PROJECT SPECIFICATIONS

For

Project PBXP222103
DEMOLISH BUILDING 414
At

179 CYBERSPACE WING
OHIO AIR NATIONAL GUARD
1947 HARRINGTON MEMORIAL ROAD
MANSFIELD LAHM AIRPORT, OHIO

TABLE OF CONTENTS

SECTION 01 11 00	SUMMARY
SECTION 01 20 00	PRICE AND PAYMENT PROCEDURES
SECTION 01 30 00	ADMINISTRATIVE REQUIREMENTS
SECTION 01 33 00	SUPPLEMENTAL SUBMITTAL PROCEDURES
SECTION 01 40 00	QUALITY REQUIREMENTS
SECTION 01 57 19	TEMPORARY ENVIRONMENTAL CONTROLS
SECTION 01 60 00	PRODUCT REQUIREMENTS
SECTION 01 70 00	EXECUTION AND CLOSEOUT REQUIREMENTS
SECTION 01 74 19	CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL
SECTION 02 41 00	DEMOLITION
SECTION 02 81 00	TRANSPORTATION OF HAZORDOUS MATERIALS
SECTION 02 82 00	ASBESTOS REMEIDATION
SECTION 31 00 00	EARTHWORK
SECTION 31 32 19	GEOTEXTILE SOIL STABILIZATION
SECTION 32 15 00	AGGREGATE SURFACING
SECTION 33 40 00	STORMWATER UTILITIES

END OF TABLE OF CONTENTS

SECTION 01 11 00
SUMMARY OF WORK

PART 1. GENERAL

1.1. WORK COVERED BY CONTRACT DOCUMENTS

1.1.1. The work included in this project consists of furnishing all plant, labor, materials, and equipment required to accomplish the project in strict accordance with these Specifications and the Drawings. The principal items of work include, but are not limited to:

1.1.1.1. Demolition and Removal; work locations shall be as shown on the Drawings. Perform such work required at each location with due care, including shoring, bracing, and so on.

1.1.1.2. Manufactured Articles, Materials, and Equipment; shall be applied, installed, connected, erected, used, cleaned, and conditioned as directed by the respective manufacturers, unless otherwise specified.

1.2. WORK RESTRICTIONS

1.2.1. Access to Site

1.2.1.1. Location of the work to be performed is at the 179 Cyberspace Wing, Ohio Air National Guard Base, 1947 Harrington Memorial Road, Mansfield, Ohio 44903-8049, Building #414. See attached Site Plan for the location of the existing site where the work locations are to take place at and for the other various areas on base pertinent to the job.

1.2.2. Coordination with Site Occupants

1.2.2.1. Work Schedule; shall be performed Monday through Friday, excluding Federal Holidays, unless otherwise directed or permitted by the Contracting Officer. Work shall be performed from 7:00 AM to 4:30 PM, unless otherwise directed or permitted by the Contracting Officer.

1.3. OCCUPANCY OF PREMISES

1.3.1. Surrounding building(s) will be occupied during performance of work under this Contract. Before work is started, arrange with the Contracting Officer a sequence of procedure, means of access, space for storage of materials and equipment, and use of approaches, corridors, and stairways.

1.3.2. Contractor Use of Site

1.3.2.1. During the construction period, Contractor shall have full use of the premises within the project limits as shown on the Drawings for execution of the work. Use of premises is limited only by Owner’s right to perform duties and functions as stated in the GENERAL CONDITIONS and in this section.

1.3.2.2. The Contractor, before starting any work relating to existing utilities (electrical, sewer, water, heat, gas, fire lines, etc.) that will temporarily discontinue or disrupt service to the existing facilities, will notify the Contracting Officer's Representative 72 hours in advance and obtain approval in writing before proceeding with this phase of the work.

1.4. EXISTING WORK

1.4.1. Remove or alter existing work in such a manner as to prevent injury or damage to any portions of the existing work which remain.

1.4.2. Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as approved by the Contracting Officer. At the completion of operations, existing work must be in a condition equal to or better than that which existed before new work started.

1.5. GOVERNMENT FURNISHED MATERIAL AND EQUIPMENT:

1.5.1. The Government will furnish the following materials and equipment for installation by the Contractor:

1.5.1.1. NONE

1.6. SUBMITTALS: NONE

PART 2. PRODUCTS (NOT USED)

PART 3. EXECUTION (NOT USED)

END OF SECTION 01 11 00

SECTION 01 20 00
PRICE AND PAYMENT PROCEDURES

PART 1. GENERAL (SUBSTITUTION PROCEDURES)

1.1. PRODUCT SUBSTITUTION PROCEDURES

1.1.1. This Section includes administrative and procedural requirements for handling requests for substitutions made after award of the Contract. No substitutions will be evaluated during bidding.

1.1.2. Acceptable manufacturers listed in the Contract Documents are not intended to exclude manufacturers not listed. Products of equal performance will be considered.

1.1.3. Related work specified elsewhere in these Contract Documents:

1.1.3.1. Requirements for submitting Contractor’s Construction Progress schedule and the Submittal schedule: SECTION 01 33 00.

1.1.3.2. Requirements governing Contractor’s selection of products: SECTION 01 60 00.

1.1.4. Definitions: Substitutions are changes in products, materials, equipment, and methods of construction required by the Contract Documents proposed by the Contractor after award of the Contract are considered to be requests for substitutions.

1.1.4.1. The following are not considered to be requests for substitutions; revisions to the Contract Documents requested by Owner or Engineer, and specified options of products and construction methods included in the Contract Documents.

1.1.5. Substitution of products will be considered after award of contract only under one of the following conditions:

1.1.5.1. When the specified product is not available, a proposed substitution will not be considered unless proof is submitted that firm orders were placed within 30 days after commencement of the work and reviewed by the Contracting Officer's Representative in which the items unavailability is due to a strike, lockout, bankruptcy, discontinuance of the manufacture of a product, or natural disasters.

1.1.5.2. When a guarantee of performance is required and, in the judgment of the Contractor, the specified product or process will not produce the desired results.

1.1.6. Submit in writing, 3 copies of each request for substitution, to the Contracting Officer's Representative within the 30 days after commencement of the work. After that date, if the Contractor ascertains he cannot obtain the material or equipment specified, or the performance cannot be guaranteed it may be considered or rejected at the discretion of the Engineer.

1.1.6.1. Requests for substitutions shall not be submitted in the form of a Request for Information (RFI).

1.1.6.2. Submit requests for substitutions in the form and according to procedures required for Change Order proposals.

1.1.6.3. The Contractor shall accompany any request for substitution with such drawings, specifications, samples, manufacturer's literature, performance data, and other information necessary to describe and evaluate the proposed substitution completely. The burden of proof shall be on the Contractor.

1.1.6.4. Permission to make any substitution after award of contract shall be effected by a Change Order. It shall not relieve the Contractor, any subcontractor, manufacturer, fabricator, or supplier from responsibility for any deficiency that may exist in the substituted product or for any departures or deviations from the requirements of the Contract Documents as modified by such Change Order. Except as otherwise expressly specified by the Contractor in his request for substitution and expressly approved in such Change Order, the Contractor shall be deemed to warrant by his request proposed substitute product will satisfy all standards and requirements satisfied by the originally specified product and the Change Order shall not be deemed to modify the Contract Documents with respect thereto.

1.1.6.5. If any substitution will affect a correlated function, adjacent construction, or the work of other trades or contractors, the necessary changes and modifications to the affected work shall be considered as an essential part of the proposed substitution, to be accomplished by the Contractor without additional expense to the Government if and when accepted.

1.2. SUBMITTALS: NONE

PART 2. PRODUCTS (NOT USED)

PART 3. EXECUTION (NOT USED)

END OF SECTION 01 20 00

SECTION 01 30 00
ADMINISTRATION REQUIREMENTS

PART 1. GENERAL

1.1. PROJECT MANAGEMENT AND COORDINATION

1.1.1. Project Coordination

1.1.1.1. Coordination between various trades and sections with reference to scheduling items of work shall be the responsibility of the Contractor. To this end the Contractor shall require that the subcontractors examine and familiarize themselves with the Specifications and Drawings and they frequently consult with each other and all other trades so that the work can be properly coordinated. The Contractor shall carefully check the work of his subcontractors in order to deliver to the Government the Contract work, complete and properly installed in conformance with the Contract requirements.

1.1.2. Project Meetings

1.1.2.1. The Contractor and any subcontractors, material men, or vendors whose presence is necessary or requested must attend meetings when called by the Contracting Officer or his Representative for the purpose of discussing the execution of the work. Each of such meetings will be held at the time and place designated by the Contracting Officer or his Representative. All decisions, instructions, and interpretations given by the Contracting Officer or his Representative at these meetings shall be binding and conclusive on the Contractor. The proceedings of these meetings will be recorded, and the Contractor will be furnished a reasonable number of copies for his use and for distribution to the various subcontractors, material men, and vendors involved.

1.1.2.2. Progress meetings may also be called by the General Construction Contractor for the purpose of coordinating, expediting, and scheduling the work of all contracts. Other contractors and their subcontractors, material men, or vendors whose presence is necessary or requested are required to attend.

1.1.3. Requests for Information (RFI)

1.1.3.1. Promptly on discovery of the need for interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, prepare and submit an RFI to the Contracting Officer with the content specified.

1.1.3.1.1. RFIs shall originate with the Contractor. RFIs submitted by entities other than Contractor will be returned with no response.

1.1.3.1.2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor’s work or work of subcontractors.

1.1.3.2. Content of the RFI shall include a detailed, legible description of the item(s) needing interpretation, RFI numbered sequentially, reference to Drawing and detail, Specification section and paragraphs, field conditions, Contractor’s suggested solution and statement of impact to Contract times or price, and any attachments necessary to fully describe item needing interpretation.

1.1.3.3. The COR will review each RFI, determine action required, and return it to the Contractor. Allow seven working days for COR response for each RFI.

1.1.3.4. The following RFIs will be returned without action; request for approval of submittals, substitutions, coordination information already indicated in the Contract

Documents, adjustments in the Contract times or price, interpretation of COR actions on Submittals, and incomplete RFIs or RFIs with numerous errors.

1.1.3.5. Multiple RFIs addressing similar or identical issues may be addressed by COR with single broad response.

1.1.3.6. COR action may include a request for additional information, in which case COR time for response will start again upon Contractor response and resubmittal.

1.1.3.7. If Contractor believes the RFI response warrants change in the Contract time or the price, notify Contracting Officer in writing within seven working days of receipt of the RFI response.

1.1.3.8. on receipt of COR action, update the RFI log and promptly distribute the RFI response to affected parties. Review response and notify COR within seven working days if Contractor disagrees with response.

1.1.3.9. Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log once every two weeks.

1.2. SUBMITTALS FOR THIS SECTION:

1.2.1. Government approval is required for submittals with a "G" or "S" classification. Submittals not having a "G" or “S” classification are for information only. Submit the following in accordance with Section 01 33 00 SUPPLEMENTAL SUBMITTAL PROCEDURES:

1.2.1.1. SD-01 Preconstruction Submittals

1.2.1.1.1. Construction Progress Schedule; G

1.2.1.1.2. Construction Progress Reports (Frequency determined by Contracting Officer)

1.2.1.1.3. Daily Construction Reports

1.2.1.2. SD-07 Certificates

1.2.1.2.1. Hazardous Materials Manifests; G

1.3. CONSTRUCTION PROGRESS DOCUMENTATION

1.3.1. Construction Progress Schedule: [**SD-01]** Before commencing any work the Contractor shall submit, for review and approval by the Contracting Officer's Representative, a schedule showing the commencement, the order, and the completion dates for the various parts of this work.

1.4. SURVEY AND LAYOUT DATA

1.4.1. The Contractor is responsible for properly laying out the work, and for lines and measurements for the work executed under the Contract Documents.

1.4.1.1. The Contractor, NOT the Government, is responsible to field verify all existing underground utilities within the excavation limits and/or as shown on the Drawings, before laying out the work. The Contractor is to report errors or inaccuracies in writing to the Contracting Officer's Representative before commencing work.

1.4.1.2. The Contracting Officer or his Representative will in no case assume the responsibility for any layout of the work or damages to existing underground utilities while performance of work is underway.

1.4.2. Establish necessary reference lines and permanent bench marks. Engage a registered land surveyor for this purpose to lay out the work. Establish not less than two such bench marks in widely separated locations. Be responsible for the proper location and level of the work and for the maintenance of the reference lines and bench marks.

1.4.3. Furnish certification from a registered land surveyor who shall verify periodically that portions of the work are located in accordance with the Drawings and at the required elevations.

1.5. CONSTRUCTION PROGRESS REPORTING

1.5.1. Reports

1.5.1.1. **[SD-01]** Construction Progress Reports consisting of the revised construction progress schedule and a narrative report consisting of comparison of actual progress with planned progress, summaries of activities completed since previous report, planned activities for next report period, value analysis for month, identification of problem areas, description of current and anticipated delaying factors with impact, and proposed corrective actions

1.5.1.2. **[SD-01]** Daily Construction Reports prepared daily for recording information concerning events at the work site to include subcontractors at the site, count of working personnel at the site, equipment at the site, material deliveries, weather conditions, accidents at the site, stoppages, delays, shortages, losses, and emergency procedures.

1.5.1.3. Other reports may be used but not limited to Equipment and Material Location Reports, Field Condition Reports, and Special Reports for unusual events.

1.5.1.4. Inspection reports shall be recorded and submitted daily on approved forms certifying items correctly installed and items found to be defective with a statement on corrective measures taken.

1.6. SUBMITTAL PROCEDURES

1.6.1. Shop Drawings, Product Data, and Samples: Shop Drawings, Product Data, and Samples are technical submittals prepared by Contractor, subcontractor, manufacturer, or supplier and submitted by the Contractor to the COR as a basis for approval of the use of equipment and materials proposed for incorporation in the work or needed to describe installation, operation, maintenance, or technical properties, as specified in each Division of the Specifications.

1.6.1.1. Shop Drawings include custom-prepared data of all types including drawings, diagrams, performance curves, material schedules, templates, instructions, and similar information not in standard printed form applicable to other projects.

1.6.1.2. Product Data includes standard printed information on materials, products, and systems not custom-prepared for this project, other than the designation of selections from available choices.

1.6.1.3. Samples include both fabricated and unfabricated physical examples of materials, products, and work; both as complete units and as smaller portions of units of work; either for limited visual inspection or for more detailed testing and analysis. Mock-ups are a special form of Samples which are too large to be handled in the specified manner for transmittal of Sample submittals.

1.6.2. Informational Submittals are those technical reports, administrative submittals, certificates, and guarantees not defined as Shop Drawings, Product Data, or Samples.

1.6.3. Quality Requirements

1.6.3.1. Submittals such as Shop Drawings and Product Data shall be of suitable quality for legibility and reproduction purposes. Every line, character, and letter shall be clearly legible. Drawings such as reproducible shall be useable for further reproduction to yield legible hard copy.

1.6.3.2. Documents submitted to the COR that do not conform to specified requirements shall be subject to rejection by the COR, and upon request by the COR, Contractor shall resubmit conforming documents. If conforming submittals cannot be obtained, such documents shall be retraced, redrawn, or photographically restored as may be necessary to meet such requirements. Contractor's failure to initially satisfy the legibility quality requirements will not relieve Contractor from meeting the required schedule for submittals.

1.6.4. Submittal Completeness

1.6.4.1. Submittals shall be complete with respect to dimensions, design criteria, materials of construction, and other information specified to enable COR to review the information effectively.

1.6.4.2. Where standard drawings are furnished which cover a number of variations of the general class of equipment, each drawing shall be annotated to indicate exactly which parts of the drawing apply to the equipment being furnished. Use hatch marks to indicate variations that do not apply to the submittal. The use of "highlighting markers" will not be an acceptable means of annotating submittals. Annotation shall also include proper identification of the submittal permanently attached to the drawing.

1.6.4.3. Reproductions or copies of Contract Drawings or portions thereof will not be accepted as complete fabrication or erection drawings. Contractor may use a reproduction of Contract Drawings for erection drawings to indicate information on erection or to identify detail drawing references. Whenever the drawings are revised to show this additional Contractor information, Engineer's title block shall be replaced with Contractor's title block, and Engineer's professional seal shall be removed from the drawing. Contractor shall revise these erection drawings for subsequent Engineer revisions to the Contract Drawings.

1.6.5. Resubmission: Resubmittal procedure shall follow the same procedure as the initial submittal.

1.6.6. Contracting Officer's Action on Transmittal Form:

1.6.6.1. Incomplete or erroneous transmittals will be returned without action.

1.6.6.2. The remainder of the transmittal will be filled out by the Contracting Officer's Representative.

1.6.7. Submittal Procedures by Contractor:

1.6.7.1. Civil/Site items as follows:

1.6.7.1.1. (4) prints of shop drawings with transmittal forms.

1.6.7.1.2. (1) samples with transmittal forms.

1.6.7.1.3. (4) copies of brochures with transmittal forms.

1.6.8. Contracting Officer's Review:

1.6.8.1. Contracting Officer's Representative will process the submission and indicate the appropriate action on the submission and the transmittal.

1.7. SPECIAL PROCEDURES

1.7.1. Environmental Procedures:

1.7.1.1. Contractor shall dispose of all hazardous materials and hazardous wastes created by the project at an off installation location, certified for the disposal of the particular wastes, in accordance with all Federal, State, Local and Installation laws, rules, and regulations.

1.7.1.1.1. Accumulation, packaging, transportation, and disposal will be in accordance with 40 CFR, Parts 20-23, and Ohio EPA Regulations for hazardous waste. Coordinate with the Contracting Officer’s Representative (COR) for the installation’s EPA Identification Number.

1.7.1.1.2. Coordinate with the Installation Environmental Management Office when preparing hazardous materials manifests.

1.7.1.1.3. **[SD-07]** Provide a copy of all manifests to the COR on the day items are shipped, when comeback copy is received, and when disposal copy is received.

1.7.2. Security Procedures

1.7.2.1. Materials or items designated to become the property of the Government shall be as shown on the Drawings. Remove such items with care and store them in a location at the site to be designated by the Contracting Officer's Representative.

1.7.2.2. Materials or items designated to be reinstalled shall be as shown on the Drawings. Remove such items with care under the supervision of the trade responsible for reinstallation; protect and store until required. Replace material or items damaged in its removal with similar new material.

1.7.2.3. Materials or items demolished and not designated to become the property of the Government or to be reinstalled shall become the property of the Contractor and shall be removed from the Government's property.

1.7.2.4. The Contractor is responsible for any damage that may be caused by work to any part or parts of existing facilities or items designated for reuse.

PART 2. MATERIALS (NOT USED)

PART 3. EXECUTION (NOT USED)

END OF SECTION 01 30 00

SECTION 01 33 00
SUPPLEMENTAL SUBMITTAL PROCEDURES

PART 1. GENERAL

1.1. DEFINITIONS

1.1.1. 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:

1.1.1.1. SD-01 Preconstruction Submittals: For Government approved division 01 preconstruction submittals that are required prior to or commencing with the start of work must be submitted within 30 calendar days of contract award unless specified elsewhere in the specifications. 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.

1.1.1.1.1. Certificates Of Insurance Surety Bonds

1.1.1.1.2. List Of Proposed Subcontractors List Of Proposed Products

1.1.1.1.3. Baseline Network Analysis Schedule (NAS) Submittal Register

1.1.1.1.4. Schedule Of Prices Or Earned Value Report

1.1.1.1.5. Work Plan

1.1.1.1.6. Quality Control (QC) plan

1.1.1.1.7. Environmental Protection Plan

1.1.1.2. SD-02 Shop Drawings: Drawings, diagrams and schedules specifically prepared to illustrate some portion of the work

1.1.1.3. 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.

1.1.1.4. SD-04 Samples

1.1.1.4.1. 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.

1.1.1.4.2. 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.

1.1.1.4.3. 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.

1.1.1.5. SD-05 Design Data: Design calculations, mix designs, analyses or other data pertaining to a part of work.

1.1.1.6. SD-06 Test Reports

1.1.1.6.1. 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.

1.1.1.6.2. 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.

1.1.1.6.3. 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.

1.1.1.6.4. nvestigation reports Daily logs and checklists

1.1.1.6.5. Final acceptance test and operational test procedure

1.1.1.7. SD-07 Certificates

1.1.1.7.1. 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.

1.1.1.7.2. 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.

1.1.1.7.3. Confined space entry permits

1.1.1.7.4. Waste manifests documenting the orderly and safe transfer, shipping and disposal of regulated wastes in accordance with all Federal, State, Local, and Installation laws, rules, and regulations.

1.1.1.7.5. Text of posted operating instructions

1.1.1.8. 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.

1.1.1.9. SD-09 Manufacturer's Field Reports

1.1.1.9.1. 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.

1.1.1.9.2. Factory test reports.

1.1.1.10. SD-10 Operation and Maintenance Data

1.1.1.10.1. 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.

1.1.1.10.2. Data required by operating and maintenance personnel for the safe and efficient operation, maintenance and repair of the item.

1.1.1.10.3. Data incorporated in an operations and maintenance manual or control system.

1.1.1.11. SD-11 Closeout Submittals

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

1.1.1.11.2. Submittals required for Guiding Principle Validation (GPV) or Third Party Certification (TPC).

1.1.1.11.3. 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.

1.1.2. Approving Authority: Office or designated person authorized to approve the submittal.

1.1.3. 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.

1.2. SUBMITTALS FOR THIS SECTION: NONE

1.3. SUBMITTAL CLASSIFICATION

1.3.1. Government Approved (G): Within the terms of the Contract Clause SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION, submittals are considered to be "shop drawings."

1.3.2. For Information Only: Submittals not requiring 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."

1.3.3. Sustainability Reporting Submittals (S): NOT USED

1.4. PREPARATION

1.4.1. Transmittal Form: Use Air Force Form 3000 for the transmittal of submittals. Ensure all information is included on the form. Attach the form to all submittals.

1.4.2. Submittal Format

1.4.2.1. Format of SD-01 Preconstruction Submittals: When the 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.

1.4.2.2. Format for SD-02 Shop Drawings

1.4.2.2.1. Provide shop drawings not less than 8 1/2 by 11 inches nor more than 30 by 42 inches, except for full-size patterns or templates. Prepare drawings to accurate size,

with scale indicated, unless 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.

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

1.4.2.2.3. 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.

1.4.2.2.4. Present shop drawings sized 8 1/2 by 11 inches as part of the bound volume for submittals. Present larger drawings in sets. Submit an electronic copy of drawings in PDF format.

1.4.2.2.5. 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.

1.4.2.2.6. 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.

1.4.2.2.7. Reserve a blank space, no smaller than 2 inches on the right-hand side of each sheet for the Government disposition stamp.

1.4.2.3. Format of SD-03 Product Data

1.4.2.3.1. Present product data submittals for each section as specified in the technical sections. Include a cover sheet (or table of contents for bound volume submittals), listing the page and catalog item numbers for product data.

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

1.4.2.3.3. Product Information:

1.4.2.3.3.1. 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.

1.4.2.3.3.2. 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.

1.4.2.3.4. 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. 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.

1.4.2.3.5. 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, unless approved by the Contracting Officer on a case-by-case basis, for expedition of the construction effort.

1.4.2.3.6. Submit the manufacturer's instructions before installation.

1.4.2.4. Format of SD-04 Samples

1.4.2.4.1. Sample Characteristics

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

1.4.2.4.1.1.1. Sample of Equipment or Device: Full size.

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

1.4.2.4.1.1.3. 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.

1.4.2.4.1.1.4. Sample of Linear Devices or Materials (such as conduit or handrails): 10 inch length or length of device to be supplied, if less than 10 inches.

1.4.2.4.1.1.5. Sample Volume of Nonsolid Materials (such as sand or paint): Pint

1.4.2.4.1.1.6. Color Selection Samples: 2 by 4 inches. However, 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.

1.4.2.4.1.1.7. Sample Panel: 4 by 4 feet.

1.4.2.4.1.1.8. Sample Installation: 100 square feet.

1.4.2.4.2. Sample Incorporation

1.4.2.4.2.1. 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.

1.4.2.4.2.2. 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.

1.4.2.4.3. Comparison Sample

1.4.2.4.3.1. 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.

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

1.4.2.5. Format of SD-05 Design Data: Provide design data and certificates on 8 1/2 by 11 inch paper. Provide a bound volume for submittals containing numerous pages.

1.4.2.6. Format of SD-06 Test Reports: Provide reports on 8 1/2 by 11 inch paper in a complete bound volume. By prominent notation, indicate each report in the submittal. Indicate the specification number and paragraph number to which each report pertains.

1.4.2.7. Format of SD-07 Certificates: Provide design data and certificates on 8 1/2 by 11 inch paper. Provide a bound volume for submittals containing numerous pages.

1.4.2.8. Format of SD-08 Manufacturer's Instructions

1.4.2.8.1. Present manufacturer's instructions submittals for each section as a complete, bound volume. Include the manufacturer's name, trade name, place of manufacture, and catalog model or number on product data. Also include applicable federal, military, industry, and technical-society publication references. If supplemental information is needed to clarify the manufacturer's data, submit it as specified for SD-07 Certificates.

1.4.2.8.2. Submit the manufacturer's instructions before installation.

1.4.2.8.3. 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. 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.

1.4.2.9. Format of SD-09 Manufacturer's Field Reports: Provide reports on 8 1/2 by 11 inch paper in a complete bound volume. By prominent notation, indicate each report in the submittal. Indicate the specification number and paragraph number to which each report pertains.

1.4.2.10. Format of SD-10 Operation and Maintenance Data (O&M): Provide all manufacturers’ recommended operations and maintenance data. Ensure a complete package is delivered in bound volumes.

1.4.2.11. 11. Format of SD-11 Closeout Submittals

1.4.2.11.1. When the 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.

1.4.2.11.2. Provide data in the unit of measure used in the contract documents.

1.4.3. Source Drawings for Shop 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.

1.4.3.1. Terms and Conditions

1.4.3.1.1. 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 subconsultants 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.

1.4.3.1.2. 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).

1.4.4. Electronic File Format

1.4.4.1. Provide submittals in electronic format, with the exception of material samples required for SD-04 Samples items. [In addition to the electronic submittal, provide three hard copies of the submittals.]

1.4.4.2. Compile the submittal file as a single, complete document, to include the Transmittal Form described within.

1.4.4.3. Name the electronic submittal file specifically according to its contents, and coordinate the file naming convention with the Contracting Officer.

1.4.4.4. Electronic files must be of sufficient quality that all information is legible.

1.4.4.5. Use PDF as the electronic format, unless otherwise specified or directed by the Contracting Officer.

1.4.4.6. Generate PDF files from original documents with bookmarks so that the text included in the PDF file is searchable and can be copied. If documents are scanned, optical character resolution (OCR) routines are required.

1.4.4.7. Index and bookmark files exceeding 30 pages to allow efficient navigation of the file.

1.4.4.8. When required, the electronic file must include a valid electronic signature or a scan of a signature.

1.5. QUANTITY OF SUBMITTALS

1.5.1. Number of SD-01 Preconstruction Submittal Copies: Unless otherwise specified, submit three sets of administrative submittals.

1.5.2. Number of SD-02 Shop Drawing Copies: Submit four copies of submittals of shop drawings requiring review and approval by a QC organization. Submit four copies of shop drawings requiring review and approval by the Contracting Officer.

1.5.3. Number of SD-03 Product Data Copies: Submit in compliance with quantity requirements specified for shop drawings.

1.5.4. Number of SD-04 Samples

1.5.4.1. Submit three samples, or three sets of samples showing the range of variation, of each required item. Two approved sample or set of samples will be retained by the approving authority and one will be returned to the Contractor.

1.5.4.2. Submit one sample panel or provide one sample installation where directed. Include components listed in the technical section or as directed.

1.5.4.3. Submit one sample installation, where directed.

1.5.4.4. Submit one sample of nonsolid materials.

1.5.5. Number of SD-05 Design Data Copies: Submit in compliance with quantity requirements specified for shop drawings.

1.5.6. Number of SD-06 Test Report Copies: Submit in compliance with quantity and quality requirements specified for shop drawings, other than field test results that will be submitted with QC reports.

1.5.7. Number of SD-07 Certificate Copies: Submit in compliance with quantity requirements specified for shop drawings.

1.5.8. Number of SD-08 Manufacturer's Instructions Copies: Submit in compliance with quantity requirements specified for shop drawings.

1.5.9. Number of SD-09 Manufacturer's Field Report Copies: Submit in compliance with quantity and quality requirements specified for shop drawings other than field test results that will be submitted with QC reports.

1.5.10. Number of SD-10 Operation and Maintenance Data Copies: Submit four copies of O&M data to the Contracting Officer for review and approval.

1.5.11. Number of SD-11 Closeout Submittals Copies: Unless otherwise specified, submit four sets of administrative submittals.

1.6. INFORMATION ONLY SUBMITTALS

1.6.1. Submittals without a "G" designation must be certified by the QC manager and submitted to the Contracting Officer for information-only. Provide information-only submittals to the

Contracting Officer a minimum of 14 calendar days prior to the Preparatory Meeting for the associated Definable Feature of Work (DFOW).

1.6.2. Approval of the Contracting Officer is not required on information only submittals.

1.6.3. The Contracting Officer will mark "receipt acknowledged" on submittals for information and will return only the transmittal cover sheet to the Contractor.

1.6.4. 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.

1.6.5. 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.

1.7. PROJECT SUBMITTAL REGISTER

1.7.1. A Project Submittal Register showing items of equipment and materials for when submittals are required by the specifications can be provided upon request.

1.7.2. Submittal Management: Prepare and maintain a submittal register, as the work progresses. Do not change data that is delivered by Government; retain data that is output as approved.

1.7.3. Delivery of Copies: Submit an updated electronic copy of the submittal register to the Contracting Officer with each invoice request. Provide an updated Submittal Register monthly regardless of whether an invoice is submitted.

1.8. VARIATIONS

1.8.1. 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.

1.8.2. Considering Variations

1.8.2.1. Discussion of variations with the Contracting Officer before submission of a variation submittal will help ensure that functional and quality requirements are met and minimize rejections and resubmittals.

1.8.2.2. For variations that include design changes or some material or product substitutions, the Government may require an evaluation and analysis by a licensed professional engineer hired by the contractor.

1.8.2.3. Specifically point out variations from contract requirements in a variation submittal. Failure to point out variations may cause the Government to require rejection and removal of such work at no additional cost to the Government.

1.8.3. Proposing Variations

1.8.3.1. When proposing variation, deliver a submittal, clearly marked as a "VARIATION" to the Contracting Officer, with documentation illustrating the nature and features of the variation including any necessary technical submittals and why the variation is desirable and

beneficial to Government. 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.

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

1.8.3.3. Specifically point out variations from contract requirements in a variation submittal. Failure to point out variations may cause the Government to require rejection and removal of such work at no additional cost to the Government.

1.8.4. 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.

1.8.5. Review Schedule Extension: In addition to the normal submittal review period, a period of 14 days will be allowed for the Government to consider submittals with variations.

1.9. SCHEDULING

1.9.1. 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.

1.9.2. No delay damages or time extensions will be allowed for time lost in late submittals. Allow an additional ten days for review and approval of submittals for food service equipment and refrigeration and HVAC control systems.

1.9.3. 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.

1.9.4. Submittals required by the contract documents are listed on the submittal register.

1.9.4.1. 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.

1.9.4.2. Approval by the Contracting Officer 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."

1.9.5. 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.

1.9.6. Contracting Officer review will be completed within 14 days after the date of submission.

1.10. GOVERNMENT APPROVING AUTHORITY

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

1.10.1.1. Note the date on which the submittal was received.

1.10.1.2. Review submittals for approval within the scheduling period specified and only for conformance with project design concepts and compliance with contract documents.

1.10.1.3. Identify returned submittals with one of the actions defined in paragraph REVIEW NOTATIONS and with comments and markings appropriate for the action indicated.

1.10.1.4. Upon completion of review of submittals requiring Government approval, stamp and date submittals.

1.10.2. Two copies of the submittal will be retained by the Contracting Officer and two copies of the submittal will be returned to the Contractor.

1.10.3. Review Notations: Submittals will be returned to the Contractor with the following notations:

1.10.3.1. Submittals marked "approved" or "accepted" authorize proceeding with the work covered.

1.10.3.2. Submittals marked "approved as noted" or "approved, except as noted, resubmittal not required," authorize proceeding with the work covered provided that the Contractor takes no exception to the corrections.

1.10.3.3. Submittals marked "not approved," "disapproved," or "revise and resubmit" indicate incomplete submittal or noncompliance with the contract requirements or design concept.

1.10.3.3.1. Resubmit with appropriate changes. Do not proceed with work for this item until the resubmittal is approved.

1.10.3.4. 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.

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

1.10.3.4.1.1. Resubmit submittals returned for lack of review by Contractor or for being incomplete, with appropriate action, coordination, or change.

1.10.3.5. Submittals marked "receipt acknowledged" indicate that submittals have been received by the Government. This applies only to "information-only submittals" as previously defined.

1.11. DISAPPROVED SUBMITTALS

1.11.1. Make corrections required by the Contracting Officer. 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.

1.11.2. 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.

1.11.3. 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.

1.12. APPROVED SUBMITTALS

1.12.1. The Contracting Officer's approval of submittals is not to be construed as a complete check, and indicates only that 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.

1.12.2. After submittals have been approved or accepted by the Contracting Officer, no resubmittal for the purpose of substituting materials or equipment will be considered unless accompanied by an explanation of why a substitution is necessary.

1.13. APPROVED SAMPLES

1.13.1. 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.

1.13.2. 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.

1.13.3. 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.

1.13.4. Samples of various materials or equipment delivered on the site or in place may be taken by the Contracting Officer for testing. Samples failing to meet contract requirements will automatically void previous approvals. Replace such materials or equipment to meet contract requirements.

PART 2. PRODUCTS (NOT USED)

PART 3. EXECUTION (NOT USED)

END OF SECTION 01 33 00

SECTION 01 40 00
QUALITY REQUIREMENTS

PART 1. GENERAL

1.1. ABBREVIATIONS AND ACRONYMS: Lists and explains abbreviations and symbols used in the Contract Documents.

1.1.1. Reference to a technical society, institution, association, or governmental authority is made in the Specifications.

1.1.1.1.	ACI	American Concrete Institute
1.1.1.2.	ANSI	American National Standards Institute
1.1.1.3.	ASTM	American Society for Testing and Materials
1.1.1.4.	AWWA	American Water Works Association
1.1.1.5.	CSI	Construction Specification Institute
1.1.1.6.	FS	Federal Specification
1.1.1.7.	MS	Military Specification
1.1.1.8.	MSTD	Military Standard
1.1.1.9.	NEC	National Electric Code
1.1.1.10.	NFC	National Fire Code
1.1.1.11.	UL	Underwriters' Laboratories

1.2. REFERENCE STANDARDS

1.2.1. Except as modified by governing codes and by this Specification, comply with the applicable provisions and recommendations of ANSI A10.2, Safety Code for Building Construction.

1.2.2. For any requirements throughout the Specifications and Drawings that item(s) bear the label of the Underwriters Laboratories Inc. or similar organizations, the Contractor shall submit proof that such item(s) he proposes to furnish conforms to the standard of the testing organization. The label of the proposed organization shall be accepted as conforming to this requirement.

1.3. SUBMITTALS: NONE

1.4. QUALITY ASSURANCE

1.4.1. Testing and Inspecting Agency Qualifications

1.4.1.1. Testing and Inspection Requirements

1.4.1.1.1. Where technical sections of the Specifications require inspection and testing by a testing laboratory, engage a reputable, recognized testing laboratory, experienced in the type of work to be performed.

1.4.1.1.2. The representative of the testing laboratory shall be on the work site as necessary for sampling, inspection, and testing in accordance with the contract provisions.

1.4.1.1.3. Submit written reports of results within (14) days after completion of tests.

1.4.2. Testing and Inspection Devices

1.4.2.1. Either the Contractor or his testing laboratory shall provide and maintain all measuring and testing devices, laboratory equipment, instruments, and supplies necessary to accomplish the required testing and inspection.

1.4.2.2. All measuring and testing devices shall be calibrated periodically against certified standards.

1.5. QUALITY CONTROL

1.5.1. Field Quality Control Procedures

1.5.1.1. The Contractor’s QC staff shall function completely independently of the Contractor's job-supervisory staff.

1.5.2. Contractor Quality Control

1.5.2.1. Provide and maintain an effective Contractor Quality Control (CQC) program and perform sufficient inspections and tests of all items of work, including those of subcontractors, to ensure compliance with Contract Documents.

1.5.2.2. Include surveillance and tests specified in the technical sections of the Specifications.

1.5.2.3. Furnish appropriate facilities, instruments, and testing devices required for performance of the quality control function.

