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SUBSURFACE INVESTIGATION

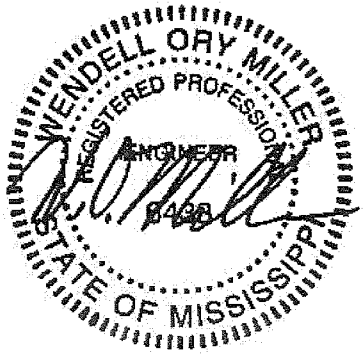
FOR

COURTYARD MARRIOTT
RIVERWIND DRIVE
PEARL, MISSISSIPPI

DECEMBER 2008

BY

GEOTECHNICAL ASSOCIATES NETWORK, LLC
110 BEECHTREE ROAD
VICKSBURG, MISSISSIPPI 39183-7464



SUBSURFACE INVESTIGATION FOR
COURTYARD MARRIOTT
RIVERWIND DRIVE
PEARL, MISSISSIPPI

PURPOSE

The purposes of this subsurface investigation are as follows:

a. To determine the general characteristics of the subsurface soils within the area of the proposed construction;

b. To determine by field and laboratory testing, the physical characteristics of the foundation soils and the soil samples collected; and

c. To make recommendations for foundation construction at this particular location.

FIELD INVESTIGATION

Nine subsurface borings were made for the proposed Courtyard Marriott construction on Riverwind Drive in Pearl, Mississippi. The borings were advanced with a truck-mounted, powered, continuous flight auger. Auger cuttings of the soil medium were collected at changes in strata, and at intervals not exceeding five feet in depth. All samples taken were stored in sealed containers for later classification and testing. In addition, standard penetration resistance values (see ASTM D-1586-84) were determined and recorded on the boring logs for the various materials encountered. The Standard Penetration Test (SPT) gives an indication of the consistency and the in-place shear strength of cohesive soils and the relative density of cohesionless soils by recording the number of blows required, by a 140-pound hammer falling 30 inches, to drive a 2-inch O.D. splitspoon sampler one foot. Static water levels noted in the borings after completion of drilling and sampling operations at the site were measured and recorded on the boring logs.

LABORATORY INVESTIGATION

Laboratory testing of selected soil samples included visual classification, Atterberg limits on cohesive soils with determination of the plasticity index (PI), grain size analyses, and in situ moisture contents. Atterberg limits (ASTM D-4318-93) were run on the clayey soils in an effort to estimate the susceptibility of these soils to shrink and swell with changes in moisture content. Liquid and plastic limits were run on samples selected from some of the various materials encountered. The liquid limit (LL) is the moisture content at which a soil changes from a plastic state to a viscous liquid state. The plastic limit is the moisture content at which a soil changes from a solid state to a plastic state. The plasticity index is the numerical difference between the liquid limit and the plastic limit and is indicative of the relative activity or sensitivity of a cohesive soil.

Grain size analyses (ASTM D-422-63) were conducted on representative samples of the various soils encountered to determine the particle size distribution of materials comprising the strata. Results of these tests were utilized in classifying the soils by the Unified Soil Classification System and in estimating the California Bearing Ratio (CBR) of the soils. Classifications for each of the soil samples are shown on the boring logs and test results attached to this report.

To aid in the general interpretation of the soil conditions at the site, in situ moisture contents were determined for samples selected from the various soils encountered. This determination was made possible by placing extracted samples in sealed containers immediately upon removal from each interval. The results of these and other tests are recorded on the attached boring logs.

SUBSURFACE CONDITIONS

The site of the proposed Courtyard Marriott construction is in Section 19, Township 5 North, Range 2 East in Pearl, Rankin County, Mississippi. Physiographically, the location is in the Gulf Coastal Plain Province of North America and in the Jackson Prairie Province of Mississippi. Structurally, it is south of the Jackson Dome, in the Mississippi Interior Salt Basin, and on the east flank of the Mississippi Embayment. Specifically, this site is in the alluvial plain of the Pearl River. Soils in the

Pearl River alluvial plain are Holocene in age and vary in types from silts to clays to sands. They were deposited by fluvial processes and can exhibit rapid and/or abrupt lithologic changes. Fill material and debris are also found on this site.

