

SOLICITATION, OFFER, AND AWARD <i>(Construction, Alteration, or Repair)</i>	1. SOLICITATION NO.	2. TYPE OF SOLICITATION <input type="checkbox"/> SEALED BID (IFB) <input type="checkbox"/> NEGOTIATED (RFP)	3. DATE ISSUED 30-Sep-2014	PAGE OF PAGES 1 OF 161
	IMPORTANT - The "offer" section on the reverse must be fully completed by offeror.			

4. CONTRACT NO. W56HZV-14-C-L737	5. REQUISITION/PURCHASE REQUEST NO. 0010594830-0003	6. PROJECT NO. PWC010113
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7. ISSUED BY INSTAL & VEHICLE SUP CONTRACTING DIV 6501 E. 11 MILE ROAD WARREN MI 48397-5000	CODE W56HZV	8. ADDRESS OFFER TO <i>(If Other Than Item 7)</i> CODE
TEL:	FAX:	See Item 7
TEL:	FAX:	TEL:
TEL:	FAX:	FAX:

9. FOR INFORMATION CALL:	A. NAME	B. TELEPHONE NO. <i>(Include area code) (NO COLLECT CALLS)</i>
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SOLICITATION

NOTE: In sealed bid solicitations "offer" and "offeror" mean "bid" and "bidder".

10. THE GOVERNMENT REQUIRES PERFORMANCE OF THE WORK DESCRIBED IN THESE DOCUMENTS Repair CARDOX System Building 212	<i>(Title, identifying no., date):</i>
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11. The Contractor shall begin performance within <u>7</u> calendar days and complete it within <u>315</u> calendar days after receiving <input checked="" type="checkbox"/> award, <input type="checkbox"/> notice to proceed. This performance period is <input checked="" type="checkbox"/> mandatory, <input type="checkbox"/> negotiable. (See _____.)

12 A. THE CONTRACTOR MUST FURNISH ANY REQUIRED PERFORMANCE AND PAYMENT BONDS? <i>(If "YES," indicate within how many calendar days after award in Item 12B.)</i> <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	12B. CALENDAR DAYS 7
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13. ADDITIONAL SOLICITATION REQUIREMENTS:

A. Sealed offers in original and _____ copies to perform the work required are due at the place specified in Item 8 by _____ (hour) local time _____ (date). If this is a sealed bid solicitation, offers must be publicly opened at that time. Sealed envelopes containing offers shall be marked to show the offeror's name and address, the solicitation number, and the date and time offers are due.

B. An offer guarantee is, is not required.

C. All offers are subject to the (1) work requirements, and (2) other provisions and clauses incorporated in the solicitation in full text or by reference.

D. Offers providing less than _____ calendar days for Government acceptance after the date offers are due will not be considered and will be rejected.

SOLICITATION, OFFER, AND AWARD (Continued)*(Construction, Alteration, or Repair)***OFFER (Must be fully completed by offeror)**

14. NAME AND ADDRESS OF OFFEROR *(Include ZIP Code)*
 ADDON SERVICES, LLC
 PRITA ABRAHAM
 27789 MOUND RD STE 200
 WARREN MI 48092-2697

15. TELEPHONE NO. *(Include area code)*
 248-703-6997

16. REMITTANCE ADDRESS *(Include only if different than Item 14)*

See Item 14

CODE
6VC96

FACILITY CODE
6VC96

17. The offeror agrees to perform the work required at the prices specified below in strict accordance with the terms of this solicitation, if this offer is accepted by the Government in writing within _____ calendar days after the date offers are due. *(Insert any number equal to or greater than the minimum requirements stated in Item 13D. Failure to insert any number means the offeror accepts the minimum in Item 13D.)*

AMOUNTS

SEE SCHEDULE OF PRICES

18. The offeror agrees to furnish any required performance and payment bonds.

19. ACKNOWLEDGMENT OF AMENDMENTS*(The offeror acknowledges receipt of amendments to the solicitation -- give number and date of each)*

AMENDMENT NO.

DATE

20A. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN
 OFFER *(Type or print)*

20B. SIGNATURE

20C. OFFER DATE

AWARD (To be completed by Government)

21. ITEMS ACCEPTED:

SEE SCHEDULE

22. AMOUNT

\$3,999,938.00

23. ACCOUNTING AND APPROPRIATION DATA

See Schedule

24. SUBMIT INVOICES TO ADDRESS SHOWN IN
(4 copies unless otherwise specified)

ITEM

25. OTHER THAN FULL AND OPEN COMPETITION PURSUANT TO

 10 U.S.C. 2304(c) 41 U.S.C. 253(c)

26. ADMINISTERED BY

CODE

W56HZV

INSTAL & VEHICLE SUP CONTRACTING DIV
 RACHEL SERRA
 CCTA-HDC-B/MS350
 RACHELL.SERRA.CIV@MAIL.MIL
 WARREN MI 48397-5000

27. PAYMENT WILL BE MADE BY:

CODE

HQ0490

DFAS-INDY VP GFEB5
 8899 E 56TH STREET
 INDIANAPOLIS IN 46249-3800

CONTRACTING OFFICER WILL COMPLETE ITEM 28 OR 29 AS APPLICABLE

28. NEGOTIATED AGREEMENT *(Contractor is required to sign this document and return ___1___ copies to issuing office.)* Contractor agrees to furnish and deliver all items or perform all work, requisitions identified on this form and any continuation sheets for the consideration stated in this contract. The rights and obligations of the parties to this contract shall be governed by (a) this contract award, (b) the solicitation, and (c) the clauses, representations, certifications, and specifications or incorporated by reference in or attached to this contract. REF: Proposal dated 27 SEP 2014

29. AWARD *(Contractor is not required to sign this document.)*

Your offer on this solicitation, is hereby accepted as to the items listed. This award commutes the contract, which consists of (a) the Government solicitation and your offer, and (b) this contract award. No further contractual document is necessary.

30A. NAME AND TITLE OF CONTRACTOR OR PERSON AUTHORIZED TO SIGN *(Type or print)*

31A. NAME OF CONTRACTING OFFICER *(Type or print)*
 JOHN SARTI / CONTRACTING OFFICER

30B. SIGNATURE

30C. DATE

TEL: 586-282-6524

EMAIL: john.m.sarti2.civ@mail.mil

31B. UNITED STATES OF AMERICA
 BY *John Sarti*

31C. AWARD DATE
 30-Sep-2014

Section B - Supplies or Services and Prices

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0001					\$0.00

PWC020114, Electrical Substation

FFP

The contractor shall provide design and furnish all labor and materials to perform the project titled, "Repair Electrical Substation Building 212" in accordance with Section C, Scope of Work and drawings for Work Order, PWC020114, dated 27 SEP 2014.

Payment and Performance Bonds are required.

Wage Determinations (Macomb County) General Decision Number MI140091, dated 26 SEP 2014 applies.

For invoicing instructions, see clause: 52.232-4007, Wide Area Workflow.

FOB: Destination

NET AMT

\$0.00

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0001AA		1	Job	\$2,367,900.00	\$2,367,900.00

PWC020114,Electrical Substation Bldg 212

FFP

The contractor shall provide design and furnish all labor and materials to perform the project titled, "Repair Electrical Substation Building 212" in accordance with Section C, Scope of Work and drawings for Work Order, PWC020114, dated 27 SEP 2014.

Payment and Performance Bonds are required.

Wage Determinations (Macomb County) General Decision Number MI140091, dated 26 SEP 2014 applies.

For invoicing instructions, see clause: 52.232-4007, Wide Area Workflow.

FOB: Destination

PURCHASE REQUEST NUMBER: 0010594830-0003

NET AMT	\$2,367,900.00
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ACRN AA

\$2,367,900.00

CIN: GFEB001059483000001

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0001AB		1	Job	\$340,776.50	\$340,776.50

PWC020114,Electrical Substation Bldg 212

FFP

The contractor shall provide design and furnish all labor and materials to perform the project titled, "Repair Electrical Substation Building 212" in accordance with Section C, Scope of Work and drawings for Work Order, PWC020114, dated 27 SEP 2014.

Payment and Performance Bonds are required.

Wage Determinations (Macomb County) General Decision Number MI140091, dated 26 SEP 2014 applies.

For invoicing instructions, see clause: 52.232-4007, Wide Area Workflow.

FOB: Destination

PURCHASE REQUEST NUMBER: 0010594830-0003

NET AMT \$340,776.50

ACRN AB \$340,776.50

CIN: GFEB001059483000002

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0001AC		1	Job	\$38,306.50	\$38,306.50

PWC020114,Electrical Substation Bldg 212

FFP

The contractor shall provide design and furnish all labor and materials to perform the project titled, "Repair Electrical Substation Building 212" in accordance with Section C, Scope of Work and drawings for Work Order, PWC020114, dated 27 SEP 2014.

Payment and Performance Bonds are required.

Wage Determinations (Macomb County) General Decision Number MI140091, dated 26 SEP 2014 applies.

For invoicing instructions, see clause: 52.232-4007, Wide Area Workflow.

FOB: Destination

PURCHASE REQUEST NUMBER: 0010594830-0003

NET AMT \$38,306.50

ACRN AC \$38,306.50

CIN: GFEB001059483000003

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0001AD		1	Job	\$1,252,955.00	\$1,252,955.00

PWC020114,Electrical Substation Bldg 212

FFP

The contractor shall provide design and furnish all labor and materials to perform the project titled, "Repair Electrical Substation Building 212" in accordance with Section C, Scope of Work and drawings for Work Order, PWC020114, dated 27 SEP 2014.

Payment and Performance Bonds are required.

Wage Determinations (Macomb County) General Decision Number MI140091, dated 26 SEP 2014 applies.

For invoicing instructions, see clause: 52.232-4007, Wide Area Workflow.

FOB: Destination

PURCHASE REQUEST NUMBER: 0010594830-0003

NET AMT \$1,252,955.00

ACRN AD \$1,252,955.00

CIN: GFEB001059483000004

Section C - Descriptions and Specifications

DESCRIPTIONS AND SPECIFICATION

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C.1. GENERAL

C.1.1. The contractor shall furnish, upon receipt of award, all materials, supplies, tools, parts (to include system components), supervision, engineering review and design, transportation, quality control, management, and labor necessary to perform all work in strict accordance with the specifications and technical criteria listed in contract. The contractor's work and responsibility shall include all contractor planning, programming, administration, and management necessary to provide all repair and construction and related services as specified in contract. The contractor may be required to meet compressed schedules, to deal with emergency or urgent requirements. The site location for performance will be identified in contract. Work will require extensive knowledge of the functional operation relating to the efficient use of the facility, equipment, and facility support systems, and building structures. Since the facilities may be in operation, the contractor will be required to minimize interference with other contractors or by Government employees.

C.1.2. The work shall be conducted by the Contractor in strict accordance with the Unified Facilities Criteria (UFC), Army Regulations (AR), the Unified Facilities Guide Specifications (UFGS), the International Building Code (IBC), the Architectural Barriers Act (ABA), the National Fire Protection Association (NFPA) standards, the American National Standards Institute (ANSI) standards, the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) standards, Michigan Occupational Safety & Health Administration (MIOSHA), Michigan Department of Environmental Quality, Michigan Department of Labor and Economic Growth, Macomb County Public Works Office, and all other Federal, state, and local laws, regulations, codes, standards, and directives. The compliance with codes and regulations shall be based on the most stringent requirements, in case there is a conflict between any two codes or any two regulations. The Contractor shall remain abreast of any changes in laws, regulations, codes, standards, and directives which impact these facilities. The UFC and UFGS are available at the Whole Building Design Guide (WBDG) website (<http://dod.wbdg.org/>). UFGS Specification Section 01 42 00 *SOURCES FOR REFERENCE PUBLICATIONS* includes a list of standards publishing organizations and contact information.

C.1.3. The contractor shall minimize environmental pollution and damage or potential damage that may result from their operations. Environmental resources within the project boundaries and those affected outside the limits of work shall be protected for the duration of the contract. The Contractor shall be responsible for work delay resulting from failure to comply with environmental laws and regulations. Failure to comply with environmental requirements is not grounds for an equitable adjustment. The contractor shall confine all activities to areas defined by the design drawings and specifications. The contractor shall be responsible for the actions of all subcontractors to ensure they adhere to all environmental requirements. The Army's goal is to have no enforcement actions at any installation. The contractor's actions and support are absolutely essential to achieve this goal at on the United States Army Garrison-Michigan (USAG-DTA). In the event the USAG-DTA is issued an enforcement action, the contractor shall be liable for the cost of all fines and penalties resulting from the violation of any laws due to their actions or failure to perform in accordance with (IAW) Federal, State or local environmental requirements. Also, the contractor shall be responsible to reimburse the Government for all expenses incurred because of the receipt of any enforcement actions. The contractor is responsible to insure that all subcontractors adhere to all environmental requirements. The contractor shall notify the Contracting Officer or Contracting Officer's Representative (COR) if any actual environmental issues are encountered or potential environmental issues may be encountered.

C.2. CONTRACT COMPETITION

C.2.1. This procurement is an 8(a) set-aside and falls under the exemption at FAR Part 5.202 (a)(4).

C.3. RESERVED

C.4. DESIGN AND CONSTRUCTION SERVICES

C.4.1. RESERVED

C.4.2. RESERVED

C.4.3. RESERVED

C.4.4. RESERVED

C.4.5. The design of architectural, structural, HVAC, plumbing, electrical, communications, fire protection, civil, or other engineering features of the work shall be accomplished or reviewed and approved by architects or engineers registered to practice in the particular professional field involved in a State or possession of the United States, in Puerto Rico, or in the District of Columbia. All plans shall be sealed by the review professional. The contractor shall identify the Designer of Record for each area of work, also to be indicated in the Design Quality Control Plan. One Designer of Record may be responsible for more than one area. All areas of design disciplines shall be accounted for by a listed, State Certified Designer of Record. The Designers of Record shall stamp, sign, and date each design drawing submitted under their responsible discipline for the 100 Percent Design; Corrected Final Design; and Released for Construction Design submittals. Designers of Record shall be employees of, or contracted directly by, the Prime contractor, or shall be an employee of an independent design firm that is contracted directly by the Prime contractor. Drawings, specifications, design analysis, and other design products shall be provided as stated in the RFP.

C.4.6. The Government shall have unlimited rights in all drawings, designs, specifications, notes and other works developed in the performance of a contract, including the right to use on any other Government design or construction without additional compensation to the contractor. The contractor hereby grants to the Government a paid-up license throughout the world to all such works to which he may assert or establish any claim under design patent or copyright laws. The contractor for a period of three years after completion of the project agrees to furnish the original or copies of all such works on the request of the Contracting Officer.

C.4.7. All designs, drawings, specifications, notes, and other works developed in the performance of contracts shall become the sole property of the Government and may be used on any other design or construction without additional compensation to the contractor. The Government shall be considered the “person for whom the work was prepared” for the purpose of authorship in any copyrightable work under 17 U.S.C.201(b). With respect thereto, the contractor agrees not to assert or authorize others to assert any rights nor establish any claim under design patent or copyright laws. The contractor for a period of three years after completion of the project agrees to furnish all retained works on the request of the Contracting Officer. Unless otherwise provided in this contract, the contractor shall have the right to retain copies of all works beyond such period.

C.4.8. RESERVED

C.4.9. RESERVED

C.4.10. Responsibility of the Contractor for Design. The contractor shall be responsible for the professional quality, technical accuracy, and the coordination of all designs, drawings, specifications, and any other non-construction services furnished by the contractor under this contract. The contractor shall, without additional compensation, correct or revise any errors or deficiency in designs, drawings, specifications, and other non-construction services. Neither the Government’s review, approval or acceptance of, nor payment for, the services required under contract shall be construed to operate as a waiver of any rights under contract or of any cause of action arising out of the performance of a contract. The contractor shall be and remain liable to the Government in accordance with applicable law for all damages to the Government caused by the contractor’s negligent performance of any of the services described under contract. The rights and remedies of the Government provided for under contract are in addition to any other rights and remedies provided by law.

C.4.11. Notice to Proceed (NTP). After receipt of the NTP, the contractor shall initiate design, comply with all design submission requirements, and obtain Government review of each submission. No construction may be started until the Government reviews the final design submission and determines it satisfactory for purposes of beginning construction. The Contracting Officer or COR will notify the contractor when the design is cleared for construction by issuing a Released for Construction letter. The Government will not grant any time extension for any design re-submittal required when, in the opinion of the Contracting Officer, the initial submission failed to meet the minimum quality requirements as set forth in the contract.

C.4.12. If the Government allows the contractor to proceed with limited construction based on pending minor revisions to the reviewed final design submission, no payment will be made for any in-place construction related to the pending revisions until they are completed, resubmitted and are satisfactory to the Government.

C.4.13. Constructor's Role During Design Process. The contractor's construction management key personnel shall be actively involved during the design process to effectively integrate the design and construction requirements. In addition to the typical required construction activities, the contractor's involvement includes actions such as: ensuring constructability and economy of the design, integrating the shop drawing and installation drawing process into the design, executing the material and equipment acquisition programs to meet critical schedules, effectively interfacing the construction Quality Control program with the design Quality Control program, and maintaining and providing the design team with accurate, up to date redline and as-built documentation. The contractor shall require and manage the active involvement of key trade subcontractors in the above activities.

C.4.14. Sequence of Design-Construction (Non-Fast Track). After receipt of the NTP, the contractor shall initiate design, comply with all design submission requirements and obtain Government review of each submission. No construction may be started until the Government reviews the final design submission and determines it satisfactory for purposes of beginning construction. The Contracting Officer or COR will notify the contractor when the design is cleared for construction by issuing a Released for Construction letter. The Government will not grant any time extension for any design re-submittal required when, the initial submission fails to meet the minimum quality requirements as set forth in the contract.

C.4.15. Sequence of Design-Construction (Fast Track). After receipt of the NTP, the contractor shall initiate design, comply with all design submission requirements as covered in the Project Book, and obtain Government review of each submission. The contractor may begin construction on portions of the work for which the Government has reviewed the final design submission and has determined satisfactory for beginning construction. The Contracting Officer will notify the contractor when the design is cleared for construction by issuing a Released for Construction letter. The Government will not grant any time extension for any design re-submittal required when the initial submission fails to meet the minimum quality requirements as set forth in the contract. If the Government allows the contractor to proceed with limited construction based on pending minor revisions to the reviewed final design submission, the contracting officer may retain up to 10% of the amount of payment for any in-place construction related to the pending revisions until they are completed, resubmitted, and are satisfactory to the Government.

C.4.16. The contracting officer may retain up to 10% of the amount of payment for any in-place construction until all required submittals have been made, reviewed, and are satisfactory to the Government. Pending minor revisions to the reviewed final design submission, the contracting officer may retain up to 10% of the amount of payment for any in-place construction related to the pending revisions until they are completed, resubmitted and are satisfactory to the Government.

C.5. CONTRACT AWARD

C.5.1. Contract Type. The contract will be Firm-Fixed-Price.

C.5.2. Issuing Authority. The Contracting Officer is designated as issuing authority for contracts placed against the RFP.

C.5.3. Contract Issuance. Contract awards will be issued on SF Form 1442 and will be sent via e-mail. An authorized signer for the contractor must sign and return the contract for award. Upon award of a contract, the contractor shall acknowledge receipt of the contract.

C.5.4. RESERVED

C.5.5. Contract Format. Each contract shall contain the following information:

1. Effective date of contract.
2. Contract number.
3. Contract price, delivery and performance data.
4. Accounting and appropriation data.
5. Wage Determination.
6. Bonding Requirements.

7. Liquidated damages.
8. Scope of Work.
9. Drawings, if applicable.
10. Any other pertinent data determined appropriate by the Contracting Officer.

C.5.6. Bonding Requirements. Payment and performance bonds, if applicable shall be provided to the Contracting Officer within five calendar days after award.

C.5.7. Pre-Construction Meeting and Notice to Proceed. After receipt of acceptable performance and payment bonds, if required, a pre-construction meeting will be held prior to **any** start of work. A NTP agreement will be issued by the Contracting Officer and shall be signed by an official of the company authorized to sign contracts and has authority to bind the company. The contractor shall promptly commence the work specified and in accordance with the provisions contained herein.

C.5.8. Contractor Responsibility. The contractor will be held responsible for all requirements described in the contract documents and all work including that of his subcontractors, if any, shall be done in accordance with the contract documents. Failure to familiarize himself with their requirements will not relieve the contractor of this responsibility to comply.

C.5.8.1. The Contractor shall be responsible for fulfilling the requirements of all applicable parts of the specifications and drawings indicated in the contract. The Contractor shall also be responsible for meeting the following requirements:

C.5.8.2. The Contractor shall be required to prepare reports and correspondence as required by the contract. All correspondence shall reference the contract number and the title on all correspondence, including RFI's, submittals, E-mails.

C.5.8.3. The contractor shall furnish, upon receipt of a contract, all materials, supplies, tools, parts (to include system components), supervision, full and limited engineering, transportation, quality control, management, and labor necessary to perform all work in strict accordance with the specifications and technical criteria necessary to complete various maintenance, repair, alteration and new construction projects.

C.5.9. The Contractor's Site Supervisor and Government representatives shall hold weekly progress meetings for the duration of the contract.

C.6. CONTRACT DATA REQUIREMENTS LIST

C.6.1. Common Data Submittals and Frequencies. The frequency of submittals that may be required are listed below:

TITLE OF DATA ITEM	FREQUENCY
Corporate Safety Plan	Generic Corporate Plan, 30 days after contract award date
Site Specific Safety Plan	Generic Corporate Plan, 30 days after contract award date.
Quality Control Plan	Generic Corporate Plan, 30 days after contract award date.
Environmental Plan	Generic Corporate Plan, 30 days after contract award date.
Waste Management Plan	As required by contract
Soil and Erosion Plan	As required by contract
Dirt and Dust Control Plan	As required by contract
Design	As required by contract
Submittal Registry	As required by contract
Work Schedule	As required by contract
O&M Manuals	As required by contract
Training Plan	As required by contract
Equipment & Construction Warranties	As required by contract
Prepare As-Built Drawings	As required by contract
List of Equipment Installed	As required by contract
Warranty Management Plan	As required by contract

C.7. CONTRACT – ORDER OF PRECEDENCE

C.7.1. The contract between the Government and the successful offeror includes the standard contract clauses and schedules current at the time of award of the contract or modification of the contract. It also entails: all drawings, cuts and illustrations, and any modifications. The material contained in the contract constitutes and defines the entire agreement between the contractor and the Government. No documentation shall be omitted which in any way bears upon the terms of the agreement.

C.7.2. In the event of conflict or inconsistency between any of the provisions of the various portions of the contract, precedence shall be given in accordance with the clause at 52.215-8 Order of Precedence – Uniform Contract Format, as prescribed in FAR 15.209(h).

C.7.3. If there is a conflict between requirements specified in a contract and the Unified Facilities Guide Specifications (UFGS) then the requirements of the contract shall govern and shall be adhered to.

C.8. REPORT OF ERROR AND DISCREPANCIES

C.8.1. The contractor shall be responsible for any and all discrepancies in work due to failure to obtain dimensions and investigate conditions at the building before fabrication and installation.

C.8.2. The contractor shall bear all costs in replacing all materials and labor due to not observing the above paragraph and such replaced materials shall meet the approval of the COR.

C.8.3. The contractor shall promptly notify the Contracting Officer and COR in writing of any discrepancies.

C.8.4. Any proposed changes to the specifications by the contractor must be submitted in writing to the Contracting Officer and COR for approval prior to implementation.

C.9. AMBIGUITY/CONTRACT INTERPRETATION

C.9.1. It shall be the obligation of the contractor to exercise due diligence to discover and to bring to the attention of the Contracting Officer at the earliest possible time any patent ambiguities, discrepancies, inconsistencies, or conflicts in or between the specifications and the applicable drawings or other documents incorporated by reference herein.

C.10. DESIGNATION OF GOVERNMENT REPRESENTATIVES

C.10.1. Contracting Officer. The Contracting Officer is the administrating representative of all contracts. The Contracting Officer is the sole individual with authority to obligate the Government and change contract terms and conditions.

C.10.2. Contracting Officer's Representative (COR). The Contracting Officer shall appoint a qualified COR. The COR is designated as the technical representative of the Contracting Officer for the purpose of technical surveillance of workmanship and inspection of materials for work being performed under contract. This in no way authorizes anyone other than the Contracting Officer to commit the Government to changes in terms of the contract.

C.11. COMPLIANCE WITH STATE AND FEDERAL LAWS AND REQUIREMENTS

C.11.1. The contractor, his employees, and his subcontractors are subject to, and shall abide by and comply with, all relevant statutes, ordinances, laws and regulations of the United States (including Executive Orders of the President) and any State (or other public authority now or hereafter in force). The contractor agrees to observe and comply with all applicable state and Federal requirements regarding social security, workman's compensation, unemployment insurance, and any other matters concerning employment applicable to the performance of a contract or rules, regulations, directions and order not inconsistent herewith as may from time to time be issued by the Government. The unilateral act of any Governmental body against any employee of the contractor for the violation

of a state or Federal law or regulation shall not excuse the contractor from full compliance with the terms and conditions the contract.

C.12. CONTRACTOR STAFF AND EMPLOYEES

C.12.1. Contractor Information. The contractor shall provide the Contracting Officer with a telephone number, fax number, and e-mail address at which the contractor or their representative may be contacted at any time during regular working hours and an emergency number at which the contractor may be contacted in situations requiring immediate action.

C.12.2. Staffing. The manpower and staffing requirements for work will vary. Work requirements are set forth herein. The contractor shall employ adequate manpower capabilities to perform the functions detailed in each contract.

C.12.3. Contractor's Quality Control Manager. The Contractor shall execute the work under the direction of a Contractor's Program Manager. All work shall be accomplished with adequate internal controls and review procedures that will eliminate conflicts, errors, and omissions and ensure the technical accuracy of all output. See Section C.37, "Contractor Quality Control" for further guidance.

C.12.4. Superintendence. The contractor shall give his personal superintendence to the work or have a competent foreman or superintendent, satisfactory to the Contracting Officer, at the work site while work is in progress, with authority to act. The contractor's superintendent is responsible for the overall production and quality of work on the job. The superintendence shall maintain a physical presence at the site at all times and shall be responsible for construction and construction related activities at the site.

C.12.5. Supervision. The contractor's personnel shall, at all times, be under the supervision of the contractor and not Government personnel, whether uniformed or civilian and regardless of rank. The Government shall not exercise any supervision or control over the contractor employees performing services under this contract. Such employees shall be accountable not to the Government, but solely to the contractor, who in turn is responsible to the Government.

C.12.6. Personnel. The contractor shall be responsible to employ and utilize only experienced journeymen overseeing certified apprentices in the field they are working and capable persons in the performance of work under contract. All employees must be citizens of the United States or authorized aliens and shall be able to furnish proof of citizenship or a legal work visa if asked to do so by the Contracting Officer. Only authorized contractor personnel shall be admitted to the worksite at all times.

C.12.7. Removal of Personnel. The Contracting Officer may require the contractor to remove from the job those employees who endanger persons or property; those who manufacture, distribute, dispense, possess, or use controlled substances at the worksite and those whose continued employment under this contract is inconsistent with the interest of military security.

C.12.8. Liability. The contractor hereby agrees to release the Government (to include its officer, enlisted personnel, agents, and employees) from any liability for any loss, damage, or injury sustained by the contractor or his employees during the performance of this contract. The contractor also agrees to indemnify the Government for any loss, damage, or injury to Government personnel or agents or other third parties, provided such loss to the Government is caused by the negligence of the contractor or his personnel while performing this contract.

C.13. PROPOSED KEY PERSONNEL AND PROPOSED MINIMUM QUALIFICATIONS OF KEY PERSONNEL AND PROPOSED SUBCONTRACTORS

C.13.1. RESERVED

C.13.2. Personnel qualifications for all personnel working on a contract shall be in accordance with Unified Facilities Guide Specifications (UFGS).

C.13.2.1. The Project Manager shall have a minimum ten years experience as a Project Manager on construction projects similar to this contract and similar in size and complexity. In addition, the Project Manager shall complete the course entitled "Construction Quality Management for Contractors" prior to the start of construction. For further information, contact the nearest United States Army Corps of Engineers (USACE) Construction Division Office.

C.13.2.2. The Superintendent shall have a minimum ten years experience as a Superintendent on construction projects similar to this contract and similar in size and complexity. In addition, the Project Manager and Superintendent shall complete the course entitled "Construction Quality Management for Contractors" prior to the start of construction. For further information, contact the nearest USACE Construction Division Office.

C.13.2.3. The Contractor's Quality Control (CQC) Manager shall have a minimum of ten years construction experience on construction projects similar to this contract and similar in size and complexity. In addition, the CQC Manager shall complete the course entitled "Construction Quality Management for Contractors" prior to start of construction. For further information, contact the nearest USACE Construction Division Office.

C.14. CONSTRUCTION SCHEDULING, WORK PROGRESS AND PREPARATION OF PROGRESS SCHEDULES AND REPORTS

C.14.1. A weekly progress meeting will be held between the contractor, COR, and Contracting Officer, if necessary, to discuss work progress, problems and potential change orders. Contractors shall attend these meetings at no additional cost to the Government.

C.14.2. Prior to specific work elements of a project, the contractor shall confer with the COR and agree on a sequence of procedures and means of access to premise and buildings; space for storage of materials and equipment; delivery of materials and use of approaches, use of corridors, stairways, and similar means of passage.

C.14.3. Portable furniture in the immediate project area shall be moved by the contractor to a location designated by the COR and replaced to its original position, or an alternate location as determined by the COR, upon completion of the work. Schedules for movement of furniture and equipment and delivery of materials shall be incorporated in the progress schedule and shall be made with a minimum of interference to Government operations and personnel. So far as practicable, the work shall be completed by section and confined to limited areas. Coordination with the COR and the user activity shall be accomplished at least three days in advance.

C.15. SUBMITTALS

WHERE THE FOLLOWING REQUIREMENTS DIFFER FROM REQUIREMENTS ESTABLISHED BY A SPECIFIC CONTRACT, THE CONTRACT REQUIREMENTS SHALL GOVERN.

C.15.1. RESERVED

C.15.2. RESERVED

C.15.3. RESERVED

C.15.4. Approved Submittals. The approval of submittals by COR shall not be construed as a acceptance but will indicate only that the general method of construction, materials, detailing, and other information are satisfactory. Approval will not relieve the contractor of the responsibility for providing adequate quality control measures, compliance with contract requirements, and satisfactory construction of all work. After the COR has approved submittals, no re-submittal for the purpose of substituting materials or equipment will be given consideration unless accompanied by an explanation as to why a substitution is necessary. Upon completion of review of submittals requiring Government approval, the submittals will be identified as having received approval by being so signed and dated. Electronic copy of the submittal will be retained by the COR and a copy of the submittal will be returned to the contractor.

C.15.5. Disapproved Submittals. The contractor shall make all corrections required by the Contracting Officer and COR and promptly furnish a corrected submittal in the form and number of copies as specified for the initial submittal. If the contractor considers any correction indicated on the submittals to constitute a change to the contract, notice as required under the contract clause 52.243-4, entitled "Changes" shall be given promptly to the Contracting Officer.

C.15.6. Withholding Payment. Payment for materials incorporated in the work will not be made if required approvals have not been obtained.

C.15.7. Submittal Execution.

C.15.7.1. The contractor, upon receipt of contract and prior to beginning execution of any work on the project, shall submit shop drawings to the COR for approval.

C.15.7.2. The Contracting Officer shall have 14 calendar days after date of receipt in which to approve or reject the submittals.

C.15.7.3. The contractor shall include time for this submittal process in the project schedule.

C.15.7.4. If approved by the COR, each copy of the submittals will be identified as having received such approval by being so stamped and dated.

C.15.7.5. The contractor shall make all corrections required by the COR.

C.15.7.6. The approved drawings shall not be construed as acceptance but will indicate only that the general method of construction and detailing is satisfactory. Approval of such drawings will not relieve the contractor of the responsibility for providing adequate quality control measures, compliance with contract requirements, and satisfactory construction of all work.

C.15.7.7. Submittals shall be submitted to the address specified by the contract.

C.15.7.8. RESERVED

C.15.7.9. RESERVED

C.15.8. Certification. The contractor is responsible for and shall certify that the submittals comply with contract requirements. For design-build construction, both the Contractor Quality Control System Manager and the Designer of Record are to stamp and sign to certify that the submittal meets contract requirements.

C.15.8.1. Drawings. Each drawing shall be not more than 28 inches high by 42 inches wide, with a USAG-DTA title. Title block shall contain subcontractors or fabricator's name, contract number, description of item(s), bid item number, and a revision block. The contractor shall submit the required number of prints of any type and CD copy in DGN format. Where drawings are submitted for assemblies of more than one piece of equipment or systems of components dependent on each other for compatible characteristics, complete information shall be submitted on all such related components at the same time. The contractor shall ensure that information is complete and that sequence of drawing submittal is such that all information is available for reviewing each drawing. Drawings for all items and equipment, of special manufacture or fabrication, shall consist of complete assembly and detail drawings. All revisions after initial submittal shall be shown by number, date, and subject in revision block. All drawings shall be submitted on a CD in DGN format and Adobe Acrobat Portable Document Format.

C.15.8.2 Printed Material. All requirements for shop drawings shall apply to catalog cuts, illustrations, printed specifications, or other data submitted. Inapplicable portions shall be marked out and applicable items such as model numbers, sizes, and accessories shall be indicated.

C.15.8.3 Changes To Previous Submittals. It is the Government's intent to standardize equipment and materials utilized and installed. In the event the contractor desires to change materials or equipment previously submitted, the

contractor must annotate the transmittal block of the ENG Form 4025 as "Change to previous transmittal number ", and forward the submittal for Government approval.

C.15.8.4. Processing of Government Approved Submittals. Submittals requiring Government approval shall be submitted as specified in this contract. Having a completed copy of ENG Form 4025 attached to it shall identify each copy submitted. Submittals will be reviewed and processed as stated in UFGS Specification Section 01 33 00, *SUBMITTAL PROCEDURES*.

C.15.8.5. Processing of Information Only Submittals. Copies of submittals that are submitted for information only shall be submitted prior to ordering of the material or equipment to the job site. Each copy submitted shall be identified by having a completed copy of ENG Form 4025 attached to it. ENG Form 4025 shall be marked as follows to identify the contractor approved submittals. An asterisk shall be placed in column "h" and the words "contractor approved information copy only" shall be placed in the remarks block of the form. Submittals will be monitored and spot checks will be made. When such checks indicate noncompliance, the contractor will be notified by the same method used for Government approvals. In the event the contractor requests evidence of Government receipt of submittals, an additional completed ENG Form 4025 shall be submitted (without attachments) which will be returned to the contractor to signify that the submittal has been received.

C.15.8.6. Transmittal Checklist. The following checklist is intended to aid in the preparation of ENG Form 4025 and related transmittals and is intended only as a partial summary of requirements stated elsewhere within this specification.

- a. DO NOT submit multiple 5-digit specification sections on one ENG Form 4025.
- b. Transmittal # 1 shall be the Submittal Register. Subsequent submittals shall be numbered sequentially as submitted except for re-submittals. Re-submittals must be related to the parent (original) transmittal, i.e. transmittal no. 2 re-submittal would be number 2A, etc.
- c. Government Approval; Submit the number of copies as specified in this contract for enclosures; each with ENG Form 4025 attached. Information only; submit the number of copies specified in this contract for enclosures, each with ENG Form 4025 attached.
- d. Break the submittal into items that can be reviewed independently. For a transmittal with more than 9 items use multiple sets of ENG Form 4025.
- e. Item numbers must be written on the enclosures and the ENG Form 4025.
- f. Only ONE copy with the information required by items 2 and 5 above should be collated by items into a booklet form.
- g. Enter the specification technical paragraph for each Item in column "e" on the ENG Form 4025.
- h. Identify the contract drawing number that applies, if applicable, in column "2" on ENG Form 4025.
- i. Variations shall be identified in Description of Material column on ENG Form 4025 and justified in the Remarks Block on the reverse of the form.
- j. Cross out inapplicable portions of submitted data or point to exact equipment being used on the project.
- k. Allow a minimum 14 calendar days for submittals requiring Government Approval.
- l. DIGITALLY SIGN the ENG Form 4025.

C.16. METHOD OF CARRYING ON THE WORK

C.16.1. All work under the contract shall be arranged and carried on in such a manner as to complete work in the least possible time. The contractor shall consult with the Contracting Officer and the COR as to methods or sequence of carrying on the work.

C.16.2. Activities in the vicinity of this project may be kept in full or partial operation during construction. The contractor shall coordinate with the COR and schedule construction activities.

C.17. LAYOUT AND GRADES

C.17.1. All lines and grade work not presently established at the site shall be laid out by the contractor in accordance with the drawings and specifications. The contractor shall maintain all established boundaries and benchmarks and replace as directed any which are destroyed or disturbed.

C.18. SCHEDULING OF PRE-FINAL AND FINAL INSPECTIONS

C.18.1. Notification for Pre-Final Inspection. The contractor and the Government will jointly conduct a pre-final inspection prior to any final inspection. Prior to requesting a pre-final inspection, the contractor shall inspect his work thoroughly and make required corrections. Request for the pre-final inspection shall be made in writing to the COR at least five calendar days prior to the desired date.

C.18.2. Pre-Final Inspection. Discrepancies noted will be furnished by the COR. The COR is responsible for furnishing a complete punch list, in writing, to the contractor. Items noted on the punch list will be completed prior to scheduling a final inspection.

C.18.3. As-Built drawings, real property data, warranties, O&M manuals, equipment list etc., shall be submitted as specified in the contract.

C.18.4. Notification for Final Inspection. When the contractor is ready for final inspection, he shall request so in writing to the COR or his duly authorized representative at least five calendar days prior to the desired date.

C.18.5. Final Inspection. The final inspection will be performed with the contractor by the COR, consultant team, and representative of the using activity. Discrepancies noted will be corrected within the time specified by the COR.

C.19. AS-BUILT RECORDS AND DRAWINGS, O & M MANUALS AND WARRANTY OF CONSTRUCTION

WHERE THE FOLLOWING REQUIREMENTS DIFFER FROM REQUIREMENTS ESTABLISHED BY A SPECIFIC CONTRACT, THE CONTRACT REQUIREMENTS SHALL GOVERN.

C.19.1. SUBMITTAL PROCEDURES

C.19.2. AS-BUILT FIELD DATA:

C.19.2.1. General. The Contractor shall keep at the construction site a complete set of full size blue line prints or drawings/sketches, reproduced at Contractor expense. As-built drawings shall be provided in accordance with UFGS Specification Section 01 78 00 CLOSEOUT SUBMITTALS. During construction, these prints shall be marked to show all deviations in actual construction from the contract drawings. The color red shall be used to indicate all deletions, green to indicate all additions, and blue to indicate special information, coordination, or special detailing or detailing notes in accordance with UFGS requirements. The drawings shall show the following information:

C.19.2.1.1. The locations and description of any utility lines and other installations of any kind or description known to exist within the construction area. The location includes dimensions to permanent features.

C.19.2.1.2. The locations and dimensions of any changes within the building or structure, and the accurate location and dimensions of all underground utilities and facilities.

C.19.2.1.3. Correct grade or alignment of roads, structures, and utilities if any changes were made from contract plans.

C.19.2.1.4. Correct elevations if changes were made in site grading from the contract plans.

C.19.2.1.5. All changes in details of design or additional information obtained from working drawings specified to be prepared and/or furnished by the contractor.

C.19.2.1.6 The topography and grades of all drainage installed or affected as part of the project construction.

C.19.2.1.7. All changes or modifications from the design and from the final inspection.

C.19.2.1.8. These deviations shall be shown in the same general detail and quality utilized in the contract drawings. Marking of the full-size drawing shall be performed continuously during construction to keep them up to date. This information shall be maintained in a current condition at all times until the completion of the work. The resulting field-marked prints and data shall be referred to and marked as "As-Built Field Data" and shall be used for no other purpose. They shall be made available for inspection by the Contracting Officer and a responsible representative of the contractor prior to submission of each monthly pay estimate. Failure to keep the As-Built Field Data (including Equipment-in-Place lists) current shall be sufficient justification to withhold a retained percentage from the monthly pay estimate.

C.19.2.2. Submittal of the As-Built Drawings: As-Built Drawing submittal shall be submitted to the COR as specified in the contract. Redline as-built drawings shall be provided to the COR at the time of the pre-final and final inspections.

C.19.2.3. The contractor shall provide as-built drawings in MicroStation format and Adobe Acrobat Portable Document Format to the Government as specified in the contract. The CAD and Adobe Acrobat PDF drawings shall be as built and submitted to the COR for approval. The contractor shall also prepare as-built drawings for their own design-build drawings in MicroStation format, as specified in the contract, and shall incorporate all As-Built Field Data.

C.19.2.4. As-Built Contract Original Record Tracings:

C.19.2.4.1. Approved preliminary as-built drawings will be returned to the contractor. These drawings are part of the permanent records of this project and the contractor will be held responsible for their protection and safety until they are returned to the COR. Any drawings damaged or lost by the contractor shall be satisfactorily replaced in like medium, quality, and size as the originals at the contractor's expense.

C.19.2.4.2. As-Built drawings shall be provided in conformance with the U.S. National CAD Standard and the DPW Drawing Standard. Additions and corrections to the construction drawings shall be in conformance with the U.S. National CAD Standard. The contractor shall provide as-built drawings in MicroStation format in conformance with the U.S. National CAD Standard regardless of the software and standard in which the CADD drawings are provided to the contractor by the Government. Conversions and corrections to the drawings provided by the Government to the contractor shall be made by the contractor. Line work, line weights, lettering, layering conventions, and symbols shall be in conformance with the U.S. National CAD Standard. If additional drawings are required, they shall be prepared in MicroStation format and shall be in conformance with the U.S. National CAD Standard. The title block and drawing border to be used for any new final as-built drawings shall be identical to that used on the contract drawings.

