



Report of Geotechnical Exploration

Project:

Proposed Residential Structure

Palmetto Drive, Lot 8
Gulf Shores, Alabama

GeoCon Project No. DL 3550-22

Prepared For:

Mr. Luke Hayes
McCurley & Associates, LLC
P.O. Box 3975
Gulf Shores, Alabama 36547

Date: September 2, 2022

Prepared By:

GeoCon Engineering & Materials Testing, Inc.
22885 McAuliffe Drive
Robertsdale, Alabama 36567



September 2, 2022

McCurley & Associates, LLC
P.O. Box 3975
Gulf Shores, Alabama 36547

Attn: Mr. Luke Hayes

RE: Report of Geotechnical Exploration
Proposed Residential Structure
Palmetto Drive, Lot 8
Gulf Shores, Alabama
GeoCon Project No. DL 3550-22

Dear Mr. Hayes:

GeoCon Engineering & Materials Testing, Inc. is pleased to submit this report of geotechnical exploration for the above referenced project. Included in this report is a summary of our understanding of the project, results of the field exploration, and our recommendations for site preparation and timber pile foundation design. This testing has been performed in general accordance with our signed proposal.

Enclosed please find our report with evaluations and recommendations followed by an Appendix which includes a Site Location Map, Test Location Plan, graphical logs of the soundings, important notes about your Geotechnical Report and the Terms & Conditions that govern our work.

We appreciate the opportunity to have provided you with our geotechnical engineering services. If you have any questions concerning this report, or if we can be of any further assistance, please contact our office.

Sincerely,

GeoCon, Inc.

A blue ink signature of Hayden R. Mason, written in a cursive style.

Hayden R. Mason, E.I.
Staff Engineer



A blue ink signature of David R. McKee, written in a cursive style.

David R. McKee, P.E.
Geotechnical Engineer

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1.0 Project Description

The project subject to this report is the construction of a new residential structure (house) located on Lot 8 of Palmetto Drive in Gulf Shores, Alabama. The site is shown on the attached Site Location Map (Figure 1). During our August 2022 field exploration, the site was accessible to our equipment.

Based on the provided information, the new house will be an elevated two-story structure that will include wood frame construction, exhibit a footprint of about 1,116 square feet and be supported on timber piles. The finished first floor elevation (FFE) of the house will be raised about 10 feet above the final subgrade surface. A non-structural concrete slab will also be placed below the house for vehicle parking and storage.

Note: If our understanding of the above project information differs from the actual project plans and specifications or if revisions to the project plans are made after this report, we should be contacted for analysis and comment as needed.

2.0 Geotechnical Exploration

Soil conditions were investigated by pushing two (2) Cone Penetration Test (CPT) soundings to depths of about 35 to 37 feet below the existing ground surface. The soil and groundwater conditions encountered are described in detail on the CPT Logs attached in the Appendix. Groundwater conditions are subject to seasonal variations and are expected to fluctuate in response to tidal movements, local variations in precipitation, and drainage conditions. Considering the relatively short time frame of the field exploration, groundwater levels may not have had sufficient time to stabilize. Therefore, actual depths to groundwater may vary.

The test soundings were located in the field by GeoCon personnel using the provided site plans and existing site features as reference. After the final layout is complete, GeoCon should be contacted if the house footprint is not within the test points. The approximate sounding locations are shown on the attached Test Location Plan (Figure 2).

CPT testing was performed in accordance with ASTM D-5778 using a Vertek S4 electronic CPT rig. CPT testing includes pushing an electronic cone on a series of rods into the ground at a constant rate. The electronic cone collects continuous measurements of the resistance to penetration of the cone tip and side friction sleeve. Correlations between Cone Resistance values and Standard Penetration Test (SPT) "N" values were performed using methods developed by Robertson, Campanella and Wightman. The CPT logs attached in the appendix shows the cone tip friction, sleeve friction, pore pressure, correlated "N" value and the soil behavior type (SBT).

3.0 House Pad Preparation

We recommend that areas beneath and 5 feet beyond the footprint of the new house be designated as the “house pad”. The initial phase of construction should include the removal of any surface vegetation, organic topsoil, unsuitable soils, old foundation systems, utilities, buried debris, etc. from within the footprint of the new house so that they do not affect pile installation.

We anticipate that no more than 2 feet of fill will be placed in the house pad area to achieve final subgrade elevations. If more than 2 feet of fill needs to be placed in the house pad area, GeoCon should be contacted for further evaluation. The additional weight of more than 2 feet of fill height could create additional “down-drag” on the piles that have NOT been accounted for in the below compressive capacity.

