsurface drainage system must be provided in all roadway areas. The subsurface drainage system must consist of as a minimum weep holes in all drainage structures and perimeter underdrain or strip drains designed such that the aggregate base and sand subbase layers remain in a drained (i.e. unsaturated) condition during service.

Provide other roadway improvements including pavement markings, signage, street lighting, and crosswalks. Include adequate space for trees and other landscape material in the design for streets, roads, and parking lots in accordance with Camp Lejeune Base Exterior Architecture Plan (BEAP) and ESR G2050 Landscaping and ESR G205005 Plantings.

G201001 BASES & SUBBASES

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

G201002 CURBS & GUTTERS

Minimize the use of curbs and gutters to meet Low Impact Development (LID) requirements, but provide curb and gutter as required to tie into adjacent facilities.

G201003 PAVED SURFACES

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

Recycled asphalt pavement material may be used in bituminous concrete mixtures in accordance with guidelines outlined by in the latest edition of North Carolina Department of Transportation (NCDOT) Standards Specifications for Roads and Structures.

G201004 MARKING & SIGNAGE

Provide pavement markings including crosswalks to match existing.

Provide signage in accordance with the Manual of Uniform Traffic Control Devices (MUTCD) and the BEAP.

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

MUTCD.

G201005 GUARDRAILS & BARRIERS

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

G201006 RESURFACING

Not used.

G201090 OTHER ROADWAYS

Fire Lanes

If required, roadway(s) to be used exclusively as fire lanes within the project site must be provided and constructed of a reinforced grass geocell system and must be incorporated into the sidewalk design where practical with the geocell system on either side of the sidewalk. Design of fire lanes must be in accordance with the requirements of ESR Section D4090 and must take into consideration the static and dynamic support weight of the vehicles in accordance with the latest ASHTO H20 loading requirements and by existing soil conditions. Roadways must accommodate two fire truck trips every month and must incorporate a minimum 18-inch ASTM C33 sand subbase layer underlain by a stabilization geotextile fabric (AASHTO M288 CLASS 1 WOVEN GEOTEXTILE (ELONGATION < 50 PERCENT), SEAMS OVERLAPPED MIN. OF 24 INCHES).

Sidewalks that traverse or are located within the fire department access lanes, or otherwise require crossing by a fire department vehicle, must be designed to support an 80,000-pound vehicle.

The specified pavement sections are the minimum acceptable to the Government. The Contractor must include the costs of the minimum specified sections in their base bid.

G2020 PARKING LOTS

Review the security study and incorporate its requirements into the design. Resident, visitor, staff, and service personnel parking must be convenient, safe, and pleasant to use. Locate and shape parking areas to improve the residential environment. Use landforms such as earth berms, retention ponds, and tree islands to separate parking from other functional zones and to buffer the residential area from possible surrounding adverse environments. Provide a minimum of 7 spaces for every 10 residents. Provide staff parking for each staff member. Design pavements based on the anticipated daily traffic over the life of the project (25 years) as well as the existing soil conditions at the site. The Designer of Record will need to coordinate with facility users to determine anticipated traffic patterns. Design pavement sections in accordance with UFC 3-201-01, *Civil Engineering*.

Provide parking lots of bituminous pavement on the east side of HM Smith Blvd. Porous bituminous pavement is not allowed.

Provide other parking improvements including dedicated, concrete-surface motorcycle parking in accordance with FC 4-721-10N, *Navy and Marine Corps Unaccompanied Housing*. Provide secure, weather-protected bicycle parking in accordance with FC 4-721-10N, *Navy and Marine Corps Unaccompanied Housing*. Use expected frequency of maintenance service functions to determine if dedicated parking is required, Locate service access and parking to avoid disturbing residents. Provide parking entrances for two way traffic, markings, and signage. See ESR G205005 for parking lot landscape requirements.

Provide ABA compliant parking in accordance with UFC 1-200-01 , *DoD Building Code (General*

Building Requirements).

G202001 BASES & SUBBASES

Contractor's geotechnical engineer must determine the required thickness based on the anticipated traffic patterns. Crushed concrete meeting specified gradation for aggregate base or subbase courses may be used upon Engineer of Record (EOR) and Contracting Officer approval. Provide compaction in accordance with ASTM D 1557 by machine or hand for base and sub-base material. The compaction effort for soil, sand, base material, and excavated material must be tested by an accredited testing agency and approved by a Geotechnical Engineer. A copy of the approved testing reports must be forwarded to the Contracting Officer. Assembly includes all associated work. Provide surfacing material at all areas where there is no parking to maintain finish material to reduce water runoff.

G202002 CURBS & GUTTERS

Where existing curb and gutter exists, provide curb and gutter to tie into adjacent facilities. Provide curb and gutter adjacent to pedestrian walkways, internal parking lot islands, and as required to convey stormwater.

G202003 PAVED SURFACES

Regardless of the calculated pavement section(s), the minimum light duty flexible pavement section is three inches of bituminous surface mix; over eight inches of aggregate base; over twelve inches of imported select material subbase; over AASHTO Class I stabilization geotextile; over approved compacted subgrade. The minimum heavy duty flexible pavement section is two inches of bituminous surface mix; over three inches of bituminous base course mix; over eight inches of aggregate subbase; over twelve inches of imported select material subbase; over AASHTO Class I stabilization geotextile; over approved compacted subgrade. The minimum rigid pavement section is six inches of Portland Cement Concrete surface; over six inches of aggregate base; over twelve inches of imported select material subbase; over AASHTO Class I stabilization geotextile; over approved compacted subgrade. Portland cement concrete must have a minimum design flexural strength of 650 psi in not more than 28 days.

Recycled asphalt pavement material may be used for bituminous concrete pavement (as permitted by the SHS).

G202004 MARKING & SIGNAGE

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

Provide pavement markings including crosswalks in accordance with MUTCD.

Provide signage to match existing in accordance with MUTCD.

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

G202005 GUARDRAILS & BARRIERS

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

G202006 RESURFACING

Not used.

G202007 MISCELLANEOUS STRUCTURES AND EQUIPMENT

Not used.

G202090 OTHER PARKING LOTS

Not used.

G2030 PEDESTRIAN PAVING

Provide a network of Portland cement concrete (PCC) sidewalks, separated from, but connected to vehicular circulation systems, to allow for pedestrian circulation between various new and existing elements of the project. Interface new pedestrian circulation systems with existing pedestrian circulation systems and include input from the Civil Engineer, Architect, and Landscape Architect.

Pedestrian sidewalk paving must be sized according to FC 4-721-10N, *Navy and Marine Corps Unaccompanied Housing*

Provide enhanced pedestrian pavement at main entry ways. Enhanced pavement will consist of a combination of concrete finishes and scorelines, including but not limited to. Stamp concrete will not be used. Final approval of finishes will be made by the government architect and government landscape architect.

G203001 BASES & SUBBASES

Provide in accordance with section G202001.

G203002 CURBS & GUTTERS

Minimize the use of curbs and gutters to meet Low Impact Development (LID) requirements, but provide curb and gutter as required to tie into adjacent facilities.

G203003 PAVED SURFACES

Provide Portland Cement Concrete with a minimum compressive strength of 3,500 psi.

G203004 GUARDRAILS & BARRIERS

Not used.

G203005 RESURFACING

Not used.

G203006 OTHER WALKS, STEPS & TERRACES

Provide concrete sidewalks to convey all pedestrian traffic expected in conjunction with this project.

Connect all sidewalks associated with this project into those of adjacent facilities. Ensure that exterior sidewalks have non-slip surfaces and drain away from the building.

G2040 SITE DEVELOPMENT

G204001 FENCING & GATES

Not used.

G204002 RETAINING AND FREESTANDING WALLS

The finish of freestanding walls such as equipment enclosures, dumpster enclosure or site retaining walls, if used, must match new facility exterior and meet Antiterrorism requirements.

G204003 EXTERIOR FURNISHINGS

All site furnishings are required to conform to the Installation BEAP.

Site furnishings must be unified throughout the installation through materials, colors, finishes, shapes, and details. Materials must be durable and low maintenance. Furnishings must be cohesive in appearance with adjacent buildings without competing with more important features. All site furnishings must be on dedicated concrete pads, connected to sidewalks, and anchored to the concrete pavement. Site furnishings located within the Unobstructed Space must be AT/FP compliant and meet Chapter 3 Standard 2 Unobstructed Space of UFC 4-010-01, DoD Minimum Standards for Buildings. Provide a complete exterior furnishing package documenting all exterior furnishings to be included in the bid package.

Picnic Areas/Picnic Shelter

Design picnic areas to accommodate 32 people seated at a minimum for each building with less than 300 rooms. For buildings with more than 300 rooms, provide sufficient covered picnic seating to meet a 5 percent minimum of the full resident population. The picnic areas will have a covered pre-engineered pavilion structure or shelter with a hipped standing seam metal roof that complies with the BEAP standards. The structure will provide shelter from the sun and rain. The shelter will have a paved concrete floor surface. The Picnic Shelter size is calculated at 5.5 SF for every room, calculated at full occupancy. Equip the shelter with amenities including picnic tables with attached benches, a minimum of 2 charcoal grills, waste and recycle receptacles, hot ash receptables compliant with AT/FP, electrical outlets, lighting, exterior-rated HVLS (high-volume, low speed) ceiling/overhead fans, and paved areas equipped with grills for barbecue activities. One of the picnic tables must be ABA accessible.

