



State of Utah

GARY R. HERBERT
Governor

GREGORY S. BELL
Lt. Governor

Department of Administrative Services

KIMBERLY K. HOOD
Executive Director

Division of Facilities Construction and Management

DAVID G. BUXTON
Director

ADDENDUM NO. 1

Date: September 2, 2009

To: Contractors

From: Wayne Smith – Project Manager

Reference: American Fork Armory Upgrade
Utah National Guard – American Fork, Utah
DFCM Project No. 08296480

Subject: **Addendum No. 1**

Pages

Addendum Cover Sheet	1 page
Revised Bid Form	2 pages
Architect's Addendum No. 1	36 pages
<u>Architect's Addendum No. 2</u>	<u>1 page</u>
Total	40 pages

Note: This Addendum shall be included as part of the Contract Documents. Items in this Addendum apply to all drawings and specification sections whether referenced or not involving the portion of the work added, deleted, modified, or otherwise addressed in the Addendum. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to Disqualification.

While we contend that SB220 should only be potentially applicable to a contract issued after the effective date of said bill, this is to clarify that for purposes of this contract, regardless of the execution or effective dates of this contract, the status of Utah Law and remedies available to the State of Utah and DFCM, as it relates to any matter referred to or affected by said SB220, shall be the Utah law in effect at the time of the issuance of this Addendum.

1.1 SCHEDULE CHANGES: No Project Schedule changes.

1.2 GENERAL ITEMS:

- 1.2.1 See attached Revised Bid Form incorporating Additive Alternate No. 1
- 1.2.2 See attached Architect's Addendum No. 1.
- 1.2.3 See attached Architect's Addendum No. 2.



**BID FORM – REVISED
PER ADDENDUM NO. 1 DATED SEPTEMBER 2, 2009**

NAME OF BIDDER _____ DATE _____

To the Division of Facilities Construction and Management
4110 State Office Building
Salt Lake City, Utah 84114

The undersigned, responsive to the "Invitation to Bid" and in accordance with the Request for Bids for the AMERICAN FORK ARMORY UPGRADE – UTAH NATIONAL GUARD – AMERICAN FORK, UTAH - DFCM PROJECT NO. 08296480 and having examined the Contract Documents and the site of the proposed Work and being familiar with all of the conditions surrounding the construction of the proposed Project, including the availability of labor, hereby proposes to furnish all labor, materials and supplies as required for the Work in accordance with the Contract Documents as specified and within the time set forth and at the price stated below. This price is to cover all expenses incurred in performing the Work required under the Contract Documents of which this bid is a part:

I/We acknowledge receipt of the following Addenda: _____

BASE BID: For all work shown on the Drawings and described in the Specifications and Contract Documents, I/we agree to perform for the sum of:

_____ DOLLARS (\$) _____
(In case of discrepancy, written amount shall govern)

ADDITIVE ALTERNATE NO. 1: For all work shown on the Drawings and described in the Specifications and Contract Documents for additional painting in the garage, I/we agree to perform for the sum of:

_____ DOLLARS (\$) _____
(In case of discrepancy, written amount shall govern)

I/We guarantee that the Work will be Substantially Complete by **July 30, 2010**, should I/we be the successful bidder, and agree to pay liquidated damages in the amount of **\$750.00** per day for each day after expiration of the Contract Time as stated in Article 3 of the Contractor's Agreement.

This bid shall be good for 45 days after bid opening.

Enclosed is a 5% bid bond, as required, in the sum of _____

The undersigned Contractor's License Number for Utah is _____.

Upon receipt of notice of award of this bid, the undersigned agrees to execute the contract within ten (10) days, unless a shorter time is specified in Contract Documents, and deliver acceptable Performance and Payment bonds in the prescribed form in the amount of 100% of the Contract Sum for faithful performance of the contract. The Bid Bond attached, in the amount not less than five percent (5%) of the above bid sum, shall become the property of the Division of Facilities Construction and Management as liquidated damages for delay and additional expense caused thereby in the event that the contract is not executed and/or acceptable 100% Performance and Payment bonds are not delivered within time set forth.

Type of Organization: _____
(Corporation, Partnership, Individual, etc.)

Any request and information related to Utah Preference Laws:

Respectfully submitted,

Name of Bidder

ADDRESS:

Authorized Signature

Addendum #1
American Fork Armory – Structural repairs and upgrades
251 South 200 East
American Fork, Utah
DFCM Project # 08296480

AD101

See Attached partial AD101 for clarification of keyed notes 21 & 22

AE101

See Attached partial AE101 for clarification of Seismic Design Requirements statement covered by Architects seal.

Add Note 17 to sheet AE101 as follows:

17. REPLACE EXISTING ATHLETIC FLOOR IN DRILL HALL WITH NEW ATHLETIC FLOOR

Specifications

Replace Section 096813 Tile Carpeting (State Carpet Contract) with attached revised Section 096813.

Replace Section 096466 Wood Athletic Floor Refinishing with attached Section 096466 Wood Athletic Flooring.

Temporary Partition

The Guard plans to occupy the garage area during this construction. Provide a temporary partition in Garage approximately 9'-0" east of the existing wall between the Garage and the Drill Hall to separate the construction area from the garage. Provide a plywood surface up to 8'-0" high on the garage side of the wall. Above 8' can be a plastic dust barrier. Coordinate exact location prior to installation with UTNG.

For Reference only attachments.

See Geotechnical Study for the American Fork Armory dated Nov 14, 2008, attached for reference only.

I	
H	<p>20. REMOVE VENT AND FILL OPENING WITH SALVAGED BRICK</p> <p>21. REMOVE EXISTING WOOD SPORTS FLOOR</p> <p>22. XXXXXX AREA OF DEMOLITION AND OR XXXXXX EXCAVATION FOR INSTALLATION OF XXXXXX MICRO PILES AND OR SHEER WALL.</p> <p><u>GENERAL NOTE:</u></p> <p>FLOORING REMAINING AFTER ASBESTOS ABATEMENT TO BE REMOVED IN PREPARATION FOR NEW FLOORING</p> <p>EXISTING LAY-IN CEILINGS TO BE REMOVED.</p> <p>ALL LANDSCAPING, SPRINKLER SYSTEMS, ASPHALT, CONCRETE WALKS, WALLS, FLOOR STRIPING, ECT. DAMAGED OR REMOVED TO MAKE SPACE FOR CONSTRUCTION TO BE REPAIRED OR REPLACED.</p>
G	

PARTIAL AD101

I	
H	<p><u>SEISMIC DESIGN REQUIREMENTS FOR NONSTRUCTURAL COMPONENTS</u></p> <p>DESIGN AND INSTALLATION OF SEISMIC RESTRAINTS SYSTEMS FOR NONSTRUCTURAL COMPONENTS (E.G. ARCHITECTURAL, MECHANICAL, AND ELECTRICAL) IS TO COMPLY WITH THE 2006 INTERNATIONAL BUILDING CODE (IBC), ASCE 7-05 AS REFERENCED IN THE IBC, SEISMIC CONTROL SPECIFICATIONS, DETAILS ON THE DRAWINGS, AND SEISMIC DESIGN REQUIREMENTS INDICATED ON THE STRUCTURAL DRAWINGS. CALCULATIONS ARE TO BE PREPARED BY A PROFESSIONAL ENGINEER LICENSED IN STATE OF UTAH.</p>

PARTIAL AE101

SECTION 096466 - WOOD ATHLETIC FLOORING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes wood athletic flooring.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for wood athletic flooring.
- B. Shop Drawings: For each type of floor assembly and accessory. Include plans, sections, details, and attachments to other work. Include the following:
 - 1. Expansion provisions and trim details.
 - 2. Layout, colors, widths, and dimensions of game lines and markers.
 - 3. Locations of floor inserts for athletic equipment installed through flooring assembly.
- C. Samples for Initial Selection: Manufacturer's color charts showing colors and glosses available for the following:
 - 1. Floor finish.
 - 2. Game-line and marker paint.
- D. Samples for Verification: For each type of wood athletic flooring and accessory required; approximately 12 inches long and of same thickness and material indicated for the Work.
 - 1. Include sample sets showing the full range of normal color and texture variations expected in wood flooring.
 - 2. Include Sample sets showing finishes and game-line and marker paint colors applied to wood flooring.
- E. Qualification Data: For qualified Installer.