Structural fill (if any) should be placed in 8-inch loose lifts and compacted to at least 98% ASTM D-698 standard compaction at moisture contents within +/- 3% of the material's optimal moisture content. Once the surface of each lift of structural fill is ready for the next lift, the exposed soil should be maintained at the placed moisture content until the next lift of fill is placed. Structural fill required from an off-site borrow source should meet the city or county color requirements and also the following minimum requirements:

- 1) Exhibit SP or SP-SM classification according to the Unified Soil Classification System
- 2) Have a maximum of 10% soil fines passing the No. 200 sieve
- 3) Have a maximum Liquid Limit (LL) of 20
- 4) Have a Plasticity Index (PI) of 0 (Non-Plastic)
- 5) Have a minimum standard Proctor (ASTM D-698) maximum dry density of 98 pcf

4.0 Recommendations for Pile Foundation

Piles should be at least 0.8 CCA treated to prevent decay and should be driven to firm tip embedment in the native sand strata. Consideration should be given to using 2.5 CCA treated piles to provide longer protection to decay. Timber pile treatment should be in accordance with the American Wood Preservers' Association standard, C3-99 Piles-Preservative Treatment by Pressure Processes.

We understand that timber piles are planned to support the proposed house. Therefore, we have provided recommendations for the design and installation of both round and square timber piles. Allowable single pile compression capacities were determined using conventional static analysis and includes a factor of safety of 2.0 against failure at the pile/soil interface. The AllPile computer software was also utilized to help determine embedment depths and compression capacities.

Please note that the pile capacities presented below are based on design methodologies which account for the increased stresses at the soil/pile interface created by driving piles with a hammer. Piles that are installed by means other than using a pile driving hammer will not exhibit the capacities presented below.

4.1 Compressive Capacities of Round Timber Piles

Round timber piles should conform to ASTM D 25-99 Class B. Table 1 indicates the recommended allowable capacities for single piles in compression based on tip (bottom of pile) diameter and depth.

Table: 1

<i>Allowable Single Round Pile Capacity</i>	
Pile Tip Diameter (in.)	Minimum Pile Tip Embedment Depth (ft)
	15
8	9 tons
9	12 tons
10	14 tons
12	19 tons

4.2 Compressive Capacity of Square Timber Piles

Table 2 indicates the recommended allowable capacities for single square timber piles in compression based on pile width and depth.

Table: 2

<i>Allowable Single Square Pile Capacity</i>	
Pile Size (in.)	Minimum Pile Tip Embedment Depth (ft)
	15
10	16 tons
12	23 tons

Important Note – The pile tip embedment depth in Tables 1 and 2 are based on depths from existing grades at the time of our August 2022 field exploration. If fill is added to the house pad or grades are adjusted prior to pile installation, total pile lengths should be adjusted to account for the added fill height or change in ground elevation. We recommend that the home builder or pile contractor determine the ground elevation prior to construction and establish the pile tip elevation required for each pile. Also, the theoretical pile capacities provided in Tables 1 and 2 should be verified either by pile driving resistance analysis or by load testing. We provide comments regarding pile driving resistance analysis and load testing in the following sections of this report.

4.3 Pile Installation

Again, care should be taken to remove surface vegetation, organic topsoil, unsuitable soils, old foundation systems, utilities, buried debris, etc. prior to pile installation so that pile driving is not affected. Timber pile installation should be performed in general accordance with the Timber Piling Council's, Timber Pile Design and Construction Manual. It is recommended that the piles be installed to the recommended minimum depth indicated to achieve the desired capacity, and that no attempt be made to adjust length to accommodate changes in soil conditions or driving resistance without consulting with GeoCon. If soft driving conditions at the target tip embedment depth are encountered, GeoCon should be contacted for evaluation.

Piles should normally be installed no closer than 3 widths (or diameters) on center. "Pre-drilling" or "jetting" of the piles through the upper soil strata is considered acceptable; however, driving an individual pile should not be performed until at least one day following completion of pre-drilling or jetting the pile. Piles should be pre-drilled or jetted to no closer than 3 feet from the required tip elevation (depending on hammer size). The jetted or pre-drilled holes should not be larger than the pile width. After piles are pre-drilled or jetted in-place and before driving, clean sand soils displaced from the jetting process or off-site clean coarse sand fill should be replaced around the piles. Replacing sand soils following pre-drilling or jetting and prior to driving is very important to help the piles create the skin friction calculated for the provided pile capacity. Improper pile installation can drastically decrease a pile's axial, uplift and lateral loading capacity.

Note: We recommend that one pile be set and driven to help determine the suitable "pre-setting depth" and appropriate driving distance based on the jetting method, driving method and hammer size. The soils at the planned tip elevation consist of dense sands. Proper pile installation and achieving proper pile tip depth without damaging the piles are the responsibility of the pile contractor.

