

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT			1. CONTRACT ID CODE J	PAGE OF PAGES 1 127
2. AMENDMENT/MODIFICATION NO. 0003	3. EFFECTIVE DATE 29-Jun-2009	4. REQUISITION/PURCHASE REQ. NO.		5. PROJECT NO.(If applicable) PN 68082
6. ISSUED BY AFGHANISTAN ENGINEER DISTRICT US ARMY CORPS OF ENGINEERS KABUL APO AE 09356	CODE W917PM	7. ADMINISTERED BY (If other than item 6) See Item 6		
8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)		X	9A. AMENDMENT OF SOLICITATION NO. W917PM-09-R-0075	
		X	9B. DATED (SEE ITEM 11) 25-May-2009	
			10A. MOD. OF CONTRACT/ORDER NO.	
			10B. DATED (SEE ITEM 13)	
CODE	FACILITY CODE			
11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS				
<input checked="" type="checkbox"/> The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer <input checked="" type="checkbox"/> is extended, <input type="checkbox"/> is not extended. Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning <u>1</u> copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.				
12. ACCOUNTING AND APPROPRIATION DATA (If required)				
13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.				
A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.				
B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).				
C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:				
D. OTHER (Specify type of modification and authority)				
E. IMPORTANT: Contractor <input type="checkbox"/> is not, <input type="checkbox"/> is required to sign this document and return _____ copies to the issuing office.				
14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.) SUBJECT: DESIGN-BUILD AND CONSTRUCTION OF AMMUNITION SUPPLY POINT, BAGRAM AIRFIELD. SEE ATTACHED				
Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.				
15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)		
		TEL:	EMAIL:	
15B. CONTRACTOR/OFFEROR _____ (Signature of person authorized to sign)	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA BY _____ (Signature of Contracting Officer)		16C. DATE SIGNED 29-Jun-2009

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

SUMMARY OF CHANGES

SECTION SF 30 - BLOCK 14 CONTINUATION PAGE

The following have been added by full text:

AMENDMENT 0003

The purpose of this modification is to incorporate the following:

1. Add drawings to the website: <ftp://ftp.usace.army.mil/pub/aed/> under directory name “ASP Section 00555 Referenced Attachments.”
2. Add “Few Folder (2)” in the “For Reference Only Drawings” folder to add revised AGM drawings.
3. Add revised C-102 drawings in the “Master Plan” folder
4. Add updated Section 00010, PROPOSAL SCHEDULE (see attached).
5. Add updated Section 00010a, EXPLANATION OF BID ITEMS (see attached).
6. Add updated Section 01010, SCOPE OF WORK (see attached). Following have been updated: Table of Contents, Para. No. 1.8.2.7, 1.8.2.11, 1.8.3, 4.2.2, 4.2.3, 4.2.5.2, 4.2.5.3, 4.2.6.3, 4.2.8.9, and 4.2.8.1.3
7. Add updated Section 01015, TECHNICAL REQUIREMENTS-DESIGN-BUILD (see attached). Following have been updated: Para. No. 2.5.1, 2.5.4.1, 2.5.4.3, 3.1, 3.11.1.4, 3.11.2.2.1.2, 3.11.2.4, 3.11.3.2, 3.11.3.5.2, 4.3, 4.6, 4.7, 4.9.1(delete), 4.12, 6.5.3, 8.4.1, and 9.1.
8. Add updated Section 00555 DESIGN CONCEPT DOCUMENTS (see attached). Following have been updated: Para. No. 1.7.1 and 1.7.3.
9. Add answers to all contractor questions (see attached).
10. All other terms and conditions remain the same.

QUESTION AND ANSWERS (Q&A)**GENERAL**

1. Reference to Section 00150 page 160, and Section 01000 SOW page 353 total design and construction period of performance is 644 days. However, per page 1 of the standard form 1442 the contract completion date should be 365 days after NTP, please clarify.

Clarified by Amendment 0001 to 644 days

2. The RFP documents referred to Section 00160 Special Clauses, and the table of contents includes section 01060 Special Clauses. However, the said section is not included in the RFP documents, please provide.

Clarified by Amendment 0001

ELECTRICAL QUESTIONS

3- Regarding Section 01015, Para.8.4.1 "ELECTRICAL DISTRIBUTION SYSTEM", it refers to connect the facilities provided in this contract to BAF, so please clarify the following:

a) The location of the nearest existing power point to connect the new power network with it on site plan.

There is no known power point connection. Assume power connection at North West corner of the ASP compound in the vicinity of the new MAC facility.

b) The location of the new facilities which will be constructed under this contract on the same site plan.

The updated Master Plan (C-102 Amend 2) drawing shows the extent of construction requirements under this RFP and all future construction for the Ammunition Supply Point.

c) The length between the new facilities and existing local grid.

See answer above in (a)

d) Regarding Section 01010, Para.4.2.8.1.2, it states "Primary voltage shall be 4160/7200V, 60 HZ or 7200/13800V, 60HZ, please clarify which medium voltage rate will be connected with the existing local grid (4160/7200 V,60 HZ or 7200/13800V, 60HZ).

7200/13800V, 60HZ

4- Regarding Section 01015, Para.8.4.1 "ELECTRICAL DISTRIBUTION SYSTEM", it refers to contain space for future planned generators in the power plant and associated switchgear, so please clarify the number of the required future generators spaces.

Requirement deleted in Amendment 0003

5- Referring to Section 01015, Para.8.4.3 "Light Fixtures ", it refers to the standard electronic ballast is required; please confirm that magnetic ballast can be used also.

Electronic is required in the US for energy conservation purposes. Magnetic ballasts will not allowed.

6- Referring to Section 01015, Para.8.4.12 "Fire Detection & Alarm System", It states "Fire alarm system shall be complete and a standard product of one manufacturer and shall be compatible with the existing predominant standard system in place at the installation", please inform us with the existing predominant standard system.

The following came from John Patnode, KBR Assistant Chief for Fire Protection at BAF 21 Jan 08:

Presently we have a Monaco base fire reporting system (Monaco D-21 Fire Management System, radio alarm, transmitting panels located on some facilities are Monaco BT-XF and/or BT-XHR Fire Management System Transceivers. The D-21 Management System is not functioning 100% due to radio frequency issues. Additionally other environmental factors such as mobile frequency jammers left on may affect the system. The frequency for the fire alarm reporting system is 138.2950. The frequency is printed on a label on the bottom of the RFM modem at the central receiving station and on the door labels on each transceiver. We recommend installing Monaco or Monaco compatible equipment in all future construction to continue building on the existing base fire

reporting system. Red Horse is working on getting the radio frequency issue resolved and may be look at obtaining a new frequency.

7- Referring to Section 01015, Para.9.1.1 "Telephone and Data Cabling Distribution System for each building", it refers to interior communications system inside each facility, so please clarify the following::

a) Confirm that it is not required to connect with any exterior communications network.

Clarified by Amendment 0003 updated Section 01015

b) Inform us for which facilities Telephone and Data System will be required.

Clarified by Amendment 0003 updated Section 01015

c) It refers to Two additional 103 mm empty conduits shall be provided between the communications rooms of both buildings, please clarify which buildings it refers to.

Clarified by Amendment 0003 updated Section 01015.

8- Regarding Section 01010, Para.4.2.8.2.5 "Security Lighting", it states "The Contractor shall design and construct a perimeter mast mounted security lighting system along the new perimeter fence in accordance with paragraph 5-4, AR 190-11.", please clarify the actual length of this perimeter fence.

The new perimeter fence will enclose the ASP connecting to existing fencing North of the existing TMGWM, wrapping around the ASP and connecting to the existing fenceline at the South existing fence. This is shown as linetype "Fenceline1" in yellow on layer "0 Contract Requirements" on the Master Plan Drawing. Final length of the fence will be dependent on options selected.

9- Regarding Section 01010, Para.4.2.8.9 "Information systems", please clarify the systems will be required under this contract.

Clarified by Amendment 0003. See updated Section 10a.

10- Regarding SECTION 00010, "PROPOSAL SCHEDULE", item #0002AC "Electrical Lighting, and Information Systems", please clarify the following:

a) If the "Electrical Lighting" terms refers to Security Lighting only which will be priced under this bid item.

Clarified by Amendment 0003 updated Section 10a.

b) Which systems will be priced under the "Information Systems" term?

Clarified by Amendment 0003 updated Section 10a.

11- For general, please confirm that it doesn't require any special lighting Design levels at any facility.

Exterior and interior lighting will conform to the various references cited in the RFP.

12- Regarding Section 01010, Para.4.2.2.6 "Diesel powered stand-by generator back-up power is required for each of three facilities", please clarify the following:

a) Under which bid item each stand-by generator back-up power will be priced.

Clarified by Amendment 0003, updated Section 01010, Para 4.2.8.1.3. Include price under Bid Item 0002AC.

b) Will these stand-by generator back-up powers be located at the new Power Plant? Or each one will be beside each facility.

To be determined by the contractor during design phase. All generators are likely to be housed in a facility whose location is to be determined during the design.

c) If it is required two sources for power , one at power plant contains prime power and the other as stand-by generator back-up powers

Only one source of back-up power is required as clarified in Amendment 0003

13- Regarding Section 01010, Para.4.2.3 "Earth Covered Magazines (ECM)", it states "Each ECM shall be provided with electrical service including back-up power, have internal lighting, ventilation, conduit to facilitate Intrusion Detection System (IDS) installation in four (Air Force) ECM's and lighting protection systems", please clarify the following:

d) Will this stand-by generator back-up power be located at the new Power Plant? Or each one will be beside each facility.

Only one source of back-up power is required as clarified in Amendment 0003

e) Confirm that it will be required empty conduit to facilitate Intrusion Detection System (IDS) only.

Correct.

f) If it is required Intrusion Detection System (IDS) for any facility, please provide us with specifications or technical requirements for this subject.

IDS is not required to be installed by the Contractor, however conduit and provisions for others to install the IDS system are required. The system requirements are to be determined during design by the Contractor.

g) Confirm that Fire Alarm system is not required for this facility.

Correct.

h) It is required lighting for this facility but it doesn't mention on drawings to lighting for it, please clarify the type of required lighting.

Clarified in Amendment 0003. Provide as per Sectin 01010, Para. 4.2.8.3.

14- Regarding Section 01010, Para.4.2.4 "Above Ground Magazines (AGM)", it states "Back-up power is required for each AGM", please clarify the following:

- i) Will this stand-by generator back-up power be located at the new Power Plant? Or each one will be beside each facility.

See answers to 10 (b) above.

- j) Drawings refer to IDS system, but it is not required on scope of work so please confirm that no IDS system is required for this facility.

No IDS is required

15- Regarding Section 01010, Para. 4.2.5.1" Munitions Assembly Conveyor (MAC) ", it states" Provide lightning protection, site lighting", please clarify the following:

- k) If it is required Airfield lighting or flood light for the apron.

Interior lighting is required to be installed under the PEB roof structure to light that working area, and also pole mounted exterior lighting is required for the concrete pad work area outside the PEB.

16- Regarding Section 01010, Para. 4.2.5.2" Surveillance and Inspection Facility ", please clarify the following:

- l) Please provide us with the requirements for this area.

Please see updated Sec 01010, para. 4.2.2. as clarified in Amendment 0002, and the "For Reference Only" drawings.

- m) Clarify if it is required lighting or any electrical system. , if yes please provide us with its' technical requirements.

Please see updated Sec 01010, para. 4.2.2. as clarified in Amendment 0002, and the "For Reference Only" drawings.

- n) Clarify if it is required security system, if yes please provide us with its' technical requirements.

Please see updated Sec 01010, para. 4.2.2. as clarified in Amendment 0002, and the "For Reference Only" drawings.

17 Regarding Section 01010, Para.4.2.6.3 "Administration Facility", please clarify the following:

- o) Will this stand-by generator back-up power be located at the new Power Plant? Or each one will be beside each facility.

See answers to 10 (b) above.

- p) Confirm that Lightning Protection system is not required for this facility.

Yes as per updated Sec 01010, para. 4.2.6.3 as clarified by Amendment 0003.

- q) Confirm that Fire Alarm system is not required for this facility.

Fire alarm system is required. Please see the "For Reference Only" drawings provided in the RFP.

18 Regarding Section 01010, Para.4.2.8.1.1 "Electrical System", it refers to electrical power distribution system, please clarify under which bid item in Proposal Schedule it will be priced.

Include pricing in Bid Item 0002AC

- 19 Regarding Section 01010, Para.4.2.8.1.3 "Electrical System", it refers to construct an emergency back-up power system, please clarify the following:
- a. Under which bid item in Proposal Schedule it will be priced.
Include pricing in Bid Item 0002AC
 - b. If it is required Power Plant facility for this emergency back-up power system.
Clarified by Amendment 0003, Sec 01010, para. 4.2.8.1.3
 - c. For which facilities in ASP this emergency back-up power system will be serviced.
Clarified by Amendment 0003, Sec 01010, para. 4.2.8.1.3
- 20 Regarding Section 01010, Para.4.2.8.2.1 "ECP", it states "Provide conduits access for telephone and NIPR, Emergency back-up power is required at the gatehouse", please clarify the following:
- a. Under which bid item the stand-by generator back-up power will be priced.
Include pricing in Bid Item 0002AC
 - b. Confirm that it is required only exterior empty conduits for telephone and NIPR
Correct.
- 21 Regarding Section 01010, Para.4.2.8.2.5 "Security Lighting", it refers to design and construct a perimeter mast mounted security lighting system along the new perimeter fence, please clarify under which bid item in Proposal Schedule it will be priced.
Include pricing in Bid Item 0002AC
- 22 Regarding Section 01010, Para.4.2.8.4 "Exterior Lighting", it refers to design and construct a mast mounted exterior lighting system, please clarify under which bid item in Proposal Schedule it will be priced.
Include pricing in Bid Item 0002AC
- 23 Regarding Section 01015, Para.8.4.1 " ELECTRICAL DISTRIBUTION SYSTEM ", it states "The contractor shall provide a power plant building sized to contain the required back-up generators and their associated switchgear", please clarify under which bid item in Proposal Schedule the Power Plant will be priced.
Include pricing in Bid Item 0002AC
- 24 Referring to section 01010, Para. 1.8.2.4 It refers to 27 ea of ECM and 2ea of AGM but on Proposal Schedule it is required 27 ea of ECM and 3ea of AGM, it seems a conflict please advise.
Clarified in Amendment 0001 and 0002. Also revised on updated Master Plan drawing provided in Amendment 0003. 27 ECMs and 3 AGMs in the base item.
- 25 Referring to section 01010, Para. 4.2.5.1, MAC facility, it refers to hazardous classified location requirements but this area will be sunshade without any walls, please advise.

This is a requirement to be determined by the Contractor during design. If required by cited regulations, fixtures and power supply shall meet those regulations.

26 Regarding drawing (AB-A-01) for Administration building, please confirm that we will follow the dimensions on drawings.

Correct.

27 Regarding Section 01010, Para.4.2.6.2 "Trailer Maintenance Facility", please advise how many maintenance bays will be required for this facility.

One bay is required under the metal arch enclosure

28 Regarding drawings for Guard Towers, please confirm that no Guard Towers are required for the current project.

Correct.

29 Regarding Section 01010, Para.4.2.7 "ROADS", please clarify the following:

a) Confirm that no exterior lighting is required for any roads.

See Section 01010, para. 4.2.8.4. Road lighting is required to be designed and constructed by the Contractor.

b) If it is required exterior lighting please specify for which roads and provide us with its' technical requirements.

Criteria is indicated in Section 01015 in referenced regulations. Provide as indicated along all new roads within the ASP.

30 Regarding Section 01010, Para.4.2.8.3 "LIGHTNING PROTECTION SYSTEM", it states "The Contractor shall design and construct the system to conform to Section 01015, Technical Requirements – Design-Build", but it is not mentioned to Lightning Protection System on section 01015, please advise.

In accordance with reference NFPA 780

31 Referring to Above Ground Magazines (AGM) drawings it is mentioned to IDS but it is not required on section 01010 or section 01015 for this facility, please advise if it is required in our scope of work or not.

Not required.

32 Referring to Guard House drawings it is mentioned to Fire Alarm System but it is not required on section 01010 or section 01015 for this facility, please advise if it is required in our scope of work or not.

Not required

33 Referring to Vehicle inspection drawings; this facility is neither mentioned in Proposal schedule or section 01010 or in section 01015, please advise if it is required in our scope of work, if yes please inform us under which bid item it will be priced.

No facility is required. A paved area however is required as shown in the Master Plan drawing.

MECHANICAL QUESTIONS

- 34 Refer to SOW Para.# 4.2.8.6 please clarify the location and flow information (flow rate, pressure,...) for the connection point of existing potable water supply system to supply water for this project.

There is no known existing potable water supply connection. Non-potable water distribution line is shown on drawing C-048 in Water Main folder.

- 35 Refer to SOW Para. # 4.2.8.7 please clarify if the contractor responsible to connect the wastewater collection system to the future base-wide sanitary sewer infrastructure? If yes please clarify location of this base.

There is no known connection point and no known existing base-wide sanitary sewer infrastructure. Intent is that the Contractor identify a suitable location for future connection to any future base-wide system. Suitable connection point will be discussed during pre-construction meeting and during design phase.

- 36 Please clarify fire protection system scope required for all facilities.

Fire protection is shown for the SI Facility in the "For Reference Only" drawings

- 37 Refer to SOW Para. # 4.2.5.3 Stats that "low pressure compressed air is required in this facility" please clarify which facility.

The SI Facility. Paragraphing is corrected in Amendment 0003.

- 38 Refer to SOW Para. # 4.2.5.1 (munitions assembly conveyor facility) is not mentioned any mechanical scope for that building please clarify.

No known requirements

- 39 Please clarify no. of operating hours per day required to calculate the capacity of fuel storage tank supplying fuel to generator which operating at full capacity of the plant as per section 01015 Para.# 6.5.3.

Clarified in Amendment 0003, Sec 01010, para. 4.2.8.1.3.

- 40 Please advise whether the contractor is responsible for filling fuel storage tanks at the project turnover or not?

Yes.

ARCH QUESTIONS

- 41 Please clarify are drawings under "For Reference only" TMGWM CM SI refer to the three facilities Para. 4.2.2 for "Tactical Missile Glide Weapon Facility, the Conventional Munitions Facility and the Surveillance and Inspection Facility. (i.e. total of 3 ea Buildings)

Correct. The TMGWM and CM facilities have been deleted from RFP requirements.

- 42 Please advise is pay item 0003AD includes the 3 facilities in Para. 4.2.2 Section 01010. If not please, clarify under which pay item will be included.

Clarified by Amendment 0003. The TMGWM and CM facilities have been deleted from RFP requirements.

43 Please locate the deleted windows Para 4.2.2.5 section 01010 on the "For Reference only" drawing.

This requirement deleted as clarified by Amendment 0003.

CIVIL QUESTIONS

44 With regards to ECMs and AGMs, in the proposal schedule, it is mentioned as "site adapt only", whereas in the scope of work, pages 358, paragraphs 4.2.3 and 4.2.4, pre-cast concrete structures are required. Please clarify what is meant by "site adapt" and whether the pre-cast concrete structures are within our scope or not.

The words "site adapt" indicate that the structure designs provided as "For Reference Only" are to be used taking into account the Contractor's geotechnical investigation and any resulting changes based on site conditions. The ECM and AGM are to be precast concrete as indicated.

45 With reference to drawing C-102, Master Plan, an "ADMIN portion of facility" is indicated, whereas it is not mentioned in the RFP. Please clarify if it corresponds to the MAC facility or else.

See para. 4.2.2.2. of Section 01010. Admin facilities are separate from MAC facility.

46 With regards to the Administration Facility, please provide us with the following missing drawings AB-S-03, AB-S-04 and AB-S-05, as per drawing AB-S-02.

"For Reference Only" drawings provided are the only information available.

47 With regards to the Wash Rack Facility, please provide us with the following missing drawings J-2001, J-2002, J-2003, J-2004, J-2005, J-2006, J-2007, J-2008.

These drawings are provided as "For Reference Only" listed as J1781EA96 through J1785EA96, and J2009EA96.

48 With regards to the earth berms, as a very large quantity of backfill material will be needed, please advise whether there is stock of backfill materials in the disposal area inside BAF and can be used in the berms construction, or the contractor will have to obtain Backfill materials from outside the base.

Assume that backfill material will not be available from the base and therefore will need be hauled in from outside the base.

With reference to C-102, Master Plan, a new turn-in facility is indicated whereas it is

Did not receive the rest of this question. However, the turn-in facility has been deleted from the RFP.

GENERAL

49 With regards to storm drainage system, there are two items for drainage:

- Item 0010: Design & Construct approximately 7,500 meters of Storm Collection System
- Item 0014: Design & Construct Storm Drainage Collection System & Dust control for the Deep South

Please specify the scope of work for each item.

Could not find the references made. Provide storm drainage system as per Section 01015, para. 2.7.5.

Planning QUESTIONS

50 Refer to section 01000 "scope of work" subsection 1.8 "project schedule" Para 1.8.2.7 " Once the munitions are moved, the Contractor will be formally notified and authorized to start work on the new In-out Bound Processing Facility which will be done by the government. we need an expected date or duration to start in – out bound facility

The In-out Bound Processing Facility will be done by the Contractor. Duration is unknown. Start date will depend on the Contractor's design/construct schedule as accepted by the Government. The best guess provided in the RFP in para. 1.8.4., Section 01010 is at approximately NTP+399 days.

51 Refer to section 01000 "scope of work" subsection 1.8 "project schedule" Para 1.8.2.9 " On completion of the new BLAHA, the Contractor shall construct the new TMGWM facility including all applicable utilities which will be done by the base so we need an expected date or duration to start construct TMGWM.

The TMGWM facility has been deleted from RFP requirements

52 Please advise within how many days after award the option/s can be exercised.

Government will make the determination and will notify after award.

ARCH QUESTIONS

53 Please provide us with Specification for Earth Covered Magazine Door.

Development of the specification is a requirement of the Contractor during design.

54 Please provide us with spec. section no # 31 for Chain Link Fence.

All available information is provided in the RFP narrative and in the Supporting Information fence drawings.

CIVIL QUESTIONS

55 With regards to the AGMs, please provide us with a detailed description and dimensions for the magazines, as the drawings are not visible.

Adobe PDF files are provided in Amendment 0003.

56 With reference to technical requirements, page 51, paragraph 2.5.4.3 states that there are parking areas, whereas they are not indicated on the drawings. Please clarify if the parking areas are included in our scope or not. If so, please specify their approximate areas.

Parking areas are to be determined during design for the Administration Building and SI facility, and constructed as part of the RFP requirements.

ELECTRICAL QUESTIONS

57 Referring to section 01010, Para. 4.2.3. Earth Covered Magazines (ECM), it isn't mentioned that the interior lighting fixtures classified for the proper hazardous classified location, also drawings of this facility doesn't refer to any classified devices, please confirm that this facility doesn't have any explosion proof material.

Clarification is provided in Amendment 0003. It shall be the Contractor's responsibility to determine hazardous classified location in accordance with referenced regulations.

58 Referring to section 01010, Para. 4.2.4. Above Ground Magazines (AGM), it is mentioned that the interior lighting fixtures classified for the proper hazardous classified location, but its' drawings doesn't refer to explosion proof material, it seems a conflict so please advice.

It shall be the Contractor's responsibility to determine hazardous classified location in accordance with referenced regulations.

59 Please advice providing three portals for ingress/ egress of material handling equipment on each side of the MAC in-spite of being sunscreen with no walls.

(Do the portals are required in the concrete slab/ apron? Please confirm).

The reference to portals concerns the structural design of the PEB structure. Bracing will likely be required in the vertical portions of the structure. The intent is to ensure that equipment can be moved in and out of the facility without hindrance by the structure.

60 Regarding Existing Specs intact files for use in developing the Tactical Missile Glide Weapon Maintenance Facility, Conventional Munitions Facility, and Surveillance and Inspection Facility (TMGWM CM SI) Facilities, there is a specification section 16770A for Radio and Public Address System also (TMGWM CM SI) drawings refer to diagram for this system but Scope of work (Section 01010) and Technical requirements (Section 01015) don't mentioned to this section, so please confirm that this Radio and Public Address system is required for all Tactical Missile Glide Weapon Maintenance Facility

Conventional Munitions Facility, and Surveillance and Inspection Facility which will be constructed under the current project.

The TMGWM and CM facility have been deleted from the RFP. A mass notification system is required for the SI facility, Administration Building, and ECP guard house. This has been clarified in Amendment 0003.

61 Regarding Existing Specs intact files for use in developing the Tactical Missile Glide Weapon Maintenance Facility, Conventional Munitions Facility, and Surveillance and Inspection Facility (TMGWM CM SI)

Facilities, , please advise whether or not these specifications are valid for all facilities which will be constructed under the current project.

Specifications are provided “For Reference Only”. As indicated in the RFP, they are to be used as a basis of design. The Contractor shall update these specifications for use during it’s design and construction.

Mechanical QUESTIONS

62 Please advice if the provision of mechanical material equivalent to specification by DIN / European standard is allowed under this contract.

DIN/European standard is not allowed.

63 Referring to 01015 Technical Requirement Para. # 6.5.3 (generator fuel storage) please clarify contractor responsibility to provide the bulk fuel storage tanks fulfilled at the project turnover or not?

Yes. Clarified in Amendment 0003.

64 For a blast door (Type E). Please provide a rating level PSI/PSF, an elevation for a Type E door and preferably a specification too.

See Specification 08390 provided as part of the “For Reference Only” material for the SI facility.

65. Please send Spec Section 01010 especially paragraph 4.2.8.2.1 for the window units. Glass and Glazing, please provide info for the hardware schedule.

An internet search on the UL-752 requirement will indicate manufacturer/materials meeting this requirement.

GENERAL

66 Please provide us with a revised Proposal Schedule as per the deletions and changes of amendment #2

Provided as per Amendment 3.

CIVIL QUESTIONS

67 Please clarify if the surveillance inspection building is within the scope or not. If this item is still in our scope of work, please specify if the Tactical Missile Glide Weapon Maintenance Facility (TMGWM) and the Conventional Munitions Facility (CM) are included in this item or not.

Surveillance Inspection facility is in the scope. TMGWM and CM facilities have been deleted from the scope.

68 As per amendment#2, page 4, there are two sections 4.2.5.4 and 4.2.5.6 of the Scope of Work mentioned as a reference in the explanation of the bid items. However, these two sections are missing in the Scope of Work. Please clarify and/or provide us with a revised Scope of Work.

Scope for Surveillance Inspection facility has been added to para. 4.2.2 and 4.2.5.2. Para. 4.2.5.4 has been deleted as per Amendment 3. Scope for In/Out Bound Processing facility have been added in para. 4.2.5.3. Para 4.2.5.6 has been deleted.

Mechanical QUESTIONS

69 For the AGM buildings, the reference drawings indicate dry sprinkler fire protection however in the RFP it states the buildings will be heated. Therefore, can we propose wet sprinklers?

Stay with dry sprinkler fire protection system.

1- P-4 to P-8 it is a price table SUPPLIES/ SERVICES

Do not understand question.

2- P-9 to P-12 is a price table which is BOQ. What is different between these two ?

There is no BOQ in this project.

3- Please see page 10 and 11 I have some remarks

Do not understand question.

4- P-51 item: 2.5.4.1. Paved roads are required within the ASP as shown in C-102 Master Plan. There is no master plan is given.

Master Plan is provided.

5- P-56 item: 2.7.4.1 and P-59 item: 3.1 and..... There is no drawings are given.

All reference drawings are provided.

6- P-148 item: 1.6 it says that we should request for drawings the same on pages 357 ,358...

All reference drawings are provided.

7- I need the drawings to make more detail BOQ.

There is no BOQ in this project.

70- Could you please clarify the CLINS between Page 4 through Page 8 and Page 9 through Page 12 (Section 00010, Proposal Schedule). What is different between these two ? If so, the CLINS are different from the other.

Clarified in Amendment 0003.

71- Could you please clarify Page 11 CLIN 003AA, 8AA, 9AA, 12AA, 13AA, 14AA..Is 3AA 27 Earth or 7 earth? Items 8AA, 9AA, 12AA, 13AA,& 14AA the unit is LS but quantity implied 5, 3, 2 respectively.

See updated Section 10a provided in Amendment 0003.

72- Where can we get the adapt site drawings as mentioned in the solicitation.

See <ftp://ftp.usace.army.mil/pub/aed/> under directory name "ASP Section 00555 Referenced Attachments."

73- P-51 item: 2.5.4.1. Could you provide drawing, Paved roads are required within the ASP as shown in C-102 Master Plan.

All reference drawings are provided. Contractor is responsible to provide designs and construction of paved roads using references provided

74- P-56 item: 2.7.4.1 and P-59 item: 3.1; Could you please provide us the drawing.

All reference drawings have been provided.

75- P-148 item: 1.6, page 357 and 368; Could you please provide us the drawing for the mentioned pages.

All reference drawings have been provided.

76. Please note that there are no documents under the following as per amendment 0001

Additional solicitation documents, i.e. drawings, specification etc., can be obtain at website:

<ftp://ftp.usace.army.mil/pub/aed>, select ASP Section 00555 Referenced

Attachments: AGM, ASP As-

Built Drawings, ECM, TMGWM CM SI, Wash Rack and Water Main.

Also some of the files are protected which require an username and password.

Please advise

All updated reference drawings have been provided at ftp site. See answer to 3 above.

77. SOW page 360 Paragraph 4.2.8.1 Electrical system line number

4.2.8.1.2 shows that the system shall connect to the existing BAF electrical distribution system, which the primary voltage shall be 4160/7200 V, 60 hertz or 7200/13800V.60Hz, the Secondary voltage shall be 120/208 V, 60 Hz, as per Drawings/supporting information/existing and ASP photographs designated the existing electrical distribution system is overhead line, and also the site electrical distribution system are include (MV-Cables, step down transformers, LV-cables, installation and other accessories), so kindly please confirm the above saying and specify the connection point to the existing electrical distribution system and also provide in the base bid sheet item to put the price for the site electrical distribution system, there is no room for it.

There is no known power point connection. Assume power connection at North West corner of the ASP compound in the vicinity of the new MAC facility.

Include bid under Bid Item 0002AC.

78. Would you please Indicate the base bid item for price sing of

backup stand-by generators (Ref. to SOW pages 358 up to 361 for the facilities (TMGWM, CM, SI, ECM, AGM, MAC, Administration), or It's allowable to include the price of each backup generators in its own buildings?

TMGWM and CM have been deleted from the RFP. Include generator pricing in Bid Item 0002AC.

79. In/Out Bound and Trailer Maintenance Facilities have barricade on three sides on the master plan, whilst the scope doesn't not include information for barricades at these facilities.

Provide In/Out Bound Pad barricade as per para. 4.2.5.3. in Sec 01010. Trailer Maintenance Facility does not require barricade.

80. Is barricade required at the facilities? If yes, what is the height and type(B1) of the barricade?

See cited reference provided as Supporting Information (Definitive Barricade Design M149-30-01)

1. Could you please inform us if the contractor and its subcontractors will be exempted local Afghani taxes or not?
Contractor will abide by all Afghani tax laws.
2. Could you please inform us if the contractor and its subcontractors will be allowed to use the DFAC inside the Base?
Contractor use of DFAC is not allowed.
3. Could you please inform us if the fuel and water will be provided by the Government for camp and site operations or contractor itself should provide the fuel and water for this contract?
Contractor will provide its own fuel. Limited water usage from the base may be available but can not be confirmed at this time.
4. Could you please provide detailed information about the necessary demolition for the project and who will be the responsible to remove disposal materials? And is there any specific location to store disposals?
There is no borrow pit or available stock of backfill material. Contractor will be responsible to provide that.
5. 73 ea earth covered and 19 ea above ground magazines (site adapt only) are given in the SOW as option. Is construction of magazines a part of these options or only site preparation and earthworks will be considered for those optional items?
27 ECMs and 9 AGMs are covered in Option items and complete facilities (not only site work) will be provided by the contractor.
6. There is not any detailed information about pre-engineered buildings (dimensions, wall and roof cover material specifications, etc..) Could you please provide more detailed information about the buildings?
All reference drawings have been provided in the RFP. Contractor will have to determine this information during design.
7. Are the electrical materials for magazines and other facilities ex-proof or not?
All electrical materials for magazines and other facilities shall conform to all NFPA and other references shown in the RFP.
8. What is the exact location of the existing transformer and what is the power capacity of transformer (kVa)?
**Existing transformer information is unknown at this time.
Assume power connection at North West corner of the ASP compound in the vicinity of the new MAC facility.**
9. Is there any covered building in the Wash Rack facility? Could you please provide detailed drawings and information about this facility?
Wash Rack facility will be designed and constructed as per para. 4.2.6.1, Section 01010.
10. In the sow it has been mentioned that “The As-Built guard house design shall be modified to add a unisex restroom with single lavatory and toilet; approximate four foot (4’) (1.22M) square interior dimension storage room accessible from the interior of the Guard House; and an electrical /communications room to the rear (opposite entry traffic flow) of the existing design.” Could you please provide detailed drawing and information about this facility?
These will be determined by the contractor during design in accordance with cited references/regulations.

11. Are we going to install one grounding rod for each pole along new perimeter fence line?
Provide as per technical manuals/references
12. Are we going to place counterpoise along new perimeter fence line?
Provide as per technical manuals/references
13. In the “Explanation of bid items (section 00010a)” section, given with Amendment 2, it doesn’t mentioned anything about Surveillance and Inspection Facility, Conventional Munitions Facility and Tactical Missile Glide Weapon Maintenance Facility are those facilities still a part of this project? If yes could you please provide detailed drawings and information about these facilities?
CMF and TMGWMF have been deleted from RFP. SI statement of work has been provided in para. 4.2.5.2 of the updated Sec. 01010. SI drawings are included in the folder TMGWM CM SI.
14. There is not any information about Turn-In Facility. Could you please provide more detailed drawings and information about this facility?
Turn-In facility has been deleted from RFP.
15. Will we provide transformers for each building or transformers will be provided by others?
Contractor will provide transformers.
16. Will we provide back-up generator for each facility separately?
See para 4.2.8.1.3, Sec 01010 for facilities requiring back-up generators.
17. Could you provide more detail about power distribution system?
All reference drawings have been provided in this RFP.
18. It seems we will provide exterior lights along new fence in security lighting paragraph but there are not any details. Could you please provide detailed information about this issue?
Security lighting will be designed/constructed by the contractor as per referenced criteria/regulations.
19. It seems we will provide exterior lights along roads in exterior lighting paragraph but there are not any details. Could you please provide detailed information about this issue?
These will be determined by the contractor during design phase in accordance with cited references/regulations.
20. There is not any detailed drawing or information about the thickness of In-Out Bound Processing Facility thickness and backfill section. Could you please provide more detailed drawings and information about this facility?
Technical criteria is provided in para. 4.2.5.3, Sec. 01010
21. In the master plan it seems some existing facilities on the new project area. Is the contractor responsible of the demolition of those facilities or demolition will be made by others?
Clarified by updated Maste Plan C-102 Amend 2.

A question regarding the above project at Bagran Air Base (Ammo Supply point) - I have downloaded the AS-Builts plans - Is there any other plans that I need to down load??
Need to download all drawings/specifications at the ftp site given, including all files in the folders AS-BUILTS, MASTER PLAN, REFERENCE ONLY DRAWINGS and MASTER PLAN-Amendment 2 and others in the ftp site.

SECTION 00010
PROPOSAL SCHEDULE

01 MAY 2009

The Contractor shall provide a price for all items, including those labeled, "Optional Items." The Government will evaluate the Contractor's entire proposal to determine which CLINs represent the best value to the Government.

