

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE	PAGE	OF	PAGES
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2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO. <i>(If applicable)</i>
6. ISSUED BY	CODE	7. ADMINISTERED BY <i>(If other than Item 6)</i>	CODE

8. NAME AND ADDRESS OF CONTRACTOR <i>(No., street, county, State and ZIP Code)</i>	(X)	9A. AMENDMENT OF SOLICIATION NO.
		9B. DATED <i>(SEE ITEM 11)</i>
		10A. MODIFICATION OF CONTRACT/ORDER NO.
		10B. DATED <i>(SEE ITEM 11)</i>
CODE		FACILITY CODE

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers is extended, is not extended. Offers 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 _____ 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 your 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 ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

CHECK ONE	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: <i>(Specify authority)</i> 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 <i>(such as changes in paying office, appropriation date, etc.)</i> 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 <i>(Specify type of modification and authority)</i>

E. IMPORTANT: Contractor is not, 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.)*

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 <i>(Type or print)</i>	16A. NAME AND TITLE OF CONTRACTING OFFICER <i>(Type or print)</i>
15B. CONTRACTOR/OFFEROR	16B. UNITED STATES OF AMERICA
15C. DATE SIGNED	16C. DATE SIGNED
<i>(Signature of person authorized to sign)</i>	<i>(Signature of Contracting Officer)</i>

Item 14. Continued.

CHANGES TO VOLUME I – PROJECT INFORMATION, BIDDING REQUIREMENTS, CONTRACT FORMS, AND CONDITIONS OF THE CONTRACT

1. Standard Form 1442, Item 13.D – Change the number of days for Government acceptance period from “90” to “120” calendar days.

A revised Standard Form 1442 is issued with this amendment.

2. Replace the Price Proposal Schedule with the accompanying new Price Proposal Schedule, bearing the notation "ACCOMPANYING AMENDMENT NO. 0013 TO SOLICITATION NO. DACA63-02-R-0011."

3. Replace the following Sections with the attached new Sections of the same number and title, bearing the notation “ACCOMPANYING AMENDMENT NO. 0013 TO SOLICITATION NO. DACA63-02-R-0011.”

SECTION 00150 PROPOSAL EVALUATION AND CONTRACT AWARD
SECTION 00710 WAGE RATES

CHANGES TO VOLUME II – DESIGN AND PERFORMANCE REQUIREMENTS

4. Replace the following chapters with the accompanying new chapters of the same number and title, bearing the notation "ACCOMPANYING AMENDMENT NO. 0013 TO SOLICITATION NO. DACA63-02-R-0011:"

CHAPTER D6 - ARTIFICIAL LIGHTING
CHAPTER D36 – HVAC CONTROLS

CHANGES TO VOLUME III – SPECIFICATIONS

5. Replacement Sections – Replace the following sections with the accompanying new sections of the same number and title, bearing the notation "ACCOMPANYING AMENDMENT NO. 0013 TO SOLICITATION NO. DACA63-02-R-0011:"

SECTION 01451 CONTRACTOR QUALITY CONTROL

6. Write-in changes to the Specifications:

References in Section 01016 that refer to Uniform Building Code UBC shall be changed to refer to IBC International Building Code IBC.

CHANGES TO VOLUME IV – ATTACHMENTS

7. Replace the following Attachment with the accompanying new Attachment of the same number and title, bearing the notation “ACCOMPANYING AMENDMENT NO. 0013 TO SOLICITATION NO. DACA63-02-R-0011.”

ATTACHMENT B GEOTECHNICAL REPORT (Includes Appendices A, B and C as issued in original solicitation)

8. Replacement Drawings (Volume IV, Attachment A).- Replace the drawings listed below with the attached new drawings(s) of the same number, bearing the notation "AM #0013":

- A-3 Design Analysis
- C-5 Proposed Site Layout Plan
- E-1 Exterior Electrical/Communication Site Plan 1

9. Write-in changes to the Drawings: Attachment Drawing A-7. – Change Note No. 22 to read as follows:

“APPLY CONCRETE HARDENER,SEALANT.”

END OF AMENDMENT

SOLICITATION, OFFER, AND AWARD <i>(Construction, Alteration, or Repair)</i>	1. SOLICITATION NUMBER	2. TYPE OF SOLICITATION <input type="checkbox"/> SEALED BID (IFB) <input type="checkbox"/> NEGOTIATED (RFP)	3. DATE ISSUED	PAGE OF PAGES
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IMPORTANT - The "offer" section on the reverse must be fully completed by the offeror.

4. CONTRACT NUMBER	5. REQUISITION/PURCHASE REQUEST NUMBER	6. PROJECT NUMBER
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7. ISSUED BY	CODE	8. ADDRESS OFFER TO
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9. FOR INFORMATION CALL	A. NAME	B. TELEPHONE NUMBER (Include area code) (NO COLLECT CALLS)
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SOLICITATION

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

10. THE GOVERNMENT REQUIRES PERFORMANCE OF THE WORK DESCRIBED IN THESE DOCUMENTS (Title, identifying number, date):

11. The Contractor shall begin performance within _____ calendar days and complete it within _____ calendar days after receiving
 award, notice to proceed. This performance period is mandatory, negotiable. (See _____.)

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

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

B. An offer guarantee is, is not required.

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

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

OFFER (Must be fully completed by offeror)

14. NAME AND ADDRESS OF OFFEROR (Include ZIP Code)		15. TELEPHONE NUMBER (Include area code)
		16. REMITTANCE ADDRESS (Include only if different than Item 14)
CODE	FACILITY CODE	

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

AMOUNTS 

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

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

AMENDMENT NO.										
DATE										

20A. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER (Type or print)	20B. SIGNATURE	20C. OFFER DATE
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AWARD (To be completed by Government)

21. ITEMS ACCEPTED

22. AMOUNT	23. ACCOUNTING AND APPROPRIATION DATA
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24. SUBMIT INVOICES TO ADDRESS SHOWN IN  (4 copies unless otherwise specified)	ITEM	25. OTHER THAN FULL AND OPEN COMPETITION PURSUANT TO <input type="checkbox"/> 10 U.S.C. 2304(c) () <input type="checkbox"/> 41 U.S.C. 253(c) ()
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26. ADMINISTERED BY CODE	27. PAYMENT WILL BE MADE BY
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CONTRACTING OFFICER WILL COMPLETE ITEM 28 OR 29 AS APPLICABLE

<input type="checkbox"/> 28. NEGOTIATED AGREEMENT (Contractor is required to sign this document and return _____ copies to the issuing office.) Contractor agrees to furnish and deliver all items or perform all work requirements identified on this form and any continuation sheets for the consideration stated in this contract. The rights and obligations of the parties to this contract shall be governed by (a) this contract award, (b) the solicitation, and (c) the clauses, representations, certifications, and specifications incorporated by reference in or attached to this contract.	<input type="checkbox"/> 29. AWARD. (Contractor is not required to sign this document.) Your offer on this solicitation is hereby accepted as to the items listed. This award consummates the contract, which consists of (a) the Government solicitation and your offer, and (b) this contract award. No further contractual document is necessary.
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30A. NAME AND TITLE OF CONTRACTOR OR PERSON AUTHORIZED TO SIGN (Type or print)	31A. NAME OF CONTRACTING OFFICER (Type or print)		
30B. SIGNATURE	30C. DATE	31B. UNITED STATES OF AMERICA BY	31C. AWARD DATE

PRICE PROPOSAL SCHEDULE
(To be attached to SF 1442)

Design-Build Tactical Equipment Shop FY02
Fort Hood, Texas

BASE BID: All work required by the Contract documents for the design and construction of the Ft Hood Tactical Equipment Shop exclusive of work required by Option Bid Items.

Item No.	Description	Estimated Quantity	Unit	Unit Price	Estimated Amount
0001	All work to design and construct the Tactical Equipment Shop, Complete, Including all <u>(AM#1)</u> , utilities to the 1524 mm (5-foot) line, and exclusive of all other work listed separately.				
		Sum	Job	***	\$ _____
0002	<u>All work to design and (AM#3)</u> construct all Exterior Work outside the building's 1524 mm (5-foot) line (Including utilities to the Fort Hood utility tie-in, earthwork, paving, sidewalk, parking lot paving, curb and gutter, turfing, <u>Hardstand (AM#13)</u> <u>(AM#1)</u> , and all other work not listed separately)				
		Sum	Job	***	\$ _____
<u>0003</u>	<u>(AM#9) Drilled Piers*</u>				
0003A	457mm (18-In) Drilled Piers	****	VLM	\$ _____	\$*****
0003B	610mm (24-In) Drilled Piers	****	VLM	\$ _____	\$*****
0003C	762mm (30-In) Drilled Piers	****	VLM	\$ _____	\$*****
0003D	914mm (36-In) Drilled Piers	****	VLM	\$ _____	\$*****
0003D	1067mm (42-In) Drilled Piers	****	VLM	\$ _____	\$*****
<u>0004</u>	<u>Mobilization and Demobilization (AM3#)</u>	Sum	Job	***	\$ _____
<u>0005</u>	Final Record Drawings	Sum	Job	***	\$ <u>50,000.00</u>

*See NOTE 10 Foundation Drilled Piers Unit Prices.

TOTAL BASE BID \$ _____

Solicitation No.DACA63-02-R-0011

PRICE PROPOSAL SCHEDULE

0006 The monetary value for warranty work is established at 1 percent of the amount awarded for construction. See the Contract Specifications Section 01770 CONTRACT CLOSEOUT, paragraph "Contractor's Response to Construction Warranty Service Requirements." (AM#9)

0007 OPTION NO. 1:
(AM#1) DELETED BY (AM#13)

0008 OPTION NO. 2:
Additional cost for all work required by the plans and specifications to construct a Truck Loading Dock including Concrete loading dock, Concrete pavement, storm drainage pipe and structures, site grading, and demolition of existing pavement. (AM#2)

TOTAL OPTION NO. 2 \$ _____

0009 OPTION NO. 3:
(AM#4) DELETED BY (AM#13)

0010 OPTION NO. 4:
Deductive cost for all work required by the plans and specifications for the southwest POV parking area shown on attachment C-5 including asphalt pavement curb & gutter, sidewalk, and storm drainage pipe and structures, and site grading. (AM#13)

TOTAL OPTION NO. 4 \$ _____

0011 OPTION NO. 5:
Deductive cost for all work required by the plans and specifications for Traffic Light at Tank Destroyer & 79th Street shown on attachment C-5 and E-1 including poles, lights, controls and electrical power lines. (AM#13)

TOTAL OPTION NO. 5 \$ _____

*Note: Deductive amounts should be denoted by a negative sign (-), parentheses, or brackets. (AM#4)

TOTAL BID (BASE BID PLUS OPTION NOS. 2, 4 and 5) \$ _____

0012 Completion Time for all work (not to exceed the maximum time stated in Section 01000 DESIGN AND CONSTRUCTION SCHEDULE).

PROJECT COMPLETION TIME: _____ Calendar Days

Solicitation No.DACA63-02-R-0011

PRICE PROPOSAL SCHEDULE

NOTES:

1. ARITHMETIC DISCREPANCIES (EFARS 14.407-2)

(a) For the purpose of initial evaluation of bids, the following will be utilized in resolving arithmetic discrepancies found on the face of the bidding schedule as submitted by bidders:

- (1) Obviously misplaced decimal points will be corrected;
- (2) In case of discrepancy between unit price and extended price, the unit price will govern;
- (3) Apparent errors in extension of unit prices will be corrected; and
- (4) Apparent errors in addition of lump-sum and extended prices will be corrected.

(b) For the purpose of bid evaluation, the Government will proceed on the assumption that the bidder intends his bid to be evaluated on the basis of the unit prices, the totals arrived at by resolution of arithmetic discrepancies as provided above and the bid will be so reflected on the abstract of bids.

(c) These correction procedures shall not be used to resolve any ambiguity concerning which bid is low.

2. If a modification to a bid based on unit prices is submitted, which provides for a lump sum adjustment to the total estimated cost, the application of the lump sum adjustment to each unit price in the bid schedule must be stated. If it is not stated, the bidder agrees that the lump sum adjustment shall be applied on a pro rata basis to every unit price in the bid schedule.

3. Bidders must bid on all items.

4. Costs attributable to Division 01 - General Requirements is assumed to be prorated among bid items listed.

5. Responders are advised that this project may be delayed, cancelled or revised at any time during the solicitation, selection, evaluation, negotiation and/or final award process based on decisions related to DOD changes in force structure and disposition of the Armed Forces.

6. EXERCISE OF OPTIONS (SWDR 715-1-1 (16 January 1996))

The Government reserves the right to exercise the option(s) by written notice to the Contractor either singularly or in any combination for up to 90 calendar days after award of the Base Bid without an increase in the Offeror's Bid Price. Completion of added items shall continue at the same schedule as the Base Bid unless otherwise noted in Section 01000 DESIGN AND CONSTRUCTION SCHEDULE, paragraph 1 entitled SCHEDULE.

Solicitation No.DACA63-02-R-0011

PRICE PROPOSAL SCHEDULE

NOTES: (cont)

7. The Army will procure this facility through a design and cost competition in accordance with the provisions set forth in this Request for Proposals (RFP). When a contract is awarded, it will be a "Firm Fixed Price Contract."

8. The Congress, in authorizing and funding this contract, has established certain cost limitations for the project. The current authorization for the complete design and construction of this project is **\$11,000,000.00, (AM#9) exclusive of Option No. 2. (AM#4)** Proposals that exceed this funding limit after exercising any options may be rejected. Submission of desirable alternative features exceeding minimum requirements may be considered as long as award can be made within the established funds.

9. Any proposal that is materially unbalanced as to prices for the Base Schedule may be rejected. An unbalanced proposal is one that is based on prices significantly less than the cost for some work and prices that are significantly overstated for other work and can also exist where only overpricing or underpricing exists.

10. (AM#9) **Foundation Drilled Piers Unit Prices: Insert the applicable contract unit price, for each pier diameter, required to drill and construct drilled piers. This information will be used to determine payment, or credit, for any overruns, or underruns, of the minimum depth specified in Attachment B GEOTECHNICAL REPORT. See Section 01270A Measurement And Payment for additional information.**

11. (AM#9) **ABBREVIATIONS**

For the purpose of this solicitation, the units of measure are represented as follows:

- a. IN (inches)**
- b. VLM (vertical linear meters)**

END OF PRICE PROPOSAL SCHEDULE

SECTION 00150
PROPOSAL EVALUATION AND CONTRACT AWARD
07/2002
AMENDMENT NO. 0013

1 GENERAL

1.1 PROPOSAL EVALUTION

Proposals will be evaluated by a Technical Evaluation Board (TEB). The TEB will be made up of Corps of Engineers and Fort Hood personnel. Board members will not be available for contact or discussion prior to submission of proposals.

1.2 EVALUATION CRITERIA

1.2.1 Volume I Criteria

The Primary Design Construction Team Management proposal evaluation criteria below corresponds to the outline specified in Section 00120 PROPOSAL SUBMISSION REQUIREMENTS, paragraph 1.9.1 Primary Design Construction Team Management Proposal Preparation. Factor A, B and C are of equal importance **AM#13 (and approximately equal to cost/price)** and will be given a quality (**AM#4**) **adjectival** rating. Sub-factors within each factor are of equal importance, unless identified otherwise. Those offerors with no relevant performance history will be assigned a neutral rating in past performance factor. Factor D will be rated "go" or "no go."

Volume I – Primary Design Construction Team Management Proposal

A. Project Organization and Personnel

1. Personnel (Prime and Subcontractor).

The TEB will evaluate the adequacy, strengths and weakness of key personnel assignments, to include compliance with registration and/or other specified minimum qualification requirements; qualifications and experience relevant to the proposed project; familiarity with local conditions; and familiarity with applicable building codes and standards.

The TEB will verify that the Designer of Record has been identified for each design discipline and that letters of commitment have been provided for all key personnel on the project team.

The TEB will evaluate the personnel resources assigned to the project and the ability to provide additional resources for the team if supplemental or replacement personnel are required. Consideration will be based on degree of coverage by discipline for all aspects of design and construction' depth of additional resources to supplement the planned resources, if necessary; whether same-discipline depth is from the same firm/office as the key personnel in that discipline or from a different firm or office.

2. Team Organization and Management

The TEB will evaluate the team structure, the strength of the team organization and the responsibilities for each key individual and firm on the team.

The TEB will evaluate the management structure, delegation of authority, and offeror's approach to managing the design-build process. The TEB will assess the offeror's ability to coordinate the design and construction personnel in a team effort, as evidenced by the offeror's approach to

managing the design-build team, delegation of authority, and team interaction and communication during design and construction.

The TEB will assess the offeror's approach to managing and controlling time during design and construction. Consideration will be given to the scheduling system to be used and compatibility of the offeror's scheduling system with the Government's scheduling system (Primavera, Version 3.1). The offeror's use of the schedule in managing the project will be evaluated.

The TEB will evaluate the work to be self-performed by the offeror (percentage and type). Additional consideration will be given to those offerors that exceed the minimum requirements for work to be self-performed, as identified in the contract clause entitled "Performance of the Work by the Contractor."

The TEB will evaluate the compatibility of proposed CADD system with Government system. Additional consideration will be given for designs prepared in the Government's target CADD system. The amount of consideration will depend on the extent to which the target CADD system is used by the various design disciplines in preparing the design.