- F. Maintenance Data: For wood athletic flooring and finish systems to include in maintenance manuals.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: A firm or individual that has been approved by MFMA as an accredited Installer according to the MFMA Accreditation Program.
- B. Maple Flooring: Comply with MFMA grading rules for species, grade, and cut.
 - 1. Certification: Provide flooring that carries MFMA mark on each bundle or piece.
- C. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.
 - 1. Prepare minimum 20 ft. x 20 ft finished mockup of floor area, in location as directed by Architect, to set quality standards for sanding and application of field finishes and game lines and markers.
 - 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 - 3. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver assembly materials in unopened cartons or bundles.
- B. Protect wood from exposure to moisture. Do not deliver wood components until after concrete, masonry, plaster, ceramic tile, and similar wet work is complete and dry.
- C. Store wood components in a dry, warm, well-ventilated, weathertight location and in a horizontal position.

1.6 FIELD CONDITIONS

- A. Conditioning period begins not less than seven days before wood athletic flooring installation, is continuous through installation, and continues not less than seven days after installation.
 - 1. Environmental Conditioning: Maintain an ambient temperature between 65 and 75 deg F and relative humidity planned for building occupants, but not less than 35 percent or more than 50 percent, in spaces to receive wood athletic flooring during the conditioning period.
 - 2. Wood Conditioning: Move wood components into spaces where they will be installed, no later than beginning of the conditioning period.

- a. Do not install wood athletic flooring until wood components adjust to relative humidity of, and are at same temperature as, spaces where they are to be installed.
 - b. Open sealed packages to allow wood components to acclimatize immediately on moving wood components into spaces in which they will be installed.
- B. After conditioning period, maintain relative humidity and ambient temperature planned for building occupants.
- C. Install wood athletic flooring after other finishing operations, including painting, have been completed.
- 1.7 COORDINATION
- A. Coordinate layout and installation of wood athletic flooring systems with floor inserts for gymnasium equipment.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- 1. Acer Flooring, LLC.
 - 2. Connor Floor; Subsidiary of Connor Sport Court International.
 - 3. Robbins Sports Surfaces.

2.2 DESCRIPTION

- A. System Type: Floating.
- B. Overall System Height: 3-1/8 inches (field verify).

2.3 FLOORING MATERIALS

- A. Random-Length Strip Flooring: Northern hard maple (*Acer saccharum*), kiln dried, random length, tongue and groove, and end matched.
- 1. Grade: MFMA-RL Second and Better.
 - 2. Cut: Flat.
 - 3. Thickness: 25/32 inch.
 - 4. Face Width: 2-1/4 inches.

2.4 SUBFLOOR MATERIALS

- A. Plywood Underlayment: APA rated, C-D plugged, exterior glue, tongue and groove, 23/32 inch thick.
- B. Wood Sleepers: Standard grade; 48 inches long; kiln-dried Eastern hemlock, fir, pine, or spruce.
 - 1. Size: Nominal 2 by 3 inches.
 - 2. Sleeper Shims: In size and type recommended in writing by flooring manufacturer for application indicated.
- C. Resilient Pads: With air voids for resiliency and installed in accordance with manufacturer's standard method and spacing.
 - 1. Material: Rubber.
 - 2. Thickness: 1/2 inch minimum.

2.5 FINISHES

- A. Floor-Finish System: System of compatible components recommended in writing by flooring manufacturer, and MFMA approved.
 - 1. Floor-Sealer Formulation: Pliable, oil-based penetrating type. MFMA Group 1, Sealers.
 - 2. Finish-Coat Formulation: Formulated for gloss finish indicated and multicoat application.
 - a. Type: MFMA Group 5, Water-Based Finishes.
 - 3. Game-Line and Marker Paint: Industrial enamel compatible with finish coats and recommended in writing by manufacturers of finish coats, and paint for this use.

2.6 ACCESSORIES

- A. Vapor Retarder: ASTM D 4397, polyethylene sheet not less than 6 mils thick.
- B. Thresholds: Tapered for width of opening to meet accessibility requirements.
 - 1. Elevation of Adjoining Concrete Floor Same as Elevation of Wood Flooring: 5 inches wide by 1/4 inch thick aluminum plates, fluted on top, slightly tapered both edges in finish selected by Architect.
- C. Fasteners: Type and size recommended by manufacturer, but not less than those recommended by MFMA for application indicated.

- D. Trowelable Leveling and Patching Compound: Latex-modified, hydraulic-cement-based formulation approved by wood athletic flooring manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for maximum moisture content, installation tolerances, and other conditions affecting performance of wood athletic flooring.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. Concrete Slabs: Verify that concrete substrates are dry and moisture-vapor emissions are within acceptable levels according to manufacturer's written instructions.
 - 1. Moisture Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrates pass testing.

3.2 PREPARATION

- A. Grind high spots and fill low spots on concrete substrates to produce a maximum 1/8-inch deviation in any direction when checked with a 10-foot straight edge.
 - 1. Use trowelable leveling and patching compounds, according to manufacturer's written instructions, to fill cracks, holes, and depressions in substrates.
- B. Broom and vacuum clean substrates to be covered immediately before product installation. After cleaning, examine substrates for moisture, alkaline salts, carbonation, or dust. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 INSTALLATION

- A. General: Comply with wood athletic flooring manufacturer's written instructions, but not less than written recommendations of MFMA applicable to flooring type indicated.
- B. Pattern: Lay flooring parallel with long dimension of space to be floored unless otherwise indicated.
- C. Expansion Spaces: Provide as indicated, but not less than that required by manufacturer's written instructions and MFMA's written recommendations at obstructions, and at interruptions and terminations of flooring.
 - 1. Cover expansion spaces with thresholds.

- D. Vapor Retarder: Cover entire slab area beneath wood flooring. Install with joints lapped a minimum of 6 inches and sealed.
- E. Sleepers:
 - 1. Install sleepers perpendicular to direction of flooring, staggering end joints a minimum of 24 inches.
 - 2. Space sleepers at spacing recommended by manufacturer for system components indicated.
 - 3. Shim and level sleepers.
- F. Plywood Underlayment: Install plywood underlayment over sleepers as recommended by manufacturer.
- G. Strip Flooring: Mechanically fasten perpendicular to supports as recommended by manufacturer.
- H. Installation Tolerances: 1/8 inch in 10 feet of variance from level.

3.4 SANDING AND FINISHING

- A. Allow installed flooring to acclimate to ambient conditions before sanding.
- B. Follow applicable recommendations in MFMA's "Industry Recommendations for Sanding, Sealing, Court Lining, Finishing, and Resurfacing of Maple Gym Floors."
- C. Machine sand with coarse, medium, and fine grades of sandpaper to achieve a level, smooth, uniform surface without ridges or cups. Remove sanding dust by tack or vacuum.
- D. Finish: Apply seal and finish coats of finish system according to finish manufacturer's written instructions. Provide no fewer than two (2) seal coats and no fewer than three (3) finish coats.
 - 1. Water-Based Finishes: Use finishing methods recommended by finish manufacturer to reduce grain raise and sidebonding effect.
 - 2. Game-Line and Marker Paint: Apply game-line and marker paint between final seal coat and first finish coat according to paint manufacturer's written instructions.
 - a. Mask flooring at game lines and markers, and apply paint to produce lines and markers with sharp edges.
 - b. Where game lines cross, break minor game line at intersection; do not overlap lines.
 - c. Apply game lines and markers in widths and colors according to requirements indicated on Drawings.
 - d. Apply finish coats after game-line and marker paint is fully cured.

3.5 PROTECTION

- A. Protect wood athletic flooring during remainder of construction period to allow finish to cure and to ensure that flooring and finish are without damage or deterioration at time of Substantial Completion.
 - 1. Do not cover flooring after finishing until finish reaches full cure and not before seven days after applying last finish coat.
 - 2. Do not move heavy and sharp objects directly over flooring. Protect fully cured floor finishes and surfaces with plywood or hardboard panels to prevent damage from storing or moving objects over flooring.

END OF SECTION 096466

SECTION 096813 - TILE CARPETING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes modular, tufted carpet tile.
- B. Related Sections include the following:
 - 1. Division 09 Section "Resilient Base and Accessories" for resilient wall base and accessories installed with carpet tile.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include manufacturer's written data on physical characteristics, durability, and fade resistance. Include installation recommendations for each type of substrate.
- B. Shop Drawings: Show the following:
 - 1. Columns, doorways, enclosing walls or partitions, built-in cabinets, and locations where cutouts are required in carpet tiles.
 - 2. Existing flooring materials to remain.
 - 3. Carpet tile type, color, and dye lot.
 - 4. Type of subfloor.
 - 5. Type of installation.
 - 6. Pattern of installation.
 - 7. Pattern type, location, and direction.
 - 8. Pile direction.
 - 9. Type, color, and location of edge, transition, and other accessory strips.
 - 10. Transition details to other flooring materials.
- C. Samples: For each of the following products and for each color and texture required. Label each Sample with manufacturer's name, material description, color, pattern, and designation indicated on Drawings and in schedules.
 - 1. Carpet Tile: Full-size Sample.