1.5.2.4. Controls must be adequate to cover construction operations and be keyed to the construction sequence.

1.5.3. The Contractor's Quality Control system shall provide for procedures to ensure that the latest Contract Documents, shop drawings, and instructions required by the Contract are used for fabrication, testing, and inspection.

1.6. TESTING AND INSPECTING SERVICES

1.6.1. All tests shall be documented and certified.

1.6.2. All compliance inspections shall record both conforming and defective items with an explanation for the cause of rejection, proposed remedial action, and corrective action taken.

1.6.3. Individual daily reports will be required of each inspector and technician covering the feature which is assigned and a consolidated daily report signed by the person in charge of the quality control staff.

1.7. TESTING LABORATORY SERVICES: The Contractor may arrange for a testing laboratory to provide on-site services required in lieu of direct employment of personnel.

PART 2. PRODUCTS (NOT USED)

PART 3. EXECUTION: (NOT USED)

END OF SECTION 01 40 00

SECTION 01 57 19
TEMPORARY ENVIRONMENTAL CONTROLS

PART 1. GENERAL

1.1. RELATED DOCUMENTS

1.1.1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.1.2. Section 01 74 19 of this Specification: In case of conflicts between the requirements of Section 01 74 19 and this Section, the more restrictive requirements shall govern.

1.2. REFERENCES

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

1.2.1.1. U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA) and CFR

1.2.1.1.1. EPA SW-846 (Third Edition; Update VII) Test Methods for Evaluating Solid Waste: Physical/Chemical Methods

1.2.1.1.2. 40 CFR 50 National Primary and Secondary Ambient Air Quality Standards

1.2.1.1.3. 40 CFR 60 Standards of Performance for New Secondary Sources

1.2.1.1.4. 40 CFR 63 National Emission Standards for Hazardous Air Pollutants for Source Categories

1.2.1.1.5. 40 CFR 82 Protection of Stratospheric Ozone

1.2.1.1.6. 40 CFR 112 Oil Pollution Prevention

1.2.1.1.7. 40 CFR 122.26 Storm Water Discharges (Applicable to State NPDES Programs, see section 123.25)

1.2.1.1.8. 40 CFR 241 Guidelines for Disposal of Solid Waste

1.2.1.1.9. 40 CFR 243 Guidelines for the Storage and Collection of Residential, Commercial, and Institutional Solid Waste

1.2.1.1.10. 40 CFR 258 Subtitle D Landfill Requirements

1.2.1.1.11. 40 CFR 260 Hazardous Waste Management System: General

1.2.1.1.12. 40 CFR 261 Identification and Listing of Hazardous Waste

1.2.1.1.13. 40 CFR 261.7 Residues of Hazardous Waste in Empty Containers

1.2.1.1.14. 40 CFR 262 Standards Applicable to Generators of Hazardous Waste

1.2.1.1.15. 40 CFR 262.31 Standards Applicable to Generators of Hazardous Waste-Labeling

1.2.1.1.16. 40 CFR 262.34 Standards Applicable to Generators of Hazardous Waste-Accumulation Time

1.2.1.1.17. 40 CFR 263 Standards Applicable to Transporters of Hazardous Waste

1.2.1.1.18. 40 CFR 264 Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities

1.2.1.1.19. 40 CFR 265 Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities

1.2.1.1.20. 40 CFR 266 Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities

1.2.1.1.21. 40 CFR 268 Land Disposal Restrictions

1.2.1.1.22. 40 CFR 273 Standards for Universal Waste Management

1.2.1.1.23. 40 CFR 273.2 Standards for Universal Waste Management – Batteries

1.2.1.1.24. 40 CFR 273.3 Standards for Universal Waste Management – Pesticides

1.2.1.1.25. 40 CFR 273.4 Standards for Universal Waste Management - Mercury Containing Equipment

1.2.1.1.26. 40 CFR 273.5 Standards for Universal Waste Management – Lamps

1.2.1.1.27. 40 CFR 279 Standards for the Management of Used Oil

1.2.1.1.28. 40 CFR 300 National Oil and Hazardous Substances Pollution Contingency Plan

1.2.1.1.29. 40 CFR 300.125 National Oil and Hazardous Substances Pollution Contingency Plan – Notification and Communications

1.2.1.1.30. 40 CFR 355 Emergency Planning and Notification

1.2.1.1.31. 40 CFR 403 General Pretreatment Regulations for Existing and New Sources of Pollution

1.2.1.1.32. 49 CFR 171 General Information, Regulations, and Definitions

1.2.1.2. STATE OF OHIO

1.2.1.2.1. ORC 3704 Air Pollution Control

1.2.1.2.2. ORC 3710 Asbestos Abatement

1.2.1.2.3. ORC 3714 Construction and Demolition Debris

1.2.1.2.4. ORC 3734 Solid and Hazardous Wastes

1.2.1.2.5. ORC 3736 Recycling, Waste Reduction, Litter Prevention

1.2.1.2.6. ORC 3741 Gasoline, Oils, Paints

1.2.1.2.7. OAC 3745 Ohio Environmental Protection Agency (related sections based on environmental media)

1.2.1.3. UNITED STATES AIR FORCE

1.2.1.3.1. AFPD 32-70 Environmental Considerations in Air Force programs and Activities

1.2.1.3.2. AFI 32-7001 Environmental Management

1.2.1.3.3. AFMAN 32-7002 Environmental Compliance and Pollution Prevention

1.2.1.3.4. AFMAN 32-7003 Environmental Conservation

1.3. DEFINITIONS

1.3.1. Contractor Generated Hazardous Waste - Contractor generated hazardous waste is materials that, if abandoned or disposed of, may meet the definition of a hazardous waste. These waste streams would typically consist of material brought on site by the Contractor to execute work but are not fully consumed during the course of construction. Examples include, but are not limited to, excess paint thinners (i.e., methyl ethyl ketone, toluene), waste thinners, excess paints, excess solvents, solid debris and waste solvents.

1.3.2. Electronics Waste - Electronics waste is discarded electronic devices intended for salvage, recycling, or disposal.

1.3.3. Environmental Pollution and Damage - Environmental pollution and damage is the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade the environment aesthetically, culturally or historically.

1.3.4. Environmental Protection - Environmental protection is the prevention/control of pollution and habitat disruption that may occur to the environment during contract activities. The control of environmental pollution and damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material as well as other pollutants.

1.3.5. Hazardous Materials - Hazardous materials as defined in 49 CFR 171 and listed in 49 CFR 172: Hazardous material is any material that: Is regulated as a hazardous material in accordance with 49 CFR 173; or requires a Safety Data Sheet (SDS) in accordance with 29 CFR 1910.120; or during end use, treatment, handling, packaging, storage, transportation, or disposal meets or has components that meet or have potential to meet the definition of a hazardous waste as defined by 40 CFR 261 Subparts A, B, C, or D. Designation of a material by this definition, when separately regulated or controlled by other sections or directives, does not eliminate the need for adherence to that hazard-specific guidance which takes precedence over this section for "control" purposes. Such material includes materials such as asbestos, mercury, and polychlorinated biphenyls (PCBs).

1.3.6. Hazardous Waste - Hazardous Waste is any material that meets the definition of a solid waste and exhibits a hazardous characteristic (ignitability, corrosivity, reactivity, or toxicity) as specified in 40 CFR 261, Subpart C, or contains a listed hazardous waste as identified in 40 CFR 261, Subpart D.

1.3.7. Universal Waste - The universal waste regulations streamline collection requirements for certain hazardous wastes in the following categories: batteries, pesticides, mercury-containing equipment (for example, thermostats), and lamps (for example, fluorescent bulbs). The rule is designed to reduce hazardous waste in the municipal solid waste (MSW) stream by making it easier for universal waste handlers to collect these items and send them for recycling or proper disposal. These regulations can be found in 40 CFR 273.

1.3.8. Land Application - Land Application means spreading or spraying discharge water at a rate that allows the water to percolate into the soil. No sheeting action, soil erosion, discharge into storm sewers, discharge into defined drainage areas, or discharge into the "waters of the United States" must occur. Comply with federal, state, and local laws and regulations.

1.3.9. National Pollutant Discharge Elimination System (NPDES) - The NPDES permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States.

1.3.10. Oily Waste - Oily wastes are those materials that are, or were, mixed with Petroleum, Oils, and Lubricants (POLs) and have become separated from the POLs. Oily wastes also means materials, including wastewaters, centrifuge solids, filter residues or sludges, bottom sediments, tank bottoms, and sorbents which have come into contact with and have been contaminated by, POLs and may be appropriately tested and discarded in a manner which is in compliance with other state and local requirements. This definition includes materials such as oily rags, "kitty litter" sorbent clay and organic sorbent material. These materials may be land filled provided that: It is not prohibited in other state regulations or local ordinances; the amount generated is "de minimus" (a small amount); it is the result of minor leaks or spills resulting from normal process operations; and free-flowing oil has been removed to the practicable extent possible. Large quantities of this material, generated as a result of a major spill or in lieu of proper maintenance of the processing equipment, are a solid waste. As a solid waste, perform a hazardous waste determination prior to disposal.

1.3.11. Regulated Waste - Regulated wastes are solid wastes that have specific additional federal, state, or local controls for handling, storage, or disposal.

1.3.12. Sediment - Sediment is soil and other debris that have eroded and have been transported by

runoff water or wind.

1.3.13. Solid Waste - Solid waste is a solid, liquid, semi-solid or contained gaseous waste. A solid waste can be a hazardous waste, non-hazardous waste, or non-Resource Conservation and Recovery Act (RCRA) regulated waste. Types of solid waste typically generated at construction sites may include:

1.3.14. Debris - Debris is non-hazardous solid material generated during the construction, demolition, or renovation of a structure that exceeds 2.5-inch particle size that is: a manufactured object; plant or animal matter; or natural geologic material (for example, cobbles and boulders), broken or removed concrete, masonry, and rock asphalt paving; ceramics; roofing paper and shingles. Inert materials may be reinforced with or contain ferrous wire, rods, accessories and weldments. A mixture of debris and other material such as soil or sludge is also subject to regulation as debris if the mixture is comprised primarily of debris by volume, based on visual inspection.

1.3.15. Green Waste - Green waste is the vegetative matter from landscaping, land clearing and grubbing, including, but not limited to, grass, bushes, scrubs, small trees and saplings, tree stumps and plant roots. Marketable trees, grasses and plants that are indicated to remain, be re-located, or be re-used are not included.

1.3.16. Non-Hazardous Waste - Non-hazardous waste is waste that is excluded from, or does not meet, hazardous waste criteria in accordance with 40 CFR 263.

1.3.17. Recyclables - Recyclables are materials, equipment and assemblies such as doors, windows, door and window frames, plumbing fixtures, glazing and mirrors that are recovered and sold as recyclable, wiring, insulated/non-insulated copper wire cable, wire rope, and structural components. It also includes commercial-grade refrigeration equipment with the refrigerant removed, household appliances where the basic material content is metal, clean polyethylene terephthalate bottles, cooking oil, used fuel oil, textiles, high-grade paper products and corrugated cardboard, stackable pallets in good condition, clean crating material, and clean rubber/vehicle tires. Metal meeting the definition of lead contaminated or lead based paint contaminated may not be included as recyclable if sold to a scrap metal company. Paint cans that meet the definition of empty containers in accordance with 40 CFR 261.7 may be included as recyclable if sold to a scrap metal company.

1.3.18. Surplus Soil - Surplus soil is existing soil that is in excess of what is required for this work, including aggregates intended, but not used, for on-site mixing of concrete, mortars, and paving. Contaminated soil meeting the definition of hazardous material or hazardous waste is not included and must be managed in accordance with paragraph 3.4, HAZARDOUS WASTE MANAGEMENT.

1.3.19. Scrap Metal - This includes scrap and excess ferrous and non-ferrous metals such as reinforcing steel, structural shapes, pipe, and wire that are recovered or collected and disposed of as scrap. Scrap metal meeting the definition of hazardous material or hazardous waste is not included.

1.3.20. Wood - Wood is dimension and non-dimension lumber, plywood, chipboard, hardboard. Treated or painted wood that meets the definition of lead contaminated or lead based contaminated paint is not included. Treated wood includes, but is not limited to, lumber, utility poles, crossties, and other wood products with chemical treatment.

1.3.21. Material not regulated as solid waste - Material not regulated as solid waste is suspended or dissolved materials in domestic sewage effluent or irrigation return flows, other regulated point source discharges, and regulated air emissions.

1.3.22. Surface Discharge - Surface discharge means discharge of water into drainage ditches,

storm sewers, creeks or "waters of the United States". Surface discharges are discrete, identifiable sources and require a permit from the governing agency. Comply with federal, state, and local laws and regulations.

1.3.23. Wastewater - Wastewater is the used water and solids from a community that flow to a treatment plant.

1.3.24. Stormwater - Stormwater is any precipitation in an urban or suburban area that does not evaporate or soak into the ground, but instead collects and flows into storm drains, rivers, and streams.

1.3.25. Waters of the United States - Waters of the United States means federally jurisdictional waters, including wetlands, that are subject to regulation under Section 404 of the Clean Water Act or navigable waters, as defined under the Rivers and Harbors Act.

1.3.26. Wetlands - Wetlands are those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

1.4. SUBMITTALS: Government approval is required for submittals with a (G) designation. Submittals not marked are for Contractor quality control and for recordkeeping in the Environmental Management Office (CEV). Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

1.4.1. PRECONSTRUCTION SUBMITTALS: Preconstruction submittals requiring Government approval must be approved prior to commencement of work:

1.4.1.1. Preconstrucion Survey

1.4.1.2. Regulatory Notifications, (G)

1.4.1.3. Stormwater Notice of Intent, General Construction Permit (NPDES) and Stormwater Pollution Prevention Plan (SWPPP), (G)

1.4.1.4. Solid Waste Management Permit, (G)

1.4.1.5. Environmental Point of Contact (POC) Appointment

1.4.1.6. Environmental POC Qualifications

1.4.1.7. Erosion and Sediment Control Inspector Qualifications

1.4.1.8. Environmental Protection Plan, (G)

1.4.1.9. Contractor Hazardous Materials Inventory, (G)

1.4.1.10. Safety Data Sheets, (G)

1.4.2. PERIODIC SUMBITTALS: Submitted during construction at frequency specified

1.4.2.1.1. Waste Determination Report, As potential hazardous wastes are identified. (G)

1.4.2.1.2. Laboratory Analysis, As needed for waste determination. (G)

1.4.2.1.3. Copies of Hazardous Waste Manifests, When transporting hazardous wastes. (G)

1.4.2.1.4. Copies of Universal Waste Manifests and/or Bills of Lading, When transporting universal wastes. (G)

1.4.2.1.5. Sales Documentation for Recycled Materials, Monthly

1.4.2.1.6. Solid Waste Management Report, Monthly

1.4.2.1.7. Construction and Demolition Debris Reporting Form, Quarterly

1.4.2.1.8. SWPPP Reports, As required by permit

1.4.3. CLOSEOUT SUBMITTALS

1.4.3.1. Assembled Employee Training Records, (G)

1.4.3.2. Copies of all PERIODIC SUBMITTALS, (G)

1.4.3.3. HVAC Data

1.4.3.4. Stormwater Permit Notice of Termination, (G)

1.4.3.5. As Built Topographic Survey

1.5. ENVIRONMENTAL COMPLIANCE REQUIREMENTS

1.5.1. Provide and maintain, during the life of the contract, environmental protection as defined. Plan for and provide environmental protective measures to control pollution that develops during performance of the contract. Plan for and provide environmental protective measures required to correct conditions developing during contract performance which may have a negative effect on the natural and cultural environment. Protect the environmental resources within the project boundaries and those affected outside the limits of permanent work during the entire duration of this Contract. Comply with federal, state, and local regulations pertaining to the environment, including air, cultural and natural resources, hazardous materials, solid waste, hazardous waste, noise, pesticides, toxic substances, and water quality.

1.5.2. FACILITY HAZARDOUS WASTE GENERATOR STATUS: Mansfield Lahm Air National Guard Base is a Small Quantity Hazardous Waste Generator. Meet the regulatory requirements of this generator designation for any work conducted within the boundaries of the Installation. Comply with provisions of federal, state, and local regulatory requirements applicable to this generator status regarding storage, handling, and disposal of construction derived wastes and training of employees.

1.5.3. Tests and procedures assessing whether construction operations comply with applicable Environmental Laws may be required. Analytical work must be performed by qualified laboratories; and where required by law, the laboratories must be certified.

1.5.4. LICENSES AND PERMITS: Obtain licenses and permits required for the construction of the project and in accordance with FAR 52.236-7 Permits and Responsibilities. Notify the Government of all general use permitted equipment the Contractor plans to use on site. This paragraph supplements the Contractor's responsibility under FAR 52.236-7 Permits and Responsibilities.

1.6. CONFORMANCE WITH THE ENVIRONMENTAL MANAGEMENT SYSTEM

1.6.1. Perform work under this contract consistent with the policy and objectives identified in the installation's Environmental Management System (EMS). Perform work in a manner that

conforms to objectives and targets of the environmental programs and operational controls identified by the EMS. Support Government personnel when environmental compliance and EMS audits are conducted by escorting auditors at the Project site, answering questions, and providing proof of records being maintained. Provide monitoring and measurement information as necessary to address environmental performance relative to environmental, goals. In the event an EMS nonconformance or environmental noncompliance associated with the contracted services, tasks, or actions occurs, take corrective and preventative actions. In addition, employees must be aware of their roles and responsibilities under the installation EMS and of how these EMS roles and responsibilities affect work performed under the contract.

1.6.2. Coordinate with the Installation Environmental Management Office to identify training needs associated with environmental aspects and the EMS and arrange training or take other action to meet these needs. Provide training documentation to the Contracting Officer. Make EMS Awareness training completion certificates available to Government auditors during EMS audits and include the certificates in the Employee Training Records. See paragraph EMPLOYEE TRAINING RECORDS. The Installation Environmental Management Office will retain copies of associated environmental compliance records.

1.7. PRECONSTRUCTION SURVEY AND PROTECTION OF FEATURES: This paragraph supplements the Contract Clause PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES AND IMPROVEMENTS. Prior to start of any onsite construction activities, perform a Preconstruction Survey of the project site with the Contracting Officer, and take photographs showing existing environmental conditions in and adjacent to the site. Submit a report for the record. Include in the report a plan describing the features requiring protection under the provisions of the Contract Clauses, which are not specifically identified on the drawings as environmental features requiring protection along with the condition of trees, shrubs and grassed areas immediately adjacent to the site of work and adjacent to the Contractor's assigned storage area and access route(s), as applicable. The Contractor and the Contracting Officer will sign this survey report upon mutual agreement regarding its accuracy and completeness. Protect those environmental features included in the survey report and any indicated on the drawings, regardless of interference that their preservation may cause to the work under the Contract.

1.8. REGULATORY NOTIFICATIONS: Provide regulatory notification requirements in accordance with federal, state and local regulations. In cases where the Government will also provide public notification (such as stormwater permitting), coordinate with the Contracting Officer. Submit copies of regulatory notifications to the Contracting Officer at the Preconstruction Meeting. Typically, regulatory notifications must be provided for the following (this listing is not all- inclusive): demolition, renovation, NPDES defined site work, construction, removal or use of a permitted air emissions source, and remediation of controlled substances (asbestos, hazardous waste, lead paint).

1.9. STORMWATER NOTICE OF INTENT FOR CONSTRUCTION ACTIVITIES: Submit the approved NOI and appropriate permit fees to the Ohio EPA for permit issuance. Provide a copy of the General Construction Permit to the Contracting Officer prior to commencement of work. No land disturbing activities may commence without permit coverage.

1.9.1. STORMWATER POLLUTION PREVENTION PLAN (SWPPP): Submit a project-specific SWPPP to the Contracting Officer for approval at the Preconstruction Meeting and prior to the commencement of work. The SWPPP must meet the requirements of 40 CFR 122.26 and the EPA General Permit for stormwater discharges from construction sites. Prepare the SWPPP in accordance with EPA requirements. Use the EPA guide located at http://water.epa.gov/polwaste/npdes/stormwater/Stormwater-Pollution- Prevention- Plans-for-Construction-Activities.cfm to prepare the SWPPP. Select applicable Best Management Practices (BMPs) from EPA Fact Sheets located at http://water.epa.gov/polwaste/npdes/swbmp/Construction-Site-StormWater- Run-Off- Control.cfm. Maintain an approved copy of the SWPPP at the onsite construction office, and continually update as regulations require, reflecting current site conditions.

1.10. SOLID WASTE MANAGEMENT PERMIT: Provide the Contracting Officer with written notification of the quantity of anticipated or estimated solid waste or debris generated by construction. Include in the report the locations where various types of waste will be disposed or recycled. Include letters of acceptance from the receiving location or as applicable; submit one copy of the receiving location state and local Solid Waste Management Permit or license showing such agency's approval of the disposal plan at the Preconstruction Meeting and before transporting wastes off Government property.

1.11. ENVIRONMENTAL POINT OF CONTACT (POC): Appoint in writing an Environmental POC for the project site and provide documentation at the Preconstruction Meeting. The Environmental POC is directly responsible for ensuring contractor compliance with federal, state, local, and installation requirements. The Environmental POC must ensure compliance with Hazardous Waste Program requirements (including hazardous waste handling, storage, manifesting, and disposal); implement the EPP; ensure environmental permits are obtained, maintained, and closed out; ensure compliance with Stormwater Program requirements; ensure compliance with Hazardous Materials (storage, handling, and reporting) requirements; and coordinate any remediation of regulated substances (lead, asbestos, PCBs). Include in this letter the Environmental POC's authority to direct the removal and replacement of non-conforming work. This can be a collateral position; however, the person in this position must be trained to adequately accomplish the following duties: ensure waste segregation and storage compatibility requirements are met; inspect and manage Satellite Accumulation areas; ensure only authorized personnel add wastes to containers; ensure Contractor personnel are trained in 40 CFR requirements in accordance with their position requirements; coordinate removal of waste containers; and maintain all environmental records and required documentation, including environmental permits compliance and close-out.

1.12. QUALIFICATIONS: Submit Environmental POC and Erosion and Sediment Control Inspector Qualifications as defined by EPA to the Contracting Officer at the Preconstruction Meeting. Maintain any training records, certificates and qualifications on site.

1.13. ENVIRONMENTAL PROTECTION PLAN: The purpose of the EPP is to present an overview of known or potential environmental issues and preventive measures and Best management Practices (BMPs) to be implemented during construction. Incorporate construction related objectives and targets from the installation's EMS into the EPP. Include in the EPP measures for protecting natural and cultural resources, required reports, and other measures to be taken for environmental compliance. Meet with the Contracting Officer Representative and the Environmental management Office to discuss the EPP and develop a mutual understanding relative to the details for environmental compliance and conformance. Submit the EPP at the Preconstruction meeting. Revise the EPP throughout the project to include any reporting requirements, changes in site conditions, or contract modifications which change the project scope of work in a way that could have an environmental impact. No requirement in this section will relieve the Contractor of any applicable federal, state, and local environmental protection laws and regulations. During Construction, identify, implement, and submit for approval any additional requirements to be included in the EPP. Maintain the current version onsite. Send all updates to the Contracting Officer for the Installation Environmental Management Office.

1.13.1. The EPP includes, but is not limited to, the following elements:

1.13.1.1. GENERAL OVERVIEW AND PURPOSE

1.13.1.1.1. DESCRIPTIONS: A brief description of each specific plan required by environmental permit or elsewhere in this Contract such as stormwater pollution prevention plan, spill control plan, solid waste management plan, wastewater management plan, etc.

1.13.1.1.2. DUTIES: The duties and level of authority assigned to the person(s) on the job site who oversee environmental compliance, such as who is responsible for adherence to the EPP, who is responsible for spill cleanup and training personnel on spill response procedures, who is responsible for manifesting hazardous waste to be removed from the site

(if applicable), and who is responsible for training the Contractor's environmental protection personnel.

1.13.1.1.3. PROCEDURES: A copy of any standard or project-specific operating procedures that will be used to effectively manage and protect the environment on the project site. Include the following:

1.13.1.1.3.1. Submit truck and material haul routes along with a Dirt and Dust Control Plan for controlling dirt, debris, and dust on Installation roadways. As a minimum, identify in the plan the subcontractor and equipment for cleaning along the haul route and measures to reduce dirt, dust, and debris from roadways

1.13.1.1.4. COMMUNICATIONS: Communication and training procedures used to convey environmental management requirements to Contractor employees and subcontractors.

1.13.1.1.5. CONTACT INFORMATION: Emergency contact information contact information (office phone number, cell phone number, and e-mail address).

1.13.1.2. GENERAL SITE INFORMATION

1.13.1.2.1. DRAWINGS: Drawings showing locations of proposed temporary excavations or embankments for haul roads, stream crossings, jurisdictional wetlands, material storage areas, structures, sanitary facilities, storm drains and conveyances, and stockpiles of excess soil.

1.13.1.2.2. WORK AREA: Work area plan showing the proposed activity in each portion of the area and identify the areas of limited use or nonuse. Include measures for marking the limits of use areas, including methods for protection of features to be preserved within authorized work areas and methods to control runoff and to contain materials on site, and a traffic control plan.

1.13.1.3. REGULATORY NOTIFICATION AND PERMITS: List what notifications and permit applications must be made. Demonstrate the permits have been obtained. The EPP will not be approved until the permits have been obtained.

1.13.1.4. PROTECTION OF HISTORICAL AND ARCHAEOLOGICAL RESOURCES

1.13.1.4.1. Objectives

1.13.1.4.2. Methods

1.13.1.5. PROTECTION OF THE ENVIRONMENT FROM WASTE DERIVED FROM CONTRACTOR OPERATIONS: This item consists of the management procedures for hazardous and non-hazardous solid waste to be generated. The elements of those procedures will coincide with the Installation Hazardous Waste Management Plan. The Contracting Officer or Contracting Officer Representative will provide a copy of the Installation Hazardous Waste Management Plan. As a minimum, include the following:

1.13.1.5.1. List of the types of non-hazardous solid wastes expected to be generated

1.13.1.5.2. Plans for the disposal of non-hazardous solid wastes and procedures for reduction of wastes, separation, recycling, and recordkeeping of disposal.

1.13.1.5.3. List of the types of hazardous wastes expected to be generated.

1.13.1.5.4. Procedures to ensure a written waste determination is made for appropriate wastes that are to be generated.

1.13.1.5.5. Sampling/analysis plan, including laboratory method(s) that will be used for waste determinations and copies of relevant laboratory certifications.

1.13.1.5.6. Methods and proposed locations for hazardous waste accumulation/storage (that is, in tanks or containers).

1.13.1.5.7. Management procedures for storage, labeling, transportation, and disposal of waste (treatment of waste is not allowed).

1.13.1.5.8. Management procedures and regulatory documentation ensuring disposal of hazardous waste complies with Land Disposal Restrictions (40 CFR 268).

1.13.1.5.9. Management procedures for recyclable hazardous materials such as lead-acid batteries, used oil, and similar.

1.13.1.5.10. Used oil management procedures in accordance with 40 CFR 279; Hazardous waste minimization procedures.

1.13.1.5.11. Procedures to be employed to ensure required employee training records are maintained.

1.13.1.6. MANAGEMENT OF NATURAL RESOURCES

1.13.1.6.1. Land resources

1.13.1.6.2. Tree protection

1.13.1.6.3. Replacement of damaged landscape features

1.13.1.6.4. Temporary construction

1.13.1.6.5. Stream crossings

1.13.1.6.6. Fish and wildlife resources

1.13.1.6.7. Wetland areas

1.13.1.7. STORMWATER MANAGEMENT AND CONTROL: A completed SWPPP satisfies this requirement.

1.13.1.8. PREVENTION OF RELEASES TO THE ENVIRONMENT: Procedures to prevent releases to the environment and notifications in the event of a release to the environment.

1.14. HAZARDOUS MATERIALS DOCUMENTATION:

1.14.1. CONTRACTOR HAZARDOUS MATERIAL INVENTORY: Submit the Government provided Contractor Hazardous Material Inventory, which provides information required by EPCRA Sections 312 and 313, to the Contracting Officer at the start and at the end of construction (30 days from final acceptance) and update no later than January 31 of each calendar year during the life of the contract. At the end of the project, provide the Contracting Officer with the maximum quantity of each material that was present at the site at any one time, the dates the material was present, the amount of each material that was used during the project, and how the material was used.

1.14.2. SAFETY DATA SHEETS: Submit the correct and current SDS each hazardous material to the Contracting Officer prior to bringing the material on the installation (See Paragraph 1.4.1). Typical materials requiring SDS and quantity reporting include, but are not limited to, oil and latex based painting and caulking products, solvents, adhesives, aerosol, and petroleum products. Keep copies of the SDSs onsite.

1.15. ENVIRONMENTAL BRIEF: Attend an environmental brief to be included in the preconstruction meeting. Discuss the results of the Preconstruction Survey at this time. Provide the preconstruction submittals detailed in Paragraph 1.4.1. Prior to initiating any work on site, meet with the Contracting Officer or Contracting Officer Representative and installation Environmental Management Office to discuss the proposed Environmental Protection Plan (EPP). Develop a mutual understanding relative to the details of environmental protection, including measures for protecting natural and cultural resources, required reports, required permits, permit requirements (such as mitigation measures), and other measures to be taken.

1.15.1. The Environmental Management Office will provide information on local requirements and procedures and training materials for compliance with the installation EMS System.

1.15.2. Prior to commencing any work under the contract the contractor shall provide all submittals listed in Paragraph 1.4.1.

1.16. EMPLOYEE TRAINING RECORDS: Prepare and maintain Employee Training Records throughout the term of the contract meeting applicable 40 CFR requirements. Submit these Assembled Employee Training Records to the Contracting Officer at the conclusion of the project, unless otherwise directed.

1.16.1. Train personnel to meet Ohio EPA requirements. Conduct environmental protection/pollution control meetings for personnel prior to commencing construction activities. Conduct additional meetings for new personnel and when site conditions change. Include in the training and meeting agenda:

1.16.1.1. Methods of detecting and avoiding pollution; familiarization with statutory and contractual pollution standards.

1.16.1.2. Installation and care of devices vegetative covers, and instruments required for monitoring purposes to ensure adequate and continuous environmental protection/pollution control.

1.16.1.3. Anticipated hazardous or toxic chemicals or wastes, and other regulated contaminants; recognition and protection of archaeological sites, artifacts, waters of the United States, and endangered species and their habitat that are known to be in the area.

1.17. NON-COMPLIANCE NOTIFICATIONS: The Contracting Officer will notify the Contractor in writing of any observed noncompliance with federal, state or local environmental laws or regulations, permits, and other elements of the Contractor's EPP. After receipt of such notice, inform the Contracting Officer of the proposed corrective action and take such action when approved by the Contracting Officer. The Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No time extensions will be granted or equitable adjustments allowed for any such suspensions. This is in addition to any other actions the Contracting Officer may take under the contract, or in accordance with the Federal Acquisition Regulation or Federal Law.

PART 2. PART 2 PRODUCTS (NOT USED)

PART 3. PART 3 EXECUTION

3.1. AIR QUALITY COMPLIANCE:

3.1.1. EQUIPMENT USAGE: Equipment operation, activities, or processes will be in accordance with state air emission and performance laws and standards.

3.1.2. EPA CERTIFICATION REQUIREMENTS: Heating and air conditioning technicians must be certified through an EPA-approved program. Maintain copies of certifications at the employees' places of business; technicians must carry certification wallet cards, as provided by environmental law.

3.1.3. STATIONARY INTERNAL COMBUSTION ENGINES: Identify portable and stationary internal combustion engines that will be supplied, used or serviced. Comply with 40 CFR 60 Subpart IIII, 40 CFR 60 Subpart JJJJ, 40 CFR 63 Subpart ZZZZ, and local regulations as applicable. At minimum, include the make, model, serial number, manufacture date, size (engine brake horsepower), and EPA emission certification status of each engine. Maintain applicable records.

3.1.4. REFRIGERANTS: Identify management practices to ensure that heating, ventilation, and air conditioning (HVAC) work involving refrigerants complies with 40 CFR 82 requirements. Use certified equipment and log work that requires the addition or removal of refrigerant. Any refrigerant reclaimed is the property of the Government, coordinate with the Installation Environmental Management Office to determine the appropriate turn in location. Ensure data plates on all HVAC equipment are correctly and completely filled out. Provide the following information as a submittal to the Contracting Officer for the Installation Environmental Management Office’s records:

3.1.4.1. Manufacturer Name

3.1.4.2. Model Number

3.1.4.3. Serial Number

3.1.4.4. Type of Refrigerant

3.1.4.5. Type of Equipment (I.E. Air Conditioner, Chiller, Air System, Water Cooler, Etc)

3.1.4.6. Equipment Category (I.E. Commercial or Comfort cooling)

3.1.4.7. Total System Charge in Pounds and Ounces

3.1.4.8. Number of Circuits and the amount of refrigerant (in lbs.) in each circuit

3.1.4.9. A photo of the completed data plates for all installed equipment

3.1.5. RELEASE OF REFRIGERANTS: Accidental venting of a refrigerant is a release and must be reported immediately to the Contracting Officer Representative.

3.1.6. FUEL FIRED BOILERS AND FURNACES: Ensure data plates on all HVAC equipment are correctly and completely filled out. Provide product data and details for new, replacement, or relocated fuel fired boilers, heaters, or furnaces to the Contracting Officer for the Installation Environmental Management Office's records. Data to be reported include:

3.1.6.1. Manufacturer Name

3.1.6.2. Model Number

3.1.6.3. Serial Number

3.1.6.4. Type of Equipment (Water Heater, Building Heat, Process)

3.1.6.5. Fuel Type (oil, natural gas, etc.)

3.1.6.6. Size (MMBTU heat input).

3.1.6.7. A photo of the completed data plates for all installed equipment

3.1.7. DUST CONTROL: Keep dust down at all times, including during nonworking periods. Sprinkle or treat, with dust suppressants: the soil at the site, haul roads, and other areas disturbed by operations. Dry power brooming will not be permitted. Instead, use vacuuming, wet mopping, wet sweeping, or wet power brooming. Air blowing will be permitted only for cleaning nonparticulate debris such as steel reinforcing bars. Only wet cutting or dustless masonry cutting equipment will be permitted for cutting concrete blocks, concrete, and bituminous concrete.

3.1.8. COMPLIANT MATERIALS: All hazardous materials proposed for use on site must be compliant with all Clean Air Act regulations for emissions including solvent and volatile organic compound contents, and applicable National Emission Standards for Hazardous Air Pollutants requirements. The Government may alter or limit use of specific materials as needed to meet installation permit requirements for emissions.

3.1.9. BURNING: Burning is prohibited on the Installation.

3.2. CULTURAL RESOURCES PROTECTION:

3.2.1. ARCHAEOLOGICAL RESOURCES: If, during excavation or other construction activities, any previously unidentified or unanticipated historical, archaeological, and cultural resources are discovered or found, activities that may damage or alter such resources will be suspended and the Contracting Officer or Contracting Officer Representative shall be immediately notified so the appropriate authorities may be notified and a determination made as to their significance and what, if any, special disposition of the finds should be made. Resources covered by this paragraph include but are not limited to: any human skeletal remains or burials; artifacts; shell, midden, bone, charcoal, or other deposits; rock or coral alignments, pavings, wall, or other constructed features; and any indication of agricultural or other human activities. Secure the area

and prevent employees or other persons from trespassing on, removing, or otherwise disturbing such resources. The Government retains ownership and control over archaeological resources.

3.3. HAZARDOUS MATERIALS MANAGEMENT:

3.3.1. Include hazardous material control procedures in the Safety Plan, in accordance with Section 01 35 26 GOVERNMENTAL SAFETY REQUIREMENTS. Address procedures and proper handling of hazardous materials, including the appropriate transportation requirements.

3.3.2. Do not bring hazardous material onto Government property that does not directly relate to requirements for the performance of this contract.

3.3.3. Use hazardous materials in a manner that minimizes the amount of hazardous waste generated. Certify that hazardous materials removed from the site are hazardous materials and do not meet the definition of hazardous waste, in accordance with 40 CFR 261.

3.3.4. The Contracting Officer may request documentation for any spills or releases, environmental reports, or off-site transfers.

3.4. HAZARDOUS WASTE MANAGEMENT:

3.4.1. Identify construction activities that will generate hazardous waste or debris. Provide a documented waste determination for resultant waste streams. Identify, label, handle, store, and dispose of hazardous waste or debris in accordance with federal, state, and local regulations, including 40 CFR 261, 40 CFR 262, 40 CFR 263, 40 CFR 264, 40 CFR 265, 40 CFR 266, and 40 CFR 268.