B. Experience

1. The offeror will be evaluated based on the recent experiences of the team (firms and/or individual team members). The amount of consideration will depend upon the extent of the offeror's experience, similarity between previous project scopes of work and this project, and the relevance of the offeror's experience to this project. Experience in the following areas will be considered, in decreasing order of importance:

a. Design-build experience. No previous design-build team experience is necessary to qualify for award of this project; however, consideration will be given for recent, successful D-B team experience between the prime construction firm and design firms(s).

b. Experience with vehicle maintenance facilities of similar size and scope. Design, construction, and/or design-build experience are all considered relevant.

c. Sustainable design experience. (AM#5) Consideration will be given to the design team's experience, individual team member or firm, in using sustainable design (SPiRiT or the U.S. Green Building Council's LEED) criteria.

d. Previous experience as a team. Extent to which members of the proposed team have worked together on previous projects as a team will be considered. Design team experience, construction team experience and design-construction team experience are all considered relevant.

e. Experience with Corps of Engineers or other federal contracts. Familiarity with federal regulations and administration of Corps of Engineers or other federal contracts are considered relevant.

f. Experience with design and/or construction at Fort Hood or in the local vicinity. Familiarity with Fort Hood installation requirements and the local vicinity is considered relevant.

C. Past Performance

1. Past performance of the offeror, subcontractors, consultants, and key individuals will be considered in evaluating past performance, utilizing information provided in the proposal and other information available to the Contracting Officer, including but not limited to the following: The following will be considered in descending order of importance:

- a. CCASS (Construction Contract Administration Support System) Evaluations. CCASS evaluations will be utilized to evaluate past performance on Corps of Engineers contracts for construction firms on the offeror's Design-Build team.
- ACASS (A-E Contract Administration Support System) Evaluations. ACASS evaluations will be utilized in evaluating the past performance on Corps of Engineers contracts for Architect-Engineering firms on the offeror's Design-Build team.
- b. Federal Agency Performance Evaluations
- c. Contractor Performance Report From State and local governments and private sector clients. Submitted Contractor Performance Reports may be verified telephonically. References not supported by a Contractor Performance Report may be contacted in writing or telephonically to assess customer satisfaction.
- d. Awards, letters, and other forms of recognition
- e. All other information

D. (AM#5) _____

1.2.2 Volumes II & III Criteria

The evaluation criteria below correspond to the outline specified in Section 00120 PROPOSAL SUBMISSION REQUIREMENTS, paragraph 1.9.2 Volume II – Design Proposal Preparation and 1.9.3 Volume III Cost/Price Proposal Preparation. Factor A is significantly more important than Factor B **(AM#13) and both factors are approximately equal to cost/price**. The sub-factors are listed in decreasing order of importance. Unless noted otherwise, elements within each sub-factor are listed in decreasing order of importance. All sub-factors with in Factor C (Volume III) will be rated “go” or “no-go,” with the exception of cost/price, which will not be rated.

Volume II – Preliminary Design Proposal

A. Design Proposal

1. Soundness and quality of design
 - a. Functional aspects of **(AM#4) the Tactical Equipment Shop**
 - b. Durability of materials
 - c. Design rationale
 - d. Compatibility of design and materials with Fort Hood Installation Design Guide
 - e. **(AM#4) Functional aspects of the Option #2 Truck Loading Dock**
2. Comfort, aesthetics and amenities
 - a. ~~_____ Deleted (AM#1)~~
 - b. Environmental Considerations and Occupational Safety and Health Issues
 - c. Site features and site layout **(AM#4) for the Tactical Equipment Shop**
 - d. **Vehicle Service Equipment (AM#5)**
 - e. Energy-efficient and/or energy-saving features
 - f. HVAC system
 - g. Aesthetics of the facility (interior and exterior)
 - h. Facility enhancements
 - i. **(AM#4) Site features and site layout for the Option #2 Truck Loading Dock**
3. Sustainable Design (Sustainable Project Rating Tool - SPiRiT criteria):

Goal is to achieve SPiRiT Bronze level certification. Additional consideration will be given for achievement of higher SPiRiT levels. See Volume 4, Attachment J, of the solicitation for the SPiRiT manual and rating sheets or the Internet web page at <http://www.cecer.army.mil/Sustdesign/SPiRiT.cfm>.

B. Preliminary Project Schedule

The schedule will be evaluated to assess the offeror's understanding of the design-build process, project scope, phasing requirements, milestones and constraints, and critical elements in design and construction. The design and construction periods offered, the proposed contract durations, and the overall project schedule will be evaluated for realism and for benefits they provide to the Government.

Volume III – Cost/Price Proposal

C. Cost/Price Proposal

1. Standard Form 1442
2. Price proposal schedule, Section 00010
3. Bid Guarantee
4. Representation & Certifications, Section 00600
5. Subcontracting Plan (large businesses only)

The subcontracting plan will be reviewed for compliance and scored in accordance with Army Federal Acquisition Regulation Supplement (AFARS) Appendix CC. Failure to submit an acceptable subcontracting plan may make the offeror ineligible for award of the contract.

6. Small Disadvantaged Business Utilization (SDB) Plan. The SDB utilization plan will be reviewed based on the following criteria:
 - a. The extent to which SDB concerns are specifically identified.
 - b. The extent of commitment to use SDB concerns.
 - c. The complexity and variety of the work SDB concerns are to perform.
 - d. The extent of participation of SDB concerns in terms of the value of the total acquisition.

1.3 DESIGN FREEDOM

REQUIREMENTS STATED IN THIS RFP ARE MINIMUM REQUIREMENTS. Innovative, creative, or cost-saving proposals that meet or exceed these requirements are encouraged and will receive consideration accordingly. Deviations from space and adjacency requirements are discouraged unless the change results in a significant improvement to the facility. Deviations from any requirements should be clearly noted and justified in the proposal. Informative drawing notes are encouraged.

1.4 METHOD OF PROPOSAL EVALUATION

1.4.1 Government's Rights and Goals

The Government reserves the right to reject any or all proposals at any time prior to award; to award a contract to other than the offeror submitting the lowest priced offer; and to award a contract to the offeror submitting the proposal determined to be the most advantageous to the Government. It is the Government's goal to award the project within its construction cost limitation. Significant variation from this amount could result in the Government's inability to award based on lack of funding authority.

1.4.2 Evaluation Process

All proposals will be reviewed to determine if the minimum data and technical requirements have been met. A proposal may be determined to be unacceptable and therefore eliminated if all the required information is not provided or if the proposal materially deviates from the requirements of the RFP.

Weighing of evaluation criteria will take into consideration not only how important a particular element is to the overall project, but also the innovative, creative, or cost-saving elements which may be incorporated into the proposal (see paragraph "DESIGN FREEDOM") and are advantageous to the Government.

1.4.3 Basis of Award

The Government intends to award a contract without discussions based on initial proposals received; therefore, the offerors proposal should contain the offeror's best terms from a cost and technical standpoint. However, the government reserves the right to conduct discussions in accordance with FAR 52.215-1. Should discussion be necessary after evaluations, the Government will establish a competitive range of the offerors that are the most highly rated. The Government reserves the right to address any pertinent issues in the proposals.

An award will be made to the offeror whose offer contains the combination of the criteria offering the best overall proposal to the Government based on consideration of technical merit, cost, and other pertinent factors as specified in the RFP. Volume I – Primary Design Construction Team Management proposal is considered more important than Volume II, Preliminary Design Proposal, and will carry more weight in the overall rating of the proposals. (AM#13) **Both Volume I and Volume II are approximately equal to cost/price.** The combined Primary Design Construction Team Management and Preliminary Design proposal rating is (AM#13) **approximately equal to** Volume III - Cost/Price. (AM#13) **As the technical proposals (both Volume I and Volume II) become more equivalent, the significance of cost/price increases and may become the deciding factor for award. In the event that the technical and cost/price proposal becomes more equivalent for two or more large businesses, the subcontracting plan will become more significant and may become the determining factor for award. Award may be made to the offeror that is not the lowest priced offer, but which is sufficiently more advantageous than the lowest offer so as to justify the payment of a higher price. Any award price must be determined to be fair and reasonable.**

END OF SECTION

APPLICATION OF WAGE DECISIONS

Solicitation No: DACA63-02-R-0011
Project: Design/Construct Tactical Equipment Shop
Location: Fort Hood, Texas

1. Service Contract Act (SCA) Wage Determination Number 94-2523, Revision 16, will be applicable to those activities performing installation support requirements for certain minor maintenance repairs, clerical support services, custodial services, grounds maintenance, and landscaping or for those services requiring the utilization of professional/service employees, i.e., Biologists, Agronomists, Environmentalists, Environmental Abatement, Computer Specialists, Architects/Engineers, Surveyors, and associated Technicians thereof of the professional/technical trades.

NOTE: Payroll records are not required to be submitted to the U.S. Army Corps of Engineers for work performed under the Service Contract Act (SCA). SCA payroll records are required to be kept by the Prime Contractor, and available for review if requested, for a minimum of three years from the date of contract completion. Labor compliance will be monitored by the U.S. Department of Labor for SCA labor records.

2. Davis-Bacon Act Wage Decision, TX020051, Building Construction Projects, will be applicable to the construction, alteration, painting or repair of buildings, installation within buildings, appurtenances to buildings, foundations for buildings, excavation and fill for buildings, and utilities within five feet of buildings for those construction activities performed in **Bell County, Texas.**

3. Davis-Bacon Act Wage Decision, TX020043, Heavy and Highway Construction Projects, will be applicable to all utilities more than five feet from buildings, and any other construction requirements not shown in paragraph 2 above in **Bell County, Texas**

NOTE:

(1) PAYROLL RECORDS ARE REQUIRED, UNDER THE DAVIS-BACON ACT, TO BE SUBMITTED TO THE U.S. ARMY CORPS OF ENGINEERS FOR ALL CONSTRUCTION WORK PERFORMED.

(2) THE WAGE DECISION NUMBER APPLICABLE TO THE WORK PERFORMED IS TO BE SHOWN ON ALL THE CERTIFIED PAYROLL RECORDS SUBMITTED.

ACCOMPANYING AMENDMENT NO. 0013 TO SOLICITATION NO. DACA63-02-R-0011

Service Order Dispatcher	10.40
Stenographer I	10.45
Stenographer II	13.36
Supply Technician	15.42
Survey Worker (Interviewer)	12.08
Switchboard Operator-Receptionist	8.48
Test Examiner	12.21
Test Proctor	12.21
Travel Clerk I	9.40
Travel Clerk II	10.28
Travel Clerk III	11.13
Word Processor I	9.44
Word Processor II	10.66
Word Processor III	12.38
Automatic Data Processing Occupations	
Computer Data Librarian	10.46
Computer Operator I	9.89
Computer Operator II	13.81
Computer Operator III	16.28
Computer Operator IV	18.04
Computer Operator V	19.96
Computer Programmer I (1)	16.06
Computer Programmer II (1)	19.29
Computer Programmer III (1)	21.77
Computer Programmer IV (1)	26.33
Computer Systems Analyst I (1)	22.60
Computer Systems Analyst II (1)	24.16
Computer Systems Analyst III (1)	27.47
Peripheral Equipment Operator	11.55
Automotive Service Occupations	
Automotive Body Repairer, Fiberglass	15.59
Automotive Glass Installer	13.40
Automotive Worker	13.40
Electrician, Automotive	14.17
Mobile Equipment Servicer	11.73
Motor Equipment Metal Mechanic	14.95
Motor Equipment Metal Worker	13.40
Motor Vehicle Mechanic	14.95
Motor Vehicle Mechanic Helper	10.90
Motor Vehicle Upholstery Worker	12.56
Motor Vehicle Wrecker	13.40
Painter, Automotive	14.17
Radiator Repair Specialist	13.40
Tire Repairer	11.33
Transmission Repair Specialist	14.95
Food Preparation and Service Occupations	
Baker	9.89
Cook I	8.70
Cook II	9.89
Dishwasher	6.52
Food Service Worker	6.58
Meat Cutter	10.96
Waiter/Waitress	6.84
Furniture Maintenance and Repair Occupations	
Electrostatic Spray Painter	14.17
Furniture Handler	9.23
Furniture Refinisher	14.17

ACCOMPANYING AMENDMENT NO. 0013 TO SOLICITATION NO. DACA63-02-R-0011

Furniture Refinisher Helper	10.90
Furniture Repairer, Minor	12.56
Upholsterer	14.17
General Services and Support Occupations	
Cleaner, Vehicles	7.15
Elevator Operator	7.15
Gardener	9.45
House Keeping Aid I	7.00
House Keeping Aid II	7.86
Janitor	7.17
Laborer, Grounds Maintenance	8.54
Maid or Houseman	6.23
Pest Controller	10.73
Refuse Collector	7.15
Tractor Operator	8.77
Window Cleaner	7.87
Health Occupations	
Dental Assistant	10.93
Emergency Medical Technician (EMT)/Paramedic/Ambulance Driver	10.93
Licensed Practical Nurse I	9.66
Licensed Practical Nurse II	10.83
Licensed Practical Nurse III	12.12
Medical Assistant	9.77
Medical Laboratory Technician	11.24
Medical Record Clerk	10.37
Medical Record Technician	13.54
Nursing Assistant I	7.56
Nursing Assistant II	8.50
Nursing Assistant III	9.27
Nursing Assistant IV	10.40
Pharmacy Technician	12.19
Phlebotomist	10.83
Registered Nurse I	14.37
Registered Nurse II	17.58
Registered Nurse II, Specialist	17.58
Registered Nurse III	21.27
Registered Nurse III, Anesthetist	21.27
Registered Nurse IV	25.49
Information and Arts Occupations	
Audiovisual Librarian	15.04
Exhibits Specialist I	14.31
Exhibits Specialist II	18.07
Exhibits Specialist III	20.79
Illustrator I	13.91
Illustrator II	17.56
Illustrator III	20.20
Librarian	16.86
Library Technician	12.08
Photographer I	11.44
Photographer II	13.91
Photographer III	17.56
Photographer IV	20.20
Photographer V	24.53
Laundry, Dry Cleaning, Pressing and Related Occupations	
Assembler	6.55
Counter Attendant	6.55
Dry Cleaner	7.79

ACCOMPANYING AMENDMENT NO. 0013 TO SOLICITATION NO. DACA63-02-R-0011

Finisher, Flatwork, Machine	6.55
Presser, Hand	6.55
Presser, Machine, Drycleaning	6.55
Presser, Machine, Shirts	6.55
Presser, Machine, Wearing Apparel, Laundry	6.55
Sewing Machine Operator	8.37
Tailor	8.96
Washer, Machine	7.57
Machine Tool Operation and Repair Occupations	
Machine-Tool Operator (Toolroom)	14.17
Tool and Die Maker	16.20
Material Handling and Packing Occupations	
Forklift Operator	10.18
Fuel Distribution System Operator	13.66
Material Coordinator	12.13
Material Expediter	12.13
Material Handling Laborer	8.46
Order Filler	9.51
Production Line Worker (Food Processing)	10.53
Shipping Packer	10.72
Shipping/Receiving Clerk	10.72
Stock Clerk (Shelf Stocker; Store Worker II)	10.14
Store Worker I	7.73
Tools and Parts Attendant	11.60
Warehouse Specialist	10.62
Mechanics and Maintenance and Repair Occupations	
Aircraft Mechanic	17.16
Aircraft Mechanic Helper	12.51
Aircraft Quality Control Inspector	18.00
Aircraft Servicer	14.43
Aircraft Worker	15.39
Appliance Mechanic	14.17
Bicycle Repairer	11.33
Cable Splicer	14.95
Carpenter, Maintenance	14.17
Carpet Layer	13.40
Electrician, Maintenance	16.18
Electronics Technician, Maintenance I	15.28
Electronics Technician, Maintenance II	16.97
Electronics Technician, Maintenance III	19.30
Fabric Worker	12.56
Fire Alarm System Mechanic	14.95
Fire Extinguisher Repairer	11.73
Fuel Distribution System Mechanic	14.95
General Maintenance Worker	13.40
Heating, Refrigeration and Air Conditioning Mechanic	14.95
Heavy Equipment Mechanic	14.95
Heavy Equipment Operator	14.95
Instrument Mechanic	17.19
Laborer	8.46
Locksmith	14.17
Machinery Maintenance Mechanic	15.03
Machinist, Maintenance	14.95
Maintenance Trades Helper	10.90
Millwright	14.95
Office Appliance Repairer	14.17
Painter, Aircraft	14.17

