

# LADNER

JACKSON  
(601) 362-5421

- HATTIESBURG  
(601) 544-5782

- GULFPORT  
(228) 604-2527

## SUBSURFACE INVESTIGATION

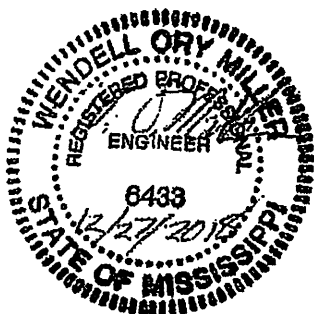
FOR

HEALTH CENTER, RESTROOMS, PAVILION  
SULPHUR SPRINGS PARK  
SULPHUR SPRINGS ROAD  
MADISON COUNTY, MISSISSIPPI

DECEMBER 2018

BY

GEOTECHNICAL ASSOCIATES NETWORK  
2200 ROSS ROAD  
BLACKWELL, TEXAS 79506-3106



**SUBSURFACE INVESTIGATION FOR  
HEALTH CENTER, RESTROOMS, PAVILION  
SULPHUR SPRINGS PARK  
SULPHUR SPRINGS ROAD  
MADISON COUNTY, 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**

Four subsurface borings were made at the site for the proposed construction of a health center, pavilion, and restrooms at Sulphur Springs Park. 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. Any static water levels noted in the borings while drilling or 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, grain size analyses, and in situ moisture contents. Atterberg limits (liquid limit and plastic limit, see 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. These 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 (PI) 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. 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 construction site for the proposed structures is located on Sulphur Springs Road in Section 17 of Township 10 North, Range 5 East, Madison County, Mississippi. Physiographically, the location is in the Gulf Coastal Plain Province of North America and in the North Central Hills Province of Mississippi. Structurally, it is on the east flank of the Mississippi Embayment and near the Pickens Gilbertown fault system. Stratigraphically, the soils in this area are mainly derived from the Eocene Cockfield Formation, a non-marine unit characterized by silty clays, silts, silty sands and sands. Non-marine deposits can exhibit abrupt lateral and vertical changes in lithology. Fill material may also be paced at this site.

Four (4) borings were placed at the site to depths of 20 feet. The subsurface materials encountered within this investigation were interbedded and discontinuous; they consisted of lean clays (CL), silt (ML), heavy or fat clay (CH), clayey sands (SC), and silty sands (SM). As inferred from the SPT data, consistency of the clays and silt was stiff to very stiff and relative density of the sands was loose to medium.

**Soils Data Table**  
**Sulphur Springs Park Structures**  
**Madison County, MS**

Boring Number	Lean Clay CL	Heavy Clay CH	Silt ML	Clayey Sand SC	Silty Sand SM	Total Depth
<i>Restroom</i>						
B-1	8½ - 10		1 - 8½	13½ - 20	0 - 1; 10 - 13½	20
<i>Pavillion</i>						
B-2	0 - 1	3½ - 10		10 - 18½	1 - 3½; 18½ - 20	20
<i>Health Center</i>						
B-3	0 - 10			10 - 20		20
B-4	0 - 5; 10 - 15			5 - 10; 15 - 20		20

Depths are in feet below the surface.

Soils in the area of each proposed structure are described below.

**Restroom building (Boring No. 1):**

Tan and red to red and tan, silty sand (SM) was encountered as shown in the Soils Data Table above. No SPT data were obtained, so relative density was unknown. These are non-plastic materials that could lose strength with increases in moisture content. Field moisture contents were 17.3 percent and 17.6 percent, and 32.0 percent and 33.0 percent passed the #200 grain-size sieve.

Gray to tan, gray, and red silt (ML) was noted from 1 foot to 8½ feet of depth. This was a stiff to very stiff material with SPT blow counts of 9 blow and 25 blows; the material became stiffer with depth. Percentages passing the #200 grain-size sieve were 74.0 percent and 86.0 percent. These were low plasticity soils with plasticity indices of 3 percent and 12 percent and liquid limits of 22 percent and 33 percent. Shrink/swell potential was low and no significant changes in volume would be expected with changes in moisture content. However, loss of strength could occur with increases in moisture content. Field moisture contents were 14.0 percent and 16.7 percent.