Fire Pit

Provide a wood-burning outdoor Fire Pit adjacent to each Picnic/Shelter area constructed of fire-rated, durable materials suitable for exterior use, designed for safe operation and proper ventilation. The fire pit must measure 3 to 4 feet in interior width and 1 to 1.5 feet in height. Construction must include fire-rated masonry, concrete, or steel components with interior surfaces lined in refractory brick or fire-rated panels to withstand high temperatures, and an exterior finish that complies with the BEAP while resisting UV exposure, moisture, and freeze-thaw conditions. Ventilation must be achieved through air intake vents at the base for combustion airflow and an unobstructed top opening for smoke exhaust. The design must prevent gas accumulation and allow efficient burning, including a spark guard or screen as required, and comply with local fire codes and clearance requirements from combustible materials. Accessories must include a removable grate for wood placement and be located near a hot ash receptacle.

Charcoal Grills

Provide two built-in charcoal grills constructed of stainless steel. Grills must be installed on a masonry base with a cast-in-place concrete countertop and set on a concrete pad. Provide a minimum additional 3-foot-wide concrete countertop on each side of the grill to accommodate cooking and prep areas. Concrete pad must be sized to fully support the grill, masonry base, and required clearances. Installation, construction, and materials must comply with the latest applicable Fire Safety Code requirements. Final grill locations must be coordinated with the Government Landscape Architect.

Hot Ash Receptacle

Provide one hot ash receptacle, with a minimum of 28 square inches by 42 inches high pre-cast reinforced concrete with drain hole with steel ash grate and cast in “Hot Coals Only” logos on each side with white letters on a red background.

Benches

Exterior benches must be an integral component of the pedestrian network and must be provided for relaxation, waiting, and resting. These benches are separate from the picnic tables with attached bench seating under the proposed shelters.

Bench seating must be located at prominent entrances, within plazas and courtyards, along primary pedestrian pathways, and within outdoor activity and recreation areas. Benches must be chosen for durability as well as comfort and must complement the surrounding site and architectural context.

Exterior benches must be provided and located at the following: 2 at each prominent entrance, 2 at each plaza/courtyard, and 2 at each outdoor activity and recreation area. For pedestrian pathways, provide one bench for every 400 linear feet or fraction thereof.

Trash/Recycle Receptacles

Trash and recycle receptacles must be simple, unobtrusive site elements that are visible and convenient, but not displayed as significant site features.

Trash and recycle receptacles will often be co-located with benches and must match benches in material, color, and form. Provide 1 trash receptacle and 1 recycle receptacle minimum at each designated receptacle location. Preferred receptacle sites are adjacent to walkways, building entries, playing fields, recreation areas, high-traffic areas, and gathering places. Receptacles must be compliant with AT/FP requirements when placed within 33 feet of a building perimeter to maintain the required unobstructed space.

Smoking/Cigarette Receptacles

The design and appearance of the cigarette receptacle must match the trash/litter receptacles in all aesthetic aspects and must be constructed of the same materials. Provide a minimum of one smoking/cigarette receptacle for each building, in accordance with UFC 3-201-02.

Bicycle Racks

Provide weather-protected bicycle rack storage equivalent to 5 percent of the BEQ maximum resident capacity (in compliance with the provisions of FC 4-721-10N). Locate these within 200 feet of the (main) building entrance. Weather-protected bike rack storage space does not count toward the total BEQ building square foot area calculations.

Bike parking areas must be in well-lit spaces and highly visible from the street and adjacent buildings

to reduce theft and vandalism. Bicycle parking areas must be paved, must not obstruct pedestrian traffic, and must be convenient to pedestrian circulation. Provide appropriate landscaping to help blend bike racks into their immediate surroundings.

G204004 SECURITY STRUCTURES

Not used.

G204005 SIGNAGE

Provide signage in accordance with Camp Lejeune's Base Exterior Architectural Plan (BEAP). Traffic and parking signage must be in accordance with MUTCD.

At a minimum provide building identification signage, building number signage, and wayfinding signage for the project.

G204006 FOUNTAINS & POOLS

Not used.

G204007 PLAYING FIELDS

Outdoor Activity Areas - High Intensity Tactical Training (HITT)

Provide concrete pads for storage containers within the High Intensity Tactical Training (HITT) area at a rate of one (1) pad for every 150 residents. Each HITT concrete pad must be sized at a minimum of 25 feet by 30 feet. Each required pad must be constructed as a separate, standalone pad; consolidation of multiple required pads into a single larger pad is not permitted. Provide positive slope for drainage at each HITT pad.

In compliance with the guidelines contained in FC 4-721-10n, when providing playing fields or other appropriate amenities, provide lighting to enable facility use during the evenings. Locate these recreational functions to reduce interference with other functions on and near the site. Shelter or screen both active and passive recreational facilities to temper wind and other climate elements. Provide appropriate plant materials consistent with the Installation BEAP.

G204008 TERRACE AND PERIMETER WALLS

Not used.

G204009 FLAGPOLES

Not used.

G204090 OTHER SITE IMPROVEMENTS

Dumpster Enclosures

Provide two dumpster pads and enclosures for every building conforming to Camp Lejeune’s BEAP. Any enclosure must not be located within the clear zone of the base perimeter fence or any controlled fence. Any dumpster pad must be a minimum of 2-feet wider than the dumpsters/trailer on all sides. Provide bollards and/or curb on the inside of enclosure to protect walls from damage. Enclosures

must be located for easy accessibility in areas that provide minimal disruption of through traffic flow and is outside of high visibility areas, while also meeting requirements of UFC 4-010-01 *DoD Minimum Antiterrorism Standards for Buildings*.

Equipment Wash-down Area

Provide an exterior washdown area in conformance with FC-4-721-10n requirements. Locate equipment washdown areas protected from weather adjacent to a building entry point. The area must be concrete based, approximately 15-foot width by 50-foot length with supported standpipes consisting of thirty (30) hose bibs with sturdy supports and anchored at 40-inch maximum height with separate cut-off valves suitable for simultaneous operation of all thirty (30). Provide a properly sized supply standpipe with a freeze-proof design and easily accessible shut-off valve(s). Slope the concrete area to a central drain with easy cleanout for mud and debris. Provide equipment suitable for outside service.

Equipment Drying Area

Provide an exterior drying area in conformance with FC-4-721-10n requirements. Locate an enclosed equipment drying area on concrete hard-stand adjacent to the equipment wash-down area protected from weather. Each drying area must be totally enclosed on all four sides and across the top with 9-gauge chain link fence fabric. Fence fabric must be adequately supported by fence posts and horizontal support members. The horizontal support members must be appropriately sized to support a hanging equipment load of 490 pounds for every linear foot. The drying area must be divided into separate sections, gates must have a lockable hasp, and concrete hardstand adequately sloped to prevent ponding water.

G2050 LANDSCAPING

Design landscaping in accordance with the Base Exterior Architecture Plan (BEAP) and UFC 3-201-02, Landscape Architecture.

Provide a complete, AT/FP compliant landscape consisting of lawn groundcover, trees, shrubs, ornamental grasses, organic mulch, and inorganic mulch to provide a quality, cost-effective, functional and visually appealing landscape program that will enhance the development, while complying with anti-terrorism, force protection and physical security requirements. Design the landscape to reinforce the facility entry and complement existing landscapes in the vicinity. Provide landscaping that minimizes bird air strike hazards.

Limit-of-work for landscape improvements must be determined by existing boundaries, such as but not limited to curbs, pavement edges, and built structures where possible. Landscape limit-of-work must be approved by the Contracting officer and the Government Landscape Architect. At a minimum, all areas of the site not covered by buildings or other structures and impervious paving or walkways must be considered total landscape area and therefore, receive landscape improvements. All turf areas must be sodded with Centipede Sod. For any temporary erosion control methods involving seeding, seed mix must be approved by the Contracting officer and the Natural Resources office prior to construction operations.

All plant materials must not provide a food source of habitat for birds or other wildlife to prevent the occurrence of what is commonly referred to as Bird Aircraft Strike Hazard (BASH). Birds are usually thought of as the source for such events, but it can include problems with land-bound animals such as deer, rabbits or other creatures causing collisions during take-offs or landings.

For all landscaping, utilize native or appropriate adaptive plants for the site soil, moisture, and sunlight conditions. Use only species well adapted to the site. Design landscaping for minimal maintenance requirements.

Provide commercial soil testing and analysis performed by an independent testing laboratory including basic soil groups (moisture and saturation percentages, Nitrogen-Phosphorus-Potassium (N-P-K) ratio, pH (ASTM D4972), soil salinity), secondary nutrient groups (calcium, magnesium, sodium, Sodium Absorption Ratio (SAR)), micronutrients (zinc, manganese, iron, copper), toxic soil elements (boron, chloride, sulfate), cation exchange and base saturation percentages, and soil amendment and fertilizer recommendations with quantities for topsoil preparation as well as for planting pit backfill for plant material. Soil required for each test must include a maximum depth of 18 inches of approximately one quart volume for each test. Each composite soil sample must represent an area no larger than 5,000 square feet or one planting zone. Collect 6-8 soil cores from each sample area and thoroughly mix the cores into one composite sample. Problem areas must be sampled separately and compared with samples taken from adjacent non-problem areas. The location of the sample areas must be noted and marked on a parcel or planting map for future reference.

Provide a one-year Guarantee and Establishment and Maintenance period. Landscape Guarantee and Establishment and Maintenance periods must commence on the date that the inspection by the Contracting Officer shows that all landscaping under this contract has been satisfactorily installed.

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

When not in conflict with AT/FP security requirements, provide shrubs or small growing trees for screening of mechanical equipment/walls, dumpster enclosures, and other obstructions that do not present an aesthetic view from the street.

Screening walls and planting within the unobstructed space must meet all AT/FP requirements. Planting over 8 inches cannot occur within the clear zone of any security fence.

G205001 FINE GRADING AND SOIL PREPARATION

Provide 4 inches of pH and compositionally amended topsoil for lawn areas and fine grade to meet the establishment requirements of the selected vegetation. Planting beds to be prepared with amended topsoil to the depth of the root mass.