Nine borings were placed at the site: Boring Nos. B-1 through B-4 to depths of 20 feet; Boring Nos. B-5 through B-8 to depths of 5 feet; and Boring No. B-9 to a depth of 15 feet. The soils encountered were lean clay with sand, silty and/or sandy lean clay, to lean clay (CL and CL-ML), heavy clay with sand to heavy clay (CH), silty sand (SM), and silty, clayey sand (SM-SC). As inferred from Standard Penetration Test (SPT) data, the consistencies of the clays were medium to stiff and the relative densities of the sands were medium.

Lean clay, silty clay, sandy, silty clay, sandy lean clay, and lean clay with sand (CL) to silty clay and clay-silt with sand (CL-ML) were noted in each boring (see Data table below). These clays were mainly gray and tan in color with some red and brown noted. Standard Penetration Test (SPT) data suggest these clays had consistencies of medium to stiff with blows counts ranging from 7 blows to 12 blows and averaging 9.1 blows. Field moisture contents ranged from 8 percent to 22.8 percent and averaged 17.4 percent. These are low to medium plasticity clays with plasticity indices ranging from 6 percent to 29 percent (average 15.7 percent) and liquid limits ranging from 23 percent to 48 percent (average 35.3 percent). Some changes in volume could be noted with changes in moisture content. Percentages of the material passing through the #200 grain-size sieve ranged from 53.8 percent to 97.4 percent and averaged 88 percent, indicating the wide variation in the sand content in these clays.

Heavy clay to heavy clay with sand (CH) was noted in four of the nine borings (see Data table below). These heavy clays were mainly gray to tan in color, but some red, white, and orange soils were noted. Consistencies were medium to stiff as suggested by SPT data ranging from 8 blows to 11 blows (average 9.3 blows). Field moisture contents ranged from 18.6 percent to 26.6 percent and averaged 22.3 percent. These are high to very high plasticity clays with plasticity indices ranging from 30 percent to 51 percent (average 38.9 percent) and liquid limits ranging from 50 percent to 75 percent (average 59.9 percent). Percent passing the #200 grain-size sieve ranged from 84 percent to 98.6 percent (average 95.4 percent), again indicating the variation in the sand content in these clays.

Gray to tan silty sand (SM) and gray and tan, silty, clayey sand (SM-SC) were encountered in two of the nine borings: from 18 ½ feet to 20 feet in Boring No. B-1 and from 10 feet to 20 feet in Boring No. B-2. Relative densities were medium as inferred from SPT blow counts ranging from 10 blows to 12 blows, averaging 11.3 blows. Field moisture contents ranged from 23.7 percent to 29.5 percent and averaged 27.1 percent. Percent passing the #200 sieve ranged from 18.8 percent to 49.4 percent, averaging 29.2 percent. Whereas no Atterberg limits could be obtained in the SM materials, the clay content of the SM-SC material yielded a liquid limit of 25 percent and a plasticity index of 7 percent.

After completion of drilling and sampling operations, water was noted at 18 ½ feet in Boring No. B-4; none was recorded on the other eight boring logs. We note that groundwater conditions in this area do fluctuate during the year with variations in rainfall and other environmental factors. Therefore, the groundwater levels and soil moisture contents in the near-surface materials will vary throughout the year and will probably be different if tested at a different time.

Data table

Depth intervals of soils (in feet)
Recorded water levels (in feet)
Depths of investigation (in feet)

Courtyard Marriott
Riverwind Drive
Pearl, MS

Boring No.	CL	CL-ML	CH	SM-SC	SM	Water WD	Depth of Investigation
B-1	0' - 18 1/2'				18 1/2' - 20'	NR	20'
B-2	0' - 5'; 8 ½' – 10'		5' - 8 1/2'	10' - 13 1/2'	13 1/2' - 20'	NR	20'
B-3	0' - 2 1/2'	2 1/2' - 3 1/2'	3 1/2 ' - 20'			NR	20'
B-4	0' - 5'					18 1/2'	20'
B-5	0' - 5'					NR	5'
B-6	3' - 5'	0' - 3'				NR	5'
B-7	0' - 5'					NR	5'
B-8	0' - 5'					NR	5'
B-9	0' - 10'		10' - 15'			NR	15'

WD = When done with drilling and sampling operations
NR = none recorded

RECOMMENDATIONS FOR SITE PREPARATION AND FOUNDATIONS

We understand that this project will consist of a 4-story Courtyard Marriot located on Riverwind Drive, Pearl, Mississippi. The following conclusions and recommendations are based on our understanding of the proposed construction, information gathered during the exploration, accepted geotechnical engineering principles and practices, and our experience with similar sites and subsurface conditions. This report has been prepared for the exclusive use of Roy Patel, Jackson, Mississippi in the planning and design of the motel. We request that we be informed of any significant changes to the proposed construction so we might review our recommendations in light of the new information. We are available to review the final foundation and grading plans, as well as applicable portions of the project specifications, prior to construction.