C.19.2.4.3. All work by the contractor shall be done on files in MicroStation format. Translation of files to a different format, for the purpose of as-built production, and then retranslating back to the format originally provided, will not be acceptable unless the Government provided the files in AutoCAD format. If the Government provided drawings are in AutoCAD format then the contractor shall convert the files to MicroStation format and provide the drawings in MicroStation format. The Government will review final as-built drawings for accuracy and the contractor shall make all required corrections, changes, additions, and deletions.

C.19.2.4.4. When final revisions have been completed, the cover sheet drawing shall show the wording "RECORD DRAWING AS-BUILT" followed by the name of the contractor. All other contract drawings shall be marked in the bottom right-hand corner of each drawing either "AS-BUILT" drawing denoting no revisions on the sheet, or "REVISED AS-BUILT" denoting one or more revisions. Original contract drawings shall be dated in the revision block."

C.19.2.4.5. Approval and acceptance of the final as-built record drawings shall be accomplished before final payment is made to the contractor.

C.19.2.5. List of Equipment-In-Place

- a. Prior to the final acceptance inspection on a contract, the Contractor shall identify all new equipment and all equipment removed by submitting a completed Equipment Checklist. Furthermore, the listing shall include the location of each item and nameplate date. This list shall be updated and kept current throughout construction, and shall be jointly inspected for accuracy and completeness by the Contracting Officer's Representative and a responsible representative of the contractor prior to submission of each monthly pay estimate.
- b. Listing shall include: air conditioners, air handling units, condensers, fans, pumps, air compressors, transformers, unit heaters, regulators, direct current power supplies, latrine fixtures, motors, engines, motor or engine-driven equipment, cranes, drinking fountains, sinks, water coolers, generators, space heaters, water heaters, refrigerators, freezers, coolers, meters, gas detectors, humidifiers dehumidifier, air purifier, ovens, power units, fuel tanks, water tanks, elevators, welders, recorders, reels, scales, hydrants, intrusion detection equipment, fire detection and alarm equipment, emergency light sets, emergency eye wash, deluge showers, washers, dryers, dishwashers, bridge cranes, and like items of equipment.
- c. Final payment will not be made to the contractor until the Government has received and approved the listing.

C.19.2.6. Military Real Property Data – DD Form 1354. The DD Form 1354, Transfer and Acceptance of Military Real Property shall be provided electronically in Adobe Acrobat PDF format.

C.19.2.6.1. Contractors shall furnish real property data to the Government via DD Form 1354, or in a format prescribed on the DD Form 1354, of each new construction and/or renovation project awarded unless otherwise notified. The contractor is responsible for accuracy of data current up to the time of submission. For non-complex projects, projects where simple real property data is not anticipated (e.g., paving projects) or projects expected to be completed within 12 months, the contractor shall furnish this data 30 days prior to completion of the project. Dependent upon the type of project and complexity of data required in certain cases, contractors are advised to record information on the DD Form 1354 (or approved facsimile) as the project progresses.

C.19.2.6.2. For major renovation and complex projects or those expected to exceed 12 months, the contractor shall furnish real property data no less than on a quarterly basis. Frequency of submission shall be standard throughout the duration of the project. Contractors are advised to record information on the DD Form 1354 (or approved facsimile) as the project progresses due to the volume of data required to be furnished. Upon completion of the project, the contractor shall furnish a final, comprehensive DD Form 1354.

C.19.2.6.3. The DD Form 1354 accounts for five percent (5%) of the total contract amount and therefore 5% must be shown on the DD Form 1354 or similar breakdown of costs submitted for payment purposes. Upon acceptance of data by the real property specialist, the contractor may invoice for submission of real property data.

C.19.2.6.4. For questions pertaining to the DD Form 1354, contractors should contact the COR. For construction data assistance, contractors may consult with the COR assigned to the project.

C.19.3. Operation and Maintenance Manuals

C.19.3.1 General. The contractor shall provide Operation and Maintenance (O&M) manuals for the complete facility as applicable under contract, including all contractor furnished and installed equipment, systems and materials. O&M manuals shall be provided in accordance with UFGS Specification Section 01 78 23 *OPERATION AND MAINTENANCE DATA* and as specified in the contract. Included herein are requirements for compiling and submitting the O&M data. The O&M data shall be separated by facility into distinct systems and within each distinct system, further separated by the following disciplines: Mechanical, Electrical, Fire Protection, Security, and Architectural/General. The O&M manuals for any particular system shall include narrative and technical descriptions of the interrelations with other systems. This narrative shall include a description on how the system works with notable features of the system, including normal and abnormal operating conditions. The explanation of

the system is to be short and concise with reference to specific manufacturer's equipment manuals for details. Provide overall system schematic with narrative for each discipline. If the quantity of material is such that it will not fit within one binder then it shall be divided into volumes, as required.

C.19.3.1.1. The O&M manuals shall be prepared for each individual facility of multi-facility projects.

C.19.3.1.2. The contractor shall provide the quantity of O&M manuals as specified in the contract. If the number of copies of O&M manuals is not specified in the contract, then the contractor shall provide one electronic Adobe Acrobat Portable Document Format (PDF) copy of the entire submittal package (including the electronic digitally signed ENG Form 4025).

C.19.3.2. O&M Manual and Data Submittal: To establish and assure uniform O&M manual format, the contractor shall submit and receive COR approval on one complete system prior to submissions for remaining systems.

C.19.3.2.1. O&M data on equipment or systems shall be submitted so all data will be approved and bound in the O&M manuals in the required quantity by the time the project reaches 90 percent completion. Failure to furnish approved, bound manuals in the required quantity by the time the project is 90 percent complete, will be cause for the COR to hold or adjust the retained percentage in accordance with Contract Clause 52.232-5, "Payments Under Fixed Price Construction Contracts". For equipment or systems requiring personnel training, the final O & M data must be approved by the COR prior to the scheduling of the training. For equipment or systems requiring acceptance testing, the final O & M data must be approved by the COR prior to the scheduling of the testing.

C.19.3.3. Binders.

C.19.3.3.1. Construction and Assembly. Manuals shall be three ring binder, sliding posts or screw-type aluminum binding posts (three screws) with spine, but only one type shall be used for all manuals. The manuals shall be hardback covered, cleanable, plastic, not over three inches thick and designed for 8-1/2 x 11 inch paper.

C.19.3.3.2. Marking. Each binder shall have the following information, as a minimum, printed on both the spine and cover; or printed on insert in plastic sleeve of notebook binder. BUILDING OR FACILITY NAME, IDENTIFICATION NUMBER (Building No.), LOCATION, AND SYSTEM (Mechanical, Electrical, etc.). Contractor's name and address as well as the contract title and contract number shall be printed on the inside of the front cover.

C.19.3.3.3. Color. Color of binder and markings shall be the option of the contractor except that: (a) labeling color shall contrast with binder color, and (b) colors shall be the same for all manuals on a particular contract.

C.19.3.3.4. Content. The O&M manuals shall be structured to address each of the following topics.

- a. Warning Page. A warning page shall be provided to warn of potential dangers (if they exist), such as high voltage, toxic chemicals, flammable liquids, explosive materials, carcinogens, or high pressures. The warning page shall be placed inside the front cover, in front of the title page.
- b. Index. Each manual shall have a master index at the front identifying all manuals and volumes and subject matter for each. Following the master index, each manual shall have an index of its enclosures listing each volume and tab numbers., as necessary to readily refer to a particular operating or maintenance instruction. Rigid tabbed flyleaf sheets shall be provided for each separate product, equipment, or system in the manual. All pages shall be numbered with the referenced number included in the index.

C.19.3.4. Warranties.

- a. The contractor shall warrant that work performed on a contract conforms to the contract requirements and is free of any defect in equipment, material, or design furnished, or workmanship performed by the contractor or any subcontractor or supplier at any tier. This warranty shall continue for a period of one year from the date of final acceptance of the work. If the Government takes possession of any part of

the work before final acceptance, this warranty shall continue for a period of one year from the date the Government takes possession.

- b. The Contractor shall provide extended parts and labor warranties on all equipment, products, and items, including roofs, HVAC equipment, pumps, motors, transformers, fire protection and fire alarm equipment, lightning protection equipment, and all other equipment as specified in the Unified Facilities Guide Specifications (UFGS). In addition to submitting warranty information when specified in the Unified Facility Guide Specifications, all product warranty information shall also be provided at the time product data information is submitted to the Government for review. Parts and labor warranties shall be provided for the maximum duration specified in the Unified Facilities Guide Specifications for all products.

C.20. EVALUATION OF CONTRACTOR PERFORMANCE

C.20.1. The contractor's performance shall be evaluated upon completion of a contract of \$650,000 or more or termination of the contract per FAR 42.1502(e). Contractor's performance shall be evaluated using Construction Contractor Appraisal Support System (CCASS).

C.20.2. The Government reserves the right to evaluate contract performance under \$650,000 when determined to be in the best interest of the Government. Interim evaluations for a contract in excess of \$150,000 may be prepared at any time during contract performance when determined to be in the best interest of the Government.

C.20.3. Any specific requirements for contract quality control and quality assurance by the Government personnel will be defined in the contract. The contractor will be rated in the areas of contract quality control, timely performance, effectiveness of management, compliance with labor standards, and compliance with safety and environmental standards. The contractor will be notified of any rating entered into CCASS, either in an individual element or in the overall rating, prior to completing the evaluation, and all contractor comments will be made a part of the official record. Performance evaluation reports will be available to all DoD Contracting Officer's for their future use in determining contractor responsibility.

C.21. DIVISION OF WORK

C.21.1. The various divisions of the specifications shall not be considered as negotiations of the material and labor involved. The arrangement and order of these divisions have been made for convenience only, and it is not the intent, nor shall it be so construed, a particular trade or subcontractor must perform that work included in any one division.

C.21.2. Any item mentioned under any division heading must be supplied even though it is not specified under the heading for the respective work, but is shown on the drawings. No claims for extras arising out of real or alleged error in such arrangement or order of the various divisions will be given consideration.

C.21.3. The organization of the specifications into divisions, sections, and articles, and the arrangement of the drawings shall not control the contractor in dividing the work among subcontractors or in establishing the extent of the work to be performed by any trade.

C.22. CONTRACTOR RESPONSE

C.22.1. The contractor shall maintain an off-site location that will not hinder or prohibit the required response times. For non emergency situations, the contractor is required to respond to notification within two calendar days of such notification. For emergency situations, the contractor shall respond within 60 minutes of notification.

C.23. MATERIAL TESTING BY NATIONAL LABORATORIES

C.23.1. Electrical materials and equipment shall be new and bear the UL label or be listed in UL Electrical Construction Materials Directory or Electrical Appliance and Utilization Equipment Directory, wherever standards have been established by the agency.

C.23.2. The contractor shall submit proof that the material or equipment, which he proposes to furnish under this specification, conforms to the standards of Underwriters Laboratories. The label of Underwriters Laboratories (UL) shall be accepted as conforming to this requirement.

C.23.3. In lieu of the label, the contractor may submit a written certification from any recognized testing agency, adequately equipped and competent to perform such services, that the material or equipment has been tested and conforms to the standards, including the methods of testing used.

C.24. TRANSPORTATION AND HANDLING

C.24.1. The contractor shall coordinate with suppliers and shippers to ensure incoming materials are properly identified with the contractor's name, contract number, and project title. The contractor shall be available to receive shipment.

C.25. MISPLACED MATERIALS

C.25.1. Any material that is deposited elsewhere than areas designated as approved by the COR shall be re-handled and deposited in accordance with contract requirements. No payment will be made for re-handling such material. The Contracting Officer will notify contractor of any noncompliance with the foregoing provisions.

C.26. STORAGE

C.26.1. No secure storage space will be provided by the Government. The Government will not be responsible for property belonging to or under the present control of the contractor. The contractor is to protect their materials. An unsecured, open area will be designated by the COR for storage of construction equipment and materials during the period covered by a contract.

C.26.2. The contractor shall construct such temporary sheds as they may require for the use of their workmen and as required for tool cribs and storage of all work on a contract. Temporary sheds shall be confined to the space assigned by the COR.

C.26.3. Sheds shall be of approved construction and wood floors, lighting, and heat shall be provided in all parts used by workmen. Exterior of sheds shall be painted, all parts maintained in good condition throughout the life of the contract, and at completion, all parts shall be removed and the premises shall be cleaned up by the contractor at its expense.

C.26.4. Storage of supplies, materials, and equipment on the project site shall be accomplished in such a manner to prevent mechanical and climatic damage and loss due to vandalism or theft. Equipment temporarily removed in the performance of work and stored on the job site shall be stored and protected in accordance with the previous paragraphs, and shall be replaced in a condition compatible with its original state. Security for equipment and material removal from the job site or for temporary storage until reuse shall be the responsibility of the contractor.

C.27. TELEPHONE AND COMMUNICATIONS SECURITY MONITORING

C.27.1. All communications with DoD organizations are subject to communication security (COMSEC) review. Contractor personnel will be aware telephone communication networks are continually subject to intercept by unfriendly intelligence organizations. The DoD has authorized the military departments to conduct COMSEC monitoring and recording of telephone calls originating from, or terminating at, DoD organizations. Therefore, civilian contractor personnel are advised any time they place a call to, or receive a call from, a U.S. Army organization, they are subject to COMSEC procedures. The contractor will assume the responsibility for ensuring wide and frequent dissemination of the above information to all employees dealing with DoD information.

C.28. UTILITIES

C.28.1. If it becomes determined by the government that Government-operated utilities (to be specified in the

contract) are adequate they will be furnished to the contractor without charge where existing outlets are available. The contractor is responsible for installing temporary service outlets, as necessary, and charges will be made in accordance as determined by the Contracting Officer. Any expense incurred to gain access to these utilities shall be the responsibility of the contractor and all utilities shall be returned to their original configurations at the end of the contract. No alterations to existing utilities shall be accomplished without the written permission of the COR.

C.28.2. The contractor shall notify the COR and obtain Fire Department approval prior to connecting to any base fire hydrant.

C.29. UTILITY AND OTHER BASE INTERRUPTIONS

C.29.1. If it becomes necessary to interrupt work activities in buildings or areas for construction purposes, permission to do so must be requested in writing to the COR at least 14 calendar days prior to commencing work and shall be subject to COR approval. Written requests for street closing or parking impacts shall be submitted for approval to the Contracting Officer and COR at least 14 calendar days prior to closing the street.

C.29.2. Shutoff of utilities that will cause interruption of Government work operation as determined by the COR shall be accomplished during Government non-work hours or on non-work days of the Using agency without any additional cost to the Government.

C.29.3. The contractor shall communicate all vehicular, pedestrian, and utility interruptions in detail by submitting the Construction Impact Notification Form. A copy of the current Construction Impact Notification Form can be obtained from the COR upon request. The Directorate of Public Works (DPW) Chief of Engineering Plans & Services must have 14 calendar days notice from the contractor prior to permission being secured.

C.29.4 Work in connection with this contract which requires utility outages (electrical, water, gas, steam,.) which will close down or limit (as determined by the COR) normal activities in the building, construction area, or other affected areas, shall be performed by the contractor at a time other than regular working hours of the organization occupying the facility. Work required by the contractor on non-standard basis or at premium pay shall be done at no additional cost to the Government.

C.29.5. The contractor's progress schedule shall include preliminary listing of all proposed shutdown dates. Every effort shall be made to make all shutdowns as brief as possible and as limited in extent as possible.

C.30. TEMPORARY UTILITIES

C.30.1. The contractor shall provide all temporary utilities used for work under this contract including temporary lines and connections. The contractor shall remove all temporary lines and all temporary utilities at the completion of the work.

C.31. HOT WORK PERMITS

C.31.1. A hot work permit is required for all operations requiring ignition of a combustible. This permit is required prior to commencement of any hot work. To obtain permit call: 586-282-6448 (TACOM Reg. 420-8) or 586-282-6021. Any work within the confines of the installation, in or out of doors, that will produce sparks, flames, or heat will require the issuance of a hot work permit.

C.31.2. Hot work permits are issued on a day-to-day basis by the Detroit Arsenal Fire Inspectors. Each contractor requiring a permit must contact the Fire Station via the business numbers provided. Only the Prime contractor's superintendent or safety office will be issued a hot work permit.

C.31.3. After completion of an inspection of the work area a hot work permit will be issued. The contractor will be required to have the proper size and type fire extinguisher at the work site (contractors are not permitted to utilize the government fire extinguisher located in the building). The contractor responsible for the work being done will be required to sign the hot work permit.

C.31.4. After all hot work is completed for the day and a 60-minute cool down period (per EM 385-1) has been observed, the contractor must contact the DTA Fire Department to close the permit. The Fire Department will send a representative to re-inspect the work site. If all conditions are safe, the permit will be cancelled out.

C.31.5. All subcontractors shall adhere to the above requirements in order to maintain hot work permits.

C.31.6. WARNING: contractors shall not leave the job site without closing the permit. Failure to do so will result in no further hot work permits being issued to the contractor.

C.32. RESERVED

C.33. CUTTING AND REPAIRING

C.33.1. Unless otherwise specified hereinafter, the contractor shall do all necessary cutting, drilling, fitting, and patching of work and corresponding work that may be required to make several parts come together and fit it to receive, or be received, by work of other trades shown upon, or reasonably implied, by the drawings and specifications for the completed project.

C.33.2. The contractor shall be held responsible for all cutting, replacement, and repairing of work that is due to faulty workmanship and which is not specifically covered by specifications for trades which are affected. The contractor will also be held responsible for providing, without extra cost to the Government, any small incidental items which are not specifically mentioned in trade specifications, but which are necessary to complete the work in accordance with the drawings, and under the general understanding that the work, when completed, shall be a finished and workmanlike job.

C.34. DAMAGES AND REPAIRS

C.34.1. All damages by the contractor's operations due to the failure to use reasonable care shall be repaired or replaced, at the contractor's expense, as directed by the Contracting Officer. Any Government property damaged as a result of the work, materials, or operations of the contractor due to the failure to use reasonable care shall be restored at no additional expense to the Government.

C.34.2. All existing sidewalks, curbs, and pavement disturbed, broken, or removed or otherwise damaged by the contractor due to failure to use reasonable care during performance of the work under this contract shall be replaced by the contractor at his own expense. Replaced sidewalks, curbs, and pavements shall be smooth, shall blend into the existing work, and shall not present depressions or humps.

C.35. SITE CLEAN UP

C.35.1. The contractor shall maintain the construction site in a clean and orderly condition. All refuse and salvage material shall be gathered and disposed of periodically to maintain the site in this condition. All roadways within the work area, or used by the contractor, shall be swept and vacuumed daily. The cleaning operation shall be accomplished with self-propelled sweepers equipped with pick-up devices. The method of cleaning and equipment employed shall be subject to the approval of the COR.

C.35.2. During and after periods of rain, this construction site may have a very high water table or areas of standing surface water. Dewatering techniques are a contractor's option; however, the COR shall approve the method prior to start of work to ensure compliance with environmental requirements and regulations.

C.35.3. Following completion of the work, the contractor shall clean the entire area from any debris and excess of misplaced material due to his operation and obtain COR approval of this finished work.

C.35.4. Cleanup and disposal of debris and fill materials:

C.35.4.1. At the end of each workday, the contractor shall clean up the work and storage areas and stack all materials in a manner approved by the COR. Upon completion of a project, the contractor shall insure that all dirt,

trash, and debris resulting from the construction operations are removed from the work area. Disposal of debris shall be made at the contractor's expense and shall be delivered to a state approved disposal site located off Government property. Debris shall not be left in such a manner that wind or other weather conditions can cause the debris to be scattered outside the work area.

C.35.4.2. The hauling and disposal of excess fill material including rock, gravel, sod, broken concrete or asphalt, and plaster shall be the responsibility of the contractor. Disposal shall be off USAG-DTA property unless otherwise stated within the contract.

C.35.5. Prior to acceptance of the facility and at such times as directed by the Contracting Officer, the contractor shall thoroughly clean all exposed surfaces of the building where work under this contract was completed. All protective coatings, except lacquers, shall be removed from finish surfaces and the finish surfaces shall be washed and cleaned. The contractor shall be held responsible for all damaged materials and at completion shall replace, at his own expense, all such damaged materials.

C.36. TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER

C.36.1. During the period 15 November through 15 April there may occur extended periods (periods in excess of 15 calendar days or more) where weather conditions exist which the Government determines are unsuitable for performance. In the event such conditions exist, the Government reserves the right to suspend performance by unilateral modification. Modification shall state the period of the applicable weather exclusion period and the adjusted contract completion date. Contract completion date will be adjusted by adding the number of exclusion days to the prior completion date. Weather exclusion periods shall be at no additional cost to the Government.

C.36.2. The following paragraph specifies the procedure for the determination of time extensions for unusually severe weather. In order for the Contracting Officer to award a time extension under this clause, the following conditions must be satisfied:

C.36.2.1. The weather experienced at the project site during the contract period must be found to be unusually severe, that is, more severe than the adverse weather anticipated for the project location during any given month.

C.36.2.2. The unusually severe weather must actually cause a delay to the completion of the project. The delay must be beyond the control and without the fault or negligence of the contractor.

C.36.2.3. The following schedule of monthly anticipated adverse weather delays is based on National Oceanic and Atmospheric Administration (NOAA) or similar data for the project location and will constitute the base line for monthly weather time evaluations. The contractor's progress schedule must reflect these anticipated adverse weather delays in all weather dependant activities.

MONTHLY ANTICIPATED ADVERSE WEATHER DELAY WORK DAYS BASED ON (5) DAY WORK WEEK

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
(16)	(12)	(07)	(05)	(04)	(04)	(04)	(04)	(04)	(04)	(05)	(11)

C.36.3. Upon acknowledgment of the NTP and continuing throughout the contract, the contractor will record on the daily QCQ report, the occurrence of adverse weather and resultant impact to normally scheduled work. Actual adverse weather delays must prevent work on critical activities for 50 percent or more of the contractor's scheduled workday.

C.36.4. The number of actual adverse weather delay days shall include days impacted by actual adverse weather (even if adverse weather occurred in the previous month) shall be calculated chronologically from the first to the last day of each month, and shall be recorded as full days. If the number of actual adverse weather delay days exceeds the number of days anticipated according to the paragraph above, the Contracting Officer may convert any qualifying delays to calendar days, giving full consideration for equivalent fair weather workdays, and may issue a bilateral modification.

C.37. CONTRACTOR QUALITY CONTROL

C.37.1. General. The contractor is responsible for quality control and shall establish and maintain an effective quality control system in accordance with FAR 52.246-12, "Inspection of Construction." The quality control system shall consist of plans, procedures, and organization necessary to produce an end product that complies with the contract requirements. The system shall cover all construction and demolition operations, both on-site and off-site, and shall be keyed to the proposed sequence.

C.37.1.1. References. The following publications form a part of this specification to the extent referenced. The publications are referred to in the next by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 3740 (latest edition) Evaluation of Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.

ASTM E 329 (latest edition) Use in the Evaluation of Testing and Inspection Agencies as Used in Construction.

C.37.2. Quality Control Plan. The contractor shall furnish for review by the Government, no later than 30 days after the award of the contract, the Contractor Quality Control (CQC) Plan proposed to implement the requirements of the FAR 52.246-12, "Inspection of Construction". The plan shall identify personnel, procedures, control, instructions, tests, records, and forms to be used. The Government will consider an interim plan for the first 30 days of operation. Construction will be permitted to begin only after acceptance of the CQC Plan or acceptance of an interim plan applicable to the particular feature of work to be started. Work outside of the features of work included in an accepted interim plan will not be permitted to begin until acceptance of a CQC Plan or another interim plan containing the additional features of work to be started.

C.37.3. Content of the Basic CQC Plan. The Basic CQC Plan shall be submitted to cover the intended CQC organization for the contract and shall include the following to cover all construction operations, both on-site and off-site, including work by subcontractors, fabricators, suppliers and purchasing agents:

- a. A description of the quality control organization, including a chart showing lines of authority and acknowledgment that the CQC staff shall implement the three-phase control system (see Section C. 38.7, Control) for all aspects of the work specified. The staff shall include a CQC Manager who shall report to the Project Manager or someone higher in the contractor's organization. The Project Manager in this context shall mean the individual with responsibility for the overall management of the project including quality and production.
- b. An employment resume to include the name, qualifications duties, responsibilities, and authorities of each person assigned a QC function.
- c. A copy of the letter to the CQC Manager signed by an authorized official of the firm which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the CQC Manager including authority to stop work which is not in compliance with the contract. The CQC Manager shall issue letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities. Copies of these letters will also be furnished to the Government.
- d. Procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, off-site fabricators, suppliers, and purchasing agents. These procedures shall be in accordance with Section SUBMITTALS.
- e. Control, verification, and acceptance testing procedures for each specific test to include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person responsible for each test. Laboratory facilities will be approved by the Contracting Officer.

- f. Definable Features of Work is a task that is separated and distinct from other tasks and has separate control requirements. Each section of the specification can be considered as a definable feature of work. However, there may be more than one definable feature under a section of the specifications. The list shall be cross-referenced to the contractor's construction schedule and the specification section.
- g. Procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and acceptance tests including documentation.
- h. Procedures for tracking deficiencies from identification through acceptable corrective action. These procedures will establish verification that identified deficiencies have been corrected.
- i. Reporting procedures, including proposed reporting formats. This shall include a copy of the Daily CQC report form.

C.37.4. Contract Addendum CQC Plan. Contractor shall submit a CQC Addendum Plan, if required, within ten days of receipt of the contract's Notice to Proceed. Proposed changes to file Basic Plan or items requiring additional details of description required implementing the Basic CQC Plan or of a site specific nature shall be covered in the Addendum Plan. Include a list of the definable features of work for the contract. A definable feature of work is a task that is separate and distinct from other tasks and has separate control requirements. Although each section of the specifications may generally be considered as a definable feature of work, there are frequently more than one definable feature under a particular section. This list will be agreed upon during the coordination meeting. Any proposed changes to the basic CQC organization shall be approved before commencement of construction.

C.37.5. Acceptance of Plans. Acceptance of the contractor's basic and addendum plans is required prior to the start of construction. Acceptance is conditional and will be predicated on satisfactory performance during the construction. The Government reserves the right to require the contractor to make changes in their CQC Plan and operations including removal of personnel, as necessary, to obtain the quality specified.

C.37.5.1. Design-Build Requirements. The contractor shall submit for government acceptance, a Design Quality Control Plan in accordance with Contractor Quality Control specifications before design may proceed for design-build requirements.

C.37.5.2. Design-Bid-Build Requirements. The contractor shall submit for government acceptance, a Design Quality Control Plan in accordance with Contractor Quality Control specifications before construction may proceed for design-bid-build requirements.

C.37.5.3. Notification of Changes. After acceptance of the CQC Plan, the contractor shall notify the Contracting Officer in writing a minimum of seven calendar days prior to any proposed change. Proposed changes are subject to acceptance by the Contracting Officer.

C.37.6. Contractor Quality Control Coordination. After the Pre-construction Meeting before start of construction, and prior to acceptance by the Government of the CQC Quality Control Plan, the contractor shall meet with the Contracting Officer or Authorized Representative and discuss the contractor's quality control system. During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the CQC operations, control activities, testing, administration of the system for both on-site and off-site work, and the interrelationship of contractor's Management and control with the Government's Quality Assurance. There may be occasions when subsequent conferences may be called by either party to reconfirm mutual understandings or address deficiencies in the CQC system or procedures that may require corrective action by the contractor.

C.37.7. Payment. Separate payment will not be made for providing and maintaining an effective Quality Control program, and all costs associated therewith shall be included in the applicable unit prices or lump-sum prices contained in the pricing schedule.

C.38. QUALITY CONTROL ORGANIZATION

C.38.1. General. The requirements for the CQC organization are a CQC Manager and Design quality manager (for Design-Build projects only) to ensure contract compliance. The CQC staff shall maintain a presence at the site at all times during progress of the work and have complete authority and responsibility to take any action to ensure contract compliance.

C.38.2. CQC Organizational Staffing. A staff shall be maintained under the direction of the CQC Manager to perform all QC activities. The staff must be of sufficient size to ensure adequate QC coverage of all work phases, work shifts, and work crews involved in the construction. The QC plan will clearly state the duties and responsibilities of each staff member. The contractor shall provide a CQC staff, which shall be at the site of work at all times during progress, with complete authority to take any action necessary to ensure compliance with the contract.

C.38.3. CQC Staff. The strength of the CQC staff may vary during any specific work period to cover the needs of the work period. When necessary for a proper CQC organization, the contractor will add additional staff at no cost to the Government. This listing of minimum staff requirements that follow in no way relieves the contractor of meeting the basic requirements of quality construction in accordance with contract requirements. All CQC staff members shall be subject to acceptance by the Contracting Officer.

C.38.3.1. CQC Manager. The contractor shall identify an individual within his organization at the site of the work who shall be responsible for overall management of CQC and have the authority to act in all CQC matters for the contractor. This CQC Manager or designated CQC staff representative shall be on the site at all times during construction and will be employed by the contractor, except as noted in the following.

C.38.3.1.1. The CQC manager may serve as the Safety Manager or it may be a separate position. The CQC Manager may serve as the Safety Manager but shall not have any other duties outside of these two positions. An alternate for the CQC Manager will be identified in the plan to serve in the event of the system manager's absence. Period of absence may not exceed two weeks at any one time. The requirements for the alternate will be the same as for the designated CQC Manager.

C.38.3.1.2. The CQC manager shall be an experienced construction person, with a minimum of ten years construction experience on similar type work. In addition to the above experience, it is required that the CQC Manager have completed the course entitled "Construction Quality Management for Contractors" prior to start of field work and maintain current certification. For further information, contact the nearest USACE Construction Division Office.

C.38.4. Organizational Changes. The contractor shall obtain Contracting Officer's acceptance before replacing any member of the CQC staff. Requests shall include the names, qualifications, duties, and responsibilities of each proposed replacement.

C.38.5. CQC Submittals. The CQC organization shall be responsible for certifying that all submittals comply with the contract requirements. The Government will furnish copies of test report forms upon request by the contractor. The contractor may use other forms as approved.

C.38.6. Definable Features of Work.

C.38.6.1. General Requirements.

- a. Special project procedures to include coordination of work, project meetings, submittals, and quality control.
- b. Administrative Requirements.
- c. Environmental Protection.
- d. Job Conditions.

C.38.6.2. Site Work.

- a. Excavation, Trenching and Backfilling for utilities Systems to include sewer, gravity, drainage, and water lines.
- b. Clearing and grubbing, backfilling for buildings.

- c. Grading.
- d. Fence, chain-link.
- e. Concrete for sidewalks and curbs.
- f. Bituminous Paving.

C.38.6.3. Concrete.

- a. Concrete materials, concrete procedures, concrete formwork, forms, form ties and accessories, concrete reinforcement, concrete finishing, concrete curing and grouting.
- b. Testing.

C.38.6.4. Masonry.

- a. Masonry procedures, mortar, mortar accessories, unit masonry, cavity wall construction to include bringing inner and outer withes up simultaneously, reinforcement, wall ties, flashing, and cleaning.
- b. Acceptance of Sample Panel.
- c. Testing.

C.38.6.5. Metals.

- a. Structural steel, framing to include metal materials and methods, metal fastening, metal joints, welding, expansion control, and miscellaneous metals
- b. Steel Roof Decking.
- c. High Strength Bolts.

C.38.6.6. Thermal and Moisture Protection.

- a. Damproofing
- b. Fireproofing
- c. Sealants

C.38.6.7. Doors and Windows. Metal doors and frames, special doors, metal windows, glazing and miscellaneous hardware, caulking.

C.38.6.8. Finishes.

- a. Ceramic tile.
- b. Gypsum wallboard.
- c. Acoustical treatment to include metal suspension system for acoustical tile and lay-in panel ceiling.
- d. Resilient flooring.
- e. Painting.
- f. Furring (metal).

C.38.6.9. Specialties.

- a. Metal toilet partitions
- b. Fire extinguisher cabinets
- c. Toilet accessories

C.38.6.10. Equipment. Fueling system for motor vehicles

C.38.6.11. Furnishings. Lockers

C.38.6.12. Special Construction.

- a. Pre-engineered structures
- b. Liquid storage tanks

C.38.6.13. Mechanical

- a. Insulation to include:
 - (1) Pipes
 - (2) Ducts
 - (3) Equipment

- (4) High density inserts, insulation protective shields, clips or U-bolt support for multiple pipe hanger supports.
- b. Plumbing systems
 - (1) Waste/vent piping to include; underground soil piping, above ground soil piping.
 - (2) Interior piping rough-in to include; galvanized, black iron and copper, including drains, fittings, valves, and piping supports.
 - (3) Plumbing fixtures to include flush valves, faucets, and accessories.
 - (4) Cleaning and operational testing.
- c. Heating systems
 - (1) Equipment and system accessories
 - (2) Fuel oil/gas piping and supports
 - (3) System testing and balancing
- d. Air distribution systems
 - (1) Equipment and accessories.
 - (2) Duct work to include galvanized supports, dampers, louvers, diffusers, duct line support and fire dampers.
- e. Automatic temperature control systems
 - (1) Equipment and materials
 - (2) Installation of materials and equipment
 - (3) System testing
- f. Sprinkler Systems
 - (1) Equipment
 - (2) Piping and supports
 - (3) Accessories

C.38.6.14. Electrical.

- a. Exterior Electric Distribution, Aerial
 - (1) Pole setting.
 - (2) Placement of crossarms, pins, insulators, pole line hardware and conductors.
 - (3) Placement of fuse cutouts, surge arresters, reclosers, potheads, pole mounted transformers to include grounding conductors, grounding conductor testing and cable terminations.
- b. Exterior electrical distribution, underground
 - (1) Duct line excavation, placement of ducts and miscellaneous materials.
 - (2) Placement of in ground junction or pull boxes and manholes.
 - (3) Placement of duct bank concrete encasement.
 - (4) Transformer pad placement.
 - (5) Mounting of pad mounted transformers.
 - (6) Cable placement to include splicing, fire-proofing, and cable terminations.
 - (7) Grounding conductors and testing.
- c. Electrical distribution, interior
 - (1) Wiring methods to include conduit rough-in, raceway boxes, outlet boxes, panelboard cabinets, placement of conductors and conduit placement below the slab for slab-on-grade construction.
 - (2) Wiring devices, panelboards, switch-boards, and lighting fixtures.
 - (3) Motors and transformers.
 - (4) Testing.
- d. Fire Detection and Alarm System
 - (1) Wiring methods to include conduit, ground rods, detectors, control panels, power supply, door holders, audible fire alarm and annunciator panel.
 - (2) Testing.

C.38.7. Control. Contractor Quality Control is the means by which the contractor ensures that the construction, to include that of subcontractors and suppliers, complies with the requirements of the contract. The controls shall be adequate to cover all construction operations, including both on-site and off-site fabrication, and will be keyed to the proposed construction sequence and construction schedule. The controls shall include at least three phases of control to be conducted by the CQC Manager for all definable features of work, as follows:

C.38.7.1. Preparatory Phase. This phase shall be performed prior to beginning work on each definable feature of work and shall include:

- a. A review of each paragraph of applicable specifications.
- b. A review of the contract plans.
- c. A check to assure that all materials and equipment have been tested, submitted, and approved.
- d. A check to assure that provisions have been made to provide required control inspection and testing.
- e. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the contract.
- f. A physical examination of required materials, equipment, and sample work to assure that they are on hand, conform to "approved" shop drawing or submitted data, and are properly stored.
- g. A review of the appropriate activity hazard analysis to assure safety requirements are met.
- h. Discussion of procedures for constructing the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that phase of work.
- i. A check to ensure that the portion of the plan for the work to be performed has been accepted by the Contracting Officer.
- j. The Government shall be notified at least 48 hours in advance of beginning any of the required action of the preparatory phase. This phase shall include a meeting conducted by the CQC Manager and shall be attended by the superintendent, other CQC personnel (as applicable), and the foreman responsible for the definable feature. The results of the preparatory phase actions shall be documented by separate minutes prepared by the CQC Manager and attached to the daily QC report. The contractor shall instruct applicable workers as to the acceptable level of workmanship required in order to meet contract specifications.

C.38.7.2. Initial Phase. This phase shall be accomplished at the beginning of a definable feature of work. The following shall be accomplished:

- a. A check of preliminary work to ensure that it is in compliance with contract requirements. Review minutes of the preparatory meeting.
- b. Verification of full contract compliance. Verify required control inspection and testing.
- c. Establish level of workmanship and verify that it meets minimum acceptable workmanship standards. Compare with sample panels as appropriate.
- d. Resolve all differences.
- e. Check safety to include compliance with and upgrading of the safety plan and activity hazard analysis. Review the activity analysis with each worker.
- f. The Government shall be notified at least 48 hours in advance of beginning the initial phase. Separate minutes of this phase shall be prepared by the CQC Manager and shall be attached to the daily QC report. Exact location of initial phase shall be indicated for future reference and comparison with follow-up phases.
- g. The initial phase should be repeated for each new crew to work on-site or any time acceptable specified quality standards are not being met.

C.38.7.3. Follow-up Phase. Daily checks shall be performed to assure continuing compliance with contract requirements, including control testing, until completion of the particular feature of work. The checks shall be made a matter of record in the CQC documentation and shall document specific results of inspections for all features of work for the day or shift. Final follow-up checks shall be conducted and all deficiencies corrected prior to the start of additional features of work that will be affected by the deficient work. The contractor shall not build upon or conceal non-conforming work.

C.38.7.4. Additional Preparatory and Initial Phases. Additional preparatory and initial phases may be conducted on the same definable features of work as determined by the Government if the quality of on-going work is unacceptable; or if there are changes in the applicable QC staff or in the on-site production supervision or work crew; or if work on a definable feature is resumed after a substantial period of inactivity, or if other problems develop.

C.38.8. Tests. Inspections and tests are for the sole benefit of the Government and shall not relieve the contractor of

the responsibility of providing quality control measures to ensure that the work strictly complies with the contract requirements. No inspection or test by the Government shall be construed as constituting or implying acceptance.

C.38.8.1. Testing Procedure. The contractor shall perform tests specified or required to verify that control measures are adequate to provide a product, which conforms to contract requirements. The contractor shall procure the services of a licensed testing laboratory. The contractor shall submit a written certification from any recognized testing agency, adequately equipped and competent to perform such services, that the material or equipment has been tested and conforms to the standards, including the methods of testing used. A list of tests to be performed shall be furnished as a part of the CQC plan. The list shall give the test name, frequency, specification paragraph containing the test requirements, the personnel and laboratory responsible for each type of test, and an estimate of the number of tests required. The contractor shall perform the following activities and record and provide the following data:

- a. Verify that testing procedures comply with contract requirements.
- b. Verify that facilities and testing equipment are available and comply with testing standards.
- c. Check test instrument calibration data against certified standards.
- d. Verify that recording forms and test identification control number system, including all of the test documentation requirements, have been prepared.
- e. Notify the KO prior to performing any test. Results of all tests taken, both passing and failing tests, will be recorded on the Quality Control report for the date taken. Subsequent testing of those materials that fail to meet specifications will be accomplished by the contractor at no cost to the Government. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test will be given. Actual test reports may be submitted later, if approved by the Contracting Officer, with a reference to the test number and date taken. An information copy of tests performed by an off-site or commercial test facility will be provided directly to the Contracting Officer. Failure to submit timely test reports, as stated, may result in nonpayment for related work performed and disapproval of the test facility for this contract. Test results shall be signed by an Engineer registered in the state where the tests are performed.
- f. Samples used for testing shall be selected as specified for the various tests elsewhere in the specifications but in every case the method of selecting samples and the location for selection shall be as approved by the Contracting Officer.
- g. Tests shall be made in accordance with the specified testing procedures and/or methods and otherwise as required to provide compliance with all contract requirements. Tests shall be made by independent, commercial testing laboratories approved in writing by the Contracting Officer.
- h. Results of all tests shall be recorded on certified test reports of the commercial testing laboratories. Reports shall include a statement that the materials tested do or do not meet the requirements of the contract specifications. Six copies of all reports shall be forwarded directly to the Contracting Officer for approval within five calendar days of the actual performance of the test. The testing agency shall immediately notify (verbally) the Contracting Officer of any tests that indicate failure to meet the contract requirements.
- i. The contractor will provide an emergencies plan, with contractors to accomplish the repairs in the event of utility and/or communications emergencies.

C.38.8.2. Testing Laboratories. Laboratory facilities, including personnel and equipment, utilized for testing soils, concrete, asphalt, and steel shall meet criteria detailed in ASTM D 3740 and ASTM E 329, and be accredited by the American Association of Laboratory Accreditation (AALA), National Institute of Standards and Technology (NIST), National Voluntary Laboratory Accreditation Program (NVLAP), the American Association of State Highway and Transportation Officials (AASHTO), or other approved national accreditation authority. All personnel performing concrete testing shall be certified by the American Concrete Institute (ACI).

C.38.9. Completion Inspection.

