00 70 00

GENERAL REQUIREMENTS FOR CONSTRUCTION ON TINKER AIR FORCE BASE

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 basic designation only. The most current edition of the listed publications at the time of contract/delivery order award shall be used.

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 241	(2022) Standard for Safeguarding Construction, Alteration, and Demolition Operations
NFPA 51B	(2019; TIA 20-1) Standard for Fire Prevention During Welding, Cutting, and Other Hot Work
NFPA 55	(2016; TIA 16-1; TIA 16-2) Compressed Gases and Cryogenic Fluids Codes
NFPA 70	(2020; ERTA 20-1 2020; ERTA 20-2 2020; TIA 20-1; TIA 20-2; TIA 20-3; TIA 20-4) National Electrical Code
NFPA 72	(2019; TIA 19-1; ERTA 1 2019; TIA 21-1; ERTA 1 2021) National Fire Alarm and Signaling Code

TINKER AIR FORCE BASE (TAFB)

TAFBI 13-204	(2021) Airfield Operations
TAFB Plan 31-101	Integrated Defense Plan
TAFB Outage SOP	(2022) Planned and Emergency Outages Standard Operating Procedures

U.S. AIR FORCE (USAF)

DoDI O-2000.16v1_AFI 10-245-O	(2020) Antiterrorism (AT) Program Implementation
AFI 48-104	(2019) Tobacco Free Living
AFMAN 91-203	(2018; with Guidance Memorandum, 2021) Air Force Occupational Safety, Fire, and Health Standards

U.S. DEPARTMENT OF DEFENSE (DOD)

UFC 3-260-01	(2019; with Change 1, 2020) Airfield and

	Heliport Planning and Design
UFC 3-600-01	(2016; with Change 6, 2021) Fire Protection Engineering for Facilities
UFC 3-601-02	(2021) Fire Protection Systems Inspection, Testing, and Maintenance

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

29 CFR 1910-SUBPART Q	Welding, Cutting, and Brazing
29 CFR 1926	Safety and Health Regulations for Construction

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 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Entry Access List; G

Key Issue Receipt

SD-06 Test Reports

Fire Alarm Pre-Construction Testing Record; G

SD-07 Certificates

Welding, Cutting and Brazing Permit; G

Framed Instructions

SD-11 Closeout Submittals

Key Return Receipt

1.3 WORK REQUIREMENTS

1.3.1 Security/Contractor Identification Badges

Contractors working on Tinker AFB shall comply with all procedures outlined in DoDI O-2000.16v1_AFI 10-245-O, TAFB Plan 31-101, and TAFBI 13-204. Civilian and military retirees who conduct commercial business on base must obtain a Contractor Identification Badge through their place of employment.

All contractors/contractor personnel shall be subject to background checks in accordance with TAFB Plan 31-101. Contractors shall be responsible to verify the residency and/or citizenship status of all employees prior to submitting requests for Contractor Identification Badges. Identification will be surrendered to Security Forces personnel upon demand for the purpose of identification, investigation, abuse, misuse, or for any other reason necessary.

Contractors shall develop procedures for badge control that include the turn-in of issued badges by personnel who no longer require base entry. In accordance with TAFB Plan 31-101, all contractors/contractor personnel will be assessed a charge of $50.00 for each badge lost, willfully damaged, or not surrendered to Pass and Registration. No charge will be made on a replacement required due to normal wear. Personnel will report to Accounting and Finance, Accounts Receivable Unit and a DD Form 1131, Cash Collection Voucher, will be prepared and presented to Pass and Registration prior to issuing replacement identification.

1.3.2 Work Schedules

The Contractor shall arrange their work schedules to coincide with the normal duty hours of the Civil Engineering Directorate, Tinker Air Force Base (0715 - 1600, Monday thru Friday). Work schedules other than the standard Civil Engineering Directorate eight-hour shift may only be permitted for the most urgent reasons, or as directed/approved by the Contracting Officer. Should the Contractor desire to work other than normal duty hours (including federal holidays, see below) for his own convenience, a written request shall be submitted for approval by the Contracting Officer a minimum 48 hours in advance of the desired period. Changes to normal work hours due to contract requirements shall be specified in other sections of the contract documents.

1.3.3 Federal Holidays

Federal holidays are as follows:

FEDERAL HOLIDAYS	
January	New Year's Day Martin Luther King Jr. Day
February	President's Day
May	Memorial Day
June	Juneteenth National Independence Day
July	Independance Day
September	Labor Day
October	Columbus Day
November	Veteran's Day Thanksgiving Day
December	Christmas Day

Note: In addition, for holidays that fall on a weekend, government employees will be off on the Friday before or the Monday after the holiday.

1.3.4 Commencement of Work

The Contractor shall provide written notice to the Contracting Officer a

minimum of seven (7) calendar days prior to commencing work on a project site, designating the date the Contractor intends to begin work. The Contractor shall notify the Construction Inspector five (5) business days prior to commencing work on a project site. After a work delay exceeding twenty-four hours, the Construction Inspector shall be notified one (1) business day prior to resuming work on a project site. Failure of the Contractor to comply with these requirements may result in removal of work completed prior to making the proper notifications, in order to perform required inspections, at no additional cost to the Government.

1.3.5 Time Extensions for Unusually Severe Weather

This provision specifies the procedure for determination of time extensions for unusually severe weather. In order for the Contracting Officer to grant a time extension under this provision, the following conditions must be satisfied:

The weather experienced at the project site during the contract period must be found to be unusually severe, that is, more severe than the adverse weather anticipated for the project location during that month.

The unusually severe weather must actually cause a delay to the completion of the project. The delay must be beyond the control and without the fault or negligence of the Contractor.

The following schedule of monthly anticipated adverse weather days is based on National Oceanic and Atmospheric Administration (NOAA) or similar data for the project location and will constitute the base line for monthly weather time evaluations. The Contractor's progress schedule must reflect these anticipated adverse weather delays in all weather dependent activities.

MONTHLY ANTICIPATED ADVERSE WEATHER DAYS (Based on NOAA Summary Monthly Normals for Oklahoma City Will Rogers)											
JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
3	3	5	5	6	6	4	5	5	5	4	3

Upon acknowledgement of the Notice to Proceed (NTP) and continuing throughout the contract, the Contractor shall report the occurrence of unusually adverse weather and resultant impact to normally scheduled work. Actual adverse weather delay days must prevent work on critical activities for 50 percent of more of the Contractor's scheduled work day. The number of actual adverse weather delay days shall include days impacted by actual adverse weather (even if adverse weather occurred in previous month), be calculated chronologically from the first to the last day of each month, and be recorded as full days. If the number of actual adverse weather delay days exceeds the number of anticipated days in the paragraph above, the Contracting Officer may convert any qualifying delays to calendar days, giving full consideration for equivalent fair weather days.

For projects susceptible to unusually inclement weather, the Contractor may request a "winter recess" from the Contracting Officer. Winter recess timeframe exists from 21 December through 15 March. Be advised that winter recess will not be interpreted as a Government caused delay in

which damages may be requested by the Contractor. Once the winter recess has been established via modification to the contract, it will remain in force until lifted by the Contracting Officer by the request of the Contractor, or 15 March. The remaining period of performance will then be reestablished upon termination of the winter recess. Under no condition shall the Contractor leave a construction site for a winter recess until written authorization is received from the Contracting Officer, and the project site has been inspected by the Construction Inspector and determined to be sufficiently sustainable through the winter recess.

1.3.6 Work Site Review

Prior to starting any work, the Contractor shall inspect the work area(s) to determine the physical condition of the area. The Contractor, as a result of this inspection, shall promptly notify the Contracting Officer, in writing, of any existing damage(s) or condition(s) that could interfere with work on this contract.

1.3.7 Crane/Lift Usage Restrictions

No construction that may affect air navigation will commence until the 72nd ABW/CC has approved an Airfield Construction Waiver. This includes all proposed operations on Tinker AFB that will involve equipment which extends above the roofline of the adjacent facilities (e.g. cranes, telescoping boom forklifts and manlifts, etc.).

Reference Section 00 71 00 GENERAL SAFETY REQUIREMENTS FOR CONSTRUCTION ON TINKER AIR FORCE BASE for additional information regarding airfield construction waivers.

1.3.8 Utility Outages

Utility outages frequently affect more than one facility or organization and require extensive coordination. For this reason, the Contractor shall submit all requests for outages, in writing, to the Contracting Officer a **minimum of 21 days in advance of the proposed outage**. Outages shall be requested in accordance with the TAFB Outage SOP utilizing Attachment 1 - TAFB Outage Request Form. Each outage request shall include the following as a minimum: Type of outage (steam, water, electric, etc.), project name and number, facility/facilities affected (to the best of the contractors knowledge), requested date(s), duration, and a description of the work to be accomplished.

Outages shall occur during non-standard hours (between 1800 Friday and 0600 Monday, and/or federal holidays) in order to reduce impacts to affected Government agenies and their mmission. Localized outages (those affecting single organization and/or small portion of a facility may be requested to occur during normal working hours ; this will be coordinated on a case-by-case basis through the Contracting Officer.

While every attempt will be made to meet the Contractor's requested dates and times, actual utility outage dates and times will be ultimately be determined by the affected Government agencies and their respective mission requirements. The Contractor shall not proceed with any utility outage until notified by the Contracting Officer of the actual date of the outage.

When outages that affect the Government's ability to heat facilities are scheduled (including natural gas, steam, and electric outages), the

contractor shall take the necessary measures to protect the interior of the subject facility/facilities from freezing. If such measures are impractical, the Government reserves the right to cancel any outage where temperatures are expected to remain below 40° F for prolonged periods.

When outages that may affect 72ABW/SC (Communications Directorate) facilities/ equipment are scheduled (including cooling and electric outages), outages shall occur during the regularly scheduled downtimes, usually Saturday at 2200 through Sunday at 0600. If these times are impractical, alternative times may be considered (the Communications Directorate will be responsible for verifying/coordinating alternative times); however, the contractor shall be responsible to provide the necessary provisions to maintain reliable operation of the affected facilities/equipment during these times.

The Contractor shall consult with Government shop personnel, through the Construction Inspector, concerning utility isolation points; on a case-by-case basis, authority may be granted for the Contractor to perform the utility isolation without Government shop personnel present. In those cases, the contractor shall be responsible for isolating and restoring the utility, and re-setting any equipment affected by the outage, assuming that the equipment is located in the area turned over to him/her as part of the construction contract. NOTE: The primary electrical service, 12.47kv, is owned by OG&E. Only OG&E with coordination of the Government (Exterior Electric) personnel can isolate any primary electric source or restore primary electric power, unless express authorization has been granted by the Contracting Officer.

Prior to commencing the outage, the Contractor shall perform all testing and inspections required in the specifications and/or on the project drawings. The Contractor shall coordinate between the Construction Inspector and Government shops to ensure all necessary work has been completed satisfactorily prior to beginning the outage. The Contractor shall have all tools, equipment, materials and personnel required on site prior to the start of the utility outage. At the conclusion of the outage, contractor personnel will be required to remain on site until Government shop personnel have restored the utility and ensured that all affected equipment is operating properly.

Failure of a contractor to be on-site for a coordinated utility outage may result in claims for costs associated with support by Government shop personnel. In addition, because outages can affect the mission, and specifically production schedules, failure of a contractor to be on-site for a coordinated utility outage may result in claims for costs associated with lost production time.

1.3.9 Closures

Closures of paved areas (e.g. roads, lanes, parking), facilities, or portions of facilities (e.g. doorways, aisles, restrooms) frequently affect more than one facility or organization and require extensive coordination. For this reason, the Contractor shall submit all requests for closures, in writing, to the Contracting Officer a **minimum of 60 days in advance of the proposed closure**. Closures will be advertised in the affected facilities and/or the base newspaper for a minimum of 30 days before construction starts.

Closures shall be requested in accordance with TAFB Outage SOP utilizing TAFB Outage Request Form (Attachment 1). Each closure request shall

include the following as a minimum: Type of closure, project name and number, facility/facilities affected, requested date(s), duration, and a description of the work to be accomplished. While every attempt will be made to meet the Contractor's requested dates, actual closure start dates will be ultimately be determined by the affected Government agencies and their respective mission requirements. The Contractor shall not proceed with any closure until notified by the Contracting Officer of the approved date.

1.3.10 Temporary Power

The Contractor shall assess power requirements for construction and shall make a request to the Contracting Officer regarding location of transformer and location of tap into existing primary power grid. Under no circumstance shall the Contractor install temporary power prior to receiving written approval from the Contracting Officer. Contractor is solely responsible at his/her expense for supplying and installing required transformers and making the primary connection once his/her electrical plan is approved. Only OG&E personnel can isolate any primary electric source so that the Contractor can make his connection. The Contractor shall request the electrical outage as required in paragraph 1.3.7 above. An outage shall only be made if the Contractor is ready to install his fused cutouts or other isolating/switching media and the duration of the outage shall be minimized to the fullest extent.

When portable generator is used to provide temporary power, the Generator shall be placed a minimum of 150 ft. away from any fresh air intake for facility HVAC units.

1.3.11 Fire Alarms

The Contractor shall be responsible for pre-construction testing and re-certification of all Fire Alarm systems that are modified by addition, deletion or relocation of devices during construction. All testing and certification shall be IAW the requirements of NFPA 72, NFPA 70, UFC 3-600-01, and UFC 3-601-02.

Contractors shall test all fire alarm systems prior to starting construction. Testing shall be coordinated through the Contracting Officer or their designated representive. All testing shall occur during normal working hours, Wednesday through Friday. During pre-construction testing, contractor should note all deficiencies with the existing fire alarm system that are outside the scope of the contract. Pre-construction testing will be witnessed, as a minimum, by the Construction Inspector. Any deficiencies found by the Contractor or the Government after construction has started, and were not noted during the pre-construction testing, will be the responsibility of the contractor to repair at no additional cost to the government. A copy of the pre-construction testing record shall be forwarded to the Contracting Officer.

The Contractor shall be responsible for forwarding a certificate of completion and testing to the Contracting Officer and CEF upon construction close-out procedures.

1.3.12 Mechanical, Electrical, and Comm. Room Controlled Access

The Contractor shall be provided access to mechanical/electrical rooms as required. If an individual project requires continual access to mechanical/electrical rooms (such as renovation of a complete facility or

replacement of equipment in mechanical/electrical rooms)the locks will be re-keyed with construction cores by the Government, and the Contractor shall have exclusive control. The Fire Department and Base Civil Engineering will maintain keys to access construction cored locks only in the case of an emergency. The Contractor shall accept full liability for any damages to facility caused by failure of equipment within their control.

All comm. rooms will remain keyed with 72 ABW/SC standard key and Communications Directorate will be responsible for escorting contractors into the rooms.

1.3.12.1 Construction Core/Key Procedures

Construction core/keys are issued through the Base Civil Engineering Directorate (CE) Key Control Officer. Contractor shall coordinate the receipt of construction core/key through the CO or their desginated representative (Construction Inspector).

Upon receipt of the core/key, Contractor will be required to sign an AF Form 1297, Temporary Issue Receipt. Provide a copy of the signed key issue receipt to the CO or their desginated representative.

Upon completion of the work, return the core/key to the CE Key Control Office. Provide a copy of the signed key return receipt to the CO or their desginated representive.

1.3.12.2 Key Control

The Contractor shall establish and implement procedures to ensure keys issued by the Government are not lost, misplaced, or used by unauthorized persons; procedures shall include turn-in of keys by personnel who no longer require access to locked areas.

No keys issued to the Contractor by the Government shall be duplicated.

The Contractor shall prohibit the use of Government issued keys by any persons other than the Contractor's employees. The Contractor shall prohibit the opening of locked areas by Contractor employees to permit entrance of persons other than Contractor employees engaged in the performance of assigned work in those areas, or personnel authorized entrance by the Contracting Officer.

1.3.12.3 Lost Keys

The Contractor shall immediately report any occurrences of lost or duplicate keys/key cards to the Contracting Officer.

In the event keys, other than master keys, are lost or duplicated, the Contractor shall, upon direction of the Contracting Officer, re-key or replace the affected lock or locks; however, the Government, at its option, may replace the affected lock or locks or perform re-keying. When the replacement of locks or re-keying is performed by the Government, the total cost of re- keying or the replacement of the lock or locks shall be deducted from the monthly payment due the Contractor.

In the event a master key is lost or duplicated, all locks and keys for that system shall be replaced by the Government and the total cost deducted from the monthly payment due the Contractor.

1.3.13 Maintenance of Work Site

The work area shall be cleaned daily and kept clean and orderly during the performance period of the contract. All debris and scrap material, tools, and equipment shall be cleaned from the work site daily as work progresses, and on completion of the job. Haul routes shall be kept clean of any construction-related debris. The Contractor shall clean off dirt from paved surfaces, not allowing the same to pack on roads or to create a traffic nuisance. The Contractor shall ensure proper loading of all vehicles used for transport of materials and construction debris; any spillage on-route on the base shall be promptly removed and disposed of off base in accordance with applicable State and Federal regulations. All job site waste containers used by the Contractor, regardless of size, shall be clearly marked with approved reflective tape or paint. The Contractor shall return all movable containers, as determined by the Contracting Officer, within the job site storage area at the end of each work shift.

1.3.14 Contractor Staging Areas

Contractor staging areas shall be established and maintained in accordance with Section 01 50 00 CONTRACTOR FACILITIES.

1.3.15 Shipping Requirements/Instructions

The Contractor shall furnish information to the shipping supplier as to assignee, Contract Number, Project Number, Project Title, and location. The Supplier shall have all necessary information required by Base Security upon entry to Tinker AFB. Contractor shall ensure that all delivery truck traffic directed to commercial truck gate(s) is in accordance with the paragraph TRAFFIC.

Base personnel will not accept material shipped directly to Tinker AFB. It is the Contractor's responsibility to accept the shipped material, unload it, and store it.

1.3.16 Working As-Built Drawings

Contractor shall maintain working as-built drawings and provide for review by government in accordance with Section 01 78 00 CLOSEOUT SUBMITTALS.

1.3.17 Final Record Drawings

Contractor shall provide final record drawings in accordance with Section 01 78 00.

1.3.18 Standard Products/Service Availability

Materials and equipment shall be standard products of a manufacturer regularly engaged in the manufacture of such products, which are of a similar material, design, and workmanship. The standard products shall have been in satisfactory commercial and/or industrial use for two years prior to date of solicitation and still is in production. The two-year use shall include applications of equipment and materials under similar circumstances and of similar size. No obsolete, or out of production, materials shall be installed. The two years' experience shall be satisfactorily completed by a product, which has been sold or is offered for sale on the commercial market through advertisements, manufacturers'

catalogs, or brochures.

1.4 WELDING, CUTTING AND BRAZING

An AF Form 592, USAF Welding, Cutting and Brazing Permit ('Hot Work' permit), shall be obtained from the Base Fire Department 24 hours prior to any flame or spark producing activities such as grinding, welding, cutting, soldering or brazing. The 'Hot Work' permit shall be maintained on the job site by the Contractor at all times. Upon receipt, the Contractor shall submit a copy of all permits to the Contracting Officer. All hot work must be accomplished IAW the requirements of NFPA 51B, NFPA 241, and AFMAN 91-203 paragraph 27.2.4. Storage of all portable gas cylinders shall comply with NFPA 55. IAW 29 CFR 1910-SUBPART Q, adequate controls must be used to ensure that welding operations do not create a hazard for building occupants.

1.5 EXCAVATION ON TINKER AFB

Contractors shall use extreme care in all excavations on Tinker AFB. Subsurface utilities are of a congested nature. Damaging these systems in some areas could result in thousands of man-hours of lost production time, which in-turn may result in claims against the Contractor for failure to protect these utilities. Refer to Section 00 71 00 and UFC 3-260-01 for requirements related to excavation adjacent to runways, taxiways, and aprons.

1.5.1 Protection of Existing Utilities During Excavation

1.5.1.1 General Requirements for Excavation

Excavation may be accomplished by hand or by use of a power equipment; however, the use of continuous trenchers or vibratory plows is prohibited unless permission is obtained, in writing, from the Contracting Officer prior to bringing equipment on base.

All plan information and line markings are to be considered approximate. To preclude accidental damge, the Contractor shall physically verify underground utilities marked in the field or identified on drawings, when any adjacent construction work is expected to come within 6 feet of the underground system. The contractor may utilize methods such as hand digging or potholing by hydro-excavation, and must completely expose the line to ensure proper identification. After all lines are so located and completely exposed to the satisfaction of the Contracting Officer, machine excavation may begin. Under no circumstances shall machine excavation be used immediately adjacent to a known unexposed utility.

The Contractor shall note all utilities discovered during excavation (including those that are missing, incorrect, or abandoned) on the working as-built drawings (reference Tinker General Specification Section 01 78 00 CLOSEOUT SUBMITTALS for addition information regarding working as-built drawings). Information to be noted shall include, but is not be limited to:

- Actual location of all subsurface utility lines encountered (referenced with offset dimensions from fixed surface feature)
- Changes in direction (referenced by offset dimensions to two permanently fixed surface features)
- Valves, splice boxes, etc. (located by dimensioning along the utility run from a fixed reference point

- Utility dimension (pipe size)
- Depth below the surface of each located utility.

If lines identified/marked by the Government are broken, all repair costs for damages shall be incurred by the Contractor. If the Contractor is deemed responsible for the damaged line, he shall immediately repair the line to its prior condition. In an emergency situation, or if the CO determines the Contractor is not responding within a reasonable time, the Government reserves the right to repair the damage and bill the Contractor at CE shop rates.

If the broken line is not flagged or identified on the drawings, the repair cost will be incurred by the Government, unless determined otherwise by the CO.

1.5.1.2 Exterior Excavation

Before any excavation can begin, the Contractor shall mark all locations of proposed excavation (to include all building lines and proposed routes of utilities). Markings shall be made using materials that are reasonably permanent/immovable such as paint or dye. The Contractor will then go to CE Engineering Support, Building 400, second floor (northwest corner) and request a Tinker Excavation Permit Request form. The Contractor is responsible for the following key items:

- Have the excavation site clearly marked in the field
- Complete blocks 4-9 on Tinker Excavation Permit Request (most current edition)
- Attach a site location map clearly highlighted to show the limits of excavation (maps are available from Engineering Support).
- Obtain a control number from CALL-OKIE (for all commercial utilities located on Tinker)

Excavation permit processing will not begin until the Contractor provides proof of an approved Storm Water Pollution Prevention Plan (SWPPP). Reference Section 00 72 00 GENERAL ENVIRONMENTAL REQUIREMENTS FOR CONSTRUCTION ON TINKER AIR FORCE BASE for additional information regarding the SWPPP.

The Contractor shall not begin excavation until receipt of an approved Tinker Excavation Permit Request is made. The Tinker Excavation Permit Request shall be maintained at the construction site and made available for inspection by the Government. The Contractor shall be responsible for renewing the Tinker Excavation Permit Request every 30 days for as long as there is excavation in-progress for a given location.

The Government will mark existing buried utility lines as part of the Excavation Permit approval process. It is the Contractor's responsibility to maintain the line markings once the Excavation Permit is approved; if the original line markings are no longer visible, the contractor shall notify the Construction Inspector, who in turn will coordinate with the proper shop personnel to re-mark the lines. Failure of the Contractor to maintain markings will be cause for the Contracting Officer to bill the Contractor for the Government's additional costs to re-mark lines.

1.5.1.3 Interior Excavation

In general, only those utilities which pass through a facility will be marked; utility lines or laterals which terminate within the facility will

not be marked. When contract documents require excavation through a floor slab, the contractor shall utilize design or as-built plans to locate under-floor utilities; the CE Engineering Support office will provide research assistance upon request.

All plan information is to be considered approximate and shall be field verified by the Contractor (see paragraph GENERAL REQUIREMENTS FOR EXCAVATION for additional information).

1.5.2 Safety During Excavation

The Contractor shall notify the Construction Inspector and the Contracting Officer prior to commencing open trench excavation with a depth of four feet or more. The Construction Inspector will in turn notify the Tinker Ground Safety Office. All excavations, trenches, open manholes, etc., shall be properly shored, braced, barricaded or guarded in accordance with the provisions of 29 CFR 1926, Safety and Health Regulations for Construction. Warning lights or other illumination maintained from sunset to sun up shall be placed at all excavations which are adjacent to pedestrian or vehicle thoroughfares. Adequate physical protection shall be provided at all remotely located excavations.

1.6 TRAFFIC

All Contractor personnel shall observe base traffic regulations. Information regarding such regulations shall be obtained from the Contracting Officer.

OF SPECIAL NOTE, vehicle operators on Tinker Air Force Base shall not use cell phones unless the vehicle is safely parked or unless they are using a hands-free device. Using a cell phone while driving without a hands-free device is considered a "primary offense," meaning that violators can be stopped solely for this offense. The repercussions if found in violation are:

- First offense: Suspension of driving privileges for 7 days
- Second offense: Revocation of driving privileges for 30 days
- Third offense: Banned from driving on Base for 90 days

All contractor vehicles shall be conspicuously marked with the contractor's company name by means of permanent marking, magnetic sign, etc.

All truck traffic must enter and exit Tinker AFB through designated commercial truck gates. The commercial truck gates are as follows:

- Truck Gate (Gate 33)
  Location: South Air Depot & SE 59th Street.
  Hours of Operation: 0600-1600 Monday thru Friday (excluding federal holidays)

- Piazza Gate (Gate 31)
  Location: South Midwest Boulevard & SE 74th Street
  Hours Operation: 1600-0600 Monday thru Friday; weekends; and federal holidays

The truck gate entry procedures entail normal entry requirements as well as driver ID and verification of bill of lading/manifest. After verification, trucks are directed to the search area. Once the trucks

have been searched, they will be allowed to proceed to their destination. Entry procedures will allow certain vehicles, containing time-sensitive cargo (i.e., cement trucks, blood mobile, etc) the ability to prioritize their place in queue and facilitate entry onto the installation. Prioritization may be facilitated by calling ahead to 734-2008.

Personnel assigned to Tinker AFB, to include all permanent and temporary contractors in possession of a valid Tinker AFB issued contractor's badge, may act as a sponsor and provide escort to trucks entering the installation. When Entry Access List (EAL) is required, sponsors must hand-carry the EAL to the Security Forces Operations Section for authentication (faxes, calls and emails are not permitted).

The Airfield Manager will establish haul routes on and off the airfield. Refer to Section 00 71 00 for additional information.

The Contractor shall maintain at least one lane (on four lane roads, at least two lanes) of traffic at all times in all streets, roads and driveways unless otherwise directed by the Contracting Officer. Street closures shall be limited to seven days maximum for any utility crossing a roadway (this time includes trenching, compaction, and replacement of existing pavements). The Contractor shall provide steel matting equipment sufficient to carry traffic loading over excavated area.

1.7 TOBACCO USE ON TINKER AFB

AFI 48-104 and its supplements prohibit the use of smokeless and smoking tobacco in the work place at Tinker Air Force Base. Unless a "Designated Smoking Area" sign is posted, all areas on base are considered to be "no smoking" areas. AFI 48-104 further specifies that smoking in areas such as bathrooms, halls, offices, pit areas, break rooms, and aboard Air Force and contract aircraft, shall not be permitted. The Contractor and all employees, Subcontractors and lower tier subcontractors shall comply with the above AFI regulation. Contractor personnel shall not smoke atop buildings or in areas where such action is not authorized; in no instance within 100 feet of liquid fuel storage locations or parked aircraft or in any other area that would constitute a fire and/or explosion hazard. No smoking is allowed on aircraft parking ramps. Violation could result in the Contractor being removed from Tinker AFB permanently.

1.8 FRAMED INSTRUCTIONS

Framed instructions shall be provided as specified in other sections of the contract specifications or the contract drawings. The instructions shall explain equipment or system pre-start checkout, start-up and shutdown procedures, safety precautions, preventive maintenance procedures, and normal operational checks for satisfactory performance of the equipment or system. The framed data presentation and outline shall be acceptable and posted at locations designated by the Contracting Officer. The data shall be posted before personnel training or system performance testing acceptance for the related items of equipment or system.

1.9 OPERATIONS AND MAINTENANCE DATA

Provide project operation and maintenance manuals as specified in Section 01 78 00 and Section 01 78 23 OPERATION AND MAINTENANCE MANUALS DATA.

1.10 TRAINING

Provide training for the operation of new and modified systems as specified in Section 01 78 00 and Section 01 78 23.

1.11 DD FORM 1354

The contractor shall prepare and furnish a DD Form 1354, Transfer and Acceptance of DoD Real Property, and DD Form 1354 Checklist as specified in Section 01 78 00.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

-- End of Section --

Attachment 1

TAFB Outage Request Form

TINKER AIR FORCE BASE OUTAGE REQUEST FORM *Routine or Urgent requests received after 1 pm will be processed the next business day*						
Type of notification:		Routine		Urgent		Emergency
If Urgent or Emergency state reason why outage cannot be Routine:						
Type of Outage or Closure						
	Fire Suppression		Fire Alarm Outage		Electric	
	Gas		Fire Alarm Testing		HVAC	
	Steam		Domestic Water		Compressed Air	
	Breathing Air		Chilled Water		Parking Lot	
	Sidewalk		Road		Gate(s) {specify which}	
Other or Remarks:						
Project Information						
Project #:				Work Order #:		
Project Name:						
Exact Location (Bldg #, Post #, intersection, etc.)						
Outage Start Date:			Outage End Date:			
Outage Start Time:			Outage End Time:			
If outage is phased, fill out a separate form for each phase						
Description of Work to be Performed (more detail is better):						
Operational Support Required						
	Plumbing Shop		Alarms/Sprinkler Shop		Plant Maintenance	
	Electrical Shop		OG&E		Honeywell	
	HVAC		Fire Department		Other (state needs below)	
Impact of outage (to occupants, surrounding bldgs/areas, etc.)						
Requestor Point of Contact						
Primary:			Position:			
Phone:			Email:			
Alternate:			Position:			
Phone:			Email:			
TAFB Contract Point of Contact (Inspector/PM/COR)						
Primary:			Position:			
Phone:			Email:			
Alternate:			Position:			
Phone:			Email:			
Utility Outage Coordination Team, TAFB Civil Engineering, Building 414 72ABW.CEEO.UtilityOutageWork@us.af.mil						

Attachment 1

TAFB Outage Request Form (cont)

All outages and service interruptions will be classified in one of three possible categories:

a. **Planned (Routine)** – An interruption in parking or utility services, which can be foreseen well in advance and/or is part of an existing schedule. Planned outages include all repair projects, with enough lead time to allow them to be accomplished on a non-emergency basis, and all capital and renovation projects which require outages during construction. Planned outages should be submitted to the Outage Coordinator prior to the requested outage using the following timelines:

- **Roads/Parking Lots/Sidewalks –** 60 calendar days
- **Utilities (all) –** 21 calendar days
- **Fire Alarm Testing –** 10 calendar days

b. **Limited Notice (Urgent)** – An interruption in parking or utility services that cannot reasonably be foreseen in advance to be considered a "routine" outage or which does not allow for extensive pre-planning or coordination prior to the interruption. A Limited Notice Outage may be required when repairs must be accomplished within a short time frame (which may not allow time for BCE to notify or meet with stakeholders) to safeguard property and occupant health. Limited Notice or Urgent outages should be submitted to the Outage Coordinator prior to the requested outage using the following timelines:

- **Roads/Parking Lots/Sidewalks –** 21 calendar days
- **Utilities (all) –** 10 calendar days
- **Fire Alarm Testing –** 7 calendar days

c. **Emergency Outage** – An interruption in parking or utility services that must be accomplished immediately to safeguard property or occupant health. This may occur as the result of a natural or human-caused hazard. Examples of emergency outages may include, but are not limited to: mechanical failure, flooding within buildings, water line breaks, electrical outages or "power blips", or hazardous materials incidents. Outages requests are considered an Emergency Request if they are submitted to the Outage Coordinator in a time frame that is less than the Urgent timelines noted above. Emergency requests must still be supported with an outage request form explaining the situation and reason that the outage cannot be accomplished as a Routine or Urgent Outage. Emergency Requests outside of normal working hours (0700-1600 M-F) should call the Customer Service Desk at 734-3117 for immediate assistance.

00 71 00

GENERAL SAFETY REQUIREMENTS FOR CONSTRUCTION ON TINKER AIR FORCE BASE

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 basic designation only. The most current edition of the listed publications at the time of contract/delivery order award shall be used.

U.S. AIR FORCE (USAF)

AFI 13-213	(2020) Airfield Driving
AFI 21-101	(2020; with Guidance Memorandum, 2021) Aircraft and Equipment Maintenance Management
AFI 91-202	(2020; with Guidance Memorandom, 2021) The US Air Force Mishap Prevention Program
AFMAN 91-203	(2018; with Guidance Memorandum, 2021) Air Force Occupational Safety, Fire, and Health Standards

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1	(2014) Safety -- Safety and Health Requirements Manual

U.S. DEPARTMENT OF DEFENSE (DOD)

UFC 3-260-01	(2019; with Change 1, 2020) Airfield and Heliport Planning and Design
UFC 3-260-04	(2018) Airfield and Heliport Marking
UFC 3-535-01	(2017; with Change 3, 2021) Visual Air Navigation Facilities

U.S. FEDERAL AVIATION ADMINISTRATION (FAA)

FAA Part 77	Safe, Efficient Use, and Preservation of the Navigable Airspace (14 CFR 77)

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

29 CFR 1910	Occupational Safety and Health Standards
29 CFR 1926	Safety and Health Regulations for Construction
29 CFR 1910.146	Permit-Required Confined Spaces

AIR FORCE MATERIAL COMMAND (AFMC)

AFI 21-101 AFMCSUP	(2020) Aircraft and Equipment Maintenance Management (AFMC Supplement to AFI 21-101)
AFI 91-202 AFMCSUP	(2017; with Guidance Memorandum,2021) The US Air Force Mishap Prevention Program (AFMC Supplement to AFI 91-202)

OKLAHOMA CITY AIR LOGISTICS COMPLEX (OC-ALC)

AFMAN 91-203 OC-ALCSUP	(2020) Air Force Occupational Safety, Fire, and Health Standards (OC-ALC Supplement to AFMAN 91-203)

TINKER AIR FORCE BASE (TAFB)

TAFBI 21-100	(2019) Foreign Object Damage (FOD) and Dropped Object Prevention (DOP) Program
TAFBI 13-204	(2021) Airfield Operations
AFI 13-213 TINKERAFBSUP	Airfield Driving

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 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Contractor Health and Safety Plan; G

Internal Combustion Engines Plan; G

Entry Authority List; G

Vehicle Entry Authority List; G

Equipment and Material Storage; G

Contractor Offices and Plants; G

Designated Waste and Disposal Areas; G

Airfield Construction Phasing Plan; G

Airfield Construction Waiver; G

Notice of Proposed Construction, FAA Form 7460-1; G

SD-07 Certificates

Safety Meetings

FOD Awareness and Prevention Training

1.3 SAFETY

It is a condition of the contract, and shall be made a condition of each subcontract entered into pursuant to this contract, that the Contractor and/or any subcontractor shall not require any laborer or mechanic employed in performance of the contract nor cause any government military, civilian, or other Contractor personnel to be exposed to any unsanitary, health or safety hazard or condition. These requirements include, but are not limited to, the following public laws and rules, regulations and standards promulgated by the United States Air Force having jurisdiction on Tinker AFB. The Contractor shall be familiar with the following guidelines:

Code of Federal Regulations 29 CFR 1910 GENERAL INDUSTRY STANDARDS AND INTERPRETATIONS and 29 CFR 1926 CONSTRUCTION SAFETY AND HEALTH STANDARDS, promulgated by the United States Secretary of Labor.

U.S. Army Corps of Engineers Manual EM 385-1-1 SAFETY AND HEALTH REQUIREMENTS MANUAL.

U.S. Air Force Instruction AFI 91-202 THE US AIR FORCE MISHAP PREVENTION PROGRAM and its AFMC Supplement AFI 91-202 AFMCSUP.

U.S. Air Force Manual AFMAN 91-203 AIR FORCE OCCUPATIONAL SAFETY, FIRE, AND HEALTH STANDARDS and its OC-ALC Supplement AFMAN 91-203 OC-ALCSUP.

The Contractor shall submit to the Contracting Officer (CO) a Health and Safety Plan, detailing procedures defining the Contractor's provisions for accident prevention, health protection, and other safety precautions for the work to be done. The Safety Plan shall emphasize the protection of occupants residing near the work site from construction operations. The safety plan will detail any special safety requirements such as but not limited to confined space entry, fall protection, respiratory, and mobile crane operations.

Safety Meetings shall be conducted and documented as required by EM 385-1-1. Minutes showing contract title, signatures of attendees and a list of topics discussed shall be submitted to the contracting officer.

1.3.1 OSHA Voluntary Protection Program

The Contractor is hereby notified that Tinker AFB is pursuing OSHA Voluntary Protection Program (VPP) certification. Additional information regarding VPP can be found at the following link:

http://www.osha.gov/dcsp/vpp/index.html

VPP applies to all construction and service contracts that have contractor employees working more than 1000 hours per quarter on Tinker AFB. (For contracts where performance is at another location, check with that location's VPP policy and implementation guidance.)

The Contractor has sole responsibility for compliance with the Occupational Safety and Health Act (Public law 91-596) for all contract activities. The Contractor shall submit a Safety and Health Plan and corresponding site safety checklist to the CO within 10 work days after contract award. The Contractor's Safety and Health plan shall include appropriate measures to ensure the Contractor reacts promptly to

investigate, correct and track alleged safety and health violations and uncontrolled hazards in the Contractor's work areas.

(a) The Contractor shall identify the processes and procedures to be used to track compliance with the Safety and Health Plan, and the processes and procedures that shall be used to correct violations.

(b) The Contractor's Safety and Health Plan shall demonstrate a management commitment to employee safety and health and shall identify the application of the Safety and Health Plan to subcontractors. (If applicable)

(c) The Contractor's Safety and Health Plan shall identify the roles and responsibilities of the following individuals; management, supervisors, employees and safety coordinator.

(d) The Contractor's Safety and Health Plan shall identify applicable safety rules and regulations, and shall include a worksite hazard analysis to include base-line hazard identification and required control measures.

(e) The Contractor's Safety and Health Plan shall include a job site analysis to include hazard of tasks required to control measures, identify employee safety and health training requirements and the documentation process.

(f) The Contractor's Safety and Health Plan shall include a workplace inspection frequency to include identifying the individual conducting the inspections and shall include employee hazard and mishap reporting procedures.

(g) The Contractor's Safety and Health Plan shall identify individual(s) responsible for corrective hazards, and shall identify first aid and injury procedures, procedures for accident investigation and reporting, identify emergency response procedures and identify the process for tracking controlled hazards in Contractor work areas.

(h) (If applicable) The primary Contractor is responsible for establishing these requirements for all subcontractors who qualify as applicable contractors meaning they are working on Tinker AFB for a minimum of one thousand hours in three months under the same contract.

The above requirements also apply to all subcontractors who are working on Tinker AFB for a minimum of one thousand hours in three months under the same contract.

The Contractor shall verify the Total Case Incidence Rate (TCIR), Day Away, Restricted, and or Transfer (DART) Case Rate, and OSHA Form 300A, Annual Summary of Work Related Injuries and Illnesses, shall be submitted to the Contracting Officer by 15 Jan each year. Upon receipt from the Contractor, the Contracting Officer shall provide this information to 72ABW/SE (739-3263) for contracts performed on Tinker AFB.

1.3.2 Emergency Evacuation Procedures

Contractor employees shall follow the direction of Government employees in regards to emergency evacuation procedures, i.e. fire, tornado, or bomb

threats. It is the responsibility of the Contractor to provide guidance and establish procedures for responding to an emergency for their employees. It is the Contractor's responsibility to account for their employees following an emergency evacuation. The Contractor personnel shall participate with the Government personnel in all fire and tornado drills at no additional cost to the Government.

1.3.3 Mishap Reporting

The contractor shall notify the CO of any injuries to contractor personnel which occur on the installation while performing work under this contract. The contractor shall notify the CO within eight (8) hours of any damage to government property where the dollar value exceeds $500,000.00; and within two workdays for any damage to government property less than $500,000.00 during the execution of the contract.

Mishap notifications shall contain, as a minimum, the following information:

(a) Contract, Contract Number, Name and Title of Person(s) Reporting
(b) Date, Time and exact location of accident/incident
(c) Brief Narrative of accident/incident (Events leading to accident/incident)
(d) Cause of accident/incident, if known
(e) Estimated cost of accident/incident (material and labor to repair/replace)
(f) Nomenclature of equipment and personnel involved in accident/ incident
(g) Corrective actions (taken or proposed)
(h) Other pertinent information

If requested by the CO, the contractor shall immediately secure the mishap scene/damaged property and impound pertinent maintenance and training records, until released by the CO.

1.3.4 Confined Spaces

When a contract requires confined space entry, the contractor's confined space competent person shall coordinate with the Base Fire Chief to determine if the Tinker Fire & Emergency Services rescue team can satisfy the rescue services requirement outlined in 29 CFR 1910.146(k) "Rescue and Emergency Services". If the Tinker Fire & Emergency Services does not have the appropriate rescue capability, the rescue capability should be developed on-site by the contractor. The Contractor shall not identify Tinker Fire & Emergency Services as the rescue team for permit-required confined space entries without written approval from the installation Fire Chief.

1.3.5 Internal Combustion Engines Plan

Contractor shall submit detailed plan to include how many types of internal combustion engine vehicles/equipment are to be used in occupied buildings and procedures indicating methods to keep airborne contaminant levels from exceeding Environmental Protection (EPA), Occupational Safety and Health Administration (OSHA), National Institute of Occupational Safety and Health (NIOSH), and Air Force Occupational Safety and Health (AFOSH) Standards and/or regulations.

1.4 FOREIGN OBJECT DEBRIS (FOD) AWARENESS AND PREVENTION

Contractor personnel who, in the performance of their assigned duties, work in or travel through areas near operational and production aircraft, engines, munitions, missiles, drones, space systems, support equipment, Aerospace Ground Equipment (AGE), trainers or components thereof are required by AFI 21-101, AFMC Supplement to AFI 21-101 (AFI 21-101 AFMCSUP) and TAFBI 21-100 to receive subject training. This includes contractor personnel operating vehicles and equipment on flight lines, runways, taxiways, parking ramps and in aircraft hangars or maintenance areas.

The requirement for FOD awareness and prevention training is dependent on project location; as such, the requirement for this training will be established in the case-by-case basis. The AFMC FOD/DOP Prevention and Awareness training video can be obtained from 72ABW/CE through the construction inspector. The Contractor will be responsible to ensure that all personnel (including sub-contractors) view the video. Minutes showing the contract title and the signatures of the attendees shall be submitted to the contracting officer.

1.5 AIRFIELD SAFETY

The Contractor shall provide the following to the Contracting Officer.

(a) Contractor equipment and material storage locations.
(b) Contractor personnel vehicle parking area and access routes to work area.
(c) Location of contractor offices and plants.
(d) Designated waste and disposal areas
(e) Construction-phasing plan. Construction phasing plan shall conform to UFC 3-260-01.

The COntractor shall submit Attachment 1 - Airfield Construction Waiver prior to beginning work. The waiver application must be submitted to the Contracting Officer by the 1st of the month to ensure approval within 60 days. This includes all proposed temporary crane operations on Tinker AFB. Requests submitted after the 1st will be processed the following month.

No construction on any part of the airfield may commence until the 72nd ABW/CC has approved an Airfield Construction Waiver.

1.5.1 Flight-line Driving Requirements

All airfield driving activities must be in accordance with AFI 13-213, TAFBI 13-204, and AFI 13-213 TINKERAFBSUP.

All Contractor personnel who will drive any type of vehicle/equipment on the flight line shall attend flight line driver's training and obtain flight line driver's authorization as scheduled by the Contracting Officer. Additionally, all Contractor personnel shall also attend a flight line safety briefing from the Airfield Manager prior to beginning work on the airfield.

Basic responsibilities, airport procedures, haul routes, staging areas, and areas within the aircraft movement area requiring special attention must be briefed to all construction personnel by the Airfield Manager prior to start of work. Included are:

- Runway characteristics (lighting, signs, markings, etc) and mandatory approval from the control tower is required before entry/crossing
- Use of radios. Also, the use of radios/cellular phones to call Airfield Management Operations (AM Ops) for assistance if lost or disoriented
- Examples of hazardous and marginal conditions (i.e. excavation, mounds/stockpiles, excessive surface lips, equipment, open trenches, encroachment to operational areas, etc)
- Airfield diagrams highlighting haul routes and work areas.
- Visual aids (markings, signs, lighting) for all construction vehicles operating on the airfield
- FOD prevention and tool control
- Restricted and controlled areas
- Entry access list requirements for personnel and maintaining airfield security
- Site maintenance and disposal of waste
- Daily cleanup

1.5.2 Contractor Vehicles on the Airfield

The Contractor must identify all Contractor personnel and vehicles requiring access to the airfield utilizing Attachment 2 - Entry Authority List (EAL) and Attachment 3 - Vehicle Entry Authority List (VEAL). EAL/VEAL must be submitted a minimum of 14 days prior to when access will be requried to the worksite.

Operation of vehicles on the airfield will only be by flight line driver qualified personnel or escorted by such. Contractor vehicles shall have operating flashing yellow/amber rotating lights or four-way flashers and marked with Contractor markings. Vehicles and/or personnel shall be radio-equipped for communications with the control tower or escorted by a radio equipped vehicle. Contractor vehicles shall operate only in areas and on haul routes authorized by the Airfield Manager.

All contractors operating on the airfield/ramps will need to have a copy of their VEAL included with every vehicle, or will need a Ramp Pass issued from AM Ops. Items included in the VEAL are listed below.

- Vehicle number
- Vehicle description
- Year
- Color
- Make
- Model
- Vin number
- Tag number

Note that any change to contractor personnel or vehicles being brought on to the airfield will require a resubmission of the EAL/VEAL; timelines for approval will be the same as for the initial submission. New personnel or vehicles may not be brought onto the worksite until the revised EAL/VEAL is approved.

1.5.3 Construction Equipment on Airfield

All equipment, structures, or apparatus used on the airfield will be briefed at pre-construction conference to the Contracting Officer. Any subsequent equipment, structures, or apparatus not briefed at the

pre-construction conference must be submitted for approval to the Contracting Officer.

Any construction that uses equipment that is expected to penetrate any of the surfaces identified in UFC 3-260-01 will require a Airfield Construction Waiver. In addition, any construction which may affect air navigation per UFC 3-260-01 and FAA Part 77 (e.g. use of crane taller than 100 ft.) will require submission of FAA Form 7460-1.

When working on or near any airfield pavement surface (runway, taxiway, parking area, and ramps), a working vacuum type street/parking lot sweeper shall be on site before any work on the project commences, and shall remain on site at all times that any work is being performed. This sweeper shall be used to keep clean all areas in and adjacent to the work areas and haul routes that are open to vehicular or aircraft traffic. The Airfield Manager will determine cleanliness of aircraft areas.

1.5.4 Additional Requirements

Construction activity at taxiways and aprons shall have setback lines established to provide for minimum aircraft wingtip clearances. The Contracting Officer may permit activity closer than normal after approval from the Airfield Manager, if marking and lighting provisions are implemented, and it is determined the height of equipment and materials are safely below any part of the aircraft using the affected area.

Construction activities shall not be permitted within 200 feet of any runway edge without prior approval from the Airfield Manager. Construction activities may be approved on a case-by-case basis with a temporary waiver, by the Installation Commander.

Construction equipment shall not operate on or near runway ends without approval from the Airfield Manager due to possible penetration of the 50:1 approach-departure clearance surface.