Final plans and specifications were not available at the time of this geotechnical report, but it is our assumption that the placement of the building will be on a lot that is essentially flat. Based upon our interpretation of the soil conditions at the site, proper placement of the foundation soil, and the assumption that no large or unusual loads are anticipated, it is our opinion that the proposed construction could be supported by a combination of foundation units, such as grade beams and spread footings. The foundation could consist of a monolithically cast, reinforced concrete, slab on-grade with turned-down, continuous grade beams and interior stiffeners to produce a beam diaphragm system. Column loads could be supported by isolated spread footings or thickened sections.

SITE PREPARATION

As noted above, the near-surface material occurring in the borings at the site consisted of lean clay with sand, silty and/or sandy lean clay, to lean clay (CL and CL-ML), heavy clay with sand to heavy clay (CH), silty sand (SM), and silty, clayey sand (SM-SC). As inferred from Standard Penetration Test (SPT) data, the consistencies of the clays were medium to stiff and the relative densities of the sands were medium.

The boring data have indicated that there is heavy clay within 3 to 5 feet of the surface under the footprint of the motel. We recommend that the foundation soil be excavated a minimum of 1

foot to remove any topsoil. After removing the topsoil, we recommend excavating another 7 feet below the existing elevation to remove the heavy clay within an area beneath and extending a minimum of 10 feet beyond the perimeter of the structure, if possible. Approximately 3 feet of the lean clay on the surface could be stockpiled and used as select fill if it meets specifications and is approved by the geotechnical engineer. The soil beneath the elevator shaft should be excavated 7 feet below the bottom of the shaft.

The area designated for the placement of the pool has heavy clay at a depth of 10 feet. We recommend a minimum of 5 feet of lean clay beneath the bottom of the lowest elevation in the pool. Either excavation below the pool or raising the deck of the pool may be required to isolate the pool from the heavy clay.

Following excavation we recommend that the subgrade in all fill areas be evaluated by a geotechnical engineer or his representative prior to fill placement. The engineer may recommend proof-rolling the areas as a means of evaluating the suitability of the subgrade for fill. Proof-rolling consists of systematically patrolling the area preferably in perpendicular directions, utilizing a heavily loaded dump truck (minimum 20 tons) or other suitable vehicle approved by the engineer. Any areas which pump or rut excessively and which cannot be densified by continued rolling should be undercut to suitable material and properly backfilled. If the construction footprint is too small for proof-rolling, numerous density tests or hand held cone penetration tests should be conducted to determine soft areas.

Select structural fill material should be placed in maximum loose lifts of 8 inches and should be compacted to 98 percent standard Proctor density (ASTM D-698-91) within 2 percentage points of optimum moisture content. Sufficient field density tests should be conducted to insure compaction requirements are met during construction. As a rule of thumb, we recommend that two density tests per lift be performed for each 2000 square feet of surface area. In addition, monitoring of fill construction and compaction will result in minimizing future settlement of the fill and the structure. Therefore, we believe that it is important that a qualified geotechnical engineer or certified technician monitor earthwork operations and that this work not be controlled by the earthwork contractor.

The select structural fill material should consist of a material having a liquid limit of less than 45 percent and a plasticity index between 8 percent and 20 percent. The excavated materials

that contain topsoil and any debris should not serve as select fill and should be disposed of outside the foundation area. On-site excavated lean clay (CL) could be used as select fill with proper moisture content and compaction control.

FOUNDATION STRENGTHS

The foundation system should bear at a minimum depth 24 inches below the finished grade elevation. Minimum depths needed to offset wind forces should be verified by your structural engineer. All foundation members should be reinforced both top and bottom, sufficient to resist differential movement, and the completed foundation system should provide for uniform distribution of applied loads to the bearing soils. The maximum soil pressure under the foundation members should not exceed 2.3 kips per square foot for continuous foundation units or 2.8 kips per square foot for individual spread footings. Foundations sized in accordance with recognized criteria for the above stated allowable soil bearing pressure should provide a factor of safety of 2.0 - 3.0 against ultimate failure of the soil medium with total estimated settlements of 1 inch, more or less.

