



April 7, 2005  
Job No. 3-817-004355

EMA Architects, L.L.C.  
460 South 400 East  
Salt Lake City, Utah 84111

**Attention: Mr. Pat Roach**

Gentlemen:

Re: Discussions  
Geotechnical Considerations  
Proposed Cottonwood Heights Branch  
Mountain America Credit Union  
Approximately 6400 South on the  
East Side of 3000 East Street  
Cottonwood Heights, Utah

## 1. GENERAL

This letter summarizes our review of the Site Grading drawings developed for the referenced facility<sup>1</sup>. In addition discussions pertaining to the overall geotechnical setting of the site are summarized. Detailed geotechnical recommendations for the design and construction for the facility were presented previously. A summary memorandum developed for the building site and a similar structure ultimately submitted to the owner is attached. It should be noted that the original design concept included a subgrade level below a portion of the footprint. It is our understanding that the present concept will have the first level established at grade.

## 2. DISCUSSIONS AND RECOMMENDATIONS

### 2.1 GEOTECHNICAL CONSIDERATIONS

The site is presently underlain by significant amounts of non-engineered fills and hydraulically deposited "washout fines." It is essential that these materials be removed from an area extending out at least three to five feet from the perimeter of the proposed structure and that the removed materials be replaced with granular structural fill. The proposed structure may then be

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<sup>1</sup> Mountain American Credit Union, Site Plan, Utility Plan, Grading Plan, Storm Drain Plan and Profile, Sheet Nos. 1 of 4, 2 of 4, 3 of 4, 4 of 4, File No. 46721, Dated August 3, 2004 and February 5, 2005, Prepared by Bush & Gudgell Engineers, Inc.

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supported upon the replacement structural fill extending to suitable natural soils. By following this procedure, moderately high bearing pressures can be utilized with resulting settlements being well within tolerable limits. The memorandum that is attached basically summarizes the earthwork operations projected for the original proposed design concept. These recommendations, however, are also applicable for the present design.

Also within the last number of years, the question was raised by Salt Lake County pertaining to the liquefaction potential of the saturated granular natural soils at the site. A letter transmitting a log of boring drilled in the immediate area and the results of our liquefaction analysis were submitted to the County at that time. The results of the analysis indicated that the probability of liquefaction occurring even during a major seismic event was minimal.

## 2.2 DRAWINGS

Review of the drawings indicates that the site grading plan is in compliance with our previous geotechnical recommendations.

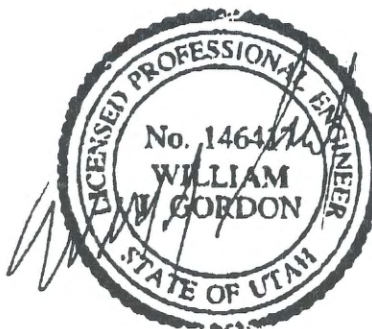
We appreciate the opportunity of providing this service for you. If you have any questions or require additional information, please do not hesitate to contact us.

Respectfully submitted,

**AMEC Earth & Environmental, Inc.**

A handwritten signature in black ink, appearing to read 'William J. Gordon'.

William J. Gordon, State of Utah No. 146417  
Professional Engineer



WJG/sn

Encl. Memorandum Dated February 23, 2003

Addressee (3)



## Memorandum

**To** Don Billings – Cottonwood Realty Service      **Job No.**  
Stuart Adams – PSOMAS

**From** Bill Gordon – AMEC

**Date** February 27, 2003

**Subject** Credit Union  
Lot 12, Cottonwood Corporate Center  
Salt Lake County, Utah

- Strip surface vegetation, topsoil, and deleterious material. - Dispose off site.
- Remove non-engineered embankment fill (mostly granular) from area to ultimately be structurally loaded. - Stockpile.
- The area of building will then be basically at 4635± feet.
- Excavate all fill beneath the area extending six feet beyond the building limits to natural soils. Mostly washout fines. Average depth 11 feet (could range from 4 to 20 feet).
- May run into some water especially in the spring and early summer months.
- From an economic standpoint have to use on-site soils for structural fill. May have to blend washout fines with more granular soil.
- Compacted to 95 percent of AASHTO<sup>1</sup> T-180 (ASTM<sup>2</sup> D-1557) compaction criteria.
- Backfill to approximate footing elevation in basement and non-basement areas of proposed credit union and the footing elevation in restaurant pad.

WJG:sn

Encl. Calculation Sheet  
Cross-sections

A handwritten signature in black ink, appearing to be "Bill Gordon", written in a cursive style.

<sup>1</sup> American Association of State Highway and Transportation Officials  
<sup>2</sup> American Society for Testing and Materials

AREA OF CREDIT UNION

After initial site preparation site will be at approximate grade 4635'

Strip all existing fills out from an area extending 6' beyond perimeter of the building. This includes work out fines and general nonengineered fills. Ave depth of excavation will be 11' ±

Excavation  $\frac{138' \times 113' \times 11'}{27} = 63537 \text{yd}^3 \times \frac{2.50}{\text{yd}^3} = \underline{\underline{\$15,883}}$

Backfill back to 4620' beneath basement & 4637.5' beneath drive under. This will bring fill to projected footing elevation.