When determined, an operational need to temporarily displace a runway threshold due to Contractor activities, the requirements for marking and lighting shall be in accordance with UFC 3-535-01 and UFC 3-260-04. The Contractor will accomplish the necessary requirements for the temporary displaced runway threshold (i.e., lighting and marking) and returning the runway to normal length operations when the temporary displaced runway threshold is no longer necessary.

No construction activity will be permitted in the vicinity of navigational aids or in critical areas associated with navigation aids. Coordination between Airfield Management, Civil Engineering Community Planner, Safety, and Communications will be required prior to work in these areas. Special attention will be necessary to stockpiling materials as well as to the movement and parking of equipment which may interfere with line-of-sight from the control tower or interfere with navigational aid signals.

Marking, barricading, and lighting of construction areas on the airfield will be in accordance with UFC 3-260-04. Contractor will have a person on call 24 hours a day for emergency maintenance of airport hazard lighting and barricades. The Contractor shall supply the name and number to the Contracting Officer.

All excavation and trenches must be adequately signed, lighted and marked properly.

Extensive stockpiled materials, as determined by the Contracting Officer, will not be permitted within the construction activity areas.

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

-- End of Section --

THIS PAGE INTENTIONALLY LEFT BLANK

Attachment 1

Airfield Construction Waiver

AIRFIELD CONSTRUCTION WAIVER APPLICATION FORM

1. Project or Work Order # **2. Contract #** **3.Waiver # (Government Use Only)**

INSTRUCTIONS: Requester MUST complete blocks 1, 2, 4-6, 8,10,11, if not applicable put N/A in the block.

4. Include a map with a detailed depiction of the construction location and submit with this form.

5. Description of Construction Activity: Include description of construction with notes pertaining to the work that will be done.

6. Facility Number (Closest to Construction Activity):

7. CRITERIA TO BE WAIVED (Government Use Only- State Chapter, paragraph, table number, etc. from UFC 3-260-01 or other):

8. Location and Height Data of Construction Activity:

	Longitude:	**N**
	Latitude:	**W**
A) Construction Activity Ground Elevation (Average Mean Sea Level):		**Ft.**
B) Tallest Construction Equipment Height (Crane Height, etc):		**Ft.**
	Total Height (A+B):	**Ft.**

9. Why is the temporary waiver required?

10. Point of Contact Data:

CEC (THDR, Alutiq,etc.) Project Manager:	**Phone & Email:**
Contractor (Executing the work):	**Phone & Email:**
Construction Start Date:	**Construction End Date:**

11. Describe risk mitigation measures that will be taken for each violation/waiver. (eg. Special painting, obstruction lighting, barricades, marshallers, flagging, safety plan/recall procedures, etc.)

12. COORDINATION COMPLETED (Government Civil Engineering Use Only):

AIRFIELD MANAGER	72 OSS/OSAM	☐	GROUND SAFETY	72 ABW/SEG	☐
AIRFIELD OPERATIONS	72 OSS/OSA	☐	LOGISTICS	72 LRS/DD	☐
TERPS	HQ AFMC/A3	☐	COMMUNICATIONS	72 CS/SCX	☐
FLIGHT SAFETY	72 ABW/SEF	☐	SECURITY FORCES	72 SFS/S5S	☐

13. APPROVAL (Government Use Only) Installation Commander approval authority. If waiver is an emergency the Base Civil Engineer may approve according to UFC 3-260-01, B1-2.5.4.7.

Installation Commander
(Base Civil Engineer if Emergency)

Form Date: April 2018

THIS PAGE INTENTIONALLY LEFT BLANK

Attachment 2

Entry Authority List

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 72D AIR BASE WING (AFMC)
TINKER AIR FORCE BASE OKLAHOMA

MEMORANDUM FOR

FROM:

SUBJECT: Entry Authority List (EAL)

1. (Company) is visiting the restricted/controlled area from (start date) through (End Date) and require access to controlled or restricted areas, as noted below. The purpose of this visit is to (What they will be doing and contract number). This EAL consists of a cover letter and a list of (#) names of visitors in alphabetical sequence.

2. **CAMERAS AND PICTURE TAKING:** All individuals listed ARE NOT authorized to carry camera and to take pictures in all controlled or restricted areas for which they have entry access. All other visitors must have specific authorization, in writing, from the Wing Commander or designated representative.

3. **CONTROLLED AREAS:** All individuals are granted escorted/unescorted access to controlled areas based upon this EAL (see attachment) and either a valid AF Restricted Area Badges; DD Form 2/2 AF/Common Access Card; or a government issued photo ID.

4. **RESTRICTED AREAS:** All individuals are granted escorted/unescorted entry to all restricted areas based upon this EAL (see attachment) and either a valid AF Restricted Area Badge; DD Form 2/2 AF/Common Access Card; or a government issued photo ID.

RESTRICTED/CONTROLLED AREA TO BE VISITED:

5. **RESTRICTED AERA IDENTIFIERS**

A	Authorized unescorted entry to Protection Level 1 (Navy OPCON)
aa	Authorized escorted entry to Protection Level 1 (Navy OPCON)
B	Authorized unescorted entry to Protection Level 2 (North Ramp)
bb	Authorized escorted entry to Protection Level 2 (North Ramp)
C	Authorized unescorted entry to Protection Level 2 (South Ramp)
cc	Authorized escorted entry to Protection Level 2 (South Ramp)
D	Authorized unescorted entry to Protection Level 2 (Tinker Command Post)
dd	Authorized escorted entry to Protection Level 2 (Tinker Command Post)
E	Authorized unescorted entry to Protection Level 2 (507 OPCON)
ee	Authorized escorted entry to Protection Level 2 (507 OPCON)
F	Authorized unescorted entry to Protection Level 3 (NAPA Ramp)
ff	Authorized escorted entry to Protection Level 3 (NAPA Ramp)
G	Authorized unescorted entry to Protection Level 3 (507 ARW/APA)
gg	Authorized escorted entry to Protection Level 3 (507 ARW/APA)
H	Authorized unescorted entry to Protection Level 4 (Controlled Area)
hh	Authorized escorted entry to Protection Level 4 (Controlled Area)

1 of 3

ATTACHMENT 2

Entry Authority List (cont)

6. The POC for this EAL is (POC Name and number)

7. This EAL expires (End date and time)

REQUESTER:

DIANN RITER, NH-03
CE Security Manager

Attachment:
Entry Authority List

1st Ind

MEMORANDUM FOR 72 ABW/CE

Individuals are authorized unescorted entry into areas, regardless of PRP status, as indicated in the attached entry authority list.

APPROVAL AUTHORITY

MARC A. BRADLEY
Airfield Manager

BRIAN R. DONEHUE, Lt Col, USAF
552 ACW/DS

AUTHENTICATER:

ROBERT M. CERTEZA, TSgt, USAF
72 SFS/S5S NCOIC Physical Security

2 of 3

ATTACHMENT 2

Entry Authority List (cont)

*****FOR OFFICIAL USE ONLY*****

TEAM MEMBERS

Entry Authority List

PRIVACY ACT

Authority: AFI 31-101, Integrated Defense, and DoD 5210.41-M_AFMAN 31-108 Purpose: Verification of Authority to enter a designated area
SSN: Is used for further identification of an individual
Routine Use(s): Entry Controllers will use the SSN or Controlled Picture ID (CPID) number as a means to verify a person is allowed to enter a designated area
Disclosure: Disclosure is voluntary. Failure to disclose required information will result in that person not being allowed to enter a designated area

Full Name	Rank	Controlled Picture ID and/or Badge #	DOB	Clearance	Authorized Area(s)

The information herein is For Official Use Only (FOUO) which must be protected under the Freedom of Information Act of 1966 and Privacy Act of 1974, as amended. Unauthorized disclosure or misuse of this PERSONAL INFORMATION may result in criminal and/or civil penalties.

3 of 3

THIS PAGE INTENTIONALLY LEFT BLANK

Attachment 3

Vehicle Entry Authority List

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 72D AIR BASE WING (AFMC)
TINKER AIR FORCE BASE OKLAHOMA

MEMORANDUM FOR (Area requiring Access)

FROM: 72 ABW/CE

SUBJECT: Vehicle Entry Authority List (VEAL)

1. The vehicles listed below require access to the (state areas needing access) for the period (beginning date) through (end date). These vehicles require access in support of (state contract name and number). The contractor point of contact is (name and phone number). The organization point of contact responsible for providing escort is (company Name, person name and number).

MAKE/MODEL	LICENSE#	STATE	COLOR	YEAR

(All personnel being escorted must have a picture ID for positive identification prior to being signed in)

2. If you have any questions, please contact (list primary point of contact that is familiar with access requirements, name and telephone number) or (person sponsoring the EAL).

DIANN RITER, NH-03
CE Security Manager

APPROVED BY:

NAME, Rank
Organization

AUTHENTICATED BY:

ANTHONY M. BRODIE, TSgt, USAF
72 SFS/S5

FOR OFFICIAL USE ONLY

1 of 2

Attachment 3

Vehicle Entry Authority List (cont)

VERIFIED BY:

MARC A. BRADLEY
Airfield Manager

GAVIN P. MARKS, Colonel, USAF
552 ACW/CW

RON SALESBERRY
Navy

PAMELA POWERS
76AMXG

ANTHONY M. BRODIE, TSgt, USAF
72 SFS/S5

FOR OFFICIAL USE ONLY

2 of 2

SECTION 00 72 00

ENVIRONMENTAL REQUIREMENTS FOR CONSTRUCTION ON TINKER AIR FORCE BASE

TABLE OF CONTENTS PAGE

PART 1 GENERAL
1.1 REFERENCES 3
1.2 SUBMITTALS 5
1.3 ENVIRONMENTAL PROTECTION 5
1.3.1 Applicable Regulations 6
1.3.2 Protection of Land Resources 6
1.3.3 Protection of Water Resources 7
1.3.3.1 Erosion Control 7
1.3.3.2 Storm Water Quality Control 7
1.3.3.3 Spillage 9
1.3.3.4 Disposal 9
1.3.3.5 Flushing & Sampling Req. for Potable Water System 9
1.3.3.6 Water System Construction Permits 10
1.3.4 Protection of Fish and Wildlife 10
1.3.4.1 Control of Invasive Species (Red Imported Fire Ants) 10
1.3.4.2 Control of Invasive Species (other Flora and Fauna) 11
1.3.5 Disposal of Removed Material 11
1.3.6 Dust Control 11
1.3.7 Maintenance of Pollution Control Facilities During Construction 12
1.3.8 Air Quality 12
1.3.8.1 Generators and Fire Pumps 12
1.3.8.2 Boilers 12
1.3.9 Pesticides (Insecticides, Fungicides, Herbicides, Etc) 12
1.3.10 Green Procurement Program 13
1.4 HAZARDOUS MATERIAL REPORTING 14
1.5 REFRIGERANT MANAGEMENT 14
1.6 ASBESTOS ABATEMENT 14
1.7 LEAD-BASED PAINT ABATEMENT 14
1.8 PCB FILLED BALLAST TRANSFORMER & UNIVERSAL WASTE LAMP ABATEMENT 15
1.9 SPRAY FINISHING 15
1.10 ENVIRONMENTAL MANAGEMENT SYSTEM AWARENESS TRAINING 15
1.11 UNEXPECTED DISCOVERIES OF ARCHEOLOGICAL RESOURCES 16
1.12 USING RADIOACTIVE MATERIALS 16
1.13 LIST OF ATTACHMENTS 17

PART 2 PRODUCTS

PART 3 EXECUTION

ATTACHMENTS
Attachment 1 - Bacteriological Sampling Requirements.....19
Attachment 2 - Tinker AFB Asbestos Abatement Specification.....22
Attachment 3 - Tinker AFB Lead-Based Paint Abatement Specification.....42
Attachment 3a - Tinker AFB Lead-Based Paint Abatement Specification for Industrial Facilities.....58
Attachment 4 - Tinker AFB PCB Filled Ballast & Universal Waste Lamp Abatement Specification.....60
Attachment 5 - Tinker AFB Construction & Demolition Debris Management Procedure.....64
Attachment 6 - Tinker AFB Hazardous Waste Management Procedures.....67

Attachment 7a – Chemical/Hazardous Material Request/Authorization.....69
Attachment 7b – Monthly Hazardous Material Usage Report.....71
Attachment 8 - Recovered Material Determination Form.....72
Attachment 9 – EMS Awareness Training.....78
Attachment 10 – Environmental Policy Statement.....79
Attachment 11 - Integrated Cultural Resource Management Plan (2005), Section E.13 – Unexpected Discoveries of Archeological Materials During Construction Projects.....80
Attachment 12 – Tree Protection Requirements 84
Attachment 13 - AF Form 487, Generator Operating Log (Inspection and Testing).....87
Attachment 14 - Information for New Boilers 89

SECTION 00 72 00

GENERAL ENVIRONMENTAL REQUIREMENTS FOR CONSTRUCTION ON TINKER AIR FORCE BASE

PART 1 GENERAL

1.1 REFERENCES

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

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

10 CFR 835	Occupational Radiation Protection
29 CFR 1910.94	Ventilation
29 CFR 1910.1000	Air Contaminants
29 CFR 1910.1025	Lead
29 CFR 1910.107	Spray Finishing Using Flammable and Combustible Materials
29 CFR 1910.1200	Hazard Communication
29 CFR 1910.134	Respiratory Protection
29 CFR 1910.141	Sanitation
29 CFR 1910.38	Emergency Action Plans
29 CFR 1926	Safety and Health Regulations for Construction
29 CFR 1926.1101	Asbestos
29 CFR 1926.59	Hazard Communication
29 CFR 1926.62	Lead
40 CFR 247	Comprehensive Procurement Guideline for Products Containing Recovered Materials
40 CFR 261	Identification and Listing of Hazardous Waste
40 CFR 268	Land Disposal Restrictions
40 CFR 355	Emergency Planning and Notification
40 CFR 60	Standards of Performance for New Stationary Sources
40 CFR 61	National Emission Standards for Hazardous Air Pollutants

40 CFR 63	National Emission Standards for Hazardous Air Pollutants for Source Categories
40 CFR 761	Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions
40 CFR 763	Asbestos
40 CFR 82	Protection of Stratospheric Ozone
49 CFR 172	Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements

OKLAHOMA ADMINISTRATIVE CODE (OAC)

OAC 252 100	Air Pollution Control
OAC 252 626	Public Water Supply Construction Standards

OKLAHOMA STATUTES (OS)

O.S 27A Supp. 1993 2-6-3	Oklahoma Water Supply Systems Act

U.S. AIR FORCE (USAF)

AFMAN 40-201	(2019) Radioactive Material (RAM) Management
AFMAN 48-148	(2020) Ionizing Radiation Protection

TINKER AIR FORCE BASE (TAFB)

TAFB HWMP	(2020) Tinker AFB Hazardous Waste Management Plan
TAFB INRMP	(2020) Tinker AFB Integrated Natural Resources Management Plan

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 33	Standard for Spray Application Using Flammable or Combustible Materials
NFPA 55	Compressed Gases and Cryogenic Fluids Code

U. S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

EPA CPG	Comprehensive Procurement Guidelines (located at https://www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program

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 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Storm Water Pollution Prevention Plan; G
Water System Construction Permits; G
AF Form 3952 Chemical/Hazardous Material Request/Authorization; G
Restoration Plan; G
Construction Debris Management Plan
Spray Painting Plan; G
Environmental Management System Awareness Training
Tree Planting/Removal Permit
Tree Protection Plan

SD-03 Product Data

New Boiler Information Form
Affirmative Procurement Documentation

SD-06 Test Reports

AF Form 487 Generator Operating Log (Inspection and Testing)

SD-07 Certificates

Fire Ant Federal Compliance Agreement or state phyto-sanitary certificate
Monthly Hazardous Material Usage Report
Refrigerant Technical Certifications
Refrigerant Installation Record
Debris Management Report

SD-08 Manufacturer’s Instructions

Safety Data Sheets/Material Safety Data Sheets

SD-11 Closeout Submittals

Notice of Termination for Storm Water Discharges, DEQ Form 640-572

1.3 ENVIRONMENTAL PROTECTION

For the purpose of this specification, Environmental Pollution is defined as 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

man; or degrade the utility of the environment for aesthetic and recreational purposes. The control of environmental pollution requires consideration of air, water, and land, and involves noise, solid waste management and management of radiant energy and radioactive materials, as well as other pollutants.

1.3.1 Applicable Regulations

In order to prevent, and to provide for abatement and control of, any environmental pollution arising from the construction activities of the Contractor and his Subcontractors in the performance of this contract, they shall comply with all applicable Federal, State and Local laws and regulations concerning environmental pollution control and abatement.

1.3.2 Protection of Land Resources

It is intended that the land resources within the project boundaries and outside the limits of permanent work performed under this contract be preserved in their present condition, or be restored to a condition, after completion of construction, that shall appear to be natural and not detract from the appearance of the project.

Insofar as possible, the Contractor shall confine his construction activities to areas defined by the plans or specifications, to areas to be cleared for other operations, or to quarry, borrow or waste areas indicated on the plans. This shall be accomplished by installing construction barrier fencing at the limits of construction for the duration of the contract.

At the onset of borrow excavation, topsoil shall be saved for use in restoring the borrow area. Waste and borrow areas shall be leveled or trimmed to regular lines and shaped to provide a neat appearance. In all instances, the restored shall be well drained, to prevent the accumulation of stagnant water.

All activities potentially impacting tree resources including root zones shall be accomplished in accordance with Attachment 12 (Tree Protection Requirements). Except in areas marked on the plans to be cleared, the Contractor shall not deface, injure, or destroy trees or shrubs, nor remove or cut them without approval of the Contracting Officer. Any trees, shrubs, grass areas, flower gardens, etc, scarred or damaged by the Contractor’s equipment or operations shall be restored to the original condition at the Contractor’s expense. The Contracting Officer will determine whether damaged trees/shrubs will be removed and replaced or treated and healed. If the Contractor is directed to replace plants, then it shall be to the original condition and degree of establishment. That is, if removed plants were not on an irrigation system, then the replacement plants must be irrigated until they can survive solely on natural precipitation. For replacement trees, this equates to the Contractor providing irrigation for a minimum of two full growing seasons. The Contractor will submit to the Contracting Officer for approval, a restoration plan showing how the damaged area(s) will be returned to their original condition.

The Contractor will be responsible for all erosion control required until the area is accepted by the Contracting Officer as being returned to its original condition. When a temporary ground cover is needed until warm-season grasses can be established, the ground shall be covered with an appropriately anchored biodegradable material such as straw/native hay

mulch, erosion control blankets, hydromulch, or similar material. Cool-season grasses and cereal grains, such as ryegrass and wheat are not permitted without advance approval from the base natural resources function and Contracting Officer. However, permanent native warm-season grasses shall be established prior to contract completion. All grasses must be native and comply with the base Integrated Natural Resources Management Plan, unless waived by the Contracting Officer.

1.3.3 Protection of Water Resources

The Contractor shall not pollute streams, lakes, or reservoirs with fuels, oils, bitumen's, calcium chloride, chlorinated potable water, acids or harmful materials. It is the responsibility of the Contractor to investigate and comply with all applicable Federal, State, County, and Municipal laws concerning pollution of rivers and streams. All work under this contract shall be performed in such a manner that objectionable conditions shall not be created in streams through or adjacent to the project areas.

1.3.3.1 Erosion Control

Surface drainage from cuts and fills within the construction limits, whether or not completed, and from borrow and waste disposal areas, shall, if turbidity producing materials are present, be held in suitable sedimentation ponds; otherwise the surface shall be graded to control erosion within the construction site. Temporary erosion and sediment control measures such as berms, dikes, drains, or sedimentation basins, if required to meet the above standards, shall be provided and maintained until permanent drainage and erosion control facilities are completed and operative. The area of bare soil exposed at any one time by construction operations shall be held to a minimum. Stream crossings by fording with equipment shall be limited to control turbidity, and in areas of frequent crossings, temporary culverts or bridge structures shall be installed before the need arises, and then removed upon completion of the project. Fills and waste areas shall be constructed by selective placement to eliminate silts or clays on the surface that will erode and contaminate adjacent streams. The Contractor shall be required to contain all eroded soil, silt, sand, or other debris on the construction site. When necessary a containment area shall be constructed on the project site to prevent eroded soils or debris from entering storm sewer systems, drainage channels, or streams. The Contractor shall prevent eroded soils or debris from entering, crossing, or standing on existing street and roadways.

1.3.3.2 Storm Water Quality Control

The Contractor is required to comply with the requirements outlined in the Oklahoma Department of Environmental Quality (ODEQ) General Permit for Storm Water Discharges from Construction Activities (OKR10). In brief, the Contractor is required to submit Tinker AFB's Notice of Intent (NOI) form to Tinker's Storm Water Program Management office requesting for the authorization to discharge pollutants for the construction activity. The development and implementation of a Storm Water Pollution Prevention Plan (SWPPP) is required and must be submitted with the NOI. This plan shall provide for the control of storm water runoff from construction activities to reduce storm water contamination. The NOI and SWPPP must be submitted and authorized prior to discharging any pollutants. The Environmental Office can be contacted at (405)734-1228 to obtain further information.

For projects disturbing over an acre of land, the Contractor is required to submit to the ODEQ DEQ Form 605-002A, Notice of Intent for Storm Water Discharges Associated with Construction Activity on Sites of One Acre or More Acres. The Contractor must provide a copy of the certification authorizing the discharge from the ODEQ to Tinker's Storm Water Program Management office before any consideration will be given for authorization for Tinker AFB's NOI.

Adequate Best Management Practices (BMP's) and appropriate control measures shall be included in the SWPPP to prevent construction dirt, chemicals, and/or debris from becoming a pollutant source to storm water discharges and to retain sediment on site. Such measures include but are not limited to silt fences, hay bales, earth dikes, sediment traps, storm drain inlet protection, and temporary/permanent sediment basins. Stabilization practices shall be included in the SWPPP and implemented to preserve existing vegetation and stabilize those portions of the construction site that are disturbed. The Contractor shall be required to amend the SWPPP when there is a change in the project design, operation, or maintenance and when BMP's/control measures are ineffective in minimizing pollution.

The Contractor shall ensure that inspections of the construction site are performed at least every 14 calendar days and within 24 hours after a storm event of 0.5 inches or greater. The Contractor shall inspect the area to ensure that structural control measures and BMP's are effective in preventing the discharge of dirt and construction debris. Any instances of non-compliance shall be corrected within 7 days of the inspection. The Contractor shall annotate these inspections in a report to be kept on site or at an easily accessible location. The report shall summarize the scope of the inspection, person performing the inspection, the date and time, and the major observances relating to the effectiveness of the SWPPP. The inspection report is subject to inspection by the Contracting Officer at any time during construction performance period.

The Contractor's self-inspections will be submitted to the Contracting Officer in batches every 30 days. These submittals, coordinated by the Construction Inspector and approved by the Contracting Officer, should satisfy permit compliance requirements.

The Contractor shall include in the submittals, the maximum height of each piece of construction equipment expected to be used during construction, which is to be submitted to the Contracting Officer prior to the start of construction. For all construction sites with a trailer or office, the Contractor shall post with a brief description of the project, point of contact and the location of the SWPPP. For those without an on-site trailer, the Contractor shall maintain the information at an easily accessible location.

The Contractor shall submit a completed form to terminate coverage under base permit for storm water discharges from construction activities to Tinker's Storm Water Program Management office. Tinker AFB's Notice of Termination (NOT) can be obtained by contacting Tinker's Storm Water Program Management office at (405)734-1228. If NOI was also submitted to the ODEQ for the construction activity, DEQ Form 605-003 must be submitted to the ODEQ. Completed form shall be submitted when final stabilization of construction site has been achieved. Final stabilization means all soil

disturbing activities have been completed and a uniform vegetative state with a density of 70% of native background cover has been established.

1.3.3.3 Spillage

At all times, special measures shall be taken to prevent chemicals, fuels, oils, greases, bituminous materials, waste washings, herbicides and insecticides, cement and surface drainage from entering surface or ground waters. If a spill occurs, the Contractor is responsible for reporting the spill to the Base Fire Department. The Contractor shall dial 911 from a base phone or 737-1117 to report the spill. The Contractor shall also advise the Contracting Officer immediately. The Contractor is liable for all clean-up, damages and repairs that resulted from the spill.

Spill Classification Guidelines: Standard spill classifications will enable response personnel to communicate the extent of a spill to other personnel within a common framework. The Contractor will determine if the spill creates a fire hazard to aircraft or equipment and will post a fireguard. The following classifications are provided:

- Class I or Minor Spill – This spill involves an area less than two (2) feet in any dimension and is not of a continuing nature.
- Class II or Medium Spill – This spill involves an area of less than ten (10) feet in any dimension, or not over fifty (50) square feet in area and is not of a continuing nature.
- Class III or Major Spill – This classification includes spills that are over ten (10) feet in any one dimension or over fifty (50) square feet in total area, or spills that have a continuing source.

1.3.3.4 Disposal

Disposal of any materials, wastes, effluents, trash, garbage, oil, grease, chemicals, etc.; in areas adjacent to streams or other bodies of water shall be subject to the written approval of the Contracting Officer. If any waste material is dumped in unauthorized areas, the Contractor shall remove the material and restore the area to the condition of the adjacent undisturbed area. If necessary, contaminated ground shall be excavated, disposed of as directed by the Contracting Officer, and replaced with suitable fill material, compacted and finished with topsoil all at the expense of the contractor.

1.3.3.5 Flushing & Sampling Requirements for Potable Water System

All newly constructed water mains and/or service lines shall be cleaned and sterilized according to Oklahoma Administrative Code (OAC) 252.626; which requires that all new piping be flushed and cleaned, isolated, and filled with a 50-100 mg/l chlorine solution for a continuous time period not less than 24 hours. A residual of not less than 10 mg/l chlorine must remain after the 24 hour retention period. If retention residual is met, the line will be flushed and sampled for coliform bacteria. Two consecutive safe bacteriological samples separated by a time period of not less than 24 hours must be obtained before the new line may be placed in service. If the 10 mg/l chlorine residual cannot be maintained, or if water samples test positive for coliform bacteria, the sterilization and flushing process shall be repeated until such time as required chlorine residual and bacteriological requirements met. In accordance with National Pollutant Discharge Elimination System (NPDES) requirements and storm water quality

regulations, water flushed from the system shall be de-chlorinated and tested for chlorine prior to discharge. Water shall contain less than 0.1 mg/l total residual chlorine when discharged into any conveyance of the storm water system. See letter from 72 ADS/SGPB at Attachment 1 on Bacteriological Sampling Requirements for Water Line Maintenance for more detailed information. In addition, anytime that a Contractor taps into the bases water supply, they are required to utilize a backflow prevention device to prevent any possible contamination to the bases water supply.

1.3.3.6 Water System Construction Permits

Any project proposing to extend the Tinker AFB potable water system with connections to two or more buildings shall meet the construction permit requirements of "Oklahoma Water Systems Act", 27A O.S. Supp. 1993, 2-6-301 et seq. as directed by Oklahoma Administrative Code Section 252, Chapter 626, Subchapters 3 and 5 (OAC 252:626-3-5). All required documents by the Act should be submitted to the Contracting. The Contractor shall plan accordingly in the scheduling of water permits to allow for ample lead time to accommodate the government (i.e., holidays, down days, etc).

1.3.4 Protection of Fish and Wildlife

The Contractor shall at all times take such steps required to prevent any interference of or disturbance to fish and wildlife. The Contractor shall not be permitted to alter water flow or otherwise disturb native habitat adjacent to the project area that are critical to fish and wildlife. Fouling or polluting of water shall not be permitted. Wash waters and wastes, shall be processed, filtered, ponded or treated by the Contractor and disposed of off base at no expense to the government. Additionally, the discharge of chlorinated water into storm drains, creeks, ponds, or other water bodies is strictly prohibited as it can be lethal to fish and other aquatic life. All chlorinated water must be dechlorinated prior to discharge into base water bodies and drainage systems. Additional measures and precautions are required for areas draining directly to a pond or water way where long-term exposure of chlorine could be lethal to fish and other aquatic species. If disturbing the native habitat is essential to project completion, the Contractor shall request permission, in writing, from the Contracting Officer. The Contractor shall notify the Contracting Officer of any construction that impacts native habitat to determine if any permits, such as a Clean Water Act permit, are required. The contractor shall notify the natural resources office when work sites are within or adjacent to wildlife management areas or other sensitive fish and wildlife habitat for case-by-case requirements for protection. These requirements may include, but not be limited to, protection of the Texas horned lizard, a state sensitive species. Consult the current TAFB Integrated Natural Resources Management Plan (INRMP) for identification and mapping of these resources.

1.3.4.1 Control of Invasive Species (Red Imported Fire Ants)

Certain products coming from Red Imported Fire Ant (RIFA) quarantine areas (as designated by the Oklahoma Department of Agriculture) to Tinker AFB must be certified by either a federal or state inspection before being shipped out of the quarantine areas. This includes soil, plants (trees, shrubs, grasses, flowers, etc) with soil attached, grass sod, used soil-moving equipment, hay and straw, and anything else deemed a threat by any authorized agent of the Oklahoma Department of Agriculture Food and Forestry or United States Department of Agriculture.

The Contractor shall provide written verification to the Government that the products/equipment listed above are coming from non-quarantine areas. Or, if they are coming from quarantined areas, the Contractor shall provide the Government with a signed Federal Compliance Agreement or state phyto-sanitary certificate validating the products/equipment are fire ant free.

1.3.4.2 Control of Invasive Species (Other Flora and Fauna)

The Contractor shall ensure all equipment, tools, plant materials, soil, hay, straw, and any other items brought on Tinker AFB are free of invasive plant and animal species to include, but not limited to, seed, roots/ rhizomes, eggs, or other viable plant/animal parts. Invasive plant/animal species are defined as any plant or animal found on invasive/nuisance species lists published by the federal government (as applicable to Oklahoma), state of Oklahoma (e.g., Oklahoma Aquatic Nuisance Species Management Plan), Oklahoma Invasive Plant Council, and Tinker AFB invasive/ nuisance species lists. The Contractor shall ensure that no invasive plants (as identified on the aforementioned lists or as identified by TAFB natural resources staff) are used for landscaping purposes on Tinker AFB.

1.3.5 Disposal of Removed Material

Unless otherwise specified in other sections of these specifications or unless reusable under the terms of this contract, all removed material shall be disposed of off base. This disposal shall be in accordance with all applicable Federal, State, County, and Municipal laws. Contractor is required to follow Tinker Air Force Base Construction and Demolition Debris Procedures (Attachment 5) to properly track and document all material removed, whether reused, recycled or sent for disposal. If hazardous waste is generated as a result of the project, the Contractor is required to comply with TAFB HWMP.

1.3.6 Dust Control

The Contractor shall be required to maintain all excavations, embankments, stockpiles, haul roads, permanent access roads, plant sites, waste areas, borrow areas, and all other work areas within or without the project boundaries free from dust which would cause a hazard or nuisance to others. Additionally, no visible fugitive dust emissions shall be discharged beyond the property line on which the emissions originate in such a manner as to damage or to interfere with the use of adjacent properties, or cause air quality standards to be exceeded, or interfere with the maintenance of air quality standards. Approved temporary methods of stabilization consisting of sprinkling chemical treatment, light bituminous treatment or similar methods shall be permitted to control dust. Sprinkling, to be approved, shall be repeated at such intervals as to keep all parts of the disturbed area at least damp at all times; the Contractor shall have sufficient competent equipment on the job to accomplish this task. Dust control shall be performed as the work proceeds and whenever a dust nuisance or hazard occurs. Where necessary the planting and maintenance of vegetative ground cover may be employed to control dust. All open-bodied trucks and trailers transporting dusty materials in areas where the general public must access shall have covering or have wetting performed. A dust nuisance shall be defined as a concentration of nuisance insoluble total particulates of less than 15 milligrams per cubic meter (mg/m3). A dust hazard shall be defined as a concentration of any dust that exceeds its Permissible Exposure Limit

(PEL) as listed in 29 CFR 1910.1000 or its Threshold Limit Value - Time Weighted Average (TLV-TWA), Short Term Exposure Limit (TLV-STEL), or Ceiling Value (TLV-C) as listed in "Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices" published by the American Conference of Governmental Industrial Hygienists, Cincinnati, OH.

1.3.7 Maintenance of Pollution Control Facilities During Construction

During the life of this contract the Contractor shall maintain all facilities constructed for pollution control under this contract as long as the operations creating the particular pollutant are being carried out or until the material concerned has become stabilized to the extent that pollution is no longer being created. During the construction period the Contractor shall conduct and document frequent training courses for his maintenance personnel and provide copies of this training to the Government. The curricula shall include methods of detection of pollution, familiarity with pollution standards, and installation and care of vegetation covers, plants and other facilities to prevent and correct environmental pollution.

1.3.8 Air Quality

1.3.8.1 Generators

AF Form 487 *Generator Operating Log (Inspection and Testing)* shall be completed for every runtime occurrence of a generator(s) or fire pump(s) already placed and secured at the location where it is intended to be operated. Once the generator is installed and proper operation is verified, the contractor shall turn off the unit for the remainder of the contract period until the government takes possession of the unit. Contractor shall comply with all applicable requirements listed in the following

- 40 CFR 63 Subpart ZZZZ
- 40 CFR 60 Subpart IIII
- Air Quality Permit 2015-0383-TVR2
- OAC 252:100.

A copy of all completed AF Form 487 (Attachment 13) shall be provided to Base Environmental Management as part of the closeout documentation.

1.3.8.2 Boilers

Contractor shall submit a New Boiler Notification Form (Attachment 14) to Environment Management Air Quality within 5 days from the date of continuous operation (startup).

1.3.9 Pesticides (Insecticides, Fungicides, Herbicides, Etc.)

Application of all pesticides shall be accomplished by a licensed and certified pest control operator, and in accordance with labeling and state/federal laws. Delivery and storage of pesticides shall be monitored by certified personnel to insure the adequacy of containers and the safe storage of toxic materials. Disposal of containers and chemicals off base shall not pollute natural drainage systems. If hazardous waste is generated as a result of the project, the Contractor is required to comply with AFI 32-7086. The Contractor shall submit any/all pesticides through the Hazardous Material Reporting process in specified in paragraph 1.3 of this section; to include application procedures, quantities, application rates,

and storm water protection measures shall be included in the submittal. The Contractor shall notify the Contracting Officer at least 14 days prior to use of any pesticide.

1.3.10 Green Procurement Program

Tinker Air Force Base has a requirement for the cost effective procurement of environmentally preferable products and services. The Green Procurement Program is defined as the process of purchasing environmentally preferable products; especially products manufactured from recycled and reclaimed materials. The purpose of Tinker AFB's Green Procurement Program is to increase the purchase and use of products with the highest percentage of recovered materials practicable. The U.S. Environmental Protection Agency (EPA) has designated guideline items in the Comprehensive Procurement Guidelines (CPG) for mandatory procurement. These CPG products are products that are or can be made containing recycled materials. In the CPG, the EPA organizes these items into 8 product categories as follows:

1. Construction Products
2. Landscaping Products
3. Non-paper Office Products
4. Paper and Paper Products
5. Park and Recreation Products
6. Transportation Products
7. Vehicular Products
8. Miscellaneous Products

A current detailed listing of these products and recycled content requirements can be found at:

https://www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program

Once in the website, to view the products, click on a specific product. The following information will be provided: Recommend Recovered Materials Content levels, Product Specifications, and Product Information, which includes the list of suppliers, will be provided. In accordance with 40 CFR 247.2, the Contractor is required to research, propose and utilize these designated products, and any other recycled-content products available in the market place. CPG products with the highest percentage of recovered materials practicable shall be utilized, unless otherwise specified, or if one more of the following exemptions apply:

- Does not meet appropriate performance specifications.
- Is not available competitively (from two or more sources).
- Is not available within a reasonable time frame.
- Is only available at an unreasonable price.

The Contractor shall certify that the percentage of recovered materials to be used in the performance of the contract will be at least the amount required by applicable specifications or other contractual requirements, and shall also estimate the percentage of total material utilized, the Contractor shall provide written explanation and documentation as to why the products were not used. A Recovered Material Determination Form, (Attachment 8), shall be used to document any exemption.

1.4 HAZARDOUS MATERIAL REPORTING

In accordance with the requirements in AFI 32-7086, Hazardous Materials Management, the following management practices are required. The Contractor shall submit the following forms/reports as indicated to the Contracting Officer.

Safety Data Sheets/Material Safety Data Sheets: To assist in the evaluation of health hazards and to provide information pertinent to 42 USC 116, the Emergency Planning and Community Right-to-Know Act (EPCRA), the Contractor shall submit copies of the Material Safety Data Sheets (MSDS) for all hazardous materials used, to the Contracting Officer.

The Contractor shall submit an electronic AF Form 3952, Chemical/Hazardous Material Request/Authorization (Attachment 7a), for all hazardous material that is Contractor furnished or provide information as contract specifies.

Monthly Hazardous Material Usage Report (Attachment 7b): The Contractor is required to furnish to the Contracting Officer a monthly report stating the type, amounts, and locations of Hazardous Materials the Contractor used in the construction of this project. This report shall be provided by the fourth workday of each month for information on the preceding month. If no hazardous materials were used during the preceding month, the contractor will indicate as such by entering “NONE” in the appropriate space on the report(s).

1.5 REFRIGERANT MANAGEMENT

Prior to installation or recovery of refrigerants to or from contracted equipment, the Contractor shall submit: 1) a copy of the refrigerant technical certification for the technician(s) involved in the work as required by 40 CFR (Code of Federal Regulations) part 82, subpart F; and 2) a copy of the certification to the EPA that the Contractor acquired recovery equipment per 40 CFR 82.162.

Contractor shall submit a refrigerant installation record, indicating the amount of refrigerant installed with the contracted equipment, or recovered from equipment contracted for demolition into government furnished containers. In the case of commissioning new or retrofitted equipment, the Contractor shall provide the refrigerant amount determined to be the “Full Charge” as defined in 40 CFR 82.152. Provide information concerning refrigerant losses to the atmosphere, including that associated with warranty work.

1.6 ASBESTOS ABATEMENT

Contracts that include asbestos abatement requirements will adhere to the requirements contained in Attachment 2, Tinker Air Force Base Asbestos Abatement Specification.

1.7 LEAD-BASED PAINT ABATEMENT

Contracts that include lead-based paint abatement requirements will adhere to the requirements in Attachment 3 and Attachment 3A, Tinker Air Force Base Lead-Based Paint Abatement Specifications.

1.8 PCB FILLED BALLAST TRANSFORMER & UNIVERSAL WASTE LAMP ABATEMENT

Contracts that include PCB-filled ballast, PCB-filled transformer and universal waste lamp abatement requirements will adhere to the requirements contained in Attachment 4, Tinker Air Force Base PCB Filled Ballast and Universal Waste Lamp Abatement Specifications.

1.9 SPRAY FINISHING

Spray finishing operations (painting) shall be used only after the written approval of the Contracting Officer. The Contractor shall submit a spray painting plan, a list of resultant cost savings, and a list of procedures, which indicates methods of isolating the contract area from other areas of the building. The plan shall provide for air infiltration, isolation of work area and complete work safety methods as outlined in applicable regulations and specifications. The Contracting Officer shall evaluate the plan and decide if spraying will be allowed. Adherence to applicable regulations is mandatory for continued operation of spraying. Applicable regulations include, but are not limited to:

29 Code of Regulations (CFR) 1910.94, Ventilation

29 Code of Federal Regulations (CFR) 1910.107, Spray Finishing Using Flammable and Combustible Materials.

NFPA 33 Spray Application of Flammable and Combustible Materials

When spray painting is being performed in occupied areas, all personnel with the exception of painters and their helpers shall be removed. The area shall be physically isolated from the occupied areas by the use of plastic or some other vapor proof barrier. This isolation shall remain in place until the paint has cured and dried and is no longer emitting air contaminants. Local exhaust ventilation IAW OSHA regulations listed above shall be utilized in the isolated area to remove air contaminants so they do not build to an explosive level or exceed the capacity of the respirator being worn. This local exhaust ventilation shall not be directly vented to the outdoors unless a permit has already been obtained from the Oklahoma City/County Health Department for air contaminants prior to discharge to the environment. Storage use and handling of all portable cylinder gases shall comply with NFPA 55.

1.10 ENVIRONMENTAL MANAGEMENT SYSTEM AWARENESS TRAINING

An Environmental Management System (EMS) is a system to achieve continual improvement in mission performance by reducing environmental risks and cost. To help meet these goals, all contractors working on TAFB are required to receive EMS awareness training.

The Contractor will be responsible to ensure that all personnel working on Tinker AFB (including sub-contractors) review the one page Environmental Management System (EMS) Awareness Training sheet, Attachment 9; the EMS General Awareness Training for Contractors presentation (PowerPoint file available from the Contracting Officer); and the Installation Commanders' Environmental Policy memo found in Attachment 10. A copy of Attachment 9, signed by the contractor and certifying that all personnel have received this training, shall be submitted to the contracting officer.

1.11 UNEXPECTED DISCOVERIES OF ARCHEOLOGICAL RESOURCES

In the event of the discovery of unexpected archeological resources (i.e. human remains or cultural items) during construction, contractors shall follow the guidelines set in the Integrated Cultural Resource Management Plan (2005) Section E.13, *Unexpected Discoveries of Archeological Materials During Construction Projects*. A copy of this document is included as Attachment 11.

1.12 USING RADIOACTIVE MATERIALS

When a civilian organization or other Federal agency desires to bring radioactive material onto or conduct operations using radioactive materials, written approval must be obtained from the installation RSO. The request must be at least 30 calendar days before bringing the materials onto the installation. The installation RSO is located in the BEF.

Per AFMAN 48-148: Use of RAM or radiation devices by contractors, as specified by contract. Note: Contractors are solely responsible for the health and safety of their personnel as specified in their contract. New AF facilities designed for use of RAM or radiation sources shall be constructed so that a member of the public will not likely receive more than 0.02 mSv (2 mrem) deep-dose equivalent in any one hour and 1 mSv (100 mrem) total effective dose equivalent (TEDE) in a calendar year from the normal operation of the facility.

Per AFMAN 40-201: Establish a unified approach to the management and safeguarding of RAM used by the USAF or contractors working on USAF installations world-wide. Provide assistance to the Contracting Squadron in evaluating compliance with this instruction, local instructions and Federal regulations on procurement of RAM and contractor use. Ensure that contractors supporting the PM coordinate with the IRSO prior to bringing RAM onto USAF installations. Ensure contractors are fully informed (orally and in writing) of the requirement to possess the appropriate licensure. In areas of exclusive Federal jurisdiction, contractors must have an NRC license, or an Agreement State license with current NRC Form 241, authorizing possession, use, storage, and transfer of RAM on the installation. Written approval from the installation commander's appointed approval authority is also required; this is normally the IRSO. Ensure contractors have established procedures instructing their employees and subcontractors on how to use their RAM safely. Contractors are solely responsible for the safety and health of their employees and subcontractors. Contractors shall immediately contact the IRSO and contracting officer if radioactive devices/items may impact operations, personnel, facilities, or real estate. Ensure that all contracts involving RAM contain the terms and conditions the IRSO has determined must be in the contract in order to be in compliance with all applicable statutes, regulations and instructions for managing RAM in the USAF. Contracts involving use of RAM must have:

- An NRC or Agreement State license. A copy of the NRC Form 241 must be an adjunct to the Agreement State license for those areas of exclusive Federal jurisdiction. For those areas of concurrent or proprietary jurisdiction in an agreement state, then the respective Agreement State license is a valid authorization; or

- A valid US Navy or Veterans Affairs (VA) RAM permit; or

- Written certification from DOE organizations or DOE prime contractors that they are exempt from NRC license requirements; and

- Written approval from the IRSO to transfer, transport, or use temporary storage areas for RAM on the installation.

- A clause authorizing the IRSO to suspend unsafe operations involving the use of RAM.

- Provides all design reviews and work order requests involving potential use, movement or disposal of RAM to the IRSO for review and approval prior to allowing work to commence on contract. Work requests without prior approval of the IRSO will be denied.

- In coordination with the IRSO, and IAW the terms and conditions of the contract, suspends contractor operations that violate this instruction, a permit, or Federal regulations until corrective action is taken.

The non-USAF organization must send a request to the IRSO at least 30 calendar days before bringing the RAM onto the installation. For contractors, these requirements must be included in the statement of work.

Requests must be in writing and include:

- A brief description of the proposed activities;

- A copy of a current NRC or Agreement State license with current NRC Form 241 for areas of exclusive Federal jurisdiction, when applicable. For those areas of concurrent or proprietary jurisdiction in an Agreement State, then the respective Agreement State license is a valid authorization. The license must either specifically list the installation or authorize approval for work at temporary job sites anywhere in the United States where the NRC or Agreement State has jurisdiction.

  Exception: Contractors using generally licensed materials (e.g., certain NITON Lead Paint Analyzers) and DOE or DOE prime contractors operating IAW 10 CFR 835 do not require an NRC license or NRC Form 241.

A written authorization in the contract that the IRSO can conduct periodic assessments to ensure contractor personnel is complying with radiation safety practices to prevent exposures to USAF personnel and avoid contamination of government property. In addition, the contract should specify the IRSO must have authority to suspend contractor operations believed to be unsafe.

1.13 LIST OF ATTACHMENTS

Attachment 1	Bacteriological Sampling Requirements
Attachment 2	TAFB Asbestos Abatement Specifications
Attachment 3	TAFB Lead-Based Paint Abatement Specifications for High Priority Facilities.
Attachment 3a	TAFB Lead-Based Paint Abatement Specifications for Industrial Facilities.
Attachment 4	TAFB PCB-Filled Ballast, PCB-Filled Transformer and Universal Waste Lamp Specifications.

Attachment 5	TAFB Construction and Demolition Debris Management Procedures
Attachment 6	TAFB hazardous Waste Management Procedures
Attachment 7a	AF Form 3952, Chemical/Hazardous Material Request/ Authorization
Attachment 7b	Monthly Hazardous Material Usage Report
Attachment 8	Recovered Material Determination Form
Attachment 9	Environmental Management System Awareness Training
Attachment 10	Environmental Policy Statement
Attachment 11	Integrated Cultural Resource Management Plan (2005), Section E.13 - Unexpected Discoveries of Archeological Materials During Construction Projects
Attachment 12	Tree Protection Requirements
Attachment 13	AF Form 487, Generator Operating Log (Inspection and Testing)
Attachment 14	Information for New Boilers

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

-- End of Section -

ATTACHMENT 1

Bacteriological Sampling Requirements

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 72 MEDICAL GROUP (AFMC)
TINKER AIR FORCE BASE OKLAHOMA

SUBJECT: Bacteriological Sampling Requirements for Water Line Maintenance

In the event of a water line break or installation of a new line, certain steps must be taken to ensure the water meets standards set by the Safe Drinking Water Act. Oklahoma Department of Environmental Quality (DEQ) promulgated legislative code to administer EPA regulations. This month, DEQ revoked existing code and replaced it with updated, more flexible code (see Attachment 1). Subsequently, Tinker AFB procedures must be updated. The updated procedures for disinfection after a line break or installation are consistent with the DEQ code and now allow more operational flexibility.

a. New water mains. According to Oklahoma Administrative Code (OAC) 252.626, all new mains will be flushed and cleaned, isolated and filled with a 50 – 100 mg/l chlorine solution. A residual of at least 10 mg/l chlorine must exist after 24 hours retention. If retention residual is met, the line will be flushed and sampled for coliforms Two consecutive safe bacteriological samples must be obtained before the new line may be used. Civil Engineering personnel must coordinate all sampling for new construction with Bioenvironmental Engineering or supply certified sampling results to Bioenvironmental Engineering for any new line installation. In accordance with National Pollutant Discharge Elimination System (NPDES) requirements and storm water quality regulations, water flushed from the system shall be de-chlorinated and tested for chlorine prior to discharge. Water shall contain less than 0.1 mg/l total residual chlorine when discharged into any conveyance of the storm water system.

b. Existing System Maintenance.