C.38.9.1. Procedure for Completion Inspection. Provisions for the QC Manager to conduct completion inspections of the work and develop a "punch list" of the items that do not conform to the contract requirements. The QC Manager shall make a second completion inspection to ascertain that all "punch list" items have been corrected and so notify the government. The completion inspection and any "punch list" item corrections will be accomplished

within the time stated for completion of the work. The plan must include project completion turnover procedures. These may include:

- a. Warranty information
- b. O&M Manuals
- c. System operations and sequence verification
- d. Final system testing
- e. Instruction and training procedures
- f. Punch-out
- g. Pre-final inspection to include the government
- h. Final inspection to include the government
- i. Punch list correction and verification
- j. Turnover of extra materials and spare parts
- k. Turnover of keys
- l. Completion of as-built drawings

C.38.9.2. Punch Out Inspection. At the completion of all work or any increment thereof established by a completion time stated in the contract, the CQC manager shall conduct an inspection of the work and develop a "punch list" of items that do not conform to the approved plans and specifications. Such a list of deficiencies shall be included in the CQC documentation, as required by paragraph DOCUMENTATION below, and shall include the estimated date by which the deficiencies will be corrected. The CQC Manager shall make a second inspection to ascertain that all deficiencies have been corrected and notify the Government. These inspections and any deficiency corrections required by this paragraph will be accomplished within the time stated for completion of the entire work or any particular increment thereof if the project is divided into increments by separate completion dates.

C.38.9.3. Pre-Final Inspection. The government will perform the pre-final inspection to verify that the facility is complete and ready to be occupied. The government pre-final inspection punch list may be developed as a result of this inspection. The CQC manager shall ensure that all items on the list have been corrected before notifying the government, so that a final inspection can be scheduled. Correct any items noted on the pre-final inspection in a timely manner.

C.38.9.4. Final Acceptance Inspection. Provide notice to the government and include contractor's assurance that all specific items previously identified to the contractor as being unacceptable, along with all remaining work performed under the contract, will be complete and acceptable by the date scheduled for the final acceptance inspection.

C.38.10. Documentation. Quality control includes the means to produce the Daily CQC report. The contractor shall maintain current records of quality control operations, activities, and tests performed, including the work of subcontractors and suppliers. These records shall be on an acceptable form and shall be a complete description of inspections, the results of inspections, daily activities, and tests including the following:

- a. Contractor/subcontractor and their area of responsibility.
- b. Operating plant/equipment with hours worked, idle, or down for repair.
- c. Work performed today, giving location, description, and by whom. When Network Analysis (NAS) is used, identify each phase of work performed each day by NAS activity number.
- d. Test and/or control activities performed with results and references to specifications/plan requirements. The control phase should be identified (Preparatory, Initial, Follow-up). List deficiencies noted along with corrective action.
- e. Material received with statement as to its acceptability and storage.
- f. Identify submittals reviewed, with contract reference, by whom, and action taken.
- g. Off-site surveillance activities, including actions taken.
- h. Job safety evaluations stating what was checked, results, and instructions or corrective actions.
- i. List instructions given/received and conflicts in plans and/or specifications.
- j. Contractor's verification statement.
- k. A report shall be submitted by the responsible CQC inspectors for the contract. The report shall contain a record of inspections for all work accomplished subsequent to the previous report. Separate

reports for different phases of work may be submitted by the responsible CQC inspectors or the reports may be consolidated into one report if all CQC activities and results are covered and the responsible CQC inspectors are identified.

1. These records shall indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. These records shall cover both conforming and deficient features and shall include a statement that equipment and materials incorporated in file work and workmanship comply with the contract. The original and one copy of these records in report form shall be furnished to the Government weekly, except that reports need not be submitted for weeks in which no work is performed. As a minimum, one report shall be prepared and submitted for every seven days of no work. All calendar days shall be accounted for throughout the life of the contract. Reports shall be signed and dated by the CQC system manager. The report from the CQC system manager shall include copies of test reports and copies of reports prepared by all subordinate quality control personnel.

The Contractor shall complete and submit the Contractor Quality Control Report and the Contractor Production Report in accordance with UFGS Specification Section 01 45 00.00 20 QUALITY CONTROL. The Contractor Production Report shall be submitted to the COR electronically by 0800hrs the day after the date covered in the report.

C.38.11. Deficiency Tracking. The Contractor shall track deficiencies. Deficiencies identified by the Contractor will be identified and tracked as QC punch list items. The contractor shall maintain a current log of its QC punch list items. The government may notify the contractor with deficiencies, which shall be identified and tracked as QA punch list items. The contractor shall regularly update the corrective status of both QC and QA punch list items.

C.38.12. Notification of Noncompliance. The Contracting Officer will notify the contractor of any detected noncompliance with the foregoing requirements. The contractor shall, after receipt of such notice, immediately take corrective action. Such notice, when delivered to the contractor at the site of the work, shall be deemed sufficient for the purpose of notification. If the contractor fails or refuses to comply promptly, the Contracting Officer may issue an order suspending all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such suspension of work orders shall be made the subject of a request for equitable adjustment for extension of time by the contractor.

STATEMENT OF WORK



Directorate of Public Works
Detroit Arsenal



Design-Build Statement of Work

**Repair Electrical Substation
Building 212 Basement
Work Order Number PWC020114J FY
2014**

**U.S. Army Garrison - Detroit Arsenal
Directorate of Public Works
Warren, MI**

**27 September 2014
Final Document**

PROJECT DESCRIPTION AND DESIGN REQUIREMENTS
09/30/2013

PART 1 DESIGN OBJECTIVES

1.1 PROJECT DESCRIPTION

This project will require design-build services to design and perform the architectural, structural, electrical, communications, and fire protection work as described in this Statement of Work (SOW).

The work includes completion of the electrical system design and construction to provide a completely functional electrical system as described herein and as detailed by the electrical Designer of Record. The electrical system shall be designed under the supervision of a registered professional electrical engineer for quality assurance.

The scope of work for this project is to design and build required modifications to replace 2 electrical substation equipment, electrical distribution equipment, and electrical commissioning in building 212 basement and 1st floor.

The Contractor shall provide and replace the two substation switchgears in its entirety with new substation switchgear in the basement of Building 212, including primary unit substations equipment/sections, transformers, secondary equipment/sections, motor control centers, electronic power circuit breakers, fusible switches, and single warranties cover all substations, and interior substations/switchgear. The contractor shall build an electrical room on the 1st floor.

Electronic MicroStation V8 XM computer-aided design and drafting (CADD) files or Adobe Acrobat Portable Document Format (PDF) files, which may include the existing building floor plans and utility plans will be provided by the Detroit Arsenal (DTA) Directorate of Public Works (DPW) on compact disc (CD) as part of this SOW for design development. Additional files for the Contractor's reference were be provided on this CD. The Contractor shall field verify all files and drawings provided by the Detroit Arsenal DPW for accuracy prior to cost proposal submission.

Design and construction shall comply with the requirements contained in this SOW. The design and technical criteria contained and cited in this SOW, the Detroit Arsenal Installation Design Guide (IDG), the Department of Defense (DoD) Unified Facilities Criteria (UFC), and the Unified Facilities Guide Specifications (UFGS) establish minimum standards for design and construction quality. The Contractor shall adhere to the requirements included in the Detroit Arsenal (DTA) IDG. The Contractor shall adhere to the International Building Code (IBC), published by the International Code Council, as referenced by the UFC and UFGS. The Designers of Record shall use the Unified Facilities Guide Specifications and the requirements contained in this SOW to fully develop the technical specifications and construction drawings. The Contractor shall comply with the latest editions of all codes, standards, regulations, specifications, and requirements as of the date of award. If there is a conflict between requirements in this SOW and the UFGS then the requirements of this SOW shall take precedence and shall be adhered to.

The Contractor shall provide extended parts and labor warranties on all equipment, products, and items, including equipment, motors, transformers, fire protection and fire alarm equipment, lightning protection equipment, and all other equipment as specified in the Unified Facilities Guide Specifications (UFGS). In addition to submitting warranty information when specified in the Unified Facility Guide Specifications, all product warranty information shall also be provided at the time product data information is submitted to the COR for review. Parts and labor warranties shall be provided for the maximum number of years specified in the Unified Facilities Guide Specifications for all products.

1.2 COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK

The Contractor shall be required to:

- a. commence work under this contract within the time allotted under the SOW,
- b. complete the 65 Percent Design submittal, including submission of written responses to all Government comments and completion of the design review meeting, not later than **70** calendar days after date of receipt of notice to proceed.
- c. complete the 100 Percent Design submittal, including submission of written responses to all Government comments and completion of the design review meeting, not later than **100** calendar days after date of receipt of notice to proceed.
- d. complete the entire project design ready for construction (Released for Construction Design submittal), including submission of written responses to all Government comments and completion of the design review meeting, not later than **135** calendar days after date of receipt of notice to proceed.
- e. complete all construction to be ready for use not later than **270** calendar days after date of receipt of notice to proceed. The time stated for completion shall include final inspection punch list item completion and Government acceptance, final cleanup, and completion of all requirements to authorize beneficial occupancy.
- f. complete the entire work not later than **315** calendar days after date of receipt of notice to proceed. The time stated for completion shall include as-built drawings, operation and maintenance manuals, operational tests, reports, equipment lists, training, instructions, and all other required project closeout documents.

1.3 APPLICABLE CRITERIA

Applicable design and construction criteria are specifically indicated in Department of Defense (DoD) Unified Facilities Criteria (UFC) and the Unified Facilities Guide Specifications (UFGS). Criteria shall be taken from the most current references as of the date of award, unless noted otherwise. Referenced codes and standards are minimum acceptable criteria. Administrative, contractual, and procedural features of the contract shall be as described in other sections of the SOW.

1.4 FORCE PROTECTION & ANTI-TERRORISM CONSIDERATIONS

Project design and construction shall comply with the UFC 4-010-01, Department of Defense Minimum Antiterrorism Standards for Buildings.

1.5 HAZARDOUS MATERIALS ABATEMENT

Asbestos abatement is required where asbestos is disturbed by the installation of electrical equipment. Lead-based paint is present in the building and shall be considered for workers during demolition.

The Designer of Record shall edit UFGS Specification Section 02 82 14.00 10, ASBESTOS HAZARD CONTROL ACTIVITIES for abatement of asbestos and UFGS Specification Section 02 82 33.13 20, REMOVAL/CONTROL AND DISPOSAL OF PAINT WITH LEAD for worker safety in removing materials coated with lead-based paint.

All asbestos insulation that is removed shall be replaced with non-asbestos insulation material in accordance with UFC and UFGS insulation specifications.

The Contractor shall adhere to the third party neutral consultant final clearance requirements stated in the "ASBESTOS" paragraph of the contract.

The Contractor shall maintain floor material warranties when abatement measures are taken on existing floors.

Hazardous materials abatement shall be performed in accordance with Appendix.

1.5.1 Asbestos Survey

Available asbestos survey information is included in the appendices for contractors use. The contractor shall remove asbestos containing materials from the demolition of electrical equipment and any construction affecting the installation of new electrical equipment. The Contractor's cost proposal shall include the removal of all asbestos which is identified as "Assumed" asbestos indicated in the asbestos report and the removal of all known asbestos indicated in the asbestos report except for the exceptions listed above. Asbestos shall be removed and disposed of in accordance with

Federal, state, and installation requirements. The contractor shall dispose of the asbestos waste shall be via HAZMART.

1.6 PERMITS

The Contractor shall prepare, file, and pay any fees required to obtain all necessary permits for the construction of this project.

Permits shall be prepared and filed in accordance with Appendix A, Standard Environmental Protection Requirements and Appendix B, Other Standard Environmental Protection Requirements.

1.7 FINAL CLEANING

The contractor shall clean the premises in accordance with FAR clause 52.236-12 and additional requirements stated here: remove stains; foreign substances; and temporary labels from surfaces; vacuum carpets and soft surfaces; clean equipment and fixtures to a sanitary condition; clean or replace filters of operating equipment if cleaning is not possible or practicable; remove waste, surplus materials, and rubbish from the site; remove all temporary structures, barricades, project signs, fences, and construction facilities.

1.8 FURNITURE RECONFIGURATION, REMOVAL, AND COORDINATION

Not applicable.

1.9 COORDINATION

The Contractor shall coordinate, through the COR, with the proposed tenant for the placement, installation, finish selections, of tenant furnished material and equipment. The Contractor shall coordinate through the COR with other contractors to prevent interference with their work and to allow them access to the work areas.

The Government will ensure the project area will be un-occupied by the tenant during construction. If it becomes necessary to interrupt work activities in buildings and/or areas for construction purposes, permission to do so must be requested in writing to the Contracting Officer fourteen (14) calendar days prior to commencing work and shall be subject to COR approval. Written requests for street closing shall be submitted for approval by the COR fourteen (14) calendar days prior to closing the street and is subject to COR approval.

Work in connection with this contract which requires utility outages (electrical, water, gas, steam,...) which will close down or limit (as determined by the Contracting Officer Representative) normal activities in the building, construction area, or other affected areas, shall be performed by the Contractor at a time other than regular working hours of the organization occupying the facility. Work in connection with this contract which requires road closures shall be performed by the Contractor at a time other than regular working hours. Work required by the Contractor on non-standard basis or at premium pay shall be done at no additional cost to the Government. The contractor shall Request for utility outages and road closures submitted to the COR, in writing, fourteen (14) calendar days prior to commencing work and shall be subject to COR approval.

The contractor shall Obtain DPW approval of interruption by submitting the Construction Impact Notification Form to the COR in accordance with the contract.

The Contractor shall coordinate work efforts with all affected utility companies. This includes initial contact to each utility company and coordination prior to and during construction.

1.10 CONSTRUCTION SITE PLAN

The contractor shall, prior to the start of work, submit a site plan showing the locations and dimensions of temporary facilities (including layouts and details, equipment and material storage area (onsite and offsite), and access and haul routes, avenues of ingress/egress to the fenced area, and details of the fence installation). Identify any areas which may have to be graveled to prevent the tracking of mud. Indicate if the use of a supplemental or other staging area is desired. Show locations of safety and construction fences, site trailers, construction entrances, trash dumpsters, temporary sanitary facilities, and worker parking areas.

All Contractor staging areas and storage areas shall be limited to areas within five (5) feet of the project area boundaries and subject to COR approval.

The Contractor shall comply with UFGS Specification Section 01 50 00, TEMPORARY CONSTRUCTION FACILITIES AND CONTROLS.

PART 2 DESIGN AND CONSTRUCTION REQUIREMENTS

2.1 FUNCTIONAL AND AREA REQUIREMENTS

2.1.1 Gross Area Definition

The gross floor area of the project shall be determined by the Contractor to meet all SOW requirements including minimum net areas indicated in this SOW.

2.1.2 Net Area Definition

Net area is measured to the inside face of the room or space walls.

2.2 ARCHITECTURAL

2.2.1 Technical Requirements

2.2.1.1 Design and Installation Standards and Codes

The architectural design and construction shall conform to the current versions of all applicable Unified Facilities Criteria (UFC). The project architectural design and construction shall be in accordance with the latest edition of the Department of Defense (DoD) Unified Facilities Guide Specifications (UFGS). The design and construction shall conform to all standards and codes referenced in the UFGS specifications under the applicable architectural specification sections.

Major criteria references for building design are listed below (additional requirements are included throughout the UFGS specification sections):

National Fire Codes, published by the National Fire Protection Association (NFPA), including NFPA 101 Life Safety Code

International Building Code (IBC)

Architectural Barriers Act (ABA) Standard for Department of Defense (DoD) Facilities

UFC 4-010-01 Department of Defense Minimum Antiterrorism Standards for Buildings

UFC 3-600-01 Design: Fire Protection Engineering for Facilities

2.2.1.2 Scope of Work

The work includes completion of architectural design as described herein and as detailed by the Architect Designer of Record.

2.2.1.3 Detroit Arsenal Specific Requirements

Where existing walls are removed, the Contractor shall provide design and construction to relocate existing appurtenances; such as, fire extinguisher cabinets. The Contractor shall propose new appurtenance location in the design drawings for Government review and approval.

All piping, ductwork, conduit, wiring, and cabling shall be routed within walls, ceilings, or pipe chases to the maximum extent possible.

In areas where emergency egress requires electric door strikes, electric door strikes shall be Fail-Safe/Time Release type utilizing HES, Inc. SMART Pac or approved equal.

All paint work shall be performed in accordance with UFGS Specification Section 09 90 00, PAINTS AND COATINGS.

Pest management during construction shall be performed in accordance with UFGS Specification Section 01 57 16, TEMPORARY PEST CONTROL.

Provide Vinyl Composition Tile (VCT) in accordance with UFGS requirements and the DTA IDG where indicated on the drawings.

2.2.1.4 Design Goals

The contractor shall provide a functional, low maintenance, visually appealing facility to adequately support the User.

2.2.1.5 IBC Occupancy and Building Type Classifications

Occupancy classification, construction type, allowable areas, maximum building height, and fire separation requirements shall comply with the requirements of UFC 3-600-01 Fire Protection Engineering for Facilities and the International Building Code.

2.2.1.6 Room Noise Criteria and Sound Attenuation

Room noise criteria establishes acceptable background sound in rooms over the frequency range 16 Hz to 4000 Hz, particularly measuring rumbling, rattling, buzzing, hissing, and humming from building mechanical and electrical systems. Rooms shall not exceed the Room Criteria (RC) indicated below. All RC ratings shall be neutral (N). Designers of Record shall determine adequate construction requirements to achieve the following RC limits:

SCIF areas	RC 30(N)
Open offices	RC 35(N)
Private offices	RC 30(N)
Conference rooms	RC 30(N)

2.2.1.7 Noise Testing

The contractor shall test all rooms with all building systems operating, including air compressor and other equipment. The contractor shall measure the sound pressure level in dB referenced to 20 micro Pascals.

2.2.1.8 Noise Test Reports

The contractor shall report the results of the tests by plotting the sound pressure level in each octave band from 32 to 4000 Hertz on Room Criterion Curve sheets published by ASHRAE to the COR after construction is completed. The contractor shall provide an individual plot for each room and a narrative discussion explaining the test results.

After construction is complete the Contractor shall certify to the COR in writing that all rooms meet RC levels above.

2.2.1.9 Sound Attenuation

As a minimum, all gypsum board partitions separating spaces shall be provided with 3-1/2-inch thickness of sound attenuation insulation and shall extend to the roof deck unless otherwise indicated in this SOW.

2.2.1.10 STRUCTURAL INTERIOR DESIGN (SID)

Minimum interior finishes and wall types are indicated in this specification for each space in the project. Items not specifically identified shall be coordinated in the SID and provided based on suitability of use, durability, and aesthetic character.

2.2.1.11 Concrete Floors

The facility shall be concrete slab-on-grade. All exposed concrete floors indicating concrete hardener finish and the concrete floor below the access floor system] shall be sealed. The concrete floor sealer shall have a minimum 5-year warranty.

2.2.1.12 Interior Walls and Partitions

Non-combustible construction shall be provided, even where combustible materials are allowed by code. Wall finish materials shall be as specified in functional and area requirements listed in this specification section. Wall finishes shall be provided in accordance with the Detroit Arsenal - Installation Design Guide (DTA IDG).

2.2.1.13 Metal Wall Support Systems

Non-load bearing metal studs and furring for interior walls shall comply with ASTM C 645; stud gauge shall be as required by height and loading, but 20 gauge stud thickness is minimum thickness permissible. Maximum stud spacing is 16 inches on center. Provide galvanized finish. Metal wall support systems shall be provided in accordance with UFGS Specification Section 09 22 00, SUPPORTS FOR PLASTER AND GYPSUM BOARD.

2.2.1.14 Gypsum Wallboard

Comply with ASTM C 1396. Minimum panel thickness shall be 5/8-inch. All gypsum wallboard panels shall be Type X fire-rated panels. Provide moisture resistant panels in rooms exposed to moisture where ceramic tile is not used. Joint treatment shall be per ASTM C 475. Screws shall be per ASTM C 1002. Drywall installation shall be per ASTM C 840.

2.2.1.15 Ceilings

Non-combustible construction shall be provided, even where combustible materials are allowed by code. All new acoustical ceiling systems shall be fire resistive ceilings and shall be provided in accordance with UFGS specifications. Ceiling finish materials shall be as specified in functional and area requirements listed in this specification section. Minimum ceiling height shall be 9 feet unless otherwise indicated or shown. The contractor shall use gypsum board soffits to accent areas such as the **conference room, reception desk, and the lobbies** for ductwork and lighting, and shall be minimum 8 feet high. If suspended ceilings do not exist within the project area boundaries, all ductwork, piping, lighting, and other utilities shall be installed as high as possible to allow for future suspended ceilings within the project area boundaries with a minimum 9 foot ceiling height unless otherwise indicated. New acoustical ceilings shall have a minimum NRC of 0.70, a minimum CAC of 40, and a minimum LR of 0.85. Ceilings shall be provided in accordance with the DTA IDG.

Furnish spare tiles, from the same lot as those installed, of each color at the rate of 5 tiles for each 1000 tiles installed.

2.2.1.16 Interior Doors and Frames

Provide flush hollow core metal doors with hollow metal door frames for all interior doors except those indicated on the electrical drawings. **The** doors shall be hollow core metal unless required by code. The door shall be thermally insulated metal. All frames shall be hollow metal.

Provide interior door acoustical sound seals along entire perimeter of all interior doors associated with private offices, conference rooms, and other sound sensitive areas. Sound seals shall consist of silicon or neoprene type jamb and head seals and automatic door bottom seals mortised into the bottom door edge. Provide other hardware as necessary for a complete installation.

Paint on doors and door frames shall not cover Underwriters Laboratories (UL) labels or any other label installed on the door or door frame.

2.2.1.17 Hollow Metal Doors

The contractor shall comply with ANSI A250.8/SDI 100. Doors shall be Level 2, physical performance Level B, Model, unless indicated on the drawings 2; factory primed. Anchors and accessories shall be zinc coated. Hollow metal doors shall be provided in accordance with the DTA IDG.

2.2.1.18 Hollow Metal Frames

The contractor shall comply with ANSI A250.8/SDI 100. Frames shall be level 2, 16 gauge, with continuously welded corners and seamless face joints, unless indicated on the drawings; factory primed. Anchors and accessories shall be zinc coated. Frames in masonry shall have bituminous back-coating, plaster guards, and shall be grouted solid.

2.2.1.19 Fire-Rated Doors and Frames

The contractor shall comply with International Building Code (IBC), NFPA 80, and requirements of labeling authority. Doors and frames shall bear labels from IBC approved testing laboratory. The contractor shall comply with positive pressure testing requirements of IBC.

2.2.1.20 Interior Door Hardware

Interior door hardware shall include the following items. Items not specifically identified shall be provided based on suitability of use, durability, aesthetic character, and cost efficiency. Finishes on hardware shall match throughout facility, shall be coordinated with SID, and shall not be a surface finish that shall rub off with extended use.

2.2.1.21 Interior Door Hinges

Hinges shall comply with ANSI/BHMA A156.1; template, full mortise, heavy duty, ball bearing, minimum size 4-1/2" x 4-1/2", non-ferrous base metal, non-removable pins.

2.2.1.22 Interior Door Locksets

Locksets shall comply with ANSI/BHMA A156.2; series [4000], Grade 1, non-ferrous base metal, removable core. Lever handles shall be provided per *Architectural Barriers Act (ABA) Standard for Department of Defense (DoD) Facilities*.

2.2.1.23 Interior Door Exit (Panic) Devices

Interior exit (panic) devices shall comply with ANSI/BHMA A156.3; heavy-duty touch-pad type, through-bolted mounting. Interior exit (panic) devices shall be listed and labeled for panic protection based on UL 305.

2.2.1.24 Interior Door Closers

Closers shall comply with ANSI/BHMA A156.4; series C02000, Grade 1, hydraulic, factory-sized, adjustable to meet field conditions, mounted on interior of doors. The contractor shall provide closers on all doors required by Code.

2.2.1.25 Interior Door Auxiliary Hardware

Auxiliary hardware shall comply with ANSI/BHMA A156.16. The contractor shall provide wall or floor stops and door silencers for all interior doors. The contractor shall provide other hardware as necessary for a complete installation.

2.2.1.26 Interior Door Kick Plates

Kick plates shall comply with ANSI/BHMA A156.6 and shall be non-ferrous metal. The contractor shall provide on all doors.

2.2.1.27 Interior Signage

Interior signage for the project shall be provided to include room identification for all spaces. Interior signage shall be provided in accordance with UFC 3-120-01. Signage schedule, plan, and details shall be included in the construction drawings. Interior signage, to include sizes, shall comply with UFC 3-120-01 and the DTA IDG for all areas including the areas identified below:

- Room Identification
- Information: "In Case of Fire"
- Directional
- Fire Extinguisher
- Freestanding Announcement

2.2.1.28 Utilities

The Contractor shall install electrical junction boxes at the ceiling. Communication lines shall be "pigtailed" enough to feed through the demountable partitions from the ceiling. The Contractor shall be responsible for pulling the communication lines through the demountable partitions upon installation of the partitions. Electrical work shall be coordinated through the CID and installed by others from the junction boxes provided by the Contractor.

2.2.1.29 Humid Area Design

Interior surfaces of ceilings and exterior walls shall be covered with materials which allow escape of water vapor from inside the walls into the conditioned space to prevent the growth of mold on interior surfaces. The vapor barrier shall have a maximum perm rating of 0.5, and shall be located on the outside face of the exterior wall or ceiling insulation.

2.2.2 Drawings

The drawings shall be complete, include all necessary and required details, shall be thoroughly checked, and shall be fully coordinated with the technical specifications and all other construction documents. Previous comments and applicable criteria changes shall have been incorporated into the design. Removal work and details shall be shown on separate drawings. The contract drawings shall fully describe the type and the scope of work required. The layout of individual sheets and the organization of the assembled set shall follow and communicate a logical sequence. General information shall be presented first which shall then progress to more detailed information. The contractor shall, when assembling details, begin in the upper left-hand corner of the sheet and have letters progress to the right and down. The contractor shall, when dimensioning, use arrowheads, not dots or slashes. The contractor shall, where major structural elements are included as parts of architectural detailing do not indicate sizes. These elements must be fully defined in the structural design documents.

The contractor shall provide drawings listed below (in addition to drawings required by the Designer of Record):

- Exterior Elevations and Details
- Interior Elevations and Details
- Building Cross-Sections
- Floor Plans
- Casework Plans, Elevations, and Details

Wall Plan Details and Sections
Fire Wall Details and Penetration Conditions
Fire Protection Plans

2.2.2.1 Floor Plans

Provide a double line composite floor plan of the entire building, drawn at the largest scale practicable to include the entire building on a single sheet. This building is of a size that will require the floor plans to be divided into multiple areas. Floor plans shall essentially be complete with the exception of large scale detail referencing. Floor plans shall be scaled double-line drawings showing the functional arrangement and location of all openings and plumbing fixtures, all section cuts, wall types, all notes and leaders, all general notes, and all dimensions. The plans shall indicate door swings, door numbers and window type; door and window schedules are required. A north arrow shall be shown on each floor plan. Enlarged toilet and stair plans shall also be included. The first composite plan sheet shall include a gross area tabulation comparing the actual square feet with the authorized square feet of the facility. The Architect Designer of Record suggestions for plan improvement shall be fully shown and justified. Include the following:

- Overall, control, and door and window opening dimensions
- Match lines for combining individual portions of floor plans
- Room names and numbers
- Structural column or bay indicators
- Wall and building section cuts
- Area in square feet
- General notes

Also provide a key plan at a uniform location on all floor plan sheets which shows the interrelationships between the building portions. The key plan shall be scaled and oriented in the same manner as the floor plan for all plan type drawings of all disciplines. When dimensioning, use arrowheads, not dots or slashes. Where major structural elements are included as parts of architectural detailing the sizes shall not be indicated. These elements shall all be fully defined as part of the structural design documents. Major elements of mechanical and electrical equipment affecting room size or shape, shall be shown on the architectural plans to a practicable extent and coordinated with other respective disciplines. When applicable, Government furnished and contractor installed items or Government furnished and Government installed items shall be shown as dashed lines.

2.2.2.2 Building Elevations

Provide all building elevations complete showing the appearance and architectural treatment. Elevations shall be dimensioned to show total height, and relation to grade. Critical elevations such as top of finish floor and top of steel shall be indicated. All notes for materials shall be included.

2.2.2.3 Building Sections

Building cross-section and longitudinal sections shall be included to show general interior volumes, construction methods, and height of ceilings and partitions. Identify materials used and necessary dimensions.

2.2.2.4 Wall Sections

Drawings shall include all wall sections and stair section conditions including corridors, showing vertical control elevations and dimensions, with all materials labeled. The sections shall normally be cut through doors, windows, and other critical wall section locations. Wall sections shall not be broken. Additional details shall be included when necessary to illustrate important or unusual features. All horizontal dimensions shall occur on the plans and vertical dimensions on the sections and elevations.

2.2.2.5 Room Finish Schedules

Room finish schedules for each room in the project area shall be provided to include flooring type and color, base type and color, wall type and color, ceiling type and color, and all other necessary information as determined by the Designer of Record.

2.2.2.6 Fire Ratings

Wall ratings and fire hazards shall be clearly indicated as required by fire protection criteria. Wall fire ratings shall be graphically shown by a continuous symbol within the wall on a fire protection and life safety plan. When other functions coexist with the fire protection functions, their integration shall be clearly indicated, with an analysis that describes how both functions will be served. Provide a separate composite type floor plan which makes an accurate presentation of these various features and functions.

2.2.2.7 Drawing Scales

Architectural work shall be drawn at the scales listed below. Other scales may be used only by written authorization through the Contracting Officer's Representative (COR). Units of measurements shown on the drawings shall be done in English units. All disciplines shall use the same scale for plan sheets. The following is a comparison guide to establish equivalent scaling of drawings:

Composite Plans (Note 1)	Varies
Floor Plans	1/4-Inch = 1'-0"
Reflected Ceiling Plans	1/8-Inch = 1'-0"
Detail Plans (Note 2)	1/2-Inch = 1'-0"
Roof Plans	1/8-Inch = 1'-0"
Exterior Elevations	Same scale as plan
Interior Elevations	1/2-Inch = 1'-0"
Interior Toilet Elevations	1/2-Inch = 1'-0"
Building Cross-Sections	1/4-Inch = 1'-0"
Wall Sections	3/4-Inch = 1'-0"
Stair Sections	3/4-Inch = 1'-0"
Details (Note 2)	3-Inches = 1'-0"
Wall Types	3/4-Inch = 1'-0"
Fire Protection Plans (Note 1)	(Varies)

Notes:

1. Scale of composite plan shall be as required so that the entire facility is drawn on one sheet without break lines.

2. The goal of this requirement is that the details be large enough to show all fixtures, accessories, equipment, materials, manner of construction, clearances required for proper maintenance, and complete dimensions. Toilet rooms and equipment rooms are examples of the kind of spaces which shall be drawn as a detail plan.

2.2.2.8 Legends

Standard architectural material symbols used on the drawings shall be provided as a separate architectural legend drawing located just in front of the architectural drawings in the set. Additional material symbols shall be added to the legend sheet for the project.

2.2.2.9 North Arrows

North arrows shall be oriented the same direction on all plan sheets and by all disciplines; including site and civil drawings. Plan north shall be "up" or to the left on the drawings. Indicate true north on composite plan drawings. North arrows shall be located approximately at the same location on all sheets.

2.2.2.10 Modular Design

Modular Design practices shall be followed in the design of all masonry buildings or components of buildings. Dimensions shall be figured to whole or half-unit lengths of standard units in order to reduce on-site cutting of masonry.

2.2.2.11 Schedules

Schedules for room finish, doors, windows, and louvers shall be clear and complete. As many columns as necessary shall be provided in order to present the essential information. The "Remarks" column shall not be used as a substitute for an information column. Normally a single item shall be presented on each schedule line. Other scheduling methods as standard with the Design-Build Contractor may be used if approved by written authorization from the COR.

2.2.2.12 Notes

The contractor may place notes on drawings to reduce the amount of repetitive drafting, provided that clarity is not lost. General notes shall be placed at the right-hand edge of the sheet and, if possible, shall be located on the first sheet in the set. Notes that pertain to each drawing, however, shall be placed on each drawing.

2.2.2.13 Dimensions

Dimensions must be complete, accurate and fully coordinated. Dimensions shall be to points easily measurable in the construction and shall be laid out to eliminate refiguring in the field. Dimensions shall be tied-in to column lines, and other similar building elements, to facilitate checking. Plan dimensions for frame construction shall be to face of stud for exterior walls, to one face of stud for interior partitions, and to centerline of

openings. For masonry construction, dimensions shall be to one or both nominal faces of masonry and to jambs of openings.

2.2.2.14 Facility Elevation

The level of finished floor shall be indicated as EL. = 100 000. Elevations for footings, and other similar building elements, shall be related to this figure. Sea level elevations shall not be shown on the building drawings.

2.2.2.15 Access to Utilities

All utilities within the building, such as electrical work, shall be concealed in finished areas. The clear space above ceilings and the size of chases must be carefully figured to accommodate piping slopes and connections, ductwork crossovers, and similar situations. Access must be provided to valves, cleanouts, and other similar appurtenances. Space provided for utility systems must be adequate but shall not be excessive.

2.2.2.16 Sketches

The contractor shall submit all sketches presented during the design phase shall be reduced to 8-1/2" by 11" and included in the design analysis to document the design options and decisions evaluated during the design process.

2.2.3 Specifications

The technical specifications shall be complete and fully coordinated with the drawings. Special sections shall be prepared to cover those subjects for which no pattern guide specifications are available. Notes to the designer that accompany specifications shall be used in editing technical guide specifications. All specification indexes shall be completely edited to reflect the paragraphs retained in the body of the specification. All UFGS specifications shall be edited in accordance with the requirements stated in this SOW.

2.2.3.1 Design Analysis Narrative

The contractor's design analysis shall be complete with emphasis on the following:

2.2.3.2 Basic Criteria Statement

The contractor shall include a statement indicating the basic criteria to be applied to the design including type of construction, for instance noncombustible, category of construction, for instance permanent, major fire protection, and exit requirements.

In addition, the design analysis shall contain an explanation of the desired image or visual appearance of the interior of the facility and the design intent.

2.2.3.3 Description of Materials

A description of materials for all major building components and all interior and exterior finishes ascertaining their matching of existing. The description of materials must include type of room finish schedule and panel

materials. The description of materials shall follow the continuity of UFC 3-101-01, Architecture. The description of finishes may be presented in schedule form.

2.2.3.4 Additional Criteria/Clarification

Provide a list of items on which additional criteria, clarification, or guidance is required.

2.2.3.5 Reason for Selection

The written presentation must include the designer's reasons for selecting specific materials, architectural compatibility, and architectural treatment in all cases in which the reason for selection is not obvious.

2.2.3.6 Site Adaptation of Standard Drawings

The contractor shall submit a site adaptation of standard drawings shall include the following in the design analysis.

- a. An outline of the selections made where the standards permit the designer a choice of design or material.
- b. An outline of items on the standard that do not conform to current criteria or to the design instructions and suggested methods for changing the standards.
- c. An outline of errors found in the standards and suggested methods for correction.
- d. An outline of improvements the designer feels should be made to the standards including full explanation and justification.

2.2.3.7 Functional and Technical Requirements

- a. Functional areas, occupant capacities, and allocation, including a functional relationship matrix.
- b. All items of equipment required
- c. Occupational safety and health
- d. Handicapped accessibility
- e. Energy conservation energy budget goals
- f. Sound and vibration control
- g. Interior service areas
- h. Physical security; lock and keying, intrusion-detection, alarms, restricted access areas, interior guard support, and ties to local authorities
- i. Justification for selection of interior finishes and materials

j. Moisture vapor control

k. Lessons learned incorporated into the design

2.2.3.8 Design Objectives and Provisions

a. Adaptation of the building to the size, shape, and orientation of the site

b. Building layout to establish convenient circulation flows during normal operation and emergency evacuation activities, for materials, equipment, services, and people

c. Grouping spaces into sound-compatible zones and protective construction zones, for instance, fire and storm

d. Space layout compatible with modular (structural and environmental) support systems

e. Type of construction materials, architectural systems, and finishes

f. Building expandability and changeability

g. Moisture vapor condensation design

h. Composition of masses and spaces architectural compatibility and architectural details to reflect the design theme and desired image and the scale and nature of the activities involved

i. Perception of the building details and volumes (specific provisions made, for instance, an identifiable sequence of viewing positions for experiencing the interior and exterior architectural design)

j. Enhancement of materials and systems maintenance and operation

k. Economy of building construction, operation, and maintenance: life-cycle cost effectiveness

2.2.3.9 Coordination with Installation or Outside Agencies

a. Physical security support

b. Occupational safety and health as required

c. Government furnished equipment

d. Operations and maintenance support

2.2.3.10 Checklists

The contractor shall include a fire Protection Code Analysis and Handicapped Checklist shall be included in the Design Analysis.

2.2.4 Design Analysis Calculations

The contractor shall submit the following calculations in design analysis:

- a. Net room areas, occupant capacity, and gross building areas. Categorize areas and capacities under the titles of "Operational Space Requirements," "Administrative Space Requirements," "Storage Space Requirements," and "Support Space Requirements."
- b. U-values for each wall and door type selected.
- c. Acoustics.

2.2.5 Common Deficiencies

The Contractor shall:

- a. Use correct abbreviations or terminology on the drawings. Abbreviations must match what is used on the standard abbreviation sheet and terminology must match what is used in the standard technical guide specifications.
- b. Use the correct scales, north arrow designation, section cut system, or incomplete dimensioning on the drawings.
- c. Provide sufficient space for door operation hardware at doors which swing into a wall running perpendicular to the opening.
- d. Provide correct and complete Design Analysis information written in the present tense. The Design Analysis will be written following the format indicated herein. A separate Fire Protection section in the Design Analysis with input from all disciplines is one area which is often overlooked and shall be included.
- e. Correctly reference and cross-reference building sections, wall sections, and details.
- f. Read and use technical notes in editing the Technical Guide Specifications.

- g. Coordinate all disciplines prior to submittal of projects for review.
- h. Because of the potential for severe degradation, fire retardant plywood shall not be used.
- i. Correctly list trade names in door hardware specifications in lieu of ANSI numbers and correctly specify hardware finishes.
- j. Show control joints in CMU walls and brick expansion joints in face brick on architectural plans, elevations, and structural plans. Note control joint locating and coordination for floor tile per Tile Council of America recommendations.
- k. Delete all publications which do not apply to the particular project.
- l. Orientate north the same direction on all sheets.

2.3 STRUCTURAL

2.3.1 Technical Requirements

2.3.1.1 Design and Installation Standards and Codes

The structural design and construction shall conform to the current versions of all applicable Unified Facilities Criteria (UFC). The project structural design and construction shall be in accordance with the latest edition of the Department of Defense (DoD) Unified Facilities Guide Specifications (UFGS). The design and construction shall conform to all standards and codes referenced in the UFGS specifications under the applicable structural specification sections.

Major criteria references for building design are listed below (additional requirements are included throughout the UFGS specification sections):

International Building Code, IBC

American Society of Civil Engineers (ASCE) 7, Minimum Design Loads for Buildings and Other Structures

Building Code Requirements for Structural Concrete and Commentary, American Concrete Institute (ACI) 318

PCI Design Handbook - Precast and Prestressed Concrete

Building Code Requirements for Masonry Structures and Specifications for Masonry Structures and Commentaries, ACI 530

Cold-Formed Steel Design Manual, AISI

Specifications for the Design of Cold-Formed Steel Structural Members, AISI

41st Edition Catalog of Standard Specifications and Load Tables for Steel Joists and Joist Girders

Steel Deck Institute Design Manual

Manual of Steel Construction - Allowable Stress Design (ASD), American Institute of Steel Construction or Manual of Steel Construction - Load and Resistance Factor Design (LRFD), American Institute of Steel Construction

Specification for Structural Joints Using ASTM A325 or A490 Bolts

Structural Welding Code - Steel, ANSI/AWS D1.1

PCI Design Handbook - Precast and Prestressed Concrete

FEMA 302 - NEHRP Recommended Provisions for Seismic Regulations for New Buildings and Other Structures

UFC4-010-10, DoD Minimum Antiterrorism Standards for Buildings

2.3.1.2 Scope of Work

The work includes completion of structural design as described herein and as detailed by the Structural Designer of Record.

No particular structural system is selected or recommended by the Government; therefore, the structural design is the Contractor's responsibility within the parameters given in this section.

The criteria established herein shall be used for the determination of structural loads, the analysis and design of all structural systems, and the construction of all structural systems. All structural calculations shall be checked and initialed by a registered engineer other than the original design engineer. Construction documents (drawings and specifications) shall be sealed and signed by a professional engineer registered to perform work in the jurisdiction.

2.3.1.3 Minimum Live Load Requirements

Minimum live load requirements shall be computed using the project design standards, codes and criteria, but shall not be less than the following:

Elevated Corridors	80 psf
First Floor Corridors	100 psf
Stairwells	100 psf
Roof	20 psf
Mechanical Room	125 psf or actual weight of equipment

2.3.1.4 Seismic Loads

The seismic loads shall be designed to the minimum standard of ASCE 7.

2.3.1.5 Construction Drawings

All drawings shall be composed in accordance with and shall provide information as required by the International Building Code, IBC, Chapter 16 - Structural Design, Section 1603 - Construction Documents.

2.3.1.6 Structural Components and Systems

All structural components and systems shall comply with the requirements of the applicable standards, codes, and criteria as well as industry standards and commonly accepted methods of practice. Logical alternative foundations and framing methods shall be considered when selecting an appropriate structural system. The design shall consist of no combustible construction even where combustible materials are allowed. Wood shall not be used for any structural members.

Elements to Be Evaluated and Addressed
Total Life Cycle cost effectiveness of the system
Constructability
Experience level of local contractors and labor force
Availability and use of local materials

2.2.1.7 Combined Footings

Minimum width shall be 3'-0".

2.2.1.8 Continuous Footings

Minimum width shall be 2'-0".

2.2.1.9 Spread Footings

Minimum size shall be 3'-0" in any direction.

2.2.1.10 Load Bearing Walls

Materials of construction for vertical load bearing walls shall be reinforced masonry, reinforced concrete (cast in place or precast) walls (for the Armory and Weapons Vault), or metal stud walls. Wood stud walls shall not be used.