Tan and gray sandy lean clay (CL) was encountered from 8½ feet to 10 feet of depth. Consistency was very stiff as inferred from the SPT datum of 26 blows. Field moisture content was 9.2 percent and 68.0 percent passed the #200 grain-size sieve. This was a low plasticity material (plasticity index of 9 percent; liquid limit of 24 percent) with low shrink/swell potential. Only small changes in volume would be expected with changes in moisture content, but loss of strength could occur with increases in moisture content.

Tan and gray to tan clayey sand (SC) was noted from 13½ feet of depth through depth of investigation of 20 feet. No SPT data were obtained, so relative density was not determined. Percent passing the #200 grain-size sieve decreased with depth, ranging from 37.2 percent to 47.2 percent and averaging 42.0 percent. Field moisture contents ranged from 12.9 percent to 14.2 percent and averaged 13.3 percent. The fines content of this sand lent low to medium plasticity: plasticity indices ranged from 10 percent to 20 percent (averaged 15.3 percent) and liquid limits ranged from 25 percent to 40 percent (averaged 33.7 percent). Shrink/swell potential was low to medium and small to moderate changes in volume could occur with changes in moisture content. Loss of strength could occur with increases in moisture content.

**Open-air pavilion (Boring No. B-2):**

A stratum of tan and gray, sandy, lean clay (CL) was noted from the surface to one foot of depth. Field moisture content was 14.6 percent, and 52.4 percent passed the #200 grain-size sieve. Plasticity was low (plasticity index of 8 percent and liquid limit of 23 percent), so shrink/swell potential was low. Only small changes in volume would be expected with changes in moisture content.

Red or tan silty sand (SM) was noted in two depth ranges (see Soils Data Table above). Relative density was loose as suggested by the SPT data of 9 blows and 10 blows. Field moisture contents were 12.0 percent and 18.2 percent, and 44.4 percent and 46.0 percent passed the #200 grain-size sieve. The fines fraction lent low plasticity to these sands: plasticity indices were 4 percent and 7 percent and liquid limits were 21 percent and 31 percent. Shrink/swell potential was low and only small changes in volume would be

expected with changes in moisture content. Loss of strength could occur with increases in moisture content.

A stratum of tan and gray to tan and red, sandy, heavy (or fat) clay (CH) was noted from 3½ feet to 10 feet of depth. This clay had field moisture contents of 18.9 percent and 19.8 percent. Percentages passing the #200 grain-size sieve were 50.0 percent and 50.1 percent (borderline between a clay and a sand). This was high plasticity material with plasticity indices of 39 percent and 51 percent and liquid limits of 62 percent and 71 percent. Shrink/swell potential is high and large changes in volume could be noted with changes in moisture content. Consistency was stiff as inferred from the SPT data of 9 blows and 11 blows.

A stratum of tan, red, and gray to tan and red clayey sand (SC) was encountered between 10 feet and 18½ feet of depth. This sand had field moisture contents of 13.5 percent and 17.2 percent, and 10.6 percent to 29.0 percent passed the #200 grain-size sieve. The fines fraction lent low plasticity: plasticity indices were 14 percent and liquid limits were 34 percent and 35 percent. Shrink/swell potential was low and some small changes in volume could be noted with changes in moisture content. Loss of strength could occur with increases in moisture content. One SPT datum of 12 blows suggested a medium relative density.