3.4.2. Provide the Contracting Officer or Contracting Officer Representative with a copy of a waste determination report for any solid waste streams having any potential to be hazardous waste or contain any chemical constituents listed in 40 CFR 372-SUBPART D. As a minimum, provide a waste determination report for the following waste (this listing is not inclusive): oil- and latex -based painting and caulking products, solvents, adhesives, aerosols, petroleum products, and containers of the original materials.

3.4.2.1. All potentially hazardous solid waste streams that are not subject to a specific exclusion or exemption from the hazardous waste regulations (e.g., scrap metal, domestic sewage) or subject to special rules, (lead-acid batteries and precious metals) must be characterized in accordance with the requirements of 40 CFR 261 or corresponding applicable state or local regulations. Consult with the Installation Hazardous Waste Program Manager for guidance on specific requirements. Attach support documentation to the waste determination report.

3.4.2.1.1. Accomplish waste determination based on user knowledge of the processes and materials used, and analytical data when necessary.

3.4.2.1.1.1. SAMPLING AND ANALYSIS OF WASTE: Sample waste in accordance with EPA SW-846. Obtain a representative sample of the material generated for each job done to provide waste stream determination.

3.4.2.1.1.2. Clearly mark each sampled drum or container with the Contractor's identification number, and cross reference to the chemical analysis performed. For laboratory analysis, Follow the analytical procedure and methods in accordance with 40 CFR 261. Identify hazardous waste by analyzing for the following characteristics: ignitability, corrosivity, reactivity, or toxicity based on TCLP results. Provide analytical

results and reports performed to the Contracting Officer or Contracting Officer Representative.

3.4.3. Manage hazardous waste in accordance with the approved Hazardous Waste Management Section of the EPP. Store hazardous wastes in approved containers in accordance with 49 CFR 173 and 49 CFR 178. Hazardous waste generated within the confines of Government facilities is identified as being generated by the Government.

3.4.4. WASTE STORAGE/SATELLITE ACCUMULATION AREAS: Accumulate hazardous waste at satellite accumulation points and in compliance with 40 CFR 262.34 and applicable state or local regulations. Individual waste streams will be limited to 55 gallons of accumulation (or 1 quart for acutely hazardous wastes). Barricade the designated area where waste is being stored and post a sign identifying as follows: "DANGER - UNAUTHORIZED PERSONNEL KEEP OUT"

3.4.5. HAZARDOUS WASTE DISPOSAL: Provide service necessary for the disposal of hazardous waste in accordance with 40 CFR 260, local, and state, laws and regulations, and the terms and conditions of the Contract. These services include necessary personnel, labor, transportation, packaging, detailed analysis (if required for disposal or transportation, include manifesting or complete waste profile sheets, equipment, and compile documentation).

3.4.5.1. PACKAGING: Packaging must be compatible with waste contents and drums must meet DOT requirements for transportation of materials in accordance with 49 CFR 173. Contact the Installation Environmental Management Office for guidance.

3.4.5.2. LABELING: Determine the Department of Transportation's (DOT's) proper shipping names for waste (each container requiring disposal) and demonstrate to the Contracting Officer how this determination is developed and supported by the sampling and analysis requirements contained herein. Label all containers of hazardous waste with the words "Hazardous Waste" or other words to describe the contents of the container in accordance with 40 CFR 262.31 and applicable state or local regulations.

3.4.5.3. DISPOSAL DOCUMENTATION FOR HAZARDOUS AND REGULATED WASTE: Contact the Contracting Officer or Contracting Officer Representative for the facility RCRA identification number that is to be used on each manifest. Submit a copy of the applicable EPA and or state permit(s), manifest(s), or license(s) for transportation, treatment, storage, and disposal of hazardous and regulated waste by permitted facilities. Submit any waste manifests in the EPA’s eManifest system. The installation can no longer accept paper copies and must manage all waste manifests electronically. Provide a hazardous waste manifest to the Installation Environmental Management Office for review, approval, and signature prior to shipping waste off Government property. To obtain specific disposal instructions, coordinate with the Installation Environmental Management Office.

3.4.6. Do not bring hazardous waste onto Government property. Do not dispose of hazardous waste on Government property. Do not discharge any waste to a sanitary sewer, storm drain, or to surface waters or conduct waste treatment or disposal on Government property.

3.4.7. UNIVERSAL WASTE MANAGEMENT: Manage the following categories of universal waste in accordance with federal, state, and local requirements and installation instructions. Provide copies of manifest documents for the removal of universal waste to the Contracting Officer.

3.4.7.1. Batteries as described in 40 CFR 273.2.

3.4.7.2. Lamps as described in 40 CFR 273.5.

3.4.7.3. Mercury-containing equipment as described in 40 CFR 273.4.

3.4.7.3.1. Mercury is prohibited in the construction of this facility, unless specified otherwise, and with the exception of mercury vapor lamps and fluorescent lamps. Dumping of mercury-containing materials and devices such as mercury vapor lamps, fluorescent lamps, and mercury switches, in rubbish containers is prohibited. Remove without breaking, pack to prevent breakage, and transport out of the activity in an unbroken condition for disposal as directed.

3.4.8. ELECTRONICS END-OF-LIFE MANAGEMENT Recycle or dispose of electronics waste, including, but not limited to, used electronic devices such computers, monitors, hard-copy devices, televisions, mobile devices, in accordance with 40 CFR 260-262, state, and local requirements, and installation instructions.

3.4.9. MILITARY MUNITIONS: In the event military munitions, as defined in 40 CFR 260, are discovered or uncovered, immediately stop work in that area and immediately inform the Installation Fire Department.

3.4.10. INADVERTENT DISCOVERY OF CONTAMINATED SOIL OR HAZARDOUS WASTES: If contaminated soil, or suspected hazardous waste is found during construction that was not identified in the Contract documents, immediately notify the Contracting Officer or Contracting Officer Representative. Do not disturb this material until authorized by the Contracting Officer.

3.5. NATURAL RESOURCES PROTECTION:

3.5.1. Minimize interference with, disturbance to, and damage to fish, wildlife, and plants, including their habitats. Prior to the commencement of activities, consult with the Installation Environmental Management Office, regarding rare species or sensitive habitats that need to be protected. The protection of rare, threatened, and endangered animal and plant species identified, including their habitats, is the Contractor's responsibility.

3.5.2. Preserve the natural resources within the project boundaries and outside the limits of permanent work. Restore to an equivalent or improved condition upon completion of work that is consistent with the requirements of the Installation Environmental Management Office or as otherwise specified.

3.5.3. Confine construction activities to within the limits of the work indicated or specified. Mark the areas that need not be disturbed under this Contract prior to commencing construction activities. Mark or fence isolated areas within the general work area that are not to be disturbed. Protect monuments and markers before construction operations commence.

3.5.4. Personnel must be knowledgeable of the purpose for marking and protecting particular objects.

3.5.5. Do not alter water flows or otherwise significantly disturb the native habitat adjacent to the project and critical to the survival of fish and wildlife, except as specified and permitted.

3.5.6. Except in areas to be cleared, do not remove, cut, deface, injure, or destroy trees or shrubs without the Contracting Officer's permission. Do not fasten or attach ropes, cables, or guys to existing nearby trees for anchorages unless authorized by the Contracting Officer. Where such use of

attached ropes, cables, or guys is authorized, the Contractor is responsible for any resultant damage.

3.5.6.1. Tree removal is allowed only from 1 November to 31 March. Notify Contracting Officer of intent to remove trees. Only remove trees when permission is granted by the Contracting Officer.

3.5.7. Protect existing trees that are to remain to ensure they are not injured, bruised, defaced, or otherwise damaged by construction operations. Remove displaced rocks from uncleared areas. Coordinate with the Contracting Officer or Contracting Officer Representative and the Installation Environmental Management Office to determine appropriate action for trees and other landscape features scarred or damaged by equipment operations.

3.5.8. Stream crossings must allow movement of materials or equipment without violating water pollution control standards of the federal, state, and local governments. Construction of stream crossing structures must be in compliance with any required permits including, but not limited to, Clean Water Act Section 404, and Section 401 Water Quality. The Contracting Officer's approval and appropriate permits are required before any equipment will be permitted to ford live streams. In areas where frequent crossings are required, install temporary culverts or bridges. Obtain Contracting Officer's approval prior to installation. Remove temporary culverts or bridges upon completion of work and repair the area to its original condition unless otherwise required by the Contracting Officer.

3.5.9. PREVIOUSLY USED EQUIPMENT: Clean previously used construction equipment prior to bringing it onto the project site. Equipment must be free from soil residuals, egg deposits from plant pests, noxious weeds, and plant seeds. Consult with the U.S. Department of Agriculture jurisdictional office for additional cleaning requirements.

3.6. NOISE:

3.6.1. Maximize use of low-noise emission products, as certified by the EPA. Blasting or use of explosives are not permitted. Keep construction activities under surveillance and control to minimize environmental damage by noise. Comply with the provisions of the State of Ohio.

3.7. PESTICIDES:

3.7.1. Contractor personnel are not authorized to apply pesticides on the installation. Should pesticide use be necessary, coordinate with the Contracting Officer or Contracting Officer Representative.

3.8. SOLID WASTE MANAGEMENT:

3.8.1. WASTE MINIMIZATION: Minimize the use of hazardous materials and the generation of waste. Include procedures for pollution prevention/ hazardous waste minimization in the Hazardous Waste Management Section of the EPP. Obtain a copy of the installation's Integrated Solid Waste Management Plan for reference material when preparing this part of the EPP.

3.8.1.1. SALVAGE, REUSE AND RECYCLE: Identify anticipated materials and waste for salvage, reuse, and recycling. Describe actions to promote material reuse, or recycling.

3.8.1.1.1. QUALIFIED RECYCLING PROGRAM (QRP): In accordance with Air Force Manual 32-7002: “Environmental Compliance and Pollution Prevention”, Paragraph 6.6.3.5, the Contractor shall participate in the installation’s Qualified Recycling Program.

3.8.1.1.1.1. Segregate the following materials generated during construction or

demolition: ferrous and non-ferrous scrap metal, and scrap copper including cable and wire. Place items in separate containers apart from normal construction and demolition debris. Label containers to prevent non-QRP materials from being disposed of in the containers. Ensure security of the containers to prevent theft. Arrange for transport, or deliver QRP materials to a licensed recycler.

3.8.1.1.1.2. Obtain weight tickets, sales price, and sale amount for Environmental Management Office records.

3.8.1.1.1.3. The following forms of payment from the recycler are acceptable: Bank Drafts, Cashier's Checks and Certified Checks. Payment should be to the order of:

U.S. Treasury
Attn: 179th Environmental
1947 Harrington Memorial Rd.
Mansfield, Ohio 44903

3.8.1.1.2. Include the name, physical address, and telephone number of the hauler, if transported by a franchised solid waste hauler. Include the destination and, unless exempted, provide a copy of the state or local permit (cover) or license for recycling.

3.8.1.1.3. On a monthly basis' provide copies of the recycling facility's weight tickets, receipts, bills of sale, and other sales documentation. In lieu of sales documentation, a statement indicating the disposal location for the recycled materials that is signed by an employee authorized to legally obligate or bind the firm may be submitted. The sales documentation must include the receiver's tax identification number and business, EPA or state registration number, along with the receiver's delivery and business addresses and telephone numbers. For each solid waste retained for the Contractor's own use, submit the information previously described in this paragraph on the SOLID WASTE DISPOSAL REPORT. Prices paid or received do not have to be reported to the Contracting Officer

3.8.2. WASTE DISPOSAL: Pick up solid wastes, and place in containers that are regularly emptied. Do not prepare or cook food on the project site. Prevent contamination of the site or other areas when handling and disposing of wastes. Employ segregation measures so no hazardous or toxic waste will become co-mingled with non-hazardous solid waste. Transport solid waste off Government property and dispose of it in compliance with 40 CFR 260, state, and local requirements for solid waste disposal. A Subtitle D RCRA permitted landfill is the minimum acceptable offsite solid waste disposal option. Verify that the selected transporters and disposal facilities have the necessary permits and licenses to operate.

3.8.2.1. Segregate and separate treated wood components disposed at a lined landfill approved to accept this waste in accordance with local and state regulations.

3.8.2.2. Solid waste disposal offsite must comply with most stringent local, state, and federal requirements, including 40 CFR 241, 40 CFR 243, and 40 CFR 258.

3.8.2.3. SOLID WASTE DISPOSAL REPORT: Submit a monthly solid waste disposal report to the Contracting Officer or Contracting Officer Representative. For each waste, the report will state the classification (using the definitions provided in this section), amount, location, and name of the business receiving the solid waste. Provide copies of the waste handling facilities' weight tickets.

3.8.3. CONSTRUCTION AND DEMOLITION DEBRIS REPORTING FORM: Submit a monthly report to the Contracting Officer or Contracting Officer Representative detailing the amount

and disposition of construction and demolition debris. A form for this report will be provided by the Government.

3.9. PETROLEUM, OIL, LUBRICANT (POL) STORAGE AND FUELING: POL products include flammable or combustible liquids, such as gasoline, diesel, lubricating oil, used engine oil, hydraulic oil, and mineral oil. Describe in the EPP how POL tanks and containers must be stored, managed, and inspected and what protections must be provided.

3.9.1. Store POL products, fuel equipment and motor vehicles in a manner that affords the maximum protection against spills into the environment. Manage and store POL products in accordance with 40 CFR 112, and other federal, state, regional, and local laws and regulations. Use secondary containments, dikes, curbs, and other barriers, to prevent POL products from spilling and entering the ground, storm or sewer drains, stormwater ditches or canals, or navigable waters of the United States.

3.9.2. USED OIL MANAGEMENT: Manage used oil generated on site in accordance with 40 CFR 279. Determine if any used oil generated while onsite exhibits a characteristic of hazardous waste. Used oil containing 1,000 parts per million of solvents is considered a hazardous waste and disposed of at the Contractor's expense. Used oil mixed with a hazardous waste is also considered a hazardous waste. Dispose in accordance with paragraph HAZARDOUS WASTE DISPOSAL.

3.9.3. OIL STORAGE INCLUDING FUEL TANKS: Provide secondary containment and overfill protection for oil storage tanks or utilize double-walled tanks with overfill protection. A berm used to provide secondary containment must be of sufficient size and strength to contain the contents of the tanks plus 5 inches freeboard for precipitation. Construct the berm to be impervious to oil for 72 hours that no discharge will permeate, drain, infiltrate, or otherwise escape before cleanup occurs. Monitor and remove any rainwater that accumulates in open containment dikes or berms. Inspect the accumulated rainwater prior to draining from a containment dike to the environment, to determine there is no oil sheen present. Provide a spill response kit with materials needed to respond to any minor spill or leak form the container or during product transfer. For the purposes of this section, a minor spill is defined as a spill not exceeding 5 gallons of product.

3.9.4. Use drip pans during oil transfer operations; adequate absorbent material must be onsite to clean up any spills and prevent releases to the environment. Cover drip pans during inclement weather.

3.10. RELEASES/SPILLS OF OIL AND HAZARDOUS SUBSTANCES:

3.10.1. RESPONSE AND NOTIFICATIONS: Exercise due diligence to prevent, contain, and respond to spills of hazardous material, hazardous substances, hazardous waste, sewage, regulated gas, petroleum, lubrication oil, and other substances regulated in accordance with 40 CFR 300. Maintain spill cleanup equipment and materials at the work site. In the event of a spill, take prompt, effective action to stop, contain, curtail, or otherwise limit the amount, duration, and severity of the spill/release.

3.10.2. In the event of any releases of oil and hazardous substances, chemicals, or gases; immediately (within 15 minutes) notify the Installation Fire Department and the Contracting Officer or Contracting Officer Representative. Submit verbal and written notifications as required by 40 CFR 300.125 and 40 CFR 355, state, local regulations and instructions. Provide copies of the written notification and documentation that a verbal notification was made within 20 days.

3.10.3. Spill response must be in accordance with 40 CFR 300 and applicable state and local regulations. Contain and clean up these spills without cost to the Government. Clean up hazardous and non-hazardous waste spills. Reimburse the Government for costs incurred including sample analysis materials, clothing, equipment, and labor if the Government will initiate its own spill cleanup procedures, for Contractor- responsible spills, when: Spill cleanup procedures have not begun within

one hour of spill discovery/occurrence; or, in the Government's judgment, spill cleanup is inadequate and the spill remains a threat to human health or the environment.

3.11. WATER QUALITY COMPLIANCE:

3.11.1. STORM WATER:

3.11.1.1. Do not discharge storm water from construction sites to the sanitary sewer. If the water is noted or suspected of being contaminated, it cannot be released to the storm drain system.

3.11.1.2. Under the terms and conditions of the Construction General Permit: install, inspect, maintain BMPs, prepare storm water erosion and sediment control inspection reports, and submit SWPPP inspection reports. Maintain construction operations in compliance with the terms and conditions of the general permit. Comply with terms of the EPA general permit for storm water discharges from construction activities. Submit Inspection Reports to the Contracting Officer or Contracting Officer Representative in accordance with the Permit.

3.11.1.2.1. Provide erosion and sediment control measures in accordance with state and local laws and regulations. Preserve vegetation to the maximum extent practicable. Erosion control inspection reports may be compiled as part of a storm water pollution prevention plan inspection reports. Prevent erosion by mulching, Compost Blankets, Geotextiles, or temporary slope drains. Stabilize slopes by sodding, seeding, or combination of these methods necessary for effective erosion control. Use of hay bales is prohibited.

3.11.1.2.2. Implement sediment control practices to divert flows from exposed soils, temporarily store flows, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Implement sediment control practices prior to soil disturbance and prior to creating areas with concentrated flow, during the construction process to minimize erosion and sediment laden runoff. Include the following devices: silt fence, temporary diversion dikes, and storm drain inlet protection.

3.11.1.2.3. Place field offices, staging areas, stockpile storage, and temporary buildings in areas designated on the drawings or as directed by the Contracting Officer. Move or relocate the Contractor facilities only when approved by the Government. Provide erosion and sediment controls for onsite borrow and spoil areas to prevent sediment from entering nearby waters. Control temporary excavation and embankments for plant or work areas to protect adjacent areas.

3.11.1.3. STORM WATER NOTICE OF TERMINATION FOR CONSTRUCTION ACTIVITIES: submit the Notice of Termination to the appropriate state or federal agency once construction is complete and final stabilization has been achieved on all portions of the site for which the permittee is responsible. Prepare as-built topographic survey information required by the permitting agency for certification of the stormwater management system. Submit the completed Notice of Termination to the Contracting Officer.

3.11.2. SURFACE AND GROUND WATER:

3.11.2.1. Construction operations for dewatering, removal of cofferdams, tailrace excavation, and tunnel closure must be constantly controlled to maintain compliance with existing state water quality standards and designated uses of the surface water body. Comply with the State of Ohio water quality standards and anti-degradation provisions and the Clean Water Act Section 404.

3.11.2.2. Do not discharge excavation ground water to the sanitary sewer, storm drains, or to surface waters. Discharge of hazardous substances will not be permitted under any circumstances. Use sediment control BMPs to prevent construction site runoff from directly entering any storm drain or surface waters.

3.11.2.3. If the construction dewatering is noted or suspected of being contaminated, it cannot be released to the storm drain system. Discharge of hazardous substances will not be permitted under any circumstances.

3.11.2.4. Do not enter, disturb, destroy, or allow discharge of contaminants into waters of the United States.

3.11.3. WASTE WATER:

3.11.3.1. Do not allow waste water from construction activities, such as onsite material processing, concrete curing, foundation and concrete clean-up, water used in concrete trucks, and forms to enter water ways. Dispose of the construction- related waste water off-Government property in accordance with 40 CFR 403, state, regional, and local laws and regulations.

3.11.4. SURFACE DISCHARGE: For discharge of ground water, obtain a state or federal permit specific for pumping and discharging ground water prior to surface discharging. Surface discharge in accordance with federal, state, and local laws and regulations.

3.11.5. LAND APPLICATION: Water generated from the flushing of lines after disinfection or disinfection in conjunction with hydrostatic testing must be land-applied in accordance with federal, state, and local laws and regulations for land application or discharged into the sanitary sewer with prior approval and notification to the Wastewater Treatment Plant's Operator.

3.12. STORAGE CONTAINERS: Any containers with a capacity of 55 Gallons or more must be clearly and properly labelled with the container contents, any hazards associated with the product. and all labels, placards, and markings required by Federal and State regulations.

3.13. POST CONSTRUCTION CLEANUP: Clean up areas used for construction in accordance with Contract Clause: "Cleaning Up". Unless otherwise instructed in writing by the Contracting Officer, remove traces of temporary construction facilities such as haul roads, work area, structures, foundations of temporary structures, stockpiles of excess or waste materials, and other vestiges of construction prior to final acceptance of the work. Grade parking area and similar temporarily used areas to conform to surrounding contours. Seed or sod areas where vegetation has been removed, cut, or trampled.

3.14. ENVIRONMENTAL RECORDS: Maintain environmental records on-site and submit at the completion of the project. Make separate parts that correspond to each submittal listed under paragraph CLOSEOUT SUBMITTALS in this section.

END OF SECTION 01 57 19

SECTION 01 74 19
CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1. GENERAL

1.1. RELATED DOCUMENTS

1.1.1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.1.2. Section 01 57 19 of this Specification: In case of conflicts between the requirements of Section 01 57 19 and this Section, the more restrictive requirements shall govern.

1.2. REFERENCES

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

1.2.1.1. U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

1.2.1.1.1. EPA SW-846 (Third Edition; Update IV) Test Methods for Evaluating Solid Waste: Physical/Chemical Methods

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

1.2.1.2.1. 40 CFR 241 Guidelines for Disposal of Solid Waste

1.2.1.2.2. 40 CFR 243 Guidelines for the Storage and Collection of Residential, Commercial, and Institutional Solid Waste

1.2.1.2.3. 40 CFR 258 Subtitle D Landfill Requirements

1.2.1.2.4. 40 CFR 273 Standards for Universal Waste Management

1.2.1.2.5. 40 CFR 273.2 Standards for Universal Waste Management – Batteries

1.2.1.2.6. 40 CFR 273.3 Standards for Universal Waste Management – Pesticides

1.2.1.2.7. 40 CFR 273.4 Standards for Universal Waste Management - Mercury Containing Equipment

1.2.1.2.8. 49 CFR 173 Shippers - General Requirements for Shipments and Packagings

1.2.1.2.9. 49 CFR 178 Specifications for Packagings

1.2.1.3. UNITED STATES AIR FORCE

1.2.1.3.1. AFMAN 32-7002 Environmental Compliance and

1.3. DEFINITIONS

1.3.1. Co-mingle -The practice of placing unrelated materials together in a single container, usually for benefits of convenience and speed.

1.3.2. Construction Waste - Waste generated by construction activities, such as scrap materials, damaged or spoiled materials, temporary and expendable construction materials, and other waste generated by the workforce during construction activities.

1.3.3. Demolition Debris/Waste - Waste generated from demolition activities, including minor incidental demolition waste materials generated as a result of Intentional dismantling of all or portions of a building, to include clearing of building contents that have been destroyed or damaged.

1.3.4. Diversion - The practice of diverting waste from disposal in a landfill, by means of eliminating or minimizing waste, or recycling/reuse of materials.

1.3.5. Final Construction Waste Diversion Report - A written assertion by a material recovery facility operator identifying constituent materials diverted from disposal, usually including summary tabulations of materials, weight in short-ton.

1.3.6. Landfill - Depositing waste in a solid waste disposal facility, usually a managed landfill, regulated in the US under the Resource Conservation and Recovery Act (RCRA).

1.3.7. Recycling - The series of activities, including collection, separation, and processing, by which products or other materials are diverted from the solid waste stream for use in the form of raw materials in the manufacture of new products sold or distributed in commerce, or the reuse of such materials as substitutes for goods made of virgin materials, other than fuel.

1.3.8. Reuse - The use of a product or materials again for the same purpose, in its original form or with little enhancement or change.

1.3.9. Salvage - Usable, salable items derived from buildings undergoing demolition or deconstruction, parts from vehicles, machinery, other equipment, or other components.

1.3.10. Source Separation - The practice of administering and implementing a management strategy to identify and segregate unrelated waste at the first opportunity.

1.4. SUBMITTALS: Government approval is required for submittals with a **(G)** designation. Submittals **not marked** are for Contractor quality control and for recordkeeping in the Environmental Management Office (CEV). Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

1.4.1. PRECONSTRUCTION SUBMITTALS

1.4.1.1. Construction Waste Management Plan In accordance with the Environmental Protection Plan. Refer to Section 01 57 19, (G)

1.4.2. PERIODIC SUMBITTALS: Submitted during construction at frequency specified

1.4.2.1. Construction and Demolition Debris Reporting Form, Quarterly

1.5. CONSTRUCTION WASTE MANAGEMENT: Implement a construction waste management program for the project. Take a pro-active, responsible role in the management of construction waste, recycling process, disposal of demolition debris/waste, and require all subcontractors, vendors, and suppliers to participate in the construction waste management program. Establish a process for clear tracking, and documentation of construction waste and demolition debris/waste.

1.5.1. Construction waste and demolition debris/waste materials include un-used construction materials not incorporated in the final work, as well as demolition debris/waste materials from demolition activities or deconstruction activities. In the management of waste, consider the availability of viable markets, the condition of materials, the ability to provide material in suitable condition and in a quantity acceptable to available markets, and time constraints imposed by internal project completion mandates.

1.5.2. Develop and document how the construction waste management program will be implemented in a Construction Waste Management Plan as part of the Environmental Protection Plan (see SECTION 01 57 19 TEMPORARY ENVIRONMENTAL CONTROLS). The Construction Waste Management Plan will be approved by the Contracting Officer in accordance with Section 01 57 19 TEMPORARY ENVIRONMENTAL CONTROLS. include the following in the plan:

1.5.3. Identify solid waste diversion goals for the project. At least 60% by weight of the project construction waste and demolition debris/waste shall be diverted from landfills.

1.5.4. Identify the names of individuals responsible for waste management and waste management tracking, along with roles and responsibilities on the project.

1.5.5. Delineate waste streams and characterization, including estimated material types and quantities of waste, in the plan. Manage all waste streams associated with the project. Typical waste streams are listed below. Include additional waste steams not listed:

1.5.5.1. Land Clearing Debris

1.5.5.2. Asphalt

1.5.5.3. Masonry and CMU Concrete

1.5.5.4. Metals (e.g., banding, stud trim, ductwork, piping, rebar, roofing, other trim, steel, iron, galvanized, stainless steel, aluminum, copper, zinc, bronze, etc.)

1.5.5.5. Wood (nails and staples allowed)

1.5.5.6. Glass

1.5.5.7. Paper

1.5.5.8. Plastics (PET, HDPE, PVC, LDPE, PP, PS, Other)

1.5.5.9. Gypsum

1.5.5.10. Non-hazardous paint and paint cans

1.5.5.11. Carpet

1.5.5.12. Ceiling Tiles

1.5.5.13. Insulation

1.5.5.14. Beverage Containers

1.5.6. List actions that will be taken to reduce solid waste generation, including coordination with subcontractors to ensure awareness and participation.

1.5.7. List each supplier who will deliver construction materials, in bulk, or package products in returnable containers or returnable packaging, or have take-back programs. List each program and the applicable material to actively monitor and track to assist in meeting waste diversion requirements on the project.

1.5.8. List of specific materials, by type and quantity that will be salvaged for resale, salvaged and reused on the current project, salvaged and stored for reuse on a future project, or recycled.

1.5.9. Identify the recycling facilities by name, address, and phone number and a description of the means of transportation of the recyclable materials. Ensure firms and facilities used for recycling, reuse, and disposal are permitted for the intended use to the extent required by federal, state, and local regulations. Facilities or subcontractors offering construction waste transport on-site or off-site must ensure that proper shipping orders, bill of lading, manifests, or other shipping documents containing waste diversion information meet requirements of 40 CFR 273 Universal Waste Management, 49 CFR 173 Shippers - General Requirements for Shipments and Packagings, and 49 CFR 178 Specifications for Packaging. Individuals signing manifests or other shipping documents should meet the minimum training requirements.

1.5.10. QUALIFIED RECYCLING PROGRAM (QRP): In accordance with Air Force Manual 32-7002: “Environmental Compliance and Pollution Prevention”, Paragraph 6.6.3.5, the Contractor shall participate in the installation’s Qualified Recycling Program.

1.5.10.1. Segregate the following materials generated during construction or demolition: ferrous and non-ferrous scrap metal, and scrap copper including cable and wire. Place items in separate containers apart from normal construction and demolition debris. Label containers to prevent non-QRP materials from being disposed of in the containers. Ensure security of the containers to prevent theft. Arrange for transport, or deliver QRP materials to a licensed recycler.

1.5.10.2. Obtain weight tickets, sales price, and sale amount for Environmental Management Office records.

1.5.10.3. The following forms of payment from the recycler are acceptable: Bank Drafts, Cashier’s Checks and Certified Checks. Payment should be to the order of:

U.S. Treasury
Attn: 179th Environmental
1947 Harrington Memorial Rd.

Mansfield, Ohio 44903

1.5.11. Identification of local and regional re-use programs, including non-profit organizations such as schools, local housing agencies, and organization that accept used materials such as material exchange networks and resale stores. Include the name, location, phone number for each re-use facility identified, and provide a copy of the permit or license for each facility.

1.5.12. Description of the specific approaches to be used in recycling/reuse of the various materials generated, including the areas on site and equipment to be used for processing, sorting, and temporary storage of materials. Provide information on the means by which any solid waste materials, whether for disposal or recycling will be protected from contamination and whether materials will be site-separated and self- hauled to designated centers, or whether mixed materials will be collected by a waste hauler and removed from the site

1.5.13. Identification of materials that cannot be recycled or reused with an explanation or justification, to be approved by the Contracting Officer.

1.5.14. Provide the name of the landfill to be used and identify any local jurisdiction requirements for waste management. Include those requirements, points of contact, etc.

1.5.15. Copy of training plan for subcontractors and other services to prevent contamination by co-mingling materials identified for diversion and waste materials.

1.5.16. Description of the regular meetings to be held to address waste management.

1.5.17. An approved construction waste management plan will not relieve the Contractor of responsibility for compliance with applicable environmental regulations or meeting project cumulative waste diversion requirement.

1.5.18. Ensure all subcontractors, and the Quality Control Manager, Environmental POC, and the Contracting Officer receive a copy of the approved Construction Waste Management Plan. The plan demonstrates how to meet the project waste diversion requirement.

1.6. MEETINGS: Conduct Construction Waste Management meetings. After award of the Contract and prior to commencement of work, schedule and conduct a meeting with the Contracting Officer or Contracting Officer Representative to discuss the proposed Construction Waste Management Plan (in conjunction with the Environmental Protection Plan) and to develop a mutual understanding relative to the management of the construction waste management program and how waste diversion requirements will be met. At a minimum, discuss and document waste management goals at the Preconstruction Meeting, Regular Quality Control meetings. And the Work Safety Meeting (if applicable).

1.7. OVERSIGHT: The Environmental POC, as specified in Section 01 57 19 TEMPORARY ENVIRONMENTAL CONTROLS, is responsible for overseeing and documenting results from executing the Construction Waste Management Plan for the project.

1.8. RECORDS (DOCUMENTATION): Maintain records to document the types and quantities of waste generated and diverted though re-use, recycling and/or sale to third parties; or through disposal to a landfill or incinerator facility. Report monthly utilizing the Construction Demolition and Debris Reporting Form provided by the Government (See Section 01 57 19 TEMPORARY ENVIRONMENTAL CONTROLS) Provide explanations for any materials not recycled, reused or sold. Collect and retain manifests, weight tickets, sales receipts, and

invoices specifically identifying diverted project waste materials or disposed materials.

1.9. FINAL CONSTRUCTION WASTE DIVERSION REPORT: A Final Construction Waste Diversion Report is required at the end of the project. Provide Final Construction Waste Diversion Report 60 days prior to the Beneficial Occupancy Date (BOD). The final Construction Waste Diversion Report must be included in the Sustainability eNotebook in accordance with Section 01 33 29 SUSTAINABILITY REPORTING.

PART 2. PART 2 PRODUCTS (NOT USED)

PART 3. PART 3 EXECUTION

3.1. Execute demolition or deconstruction activities in accordance with Section 02 41 00 DEMOLITION. Manage demolition debris/waste or deconstruction materials in accordance with the approved construction waste management plan.

3.2. CONSTRUCTION WASTE (INCLUDES DEMOLITION DEBRIS/WASTE) Divert a minimum of 60 percent by weight of the project construction waste and demolition debris/waste from landfills. Follow applicable industry standards in the management of waste. Apply sound environmental principles in the management of waste. (1) Practice efficient waste management when sizing, cutting, and installing products and materials and (2) use all reasonable means to divert construction waste and demolition debris/waste from landfills and incinerators and to facilitate the recycling or reuse of excess construction materials.

3.2.1. Provide on-site instruction of appropriate separation, handling, recycling, salvage, reuse, and return methods to be used by all parties at the appropriate stages of the projects. Train subcontractors and other service providers to either separate waste streams or use the co- mingling method as described in the Construction Waste Management Plan.

3.3. COLLECTION: Collect, store, protect, and handle reusable and recyclable materials at the site in a manner which prevents contamination, and provides protection from the elements to preserve their usefulness and monetary value. Provide receptacles and storage areas designated specifically for recyclable and reusable materials and label them clearly and appropriately to prevent contamination from other waste materials. Keep receptacles or storage areas neat and clean.

3.3.1. Separate materials by one of the following methods described herein:

3.3.1.1. SOURCE SEPARATION METHOD: Separate waste products and materials that are recyclable from trash and sort as described below into appropriately marked separate containers and then transport to the respective recycling facility for further processing. Deliver materials in accordance with recycling or reuse facility requirements (e.g., free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process). Separate materials into the category types as defined in the Construction Waste Management Plan.

3.3.1.2. CO-MINGLED METHOD: Place waste products and recyclable materials into a single container and then transport to an authorized recycling facility, which meets all applicable requirements to accept and dispose of recyclable materials in accordance with all applicable local, state and federal regulations. The Co-mingled materials must be sorted and processed in accordance with the approved Construction Waste management Plan.

3.4. DISPOSAL: Control accumulation of waste materials and trash. Recycle or dispose of

collected materials off-site at intervals approved by the Contracting Officer and in compliance with waste management procedures as described in the waste management plan. Except as otherwise specified in other sections of the specifications, dispose of waste in the priority listed:

3.4.1. REUSE: Give first consideration to reusing construction and demolition materials as a disposition strategy. Recover for reuse materials, products, and components as described in the approved Construction Waste Management Plan. Coordinate with the Contracting Officer or Contracting Officer Representative to identify onsite reuse opportunities or material sales or donation available through Government resale or donation programs. Sale of recovered materials is not allowed on the Installation.

3.4.2. RECYCLE: Recycle non-hazardous construction and demolition/debris materials that are not suitable for reuse. Track rejection of contaminated recyclable materials by the recycling facility. Rejected recyclables materials will not be counted as a percentage of diversion calculation. Recycle all fluorescent lamps, HID lamps, mercury (Hg) -containing thermostats and ampoules, and PCBs-containing ballasts and electrical components as directed by the Contracting Officer. Do not crush lamps on site as this creates a hazardous waste stream with additional handling requirements.

3.4.2.1. QUALIFIED RECYCLING PROGRAM (QRP): In accordance with Air Force Manual 32-7002: “Environmental Compliance and Pollution Prevention”, Paragraph 6.6.3.5, the Contractor shall participate in the installation’s Qualified Recycling Program.

3.4.2.1.1. Segregate the following materials generated during construction or demolition: ferrous and non-ferrous scrap metal, and scrap copper including cable and wire. Place items in separate containers apart from normal construction and demolition debris. Label containers to prevent non-QRP materials from being disposed of in the containers. Ensure security of the containers to prevent theft. Arrange for transport, or deliver QRP materials to a licensed recycler.

3.4.2.1.2. Obtain weight tickets, sales price, and sale amount for Environmental Management Office records.

3.4.2.1.3. The following forms of payment from the recycler are acceptable: Bank Drafts, Cashier’s Checks and Certified Checks. Payment should be to the order of:

U.S. Treasury
Attn: 179th Environmental
1947 Harrington Memorial Rd.
Mansfield, Ohio 44903

3.4.3. COMPOST: Richland County, Ohio manages a composting facility South of the installation. Composting on the installation is not allowed. Compostable materials include plant materials and sawdust. Composting as a strategy must be explicitly addressed in the Construction Waste Management Plan to ensure it is feasible.