Soil amendment for all planting areas must be based on an agronomic soil analysis provided by the contractor.

G205002 EROSION CONTROL MEASURES

Prevent erosion from occurring by providing erosion control measures as required by city, state and federal requirements.

G205003 TOPSOIL AND PLANTING BEDS

Provide a planting soil mixture composed of 50 percent native and 50 percent new topsoil blended with slow-release fertilizer, amendment in accordance with agronomic soils test, and plant tablets around root balls of shrubs, trees, groundcovers, perennials, and ornamental grasses that is at a minimum, twice as wide and equally as deep as the plant's root balls. Set tops of plant root balls 1 inches above adjacent grades.

G205004 SEEDING SPRIGGING AND SODDING

All permanent cover for turf areas must be sodded. Restore existing turf areas disturbed by

Contractor operations that are to remain as turf areas with sod. Turf grass species must be Centipede. For any temporary erosion control methods involving seeding, seed must be approved by the Natural Resources office prior to construction operations. Restore by means of sodding and provide same guarantee and maintenance as for new landscape areas.

G205005 PLANTINGS

Preserve existing trees to the greatest extent possible. Select plant material from Master Plant Lists found within the Installation BEAP. Other plants not found on these lists may be used if approved by the reviewing Government Landscape Architect. Final approval of new plant materials rests with the reviewing Government Landscape Architect after coordination with Camp Lejeune Environmental staff for BASH and mitigation requirements.

The recommended planting requirement provides trees at a minimum rate of one tree for every 1,000 square feet of the TOTAL LANDSCAPE AREA of the project and identifies off site areas for designated alternative planting. Identify reductions and/or additions to the number of required trees in the Supplementary Instructions to Offerors. Confirm the planting rate with the Government Landscape Architect. Provide high quality plants that comply with the criteria found in the American Standard for Nursery Stock, ANSI Z60.1. Incorporate relevant planting guidelines according to the latest edition of UFC 3-201-02 Landscape Architecture. For streetscape, plant shade trees at 40-feet on center average spacing.

Provide planted strip between any sidewalk and any Primary, Secondary and Tertiary streets in accordance with the BEAP.

Shade trees must be a minimum size of 3-inch caliper at breast height and 14 feet in height unless otherwise specified elsewhere in this RFP. Flowering trees must be a minimum 2-inch caliper and evergreen trees must meet or exceed 6-feet tall. Plant trees a minimum of 10 feet from building, edge of sidewalks, curbs, and underground water and sewer lines. Site trees such that their canopy will not negatively affect any building. Trees must be relatively clean and free of potential nuisances such as fruit, berries, sap, thorns, and pitch. In addition, they must not have surface roots which will potentially uplift sidewalks and pavements, Provide root barrier for all trees planted within 8 feet of any utility, wall, curb or pavement.

In general, select trees that have a normal lifespan over 60 years and a strong branch and limb structure

Provide a five-foot watering basin around each tree and also provide a five-foot diameter mulch ring with a three-inch layer of organic mulch.

Stake all trees as required to ensure a stable, true plumb form is established. Protect trees from damage from staking materials. Unless otherwise directed by the Contracting Officer, all staking materials must be removed prior to the end of the contract.

A minimum of 10 percent of any at grade POV parking lot must be landscaped. Parking lots must have a minimum of one (1) tree every 50 linear feet of parking lot perimeter including entrance drives and service areas. Interior plantings must consist of at minimum one (1) tree for every 300 square feet of island area. Tree plantings along perimeter of lot must follow the Installation BEAP for a natural, native appearance. Parking lots must have no more than two tree species. Planting medians must have a minimum inside dimension width of 9 feet. Any parking lot that abuts a service drive or base road for the project must be separated by planted green space with a minimum inside dimension of 9 feet. Provide deciduous shrubs along the parking lot perimeter to create an informal opaque screen.

Asphalt parking lots must have a landscaped interior island every 10 parking stalls (2 motorcycle

stalls are equivalent to 1 parking stall.) Parking rows must end with landscaped terminal islands with no more than 30 parking spaces between terminal islands. Interior islands must be a minimum of 8-feet wide and a minimum of 300 square feet in area. Each interior and terminal island must have at least 1 shade tree. In lieu of mulch or grass as planting bed, permanent permeable rubber mulch mats must be used around parking island plantings.

When parking stalls are located within 3 feet or less to an adjacent pedestrian path, wheel stops must be provided. To prevent overhand conflicts, a minimum 3-foot-wide grassed buffer or a 4-foot-wide minimum grassed buffer with a small flowering or understory tree from the approved plant list is required between the parking area and the pedestrian path, or the pedestrian path width must be increased to a minimum of 8 feet wide.

Coordinate tree planting location with electrical site lighting for a fully coordinated and integrated design that allows tree and lighting to be complimentary. See G4020 SITE LIGHTING.

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

If used for stormwater management, provide bioretention filters, plants, plant quantities, and soil mix in accordance with the State's Best Management Practices (BMP) Design Manual. Trees and landscaping are not permitted on or around perimeters of stormwater ponds or basins.

Provide 4- to 6-inch diameter river stone mulch at bioretention filters. Use Centipede sod unless directed otherwise by the Installation EV. Ensure that the bioretention filters are not compromised by sediment deposits during construction.

Provide 3 inches of double shredded hardwood mulch over weed control fabric at planting beds.

Encompass planting beds not used for bioretention filters with steel edging except where beds abut walls or sidewalks. Edging is not required around individual trees.

For pad-mounted utility structures that require screening, use approved fencing/screening material or the use of evergreen shrubs from the approved plant list with adequate height and spacing to visually screen from view in accordance with AT/FP requirements

G205007 IRRIGATION SYSTEMS

No permanent irrigation systems are permitted. Provide manual watering to new plantings throughout the Establishment and Maintenance period.

--End of Section--

6. ENGINEERING SYSTEMS REQUIREMENTS

G30 SITE CIVIL/MECHANICAL UTILITIES

SYSTEM DESCRIPTION

The site civil/mechanical utility systems include water supply systems, sanitary sewer systems, storm drainage systems, heating distribution systems, cooling distribution systems, and associated appurtenances which are more than 5 feet (1.5 meters) outside the building.

The site mechanical utility system consists of piping and appurtenances for chilled water, hot water, and natural gas including accessories and devices as required for a complete and usable system up to 5 feet (1.5 meters) outside buildings.

GENERAL SYSTEM REQUIREMENTS

Develop the site to provide water, fire protection, sanitary sewer, storm drainage, heating, and cooling services that meet the requirements of each regulatory agency that governs and issues permits for the construction and operation of these systems. Site design is required to comply with UFC 3-210-10, *Low Impact Development*, as well as state or local stormwater management regulations and project sustainability goals.

Provide imported bedding material for all utility lines and structures. Bedding material must consist of ASTM C33 fine aggregate or coarse aggregate size No. 57. A minimum of 6 inches of bedding must be provided for all utility lines and a minimum of 12 inches of bedding must be provided for all utility structures. Bedding material backfill must be placed to the spring line of the pipe for all concrete and PVC pipe trench excavations. Utility line and utility structure excavations made in existing pavement areas must be completely backfilled to the aggregate bas/subbase course elevation using excavatable flowable fill meeting NCDOT specifications.

Provide each system complete and ready for operation.

Physically verify the location of existing above and below ground utilities prior to starting work.

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

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

Utility connection points will be determined by the Designer of Record. Obtain final approvals from the Government's Civil/Mechanical Reviewer and the Contracting Officer for utility connection points associated with this work.

Coordinate with the local utility providers and pay fees or charges required to connect to their utility.

Disciplines involved in site work design must coordinate utility locations with the Civil Engineer and the Landscape Architect.

Refer to Site Analysis and Building Requirements Sections for additional site civil/mechanical utilities information.

Provide fittings, connections and accessories required for a complete and usable system. Install

equipment in accordance with PTS Section G30 and the manufacturer's recommendations. Where the word "should" is used in the manufacturer's recommendations, substitute the word "must".

See UFGS 01 78 23 OPERATION AND MAINTENANCE DATA for additional requirements.

Provide site civil/mechanical utility systems and components that support project sustainability goals of Part 2 UFGS Section 01 33 29, *Sustainability Requirements and Reporting*.

Verify the sanitary sewer connection to the sanitary sewer system by visual testing. Perform post-installation TV inspection of new sanitary sewer mains. Complete a visual inspection.

Leakage test is required.

Perform post-installation TV inspection of new storm sewer mains.

G3010 WATER SUPPLY

The new water system is an extension of the existing water system. The existing water system serving the project site is owned by the Federal Government and operated by Camp Lejeune. Provide the new water system and connections to the existing water system in accordance with UFC 3-230-01 *Water Storage, Distribution, and Transmission,* MCB Camp Lejeune Public Works Division requirements, and/or the NCDEQ regulations; whichever is more stringent. Notify MCB Camp Lejeune Public Works Division of the additional demand generated by the proposed facility. Provide a copy of all correspondence with the utility provider to the Government's Civil/Mechanical reviewer.

Notify the utility provider of the additional demand generated by the proposed facility. Provide a copy of all correspondence with the utility provider to the Government's Civil/Mechanical Reviewer.

Provide connection to the existing water distribution system at a point determined by the Designer of Record. New water connections must be coordinated with the State via Camp Lejeune PWD Jonathan Casey Jonathan.casey@usmc.mil (910) 451-0775.

Design the new water system so that water consumption is measured at a minimum, by one meter for each facility. Ensure the meter is easily accessible, but not obvious.

All fittings and changes in direction of the pipeline must be secured by two forms of restraints. Mechanical joint restraining glands and concrete thrust blocks are preferred. Other forms of restraints may be approved by Public Works on a case-by-case basis.