ACCOMPANYING AMENDMENT NO. 0013 TO SOLICITATION NO. DACA63-02-R-0011

Painter, Maintenance	14.17
Pipefitter, Maintenance	17.83
Plumber, Maintenance	16.35
Pneudraulic Systems Mechanic	14.95
Rigger	14.95
Scale Mechanic	13.40
Sheet-Metal Worker, Maintenance	14.95
Small Engine Mechanic	13.40
Telecommunication Mechanic I	15.48
Telecommunication Mechanic II	18.67
Telephone Lineman	15.48
Welder, Combination, Maintenance	14.95
Well Driller	14.95
Woodcraft Worker	14.95
Woodworker	11.88
Miscellaneous Occupations	
Animal Caretaker	7.46
Carnival Equipment Operator	9.28
Carnival Equipment Repairer	10.01
Carnival Worker	6.22
Cashier	7.36
Desk Clerk	8.63
Embalmer	16.84
Lifeguard	9.02
Mortician	16.84
Park Attendant (Aide)	11.32
Photofinishing Worker (Photo Lab Tech., Darkroom Tech)	8.89
Recreation Specialist	11.97
Recycling Worker	9.29
Sales Clerk	8.42
School Crossing Guard (Crosswalk Attendant)	7.15
Sport Official	8.61
Survey Party Chief (Chief of Party)	15.28
Surveying Aide	9.53
Surveying Technician (Instr. Person/Surveyor Asst./Instr.)	13.06
Swimming Pool Operator	9.89
Vending Machine Attendant	9.29
Vending Machine Repairer	11.37
Vending Machine Repairer Helper	9.29
Personal Needs Occupations	
Child Care Attendant	8.63
Child Care Center Clerk	10.76
Chore Aid	6.37
Homemaker	11.97
Plant and System Operation Occupations	
Boiler Tender	14.95
Sewage Plant Operator	14.17
Stationary Engineer	17.19
Ventilation Equipment Tender	10.90
Water Treatment Plant Operator	14.17
Protective Service Occupations	
Alarm Monitor	9.65
Corrections Officer	12.62
Court Security Officer	12.62
Detention Officer	12.62
Firefighter	13.63
Guard I	8.45

ACCOMPANYING AMENDMENT NO. 0013 TO SOLICITATION NO. DACA63-02-R-0011

Guard II	11.10
Police Officer	14.75
Stevedoring/Longshoremen Occupations	
Blocker and Bracer	14.89
Hatch Tender	12.95
Line Handler	12.95
Stevedore I	12.03
Stevedore II	13.68
Technical Occupations	
Air Traffic Control Specialist, Center (2)	27.84
Air Traffic Control Specialist, Station (2)	18.62
Air Traffic Control Specialist, Terminal (2)	20.50
Archeological Technician I	12.68
Archeological Technician II	13.85
Archeological Technician III	17.56
Cartographic Technician	21.24
Civil Engineering Technician	18.47
Computer Based Training (CBT) Specialist/ Instructor	20.72
Drafter I	11.97
Drafter II	13.15
Drafter III	17.97
Drafter IV	21.25
Engineering Technician I	13.63
Engineering Technician II	16.43
Engineering Technician III	18.40
Engineering Technician IV	26.25
Engineering Technician V	30.72
Engineering Technician VI	32.32
Environmental Technician	19.94
Flight Simulator/Instructor (Pilot)	23.54
Graphic Artist	15.67
Instructor	17.16
Laboratory Technician	15.32
Mathematical Technician	19.94
Paralegal/Legal Assistant I	12.84
Paralegal/Legal Assistant II	14.44
Paralegal/Legal Assistant III	17.66
Paralegal/Legal Assistant IV	21.37
Photooptics Technician	18.17
Technical Writer	22.71
Unexploded (UXO) Safety Escort	17.16
Unexploded (UXO) Sweep Personnel	17.16
Unexploded Ordnance (UXO) Technician I	17.16
Unexploded Ordnance (UXO) Technician II	20.76
Unexploded Ordnance (UXO) Technician III	24.88
Weather Observer, Combined Upper Air and Surface Programs (3)	14.16
Weather Observer, Senior (3)	15.73
Weather Observer, Upper Air (3)	14.16
Transportation/ Mobile Equipment Operation Occupations	
Bus Driver	12.39
Parking and Lot Attendant	7.08
Shuttle Bus Driver	10.21
Taxi Driver	8.25
Truckdriver, Heavy Truck	14.33
Truckdriver, Light Truck	10.21
Truckdriver, Medium Truck	14.26
Truckdriver, Tractor-Trailer	14.33

ACCOMPANYING AMENDMENT NO. 0013 TO SOLICITATION NO. DACA63-02-R-0011

ALL OCCUPATIONS LISTED ABOVE RECEIVE THE FOLLOWING BENEFITS:

HEALTH & WELFARE: \$2.15 an hour or \$86.00 a week or \$372.67 a month

VACATION: 2 weeks paid vacation after 1 year of service with a contractor or successor; 3 weeks after 10 years, and 4 after 20 years. Length of service includes the whole span of continuous service with the present contractor or successor, wherever employed, and with the predecessor contractors in the performance of similar work at the same Federal facility. (Reg. 29 CFR 4.173)

HOLIDAYS: A minimum of ten paid holidays per year: New Year's Day, Martin Luther King Jr.'s Birthday, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Columbus Day, Veterans' Day, Thanksgiving Day, and Christmas Day. (A contractor may substitute for any of the named holidays another day off with pay in accordance with a plan communicated to the employees involved.) (See 29 CFR 4.174)

THE OCCUPATIONS WHICH HAVE PARENTHESES AFTER THEM RECEIVE THE FOLLOWING BENEFITS (as numbered):

1) Does not apply to employees employed in a bona fide executive, administrative, or professional capacity as defined and delineated in 29 CFR 541. (See CFR 4.156)

2) APPLICABLE TO AIR TRAFFIC CONTROLLERS ONLY - NIGHT DIFFERENTIAL: An employee is entitled to pay for all work performed between the hours of 6:00 P.M. and 6:00 A.M. at the rate of basic pay plus a night pay differential amounting to 10 percent of the rate of basic pay.

3) WEATHER OBSERVERS - NIGHT PAY & SUNDAY PAY: If you work at night as part of a regular tour of duty, you will earn a night differential and receive an additional 10% of basic pay for any hours worked between 6pm and 6am. If you are a full-time employed (40 hours a week) and Sunday is part of your regularly scheduled workweek, you are paid at your rate of basic pay plus a Sunday premium of 25% of your basic rate for each hour of Sunday work which is not overtime (i.e. occasional work on Sunday outside the normal tour of duty is considered overtime work).

HAZARDOUS PAY DIFFERENTIAL:

An 8 percent differential is applicable to employees employed in a position that represents a high degree of hazard when working with or in close proximity to ordnance, explosives, and incendiary materials. This includes work such as screening, blending, dying, mixing, and pressing of sensitive ordnance, explosives, and pyrotechnic compositions such as lead azide, black powder and photoflash powder. All dry-house activities involving propellants or explosives. Demilitarization, modification, renovation, demolition, and maintenance operations on sensitive ordnance, explosives and incendiary materials. All operations involving regrading and cleaning of artillery ranges.

A 4 percent differential is applicable to employees employed in a position that represents a low degree of hazard when working with, or in close proximity to ordnance, (or employees possibly adjacent to) explosives and incendiary materials which involves potential injury such as laceration of hands, face, or arms of the employee engaged in the operation, irritation of the skin, minor burns and the like; minimal damage to immediate or adjacent work area or equipment being used. All operations involving, unloading, storage, and hauling of ordnance, explosive, and incendiary ordnance material other than small arms ammunition. These differentials are only applicable to work that has been

ACCOMPANYING AMENDMENT NO. 0013 TO SOLICITATION NO. DACA63-02-R-0011

specifically designated by the agency for ordnance, explosives, and incendiary material differential pay.

**** UNIFORM ALLOWANCE ****

If employees are required to wear uniforms in the performance of this contract (either by the terms of the Government contract, by the employer, by the state or local law, etc.), the cost of furnishing such uniforms and maintaining (by laundering or dry cleaning) such uniforms is an expense that may not be borne by an employee where such cost reduces the hourly rate below that required by the wage determination. The Department of Labor will accept payment in accordance with the following standards as compliance:

The contractor or subcontractor is required to furnish all employees with an adequate number of uniforms without cost or to reimburse employees for the actual cost of the uniforms. In addition, where uniform cleaning and maintenance is made the responsibility of the employee, all contractors and subcontractors subject to this wage determination shall (in the absence of a bona fide collective bargaining agreement providing for a different amount, or the furnishing of contrary affirmative proof as to the actual cost), reimburse all employees for such cleaning and maintenance at a rate of \$3.35 per week (or \$.67 cents per day). However, in those instances where the uniforms furnished are made of "wash and wear" materials, may be routinely washed and dried with other personal garments, and do not require any special treatment such as dry cleaning, daily washing, or commercial laundering in order to meet the cleanliness or appearance standards set by the terms of the Government contract, by the contractor, by law, or by the nature of the work, there is no requirement that employees be reimbursed for uniform maintenance costs.

**** NOTES APPLYING TO THIS WAGE DETERMINATION ****

Source of Occupational Title and Descriptions:

The duties of employees under job titles listed are those described in the "Service Contract Act Directory of Occupations," Fourth Edition, January 1993, as amended by the Third Supplement, dated March 1997, unless otherwise indicated. This publication may be obtained from the Superintendent of Documents, at 202-783-3238, or by writing to the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Copies of specific job descriptions may also be obtained from the appropriate contracting officer.

REQUEST FOR AUTHORIZATION OF ADDITIONAL CLASSIFICATION AND WAGE RATE {Standard Form 1444 (SF 1444)}

Conformance Process:

The contracting officer shall require that any class of service employee which is not listed herein and which is to be employed under the contract (i.e., the work to be performed is not performed by any classification listed in the wage determination), be classified by the contractor so as to provide a reasonable relationship (i.e., appropriate level of skill comparison) between such unlisted classifications and the classifications listed in the wage determination. Such conformed classes of employees shall be paid the monetary wages and furnished the fringe benefits as are determined. Such conforming process shall be initiated by the contractor prior to the performance of contract work by such unlisted class(es) of employees. The conformed classification, wage rate, and/or fringe benefits shall be retroactive to the commencement date of the contract. {See Section 4.6 (C)(vi)} When multiple wage determinations are included in a contract, a separate SF 1444 should be prepared for each wage determination to which a class(es) is to be conformed.

The process for preparing a conformance request is as follows:

ACCOMPANYING AMENDMENT NO. 0013 TO SOLICITATION NO. DACA63-02-R-0011

- 1) When preparing the bid, the contractor identifies the need for a conformed occupation(s) and computes a proposed rate(s).
- 2) After contract award, the contractor prepares a written report listing in order proposed classification title(s), a Federal grade equivalency (FGE) for each proposed classification(s), job description(s), and rationale for proposed wage rate(s), including information regarding the agreement or disagreement of the authorized representative of the employees involved, or where there is no authorized representative, the employees themselves. This report should be submitted to the contracting officer no later than 30 days after such unlisted class(es) of employees performs any contract work.
- 3) The contracting officer reviews the proposed action and promptly submits a report of the action, together with the agency's recommendations and pertinent information including the position of the contractor and the employees, to the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, for review. (See section 4.6(b)(2) of Regulations 29 CFR Part 4).
- 4) Within 30 days of receipt, the Wage and Hour Division approves, modifies, or disapproves the action via transmittal to the agency contracting officer, or notifies the contracting officer that additional time will be required to process the request.
- 5) The contracting officer transmits the Wage and Hour decision to the contractor.
- 6) The contractor informs the affected employees.

Information required by the Regulations must be submitted on SF 1444 or bond paper.

When preparing a conformance request, the "Service Contract Act Directory of Occupations" (the Directory) should be used to compare job definitions to insure that duties requested are not performed by a classification already listed in the wage determination. Remember, it is not the job title, but the required tasks that determine whether a class is included in an established wage determination. Conformances may not be used to artificially split, combine, or subdivide classifications listed in the wage determination.

GENERAL DECISION TX020051 06/07/02 TX51

General Decision Number TX020051

Superseded General Decision No. TX010051

State: **TEXAS**

Construction Type:

BUILDING

County(ies):

BELL CORYELL

BUILDING CONSTRUCTION PROJECTS (does not include residential construction consisting of single family homes and apartments up to and including 4 stories).

Modification Number	Publication Date
0	03/01/2002
1	03/29/2002
2	06/07/2002

COUNTY(ies):

BELL CORYELL

ELEC0072A 08/30/2001

	Rates	Fringes
ELECTRICIANS	19.75	3.65+4%
CABLE SPLICERS	20.75	3.65+4%

* IRON0482B 06/01/2002

	Rates	Fringes
IRONWORKERS, Structural	16.65	4.65

SUTX1067A 11/16/1991

	Rates	Fringes
AIR CONDITIONING AND HEATING MECHANICS (Excluding Duct Work)	9.10	
BRICKLAYERS	14.00	
CARPENTERS (Including Drywall Hangers)	11.58	
CEMENT MASONS	10.50	
GLAZIERS	7.00	.46
INSULATION INSTALLERS (Batt and Blown)	8.31	.54
IRONWORKERS, Reinforcing	11.00	
LABORERS (Including Mason Tenders)	5.61	
LATHERS	15.33	
PAINTERS	8.32	.13
PLASTERERS	12.78	
PLUMBERS AND PIPEFITTERS (Excluding HVAC Work)	10.07	
POWER EQUIPMENT OPERATORS: Backhoes	8.54	

ACCOMPANYING AMENDMENT NO. 0013 TO SOLICITATION NO. DACA63-02-R-0011

ROOFERS	7.78	
SHEET METAL WORKERS (Including HVAC Work)	9.79	
SOFT FLOOR LAYERS	13.46	.26
TILE SETTERS	15.00	.25

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

INCIDENTAL PAVING AND UTILITIES

ASPHALT HEATER OPERATOR	7.55	
ASPHALT RAKER	6.50	
CARPENTER	8.75	
CONCRETE FINISHER-PAVING	8.50	
CONCRETE FINISHER-STRUCTURES	8.35	
ELECTRICIAN	14.00	
FORM BUILDER-STRUCTURES	8.90	
FORM LINER-PAVING & CURB	8.05	
FORM SETTER-PAVING & CURB	7.10	
FORM SETTER-STRUCTURES	7.70	
LABORER-COMMON	5.60	
LABORER-UTILITY	6.45	
MECHANIC	10.00	
SERVICER	6.60	
PIPELAYER	5.70	
POWER EQUIPMENT OPERATORS:		
Asphalt Distributor	7.00	
Asphalt Paving Machine	7.15	
Broom or Sweeper Operator	6.60	
Bulldozer, 150 HP & Less	7.10	
Bulldozer over 150 HP	7.35	
Concrete Paving Finishing Machine	7.00	
Crane, Clamshell, Backhoe, Derrick, Dragline, Shovel Less than 1 1/2 C.Y.	8.00	
Crane, Clamshell, Backhoe, Derrick, Dragline, Shovel 1 1/2 C.Y. & Over	9.45	
Foundation Drill Operator, Truck Mounted	10.50	
Front End Loader 2 1/2 C.Y. & Less	7.10	
Front End Loader Over 2 1/2 C.Y.	7.85	
Motor Grader Operator, Fine Grade	9.05	
Motor Grader Operator	8.35	
Roller, Steel Wheel, Plant-Mix Pavement	6.20	
Roller, Steel Wheel Other Flatwheel or Tamping	5.95	
Roller, Pneumatic, Self Propelled	5.90	
Scraper, 17 C.Y. & Less	6.15	
Scraper, Over 17 C.Y.	7.10	
Side Boom	6.30	

ACCOMPANYING AMENDMENT NO. 0013 TO SOLICITATION NO. DACA63-02-R-0011

Tractor, (Pneumatic) 80 HP & Less	6.00
Tractor, (Pneumatic) over 80 HP	7.20
TRUCK DRIVERS:	
Single Axle, Light	6.45
Single Axle, Heavy	6.60
Tandem Axle or Semi-trailer	6.55
WELDER	9.50

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29 CFR 5.5(a)(1)(v)).

In the listing above, the "SU" designation means that rates listed under that identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U. S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor

ACCOMPANYING AMENDMENT NO. 0013 TO SOLICITATION NO. DACA63-02-R-0011

200 Constitution Avenue, N. W.
Washington, D. C. 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U. S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISION

GENERAL DECISION TX020043 03/01/02 TX43

General Decision Number TX020043

Superseded General Decision No. TX010043

State: **TEXAS**

Construction Type:

**HEAVY
HIGHWAY**

County(ies):

BELL	CORYELL	TRAVIS
BEXAR	GUADALUPE	WILLIAMSON
BRAZOS	HAYS	
COMAL	MCLENNAN	

Heavy (excluding tunnels and dams) **and Highway Construction Projects** (does not include building structures in rest area projects). *NOT TO BE USED FOR WORK ON SEWAGE OR WATER TREATMENT PLANTS OR LIFT/PUMP STATIONS IN BELL, CORYELL, McLENNAN AND WILLIAMSON COUNTIES.