Backfill to 4630'

$\frac{134' \times 107' \times 6'}{27} \times \frac{3.50}{\text{yd}^3} = \underline{\underline{\$11,152}}$

Backfill to 4627.5' Beneath Drive Under

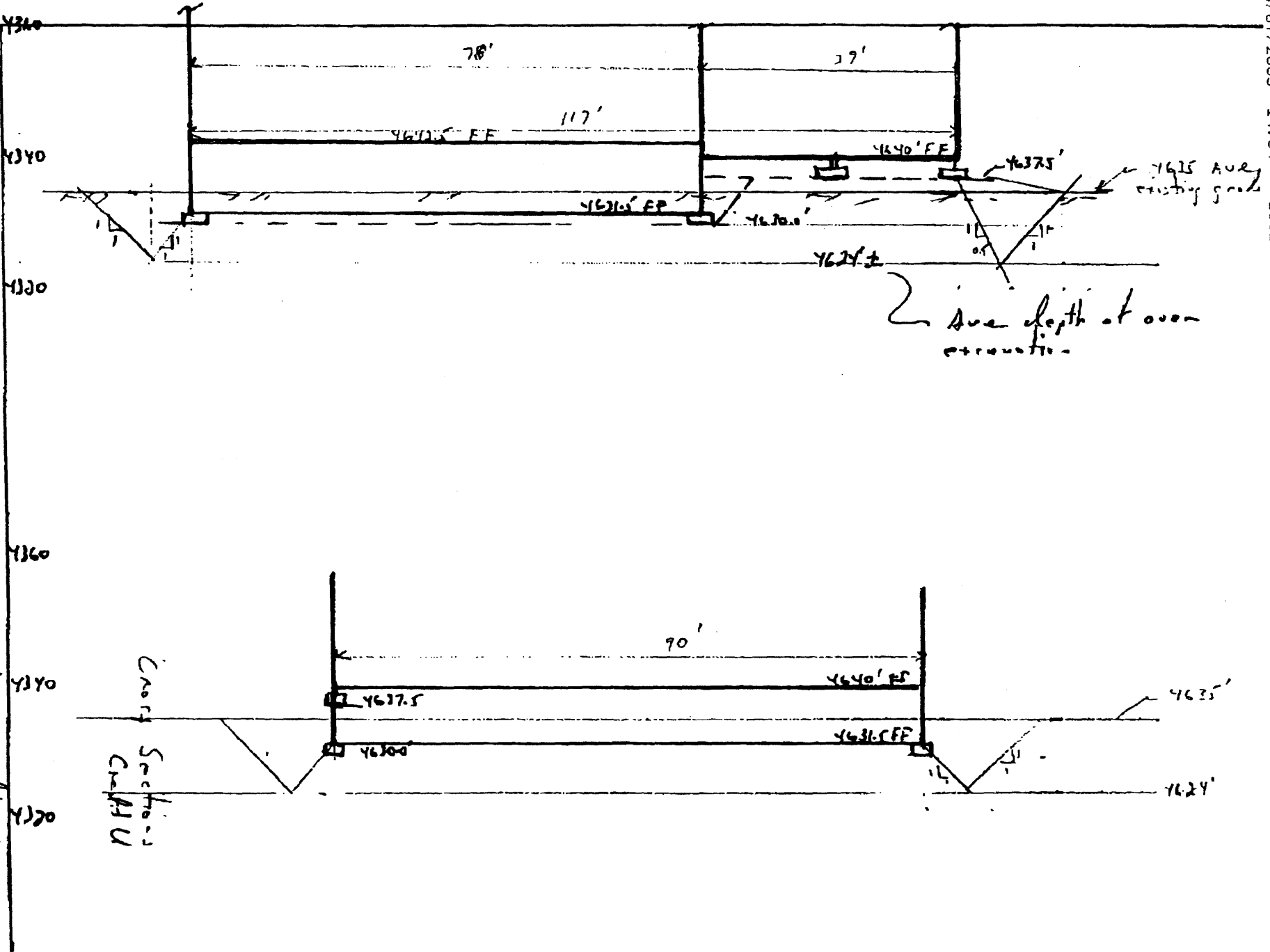
$\frac{118' \times 127' \times 7.5'}{27} \times \frac{3.50}{\text{yd}^3} = \underline{\underline{\$5740}}$

\$ 32,275

AREA OF RESTURANT MAN

Excavate & Backfill from 4625' to over depth of 10'

$\frac{(66 \times 130)(10)}{27} \times (2.50 + 3.50) = (3178 \text{yd}^3)(6) = \underline{\underline{\$19,066}}$



Check Sections  
Credly U



Earth & Environmental, Inc.

Project Lot 14 Credit Un.  
 Job No. \_\_\_\_\_  
 Computed by \_\_\_\_\_ Ckd. by \_\_\_\_\_  
 Date 2/27/03 Page \_\_\_\_\_ of \_\_\_\_\_



PLANNING • ARCHITECTURE • INTERIORS

**Fax Transmittal**

**Date:** April 7, 2005

**To:** Michael Black  
City Planner

**At:** Cottonwood Heights City Office

**Fax number:** (801) 545-4150

**From:** Patrick M Roach  
Intern Architect/Project Manager  
EMA Architects

**Project:** 2003-02 MACU – Cottonwood Heights Branch

**Number of pages (including cover): 6**

**Regarding: Geotechnical Letter from AMEC – Bill Gordon**

**Michael,**

**If you have any questions, please give me a call.**

**Thanks!!**