1) Wells that are inactive for more than 6 months must be treated as new wells when they are brought back on-line. Therefore the procedures outlined in paragraph 1a.

2) The following procedures apply to water lines which are wholly or partially de-watered during the course of system maintenance. These procedures do not apply to repairs made with clamping devices if the line remains pressurized. Such repairs require no disinfection.

(a) Liberal quantities of hypochlorite shall be applied to open trench areas around the repair to reduce the possiblity of contamination of the water line. This area disinfection shall occur only when the interior of the water line is exposed.

(b) All pipes, elbows, couplings and fittings used to make the repair shall be sprayed with a 1% hypochlorite solution before installation.

ATTACHMENT 1

Bacteriological Sampling Requirements (cont.)

(c) Where practical, the section of repaired line shall be isolated, flushed and chlorinated with a 50 – 100 ppm chlorine solution and allowed to stand for 24 hours. If the section cannot be isolated for long periods of time, chlorination may be increased to 300 ppm with a 15 minute contact time.

(d) Once the appropriate chlorination/contact time option has been accomplished, the repaired section of line shall be flushed. Flushing shall occur toward the work location and shall continue until all discolored water has disappeared. In accordance with National Pollutant Discharge Elimination System (NPDES) requirements and storm water quality regulations, water flushed from the system shall be de-chlorinated and tested for chlorine prior to discharge. Water shall contain less than 0.1 mg/l total residual chlorine when discharged into any conveyance of the storm water system.

(e) After the lines are flushed, repair peronnel shall coordinate water sampling with Bioenvironmental Engineering. Water service shall remain "on" during sample incubation, but customers shall be notified to avoid consuming the water (an example is attached). Repair personnel are responsible for accomplishing all notifications.

(f) If water samples test postive for coliform bacteria, this process shall be repeated. Once water samples test negative for coliform bacteria, this process terminates.

2) In the event the sampling must be accomplished after duty hours, the Bioenvironmental Engineer technician on call can perform the sampling. On-call personnel can be contacted through the Fire Department control room, 4-7964.

2. Please direct suggestions or questions to Bioenvironmental Engineering at 734-7844.

ATTACHMENT 1

Bacteriological Sampling Requirements (cont.)

DO NOT DRINK THE WATER !!

Due to the recent water line break, we must rule out bacteriological contamination. Bioenvironmental Engineering has taken water samples and will receive results in 1 to 2 days.

Water may be used for hygiene purposes (toilets, showers, handwashing, etc). If you must use water for cooking or drinking, please boil it for at least 20 minutes.

You may smell a strong chlorine odor due to line repair disinfection. This odor will diminish in 1 to 2 days. We will notify you when the water use restriction is lifted.

Please contact Bioenvironmental Engineering (4-7844) with questions.

ATTACHMENT 2

TINKER AIR FORCE BASE ASBESTOS ABATEMENT SPECIFICATIONS

TABLE OF CONTENTS PAGE

Part A – General 23

Part B – Definitions 24

Part C - Pre-Abatement Submittals 28

Part D - Abatement Material Requirements 31

Part E - Air Sampling & Monitoring All Classes of Removal 31

Part F - Respiratory Protection 32

Part G - Class I Asbestos Removal, Negative Pressure Enclosure (NPE) Area Preparation 33

Part H - Negative Pressure Enclosure, Removal 34

Part I - Class I Asbestos Abatement, Glovebag, Negative Pressure Glovebag Removal Pre-Abatement Preparation 36

Part J – Glovebag Abatement 36

Part K - Class II Asbestos Work 37

Part L - Disposal 39

Part M - Post-Abatement Submittals 41

Part N - Hazardous Property Disclaimer 41

PART A

GENERAL

The requirements for asbestos abatement are stated herein. The drawings or statement of work associated with this project outline the work area that contains asbestos and the work to be accomplished. In case of conflict between the drawings and the specifications, the specifications shall govern. The following regulations, their appendices, memorandums, attachments and other appurtenant documents, which form a part of these regulations, shall apply in their entirety.

A.1 Title 29 Code of Federal Regulations (CFR), Section 1926.1101 including all appendices and memorandums, Occupational Safety and Health Administration (OSHA), U.S. Department of Labor, latest edition.

A.2 Title 40 CFR, part 61, Subparts A and M, National Emission Standards for Hazardous Air Pollutants, U. S. Environmental Protection Agency (EPA), latest edition.

A.3 Title 29 CFR, Section 1910.134, Respiratory Protection (OSHA), latest edition.

A.4 Title 40 CFR, Part 355.40, Emergency Planning and Notification, latest edition.

A.5 Title 49 CFR, Part 172, Hazardous Material Tables and Hazardous Materials Communications Regulations, latest edition.

A.6 The Asbestos Contractor shall have in his possession, at the job site and in view, one copy of each of the following: OSHA Reg 1926.1101, EPA 40 CFR, Part 61, subparts A and M, and the Tinker AFB Asbestos Specification.

A.7 Where a conflict exists between the requirements of this specification and any of the above-mentioned regulations, the most stringent shall be applicable.

A.8 All Asbestos Contractors are encouraged to make a pre-bid site visit, to ensure familiarization with site conditions and the extent of the work requirements.

A.9 Health Warnings: Asbestos Contractors are warned that unprotected exposure to asbestos fibers has been determined to significantly increase risk of incurring four diseases; lung cancer, gastrointestinal cancer, mesothelioma, and asbestosis. Care must be taken to avoid releasing or causing to be released, asbestos fibers into the atmosphere. The Government assumes no liability for damages, personal injuries, illness, disabilities or death to the Asbestos Contractor, Asbestos Contractor Employees, and other persons subject to the Asbestos Contractor’s control or to any other person including members of the general public, arising from, or incident to the purchase, use, disposition, subsequent operations performed on, contact with or exposure to the asbestos, provided such is caused or contributed to in any manner by the Asbestos Contractor. Heat Stress: The Contractor should also be aware that due to the nature of asbestos

work, the wearing of respirators, impermeable clothing, material to be abated (steam lines, boilers, etc.), and containment could all add to heat stress.

A.10 Property Damage: The Asbestos Contractor shall be responsible for all damages caused by or during the abatement. All damaged areas shall be restored to their original condition subject to approval by the Contracting Officer. Any repair or replacement shall be done at no cost to the Government.

A.11 Quality Assurance: The Asbestos Contractor shall ensure all employees are knowledgeable of and comply with the procedures listed in this specification. Work shall not begin each day until a monitor from CE is on site.

A.12 Glovebag Removal: Glovebags shall not be used on surfaces whose temperatures exceeds 150 Fahrenheit, shall not be larger than 60 inches X 60 inches and shall not be used more than once or moved after use. Two employees per glovebag and all employees monitored.

A.13 HEPA Filters/Shower Filters: All filters shall be new at the beginning of the project.

A.14 All asbestos removal shall be supervised by a Competent Person and shall have daily air monitoring.

A.15 Air Monitoring: The Asbestos Contractor shall use an independent laboratory for air monitoring and analysis support.

A.16 Site Security: The Contractor shall be required to provide security at all Negative Pressure Enclosures after abatement has begun and until clean air has been established. This employee shall maintain the negative pressure enclosure, prevent unauthorized entry, watch for fires within the negative pressure enclosure, and guard Contractors material/equipment.

A.17 Fire Protection: The work area shall have dry-change ammonium fire extinguishers with a UL rating of at 10A:B:C, with a valid inspection tag for every 1500 square feet of area for Negative Pressure Enclosures and at least one extinguisher for every glovebag removal area.

PART B

DEFINITIONS

The following is a listing of terms and definitions for this specification.

B.1 Class I Asbestos Work: Work activities involving removal of TSI, surfacing ACM, and PACM.

B.2 Class II Asbestos Work: Work activities involving the removal of ACM, which is not thermal system insulation or surfacing material. Removal of non-friable building materials such as asbestos wallboard, floor tile, roofing, siding, shingles, construction mastics, etc. are examples of Class II Asbestos Work.

B.3 Class III Asbestos Work: Means repair and maintenance operations, where "ACM", including thermal systems insulation and surfacing material is likely disturbed.

B.4 Class IV asbestos work: Includes maintenance and custodial activities where employees contact but do not disturb ACM or PACM, as well as activities to clean up dust, waste, and debris resulting from Class I, II, and III activities. Activities include, but are not limited to, vacuuming carpets, mopping floors, and dusting surfaces.

B.5 Abatement: Procedures to control fiber release from asbestos containing materials. This includes removal, encapsulation and enclosure.

B.6 Air Monitoring: The process of measuring the fiber concentration of a specific volume of air over a specified period time.

B.7 Airlock: An enclosure consisting of two polyethylene curtained doorways (3 sheets of plastic per doorway) at least 3 feet apart.

B.8 Amended Water: A mixture of at least one ounce of 50 percent polyoxyethylene ester or 50 percent polyoxyethylene ether in five gallons of water.

B.9 Asbestos: A group of naturally occurring minerals that separate into fibers. There are six asbestos minerals used commercially: chrysotile, amosite, crocidolite, anthophyllite, tremolite and actnolite and any of these minerals that has been chemically treated and/or altered.

B.10 Asbestos Containing Material (ACM): Any material containing more than 1 percent asbestos.

B.11 Asbestos Contractor: A private entity certified in asbestos abatement.

B.12 Asbestos Fiber: A particulate form of asbestos 5 micrometers or longer with a length to diameter ratio of at least 3:1.

B.13 Authorized Visitor: Any representative of a regulatory or other agency having jurisdiction over the project or anyone authorized by CEIE and is required by work duties to be present in the regulated area.

B.14 Clean Room: An uncontaminated area or room which is part of the worker decontamination enclosure with provisions for storage of worker's street clothes and protective equipment.

B.15 Competent Person: One who is capable of identifying existing and predictable hazards in the surroundings or working conditions and has authorization to take prompt corrective measures to eliminate the hazards. The Competent person must be an employee of the Asbestos Contractor and shall be named as that person in the project pre-abatement submittals. The Competent person shall meet the criteria of the EPA's Model Accreditation Plan for Supervisors 40 CFR Part 763 and duties required by Subpart C of 29 CFR 1926.20 through 1926.32.

B.16 Decontamination Enclosure System: A series of connected rooms and airlocks used for the decontamination of workers and of materials and equipment (i.e., airlock, clean room, airlock, shower, airlock, dirty or equipment room, airlock, work area).

B.17 Demolition: The wrecking or taking out of any load supporting structural member and related asbestos containing materials.

B.18 Employee: Any person working for the Asbestos Contractor who physically engages in the abatement of asbestos or performs a task on the job site.

B.19 Encapsulant (Sealant): A material applied to asbestos containing materials to control the release of asbestos fibers by creating a membrane over the surface (bridging encapsulant) or by penetrating into the material and binding its components (penetrating encapsulant).

B.20 Encapsulate: The application of a sealant to asbestos containing materials to control the release of asbestos fibers.

B.21 Enclosure: The complete enclosing of asbestos containing material behind airtight, impermeable, permanent barriers.

B.22 Equipment Room: A contaminated room which is part of the worker decontamination enclosure system used for storage of contaminated clothing and equipment.

B.23 Friable Asbestos: Any material or combination of materials containing more than 1% asbestos than hand pressure can crumble, pulverize or reduce to powder when dry.

B.24 General Contractor: Shall deem to exercise general supervisory authority over the work even though the General Contractor is not qualified to serve as the "competent person" as defined in 29 CFR 1926.1101 paragraph b. The General Contractor shall have the overall responsibility that his Subcontractor(s) are in compliance with this standard and all other regulations covering asbestos abatement.

B.25 Glovebag: An asbestos labeled bag constructed of 6 mil or greater transparent plastic, two inward projecting long-sleeve rubber gloves, one inward projecting water wand sleeve and an internal tool pouch.

B.26 HEPA Filter: A High Efficiency Particulate Air (HEPA) filter capable of trapping and retaining 99.97 percent of particles (asbestos fibers) greater than 0.3 micrometers in diameter.

B.27 HEPA Vacuum Equipment: Vacuuming equipment with a HEPA filter system.

B.28 Load-Out Area: An area designated for controlled transfer of asbestos waste and equipment. This area can be adjacent to the equipment room or work area and must have two airlocks.

B.29 Landfill (approved): An EPA approved site for the disposal of asbestos containing materials and other hazardous waste.

B.30 Mini-Containment: A small enclosure intended for a small scale abatement procedure from the environment through negative air pressure, physical barriers, and/or other means, mini-containments will ordinarily not have an attached decontamination system.

B.31 Negative Pressure Enclosure (NPE): An enclosure of the regulated area with a minimum of -0.02 column inches of water pressure relative to the outside area using HEPA filtered negative air pressure equipment, four (4) air exchanges per hour. This shall be maintained within the NPE as evidenced by a manometer. The NPE also has a decontamination facility and a load-out area.

B.32 Negative Air Pressure Equipment: A portable local exhaust system equipped with HEPA filtration and capable of maintaining low velocity airflow into a contaminated area from an adjacent uncontaminated area.

B.33 Objects: Fixed items are those which cannot be removed from the work area. Moveable items are those which can be removed from the work area.

B.34 Non-Friable Asbestos: Any material containing more than 1% asbestos by weight that hand pressure cannot crumble, pulverize or reduce to powder when dry.

B.35 Presumed Asbestos Containing Material (PACM): Thermal systems and surfacing material found in buildings constructed no later than 1985, that the Government has not verified the absence of asbestos.

B.36 Plasticize: To cover with plastic sheeting.

B.37 Personal Protective Equipment (PPE): Disposable, impervious coveralls that are equipped with head and foot covers, gloves, and respirators.

B.38 Regulated Area: The area surrounding the work area demarcated by danger warning tape and signs. All personnel entering the regulated area must wear full PPE.

B.39 RACM: Regulated asbestos-containing materials.

B.40 Shower Room: A room between the clean room and the equipment room in the worker decontamination enclosure with hot, cold, or warm-running water suitably arranged for complete showering during decontamination. Showers shall comply with 29 CFR 1910.141. All wastewater shall be filtered to the one (1) micron level prior to being discharged into the sewer system.

B.41 Warning Labels and Signs: Signs and labels which conform to OSHA CFR 1910.1200 (f), and 29 CFR 1926.1101 (8).

B.42 Wet Cleaning: The process of eliminating asbestos contamination by using cloth’s, mops, or other cleaning tools which have been dampened with amended water.

B.43 Work Area: A regulated area where asbestos is abated. A contained work area is sealed, plasticized and equipped with a decontamination enclosure system. A non-contained work area is not plasticized but is

equipped with a decontamination enclosure system and is demarcated by danger warning tape.

B.44 CEIE: Asset Management Division

B.45 BEF: Bio-environmental Engineering Flight.

B.46 CE: Civil Engineering Directorate.

PART C

PRE-ABATEMENT SUBMITTALS

The Contractor shall submit all required pre-abatement submittals to the Contracting Officer at least five working days prior to commencement of work for review and/or approval. After completion of the submittal review, additional information may be required for clarification of or in support of documents submitted. The required submittal areas include, but are not limited to the following:

C.1 Documentation of Contractor License and Proof of Insurance: Include a copy of Contractor's current Oklahoma State Abatement License and their required Proof of liability insurance.

C.2 Documentation of Training/Experience: All training must meet the criteria of 40 CFR 763 and 29 CFR 1926.1101. All abatement employees must be certified in accordance with 40 CFR 763 and 29 CFR 1926.1101, and certifications must be current throughout the contract period.

C.3 Regulatory Agency Notification: Verify that NESHAPS report (attachment) was received by the following agency and a copy of this verified report must be submitted to the Contracting Officer prior to start of work: The NESHAPS coordinator is located in Oklahoma City, the Compliance Section, Air Quality Division, Oklahoma Department of Environmental Quality, 707 North Robinson, Oklahoma City, OK 73102.

C.4 Security Documentation: Work area and equipment must be secured at all times to ensure no unauthorized persons enter contaminated or asbestos storage areas. The Contracting Officer prior to starting the asbestos abatement must approve storage sites for all contractor equipment.

C.5 Communications: The Contractor shall submit the Contracting Officer a phone and/or pager number where the General Contractor Supervisor and the Competent Person of the Asbestos Contractor may be reached at all times.

C.6 Step-by-Step Abatement Procedures: This applies to friable and non-friable asbestos abatement procedures for each distinct location.

C.7 Glovebag Procedures: The submittal for glovebag procedures shall include but not be limited to the following:

- Sizes and type of bags to be used.

- Glovebag installation insuring leak-proof system.

- Method used for smoke testing bag.
- Type and manufacturer of negative air equipment.
- Method to be used to maintain Negative pressure within the negative air bag.
- Method used to provide makeup air without creating a fiber release.
- Negative air bag design to insure work accomplishment while maintaining continuous negative pressure.
- Composition of amended water or wetting agent used.
- Bridging encapsulant used.
- Manufacturer’s specifications for HEPA vacuum.
- Personal protective equipment (respirators, suits, etc.).
- Method of regulating the work area (signs, barrier tape, etc.).
- Procedures for removal of ACM within the negative air bag.
- Method of support for wet ACM within the negative air bag.
- Disposal method (storage type, location, transporter, landfill name and location, etc.).
- Decontamination unit location with respect to the regulated area, water filtration and disposal.

C.8 Negative pressure enclosure construction procedures, including drawings. Drawings will show layout of the containment, how containment walls are to be attached, decontamination unit, load-out area, location for negative air machines, structural design of the containment and materials used in the construction of the containment.

C.9 Respirator Protection Program: IAW OSHA 29 CFR, Section 1910.134, 1926.1101 and ANSI Z88.2-80. Manufacturer’s certification (including TC#) that all asbestos respiratory protective devices are NIOSH approved.

C.10 Manufacturer’s Certification: Vacuum’s, air purifying equipment, negative air pressure equipment and other local exhaust ventilation equipment must conform to ANSI Z9.2-79.

C.11 Encapsulation Procedures: Type of encapsulate, method of application and location. Asbestos encapsulants being used must meet the following minimum criteria:

- Penetrating Encapsulant, Class A fire rating, oil/chemical resistant, non-toxic when applied and colored.

- Bridging Encapsulant, Class A fire rating, seamless, flexible, impact resistant, micro-porous, algae/mold resistant, oil/chemical resistant, bird/rodent proof, non-toxic when applied, colored and waterproof.

C.12 Laboratory and Monitoring Requirements: The Asbestos Contractor must use an independent laboratory for air monitoring and analysis support (see part E, para 1.3 for required monitoring qualifications). Should the contractor change independent laboratories while the contract is in progress, the Contractor shall resubmit the qualifications/certifications of the new laboratory for approval by the Contracting Officer. The new laboratory must participate in the bulk asbestos analysis program with the National Voluntary Laboratory Accreditation Program (NVLAP) and shall have a good record in the program. The new laboratory must also participate in the Proficiency Analytical Testing (PAT) program with the National Institute of Occupational Safety and Health (NIOSH).

C.13 Asbestos Waste Transporter Requirements: Certification of Insurance showing the transporter has $1,000,000.00 Environmental Impairment and Transportation coverage as required by the State of Oklahoma. Certifications and physicals for personnel transporting and unloading material.

C.14 Landfill Qualifications: Written evidence that the landfill for disposal of the asbestos is approved for the disposal of asbestos by the USEPA and they will accept the material.

C.15 Safety Data Sheets/Material Safety Data Sheets (SDS/MSDS): A MSDS shall be submitted for all chemicals to be used on the project.

C.16 Work Schedule: Provide starting date, completion date, days to be worked (weekdays/weekends) and hours to be worked. If the abatement will be conducted at any time other than 0700 to 1600 hours, Monday through Friday, justification must be furnished and approved by the Contracting Officer. Any requests for variance from this specification shall be in writing and submitted to the Contracting Officer at least ten (10) days in advance. Approval shall be at the discretion of the Contracting Officer.

C.17 Emergency Plans and Fire Prevention Plans: As detailed in 29 CFR 1910.38.

C.18 Written Hazardous Communication Program: As detailed in 29 CFR 1926.59.

C.19 Rental Equipment: Provide a list of all rental equipment and written verification that the rental company has been informed that equipment is to be used for asbestos related activities.

PART D

ABATEMENT MATERIAL REQUIREMENTS

D.1 Deliver all materials in the original unopened packages, containers or bundles bearing the name of the manufacturer and the brand name.

Materials must be approved by the Contracting Officer before their use.

D.2 Store all materials subject to damage off the ground and under cover to prevent damage or contamination. Material to be used on the project site shall not be stored in the same location where the asbestos waste is located.

D.3 Damaged to deteriorating material shall not be used and shall be removed from the construction site immediately by the Contractor. The cost of the removal or disposal shall be the responsibility of the Contractor and at no cost to the Government.

PART E

AIR SAMPLING AND MONITORING ALL CLASSES OF REMOVAL

NOTE 1: Air monitoring shall be required by all Contractors on all asbestos projects on Tinker AFB.

NOTE 2: A "Third Party" Industrial Hygienists or Contracted Air Sampling Technician, required for all asbestos abatement projects, shall be required to remain at the project site while the Contractor is working.

E.1 Air sampling data must include sample volume, sampling times, sampling locations (with appropriate dimensions and sketches), evidence of periodic inspection of sampling equipment, documentation of pre and post calibration of equipment, detailed description of work conditions, and description of worker protective devices.

E.2 Laboratory analysis data must include sample identification, total sample duration, sample flow rate, total air volume, total fibers counted, and total field concentration in fibers per cubic centimeter.

E.3 All air sampling and monitoring shall be conducted by an Industrial Hygienist or an individual properly trained in air sampling and monitoring as determined by the Contracting Officer and be IAW OSHA 29 CFR, Section 1926.1101, Appendix A-OSHA Reference Method.

E.4 The contractor may request to perform pre-abatement background sampling. We recommend one background sample for every 1500 square feet of work area, and at least one sample per room or distinct restricted area. BEF or the Asbestos Program Manager (APM) may request to review background sampling prior to start of work. When back-ground sampling is not performed the clearance shall be less than or equal to 0.005 fibers/cc.

E.5 Clearance Sampling is the Contractor's responsibility. Collect one clearance sample for every 1500 square feet of work area, but as a minimum, one sample per room or distinct restricted area. The aggressive sampling method shall be used. Clearance shall be 0.005 fibers/cc or pre-abatement sample concentration, whichever is more stringent.

E.6 Clearance Failure: Should clearance results fail the final clean-up requirements, the Contractor shall pay all costs associated with all

required re-cleaning, re-sampling and analysis until final clearance requirements are met.

E.7 Blank samples: Include 10% field blanks or a minimum of 2 (two) field blanks as required by 29 CFR 1926.1101, Appendix A.

E.8 A minimum of 1 (one) area sample from each work shift shall be collected for each 1500 square feet of work area or one sample for each restricted area.

E.9 If at any time the results of the air samples rise above the OSHA Permissible Exposure Limit (PEL), a confirmation asbestos fiber count analysis will be required. If the confirmation count exceeds the PEL, the abatement will stop immediately and clean down procedures will be required. Cleaning will continue until air sample results are below the PEL.

E.10 Personal Sampling: The Asbestos Contractor’s Industrial Hygienist (IH) shall conduct personal sampling at all times unless all employees are equipped with supplied air respirators in the pressure demand mode.

E.11 All personal samples must be taken at the breathing zones of persons who are performing asbestos abatement. The open face of the filter cassette must face downward during sampling.

E.12 Twenty-five percent of the asbestos abatement employees must be sampled per work shift in each work area. A minimum of two personal samples must be collected each shift from each work area.

E.13 Excursion limit: The Contractor shall ensure that no employee is exposed to airborne concentrations of asbestos in excess of 1.0 f/cc of air (1 f/cc) as averaged over a sampling period of thirty (30 minutes, as determined by the method prescribed in 29 CFR 1926.1101, Appendix A.

E.14 All personnel performing glovebag removal shall be monitored.

E.15 Contractor’s shall submit air monitoring results to the Contracting Officer prior to the beginning of the next work shift.

PART F

RESPIRATORY PROTECTION

F.1 The Contractor shall implement a respiratory protection program in accordance with 29 CFR 1926.1101 and 1910.134. All respirators shall be NIOSH approved.

PART G

CLASS I ASBESTOS REMOVAL, NEGATIVE PRESSURE ENCLOSURE (NPE) AREA PREPARATION

G.1 Visually inspect area to be contained by the Negative Pressure Enclosure (NPE) and identify material to be removed. Locate any hazards that could harm Contractor employees or the containment.

G.2 Post signs and tape as specified by OSHA 29 CFR 1926.1101(k)(7) and 29 CFR 1910.1200 (f).

G.3 Have CE Monitor or the Construction Inspector contact the Civil Engineering Electrical Shop for the best location for the Contractors licensed electrician to hook-up the GFI and to lock-out and tag-out electrical circuits to work area without interfering with power to other Government operations.

G.4 Shut down and seal with 2 layers of 6 mil plastic sheeting all openings, including heating, cooling, and ventilating air systems, to prevent fiber dispersal to other areas.

G.5 Pre-clean movable objects from within work area(s) using HEPA vacuum and/or wet cleaning methods and remove from work are to a temporary location. Pre-clean fixed objects within the work area and plasticize with two (2) layers of 4 mil or greater plastic sheeting to provide an airtight, waterproof seal.

G.6 Pre-clean the proposed work area(s) using HEPA vacuum and wet wiping method. Special attention shall be paid to places/material that could hold asbestos fibers. Activities such as dry sweeping or vacuuming with non-HEPA filter vacuums are prohibited.

G.7 After the area is pre-cleaned; cover the floor with two (2) layers of 6 mil plastic sheeting extending up the walls 12 inches. Cover walls with two (2) layers of 4 mil or greater plastic sheeting overlapping floor sheeting 12 inches, with no butt joints. Should a roof (ceiling) be required for the containment, it shall consist of 2 layers of 4 mil plastic extending down the walls 12 inches. Critical barriers of minimum 3/8 inch plywood are required to separate the work area from adjacent occupied areas or in areas of heavy traffic.

G.8 Assemble/construct decontamination unit consisting of a clean room, shower, and an equipment room (dirty room). Triple flaps will be used between each area of the decontamination unit. Shower facilities shall have liquid soap and shall comply with 29 CFR 1910.141(d)(3). Securely attach decontamination unit to the Negative Pressure Enclosure. On projects employing both female and male workers, the Contractor shall build separate decontamination units or stagger the work schedule to prevent embarrassment or harassment to either sex. Lockers shall be provided for street clothing. The Contractor shall maintain a containment log at the entry of the decontamination unit consisting of date of entry, name, time in, and time out.

G.9 Install a sufficient number of HEPA filtered air machines to maintain a pressure drop of -0.02 inches of water within the enclosure and a manometer to verify the pressure drop. The manometer inlet tube shall

be located in the NPE in an area to get a representative sample of airflow. One HEPA filtered air machine must be installed as a standby.

G.10 The Contractor shall have a generator for backup power at all Negative Pressure Enclosure projects.

G.11 The Negative pressure enclosure shall be inspected prior to any removal of any asbestos containing material.

PART H

NEGATIVE PRESSURE ENCLOSURE, REMOVAL

H.1 Visually inspect enclosures at the beginning of each work period. Repair damaged barriers and remedy defects immediately upon discovery.

H.2 Perform a daily wet cleaning of any area outside the work or restricted area, which becomes contaminated with duct or debris as a consequence of work, performed on that day.

H.3 Should areas outside the work area become contaminated with asbestos-containing dust or debris as a consequence of the asbestos abatement employees' work practices, the abatement contractor shall be responsible for cleaning these areas in accordance with the procedures outlined in this specification.

H.4 Start the HEPA filtered negative air pressure system and maintain a pressure of -0.02 inches of water. Do not deactivate until CE personnel grant final clearance. One backup HEPA filtered negative air pressure system must be installed in the work area to provide backup support in case of equipment failure. Each negative pressure system must be equipped with an audible alarm and an electronic mechanism which shuts off the system in the event of filter breach or absence of filter.

H.5 High RPM power equipment, pressure washers or hydroblasters will not be used without approval from the Contracting Officer.

H.6 Spray asbestos material with amended water using an airless sprayer. Saturate the material to the substrate without causing excess dripping. Spray the asbestos material repeatedly during work process to maintain wet condition and to minimize asbestos fiber dispersal. Water must not leak through the enclosure and contaminate adjacent areas. The Asbestos Contractor shall inform the Contracting Officer, the APM, or BEF immediately if a health hazard is created during the abatement. This includes, but is not limited to, such occurrence as breaching the containment area, air monitoring results indicating airborne asbestos concentrations at unacceptable levels, accidents, etc.

H.7 Remove all asbestos material identified in contract statement of work. In all cases, asbestos-containing materials shall be removed in manageable sections and handled carefully. Material shall not be allowed to dry out. Material drop shall not exceed 15 feet. For heights from 15 to 50 feet, provide inclined chutes or scaffolding to

intercept the drop. For heights exceeding 50 feet, provide enclosed airtight chutes.

H.8 During the abatement, immediate cleanup and bagging of asbestos materials is required; the material must remain saturated until the waste container is sealed. Removed materials shall be double bagged in 6 mil plastic bags and sealed.

H.9 Brushes utilized for removing loose asbestos-containing materials shall consist of nylon or fiber bristles only.

H.10 Label containers in accordance with OSHA 29 CFR, Section 1926.1101. Wet pipe external surfaces of containers thoroughly. Move containers to load-out area and repeat wet cleaning.

H.11 Should asbestos material extend past the limits of the containment and the removal process has exposed unprotected asbestos these areas shall be encapsulated with a heavy non-asbestos encapsulant ¼ inch thick overlapping existing end 4 inch sufficient to create a permanent seal.

H.12 After completion of gross removal, wet brush and sponge all surfaces to remove visible asbestos-containing material. Surfaces being cleaned shall be kept wet with amended water. All asbestos contaminated water will be filtered through a 1 micron filter system prior to discharge. Discharge will be disposed of into a sanitary line or an industrial line. Discharge shall not be disposed of onto the ground or into a storm drain.

H.13 Decontamination (cleanup): Cleanup materials (including mop heads), clothing and other disposable material used in the work area, shall be double bagged in 6 mil plastic bags and sealed for disposal as asbestos waste.

H.14 Use rubber dust pans and rubber squeegees only to move and pick up material on the floor. Special care must be taken to minimize damage to floor sheeting.

H.15 Wet clean and HEPA vacuum all surfaces in the contained work area. After all surfaces are dry, the cleaning procedure shall be repeated. Dry dusting or sweeping will not be permitted.

H.16 After the second cleaning, a visual inspection will be conducted by the Construction Inspector. If the area is clean, approval shall be given to apply a lock-down encapsulant to the innermost layer of plastic only. No encapsulant shall be applied to the substrate from which asbestos was removed. If the area does not pass the visual inspection, it shall be cleaned again using the procedures outlined above until it does pass.

H.17 After the lock-down encapsulant is dry, as verified by Construction Inspector; the innermost layer of sheeting shall be removed, double bagged, sealed and disposed as asbestos waste.

H.18 After the innermost layer of plastic sheeting has been removed from the work area; the remaining layer of plastic sheeting shall be cleaned as outlined in paragraph H.12 of this part.

H.19 After passing the second visual inspection, clearance samples will be collected. If clearance sample results are below 0.005 f/cc or pre-abatement sample concentration whichever is more stringent, CE approval will be given to apply lock-down encapsulant and the remaining layer of plastic sheeting. If the clearance sample results exceed 0.005 f/cc or the pre-abatement sample concentration, whichever is more stringent, the Contractor will repeat cleaning until an acceptable fiber count is obtained.

H.20 After the lock-down encapsulant is dry, as verified by CE personnel, the final layer of floor poly will be removed while the final layer of wall poly is still in place and the negative air machines are still running. After the floor area has been inspected by CE, the negative air machine(s) may be turned off. The final layer of plastic shall be removed, double bagged, sealed, and disposed of as asbestos waste.

PART I

CLASS I ASBESTOS ABATEMENT, GLOVEBAG, NEGATIVE PRESSURE GLOVEBAG REMOVAL PRE-ABATEMENT PREPARATION

I.1 Regulate and demarcate work area using warning signs or labels in accordance with 29 CFR 1926.1101(k). Means to ensure employee comprehension may include the use of foreign languages, pictographs, and graphics.

I.2 Isolate HVAC system in regulated area sealing with a double layer of 6-mil plastic or greater.

I.3 Deactivate electrical circuits within regulated area.

I.4 Pre-clean area using HEPA vacuums and wet method, cover all non-movable objects with 2 layers of 6-mil plastic.

I.5 Place impermeable drop cloths on all surfaces beneath removal activity.

I.6 Construct and locate decontamination unit in central location to work area and within regulated area where feasible.

I.7 Attach HEPA vacuum to glovebag and maintain negative pressure throughout removal.

PART J

GLOVEBAG ABATEMENT

J.1 Glovebag Removal Procedures: Two workers per glovebag. All workers performing glovebag work shall wear full PPE during the installation of a glovebag, removal of ACM and removal of the glovebag. All workers performing glovebag removal shall be monitored.

J.2 Perform a daily wet cleaning of any area outside the work area or restricted area which becomes contaminated with dust or debris as a consequence of work performed on that day.

J.3 Should areas outside the work area become contaminated with asbestos containing dust or debris as a consequence of the asbestos abatement employees' work practices, those employees shall be responsible for cleaning these areas in accordance with the procedures indicated in this specification.

J.4 All removal tools and encapsulating supplies shall be placed in the glovebag tool pouch. Place glovebag around pipe, glue and tape edges to form an airtight seal.

J.5 Install the sprayer wand and HEPA vacuum hose into the glovebag. Tape both to the bag for an airtight seal.

J.6 Ensure that the glovebag is supported at the bottom to prevent separation caused by the weight of the wet debris (i.e., taping the bottom of the glovebag, platform to set the glovebag on, support bracket, etc.).

J.7 Saturate all insulation within the glovebag with amended water prior to removing any insulation. The insulation shall then be removed and placed into the glovebag. The material must remain wet at all times to minimize fiber release. When all insulation is removed, the pipe shall be thoroughly scrubbed clean.

J.8 After the pipe is clean; encapsulate all exposed edges of insulation and the pipe inside the glovebag. Spray inside of glovebag to wash all asbestos material to the bottom of the glovebag.

J.9 Invert one glove and place tools inside it. Twist inverted glove and tape securely at elbow portion of glove. Cut the inverted glove through tape to separate from glovebag. Seal the cut end with tape. Deflate the bag with HEPA vacuum. Twist and tape glovebag near pipe. Carefully remove glovebag from pipe. Place glovebag in 6-mil plastic bag and tape to form an airtight seal. Tape the end of the vacuum hose.

PART K

CLASS II ASBESTOS WORK

K.1 Asbestos gaskets, preparation, and removal: If gasket is visibly deteriorated and unlikely to be removed intact, removal shall be within a glovebag. Gasket(s) shall be immediately placed in a disposal container. Any scraping to remove residue must be performed wet.

K.2 Transite clapboard and panels: Place 6-mil plastic sheeting below work site. Cutting, abrading, or breaking siding, shingles, or transite panels, shall be prohibited. Wet material with amended water and remove carefully to minimize breakage. Material shall be wrapped twice in 6 mil plastic or double bagged in manageable bundles. Removal shall begin from the top and proceed down. Nails shall be cut with flat, sharp instrument. Cutting, abrading, or breaking of panels is prohibited. Dispose of material as asbestos waste when required.

K.3 Floor tile, sheet vinyl, linoleum/resilient sheeting procedures: Removal of floor tile, which has been classified as "RACM", and asbestos containing sheet flooring must be accomplished using the following procedures:

(1) Removal shall be done only by a licensed asbestos abatement contractor, using only certified asbestos abatement workers.
(2) Air monitoring shall be conducted.
(3) There shall be a decontamination shower adjacent to the work area or in a location convenient to the work area protected from the public.
(4) The work area shall be properly secured and marked.
(5) All air handling units affecting the work area shall be disabled.
(6) All electrical power within arm's reach of the floor shall be locked out or securely covered to prevent water intrusion or contact by workers.
(7) Critical barriers shall be erected.
(8) There shall be a minimum of one layer of 4-mil covering the walls.
(9) There shall be sufficient negative air machines in the work area to provide 4 air changes per hour. The negative air machines need not be externally vented.
(10) Asbestos-containing adhesive may be removed by manually scraping.
(11) Any water escaping from the work area shall be considered to have created a breach of containment and shall be handled accordingly.

K.4 Transite pipe: Penetration of this material must be performed by certified asbestos abatement personnel. Exception: some penetrations may be performed by non-certified asbestos personnel when using tapping sleeves and valves. The following method is required for certified personnel: Regulate and demarcate work area using warning signs or labels in accordance with 29 CFR 1926.1101(k). Attach pipe cutter to pipe and apply amended water. Continue to apply amended water through the entire cutting process to minimize asbestos fiber release. HEPA vacuum and wet wipe the area after the work has been accomplished. Double bag the material and dispose of it as asbestos waste.

K.5 Removal of Non-Friable Asbestos Containing Materials: The following materials may be removed by a general contractor, who has experience working with non-friable asbestos containing materials. The contractor shall employ a certified competent person to oversee the removal. The contractor shall provide its employees with Asbestos Awareness Training prior to removal and conduct a daily safety briefing. Removal procedures are outlined below:

Roofing materials (shingles, felt, tar, etc). Roof level heating and ventilation air intake sources must be isolated and the ventilation system shall be shut down. Roofing material shall be removed in an intact state to the extent feasible. Wet methods shall be used to remove roofing materials that are not intact, or that will be rendered not intact during removal, unless such methods are not feasible or will create safety hazard. Methods other than wet methods shall be approved by the Contracting

Officer. Cutting machines shall be continuously misted. When removing built up roofs with asbestos-containing roofing felts and an aggregate surface using power roof cutter, all dust resulting from a roof shall be collected by a HEPA dust collector, or shall be HEPA vacuumed by vacuuming along cutting line. Asbestos-containing material that has been removed from a roof shall not be dropped or thrown to the ground. Unless the material is hand carried or passed to the ground by hand, it shall be lowered to the ground via covered, dust-tight chute, crane or hoist. Intact ACM shall be lowered to the ground as soon as is practicable, but in any event no later than the end of the work shift; the lowered unwrapped material shall be transferred to a closed receptacle in such a manner so as to preclude the dispersion of dust. The roofing material may be disposed of in a conventional landfill provided the requirements of the landfill are met.

Vinyl asbestos floor tile (not classified as RACM). Area Preparation: A minimum of one layer of 6-mil poly shall be placed on walls prior to removal. During removal, the floor tile shall be kept wet with amended water. The floor tile shall be removed with hand scrapers (equipment such as power scrapers, chippers, and buffers are prohibited). The floor tile shall be placed in 6 mil poly bags and put in a box. Seal the box and label it properly. Vacuums equipped with HEPA filters shall be used to clean floor of debris. The floor tile, when removed properly, may be disposed of in a conventional landfill as construction debris.

K.6 Asbestos-containing ceiling tile abatement procedures shall be in accordance with Oklahoma Title 40 451-456. Removal of friable asbestos-containing ceiling tiles must be done using the following procedures:

(1) Removal shall be done only by a licensed asbestos abatement contractor, using only asbestos abatement workers.
(2) The ceiling tile removal may only be done when the area is not occupied.
(3) All moveable objects must be removed from the room.
(4) Decontamination facilities must be established, but need not be contiguous with the tile removal area provided.
(5) Critical barriers must be erected.
(6) Negative air machines in the removal area must be installed vented internally, and provide a minimum of one air change each 30 minutes.
(7) The floor must be covered at least one layer of 6 mil poly.
(8) Workers shall work in teams, with one worker removing and bagging tiles and one worker holding a HEPA vacuum near the grid.
(9) Tiles must be doubled bagged in 6-mil asbestos marked bags and sealed with tape.
(10) The tiles must be disposed of in an approved asbestos landfill.
(11) The ceiling grid must be HEPA vacuumed and wet-wiped.
(12) Air monitoring must be conducted.

PART L

DISPOSAL

L.1 Asbestos contractor shall notify the Contracting Officer via the Construction Inspector in advance of the date and time that asbestos waste will be transported.

L.2 To prevent exceeding available storage capacity on site, sealed and labeled containers of asbestos waste periodically shall be removed and transported to the disposal site.

L.3 A completed generator label shall be placed on each bag, drum and wrapped component before transporting to the landfill site. Transport vehicle shall display Class 9 placards.

L.4 All regulated asbestos waste shall be disposed of at an authorized site in accordance with regulatory requirements of EPA and applicable state and local guidelines and regulations.

L.5 Loading of asbestos waste shall not begin until the Construction Inspector arrives at the site. The Construction Inspector will inspect the waste packaging while loading. Wet wipe all containers in work area prior to transfer to load-out. Wet wipe containers again in load-out area prior to transfer to disposal vehicle.

L.6 Personnel loading and unloading asbestos-containing waste shall wear full PPE. Workers removing asbestos waste from the abatement enclosure shall enter the load-out from outside. No one shall use the load-out as a means to leave or enter the work area.

L.7 Drums/bags of asbestos waste and wrapped asbestos components that have been removed from the work area shall be transported directly to an EPA approved asbestos disposal site. Temporary storage of asbestos waste at an intermediate location is not permitted except under special authorization from CEIE via the Construction Inspector.

L.8 Asbestos transported in an open truck or trailer must be in 6 mil bags within sealed drums. Drums must be secured to prevent movement and shall not be loaded higher than the sidewalls of the vehicle.

L.9 The cargo area of the truck shall be free of debris and lined and sealed with 6 mil plastic to prevent contamination.

L.10 Large structural asbestos containing components shall be loaded and secured prior to loading bags. Do not throw items into truck cargo area.

L.11 Any asbestos waste observed on containers or surfaces outside the work area shall be immediately cleaned using HEPA filtered vacuuming equipment and/or wet cleaning methods.

L.12 Non-friable asbestos waste may be handled and transported by non-certified asbestos employees. Disposal shall be at an approval asbestos landfill provided the requirements of the landfill are met. All non-friable materials must be wetted and bagged/wrapped prior to transport.

L.13 Transport Vehicles and Trailers shall have current vehicle licensing as required by State Law and display a DOT Class 9 placard.

L.14 Transport Vehicles or Trailers shall be professionally constructed. Asbestos shall not be transported in make-shift vehicles.

PART M

POST-ABATEMENT SUBMITTALS

M.1 Within 10 working days after completion of work and prior to release from contract obligations with the USAF, the Asbestos Contractor shall provide the Contracting Officer:

- A signed receipt from the waste disposal site operator stating date, time and amount (cubic yards) of asbestos waste received.
- A signed copy of all air sample results, from samples collected during the contract. (See Part E, Air Sampling and Monitoring).

PART N

HAZARDOUS PROPERTY DISCLAIMER

The Government cautions that asbestos containing materials, substances, or component parts thereof, which are being removed under this contract, exhibit hazardous or toxic properties. The Government assumes no liability for any damage to the property of the Asbestos Contractor; any person or public property, or for the personal injuries, illness, disabilities, or death to the Asbestos Contractor or his employees, any other person subject to the Asbestos Contractor’s control or any other person including members of the general public, arising from, or incident to, the purchase, use, processing, disposition, or any subsequent operation performed upon, exposure to or contact with any component, part, constituent or ingredient of this item, or substance or material whether intentional or accidental. The Asbestos Contractor agrees to hold harmless and indemnify the Government for any and all costs and expenses incurred incident to any claim, suit, demand, judgment, action, debt, liability costs and attorney’s fees or any other request for moneys or any other type of relief arising from or incident to the purchase, use, processing, disposition, subsequent operation performed upon, exposure to , or contact with any component, part, constituent, or ingredient of this item, material, or substance, whether intentional or accidental.

- End of Attachment 2 -

ATTACHMENT 3

TINKER AIR FORCE BASE LEAD-BASED PAINT ABATEMENT SPECIFICATIONS FOR HIGH PRIORITY FACILITIES USING HUD GUIDELINES

TABLE OF CONTENTS PAGE

Part A - General 43

Part B - Definitions 43

Part C - Pre-abatement Submittals 46

Part D - Abatement Material Requirements 48

Part E - Sampling and Monitoring 48

Part F - Respiratory Protection 49

Part G - Contained Enclosure Construction 49

Part H – Negative Pressure Enclosure Area Preparation..... 50

Part I - Exterior Work Area Preparation 52

Part J - Non-Contained Work Area Preparation 53

Part K - Contained Work Area Removal Procedures 53

Part L - Decontamination/Clean-up 54

Part M - Disposal 56

Part N - Post Abatement Submittals 56

Part O - Hazardous Property Disclaimer 57

PART A

GENERAL

The requirements for lead-based paint abatement are stated herein. The drawings or statement of work associated with this project outline the work area that contains the lead-based paint and the work to be accomplished. In case of a conflict between the drawings and the specifications, the specifications shall govern. The following regulations, their appendices, memorandums, guidelines, attachments and other pertinent documents that form a part of these regulations shall apply in their entirety.

A.1 U. S. Environmental Protection Agency (EPA), latest edition, 40 CFR part 261, Identification and Listing of Hazardous Waste, 40 CFR Part 268, Land Disposal Restrictions.

A.2 Title 29 CFR, Part 1910.134, Respiratory Protection (OSHA) latest edition; 29 CFR 1926.62, OSHA Lead Standard; Oklahoma Lead-Based Paint Management Act Title 27A O.S. Supp. 1994, Section 2-12-101.

A.3 Title 49 CFR, Part 172, Hazardous Materials Tables and Hazardous Materials Communications Regulations, latest edition.

A.4 Lead-Based Paint: HUD Guidelines for the Evaluation and Control of lead-Based Paint in Housing (1995).

PART B

DEFINITIONS

B.1 Abatement: Procedures to control dust release from lead containing materials. This includes removal and encapsulation.

B.2 Air Monitoring: The process of measuring the dust concentration of a specific volume of air over a specified period of time.

B.3 Airlock: An enclosure consisting of two polyethylene curtained doorways (3 sheets of plastic per doorway) at least 3 feet apart.

B.4 Authorized Visitor: Any representative of a regulatory or other agency having jurisdiction over the project (i.e., OSHA, EPA, Oklahoma Department of Health, Labor, contractor representative not on the job site, full time, etc). Such visitor must immediately report to the Environmental Management or Bio-Environmental Monitor on the job site and sign in/out in the daily log book. Furthermore, these visitors will not be allowed inside of the containment area without documented proof of approved lead-based paint abatement hazards and respirator fit tested.

B.5 Biological Monitoring: The analysis of a person’s blood and/or urine, to determine the level of lead contamination in the body.

B.6 Clean Room: An uncontaminated area or room which is part of the worker decontamination enclosure with provisions for storage of workers street clothes and protective equipment.

B.7 Competent Person: One who has completed an approved EPA Lead-based Paint Abatement Contractor training course and who is capable of identifying existing and predictable hazards in the surroundings of working conditions and has authorization to make prompt corrective measures to eliminate the hazards.

B.8 Critical Barrier: Two (2) layers of six (6) mil plastic sheeting which covers all openings to prevent dust dispersal to other areas of the structure.

B.9 Decontamination Enclosure System: A series of connected rooms and airlocks used for the decontamination of workers and of materials and equipment (i.e., airlock, clean room, airlock, shower, airlock, dirty or equipment room, airlock, work area).

B.10 Demolition: The wrecking or taking out of any load supporting structural member.

B.11 Employee: Any person working for the lead-based paint abatement contractor who physically engages in the abatement of lead-based paint or performs a task on the job site.