No.	Description	Qty	Unit	Unit Price	Total Amount
Base Proposal:					
0001 DESIGN:					
0001AA	Planning & Design Costs:	1	LS	_____	\$ _____
Total Design only		_____			\$ _____
0002 SITE IMPROVEMENTS:					
0002AA	Supervision, Safety, Quality Control, Mobilization and Demobilization	1	LS	_____	\$ _____
0002AB	Site Work and Storm Drainage	1	LS	_____	\$ _____
0002AC	Electrical Service, Exterior and Security Lighting, and Information Systems	1	LS	_____	\$ _____
0002AD	Force Protection Measures	1	LS	_____	\$ _____
0002AE	Lightning Protection System	1	LS	_____	\$ _____
0002AF	Water/Wastewater Systems	1	LS	_____	\$ _____
Total Site Improvements only		_____			\$ _____
0003 BUILDINGS:					

0003AA	27 Earth Covered Magazine (Site Adapt Only)	1	LS	_____	\$ _____
0003AB	3 Above Ground Magazines (Site Adapt Only)	1	LS	_____	\$ _____
0003AC	Munitions Assembly Conveyor Facility	1	LS	_____	\$ _____
0003AD	Surveillance and Inspection Facility	1	LS	_____	\$ _____
0003AE	In/Out Bound Pad	1	LS	_____	\$ _____
0003AF	Administration Building	1	LS	_____	\$ _____
0003AG	Wash Rack and Trailer Maintenance Facility	1	LS	_____	\$ _____
0003AH	Roads and Paving	1	LS	_____	\$ _____
Total buildings only				_____	\$ _____
0004	DBA Insurance	1	LS	_____	\$ _____
TOTAL PROPOSAL ITEMS (0001 – 0004)				_____	\$ _____

Option One:

0005 ADDITIONAL MUNITIONS STORAGE:

0005AA	7 Earth Covered Magazines (Site Adapt Only)	1	LS	<u>XXX</u>	\$ _____
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Option Two:

0006 ADDITIONAL MUNITIONS STORAGE:

0006AA	5 Earth Covered Magazines (Site Adapt Only)	1	LS	<u>XXX</u>	\$ _____
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Option Three:

0007 ADDITIONAL MUNITIONS STORAGE:

0007AA	5 Earth Covered Magazines (Site Adapt Only)	5	LS	<u>XXX</u>	\$ _____
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Option Four:

0008 ADDITIONAL MUNITIONS STORAGE:

0008AA	5 Earth Covered Magazine (Site Adapt Only)	5	LS	<u>XXX</u>	\$ _____
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Option Five:

0009 ADDITIONAL MUNITIONS STORAGE:

0009AA	3 Earth Covered Magazine (Site Adapt Only)	3	LS	<u>XXX</u>	\$ _____
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Option Six:

0010 ADDITIONAL MUNITIONS STORAGE:

0010AA	1 Earth Covered Magazine (Site Adapt Only)	1	LS	_____	\$ _____
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Option Seven:

0011 ADDITIONAL MUNITIONS STORAGE:

0011AA	1 Earth Covered Magazine (Site Adapt Only)	1	LS	_____	\$ _____
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Option Eight:

0012 ADDITIONAL MUNITIONS STORAGE:

0012AA	3 Above Ground Magazines (Site Adapt Only)	3	LS	<u>XXX</u>	\$ _____
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Option Nine:

0013 ADDITIONAL MUNITIONS STORAGE:

0013AA	2 Above Ground Magazines (Site Adapt Only)	2	LS	<u>XXX</u>	\$ _____
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Option Ten:

0014 ADDITIONAL MUNITIONS STORAGE:

0014AA	2 Above Ground Magazine (Site Adapt Only)	2	LS	XXX	\$ _____
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Option Eleven:

0015 ADDITIONAL MUNITIONS STORAGE:

0015AA	1 Above Ground Magazine (Site Adapt Only)	1	LS	_____	\$ _____
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Option Twelve:

0016 ADDITIONAL MUNITIONS STORAGE:

0016AA	1 Above Ground Magazine (Site Adapt Only)	1	LS	_____	\$ _____
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TOTAL OPTION ITEMS (0005 – 0012)					\$ _____
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PROPOSAL SCHEDULE NOTES

1. Offeror shall submit prices on all items.
2. Only one contract for the entire schedule will be awarded under this solicitation. This project will be awarded as a Firm Fixed Price contract. This Proposal Schedule is an accounting tool for allocating funds to applicable budget.
3. Costs associated with this project shall include design and construction costs for site, facilities and utilities preparation but, no less than all items as shown in proposal schedule.
4. DESIGN COSTS DEFINITION: Design costs shall consist of preparation of master planning and site designs, plans, drawings, and specifications.
5. NON-DESIGN COSTS DEFINITION: Non-design costs shall include the following: initial site visits; field, topographic, property, boundary, utility, and right-of-way surveys; subsurface explorations and borings; feasibility, functional, and economic studies and other investigations; flow gauging and model testing; preparation or verification of as-built drawings; preparation of general and development criteria; preparation of general and feature design memoranda; services of consultants where not specifically applied to the preparation of working drawings or specifications; construction phase services; models, renderings, or photographs of completed designs; reproduction of designs for review purposes; and travel and per diem allowances in connection with the above excludable services.
6. SEPARATION OF WORK: All work for Design and Construction shall be included in Proposal Items as required in Section 00010 PROPOSAL SCHEDULE and Section 00010a EXPLANATION OF BID ITEMS.

-END OF SECTION-

Section 00010a

EXPLANATION OF BID ITEMS

GENERAL: This section comprises an explanation of the bid items identified in the bid schedule for each item of work. The bid schedule and the contract drawings shall be worked together to identify the various items of work to which each bid item will apply. The Contractor shall bid the work under the applicable bid item for the specific areas identified in the bid schedule.

All work specified herein shall be accomplished in accordance with the requirements of the technical provisions of the specifications and the contract drawings. Payment described for the various bid items will be full compensation for all labor, materials, and equipment required to complete the work. Compensation for any item of work described in the contract but not listed in the bid schedule shall be included in the payment for the item of work to which it is made subsidiary.

BASE BID:

Bid Item 0001 DESIGN:

Payment under Bid Item 0001 will be at the contract lump-sum price and will constitute full compensation for work to be performed under this bid item including all management/technical resources associated with the planning, coordination, written and verbal communication, and required to develop engineering designs, plans, and procedures, not specified to be developed /delivered under another bid item.

Products to be delivered under this bid item include all work associated with the collection and/or generation of required data, and development of all plans, designs, and procedures required by the contract.

Bid Item 0002 SITE IMPROVEMENTS:

Bid Item 0002AA – Supervision, Safety, Quality Control, Mobilization and Demobilization

Payment under Bid Item 0002AA will be at the contract lump-sum price and will constitute full compensation for work to be performed under this bid item including all management/supervision/technical resources and costs associated with (1) implementation and conduct of supervision, safety, and quality control (QC) activities, (2) mobilizing required resources to the project site, (3) establishment of lay down yards and if applicable living support areas, (4) resources necessary to maintain authorized US-Expat and Third Country National personnel during the conduct of this project at the project site, and (5) demobilization and recovery of all contractor occupied lay down yards and living support facilities to the condition they were in at the time of contractor occupation.

Bid Item 0002AB – Site Work and Storm Drainage

Payment under Bid Item 0002AC will be at the contract lump-sum price and will constitute full compensation for work and for all products to be delivered under this bid item. Work shall entail all site work as required by this contract, as outlined in section 4.4. and 4.2.8.8. of the Scope of Work and detailed in the applicable technical specifications and drawing provided by this contract, not incorporated into the cost of other bid items as directly connected ancillary features.

Bid Item 0002AC – Electrical Service, Exterior and Security Lighting, and Information Systems

Payment under Bid Item 0002AC will be at the contract lump-sum price and will constitute full compensation for work and for all products to be delivered under this bid item. Work shall entail the construction/installation of all exterior electrical distribution, lighting, and information system features required by this contract, as outlined in sections 4.2.8.1., 4.2.8.2., 4.2.8.4., and 4.2.8.9. of the Scope of Work and detailed in the applicable technical specifications and drawing provided by this contract, not incorporated into the cost of other bid items as directly connected ancillary features.

Bid Item 0002AD – Force Protection Measures

Payment under Bid Item 0002AD will be at the contract lump-sum price and will constitute full compensation for work and for all products to be delivered under this bid item. Work shall entail the construction/installation of all force protection features required by this contract, as outlined in section 4.2.8.2. of the Scope of Work, and detailed in the applicable technical specifications and drawing provided by this contract, not incorporated into the cost of other bid items as directly connected ancillary features.

Bid Item 0002AE – Lightning Protection System

Payment under Bid Item 0002AD will be at the contract lump-sum price and will constitute full compensation for work for all products to be delivered under this bid item. Work shall entail the construction/installation of all lightning protection features required by this contract, as outlined in section

4.2.8.3. of the Scope of Work, and detailed in the applicable technical specifications and drawing provided by this contract, not incorporated into the cost of other bid items as directly connected ancillary features.

Bid Item 0002AF – Water/Wastewater Systems

Payment under Bid Item 0002AF will be at the contract lump-sum price and will constitute full compensation for work and for all products to be delivered under this bid item. Work shall entail the construction/installation of all water/wastewater system features required by this contract, as outlined in sections 4.2.8.6. and 4.2.8.7. of the Scope of Work, and detailed in the applicable technical specifications and drawing provided by this contract, not incorporated into the cost of other bid items as directly connected ancillary features.

Bid Item 0003 BUILDING:

Bid Item 0003AA – Earth Covered Magazines

Payment under Bid Item 0003AA will be at the contract lump-sum price and will constitute full compensation for work and for all products to be delivered under this bid item. Work shall entail the construction of twenty-seven (27) precast concrete earth covered magazines and all directly connected ancillary features and products as outlined in section 4.2.3. of the Scope of Work, and detailed in the applicable technical specifications and drawing provided by this contract.

Bid Item 0003AB – Above Ground Magazines

Payment under Bid Item 0003AB will be at the contract lump-sum price and will constitute full compensation for work and for all products to be delivered under this bid item. Work shall entail the construction of three (3) precast concrete structures with reinforced concrete slab and footings, a metal roof system, personnel and overhead doors, and earth barricade on three sides, and all directly connected ancillary features and products as outlined in section 4.2.4. of the Scope of Work, and detailed in the applicable technical specifications and drawing provided by this contract.

Bid Item 0003AC – Munitions Assembly Conveyor Facility

Payment under Bid Item 0003AC will be at the contract lump-sum price and will constitute full compensation for work and for all products to be delivered under this bid item. Work shall entail the construction of a Munitions Assembly Conveyor (MAC) Facility and all directly connected ancillary features and products as outlined in section 4.2.5.1. of the Scope of Work, and detailed in the applicable technical specifications and drawing provided by this contract.

Bid Item 0003AD –Surveillance and Inspection Facility

Payment under Bid Item 0003AD will be at the contract lump-sum price and will constitute full compensation for work and for all products to be delivered under this bid item. Work shall entail the construction of a Surveillance and Inspection Facility and all directly connected ancillary features and products as outlined in section 4.2.2. of the Scope of Work, and detailed in the applicable technical specifications and drawing provided by this contract.

Bid Item 0003AE – In/Out Bound Pad

Payment under Bid Item 0003AG will be at the contract lump-sum price and will constitute full compensation for work and for all products to be delivered under this bid item. Work shall entail the construction of an In/Out Bound Pad and all directly connected ancillary features and products as outlined

in section 4.2.5.3. of the Scope of Work, and detailed in the applicable technical specifications and drawing provided by this contract.

Bid Item 0003AF – Administration Building

Payment under Bid Item 0003AI will be at the contract lump-sum price and will constitute full compensation for work and for all products to be delivered under this bid item. Work shall entail the construction of a Administration Facility and all directly connected ancillary features and products as outlined in section 4.2.6.3. of the Scope of Work, and detailed in the applicable technical specifications and drawing provided by this contract.

Bid Item 0003AG – Wash Rack and Trailer Maintenance Facility

Payment under Bid Item 0003AJ will be at the contract lump-sum price and will constitute full compensation for work and for all products to be delivered under this bid item. Work shall entail the construction of a Wash Rack and Trailer Maintenance Facility and all directly connected ancillary features and products as outlined in section 4.2.6.1 and 4.2.6.2 of the Scope of Work, and detailed in the applicable technical specifications and drawing provided by this contract.

Bid Item 0003AH – Roads and Paving

Payment under Bid Item 0003AJ will be at the contract lump-sum price and will constitute full compensation for work and for all products to be delivered under this bid item. Work shall entail the construction of roads and paving and all directly connected ancillary features and products as outlined in section 4.2.7 + 4.2.8.5 of the Scope of Work, and detailed in the applicable technical specifications and drawing provided by this contract.

Bid Item 0004 DBA INSURANCE

Self Explanatory

OPTIONS:

Bid Item 0005 – Option One – ADDITIONAL MUNITIONS STORAGE:

Bid Item 0005AA – Earth Covered Magazines

Payment under Bid Item 0005 will be at the contract lump-sum price and will constitute full compensation for all design and construction work, and for all products to be delivered under this bid item. Work shall entail the design and construction of seven (7) precast concrete earth covered magazines and all directly connected ancillary features and products as outlined in section 4.2.3. of the Scope of Work, and detailed in the applicable technical specifications and drawing provided by this contract.

Bid Item 0006 – Option Two - ADDITIONAL MUNITIONS STORAGE:

Bid Item 0006AA - Earth Covered Magazines

Payment under Bid Item 0006AA will be at the contract lump-sum price and will constitute full compensation for all design and construction work, and for all products to be delivered under this bid item. Work shall entail the design and construction of five (5) precast concrete earth covered magazines and all directly connected ancillary features and products as outlined in section 4.2.3. of the Scope of Work, and detailed in the applicable technical specifications and drawing provided by this contract.

Bid Item 0007 – Option Three - ADDITIONAL MUNITIONS STORAGE:

Bid Item 0007AA - Earth Covered Magazines

Payment under Bid Item 0007AA will be at the contract lump-sum price and will constitute full compensation for all design and construction work, and all products to be delivered under this bid item. Work shall entail the design and construction of five (5) precast concrete earth covered magazines and all directly connected ancillary features and products as outlined in section 4.2.3. of the Scope of Work, and detailed in the applicable technical specifications and drawing provided by this contract.

Bid Item 0008 – Option Four - ADDITIONAL MUNITIONS STORAGE:**Bid Item 0008AA - Earth Covered Magazines**

Payment under Bid Item 0007AA will be at the contract lump-sum price and will constitute full compensation for all design and construction work, and for all products to be delivered under this bid item. Work shall entail the design and construction of five (5) precast concrete earth covered magazines and all directly connected ancillary features and products as outlined in section 4.2.3. of the Scope of Work, and detailed in the applicable technical specifications and drawing provided by this contract.

Bid Item 0009 – Option Five - ADDITIONAL MUNITIONS STORAGE:**Bid Item 0009AA - Earth Covered Magazines**

Payment under Bid Item 0007AA will be at the contract lump-sum price and will constitute full compensation for all design and construction work, and for all products to be delivered under this bid item. Work shall entail the design and construction of three (3) precast concrete earth covered magazines and all directly connected ancillary features and products as outlined in section 4.2.3. of the Scope of Work, and detailed in the applicable technical specifications and drawing provided by this contract.

Bid Item 0010 – Option Six - ADDITIONAL MUNITIONS STORAGE:**Bid Item 0010AA - Earth Covered Magazines**

Payment under Bid Item 0010AA will be at the contract lump-sum price and will constitute full compensation for all design and construction work, and for all products to be delivered under this bid item. Work shall entail the design and construction of one (1) precast concrete earth covered magazine and all directly connected ancillary features and products as outlined in section 4.2.3. of the Scope of Work, and detailed in the applicable technical specifications and drawing provided by this contract.

Bid Item 0011 – Option Seven - ADDITIONAL MUNITIONS STORAGE:**Bid Item 0011AA - Earth Covered Magazines**

Payment under Bid Item 0011AA will be at the contract lump-sum price and will constitute full compensation for all design and construction work, and for all products to be delivered under this bid item. Work shall entail the design and construction of one (1) precast concrete earth covered magazine and all directly connected ancillary features and products as outlined in section 4.2.3. of the Scope of Work, and detailed in the applicable technical specifications and drawing provided by this contract.

Bid Item 0012 – Option Eight - ADDITIONAL MUNITIONS STORAGE:**Bid Item 0012AA – Above Ground Magazines**

Payment under Bid Item 0012AA will be at the contract lump-sum price and will constitute full compensation for all design and construction work. and for all products to be delivered under this bid item. Work shall entail the design and construction of three (3) precast concrete structures with

reinforced concrete slab and footings, a metal roof system, personnel and overhead doors, and earth barricade on three sides, and all directly connected ancillary features and products as outlined in section 4.2.4 of the Scope of Work, and detailed in the applicable technical specifications and drawing provided by this contract.

Bid Item 0013 – Option Nine - ADDITIONAL MUNITIONS STORAGE:

Bid Item 0013AA – Above Ground Magazines

Payment under Bid Item 0013AA will be at the contract lump-sum price and will constitute full compensation for all design and construction work, and for all products to be delivered under this bid item. Work shall entail the design and construction of two (2) precast concrete structures with reinforced concrete slab and footings, a metal roof system, personnel and overhead doors, and earth barricade on three sides, and all directly connected ancillary features and products as outlined in section 4.2.4 of the Scope of Work, and detailed in the applicable technical specifications and drawing provided by this contract.

Bid Item 0014 – Option Ten - ADDITIONAL MUNITIONS STORAGE:

Bid Item 0014AA – Above Ground Magazines

Payment under Bid Item 0014AA will be at the contract lump-sum price and will constitute full compensation for all design and construction work, and all products to be delivered under this bid item. Work shall entail the design and construction of two (2) precast concrete structures with reinforced concrete slab and footings, a metal roof system, personnel and overhead doors, and earth barricade on three sides, and all directly connected ancillary features and products as outlined in section 4.2.4 of the Scope of Work, and detailed in the applicable technical specifications and drawing provided by this contract.

Bid Item 0015 – Option Eleven - ADDITIONAL MUNITIONS STORAGE:

Bid Item 0015AA – Above Ground Magazine

Payment under Bid Item 0015AA will be at the contract lump-sum price and will constitute full compensation for all design and construction work, and all products to be delivered under this bid item. Work shall entail the design and construction of one (1) precast concrete structure with reinforced concrete slab and footings, a metal roof system, personnel and overhead doors, and earth barricade on three sides, and all directly connected ancillary features and products as outlined in section 4.2.4 of the Scope of Work, and detailed in the applicable technical specifications and drawing provided by this contract.

Bid Item 0016 – Option 12 - ADDITIONAL MUNITIONS STORAGE:

Bid Item 0016AA – Above Ground Magazine

Payment under Bid Item 0016AA will be at the contract lump-sum price and will constitute full compensation for all design and construction work, and all products to be delivered under this bid item. Work shall entail the design and construction of one (1) precast concrete structure with reinforced concrete slab and footings, a metal roof system, personnel and overhead doors, and earth barricade on three sides, and all directly connected ancillary features and products as outlined in section 4.2.4 of the Scope of Work, and detailed in the applicable technical specifications and drawing provided by this contract.

- END OF EXPLANATION OF BID ITEMS -

SECTION 00555

DESIGN CONCEPT DOCUMENTS

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- 1.2. ENGINEERING AND DESIGN CRITERIA
- 1.3. SPECIFICATIONS
- 1.4. ORDER OF PRECEDENCE
- 1.5. MANDATORY CRITERIA
- 1.6. ADDITIONAL DOCUMENTS/CRITERIA FURNISHED BY THE GOVERNMENT
- 1.7. DOCUMENTS ISSUED WITH THE RFP
 - 1.7.1. Master Plan
 - C-101 Project Location Plan .dwg
 - C-101 Project Location Plan .pdf
 - C-102 Master Plan Amd 0002 .dwg
 - C-102 Master Plan Amd 0002. Pdf
 - Master Plan Shape Files .SHP and associated files th basis for the Explosives Safety Site Pland
and incorporated in the master Plan .dwg
 - 1.7.2. Supporting Information
 - 1.7.3. "For Reference Only" Drawings and Specifications

PART 2 PRODUCTS Not Used
PART 3 EXECUTION Not Used

SECTION 00555

DESIGN CONCEPT DOCUMENTS

PART 1 GENERAL

1.1. GENERAL

This section identifies documents issued with this Request for Proposal (RFP) which establish the concept or basis for the project design. See Paragraph 1.7 below. These requirements are minimum standards and may be exceeded by the Offeror. Deviations from these concepts and standards may be approved if considered by the Government to be in its best interests.

The extent of development of these requirements in no way relieves the successful Offeror from the responsibility of completing the design, construction documentation, and construction of the facility in conformance with applicable criteria and codes.

1.2. ENGINEERING AND DESIGN CRITERIA

General design requirements are set forth in this RFP herein. No design criteria will be furnished by the Afghanistan Engineer District except that which may be required for design and is not available from commercial sources or from the Construction Criteria Base (CCB) or 'Techinfo' website located at <http://www.wbdg.org/ccb/>. The references within CCB must be obtained by the A/E if the criteria are required or desired. All design, unless otherwise specified, shall be based on nationally recognized industry standard, criteria, and practice.

1.3. SPECIFICATIONS

Specifications included herein shall be utilized as design criteria and minimum standards for the corresponding construction work. The successful Offeror shall develop complete construction specifications using the criteria included in these specifications.

The Government will provide Division 1 specifications sections as required, to the successful Offeror; and these sections shall be included in the final construction specifications without change. The Contractor shall furnish these specifications on electronic media for the production of construction specifications when requested. These specifications shall be submitted together with other required contractor prepared project construction documents during the Second Design Submittal of the Design Phase, Part II.

1.4. ORDER OF PRECEDENCE

In case of conflict, duplication, or overlap of design criteria specified in the documents referenced in this section, the following order of precedence shall be followed:

1. Contract Award Document and referenced publications therein.
2. Written requirements supersede drawings.

1.5. MANDATORY CRITERIA

Portions of the design criteria documents provide mandatory criteria. Mandatory criteria consists of drawings, schematics, specifications, and other requirements which shall not be altered or modified for proposal submittal or subsequent final design except for minor adjustments for coordination or except for cost reduction proposals as specified in Section 00150 - THE DESIGN BUILD PROCESS. Non-

mandatory criteria shall be considered minimum requirements and may be enhanced, improved, or substituted to better suit design requirements or to improve evaluation consideration. Mandatory requirements are as listed below. All other design criteria shall be considered non-mandatory.

Work Plan

Boundary survey plan

Topographic survey plan

Any mandatory criteria referenced within Project Program.

Any other criteria listed herein which is listed, shown or implied as mandatory.

1.6. ADDITIONAL DOCUMENTS/CRITERIA FURNISHED BY THE GOVERNMENT

The following documents will be furnished to the Design/Build Contractor when requested by the Offeror or Contractor:

Design Criteria published by the Government such as Technical Manuals (TM), Engineer Manuals (EM), Engineer Technical Letters (ETL) and other documents related to the design referenced herein which are not available on the Internet, including the CCB website.

Commercial design criteria and specifications will not be furnished by the Government.

Conversion of electronic media to other formats shall be the responsibility of the Contractor.

1.7. DOCUMENTS ISSUED WITH THE RFP

1.7.1. Master Plan

C-101 Project Location Plan.dwg

C-101 Project Location Plan.pdf

C-102 Master Plan.dwg

C-102 Master Plan.pdf

Master Plan Shape Files

.SHP and associated files the basis for the Explosives Safety Site Plan and incorporated in the Master Plan.dwg

1.7.2. Supporting Information

07_fe8fena1.dwg, 07_fe8fena1.pdf,
10_fe7gate.dwg, 10_fe7gated.pdf

Standard fence details referenced in Paragraph 4.2.8.2.2., Section 01010 Scope of Work

Definitive Barricade Design
M149-30-01.pdf

Barricade requirement referenced in Paragraph 4.2.4., Section 01010 Scope of Work

AR 190-11 15 Nov 06.pdf

Signage and perimeter security lighting requirements referenced in Paragraphs 4.2.8.2.4. and 4.2.8.2.5., Section 01010 Scope of Work

Draft Cover Ltr for ESSP.doc
Bagram ASP ESSP Feb 09.pdf

Draft cover letter and Explosives Safety Site Plan submitted for DDESB approval.

Existing ASP Photographs
19 Mar 08.ppt

Existing conditions at the ASP on 19 March 2008

AFM 91-201 18 Oct 01

Five criteria documents required for design and

DA Pam 385-64 15 Dec 99.pdf construction of explosives storage facilities
 DDESB June 2004 Approved Protective Construction.pdf
 DOD 6055.09-STD 29 Feb 08.pdf
 DODI 6055.16 29 Jul 08.pdf

CENTCOM Joint Security Directorate Antiterrorism/Force Protection Guide.pdf CENTCOM force protection criteria

Appendix 2 to Annex V to USCENTCOM OPOD 05-01, Force Protection Construction Standards.pdf Unclassified extract of CENTCOM force protection criteria

1.7.3. "For Reference Only" Drawings and Specifications

Above Ground Magazine. No AutoCad files available.

A-1 Floor Plan, Elevations, Sections, Door & Finish Color Schedules.tif
 A-2 Wall Sections, Details.tif
 E-1 Site Plan, Details, General Notes, Legend.tif
 E-2 Floor Plan, Fixture & Panel Schedule, Details.tif
 E-3 Lightning Protection Plan, Diagrams, Details.tif
 M-1 Site Plan, Details, General Notes, Legend.tif
 M-2 Floor Plan, Sections, Details.tif
 S-1 Foundation & Roof Framing Plans, Notes.tif
 S-2 Panel Elevations, Details.tif
 S-3 Panel Elevations, Details.tif

Above Ground Magazine PDF Drawings

A-1 Floor Plan, Elevations, Sec Amd 0002.pdf
 A-2 Wall Sections, Details Amd 0002.pdf
 E-1 Site Plan, Details, General Amd 0002.pdf
 E-2 Floor Plan, Fixture & Panel Amd 0002.pdf
 E-3 Lightning Protection Plan Amd 0002.pdf
 M-1 Site Plan, Details, General Amd 0002.pdf
 M-2 Floor Plan, Sections, Details Amd 0002.pdf
 S-1 Foundation & Roof Framing Amd 0002.pdf
 S-2 Panel Elevations, Details Amd 0002.pdf
 S-3 Panel Elevations, Details Amd 0002.pdf

Existing ASP As-Built AutoCad Drawings

WW-S-02 Septic Tank Plans and Sections.dwg
 AB-A-01 Floor Plan.dwg
 AB-A-02 Roof Plan and Reflected Ceiling Plan.dwg
 AB-A-03 Exterior Elevations and Building Sections.dwg
 AB-E-01 Panel Schedules and Riser Diagrams.dwg
 AB-E-02 Grounding Plan.dwg
 AB-E-03 Lighting Plan.dwg
 AB-E-04 Power Plan.dwg
 AB-E-05 Communication Fire Alarm Plan.dwg
 AB-M-01 Mechanical Floor Plan.dwg
 AB-P-01 Plumbing Floor Plan.dwg

AB-P-02 Domestic Water Floor Plan.dwg
AB-S-01 Foundation Plan.dwg
AB-S-02 Roof Framing Plan.dwg
GH-A-01 Plan, Section and Elevations.dwg
GH-E-01 Electrical Layout.dwg
GH-M-01 HVAC Floor Plan and Schedule.dwg
GH-S-01 Foundation and Roof Plan.dwg
GT-A-01 Ground, First Floor Plans, Elevations & Sections.dwg
GT-E-01 Electrical Layout.dwg
GT-M-01 HVAC Floor Plan and Schedule.dwg
GT-S-01 RFT. Details of Foundations and Columns.dwg
GT-S-02 Reinforcement Details of First Floor and Roof.dwg
LP-E-01 Lightning Protection and Grounding Site Plan.dwg
SW-C102 Standard Civil Abbreviations & Legend.dwg
SW-C110 Demolition Site Plan.dwg
SW-C150 Ammunition Explosive Arcs.dwg
SW-C200 Overall Site Plan.dwg
SW-C201 Site Plan - 01.dwg
SW-C202 Site Plan - 02.dwg
SW-C203 Site Plan - 03.dwg
SW-C204 Site Plan - 04.dwg
SW-C205 Site Plan - 05.dwg
SW-C206 Site Plan - 06.dwg
SW-C207 Site Plan - 07.dwg
SW-C208 Site Plan - 08.dwg
SW-C209 Site Plan - 09.dwg
SW-C210 Site Plan - 10.dwg
SW-C211 Site Plan - 11.dwg
SW-C212 Site Plan - 12.dwg
SW-C300 Overall Grading and Drainage Plan.dwg
SW-C301 Grading and Drainage Plan - 01.dwg
SW-C302 Grading and Drainage Plan - 02.dwg
SW-C303 Grading and Drainage Plan - 03.dwg
SW-C304 Grading and Drainage Plan - 04.dwg
SW-C305 Grading and Drainage Plan - 05.dwg
SW-C306 Grading and Drainage Plan - 06.dwg
SW-C307 Grading and Drainage Plan - 07.dwg
SW-C308 Grading and Drainage Plan - 08.dwg
SW-C309 Grading and Drainage Plan - 09.dwg
SW-C310 Grading and Drainage Plan - 10.dwg
SW-C311 Grading and Drainage Plan - 11.dwg
SW-C312 Grading and Drainage Plan - 12.dwg
SW-C403 Utility Plan - 03.dwg
SW-C801 Road Profile - 01.dwg
SW-C802 Road Profile - 02.dwg
SW-C803 Road Profile - 03.dwg
SW-C804 Road Profile - 04.dwg
SW-C805 Road Profile - 05.dwg
SW-C806 Road Profile - 06.dwg
SW-C901 Details.dwg
SW-C902 Sections.dwg
SW-C903 Concrete Texas Barrier Details.dwg
SW-C904 Details.dwg
SW-C905 Fence Details.dwg
SW-C906 Details.dwg

VI-A-01 Floor Plan.dwg
VI-A-02 Roof Plan and Reflected Ceiling Plan.dwg
VI-A-03 Exterior Elevation.dwg
VI-E-01 Panel Schedule and Riser Diagrams.dwg
VI-E-02 Grounding Plan.dwg
VI-E-03 Lighting Plan.dwg
VI-E-04 Power Plan.dwg
VI-E-05 Communication Fire Alarm Plan.dwg
VI-S-01 Foundation Plan.dwg
WT-A-01 Plans.dwg
WT-A-02 Section, Elevations and Details.dwg
WT-E-01 Water Booster Pump Station, Panel Schedule and Riser Diagrams.dwg
WT-E-02 Water Booster Pump Station Lighting System Layout.dwg
WT-E-03 Water Booster Pump Station Power and Grounding System Layout.dwg
WT-E-04 Water Booster Pump Station Fire Alarm System Layout.dwg
WT-P-01 Well House Water Booster Pump Station.dwg
WT-P-02 Well Pump and Booster Pump Details.dwg
WT-S-01 Water Booster Pump Station Foundation Plan and Sections.dwg
WW-C-01 Septic Tank and Leaching Field Plan.dwg
WW-S-01 Distribution Box Plans and Section.dwg

Existing ASP As-Built PDF Drawings

WW-S-02 Septic Tank Plans and Sections.pdf
AB-A-01 Floor Plan.pdf
AB-A-02 Roof Plan and Reflected Ceiling Plan.pdf
AB-A-03 Exterior Elevations and Building Sections.pdf
AB-E-01 Panel Schedules and Riser Diagrams.pdf
AB-E-02 Grounding Plan.pdf
AB-E-03 Lighting Plan.pdf
AB-E-04 Power Plan.pdf
AB-E-05 Communication Fire Alarm Plan.pdf
AB-M-01 Mechanical Floor Plan.pdf
AB-P-01 Plumbing Floor Plan.pdf
AB-P-02 Domestic Water Floor Plan.pdf
AB-S-01 Foundation Plan.pdf
AB-S-02 Roof Framing Plan.pdf
GH-A-01 Plan, Section and Elevations.pdf
GH-E-01 Electrical Layout.pdf
GH-M-01 HVAC Floor Plan and Schedule.pdf
GH-S-01 Foundation and Roof Plan.pdf
GT-A-01 Ground, First Floor Plans, Elevations & Sections.pdf
GT-E-01 Electrical Layout.pdf
GT-M-01 HVAC Floor Plan and Schedule.pdf
GT-S-01 RFT. Details of Foundations and Columns.pdf
GT-S-02 Reinforcement Details of First Floor and Roof.pdf
LP-E-01 Lightning Protection and Grounding Site Plan.pdf
SW-C102 Standard Civil Abbreviations & Legend.pdf
SW-C110 Demolition Site Plan.pdf
SW-C150 Ammunition Explosive Arcs.pdf
SW-C200 Overall Site Plan.pdf
SW-C201 Site Plan - 01.pdf
SW-C202 Site Plan - 02.pdf
SW-C203 Site Plan - 03.pdf
SW-C204 Site Plan - 04.pdf

SW-C205 Site Plan - 05.pdf
SW-C206 Site Plan - 06.pdf
SW-C207 Site Plan - 07.pdf
SW-C208 Site Plan - 08.pdf
SW-C209 Site Plan - 09.pdf
SW-C210 Site Plan - 10.pdf
SW-C211 Site Plan - 11.pdf
SW-C212 Site Plan - 12.pdf
SW-C300 Overall Grading and Drainage Plan.pdf
SW-C301 Grading and Drainage Plan - 01.pdf
SW-C302 Grading and Drainage Plan - 02.pdf
SW-C303 Grading and Drainage Plan - 03.pdf
SW-C304 Grading and Drainage Plan - 04.pdf
SW-C305 Grading and Drainage Plan - 05.pdf
SW-C306 Grading and Drainage Plan - 06.pdf
SW-C307 Grading and Drainage Plan - 07.pdf
SW-C308 Grading and Drainage Plan - 08.pdf
SW-C309 Grading and Drainage Plan - 09.pdf
SW-C310 Grading and Drainage Plan - 10.pdf
SW-C311 Grading and Drainage Plan - 11.pdf
SW-C312 Grading and Drainage Plan - 12.pdf
SW-C403 Utility Plan - 03.pdf
SW-C801 Road Profile - 01.pdf
SW-C802 Road Profile - 02.pdf
SW-C803 Road Profile - 03.pdf
SW-C804 Road Profile - 04.pdf
SW-C805 Road Profile - 05.pdf
SW-C806 Road Profile - 06.pdf
SW-C901 Details.pdf
SW-C902 Sections.pdf
SW-C903 Concrete Texas Barrier Details.pdf
SW-C904 Details.pdf
SW-C905 Fence Details.pdf
SW-C906 Details.pdf
VI-A-01 Floor Plan.pdf
VI-A-02 Roof Plan and Reflected Ceiling Plan.pdf
VI-A-03 Exterior Elevation.pdf
VI-E-01 Panel Schedule and Riser Diagrams.pdf
VI-E-02 Grounding Plan.pdf
VI-E-03 Lighting Plan.pdf
VI-E-04 Power Plan.pdf
VI-E-05 Communication Fire Alarm Plan.pdf
VI-S-01 Foundation Plan.pdf
WT-A-01 Plans.pdf
WT-A-02 Section, Elevations and Details.pdf
WT-E-01 Water Booster Pump Station, Panel Schedule and Riser Diagrams.pdf
WT-E-02 Water Booster Pump Station Lighting System Layout.pdf
WT-E-03 Water Booster Pump Station Power and Grounding System Layout.pdf
WT-E-04 Water Booster Pump Station Fire Alarm System Layout.pdf
WT-P-01 Well House Water Booster Pump Station.pdf
WT-P-02 Well Pump and Booster Pump Details.pdf
WT-S-01 Water Booster Pump Station Foundation Plan and Sections.pdf
WW-C-01 Septic Tank and Leaching Field Plan.pdf
WW-S-01 Distribution Box Plans and Section.pdf

Definitive Design 421-80-06 Earth Covered Magazine AutoCad Files incorporating March 2002 revision.

- S-18 Roof Section & Details.dwg
- AFCOV Drawing Index and Cover Sheet.dwg
- E-1 Grounding Plan.dwg
- E-2 Miscellaneous Details.dwg
- S-1 Foundation and Floor Plan.dwg
- S-2 Building Sections.dwg
- S-3 Elevations.dwg
- S-4 Foundation Front Elevation and Section.dwg
- S-5 Section and Details.dwg
- S-6 Sections & Details.dwg
- S-7 Building Sections.dwg
- S-8 Building Details.dwg
- S-9 6.75 Door Frame Assembly Mar 02.dwg
- S-10 6.75 Left Door Assembly Mar 02.dwg
- S-11 6.75 Right Door Assembly Mar 02.dwg
- S-12 6.75 Right Door Assembly Details Mar 02.dwg
- S-13 6.75 Door Details Mar 02.dwg
- S-14 Precast Panels Sections & Details.dwg
- S-15 Precast Panels Details.dwg
- S-16 Roof Panel Plan.dwg
- S-17 Roof Sections & View.dwg

Definitive Design 421-80-06 Earth Covered Magazine PDF Files incorporating March 2002 revision.