**Health Center building (Boring Nos. B-3 and B-4):**

Interbedded lean clays and clayey sands were encountered in these two borings as shown in the Soils Data Table above. The lean clays (CL) were described as sandy lean clay or lean clay with sand. Soil colors were combinations of tan, brown, gray, and red, alone or in various combinations. Consistency was stiff to very stiff as inferred from SPT data ranging from 10 blows to 27 blows (average 20.2 blows). These were low to medium plasticity clays: plasticity indices ranged from 11 percent to 25 percent (average 15.0 percent) and liquid limits ranged from 26 percent to 39 percent (average 31.1 percent). Shrink/swell potential was low to medium and small to moderate changes in volume could occur with changes in moisture content. Field moisture contents ranged from 13.0 percent to 18.7 percent and averaged 15.4 percent. Percent passing the #200 grain-size ranged from 51.0 percent to 74.4 percent and averaged 67.8 percent, showing the very sandy nature of these clays.

The clayey sands (SC) were red and tan; tan; or red in color. Relative density was medium as suggested by one SPT datum of 18 blows. Percentages passing the #200 grain-size sieve ranged from 20.6 percent to 39.2 percent and averaged 32.7 percent. The fines fraction lent low to moderate plasticity: plasticity indices ranged from 13 percent to 27 percent (average 23.2 percent) and liquid limits ranged from 28 percent to 46 percent (average 40.7 percent). Shrink/swell potential is low to medium and small to moderate changes could occur with changes in moisture content. Field moisture contents ranged from 13.1 percent to 15.6 percent and averaged 14.5 percent. Both these lean clays and clayey sands could lose strength with increases in moisture content.

No water levels were noted in any of the borings during or after completion of drilling and sampling operations. The actual water table at the site can only be determined with long-term observations. 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.

## SPECIAL CONSIDERATIONS

Flood. The proposed building site is located in National Flood Hazard Layer (NFHL) Flood Hazard Zone X (area of minimal flood hazard). This information is taken from NFHL panel 28089C0300F, effective 3/17/2010) and illustrated in Figure 1 below. Being in a minimal flood hazard area does not mean the area cannot or will not flood.

Utilities. Although not visible on the plat, there may be utility lines (sewer, water, gas, etc.) crossing the new construction site. If any of these lines are identified and are not to be moved, care must be taken to avoid disturbing the lines.



Figure 1. National Flood Hazard Layer image (NFHL panel 28089C0300F, effective 3/17/2010). The proposed building site is marked on the image with red pin. The site is in Flood Hazard Area Zone X, an area of minimal flood hazard. This image was obtained from the FEMA Map Service website.

## RECOMMENDATIONS FOR BUILDING SITE PREPARATION AND FOUNDATION

We understand that this project will consist of construction of three new structures at Sulphur Springs Park on Sulphur Springs Road, Madison County, 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 Madison County Board of Supervisors,

188 East Capitol Street, Jackson, Mississippi in the planning and design of the structures. 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 should also be given an opportunity 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 understanding that the placement of the structures will be on sites that have been leveled. 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

The subsurface materials encountered within this investigation were interbedded and discontinuous; they consisted of lean clays (CL), silt (ML), heavy or fat clay (CH), clayey sands (SC), and silty sands (SM). As inferred from the SPT data, consistency of the clays and silt was stiff to very stiff and relative density of the sands was loose to medium.

We recommend that the foundation soil be excavated a minimum of 1 foot below the existing contours. These materials should be removed within an area beneath and extending a minimum of 5 feet beyond the perimeter of the structures, if possible. Because the consistency of the clays and silt was stiff to very stiff and relative density of the sands was loose to medium, we recommend that the foundation soil be excavated an additional 3 feet (total of 4 feet of material excavated) for the restroom and Health Center building, and 3½ feet (total of 4½ feet of material excavated) for the open air pavilion.

#### COMPACTION CONTROL

Following the excavation we recommend that the subgrade in all areas be evaluated by a geotechnical engineer or certified technician prior to fill placement. The geotechnical engineer or certified technician will probably recommend proof-rolling the area 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 geotechnical engineer or certified technician. 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 proof-rolling is not possible, the sub-grade beneath the building could be evaluated at selected locations with a hand-held Humbolt Cone Penetrometer, or equivalent. The measured penetration resistance at each location can be subsequently converted to an in situ bearing capacity for the foundation.