B.12 Encapsulation: Involves resurfacing or covering surfaces and sealing or caulking with durable materials so as to prevent or control chalking, flaking lead containing substances from becoming dust.

B.13 Equipment Room: A contaminated room that is part of the worker decontamination enclosure system used for storage of contaminated clothing and equipment.

B.14 Exterior Work Area: An outdoor porch, stairway or other element of trim or walls on the exterior of the building.

B.15 Full Containment: An enclosure of the work area that is airtight, maintains negative air, contains a decontamination facility and has a load-out area.

B.16 HEPA Filter: A High Efficiency Particulate Air (HEPA) filter capable of trapping and retaining 99.97 percent of particles greater than 0.3 micrometers in diameter.

B.17 HEPA Vacuum Equipment: Vacuuming equipment with a HEPA filter system.

B.18 Landfill (approved); An EPA approved site for the disposal of lead containing materials and other hazardous wastes.

B.19 Lead-Based Paint (LBP) Coated Surfaces: Any surface identified by the Government, by the use of portable direct reading X-Ray fluorescence (XRF) detector or other methods of analysis, including laboratory analysis that indicates a hazardous level of lead as specified in HUD Guidelines.

B.20 Lead-Based Paint Abatement Contractor: A private entity Licensed for lead-based paint abatement.

B.21 Lead Abatement Supervisor: The "Competent Person" on the project site representing the Contractor during the abatement; licensed and experienced in lead-based paint removal and air monitoring.

B.22 LBPPM: Tinker Air Force Base Lead Based Paint Program Manager.

B.23 Objects (Fixed and Moveable): Fixed items are items which cannot be removed from the work area. Moveable items are items which can be removed from the work area.

B.24 Permissible Exposure Limit/OSHA) (PEL): Current OSHA Exposure Limit measured as micrograms of lead per cubic meter. (OSHA Lead Standard 29 CFR 1910.1025).

B.25 Plasticize: To cover with 4 or 6 mil polyethylene sheeting.

B.26 Personal Protective Equipment (PPE): Disposable, impervious coveralls that are equipped with head and foot covers, gloves and respirators. Required PPE may also include items such as hard hat, steel-toe boots, eye protection, hearing protection, and etc.

B.27 Restricted Area: The area surrounding the work area demarcated by danger warning tape and signs. All personnel entering the restricted area must wear appropriate PPE.

B.28 Shower Room: A room between the clean room and equipment room in the worker decontamination enclosure with hot, cold, or warm running water suitably arranged for complete showering during decontamination. All wastewater shall be collected in 55 gallon or smaller drums and held on site in a designated secure area and disposed of IAW RCRA regulations.

B.29 Substrate: A surface upon which paint or varnish has been or may be applied. Examples of substrate include wood, plaster, concrete, metal and drywall.

B.30 Tri-sodium Phosphate Solution (TSP): A mixture of at least one ounce of 5 percent TSP to each gallon of water.

B.31 Wet Cleaning: The process of eliminating lead contamination by using cloths, mops, or other cleaning tools which have been dampened with TSP solution.

B.32 Work Area: A designated area where lead-based paint is being abated. A contained work area is sealed, plasticized and equipped with a decontamination enclosure system. A non-contained work area is not equipped with a decontamination enclosure system but is demarcated by danger warning tape.

B.33 CEIEC: 72 ABW/CEIEC; Environmental Management Division

B.34 BEF: 72 AMDS/SGPB; Bio-Environmental Engineering Flight

B.35 CE: 72 ABW/CE; Civil Engineering Directorate

PART C

PRE-ABATEMENT SUBMITTALS

At least five (5) days prior to commencement of pre-abatement work, the lead pre-abatement Contractor shall submit copies of all required pre-abatement submittals to the Contracting Officer. After completion of the submittal review additional information may be required for clarification of, or in support of documents submitted. Work will not commence until all submittals have been approved by the LBPPM, including employee certifications and physicals. Required submittals include, but are not limited to the following.

C.1 Documentation of Training/Experience: All Contract employees (including prime and subcontractors – supervisors, foremen, workers, etc.) conducting LBP abatement in High Priority Facilities shall be licensed by the State of Oklahoma. Include current copies of each employee's LBP Abatement License.

C.2 Employee Physicals: Provide documentation of employee physical examination, conducted in accordance with OSHA and Lead Standard, 29 CFR 1910.1025. The contractor should maintain for employees removing LBP:

(1) A medical and work history with special emphasis directed to the pulmonary, cardiovascular and gastrointestinal systems.

(2) A physical examination directed to the pulmonary and gastrointestinal systems, including a chest roentgenogram to be administered at the discretion of the physician, and pulmonary function tests of forced vital capacity (FVC) and forced expiratory volume at one second (FEV).

(3) Results of blood level tests for the purpose of establishing baseline blood lead levels for each worker involved in lead-based paint surface preparation, abatement and the handling of lead-based paint debris. Workers found to have blood lead levels greater than or equal to 30 micrograms/deciliter (30 mcg/dl) shall be prohibited from any work involving lead-based paint.

(4) Physician's Written Opinion: The employer shall obtain a written opinion from the examining physician. This written opinion shall contain the results of the medical examination to be included with submittals and shall include:

- The physician's opinion as to whether the employee has any detected medical conditions that would place the employee in an increased risk of material health impairment from exposure to lead.
- Any recommended limitations on the employee or on the use of PPE including respirators.
- A statement that the employee has been informed by the physician of the results of the medical examination and of any medical conditions that may result from lead exposure.
- Exception: No medical examination is required of any employee if adequate records show that the employee has

been examined in accordance with this paragraph within the past one year period. The physical must be current within the length of the contract.

C.3 Security Documentation: Work area and equipment must be secured at all times to ensure no unauthorized persons enter contaminated work or waste storage areas. Storage sites for equipment, supplies and lead contaminated waste must be pre-determined and approved by the Contracting Officer prior to starting the lead-based paint abatement. The Contractor will submit to the Contracting Officer, a phone or pager number where the contractor supervisor or competent person may be reached on the non-working days in case of an emergency.

C.4 Step-by-Step Abatement Procedures Plan: Document the plan meets HUD Guidelines for contained and non-contained abatement procedures at each distinct location. The plan of action shall include preparation of the regulated area (position of critical barriers, signs and etc). Also include LBP surface preparation methods, removal techniques, type, size, debris accumulation, cleanup and disposal procedures.

C.5 Document full containment construction procedures, abatement, and final clearance shall follow HUD Guidelines.

(1) Provide personnel decontamination unit construction procedures.

(2) Provide encapsulation procedures (method of encapsulation and location).

C.6 Respirator Protection Program: Provide a copy of the contractor Respirator Protection Program. Document your program is IAW OSHA 29 CFR, Section 1910.134 and ANSI Z88.2-80. Include the manufacturer's certification (including TC#) that all respiratory devices are NIOSH/MSHA approved.

C.7 Manufacturer's Certifications: Document HEPA vacuums, air purifying equipment, negative air pressure equipment and other local exhaust ventilation equipment is approved for LBP abatement activities.

C.8 Laboratory and Monitoring Qualifications: The LBP abatement contractor must use an independent "third party" laboratory for air monitoring and analysis support (see Part E.3 for required monitoring qualifications). Include documentation of qualifications for the air technician, and prove the contracted laboratory meets HUD Guidelines. Should the Contractor change independent laboratories while the contract is in progress, the Contractor shall resubmit the qualifications/certifications of the new air technician and laboratory for approval by the LBPPM.

C.9 Lead-Based Paint Waste: Disposal of waste generated by the abatement of lead based paint shall be coordinated through the Tinker Hazardous Waste Facility, bldg 808. The contractor shall contain the generated waste. The contractor shall provide a TCLP analysis of the waste and forward the results to the Tinker Hazardous Waste Facility, who will determine proper disposal of the waste. Barrels to contain the waste will be provided by the Government.

C.10 Materials List: Include a materials list of all items proposed to be furnished and used under the contract including any associated manufacturer's literature. Provide a separate list for rental equipment and written verification that the rental company has been notified that equipment is to be used for lead-based paint abatement.

C.11 Work Schedule: Provide starting date, completion date, days to be worked (weekdays/weekends) and hours to be worked. If the abatement will be conducted at any time other than 0700 to 1600 hours, Monday through Friday, justification must be furnished and approved by the Contracting Officer.

C.12 Any request for variance from this specification shall be at the discretion of the Contracting Officer.

PART D

ABATEMENT MATERIAL REQUIREMENTS

D.1 Deliver all materials in their original unopened packages, containers or bundles bearing the name of the manufacturer and the brand name. Materials must be approved for LBP abatement use.

D.2 Store all materials subject to damage off the ground and under cover to prevent damage or contamination. Material to be used on the project site shall not be stored in the same location where the lead contaminated waste is stored.

D.3 Damaged or deteriorating equipment shall not be used and shall be removed from the construction site immediately by the Contractor. The cost of the removal or disposal shall be the responsibility of the Contractor and at no cost to the Government.

PART E

SAMPLING AND MONITORING

E.1 Air sampling data must include the sample volume, sampling times, sampling locations (with appropriate dimensions and sketches), evidence of periodic inspection of sampling equipment, documentation of pre and post calibration of equipment, detailed description of work conditions, and description of worker protective devices.

E.2 Laboratory analysis data must include sample identification; total sample duration, sample flow rate, total air volume and final analysis results must be recorded in micrograms per cubic meter (ug/n3).

E.3 All air sampling and monitoring shall be conducted by a LBP licensed industrial hygienist, or LBP licensed individual properly trained in air sampling and monitoring as required by the HUD Guidelines.

E.4 Pre-abatement Background Sampling: Pre-abatement sampling shall be conducted by the approved "third party" company and meet the HUD Guidelines requirements.

E.5 Area Sampling: Area Sampling shall be conducted as required in the HUD Guidelines.

(1) If at any time the results of the air samples taken by the contractor's independent laboratory rise above the OSHA action level the abatement will stop immediately and clean down procedures will be required. Cleaning will continue until air sample results are below the current levels issued by OSHA and EPA.

E.6 Personal Sampling: The Lead-Based Paint Abatement Contractor shall conduct personal sampling at all times.

E.7 Clearance Sampling: Clearance sampling procedures shall follow HUD guidelines. Clearance levels and the final clearance determination will be IAW HUD clearance criteria.

Sample results shall be provided to the government and maintained in the facility records.

PART F

RESPIRATORY PROTECTION AND PPE

The Contractor shall implement a respiratory program IAW with 29 CFR 1910.134 and 1926.62. The contractor shall be solely responsible for the safety and health of their employees.

PART G

CONTAINED ENCLOSURE CONSTRUCTION

G.1 Construct abatement enclosure system(s) for each work area. The entrance to the enclosure(s) shall be outside the restricted area. Should lockable entry or exit doors be used for containment, a key to these doors shall be at the project site for emergency entry. All plastic sheeting shall be a Fire Resistant/Retardant material to protect personnel working inside and outside the enclosure from a rapidly spreading fire that will produce thick toxic smoke.

G.2 The abatement contractor shall post danger signs in the following manner:

(1) Except in emergency situations, at least three (3) days before removing or encapsulating lead paint, the Contractor shall post signs immediately outside all entrances and exits to the work area.

(2) The Contractor shall keep the signs posted until the CEIE inspector gives final clearance to the area.

(3) The signs will be at least 20 inch X 14 inch and indicate the date and place of the lead abatement project.

(4) The signs must include the phrase "CAUTION LEAD HAZARD, KEEP OUT" in bold lettering at least two (2) inches high.

(5) Sign stating that no eating, drinking or smoking in the work area shall also be posted.

G.3 Shut down electric power and lockout all circuit breaker boxes. Provide temporary power and lighting equipment and ensure safe installation of temporary power sources and equipment per applicable electrical code requirements.

G.4 Shut down and seal with two (2) layers of 6 mil plastic sheeting all openings, including heating, cooling, and ventilating air systems, to prevent dust dispersal to other areas. Plywood (3/8 inch minimum thickness) critical barriers are required to separate the work area from adjacent occupied areas.

G.5 Pre-clean moveable objects within the work area(s) using HEPA vacuum and/ wet cleaning methods. Remove decontaminated objects from work areas to a temporary location. Carpeting shall be thoroughly cleaned using HEPA vacuum. Carpet scheduled to be removed shall be disposed of as lead contaminated waste.

G.6 Pre-clean fixed objects within the work area(s) using HEPA vacuum equipment and/or wet cleaning methods. Plasticize all decontaminated fixed objects with 2 layers of 4 mil or greater plastic sheeting and duct tape to provide an air tight and water proof seal. Engineering controls shall be used to prevent overheating of pumps, electric motors, and other Government owned property within the containment when plastic is used to prevent contamination.

G.7 Pre-clean the proposed work area(s) starting at the ceiling and working down to the floor using HEPA vacuum and/or wet cleaning methods. Do not use methods that raise dust, such as dry sweeping or vacuuming with equipment not equipped with HEPA filters.

G.8 Cover floor with a minimum of two (2) layers of 6 mil plastic sheeting extending at least 12 inches up the walls and seal with duct tape. Then, cover walls and ceiling (when required) with two layers of 4 mil clear plastic sheeting overlapping the floor plastic by 12 inches and seal with duct tape. Blue chalk dust shall be applied between layers at all seams to detect water leaks. Exit routes shall be marked clearly within the work area.

PART H

NEGATIVE PRESSURE ENCLOSURE AREA PREPARATION

H.1 Visually inspect the area to be contained by the NPE and identify the material to be removed. Locate any hazards that could harm Contractor employees or the containment.

H.2 Post signs and tape as specified by OSHA 29 CFR 1926.1101(k)(7) and 29 CFR 1926.1200 (f).

H.3 Have the Construction Inspector contact the Civil Engineering Electrical Shop for the best location for the Contractor's licensed electrician to hook-up the GFCI and to lock-out and tag-out electrical circuits to work area without interfering with power to other Government operations.

H.4 Shut down and seal with two layers of 6 mil plastic sheeting, all openings, including heating, cooling and ventilating air systems, to prevent fiber dispersal to other areas.

H.5 Pre-clean movable objects from within the work area(s) using HEPA vacuum and/or wet cleaning methods and remove from the work area to a temporary location. Pre-clean fixed objects within the work area and plasticize with two layers of 4-mil or greater plastic sheeting to provide an airtight, waterproof seal.

H.6 Pre-clean the proposed work area(s) using HEPA vacuum and wet wiping method. Special attention should be paid to places/material that could hold asbestos fibers. Activities such as dry sweeping or vacuuming with non-HEPA filter vacuums are prohibited.

H.7 After the area is pre-cleaned; cover the floor with two layers of 6 mil plastic sheeting extending up the walls twelve inches. Cover walls with two layers of 4 mil or greater plastic sheeting overlapping floor sheeting twelve inches, with no butt joints. Should a roof (ceiling) be required for the containment, it shall consist of two layers of 4 mil plastic sheeting extending down the walls twelve inches. Critical barriers of minimum 3/8 inch plywood are required to separate the work area from adjacent occupied areas or in areas of heavy traffic.

H.8 Assemble/construct decontamination unit consisting of a clean room, shower, and an equipment room (dirty room). Triple flaps will be used between each area of the decontamination unit. Shower facilities shall have liquid soap and shall comply with 29 CFR 1910.141(d)(3). Securely attach decontamination unit to the NPE. On projects employing both female and male workers, the Contractor shall build separate decontamination units or stagger the work schedule to prevent embarrassment or harassment to either sex. Lockers shall be provided for street clothing. The Contractor shall maintain a containment log at the entry of the decontamination unit consisting of date of entry, name, time in, and time out.

H.9 Install a sufficient number of HEPA filtered air machines to maintain a pressure drop of -0.02 inches of water within the enclosure and manometer to verify the pressure drop. The manometer inlet tube shall be located in the NPE in an area to get a representative sample of airflow. One HEPA filtered air machine must be installed as a standby.

H.10 The NPE shall be inspected by Construction Inspector prior to any removal of any Lead based paint.

PART I

EXTERIOR WORK AREA PREPARATION

I.1 The following methods are to be used for exterior abatement of buildings only.

I.2 Uncontained water blasting and open abrasive blasting are unacceptable methods of abatement.

I.3 Contractors who do not take proper containment measures and contaminate soil will be required to test, abate and dispose of soil contaminated with lead as a result of improper abatement methods.

I.4 For Liquid Waste:

(1) Place polyethylene plastic sheeting (6 mil) as close to the building as possible. Extend the edge of the sheets a sufficient distance to contain the runoff and raise the outside edge of the sheets with 2 x 4's to trap liquid waste.

(2) Have available appropriate containers to hold liquid waste for later transfer and disposal.

(3) Where seams occur, they must be sealed with tape and edges must be raised (e.g. with 2 x 4 framing) and a new section of plastic sheeting and framing should be added as needed.

(4) Liquid waste can be pumped, vacuumed or bailed for transfer to a 55 gallon or smaller drum for disposal.

I.5 For Dry Waste:

(1) Place polyethylene plastic sheeting (6 mil) as close to the building as possible.

(2) Extend the plastic sheeting out from the foundation a sufficient distance to contain waste and debris.

(3) Weight the sheeting at the foundation and along the edges and seams.

(4) Erect vertical shrouds if constant wind speed exceeds 15 mph or there is visible movement of debris beyond the ground sheeting.

(5) The containment system must be kept intact for as long as needed. All tears and breaks must be repaired as they occur. Damaged floor sheeting shall be covered with new layers and not removed. In addition to routine repairs, the abatement Contractor is responsible for inspecting the containment system on a daily basis or more often as needed to ensure its' integrity.

(6) The use of manually operated abrasive blasting and vacuuming equipment may be used, provided it does not release lead

contaminated dust or grit to the surrounding ground or atmosphere.

(7) The use of power tools and vacuuming may be used provided it does not release lead contaminated dust to the surrounding ground or atmosphere. Post blasting to remove residual dust is not permitted.

(8) On a daily basis, as well as during final cleanup, the immediate area shall be examined visually to ensure that no lead debris has escaped containment. Any such debris shall be wet down and raked or swept and placed in single 6 mil or double 4 mil plastic bags, which shall then be sealed and stored along with other contaminated debris.

PART J

NON-CONTAINED WORK AREA PREPARATION

J.1 Cordon off area with danger tape at least 50 feet, or a distance as determined by the Construction Inspector, on all sides of the work area to restrict unauthorized access to the site during removal, clean-up or encapsulation processes. Proper danger signs shall be posted at the perimeter.

J.2 Construct critical barriers with two (2) layers of six (6) mil plastic sheeting, covering all openings which includes and shutting down (if possible) all heating, cooling and ventilating air systems, in order to prevent dust dispersal to other areas of the structure.

J.3 Pre-clean moveable objects within the work area(s) using HEPA vacuum and/or wet cleaning methods. Remove such objects from work area to a temporary location.

J.4 Pre-clean fixed objects within the work area(s) (IAW para1.1) using HEPA and/or wet cleaning methods and tightly cover with two (2) layers of 4 mil or greater plastic sheeting.

J.5 Pre-clean the work area(s) using HEPA vacuum/wet cleaning methods. Do not use methods that raise dust, such as dry sweeping or vacuuming with equipment not equipped with HEPA filters.

PART K

CONTAINED WORK AREA REMOVAL PROCEDURES

K.1 Visually inspect enclosures at the beginning of each work period. Repair damaged barriers and remedy defects immediately upon discovery.

K.2 Perform a daily wet cleaning of any area outside the work or restricted area which becomes contaminated with dust or debris as a consequence of work performed on that day.

K.3 Should areas outside the work area become contaminated with lead containing dust or debris as a consequence of the abatement employees'

work practices, the Abatement Contractor shall be responsible for cleaning these areas in accordance with the procedures outlined in this specification at no additional cost to the Government.

K.4 Start the HEPA filtered negative air pressure system and maintain a pressure of -0.02 inches of water. The Contractor will be required to have a manometer in each negative pressure containment. Do not deactivate without Government approval. One backup HEPA filtered negative air pressure system must be installed in the work area to provide backup support in case of equipment failure. Each negative pressure system must be equipped with an audible alarm and an electronic mechanism which shuts off the system in the event of a filter breach or absence of a filter.

K.5 High RPM power equipment, pressure washers, sandblasting equipment, or hydroblasters will not be used outside of containment. Containment structure must be constructed and maintained to prevent the possibility of lead contaminated dust, sand, or water to be released from the containment.

K.6 The Contractor shall inform BE and the Contracting Officer immediately if a health hazard is created during the abatement. This includes, but is not limited to, such occurrences as breaching the containment area, air monitoring results indicating airborne lead dust concentrations at unacceptable levels, accidents, etc.

K.7 Remove all lead containing material identified in the project Statement of Work. Waste material drop shall not exceed 15 feet. For heights from 15-50 feet, provide inclined chutes or scaffolding to intercept drop. For heights exceeding 50 feet, provide enclosed air tight chutes.

K.8 During the abatement, periodic cleanup and bagging of lead containing waste materials is required. Removed materials shall be double bagged in 4 mil plastic or single 6 mil plastic bags, barreled and sealed (e.g. doors, windows, trim, etc.).

K.9 After completion of lead-based paint removal, HEPA vacuum all surfaces to remove visible lead-containing material. Surfaces shall be cleaned with a 5 percent tri-sodium phosphate solution and HEPA vacuumed again. All lead contaminated liquid waste will be collected in 55 gallon or smaller drums for proper disposal. Discharge shall not be disposed of onto the ground, into a storm drain, or industrial waste line.

Note: In addition, at a minimum meet HUD Guidelines abatement regulations.

PART L

DECONTAMINATION/CLEAN-UP

L.1 Cleanup materials (including mop heads), clothing and all other disposable materials used in the work area shall be considered lead-contaminated waste.

L.2 Inner-most layer of plastic must be HEPA vacuumed and wet wiped and visually inspected by CEIE before removal. Carefully fold plastic in upon itself while removing. Place debris in double 4 mil or single 6 mil plastic bags and seal. Plastic sheeting used to isolate contaminated rooms from non-contaminated rooms should not be removed at this time.

L.3 Before removal of floor plastic, it should be sprayed and HEPA vacuumed. Remove floor plastic from the corners and fold to the middle while removing to trap any remaining lead dust. Place into double 4 mil or single 6 mil plastic bags and seal.

L.4 After the plastic has been removed from the contaminated area, the entire area should be HEPA vacuumed starting with the area farthest from the entrance to avoid ret-racking dust through an already-cleaned area. In each area, vacuuming should begin with the ceilings and proceed down the walls, including doors and door trim, windows, window sills, wells, trim, baseboards, etc.

L.5 The entire affected area shall be washed down with a 5 percent tri-sodium phosphate (TSP) solution working from the ceiling down. After the 5 percent TSP solution wash down, the entire area shall be HEPA vacuumed again.

L.6 After the preliminary final cleanup effort is completed, a CEIE inspector will visually inspect the entire affected area to ensure that all surfaces requiring abatement have been addressed and all visible dust and debris have been removed.

L.7 If results of the visual inspection are unsatisfactory, affected surfaces must be re-abated and/or cleaned in accordance with the Contracting Officer’s instructions until satisfactory results are achieved.

L.8 After the inspected area passes the final visual inspection, a 24 hour settling period will be required prior to clearance wipe sampling. If any of the clearance wipe sample results exceed the clearance criteria, the area will be re-cleaned and BE will again conduct clearance wipe sampling at the Contractors Expense. This procedure will be repeated until clearance criteria met.

L.9 After passing the final clearance standards as established by the Government, the Contractor may continue with the painting or sealing of abated surfaces. Final layer of plastic must be sprayed with lockdown and removed at this time. During removal of final layer of floor plastic, HEPA vacuum the area under the floor plastic as it is being removed to clean up any debris that may have breached the containment.

L.10 After painting/sealing is completed, the final cleanup can take place. The entire area will be HEPA vacuumed, washed down with the 5 percent TSP solution and HEPA vacuumed again. Walls and ceiling surfaces newly painted with latex paint are exempted from the final wash down due to the danger of staining or otherwise damaging the final painted surface, but should be HEPA vacuumed again.

L.11 Following the final cleaning the Construction Inspector and a CEIE inspector will conduct a final visual inspection. If the area does not pass a final visual inspection, it will be re-cleaned until it passes.

PART M

DISPOSAL

M.1 The Abatement Contractor will notify the Construction Inspector in advance of the date and time that lead contaminated waste will be transported.

M.2 Lead-Based Paint Waste: Disposal of waste generated by the abatement of lead based paint shall be coordinated through the Tinker Hazardous Waste Facility, bldg 808. The contractor shall contain the generated waste. The contractor shall provide a Toxicity Characteristic Leaching Procedure (TCLP) analysis of the waste and forward the results to the Tinker Hazardous Waste Facility, who will determine proper disposal of the waste. Barrels to contain the waste will be provided by the Government.

M.3 Personnel loading and unloading lead contaminated waste from the abatement enclosure shall enter the load-out from outside. No one shall use the load-out as a means to leave or enter the work area.

M.4 Drums/bags of lead contaminated waste and wrapped lead contaminated components that have been removed from the work area shall be transported directly to an EPA approved disposal site. Temporary storage of lead contaminated waste at an intermediate location is not permitted except under special authorization from the Contracting Officer.

M.5 Lead contaminated waste transported to the Tinker Hazardous Waste Facility shall meet DOT regulations for transport of hazardous waste.

M.6 Large structural lead waste containers shall be securely sealed and transported as outlined in DOT regulations.

M.7 Any lead containing dust observed on containers or surface outside the work area shall be immediately cleaned using HEPA filtered vacuuming equipment and/or wet cleaning methods.

PART N

POSTABATEMENT SUBMITTALS

N.1 Within 10 working days after completion of work, and prior to release from contract obligations with the U. S. Air Force, the Abatement Contractor shall provide the Contracting Officer.

- A signed waste disposal manifest signed by the site operator stating date, time, and amount of lead contaminated waste received.

- A signed copy of all air sampling results from samples collected during the contract (as noted in Part E, Air Sampling and Monitoring).

- Written verification from the rental company that equipment was decontaminated by the Contractor prior to return.

PART O

HAZARDOUS PROPERTY DISCLAIMER

The Government cautions that lead containing materials, substances, or component parts thereof, which are being removed under this contract exhibit hazardous or toxic properties. The Government assumes no liability for any damage to the property of the Lead-Based Abatement Contractor; any person or public property, or for the personal injuries, illness, disabilities, or death to the Lead-Based Paint Contractor or his employees, any other person subject to the Contractors control or any other person including members of the general public, arising from, or incident to, the purchase, use, processing, disposition, or any subsequent operation performed upon, exposure to or contact with any component, part, constituent or ingredient of this item, or substance or material whether intentional or accidental. The Lead-Based Paint Abatement Contractor agrees to hold harmless and indemnify the Government for any and all costs and expenses incurred incident to any claim, suit, demand, judgment, action, debt, liability costs and attorney’s fees or any other request for moneys or any other type of relief arising from or incident to the purchase, use, processing, disposition, subsequent operation performed upon, exposure to, or contact with any component, part, constituent, or ingredient of this item, material, or substance, whether intentional or accidental.

- END OF ATTACHMENT 3 -

Attachment 3a

TINKER AIR FORCE BASE LEAD-BASED PAINT ABATEMENT SPECIFICATIOINS FOR INDUSTRIAL FACILITIES

TABLE OF CONTENTS PAGE

PART A - General 59
PART B - Pre-Abatement Submittals 59

PART A

GENERAL

The requirements for lead-based paint abatement are stated herein. The drawings or statement of work associated with this project outline the work area which contains the lead-based paint and the work to be accomplished. In case of a conflict between the drawings and the specifications, the specifications govern. The following regulations, their appendices, memorandums, guidelines, attachments and other pertinent documents from a part of these regulations shall apply in their entirety.

A.1 U. S. Environmental Protection Agency (EPA), latest edition, 40 CFR, Part 261 Identification and Listing of Hazardous Waste, 40 CFR, Part 268, Land Disposal Restrictions.

A.2 Title 29 CFR, Part 1910.134, Respiratory Protection (OSHA) latest edition, 29 CFR 1926.62, OSHA Lead Standard; Oklahoma Lead-Based Paint Management Act, Title 27A, O.S. Supp. 1994, Section 2-12-101.

A.3 Title 49 CFR, Part 172, Hazardous Materials Tables and Hazardous Materials Communications Regulations, latest edition.

A.4 29 CFR 1910.1025, General Industry Lead Standard

Where a conflict exists between the requirements of this specification and any of the above mentioned regulations, the most stringent shall be applicable.

PART B

PRE-ABATEMENT SUBMITTALS

At least five (5) days prior to commencement of lead-based paint removal in industrial areas; the Contractor shall submit all required submittals to the Contracting Officer for review/approval. After completion of the submittal review, additional information may be required for clarification of, or in support of documents submitted. Work will not commence until the Government has approved all submittals. Required submittals include, but are not limited to the following:

B.1 Removal procedures to be used.

B.2 List of materials to be utilized.

B.3 MSDS sheets for all materials/chemicals used.

B.4 Disposal Procedures

- END OF ATTACHMENT 3A -

Attachment 4

TINKER AIR FORCE BASE PCB FILLED BALLAST AND UNIVERSAL WASTE LAMP ABATEMENT SPECIFICATIONS

TABLE OF CONTENTS PAGE

PART A - General 61
PART B - Ballast Removal 61
PART C - Disposal of Fluorescent and Other Universal Lamps 62
PART D - Guide for Handling Disposal of Transformer Grade Insulating Containing PCB’s 63

PART A

GENERAL

A.1 The abatement requirements for handling and disposal of ballast and fluorescent lamps are stated herein. In case of a conflict between these requirements and project drawings or specifications, these requirements shall govern.

A.2 The following regulations, their appendices, guidelines, memorandums, attachments, and other pertinent documents, which form a part of these regulations, shall apply in their entirety.

PART B

BALLAST REMOVAL

B.1 Point of Contact: On TAFB, the point of contact for work involving PCB is 72ABW/CEIEC, 736-3093.

B.2 The use of open top 55-gallon drums with lid and lock band is recommended. The drums can be obtained from Bldg 808 between the hours of 0700 and 1500. The Contractor shall coordinate drum pickup with the Construction Inspector. If prior approval for the generation of the PCB ballasts has not been established, then the Government representative must request the approval through the Unit Environmental Coordinator of the generating organization. Labels and DRMO turn0in documents, DD Form 1348-1A, will be furnished with drums. A start date must be annotated on a label at the time the first ballast is placed in a drum. The total quantity of ballasts in the full drum must be annotated on the label prior to turning the container into DRMO. When the drums have been filled, the Government will contact DRMO and schedule a time to deliver drums to Bldg 810 and contact CEIEC at 734-3278 or 734-3279 and request DRMO turn-in documents, DD Form 1348-1a for the drums to be delivered to DRMO. The turn-in document(s) may be picked up from Bldg. 808 just prior to delivery to DRMO. The remover shall use care in making economical use of Government furnished materials.

B.3 Personnel Protection During Ballast Removal: Personnel removing the ballast from light fixtures shall wear rubber gloves and eye protection. Wearing a Ty-Vek suit is recommended.

B.4 Floor Covering Requirements: In preparation for ballast removal, the Contractor shall spread 6 mil polyethylene sheeting on the floor of the area where the removal is performed. The sheeting shall be sealed at the joints and shall extend 3 feet beyond the work area. Damaged, holed, or torn sheeting shall be resealed before ballast removal work continues or resumes. The purpose of the sheeting is to contain spills.

B.5 Ballast Removal: Ballast having labels with the word “NO PCB’s” or labels with similar words having the same meaning, may be recycled of with the light fixture. All unlabeled ballast, regardless of age, will be assumed to contain PCB. Ballast containing, or assumed to contain, PCB may be removed from mounted light fixtures, or the entire

light fixture may be removed and taken to a ballast removal area. Floor covering requirements must be met if ballast is removed from mounted fixtures, and ballast shall not be dropped, thrown, or miss-handled. Open top 55-gallon drums, with lids and lock bands, shall be used for disposal of the ballast. A count of the number of ballasts shall be noted on the drum and the Form 1348-A.

B.6 Removal of Leaking Ballast: Ballast removal shall be immediately discontinued if any sign of a black tar-like substance is discovered on a ballast, light fixture, or cover. The Contractor shall don a Ty-Vek suit, along with rubber gloves and eye protection before continuing work. Light fixtures, covers, and ballast with the black tar-like substance shall be scraped and wet wiped with an approved solvent until clean and no visible signs of the tar-like substance remain. Kerosene is a Government pre-approved solvent. Use of other solvents must be submitted, for approval, to the Contracting Officer prior to use.

B.7 Disposal of Tar-Like Substance Cleaning Materials: The remover shall place all tar-like substance residue and materials with the tar-like substance on them (such as Ty-Vek suits, disposable scrapers, rags, and floor covering) in a separate steel drum. The external surface of all drums, lids, and lock bands shall be thoroughly cleaned of all tar-like substance, labeled and sealed.

B.8 Disposal of the Drums: The drums containing PCB ballast and those containing rags, towels, residue, etc. along with completed DD Form 3148-1a will be transported to building 808 and placed on the wooden pallets (four drums to a pallet). The objective being that DRMO personnel will be able to use a forklift to transport the pallet mounted drums.

PART C

DISPOSAL OF FLUORESCENT AND OTHER UNIVERSAL LAMPS

C.1 Point of Contact for Waste Lamp Disposal: On TAFB, the point of contact for work involving waste lamps is 72ABW/CEIEC, 736-3093.

C.2 Background: The U. S. Environmental Protection Agency (EPA) has promulgated regulations governing the accumulation and disposal of Universal Waste Lamps. These regulations became effective in January 2000, and amend the EPA Universal Waste Rule, dated 11 may 1995. The Oklahoma Department of Environmental Quality (DEQ) has adopted the EPA rules for waste lamp regulations.

C.3 Containers for Disposal of Lamps: Containers for disposal of waste UW lamps, fluorescent lamps) are available to the Contractor through building 808, 72ABW/CEIEC, 734-3278, TAFB. Containers cannot be received from CEIE without the proper Government release. The Contractor shall coordinate with the Project Inspector for this release. The Construction Inspector, in turn, shall coordinate with Civil Engineering Quality and Safety Unit Environmental Coordinator (CECQS) to obtain the release. Once the release has been obtained, the Contractor shall be responsible for picking up and transporting

the containers. The Contractor shall use care in making economical use of Government furnished materials.

C.4 Lamp Removal: Assume all fluorescent lamps on TAFB, regardless of age, are harmful to the environment. The Government will provide the containers, for disposal of the lamps. After all waste lamps have been placed in the containers, identification and hazard labels shall be placed on each container.

C.5 Disposal of Containers: Prior to transporting containers, a Tracking Log shall be completed. The containers shall be transported to the Waste Lamp Consolidation Site (WLCS) at Building 808.

C.6 Disposal of light transformers and high voltage fuses: These are not hazardous and contain recyclable metals, therefore they should be turned in as scrap metal to Services.

PART D

PCB-CONTAINING LIQUIDS AND TRANSFORMER REMOVAL

D.1 Point of contact for PCB items is 72ABW/CEIEC, 736-3093.

D.2 Requirements for removal of PCB-containing transformers shall follow and comply with Subpart D of 40 CFR, Part 761.

- END OF ATTACHMENT 4 -

Attachment 5

TINKER AIR FORCE BASE CONSTRUCTION AND DEMOLITION DEBRIS MANAGEMENT PROCEDURES

1. GENERAL

1.1 DEFINITIONS

1.1.1 Point of contact for Construction and Demolition Debris Management Procedures is 72ABW/CEIE, 734-5199.

1.1.2 Construction and Demolition Debris: Solid wastes such as building materials, packaging and rubble resulting from construction, remodeling, demolition and repair of buildings/facilities, paving and infrastructure.

1.1.3 Recyclable Materials: Products and materials that can be recovered and remanufactured into a new product. Recyclable materials include, but are not limited to, the following:

a. Metals (ferrous and non-ferrous), including banding, metal studs, ductwork, and piping.
b. Asphaltic concrete paving
c. Portland cement concrete
d. Land clearing debris including trees and plant materials
e. Native rock and granular fill
f. Gypsum products
g. Paper and cardboard
h. Wood products, including structural, finish, crates and pallets
i. Brick and masonry
j. Carpet and padding
k. Plastics
l. Copper wiring
m. Mechanical and electrical products and equipment

For more information on recyclable materials, see the Environmental Protection Agency's Comprehensive Procurement Guidelines, electronically at http://www.epa.gov/epaoswer/non-hw/procure/index.htm.

1.1.4 Recycling Facility: A business that specializes in collecting, handling, processing, distributing, or remanufacturing waste materials generated by demolition and new construction projects, into products or materials that can be used for this project of by others.

1.1.5 Salvage and Reuse: Existing usable product or material that can be saved and reused in some manner on the project site. Materials that can be salvaged and reused must comply with applicable technical specifications and include, but are not limited to, the following:

a. Dimensional lumber and other wood products
b. Structural steel
c. Soil
d. Masonry products

1.1.6 Salvage for Resale: Existing usable product or material that can be saved and removed intact (as is) from the project site to another site for resale to others without remanufacturing.

1.1.7 Trash: Product or material unable to be salvaged for resale, salvaged and reused, returned, or recycled.

1.1.8 Waste Materials: Product or material that can be salvaged for resale, salvaged and reused, returned to vendors, or recycled.

1.2 CONSTRUCTION WASTE MANAGEMENT

1.2.1 General Intent: The Contractor shall use all means available to divert to the greatest extent practical and economically feasible, construction and demolition debris from landfills and incinerators.

1.2.2 Construction Debris Management Operations: Take a proactive, responsible role in management of construction debris and require all subcontractors, vendors, and suppliers to participate in the effort. Establish a construction debris management program that includes the following categories:

a. Minimizing Packaging Waste
b. Salvage and reuse
c. Salvage for resale or donation
d. Disposal

1.2.3 Construction Debris Management Plan: Perform a waste analysis to determine the types and quantity of construction debris anticipated and identify salvage for resale, salvage and reuse, recycling and disposal options available. Prior to performing any demolition work, submit a Construction Debris Management Plan to the Contracting Officer for review and approval. The Construction Debris Management Plan shall include the following:

a. Project construction debris analysis.
b. A list of debris materials that will be salvaged for resale, salvaged and reused, and recycled.
c. Identification of each recycling facility to be utilized.

2. PROGRAM IMPLEMENTATION AND MONITORING:

The Contractor shall implement and maintain, for the duration of the project, the construction debris management program. Establish a method of monitoring and documenting the program, and submit a Debris Management Report monthly that includes the following:

a. Amount (by weight) and type of waste materials disposed of in a landfill or incinerator.
b. Amount (by weight) and type of waste materials salvaged for sale, salvaged for reuse, and recycled. Estimated weights can be used if actual weights are not available.

2.1 HAZARDOUS MATERIALS/HAZARDOUS WASTES:

If any non-acceptable materials such as hazardous materials or hazardous wastes are encountered, the Contractor shall notify the Contracting Officer.

2.2 SALVAGE AND REUSE:

The Contractor shall practice effective debris management when, sizing, cutting, and installing products and materials.

2.3 SEPARATION OF RECYCLABLE DEBRIS:

Provide the necessary containers and bins, to facilitate the construction debris management program, that are clearly and appropriately marked. Prevent contamination of recyclable materials from incompatible products and materials. Separate construction debris at the project site by one of the following methods:

a. Source Separated Method: Debris products and materials, that are recyclable, are separated from trash and sorted into appropriately marked separate containers and then transported to the respective recycling facility for further processing. Trash is transported to a landfill or incinerator.
b. Co-Mingled Method: All construction debris is placed into a single container and then transported to a recycling facility where the recyclable materials are sorted and processed and the remaining trash is transported to a landfill or incinerator.
c. Other methods proposed by the Contractor and approved by the Contracting Officer.

- END OF ATTACHMENT 5 -

Attachment 6

TINKER AIR FORCE BASE WASTE MANAGEMENT PROCEDURES

Table of Contents

TABLE OF CONTENTS PAGE

PART A - General Section 68
PART B - Hazardous Waste Management Procedures 68

PART A

GENERAL

The procedures for handling and disposing of hazardous waste and industrial waste are stated herein. The following regulations, their appendices, guidelines, memorandums, attachments, and other pertinent documents, which form a part of these regulations, shall apply in their entirety.

PART B

HAZARDOUS WASTE MANGEMENT PROCEDURES

B.1 TAFB HWMP is the applicable regulation for hazardous waste management.
B.2 Each organization is responsible for the hazardous waste that they create.
B.3 Any hazardous waste will be characterized to determine nature and extent of potential hazard.
B.4 Hazardous wastes shall be maintained in appropriate containers and handled in a safe manner.
B.5 Containers will be identified with appropriate information to warn of hazards to health and environment.
B.6 Hazardous waste shall be stored in a manner to prevent adverse health and environment effects in the event of unexpected release.
B.7 Complete tracking documentation must be maintained for all hazardous wastes from their point of generation (cradle) to their point of disposal (grave).
B.8 Personnel involved in handling hazardous wastes shall have all required training.
B.9 Compliance with required laws and regulations shall be monitored by an established system of inspectors.
B.11 Any organization/facility improperly managing hazardous wastes shall cease all operations until safe conditions have been re-established.

- END OF ATTACHMENT 6 -

ATTACHMENT 7a

CHEMICAL/HAZARDOUS MATERIAL REQUEST/AUTHORIZATION

CHEMICAL/HAZARDOUS MATERIAL REQUEST AUTHORIZATION FORM PART I - MATERIAL REQUEST	1. TYPE OF REQUEST	2. PROCESS CODE

SECTION I. REQUESTOR INFORMATION

3. COMMAND/INSTALLATION/ORGANIZATION/OFFICE SYMBOL:	4. WORKCENTER TITLE:

5. DODAAC and SUPPLY ACCOUNT CODE(S)	6. BUILDING NUMBER	7. LOCATION *(Be specific)*

SECTION II. MATERIAL INFORMATION (Attach copy of MSDS)

8. MATERIAL NAME	9. NSN/LSN/MSN	10. MATERIAL SPECIFICATION

11a. SOLE SOURCE MANUFACTURER NAME/CAGE	11b. SOLE SOURCE PART NUMBER/TRADE NAME

12. MSDS REFERENCE #/DATE	13. UNIT OF ISSUE	14. DRAW AMOUNT	15. DRAW FREQUENCY

SECTION III. REQUIRING DOCUMENT(S) (Attach copies of specified pages)

16a. DOCUMENT NUMBER	16b. PARAGRAPH NUMBER	16c. PAGE NUMBER	16d. REVISION/CHANGE NUMBER	16e. REVISION/CHANGE DATE

SECTION IV. PROCESS INFORMATION

17. IS THIS REQUEST FOR A NEW WORKLOAD OR PROCESS IN THIS SHOP? (Circle one): ☐ YES ☐ NO

18.PROCESS *(Fully describe the process in which this material is used.)*

19. AMOUNT OF MATERIAL USED PER PROCESS	20. FREQUENCY OF PROCESS	21. DURATION OF PROCESS

22. DESCRIBE ANY ENGINEERING CONTROLS IN USE DURING THE PROCESS *(such as exhaust/ventilation systems, enclosures, covered tanks, cooling coils, etc.)*

23. INDICATE ANY PERSONAL PROTECTIVE EQUIPMENT *(PPE)* CURRENTLY BEING USED IN CONJUNCTION WITH THIS PROCESS

24. DESCRIBE THE METHOD OF DISPOSAL FOR THE WASTE THAT IS GENERATED

SECTION V. REMARKS

25. PROVIDE ADDITIONAL INFORMATION

SECTION VI. CERTIFICATION

26a. REQUESTER'S NAME/ORGN SYMBOL, AND PHONE	26b. SIGNATURE "I certify that material will be used as stated above."	26c. DATE
27a. CERTIFYING OFFICIAL'S NAME/ORGN SYMBOL/TELEPHONE NO.	27b. SIGNATURE "I certify that material is required as stated above."	27c. DATE

AF IMT 3952, 20050301, V1

ATTACHMENT 7a

CHEMICAL/HAZARDOUS MATERIAL REQUEST/AUTHORIZATION (CONT)

CHEMICAL/HAZARDOUS MATERIAL REQUEST/AUTHORIZATION
PART II - MATERIAL AUTHORIZATION

SECTION I. HEALTH REVIEW *(To be filled in by the Bioenvironmental Engineer)*

☐ BLANKET AUTHORIZED ☐ AUTHORIZED WITH THE RESTRICTIONS LISTED IN PART 1 SECTION IV AND THOSE LISTED BELOW (IF ANY) ☐ NOT AUTHORIZED ☐ CONTRACTOR SUBMITTED 3952-REVIEWED FOR INFORMATION PURPOSES ONLY *(This does not involve evaluation and approval of the conractor's safety and health programs)*

REMARKS

For information on specific health hazards or precautions for use, consult the manufacturer's MATERIAL SAFETY DATA SHEET (MSDS) or your BIOENVIRONMENTAL ENGINEERING REVIEWER.

BIOENVIRONMENTAL ENGINEERING REVIEWER'S NAME, TITLE, ORGANIZATION OFFICE, SYMBOL, AND PHONE NO.	SIGNATURE	DATE

SECTION II. SAFETY REVIEW *(To be filled in by the Safety Office)*

☐ BLANKET AUTHORIZED ☐ AUTHORIZED WITH THE RESTRICTIONS LISTED IN PART 1 SECTION IV AND THOSE LISTED BELOW (IF ANY) ☐ NOT AUTHORIZED ☐ CONTRACTOR SUBMITTED 3952-REVIEWED FOR INFORMATION PURPOSES ONLY *(This does not involve evaluation and approval of the conractor's safety and health programs)*

REMARKS

SAFETY OFFICE REVIEWER'S NAME, TITLE, ORGANIZATION, OFFICE SYMBOL, AND SYMBOL, AND PHONE NO.	SIGNATURE	DATE

SECTION III. ENVIRONMENTAL AND FIRE PROTECTION REVIEW *(To be filled in by Civil Engineering/Environmental Management).*

☐ BLANKET AUTHORIZED ☐ AUTHORIZED WITH THE RESTRICTIONS LISTED IN PART 1 SECTION IV AND THOSE LISTED BELOW (IF ANY) ☐ NOT AUTHORIZED

REMARKS	ODS SAO APPROVAL NUMBERr

CIVIL ENGINEERING REVIEWER'S NAME, TITLE, ORGANIZATION OFFICE SYMBOL, AND TELEPHONE NUMBER	SIGNATURE	DATE

ANY changes to the conditions or process stated on the AF Form 3952 invalidate this authorization. Notify the HAZMART of any changes or resubmit your AF Form 3952.

AF IMT 3952, 20050301, V1 ***(REVERSE)***

ATTACHMENT 7b

MONTHLY HAZARDOUS MATERIALS USAGE REPORT

MONTHLY HAZARDOUS MATERIAL USAGE REPORT
REPORT ON CHEMICAL USAGE

1. GENERAL INFORMATION

Contract Number _____ Contract Performance Period _____

Contractor's Name _____ Date of Report _____

Name of On-Base Contractor Point of Contact _____

Phone Number of Contractor On-Base Point of Contact _____

Emergency Phone Number _____

Address or Physical Location of the Contractor's Field Office

_____

2. PRODUCT INFORMATION

Product Nomenclature _____

Product Trade Name _____

Product Part Number _____

Manufacturer's Name _____

Manufacturer's Address _____

Physical Locations(s) of On-Base Usage and Storage

_____ Same as Above _____ Other

_____

Description of How Product is used _____

3. USAGE/STORAGE AMOUNT

Unit of Measure: _____ Gallon(s) _____ Unit(s) _____ Pint(s)

_____ Fluid Ounce(s) _____ Pound(s)

_____ Other (Specify) _____

Amount Brought on Installation	Amount Used During Reporting Period	Amount Stored	Amount Removed
_____	_____	_____	_____

Signature _____
(Responsible Contractor)

(Continue on additional sheets if needed)

Attachment 8

TINKER AIR FORCE BASE RECOVERED MATERIALS DETERMINATION FORM

Recovered Materials Determination Form (RMDF)
User's Guide

1. PURPOSE OF FORM. The "Recovered Materials Determination Form" (RMDF) is used to clearly identify items listed in the Comprehensive Procurement Guidelines (CPG) that are included in a procurement action, require the consideration of energy efficiency and environmentally preferable purchasing (EPP) for the procurement action, and document the use of applicable exemptions taken for the CPG items identified.