Modification Number	Publication Date
0	03/01/2002

COUNTY(ies):

BELL	CORYELL	TRAVIS
BEXAR	GUADALUPE	WILLIAMSON
BRAZOS	HAYS	
COMAL	MCLENNAN	

SUTX2042A 03/26/1998

	Rates	Fringes
AIR TOOL OPERATOR	8.08	
ASPHALT HEATER OPERATOR	11.00	
ASPHALT RAKER	8.00	
ASPHALT SHOVELER	7.97	
BATCHING PLANT WEIGHER	11.00	
CARPENTER	10.80	
CONCRETE FINISHER-PAVING	9.57	
CONCRETE FINISHER-STRUCTURES	8.83	
CONCRETE RUBBER	8.52	
ELECTRICIAN	16.25	
FLAGGER	6.86	
FORM BUILDER-STRUCTURES	8.77	
FORM LINER-PAVING & CURB	8.00	
FORM SETTER-PAVING & CURB	8.68	
FORM SETTER-STRUCTURES	8.73	
LABORER-COMMON	7.12	
LABORER-UTILITY	7.99	
MECHANIC	12.15	
OILER	11.40	
SERVICER	8.44	
PAINTER-STRUCTURES	10.00	
PIPE LAYER	8.27	
ASPHALT DISTRIBUTOR OPERATOR	9.70	

ACCOMPANYING AMENDMENT NO. 0013 TO SOLICITATION NO. DACA63-02-R-0011

ASPHALT PAVING MACHINE	9.26
BROOM OR SWEEPER OPERATOR	7.12
BULLDOZER	9.28
CONCRETE CURING MACHINE	7.79
CONCRETE FINISHING MACHINE	11.00
CONCRETE PAVING SAW	9.79
SLIPFORM MACHINE OPERATOR	11.15
CRANE, CLAMSHELL, BACKHOE, DERRICK, DRAGLINE, SHOVEL	10.12
FOUNDATION DRILL OPERATOR TRUCK MOUNTED	15.00
FRONT END LOADER	8.86
HOIST - DOUBLE DRUM & LESS	10.81
MIXER	7.12
MIXER - CONCRETE PAVING	11.00
MOTOR GRADER FINE GRADE	12.37
MOTOR GRADER	11.14
PAVEMENT MARKING MACHINE	8.31
PLANER OPERATOR	15.75
ROLLER, STEEL WHEEL PLANT-MIX PAVEMENTS	7.73
ROLLER, STEEL WHEEL OTHER FLATWHEEL OR TAMPING	7.33
ROLLER, PNEUMATIC, SELF PROPELLED	7.17
SCRAPERS	8.38
TRACTOR-CRAWLER TYPE	9.40
TRAVELING MIXER	7.92
TRENCHING MACHINE, HEAVY	9.92
WAGON-DRILL/BORING MACHINE	8.00
REINFORCING STEEL SETTER PAVING	14.50
REINFORCING STEEL SETTER STRUCTURES	10.61
STEEL WORKER-STRUCTURAL	11.73
SPREADER BOX OPERATOR	8.55
WORK ZONE BARRICADE	8.29
SIGN INSTALLER	7.97
TRUCK DRIVER-SINGLE AXLE LIGHT	8.32
TRUCK DRIVER-SINGLE AXLE HEAVY	7.954
TRUCK DRIVER-TANDEM AXLE SEMI- TRAILER	8.02
TRUCK DRIVER-LOWBOY/FLOAT	10.12
WELDER	11.02

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29 CFR 5.5(a)(1)(v)).

In the listing above, the "SU" designation means that rates listed under that identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

WAGE DETERMINATION APPEALS PROCESS

ACCOMPANYING AMENDMENT NO. 0013 TO SOLICITATION NO. DACA63-02-R-0011

1.) Has there been an initial decision in the matter? This can be:

- * an existing published wage determination
- * a survey underlying a wage determination
- * a Wage and Hour Division letter setting forth a position on a wage determination matter
- * a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U. S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U. S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISION

CHAPTER D6

ARTIFICIAL LIGHTING

PERFORMANCE

A. Basic Function:

1. Provide artificial means of lighting interior and exterior spaces.
2. Artificial lighting comprises the following elements:
 - a. Interior Lighting: General room lighting, emergency lighting, and accent lighting. In high bay areas _____ **(am#13)**.
 - b. **Provide interior lighting for POL storage building. (am#1)**
 - c. Exterior Area Lighting (D62): General lighting of exterior spaces including hardstand areas, driveways and parking areas.
3. Portable lamps (not permanently attached to the building) may not be used to accomplish required artificial lighting.
4. Design lighting in accordance with recommendations of the Illuminating Engineering Society of North America IESNA-2000.
5. Fluorescent fixtures shall be served by electronic ballasts.
6. Provide occupancy sensors in areas such as toilets, stairs, conference rooms, janitor closet, break room.

END OF CHAPTER D6

CHAPTER D36

HVAC CONTROLS

PERFORMANCE

A. Basic Function:

1. Provide the elements necessary to control the building's indoor environment.
 - a. Provide a programmable thermostat for each single zone unit to maintain the required space conditions and local, packaged control for each major piece of HVAC equipment.
 - b. **Deleted by (Am#13)**
2. Where control and instrumentation elements also must function as elements defined within another element group, meet the requirements of both element groups.
3. **Meters: Provide electric, gas and water meters with pulse initiators. Supply conduits with conductors from each meter to a terminal cabinet in the main mechanical room for future connection. (Am#3)**
4. In addition to the requirements of this chapter, comply with all applicable requirements of Chapter 111 - Facility Performance, Chapter D - Services, and Chapter D3 - HVAC.

B. Amenity and Comfort:

1. Zoning and Space Temperature Control:
 - a. Provide each computer room with a dedicated zone. Provide temperature control.
2. Building Control System: Provide a central location to monitor and control each zone setpoint.

C. Health and Safety:

1. Life Safety: Provide interconnection and coordination of HVAC controls with other life safety systems.
2. Fire Sources: Provide products which are rated for the specific locations where they are installed.

D. Durability:

1. Expected Service Life Span: Provide a system which will last a minimum of 10 years in service without major repairs or operating expense.
2. Vandalism: Protect the system field panels from unauthorized access. Emergency shutoff switch for AHU located to be easily accessible by building occupants.
3. Accidental Damage: Protect thermostats from accidental damage.

E. Operation and Maintenance:

1. System Capacity: Provide a building control system with sensors and points to perform as specified and add 50 percent more points.
2. Ease of Use:
 - a. **Deleted by (Am#13)**
 - b. Locate field panels in electrical closets.
 - c. Locate the central controller in the maintenance office.
 - d. Provide a system which is user programmable.
 - e. Provide field panels which are independent and do not need the central controller to continue functioning.
3. Ease of Service:

- a. Provide a system of modular design.
4. Energy Efficiency: Provide :
 - a. Holiday scheduling.
 - b. Night setback.
 - c. Outside air economizer.
 - d. Chiller staging (if more than one chiller).
 - e. Optimum start.
 - f. Optimum stop.
- F. **Commissioning:**
 1. **1. Commissioning shall be accomplished for all mechanical systems (excluding bridge cranes) using specification 15995A, division 15, Volume 3 as a guide. Commissioning shall be executed by a third party firm regularly engaged in commissioning of similar mechanical systems, with a minumin of three years experience. (am#5)**

PRODUCTS

- A. Building Control System Types:
 1. Use one or more of the following:
 - a. Deleted by (Am#13)
 - b. a programmable thermostat with a on board electronic control sequences of the unitary equipment

END OF CHAPTER D36

SECTION 01451

CONTRACTOR QUALITY CONTROL
04/97

PART 1 GENERAL

1.1 REFERENCES

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

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 3740	(1994a) Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction
ASTM E 329	(1995b) Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction

1.2 PAYMENT

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

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

The Contractor is responsible for quality control and shall establish and maintain an effective quality control system in compliance with the Contract Clause titled "Inspection of Construction." The quality control system shall consist of plans, procedures, and organization necessary to produce an end product which complies with the contract requirements. The system shall cover all construction operations, both onsite and offsite, and shall be keyed to the proposed construction sequence. The project superintendent will be held responsible for the quality of work on the job and is subject to removal by the Contracting Officer for non-compliance with quality requirements specified in the contract. The project superintendent in this context shall mean the individual with the responsibility for the overall management of the project including quality and production.

3.2 QUALITY CONTROL PLAN

3.2.1 General

The Contractor shall furnish for review by the Government, not later than 10

days after receipt of notice to proceed, the Contractor Quality Control (CQC) Plan proposed to implement the requirements of the Contract Clause titled "Inspection of Construction." The plan shall identify personnel, procedures, control, instructions, tests, records, and forms to be used. The Government will consider an interim plan for the first 60 days of operation. Construction will be permitted to begin only after acceptance of the CQC Plan or acceptance of an interim plan applicable to the particular feature of work to be started. Work outside of the features of work included in an accepted interim plan will not be permitted to begin until acceptance of a CQC Plan or another interim plan containing the additional features of work to be started.

3.2.2 Content of the CQC Plan

The CQC Plan shall include, as a minimum, the following to cover all construction operations, both onsite and offsite, including work by subcontractors, fabricators, suppliers, and purchasing agents:

- a. A description of the quality control organization, including a chart showing lines of authority and acknowledgment that the CQC staff shall implement the three phase control system for all aspects of the work specified. The staff shall include a CQC System Manager who shall report to the project superintendent.
- b. The name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function.
- c. A copy of the letter to the CQC System Manager signed by an authorized official of the firm which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the CQC System Manager, including authority to stop work which is not in compliance with the contract. The CQC System Manager shall issue letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities. Copies of these letters shall also be furnished to the Government.
- d. Procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, offsite fabricators, suppliers, and purchasing agents. These procedures shall be in accordance with Section 01330 SUBMITTAL PROCEDURES.
- e. Control, verification, and acceptance testing procedures for each specific test to include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person responsible for each test. (Laboratory facilities will be approved by the Contracting Officer.)
- f. Procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and acceptance tests including documentation.
- g. Procedures for tracking construction deficiencies from identification through acceptable corrective action. These procedures shall establish verification that identified deficiencies have been corrected.
- h. Reporting procedures, including proposed reporting formats.

- i. A list of the definable features of work. A definable feature of work is a task which is separate and distinct from other tasks, has separate control requirements, and may be identified by different trades or disciplines, or it may be work by the same trade in a different environment. Although each section of the specifications may generally be considered as a definable feature of work, there are frequently more than one definable features under a particular section. This list will be agreed upon during the coordination meeting.

3.2.3 Acceptance of Plan

Acceptance of the Contractor's plan is required prior to the start of construction. Acceptance is conditional and will be predicated on satisfactory performance during the construction. The Government reserves the right to require the Contractor to make changes in his CQC Plan and operations including removal of personnel, as necessary, to obtain the quality specified.

3.2.4 Notification of Changes

After acceptance of the CQC Plan, the Contractor shall notify the Contracting Officer in writing of any proposed change. Proposed changes are subject to acceptance by the Contracting Officer.

3.3 COORDINATION MEETING

After the Preconstruction Conference, before start of construction, and prior to acceptance by the Government of the CQC Plan, the Contractor shall meet with the Contracting Officer or Authorized Representative and discuss the Contractor's quality control system. The CQC Plan shall be submitted for review a minimum of 5 calendar days prior to the Coordination Meeting. During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the CQC operations, control activities, testing, administration of the system for both onsite and offsite work, and the interrelationship of Contractor's Management and control with the Government's Quality Assurance. Minutes of the meeting shall be prepared by the Government and signed by both the Contractor and the Contracting Officer. The minutes shall become a part of the contract file. There may be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings and/or address deficiencies in the CQC system or procedures which may require corrective action by the Contractor.

3.4 QUALITY CONTROL ORGANIZATION

3.4.1 Personnel Requirements

The requirements for the CQC organization are a CQC System Manager and sufficient number of additional qualified personnel to ensure contract compliance. The Contractor shall provide a CQC organization which shall be at the site at all times during progress of the work and with complete authority to take any action necessary to ensure compliance with the contract. All CQC staff members shall be subject to acceptance by the Contracting Officer.

3.4.2 CQC System Manager

The Contractor shall identify as CQC System Manager an individual within the onsite work organization who shall be responsible for overall management of CQC and have the authority to act in all CQC matters for the Contractor. The CQC System Manager shall be a graduate engineer, graduate architect, or a graduate of construction management, with a minimum of one years construction experience on construction similar to this contract or a construction person with a minimum of five years in related work. This CQC System Manager shall be on the site at all times during construction and shall be employed by the prime Contractor. The CQC System Manager shall be assigned no other duties. An alternate for the CQC System Manager shall be identified in the plan to serve in the event of the System Manager's absence. The requirements for the alternate shall be the same as for the designated CQC System Manager.

3.4.3 CQC Personnel

3.4.3.1 CQC Staff

A staff shall be maintained under the direction of the CQC system manager to perform all QC activities. The staff must be of sufficient size to ensure adequate QC coverage of all work phases, work shifts and work crews involved with the construction. Except as required for specialized CQC personnel, these personnel may perform other duties, but must be fully qualified by experience and technical training to perform their assigned QC responsibilities and must be allowed sufficient time to carry out these responsibilities.

3.4.3.2 Specialized CQC Personnel

In addition to CQC personnel specified elsewhere in the contract, the Contractor shall provide as part of the CQC organization specialized personnel to assist the CQC System Manager for the following areas: **mechanical/electrical (AM#13)**, and submittals clerk. These individuals shall be directly employed by the prime Contractor and may not be employed by a supplier or sub-contractor on this project; be responsible to the CQC System Manager; be physically present at the construction site during work on their areas of responsibility; have the necessary education and/or experience in accordance with the experience matrix listed herein. These individuals shall have no other duties other than quality control.

Experience Matrix

Area & Qualifications

a. Mechanical/Electrical

Graduate Mechanical Engineer with 2 yrs experience or person with 5 yrs related experience in Mechanical and Electrical. (AM#13)

b. Submittals

Submittal Clerk with 1 yrs experience

3.4.4 Additional Requirement

In addition to the above experience and education requirements the CQC System Manager shall have completed the course entitled "Construction

Quality Management For Contractors". This class is mandatory for the Contractor's quality control manager. Certificates issued upon successful completion are valid for five years. This course is periodically offered at the Fort Worth District, Corps of Engineers Office, Federal Building, Room 1A03, 819 Taylor Street, Fort Worth, Texas. Attendees must be fluent in the English language (able to read and write) at the high school level.

Registration is required; call 817-886-1828 or 817-886-1841 for times and reservations. There is no charge for the course; however the Contractor will pay for travel and per diem costs.

3.4.5 Organizational Changes

The Contractor shall maintain the CQC staff at full strength at all times. When it is necessary to make changes to the CQC staff, the Contractor shall revise the CQC Plan to reflect the changes and submit the changes to the Contracting Officer for acceptance.

3.5 SUBMITTALS AND DELIVERIES

Submittals, if needed, shall be made as specified in Section 01330 SUBMITTAL PROCEDURES. The CQC organization shall be responsible for certifying that all submittals and deliverables are in compliance with the contract requirements.

3.6 CONTROL

Contractor Quality Control is the means by which the Contractor ensures that the construction, to include that of subcontractors and suppliers, complies with the requirements of the contract. At least three phases of control shall be conducted by the CQC System Manager for each definable feature of work as follows:

3.6.1 Preparatory Phase

This phase shall be performed prior to beginning work on each definable feature of work, after all required plans/documents/materials are approved/accepted, and after copies are at the work site. This phase shall include:

- a. A review of each paragraph of applicable specifications, reference codes, and standards. A copy of those sections of referenced codes and standards applicable to that portion of the work to be accomplished in the field shall be made available by the Contractor at the preparatory inspection. These copies shall be maintained in the field and available for use by Government personnel until final acceptance of the work.
- b. A review of the contract drawings.
- c. A check to assure that all materials and/or equipment have been tested, submitted, and approved. (Only coded A or B shop drawing submittals will be considered "as approved." Submittals other than those coded A or B required to be resubmitted will delay the preparatory phase meeting until they have been resubmitted and approved.)
- d. Review of provisions that have been made to provide required control inspection and testing.

- e. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the contract.
- f. A physical examination of required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.
- g. A review of the appropriate activity hazard analysis to assure safety requirements are met.
- h. Discussion of procedures for controlling quality of the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work.
- i. A check to ensure that the portion of the plan for the work to be performed has been accepted by the Contracting Officer.
- j. Discussion of the initial control phase.
- k. The Government shall be notified at least 72 hours in advance of beginning the preparatory control phase. This phase shall include a meeting conducted by the CQC System Manager and attended by the superintendent, other CQC personnel (as applicable), and the foreman responsible for the definable feature. The results of the preparatory phase actions shall be documented by separate minutes prepared by the CQC System Manager and attached to the daily CQC report. The Contractor shall instruct applicable workers as to the acceptable level of workmanship required in order to meet contract specifications.

3.6.2 Initial Phase

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

- a. A check of work to ensure that it is in full compliance with contract requirements. Review minutes of the preparatory meeting.
- b. Verify adequacy of controls to ensure full contract compliance. Verify required control inspection and testing.
- c. Establish level of workmanship and verify that it meets minimum acceptable workmanship standards. Compare with required sample panels as appropriate.
- d. Resolve all differences.
- e. Check safety to include compliance with and upgrading of the safety plan and activity hazard analysis. Review the activity analysis with each worker.
- f. The Government shall be notified at least 24 hours in advance of beginning the initial phase. Separate minutes of this phase shall be prepared by the CQC System Manager and attached to the daily CQC report. Exact location of initial phase shall be indicated for future reference and comparison with follow-up phases.

- g. The initial phase should be repeated for each new crew to work onsite, or any time acceptable specified quality standards are not being met.

3.6.3 Follow-up Phase

Daily checks shall be performed to assure control activities, including control testing, are providing continued compliance with contract requirements, until completion of the particular feature of work. The checks shall be made a matter of record in the CQC documentation. Final follow-up checks shall be conducted and all deficiencies corrected prior to the start of additional features of work which may be affected by the deficient work. The Contractor shall not build upon nor conceal non-conforming work.

3.6.4 Additional Preparatory and Initial Phases

Additional preparatory and initial phases shall be conducted on the same definable features of work if : the quality of on-going work is unacceptable; if there are changes in the applicable CQC staff, onsite production supervision or work crew; if work on a definable feature is resumed after a substantial period of inactivity; or if other problems develop.