We recommend that a pile driving hammer be used to install the piles so that the pile driving resistance can be recorded (blows required to drive the pile) and the recommended design capacity of each pile verified. Provided that the piles are driven to the proper tip elevation and a record of the driving blows is recorded and provided to GeoCon to confirm the design pile capacity, a pile load test is not required. A pile load test would be required to confirm the recommended single pile axial capacities if the piles are not hammered (driven) to final tip embedment. The test data indicated that the soils along the driving strata are in a dense condition and will require a hammer that will provide sufficient energy to drive the piles to the required depths.

GeoCon should be retained to observe the installation of the piles and perform a pile driving analysis. If load testing is to be conducted, it can be performed in accordance with the provisions of ASTM D-1143, quick test option. This office can provide assistance in planning a load testing program upon request. Please note that GeoCon cannot give a written opinion about the pile installation or anticipated performance of the piles if we are not retained for pile installation monitoring. Again, correct pile installation is critical in the performance of the pile foundation system.

The owner and contractor should be aware that installing piles can potentially cause settlements of nearby structures due to vibrations during the driving process. Nearby structures should be inspected for structural damage or cracks prior to pile installation and should also be monitored during pile installation. Pile driving should stop immediately if any damage to existing structures occurs and GeoCon should be contacted for evaluation and comment.

4.4 Settlement, Uplift, and Lateral Deflection

A better evaluation of potential settlements could be made once actual individual pile loads are established and provided to GeoCon. The uplift capacity (tension) of the piles driven to the target depth may be taken as 15% of the capacity indicated above, plus the dead weight of the pile. The structural and lateral capacity of individual piles that extend above grade to support design loads is beyond the scope of our services and should be verified by the project Structural Engineer. Estimated soil parameters needed for a lateral deflection analysis could be provided upon request.

5.0 Concrete Slab Subgrade Preparation

We anticipate that the house will be elevated above the existing ground surface and will have a concrete slab supported on finished subgrade soils to serve as parking and storage areas. Subgrade soils supporting concrete slabs, driveways, sidewalks, etc. should be compacted to at least 95% ASTM D-698 standard density prior to placement of concrete slabs (following pile installation).

6.0 Closure and Limitations

This report has been prepared for the exclusive use of McCurley & Associates, LLC and their project design professionals for specific application to the above referenced project in accordance with generally accepted current standards of geotechnical engineering practices common to the local area. The only warranty made by GeoCon in connection with the services and recommendations provided in this report is that we have used the degree of skill and care ordinarily exercised by similarly situated professionals in our locality. No other warranty, expressed or implied, is made or intended.

The comments and recommendations of this report provide manageable and reasonable solutions to the advancement of the project based on the collected test data and the provided design information. Significant changes in site conditions or project design may result in alternative solutions to the design required or may permit more manageable and economical construction techniques. Should such significant changes occur, we will be available to offer supplemental comment.

The comments and recommendations of this report are based upon our interpretation of the information supplied by the client, the data collected at the two (2) CPT soundings and the site conditions observed at the time of testing. A significant amount of interpolation was necessary. Because it is not possible to know or predict detailed conditions hidden beneath the ground surface, our comments and recommendations are presented as opinions and judgements, as opposed to statements of fact.