2. APPLICABILITY. The RMDF applies to all procurement actions (other than GPC purchases) that include items that are listed in the CPG, biobased, Energy Star®, or FEMP Low Standby Power programs.

3. INTENT FOR USE.

a. Contractors and CE Operations shop personnel (for in-house job and work orders regardless of project cost) will be responsible for completing an RMDF if any of the mandatory EPP items are required. For CPG items where exemptions are identified during project/contract performance, an amended RMDF must be completed documenting the exemption.

b. If the procurement action does not include any CPG, biobased, Energy Star®, or FEMP Low Standby Power items, complete the GPP Statement instead.

4. FILING PROCEDURE. If applicable, the RMDF and any amended RMDFs will be included in the purchasing or contracting file. Contracting is responsible for ensuring that either a Green Procurement Statement or RMDF (and any amended RMDFs) is included in contracting files.

5. SIGNER. The Recovered Materials Determination Form can be signed by any person who has technical knowledge of the products or services being purchased. For service and construction contracts, the signer should have general knowledge of the products that will be purchased by the contractor to complete the job. It is the signer's responsibility to check the mandatory purchase lists and determine if any of those products will be purchased.

6. INSTRUCTIONS. This form is to be completed when EPA-designated items included in the Green Procurement Program for Recovered Materials are being procured from outside vendors. For questions on whether the product counts as "EPA-designated" or what the required recycled content is, refer to product descriptions on EPA's website at **www.epa.gov/cpg/products**. For USDA designated items, refer to the website at **http://www.biopreferred.gov/?SMSESSION=NO**. For Energy Star items, refer to the website at **www.energystar.gov/products** . For FEMP items, refer to the website at **http://oahu.lbl.gov**. The completed form becomes part of the contracting office contract file.

Attachment 8

TINKER AIR FORCE BASE RECOVERED MATERIALS DETERMINATION FORM (CONT)

Recovered Materials Determination Form

Project No._____

The EPA-designated items being procured are:

Construction Products

____ Building insulation products
____ Polyester carpet
____ Carpet cushion
Cement and concrete containing:
____ Coal fly ash
____ Ground granulated blast furnace slag
____ Cenospheres
____ Silica fume
____ Consolidated and reprocessed latex paint
____ Floor tiles
____ Flowable fill
____ Laminated paperboard
____ Modular threshold ramps
____ Nonpressure pipe
____ Patio blocks
____ Railroad grade crossing surfaces
____ Roofing materials
____ Shower and restroom dividers/partitions
____ Structural fiberboard

Landscaping Products

____ Compost and fertilizer made from recovered
____ organic materials
____ Garden and soaker hoses
____ Hydraulic mulch
____ Lawn and garden edging
____ Plastic lumber landscaping timbers and posts

Nonpaper Office Products

____ Binders, clipboards, file folders, clip portfolios,
____ and presentation folders
____ Office furniture
____ Office recycling containers
____ Office waste receptacles
____ Plastic desktop accessories
____ Plastic envelopes
____ Plastic trash bags
____ Printer ribbons
Toner cartridges

Paper and Paper Products

____ Commercial/industrial sanitary tissue products
____ Miscellaneous papers
____ Newsprint
____ Paperboard and packaging products
____ Printing and writing papers

Park and Recreation Products

____ Park benches and picnic tables
____ Plastic fencing
____ Playground equipment
____ Playground surfaces
____ Running tracks

Transportation Products

____ Channelizers
____ Delineators
____ Flexible delineators
____ Parking stops
____ Traffic barricades
____ Traffic cones

Vehicular Products

____ Engine coolants
____ Rebuilt vehicular parts
____ Re-refined lubricating oils
____ Retread tires

Miscellaneous Products

____ Awards and plaques
____ Bike racks
____ Blasting grit
____ Industrial drums
____ Manual-grade strapping
____ Mats
____ Pallets
____ Signage
____ Sorbents

Page 1

Attachment 8

TINKER AIR FORCE BASE RECOVERED MATERIALS DETERMINATION FORM (CONT)

The USDA-designated biobased items being procured are:

Construction and Industrial

____ Carpets
____ Chain and cable lubricants
____ Composite panels:
  ____ Acoustical
  ____ Interior panels
  ____ Plastic lumber
  ____ Structural interior panels
  ____ Structural wall panels
____ Concrete and asphalt release fluids
____ Expanded polystyrene foam recycling products
____ Forming lubricants
____ Fluid-Filled transformers:
  ____ Synthetic ester-based
  ____ Vegetable oil-based
____ Hydraulic fluids:
  ____ Mobile equipment
  ____ Stationary equipment
____ Industrial cleaners
____ Metalworking fluids:
  ____ General purpose soluble, semi-synthetic, and synthetic oils
  ____ High performance soluble, semi-synthetic, and synthetic oils
  ____ Straight oils
____ Parts wash solution
____ Plastic insulating foam for residential and commercial construction
____ Roof coatings
____ Water tank coatings
____ Wood and concrete sealers:
  ____ Membrane concrete sealers
  ____ Penetrating liquids

Miscellaneous

____ Bedding, bed linens, and towels
____ Firearm lubricants
____ Hand cleaners
____ Hand sanitizers
____ Lip care products
____ Topical pain relief products

Facility Operations and Maintenance

____ 2-Cycle engine oils
____ Corrosion preventatives
____ Diesel fuel additives
____ Dust suppressants
____ Fertilizers
____ Gear lubricants
____ General purpose de-icers
____ Greases:
  ____ Food grade
  ____ Multipurpose
  ____ Other
  ____ Rail truck
  ____ Track
____ Heat transfer fluids
____ Ink removers and cleaners
____ Mulch and compost materials
____ Multipurpose lubricants
____ Penetrating lubricants
____ Sorbents
____ Turbine drip oils

Janitorial

____ Adhesive and mastic removers
____ Bathroom and spa cleaners
____ Carpet and upholstery cleaners:
  ____ General purpose
  ____ Spot removers
____ Floor strippers
____ General purpose household cleaners
____ Glass cleaners
____ Graffiti and grease removers
____ Laundry products:
  ____ General purpose
  ____ Pretreatment/spot removers
____ Multipurpose cleaners
____ Trash bags/can liners (films):
  ____ Non-durable
  ____ Semi-durable

Food Service

____ Disposable containers
____ Disposable cutlery
____ Disposable tableware
____ Food Cleaners

Page 2

Attachment 8

TINKER AIR FORCE BASE RECOVERED MATERIALS DETERMINATION FORM (CONT)

The Energy Star products being procured are:

Building Products
____ Seal and insulate
____ Roof products
____ Windows, doors, and skylights

Commercial Appliances
____ Commercial clothes washers
____ Vending machines
Water coolers

Commercial Food Service Equipment
____ Commercial kitchen package
____ Commercial dishwashers
____ Commercial fryers
____ Commercial griddles
____ Commercial hot food holding cabinets
____ Commercial ice machines
____ Commercial ovens
____ Commercial refrigerators and freezers
____ Commercial steam cookers

Computers and Electronics
____ Audio/Video
____ Battery chargers
____ Computers
____ Displays
____ Enterprise servers
____ External power adapters
____ Imaging equipment
____ Televisions

Heating and Cooling
____ Air conditioning, central
____ Boilers
____ Fans, ventilating
____ Heat pumps, geothermal
____ Light commercial heating and cooling

Lighting
____ Commercial LED lighting
____ Light bulbs (CFLs)
____ Light Fixtures
____ LED light bulbs

Plumbing
____ Water heater, gas condensing
____ Water heater, heat pump
____ Water heater, high efficiency gas storage
____ Water heater, solar
____ Water heater, whole home gas tankless

Page 3

Attachment 8

TINKER AIR FORCE BASE RECOVERED MATERIALS DETERMINATION FORM (CONT)

The Federal Energy Management Program Low Standby Power products being procured are:

___ Audio products
___ Cell phone
___ Computer monitor
___ Copier
___ Cordless phone
___ Desktop computer
___ Docking station
___ DVD player
___ External disk drive
___ Fax
___ Laptop computer
___ Microwave
___ Multifunction device
___ Multimedia projectors
___ FPDA holder and charger
___ Printer
___ Room air conditioner
___ Scanner
___ Telephone answering machine
___ TV
___ TV/VCR/DVD combinations

Page 4

Attachment 8

TINKER AIR FORCE BASE RECOVERED MATERIALS DETERMINATION FORM (CONT)

Recovered Materials Procurement Determination

____ EPA recycled-content requirements have been met for this procurement action.

****** OR *******

____ The following EPA designated guideline item is included in the specifications for project number _____, however, compliance with EPA standards is not attainable.

Item(s): _____

I have determined that the EPA guidelines were considered and determined inapplicable, based on the following:

____ Item is not available within a reasonable period of time.

Need date:_____ Date available: _____

____ Item fails to meet a performance standard in the specifications.

Describe the standard and why it is needed:_____

_____

_____

Describe how the guideline item fails to meet the standard: _____

_____

_____

____ Item is not available from 2 or more sources.

Market research was performed by calling _____ (insert number) vendors, but only _____ (enter name) was able to supply the item.

____ Item was only available at an unreasonable price (i.e., recycled item is more expensive).

Price of recycled item: _____

Price of non-recycled item: _____

This determination is made in accordance with FAR 23.405(c).

_____ _____ Approve _____ Disapprove

Civil Engineering Recommendation

_____ _____

Signature of Contracting Officer Date

Page 5

ATTACHMENT 9

EMS Awareness Training

Environmental Management System (EMS) Awareness Training

WHAT IS AN ENVIRONMENTAL MANAGEMENT SYSTEM?

An Environmental Management System (EMS) is a system to achieve continual improvement in mission performance by reducing environmental risks and cost. It allows senior leaders to determine and focus on the highest priorities to sustain or enhance the mission. It integrates our existing environmental programs into a single framework.

SELF-DECLARATION OF ENVIRONMENTAL MANAGEMENT SYSTEM IN-PLACE

Tinker AFB formally established its EMS in November 2005 with the latest Self-Declaration of conformance on 30 Aug 2018.

ENVIRONMENTAL POLICY STATEMENT

The latest Environmental Policy Statement was issued on 30 Aug 2018 and is attached for review as part of this training requirement.

DEFINITIONS

Environmental Aspect – Element of an organization's activities or products or services that can interact with the environment
Environmental Impact – Any change to the environment whether adverse or beneficial, wholly or partly resulting from an organization's environmental aspects
Environmental Objective – Overall environmental goal, consistent with the environmental policy that an organization sets itself to achieve

SIGNIFICANT ENVIRONMENTAL ASPECTS

Tinker high priority environmental aspects are as follows:

- Hazardous Waste Generation
- Air Emissions
- Storm Water

OBJECTIVES AND TARGETS

- Maintain Compliance – No Notices of Violation
- Reduce Hazardous Waste – Hazardous Waste Target: Reduce 20% by 2020, 2008-10 baseline; Interim 7% by 2015; 15% by 2018
- Reduce Solid Waste – Solid Waste Target: Divert 65% by weight by 2020 (excluding construction/demolition debris); interim 55% by 2015 and 60% by 2018
- Reduce Toxic Release Inventory (TRI) Releases – Toxic Release Inventory (TRI) Releases Target: Reduce 35% by 2020, 2006 baseline; interim 20% by 2015 and 30% by 2018

TRAINING REQUIREMENTS:

Contractor employees working on Tinker AFB must review the Tinker Environmental Management System (EMS) General Awareness Training for Contractors (PowerPoint slides) and the annual EMS policy letter (attached).

ADDITIONAL INFORMATION

For additional information or assistance with the EMS training, contact: Mr. Joe Kracke, EMS Coordinator, 405-734-4586, joseph.kracke.1@us.af.mil

ENVIRONMENTAL COMPLIANCE AND STEWARDSHIP IS THE DUTY OF EACH INDIVIDUAL WORKING ON TINKER AFB.

CONTRACTOR CERTIFICATION:

I certify that all employees physically working on Tinker AFB will be view the Tinker AFB EMS General Awareness Training slides.

_____

Contractor Representative Date

ATTACHMENT 10

Environmental Policy Statement

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 72D AIR BASE WING (AFMC)
TINKER AIR FORCE BASE OKLAHOMA

MEMORANDUM FOR TINKER DISTRIBUTION E AND ALL ASSOCIATE UNITS

FROM: 72 ABW/CC

SUBJECT: Tinker AFB Environmental Policy

1. Tinker Air Force Base, including all units, mission partners and contractors, is committed to performing its mission in a responsible manner that protects human health and the environment. In doing so, we strive to comply with all applicable environmental laws and regulations. We are dedicated to continuous improvement of our processes to prevent and reduce waste generation and pollution. This commitment goes beyond compliance with the law and integrates sound environmental practices into our daily decisions and activities. In all our activities we will seek to:

a. Maintain an effective Environmental Management System (EMS), promote the use of safe technologies and operating practices, and provide rapid response to spills and other environmental emergencies, in order to enhance environmental stewardship and minimize adverse impacts to base employees, their families, and the environment

b. Set environmental goals, measure progress, take corrective action when necessary to address noncompliance situations and to remediate environmental damage from past activities, and effectively communicate all applicable environmental information to base workers, regulators, and the public

c. Establish and implement an effective pollution prevention program, minimize generation of waste, recycle materials to prevent waste when possible, and dispose of all remaining waste in an environmentally responsible manner

d. Ensure responsible use of energy throughout the installation; including the adoption of innovative practices and procedures to improve energy efficiency

e. Balance development of built and natural land areas to ensure a quality environment which fully supports and sustains military readiness while meeting environmental conservation mandates

2. Compliance with this policy is the responsibility of everyone at Tinker AFB. In accordance with the Air Force EMS policy, all personnel are responsible to support the Air Force mission by complying with regulations, reducing risks, and instilling a culture of continual improvement.

3. Should you have any questions or concerns regarding this policy, please contact Tinker Environmental Management System (EMS) Coordinator, Mr. Joe Kracke, 734-4586, joseph.kracke.1@us.af.mil.

FILCEK.PAUL.G.1169589751 Digitally signed by FILCEK.PAUL.G.1169589751 Date: 2019.12.13 07:00:51 -06'00'

PAUL G. FILCEK, Colonel, USAF
Commander

ATTACHMENT 11

Integrated Cultural Resource Management Plan, Section E.13 - Unexpected Discoveries of Archeological Materials During Construction Projects

E.13 Unexpected Discoveries of Archeological Materials During Construction Projects

Although Tinker AFB may receive concurrence from the SHPO and other parties about its proposed undertakings at many points in the compliance process, Tinker AFB should also maintain the necessary resources to handle an unanticipated discovery.

An unanticipated discovery is defined as one found during a construction project in an area that has already been adequately surveyed or deemed not to require surveyance (with SHPO concurrence), and the site in question was not found during that survey. Unanticipated discoveries are usually archeological in nature, found when ground-disturbing activities uncover a new site in an area that has already been adequately surveyed. The following are the steps that are taken during an unexpected cultural resource discovery involving human remains:

1. The persons responsible for the activity that resulted in the discovery of human remains (construction contractor, permittee, etc.) stop all work in the area around the resource and notify the CRM. All work is not obligated to cease on the project, but every effort must be made to prevent further damage until an NRHP evaluation is completed and any mitigation activities completed.

2. The CRM notifies the Department of the Interior's Department Consulting Archaeologist (DCA) of the discovery, who must respond within 48 hours of notification. The CRM also notifies the SHPO.

3. The DCA (or a representative), in conjunction with the SHPO, will conduct an on-site inspection, during which time the DCA and SHPO will make an NRHP determination. If the determination is that the site is not eligible, then the work proceeds. If the site is eligible for the NRHP, then the DCA and SHPO will produce an appropriate mitigation plan. The eligibility determination and mitigation plan are produced within 48 hours of the initial DCA notification.

4. If the SHPO is unable to participate in the NRHP evaluation or the development of the mitigation plan, the SHPO will comment on the mitigation plan produced by the DCA.

5. If the SHPO and DCA cannot agree on the mitigation procedures, then the ACHP is asked to participate.

6. The CRM abides by the NRHP-eligibility decision and implements the mitigation procedures. The CRM arranges for project funds to be appropriated in order to carry out the mitigation plan.

7. Tinker AFB then selects a qualified contractor (see page 128) who completes the mitigation measures within a reasonable period of time. The CRM works with the

ATTACHMENT 11

Integrated Cultural Resource Management Plan, Section E.13 - Unexpected Discoveries of Archeological Materials During Construction Projects (cont)

(c) Where practical, the section of repaired line shall be isolated, flushed and chlorinated with a 50 – 100 ppm chlorine solution and allowed to stand for 24 hours. If the section cannot be isolated for long periods of time, chlorination may be increased to 300 ppm with a 15 minute contact time.

(d) Once the appropriate chlorination/contact time option has been accomplished, the repaired section of line shall be flushed. Flushing shall occur toward the work location and shall continue until all discolored water has disappeared. In accordance with National Pollutant Discharge Elimination System (NPDES) requirements and storm water quality regulations, water flushed from the system shall be de-chlorinated and tested for chlorine prior to discharge. Water shall contain less than 0.1 mg/l total residual chlorine when discharged into any conveyance of the storm water system.

(e) After the lines are flushed, repair peronnel shall coordinate water sampling with Bioenvironmental Engineering. Water service shall remain "on" during sample incubation, but customers shall be notified to avoid consuming the water (an example is attached). Repair personnel are responsible for accomplishing all notifications.

(f) If water samples test postive for coliform bacteria, this process shall be repeated. Once water samples test negative for coliform bacteria, this process terminates.

2) In the event the sampling must be accomplished after duty hours, the Bioenvironmental Engineer technician on call can perform the sampling. On-call personnel can be contacted through the Fire Department control room, 4-7964.

2. Please direct suggestions or questions to Bioenvironmental Engineering at 734-7844.

ATTACHMENT 11

Integrated Cultural Resource Management Plan, Section E.13 - Unexpected Discoveries of Archeological Materials During Construction Projects (cont)

selected contractor to coordinate the earliest time the base can resume work in the site area.

The following are the offices the CRM contacts in the event of an unexpected (emergency) discovery of human remains. The DCA is located in Washington DC and will usually send someone from a local NPS office to conduct the on-site inspection.

1. Departmental Consulting Archaeologist
   Department of the Interior
   National Park Service
   P.O. Box 37127
   Washington, DC 20013-7127
   (202-343-4101)

2. National Park Service
   Midwest Regional Office
   1709 Jackson Street
   Omaha, Nebraska 68102
   (402-864-3431)

3. Oklahoma Historical Society
   State Historic Preservation Office
   2704 Villa Prom, Shepard Mall
   Oklahoma City, Oklahoma 73107-2441
   (405-521-6249)

E.13.1 Discovery and removal of human remains

Discoveries involving human remains will most likely come from an unexpected discovery made during the course of a ground-disturbing activity such as construction or an authorized archeological excavation. In the event of a discovery, it is imperative that all work in the area that might affect the integrity of the burial be terminated immediately. Because burials may fall under three possible categories—Native American, Euro-American, and recently interred—the guidelines below are used to determine what chain of command is to be followed.

The unexpected discovery of human remains requires the following steps:

1. The persons responsible for the activity that resulted in the discovery of the remains (construction contractor, permittee, etc.) stop all work in the area that could potentially have an adverse effect on the discovered human remains and simultaneously contact Security Forces (SF) and the CRM for consultation and implementation of the appropriate burial laws.

2. The CRM is then to notify a qualified Cultural Resources Specialist (referred to as "Specialist") for the base. The Specialist then needs to first certify the receipt of notification of the burial, and then take immediate steps, if necessary, to secure and

ATTACHMENT 11

Integrated Cultural Resource Management Plan, Section E.13 – Unexpected Discoveries of Archeological Materials During Construction Projects (cont)

a. literature search, professional archeological survey, and spatial mapping of individual burials;

b. physical recordation of existing burial/cemetery (photographs, marker rubbings, oral histories);

c. consultation with next of kin or descendants of previous land owners;

d. acquisition of space for reburial;

e. exhumation by a qualified professional (in accordance with ARPA and its implementing regulations) using protective health measures for burial excavations;

f. reinternment by a qualified professional;

g. spatial mapping of new burial sites; and

h. documentation of compliance with ARPA and other applicable Federal, state, and local laws.

9. Tinker AFB may resume its activity 30 days after receipt of written confirmation, providing all state and federal rules have been met. A waiver of the 30-day work stoppage requirement is possible if there is a contingency plan in place.

Attachment 12

TREE PROTECTION REQUIREMENTS

1. TREE PLANTING/REMOVAL.

1.1 TREE PLANTING/REMOVAL PERMIT.

If trees are removed or planted on base, a permit must be obtained prior to commencement of work. Contact Civil Engineering Natural Resources (739-7074 or 739-7062) for permit information.

1.2 TREE SPECIES SELECTION/PLANTING.

Only trees listed on the Tinker Air Force Base Native Tree List shall be planted on base. Contact Civil Engineering Natural Resources (739-7074 or 739-7062) for current list. All trees shall be planted as shown on the TAFB Tree Planting/Staking and Root Protection Detail available from Natural Resources office. Trees shall not exceed two (2) inches in trunk diameter (measured at 6 inches above the top of the root ball or soil in a containerized plant) at the time of planting. All contractor-provided trees shall comply with ANSI Z60.1-1990, American Standard for Nursery Stock (or most current version).

1.3 TREE TRANSPLANTING.

If select trees cannot be retained on a particular site, they shall be transplanted when practicable. For purposes of this requirement, transplantable trees are typically defined as healthy, native, well-formed trees with trunk diameters between 1 and 6 inches (measured at 6 inches above the ground).

1.4 TREE REPLACEMENT.

It is base policy that for every tree removed two replacement trees shall be planted. Trees shall be replanted within the construction limits. If this is not possible, trees shall be replanted at another location on base approved by the Contracting Officer.

2. TREE PROTECTION.

2.1 TREE PROTECTION PLAN.

Prior to construction/demolition activities around trees, a tree protection plan shall be submitted to the Contracting Officer for coordination/approval. This is not intended to be an extensive, costly plan but rather a simple outline detailing what will be done to protect the trees during construction. The plan shall include:

a. Plan view sketch or drawing of site showing tree locations and proposed protection measures.
b. A brief narrative of what materials will be used and when they will be installed/removed.
c. If trenching is required across a root zone, techniques used to minimize root damage shall be described.

2.2 ROOT ZONE PROTECTION.

Root zones shall be protected from erosion, soil compaction, unearthing, severing, and other events that could be harmful to the health of trees. Trees that are to be retained in place during construction shall be fenced off using steel T-posts and high visibility barrier fencing prior to bringing construction equipment on site. Fencing shall be installed 10’ beyond the drip line of each tree or cluster of trees. Where this is not practicable, trees shall be fenced at the drip line, as a minimum. No vehicles, equipment, or supplies shall be staged within the barricaded area. Tree care protection procedures shall be accomplished for the duration of construction.

In some locations where barrier fencing is not possible (e.g., due to construction requirements such as vehicles needing to travel over root zones), impacts must be minimized by such practices as temporary placement of heavy woodchip mulch (10” deep minimum) on the area to be traversed prior to commencement of work.

Trenching across root zones shall be avoided. Alternatives such as reconfiguring trench routes or horizontal boring shall be employed where possible. If trenching across a root zone is the only viable option, roots shall be severed cleanly with specialized trenching equipment.

2.3 TRUNK PROTECTION.

All newly planted trees shall be protected with tree guards (Arbor Guard, or equivalent). Guard placement shall be such that the base of the guard is in firm contact with the soil at the base of the tree. It shall be securely tacked (½ to ¾ inch tack) to the tree to prevent the guard from riding up or coming off the trunk. The tack shall be opposite the open end of the tree guard such that the guard can freely expand as the tree grows.

3. TREE SALVAGE.

As determined by the Government (i.e., Civil Engineering natural resources staff), all marketable or otherwise recyclable/salvageable trees removed from construction sites shall be salvaged and hauled to Government-designated on-base sites. The Government will determine which tree products will be salvaged and may include, but are not limited to:

3.1 LOGS

Large millable trees shall be cut down by the contractor in dimensions specified by the Government. The contractor shall load, haul, and off-load the logs intact and undamaged.

3.2 FIREWOOD

Some unmillable trees, or limbs removed from millable trees, shall be cut into clean (i.e., no small branches, stubs, leaves, etc.) 16-inch firewood lengths and hauled to the on-base forest products staging area. The Contractor shall off-load and stack the firewood at the staging area as directed by the Government. This shall be done for all branches and trunks over 2-inches in diameter. All limbs smaller than 2-inches in diameter and all other tree debris shall be properly disposed of off-base by the Contractor.

3.3 FISH & WILDLIFE STRUCTURE:

Some trees shall be hauled essentially intact and placed in base ponds or other areas for fish and wildlife habitat improvements or other conservation program needs. Rootballs from felled trees shall be removed intact and placed in ponds or other on-base locations. The Government will designate the locations.

ATTACHMENT 13

AF Form 487, Generator Operating Log (Inspection and Testing)

GENERATOR OPERATING LOG (Inspection Checklist)

Front: annotate optimal readings (operating temp., peak kW and amps, etc.)
Reverse: continuation of readings and annotate any discrepancies and/or corrective actions.

1. GENERAL INFORMATION

A. INSPECTOR/OPERATOR (Print)	B. DATE	C. SUPERVISOR (Print/Signature)	D. DATE

E. RECORD ID	F. SITE NAME/BUILDING NUMBER	G. ORGANIZATION	H. BASE

I. START HRS	J. FINISH HRS	K. TIME	L. OUTSIDE TEMP.	M. SYSTEM TYPE	N. EQUIPMENT TYPE
				AUTO ☐ MANUAL ☐	RPIE ☐ EAID ☐

2. ALTERNATOR INFORMATION

A. MAKE	B. MODEL	C. SERIAL NUMBER	D. POWER FACTOR
E. VOLTAGE	**F. AMPERAGE RATING**	**G. KILOWATT RATING**	**H. OTHER_____**

3. ENGINE INFORMATION

A. MAKE	B. MODEL	C. SERIAL NUMBER	D. RPM/HZ	E. EXHAUST GAS TEMP.

4. AUTOMATIC/MANUAL TRANSFER SWITCH DATA ☐ N/A (This section is not required for generators without switchgear)

A. MAKE	B. MODEL	C. SERIAL NUMBER	D. BYPASS CAPABILITY
			YES ☐ NO ☐

E. AMP RATING	F. PHASE	G. POLES	H. DISCONNECT METHOD FOR LOAD TEST	I. ATS OPERATED (Attempt)
			KEY/TEST SWITCH ☐ MAIN DISCONNECT ☐	FIRST ☐ SECOND ☐ THIRD ☐ MANUAL ☐

5. GENERAL SITE AND GENERATOR SET CONDITIONS

	SAT	REMARKS/CORRECTIVE ACTION		SAT	REMARKS/CORRECTIVE ACTION
A. CLEANLINESS			E. BELT CONDITION		
B. LOOSE ITEMS			F. CONTROLS/GAUGES		
C. AREA (Room) LIGHTING			G. ENGINE VIBRATION		
D. GROUND CONNECTION			H. EXHAUST TEMP./CONDITION		°F

6. COOLING SYSTEM

A. LEAKS		
B. COOLANT LEVEL		
C. HOSES		
D. RADIATOR, LOUVERS		
E. AMBIENT TEMP.		°F
F. OPERATING TEMP.		°F

7. FUEL SYSTEM

A. LEAKS				
B. TRANSFER PUMP OPERATION				
C. TANK CAPACITY (Gal)	DAY		STORAGE	
D. TANK LEVEL (Gal)	DAY		STORAGE	
E. WATER DRAINED (Gal)	YES	NO	QUANTITY	

8. LOAD DEMAND

A. KILOWATTS (PEAK)						
B. AMPERAGE	PH1		PH2		PH3	
C. VOLTAGE (L-L)	PH1		PH2		PH3	

9. LUBRICATION SYSTEM

A. LEAKS		
B. OIL LEVEL		
C. OIL PRESSURE		PSI
D. OIL TEMP. (If applicable)		°F

10. BATTERY AND CHARGING SYSTEM

A. WIRING CONNECTIONS						
B. BATTERY VOLTS DC		C. INSTALL DATE (mm/yy)				
D. BATTERY TYPE	WET CELL		SEALED			
E. BATTERY CHARGING	VOLTS DC		AMPS			
F. BATTERY LOAD TEST	GOOD		WEAK		NOT TESTED	

11. AUTOMATIC/MANUAL TRANSFER SWITCH

A. WIRING AND CONNECTIONS		
B. CONTACT CONDITION		
C. COMPONENTS AND CONTROLS		
D. MECHANISM OPERABILITY		
E. INDICATOR LIGHTS		

12. MAINTENANCE ACTIONS ☐ (No maintenance due)

A. FILTER CHANGE	AIR		COOLANT		FUEL		OIL	
B. FLUIDS ADDED (Gal)			COOLANT		OIL			
C. LAST OIL CHANGE DATE (mm/yy)								
D. OIL ANALYSIS DATE (mm/yy)			RESULTS					

13. INSPECTION TYPE

A. SEMI-MONTHLY		B. MONTHLY		C. QUARTERLY	
D. SEMI-ANNUAL		E. ANNUAL		F. OTHER	
G. TEST METHOD (EGT, 30% Load or Less Than 30% Load)					
H. LOAD TYPE (Facility, Load Bank or Both)				I. DENIED LOAD TEST	

14. SITE DOCUMENTATION (Current Documentation)

A. OI's		B. TRAINING LETTER		C. ONE-LINE DIAGRAMS	

15. UNIT STARTED

A. FIRST		B. SECOND		C. THIRD		D. DID NOT START	

AF FORM 487, 20150401 Page 1

ATTACHMENT 13

AF Form 487, Generator Operating Log (Inspection and Testing)

16. SEMI-MONTHLY (These checks are minimum inspection requirements, personnel must complete all manufacturer inspection items)

DATE	ENG HRS	FLUID LEVEL		FUEL LEVEL		DC ELECTRICAL SYSTEM		PRINT NAME	SIGNATURE
		OIL	COOLANT	DAY	STORAGE	BATTERY	CHARGER		

17. READING CONTINUATION (This form will be closed out by 0000 hrs daily; close -out engine hours will be recorded in block 1J)

TIME	ENGINE HOURS	OIL PRESSURE	WATER TEMP	FUEL LEVEL		AMPS			kW	PRINTED NAME
				DAY	STORAGE	PH1	PH2	PH3		

18. REMARKS

19. FACILITY REPRESENTATIVE (Required for Semiannual Insp. or Denied Test)	Print Name/Rank	Sign
A. TEST DENIED ☐ Approval MFR from MAJCOM/CV has been provided	B. TEST COMPLETED ☐ I have verify proper function of all building equipment and systems while connected to actual facility load and under generator operation	

AF FORM 487, 20150401 Page 2

ATTACHMENT 14

Information for New Boilers

INFORMATION REQUIRED FOR NEW BOILER

INFORMATION REQUIRED FOR INSTALLATION/START-UP OF THE BOILER IN BLDG_____
POST LOCATION_____

Boiler Information

Manufacturer:

Model and MMBtu/hr input:

Serial Number:

Type of Boiler:

Primary Fuel:

Secondary/Alternative Fuel:

Dates of construction/installation/startup

Date construction commenced:

Date of installation of boiler:

Date of boiler startup (initial startup to check if the boiler is operating properly):

Date of boiler startup for continuous operation (official startup date):

Boiler Stack Information (note units, if different than shown)

Stack Diameter (ft):

Stack Height (ft):

Rated Stack Flow (cfm):

Stack temperature (°F):

Provide brochures and specifications available for the boiler

CONTINUOUS MAINTENANCE AND RECORDKEEPING REQUIREMENTS

Tune-up requirement-

Frequency is dependent on the Rated Heat Input Capacity of the Boiler, as follows:

> =10MMBtu/hr	Annual tuneups
< 10 but >5MMBtu/hr	Tune-ups every 2 years
<= 5MMBtu/hr	Tune-ups every 5 years

CEAN must be informed every time tune-ups are performed in the boilers

Date, time, and duration of every startup and shutdown of the boiler

Type of fuel and amount of fuel used during every startup and shutdown of the boiler

For dual fuel boilers (boilers that operate using NG and have liquid fuel as backup)

Date, type and amount of alternative fuel usage. Reason for using alternative fuel. If alternative fuel is used due to a natural gas curtailment, it needs to be notified immediately to CEAN.

SECTION 00 80 00

SPECIAL PROVISIONS FOR WORKING ON TINKER AFB

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 basic designation only. The most current edition of the listed publications at the time of contract/delivery order award shall be used.

TINKER AIR FORCE BASE (TAFB)

TAFBI 13-204 (2021) Airfield Operations

1.2 DEWATERING EXCAVATED AREA

It shall be the Contractor's responsibility to protect the construction area from damage due to rainwater. The Contractor shall provide and maintain at the job site sufficient pumps to remove rainwater from the excavated area as soon as practicable.

1.3 HAUL ROUTES

The haul routes to be used by the Contractor shall be as directed on the project drawings or by the Contracting Officer.

1.4 AIRFIELD OPERATIONS

All contractor activities on the airfield shall be pre-coordinated with the Contracting Officer in conjunction with the Chief, Airfield Management (CAM) prior to the Contractor proceeding on the airdrome. The provisions of TAFBI 13-204 and Section 00 80 05 SPECIAL PROVISIONS FOR WORKING ON OR NEAR THE AIRFIELD shall be strictly adhered to.

All runways, taxiways and aprons shall remain open during this project, unless specified otherwise by the Contracting Officer. The height of construction vehicles and equipment shall be limited to 12 feet above the surface. Absolutely no equipment or personnel will be allowed on the aircraft movement area or within 200 feet of the runways without permission from the Tinker Control Tower.

All Contractor personnel who will be operating their equipment or vehicles within the movement area or on any aircraft-parking ramp shall receive flight line driver training and have portable radios capable of communicating with Tinker Ground Control for projects over seven days.

The CAM may authorize certain contractors and other personnel to drive on the airdrome for short specified periods without completing the flight line driving training. However, Airfield Management will brief contractors and project engineers (or other supervisors responsible for the work being accomplished) and will provide flight line orientation for contractor vehicle operators prior to allowing them to drive on the airdrome.

Prior to commencing work on this project, the Contractor shall coordinate with the Contracting Officer for any airfield authorization passes that may be required.

Taxiing and towed aircraft shall have the right-of-way at all times. Close coordination will be maintained between the Contractor's on-site foreman and the Airfield Manager.

1.5 TRAFFIC CONTROL AND BARRICADES

1.5.1 Automobile Movement Areas

Construction areas affecting automobile movement areas shall be protected by an adequate number of barricades with working flashing lights, warning devices, construction signs, flagmen and personnel. The barricades and warning devices shall be in accordance with the "Manual on Uniform Traffic Control Devices for Streets and Highways" developed by the U.S. Department of Transportation as an approved national standard. All costs associated with providing the traffic control and barricades shall be considered incidentals and shall be borne by the Contractor at no additional cost to the Government.

1.5.2 Road Closures

On two lane roads, only one lane may be blocked at a time. On four lane roads, at least two lanes shall be kept open at all times and three at rush hour.

1.6 WASTE AREA

Unless otherwise specified in these specifications, all waste materials removed shall become property of the Contractor and shall be taken off base for disposal. Disposal site location shall be the responsibility of the Contractor.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.1 WINTER RECESS

A winter recess, between December 1 and March 1, can be negotiated per Delivery Order between the Contracting Officer and the Contractor. It shall be a no cost modification to the contract moving the Delivery Order completion date the amount of the recess time.

-- End of Section --

SECTION 00 80 05

SPECIAL PROVISIONS FOR WORKING ON OR NEAR THE AIRFIELD ON TINKER AFB

PART 1 GENERAL

The following provisions shall apply when work is required to take place on the active airfield, within the clear zones, or in the primary surfaces as defined by Unified Facilities Criteria 3- 260-1, Airfield and Heliport Planning and Design.

1.1 CLOSURES

a. All runway and taxiway closures require coordination and scheduling with Base Operations. Written requests for closures shall be submitted to the Contracting Officer no less than 45 calendar days prior to the requested date of closure. The request shall include:

   1. The nomenclature of the runway/taxiway to be closed
   2. The area of the runway/taxiway where the work is to take place
   3. The requested date of closure
   4. The estimated duration of closure
   5. A detailed description of the work to be performed
   6. A list of the equipment required to perform the work
   7. An estimate of the personnel required to perform the work

b. The Contracting Officer shall coordinate with Base Ops to close the requested runway/taxiway on or as close as possible to the date requested and for the length of time requested. The Contracting Officer shall notify the contractor, in writing, of the date and length of time approved for closure.

c. It is the responsibility of the contractor to have the necessary personnel, materials, and equipment ready to start work on the approved date of closure and to complete the work in the time requested. Under most circumstances, Base Operations will be unable to adjust flight and runway/taxiway utilization schedules to accommodate extensions to closures.

d. The contractor shall notify the Contracting Officer, in writing, when the work on the closed runway/taxiway is complete.

1.2 SAFETY

1.2.1 Personnel

The contractor shall provide all of his personnel ear plugs and/or ear muffs to prevent injury to their auditory systems while working on the Airfield. Jet aircraft operating on the runways, taxiways, and aprons make these areas zones of high-level noise. The government will not be held liable for auditory system damage due to non or improper use of noise protection equipment.

This requirement is in addition to the contractor providing his personnel with safety equipment required by OSHA for the work to be performed.

1.2.2 Aircraft

The contractor shall maintain a clean work site and shall implement all measures necessary to insure that material and equipment do not interfere with or damage aircraft operating or parked in areas of the airfield that are not closed. NO FOD.

1.3 ACCESS RESTRICTIONS

No unescorted contractor vehicles, equipment, or personnel shall be on or cross any active runway or taxiway unless clearance is requested from, and granted by, the control tower. All contractor vehicles and mechanized equipment operating on the landing areas (the first 1,000 feet from either end of the runway) will be identified by approved, mounted, low intensity, amber flashing lights. When contractor operations require repeated vehicle or personnel crossing of an active runway, taxiway, or other controlled area, a two-way radio, furnished by the Government, will be used to maintain contact with the control tower. Use of the radio for other purposes will be strictly prohibited. The radio will be returned to the Government at the end of each workday, and will be reacquired as necessary.

1.4 HEIGHT RESTRICTIONS

The construction of any temporary structure or the use of any equipment that extends more than 12 feet above the ground within 1000 feet of a runway or that extends 50 feet above the ground elsewhere on Tinker AFB shall be approved by the Government prior to installation or use. Written request for approval shall be submitted to the Contracting Officer no later than 21 calendar days prior to the date needed.

1.5 CLEANLINESS

The contractor shall maintain the cleanliness of his work site and all traversed runways, taxiways, aprons, and ramps at all times. He shall utilize methods and equipment to prevent spilling or dropping materials in these areas and shall utilize whatever method or equipment necessary to insure the removal of loose materials from these areas. The contractor shall remove all material and equipment to his staging area at the end of each work day. No material is to be stockpiled nor equipment stored within 1000 feet of the centerline of a runway.

1.6 EMERGENCIES

1.6.1 Evacuation Area

On the first day of work on the airfield, the contractor, a representative of the Contracting Officer, and a representative of Base Ops shall identify an area a safe distance from the runway where the contractor is to move his personnel and equipment during an aircraft emergency.

1.6.2 Evacuation

During an aircraft emergency, the contractor shall vacate the work site. He shall move all personnel and equipment to the designated evacuation area. Evacuation orders will be given on short notice and will require expeditious action by the contractor.

1.7 INSPECTION AND CLEANING

The contractor shall maintain, on site and in good working order, equipment capable of cleaning loose materials from the runway, taxiway, ramp, or apron. The contractor, accompanied by a Government representative, may be required to inspect the entire length of the runway and taxiway to insure that all personnel, debris, material, equipment, and tools have been removed from these areas.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 01 32 16.00 20

SMALL PROJECT CONSTRUCTION PROGRESS SCHEDULES

PART 1 GENERAL

1.1 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 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Baseline Construction Schedule; G

Baseline Design Schedule; G

SD-07 Certificates

Monthly Updates

3-Week Look Ahead Schedule

1.2 PRE-CONSTRUCTION SCHEDULE REQUIREMENT

Within 10 calendar days of issuance of Notice to Proceed, prepare and submit to the Contracting Officer a Baseline Design Schedule and Baseline Construction Schedule in the form of a Network Analysis Schedule (NAS) or a Bar Chart Schedule (as directed by the Contracting Officer) in accordance with the terms in Contract Clause FAR 52.236-15 Schedules for Construction Contracts, except as modified in this contract. The approval of a Baseline Construction Schedule is a condition precedent to:

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

b. Processing Contractor's invoice(s) for construction activities/items of work.

c. Review of any schedule updates.

Submittal of the Baseline Design and Construction Schedule, and subsequent schedule updates, is understood to be the Contractor's certification that the submitted schedule meets the requirements of the Contract Documents, represents the Contractor's plan on how the work will be accomplished, and accurately reflects the work that has been accomplished and how it was sequenced (as-built logic).

1.3 SCHEDULE FORMAT

1.3.1 Network Analysis Schedule (NAS)

Use the critical path method (CPM) to schedule and control project activities. Prepare and maintain project schedules using Microsoft Project. The scheduling software that will be utilized by the Government on this

project is Microsoft Project by Microsoft, Inc. Notwithstanding any other provision in the contract, schedules submitted for this project must be prepared using Microsoft Project. Submission of data from another software system where data conversion techniques or software is used to import into Microsoft Projects scheduling software is not acceptable and will be cause for rejection of the submitted schedule.

1.3.1.1 Activity Requirements

a. At a minimum, identify the following in the schedule:

(1) Design and Construction time for major systems and components

(2) Each activity assigned with its appropriate Responsibility Code

(3) Each activity assigned with its appropriate Phase and Area Codes

(4) Major submittals and submittal processing time

(5) Major equipment lead time

b. Build the Schedule as follows:

(1) Show design periods, submittals, Government review periods, material/equipment delivery, utility outages, on-site construction, inspection, testing, and closeout activities. Government and Contractor on-site work activities must be driven by calendars that reflect Saturdays, Sundays and all Federal Holidays as non-work days for 5-day work week calendars.

(2) With the exception of the Contract Award and End Contract milestone activities, use of open-ended activities is not allowed; each activity must have predecessor and successor ties. No activity must have open start or open finish (dangling) logic. Minimize redundant logic ties. Once an activity exists on the schedule it must not be deleted or renamed to change the scope of the activity and must not be removed from the schedule logic without approval from the Contracting Officer. While an activity cannot be deleted, where said activity is no longer applicable to the schedule but must remain within the logic stream for historical record, it can be changed to a milestone. Document any such change in the milestone's "Notebook," including a date and explanation for the change. The ID number for a deleted activity must not be re-used for another activity.

(3) Assign each activity its appropriate Responsibility Code and Area Code, indicating location and responsibility to accomplish the work indicated by the activity, Phase Code, and Work Location Code. Include anticipated tasks to be assigned Government responsibility.

(4) Date/time constraints or lags, other than those required by the contract, are not allowed unless approved by the Contracting Officer. Include as the last activity in the contract schedule, a milestone activity named "Contract Completion Date".

(5) Include the following Contract Milestones:

(a) Include as the first activity on the schedule a start milestone titled "Contract Award", which must have a Mandatory Start constraint equal to the Contract Award Date;

(b) Include Interim or Phased Completion Milestones required by the Contract or as approved by the Contracting Officer;

(c) Include Facility Turnover Planning Meeting Milestones;

(d) Include an unconstrained finish milestone on the schedule 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).

(e) Include an unconstrained finish milestone on the schedule titled "Projected Completion". Projected Completion is defined as the point in time the Government would consider the project complete. This milestone must have the Contract Completion Date (CCD) milestone as its only successor.

(f) Include as the last activity on the schedule a finish milestone titled "Contract Completion (CCD)" with constraint type "Must Finish No Later Than". Calculation of schedule updates must be such that if the finish of the "Projected Completion" milestone falls after the contract completion date, then negative float will be calculated on the longest path and if the finish of the "Projected Completion" milestone falls before the contract completion date, the float calculation must reflect positive float on the longest path. This milestone must be set to 5:00 pm.

(6) Provide lead time for major equipment.

1.3.1.2 Anticipated 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.

MONTHLY ANTICIPATED ADVERSE WEATHER DAYS (Based on NOAA Summary Monthly Normals for Oklahoma City)											
JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
3	3	5	5	6	6	4	5	5	5	4	3

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 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 critical to contract completion. 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.

1.3.1.3 Activity Identification

a. Identify Government, Construction Quality Management (CQM), Construction activities planned for the project and other activities that could impact project completion if delayed.

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

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

d. Do not use construction category activity to represent non-work type reference (Such as, Serial Letter or Request for Information) in NAS.

e. Place non-work reference within P6 activity details notebook. Activity categories included in the schedule are specified below.

1.3.1.4 Responsibility Code

Assign each activity its appropriate Responsibility Code indicating responsibility to accomplish the work indicated by the activity, Phase Code and Work Location Code.

1.3.1.5 Microsoft Project Settings and Parameters

Use the following MS Project settings and parameters in preparing the Baseline Schedule:

a. The Network must have a minimum of 30 construction activities.

b. No on-site construction activity may have durations in excess of 20 working days.

c. Critical is defined as having zero days of Total Slack. Within the Baseline Schedule no more than 20 percent of the activities shall be critical.

d. Logic: include the following setting: File, Options, Schedule tab - Split in-progress tasks - must be selected.

e. Status Date gridline is displayed in the Gantt Chart view.

f. Task Type is set to Fixed Work for "boots-on-the-ground" construction activities.

g. Task Type is set to Fixed Duration for design activities, submittals, Government reviews, procurement, material/equipment delivery, and utility outages.

h. "Effort Driven" is turned ON for Fixed Duration tasks.

i. Time Periods established for the project are set to 8 Hrs/Day, 40 Hrs/Week and 20 days/month.

j. Week starts on Monday must be selected.

k. Default start time is set to 7am (0700).

l. Default end time is set to 4pm (1600).

1.3.1.6 Cost Loading Microsoft Project Schedules

Assign material, labor and equipment costs to their respective Construction Activities. Evenly disperse overhead and profit to each activity over the duration of the project. Cost loading must total to 100 percent of the value of the contract.

1.3.1.6.1 Software Settings

a. Resource Sheet

(1) Resource Name: Enter each code and resource for the project
(2) Type: Set to "Material"
(3) Material Label: Enter units of measurement for each resource
(4) Std. Rate: Enter unit cost for each resource
(5) Accrue at: Set to "Prorated"

b. Assigning Resources to Each Activity

(1) Select each activity in Gantt Chart
(2) Assign resources, Resource Tab
(3) Select each resource and enter the quantity of the units; then, assign the resource(s) to the activity

c. Baseline for Earned Value Calculation, File Tab, Options, Advanced, Default task Earned Value method: Set to "Physical % Complete" or as directed by the Contracting Officer

1.3.1.6.2 Tabular Reports

1.3.1.6.2.1 Tracking Gantt Schedule with Cost Table

Submit a Tracking Gantt Schedule with each schedule update showing activity baseline cost, cost percent complete, and Budgeted Cost of Work Performed (BCWP), as directed by the Contracting Officer.