G301002 POTABLE WATER DISTRIBUTION

Connect the new potable water distribution system to the distribution system. New water connection must be coordinated with PWD Water Section.

Provide exterior corrosion protection on metallic pipelines.

Water Mains: Provide ductile iron pipe AWWA C151, Pressure Class 350 or PVC pipe AWWA C-900 DR-18 Pressure Class 200. Fittings must be ductile iron and must have the same rating as the pipe. Pipe and fittings must be provided with AWWA C104 cement mortar lining. Piping and fitting must be restrained in accordance with Ductile Iron Pipe Research Association (DIPRA) criteria.

Water Service Lines: Provide copper tubing, ASTM B88, Type K or PVC Pressure pipe, ASTM D1785, Schedule 40 for water service lines less than 4 inches in diameter. Utilize ductile iron pipe or PVC pressure pipe for water service lines 4 inches and 6 inches in diameter. Backflow preventers are

required on service entrance lines. Backflow preventers must be located within the building, see ESR D20 (Plumbing) and ESR D40 (Fire Protection)

Fire Protection Water Service: Provide Post Indicating Valves (PIV) and associated bollards on the fire protection water service. Fire hydrants must have a 5” Storz connection with 5” by 4 ½” converter. If a free-standing Fire Department Connection (FDC) is deemed necessary, the FDC must be a 5” Storz connection on a galvanized 30 elbow pointed downward. Coordinate with ESR D40 Fire Protection.

Water valves must have traffic rated valve access cover with “WATER” label.

A water meter on each proposed service line must be provided by the Contractor. Provide type of meter and remote reading as required by the MCB Camp Lejeune Public Works Division. Water meter must be compatible with and functionally match the existing Advanced Metering Infrastructure (AMI) water metering system and be capable of recording water usage data for download to existing AMI system. Water meter must be compatible with and monitored by the Direct Digital Controls (DDC) system.

G301004 FIRE PROTECTION WATER DISTRIBUTION

Provide a looped connection for fire protection to the existing water distribution system. Water supply for fire protection must be sized to provide adequate fire suppression. Contractor must ensure adequate flow and pressure. Pump for fire protection may be required. See Fire Protection ESR D40 and UFC 3-600-10N.

Water pipes used for fire protection must be UL listed. Provide adequate thrust restraint either by restrained joints or by concrete thrust blocks. An underground gate valve with an approved roadway box must be provided.

Fire hydrants must be installed and spaced and the caps/barrels must be color coded in accordance with UFC 3-600-01, *Fire Protection Engineering for Facilities*. Fire hydrants must have a 5” Storz connection with 5” by 4 ½” converter.

G301006 NON-POTABLE WATER DISTRIBUTION

Not used.

G301007 PUMPING STATIONS

Designer of Record to determine if a packaged booster pump is required.

G301090 OTHER WATER SUPPLY

Not used.

G3020 SANITARY SEWER

The new sanitary sewer system is an extension of the existing sanitary sewer collection system. The existing sanitary sewer collection system serving the project site is owned by the Federal Government and operated by Camp Lejeune. Provide the new sanitary sewer system and connections to the existing sanitary sewer collection system in accordance with state sewerage regulations, and UFC 3-240-01 *Wastewater Collection*; whichever is more stringent.

Use UFC 3-230-03 *Water Treatment* to establish demand for the new development. Notify the utility provider of the additional wastewater flow generated by the proposed facility. Provide a copy of all correspondence with the utility provider to the Government Civil Reviewer.

Provide connection to the existing sanitary sewer collection. In identifying a suitable point of connection, evaluate the capacity of the existing collection system.

G302001 SANITARY SEWER PIPING

Provide PVC Gravity Sewer Pipe, ASTM D3034, SDR 35. Provide corrosion protection for ductile iron fittings.

G302002 SANITARY SEWER MANHOLES & CLEANOUTS

Provide precast concrete manholes only. Provide lockable manhole covers. Provide PVC fittings ASTM D3034, SDR 35 with cast metal covers. Manholes subject to flooding must use water-tight covers

G3030 STORM SEWER

The new storm sewer system is an extension of the existing storm sewer system. The existing storm sewer system is operated and maintained by MCB Camp Lejeune Public Works Division. The Public Works Division can be contacted by phone at (910) 451-7190. The mailing address for the MCB Camp Lejeune Public Works Division is:

Commanding General Marine Corps Base Camp Lejeune
Utilities Branch
Public Works Division
PSC Box 2004
Camp Lejeune, NC 28547

Provide the new storm sewer system and connections to the existing storm sewer system in accordance with MCB Camp Lejeune Public Works Division requirements and/or NCDEQ regulations, whichever is more stringent. UFC 3-201-01 *Civil Engineering*; UFC 3-210-10 *Low Impact Development* and *FC 1-300-09N Navy and Marine Corps Design Procedures*, state stormwater management laws and regulations, local stormwater management laws and regulations and project sustainability goals; whichever is more stringent.

Provide connection to the existing storm sewer collection system at the nearest adequate point. Confirm that the existing outfall has adequate capacity to receive the additional stormwater flow generated by the project. If the existing outfall does not have adequate capacity, the Designer of Record must provide adequate storm sewer system.

G303001 STORM SEWER PIPING

The following materials for storm sewer piping are not allowed: ductile iron, corrugated steel, corrugated aluminum, and polypropylene (PP).

Test soils for corrosivity to determine applicable pipe materials or corrosion protection systems. Where corrosive soils are present, storm sewer piping materials are required to be polyvinyl chloride (PVC), reinforced concrete, or polyethylene (PE).

G303002 STORM SEWER STRUCTURES

Provide precast concrete structures only in accordance with NCDOT standard drawings. For inlets in or near areas accessible to pedestrians, provide bicycle friendly grates.

G303004 CULVERTS

The following materials for culvert piping are not allowed: ductile iron, corrugated steel, corrugated aluminum, polyethylene (PE), and polypropylene (PP).

Test soils for corrosivity to determine applicable pipe materials or corrosion protection systems. Where corrosive soils are present, storm sewer piping materials are required to be polyvinyl chloride (PVC), reinforced concrete, or polyethylene (PE).

G303005 HEADWALLS

Provide precast concrete headwalls in accordance with NCDOT standards.

G303006 EROSION & SEDIMENT CONTROL MEASURES

Erosion and sediment control measures are to be in accordance with North Carolina Department of Environmental Quality regulations. All plans must be submitted and approved by NCDEQ prior to land disturbance. The contractor must be responsible for obtaining these permits and paying all associated permit fees.

G303007 STORM WATER MANAGEMENT

Provide stormwater management that complies with state stormwater regulations, UFC 3-201-01 *Civil Engineering*, UFC 3-210-10 *Low Impact Development*, FC 1-300-09N *Navy and Marine Corps Design Procedures*; whichever is more stringent. Provide Low Impact Development (LID) features in accordance with UFC 3-210-10 *Low Impact Development*. The following LID features may be used: bioretention, filter/buffer strips, grassed swales, bioretention swales, infiltration trenches, and dry wells.

For Navy and Marine Corps projects, use FC 1-300-09N *Navy and Marine Corps Design Procedures* to comply with Navy LID Policy (commonly referred to as the Penn Memo). Navy LID policy sets a goal of no net increase in stormwater and sediment or nutrient loading from major renovation projects and construction projects. Major renovation projects are defined as having a storm water component and exceeding $5 million and major construction projects are defined as exceeding $750,000. If LID is not implemented to the Maximum Extent Technically Feasible (METF), as defined in UFC 3-210-10, a waiver request must be approved by the Regional Engineer. Coordinate waiver review and approval with the Civil Technical Discipline Coordinator (TDC).

Projects with a footprint exceeding 5,000 SF or exceeding the dollar values above must be documented on the NAVFAC Low Impact Development (LID) Data Card and submitted to the Government's Civil Engineer for review and approval.

The NAVFAC Low Impact Development (LID) Waiver Form and Low Impact Development (LID) Data Card can be found at: https://www.wbdg.org/ffc/dod/tri-services-sustainability-program/tracking-reporting .

The Contractor must pay associated fees and obtain all regulation permits required for the proposed work. Coordinate reports, submittals, and permit applications through the Contracting Officer. Send

copies of all reports, correspondence, submittals, and permit applications to the Government Civil Engineer.

G303090 OTHER STORM SEWER

An oil/water interceptor is not required.

G3040 HEATING DISTRIBUTION

Not used.

G306006 GAS DISTRIBUTION PIPING NATURAL GAS

Piedmont will provide natural gas piping to the meter and KTR will provide house pipe and DDC controls from the meter to the building(s). Natural gas laterals will be required from a new meter to the proposed building(s). The location of the meter is unknown. Contractor must coordinate gas demand requirements with the installation.

G3070 BEDDING MATERIAL

Imported bedding material must be provided for all utility lines and structures. Bedding material must consist of either ASTM C33 sand, No. 57 crushed stone or No. 8 crushed stone. A minimum of six inches of bedding must be provided for all utility lines and a minimum of twelve inches of bedding must be provided for all utility structures. Bedding material backfill must be placed to the spring line of the pipe for all concrete and PVC pipe trench excavations. Utility line and utility structure excavations in existing pavement areas must be completely backfilled with excavatable flowable fill meeting DOT specifications to the aggregate base/subbase course subgrade elevation.

-- End of Section --

6. ENGINEERING SYSTEMS REQUIREMENTS

G40 SITE ELECTRICAL UTILITIES

SYSTEM DESCRIPTION

Demolish the existing electrical distribution system feeding the following buildings:

Marine Corps Base Camp LeJeune at French Creek

- Demolition of Building 1340 including utility feed back to nearest medium voltage disconnecting means (fused cutouts, junction box, medium voltage switch, or feed-through transformer).
- See Part 6 C-Site-Utility Information, C1-Existing Conditions Plan for location.