2.2.1.11 Non-Load Bearing Walls

Materials of construction for non-load bearing walls shall be metal stud wall or reinforced masonry walls. Wood stud walls shall not be used.

2.2.1.12 Concrete

All structural reinforced concrete shall be normal weight. The 28-day minimum ultimate compressive strength shall be 4000 psi. Calcium chloride shall not be used in any concrete. All concrete exposed to weather shall be air-entrained.

2.2.1.13 Concrete Masonry Units

The compressive strength of masonry on the net area shall be 4000 psi.

2.2.1.14 Reinforcing Steel

Reinforcing steel shall be Grade 60 and conform to ASTM A615 or A706.

2.2.1.15 Structural Steel

Structural Steel shall conform to the following specifications:

W-Shapes	ASTM A992, [50][] ksi
HSS-Shapes: round	ASTM A500, Grade B, [42][] ksi
rectangular	ASTM A500, Grade B, [46][] ksi
Steel Pipe	ASTM A53, Grade B, [35][] ksi
All other Shapes, plates, Rods, and Anchor Bolts	ASTM A36, [36][] ksi
Steel Deck	ASTM A653, [33][] ksi

2.2.1.16 Cold-Formed Steel

All structural members shall be formed from corrosion-resistant steel in accordance with ASTM A653. Members and accessories shall be galvanized in conformance with ASTM A924.

2.2.1.17 Structural Connections and Joints

All structural connections, joints, and details shall comply with the requirements of the applicable standards, codes, and criteria referenced in UFC and UFGS.

2.2.1.18 Connection Bolts (Structural Steel Connections)

Connection bolts shall conform to ASTM A325-N.

2.2.1.19 Welds (Structural Steel Connections)

Welding electrodes shall be E70XX.

2.2.1.20 Column Ends (Structural Steel Connections)

Column bases and spliced ends shall be milled or saw cut to provide full bearing.

2.2.1.21 Blocking (Cold-Formed Steel Connections)

End blocking shall be provided where joist ends are not otherwise restrained from rotation.

2.2.1.22 Stiffeners (Cold-Formed Steel Connections)

Web stiffeners shall be provided at all joist-bearing locations and/or at all points of concentrated loading.

2.2.1.23 Joints in Slabs (Contraction Joints)

Contraction joints, whether sawed, grooved, or preformed, shall extend into the slab to a depth of one-fourth the slab thickness.

2.2.1.24 Joints in Walls (Contraction Joints)

Cast in Place Concrete Walls: The thickness of the wall at a contraction joint shall be reduced by 20%-25%. Contraction joints in walls shall be spaced at a maximum of 20'-0" O.C.

Reinforced Masonry Walls: Joints shall be placed at the greater of 24 inches or 40 bar diameters from the edge of an opening. Joints shall not be placed at the edges of openings. The maximum spacing of joints in masonry walls shall be as specified in the following tables:

TABLE 2 Spacing for Joints in CMU Walls

Vertical Spacing of Joint Reinforcement(2-#9 Wires) (in)	Maximum Ratio of Panel Length To Wall Height (L/H)	Maximum Spacing Of Contraction Joints (ft)
Unreinforced	2	18
16	3	24
8	4	30

- Notes:
1. These spacings are based on moisture-controlled, type 1, concrete masonry in intermediate humidity conditions (ASTM C 90). The designer shall adjust the joint spacing for local conditions. The recommended spacing may be increased 6 ft in humid climates and decreased 6 ft in arid climates.
 2. Joint reinforcement shall be cold-drawn deformed wire with a minimum 9-gage longitudinal wire size.
 3. L is the horizontal distance between joints. H is generally the vertical distance between structural supports.
 4. The spacing shall be reduced 50% near masonry-bonded corners or other similar conditions where one end of the masonry panel is restrained.
 5. Unreinforced walls are not recommended for walls exposed to view where control of cracking is important.

TABLE 3 Maximum Spacing of Vertical Expansion Joints in Brick Walls

Expansion Joint Width (in)	W x in	Maximum Spacing of Joints
3/8	3/16	22
1/2	1/4	30
3/4	3/8	44
1 (max)	1/2	60

- Notes:
1. Provide expansion joints at 6 to 10 ft from corners.

2. Recommended joint locations:
 - a. At regular intervals as noted in table above.
 - b. At changes in wall height or thickness.
 - c. Near wall intersections in "L", "T", and "U"-shaped buildings at approximately 6 to 10 ft from corners.
 - d. At points of stress concentration.
 - e. At edges of openings.

2.2.1.25 Joints in Slabs (Construction Joints)

Construction joints shall be butt-type with continuous reinforcing through the joint, butt-type with dowels, or butt-type with tie bars.

2.2.1.26 Joints in Walls (Construction Joints)

Wall construction joints shall not detract from the appearance of the structure. Joints shall be inconspicuous or hidden by rustification strips. Rustification strips shall be V-shaped, rectangular, or beveled. In reinforced masonry walls, joints shall be placed at the greater of 24 inches or 40 bar diameters from the edge of an opening. Joints shall not be placed at the edges of openings.

2.2.1.27 Joint Material (Isolation Joints)

Isolation joint fillers shall consist of 1/8" thick strips of neoprene, synthetic rubber, or approved substitute, extending the full depth of the slab.

Expansion/Contraction joint filler shall consist of minimum 1/2" premolded material.

Bituminous joint fillers are suitable for use with hot-applied elastic or cold-applied mastic joint sealing compound. Provide nonextruding and resilient bituminous type filler strips conforming to ASTM D1751.

Nonbituminous joint fillers are suitable for use with cold-applied elastomeric polymer sealing compound. Provide nonextruding and resilient nonbituminous type filler strips conforming to ASTM D1752, Type I or II.

2.2.1.28 American Institute of Steel Construction (AISC) Certification Requirements for Fabrication

All fabrication of structural steel shall be accomplished by an AISC certified Category Sbd fabricating plant/facility.

2.2.1.29 AISC Certification Requirements for Erection

All erection of structural steel shall be accomplished by an AISC certified Category CSE erecting company.

2.2.1.30 ACI Certification Requirements for Concrete Batching, Placing, and Finishing

Contractor Quality Control personnel assigned to concrete construction shall be ACI certified workmen in the following trades:

- Concrete Field Testing Technician - Grade I
- Concrete Laboratory Testing Technician - Grade I or II

Concrete Construction Inspector
Reinforced Concrete Special Inspector
Flatwork Finisher and Technician

2.2.1.31 Precast/Prestressed Concrete Institute (PCI) Certification Requirements for Manufacturing

The precast concrete manufacturing plant shall be certified by the Precast/Prestressed Concrete Institute Plant Certification Program. Manufacturer shall be certified at the time of bidding. Certification shall be in the following product groups and categories:

- C1 - Precast Concrete Products (non-prestressed)
- C2 - Prestressed Hollow-Core and Repetitive Products

2.2.1.32 PCI Qualifications and Requirements for Erection

The erecting company shall be regularly engaged for at least five years in the erection of precast structural concrete similar to the requirements of the various design possibilities for this project.

2.2.1.33 Seismic and Special Inspection Requirements

The requirements for the preparation of construction drawings, the construction of the structural systems, the installation of architectural, electrical, mechanical and fire protection components, and the inspection of the structural system and the architectural, electrical, mechanical and fire protection components are established in the following codes and specifications.

International Building Code, IBC - Chapter 17-Structural Tests and Special Inspections (which includes Paragraph 1707.6 Architectural Components, and Paragraph 1707.7 Mechanical and Electrical Components)

Specification Section 01 45 04.00 06-Contractor Quality Control - Paragraph Special Inspection For Seismic-Resisting Systems (which includes Paragraph Architectural Components, and Paragraph Mechanical and Electrical Components)

NFPA 13 and Annexes - Standard for the Installation of Sprinkler Systems

Unified Facilities Guide Specification 13 48 00-Seismic Protection for Miscellaneous Equipment

Unified Facilities Guide Specification 21 13 13.00 10-Wet Pipe Sprinkler Systems

Unified Facilities Guide Specification 13 48 00.00 10-Seismic Protection for Mechanical Equipment

Unified Facilities Guide Specification 26 05 48.00 10-Seismic Protection for Electrical Equipment

2.3.2 Drawings

Final drawings shall be complete, thoroughly checked, and fully coordinated with the other disciplines, other specifications, and all other construction

documents. Previous comments and applicable criteria changes shall have been incorporated into the design. The drawings shall be complete with all plan view drawings, elevations, sections, details, schedules, diagrams, and notes necessary for the construction of the project. For structural steel framing, the drawings shall meet the requirements for design drawings set forth in the AISC Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings. All structural steel members and connections shall be fully detailed. Design of structural steel connections shall be the responsibility of the structural design engineer and shall not be delegated to the steel fabricator. For structural concrete, the drawings shall conform to the standards for engineering (design) drawings set forth in the ACI Detailing Manual SP-66. Additionally, those items described below which are applicable to the design shall be incorporated into the drawings. Drawings shall be at a scale appropriate for the design, in no case, however, shall plan type drawings be done at a scale smaller than (1/8" = 1'-0")1:100 or detail type drawings at scale smaller than (1/2" = 1'-0")1:20.

2.3.2.1 Grid Systems, Dimensions, and Floor Elevations

Each foundation and slab plan, floor framing plan, and roof framing plan shall have an alpha-numeric grid system aligned with centerlines of any columns or pilasters or with load bearing and non-load bearing walls. The same grid system shall be used for all plan view drawings. Each plan view shown shall have all necessary dimensions. On plan view drawings, the dimensions shall define the location of grid lines, offsets, and all structural elements, as well as the overall sizes of the buildings and structure. The finish elevation of the floor shall be indicated as 100'-0", and elevations for all other roofs, floors, and foundations shall be numerically referenced to this basic elevation.

2.3.2.2 Plan Sheets

a. Foundation and Slab Plans

Foundation and slab plans shall show the size and location of all foundation elements, such as foundation walls, grade beams, piers, footings, piles, and pile caps, drilled piers, and foundation drains. Elevations for footings, pile caps, and foundation drains shall be indicated on the plan. Plans for building slabs-on-grade and exterior stoop slabs at building entrances shall show location and type of joints, slab thicknesses and reinforcing, elevation of slab surfaces, and any other design features, such as drain trenches or equipment bases, which affect the slab design. Also, indicate if slabs are placed over a vapor barrier and capillary water barrier.

b. Framing Plans

Separate framing plans shall be provided for each structural floor roof and all parts of the structure. Plans shall show the size, spacing, and location of all roof and floor framing members, their supporting columns, pilasters or walls, all auxiliary members such as bracing and bridging, sag rods, and the size and location of all major openings through floors and the roof.

2.3.2.3 Elevation Views, Sections, and Details Sheets

Elevation views, sections, and details necessary to illustrate the design fully shall be provided. Some requirements peculiar to the various structural materials are described below.

a. Concrete

Drawings shall include elevation views as necessary, plus, sections and details to show the outlines of concrete cross-sections, reinforcing bar arrangements, concrete cover for rebar, installation of embedded items, and joint construction. All lap splice and embedment lengths for reinforcing bars shall be clearly indicated on the drawings. A sill detail for each foundation condition at exterior and interior doors shall be provided.

b. Masonry

Wall reinforcing shall be located and identified on plans, in section cuts, elevation views, or in schedules. Structural elevations shall be included to clarify the construction requirements for masonry reinforcement, especially the reinforcement around wall openings. Details applicable to the project shall be shown on the structural drawings. Listed below are some frequently required masonry details, most of which are shown in UFC 3-310-05A, Masonry Structural Design for Buildings. Additional details as required shall be extracted from other sources and incorporated into the final drawings. All details shall be fully edited to reflect the specific requirements of this project. Supplemental details shall be added as necessary to complete the design.

Masonry Details Frequently Used

- Masonry Control Joint (MCJ)
- Brick Expansion Joint (BEJ)
- Control Joint at Bond Beam
- Bond Beam Corner Reinforcement
- Seismic Reinforcement around Wall Openings
- Wall Reinforcement Details for 1 and/or 2 Bar-per-Cell Stiffeners
- Doweled or Other Connection of Masonry to Foundation, Floor, Roof, or Bond Beam
- Bond Beam (or Steel) Lintels and Bearing Details
- Lateral Support Detail for Top of Masonry Partition Walls (lateral support locations must be shown on framing plan sheets)
- Steel Joist Bearing

c. Structural Steel, Steel Joists, and Steel Decking

Structural steel connections shall be fully detailed and shown on the drawings. The anchorage of beams, trusses, joists, and steel deck to walls or other bearings, and the extra framing or reinforcement required at deck openings shall also be detailed. Notes, details, or schedules on the drawings shall indicate the steel deck attachment method to be used and shall give the size and spacing for perimeter, side lap, intermediate supports and end lap attachments. Welded connections shall be detailed using standard weld symbols illustrated in AWS D1.1/D1.1M. All applicable weld sizes, spacing, types, contours, and finishes shall be shown.

2.3.2.4 Schedules

a. Framing Schedules

Concrete framing, beam, and column schedules shall conform to the requirements of the ACI SP-66. For structural steel framing, provide a column schedule complete with design loads at splices, if any, and at column bases.

2.3.2.5 Equipment Loads

All equipment loads which exceed 200 lbs and are not supported by concrete slab-on-grade shall be identified on the drawings by showing equipment locations, total weights, and reaction loads at support points.

2.3.2.6 Notes

a. Design Notes

Under the heading "Designer's Notes," the structural drawings shall contain notes which begin: "The structural design was prepared using the following data:". The data then listed shall include the structural loading criteria used for design, such as, roof and floor live loads, snow load design parameters, wind speed and wind load design parameters, seismic design parameters, vehicular loads, allowable soil bearing pressures (as recommended by the Final Foundation Analysis report, foundation design depth, design wind uplift pressures for steel joists, and other data pertinent to future alterations. Also, to be listed are the ASTM designations and stress grades of the applicable structural materials: structural steel, masonry, cold-formed metal framing, concrete for each usage, reinforcing bars, welds, and bolts.

b. General Notes

Other notes, which direct the work to be performed and the materials to be used shall be grouped under the heading of "General Notes." Included in these notes shall be a description of the building's structural system, if necessary.

2.3.3 Specifications

Technical specifications for final design shall be prepared in accordance with the instructions stated in this SOW. The technical specifications shall be complete and fully coordinated with the drawings. All specification indexes shall be completely edited to reflect the paragraphs retained in the body of the specification. All references that have not been used in the body of the specification shall be edited from the technical specification.

2.3.4 Design Analysis Narrative

Design analysis shall follow the specific content as outlined below.

2.3.4.1 Design Criteria and References

A list of design criteria references, such as DOD Unified Facilities Criteria, Department of the Army Technical Manuals, ACI Standards, UFGS Specifications, and any other references which were used in the design of the project shall be included in the narrative.

2.3.4.2 Design Loads and Conditions

A list of structural design loads and conditions shall be provided, including:

- Snow load parameters;
- Wind load parameters
- Seismic design parameters;
- Roof live loads;
- Floor live loads, identifying each loading with usage and the room or space where used;
 - Foundation design criteria, including the design depth for footings, allowable soil bearing pressure, equivalent fluid densities (or lateral earth pressure coefficients) for the design of earth retaining structures and building components, modulus of sub-grade reaction, and any other pertinent data.

2.3.4.3 Structural Materials

A list of structural materials shall be provided, together with the stress grades and/or ASTM designations for structural steel, concrete, and reinforcing steel, the series for steel joists, and identification of the proposed use of each material in the structure.

2.3.4.4 Description of the Structural System

A concise description of the proposed structural system for the building, together with the reasons for its selection, shall be provided. All principal elements of the structural system selected shall be described. Typically, these shall include:

- Primary supporting members for the roof;
- Masonry walls, type of material, and whether load bearing or non-load bearing, with location of load-bearing walls defined, and measures taken to compensate for expansion/contraction and crack control in masonry walls;
- The proposed system for resisting lateral forces (wind and earthquake) and transferring them to the ground, whether diaphragms, chord bracing, shear walls, braced or moment resisting frame, etc;
- Foundations, description of special designs to accommodate existing site conditions;
- Concrete slab-on-grade floors, description of floor surface finish treatment, accommodation of live loads, and the use, location and types of crack control joints;
- The proposed treatment of any unusual structural loadings, features or unique solutions to structural problems;
- Identification of any major vibrating elements and measures taken to isolate them

2.4.5 Design Analysis Calculations

Calculations shall be prepared by an experienced structural engineer and shall include an investigation of loading (gravity, wind, seismic, etc.), shear, moment, wind uplift, stability, and deflection calculations. The computations are to be systematic and accurate. Similar beams, columns, panels, or connections may be grouped by designing the largest member or connection in the group, but every individual slab, beam, column, footing,

connection, or other structural member or structural consideration indicated by the plans shall be accounted for by pertinent calculations, statement or reasoning, or reference to a design source. Design formulas shall be written out in symbols the first time each is used before the numerical values are supplied. All formulas and results (answers) shall be identified by dimensional units. Basic assumptions of loads, working stresses, and methods of analysis must appear in the calculations. These assumptions must be applied consistently to a given problem. Complete design calculations shall be required for all original designs. The calculations shall be presented in a clear and legible form, incorporating a title page, table of contents, and a tabulation showing all design loads and conditions. Pages shall be numbered consecutively and identified in the table of contents. Cross-referencing shall be clear. The source of loading conditions, formulas, and references will be identified. Assumptions and conclusions shall be explained. Superseded areas of computations must be ruled out. All computations shall be given a complete numerical and theoretical check. Calculation sheets shall carry the names or initials of the developer and the reviewer, and the dates of calculations and review. No portion of the design calculations shall be developed and reviewed by the same individual.

2.5 ELECTRICAL

2.5.1 Technical Requirements

2.5.1.1 Design and Installation Standards and Codes

The electrical design and installation shall conform to the current versions of all applicable Unified Facilities Criteria (UFC), all applicable National Fire Protection Association (NFPA) standards, all applicable Institute of Electrical and Electronics Engineers (IEEE) standards, all applicable National Electrical Manufacturers Association (NEMA) standards, all applicable Illumination Engineering Society (IES) standards, all applicable Electronic Industries Alliance/Telecommunications Industry Association (EIA/TIA) standards, and all standards and codes referenced in the UFGS specifications. All distribution equipment/devised shall be UL listed and conform to NEC and the standards of IEEE, ANSI, and NEMA. Publications, codes, specifications, and standards shall be used as the basis for the project design. Publications and codes that imply recommendations shall be taken to be mandatory. Where there are conflicting criteria, the most stringent requirements take precedence.

2.5.1.2 Scope of Work

The work includes completion of electrical system design and construction to provide completely functional electrical systems as described herein and as detailed by the Electrical Designer of Record. The electrical system shall be designed under the supervision of a registered professional electrical engineer for quality assurance.

The contractor shall furnish and install the primary unit substations complete from the incoming lines. The contractor shall furnish and install motor control centers with variable frequency drives. The primary unit substation shall consist of primary equipment, transformer, and secondary equipment as specified below. The manufacturer of the unit substation shall furnish and coordinate all major components of the substations, including incoming primary equipment section, transformer and low-voltage section, as well as circuit breakers, fusible switches, and metering components. Provide a single warranty covering all substation assemblies, transformers and components. Connections between the primary device and transformer shall be bus, and between the transformer and secondary shall be flexible bus braid.

Refer to electrical drawings for additional details.

2.5.1.3 Detroit Arsenal Specific Requirements

All abandoned electrical systems, equipment, lighting, conduit, equipment pads, and any other abandoned electrical system component within the project area boundaries shall be removed shall be disposed in accordance with the appendix.

All conduit, wiring, and cabling shall be photographed by the Contractor. Additional all components shall be inspected by the Contractor and COR prior to burying, covering, or concealing. The Contractor shall provide all photographs to the COR in electronic Adobe Acrobat Portable Document Format (PDF).

Electric meters shall be advanced meters. Advanced meters measure and record interval data (at least hourly for electricity) and communicate the data to a remote location in a format that can be easily integrated into an Advanced Metering System. Advanced Metering System is a system that collects time-differentiated energy usage data from advanced meters via a network system on either an on-request or defined request or defined schedule basis. The system is capable of providing usage information on at least a daily basis and can support desired features and functionality related to energy use management, procurement, and operations. Quantities Measured shall be power (kilowatt), average demand over 15 minute intervals, energy (kilowatt-hours), phase voltage, amps, frequency, true power, reactive power, apparent power, and power factor. Operating Temperatures shall be -20°C to +60°C. For exterior mounting, the contractor shall consider the local ambient temperature extremes and moisture proof enclosures. Humidity Operating Range shall be 5 percent to 90 percent relative humidity (RH) (non-condensing). The accuracy shall be revenue grade: ±0.2 percent at unity power and ±0.5 percent at 0.5 power factor. The frequency shall be 60 Hz ±5 percent. LonWorks Meter Applications shall have digital output only, ANSI/CEA ANSI/CEA 709.1B protocol (LonTalk) output

for communications using Standard Network Variable Types (SNVTs) for measured values.

All lighting, occupancy sensors, and all other electrical system components which will be tied to the Detroit Arsenal base wide building automation system shall be provided with single complete non-proprietary controls as specified herein. All controls shall be an open implementation of LonWorks technology using ANSI/CEA 709.1B as the only communications protocol and shall use only LonMark Standard Network Variable Types (SNVTs), as defined in the LonMark Resource Files, for communication between control hardware devices to allow multi-vendor interoperability. Controllers shall be designed and installed in accordance with UFC 3-410-02, LONWORKS DIRECT DIGITAL CONTROL FOR HVAC AND OTHER LOCAL BUILDING SYSTEMS. Controllers shall be designed and installed in accordance with UFGS Specification Section 23 09 23 LONWORKS DIRECT DIGITAL CONTROL FOR HVAC AND OTHER BUILDING CONTROL SYSTEMS and UFGS Specification Section 25 10 10 LONWORKS UTILITY MONITORING AND CONTROL SYSTEM (UMCS), developed by the Designer of Record. The control system shall be designed and installed in accordance with Construction Engineering Research Laboratory (CERL) requirements (CorpsLON). The system shall be an open system with complete interoperability. CorpsLON eliminates contractor and vendor dependence. Cooperation between contractors is via specification requirements and submittals. The Government owns the system with ability to repair, replace, and upgrade without further dependence on the original contractor. Additional information is available in UFC 3-410-02A Heating, Ventilating, and Air Conditioning (HVAC) Control Systems and UFC 3-401-01FA Utility Monitoring and Control Systems. Refer to template drawings specified in UFGS Specification Section 23 09 23 LONWORKS DIRECT DIGITAL CONTROL FOR HVAC AND OTHER BUILDING CONTROL SYSTEMS. The new controls shall include integration to the existing Detroit Arsenal base wide JACE Tridium System. The control system shall integrate into the existing building management interface. The control system shall be fully compatible, fully read and write programmable, and fully configurable with the existing JACE Tridium System without any second party software. The building automation system shall be open in that it is designed and installed such that the Government or its agents are able to perform repair, replacement, upgrades, and expansions of the system without further dependence on the original contractor.

2.5.1.4 Coordination of Electrical Criteria

Electrical criteria provided in this section shall be coordinated with the architectural section, mechanical section, fire protection section, structural section, interior design section, civil and site section, force protection and security section, and all other sections of this SOW. Contractor design shall meet the intent of the electrical requirements provided in this section. Contractor shall coordinate the final locations of electrical equipment with the COR.

2.5.1.5 Primary Electrical Power Distribution

Primary electrical power distribution, 4.8KV, 3-phase, delta, shall be run in underground, concrete duct banks. Work shall be in accordance with UFC 3-550-03, UFGS DIVISION 26, and shall be coordinated through the COR with the USAG-DTA Directorate of Public Works (DPW).

2.5.1.6 Service Entrance

Facility service entrance power supply shall be installed in accordance with UFC 3-550-03, UFGS DIVISION 26, and NFPA 70.

2.5.1.7 Transformers

Transformers shall be pad-mounted type, 13.2 x 4.8KV delta primary and 480/277V wye secondary. Service transformers, for all 3-phase underground fed installations, shall be of the pad-mounted type. The medium voltage compartment shall be dead-front construction. Primary switching and protective devices shall include load-break switching, fuse protection, medium-voltage separable load-break connectors, universal bushing wells and inserts - or - integral one piece bushings and surge arresters. The nameplate rating for the transformer shall not be less than 90 percent of the KVA demand load calculated for the transformer. The contractor shall provide copper windings only, not aluminum. Transformer enclosure shall be lockable using a padlock cored to match existing Detroit Arsenal transformer installations. Transformers and transformer installation shall be in accordance with UFC 3-550-03 and UFGS DIVISION 26. Refer to the Appendix for motor control center design criteria.

2.5.1.8 Materials and Equipment

All material and equipment shall conform to the requirements of the American National Standards Institute (ANSI), the American Society of Testing and Materials (ASTM), or other national trade associations.

2.5.1.9 Electrical Space Requirements

Electrical space shall be provided for all electrical equipment. Space shall provide clearances and working areas as required by the latest edition of NEC, article 110.26 and article 110.27. Coordinate locations to consider factors such as ease of maintenance, proximity to loads being served, and accessibility.

2.5.1.10 Interior Branch and Control Wiring

Interior branch and control wiring shall be stranded copper, THHN/THWN, and shall be run in rigid metal conduit (RMC) or electrical metallic tubing (EMT). Interior branch and control wiring running in hollow metal stud partitions or running through non-masonry walls may be metal clad cable (MC) if #6AWG or smaller. Metal clad cable shall be a maximum of 6-feet in length. In areas where walls are not disturbed or reconstructed and wiring cannot be run within existing walls, surface metal raceway may be used within the habitable space of the room. All above ceiling and in wall wiring shall be in conduit and sized according to the NEC. Minimum conductor size for branch and control circuit wiring shall be No. 12AWG. All equipment and circuit grounds shall be provided, installed and connected with green wire in strict accordance with the requirements of NFPA 70 (NEC). Minimum interior conductor raceway size shall be 3/4". If existing control wiring in the project area located above plenum ceilings is plenum rated without conduit then the Contractor shall install plenum rated control wiring without conduit. Interior branch and control wiring installation shall be in accordance with UFC 3-520-01 and UFGS DIVISION 26.

All existing circuits that are replaced shall be demolished including associated wiring and conduit which shall be removed back to the source. Electrical service to and in the building shall be maintained at all times. In the event a power disruption is necessary, the contractor shall submit the Construction Impact Notification Form submitted to the COR 14 days prior in accordance with the contract.

2.5.1.11 Receptacles

Unless otherwise indicated, provide white, specification grade, 20A duplex receptacles and coordinating cover plates and provide white surface mounted raceway. If existing receptacles and cover plates and existing surface mounted raceways in the project area are not white then match existing receptacle and cover plate color and existing surface mounted raceway color. All duplex receptacles dedicated for computer use shall be of the isolated ground type. Isolated ground circuits shall feed no more than four computer dedicated duplex receptacles. The neutral conductor shall be #10AWG minimum from the source circuit breaker to all modular furniture workstations. In private offices, duplex receptacles shall be provided every 10 linear feet of wall. Housekeeping receptacles shall be provided every 25 feet in corridors and in open, non-administrative areas. Unless otherwise indicated, wall mounted duplex receptacles shall be mounted 18 inches above the finished floor.

2.5.1.12 Motors

Motors shall be of the high energy efficient type. Motor starters for mechanical and special equipment shall be furnished as an integral part of the mechanical or special systems. Motor installation and control shall be in accordance with UFGS DIVISION 26.

2.5.1.12.1 Motor Efficiencies

Minimum motor efficiencies shall be either Energy Star rated or in accordance with the Department of Energy (DOE) Buying Energy Efficient Products Recommendations. Applications that require definite purpose, special purpose, special frame, or special mounted polyphase induction motors are excluded from these efficiency requirements. Motors provided as an integral part of motor driven equipment are excluded from this requirement if a minimum seasonal or overall efficiency requirement is indicated for that equipment.

2.5.1.12.2 Main Switchboards

The contractor shall provide main switchboards with dead-front construction per NEMA PB1 and UL 67. The switchboards shall consist of a bussed pull section, a main section consisting of a circuit breaker, a utility company 'CT' compartment, and distribution sections containing draw-out circuit breakers for service to panel boards, 480V mechanical equipment loads, and space for service to future loads. The main switchboards shall be factory assembled, NEMA 1 construction, metal-enclosed, self-supporting with bus bracing rated for 65,000 short circuit capacity minimum, or as required. The main switchboards shall be front and rear aligned and provided with silver-plated copper bus. Branch over current devices shall be bolt-on circuit breakers with electronically controlled trip units. Ground fault

protection shall be provided per NFPA 70 (NEC). Voltmeters and ammeters with selector switches shall be provided for main devices. The switchboards shall be UL labeled for service entrance and meet applicable requirements of UL-891. Main switchboard installation shall be in accordance with UFC Series 3-500 and UFGS DIVISION 26, Appendix F, electrical specification, and the drawings.

2.5.1.13 Distribution Panels and Panel Boards

The contractor shall provide receptacle and other miscellaneous loads shall be served from 208/120V, 3-phase, 4-wire panel boards centrally located or as required. A 3-phase, delta/ye, dry-type transformer shall be provided to transform 480V power to 208/120V. Transformer shall be sized for a minimum of 10 percent future expansion. Distribution panels shall be of the circuit breaker type and shall have bolt-on breakers, main lugs only or main breakers as required, and copper bus. Panel boards shall be for molded case thermal magnetic circuit breakers and shall be sized for 42 single pole breakers. Distribution panel and panel board over-current protective device interrupting ratings shall be fully rated for the maximum available fault current and shall have a UL Listed interrupting rating of 66kA maximum and minimum interrupting rating of 22kA. Distribution panels and panel boards shall be NEMA 1 type construction. Install surface mounted panel boards in unfinished areas of buildings. Install flush or semi-flush panel boards in other areas. All panels shall be sized for a minimum of 10 percent future expansion. Provide spare single pole circuit breakers and spaces for future expansion. Distribution panels and panel boards shall be provided and installed in accordance with UFC 3-520-01 and UFGS DIVISION 26.

2.5.1.14 Motor Control Centers and Variable Frequency Drives

Refer to Appendix for motor control center design criteria.

2.5.1.15 Interior Lighting

The contractor shall establish interior lighting systems shall be established in accordance with NFPA 101 and the IES Lighting Handbook. For energy conservation, occupancy sensors shall be provided. All lighting design shall incorporate the latest techniques of energy savings applied to lighting systems. All wires associated with replaced and relocated light fixtures shall be checked for degradation and discoloration and be replaced where necessary.

Interior lighting shall be provided by two independent systems. Normal overhead space lighting shall be powered by the building equipment power system and controlled by the facility's energy management system. For areas that are not regularly occupied, for instance, single occupant offices, break rooms, copy rooms, restrooms, shall also be controlled by occupancy sensors. Occupancy sensors shall be appropriate to the area and shall be rated for the square footage of the space. Occupancy sensors shall be ultrasonic or passive infrared technologies. Dual band occupancy sensors are not accepted. Programming for the lighting controls will be 0500 to 1900 hours M-F, 0600 - 1200 Saturday, off Sunday with an override on the graphics with a 3 hour time limit. Also included shall be an "ALL OFF" program at midnight, every night, unless there is an override.

Exit lighting shall be white housing with red lettering, UL listed with a 100-foot visibility; LED type with a minimum of 1.5 hour battery backup. Incandescent lamps are not allowed.

Emergency/Exit combo units are allowed.

Interior lighting and controls shall be provided and installed in accordance with UFC SERIES 3-500: ELECTRICAL and UFGS DIVISION 26.

2.5.1.16 Normal Lighting

Normal lighting branch circuits shall be fed from 208/120V breaker panels with 20A single pole circuit breakers loaded to no more than 16A maximum. Wiring for lighting branch circuits shall be #12AWG minimum.

2.5.1.17 Lamping

For all suspended ceilings with lay-in troffer fixtures, surface mounted fixtures, and pendant fixtures, 32 Watt T8 fluorescent linear tubes shall be used with a color rendering index (CRI) of 86, color temperature of 4100K with a mean lumen rating of 2800 unless otherwise indicated.

For all architectural lighting (i.e. sconces, etc.) compact fluorescent lamps shall be used with a color rendering index (CRI) of 70 or greater, color temperature of 4100K, cool white lamp, unless otherwise indicated.

For all high bay lighting applications, 32 Watt T8 fluorescent linear tubes shall be used with a color rendering index (CRI) of 86 and color temperature of 4100K with a mean lumen rating of 2800, unless otherwise indicated.

U-shaped and circular shaped fluorescent lamps and incandescent lamps shall not be used in any fixtures.

For all Solid State Lighting - LED applications of new installations of exterior lighting fixtures (parking lots, buildings, etc.) shall be provided. LED products selected shall be qualified by U.S. Department of Energy (DOE) Commercially Available LED Product Evaluation and Reporting (CALiPER) program. The LED manufacturer shall be a partner in Lighting FactsR a program of the U.S. DOE. As of July 2010, the following are partners in Lighting FactsR: CREE, CRS, Philips, and Renaissance Lighting. Refer to <http://www.lightingfacts.com/> for a complete listing of manufacturers and additional information. The Contractor shall obtain from the manufacturer, and provide to the Government for acceptance, the lamp specification sheet to include the LED system life of 50,000 hours (LM70) data and the thermal management technique/special features used.

2.5.1.18 Mechanical, Electrical, Storage, and Janitor Rooms

Pendant mounted, fluorescent fixtures shall be provided and operate at 120V. Fixtures shall contain T-8 lamps, high-power factor, high efficiency, and thermally protected ballasts and shall conform to UL 1570. Fixtures shall receive one or more rust inhibitive coatings before the application of the finish coat. Where required in wet locations, the fluorescent light fixtures shall be enclosed and gasketed.

2.5.1.19 Emergency Egress Lighting

Emergency egress lighting shall be powered by 90-minute NiCad battery pack style emergency light fixtures; low-profile thermoplastic housing, with white finish, 24 hour recharge time, and low-voltage disconnect. LED light fixtures shall be provided for all new emergency egress lighting. Un-switched power by dedicated lighting circuit shall be provided for all new emergency egress lighting. Lighting shall be provided in accordance with NFPA 101 Life Safety Code.

Emergency egress lighting shall be tied to emergency generators wherever generators are serving the existing building and where new generators are provided. Where emergency egress lighting is tied to new or existing generators, provide a UL924 emergency bypass/shunt relay to turn on emergency lighting regardless of the light switch position.

Exit signs shall be red LED type.

2.6.1 Drawings

Drawing scale shall match architectural drawing requirements. Drawings shall be complete and accurate in every detail and shall include arrangements and types of light fixtures, receptacles, switching, location of special features, and necessary details. Drawings shall also include legends, fixture schedules, panel schedules, one-line diagrams, layout or functional diagrams for each of the various systems, riser diagrams if applicable, estimated maximum demand for each panel and for the entire building, and any other relative information which will help clear up any questionable items on the plans or in the specifications.

All drawings provided to the Contractor shall be field verified for accuracy.

2.6.1.1 Lighting Layout and List of Fixtures

The contractor shall complete lighting layouts of all areas shall be provided. The type of fixture shall be indicated on the drawing. A complete list of fixtures proposed with type of lamp and wattage shall be provided.

2.6.1.2 Receptacle Layout

The contractor shall complete receptacle layouts shall be provided for all areas to indicate project requirements.

2.6.1.3 Power Equipment Layout

The contractor shall power equipment layouts, such as, switchboard, panel boards, and large motor driven items shall be provided.

2.6.1.4 Power One Line Diagram

The contractor shall power one line diagrams shall be shown to indicate arrangement of the system. Contractor shall provide size and length of feeders.

2.6.1.5 Floor Plans

The contractor shall identify All rooms by name and number. The contractor shall provide plans that are legible. Plans shall be developed using the same scale and areas as the architectural floor plans. Separate floor plans must be provided for lighting, power, and fire detection.

2.6.1.6 Diagrams

The contractor shall provide the power one-line diagrams on a dedicated sheet. The diagram shall show ratings of major equipment including short circuit ratings. Power, communications diagrams, fire detection, and telephone diagrams shall be on separate sheets also.

2.6.1.7 Schedules

The contractor shall provide panel board and lighting fixture schedules. Panel board schedules shall include the designation, location, mounting (flush or surface), number of phases and wires, voltage, ampacity total connected load, and demand load. Indicate the trip rating, frame size, interrupting rating and number of poles for each circuit breaker in the panel boards. List the circuit number, circuit description, and load for each branch circuit.

2.6.2 Specifications

The contractor shall submit prescriptive specification sections to specify the quality, characteristics, installation procedures, and testing requirements for all items of the proposed electrical design.

2.6.3 Design Analysis Narrative

The contractor's design analysis shall contain a description and analysis of the electrical portions of the design. Special features and unusual requirements shall be noted.

2.6.4 Design Analysis Calculations

The contractor shall furnished data to support basic design decisions related to sizing of major equipment and materials, selection of economic alternatives, and performance of specific systems and equipment. The contractor's calculations may be performed by manual or computerized procedures. Use of standardized charts, curves, tables, graphs will be acceptable for portions of required calculations or in lieu of specific calculation procedures. Such data must be from a recognized source which is identified in the design analysis. If possible, a copy of applicable sheets or pages shall be included with the calculations. For given equipment, the calculations must conform to requirements identified under subsequent paragraphs herein pertaining to the equipment.

2.6.4.1 Service

The contractor shall provide sizing of building service.

2.6.4.2 Transformers

The contractor shall provide sizing of all transformers. For dry type transformers, the contractor shall collect one or two samples of detailed calculations to identify the method are sufficient (if input data for remaining units can be derived from panels or feeder sizing data).

2.6.4.3 Feeders

The contractor shall provide sizing of feeders. One detailed sample calculation is sufficient to establish the procedure. Remaining data shall be included on schedules and tables.

2.6.4.4 Panel Boards

The contractor shall provide sizing and loading of panel boards and distribution equipment.

2.6.4.5 Voltage Drop Determination

The contractor shall provide voltage drop calculations in accordance with IEEE Standard 241 to demonstrate that the voltage drop requirements of National Fire Protection Association (NFPA) 70 are satisfied.

2.6.4.6 Illumination Calculations

The contractor shall identify data to target and calculated illumination levels for all rooms and areas. The contractor's calculations shall be adjusted to compensate for special applications, such as, irregularly shaped rooms, open sides, ceiling obstructions (beams and ductwork), corridors, and any other special application. If the lumen method is used for corridor calculations, the calculations shall be performed using a module in which the length does not exceed three times the width (a 2:1 ratio is preferred).

The contractor shall provide calculations for each room or area for both normal and for emergency/egress lighting, if so equipped. Standard lighting levels shall be in accordance with IES recommendations and the emergency/egress lighting levels shall be in accordance with NFPA 101. The emergency/egress lighting calculations shall indicate the average, the minimum, and the uniformity of each area.

2.6.4.7 Short Circuit Evaluation

The contractor shall calculate the fault current in accordance with IEEE Standard 242 for each node in the electrical distribution system.

2.6.4.8 Protective Coordination Analysis

A protective coordination study shall be performed by the contractor to show that the power system is selectively coordinated and is fully coordinated with the upstream breakers. In addition, the study shall include all existing and new devices in the base power plant affected by the installation of the space test and evaluation facility. The protective coordination and short circuit study shall be complete and approved by the COR before any changes are made to the existing equipment.

2.6.4.9 Specialized Applications

Additional engineering data shall be included to address special requirements such as accommodation of nonlinear loads, harmonics analysis, and energy studies.

2.7 TELECOMMUNICATIONS

2.7.1 Technical Requirements

2.7.1.1 Design and Installation Standards and Codes

The telecommunications design and installation shall conform to the current versions of all applicable Unified Facilities Criteria (UFC), Technical Criteria for Installation Information Infrastructure Architecture (I3A), ANSI/TIA/EIA specifications and all standards and codes referenced in the UFGS specifications. Publications, codes, specifications, and standards shall be used as the basis for the project design. Publications and codes that imply recommendations shall be taken to be mandatory. Where there are conflicting criteria, the most stringent requirements take precedence.

2.7.1.2 Scope of Work

The work includes completion of telecommunications system design and installation to provide completely functional telecommunication systems as described herein and as detailed by the Designer of Record. The Network Enterprise Center (NEC) representative shall be consulted prior to project design and installation for additional telecommunications system requirements.

The contractor shall provide telecommunications to support the motor control centers intelligent controls within construction area.

2.7.1.3 Detroit Arsenal Specific Requirements (Network Enterprise Center)

All abandoned telecommunication systems, equipment, wiring, conduit, and any other abandoned telecommunication system components associated with this project and within the project area boundaries shall be removed by the Contractor in accordance with the appendix.

All conduit, wiring, and cabling shall be photographed by the Contractor and shall be inspected by the Contractor and COR prior to burying, covering, or concealing. The Contractor shall provide all photographs to the COR in electronic Adobe Acrobat Portable Document Format (PDF).

Telecommunications inspections conducted by a Network Enterprise Center representative will be required for all projects at the following intervals:

- Pre-Installation Meeting to address any Contractor RFIs and to communicate Network Enterprise Center specific requirements.
- 50% Installation Inspection to review progress of telecommunications installation at the 50% phase for adherence to specifications and standards.
- 100% Installation Inspection to review the final telecommunications installation at the 100% phase for adherence to specifications and standards.

The contractor shall submit all cabling test results and as-built drawings in CAD format shall be submitted together to the Network Enterprise Center representative for approval prior to 100% Installation Inspection.

All furniture (workstations and desks) shall be provided with communication wiring (LAN and telephone wiring).