Select structural-fill material should then be placed in the foundation areas in maximum loose lifts of 8 inches and be compacted to a minimum of 98 percent of the 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 a minimum of two density tests be performed for each 2,000 square feet of surface area per lift. In addition, monitoring of fill construction and compaction will result in minimizing future settlement of the fill and structure. Therefore, we believe 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.

It is important that the select, structural-fill material should consist of a material having a liquid limit of less than 40 percent, a plasticity index between 8 percent and 20 percent, and greater than 70 percent passing the #200 grain-size sieve. Any excavated material that includes topsoil, organic material, and/or debris, etc. or does not meet the specifications should not serve as select fill and should be disposed of outside the foundation areas. Other material at the site that meets these specifications could be used as select fill.

#### FOUNDATION STRENGTHS

The foundation system should bear in the compacted select fill 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 2.0 kips per square foot for continuous foundation units or 2.3 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 can lose strength with increases in moisture content. Therefore, it is important to properly control the moisture content of these soils during construction. Any foundation soils in exposed excavations that become wet or soft should be removed and replaced with compacted select fill prior to footing installation. 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 as fill and should be properly compacted.

After the construction is completed, it is equally important to control moisture content of the foundation soils. Recent inspections of several buildings that have had differential movement have noted gutters exiting 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. 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.

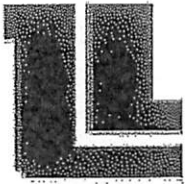
To reiterate, it is important that a good drainage system be established to quickly remove surface water, thus leaving no standing water. Runoff from building roofs should be directed away from the building foundations and away from any parking areas to minimize compromising the foundation and/or the paving structure.

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 or certified technician familiar with working with these type soils be present after excavation and during fill placement. In addition, sufficient field density tests should be taken to insure that the compaction criteria are satisfied and to reduce the possibility of differential settlement at this location.

#### 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 any unusual or significantly different conditions are encountered during construction, 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.



# ladner testing laboratories, inc

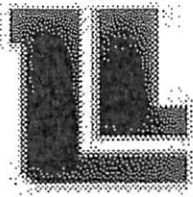
2832 Utica Avenue/Post Office Box 10778/Jackson, Mississippi 39289-0778 / (601) 362-5421  
 2123 Glendale Avenue/ Hattiesburg, Mississippi 39402/ (601) 544-5782  
 P.O. Box 2363/ Gulfport, Mississippi 39505/ (228) 604-2527

<b>PROJECT:</b> SULPHUR SPRINGS PARK / HEALTH CENTER, PAVILION, & RESTROOMS MADISON COUNTY, MS	<b>CLIENT:</b> MADISON COUNTY BOARD OF SUPERVISOR 188 EAST CAPITOL STREET ONE JACKSON PLACE; STE. 250 JACKSON, MS 39201	<b>DATE:</b> 12/4/2018 <b>LAB NO:</b> 651-18-A <b>BORE NO:</b> B-1 <b>TECHNICIAN:</b> B.H. / A.M.
--	---	--

<b>SAMPLES:</b>	AUGER(ASTM D-1452)	TUBE(ASTM D-1587)	<input checked="" type="checkbox"/>	PENETRATION TEST(ASTM D-1586)
-----------------	--------------------	-------------------	-------------------------------------	-------------------------------