- AFCOV Drawing Index and Cover Sheet.pdf
- E-1 Grounding Plan.pdf
- E-2 Miscellaneous Details.pdf
- S-1 Foundation and Floor Plan.pdf
- S-2 Building Sections.pdf
- S-3 Elevations.pdf
- S-4 Foundation Front Elevation and Section.pdf
- S-5 Section and Details.pdf
- S-6 Sections & Details.pdf
- S-7 Building Sections.pdf
- S-8 Building Details.pdf
- S-9 6.75 Door Frame Assembly Mar 02.pdf
- S-10 6.75 Left Door Assembly Mar 02.pdf
- S-11 6.75 Right Door Assembly Mar 02.pdf
- S-12 6.75 Right Door Assembly Details Mar 02.pdf
- S-13 6.75 Door Details Mar 02.pdf
- S-14 Precast Panels Sections & Details.pdf
- S-15 Precast Panels Details.pdf
- S-16 Roof Panel Plan.pdf
- S-17 Roof Sections & View.pdf
- S-18 Roof Section & Details.pdf

Existing AutoCad files for use in developing the Tactical Missile Glide Weapon Maintenance Facility, Conventional Munitions Facility, and Surveillance and Inspection Facility (TMGWM CM SI) Facilities

- A-001 Life Safety Plan.dwg
- A-101 Floor Plan.dwg
- A-102 Dimension Floor Plan.dwg
- A-103 Reflected Ceiling Plan.dwg

A-104 Roof Plan.dwg
A-201 Building Elevations.dwg
A-301 Building Sections.dwg
A-401 Wall Sections.dwg
A-402 Enlarged Details.dwg
A-501 Enlarged Floor Plans and Details.dwg
A-601 Door Schedule Types and Details.dwg
A-602 Door Details.dwg
C-101 Demolition Plan.DWG
C-102 Site Layout Plan.DWG
C-103 Grading and Drainage Plan.DWG
C-104 Utility Plan.DWG
C-501 Construction Details.DWG
C-502 Construction Details.DWG
E-101 Electrical Legend, Schedules and Notes.dwg
E-102 Electrical Site Plan.dwg
E-103 Electrical Lighting Plan.dwg
E-104 Electrical Power Plan.dwg
E-105 Electrical Systems Plan.dwg
E-106 Electrical Grounding & Lightning Protection Plan.dwg
E-107 Electrical Riser Diagrams.dwg
E-108 Panel Board Schedules.dwg
E-109 Lightning Protection System.dwg
E-110 Lightning Protection System Legend & Details.dwg
F-101 Fire Protection Plan.dwg
G-003 Abbreviations and Symbols.dwg
I-601 Finish Schedule.dwg
M-101 HVAC Legend, Schedules & Notes.dwg
M-102 HVAC Legend, Schedules & Notes.dwg
M-103 HVAC New Work Plan.dwg
M-104 HVAC Details.dwg
M-105 HVAC Controls and Details.dwg
P-101 Plumbing Legend, Schedules, Details & Notes.dwg
P-102 Plumbing Plan.dwg
P-103 Plumbing Riser Diagrams.dwg
P-104 Plumbing Details and Riser Diagrams.dwg
S-001 General Notes and Wind Diagrams.dwg
S-101 Foundation Plan.dwg
S-102 Roof Framing Plan.dwg
S-103 Dumpster Enclosure Plan & Details.dwg
S-201 Building Section.dwg
S-202 Building Section.dwg
S-203 Building Elevation.dwg
S-204 Building Elevation.dwg
S-205 Building Elevation.dwg
S-206 Building Elevation.dwg
S-207 Building Elevation.dwg
S-208 Building Elevation.dwg
S-209 Building Elevation.dwg
S-301 Wall Sections.dwg
S-302 Sections and Details.dwg
S-401 Framing Sections.dwg
S-402 Framing Sections.dwg
X-101 Cathodic Protection Plan.dwg
X-102 Cathodic Protection Details.dwg

Existing PDF files for use in developing the Tactical Missile Glide Weapon Maintenance Facility, Conventional Munitions Facility, and Surveillance and Inspection Facility (TMGWM CM SI) Facilities

A-001 Life Safety Plan.pdf
A-101 Floor Plan.pdf
A-102 Dimension Floor Plan.pdf
A-103 Reflected Ceiling Plan.pdf
A-104 Roof Plan.pdf
A-201 Building Elevations.pdf
A-301 Building Sections.pdf
A-401 Wall Sections.pdf
A-402 Enlarged Details.pdf
A-501 Enlarged Floor Plans and Details.pdf
A-601 Door Schedule Types and Details.pdf
A-602 Door Details.pdf
C-101 Demolition Plan.pdf
C-102 Site Layout Plan.pdf
C-103 Grading and Drainage Plan.pdf
C-104 Utility Plan.pdf
C-501 Construction Details.pdf
C-502 Construction Details.pdf
E-101 Electrical Legend, Schedules and Notes.pdf
E-102 Electrical Site Plan.pdf
E-103 Electrical Lighting Plan.pdf
E-104 Electrical Power Plan.pdf
E-105 Electrical Systems Plan.pdf
E-106 Electrical Grounding & Lightning Protection Plan.pdf
E-107 Electrical Riser Diagrams.pdf
E-108 Panel Board Schedules.pdf
E-109 Lightning Protection System.pdf
E-110 Lightning Protection System Legend & Details.pdf
F-101 Fire Protection Plan.pdf
G-003 Abbreviations and Symbols.pdf
I-601 Finish Schedule.pdf
M-101 HVAC Legend, Schedules & Notes.pdf
M-102 HVAC Legend, Schedules & Notes.pdf
M-103 HVAC New Work Plan.pdf
M-104 HVAC Details.pdf
M-105 HVAC Controls and Details.pdf
P-101 Plumbing Legend, Schedules, Details & Notes.pdf
P-102 Plumbing Plan.pdf
P-103 Plumbing Riser Diagrams.pdf
P-104 Plumbing Details and Riser Diagrams.pdf
S-001 General Notes and Wind Diagrams.pdf
S-101 Foundation Plan.pdf
S-102 Roof Framing Plan.pdf
S-103 Dumpster Enclosure Plan & Details.pdf
S-201 Building Section.pdf
S-202 Building Section.pdf
S-203 Building Elevation.pdf
S-204 Building Elevation.pdf
S-205 Building Elevation.pdf
S-206 Building Elevation.pdf
S-207 Building Elevation.pdf

S-208 Building Elevation.pdf
S-209 Building Elevation.pdf
S-301 Wall Sections.pdf
S-302 Sections and Details.pdf
S-401 Framing Sections.pdf
S-402 Framing Sections.pdf
X-101 Cathodic Protection Plan.pdf
X-102 Cathodic Protection Details.pdf

Existing Specsintact files for use in developing the Tactical Missile Glide Weapon Maintenance Facility,
Conventional Munitions Facility, and Surveillance and Inspection Facility (TMGWM CM SI) Facilities

01330.SEC
01415.SEC
01452A.SEC
01500A.SEC
02220a.SEC
02230a.SEC
02300a.SEC
02315a.SEC
02316a.SEC
02364a.SEC
02510a.SEC
02531a.SEC
02532a.SEC
02675.SEC
02754a.SEC
02760a.SEC
02921a.SEC
02922a.SEC
03100a.SEC
03150a.SEC
03200a.SEC
03300.SEC
04200a.SEC
05120a.SEC
05210a.SEC
05300a.SEC
05400a.SEC
05500a.SEC
06100a.SEC
06650.SEC
07132a.SEC
07190.SEC
07220a.SEC
07412a.SEC
07600a.SEC
07840a.SEC
07900a.SEC
08110.SEC
08210.SEC
08330a.SEC
08390.SEC
08710.SEC
09200a.SEC

09225A.SEC
09250A.SEC
09310A.SEC
09510A.SEC
09650A.SEC
09720A.SEC
09900A.SEC
09915.SEC
10100A.SEC
10160A.SEC
10260A.SEC
10430A.SEC
10440A.SEC
10505N.SEC
10800A.SEC
11310A.SEC
12320A.SEC
13100A.SEC
13110.SEC
13851A.SEC
13920A.SEC
13930A.SEC
14602A.SEC
15050A.SEC
15080A.SEC
15212A.SEC
15400A.SEC
15500A.SEC
15730A.SEC
15895A.SEC
15951A.SEC
15990A.SEC
15995A.SEC
16370A.SEC
16375A.SEC
16415A.SEC
16770A.SEC

Existing PDF files for use in developing the loading dock for the Surveillance and Inspection Facility (SI) Facility. No AutoCad files are available.

A-2 Elevations.pdf
S-1 Foundation Plan.pdf

Existing AutoCad files for use in developing the wash rack.

J1781EA96.dwg
J1782EA96.dwg
J1783EA96.dwg
J1784EA96.dwg
J1785EA96.dwg
J2009EA96.dwg

Existing PDF files for use in developing the wash rack.

J1781EA96.pdf
J1782EA96.pdf
J1783EA96.pdf
J1784EA96.pdf
J1785EA96.pdf
J2009EA96.pdf

Planned extension of existing BAF water distribution system referenced in Paragraph 4.2.8.6., Section 01010 Scope of Work.

C-048 Water Distribution System Partial Layout 14 Feb 09.pdf

PART 2 PRODUCTS

Not Used.

PART 3 EXECUTION

Not Used.

-- End of Section --

SECTION 01010

SCOPE OF WORK

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 - 1.5. IMPACTS TO TREATIES, AGREEMENTS, AND/OR UNDERSTANDINGS
 - 1.6. ENGLISH LANGUAGE REQUIREMENT
 - 1.7. SUBMITTALS
 - 1.8. PROJECT SCHEDULE
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 - 1.8.3. Work Breakdown Structure (WBS)
 - 1.8.4. Milestones
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 - 1.10. CONTRACTOR LIFE SUPPORT AREA (LSA)
 - 1.11. ENVIRONMENTAL CONSIDERATIONS
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- 3. SAFETY
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 - 3.2. Activity Hazard Analysis (AHA) Briefings
 - 3.3. Unexploded Ordnance (UXO)
 - 3.4. Limitation of Working Space
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 - 4.2. AMMUNITION SUPPLY POINT STRUCTURE DESCRIPTIONS
 - 4.2.1. "For Reference Only" Drawings
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 - 4.2.5. Processing Facilities
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 - 4.2.6. Outbuildings
 - 4.2.6.1. Wash Rack
 - 4.2.6.2. Equipment Maintenance Facility
 - 4.2.6.3. Ammunition Administration Facility
 - 4.2.7. Roads
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 - 4.2.8.4. Exterior Lighting System
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- 4.2.8.6. WaterSystem
- 4.2.8.7. Sanitary Sewer System
- 4.2.8.8. Storm Drainage
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- 4.3. SITE PLANNING
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 - 4.4.1. Coordination & Compliance with Bagram Mine Action Center Guidance & Instructions
 - 4.4.2. Demolition and Grading
 - 4.4.3. Disposition of Construction Debris
- 4.5. LIFE SAFETY
- 4.6. FOUNDATION DESIGN
- 5. COMPLETION OF WORK
- 6. SPARE PARTS
- 7. REFERENCES

1. GENERAL

1.1. PROJECT DESCRIPTION

1.1.1. This project consists of the design and construction of an Ammunition Supply Point (ASP) and ancillary support features at Bagram Airfield (BAF), Afghanistan.

a. The Contractor shall design and construct the ASP including individual facilities part of this project resulting in a complete and useable project. The Contractor shall design and construct all related site work including, but not limited to, pavement, unpaved roads, site drainage, force protection, and utilities including fire protection, lightning protection, power distribution and site lighting.

b. This project is defined as the design, material, labor, and equipment to deliver such products and take such actions as may be specified and required pursuant to the provisions of this scope of work, the instructions and specifications in Section 01015, Technical Requirements – Design-Build, the instructions and specifications in the other sections of this Request for Proposal (RFP), the Master Plan drawings and “For Information Only” drawings provided in this RFP, and applicable US, DOD, & International industry standards and codes.

c. This is a design-build contract with facility "For Reference Only" drawings provided as shown in Section 00555, Design Concept Documents that have been coordinated with, and approved by the user, as the basis of design requiring incorporation by the Contractor of the requirements shown in Paragraph 4.2 below and elsewhere in this RFP. When developing drawings and specifications for these facilities, the Contractor shall not alter, change, amend, adjust, or deviate from the "For Reference Only" drawings and requirements elsewhere in this RFP without the prior express written concurrent of the US Government. The US Government reserves the right to reject any requested/proposed changes, amendments, adjustments, or deviations to the basis of design "For Reference Only" drawings provided as part of this RFP.

d. When developing designs and drawings for the munitions storage magazines, the Contractor shall only site adapt the drawings for the Earth Covered Magazines. The Contractor shall not alter, change, amend, adjust, or deviate from the standard definitive "For Reference Only" drawings for the Earth Covered Magazines, without the prior express written concurrent of the US Government. The US Government reserves the right to reject any requested/proposed changes, amendments, adjustments, or deviations to the standard definitive "For Reference Only" drawings for the Earth Covered Magazines, and shall require adherence to the provided designs/drawings: Air Force Modular Storage Magazine, Box-Type STD 421-80-06 (Drawing Code 84416 to 84436).

e. See paragraph 1.7. Section 00555 Design Concept Documents for a complete listing of supporting information and “For Reference Only” drawings and specifications provided in this RFP.

1.1.2. The site for the ASP is located on the northeastern side of the aircraft runway. There is an existing ASP within the footprint of the new ASP to be designed and constructed in accordance with the requirements of this RFP. The existing ASP shall remain in operation as this project is constructed. As-built “For Information Only” drawings for the existing ASP prepared in 2003 are provided. The information contained in these as-built drawings shall be verified by the Contractor.

1.1.3. The US Government prepared Master Plan drawing shall be utilized by the Contractor when preparing its design. An approved master plan for this project (and future projects not required in this RFP) at the ASP is provided. This master plan was approved by the Installation Commander on 17 November 2008. Components of this master plan are related to procedures established by the DOD, Army, and Air Force for the safety of operation of the ASP. Locations of individual ammunition storage or processing facilities relative to the various explosive safety arcs shown in the master plan to be designed and constructed as part of this RFP shall not be shifted. Slight adjustments in the location of other facilities part of the RFP shall be permitted based on verification of existing site conditions and approval

of the Contractor's design.

1.1.4. The master plan is currently being submitted by others for approval of the site layout including ammunition storage and processing quantities by the Department of Defense Explosives Safety Board (DDESB). Final approval is anticipated prior to award of this contract. Approval documentation shall be provided to the Contractor when it becomes available. The Contractor shall prepare and submit final design drawings through the Contracting Officer's Representative (COR) as directed by the COR for final approval by the DDESB documenting design and construction in accordance with the master plan.

1.1.5. Work performed and products delivered to the US Government pursuant to the provisions of this contract shall be constructed in accordance with the applicable US and International Building Codes, National Fire Protection Association Life Safety Codes, force protection and security standards, National Electrical Codes (NEC), and Unified Facility Criteria (UFC) electrical standards. A listing of applicable US, DOD, and International industry standards, codes, and reference documents is provided in Section 01015, Technical Requirements – Design-Build.

1.1.6. The Contractor shall mobilize such resources as may be necessary and demolish such features of the existing ASP as specified in this scope of work. The Contractor shall construct Earth Covered Magazines, Above Ground Magazines, Processing Facilities, Outbuildings, Roads., and Support Facilities including electrical service, force protection measures, lighting protection systems, paving, water/wastewater service, storm drainage, and information systems, . Upon completion of construction activities the Contractor shall demobilize all materials to which the US Government does not obtain title.

1.2. SECURITY AND FORCE PROTECTION

1.2.1. BAF is an active Military Installation. The Base Commander has the legal authority and is empowered to take such actions as may be prudent and reasonable to ensure the security of the base and the health and safety of all personnel on the base.

1.2.2. Prior to the start of any field activity the Contractor shall coordinated all actions with the COR and Base Operations. The Contractor shall ensure all personnel the Contractor desires be admitted to the base are processed through Base Security, and obtain such clearances, badges, and/or access authorizations as may be required by Base Operations.

1.2.3. The Contractor, to include any and all personnel brought onto BAF pursuant to the conduct of this contract, shall be cognizant of the following:

1.2.3.1. The Contractor, to include any and all personnel brought onto BAF pursuant to the conduct of this contract shall not depart, deviate, or differ from any way, shape, form, or manner from written or/or verbal guidance or instructions concerning safety and/or force protection provided by an authorized representative of the Base Commander.

1.2.3.2. If at any time the Contractor, and/or any personnel brought onto BAF pursuant to the conduct of this contract, fail to be in full and strict compliance with any verbal and/or written guidance or instructions concerning safety and/or force protection provided by an authorized representative of the Base Commander, the Contractor and/or any personnel brought onto BAF pursuant to the conduct of this contract may immediately be removed from the base.

1.2.3.3. At the discretion of the Contracting Officer and/or the Base Commander personnel removed from the base for non-compliance with security and/or force protection guidance or instructions may be refused re-admittance to the base for as long as the Contracting Officer and/or the Base Commander may deem appropriate.

1.2.3.4. The Contractor will be held solely and entirely responsible for any consequences, costs, or delays that may result based upon any work stoppages or delays associated with the Contractors' failure to be in

full and strict compliance with any verbal and/or written guidance or instructions provided by an authorized representative of the Base Commander.

1.3. INSTRUCTIONS TO THE CONTRACTOR

1.3.1. The Contractor shall comply with the provisions of this RFP following award. The only individual authorized to amend, change, alter, adjust, or modify the provisions of the contract is the US Government Contracting Officer (KO), or if one is appointed, the Administrative Contracting Officer (ACO).

1.3.2. The COR is authorized to interpret the instructions of the KO/ACO, but is not authorized to change, modify, or amend the provisions of the contract. No other individual is authorized to interpret the intent of the KO/ACO.

1.3.3. The Contractor shall undertake no action outside the scope of work for this contract, and/or undertake any action that may increase the value of this contract, without the explicit written direction of the responsible KO/ACO.

1.3.4. The Contractor shall immediately contact the KO/ACO and request guidance if the Contractor perceives an action is not within the scope of work for this contract and/or may result in an increase in the value of this contract. The Contractor shall not incur any costs "at risk".

1.4. COMMUNICATIONS WITH THIRD PARTIES

1.4.1. After award of this contract, the Contractor shall make no written or verbal statements to; (1) any non-US Government individuals and/or groups, and (2) any US Government personnel or organization not directly related to the management of this contract, with the exception of Base Operations personnel performing security/force protection functions; concerning work performed under the provisions of this contract without first receiving approval of the KO/ACO and clearance from Base Operations.

1.4.2. Written and/or verbal communications with actual or potential sub-contractors concerning work those sub-contractors are or may be performing pursuant to the provisions of this contract is permitted, given any communications with actual or potential sub-contractor is strictly limited to work the sub-contract is or may be contracted to perform. A brief summary of communications with sub-contractors shall be incorporated into the applicable daily quality control report submitted by the Contractor.

1.5. IMPACTS TO TREATIES, AGREEMENTS, AND/OR UNDERSTANDINGS

1.5.1. This scope of work, associated specifications, and/or the construction/operation of the facilities to be created pursuant to this contract do not create any obligations, commitments, or requirements on the part of the US Government beyond those obligations, commitments, or requirements already in-force based upon existing bi-lateral or multilateral treaties, agreements, and/or understandings.

1.5.2. This scope of work, associated specifications, and/or the construction/operation of the facilities to be created pursuant to this contract do not amend, adjust, or in any way alter any obligations, commitments, or requirements of existing bi-lateral or multilateral treaties, agreements, and/or understandings on the part of the US Government.

1.6. ENGLISH LANGUAGE REQUIREMENT

1.6.1. All documents prepared, and all conversations conducted, pursuant to work to be performed by the Contractor under the provisions of this contract shall be in the English language. If any documents or portions of documents prepared pursuant to the requirements of this contract are written in English and any other language, the English text/version shall be the only official version.

1.6.2. The Contractor shall have a minimum of one English-speaking representative on-site at all times when work is in progress. The Contractor's on-site representative shall be capable of effectively communicating, both orally and in writing, with the COR.

1.7. SUBMITTALS

Submittals and a Submittal Register are required as specified in Section 01335, Submittal Procedures for Design-Build Projects of the RFP. Upon approval/concurrence of submittals required by the provisions of this contract, this scope of work, the instructions and specifications in Section 01015, Technical Requirements – Design-Build, and in coordination with Base Operations, the Contractor shall execute the provisions of those approved submittals.

1.8. PROJECT SCHEDULE

1.8.1 General

1.8.1.1. The Contractor shall prepare a project schedule in accordance with Section 00132, Network Analysis Schedules (NAS). The Contractor shall schedule tasks associated with the construction of munitions storage facilities located south of the current ASP footprint as precursors to tasks associated with the demolition of existing munitions storage facilities and construction of new operating/munitions storage facilities within the current ASP footprint. The schedule shall be coordinated with Base Operations, the BAF Mine Action Center, and the ASP Manager.

1.8.1.2. The Contractor shall submit the schedule as a Primavera Project Planner (P3) software file. The work breakdown structure (WBS) shall include all work activities necessary to perform the work specified in the contract. The Contractor shall provide an explanation supporting the durations of the work activities and the relationships between the activities, The Contractor shall ensure the schedule conforms to the period of performance specified in the contract.

1.8.1.3. The Contractor shall load costs into the schedule file. The Contractor shall be able to crosswalk the costs in the schedule file with the costs provided in the bid schedule.

1.8.1.4. After approval of the schedule by the US Government the Contractor shall maintain the project schedule in accordance with the requirements of this contract.

1.8.2. General Schedule of Work Activities

1.8.2.1. The following is a simplified overview of the sequence of events associated with the work to be performed. It is not all inclusive and is provided to assist the Contractor with an understanding of the required sequence of events, and with the development of their Project Schedule. The Project Schedule to be prepared by the Contractor shall identify all work activities to be accomplished, the duration and relationships between those work activities, and critical path activities.

1.8.2.2. The information provided in this subsection does not release the Contractor of the contractual responsibility to independently generate a Project Schedule, or negate or super cede any technical specifications/requirements provided by other sections of this contract.

1.8.2.3. Work on this project will be divided into a number of main phases

- Mobilization
- Design
- Construction of a New Munitions Storage Area (south of the existing ASP footprint)
- Construction of Out Buildings (inside the existing ASP footprint)
- Construction of Munitions Operating Facilities (inside the existing ASP footprint)

- Demobilization

1.8.2.4. After gaining access to the base, mobilizing and establishing a lay down yard (and if applicable a life support area), and receiving approval for final Cleared for Construction drawings and specifications, the Contractor is to construct 27 ECM's and 2 AGM's in a new munitions storage area. This new munitions storage area is to be located to the south of the current ASP, outside the foot print of the existing ASP. The Contractor will not have access into the ASP at this phase of the project. The Contractor shall construct the new ECM's and AGM's, applicable force protection features, applicable utilities (including but not limited to electrical, water, wastewater, information/communications, etc.), applicable ancillary features/systems (including but no limited to roads, drainage features, etc.) for this portion of the site as may be dictated by the provisions of this contract.

1.8.2.5. All construction in the new munitions storage area shall be complete prior to the Contractor being authorized to proceed with work on the other aspects of this project. A final inspection of the new munitions storage area shall be conducted and all punch list deficiencies shall be corrected. Upon completion of this phase of the project, the Contractor shall evacuate all their personnel, equipment, and materials from within the footprint of the new munitions storage area. Once removed from the new munitions storage area the Contractor shall no longer have access to this area.

1.8.2.6. The Contractor shall shift its construction efforts to the outbuildings in the northeast corner of the existing ASP (the new administration building, wash rack and new trailer maintenance facility, access road, and entry control point). The Contractor shall construct the entry control point (ECP), access road and any other applicable force protection features, applicable utilities (including but not limited to electrical, war, wastewater, information/communications, etc.) and applicable ancillary features/ systems (roads, drainage features, etc.) for this portion of the site as may be dictated by the provisions of this contract. During this time the Government will transfer munitions from the old magazines to the new magazines, and a de-mining contractor (done as a separate project not included in this contract) will start demolition of the old magazines.

1.8.2.7. Once the munitions are moved, the Contractor will be formally notified and authorized to start work on the new In-out Bound Processing Facility. Once that operating facility is constructed the Air Force will temporarily transfer their Munitions Assembly Conveyor (MAC) operation to the new In-out Bound Processing Facility, and the Contractor can demolish the existing MAC facility and construct the new MAC facility on that location. After the new MAC facility is constructed the Contractor can proceed with construction of the remaining operating facilities in accordance with the approved project schedule. Concurrent with the construction of the munitions operating facilities the Contractor shall construct all applicable utilities (including but not limited to electrical, water, wastewater, information/communications, etc.) , and applicable ancillary features/systems (including but not limited to roads, drainage features, etc.) for this portion of the site as may be dictated by the provisions of this contract.

1.8.2.8. Concurrent with the construction of the munitions operating facilities, the base will start construction of a new Basic Load Ammunition Handling Area (BLAHA) and will demolish the existing BLAHA (done as a separate project not part of this contract).

1.8.2.9. On completion of the new BLAHA, the Contractor shall construct the new TMGWM facility including all applicable utilities (including but not limited to electrical, water, wastewater, information/communications, etc.) , and applicable ancillary features/systems (including but not limited to roads, drainage features, etc.)

1.8.2.10. Upon completion of all construction activities, successful correction of all deficiencies noted on final inspections, and fulfillment of any other contract requirements, the Contractor shall demobilize all personnel, equipment, and materials for which title does not reside with the US Government, from the base.

1.8.2.11. In accordance with Section 00010, Proposal Schedule, Section 00010a, Explanation of Bid Items, and other requirements of this RFP, the Contractor shall design and construct up to 27 additional ECMs in a new munitions storage area as per provided ECM "For Reference Only" drawings included in the RFP. 27 precast concrete structures will be based on definitive design 421-80-06 with reinforced concrete front portal wall covered by compacted soil, with hinged steel doors at the front portal wall. ECMs will be built as per following option schedule:

- Option 1: 7 ECMs
- Option 2: 5 ECMs
- Option 3: 5 ECMs
- Option 4: 5 ECMs
- Option 5: 3 ECMs
- Option 6: 1 ECM
- Option 7: 1 ECM

In accordance with Section 00010, Proposal Schedule, Section 00010a, Explanation of Bid Items, and other requirements of this RFP, the Contractor shall also design and construct up to 9 additional AGMs in a new munitions storage area as per provided AGM "For Reference Only" drawings included in the RFP. 9 precast concrete structures consist of reinforced concrete slab and footings, a metal roof system, personnel and overhead doors, and earth barricade on three sides. AGMs will be built as per following option schedule:

- Option 8: 3 AGMs
- Option 9: 2 AGMs
- Option 10: 2 AGMs
- Option 11: 1 AGM
- Option 12: 1 AGM

It is anticipated that as many ECMs will be constructed as possible before additional AGMs are constructed.

1.8.3. Work Breakdown Structure (WBS)

1.8.3.1. A Project Schedule to be prepared by the Contractor shall identify all work activities to be accomplished, the duration and relationships between those work activities, and identify critical path activities. The WBS and associated work elements (WE) below are provide as an example of the general framework for this project. It is not all inclusive and will need to be adapted by the Contractor; it does not relieve the contractor of the responsibility to develop a WBS.

WE 01 – Planning + Design

- WE 01.01 - Pre-Construction Meeting and Design Charrette
- WE 01.02 - 35% Design Submittals + draft Work Plans (including site survey and geotechnical investigation)
- WE 01.03 - 65% Design Submittals + draft final Work Plans
- WE 01.04 - 100% Design Submittals + final Work Plans
- WE 01.05 – Cleared for Construction Approval

WE 02 – Mobilization

- WE 02.01 – Base Access Requirements
- WE 02.02 – Establishment of Lay down Yard
- WE 02.03 – Establishment of LSA

WE 03 - Construction Activities

- WE 03.01 - Safety + Quality Control Activities

WE 03.02 – New Munitions Storage Area Activities

WE 03.02.01 – Site Preparation for New Munitions Storage Area

WE 03.02.02 – Construction of ECM

WE 03.02.03 – Construction of AGM

WE 03.02.04 – Construction/Installation of Utilities + Ancillary Features for New

Munitions Storage Area

WE 03.02.05 – Construction of Force Protection Measures for New Munitions Storage

Area

WE 03.02.06 – Final Inspection and Evacuation of New Munitions Storage Area by the

Contractor

WE 03.03 – Out Buildings Activities

WE 03.03.01 – Site Preparation for Out Buildings

WE 03.03.02 – Construction of Administrative Building

WE 03.03.03 – Construction of Wash Rack + Maintenance Facilities

WE 03.03.04 – Construction/Installation of Utilities + Ancillary Features for Out Buildings

WE 03.03.05 – Construction of Force Protection Measures for Out Buildings

WE 03.04 – Munitions Operating Facilities Activities

WE 03.04.01 – Site Preparation for Munitions Operating Facilities

WE 03.04.02 – Construction of In-Out Bound Processing

Facility Pad

WE 03.04.03 – Demolition/Construction of MAC Facility

WE 03.04.04 – Construction of AGM

WE 03.04.05 – Construction of Surveillance and Inspection

Facility

WE 03.04.06 – Construction/Installation of Utilities + Ancillary Features

WE 03.04.07 – Construction of Force Protection Measures

WE 03.05 - Construction Complete

WE 04. - Demobilization

WE 05 - End Period of Performance/Contract Close-Out

1.8.4. Milestones (MS)

All milestones identified below shall be incorporated into the Contractor's Project Schedule:

NTP + 70 days -	MS-01 - Submit 35% design
NTP +112 days -	MS 02 - Submit 65% design
NTP +154 days -	MS 03 - Submit Final design
NTP +189 days	MS 04 - Submit Cleared for Construction design
NTP +160 days -	MS 05 - Mobilization Complete
NTP +231 days -	MS 06 - Site Preparation for Construction of Munitions Storage Area
NTP +385 days -	MS 07 - Construction of Munitions Storage Area Complete
NTP +399 days -	MS 08 - Final Inspection/Evacuation of Munitions Storage Area
NTP +476 days -	MS 09 - Construction of Out-Buildings Complete
NTP +616 days -	MS 10 - Construction of Processing Facilities Complete
NTP +616 days -	MS 11 - Construction/Installation of Utilities + Ancillary Features Complete
NTP +616 days -	MS 12 - Construction Completion
NTP +644 days -	MS 13 - Period of Performance Ends

1.9. CONTRACTOR'S QUALITY MANAGEMENT (CQM) TRAINING REQUIREMENT

Before initiation of project design and construction, the Contractor's Quality Control (QC) Manager shall have completed the U.S. Army Corps of Engineers construction quality management (CQM) course, or

equivalent. Section 01451, Contractor Quality Control requires approval of the Contractor's CQC Plan. That approval is contingent upon the successful completion of this course by the Contractor's Quality Control Manager. The Construction Trades Training Center (CTTC) in Jalalabad, Afghanistan provides a course that satisfies this requirement. Courses are offered at regular intervals. For enrollment and course information contact CTTC at the following:

Mhd. Haris e-mail: mharis@afghanreconstruction.org Telephone: 0700 08 0602

Pervaiz e-mail: adpz muj@yahoo.com Telephone: 0700 61 3133

1.10 CONTRACTOR LIFE SUPPORT AREA (LSA)

1.10.1. If requested in writing by the Contractor, and if on-base real estate is available, the Government may provide real estate to the Contractor for the establishment of an on-base LSA. Only US passport holding individuals and authorized third-country nationals (TCN) shall reside within the LSA. Unless specifically authorized in writing, no local nationals shall be permitted to reside over-night within the LSA. Additional guidance and requirements concerning the LSA is provided in the Special Clauses section (see section 1.3).

1.10.2. The Contractor shall be responsible for construction and subsequent operation and maintenance (O&M) of the LSA. All structures and features to be located on the LSA shall conform to the same codes (building, electrical, safety, etc) that are applicable to the construction of structures/features to be delivered under this contract. Unless otherwise stipulated, the Contractor shall be responsible for all utilities and services associated with supporting their operations at the LSA.

1.10.3. The Contractor shall comply will all applicable base rules, regulations, guidance, and instructions. Failure to adhere to base rules/regulations/guidance/instructions may result in the Government evicting the Contractor from the LSA (in this case the "Government" is to be interpreted as the KO and/or the Base Commander). The Government will provide a written explanation of the rationale supporting the eviction, but the Government need not provide any warning or notice prior to the eviction, nor is there any appeal to the decision of the Government. The Contractor shall vacate the LSA in accordance with Government instructions. If the Contractor is evicted from the LSA the Government for failure to comply with applicable base rules, regulations, guidance, and instructions, the US Government shall not be responsible for any cost associated with the eviction or establishment of a new LSA, and no time extensions to the contract schedule shall be authorized.

1.10.4. The Government may request the Contractor evacuate the LSA. The Government will endeavor to provide as much advance notice as practical to the Contractor prior to the required evacuation date. If on-base real estate is available, the Government may offer that real estate to the Contractor for the establishment of a replacement LSA. If the evacuation is not the result of a failure on the part of the Contractor to comply with applicable base rules, regulations, guidance, and instructions, the costs associated with the evacuation/re-establishment of the LSA may be grounds for compensation.

1.10.5. Unless otherwise stipulated or agreed, the Contractor shall be responsible for returning on-base real estate used for a LSA to the Government in the same condition it was provided. The Contractor shall be responsible for costs associated with any removal/disposal of debris/wastes, damages, and/or environmental contamination resulting from the Contractors' occupation of the LSA.

1.10.6. See Paragraph 1.3. Section 00160 SPECIAL CLAUSES for additional information.

1.11. ENVIRONMENTAL CONSIDERATIONS

1.11.1. During the conduct of activities at BAF, the Contractor shall comply with all applicable and appropriate US and Host Nation laws, rules, regulations, and/or standards. During the conduct of work to be performed under this contract the Contractor shall:

- Take such actions and shall cause to be created such measures as may be reasonable and prudent to preclude the unplanned release of hazardous or toxic materials to the environment.
- Take such actions and shall cause to be created such measures as may be reasonable and prudent to preclude erosion at the project site.
- Take such actions and shall cause to be created such measures as may be reasonable and prudent to ensure the storage and disposal of hazardous and/or toxic wastes is conducted in a manner protective of human health and the environment.
- Take such actions and shall cause to be created such measures as may be reasonable and prudent to ensure solid waste is properly stored and disposed of at a location to be designated by the Contracting Officers Representative (COR).
- Not permit the incineration of solid wastes at or in the vicinity of the project site.
- Take such actions and shall cause to be created such measures as may be reasonable and prudent to ensure sanitary wastes are managed and disposed of in a manner protective of human health and the environment.

1.11.2. In the event of an unplanned/unauthorized release of hazardous materials and/or waste to the environment, the contractor shall, in accordance with their spill prevention, control, and countermeasures plan, take such measures as may be reasonable and prudent to:

- Protect human health of site workers and personnel in the vicinity of the release.
- Contain the spread of released hazardous materials/wastes.
- Report the release.

1.11.3. Measures to be created and actions to be taken to ensure the protection of the environment and human health shall be documented in the contractors' Health, Safety, and Emergency Response Plan, and/or the Contractors **Spill** Prevention, Control, and Countermeasure (**SPCC**) Plan.

2. LOCATION

The site is located in Bagram, Afghanistan at BAF.

3. SAFETY

3.1. General

3.1.1. All activities conducted pursuant to the requirements of this contract shall comply with all applicable and appropriate US and Host Nation health & safety laws, rules, regulations, and/or standards.

3.1.2. All activities to be conducted pursuant to this contract shall be accomplished in strict adherence to the provisions of the most current version of the US Army Corps of Engineers Safety and Health Requirements Manual, 385-1-1, "Safety Manual", and such other references as may be designated by the Contracting Officer.

3.1.3. The Contractor shall prepare a safety & health and emergency response plan, and have that plan concurred with by the Contracting Officer, prior to the start of field operations.

3.1.4. Safety training, signage, and briefings shall be conducted in English and the native languages of the workers on the site.

3.2. Activity Hazard Analysis (AHA) Briefings

3.2.1. Activity Hazard Analysis's shall be prepared in accordance with the US Army Corps of Engineers Safety and Health Requirements Manual, EM 385-1-1.

3.2.2. Hazard analyses will be prepared and briefed by personnel that are knowledgeable in UXO and explosives safety standards and requirements. These personnel should understand the specific operational requirement and hazard analysis methodologies. A hazard analysis will be performed for each activity to determine the significance of any potential explosive-related hazards. Explosive residues may be discovered or exposed during Unexploded Ordnance (UXO) removal operations in the form of powder or various granular and powder based pellets. These contaminants can enter the body through the skin or by ingestion if proper personal hygiene practices are not followed. Explosive fillers such as white phosphorus are dangerously reactive in air and acute exposure can result in serious injury to the skin, eyes, and mucous membranes. They are also a fire hazard.

3.2.3. Safety requirements (or alternatives) that will either eliminate the identified hazards, mitigate or control them to reduce the associated risks to an acceptable level will be developed. The adequacy of the operational and support procedures that will be implemented to eliminate, control, or abate identified hazards or risks will then be evaluated and a second risk assessment completed to verify that a satisfactory safety level has been achieved.

3.2.4. Notification of Noncompliance

The Contracting Officer will notify the Contractor of any detected noncompliance with the foregoing requirements. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, 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 stopping all or part of the work until satisfactory corrective action has been taken. The Contractor shall make no part of the time lost due to such stop orders the subject of claim for extension of time or for excess costs or damages.

3.3 Unexploded Ordnance (UXO)

3.3.1. The contractor is not responsible for the clearance or removal of any potentially explosive device (i.e., munitions, land mines and/or unexploded ordnance UXO).

3.3.2. It is the responsibility of the Contractor to be aware of the risk of encountering potentially explosive materials (e.g., unexploded ordnance [UXO]) and to take all actions necessary to assure a safe work area to perform the requirements of this contract. The Contractor assumes the risk of any and all personal injury, property damage or other liability arising out of or resulting from any Contractor action taken hereunder.

3.3.3. The Contractor and its subcontractors shall not handle, work with, move, transport, render safe, or attempt to disarm any potentially explosive device, unless they have appropriate accreditations from the BAF Mine Action Center (MAC).