1.3.1.6.2.2 Earned Value Over Time Report

a. With each schedule submission, submit Earned Value Over Time Report S-Curves indicating Planned Value to the contract completion date based on projected early and late activity finish dates and Earned Value.

b. Revise Earned Value Over Time Report S-Curves when the contract is modified, or as directed by the Contracting Officer.

1.3.2 Bar Chart Schedule

The Bar Chart must, as a minimum, show work activities, submittals,

Government review periods, material/equipment delivery, utility outages, on-site construction, inspection, testing, and closeout activities. The Bar Chart must be time scaled and generated using an electronic spreadsheet program.

1.3.3 Schedule Submittals and Procedures

Submit Schedules and updates in PDF format on electronic media that is acceptable to the Contracting Officer. Submit an electronic back-up of the project schedule in an import format compatible with the Government's scheduling program.

1.4 SCHEDULE MONTHLY UPDATES

Update the Design and Construction Schedule at monthly intervals or when the schedule has been revised. Keep the updated schedule current, reflecting actual activity progress and plan for completing the remaining work.

a. Narrative Report: Identify and justify the following:

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

(2) Longest Path: Include PDF copy on 11 by 17 inch paper, landscape setting;

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

(4) Listing of changes made between the previous schedule and current updated schedule including: added or removed 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.

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

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

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

(8) Current and anticipated delays (describe cause of delay and corrective actions(s) and mitigation measures to minimize);

(9) Description of current and future schedule problem areas.

For each entry in the narrative report, cite the respective Activity ID and Activity Name, the date and reason for the change, and description of the change.

1.5 CONTRACT MODIFICATION

Submit a Time Impact Analysis (TIA) 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, and extends the Projected Finish beyond the Contract Completion Date.

a. Each TIA must be in both narrative and schedule form. The narrative must define the scope and conditions of the change; provide start and finish dates of impact, successor and predecessor activity to impact period, responsible party, describe how it originated, and how it impacts the schedule. The schedule submission must consist of three native files:

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

(2) Most recent accepted schedule update as of the time of the proposal or claim submission that has been updated to show all activity progress as of the time of the impact start date.

(3) The impacted schedule that has the fragnet inserted in the updated schedule and the schedule "run" so that the new completion date is determined.

b. 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 schedule update used.

c. 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 delays as follows:

(a) Force majeure delay (e.g. weather delay): Any delay event caused by something or someone other than the Government (including its agents) 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 critical 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 critical 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, provide a Corrective Action Plan, identifying plan to mitigate delay, to the Contracting Officer.

(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) Use functional theory to analyze concurrent delays, where: Separate delay issues delay project completion, do not necessarily occur at same time, rather occur within same monthly schedule 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) A 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.

1.6 3-WEEK LOOK AHEAD SCHEDULE

Prepare and issue a 3-Week Look Ahead schedule to provide a more detailed day-to-day plan of upcoming work identified on the Construction Schedule. Key the work plans to activity numbers when a NAS is required and update each week to show the planned work for the current and following two-week period. Additionally, include upcoming outages, closures, preparatory meetings, and initial meetings. Identify critical path activities on the Three-Week Look Ahead Schedule. Deliver electronic version of the 3-Week Look Ahead Schedule to the Contracting Officer each Monday, and review during the weekly Production Meeting.

1.7 CORRESPONDENCE AND TEST REPORTS:

Correspondence (e.g., letters, Requests for Information (RFIs), e-mails, meeting minute items, Production and QC Daily Reports, material delivery tickets, photographs) must reference Schedule Activities that are being addressed. Test reports (e.g., concrete, soil compaction, weld, pressure) must reference Schedule Activities that are being addressed.

1.8 ADDITIONAL SCHEDULING REQUIREMENTS

Any references to additional scheduling requirements, including systems to be inspected, tested and commissioned, that are located throughout the remainder of the Contract Documents, are subject to all requirements of this section.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 SUMMARY

1.1.1 Submittal Information

The Contracting Officer and/or the Contracting Officer's Representative may request submittals in addition to those specified when deemed necessary to adequately describe the work covered in the respective sections. Each submittal is to be complete and in sufficient detail to allow ready determination of compliance with contract requirements.

Units of weights and measures used on all submittals are to be the same as those used in the contract drawings.

1.1.2 Project Type

The Contractor's Quality Control (QC) Manager and the Designer of Record (DOR), if applicable, are to check and approve all items before submittal and stamp, sign, and date indicating action taken. Proposed deviations from the contract requirements are to be clearly identified. Include within submittals items such as: Contractor's, manufacturer's, or fabricator's drawings; descriptive literature including (but not limited to) catalog cuts, diagrams, operating charts or curves; test reports; test cylinders; samples; O&M manuals (including parts list); certifications; warranties; and other such required submittals.

1.1.3 Submission of Submittals

Schedule and provide submittals requiring Government approval before acquiring the material or equipment covered thereby. Pick up and dispose of samples not incorporated into the work in accordance with manufacturer's Safety Data Sheets (SDS) and in compliance with existing laws and regulations.

1.2 DEFINITIONS

1.2.1 Submittal Descriptions (SD)

Submittal requirements are specified in the technical sections. Examples and descriptions of submittals identified by the Submittal Description (SD) numbers and titles follow:

SD-01 Preconstruction Submittals

Submittals that are required prior to or at the start of construction (work) or the next major phase of the construction on a multiphase contract.

Preconstruction Submittals include schedules and a tabular list of locations, features, and other pertinent information regarding products, materials, equipment, or components to be used in the work.

Certificates Of Insurance

Surety Bonds

List of Proposed Subcontractors

Baseline Schedule

Submittal Register

Schedule of Prices or Earned Value Report

Accident Prevention Plan

Work Plan

Quality Control (QC) Plan

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, systems or equipment for some portion of the work.

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

SD-04 Samples

Fabricated or unfabricated 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 ensuring work can be judged. Includes assemblies or portions of assemblies that are to be incorporated into the project and those that will be removed at conclusion of the work.

SD-05 Design Data

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

Design submittals, design substantiation submittals and extensions of design submittals.

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. Unless specified in another section, testing must have been within three years of date of contract award for the project.

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

Report that 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 logs and checklists

Final acceptance test and operational test procedure

SD-07 Certificates

Statements printed on the manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that the 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 manufacturer, supplier, installer or Subcontractor through Contractor. The document purpose is to further promote the 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 (SDS)concerning impedances, hazards and safety precautions.

SD-09 Manufacturer's Field Reports

Documentation of the testing and verification actions taken by manufacturer's representative at the job site, in the vicinity of the job site, or on a sample taken from the job site, on a portion of the

work, during or after installation, to confirm compliance with manufacturer's standards or instructions. The documentation must be signed by an authorized official of a testing laboratory or agency and state the test results; and indicate whether the material, product, or system has passed or failed the test.

Factory test reports

SD-10 Operation and Maintenance Data

Data provided by the manufacturer, or the system provider, including manufacturer's help and product line documentation, necessary to maintain and install equipment, for operating and maintenance use by facility personnel.

Data required by operating and maintenance personnel for the safe and efficient operation, maintenance and repair of the item.

Data incorporated in an operations and maintenance manual or control system.

SD-11 Closeout Submittals

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

Submittals required for Guiding Principle Validation (GPV) or Third Party Certification (TPC).

Special requirements necessary to properly close out a construction contract. For example, Record Drawings and as-built drawings. Also, submittal requirements necessary to properly close out a major phase of construction on a multi-phase contract.

1.2.2 Approving Authority

Office or designated person authorized to approve the submittal.

1.2.3 Contracting Officer's Representative

The Contracting Officer's Representative is an individual designated by the Contracting Officer and authorized to perform specific technical or administrative functions.

The Contracting Officer's Representative is not authorized to make any commitments or changes that will affect price, quality, quantity, delivery, or any other term or condition of the contract. It shall be the Contractor's responsibility to contact the Contracting Officer concerning any matters where the Contractor believes that the direction received from the Contracting Officer's Representative may affect price, quality, quantity, delivery, or any other term or condition of the contract prior to performing work or purchase of material.

1.2.4 Work

As used in this section, on-site and off-site construction required by contract documents, including labor necessary to produce submittals, construction, materials, products, equipment, and systems incorporated or to be incorporated in such construction. In exception, excludes work to

produce SD-01 submittals.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor QC approval. Submit the following in accordance with this section.

SD-01 Preconstruction Submittals

Submittal Register; G

1.4 SUBMITTAL CLASSIFICATION

1.4.1 Government Approved (G)

Government approval is required for extensions of design, critical materials, variations, equipment whose compatibility with the entire system must be checked, and other items as designated by the Government.

Government approval is required for any variations from the Solicitation or the Accepted Proposal and for other items as designated by the Government.

Within the terms of the Contract Clause SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION, submittals are considered to be "shop drawings."

1.4.2 Design-Build Submittal Classifications

1.4.2.1 Designer of Record Approved (D)

Designer of Record (DOR) approval is required for extensions of design; critical materials; any variations from the Solicitation, the Accepted Proposal, or the completed design; equipment whose compatibility with the entire system must be checked; and other items as designated by the Contracting Officer and/or the Contracting Officer's Representative. The Government may review any or all Designer of Record approved submittals for conformance with the Solicitation, the Accepted Proposal, and the completed design. The Government will review all submittals designated as varying from the Solicitation or Accepted Proposal, as described below. Provide design submittals in accordance with Section 01 33 16.00 10 DESIGN DATA (DESIGN AFTER AWARD). Generally, list design submittals under SD-05 Design Data.

1.4.2.2 Government Conformance Review of Design (C)

The Government will review all intermediate and final design submittals for conformance with the technical requirements of the Solicitation. Section 01 33 16.00 10 DESIGN DATA (DESIGN AFTER AWARD) covers the design submittal and review process in detail. Review will be only for conformance with the applicable codes, standards, and contract requirements. Design data includes the design documents described in Section 01 33 16.00 10 DESIGN DATA (DESIGN AFTER AWARD).

1.4.2.3 Designer of Record Approved/Government Conformance Review (R)

1.4.2.3.1 Variations from the Accepted Design

DOR approval and the Government's concurrence are required for any

proposed variation from the accepted design that still complies with the contract before the Contractor is authorized to proceed with material acquisition or installation. If necessary to facilitate the project schedule, before official submission to the Government, the Contractor and the DOR may discuss with the Contracting Officer's Representative a submittal proposing a variation. However, the Government reserves the right to review the submittal before providing an opinion. In any case, the Government will not formally agree to or provide a preliminary opinion on any variation without the DOR's approval or recommended approval. The Government reserves the right to reject any design, variation that may affect furniture, furnishings, equipment selections, or operational decisions that were made, based on the reviewed and concurred design.

1.4.2.3.2 Substitutions

Unless prohibited or otherwise provided for elsewhere in the contract, where the Accepted Proposal named products, systems, materials or equipment by manufacturer, brand name, model number, or other specific identification, and the Contractor desires to substitute a manufacturer or model after award, submit a requested substitution for Government concurrence. Include substantiation, through identifying information and the DOR's approval, that the substitute meets the contract requirements and that it is equal in function, performance, quality, and salient features to that in the accepted contract proposal. If the contract otherwise prohibits substitutions of equal named products, systems, materials or equipment by manufacturer, brand name, model number or other specific identification, the request is considered a "variation" to the contract. Variations are discussed below in paragraphs: DESIGNER OF RECORD APPROVED/GOVERNMENT APPROVED and VARIATIONS.

1.4.2.4 Designer of Record Approved/Government Approved (A)

In addition to the above-stated requirements for proposed variations to the accepted design, both DOR and Government Approval and, where applicable, a contract modification are required before the Contractor is authorized to proceed with material acquisition or installation for any proposed variation to the contract (the Solicitation or the Accepted Proposal), that constitutes a change to the contract terms. The Government reserves the right to accept or reject any such proposed variation.

1.4.3 For Information Only

Submittals not requiring Government approval will be for information only. For Design-build construction all submittals not requiring DOR or Government approval will be for information only. Within the terms of the Contract Clause SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION, they are not considered to be "shop drawings."

1.5 PREPARATION

1.5.1 Transmittal Form

Use Attachment 1 - TAFB Form 3000 (TAFBF 3000) for submitting both Government- approved and information-only submittals. Submit in accordance with the instructions on the reverse side of the form. These forms will be furnished to the Contractor. Properly complete this form by filling out all the heading blank spaces and identifying each item submitted. Exercise special care to ensure proper listing of the specification paragraph and sheet number of the contract drawings

pertinent to the data submitted for each item.

1.5.2 Identifying Submittals

The Contractor's Quality Control Manager must prepare, review and stamp submittals, including those provided by a subcontractor, before submittal to the Government.

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. Dates 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 by which submittal is required

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

g. For 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 Submittal Format

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

Provide data in the unit of measure used in the contract documents.

1.5.3.1 Format of SD-01 Preconstruction Submittals

Provide preconstruction submittals formatted for output on 8-1/2 by 11 inch paper; items such as submittal registers and schedules may be formatted for 11 by 17 inch output.

1.5.3.2 Format for SD-02 Shop Drawings

Provide shop drawings formatted not less than 8-1/2 by 11 inches nor more than 22 by 34 inches, except for full-size patterns or templates. Prepare drawings to accurate size, with scale indicated, unless another form is required. Ensure drawings are suitable for reproduction and of a quality to produce clear, distinct lines and letters, with dark lines on a white background.

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

b. 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.

Where hard copy submittals are required, present shop drawings sized 8-1/2 by 11 inches as part of the bound volume for submittals. Present larger drawings in sets sized no larger than 11 by 17 inches. Submit electronic copies of drawings in PDF format.

1.5.3.2.1 Drawing Identification

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

Number drawings in a logical sequence. Each drawing is to bear the number of the submittal in a uniform location next to the title block. Place the Government contract number in the margin, immediately below the title block, for each drawing.

1.5.3.3 Format of SD-03 Product Data

Present product data submittals for each section. Include a table of contents, listing the page and catalog item numbers for product data.Provide product data formatted for output on 8-1/2 by 11 inch paper.

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

1.5.3.3.1 Product Information

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

Provide product data in units used in the Contract documents. Where product data are included in preprinted catalogs with another unit, submit the dimensions in contract document units, on a separate sheet.

1.5.3.3.2 Standards

Where equipment or materials are specified to conform to industry or technical-society reference standards of such organizations as the American National Standards Institute (ANSI), ASTM International (ASTM), National Electrical Manufacturer's Association (NEMA), Underwriters Laboratories (UL), or Association of Edison Illuminating Companies (AEIC), submit proof of such compliance. The label or listing by the specified organization will be 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 and/or the Contracting Officer's Representative. 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.

1.5.3.3.3 Data Submission

Collect required data submittals for each specific material, product, unit of work, or system into a single submittal that is 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 the construction effort.

Submit the manufacturer's instructions before installation.

1.5.3.4 Format of SD-04 Samples

1.5.3.4.1 Sample Characteristics

Furnish samples in the following sizes, unless otherwise specified or unless the manufacturer has prepackaged samples of approximately the 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 Volume of Nonsolid Materials: Pint. Examples of nonsolid 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.

1.5.3.4.2 Sample Incorporation

Reusable Samples: Incorporate returned samples into work only if so specified or indicated. Incorporated samples are to be in undamaged condition at the time of use.

Recording of Sample Installation: Note and preserve the notation of any area constituting a sample installation, but remove the notation at the final clean-up of the project.

1.5.3.4.3 Comparison Sample

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.

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

1.5.3.5 Format of SD-05 Design Data

Provide design data and certificates formatted for output on 8-1/2 by 11 inch paper. Provide drawings sized no larger than than 22 by 34 inches (ANSI D).

1.5.3.6 Format of SD-06 Test Reports

Provide reports formatted for output on 8-1/2 by 11 inch paper.

By prominent notation, indicate each report in the submittal. Indicate the specification number and paragraph number to which each report pertains.

1.5.3.7 Format of SD-07 Certificates

Provide design data and certificates formatted for output on 8-1/2 by 11 inch paper.

1.5.3.8 Format of SD-08 Manufacturer's Instructions

Present manufacturer's instructions submittals for each section. Where hard copy submittals are required, present as a complete, bound volume. Include the manufacturer's name, trade name, place of manufacture, and catalog model or number on product data. If supplemental information is needed to clarify the manufacturer's data, submit it as specified for SD-07 Certificates.

Submit the manufacturer's instructions before installation.

1.5.3.8.1 Standards

Where equipment or materials are specified to conform to industry or technical-society reference standards of such organizations as the American National Standards Institute (ANSI), ASTM International (ASTM), National Electrical Manufacturer's Association (NEMA), Underwriters Laboratories (UL), or Association of Edison Illuminating Companies (AEIC), submit proof of such compliance. The label or listing by the specified organization will be 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 and/or the Contracting Officer or desginated alternate . 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.

1.5.3.9 Format of SD-09 Manufacturer's Field Reports

Provide reports formatted for output on 8-1/2 by 11 inch paper.

By prominent notation, indicate each report in the submittal. Indicate

the specification number and paragraph number to which each report pertains.

1.5.3.10 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.

Where hard copy submittals are required, present as a complete, bound volume.

1.5.3.11 Format of SD-11 Closeout Submittals

Provide closeout submittals formatted for output on 81-/2 by 11 inch paper.

1.5.4 Source Drawings for Shop Drawings

1.5.4.1 Source Drawings

The entire set of source drawing files (DWG) will not be provided to the Contractor. Request the specific Drawing Number for the preparation of shop drawings. Only those drawings requested to prepare shop drawings will be provided. These drawings are provided only after award.

1.5.4.2 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 its 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 source drawing files are not construction documents. Differences may exist between the source drawing files and the corresponding construction documents. The Government makes no representation regarding the accuracy or completeness of the electronic source drawing files, nor does it make representation to the compatibility of these files with the Contractor hardware or software. The Contractor is responsible for determining if any conflict exists. 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. Use of these source drawing files does not relieve the Contractor of the 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 indication of ownership (seals, logos, signatures, initials and dates).

1.5.5 Electronic File Format

Provide submittals in electronic format, with the exception of material samples required for SD-04 Samples items. Compile the submittal file as a single, complete document, to include the Transmittal Form described within. Name the electronic submittal file specifically according to its contents, and coordinate the file naming convention with the contract documents. Electronic files must be of sufficient quality that all information is legible. Use PDF as the electronic format, unless otherwise specified or directed by the Contracting Officer's Representative. Generate PDF files from original documents with bookmarks so that the text included in the PDF file is searchable and can be copied. Index and bookmark files exceeding 30 pages to allow efficient navigation of the file. When required, the electronic file must include a valid electronic signature or a scan of a signature.

E-mail electronic submittal documents smaller than 10MB to an e-mail address as directed by the contract documents. Provide electronic documents over 10 MB on an optical disc (CD or DVD) or through a file delivery service such as DOD SAFE.

1.6 QUANTITY OF SUBMITTALS

In additional to the electronic files, provide hard copy submittals per paragraphs below, or as directed by the Contracting Officer's Representative. Up to three additional hard copies of any submittal may be requested at the discretion of the Contracting Officer's Representative, at no additional cost to the Government.

1.6.1 Number of SD-02 Shop Drawing Copies

Submit two hard copies of shop drawings requiring review and approval by the Contracting Officer's Representative.

1.6.2 Number of SD-04 Samples

a. Submit one sample, or one set of samples showing the range of variation, of each required item. Samples will be returned to the Contractor.

b. Submit one sample panel or provide one sample installation where directed. Include components listed in the technical section or as directed.

c. Submit one sample installation, where directed.

d. Submit one sample of nonsolid materials.

1.6.3 Number of SD-05 Design Data Copies

Submit design drawings in compliance with quantity requirements specified for shop drawings.

1.6.4 Number of SD-10 Operation and Maintenance Data Copies

Submit one hard copy of O&M data to the Contracting Officer's Representative for review and approval.

1.7 INFORMATION ONLY SUBMITTALS

Submittals without a "G" designation must be certified by the QC manager and submitted to the Contracting Officer's Representative for information-only. Approval of the Contracting Officer's Representative is not required on information only submittals. The Contracting Officer's Representative will mark "receipt acknowledged" on submittals for information and will return only the transmittal cover sheet to the Contractor. Normally, submittals for information only will not be returned. However, the Government reserves the right to return unsatisfactory submittals and require the Contractor to resubmit any item found not to comply with the contract. This does not relieve the Contractor from the obligation to furnish material conforming to the plans and specifications; will not prevent the Contracting Officer from requiring removal and replacement of nonconforming material incorporated in the work; and does not relieve the Contractor of the requirement to furnish samples for testing by the Government laboratory or for check testing by the Government in those instances where the technical specifications so prescribe.

1.8 PROJECT SUBMITTAL REGISTER

1.8.1 Submittal Management

Prepare and maintain a submittal register, as the work progresses. Do not change data that is output in columns (c), (d), (e), and (f) as delivered by Government; retain data that is output in columns (a), (g), (h), and (i) as approved. This list may not be all-inclusive and additional submittals may be required. The Government will provide the initial submittal register, showing items of equipment and materials submittals required by the specifications, in electronic format with the following fields completed, to the extent that will be required by the Government during subsequent usage.

Column (c): Lists specification section in which submittal is required.

Column (d): Lists each submittal description (SD Number. and type, e.g., SD-02 Shop Drawings) required in each specification section.

Column (e): Lists one principal paragraph in each specification section where a material or product is specified. This listing is only to facilitate locating submitted requirements. Do not consider entries in column (e) as limiting the project requirements.

Thereafter, the Contractor is to track all submittals by maintaining a complete list, including completion of all data columns and all dates on which submittals are received by and returned by the Government.

1.8.2 Design-Build Submittal Register

The Designer of Record develops a complete list of submittals during design and identify required submittals in the specifications, and use the list to prepare the Submittal Register. The list may not be all inclusive and additional submittals may be required by other parts of the contract. Complete the submittal register and submit it to the Contracting Officer's Representative for approval with the Final Design submittal (reference

Section 01 33 16.00 10 DESIGN DATA (DESIGN AFTER AWARD). The approved submittal register will serve as a scheduling document for submittals and will be used to control submittal actions throughout the contract period. Coordinate the submit dates and need dates with dates in the Contractor prepared progress schedule. Submit monthly or until all submittals have been satisfactorily completed, updates to the submittal register showing the Contractor action codes and actual dates with Government action codes. Revise the submittal register when the progress schedule is revised and submit both for approval.

1.8.3 Preconstruction Use of Submittal Register

Submit the submittal register. Include the QC plan and the project schedule. Verify that all submittals required for the project are listed and add missing submittals. Coordinate and complete the following fields on the register submitted with the QC plan and the project schedule:

Column (a) Activity Number: Activity number from the project schedule.

Column (g) Contractor Submit Date: Scheduled date for the approving authority to receive submittals.

Column (h) Contractor Approval Date: Date that Contractor needs approval of submittal.

1.8.4 Contractor Use of Submittal Register

Update the following fields in the Government-furnished submittal register program or equivalent fields in the program used by the Contractor with each submittal throughout the contract.

Column (b) Transmittal Number: List of consecutive, Contractor-assigned numbers.

Column (k) Date of Action: Used to record Contractor's review when forwarding submittals to QC.

Column (l) Date submittal transmitted.

Column (q) Date approval was received.

1.8.5 Approving Authority Use of Submittal Register

Update the following fields:

Column (b) Transmittal Number: List of consecutive, Contractor-assigned numbers.

Column (l) Date submittal was received.

Column (m) through (p) Dates of review actions.

Column (q) Date of return to Contractor.

1.8.6 Action Codes

Entries for columns (j) and (o) are to be used as follows:

"A" - "Approved as submitted"

"AN" - "Approved as noted"

"RR" - "Disapproved as submitted"

"NR" - "Not Reviewed"

"RA" - "Receipt Acknowledged"

1.8.7 Delivery of Copies

Provide an updated Submittal Register to the Contracting Officer's Representative monthly.

1.9 VARIATIONS

Variations from contract requirements require Contracting Officer approval pursuant to contract Clause FAR 52.236-21 Specifications and Drawings for Construction, and will be considered where advantageous to the Government.

1.9.1 Considering Variations

Discussion of variations with the Contracting Officer's Representative before submission will help ensure that functional and quality requirements are met and minimize rejections and resubmittals.

Specifically point out variations from contract requirements in transmittal letters. Failure to point out variations may cause the Government to require rejection and removal of such work at no additional cost to the Government.

1.9.2 Proposing Variations

When proposing variation, deliver a written request to the Contracting Officer's Representative, with documentation of the nature and features of the variation and why the variation is desirable and beneficial to Government. Include the DOR's written analysis and approval. If lower cost is a benefit, also include an estimate of the cost savings. In addition to documentation required for variation, include the submittals required for the item. Clearly mark the proposed variation in all documentation. The Government reserves the right to rescind inadvertent approval of submittals containing unnoted variations.

1.9.3 Warranting that Variations are Compatible

When delivering a variation for approval, the Contractor warrants that this contract has been reviewed to establish that the variation, if incorporated, will be compatible with other elements of work.

1.9.4 Review Schedule Extension

In addition to the normal submittal review period, a period of 14 calendar days will be allowed for the Government to consider submittals with variations.

1.10 SCHEDULING

Schedule and submit concurrently product data and shop drawings covering

component items forming a system or items that are interrelated. Submit pertinent certifications at the same time. No delay damages or time extensions will be allowed for time lost in late submittals.

a. Coordinate scheduling, sequencing, preparing, and processing of submittals with performance of work so that work will not be delayed by submittal processing. The Contractor is responsible for additional time required for Government reviews resulting from required resubmittals. The review period for each resubmittal is the same as for the initial submittal.

b. Submittals required by the contract documents are listed on the submittal register. If a submittal is listed in the submittal register but does not pertain to the contract work, the Contractor is to include the submittal in the register and annotate it "N/A" with a brief explanation. Approval by the Contracting Officer's Representative does not relieve the Contractor of supplying submittals required by the contract documents but that have been omitted from the register or marked "N/A."

c. Resubmit the submittal register and annotate it monthly with actual submission and approval dates. When all items on the register have been fully approved, no further resubmittal is required.

Contracting Officer's Representative review will be completed within 14 calendar days after the date of submission.

1.10.1 Government Reviewed Design

The Government will review design submittals for conformance with the technical requirements of the Solicitation. Section 01 33 16.00 10 DESIGN DATA (DESIGN AFTER AWARD) covers the design submittal and review process in detail. Government review is required for variations from the completed design. Review will be only for conformance with the contract requirements. Included are only those construction submittals for which the DOR's design documents do not include enough detail to ascertain contract compliance. The Government may, but is not required to, review extensions of design such as structural steel or reinforcement shop drawings.

1.11 GOVERNMENT APPROVING AUTHORITY

When the approving authority is the Contracting Officer's Representative, the Government will:

a. Note the date on which the submittal was received.

b. Review submittals for approval within the scheduling period specified and only for conformance with project design concepts and compliance with contract documents.

c. Identify returned submittals with one of the actions defined in paragraph REVIEW NOTATIONS and with comments and markings appropriate for the action indicated.

1.11.1 Review Notations

Submittals will be returned to the Contractor with the following notations:

a. Submittals marked "approved" authorize proceeding with the work covered.

b. Submittals marked "approved as noted" authorize proceeding with the work covered provided that the Contractor takes no exception to the corrections.

c. Submittals marked "disapproved" or "revise and resubmit" indicate noncompliance with the contract requirements or design concept. Resubmit with appropriate changes. Do not proceed with work for this item until the resubmittal is approved.

d. Submittals marked "not reviewed" indicate that the submittal has been previously reviewed and approved, is not required, does not have evidence of being reviewed and approved by Contractor, or is not complete. A submittal marked "not reviewed" 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.

e. Submittals marked "receipt acknowledged" indicate that submittals have been received by the Government. This applies only to "information-only submittals" as previously defined.

1.12 DISAPPROVED SUBMITTALS

Make corrections required by the Contracting Officer's Representative. If the Contractor considers any correction or notation on the returned submittals to constitute a change to the contract drawings or specifications, give notice to the Contracting Officer as required under the FAR clause titled CHANGES. The Contractor is responsible for the dimensions and design of connection details and the construction of work. Failure to point out variations may cause the Government to require rejection and removal of such work at the Contractor's expense.

If changes are necessary to submittals, make such revisions and resubmit in accordance with the procedures above. No item of work requiring a submittal change is to be accomplished until the changed submittals are approved.

1.13 APPROVED SUBMITTALS

The Contracting Officer's's Representative's approval of submittals is not to be construed as a complete check, and indicates only that the design, general method of construction, materials, detailing, and other information appear to meet the Solicitation and Accepted Proposal.

Approval or acceptance by the Government for a submittal does not relieve the Contractor of the 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 with in each submittal accurately conforms with the requirements of the contract documents.

After submittals have been approved or accepted by the Contracting Officer's Representative, no resubmittal for the purpose of substituting materials or equipment will be considered unless accompanied by an explanation of why a substitution is necessary.

1.14 APPROVED SAMPLES

Approval of a sample is only for the characteristics or use named in such approval and is not be construed to change or modify any contract requirements. Before submitting samples, provide assurance that the materials or equipment will be available in quantities required in the project. No change or substitution will be permitted after a sample has been approved.

Match the approved samples for materials and equipment incorporated in the work. If requested, approved samples, including those that may be damaged in testing, will be returned to the Contractor, at its expense, upon completion of the contract. Unapproved samples will also be returned to the Contractor at its expense, if so requested.

Failure of any materials to pass the specified tests will be sufficient cause for refusal to consider, under this contract, any further samples of the same brand or make as that material. The Government reserves the right to disapprove any material or equipment that has previously proved unsatisfactory in service.

Samples of various materials or equipment delivered on the site or in place may be taken by the Contracting Officer and/or the Contracting Officer's Representative for testing. Samples failing to meet contract requirements will automatically void previous approvals. Replace such materials or equipment to meet contract requirements.

1.15 WITHHOLDING OF PAYMENT

No payment for materials incorporated in the work will be made unless all required DOR approvals or required Government approvals have been obtained. No payment will be made for any materials incorporated into the work for any conformance review submittals or information-only submittals found to contain errors or deviations from the Solicitation or Accepted Proposal.

1.16 STAMPS

Stamps on the submittal data to certify that the submittal meets contract requirements are to be similar to the following:

```
 ____________________________________________________________________________
|                                CONTRACTOR                                  |
|                                                                            |
|                                (Firm Name)                                 |
|                                                                            |
|                                                                            |
|                                                                            |
| _____ Approved                                                             |
|                                                                            |
|                                                                            |
| _____ Approved with corrections as noted on submittal data and/or          |
| attached sheet (s)                                                         |
|                                                                            |
|                                                                            |
|                                                                            |
| SIGNATURE:  ___________________________________________________________    |
|                                                                            |
| TITLE:  _______________________________________________________________    |
|                                                                            |
| DATE:  _________________________________________________________________   |
|                                                                            |
|____________________________________________________________________________|
```

For Design-Build construction, both the Contractor QC manager and the DOR are to stamp and sign to certify that the submittal meets contract requirements.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

-- End of Section --

Attachment 1

AF Form 3000 - Material Approval Submittal

MATERIAL APPROVAL SUBMITTAL

(*See Instructions on Reverse*)

TO: (*Contracting Officer's Representative*)	FROM: (*Contractor*)	DATE (YYYYMMDD)

CONTRACT NUMBER	SUBMISSION NUMBER	SUBMITTAL
		◉ NEW ○ RESUBMITTAL

PREVIOUS SUBMISSION NUMBER	PROJECT NUMBER

TO BE COMPLETED BY CONTRACTOR			FOR GOVERNMENT USE ONLY			
ITEM NO.	SPECIFICATION SECTION/ PARA NO./DRAWING NO	DESCRIPTION OF MATERIAL (*Include Type, Model Number, Catalog Number, Mfg., etc.*)	AP-PROVED	DISAP-PROVED	SEE REVERSE	INITIAL

BY COMPLETING THIS FORM, THE UNDERSIGNED CONTRACTOR CERTIFIES THAT THE MATERIAL COMPLIES WITH ALL SPECIFICIFICATIONS OF SUBJECT CONTRACT

DATE (YYYYMMDD)	[Contractor] TYPE OR PRINT NAME AND GRADE	Signature

FOR GOVERNMENT USE ONLY

TO: (Base Civil Engineering Project Manager)

For Evaluation and Action

DATE (YYYYMMDD)	[Base Civil Engineering CM/Inspector] TYPE OR PRINT NAME	Signature

TO: (AF Contracting Officer's Representative)

RECOMMEND ◉ APPROVAL ○ DISAPPROVAL AS INDICATED ABOVE AND SUBJECT TO ANY APPLICABLE COMMENTS ON THE REVERSE

DATE (YYYYMMDD)	[Base Civil Engineering Project Mgr] TYPE OR PRINT NAME	Signature

◉ APPROVED ○ DISAPROVED AS INDICATED ABOVE AND SUBJECT TO ANY APPLICABLE COMMENTS ON THE REVERSE

RESUBMITTAL ON DISAPPROVED ITEMS WITHIN ____ DAYS OF DATE SHOWN BELOW.

TO: (*Contractor*)

DATE (YYYYMMDD)	[Contracting Officer's Representative] TYPE OR PRINT NAME	Signature

TAFB FORM 3000, 20221101, V1 PREVIOUS EDITION IS OBSOLETE

Attachment 1

AF Form 3000 – Material Approval Submittal (cont)

COMMENTS

(*Number to correspond with applicable Item Number on reverse*)

INSTRUCTIONS TO CONTRACTORS

1. The term "material" is defined as articles, supplies, raw materials, equipment, parts, components, and end items that are to be incorporated into the work required by the contract.
2. This form is to be used by contractors for submitting Shop Drawings, Equipment Data, Manufacturer's Literature and Certificates and sample of Materials to the Government for approval in accordance with the provisions of this contract. Unless otherwise specified, it is to be prepared in electronic format, digitally signed, and provided to the contract Project Manager and Construction Manager/Inspector with appropriate attachments.
3. Item(s) to be approved will be clearly tabbed or identified. Data pertaining to items(s) to be approved will be clearly identified or tabbed, particularly where documents are voluminous, in order to properly evaluate the materials or articles to be incorporated in the work. Each attachment will be numbered to correspond with the item number shown on the face of the form.
4. Request submitted shall be numbered consecutively, by contract, in the space entitled "Submission No.". This number, in addition to the Contract No., will be used to identify each Material Approval Submittal. Resubmissions will be indicated in the appropriate block and the insertion of previous submission number data in addition to a new submission number. A single submission should be used for all work of a section of the specifications, but in NO instance should the submission include work for more than (1) one contract. Submittals requiring priority handling will be submitted by separate submittal using the form and so marked across the face of the form.
5. This material Approval Submittal is not valid unless it is signed by the Contracting Officer's Representative. This approval is required as called for by the Contracting Officer under the terms of this contract.

TAFB FORM 3000, 20221101, V1 ***(REVERSE)***

SECTION 01 33 16.00 10

DESIGN DATA (DESIGN AFTER AWARD)

PART 1 GENERAL

1.1 SUMMARY

After award, develop the accepted proposal into the completed design, as described herein. Use a collaborative, integrated design process for all stages of project delivery with comprehensive performance goals for site development, energy, water, material selection, indoor environmental quality, and waste diversion. Ensure incorporation of these goals in project delivery. Consider all stages of the building lifecycle, including deconstruction, rehabilitation, re-purposing, or demolition.

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.

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION (ISO)

ISO 19115-1	(2014) Geographic Information -- Metadata -- Part 1: Fundamentals
ISO 19005-3	(2012) Document Management -- Electronic Document File Format for Long-Term Preservation -- Part 3: Use of ISO 32000-1 with Support for Embedded Files (PDF/A-3)
ISO 32000-1	(2008) Document Management -- Portable Document Format -- Part 1: PDF 1.7

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 13	(2019; Errata 19-1; Errata 19-2; TIA 19-1; TIA 19-2; TIA 19-3; TIA 19-4; Errata 19-3; Errata 20-4; TIA 19-5; TIA 19-6) Standard for the Installation of Sprinkler Systems

NATIONAL INSTITUTE OF BUILDING SCIENCES (NIBS)

NCS	(V6) United States National CAD Standard

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 1110-1-2909	(2012) Engineering and Design -- Geospatial Data and Systems
ERDC/ITL TR-12-1	(2015) A/E/C Graphics Standard, Release 2.0
ERDC/ITL TR-12-6	(2015) A/E/C CAD Standard - Release 6.0

U.S. DEPARTMENT OF DEFENSE (DOD)

UFC 1-300-02	(2014; with CHange 3, 2021) Unified Facilities Guide Specifications (UFGS) Format Standard
UFC 3-101-01	(2020; with Change 1, 2021) Architecture
UFC 4-010-01	(2018; with Change 1, 2020) DoD Minimum Antiterrorism Standards for Buildings
UFC 4-023-03	(2009; with Change 3, 2016) Design of Buildings to Resist Progressive Collapse

1.3 DEFINITIONS

1.3.1 Designer of Record (DOR)

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

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

1.3.2 Government Furnished Material (GFM)

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

1.3.3 Advanced Modeling

A subset of geospatial technologies as defined in EM 1110-1-2909 to include BIM, CIM, GIS, and CAD. Advanced Modeling is comprised of models and drawings that form a digital representation of the project, or part thereof, that are comprised of model elements with facility data.

1.3.4 Model Element

A self-contained graphical element with a unique identification that is used to populate a model, and whose behavior and properties are defined by facility/site data and software processes. Model elements can represent a physical entity, such as a pump, a concrete wall, or a utility vault and range from the simple to the complex and can be custom modified.

1.3.5 USACE CAD/BIM Technology Center

The USACE CAD/BIM Technology Center hosts all standard content for USACE. This content can be accessed through the CAD/BIM Technology Center website, https://cadbimcenter.erdc.dren.mil.

1.4 ORDER OF PRECEDENCE

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

a. Any portions of the accepted proposal which both conform to and exceed the requirements of the solicitation.

b. The provisions of the solicitation.

c. All other provisions of the accepted proposal.

d. Any design products including, but not limited to, plans, specifications, engineering studies and analyses, shop drawings, and equipment installation drawings. These "deliverables" under the contract are not part of the contract itself. Design products must conform to all provisions of the contract, in the order of precedence.

1.5 PRECONSTRUCTION ACTIVITIES

1.5.1 Design Quality Control Plan

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

1.5.2 Meetings and Conferences

1.5.2.1 Post Award Conference

The Government will conduct a post award conference , as soon as possible after Contract award, coordinated with issuance of the notice to proceed (NTP). Participation by the Contractor and major subcontractor representatives is mandatory. All designers need not attend this first meeting. The government will provide an agenda, meeting goals, meeting place, and meeting time to participants prior to the meeting.

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

a. The government will introduce the Government project delivery team members, facility users, facility command representatives, and installation representatives.

b. Introduce key personal, major subcontractors and other needed staff.

c. Define expectations and duties of each participant.

d. Develop a meeting roster with complete contact information including name, office, project role, phone, mailing and physical address, and e-mail address for distribution to all participants. Also, provide minutes of the meeting to all participants.

1.5.2.2 Initial Design Conference

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

1.5.2.3 Pre-Construction Conference

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

1.6 SUBMITTALS

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

Approval Level Designation	Definition
G	Government approval
no designation	for information only
D	Designer of Record approval
C	Government Conformance Review of Design
R	Designer of Record Approval and Government Conformance Review
A	Designer of Record Approval and Government Approval

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

SD-01 Preconstruction Submittals

Design Quality Control Plan; G

Initial Design Conference

Preconstruction Conference

DCM Procedures; G

Submittal Register; G

SD-05 Design Data

Design and Code Checklists; C

Interim Design Submittals; R

Interior And Exterior Building Finishes Scheme; G

Conference Documentation

Final Design Submittals; R

Design Complete Documents; C

SD-11 Closeout Submittals

DD Form 1354; A

1.7 DESIGN QUALITY CONTROL

1.7.1 Design And Code Checklists

Develop and utilize appropriate discipline-specific checklists during the design and quality control of each submittal. Submit these completed checklists with each design submittal, as applicable, as part of the project documentation. See Section 01 45 00.00 10 Contractor Quality Control and paragraph FIRE PROTECTION AND LIFE SAFETY CODE REVIEW for a sample Fire Protection and Life Safety Code Review checklist.

1.8 DELIVERY, STORAGE, AND HANDLING

1.8.1 Electronic Design Submittal

Provide identical copies of discs for approval, for each submittal required. Provide quantities and sizes indicated in Section 01 33 00 SUBMITTAL REQUIREMENTS .

1.8.1.1 Malicious Content

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

1.8.1.2 Storage Media

Provide project data on disc-based (DVD±R/RW) media. Provide the full submittal on one single disc whenever possible. When separation of the submittal is required separate deliverables onto separate media.

a. Directly print identification of contents onto storage media. Do not provide adhesived labels. Include the name of the submittal, project, project location, Contract number, Designer of Record firm/Prime Contractor company's name, and title of submission on the label. If multiple discs are provided, clearly document the contents of each disc on the label.

b. Include the name and contact information of the individual who produced the final data disc to ensure that any problems with the data

or media can be easily resolved.

c. When browsed on any computer, the disc displays the following folders and their associated content:

(1) Submittal files (containing all submittal data)

(2) All supporting documents associated with the submittal

(3) Readme containing one TXT, PDF, or HTML file with general use information, organizational instructions, and basic preparer contact information.

1.8.2 File Packaging

Execute the following actions for all design drawing and modeling files:

1.8.2.1 Autodesk AutoCAD

a. Purge unused

b. Audit

c. Compress

1.8.3 PDF File Packaging

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

1.8.3.1 Bookmarking

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

b. Bookmark specification submittal PDF sets using the SpecsIntact Print Processing PDF Print/Publish feature, combining processed sections into one PDF document. Insert the Submittal Register into the file where specified by Section 01 33 00 SUBMITTAL PROCEDURES and bookmark.

c. Bookmark design analysis and calculation submittal PDF sets to include one Parent Bookmark per design analysis section and one Child Bookmark per major paragraph per section. Format Parent Bookmarks as "Section" (e.g. Architectural). Format Child Bookmarks as "major paragraph designation Sheet Title" (e.g. 2.1 Primary Facility Functions).

1.8.4 Hardcopy Design Submittal

Print hard copy submittals directly from the electronically packaged PDF files. Provide quantities and sizes as indicated in Section 01 33 00 SUBMITTAL REQUIREMENTS .

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

PART 2 PRODUCTS

2.1 GOVERNMENT FURNISHED MATERIALS

The Government will provide Advanced Modeling files as GFM for use in design development. Develop and maintain the information and level of detail contained in the GFM in the Project design, as required by this Contract.

The Contractor has the option of preparing their own Advanced Modeling files in the formats prescribed as a basis for design, design drawings, and interim design submittals. If so, maintain the same level of detail, properties, and functionality in the models that is prescribed in this specification.

2.1.1 GFM Handover

The Government will provide the GFM at the Design Kick-Off Meeting .

2.1.2 GFM File Formats

GFM are provided in the following file formats:

2.1.2.1 Government Furnished GIS

The Installation's most current Standard GIS Database SDSFIE Adaptation will be furnished, including features and attributes relating to current project. Documentation of the required attributes and schema definitions will be provided with the GIS Template.

GIS source data and product data remain the property of the US Government. Be prepared to explain and demonstrate the company's process for protecting all geospatial data, including but not limited to geometry, attributes, metadata, topologies, and relational database schemas and operations used in association with this contract. Signing a non-disclosure agreement attesting to the same before source data are released may be required. Obtain further information about security and nondisclosure requirements from the Contracting Officer.

a. Some installation map data, source and/or product, may be considered by the Government to be "Controlled Unclassified Information" (CUI) also known as "Sensitive but Unclassified" (SBU). Release of this information to any third party without the explicit consent of the Contracting Officer is not authorized.

b. Return all source information to the Government or destroy upon completion of this contract.

2.1.2.2 Government Furnished CAD

The GFM includes Autodesk AutoCAD, Version 2015.

2.1.3 Advanced Modeling Completion and Quality

The Government makes no guarantee that the GIS data, CAD files and Facility Data provide the level of completeness or quality required for a submittal. Develop or update files and data to completely and correctly represent the as-built conditions of the facility and the site.

Use of any GFM files for creation of contract submittals is at the Contractor's own risk. Any quality control issues discovered in the GFM do not absolve the Contractor from submitting contract compliant deliverables as described in this and other specifications.

2.1.4 Data Loss, Corruption, and Error

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

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

2.2 ADVANCED MODELING DOCUMENTS

Provide all of the following documents with each design submittal.

2.2.1 Submitted Files List

Provide list of all submitted electronic files including a description, directory, and file name for each file submitted. For all Sheet files, include a list of the sheet titles and sheet numbers.

2.2.2 Advanced Modeling Electronic Files

Include all Advanced Modeling files associated with the contract scope of work.

2.2.2.1 Quality Control (QC) Reports

As a minimum, perform the following quality control checks:

2.2.2.1.1 Model Standards Checks

Provide QC checks demonstrating adherence to the NCS v6.0. Verify the following for the Model(s) and Facility Data set:

a. No undefined, incorrectly defined, or duplicated elements.

a. No errors when opening.

c. No broken Links, References, or X-References.

d. Minimized extraneous information.

e. Content uses the approved coordinate system.

f. Models share a common alignment point.

g. For a Design Complete or Record Submittal; no unloaded Links, References, or X-References exist.

2.2.2.1.2 Graphics Standards Checks

Provide QC checks on all graphic deliverables demonstrating that the fonts, dimensions, symbology and other construction document formatting are compliant with the requirements of this specification.

2.2.2.1.3 CAD Standards Checks and Report

Provide QC checks on CAD Output demonstrating that filenames, sheet borders, layer/level names, and symbology are compliant with the requirements of this specification.

2.2.3 Advanced Modeling Re-Submittals

If components of an Advanced Modeling submittal are rejected, provide the following for each Advanced Modeling Re-Submittal, in addition to re-submittal information required by Section 01 33 00 SUBMITTAL PROCEDURES:

a. Re-submit all components required under paragraph ADVANCED MODELING PACKAGE, including a new Advanced Modeling Checklist and updated content in response to Government comments.

b. Provide a copy of all Government review comments.

c. Provide a response to each Government review comment for back check.

2.3 DESIGN DRAWINGS

From advanced model files, produce design drawings that describe the scope of the Contract for all required submittals including all interim and final deliverables.

2.3.1 Electronic Drawing Files

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

2.3.2 Drawing Index

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

2.3.3 Shop Drawings Used as Design Drawings

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

2.3.3.1 Drawing Format For Shop Drawings Used as Design Drawings

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

2.3.3.2 Identification of Shop Drawings Used as Design Drawings

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

2.3.4 Seal on Documents

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

2.4 SPECIFICATIONS

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

2.4.1 Specifications Format

Utilize the Unified Facility Guide Specifications (UFGS) current at the time of Contract award. Process the specifications with the SpecsIntact software package.

a. Edit and expand the appropriate specifications to ensure that all project design requirements, current code requirements, and regulatory requirements are met. Design specifications may be prepared that include manufacturer specific data and catalog cuts in lieu of non-proprietary, descriptive specifications. Clearly identify, where appropriate, specific products chosen to meet the contract requirements (i.e., manufacturers' brand names and model numbers or similar product information).

b. Note that the UFGS are based on design-bid-build contracting and will require editing to apply to a design-build project. For instance, they assume that the Government will approve most submittals, whereas in design-build, the DOR has that action, unless this solicitation requires Government approval for specific submittals.

c. Organize project sections not based on UFGS in accordance with CSI MasterFormat and UFC 1-300-02.