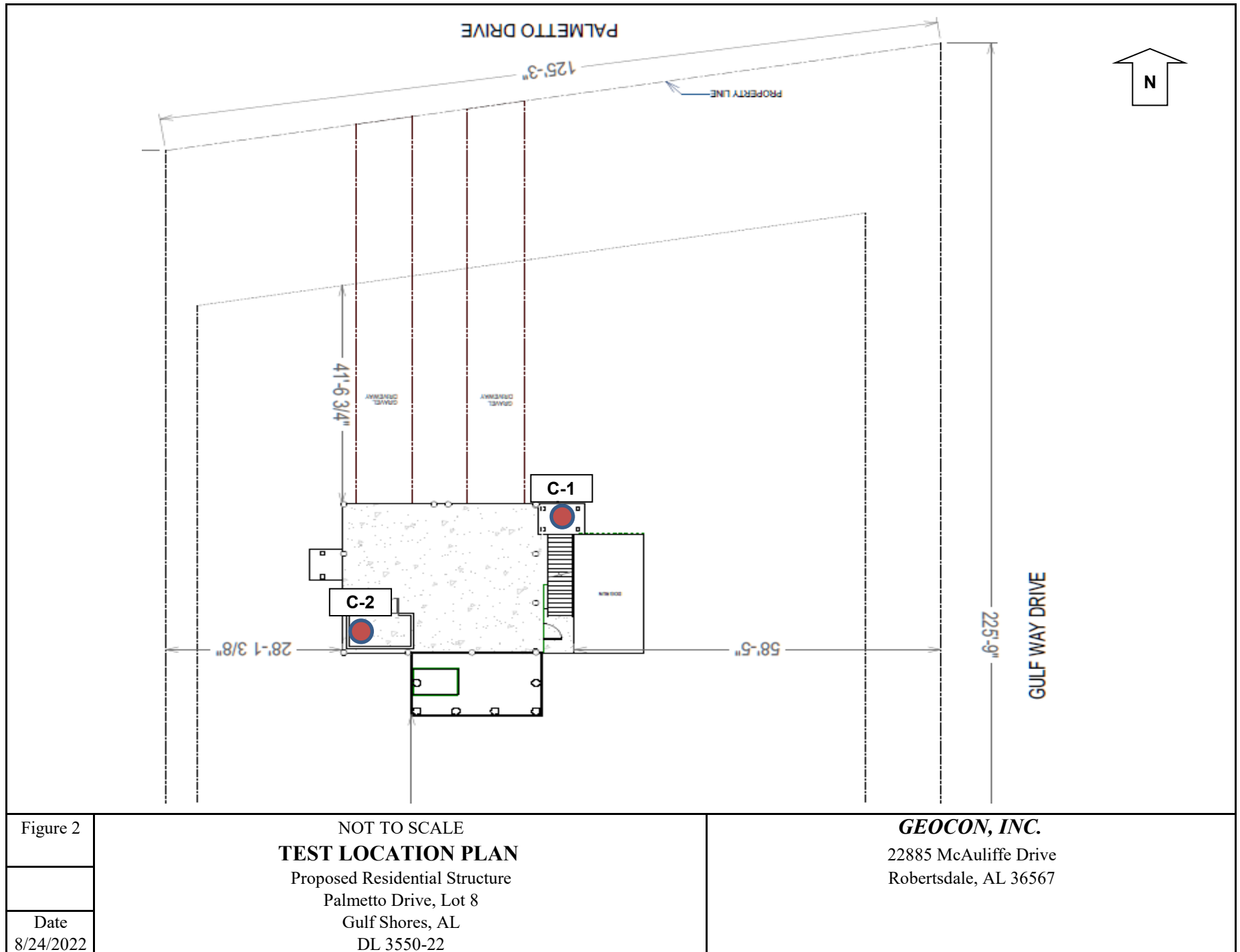
Improper site preparation, extremes in climatic conditions, significant changes in grade, time, etc., can affect the groundwater, surface, and subsurface conditions. If conditions are encountered as the construction advances which vary significantly from those described by this report, we should be contacted for additional comment. Again, we recommend that GeoCon be retained to provide pile installation monitoring for this project so that proper pile installation and the theoretical pile capacities provided in Tables 1 and 2 can be verified.

APPENDIX

- A-1 Site Location Map
- A-2 Test Location Plan
- A-3 Graphical Logs of the Soundings
- A-4 Important Notes About Your Geotechnical Report
- A-5 Terms & Conditions Sheet