3.4.4. LANDFILL: Dispose by landfill only those waste materials with no practical use, economic benefit, or recycling opportunity.

3.5. HAZARDOUS MATERIALS/HAZARDOUS WASTE: Handle hazardous materials and hazardous waste in accordance with applicable regulations and coordinate with Section 01 57 19 TEMPORARY ENVIRONMENTAL CONTROLS.

END OF SECTION 01 74 19

SECTION 01 60 00
PRODUCT REQUIREMENTS

PART 1. GENERAL

1.1. SUBMITTALS FOR THIS SECTION: NONE

1.2. COMMON PRODUCT REQUIREMENTS

1.2.1. Owner-Furnished Products: The following items are furnished by the Government and installed by the Contractor:

1.2.1.1. None

1.2.2. The following items are furnished and installed by Government:

1.2.2.1. None.

1.3. PRODUCT OPTIONS

1.3.1. Product Approval Standards

1.3.1.1. Definitions:

1.3.1.1.1. The term "product" shall include material, equipment, assembly methods, manufacturer, brand, trade name, or other description.

1.3.1.2. Proof of Compliance:

1.3.1.2.1. Whenever the Contract Documents require a product be in accordance with federal specification, ASTM designation, ANSI specification, or other association standard, the Contractor shall present an affidavit from the manufacturer certifying the product complies therewith. Where requested or specified, submit supporting test data to substantiate compliance.

1.3.1.3. Inclusion in Specifications of Non-specified Products Prior to Bid Date:

1.3.1.3.1. For inclusion of products other than those specified, Bidders shall submit a request in writing at least (7) days prior to bid date. Requests received after this time will not be reviewed or considered regardless of cause. Requests shall clearly define and describe the product for which inclusion is requested. Inclusion by the Contracting Officer's Representative will be in the form of an addendum to the Specifications issued to all contract bidders on record.

1.4. PRODUCT DELIVERY REQUIREMENTS

1.4.1. Product Delivery Requirements

1.4.1.1. Materials, products, and equipment shall be properly containerized, packaged, boxed, and protected to prevent damage during transportation and delivery.

1.4.1.2. More detailed requirements for transportation and delivery are specified under the technical sections.

1.5. PRODUCT STORAGE AND HANDLING REQUIREMENTS

1.5.1. Provide suitable temporary weather tight storage facilities as may be required for materials that will be damaged by storage in the open.

1.5.2. Available storage space at the job site is limited to the site shown on the Drawings. Allocate such space for storage purposes. Any additional off-site space required is the responsibility of the Contractor.

1.5.3. Allocate the available storage areas and coordinate their use by the trades on the job. Maintain a current layout of all storage facilities.

1.5.4. Store and protect materials delivered at the site from damage. Do not use damaged material on the work.

1.5.5. Do not store or place materials in passageways, stairs, or other means of egress.

1.5.6. Where existing equipment and/or fixtures are indicated to be reused, repair such equipment and/or fixtures and refinish to put in perfect working order. Refinish as directed.

PART 2. PRODUCTS (NOT USED)

PART 3. EXECUTION (NOT USED)

END OF SECTION 01 60 00

SECTION 01 70 00
EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1. GENERAL

1.1. SUBMITTALS REQUIRED FOR THIS SECTION

1.1.1. Government approval is required for submittals with a "G" or "S" classification. Submittals not having a "G" or “S” classification are for information only. Submit the following in accordance with Section 01 33 00 SUPPLEMENTAL SUBMITTAL PROCEDURES

1.1.1.1. SD-11 Closeout Submittals

1.1.1.1.1. Operations and Maintenance Data

1.1.1.1.2. Warranties

1.1.1.1.3. Project Record Documents

1.1.1.1.4. Real Property Cost Information

1.2. EXAMINATION AND PREPARATION

1.2.1. Acceptance of Conditions

1.2.1.1. The contractor shall not exceed the scope of work without prior approval from the Contracting Officer.

1.2.1.2. The Contracting Officer or his Representative will in no case assume the responsibility for any layout of the work or damages to existing underground utilities while performance of work is underway.

1.2.2. Protection of Adjacent Construction

1.2.2.1. The contractor shall protect all government property from damage. Any damages incurred in pursuance of this project shall be replaced and/or restored to original condition.

1.3. FIELD ENGINEERING

1.3.1. Construction Layout

1.3.1.1. The Contractor is responsible for properly laying out the work, and for lines and measurements for the work executed under the Contract Documents.

1.3.2. Construction Survey

1.3.2.1. The Contractor, NOT the Government, is responsible to field verify all existing underground utilities within the excavation limits and/or as shown on the Drawings and the conditions of the work site, before laying out the work. The Contractor is to report errors or inaccuracies in writing to the Contracting Officer's Representative before commencing work.

1.4. CLEANING AND WASTE MANAGEMENT

1.4.1. Progress Cleaning

1.4.1.1. The premises and job site shall be maintained in a reasonably neat and orderly condition, kept free from accumulations of waste materials and rubbish during entire construction period. Remove crates, cartons, other flammable waste materials, and trash from these areas as the work progresses, upon completion of each trades work, or at the end of each working day.

1.4.1.2. All trash, waste, and construction debris generated from this project shall become property of the contractor and shall be removed from the base. The disposal of these materials shall follow the appropriate Federal and State laws. This includes the disposal or recycling of hazardous materials

1.5. SITE MAINTENANCE

1.5.1. Care shall be taken by workmen not to mark, soil, or otherwise deface adjacent existing surfaces and/or new finished surfaces. In the event that existing surfaces and/or new finished surfaces become defaced, clean the surfaces from dirt, grease, loose paint, and so on, and restore surfaces to their original or finished condition.

1.6. FINAL CLEANING

1.6.1. Upon completion of the work, remove temporary buildings and structures, fences, scaffolding, surplus materials, and rubbish of every kind from the site of the work.

1.7. STARTING AND ADJUSTING

1.7.1. Checkout Procedures

1.7.1.1. Specific requirements and procedures for starting systems; testing, adjusting, and balancing; and demonstration of systems should be included in the division where the system is specified.

1.8. CLOSEOUT PROCEDURES

1.8.1. Final Closeout Review

1.8.1.1. Although any item found to be faulty may be rejected before it is used, final acceptance of an item by the Government is based on its satisfactory incorporation into the work and acceptance of the completed project.

1.9. CLOSEOUT SUBMITTALS

1.9.1. **[SD-11]** Operation and Maintenance Data: Prior to final payment in accordance with provisions of the General Conditions and before issuance of final certificate for payment, file the following papers with the Contracting Officer's Representative.

1.9.1.1. Operation and Maintenance Manuals:

1.9.1.1.1. Furnish (2) complete sets of manuals containing manufacturer's instructions for maintenance and operation of each item of equipment and apparatus furnished under the Contract and any additional data specifically required under various sections of the Specifications.

1.9.1.1.2. Arrange manuals in proper order, indexed and suitably bound.

1.9.1.1.3. Certify by endorsement thereon, each manual, as complete and accurate.

1.9.1.1.4. Assemble these manuals for all divisions of work, review for completeness, and submit them to the Contracting Officer's Representative.

1.9.1.1.5. Provide suitable transfer cases and deliver manuals therein, indexed and marked, for each division of work.

1.9.2. **[SD-11]** Warranties: Prior to final payment in accordance with provisions of the General Conditions and before issuance of final certificate for payment, file the following papers with the Contracting Officer's Representative.

1.9.2.1. Warranties: Required warranty and any other extended warranties stated in the technical sections of the Specifications.

1.9.2.2. Release or Waiver of Liens: As required.

1.9.3. **[SD-11]** Project Record Documents: Prior to final payment in accordance with provisions of the General Conditions and before issuance of final certificate for payment, file the following papers with the Contracting Officer’s Representative.

1.9.3.1. Project Record Documents:

1.9.3.1.1. As the work progresses keep a complete and accurate record of changes or deviations from the Contract Documents and shop drawings, indicating work as actually installed.

1.9.3.1.2. Changes shall be neatly and correctly shown on the respective portion of the affected document, using prints of the Drawings affected, or the Specifications, with appropriate supplementary notes.

1.9.3.1.2.1. This record set Drawings, shop drawings, and Specifications shall be kept at the job site for inspection by the Contracting Officer’s Representative.

1.9.3.1.2.2. These records shall be arranged in order, in accordance with the various sections of the Specifications, and properly indexed.

1.9.3.1.2.3. At the completion of work, certify by endorsement thereof, each revised print of the Drawings and Specifications as complete and accurate.

1.9.3.1.2.4. Prior to application for final payment, and as a condition to its approval by the Contracting Officer’s Representative, deliver record Drawings and Specifications, arranged in proper order, indexed, and endorsed as hereinbefore specified.

1.9.3.1.2.5. Provide suitable transfer cases and deliver the records therein, indexed and marked for each division of the work.

1.9.3.1.2.6. No review or receipt of such records by the Contracting Officer’s Representative shall be a waiver of any deviation from the Contract Documents or shop drawings or in any way relieve the Contractor from his responsibility to perform work in accordance with the Contract Documents and shop drawings to the extent they are in accordance with the Contract Documents.

1.9.4. **[SD-11]** Real Property Cost Information:

1.9.4.1. Submit information on costs of various components of the project to be used to complete ANG Real Property documents.

1.9.4.2. The format for the information will be provided by the Contracting Officer.

1.10. EXTRA STOCK MATERIALS

1.10.1. Any residual materials furnished by the Government or by the Contractor shall be returned into the Base Civil Engineer upon contract completion, except hazardous materials and hazardous waste. These items must be disposed of by the Contractor.

PART 2. PRODUCTS (NOT USED)

PART 3. EXECUTION (NOT USED)

END OF SECTION 01 70 00

SECTION 01 74 19
CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1. GENERAL

1.1. RELATED DOCUMENTS

1.1.1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.1.2. Section 01 57 19 of this Specification (if added): In case of conflicts between the requirements of Section 01 57 19 and this Section, the more restrictive requirements shall govern.

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

1.2.1. U.S. Environmental Protection Agency (EPA)

1.2.1.1. EPA SW-846 (Third Edition; Update IV) Test Methods for Evaluating Solid Waste: Physical/Chemical Methods

1.2.2. U.S. National Archives and Records Administration (NARA)

1.2.2.1. 40 CFR 241 Guidelines for Disposal of Solid Waste

1.2.2.2. 40 CFR 243 Guidelines for the Storage and Collection of Residential, Commercial, and Institutional Solid Waste

1.2.2.3. 40 CFR 258 Subtitle D Landfill Requirements

1.2.2.4. 40 CFR 273 Standards for Universal Waste Management

1.2.2.5. 40 CFR 273.2 Standards for Universal Waste Management – Batteries

1.2.2.6. 40 CFR 273.3 Standards for Universal Waste Management – Pesticides

1.2.2.7. 40 CFR 273.4 Standards for Universal Waste Management - Mercury Containing Equipment

1.2.2.8. 49 CFR 173 Shippers - General Requirements for Shipments and Packagings

1.2.2.9. 49 CFR 178 Specifications for Packagings

1.2.3. United States Air Force (USAF)

1.2.3.1. AFMAN 32-7002 Environmental Compliance and Pollution Prevention

1.3. DEFINITIONS:

1.3.1. Co-mingle -The practice of placing unrelated materials together in a single container, usually for benefits of convenience and speed.

1.3.2. Construction Waste - Waste generated by construction activities, such as scrap materials, damaged or spoiled materials, temporary and expendable construction materials, and other waste generated by the workforce during construction activities.

1.3.3. Demolition Debris/Waste - Waste generated from demolition activities, including minor incidental demolition waste materials generated as a result of Intentional dismantling of all or portions of a building, to include clearing of building contents that have been destroyed or damaged.

1.3.4. Diversion - The practice of diverting waste from disposal in a landfill, by means of eliminating or minimizing waste, or recycling/reuse of materials.

1.3.5. Final Construction Waste Diversion Report - A written assertion by a material recovery facility operator identifying constituent materials diverted from disposal, usually including summary tabulations of materials, weight in short-ton.

1.3.6. Landfill - Depositing waste in a solid waste disposal facility, usually a managed landfill, regulated in the US under the Resource Conservation and Recovery Act (RCRA).

1.3.7. Recycling - The series of activities, including collection, separation, and processing, by which products or other materials are diverted from the solid waste stream for use in the form of raw materials in the manufacture of new products sold or distributed in commerce, or the reuse of such materials as substitutes for goods made of virgin materials, other than fuel.

1.3.8. Reuse - The use of a product or materials again for the same purpose, in its original form or with little enhancement or change.

1.3.9. Salvage - Usable, salable items derived from buildings undergoing demolition or deconstruction, parts from vehicles, machinery, other equipment, or other components.

1.3.10. Source Separation - The practice of administering and implementing a management strategy to identify and segregate unrelated waste at the first opportunity.

1.4. SUBMITTALS FOR THIS SECTION: Government approval is required for submittals with a "G" or "S" classification. Submittals not having a "G" or “S” classification are for information only. Submit the following in accordance with Section 01 33 00 SUPPLEMENTAL SUBMITTAL PROCEDURES:

1.4.1. SD-01 Pre-Construction Submittals

1.4.1.1. Construction Waste Management Plan (In accordance with the Environmental Protection Plan)

1.4.2. SD-11 Closeout Submittals

1.4.2.1. Quarterly Construction and Demolition Debris Reporting Form

1.5. CONSTRUCTION WASTE MANAGEMENT:

1.5.1. Implement a construction waste management program for the project. Take a pro-active, responsible role in the management of construction waste, recycling process, disposal of demolition debris/waste, and require all subcontractors, vendors, and suppliers to participate in the construction waste management program. Establish a process for clear tracking, and documentation of construction waste and demolition debris/waste.

1.5.2. Construction waste and demolition debris/waste materials include un-used construction materials not incorporated in the final work, as well as demolition debris/waste materials from demolition activities or deconstruction activities. In the management of waste, consider the availability of viable markets, the condition of materials, the ability to provide material in suitable condition and in a quantity acceptable to available markets, and time constraints imposed by internal project completion mandates.

1.5.3. **[SD-01]** Develop and document how the construction waste management program will be implemented in a Construction Waste Management Plan. The Construction Waste Management Plan will be approved by the Contracting Officer. include the following in the plan:

1.5.3.1. Identify solid waste diversion goals for the project. At least 60% by weight of the project construction waste and demolition debris/waste shall be diverted from landfills.

1.5.3.2. Identify the names of individuals responsible for waste management and waste management tracking, along with roles and responsibilities on the project.

1.5.3.3. Delineate waste streams and characterization, including estimated material types and quantities of waste, in the plan. Manage all waste streams associated with the project. Typical waste streams are listed below. Include additional waste steams not listed:

1.5.3.3.1. Land Clearing Debris

1.5.3.3.2. Asphalt

1.5.3.3.3. Masonry and CMU Concrete

1.5.3.3.4. Metals (e.g., banding, stud trim, ductwork, piping, rebar, roofing, other trim, steel, iron, galvanized, stainless steel, aluminum, copper, zinc, bronze, etc.)

1.5.3.3.5. Wood (nails and staples allowed)

1.5.3.3.6. Glass

1.5.3.3.7. Paper

1.5.3.3.8. Plastics (PET, HDPE, PVC, LDPE, PP, PS, Other)

1.5.3.3.9. Gypsum

1.5.3.3.10. Non-hazardous paint and paint cans

1.5.3.3.11. Carpet

1.5.3.3.12. Ceiling Tiles

1.5.3.3.13. Insulation

1.5.3.3.14. Beverage Containers

1.5.3.4. List actions that will be taken to reduce solid waste generation, including coordination with subcontractors to ensure awareness and participation.

1.5.3.5. List each supplier who will deliver construction materials, in bulk, or package products in returnable containers or returnable packaging, or have take-back programs. List each program and the applicable material to actively monitor and track to assist in meeting waste diversion requirements on the project.

1.5.3.6. List of specific materials, by type and quantity that will be salvaged for resale, salvaged and reused on the current project, salvaged and stored for reuse on a future project, or recycled.

1.5.3.7. Identify the recycling facilities by name, address, and phone number and a description of the means of transportation of the recyclable materials. Ensure firms and

facilities used for recycling, reuse, and disposal are permitted for the intended use to the extent required by federal, state, and local regulations. Facilities or subcontractors offering construction waste transport on-site or off-site must ensure that proper shipping orders, bill of lading, manifests, or other shipping documents containing waste diversion information meet requirements of 40 CFR 273 Universal Waste Management, 49 CFR 173 Shippers - General Requirements for Shipments and Packaging's, and 49 CFR 178 Specifications for Packaging. Individuals signing manifests or other shipping documents should meet the minimum training requirements.

1.5.3.8. Identify local and regional re-use programs, including non-profit organizations such as schools, local housing agencies, and organizations that accept used materials such as material exchange networks and resale stores. Include the name, location, phone number for each re-use facility identified, and provide a copy of the permit or license for each facility.

1.5.3.9. Describe the specific approaches to be used in recycling/reuse of the various materials generated, including the areas on site and equipment to be used for processing, sorting, and temporary storage of materials. Provide information on how any solid waste materials, whether for disposal or recycling will be protected from contamination and whether materials will be site-separated and self- hauled to designated centers, or whether mixed materials will be collected by a waste hauler and removed from the site

1.5.3.10. Identify materials that cannot be recycled or reused with an explanation or justification, to be approved by the Contracting Officer.

1.5.3.11. Provide the name of the landfill to be used and identify any local jurisdiction requirements for waste management. Include those requirements, points of contact, etc.

1.5.3.12. Provide a copy of the training plan for subcontractors and other services to prevent contamination by co-mingling materials identified for diversion and waste materials.

1.5.3.13. Provide a description of the regular meetings to be held to address waste management.

1.5.3.14. An approved construction waste management plan will not relieve the Contractor of responsibility for compliance with applicable environmental regulations or meeting project cumulative waste diversion requirement.

1.5.4. Ensure all subcontractors, and the Quality Control Manager, Environmental POC, and the Contracting Officer receive a copy of the approved Construction Waste Management Plan. The plan demonstrates how to meet the project waste diversion requirement.

1.6. MEETINGS:

1.6.1. Conduct Construction Waste Management meetings. After award of the Contract and prior to commencement of work, schedule and conduct a meeting with the Contracting Officer or Contracting Officer Representative to discuss the proposed Construction Waste Management Plan (in conjunction with the Environmental Protection Plan – if required) and to develop a mutual understanding relative to the management of the construction waste management program and how waste diversion requirements will be met. At a minimum, discuss and document waste management goals at the Preconstruction Meeting, Regular Quality Control meetings. And the Work Safety Meeting (if applicable).

1.7. OVERSIGHT:

1.7.1. The Project Manager, is responsible for overseeing and documenting results from executing the Construction Waste Management Plan for the project.

1.8. RECORDS (DOCUMENTATION):

1.8.1. Maintain records to document the types and quantities of waste generated and diverted though re-use, recycling and/or sale to third parties; or through disposal to a landfill or incinerator facility.

1.8.2. **[SD-11]** Report quarterly utilizing the Construction Demolition and Debris Reporting Form provided by the Government.

1.8.3. Provide explanations for any materials not recycled, reused or sold.

1.8.4. Collect and retain manifests, weight tickets, sales receipts, and invoices specifically identifying diverted project waste materials or disposed materials.

PART 2. PRODUCTS (NOT USED)

PART 3. PART 3 - EXECUTION

3.1. Execute demolition or deconstruction activities in accordance with Section 02 41 00 DEMOLITION. Manage demolition debris/waste or deconstruction materials in accordance with the approved construction waste management plan.

3.2. CONSTRUCTION WASTE (INCLUDES DEMOLITION DEBRIS/WASTE)

3.2.1. Divert a minimum of 60 percent by weight of the project construction waste and demolition debris/waste from landfills. Follow applicable industry standards in the management of waste. Apply sound environmental principles in the management of waste. (1) Practice efficient waste management when sizing, cutting, and installing products and materials and (2) use all reasonable means to divert construction waste and demolition debris/waste from landfills and incinerators and to facilitate the recycling or reuse of excess construction materials.

3.2.2. Provide on-site instruction of appropriate separation, handling, recycling, salvage, reuse, and return methods to be used by all parties at the appropriate stages of the projects. Train subcontractors and other service providers to either separate waste streams or use the co-mingling method as described in the Construction Waste Management Plan.

3.3. COLLECTION:

3.3.1. Collect, store, protect, and handle reusable and recyclable materials at the site in a manner which prevents contamination, and provides protection from the elements to preserve their usefulness and monetary value.

3.3.2. Provide receptacles and storage areas designated specifically for recyclable and reusable materials and label them clearly and appropriately to prevent contamination from other waste materials. Keep receptacles or storage areas neat and clean.

3.3.3. Separate materials by one of the following methods described herein:

3.3.3.1. SOURCE SEPARATION METHOD: Separate waste products and materials that are recyclable from trash and sort as described below into appropriately marked separate containers and then transport to the respective recycling facility for further processing. Deliver materials in accordance with recycling or reuse facility requirements (e.g., free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process). Separate materials into the category types as defined in the Construction Waste Management Plan.

3.3.3.2. CO-MINGLED METHOD: Place waste products and recyclable materials into a single container and then transport to an authorized recycling facility, which meets all applicable requirements to accept and dispose of recyclable materials in accordance with all applicable local, state and federal regulations. The Co-mingled materials must be sorted and processed in accordance with the approved Construction Waste management Plan.

3.4. DISPOSAL:

3.4.1. Control accumulation of waste materials and trash. Recycle or dispose of collected materials off-site at intervals approved by the Contracting Officer and in compliance with waste management procedures as described in the waste management plan. Except as otherwise specified in other sections of the specifications, dispose of in accordance with the following:

3.4.1.1. REUSE: Give first consideration to reusing construction and demolition materials as a disposition strategy. Recover for reuse materials, products, and components as described in the approved Construction Waste Management Plan. Coordinate with the Contracting Officer or Contracting Officer Representative to identify onsite reuse opportunities or material sales or donation available through Government resale or donation programs. Sale of recovered materials is not allowed on the Installation.

3.4.1.2. RECYCLE: Recycle non-hazardous construction and demolition/debris materials that are not suitable for reuse. Track rejection of contaminated recyclable materials by the recycling facility. Rejected recyclables materials will not be counted as a percentage of diversion calculation. Recycle all fluorescent lamps, HID lamps, mercury (Hg) -containing thermostats and ampoules, and PCBs-containing ballasts and electrical components as directed by the Contracting Officer. Do not crush lamps on site as this creates a hazardous waste stream with additional handling requirements.

3.4.1.2.1. Qualified Recycling Program (QRP): In accordance with Air Force Manual 32-7002: “Environmental Compliance and Pollution Prevention”, Paragraph 6.6.3.5, the Contractor shall participate in the installation’s Qualified Recycling Program.

3.4.1.2.1.1. Segregate the following materials generated during construction or demolition: ferrous and non-ferrous scrap metal, and scrap copper including cable and wire. Place items in separate containers apart from normal construction and demolition debris. Label containers to prevent non-QRP materials from being disposed of in the containers. Ensure security of the containers to prevent theft. Arrange for transport, or deliver QRP materials to a licensed recycler.

3.4.1.2.1.2. Obtain weight tickets, sales price, and sale amount for Environmental Management Office records.

3.4.1.2.1.3. The following forms of payment from the recycler are acceptable: Bank Drafts, Cashier’s Checks and Certified Checks. Payment should be to the order of:

U.S. Treasury
Attn: 179th Environmental
1947 Harrington Memorial Rd.
Mansfield, Ohio 44903

3.4.1.3. COMPOST: Richland County, Ohio manages a composting facility South of the installation. Composting on the installation is not allowed. Compostable materials include plant materials and sawdust. Composting as a strategy must be explicitly addressed in the Construction Waste Management Plan to ensure it is feasible.

3.4.1.4. LANDFILL: Dispose by landfill only those waste materials with no practical use, economic benefit, or recycling opportunity.

3.5. HAZARDOUS MATERIALS/HAZARDOUS WASTE: Handle hazardous materials and hazardous waste in accordance with applicable regulations and coordinate with the Base Environmental Management Office.

END OF SECTION 01 74 19

SECTION 02 41 00

DEMOLITION
08/22

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.

AIR-CONDITIONING, HEATING AND REFRIGERATION INSTITUTE (AHRI)

AHRI Guideline K (2009) Guideline for Containers for Recovered Non-Flammable Fluorocarbon Refrigerants

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)

AASHTO M 145 (1991; R 2012) Standard Specification for Classification of Soils and Soil-Aggregate Mixtures for Highway Construction Purposes

AASHTO T 180 (2017) Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop

AMERICAN SOCIETY OF SAFETY PROFESSIONALS (ASSP)

ASSP A10.6 (2006) Safety & Health Program Requirements for Demolition Operations - American National Standard for Construction and Demolition Operations

ASTM INTERNATIONAL (ASTM)

ASTM D2487 (2017; E 2020) Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)

U.S. ARMY CORPS OF ENGINEERS (USACE)

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

U.S. DEFENSE LOGISTICS AGENCY (DLA)

DLA 4145.25 (Jun 2000; Reaffirmed Oct 2010) Storage and Handling of Liquefied and Gaseous Compressed Gases and Their Full and Empty Cylinders; https://www.dla.mil/Portals/104/Documents/DispositionS/ddsr/docs/cylinderjointpub.pdf

U.S. DEPARTMENT OF DEFENSE (DOD)

DOD 4000.25-1-M (2006) MILSTRIP - Military Standard Requisitioning and Issue Procedures

MIL-STD-129 (2014; Rev R; Change 1 2018; Change 2 2019; Change 3 2023) Military Marking for Shipment and Storage

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

40 CFR 61	National Emission Standards for Hazardous Air Pollutants
40 CFR 82	Protection of Stratospheric Ozone
49 CFR 173.301	Shipment of Compressed Gases in Cylinders and Spherical Pressure Vessels

1.2 PROJECT DESCRIPTION

1.2.1 Definitions

1.2.1.1 Demolition

Demolition is the process of tearing apart and removing any feature of a facility together with any related handling and disposal operations.

1.2.1.2 Deconstruction

Deconstruction is the process of taking apart a facility with the primary goal of preserving the value of all useful building materials.

1.2.1.3 Demolition Plan

Demolition Plan is the planned steps and processes for managing demolition activities and identifying the required sequencing activities and disposal mechanisms.

1.2.1.4 Deconstruction Plan

Deconstruction Plan is the planned steps and processes for dismantling all or portions of a structure or assembly, to include managing sequencing activities, storage, re-installation activities, salvage and disposal mechanisms.

1.2.2 Demolition/Deconstruction Plan

Prepare a Demolition Plan and submit proposed demolition, and removal procedures for approval before work is started. Include in the plan procedures for careful removal and disposition of materials specified to be salvaged, coordination with other work in progress, a disconnection schedule of utility services a detailed description of methods and equipment to be used for each operation and of the sequence of operations. Coordinate with Waste Management Plan in accordance with Section 01 74 19 CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL. Provide procedures for safe conduct of the work in accordance with EM 385-1-1. Plan must be approved by Contracting Officer prior to work beginning.

1.2.3 General Requirements

Do not begin demolition or deconstruction until authorization is received from the Contracting Officer. Remove rubbish and debris from the project site; do not allow accumulations around the building. Remove rubbish and debris from Government property daily, unless otherwise directed. Store materials that cannot be removed daily in areas specified by the Contracting Officer. In the interest of occupational safety and health, perform the work in accordance with EM 385-1-1, Section 17, Demolition, and other applicable Sections.

1.3 ITEMS TO REMAIN IN PLACE

Comply with FAR 52.236-9 to protect existing vegetation, structures, equipment, utilities, and improvements. Coordinate the work of this section with all other work indicated. Construct and maintain shoring, bracing, and supports as required. Ensure that structural elements are not overloaded. Increase structural supports or add new supports as may be required as a result of any cutting, removal, deconstruction, or demolition work performed under this contract. Provide new supports and reinforcement for existing construction weakened by demolition, deconstruction, or removal work. Repairs, reinforcement, or structural replacement require approval by the Contracting Officer prior to performing such work.

1.3.1 Existing Construction Limits and Protection

Do not disturb existing construction beyond the extent indicated or necessary for installation of new construction. Provide temporary shoring and bracing for support of building components to prevent settlement or other movement. Provide protective measures to control accumulation and migration of dust and dirt in all work areas.

1.3.2 Weather Protection

For portions of the building to remain, protect building interior and materials and equipment from the weather at all times. Where removal of existing roofing is necessary to accomplish work, have materials and workmen ready to provide adequate and temporary covering of exposed areas.

1.3.3 [Enter Appropriate Subpart Title Here]

1.3.4 Utility Service

Maintain existing utilities indicated to stay in service and protect against damage during demolition and deconstruction operations. Prior to start of work, utilities serving each area of alteration or removal will be shut off and disconnected and sealed by the Contractor The Contractor will seal utilities serving each area of alteration or removal..

1.3.5 Facilities

Protect electrical and mechanical services and utilities. Where removal of existing utilities and pavement is specified or indicated, provide approved barricades, temporary covering of exposed areas, and temporary services or connections for electrical and mechanical utilities. Floors, roofs, walls, columns, pilasters, and other structural components that are designed and constructed to stand without lateral support or shoring, and are determined to be in stable condition, must remain standing without additional bracing, shoring, or lateral support until demolished or deconstructed, unless directed otherwise by the Contracting Officer. Ensure that no elements determined to be unstable are left unsupported and place and secure bracing, shoring, or lateral supports as may be required as a result of any cutting, removal, deconstruction, or demolition work performed under this contract.

1.4 BURNING

The use of burning at the project site for the disposal of refuse and debris will not be permitted

1.5 AVAILABILITY OF WORK AREAS

Areas in which the work is to be accomplished will be available at contract award.

1.6 SUBMITTALS

Government approval is required for submittals with a "G" or "S" classification. Submittals not having a "G" or "S" classification are for Contractor Quality Control approval. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Demolition Plan; G

Existing Conditions

SD-07 Certificates

Notification; G

SD-11 Closeout Submittals

Receipts

1.7 QUALITY ASSURANCE

Submit timely notification of demolition projects to Federal, State, regional, and local authorities in accordance with 40 CFR 61, Subpart M. Notify the Contracting Officer in writing 10 working days prior to the commencement of work in accordance with 40 CFR 61, Subpart M. Comply with federal, state, and local hauling and disposal regulations. In addition to the requirements of the "Contract Clauses," conform to the safety requirements contained in ASSP A10.6. Comply with the Environmental Protection Agency requirements specified. Use of explosiveswill not be permitted.

1.7.1 Dust and Debris Control

Prevent the spread of dust and debris and avoid the creation of a nuisance or hazard in the surrounding area. Do not use water if it results in hazardous or objectionable conditions such as, but not limited to, ice, flooding, or pollution.

1.8 PROTECTION

1.8.1 [Enter Appropriate Subpart Title Here]

1.8.2 [Enter Appropriate Subpart Title Here]

1.9 FOREIGN OBJECT DAMAGE (FOD)

Aircraft and aircraft engines are subject to FOD from debris and waste material lying on airfield pavements. Remove all such materials that may appear on operational aircraft pavements due to the Contractor's operations. If necessary, the Contracting Officer may require the Contractor to install a temporary barricade at the Contractor's expense to control the spread of FOD potential debris. Provide a barricade consisting of a fence covered with a fabric designed to stop the spread of debris. Anchor the fence and fabric to prevent displacement by winds or jet/prop blasts. Remove barricade when no longer required.

1.10 RELOCATIONS

Perform the removal and reinstallation of relocated items as indicated with workmen skilled in the trades involved. Repair or replace items to be relocated which are damaged by the Contractor with new undamaged items as approved by the Contracting Officer.

1.11 EXISTING CONDITIONS

Before beginning any demolition or deconstruction work, survey the site and examine the drawings and specifications to determine the extent of the work. Record existing conditions in the presence of the Contracting Officer or the Contracting Officer's Representative showing the condition of structures and other facilities adjacent to areas of alteration or removal. Photographs or electronic images with a minimum resolution of 3072 x 2304 pixels, capable of a print resolution of 300 dpi, will be acceptable as a record of existing conditions. Include in the record the elevation of the top of foundation walls, finish floor elevations, possible conflicting electrical conduits, plumbing lines, alarms systems, the location and extent of existing cracks and other damage and description of surface conditions that exist prior to starting work. It is the Contractor's responsibility to verify and document all required outages which will be required during the course of work, and to note these outages on the record document. Submit survey results to the Contracting Officer or the Contracting Officer's Representative.

PART 2 PRODUCTS

2.1 FILL MATERIAL

a. Comply with excavating, backfilling, and compacting procedures for soils used as backfill material to fill basements, voids, depressions or excavations resulting from demolition or deconstruction of structures.

b. Provide fill material conforming to the definition of satisfactory soil material as defined in ASTM D2487 AASHTO M 145, Soil Classification Groups A-1, A-2-4, A-2-5 and A-3. In addition, fill material must be free from roots and other organic matter, trash, debris, frozen materials, and stones larger than 2 inches in any dimension.

c. Proposed fill material must be sampled and tested by an approved soil testing laboratory, as follows:

Soil classification	AASHTO M 145
Moisture-density relations	AASHTO T 180, Method B or D

PART 3 EXECUTION

3.1 EXISTING FACILITIES TO BE REMOVED

Inspect and evaluate existing structures onsite for reuse. Disassemble existing construction scheduled to be removed for reuse. Dismantled and removed materials are to be separated, set aside, and prepared as specified, and stored or delivered to a collection point for reuse, remanufacture, recycling, or other disposal, as specified. Designate materials for reuse onsite whenever possible.

3.1.1 Structures

a. Remove existing structures indicated to be removed to feet below grade. Remove interior walls, other than retaining walls and partitions, to feet below grade or to top of concrete slab on ground. Break up basement slabs to permit drainage. Remove sidewalks, curbs, gutters and street light bases as indicated.

b. Demolish structures in a systematic manner from the top of the structure to the ground. Complete demolition work above each tier or floor before the supporting members on the lower level are disturbed. Demolish concrete and masonry walls in small sections. Remove structural framing members

and lower to ground by means of derricks, platforms hoists, or other suitable methods as approved by the Contracting Officer.

c. Locate demolition and deconstruction equipment throughout the structure and remove materials so as to not impose excessive loads to supporting walls, floors, or framing.

d. Building, or the remaining portions thereof, not exceeding 80 feet in height may be demolished by the mechanical method of demolition.

3.1.2 Utilities and Related Equipment

3.1.2.1 General Requirements

Do not interrupt existing utilities serving occupied or used facilities, except when authorized in writing by the Contracting Officer. Do not interrupt existing utilities serving facilities occupied and used by the Government except when approved in writing and then only after temporary utility services have been approved and provided. Do not begin demolition or deconstruction work until all utility disconnections have been made. Shut off and cap utilities for future use, as indicated.

3.1.2.2 Disconnecting Existing Utilities

Remove existing utilities , as indicated and terminate in a manner conforming to the nationally recognized code covering the specific utility and approved by the Contracting Officer. When utility lines are encountered but are not indicated on the drawings, notify the Contracting Officer prior to further work in that area. Remove meters and related equipment and deliver to a location on the station in accordance with instructions of the Contracting Officer.

3.1.3 Chain Link Fencing

Remove chain link fencing, gates and other related salvaged items scheduled for removal and transport to designated areas. Remove gates as whole units. Cut chain link fabric to 25 foot lengths and store in rolls off the ground.

3.1.4 Paving and Slabs

Remove concrete and asphaltic concrete paving and slabs as indicated to a depth of 24 inches below new finish grade. Move, grind and store pavement and slabs designated to be recycled and utilized in this project as directed by the Contracting Officer. Remove pavement and slabs not to be used in this project from the project site at Contractor's expense. With the exception of the battery pit.

3.1.5 [Enter Appropriate Subpart Title Here]

3.1.6 [Enter Appropriate Subpart Title Here]

3.1.7 Air Conditioning Equipment

Recover all refrigerants prior to removing air conditioning, refrigeration, and other equipment containing refrigerants and dispose of in accordance with the paragraph entitled "Disposal of Ozone Depleting Substance (ODS)."

3.1.8 [Enter Appropriate Subpart Title Here]

3.1.9 Locksets on Swinging Doors

Remove all locksets from all swinging doors indicated to be removed and disposed of. Deliver the locksets and related items to a designated location for receipt by the Contracting Officer after removal.

3.1.10 [Enter Appropriate Subpart Title Here]

3.1.10.1 [Enter Appropriate Subpart Title Here]

3.1.10.2 [Enter Appropriate Subpart Title Here]

3.1.10.3 [Enter Appropriate Subpart Title Here]

3.1.10.4

3.1.11 Electrical Equipment and Fixtures

Salvage motors, motor controllers, and operating and control equipment that are attached to the driven equipment. Salvage wiring systems and components. Box loose items and tag for identification. Disconnect primary, secondary, control, communication, and signal circuits at the point of attachment to their distribution system (1000 kVA Transformer and feed).