3.3.4. If during construction, the Contractor becomes aware of or encounters UXO or potential UXO, the Contractor shall immediately stop work at the site of encounter, move to a safe location, notify the COR, and mitigate any delays to scheduled or unscheduled contract work. Once the Contractor has informed the COR, the Contractor shall keep all workers in a safe location and await further direction from the COR.

3.3.5. If a potentially explosive device is encountered during project construction, disposal of such a device shall be handled in accordance with Section 01015, Technical Requirements – Design-Build.

3.3.6. See Paragraph 1.64.1, Section 00160 SPECIAL CLAUSES, and Section 01015, Technical Requirements – Design-Build for additional information.

3.4 Limitation of Working Space

3.4.1. The Contractor shall, except where required for service connections or other special reason(s) and with the prior coordination of the COR, confine his operations strictly within the boundaries of the site. All Contractor, subcontractor, visitor, and vendor personnel brought onto BAF at the request of the Contractor pursuant to this contract shall not be permitted to trespass on adjoining property. Any operations or use of space outside the boundaries of the site shall be by arrangement with all interested parties and with the prior concurrence of the COR.

3.4.2. At all times and in all situations the Contractor shall have and retain positive control and accountability on any personnel brought onto BAF pursuant to this contract. Should the Contractor fail to maintain positive control and accountability on applicable personnel, work may be halted until positive control and accountability is regained. Any work stoppages or delays associated with the Contractors' failure to maintain positive control and accountability shall not be recompensed by the US Government, nor will any time extensions be allowed.

3.4.3. Due to safety and security reasons, the Contractor shall take all practical steps to prevent any personnel brought onto BAF pursuant to this contract from entering adjoining property. In the event of trespass occurs, the Contractor will be held entirely solely responsible for any consequences and costs that may result based upon the actions of such personnel. Personnel violating this provision of the contract may at the discretion of the Contracting Officer and/or Base Commander be immediately removed from the installation, and may be denied re-entry onto the installation.

4. SUMMARY OF WORK

4.1. CONTRACTOR REQUIREMENTS

The Contractor shall design and construct the facilities in conformance with this scope of work. Should the Contractor believe there is a conflict between this scope of work, and Section 01015 Technical Requirements for Design-Build or any other specifications or information provided in this Request for Proposal (RFP), the Contractor shall bring that conflict to the attention of the Government as soon as it is identified. The Government will provide clarification on the correct interpretation of the believed conflict.

4.1.1 General Requirements for Facilities

4.1.1.1. All requirements set forth in the Scope of Work, but not included in Section 01015, Technical Requirements for Design-Build, shall be considered as set forth in both, and vice versa. All standard construction amenities and details such as heating, lighting, site drainage, utility connections, etc. shall be implied as a design and construction requirement. Drawings referenced are contained in this request for proposal.

4.1.1.2. In general, this project consists of designing and constructing the following:

- a. Project Planning and Design
- b. Mobilization and Demobilization
- c. Life Support Area / Health & Safety Requirements

d. Demolition of Specified Existing ASP Structures and Features

e. Site Preparation

f. Construction of Structures and Features:

(1) Earth Covered Magazines

(2) Above Ground Magazines

(3) Processing Facilities

(4) Outbuildings

(5) Roads

g. Support Features

(1) Electrical Service

(2) Force Protection Measures

(3) Lightning Protection System

(4) Paving

(5) Water + Wastewater Service

(5) Storm Drainage

(7) Information Systems

4.2 AMMUNITION SUPPLY POINT STRUCTURE DESCRIPTIONS

4.2.1. "For Reference Only" drawings

"For Reference Only" drawings provided for certain facilities below are standard definitive design (ECM) or as-built drawings for existing facilities. Additional instructions/requirements reference the use of provided designs/drawings which the Contractor shall comply with is provided in sub-section 1.1.1 of the scope of work. These facilities are DOD or Air Force standards and were selected by the Army and Air Force users of the ASP for incorporation into this project. When available, the drawings are provided in AutoCAD format. Technical specifications in Specsintact format for certain processing facilities are also provided "For Reference Only". The Contractor shall:

(1) The Contractor shall use these drawings as the basis for design by modifying them as required in this Scope of Work and Section 01015 Technical Requirements for Design-Build (including updating "For Reference Only" drawings to conform to current codes and regulations in Section 01015 Technical Requirements), and adaptation required for existing topographic, climate, seismic, wind and snow load, and geotechnical site conditions

(2) Prepare new drawings for the required facilities - whether there are "For Reference Drawings" or not - in metric format for review as part of the design process

(3) Prepare new technical specifications (covering all required work) in metric format for review as part of the design process.

4.2.2. General Requirements for the Surveillance and Inspection Facility (SI)

4.2.2.1. See TMGWM CM SI "For Reference Only" drawings included in the RFP. This processing facility described below is based on one set of as-built "For Reference Only" drawings and specifications.

4.2.2.2. The large end bay titled Room 114, Ready Missile Holding Area is to be deleted resulting in an administrative office area and four equal sized bays.

4.2.2.3. Delete the exterior split face concrete masonry unit facing and replace with rigid exterior insulation and colored Portland Cement stucco.

4.2.2.4. Add a second overhead door to the bay titled Room 115 Vault Maintenance Bay for pull-through access. All exterior overhead coiling doors shall be insulated.

4.2.2.5. The facility is a reinforced concrete masonry unit structure with reinforced concrete internal bay walls, a steel frame roof structure, metal roof system, and reinforced concrete slab. Each of the three required facilities provide power, electrical distribution (115 V 60 Hz Single Phase and 115 V 400 Hz 3 Phase), lightning protection, site lighting, building exterior lighting, surge protection, heating, ventilation, exhaust, and air conditioning, lighting fixtures classified for the proper hazardous classified location requirements, computer access including Secure Internet Protocol Router (SIPR) and Non-secure Internet Protocol Router (NIPR) networks, restrooms and plumbing, grounding and 4000 pound (1814 kg) capacity overhead cranes in each of the four bays, fire suppression, fire detection, and public address systems.

4.2.2.6. Diesel powered stand-by generator back-up power is required for each of the facility (and others as indicated below).

4.2.2.7. Exterior concrete pavement (minimum 25 feet (25') (7.62M) in depth the full width of the four maintenance bays on each side of the building) is required at each facility for material handling, vehicle access, and parking of trailers. Bituminous concrete pavement is required around each of the three facilities and at access drives as indicated on the drawing convention detail on the Master Plan (C-102) drawing.

4.2.2.8. Additional specific requirements for each of the three facilities follow in subparagraphs 4.2.5.1 through 4.2.5.3.

4.2.3. Earth Covered Magazines (ECM)

See ECM "For Reference Only" Drawings included in the RFP. Twenty-seven precast concrete structures based on definitive design 421-80-06 with reinforced concrete front portal wall covered by compacted soil, with hinged steel doors at the front portal wall. Internal floor storage space shall be twenty five feet by eighty feet (25' x 80') (7.62M x 24.38M) with eleven foot (11') (3.35M) clear height perimeter walls. Exterior front concrete apron shall be designed and constructed to support material handling equipment in used at the ASP. Each ECM shall be provided with electrical service including back-up power, have internal lighting, ventilation, conduit to facilitate Intrusion Detection System (IDS) installation in four (Air Force) ECM's and lighting protection systems.

Interior lighting in each ECM shall include eight (8) 2-lamp fluorescent luminaires, 120V, 60 Hz enclosed in a fiberglass housing approximately 210mm by 900mm and 150mm deep. Exterior lighting at each ECM shall consist of a single 250W high pressure sodium floodlight mounted above the door housed in marine-grade aluminum and tempered glass enclosure with photo electric control.

4.2.4. Above Ground Magazines (AGM)

See AGM "For Reference Only" Drawings Included in the RFP (not available in AutoCad format). Three precast concrete structures with reinforced concrete slab and footings, a metal roof system, personnel and overhead doors, and earth barricade on three sides. Each AGM shall be provided with electrical service, interior lighting fixtures classified for the proper hazardous classified location requirements, exterior lighting, heating, ventilation, exhaust, sprinkler fire protection, fire detection, fire alarm, and lighting protection systems. Compressed air is not required. Back-up power is required for each AGM. Each AGM shall have a barricade placed on three sides fifteen feet (15') (4.57M) tall based on design B1 – Earth Mound, Definitive Barricade Design M149-30-01 shown in the paragraph 1.7.2. Supporting Information, Section 00555 Design Concept Documents.

4.2.5. Processing Facilities

4.2.5.1. Munitions Assembly Conveyor (MAC) Facility

No "For Reference Only" drawings are available for this facility. The Contractor shall complete the design and construction of this facility in accordance with this scope of work, and Section 01015, Technical Requirements – Design-Build. A two hundred foot by two hundred foot (200' x 200') (60.96M x 60.96M) reinforced concrete slab and concrete apron designed and constructed for material handling equipment in use at the ASP on which is erected a one story one hundred foot by two hundred foot (100' x 200') (30.48M x 60.96M) pre-engineered building (PEB) sunscreen (no walls required) with a minimum eave height of twenty feet (20 ft) (6.1M). Provide a minimum of three portals for ingress/egress of material handling equipment on each side of the MAC. Provide lightning protection, site lighting, grounding points in the PEB (one per 2.32 SM (25 SF)), lighting fixtures classified for the proper hazardous classified location requirements under the PEB roof, and hazardous classified weather protected 115 V, 400 Hz 3 Phase and 115V and 60 Hz Single Phase electrical outlets spaced 7.62M (25') on center at the perimeter of the PEB. Emergency stand-by power is required at the MAC.

4.2.5.2 Surveillance and Inspection Facility

4.2.5.2.1. Low-pressure compressed air is required in this facility.

4.2.5.2.2. A loading dock is required attached at the maintenance bays end of the building, and is to be adapted from the loading dock "For Reference Only" drawings provided in the RFP. Adjust pavement and vehicle access in design to accept this requirement.

4.2.5.3. In/Out Bound Pad

No "For Reference Only" drawings are available for this facility. The Contractor shall complete the design and construction of this facility in accordance with this scope of work, and Section 01015, Technical Requirements – Design-Build. A reinforced concrete slab 200 feet by 200 feet (200' x 200') (60.96M x 60.96M) with lightning protection, and perimeter exterior mast-mounted lighting. Provide grounding points (one per 25 SF) over the entire area of the slab. Provide one 8' x 8' x 8' (2.44M x 2.44M x 2.44M) shipping container on precast footers for storage of material handling tools and equipment on the slab adjacent to the access drive.

The In/Out Bound Pad shall have a barricade placed on three sides fifteen feet (15') (4.57M) tall based on design B1 – Earth Mound, Definitive Barricade Design M149-30-01 shown in the paragraph 1.7.2. Supporting Information, Section 00555 Design Concept Documents.

4.2.6. Outbuildings

4.2.6.1. Wash Rack

See the Wash Rack "For Reference Only" drawings for this facility. The Contractor shall validate and complete the design and construction of this facility in accordance with this scope of work, and Section

01015, Technical Requirements – Design-Build. The wash rack shall include reinforced concrete curbs and islands, sloped concrete pavement designed and constructed for vehicles and material handling equipment in use at the ASP (shown in Paragraph 4.2.7. below) – one lane including a reinforced concrete wash rack designed for HEMMT and PLS trucks and a second lane at grade for vehicle washing for those vehicles and the RTCH, 10,000 pound (4,535 kg) forklift and tractors (delete one lane at grade in the “For Reference Only” drawings) sloped to drain to a wastewater collection system, oil/water separator, and a wastewater storage tank. The water storage and wastewater collection systems shall be configured to permit future connection to base utilities. A single tower with street lighting, dual hose connections with spray nozzles and work level lighting shall be provided at the center curb to support each lane. Electrical service shall be provided to the facility. The wash rack shall be designed to wash 30 vehicles per day. Water and waste water storage shall be designed and constructed by the Contractor to support this daily demand.

A pump and pneumatic tank system shall be required to move water from an above ground storage tank to the spray nozzles. Contractor shall provide an enclosure for a duplex pump system, bladder type pneumatic tank(s) and pump controls with alternation. Washrack and components shall be designed in accordance with UFC 4-214-03 which requires a flow rate of 25 gallons per minute (gpm) (94.6 liters/minute) at each nozzle and an operating pressure range of 75 to 90 psi (517 – 620 kilopascals). The Contractor shall size the ground storage tank(s), select flow and pressure requirements for the duplex pumps and controls, size the pneumatic tanks, select a pump enclosure, select size and type of oil/water separator, and size the wastewater holding tank.

4.2.6.2. Trailer Maintenance Facility

No “For Reference Only” drawings are available for this facility. The Contractor shall complete the design and construction of this facility in accordance with this scope of work, and Section 01015, Technical Requirements – Design-Build. The Trailer Maintenance facility shall be a insulated arch span structure thirty feet by seventy-five feet (30’x75’) with insulated overhead coiling doors on each end at least twelve feet wide by ten feet tall (12’ x 10’). See paragraph

3.7.1.1. Section 01015 TECHNICAL REQUIREMENTS – DESIGN-BUILD. Height of the facility shall be determined by the Contractor based on overhead door hood clearance requirements. This facility shall be constructed on a new two hundred foot by two hundred foot (200’x200’) (60.96M x 60.96M) reinforced concrete slab designed and constructed for vehicles and material handling equipment in use at the ASP. The facility shall include power, interior electrical distribution, lightning protection, exterior and interior lighting, heating, and ventilation.

4.2.6.3. Administration Facility

See the Administration Building “For Reference Only” Drawings in the As-Built ASP Drawings included in the RFP. This facility is to be identical in construction, layout, form and function as the existing administration facility including incorporation of a parking area for Government vehicles. Electrical and water/wastewater service shall be provided to the facility. Contractor shall confirm requirements for lightning protection during design, and shall design and construct as required by referenced regulations. Emergency back-up power is required at the Administration facility.

4.2.7. Roads – Roads shall conform to the master plan drawings provided in this RFP, the instructions and specifications in the other sections of this contract, and applicable DOD & Industry standards and codes. Twenty-four foot (24’) (7.32M) wide two-lane bituminous concrete pavement shall be designed and constructed at the north end of the ASP to the processing facilities (to the ends of aprons) and including the new access road at the ECP. Other roads to and within the munitions storage area at the south end of the ASP (to and connecting the ECM’s and AGM’s shall be 24 foot (24’) (7.32M) wide two lane graded crushed aggregate. The Contractor shall design and construct both types of roads for material handling equipment and vehicles in use at the ASP. Roads shall be designed for operation of the 50,000 pound Rough Terrain Cargo Handler (RTCH), Heavy Expanded Mobility Tactical Truck (HEMTT), and 10,000 pound forklift. The longest vehicle/trailer combinations operating within the new

ASP will include pallet loading system (PLS) trucks and trailers, and Air Force tractors (bobcats) and 40 foot (12.19M) trailers. Roads shall be designed and constructed to facilitate the drainage of storm run-off. The road layout shall facilitate movement through the ASP.

4.2.8. Support Features

4.2.8.1. Electrical System

4.2.8.1.1. The Contractor shall design an electrical power distribution system to distribute power to all facilities included in the contract. The system shall conform to those requirements in Section 01015, Technical Requirements – Design-Build, the instructions and specifications in the other sections of this RFP, the Master Plan and “For Reference Only” as-built drawings for various facilities provided in this RFP, and applicable DOD & Industry standards and codes.

4.2.8.1.2. The system shall connect to the existing BAF electrical distribution system. Primary voltage shall be 4160/7200 V, 60 hertz or 7200/13800V.60Hz. Secondary voltage shall be 120/208 V, 60 Hz.

4.2.8.1.3. The Contractor shall design and construct an emergency back-up power system with automatic switching to those facilities requiring this service as identified in this scope of work. (ECMs, ABMs, MAC facility, SI facility, Administration Building, ECP guard house, and exterior pole-mounted lightning). The stand-by back-up power system shall be capable of providing 100 percent of the electrical power requirements for the ASP for seventy-two hours.

4.2.8.1.4. All electrical work to be performed by the Contractor shall be directly supervised by an experience and licensed master electrician. Proposed individuals shall have a valid and current master electrician license or foreign equivalent (e.g, Master Craftsman’s diploma). The license shall be issued by a US licensing authority (i.e. State of Texas, City of New York City), or equivalent foreign licensing authority. The Contractor shall submit resumes and copies of licenses (with licensing requirements) for proposed supervising master electricians to the Contracting Officer for review and concurrence. The US Government reserves the right to reject proposed supervising master electricians; decisions by the USG reference the acceptability of proposed supervision master electricians are final and not subject to review or appeal. Written rationale for rejection will be provided to the Contractor by the Contracting Officer. Rejected personnel shall not be permitted to work at the site in the capacity of supervising electrician.

4.2.8.1.5. All electrical work shall be performed by licensed journeyman electricians. No electrical work shall be performed by the Contractor without a supervising master electrician directly overseeing the work. All electrical work shall be certified in writing as meeting all applicable standards, codes, and contract specifications by the supervising master electrician.

4.2.8.2. Force Protection Measures

These measures shall include an Entry Control Point (ECP), perimeter fencing, barriers, and warning signs. These features shall conform to requirement in Section 01015, Technical Requirements – Design-Build, the instructions and specifications in the other sections of this RFP, the master plan and “For Reference Only” drawings for various facilities provided in this RFP , and applicable DOD & Industry standards and codes.

4.2.8.2.1. ECP

See the GH (Guard House) “For Reference Only” As-Built ASP Drawings included in the RFP. The Contractor shall design and construct all elements of the ECP including:

Provide a asphalt concrete vehicle inspection area approximately one hundred thirty feet (130') (39.62M) in length and fourteen feet (14') (4.27M) wide approximately as shown in the Master Plan drawing along the new entry road. Incorporate pole mounted site lighting along each side of the access road/vehicle inspection area, and at the gatehouse.

The "As-Built" guard house design shall be modified to add a unisex restroom with single lavatory and toilet; approximate four foot (4') (1.22M) square interior dimension storage room accessible from the interior of the Guard House; and an electrical/communications room to the rear (opposite entry traffic flow) of the existing design. The guard house shall be built on a curbed reinforced concrete slab at the edge of the asphalt concrete road. Doors, windows, and frames shall meet level 3 ballistic standards in accordance with UL-752 as a minimum. Add rigid exterior insulation and colored Portland Cement stucco at the exterior. The gatehouse shall be heated, ventilated, air conditioned, and exhausted. Provide electrical outlets on the interior and exterior. Provide conduit access for telephone and NIPR. Emergency back-up power is required at the gatehouse.

4.2.8.2.2. Perimeter Fencing

See the perimeter fence standard drawings included in the RFP. The Contractor shall design and construct a FE8-TWBR-96 perimeter fence (8 feet (8') (2.44M) fabric height) where shown on the Master Plan drawing including grounding. Sensors will not be installed. Provide and install compatible (including dual barbed tape coils) double leaf gates at the ECP and road intersections where new roads meet existing. Contractor shall verify location and install any personnel gates required. Tie new perimeter fencing to existing. Remove existing perimeter fencing and concrete bases inside the new perimeter fence where the area of the new ASP is expanded beyond the existing ASP. Where fencing crosses ditches, the Contractor shall design and construct a six inch (6") (150mm) wide by two foot (2') (0.61M) deep concrete strip whose top surface matches ditch side and bottom slopes. The gap between the bottom fence rail and concrete strip shall be filled with #4 rebar spaced six inches (6") (150mm) on center embedded a minimum of twelve inches (12") (300mm) into the concrete and tied to the bottom rail. Contractor shall grade each side of the new perimeter fence line to the edge of any road or thirty feet (30') (9.14M) maximum inside the fence line, and twelve feet (12') (3.66M) outside the fence line to secure a uniform slope.

4.2.8.2.3. Barriers

Existing precast concrete barriers at the perimeter of the existing ASP will be relocated by others to permit new construction. New precast concrete barriers will be provided and installed by others inside the new perimeter fence.

4.2.8.2.4. Signage

The Contractor shall acquire and install Restricted Area bilingual (English and local) warning signage on the new perimeter fence spaced approximately two hundred feet (200') (60.96M) on center in accordance with paragraph 5-10, AR 190-11. The Contractor shall verify this requirement with Base Operations.

4.2.8.2.5. Security Lighting

The Contractor shall design and construct a perimeter mast mounted security lighting system along the new perimeter fence in accordance with paragraph 5-4, AR 190-11.

4.2.8.3. Lightning Protection System

The Contractor shall design and construct the system to conform to Section 01015, Technical Requirements – Design-Build, the instructions and specifications in the other sections of this RFP, the master plan and "For Reference Only" drawings for various facilities provided in this RFP, and applicable DOD & Industry standards and codes. "For Information Only" drawings, provided as part of this RFP,

indicate in certain cases individual facility lightning protection measures. The Contractor shall validate and adjust these designs as necessary for conditions at BAF. The Contractor shall address in their design submittals and in construction a plan that incorporates the existing Lightning Protection System for existing facilities to remain in the ASP.

4.2.8.4. Exterior Lighting

The Contractor shall design and construct a mast mounted exterior lighting system to permit 24 hour operation of the ASP. This lighting shall be installed to serve ammunition storage facilities (ECM and AGM), pavement areas around processing facilities, within the administrative area, and along roads. The Contractor shall design and construct the system to conform to Section 01015, Technical Requirements – Design-Build, the instructions and specifications in the other sections of this RFP, the master plan and “For Reference Only” drawings for various facilities provided in this RFP , and applicable DOD & Industry standards and codes.

4.2.8.5. Paving

Concrete aprons and slabs shall be designed for operation by the 50,000 pound (22,680kg) capacity Rough Terrain Cargo Handler (RTCH), Heavy Expanded Mobility Tactical Truck (HEMTT), and 10,000 pound (4,536kg) capacity forklift. The longest vehicle/trailer combinations operating within the new ASP will include pallet loading system (PLS) trucks and trailers, and Air Force bobcats (trucks) and 40 (12.19M) foot long trailers. The Contractor shall design and construct paving to conform to Section 01015, Technical Requirements – Design-Build, the instructions and specifications in the other sections of this RFP, the master plan and “For Reference Only” drawings for various facilities provided in this RFP, and applicable DOD & Industry standards and codes.

4.2.8.6. Water System

The Contractor shall design and construct such features as necessary to provide water to operations and for human consumption within the ASP. Materials used in the construction of the water system shall not include any materials that may introduce lead or other materials that may be harmful to human health. Features shall be designed and constructed to compliment planned BAF-wide water systems. The BAF water system is being extended to include the ASP. See “For Reference Only” drawing C-048 included in the RFP. The status and schedule for completion of the work shown on C-048 is unknown. Depending on the status of this extension, the Contractor shall either incorporate it and modify it as required due to the requirements of this RFP, or the Contractor shall be responsible for designing and constructing piping from applicable features at the project site to the edge of the project site nearest the closest point in the existing Potable Water System (PWS). If at that specified point the PWS is present, the Contractor shall take such actions as shall be required to connect the PWS to the supply line from the project. If at that specified point the PWS is not present, the Contractor shall take such actions as shall be required to enable the Government to connect the PWS to the supply line from the project when the PWS is extended to the specified point.

4.2.8.7. Sanitary Sewer System

4.2.8.7.1. The Contractor shall design a sanitary (wastewater) collection system for the project site in accordance with the requirements of this RFP, anticipated usage requirements, and all applicable standards. The wastewater collection system shall be designed to accommodate the ASP population (125 personnel and 20 visitors) plus 25%. There is currently no functioning base-wide sanitary sewer infrastructure on BAF, therefore the Contractor shall design and construct a wastewater collection system draining to a poured in place concrete holding tank. The holding tanks shall be located in areas easily accessible to pumping trucks. The Contractor shall design and construct these systems to conform to Section 01015, Technical Requirements – Design-Build, the instructions and specifications in the other sections of this RFP, the master plan and “For Reference Only” drawings for various facilities provided in this RFP , and applicable DOD & Industry standards and codes.

4.2.8.7.2. The sanitary (wastewater) collection system shall be designed and constructed to allow connection to future base-wide sanitary sewer infrastructure. In accordance with the provisions of this contract, and applicable submittals to be approved by the Government, the Contractor shall be responsible for designing and installing piping from applicable features at the project site to a point at the edge of the project site to be approved by the Government. At that point the Contractor shall take such actions as shall be required to enable the Government to connect site sanitary (wastewater) collection system to the future base-wide sanitary sewer infrastructure.

4.2.8.8. Storm Drainage

The Contractor shall design and construct storm drainage features as necessary to facilitate the efficient movement of run-off surface waters from the ASP. Storm drainage features shall compliment BAF-wide storm drainage efforts. The Contractor shall design and construct these systems to conform to Section 01015, Technical Requirements – Design-Build, the instructions and specifications in the other sections of this RFP, the master plan and “For Reference Only” drawings for various facilities provided in this RFP, and applicable DOD & Industry standards and codes.

4.2.8.9. Information Systems

The Contractor shall design and construct the telephone and data systems to conform to Section 01015, Technical Requirements – Design-Build, the instructions and specifications in the other sections of this RFP, the master plan and “For Reference Only” drawings for various facilities provided in this RFP , and applicable DOD & Industry standards and codes.

4.3. SITE PLANNING

The Contractor shall design and construct new facilities for the ASP at the precise locations shown in the Master Plan provided in this RFP to ensure that explosives safety arcs (IBD and PTR) shown on the Master Plan are not changed. The COR shall be notified if conditions occur that require a shift in facility locations. The Master Plan will have been approved by the DDESB prior to the start of Contractor design. Any deviation from the locations shown for facilities may require a separate approval process. The Contractor shall design the ASP facilities and features compatible with site topographic and soil conditions.

4.3.1. Design Charrette

The development of the design for this this contract shall require that the Contractor conduct a design charrette at BAF. See Section 00150, The Design-Build Process.

4.3.2. Survey Requirements

The Contractor shall complete a boundary survey and a topographic survey which includes the identification and location of all underground utilities. The surveys shall include all areas within the existing ASP (including the fenced limits of the existing BLAHA) and all area within the limits of the new perimeter fence required on the Master Plan provided in this RFP.

The Contractor shall perform a topographic survey and establish all necessary permanent bench marks for vertical and horizontal controls. The Contractor shall perform all necessary topographic surveying/mapping as required for completion of design of the site, grading, and drainage. The topographic survey shall be used in designing the grading, site layout and utilities. The Contractor will provide all necessary site grading to insure adequate drainage so that no facilities or pavements will be flooded due to a rainfall of a 10-year frequency. Drainage of the area should be compatible with the existing terrain and existing drainage structures.

The Contractor will be responsible for detailed topographic mapping, and utility information including available capacity, recommended connection points and quality for the project.

4.3.3. Geotechnical Investigation Requirement

The Contractor shall conduct a geotechnical investigation of the ASP. Site specific geotechnical information necessary to complete the design and construct the foundations, pavements and other geotechnical items contained in this project shall be the Contractor's responsibility. The Contractor shall determine all necessary geotechnical conditions by appropriate field and laboratory investigations, and supporting calculations.

4.4. DEMOLITION AND GRADING

4.4.1. Coordination & Compliance with Bagram Mine Action Center Guidance & Instructions

4.4.1.1. There is the potential of encountering potentially explosive devices during the conduct of site demolition and grade. Prior to the initiation of any field activities the contractor shall coordinated all actions with the Bagram Mine Action Center (MAC). The Contractor, to include any and all personnel brought onto Bagram Airfield pursuant to the conduct of this contract shall not depart, deviate, or differ from any way, shape, form, or manner from written or/or verbal guidance or instructions provided by an authorized representative of the Bagram MAC.

4.4.1.2. If at any time the Contractor and any personnel brought onto Bagram Airfield pursuant to the conduct of this contract fail to be in full and strict compliance with any verbal and/or written guidance or instructions provided by the Bagram MAC, the Contractor and/or and any personnel brought onto Bagram Airfield pursuant to the conduct of this contract may immediately be removed from the base, and may at the discretion of the Contracting Officer and/or the Base Commander be refused re-admittance to the base for such a duration as the Contracting Officer and/or the Base Commander may deem appropriate.

4.4.1.3. The Contractor will be held solely and entirely responsible for any consequences and costs that may result based upon any work stoppages or delays associated with the Contractors' failure to be in full and strict compliance with any verbal and/or written guidance or instructions provided by the Bagram MAC shall not be compensable, nor shall any time extensions be allowed.

4.4.2. Demolition and Grading

4.4.2.1. Demolition shall include removal of all structures, foundations, pavements, blast and force protection features, and utilities specified in the Contractor prepared and Government approved design, and any clear and grubbing of vegetation that may be required. The removal of existing features shall be coordinated with the COR prior to the start of demolition actions on those features. See the master plan drawing (C-102) for the extent of demolition required in this contract.

4.4.2.2. When conducting clearing and grubbing, the Contractor shall attempt to avoid the removal of trees and vegetation that may contribute erosion control. The Contractor shall communicate the concept for conducting clearing and grubbing operations with the COR, and obtain the concurrence of the COR, prior to the initiation of removal actions.

4.4.2.3. If during the course of demolition operations the Contractor encounters hazardous waste and/or potentially explosive devices, the Contractor shall immediately direct that such actions be taken to protect human health and/or preclude the spread of contamination from the place of its origin. The Contractor shall inform the COR and request guidance on what actions to take.

4.4.3. Disposition of Construction Debris

4.4.3.1. The Host Nation Government retains title to all materials located at BAF prior to the arrival of US Forces at BAF, unless such materials were officially offered to and accepted by a representative of the US authorized to receive such materials. All pre-occupation debris materials generate during the course of demolition operations shall be segregated and transported from the project site to a location on BAF designated by the Contracting Officers Representative (COR) for eventual disposition by the Host Nation.

4.4.3.2. Debris and waste materials from activities funded by the US Government, or officially granted to the US Government by the Host Nation, shall be considered the property of the US Government, and shall be disposed of in accordance with the provisions of this contract and applicable US laws and regulations.

4.4.3.3. The debris material shall be divided into scrap metal and other general construction debris. The Contractor may be directed by the COR to transport scrap metal to the Defense Reutilization & Marketing Operation (DRMO) yard on the Installation. Any material the Contractor is not directed to take to the DRMO yard shall be transported to a location on BAF designated by the COR, or if agreeable to both the US Government and the Contractor, the Contractor may be permitted to remove the materials from BAF and dispose of such materials as they deem appropriate, given such disposal is conducted in accordance with all applicable US and Host Nation laws, regulations, and guidance.

4.5. LIFE SAFETY

All structures and features to be designed and constructed pursuant to the requirements of this contract by the contractor shall comply with all applicable life safety provisions of NFPA 101, and applicable DOD health & safety and ammunition safety regulations and guidance.

4.6. FOUNDATION DESIGN

Based on recommendations from the geotechnical investigation required in paragraph 4.3.3., the Contractor shall verify or modify foundation and subgrade designs for facilities shown in "For Reference Only" drawings provided in this RFP based on site geotechnical conditions, and shall design and construct foundations and sub grade for required structures and features for which drawings are not provided.

5. COMPLETION OF WORK

All work required under this contract shall be completed within six hundred forty-four (644) calendar days, including government review time, from Notice to Proceed.

6. SPARE PARTS

See Paragraph 1.32.2.2.j. Section 00160 SPECIAL CLAUSES. Shop drawings and submittals shall identify spare parts and those identified spare parts shall be submitted to the Government for receipt into inventory for BAF.

7. REFERENCES

A listing of references is provided in Section 01015.

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SECTION 01015

TECHNICAL REQUIREMENTS – DESIGN-BUILD

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SECTION 01015

TECHNICAL REQUIREMENTS – DESIGN-BUILD

1. GENERAL

1.1. COMPLIANCE

The Contractor's design and construction must comply with technical requirements contained in Section 01010 SCOPE OF WORK and herein. The Contractor shall provide design and construction using the best blend of cost, construction efficiency, system durability, ease of maintenance and environmental compatibility.

1.2. MINIMUM & ALTERNATE REQUIREMENTS

These design and product requirements are minimum requirements. The Contractor is encouraged to propose alternate designs or products (equipment and material) that are more commonly used in the region; will be equally or more cost effective or allow for more timely completion, but furnish the same system safety, durability, ease of maintenance and environmental compatibility. The Contractor shall be required to submit information as requested by the Contracting Officer to make a comparison of any proposed alternate. All variations of approved designs must be approved by the Contracting Officer.

1.3. ASBESTOS CONTAINING MATERIALS

Asbestos containing material (ACM) shall not be used in the design and construction of this project. If no other material is available which will perform the required function or where the use of other material would be cost prohibitive, a waiver for the use of asbestos containing materials must be obtained from the Contracting Officer.

1.4. SAFETY

1.4.1. Unexploded Ordnance (UXO)

1.4.1.1. UXO/Mine Discovery During Project Construction

It is the responsibility of the Contractor to be aware of the risk of encountering UXO and to take all actions necessary to assure a safe work area to perform the requirements of this contract. If during construction, the Contractor becomes aware of or encounters UXO or potential UXO, the Contractor shall immediately stop work at the site of encounter, move to a safe location, notify the COR, and mitigate any delays to scheduled or unscheduled contract work. Once the Contractor has informed the COR, the Contractor will await further direction. The Contractor assumes the risk of any and all personal injury, property damage or other liability arising out of or resulting from any Contractor action taken hereunder.

NOTE: For previous UXO/mine information, the following points of contact from the UN Mine Action Center of Afghanistan are provided:

Mohammad Sediq, Chief of Operations,
Email: sediq@unmaca.org
Cell: +93 070 295207

Hansie Heymans, Chief Information Officer,
Email: hansie@unmaca.org
Cell: +93 070 294286

1.4.1.2. Explosives Safety

1.4.1.2.1. General Safety Considerations

General safety considerations applicable to personnel, both essential and non-essential, at project sites where UXO may be encountered include:

- 1) Do not carry fire or spark-producing devices.
- 2) Do not conduct explosive or explosive-related operations without approved procedures and proper supervision and UXO safety support.
- 3) Do not become careless by reason of familiarity with UXO or the reported probability level of UXO contamination.
- 4) Do not conduct explosive or potentially explosive operations during inclement weather.
- 5) Avoid contact with UXO except during UXO clearance operations.
- 6) Conduct UXO-related operations during daylight hours only.
- 7) Employ the "buddy system" at all times.

1.5. NOT USED

1.6. TEMPORARY STRUCTURES

The Contractor shall erect suitable temporary fences, lighting, and necessary structures to safeguard the site, materials and plant against damage or theft and for the protection of the general public and shall adequately maintain the same throughout the course of the contract.

1.7. SUBCONTRACTORS

Compliance with the provisions of this section by subContractors will be the responsibility of the Contractor.

1.8. LIST OF CODES AND TECHNICAL CRITERIA:

The following codes and technical criteria and those referenced therein shall be required for this project. References within each reference below shall be required and adhered to. This list is not exhaustive and is not necessarily complete.