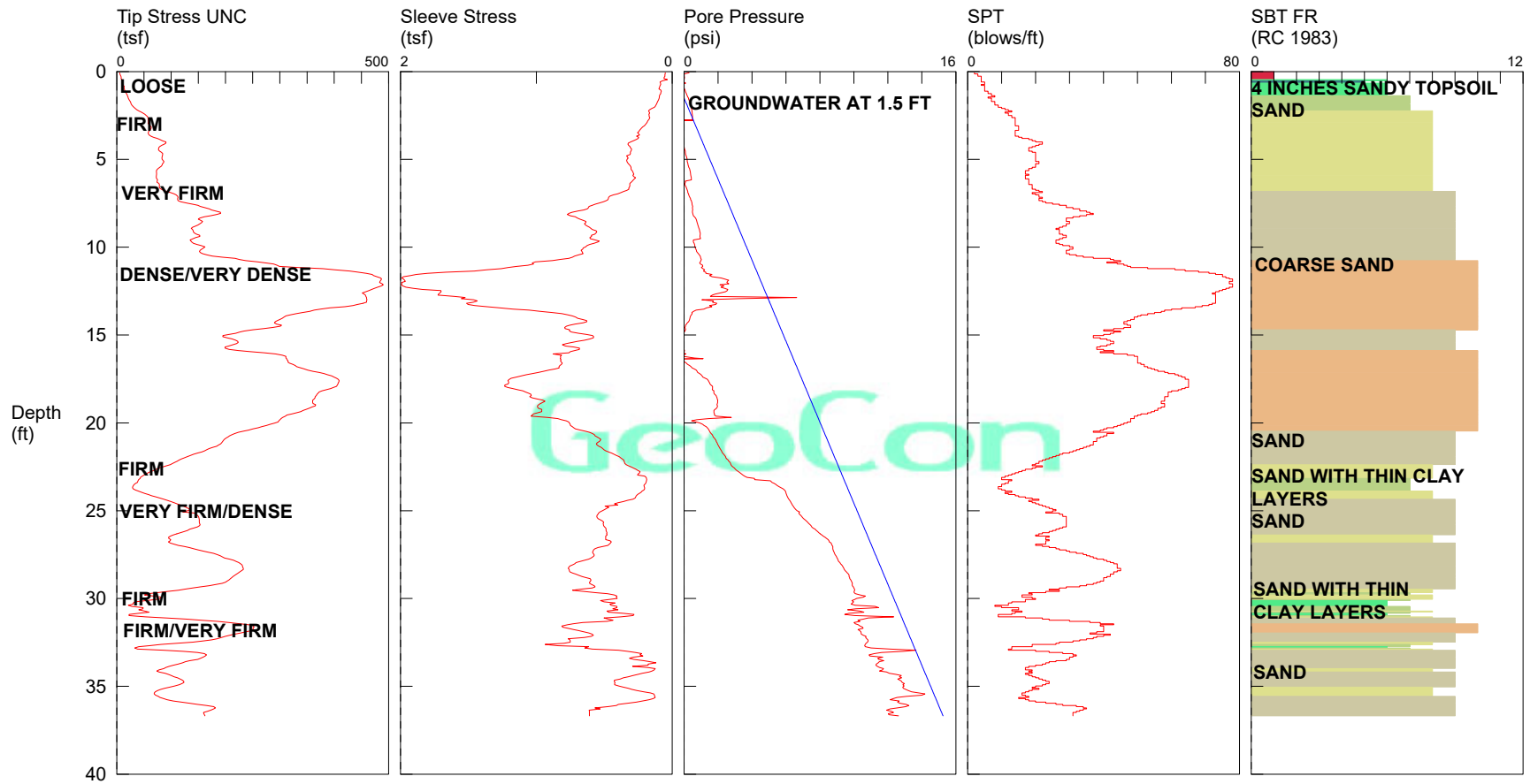
Figure 1	NOT TO SCALE SITE LOCATION MAP Proposed Residential Structure Palmetto Drive, Lot 8 Gulf Shores, AL DL 3550-22	<i>GEOCON, INC.</i> 22885 McAuliffe Drive Robertsdale, Alabama 36567
Date 8/24/2022		



C-1

CPT Testing Done By: GeoCon
 Proposed: Residential Structure
 CUSTOMER: McCurley Associates
 LOCATION: Gulf Shores, AL
 HOLE NUMBER: C-1

JOB NUMBER: DL 3550-22
 TEST DATE: 8/22/2022
 OPERATOR: Bryant Volovecky
 GPS (LAT,LON,ALT): 3014.0960N,08754.1320W,27.0



- 1 sensitive fine grained
- 2 organic material
- 3 clay

- 4 silty clay to clay
- 5 clayey silt to silty clay
- 6 sandy silt to clayey silt