3.1.11.1 [Enter Appropriate Subpart Title Here]
3.1.11.2 [Enter Appropriate Subpart Title Here]
3.1.11.3 [Enter Appropriate Subpart Title Here]
3.1.11.4 [Enter Appropriate Subpart Title Here]

3.1.12 [Enter Appropriate Subpart Title Here]

3.2 CONCURRENT EARTH-MOVING OPERATIONS

Do not begin excavation, filling, and other earth-moving operations that are sequential to demolition or deconstruction work in areas occupied by structures to be demolished or deconstructed until all demolition and deconstruction in the area has been completed and debris removed. Fill holes, open basements and other hazardous openings.

3.3 DISPOSITION OF MATERIAL

3.3.1 Title to Materials

Except for salvaged items specified in related Sections, and for materials or equipment scheduled for salvage, all materials and equipment removed and not reused or salvaged, become the property of the Contractor and must be removed from Government property. Materials approved for storage by the Contracting Officer must be removed before completion of the contract. Title to materials resulting from demolition and deconstruction, and materials and equipment to be removed, is vested in the Contractor upon approval by the Contracting Officer. The Government will not be responsible for the condition or loss of, or damage to, such property after contract award. Showing for sale or selling materials and equipment on site is prohibited.

3.3.2 [Enter Appropriate Subpart Title Here]
3.3.3 [Enter Appropriate Subpart Title Here]a.

3.3.4 Disposal of Ozone Depleting Substance (ODS)

Class I and Class II ODS are defined in Section, 602(a) and (b), of The Clean Air Act. Prevent discharge of Class I and Class II ODS to the atmosphere. Place recovered ODS in cylinders meeting AHRI Guideline K suitable for the type ODS (filled to no more than 80 percent capacity) and provide appropriate labeling. Recovered ODS must be Turn over recovered ODS to the Contracting Officer. Dispose products, equipment and appliances containing ODS in a sealed, self-contained system (e.g. residential refrigerators and window air conditioners) in accordance with 40 CFR 82. Submit Receipts or bills of lading, as specified. Submit a shipping receipt or bill of lading for all containers of ozone depleting substance (ODS) shipped to the Defense Depot, Richmond, Virginia.

3.3.4.1 Special Instructions

No more than one type of ODS is permitted in each container. Apply a warning/hazardous label to the containers in accordance with Department of Transportation regulations. Provide a tag with the following information on all cylinders including but not limited to fire extinguishers, spheres, or canisters containing an ODS:

a. Activity name and unit identification code

b. Activity point of contact and phone number

c. Type of ODS and pounds of ODS contained

d. Date of shipment

e. National stock number (for information, call (804) 279-4525).

3.3.4.2 Fire Suppression Containers

Deactivate fire suppression system cylinders and canisters with electrical charges or initiators prior to shipment. Also, safety caps must be used to cover exposed actuation mechanisms and discharge ports on these special cylinders.

3.3.5 Transportation Guidance

Ship all ODS containers in accordance with MIL-STD-129, DLA 4145.25 (also referenced one of the following: Army Regulation 700-68, Naval Supply Instruction 4440.128C, Marine Corps Order 10330.2C, and Air Force Regulation 67-12), 49 CFR 173.301, and DOD 4000.25-1-M. 3.3.6 [Enter Appropriate Subpart Title Here]

3.4 CLEANUP

Remove debris and rubbish from project site and similar excavations. Remove and transport the debris in a manner that prevents spillage on streets or adjacent areas. Apply local regulations regarding hauling and disposal.

3.5 DISPOSAL OF REMOVED MATERIALS

3.5.1 Regulation of Removed Materials

Dispose of debris, rubbish, scrap, and other nonsalvageable materials resulting from removal operations with all applicable federal, state and local regulations as contractually specified .

3.5.2 [Enter Appropriate Subpart Title Here]

3.5.3 [Enter Appropriate Subpart Title Here]

3.5.4 Removal from Government Property

Transport waste materials removed from demolished and deconstructed structures, except waste soil, from Government property for legal disposal. Dispose of waste soil as directed.

3.6 [Enter Appropriate Subpart Title Here]

-- End of Section --

SECTION 02 81 00

TRANSPORTATION AND DISPOSAL OF HAZARDOUS MATERIALS
11/18

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.

INTERNATIONAL AIR TRANSPORT ASSOCIATION (IATA)

IATA DGR (2018) Dangerous Goods Regulations

U.S. DEPARTMENT OF TRANSPORTATION (DOT)

DOT 4500.9R Defense Transportation Regulation, Part 2, Cargo Movement, Chapter 204, Hazardous Material

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

40 CFR 61 National Emission Standards for Hazardous Air Pollutants

40 CFR 261 Identification and Listing of Hazardous Waste

40 CFR 262 Standards Applicable to Generators of Hazardous Waste

40 CFR 263 Standards Applicable to Transporters of Hazardous Waste

40 CFR 264 Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities

40 CFR 265 Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities

40 CFR 266 Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities

40 CFR 268 Land Disposal Restrictions

40 CFR 270 EPA Administered Permit Programs: The Hazardous Waste Permit Program

40 CFR 279 Standards for the Management of Used Oil

40 CFR 300

National Oil and Hazardous Substances Pollution Contingency Plan	
40 CFR 302	Designation, Reportable Quantities, and Notification
40 CFR 761	Polychlorinated Biphenyls (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions
49 CFR 107	Hazardous Materials Program Procedures
49 CFR 172	Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements
49 CFR 173	Shippers - General Requirements for Shipments and Packagings
49 CFR 178	Specifications for Packagings

1.2 DEFINITIONS

1.2.1 Hazardous Material

A substance or material which has been determined by the Secretary of Transportation to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce, and which has been so designated pursuant to the Hazardous Materials Transportation Act, 49 U.S.C. Appendix Section 1801 et seq. The term includes materials designated as hazardous materials under the provisions of 49 CFR 172, Sections .101 and .102 and materials which meet the defining criteria for hazard classes and divisions in 49 CFR 173. EPA designated hazardous wastes are also hazardous materials.

1.2.2 Hazardous Waste

A waste which meets criteria established in RCRA or specified by the EPA in 40 CFR 261 or which has been designated as hazardous by a RCRA authorized state program.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" or "S" classification. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-03 Product Data

Packaging Notifications

Hazardous Waste Management Plan; G

Onsite Hazardous Waste Management; G

Notices of Non-Compliance and Notices of Violation

SD-06 Test Reports

Recordkeeping; G

Exception Report; G

Spill Response

SD-07 Certificates Transportation and Disposal

Coordinator; G

Training; G

Certification Shipping Documents and Packagings

Certification; G

Security Plan

Certificates of Disposal

Waste Minimization

1.4 QUALITY ASSURANCE

1.4.1 Transportation and Disposal Coordinator

Designate, by position and title, one person to act as the Transportation and Disposal Coordinator (TDC) for this contract. The TDC must serve as the single point of contact for all environmental regulatory matters and have overall responsibility for total environmental compliance at the site including, but not limited to, accurate identification and classification of hazardous waste and hazardous materials; determination of proper shipping names; identification of marking, labeling, packaging and placarding requirements; completion of waste profiles, hazardous waste manifests, asbestos waste shipment records, PCB manifests, bill of ladings, exception and discrepancy reports; and all other environmental documentation. The TDC must have, at a minimum, one year of specialized experience in the management and transportation of hazardous waste and have been Department of Transportation certified under 49 CFR 172, Subpart H.

1.4.2 Training

Hazardous materials employees must be trained, tested, and certified to safely and effectively carry out their assigned duties in accordance with Section 01 35 29.13 HEALTH, SAFETY, AND EMERGENCY RESPONSE PROCEDURES FOR CONTAMINATED SITES . Employees transporting hazardous materials or preparing hazardous materials for transportation, including samples, must be trained, tested, and certified in accordance with 49 CFR 172, Subpart H, including security awareness and any applicable security plans.
Hazardous material employees must also be trained in accordance with IATA DGR when shipping hazardous materials by air. Employees must be trained, tested, and certified in accordance with 49 CFR 172, Subpart H to determine that shipments do not constitute DOT regulated hazardous materials.

1.4.3 Certification

The hazardous materials transporter must possess a current certificate of registration issued by the Research and Special Programs Administration (RSPA), U.S. Department of Transportation, when required by 49 CFR 107, Subpart G. Submit copies

of the certificates or written statements certifying exemption from these requirements.

1.4.4 Laws and Regulations Requirements

Comply with Federal, state, and local laws and regulations which are applicable. These requirements are amended frequently and compliance with amendments is required as they become effective. Notify the Contracting Officer immediately if compliance exceeds the scope of work or conflicts with specific requirements of the contract.

PART 2 PRODUCTS

2.1 MATERIALS

Provide all the materials required for the packaging, labeling, marking, placarding and transportation of hazardous wastes and hazardous materials in conformance with Department of Transportation standards. Details in this specification must not be construed as establishing the limits of the Contractor's responsibility.

2.1.1 Packagings

Provide containers for packaging hazardous materials/wastes consistent with the authorizations referenced in the Hazardous Materials Table in 49 CFR 172, Section.101, Column 8. Bulk and non-bulk packaging must meet the corresponding specifications in 49 CFR 173 referenced in the Hazardous Materials Table, 49 CFR 172, Section .101. Packaging must conform to the general packaging requirements of Subpart B of 49 CFR 173, to the requirements of 49 CFR 178 at the specified packing group performance level, to the requirements of special provisions of column 7 of the Hazardous Materials Table in 49 CFR 172, Section .101, and be compatible with the material to be packaged as required by 40 CFR 262. Also provide other packaging related materials such as materials used to cushion or fill voids in overpacked containers. The hazardous materials being packaged must not react dangerously with, decompose or ignite the sorbent packaging materials. Additionally, sorbents used to treat free liquids to be disposed of in landfills must be non-biodegradable as specified in 40 CFR 264, Section .314. In addition, packaging notifications will be provided to the Government in accordance with 49 CFR 172, Section .178.2(c) regarding type and dimensions of closures, including gaskets, needed to satisfy performance test requirements.

2.1.2 Markings

Provide markings for each hazardous material/waste package, freight container, and transport vehicle consistent with the requirements of 49 CFR 172, Subpart D and 40 CFR 61, Section.149(d) (for asbestos). Markings must withstanda 180 day exposure to conditions reasonably expected to be encountered during container storage and transportation, without deterioration or substantial color change.

2.1.3 Labeling

Provide primary and subsidiary labels for hazardous materials/wastes consistent with the requirements in the Hazardous Materials Table in 49 CFR 172, Section .101, Column 6. Labels must meet design specifications required by 49 CFR 172, Subpart E including size, shape, color, printing, and symbol requirements. Labels must be durable weather resistant and withstanding a 180 day exposure to

conditions reasonably expected to be encountered during container storage and transportation, without deterioration or substantial color change.

2.1.4 Placards

For each offsite shipment of hazardous material/waste, provide primary and subsidiary placards consistent with the requirements of 49 CFR 172, Subpart F. Provide placards for each side and each end of bulk packaging, freight containers, transport vehicles, and rail cars requiring such placarding. Placards may be plastic, metal, or other material capable of withstanding, without deterioration, a 30 day exposure to open weather conditions and must meet design requirements specified in 49 CFR 172, Subpart F.

2.1.5 Spill Response Materials

Provide spill response materials including, but not limited to, containers, adsorbent, shovels, and personal protective equipment. Spill response materials must be available at all times when hazardous materials/wastes are being handled or transported. Spill response materials must be compatible with the type of material being handled.

2.2 EQUIPMENT AND TOOLS

Provide miscellaneous equipment and tools necessary to handle hazardous materials and hazardous wastes in a safe and environmentally sound manner.

PART 3 EXECUTION

3.1 HAZARDOUS WASTE MANAGEMENT PLAN

Prepare a Hazardous Waste Management Plan detailing the manner in which hazardous wastes will be managed and describing the types and volumes of hazardous wastes anticipated to be managed. The plan must address both onsite and offsite hazardous waste management. Describe the methods to be used to ensure accurate piece counts or weights of shipments; describe waste minimization methods; identify and describe facilities to be used for treatment, storage, and disposal (TSD); identify areas onsite where hazardous wastes are to be handled; and identify whether transfer facilities are to be used; and if so, how the wastes will be tracked to ultimate disposal. Submit the plan to the Contracting Officer for approval prior to start of work. Submit written documentation of weekly hazardous waste inspections on a quarterly basis.

3.2 ONSITE HAZARDOUS WASTE MANAGEMENT

Coordinate the onsite management of all hazardous materials and waste with the installation environmental function and the Contracting Officer. These paragraphs apply to Government owned waste only. The Contractor is responsible for ensuring compliance with Federal, state, and local hazardous waste laws and regulations and verifying those requirements when preparing reports, waste shipment records, hazardous waste manifests, or other documents. Identify hazardous wastes using criteria set forth in 40 CFR 261 or applicable state and local laws, regulations, and ordinances. Comply with generator requirements in 40 CFR 262 and applicable state or local law or regulations when accumulating hazardous waste onsite. Onsite accumulation times must be restricted to applicable time frames referenced in 40 CFR 262, Section.34 and applicable state or local law or regulation. Accumulation start

dates commence when waste container is transferred into a 90 day accumulation site or permitted storage facility. Only use containers in good condition and compatible with the waste to be stored. Ensure containers are closed except when adding or removing waste, and immediately mark all hazardous waste containers with the words "hazardous waste" and other information required by 40 CFR 262, Section.32 and applicable state or local law or regulation as soon as the waste is containerized. An additional marking must be placed on containers of "unknowns" designating the date sampled, and the suspected hazard. Inspect containers for signs of deterioration and for responding to any spills or leaks. Inspect all hazardous waste areas weekly and provide written documentation of the inspection. Include date and time of inspection, name of individual conducting the inspection, problems noted, and corrective actions taken on the inspection logs.

3.2.1 Hazardous Waste Classification

Identify, in consultation with the Contracting Officer, all waste codes applicable to each hazardous waste stream based on requirements in 40 CFR 261 or applicable state or local law or regulation. Also identify applicable treatment standards in 40 CFR 268 and state land disposal restrictions and make a determination as to whether or not the waste meets or exceeds the standards. Submit waste profiles, analyses, classification and treatment standards information to Contracting Officer for review and approval.

3.3 OFFSITE HAZARDOUS WASTE MANAGEMENT

Coordinate the off site transfer of all hazardous materials and waste with the installation environmental function and the Contracting Officer. Use RCRA Subtitle C permitted facilities which meet the requirements of 40 CFR 264 or facilities operating under interim status which meet the requirements of 40 CFR 265. Do not use offsite treatment, storage, and disposal facilities with significant RCRA violations or compliance problems (such as facilities known to be releasing hazardous constituents into ground water, surface water, soil, or air). Submit Notices of Non-Compliance and Notices of Violation by a Federal, state, or local regulatory agency issued to the Contractor in relation to any work performed under this contract. Immediately provide copies of such notices to the Contracting Officer. Also furnish relevant documents regarding the incident and any information requested by the Contracting Officer, and coordinate its response to the notice with the Contracting Officer or the designated representative prior to submission to the notifying authority. Also furnish a copy to the Contracting Officer of all documents submitted to the regulatory authority, including the final reply to the notice, and all other materials, until the matter is resolved.

3.3.1 Treatment, Storage, and Disposal Facility and Transporter

Provide the Contracting Officer with EPA ID numbers, names, locations, and telephone numbers of TSD facilities and transporters. This information must be contained in the Hazardous Waste Management Plan and be approved by the Contracting Officer prior to waste disposal.

3.3.2 Facility Status Information

Facilities receiving hazardous waste must be permitted in accordance with 40 CFR 270 or operating under interim status in accordance with 40 CFR 265 requirements, or permitted by a state authorized by the Environmental Protection Agency to administer

the RCRA permit program. Additionally, prior to using a TSD Facility, contact the EPA Regional Offsite Coordinator specified in 40 CFR 300, Section .440, to determine the facility's status, and document all information necessary to satisfy the requirements of the EPA Offsite policy and submit this information to the Contracting Officer in the Hazardous Waste Management Plan.

3.3.3 Shipping Documents and Packagings Certification

Prior to shipment of any hazardous material offsite and a minimum of 14 days prior to anticipated pickup, provide for review written certification to the Contracting Officer that hazardous materials have been properly packaged, labeled, and marked in accordance with Department of Transportation and EPA requirements. Furnish designated disposal facility packaging assurances not later than 35 days after acceptance of the shipment. The Contractor's TDC must also provide written certification regarding waste minimization efforts documenting that efforts have been taken to reduce the volume and toxicity of waste to the degree economically practicable and that the method of treatment, storage, or disposal selected minimizes threats to human health and the environment.

3.3.4 Transportation

Prior to conducting hazardous materials activities, the Contractor responsible for pre-transportation activities must either certify to the Government that a Security Plan is in place which meets the requirements of 49 CFR 172, Subpart I or in the event that the types or amounts of hazardous materials are excluded from the security planning requirements, a written statement to that effect detailing the basis for the exception. Use manifests for transporting hazardous wastes as required by 40 CFR 263 or applicable state or local law or regulation. Transportation must comply with all requirements in the Department of Transportation referenced regulations in the 49 CFR series. Prepare hazardous waste manifests for each shipment of hazardous waste shipped offsite. Complete manifests using instructions in 40 CFR 262, Subpart B and applicable state or local law or regulation. Submit manifests and waste profiles to Contracting Officer for review and approval. Prepare land disposal restriction notifications as required by 40 CFR 268 or applicable state or local law or regulation for each shipment of hazardous waste. Submit notifications with the manifest to the Contracting Officer for review and approval. In accordance with DOT 4500.9R, inspect motor vehicles used to transport hazardous materials in accordance the 49 CFR and DOT safety regulations and complete DDForm 626, Motor Vehicle Inspection.

3.3.5 Treatment and Disposal of Hazardous Wastes

Coordinate any off site shipments of hazardous materials or hazardous wastes with the installation environmental function. Initial, or satellite hazardous waste accumulation is limited to 55 gallons (or 1 quart of acutely hazardous waste). Once a waste stream exceeds 55 gallons, it must be transferred to an on-site 90 day (180 day small quantity generator) accumulation area, or a permitted hazardous waste treatment, storage or disposal facility within three days. Ship hazardous wastes only to facilities which are properly permitted to accept the hazardous waste or operating under interim status. Ensure wastes are treated to meet land disposal treatment standards in 40 CFR 268 prior to land disposal. Propose TSD facilities via submission of the Hazardous
Waste Management Plan, subject to the approval of the Contracting

Officer. Submit Certificates of Disposal documenting the ultimate disposal, destruction or placement of hazardous wastes, and asbestos within 14 days of initial shipment. Receipt of these certificates will be required for final payment.

3.4 RADIOACTIVE MATERIALS MANAGEMENT

Consult with the Contracting Officer, to evaluate, prior to shipment of any material offsite, whether the material is regulated as a hazardous waste in addition to being regulated as a radioactive material. Perform the evaluation to determine proper shipping descriptions, marking requirements, and other criteria, as described below.

3.4.1 Identification of Proper Shipping Names

Use 49 CFR 172, Section .101 to identify proper shipping names for each hazardous material (including hazardous wastes) to be shipped offsite. Submit proper shipping names to the Contracting Officer in the form of draft shipping documents for review and approval.

3.4.2 Packaging, Labeling, and Marking

Package, label, and mark hazardous materials/wastes using the specified materials and in accordance with the referenced authorizations. Mark each container of hazardous waste of 110 gallons or less with the following:

"HAZARDOUS WASTE - Federal Law Prohibits Improper Disposal.
If found, contact the nearest police or public safety authority or the U.S. Environmental Protection Agency. Generator's name
_____ Manifest Document Number
_____".

3.4.3 Shipping Documents

Ensure that each shipment of hazardous material sent offsite is accompanied by properly completed shipping documents. This includes shipments of samples that may potentially meet the definition of a Department of Transportation regulated hazardous material.

3.4.3.1 PCB Waste Shipment Documents

Prepare hazardous waste manifests for each shipment of PCB waste shipped offsite. Complete manifests using instructions in 40 CFR 761, Sections .207 and .208 and other applicable requirements. Submit documents to Contracting Officer for review and approval.

3.4.3.2 Asbestos Waste Shipment Documents

Prepare waste shipment records, as required by 40 CFR 61, for shipments of asbestos. Submit waste shipment records to the Contracting Officer for review and approval. Waste shipment records must be signed by the Contractor.

3.4.3.3 Other Hazardous Material Shipment Documents

Prepare a bill of lading for each shipment of hazardous material which is not accompanied by a hazardous waste manifest or asbestos waste shipment record which fulfills the shipping paper requirements. The bill of lading must satisfy the

requirements of 49 CFR 172, Subpart C, and 40 CFR 279 if shipping used oil and applicable state or local law or regulation, and must be submitted to the Contracting Officer for review and approval. For laboratory samples and treatability study samples, prepare bills of lading and other documentation as necessary to satisfy conditions of the sample exclusions in 40 CFR 261, Section .4(d) and (e) and any applicable state or local law or regulation. Bill of ladings requiring shipper's certifications must be signed by the Contractor.

3.5 SPECIAL REQUIREMENTS FOR ASBESTOS WASTES

If work involves asbestos containing wastes, manage these wastes in accordance with specification Section 02 82 00 ASBESTOS REMEDIATION.

3.6 WASTE MINIMIZATION

Minimize the generation of hazardous waste to the maximum extent practicable and take all necessary precautions to avoid mixing clean and contaminated wastes. Identify and evaluate recycling and reclamation options as alternatives to land disposal. Requirements of 40 CFR 266 apply to: hazardous wastes recycled in a manner constituting disposal; hazardous waste burned for energy recovery; lead-acid battery recycling; and hazardous wastes with economically recoverable precious metals. Submit written certification that waste minimization efforts have been undertaken to reduce the volume and toxicity of waste to the degree economically practicable and that the method of treatment, storage, or disposal selected minimizes threats to human health and the environment.

3.7 RECORDKEEPING

Maintain adequate records to support information provided to the Contracting Officer regarding exception reports, annual reports, and biennial reports; maintain asbestos waste shipment records for a minimum of 3 years from the date of shipment or any longer period required by applicable law or regulation or other provision of this contract; and maintain bill of ladings for a minimum of 375 days from the date of shipment or longer period required by applicable law or regulation or other provision of this contract. Submit information necessary to file state annual or EPA biennial reports for hazardous waste transported, treated, stored, or disposed of under this contract. Do not forward these data directly to the regulatory agency but to the Contracting Officer at the specified time. Submit the information necessary for filing of the formal reports in the form and format required by the governing Federal or state regulatory agency. A cover letter must accompany the data to include the contract number, Contractor name, and project location. In the events that a manifest copy documenting receipt of hazardous waste at the treatment storage and disposal facility is not received within 35 days of shipment initiation, or that a manifest copy documenting receipt of PCB waste at the designated facility is not received within 35 days of shipment initiation, prepare and submit an exception report to the Contracting Officer within 37 days of shipment initiation.

3.8 SPILL RESPONSE

In the event of a spill or release of a hazardous substance (as designated in 40 CFR 302), or pollutant or contaminant, or oil (as governed by the Oil Pollution Act (OPA), 33 U.S.C. 2701 et seq.), notify the Contracting Officer immediately. Direction from the Contracting Officer concerning a spill or release is not considered a change under the contract. If the spill exceeds a reporting threshold,

follow the pre-established procedures for immediate reporting to the Contracting Officer. Comply with applicable requirements of Federal, state, or local laws or regulations regarding any spill incident.

3.9 EMERGENCY CONTACTS

Comply with the emergency contact provisions in 49 CFR 172, Section .604. Whenever the Contractor ships hazardous materials, provide a 24 hr emergency response contact and phone number of a person knowledgeable about the hazardous materials being shipped and who has comprehensive emergency response and incident mitigation information for that material, or has immediate access to a person who possesses such knowledge and information. Monitor the phone on a 24 hour basis at all times when the hazardous materials are in transportation, including during storage incidental to transportation. Ensure that information regarding this emergency contact and phone number are placed on all hazardous material shipping documents. Designate an emergency coordinator and post the following information at areas in which hazardous wastes are managed:

a. The name of the emergency coordinator.

b. Phone number through which the emergency coordinator can be contacted on a 24 hour basis.

c. The telephone number of the local fire department.

d. The location of fire extinguishers and spill control materials.

Attachment A SAMPLE OFF-SITE POLICY CERTIFICATION MEMO	
Project/Contract #:	
Waste Stream:	
Primary TSD Facility, EPA ID # and Location:	
Alter. TSD Facility, EPA ID # and Location:	
EPA Region	Contact
I	888-372-7341
II	212-673-4040
III	800-438-2474 or 215-814-5000
IV	800-241-1754 or 404-562-9900
V	312-353-2000
VI	800-887-6063 or 214-665-2210
VII	800-223-0425
VIII	800-424-8802
IX	415-947-8713
X	800-424-4372 or 206-553-4973
EPA representative contacted:	
EPA representative phone number:	
Date contacted:	
Comment:	
The above EPA representative was contacted on _____. As of that date the above sites were considered acceptable in accordance with the Off-Site Policy in 40 CFR 300.440.	
Date:	Signature:

Phone number:

-- End of Section --

SECTION 02 82 00

ASBESTOS REMEDIATION
11/18, CHG 1: 11/19

PART 1 GENERAL

1.1 REFERENCES

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

AMERICAN SOCIETY OF SAFETY PROFESSIONALS (ASSP)

ASSP Z9.2 (2018) Fundamentals Governing the Design and Operation of Local Exhaust Ventilation Systems

ASTM INTERNATIONAL (ASTM)

ASTM C732 (2017; R 2022 Standard Test Method for Aging Effects of Artificial Weathering on Latex Sealants

ASTM D522/D522M (2017) Mandrel Bend Test of Attached Organic Coatings

ASTM D2794 (1993; R 2019) Standard Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact)

ASTM D4397 (2016) Standard Specification for Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications

ASTM E84 (2023) Standard Test Method for Surface Burning Characteristics of Building Materials

ASTM E96/E96M (2024) Standard Test Methods for Gravimetric Determination of Water Vapor Transmission Rate of Materials

ASTM E119 (2024) Standard Test Methods for Fire Tests of Building Construction and Materials

ASTM E736/E736M (2019) Standard Test Method for Cohesion/Adhesion of Sprayed Fire-Resistive Materials Applied to Structural Members

ASTM E1368 (2014) Visual Inspection of Asbestos Abatement Projects

COMPRESSED GAS ASSOCIATION (CGA)

CGA G-7	(2014) Compressed Air for Human Respiration; 6th Edition

INTERNATIONAL SAFETY EQUIPMENT ASSOCIATION (ISEA)

ANSI/ISEA Z87.1	(2020) Occupational and Educational Personal Eye and Face Protection Devices NATIONAL

FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 701	(2023; ERTA 1 2023) Standard Methods of Fire Tests for Flame Propagation of Textiles and Films

NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH (NIOSH)

NIOSH NMAM	(2016; 5th Ed) NIOSH Manual of Analytical Methods

U.S. ARMY CORPS OF ENGINEERS (USACE)

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

ENVIRONMENTAL PROTECTION AGENCY (EPA)

EPA 340/1-90/018	(1990) Asbestos/NESHAP Regulated Asbestos Containing Materials Guidance

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

29 CFR 1910.147	The Control of Hazardous Energy (Lock Out/Tag Out)
29 CFR 1926.51	Sanitation
29 CFR 1926.59	Hazard Communication
29 CFR 1926.103	Respiratory Protection
29 CFR 1926.200	Accident Prevention Signs and Tags
29 CFR 1926.1101	Asbestos
40 CFR 61-SUBPART A	General Provisions
40 CFR 61-SUBPART M	National Emission Standard for Asbestos
40 CFR 763	Asbestos
42 CFR 84	Approval of Respiratory Protective Devices
49 CFR 107	Hazardous Materials Program Procedures
49 CFR 171	General Information, Regulations, and Definitions
49 CFR 172	Hazardous Materials Table, Special Provisions, Hazardous Materials

Communications, Emergency Response Information, and Training Requirements

49 CFR 173 Shippers - General Requirements for Shipments and Packagings

U.S. NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND (NAVFAC)

ND OPNAVINST 5100.23 (2005; Rev G) Navy Occupational Safety and Health (NAVOSH) Program Manual

UL SOLUTIONS (UL)

UL 586 (2009; Reprint Sep 2022) UL Standard for Safety High-Efficiency Particulate, Air Filter Units

1.2 DEFINITIONS

1.2.1 ACM

Asbestos Containing Materials.

1.2.2 Amended Water

Water containing a wetting agent or surfactant with a maximum surface tension of 0.00042 psi.

1.2.3 Area Sampling

Sampling of asbestos fiber concentrations which approximates the concentrations of asbestos in the theoretical breathing zone but is not actually collected in the breathing zone of an employee.

1.2.4 Asbestos

The term asbestos includes chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, and actinolite asbestos and any of these minerals that has been chemically treated or altered. Materials are considered to contain asbestos if the asbestos content of the material is determined to be at least one percent.

1.2.5 Asbestos Control Area

That area where asbestos removal operations are performed which is isolated by physical boundaries which assist in the prevention of the uncontrolled release of asbestos dust, fibers, or debris.

1.2.6 Asbestos Fibers

Those fibers having an aspect ratio of at least 3:1 and longer than 5 micrometers as determined by National Institute for Occupational Safety and Health (NIOSH) Method 7400.

1.2.7 Asbestos Permissible Exposure Limit

0.1 fibers per cubic centimeter of air as an 8-hour time weighted average measured in the breathing zone as defined by 29 CFR 1926.1101 or other Federal legislation having legal jurisdiction for the protection of workers health.

1.2.8 Authorized Person

Any person authorized by the Contractor and required by work duties to be present in the regulated areas.

1.2.9 Background

The ambient airborne asbestos concentration in an uncontaminated area as measured prior to any asbestos hazard abatement efforts. Background concentrations for other (contaminated) areas are measured in similar but asbestos free locations.

1.2.10 Competent Person (CP)

A person meeting the requirements for competent person as specified in 29 CFR 1926.1101 including a person capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure, who has the authority to take prompt corrective measures to eliminate them, and is specifically trained in a training course which meet the criteria of EPA's Model Accreditation Plan (40 CFR 763) for project designer or supervisor, or its equivalent. The competent person must have a current State of Ohio asbestos contractors or supervisors license.

1.2.11 Contractor

The Contractor is that individual, or entity under contract to perform the herein listed work.

1.2.12 Disposal Bag

A 6 mil thick, leak-tight plastic bag, pre-labeled in accordance with 29 CFR 1926.1101, used for transporting asbestos waste from containment to disposal site.

1.2.13 Disturbance

Activities that disrupt the matrix of ACM, crumble or pulverize ACM, or generate visible debris from ACM. Disturbance includes cutting away small amounts of ACM, no greater than the amount which can be contained in one standard sized glovebag or waste bag, not larger than 60 inches in length and width in order to access a building component.

1.2.14 Encapsulation

The abatement of an asbestos hazard through the appropriate use of chemical encapsulants.

1.2.15 Encapsulants

Specific materials in various forms used to chemically or physically entrap asbestos fibers in various configurations to prevent these fibers from becoming airborne. There are four types of encapsulants as follows which must comply with performance requirements as specified herein.

a. Removal Encapsulant (can be used as a wetting agent)

b. Bridging Encapsulant (used to provide a tough, durable surface coating to asbestos containing material)

c. Penetrating Encapsulant (used to penetrate the asbestos containing material encapsulating all asbestos fibers and preventing fiber release due to routine mechanical damage)

d. Lock-Down Encapsulant (used to seal off or "lock-down" minute asbestos fibers left on surfaces from which asbestos containing material has been removed).

1.2.16 Friable Asbestos Material

A term defined in 40 CFR 61-SUBPART M and EPA 340/1-90/018 meaning any material which contains more than 1 percent asbestos, as determined using the method specified in 40 CFR 763, Polarized Light Microscopy (PLM), that when dry, can be crumbled, pulverized, or reduced to powder by hand pressure.

1.2.17 Glovebag Technique

Those asbestos removal and control techniques put forth in 29 CFR 1926.1101.

1.2.18 Government Consultant (GC)

That qualified person employed directly by the Government to monitor, sample, inspect the work or in some other way advise the Contracting Officer. The GC is normally a private consultant, but can be an employee of the Government.

1.2.19 HEPA Filter Equipment

High efficiency particulate air (HEPA) filtered vacuum and exhaust ventilation equipment with a filter system capable of collecting and retaining asbestos fibers. Filters must retain 99.97 percent of particles 0.3 microns or larger as indicated in UL 586.

1.2.20 Model Accreditation Plan (MAP)

USEPA training accreditation requirements for persons who work with asbestos as specified in 40 CFR 763.

1.2.21 Negative Pressure Enclosure (NPE)

That engineering control technique described as a negative pressure enclosure in 29 CFR 1926.1101.

1.2.22 NESHAP

National Emission Standards for Hazardous Air Pollutants. The USEPA NESHAP regulation for asbestos is at 40 CFR 61-SUBPART M.

1.2.23 Nonfriable Asbestos Material

Material that contains asbestos in which the fibers have been immobilized by a bonding agent, coating, binder, or other material so that the asbestos is well bound

and will not normally release asbestos fibers during any appropriate use, handling, storage or transportation. It is understood that asbestos fibers may be released under other conditions such as demolition, removal, or mishap.

1.2.24 Permissible Exposure Limits (PELs)

1.2.24.1 PEL-Time Weighted Average(TWA)

Concentration of asbestos not in excess of 0.1 fibers per cubic centimeter of air (f/cc) as an 8-hour time weighted average (TWA).

1.2.24.2 PEL-Excursion Limit

An airborne concentration of asbestos not in excess of 1.0 f/cc of air as averaged over a sampling period of 30 minutes.

1.2.25 Personal Sampling

Air sampling which is performed to determine asbestos fiber concentrations within the breathing zone of a specific employee, as performed in accordance with 29 CFR 1926.1101.

1.2.26 Private Qualified Person (PQP)

That qualified person hired by the Contractor to perform the herein listed tasks.

1.2.27 Qualified Person (QP)

A Registered Architect, Professional Engineer, Certified Industrial Hygienist, consultant or other qualified person who has successfully completed training and is therefore accredited under a legitimate State Model Accreditation Plan as described in 40 CFR 763 as a Building
Inspector, Contractor/Supervisor Abatement Worker, and Asbestos Project Designer; and has successfully completed the National Institute of Occupational Safety and Health (NIOSH) 582 course "Sampling and Evaluating Airborne Asbestos Dust" or equivalent. The QP must be qualified to perform visual inspections as indicated in ASTM E1368.

1.2.28 TEM

Refers to Transmission Electron Microscopy.

1.2.29 Time Weighted Average (TWA)

The TWA is an 8-hour time weighted average airborne concentration of asbestos fibers.

1.2.30 Transite

A generic name for asbestos cement wallboard and pipe.

1.2.31 Wetting Agent

A chemical added to water to reduce the water's surface tension thereby increasing the water's ability to soak into the material to which it is applied. An equivalent wetting agent must have a surface tension of at most 0.00042 psi.

1.2.32 Worker

Individual (not designated as the Competent Person or a supervisor) who performs asbestos work and has completed asbestos worker training required by 29 CFR 1926.1101, to include EPA Model Accreditation Plan (MAP) "Worker" training; accreditation, if required by the OSHA Class of work to be performed or by the state where the work is to be performed.Ohio

1.3 REQUIREMENTS

1.3.1 Description of Work

The work covered by this section includes the handling and control of asbestos containing materials and describes some of the resultant procedures and equipment required to protect workers, the environment and occupants of the building or area, or both, from contact with airborne asbestos fibers. The work also includes the disposal of any asbestos containing materials generated by the work. More specific operational procedures must be outlined in the Asbestos Hazard Abatement Plan called for elsewhere in this specification. The asbestos work includes the demolition and removal of floor tile and mastic located . Under normal conditions non-friable or chemically bound materials containing asbestos would not be considered hazardous; however, this material may release airborne asbestos fibers during demolition and removal and therefore must be handled in accordance with the removal and disposal procedures as specified herein. Provide negative pressure enclosure techniques as outlined in this specification. A competent person must supervise asbestos removal work as specified herein.

1.3.1.1 Wallboard/Joint Compound

1.3.2 Unexpected Discovery of Asbestos

Notify the Contracting Officer if any previously untested building components suspected to contain asbestos are impacted by the work.