The site electrical utility system consists of all power and telecommunications and fiber optic cabling from the existing distribution system point of connection including all connections, accessories and devices as necessary and required for a complete and usable system. This section covers installations up to within 5 feet (1.5 meters) of new (or existing) building location.

Contractor must be responsible for restoring any services disrupted outside the construction area when the outage is caused by work performed or actions taken by the contractor. All power outages must be coordinated with the Department of Public Works and kept to a minimum. Long power outage durations to other parts of the Base are unacceptable. This project must include all temporary power and permanent power to keep the base operational during construction. Relocate existing overhead power and underground power duct banks that interfere with new construction around the new BEQs and support structures as close as possible to roadways.

GENERAL SYSTEM REQUIREMENTS

Provide an Electrical System complete in place, tested and approved, as specified throughout this RFP, as needed for a complete, usable and proper installation. Install all equipment in accordance with PTS Section G40 and the manufacturer's recommendations. Where the word "should" is used in the manufacturer's recommendations, substitute the word "must".
Provide site electrical utilities systems and components that support project sustainability goals of Part 2 UFGS Section 01 33 29, *Sustainability Requirements and Reporting*.

G4010 ELECTRICAL DISTRIBUTION

Connect to the existing 12.47kV, three phase, four wire, multi-grounded, 60 Hertz electrical power system.

- Existing distribution is overhead.
- Point of connection is Pole 64823-33371 to circuit FC1 via a new fused cutout switch,
- Route underground from the pole to the project site.
- Refer to Camp LeJeune Design Guide for cable sizes. Main loop is 750 kcmil copper underground, 394.5 kcmil AAAC overhead.
- Branches to barracks transformers are typically #2 or #1/0 copper, underground from the pole.

See Part 6 C-Site-Utility Information. C1-Existing Conditions Plan for electrical point of connection (POC) location, drawing “French Creek-V-102”.

The available fault current at the point of connection will be provided by the government. Do not assume infinite bus.

G401002 TRANSFORMERS

For MCB Camp Lejeune and MCAS New River, transformers must have stainless steel cabinet, base and tank. Paint Munsell Green.

G401004 OVERHEAD ELECTRIC CONDUCTORS

Provide overhead distribution per Camp Lejeune Electrical Design Guidance.

G401005 TOWERS, POLES, CROSSARMS AND INSULATORS

Provide overhead distribution per Camp Lejeune Electrical Design Guidance.

G401006 UNDERGROUND ELECTRIC CONDUCTORS

Provide a medium voltage and a 600 volt secondary underground electrical power distribution systems to meet the connection requirements as indicated in paragraph G4010 "Electrical Distribution". Provide fused cut-outs on connections to overhead distribution systems.

Provide underground distribution per Camp Lejeune Electrical Design Guidance.

G401007 DUCTBANKS, MANHOLES, HANDHOLES AND RACEWAYS

Provide a system of concrete encased duct banks and handholes for all underground power wiring. All underground structures and covers subject to vehicular traffic must be ASSHTO H-20 rated. Do not utilize manholes for power on MCB Camp LeJeune and MCAS New River.

Provide underground distribution per Camp Lejeune Electrical Design Guidance.

G401008 GROUNDING SYSTEMS

Provide a complete grounding system for the electrical power distribution system.

G401009 METERING

Provide a separate Kilowatt Demand Meter for each Pad Mounted Transformer. Utility meter must be on the transformer.

Provide metering per Camp Lejeune Electrical Design Guidance.

Provide each secondary switchgear with a separate digital circuit monitor/analyzer. Provide equipment with capabilities to connect to the existing base monitoring system.

G401011 EQUIPMENT REQUIREMENTS FOR COASTAL AND HIGH HUMIDITY AREAS

Provide exterior equipment designed for coastal and high humidity areas.

G4020 SITE LIGHTING

In addition to UFC 3-530-01, comply with the requirements of “Camp Lejeune Electrical Design Guidance” and “Camp Lejeune Exterior Light Fixtures and Photocell Control Specifications For Use In All New And Renovation Projects, v1.1, 03Sep2021”.

Provide site lighting for exterior including underground distribution, handholes, grounding, poles, fixtures and controls as required for a complete and usable system. Illumination levels, controls, and uniformity ratios must be in accordance with UFC 3-530-01. Coordinate illumination requirements with project security requirements.

G402001 EXTERIOR LIGHTING FIXTURES AND CONTROLS

In addition to UFC 3-530-01, comply with “Camp Lejeune Electrical Design Guidance” and the exterior lighting control requirements of “Camp LeJeune Exterior Light Fixtures and Photocell Control Specifications For Use In All New And Renovation Projects, v1.1, 03Sep2021”.

Camp Lejeune has installed an LTE-based lighting control program called UbiVu, which utilizes Ubicquia Ubicell Model 2.0 Smart Streetlight Controllers (UBC-20-0-01-NA-01-2-GY/UBC-30-0-01-NA-01-1-BK or latest version).

G402004 LIGHTING POLES

In addition to UFC 3-530-01, comply with the exterior lighting control requirements of “Camp Lejeune Electrical Design Guidance” and “Camp LeJeune Exterior Light Fixtures and Photocell Control Specifications For Use In All New And Renovation Projects, v1.1, 03Sep2021”. Provide aluminum poles complete with foundations for site lighting.

G402005 UNDERGROUND ELECTRIC CONDUCTORS

Provide a complete underground distribution system for all site lighting systems.

G402006 DUCTBANKS, MANHOLES AND HANDHOLES

Provide a direct buried underground system including conduits and handholes to meet the connection requirements indicated in paragraph G4020 "Site Lighting".

G402007 GROUNDING SYSTEMS

Provide a complete grounding system for all site lighting systems.

G4030 SITE COMMUNICATION AND SECURITY

Camp Lejeune MCI-East G6 maintains a Camp Lejeune specific, written specification for CSI Section 33 82 00 – Outside Plant Telecommunications (See Part 6). Obtain and incorporate the Camp Lejeune Section 33 82 00 specification in its entirety into the project design and contract documents.

In the event of a conflict, the Camp Lejeune Section 33 82 00 specification must govern.

Provide a complete Outside Plant (OSP) telecommunications system connecting the First Floor Building Entrance Facility (EF/TR) to the serving Base telecommunications infrastructure in accordance with UFC 358001, Camp Lejeune base/facility criteria, and applicable industry standards. In addition to all other criteria, the A/E must consult and comply with Camp Lejeune specific requirements, including all current revisions, and incorporate all applicable telecommunications and ICT requirements into the design.

Existing OSP pathways, structures, and cabling may be reused where they are determined to be viable, serviceable, and fully compliant with current UFC 3-580-01 requirements and Camp Lejeune base/facility criteria. Evaluate existing infrastructure for condition, capacity, routing, separation, grounding and bonding, and overall compliance. Reuse of any existing OSP infrastructure must be subject to approval by the Camp Lejeune MCI-East G6.

The OSP scope of work must include demolition, removal, abandonment, or modification of existing OSP pathways, structures, and cabling that are damaged, noncompliant, obsolete, or conflict with the new work, compliant, obsolete, or conflict with the new work.

The OSP system must include all new or reused pathways, structures, cables, grounding and bonding, splicing, testing, documentation, and site restoration necessary to place the facility into full operational service. Coordinate with the Camp Lejeune MCI-East G6 for detailed requirements, existing infrastructure information, and approved reuse and demolition limits.

OSP Pathway and Connection Requirements

Connection Point for the Camp Lejeune French Creek site is MH FC400-5, located on the northwest corner of Connor Street and H.M. Smith Blvd.

Three (3) 4” conduits encased in concrete must be extended from MH FC400-5 to the combined EF/MTR for each new building

Connections to existing maintenance holes (MH) or handholes (HH) must be made using the core drill method unless otherwise directed by the Camp Lejeune MCI-East G6.

Cable Requirements

Use Camp Lejeune Section 33 82 00 specification for the governing instructions.

Service Loop Requirements

Use Camp Lejeune Section 33 82 00 specification for the governing instructions.

Requirements for Camp Lejeune French Creek Site (CLFC)

No interruption requirement:
The primary feeder serving downstream facilities must not be interrupted, removed, or rendered nonfunctional without an alternate pathway in place and an approved cutover plan.

interruption requirement:

Continuity and Cutover Plan:
Prior to any activity that could impact the CLFC primary feeder, submit a Continuity and Cutover Plan for Camp Lejeune MCI-EAST G6 approval. At a minimum, the plan must identify:

- affected services/customers and criticality – Camp Lejeune MCI-EAST G6 will provide this information upon request from the Contractor
- temporary service needs (what / where / how long)
- sequencing tied to civil and demolition phasing
- cutover methodology, rollback provisions, and outage avoidance measures
- pre and post cutover testing and verification steps- and post-cutover testing and verification steps

Temporary service:
Provide temporary telecommunications service as required to maintain active service to any facilities that remain occupied or must remain in service during phased construction and demolition until permanent cutovers are completed.

Field verification:
Perform field verification of impacted OSP pathways and structures within CLFC to confirm condition, capacity, conflicts, separation, and constraints prior to final routing and construction. SUE drawings are planning level only and must not be the sole basis for final routing decisions.

Routing flexibility:
Final routing and structures are TBD; develop a compliant solution based on verified conditions and final site layout constraints. Conceptual routing graphics (if any) are for planning purposes only and do not prescribe final routing, structures, or distances.

Execution scope:
Provide all new and relocated pathways, structures, cabling, grounding and bonding, splicing (only where approved), restoration, identification/labeling, and documentation necessary to maintain and restore full operational telecommunications service.