2. Exposed Edge, Transition, and other Accessory Stripping: 12-inch- long Samples.

D. Product Schedule: For carpet tile. Use same designations indicated on Drawings.

E. Qualification Data: For Installer.

F. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency.

G. Maintenance Data: For carpet tiles to include in maintenance manuals. Include the following:

1. Methods for maintaining carpet tile, including cleaning and stain-removal products and procedures and manufacturer's recommended maintenance schedule.

2. Precautions for cleaning materials and methods that could be detrimental to carpet tile.

H. Warranty: Special warranty specified in this Section.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who is certified by the Floor Covering Installation Board or who can demonstrate compliance with its certification program requirements.

B. Fire-Test-Response Characteristics: Provide products with the critical radiant flux classification indicated in Part 2, as determined by testing identical products per ASTM E 648 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Comply with CRI 104, Section 5, "Storage and Handling."

1.6 PROJECT CONDITIONS

A. Comply with CRI 104, Section 7.2, "Site Conditions; Temperature and Humidity" and Section 7.12, "Ventilation."

B. Environmental Limitations: Do not install carpet tiles until wet work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

- C. Do not install carpet tiles over concrete slabs unless slabs are sufficiently dry to bond with adhesive and concrete slabs have pH range recommended by carpet tile manufacturer.

1.7 WARRANTY

- A. Special Warranty for Carpet Tiles: Manufacturer agrees to repair or replace components of carpet tile installation that fail in materials or workmanship within specified warranty period.
 - 1. Warranty does not include deterioration or failure of carpet tile due to unusual traffic, failure of substrate, vandalism, or abuse.
 - 2. Failures include, but are not limited to, more than 10 percent edge raveling, snags, runs, dimensional stability, loss of tuft bind strength, loss of face fiber, and delamination.
 - 3. Warranty Period: 10 years from date of Substantial Completion.

1.8 EXTRA MATERIALS

- A. Furnish extra materials described below, before installation begins, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Carpet Tile: Full-size units equal to 5 percent of amount installed for each type indicated, but not less than 10 sq. yd..

PART 2 - PRODUCTS

2.1 CARPET TILE

- A. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. AIKI Collection; Interface.
 - 2. Centerfield III; Mannington Commercial.
 - 3. Industrial Society; Bentley Prince Street.
 - 4. Municipality; Mohawk.
 - a. Color: As selected by Architect from manufacturer's full range.
- B. Surface Pile Weight: 23 oz. minimum.
- C. Primary Backing/Backcoating: Manufacturer's standard composite materials.
- D. Secondary Backing: Manufacturer's standard material.

- E. Size: 18 by 18 inches minimum.
- F. Fiber Content: 100 percent nylon 6, 6.
- G. Applied Soil-Resistance Treatment: Manufacturer's standard material.
- H. Performance Characteristics: As follows:
 - 1. Critical Radiant Flux Classification: Not less than 0.45 W/sq. cm.

2.2 INSTALLATION ACCESSORIES

- A. Trowelable Leveling and Patching Compounds: Latex-modified, hydraulic-cement-based formulation provided or recommended by carpet tile manufacturer.
- B. Adhesives: Water-resistant, mildew-resistant, nonstaining, pressure-sensitive type to suit products and subfloor conditions indicated, that complies with flammability requirements for installed carpet tile and is recommended by carpet tile manufacturer for releasable installation.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for maximum moisture content, alkalinity range, installation tolerances, and other conditions affecting carpet tile performance. Examine carpet tile for type, color, pattern, and potential defects.
- B. Concrete Subfloors: Verify that concrete slabs comply with ASTM F 710 and the following:
 - 1. Slab substrates are dry and free of curing compounds, sealers, hardeners, and other materials that may interfere with adhesive bond. Determine adhesion and dryness characteristics by performing bond and moisture tests recommended by carpet tile manufacturer.
 - 2. Subfloors are free of cracks, ridges, depressions, scale, and foreign deposits.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. General: Comply with CRI 104, Section 6.2, "Site Conditions; Floor Preparation," and with carpet tile manufacturer's written installation instructions for preparing substrates indicated to receive carpet tile installation.

- B. Use trowelable leveling and patching compounds, according to manufacturer's written instructions, to fill cracks, holes, depressions, and protrusions in substrates. Fill or level cracks, holes and depressions 1/8 inch wide or wider and protrusions more than 1/32 inch, unless more stringent requirements are required by manufacturer's written instructions.
- C. Remove coatings, including curing compounds, sealers, and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, without using solvents. Use mechanical methods recommended in writing by carpet tile manufacturer.
- D. Broom and vacuum clean substrates to be covered immediately before installing carpet tile.

3.3 INSTALLATION

- A. General: Comply with CRI 104, Section 14, "Carpet Modules," and with carpet tile manufacturer's written installation instructions.
- B. Installation Method: Glue down; install every tile with full-spread, releasable, pressure-sensitive adhesive.
- C. Maintain dye lot integrity. Do not mix dye lots in same area.
- D. Cut and fit carpet tile to butt tightly to vertical surfaces, permanent fixtures, and built-in furniture including cabinets, pipes, outlets, edgings, thresholds, and nosings. Bind or seal cut edges as recommended by carpet tile manufacturer.
- E. Extend carpet tile into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.
- F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on finish flooring as marked on subfloor. Use nonpermanent, nonstaining marking device.
- G. Install pattern parallel to walls and borders.

3.4 CLEANING AND PROTECTION

- A. Perform the following operations immediately after installing carpet tile:
 - 1. Remove excess adhesive, seam sealer, and other surface blemishes using cleaner recommended by carpet tile manufacturer.
 - 2. Remove yarns that protrude from carpet tile surface.
 - 3. Vacuum carpet tile using commercial machine with face-beater element.

- B. Protect installed carpet tile to comply with CRI 104, Section 16, "Protection of Indoor Installations."
- C. Protect carpet tile against damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Use protection methods indicated or recommended in writing by carpet tile manufacturer.

END OF SECTION 096813

**REPORT
GEOTECHNICAL STUDY
UTAH NATIONAL GUARD AMERICAN FORK
ARMORY - SEISMIC EVALUATION
251 SOUTH 200 EAST STREET
AMERICAN FORK, UTAH**

Submitted To:

Harris & Associates, Inc.
265 East 100 South, Suite 350
Salt Lake City, Utah 84111

Submitted By:

Gordon Spilker Huber Geotechnical Consultants, Inc.
4426 South Century Drive, Suite 100
Salt Lake City, Utah 84123

November 14, 2008

Job No. 0461-005-08

November 14, 2008
Job No. 0461-005-08

Harris & Associates, Inc.
265 East 100 South, Suite 350
Salt Lake City, Utah 84111

Attention: Mr. Eric Tholen, AIA

Gentlemen:

Re: Report
Geotechnical Study
Utah National Guard American Fork Armory - Seismic Evaluation
251 South 200 East Street
American Fork, Utah

1. INTRODUCTION

1.1 GENERAL

This report presents the results of our geotechnical study performed at the site of the Utah National Guard American Fork Armory, which is located at 251 South 200 East Street in American Fork, Utah. The purpose of this report is to provide geotechnical parameters for a seismic upgrade of the existing structure. The general location of the site with respect to major topographic features and existing facilities, as of 1990 and 1999, is presented on Figure 1, Vicinity Map. A more detailed aerial photograph of the site showing the locations of existing roadways and facilities is presented on Figure 2, Site Plan. The locations of the borings drilled in conjunction with this study are also presented on Figure 2.

1.2 OBJECTIVES AND SCOPE

The objectives and scope of our study were planned in discussions between Mr. Eric Tholen of Harris & Associates, Inc., and Mr. Alan Spilker of Gordon Spilker Huber Geotechnical Consultants, Inc. (GSH).

In general, the objectives of this study were to:

1. Define and evaluate the subsurface soil and groundwater conditions across the site.

2. Provide appropriate foundation, earthwork, and geoseismic recommendations to be utilized for the structural upgrade of the existing armory building.

In accomplishing these objectives, our scope has included the following:

1. A field program consisting of drilling, logging, and sampling of six borings.
2. A laboratory testing program.
3. An office program consisting of the correlation of available data, engineering analyses, and the preparation of this summary report.

1.3 AUTHORIZATION

Authorization was provided by returning a signed copy of Harris & Associates, Inc., Subconsultant Agreement for Professional Services, Harris Project No. 083-0150.01 dated November 10, 2008.