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

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

2.4.3 Specifications Packaging

Provide specifications to include the following:

a. Cover sheet and project table of contents.

b. Seals and signatures page. Sign, date, and seal the specifications by the registered architect or registered engineer of each respective discipline; indicate which sections of the specifications are covered by each seal.

c. Specification sections.

d. Manufacturer's Product Data. If providing as attachments to the applicable specification section, incorporate as attachment reference within the section.

2.4.4 Specification Deliverable

Submit a bundled specification package in PDF format for each design package. As a minimum, bookmark each specification section in the bundled package. Also, submit the source files, in the processing system format, used to create the PDF.

2.5 DESIGN ANALYSIS

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

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

a. An introductory description of the project concepts that addresses the salient points of the design

b. An orderly and comprehensive documentation of criteria and rationale for system selection, supported by life cycle cost analysis.

c. The identification of any necessary licenses and permits that are anticipated to be required as a part of the design and/or construction process.

d. Identify all applicable codes and criteria and highlight specific requirements within these codes and criteria for critical issues in the facility design.

e. Required calculations as specified and as needed to support the design.

g. Clearly identify "Antiterrorism" requirements and document the antiterrorism and force protection features as required by UFC 4-010-01.

2.5.1 Design Requirements and Provisions

Include subparts for each major design discipline and basic project design requirements for each discipline that justify and validate design decisions to include, but not limited to:

2.5.1.1 Civil

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

2.5.1.2 Architectural

Include space allowance, functional layout, unique features, interior design, furniture planning, signage, accessibility, security, air barriers, energy conservation and sustainable design to include site analysis focusing on orientation, space-mass composition, materials used and details with respect to image, safety, maintenance and cost effectiveness and historical context.

2.5.1.3 Structural

Include foundation, structural, seismic, hardened structure,nuclear radiation and blast protection systems analysis and design.

2.5.1.4 Mechanical

Include heating, ventilation and air conditioning systems, refrigeration, plumbing, elevators and cranes, energy conservation, pollution control, noise and vibration control, heating and chilled water distribution, gas distribution, fuel storage and dispensing, and process systems design.

2.5.1.5 Electrical

Include power generation, transmission and distribution systems, lighting (interior and exterior), voice and video communications, intrusion detection, utilities monitoring control systems (UMCS), cathodic protection, lightning and static electricity protection systems analysis and design, aviation lighting, and electromagnetic protection

2.5.1.6 Fire Protection and Life Safety

Include building construction, exit requirements, fire extinguishing systems, fire protection water supplies, surge analysis, and alarm and detection systems analysis and design.

2.5.1.7 Physical Security

Include fencing, vaults, protective lighting, security systems, locks, arms rooms, controlled substances, entrances, guard facilities, classified material, patrol roads, clear zones, restricted areas, surveillance and penetration resistance.

2.5.2 Operations and Maintenance (O&M) Provisions

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

2.5.3 Design Analysis Packaging

2.5.3.1 Assembly and Identification

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

2.5.4 Calculations

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

PART 3 EXECUTION

3.1 DESIGN SUBMITTALS

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

3.2 DESIGN SUBMITTALS PHASES

The stages of design submittals described below define requirements with respect to process and content. Determine how to best plan and execute the design and review process for the project, within the parameters listed below. As a minimum, provide at least one interim design submittal, at least one final design submittal, and at least one Design Complete submittal that documents the accepted design.

3.2.1 Interim Design Submittals (35% / 65%)

Submit interim designs for review, representing a complete package with all design disciplines. These are not necessarily a hold point for the design process; the Contractor may designate the interim design submittal(s) as a snapshot and proceed with design development at its own risk.

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

3.2.2 Final Design Submissions (95%)

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

3.2.3 Design Complete Submittals (Issued for Construction)

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

3.3 DESIGN PLATFORM AND FILE FORMATS

Design the project using the systems and platforms defined below:

3.3.1 GIS

Submit all GIS data in Environment Systems Research Institute's (ESRI) ArcGIS File Geodatabase, Version 10.2.2; or Autodesk AutoCAD Map3D, Version 2016 in compliance with SDSFIE, Version 3.1.1 and appropriate ISO 19115-1 metadata.

3.3.2 CAD

3.3.2.1 Native CAD Authoring Content

All content produced through CAD authoring software must be compliant with ERDC/ITL TR-12-1 and ERDC/ITL TR-12-6. Autodesk AutoCAD Template Files . Download from the CAD/BIM Technology Center website as part of the A/E/C Work Structure.

3.3.2.2 CAD Extracted From BIM/CIM Authoring Platforms

CAD content exported from a BIM or CIM modeling platform must comply with ERDC/ITL TR-12-1 and ERDC/ITL TR-12-6.

3.4 ADVANCED MODELING REQUIREMENTS

3.4.1 GIS

3.4.1.1 Minimum Modeling Requirements

Provide final geo-referenced GIS database of the new building footprint, and site surface and subsurface features that exist outside the building footprint(s) out to the project extents compliant with current SDSFIE Adaptation.

Collect GIS georeferenced data pertaining to location and attribute data of subsurface utilities obtained at the time of project site excavation. Include the collection of elevation (Z) values in all data collection for underground utilities.

3.4.1.2 GIS Coordinate System

a. Coordinate System: State Plane

b. Zone (for State Plane or UTM): Oklahoma North FIPS 3501

c. Horizontal Datum: NAD 83/2011

d. Vertical Datum: NAVD 88

e. Horizontal Units of Measure: US Survey Feet

f. Vertical Units of Measure: Feet

3.4.1.3 Standard GIS Database SDSFIE Adaptation

Use the Standard GIS Database SDSFIE Adaptation provided by the Installation Geospatial Support Office to produce the GIS deliverables

required under this contract.

3.4.2 CAD

All content produced through layer-centric CAD authoring software outside of any object/element based BIM or CIM platform must be compliant with ERDC/ITL TR-12-6 and ERDC/ITL TR-12-1.

Autodesk AutoCAD Template Files Most recent version at the time of Contract award. Download form the CAD/BIM Technology Center website as part of the A/E/C Work Structure.

3.5 DESIGN CONFIGURATION MANAGEMENT (DCM)

3.5.1 Procedures

Develop and maintain effective, DCM procedures to control and track all revisions to the design documents subsequent to the first Interim Design Submission and continuing through submission of the As-Built documents. After the final design is accepted, this process provides control of and documents revisions to the accepted design. Submit the DCM procedures within the Design Quality Control Plan.

a. Include authorities and concurrences in the DCM system to authorize revisions, including documentation as to why the revision is required.

b. An internal system may be used with interactive Government concurrence.

c. Make the DCM data available to the Government reviewers at all times.

3.5.2 Tracking Design Review Comments

Contractor shall utilize an internal system to respond to, resolve and track Government design review comments.

a. For each desgin submittal, Contracting Officer will provide consolidated, validated comments from the Government reviewers.

b. Upon review of comments, prior to the design review conference, the DOR(s) shall evaluate and annotate the comments; indicate exactly what action will be taken or why action is not required.

c. After the review conference, prior to the next design submittal, the DOR(s) shall annotate those comments that require DOR action or design revision, clearly indicating what action was taken and what drawing/spec/analysis changed. Annotate and resolve all comments prior to the next submittal. Flag comments considered critical by the conference participants.

d. Designers of Record are encouraged to directly contact reviewers to discuss and agree to the comment responses rather than relying only on review meetings to discuss comments. Include the comments and responses in the design analysis for record in the next design submittal for the package; reviewers will back-check responses to the comments against the new submittal, in addition to reviewing additional design work.

e. Clearly annotate those comments that require effort outside the requirements of the contract. Do not proceed with work outside the

contract until a modification to the contract is properly executed.

3.6 DISCIPLINE DESIGN REQUIREMENTS

Provide design deliverables that comply with requirements of the contract documents; include drawings, specifications, and design analysis.

a. Drawings: Include comments from any previous design conferences incorporated into the documents to provide an interim design for the feature of work submitted.

b. Specifications: Provide specifications to ensure that all project design features are addressed, meeting current code requirements, and regulatory requirements. Use the track changes feature (redlines) to facilitate review of additions and deletions.

c. Design Analysis: Prepare and present design analysis with calculations necessary to substantiate and support all design documents submitted. Address design substantiation required by the applicable codes and references.

3.6.1 Geotechnical Investigations and Reports

Perform geotechnical investigations, as necessary, to determine the conditions for the actual locations of footings, other foundations and site paving features and other site features.

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

a. Summarize the subsurface conditions and provide recommendations for the design of appropriate utilities, foundations, floor slabs, retaining walls, embankments, and pavements.

b. Include compaction requirements for fill and backfill under buildings, sidewalks, other structures and open areas.

c. Recommend foundation systems to be used, allowable bearing pressures for footings, lateral load resistance capacities for foundation systems, elevations for footings, grade beams, slabs, etc.

d. Provide an assessment of post-construction settlement potential including total and differential.

e. Provide recommendations regarding lateral earth pressures (active, at-rest, passive) to be used in the design of retaining walls. Include the recommended spectral accelerations and Site Class for seismic design along with an evaluation of any seismic hazards and recommendations for mitigation, if required.

f. Include calculations to support the recommendations for bearing capacity, settlement, and pavement sections.

g. Include supporting documentation for all recommended design parameters such as Site Class, shear strength, earth pressure coefficients, friction factors, subgrade modulus, California Bearing Ratio (CBR).

h. Provide earthwork recommendations, expected frost penetration, expected groundwater levels, recommendations for dewatering and groundwater control and the possible presence of any surface or subsurface features that may affect the construction of the project such as sinkholes, boulders, shallow rock, old fill, old structures, soft areas, or unusual soil conditions.

i. Include pH tests, salinity tests, resistivity measurements, etc., required to design corrosion control and grounding systems.

j. Include the raw field data.

3.6.1.1 Inconsistency with the Preliminary Soils Information

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

3.6.1.2 Vehicle Pavements

Provide flexible and rigid pavement designs, as applicable for the project, including design CBR and modulus of subgrade reaction and the required compaction effort for subgrades and pavement layers. Also, provide information on the types of base course materials available in the area and design strengths.

3.6.1.3 Certification

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

3.6.2 Civil Site and Utilities Design Contents

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

a. Storm drainage design

b. Pavement design in coordination with the geotechnical investigation report.

c. Location and vicinity maps

d. Removal and/or relocation plan

e. Layout plan

f. Grading and drainage plan

g. Utility Plan: Identify and locate water lines, sanitary sewer lines, force mains, industrial waste lines, and other subsurface utility features

h. Road and parking area profiles

i. Utility Profiles: Indicate invert elevations of all drainage structures, manholes, storm drainpipe with size and invert elevations, ground profile, and new or existing structures or utilities crossing the new utilities.

j. Civil details sheet

k. Concrete Joint Plan: Provide a joint layout plan for each concrete apron, hardstands, road, pavement, etc

l. Erosion and Sediment Control Plan

m. Lawn and landscaping irrigation system

n. Landscape, planting and turfing

o. Site specific civil calculations

3.6.3 Structural Systems

3.6.3.1 General

a. Identify all loads to be used for design.

b. Describe the method of providing lateral stability for the structural system to meet seismic and wind load requirements. Include sufficient calculations to verify the adequacy of the method.

c. Calculations for all principal roof, floor, and foundation members and bracing and secondary members.

d. Drawings showing principal members for roof and floor framing plans as applicable.

e. Foundation plan showing main foundation elements where applicable.

f. Typical sections for roof, floor, and foundation conditions.

g. Complete seismic analyses for all structural, mechanical, electrical, architectural, and building features as dictated by the seismic zone in which the facility is being constructed.

h. Identify the program name, source, and version used for computer generated calculations. Provide input data, including loads, loading diagrams, node diagrams, and documentation to illustrate the design. On the schematic models used for input,t show, as a minimum, nodes/joints, element/members, materials/properties, and all loadings; induced settlements/deflections; and a list of load combinations. Include an output listing for maximum and minimum stresses, forces, and deflections for each element, and the reactions for each loading case and combination.

i. Fully coordinate and integrate the overall structural design between

two different or interfacing construction types, such as modular and stick-built or multistory, stacked modular construction. Provide substantiation of structural, consolidation/settlement analysis, etc., as applicable, through the interfaces.

3.6.3.2 Anti-Terrorism/Force Protection (ATFP)

Provide a design narrative and calculations where applicable, demonstrating compliance with each of the 22 standards in UFC 4-010-01, which includes Design of Buildings to Resist Progressive Collapse (use the most recent version of UFC 4-023-03, regardless of references to any specific version in UFC 4-010-01).

a. Where sufficient standoff distance is not being provided, show calculations for blast resistance of the structural system and building envelope. Show complete calculations for members subjected to ATFP loads, e.g., support members of glazed items (jambs, headers, sills) connections of windows to support members and connections of support members to the rest of the structure.

b. For three story and higher buildings, provide calculations to demonstrate compliance with progressive collapse requirements.

3.6.4 Architectural

Provide a project design that meets the criteria and requirements identified in UFC 3-101-01. Consider architectural compatibility with the local environment, functional requirements, economy of construction, energy conservation, interior and exterior details, and life cycle costs. Optimize special functionality, aesthetics, material quality, and maintainability of operations to meet intended functional requirements in the final design.

Include the following in the basis of design as needed to sufficiently describe the project design

a. DesiComposite Floor Plans, floor plans, roof plans showing slope, exterior elevations, reflected ceiling plans, building sections and cross sections indicating floor to floor heights and wall sections which clearly delineate materials systems.

b. Interior building elevations, enlarged details, door details, window details, enlarged toilet plans and details, enlarged stairway plans and details.

c. Door and window schedules, finish schedules, hardware schedules, special signage and graphic requirements and all required built-in casework and equipment.

d. Life safety analysis and life safety plans showing the location of all fire rated partitions, fire rated doors, egress pathways and exits.

e. Air Barrier System: air barrier system plans and details (i.e. window flashing details, penetration in air barrier details, door flashing details, roofing /ceiling barrier interface details).

f. Composite floor plan showing all pre-wired workstations

g. Comprehensive Interior Design Package, which includes Structural

Interior Design (SID) and Furniture, Fixtures, and Equipment (FF&E) Design packages.

3.6.5 Interior Design

3.6.5.1 Structural Interior Design (SID) Requirements

Structural Interior Design includes all interior and exterior building related elements and components generally part of the building itself, such as wall finishes, ceilings finishes, floor coverings, marker/bulletin boards, blinds, signage, built in casework and all exterior building finishes. Develop the SID in conjunction with the furniture footprint.

3.6.5.1.1 Format and Schedule

a. Prepare and submit for approval an interior and exterior building finishes scheme for an interim design submittal. Conduct a meeting between the DOR and the appropriate Government officials to discuss the finish schemes prior to preparation of the schemes to be presented. Present original sets of the schemes to reviewers at an interim design conference.

b. At the conclusion of the interim phase, after resolutions to the comments have been agreed upon between DOR and Government reviewers, the Contractor may proceed to final design with the interior finishes scheme presented.

c. Submit the SID information and samples in letter size format using three ring binders with pockets on the inside of the cover. When there are numerous pages with thick samples, use more than one binder. Large D ring binders are preferred to O-ring binders. Use page protectors that are strong enough to keep pages from tearing out. Anchor large or heavy samples with mechanical fasteners, Velcro, or double-faced foam tape rather than rubber cement or glue. Maximum spread for fold out items is 25-1/2 inches. Provide cover and spine inserts sheets identifying the document as "Structural Interior Design" package. Include the project title and location, project number, Contractor/A/E name and phone number(s), submittal stage and date.

d. Design submittal requirements include, but are not limited to:

(1) Narrative of the Structural Interior Design Objectives: Include a narrative in the SID that discusses the building related finishes. Include topics that relate to base standards, life safety, sustainable design issues, aesthetics, durability and maintainability, discuss the development and features as they relate to the occupants requirements and the building design.

(2) Interior Color Boards

(a) Identify and key each item item on the color boards to the contract documents to provide a clear indication of how and where each item will be used. Arrange finish samples to the maximum extent possible by room type in order to illustrate room color coordination. Label all samples on the color boards with the manufacturer's name, patterns and colors name and number. Key or code samples to match key code system used on contract drawings.

(b) Material and finish samples indicating true pattern, color and texture. Provide photographs or colored photocopies of materials or fabrics to show large overall patterns in conjunction with actual samples to show the actual colors. Provide finish samples large enough to show a complete pattern or design where practical.

(c) Color boards include, but are not limited to, original color samples of

1. All walls finishes and ceiling finishes, including corner guards, acrylic wainscoting and wall guards/chair rail finishes.
2. All tile information, including tile grout color and tile patterns.
3. All flooring finishes, including patterns.
4. All door, door frame finishes and door hardware.
5. All signage, wall base, toilet partitions, locker finishes and operable/folding partitions and trim.
6. All millwork materials and finishes (cabinets, counter tops)
7. All window frame finishes and window treatments (sills, blinds)

(d) Color board samples reflect all actual finish textures, patterns and colors required as specified. Patterned samples sized to adequately show pattern and its repeat if a repeat occurs.

(3) Exterior Color Boards

(a) Prepare exterior finishes color boards in similar format as the interior finishes color boards, for presentation to the reviewers during an interim design conference. Provide original color samples of all exterior finishes including but not limited to the following:

All Roof Finishes
All Brick and Cast Stone Samples
All Exterior Insulation and Finish Samples
All Glass Color Samples
All Exterior Metals Finishes
All Window & Door Frame Finishes
All Specialty Item Finishes, including trim

(b) Identify each item on the exterior finishes color boards and key to the building elevations to provide a clear indication of how and where each item will be used.

3.6.5.1.2 Structural Interior Design Documents

Indicate the placement of extents of SID material, finishes and colors on related drawings and detail to define all interior work. The following is a list of minimum requirements:

3.6.5.1.2.1 Finish Color Schedule

Provide finish color schedule(s) in the contract documents. Provide a finish code, material type, manufacturer, series, and color designations. Key the finish code to the color board samples and drawings.

3.6.5.1.2.2 Interior Finish Plans

Indicate wall and floor patterns and color placement, material transitions and extents of interior finishes. Include a finish material/color board, presenting a physical representation of material selections

3.6.5.1.2.3 Furniture Footprint Plans

Provide furniture footprint plans showing the outline of all freestanding and systems furniture for coordination of all other disciplines.

3.6.5.1.2.4 Interior Signage

Include interior signage plans or schedules showing location and quantities of all interior signage. Key each interior sign to a quantitative list indicating size, quantity of each type and signage text.

3.6.5.1.2.5 Interior Elevations, Sections and Details

Indicate material, color and finish placement.

3.6.6 Plumbing Systems

a. List all references used in the design including Government design documents and industry standards.

b. Provide justification and brief description of the types of plumbing fixtures, piping materials and equipment proposed for use.

c. Detail calculations for systems such as sizing of domestic hot water heater and piping; natural gas piping; LP gas piping and tanks; fuel oil piping and tanks.

d. Show locations and general arrangement of plumbing fixtures and major equipment.

e. Plan and isometric riser diagrams of all areas including hot water, cold water, waste and vent piping. Include natural gas (and meter as required), LP gas, fuel oil and other specialty systems as applicable.

f. Include equipment and fixture connection schedules with descriptions, capacities, locations, connection sizes and other information as required.

g. When the geotechnical report indicates expansive soils are present, indicate in the first piping design submittal how piping systems will be protected against damage or backfall/backflow due to soil heave (from penetration of slab to the 5 foot building line).

3.6.7 HVAC Systems

3.6.7.1 Design Analysis

Provide complete design calculations for mechanical systems. Include computations for sizing equipment, compressed air systems, air duct design, and U-factors for ceilings, roofs and exterior walls and floors.

Based on the results of calculations, provide a complete list of the materials and equipment proposed with the manufacturer's published cataloged product installation specifications and roughing-in data.

3.6.7.2 Mechanical Floor Plans

On the floor plans, show all principle architectural features of the building which affect the mechanical design. Also show the following:

Room designations
Mechanical legend and applicable notes
Location and size of all ductwork and piping
Location and capacity of all terminal units (i.e., registers, diffusers, grilles, hydronic baseboards)
Pre-Fabricated Paint Spray Booth
Paint Preparation Area
Exhaust fans and specialized exhaust systems
Thermostat location
Location of all air handling equipment
Air balancing information
Flue size and location
Piping diagram for forced hot water system (if used)

3.6.7.3 Equipment Schedule

Providee complete equipment schedules. Include the following in the Schedule:

Capacity
Electrical characteristics
Efficiency (if applicable)

Manufacturer's name
Optional features to be provided
Physical sizes
Minimum maintenance clearances

3.6.7.4 Details

Provide construction details, sections, elevations, etc., only where required for clarification of methods and materials of design.

3.6.7.5 Controls

Submit complete HVAC controls equipment schedules, sequences of operation, wiring and logic diagrams, Input/Output Tables, equipment schedules, and all associated information. See the Statement of Work for additional specific requirements.

3.6.8 Fire Protection and Life Safety

Provide plan for each floor of each building that presents a compendium of the total fire protection features being incorporated into the design. Working plans and all other materials submittal must meet NFPA 13 requirements, with respect to required minimum level of detail. Include the following types of information:

a. The location and rating of any fire-resistive construction such as occupancy separations, area separations, exterior walls, shaft enclosures, corridors, stair enclosures, exit passageways.

b. The location and coverage of any fire detection systems.

c. The location and coverage of any fire suppression systems (sprinkler risers, standpipes, etc.).

d. The location of any other major fire protection equipment.

e. Indicate any hazardous areas and their classification.

f. Schedule describing the internal systems with the following information:

(1) Fire hazard and occupancy classifications
(2) Building construction type
(3) GPM/square foot sprinkler density
(4) Area of operation

3.6.8.1 Fire Protection/Suppression Analysis

a. Include building code analysis and basis of design for sprinkler and other suppression systems.

b. An FPE must perform all fire protection analyses. Provide the fire protection engineer's qualifications.

c. List all references used in the design including Government design documents and industry standards used to generate the fire protection analysis

d. Classification of each building in accordance with fire zone, building floor areas and height and number of stories

e. Discussion and description of required fire protection requirements including extinguishing equipment, detection equipment, alarm equipment and water supply. Interface alarm and detection equipment to requirements of Electronic Systems.

f. Plan for each floor of each building that presents a compendium of the total fire protection features being incorporated into the design. Include the following types of information:

(1) The location and rating of any fire-resistive construction such as occupancy separations, area separations, exterior walls, shaft enclosures, corridors, stair enclosures, and exit passageways.

(2) The location and coverage of any fire detection systems

(3) The location and coverage of any fire suppression systems (e.g. sprinkler risers, standpipes)

(4) The location of any other major fire protection equipment

(5) Indicate any hazardous areas and their classification

g. Schedule describing the internal systems with the following information: fire hazard and occupancy classifications; building construction type; GPM/square foot sprinkler density; area of operation and other as required.

h. Provide hydraulic calculations based on water flow test for each sprinkler system to insure that flow and pressure requirements can be met with current water supply. Include copies of water flow testing done to certify the available water source.

i. Meet NFPA 13 requirements with respect to required minimum level of detail on working plans and all other submitted materials.

3.6.8.2 Fire Protection and Life Safety Code Review

Use the information outlined in the document associated with this section at http://www.wbdg.org/ccb/NAVGRAPH/graphtoc.pdf to provide the minimum requirement for development of Fire Protection and Life Safety Code submittals for all building projects. Additional and supplemental information may be used to further develop the code review. Insert N/A after criteria, which may be "not applicable".

3.6.9 Electrical Systems

3.6.9.1 Design Analysis

Include lighting calculations to determine maintained foot-candle levels, electrical load analysis and calculations, electrical short circuit and protective device coordination analysis and calculations and arc fault calculations.

3.6.9.2 Floor Plan

On the floor plans show all principle architectural features of the building which will affect the electrical design. Also show the following on the floor plan:

(1) Room designations
(2) Electrical legend and applicable notes
(3) Lighting fixtures, properly identified
(4) Switches for control of lighting
(5) Receptacles
(6) Location and designation of panelboards. Plans should clearly indicate type of mounting required (flush or surface) and be reflected accordingly in specifications.
(7) Service entrance (conduit and main disconnect)
(8) Location, designation and rating of motors and/or equipment which requires electrical service. Show method of termination and/or connection to motors and/or equipment. Show necessary junction boxes, disconnects, controllers (approximate only), conduit stubs, and receptacles required to serve the motor and/or equipment.

3.6.9.3 Building Riser Diagram

From pad-mounted transformer to unit load center panelboard indicate the types and sizes of electrical equipment and wiring. Include grounding and metering requirements.

3.6.9.4 Load Center Panelboard Schedule(s)

Indicate the following information in the schedule(s):

(1) Panelboard Characteristics (Panel Designation, Voltage, Phase, Wires, Main Breaker Rating and Mounting
(2) Branch Circuit Designations
(3) Load Designations
(4) Circuit Breaker Characteristics (Number of Poles, Trip Rating, AIC Rating)
(5) Branch Circuit Connected Loads (AMPS)
(6) Special Features

3.6.9.5 Lighting Fixture Schedule

Indicate the following information in the schedule:

(1) Fixture Designation
(2) General Fixture Description
(3) Number and Type of Lamp(s)
(4) Type of Mounting
(5) Special Features

3.6.9.6 Details

Provide construction details, sections, elevations only where required for clarification of methods and materials of design.

3.6.10 Specialty Equipment

3.6.10.1 Elevators

a. List of criteria codes, documents and design conditions used.

b. List of any required permits and registrations for construction of items of special mechanical systems and equipment.

c. Description of the proposed control system.

d. Description, approximate capacity and location of any special mechanical equipment for elevators.

3.6.10.2 Corrosion Control and Prevention Systems

Provide a report clearly describing structures, systems or components in soil or water to be protected. Describe methods proposed for protection of each. The report must be stamped by the licensed corrosion engineer or NACE specialist with the first design submission.

The designer must be qualified to engage in the practice of corrosion control of buried or submerged metallic surfaces. Either accreditation or certification by the National Association of Corrosion Engineers (NACE) as a NACE Accredited Corrosion Specialist or a NACE certified Cathodic Protection Specialist, or a registered professional engineer with a minimum of five years experience in corrosion control and cathodic protection is required.

3.7 INTERIM DESIGN REQUIREMENTS

At least one interim design submittal, review and review conference is required for each design package. Additional interim design conferences or over-the-shoulder reviews may be scheduled, as needed, to assure continued Government concurrence with the design work. Include the interim submittal review periods and conferences in the Section 01 32 16.00 20 BASELINE DESIGN SCHEDULE and indicate in periodic schedule updates what part of the design work is at what percentage of completion.

3.7.1 Submission Review

After receipt of an Interim Design submission, the Government requires 14 calendar days after receipt of the submission to review and comment on the interim design submittal. For smaller design packages, especially those that involve only one or a few separate design disciplines, the parties may agree on a shorter review period.

a. For each interim design review submittal, the Contracting Officer will furnish a single consolidated, validated set of comments from the various design sections and from other concerned agencies involved in the review process. The review will be for conformance with the technical requirements of the Contract.

b. The Government reserves the right to reject design document submittals if comments are deemed significant.

c. Furnish disposition of all comments, in writing. If there are technical disagreements with any comments, clearly outline, with justification, the reasons for disagreement and noncompliance within

five calendar days after receipt of these comments.

d. The Contractor is cautioned that if it believes the action required by any comment exceeds the requirements of this contract, that it should take no action and notify the Contracting Officer in writing immediately.

3.7.2 Interim Review Conference

Hold an Interim Review conference for each design submittal at the installation. Attendees include, at a minimum, the DOR(s) involved in development of the design submittal. Schedule the conference to take place the week after the receipt of the comments. Notify the Contracting Officer of any comments that with concurrence would require further design development.

For smaller packages that involve only a few reviewers, the parties may agree to alternative conferencing methods, such as teleconferencing, as determined through by the Contracting Officer.

3.7.3 Conference Documentation

3.7.3.1 Minutes and Comment Process

Provide meeting minutes within two work days after the conference adjourns. Include copies of comments, annotated with comment action agreed on, with the minutes.

a. Resolve issues remaining open after the conference adjourns by immediate follow-on action to close the issue within 30 calendar days.

b. Incorporate comments as agreed upon during the conference.

3.7.3.2 Availability

In order to facilitate the Government code and contract conformance reviews, identify, track resolution of, and maintain all comments and action items generated during the design review process. Make this available to the designers and reviewers prior to the subsequent design reviews.

3.8 FINAL DESIGN REQUIREMENTS

Provide final design submittals that consist of 100 percent complete drawings, specifications, submittal register, design analyses for Government review and acceptance.

a. In order to expedite the final design review, prior to the conference, ensure that all designreview comment resolutions are up-to-date.

b. Perform independent technical reviews and back-checks of previous comment resolutions, as required by Section 01 45 00.00 10 QUALITY CONTROL.

3.8.1 Design Drawings

Submit drawings complete with all contract requirements incorporated into the documents to provide a 100 percent design for each package submitted.

3.8.1.1 Geo-Referenced Data

Capture geo-referenced coordinates of all changes that will be made to the existing site (facility footprint, utility line installations and alterations, roads, parking areas, etc) as a result of this contract.

Close-out requirements at the as-built stage, require final geo-referenced GIS Database of the new facility along with all exterior modifications. The Government will incorporate this data set into the Installation's GIS Masterplan or Enterprise GIS System. See also, Section 01 78 00 CLOSEOUT SUBMITTALS.

3.8.2 Design Analysis

Provide a design analysis with calculations necessary to validate and support all design work submitted. Expand and advance calculations and information presented in the interim design stage to the current level of design. The responsible DOR(s) stamp, sign and date the design analysis.

3.8.3 Specifications

Provide specifications 100 percent complete and in final form.

3.8.4 Submittal Register

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

3.8.5 Preparation of DD Form 1354 (Transfer of Real Property)

This form itemizes the types, quantities and costs of various equipment and systems that comprise the project, for the purpose of transferring the new construction project to the Installation's inventory of real property. The Government will furnish the Contractor's design manager a DD Form 1354 checklist to use to produce a draft Form 1354. Submit the completed checklist and prepared draft Form DD 1354 with the 100 percent design. The Government will use these documents to complete interim and final DD 1354s for turnover of a portion or all of the construction project.

3.9 DESIGN COMPLETE CONSTRUCTION DOCUMENT REQUIREMENTS

After the Final Design Submission and Review Conference, revise the design documents for the design package to incorporate the comments generated and resolved in the final review conference. Perform a back-check review and submit the final, design complete documents. The deliverable includes all documentation and supporting design analysis in final form, as well as the final review comments, disposition and the back-check. As part of the quality assurance process, the Government may perform a review of the released for construction documentation. Promptly correct any errors or omissions found during the Government review.

3.10 ACCEPTANCE AND RELEASE FOR CONSTRUCTION

After acceptance of the Design Complete Construction Document(s) the Contracting Officer will allow construction to start for that design package.

Government review and acceptance of design submittals is for contract conformance only and does not relieve the Contractor from responsibility to fully adhere to the requirements of the contract, including the Contractor's accepted proposal; or limit the Contractor's responsibility of design; or limit the Government's rights under the terms of the contract. The Government reserves the right to rescind inadvertent acceptance of design submittals containing contract deviations not separately and expressly identified in the submittal for Government consideration and approval.

-- End of Section --

SECTION 01 42 00

SOURCES FOR REFERENCE PUBLICATIONS

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.

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION (ISO)
ISO Central Secretariat
BIBC II
Chemin de Blandonnet 8
CP 401 - 1214 Vernier, Geneva
Switzerland
Ph: 41-22-749-01-11
E-mail: central@iso.ch
Internet: https://www.iso.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

NATIONAL INSTITUTE OF BUILDING SCIENCES (NIBS)
1090 Vermont Avenue NW, Suite 700
Washington, DC 20005
Ph: 202-289-7800
Fax: 202-289-1092
Internet: http://www.wbdg.org

U.S. AIR FORCE (USAF)
E-mail: usaf.pentagon.saf-aa.mbx.AFDPO-PPL@mail.mil
Internet: https://www.e-publishing.af.mil/

U.S. ARMY CORPS OF ENGINEERS (USACE)
CRD-C DOCUMENTS available on Internet:

http://www.wbdg.org/ffc/army-coe/standards
Order Other Documents from:
Official Publications of the Headquarters, USACE
E-mail: hqpublications@usace.army.mil
Internet: http://www.publications.usace.army.mil/
or
https://www.hnc.usace.army.mil/Missions/Engineering-Directorate/TECHINFO/

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. FEDERAL AVIATION ADMINISTRATION (FAA)
Order for sale documents from:
Superintendent of Documents
U.S. Government Publishing Office (GPO)
732 N. Capitol Street, NW
Washington, DC 20401
Ph: 202-512-1800 or 866-512-1800
Bookstore: 202-512-0132
Internet: https://www.gpo.gov/
Order free documents from:
U.S. Department of Transportation
Federal Aviation Administration
800 Independence Avenue, SW
Washington, DC 20591
Ph: 866-835-5322
Internet: https://www.faa.gov/

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)
8601 Adelphi Road
College Park, MD 20740-6001

Ph: 866-272-6272
Internet: https://www.archives.gov/
Order documents from:
Superintendent of Documents
U.S. Government Publishing Office (GPO)
732 N. Capitol Street, NW
Washington, DC 20401
Ph: 202-512-1800 or 866-512-1800
Bookstore: 202-512-0132
Internet: https://www.gpo.gov/

PART 2 PRODUCTS

Not used

PART 3 EXECUTION

Not used

-- End of Section --

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 01 45 00.00 10

QUALITY CONTROL

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	(2014) Safety -- Safety and Health Requirements Manual
ER 1110-1-12	(2006; Change 1) Engineering and Design -- Quality Management

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 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Quality Control (QC) Plan; G

Additional Requirements for Design Quality Control (DQC) Plan; G

SD-05 Design Data

Discipline-Specific Checklists

Design Quality Control

SD-06 Test Reports

QC Documentation

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

Establish and maintain an effective quality control (QC) system that complies with FAR 52.246-12 Inspection of Construction. QC consist of plans, procedures, and organization necessary to produce an end product which complies with the Contract requirements. The QC system covers all design and/or construction operations, both onsite and offsite, and be

keyed to the proposed design and/or construction sequence. The QC Manager, Project Manager, Design Quality Manager and Project Superintendent 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.

3.2 QUALITY CONTROL (QC) PLAN

Submit no later than 15 days after receipt of notice to proceed, the Quality Control (QC) Plan proposed to implement the requirements FAR 52.246-12 Inspection of Construction. Design and/or construction will be permitted to begin only after acceptance of the QC Plan.

3.2.1 Content of the QC Plan

Include, as a minimum, the following to cover all design and/or construction-operations, both onsite and offsite, including work by subcontractors, designers of record, consultants, architect/engineers (AE), fabricators, suppliers and purchasing agents:

a. A description of the quality control organization, including a chart showing lines of authority and acknowledgment that the QC staff will implement the three phase control system for all aspects of the work specified.

b. The name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a QC function.

c. A copy of the letter to the QC Manager signed by an authorized official of the firm which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the QC Manager, including authority to stop work which is not in compliance with the Contract. Letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities will be issued by the QC Manager. Furnish copies of these letters to the Contracting Officer.

d. Procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, designers of record, consultants, architect engineers (AE), offsite fabricators, suppliers, and purchasing agents. These procedures must be in accordance with Section 01 33 00 SUBMITTAL PROCEDURES.

e. Control, verification, and acceptance testing procedures for each specific test to include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person responsible for each test. (Laboratory facilities approved by the Contracting Officer are required to be used.)

f. Procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and acceptance tests including documentation.

g. Procedures for tracking design and/or construction deficiencies from identification through acceptable corrective action. Establish verification procedures that identified deficiencies have been corrected.

h. Reporting procedures, including proposed reporting formats.

i. A list of the definable features of work. A definable feature of work is a task which is separate and distinct from other tasks, has separate control requirements, and is identified by different trades or disciplines, or it is work by the same trade in a different environment. 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. This list will be agreed upon during the coordination meeting.

3.2.2 Additional Requirements for Design Quality Control (DQC) Plan

The following additional requirements apply to the Design Quality Control (DQC) plan:

a. Submit and maintain a Design Quality Control (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. Correct errors and deficiencies in the design documents prior to submitting them to the Government.

b. 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 1110-1-12 provides some useful information in developing checklists.

c. 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. This individual must be a person who has verifiable engineering or architectural design experience and is a registered professional engineer or architect. Notify the Contracting Officer, in writing, of the name of the individual, and the name of an alternate person assigned to the position.

The Contracting Officer will notify the Contractor in writing of the acceptance of the DQC Plan. After acceptance, any changes proposed by the Contractor are subject to the acceptance of the Contracting Officer.

3.2.3 Acceptance of Plan

Acceptance of the Contractor's plan is required prior to the start of design and/or construction. Acceptance is conditional and will be predicated on satisfactory performance during design and/or construction. The Government reserves the right to require the Contractor to make changes in the Quality Control(QC) Plan and operations including removal of personnel, as necessary, to obtain the quality specified.

3.2.4 Notification of Changes

After acceptance of the QC Plan, notify the Contracting Officer in writing of any proposed change. Proposed changes are subject to acceptance by the

Contracting Officer.

3.3 COORDINATION MEETING

After the Preconstruction Conference,Postaward Conference, before start of design and/or construction, and prior to acceptance by the Government of the QC Plan, meet with the Contracting Officer and discuss the Contractor's quality control system. Submit the QC Plan a minimum of ten (10) calendar days prior to the Coordination Meeting. During the meeting, a mutual understanding of the system details must be developed, including the forms for recording the QC 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 Government, signed by both the Contractor and the Contracting Officer and will become a part of the contract file. There can be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings or address deficiencies in the QC system or procedures which can require corrective action by the Contractor.

3.4 QC ORGANIZATION

3.4.1 Personnel Requirements

The requirements for the QC organization are a QC Manager, a Site Safety and Health Officer (SSHO), a Design Quality Manager, and a sufficient number of additional qualified personnel to ensure safety and Contract compliance. The QC Manager may also serve as the SSHO. The QC Manager reports directly to a senior project (or corporate) official independent from the Project Superintendent or Project Manager.

The Contractor's QC staff maintains a presence at the site at all times during progress of the work and have complete authority and responsibility to take any action necessary to ensure Contract compliance. The QC staff will be subject to acceptance by the Contracting Officer.

Promptly complete and furnish all letters, material submittals, shop drawing submittals, schedules and all other project documentation to the QC organization. The QC organization is responsible to maintain these documents and records at the site at all times, except as otherwise acceptable to the Contracting Officer.

3.4.2 QC Manager

3.4.2.1 Duties

Identify as QC Manager an individual within the organization that is responsible for overall management of QC and has the authority to act in all QC matters for the Contractor.

The QC Manager is required to attend QC Plan Meetings, the Coordination Meeting, conduct the QC meetings, perform the three phases of control except for those phases of control designated to be performed by QC Specialists, 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 the QC Specialists, testing laboratory personnel and any other inspection and testing personnel required by this Contract.

In addition to implementing and managing the QC program, the QC Manager may also perform the duties of Design QC Manager or the SSHO.

3.4.2.2 Qualifications

The QC Manager is required to be an individual with a minimum of 5-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.

3.4.3 Alternate QC Manager

Identify in the plan an Alternate QC Manager to serve in the event of the QCManager's absence. The qualifications for the Alternate QC Manager are the same as the QC Manager.

The Alternate QC Manager may also perform the duties of Design QC Manager or the SSHO.

3.4.4 Assistant QC Manager

Provide an assistant(s) to the QC Manager at the work site to perform the three phases of control, perform submittal review, ensure testing is performed, and prepare QC certifications and documentation required by this Contract. The qualification requirements for the Assistant QC Manager are a minimum of 5 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 be familiar with the requirements of EM 385-1-1, and have experience in the areas of hazard identification and safety compliance.

3.4.5 QC Specialists

In addition to QC personnel specified elsewhere in the contract, the Contracting Officer may require as part of the QC organization specialized personnel to assist the QC System Manager in the following areas: electrical, mechanical, civil, structural, architectural, and/or materials technician. These individuals or specialized technical companies may be employees of the prime or subcontractor; responsible to the QC Manager; shall be physically present at the construction site during work on the specialized personnel's areas of responsibility; have the necessary education or experience in accordance with the experience matrix below. These individuals can perform other duties, but need to be allowed sufficient time to perform the specialized personnel's assigned quality control duties as described in the Quality Control Plan. A single person can cover more than one area provided that person is qualified to perform quality control activities in each designated area and that workload allows.

Experience Matrix	
Area	Qualifications
Civil	Graduate Civil Engineer or Construction Manager with 2 years experience in the type of work being performed on this project or technician with 5 yrs related experience
Mechanical	Graduate Mechanical Engineer with 2 yrs experience or person with 5 years of experience supervising mechanical features of work in the field with a construction company
Electrical	Graduate Electrical Engineer with 2 years related experience or person 5 years of experience supervising electrical features of work in the field with a construction company
Structural	Graduate Civil Engineer (with Structural Track or Focus) or Construction Manager with 2 years experience or person 5 years of experience supervising structural features of work in the field with a construction company
Architectural	Graduate Architect with 2 years experience or person with 5 years related experience
Concrete, Pavements and Soils	Materials Technician with 2 years experience for the appropriate area
Testing, Adjusting and Balancing (TAB) Personnel	Specialist must be a member of AABC or an experienced technician of the firm certified by the NEBB

3.4.6 Construction Quality Management Training

In addition to the above experience and education requirements, the QC Manager and Alternate are required to have completed the Construction Quality Management (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 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.

3.4.7 Organizational Changes

Maintain the QC staff at full strength at all times. When it is necessary to make changes to the QC staff, revise the QC Plan to reflect the changes and submit the changes to the Contracting Officer for acceptance.

3.5 SUBMITTALS AND DELIVERABLES

Submittals, if needed, have to comply with the requirements in Section 01 33 00 SUBMITTAL PROCEDURES. The QC organization is responsible for certifying that all submittals and deliverables are in compliance with the contract requirements.

3.6 CONTROL

QC is the means by which the Contractor ensures that the construction, to include that of subcontractors and suppliers, complies with the requirements of the contract. At least three phases of control are required to be conducted by the QC Manager for each definable feature of the construction work as follows:

3.6.1 Preparatory Phase

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. This phase includes:

a. A review of each paragraph of applicable specifications, reference codes, and standards. Make available during the preparatory 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 of the Contract drawings.

c. Check to assure that all materials and equipment have been tested, submitted, and approved.

d. Review of provisions that have been made to provide required control inspection and testing.

f. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the Contract.

g. Examination of required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.

h. Review of the appropriate activity hazard analysis to assure safety requirements are met.

i. Discussion of procedures for controlling quality of the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work.

j. Check to ensure that the portion of the plan for the work to be performed has been accepted by the Contracting Officer.

k. Discussion of the initial control phase.

l. The Government needs to be notified at least 48 hours in advance of beginning the preparatory control phase. Include a meeting conducted by the QC Manager and attended by the superintendent, other QC personnel (as applicable), and the foreman responsible for the definable feature. Document the results of the preparatory phase actions by separate minutes prepared by the QC Manager and attach to the daily QC report. Instruct applicable workers as to the acceptable level of workmanship required in order to meet contract specifications.

3.6.2 Initial Phase

This phase is accomplished at the beginning of a definable feature of work. Accomplish the following:

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 are in compliance with the contract.

c. Establish level of workmanship and verify that it meets minimum acceptable workmanship standards. Compare with required sample panels as appropriate.

d. Resolve all differences.

e. Check safety to include compliance with and upgrading of the safety plan and activity hazard analysis. Review the activity analysis with each worker.

f. The Government needs to be notified at least 24 hours in advance of beginning the initial phase for definable feature of work. Prepare separate minutes of this phase by the QC Manager and attach to the daily QC report. Indicate the exact location of initial phase for definable feature of work for future reference and comparison with follow-up phases.

g. The initial phase for each definable feature of work is repeated for each new crew to work onsite, or any time acceptable specified quality standards are not being met.

3.6.3 Follow-up Phase

Perform daily checks to assure control activities, including control testing, are providing continued compliance with contract requirements, until completion of the particular feature of work. Record the checks in the QC documentation. 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. Do not build upon nor conceal non-conforming work.

3.6.4 Additional Preparatory and Initial Phases

Conduct additional preparatory and initial phases on the same definable features of work if: the quality of on-going work is unacceptable; if

there are changes in the applicable QC staff, onsite production supervision or work crew; if work on a definable feature is resumed after a substantial period of inactivity; or if other problems develop.

3.7 TESTS

3.7.1 Testing Procedure

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 a 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 of the test documentation requirements, have been prepared.

e. Record results of all tests taken, both passing and failing on the QC 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.

3.7.2 Testing Laboratories

All testing laboratories must be validated by the USACE Material Testing Center (MTC) for the tests to be performed. Information on the USACE MTC with web-links to both a list of validated testing laboratories and for the laboratory inspection request for can be found at:

https://www.erdc.usace.army.mil/Media/Fact-Sheets/Fact-Sheet-Article-View/Article/476661

3.8 COMPLETION INSPECTION

3.8.1 Punch-Out Inspection

Conduct an inspection of the work by the QC Manager near the end of the work, or any increment of the work established by a time stated in FAR 52.211-10 Commencement, Prosecution, and Completion of Work, or by the specifications. Prepare and include in the QC documentation a punch list of items which do not conform to the approved drawings and specifications, as required by paragraph DOCUMENTATION. Include within the list of deficiencies the estimated date by which the deficiencies will be corrected. Conduct second inspection by the QC Manager or staff to

ascertain that all deficiencies have been corrected. Once this is accomplished, notify the Government that the facility is ready for the Government Pre-Final inspection.

3.8.2 Pre-Final Inspection

The Government will perform the pre-final inspection to verify that the facility is complete and ready to be occupied. A Government Pre-Final Punch List may be developed as a result of this inspection. Ensure that all items on this list have been corrected before notifying the Government, so that a Final inspection with the customer can be scheduled. Correct any items noted on the Pre-Final inspection in a timely manner. These inspections and any deficiency corrections required by this paragraph need to be accomplished within the time slated for completion of the entire work or any particular increment of the work if the project is divided into increments by separate completion dates.

3.8.3 Final Acceptance Inspection

The Contractor's Quality Control Inspection personnel, plus the superintendent or other primary management person, and the Contracting Officer's Representative are required to be in attendance at the final acceptance inspection. Additional Government personnel including, but not limited to, those from Base Civil Engineering Directorate and the Customer Representative will also be in attendance. The final acceptance inspection will be formally scheduled by the Contracting Officer based upon results of the Pre-Final inspection. Notify the Contracting Officer at least 14 days prior to the final acceptance inspection and include the Contractor's assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining work performed under the Contract, will be complete and acceptable by the date scheduled for the final acceptance inspection. 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 FAR 52.246-12 Inspection of Construction.

3.9 QC DOCUMENTATION

Maintain current and complete records of on-site and off-site QC program operations and activities.

3.9.1 Construction Documentation

Reports are required for each day that work is performed and must be attached to the Quality Control Report prepared for the same day. Maintain current and complete records of on-site and off-site QC program operations and activities. The forms identified under the paragraph "SAMPLE FORMS" or approved equivalents will be used. Reports are required for each day work is performed. Account for each calendar day throughout the life of the Contract. Every space on the forms must be filled in. Use N/A if nothing can be reported in one of the spaces. The Project Superintendent and the QC Manager must prepare and sign the Contractor Production and CQC Reports, respectively. 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 and a record of visitors to the work site, quality control problem areas, deviations from the QC Plan, construction deficiencies encountered, meetings held. For each entry in the report(s), identify the Schedule Activity No. that is associated with the entered remark.