Associated Air Balance Council, National Standards for Total System Balance, 2002
American Concrete Institute, ACI 318 Building Code Requirements for Structural Concrete, 2008
Air Force Manual 91-201, Explosives Safety Standards, 18 October 2001
American Institute of Steel Construction, AISC 325 Manual of Steel Construction, 2005
American Iron and Steel Institute, AISI SG03-3, Cold-Formed Steel Design Manual Set, 2002
American Water Works Association, AWWA C651 Disinfecting Water Mains, 2005
AWWA C104, AWWA Standard for Cement–Mortar Lining for Ductile-Iron Pipe and Fittings, 2008
AWWA C105, Polyethylene Encasement For Ductile-Iron Pipe Systems, 2005
AWWA C110, Standard for Ductile-Iron and Gray-Iron Fittings, 2008
AWWA C111, Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings, 2006
AWWA C150, Standard for Thickness Design of Ductile-Iron Pipe, 2008
AWWA C151, Standard for Ductile-Iron Pipe, Centrifugally Cast, 2009
AWWA C500, Standard for Metal-Seated Gate Valves for Water Supply Service, 2009
AWWA C504, Rubber Seated Butterfly Valves, 2000
AWWA C509, Resilient Seated Gate Valves For Water Supply Service, 2001

AWWA C652, Disinfection of Water-Storage Facilities, 2002
Army Regulation (AR) 190-11, Physical Security of Arms, Ammunition, and Explosives, 12 February 1998
Air Conditioning and Refrigeration Institute, ACRI
American Society of Civil Engineering, ASCE 7-05, Minimum Design Loads for Buildings and Other Structures, 2006
American Society of Heating, Refrigeration and Air-Conditioning, ASHRAE Handbook (Four volumes)(current edition)
ASHRAE Standard 55, Thermal Environmental Conditions for Human Occupancy, 2004
ASHRAE Standard 62.1, Ventilation for Acceptable Indoor Air Quality, 2007
ASHRAE Standard 62.2, Ventilation and Acceptable Indoor Air Quality for Low-Rise Residential, 2007
ASHRAE Standard 90.1, Energy Standard for Buildings Except Low-Rise Residential Buildings, 2007
ASHRAE Standard 90.2, Energy-Efficient Design of Low-Rise Residential Buildings, 2007
American Society for Mechanical Engineering, ASME
American Society for Testing and Materials, ASTM D 1557 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort, 2002
ASTM F 1083, Standard Specification for Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures, 2008
ASTM A 176, Standard Specification for Stainless and Heat-Resisting Chromium Steel Plate, Sheet, and Strip, 2004
ASTM D1784, Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds, 2008
ASTM D1785, Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120, 2006
ASTM D 3034, Standard Specification for Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings, 2008
ASTM D 3212, Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals, 2007
ASTM C 924/C 924M, Standard Practice for Testing Concrete Pipe Sewer Lines by Low-Pressure Air Test Method, 2002
ASTM C 969/C 969M, Standard Practice for Infiltration and Exfiltration Acceptance Testing of Installed Precast Concrete Pipe Sewer Lines, 2002
American Welding Society, AWS
Department of the Army Pamphlet (DA PAM) 385-64, Ammunition and Explosives Safety Standards, 15 December 1999
Department of Defense, DOD 6055.16, Explosives Safety Management Program, 29 July 2008
DOD 6055.09-STD, DOD Ammunition and Explosives Safety Standards, 29 February 2008
Telecommunications Industry Association, TIA, ANSI/J-STD--607-A, Commercial Building Grounding and Bonding Requirements for Telecommunications, 2002
Factory Mutual (FM) Approval Guide
International Building Code, IBC - 2006 (and its referenced codes including those inset below)
Institute of Electrical and Electronic Engineers, IEEE, National Electrical Safety Code, 2007
International Fuel Gas Code, IFGC
International Mechanical Code, IMC
International Plumbing Code, IPC
Illuminating Engineering Society, IES, Lighting Handbook, Ninth Edition
DOD, MIL-HDBK-1190, Facility Planning and Design Guide, 1 September 1987
Metal Building Manufacturers Association, MBMA Metal Building Systems Manual, 2006
National Fire Protection Association, NFPA 10, Portable Fire Extinguishers, 2007
NFPA 30, Flammable and Combustible Liquids Code, 2008
NFPA 30A, Code for Motor Fuel Dispensing Facilities and Repair Garages, 2008
NFPA 54, National Fuel Gas Code, 2009
NFPA 58, Liquefied Petroleum Gas Code, 2008
NFPA 70, National Electrical Code, 2008
NFPA 72, National Fire Alarm Code, 2007
NFPA 75, Standard for the Protection of Information Technology Equipment, 2009

NFPA 90A, Air Conditioning and Ventilating Systems, 2009
NFPA 101, Life Safety Code, 2009
NFPA 110, Standard for Emergency and Standby Power Systems, 2005
NFPA 780, Standard for the Installation of Lightning Protection Systems, 2008
Plumbing and Drainage Institute, PDI-WH-201, Water Hammer Arrestors, 2006
Precast/Prestressed Concrete Institute, PCI MNL-116 Manual for Quality Control for Plants and Production of Structural Precast Concrete Products, 1999
PCI MNL-120 Design Handbook – Precast and Prestressed Concrete, 2004
Sheet Metal and Air Conditioning Contractors' National Association, SMACNA Architectural Sheet Metal Manual, 2003
International Mine Action Standards, latest edition; (see <http://www.mineactionstandards.org> for copy of standards)
Department of the Army Technical Manual (TM) 5-811-1 Electrical Power Supply and Distribution, February 1995
TM 5-822-2, General Provisions and Geometric Design for Roads, Streets, Walks, and Open Storage Areas, 1987
TM 5-822-5, Pavement Design for Roads, Streets, Walks, and Open Storage Areas, 1992
Unified Facilities Criteria (UFC) 1-200-01, General Building Requirements, 2007
UFC 1-300-07A Design Build Technical Requirements, 2005
UFC 1-300-09N, Design Procedures, 2005
UFC 3-230-03A, Water Supply, 2004
UFC 3-230-04A, Water Distribution, 2004
UFC 3-230-06A, Subsurface Drainage,
UFC 3-230-07A, Water Supply: Sources and General Considerations, 2004
UFC 3-230-08A, Water Supply: Water Treatment, 2004
UFC 3-230-09A, Water Supply: Water Storage, 2004
UFC 3-230-10A, Water Supply: Water Distribution, 2004
UFC 3-230-13A, Water Supply: Pumping Stations, 2004
UFC 3-230-17FA, Drainage in Areas Other than Airfields, 2004
UFC 4-214-03, Central Vehicle Wash Facilities, 2004
UFC 3-240-03N, Operation and Maintenance: Wastewater Treatment System Augmenting Handbook, 2004
UFC 3-240-04A, Wastewater Collection, 2004
UFC 3-240-07FA, Sanitary And Industrial Wastewater Collection: Gravity Sewers And Appurtenances, 2004
UFC 3-260-01, Airfield and Heliport Planning and Design, 2008
UFC 3-260-02, Pavement Design for Airfields, 2001
UFC 3-310-01, Structural Load Data, 2005
UFC 3-310-04, Seismic Design for Buildings, 2007
UFC 3-400-01, Design: Energy Conservation, 2002
UFC 3-410-01FA Heating, Ventilating and Air Conditioning, Change 3, 2003
UFC 3-410-02A, HVAC Control Systems. 2003
UFC 3-410-04N, Industrial Ventilation, 2004
UFC 3-420-01, Plumbing Systems Design, 2003
UFC 3-430-01FA, Heating and Cooling Distribution Systems, 2003
UFC 3-501-03N, Electrical Engineering Preliminary Considerations, 2004
UFC 3-520-01, Interior Electrical Systems, 2002
UFC 3-530-01, Design: Interior and Exterior Lighting and Controls, 2006
UFC 3-535-01, Visual Air Navigation Facilities, 2005
UFC 3-540-04N Design: Diesel Electric Generating Plants, 2004
UFC 3-550-03FA Design: Electrical Power Supply and Distribution Systems, 2005
UFC 3-600-01, Design: Fire Protection Engineering for Facilities, 2008
UFC 4-010-01, Design: Minimum DoD Antiterrorism Standards for Buildings, 2007
UFC 4-010-02, DoD Minimum Antiterrorism Standoff Distances for Buildings, 2007
UFC 4-020-01, DOD Security Engineering Facilities Planning Manual, 2008

UFC 4-020-02FA, Security Engineering: Concept Design, 2005
UFC 4-020-03FA, Security Engineering: Final Design, 2005
UFC 4-020-04FA, Electronic Security Systems: Security Engineering, 2005
UFC 4-021-01, Design and O&M: Mass Notification Systems, 2008
UFC 4-022-01, Security Engineering: Entry Control Facilities/Access Control Points, 2005
Underwriters' Laboratories (UL) Fire Protection Equipment Directory, 2009
UL 752, Standard for Bullet-Resisting Equipment, 2005
U.S. Central Command, CENTCOM Joint Security Directorate Antiterrorism/Force Protection Guide, 2002

Unified Facility Criteria (UFC) is available online at: http://www.wbdg.org/ccb/browse_cat.php?o=29&c=4

Standards other than those mentioned above may be accepted if the standards chosen are internationally recognized and meet the minimum requirements of the specified standards. The Contractor shall be prepared to submit proof of this if requested by the Contracting Officer.

2. SITE DEVELOPMENT

2.1. GENERAL

The project includes furnishing all materials, equipment and labor for constructing water, sanitary sewer and storm sewer service lines, as applicable, and connecting to the existing or new sewer networks.

2.2. ENVIRONMENTAL PROTECTION

2.2.1. Applicable regulations

See Section 00157 ENVIRONMENTAL PROTECTION. The Contractor shall comply with all Host Nation laws, rules, regulations or standards concerning environmental pollution control and abatement with regard to discharge of liquid waste into natural streams or manmade channels. The Contractor shall review host nation and U.S. Government environmental regulations with the contracting officer prior to design and discharge of any liquid wastes into natural streams or manmade channels.

2.2.2. Notification

The Contracting Officer will notify the Contractor in writing of any observed non-compliance with the foregoing provisions. The Contractor shall immediately take corrective action. If the Contractor fails or refuses to promptly take corrective action, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No extension of time or damages will be awarded to the Contractor unless it was later determined that the Contractor was in compliance.

2.2.3. Spillages

Measures shall be taken to prevent chemicals, fuels, oils, greases, bituminous materials, waste washings, herbicides and insecticides, and construction materials from polluting the construction site and surrounding area.

2.2.4. Disposal

Disposal of any materials, wastes, effluents, trash, garbage, oil, grease, chemicals, etc., shall be taken to a dumpsite off site and subject to the approval of the Contracting Officer. Burning at the project site for the disposal of refuse and debris will not be permitted.

2.3 TOPOGRAPHIC SURVEY

2.3.1. Requirement

The Contractor shall perform a topographic survey and establish all necessary permanent bench marks for vertical and horizontal controls. The Contractor shall perform all necessary topographic surveying/mapping as required for completion of design of the site, grading, and drainage. The topographic survey shall be used in designing the grading, site layout and utilities. The Contractor will provide all necessary site grading to insure adequate drainage so that no facilities or pavements will be flooded due to a rainfall of a 10-year frequency. Drainage of the area should be compatible with the existing terrain and existing drainage structures.

2.3.2. Survey Site Location

The location of the survey sites shall be shown to the Contractor by the COR. The limits of the survey shall then be identified by temporary markers and a sketch, with coordinates, of the area to be surveyed shall be submitted for approval by the COR before proceeding with the survey.

2.3.3. Horizontal and Vertical Control

The mapping shall be based on the Universal Transverse Mercator Grid Zone 42, World Geodetic System Spheroid and the vertical datum shall be based on Mean Sea Level. The horizontal and vertical control established on site shall be a closed loop with third order accuracy and procedures.

2.3.3.1. Install Concrete Survey Monuments

The Contractor shall establish all necessary permanent bench marks for vertical and horizontal controls. All of the control points established at the site shall be plotted at the correct coordinate point and shall be identified by name or number, and adjusted elevations.

2.3.4. Survey Requirements

2.3.4.1 A sufficient quantity of horizontal and vertical control data shall be established to provide a detailed topographic survey at 1:500 scale with twenty five (25) centimeter contour intervals. Intermediate elevations shall be provided as necessary to show breaks in grade and changes in terrain.

2.3.4.2 The contours shall accurately express the relief detail and topographic shapes. In addition, 90 percent of the elevations or profiles interpolated from the contours shall be correct to within one-half of the specified contour interval and spot elevations shall be correct within plus or minus three (3) centimeters.

2.3.4.3 The projection grid (which shall be a metric rectangular coordinate system with a grid spacing of fifty (50) meter intervals) and the control points shall be plotted correctly to the nearest three tenths (0.3) of a millimeter. The horizontal position of 90 percent of definitely recognizable points shall be plotted correctly with reference to the nearest control point within six tenths (0.6) of a millimeter.

2.3.4.4 Where applicable, spot elevations and finish floor elevations of structures or facilities shall be provided. Specifically, show all break points or control points in grades of terrain such as tops of hills, top and bottom of curbs, bottoms of ditches and gullies, high bank elevations, etc. Ground elevations shall be read to the closest three (3) centimeters. Road elevations shall be read to the closest three (3) millimeters.

2.3.4.5 All surface and known sub-surface features, buildings, structures, etc. within the area to be surveyed shall be shown, spot elevations provided and identified on the topographic maps. In addition, these features shall be located by sufficient distance ties and labeled on the topographic sheets to permit accurate scaling and identification.

2.3.4.6 Manholes and sanitary lines within the survey boundaries shall be located and invert elevations obtained. Water, sanitary, electrical and mechanical utilities within the survey site shall be located and shown on the survey map.

2.3.5. Digital Format

2.3.5.1 The topographic data for the entire project, shall be placed into a single Intergraph IGDS three-dimensional (3-D) design file or a single AutoCAD design file. If the design file exceeds 10 MB, a separate design file consisting of topographic data only shall be prepared and shall be referenced to the primary file.

2.3.5.2 Only the topographic feature data (spot elevations and contours) are required to be placed into 3D design file(s) at their proper elevation. Surface and subsurface features shall be placed in the 3-D file(s) at elevation zero (0).

2.3.5.3 A Digital Terrain Model (.DTM) file shall be furnished compatible with the Bentley's Inroads SelectCAD Software, Version 8. A sufficient number of field acquired data points and breaklines are required to generate the contours of the mapping area through the .DTM file.

2.3.5.4 Design file units shall be:

Master Units: Meters

Subunits: 1000 Milimeters

Positional Units: 10

2.3.5.5 The design file names shall match the appropriate quadrants.

2.3.5.6 The angle format shall be degrees, minutes, and seconds to one decimal place.

2.3.5.7 All locks, except snap, will be off. All displays will be on except text nodes and curve fast display.

2.3.5.8 The digital data file shall be "file designed" so that the documentation in level 63 shall be shown in view 1 and a "fit view" shall be shown in view 5.

2.3.5.9 Coordinate tics shall be placed in the design file so as to appear at 10 cm intervals when the mapping is plotted at the 1:500 scale. Coordinates for the datum specified shall be placed in the design file so as to be readable when plotted at the mapping scale. The coordinate tics shall be labeled on at least two sides of the entire project area.

2.3.5.10 The level assignments, colors, line weights, and line codes (styles) shown below shall be used.

Survey/Mapping Level Assignments and Level Symbology

Line Level	Description	Code	Weight	Color
1	Sheet Dependent Information	0	0	2
2	Coordinate Grid/Tics	0	0	2
3	Coordinate Grid Annotation/Text	0	0	4
4	Buildings	0	0	4
5	Building Annotation	0	0	4
6	Road Centerline	0	0	4
7	Road, RR and Centerline Anno.	0	0	4
8	Roads, Parking, Walks, Trails.	0	0	4
9	Concrete Joint Layout	0	0	4

10	Concrete Joint Elevations	0	0	4
11	Runway, Taxiway and Aprons	0	1	5
12	Runway Annotation	0	0	5
13	Pavement Markings, Signs	0	0	5
14	Structures, Head walls	0	1	6
15	Structure Annotation	0	0	6
16	Culverts	0	1	6
17	Culvert Annotation	0	0	4
18	Riprap	0	1	2
19	Water Features	0	1	1
20	Water Features Annotation	0	1	1
21	Vegetation	0	0	2
22	Vegetation Annotation	0	0	2
23	Fences	0	0	1
24	Fence Annotation	0	0	1
25	Boundary Lines/Cadastral	0	2	6
26	Boundary Lines/Cad. Annotation	0	0	6
27	Survey Ctrl. Pts, Baselines	0	0	5
28	Survey Ctrl. Point Annotation	0	0	5
29	Break Lines	0	0	4
30	Spot Elevations	0	0	4
31	Major Contours	3	2	6
32	Contour Annotation	0	0	6
33	Minor Contours	2	0	3
34	Minor Contour Annotation	0	0	3
35	Storm sewer Lines & Manholes	0	0	2
36	Storm Sewer Annotation	0	0	2
37	Sanitary Sewer Lines & Manholes	0	0	4
38	Sanitary Sewer Annotation	0	0	4
39	Water Lines, Tanks, & Fire Pumps	0	0	1
40	Water Systems Annotation	0	0	1
41	Gas Lines, Features & Valves	0	0	3
42	Gas System Annotation	0	0	3
43	Power Lines, Lts. & Tele. Poles	0	0	4
44	Power System Annotation	0	0	4
45	Steam Lines, Features, Valves	0	0	5
46	Steam System Annotation	0	0	5
47	Cross Sections & Profiles	0	0	4
48	Details, Inserts	0	0	4
49	Soundings	0	0	1
50	Channel Lines & Disposal Areas	0	1	4
51	Channel Line Annotation	0	0	4
52	Navigation Aids and Annotation	0	1	6
53	Levees, Dikes and Annotation	0	1	4
54	Pipe Lines, Structures, Bridges	0	1	6
55	Pipe Line Annotation	0	0	5
56	Stationing and Mile Markers	0	1	5
57	Revetments & Annotation	0	0	2
58	Vessel Track Line	0	1	2
59	Legend	0	1	4
60	Concentrated Spot Elevations	0	0	4
61	Unassigned	0		
62	Unassigned	0		
63	Documentation	0		

*Obscured Areas, Unknown, and Dirt Roads will be dashed (LC=3, long dashed)

2.3.5.11 Each 3-D file shall be checked by viewing a front or side view to detect errors in element elevation.

2.3.5.12 The topographic survey submittal shall include a tabulated list (bound booklet) with adjusted coordinates and elevations of all permanent survey monuments established on the project. The topographic survey submittal shall be submitted with field books, and the field adjustments computation sheets.

2.4. Geotechnical Investigation

Unless otherwise stated in the contract, the Contractor shall be responsible for developing geotechnical parameters, including subsurface data, field and laboratory testing, water studies, etc., where applicable.

A geotechnical engineer responsible to the Contractor shall develop all geotechnical engineering design parameters. The geotechnical engineer shall be qualified by: education in geotechnical engineering; professional registration; and a minimum of ten (10) years of experience in geotechnical engineering design.

2.4.1 The Contractor shall be responsible for determination of actual soil conditions present at the site, and design to suit those conditions. It shall be the Contractor's responsibility to investigate the subsurface soil conditions, and ground water table beneath final structure locations, and complete the design for the facility using contractor-developed data. The Contractor shall provide a minimum of six (6) borings within the building footprint, one (1) boring per 91.33 linear meters of paved road, and one (1) boring per 3000 square meters of parking, exact location and number as determined by the Contractor. All borings shall be continuously sampled by a splitspoon sampler in accordance with ASTM D-1586, with samples visually classified at 45 centimeter intervals in accordance with the unified soil classification system (ASTM D-2487). The depth to water (if encountered) shall be recorded. Under buildings, borings shall extend to a minimum depth of 9.1 meters or refusal, and under roads and/or parking areas, to a depth of 4.5 meters.

2.4.2 The Contractor shall obtain soil samples for testing as required for the computation of bearing capacities, settlement calculations, lateral earth pressure calculations, temporary and permanent dewatering designs, etc. A dated drilling log shall be provided for each boring drilled. All borings shall be continuously sampled by a splitspoon sampler and standard penetration blow counts recorded. The approximate elevations and locations of borings drilled shall be provided on each boring log. Coordinates to be state plane +/- 1-foot horizontal.

2.4.3 The Contractor shall prepare and provide a geotechnical report complete with recommendations specific to the geotechnical design requirements at the site. The report shall include drilling logs, the results of soils test data, and a plan showing the location of each boring as drilled. The Contractor shall use the data from this project specific investigation to provide bearing capacity analyses, settlement calculations, lateral earth pressure calculations, temporary and permanent dewatering designs, and deep foundation design such as piling and/or caissons, as applicable.

2.4.4 The report shall specifically address the following:

STRUCTURES: The report shall recommend the type of foundation system to be used, allowable bearing capacity (ies), depth(s) of placement and bearing elevations for footings, grade beams, slabs, pile tips, etc., utilizing the recommendations and restrictions presented in the report.

PAVEMENTS: The report shall recommend the allowable design CBR and modulus of subgrade reaction along with the required compaction effort for subgrades.

GENERAL EARTHWORK AND SPECIAL FEATURES: The report shall recommend any undercutting requirements, fill and backfill placement procedures, and types of compaction equipment to be used. The report shall outline earthwork procedures for special features such as retaining walls buried utilities, etc.

GROUNDING SYSTEMS: The report shall include all pH tests, salinity tests, resistivity measurements, etc. required to design grounding systems. The raw field data shall be provided in the report.

DEWATERING: The report shall determine project dewatering requirements. If temporary dewatering construction dewatering is required due to high water table or artesian aquifers, the report shall provide recommendations for a dewatering plan. The contractor shall be responsible for securing all the required information necessary for the design of the recommended dewatering plan.

STORMWATER RETENTION: The report shall include all tests and borings required to design any stormwater facilities. The raw field data shall be provided in the report.

2.5. CIVIL SITE DEVELOPMENT

2.5.1. Site Plan

The Contractor shall prepare a site plan based on the BAF geo-coordinate system. The Contractor shall locate ammunition storage facilities (Earth Covered Magazines and Above Ground Magazines) and processing facilities (Munitions Assembly Conveyor, Surveillance and Inspection Facility, and the In/Out Bound Pad) precisely as shown in the Master Plan drawing (exact coordinates are contained in the shape (.SHP) files provided as part of the RFP Master Plan). See Section 00555 DESIGN CONCEPT DOCUMENTS. Facilities to be designed and constructed by the Contractor shall not vary in size or location outside the area limits of the ammunition storage or processing portions (not including the administrative areas in the processing facilities) for those facilities shown in C-102 Master Plan and the shape files. Other features and facilities shall be in general agreement with C-102 Master Plan and any requirements in Section 01010 SCOPE OF WORK. All site features shall be clearly defined and dimensioned on the site plan. Buildings shall be located to provide access for emergency vehicles and fire fighting. Roads and parking areas shall be designed for turning radius of the largest vehicle entering the compound. The site plan shall show geometric design of the site, including applicable dimensions of all exterior facilities, mechanical equipment, pavements, utilities, etc. Required facilities are described in Section 01010 SCOPE OF WORK. All roads and areas where tractor-trailer vehicles will travel shall be designed for the worst case turning radius. Design and construction of roads and pavements shall be based on recommendations from geotechnical investigation required herein.

All site plans and master plans shall be drawn in the following projection and datum for incorporation into the BAF GIS system: WGS 1984 UTM Zone one 42N

2.5.2. Demolition

Demolition shall include removal of all structures, foundations, pavements, and utilities, and clear and grubbing. All refuse and debris shall be disposed of off site. Scrap metal shall be the property of the Host Government. The scrap metal on site shall be moved to an area away from the site perimeter as directed by the Contracting Officer's Representative and left for the Host Government to remove and/or salvage.

Demolished fencing and concertina wire shall be neatly rolled up for reuse by the host government. Likewise, used fence posts and outriggers shall be neatly stockpiled for reuse by the host government.

2.5.3. Site Grading & Drainage

The Contractor will provide all necessary grading to insure adequate drainage so that no areas will be flooded due to a rainfall of a 10-year frequency. Drainage of the area should be compatible with the

existing terrain. Building ground floor finished elevation shall be a minimum 150mm above adjacent grade and outside grade shall slope away from the building on all sides at a minimum slope of 5% for a distance of 3 meters. Holes and depressions shall be backfilled. Fill materials shall be composed of satisfactory soils or aggregates defined in ASTM D 2487 as GW, GP, GM, SP, SM, SW, CL-ML. Minimum soil compaction shall be 95 percent of maximum density as defined in ASTM D 1557.

2.5.4. Paving

2.5.4.1. Roads

Paved roads are required within the ASP as shown in C-102 Master Plan. All roads shall be of wearing surface 7.3 meters (24 feet) wide, graded for proper drainage, provided with necessary drainage structures and completed with prescribed surfaces in accordance with applicable sections of TM 5-822-2 and TM 5-822-5 standards. The roads sections shall have 250 mm (10 inch) compacted base course minimum and shall be surfaced with minimum 75 mm (3 inch) hot mix asphalt concrete, unless otherwise determined during the Contractor's design based on the geotechnical investigation. Contractor shall notify the Contracting Officer immediately if initial site survey determines that area hydrology requires major drainage structures or bridges. Also, the Contracting Officer shall be immediately notified if the required lengths of road or preexisting conditions are determined to be substantially or materially different than the above-described conditions/estimates.

Graded crushed aggregate roads are also required elsewhere within the ASP as shown in C-102 Master Plan. All roads shall be of wearing surface 7.3 meters (24 feet) wide, minimum 250 mm course thickness, unless otherwise determined during the Contractor's design based on the geotechnical investigation, graded for proper drainage, provided with necessary drainage structures and completed with prescribed surfaces in accordance with applicable sections of TM 5-822-2 and TM 5-822-5 standards Contractor shall notify the Contracting Officer immediately if initial site survey determines that area hydrology requires major drainage structures or bridges.

2.5.4.2. Site Grading Plan

The Contractor shall design a site grading plan that provides positive drainage and minimizes the requirement for major structures in a cost effective manner.

2.5.4.3. Parking Areas

Contractor shall construct parking areas using graded crushed aggregate surface. Subgrade shall be scarified and compacted to 95% proctor density. Aggregate base shall be 150mm (6 inches) for parking areas, unless otherwise determined during the Contractor's design based on the geotechnical investigation. Aggregate Base Course (ABC) material must be well graded, durable aggregate uniformly moistened and mechanically stabilized by compaction. Degree of compaction shall be expressed as a percentage of the maximum density obtained by the test procedure presented in ASTM D 1557.

2.6. FORCE PROTECTION DESIGN

The Contractor shall design and construct force protection measures to include a complete perimeter fence, signage, perimeter security lighting, and Entry Control Point (ECP). See Section 01010 SCOPE OF WORK. Force protection design shall be in accordance with CENTCOM Joint Security Directorate Antiterrorism/Force Protection Guide and Appendix 2 to Annex V to USCENTCOM OPORD 05-01, Force Protection Construction Standards. Force Protection design for facilities shall also meet the requirements of UFC 4-010-01, Design: Minimum DOD Antiterrorism Standards for Buildings and UFC 4-010-02, DOD Minimum Antiterrorism Standoff Distances for Buildings.

2.6.1. Perimeter Barriers

See paragraph 4.2.8.2.3. Barriers, Section 01010 SCOPE OF WORK.

2.6.2. Perimeter Fence

See paragraph 4.2.8.2.2. Section 01010 SCOPE OF WORK.

2.6.2.1. Outriggers

Outrigger supporting arms shall be "Y" shaped with post securely embedded into the top of the wall. Posts shall conform to ASTM F 1083.

2.6.2.2. Reinforced Barbed Tape

Reinforced barbed tape shall be 600 mm diameter concertina style coil consisting of 31 loops. Each loop shall consist of 19 barb clusters per loop. Adjacent coils loops shall be alternately clipped together at three points about the circumference to produce the concertina effect upon deployment. Spacing between attachments points when deployed shall be 400 mm. The reinforced barbed tape shall be fabricated from 430 series stainless steel with hardness range of Rockwell (30N) 37-45 conforming to the requirements of ASTM A 176. Each barb shall be a minimum of 30.5 mm (1.2 inch) in length, in groups of 4, spaced on 102 mm (4 inch) centers. The stainless steel core wire shall have a 2.5 mm (0.098 inch) diameter with a minimum tensile strength of 895 MPa. Sixteen gauge stainless steel twistable wire ties shall be used for attaching the barbed tape to the barbed wire. The reinforced barbed tape shall be equivalent to National Stock Number (NSN): 5660-01-457-9852.

2.6.3. ECP

See Paragraph 4.2.8.2.1. Section 01010 SCOPE OF WORK.

2.7. UTILITIES

2.7.1. General

The design of the water and sanitary systems shall be sized to provide flow and discharge based on a fixture unit basis. The design drawings shall show all utility lines, line sizes, valves, manholes, cleanouts, disinfection systems, and applicable details associated with water and sanitary system designs. Specifications covering water lines, valves, pumps, controls, sanitary sewers and storm sewers shall be submitted as part of the design and shall require standard materials that are available in-country. Contractor shall install and connect exterior sanitary sewer collection and water supply piping to service connection points of each facility requiring such.

2.7.2. Water

2.7.2.1. General

The Contractor shall design the water distribution system from the point of connection. Infrastructure design and construction shall serve the demand. The Contractor shall install water distribution mains, branches, laterals, lines and service connections to include all pipe, valves, fittings and appurtenances. Exterior water line construction shall include service to all buildings as described in the Section 01010 SCOPE OF WORK. The required Average Daily Demand (ADD) approximation is derived from 190 liters per capita per day (lpcd) or 50 gallons per capita per day (gpcd). In the event potable or non-potable use water is required prior to completion of the water facilities infrastructure the Contractor may be issued a Request for Proposal to provide non-potable (tank truck) and potable (bottled or other reliable source) consumption. Provide a minimum of one (1) outside water hydrant (hose spigot) for any building or facility.

2.7.2.2. Service Booster Pumps (Direct Pressure System)

The Contractor shall provide calculations indicating the flow and pressure available to the site from the BAF water distribution system, and the required demand for the ASP. This information is needed to determine if pumps are required and if ground storage tanks are needed. If required, the Contractor shall provide a booster pump station with end suction or split case double suction horizontal split case (frame mounted) centrifugal pumps arranged in parallel for pumping water storage into the main distribution system. The pumps and controls shall be designed to supply and maintain acceptable system pressure throughout the distribution network given the full range of flow conditions (low flow to peak). For conditions of low demand and to prevent short cycling of primary pumps, provide a low demand jockey pump with capacity of one-third (1/3) of the Average Daily Demand (ADD), if Hydro-pneumatic tank(s) are not to be used. Each booster pump, two (2), shall be capable of delivering 2.5 times (2.5x) the ADD. Provide suitable expansion tank. The suction side of the service booster pumps shall have an eccentric reducer and gate valve installed. The discharge side shall have a gate valve, check valve between the pump and the gate valve and concentric reducer, pressure gage and air relief valve.

2.7.2.3. Water Storage Tank

The Contractor shall provide calculations indicating the flow and pressure available to the site from the BAF water distribution system, and the required demand for the ASP. This information is needed to determine if pumps are required and if ground storage tanks are needed. If required, the Contractor shall provide circular steel ground storage tank (GST) either welded or bolted. Volume of the GST shall be a minimum storage volume of a full days demand. The Contractor shall verify storage volume requirements based on final design population. The storage facility shall be located above drainage areas and locations subject to flooding as approved by the Contracting Officer. The storage facility shall be located on the higher elevations of the site to promote gravity flow and reduce pumping requirements. Overflow and air vents shall be screened so that birds, rodents and debris cannot enter the reservoir.

2.7.2.4. Disinfection & Chlorination System

The entire domestic hot- and cold-water distribution system and wet pipe sprinkler systems shall be disinfected. Disinfection of water mains shall be in accordance with AWWA C651 and disinfection of storage facilities in accordance with AWWA C652. Contractor shall furnish a shelter as per chlorine manufacturer's installation requirements. The Contractor shall provide manufacturers catalog information and shop drawing to the Contracting Officer for approval.

2.7.3. Water Distribution System

2.7.3.1. General

The Contractor shall design a water distribution system described as follows: Pipe diameters used in the network shall be 300mm (12 inch), 250mm (10 inch), 200mm (8 inch), 150mm (6 inch) and 100mm (4 inch), as calculated, using ductile iron (DI) conforming to AWWA C151, installed in accordance with C 600 or polyvinyl chloride (PVC) as per ASTM D 1784 and 1785. All pipes and joints shall be capable of at least 1.03 MPa (150 psi) and 1.38 MPa (200psi) hydrostatic test pressure unless otherwise specified. Pipes should be adequate to carry the maximum quantity of water at acceptable velocities 0.9 to 1.5m/sec (3 to 5 ft/sec) at maximum flows not to exceed 2.8m/sec (9.2ft/sec). Minimum pressure shall be 276kPa (40psi) to all points of the distribution system and maximum pressure shall be 517kPa (75psi). If high pressures (greater than 690kPa) cannot be avoided, pressure-reducing valves shall be used. Water service connections to buildings shall vary from 19mm, 25mm or 38mm to 75mm, as calculated, depending on the usage requirement. Pipe service connections from the distribution main to the building shall be either Polyvinyl Chloride (PVC) plastic Schedule 80 ASTM D 1785 or copper tubing conforming to ASTM B 88M, Type K, annealed. After choosing piping material type, use similar piping materials for all buildings for efficiency of future maintenance activities. The distribution network shall be laid out in a combination grid and looped pattern with dead ends not exceeding 30m (99 feet). Dead end sections

shall not be less than 150mm (6 inch) diameter and shall either have blow off valves or fire hydrants (flushing valves) installed for periodic flushing of the line. Any pipe with a fire hydrant on the line shall be at least 150mm (6 inch) in diameter. Water supply distribution shall connect to a building service at a point approximately 1.5m (5 feet) outside the building or structure to which the service is required. Adequate cover must be provided for frost protection. A minimum cover of 800mm (2'-8") is required to protect the water distribution system against freezing. Water lines less than 1.25 meters (4 feet) deep under road crossings shall have a reinforced concrete cover of at least 150 mm (6 inch) thickness around the pipe extending out to 1m from each road edge.

2.7.3.2. Pipe

The Contractor shall provide pipe of adequate strength, durability and be corrosion resistant with no adverse effect on water quality. The exterior surface of the pipe must be corrosion resistant. If the pipe is installed underground pipe shall be encased with polyethylene in accordance with AWWA C105. Water distribution pipe material shall be PVC or Ductile Iron (DI). Ductile iron pipe shall conform to AWWA C104, et al. DI fittings shall be suitable for 1.03MPa (150psi) pressure unless otherwise specified. Fittings for mechanical joint pipe shall conform to AWWA C110. Fittings for use with push-on joint pipe shall conform to AWWA C110 and C111. Fittings and specials shall be cement mortar lined (standard thickness) in accordance with AWWA C104. Polyvinyl Chloride (PVC) pipe shall conform to AWWA C900 for pipe sizes 4 inches through 12 inches (4"-12") (100mm – 300mm). Pipe sizes less than 4 inches (4") (100mm) shall conform to ASTM D 1785. Plastic pipe coupling and fittings shall be manufactured of material conforming to ASTM D 1784, Class 12454B. PVC screw joint shall be in accordance with ASTM D 1785, et al, Schedules 40, 80 and 120. PVC pipe couplings and fittings shall be manufactured of material conforming to ASTM D 1784, Class 12454B. Pipe less than 80mm (3 inch), screw joint, shall conform to dimensional requirements of ASTM D schedule 80. Elastomeric gasket-joint, shall conform to dimensional requirements of ASTM D 1785 Schedule 40, All pipe and joints shall be capable of 1.03 MPa (150psi) working pressure and 1.38 MPa (200psi) hydrostatic test pressure.

2.7.3.3. Hydrostatic, Leakage and Disinfection tests

The Contracting Officer will be notified not less than 48 hours in advance of any water piping test and will be given full access for monitoring testing procedures and results. Where any section of water line is provided with concrete thrust blocking for fittings or hydrants, tests shall not be made until at least 5 days after installation of concrete thrust blocking, unless otherwise approved.

2.7.3.4. Pressure Test

After the pipe is laid, the joints completed, and the trench partially backfilled leaving the joints exposed for examination, the newly laid piping or any valved section of piping shall, unless otherwise specified, be subjected for 1 hour to a hydrostatic pressure test of 1.38 MPa (200 psi). Each valve shall be opened and closed several times during the test. Exposed pipe, joints, fittings, hydrants and valves shall be carefully examined during the partially opened trench test. Joints showing visible leakage shall be replaced or remade as necessary. Cracked or defective pipe, joints, fittings, hydrants and valves discovered following this pressure test shall be removed and replaced and retested until the test results are satisfactory.

2.7.3.5. Leakage Test

Leakage tests shall be conducted after all pressure tests have been satisfactorily completed. The duration of each leakage test shall be at least 2 hours, and, during the test, water lines shall be subjected to not less than 1.38 MPa (200 psi). Leakage is defined as the quantity of water to be supplied into the newly laid pipe, or any valved or approved section, necessary to maintain pressure to within 34.5kPa (5 psi) of the specified leakage test pressure after the pipe has been filled with water and all air expelled. Pipe installation will not be accepted if leakage exceeds the allowable leakage, as determined by the following formula:

L = $0.0001351ND$ (P raised to 0.5 power), where
L = Allowable leakage in gallons per hour
N = Number of joints in the length of pipeline tested
D = Nominal diameter of the pipe in inches
P = Average test pressure during the leakage test, in psi gauge

Should any test of pipe disclose leakage greater than that calculated by the above formula, the defective joints shall be located and repaired until the leakage is within the specified allowance, without additional cost to the government.

2.7.3.6. Bacteriological Disinfection

2.7.3.6.1. Disinfection Procedure

Before acceptance of potable water operation, each unit of completed waterline shall be disinfected as prescribed by AWWA C651. After pressure tests have been completed, the unit to be disinfected shall be thoroughly flushed with water until all entrained dirt and mud have been removed before introducing the chlorinating material. Flushing will be performed in a manner and sequence that will prevent recontamination of pipe that has previously been disinfected. The chlorinating material shall be liquid chlorine, calcium hypochlorite, or sodium hypochlorite. The chlorinating material shall provide a dosage of not less than 50 ppm and shall be introduced into the water lines in an approved manner. Polyvinyl Chloride (PVC) pipelines shall be chlorinated using only the above-specified chlorinating material in solution. The agent shall not be introduced into the line in a dry solid state. The treated water shall be retained in the pipe long enough to destroy all non-spore forming bacteria. Except where a shorter period is approved, the retention time shall be at least 24 hours and shall produce not less than 25 ppm of free chlorine residual throughout the line at the end of the retention period. Valves on the lines being disinfected shall be opened and closed several times during the contact period. The line shall then be flushed with clean water until the residual chlorine is reduced to less than 1.0 ppm. During the flushing period, each fire hydrant on the line shall be opened and closed several times.