1.4 PROFESSIONAL STATEMENTS

Supporting data upon which our recommendations are based are presented in subsequent sections of this report. Recommendations presented herein are governed by the physical properties of the soils encountered in the exploration borings, projected groundwater conditions, and the layout and design data discussed in Section 2., Existing Construction, of this report. If subsurface conditions other than those described in this report are encountered and/or if design and layout changes are implemented, GSH must be informed so that our recommendations can be reviewed and amended, if necessary.

Our professional services have been performed, our findings developed, and our recommendations prepared in accordance with generally accepted engineering principles and practices in this area at this time.

2. EXISTING STRUCTURE

An existing one- to two-level structure is located at the site and is constructed of concrete frame with brick veneer. A structural upgrade is proposed for the existing building. Foundation plans indicate that the structure was originally designed in 1954 and that the interior of the structure is supported primarily with structural walls with integrated columns. Bearing capacity of the existing site soils was originally designed not to exceed 2,000 pounds per square foot. Maximum real column and wall loads for the structure were provided by Reaveley Engineers & Associates, Inc. and are 37.0 kips, and 3.2 kips per lineal foot, respectively. Existing bearing capacities are anticipated to be between 1,500 and 2,000 pounds per square foot. New loads associated with shear walls and updated seismic parameters are unavailable at this time and will need to be evaluated once the structural evaluation is completed. Floor slab loads are anticipated to be light (less than 200 pounds per square foot average uniform loading). As part of the

seismic upgrade, it is anticipated that new footings will be installed to augment the existing footing and foundation system. New footings will be dowelled into existing footings to create an overall larger footing.

Minor building distress was observed in the form of limited cracks within the exterior brick veneer. The cracks ranged from one-sixteenth to one-half inch. Cracks were concentrated around the corners of window, doors, within floor slabs, and along the seams of interior concrete slabs.

At-grade paved parking and roadway areas are located south of the structure. A fenced gravel parking area is located to the east of the existing structure.

3. SITE INVESTIGATIONS

3.1 FIELD PROGRAM

In order to define and evaluate the subsurface soil and groundwater conditions at the site, 6 borings were explored to depths ranging from 14.5 to 31.5 feet below existing grade. The borings were drilled using a drill rig equipped with hollow-stem augers. Locations of the borings are presented on Figure 2.

The field portion of our study was under the direct control and continual supervision of an experienced member of our geotechnical staff. During the course of the drilling operations, a continuous log of the subsurface conditions encountered was maintained. In addition, samples of the typical soils encountered were obtained for subsequent laboratory testing and examination. The soils were classified in the field based upon visual and textural examination. These classifications have been supplemented by subsequent inspection and testing in our laboratory. Detailed graphical representation of the subsurface conditions encountered is presented on Figures 3A through 3F, Log of Borings. Soils were classified in accordance with the nomenclature described on Figure 4, Unified Soil Classification System.

A 3.25-inch outside diameter, 2.42-inch inside diameter drive sampler (Dames & Moore) was utilized in the majority of the subsurface sampling at the site. Additionally, a 2.0-inch outside diameter, 1.38-inch inside diameter drive sampler (SPT) was utilized at select locations. The blow-counts recorded on the boring logs were those required to drive the sampler 12 inches with a 140-pound hammer dropping 30 inches.

Following completion of drilling operations, one and one-quarter-inch diameter slotted PVC pipe was installed in Borings B-1, B-2, B-4, and B-5 in order to provide a means of monitoring the groundwater fluctuations.

3.2 LABORATORY TESTING

3.2.1 General

In order to provide data necessary for our engineering analyses, a laboratory testing program was completed. The program included moisture, density, consolidation, partial gradation, sulfate, and pH tests. The following paragraphs describe the tests and summarize the test data.

3.2.2 Moisture and Density Tests

To provide index parameters and to correlate other test data, moisture and density tests were performed on selected samples. The results of these tests are presented on the boring logs, Figures 3A through 3F.

3.2.3 Consolidation Tests

To provide data necessary for our settlement analyses, a consolidation test was performed upon each of two representative samples of the fine-grained clay soils encountered in the exploration borings. The results indicate that the soils are slightly over-consolidated. When loaded below the over-consolidation pressure, the soils will exhibit high compressibility characteristics. Detailed results of the tests are maintained within our files and can be transmitted to you, upon your request.

3.2.4 Partial Gradation Tests

To aid in classifying the granular soils, partial gradation tests were performed. Results of the tests are tabulated below:

Boring No.	Depth (feet)	Percent Passing No. 200 Sieve	Soil Classification
B-1	25.5	13.8	SM/GM

3.2.5 pH and Soluble Sulfates Tests

To determine if the site soils will react detrimentally with concrete, pH and soluble sulfates tests were performed on a representative sample of the natural near-surface soils. The results of those tests are tabulated below:

Boring No.	Depth (feet)	USCS Group Symbol	pH	Water Soluble Sulfate (mg/kg-dry)
B-2	1.5	CL	7.63	18

4. SITE CONDITIONS

4.1 SURFACE

The site is located at 231 South 200 East Street in American Fork, Utah. The general site layout is shown on Figure 2. The site is relatively flat with a downward slope to the south and an overall relief of approximately one to two feet. The existing Utah National Guard American Fork Armory structure is located on the northwest portion of the site. Access garages are located on the east side of the structure. The majority of the site outside the structure is covered with asphalt concrete parking and roadways, gravel parking/storage areas, landscaped lawns, flower beds, and trees up to 20 feet high. Bordering the site to the west is 200 East Street with single-family residential structures beyond; to the north and east by single-family residential structures; and to the south by a grass-covered athletic field.

4.2 SUBSURFACE SOIL

The subsurface sequence encountered in the borings is relatively inconsistent across the site. Non-engineered fills were encountered from the surface to depths of two and one-half to four and one-half feet in Borings B-1, B-5, and B-6. The non-engineered fills consist of silty clays and silty/clayey sands and gravels. Asphalt concrete pavements were encountered in Borings B-3 and B-4 and consist of four inches of asphalt concrete underlain by six to eight inches of roadbase with two to four feet of granular subbase.

From the surface in Boring B-2 and extending to the explored depth of 14.5 feet is natural silty clay with some fine sand. The clay is soft to medium stiff, moist, brown, and contains occasional layers up to six inches thick of silty fine sand.

Underlying the pavements and non-engineered fills in Borings B-1 and B-3, and extending to depths of 12 and 9 feet, respectively, is natural silty clay with some fine sand. The clay is soft to stiff, moist to saturated, brown, and contains occasional layers up to three inches thick of silty fine sand. Underneath the silty clay and extending to the explored depths of 31.5 and 16.5 feet in Borings B-1 and B-3, respectively, is silty sand and gravel. The sand and gravel is medium dense to very dense, moist to saturated, and brown.

Underlying the pavements and non-engineered fills in Borings B-4, B-5, and B-6, and extending to depths of 11 to 12 feet, are alternating layers of silty clay, clayey sand/sandy clay, and silty sand. These natural soils are soft/loose to stiff/medium dense, moist, and brown. Beneath the layered soils and extending to the explored depths of 16.5 to 23.5 feet is silty sand and gravel. The sand and gravel is medium dense to very dense, moist to saturated, and brown.

The lines designating the interface between soil types on the boring logs generally represent approximate boundaries. In-situ, the transition between soil types may be gradual.

4.3 GROUNDWATER

To facilitate monitoring future groundwater fluctuations and prior to backfilling Borings B-1, B-2, B-4, and B-5, one and one-quarter-inch slotted PVC pipe was installed. The following chart summarizes the groundwater levels measured:

Boring No.	Groundwater Depth September 30, 2008 (feet)	Groundwater Depth October 7, 2008 (feet)
B-1	25.0	25.3
B-2	Not Encountered	14.3
B-4	Not Encountered	Not Encountered
B-5	Not Encountered	20.2

Seasonal and longer-term groundwater fluctuations of one to two feet should be anticipated. The highest seasonal levels will generally occur during the late spring and summer months. Groundwater depth will be measured again to verify stabilized levels and reported at a later date.

5. DISCUSSIONS AND RECOMMENDATIONS

5.1 SUMMARY OF FINDINGS

The most significant geotechnical aspect of the site is the highly compressible, slightly over-consolidated layers of silty clay generally encountered at depths from approximately 4 to 10 feet in Borings B-1, B-2, and B-3. Results of the consolidation testing performed upon samples from Boring B-1 at five and one-half feet and Boring B-2 at eight and one-half feet show the clay to have a relatively low preconsolidation pressure.