Note that the soils at this site contain lean clays (CL) that can lose strength with increases in moisture content. The soils at this site also contain heavy clays (CH) that can lose strength and shrink and swell with changes in moisture content. It is important to properly control the moisture content of these soils during construction. Recent inspections of several buildings that have had differential movement have noted water exiting from gutters beside the foundations and inadequate grades for the swales that should remove surface water. The final site-grading plan should provide for quick runoff of surface waters away from the building foundations in all directions. Any beds for flowers and shrubs should not be boxed in and should be sloped down away from the building foundation. Sprinkler systems located close to the building foundation should be controlled by nearby soil moisture content and not specific time schedules. In addition, any foundation soils in exposed excavations that become wet or soft should be removed and replaced prior to footing installation. The landscape plans should insure that large water consuming trees and shrubs are not located within 50 feet of the perimeter of the foundation members. Where any large trees or stumps are removed or where any plumbing or electrical trenches are cut under the foundation, select-fill material should be used and compacted.

All foundation recommendations made in this report are contingent upon proper execution of the earthwork requirements noted herein. We believe that it is very important that a qualified geotechnical engineer, familiar with working with such soils, be present during foundation construction.

RECOMMENDATIONS FOR PARKING AREAS AND ACCESS DRIVES

The near-surface materials at the site, which will be the in situ material for the subgrade for the parking areas and access drives, were primarily composed of lean clay with sand, silty and/or sandy lean clay and lean clay (CL and CL-ML). The consistency of these soils were not determined for these borings but consistencies as noted in the foundation borings ranged from medium to stiff.

The foundation soil should be excavated a minimum of 1 foot, independent of the amount of select fill to be used, to remove any topsoil, roots, and organics. We recommend disking and then compacting another 9 inches of the subgrade before placement of any select fill to bring the site up to construction grade. The soils at this site are variable in both strength and composition. Every effort should be made to insure that the exposed soils do not "dry out" during construction. Any soft or wet areas encountered during construction which cannot be stabilized should be undercut and filled with compacted select fill material.

We recommend proof-rolling the area as a means of evaluating the suitability of the subgrade for fill or pavement support. Proof-rolling is defined above. We recommend that, after proof-rolling, the subgrade soils for any cut sections should be compacted to 98 percent standard Proctor density (ASTM D-698-91) within 2 percentage points of optimum moisture content to a depth of 8 inches.

Compacted select fill should then be placed to bring the subgrade up to elevation where required. Prior to placing the select fill in any area, we recommend that the subgrade be evaluated by a geotechnical engineer or his representative to determine the suitability of the subgrade.

Select-fill material should consist of a soil having a liquid limit of not more than 45 percent and a plasticity index between 8 percent and 22 percent. This soil should be placed in maximum loose lifts of 8 inches and also compacted to a minimum of 98 percent standard Proctor density. Compaction for the entire site

could be attained using a rubber-tired or sheeps-foot roller. After preparation of the subgrade, the remaining pavement structure can then be placed according to the recommendations provided below.

Based on the type of soils encountered, we anticipate that a CBR value greater than 3 will be representative of the strength of the prepared subgrade soils and compacted fill placed at this site, assuming proper control of the soil-moisture content. It is our assumption that the parking lot and access drive will be used by the customers, employees, and a minimum of two-axle trucks for any deliveries; this precludes street traffic. Based on that assumption and the soil properties, we have selected a Structural Number (SN) of 2.3 for the parking lot and 2.9 for the access drive design and the dumpster pad (based on AASHTO Guide for Design of Pavement Structures, Chapter 4, Low-Volume Road Design, 1986). One of the following pavement alternatives should be used, assuming proper compaction of the subgrade soils:

LIGHT PARKING

Alternative #1

a) Base Course - Five (5) inches of hot mixed Bituminous Base course (Type BB-1) conforming to Mississippi State Highway Department (MSHD) Specifications.

b) Surface Course - One and one half (1 ½) inches of hot mixed bituminous Surface Course (Type SC-1) conforming to MSHD Specifications.

Alternative # 2

a) Clay Gravel Base or Subbase - Eight (8) inches of clay gravel subbase course, Class 4, Group B conforming to MSHD Specifications.

b) Base Course - Four (4) inches of hot mixed Bituminous Base, (Mix Number BB-1) conforming to MSHD Specifications.

c) Surface Course - One and one-half (1 ½) inches of hot mixed bituminous Surface Course, (Mix Number SC-1) conforming to MSHD Specifications.