2.7.3.6.2. Sampling

For each building connected to the water system, personnel from the Contractor's commercial laboratory shall take at least 3 water samples from different points, approved by the Contracting Officer, in proper sterilized containers and perform a bacterial examination in accordance with approved methods. The commercial laboratory shall be verified to be qualified by the appropriate authority for examination of potable water.

2.7.3.6.3. Acceptance Requirements

The disinfection shall be repeated until tests indicate the absence of pollution for at least 2 full days. The unit will not be accepted until satisfactory bacteriological results have been obtained.

2.7.3.6.4. Time for making Tests

Except for joint material setting or where concrete thrust blocks necessitate a 5-day delay, pipeline jointed with rubber gaskets, mechanical or push-on joints, or couplings may be subjected to hydrostatic pressure, inspected, and tested for leakage at any time after partial completion of backfill.

2.7.3.6.5. Concurrent Tests

The Contractor may elect to conduct the hydrostatic tests using either or both of the following procedures. Regardless of the sequence of tests employed, the results of pressure tests, leakage tests, and disinfection shall be recorded for submission and approval. Replacement, repair or retesting required shall be accomplished by the Contractor at no additional cost to the Government. Pressure and leakage

testing may be conducted concurrently, Hydrostatic tests and disinfection may be conducted concurrently, using water treated for disinfection to accomplish the hydrostatic tests. If water is lost when treated for disinfection and air is admitted to the unit being tested, or if any repair procedure results in contamination of the unit, disinfection shall be re-accomplished.

2.7.3.7. Valves

Valves (Gate valves w/box) shall be placed at all pipe network tees and cross intersections, and the number of valves shall be one less than the number of lines leading into and away from the intersection. For isolation purposes valves shall be spaced not to exceed 3600 mm (12 feet). Gate valves shall be in accordance with AWWA C500 or AWWA C509. Butterfly valves (rubber seated) shall be in accordance with C504 etal. The valves and valve boxes shall be constructed to allow a normal valve key to be readily used to open or close the valve. Provide traffic-rated valve boxes. Provide concrete pad, 1 meter (3'-4") square, for all valve boxes.

2.7.3.7.1 Vacuum and Air Release Valves

Air release valves are required to evacuate air from the main high points in the line when it is filled with water, and to allow the discharge of air accumulated under pressure. Vacuum relief valves are needed to permit air to enter a line when it is being emptied of water or subjected to vacuum. Contractor shall submit manufacturer's data for properly sized combination air and vacuum release valves and determine their locations on the distribution system subject to review and approval of the Contracting Officer.

2.7.3.7.2 Blow-Off Valves

The Contractor shall provide 40-50mm (1-5/8" – 2") blow-off valves at ends of dead end mains. Valves should be installed at low points in the mains where the flushing water can be readily discharged to natural or manmade drainage ditches, swales or other.

2.7.3.8 Thrust Blocking

Contractor shall provide concrete thrust blocking at any point where the layout of the system changes the direction of the flow, increases the velocity, or decreases or stops the flow. At these points, the pipes and fittings must be anchored and kept from moving or pulling apart by the use of thrust blocks installed against undisturbed earth.

2.7.4 Sanitary Sewer

2.7.4.1 General

See "For Reference Only" drawings of the existing ASP provided in this RFP for existing conditions. See Paragraph 4.2.8.7. Section 01010 SCOPE OF WORK. The Contractor shall obtain topographic information and surface features such as underground utilities and related structures that may influence the design and layout of the collection system. Sanitary sewers less than 1.25 meters (4 feet) under road crossings shall have reinforced concrete cover at least 150 mm (6 inch) thick around the pipe. Concrete cover will extend out to at least 1 m from each road edge.

Exterior sanitary sewer line construction shall include service to all buildings as described in the Section 01010 SCOPE OF WORK. The Contractor shall design and construct two systems – collection at black water tanks accessible to pumping trucks, and a system connecting individual facilities to a future BAF sanitary system at a point to be determined by the Contractor. The Contractor shall design sanitary sewer collection system using approved field survey data and finished floor elevations. Depending upon the topography and building location, the most practical location of sanitary sewer lines is along one side of the street. In other cases they may be located behind buildings midway between streets. Main

collection sewers will follow the most feasible route to the point of discharge. The sewer collection system shall be designed to accommodate the initial occupancy and a reasonable expansion capability. All sewers shall be located outside of the roadways as much as practical, and minimize the number of roadway crossings. To the extent practical, a sewer from one building shall not be constructed under another building, or remain in service where a building is subsequently constructed over it. Construction required shall include appurtenant structures and building sewers to points of connection with building drains 1.5m (5 feet) outside the building to which the sewer collection system is to be connected.

The Contractor shall use the following criteria where possible to provide a layout which is practical, economical and meets hydraulic requirements:

- a. Follow slopes of natural topography for gravity sewers.
- b. Check subsurface investigations for groundwater levels and types of subsoil encountered. If possible, avoid areas of high groundwater and the placement of sewers below the groundwater table.
- b. Avoid routing sewers through areas which require extensive restoration or underground demolition
- c. Depending upon the topography and building locates, the most practical location of sanitary sewer lines is along one side of the street. In other cases they may be located behind buildings midway between streets. The intent is to provide future access to the lines for maintenance without impacting vehicular traffic.
- d. Avoid placing manholes in low-lying areas where they could be submerged by surface water or subject to surface water inflow. In addition, all manholes shall be constructed 50 mm higher than the finished grade, with the ground sloped away from each manhole for drainage.
- e. Sewer lines shall have a minimum of 800 mm of cover for frost protection.
- f. Locate manholes at change in direction, pipe size, or slope of gravity sewers.
- g. Sewer sections between manholes shall be straight. The use of a curved alignment shall not be permitted.
- h. If required by the design, locate manholes at intersections of streets where possible. This minimizes vehicular traffic disruptions if maintenance is required.
- i. Sewer lines less than 1.25 meters deep under road crossings shall have a reinforced concrete cover of at least 150mm thickness around the pipe or shall utilize a steel or ductile iron carrier pipe. It is recommended to continue the reinforced concrete cover or carrier pipe a minimum of one (1) meter beyond the designated roadway.
- j. Verify that final routing selected is the most cost effective alternative that meets service requirements.

2.7.4.2. Protection of Water Supplies

The Contractor shall ensure that the sewer design meets the following criteria:

- a. Sanitary sewers shall be located no closer than 15m (50 feet) horizontally to reservoirs to be used for potable water supply.
- b. Sanitary sewers shall be no closer than 3 m (10 feet) horizontally to potable water lines; where the bottom of the water pipe will be at least 300mm (12 inches) above the top of the sanitary sewer, horizontal spacing shall be a minimum of 1.8m (6 feet).
- c. Sanitary sewers crossing above potable water lines shall be constructed of suitable pressure pipe or fully encased in concrete for a distance of 2.7m (9 feet) on each side of the crossing. Pressure pipe will be as required for force mains in accordance with local standards and shall have no joint closer than 1m (3 ft) horizontally to the crossing, unless the joint is fully encased in concrete.

2.7.4.3. Quantity of Wastewater

The Contractor shall verify the average daily flow considering both full occupancy (24 hours per day)

occupation of the site. The average daily flow will represent the total waste volume generated over a 24-hour period, and shall be based on the total population of the facility and usage rate of 50 gallons (190 liters) per capita day (water usage). The wastewater flow rate shall be calculated as approximately 80% of water usage rate, or 41 gallons per capita day. Design criteria guideline shall be based on average influent wastewater characteristics as BOD of 250mg/l, SS of 250mg/l, BOD load of 750ppd, and SS load of 750ppd.

2.7.4.4. Gravity Sewer

Sanitary sewers shall be designed to flow at a maximum in the following way: Trunk Sewers - 90 percent full; Laterals and Mains – 80 percent full, Building connections (service) – 70 percent full. Sanitary sewer velocities shall be designed to provide a minimum velocity of 0.6 meters per second (mps) or 2.0 feet per second (fps) at the ADD flow rate and a minimum velocity of 0.8 to 1.05 mps (2.5-3.5fps) at the peak diurnal flow rate. In no case shall the velocity drop below 0.3 mps, (1.0 fps) to prevent settlement of organic solids suspended in the wastewater. Pipe slopes shall be sufficient to provide the required minimum velocities and depths of cover on the pipe. Unless otherwise indicated (see Building Connections and Service Lines), gravity sewer pipe shall be installed in straight and true runs in between manholes with constant slope and direction. Adequate cover must be provided for frost protection. A minimum cover of 800 mm (2'-8") will be required to protect the sewer against freezing.

Table 1. Minimum Slopes for Sewers.

Sewer Size	Minimum Slope in Meters per 100 Meters
100 mm	1.00
150 mm	0.62
200 mm	0.40
250 mm	0.28
300 mm	0.22
350 mm	0.17
375 mm	0.15
400 mm	0.14
450 mm	0.12
525 mm	0.10
600 mm	0.08

2.7.4.5. Manholes

The Contractor shall provide standard depth manholes (MH), (depth may vary) an inside dimension of 1.35m (4 ft). Manholes shall be made of cast-in-place reinforced concrete with reinforced concrete cover. Alternate pre-cast manhole option shall taper to a 750 mm (30-inch) cast iron frame that provides a minimum clear opening of 600 mm (24 inches). In every case, the manholes, frames and covers shall be traffic rated, H-20 load rating. All manholes shall be provided with a concrete bench with a flow line trough, smoothly formed to guide waste flow to the outlet pipe from the inlet pipe(s). The top surface of the bench shall be above the crown of all pipes within the manhole. All surfaces of the bench shall be sloped smoothly toward the trough to guide flow, even under peak flow conditions.

2.7.4.5.1. Manhole Design Requirements

Manholes are required at junctions of gravity sewers and at each change in pipe direction, size or slope, except as noted hereinafter for building connections.

2.7.4.5.2. Spacing

The distance between manholes must not exceed 120m (400 ft) in sewers of less than 460mm (18 in) in diameter. For sewers 460mm (18 in) and larger, and for outfalls from wastewater treatment facilities, a spacing of up to 180m (600 ft) is allowed provided the velocity is sufficient to prevent sedimentation of solids.

2.7.4.5.3. Pipe Connections

The crown of the outlet pipe from a manhole shall be on line with or below the crown of the inlet pipe.

2.7.4.5.4. Frames and Covers

Frames and covers shall be cast iron, ductile iron or reinforced concrete, traffic rated in use to an H-20 load rating. Cast iron frames and covers shall be traffic rated, circular with vent holes.

2.7.4.5.5. Steps for Manholes

Steps shall be cast iron, polyethylene coated, at least 15mm (5/8 in) thick, not less than 400mm (16 in) in width, spaced 300mm (12 in) on center.

2.7.4.6. Pipe

Pipe shall conform to the respective specifications and other requirements as follows: Provide Polyvinyl Vinyl Chloride (PVC) conforming to ASTM D 3034, Type PSM with a maximum SDR of 35, size 380 mm (15inch) or less in diameter. PVC shall be certified as meeting the requirements of ASTM D 1784, cell Class 12454 B.

2.7.4.6.1. Fittings

Fittings shall be compatible with pipe supplied and shall have a strength not less than that of the pipe. Fittings shall conform to the respective specifications and requirements as follows: provide PVC fittings conforming to ASTM D 3034 for type PSM pipe.

2.7.4.6.2. Joints

Joints installation requirements shall comply with the manufacturers installation instructions. Flexible plastic pipe (PVC or high density polyethylene pipe) gasketed joints shall conform to ASTM D 3212.

2.7.4.6.3. Branch Connections

Branch connections shall be made by use of regular fittings or solvent-cemented saddles as approved. Saddles for PVC pipe shall conform to Table 4 of ASTM D 3034.

2.7.4.6.4. Minimum Depth

The minimum depth of the cover over the pipe crown shall be 0.8m (2 ft 8").

2.7.4.6.5. Building Connections and Service Lines

Building connections and service lines will be planned to eliminate as many bends as practical and provide convenience in rodding. Bends greater than 45 degrees made with one fitting should be avoided; combinations of elbows such as 45-45 or 30-60 degrees should be used with a cleanout provided. Connections to other sewers will be made directly to the pipe with standard fittings rather than through manholes. However, a manhole must be used if the connection is more than 31m from the building cleanout. Service connection lines will be a minimum of 150 mm (6 inch) diameter and laid at a minimum 1% grade, but up to 2% as design parameters dictate. Service laterals shall be 200 mm (8 inch) and sloped to maintain the minimum velocity as described in paragraph "Gravity Sewer."

2.7.4.6.6. Cleanouts

Cleanouts must be installed on all sewer-building connections to provide a means for inserting cleaning rods into the underground pipe. Install manufactured wye fittings. In lieu of a wye fitting, an inspection chamber may be installed. The inspection chamber shall be of the same construction as a manhole. Preferably the cleanout will be of the same diameter as the building sewer, and never be smaller than 150mm (6 in). Cleanouts shall be located within 1m from the building.

2.7.4.7. Field Quality Control

2.7.4.7.1. Field Tests and Inspections

The Contracting Officer will conduct field inspections and witness field tests specified in this section. The Contractor shall perform field tests and provide labor, equipment and incidentals required for testing.

Check each straight run of pipeline for gross deficiencies by holding a light in a manhole; it shall show a practically a full circle of light through the pipeline when viewed from the adjoining end of the line. When pressure piping is used in a non-pressure line for non-pressure use, test this piping as specified for non-pressure pipe.

Test lines for leakage by either infiltration tests or exfiltration tests. Prior to testing for leakage, backfill trench up to at least lower half of the pipe. When necessary to prevent pipeline movement during testing, place additional backfill around pipe to prevent movement during testing, but leaving joints uncovered to permit inspection. When leakage or pressure drop exceeds the allowable amount specified, make satisfactory correction and retest pipeline section in the same manner. Correct visible leaks regardless of leakage test results.

Infiltration tests and ex-filtration tests: Perform these tests for sewer lines made of specified material, not only concrete, in accordance with ASTM C 969 and ASTM C 969M. Make calculations in accordance with the Appendix to ASTM C 969M and ASTM 969.

Low-pressure air tests: Perform tests as follows:

(a) Concrete pipe: Test in accordance with ASTM C 924M, ASTM C 924. Allowable pressure drop shall be given in ASTM C 924M ASTM C 924. Make calculations in accordance with the Appendix to ASTM C 924M, ASTM C 924;

(b) Ductile-iron pipe: Test in accordance with the applicable requirements of ASTM C 924M, ASTM C 924. Allowable pressure drop shall be as given in ASTM C 924M, ASTM C 924. Make calculations in accordance with the Appendix to ASTM C 924M, ASTM C 924;

(c) PVC Plastic pipe: Test in accordance with applicable requirements of UBPPA UNI-B-6. Allowable pressure drop shall be as given in UBPPA UNI-B-6. Make calculations in accordance with the Appendix to UBPPA UNI-B-6.

2.7.4.7.2. Deflection Testing

Deflection testing will not be required however; field quality control shall ensure that all piping is installed in accordance with deflection requirements established by the manufacturer.

2.7.5. Storm Sewer Systems

Oil/water separators shall be utilized for all drains from industrial sites. Separators shall be installed as close as possible from the drain location. Storm sewer system shall not be mixed with sanitary sewer system and shall be in accordance with UFC 3-240-07FA.

3.0. ARCHITECTURAL REQUIREMENTS

3.1. GENERAL

See Section 01010 SCOPE OF WORK. Various "For Reference Only" drawings are provided as the basis of design included in this RFP. In particular, processing facilities (Surveillance and Inspection Facility) are based on one existing design provided in this RFP. The Contractor shall adjust that design for those three facilities by updating the plans and specifications to meet current design criteria, and as required in Paragraph 4.2.5.2. through 4.2.5.4. Section 01010 SCOPE OF WORK. All material approved shall become standardized material to be used throughout the facilities under contract. Different sub-Contractors shall not use different material or standards under the contract. Intent of the project is to use locally procured materials (unless specified otherwise) and labor to the maximum extent possible while satisfying seismic building code. Conflicts between criteria shall be brought to the attention of the Contracting Officer for resolution. In such instances, the Contractor shall furnish all available information with justification to the Contracting Officer.

3.2. DESIGN CRITERIA

The Codes, Standards, and Regulations listed herein shall be used in the construction of this project. The publications shall be the referenced editions. Standards other than those mentioned may be accepted provided they meet the minimum requirements and the Contractor shall submit proof of equivalency to the Contracting Officer for approval.

IBC 2006
NFPA 101 2009

3.3. LIFE SAFETY/ FIRE PROTECTION/ HANDICAPPED ACCESSIBILITY

All facilities will be designed in accordance with recognized industry standards for life safety and building egress. The fire detection and alarm system shall be designed and constructed in accordance with paragraph Paragraph 7.5 below. In keeping with the intended function of these facilities, handicapped accessibility will not be required for this project. Only able-bodied military and civilian personnel will use the facilities part of this contract.

3.4. EXCAVATION

Trench excavation shall be made for concrete footings. Trenches shall be a minimum of .8 meter deep. Trenches deeper than 1.5 meters shall have protective shoring to protect workers or have the sides of the trench sloped back at a slope of 1.5:1. Care shall be taken when backfilling of foundation trenches to avoid damage to walls. Any excess dirt shall become the property of the Contractor and shall be removed from the site to a location approved by the Contracting Officer.

3.5. THERMAL PERFORMANCE OF EXTERNAL BUILDING ASSEMBLIES

External building assemblies shall meet the requirements of UFC 3-400-01 Design: Energy

Conservation, and ASHRAE Standard 90.1, and shall meet the following minimum requirements:

Assembly	Minimum Thermal Value
Exterior walls (above grade)	RSI 1.936 (R 13)
Ceilings/roof	RSI 3.345 (R 30)
Exterior doors	RSI 0.25 (R 1.43)
Exterior windows/(and glazing within doors)	RSI 0.308(R 1.75)

RSI measured in m²-K/W, R measured in sqft-F-hr/BTU.

3.6. CONCRETE & MASONRY

3.6.1. Concrete

Place 150 mm (6") of capillary water barrier below areas to receive a concrete slab on properly compacted soil free of organic material. Concrete flooring in wet areas shall slope to the floor drain and not allow for water to puddle. Concrete slabs in all areas shall not be placed prior to inspection and approval of piping and sub-surface by the Contracting Officer. Foundation trenches shall be level and free of loose material. Trenches shall be inspected and approved by the Contracting Officer prior to placing of any concrete foundations. See paragraph 5 for structural characteristics of concrete and reinforcing steel for foundations and slabs.

3.6.2. Precast Concrete

See Paragraphs 4.2.3. and 4.2.4. Section 01010 SCOPE OF WORK. Design precast members in accordance with ACI 318 and the PCI MNL-120. Design precast members (including connections) for the design load conditions and spans indicated, and handling and erection stresses, and for additional loads imposed by openings and supports of the work of other trades. Design precast members for handling without cracking in accordance with the PCI MNL-120.

Precast members shall be erected after the concrete has attained the specified compressive strength. Erect in accordance with the approved shop drawings. Brace precast members, unless design calculations submitted with the shop drawings indicate bracing is not required. Follow the manufacturer's recommendations for maximum construction loads. Place precast members level, plumb, square, and true within tolerances.

3.6.3. Masonry

Storage of masonry materials shall be in a dry place or materials shall be covered with a plastic protective layer. Cover open walls each day to keep them protected and dry. Concrete masonry units (CMU) for exterior walls shall be either 190 mm or 290 mm wide x 390 mm x 190 mm high as shown on drawings. All cells shall be fully grouted and reinforced. They shall be installed in running bond level and plumb. Mortar joints shall be 10 mm on all sides between CMU. Joints shall be struck with a concave tool to provide a smooth recessed curved surface. Install only quality units. The surface shall be free of chips, cracks, or other imperfections that would detract from the overall appearance of the finished wall. Defective CMU or mortar shall be rejected.

3.7. METAL

3.7.1. Building Systems

3.7.1.1. Arch Span

See Paragraph 4.2.6.2. Section 01010 SCOPE OF WORK.

Insulated Arch-Span metal roofing systems shall be supported by reinforced concrete stem walls approximately 2.5 m in height. Stem walls shall be insulated and finished with gypsum board or plaster on the interior, and finished with stucco on the exterior. The floor slab shall be reinforced concrete with a minimum thickness of 150mm placed on a clean vapor barrier above a capillary water barrier of 150mm minimum thickness on properly compacted soil. Exterior walls shall be insulated with a minimum of R-13 insulation, and provide a minimum of R-30 insulation for the roof. The roof insulation system shall be spray applied and harden to a durable rigid surface, as per the arch span manufacturer's standards.

Ribbed steel roof panels shall be mechanically fabricated from prefinished steel coil and joined by machines and operators, all certified by the arch span building manufacturer. The Contractor shall present certificates of manufacturer's training for machine operators, and certificates of authenticity for proprietary machines and equipment.

Only prefinished steel coil certified by the arch-span system manufacturer shall be used on this project. Fasteners for accessories shall be manufacturer's standard. All materials and Concealed fasteners for steel roof panels shall be zinc-coated steel, aluminum, corrosion resisting steel, or nylon capped steel. Fasteners for structural connections shall provide both tensile and shear strength of not less than 350 kg per fastener.

3.7.1.2. Pre-Engineered Metal Building Systems

See Paragraphs 4.2.5.1. and 4.2.5.5. Section 01010 SCOPE OF WORK.

Metal building systems shall comply with the requirements of the MBMA Metal Building Systems Manual. Facilities designated as long-span, shall have no interior columns. See

3.7.2. Trim

3.7.2.1 Metal Window Sills

Galvanized metal window sills, 1 mm (20-gage), shall be installed on the exterior of all windows. The metal window sills shall have a turn down of 50 mm over the exterior masonry and stucco. Metal sills shall extend from side to side of the masonry opening in a single piece. Extend the metal window sill a minimum of 20 mm under the bottom of the aluminum windows. Install masonry mortar as required for a smooth surface under the window sills. Sills shall slope a minimum of 6mm to the exterior and not allow water to puddle.

3.7.2.2 Metal Fascia & Soffit

No wood fascias and/or soffits are allowed. Use metal fascias and soffits throughout. Extend roof decking out over fascia a minimum of 20 mm. Provide a 40 mm drip flashing over edge of roof decking so that it extends past bottom of decking on all sides of the building. Provide continuous soffit venting of all overhangs at both bottom and top of roof slope.

3.7.3. Framing

See Paragraph 4.2.6.3. Section 01010 SCOPE OF WORK. The new administration building basis of design is provided in the "For Reference Only" drawings part of this RFP. Load bearing galvanized steel framing shall be designed in accordance with AISI SG03-3. Design of structural steel members shall be in accordance with AISC 325.

3.8. CARPENTRY

Wood framing shall not be used for the facilities part of this RFP. Rough carpentry for blocking is acceptable.

3.9. ROOFING AND WEATHERPROOFING

All roofing shall be metal architectural or structural standing seam metal dependent on the basis of design provided in the "For Reference Only" drawings provided as part of this RFP. Where no basis of design is provided (i.e., for pre-engineered metal buildings), roof design shall be in accordance with the MBMA Metal Building Systems Manual.

3.9.1. Flashing & Sheet Metal

Flashing and sheet metal shall be compatible with the building systems components provided as bases of design in the "For Reference Only" drawings, or for pre-engineered metal building systems. Flashing shall be designed and installed in accordance with the SMACNA Architectural Sheet Metal Manual.

3.9.1.1. Roof Gutters

Roof gutters shall be installed where indicated in the basis of design "For Reference Only" drawings provided as part of this RFP. The Contractor shall design and install gutters for pre-engineered metal buildings for which no "For Reference Only" drawings are provided. Roof gutters shall be rigidly attached to the building. Supports for roof gutters shall be spaced according to manufacturer's recommendations. Gutters shall be designed and installed in accordance with the SMACNA Architectural Sheet Metal Manual. Gutters shall incorporate expansion joints.

3.9.1.2. Downspouts

Downspouts shall be designed and fabricated on site from material compatible with gutters and adjacent building material components. Unless otherwise specified or indicated, exposed edges shall be folded back to form a 13 mm (1/2 inch) hem on the concealed side, and bottom edges of exposed vertical surfaces shall be angled to form drips. Bituminous cement shall not be placed in contact with roofing membranes other than built-up roofing. Downspouts shall be rigidly attached to the building with supports a minimum of 1.5 M apart. Downspouts shall be designed and installed in accordance with the SMACNA Architectural Sheet Metal Manual.

3.9.1.3. Flashing

Flashing shall be installed at locations indicated in the basis of design "For Reference Only" drawings provided as part of this RFP, and as specified below. Sealing shall be according to the flashing manufacturer's recommendations. Flashings shall be installed at intersections of roof with vertical surfaces and at projections through roof, except that flashing for heating and plumbing, including piping, roof and floor drains, and for electrical conduit projections through roof or walls are specified in other sections. Except as otherwise indicated, counter flashings shall be provided over base flashings. Perforations in flashings made by masonry anchors shall be installed on top of joint reinforcement. Lashing shall be formed to direct water to the outside of the system.

3.9.1.4. Through-wall Flashing

Through-wall flashing includes sill, lintel, and spandrel flashing. The flashing shall be laid with a layer of mortar above and below the flashing so that the total thickness of the two layers of the mortar and flashing are the same thickness as the regular mortar joints. Flashing shall not extend further in to the masonry backup wall than the first mortar joint. Joints in flashing shall be lapped and sealed. Flashing shall be one piece for lintels and sills.

3.9.1.5. Lintel Flashing

Lintel flashing shall extend the full length of lintel. Flashing shall extend through the wall one masonry

course above the lintels and shall be bent down over the vertical leg of the outer steel lintel angle not less than 50 mm, or shall be applied over top of masonry and pre-cast concrete lintels. Bed joints of lintels at joints shall be under laid with sheet metal bond breaker.

3.9.1.6. Sill Flashing

Sill flashing shall extend the full width of the sill and not less than 100 mm beyond ends of sill except at joint where the flashing shall be terminated at the end of the sill.

3.9.1.6. Wall Capping

Wall capping shall be designed and installed as indicated in the basis of design "For Reference Only" drawings provided as part of this RFP for the Conventional Munitions Facility, Tactical Missile Glide Weapon Maintenance Facility, and Surveillance and Inspection Facility.

3.10.1. Sealants

Provide sealants compatible with the material(s) to which it is applied. Do not use a sealant that has exceeded shelf life or has jelled and cannot be discharged in a continuous flow from the gun. Apply the sealant in accordance with the manufacturer's instructions with a gun having a nozzle that fits the joint width. Force sealant into joints to fill the joints solidly without air pockets. Tool smooth fresh sealant after application to ensure adhesion. Sealant shall be uniformly smooth and free of wrinkles. Upon completion of sealant application, roughen partially filled or unfilled joints; apply sealant, and tool smooth as specified. Sealer shall be applied over the sealant when and as specified by the sealant manufacturer.

3.10.1.1 Interior Sealant

ASTM C 834 or ASTM C 920, Type S or M, Grade NS, Class 12.5. Use NT, DIN, BS, or EN equal standards.

3.10.1.2 Exterior Sealant

For joints in vertical and horizontal surfaces, provide ASTM C 920, Type S or M, Grade NS, DIN, BS, or EN equal standards.

3.10.1.3 Floor Joint Sealant

(ASTM C 920) Type S or M, Grade P, class 25, use T

3.10.1.4 Primers

Provide a non-staining, quick-drying type and consistency recommended by the sealant manufacturer for the particular application.

Immediately prior to application of the sealant, clean out loose particles from joints. Where recommended by sealant manufacturer, apply primer to joints in concrete masonry units, wood, and other porous surfaces in accordance with sealant manufacturer's instructions. Do not apply primer to exposed finish surfaces.

3.10.1.5 Bond Breakers

Provide the type and consistency recommended by the sealant manufacturer to prevent adhesion of the sealant to backing or to bottom of the joint.

Provide bond breakers to the back or bottom of joint cavities, as recommended by the sealant manufacturer for each type of joint and sealant used, to prevent sealant from adhering to these surfaces.

Carefully apply the bond breaker to avoid contamination of adjoining surfaces or breaking bond with surfaces other than those covered by the bond breaker.

3.10.1.6 Backing

Backing shall be 25 to 33 percent oversize for closed cell and 40 to 50 percent oversize for open cell material, unless otherwise indicated.

3.10.1.7 Cleaning Solvents

Provide type(s) recommended by the sealant manufacturer except for aluminum and bronze surfaces that will be in contact with sealant.

3.10.1.8 Surface Preparation

Surfaces shall be clean, dry to the touch, and free from dirt, frost, moisture, grease, oil, wax, lacquer, paint, or other foreign matter that would tend to destroy or impair adhesion. Oil and grease shall be removed with solvent and surfaces shall be wiped dry with clean cloths. When resealing an existing joint, remove existing caulk or sealant prior to applying new sealant. For surface types not listed below, the sealant manufacturer shall be contacted for specific recommendations.

3.10.1.9 Masking Tape

Masking tape shall be placed on the finish surface on one or both sides of a joint cavity to protect adjacent finish surfaces from primer or sealant smears. Masking tape shall be removed within 10 minutes after joint has been filled and tooled.

3.10.1.10 Backstops

Install backstops dry and free of tears or holes. Tightly pack the back or bottom of joint cavities with backstop material to provide a joint of the depth specified.

3.10.1.11 Protection

Protect areas adjacent to joints from sealant smears. Masking tape may be used for this purpose if removed 5 to 10 minutes after the joint is filled.

3.10.1.12 Final Cleaning

Upon completion of sealant application, remove remaining smears and stains and leave the work in a clean and neat condition.

a. Masonry and Other Porous Surfaces: Immediately scrape off fresh sealant that has been smeared on masonry and rub clean with a solvent as recommended by the sealant manufacturer. Allow excess sealant to cure for 24 hours then remove by wire brushing or sanding.

b. Metal and Other Non-Porous Surfaces: Remove excess sealant with a solvent-moistened cloth.

3.11. WINDOWS, DOORS & GLAZING

3.11.1. Windows

3.11.1.1 Materials

a. Aluminum Extrusions: Provide alloy and temper recommended by the window

manufacturer for the strength, corrosion resistance, and application of required finish, meeting the DIN 1725 raw material requirements, but not less than 215 N/mm² ultimate tensile strength and not less than 1.5 mm thick at any location for main frame and sash members.

b. Fasteners: Provide aluminum, nonmagnetic stainless steel, epoxy adhesive, or other materials warranted by the manufacturer to be non-corrosive and compatible with aluminum window members, trim, hardware, anchors, and other components of window units.

1. Reinforcement: Where fasteners screw-anchor into aluminum less than 0.125 inch thick, reinforce the interior with aluminum or nonmagnetic stainless steel to receive screw threads or provide standard non-corrosive pressed-in splined grommet nuts.

2. Exposed Fasteners: Except where unavoidable for application of hardware, do not use exposed fasteners. For application of hardware, use fasteners that match the finish of the member or hardware being fastened, as appropriate.

c. Anchors, Clips, and Window Accessories: Fabricate anchors, clips, and window accessories of aluminum, nonmagnetic stainless steel, or hot-dip zinc-coated steel or iron complying with the requirements of DIN 1748; provide sufficient strength to withstand design pressure indicated. As a minimum provide 3 anchors on each side of the frame.

d. Compression-Type Glazing Strips and Weatherstripping: Unless otherwise indicated, and at the manufacturer's option, provide compressible stripping for glazing and weatherstripping such as molded EPDM or neoprene gaskets.

e. Sealant: For sealants required within fabricated window units, provide type recommended by the manufacturer for joint size and movement. Sealant shall remain permanently elastic non-shrinking, and non-migrating. Comply with Sealants of these specifications for selection and installation of sealants.

f. Wire Fabric Insect Screen shall be permanently fixed to the exterior, except for guard towers.

3.11.1.2. Hardware

Provide the manufacturer's standard hardware fabricated from aluminum, stainless steel, or other corrosion-resistant material compatible with aluminum and of sufficient strength to perform the function for which it is intended.

3.11.1.3. Fixed and Single Hung Windows

Provide fixed window units at the ECP meeting UL 752 High-Rifle power rating and single hung window units in the administration building. This standard shall apply to all window units at the ECP and administration building. Provide cam action sweep sash lock and keeper at meeting rails. All other glazing shall be minimum 6mm laminated with .75mm polyvinyl-butyl (PVB) interlayer per UFC 4-010-01.

3.11.1.4. Fabrication

Provide fixed and single hung aluminum windows with factory finish to fit the masonry openings. Single hung window openings shall be provided with insect screening permanently fixed to the exterior. Provide a locking device on the interior of each window. Provide anchors which comply with para. B-3.1.1.4, UFC 4-010-01 into the adjoining masonry. Provide weather stripping system for all exterior windows and doors.

3.11.1.5. Finishes

Apply baked enamel in compliance with paint manufacturer's specifications for cleaning, conversion coating, and painting.

3.11.1.6. Inspection

Inspect openings before beginning installation. Verify that rough or masonry opening is correct and the sill plate is level. Masonry surfaces shall be visibly dry and free of excess mortar, sand, and other construction debris.

3.11.1.7. Installation

Comply with manufacturer's specifications and recommendations for installation of window units, hardware, operators, and other components of the work. Set window units plumb, level, and true to line, without warp or rack of frames or sash. Provide proper support and anchor securely in place. Set sill members and other members in a bed of compound or with joint fillers or gaskets, as shown, to provide weather tight construction. Refer to the Sealant sections for compounds, fillers, and gaskets to be installed concurrently with window units. Coordinate installation with wall flashings and other components of the work.

3.11.1.8. Adjusting

Adjust operating sash and hardware to provide a tight fit at contact points and at weather stripping for smooth operation and a weather tight closure.

3.11.1.9. Cleaning

Clean aluminum surfaces promptly after installation of windows. Exercise care to avoid damage to protective coatings and finishes. Remove excess glazing and sealant compounds, dirt, and other substances. Lubricate hardware and other moving parts.

3.11.2. Doors

All exterior doors (entry and exit doors) shall be heavy duty metal doors with metal frames. Interior door shall be hollow metal doors with hollow metal frames. Exterior doors and glazing shall meet the requirements of UFC 4-010-01. Commercial duty lock sets and hardware shall be used on all doors. Install required louvers where required in the lower portion of the door. Provide (3) hinges on all doors. Hinges shall be the 5 knuckle type or equivalent. Provide door handles and locksets that can be locked with a key on all doors. All door locks shall have a thumb latch on the inside of each door such that no key is necessary to exit the room or building. Coordinate the final keying schedule with Contracting Officer prior to ordering lock sets. Generally each building should have 8 master keys fitting all locks, 8 sub-master keys fitting all exterior doors and 3 keys each for each interior door. Include 25% spare key blanks for the amount of keys provided per building. Provide numbering system identifying key to associated room door. Provide weather stripping system for all exterior doors.

3.11.2.1. Solid Plastic & Phenolic doors

Solid Plastic & Phenolic doors and frames are for interior wet room use only. Solid Plastic & Phenolic doors and frames be used for bathrooms, shower rooms, and toilets rooms.

3.11.2.2. Steel Doors

SDI A250.8, except as specified otherwise. Prepare doors to receive specified hardware. Undercut where indicated. Exterior doors shall have top edge closed flush and sealed to prevent water intrusion. Doors shall be 44.5 mm thick, unless otherwise indicated. Doors shall be constructed using heavy gauge steel with minimum thickness of 1.2 mm.

3.11.2.2.1. Accessories

3.11.2.2.1.1. Interior Louvers

SDI 111-C, Louvers shall be stationary sight-proof or lightproof type as required. Louvers for lightproof doors shall not transmit light. Detachable moldings on room or non security side of door; on security side of door, moldings to be integral part of louver. Form louver frames of 0.9 mm thick steel and louver blades of a minimum 0.6 mm. Louvers for lightproof doors shall have minimum of 20 percent net-free opening. Sight-proof louvers shall be inverted "V" blade design with minimum 55 or inverted "Y" blade design with minimum 40 percent net-free opening.

3.11.2.2.1.2. Exterior Louvers

Louvers shall be inverted "Y", "V" or "Z" type. Weld or tenon louver blades to continuous channel frame and weld assembly to door to form watertight assembly. Form louvers of hot-dip galvanized steel of same gage as door facings. Louvers shall have steel-framed insect screens secured to room side and readily removable. Provide aluminum wire cloth, 7 by 7 per 10 mm or 7 by 6 per 10 mm mesh, for insect screens. Location of intake air louvers shall be at least 3M above exterior grade per para. B-4.1, UFC 4-010-01.

3.11.2.2.1.3. Astragals

Provide overlapping steel astragals on pairs of exterior steel doors which will not have aluminum astragals or removable mullions. For interior pairs of fire rated and smoke control doors, provide stainless steel astragals complying with NFPA 80 for fire rated assemblies and NFPA 105 for smoke control assemblies.

3.11.2.2.1.4. Moldings

Provide moldings around glass of interior and exterior doors. Provide non-removable moldings on outside of exterior doors and on corridor side of interior doors. Other moldings may be stationary or removable. Secure inside moldings to stationary moldings, or provide snap-on moldings. Moldings shall interlock at intersections and shall be fitted and welded to stationary moldings.