Design specifications indicate that existing footings have been designed with bearing capacities between 1,500 and 2,000 pounds per square foot. Using consolidation data, and the before-mentioned design bearing capacity, GSH has calculated a potential settlement of one and one-half inches and a differential settlement of three-quarters inch. Observed structural distress is likely due to settlements associated with the highly compressible clays.

As part of the seismic upgrade, it is anticipated that new footings will be installed to augment the existing footing and foundation system. New footings will be dowelled into existing footings to create an overall larger footing.

Due to the potential for excessive settlements, GSH recommends that the existing and new footings be underpinned using helical piers, micropiles, push piers, or other underpinning system. Underpinning systems shall be designed and installed in accordance with the

manufacturer's recommendations. Underpinning systems will be extended to and into the upper portion of medium dense to very dense granular soils at approximately 9 to 12 feet. The design capacity of each pier is likely to be 35 kips (ultimate capacity 70+ kips). Settlement based upon end-bearing is projected to be less than one-half inch.

As an option, augmented footings may be redesigned with an overall bearing pressure of between 750 and 800 pounds per square foot.

The design parameters should be verified by a full-scale helical pier test. GSH must monitor the testing and subsequent installation of production helical pier elements.

As previously mentioned, new loads associated with shear walls and updated seismic parameters are unavailable at this time and will need to be evaluated by GSH once the structural upgrade design is completed.

Groundwater is not anticipated to affect the design or construction of the proposed seismic upgrade.

In the following sections, detailed discussions pertaining to foundations, floor slabs, cement types, and the geoseismic setting of the site are provided.

5.2 FOUNDATIONS

5.2.1 General

Due to the soft compressible soils, our analyses indicate that settlements may be controlled using helical piers.

5.2.2 Conventional Spread and Continuous Wall Foundations

5.2.2.1 Design Data

Existing and new conventional spread and continuous wall foundations can be installed over an underpinning system or over suitable natural soils with decreased designed bearing pressures. For footings, the following design parameters are provided:

Minimum Recommended Depth of Embedment for Frost Protection	- 30 inches
Minimum Recommended Depth of Embedment for Non-frost Conditions	- 15 inches
Recommended Minimum Width for Continuous Wall Footings	- 18 inches

Minimum Recommended Width for Isolated Spread Footings	- 24 inches
Bearing Pressure	- (To be developed by the helical pier manufacturer*)
Redesigned Bearing Pressure for augmented footings	- 750 to 800 pounds per square foot

- * Helical pier elements are typically spaced singly or in close groups beneath interior footings to support concentrated column loads. Spacing and quantity of piers are to be determined by the pier manufacturer.

The term “net bearing pressure” refers to the pressure imposed by the portion of the structure located above lowest adjacent final grade. Therefore, the weight of the footing and backfill to lowest adjacent final grade need not be considered. Real loads are defined as the total of all dead plus frequently applied live loads. Total load includes all dead and live loads, including seismic and wind.

5.2.2.2 Installation

Installation of the helical piers and recommendations for footing connections shall be provided by the helical pier manufacturer.

5.2.2.3 Settlements

Settlements of foundations will be determined by helical pier manufacturer’s subsequent analysis but are anticipated to be less than one-half of an inch.

5.3 FLOOR SLABS

Floor slabs may be established upon suitable natural soils and/or upon structural fill extending to suitable natural soils. The undisturbed natural soils are suitable for the support of floor slabs. Under no circumstances shall floor slabs be established upon loose or disturbed soils/fills, sod, rubbish, non-engineered fills, deleterious materials, frozen soils, or within ponded water.

To facilitate construction and to provide a capillary moisture break, we recommend that all at-grade slabs be immediately underlain by a minimum of four inches of “free-draining” granular material, such as three-quarters- to one-inch minus clean gap-graded gravel. The gravel may be placed directly upon properly prepared suitable natural soils and/or granular structural fill. Settlements of lightly loaded floor slabs (less than 200 pounds per square foot) will be less than one-quarter of an inch.

5.4 CEMENT TYPES

Laboratory tests indicate that the site soils contain negligible amounts of water soluble sulfates. Therefore, all concrete which will be in contact with the site soils may be prepared using Type I or IA cement.

5.5 GEOSEISMIC SETTING

5.5.1 General

Utah municipalities adopted the International Building Code (IBC) 2006 on January 1, 2007. The IBC 2006 code determines the seismic hazard for a site based upon 2002 mapping of bedrock accelerations prepared by the United States Geologic Survey (USGS) and the soil site class. The USGS values are presented on maps incorporated into the IBC code and are also available based on latitude and longitude coordinates (grid points).

The structure must be designed in accordance with the procedure presented in Section 1613, Earthquake Loads, of the IBC 2006 edition.

5.5.2 Faulting

No active faults are known to cross the site and the site is located away from fault investigation zones identified by Utah County. The nearest active fault is the Provo Segment of the Wasatch Fault located about three and one-half miles northeast of the site. The Wasatch Fault is believed to be capable of producing earthquakes up to a magnitude 7.4.

5.5.3 Soil Class

For dynamic structural analysis, the Site Class D – Stiff Soil Profile as defined in Table 1613.5.2, Site Class Definitions, of the IBC 2006, can be utilized.

5.5.4 Ground Motions

The IBC 2006 code is based on 2002 USGS (United States Geologic Survey) mapping, which provides values of short and long period accelerations for the Site Class B-C boundary for the Maximum Considered Earthquake (MCE). This Site Class B-C boundary represents a hypothetical bedrock surface and must be corrected for local soil conditions. The following table summarizes the peak ground and short and long period accelerations for a MCE event and incorporates a soil amplification factor for a Site Class D soil profile in the second column. Based on the site latitude and longitude (40.37203 degrees north and 111.79274 degrees west, respectively), the values for this site are tabulated on the following page.

Spectral Acceleration Value, T Seconds	Site Class B-C Boundary [mapped values] (% g)	Site Class D [adjusted for site class effects] (% g)
Peak Ground Acceleration	48.0	48.9
0.2 Seconds, (Short Period Acceleration)	$S_S = 119.9$	$S_{MS} = 122.3$
1.0 Seconds (Long Period Acceleration)	$S_1 = 50.4$	$S_{M1} = 75.6$

The IBC 2006 code design accelerations (S_{DS} and S_{D1}) are based on multiplying the above accelerations (adjusted for site class effects) for the MCE event by two-thirds ($\frac{2}{3}$).

5.5.5 Liquefaction

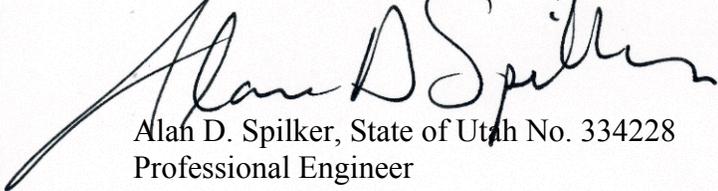
Liquefaction is defined as the condition when saturated, loose, fine sand-type soils lose their support capabilities because of excessive pore water pressure which develops during a seismic event.

Due to the dense nature of the saturated granular soils and the depth of the groundwater level, the probability of liquefaction at the site during the design seismic event is considered low.

We appreciate the opportunity of providing this service for you. If you have any questions or require additional information, please do not hesitate to contact us.

Respectfully submitted,

GSH Geotechnical Consultants, Inc.