Testing and closeout:
Test all new and relocated OSP segments associated with CLFC cutovers and provide test results and as builts in a format acceptable to the Camp Lejeune MCI-East G6.

Base scope:
CLFC OSP relocation, continuity of service measures, temporary service provisions, field verification, and phased cutovers are part of the base project scope and must not be treated as optional, deferred, or separately funded work.

Provide a site communication system including, but not necessarily limited to, Voice and Data Telecommunications Systems and Cable Television (CATV) Systems including all conduit and wiring, underground structures, termination equipment, poles and structures, and grounding systems as required for a complete and usable system.

Contractor must be responsible for restoring any services disrupted outside the construction area when the outage is caused by work performed or actions taken by the contractor.

G403001 TELECOMMUNICATIONS SYSTEMS

G403002 CABLE TV SYSTEMS (CATV)

Provide and install infrastructure for the Cable Television (CATV) system in accordance with UFC 3-580-01 and all applicable standards. Connection to the existing CATV service must be coordinated

with the Camp Lejeune MCI-East G6 and the local CATV provider.
General requirements for exterior and interior CATV systems apply to all facilities under this project.
Provide one empty 103 mm (4-inch) conduit encased in concrete with pull string between the exterior connection point MH FC400-5 and the EF/MTR room for each building.

G403003 CABLES AND WIRING

Cables and wiring for site telecommunications systems are required as stated in their respective categories.

G403004 DUCTBANKS, MANHOLES AND HANDHOLES

Provide a system of duct-banks, manholes, and handholes for site telecommunications.

G403009 GROUNDING SYSTEMS

Provide a complete grounding system for all site communications and security systems.

G409007 PHOTOVOLTAIC ENERGY SYSTEM

Refer to D509007

-- End of Section --

PART FOUR - PERFORMANCE TECHNICAL SPECIFICATIONS

The Part 4 specifications are included in the RFP by reference only. See the Whole Building Design Guide website at http://www.wbdg.org/navy/ndbm and download from the NAVFAC Design-Build Marine Corps BEQ Model RFP Template .zip file the most recent version of the Part 4 Performance Technical Specifications that are appropriate to support the design of this project.

Failure to access the above noted documents and include the most recent versions of the applicable Performance Technical Specifications will not absolve responsibility to provide the requirements, information, and references contained therein and provide a complete and usable facility. The applicable version of the Part 4 Performance Technical Specifications will be the version that was current on the WBDG website 30 calendar days prior to the bid due date.

Include the Part 4 Performance Technical Specifications into the Consolidated/Conformed RFP, for Contract.

RFP ORGANIZATION OUTLINE

Marine Corps Barracks – Repair by Replacement
P1634RR
FY27
Category Code 72111

MCB Camp Lejeune – French Creek Jacksonville, NC

This RFP establishes a standard design approach for the Marine Corps Barracks Initiative and is organized based on the following:

Part 2 – Requirements established for specific Marine Corps Installation

Part 3 "A" – Requirements established as the standard design

NOTE: In sections where there are site specific requirements indicated, only those requirements that are associated with the project location are applicable.

Part 3 "B" – Requirements specific to the project site(s) to supplement sections of Part 3A that are not standard design requirements

Part 4 – Requirements established as the standard design

Part 5 – Requirements established as the standard design

Part 6 – Documents specific to the project

PART FIVE - PRESCRIPTIVE SPECIFICATIONS

23 81 00 DECENTRALIZED UNITARY HVAC EQUIPMENT
- Packaged Terminal Air Conditioners and Heat Pumps only

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Marine Corps Barracks – Repair by Replacement
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Part 3 "B" – Requirements specific to the project site(s) to supplement sections of Part 3A that are not standard design requirements

Part 4 – Requirements established as the standard design

Part 5 – Requirements established as the standard design

Part 6 – Documents specific to the project

SECTION 23 81 00

DECENTRALIZED UNITARY HVAC EQUIPMENT - Packaged Terminal Air Conditioners and Heat Pumps only
05/24

PART 1 GENERAL

1.1 RELATED REQUIREMENTS

Section 23 03 00 BASIC MECHANICAL MATERIALS AND METHODS, applies to this section with the additions and modifications specified herein.

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.

AIR MOVEMENT AND CONTROL ASSOCIATION INTERNATIONAL, INC. (AMCA)

AIR-CONDITIONING, HEATING AND REFRIGERATION INSTITUTE (AHRI)

AHRI 350	(2015; R 2021) Sound Rating of Non-Ducted Indoor Air-Conditioning Equipment
AHRI 700	(2016) Specifications for Fluorocarbon Refrigerants
AHRI DCAACP	(Online) Directory of Certified Applied Air-Conditioning Products
ANSI/AHRI/CSA 310/380	(2014) Standard for Packaged Terminal Air-Conditioners and Heat Pumps

AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS (ASHRAE)

ANSI/ASHRAE 15 & 34	(2022) ASHRAE Standard 15-Safety Standard for Refrigeration Systems and ANSI/ASHRAE Standard 34-Designation and Safety Classification of Refrigerants
ASHRAE 15 & 34	(2022) ASHRAE Standard 34-2016 Safety Standard for Refrigeration Systems/ASHRAE

	Standard 34-2016 Designation and Safety Classification of Refrigerants-ASHRAE Standard 34-2016
ASHRAE 52.2	(2025) Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size
ASHRAE 55	(2017) Thermal Environmental Conditions for Human Occupancy
ASHRAE 62.1	(2016) Ventilation for Acceptable Indoor Air Quality
ASHRAE 90.1 - IP	(2019) Energy Standard for Buildings Except Low-Rise Residential Buildings

ASSOCIATION OF HOME APPLIANCE MANUFACTURERS (AHAM)

AHAM RAC-1	(1982; R2008) Directory of Certified Room Air Conditioners

ASTM INTERNATIONAL (ASTM)

ASTM A123/A123M	(2024) Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
ASTM A153/A153M	(2023) Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
ASTM A307	(2023) Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength
ASTM B117	(2019) Standard Practice for Operating Salt Spray (Fog) Apparatus
ASTM C1071	(2025) Standard Specification for Fibrous Glass Duct Lining Insulation (Thermal and Sound Absorbing Material)
ASTM D520	(2025) Standard Specification for Zinc Dust Pigment
ASTM D4587	(2011; R 2019; E 2019) Standard Practice for Fluorescent UV-Condensation Exposures of Paint and Related Coatings
ASTM E84	(2024) Standard Test Method for Surface Burning Characteristics of Building Materials

ASTM E2129	(2024) Standard Practice for Data Collection for Sustainability Assessment of Building Products
ASTM F104	(2011; R 2020) Standard Classification System for Nonmetallic Gasket Materials

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

NEMA MG 00001	(2024) Motors and Generators
NEMA MG 2	(2014) Safety Standard for Construction and Guide for Selection, Installation and Use of Electric Motors and Generators

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 70	(2026) National Electrical Code
NFPA 90A	(2024) Standard for the Installation of Air Conditioning and Ventilating Systems

U.S. DEPARTMENT OF DEFENSE (DOD)

MIL-DTL-5541	(2006; Rev F; Notice 2 2024) Chemical Conversion Coatings on Aluminum and Aluminum Alloys
UFC 4-010-06	(2023) Cybersecurity of Facility-Related Control Systems

UL SOLUTIONS (UL)

UL 207	(2022) UL Standard for Safety Refrigerant-Containing Components and Accessories, Nonelectrical
UL 484	(2014; Reprint Jun 2022) UL Standard for Room Air Conditioners
UL 900	(2015; Reprint Aug 2022) UL Standard for SafetyStandard for Air Filter Units
UL 1995	(2015; Reprint Aug 2022) UL Standard for Safety Heating and Cooling Equipment

1.3 SUBMITTALS

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. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-03 Product Data

Spare Parts

Posted Instructions

Coil Corrosion Protection

System Performance Tests

Training; G

Inventory

Environmental Data

Supplied Products

Manufacturer's Standard Catalog Data

SD-06 Test Reports

Refrigerant Tests, Charging, and Start-Up; G

System Performance Tests; G

SD-07 Certificates

Service Organizations

SD-10 Operation and Maintenance Data

Operation and Maintenance Manuals; G

SD-11 Closeout Submittals

Ozone Depleting Substances; S

1.4 QUALITY ASSURANCE

Carefully investigate the plumbing, fire protection, electrical, structural and finish conditions that would affect the work to be performed and arrange such work accordingly, furnishing required offsets, fittings, and accessories to meet such conditions. Submit drawings consisting of:

a. Equipment layouts which identify assembly and installation details.

b. Plans and elevations which identify clearances required for maintenance and operation.

c. Wiring diagrams which identify each component individually and

interconnected or interlocked relationships between components.

d. Foundation drawings, bolt-setting information, and foundation bolts prior to concrete foundation construction for equipment indicated or required to have concrete foundations.

e. Details, if piping and equipment are to be supported other than as indicated, which include loadings and type of frames, brackets, stanchions, or other supports.

f. Automatic temperature control diagrams and control sequences.

g. Installation details which includes the amount of factory set superheat and corresponding refrigerant pressure/temperature.

h. Equipment schedules

1.5 DELIVERY, STORAGE, AND HANDLING

Protect stored items from the weather, humidity and temperature variations, dirt and dust, or other contaminants. Properly protect and care for all material both before and during installation. Submit an inventory of all the stored items. Replace any materials found to be damaged, at no additional cost to the Government. During installation, cap piping and similar openings capped to keep out dirt and other foreign matter.

1.6 ENVIRONMENTAL REQUIREMENTS

For proper Indoor Environmental Quality, maintain pressure within the building as indicated. Meet or exceed filter media efficiency as tested in accordance with ASHRAE 52.2. Thermal comfort must meet or exceed ASHRAE 55.