- 7 silty sand to sandy silt
- 8 sand to silty sand
- 9 sand

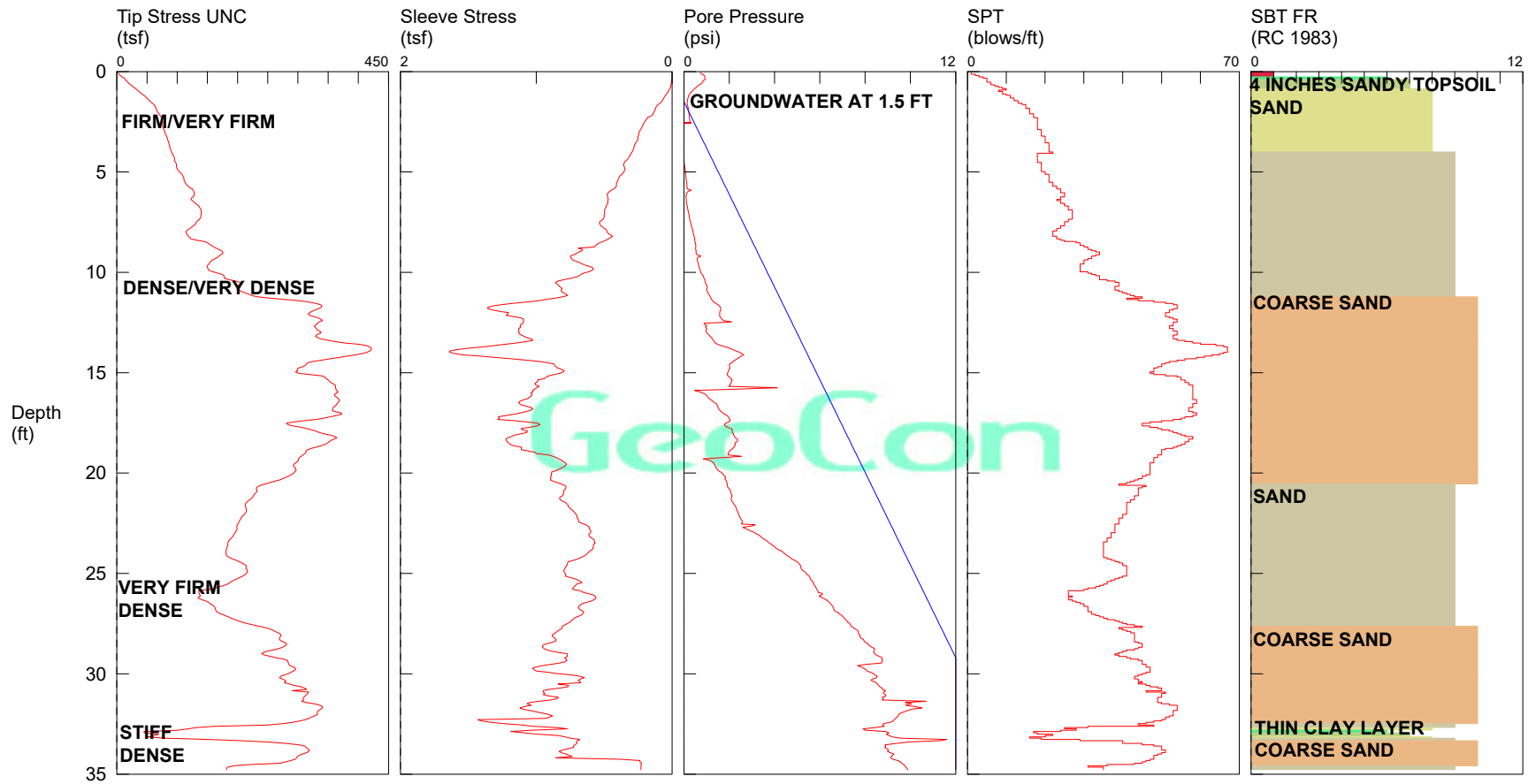
- 10 gravelly sand to sand
- 11 very stiff fine grained (*)
- 12 sand to clayey sand (*)

*SBT/SPT CORRELATION: UBC-1983

C-2

CPT Testing Done By: GeoCon
 Proposed: Residential Structure
 CUSTOMER: McCurley Associates
 LOCATION: Gulf Shores, AL
 HOLE NUMBER: C-2

JOB NUMBER: DL 3550-22
 TEST DATE: 8/22/2022
 OPERATOR: Bryant Volovecky
 GPS (LAT,LON,ALT): 3014.0920N,08754.1370W,5.4



- 1 sensitive fine grained
- 2 organic material
- 3 clay

- 4 silty clay to clay
- 5 clayey silt to silty clay
- 6 sandy silt to clayey silt