Category 5e LAN cable may be reused if existing with approval from the Detroit Arsenal NEC representative through the COR. The Contractor shall be responsible for replacing any existing Category 5e LAN cables that are deemed unusable, damaged, or otherwise fail testing requirements after cabling has been reinstalled. It shall not be "assumed" that all existing Category 5e cabling is in good working order.

Category 3 telephone cable may NOT be reused if existing. All existing Category 3 telephone cable found to be part of the project shall be replaced with Category 6 rated cabling. All new telephone cabling shall be Category 6 as specified below.

The contractor's foreman shall be required that the Telecommunications Contractor supervisor/foreman must be a Building Industry Consulting Service International (BICSI) certified ITS Technician and a BICSI member in good standing. It is also required that a minimum 25% of the Telecommunication Contractor's installers must be BICSI certified ITS Installers and BICSI members in good standing.

2.7.1.4 Telecommunications

Installation shall be in accordance with the Technical Criteria for the Installation Information Infrastructure Architecture (I3A) and other requirements as follows. Cable and jacks shall be Category 6 per EIA/TIA 568B, Commercial Building Telecommunications Cabling Standard. Provide wiring from outlet jack to termination on applicable patch panel. All components within cabling system shall conform to the category rating specified herein. Follow requirements of ANSI/TIA/EIA-569-B for telecommunications closets and equipment rooms. Telecommunications work shall be in accordance with UFC 3-580-01 and UFGS DIVISION 26. All cable ties installed within telecommunications rooms shall be Velcro strap type, no Nylon tie wraps will be accepted.

2.7.1.5 Telephone Distribution System

The telephone distribution system shall be plenum rated, Category 6, unshielded twisted pair (UTP) cable, blue in color, to support voice connectivity requirements.

The contractor shall provide all jacks and install in locations as required. Category 6 UTP voice cables shall be terminated on Category 6 rated, 110/RJ-45, 568A/B patch panels. Unless otherwise directed by the COR, both voice and LAN cables from the same outlet shall be terminated in the same equipment rack to either the same or separate patch panels and shall be individually identified. Reference I3A Sections 2.4.1.1, 2.4.2.2, Figures B-2 and B-3A. All components within cabling system shall conform to the category rating specified herein.

The user end of the Category 6 UTP voice cables shall be terminated 568B standard on RJ-45 jacks (white).

2.7.1.6 Local Area Network (LAN) Distribution System

The LAN distribution system shall be plenum rated, Category 6, unshielded twisted pair (UTP) cable, yellow in color, to support data connectivity requirements.

All jacks shall be provided and installed in locations as required.

As required, 48 port Category 6, 110/RJ-45, 568A/B patch panels shall be provided and installed in Government furnished equipment racks (if existing). If new racks/cabinets are required as part of the installation, these shall be supplied and installed by the Contractor with the COR.

Unless otherwise directed by the COR, both voice and LAN cables from the same outlet shall be terminated in the same equipment rack to either the same or separate patch panels and shall be individually identified. Reference I3A Sections 2.4.1.1, 2.4.2.2, Figures B-2 and B-3A.

The user end of the Category 6 UTP data cables shall be terminated 568B standard on RJ-45 jacks (orange). Each LAN drop location shall receive one individual Category 6 UTP data cable.

All Category 6 UTP data cables shall be run continuous, without splices, and shall not exceed 295 feet in total length. Above the false ceiling at each LAN jack drop location, for each individual data cable run, a three foot slack coil of cable shall be provided to facilitate future moves.

2.7.1.7 Fiber Optic Backbone Distribution System

A minimum of 12 strands of 62.5/125-micron multimode and 12 strands of single mode FOC shall be installed between the main TR or main cross connect and each TR. Plenum cables shall be provided IAW NFPA 70 or when directed by local regulations. All FOC cabling shall be installed by the contractor within EMT conduit and inner-duct for protection.

All fiber optic backbone cabling shall be terminated in cabinet/rack-mounted patch panels, at each end. Do not use ST style adapters for new construction unless specifically required for interface with existing equipment. The default choice for fiber optic adapters and connectors shall be TIA/EIA "SC" type (568SC).

2.7.1.8 MGTV Network Distribution System

The MGTV network distribution system shall be plenum rated, RG-6 quad shielded coaxial cable, to support MGTV connectivity requirements.

Coaxial connectors shall be "F" type connectors. The use of other connector types; such as, BNC, shall only be considered if specifically required by the User and will be approved by the COR. Verify connector type prior to purchase and installation.

2.7.1.9 Testing Criteria

Horizontal Cable:

All Category 6 circuits, to include both data and voice cables, shall be tested by the contractor with a Category 6 rated tester, stated by the manufacturer as being capable of testing to 350MHz. All category 6 circuits

shall be tested using a test set that meets the accuracy requirements stated within ANSI/TIA/EIA-568-B.1 and ANSI/TIA/EIA-568-B.2.

The Category 6 rated test set utilized by the contractor shall be able to measure and report the following link parameters for permanent link test configurations as specified within ANSI/TIA/EIA-568-B.1 and ANSI/TIA/EIA-568-B.2:

- Wire map, including shield connection if present
- Insertion loss
- Length
- NEXT loss, pair-to-pair, measured from local end
- NEXT loss, pair-to-pair, measured from far end
- NEXT loss, power sum, measured from local end
- NEXT loss, power sum, measured from far end
- ELFEXT, pair-to-pair
- ELFEXT, power sum
- Return loss, measured from local end
- Return loss, measured from far end
- Propagation delay
- Delay skew

The contractor shall test cables and certified that they meet the maximum requirements for Category 6 performance standards as specified in the Electronic Industry Association/Telecommunications Industry Association (EIA/TIA) specifications. Printed certification of all Category 6 drops shall be provided. All Category 6 drops shall meet the manufacturer's specification for acceptance.

All RG-6 coaxial cabling shall be tested for continuity, shorts, and opens. Characteristic impedance and attenuation shall be verified over the range of intended operation. Cable length shall be verified and documented. Printed test results shall be provided.

Backbone Cable:

The contractor shall test the Multi-Pair Copper Voice Backbone cables for proper identification and continuity on all metallic cable pairs. All opens, shorts, crosses, grounds, and reversals shall be corrected. Correct color-coding and termination of each pair shall be verified at both termination points.

Fiber Optic Cable tests shall consist of Optical Time Domain Reflectometer (OTDR) measurements for one strand in each 12-strand bundle of fiber and Power Source/Power Meter tests on every strand in all cables. This applies to Multimode Fiber Optic Cable at both wavelengths (850nm and 1300nm) and Single mode Fiber Optic Cable at both wavelengths (1310nm and 1550nm).

Upon testing completion, provide diagrams and test records on all cables to the COR.

2.7.1.10 General Notes

The contractor shall provide telecommunication drop location drawings and telecommunication rack drawings shall be provided, two of each (30" x 42"),

prior to final acceptance. Each telecommunications drop shall be annotated with the drop location, for example "B1". The rack drawing shall depict the equipment installed in an elevation view.

All installed telecommunications cabling shall meet the latest editions of ANSI/EIA/TIA specifications, the Technical Criteria for Installation Information Infrastructure Architecture (I3A), the Institute of Electrical and Electronic Engineers (IEEE) 802 series standards, and the NEC National Electrical Code (NFPA 70).

Telecommunications system labeling shall be completed in accordance with ANSI/TIA/EIA-606-A and shall conform to the Network Enterprise Center standard. All cabling shall be labeled on both ends, within 12 inches of the end of the cable jacket with the horizontal link identifier, which shall be visible on the exposed part of the cable jacket. This shall include each cable end in the telecommunications room and at the work area. Labels shall be made using commercially available label makers. Handwritten labels shall not be used for the final configuration and will not be accepted.

For cable management, open top J-hook style and closed ring cable supports shall be required to route the data telecommunication cables above the suspended ceiling which shall be provided and installed. Cabling shall be installed within existing pathways if available, or new pathways shall be established and installed. Cabling shall be installed in a perpendicular and parallel pattern to building steel and shall not be installed in diagonal runs. The cable supports shall be installed on 5 foot centers maximum to adequately support and distribute cable weight. No cable support shall carry more than 50 cables. Cables shall be installed with minimum 8-inches of clear vertical space above the ceiling tiles and ceiling support channels. Open top and closed ring cable supports shall be suspended from or attached to the building structure. Cables shall not be run through structural members or in contact with pipes, electrical conduits, suspended ceiling supports, ductwork, or other potentially damaging items. Placement of cables parallel to power conductors shall be avoided where possible; a minimum separation of 12 inches shall be maintained when such placement cannot be avoided.

Cable racks/cabinets shall be provided and installed by the Contractor. All cabling shall follow one path and branch out to the different end points in a "tree" pattern.

The contractor shall install all faceplate terminations shall be installed in accordance with ANSI/EIA/TIA and IEEE 802 series standards.

All termination components; such as, RJ-45 connectors, punch down blocks, patch panels, shall meet or exceed the quality standards for Category 6 testing. All telecommunications system components shall be rated as Category 6 by the manufacturer. Cables shall have Category 6 factory markings on the cable sheath.

2.7.2 Drawings

The contractor shall provide drawing scale and match architectural drawing requirements. Drawings shall be complete and accurate in every detail and shall be coordinated with all other work and provided to the COR during the design and construction project. Drawings shall be sufficiently cross-

referenced to other drawings and specifications and shall include appropriate notes, schedules, diagrams, and details. Drawings shall be organized and shall demonstrate that the work complies with all requirements of the SOW as follows:

2.7.2.1 Outside Plant Distribution

The contractor shall provide manhole and duct bank system layouts to show all exterior features including quantity and sizes of ducts, manhole types, cable types, cable labeling, routing, detail cross-references, and other notes.

2.7.2.2 Voice and Data Plans

The contractor shall provide complete layout of all areas and outlets. The type of outlets and outlet labeling shall be indicated. Indicate areas served by TR's and equipment rooms. Cable tray, conduits, and other pathways shall be shown with sizes indicated. Racks, cabinets, and other equipment shall be shown and identified.

2.7.2.3 Riser Diagrams

The contractor shall provide riser diagrams that indicate the ER and TR's, risers, backbone trays and conduits, backbone termination areas, racks and cabinets, service entrance configurations, typical horizontal cabling, and all backbone cabling (including types, counts, and labeling). The contractor shall provide separate diagrams for each system. The contractor shall identify interfaces to other systems; such as, fire alarm systems and EMCS.

2.7.2.4 Outlet Configurations

The contractor shall show all unique outlet configurations including connector types and quantities and labeling conventions.

2.7.2.5 Rack, Cabinet, and Equipment Elevations

The contractor shall show individual elevations of each type of rack, cabinet, or other equipment or termination enclosures, including cable management, grounding, power, patch panels, and connectors.

2.7.2.6 Enlarged Room Plans

The contractor shall provide enlarged room plans, drawn at 1/4" = 1', of every room containing one or more racks or cabinets. Include scaled outlines of racks, backboards, cabinets, and cables.

2.7.2.7 Details

The contractor shall provide installation details that fully define installation requirements for typical and special conditions including all termination enclosures, break-out boxes, and consolidation point or box which includes termination or cable management hardware. The contractor shall provide manhole details and elevations. The contractor shall provide duct bank configuration and construction details.

2.7.2.8 PDS Drawings

The contractor shall provide a separate set of drawings for each PDS. The contractor shall provide plan drawings that include conduit routing, boxes, and enclosures. All materials used in the PDS shall be identified and defined including conduit type, conduit fittings, boxes, enclosures, locking mechanisms, and alarm devices.

2.7.2.9 Plans

The contractor shall show all devices and equipment for Public Address and CATV.

2.7.2.10 Riser Diagrams

The contractor shall provide a separate riser diagram for each system, showing all major components, typical minor components, such as, speakers and volume controls, and interconnecting cabling.

2.7.3 Specifications

The contractor shall submit prescriptive specification sections to specify the quality, characteristics, installation procedures, and testing requirements for all items of the proposed telecommunications design.

2.7.4 Design Analysis Narrative

The design analysis shall contain a description and analysis of the telecommunication portions of the design. Special features and unusual requirements shall be noted.

2.7.5 Design Analysis Calculations

The contractor's Data shall be furnished to support basic design decisions related to sizing of cable trays and conduits.

2.8 FIRE PROTECTION

2.8.1 Technical Requirements

2.8.1.1 Design and Installation Standards and Codes

The fire protection design for all facilities shall be in accordance with the current version of UFC 3-600-01 Fire Protection Engineering for Facilities and with the current versions of the International Building Code (as referenced by the UFC and UFGS) and the National Fire Protection Association (NFPA) standards and codes.

2.8.1.2 Scope of Work

The work includes completion of fire protection system design and construction to provide completely functional fire protection systems as described herein and as detailed by the Fire Protection Engineer.

2.8.1.3 Detroit Arsenal Specific Requirements

All piping, conduit, wiring, and cabling shall be photographed by the Contractor and shall be inspected by the Contractor and COR prior to burying, covering, or concealing. The Contractor shall provide all photographs to the COR in electronic Adobe Acrobat Portable Document Format (PDF).

Use of halon for fire suppression systems or fire extinguishers is prohibited.

The Contractor shall assess existing walls and doors in the project area to determine whether the walls and doors require modification to meet wall and door fire rating requirements in conformance with UFC, NFPA, DTA IDG, and UFGS requirements. These requirements shall be determined and included in the cost proposal for this project. Fire damper, smoke damper, HVAC, electrical, and all other work to meet this requirement shall be provided in the cost proposal. All fire protection requirements shall be included in the cost proposal.

The Contractor shall notify the COR, the DTA Fire Protection and Prevention Division, and the DTA DPW Base Operations Contractor of the proposed times and dates of fire suppression system and fire alarm system testing at least 7 calendar days prior to any tests. The tests will be witnessed by the COR, by a Detroit Arsenal fire inspector, and by a DTA DPW Base Operations Contractor representative. The Government will have final approval of the times and dates of the tests.

The Detroit Arsenal DPW, the Detroit Arsenal Fire Protection and Prevention Division, and the Detroit Arsenal DPW Base Operations Contractor representative shall be notified two weeks prior to work on fire suppression systems and fire alarm systems.

The Government will perform testing of existing fire alarm systems in the existing building where this project will be performed prior to the start of construction. If fire alarm system testing is performed by the Government, the Contractor shall attend. The COR will notify the Contractor of the fire alarm system testing scheduled date and time.

The Contractor shall provide a fire watch during construction in accordance with UFC and NFPA requirements for fire protection system down time during construction. The fire watch shall cover all areas of the facility where the fire protection systems are down due to project construction. Impairments affecting the performance of installed fire protection features shall be corrected immediately. The Contractor shall strictly adhere to the requirements of the latest edition of UFC 3-601-02 Operation and Maintenance: Inspection, Testing, and Maintenance of Fire Protection Systems for systems out-of-service or impaired systems. The procedures specified shall be followed by the Contractor and the signage required shall be provided by the Contractor.

The Contractor shall be aware of all parking signs. Parking in any fire lanes is prohibited and all violators will be ticketed. Vehicles leaking liquids must be taken off base, additionally, vehicles leaking large amounts of liquid are subject to be towed off the installation at the discretion of the DTA Fire Department Incident Commander.

The Contractor shall provide Material Safety Data Sheets (MSDS) to the COR for all chemicals to be used and stored on the premises. MSDS will be

provided to the HAZMART and bar coding for all chemical products used and stored on the premise. All chemicals shall be stored in safe and proper containers when not in use.

The General Contractor's superintendent or safety officer only will be issued a hot work permit. The Contractor shall require a hot work permit through the COR for all work producing sparks, flames, or heat occurring within the confines of the installation (indoors or outdoors). The Detroit Arsenal fire inspectors issue hot work permits on a daily basis. The Contractor shall request the hot work permit by contacting the Detroit Arsenal Fire Department business number at (586) 282-6021 or (586) 282-5564.

A hot work permit will be issued after completion of inspection of the work area. The Contractor shall provide the proper size and type of fire extinguisher at the work site. The Contractor is not permitted to use building facility fire extinguishers. The Contractor responsible for the work being performed shall be required to sign the hot work permit. The Contractor must observe a 30-minute cool down period after all hot work is completed. Afterwards, the Contractor shall contact the COR and DTA Fire Department to re-inspect the work. After all conditions are safe and met, the permit will be cancelled out.

Contractors shall not leave the job site without closing the permit. Failure to do so will result in no further permits being issued to the Contractor. All sub-contractors shall adhere to the aforementioned requirements in order to maintain the permit.

Where Automated External Defibrillators (AEDs) are required to be relocated, the Contractor shall provide design and construction to relocate the AEDs, AED cabinets, and AED cabinet cardiovascular system LAN drop. The cabinet power supply and door alarm shall be connected to the DTA fire alarm system. Cabinets for AEDs shall be provided with supervisory switch monitored by the DTA fire alarm system.

The Contractor shall be aware of all work within a building involving raising dust or producing smoke that may set off a smoke detector, requiring the fire protection system to be put on a bypass in order to prevent trouble signals.

The contractor shall provide new duct mounted smoke detectors in all new or modified air distribution systems in accordance with UFGS requirements and in accordance with the latest edition of NFPA 90A, Standard for the Installation of Air-Conditioning and Ventilating Systems.

Shutdown of alarm devices for demolition or construction work will be completed by the DTA Base Operations Contractor and shall be coordinated with the COR and DTA Fire Department to insure the downstream (outside work area) devices remain operational. Where fire alarm devices are required to be shutdown in a project work area, the Contractor shall perform all work required to bypass any area inside the project work area to insure all downstream fire alarm devices serving any other portion of the facility remain operational. The Contractor shall provide design, material furnishing, and installation of all wiring and components to bypass the project work area fire alarm devices. The Contractor shall coordinate this work on the fire alarm system with the DTA Base Operations Contractor and the DTA Fire Department. Work shall not begin until approved by the COR.

2.8.1.4 Fire Protection Engineer

The Contractor shall provide the services of a qualified registered fire protection engineer. A qualified registered fire protection engineer shall meet one of the following requirements: (a) An engineer having a Bachelor of Science or Master of Science Degree in Fire Protection Engineering from an accredited university engineering program, plus a minimum of 5 years work experience in fire protection engineering; (b) A registered professional engineer (P.E.) who has passed the National Council of Examiners for Engineering and Surveys (NCEE) fire protection engineering written examination. The Fire Protection Engineer shall be an integral part of the design team and shall be involved in all aspects of the design of the fire protection systems. The Contractor shall submit the credentials of the qualified Fire Protection Engineer to the Contracting Officer's Representative (COR). The Fire Protection Engineer shall certify in writing that the design is in compliance with the current edition of UFC 3-600-01 and all applicable criteria. This certification shall be submitted with the 70 percent design submission.

2.8.1.5 Fire Protection and Life Safety Code Review

The Fire Protection Engineer and the Architectural Designer of Record shall perform and coordinate a fire protection and life safety code review of the proposed design.

The code review shall be submitted with the 65 Percent Design submittal and the Released for Construction Design submittal on a drawing sheet and in the design analysis. The code review shall include type of construction; height and area limitations; classification of occupancy; building separation or exposure protection; specific compliance with Unified Facilities Criteria, NFPA codes, and the IBC. The code review shall include requirements for fire-rated walls, doors, and fire dampers and an analysis of automatic fire suppression systems and protected areas, water supplies, smoke control systems, fire alarm systems, including connection to the base-wide system, fire detection systems, standpipe systems, fire extinguishers, interior finish ratings, and other pertinent fire protection data.

The 65 Percent Design submittal and the Released for Construction Design submittal shall include life safety floor plans indicating egress travel distances, occupancy hazard areas, ratings and locations of fire-resistive assemblies, fire extinguisher locations, fire alarm pull box locations, exit sign locations, emergency light locations, heat and smoke detector locations, visual fire alarm signal locations, fire alarm locations, fire department connection, and other data necessary to exhibit compliance with life safety code requirements.

2.8.1.6 Fire Hydrant Flow Data

Current hydrant flow test data shall be used in the hydraulic analysis and as the basis for the design of the sprinkler system, underground supply mains, and fire hydrants. The preparer of the contract documents (a fire protection engineer or an engineer experienced in water flow testing) must perform or witness the required flow testing prior to the first submission of the project. Historical water supply information must not be used by the Contractor and will not be accepted.

2.8.1.7 Standpipe System

Standpipe systems shall be designed and installed in accordance with UFC 3-600-01 and requirements of UFGS Specification Section 21 12 00 STANDPIPE SYSTEMS.

2.8.1.8 Wet Pipe Sprinkler System

The building shall be protected by a wet pipe sprinkler system. Sprinkler systems shall be designed and installed in accordance with UFC 3-600-01, requirements of UFGS Specification Section 21 13 13.00 7 WET PIPE SPRINKLER SYSTEM, FIRE PROTECTION, and NFPA 13, Standard for the Installation of Sprinkler Systems. UFC 3-600-01 shall govern over any conflicts. Design density and area of coverage and hose stream demand for sprinkler systems shall be in accordance with UFC 3-600-01. The design area, for each occupancy classification, shall be in accordance with UFC 3-600-01. Provide hydraulic calculations in the Design Analysis to support design of the system. The Designer of Record shall insure that the fire department connection check valve is located a minimum of 4 feet from an exterior wall to prevent frost penetration.

2.8.1.9 Dry Pipe Sprinkler System

The building shall be protected by a dry pipe sprinkler system. Sprinkler systems shall be designed and installed in accordance with UFC 3-600-01, requirements of UFGS Specification Section 21 13 17.00 7 DRY PIPE SPRINKLER SYSTEM, FIRE PROTECTION, and NFPA 13, Standard for the Installation of Sprinkler Systems. UFC 3-600-01 shall govern over any conflicts. Design density and area of coverage and hose stream demand for sprinkler systems shall be in accordance with UFC 3-600-01. The design area, for each occupancy classification, shall be in accordance with UFC 3-600-01. Provide hydraulic calculations in the Design Analysis to support design of the system. The Designer of Record shall insure that the fire department connection check valve is located a minimum of 4 feet from an exterior wall to prevent frost penetration.

2.8.1.10 Deluge Sprinkler System

The building shall be protected by a deluge sprinkler system. Deluge sprinkler systems shall be designed and installed in accordance with UFC 3-600-01, requirements of UFGS Specification Section 21 13 18.00 7 PREACTION AND DELUGE SPRINKLER SYSTEMS, FIRE PROTECTION, and NFPA 13, Standard for the Installation of Sprinkler Systems. UFC 3-600-01 shall govern over any conflicts. Design density and area of coverage and hose stream demand for sprinkler systems shall be in accordance with UFC 3-600-01. The design area, for each occupancy classification, shall be in accordance with UFC 3-600-01. Provide hydraulic calculations in the Design Analysis to support design of the system. The Designer of Record shall insure that the fire department connection check valve is located a minimum of 4 feet from an exterior wall to prevent frost penetration.

2.8.1.11 Foam Fire Extinguishing System for Aircraft Hangars

Foam fire extinguishing systems for aircraft hangars shall be designed and installed in accordance with UFC 3-600-01 and requirements of UFGS

Specification Section 21 13 20.00 20 FOAM FIRE EXTINGUISHING FOR AIRCRAFT HANGARS.

2.8.1.12 Foam Fire Extinguishing System for Fuel Tank Protection

Foam fire extinguishing systems for fuel tank protection shall be designed and installed in accordance with UFC 3-600-01 and requirements of UFGS Specification Section 21 13 21.00 20 FOAM FIRE EXTINGUISHING FOR FUEL TANK PROTECTION.

2.8.1.13 Foam Fire Extinguishing System for Hazardous/Flammable Material Facility

Foam fire extinguishing systems for hazardous and flammable material facilities shall be designed and installed in accordance with UFC 3-600-01 and requirements of UFGS Specification Section 21 13 22.00 20 FOAM FIRE EXTINGUISHING FOR HAZ/FLAM MATERIAL FACILITY.

2.8.1.14 Aqueous Film-Forming Foam (AFFF) Fire Protection System

Aqueous Film-Forming Foam (AFFF) fire suppression systems shall be designed and installed in accordance with UFC 3-600-01 and requirements of UFGS Specification Section 21 13 21.00 7 AQUEOUS FILM-FORMING FOAM (AFFF) FIRE PROTECTION SYSTEM.

2.8.1.15 Carbon-Dioxide Fire Extinguishing System

Carbon-Dioxide fire extinguishing systems shall be designed and installed in accordance with UFC 3-600-01 and requirements of UFGS Specification Section 21 21 00.00 40 CARBON-DIOXIDE FIRE EXTINGUISHING SYSTEMS.

2.8.1.16 Wet Chemical Fire Extinguishing System

Wet chemical fire extinguishing systems shall be designed and installed in accordance with UFC 3-600-01 and requirements of UFGS Specification Section 21 21 03.00 7 WET CHEMICAL FIRE EXTINGUISHING SYSTEM.

2.8.1.17 Fire Sprinkler Piping

All new fire sprinkler piping shall be minimum thickness Schedule 40 black steel (Schedule 7 piping is not permitted). All new fire sprinkler piping shall be properly supported in conformance with NFPA 13 and shall be marked with proper identification. The fire sprinkler piping shall be installed in conformance with the applicable specification sections of UFGS DIVISION 21 - FIRE SUPPRESSION.

2.8.1.18 Sprinkler Heads

Sprinkler heads shall be installed in accordance with the requirements of the UFGS section pertaining to the type of system installed. All sprinkler heads located in finished areas shall be recessed pendent type with chrome finish or finish that matches existing sprinkler head finishes in the project area. Extended coverage heads are not allowed.

Spare sprinkler heads shall be provided for each type of sprinkler head, complete with appropriate storage cabinet and wrench.

2.8.1.19 Backflow Prevention Device

All design data sheets and plans for the installation of backflow prevention devices shall be reviewed by a certified cross-connection surveyor.

2.8.1.20 Fire Extinguishers

If the design requires fire extinguisher(s), provide all new fire extinguishers and fire extinguisher cabinets in accordance with UFGS Specification Section 7 44 16, FIRE EXTINGUISHERS. All new fire extinguishers and fire extinguisher cabinets shall be provided in accordance with the latest edition of UFC 3-600-01 and NFPA 7, Standard for Portable Fire Extinguishers requirements.

All new ABC type fire extinguishers shall be minimum 7 pounds. All new ABC type fire extinguishers shall be provided in new fire extinguisher cabinets with new fire extinguisher signage. Where new 7 pound ABC type fire extinguishers are provided, all new ABC type fire extinguisher cabinets shall be sized for a minimum 20 pound fire extinguisher capacity. New fire extinguisher cabinets shall be aluminum.

2.8.1.21 Fire Alarm and Detection Systems

Provide modifications to the fire alarm system in the 1st floor and basement electrical room of building 212, conforming to requirements of UFC 3-600-01, NFPA 72, and NFPA 71. Speakers integrated with strobes shall be used for annunciation. Manual pull stations shall be located near each exit, adjacent to the fire alarm control panel (FACP), and along each path of egress. Water flow indicators shall be used to monitor sprinkler risers. Water flow alarms shall transmit a signal to the fire alarm panel. Tamper monitoring switches shall be located on the sprinkler control valves. An alarm shall release magnetic door holders and shall activate dampers and shutdown fans. Smoke detectors shall be located throughout the project area in all unsprinklered areas and shall be provided where required by UFC and NFPA standards, including one located above the FACP. All new fire sprinkler systems shall activate both local and remote (fire department) alarms in accordance with UFC requirements. Prior to cost proposal submission, the Contractor shall verify all existing fire sprinkler systems throughout the entire project area activate both local and remote (fire department) alarms. If any fire sprinkler system throughout the entire project area does not activate both local and remote (fire department) alarms then the Contractor shall provide design and construction to tie the fire sprinkler system into the fire alarm systems to activate both local and remote (fire department) alarms. Duct mounted smoke detectors shall be installed in accordance with the latest edition of NFPA 90A, Standard for the Installation of Air-Conditioning and Ventilating Systems for automatic shutdown in the event of a fire. Air handling unit starters shall be equipped with normally closed contacts for fire alarm system interface to avoid unit shutdown with electrical power removed from the fire alarm panel. Initiation of a detector, sprinkler flow switch, or manual pull station shall sound all alarms in the building, shut down air handlers, and signal the Detroit Arsenal Fire Protection and Prevention Division.

All new initiation devices shall be addressable devices, unless specifically approved otherwise by the Government.

Addressable smoke detectors and pull stations shall be provided in accordance with UFC 3-600-01 and NFPA 72 requirements.

All new fire alarm control panels shall be SimplexGrinnell 470ES panels with fiber optic communication to the Detroit Arsenal fire station. The central alarm panel shall be located in an occupied central location. Addressable smoke detectors and pull stations shall be utilized in accordance with UFC 3-600-01 and NFPA 72. All new fire alarm control panels shall have 25 percent spare capacity for adding circuits. Locate all end-of-line resistors in the fire alarm system control panel for maintenance purposes. In addition, provide fire alarm outputs for control of HVAC equipment shutdown, door release, and elevator recall to be controlled by the fire panel rather than directly by the initiation devices in the field. Such releases, recalls, and shutdowns shall be arranged such that loss of 120VAC or 24VDC power by the fire panel will not activate the release, recall, or shutdown functions.

The circuitry configuration for initiation and notification devices may be Class B unless specified otherwise by the Government.

All new fire alarm wiring shall be in 3/4-inch red conduit and all new junction boxes that contain fire alarm wiring shall be painted red. All fire alarm related work shall meet Simplex specifications for installation and operation.

Utilize wire types and gauges as recommended by the equipment manufacturer. Copper conductors shall be used.

AC power or AC control wiring are not to be run in the same conduit as 24VDC fire alarm wiring or fire alarm communication wiring.

Personnel responsible for making final connections at the fire alarm panel and personnel responsible for supervision of final connections at all field devices shall be National Institute for Certification in Engineering Technologies (NICET), Fire Alarm Systems Level II certified, in accordance with NFPA standards.

The Contractor shall coordinate routing of the fire alarm system with the COR, the DTA Fire Protection and Prevention Division, and the DTA DPW Base Operations Contractor.

The Contractor shall test the fire alarm and fire detection systems in accordance with the latest editions of NFPA 72, National Fire Alarm and Signaling Code, UFGS fire alarm and fire detection system testing specifications, and the manufacturer's recommendations. The Contractor shall verify that all new and existing fire alarm initiation devices tied to the fire alarm control are fully functional for the entire system reporting back to the fire station. The Contractor shall coordinate verification testing with the COR, the DTA Fire Protection and Prevention Division, and the DTA DPW Base Operations Contractor after all system testing has been completed by the Contractor. The Contractor shall notify the COR, the DTA Fire Protection and Prevention Division, and the DTA DPW Base Operations Contractor of the proposed times and dates of fire alarm and fire detection system testing at least 7 calendar days prior to any tests.

The fire alarm transmitter shall be fully compatible with the existing proprietary supervising station receiving equipment manufactured by SimplexGrinnell presently in use at the Detroit Arsenal.

The system shall be connected to the head end equipment by two (2) 6-strand dedicated fiber optic circuits. Programming is required to fully integrate the facility into the existing Fire Department Central Reporting System. Provide all head end programming and graphics to make the system fully operational and functional. This includes data entry for all the new points connected to the system as well as making any additions or changes in the system configuration files. The Contractor must provide all the graphics development and entry to include attaching the proper points to each graphic display. All graphics shall match the existing system graphics; including, color, layout, legend, and all other existing graphic schemes.

2.8.2 Drawings

Features of fire protection, their ratings, and the hazards requiring them, shall be clearly indicated. Fire sprinkler systems, fire alarm systems, and fire detection systems shall all be clearly indicated on the drawings. Fire detection, mass notification, and fire sprinkler systems shall be laid out and detailed sufficiently to indicate the designers understanding of UFGS DIVISION 21 - FIRE SUPPRESSION and the fire alarm, fire detection, and mass notification system specification sections. When other functions co-exist with the fire protection functions, their integration shall be clearly indicated, with an analysis that describes how both functions will be served. Provide a separate, composite type floor plan which makes an accurate presentation of these various features and functions. As part of the submittal, provide a set of plans that show emergency egress for the facility. Depict all items to be removed, for instance, fire alarm panels, fire sprinkler piping, and any other fire protection system component, on the fire protection demolition drawings.

2.8.3 Specifications

The Contractor's project Fire Protection Engineer shall provide edited UFGS DIVISION 21 - FIRE SUPPRESSION and edited UFGS fire alarm system, fire detection system, and mass notification specification sections from UFGS DIVISION 28 - ELECTRONIC SAFETY AND SECURITY. Specification sections shall be coordinated with the drawings to accurately and clearly identify the product and installation requirements for the facility.

All items identified in the specifications that are not required shall be marked for deletion in accordance with the requirements stated in this SOW. Those items of equipment, materials, or installation requirements that are required are not permitted to be modified or changed from that presently shown.

2.8.4 Design Analysis

The design analysis shall include a separate fire protection report containing review statements and comments on the following items:

- a. Location and rating of fire walls and fire partitions
- b. Column, floor, and roof protection

- c. Path of travel for emergency egress and operation of panic exits
- d. Access to building for fire fighting
- e. Design and placement of fire and smoke stop doors
- f. Labeled windows, where required
- g. Venting of smoke
- h. Placement of hand fire extinguisher cabinets
- i. Complete description, including type and adequacy, of the fire sprinkler system
- j. Building exterior fire protection facilities and building clearances
- k. Type of occupancy
- l. Zoning of fixed fire protection systems
- m. Complete description, including type and adequacy of fire alarm systems (including fire alarm zones) and detection systems
- n. Zoning of fire alarm and detection systems
- o. Number of zones of fire alarm and detection systems that are separately transmitted to the base or installation fire department
- p. List of design criteria
- q. Design conditions
- r. Design calculations
- s. Complete description of the building fire protection features
- t. Other pertinent information of value for future use in construction contract administration, substantiation of design methods, or permanent record shall be included

2.9 ENVIRONMENTAL PROTECTION COMPLIANCE

Environmental protection shall be in accordance with Appendix A, Standard Environmental Protection Requirements and Appendix B, Other Standard Environmental Protection Requirements.

2.10 SAFETY

2.10.1 Technical Requirements

The Contractor shall adhere to the current installation safety requirements, MIOSHA safety requirements, OSHA safety requirements, the safety requirements included in UFGS Specification Section 01 35 26 GOVERNMENT SAFETY REQUIREMENTS, and the United States Army Corps of Engineer's codes and standards.

The Contractor shall provide preparation and submittal of a site specific Accident Prevention Plan and/or a Health and Safety Plan. The Contractor safety plan shall comply with Michigan OSHA requirements and the latest edition of U.S. Army Corps of Engineers Manual EM-385-1-1. The safety plan shall establish a comprehensive training program which consists of engineering, education, training, and enforcement of safety standards and shall comply with regulatory directives regarding accident prevention and control and safety education and promotion. The Contractor shall construct dust barrier partitions as required to separate construction areas from occupied areas. Exits shall be clear of equipment, materials, and debris. Construction partitions shall be provided in accordance with EM-385-1-1.

2.10.2 Drawings

The drawings shall clearly identify the amounts and locations of hazardous material.

2.10.3 Specifications

At a minimum, the pertinent UFGS specifications shall be completely edited and coordinated with the drawings.

01 35 26	GOVERNMENTAL SAFETY REQUIREMENTS
01 35 30	SAFETY, HEALTH, AND EMERGENCY RESPONSE (HTRW/UST)
01 35 29	SAFETY AND OCCUPATIONAL HEALTH REQUIREMENTS
02 82 14.00 7	ASBESTOS HAZARD CONTROL ACTIVITIES
02 82 33.13 20	REMOVAL/CONTROL AND DISPOSAL OF PAINT WITH LEAD
02 83 13.00 20	LEAD IN CONSTRUCTION
02 84 16	HANDLING OF LIGHTING BALLASTS AND LAMPS CONTAINING PCBS AND MERCURY
02 84 33	REMOVAL AND DISPOSAL OF POLYCHLORINATED BIPHENYLS (PCBS)
31 21 13	RADON MITIGATION

Any interference with the civil, mechanical, electrical, geotechnical, and environmental specifications shall be addressed and reviewed to extract the list of sampling and analysis requirements.

2.10.4 Design Analysis Narrative

The Design Analysis Narrative shall list all conditions impacting safe work on the project for each of the sections listed above. Potentially hazardous conditions, such as, materials shall be identified. The basis and reasons for specific decisions, special features, and unusual requirements shall be explained or summarized. If it is necessary to deviate from criteria or standard practice, reasons shall be included. Design statements shall be provided in sufficient detail to enable the reviewer to get a clear picture and understanding of all included work. Narrative shall be complete relative to scope and design approaches. The design analysis shall carry a complete narrative for every item covered in the design.

2.10.5 Design Analysis Calculations

Amount and location of hazardous materials (asbestos, lead paint, PCBs, and other hazardous materials) shall be addressed.

2.10.6 Basis, Specific Goals, Objectives, and Priorities for Hazardous Material

The Design Analysis shall establish specific goals, objectives, and priorities for safety (including the removal, handling, and disposal of hazardous materials). Identify, explain, and document use of design criteria and state how the design meets goals, objectives, and priorities. Identify the preferred site development concept. Show how systematic planning has been used in the design and will meet the objectives. Systematic planning ensures high decision confidence and stakeholder satisfaction. It shall list various regulatory, scientific, and engineering decisions that must be made in order to achieve the desired outcome. List unknowns that stand in the way of making those decisions and strategies to eliminate or manage the unknowns.

2.11 SUSTAINABLE DESIGN

The goals for improving the sustainability of facilities include: (a) use resources efficiently and minimize raw material resource consumption, including energy, water, land and materials, both during the construction process and throughout the life of the facility, (b) maximize resource reuse while maintaining financial stewardship, (c) move away from fossil fuels towards renewable energy sources, (d) create a healthy and productive work environment for all who use the facility, (e) build facilities of long-term value, and (f) protect and, where appropriate, restore the natural environment.

Sustainable design techniques shall be considered as they relate to building design, construction, operation, and deconstruction. Techniques which conserve energy, improve livability, and can be justified by life cycle cost analysis as cost effective are encouraged.

2.12 DEMOLITION AND DECONSTRUCTION

Demolition and deconstruction shall be performed in accordance with UFGS Specification Section 02 41 00, DEMOLITION AND DECONSTRUCTION. Deconstructed materials shall become the property of the Contractor as indicated in UFGS Specification Section 02 41 00, DEMOLITION AND DECONSTRUCTION unless otherwise indicated or specified. Materials not owned by the Government and not used in construction shall be disposed of on Government property.

2.13 COST ENGINEERING INSTRUCTIONS

The Contractor shall submit to the COR during the construction and design phase a professional quality cost proposal in accordance with the policies and procedures stated in the "Cost Estimates" paragraph of the contract.

Section E - Inspection and Acceptance

INSPECTION AND ACCEPTANCE TERMS

Supplies/services will be inspected/accepted at:

CLIN	INSPECT AT	INSPECT BY	ACCEPT AT	ACCEPT BY
0001	N/A	N/A	N/A	Government
0001AA	Destination	Government	Destination	Government
0001AB	Destination	Government	Destination	Government
0001AC	Destination	Government	Destination	Government
0001AD	Destination	Government	Destination	Government

Section F - Deliveries or Performance

DELIVERY INFORMATION

CLIN	DELIVERY DATE	QUANTITY	SHIP TO ADDRESS	UIC
0001	N/A	N/A	N/A	N/A
0001AA	25-AUG-2015	1	IMCOM KAREN CARNAGO KAREN E. CARNAGO IMNI-PWF KAREN.E.CARNAGO.CIV@MAIL.MIL WARREN MI 48397-5000 586-282-9369 FOB: Destination	W56JK7
0001AB	25-AUG-2015	1	(SAME AS PREVIOUS LOCATION) FOB: Destination	W56JK7

0001AC 25-AUG-2015	1	(SAME AS PREVIOUS LOCATION)	W56JK7
		FOB: Destination	
0001AD 25-AUG-2015	1	(SAME AS PREVIOUS LOCATION)	W56JK7
		FOB: Destination	

Section G - Contract Administration Data

ACCOUNTING AND APPROPRIATION DATA

AA: 0212014201420200000113132254 M.0029593.6 6100.9000021001

COST CODE: A2ACT

AMOUNT: \$2,367,900.00

CIN GFEBS001059483000001: \$2,367,900.00

AB: 0212014201420200000113132254 M.0029593.6.2 6100.9000021001

COST CODE: A2ACT

AMOUNT: \$340,776.50

CIN GFEBS001059483000002: \$340,776.50

AC: 0212014201420200000113132254 M.0029593.6.1 6100.9000021001

COST CODE: A2ACT

AMOUNT: \$38,306.50

CIN GFEBS001059483000003: \$38,306.50

AD: 0212014201420200000113132254ACT0026 M.0029593.6.3 6100.9000021001

COST CODE: A2ACT

AMOUNT: \$1,252,955.00

CIN GFEBS001059483000004: \$1,252,955.00

Section H - Special Contract Requirements

SPECIAL CONTRACT REQUIREMENTS

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H. 1. SECURITY REQUIREMENTS

H.1.1. BUILDING SECURITY

H.1.1.1. The contractor shall be provided with access to all areas when required to perform the work. The contractor shall be responsible for any Government-owned keys, proxy cards, remote clickers, or any other access device that have been issued to him for access to facilities or areas pertinent to this contract. Keys, proxy cards, remote clickers, or any other access device provided to the contractor shall not be removed from the premises of the facilities and buildings. Keys, proxy cards, remote clickers, or any other access device provided to the contractor shall not be duplicated or issued to any individual not physically performing duties included in the contract. Should the contractor lose a key, proxy card, remote clicker, or any other access device, the Contractor shall notify the Contracting Officer, immediately and in writing, but not later than one business day after they are aware of the loss. All lost keys, proxy cards, remote clickers, or any other access device shall be replaced at the contractor's expense. In the event that a key is lost by contractor personnel, the contractor shall replace all keys and locks in that system. A keying scheme compatible with the remaining building lock system and an equal number of keys existing in the old system shall be provided at no additional cost to the Government. This must be coordinated with the Building Key Control Officer and Base Ops Key Shop Personnel through the COR. Upon completion of the work in an area, the key(s), proxy cards, remote clickers, or any other access device to the area shall be returned immediately. Keys, proxy cards, remote clickers, or any other access device shall be returned prior to final contract payments.