Alan D. Spilker, State of Utah No. 334228
 Professional Engineer

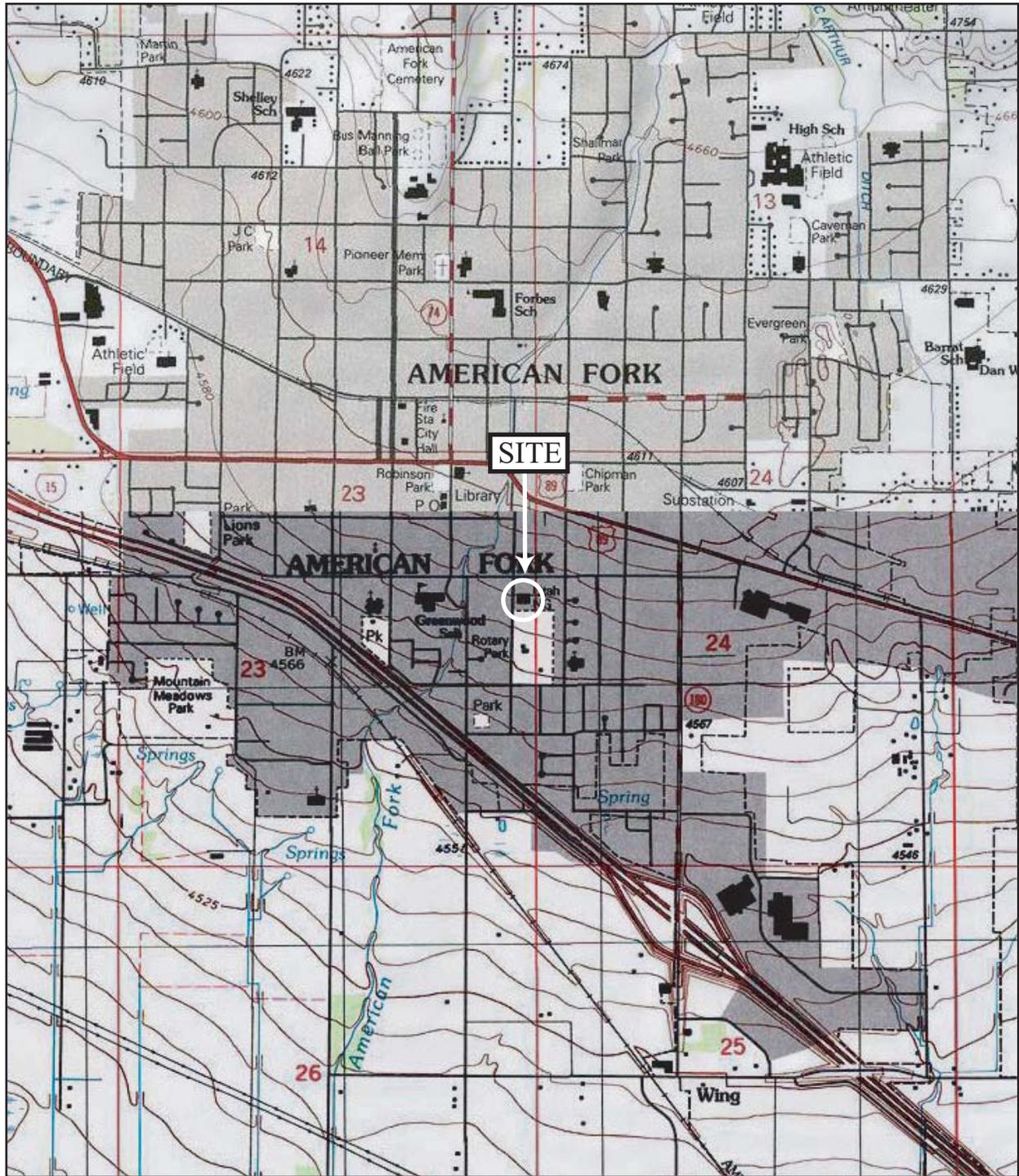
Reviewed by:



Michael S. Huber, State of Utah No. 343650
 Professional Engineer

ADS/MSH;jlh

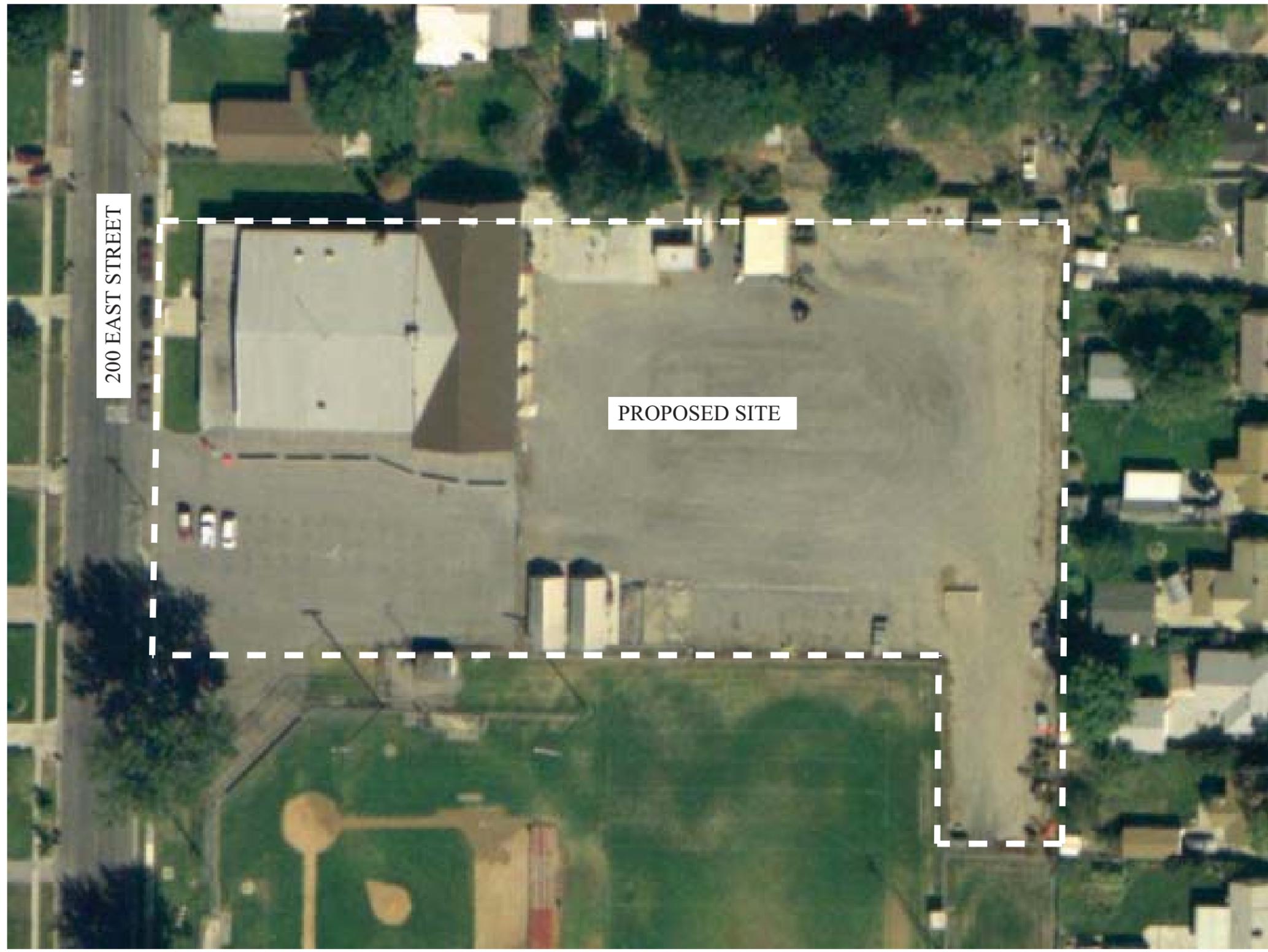
- Encl. Figure 1, Vicinity Map
 Figure 2, Site Plan
 Figures 3A through 3F, Log of Borings
 Figure 4, Unified Soil Classification System
 Addressee (3 + email)



REFERENCE:
USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE MAPS
TITLED "PELICAN POINT, UTAH" DATED 1999
AND "LEHI, UTAH" DATED 1990

FIGURE 1
VICINITY MAP





PROPOSED SITE

200 EAST STREET

FIGURE 2
SITE PLAN



REFERENCE:
ADAPTED FROM AERIAL PHOTOGRAPH
TERRASERVER 2003



Project Name: Utah National Guard American Fork Armory

Project No.: 0461-005-08

Location: 251 South 200 East, American Fork, Utah

Client: Harris & Associates, Inc.

Drilling Method: 3-3/4" ID Hollow-Stem Auger

Date Drilled: 09-30-08

GSH Field Rep.: RJG

Elevation: Overall Site Approximately 4583' +/-

Water Level: 25.0' (09-30-08) 25.3' (10-07-08)

Remarks:

Graphical Log	Water Level	DESCRIPTION	DEPTH FT.	BLOWS/FT	SAMPLE SYMBOL	MOISTURE (%)	% PASSING 200	DRY DENSITY (PCF)	Liquid Limit (%)	Plastic Limit (%)	REMARKS
		Ground Surface	0								loose to 3"-4" moist medium stiff
		SILTY CLAY with some fine sand and occasional fine and coarse gravel; major roots (topsoil) to 1"-2"; dark brown, FILL (CL)		6							very moist soft
		SILTY CLAY with some fine sand; brown (CL)	5	3		33.2		84			very moist medium stiff
				9		14.8		108			
		grades with occasional layers up to 3" thick of fine to coarse sand and fine and coarse gravel	10	18		12.8		120			stiff
		SILTY SAND AND GRAVEL fine to coarse sand; fine and coarse gravel; brown (SM/GM)		46							moist medium dense
			15								
		grades brown	20	108							very dense
			25								saturated

The discussion in the text under the section titled, SUBSURFACE CONDITIONS, is necessary for a proper understanding of the nature of the subsurface material.