Alternative # 3

a) Granular Subbase - Six (6) inches of crushed concrete substituted for crushed limestone, No. 610 conforming to MSHD Specifications.

b) Base Course - Four (4) inches of hot mixed Bituminous Base course (Type BB-1) conforming to Mississippi State Highway Department (MSHD) Specifications.

c) Surface Course - One and one-half (1 ½) inches of hot mixed bituminous Surface Course (Type SC-1) conforming to MSHD Specifications.

Alternative #4

Surface Course - Five (5) inches of Portland Cement Concrete.

ACCESS ROADS

Alternative #1

a) Base Course - Six and one-half (6 ½) inches of hot mixed Bituminous Base, (Mix Number BB-1) conforming to Mississippi State Highway Department (MSHD) Specifications.

b) Surface Course - One and one-half (1 ½) inches of hot mixed bituminous Surface Course, (Mix Number SC-1) conforming to MSHD Specifications.

Alternative # 2

Surface - Six (6) inches of Portland Cement Concrete.

DUMPSTER PAD

Alternative # 1

Surface - Six (6) inches of Portland Cement Concrete. The dumpster pad should be the total length of dumpster and the garbage truck.

The concrete pavement recommendations are for non-reinforced Portland Cement concrete pavement placed on a six-inch-thick clay

gravel base course placed on the compacted subgrade. The clay gravel base course should be compacted to a minimum of 98% standard Proctor density immediately prior to concrete placement. The concrete should have a minimum 28-day flexural strength of 650 psi and a compressive strength of 3000 psi. Joint spacing, joint configuration, mix design, mix placement, and curing should conform to the recommendations of the American Concrete Institute (ACI) and the Portland Cement Association (PCA).

Applicable Mississippi State Highway Department specifications and structural number coefficients utilized in the pavement recommendations are provided as follows:

a) Bituminous Surface Course - Structural Coefficient = 0.44 - hot mixed bituminous Surface Course (Type SC-1) - Mississippi Standard Specifications for Road and Bridge Construction (1976 edition) or from the AASHTO Interim Guide for Design of Pavement Structures.

b) Bituminous Base Course - Structural Coefficient = 0.34 - hot mixed Bituminous Base course (Type BB-1) - Mississippi Standard Specifications for Road and Bridge Construction (1976 edition), Section 301, page 257 and Section 703, page 785 or from the AASHTO Guide.

c) Clay Gravel Base or Subbase - Structural Coefficient = 0.11 - Class 4, Group B - Mississippi Standard Specifications for Road and Bridge Construction (1976 edition), Section 304, page 275 and Section 703, page 773 or from the AASHTO Guide.

All pavement design recommendations made in this report are contingent upon proper execution of the subgrade requirements noted herein. We believe that it is very important that a qualified geotechnical engineer, familiar with working with such soils, be present after excavation and during proof-rolling, fill, and compaction. In addition, sufficient field density tests should be taken to insure that the compaction criteria are satisfied, and to reduce the possibility of settlement at this location. It is important that a good drainage system be established to quickly remove surface water, thus leaving no standing water.

REPORT LIMITATIONS

The recommendations made in this report are based on the assumption that the borings are representative of the subsurface

conditions throughout the site. Therefore, we cannot warrant that our boring logs represent subsurface conditions at other locations or times. If during construction, any unusual or significantly different conditions are encountered, we should be advised in order to review the changed conditions, and subsequently reconsider any of the above recommendations.

Further, we are available to review those portions of the plans and specifications relating to earthwork and foundations for this particular project and request that we be retained to do so in order to determine whether the plans and specifications are consistent with the recommendations contained within this report. In addition, we are available to observe foundation construction procedures, including interpretation of the use of on-site materials and compaction of the structural fill, quality control of concrete placement, and other field observations and quality-control measures as required.