3.7 TESTS

3.7.1 Testing Procedure

The Contractor shall perform specified or required tests to verify that control measures are adequate to provide a product which conforms to contract requirements. Upon request, the Contractor shall furnish to the Government duplicate samples of test specimens for possible testing by the Government. Testing includes operation and/or acceptance tests when specified. The Contractor shall procure the services of a Corps of Engineers approved testing laboratory or establish an approved testing laboratory at the project site. The Contractor shall perform the following activities and record and provide the following data:

- a. Verify that testing procedures comply with contract requirements.
- b. Verify that facilities and testing equipment are available and comply with testing standards.
- c. Check test instrument calibration data against certified standards.
- d. Verify that recording forms and test identification control number system, including all of the test documentation requirements, have been prepared.
- e. Results of all tests taken, both passing and failing tests, shall be recorded on the CQC report for the date taken. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test shall be given. If approved by the Contracting Officer, actual test reports may be submitted later with a reference to the test number and date taken. An information copy of tests performed by an offsite or commercial test facility shall be provided directly to the Contracting Officer. Failure to submit timely test reports as stated may result in nonpayment for related work performed and

disapproval of the test facility for this contract.

3.7.2 Testing Laboratories

3.7.2.1 Capability Check

The Government reserves the right to check laboratory equipment in the proposed laboratory for compliance with the standards set forth in the contract specifications and to check the laboratory technician's testing procedures and techniques. Laboratories utilized for testing soils, concrete, asphalt, and steel shall meet criteria detailed in ASTM D 3740 and ASTM E 329.

3.7.2.2 Capability Recheck

If the selected laboratory fails the capability check, the Contractor will be assessed a charge of \$2,000 to reimburse the Government for each succeeding recheck of the laboratory or the checking of a subsequently selected laboratory. Such costs will be deducted from the contract amount due the Contractor.

3.7.3 Onsite Laboratory

The Government reserves the right to utilize the Contractor's control testing laboratory and equipment to make assurance tests, and to check the Contractor's testing procedures, techniques, and test results at no additional cost to the Government.

3.7.4 Furnishing of Transportation of Samples for Testing

Costs incidental to the transportation of samples or materials shall be borne by the Contractor. Samples of materials for test verification and acceptance testing by the Government shall be delivered to the Government-contract laboratory designated by the Area Office.

Coordination for each specific test, exact delivery location, and dates will be made through the Area Office.

3.8 COMPLETION INSPECTION

3.8.1 Punch-Out Inspection

Near the end of the work, or any increment of the work established by a time stated in the Special Contract Requirement Clause, "Commencement, Prosecution, and Completion of Work", or by the specifications, the CQC Manager and the CQC staff shall conduct an inspection of the work. A punch list of items which do not conform to the approved drawings and specifications shall be prepared and included in the CQC documentation, as required by paragraph DOCUMENTATION. The list of deficiencies shall include the estimated date by which the deficiencies will be corrected. The CQC System Manager or staff shall make a second inspection to ascertain that all deficiencies have been corrected. Once this is accomplished, the Contractor shall notify the Government that the facility is ready for the Government Pre-Final inspection.

3.8.2 Pre-Final Inspection

The Government will perform the pre-final inspection to verify that the facility is complete and ready to be occupied. A Government Pre-Final

Punch List may be developed as a result of this inspection. The Contractor's CQC System Manager shall ensure that all items on this list have been corrected before notifying the Government, so that a Final inspection with the customer can be scheduled. Any items noted on the Pre-Final inspection shall be corrected in a timely manner. These inspections and any deficiency corrections required by this paragraph shall be accomplished within the time slated for completion of the entire work or any particular increment of the work if the project is divided into increments by separate completion dates.

3.8.3 Final Acceptance Inspection

The Contractor's Quality Control Inspection personnel, plus the superintendent or other primary management person, and the Contracting Officer's Representative shall be in attendance at the final acceptance inspection. Additional Government personnel including, but not limited to, those from Base/Post Civil Facility Engineer user groups, and major commands may also be in attendance. The final acceptance inspection will be formally scheduled by the Contracting Officer based upon results of the Pre-Final inspection. Notice shall be given to the Contracting Officer at least 14 days prior to the final acceptance inspection and shall include the Contractor's assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining work performed under the contract, will be complete and acceptable by the date scheduled for the final acceptance inspection. Failure of the Contractor to have all contract work acceptably complete for this inspection will be cause for the Contracting Officer to bill the Contractor for the Government's additional inspection cost in accordance with the contract clause titled "Inspection of Construction".

3.9 DOCUMENTATION

The Contractor shall maintain current records providing factual evidence that required quality control activities and/or tests have been performed. These records shall include the work of subcontractors and suppliers and shall be on an acceptable form that includes, as a minimum, the following information:

- a. Contractor/subcontractor and their area of responsibility.
- b. Operating plant/equipment with hours worked, idle, or down for repair.
- c. Work performed each day, giving location, description, and by whom. When Network Analysis (NAS) is used, identify each phase of work performed each day by NAS activity number.
- d. Test and/or control activities performed with results and references to specifications/drawings requirements. The control phase shall be identified (Preparatory, Initial, Follow-up). List of deficiencies noted, along with corrective action.
- e. Quantity of materials received at the site with statement as to acceptability, storage, and reference to specifications/drawings requirements.
- f. Submittals and deliverables reviewed, with contract reference, by whom, and action taken.

- g. Off-site surveillance activities, including actions taken.
- h. Job safety evaluations stating what was checked, results, and instructions or corrective actions.
- i. Instructions given/received and conflicts in plans and/or specifications.
- j. Contractor's verification statement.

These records shall indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. These records shall cover both conforming and deficient features and shall include a statement that equipment and materials incorporated in the work and workmanship comply with the contract. The original and one copy of these records in report form shall be furnished to the Government daily within 12 hours after the date covered by the report, except that reports need not be submitted for days on which no work is performed. As a minimum, one report shall be prepared and submitted for every 7 days of no work and on the last day of a no work period. All calendar days shall be accounted for throughout the life of the contract. The first report following a day of no work shall be for that day only. Reports shall be signed and dated by the CQC System Manager. The report from the CQC System Manager shall include copies of test reports and copies of reports prepared by all subordinate quality control personnel.

3.10 SAMPLE FORMS

- a. Minimum construction quality control report and the required preparatory and initial inspection documentation.
- b. All tests of piping systems or portions thereof shall be recorded on the "Piping System Test Report".
- c. Maintain current records of drilled pier construction and furnish to the Contracting Officer on a weekly basis detailed reports recorded on SWF Form 1175-J, "Construction Record Drilled Piers".
- d. When operation and maintenance instructions for equipment are furnished to Government representatives by the Contractor, the Contractor's representative shall record on a form similar to that attached hereto the applicable data, including the name, organization, and signature of each person attending the instructions.

Sample forms enclosed at the end of this section.

3.11 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. No part of the time lost due to such stop orders shall be made

the subject of claim for extension of time or for excess costs or damages by the Contractor.

SAMPLE FORMS

Sample QC forms follow this page.

(Sample of typical Contractor Quality Control Report)

CONTRACTOR'S NAME
(Address)

DAILY CONSTRUCTION QUALITY CONTROL REPORT

Date: _____ Report No. _____

Contract

No.: _____

Description and Location of work:

WEATHER: (Clear) (P. Cloudy) (Cloudy);
Temperature: _____ Min. _____ Max;
Rainfall _____ inches.

Contractor/Subcontractors and Area of Responsibility with Labor Count for Each

- a. _____
- b. _____
- c. _____
- d. _____

Equipment Data: (Indicate items of construction equipment, other than hand tools, at the job site, and whether or not used.)

1. Work Performed Today: (Indicate location and description of work performed. Refer to work performed by prime and/or subcontractors by letter in Table above. If no work is performed, report the reason.)

2. Results of Surveillance: (Include satisfactory work completed, or deficiencies with action to be taken.)

a. Preparatory Inspection:

b. Initial Inspection:

c. Follow-up Inspections:

3. Test Required by Plans and/or Specifications performed and Results of Tests:

4. Verbal Instructions Received: (List any instructions given by Government personnel on construction deficiencies, retesting required, etc., with action to be taken.)

5. Remarks: (Cover any conflicts in plans, specifications, or instructions or any delay to the job.)

6. Results of Safety Inspection: (Include safety violations and corrective actions taken.)

Contractor's Inspector

CONTRACTOR'S VERIFICATION: The above report is complete and correct and all material and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications except as noted above.

Contractor's Chief of Quality Control

NOTE:

DO NOT LEAVE REPORT ITEMS BLANK

Items 1. through 6. must be reported every day. If there is no other report on an item, enter the work "none" in the reporting space. Reports with items left blank will be returned as incomplete.

Page 2

PREPARATORY PHASE CHECKLIST

Contract No. _____ Date: _____

Definable Feature: _____ Spec Section: _____

Gov't Rep Notified _____ Hours in Advance Yes _____ No _____

I. Personnel Present:

Name	Position	Company/Government
1. _____		
2. _____		
3. _____		
4. _____		
5. _____		
6. _____		
7. _____		
8. _____		
9. _____		
10. _____		

(List additional personnel on reverse side)

II. Submittals

1. Review submittals and/or submittal log 4288.
Have all submittals been approved? Yes _____ No _____

If no, what items have not been submitted?

- a. _____
- b. _____
- c. _____

2. Are all materials on hand? Yes_____ No_____

If no, what items are missing?

a. _____

b. _____

c. _____

3. Check approved submittals against delivered materials. (This should be done as material arrives.)

Comments _____

III. Material storage

Are materials stored properly? Yes_____ No _____

If No, what action is taken? _____

IV. Specifications

1. Review each paragraph of specifications.

2. Discuss procedure for accomplishing the work.

3. Clarify any differences.

V. Preliminary Work and Permits

Ensure preliminary work is correct and permits are on file.

If not, what action is taken? _____

VI. Testing

1. Identify test to be performed, frequency, and by whom.

2. When required?

3. Where required?

4. Reviewing Testing Plan.

5. Have test facilities been approved?

VII. Safety

1. Review applicable portion of EM 385-1-1.

2. Activity Hazard Analysis approved? Yes _____ No _____

VIII. Corps of Engineers comments during meeting.

CQC REP

PPC Page 3

INITIAL PHASE CHECKLIST

Contract No. _____ Date: _____

Definable Feature: _____

Gov't Rep Notified _____ Hours in Advance Yes _____ No _____

I. Personnel Present:

Name	Position	Company/Government
1. _____		
2. _____		
3. _____		
4. _____		
5. _____		
6. _____		
7. _____		
8. _____		
9. _____		
10. _____		

(List additional personnel on reverse side)

II.

Identify full compliance with procedures identified at preparatory. Coordinate plans, specifications, and submittals.

Comments

III. Preliminary Work. Ensure preliminary work is complete and correct. If not, what action is taken?

IV. Establish Level of Workmanship.

1. Where is work located? _____

2. Is a sample panel required? Yes _____ No _____

3. Will the initial work be considered as a sample?

Yes _____ No _____

(If yes, maintain in present condition as long as possible.)

V. Resolve any differences.

Comments

VI. Check Safety

Review job conditions using EM 385-1-1 and job hazard analysis.

Comments _____

CQC REP

IC Page 3

PIPING SYSTEM TEST REPORT

STRUCTURE OR BUILDING _____

CONTRACT NO. _____

DESCRIPTION OF SYSTEM OR PART OF SYSTEM TESTED: _____

DESCRIPTION OF TEST: _____

NAME AND TITLE OF PERSON IN CHARGE OF PERFORMING TESTS FOR CONTRACTOR:

NAME _____

TITLE _____

SIGNATURE _____

I HEREBY CERTIFY THAT THE ABOVE DESCRIBED SYSTEM HAS BEEN TESTED AS INDICATED ABOVE AND FOUND TO BE ENTIRELY SATISFACTORY AS REQUIRED IN THE CONTRACT SPECIFICATIONS.

SIGNATURE OF INSPECTOR _____

DATE _____

REMARKS: _____

-- End of Section --

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ATTACHMENT B

GEOTECHNICAL REPORT

**FORT HOOD, TEXAS
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FOUNDATION AND PAVEMENT DESIGN ANALYSIS

1. General. The purpose of this report is to provide subsurface information, and foundation and pavement design recommendations in support of the Request for Proposal, Tactical Equipment Shop at Fort Hood, Texas. The new Tactical Equipment Shop will provide approximately 5,142 GSM of space to house vehicle maintenance shops, maintenance bays, storage areas, and rest rooms. New building construction is anticipated to be structural steel framing, load and non-load bearing masonry walls, or a combination thereof. Support features include a Lubricant Storage Building, Sentry Building, concrete hardstand, privately-owned vehicle (POV) parking areas, service road, access drives, new utilities, and site improvements.

The project site is located within the 40000 Block of the western portion of the main cantonment. The parcel of land designated for improvement is directly north of the intersection of Tank Destroyer Boulevard and 80th Street, east of Motor Pool Road, and west of existing Building 40015. Existing grades within the area investigated vary from approximate elevations 289.25 meters to 295.00 meters (NGVD) trending in a northwest to southeast direction. At the time of this report, the building finish floor elevation had not been established.

2. Subsurface Investigation. Five (5) test holes were drilled at the project site in November 2001 by the U.S. Army Corps of Engineers, Fort Worth District. Borings 8A4C-5379 through 8A4C-5383 were drilled to determine subsurface conditions and to obtain representative soil and rock samples for laboratory testing. The test holes were advanced and samples recovered using 8- and 10-inch diameter short flight augers, a 4-inch diameter core barrel sampler, and 4- and 6-inch diameter rockbits. Samples recovered from the borings were sealed in airtight containers and taken to the laboratory of TEAM Consultants, Incorporated (Arlington, Texas)

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for testing. The borings were drilled using a Failing 1500 truck-mounted drill rig and advanced to total depths of 8.38 meters, 9.45 meters, 10.82 meters, 12.65 meters, and 14.94 meters below existing grade at the time of the field investigation. Results of the field investigation are shown on Sheets LB1 and LB2, Logs of Borings and Boring Locations (Appendix A).

Groundwater conditions were monitored immediately upon completion of the test holes and after 18-hour, 32-hour, and 6-day observation periods. Static levels measured at those times are 2.74 meters, 5.33 meters, 8.05 meters, and 9.27 meters below existing grade. It should be noted, however, that groundwater conditions are relative to the time of drilling, annual precipitation, and drainage conditions at the site.

3. Subsurface Conditions.

a. General Geology. Fort Hood lies within the Central Texas Section of the Great Plains physiographic province. The topographic features of the area are those of a dissected plateau characterized by buttes and mesas. Approximately 48 kilometers southeast of Fort Hood, the dissected plateau topography gives way to the moderate or rolling relief of the Gulf Coastal Plain. The Balcones fault zone is, roughly, the dividing line of the two physiographic provinces. The uppermost primary stratum underlying Fort Hood is the Walnut Formation of the Comanche Series, Cretaceous age. The Walnut Formation is composed of gray-black, calcareous clay shales alternating with beds of chalky, nodular limestone and shell conglomerates. The entire Walnut Formation was not penetrated by borings drilled at the site.

Overburden soils within the area vary from a few millimeters to greater than 9 meters in thickness, and consist of clays of low to high plasticity, clayey gravels and/or clay choked limestone nodules. The overburden soils are residual soils derived from the underlying parent

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material.

b. Site Conditions. Currently, the project site is a vacant parcel that is void of any major obstacles to construction. The western half of the site is covered with a veneer of base-type materials, except along the periphery where there is a modest amount of grass cover. Along the eastern side of the site, there is an existing asphalt service road and concrete loading ramps. In the area north of the loading ramps, an asphalt veneer covers concrete pavement. Within the area east of the loading ramps, there are buried concrete piers, footings, and foundation walls. Scattered across the site are concrete pavements and concrete fence post foundations. Based on information from Central Texas Area Office personnel, the estimated quantity of buried concrete structures is 150 cubic meters.

Overburden soils encountered during the field investigation are predominantly fill materials consisting of low to high plasticity clays (CL and CH), silty sands (SM), and clayey sandy gravels. The interbedded deposits vary in thickness from a knife-edge to around 1 meter. Physically, the fill materials are fine to coarse grained, white, brown, and yellow-brown, and have a medium to dense consistency.

Beneath the overburden materials are formations of shale/marl and limestone that are present to the total depth investigated, 14.94 meters. The initial primary feature is shale/marl that has been weathered to a soft/stiff clay consistency. The shale/marl is yellow-brown and light gray, gravelly, and fossiliferous. Thickness of the highly weathered primary varies from approximately 50 centimeters to 1.60 meters between test holes. The underlying primary feature is a formation of weathered shale/marl that is present to depths ranging from 7.32 to 10.47 meters below existing grade. The shale/marl is yellow-brown and light gray with some strong brown, soft to moderately hard (Rock Classification), massive, fractured, jointed, and

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slickensided. Interbedded within this formation are hard limestone seams (Rock Classification) and dense zones of oyster shells. Weathering within the shale/marl was measured in borings 8A4C-5379, 8A4C-5380, and 3ST-5381 to depths of 7.47 meters, 10.49 meters, and 9.15 meters, respectively. The unweathered shale/marl has similar physical characteristics as the weathered formation, except it is dark gray.

It should be noted that a limestone primary material was encountered below the weathered shale/marl in borings 8A4C-5382 and 8A4C-5383. The limestone is weather stained white and yellow-brown, moderately hard to hard (Rock Classification), argillaceous, massive, jointed, and contains soft shale seams and dense zones of oyster shells. The dark gray, unweathered formation of the limestone was penetrated at a depth of 14.81 meters within boring 8A4C-5383.

