

# GORE ENGINEERING, INC.

644-7679

## SOIL AND FOUNDATION INVESTIGATIONS

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BORINGS  
ANALYSES

TESTING  
REPORTS

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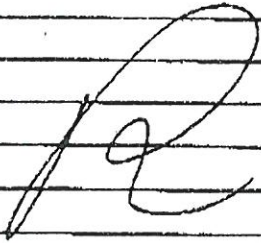
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**SUBSOIL INVESTIGATION  
COUNTRY LAQUINTA INN HOTEL  
HOLIDAY BUSINESS PARK - LOT 2  
VICINITY SERVIC & AIRPORT ROADS  
SLIDELL, LOUISIANA**

## INTRODUCTION

1. This report contains the results of a subsoil foundation investigation made at the subject site. Instructions to proceed with the investigation were received on March 21, 2007 from David A. Luparello of Dapco Ventures, LLC, General Contractors for the project. Dammon Engineering, Inc. are the Consulting Engineers for the project. The study was made for LaQuinta Inn.

2. The study included the drilling of soil test borings to determine subsurface conditions and stratification and the performance of soil mechanics laboratory tests on samples obtained from the borings to evaluate their physical characteristics. Engineering analyses were made, based on the borings and test data to develop criteria to be used in foundation design.

## SOIL BORINGS

### Field Exploration

3. Two (2) undisturbed sample type soil test borings (B-1 and B-2) were drilled to depths of 15 to 40 ft. on May 7, 2007. The borings were made at locations accessible to our truck mounted drill rig and approximately as shown in plan on Figure 1. The boring locations were identified in the field by David A. Luparello. Undisturbed sampling was performed

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continuously in all cohesive or semi-cohesive materials with a three inch diameter thin wall tube sampler. Representative samples were cut from the cores and placed in moisture proof containers for preservation until laboratory testing could be performed. Logs of the individual borings showing the detailed stratification and sample depths are given on Figures 2 and 3.

### LABORATORY TESTS

4. In order to develop the physical properties of the soils, soil mechanics laboratory tests were performed on samples obtained from the borings. This testing consisted primarily of Natural Moisture Content, Unit Weight and Unconfined Compression. Atterberg Limits tests were performed on selected cohesive samples. The results of all the laboratory tests are tabulated along side the boring logs at the appropriate sample and depth on Figures 2 and 3.

5. The Unconfined Compression strength tests are used in analyses to determine soil bearing values for spread footing foundations. They also give a measure of "skin friction" values used to estimate pile load capacities. The Atterberg Limits along with the Natural Moisture Content tests give an indication of the compressibility of the soils and are used empirically to estimate settlements and the potential for volumetric change.

### SUBSOIL CONDITIONS

#### Subsoil Description

6. Reference to the logs of borings B-1 and B-2 shows that beginning at the ground surface there is about 6 inches of soft dark brown silty clay with sand and roots and then soft to medium stiff tan sandy clay to the 2 ft. depth. These near surface soils are underlain by

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stiff to very stiff reddish tan and gray sandy clay to the 6½ to 7 ft. depth and then generally by medium stiff to very stiff light gray silty clay to the 9½ to 11½ ft. depth. Below this there is soft to medium stiff gray and reddish tan silty clay. Boring B-2 was terminated in this stratum at the 15 ft. depth, but it continues to the 19½ ft. depth in boring B-1. Beginning at this depth in boring B-1 there is medium stiff to stiff reddish tan or greenish gray sandy clay or clay to the 28½ ft. depth. The remainder of the explored depth of 40 ft. in boring B-1 consists of soft to medium stiff gray sandy clay.

7. Groundwater At the time of making the borings, groundwater was measured at depths of 3.8 and 4.5 ft. below the existing ground surface elevation in borings B-2 and B-1, respectively. Groundwater was measured shortly after making the borings and may not have become fully static at the time of measurement. In any event, groundwater could fluctuate due to seasonal precipitation, drainage, prolonged drought, etc. Also, a "perched" groundwater table could develop at the site. This occurs as surface rainwaters are trapped in the upper more permeable soft dark brown silty clay and soft to medium stiff tan sandy clay, underlain by less permeable stiff to very stiff reddish tan and gray sandy clay. If groundwater is important to construction, it should be measured at that time.

### FOUNDATION ANALYSIS

8. It is understood that the proposed construction will consist of a new LaQuinta Inn Hotel at the subject site. This will include a three (3) story building, nominally 10,840 square ft. in plan, in the general area of borings B-1 and B-2 and approximately as shown in plan on Figure 1. Design structural loads are not known at this time, but they are anticipated to

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be nominal and typical of this type facility. It is further understood that 2 to 3 ft. of fill will be needed to raise the site grade in the area of the proposed building.

9 The near surface soft dark brown silty clay and the underlying soft to medium stiff tan sandy clay that were encountered to about the 2 ft. depth in borings B-1 and B-2 are poor in bearing quality and should not be relied on for structural support. The underlying stiff to very stiff reddish tan and gray sandy clay is fair in bearing quality and is believed capable of supporting the proposed building on spread footing foundation provided that it is well drained prior to, during and subsequent to construction and that good rigidity is assured in the structure foundation, as will be discussed. Consequently, analyses were made with regard to spread footings and the results are given in the following section.

### Spread Footing Foundations

10 Allowable Soil Bearing Capacities Based on an analysis of borings B-1 and B-2, it has been determined that an allowable soil bearing capacity of 1,500 lbs. per sq. ft. is available for design of square spread footings up to 6 ft. in width. For continuous footings up to 3 ft. in width, an allowable soil bearing capacity of 1,200 lbs. per sq. ft. is recommended for design. These allowable soil bearing capacities assume that the spread footings are seated in firm, naturally occurring and well drained stiff to very stiff reddish tan and gray sandy clay that begins at about the 2 ft. depth below ground surface in borings B-1 and B-2. They contain a factor of safety of 3.0 against failure which is recommended for design, but do not preclude settlements or the effects of volumetric change, as will be discussed.

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11. The allowable soil bearing capacities assume that the spread footings are seated in firm, naturally occurring and well drained stiff to very stiff reddish tan and gray sandy clay that begins at about the 2 ft. depth below ground surface in borings B-1 and B-2. Prior to construction, the area of the structure foundation should be stripped of all vegetation, the near surface soft dark brown silty clay and the underlying soft to medium stiff tan sandy clay, soft or loose surface soils, deleterious materials, etc. and should be well drained. It should be recognized that stiff to very stiff reddish tan and gray sandy clay is susceptible to a decrease in shear strength when subjected to free water and good drainage prior to, during and subsequent to construction is essential. It should also be noted that the poor quality near surface soils are distinguishable by their low consistency and distinctive color.

12. In view of the limited number of borings that were made at the site, the depth and extent of the near surface poor quality soils may vary throughout the site. If the depth of excavation for soil removal and fill placement is considered prohibitive, then piles are recommended for support of all structural loads including the ground floor slab and any sensitive pavements. If this case arises, our office will be available to perform additional geotechnical analyses in this regard.

13. All excavated material should be replaced with controlled-compacted structural fill. The structural fill, which could also be used to raise the site grade, could consist of a red clay-sand type material having less than 30 percent fines passing the No. 200 Sieve. It should be compacted to at least 95 percent of Maximum Dry Density at Optimum Moisture Content according to ASTM D-698. In-place density measurements should be taken to assure