1.3.3 Medical Requirements

Provide medical requirements including but not limited to medical surveillance and medical record keeping as listed in 29 CFR 1926.1101.

1.3.3.1 Medical Examinations

Before exposure to airborne asbestos fibers, provide workers with a comprehensive medical examination as required by 29 CFR 1926.1101 or other pertinent State or local directives. This requirement must have been satisfied within the 12 months prior to the start of work on this contract. The same medical examination must be given on an annual basis to employees engaged in an occupation involving asbestos and within 30 calendar days before or after the termination of employment in such occupation. Specifically identify x-ray films of asbestos workers to the consulting radiologist and mark medical record jackets with the word "ASBESTOS."

1.3.3.2 Medical Records

Maintain complete and accurate records of employees' medical examinations, medical records, and exposure data for a period of 50 years after termination of employment and make records of the required medical examinations and exposure data available for inspection and copying to: The Assistant Secretary of Labor for Occupational Safety

and Health (OSHA), or authorized representatives of them, and an employee's physician upon the request of the employee or former employee.

1.3.4 Employee Training

Submit certificates, prior to the start of work but after the main abatement submittal, signed by each employee indicating that the employee has received training in the proper handling of materials and wastes that contain asbestos in accordance with 40 CFR 763; understands the health implications and risks involved, including the illnesses possible from exposure to airborne asbestos fibers; understands the use and limits of the respiratory equipment to be used; and understands the results of monitoring of airborne quantities of asbestos as related to health and respiratory equipment as indicated in 29 CFR 1926.1101 on an initial and annual basis. Organize certificates by individual worker, not grouped by type of certification. Train personnel involved in the asbestos control work in accordance with United States Environmental Protection Agency (USEPA) Asbestos Hazard Emergency Response Act (AHERA) training criteria or State training criteria whichever is more stringent. Document the training by providing: dates of training, training entity, course outline, names of instructors, and qualifications of instructors upon request by the Contracting Officer. Furnish each employee with respirator training and fit testing administered by the PQP as required by 29 CFR 1926.1101 and 29 CFR 1926.103. Fully cover engineering and other hazard control techniques and procedures. Asbestos workers must have a current State of Ohio asbestos worker's license.

1.3.5 [Enter Appropriate Subpart Title Here]

1.3.6 Environment, Safety and Health Compliance

In addition to detailed requirements of this specification, comply with those applicable laws, ordinances, criteria, rules, and regulations of Federal, State, regional, and local authorities regarding handling, storing, transporting, and disposing of asbestos waste materials. Comply with the applicable requirements of the current issue of EM 385-1-1, 29 CFR 1926.1101, 40 CFR 61-SUBPART A, 40 CFR 61-SUBPART M, 40 CFR 763 and ND OPNAVINST 5100.23. Submit matters of interpretation of standards to the appropriate administrative agency for resolution before starting the work. Where the requirements of this specification, applicable laws, rules, criteria, ordinances, regulations, and referenced documents vary, the most stringent requirement as defined by the Government apply. The following laws, ordinances, criteria, rules and regulations regarding removal, handling, storing, transporting and disposing of asbestos materials apply:

a. .

1.3.7 Respiratory Protection Program

Establish and implement a respirator program as required by 29 CFR 1926.1101, and 29 CFR 1926.103. Submit a written description of the program to the Contracting Officer. Submit a written program manual or operating procedure including methods of compliance with regulatory statutes.

1.3.7.1 Respirator Program Records

Submit records of the respirator program as required by 29 CFR 1926.103, and 29 CFR 1926.1101.

1.3.7.2 Respirator Fit Testing

The Contractor's PQP must conduct a qualitative or quantitative fit test conforming to 29 CFR 1926.103 for each worker required to wear a respirator, and any authorized visitors who enter a regulated area where respirators are required to be worn. A respirator fit test must be performed prior to initially wearing a respirator and every 12 months thereafter. If physical changes develop that will affect the fit, a new fit test must be performed. Functional fit checks must be performed each time a respirator is put on and in accordance with the manufacturer's recommendation.

1.3.7.3 Respirator Selection and Use Requirements

Provide respirators, and ensure that they are used as required by 29 CFR 1926.1101 and in accordance with CGA G-7 and the manufacturer's recommendations. Respirators must be approved by the National Institute for Occupational Safety and Health NIOSH, under the provisions of 42 CFR 84, for use in environments containing airborne asbestos fibers. For air-purifying respirators, the particulate filter must be high-efficiency particulate air (HEPA)/(N-,R-,P-100). The initial respirator selection and the decisions regarding the upgrading or downgrading of respirator type must be made by the Contractor's Designated IH based on the measured or anticipated airborne asbestos fiber concentrations to be encountered.

1.3.8 Asbestos Hazard Control Supervisor

The Contractor must be represented on site by a supervisor, trained using the model Contractor accreditation plan as indicated in the Federal statutes for all portions of the herein listed work.

1.3.9 Hazard Communication

Adhere to all parts of 29 CFR 1926.59 and provide the Contracting Officer with a copy of the Safety Data Sheets (SDS) for all materials brought to the site.

1.3.10 Asbestos Hazard Abatement Plan

Submit a detailed plan of the safety precautions such as lockout, tagout, tryout, fall protection, and confined space entry procedures and equipment and work procedures to be used in the demolition of materials containing asbestos. The plan, not to be combined with other hazard abatement plans, must be prepared, signed, and sealed by the PQP. Provide a Table of Contents for each abatement submittal, which follows the sequence of requirements in the contract. The plan must include but not be limited to the precise personal protective equipment to be used including, but not limited to, respiratory protection, type of whole-body protection, the location of asbestos control areas including clean and dirty areas, buffer zones, showers, storage areas, change rooms, method, interface of trades involved in the construction, sequencing of asbestos related work, disposal plan, type of wetting agent and asbestos sealer to be used, locations of local exhaust equipment, planned air monitoring strategies, and a detailed description of the method to be employed in order to control environmental pollution. The plan must also include (both fire and medical emergency) response plans and an Activity Hazard Analyses (AHAs) in accordance with EM 385-1-1. The Asbestos Hazard Abatement Plan must be approved in writing prior to starting any asbestos work. The Contractor, Asbestos Hazard Control Supervisor,, CP and PQP must meet with the Contracting Officer prior to beginning work, to discuss in detail the Asbestos Hazard Abatement Plan, including work procedures and safety precautions. Once approved by the Contracting Officer, the

plan will be enforced as if an addition to the specification. Any changes required in the specification as a result of the plan must be identified specifically in the plan to allow for free discussion and approval by the Contracting Officer prior to starting work.

1.3.11 Testing Laboratory

Submit the name, address, and telephone number of each testing laboratory selected for the analysis, and reporting of airborne concentrations of asbestos fibers along with certification that each laboratory is American Industrial Hygiene Association (AIHA) accredited and that persons counting the samples have been judged proficient by current inclusion on the AIHA Asbestos Analysis Registry (AAR) and successful participation of the laboratory in the Proficiency Analytical Testing (PAT) Program. Where analysis to determine asbestos content in bulk materials or transmission electron microscopy is required, submit evidence that the laboratory is accredited by the National Institute of Science and Technology (NIST) under National Voluntary Laboratory Accreditation Program (NVLAP) for asbestos analysis. The testing laboratory firm must be independent of the asbestos contractor and must have no employee or employer relationship which could constitute a conflict of interest.

1.3.12 Landfill Approval

Submit written evidence that the landfill is approved for asbestos disposal by the U.S. Environmental Protection Agency, Region , Air Enforcement Section , and local regulatory agencies. Within three working days after delivery, submit detailed delivery tickets, prepared, signed, and dated by an agent of the landfill, certifying the amount of asbestos materials delivered to the landfill. Submit a copy of the waste shipment records within one day of the shipment leaving the project site.

1.3.13 Transporter Certification

Submit written evidence that the transporter is approved to transport asbestos waste in accordance with the DOT requirements of 49 CFR 171, 49 CFR 172 and 49 CFR 173 as well as registration requirements of 49 CFR 107 and all other State and local regulatory agency requirements.

1.3.14 Medical Certification

Provide a written certification for each worker and supervisor, signed by a licensed physician indicating that the worker and supervisor has met or exceeded all of the medical prerequisites listed herein and in 29 CFR 1926.1101 and 29 CFR 1926.103 as prescribed by law. Submit certificates prior to the start of work but after the main abatement submittal.

1.4 SUBMITTALS

Government approval is required for submittals with a "G" or "S" classification. Submittals not having a "G" or "S" classification are for Contractor Quality Control approval. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-03 Product Data

Amended Water; G Safety Data Sheets (SDS) for All

Materials; G

Encapsulants; G

Respirators; G

Local Exhaust Equipment; G Pressure Differential Automatic Recording Instrument; G

Vacuums; G

SD-06 Test Reports

Air Sampling Results; G Pressure Differential Recordings for Local Exhaust System; G

Clearance Sampling; G

Asbestos Disposal Quantity Report; G

SD-07 Certificates

Employee Training; G

Notifications; G

Respiratory Protection Program; G

Asbestos Hazard Abatement Plan; G

Testing Laboratory; G

Landfill Approval; G

Delivery Tickets; G

Waste Shipment Records; G

Transporter Certification; G

Medical Certification; G

Private Qualified Person Documentation; G

Designated Competent Person; G

Worker's License; G

Contractor's License; G

Federal, State or Local Citations on Previous Projects; G

Encapsulants; G Equipment Used to Contain Airborne Asbestos Fibers; G Water Filtration Equipment; G

Vacuums; G

Ventilation Systems; G

SD-11 Closeout Submittals

Permits; G

Notifications; G

Respirator Program Records; G

Rental Equipment; G

1.5 QUALITY ASSURANCE

1.5.1 Private Qualified Person Documentation Submit the name, address, and telephone number of the Private Qualified Person (PQP) selected to prepare the Asbestos Hazard Abatement Plan, direct monitoring and training, and documented evidence that the PQP has successfully completed training in and is accredited and where required is certified as, a Building Inspector, Contractor/Supervisor Abatement Worker, and Asbestos Project Designer as described by 40 CFR 763 and has successfully completed the National Institute of Occupational Safety and Health (NIOSH) 582 course "Sampling and Evaluating Airborne Asbestos Dust" or equivalent.. The PQP and the asbestos contractor must not have an employee/employer relationship or financial relationship which could constitute a conflict of interest. The PQP must be a first tier subcontractor.

1.5.2 Designated Competent Person Documentation

The Designated Competent Person must be experienced in the administration and supervision of asbestos abatement projects including exposure assessment and monitoring, work practices, abatement methods, protective measures for personnel, setting up and inspecting asbestos abatement work areas, evaluating the integrity of containment barriers, placement and operation of local exhaust systems, ACM generated waste containment and disposal procedures, decontamination units installation and maintenance requirements, site safety and health requirements, notification of other employees onsite, . The Designated Competent Person must be on-site at all times when asbestos abatement activities are underway.Submit training certification and a current State of Ohio Asbestos Contractor's and Supervisor's License. Submit evidence that the Designated Competent Person has a minimum of 2 years of on-the-job asbestos abatement experience relevant to OSHA designated competent person requirements. The Designated Competent Person must be a first tier subcontractor.

1.5.3 Worker's License

Submit documentation that workers meet the requirements of 29 CFR 1926.1101, 40 CFR 61-SUBPART M and have a current State of Ohio Asbestos Workers License.

1.5.4 Contractor's License

Submit a copy of the asbestos contractor's license issued by the State of Ohio. Submit the following certification along with the license: "I certify that the personnel I am responsible for during the course of this project fully understand the contents of 29 CFR 1926.1101, 40 CFR 61-SUBPART MEM 385-1-1, and the Federal, State and local requirements for those asbestos abatement activities that they will be involved in." This certification statement must be signed by the Company's President or Chief Executive.

1.5.5 Air Sampling Results

Complete fiber counting and provide results to the PQP and GC for review within 16 hours of the "time off" of the sample pump. Notify the Contracting Officer immediately of any airborne levels of asbestos fibers in excess of the acceptable limits. Submit sampling results to the Contracting Officer and the affected Contractor employees where required by law within three working days, signed by the testing laboratory employee performing air sampling, the employee that analyzed the sample, and the PQP and GC. Notify the Contractor and the Contracting Officer immediately of any variance in the pressure differential which could cause adjacent unsealed areas to have asbestos fiber concentrations in excess of 0.01 fibers per cubic centimeter or background whichever is higher. In no circumstance must levels exceed 0.1 fibers per cubic centimeter.

1.5.6 Pressure Differential Recordings for Local Exhaust System

Provide a local exhaust system that creates a negative pressure of at least 0.02 inches of water relative to the pressure external to the enclosure and operate it continuously, 24-hours a day, until the temporary enclosure of the asbestos control area is removed. Submit pressure differential recordings for each work day to the PQP for review and to the Contracting Officer within 24-hours from the end of each work day.

1.5.7 Federal, State or Local Citations on Previous Projects

Submit a statement, signed by an officer of the company, containing a record of any citations issued by Federal, State or local regulatory agencies relating to asbestos activities within the last 5 years (including projects, dates, and resolutions); a list of penalties incurred through non-compliance with asbestos project specifications, including liquidated damages, overruns in scheduled time limitations and resolutions; and situations in which an asbestos-related contract has been terminated (including projects, dates, and reasons for terminations). If there are none, a negative declaration signed by an officer of the company must be provided.

1.5.8 Preconstruction Conference

Conduct a safety preconstruction conference to discuss the details of the Asbestos Hazard Abatement Plan, Accident Prevention Plan (APP) including the AHAs required in specification Section 01 35 26 GOVERNMENTAL SAFETY REQUIREMENTS . The safety preconstruction conference must include the
Contractor and their Designated Competent Person, Designated IH and Project Supervisor and the Contracting Officer. Deficiencies in the APP will be discussed. Onsite work must not begin until the APP has been accepted.

1.6 SECURITY

A log book must be kept documenting entry into and out of the regulated area. Entry into regulated areas must only be by personnel authorized by the Contractor and the Contracting Officer. Personnel authorized to enter regulated areas must be trained, medically evaluated, and wear the required personal protective equipment.

1.7 EQUIPMENT

1.7.1 Rental Equipment

Provide a copy of the written notification to the rental company concerning the intended use of the equipment and the possibility of asbestos contamination of the equipment.

PART 2 PRODUCTS

2.1 ENCAPSULANTS

Encapsulants must conform to current USEPA requirements, contain no toxic or hazardous substances as defined in 29 CFR 1926.59, and conform to the following performance requirements.

2.1.1 Removal Encapsulants

Requirement	Test Standard
Flame Spread - 25, Smoke Emission - 50	ASTM E84
Life Expectancy - 20 years	ASTM C732 Accelerated Aging Test
Permeability - Minimum 0.4 perms	ASTM E96/E96M
Fire Resistance - Negligible affect on fire resistance rating over 3 hour test (Classified by UL for use over fibrous and cementitious sprayed fireproofing)	ASTM E119
Impact Resistance - Minimum 43 in/lb	ASTM D2794 Gardner Impact Test
Flexibility - no rupture or cracking	ASTM D522/D522M Mandrel Bend Test

2.1.2 Bridging Encapsulant

Requirement	Test Standard
Flame Spread - 25, Smoke Emission - 50	ASTM E84
Life Expectancy - 20 years	ASTM C732 Accelerated Aging Test
Permeability - Minimum 0.4 perms	ASTM E96/E96M

Fire Resistance - Negligible affect on fire resistance rating over 3-hour test (Classified by UL for use over fibrous and cementitious sprayed fireproofing)	ASTM E119
Impact Resistance - Minimum 43 in/lb	ASTM D2794 Gardner Impact Test
Flexibility - no rupture or cracking	ASTM D522/D522M Mandrel Bend Test

2.1.3 Penetrating Encapsulant

Requirement	Test Standard
Flame Spread - 25, Smoke Emission - 50	ASTM E84
Life Expectancy - 20 years	ASTM C732 Accelerated Aging Test
Permeability - Minimum 0.4 perms	ASTM E96/E96M
Cohesion/Adhesion Test - 50 pounds of force/foot	ASTM E119
Fire Resistance - Negligible affect on fire resistance rating over 3-hour test (Classified by UL for use over fibrous and cementitious sprayed fireproofing)	ASTM E119
Impact Resistance - Minimum 43 in/lb	ASTM D2794 Gardner Impact Test
Flexibility - no rupture or cracking	ASTM D522/D522M Mandrel Bend Test

2.1.4 Lock-down Encapsulant

Requirement	Test Standard
Flame Spread - 25, Smoke Emission - 50	ASTM E84
Life Expectancy - 20 years	ASTM C732 Accelerated Aging Test

Permeability - Minimum 0.4 perms	ASTM E96/E96M
Fire Resistance - Negligible affect on fire resistance rating over 3-hour test (Tested with fireproofing over encapsulant applied directly to steel member)	ASTM E119
Bond Strength: 100 pounds of force/foot	ASTM E736/E736M
(Tests compatibility with cementitious and fibrous fireproofing)	

2.2 DUCT TAPE

Industrial grade duct tape of appropriate widths suitable for bonding sheet plastic and disposal container.

2.3 DISPOSAL CONTAINERS

Leak-tight (defined as solids, liquids, or dust that cannot escape or spill out) disposal containers must be provided for ACM wastes as required by 29 CFR 1926.1101. Disposal containers can be in the form of:

a. Disposal Bags

b. Fiberboard Drums

c. Cardboard Boxes

2.4 SHEET PLASTIC

Sheet plastic must be polyethylene of 6 mil minimum thickness and must be provided in the largest sheet size necessary to minimize seams. Film must be clear and conform to ASTM D4397, except as specified below

2.4.1 Flame Resistant

Where a potential for fire exists, flame-resistant sheets must be provided. Film must be frosted and must conform to the requirements of NFPA 701.

2.4.2 Reinforced

Reinforced sheets must be provided where high skin strength is required, such as where it constitutes the only barrier between the regulated area and the outdoor environment. The sheet stock must consist of translucent, nylon-reinforced or woven-polyethylene thread laminated between 2 layers of polyethylene film. Film must meet flame resistant standards of NFPA 701.

2.5 MASTIC REMOVING SOLVENT

Mastic removing solvent must be nonflammable and must not contain methylene chloride, glycol ether, or halogenated hydrocarbons. Solvents used onsite must have a flash point greater than 140 degrees F.

2.6 LEAK-TIGHT WRAPPING

Two layers of 6 mil minimum thick polyethylene sheet stock must be used for the containment of removed asbestos-containing components or materials such as large tanks, boilers, insulated pipe segments and other materials. Upon placement of the ACM component or material, each layer must be individually leak-tight sealed with duct tape.

2.7 VIEWING INSPECTION WINDOW

Where feasible, a minimum of one clear, 1/8 inch thick, acrylic sheet, 18 by 24 inches, must be installed as a viewing inspection window at eye level on a wall in each containment enclosure. The windows must be sealed leak-tight with industrial grade duct tape.

2.8 WETTING AGENTS

Removal encapsulant (a penetrating encapsulant) must be provided when conducting removal abatement activities that require a longer removal time or are subject to rapid evaporation of amended water. The removal encapsulant must be capable of wetting the ACM and retarding fiber release during disturbance of the ACM greater than or equal to that provided by amended water. Performance requirements for penetrating encapsulants are specified in paragraph ENCAPSULANTS above.

PART 3 EXECUTION

3.1 EQUIPMENT

Provide the Contracting Officer or the Contracting Officer's Representative, with at least two complete sets of personal protective equipment as required for entry to and inspection of the asbestos control area. Provide equivalent training to the Contracting Officer or a designated representative as provided to Contractor employees in the use of the required personal protective equipment. Provide manufacturer's certificate of compliance for all equipment used to contain airborne asbestos fibers.

3.1.1 Air Monitoring Equipment

The Contractor's PQP must approve air monitoring equipment. The equipment must include, but must not be limited to:

a. High-volume sampling pumps that can be calibrated and operated at a constant airflow up to 16 liters per minute.

b. Low-volume, battery powered, body-attachable, portable personal pumps that can be calibrated to a constant airflow up to approximately 3.5 liters per minute, and a self-contained rechargeable power pack capable of sustaining the calibrated flow rate for a minimum of 10 hours. The pumps must also be equipped with an automatic flow control unit which must maintain a constant flow, even as filter resistance increases due to accumulation of fiber and debris on the filter surface.

c. Single use standard 25 mm diameter cassette, open face, 0.8 micron pore size, mixed cellulose ester membrane filters and cassettes with 50 mm electrically conductive extension cowl, and shrink bands for personal air sampling.

d. Single use standard 25 mm diameter cassette, open face, 0.45 micron pore size, mixed cellulose ester membrane filters and cassettes with 50 mm electrically conductive cowl, and shrink bands when conducting environmental area sampling using NIOSH NMAM Methods 7400 and 7402, (and the transmission electric microscopy method specified at

40 CFR 763 if required).

e. A flow calibrator capable of calibration to within plus or minus 2 percent of reading over a temperature range of minus 4 to plus 140 degrees F and traceable to a NIST primary standard.

3.1.2 Respirators

Select respirators from those approved by the National Institute for Occupational Safety and Health (NIOSH), Department of Health and Human Services.

3.1.2.1 Respirators for Handling Asbestos

Provide personnel engaged in pre-cleaning, cleanup, handling, demolition of asbestos materials with respiratory protection as indicated in 29 CFR 1926.1101 and 29 CFR 1926.103. Breathing air must comply with CGA G-7.

3.1.3 Exterior Whole Body Protection

3.1.3.1 Outer Protective Clothing

Provide personnel exposed to asbestos with disposable "non-breathable," or reusable "non-breathable" whole body outer protective clothing, head coverings, gloves, and foot coverings. Provide disposable plastic or rubber gloves to protect hands. Cloth gloves may be worn inside the plastic or rubber gloves for comfort, but must not be used alone. Make sleeves secure at the wrists, make foot coverings secure at the ankles, and make clothing secure at the neck by the use of tape.

3.1.3.2 Work Clothing

Provide cloth work clothes for wear under the outer protective clothing and foot coverings and either dispose of or properly decontaminate them as recommended by the PQP after each use.

3.1.3.3 Personal Decontamination Unit

Provide a temporary, negative pressure unit with a separate decontamination locker room and clean locker room with a shower that complies with 29 CFR 1926.51(f)(4)(ii) through (V) in between for personnel required to wear whole body protective clothing. Provide two separate lockers for each asbestos worker, one in each locker room. Keep street clothing and street shoes in the clean locker. HEPA vacuum and remove asbestos contaminated disposable protective clothing while still wearing respirators at the boundary of the asbestos work area and seal in impermeable bags or containers for disposal. Do not wear work clothing between home and work. Locate showers between the decontamination locker room and the clean locker room and require that

all employees shower before changing into street clothes. Collect used shower water and filter with approved water filtration equipment to remove asbestos contamination. Wastewater filters must be installed in series with the first stage pore size 20 microns and the second stage pore size of 5 microns. Dispose of filters and residue as asbestos waste. Discharge clean water to the sanitary system. Dispose of asbestos contaminated work clothing as asbestos contaminated waste or properly decontaminate as specified in the Contractor's Asbestos Hazard Abatement Plan. Keep the floor of the decontamination unit's clean room dry and clean at all times. Proper housekeeping and hygiene requirements must be maintained. Provide soap and towels for showering, washing and drying. Cloth towels provided must be disposed of as ACM waste or must be laundered in accordance with 29 CFR 1926.1101. Physically attach the decontamination units to the asbestos control area. Construct both a personnel decontamination unit and an equipment decontamination unit onto and integral with each asbestos control area.

3.1.3.4 Eye Protection

Provide eye protection that complies with ANSI/ISEA Z87.1 when operations present a potential eye injury hazard. Provide goggles to personnel engaged in asbestos abatement operations when the use of a full face respirator is not required.

3.1.4 Regulated Areas

All Class I, II, and III asbestos work must be conducted within regulated areas. The regulated area must be demarcated to minimize the number of persons within the area and to protect persons outside the area from exposure to airborne asbestos. Control access to regulated areas, ensure that only authorized personnel enter, and verify that Contractor required medical surveillance, training and respiratory protection program requirements are met prior to allowing entrance.

3.1.5 Load-out Unit

Provide a temporary load-out unit that is adjacent and connected to the regulated area. Attach the load-out unit in a leak-tight manner to each regulated area.

3.1.6 Warning Signs and Labels

Provide warning signs at all approaches to asbestos control areas. Locate signs at such a distance that personnel may read the sign and take the necessary protective steps required before entering the area. Provide labels and affix to all asbestos materials, scrap, waste, debris, and other products contaminated with asbestos. Containers with preprinted warning labels conforming to the requirements are acceptable

3.1.6.1 Warning Sign

Provide vertical format conforming to 29 CFR 1926.200, and 29 CFR 1926.1101 minimum 20 by 14 inches displaying the following legend in the lower panel:

Legend	Notation _____
DANGER	one inch Sans Serif Gothic or Block

ASBESTOS	one inch Sans Serif Gothic or Block
MAY CAUSE CANCER	one inch Sans Serif Gothic or Block
CAUSES DAMAGE TO LUNGS	1/4 inch Sans Serif Gothic or Block
AUTHORIZED PERSONNEL ONLY	1/4 inch Sans Serif Gothic or Block
	1/4 inch Sans Serif Gothic or Block

Spacing between lines must be at least equal to the height of the upper of any two lines.

3.1.6.2 Warning Labels

Provide labels conforming to 29 CFR 1926.1101 of sufficient size to be clearly legible, displaying the following legend:

DANGER
CONTAINS ASBESTOS FIBERS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
DO NOT BREATHE DUST AVOID CREATING DUST

3.1.7 Local Exhaust System

Provide a local exhaust system in the asbestos control area in accordance with ASSP Z9.2 and 29 CFR 1926.1101 that will provide at least four air changes per hour inside of the negative pressure enclosure. Local exhaust equipment must be operated 24-hours per day, until the asbestos control area is removed and must be leak proof to the filter and equipped with HEPA filters. Maintain a minimum pressure differential in the control area of minus 0.02 inch of water column relative to adjacent, unsealed areas. Provide continuous 24-hour per day monitoring of the pressure differential with a pressure differential automatic recording instrument. The building ventilation system must not be used as the local exhaust system for the asbestos control area. Filters on exhaust equipment must conform to ASSP Z9.2 and UL 586. Terminate the local exhaust system out of doors and remote from any public access or ventilation system intakes.

3.1.8 Tools

Vacuums must be leak proof to the filter and equipped with HEPA filters. Filters on vacuums must conform to ASSP Z9.2 and UL 586. Do not use power tools to remove

asbestos containing materials unless the tool is equipped with effective, integral HEPA filtered exhaust ventilation systems. Remove all residual asbestos from reusable tools prior to storage or reuse. Reusable tools must be thoroughly decontaminated prior to being removed from the regulated areas.

3.1.9 Rental Equipment

If rental equipment is to be used, furnish written notification to the rental agency concerning the intended use of the equipment and the possibility of asbestos contamination of the equipment.

3.1.10 Single Stage Decontamination Area

A decontamination area (equipment room/area) must be provided for Class I work involving less than 25 feet or 10 square feet of TSI or surfacing ACM, and for Class II and Class III asbestos work operations where exposures exceed the PELs or where there is no negative exposure assessment. The equipment room or area must be adjacent to the regulated area for the decontamination of employees, material, and their equipment which could be contaminated with asbestos. The area must be covered by an impermeable drop cloth on the floor or horizontal working surface. The area must be of sufficient size to accommodate cleaning of equipment and removing personal protective equipment without spreading contamination beyond the area.

3.1.11 Decontamination Area Exit Procedures

Ensure that the following procedures are followed:

a. Before leaving the regulated area, remove all gross contamination and debris from work clothing using a HEPA vacuum.

b. Employees must remove their protective clothing in the equipment room and deposit the clothing in labeled impermeable bags or containers for disposal or laundering.

c. Employees must not remove their respirators until showering.

d. Employees must shower prior to entering the clean room. If a shower has not been located between the equipment room and the clean room or the work is performed outdoors, ensure that employees engaged in Class I asbestos jobs: a) Remove asbestos contamination from their work suits in the equipment room or decontamination area using a HEPA vacuum before proceeding to a shower that is not adjacent to the work area; or b) Remove their contaminated work suits in the equipment room, without cleaning worksuits, and proceed to a shower that is not adjacent to the work area.

3.2 WORK PROCEDURE

Perform asbestos related work in accordance with 29 CFR 1926.1101, 40 CFR 61-SUBPART M, and as specified herein. Use appropriate encapsulation procedures as listed in the asbestos hazard abatement plan and techniques. Wear and utilize protective clothing and equipment as specified herein. No eating, smoking, drinking, chewing gum, tobacco, or applying cosmeticsis permitted in the asbestos work or control areas. Personnel of other trades not engaged in the removal and demolition of asbestos containing material must not be exposed at any time to airborne concentrations of asbestos unless all the personnel protection and training provisions of this

specification are complied with by the trade personnel. Shut down the building heating, ventilating, and air conditioning system, cap the openings to the system, prior to the commencement of asbestos work. Power to the regulated area must be locked-out and tagged in accordance with 29 CFR 1910.147. All electrical work must be performed by a licensed electrician. Stop abatement work in the regulated area immediately when the airborne total fiber concentration: (1) equals or exceeds 0.01 f/cc, or the pre-abatement concentration, whichever is greater, outside the regulated area; or (2) equals or exceeds 1.0 f/cc inside the regulated area. Correct the condition to the satisfaction of the Contracting Officer, including visual inspection and air sampling. Work must resume only upon notification by the Contracting Officer. Corrective actions must be documented. If an asbestos fiber release or spill occurs outside of the asbestos control area, stop work immediately, correct the condition to the satisfaction of the Contracting Officer including clearance sampling, prior to resumption of work.

3.2.1 Building Ventilation System and Critical Barriers

Building ventilation system supply and return air ducts in a regulated area must be shut down and isolated by lockable switch or other positive means in accordance with 29 CFR 1910.147. The airtight seals must consist of 2 layers of polyethylene. Edges to wall, ceiling and floor surfaces must be sealed with industrial grade duct tape.

a. A Competent Person must supervise the work.

b. For indoor work, critical barriers must be placed over all openings to the regulated area.

c. Impermeable dropcloths must be placed on surfaces beneath all removal activity.

3.2.2 Protection of Existing Work to Remain

Perform work without damage or contamination of adjacent work. Where such work is damaged or contaminated as verified by the Contracting Officer using visual inspection or sample analysis, it must be restored to its original condition or decontaminated by the Contractor at no expense to the Government as deemed appropriate by the Contracting Officer. This includes inadvertent spill of dirt, dust, or debris in which it is reasonable to conclude that asbestos may exist. When these spills occur, stop work immediately. Then clean up the spill. When satisfactory visual inspection and air sampling results are obtained from the PQP work may proceed at the discretion of the Contracting Officer.

3.2.3 Furnishings

3.2.4 Precleaning

Wet wipe and HEPA vacuum all surfaces potentially contaminated with asbestos prior to establishment of an enclosure.

3.2.5 Asbestos Control Area Requirements

3.2.5.1 Negative Pressure Enclosure

Removal of asbestos floor tile and mastic require the use of a negative pressure enclosure. Block and seal openings in areas where the release of airborne asbestos

fibers can be expected. Establish an asbestos negative pressure enclosure with the use of curtains, portable partitions, or other enclosures in order to prevent the escape of asbestos fibers from the contaminated asbestos work area. Negative pressure enclosure development must include protective covering of uncontaminated walls, and ceilings with a continuous membrane of two layers of minimum 6-mil plastic sheet sealed with tape to prevent water or other damage. Provide two layers of 6-mil plastic sheet over floors and extend a minimum of 12 inches up walls. Seal all joints with tape. Provide local exhaust system in the asbestos control area. Openings will be allowed in enclosures of asbestos control areas for personnel and equipment entry and exit, the supply and exhaust of air for the local exhaust system and the removal of properly containerized asbestos containing materials. Replace local exhaust system filters as required to maintain the efficiency of the system.

3.2.5.2 [Enter Appropriate Subpart Title Here]

3.2.5.3 [Enter Appropriate Subpart Title Here]

3.2.6 Removal Procedures

Wet asbestos material with a fine spray of amended water during removal, cutting, or other handling so as to reduce the emission of airborne fibers. Remove material and immediately place in 6 mil plastic disposal bags. Remove asbestos containing material in a gradual manner, with continuous application of the amended water or wetting agent in such a manner that no asbestos material is disturbed prior to being adequately wetted. Where unusual circumstances prohibit the use of 6 mil plastic bags, submit an alternate proposal for containment of asbestos fibers to the Contracting Officer for approval. For example, in the case where both piping and insulation are to be removed, the Contractor may elect to wet the insulation, wrap the pipes and insulation in plastic and remove the pipe by sections. Containerize asbestos containing material while wet. Do not allow asbestos material to accumulate or become dry. Lower and otherwise handle asbestos containing material as indicated in 40 CFR 61-SUBPART M.

3.2.6.1 Sealing Contaminated Items Designated for Disposal

Remove contaminated architectural, mechanical, and electrical appurtenances such as venetian blinds, full-height partitions, carpeting, duct work, pipes and fittings, radiators, light fixtures, conduit, panels, and other contaminated items designated for removal by completely coating the items with an asbestos lock-down encapsulant at the demolition site before removing the items from the asbestos control area. These items need not be vacuumed. The asbestos lock-down encapsulant must be tinted a contrasting color and spray-applied by airless method. Thoroughness of sealing operation must be visually gauged by the extent of colored coating on exposed surfaces. Lock-down encapsulants must comply with the performance requirements specified herein.

3.2.6.2 [Enter Appropriate Subpart Title Here]

3.2.7 Methods of Compliance

3.2.7.1 Mandated Practices

The specific abatement techniques and items identified must be detailed in the Contractor's AHAP. Use the following engineering controls and work practices in all operations, regardless of the levels of exposure:

a. Vacuum cleaners equipped with HEPA filters.

b. Wet methods or wetting agents except where it can be demonstrated that the use of wet methods is unfeasible due to the creation of electrical hazards, equipment malfunction, and in roofing.

c. Prompt clean-up and disposal.

d. Inspection and repair of polyethylene.

e. Cleaning of equipment and surfaces of containers prior to removing them from the equipment room or area.

3.2.7.2 Control Methods

Use the following control methods:

a. Local exhaust ventilation equipped with HEPA filter;

b. Enclosure or isolation of processes producing asbestos dust;

c. Where the feasible engineering and work practice controls are not sufficient to reduce employee exposure to or below the PELs, use them to reduce employee exposure to the lowest levels attainable and must supplement them by the use of respiratory protection.

3.2.7.3 Unacceptable Practices

The following work practices must not be used:

a. High-speed abrasive disc saws that are not equipped with point of cut ventilator or enclosures with HEPA filtered exhaust air.

b. Compressed air used to remove asbestos containing materials, unless the compressed air is used in conjunction with an enclosed ventilation system designed to capture the dust cloud created by the compressed air.

c. Dry sweeping, shoveling, or other dry clean up.

d. Employee rotation as a means of reducing employee exposure to asbestos.

3.2.8 Class I Work Procedures

In addition to requirements of paragraphs MANDATED PRACTICES and CONTROL METHODS, the following engineering controls and work practices must be used:

a. A Competent Person must supervise the installation and operation of the control methods.

b. For jobs involving the removal of more than 25 feet or 10 square feet of TSI or surfacing material, place critical barriers over all openings to the regulated area.

c. HVAC systems must be isolated in the regulated area by sealing with a double layer of plastic or air-tight rigid covers.

d. Impermeable dropcloths (6 mil or greater thickness) must be placed on surfaces beneath all removal activity.

e. Where a negative exposure assessment has not been provided or where exposure monitoring shows the PEL was exceeded, the regulated area must be ventilated with a HEPA unit and employees must use PPE.

3.2.9 Specific Control Methods for Class I Work

Use Class I work procedures, control methods and removal methods for the following ACM:

a. Spray Applied Fireproofing

b. Gypsum Wallboard and Joint Compound

c. Thermal System Insulation and Mudded Pipe Fittings

d. Plaster and Textured Ceilings and Walls

e. Vermiculite

3.2.9.1 Negative Pressure Enclosure (NPE) System

The system must provide at least four air changes per hour inside the containment. The local exhaust unit equipment must be operated 24-hours per day until the containment is removed. The NPE must be smoke tested for leaks at the beginning of each shift and be sufficient to maintain a minimum pressure differential of minus 0.02 inch of water column relative to adjacent, unsealed areas. Pressure differential must be monitored continuously, 24-hours per day, with an automatic manometric recording instrument and Records must be provided daily on the same day collected to the Contracting Officer. The Contracting Officer must be notified immediately if the pressure differential falls below the prescribed minimum. The building ventilation system must not be used as the local exhaust system for the regulated area. The NPE must terminate outdoors unless an alternate arrangement is allowed by the Contracting Officer. All filters used must be new at the beginning of the project and must be periodically changed as necessary and disposed of as ACM waste.