1.7 WARRANTY

Provide equipment with the 5 year manufacturer's warranty.

PART 2 PRODUCTS

2.1 ENERGY EFFICIENCY REQUIREMENTS

42 USC 8259b requires the procurement of energy efficient products in product categories covered by the Energy Star program or the Federal Energy Management Program for designated products. A list of covered product categories is available from the Federal Energy Management Web site at: https://www.energy.gov/femp/search-energy-efficient-products. A list of qualified light commercial products is available at: http://www.energystar.gov/productfinder/product/certified-light-commercial-hvac/results.

Submit Material, Equipment, and Fixtures List of all supplied products within a covered product category, including manufacturer's catalog numbers, specification and drawing reference number, warranty information, fabrication site, and energy performance data. For product categories covered by the Energy Star program, submit documentation that the product is Energy Star-qualified. For product categories covered by the Federal Energy Management Program, submit documentation that the product meets or exceeds FEMP-designated efficiency requirements.

2.1.1 Room Air Conditioners

Selected room air conditioners are required to meet performance requirements specified by Energy Star. Information on the requirements can be found at: https://www.energystar.gov/products/room_air_conditioners/partners.

2.1.2 Air-Source Heat Pumps

Selected air-source heat pumps are required to meet applicable performance requirements specified by Energy Star. Information on the requirements can be found for residential models (single-phase units of 65,000 BTU/h or less)at:https://www.energystar.gov/products/air_source_heat_pumps/partners. For light commercial models (three-phase units of less than 240,000 BTU/h) at: https://www.energystar.gov/products/light_comm_heating_cooling/partners.

2.2 MATERIALS

Provide Manufacturer's standard catalog data, at least 5 weeks prior to the purchase or installation of a particular component, highlighted to show material, size, options, performance charts and curves, etc. in adequate detail to demonstrate compliance with contract requirements. Data includes manufacturer's recommended installation instructions and procedures. If vibration isolation is specified for a unit, include vibration isolator literature containing catalog cuts and certification that the isolation characteristics of the isolators provided meet the manufacturer's recommendations. Submit data for each specified component. Minimum efficiency requirements must be in accordance with ASHRAE 90.1 - IP.

2.2.1 Standard Products

Provide materials and equipment that are standard products of a manufacturer regularly engaged in the manufacturing of such products, which are of a similar material, design and workmanship. The standard products must have been in satisfactory commercial or industrial use for 2 years prior to request for proposal. The 2 year use includes applications of equipment and materials under similar circumstances and of similar size. The 2 years' experience must be satisfactorily completed by a product which has been sold or is offered for sale on the commercial market through advertisements, manufacturer's catalogs, or brochures. Products having less than a 2 year field service record will be acceptable if a certified record of satisfactory field operation, for not less than 6000 hours exclusive of the manufacturer's factory tests, can be shown. Products must be supported by a service organization. Ensure system components are environmentally suitable for the indicated geographic locations.

2.2.2 Product Sustainability Criteria

2.2.2.1 Energy Efficient Equipment

Provide equipment meeting the efficiency requirements as stated within this section and provide documentation in conformance with Section 01 33 29 SUSTAINABILITY REQUIREMENTS AND REPORTING paragraph ENERGY EFFICIENT EQUIPMENT.

2.2.2.2 Ozone Depleting Substances

Unitary air conditioning equipment must not use CFC-based refrigerants. Refrigerant may be an approved alternative refrigerant in accordance with EPA's Significant New Alternative Policy (SNAP) listing. Provide documentation in conformance with Section 01 33 29 SUSTAINABILITY REQUIREMENTS AND REPORTING paragraph OZONE DEPLETING SUBSTANCES.

2.2.3 Nameplates

Major equipment including compressors, condensers, receivers, heat exchanges, fans, and motors must have the manufacturer's name, address, type or style, model or serial number, and catalog number on a plate secured to the item of equipment. Plates must be durable and legible throughout equipment life and made of anodized aluminum . Fix plates in prominent locations with nonferrous screws or bolts.

2.2.4 Safety Devices

Exposed moving parts, parts that produce high operating temperature, parts which may be electrically energized, and parts that may be a hazard to operating personnel must be insulated, fully enclosed, guarded, or fitted with other types of safety devices. Safety devices must be installed so that proper operation of equipment is not impaired. Welding and cutting safety requirements must be in accordance with AWS Z49.1.

2.3 EQUIPMENT

2.3.1 Packaged Terminal Air Conditioners and Heat Pumps

2.3.1.1 Packaged Terminal Unit

Provide a through-the-wall, wall mounted, heavy-duty commercial grade, factory assembled and precharged air conditioner or heat pump unit in accordance with ANSI/AHRI/CSA 310/380 and UL 1995. Provide units listed in AHRI DCAACP. Provide Units removable from inside the building for servicing without removing the outside cabinet. Provide unit with a noise rating in accordance with AHRI 350 that does not exceed 55 dB while the entire unit is operating at any fan or compressor speed. Heat pump units must contain a reversing valve to change unit to heating cycle. Provide an outdoor coil temperature sensor to guard against coil freeze-up by either switching to supplemental heat only, or by cycling the compressor to defrost the coil. Provide Air Conditioners and Heat pumps with with efficiency ratings equal to or greater than ASHRAE Standard 90.1 requirements. Higher efficient units must be considered for meeting project energy goals.

2.3.1.2 Compressor

Provide a hermetically sealed variable speed type Compressor. Provide compressor with permanent split capacitor motor, overload protection, and vibration isolators. Protect compressor against high discharge pressure, loss of charge, low voltage, and short cycling.

2.3.1.3 Air to Refrigerant Coils

Provide evaporator and condenser coils with copper or aluminum tubes of 3/8 inch minimum diameter with copper or aluminum fins that are mechanically bonded or soldered to the tubes. Provide manufacturer's optional coil

coating for coastal climates. Provide casing of galvanized steel or aluminum. Avoid contact of dissimilar metals. Test coils in accordance with ASHRAE 15 & 34 at the factory and ensure they are suitable for the working pressure of the installed system. Dehydrate and seal each coil after testing and prior to evaluation and charging. Provide each unit with a factory operating charge of refrigerant and oil. Provide a condensate removal system.

2.3.1.4 Fans

Provide direct driven, statically and dynamically balanced, centrifugalor propeller type fans. Design the outdoor fan so that condensate will evaporate without drip, splash, or spray on building exterior. Provide indoor fan with a minimum two-speed motor with built-in overload protection. Fan motors must be the inherently protected, permanent split-capacitor type.

2.3.1.5 Air Filters

Provide standard filter on all packaged terminal units; 1 inch MERV 8 , throwaway filter capable of filtering the entire air supply.

2.3.1.6 Primary/Supplemental Heat

Provide heating unit with internal thermal insulation having a fire hazard rating not to exceed 25 for flame spread and 50 for smoke developed as determined by ASTM E84.

2.3.1.6.1 Electric Heating for cooling only PTAC

Provide electric duct heater in accordance with UL 1995 and NFPA 70. Coil must be completely assembled, unit-mounted, and integral to the unit. Provide coil with nickel chromium elements and a maximum density of 40 watts per square inch. Provide coil with automatic reset high limit control operating through heater backup contactors. Provide coil casing and support brackets of galvanized steel or aluminum. Mount coil to eliminate noise from expansion and contraction and be completely accessible for service. Electric resistance heating elements with high temperature-limit safety device, factory-mounted, and wired to chassis.

2.3.1.7 Cabinet Construction

Provide cabinet free of visible fasteners, sharp protuberances and edges. Enclosure sheet metal must be a minimum of 18 gauge steel with a protective coating. Provide removable face panels and allow full access to unit appurtenances. Access to controls must be without removal of the face panel. Discharge conditioned air through adjustable louvers. Thermally and acoustically insulate the cabinet with materials which conform to NFPA 90A. Furnish units with a prewired subbase that has leveling screws with provisions for remote unit control. Subbase must be of 18 gauge galvanized steel construction with a protective coating to match that of the room cabinet. Paint and finishes must comply with the requirements specified in paragraph EQUIPMENT AND COMPONENTS FACTORY COATING.

2.3.1.8 Louver

Provide storm proof type Louver, constructed of anodized, stamped or

extruded aluminum. For locations located in hurricane prone areas provide field installed louvers that are hurricane rated per AMCA 540 and AMCA 550.

2.3.1.9 Wall Sleeve

Provide water and airtight completely insulated assembly, with weather-resistant protective coating.

2.3.1.10 Unit Controls

Controls must include an on-off switch, high and low selector switch for both the heating and cooling mode, multiple speed fan cooling and heating mode, room air fan switch, outside air damper control, and an adjustable cooling and heating thermostat. Function and temperature controls must be integral to unit .

Controls must include a control system interface to a BACnet Control system. The control system interface must meet DDC Hardware requirements of Section 23 09 23.02 BACNET DIRECT DIGITAL CONTROL FOR HVAC AND OTHER BUILDING CONTROL SYSTEMS.

2.4 FINISHES

2.4.1 Evaporator Coil Corrosion Protection

Provide coil with a uniformly applied epoxy electrodeposition, phenolic, or vinyl type coating to all coil surface areas without material bridging between fins. Submit product data on the type coating selected, the coating thickness, the application process used, the estimated heat transfer loss of the coil, and verification of conformance with the salt spray test requirement. Coating must be applied at either the coil or coating manufacturer's factory. Coating process must ensure complete coil encapsulation. Coating must be capable of withstanding a minimum 1,000 hours exposure to the salt spray test specified in ASTM B117 using a 5 percent sodium chloride solution.