Subsurface conditions representative of the project site are shown on the boring logs, Sheet LB2. The legend on the individual boring logs show overburden materials as classified in the laboratory using procedures presented in ASTM D 2488. It should be noted that the actual interface between material types may be far more gradual or abrupt than presented; therefore, actual subsurface conditions in areas not sampled may differ from those predicted. The nature and extent of variations across the site may not become evident until construction commences, and the actual construction process may alter subsurface conditions as well. If variations become evident at the time of construction, CESWF-EC-DG should be contacted to determine if the recommendations presented in this report need to be reevaluated.

4. Laboratory Testing. Representative soil and rock samples recovered from the test holes were subjected to laboratory testing for identification, moisture content, grain-size distribution, Atterberg limits, dry density, and strength. The accumulative test results are tabulated and

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presented in English units in Appendix C. Results of identification and moisture content testing are shown on the individual boring logs, Appendix A.

The laboratory test results are also presented graphically in Appendix B as follows: Plasticity characteristics are shown on Plate 1, Plasticity Chart. Moisture content values of representative samples are shown with respect to depth on Plate 2. Atterberg limits test results are shown with respect to depth on Plate 3. Dry density values of representative undisturbed samples and their corresponding moisture contents are shown with respect to depth on Plate 4.

Shear strength characteristics of the shale/marl and limestone primary were analyzed in the laboratory using unconfined compression testing. Samples each of the weathered and unweathered primaries were selected for analysis. The ultimate compressive strengths and respective dry densities are presented below and in Appendix C at the end of this report.

<u>Boring</u>	<u>Depth, m</u>	<u>γ, kg/m³</u>	<u>Q_u, kPa</u>	<u>Material Type</u>
8A4C-5379	2.19	1991	308	Weathered Shale/Marl
8A4C-5379	8.03	1930	771	Unweathered Shale/Marl
8A4C-5380	8.90	1777	107	Weathered Shale/Marl
8A4C-5380	10.67	2174	839	Unweathered Limestone
8A4C-5382	7.18	1773	154	Weathered Shale/Marl
8A4C-5382	9.81	2302	2225	Unweathered Limestone

5. **Discussions.** The following discussions are provided in support of the foundation and pavement design recommendations made for the proposed Tactical Equipment Shop.

a. **Soil Activity Considerations.** The site for the proposed Tactical Equipment Shop is characterized by overburden features consisting of sandy, clayey, and gravelly fill materials that are underlain by a highly weathered shale/marl. Thicknesses of these deposits vary from approximately 76 centimeters to 1.83 meters across the site. Moisture content test results indicate that the in situ materials are moisture deficient to an approximate depth of 1 meter.

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Within the active zone, liquid limits range between 27 and 54 percent, plastic limits vary from 16 to 18 percent (PI = 9% to 37%), and natural moisture contents vary between 3 and 14 percent.

Based on the plasticity characteristics of the near surface in situ materials and the low moisture contents measured in the laboratory, post construction volumetric changes within the active subgrade will be significant during periods of seasonal moisture fluctuations. Atterberg limits and moisture content test results indicate that the upper 1 meter of in situ materials are the most active; therefore, these soils should be removed and replaced with compacted nonexpansive backfill material. In doing so, the magnitude of post construction soil movements will be limited to 25 millimeters or less, which is considered acceptable.

b. Foundation Design Considerations. Based on subsurface conditions at the project site, the Tactical Equipment Shop should be founded on a reinforced concrete straight-shaft drilled pier foundation. Drilled pier foundations are commonly used in the Fort Hood area because of the proximity of competent bearing materials to ground surface, and the satisfactory performance history associated with this foundation system. At this particular site, the shear strength of the primary increases significantly at depths in excess of 7.6 meters below existing grade, which can be attributed to the presence of more hard limestone seams within the primary. To this end, straight-shaft drilled piers should be founded at a minimum depth of 8 meters below existing grade. Founding piers at this depth will ensure that the structural load is transferred to the high shear strength primary material. Based on laboratory shear strength test results and a factor of safety equal to 3, an allowable end bearing capacity of 955 kPa (net) should not be exceeded when sizing the pier shafts. Designing the piers for this bearing

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allowable will ensure that post construction movements in the form of settlement will be negligible.

The effects of skin friction can be considered in the design of the pier foundation to increase the load-carrying capacity of individual piers. For this phase of design, the effective embedment length (L_{eff}) starts 2 meters below existing grade and extends to within one shaft diameter of the final bearing depth. Based on laboratory shear strength test results and a factor of safety equal to 2, an allowable side shear value of 35 kPa can be utilized when sizing the piers. It should be noted that the aforementioned side shear value and effective embedment length can be used to analyze the foundation for both gravity load and lateral load considerations.

Straight-shaft drilled piers must contain a sufficient amount of reinforcing steel to resist the tensile stresses that develop within the pier concrete when the foundation is subjected to uplift forces. Based on analyses performed, the piers should contain a minimum of 1 percent reinforcing steel.

c. Floor Slab System(s) and Subgrade Preparation Requirements. Ground-level floor slabs within the Tactical Equipment Shop can be placed on-grade, except in deformation sensitive areas where ceramic tile flooring will be used. Soil-supported floor slabs should be isolated from any portion of the building structure and foundation using felt isolation joints. Transitional areas, such as door openings, should be articulated to prevent offsets from occurring. Floor slabs within deformation sensitive areas (rest rooms) should be structurally-supported to compensate for as much as 25 millimeters of long-term differential movement. Historically, this amount of movement has caused ceramic floor tile to crack.

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Subgrade preparation to allow for slab-on-grade construction will depend on whether the building pad is built on a cut or fill section. For fill conditions, subgrade preparation should consist of removing at least 1 meter of existing materials and replacing with compacted nonexpansive backfill material. Any additional fill required to reach the final subgrade elevation below the building floor slab should be nonexpansive material as well. All fill and backfill should be placed in controlled lifts not exceeding 205 millimeters in loose thickness and compacted to the specified density to limit the magnitude of long-term consolidation within the fill section.

If the building pad is built on a cut section, subgrade preparation should consist of removing all existing materials to a depth that allows for a minimum of 1 meter of compacted nonexpansive material to be placed below the building floor slab. The exposed subgrade after excavation operations should be scarified, moistened, manipulated, and recompact prior to the placement of fill materials. The nonexpansive fill should be placed in controlled lifts not exceeding 205 millimeters in loose thickness and compacted to the specified density.

d. Pavement Design Considerations. The pavement designs presented in this report are based on criteria contained in *TM 5-822-5/AFM 88-7, Chapter 1, TM 5-822-2/AFM 88-7, Chapter 5, TM 5-809-12/AFM 88-3, Chapter 15, TM 5-822-12*, design curves for a Heavy Equipment Transport (HET), and engineering judgment.

(1) Traffic Types and Conditions. Seven (7) pavement structures were analyzed and designed for this project; namely, an asphalt parking area and a concrete hardstand, access drives, an apron in front vehicle bays, floor slabs within vehicle bays, and an apron in front of trash dumpster pad(s). The final pavement section considered is a gravel strip around the hardstand. Types of vehicles expected to occupy the pavements are light- to heavy-duty

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military tactical vehicles, M1 Tanks, passenger cars and trucks, two- and three-axle trucks, and fire/emergency medical vehicles. Based on criteria contained in the aforementioned Technical Manuals, the following traffic conditions were assigned:

<u>Pavement Structure</u>	<u>Traffic Category/Condition</u>	<u>Street Class</u>	<u>Design Index</u>
Hardstand	1030-kN HET	10,000 passes	9
Access Drives	1030-kN HET	10,000 passes	9
Aprons (Vehicle Bays)	VII(1/day)	Class E	6
Apron (Trash)	IVA	Class E	4
Bldg. Floor Slabs	222-kN Axle Load	10,000 passes	N.A.
POV Parking Area	II	Class E	2
Gravel Strip	IV	Class G	2

(2) Pavement Design Parameters. California Bearing Ratio (CBR) and plate bearing tests were not performed for this project due to the availability of historical pavement design data. In the past, the clayey subgrade indicative of Fort Hood has been assigned CBR values ranging from 4 to 6 percent when compacted to 90 percent of laboratory maximum density. Previously conducted plate-bearing tests indicate that a modulus of subgrade reaction on the order of 27.1 kPa/mm to 40.7 kPa/mm can be assigned to the in situ soils when compacted to 95 percent of laboratory maximum density.

Empirical relationships between laboratory and field test results have shown that strength characteristics of the raw subgrade are a function of the plasticity level of the soil. Typically, soils with high plasticity indexes have low load-carrying capabilities. To this end, comparisons were made between the plasticity levels measured from representative samples collected at the project site and values measured from historical CBR and plate bearing tests. Based on comparisons made and engineering judgment, a design CBR value of 4 percent and a

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modulus of subgrade reaction of 33.9 kPa/mm were assigned to the raw subgrade when compacted to 90 percent of laboratory maximum density (ASTM D 1557).

(3) Lime Stabilization. The plasticity levels of the near surface in situ materials suggest that these soils will have a moderate expansion potential when subjected to changing moisture conditions. Lime stabilizing the active subgrade can be performed to improve the soil's strength and performance characteristics; however, the use of an aggregate base course material will be used as an alternative. In the past, base-type materials have been used as a substitute and the pavement structures have performed well. Because of the availability of base course materials in the Fort Hood area, their use for this project will reduce the in-place cost of the pavement structures.

(4) Material Sources. Material sources in central Texas are capable of producing a high quality crushed aggregate for concrete mixes to meet strength requirements. Therefore, a concrete flexural strength of 4.48 MPa at 28 days was considered in the design of rigid pavements. To date, Alkali/Silica Reaction with Portland Cement Concrete has never been a problem when using local aggregate sources.

6. Recommendations. The following foundation and pavement design recommendations are based on results of the field investigation, laboratory testing, and engineering studies.

a. Foundation Design Recommendations.

(1) Foundation System. The proposed Tactical Equipment Shop should be supported on reinforced concrete straight-shaft drilled piers. The piers should be founded at least 8 meters below existing grade. The bearing material at this depth is an interbedded, yellow-brown and gray shale/marl with limestone seams. An allowable end bearing capacity of 955 kPa (net) should not be exceeded when sizing the pier shafts. The bearing allowable can

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be increased for wind load considerations. Additionally, straight-shaft drilled piers can be sized for an allowable side shear value of 35 kPa (net) for that portion of the pier shaft embedded within the shale/marl primary. For this design condition, the effective length (L_{eff}) starts 2 meters below existing grade and extends to within one shaft diameter of the final bearing depth. Individual piers can be extended if additional load-carrying capacity in side shear is required. Based on structural requirements, the load used to size the piers should consist of full dead load plus that portion of the live load that acts more or less continuously, usually 50 percent. *If the piers are designed for both end bearing and skin friction, final bearing elevations must be shown on the contract drawings to aid construction personnel.*

All pier shafts should be a minimum of 457 millimeters in diameter to facilitate clean out and inspection of the pier holes during construction. A minimum of 1 percent reinforcing steel should be placed in each pier shaft, based on the cross-sectional area of the pier. A clear distance of at least two pier diameters should be maintained between individual piers. The larger size should be used for this condition when shaft sizes differ. A minimum 150-millimeter void should be maintained beneath all grade beams, and the void area should be protected with concrete retainer blocks as shown in the latest edition of the SWD-AEIM. **The bottom of all grade beams shall be formed with plywood to provide the 150-millimeter void.**

The contractor shall have temporary steel casing and pumps at the job site prior to construction of drilled piers. Groundwater should be anticipated during drilling operations; therefore, the above information should be provided in the contract documents as foundation notes. *Final pier depths shall be determined in the field by the Contracting Officer's representative.*

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Drilling equipment should be of suitable type and of sufficient size to satisfactorily perform the required drilling for the soil conditions identified. To this end, all drill rigs shall have minimum torque and crowd capacities of 67,800 N-m and 40,680 N-m, respectively.

The above criteria for drilled pier construction should be included in guide specification CEGS-02466 DRILLED FOUNDATION CAISSONS.

(2) Ground-Level Floor Slab System(s).

(a) Slab-On-Grade. Slab-on-grade construction can be used within the Tactical Equipment Shop, except in deformation sensitive areas (rest rooms) where ceramic floor tiles will be used. Soil-supported floor slabs should be isolated from any portion of the foundation or building structure using a minimum 1.46 kg/m² felt isolation joint. In doing so, the building structure-floor slab interface should be designed to accept vertical movements so that the operation of the facility will not be affected. This will result in the best performance. Transitional areas, such as door openings, can be doweled to prevent offsets from occurring. In these areas, the slab should bear on the grade beam to create a single joint at one face of the grade beam. Slab edges should extend to the outside face of the grade beam at exterior door locations. A polyethylene vapor barrier (6-mil) and a minimum 150-millimeter capillary water barrier should be provided beneath floor slabs supported on-grade.

(b) Structurally-Supported. Ground-level floor slabs in deformation sensitive areas (rest rooms) should be structurally-supported to compensate for the active subgrade. A minimum 150-millimeter void should be provided beneath the supported floor slab system. The designer should also consider articulating high impact areas such as stoops, porches, approaches, etc. to prevent offsets from occurring.

(3) Subgrade Preparation and Fill Requirements. Subgrade preparation and fill

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requirements will depend on whether the building pad is constructed on a cut or fill section.

The following guidance is provided for each condition:

(a) Fill Section. Subgrade preparation should consist of removing a minimum of 1 meter of existing materials and replacing with compacted nonexpansive backfill material. Any additional fill required to reach the final subgrade elevation below the building floor slab should be nonexpansive material as well. The upper 150 millimeters of existing subgrade exposed after excavation operations should be scarified, moistened, aerated, and recompacted to the same density as required for nonexpansive fill. Nonexpansive fill should be placed in controlled lifts not exceeding 205 millimeters in loose thickness and compacted to at least 92 percent of laboratory maximum density as determined in accordance with ASTM D 1557.

(b) Cut Section. Subgrade preparation should consist of removing all existing materials to a depth that allows for a minimum of one (1) meter of compacted nonexpansive fill to be placed below the building floor slab. The upper 150 millimeters of existing materials exposed after excavation operations should be scarified, moistened, manipulated, and recompacted prior to the placement of the nonexpansive backfill material. Nonexpansive fill should be placed in controlled lifts not exceeding 205 millimeters in loose thickness and compacted to at least 92 percent of laboratory maximum density as determined in accordance with ASTM D 1557.

(c) Material Testing Requirements. Testing shall be the responsibility of the contractor to ensure that the subgrade, fill, and backfill materials are properly compacted. To this end, the following frequencies of testing shall be included in the contract as a minimum:

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- ?? In-place density of the subgrade, fills, and backfills shall be performed for every 250 square meters per lift in accordance with ASTM D 1556 or ASTM D 2922.
- ?? Optimum Moisture and Laboratory Maximum Density of nonexpansive fill and backfill shall be performed for every 385 cubic meters or when any change in material occurs.

(4) Small Support-Type Structures. The proposed Lubricant Storage Building and Sentry Building can be founded on reinforced concrete slabs-on-grade with turned-down edge beams. The turned-down edge beam should extend a minimum of 305 millimeters below outside finished grade and should be sized for a safe bearing pressure of 96 kPa (net). An interior stiffener beam should be added when the distance between exterior beams exceeds 4.5 meters. Subgrade preparation should consist of providing a minimum of 610 millimeters of compacted nonexpansive fill below the soil-supported slab.

(5) Below-Grade Structures. The following information is provided for the design of all below-grade structures. All structures shall be designed using an at-rest lateral earth pressure coefficient of (k_0) 0.7, an angle of internal friction (?) equal to 28°, an allowable bearing capacity of 96 kPa, and a cohesion value (c) of 4.8 kPa. The backfill material should be assumed to have a moist unit weight of 2000 kg/m³ and all backfill should be nonexpansive material.

(6) Drainage. Proper drainage is an important design consideration to ensure satisfactory long-term foundation performance. Exterior grading adjacent to the building should be sloped away from the structure a minimum of 5 percent for the first 3 meters. Runoff from the roof should be adequately discharged away from foundation edges. In no case should water be allowed to pond adjacent to or beneath the building, both during and after construction.

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(7) Foundation Material Definitions.

(a) Satisfactory Materials. Satisfactory Materials include materials classified in ASTM D 2487 as GW, GM, GC, GP, SW, SM, SP, SC, CL, and CH and shall be free of trash, debris, roots, or other organic matter, or stones larger than 76 millimeters in any dimension.

(b) Unsatisfactory Materials. Unsatisfactory Materials include materials classified in ASTM D 2487 as Pt, OH, OL, ML, MH and any other materials not defined as satisfactory.

(c) Nonexpansive Soils. Nonexpansive Soils shall meet the requirements of Texas Department of Transportation Standard Specification for base course, Item 247, Type A, Grade 1 or 2.

(d) Cohesionless and Cohesive Materials. Cohesionless Materials include materials classified in ASTM D 2487 as GW, GP, SW, and SP. Cohesive Materials include materials classified as GC, SC, ML, CL, MH, and CH. Materials classified as GM and SM will be identified as cohesionless only when the fines are nonplastic.

(e) Capillary Water Barrier. Capillary Water Barrier shall consist of clean, crushed, nonporous rock, crushed gravel, or uncrushed gravel. The maximum particle size shall be 38 millimeters and no more than 2 percent by weight shall pass the 4.75-millimeter (No. 4) size sieve.