3.2.9.2 Glovebag Systems

Glovebags must be used without modification, smoke-tested for leaks, and completely cover the circumference of pipe or other structures where the work is to be done. Glovebags must be used only once and must not be moved. Glovebags must not be used on surfaces that have temperatures exceeding 150 degrees F. Prior to disposal, glovebags must be collapsed using a HEPA vacuum. Before beginning the operation, loose and friable material adjacent to the glovebag operation must be wrapped and sealed in 2 layers of plastic or otherwise rendered intact. At least two persons must perform glovebag removal. Asbestos regulated work areas must be established for glovebag abatement. Designated boundary limits for the asbestos work must be established with rope or other continuous barriers and all other requirements for asbestos control areas must be maintained, including area signage and boundary warning tape.

a. Attach HEPA vacuum systems to the bag to prevent collapse during removal of ACM.

b. The negative pressure glove boxes must be fitted with gloved apertures and a bagging outlet and constructed with rigid sides from metal or other material which can withstand the weight of the ACM and water used during removal. A negative pressure must be created in the system using a HEPA filtration system. The box must be smoke tested for leaks prior to each use.

3.2.9.3 [Enter Appropriate Subpart Title Here]

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3.2.11 [Enter Appropriate Subpart Title Here]

3.2.11.1 [Enter Appropriate Subpart Title Here]

3.2.11.2 Sealants and Mastic

Establish designated limits for the asbestos regulated work area with the use of red barrier tape, critical barriers and signs, and maintain all other requirements for asbestos control area except local exhaust. Spread 6-mil plastic sheeting on the ground around the perimeter of the work area extending out in all directions. Using adequately wet methods, carefully remove the ACM sealants and mastics using a scraper of knife blade. As it is removed place the material into a disposal bag. Make every effort to keep the asbestos material from falling to the ground or work area floor below. Dry sweeping is prohibited. Use vacuums equipped with HEPA filter and disposable dust bag. Place debris into a 6-mil minimum thickness disposal bag or other approved container. Once the material is in the disposal bag, apply additional water as needed to achieve "adequately wet" conditions for NESHAP compliance. Place bagged asbestos waste under negative pressure with the use of a HEPA vacuum, goose neck and duck tape to seal the bag, wash to remove any visible contamination and place into a second 6-mil minimum thickness disposal bag. Containerize asbestos containing waste while wet. Lower and otherwise handle asbestos containing materials as indicated in 40 CFR 61-SUBPART M. Conduct area monitoring of airborne fibers during the work shift at the designated limits of the asbestos work area and conduct personal samples of each worker engaged in the work. If the airborne fiber concentration of the workers or at designated limits at any time exceeds background or 0.01 fibers per cubic centimeter, whichever is greater, stop work immediately and correct the situation.

3.2.11.3 [Enter Appropriate Subpart Title Here]

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3.2.15 [Enter Appropriate Subpart Title Here]

3.2.16 Site Inspection

While performing asbestos engineering control work, the Contractor must be subject to on-site inspection by the Contracting Officer who may be assisted by or represented by safety or industrial hygiene personnel. If the work is found to be in violation of this specification, the Contracting Officer or his representative will issue a stop work order to be in effect immediately and until the violation is resolved. All related costs including standby time required to resolve the violation must be at the Contractor's expense.

3.3 CLEAN-UP AND DISPOSAL

3.3.1 Housekeeping

Essential parts of asbestos dust control are housekeeping and clean-up procedures. Maintain surfaces of the asbestos control area free of accumulations of asbestos fibers. Give meticulous attention to restricting the spread of dust and debris; keep waste from being distributed over the general area. Use HEPA filtered vacuum cleaners. DO NOT BLOW DOWN THE SPACE WITH COMPRESSED AIR. When asbestos removal is complete, all asbestos waste is removed from the work-site, and final clean-up is completed, the Contracting Officer will attest that the area is safe before the signs can be removed. After final clean-up and acceptable airborne concentrations are attained but before the HEPA unit is turned off and the enclosure removed, remove all pre-filters on the building HVAC system and provide new pre-filters. Dispose of filters as asbestos contaminated materials. Reestablish HVAC mechanical, and electrical systems in proper working order. The Contracting Officer will visually inspect all surfaces within the enclosure for residual material or accumulated dust or debris. The Contractor must re-clean all areas showing dust or residual materials. If re-cleaning is required, air sample and establish an acceptable asbestos airborne concentration after re-cleaning. The Contracting Officer must agree that the area is safe in writing before unrestricted entry will be permitted. The Government must have the option to perform monitoring to determine if the areas are safe before entry is permitted.

3.3.2 Title to Materials

All waste materials, except as specified otherwise, become the property of the Contractor and must be disposed of as specified in applicable local, State, and Federal regulations and herein.

3.3.3 Disposal of Asbestos

3.3.3.1 Procedure for Disposal

Coordinate all waste disposal manifests with the Contracting Officer and NAVFAC EV. Collect asbestos waste, contaminated waste water filters, asbestos contaminated water, scrap, debris, bags, containers, equipment, and asbestos contaminated clothing which may produce airborne concentrations of asbestos fibers and place in sealed fiber-proof, waterproof, non-returnable containers (e.g. double plastic bags 6 mils thick, cartons, drums or cans). Wastes within the containers must be adequately wet in accordance with 40 CFR 61-SUBPART M. Affix a warning and Department of Transportation (DOT) label to each container including the bags or use at least 6 mils thick bags with the approved warnings and DOT labeling preprinted on the bag. Clearly indicate on the outside of each container the name of the waste generator and the location at which the waste was generated. Prevent contamination of the transport vehicle (especially if the transport vehicle is a rented truck likely to be used in the future for non-asbestos purposes). These precautions include lining the vehicle cargo area with plastic sheeting (similar to work area enclosure) and thorough cleaning of the cargo area after transport and unloading of asbestos debris is complete. Dispose of waste asbestos material at an Environmental Protection Agency (EPA) or State-approved asbestos landfill off Government property. For temporary storage, store sealed impermeable bags in asbestos waste drums or skids. An area for interim storage of asbestos waste-containing drums or skids will be assigned by the Contracting Officer or his authorized representative. Comply with 40 CFR 61-SUBPART M, State, regional, and local standards for hauling and disposal. Sealed plastic bags may be dumped from drums into the burial site unless the bags have been broken or damaged. Damaged bags must remain in the drum and the entire contaminated drum must be buried. Uncontaminated drums may be recycled. Workers unloading the sealed drums must wear appropriate respirators and personal protective equipment when handling asbestos materials at the disposal site.

3.3.3.2 Asbestos Disposal Quantity Report

Direct the PQP to record and report, to the Contracting Officer, the amount of asbestos containing material removed and released for disposal. Deliver the report for the previous day at the beginning of each day shift with amounts of material removed during the previous day reported in linear feet or square feet as described initially in this specification and in cubic feet for the amount of asbestos containing material released for disposal.

-- End of Section --

SECTION 31 00 00

EARTHWORK
08/23

PART 1 GENERAL

1.1 REFERENCES

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

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)

AASHTO T 180 (2017) Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop

AMERICAN WATER WORKS ASSOCIATION (AWWA)

AWWA C600 (2023) Installation of Ductile-Iron Mains and Their Appurtenances

ASTM INTERNATIONAL (ASTM)

ASTM C33/C33M (2024a) Standard Specification for Concrete Aggregates

ASTM C117 (2023) Standard Test Method for Materials Finer than 75-um (No. 200) Sieve in Mineral Aggregates by Washing

ASTM C136/C136M (2019) Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates

ASTM D698 (2012; E 2014; E 2015) Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/cu. ft. (600 kN-m/cu. m.))

ASTM D1140 (2017) Standard Test Methods for Determining the Amount of Material Finer than 75-µm (No. 200) Sieve in Soils by Washing

ASTM D1557 (2012; E 2015) Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3) (2700 kN-m/m3)

ASTM D2321 (2020) Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications

ASTM D2487 (2017; E 2020) Standard Practice for

	Classification of Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D4253	(2016; E 2019) Standard Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table
ASTM D4254	(2016) Standard Test Methods for Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density
ASTM D4318	(2017; E 2018) Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
ASTM D4829	(2021) Standard Test Method for Expansion Index of Soils

U.S. ARMY CORPS OF ENGINEERS (USACE)

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

1.2 DEFINITIONS

1.2.1 Structural Fill

Soil material placed to support buildings, walls, pads, and other similar facilities.

1.2.2 Embankment Fill

Soil material placed to construct embankment.

1.2.3 Porous Fill

Free-draining material placed for subsurface drainage, as a capillary break, or another specific purpose.

1.2.4 Topsoil

Surface layer of primarily organic soil capable of supporting vegetation growth.

1.2.5 Utility Bedding Material

Fill placed to directly support pipes, conduits, cables, and appurtenant structures. Bedding may also be used to provide a cushion between utilities and bedrock, obstacles, obstructions and other unyielding materials.

1.2.6 Flowable Fill

Fill placed in a plastic or liquid form that flows to near its final placement location with limited assistance and subsequently cures or solidifies to provide a stable or impermeable barrier.

1.2.7 Satisfactory Materials

Satisfactory materials for fill, backfill, and/or any in-situ soils to remain in place comprise any materials classified by ASTM D2487 as GW, GP, GM, GP-GM, GW-GM,

GC, GP-GC, GM-GC, SW, SP, SM, SW-SM, SC,SW-SC, SP-SM, SP-SC, , , , , . Maximum particle size to be no greater than one-half of the allowable lift thickness in any dimension.

1.2.8 Unsatisfactory Materials

Materials which do not comply with the requirements for satisfactory materials are unsatisfactory. Unsatisfactory materials also include man-made fills; trash; refuse; backfills from previous construction; roots and other organic matter or frozen material. Notify the Contracting Officer when encountering any contaminated materials.

1.2.9 Cohesionless Materials

Cohesionless materials include materials classified in ASTM D2487 as GW, GP, SW, and SP. Materials classified as GM and SM will be identified as cohesionless only when the fines are nonplastic. Perform testing, required for classifying materials, in accordance with ASTM D4318, ASTM C117, ASTM C136/C136M and ASTM D1140.

1.2.10 Cohesive Materials

Cohesive materials include materials classified as GC, SC, ML, CL, MH, and CH. Materials classified as GM and SM will be identified as cohesive only when the fines are plastic. Perform testing, required for classifying materials, in accordance with ASTM D4318, ASTM C117, ASTM C136/C136M and ASTM D1140.

1.2.11 Hard/Unyielding Materials

Hard/Unyielding materials comprise weathered rock, dense consolidated deposits, or conglomerate materials which are not included in the definition of "rock" with stones greater than inch in any dimension or as defined by the pipe manufacturer, whichever is smaller. These materials usually require the use of heavy excavation equipment, ripper teeth, or jack hammers for removal.

1.2.12 Unstable Material

Unstable materials are too weak to adequately support the utility pipe, conduit, equipment, or appurtenant structure. Satisfactory material may become unstable due to ineffective drainage, dewatering, becoming frozen, excessive loading.

1.2.13 Expansive Soils

Expansive soils are defined as soils that have an expansion index greater than 20 when tested in accordance with ASTM D4829.

1.2.14 Rock

Solid homogeneous interlocking crystalline material with firmly cemented, laminated, or foliated masses or conglomerate deposits, neither of which can be removed without systematic drilling and blasting, drilling and the use of expansion jacks or feather wedges, or the use of backhoe-mounted pneumatic hole punchers or rock breakers; also large boulders, buried masonry, or concrete other than pavement exceeding 1/2 cubic yard in volume. Removal of hard material will not be considered rock excavation

because of intermittent drilling and blasting that is performed merely to increase production.

1.2.15 Capillary Water Barrier

A layer of clean, poorly graded crushed rock, stone, or natural sand or gravel having a high porosity which is placed beneath a building slab with or without a vapor barrier to cut off the capillary flow of pore water to the area immediately below a slab.

1.2.16 Degree of Compaction (Proctor)

Degree of compaction required is expressed as a percentage of the maximum density obtained by the test procedure presented in ASTM D698 (Standard Proctor), abbreviated as a percent of laboratory maximum density. Since ASTM D1557 applies only to soils that have 30 percent or less by weight of their particles retained on the 3/4 inch sieve, express the degree of compaction for material having more than 30 percent by weight of their particles retained on the 3/4 inch sieve as a percentage of the maximum density in accordance with AASHTO T 180-21 paragraph 1.5, Note 1.

1.2.17 Degree of Compaction (Relative Density)

Degree of compaction required for soils with less than 5 percent passing the No. 200 sieve, is expressed as a relative percentage of the maximum index density/dry unit weight and minimum index density/dry unit weight, obtained by the test procedures in accordance with ASTM D4253 and ASTM D4254, respectively, abbreviated as a percent of laboratory relative density.

1.2.18 Overhaul

Overhaul is the authorized transportation of satisfactory excavation or borrow materials in excess of the free-haul limit of stations. Overhaul is the product of the quantity of materials hauled beyond the free-haul limit, and the distance such materials are hauled beyond the free-haul limit, expressed in station yards.

1.2.19 Borrow

Soil brought to the project site from an external location for the purposes of project construction.

1.2.20 Subgrade

Earth materials directly below foundations and directly below granular base materials in building slab and pavement areas including shoulders.

1.3 [Enter Appropriate Subpart Title Here] 1.4
CRITERIA FOR BIDDING

Base bids on the following criteria:

a. Surface elevations are as indicated.

b. Pipes or other artificial obstructions, except those indicated, will not be encountered.

c. Material character is indicated by the boring logs.

d. Hard materials and rock may be encountered.

1.5 SUBMITTALS

Government approval is required for submittals with a "G" or "S" classification. Submittals not having a "G" or "S" classification are for Contractor Quality Control approval. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Excavation and Trenching Plan; G

Jacking, Boring, and Tunneling Plan; G

Disposition of Surplus Materials; G

Preconstruction Meeting; G

SD-03 Product Data Flowable Fill Mix

Design; G

Geotextiles

SD-04 Samples

Geotextiles

SD-06 Test Reports

Material Test Report; G

Borrow Site Testing; G

Pipe Inspection Report; G

Geotechnical Evaluation Report; G

1.6 QUALITY CONTROL

1.6.1 Geotechnical Engineer

Provide a Professional Geotechnical Engineer to provide inspection of excavations and soil/groundwater conditions throughout construction. The Geotechnical Engineer is responsible for performing pre-construction and periodic site visits throughout construction to assess site conditions. The Geotechnical Engineer is responsible for preparing and updating the Excavation and Trenching Plan and Dewatering Work Plan as construction progresses to reflect changing conditions and submit an updated plan if necessary. Submit a monthly Geotechnical Evaluation report, informing the Contractor and Contracting Officer of the status of the plan and an accounting of the Contractor's adherence to the plan addressing any present or potential problems. The

Contractor is responsible for arranging meetings with the Geotechnical Engineer and Contracting Officer throughout the contract duration.

1.6.2 Qualified Technician

Provide a Qualified Technician to inspect, monitor, sample, and performing field testing. The technician qualifications need to be one of the following: a current National Institute for Certification in Engineering Technologies (NICET) Level II minimum certification in Construction Materials Testing Soils; a Geologist-in-Training with minimum one-year experience; an Engineer-in-Training with minimum one-year experience; a Registered Geologist; or a Professional Engineer.

1.6.3 Lab Validation

Perform testing by a Corps validated commercial testing laboratory or Contractor established testing laboratory meeting the requirements of Section 01 45 00 (or similar number) entitled QUALITY CONTROL and approved by the Contracting Officer. Submit testing laboratory validation for the testing to be performed. Do not permit work requiring testing until testing facilities have been inspected, Corps validated and approved by the Contracting Officer.

1.6.4 Preconstruction Meeting

Conduct a preconstruction meeting at the jobsite at least five business days prior to the start of earthwork operations on the project. The preconstruction meeting is to be arranged by the Contractor and is to follow the written agenda submitted prior to the meeting. The purpose of this meeting is to review the requirements of this specification and the associated plans. The following individuals must be in attendance at this meeting: Contractor's Project Manager and Project Superintendent, earthwork subcontractor's Project Manager and Site Foreman, Contractor's Geotechnical Engineer and Testing Agency, Government Geotechnical Engineer and Civil Engineer, and Government Construction Manager and Engineering Technician.

The minutes of this meeting are to be recorded by the Contractor and published via email within 48 hours to all attendees. The minutes must be re-published within 48 hours via email pending any subsequent comments from the attendees.

PART 2 PRODUCTS

2.1 SOIL MATERIALS

2.1.1 Structural Fill

Materials classified as GW, GP,GM, GC, GW-GM, GW-GC, GP-GM, GP-GC, GC-GM, SW, SP, SM, SW-SM, SC, SW-SC, SP-SM, SP-SC, , or in accordance with ASTM D2487. Select material type appropriate for the intended purpose.

2.1.2 Embankment Fill

Materials classified as GW, GP, GM, GC, GW-GM, GW-GC, GP-GM, GP-GC, GC-GM, SW, SP, SM, SW-SM, SC, SW-SC, SP-SM, SP-SC, , or in accordance with ASTM D2487. Select material type appropriate for the intended purpose.

2.1.3 Porous Fill

Materials containing less than 5 percent passing the No. 200 sieve. Provide the gradation as appropriate for the intended purpose.

2.1.4 Topsoil

Material suitable for topsoil obtained from offsite areas is defined as: Natural, friable soil representative of productive, well-drained soils in the area, free of subsoil, stumps, rocks larger than one inch diameter, brush, weeds, toxic substances, and other material detrimental to plant growth.

2.1.5 Capillary Water Barrier

Conform to ASTM C33/C33M for fine aggregate grading with a maximum of 3 percent by weight passing ASTM D1140, No. 200 sieve,.

2.1.6 Utility Bedding Material

Except as specified otherwise in the individual piping section, provide bedding for buried piping in accordance with AWWA C600 ASTM D2321. Install bedding for plastic piping to spring line of pipe. Provide geotextile fabric below bedding layer where indicated. Utility bedding material may include the following:

2.1.6.1 Class I

Angular, 0.25 to 1.5 inch, graded stone, including a number of fill materials that have regional significance such as coral, slag, cinders, crushed stone, and crushed shells.

2.1.6.2 Class II

Coarse sands and gravels with maximum particle size of 1.5 inch, including various graded sands and gravels containing small percentages of fines, generally granular and noncohesive, either wet or dry. Soil Types GW, GP, SW, and SP are included in this class as specified in ASTM D2487. 2.1.6.3 [Enter Appropriate Subpart Title Here]

2.1.6.4 Gravel and Crushed Stone

Clean, coarsely graded natural gravel, crushed stone or a combination thereof having a classification of GW GP in accordance with ASTM D2487 for bedding and backfill . Do not exceed maximum particle size of 3 inches.

2.2 [Enter Appropriate Subpart Title Here]

2.3 [Enter Appropriate Subpart Title Here]2.3.1 [Enter Appropriate Subpart Title Here]

2.4 [Enter Appropriate Subpart Title Here]2.4.1 [Enter Appropriate Subpart Title Here]

2.5 BORROW

Provide borrow materials from sources located outside of Government

property meeting the requirements of paragraph STRUCTURAL FILL .

2.6 GEOTEXTILE

Provide a pervious sheet of polyester, nylon, glass or polypropylene ultraviolet resistant filaments woven, spun bonded, fused, or otherwise manufactured into a non-raveling fabric with uniform thickness and strength. Fabric must have manufacturer certified minimum average roll properties that conform with AASHTO M 288 Class 2. Submit a sample and material product data for all Geotextiles utilized.

PART 3 EXECUTION

3.1 PROTECTION

Perform all work specified in accordance with applicable requirements of the Corps of Engineers publication EM 385-1-1 Safety and Health Requirements Manual.

Use equipment of type and size appropriate for the site conditions (soil character and moisture content). Maintenance of exposed subgrades and fills is the responsibility of the Contractor. The Contractor is required to prevent damage by ineffective drainage, dewatering, and heavy loads and equipment by implementing precautionary measures. Repair or replace any defects or damage.

3.1.1 Underground Utilities

Location of the existing utilities indicated is approximate. Physically verify the location and elevation of the existing utilities indicated prior to starting construction. The Contractor is responsible for protecting utilities from damage during construction.

3.1.2 Drainage and Dewatering

Provide for the collection and disposal of surface and subsurface water encountered during construction.

3.1.2.1 Drainage

Provide for the collection and disposal of surface and subsurface water encountered during construction. Construct storm drainage features (ponds/basins) at the earliest stages of site development, and throughout construction grade the construction area to provide positive surface water runoff away from the construction activity provide temporary ditches, swales, and other drainage features and equipment as required to keep soils from becoming unstable, prevent erosion, or undermining of foundations. Remove unstable material from working platforms for equipment operation and soil support for subsequent construction features and provide new material as specified herein. It is the responsibility of the Contractor to assess the site conditions to employ necessary measures to permit construction to proceed.

3.1.2.2 [Enter Appropriate Subpart Title Here]

3.1.3 [Enter Appropriate Subpart Title Here]

3.1.4 Protection of Graded Surfaces

Protect newly backfilled, graded, and topsoiled areas from traffic,

erosion, and settlements that may occur. Repair or reestablish damaged grades, elevations, or slopes.

3.2 BORROW

Select borrow material to meet the requirements and conditions of the fill or embankment for which it is to be used. Obtain borrow material from from approved private sources. Submit a Borrow Plan that includes materials to be excavated, stockpile locations, proposed slopes, drainage, and closure. Unless otherwise provided in the contract, the Contractor is responsible for obtaining the right to procure material, pay royalties and other charges involved, and bear the expense of developing the sources, including rights-of-way for hauling from the owners. Unless specifically provided, do not obtain borrow within the limits of the project site without prior written approval.

3.2.1 [Enter Appropriate Subpart Title Here]

3.3 SURFACE PREPARATION

3.3.1 Clearing and Grubbing

Remove trees, stumps, logs, shrubs, brush and vegetation and other items that would interfere with construction operations. Remove stumps entirely. Grub out matted roots and roots over 3 inches in diameter to at least 18 inches below existing surface.

3.3.2 [Enter Appropriate Subpart Title Here]

3.3.3 [Enter Appropriate Subpart Title Here]

3.3.4 Stockpiling Operations

Place and grade stockpiles of satisfactory as specified. Keep stockpiles in a neat and well drained condition, giving due consideration to drainage at all times. Clear, grub, and seal by rubber-tired equipment, the ground surface at stockpile locations; separately stockpile excavated satisfactory and unsatisfactory materials. Protect stockpiles of satisfactory materials from contamination which may destroy the quality and fitness of the stockpiled material. Do not create stockpiles that could obstruct the flow of any stream, endanger a partly finished structure, impair the efficiency or appearance of any structure, or be detrimental to the completed work in any way. If the Contractor fails to protect the stockpiles, and any material becomes unsatisfactory, remove and replace such material with satisfactory material from approved sources.

3.4 EXCAVATION

Excavate to contours, elevation, and dimensions indicated. Excavate soil disturbed or weakened by Contractor's operations, and soils softened or made unstable for subsequent construction due to exposure to weather. Use material removed from excavations meeting the specified requirements in the construction of fills, embankments, subgrades, shoulders, bedding (as backfill), and for similar purposes to minimize surplus material and to minimize additional material to brought on site. Do not excavate below indicated depths except to remove unstable material as determined by the Government and confirmed by the Contracting Officer. Remove and replace excavations below the grades shown with appropriate materials as directed by the Contracting Officer.

If at any time during excavation, including excavation from borrow areas, the Contractor encounters material that may be classified as rock or as hard/unyielding material, uncover such material, and notify the Contracting Officer. Do not proceed with the excavation of this material until the Contracting Officer has classified the materials as common excavation or rock excavation. Failure on the part of the Contractor to uncover such material, notify the Contracting Officer, and allow sufficient time for classification and delineation of the undisturbed surface of such material will cause the forfeiture of the Contractor's right of claim to any classification or volume of material to be paid for other than that allowed by the Contracting Officer for the areas of work in which such deposits occur.

3.4.1 [Enter Appropriate Subpart Title Here]

3.4.2 Trench Excavation Requirements

Excavate the trench as recommended by the manufacturer of the pipe to be installed. Slope trench walls below the top of the pipe, or make vertical, and of such width as recommended by the manufacturer. Provide vertical trench walls where no manufacturer installation instructions are available. Do not exceed the trench width of 24 inches below the top pipe plus pipe outside diameter (O.D.) for pipes of less than 24 inches inside diameter, and do not exceed 36 inches plus pipe outside diameter for pipe sizes larger than 24 inches inside diameter. Where recommended trench widths are exceeded, provide redesign, stronger pipe, or special installation procedures. The Contractor is responsible for the cost of redesign, stronger pipe, or special installation procedures without any additional cost to the Government.

3.4.2.1 Bottom Preparation

Grade the bottoms of trenches accurately to provide uniform bearing and support for the bottom quadrant of each section of the pipe. Excavate bell holes to the necessary size at each joint or coupling to eliminate point bearing. Remove stones of inch or greater in any dimension, or as recommended by the pipe manufacturer, whichever is smaller, to avoid point bearing.

3.4.2.2 Removal of Unyielding Material

Where unyielding material is encountered in the bottom of the trench, notify the Contracting Officer. Following approval, remove such material inch below the required grade and replaced with suitable materials as provided in paragraph FILLING AND COMPACTION.

3.4.2.3 Removal of Unstable Material

Where unstable material is encountered in the bottom of the trench, remove such material to the depth directed and replace it to the proper grade with suitable material as provided in paragraph FILLING AND COMPACTION. When removal of unstable material is required due to the Contractor's fault or neglect in performing the work, the Contractor is responsible for excavating the resulting material and replacing it without additional cost to the Government.

3.4.2.4 Excavation for Appurtenances

Provide excavation for manholes, catch-basins, inlets, or similar

structures sufficient to leave at least 12 inches clear between the outer structure surfaces and the face of the excavation or support members.

3.4.2.5 Gas Distribution

Excavate trenches to a depth that will provide a minimum 18 inches of cover in rock excavation and a minimum 24 inches of cover in other excavation.

3.4.2.6 Water Lines

Excavate trenches to a depth that provides a minimum cover of feet from the existing ground surface, or from the indicated finished grade, whichever is lower, to the top of the pipe.

3.4.3 [Enter Appropriate Subpart Title Here]3.4.3.1 [Enter Appropriate Subpart Title Here]

3.4.4 Underground Utilities

Perform work adjacent to utilities as indicated . Report damage to utility lines or subsurface construction immediately to the Contracting Officer.

3.4.5 [Enter Appropriate Subpart Title Here]

3.4.6 [Enter Appropriate Subpart Title Here]

3.5 SUBGRADE PREPARATION

3.5.1 General Requirements

Shape subgrade to line, grade, and cross section as indicated. Remove unsatisfactory and unstable material in surfaces to receive fill or in excavated areas, and replaced with structural fill . Do not place material on surfaces that are muddy, frozen, contain frost, or otherwise containing unstable material. Scarify the surface to a depth of 4 inches prior to placing fill. Step or bench sloped surfaces steeper than 1 vertical to 4 horizontal prior to scarifying. Place 4 inches of loose fill and blend with scarified material. When subgrade is part fill and part excavation or natural ground, scarify to a depth of 8 inches.

3.5.2 [Enter Appropriate Subpart Title Here]

3.5.3 [Enter Appropriate Subpart Title Here]

3.5.4 Subgrade for Pavements

Compact top 12 inches of subgrade for pavements to at least 95 percent of ASTM D698 ASTM D1557. After final rolling, the surface of the subgrade for buildings and pavements must not show deviations greater than 0.05 foot when tested with a 12-foot straightedge applied both parallel and at right angles to the centerline of the area.

3.5.5 [Enter Appropriate Subpart Title Here]
3.5.6 Subgrade Filter Fabric

Place filter fabric as indicated directly on prepared subgrade free of vegetation, stumps, rocks larger than 2 inch diameter and other debris which may puncture or otherwise damage the fabric. Repair damaged fabric by placing an additional layer of

fabric to cover the damaged area a minimum of 3 feet overlap in all directions. Overlap fabric at joints a minimum of 3 feet. Obtain approval of filter fabric installation before placing fill or backfill. Place fill or backfill on fabric in the direction of overlaps and compact as specified herein. Follow manufacturer's recommended installation procedures.

3.6 FILLING AND COMPACTION

Prepare ground surface on which backfill is to be placed and provide compaction requirements for backfill materials in conformance with the applicable portions of paragraphs for SUBGRADE PREPARATION. Do not place material on surfaces that are muddy, frozen, or contain frost. Finish compaction by sheepsfoot rollers, pneumatic-tired rollers, steel-wheeled rollers, or other approved equipment well suited to the soil being compacted. Moisten material as necessary . Fill and backfill to contours, elevations, and dimensions indicated. Compact and test each lift before placing overlaying lift.

3.6.1 Trench Backfill

Backfill trenches to the grade shown.

3.6.1.1 Replacement of Unyielding Material

Replace unyielding material removed from the bottom of the trench with satisfactory material or initial backfill material.

3.6.1.2 Replacement of Unstable Material

Replace unstable material removed from the bottom of the trench or excavation with satisfactory material placed in layers not exceeding 6 inches loose thickness.

3.6.1.3 Bedding and Initial Backfill

Place initial backfill material and compact it with approved tampers to a height of at least one foot above the utility pipe or conduit. Bring up the backfill evenly on both sides of the pipe for the full length of the pipe. Take care to ensure thorough compaction of the fill under the haunches of the pipe. Except where shown or when specified otherwise in the individual piping section, provide bedding for buried piping in accordance with PART 2 paragraph UTILITY BEDDING MATERIAL. Compact backfill to top of pipe to 95 percent of ASTM D698 maximum density . Provide plastic piping with bedding to spring line of pipe.

3.6.1.4 Final Backfill

Do not begin backfill until construction below finish grade has been approved, underground utilities systems have been inspected, tested and approved, forms removed, and the excavation cleaned of trash and debris. Bring backfill to indicated finish grade. Where pipe is coated or wrapped for protection against corrosion, the backfill material up to an elevation 2 feet above sewer lines and one foot above other utility lines need to be free from stones larger than one inch in any dimension. Heavy equipment for spreading and compacting backfill are not to be operated closer to foundation or retaining walls than a distance equal to the height of backfill above the top of footing; compact remaining area in layers not more than 4 inches in compacted thickness with power-driven hand tampers suitable for the

material being compacted. Place backfill carefully around pipes or tanks to avoid damage to coatings, wrappings, or tanks. Do not place backfill against foundation walls prior to 7 days after completion of the walls. As far as practicable, bring backfill up evenly on each side of the wall and sloped to drain away from the wall.

Fill the remainder of the trench, except for special materials for buildings and pavements with satisfactory material. Place backfill material and compact as follows:

3.6.1.4.1 Buildings and Pavements

Place backfill up to the required elevation as specified. Do not permit water flooding or jetting methods of compaction. Compact as specified for Structural Fill.

3.6.1.4.2 Turfed or Seeded Areas and Miscellaneous Areas

Deposit backfill in layers of a maximum of 12 inches loose thickness, and compact it to 90 percent maximum density for cohesive soils and 90 percent maximum density for cohesionless soils. Apply this requirement to all other areas not specifically designated above.

3.6.1.5 Heat Distribution System

Free initial backfill material of stones larger than 1/4 inch in any dimension.

3.6.1.6 Electrical Distribution System

Provide a minimum cover of 24 inches from the finished grade to direct burial cable and conduit or duct line, unless otherwise indicated.

3.6.1.7 [Enter Appropriate Subpart Title Here]3.6.1.7.1 [Enter Appropriate Subpart Title Here]
3.6.1.7.2 [Enter Appropriate Subpart Title Here]

3.6.1.8 [Enter Appropriate Subpart Title Here]

3.6.1.9 [Enter Appropriate Subpart Title Here]3.6.1.9.1 [Enter Appropriate Subpart Title Here]

3.6.2 Structural Fill Placement

Place fill and backfill beneath and adjacent to structures in successive horizontal layers of loose material not more than 8 inches in depth and compacted to 90 percent of laboratory maximum density in accordance with ASTM D698 (Standard Proctor).Perform compaction in such a manner as to prevent wedging action or eccentric loading upon or other damage to the structure. Moisture condition fill and backfill material to within range of plus 2 or minus 2 percent of optimum moisture content at the time of compaction.

3.6.3 Backfill for Appurtenances

After the manhole, catchbasin, inlet, or similar structure has been constructed, place backfill in such a manner that the structure is not be damaged by the shock of falling earth. Deposit the backfill material, compact it as specified for final

backfill, and bring up the backfill evenly on all sides of the structure to prevent eccentric loading and excessive stress.

3.6.4 [Enter Appropriate Subpart Title Here]

3.6.5 [Enter Appropriate Subpart Title Here]

3.6.6 Compaction

3.6.6.1 General Site

Compact underneath areas designated for vegetation and areas outside the 5 foot line of the paved area or structure to 90 percent of ASTM D698 .

3.7 [Enter Appropriate Subpart Title Here]3.7.1 [Enter Appropriate Subpart Title Here]

]3.8 FINISHING/FINISH OPERATIONS

During construction, keep embankments and excavations shaped and drained. Maintain ditches and drains along subgrade to drain effectively at all times. Do not disturb the finished subgrade by traffic or other operation. Protect and maintain the finished subgrade in a satisfactory condition until ballast, subbase, base, or pavement is placed. Do not permit the storage or stockpiling of materials on finished subgrade. Do not lay subbase, base course, ballast, or pavement until the subgrade has been checked and approved, and in no case place subbase, base, surfacing, pavement, or ballast on a muddy, spongy, frozen or otherwise unstable subgrade.

Finish the surface of excavations, embankments, and subgrades to a smooth and compact surface in accordance with the lines, grades, and cross sections or elevations shown. Provide the degree of finish for graded areas within 0.1 foot of the grades and elevations indicated except as indicated for subgrades specified in paragraph SUBGRADE PREPARATION. Finish gutters and ditches in a manner that will result in effective drainage. Finish the surface of areas to be turfed to a smoothness suitable for the application of turfing materials. Repair graded, topsoiled, or backfilled areas prior to acceptance of the work, and re-established grades to the required elevations and slopes.

3.8.1 [Enter Appropriate Subpart Title Here]

3.8.2 Grading

Grade all disturbed areas to provide positive slope and drainage toward the five (5) existing catch basins. Finished grading shall be smooth, free of depressions, and prevent any ponding or standing water. Maintain areas free of trash and debris."

3.8.3 [Enter Appropriate Subpart Title Here]

3.9 DISPOSITION OF SURPLUS MATERIAL

Remove from Government property all surplus or other soil material not required or not suitable for filling or backfilling, along with brush, refuse, stumps, roots, and timber. Properly disposed of in accordance with all applicable laws and regulations.

Prepare plan for Disposition of Surplus Materials to include permissions document to dispose of nonsalable products.

3.10 [Enter Appropriate Subpart Title Here][Enter Appropriate Subpart Title Here][Enter Appropriate Subpart Title Here]TESTING

Perform testing as indicated in Table 1. Submit Material Test Reports within 7 days of tests being completed.

Material Type Fills and Backfills & Subgrade	Location of Material	Test Method	Test Frequency
		Density - ASTM D1556/D1556M or ASTM D6938.	One test per 2000 square feet, or fraction thereof, of each lift of fill or backfill areas compacted by other than hand-operated machines. Double testing frequency for areas compacted by hand-operated machines. [If ASTM D6938 or ASTM D8167/D8167M is used, check in-place densities by ASTM D1556/D1556M as follows: One check test per lift for every [6] [10] tests.] [Where ASTM D8167/D8167M is used, provide water content verification in accordance with ASTM D2216 for each test.]

		Moisture Content - ASTM D2216	Two tests per day for each type of fill and backfill. Sample taken immediately prior to compaction after moisture conditioning.

Material Type Fills and Backfills & Subgrade	Location of Material	Test Method	Test Frequency
		Moisture Density Relationship - ASTM D1557	One representative test per 500 cubic yards of fill and backfill, or when any change in material occurs which may affect the optimum moisture content or laboratory maximum density. Sample to be taken from stockpile or location of placement.

		Relative Density - ASTM D4253 and ASTM D4254	One test per 2000 square feet, or fraction thereof, of each lift of fill or backfill areas compacted by other than hand-operated machines. Double testing frequency for areas compacted by hand-operated machines.