Provide documentation of design quality control activities. For independent design reviews, provide, as a minimum, identification of the Independent Technical Review (ITR) team, the ITR review comments, responses and the record of resolution of the comments.

Submit reports weekly on the first working day of the following week, or as directed by the CO.

3.9.2 Testing Plan and Log

As tests are performed, 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 QC Report of each month.

3.9.3 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 reworked, the date the item was originally discovered, the date the item will be corrected by, and the date the item was corrected. There is no requirement to report a rework item that is corrected the same day it is discovered. Attach a copy of the "Rework Items List" to the last daily QC Report of each month.

3.9.4 As-Built Drawings

The QC Manager is required to 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. Ensure each deviation has been identified with the appropriate modifying documentation (e.g. Modification No., Request for Information No., etc.). The QC Manager must initial each revision.

3.10 SAMPLE FORMS

The following Sample Forms are included as attachements at the end of this section. Electronic versions of the current report forms can be obtained from the CO.

Contractor Quality Control Report
Contractor Production Report
Prepatory Phase Checklist
Initial Phase Checklist
Testing PLan and Log
Rework Items List

3.11 NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the foregoing requirements. Take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, will be deemed sufficient for the purpose of

notification. If the Contractor fails or refuses to comply promptly, the Contracting Officer can 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 claim for extension of time or for excess costs or damages by the Contractor.

-- End of Section --

SECTION 01 50 00

CONTRACTOR FACILITIES

PART 1 GENERAL

1.1 GENERAL

Contractor shall limit the storage of materials, equipment, and incidentals to the immediate construction site or approved staging areas designated by the Contracting Officer.

If the contractor requires additional storage/staging areas other than the project site or as indicated in the contract dopcuments, a request shall be submitted in writing to the Contracting Officer a minimum of twenty-one (21) days prior to mobilization. Requests for additional Storage/staging area shall be submitted utilizing Attachment 1 - Request for Contractor Staging Area. Requests shall include, as necessary: a proposed location; approximate square footage required; items to be located in the staging area such as job trailers, dumpsters, material and equipment; and a proposed alternative location (as required by the Contracting Officer). The Government will make every effort to accommodate the contractor's requests, but must also take into consideration items such as personnel safety, anti-terrorism/ force-protection requirements, mission requirements, and proximity to distinguished visitor routes. All requests are subject to approval by the Base Civil Engineer and/or the Installation Commander. Refer to Section 00 71 00, GENERAL SAFETY REQUIREMNTS FOR CONSTRUCTION ON TINKER AIR FORCE BASE, Attachment 1, for additional information related to construction projects on or adjoining the airfield.

Upon approval, the Government will provide the Contractor an area or areas on TAFB to stage equipment and materials necessary to fulfill the contract. The area shall be set up and maintained as stipulated below or as directed by the Government.

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 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Request for Contractor Staging Area; G

Contractor Staging Area Photographic Record

1.3 VISUAL RECORD

Prior to establishing a staging area, the Contractor shall provide a photographic record of the area to the Contracting Officer. These photographs will become a part of the project file and will be used to determine proper restoration of the area at contract completion.

1.4 STAGING AREA

a. All materials, equipment, and related contractor debris are to be stored within the designated staging area..

b. The contractor shall maintain this area in a clean and orderly manner at all times.

c. The contractor shall provide refuse containers of sufficient size and quantity to insure site cleanliness. The containers shall be clearly marked for their intended material.

d. If the storage area must be graveled, then a geotextile fabric (of sufficient strength to support load without tearing) shall be laid down first and then gravel placed on top of the fabric. Gravel shall not be spread directly on the soil surface or grassed area.

e. The contractor shall be responsible for all notifications, receipts, handling, unloading, loading, and security of all equipment and material stored within the staging area.

1.5 UTILITIES

a. **The Government will provide no utilities to the staging area.**

b. All utilities provided to the site shall be at the Contractor's expense.

c. The Contractor, at his own expense, may have electricity connected to an office trailer.

d. The contractor shall provide temporary sanitary facilities within the fenced staging area. The units shall be self contained, single-toilet units. The contractor shall provide one unit for every 20 people working in the area. The units and supplier shall be approved by the Government.

e. The sanitary facilities shall be serviced and cleaned as needed but not less than once per week.

f. Additional utilities, such as telephone, may be installed at the contractors own expense.

1.6 FENCING

b. The contractor shall fence the staging area with a six feet tall chain link fence.

c. The fence and gates shall include a screening material; material shall dark green and provide 80% concealment, minimum. Screening material shall be installed in a permanent manner.

d. The fence shall be temporary and the bases of all post shall be concrete.

e. The fence shall be designed and installed so that it will not be displaced by a wind with a speed less than or equal to 60 miles per hour.

f. The fence shall be installed and maintained straight from corner to corner and shall be plumb.

g. The design, installation, and maintenance of the fence shall be at no expense to the Government.

1.7 SECURITY

a. The security of the staging area is the responsibility of the contractor.It is recommended that the contractor make arrangements for storage of equipment between its delivery and its installation, as security during non-working hours cannot be guaranteed.

1.8 SAFETY

a. The contractor shall comply with all applicable DoD, USAF, and OSHA safety regulations.

b. The contractor shall insure that all required personal safety equipment is available and is being properly used.

c. The contractor shall provide and maintain at least one First Aid Kit in the staging area. The kit shall contain the items as specified by OSHA for the type of work being done and shall be rated for no less than the maximum number of persons in the area. Two or more first aid kits may be required.

d. All first aid kits are to be located in a highly visible, easily accessible place and the items in the kit shall not have expired.

e. The contractor shall provide fire extinguishers. The fire extinguishers shall be hand held, 10 pound, UL Rated, Class ABC. The quantity and location of fire extinguishers shall be such that the distance to the nearest fire extinguisher in the staging area is not more than 100 feet.

f. The contractor shall provide, in addition to the above requirements, at least one fire extinguisher for each enclosed trailer or van stored in the area. These fire extinguishers shall hand held, five pound, UL Rated, Class ABC and shall be located inside the trailer or van as near to the exit as possible and practical.

g. All fire extinguishers shall be maintained in a highly visible condition, in good working order, and with all inspections current.

h. All flammable materials and liquids shall be properly marked and stored.

i. Safety equipment, first aid equipment, and fire suppression equipment shall be provided at no costs to the Government.

1.9 ACCESS

a. The Government will provide one access from a paved surface to the staging area.

b. Access to the staging area shall be by gravel surface. A geotextile fabric (of sufficient strength to support load without tearing) shall

be laid down first and then gravel placed on top of the fabric. Gravel shall not be spread directly on the soil surface or grassed area.

c. The design and installation of additional accesses must be approved, in writing, by the Government prior to installation.

1. Any additional accesses shall be designed and installed to support all contractor traffic without rutting.

2. Any additional accesses shall be properly maintained by the contractor and shall not be a source of FOD for the Airfield.

3. Any additional accesses shall be removed at the end of the contract and the area restored to the condition it was in prior to the installation of the access.

4. The design, installation, maintenance, removal, and restoration of all additional accesses shall be at no expense to the Government.

1.10 AREA MAINTENANCE

a. The contractor shall maintain the area in a clean, neat, and orderly manner at all times.

b. Grass and other vegetation within the area shall be neatly mowed for the duration of the contract.

c. Grass and other vegetation along and under the fence, around buildings, under and around materials and equipment, and in any other area not accessible to a mower shall be neatly trimmed or edged for the duration of the contract.

d. Contractor shall maintain grass cutting in the storage area such that grasses and weeds do not exceed 6 inches in height.

1.11 AREA RESTORATION

a. The contractor shall vacate the staging area no later than 10 calendar days before the end of the contract.

b. All utilities, including wiring, piping, etc.,shall be removed.

c. All contractor supplied fencing shall be removed.

d. The contractor shall restore the area to a condition as-good-or-better-than it was just before staging area was established.

1.12 JOB SITE SUPPORT AREA

a. Additional, short term, staging and working areas may be established for individual job sites with written approval of the Government.

b. Requests, including a site plan, shall be submitted to the Government no later than 10 working days before their need.

c. Additional support areas shall be subject to all the requirements of the staging area as specified in specification with the following exceptions:

1. The Government will provide no access from a paved surface to the area.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

-- End of Section --

THIS PAGE INTENTIONALLY LEFT BLANK

Attachment 1

Staging Request Form

1. TRACKING NUMBER	**APPROVAL FORM FOR STAGING AREAS, DUMPSTERS, AND CONNEX BOXES**	2. DATE
3. PROJECT/ WORK ORDER #	4. CONSTRUCTION INSPECTOR	5. PHONE #
6. PROJECT DESCRIPTION/ADDITIONAL INFORMATION		7. AREA (SQ FT)

THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ANY APPROVED STAGING AREA IN ACCORDANCE WITH BASE FACILITY STANDARDS, PROJECT SPECIFIC GUIDANCE, AND RETURNING THE SITE TO ITS ORIGINAL CONDITION OR BETTER, BY THE VACATE DATE.
THE CONSTRUCTION INSPECTOR IS RESPONSIBLE FOR TAKING PHOTOS BEFORE THE OCCUPY DATE AND AFTER THE VACATE DATE TO VERIFY FOR THE BASE CIVIL ENGINEER THAT THE SITE HAS BEEN RETURNED TO ITS ORGINAL CONDITION OR BETTER.

8. LOCATION MAP

COORDINATED WITH: ❑ 72ABW/XP-AT ❑ 72 ABW/CEF ❑ 72 ABW/CEP ❑ 72ABW/CEANO ❑ 72 ABW/CECE ❑ USER

APPROVED BY: _____ 72 ABW/CE DATE _____

9. CONTRACTOR NAME AND PHONE #

10. DATE TO OCCUPY BY: 11. DATE TO VACATE BY:

COMMUNITY PLANNER 72 ABW/CEAO TINKER AIR FORCE BASE, OKLAHOMA (405)734-2074

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 01 78 00

CLOSEOUT SUBMITTALS

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)

ERDC/ITL TR-12-1	(2015) A/E/C Graphics Standard, Release 2.0
ERDC/ITL TR-12-6	(2015) A/E/C CAD Standard - Release 6.0

U.S. DEPARTMENT OF DEFENSE (DOD)

UFC 1-300-08	(2009; with Change 2, 2011) Criteria for Transfer and Acceptance of DoD Real Property

1.2 DEFINITIONS

1.2.1 Working As-Built Drawings

Working as-built drawings are developed and maintained by the Contractor and depict actual conditions, including deviations from the Contract Documents. These deviations and additions may result from coordination required by, but not limited to: contract modifications; official responses to Contractor submitted Requests for Information; direction from the Contracting Officer or the COntracting Officer's Representative; designs which are the responsibility of the Contractor, and differing site conditions. Maintain the as-builts throughout construction as red-lined hard copies on site or 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 working as-built drawings.

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 drawings and data for the referenced project. Any other use or reuse shall be 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 drawings and 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" designation; submittals not having a "G" designation are for Contractor Quality Control approval. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-03 Product Data

Warranty Letter

Warranty Tags

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

Working As-Built Drawings; G

Record Drawings; G

Certification of EPA Designated Items; G

Certification Of USDA Designated Items; G

DD FORM 1354; G

Checklist for DD FORM 1354; G

1.5 SPARE PARTS DATA

Submit two copies of the Spare Parts Data list.

a. Indicate manufacturer's name, part number, nomenclature, and stock level required for maintenance and repair. List those items that may be standard to the normal maintenance of the system.

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 conform to ERDC/ITL TR-12-6.

1.7 WARRANTY

1.7.1 Warranty Letter

Provide a warranty management letter which contains information relevant to FAR 52.246-21 Warranty of Construction. Include within the warranty letter all required actions and documents to assure that the Government receives all warranties to which it is entitled. The letter 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. Assemble information and turn over to the Government upon acceptance of the work. The construction warranty period will begin on the date of project acceptance and continue for the full product warranty period. A joint 9-month warranty inspection will be conducted, measured from time of acceptance, by the Contractor, Contracting Officer and/or the Contracting Officer's Representative, and the Customer Representative. Warranty letter shall include, but is not limited to, the following:

a. Roles and responsibilities of all 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. Furnish with each warranty the name, address, and telephone number of each of the guarantor's representatives nearest to the project location.

c. Listing and status of delivery of all Certificates of Warranty for extended warranty items, to include roofs, HVAC balancing, pumps, motors, transformers, and for all commissioned systems such as fire protection and alarm systems, sprinkler systems, lightning protection systems, etc.

d. A 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 extended warranties 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.

f. Status of tagging of all equipment covered by extended warranties.

g. Copies of instructions to be posted near selected pieces of equipment where operation is critical for warranty and/or safety reasons.

1.7.2 Contractor's Response to Construction Warranty Service Requirements

Following oral or written notification by the Contracting Officer and/or the Contracting Officer's Representative, 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.

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
(1) Recreational support.
(2) Air conditioning leak in part of building, if causing damage.
(3) Air conditioning system not cooling properly.

Code 1-Doors
(1) Overhead doors not operational, causing a security, fire, or safety problem.
(2) Interior, exterior personnel doors or hardware, not functioning properly, causing a security, fire, or safety problem.

Code 3-Doors
(1) Overhead doors not operational.
(2) Interior/exterior personnel doors or hardware not functioning properly.

Code 1-Electrical
(1) Power failure (entire area or any building operational after 1600 hours).
(2) Security lights
(3) Smoke detectors

Code 2-Electrical
(1) Power failure (no power to a room or part of building).
(2) Receptacle and lights (in a room or part of building).

Code 3-Electrical
Street lights.

Code 1-Gas
(1) Leaks and breaks.
(2) No gas to family housing unit or cantonment area.

Code 1-Heat
(1) Area power failure affecting heat.
(2) Heater in unit not working.

Code 2-Kitchen Equipment
(1) Dishwasher not operating properly.
(2) All other equipment hampering preparation of a meal.

Code 1-Plumbing
(1) Hot water heater failure.
(2) Leaking water supply pipes.

Code 2-Plumbing
(1) Flush valves not operating properly.
(2) Fixture drain, supply line to commode, or any water pipe leaking.
(3) Commode leaking at base.

Code 3 -Plumbing
Leaky faucets.

Code 3-Interior
(1) Floors damaged.
(2) Paint chipping or peeling.
(3) Casework.

Code 1-Roof Leaks
Temporary repairs will be made where major damage to property is occurring.

Code 2-Roof Leaks
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)
No water to facility.

Code 2-Water (Hot)
No hot water in portion of building listed.

Code 3-All other work not listed above.

1.7.3 Warranty Tags

At the time of installation, tag each warranted item with a durable, oil and water resistant tag approved by the Contracting Officer or the Contracting Officer's Representative. Attach each tag with a copper wire and spray with a silicone waterproof coating. Also, submit 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/ Project 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.	

PART 2 PRODUCTS

2.1 GOVERNMENT FURNISHED MATERIALS

The Government will provide an optical disc (CD or DVD) at the preconstruction conference that contains the "as-designed" electronic CAD

files in the specified software and format revised to reflect all amendments and the final contract PDF drawings. The CAD files are provided to enable preparation of as-built or as-constructed drawings. If discrepancies exist between the CAD files and the contract PDF drawings, correct the CAD files to show the contract PDF drawings.

2.2 SYSTEM DESCRIPTION

Prepare the CAD drawing files in AutoCAD Release format compatible with a Windows operating system.

2.2.1 Additional Drawings

If additional drawings are required, prepare them using the specified electronic file format applying ERDC/ITL TR-12-6 and ERDC/ITL TR-12-1. 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.

2.2.2 Sheet Numbers and File Names

If a sheet needs to be added between two sequential sheets, append a Supplemental Drawing Designator in accordance with ERDC/ITL TR-12-6 Adding a drawing sheet, and ERDC/ITL TR-12-1 Adding or deleting drawing sheets and index sheet procedures.

2.3 CERTIFICATION OF EPA DESIGNATED ITEMS

Submit the 'Recovered Materials Determination Form' in accordance with Section 00 72 00 ENVIRONMENTAL REQUIREMENTS FOR CONSTRUCTION ON TINKER AIR FORCE BASE.

2.4 CERTIFICATION OF USDA DESIGNATED ITEMS

Submit the 'Recovered Materials Determination Form' in accordance with Section 00 72 00 ENVIRONMENTAL REQUIREMENTS FOR CONSTRUCTION ON TINKER AIR FORCE BASE.

PART 3 EXECUTION

3.1 WORKING AS-BUILT DRAWINGS ('REDLINE' SET)

Provide and maintain two black line print copies of the PDF contract drawings for As-Built Drawings.

3.1.1 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

3) Provided for reference only to further detail the initial design.

j. Incorporate all shop and fabrication drawings into the markup drawings.

3.1.2 Working As-Built Drawings Content

Revise As-Built Drawings in accordance with ERDC/ITL TR-12-1 and ERDC/ITL TR-12-6. Provide 2 sets of paper copies from PDF drawings to show the as-built conditions by red-line process during the execution of the project. Keep these working as-built markup drawings current on a weekly basis and at least one set available on the jobsite at all times. Changes from the contract drawings which are made during construction or additional information which might be uncovered in the course of construction must be accurately and neatly recorded as they occur by means of details and notes. Working as-built drawings shall include, but are 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. Systems designed or enhanced by the Contractor, such as HVAC controls, fire alarm, fire sprinkler, and irrigation systems.

j. Changes in location of equipment and architectural features.

k. Modifications (include within change order price the cost to change working as-built markup drawings to reflect modifications).

l. Actual location of anchors, construction and control joints, etc., in concrete.

m. Unusual or uncharted obstructions that are encountered in the contract work area during construction.

n. Location, extent, thickness, and size of stone protection particularly where it will be normally submerged by water.

3.1.3 Working As-Built Drawing Review

Within five (5) days of substantial completion, submit the working as-built drawing package. Submit electronic PDF files on two (2) optical discs (CD or DVD) with two sets of prints (one set of 11" x 17" prints, and one set ANSI D size prints). The government will promptly review and return one set of prints marked up with any necessary corrections.

3.2 RECORD DRAWING FILES

If additional drawings are required, prepare them using the specified electronic file format applying ERDC/ITL TR-12-6 and ERDC/ITL TR-12-1. 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.

Accomplish additions and corrections to the contract drawings using CAD files. Provide all program files and hardware necessary to prepare final PDF record drawings. The Contracting Officer's Representative will review final PDF record drawings for accuracy and return them to the Contractor for required corrections, changes, additions, and deletions.

3.2.1 CAD Drawing files

a. For AutoCAD files (DWG), enter all as-built delta changes and notations on the AS-BUILT layer.

b. When final revisions have been completed, show the wording "RECORD DRAWING AS-BUILTS" followed by the name of the Contractor in letters at least 3/16 inch high on the cover sheet drawing. Date RECORD DRAWING AS-BUILTS" drawing revisions in the revision block.

c. The CAD files must be complete in all details and identical in form and function to the CAD drawing files supplied by the Government. Prepare AutoCAD files for transmittal using e-Transmit. Make any transactions or adjustments necessary to accomplish this. The Government reserves the right to reject any drawing files it deems incompatible with the customer's CAD system. Paper prints, drawing files and storage media submitted will become the property of the Government upon final approval. Failure to submit final record PDF drawing files, CAD files and prints as specified will be cause for withholding any payment due under this contract. Approval and acceptance of final record drawings must be accomplished before final payment is made.

3.3 RECORD DRAWINGS

Prepare final record drawings after Government approval of the working as-built drawings. Transfer the changes from the approved working as-built markup drawings to the original electronic CAD drawing files. Modify the as-built CAD drawing files to correctly show the features of the project as-built by bringing the working CAD drawing set into agreement with approved working as-built markup drawings, and adding such additional drawings as may be necessary. Refer to ERDC/ITL TR-12-1 Chapter 11 Drawing Revisions. Jointly review the working as-built markup drawings with printouts from working as-built CAD drawing PDF files for accuracy and completeness.

a. Drawing revisions must be in compliance with the following procedures.

(1) The revision delta size must be 5/16 inch unless the area where the delta is to be placed is crowded. Use a smaller size delta for crowded areas.

(2) Place a revision delta at the location of each deletion.

(3) For new details or sections which are added to a drawing, place a revision delta by the detail or section title.

(4) For minor changes, place a revision delta by the area changed on the drawing (each location).

(5) For major changes to a drawing, place a revision delta by the title of the affected plan, section, or detail at each location.

(6) For changes to schedules or drawings, place a revision delta either by the schedule heading or by the change in the schedule.

3.3.1 Final Record Drawing Package

Within 10 days after Government approval of all of the working as-built drawings for all phases of work, prepare the final CAD record drawings and submit PDF drawing files and one set of prints for review and approval. The Government will promptly return the prints annotated with any necessary corrections. Within 7 days revise the CAD files accordingly at no additional cost and submit the final record drawing package for the entire project. Submit electronic files (one set of ANSI D size PDFs and one set of CAD files) on two (2) optical discs (CD or DVD) with one set of 11" x 17" prints. The package must be complete in all details and identical in form and function to the contract drawing files supplied by the Government.

3.4 OPERATION AND MAINTENANCE MANUALS

Provide project operation and maintenance manuals as specified in Section 01 78 23 OPERATION AND MAINTENANCE MANUALS DATA. Provide two electronic copies of the Operation and Maintenance Manual files and one hard copy of the Operation and Maintenance Manuals. Submit to the Contracting Officer's Representative for approval 30 days prior to training as specified in Section 01 78 23, or 30 days prior to Final Inspection (reference Section 01 45 00.00 10 QUALITY CONTROL) if it is determined that training is not required.

3.5 CLEANUP

Leave premises "broom clean." 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. 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.

3.6 REAL PROPERTY RECORD

Near the completion of Project, but a minimum of 14 days prior to final inspection, complete and submit an accounting of all installed property utilizing Attachment 1 - DD FORM 1354. Contact the Contracting Officer's Representative for any project specific information necessary to complete the DD FORM 1354. Refer to UFC 1-300-08 for instruction on completing the DD FORM 1354. For convenience, a blank fillable PDF DD FORM 1354 may be obtained at the following link:
www.esd.whs.mil/Portals/54/Documents/DD/forms/dd/dd1354.pdf

Submit the completed Attachment 2 - Checklist for DD FORM 1354 of Installed Building Equipment items;include all equipment, materials and manufacture's name, size, type and serial number of all submitted real property approved for installation within the project. Attach this list to the DD FORM 1354.

-- End of Section --

TRANSFER AND ACCEPTANCE OF DoD REAL PROPERTY

Form Approved
OMB No. 0704-0188

PAGE OF PAGES

The public reporting burden for this collection of information is estimated to average 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, to the Department of Defense, Washington Headquarters Services, Executive Services Directorate, Information Management Division, 4800 Mark Center Drive, Alexandria,VA 22350-3100 (0704-0188). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if itdoes not display a currently valid OMB control number.

PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE ABOVE ORGANIZATION.

1. FROM *(Organization Name)*	2. DATE PREPARED *(YYYYMMDD)*	3. PROJECT/JOB NUMBER	4. SERIAL NUMBER
5. TO *(Organization - Installation Code and Name)*	6. RPSUID/SITENAME/ INSTCODE/INSTNAME	7. CONTRACT NUMBER(S)	7a. PLACED-IN-SERVICE DATE *(YYYYMMDD)*

8. TRANSACTION DETAILS

a. METHOD *(X all that apply)*
- ☐ ACQUISITION BY CONSTRUCTION
- ☐ TRANSFER BETWEEN SERVICES
- ☐ CAPITAL IMPROVEMENT
- ☐ INVENTORY ADJUSTMENT

b. WHEN/EVENT *(X one)*
- ☐ TOTAL ASSET PLACED-IN-SERVICE
- ☐ PARTIAL ASSET PLACED-IN-SERVICE

c. TYPE *(X one)*
☐ DRAFT ☐ FINAL ☐ INTERIM

9. ITEM NO.	10a. FACILITY NO.	10b. RPUID	11. CATEGORY CODE	12. CATCODE DESCRIPTION	13. TYPE CODE	14. SUST. CODE	AREA 15. PRIMARY UM	AREA 16. PRIMARY UM QUANTITY	OTHER 17. SECONDARY UM	OTHER 18. SECONDARY UM QUANTITY	19. COST	20. FUND SOURCE	21. FUND ORG	22. INTER-EST CODE	23. ITEM REMARKS

24. STATEMENT OF COMPLETION. The facilities listed hereon are in accordance with maps, drawings, and specifications and change orders approved by the authorized representative of the using agency except for the deficiencies listed on the reverse side.

a. TRANSFERRED BY *(Typed Name and Signature)*

b. DATE SIGNED *(YYYYMMDD)*

c. TITLE *(Area Engr./Base Engr./DPW/Construction Agent)*

25a. ACCEPTED BY *(Typed Name and Signature)*

b. DATE SIGNED *(YYYYMMDD)*

c. TITLE *(DPW/RPAO)*

26. PROPERTY VOUCHER NUMBER

DD FORM 1354, AUG 2013 PREVIOUS EDITION MAY BE USED. Adobe Designer 9.0

Attachment 1

DD Form 1354 (cont)

27. CONSTRUCTION DEFICIENCIES *(Attach blank sheet for continuations)*	28. PROJECT REMARKS *(Attach blank sheet for continuations)*

INSTRUCTIONS

GENERAL. This form has been designed and issued for use in connection with the transfer of military real property between the military departments and to or from other government agencies. It supersedes ENG Forms 290 and 290B (formerly used by the Army and Air Force) and NAVDOCKS Form 2317 (formerly used by the Navy).

Existing instructions issued by the military departments relative to the preparation of DD Form 1354 are applicable to this revised form to the extent that the various items and columns on the superseded forms have been retained. The military departments may promulgate additional instructions, as appropriate.

For detailed instructions on how to fill out this form, please refer to Unified Facilities Criteria (UFC) 1-300-08, dated 16 April 2009 or later.

SPECIFIC DATA ITEMS.

1. From. Name of the transferring agency.

2. Date Prepared. Date of actual preparation. Enter all dates in YYYYMMDD format (Example: March 31, 2010 = 20100331).

3. Project/Job Number. Project number on a DD Form 1391 or Individual Job Order Number.

4. Serial Number. Sequential serial number assigned by the preparing organization (e.g., 2010-0001).

5. To. Name and address of the receiving installation, activity, and Service of the Real Property Accountable Officer (RPAO).

6. RPSUID/SITENAME/INSTCODE/INSTNAME. Site Unique Identifier and name or installation code and name where the constructed facility is located.

7. Contract Number(s). Contract number(s) for this project.

7a. Placed-In-Service Date. RPA Placed In Service Date. This is the date the asset is actually placed-in-service.

8. Transaction Details.
a. Method of Transaction. Mark (X) as many boxes as apply.
b. When/Event. When or event causing preparation of DD Form 1354. X only one box.
c. Type. Draft, interim, or final DD Form 1354. X only one box.

9. Item Number. Use a separate item number for each facility, no item number for additional usages.

10a. Facility Number. Assigned in accordance with the Installation/Base Master Numbering Plan.

10b. RPUID. Identified in Real Property Inventory.

11. Category Code. The category code describes the facility usage.

12. Catcode Description. The category code name which describes the facility usage.

13. Type. Type of construction: P for Permanent; S for Semi- permanent; T for Temporary.

14. Sustainability Code. Reports whether or not an asset meets the sustainability guidelines set forth in Section 2(g) of Executive Order 13514. Valid values are: 1 (asset meets the guidelines); 2 (asset does not meet the guidelines); 3 (asset not evaluated); 4 (asset not subject to guidelines).

15. Area: UM 1. Area unit of measure; use the unit of measure associated with the category code selected in 11.

16. Total Quantity UM 1. The total area for the measure identified in Item 15. Use negative numbers for demolition.

17. Other: UM 2. Unit of Measure 2 is the capacity or other measurement unit (e.g., LF, MB, EA, etc.).

18. Total Quantity UM 2. The total capacity/other for the measure identified in Item 17.

19. Cost. Cost for each facility; for capital improvements to existing facilities, show amount of increase only. If there is no increase for the capital improvement, enter N/A.

20. Fund Source. Enter the Fund Source Code for this item.

21. Funding Organization. Enter the code for the organization responsible for acquiring this facility.

22. Interest Code. Enter the code that reflects government interest or ownership in the facility.

23. Item Remarks. Remarks pertaining only to the item number identified in Item 9; show cost sharing.

24. Statement of Completion. Typed name, signature, title, and date of signature by the responsible transferring individual or agent.

25. Accepted By. Typed name, signature, title, and date of signature by the RPAO or accepting official.

26. Property Voucher Number. Next sequential number assigned by the RPAO in voucher register.

27. Construction Deficiencies. List construction deficiencies in project during contractor turnover inspection.

28. Project Remarks. Project level remarks and continuation of blocks.

DD FORM 1354 (BACK), AUG 2013

Attachment 2

DD Form 1354 Checklist

Facility Number	Building Name	Number of Floors	Gross SF	Net SF

1. Building Dimensions and Construction Material

Building Outside Dimensions	Length (LF)	Width (LF)
Main Building		
Wings		
Offsets		
Basement		
Attic		
Porches, Covered		
Roof		
Foundation		

Other Building Data	Feet
Ceiling Height Main Bldg	
Ceiling Height Basement	
Door Height	
Door With	

	Code
Fire Rating Code	

Construction Materials	Type
Principal Struct Material	
Secondary Struct Material	
Exterior Wall Material	
Interior Wall Material	
Floor Surface Material	
Sub-Floor Material	

Construction Materials (Pavements)	Type
Surface Course Materials	
Base Course Materials	

2. Utility Connection, Information, and Fuel Data:

Utility Connections	Number of Pipes	Diameter of Each Pipe	Capacity of All Inlet Pipes	Available or Connected? (Yes / No)
Water				
Gas				
Sewer Pipe				
Storm Sewer Pipe				
Steam				
Condensate				
Comm.				

System	Energy Type	Source Location	Fuel Description	Air Circulation
Heating				
Air Conditioning				
Hot Water				
Steam				
Electric				

Electric	Phase/ Voltage	Wire Size	Connected Load - Amps	Connected Load - KVA

3. Installed Real Property

a. Building Systems:

(1) Fire Protection System:

Category Code	Nomenclature	Unit of Measure	Qty	Cost	Serial Number / Description
		SF			
	Closed Head Auto Sprinklers	HD			
		SF			
	Open Head Deluge System	HD			
		SF			
	Auto Fire Detection System	EA			
	Manual Fire Alarm System	EA			
	CO2 Fire System	EA			
	Foam Fire System	EA			
	Other Fire System	EA			
	Halon 1301 Fire System	EA			

(2) Security System:

Category Code	Nomenclature	Unit of Measure	Qty	Cost	Serial Number / Description
	Security Alarm System	EA			

(3) Heating System:

Category Code	Nomenclature	Unit of Measure	Qty	Cost	Serial Number / Description
	Heating Plant 750/3500 MB	MB			
	Heating Plant Over 3500 MB	MB			
		GA			
	Storage Tank for Heating Or Generator Fuel	TYPE	NA	NA	
		FUEL	NA	NA	

(4) Air Conditioning System:

Category Code	Nomenclature	Unit of Measure	Qty	Cost	Serial Number / Description
		TN			
	A/C Window Units	SF			
		TN			
	A/C Plant Less than 5 TN	SF			
	A/C Plant 5 to 25 TN	TN			
	A/C Plant 25 to 100 TN	TN			
	A/C Plant Over 100 TN	TN			

(5) Electrical System:

Category Code	Nomenclature	Unit of Measure	Qty	Cost	Serial Number / Description
	Electric Emergency Power Generator	KW			
		GA			
	Storage Tank for Heating or Generator Fuel	TYPE	NA	NA	
		FUEL	NA	NA	

b. Real Property Installed Equipment:

Item	Unit of Measure	Qty	Model	Serial Number / Description
Evaporative Coolers	CFM			
Hot Water Heater	GA			
Exhaust Fan	CFM			
Wash Basin	EA			
Water Closet	EA			
Urinal	EA			
Utility Sink	EA			
Refrigerated Drinking Fountain	EA			
Heating Plant under 750 MB	MB			
Forced Air Heating	BTU			
Other Heating	BTU			
Dehumidifiers	GPM			
Elevators	Lbs			
	PN			
Theater-Type Seats Secured To Floor	EA			
Other				

c. Related Facilities Added:

Category Code	Nomenclature	Unit of Measure	Qty	Cost	Serial Number / Description
	Prim Distr Line OH	LF			
	Transformers	KVA			
	Power Poles	LF			
	Sec Distr Line OH	LF			
	Prim Distr Line UG	LF			
	Sec Distr Line UG	LF			
	Exterior Street Lighting or Parking Area Lights	EA			
	Gas Mains	LF			
	Sewage Septic Tank	KG			
	Sanitary Sewer	LF			
	Water Distr Mains	LF			
	Fire Hydrants	EA			
	Curbs & Gutters	LF			
	Driveway	SY			
		SY			
	Road	LF			
	Vehicle Parking	SY			
	Storm Drain	LF			
	Fence, Security	LF			
	Fence, Interior	LF			
	Sidewalk	SY			
	Utility Vault (4 or more transformers)	SF			
	Tel Duct Facility	LF			
	Tel Pole Facility	LF			

d. Specialized Facilities/RPIE Added:

(1) Shops:

Category Code	Nomenclature	Unit of Measure	Amount	Cost	Serial Number Description
	Air Compressors	HP			
	Hoists, Cranes (fixed)	TN			
	Hydraulic Lifts	TN			
	Emergency Shower	EA			
	Fixed Spray Paint Booth	EA			
	Load and Unload Platform	SF			
	Industrial Waste Main	LF			
	Compressed Air Dist	LF			

(2) Chapel:

Category Code	Nomenclature	Unit of Measure	Amount	Cost	Serial Number Description
	Pews	EA			
	Altars	EA			
	Lecterns	EA			
	Pulpit	EA			

(3) Theater:

Category Code	Nomenclature	Unit of Measure	Amount	Cost	Serial Number Description
	Theater Seats Secured to Floor	EA			
	Fire Screens	EA			

(4) Billeting Buildings:

Category Code	Nomenclature	Unit of Measure	Amount	Cost	Serial Number Description
	Built-in Household Dishwasher	EA			
	Garbage Disposals	EA			
	Built-in Domestic Ranges and Ovens	EA			
	Range Canopy w/Exhaust Fan	EA			
	Water Softener, Household Type	EA			

(5) MWR Buildings:

Category Code	Nomenclature	Unit of Measure	Amount	Cost	Serial Number Description
	Dishwashers, Built-in	EA			
	Walk-in Refrigerators Built-in	EA			
	Garbage Disposal Unit	EA			
	Range Canopy w/ Exhaust Canopy System	EA			
	PA System, Built-in	EA			
	Vault, Built-in	EA			
	Stage and Auditorium	SF			
	Playground Equipment Permanently Affixed	EA			
	Bowling Alley Lanes,	LA			
	Approaches, Ball Returns Load & Unload Platforms	SF			

(6) Post Office:

Category Code	Nomenclature	Unit of Measure	Amount	Cost	Serial Number Description
	Post office lock boxes	EA			

(7) List any other items installed, but not listed above. Please indicate size, square footage, amount, number of units, etc. as applicable.

4. Removed Real Property

a. Building Systems:

(1) Fire Protection System:

Category Code	Nomenclature	Unit of Measure	Qty	Cost	Serial Number / Description
		SF			
	Closed Head Auto Sprinklers	HD			
		SF			
	Open Head Deluge System	HD			
		SF			
	Auto Fire Detection System	EA			
	Manual Fire Alarm System	EA			
	CO2 Fire System	EA			
	Foam Fire System	EA			
	Other Fire System	EA			
	Halon 1301 Fire System	EA			

(2) Security System:

Category Code	Nomenclature	Unit of Measure	Qty	Cost	Serial Number / Description
	Security Alarm System	EA			

(3) Heating System:

Category Code	Nomenclature	Unit of Measure	Qty	Cost	Serial Number / Description
	Heating Plant 750/3500 MB	MB			
	Heating Plant Over 3500 MB	MB			
		GA			
	Storage Tank for Heating Or Generator Fuel	TYPE	NA	NA	
		FUEL	NA	NA	

(4) Air Conditioning System:

Category Code	Nomenclature	Unit of Measure	Qty	Cost	Serial Number / Description
		TN			
	A/C Window Units	SF			
		TN			
	A/C Plant Less than 5 TN	SF			
	A/C Plant 5 to 25 TN	TN			
	A/C Plant 25 to 100 TN	TN			
	A/C Plant Over 100 TN	TN			

(5) Electrical System:

Category Code	Nomenclature	Unit of Measure	Qty	Cost	Serial Number / Description
	Electric Emergency Power Generator	KW			
		GA			
	Storage Tank for Heating or Generator Fuel	TYPE	NA	NA	
		FUEL	NA	NA	

b. Real Property Installed Equipment:

Item	Unit of Measure	Qty	Model	Serial Number / Description
Evaporative Coolers	CFM			
Hot Water Heater	GA			
Exhaust Fan	CFM			
Wash Basin	EA			
Water Closet	EA			
Urinal	EA			
Utility Sink	EA			
Refrigerated Drinking Fountain	EA			
Heating Plant under 750 MB	MB			
Forced Air Heating	BTU			
Other Heating	BTU			
Dehumidifiers	GPM			
Elevators	Lbs			
	PN			
Theater-Type Seats Secured To Floor	EA			
Other				

c. Related Facilities Removed:

Category Code	Nomenclature	Unit of Measure	Qty	Cost	Serial Number / Description
	Prim Distr Line OH	LF			
	Transformers	KVA			
	Power Poles	LF			
	Sec Distr Line OH	LF			
	Prim Distr Line UG	LF			
	Sec Distr Line UG	LF			
	Exterior Street Lighting or Parking Area Lights	EA			
	Gas Mains	LF			
	Sewage Septic Tank	KG			
	Sanitary Sewer	LF			
	Water Distr Mains	LF			
	Fire Hydrants	EA			
	Curbs & Gutters	LF			
	Driveway	SY			
		SY			
	Road	LF			
	Vehicle Parking	SY			
	Storm Drain	LF			
	Fence, Security	LF			
	Fence, Interior	LF			
	Sidewalk	SY			
	Utility Vault (4 or more transformers)	SF			
	Tel Duct Facility	LF			
	Tel Pole Facility	LF			

d. Specialized Facilities/RPIE Removed:

(1) Shops:

Category Code	Nomenclature	Unit of Measure	Amount	Cost	Serial Number Description
	Air Compressors	HP			
	Hoists, Cranes (fixed)	TN			
	Hydraulic Lifts	TN			
	Emergency Shower	EA			
	Fixed Spray Paint Booth	EA			
	Load and Unload Platform	SF			
	Industrial Waste Main	LF			
	Compressed Air Dist	LF			

(2) Chapel:

Category Code	Nomenclature	Unit of Measure	Amount	Cost	Serial Number Description
	Pews	EA			
	Altars	EA			
	Lecterns	EA			
	Pulpit	EA			

(3) Theater:

Category Code	Nomenclature	Unit of Measure	Amount	Cost	Serial Number Description
	Theater Seats Secured to Floor	EA			
	Fire Screens	EA			

(4) Billeting Buildings:

Category Code	Nomenclature	Unit of Measure	Amount	Cost	Serial Number Description
	Built-in Household Dishwasher	EA			
	Garbage Disposals	EA			
	Built-in Domestic Ranges and Ovens	EA			
	Range Canopy w/Exhaust Fan	EA			
	Water Softener, Household Type	EA			

(5) MWR Buildings:

Category Code	Nomenclature	Unit of Measure	Amount	Cost	Serial Number Description
	Dishwashers, Built-in	EA			
	Walk-in Refrigerators Built-in	EA			
	Garbage Disposal Unit	EA			
	Range Canopy w/ Exhaust Canopy System	EA			
	PA System, Built-in	EA			
	Vault, Built-in	EA			
	Stage and Auditorium	SF			
	Playground Equipment Permanently Affixed	EA			
	Bowling Alley Lanes,	LA			
	Approaches, Ball Returns Load & Unload Platforms	SF			

(6) Post Office:

Category Code	Nomenclature	Unit of Measure	Amount	Cost	Serial Number Description
	Post office lock boxes	EA			

(7) List any other items removed, but not listed above. Please indicate size, square footage, amount, number of units, etc. as applicable.

e. List products and materials that can be recovered and remanufactured into a new product. Recyclable materials include, but are not limited to, the following:

(1) Metals (ferrous and non-ferrous), including banding, metal studs, ductwork and piping.
(2) Asphaltic concrete paving
(3) Portland cement concrete
(4) Land clearing debris including trees and plant materials
(5) Native rock and granular fill
(6) Gypsum products
(7) Paper and cardboard
(8) Wood products, including structural, finish, crates and pallets
(9) Brick and masonry
(10) Plastics
(11) Copper wiring
(12) Mechanical and electrical products and equipment

These recyclable products shall be reported by weight to the Contracting Officer.

-- End of Attachment 1 --

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 01 78 23

OPERATION AND MAINTENANCE DATA

PART 1 GENERAL

1.1 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 SUBMITTAL PROCEDURES:

SD-10 Operation and Maintenance Data

Operation and Maintenance Data ; G

O&M Database ; G

Training Plan ; G

Training Content ; G

Training Outline ; G

SD-11 Closeout Submittals

Training Video Recording ; G

Validation of Training Completion ; G

1.2 OPERATION AND MAINTENANCE DATA

Submit Operation and Maintenance (O&M) Data for the provided equipment, product, or system, defining the importance of system interactions, troubleshooting, and long-term preventive operation and maintenance. Compile, prepare, and aggregate O&M data to include clarifying and updating the original sequences of operation to as-built conditions. Organize and present information in sufficient detail to clearly explain O&M requirements at the system, equipment, component, and subassembly level. Include an index preceding each submittal. Submit in accordance with this section and Section 01 33 00 SUBMITTAL PROCEDURES.

1.2.1 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.

1.2.2 Package Content

Provide data package content in accordance with paragraph SCHEDULE OF OPERATION AND MAINTENANCE DATA PACKAGES. Comply with the data package requirements specified in the individual technical sections, including the content of the packages and addressing each product, component, and system designated for data package submission, except as follows. Use Data Package 5 for commissioned items without a specified data package

requirement in the individual technical sections. Provide a Data Package 5 instead of Data Package 1 or 2, as specified in the individual technical section, for items that are commissioned.

1.2.3 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.

1.3 O&M DATABASE

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. As a minimum, provide list of system equipment, location installed, warranty expiration date, manufacturer, model, and serial number.

1.4 OPERATION AND MAINTENANCE MANUAL FILE FORMAT

Assemble data packages into electronic Operation and Maintenance Manuals. Assemble each manual into a composite electronically indexed file using the most current version of Adobe Acrobat or similar software capable of producing PDF file format. Provide optical disc (CD or DVD) as appropriate, so that each one contains operation, maintenance and record files, project record documents, and training videos. Include a complete electronically linked operation and maintenance directory.

1.4.1 Organization

Bookmark Product and Drawing Information documents using the current version of CSI Masterformat numbering system, and arrange submittals using the specification sections as a structure. Use CSI Masterformat and UFGS numbers along with descriptive bookmarked titles that explain the content of the information that is being bookmarked.

1.4.2 CD or DVD Label and Disc Holder or Case

Provide the following information on the disc label and disc 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 disc content on the disc label

h. Date

i. Virus scanning program used

1.5 TYPES OF INFORMATION REQUIRED IN O&M DATA PACKAGES

The following are a detailed description of the data package items listed in paragraph SCHEDULE OF OPERATION AND MAINTENANCE DATA PACKAGES.

1.5.1 Operating Instructions

Provide specific instructions, procedures, and illustrations for the following phases of operation for the installed model and features of each system:

1.5.1.1 Safety Precautions and Hazards

List personnel hazards and equipment or product safety precautions for operating conditions. Provide recommended safeguards for each identified hazard.

1.5.1.2 Operator Prestart

Provide procedures required to install, set up, and prepare each system for use.

1.5.1.3 Startup, Shutdown, and Post-Shutdown Procedures

Provide narrative description for Startup, Shutdown and Post-shutdown operating procedures including the control sequence for each procedure.

1.5.1.4 Normal Operations

Provide Control Diagrams with data to explain operation and control of systems and specific equipment. Provide narrative description of Normal Operating Procedures.

1.5.1.5 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.

1.5.1.6 Operator Service Requirements

Provide instructions for services to be performed by the operator such as lubrication, adjustment, inspection, and recording gauge readings.

1.5.1.7 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.

1.5.1.8 Operating Log

Provide forms, sample logs, and instructions for maintaining necessary operating records.

1.5.1.9 Additional Requirements for HVAC Control Systems

Provide Data Package 5 and the following for control systems:

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. Full as-built sequence of operations.

c. Copies of checkout tests and calibrations performed by the Contractor (not Cx tests).

d. 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

e. Full print out of all schedules and set points after testing and acceptance of the system.

f. Full as-built print out of software program.

g. Marking of system sensors and thermostats on the as-built floor plan and mechanical drawings with their control system designations.

1.5.2 Preventive Maintenance

Provide the following information for preventive and scheduled maintenance to minimize repairs for the installed model and features of each system. Include potential environmental and indoor air quality impacts of recommended maintenance procedures and materials.

1.5.2.1 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.

c. A Lubrication Schedule showing service interval frequency.

1.5.2.2 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 craft requirements by type of craft. For periodic calibrations, provide manufacturer's specified frequency and procedures for each separate operation.

a. Define the anticipated time required to perform each of 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.

1.5.3 Repair

Provide manufacturer's recommended procedures and instructions for correcting problems and making repairs.

1.5.3.1 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.

1.5.3.2 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.

1.5.3.3 Repair Procedures

Provide instructions and a list of tools required to repair or restore the product or equipment to proper condition or operating standards.

1.5.3.4 Removal and Replacement Instructions

Provide step-by-step procedures and a list of required 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.

1.5.3.5 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.

1.5.3.6 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.

1.5.4 Appendices

Provide information required below and information not specified in the preceding paragraphs but pertinent to the maintenance or operation of the product or equipment. Include the following:

1.5.4.1 Product Submittal Data

Provide a copy of SD-03 Product Data submittals documented with the required approval.

1.5.4.2 Manufacturer's Instructions

Provide a copy of SD-08 Manufacturer's Instructions submittals documented with the required approval.

1.5.4.3 O&M Submittal Data

Provide a copy of SD-10 Operation and Maintenance Data submittals documented with the required approval.

1.5.4.4 Parts Identification

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 parts catalog.

1.5.4.5 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. Include warranty information for primary componentsof the system. Provide copies of warranties required by Section 01 78 00 CLOSEOUT SUBMITTALS.

1.5.4.6 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.

1.5.4.7 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.

1.5.4.8 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.

1.5.4.9 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.

1.5.4.10 Field Test Reports

Provide a copy of Field Test Reports (SD-06) submittals documented with the required approval.

1.5.4.11 Contractor Information

Provide a list that includes the name, address, and telephone number 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 SCHEDULE OF OPERATION AND MAINTENANCE DATA PACKAGES

Provide the O&M data packages specified in individual technical sections. The information required in each type of data package follows:

1.6.1 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

1.6.2 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

1.6.3 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

1.6.4 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

1.6.5 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

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 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 30 calendar days prior to the scheduled final inspection. 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 00.00 10 QUALITY CONTROL.

-- End of Section --

THIS PAGE INTENTIONALLY LEFT BLANK