DEPTH	SAMPLE	VISUAL DESCRIPTION - REMARKS	CONSISTENCY	FIELD MOIST %	LL%	PI %	PASS #200 %	UNIFIED CLASS	STD. PEN
0		RED & TAN SILTY SAND (0 - 1')		17.6	NA	NP	33.0	SM	
	X	GRAY SILT (1 - 2.5')	STIFF	16.7	22.0	3.0	74.0	ML	9
	X	TAN, GRAY & RED SILT (2.5 - 8.5')	VERY STIFF	14.0	33.0	12.0	86.0	ML	25
5									
	X	TAN & GRAY SANDY LEAN CLAY (8.5 - 10')	VERY STIFF	9.2	24.0	9.0	68.0	CL	26
10		TAN & RED SILTY SAND (10 - 13.5')		17.3	NA	NP	32.0	SM	
		TAN & GRAY CLAYEY SAND (13.5 - 15')		12.9	25.0	10.0	47.2	SC	
15		TAN & GRAY CLAYEY SAND (15 - 18.5')		14.2	40.0	20.0	41.6	SC	
		TAN CLAYEY SAND (18.5 - 20')		12.9	36.0	16.0	37.2	SC	
20									
25									
30									

WATER DEPTH <u>0</u> FT.	AFTER <u>0</u> HRS.	BORING ELEVATION <u>0</u> FT.
WATER DEPTH <u>0</u> FT.	AFTER <u>0</u> HRS.	BORING TERMINATED AT <u>20</u> FT.



# ladner testing laboratories, inc

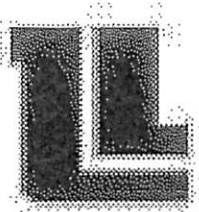
2832 Utica Avenue/Post Office Box 10778/Jackson, Mississippi 39289-0778 / (601) 362-5421  
 2123 Glendale Avenue/ Hattiesburg, Mississippi 39402/ (601) 544-5782  
 P.O. Box 2363/ Gulfport, Mississippi 39505/ (228) 604-2527

<b>PROJECT:</b> SULPHUR SPRINGS PARK / HEALTH CENTER, PAVILION, & RESTROOMS MADISON COUNTY, MS	<b>CLIENT:</b> MADISON COUNTY BOARD OF SUPERVISOR 188 EAST CAPITOL STREET ONE JACKSON PLACE; STE. 250 JACKSON, MS 39201	<b>DATE:</b> 12/4/2018 <b>LAB NO:</b> 651-18-A <b>BORE NO:</b> B-2 <b>TECHNICIAN:</b> B.H. / A.M.
--	---	--

<b>SAMPLES:</b>	<input type="checkbox"/> AUGER(ASTM D-1452)	<input type="checkbox"/> TUBE(ASTM D-1587)	<input checked="" type="checkbox"/> PENETRATION TEST(ASTM D-1586)
-----------------	---	--	---

DEPTH	SAMPLE	VISUAL DESCRIPTION - REMARKS	CONSISTENCY	FIELD MOIST %	LL%	PI %	PASS #200 %	UNIFIED CLASS	STD. PEN
0		TAN & GRAY SANDY LEAN CLAY (0 - 1')		14.6	23.0	8.0	52.4	CL	
	X	RED SILTY SAND (1 - 3.5')	LOOSE	18.2	21.0	4.0	44.4	SM	9
	X	TAN & GRAY SANDY HEAVY CLAY (3.5 - 5')	STIFF	19.8	62.0	39.0	50.1	CH	11
5		TAN & RED SANDY HEAVY CLAY (5 - 10')		18.9	71.0	51.0	50.0	CH	
	X		STIFF						9
10		TAN, RED & GRAY CLAYEY SAND (10 - 13.5')		17.2	35.0	14.0	29.0	SC	
	X	TAN & RED CLAYEY SAND (13.5 - 18.5')	MEDIUM	13.6	34.0	14.0	10.6	SC	12
15									
	X	TAN SILTY SAND (18.5 - 20')	MEDIUM	12.0	31.0	7.0	46.0	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.