FIGURE 3A

Project Name: Utah National Guard American Fork Armory

Project No.: 0461-005-08

Location: 251 South 200 East, American Fork, Utah

Client: Harris & Associates, Inc.

Drilling Method: 3-3/4" ID Hollow-Stem Auger

Date Drilled: 09-30-08

GSH Field Rep.: RJG

Elevation: Overall Site Approximately 4583' +/-

Water Level: 25.0' (09-30-08) 25.3' (10-07-08)

Remarks: _____

Graphical Log	Water Level	DESCRIPTION	DEPTH FT.	BLOWS/FT	SAMPLE SYMBOL	MOISTURE (%)	% PASSING 200	DRY DENSITY (PCF)	Liquid Limit (%)	Plastic Limit (%)	REMARKS
		grades with trace clay		18		8.8	13.8				medium dense
		grades with occasional layers up to 4" thick of fine to coarse sand and fine and coarse gravel and trace silt									
		grades with fine and coarse gravel	30	31							dense
		Stopped drilling at 30.0'. Stopped sampling at 31.5'. Installed 1-1/4" diameter slotted PVC pipe to 31.5'.	35								
			40								
			45								
			50								

The discussion in the text under the section titled, SUBSURFACE CONDITIONS, is necessary for a proper understanding of the nature of the subsurface material.

FIGURE 3A
(con't)

Project Name: Utah National Guard American Fork Armory

Project No.: 0461-005-08

Location: 251 South 200 East, American Fork, Utah

Client: Harris & Associates, Inc.

Drilling Method: 3-3/4" ID Hollow-Stem Auger

Date Drilled: 09-30-08

GSH Field Rep.: RJG

Elevation: Overall Site Approximately 4583' +/-

Water Level: No groundwater encountered (09-30-08) 14.3' (10-07-08)

Remarks: _____

Graphical Log	Water Level	DESCRIPTION	DEPTH FT.	BLOWS/FT	SAMPLE SYMBOL	MOISTURE (%)	% PASSING 200	DRY DENSITY (PCF)	Liquid Limit (%)	Plastic Limit (%)	REMARKS
		Ground Surface	0								loose to 3"-4" moist medium stiff
		SILTY CLAY with some fine sand; major roots (topsoil) to 1"-2"; brown (CL)		7		8.1		103			
		grades with occasional layers up to 6" thick of silty fine sand		4		31.2		89			very moist soft
				3							
			10								very moist medium stiff
		grades with occasional layers up to 6" thick of silty fine sand		7							saturated
		Stopped drilling at 13.0'. Stopped sampling at 14.5'. Installed 1-1/4" diameter slotted PVC pipe to 14.5'. No groundwater encountered at time of drilling.	15								
			20								
			25								

The discussion in the text under the section titled, SUBSURFACE CONDITIONS, is necessary for a proper understanding of the nature of the subsurface material.

FIGURE 3B

Project Name: Utah National Guard American Fork Armory

Project No.: 0461-005-08

Location: 251 South 200 East, American Fork, Utah

Client: Harris & Associates, Inc.

Drilling Method: 3-3/4" ID Hollow-Stem Auger

Date Drilled: 09-30-08

GSH Field Rep.: RJG

Elevation: Overall Site Approximately 4583' +/-

Water Level: No groundwater encountered (09-30-08)

Remarks: _____

Graphical Log	Water Level	DESCRIPTION	DEPTH FT.	BLOWS/FT	SAMPLE SYMBOL	MOISTURE (%)	% PASSING 200	DRY DENSITY (PCF)	Liquid Limit (%)	Plastic Limit (%)	REMARKS
		Ground Surface	0								
		4" ASPHALT CONCRETE									
		6" ROADBASE									
		SILTY SAND AND GRAVEL, FILL fine to coarse sand; fine and coarse gravel; brown, FILL (SM/GM)		36							moist medium dense
		SILTY CLAY with some fine sand; brown (CL)	5	4		26.1		92			moist soft
		SILTY SAND AND GRAVEL fine to coarse sand; fine and coarse gravel; brown (SM/GM)	10	36							moist medium dense
			15	95							very dense
		Stopped drilling at 15.0'. Stopped sampling at 16.5'. No groundwater encountered at time of drilling.	20								
			25								

The discussion in the text under the section titled, SUBSURFACE CONDITIONS, is necessary for a proper understanding of the nature of the subsurface material.

FIGURE 3C

Project Name: Utah National Guard American Fork Armory

Project No.: 0461-005-08

Location: 251 South 200 East, American Fork, Utah

Client: Harris & Associates, Inc.

Drilling Method: 3-3/4" ID Hollow-Stem Auger

Date Drilled: 09-30-08

GSH Field Rep.: RJG

Elevation: Overall Site Approximately 4583' +/-

Water Level: No groundwater encountered (09-30-08 & 10-07-08)

Remarks: _____

Graphical Log	Water Level	DESCRIPTION	DEPTH FT.	BLOWS/FT	SAMPLE SYMBOL	MOISTURE (%)	% PASSING 200	DRY DENSITY (PCF)	Liquid Limit (%)	Plastic Limit (%)	REMARKS
		Ground Surface	0								
		4" ASPHALT CONCRETE									
		8" ROADBASE, FILL gray, FILL		31	▲▼						moist medium dense
		SILTY SAND AND GRAVEL, FILL fine to coarse sand; fine and coarse gravel; brown, FILL (SM/GM)									
		SILTY CLAY with some fine sand; brown (CL)		8	▲▼	18.4		105			moist medium stiff
			5								
		CLAYEY SAND with occasional layers up to 4" thick of silty fine to coarse sand with fine and coarse gravel; fine sand; brown (SC)		6	▲▼	13.5		109			moist loose
		SILTY CLAY with some fine sand and occasional fine and coarse gravel; brown (CL)		19	▲▼	11.3		126			moist stiff
			10								
		SILTY SAND AND GRAVEL fine to coarse sand; fine and coarse gravel; brown (SM/GM)									moist medium dense
			15								
				68	▲▼						
		Stopped drilling at 15.0'. Stopped sampling at 16.5'. Installed 1-1/4" diameter slotted PVC pipe to 16.5'. No groundwater encountered at time of drilling.	20								
			25								

The discussion in the text under the section titled, SUBSURFACE CONDITIONS, is necessary for a proper understanding of the nature of the subsurface material.

FIGURE 3D

Project Name: Utah National Guard American Fork Armory

Project No.: 0461-005-08

Location: 251 South 200 East, American Fork, Utah

Client: Harris & Associates, Inc.

Drilling Method: 3-3/4" ID Hollow-Stem Auger

Date Drilled: 09-30-08

GSH Field Rep.: RJG

Elevation: Overall Site Approximately 4583' +/-

Water Level: No groundwater encountered (09-30-08) 20.2' (10-07-08)

Remarks: _____

Graphical Log	DESCRIPTION	DEPTH FT.	BLOWS/FT	SAMPLE SYMBOL	MOISTURE (%)	% PASSING 200	DRY DENSITY (PCF)	Liquid Limit (%)	Plastic Limit (%)	REMARKS	
	Ground Surface	0								loose to 1" dry moist medium dense	
	GRAVEL, FILL fine gravel; gray, FILL (GP)										
	SILTY SAND AND GRAVEL, FILL fine to coarse sand; fine and coarse gravel; brown, FILL (SM/GM)		12								moist loose
	CLAYEY SAND AND GRAVEL, FILL fine to coarse sand; fine and coarse gravel; brown, FILL (SC/GC)										
	SILTY CLAY with some fine to coarse sand and fine and coarse gravel; brown (CL)	5	16		14.9		111				moist stiff
	SILTY SAND fine sand; brown (SM)		8								moist loose
	CLAYEY SAND/SANDY CLAY with occasional fine and coarse gravel; fine sand; brown (SC/CL)	10	12		17.0		104				moist
	SILTY SAND AND GRAVEL fine to coarse sand; fine and coarse gravel; brown (SM/GM)										no recovery
		15	100+								
	Auger refusal at 23.5'. Stopped sampling at 21.5'. No groundwater encountered at time of drilling. Installed 1-1/4" diameter slotted PVC pipe to 23.5'.	20	46								saturated very dense
	25										

The discussion in the text under the section titled, SUBSURFACE CONDITIONS, is necessary for a proper understanding of the nature of the subsurface material.