The above material definitions, subgrade preparation procedures, and material testing requirements should be presented in guide specification CEGS-02315 EXCAVATION, FILLING AND BACKFILLING FOR BUILDINGS.

b. Pavement Design Recommendations. The pavement designs presented hereinafter

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(b) Aprons at Vehicle Bays. Design is based on Category VII Traffic making 1 pass/day.

165mm Portland Cement Concrete reinforced with No. 13 bars (metric) spaced 406 millimeters o.c.e.w.

150mm Aggregate Base Course compacted to at least 95 percent of laboratory maximum density (ASTM D 1557)

150mm Raw Subgrade compacted to at least 90 percent of laboratory maximum density (ASTM D 1557)

(c) Apron(s) in front of Trash Dumpster Pads. The following pavement section is recommended for a minimum distance of 4.57 meters in front of trash dumpster pads. The design is based on Category IVA Traffic and a Class F Street (DI=4).

150mm Portland Cement Concrete reinforced with No. 13 bars (metric) spaced 406 millimeters o.c.e.w.

150mm Aggregate Base Course compacted to at least 95 percent of laboratory maximum density (ASTM D 1557)

150mm Raw Subgrade compacted to at least 90 percent of laboratory maximum density (ASTM D 1557)

Reinforcement for odd-shaped slabs, joint design, joint spacing, and other details should be in accordance with the latest edition of the SWD-AEIM and TM 5-822-5, where applicable. The reinforcement bars should be placed a minimum of 38 millimeters clear distance from the surface of the pavement.

(d) Floor Slab within Vehicle Bays. The following pavement section is based on a 222-kN axle load vehicle making 10,000 passes over 20 years, an effective modulus

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of subgrade reaction equal to 54.3 kPa/mm (upgraded due to nonexpansive fill), and a concrete flexural strength of 4.14 MPa at 28 days. The vehicular floor slab should have a minimum thickness of 150 millimeters and reinforced with No. 13 bars (metric) spaced 305 millimeters on-center and in each direction. Subgrade preparation below the floor slab should be in accordance with the Foundation Design Recommendations presented in this report.

The design of the vehicular floor slab supported on-grade is based upon vehicle-imposed loads only, without regard for stresses caused by stationary live loads and/or other loading conditions.

(2) Flexible Pavement. The following pavement section is recommended for the privately-owned vehicle parking area(s). The design is based on Category II Traffic, Class E Street (DI=2), and a CBR value of 4 percent for the raw subgrade when compacted to 90 percent of laboratory maximum density.

38mm Hot-Mix Surface Course

180mm Aggregate Base Course compacted to at least 100 percent of laboratory maximum density (ASTM D 1557)

150mm Aggregate Base Course compacted to at least 95 percent of laboratory maximum density (ASTM D 1557)

150mm Raw Subgrade compacted to at least 90 percent of laboratory maximum density (ASTM D 1557)

(3) Gravel Perimeter Strip. The following design is based on Category IV Traffic, Class G Street (DI=2), and a CBR value of 4 percent for the raw subgrade when compacted to 90 percent of laboratory maximum density.

150mm Aggregate Base Course compacted to at least 100

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percent of laboratory maximum density (ASTM D 1557)

100mm Aggregate Base Course compacted to at least 95
percent of laboratory maximum density (ASTM D 1557)

150mm Raw Subgrade compacted to at least 90 percent of
laboratory maximum density (ASTM D 1557)

The following note should be incorporated as part of the pavement details shown on the contract drawings.

“The moisture content shall be at least 1 percent above optimum during compaction of the raw subgrade.”

(4) Pavement Material Definitions.

(a) Hot-Mix Surface Course. Aggregates and asphaltic materials shall conform to the requirements of the Texas Department of Transportation, Standard Specifications for Construction of Highways, Streets and Bridges, (TXDOT, Std Spec), Items 300 and 340. The paving mixture shall conform to the requirements for Type "D" (fine-graded surface course) grading. Asphaltic material for the paving mixture should be asphaltic cement, viscosity grade AC-20. **Guide Specification CEGS-02741 BITUMINOUS PAVING FOR ROADS, STREETS AND OPEN STORAGE AREAS should be edited to present the above requirements.**

(b) Prime Coat and Tack Coat. Asphaltic material for the prime coat shall be cut-back asphalt, grade MC-30, conforming to the requirements of TXDOT, Std Spec, Item 300, "Asphalts, Oils, Emulsions." Prime coat should be applied to the surface of the aggregate base course. Asphaltic material for the tack coat shall be cut-back asphalt, grade RC-250, or emulsified asphalt, grade SS-1, conforming to the requirements of TXDOT, Std

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Spec, Item 300, "Asphalts, Oils, Emulsions." Tack coat should be applied to all surfaces that contact new asphalt pavement. **Guide Specification CEGS-02748 BITUMINOUS TACK AND PRIME COATS should be edited to present the above requirements.**

(c) Aggregate Base Course. Aggregates shall conform to the requirements of **Guide Specification CEGS-02722 AGGREGATE BASE COURSE.** The gradation should conform to the requirements of TXDOT, Std Spec, Item 247, for Type "A", Grade 1 material.

(d) Raw Subgrade. The material shall conform to the requirements of **Guide Specification CEGS-02300 RAW SUBGRADE.**

(e) Portland Cement Concrete. The material shall conform to the requirements of **Guide Specification 02753 CONCRETE FOR HEAVY-DUTY PAVEMENTS.** The maximum nominal size aggregate shall be 38 millimeters and the mixture shall be designed to attain a flexural strength of 4.48 MPa at 28 days.

(5) Vehicular Pavement Material Testing Requirements. Testing shall be the responsibility of the contractor to ensure that the subgrade, aggregate base course, hot-mix surface course, and Portland cement concrete are properly constructed. To this end, the following testing requirements shall be included in the contract specifications as a minimum:

?? In-place density testing of the subgrade and aggregate base course shall be performed, at a minimum, every 500 square meters per lift in accordance with ASTM D 1556 and ASTM D 2922. ASTM D 1556 shall be used as a check at least once per lift for each 2500 square meters of completed subgrade and aggregate base course.

?? Before starting work, at least one sample of aggregate base course material shall be tested in accordance with ASTM C 136. After the initial test, a minimum of one sieve analysis (ASTM C 136 and ASTM D 422) shall be performed for each 1000 metric tons of aggregate base course placed, with a minimum of one analysis performed for each day's run until the course is completed. One liquid

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limit and plasticity index shall be performed for each sieve analysis per ASTM D 4318

- ?? Wear tests shall be performed in accordance with ASTM C 131. A minimum of one test per aggregate base course material source shall be run.
- ?? Thickness of the aggregate base course shall be measured for each 500 square meters of material placed. Compacted thickness of the aggregate base course shall be as presented in this report and the completed section shall be within 13 millimeters of the thickness presented.
- ?? Hot Bin gradations for the asphalt wearing course shall be tested in accordance with ASTM C 136 and ASTM C 117. A minimum of one test shall be conducted. Marshall specimens shall be taken in accordance with CRD-C 652-95. At least two sets of specimens shall be taken. Asphalt extractions shall be performed in accordance with ASTM D 2172, Method A or B. At least one asphalt extraction shall be conducted. Field density tests shall be conducted in accordance with CRD-C 650-95. One test shall be conducted for each 250 square meters of pavement placed. The mat density shall be 97 to 100 percent and the joint density shall be 95 to 100 percent of the density obtained from laboratory-compacted specimens. Thickness measurements shall be taken at a minimum of one measurement for each 836 square meters of pavement placed.
- ?? The Job Mix Formula for the bituminous mixture shall be furnished to the Contraction Officer for approval. The formula will indicate the percentage of each stockpile and mineral filler, the percentage of each size aggregate, the percentage of bitumen, and the temperature of the completed mixture when discharged from the mixer. The Contractor shall file with the Contracting Officer certified delivery tickets for all aggregates and bituminous materials actually used in construction. The finished mixture shall meet the requirements described below and when tested in accordance with CRD-C 649-95. All samples will be compacted with 50 blows of specified hammer on each side of the sample.

Stability (minimum) – 2200 Newtons

Flow (maximum), 25/100-mm units – 20

Voids total mix – 3% to 5% (nonabsorptive); 2% to 4% (absorptive)

Voids filled with bitumen – 75% to 85% (nonabsorptive); 80% to 90% (absorptive)

- ?? The contractor shall be responsible for the development of the mixture proportion study for cementitious materials and chemical admixtures. The concrete mix design shall include a statement giving the maximum nominal coarse aggregate size and the proportions of all ingredients that will be used in the manufacture of concrete at least 60 days prior to commencing concrete

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operations. Trial design batches, mixture proportioning studies, and testing requirements shall be the responsibility of the Contractor. Strength requirements shall be based on flexural strength. Trial mixtures having proportions, slumps, and air content suitable for the work shall be based on methodology described in ACI 211.1, modified as necessary to accommodate flexural strength. The maximum water-cementitious material ratio is 0.45. Coarse and fine aggregates shall have a satisfactory service record of at least 5 years successful service in three paving projects, or if a new source is used, shall meet the requirements when tested for resistance to freezing and thawing. Coarse and fine aggregates not having a satisfactory demonstrable service record shall have a durability factor of 50 when subjected to freezing and thawing in concrete in accordance with COE CRD-C 114 (Test Method for Soundness of Aggregates by Freezing and Thawing of Concrete Specimens).

- ?? At least 10 days and not more than 60 days prior to construction of the concrete pavement, a test section shall be constructed. The test section shall consist of one paving lane at least 130 meters long. The test section shall contain one transverse construction joint.
- ?? Smoothness measurements shall be taken in successive positions parallel to the pavement (flexible and rigid) centerline with a 3.66-meter straightedge. Measurements shall be taken perpendicular to the pavement (flexible and rigid) centerline at 4.5-meter intervals. Surface smoothness shall not exceed 9.5 millimeters.

References:

- ?? TEAM Consultants, Incorporated Report No. 012065C
- ?? TM 5-818-1/AFM 88-3, Chapter 7 – Soils and Geology Procedures for Foundation Design of Building and Other Structures
- ?? TM 5-818-7 – Foundation in Expansive Soils
- ?? TM 5-822-5/AFM 88-7, Chapter 1 – Pavement Design for Roads, Streets, Walks, and Open Storage Areas
- ?? TM 5-822-2/AFM 88-7, Chapter 5 – General Provisions and Geometric Design For Roads, Streets, Walks, and Open Storage Areas
- ?? TM 5-809-12/AFM 88-3, Chapter 15 – Concrete Floor Slabs On Grade Subjected to Heavy Loads
- ?? TM 5-822-12 - Design of Aggregate Surfaced Roads and Airfields
- ?? Rigid Pavement Design Curve for the Heavy Equipment Transporter (HET)
- ?? Texas Department of Transportation - Standard Specifications For Construction of Highways, Streets and Bridges
- ?? SWD-AEIM Architectural-Engineering Manual
- ?? CEGS Guide Specifications For Construction

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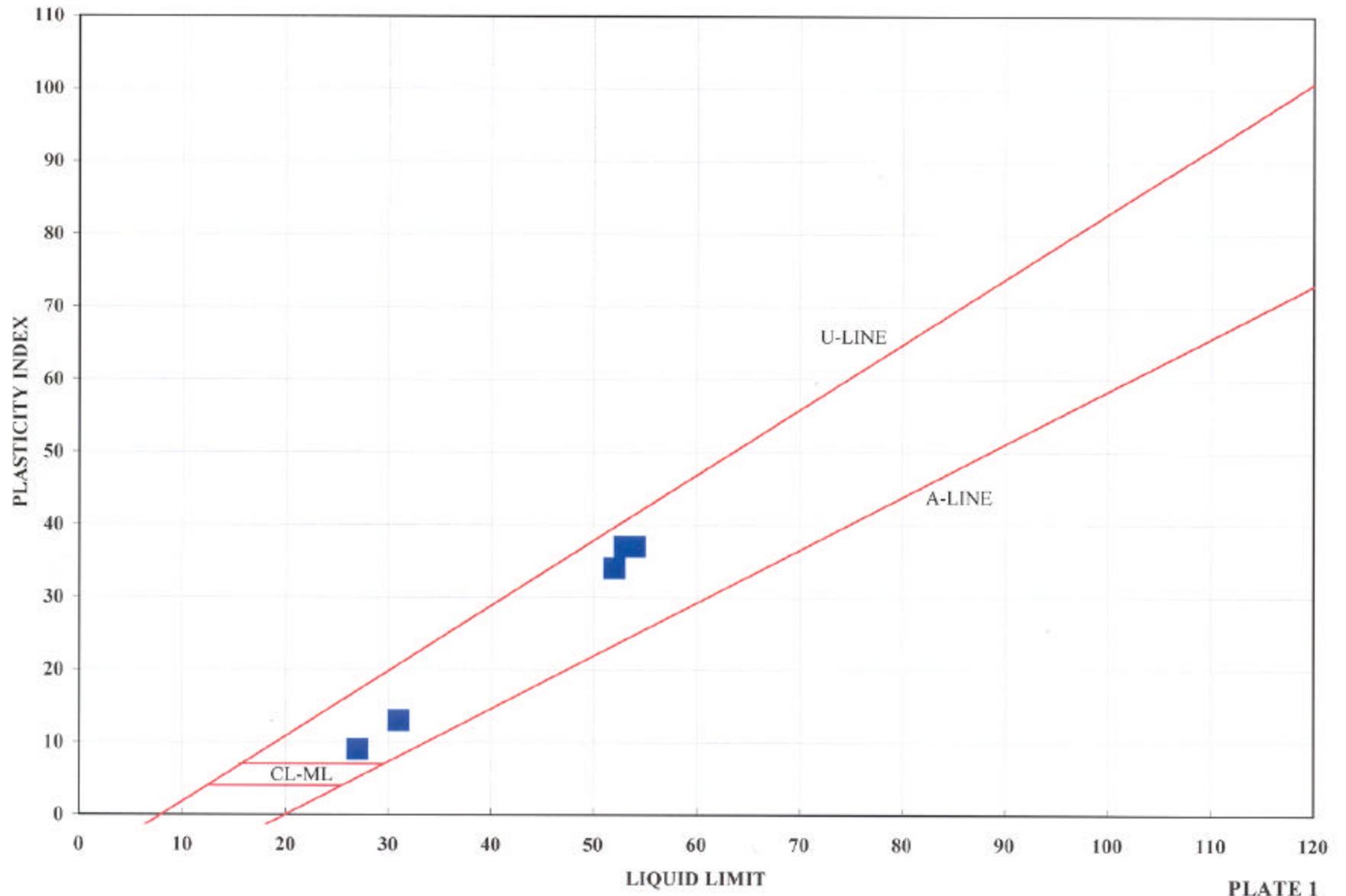
**FORT WORTH DISTRICT
FEBRUARY 2002**