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2123 Glendale Avenue/ Hattiesburg, Mississippi 39402/ (601) 544-5782
P.O. Box 2363/ Gulfport, Mississippi 39505/ (228) 604-2527

PROJECT:	CLIENT:	DATE 11/24/2008
COURTYARD MARRIOTT	ROY PATEL, CHA	LAB NO. 337-08-A
RIVERWIND DRIVE	84 GRANDVIEW CIRCLE	BORE NO. B-1
PEARL MS	BRANDON MS 39047	TECHNICIAN MILYN

SAMPLES: | AUGER(ASTM D-1452) | TUBE(ASTM D-1587) | X | PENETRATION TEST(ASTM D-1586)

DEPTH	SAMPLE	VISUAL DESCRIPTION - REMARKS	CONSISTENCY	FIELD MOIST %	LL%	PI %	PASS #200 %	UNIFIED CLASS	STD. PEN
0		TAN, GRAY & RED LEAN CLAY (0 - 3.5')		21.8	41.0	20.0	94.0	CL	
	X		STIFF						9
	X	BROWN & GRAY LEAN CLAY W/SAND (3.5 - 5')	MEDIUM	17.7	33.0	15.0	84.6	CL	7
5		GRAY, BROWN & RED SANDY LEAN CLAY (5 - 10')		17.4	44.0	27.0	70.0	CL	
	X		MEDIUM						8
10		TAN & GRAY LEAN CLAY (10 - 13.5')		20.0	44.0	22.0	85.4	CL	
	X	GRAY & TAN LEAN CLAY W/SAND (13.5 - 18.5')	MEDIUM	21.5	38.0	20.0	81.0	CL	7
15									
	X	GRAY SILTY SAND (18.5 - 20')	MEDIUM	28.1	NA	NP	19.4	SM	10
20									
25									
30									

WATER DEPTH 0 FT. AFTER 0 HRS. BORING ELEVATION 0 FT.

WATER DEPTH 0 FT. AFTER 0 HRS. BORING TERMINATED AT 20 FT.

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PROJECT:	CLIENT:	DATE	11/24/2008
COURTYARD MARRIOTT	ROY PATEL, CHA	LAB NO.	337-08-A
RIVERWIND DRIVE	84 GRANDVIEW CIRCLE	BORE NO.	B-2
PEARL MS	BRANDON MS 39047	TECHNICIAN	MILYN

SAMPLES: | AUGER(ASTM D-1452) | TUBE(ASTM D-1587) | X | PENETRATION TEST(ASTM D-1586)

DEPTH	SAMPLE	VISUAL DESCRIPTION - REMARKS	CONSISTENCY	FIELD MOIST %	LL%	PI %	PASS #200 %	UNIFIED CLASS	STD. PEN
0	X	TAN & RED LEAN CLAY (0 - 3.5')	STIFF	21.1	35.0	13.0	88.0	CL	10
5	X	TAN, GRAY & BROWN LEAN CLAY (3.5 - 5')	STIFF	18.1	34.0	18.0	88.0	CL	9
		TAN, GRAY & RED HEAVY CLAY W/SAND (5 - 8.5')		21.0	56.0	36.0	84.0	CH	
10	X	TAN, GRAY & TRACE RED LEAN CLAY (8.5 - 10')	MEDIUM	22.4	46.0	29.0	90.2	CL	8
		GRAY & TAN SILTY CLAYEY SAND (10 - 13.5')		23.7	25.0	7.0	49.4	SM-SC	
15	X	TAN SILTY SAND (13.5 - 20')	MEDIUM	29.5	NA	NP	18.8	SM	12
20	X		MEDIUM						12
25									
30									

WATER DEPTH 0 FT. AFTER 0 HRS. BORING ELEVATION 0 FT.

WATER DEPTH 0 FT. AFTER 0 HRS. BORING TERMINATED AT 20 FT.

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PROJECT:	CLIENT:	DATE	11/24/2008
COURTYARD MARRIOTT	ROY PATEL, CHA	LAB NO.	337-08-A
RIVERWIND DRIVE	84 GRANDVIEW CIRCLE	BORE NO.	B-3
PEARL MS	BRANDON MS 39047	TECHNICIAN	MILYN

SAMPLES: | AUGER(ASTM D-1452) | TUBE(ASTM D-1587) | X | PENETRATION TEST(ASTM D-1586)

DEPTH	SAMPLE	VISUAL DESCRIPTION - REMARKS	CONSISTENCY	FIELD MOIST %	LL%	PI %	PASS #200 %	UNIFIED CLASS	STD. PEN
0	X	TAN & GRAY LEAN CLAY (0 - 2.5')	STIFF	12.1	32.0	12.0	86.0	CL	11
		GRAY SILTY CLAY (2.5 - 3.5')		17.9	28.0	6.0	97.4	CL-ML	
	X	GRAY, WHITE & TRACE RED HEAVY CLAY (3.5 - 5')	MEDIUM	20.5	50.0	30.0	98.4	CH	8
5		TAN W/TRACE RED HEAVY CLAY (5 - 8.5')		19.1	53.0	33.0	96.4	CH	
	X	TAN, GRAY & ORANGE HEAVY CLAY (8.5 - 13.5')	STIFF	24.2	65.0	44.0	96.4	CH	11
10									
	X	TAN & GRAY HEAVY CLAY (13.5 - 20')	STIFF	24.9	66.0	43.0	98.0	CH	9
15									
20									
25									
30									

WATER DEPTH 0 FT. AFTER 0 HRS. BORING ELEVATION 0 FT.