- 7 silty sand to sandy silt
- 8 sand to silty sand
- 9 sand

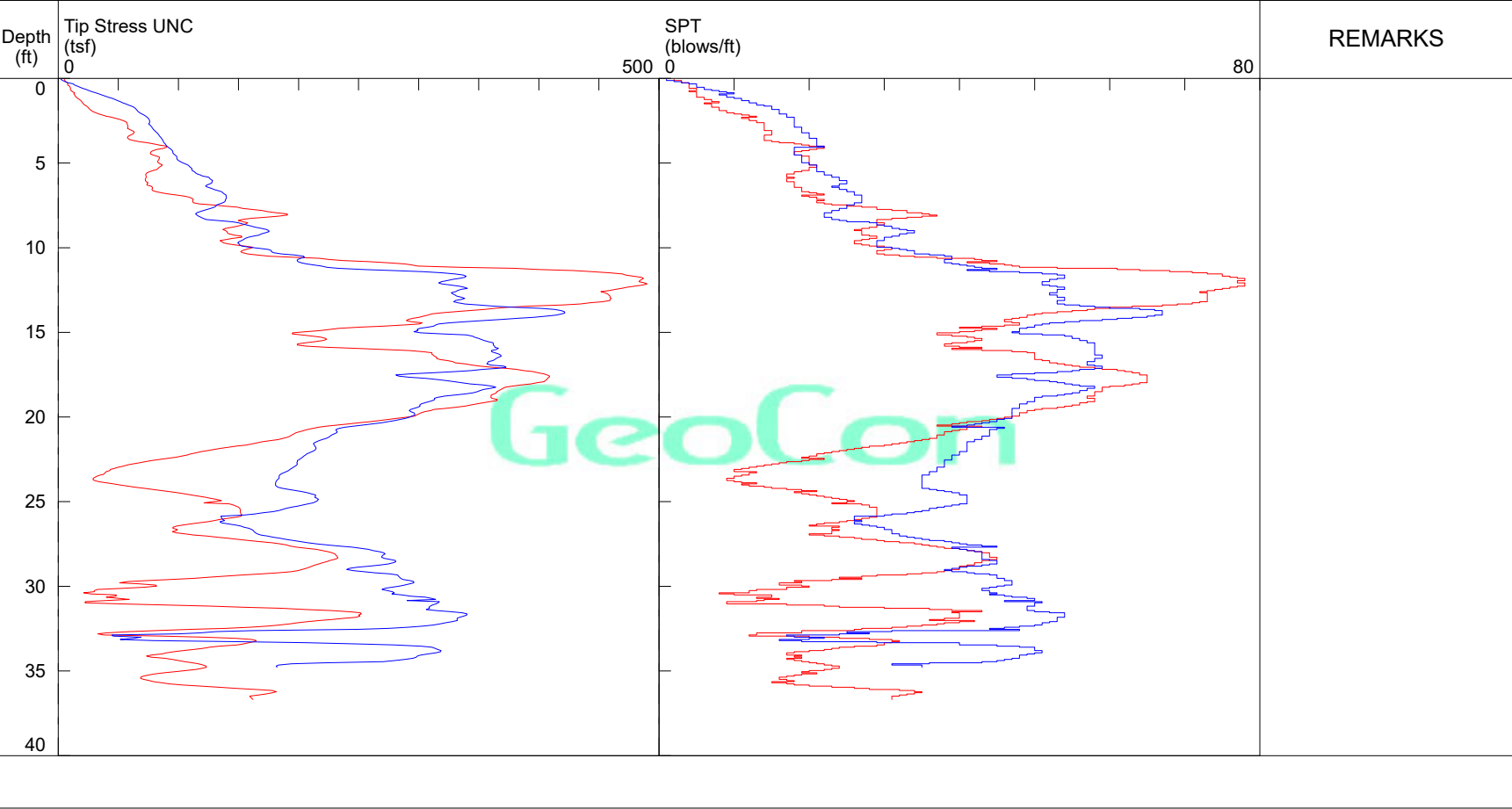
- 10 gravelly sand to sand
- 11 very stiff fine grained (*)
- 12 sand to clayey sand (*)

*SBT/SPT CORRELATION: UBC-1983

PROPOSED: RESIDENTIAL STRUCTURE
CUSTOMER: MCCURLEY ASSOCIATES
JOB NUMBER: DL 3550-22
GULF SHORES, AL

COMBINED SOUNDING PLOT

test #1: C-1.cpt
test #2: C-2.cpt



Important Information about This Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, you can benefit from a lowered exposure to problems associated with subsurface conditions at project sites and development of them that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed herein, contact your GBA-member geotechnical engineer. Active engagement in GBA exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Understand the Geotechnical-Engineering Services Provided for this Report

Geotechnical-engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical-engineering services is typically a geotechnical-engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical-engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

Geotechnical-Engineering Services are Performed for Specific Purposes, Persons, and Projects, and At Specific Times

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical-engineering study conducted for a given civil engineer

will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client.

Likewise, geotechnical-engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical-engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If you are the least bit uncertain about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it. A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.*

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety. Do not rely on an executive summary. Do not read selective elements only. *Read and refer to the report in full.*

You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept*

responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

Most of the “Findings” Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site’s subsurface using various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual site-wide subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

This Report’s Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are not final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals’ misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals’ plans and specifications; and
- be available whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note*

conspicuously that you’ve included the material for information purposes only. To avoid misunderstanding, you may also want to note that “informational purposes” means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled “limitations,” many of these provisions indicate where geotechnical engineers’ responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a “phase-one” or “phase-two” environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures.* If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer’s services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, *proper implementation of the geotechnical engineer’s recommendations will not of itself be sufficient to prevent moisture infiltration.* Confront the risk of moisture infiltration by including building-envelope or mold specialists on the design team. *Geotechnical engineers are not building-envelope or mold specialists.*



GEOPROFESSIONAL
BUSINESS
ASSOCIATION

Telephone: 301/565-2733

e-mail: info@geoprofessional.org www.geoprofessional.org

TERMS AND CONDITIONS

SERVICES TO BE PROVIDED. GeoCon Engineering & Material Testing, Inc. (hereinafter GeoCon) is an independent consultant and agrees to provide Client, for its sole benefit and exclusive use, consulting services set forth in our proposal.