2.4.2 Equipment and Components Factory Coating

Unless otherwise specified, equipment and component items, when fabricated from ferrous metal, must be factory finished with the manufacturer's standard finish, except that items located outside of buildings must have weather resistant finishes that will withstand 500 hours exposure to the salt spray test specified in ASTM B117 using a 5 percent sodium chloride solution. Immediately after completion of the test, the specimen must show no signs of blistering, wrinkling, cracking, or loss of adhesion and no sign of rust creepage beyond 1/8 inch on either side of the scratch mark. Cut edges of galvanized surfaces where hot-dip galvanized sheet steel is used must be coated with a zinc-rich coating conforming to ASTM D520, Type I.

Where stipulated in equipment specifications of this section, coat finned tube coils of the affected equipment as specified below. Apply coating at the premises of a company specializing in such work. Degrease and prepare for coating in accordance with the coating applicator's procedures for the type of metals involved. Completed coating must show no evidence of softening, blistering, cracking, crazing, flaking, loss of adhesion, or "bridging" between the fins.

2.4.2.1 Phenolic Coating

Provide a resin base thermosetting phenolic coating. Apply coating by immersion dipping of the entire coil. Provide a minimum of two coats. Bake or heat dry coils following immersions. After final immersion and prior to final baking, spray entire coil with particular emphasis given to building up coating on sheared edges. Total dry film thickness must be 2.5 to 3.0 mils.

2.4.2.2 Chemical Conversion Coating with Polyelastomer Finish Coat

Dip coils in a chemical conversion solution to molecularly deposit a corrosion resistant coating by electrolysis action. Chemical conversion coatings must conform to MIL-DTL-5541, Class 1A. Cure conversion coating at a temperature of 110 to 140 degrees F for a minimum of 3 hours. Coat coil surfaces with a complex polymer primer with a dry film thickness of 1 mil. Cure primer coat for a minimum of 1 hour. Using dip tank method, provide three coats of a complex polyelastomer finish coat. After each of the first two finish coats, cure the coils for 1 hour. Following the third coat, spray a fog coat of an inert sealer on the coil surfaces. Total dry film thickness must be 2.5 to 3.0 mils. Cure finish coat for a minimum of 3 hours. Coating materials must have 300 percent flexibility, operate in temperatures of minus 50 to plus 220 degrees F, and protect against atmospheres of a pH range of 1 to 14.

2.4.2.3 Vinyl Coating

Apply coating using an airless fog nozzle. For each coat, make at least two passes with the nozzle. Materials to be applied are as follows:

a. Total dry film thickness, 6.5 mils maximum

b. Vinyl Primer, 24 percent solids by volume: One coat 2 mils thick

c. Vinyl Copolymer, 30 percent solids by volume: One coat 4.5 mils thick

2.4.3 Factory Applied Insulation

Refrigeration equipment must be provided with factory installed insulation on surfaces subject to sweating including the suction line piping. Where motors are the gas-cooled type, factory installed insulation must be provided on the cold-gas inlet connection to the motor in accordance with manufacturer's standard practice. Factory insulated items installed outdoors are not required to be fire-rated. As a minimum, factory insulated items installed indoors must have a flame spread index no higher than 75 and a smoke developed index no higher than 150. Factory insulated items (no jacket) installed indoors and which are located in air plenums, in ceiling spaces, and in attic spaces must have a flame spread index no higher than 25 and a smoke developed index no higher than 50. Flame spread and smoke developed indexes must be determined by ASTM E84. Insulation must be tested in the same density and installed thickness as the material to be used in the actual construction. Material supplied by a manufacturer with a jacket must be tested as a composite material. Jackets, facings, and adhesives must have a flame spread index no higher than 25 and a smoke developed index no higher than 50 when tested in accordance with ASTM E84.

2.5 TESTS, INSPECTIONS, AND VERIFICATIONS

All manufactured units must be inspected and tested, and documentation provided to demonstrate that each unit is in compliance with ANSI/AHRI and UL requirements and that the minimum efficiency requirements of ASHRAE 90.1 - IP have been met.

PART 3 EXECUTION

3.1 EXAMINATION

After becoming familiar with all details of the work, perform Verification of Dimensions in the field, and advise the Contracting Officer of any discrepancy before performing any work.

3.2 INSTALLATION

Perform work in accordance with the manufacturer's published diagrams, recommendations, and equipment warranty requirements. Where equipment is specified to conform to the requirements of ASME BPVC SEC VIII D1and ASME BPVC SEC IX, the design, fabrication, and installation of the system must conform to ASME BPVC SEC VIII D1 and ASME BPVC SEC IX.

3.2.1 Equipment

Provide refrigeration equipment conforming to ASHRAE 15 & 34. Provide necessary supports for all equipment, appurtenances, and pipe as required, including frames or supports for compressors, pumps, cooling towers, condensers, and similar items. Isolate compressors from the building structure. If mechanical vibration isolators are not provided, provide vibration absorbing foundations. Each foundation must include isolation units consisting of machine and floor or foundation fastenings, together with intermediate isolation material. Other floor-mounted equipment must be set on not less than a 6 inch concrete pad doweled in place. Concrete foundations for floor mounted pumps must have a mass equivalent to three times the weight of the components, pump, base plate, and motor to be supported. In lieu of concrete pad foundation, concrete pedestal block with isolators placed between the pedestal block and the floor may be provided. Concrete pedestal block must be of mass not less than three times the combined pump, motor, and base weights. Isolators must be selected and sized based on load-bearing requirements and the lowest frequency of vibration to be isolated. Isolators must limit vibration to 10 percent at lowest equipment rpm. Provide lines connected to pumps mounted on pedestal blocks with flexible connectors. Provide foundation drawings, bolt-setting information, and foundation bolts prior to concrete foundation construction for all equipment indicated or required to have concrete foundations. Concrete for foundations must be as specified in Section 03 30 00 CAST-IN-PLACE CONCRETE. Equipment must be properly leveled, aligned, and secured in place in accordance with manufacturer's instructions.

3.3 CLEANING AND ADJUSTING

Equipment must be wiped clean, with all traces of oil, dust, dirt, or paint spots removed. Temporary filters must be provided for all fans that are operated during construction, and new filters must be installed after all construction dirt has been removed from the building. System must be maintained in this clean condition until final acceptance. Bearings must be properly lubricated with oil or grease as recommended by the manufacturer. Belts must be tightened to proper tension. Control valves

and other miscellaneous equipment requiring adjustment must be adjusted to setting indicated or directed. Fans must be adjusted to the speed indicated by the manufacturer to meet specified conditions. Testing, adjusting, and balancing must be as specified in Section 23 05 93 TESTING, ADJUSTING, AND BALANCING OF HVAC SYSTEMS.

3.4 SYSTEM PERFORMANCE TESTS

Before each refrigeration system is accepted, conduct tests to demonstrate the general operating characteristics of all equipment by a registered professional engineer or an approved manufacturer's start-up representative experienced in system start-up and testing, at such times as directed. Six copies of the report provided in bound 8-1/2 by 11 inch booklets. The report must document compliance with the specified performance criteria upon completion and testing of the system. The report must indicate the number of days covered by the tests and any conclusions as to the adequacy of the system.

For equipment providing heating and cooling the system performance tests must be performed during the heating and cooling seasons.

a. Submit a schedule, at least 2 weeks prior to the start of related testing, for the system performance tests. The schedules must identify the proposed date, time, and location for each test. Tests must cover a period of not less than 48 hours for each system and must demonstrate that the entire system is functioning in accordance with the drawings and specifications.

b. Make corrections and adjustments, as necessary, tests must be re-conducted to demonstrate that the entire system is functioning as specified. Prior to acceptance, install and tighten service valve seal caps and blanks over gauge points. Replace any refrigerant lost during the system startup.

c. If tests do not demonstrate satisfactory system performance, correct deficiencies and retest the system. Conduct tests in the presence of the Contracting Officer. Water and electricity required for the tests will be furnished by the Government. Provide all material, equipment, instruments, and personnel required for the test.

d. Coordinate field tests with Section 23 05 93 TESTING, ADJUSTING, AND BALANCING OF HVAC SYSTEMS. Submit 6 copies of the report provided in bound 8-1/2 by 11 inch booklets. The report must document compliance with the specified performance criteria upon completion and testing of the system. The report must indicate the number of days covered by the tests and any conclusions as to the adequacy of the system. Submit the report including the following information (where values are taken at least three different times at outside dry-bulb temperatures that are at least 5 degrees F apart):

    (1) Date and outside weather conditions.

    (2) The load on the system based on the following:

        (a) The refrigerant used in the system.
        (b) Condensing temperature and pressure.
        (c) Suction temperature and pressure.
        (d) Ambient, condensing and coolant temperatures.

(e) Running current, voltage and proper phase sequence for each phase of all motors.

(3) The actual on-site setting of operating and safety controls.

(4) Thermostatic expansion valve superheat - value as determined by field test.

(5) Subcooling.

(6) High and low refrigerant temperature switch set-points

(7) Low oil pressure switch set-point.

(8) Defrost system timer and thermostat set-points.

(9) Moisture content.

(10) Capacity control set-points.

(11) Field data and adjustments which affect unit performance and energy consumption.

(12) Field adjustments and settings which were not permanently marked as an integral part of a device.

3.5 MAINTENANCE

3.5.1 EXTRA MATERIALS

Submit spare parts data for each different item of equipment specified, after approval of detail drawings and not later than 2 months prior to the date of beneficial occupancy. Include in the data a complete list of parts and supplies, with current unit prices and source of supply, a recommended spare parts list for 1 year of operation, and a list of the parts recommended by the manufacturer to be replaced on a routine basis.

3.5.2 Maintenance Service

Submit a certified list of qualified permanent service organizations, which includes their addresses and qualifications, for support of the equipment. The service organizations must be reasonably convenient to the equipment installation and be able to render satisfactory service to the equipment on a regular and emergency basis during the warranty period of the contract.

-- End of Section --