Cal-Tech Testing, Inc.

- Engineering
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November 5, 2007

Freeman Design Group, Inc.
161 NW Madison Street, Suite 102
Lake City, Florida 32055

Attention: Mr. Travis A. Medeiros

Reference: Report of Subsurface Exploration
Rigsby Carwash
1789 E. Duval Street
Lake City, Columbia County, Florida
Cal-Tech Project No. 07-00543-01

Dear Mr. Medeiros:

Cal-Tech Testing, Inc. (CTI) has completed the subsurface exploration and engineering evaluation for the proposed carwash located at 1789 E. Duval Street in Lake City, Columbia County, Florida. Our work was verbally authorized by you on October 29, 2007.

Introduction

The purpose of this exploration was to develop information concerning the site and subsurface conditions in order to evaluate site preparation requirements and foundation support alternatives for the proposed carwash facility. This report briefly describes the field activities and presents our findings.

We understand, the proposed construction will include a one-story building for use as a carwash facility with 3 self-serve bays and one automatic bay. We understand the construction will consist of Concrete Masonry Unit (CMU) walls supported on shallow foundation system. Detailed structural loading information has not been provided; however, we assume that bearing walls and individual column loads will not exceed 3 kips per lineal foot and 25 kips, respectively. We assume that soil-supported floor loads (dead load plus live load) will not exceed 150 psf. We assume that less than two feet of earthwork fill will be required to achieve desired finished grade elevations.

Site Conditions

The existing site conditions within the limits of the proposed construction were observed by our drill crew on October 29, 2007. At the time of our site visit, the ground surface was grass covered, and the site topography was relatively level with elevation difference of approximately two feet across the proposed building area.

Field Program

Our field program consisted of performing two (2) Standard Penetration Test (SPT) borings extending to a depth of 15 feet below the existing ground surface. The borings were performed at the approximate locations indicated on the attached Field Exploration Plan (Figure No. 1). The boring locations were determined in the field and measured by tape and turning approximate right angles from existing features, the boring locations should be considered only as accurate as the method used.

The sampling and penetration procedures of the Standard Penetration Test (SPT) boring was accomplished in general accordance with ASTM D-1586, using a power rotary drill rig. The SPT boring was performed by driving a standard 1-3/8'' I.D. and 2.0'' O.D. split spoon sampler with a 140 pound hammer falling 30 inches. The number of hammer blows required to drive the sampler a total of 18 inches, in 6 inch increments, were recorded. The penetration resistance or "*N*" value is the summation of the last two 6 inch increments and is illustrated on the attached boring log adjacent to their corresponding depths. The penetration resistance is used as an index to derive soil parameters from various empirical correlations.

Subsurface Conditions

In general, the soil profile as disclosed by SPT borings B-1 and B-2 consisted of about 12 inches of dark brown, silty fine sand (SP-SM), with trace of organic (TOPSOIL). This surficial cover was underlain by 2 to 3 feet of tan to brown, silty fine sand (SM-SP). Beneath this stratum, the soil profile consisted of about 11 to 12 feet of reddish tan to yellowish tan, slightly silty fine sand (SP). These soils have a very loose to loose relative density with standard penetration resistance or "*N*" values ranging from 2 to 10 Blows Per Foot (BPF).

For a more detailed description of the subsurface conditions encountered, please refer to the attached Generalized Subsurface Profile (Figure No. 1). Note that the transition between soil types may be gradual and not abrupt as indicated by the boring logs; therefore, the thickness of soil layers should be considered approximate.

Groundwater

The depth to the groundwater was measured at the boring locations at the time of completion of drilling. The groundwater table was encountered at depths of 14'-8" and 14'-7" below the existing ground surface at the location of borings B-1 and B-2, respectively. We note that due to the relatively short time frame of the field exploration, the groundwater may not have had sufficient time to stabilize. For a true groundwater level reading, piezometers may be required. In any event, fluctuation in groundwater levels should be expected due to seasonal climatic changes, construction activity, rainfall variations, surface water runoff, and other site-specific factors. Since groundwater level variations are anticipated, design drawings and specifications should accommodate such possibilities and construction planning should be based on the assumption that variations will occur.

Discussion and Recommendations

The subject site is considered acceptable for the support of the proposed facility on a conventional shallow foundation system. Provided individual column footings and continuous wall footings bear on compacted acceptable existing soils or newly placed structural fill soils, the shallow foundation may be designed using an allowable net soil bearing pressure of 2,500 psf.

Due to the relatively low relative density of the upper soils, it is recommended the exposed subgrade be proofrolled and proof compacted to a minimum depth of 6 feet below the existing ground surface prior to concrete placement. This may require the overexcavation and recompaction of the upper 6 feet of the existing soils. Soils should be proof compacted to a minimum of 95% of the modified Proctor maximum dry density (ASTM D-1557). All properly compacted structural fill should consist of non-plastic, inorganic, granular soil containing less than 10 percent material passing the 200 mesh sieve (i.e., relatively clean sand).

Pavement subgrade should be compacted to a density of at least 98 percent of the modified Proctor maximum dry density (ASTM D-1557) to a depth at least 12 inches below the bottom of the concrete/asphalt slab. Control joints should be provided for crack control every 10 to 15 feet. Concrete used for pavement construction should have a minimum 28-day compressive strength of 3,500 psi.

The exploration and recommendations are based upon subsurface conditions encountered at a specific locations and time as presented within this report. However, subsurface conditions may exist that differ from our findings. We request that we be notified if dissimilar subsurface conditions are encountered.

We appreciate the opportunity to be of service on this project and look forward to a continued association. Should you have questions concerning this report or if we may be further service, please contact this office.

Respectfully submitted,
Cal-Tech Testing, Inc.

David B. Brown
Executive Vice President

Nabil O. Hmeidi, P.E. 11/5/07
Senior Geotechnical Engineer
Licensed, Florida No. 57842

Attachments: *Field Exploration Plan & Generalized Subsurface Profile (1 page)*

Distribution: *Field (1 copy)*
Addressee (2 copies)

APPENDIX