WATER DEPTH 0 FT. AFTER 0 HRS. BORING TERMINATED AT 20 FT.

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PROJECT:	CLIENT:	DATE	11/24/2008
COURTYARD MARRIOTT	ROY PATEL, CHA	LAB NO.	337-08-A
RIVERWIND DRIVE	84 GRANDVIEW CIRCLE	BORE NO.	B-4
PEARL MS	BRANDON MS 39047	TECHNICIAN	MILYN

SAMPLES: | | AUGER(ASTM D-1452) | | TUBE(ASTM D-1587) | X | PENETRATION TEST(ASTM D-1586)

DEPTH	SAMPLE	VISUAL DESCRIPTION - REMARKS	CONSISTENCY	FIELD MOIST %	LL%	PI %	PASS #200 %	UNIFIED CLASS	STD. PEN
0		TAN & GRAY SILTY CLAY (0 - 5')		10.1	30.0	11.0	91.2	CL	
	X		STIFF						12
	X		STIFF						10
5		TAN & GRAY HEAVY CLAY (5 - 8.5')		18.6	51.0	32.0	98.2	CH	
	X	TAN, GRAY & RED HEAVY CLAY (8.5 - 10')	STIFF	21.8	57.0	39.0	97.6	CH	10
10		TAN HEAVY CLAY (YAZOO CLAY) (10 - 13.5')		26.6	75.0	51.0	98.4	CH	
	X	GRAY & TAN HEAVY CLAY (13.5 - 20')	STIFF	25.1	70.0	48.0	98.6	CH	10
15									
	X		MEDIUM						8
20									
25									
30									

WATER DEPTH 18.5 FT. AFTER 0.1 HRS. BORING ELEVATION 0 FT.

WATER DEPTH 0 FT. AFTER 0 HRS. BORING TERMINATED AT 20 FT.

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P.O. Box 2363/ Gulfport, Mississippi 39505/ (228) 604-2527

PROJECT:	CLIENT:	DATE	11/24/2008
COURTYARD MARRIOTT	ROY PATEL, CHA	LAB NO.	337-08-A
RIVERWIND DRIVE	84 GRANDVIEW CIRCLE	BORE NO.	B-5
PEARL MS	BRANDON MS 39047	TECHNICIAN	MILYN

SAMPLES: | AUGER(ASTM D-1452) | TUBE(ASTM D-1587) | X | PENETRATION TEST(ASTM D-1586)

DEPTH	SAMPLE	VISUAL DESCRIPTION - REMARKS	CONSISTENCY	FIELD MOIST %	LL%	PI %	PASS #200 %	UNIFIED CLASS	STD. PEN
0		TAN & GRAY LEAN CLAY (0 - 5')		18.7	34.0	14.0	92.8	CL	
5									
10									
15									
20									
25									
30									

WATER DEPTH 0 FT. AFTER 0 HRS. BORING ELEVATION 0 FT.

WATER DEPTH 0 FT. AFTER 0 HRS. BORING TERMINATED AT 5 FT.

ladner testing laboratories, inc

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PROJECT:	CLIENT:	DATE	11/24/2008
COURTYARD MARRIOTT	ROY PATEL, CHA	LAB NO.	337-08-A
RIVERWIND DRIVE	84 GRANDVIEW CIRCLE	BORE NO.	B-6
PEARL MS	BRANDON MS 39047	TECHNICIAN	MILYN

SAMPLES: AUGER(ASTM D-1452) | TUBE(ASTM D-1587) X | PENETRATION TEST(ASTM D-1586)

DEPTH	SAMPLE	VISUAL DESCRIPTION - REMARKS	CONSISTENCY	FIELD MOIST %	LL%	PI %	PASS #200 %	UNIFIED CLASS	STD. PEN
0		TAN & GRAY CLAY SILT W/SAND (0 - 3')		8.0	26.0	7.0	83.4	CL-ML	
		BROWN & GRAY SILTY CLAY (3 - 5')		18.7	36.0	12.0	96.6	CL	
5									
10									
15									
20									
25									
30									

WATER DEPTH 0 FT. AFTER 0 HRS. BORING ELEVATION 0 FT.