H.1.1.2. Whenever areas are locked, contractor employees shall not permit the use of keys, in their possession, by other persons for the purpose of gaining access to such locked rooms or areas; and, likewise, contractor employees shall not open locked rooms or areas to permit entrance by persons other than the contractor's employees in the fulfillment of their duties.

H.1.1.3. Upon the completion of their duties, contractor personnel shall secure all utilities in unoccupied area, unless otherwise coordinated with the COR. It shall be the responsibility of contractor personnel observing open and/or unlocked windows in their respective work areas to close and secure such windows. Where difficulty is encountered in keeping areas locked or windows closed and locked, the COR shall be notified.

H.1.1.4. There may be areas that require all personnel entering that area to sign a sign-in/sign-out sheet. The contractor shall comply with installation policies in these areas.

H.1.1.5. The contractor shall provide site security (fencing, lighting, or guard service) as required by contract. However, at a minimum, the contractor shall maintain the site and all other contractor controlled areas in such a manner as to minimize the risk of theft, vandalism, injury, or accident. The contractor shall comply with site security regulations.

H.1.1.6. The contractor shall comply with all security regulations imposed by the installation occupying the space where work is to be performed. Any necessary security clearances shall be obtained prior to commencement of work.

H.1.1.7. The contractor shall ensure that all parts of the facility where work is being performed are adequately protected against vandalism and theft.

H.1.2. INSTALLATION AND BASE SECURITY CLEARANCE

H.1.2.1. Locations to be serviced by the resulting contracts include areas that are "closed" to the public, pursuant to Sec 21, Internal Security Act of 1950, 50 U.S.C. 797 and, as such, only those persons granted permission may enter. It is, therefore, required that control be exercised over contractor personnel while working on the Base. To maintain this control, a listing of all contractor personnel who will be working under the contract, must be submitted to the Contracting Officer and COR prior to the start of work under the contract. The preferred method of providing this

list is via e-mail, to the contract administrator, unless notified otherwise. The listing shall include, but not limited to: contract number, project number, employee name, and the estimated starting and ending date of each employee. Subsequent listings of all additions or deletions will be submitted as employees hired or released.

H.1.2.2. During construction, the contractor shall permit base personnel access to the facilities within the work area. The contractor shall provide protection to persons and property throughout the progress of the work.

H.1.2.3. In the event of a declared National Emergency the Contracting Officer may be required to suspend work on this contract for security reasons. The contractor shall ensure the Contracting Officer has a current "Off Duty" contact name and telephone number at all times to facilitate notification.

H.1.2.4. The contractor shall be responsible for compliance with all regulations and orders of the Commanding Officer of the Military Installation, respecting identification of employees, movements on installation, parking, truck entry, and all other military regulations, which may affect the work. Special requirements will be identified in the statement of work.

H.1.2.5. The work under this contract shall be performed at an operating military installation with consequent restrictions on entry and movement of nonmilitary personnel and equipment.

H.1.2.6. The military installations, Detroit Arsenal and U.S. Army Garrison – Michigan at Selfridge ANG Base, have installation specific requirements, which will be identified by the contract.

H.1.2.7. The Contractor shall coordinate with the installation's Visitor Control Center (VCC) to obtain an identification badge for each employee and vehicle permits. All contractor employees must wear the badge in a visible location near their chest at all times while working at the facility.

H.1.2.7.1. Detroit Arsenal VCC. The VCC can be contacted at 586.282.5757. The VCC is located between Van Dyke and Mound Roads, on the North side of Eleven Mile Road in City of Warren, Macomb County, Michigan. Turn into the Main Gate of the Detroit Arsenal and the VCC is immediately to the right in Building 232. The VCC is open Monday through Friday, 7:00 A.M. – 2:00 P.M Eastern Standard Time (EST), except Holidays. If a contractor requires entry before 7:00 A.M. or after 2:00 P.M, EST a temporary badge can be obtained at the Main Guard house, located to the north of Building 232. A contractor can gain access to the Main Guard house by staying in the far right lane when entering the Main Gate on Eleven Mile Road.

H.1.3. Security conditions for release of plans and drawings:

H.1.3.1. Released U.S. Government (USG) information is to be used for the purpose of this contract only and shall not be released to third parties without approval from Contracting Officer. Upon project completion, this information is to be destroyed.

H.1.3.2. No reproduction of released USG information is authorized for other than the contract's legitimate purpose.

H.1.3.3. Access to this information is to be controlled as UNCLASSIFIED/FOR OFFICIAL USE ONLY.

H.1.3.4. Information that is provided to the contractors & A/E's from the USG will be returned to the USG when no longer needed, or at the end of the contract. Under special provisions the USG may authorize the contractor to destroy the information by shredding (paper) or degaussing (magnetic media) to make unreadable and unrecoverable. Confirmation of destruction will be provided to the USG.

H.1.3.5. All information and drawings provided shall not be posted on any internet web site.

H.1.3.6. The responsible USG POC for coordination of release and return of USG engineering drawings and information at the Detroit Arsenal is the DPW Engineering Services Division CAD Technician. Coordination of release and return of USG engineering drawings shall be through the COR.

H.1.4. Required Security Training. AT Level I Training. This provision/contract text is for contractor employees with an area of performance within an Army controlled installation, facility or area. All contractor employees, to include subcontractor employees, requiring access Army installations, facilities and controlled access areas shall complete AT Level I awareness training within 30 calendar days after contract start date. The contractor shall submit certificates of completion for each affected contractor employee and subcontractor employee, to the COR or to the contracting officer, if a COR is not assigned, within seven calendar days after completion of training by all employees and subcontractor personnel. AT level I awareness training is available at the following website: <https://atlevel1.dtic.mil/at>.

H.1.4.1. RESERVED

H.1.4.2. iWATCH Training. This standard language is for contractor employees with an area of performance within an Army controlled installation, facility or area. The contractor and all associated sub-contractors shall brief all employees on the local iWATCH program (training standards provided by the requiring activity ATO). This local developed training will be used to inform employees of the types of behavior to watch for and instruct employees to report suspicious activity to the COR. This training shall be completed within 30 calendar days of contract award and within 30 calendar days of new employees commencing performance with the results reported to the COR NLT 30 calendar days after contract award.

H.1.4.3. For Contracts that Require OPSEC Training. Per AR 530-1, Operations Security, new contractor employees must complete Level I OPSEC training within 30 calendar days of their reporting for duty. All contractor employees must complete annual OPSEC awareness training.

H.1.4.4. For Contracts That Require Handling or Access to Classified Information. Contractor shall comply with FAR 52.204-2, Security Requirements. This clause involves access to information classified “Confidential,” “Secret,” or “Top Secret” and requires contractors to comply with— (1) The Security Agreement (DD Form 441), including the National Industrial Security Program Operating Manual (DoD 5220.22-M); any revisions to DOD 5220.22-M, notice of which has been furnished to the contractor.

H.2.0 IDENTIFICATION OF VEHICLES AND PERSONNEL

H.2.1. Vehicles: Highway vehicles owned or leased by contractors shall be furnished with identifying markings reflecting minimally, the contractor's name, home city, and local phone number. Personal vehicles must be registered with the installation (if applicable).

H.2.2. Personnel: The contractor's employees shall have legal identification (picture ID) on them at all times while working on Government projects.

H.2.3. The contractor shall be responsible for furnishing an identification badge to each employee prior to the employees work on-site and for requiring each employee engaged on the work to display the badge in a visible location near their chest at all times while working at the facility.

H.2.4. All prescribed identification shall immediately be delivered to the Contracting Officer for cancellation upon release of the employee.

H.2.5. When required by the Contracting Officer, the contractor shall obtain and submit fingerprints of all persons employed or to be employed on the project.

H.3. UNAUTHORIZED PERSONNEL

H.3.1. The contractor shall inform all personnel working under his jurisdiction (including subcontractor and visiting supplier personnel) that access to areas outside of the immediate work area excluding, direct haul and access routes, contracting and engineering offices and point of supply and storage is prohibited. Circulation of said personnel shall be limited to official business only. Persons in violation of the above may be apprehended and turned over to the appropriate authorities

H.4. INSTALLATION REGULATIONS:

H.4.1. The contractor, his employees, and subcontractors shall become familiar with and obey the regulations of the installation including fire, traffic, safety and security regulations while on the military installation. Those driving motor vehicles shall observe and obey all speed limits posted throughout the installation. Personnel should not enter restricted areas unless required to do so and only upon prior approval by Contracting Officer and/or COR. All contractor employees and subcontractors shall carry proper personal identification with them at all times.

H.4.2. Contractor's equipment shall be conspicuously marked for identification and parked or placed within approved areas only, out of the way of driveways, emergency access roads, and traffic.

H.5. WORK SCHEDULING

H.5.1. Unless otherwise indicated by special project phasing instructions, the contractor shall be prepared to pursue the contracted work during the Contract Normal Working period of 7:30 a.m. to 4:00 p.m., Monday through Friday, exclusive of recognized Federal Holidays outlined hereunder, and the Friday after Thanksgiving. Also, If a Federal Holiday falls on a Saturday, the DTA Base will be closed on the Friday before, and if a Federal Holiday falls on a Sunday, the DTA Base will be closed on the following Monday. If the 4th of July Holiday falls on a Thursday, the Detroit Arsenal Base will be closed on the Friday after. The contract employees will not be allowed to work during Federal holidays, which are:

- New Year's Day - 1 January
- Martin Luther King JR's Birthday - 3rd Monday in January
- President's Day - 3rd Monday in February
- Memorial Day - Last Monday in May
- Independence Day - 4 July
- Labor Day - 1st Monday in September
- Columbus Day - 2nd Monday in October
- Veteran's Day - 11 November
- Thanksgiving Day - 4th Thursday in November
- Christmas Day - 25 December

H.5.2. If the contractor determines that work is required prior to or after normal working hours, then the contractor shall submit a written request to the Contracting Officer or their designee for approval, no later than 72 hours prior to the work to be performed. For any request submitted late, approval will be at the discretion of the Contracting Officer or their designee. All weekend requests shall be submitted to the Contracting Officer or their designee for approval no later than 72 hours prior to the weekend work that is to be performed. Should the contractor be required to perform work during other than normal hours, including Saturday, Sundays and Government Legal Holidays, due to contractor and subcontractor delay, in order to maintain contract completion dates, the Government shall not be held liable for additional costs.

H.5.3. The installation buildings are places of employment for the Government employees and are occupied by the Government employees during the Government employees' working hours. All machines, equipment and activities that emit toxic, hazardous and offensive fumes, odors, vapors, chemicals, smells, that are offensive and impact the Government employees and that generate noise that also adversely impacts the Government employees, shall not be allowed during those Government employee's working hours and shall be carried out at the Government non-work hours.

H.5.4. All toxic, hazardous and offensive fumes, odors, vapors, chemicals, smells, that are offensive and impact the Government employees MUST be removed and dissipated from the buildings prior to daily occupancy of the buildings at 6:00 A.M. Eastern Standard Time (EST) and the buildings shall be free and fully be meeting safety & health provisions and provide a functional place of employment. The Government employees working hours are 6:00 AM to 6:00 PM EST, Monday through Friday, (all other working week day hours are considered Government non-work hours). Offensive painting operations and other contractual tasks that emit fumes, odors, chemicals that are offensive and impact the Government employees shall be carried out at Government non-work hours.

H.5.5. If there are fumes, odors, vapors, chemicals still being emitted during the Government employees working hours, then the contractor shall provide means and methods to ventilate the areas and assure a safe working environment for the Government employees.

H.5.6. Prior to commencing work on the job initially, resumption of work after prolonged interruption (seven calendar days or more), commencement of any warranty work, and upon completion of warranty work the contractor must notify the Contracting Officer and COR. When relocating to new sites, returning to sites for follow-up work on a phased work plan, notification to the COR is sufficient. Notification should be accomplished sufficiently in advance to allow scheduling of inspection forces. The above precautions are to ensure construction inspection and recording of work proceedings.

H.6. SAFETY/ACCIDENT REPORTING:

H.6.1. Accident prevention and safety practices on contractual work under the jurisdiction of the Contracting Officer are the responsibilities of the contractor concerned.

H.6.2. RESERVED

H.6.3. Compliance with Regulations. All work shall comply with applicable Army, state, and Federal safety and health requirements. The contractor shall comply with the requirements of OSHA (Occupational Safety and Health Association), MIOSHA (Michigan Occupational Safety and Health Association), U.S. Army Safety Program (AR 385-10), the Installation Safety Program (TACOM Supplement 385-10), and the U.S. Army Corps of Engineers Safety Manual EM-385-1. Where there is a conflict between applicable regulations, the most stringent shall apply.

H.6.4. All work including the handling of hazardous materials or the disturbance or dismantling of structures containing hazardous materials shall comply with the applicable requirements of 29 CFR 1910/1926. Work involving the disturbance or dismantling of asbestos or asbestos-containing materials; the demolition of structures containing asbestos; and/or disposal and removal of asbestos, shall also comply with the requirement of 40 CFR, Part 61 Subpart (The National Emission Standard for Asbestos) (ETL 1110-1-118 and DA Circular 40-83-4).

H.6.5. Contractor Responsibility. The contractor shall assume full responsibility and liability for compliance with all applicable regulations pertaining to the health and safety of personnel during the execution of work. The Government will not be held liable for any action on the part of the contractor, his employees or subcontractors, which result in illness, injury or death.

H.6.6. RESERVED

H.6.7. Materials and Equipment. Special facilities, devices, equipment, clothing and similar items used by the contractor in the execution of work shall comply with applicable regulations.

H.6.8. Traffic Control Devices. The contractor shall comply with the recommendations contained in Part 6 of the U. S. Department of Transportation, Federal Highway Administrations "Manual on Uniform Traffic Control Devices (D6. -1978) to ensure proper warnings to motorists and adequate traffic control. The contractor shall provide all warning lights, barricades, flagmen and other traffic control devices and signs.

H.6.9. Accident Notification/Report. In the event of a work-related OSHA recordable accident, the contractor shall immediately notify the Contracting Officer and shall prepare a Report of Accident (DA Form 285 or equivalent) in quadruplicate and forward the original hard copy and one electronic copy to the Contracting Officer for forwarding to the TACOM Safety Office. The contractor shall maintain an accident file for the life of the contract to include all accident reports. In the event of a work-related incident resulting in death or the in-patient hospitalization of three or more employees the contractor shall immediately notify the Contracting Officer who will notify the TACOM Safety Office. Any technical advice and assistance necessary in accident investigation and reporting may be requested from the respective Safety Office.

H.6.10. Confined Spaces. All confined spaces located on the installation shall be considered permit-required confined spaces. Before any work commences in a confined space the contractor shall provide a copy of their written Confined Space Program and training certificates/documentation for all employees working in the confined space to the TACOM Safety Office. The contractor shall notify both the TACOM Safety Office and the Detroit Arsenal Fire Department prior to entering the confined space each day. Once work commences for the day the contractor shall notify the Detroit Arsenal Fire Department and submit a copy of the closed out Confined Space Permit to the TACOM Safety Office.

H.6.11. Excavation and Trenching. The contractor shall follow 29 CFR 1926 Subpart P or the MIOSHA equivalent and the U.S. Army Corps of Engineers Safety Manual EM-385-1 Section 25 when performing an excavation or trenching operation. Excavations five feet or more in depth shall have a protective system (i.e., sloping, benching, support system, shield system, etc.) to protect employees from cave-in. Excavated materials shall be kept at least two feet from the edge of excavations. A stairway, ladder, ramp or other safe means of egress shall be located in trench excavations that are four feet or more in depth as to require no more than 25 feet of lateral travel for employees. The contractor shall not allow employees to work in excavations in which there is accumulated water, or in excavations in which water is accumulating, unless adequate precautions have been taken to protect employees against the hazard. If the stability of adjacent structures is endangered by excavation operations then the contractor shall use a support system for the protection of employees. See Section H.13 for further information regarding excavation and permits.

H.6.12. Scaffolds. The contractor shall follow 29 CFR 1926 Subpart L or the MIOSHA equivalent and the U.S. Army Corps of Engineers Safety Manual EM-385-1 Section 22 while using scaffolds. Scaffolds shall be designed by a qualified person and shall be constructed and loaded in accordance with that design.

H.6.13. Material Safety Data Sheet. The contractor shall submit a Material Safety Data Sheet (MSDS) for all hazardous materials to the COR and have a MSDS for all hazardous materials readily available for the entire duration of the project. When the contractor is working in buildings that are occupied by Government personnel, the contractor must provide a MSDS for all hazardous materials to the COR before they begin the work. See Section H.17 for further information regarding MSDS and related hazardous material usage.

H.6.14. Site Visits. The TACOM Safety Office may conduct site visits announced or unannounced. If the contractor is found to be performing activities that are immediately dangerous to life or health of government or

contract employees the TACOM Safety Office will immediately suspend the contractor's operations until the situation is corrected. This type of situation is most likely to arise during excavation or confined space operations.

H.6.15. Personal Protective Equipment. The contractor shall follow EM 385-1-1. The contractor (and all sub-contractors) shall wear proper personal protective equipment at all times while working in construction areas, to include eye, ear, foot, and head protection and high visible vest while working near or around traffic.

H.7. MAINTENANCE OF TRAFFIC AND SAFETY

H.7.1. Where possible, the contractor and his work shall not interfere with the normal operations of traffic, particularly emergency vehicles and equipment. The contractor is responsible for safety on the project site.

H.7.2. The contractor shall use only established haul routes. When materials are transported in prosecution of the work, vehicles shall not be loaded beyond the loading limit established by Federal, state or local law or regulation. When it is necessary to cross curbing or sidewalks, protection against damage shall be provided by the contractor.

H.7.3. With respect to his own operations, and those of all his subcontractors, the contractor shall provide marking, lighting, and other acceptable means of identifying personnel, equipment, vehicles, storage areas, and any work or condition that may be hazardous to the operation of aircraft, fire-rescue equipment, or maintenance vehicles at the base.

H.7.4. The contractor shall furnish, erect, and maintain weighted barricades, warning signs, and other traffic control devices as required maintaining traffic flow and insuring safety and the contractor's equipment. The contractor shall make his own estimate of all labor, materials, equipment, and coincidental necessary for providing the maintenance of vehicular traffic.

H.7.5. Steam Tunnel Concrete Covers. The contractor shall not walk, drive, or store equipment on steam tunnel concrete covers. Contractor shall be responsible for damages caused from neglecting this requirement.

H.8. SMOKING POLICY

H.8.1. Contractors shall follow the smoking policy as set forth with DoD and DTA regulatory guidance. Contractors shall follow the following guidance:

- a. Smoking is prohibited in all workplaces and all community facilities to include offices, any work areas, recreation facilities, retail stores, common areas, military vehicles, aircraft and in all government owned or leased buildings, vehicles, vans and buses.
- b. This policy applies to all tobacco products to include, cigarettes, pipes, electronic cigarettes, cigars and chewing tobacco.
- c. Smoking is only authorized within 10 feet of designated smoking areas or inside of personally owned vehicles. Smoking areas will be identified by a shelter or cigarette butt receptacle. Smoking is not allowed in any common areas such as walkways or parking lots.
- d. Disposal of cigarette butts, matches, and any other smoking-related debris on the grass, sidewalks, parking lots, or in unauthorized containers is prohibited.

H.9. SPECIAL CONDITIONS

H.9.1. Any contractor equipment that causes or generates electro-magnetic disturbances or interference shall be

removed from service until properly repaired. The Contracting Officer may also require repositioning or removal of the equipment from the base.

H.9.2. The contractor shall be responsible for the coordination of his work with Government employees, who may be working in the area and making them aware of proposed work that may affect the work of their particular trade in process of performance.

H.10. ENVIRONMENTAL MANAGEMENT SYSTEM (EMS)

H.10.1. The Detroit Arsenal has established a Mission-Focused Installation Wide Environmental Management System that conforms to ISO 14001 (See FAR Clause 52.223-5). Executive Order 13148 requires that all Federal agencies implement an EMS. The USAG-DTA shall implement an EMS and that EMS is in place and fully in compliance with all aspects of the system by 2009. Since the contractor's actions affect the USAG-DTA's EMS goals, they shall be required to support all the goals of the USAG-DTA's EMS. They shall not be required to have their own EMS.

H.10.2. The USAG-DTA is using ISO 14001 as its EMS standard.

H.10.3. The contractor will be required to meet all the requirements of ISO 14001, Environmental management systems-Requirements with guidance for use, Second Edition, 2004-1 1-1 5 that support the USAG-DTA's EMS.

H.10.4. The Contractor shall assure all subcontractors are aware and understand the USAG-DTA EMS.

H.10.5. All contractors' personnel must receive EMS awareness training annually. All subcontractors must receive EMS training. See the EMS work directives in the EMS web program for procedures.

H.10.6. The contractor must follow all procedures identified in the EMS work directives. Contractor must use all forms identified in the EMS Web Page Forms tab. The contractor does not have to have a conforming EMS (Reference FAR Clause 52.233-5 Alternate I and Alternate II).

H.11. CULTURAL RESOURCES

H.11.1. The USAG-DTA has a Cultural Resource Management Plan for both the Detroit Arsenal and Selfridge. The contractor shall incorporate the requirements of this plan in Design-Build contract. An electronic copy of the plans can be provided up request.

H.11.2. The contractor must be aware of the appropriate Secretary of Interior Standards for Preservation and Rehabilitation that apply to work performed on eligible historical buildings.

H.11.3. Historical Properties

- a. The USAG-DTA/SANGB has an approved Historical Maintenance Plan that the contractor shall follow for all historical structures at Selfridge.
- b. Contractor shall not modify the design or project requirements of a project involving a historical structure without prior approval of the Contractor Officer. All actions that impact the historical nature of any historical structure must have the modification approved by the Michigan State Historical Preservation Office (SHPO). This includes such things as penetrating the wall structure, modifying the original use of the structure, modifying its appearance, etc. Once the design for the historical structures has been approved by the SHPO no modifications can be made to the design without further consultation with the SHPO.

- c. Eligible Historical Structures
 - (1). Detroit Arsenal
 - (A). Building 212
 - (B). Building 7
 - (C). Building 8
 - (2). Selfridge
 - (A). 400 area Quarters
 - (B). 200 area Quarters
 - (C). 700 area Quarters
 - (D). Building 697
 - (E). Building 951

H.11.4. There has been no archeological finds on the USAG-DTA or in the surrounding area. However, if any archeological items or evidence of human culture (pottery, arrowheads, etc) are discovered during the course of the contractor's performance, immediately stop work and contact the COR. No work will be allowed until a determination can be made concerning the discovered items.

H.11.5. Upon discovery of human remains, contractor shall stop work immediately and notify the Contracting Officer, COR and the Federal Police Desk, (586)282-5564. Work is not allowed to proceed until cleared by both the Contracting Officer and the Police.

H.12. ARCHEOLOGICAL, PALEONTOLOGICAL & ENDANGERED SPECIES FINDS

H.12.1. Any archeological finds (evidence of human occupation) or paleontological finds (evidence of prehistoric plant or animal life) are to be reported to the Contracting Officer immediately and the contractor shall stop work at location of finds and continue work in other areas without interruption. Protect native endangered flora and fauna and notify the Contracting Officer of any construction activities that might threaten endangered species or their habitats.

H.13. EXCAVATING PERMIT

H.13.1. The contractor is required to secure an excavating permit before proceeding with any exterior on-site excavating or digging. The U.S. Army Garrison - Detroit Arsenal and Selfridge permit must be signed and a site inspection will be conducted (pre-dig meeting) prior to approval. A copy of the current excavation permit and excavation permit process can be obtained from the COR upon request. The DTA permit must be signed by the DPW, Chief of Engineering Services Division. The contractor must make provisions to accommodate delays that may arise due to the permit acquisition process. The USAG-DTA DPW, Chief of Engineering Services Division must have 14 calendar days notice from the contractor prior to permit being approved.

H.13.2. The contractor shall comply with Public Act 53 effective April 1 1975 as amended on December 21, 1989 by House Bill No. 5085. The contractor shall notify MISS DIG and the utility owners three full working days (excluding Saturdays, Sundays, and holidays) before any excavation, tunneling, drilling, boring, or demolition work begins. The contractor shall notify and call MISS DIG at 1-800- 482-7171, and coordinate his work accordingly.

H.13.3. The contractor shall comply with all requirements and conditions of the USAG-DTA excavation permit. The contractor is responsible for locating all utilities. The contractor shall field verify the location of the existing installation utilities in the contract work areas. The contractor shall hire a proficient subcontractor to locate the above utilities within excavation, boring, tunneling area. Suggested methods include the "Underground Radar Penetration" and exploratory trenches and pits to determine underground utility locations.

H.13.4. Facility Base Operations personnel may field locate utilities for the contractor, but this is done only as a courtesy utility identification. The contractor shall be responsible for protecting utility identification.

H.14. COMMERCIALY OWNED/OPERATED RADIATION EMITTING SOURCES/EQUIPMENT/DEVICES USED ON GOVERNMENT PROPERTY

H.14.1. When using radiation sources/equipment/devices for soil compaction tests or stress/support studies for detection of structural/weld defects in structural framing, pressurized pipe, vessels, etc., the operator shall comply with the following requirements:

- a. Prior to bringing the radiation generator on to the U.S. Army Garrison locations, the contractor shall provide the Contracting Officer with the following information/documentation, as a submittal at least 30 calendar days before the starting date of the permit, for review and approval, and issuance of an Army Radiation Permit by the TACOM LCMC Safety Office:
 1. A letter applying for an Army Radiation Permit with Supporting Documentation.
 2. A copy of the Nuclear Regulatory Commission (NRC) License, that permits use or storage of radioactive sources/equipment/devices at Army Installations. If an Agreement State License is provided, then documentation must be provided to show the license is valid on Federal Property. This includes NRC Form 241, Report of Proposed Activities in Non-Agreement States, with the NRC in accordance with 10 CFR 150. If exempt from NRC licensing or under general licensing, proof of exemption or general licensing must be provided. For NARM and machine produced radiation, the contractor must provide appropriate state authorization that allows the contractor to use the radiation emitting sources/equipment/devices. The licensing must show operational use conditions/restrictions with expiration date.
 3. The documentation must specify the start and stop dates for the Army Radiation Permit and describe what purposes the applicant needs the Army Radiation Permit (Proposed Work Statement).
 4. A current list of trained and qualified employees that will be using the radiation emitting sources/equipment/devices and their training.
 5. The name of the contractor Radiation Safety Officer (RSO) and emergency contact telephone number.
 6. Operating instruction(s)/technical order(s) for the equipment that contains the radioactive source. Indication of whether the sources/equipment/devices are to be stored on-site overnight and how it is to be stored. How the sources/equipment/devices will be stored during lunch hour and breaks.
 7. Designated storage location of the radioactive source if it remains overnight.
 8. Proposed marking of the storage location if it exceeds 2mR/hr as measured at the surface of the storage container.
 9. A copy of the company Radiation Safety Program.
 10. Emergency Response Plan in case of an emergency for a lost or damaged source/equipment/device and/or over exposure incident/injury.

11. Provide the portion of their contract that identifies the location(s) of where the source will be used, for how long, and for what type use.
 12. Current leak tests on radiation sources/equipment/devices.
- b. The COR will obtain approval from the proper office having jurisdiction (TACOM Safety Office). After approval is received for use of the specific radiation generator, the contractor shall:
1. Meet proper Department of Transportation (DOT) and NRC shipping criteria to include properly filled out shipping manifest(s), container marking/labels, and placards on the vehicle as needed when transporting the source/equipment/device onto and around base/installation. The documents shall also allow the removal of the source/equipment/device from the base/installation. The source and the activity shall dictate which DOT and NRC regulations and CFR's are applicable. These include, 10 CFR for the permit and operation; 29 CFR for occupational safety and health activities when using the instrument/equipment/device, 40 CFR for environmental protection activities, 49 CFR for transporting the instrument, and 10 CFR if the source is lost or stolen.
 2. Limit authorized use of radioluminescent signs and markers to areas with low occupancy and where electrical power is not available except at prohibitive cost.
- c. The contractor shall not:
1. Buy radioactive materials or accept radioactive materials into the Army inventory without approval from the TACOM LCMC Safety Office.
 2. Buy or use radium without TACOM LCMC Safety Office approval.
 3. Buy radioluminescent signs and markers only upon approval of the TACOM LCMC Safety Office.
- d. Non-ionizing radiation (laser equipment). The contractor shall provide documentation committing to and supporting the below:
1. Only qualified and trained employees shall be assigned to install, adjust, and operate laser equipment.
 2. Proof of qualification of the laser equipment operator shall be available and shall be in possession of the operator at all times.
 3. Employees, when working in areas in which a potential exposure to direct or reflected laser light greater than 0.005 watts (5 milliwatts) exists, shall be provided with the following anti-laser eye protection devices:
 - (A). Employees whose occupation or assignment requires exposure to laser beams shall be furnished suitable laser safety goggles which will protect for the specific wavelength of the laser and be of optical density (O.D.) adequate for the energy involved. Table E-3 lists the maximum power or energy density for which adequate protection is afforded by glasses of optical densities from five to eight.

TABLE E-3
SELECTING LASER SAFETY GLASS

Intensity, Attenuation CW Maximum Power Density	Attenuation
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(watts/cm ²)	Optical Density (O.D.)	Attenuation Factor
10 ⁻²	5	10 ⁵
10 ⁻¹	6	10 ⁶
1.0	7	10 ⁷
10.0	8	10 ⁸

Output levels falling between lines in this table shall require the higher optical density.

(B) All protective goggles shall bear a label identifying the following data:

- (i) Laser wavelengths for which use is intended.
- (ii) Optical density of those wavelengths.
- (iii) Visible light transmission.

4. Areas in which lasers are used shall be posted with standard laser warning placards.
 5. Beam shutters or caps shall be utilized, or the laser shall be turned off, when laser transmission is not actually required. When the laser is left unattended for a substantial period of time, such as during lunch hour, overnight, or at change of shifts, the laser shall be turned off.
 6. Only mechanical or electronic means shall be used as a detector for guiding the internal alignment of the laser.
 7. The laser beam shall not be directed at employees.
 8. When it is raining or snowing, or when there is dust or fog in the air, the operation of laser systems shall be prohibited where practicable. In any event, employees shall be kept out of range of the area of source and target during such weather conditions.
 9. Laser equipment shall bear a label to indicate maximum output.
 10. Employees shall not be exposed to light intensities above any of the following:
 - (A). Direct staring: 1 micro-watt per square centimeter.
 - (B). Incidental observing: 1 milliwatt per square centimeter.
 - (C). Diffused reflected light: 2 1/2 watts per square centimeter.
 11. Laser unit in operation shall be set up above the heads of the employees, when possible.
 12. Employees shall not be exposed to microwave power densities in excess of ten milliwatts per square centimeter.
- e. The Installation/Base RSO or his representative reserves the right to inspect work sites and terminate/suspend any operation involving a radiation emitting source deemed to be unsafe IAW applicable laws, rules, and Federal regulations.
 - f. Disposal of radiation emitting sources/equipment/devices by contractors on Army property is prohibited.

H.15. SOLID WASTE MANAGEMENT

H.15.1. All waste that is not hazardous waste and non-regulated solid waste is considered Regulated Waste.

H.15.2. A waste management plan shall be submitted and approved prior to initiating any site preparation work. The plan shall include the following:

- a. Name of individuals on the contractor's staff responsible for waste prevention and management.
- b. Actions that will be taken to reduce solid waste generation.
- c. Description of the specific approaches to be used in recycling/reuse of the various materials generated, including the areas and equipment to be used for processing, sorting, and temporary storage of wastes.
- d. Characterization, including estimated types and quantities, of the waste to be generated.
- e. Name of landfill and/or incinerator to be used and the estimated costs for use, assuming that there would be no salvage or recycling on the project.
- f. Identification of local and regional reuse programs, including non-profit organizations such as schools, local housing agencies, and organizations that accept used materials such as materials exchange networks and Habitat for Humanity.
- g. List of specific waste materials that will be salvaged for resale, salvaged and reused, or recycled. Recycling facilities that will be used shall be identified. Include expenses for the removal and disposal of building materials through demolition, recovery, reuse and recycling techniques that will not otherwise be offset by revenue, savings, or cost avoidance within the contract.
- h. Identification of materials that cannot be recycled/reused with an explanation or justification.

H.15.3. The contractor shall provide the following information to the COR by the 15th of each month:

- a. Quantity of solid waste generated in cubic yards or tons. Quantities may be measured by weight or by volume, but must be consistent throughout;
- b. Quantity of solid waste diverted through sale, reuse, or recycling in cubic yards or tons. Quantities may be measured by weight or by volume, but must be consistent throughout;
- c. Quantity of waste disposed by landfill or incineration in cubic yards or tons;
- d. The name and location of the landfill, recycling facility or waste processor receiving the waste or a description of the recycling disposition. Submit manifests, weight tickets, receipts, and invoices specifically identifying the project and waste material;
- e. Provide explanations for any waste not recycled or reused;
- f. Where the contract allows the contractor to use the installation's dumpsters and custodial services, they will not have to submit information for material disposed using the facilities services;
- g. All disposal records shall be made available to the COR upon request and a copy of the records shall be delivered to the COR upon completion of the contracted work.

H.15.4. The records shall be made available to the COR during construction, and a copy of the records shall be delivered to the COR upon completion of the construction.

H.15.5. Types of Construction & Demolition (C&D) Waste

<i>Project Phase</i>	<i>C&D Debris</i>
Construction	Mixed rubble, wood, roofing, wall board, insulation, carpet, pipe, plastic, paper, bricks, lumber, concrete block, metals.
Demolition	Mixed rubble, concrete, steel beams, bricks, wood, lumber, wallboard, insulation, carpet, pipes, wire, equipment, fixtures.
Excavation	Earth, sand, stones, wood.

Roadwork	Asphalt, concrete, earth
Site Clearance	Trees, brush, earth, top soil, concrete, mixed rubble, sand, steel, paper, plastic, garbage, rubbish.

H.15.6. Disposal of solid waste, including C&D debris is the responsibility of the contractor.

H.15.7. The contractor shall make an effort to deliver non-hazardous materials to a commercial recycler and provide US Army Garrison with a summary of weights of materials recycled.

H.15.8. The contractor shall not use the installations dumpsters and custodial services. The necessary containers, bins and storage areas to facilitate effective waste management shall be provided and shall be clearly and appropriately identified.

H.15.9. Regulated Solid Waste. All Regulated Waste must be disposed of at a licensed Class II landfill site. Regulated Waste that is transported to a Class II landfill site must include a transportation manifest for each load of material delivered. Trip manifest must include name, address and telephone number of transporting company, name of the driver, driver signature, volume in cubic yards of material delivered, source of material, type of material hauled and delivered, date material is loaded and date material is delivered. A signed copy of each trip manifest must be kept with the contractor of record, the subcontractor if different than the prime contractor, and must be provided to the COR within 7 calendar days of completing each trip.

H.15.10. Non-Regulated Solid Waste. Materials with no practical use or economic benefit shall be disposed at a landfill or incinerator. Disposal of solid waste, including construction and demolition (C&D) debris is the responsibility of the contractor. Refer to Unified Facilities Guide Specifications Section 01 74 19 for requirements of Solid Waste Management. The Waste Management Plan developed by the contractor will outline how all C&D materials generated will be handled for disposal and recycling. Section 01 74 19 paragraph 1.6 of the UFGS outlines the requirements of the Waste Management Plan.

H.15.11. Recyclable materials shall be handled to prevent contamination of materials from incompatible products/materials and separated by one of the following methods:

- a. Reuse. First consideration shall be given to salvage for reuse since little or no re-processing is necessary for this method, and less pollution is created when items are reused in their original form. Sale or donation of waste suitable for reuse shall be considered. Salvaged materials, other than those specified in other sections to be salvaged and reinstalled, shall not be used in this project.
- b. Recycle. Waste materials that are not suitable for reuse, but do have value as a recyclable, shall be recycled whenever economically feasible.

H.15.12. The contractor shall recycle fifty percent (50%) of all C&D waste generated from the landfill. Cost effectiveness will need to be considered to meet these requirements. Documents must be submitted to the COR support the finding if it is not cost effective to recycle this material. The documentation must be approved by the Contracting officer and the DPW prior to being waived.

H.15.13. The contractor shall make an effort to deliver Non-Regulated Solid Waste materials to a commercial recycler and provide USAG-DTA with a summary of weights of materials recycled.

H.15.14. Non-Hazardous Waste. Materials with no practical use or economic benefit shall be disposed at a landfill or incinerator.

H.16. ASBESTOS.

H.16.1. Asbestos is present on the USAG-DTA facilities.

- a. All contractor employees working in areas that contain or may contain asbestos containing material (ACM) or presumed to contain asbestos containing material (PACM) shall be properly trained to assure neither their employees nor anyone on the USAG-DTA is exposed to asbestos fibers during contract operations. The contractor shall insure all subcontractors are properly trained and they have records of the training on site.
- b. In the event there is an accidental disturbance of known asbestos, the contractor shall stop work immediately and secure the area until a competent person, as defined by 29 CFR 1926.1101(b), present to manage the Asbestos Containing Material (ACM) or Presumed Asbestos Containing Material (PACM) and call the Base Operations help desk at (586) 282-5326.
 1. If during the execution of any work order asbestos containing material is disturbed or dislodged the contractor shall take the following actions:
 2. Restrict entry into the area and post signs to prevent entry into the area by persons other than those necessary to perform the response action.
 3. Contact the USAG-DTA work control desk to have the air handling system shut off in the release area to prevent the distribution of fibers to other areas in the building.
 4. Conduct clean-up IAW all Federal and State laws.
- c. If the contractor encounters asbestos or suspected asbestos that has not been previously identified on the contract, the contractor shall immediately stop work and contact the Contracting Officer and the Contracting Officer's Representative.
- d. It is DoD and Army policy to manage asbestos in place and only remove it if it is failing or it interferes with another action such as construction or maintenance and repair.
 1. All asbestos abatement projects shall be conducted IAW with the State of Michigan requirements and the USAG-M (Detroit Arsenal) Asbestos Operations and Maintenance Plan and Asbestos Management Plan.
 2. All asbestos abatement designs and all State MDLEG/NESHAP joint notifications shall be submitted to the COR for review and approval prior to sending notifications to the State of Michigan for approval.
 3. The contractor shall maintain a Log for each abatement projects. A copy of each log shall be submitted into the Government after completion of the abatement project.
 4. The General contractor shall arrange for a third party neutral consultant to conduct final clearance requirements both visual and air monitoring using aggressive air sampling techniques as defined in 40 CFR 763, Subpart E, Appendix A, Unit III, TEM Method B.7(d-f) for all indoor asbestos abatement projects. The use of TEM analysis for final clearances is up to the discretion of the USAG-DTA Asbestos Material Control Officer [AMCO], who acts on behalf of the facility/building owner. If deficiencies are found during the asbestos abatement activity, the Asbestos Abatement contractor shall correct all deficiencies. The General contractor shall

notify the Contracting Officer of the contracted third party neutral consultant and the asbestos removal company to ensure the third party neutral consultant is not the same company as the asbestos removal company. The third party neutral consultant will be contracted by the General contractor, exclusively for final clearance requirements both visual and air monitoring.

The selected third party neutral final clearance consultant will provide the COR with a copy of the post abatement air monitoring clearance results [analytical report] and visual inspection report to ensure all air samples indicate concentrations are less than 0.01 fibers/cc as required by EPA. The third party neutral final clearance consultant will also provide the COR a re-occupancy notification indicating the regulated area is available for re-occupancy. The third party neutral consultant will post the re-occupancy notification and analytical report in the vicinity of the regulated area for building occupants to review as necessary. A copy of each report will be placed in the COR's project package.

Following a satisfactory clearance of the regulated area, any remaining critical barriers and warning devices shall be removed and disposed of as asbestos-contaminated waste. Re-establish HVAC, mechanical, and electrical systems in proper working condition. All asbestos abatement contractor qualifications shall be in accordance with UFGS requirements.

5. All removed asbestos shall be properly packaged, labeled and turned into the Hazardous Materials Pharmacy (HAZMART) for disposal IAW with the HAZMART Users Pamphlet, Attachment 009.
6. The contractor must submit an as-built drawing . The drawing shall identify the following:
 - (A). Type of ACM removed.
 - (B). Location of where the ACM was removed.
 - (C). Date of Abatement.
7. If the contractor removes asbestos insulation, they must replace the asbestos with non-asbestos insulation and label the insulation as non-asbestos. The new insulation shall be provided in accordance with UFGS specifications.

H.16.2. The contractor is responsible to assure all their personnel, and their subcontractor's personnel, performing asbestos abatement have the proper State of Michigan Certification/License and that the company performing the abatement is licensed by the State of Michigan.

- a. All abatement workers must be properly trained and licensed by the State of Michigan. Provide copies of all licenses and certifications prior to the start of work. Workers shall have their asbestos license with them at all times. A copy of the contractor's license must be on site at all times. The Government has the right to review all licenses and training documentation. Failure to have the proper documentation will result in stoppage of the project by the Contracting Officer. Any cost for failure to have the proper documentation will be the responsibility of the contractor.
- b. Prior to the start of any abatement work, the contractor shall provide copies of all workers licenses to the COR.

- c. Prior to the start of any abatement work, provide a copy of the company's State of Michigan license to the COR.