PAYMENT TERMS. Client agrees to pay our invoice upon receipt. If payment is not received within 30 days from the invoice date, Client agrees to pay a service charge on the past due amount at a rate of 1.5% per month, and GeoCon reserves the right to suspend all work until payment is received. No deduction shall be made from our invoice on account of liquidated damages or other sums withheld from payments to contractors or others.

TERMINATION. Either party may terminate this Agreement without cause upon 20 days advance notice in writing. In the event Client requests termination prior to completion of the proposed services, Client agrees to pay GeoCon for all costs incurred plus reasonable charges associated with termination of the work.

PROFESSIONAL LIABILITY. Notwithstanding any other provision of this Agreement, the Engineer's and GeoCon's total liability to the Owner for any loss or damages from claims arising out of or in connection with this Agreement from any cause including the Engineer's strict liability, breach of contract, or professional negligence, errors and omissions (whether claimed in tort, contract, strict liability, nuisance, by statute or otherwise) shall not exceed the lesser of the total contract price of this Agreement or the proceeds paid under Engineer's liability insurance in effect at the time such claims are made. The Owner hereby releases the Engineer from any liability exceeding such amount. In no event shall either party to this Agreement be liable to the other for special, indirect, incidental or consequential damages, whether or not such damages were foreseeable at the time of the commencement of the work under this Agreement.

SITE OPERATIONS. Client will arrange for right-of-entry to all applicable properties for the purpose of performing studies, tests and evaluations pursuant to the agreed services. Client represents that it possesses necessary permits and licenses required for its activities at the site.

OWNERSHIP AND USE OF PROJECT DOCUMENTS. All documents are instruments of service in respect to the Services, and Engineer shall retain an ownership and proprietary property interest therein (including the right of reuse at the discretion of the Engineer) whether or not the Services are completed. Client may make and retain copies of documents for information and reference in connection with the services by Client. Such documents are not intended or represented to be suitable for reuse by Client or others on extensions of the services or on any other project. Any such reuse or modification without written verification or adaptation by Engineer, as appropriate for the specific purpose intended, will be at Client's sole risk and without liability or legal exposure to Engineer or to Engineer's consultants. Client shall indemnify and hold harmless Engineer and Engineer's consultants from all claims. Damages, and expenses including attorneys' fees arising out of or resulting therefrom.

ADDITIONAL SERVICES OF CONSULTANT. If authorized in writing by the Client, GeoCon shall furnish additional services that are not considered as an integral part of the Scope of Services outlined in the Proposal Acceptance Sheet. Under this Agreement, all costs for additional services will be negotiated as to activities and compensation. In addition, it is possible that unforeseen conditions may be encountered that could substantially alter the original scope of services. If this occurs, GeoCon will promptly notify and consult with Client and any additional services will be negotiated.

ASSIGNABILITY. GeoCon shall not assign any interest on this Agreement, and shall not transfer any interest in the same (whether by assignment or novation) without the prior written consent of the Client; provided, however, that claims for money by GeoCon against Client under this Agreement may be assigned to a bank, trust company, or other financial institution without such approval. Written notice of any such assignment or transfer shall be promptly furnished to the Client.

SERVICES TO BE CONFIDENTIAL. All services, including opinions, designs, drawings, plans, specifications, reports and other services and information, to be furnished by GeoCon under this Agreement are confidential and shall not be divulged, in whole or in part, to any person, other than to duly authorized representatives of the Client, without prior written approval of the Client, except by testimony under oath in a judicial proceeding or as otherwise required by law. GeoCon shall take all necessary steps to ensure that no member of its organization divulges any such information except as may be required by law.

CLAIMS. The parties agree to attempt to resolve any dispute without resort to litigation. However, in the event a claim is made that results in litigation, and the claimant does not prevail at trial, then the claimant shall pay all costs incurred in defending the claim, including reasonable attorney's fees. The claim will be considered proven if the judgment obtained and retained through any applicable appeal is at least ten percent greater than the sum offered to resolve the matter prior to the commencement of trial.

SEVERABILITY. It is understood and agreed by the parties hereto, that if any part, term or provisions of this Agreement is held by any court of competent jurisdiction to be illegal or in conflict with any applicable law, the validity of the remaining portion or portions of this Agreement shall not be affected and the rights and obligations of the parties shall be construed and enforced as if the Agreement did not contain the particular part, term or provision held to be invalid.

SURVIVAL. All obligations arising prior to the termination of this Agreement and all provisions of this Agreement allocating responsibility or liability between Client and GEOCON shall survive the completion of the services and the termination of this Agreement.

INTEGRATION. This Agreement, the attached documents and those incorporated herein constitute the entire Agreement between the parties and cannot be changed except by a written instrument signed by both parties.

GOVERNING LAW. This Agreement shall be governed in all respects by the laws of the State of Alabama and venue shall be in Baldwin County, Alabama