3.11.2.2.2. Standard Steel Frames

SDI A250.8, except as otherwise specified. Form frames to sizes and shapes indicated, with welded corners or knock-down field-assembled corners. Provide steel frames for doors, transoms, sidelights, mullions, cased openings, and interior glazed panels, unless otherwise indicated.

3.11.2.2.2.1. Welded Frames

Continuously weld frame faces at corner joints. Mechanically interlock or continuously weld stops and rabbets. Grind welds smooth.

3.11.2.2.2.2. Mullions and Transom Bars

Mullions and transom bars shall be closed or tubular construction and shall member with heads and jambs butt-welded thereto or knock-down for field assembly. Bottom of door mullions shall have adjustable floor anchors and spreader connections.

3.11.2.2.2.3. Stops and Beads

Form stops and beads from 0.9 mm thick steel. Provide for glazed and other openings in standard steel

frames. Secure beads to frames with oval-head, countersunk Phillips self-tapping sheet metal screws or concealed clips and fasteners. Space fasteners approximately 300 to 400 mm on centers; miter molded shapes at corners; butt or miter square or rectangular beads at corners.

3.11.2.2.3. Anchors

Provide anchors to secure the frame to adjoining construction. Provide steel anchors, zinc-coated or painted with rust-inhibitive paint, anchors not lighter than 1.2 mm thick.

3.11.2.2.3.1. Wall Anchors

Provide at least three anchors for each jamb. For frames which are more than 2285 mm in height, provide one additional anchor for each jamb for each additional 760 mm or fraction thereof.

a. Masonry: Provide anchors of corrugated or perforated steel straps or 5 mm diameter steel wire, adjustable or T-shaped;

b. Completed openings: Secure frames to previously placed concrete or masonry with expansion bolts

3.11.2.2.3.2. Floor Anchors

Provide floor anchors drilled for 10 mm anchor bolts at bottom of each jamb member. [Where floor fill occurs, terminate bottom of frames at the indicated finished floor levels and support by adjustable extension clips resting on and anchored to the structural slabs.

3.11.2.2.4. Fire and Smoke Doors and Frames

The requirements of NFPA 80 and NFPA 105 respectfully shall take precedence over details indicated or specified.

3.11.2.2.5. Weather-stripping, Integral Gasket

Black synthetic rubber gasket with tabs for factory fitting into factory slotted frames, or extruded neoprene foam gasket made to fit into a continuous groove formed in the frame, may be provided in lieu of head and jamb seals. Insert gasket in groove after frame is finish painted.

3.11.2.2.6. Hardware Preparation

Provide minimum hardware reinforcing gages as specified in ANSI A250.6. Drill and tap doors and frames to receive finish hardware. Prepare doors and frames for hardware in accordance with the applicable requirements of SDI A250.8 and ANSI A250.6. For additional requirements refer to BHMA A115. Drill and tap for surface-applied hardware at the project site. Build additional reinforcing for surface-applied hardware into the door at the factory. Locate hardware in accordance with the requirements of SDI A250.8, as applicable. Punch door frames, with the exception of frames that will have weather-stripping or lightproof or soundproof gasketing, to receive a minimum of two rubber or vinyl door silencers on lock side of single doors and one silencer for each leaf at heads of double doors. Set lock strikes out to provide clearance for silencers.

3.11.2.2.7. Finishes

All surfaces of doors and frames shall be thoroughly cleaned, chemically treated and factory primed with a rust inhibiting coating as specified in SDI A250.8, or paintable A25 galvanized steel without primer. Where coating is removed by welding, apply touchup of factory primer.

3.11.2.2.8. Fabrication and Workmanship

Finished doors and frames shall be strong and rigid, neat in appearance, and free from defects, waves, scratches, cuts, dents, ridges, holes, warp, and buckle. Molded members shall be clean cut, straight, and true, with joints coped or mitered, well formed, and in true alignment. Dress exposed welded and soldered joints smooth. Design door frame sections for use with the wall construction indicated. Corner joints shall be well formed and in true alignment. Conceal fastenings where practicable. On wraparound frames for masonry partitions, provide a throat opening 3 mm larger than the actual masonry thickness. Design other frames in exposed masonry walls or partitions to allow sufficient space between the inside back of trim and masonry to receive calking compound.

3.11.2.2.9. Installation of Doors & Frames

3.11.2.2.9.1. Frames

Set frames in accordance with SDI 105. Plumb, align, and brace securely until permanent anchors are set. Anchor bottoms of frames with expansion bolts or powder-actuated fasteners. Build in or secure wall anchors to adjoining construction. Backfill frames with mortar. When an additive is provided in the mortar, coat inside of frames with corrosion-inhibiting bituminous material. For frames in exterior walls, ensure that stops are filled with rigid insulation before grout is placed.

3.11.2.2.9.2. Grouted Frames

For frames to be installed in exterior walls and to be filled with mortar or grout, fill the stops with strips of rigid insulation to keep the grout out of the stops and to facilitate installation of stop-applied head and jamb seals.

3.11.2.2.9.3. Doors

Hang doors in accordance with clearances specified in SDI A250.8. After erection and glazing, clean and adjust hardware.

3.11.2.2.9.4. Fire and Smoke Doors and Frames

Install fire doors and frames, including hardware, in accordance with NFPA 80.

3.11.2.2.9.5. Protection and Cleaning

Protect doors and frames from damage. Repair damaged doors and frames prior to completion and acceptance of the project or replace with new, as directed. Wire brush rusted frames until rust is removed. Clean thoroughly. Apply an all-over coat of rust-inhibitive paint of the same type used for shop coat. Upon completion, clean exposed surfaces of doors and frames thoroughly. Remove mastic smears and other unsightly marks.

3.11.2.3. Wood Doors and Frames

Provide doors that are wood, solid core, 900/1000/1100/1200 mm. Wide x 2200 mm. High x 45 mm. Thick with steel frame to match new door masonry openings. All glazed doors shall have 5 mm. single tempered glazing

3.11.2.3.1. Door Lite Openings

Provide glazed openings with the manufacturer's standard wood moldings except that moldings for doors to receive natural finish shall be of the same species and color as the face veneers. Moldings for flush doors shall be lip type.

3.11.2.3.2. Pre-fitting

At the Contractor's option, doors may be provided factory pre-fit. Doors shall be sized and machined at the factory by the door manufacturer in accordance with the standards under which they are produced. The work shall include sizing, beveled edges, mortising, and drilling for hardware and providing necessary beaded openings for glass and louvers. Provide the door manufacturer with the necessary hardware samples, and frame and hardware schedules as required to coordinate the work.

3.11.2.3.3 Finishes

Provide door finish colors as selected by the Contracting Officer from the color selection samples.

3.11.2.3.4 Water-Resistant Sealer

Provide a water-resistant sealer compatible with the specified finish as approved and as recommended by the door manufacturer.

3.11.2.3.5 Installation

Before installation, seal top and bottom edges of doors with the approved water-resistant sealer. Seal cuts made on the job immediately after cutting using approved water-resistant sealer. Fit, trim, and hang doors with a 2 mm minimum, 3 mm maximum clearance at sides and top, and a 5 mm minimum, 6 mm maximum clearance over thresholds. Provide 10 mm minimum, 11 mm maximum clearance at bottom where no threshold occurs. Bevel edges of doors at the rate of 3 mm in 50 mm. Door warp shall not exceed 6 mm when measured in accordance with WDMA I.S. 1-A.

Install doors in strict accordance with the manufacturer's printed instructions and details. Provide weather stripping on exterior swing-type doors at sills, heads and jambs to provide weather tight installation. Apply weather stripping at sills to bottom rails of doors and hold in place with a brass or bronze plate. Apply weather stripping to door frames at jambs and head. Shape weather stripping at sills to suit the threshold.

3.11.2.4. Overhead Coiling Doors

Doors shall be fabricated from interlocking cold-rolled slats, designed to withstand building wind loading and be installed with wind locks. Slats shall be continuous for the width of the door. For doors not exceeding 4.27 m, slats shall be flat-profile design, with a depth of not less than 15.9 mm, a center to center width not more than 69.9 mm, and not less than a 1.21 mm uncoated thickness. Provide weather stripping for door-head and door jamb guides, and a bottom astragal. Weather stripping and astragal shall be natural rubber or neoprene rubber. Curtain jamb guides shall be fabricated from a combination of steel angles of sufficient size to retain curtain against the specified wind. Guides shall be fabricated from structural quality steel angles. Door shall have manufacturer's standard five pin tumbler locks; keyed. Doors shall be counterbalanced by an adjustable, steel, helical torsion spring mounted around a steel shaft in a spring barrel and connected to the door curtain with the required barrel rings. Hoods shall be fabricated from steel sheets with minimum yield strength of 227.5 MPa. When required elsewhere in this RFP where insulated exterior overhead coiling doors are a requirement, provide a slat system with a minimum R-value of 4. Slats to consist of a urethane or polystyrene cores not less than 17 mm thick, completely enclosed within metal facings. Exterior face of slats must be the same gauge as specified for curtains. Interior face must be not lighter than 0.56 mm. The insulated slat assembly shall have a flame spread rating of not more than 25 and a smoke development factor of not more than 50 when tested in accordance with ASTM E84.

Counterbalance-barrel components shall be as follows:

(a) Spring barrels shall be hot-formed structural-quality carbon steel, welded or seamless pipe. Pipe shall be of sufficient diameter and wall thickness to limit deflection to a maximum of 1/360 of the span.

(b) Counterbalance springs shall be oil-tempered helical steel springs designed with a safety factor of 4. Springs shall be sized to counterbalance the weight of the curtain at any point of its travel, and shall be capable of being adjusted to counterbalance not less than 125% of the normal curtain load. Spring adjustment shall be arranged in such a way that the curtain need not be raised or lowered to secure the adjustment.

(c) Counterbalance shafts shall be case-hardened steel of the proper size to hold the fixed ends of the spring and carry the torsion load of the spring.

(d) Barrel plugs shall be fabricated from cast steel machined to fit the ends of the barrel. Plugs shall secure the ends of the spring to the barrel and the shaft.

(e) Barrel rings shall be fabricated from malleable iron of the proper involute shape to coil the curtain in a uniformly increasing diameter.

(f) Shaft bearings shall be factory sealed ball bearings of the proper size for load and shaft diameters.

(g) Door operators shall consist of an endless steel hand chain, chain-pocket wheel and guard, and a geared reduction unit of at least a 3:1 ratio. Required pull for operation shall not exceed 16 kg. Chain hoists shall have a self-locking mechanism allowing the curtain to be stopped at any point in its upward/downward travel and to remain in that position until moved to the fully open or closed position. Hand chains shall be cadmium-plated alloy steel with a yield point of at least three times the required hand-chain pull. Pretreated zinc-coated steel sheets shall be given the manufacturer's standard prime coat and an enamel finish coat applied to the exterior face after forming.

(h) After installation, doors, track, and operating equipment will be examined and tested for general operation and weather against the specified wind pressure, and weather resistance. Doors that fail the required tests shall be adjusted and retested. Doors that have been adjusted and fail subsequent tests shall be removed and replaced with new doors at no additional cost.

3.11.3. Glass & Glazing

Glazing shall conform to ASTM C 1036 or ASTM C 1172 or equal.

3.11.3.1. Laminated Glass

Laminated glass shall be constructed out of two, 3mm glass panes bonded together with a minimum .75mm polyvinyl-butylal (PVB) interlayer.

3.11.3.2. Insulated Glass

Exterior glazing for Administration Building shall be insulated, constructed of two panes of glass separated by hermetically sealed 12mm airspace. Inner layer of insulated glass shall comply with para. 3.11.3.1 above.

3.11.3.3. Bullet Resisting Glass

Fixed glazing at the ECP shall be polyvinyl butylal plastic interlayers between glass layers as listed in the UL Mechanical Equipment and Associated Products Directory as bullet resisting with a power rating of High-Rifle in accordance with UL 752.

3.11.3.4. Not Used

3.11.3.5. Glazing Accessories

3.11.3.5.1. Sealant

Sealant shall be elastomeric conforming to ASTM, DIN, BS, or EN standards. Type S or M, Grade NS, Class 12.5, Use G, of type chemically compatible with setting blocks, preformed sealing tape and sealants used in manufacturing insulation glass. Color of sealant shall be as selected from manufacturer's full range of standard colors by Contracting Officer.

3.11.3.5.2. Glazing Gaskets

Glazing gaskets shall be extruded with continuous integral locking projection designed to engage into metal glass holding members to provide a watertight seal during dynamic loading, building movements and thermal movements. Glazing gaskets for a single glazed opening shall be continuous one-piece units with factory-fabricated injection-molded corners free of flashing and burrs. Glazing gaskets shall be in lengths or units recommended by manufacturer to ensure against pull-back at corners.

For exterior fixed windows, UFC 4-010-01, para. B-3.1.1.3 requires structurally glazed windows using structural silicone.

3.11.3.5.2.1. Fixed Glazing Gaskets

Fixed glazing gaskets shall be closed-cell (sponge) smooth extruded compression gaskets of cured elastomeric virgin neoprene compounds conforming to ASTM, DIN, BS, or EN standards.

3.11.3.5.2.2. Wedge Glazing Gaskets

Wedge glazing gaskets shall be high-quality extrusions of cured elastomeric virgin neoprene compounds, ozone resistant, conforming to ASTM, DIN, BS, or EN standards.

3.11.3.5.3. Putty and glazing Compound

Glazing compound shall conform to ASTM, DIN, BS, or EN standards for face-glazing metal sash. Putty shall be linseed oil type conforming to DIN, BS, or EN standards for face-glazing primed wood sash. Putty and glazing compounds shall not be used with insulating glass or laminated glass.

3.11.3.5.4. Setting and Edge Blocking

Neoprene setting blocks shall be dense extruded type conforming to ASTM, DIN, BS, or EN standards. Silicone setting blocks shall be required when blocks are in contact with silicone sealant. Profiles, lengths and locations shall be as required and recommended in writing by glass manufacturer.

3.11.3.5.4.1. Preparation

Openings and framing systems scheduled to receive glass shall be examined for compliance with glass manufacturer's recommendations including size, squareness, offsets at corners, presence and function of weep system, face and edge clearance requirements and effective sealing between joints of glass-framing members. Detrimental materials shall be removed from glazing rabbet and glass surfaced and wiped dry with solvent. Glazing surfaces shall be dry and free of frost.

3.11.3.5.4.2. Installation

Glass and glazing work shall be performed in accordance with, glass manufacturer's instructions and

warranty requirements. Glass shall be installed with factory labels intact and removed only when instructed. Edges and corners shall not be ground, nipped or cut after leaving factory. Springing, forcing or twisting of units during installation will not be permitted.

3.11.3.5.4.3. Cleaning

Upon completion of project, outside surfaces of glass shall be washed clean and the inside surfaces of glass shall be washed and polished in accordance with glass manufacturer's recommendations.

3.11.3.5.4.4. Protection

Glass work shall be protected immediately after installation. Glazed openings shall be identified with suitable warning tapes, cloth, or paper flags, attached with non-staining adhesives. Reflective glass shall be protected with a protective material to eliminate any contamination of the reflective coating. Protective material shall be placed far enough away from the coated glass to allow air to circulate to reduce heat buildup and moisture accumulation on the glass. Glass units which are broken, chipped, cracked, abraded, or otherwise damaged during construction activities shall be removed and replaced with new units.

3.12. FINISHES

All finishes, colors and materials in existing building and new buildings shall match. See Section 01335 SUBMITTAL REQUIREMENTS FOR DESIGN-BUILD PROJECTS for color submittals required. Provide color boards with all materials for COR approval prior to ordering materials.

3.12.1. Exterior Walls

The exterior of masonry buildings shall be Portland cement plaster conforming to ASTM C926 installed over rigid insulation. A temperature of between 4 and 27 degrees C shall exist for a period of not less than 48 hours prior to application of plaster and for a period of at least 48 hours after plaster has set. Control joints shall be designed for expansion and contraction of plaster work due to thermal exposure. Control joints shall comprise of back to back casing beads. Install new stucco in 2 coats. The first coat shall be a scratch coat approximately 1 cm thick. Allow 7 days to cure. The second coat shall be finish stucco, smooth finish, approximately 1 cm thick. Allow 7 days to cure before painting. Stucco showing over sanding, cracks, blisters, pits, checks, discoloration or other defects is not acceptable. Defective plaster work shall be removed and replaced with new plaster at the expense of the Contractor. Patching of defective work will be permitted only when approved by the Contracting Officer. Patching shall match existing work in texture and color. All exterior color finish shall be integral with the stucco finish. No painted stucco shall be permitted due to minimize future maintenance. Color to be selected by the Contracting Officer from the color board provided by the Contractor.]

3.12.2. Interior Walls

Interior walls may be gypsum wallboard on galvanized steel studs or furring, masonry, or poured concrete. Provide block filler on exposed masonry. Paint with 2 coats of semi-gloss latex. Color to be selected by the Contracting Officer from the color board provided by the Contractor.

3.12.3. Interior Ceilings

Ceilings shall be suspended acoustical or gypsum board. See the basis of design "For Reference Only" drawings provided as part of this RFP.

3.12.4. Exposed Exterior Steel trim, Frames, Doors and Pipe Railings

Paint with one coat oil-based primer, with 2 coats of oil-based alkyd gloss enamel, color to be selected by

the Contracting Officer from the color board provided by the Contractor.

3.12.5. Exposed Wood Trim, Frames and Doors

Paint with one coat oil-based primer, 2 coats of gloss enamel, color to be selected by the Contracting Officer from the color board provided by the Contractor

3.12.6. Tile Work

Tile work shall not be performed unless the substrate and ambient temperature is at least 10 degrees C and rising. Temperature shall be maintained above 10 degrees C while the work is being performed and for at least 7 days after completion of work. Upon completion, tile surfaces shall be thoroughly cleaned in accordance with manufacturer's approved cleaning instructions. Acid shall not be used for cleaning glazed tile. Floor tile with resinous grout or with factory mixed grout shall be cleaned in accordance with instructions of the grout manufacturer. After the grout has set, tile wall surfaces shall be given a protective coat of a non-corrosive soap or other approved method of protection.

3.12.6. 1. Floors in wet areas shall be ceramic or 300 mm x 300 mm terrazzo tile with thin set mortar. Joints shall be 2-3 mm. Waterproof gray grout shall be applied the full depth of the tile. Floors shall slope, minimum 1/50, to floor drains. Slope shall be obtained with sloping mortar bed of minimum 20 mm thickness. Provide continuous waterproofing membrane beneath sloping mortar bed, turn up wall 300 mm behind wall base. Membrane shall be fully sealed at joints and shall shed water into body of floor drain. Color of tile shall be selected by the Contracting Officer from samples provided by the Contractor.

3.12.6. 2. Floors shall be 300 mm x 300 mm terrazzo tile with thin set mortar (in place of vinyl composition tile for the Conventional Munitions Facility, Tactical Missile Glide Weapon Maintenance Facility, and Surveillance and Inspection Facility), painted concrete, or sealed concrete. Joints shall be 2-3 mm. Waterproof gray grout shall be applied the full depth of the tile. Color of tile shall be selected by the Contracting Officer from samples provided by the Contractor.

3.12.6. 3. Walls in wet areas shall be tiled with 150 mm x 150 mm glazed ceramic tile up to 2 meters above the floor to include interior of toilet stalls, showers and behind sinks. Joints shall be 2-3 mm. Waterproof gray grout shall be applied full depth of the tile. Grout shall cure for 72 hours and then be sealed with a commercial grout sealant in two coats. Color of tile shall be selected by the Contracting Officer from samples provided by the Contractor.

3.13. SPECIALTIES

3.13.1. Mirrors

0.6 m x 0.9 m, 6 mm plate glass shall be mounted above all lavatories. Mount bottom of mirrors 1.1m above finished floor.

3.13.2. Toilet Paper Holders

Toilet paper holders, stainless steel, shall be installed approximately 600 mm above floor.

3.13.3. Shower Curtain Rods & Shower Curtain

Shower curtain rods, stainless steel, heavy duty, 18 gauge shall be mounted between the screen walls of each shower stall. Mount rod at 2.0 m above finished floor. Provide a shower curtain with support rings for each shower stall.

3.13.4. Grab-Bars

Stainless steel grab-bars, heavy duty, 18 gauge, two each 900 mm and 1050 mm long, 40 mm diameter shall be mounted behind and beside all eastern toilets, and bathtubs as they occur.

3.13.5. Paper Towel Dispensers

Paper towel dispensers, 0.683 mm Type 304 stainless steel, surface mounted. Furnish tumbler key lock locking mechanism.

3.13.6. Light Duty Metal Shelf

Provide a 600 mm long, light duty stainless steel shelf and brackets over each lavatory.

3.13.7. Robe Hooks

Robe hooks on all toilet and shower stalls required.

4.0. STRUCTURAL

4.1. GENERAL

The project consists of various structures. The new buildings shall be provided with a reinforced concrete slab foundation that is properly placed on suitable compacted ground area and shall be in accordance with the recommendations from the geotechnical investigation. The reinforced concrete foundation shall be designed by the Contractor. Building foundations shall be founded a minimum of 800 mm below grade.

4.2. DESIGN

Design shall be performed and design documents signed by a registered professional engineer. Calculations shall be in SI (metric) units of measurements. All components of the building shall be designed and constructed to support safely all loads without exceeding the allowable stress for the materials of construction in the structural members and connections. All building exterior walls shall be constructed with reinforced CMU or reinforced concrete unless otherwise stated in Sections 01010 SCOPE OF WORK.

4.3. STANDARDS

The Contractor should use the following American standards to provide sound structural design if local standards are not available, relevant, or applicable. The Contractor shall follow American Concrete Institute Standards for design and installation of all concrete structures.

Concrete	27.6MPa (f'c) (4000psi) minimum specified compressive strength @ 28 days (ASTM- C 39 and ACI 318) with a maximum water-cement ratio of 0.5.
Plaster strength	140.0 kg./sq.cm (f'c) (2000psi) conforming to ASTM C 926.
Steel Reinforcement	4218.0 kg./sq.cm(Fy= 60.0 ksi),yield strength.
Welded Wire Fabric	ASTM A185
Anchor Bolts	ASTM A307 using A36 steel.
Concrete Masonry Units	ASTM C90, Type I (normal wt, moisture Cntrl).
Mortar	ASTM C270, Type S (Ultimate compressive strength of 130.0 kg/sq. cm.)
Proportion	1 part cement, 0-1/2 part lime and 4-1/2 parts aggregate
Grout	ASTM C476 (Slump between 200 mm to 250 and Compressive Strength 14 MPa (2000 psi) at 28 days.
Joint Reinforcement	Standard 9 gauge minium, Ladder Type

Structural Steel ASTM A36: 2530.0 kg./sq.cm (Fy = 36,000psi) (minimum)
Welding AWS (American Welding Society) D1.1-2002.

4.4. DEAD AND LIVE LOADS

Dead loads consist of the weight of all materials of construction incorporated in the buildings. Live loads used for design shall be in accordance with the Structural Load Data, UFC-3-310-01, and edition as referenced herein.

4.5. WIND LOADS

Wind loads shall be calculated using a "3-second gust" wind speed of 135 km/hr.

4.6. SEISMIC

The building and all parts thereof shall be designed for the seismic requirements as defined by the International Building Code referenced herein. Spectral accelerations shall be $S_s = 1.28g$ and $S_1 = 0.51g$.

4.7. STRUCTURAL CONCRETE

Concrete structural elements shall be designed and constructed in accordance with the provisions of ACI 318. A minimum cylinder 28 day compressive strength of 27.6 MPa (4000 psi) shall be used for design and construction of all concrete except that precast concrete for the Earth Covered Magazines shall meet the requirements shown in the "For Reference Only" drawings provided in this RFP, and the Contractor shall verify concrete requirements for the Above Ground Magazine as part of design. Reinforcing steel shall be deformed bars conforming to American Society for Testing and Materials (ASTM) publication ASTM A 615, Deformed and Plain Billet-Steel Bars for Concrete Reinforcement. Concrete at or below grade shall have maximum water-cement ration of 0.50. No concrete shall be placed when the ambient air temperature exceeds 32 degrees C (90 degrees F) unless an appropriate chemical retardant is used. In all cases when concrete is placed at 32 degrees C (90 degrees F) or hotter it shall be covered and kept continuously wet for a minimum of 48 hours. Concrete members at or below grade shall have a minimum concrete cover over reinforcement of 75 mm (3 inch).

4.8. MASONRY

Masonry shall be designed and constructed in accordance with the provisions of Building Code Requirements for Masonry Structures, ACI 530/ASCE 5/TMS 402, latest editions. Mortar shall be Type S and conform to ASTM C 270, latest edition. Masonry shall not be used below grade, unless for fully grouted and reinforced foundation stem walls. All cells of CMU walls shall be fully grouted and reinforced.

4.9. STRUCTURAL STEEL

Structural steel shall be designed and constructed in accordance with the provisions of American AISC Specifications for Structural Steel Buildings. Design of cold-formed steel structural members shall be in accordance with the provisions of American Iron and Steel Institute (AISI), Specifications for Design of Cold-Formed Steel Structural Members.

4.10. METAL DECK

Deck units shall conform to SDI Publication Number 29. Panels of maximum possible lengths shall be used to minimize end laps. Deck units shall be fabricated in lengths to span three or more supports with flush, telescoped or nested 50 mm (2 inch) laps at ends, and interlocking, or nested side laps. Metal deck units shall be fabricated of steel thickness required by the design and shall be galvanized.

4.11. OPEN WEB STEEL JOIST

Open web steel joists shall conform to SJI Specifications and Tables. Joists shall be designed to support the loads given in the standard load tables of SJI Specifications and Tables.

4.12. FOUNDATIONS

The foundation systems shall be based on the recommendations of the Contractor's geotechnical investigation in accordance with the Geotechnical investigation requirements of this RFP.

4.13. EARTHWORK AND FOUNDATION PREPARATION

4.13.1. Capillary Water barrier

ASTM C 33 fine aggregate grading with a maximum of 3 percent by weight passing ASTM D 1140, 75 micrometers, No. 200 sieve, or 37.5mm and no more than 2 percent by weight passing the 4.75mm No. 4 size sieve and conforming to the soil quality requirements specified in the paragraph entitled "Satisfactory Materials."

4.13.2. Satisfactory Materials

Any materials classified by ASTM D 2487 as GW, GW-GM, GW-GC, SW, SW-SM, or SW-SC and free of debris, roots, wood, scrap material, vegetation, refuse, soft unsound particles, or objectionable materials. Unless specified otherwise, the maximum particle diameter shall be one-half the lift thickness at the intended location.

4.13.3. Unsatisfactory Materials

Any materials which do not comply with the requirements set forth in the Satisfactory Materials paragraph. Unsatisfactory materials also include man-made fills, trash, refuse, or backfills from previous construction. Unsatisfactory material also includes material classified as satisfactory which contains root and other organic matter, frozen material, and stones larger than 75mm. The Contracting Officer shall be notified of any unsatisfactory materials.

4.13.4. Clearing and Grubbing

Unless indicated otherwise, remove trees, stumps, logs, shrubs, brush and vegetation, and other items that would interfere with construction operations within lines 1.5 meters outside of the building and structure line. Remove stumps entirely. Grub out matted roots and roots over 50mm in diameter to at least 460mm below existing surface.

4.13.5. Stripping

Strip suitable soil from the site where excavation or grading is indicated and stockpile separately from other excavated material. Material unsuitable for use as topsoil shall be stockpiled and used for backfilling. Locate topsoil so that the material can be used readily for the finished grading. Where sufficient existing topsoil conforming to the material requirements is not available on site, provide borrow materials suitable for use as topsoil. Protect topsoil and keep in segregated piles until needed.

4.13.6. Excavation and Compaction of Fill

Excavate to contours, elevation, and dimensions indicated. Reuse excavated materials that meet the specified requirements for the material type required at the intended location. Keep excavations free from water. Excavate soil disturbed or weakened by Contractor's operations, soils softened or made unsuitable for subsequent construction due to exposure to weather. Excavations below indicated depths

will not be permitted except to remove unsatisfactory material. Unsatisfactory material encountered below the grades shown shall be removed as directed. Refill with satisfactory material and compact to at least 95 percent of the maximum dry density, as determined by the Modified Proctor laboratory procedure. ASTM D 1557 shall be used for producing the Modified Proctor moisture-density curve, unless the soil to be compacted includes more than 30% retained on the 19 mm (3/4") sieve. In this case, the Contractor must replace the ASTM D 1557 laboratory compaction procedure with AASHTO T 180, Method D, corrected with AASHTO T 224.

During compaction, the moisture content of the soil shall be within 1.5 percent of the optimum moisture content, as determined by the Modified Proctor laboratory procedure. The thickness of compacted lifts shall not exceed 15 cm and the dry density of each compacted lift shall be tested by either sand cone (ASTM D 1556) or nuclear gage (ASTM D 2292). If the nuclear gage is used, it must first be compared to sand cone tests for each soil type to verify the accuracy of the nuclear gage measurements for moisture content, wet density, and dry density. Furthermore, every tenth nuclear gage test must be accompanied by a sand cone test and these verification data must be summarized and submitted to the Contracting Officer. Density tests shall be performed at a frequency of not less than one test for each 200 square meters and not less than two tests per compacted lift.

4.13.7. Structures with Spread Footings

Ensure that footing subgrades have been inspected and approved by the Contracting Officer prior to concrete placement. Fill over excavations with concrete during foundation placement.

4.14. MODULAR CONEX UNITS

See Paragraph 4.2.5.6. Section 01010 SCOPE OF WORK.

5.0. MECHANICAL

5.1. GENERAL

The work covered by this section consists of design, supply, fabrication and installation of new building heating, ventilation and air-conditioning (HVAC) systems. It also includes the delivery to site, erection, setting to work, adjusting, testing, balancing and handing over in perfect operating and running condition all of the HVAC equipment including all necessary associated mechanical works.

5.2. SPECIALIST SUB-CONTRACTORS QUALIFICATIONS

The heating, ventilation, and air-conditioning works shall be executed by an air-conditioning specialist sub-Contractor experienced in the design and construction HVAC equipment to include conventional compression systems, heat pump units, space heaters and knowledge in fabricating specialized units consisting of supplemental electric resistance heaters in satisfying the specified indoor design conditions. HVAC equipment will normally consist of ductless split heat pump units with supplemental electric heating elements, ducted packaged heat pump units with supplemental electric resistance heaters, industrial quality unit heaters, air ventilation systems and specialized industrial ventilation systems. The HVAC heating and cooling load calculations shall be prepared using recognized HVAC load analysis programs such as Trane "Trace" or Carrier "HAP". The heating and cooling load calculations shall take into account the site elevation and ambient design temperatures when determining required HVAC equipment capacities and airflows. The HVAC specialist shall submit the complete HVAC analysis at the 65% design submittal. The HVAC analysis shall clearly state the type of systems to be used and how the system will satisfy the specified indoor design conditions. Provide related psychrometric charts showing the air wet bulb and dry bulb temperatures at each section of the heat/cool unit during both design heating and cooling operation.

Provide complete, edited specifications for selected HVAC system. The edited specifications shall be

submitted along with the 65% design submittal. The specifications shall be coordinated with the manufacturer of the equipment.

5.3. CODES, STANDARDS AND REGULATIONS

The equipment, materials and works covered under the heating, ventilation and air-conditioning services shall conform to the referenced standards, codes and regulations where applicable except where otherwise mentioned under each particular clause.

5.4. DESIGN CONDITIONS

Outside Design Conditions (Contractor shall verify the ambient conditions with available and reliable local weather data).

Bagram area :

Latitude – (approx.) 35 deg. deg. North

Longitude – (approx.) 69 deg. East

Elevation – (approx.) 1490 M (4888 ft.)

Summer - 35 deg C (95 deg F) Dry Bulb (DB) [& 18.6 deg C (66 deg F) Wet Bulb (WB)]

Winter – (-12.8 deg C/9 deg F)

Daily Range – 18.3 deg C (33 deg F)

5.4.1. Indoor Design Condition

Administrative Buildings/Offices	Cooling 25.6 C (78 F)	Heating 20 C (68 F)
Workshops	Cooling 25.6 C (78 F)	Heating 12.7 C (55 F)
Storage buildings	No cooling	No heating

5.4.2. Noise Level

Noise levels inside occupied spaces generated by HVAC systems shall not exceed NC 35.

5.4.3. Internal Loads

a. Occupancy: Use ASHRAE standards to calculate sensible and latent heat from people. In general, light/moderate office work is 73watts sensible and 45watts latent.

b. Lighting: 21.5 W/m² (2 W/Ft²) maximum (however lighting levels shall meet minimum requirements and shall be accounted for in the heating and cooling loads based on the actual lighting design).

c. Outdoor Air: Outdoor ventilation air shall be provided per ASHRAE Standard 62.1 with the exception of guard towers, guard shacks, and storage facilities. In general this requires 2.5 L/s/Person (5 CFM/Person) and 0.3 L/s per square meter of floor space (0.06 CFM/sqft); outdoor air requirements can be satisfied by opening windows and doors for facilities without a ducted system.

d. Latrine/Bathroom Exhaust– 85 CMH (50 CFM) per toilet, urinal, and shower head.

e. Building Pressurization: 1.3 mm W.G. (0.05 in W.G.); Maintain negative pressure in latrine areas. This is only applicable for buildings provided with central ducted forced air systems.

5.4.4. Thermal Performance

The design analysis shall include exterior building assembly R-value calculations for each separate assembly. The calculations shall be in accordance with ASHRAE Fundamentals or EN ISO 6946. The calculations shall indicate the thermal conductivity, thickness, and R-value of each assembly component and the overall R-value for the assembly. The assembly R-value calculations shall investigate the effects of thermal bridging from the use of metal building material such as metal wall studs, roof purlins, wire mesh wall ties or bolts, structural members, etc.

Window glazing surface area shall be determined based on the architectural design per each building and shall not be an assumed percentage of the wall area.

5.5. NEW AIR CONDITIONING & HEATING EQUIPMENT

Environmental control of the facilities shall be achieved by HVAC equipment as listed below and approved by the U.S. Government. Unless otherwise noted, the Contractor may choose any combination of equipment to achieve the inside design conditions specified for the floor plans that is the most Life Cycle Cost Effective to the government. Contractor shall size and select equipment based on equipment manufacturer's performance data at the project site elevation and ensures the equipment's performance meets the design heating and cooling sizing requirements. HVAC systems in the basis of design "For Reference Only" drawings provided in this RFP shall be evaluated by the Contractor during design in terms of the following table and availability of systems specified in the "For Reference Only" drawings and specifications.

Facility Type	Cooling	Heating	Type of HVAC System	Remarks
Administration	25.6C 78 F	20C 68 F	Ducted packag heat pumps	
Above Ground Magazines	None	7.2 C 45 F	Unit heaters	Provide adequate ventilation
Earth Covered Magazines	None	None	None	Provide adequate ventilation
Maintenance Bays in Processing Facilities	30 C 85 F	12.7 C 55 F	Unit heaters	
Vehicle Maintenance	None	12.7 C 55 F	Unit heaters or infrared heaters	Provide adequate ventilation
Guard House	25.6C 78 F	20C 68 F	Ductless split heat pumps	

5.5.1. Unitary Ducted Heat Pump Units

Ducted heat pump units shall be unitary in design and factory manufactured ready for installation. Heat pump units shall provide cooling during summer and heating during winter. The unit shall consist of DX coil, blower, supplemental electric heater elements, washable filter, and condenser unit containing the compressor, condenser coil, fans and all internal controls/fittings complete all mounted in a weatherized housing finished for exposed installation. The unit shall be mounted on steel supports or on a concrete pad. Copper refrigerant suction and liquid piping shall be sized, insulated and installed in accordance to unit manufacture recommendations. Unit temperature control shall include wall mounted adjustable thermostat, blower on-off-auto switch and heating-cooling change over control.

5.5.2. Unitary (Ductless Split) Heat Pump Units

Ductless split units shall be unitary in design and factory manufactured ready for installation. Heat pump units shall provide cooling during summer and heating during winter. Evaporator unit shall consist of a DX coil, blower, supplemental electric heater elements and washable filter all mounted in a housing finished for exposed installation. Cooling coil condensate piping shall route to and discharge to the exterior onto splash blocks or into French drains. The condensing unit will contain compressor, condenser coil, and all internal controls/fittings complete to include a weatherized housing. Outdoor

condensing unit shall be mounted on steel supports or on a concrete pad. Copper refrigerant suction and liquid piping shall be sized, insulated and installed in accordance to unit manufacture recommendations. Unit temperature control shall include wall mounted adjustable thermostat, blower on-off-auto switch and heating-cooling change over control.

5.6. DUCTWORK

Air shall be distributed from central Air Handling Units (AHUs) to achieve proper airflow throughout the facility by means of air distribution ductwork. Air distribution system shall be comprised of supply and return ductwork, fittings, grilles, registers, and/or diffusers. Ductwork shall be constructed of galvanized steel or aluminum sheets and installed as per SMACNA "HVAC Duct Construction Standards (Metal and Flexible)." Flexible non-metallic duct may be used for final unit/diffuser connection in ceiling plenums. These flexible duct run-outs shall be limited to 3 meters in length.