FIGURE 3E

Project Name: Utah National Guard American Fork Armory

Project No.: 0461-005-08

Location: 251 South 200 East, American Fork, Utah

Client: Harris & Associates, Inc.

Drilling Method: 3-3/4" ID Hollow-Stem Auger

Date Drilled: 09-30-08

GSH Field Rep.: RJG

Elevation: Overall Site Approximately 4583' +/-

Water Level: No groundwater encountered (09-30-08)

Remarks: _____

Graphical Log	Water Level	DESCRIPTION	DEPTH FT.	BLOWS/FT	SAMPLE SYMBOL	MOISTURE (%)	% PASSING 200	DRY DENSITY (PCF)	Liquid Limit (%)	Plastic Limit (%)	REMARKS	
		Ground Surface	0									
		GRAVEL, FILL fine gravel; gray, FILL (GP)									loose to 1" dry slightly moist no recovery	
		SILTY SAND, FILL with some fine and coarse gravel; fine to coarse sand; brown, FILL (SM)		9								
		CLAYEY SAND fine sand; brown (SC)	5								moist loose	
		SANDY CLAY/CLAYEY SAND with occasional fine and coarse gravel; fine sand; brown (CL/SC)		9		23.4		93				moist medium stiff
		SANDY CLAY/CLAYEY SAND with occasional fine and coarse gravel; fine sand; brown (CL/SC)		10		17.2		103				slightly moist very dense
		SILTY SAND AND GRAVEL fine to coarse sand; fine and coarse gravel; brown (SM/GM)									slightly moist very dense	
			15	69+								
		Stopped drilling at 15.0'. Stopped sampling at 16.5'. No groundwater encountered at time of drilling.	20									
			25									

The discussion in the text under the section titled, SUBSURFACE CONDITIONS, is necessary for a proper understanding of the nature of the subsurface material.

FIGURE 3F

UNIFIED SOIL CLASSIFICATION SYSTEM

FIELD IDENTIFICATION PROCEDURES				GRAPH SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS More than half of material is larger than No. 200 sieve size. \geq (The No. 200 sieve size is about the smallest particle visible to the naked eye)	GRAVELS More than half of coarse fraction is larger than No. 4 sieve size. (For visual classifications, the 1/4" size may be used as equivalent to the No. 4 sieve size.)	CLEAN GRAVELS (Little or no fines)	Wide range in grain size and substantial amounts of all intermediate particle sizes.		GW	Well graded gravels, gravel-sand mixtures, little or no fines.
		GRAVELS WITH FINES (Appreciable amount of fines)	Predominantly one size or a range of sizes with some intermediate sizes missing.		GP	Poorly graded gravels, gravel-sand mixtures, little or no fines.
			Non-plastic fines (for identification procedures see ML below).		GM	Silty gravels, poorly graded gravel-sand-silt mixtures.
		SANDS More than half of coarse fraction is smaller than No. 4 sieve size. (For visual classifications, the 1/4" size may be used as equivalent to the No. 4 sieve size.)	CLEAN SANDS (Little or no fines)	Wide range in grain sizes and substantial amounts of all intermediate particle sizes.		SW
	SANDS WITH FINES (Appreciable amount of fines)		Predominantly one size or a range of sizes with some intermediate sizes missing.		SP	Poorly graded sands, gravelly sands, little or no fines.
			Non-plastic fines (for identification procedures see ML below).		SM	Silty sands, poorly graded sand-silt mixtures.
	PLASTIC FINES (Appreciable amount of fines)		Plastic fines (for identification procedures see CL below).		SC	Clayey sands, poorly graded sand-clay mixtures.

1 Boundary classifications: -Soils possessing characteristics of two groups are designated by combinations of group symbols. For example GW-GC, well graded gravel-sand mixture with clay binder.
2 All sieve sizes on this chart are U.S. standard.

GENERAL NOTES

1. In general, Unified Soil Classification Designations presented on the logs were evaluated by visual methods only. Therefore, actual descriptions (based on laboratory testing) may differ.
2. Lines separating strata on the logs represent approximate boundaries only. Actual transitions may be gradual.
3. Logs represent general soil conditions observed at the point of exploration on the date indicated.
4. No warranty is provided as to the continuity of soil conditions between individual sample locations.

LOG KEY SYMBOLS

	Bulk / Bag Sample		Thin Wall
	Standard Penetration Split Spoon Sampler		No Recovery
	Rock Core		3-3/4" ID D&M Sampler
	Water Level		3" ID D&M Sampler
			California Sampler

FINE - GRAINED SOIL		TORVANE	POCKET PENETROMETER	FIELD TEST
CONSISTENCY	SPT (blows/ft)	UNDRAINED SHEAR STRENGTH (tsf)	UNCONFINED COMPRESSIVE STRENGTH (tsf)	
Very Soft	<2	<0.125	<0.25	Easily penetrated several inches by Thumb. Squeezes through fingers.
Soft	2 - 4	0.125 - 0.25	0.25 - 0.5	Easily penetrated 1" by Thumb. Molded by light finger pressure.
Medium Stiff	4 - 8	0.25 - 0.5	0.5 - 1.0	Penetrated over 1/2" by Thumb with moderate effort. Molded by strong finger pressure.
Stiff	8 - 15	0.5 - 1.0	1.0 - 2.0	Indented about 1/2" by Thumb but penetrated only with great effort
Very Stiff	15 - 30	1.0 - 2.0	2.0 - 4.0	Readily indented by Thumb nail
Hard	>30	>2.0	>4.0	Indented with difficulty by Thumb nail

COARSE - GRAINDE SOIL

APPERENT DENSITY	SPT (blows/ft)	RELATIVE DENSITY (%)	FIELD TEST
Very Loose	<4	0 - 15	Easily penetrated with 1/2" reinforcing rod pushed by hand
Loose	4 - 10	15 - 35	Difficult to penetrated with 1/2" reinforcing rod pushed by hand
Medium Dense	10 - 30	35 - 65	Easily penetrated a foot with 1/2" reinforcing rod driven with 5-lb hammer
Dense	30 - 50	65 - 85	Difficult to penetrated a foot with 1/2" reinforcing rod driven with 5-lb hammer
Very Dense	>50	85 - 100	Penetrated only a few inches with 1/2" reinforcing rod driven with 5-lb hammer

STRATIFICATION

DESCRIPTION	THICKNESS
SEAM	1/16 - 1/2"
LAYER	1/2 - 12"
DESCRIPTION	THICKNESS
Occasional	One or less per foot of thickness
Frequent	More than one per foot of thickness

CEMENTATION

DESCRIPTION	DESCRIPTION
Weakly	Crumbles or breaks with handling of slight finger pressure
Moderately	Crumbles or breaks with considerable finger pressure
Strongly	Will not crumbles or breaks with finger pressure

MODIFIERS

DESCRIPTION	%
Trace	<5
Some	5 - 12
With	>12

MOISTURE CONTENT

DESCRIPTION	FIELD TEST
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible water, usually soil below Water Table

FIGURE 4

Addendum #2
American Fork Armory – Structural repairs and upgrades
251 South 200 East
American Fork, Utah
DFCM Project # 08296480

AE701

Add the following General Note to the Finish Schedule on AE701:

GENERAL NOTE: PRIOR TO PAINTING ANY MASONRY, ALL MISCELANIOUS ANCHORS, CLAMPS, ETC. NOT BEING USED OR REUSED TO SUPPORT CONDUITS, PIPES, DUCTWORK, OR WALL HUNG ITEMS SHALL BE REMOVED, AND ANY HOLES, CRACKS, OR SPALLED AREAS IN THE EXPOSED SURFACE OF THE MASONRY SHALL BE PATCHED FLUSH WITH ADJACENT SURFACES USING PATCHING MATERIALS APPROPRIATE FOR TYPE OF DEFECT TO BE FILLED.

Clarification of Questions:

Existing Planter Demolition:

The existing planters on the front of the building, shown to be removed by note 12 on AD101, are to be completely removed including the footings and foundations. See details A10 & A5 on AE301 and H4 on SB501. Reference to AE401 in note 1 on Sheet AE201 should be changed to AE301.

Section 012300 Alternates

Painting of the new shear wall in the garage and any damage to existing walls or ceilings caused by the shear wall installation shall be included in the base bid. Alternate #1 shall include the painting of all the remaining interior walls ceilings and rooms in the Garage.

Building Occupancy:

The entire building will be vacated except for the Garage area. The equipment and materials along the new shear wall will be moved back 9'-0" to the garage side of the temporary wall called out in the previous addendum.

Section 099123 3.3 B

Use block filler compatible with previously painted surfaces, at existing painted CMU walls, as a prime coat.