H.16.3. Types of training that may be required:

- a. Project designer
- b. Management planner
- c. Building inspector
- d. Contractor/Supervisor
- e. Abatement Worker
- f. Awareness

H.16.4. Per AR 200-1, 8-2 b contractor shall not use ACM where asbestos free substitute materials exist. The use of ACM is not permitted without written approval by the Contracting Officer. If ACM has been used, provide an as-built drawing with the following information:

- a. Location.
- b. Type of asbestos.
- c. Percentage of asbestos in the material.
- d. Date installed.
- e. If the contractor does not use ACM, the contractor shall provide written certification that they have not used any ACM during performance of the contract. This shall be a letter from a company representative that has the authority to sign a contract or modification.

H.17. HAZARDOUS MATERIAL USAGE

H.17.1. General. The contractor shall establish a hazardous material (HM) storage and distribution system when HM is to be used. The definition of hazardous material is located in Fed Std. 3 13C, dated 1 March 1988.

H.17.2. Hazardous Material Identification Form. All HM required to support the contract shall be reported using the Contractor Hazardous Material Identification Form, Attachment 010, to the COR who will in turn inform other applicable personnel. The form must be used when transporting hazardous material onto Detroit Arsenal or Selfridge or in delivery of received hazardous materials at either location. Additional HM needed by the contractor shall be identified to the COR for approval.

H.17.3. Hazardous Pharmacy (HAZMART). Contractors and subcontractors must register and barcode all HM they plan to use through the HAZMART Office and the COR prior to start of work in order to support the installation's compliance with Executive Order 12856, Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements. Contractors and subcontractors shall register all HM through the HAZMART when they come on the installation and all containers must be processed through the HAZMART before they leave the installation. This must be done during the HAZMART open hours. Contact HAZMART for hours of operation

H.17.3.1. All MSDS documentation shall be provided to the HAZMART and COR by the contractor for all chemicals to be used and stored on the premises. HAZMART will provide bar coding for all chemical products used and stored on the premises as required. HAZMART will provide receipt to the contractor of all chemicals brought in for bar coding. HAZMART registers all chemical quantities and usage. At the end of each day, the contractor shall remove the bar code from the container and return it to the HAZMART to close out the cycle for the purpose of tracking the chemicals and quantities used. This must be done during the HAZMART open hours.

H.17.3.2. HAZMART can be reached at the following:

- a. Detroit Arsenal- (586)282-5665
- b. Selfridge- (586)307-2019

H.17.4. Environmental Protection and Community Right to Know Act (EPCRA) IAW FAR 52.223-5. The contractor must provide information of all hazardous materials used in accordance with FAR 52.223-3, "Hazardous Material Identification and Material Safety Data." By using the HAZMART to register HM entering the installation, this requirement is met. Hazardous or toxic materials not owned by the Federal Government may not be stored on the USAG-DTA or Selfridge unless authorized under 10 USC 2692.

H.17.5. When not in use, all chemicals will be stored in a safe and proper manner in the proper containers.

H.17.6. The contractor is responsible for maintaining a clean and safe work area. Trash, scrap material will not be permitted to pile up causing a fire/safety hazard.

H.17.7. The contractor shall not store or dispose of hazardous or toxic materials on USAG-DTA or Selfridge property. This does not include temporary accumulation of a limited quantity of a material used in support of the contract and registering through the HAZMART.

H.17.8. The contractor shall maintain HM Identification Form for HM on the job site for inspection/verification. The COR will verify that the HM identified is the only HM in use on the job site.

H.17.9. Any material suspected of being hazardous that is encountered during performance of a project shall immediately be brought to the attention of the Contracting Officer and the COR, at which time a determination will be made as to whether hazardous material testing shall be performed. If the Contracting Officer advises the contractor to perform tests, and/or the material is found to be of a hazardous nature requiring additional protective measures, a contract modification may be required, subject to equitable adjustment under the terms of the contract.

H.17.10. The contractor shall accompany the COR and the installation Environmental Manger (EM) on project closeout inspection to ensure all used and unused HM has been removed from the installation. This requirement shall not be a punch list item and must be accomplished prior to the Government accepting beneficial occupancy of the facility or construction item.

H.17.11. Training Requirements. All contractor and subcontractor personnel handling hazardous material shall have Storm Water Awareness training. Hazard Communication (HAZCOM) and Hazardous Waste Operations and Emergency Response (HAZWOPER) training is required under OSHA.

CONTRACTOR HAZARDOUS MATERIAL IDENTIFICATION FORM

H.18. HAZARDOUS WASTE

H.18.1. USAG-DTA is responsible as the sole generator of solid waste on USAG-DTA property, including hazardous waste, and accurate recordkeeping is of paramount importance.

H.18.2. Hazardous waste is defined in 40 CFR 261.3.

H.18.3. The contractor shall not store or dispose of hazardous or toxic materials on USAG-DTA or Selfridge property from any source.

H.18.4. All hazardous waste generated on the either the USAG-DTA or Selfridge must be disposed of through the HAZMART. Contact the HAZMART for hours of operation and coordination instructions at the following:

- a. USAG-DTA - (586)282-5665
- b. Selfridge- (586)307-2019

H.18.5. Hazardous waste generated as a result of work being conducted shall be handled at the end of each day by bringing the waste to the HAZMART. This must be done during the HAZMART open hours. Unused product is not classified as Hazardous Waste and is the responsibility of the contractor. For example, do not bring half tubes of caulk, adhesive, or half cans of primer or paint to the HAZMART for disposal.

H.18.6. All hazardous waste must be properly packaged and marked prior to turning it in to the HAZMART. The contractor shall provide the proper containers/boxes for hazardous waste. Contractor shall submit DA Form 3161 at the time of hazardous waste turn in to HAZMART. The HAZMART will not return the containers/boxes back to the contractor.

H.18.7. Universal Waste.

- a. Contractor shall collect, package and properly label all universal waste. Coordinate with the HAZMART for turn and disposal. The contractor shall not charge the Government for disposing of universal waste.
- b. Universal waste includes:
 - 1. Mercury (used in fluorescent light tubes switches and thermostats).
 - 2. Lead acid batteries.

H.18.8. Toxic Substance Control Act (TSCA). While TSCA waste is not classified as hazardous waste, only TSCA wastes (identified below) shall be processed through the HAZMART for disposal.

- a. Asbestos: Contractor shall collect, package and properly label. Coordinate with the HAZMART for turn-in and disposal.
- b. Polychlorinated Biphenyls (PCBs): Contractor shall collect, package and properly label. Coordinate with the HAZMART for turn-in and disposal.
- c. Light ballasts: Contractor shall collect, package and properly label. Coordinate with the HAZMART for turn-in and disposal.

H.19. LEAD BASED PAINT (LBP)

H.19.1. LBP is present on the USAG-DTA in both housing, and non-housing.

H.19.2. All contractor employees working in areas that contain LBP or presumed to contain LBP shall be properly trained to assure neither their employees nor anyone on the USAG-DTA is exposed to LBP during contract operations. The contractor must insure that all subcontractors are properly trained and they must keep records of the training available for inspection by the COR.

H.19.3. When the contractor is required to disturb or dislodge LBP containing material during the execution of any delivery order the contractor shall take the following actions:

- a. Restrict entry into the area and post signs to prevent entry into the area by persons other than those necessary to perform the response action.

- b. Conduct clean-up IAW all Federal and State laws.

H.19.4. If LBP is removed and the action is not considered abatement:

- a. The contractor shall dispose of the debris as solid waste. The contractor shall test the waste material for hazardous waste constituents to determine disposal classification.
- b. The contractor shall submit an as built drawing identifying the LBP removed and date of removal.

H.19.5. The contractor is responsible to make sure all employees and subcontractors are properly trained. The Government has the right to review all licenses and training documentation. Failure to have the proper documentation will result in stoppage of the project.

H.19.6. The contractor is responsible to assure that they have the proper State Certification or their company and all subcontractors have their state licenses for all LBP work. Provide a copy of all licenses and certificates prior to the start of work. Copies of licenses and certificates shall be on site at all times. The Government has the right to review all licenses and training documentation. Failure to have the proper documentation will result in stoppage of the project.

H.19.7. The contractor shall certify that they have not used any LBP during performance of the contract, delivery order or project. This shall be a letter from a company representative that has the authority to sign a contract or modification.

H.20. LAND USE (Green Infrastructure):

- a. Land disturbance that results in permanent impacts to 5,000 square feet or more of green space must be replaced at a minimum 1:1 ratio subject to review and approval by the government.
- b. Green space replacement may include the following: green roof systems, restoration of former green space areas within or adjacent to the project area; restoration of former green spaces areas within the USAG – DTA boundaries; establishment of storm water infiltration areas such as bio-swales and rain gardens.
- c. Open water habitat, such as natural ponds, storm water ponds, waterways and cooling ponds are not considered green space areas.
- d. Upland buffers adjacent to open water habitat can be viewed as green space areas for purposes of land disturbance impact measurement and mitigation.

H.21. ENERGY, WATER EFFICIENCY, AND RENEWABLE ENERGY

H.21.1. The Government's policy is to acquire supplies and services that promote energy and water efficiency, advance the use of renewable energy products, and help foster markets for emerging technologies.

H.21.2. The Government is committed to reducing energy requirements at all installations. All contractors must strive to minimize energy usage on the USAG-DTA and follow USAG-DTA's Energy Plan.

H.21.3. The contractor shall include the use of energy-using products for construction, renovation, or maintenance of a public building by acquiring energy-using products designated by the Department of Energy's Federal Energy Management Program (FEMP).

H.21.4. The contractor shall shut off all electrical equipment, lights and water supplies when not in use.

H.21.5. The Government requires that certain equipment be Energy Star compliant. An equipment list is location at <http://www.energystar.gov>. Initially, the sole Energy Star requirement shall be the self-certification by the

bidder that the specified equipment is Energy Star compliant. Within three months of the availability of an EPA sanctioned test for Energy Star compliance, the contractor shall submit all equipment upgrades and additions for testing and provide proof of compliance to the Government upon completion of testing. Testing shall be at the contractor's expense.

H.21.6. When purchasing equipment as part of their contract, only equipment identified as energy efficient may be purchased.

H.21.7. Provide manufactures energy usage data prior to installation.

H.22. STORM WATER

H.22.1. The contractor shall monitor all activities to prevent pollution of surface and ground water.

H.22.2. Toxic or hazardous chemicals shall not be applied to soils or vegetation.

H.22.3. The Detroit Arsenal is located adjacent to an impaired waterway, Bear Creek. The contractor must continually monitor their site to assure no pollutants enter the waterway. This could be through spills to the ground, runoff or through the storm sewer or trash from the site that could end up in the water.

H.22.4. The contractor will not dispose of any waste, solid or liquid, through a storm sewer.

H.22.5. It is illegal to connect storm water sewer lines to the sanitary wastewater sewer lines. Contractors shall contact the COR and the Environmental Management Division if there are any conflicts with this requirement.

H.22.6. The contractor shall monitor all activities and not pollute surface and ground water during contract performance.

H.22.7. Any wastewater other than specifically exempted by Michigan law shall not be disposed through a storm sewer.

H.22.8. When a MDEQ certified Construction Storm Water Operator (CSWO) is required, the contractor will provide the CSWO with all required inspections and record keeping. A copy of these records will be provided to the COR monthly.

H.22.9. Permits. When the contractor is required to disturb soil within 500 feet of Bear Creek at the Detroit Arsenal, the Clinton River or Lake St. Clair at Selfridge Air National Guard Base, the contractor shall obtain a soil erosion permit from Macomb County prior to the start of any work.

H.22.9.1. Contractor shall follow all state and county rules and regulations regarding soil disturbance and the contractor shall obtain all required county and state permits for construction sites one acre or more in size.

H.22.9.2. Contractor must provide a soil erosion and sedimentation control plan to the COR for approval prior to disturbing any soil.

H.22.9.3. Soil erosion and sedimentation control must be maintained at all times on the activity site.

H.22.9.4. Soil erosion and sedimentation control must be kept in place until the soil is stabilized. Stabilization includes such things as vegetation growth, concrete or asphalt, or gravel/rocks. The site is considered to be stabilized when all permanent control structures have been installed, vegetation is 90 percent established, and temporary controls have been removed such as silt fencing.

H.23. WATER QUALITY (Potable/Drinking Water)

H.23.1. The contractor shall not contaminate drinking water.

H.23.2. Contractor shall use backflow protection when connecting to the potable water system. Prior to connecting to any potable water system, submit the following information to the COR for approval:

- a. Location of connection.
- b. Purpose of connection.
- c. Time when the contractor will connect to the water system.
- d. Type of backflow prevention being used to protect the water system.

H.23.3. Contractor shall use the latest version of American Water Works Association (AWWA) procedures to disinfect the system after any work on the potable water system.

H.23.4. Contractors connecting, replacing, or modifying any equipment which connects to the water system must provide the appropriate backflow prevention device either on the water connection or the equipment. Equipment includes process devices, heat exchangers, pumps, in-line coffee pots, water fountains, etc.

H.24. WASTE WATER (Sanitary)

H.24.1. The contractor shall not dispose of any waste through the sanitary sewer other than normal restroom wastewater.

H.24.2. Accidental releases to the sanitary sewer must be reported immediately to the Fire Department.

- a. Detroit Arsenal (586) 282-7117
- b. Selfridge 911 (land line only)

H.24.3. Contractor shall not connect sanitary wastewater sewer lines to storm water sewer lines.

H.24.4. All sanitary waste water discharges must comply with the City of Warren's Code of City Ordinances, Chapter 41. Accidental releases to the sanitary sewer must be reported immediately to the Fire Department at the Detroit Arsenal: (586) 282-7117, and the COR shall also be contacted.

H.25. PEST MANAGEMENT

H.25.1. Pesticide application can only be performed by a licensed pest applicator approved by the USAG-DTA pest management program manager. Any pest control activities required by the contractor or its subcontractors must be requested through the installations work control desk. This includes all administrative space and outside work areas.

- a. Detroit Arsenal (DTA): (586) 282-5326
- b. Selfridge: (586) 307-4208

H.25.2. Fertilizer not containing pesticides or herbicides may be applied by a non-licensed applicator. Fertilizer applications must be accomplished to minimize any impacts on storm water.

H.26. POLLUTION PREVENTION

H.26.1. It is the Federal Governments goal to:

- a. Reduce the use of hazardous and toxic materials.
- b. Establish work processes that reduce pollutants to the air and water.
- c. Recycle waste rather than dispose of it.
- d. Use materials that have recycled content.
- e. Reduce energy consumption

H.26.2. The contractor and all subcontractors are an integral part to the Pollution Prevention program at the USAG-DTA.

H.26.3. The areas that contribute to the success of the USAG-DTA's Pollution Prevention program:

- a. Green Procurement.
- b. Energy Conservation.
- c. Solid Waste Management.
- d. The contractor shall use double-sided printing or copying and use recycled paper when ever practicable.

H.26.4. Spill Control and Response

- a. The contractor shall conduct all operations to minimize the possibility of a spill or release of a hazardous material or pollutant.
- b. All hazardous materials or pollutants must be stored on containment pallets, in containment storage cabinets (contractor must assure material in the cabinets are compatible) or in a dike or berm type containment area.
- c. Notify the COR and Environmental Management Division of the storage location of hazardous materials or pollutants when they come on the installation.
- d. The contractor must comply with the USAG -DTA SPCC/ISPC.
 - 1. Report all spills, other than small "bench stock" types to the Fire Department for response: (586) 282-7117.
 - 2. The contractor must have a spill kit on site at all times with the appropriate type and amount of containment material for the materials on site.
 - 3. The contractor shall reimburse the Government for all clean up and disposal costs.
 - 4. The contractor is responsible for the actions of all subcontractors.

H.27. NATURAL RESOURCE MANAGEMENT

H.27.1. The contractor shall minimize environmental pollution and damage that may result from its operations. Environmental resources within the project boundaries and those affected outside the limits of work shall be protected for the duration of the contract.

H.27.2. The contractor shall confine all activities to areas defined by the drawings and specifications.

H.27.3. Landscape features (trees, shrubs, landforms) defined on drawings shall be clearly identified by the contractor at the work site with marking, fencing, or other technique to minimize interference, damage, or disturbance.

H.27.4. The Contractor shall fence mature trees (4" Diameter Breast Height) at the drip line of each tree located within or adjacent to the work area to prevent root-zone damage from soil excavation, disturbance or compaction due to Contractor machinery or other equipment.

H.27.5. The contractor shall not attempt to “pursue, hunt, shoot, wound, kill, trap, capture, or collect” a migratory bird that becomes a nuisance in the work area. In this event, the contractor shall contact the Facilities Base Operations Work Order Desk for assistance by calling 586-282-5326 at Detroit Arsenal or 586-307-4208 at Selfridge.

H.27.6. Wetlands. Impacts to wetlands require approvals from the U.S. Army Corps of Engineers, State of Michigan and Macomb County. No work can occur in wetlands without those approvals.

H.27.6.1. Permits. All permit application packages must be submitted to the COR for review and approval prior to submittal to city, county or state offices for approval. Copies of all permits must be provided to COR once approved and issued by the controlling agency. No work can occur without approval permits in place. A copy of each permit must be kept either at the project site or within the project trailer.

H.27.7. Waterways. Impacts to waterways require approvals from the U.S. Army Corps of Engineers, State of Michigan and Macomb County. No work can occur in waterways without those approvals.

H.27.7.1. Permits. All permit application packages must be submitted to the COR for review and approval prior to submittal to city, county or state offices for approval. Copies of all permits must be provided to COR once approved and issued by the controlling agency. No work can occur without approval permits in place. A copy of each permit must be kept either at the project site or within the project trailer.

H.27.8. Wildlife. Migratory birds are protected and cannot be harmed due to construction. Removal of trees or shrubs for purposes of construction or renovation must not result in loss of active bird nests. Inspection of trees and shrubs prior to removal must occur: contact the COR for inspection assistance. Written approval must be received from the COR prior to removal of trees containing nests. Wildlife injured as a result of construction or renovation activities must be immediately reported to the COR.

H.27.9. Wildlife Habitat. When replanting grass or trees, the contractor shall use only species native to the State of Michigan. Trees must be planted as 2.5” or greater diameter ball and burlap plantings. Trees plantings shall occur between April 15 and October 15 of each growing season per calendar year. Trees or shrubs that are removed due to renovation or construction activities shall be replanted on a 2:1 ratio. A professionally developed tree planting plan and/or landscape plan must be provided to the COR for review and must receive their written approval prior to planting. Tree or shrub selection and/or planting must comply with Force Protection Standards. Such plantings must be approved by the COR. The following species of trees are the only trees allowed to be planted:

- a. Black Cherry
- b. Red Maple
- c. Paper Birch
- d. River Birch
- e. Red Oak
- f. American Elm

H.28. SOIL MANAGEMENT

H.28.1. Purpose. Control the accumulation of solid waste such as inert material or construction-demolition waste on Army property; control the creation of uncontained waste piles; manage the disposal and reuse of excavated materials; mitigate impact of earth disturbing activity on air quality, surface water quality, storm water quality, solid and hazardous waste management, pest management, and natural resources. The disturbance of soils on the USAG-DTA can affect a number of different environmental areas. Depending on the circumstances, disturbed soil can impact Air, Water Quality, Hazardous Waste, Natural Resources, Pest Management, Solid Waste, and Storm Water. It can also affect non-environmental areas, e.g. underground utilities, landscaping, storm drain maintenance, etc.

H.28.2. Soil shall not be used at other locations on the USAG-DTA and will be disposed of by the contractor off site. This may require testing for contamination before it will be accepted by a landfill. If testing confirms the soil is contaminated or the soil is not acceptable to the landfill, contact the HAZMART for coordination of disposal. If there is a reason to leave soil on site, the DPW and the Contracting Officer must approve the storage. All soil must be tested and free from any contamination. Soil must be free of construction debris. Soil must be managed and stabilized prior to completion of the contract. Fugitive dust must not migrate off the construction site.

H.28.3. Permits. Under certain conditions, soil disturbance may require a state NOC or county SESC permit. If construction or any disturbance of soil is within 500 feet of Bear Creek at the Detroit Arsenal, a soil erosion permit must be obtained from Macomb County prior to the start of any work.

H.28.3.1. All permit application packages must be submitted to the COR for review and approval prior to submittal to city, county or state offices for approval. Copies of all permits must be provided to the COR once approved and issued by the controlling agency. The entire permit must be provided. The permit includes the county cover sheet and all county stamped drawings. No work can occur without approval permits in place. A copy of each permit must be kept either at the project site or within the project trailer.

H.28.4. Inspections. Inspections will be conducted by the contractor as required by the county and state. The inspector will be a MDEQ Construction Site Certified Soil Erosion Sedimentation Control inspector. Inspection logs required by permits must be kept at the project site or within the project trailer; a copy of all inspection logs must be provided to the COR on a weekly basis. Any and all erosion control discrepancies must be reported to the COR and must be noted on the inspection log. All known erosion control discrepancies must be corrected within 24 hours of discovery unless otherwise approved by the Contracting Officer's Representative. All corrected erosion control discrepancies must be reported to the COR within 24 hours of the corrected work occurring or the first business day following the corrective work.

H.28.5. Soil erosion and sedimentation control must be maintained at all times on the activity site.

H.28.6. Provide Soil Erosion and Sedimentation Control (SESC) plan to the COR for approval prior to disturbing any soil. The SESC plan must conform to the state of Michigan and Macomb County soil erosion and sedimentation control requirements. Failure to install and maintain approved soil erosion controls may result in project suspension. Soil erosion and sedimentation control must be kept in place until the soil is fully stabilized. Stabilization includes 90 percent density vegetation cover growth, installation of paved or gravel surfaces where required, placement of riprap and other control features as required by the approved SESC plan. Any disturbance of soil may require adherence to state and county requirements.

H.28.7. SESC Reports. Prior to contract close out the Contractor shall supply a report to the COR including the following:

- a. The number and volume (shipping tickets) of excess soil loads removed from the work area either for re-use on USAG-DTA premises, or disposal in an offsite landfill, or reused at a private property.
- b. The name and location of each USAG-DTA re-use area, or offsite disposal facility, or other private property used for excess soil disposal.
- c. The records of permission, laboratory analysis, and material profile information required by an offsite disposal facility or other private property used for excess soil disposal.

H.28.8. Other Information.

- a. The contractor shall control the accumulation of solid waste such as inert material or construction-demolition waste on Army property; control the creation of uncontained waste piles; manage the disposal and reuse of excavated materials; mitigate impact of earth disturbing activity on air quality,

- surface water quality, storm water quality, solid and hazardous waste management, pest management, and natural resources.
- b. The contractor shall not store excavated materials on USAG-DTA property except in those areas designated on project drawings and by the COR for storing construction-demolition bulk materials or for staging bulk materials destined for disposal.
 - c. When excavated materials are designated by the COR for storage on site:
 1. The COR will provide an approved location for storage.
 2. Soil must be free of construction debris.
 3. Soil must be managed and stabilized prior to completion of the contract.
 4. Fugitive dust must not mitigate off the storage area.
 - d. When excavated materials are designated by the COR for removal off USAG-DTA property, the contractor shall be responsible for obtaining permission for disposal from a properly authorized commercial disposal site, or permission for placement on land from another private property owner if used as general fill material on private land. Permission will include providing any laboratory analysis and material profile information required by the commercial disposal site or private property owner.
 - e. The Government assumes no responsibility for any conclusions or interpretations made by the contractor based on the information made available by the Government. The Government does not assume responsibility for any understanding reached or representation made concerning conditions which can affect the work by any of its officers or agents before the execution of this contract, unless that understanding or representation is expressly stated in this contract.

H.29. AIR EMISSIONS.

H.29.1. All Army actions (projects, events, etc.) on this installation must be considered under the General Conformity Rule (GCR), due to the fact this installation is in a non-attainment area. For all exterior construction, renovation or land disturbance projects, an applicability analysis must be performed which calculates and compares all direct and indirect emissions of the action to the de minimis threshold values of the non-attainment area. A copy of the analysis shall be submitted to the COR.

H.29.2. Emissions. The USAG-DTA's air emissions are restricted. The USAG-DTA is currently located in a non-attainment area for ozone and particulate matter (PM) 2.5 as defined by the EPA. The EPA has the authority to change this at any time, based on emissions in the Southeastern Michigan regional area.

H.29.2.1. The USAG-DTA has been issued a synthetic minor air permit from the State of Michigan permit for all emissions at the Detroit Arsenal (DTA).

H.29.2.2. Ozone and PM 2.5 Actions Alerts are forecast by the Clean Air Coalition's meteorology team under a number of factors that include meteorological conditions like temperature, wind speed, direction, cloud cover and ultraviolet radiation. The team also considers the likelihood of ozone transport from other areas and expected emissions from regional sources. While there are no legally binding requirements to reduce emissions that could reduce ground level ozone, the contractor should be cognizant of the actions they can take to reduce emissions that contribute to ozone development. Ozone and PM 2.5 Action Alerts address the importance of preventing the formation of ground-level ozone and protecting public health.

H.29.2.3. The contractor shall use only low VOC paint as defined in 40 CFR.

H.29.3. Ozone Depleting Chemicals (ODC) requirements:

- a. ODC and Ozone Depleting Substances (ODS) are verbally used and are interchangeable;
- b. It is Army policy to minimize the procurement, use and emissions of ODCs to the greatest extent possible. Installation of new equipment using Class I ODCs is prohibited;

- c. Only equipment and refrigerants listed by the EPA Strategic New Alternatives Program (SNAP) are acceptable. No equipment using HCFC 141b shall be used. It should be noted, however, that HCFC 142b and HCFC 22 shall be phased out in 2020;
- d. All HCFCs shall be phased out in 2030 respectively and not recommended for use or future liability;
- e. Only equipment using refrigerants listed by the EPA Strategic New Alternatives Program (SNAP) are acceptable. Equipment must be labeled with type of chemical used and date installed;
- f. As-built drawings shall include location of equipment, installation date, and type of refrigerant used;
- g. The use of Class I or Class II ODCs are not by themselves damaging to the environment provided the refrigerant does not leak during operation and is recovered upon retirement of the equipment;
- h. All personnel maintaining, repairing or replacing ODCs must be licensed and their equipment must be certified with a copy of the certification submitted to the COR prior to the start of work;
- i. Licenses and equipment certification must be retained on site and copy shall be submitted to the Environmental Management Division (EMD) prior to the start of work;
- j. DOD has a program to retain certain Class I and Class II ODCs for strategic reuse. Class I and Class II ODCs are defined in Section 602(a) & (b) of the Clean Air Act. Turn in all recovered and excess ODCs into the HAZMART for disposal. Place recovered ODCs in cylinders meeting ARI guideline K suitable for type of ODC (filled no more than 80% capacity) and provide appropriate labeling. Cylinders will not be returned to the contractor.

H.29.4. Fugitive Dust. The contractor shall control fugitive dust in and around the work site. The contractor shall establish dust control measures to maintain excavations, stockpiles, haul roads, and other work related areas within or outside the project boundaries free of particulate release that would exceed environmental regulations or would cause a hazard or nuisance. Sprinkling as a control must be repeated to keep area damp. The contractor shall provide sufficient equipment and water source for adequate wetting. Keep haul roads clean of soil or other debris. Contractor shall observe the following guidance:

- a. Dust control measures shall be applied any time dust is generated on construction sites or roads;
- b. Water sprinkling as a control must be repeated as necessary to control fugitive dust from leaving the installation;
- c. All appropriate measures must be used to prevent disturbed soils (sediment and colluvial deposits) from entering adjacent storm sewer inlets and surface waters;
- d. Water used to control dust or clean vehicles must be obtained from a source with backflow prevention;
- e. **DIRT AND DUST CONTROL PLAN:** Submit truck and material haul routes along with a plan for controlling dirt, debris, and dust on base 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;
- f. **DUST CONTROL:** Keep dust down at all times, including during non-working periods:
 - 1. Sprinkle or treat with dust suppressants the soil at the site, haul roads, and other areas disturbed by operations;
 - 2. Dry power brooming will not be permitted. Instead, use vacuuming, wet mopping, wet sweeping, or wet power brooming;
 - 3. Air blowing will be permitted only for cleaning non-particulate debris such as steel reinforcing bars;
 - 4. Only wet cutting will be permitted for cutting concrete blocks, concrete, and bituminous concrete;
 - 5. Do not unnecessarily shake bags of cement, concrete mortar, or plaster.

H.29.5. Indoor Air Quality. The contractor shall prevent dust created during the performance of a contract from migrating outside the work areas. Specific preventative measures may include but not limited to constructing an

enclosure around the work area (including above the drop ceiling), blocking intake ducts or sweeping/vacuuming daily outside the work.

H.29.6. Air Permit Requirements:

- a. Permit Number #566-96B applies to all work on-site;
- b. Permit to install - projects involving installation of a source of air emissions or modifying a current air emissions source (vent hood, boiler, stationary engine, paint booth, etc.), the contractor shall complete the required permit application and submit it to the Garrison Air Quality Manager, through the COR, who will review it for impacts on the current air permit before the Government submits it to the State. The Environmental Management Office has the final decision on whether a source is exempt as outlined in State of Michigan Air Quality Rules, R336.1278a-1290. The permit to install could take up to 6 months to receive approval from the State of Michigan;
- c. If using portable power generators, the contractor must develop and maintain a log, it must show hours run per day and the amount and type of fuel burned per day. A legible copy of this log must be turned in weekly to the Garrison Air Quality Manager. Prior to this, the contractor shall prepare an estimate of use for the entire job and the Air Quality Manager shall review the estimate for its effect on the air permit;
- d. The contractor shall use either low or no VOC paint as defined in 40 CFR. The amount and type of paint used shall be reported in the form of a log to the Air Quality Manager on a weekly basis;
- e. Any welding performed must also be reported. A log showing the amount of rods/wire used and the make-up of rods/wire used must be turned into the Air Quality Manager on a weekly basis;
- f. Paint and welding logs may be combined.

H.30. TEMPORARY ENVIRONMENTAL CONTROLS

H.30.1. Dirt and Dust Control Plan. Submit truck and material haul routes along with a plan for controlling dirt, debris, and dust on base 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.

H.30.2. 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 non-particulate debris such as steel reinforcing bars. Only wet cutting will be permitted for cutting concrete blocks, concrete, and bituminous concrete. Do not unnecessarily shake bags of cement, concrete mortar, or plaster.

H.30.3. Mercury Materials. Mercury is prohibited in the construction, 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, properly label containers and transport to the HAZMART. Immediately report to the Detroit Arsenal Fire Department and COR any instances of breakage or mercury spillage. The Detroit Arsenal will clean up all contractor mercury spills or breakages. The contractor will reimburse the Government for all costs incurred due to clean up.

H.30.4. GIS Deliverables. All contract Geographic Information Systems (GIS) deliverables that involve maps or other geospatial data must meet the following requirements:

H.30.5. All maps and associated data must comply with the latest version of Spatial Data Standards for Facilities, Infrastructure, and Environment (SDSFIE) available from the CADD/GIS Technology Center at <https://caddim.usace.army.mil/>. This data will be organized using SDSFIE 2.60 specifications for file, class and

attribute nomenclature. Information must be collected at no less than 1:360 scale. This data will meet or exceed National Map Accuracy Standards at those scales and metadata using Federal Geographic Data Committee (FGDC) Content Standards for Digital Geospatial Metadata (CSDGM) for organization. Content will accompany all submissions.

H.30.6. Geospatial data must be delivered in a geo-referenced GIS format (feature-based file structures including one-to-one cardinality between spatial records and attribute records) including attribute data and as specifically outlined in the contract. All geospatial data must be delivered in the North American Datum 1983 (NAD83) projection, Michigan South State Plane Coordinate System, using U.S. Foot units.

H.30.7. Survey Grade Global Position Systems (GPS) or comparable traditional survey methods will be used to collect geospatial data (e.g., northing, easting, and elevation above or below the Earth's surface) for all contract activities where geospatial data is involved. This data will be obtained at the time of construction and prior to burial in the case of underground utilities. This data must be delivered to the installation in an open Relational Database Management System (RDBMS) with the associated attribute data. Examples include but are not limited to obtaining precise GPS data for new waterline endpoints, connections, and connected valves prior to burial.

H.31. AFFIRMATIVE PROCUREMENT

WHERE THE FOLLOWING REQUIREMENTS DIFFER FROM REQUIREMENTS ESTABLISHED BY A SPECIFIC CONTRACT, THE CONTRACT REQUIREMENTS SHALL GOVERN.

H.31.1. GENERAL

H.31.1.1. GREEN PROCUREMENT & POLLUTION PREVENTION

Green Procurement is a mandatory component of the Army pollution prevention program. The goal of the U. S. Army Garrison Detroit Arsenal for Green Procurement: "100% of all products purchased each year in each of U.S. EPA's 'Guideline Item' categories shall contain recovered materials meeting U.S. EPA's Guideline Criteria." This document contains guidelines for implementing the RCRA, EO, DoD, and Army requirements.

H.31.1.2. Green Procurement is part of the Federal Government's program to promote recycling and the use of recycled material. The requirements are defined in Executive Order 13423.

Applicability:

1. Applies to Federal agencies including USAG - DTATA and to persons/companies contracting with Federal agencies with respect to work performed as part of these contracts.
2. Applies to all procurement or purchasing actions using Federal funds; such actions include:
 - a. Purchases made directly by USAG - DTA.
 - b. Purchases made directly by the Contractor in support of work being performed for USAG - DTA.

H.31.1.2. The use of EPA designated items is required during performance of this contract. The EPA issued the Comprehensive Procurement Guidelines (CPGs) that have established the mandatory procurement by federal agencies of 58 items produced with recovered materials. The EPA has also issued Recovered Material Advisor Notices (RMANs) to accompany the CPGs and provide detailed information on the designated items. The number of items designated by the EPA may change during the contract period. The contractor must use all newly designated items. The use of these items is mandatory for all actions on the USAG - DTA unless one of the following exemptions applies.

H.31.1.3. The contractor must follow the USAG - DTA Green Procurement Plan in order to obtain a waiver to not use one of the EPA designated items. The Resource Recovery and Conservation Act (RCRA) provides the following exemptions from the requirement to purchase EPA-designated items:

1. The product is not available within a reasonable period of time.
2. The product does not meet the performance standards in applicable specifications or fails to meet reasonable performance standards of the procuring agency.
3. The product is not available at a reasonable price. For USAG - DTA purposes, "unreasonable price" is defined as follows: If the price of the recycled-content product exceeds the cost of a non-recycled item, then the price is considered unreasonable.

H.31.1.4. The EPA "List of Available Construction Products Composed of Recovered Materials" and their suppliers can be obtained at: <http://www.epa.gov/cpg/products.htm>. A list of recycled content requirements can be found at https://usagmi.army.mil/sites/directorates/green_procurement_chart.doc

H.31.1.5. The Contractor will evaluate the reasonable availability, reasonable performance standards, and price of EPA "Available Construction Products Composed of Recovered Materials" as compared to virgin materials that will be used on the construction project. The Contractor will consult with and report to the COR on the choice of materials selected.

H.31.1.6. A "Green" waiver from the requirement to use recovered materials will be determined by the Contracting Officer in consultation with the USAG - DTA Environmental Management Division. As new items are added to the CPG list, the Contractor must use these new items or obtain a "Green" waiver. The Contractor must provide to the COR a list of all recovered materials used in conjunction with the project at the end of the contract period.

H.31.2. AUTHORITY AND REFERENCES

- A. The Resource Conservation and Recovery Act (RCRA), Section 6002 (42 U.S.C. 6962)
- B. Executive Order (EO) 13101, Greening the Government through Waste Prevention, Recycling, and Federal Acquisition
- C. Title 40, Code of Federal Regulations (CFR), Part 247, Comprehensive Procurement Guideline for Products containing Recovered Material
- D. Federal Acquisition Regulations (FAR)
- E. Section 9002 of the Farm Security and Rural Investment Act of 2002

H.31.3. SUBMITTALS

H.31.3.1. The contractor shall provide all submittals in accordance with UFGS Specification Section 01 33 00, *SUBMITTAL PROCEDURES*. The contractor shall follow all procedures specified in UFGS Specification Section 01 33 00, *SUBMITTAL PROCEDURES*.

H.31.4. DEFINITIONS 3 GREEN PROCUREMENT TERMINOLOGY

H.31.4.1. Affirmative Procurement Program (APP) - a program assuring guideline items composed of recovered materials will be purchased to the maximum extent practicable, consistent with Federal law and procurement regulations.

H.31.4.2. Bio-based Product – A commercial or industrial product (other than food or feed) that utilizes biological products or renewable domestic agricultural (plant, animal, and marine) or forestry materials. The USDA maintains the official bio-based products list <http://www.dm.usda.gov/procurement/programs/biopreferred.htm>.

H.31.4.3. Certification - provided by offerors/bidders/vendors, is written documentation certifying the percentage of recovered materials contained in products or to be used in the performance of the contract is at least the amount required by applicable specifications or other contractual requirements. Certification on multi-component or multi-material products should verify the percentage of post-consumer waste and recycled material contained in the major constituents of the product.

H.31.4.4. Comprehensive Procurement Guideline (CPG), EPA designated items that must contain recycled content when purchased by Federal, state, and local agencies, or by Government contractors using appropriated Federal funds. Under EO 13101, EPA is required to update the CPG every 2 years with new recovered content products. Visit <http://www.epa.gov/cpg/index.htm>.

H.31.4.5. Designated Products are products that are or can be made from recovered materials that have been designated in the CPG through EPA's formal rule making process (also referred to as "designated items)." EPA maintains the designated products list at <http://www.epa.gov/cpg/products.htm>.

H.31.4.6. Environmentally Preferable – products or services that have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose. This comparison may consider raw materials acquisition, production, manufacturing, packaging, distribution, reuse, operation, maintenance, or disposal of the product or service.

H.31.4.7. Executive Order 13101 entitled "Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition". EO 13101 was signed on September 14, 1998. This Order replaces EO 12873 and reinforces the Federal Government's buy-recycled efforts.

H.31.4.8. Executive Order 13148 entitled "Greening the Government Through Leadership In Environmental Management". EO 13148 was signed on 22 April 2000. This Executive Order integrates environmental accountability into policy, mission, operations, and management to include long-term planning and day-to-day decision making and replaces EO 12856.

H.31.4.9. Federal Agency means any department, agency, or other instrumentality of the Federal Government, any independent agency or establishment of the Federal Government including a government corporation, and the Government Printing Office. Military departments, as defined in 5 U.S.C. 102, are covered under the auspices of the Department of Defense. Green Procurement is the purchasing of environmental preferable products and services in accordance with one or more of the established Federal "green" procurement preference programs.

H.31.4.10. Material Specification means a specification that stipulates the use of certain materials to meet the necessary performance requirements.

H.31.4.11. Minimum Content Standard - the minimum recovered material content specifications set to assure the recovered material content required is the maximum available without jeopardizing the intended item use or violating the limitations of the minimum content standards set forth by EPA's guidelines.

H.31.4.12. Performance Specification - a specification stating the desired product operation or function but not specifying its construction materials.

H.31.4.13. Pre-consumer Materials are generated in manufacturing and converting processes, such as manufacturing scrap and trimmings/cuttings. Preconsumer materials are also known as post-manufactured materials. EPA does not consider preconsumer materials as recovered materials.

H.31.4.14. Post-consumer Material or Waste - a material, finished product, or waste that has served its intended end use and has been diverted or recovered from waste destined for disposal. "Post-consumer material" is a part of the broader category of "recovered materials".

H.31.4.15. Post-manufactured means waste material and byproducts which have been recovered or diverted from solid waste but are byproducts which are commonly reused within an original manufacturing process, such as scrap and trimmings/cuttings. Post-manufactured materials are also known as pre-consumer materials. EPA does not consider post-manufactured materials as recovered materials.

H.31.4.16. Recovered Material - waste materials and by-products recovered or diverted from solid waste, excluding those materials and by-products generated from, and commonly reused within, an original manufacturing process. "Post-manufactured" materials are not recovered materials.

H.31.4.17. Recovered Materials Advisory Notices (RMANs) provide purchasing guidance and recovered and post consumer material content levels for designated items. RMAN recommendations are guidance and therefore are not codified in the Code of Federal Regulations. Department of Defense policy requires meeting or exceeding the RMANs.

H.31.4.18. Solid Waste - garbage, refuse, sludge, and other discarded non-hazardous solid materials, including those from industrial, commercial, and agricultural operations, and from community activities. The general components of solid wastes are: municipal solid waste (MSW), construction and demolition debris (C&D), and non-hazardous industrial waste.

H.31.4.19. Unreasonable Price - is the cost of a recycled item exceeding the cost of a non-recycled item.

H.31.5. REGULATORY BACKGROUND

H.31.5. 1 Section 6002 of RCRA requires federal agencies to give preference in the acquisition process to products and practices that conserve and protect natural resources and the environment. EO 12873 requires Federal agencies to expand waste prevention and recycling programs, implement affirmative procurement programs for the United States Environmental Protection Agency (EPA), designated items, and procure other environmentally preferable products and services. The stated purpose of the Affirmative Procurement Program is to stimulate the market for recovered materials. As a result of EO 12873, the EPA issued the Comprehensive Procurement Guidelines (CPG's) that have established the mandatory procurement by Federal agencies of 36 items produced with recovered materials. The EPA has also issued Recovered Material Advisor Notices (RMANs) to accompany the CPGs and provide detailed information on the designated items. Please direct all questions regarding the plan to the Contracting Officer for forwarding to the DPW Environmental Division.

H.31.6. EXEMPTIONS

H.31.6.1. EPA Recommendations. The U.S. EPA recommends minimum recycled content levels are mandatory for procurements of those items listed in the AFFIRMATIVE PROCUREMENT REPORTING FORM, unless one of the following exemptions applies. RCRA provides the following exemptions from the requirement to purchase EPA-designated items:

1. The product is not available from a sufficient number of sources to maintain a satisfactory level of competition (i.e., available from two or more sources).