WATER DEPTH 0 FT. AFTER 0 HRS. BORING TERMINATED AT 5 FT.

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PROJECT:	CLIENT:	DATE	11/24/2008
COURTYARD MARRIOTT	ROY PATEL, CHA	LAB NO.	337-08-A
RIVERWIND DRIVE	84 GRANDVIEW CIRCLE	BORE NO.	B-7
PEARL MS	BRANDON MS 39047	TECHNICIAN	MILYN

SAMPLES: | | AUGER(ASTM D-1452) | | TUBE(ASTM D-1587) | X | PENETRATION TEST(ASTM D-1586)

DEPTH	SAMPLE	VISUAL DESCRIPTION - REMARKS	CONSISTENCY	FIELD MOIST %	LL%	PI %	PASS #200 %	UNIFIED CLASS	STD. PEN
0		GRAY & TAN SILTY CLAY W/SAND (0 - 3')		14.3	31.0	11.0	83.4	CL	
		BROWN & TAN SILTY CLAY (3 - 5')		13.6	29.0	8.0	97.0	CL	
5									
10									
15									
20									
25									
30									

WATER DEPTH 0 FT. AFTER 0 HRS. BORING ELEVATION 0 FT.

WATER DEPTH 0 FT. AFTER 0 HRS. BORING TERMINATED AT 5 FT.

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PROJECT:	CLIENT:	DATE 11/24/2008
COURTYARD MARRIOTT	ROY PATEL, CHA	LAB NO. 337-08-A
RIVERWIND DRIVE	84 GRANDVIEW CIRCLE	BORE NO. B-8
PEARL MS	BRANDON MS 39047	TECHNICIAN MILYN

SAMPLES: | AUGER(ASTM D-1452) | TUBE(ASTM D-1587) | X | PENETRATION TEST(ASTM D-1586)

DEPTH	SAMPLE	VISUAL DESCRIPTION - REMARKS	CONSISTENCY	FIELD MOIST %	LL%	PI %	PASS #200 %	UNIFIED CLASS	STD. PEN
0		GRAY SANDY SILTY CLAY (0 - 1')		17.6	28.0	9.0	92.0	CL	
		TAN, BROWN & GRAY LEAN CLAY (1 - 5')		21.7	35.0	15.0	93.0	CL	
5									
10									
15									
20									
25									
30									

WATER DEPTH 0 FT. AFTER 0 HRS. BORING ELEVATION 0 FT.

WATER DEPTH 0 FT. AFTER 0 HRS. BORING TERMINATED AT 5 FT.

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PROJECT:	CLIENT:	DATE	11/24/2008
COURTYARD MARRIOTT	ROY PATEL, CHA	LAB NO.	337-08-A
RIVERWIND DRIVE	84 GRANDVIEW CIRCLE	BORE NO.	B-9
PEARL MS	BRANDON MS 39047	TECHNICIAN	MILYN

SAMPLES: | AUGER(ASTM D-1452) | TUBE(ASTM D-1587) | X | PENETRATION TEST(ASTM D-1586)

DEPTH	SAMPLE	VISUAL DESCRIPTION - REMARKS	CONSISTENCY	FIELD MOIST %	LL%	PI %	PASS #200 %	UNIFIED CLASS	STD. PEN
0		RED (FILL) SANDY LEAN CLAY (0 - 1')		8.2	23.0	9.0	53.8	CL	
		TAN & GRAY LEAN CLAY (1 - 3')		16.3	28.0	8.0	91.6	CL	
		GRAY & TAN LEAN CLAY (3 - 5')		22.8	42.0	23.0	94.0	CL	
5		TAN & GRAY LEAN CLAY (5 - 7')		20.8	46.0	25.0	96.4	CL	
		TAN & GRAY LEAN CLAY (7 - 10')		19.1	48.0	26.0	91.8	CL	
10		GRAY & TAN HEAVY CLAY (10 - 15')		21.5	56.0	33.0	87.6	CH	
15									
20									
25									
30									

WATER DEPTH 0 FT. AFTER 0 HRS. BORING ELEVATION 0 FT.

WATER DEPTH 0 FT. AFTER 0 HRS. BORING TERMINATED AT 15 FT.

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COURTYARD MARRIOTT

PEARL,MS