Material Type Fills and Backfills & Subgrade	Location of Material	Test Method	Test Frequency
		Gradation - ASTM C136/C136M	One representative test per 500 cubic yards of fill and backfill, or when any change in material occurs which may affect the optimum moisture content or laboratory maximum density. Sample to be taken from stockpile or location of placement.

		Atterberg Limits - ASTM D4318	One representative test per 500 cubic yards of fill and backfill, or when any change in material occurs which may affect the optimum moisture content or laboratory maximum density. Sample to be taken from stockpile or location of placement.
Material Type Fills and Backfills & Subgrade	Location of Material	Test Method	Test Frequency
		Organic Content Test - ASTM D2974, Method C	One representative test per 200 lineal feet of embankment.

-- End of Section --

SECTION 31 32 19.16

GEOTEXTILE SOIL STABILIZATION
02/21

PART 1 GENERAL

1.1 MEASUREMENT

Measure the as-built surface area, covered by geotextile, in square yards. Allowance will be made for geotextile in anchor and/or drainage trenches but no allowance will be made for waste, overlaps, damaged materials, repairs, or materials used for the convenience of the Contractor.

1.2 PAYMENT

Geotextile installed and accepted will be paid for at the respective contract unit price in the bidding schedule. This unit price will include the cost of materials, equipment, installation, testing, and other costs associated with placement of the geotextile.

1.3 REFERENCES

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

ASTM INTERNATIONAL (ASTM)

ASTM D4354	(2012; R 2020) Sampling of Geosynthetics for Testing
ASTM D4355/D4355M	(2014) Deterioration of Geotextiles from Exposure to Light, Moisture and Heat in a Xenon-Arc Type Apparatus
ASTM D4491/D4491M	(2017) Standard Test Methods for Water Permeability of Geotextiles by Permittivity
ASTM D4533/D4533M	(2015) Standard Test Method for Trapezoid Tearing Strength of Geotextiles
ASTM D4632/D4632M	(2015a) Grab Breaking Load and Elongation of Geotextiles
ASTM D4751	(2020) Standard Test Method for Determining Apparent Opening Size of a Geotextile
ASTM D4759	(2011; R 2018) Standard Practice for Determining the Specification Conformance of Geosynthetics
ASTM D4873/D4873M	(2017) Standard Guide for Identification, Storage, and Handling of Geosynthetic Rolls and Samples
ASTM D6241	(2014) Standard Test Method for the Static

Puncture Strength of Geotextiles and Geotextile-Related Products Using a 50-mm Probe

1.4 SUBMITTALS

Government approval is required for submittals with a "G" or "S" classification. Submittals not having a "G" or "S" classification are for Contractor Quality Control approval. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-03 Product Data

Thread Manufacturing Quality Control Sampling and Testing

SD-04 Samples

Quality Assurance Samples and Tests

SD-07 Certificates

Geotextile

1.5 DELIVERY, STORAGE, AND HANDLING

Deliver, store, and handle geotextile in accordance with ASTM D4873/D4873M.

1.5.1 Delivery

Notify the Contracting Officer a minimum of 24 hours prior to delivery and unloading of geotextile rolls packaged in an opaque, waterproof, protective plastic wrapping. Do not remove the plastic wrapping until deployment. If quality assurance samples are collected, immediately rewrap rolls with the plastic wrapping. Repair or replace as directed, geotextile or plastic wrapping damaged during storage or handling. Label each roll with the manufacturer's name, geotextile type, roll number, roll dimensions (length, width, gross weight), and date manufactured.

1.5.2 Storage

Protect rolls of geotextile from construction equipment, chemicals, sparks and flames, temperatures in excess of 160 degrees F, or any other environmental condition that may damage the physical properties of the geotextile. To protect geotextile from becoming saturated, either elevate rolls off the ground or place them on a sacrificial sheet of plastic in an area where water will not accumulate.

1.5.3 Handling

Handle and unload geotextile rolls with load carrying straps, a fork lift with a stinger bar, or an axial bar assembly. Do not drag rolls along the ground, lift by one end, or drop to the ground.

PART 2 PRODUCTS

2.1 RAW MATERIALS

A minimum of 7 days prior to scheduled use, submit manufacturer's certificate of compliance stating that the geotextile meets the requirements of this section. For needle punched geotextiles, certify that the geotextile has been continuously inspected using permanent on-line full-width metal detectors and does not contain any needles which could damage other geosynthetic layers. Provide the certificate of compliance attested to by a person having legal authority to bind the geotextile manufacturer.

2.1.1 Geotextile

Provide geotextile that is a woven pervious sheet of polymeric material consisting of long-chain synthetic polymers composed of at least 95 percent by weight polyolefins, polyesters, or polyamides. The use of woven slit film geotextiles (i.e. geotextiles made from yarns of a flat, tape-like character) will not be allowed. Add stabilizers and/or inhibitors to the base polymer, as needed, to make the filaments resistant to deterioration by ultraviolet light, oxidation, and heat exposure. Regrind material, which consists of edge trimmings and other scraps that have never reached the consumer, may be used to produce the geotextile. Post-consumer recycled material may also be used. Form geotextile into a network such that the filaments or yarns retain dimensional stability relative to each other, including the edges. Meet the requirements specified in Table 1. Where applicable, Table 1 property values represent minimum average roll values (MARV) in the weakest principal direction. Values for AOS represent maximum average roll values.

TABLE 1
MINIMUM PHYSICAL REQUIREMENTS FOR DRAINAGE GEOTEXTILE

PROPERTY	UNITS	ACCEPTABLE VALUES	TEST METHOD
GRAB STRENGTH	LBS	160	ASTM D4632/D4632M
SEAM STRENGTH	LBS	N/A	ASTM D4632/D4632M
PUNCTURE	LBS	310	ASTM D6241
TRAPEZOID TEAR	LBS	55	ASTM D4533/D4533M
APPARENT OPENING SIZE	U.S. SIEVE	No 60 Maximum	ASTM D4751
PERMITTIVITY	SEC -1	0.1 Minimum	ASTM D4491/D4491M
ULTRAVIOLET DEGRADATION	PERCENT	50 AT 500 HRS	ASTM D4355/D4355M

2.1.2 Thread

A minimum of 7 days prior to scheduled use, submit proposed thread type for sewn seams along with data sheets showing the physical properties of the thread.

Construct sewn seams with high-strength polyester, nylon, or other approved thread type. Provide thread with ultraviolet light stability equivalent to the geotextile and color that contrasts with the geotextile.

2.2 MANUFACTURING QUALITY CONTROL SAMPLING AND TESTING

The Manufacturer is responsible for establishing and maintaining a quality control program to assure compliance with the requirements of the specification. A minimum of 7 days prior to scheduled use, submit manufacturer's quality control manual. Provide documentation describing the quality control program upon request. Perform manufacturing quality control sampling and testing in accordance with the manufacturer's approved quality control manual. As a minimum, randomly sample geotextiles for testing in accordance with ASTM D4354, Procedure A. Acceptance of geotextile must be in accordance with ASTM D4759. Tests not meeting the specified requirements will result in the rejection of applicable rolls.

PART 3 EXECUTION

3.1 QUALITY ASSURANCE SAMPLES AND TESTS

3.1.1 Quality Assurance Samples

Provide assistance to the Contracting Officer in the collection of quality assurance samples for quality assurance testing; assign 7 days in the schedule to allow for testing. Collect samples upon delivery to the site in accordance with ASTM D4354, Procedure B. Consider the lot size for quality assurance sampling to be the shipment quantity of the product or a truckload of the product, whichever is smaller. The unit size is considered one roll of geotextile. . Identify samples with a waterproof marker by manufacturer's name, product identification, lot number, roll number, and machine direction. Note the date and a unique sample number on the sample. Discard the outer layer of the geotextile roll prior to sampling a roll. Collect samples by cutting the full-width of the geotextile sheet a minimum of 3 feet long in the machine direction. Immediately reseal rolls which are sampled in their protective covering.

3.1.2 Quality Assurance Tests

Provide quality assurance samples to an Independent Laboratory. Samples will be tested to verify that geotextile meets the requirements specified in Table 1. Do not perform test method ASTM D4355/D4355M on the collected samples. Base geotextile product acceptance on ASTM D4759. Tests not meeting the specified requirements will result in the rejection of applicable rolls.

3.2 INSTALLATION

3.2.1 Subgrade Preparation

The surface underlying the geotextile must be smooth and free of ruts or protrusions which could damage the geotextile. Provide subgrade materials and compaction requirements in accordance with Section 31 00 00.

3.2.2 Placement

Notify the Contracting Officer a minimum of 24 hours prior to installation of geotextile. Repair or replace geotextile rolls which are damaged or contain

imperfections as directed. Lay the geotextile flat and smooth so that it is in direct contact with the subgrade. The geotextile must also be free of tensile stresses, folds, and wrinkles. On slopes steeper than 10 horizontal on 1 vertical, lay the geotextile with the machine direction of the fabric parallel to the slope direction.

3.3 SEAMS

3.3.1 Overlap Seams

Continuously overlap geotextile panels a minimum of 12 inches at all longitudinal and transverse joints. Where seams must be oriented across the slope, lap the upper panel over the lower panel. If approved, sewn seams may be used instead of overlapped seams.

3.3.2 [Enter Appropriate Subpart Title Here]

3.4 PROTECTION

Protect the geotextile during installation from clogging, tears, and other damage. Repair or replace damaged geotextile as directed. Use adequate ballast (e.g. sand bags) to prevent uplift by wind. Do not leave the geotextile uncovered for more than 14 days after installation.

3.5 REPAIRS

Repair torn or damaged geotextile. Remove clogged areas of geotextile. Perform repairs by placing a patch of the same type of geotextile over the damaged area. Extend the patch a minimum of 12 inches beyond the edge of the damaged area. Continuously fasten patches using approved methods. Align the machine direction of the patch with the machine direction of the geotextile being repaired. Remove and replace geotextile rolls which cannot be repaired. Perform repairs at no additional cost to the Government

3.6 PENETRATIONS

Construct engineered penetrations of the geotextile by methods recommended by the geotextile manufacturer.

3.7 COVERING

Do not cover geotextile prior to inspection and approval by the Contracting Officer. Place cover soil in a manner that prevents soil from entering the geotextile overlap zone, prevents tensile stress from being mobilized in the geotextile, and prevents wrinkles from folding over onto themselves. On side slopes, place soil backfill from the bottom of the slope upward. Do not drop cover soil onto the geotextile from a height greater than 3 feet. Do not operate equipment directly on top of the geotextile without approval of the Contracting Officer. Use equipment with ground pressures less than 7 psi to place the first lift over the geotextile. Maintain a minimum of 12 inches of soil between full-scale construction equipment and the geotextile. Cover soil material type, compaction, and testing requirements are described in Section 31 00 00 EARTHWORK. Do not use equipment for placing cover soil that stops abruptly, makes sharp turns, spins their wheels, or travels at speeds exceeding 5 mph.

-- End of Section --

SECTION 32 15 00

AGGREGATE SURFACING
05/17

PART 1 GENERAL

1.1 [Enter Appropriate Subpart Title Here]1.1.1 [Enter Appropriate Subpart Title Here]

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.

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)

AASHTO T 180	(2017) Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop
AASHTO T 224	(2010) Standard Method of Test for Correction for Coarse Particles in the Soil Compaction Test

ASTM INTERNATIONAL (ASTM)

ASTM C117	(2023) Standard Test Method for Materials Finer than 75-um (No. 200) Sieve in Mineral Aggregates by Washing
ASTM C131/C131M	(2020) Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM C136/C136M	(2019) Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM D75/D75M	(2019) Standard Practice for Sampling Aggregates
ASTM D1556/D1556M	(2015; E 2016) Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method
ASTM D1557	(2012; E 2015) Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3) (2700 kN-m/m3)
ASTM D2167	(2015) Density and Unit Weight of Soil in Place by the Rubber Balloon Method
ASTM D4318	(2017; E 2018) Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils

ASTM D6938	(2017a) Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)
ASTM E11	(2024) Standard Specification for Woven Wire Test Sieve Cloth and Test Sieves

1.3 DEGREE OF COMPACTION

Degree of compaction required, except as noted in the second sentence, is expressed as a percentage of the maximum laboratory dry density obtained by the test procedure presented in ASTM D1557 abbreviated as a percent of laboratory maximum dry density. Since ASTM D1557 applies only to soils that have 30 percent or less by weight of their particles retained on the 3/4 inch sieve, the degree of compaction for material having more than 30 percent by weight of their particles retained on the 3/4 inch sieve will be expressed as a percentage of the laboratory maximum dry density in accordance with AASHTO T 180 Method D and corrected with AASHTO T 224.

1.4 SUBMITTALS

Government approval is required for submittals with a "G" or "S" classification. Submittals not having a "G" or "S" classification are for Contractor Quality Control approval. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-03 Product Data

Plant, Equipment, and Tools;

Waybills And Delivery Tickets

SD-06 Test Reports

Initial Tests;

In-Place Tests;

1.5 EQUIPMENT, TOOLS, AND MACHINES

All plant, equipment, and tools used in the performance of the work will be subject to approval by the Contracting Officer before the work is started. Maintain all plant, equipment, and tools in satisfactory working condition at all times. Submit a list of proposed equipment, including descriptive data. Provide adequate equipment having the capability of minimizing segregation, producing the required compaction, meeting grade controls, thickness control, and smoothness requirements as set forth herein.

1.6 QUALITY ASSURANCE Sampling and testing are the responsibility of the Contractor. Perform sampling and testing using a laboratory approved in accordance with Section 01 45 00 QUALITY CONTROL. Work requiring testing will not be permitted until the testing laboratory has been inspected and approved. Test the materials to establish compliance with the specified requirements and perform testing at the specified frequency. The Contracting Officer may specify the time and location of the tests. Furnish copies of test results to the Contracting Officer within 24 hours of completion of the tests.

1.6.1 Sampling

Take samples for laboratory testing in conformance with ASTM D75/D75M. When deemed necessary, the sampling will be observed by the Contracting Officer.

1.6.2 Testing

1.6.2.1 Sieve Analysis

Perform sieve analysis in conformance with ASTM C117 and ASTM C136/C136M using sieves conforming to ASTM E11.

1.6.2.2 Liquid Limit and Plasticity Index

Determine liquid limit and plasticity index in accordance with ASTM D4318.

1.6.2.3 Moisture-Density Determinations

Determine the laboratory maximum dry density and optimum moisture content in accordance with paragraph DEGREE OF COMPACTION.

1.6.2.4 Field Density Tests

Measure field density in accordance with ASTM D1556/D1556M, ASTM D2167 or ASTM D6938. For the method presented in ASTM D1556/D1556M use the base plate as shown in the drawing. For the method presented in ASTM D6938 check the calibration curves and adjust them, if necessary, using only the sand cone method as described in paragraph Calibration, of the ASTM publication. Tests performed in accordance with ASTM D6938 result in a wet unit weight of soil and ASTM D6938 will be used to determine the moisture content of the soil. Also check the calibration curves furnished with the moisture gauges along with density calibration checks as described in ASTM D6938. Make the calibration checks of both the density and moisture gauges using the prepared containers of material method, as described in paragraph Calibration of ASTM D6938, on each different type of material being tested at the beginning of a job and at intervals as directed. Submit calibration curves and related test results prior to using the device or equipment being calibrated.

1.6.2.5 Wear Test

Perform wear tests on aggregate surface course material in conformance with ASTM C131/C131M.

1.7 ENVIRONMENTAL REQUIREMENTS

Perform construction when the atmospheric temperature is above 35 degrees F. It is the responsibility of the Contractor to protect, by approved method or methods, all areas of surfacing that have not been accepted by the Contracting Officer. Bring surfaces damaged by freeze, rainfall, or other weather conditions to a satisfactory condition.

PART 2 PRODUCTS

2.1 AGGREGATES

Provide aggregates consisting of clean, sound, durable particles of crushed gravel or crushed stone. Provide aggregates free from lumps and balls of clay, organic matter, objectionable coatings, and other foreign materials.

2.1.1 Coarse Aggregates

The material retained on the No. 4 sieve is known as coarse aggregate. Use only coarse aggregates that are reasonably uniform in density and quality. Use only coarse aggregate having a percentage of wear not exceeding 50 percent after 500 revolutions as determined by ASTM C131/C131M. The amount of flat and/or elongated particles must not exceed 20 percent. A flat particle is one having a ratio of width to thickness greater than three; an elongated particle is one having a ratio of length to width greater than three. When the coarse aggregate is supplied from more than one source, aggregate from each source must meet the requirements set forth herein.

2.1.2 Fine Aggregates

The material passing the No. 4 sieve is known as fine aggregate. Fine aggregate consists of screenings, sand, soil, or other finely divided mineral matter that is processed or naturally combined with the coarse aggregate.

2.1.3 Gradation Requirements

Gradation requirements apply to the completed aggregate surface. Provide aggregates that are continuously well graded and conform to the gradation requirements for #304 Aggregate in accordance with the Ohio Department of Transportation Construction and Material Specifications.

2.2 LIQUID LIMIT AND PLASTICITY INDEX

The portion of the completed aggregate surface course passing the No. 40 sieve must have a maximum liquid limit of 35 and a plasticity index of 4 to 9.

2.3 TESTS, INSPECTIONS, AND VERIFICATIONS

2.3.1 Initial Tests

Perform one of each of the following tests, on the proposed material prior to commencing construction, to demonstrate that the proposed material meets all specified requirements when furnished. Complete this testing for each source if materials from more than one source are proposed.

a. Sieve Analysis.

b. Liquid limit and plasticity index.

c. Moisture-density relationship.

d. Wear.

Submit certified copies of test results for approval not less than 30 days before material is required for the work.

2.3.2 Approval of Material

Tentative approval of material will be based on initial test results.

PART 3 EXECUTION

3.1 OPERATION OF AGGREGATE SOURCES

Finalize aggregate sources on private lands in agreement with local laws or authorities.

3.2 STOCKPILING MATERIAL

Prior to stockpiling the material, clear and level the storage sites. Stockpile all materials, including approved material available from excavation and grading, in the manner and at the locations designated. Stockpile aggregates in such a manner that will prevent segregation. Stockpile aggregates and binders obtained from different sources separately.

3.3 PREPARATION OF UNDERLYING SUBGRADE

Clean the subgrade and shoulders of all foreign substances. Do not construct the surface course on subgrade that is frozen material. Correct ruts or soft yielding spots in the subgrade, areas having inadequate compaction and deviations of the surface from the requirements set forth herein by loosening and removing soft or unsatisfactory material and by adding approved material, reshaping to line and grade and recompacting to density requirements specified in Section 31 00 00 EARTHWORK . Do not allow traffic or other operations to disturb the completed subgrade and maintain in a satisfactory condition until the surface course is placed.

3.4 GRADE CONTROL

During construction, maintain the lines and grades including crown and cross slope indicated for the aggregate surface course by means of line and grade stakes placed by the Contractor in accordance with the SPECIAL CONTRACT REQUIREMENTS.

3.5 MIXING AND PLACING MATERIALS

Mix and place the materials to obtain uniformity of the material and a uniform optimum water content for compaction. Make adjustments in mixing, placing procedures, or in equipment to obtain the true grades, to minimize segregation and degradation, to obtain the desired water content, and to ensure a satisfactory surface course.

3.6 LAYER THICKNESS

Place the aggregate material on the subgrade in layers of uniform thickness. Compact the completed aggregate surface course to the thickness indicated. No individual layer may be thicker than 6 inches nor be thinner than 3 inches in compacted thickness. Compact the aggregate surface course to a total thickness that is within 1/2 inch of the thickness indicated. Where the measured thickness is more than 1/2 inch deficient, correct such areas by scarifying, adding new material of proper gradation, reblading, and recompacting as directed. Where the measured thickness is more than 1/2 inch thicker than indicated, the course will be considered as conforming to the specified thickness requirements. The average job thickness will be the average of all thickness measurements taken for the job and must be within 1/4 inch of the thickness indicated. Measure the total thickness of the aggregate surface course at intervals of one measurement for each 500 square yards of surface course. Measure total thickness using 3 inch diameter test holes penetrating the aggregate surface course.

3.7 COMPACTION

Degree of compaction is a percentage of the maximum density obtained by the test procedure presented in ASTM D1557 abbreviated herein as percent laboratory maximum density. Compact each layer of the aggregate surface course with approved compaction equipment, as required in the following paragraphs. Maintain the water content during the compaction procedure at optimum or at the percentage specified by the Contracting Officer. Compact the mixture with mechanical tampers in locations not accessible to rollers. Continue compaction until each layer through the full depth is compacted to at least 100 percent of laboratory maximum density. Remove any materials that are found to be unsatisfactory and replace them with satisfactory material or rework them to produce a satisfactory material.

3.8 [Enter Appropriate Subpart Title Here]

3.9 EDGES OF AGGREGATE SURFACE COURSE

Place approved material along the edges of the aggregate surface course in such quantity as to compact to the thickness of the course being constructed. Simultaneously roll and compact at least 1 foot of shoulder width with the rolling and compacting of each layer of the surface course when the course is being constructed in two or more layers.

3.10 SMOOTHNESS TEST

Construct each layer so that the surface shows no deviations in excess of 3/4 inch when tested with a 10 foot straightedge applied both parallel with and at right angles to the centerline of the area to be paved. Correct deviations exceeding this amount by removing material, replacing with new material, or reworking existing material and compacting, as directed.

3.11 FIELD QUALITY CONTROL

3.11.1 In-Place Tests

Perform each of the following tests on samples taken from the placed and compacted aggregate surface course. Take samples and test at the rates indicated.

a. Perform density tests on every lift of material placed and at a frequency of one set of tests for every 250 square yards, or portion thereof, of completed area.

b. Perform sieve analysis on every lift of material placed and at a frequency of one sieve analysis for every 500 square yards, or portion thereof, of material placed.

c. Perform liquid limit and plasticity index tests at the same frequency as the sieve analysis.

d. Measure the thickness of the aggregate surface course at intervals providing at least one measurement for each 500 square yards of base course or part thereof. Measure the thickness using test holes, at least 3 inch in diameter through the aggregate surface course.

3.11.2 Approval of Material

Final approval of the materials will be based on tests for gradation, liquid limit, and plasticity index performed on samples taken from the completed and full coompacted aggregate surface course.

3.12 MAINTENANCE

Maintain the aggregate surface course in a condition that will meet all specification requirements until accepted.

-- End of Section --

SECTION 33 40 00

STORMWATER UTILITIES
11/21

PART 1 GENERAL

1.1 REFERENCES

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

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)

AASHTO HB-17	(2002; Errata 2003; Errata 2005, 17th Edition) Standard Specifications for Highway Bridges
AASHTO M 43	(2005; R 2018) Standard Specification for Sizes of Aggregate for Road and Bridge Construction
AASHTO M 288	(2021) Standard Specification for Geosynthetic Specification for Highway Applications
AASHTO M 294	(2021) Standard Specification for Corrugated Polyethylene Pipe, 300- to 1500-mm (12- to 60-in.) Diameter

ASTM INTERNATIONAL (ASTM)

ASTM A48/A48M	(2022) Standard Specification for Gray Iron Castings
ASTM A123/A123M	(2024) Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
ASTM A536	(2024) Standard Specification for Ductile Iron Castings
ASTM A760/A760M	(2015, R 2020) Standard Specification for Corrugated Steel Pipe, Metallic-Coated for Sewers and Drains
ASTM A1011/A1011M	(2023) Standard Specification for Steel Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength
ASTM B26/B26M	(2018; E 2018) Standard Specification for Aluminum-Alloy Sand Castings
ASTM C231/C231M	

(2024) Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method

ASTM C478/C478M	(2022) Standard Specification for Circular Precast Reinforced Concrete Manhole Sections
ASTM D1751	(2018) Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)
ASTM D1752	(2018) Standard Specification for Preformed Sponge Rubber, Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction
ASTM D2321	(2020) Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications
ASTM D2564	(2020) Standard Specification for Solvent Cements for Poly(Vinyl Chloride) (PVC) Plastic Piping Systems
ASTM D3034	(2016) Standard Specification for Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings
ASTM F477	(2014; R 2021) Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe
ASTM F679	(2016) Standard Specification for Poly(Vinyl Chloride) (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fittings
ASTM F714	(2024) Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Outside Diameter
ASTM F794	(2021) Standard Specification for Poly(Vinyl Chloride) (PVC) Profile Gravity Sewer Pipe and Fittings Based on Controlled Inside Diameter
ASTM F894	(2024) Standard Specification for Polyethylene (PE) Large Diameter Profile Wall Sewer and Drain Pipe
ASTM F949	(2020) Standard Specification for Poly(Vinyl Chloride) (PVC) Corrugated Sewer Pipe with a Smooth Interior and Fittings

1.2 SUBMITTALS

Government approval is required for submittals with a "G" or "S" classification. Submittals not having a "G" or "S" classification are for Contractor Quality Control approval. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-06 Test Reports

Leakage Test;

SD-07 Certificates

Hydrostatic Test on Watertight Joints;

Frame and Cover or Gratings;

SD-08 Manufacturer's Instructions

Placing Pipe and Box Culvert;

SD-11 Closeout Submittals

Post-Installation Inspection Report;

1.3 DELIVERY, STORAGE, AND HANDLING

1.3.1 Delivery and Storage

Inspect materials delivered to site for damage and unload and store materials with minimumal handling. Do not store materials directly on the ground. Keep the inside of pipes and fittings free of dirt and debris. Before, during, and after installation, protect plastic pipe and fittings from any environment that would result in damage or deterioration to the material. Keep a copy of the manufacturer's instructions available at the construction site at all times and follow these instructions unless directed otherwise by the Contracting Officer. Store solvents, solvent compounds, lubricants, elastomeric gaskets, and any similar materials required to install plastic pipe in accordance with the manufacturer's recommendations and discard if the storage period exceeds the recommended shelf life. Discard solvents in use when the recommended pot life is exceeded.

1.3.2 Handling

Handle materials in a manner that ensures delivery to the trench in sound, undamaged condition. Carry pipe to the trench.

PART 2 PRODUCTS

2.1 PIPE FOR CULVERTS AND STORM DRAINS

Pipe sizes for culverts and storm drains are indicated on the drawings.

2.1.1 Poly Vinyl Chloride (PVC) Pipe

2.1.1.1 Type PSM PVC Pipe

ASTM D3034, maximum SDR 35.

2.1.1.2 Profile PVC Pipe

ASTM F794, Series 46. 2.1.1.3 Smooth

Wall PVC Pipe

ASTM F679. 2.1.1.4 Corrugated PVC

Pipe

ASTM F949.

2.1.2 Polyethylene (PE) Pipe

2.1.2.1 Smooth Wall PE Pipe

ASTM F714, maximum DR of 21 for pipes 3 to 24 inches in diameter and maximum DR of 26 for pipes 26 to 48 inches in diameter. Polyethylene compound material designation PE3608.

2.1.2.2 Corrugated PE Pipe

AASHTO M 294, Type S. Provide pipe walls having the following properties:

Nominal Size (inch)	Minimum Wall Area (square in/ft)	Minimum Moment of Inertia of Wall Section (in. to the 4th/in.)
12	1.5	0.024
15	1.91	0.053
18	2.34	0.062
24	3.14	0.116
30	3.92	0.163
36	4.50	0.222
42	4.69	0.543
48	5.15	0.543
54	5.67	0.800
60	6.45	0.800

2.1.2.3 Profile Wall PE Pipe

ASTM F894, RSC 160. Provide pipe walls having the following properties:

Nominal Size (inch)	Minimum Wall Area (square in/ft)	Minimum Moment (in to the 4th/in)	
		Cell Class 334433C	Cell Class 335434C
18	2.96	0.052	0.038
21	4.15	0.070	0.051
24	4.66	0.081	0.059
27	5.91	0.125	0.091
30	5.91	0.125	0.091
33	6.99	0.161	0.132
36	7.81	0.202	0.165
42	8.08	0.277	0.227
48	8.82	0.338	0.277

2.2 PIPE JOINTS

[Provide joints that have been tested for and meet the requirements of paragraph HYDROSTATIC TEST ON WATERTIGHT JOINTS.]

2.2.1 PVC Plastic Pipe

Provide solvent cement or elastomeric gasket type joints in accordance with the specification for the pipe and as recommended by the pipe manufacturer. Use solvent cement conforming to ASTM D2564. Provide gaskets for elastomeric joints conforming to ASTM F477.

2.2.2 Corrugated PE Plastic Pipe

Provide [soil] [silt] [water] tight joints conforming to the requirements in AASHTO M 294. [Make water tight joints using a PE coupling and rubber gaskets as recommended by the pipe manufacturer. Provide rubber gaskets conforming to ASTM F477.]

2.3 UNDERGROUND STORMWATER RETENTION/DETENTION SYSTEM

Provide an underground stormwater retention/detention system that includes [thermoplastic corrugated wall stormwater collection chambers and corrugated PE pipe manifolds] [corrugated PE pipe] [corrugated steel pipe] as indicated. Provide foundation and embedment stone that is washed, crushed and angular conforming to AASHTO M 43 size 3, 357, 4, 467, 5, 56, or 57. Provide initial fill material conforming to AASHTO M 43 size 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9 or 10. Provide geotextile conforming to AASHTO M 288.

2.4 MISCELLANEOUS MATERIALS

2.4.1 Concrete

Unless otherwise specified, provide concrete and reinforced concrete conforming to the requirements for [_____] psi concrete under Section 03 30 00 CAST-IN-PLACE CONCRETE. Provide air content by volume of concrete mixture, based on measurements made immediately after discharge from the mixer, of 5 to 7 percent when maximum size of coarse aggregate exceeds 1-1/2 inches. Determine air content in accordance with ASTM C231/C231M. Provide a minimum concrete covering over steel reinforcing of not less than 1 inch thick for covers and not less than 1-1/2 inches thick for walls and flooring. For concrete deposited directly against the ground, provide a covering thickness of at least 3 inches between steel and ground. Provide expansion-joint filler material conforming to ASTM D1751, or ASTM D1752, or provide be resin-impregnated fiberboard conforming to the physical requirements of ASTM D1752.

2.4.2 Precast Reinforced Concrete Manholes

Provide precast reinforced concrete manholes conforming to ASTM C478/C478M. Provide joints between precast concrete risers and tops that are [full-bedded in cement mortar and smoothed to a uniform surface on both interior and exterior of the structure] [or] [made with flexible watertight, rubber-type gaskets meeting the requirements of paragraph PIPE JOINTS].

2.4.3 Frame and Cover or Gratings

[Submit certification on the ability of frame and cover or gratings to carry the imposed live load indicated on the drawings.] Provide frame and cover or gratings made of cast gray iron, ASTM A48/A48M, Class 35B; cast ductile iron, ASTM A536, Grade 65-45-12; or cast aluminum, ASTM B26/B26M, Alloy 356.0-T6. [Provide curb inlet grates conforming to the weight, shape, size, and waterway openings indicated on the plans.]Stamp or cast the word "Storm Sewer" into covers so that it is plainly visible.

2.4.4 Corrugated Steel Pipe Slotted Drain

Provide slotted drain consisting of galvanized steel grate welded in a continuous slot cut in the top of a corrugated steel pipe. Use Type I corrugated steel pipe conforming to ASTM A760/A760M with zinc coated [____] gage steel sheet and helical 2-2/3 by 1/2 inch corrugations.
Provide grates with a 1-3/4 inch wide top opening and a [uniform height of [2-1/2 inches] [6 inches] [_____] inches] [variable height as indicated]. Fabricate grating using two [straight] [trapezoidal] sided 3/16 inch thick steel bearing bars with 3/16 inch thick steel solid web spacers spaced at 6 inch centers. Fabricate grating using steel conforming to
ASTM A1011/A1011M, grade 36. Galvanize steel grating in accordance with ASTM A123/A123M. Fillet weld grate to the corrugated steel pipe on each side of the grate at every other corrugation. Join pipe sections with coupling bands.

PART 3 EXECUTION

3.1 EXCAVATION FOR PIPE CULVERTS, BOX CULVERTS, STORM DRAINS, AND DRAINAGE STRUCTURES

Excavate trenches, excavate for appurtenances and backfill for culverts

and storm drains, in accordance with the applicable portions of Section 31 00 00 EARTHWORK and the requirements specified below.

3.1.1 Trenching

Excavate trenches to the width indicated on the drawings or as specified herein. Trench width should permit satisfactory jointing and thorough tamping of the bedding material under and around the pipe. Place sheeting and bracing, where required, within the trench width as specified, without any overexcavation.

3.1.2 Removal of Rock

Replace rock in either ledge or boulder formation with suitable materials to provide a compacted earth cushion. Provide a compacted earth cushion between unremoved rock and the pipe with a thickness of at least 8 inches or 1/2 inch for each foot of fill over the top of the pipe, whichever is greater, but not more than three-fourths the nominal diameter of the pipe. Maintain the cushion under the bell as well as under the straight portion of the pipe where bell-and-spigot pipe is used. Provide a compacted earth cushion between unremoved rock and the box culvert of at least 8 inches in thickness for concrete box culverts. Excavate rock as specified and defined in Section 31 00 00 EARTHWORK.

3.1.3 Removal of Unstable Material

Where wet or otherwise unstable soil incapable of properly supporting the pipe or box culvert, as determined by the Contracting Officer, is unexpectedly encountered in the bottom of a trench, remove such material to the depth required and replace with select granular material to the proper grade. Compact select granular material as specified in paragraph FINAL BACKFILL. When removal of unstable material is due to the fault or neglect of the Contractor while performing shoring and sheeting, water removal, or other specified requirements, perform such removal and replacement at no additional cost to the Government.

3.2 BEDDING AND INITIAL BACKFILL

Provide a firm bedding foundation of uniform density throughout the entire length of the pipe or box culvert.

3.2.1 Plastic Pipe

Provide bedding for PVC, PE, SRPE and PP pipe meeting the requirements of ASTM D2321. Use Class IB or II material for PVC, PE, SRPE pipe bedding, haunching, and initial backfill. Use Class I, II, or III material for PP pipe bedding, haunching and initial backfill.

3.3 PLACING PIPE

Submit printed copies of the pipe or box culvert manufacturer's recommended pipe or box culvert installation procedures prior to installation. Thoroughly examine each section of pipe or box culvert before being laid; do not use defective or damaged pipe. Protect plastic pipe, excluding SRPE pipe, from exposure to direct sunlight prior to laying, if necessary to maintain adequate pipe stiffness and meet installation deflection requirements. Lay pipelines to the grades and alignment indicated. Provide proper facilities for lowering sections of pipe into trenches.

Do not lay pipe in water or when trench conditions or weather are unsuitable for such work. Divert drainage or dewater trenches during construction as necessary. Deflection of installed flexible pipe must not exceed the following limits:

TYPE OF PIPE	MAXIMUM ALLOWABLE DEFLECTION (percent)
Plastic (PVC, HDPE, SRPE, and PP)	5

3.3.1 PE, SRPE, and Dual Wall and Triple Wall PP Pipe

Lay on a bed shaped to line and grade and joint sections together in accordance with manufacturer's guidelines.

3.4 DRAINAGE STRUCTURES

3.4.1 Manholes and Inlets

Construct manholes of precast reinforced concrete. Construct inlets of precast reinforced concrete. Provide manholes and inlets complete with frames and covers or gratings as indicated.

3.5 [Enter Appropriate Subpart Title Here]

3.6 FINAL BACKFILL

Backfill trenches with satisfactory material deposited in layers of a maximum of 8 inches loose thickness and compacted to 90 percent of maximum density for cohesive soils and 95 percent of maximum density for cohesionless soils in accordance with Section 31 00 00 EARTHWORK. Testing is the responsibility of the Contractor and will be performed at no additional cost to the Government. Unless otherwise specified, determine field in-place density of final backfill at a frequency of one test per 50 linear feet, or fraction thereof, of each lift of backfill. Submit test results in accordance with Section 31 00 00 EARTHWORK. Do not displace or damage pipe or box when compacting final backfill by rolling or operating heavy equipment parallel with the pipe or box. Movement of construction machinery over a culvert or storm drain at any stage of construction will be at the Contractor's risk. Repair or replace any damaged pipe. Protect concrete pipes with a minimum of 3 feet of cover prior to permitting heavy construction equipment to pass over them during construction. Provide the minimum cover for construction loads over corrugated steel pipes as specified in Section 26, Division II of AASHTO HB-17. Provide minimum cover for construction loads over plastic pipes as specified in ASTM D2321.

3.7 PROTECTION

Protect storm drainage piping and adjacent areas from superimposed and external loads during construction.

3.8 WARRANTY PERIOD

Pipe segments found to have defects during the warranty period must be replaced with new pipe and retested.

-- End of Section --