2. The product is not available within a reasonable period of time.
3. The product does not meet the performance standards in applicable specifications or fails to meet reasonable performance standards of the procuring agency.
4. The product is not available at a reasonable price. For Army purposes, "unreasonable price" is defined as follows: If the price of the recycled-content product exceeds the cost of a non-recycled item, then the price is considered unreasonable.

H.31.7. **CONTRACTOR RESPONSIBILITY.** The contractor is responsible for completion of the form with respect to the work and products being provided. The Prime contractor is responsible for insuring that all subcontractors comply with this order. Each contractor shall provide written documentation to support his/her decision not to acquire items meeting the minimum content levels. This documentation shall be forwarded to the Contracting Officer for review and approval. In the event the documentation fails to support the contractor's findings, the Contracting Officer shall return the documentation to the contractor citing the reason(s) for disapproval. The contractor shall resubmit and address the deficiencies. The contractor is cautioned not to proceed with acquiring non-compliant materials until the Contracting Officer's approval is received.

H.31.8. **U.S. EPA DESIGNATED ITEMS.** The 54 U.S. EPA-designated items are listed below. Not all of these materials may be required in the construction of this project. Please refer to the drawings and specifications. The attached **AFFIRMATIVE PROCUREMENT REPORTING FORM** shall be used to demonstrate compliance with the stated procurement requirements. The contractor is required to refer to the most recent list of EPA-designated items.

a. PAPER PRODUCTS

1. All paper and paper products, excluding building and construction paper grades.

b. VEHICULAR PRODUCTS

2. Lubricating oils containing re-refined oil, including engine lubricating oils, hydraulic fluids, and gear oils but excluding marine and aviation oils.
3. Tires, excluding airplane tires.
4. Reclaimed engine coolants, excluding coolants used in non-vehicular applications

c. CONSTRUCTION PRODUCTS

5. Building insulation products.
6. Structural fiberboard products for applications other than building insulation.
7. Laminated paperboard products for applications other than building insulation.
8. Cement and concrete, including products such as pipe and block, containing fly ash.
9. Cement and concrete, including concrete products such as pipe and block, containing ground-granulated blast furnace (GGBF) slag.
10. Carpet made of polyester fiber for use in low- and medium-wear applications.
11. Floor tiles containing recovered rubber or plastic.
12. Patio blocks containing recovered rubber or plastic.
13. Shower and restroom dividers/partitions containing recovered steel or plastic.
14. Reprocessed and consolidated latex paint for specific uses.
15. Carpet cushion.
16. Flowable fill.
17. Railroad grade crossing surfaces.

d. TRANSPORTATION PRODUCTS

18. Traffic barricades used in controlling or restricting vehicular traffic.
19. Traffic cones used in controlling or restricting vehicular traffic.
20. Parking stops.
21. Channelizers used as temporary traffic control devices.
22. Delineators used as temporary traffic control devices.
23. Flexible delineators used as temporary traffic control devices.

e. PARK AND RECREATION PRODUCTS

24. Playground surfaces containing recovered rubber or plastic.
25. Running tracks containing recovered rubber or plastic.
26. Plastic fencing.
27. Park benches and picnic tables.
28. Playground equipment.

f. LANDSCAPING PRODUCTS

29. Hydraulic mulch products containing recovered paper or recovered wood.
30. Compost made from yard trimmings, leaves, and/or grass clippings.
31. Garden and soaker hoses containing recovered rubber or plastic.
32. Lawn and garden edging containing recovered rubber or plastic.
33. Food waste compost.
34. Plastic lumber landscaping timbers and posts.

g. NON-PAPER OFFICE PRODUCTS

35. Office recycling containers.
36. Office waste receptacles.
37. Plastic desktop accessories.
38. Toner cartridges.
39. Binders.
40. Plastic trash bags.
41. Printer ribbons (re-inked ribbons or re-inking equipment/service for ribbons).
42. Plastic envelopes.
43. Solid plastic binders.
44. Plastic clipboards.
45. Plastic file folders.
46. Plastic clip portfolios.
47. Plastic presentation folders.

h. MISCELLANEOUS PRODUCTS

48. Pallets
49. Sorbents.
50. Industrial drums.
51. Awards and plaques.
52. Mats.
53. Signage, including sign supports and posts.
54. Manual-grade strapping.

H.31.9. The intent of this section is to increase the awareness of all contractors as to the availability of products manufactured from, or that contain recycled materials, thereby increasing the use of these products in the construction of this project. The various sections of the specifications contain references to products to be used in the construction of this project. The listed product may or may not be manufactured from or contain recycled materials. Therefore, all contractors, subcontractors, equipment suppliers, and material suppliers are responsible for compliance with this specification. Recycled products shall be used wherever possible subject to the exemptions as per the paragraph entitled EXEMPTIONS. Substitution of recycled materials or recycled products for specified products are subject to the provisions of the paragraph entitled 1.8 Exemptions.

H.31.10. RECYCLED OR RECOVERED PRODUCTS. All construction materials to be used in this project, unless on existing exemption list, are to be identified on the form at the end of this section.

H.31.11. GREEN PROCUREMENT PROGRAM WEBSITES:

Select Sources of Supply for Environmentally Preferable Products and Services

GSA: <http://www.gsa.gov/environ>

DLA: <http://www.dscr.dla.mil/catalogs/catalog.htm>

Energy Star®: <http://www.energystar.gov/> (note: Energy Star® does not sell products, but provides a list of manufacturers and their certified products)

JWOD: <http://www.nib.org/JWOD%20Catalog/index.html>

UNICOR: www.unicor.gov/about/ecycle.htm

FEMP: http://oahu.lbl.gov/cgi-bin/search_data.pl

Determining EPP Attributes for Specific Purchase Types

For paints, carpet, office supplies, cleaners and particle board purchases:

<http://www.greenseal.org/recommendations.htm>

For cleaners: <http://www.epa.gov/opptintr/epp/cleaners/select/>

For construction projects: <http://www.epa.gov/opptintr/epp/tools/bees.htm>

GPP Compliant Product Listings

CPG: <http://www.epa.gov/cpg/products.htm> and Comprehensive Procurement Guidelines Chart

Biobased: <http://www.biobased.oce.usda.gov/public/index.cfm>

FEMP: <http://oahu.lbl.gov>

Energy Star: http://www.energystar.gov/index.cfm?fuseaction=find_a_product.

Alternatives to Ozone-Depleting Substances: <http://www.epa.gov/ozone/snap/lists/index.html>

Resources for EPP Product Selection

EPA Database of Environmentally Preferable Products and Services:

<http://yosemite1.epa.gov/oppt/epstand2.nsf>

Section I - Contract Clauses

CLAUSES INCORPORATED BY REFERENCE

52.202-1	Definitions	NOV 2013
52.203-3	Gratuities	APR 1984
52.203-5	Covenant Against Contingent Fees	MAY 2014
52.203-7	Anti-Kickback Procedures	MAY 2014
52.203-8	Cancellation, Rescission, and Recovery of Funds for Illegal or Improper Activity	MAY 2014
52.203-10	Price Or Fee Adjustment For Illegal Or Improper Activity	MAY 2014
52.203-12	Limitation On Payments To Influence Certain Federal Transactions	OCT 2010
52.203-16	Preventing Personal Conflicts of Interest	DEC 2011
52.203-17	Contractor Employee Whistleblower Rights and Requirement To Inform Employees of Whistleblower Rights	APR 2014
52.204-2 Alt II	Security Requirements (Aug 1996) - Alternate II	APR 1984
52.204-4	Printed or Copied Double-Sided on Postconsumer Fiber Content Paper	MAY 2011
52.204-7	System for Award Management	JUL 2013
52.204-9	Personal Identity Verification of Contractor Personnel	JAN 2011
52.204-10	Reporting Executive Compensation and First-Tier Subcontract Awards	JUL 2013
52.204-14	Service Contract Reporting Requirements	JAN 2014
52.209-6	Protecting the Government's Interest When Subcontracting With Contractors Debarred, Suspended, or Proposed for Debarment	AUG 2013

52.209-9	Updates of Publicly Available Information Regarding Responsibility Matters	JUL 2013
52.211-13	Time Extensions	SEP 2000
52.215-10	Price Reduction for Defective Certified Cost or Pricing Data	AUG 2011
52.215-12	Subcontractor Certified Cost or Pricing Data	OCT 2010
52.215-15	Pension Adjustments and Asset Reversions	OCT 2010
52.215-18	Reversion or Adjustment of Plans for Postretirement Benefits (PRB) Other than Pensions	JUL 2005
52.215-19	Notification of Ownership Changes	OCT 1997
52.215-21	Requirements for Certified Cost or Pricing Data or Information Other Than Certified Cost or Pricing Data-- Modifications	OCT 2010
52.215-23	Limitations on Pass-Through Charges	OCT 2009
52.219-6	Notice Of Total Small Business Set-Aside	NOV 2011
52.219-8	Utilization of Small Business Concerns	MAY 2014
52.219-14	Limitations On Subcontracting	NOV 2011
52.222-1	Notice To The Government Of Labor Disputes	FEB 1997
52.222-4	Contract Work Hours and Safety Standards Act - Overtime Compensation	MAY 2014
52.222-5	Construction Wage Rate Requirements--Secondary Site of the Work	MAY 2014
52.222-6	Construction Wage Rate Requirements	MAY 2014
52.222-7	Withholding of Funds	MAY 2014
52.222-8	Payrolls and Basic Records	MAY 2014
52.222-9	Apprentices and Trainees	JUL 2005
52.222-10	Compliance with Copeland Act Requirements	FEB 1988
52.222-11	Subcontracts (Labor Standards)	MAY 2014
52.222-12	Contract Termination-Debarment	MAY 2014

52.222-13	Compliance With Construction Wage Rate Requirements and Related Regulations	MAY 2014
52.222-14	Disputes Concerning Labor Standards	FEB 1988
52.222-15	Certification of Eligibility	MAY 2014
52.222-21	Prohibition Of Segregated Facilities	FEB 1999
52.222-26	Equal Opportunity	MAR 2007
52.222-27	Affirmative Action Compliance Requirements for Construction	FEB 1999
52.222-30	Construction Wage Rate Requirements--Price Adjustment (None or Separately Specified Method)	MAY 2014
52.222-35	Equal Opportunity for Veterans	JUL 2014
52.222-36	Equal Opportunity for Workers with Disabilities	JUL 2014
52.222-37	Employment Reports on Veterans	JUL 2014
52.222-40	Notification of Employee Rights Under the National Labor Relations Act	DEC 2010
52.222-50	Combating Trafficking in Persons	FEB 2009
52.222-54	Employment Eligibility Verification	AUG 2013
52.223-3	Hazardous Material Identification And Material Safety Data	JAN 1997
52.223-5	Pollution Prevention and Right-to-Know Information	MAY 2011
52.223-6	Drug-Free Workplace	MAY 2001
52.223-12	Refrigeration Equipment and Air Conditioners	MAY 1995
52.223-15	Energy Efficiency in Energy-Consuming Products	DEC 2007
52.223-17	Affirmative Procurement of EPA-Designated Items in Service and Construction Contracts	MAY 2008
52.223-18	Encouraging Contractor Policies To Ban Text Messaging While Driving	AUG 2011
52.225-13	Restrictions on Certain Foreign Purchases	JUN 2008
52.227-1	Authorization and Consent	DEC 2007

52.227-4	Patent Indemnity-Construction Contracts	DEC 2007
52.228-2	Additional Bond Security	OCT 1997
52.228-5	Insurance - Work On A Government Installation	JAN 1997
52.228-11	Pledges Of Assets	JAN 2012
52.228-12	Prospective Subcontractor Requests for Bonds	MAY 2014
52.228-14	Irrevocable Letter of Credit	MAY 2014
52.228-15	Performance and Payment Bonds--Construction	OCT 2010
52.229-4	Federal, State, And Local Taxes (State and Local Adjustments)	FEB 2013
52.232-5	Payments under Fixed-Price Construction Contracts	MAY 2014
52.232-17	Interest	MAY 2014
52.232-23	Assignment Of Claims	MAY 2014
52.232-27	Prompt Payment for Construction Contracts	MAY 2014
52.232-33	Payment by Electronic Funds Transfer--System for Award Management	JUL 2013
52.232-39	Unenforceability of Unauthorized Obligations	JUN 2013
52.232-40	Providing Accelerated Payments to Small Business Subcontractors	DEC 2013
52.233-1	Disputes	MAY 2014
52.233-3	Protest After Award	AUG 1996
52.233-4	Applicable Law for Breach of Contract Claim	OCT 2004
52.236-2	Differing Site Conditions	APR 1984
52.236-3	Site Investigation and Conditions Affecting the Work	APR 1984
52.236-4	Physical Data	APR 1984
52.236-5	Material and Workmanship	APR 1984
52.236-6	Superintendence by the Contractor	APR 1984

52.236-7	Permits and Responsibilities	NOV 1991
52.236-8	Other Contracts	APR 1984
52.236-9	Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements	APR 1984
52.236-10	Operations and Storage Areas	APR 1984
52.236-11	Use and Possession Prior to Completion	APR 1984
52.236-12	Cleaning Up	APR 1984
52.236-13	Accident Prevention	NOV 1991
52.236-15	Schedules for Construction Contracts	APR 1984
52.236-17	Layout of Work	APR 1984
52.236-21 Alt I	Specifications and Drawings for Construction (Feb 1997) - Alternate I	APR 1984
52.236-26	Preconstruction Conference	FEB 1995
52.242-13	Bankruptcy	JUL 1995
52.242-14	Suspension of Work	APR 1984
52.244-5	Competition In Subcontracting	DEC 1996
52.244-6	Subcontracts for Commercial Items	JUL 2014
52.246-12	Inspection of Construction	AUG 1996
52.246-13	Inspection--Dismantling, Demolition, or Removal of Improvements	AUG 1996
52.246-21	Warranty of Construction	MAR 1994
52.247-34	F.O.B. Destination	NOV 1991
52.248-3	Value Engineering-Construction	OCT 2010
52.249-2 Alt I	Termination for Convenience of the Government (Fixed-Price) (Apr 2012) - Alternate I	SEP 1996
52.249-3	Termination for Convenience of the Government (Dismantling, Demolition, or Removal of Improvements)	APR 2012

52.249-10	Default (Fixed-Price Construction)	APR 1984
52.253-1	Computer Generated Forms	JAN 1991
252.201-7000	Contracting Officer's Representative	DEC 1991
252.203-7001	Prohibition On Persons Convicted of Fraud or Other Defense- Contract-Related Felonies	DEC 2008
252.203-7002	Requirement to Inform Employees of Whistleblower Rights	SEP 2013
252.204-7000	Disclosure Of Information	AUG 2013
252.204-7003	Control Of Government Personnel Work Product	APR 1992
252.209-7004	Subcontracting With Firms That Are Owned or Controlled By The Government of a Terrorist Country	MAR 2014
252.222-7006	Restrictions on the Use of Mandatory Arbitration Agreements	DEC 2010
252.223-7004	Drug Free Work Force	SEP 1988
252.223-7006	Prohibition On Storage And Disposal Of Toxic And Hazardous Materials	APR 2012
252.225-7012	Preference For Certain Domestic Commodities	FEB 2013
252.227-7022	Government Rights (Unlimited)	MAR 1979
252.227-7023	Drawings and Other Data to become Property of Government	MAR 1979
252.232-7003	Electronic Submission of Payment Requests and Receiving Reports	JUN 2012
252.232-7010	Levies on Contract Payments	DEC 2006
252.236-7000	Modification Proposals-Price Breakdown	DEC 1991
252.243-7001	Pricing Of Contract Modifications	DEC 1991
252.243-7002	Requests for Equitable Adjustment	DEC 2012
252.244-7000	Subcontracts for Commercial Items	JUN 2013
252.247-7023	Transportation of Supplies by Sea	APR 2014

CLAUSES INCORPORATED BY FULL TEXT

52.201-4000 TACOM-WARREN OMBUDSPERSON

Jan 06

Information regarding the TACOM-Warren Ombudsperson is located at the website <http://contracting.tacom.army.mil/acqinfo/ombudsperson.htm>.

52.204-4005 (TACOM) REQUIRED USE OF ELECTRONIC COMMERCE

(AUG 2012)

(a) All contract awards, modifications and delivery orders issued by TACOM will be issued electronically. The contractor has the option to receive these actions either via the Worldwide Web (WWW) or Electronic Data Interchange (EDI). Many provisions/clauses that appear "by reference", meaning only clause titles and regulation site are listed; their full texts can be found at the website: <http://farsite.hill.af.mil/>

(b) In order to be eligible to receive an award under this solicitation, the successful offeror must be registered with the Department of Defense (DOD) System for Award Management (SAM). The SAM registration process may be done electronically at the World Wide Web (WWW) site: <https://www.sam.gov/portal/public/SAM>. (In order to be registered to use EDI, you must use the long form for registration. Certification information, including information on the EDI 838 TPP, must be furnished to the Contracting Officer within 60 calendar days after contract award to complete networking requirements within the Government.)

(c) Worldwide Web Distribution. The contractor will receive an electronic Notice of the Award, Modification, or Delivery Order via e-mail. If you choose the WWW option, you must download the file from the appropriate TACOM webpage:

Warren: http://contracting.tacom.army.mil/CFDATA/AWARDS/AWARD_RPT01.cfm

Rock Island - JMTC: <https://acquisition.army.mil/asfi/>

Red River Army Depot: <https://www.redriver.army.mil/>

Anniston Army Depot: <https://acquisition.army.mil/asfi/>

(d) Electronic Data Interchange. If you choose to receive contract awards, modifications and delivery orders through EDI, they will be delivered electronically via the Federal Acquisition Network (FACNET). Federal Standard Version 3050 of Standard X12 from the American National Standards Institute (ANSI) will be used as the format for these electronic transactions.

(1) You must complete the EDI 838 Trading Partner Profile, and must agree (i) to subcontract with a DoD certified VAN or Value Added Service (VAS) provider, or (ii) to become DoD certified as a Value Added Network (VAN). The EDI 838 Training Partner Profile is contained in the basic SAM registration form and includes portions of the registration form which are titled "Optional".

(2) You must select a VAN from the official DoD approved list. DoD Certified VANs are listed at <http://www.acq.osd.mil/dpap/ebiz/VANs.htm> . If your VAN is later removed from the official list, or if you voluntarily drop your initially selected VAN, then you must switch to a VAN that remains on the official DoD approved list. You must maintain an active account on a DoD approved VAN for the entire duration of the contract, beginning no later than the 60th day after award.

(e) Unless otherwise specified elsewhere in the contract, all data items you are required to provide under this contract must be submitted electronically. Please go to the following webpage for <http://contracting.tacom.army.mil/acqinfo/ebidnotice.htm>

(f) Additional information can be obtained by sending a message to: usarmy.detroit.acc.mbx.wrn-web-page@mail.mil or by calling (586) 282-7059.

[End of Clause]

52.204-4009 (TACOM) MANDATORY USE OF CONTRACTOR TO GOVERNMENT ELECTRONIC
COMMUNICATION (AUG 2008)

- (a) All references in the contract to the submission of written documentation shall mean electronic submission. All electronic submissions shall be in the formats and media described in the website:
<http://contracting.tacom.army.mil/acqinfo/ebidnotice.htm>.
- (b) This shall include all written unclassified communications between the Government and the Contractor except contract awards and contract modifications which shall be posted on the internet. Return receipt shall be used if a commercial application is available. Classified information shall be handled in full accordance with the appropriate security requirements.
- (c) In order to be contractually binding, all Government communications requiring a Contracting Officer signature must include an affirmative response from the Contracting Officer's e-mail address. The Contractor shall designate the personnel with signature authority who can contractually bind the contractor. All binding contractor communication shall be sent from this contractor e-mail address(es).
- (d) Upon award, the Contractor shall provide the Contracting Officer with a list of e-mail addresses for all administrative and technical personnel assigned to this contract.
- (e) Unless exempted by the Procuring Contracting Officer in writing, all unclassified written communication after contract award shall be transmitted electronically.

(End of Clause)

(a) All TACOM solicitations and awards are distributed on the TACOM-Warren Procurement Network (ProcNet) Business Opportunities website (<http://contracting.tacom.army.mil/opportunity.htm>) and are no longer available in hard copy. The Technical Data Packages (TDPs) and other documents, when available electronically, will be attachments or links to the solicitation package on ProcNet.

(b) You may need to use special software to view documents that we post on ProcNet. This viewing software is freeware, available for download at no cost from commercial websites like Microsoft and Adobe. In cases where such software is required, we provide a link from ProcNet to the commercial site where the software is available. Once you arrive at the software developer's site, follow its instructions to download the free viewer. You can then return to the ProcNet.

(c) Unless otherwise authorized in this solicitation, you are required to submit your offer, bid, or quote electronically, via the Army Single Face to Industry (ASFI) Online Bid Response System (BRS). For detailed information about submitting your offer electronically, please see <http://contracting.tacom.army.mil/acqinfo/ebidnotice.htm>.

(d) Requirements for the online ASFI bid submission:

(1) You must be registered in the System for Award Management (SAM) at www.sam.gov (a Federal Government owned and operated free web site) and have a CAGE Code and CCR Marketing Partner Identification Number (MPIN).

(2) If you found the solicitation on ProcNet, use the following link to the Start Bid Page on the ASFI BRS website for this solicitation:

https://acquisition.army.mil/asfi/solicitation_view.cfm?psolicitationnbr=-1-

(3) If you found the solicitation by searching on ASFI, you can start the online bidding process by using the Start Bid button on the ASFI Solicitation View page. You may also access the ASFI BRS by going to <https://acquisition.army.mil/asfi/> and clicking on the Contracting Opportunities Search to find the solicitation.

(4) Once in the ASFI BRS, you will be asked to enter basic information and will then be directed to upload one or more files containing your offer and information required by the solicitation.

(5) You will receive a confirmation of your bid upon completion of the bid submission process.

(6) You can find detailed BRS user instructions on the ASFI website at https://acquisition.army.mil/asfi/BRS_guide.doc.

(e) Note to offerors:

Your attention is called to the solicitation closing date and time as stated on the cover page of this solicitation, local time for the TACOM Contracting Center, Warren, Michigan. In accordance with FAR 15.208(a), offerors are responsible for submitting proposals, and any revisions, and modifications, so as to be received by the Government office designated in the solicitation by the time specified.

It is the offeror's responsibility to assure their proposal is received by the date and time specified above. In accordance with FAR 15.208, if your proposal was not received at the initial point of entry to the Government infrastructure (in this case, received through ASFI) by the exact date and time specified above, it will be determined late. Proposal, as the term is used here, means ALL volumes and/or parts of the proposal.

Unless otherwise authorized in the solicitation, you are required to submit your offer, bid, or quote electronically, via the Army Single Face to Industry (ASFI) On-Line Bid Response System (BRS). Note: There is no "expected" or "target" length of time for proposal submission; size and content may be factors, therefore offerors are strongly cautioned to submit their proposals allowing adequate time for submission.

Solicitations may remain posted on the AFSI Open Solicitation Web page after the solicitation closes. Even though the system will allow you to submit a proposal after the closing date/time, your proposal will be considered late and may not be considered for award. If you are responding to a Request for Proposal, your offer will not be considered if it is submitted after the closing date and time unless one of the exceptions is met at FAR 15.208(b). If you are responding to a Request for Quotation, your quote may be considered if it is received after the closing date, and it will not unduly delay award.

(f) Any award issued as a result of this solicitation will be distributed electronically. Awards posted on ProcNet represent complete OFFICIAL copies of contract awards and will include the awarded unit price. This is the notice required by Executive Order 12600 (June 23, 1987) of our intention to release unit prices in response to any request under the Freedom of Information Act (FOIA), 5 USC 552. Unit price is defined as the contract price per unit or item purchased as it appears in Section B of the contract and is NOT referring to nor does it include Cost or Pricing data/information. If you object to such release, and you intend to submit an offer, notify the contracting officer in writing prior to the closing date identified in this solicitation and include the rationale for your objection consistent with the provisions of FOIA. A release determination will be made based on rationale given.

(g) If you have questions or need help using ProcNet, call our Electronic Contracting Help Desk at (586) 282-7059, or send an email to DAMI_AcquisitionCenterWebPage@conus.army.mil. If you have questions about the content of any specific item posted on the ProcNet, please call the contract specialist or point of contact listed for the item. For technical assistance in doing business with the Government, and doing business electronically, please visit the Procurement Technical Assistance Center website at <http://www.dla.mil/db/procurem.htm> to find a location near you.

End of Clause

52.204-4023

FEB 2013

NOTICE OF ELEVATED THREAT LEVEL FORCE PROTECTION CONDITION (FPCON) AT DETROIT ARSENAL

Contractors are hereby notified that there is a potential impact on contractor performance during increased FPCON during periods of increased threat. During FPCONs Charlie and Delta, services may be discontinued / postponed due to higher threat. Services will resume when FPCON level is reduced to level Bravo or lower.

(End of Notice)

52.204-4024

Feb 2013

NOTICE OF RANDOM ANTITERRORISM MEASURES PROGRAM (RAMP) AT THE DETROIT ARSENAL

In accordance with AR 525-13, Contractor personnel working on an installation are subject to participation in Installation RAMP security program (e.g. vehicles searches, wearing of ID badges, etc).

(End of Notice)

52.209-4020 - AT LEVEL I TRAINING (OCT 2013)

All contractor employees, including subcontractor employees, requiring access to Army installations, facilities, or controlled access areas shall complete AT Level I awareness training within 30 calendar days after contract start date or effective date of incorporation of this requirement into the contract, whichever applies. The contractor shall submit certificates of completion for each contractor employee and subcontractor employee requiring access to Army installations, facilities, or controlled access areas to the COR (or to the contracting officer, if a COR is not assigned) within 7 calendar days after completion of training. AT Level I awareness training is available at <https://atlevel1.dtic.mil/at>.

(End of Clause)

52.209-4022 iWATCH TRAINING (JUN 2012)

The contractor and all associated subcontractors shall brief all employees on the local iWATCH program (training standards provided by the requiring activity Anti-Terrorism Officer (ATO)). This locally developed training will be used to inform employees of the types of behavior to watch for and instruct employees to report suspicious activity to the COR. This training shall be completed within 30 calendar days of contract award and within 30 calendar days of new employees' commencing performance, with the results reported to the COR no later than 30 calendar days after contract award.

(End of Clause)

52.211-10 COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK (APR 1984)

The Contractor shall be required to (a) commence work under this contract within 7 days calendar days after the date the Contractor receives the notice to proceed, (b) prosecute the work diligently, and (c) complete the entire work ready for use not later than 315 calendar days. The time stated for completion shall include final cleanup of the premises.

(End of clause)

52.211-12 LIQUIDATED DAMAGES--CONSTRUCTION (SEP 2000)

(a) If the Contractor fails to complete the work 315 calendar days after the date the contractor receives the notice to proceed, the Contractor shall pay liquidated damages to the Government in the amount of \$494.13 for each calendar day of delay until the work is accepted.

(b) If the Government terminates the Contractor's right to proceed, liquidated damages will continue to accrue until the work is accepted. These liquidated damages are in addition to excess costs of repurchase under the Termination clause.

(End of clause)

52.219-28 POST-AWARD SMALL BUSINESS PROGRAM REREPRESENTATION (JULY 2013)

(a) Definitions. As used in this clause--

Long-term contract means a contract of more than five years in duration, including options. However, the term does not include contracts that exceed five years in duration because the period of performance has been extended for a cumulative period not to exceed six months under the clause at 52.217-8, Option to Extend Services, or other appropriate authority.

Small business concern means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding on Government contracts, and qualified as a small business under the criteria in 13 CFR part 121 and the size standard in paragraph (c) of this clause. Such a concern is "not dominant in its field of operation" when it does not exercise a controlling or major influence on a national basis in a kind of business activity in which a number of business concerns are primarily engaged. In determining whether dominance exists, consideration shall be given to all appropriate factors, including volume of business, number of employees, financial resources, competitive status or position, ownership or control of materials, processes, patents, license agreements, facilities, sales territory, and nature of business activity.

(b) If the Contractor represented that it was a small business concern prior to award of this contract, the Contractor shall rerepresent its size status according to paragraph (e) of this clause or, if applicable, paragraph (g) of this clause, upon the occurrence of any of the following:

(1) Within 30 days after execution of a novation agreement or within 30 days after modification of the contract to include this clause, if the novation agreement was executed prior to inclusion of this clause in the contract.

(2) Within 30 days after a merger or acquisition that does not require a novation or within 30 days after modification of the contract to include this clause, if the merger or acquisition occurred prior to inclusion of this clause in the contract.

(3) For long-term contracts--

(i) Within 60 to 120 days prior to the end of the fifth year of the contract; and

(ii) Within 60 to 120 days prior to the date specified in the contract for exercising any option thereafter.

(c) The Contractor shall rerepresent its size status in accordance with the size standard in effect at the time of this rerepresentation that corresponds to the North American Industry Classification System (NAICS) code assigned to this contract. The small business size standard corresponding to this NAICS code can be found at <http://www.sba.gov/content/table-small-business-size-standards>.

(d) The small business size standard for a Contractor providing a product which it does not manufacture itself, for a contract other than a construction or service contract, is 500 employees.

(e) Except as provided in paragraph (g) of this clause, the Contractor shall make the representation required by paragraph (b) of this clause by validating or updating all its representations in the Representations and Certifications section of the System for Award Management (SAM) and its other data in SAM, as necessary, to ensure that they reflect the Contractor's current status. The

Contractor shall notify the contracting office in writing within the timeframes specified in paragraph (b) of this clause that the data have been validated or updated, and provide the date of the validation or update.

(f) If the Contractor represented that it was other than a small business concern prior to award of this contract, the Contractor may, but is not required to, take the actions required by paragraphs (e) or (g) of this clause.

(g) If the Contractor does not have representations and certifications in SAM, or does not have a representation in SAM for the NAICS code applicable to this contract, the Contractor is required to complete the following rerepresentation and submit it to the contracting office, along with the contract number and the date on which the rerepresentation was completed:

The Contractor represents that it (X) is, () is not a small business concern under NAICS Code 236220- assigned to contract number W56HZV-14-C-L737.

Prita Abraham, President, Addon

(End of clause)

52.222-23 NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY FOR CONSTRUCTION (FEB 1999)

(a) The offeror's attention is called to the Equal Opportunity clause and the Affirmative Action Compliance Requirements for Construction clause of this solicitation.

(b) The goals for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Goals for minority participation for each trade	Goals for female participation for each trade
5%	5%

These goals are applicable to all the Contractor's construction work performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, the Contractor shall apply the goals established for the geographical area where the work is actually performed. Goals are published periodically in the Federal Register in notice form, and these notices may be obtained from any Office of Federal Contract Compliance Programs office.

(c) The Contractor's compliance with Executive Order 11246, as amended, and the regulations in 41 CFR 60-4 shall be based on (1) its implementation of the Equal Opportunity clause, (2) specific affirmative action obligations required by the clause entitled "Affirmative Action Compliance Requirements for Construction," and (3) its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade. The Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor, or from project to project, for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, Executive Order 11246, as amended, and the regulations in 41 CFR 60-4. Compliance with the goals will be measured against the total work hours performed.

(d) The Contractor shall provide written notification to the Deputy Assistant Secretary for Federal Contract Compliance, U.S. Department of Labor, within 10 working days following award of any construction subcontract in excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the --

- (1) Name, address, and telephone number of the subcontractor;
- (2) Employer's identification number of the subcontractor;
- (3) Estimated dollar amount of the subcontract;
- (4) Estimated starting and completion dates of the subcontract; and
- (5) Geographical area in which the subcontract is to be performed.

(e) As used in this Notice, and in any contract resulting from this solicitation, the "covered area" is **Work is to be performed in Macomb County at Detroit Aresnal - Warren, MI.**

(End of provision)

52.223-2 AFFIRMATIVE PROCUREMENT OF BIOBASED PRODUCTS UNDER SERVICE AND CONSTRUCTION CONTRACTS (SEP 2013)

(a) In the performance of this contract, the contractor shall make maximum use of biobased products that are United States Department of Agriculture (USDA)-designated items unless--

(1) The product cannot be acquired--

(i) Competitively within a time frame providing for compliance with the contract performance schedule;

(ii) Meeting contract performance requirements; or

(iii) At a reasonable price.

(2) The product is to be used in an application covered by a USDA categorical exemption (see 7 CFR 3201.3(e)). For example, all USDA-designated items are exempt from the preferred procurement requirement for the following:

(i) Spacecraft system and launch support equipment.

(ii) Military equipment, i.e., a product or system designed or procured for combat or combat-related missions.

(b) Information about this requirement and these products is available at <http://www.biopreferred.gov>.

(c) In the performance of this contract, the Contractor shall--

(1) Report to <http://www.sam.gov>, with a copy to the Contracting Officer, on the product types and dollar value of any USDA-designated biobased products purchased by the Contractor during the previous Government fiscal year, between October 1 and September 30; and

(2) Submit this report no later than--

(i) October 31 of each year during contract performance; and

(ii) At the end of contract performance.

(End of clause)

52.232-4007

WIDE AREA WORK FLOW (WAWF), CODES, AND DESIGNATED ACCEPTORS (APR 2012)

To comply with the clause DFARS 252.232-7003, "ELECTRONIC SUBMISSION OF PAYMENT REQUESTS" the contractor shall use WAWF to electronically process vendor requests for payment. This application allows DoD vendors to submit and track invoices and receipt/acceptance documents electronically. Submission of a hard copy DD250/invoices will no longer be accepted for payment. The contractor shall register to use WAWF and take the Web-based training at <https://wawftraining.eb.mil/xhtml/unauth/web/wbt/wawfra/vendor/DocumentCreate.xhtml> . There is no charge to use WAWF. Direct any questions relating to the system and vendor training to the Ogden Help Desk at 1-866-618-5988. Please have your order number and invoice ready when calling about payment status.

To properly route an invoice and receiving report through WAWF, the contractor shall indicate the following when prompted:

1. Select the appropriate type of submittal as indicated:

_____ Invoice and Receiving Report Combo (Supplies) If this contract calls for contractor submission of a Material Inspection and Receiving report by virtue of the inclusion of the clause at DFARS 252.246-7000, “Material Inspection and Receiving Report”, use a “combo” Invoice and Receiving Report.

___X___ Invoice 2-in-1 (Services only) If DFARS 252.246-7000, “Material Inspection and Receiving Report” is NOT used, then use a “two-in-one” invoice.

2. Use the following DoDAAC (Department of Defense Activity Address Code) codes when prompted:

- Your firm’s CAGE Code: **6VC96** (found in Block 17a of SF 1449)
- Issue and Admin DoDAAC Code: **W56HZV** (found in Block 9 of SF 1449)
- Ship-To DoDAAC Code: **W56TRU** (found in Block 15 of SF 1449)
- Accept-By DoDAAC Code: **W56JK7**
- Payment DoDAAC Code: **HQ0490** (found in Block 18a of SF 1449)

3. Include the purchase request number in the line item description. This number can be found at the bottom of the extended description of each contract line item number (CLIN). **NOTE:** The purchase request number may be different for each CLIN.

4. The WAWF system will prompt for “additional e-mail submission” after clicking “Signature”. The following additional e-mail submissions are required:

- Primary Acceptor Name: Karen Carnago
- Primary Acceptor e-mail: karen.e.carnago.civ@mail.mil
- Alternate Acceptor Name: Erik Berardi
- Alternate Acceptor email: erik.r.berardi.civ@mail.mil
- Contract Specialist Name: Rachel Serra
- Contract Specialist e-mail: rachel.l.serra.civ@mail.mil

To track the status of an invoice, click on the link, “Pay status” (myInvoice-External link) <https://myinvoice.csd.disa.mil/index.html>. You will be required to register in order to view payments. Payment information is maintained for 120 days from invoice payment. If the payment office indicated in the contract is Columbus, direct any payment related questions to the Defense Finance Accounting Services (DFAS) Columbus at 1-800-756-4571. If the paying office is other than Columbus, contact the contract administrator for the customer service phone/fax numbers.

[End of clause]

52.243-4 CHANGES (JUN 2007)

(a) The Contracting Officer may, at any time, without notice to the sureties, if any, by written order designated or indicated to be a change order, make changes in the work within the general scope of the contract, including changes--

(1) In the specifications (including drawings and designs);

(2) In the method or manner of performance of the work;

(3) In the Government-furnished property or services; or

(4) Directing acceleration in the performance of the work.

(b) Any other written or oral order (which, as used in this paragraph (b), includes direction, instruction, interpretation, or determination) from the Contracting Officer that causes a change shall be treated as a change order under this clause; provided, that the Contractor gives the Contracting Officer written notice stating

(1) the date, circumstances, and source of the order and

(2) that the Contractor regards the order as a change order.

(c) Except as provided in this clause, no order, statement, or conduct of the Contracting Officer shall be treated as a change under this clause or entitle the Contractor to an equitable adjustment.

(d) If any change under this clause causes an increase or decrease in the Contractor's cost of, or the time required for, the performance of any part of the work under this contract, whether or not changed by any such order, the Contracting Officer shall make an equitable adjustment and modify the contract in writing. However, except for an adjustment based on defective specifications, no adjustment for any change under paragraph (b) of this clause shall be made for any costs incurred more than 20 days before the Contractor gives written notice as required. In the case of defective specifications for which the Government is responsible, the equitable adjustment shall include any increased cost reasonably incurred by the Contractor in attempting to comply with the defective specifications.

(e) The Contractor must assert its right to an adjustment under this clause within 30 days after

(1) receipt of a written change order under paragraph (a) of this clause or (2) the furnishing of a written notice under paragraph (b) of this clause, by submitting to the Contracting Officer a written statement describing the general nature and amount of the proposal, unless this period is extended by the Government. The statement of proposal for adjustment may be included in the notice under paragraph (b) above.

(f) No proposal by the Contractor for an equitable adjustment shall be allowed if asserted after final payment under this contract.

(End of clause)

52.246-4009 (TACOM) INSPECTION AND ACCEPTANCE POINTS: DESTINATION (FEB 1995)

Inspection and acceptance of supplies offered under this purchase order shall take place as specified here.

Inspection: DESTINATION

Acceptance: DESTINATION.

[End of Clause]

52.252-2 CLAUSES INCORPORATED BY REFERENCE (FEB 1998)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this/these address(es):

FAR <http://acquisition.gov/comp/far/index.html>

DFAR <http://farsite.hill.af.mil/vfdfar.htm>

(End of clause)

252.219-7009 SECTION 8(A) DIRECT AWARD (SEP 2007)

(a) This contract is issued as a direct award between the contracting office and the 8(a) Contractor pursuant to the Partnership Agreement between the Small Business Administration (SBA) and the Department of Defense. Accordingly, the SBA, even if not identified in Section A of this contract, is the prime contractor and retains

responsibility for 8(a) certification, for 8(a) eligibility determinations and related issues, and for providing counseling and assistance to the 8(a) Contractor under the 8(a) Program. The cognizant SBA district office is:

SBA - District Office

477 Michigan Avenue, Suite 515

Detroit, MI 48226

(b) The contracting office is responsible for administering the contract and for taking any action on behalf of the Government under the terms and conditions of the contract; provided that the contracting office shall give advance notice to the SBA before it issues a final notice terminating performance, either in whole or in part, under the contract. The contracting office also shall coordinate with the SBA prior to processing any novation agreement. The contracting office may assign contract administration functions to a contract administration office.

(c) The 8(a) Contractor agrees that--

(1) It will notify the Contracting Officer, simultaneous with its notification to the SBA (as required by SBA's 8(a) regulations at 13 CFR 124.308), when the owner or owners upon whom 8(a) eligibility is based plan to relinquish ownership or control of the concern. Consistent with Section 407 of Pub. L. 100-656, transfer of ownership or control shall result in termination of the contract for convenience, unless the SBA waives the requirement for termination prior to the actual relinquishing of ownership and control; and

(2) It will not subcontract the performance of any of the requirements of this contract without the prior written approval of the SBA and the Contracting Officer.

(End of Clause)

(a) The Government will provide to the Contractor, without charge, one set of contract drawings and specifications, except publications incorporated into the technical provisions by reference, in electronic or paper media as chosen by the Contracting Officer.

(b) The Contractor shall--

(1) Check all drawings furnished immediately upon receipt;

(2) Compare all drawings and verify the figures before laying out the work;

(3) Promptly notify the Contracting Officer of any discrepancies;

(4) Be responsible for any errors that might have been avoided by complying with this paragraph (b); and

(5) Reproduce and print contract drawings and specifications as needed.

(c) In general--

(1) Large-scale drawings shall govern small-scale drawings; and

(2) The Contractor shall follow figures marked on drawings in preference to scale measurements.

(d) Omissions from the drawings or specifications or the misdescription of details of work that are manifestly necessary to carry out the intent of the drawings and specifications, or that are customarily performed, shall not relieve the Contractor from performing such omitted or misdescribed details of the work. The Contractor shall perform such details as if fully and correctly set forth and described in the drawings and specifications.

(e) The work shall conform to the specifications and the contract drawings identified on the following index of drawings:

Repair Electrical Substation/HVAC at Building 212: PWC020114

(End of clause)

Section J - List of Documents, Exhibits and Other Attachments

ATTACHMENTS AND EXHIBITS

Appendix A: Environmental Protection Specification

Appendix B: Arc Flash

Appendix C: Historical Drawings and Documents

Appendix D: Power Study

Appendix E: Exterior Electrical Distribution

Appendix F: Electrical Specifications

Davis-Bacon Wage Determination MI140091

Presolicitation RFIs with Government Responses

PWC020114- FINAL -27SEPT14