APPENDIX A

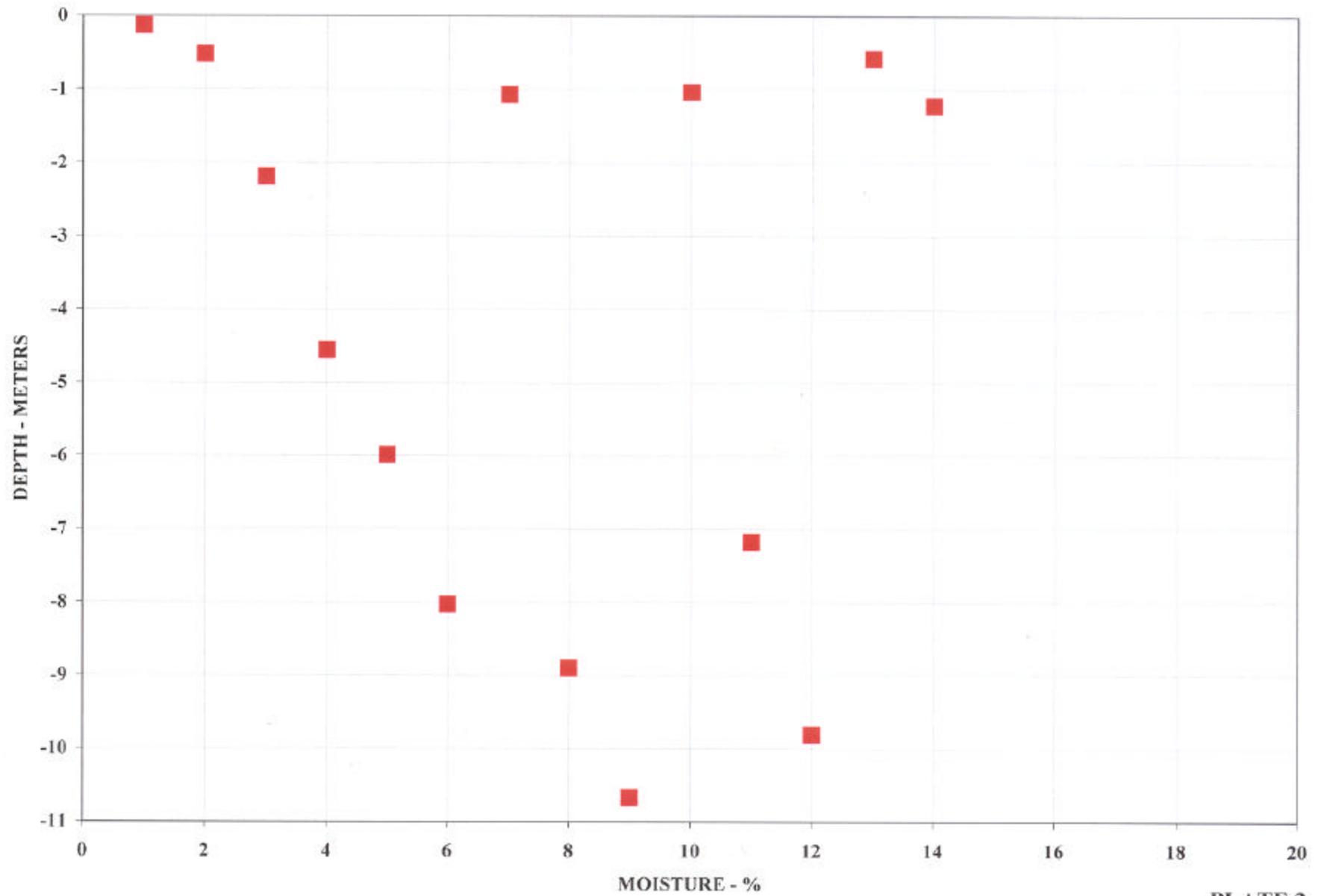


APPENDIX B

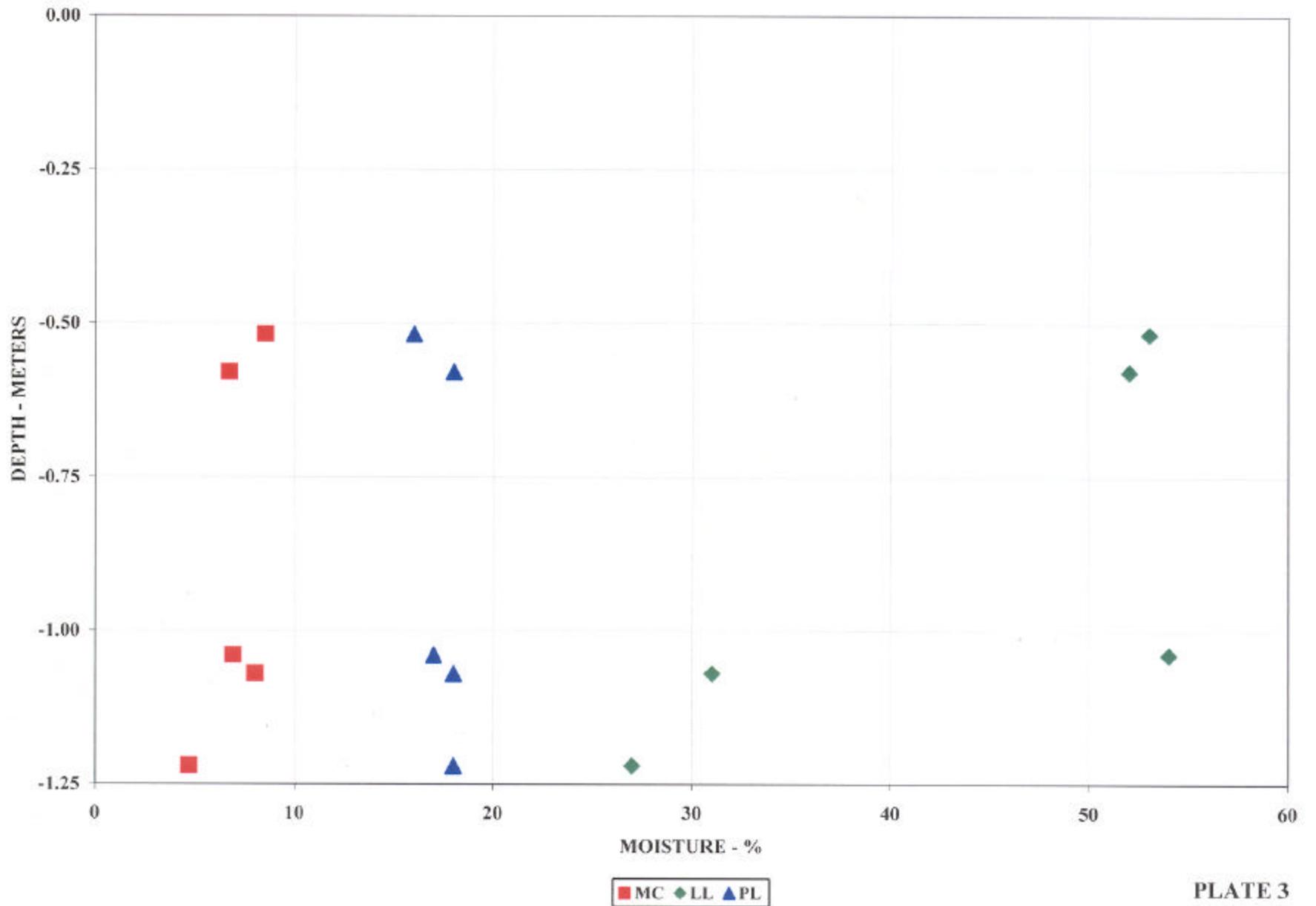
TACTICAL EQUIPMENT SHOP
PLASTICITY CHART



TACTICAL EQUIPMENT SHOP
MOISTURE CONTENT VS DEPTH



TACTICAL EQUIPMENT SHOP
ATTERBERG LIMITS VS DEPTH



TACTICAL EQUIPMENT SHOP
MOISTURE CONTENT-DRY DENSITY VS DEPTH

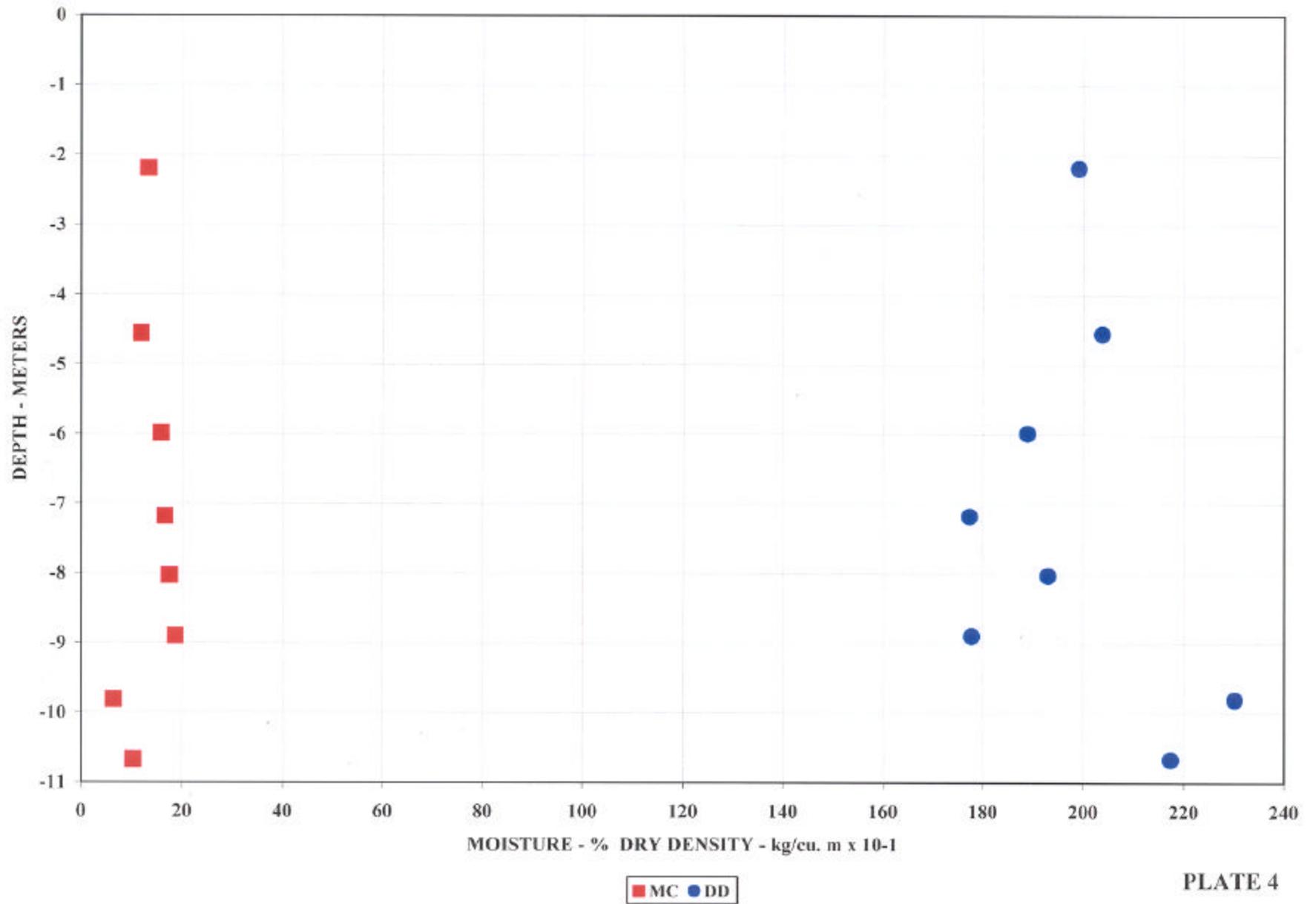


PLATE 4

APPENDIX C

SUMMARY OF LABORATORY TEST RESULTS

**LABORATORY TESTING SERVICES
TACTICAL EQUIPMENT SHOP
FORT HOOD, TEXAS**

Boring No.	Sample No.	Sample Depth (ft.)	Visual Description & Unified Soil Classification (ASTM D-2488)	Percent Passing Sieve								
				#4	#10	#20	#40	#60	#80	#100	#200	
8A4C-5379	JAR A *	0.0 - 0.9	Brown Silty Sand w/numerous calcareous nodules & limestone fragments	SM	60.9	51.5	44.7	39.6	36.1	33.5	32.2	28.4
	JAR B	0.9 - 2.5	Tan & Gray Clay w/sand	CH	-----	-----	-----	-----	-----	-----	-----	-----
	C - 1	6.8 - 7.6	Tan Fossiliferous Limestone w/clay seams	N/A	-----	-----	-----	-----	-----	-----	-----	-----
	C - 2	14.5 - 15.4	Tan Clay, Slickensided w/limestone seams	CH	-----	-----	-----	-----	-----	-----	-----	-----
	C - 3	19.2 - 20.1	Tan Clay, Slickensided w/limestone seams	CH	-----	-----	-----	-----	-----	-----	-----	-----
	C - 4	26.0 - 26.7	Dark Gray Shale w/limestone fragments	N/A	-----	-----	-----	-----	-----	-----	-----	-----
8A4C-5380	JAR A	1.5 - 2.0	NO TESTS	----	-----	-----	-----	-----	-----	-----	-----	-----
	JAR B	2.0 - 5.0	Tan Calcareous Clay	CL	92.8	90.6	89.1	87.5	86.1	85.1	84.6	82.8
	C - 1	28.7 - 29.7	Tan Clay, Slickensided w/limestone seams	CH	-----	-----	-----	-----	-----	-----	-----	-----
	C - 2	34.5 - 35.5	Dark Gray Shale w/fossiliferous limestone seams	N/A	-----	-----	-----	-----	-----	-----	-----	-----
8A4C-5382	JAR A	0.8 - 6.0	Tan Clay w/calcareous nodules	CH	97.1	94.5	93.1	92.3	91.7	91.2	91.0	89.2
	C - 1	23.1 - 24.0	Tan Clay, Slickensided w/limestone seams	CH	-----	-----	-----	-----	-----	-----	-----	-----
	C - 2	31.8 - 32.6	Tan Fossiliferous Limestone	N/A	-----	-----	-----	-----	-----	-----	-----	-----
8A4C-5383	JAR A	0.8 - 3.0	Dark Brown Clay w/sand & occasional gravel	CH	94.8	87.8	82.5	78.8	76.3	74.6	73.9	71.1
	JAR B	3.0 - 5.0	Tan Calcareous Clay	CL	97.2	94.0	91.3	88.9	86.9	85.8	85.4	83.9

* Due to particle size in the samples delivered to the laboratory and the limited volume of the sample, the gradation analysis may not be representative of in-situ field conditions.

SUMMARY OF LABORATORY TEST RESULTS

**LABORATORY TESTING SERVICES
TACTICAL EQUIPMENT SHOP
FORT HOOD, TEXAS**

Boring No.	Sample No.	Sample Depth (ft.)	Visual Description & Unified Soil Classification (ASTM D-2488)		Moisture Content (%)	Unit Dry Weight (pcf)	Atterberg Limits			Remarks
							LL	PL	PI	
8A4C-5379	JAR A	0.0 - 0.9	Brown Silty Sand w/numerous calcareous nodules & limestone fragments	SM	3.3	----	Non-Plastic			----
	JAR B	0.9 - 2.5	Tan & Gray Clay w/sand	CH	8.5	----	53	16	37	----
	C - 1	6.8 - 7.6	Tan Fossiliferous Limestone w/clay seams	N/A	13.3	124.3	----	----	----	----
	C - 2	14.5 - 15.4	Tan Clay, Slickensided w/limestone seams	CH	11.9	127.2	----	----	----	----
	C - 3	19.2 - 20.1	Tan Clay, Slickensided w/limestone seams	CH	15.9	117.9	----	----	----	----
	C - 4	26.0 - 26.7	Dark Gray Shale w/limestone fragments	N/A	17.5	120.5	----	----	----	----
8A4C-5380	JAR A	1.5 - 2.0	NO TESTS		----	----	----	----	----	----
	JAR B	2.0 - 5.0	Tan Calcareous Clay	CL	8.0	----	31	18	13	----
	C - 1	28.7 - 29.7	Tan Clay, Slickensided w/limestone seams	CH	18.7	110.9	----	----	----	----
	C - 2	34.5 - 35.5	Dark Gray Shale w/fossiliferous limestone seams	N/A	10.3	135.7	----	----	----	----
8A4C-5382	JAR A	0.8 - 6.0	Tan Clay w/calcareous nodules	CH	6.9	----	54	17	37	----
	C - 1	23.1 - 24.0	Tan Clay, Slickensided w/limestone seams	CH	16.6	110.7	----	----	----	----
	C - 2	31.8 - 32.6	Tan Fossiliferous Limestone	N/A	6.4	143.7	----	----	----	----
8A4C-5383	JAR A	0.8 - 3.0	Dark Brown Clay w/sand & occasional gravel	CH	6.7	----	52	18	34	----
	JAR B	3.0 - 5.0	Tan Calcareous Clay	CL	4.7	----	27	18	9	----

SUMMARY OF LABORATORY TEST RESULTS

**LABORATORY TESTING SERVICES
TACTICAL EQUIPMENT SHOP
FORT HOOD, TEXAS**

Boring No.	Sample No.	Sample Depth (ft.)	Visual Description & Unified Soil Classification (ASTM D-2488)	Moisture Content (%)	Unit Dry Weight (pcf)	Confining Pressure (tsf)	Q _u (tsf)	Strain @ Failure (%)	Type Failure
8A4C-5379	JAR A	0.0 - 0.9	Brown Silty Sand w/numerous calcareous nodules & limestone fragments	SM	3.3	----	----	----	----
	JAR B	0.9 - 2.5	Tan & Gray Clay w/sand	CH	8.5	----	----	----	----
	C - 1	6.8 - 7.6	Tan Fossiliferous Limestone w/clay seams	N/A	13.3	124.3	0	3.22	* Hor. & Vertical
	C - 2	14.5 - 15.4	Tan Clay, Slickensided w/limestone seams	CH	11.9	127.2	----	----	----
	C - 3	19.2 - 20.1	Tan Clay, Slickensided w/limestone seams	CH	15.9	117.9	----	----	----
	C - 4	26.0 - 26.7	Dark Gray Shale w/limestone fragments	N/A	17.5	120.5	0	8.05	* Vertical
8A4C-5380	JAR A	1.5 - 2.0	NO TESTS	----	----	----	----	----	----
	JAR B	2.0 - 5.0	Tan Calcareous Clay	CL	8.0	----	----	----	----
	C - 1	28.7 - 29.7	Tan Clay, Slickensided w/limestone seams	CH	18.7	110.9	0	1.12	1.0 Angular (45°)
	C - 2	34.5 - 35.5	Dark Gray Shale w/fossiliferous limestone seams	N/A	10.3	135.7	0	8.76	* Hor. & Vertical
8A4C-5382	JAR A	0.8 - 6.0	Tan Clay w/calcareous nodules	CH	6.9	----	----	----	----
	C - 1	23.1 - 24.0	Tan Clay, Slickensided w/limestone seams	CH	16.6	110.7	0	1.61	1.5 Angular (35°)
	C - 2	31.8 - 32.6	Tan Fossiliferous Limestone	N/A	6.4	143.7	0	23.24	* Vertical
8A4C-5383	JAR A	0.8 - 3.0	Dark Brown Clay w/sand & occasional gravel	CH	6.7	----	----	----	----
	JAR B	3.0 - 5.0	Tan Calcareous Clay	CL	4.7	----	----	----	----

* Strain measurements were not recorded for this test. This sample was an intact core of rock which was sawed square, ends capped with hydrostone high strength gypsum, and tested for compressive strength in accordance with ASTM D-2938 "Unconfined Compressive Strength of Intact Rock Core Specimens".