# ladner testing laboratories, inc

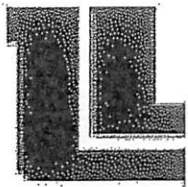
2832 Utica Avenue/Post Office Box 10778/Jackson, Mississippi 39289-0778 / (601) 362-5421  
 2123 Glendale Avenue/ Hattiesburg, Mississippi 39402/ (601) 544-5782  
 P.O. Box 2363/ Gulfport, Mississippi 39505/ (228) 604-2527

<b>PROJECT:</b> SULPHUR SPRINGS PARK / HEALTH CENTER, PAVILION, & RESTROOMS MADISON COUNTY, MS	<b>CLIENT:</b> MADISON COUNTY BOARD OF SUPERVISOR 188 EAST CAPITOL STREET ONE JACKSON PLACE; STE. 250 JACKSON, MS 39201	<b>DATE:</b> 12/4/2018 <b>LAB NO:</b> 651-18-A <b>BORE NO:</b> B-3 <b>TECHNICIAN:</b> B.H. / A.M.
--	---	--

<b>SAMPLES:</b>	<input type="checkbox"/> AUGER(ASTM D-1452)	<input type="checkbox"/> TUBE(ASTM D-1587)	<input checked="" type="checkbox"/> PENETRATION TEST(ASTM D-1586)
-----------------	---	--	---

DEPTH	SAMPLE	VISUAL DESCRIPTION - REMARKS	CONSISTENCY	FIELD MOIST			PASS #200 %	UNIFIED CLASS	STD. PEN
				%	LL%	PI %			
0		BROWN, TAN & RED SANDY LEAN CLAY (0 - 1')		18.7	26.0	12.0	65.2	CL	
	X	GRAY & TAN LEAN CLAY W/SAND (1 - 3.5')	VERY STIFF	13.0	29.0	11.0	74.0	CL	24
	X	TAN LEAN CLAY W/SAND (3.5 - 8.5')	STIFF	15.7	30.0	15.0	72.4	CL	10
5									
	X	TAN & RED SANDY LEAN CLAY (8.5 - 10')	VERY STIFF	15.0	39.0	25.0	68.4	CL	22
10		RED & TAN CLAYEY SAND (10 - 15')		15.6	42.0	27.0	33.6	SC	
15		TAN CLAYEY SAND (15 - 18.5')		14.1	44.0	25.0	34.4	SC	
		TAN CLAYEY SAND (18.5 - 20')		14.8	46.0	26.0	20.6	SC	
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.