5.6.1. Duct Insulation

Duct insulation shall be provided for all supply ductwork that is not located in the conditioned space and for return ductwork not located within the conditioned space. All ductwork exterior to the building shall be insulated with a minimum RSI=0.88 (R5).

In general interior ducts shall be exposed to the rooms and will not be insulated. The heat lost or gained from the un-insulated ducts shall be considered as part of the heating or cooling of the conditioned space.

5.6.2. Diffusers, Registers & Grilles

Diffusers, registers and grilles shall be factory fabricated of steel or aluminum and distribute the specified air quantity evenly over the space intended. The devices shall be round, half round, square, rectangular, linear, or with perforated face as determined by the design. Units will be mounted in ceilings, high sidewalls, or directly to ductwork and shall be sized for the airflow to be delivered with a maximum NC rating of 35. Pressure loss through the diffuser shall be considered in sizing the duct system and the system static pressure calculations.

5.6.3. Branch Take-offs

Air extractors or 45° entry corners shall be provided at all branch duct take-offs. Manual volume control dampers shall be included at the branch duct take-offs and where required to facilitate air balancing and shall be shown on the design drawings.

5.6.4 Wall Penetrations

Building wall penetrations shall be carefully made so as not to deteriorate the structural integrity of the wall system. The Contractor shall consult with the building manufacturer, if possible, to determine the best way to penetrate the wall. If the building manufacturer is not available, a structural engineer shall be consulted. In either case, the recommendations of the engineer shall be strictly adhered to.

5.6.5 Air Filtration

All supply air shall be filtered using manufacturer's standard washable filters mounted inside the unit. In addition, all outdoor air intakes shall be equipped with 50 mm (2 inch) thick washable filters.

5.6.6 Control Wiring and Protection Devices

Control wiring and protection of the air conditioning units being offered must be the manufacturer's standard, pre-wired, installed in the unit at the factory or as recommended. Thermostats shall be located near the unit return, and shall include lockable housing that allows viewing of settings without permitting

access. For units serving more than one area, the thermostat shall be located near the return of the space with the highest heat generation.

5.7. VENTILATION AND EXHAUST SYSTEMS

All fans shall be used for building ventilation and pressurization with capacities to be selected for minimum noise level generated. Unit mounted fans either used for supply or exhaust shall be centrifugal forward curved, backward inclined, or airfoil fans with non-overloading characteristics of high efficiency and quiet running design. The fans shall be of the heavy-duty type with durable construction and proved performance in a desert environment. Each exhaust fan shall be provided with motorized or gravity dampers which close automatically when the fan is not running. Also, each fan shall be complete with vibration isolator, external lubricators, and all accessories and sound attenuators as necessary.

Supply intake openings shall be provided with motorized dampers which are interlocked with the exhaust fan. The dampers open or close when the exhaust fan is on or off respectively.

Maintenance shops and similar spaces that use solvents and oils shall be provided with mechanical exhaust air systems. Exhaust fans shall be centrifugal wall mounted type. Intake openings shall be provided with motorized dampers which are interlocked with the exhaust fans. Provide minimum of 16 ACH. The systems shall consist of centrifugal fan, ductwork, exhaust grills, and interlock controls. Comply with Industrial Ventilation UFC 3-410-04N.

Toilet and Wash Area: Minimum exhaust ventilation shall be the largest of 35 m³/h / m² floor or 85 m³/h / toilet (WC). At extreme cold in winter these values can be reduced for short periods to 10 m³/h / m² or 40 m³/h / toilet (WC) to conserve heat.

To reduce sand and dirt migration, outside air intakes shall be located as high as possible within architectural constraints. The intakes shall be sized so that free air velocities are below 2.5 m/s (500 fpm). For inhabited buildings locate all air intakes at least 1.5 (center-line of intake) meters above the ground. Each air intake shall be provided with a motorized damper which is interlocked with the exhaust fan.

5.8. ELECTRIC HEATERS

5.8.1. Unit Heater

Electric resistance unit heaters shall be installed in spaces where only heating is required. Generally, unit heaters shall be mounted as high as possible. Unit heaters shall be of the industrial grade, very durable and securely fastened to the ceiling, wall or structure. Provide a self-contained electric heating unit, suspended from ceiling or structure, with fan and heating elements. Provide control-circuit terminals and single source of power supply with disconnect. Heating wire element shall be nickel chromium. Include limit controls for overheat protection of heaters. Provide tamper resistant integral thermostat.

5.8.2. Infrared Heaters

Infrared heaters shall be provided for spot heating of a large area such as maintenance bays and warehouses. Infrared heaters shall use electricity. Contractor shall position the infrared heaters to direct the radiant heat to only those areas where people normally work. Coordinate with User. Provide control-circuit terminals and single source of power supply with disconnect.

5.9. TEST ON COMPLETION

5.9.1. After completion of the work, the Contractor shall demonstrate to the Contracting Officer that the HVAC installation is adjusted and regulated correctly to fulfill the function for which it has been designed. The Contractor shall test, adjust, balance and regulate the section or sections of concern as necessary until the required conditions are obtained. Operational test shall be conducted once during the

winter and once during the summer. Coordinate with the Contracting Officer on when the test shall be scheduled. Include tests for all interlocks, safety cutouts and other protective device to ensure correct functioning. All such tests shall be carried out and full records of the values obtained shall be prepared along with the final settings and submitted to the Contracting Officer in writing.

5.9.2. The following tests and readings shall be made by the Contractor in the presence of the Contracting Officer and all results shall be recorded and submitted in a tabulated form.

- a. Ambient DB and WB temperatures
- b. Room Inside Conditions:
 1. Inside room DB & WB temperatures
 2. Air flow supply, return and/or exhaust
 3. Plot all temperatures on psychrometric chart
- c. Air Handling Equipment: Air quantities shall be obtained by anemometer readings and all necessary adjustments shall be made to obtain the specified quantities of air indicated at each inlet and outlet. Following readings shall be made:
 1. Supply, return and outside air CMH (CFM) supplied by each air conditioning system.
 2. Total CMH (CFM) exhausted by each exhaust fan
 3. Motor speed, fan speed and input ampere reading for each fan
 4. Supply, return and outside air temperature for each air-conditioning system.
- d. Electric Motors: For each motor:
 1. Speed in RPM
 2. Amperes for each phase
 3. Power input in KW

5.10. ELECTRICAL REQUIREMENTS FOR HVAC EQUIPMENT

(a) Note that electrical requirements for all HVAC systems shall be designed and installed to operate on the secondary power standard required herein. The existing power distribution system may require modifications or upgrades to support the additional power required by the HVAC unit. The Contractor is responsible to field verify all the conditions and provide complete shop drawings showing any incidental power upgrades. All electrical work shall comply with the National Electrical Code.

(b) All thermostats shall be wall mounted near the return grilles in the room with the highest heat load generation and mounted 1.5 meters (5 feet) above the floor. In lieu of a thermostat, a temperature sensor may be located in the same location or in the return duct and connected to a thermostat located near the unit return. Thermostat shall be mounted 1.5 meters (5 feet) above the finished floor and be easily accessible. Thermostats for the latrine facilities shall be located near the unit return and mounted 1.5 meters (5 feet) above the finished floor. Operation of the control system shall be at the manufacturer's standard voltage for the unit.

(c) The following are the minimum requirements for motors regarding enclosure, insulation and protection:

1. Compressor Hermetic: Provide inherent (internal) overload protection.
2. Condenser: Provide internal thermal overload protection.
3. Evaporator (Open Class "A") fan motor type provides internal thermal overload protection.

5.11. CEILING FANS

5.11.1. Ceiling Fan

Provide 1320mm blade ceiling fans at one per 40 square meters of floor space. Fans shall have reversible motors. Center or distribute evenly in room. Coordinate placement with the lighting plan to prevent conflict or casting shadows. Fan mount shall be flush, standard, or angle mount depending on

ceiling height. Fan shall be mounted such that the fan blade is approximately 2.44 meters above the finished floor. The fan shall be provided with out light kit. The finish shall be factory painted white. The controls shall be from either a single pole switch or from two 3 way switches to provide on/off operation. The electrical supply shall be 120 volts, single phase, and 60 hertz. Install per manufacturers' instructions.

6.0. PLUMBING

6.1. SCOPE OF WORK.

6.1.1 General

The Contractor shall design and construct domestic cold and hot water systems, waste, drain and vent systems, waste-oil collection and storage and fuel-oil storage and distribution systems required in the facilities identified in Section 01010 SCOPE OF WORK and as described herein. The Contractor shall also be responsible for complete design and construction of all domestic and special plumbing systems required for full and safe operations in the Generator Plant, Water Storage and other facility or structures required in this contract.

The work covered in this scope also includes the delivery to site, erection, setting to work, adjusting, testing and balancing and handing over in full operating condition all of the plumbing equipment and associated plumbing works.

6.1.2 Sub-Contractors Qualifications

The plumbing systems shall be executed by a plumbing specialist subContractor experienced in the design and construction of these types of systems.

6.1.3 Standard Products

All materials and equipment shall be standard product of a manufacturer regularly engaged in the manufacture of the product and shall duplicate items that have been in satisfactory use for at least two (2) years prior to bid opening.

6.2 CODES, STANDARDS AND REGULATIONS

The design and installation of equipment, materials and work covered under the plumbing services shall conform to the following standards, codes and regulations where applicable except where otherwise indicated under particular clause(s). The publications to be taken into consideration shall be those of the most recent editions. Standards other than those mentioned herein may be accepted provided that the standards chosen are internationally recognized and meet the minimum requirements of the specified standards. The Contractor shall submit proof of equivalency if requested by the Contracting Officer.

IPC – International Plumbing Code

NFPA - National Fire Protection Association

ASHRAE – American Society of Heating, Refrigeration and Air-Conditioning Engineers

ASME – American Society of Mechanical Engineers

ASTM – American Society for Testing and Materials

AWS – American Welding Society

6.3. PLUMBING SYSTEMS REQUIREMENTS

6.3.1. Water

Domestic cold and hot water shall be provided in the facilities to serve the water usage and plumbing fixtures provided for the facility. Water service to each facility shall enter the building in a mechanical, toilet, storage, or similar type space. The building service line shall be provided with a shut off valve installed either outside in a valve pit or inside the mechanical room or similar spaces. Water piping shall not be installed in or under the concrete foundation. All water piping shall be routed parallel to the building lines and concealed in all finished areas. Insulation shall be provided where required to control sweating of pipes or to provide protection from freezing.

6.3.2. Piping Materials

Domestic water shall be distributed by means of standard weight (schedule 40) galvanized steel pipe, Polyethylene (PE) plastic pipe (schedule 40 or 80). Waste and vent piping can be made of either galvanized steel pipe (schedule 40), or Polyvinyl Vinyl Chloride (PVC) conforming to ASTM D 2665. Corrosion protection shall be provided if galvanized piping comes in contact with earth or masonry floors, walls or ceilings.

6.3.3. Plumbing Fixtures

The following typical plumbing fixtures shall be provided:

- a. Lavatories. Enameled cast iron, wall or counter mounted. Brass fittings provided for water supplies. (To be used in American or Afghan/American mixed facilities only.)
- b. Sink Faucets. Faucets shall be vandal proof, heavy duty cast brass with chrome plating with separate hot and cold water valves for manual mixing. Faucet handles shall be cast brass alloy with chrome plating.
- c. Janitor's Sink. Floor mount janitor, enameled cast iron with copper alloy rim guard. Provide hot and cold water valves with manual mixing. Faucet handles shall be cast brass alloy with chrome plating. Include a stainless steel shelf and three mop holders.
- d. Shower. Showerhead and faucet handles shall be vandal proof, heavy duty cast brass with chrome plating for the LN facilities and regular cast brass chrome plated for coalition facilities. Provide hot and cold water valves for manual mixing. In addition to a shower head, provide each shower stall with a threaded faucet approximately 1.2 m AFF with hot and cold-water controls, mixing valve and a diverter type valve so water can be directed to either the shower or to the lower faucet. Shower shall be provided with low flow shower head. The shower head shall be heavy duty type and securely fastened to the wall.
- e. Emergency Shower and Eye Wash Assembly. Provide emergency shower and or eye wash assembly in Power Plant and in other facilities where appropriate. Provide a floor drain in the area, if appropriate (where emergency water flowing on the floor may lead to additional safety or operational complications).
- f. Service Sink. Standard trap type, enameled cast iron. Service sinks provided in maintenance areas shall be metallic, and in battery rooms acid resistant.
- g. Kitchen Sink. Single bowl shall be stainless steel. Faucet bodies and spout shall be cast or wrought copper alloy. Handles, drain assembly, and stopper shall be corrosion resisting steel or copper alloy.
- h. Floor or Shower Drain: Cast iron construction with galvanized body, integral seepage pan, and

adjustable perforated or slotted chromium plated bronze, nickel-bronze, or nickel brass strainer consisting of a grate and threaded collar. Toilet room floor drains are similar except are provided with built-in, solid, hinged grate.

i. Room hose bibs and floor drains shall be provided as required. Afghan dining facility kitchen area clean-up hose bib to be supplied with connecting hose on reel including approximately 12 meters of hose. Provide clean-up spray nozzle with hose assembly.

j. Drinking Water Fountain: Non-refrigerated with enamel cast iron or corrosion resistant bowl with brass fittings and faucets. Drinking water fountains shall be provided only as requested by the User.

k. Provide P-Traps per International Plumbing Code IPC for all fixture drains, floor drains, and shower drains. P-traps shall have minimum of 50 mm water seal.

6.3.4. Hot Water

Hot water shall be provided for the facility to supply 49°C (120°F) hot water to fixtures and outlets requiring hot water. Hot water of a higher temperature shall be provided only where required for special use or process. Hot water piping shall be routed parallel to the building lines and concealed within finished rooms. All hot water piping shall be insulated. A hot water re-circulating pump shall be provided if hot water piping run exceeds 30m.

6.3.5. Hot Water Heaters

The hot water shall be generated by electric water heaters. The unit(s) shall be typically located inside a mechanical room, storage room, toilet/janitor room or similar type space. The unit(s) shall be of the commercially available tank type having low or medium watt density electric heating elements.

In cases where the pressure of the water coming into the tank will violate manufacturer recommendations, a pressure reducer shall be installed in the line before the water heater. Also, all water heaters shall be equipped with a combination pressure and temperature relief valve that will empty into a nearby floor drain or to the exterior of the building.

6.4. WASTE, DRAIN AND VENT SYSTEM

Floor drains shall be provided in each room that contains a water source. All floor drains shall include trap primers. Floor drains shall be provided in the mechanical equipment and toilet rooms as required. Floor drains shall be provided next to the electric water heaters. In mechanical rooms, floor drains shall be provided to avoid running drain piping long distances above or over the floor. All waste and vent piping shall be provided in accordance with the referenced edition of IPC. Drain outlet shall use p-trap system to trap sewer gases. P-trap drain should be a one-piece system without removable parts.

Every trap and trapped fixture shall be vented in accordance with the IPC.

6.5. SPECIAL PLUMBING SYSTEMS

Contractor shall design and construct compressor air storage and distribution, fuel-oil storage and distribution, and other plumbing systems that are required for full performance of equipment and operations. These systems shall be designed and built in accordance with codes and publications referenced herein before and in compliance with equipment manufacturer recommendations.

6.5.1. Compressed Air Systems

Compressed air shall be provided using a packaged air-cooled electric motor driven compressor and ASME rated receiver with air cooler and moisture separator to remove moisture and oil. Compressed air

system shall be capable of operation up to 200 psig maximum for 125 psig normal units. High-pressure system (above 200 psig) shall be provided to supply compressed air to equipment where required. Provide an engine driven air compressor where needed for operation during electrical power outages. The air distribution system shall be provided with necessary regulator valves to maintain desired pressure. Where required, line filters, lubricators, and/or hose reels shall be provided. Compressed air piping shall be black steel pipe and painted to match wall color. Noise level of air compressor should not exceed acceptable db limits.

6.5.2. Drainage from Maintenance Areas

Drainage from maintenance areas shall be treated prior to entering the base general waste drainage system. Treatment shall consist of sand and oil separators as required by facility function. Buried oil storage tanks shall be provided where required.

6.5.3. Generator Fuel Storage/Distribution

Fuel Oil Storage and Distribution shall be provided to support operation of emergency generators. The bulk storage of fuels shall consist of above-ground horizontal steel tanks sized to store a 3-day supply of fuel with containment dikes. These tanks shall be complete with fill tube and cap, suction tube, tank gauge, vent, and other fittings and appurtenances required for full and safe operation. Tanks shall be provided with support saddles, platform/stair and concrete pad. Fuel shall be transferred from the bulk storage tanks by duplex transfer pumps into individual day tanks. Fuel piping shall be fiberglass for underground and steel for piping located above grade. Bulk storage capacity shall be based on minimum four-week full load operation of the plant. Metal fuel tank saddles should not be placed directly on fuel containment area slabs. They should be elevated on piers to avoid moisture corrosion. Fuel containment area should have a sump or manually controlled water release valves for water removal. Contractor shall provide fuel to permit system testing prior to acceptance, and top off tanks prior to turn-over to the Government.

Provide fuel filling system for unloading fuel from fuel tanker into individual bulk storage tanks.

6.6. TESTING AND COMMISSIONING

The Contractor shall test all piping systems in accordance with IPC International Plumbing Code. The final test shall include a smoke test for drainage and vent system and pressure test for the domestic water piping. After completing the work, the Contractor shall demonstrate that all plumbing systems operate to fully satisfy the function for which these systems have been designed. The Contractor shall test, adjust, balance and regulate the system and its controls as necessary until the required designed conditions are met. The Contractor shall include tests for interlocks, safety cutouts and other protective devices to demonstrate safe operation. All such tests shall be carried out in the presence of the Contracting Officer and full written records of the

test data and final settings shall be submitted to the Contracting Officer. After all tests are complete, the entire domestic hot and cold water distribution system shall be disinfected. The system shall not be accepted until satisfactory bacteriological results have been obtained.

7.0. FIRE PROTECTION

7.1. GENERAL

Facility construction and fire protection systems shall be installed in accordance with the publications listed herein and the publications referenced therein. Where a conflict occurs among various criteria, the

more stringent requirement shall take precedence.

7.2. BUILDING CONSTRUCTION

Building construction shall conform to fire resistance requirements, allowable floor area, building height limitations and building separation distance requirements of the building code.

7.3. LIFE SAFETY

Facilities features will be provided in accordance with NFPA 101, among other references, to assure protection of occupants from fire or similar emergencies.

7.4. FIRE PROTECTION EQUIPMENT

All fire protection equipment shall be listed by Underwriters' Laboratories (UL) or approved by Factory Mutual (FM) or equivalent and shall be listed in the current UL Fire Protection Equipment Directory or Factory Mutual Approval Guide or equivalent.

7.5. FIRE DETECTION AND ALARM SYSTEM

Fire detection and alarm systems shall be provided as required by the IBC, NFPA 101 and UFC 3-600-01. Required fire detection and alarm systems shall be designed and installed in accordance with NFPA 72. Smoke detectors shall have back up battery power and be installed according to all applicable fire protection codes.

7.6. WATER SUPPLY FOR FIRE PROTECTION

The Contractor shall design the water supply incorporating the planned extension of the BAF system to the ASP.

7.7. PORTABLE FIRE EXTINGUISHERS

Portable fire extinguishers shall be provided inside all facilities and at exterior locations as required in accordance with NFPA 10. Generally, extinguishers will be of the multi-purpose dry chemical type except for occupancies requiring a special type extinguisher (e.g., carbon dioxide portable fire extinguishers for electrical rooms).

8.0. ELECTRICAL

8.1. GENERAL

Contractor shall design and construct all electrical systems for the facilities to be provided. This includes design, construction, all necessary labor, equipment, and material for a fully functional system.

8.2. DESIGN CRITERIA

- a. Design shall be in the required units as stipulated herein.
- b. Conflicts between criteria and/or local standards shall be brought to the attention of the Contracting Officer for resolution. In such instances, all available information shall be furnished to the Contracting Officer for approval.
- c. All electrical systems and equipment shall be installed in accordance with the requirements set forth in the documents referenced herein.
- d. Acceptance Testing: Contractor shall develop and submit for approval complete acceptance test procedures on all systems provided. As a minimum the testing procedures shall comply with the requirements of the National Fire Protection Association (NFPA) and the International Electrical Testing

Association Inc. (NETA).

8.3. MATERIAL

8.3.1. General

Unless noted otherwise, all material used shall be in compliance with the requirements of UL standards. In the event that UL compliant materials are not available, Contractor may then select applicable British Standards (BS), IEC, CE, CSA, GS, DIN listed material (or equivalent), but the Contractor must prove equivalence and must provide the government with a full copy of the relevant specification(s)/standard(s). Material and equipment installed under this contract shall be for the appropriate application and installed in accordance with manufacturers recommendations.

Equipment enclosure types shall be in compliance with the National Electrical Manufacturer's Association (NEMA) or the International Electro-Technical Committee (IEC) standards.

Major components of equipment shall have the manufacturer's name, address, type or style, voltage and current rating, and catalog number on a non-corrosive and non-heat sensitive plate, securely attached to the equipment. All equipment delivered and placed in storage, prior to installation, shall be protected from the weather, humidity and temperature variation, dirt and dust, and any other contaminants. All equipment shall be in new condition, undamaged and unused.

8.3.2. Standard Product

All material and equipment shall be a standard product of a manufacturer regularly engaged in the manufacture of the product and shall essentially duplicate items that have been in satisfactory use for at least two (2) years prior to bid opening.

8.3.3. Design Conditions

All equipment shall be rated and designed for the maximum ambient temperature and altitude of the construction site. Equipment that is altitude and temperature sensitive, such as generators, shall be derated according to the manufacturer's recommendations. Generic derating criteria for altitude and for ambient temperature may be used to approximate the required size of such equipment during the design phase, but a stipulation shall be placed on the construction plans to adjust the size according to the derating criteria specific to the manufacturer's equipment chosen before the equipment is ordered.

8.3.4. Restrictions

Aluminum conductors shall not be specified or used except as bare steel reinforced (ACSR) overhead conductors in an aerial primary distribution system. Aluminum windings shall not be used in transformers.

8.4. DESIGN REQUIREMENTS

Design shall be prepared by registered electrical engineers.

8.4.1. Electrical Distribution System

The Contractor shall connect the facilities provided in this contract to the BAF system and shall provide back-up generator power as described in the paragraph Generator Power System

The Contractor shall provide a distribution system to distribute power to the site's facilities and other loads as required. The distribution system shall be underground.

The underground [portion of the] distribution system shall be in concrete encased ductbanks with the

ducts not less than 1220mm below grade. Manholes and handholes shall be provided at changes of direction of more than 40 degrees and elsewhere as required to limit the pulling tension and sidewall pressure on the cables during installation to acceptable levels as defined by the cable manufacturer. Manholes shall be provided for ductbanks with more than 2 ducts. Handholes shall be provided wherever a manhole is not required by quantity of ducts or by cable manufacturer's installation recommendations. Underground ducts shall be not less than 100mm diameter thin-wall PVC.

Pad mounted transformers shall be loop feed, dead front type with load break elbows. The system shall be configured as a loop system and the feeders shall be provided with tie capabilities through the use of padmounted load-break switches. Each padmounted transformer shall be sized to provide power for the total load of the facility served without being loaded to more than 110% of its rated capacity.

The Contractor shall provide a building sized to contain the required back-up generators and their associated switchgear. The switchgear lineup shall contain air, vacuum or SF6 circuit breakers including one for each generator, a tie breaker, one for each feeder and a utility breaker sized for the total load of the site. The Contractor shall provide all required conduit stub ups to connect all equipment (both present and planned) to the switchgear lineup. If the generators supply power at less than the distribution voltage, the Contractor shall provide padmounted stepup transformers and the required conduits to connect the generators to their respective transformer and the transformers to the switchgear lineup.

Design of the electrical system within facilities shall include, but is not limited to (a) interior secondary power distribution system, (b) lighting and power branch circuit and devices, and (c) fire detection and alarm system. All systems shall be designed for the ultimate demand loads, plus 25% spare capacity.

The Contractor shall provide service entrance feeders from the distribution system to the service entrance equipment located inside of each facility and sized to the rating of the service entrance equipment. Service entrance equipment shall include a distribution panelboard sized to supply the total load of each facility. Service entrance feeder lengths shall be kept as short as possible to minimize voltage drop. They shall be underground not less than 1220mm below grade in concrete encased 100mm minimum thin-wall PVC from pad mounted transformers. A spare conduit of equal size shall be provided.

All panelboards shall be circuit breaker 'bolt-on' type panels. Minimum size circuit breaker shall be rated at no less than 20-amperes. Circuit breakers shall be connected to bus bar(s) within the panelboards. Daisy chain (breaker-to-breaker) connection(s) are not acceptable. Indoor distribution panels shall be flush mounted in finished areas and surface mounted in unfinished areas. All circuit breakers shall be labeled with an identification number corresponding to the panel schedule. A 3-pole circuit breaker shall be a single unit and not made up of 3 single pole circuit breakers connected with a wire or bridge to make a 3-pole breaker. All branch circuit wiring shall be copper, minimum #4 mm² (#12 AWG) installed in metal conduit. Wiring shall be concealed in finished areas and surface mounted in unfinished areas. Flush mounted panels shall be provided with spare empty conduits from panel to unfinished area for future use. All panels shall be provided with a minimum of 25% spare capacity for future load growth. Power receptacles (outlets) shall be duplex type 120 V, 60 hertz, NEMA 5-20R rated for 20A or better and shall be compatible with the required secondary power. All splicing and terminations of wires shall be performed in junction or device boxes. Proper wire nuts/connectors shall be used for splicing wire. No twist-wire connections with electrical tape wrapped around it shall be acceptable. All electrical installation shall be in accordance with NFPA 70 (National Electrical Code). For large panels (225 Ampere and above) provide an ammeter, voltmeter and kilowatt-hour meter to monitor energy usage. Selector switches shall be provided for each meter to read all 3 phases. Receptacle locations shall be coordinated with architectural requirements.

Contractor shall design and provide circuits for all mechanical equipment and any other equipment that requires power and make the final connections.

All loads shall be coordinated to provide balanced loading. Phase imbalance at each panel shall not exceed 5%.

Voltage Drop for branch circuits shall be limited to no more than 3%; voltage drop for branch and feeder circuits combined shall be limited to no more than 5%.

All circuit breakers shall use down-stream coordination to ensure the breaker nearest a fault or overload is the first to trip.

8.4.1.1. Generator Power System

The generator power system serving as a backup source of power, shall be configured as an N+1 system with the N representing the number of generators needed to supply the site's total load and the +1 representing the number of additional generators of the same size required as spares. The site's total load is defined as the site's total demand load + 25% spare capacity. The generators may supply power at the utilization voltage of the facilities served or at a higher distribution voltage. If the site requires a higher distribution voltage, stepup padmounted transformers shall be provided when utilization voltage generators are provided.

Generators shall be derated as necessary for the ambient temperature and altitude of the site. Each generator shall be provided with an automatic load bank matched to 40% of its rated capacity (with load steps every 20% of the load bank's rating) to prevent the generator from "wet stacking" under low load conditions.

The generator power system shall be provided with a make-before-break, 4-pole, automatic transfer switch (ATS) rated for the capacity of the system. The ATS shall be capable of automatically and manually transferring the site's distribution system to generator power upon loss of local utility power and transferring back automatically and manually to local utility power upon its restoration.

The ATS shall be equipped with synchronizing/paralleling equipment to allow the generators to share the load of the site. When generator power is required at least one (1) generator shall be online at all times. When the site's load reaches 90% of the online generator's capacity, the standby generator(s) shall start. The generator that synchronizes first shall come online and share the load equally. When the site's load drops below 80% of the online generators' combined capacity, the generator(s) shall drop off line, one at a time, keeping a minimum of one generator operating online.

Whenever a generator starts, it shall go through a cool down cycle prior to shutdown. All relaying shall be automatically reset for automatic restart and stopping of generators as the load increases or decreases. Load sharing by the standby generator(s) shall be adjustable between 50% and 95% of the load on the online generator(s). Sequence of operation shall be time clock controlled at smaller sites (2 or 3 generators) and shall be PLC controlled at larger sites. A properly sized main switchboard shall be provided to distribute the power produced by the generator(s) to the facilities on the site.

8.4.2. Lighting

Design levels shall be per IES standards as a minimum.

Indoor lighting for all areas shall consist of fluorescent surface mounted light fixtures. Exterior lighting shall be HID (metal halide or high pressure sodium) as referenced. Moisture resistant/waterproof fluorescent light fixtures shall be provided in high humidity and wet areas such as latrines, showers and outside. Battery powered 'emergency' and 'exit' lights shall be provided within each building, as applicable, for safe egress during a power outage. All light fixtures shall be factory finished, complete and operational, to include but not be limited to, lens, globe, lamp, ballast etc. Industrial type fluorescent light fixtures shall not be used. Every room shall be provided with a minimum of one light switch. Light fixtures shall be mounted approximately 2.5-meters (8 feet) above finished floor (AFF) minimum. Fixtures may be pendant or ceiling mounted, depending on the ceiling type and height.

8.4.3. Light Fixtures

Lighting fixtures shall be a standard manufacturer's product. Fluorescent surface mounted light fixtures shall be power factor corrected and equipped with standard electronic ballast(s), except in medical facilities where magnetic ballast(s) shall be required. All light fixtures shall properly operate using standard lamps available locally. Fixtures shall be fully factory wired and designed for appropriate application i.e. appropriate for that location where installed.

8.4.4. Emergency "EXIT" Light Fixtures

Emergency "EXIT" light fixture shall be provided in accordance with NFPA requirements. Fixtures shall be single or double sided as required by the location and for wall/ceiling mounting. Unit shall illuminate continuously and be provided with self-contained nickel cadmium battery pack, to operate on floated-battery or trickle charge circuit. Fixture shall operate satisfactorily for 90 minutes during a power outage. Unit shall have test/re-set button and failure indication lamp. Primary operating voltage shall be 120 volts. Lettering "EXIT" shall be color red and not less than 6 inches (150 mm) in height and on matte white background. Illuminations shall be with LEDs.

8.4.5. Above Mirror Lights

Above mirror lights shall be provided in toilet rooms.

8.4.6. Emergency Lighting

Battery powered emergency lights shall be provided within each building per NFPA for safe egress during power outage. Fixtures shall be provided with self-contained nickel cadmium battery pack to operate on stand-by circuit for 90-minute minimum. Unit shall have test/re-set button and failure indication lamp. Normal operating voltage shall be 120 volts. Emergency lighting fixtures shall be connected to the normal lighting system.

8.4.7. Light Switches

Light switch shall be single pole. Minimum of one light switch shall be provided in every room. Lighting in large rooms/areas may be controlled from multiple switches. Three-way or four-way lighting shall be provided in all rooms / areas with multiple entrances.

8.4.8. Receptacles

General-purpose receptacles shall be as required herein. All receptacles shall be duplex, unless otherwise specified in this section, the NEC, or other referenced standard.

Receptacles shall be placed at a maximum of 3-meter (10 feet) intervals. Areas with computer workstations or similar equipment will have additional receptacles. Sinks will have a receptacle above, with one duplex receptacle serving two sinks that are side-by-side. Receptacles in wet/damp areas or within 2meters (~6 feet) of sinks, lavatories, or wash-down areas shall be ground fault circuit interrupter (GFCI) type.. Total number of duplex receptacles shall be limited to six (6) per 20-ampere circuit breaker.

8.4.9. Conductors

All cable and wire conductors shall be copper. Conductor jacket or insulation shall be color coded to satisfy NEC requirements. The use of 75 or 90 degree C (minimum) terminals and insulated conductors is required. Use of higher degree C rated conductors on circuits with protective device terminals rated at a lower degree C is allowed but must be derated to the rating of the device terminals.

8.4.10. Grounding and Bonding

Grounding and bonding shall comply with the requirements of NFPA 70. Underground connections shall be exothermally welded. All exposed non-current carrying metallic parts of electrical equipment in the electrical system shall be grounded. Insulated grounding conductor (separate from the electrical system neutral conductor) shall be installed in all feeder and branch circuit raceways. Grounding conductor shall be green-colored, unless the local authority requires a different color-coded conductor. Ground rods shall be 20 millimeters (0.75 inches) in diameter and 3 meters (~10 feet) long made of copper-clad steel. Final measurement of the ground resistance shall be in compliance with the requirements of the local authority but shall not exceed 25 ohms when measured more than 48 hours after rainfall.

8.4.11. Enclosures

Enclosures for exterior and interior applications shall be NEMA Type 3S (IEC Classification IP54) and NEMA Type 1 (IEC Classification IP10) respectively.

8.4.12. Fire Detection & Alarm System

A complete Fire Detection and Alarm System shall be provided throughout the buildings and installed in accordance with NFPA 72 requirements. System shall include, but not limited to, addressable Fire Alarm Control Panel (FACP), manual pull stations, horns, strobes, and smoke and/or heat detectors (with alarm verification feature). The system shall be capable of automatically transmitting the alarm signal, via telephone lines, to the local fire department/fire station or other location designated by the Contracting Officer. Fire alarm system shall be complete and a standard product of one manufacturer and shall be compatible with the existing predominant standard system in place at the installation.

8.4.13.8. Transient Voltage Surge Suppression (TVSS)

Transient Voltage Surge Suppression shall be provided utilizing surge arresters to protect sensitive and critical equipment. As a minimum TVSS protection shall be provided at each panel serving electronic loads and shall be shown on the panel schedule. It is recommended that Metal Oxide Varistors (MOV) technology be used for such applications.

8.4.14.8. Conduit Raceway System

Metal conduit system shall be complete, to include but not limited to, necessary junction and pull boxes. Smallest conduit size shall be no less than 20mm (0.75 inch) in diameter. All empty conduits shall be furnished with pull wire or cord or rope (depending on the size of conduit and length of run). System design and installation shall be per NFPA 70 requirements. Exterior conductors below grade shall be installed in concrete encased PVC conduit at a depth of 1220 millimeters.

8.4.15. Cable Tray Raceway System

Cable trays shall be ladder type and provided with, but not limited to, splices, end plates, dropouts and miscellaneous hardware. System shall be complete with manufacturer's minimum standard radius and shall be free of burrs and sharp edges. Nominal width of cable tray shall be 300mm (12 inch) and rung spaced at 150mm (6 inch). Nominal depth shall be 100mm (4 inch). System design and installation shall be per NFPA 70 requirements.

8.4.16. Identification Nameplates

Major electrical equipment, such as transformers, panelboards, and load centers, etc. shall be provided with permanently installed engraved identification nameplates.

8.4.17. Schedules

All panelboards and load centers shall be provided with a directory. Directory shall be typed written in English.

8.4.18. Single Line Diagram

Complete single line diagrams shall be provided for all systems installed. All major items in each system shall be identified and labeled for respective ratings. Single line diagrams for each system, installed in a clear plastic frame, shall be provided.

9.0. COMMUNICATIONS – Telephone and Data Distribution

9.1. GENERAL

The Contractor shall provide a building telephone and data cabling system including a mass notification system as required by referenced regulations. The telephone and data equipment will be provided by others. The incoming communications cabling connection to the building will be provided by others. The Contractor's system shall be fully capable of interface with the future equipment and future connection to the site telephone and data systems. Telephone (including a mass notification system internal to each facility) and data are required to the Administration Building, the Surveillance and inspection facility, and the Entry Control Point guard house.

9.1.1. Telephone/Data Cabling Distribution System for each building

The Contractor shall provide telephone and data for the DI facility as shown in the "For Reference Only" drawings provided in this RFP, telephone and data for the Administration Building as shown in the "For Reference Only" drawings provided in this RFP. Provide two telephone/data boxes in the ECP guard house. Each box shall have dual RJ-45 outlets, one for telephone and one for data. Interior copper cable to each outlet shall be 4 pair, unshielded twisted pair (UTP), Category 5e or better. Each telephone/data junction box shall be fitted with two RJ-45 jacks (1-voice / 1-data). Two runs of Category 5e (UTP) or better data cable shall be installed from each junction box back to the patch panel in the communications room and labeled on both ends with room number and jack number. Contractor shall be responsible for providing enclosed 480 mm wide, 1 800 mm tall communications equipment rack with top-mounted cooling fans and front & rear closing doors for each facility. Contractor shall provide two 480 mm 48-port patch-panel mounted in the rack. Contractor shall coordinate the location of the communications racks with the Contracting Officer Representative (COR) Termination configuration shall be EIA/TIA T568B. A Corps of Engineers representative shall test each cable run and data jack after it has been installed. Two 103 mm empty conduits shall be provided from the room to the outside for to facilitate future telephone cabling installation into the building. Provide all empty conduits with a pull rope. Incoming telephone and data service is to be provided by others. Properly sized metallic conduit and cable tray shall be used as appropriate to distribute the telephone/data cabling throughout the building. Minimum conduit size shall be 20 mm inside diameter. Data/communications face plates shall be surface mounted to the wall.]

-END OF SECTION-

(End of Summary of Changes)