# ladner testing laboratories, inc

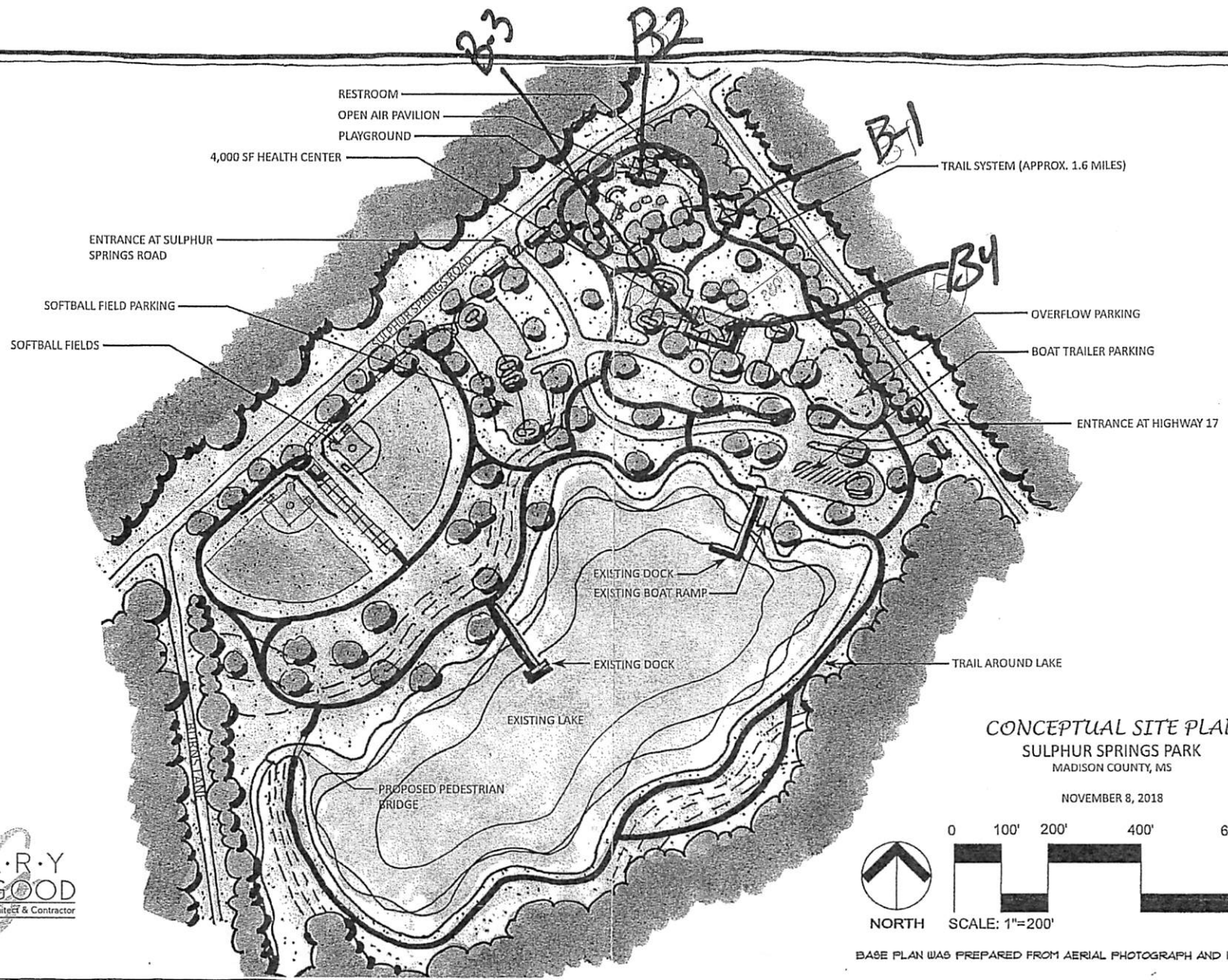
2832 Utica Avenue/Post Office Box 10778/Jackson, Mississippi 39289-0778 / (601) 362-5421  
 2123 Glendale Avenue/ Hattiesburg, Mississippi 39402/ (601) 544-5782  
 P.O. Box 2363/ Gulfport, Mississippi 39505/ (228) 604-2527

<b>PROJECT:</b> SULPHUR SPRINGS PARK / HEALTH CENTER, PAVILION, & RESTROOMS MADISON COUNTY, MS	<b>CLIENT:</b> MADISON COUNTY BOARD OF SUPERVISOR 188 EAST CAPITOL STREET ONE JACKSON PLACE; STE. 250 JACKSON, MS 39201	<b>DATE:</b> 12/4/2018 <b>LAB NO:</b> 651-18-A <b>BORE NO:</b> B-4 <b>TECHNICIAN:</b> B.H. / A.M.
--	---	--

<b>SAMPLES:</b>	<b>AUGER(ASTM D-1452)</b>	<b>TUBE(ASTM D-1587)</b>	<b>X</b>	<b>PENETRATION TEST(ASTM D-1586)</b>
-----------------	---------------------------	--------------------------	----------	--------------------------------------

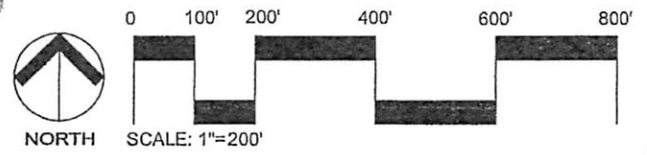
DEPTH	SAMPLE	VISUAL DESCRIPTION - REMARKS	CONSISTENCY	FIELD MOIST %	LL%	PI %	PASS #200 %	UNIFIED CLASS	STD. PEN
0		BROWN & TAN SANDY LEAN CLAY (0 - 1')		15.7	29.0	11.0	62.8	CL	
	X	TAN & GRAY LEAN CLAY W/SAND (1 - 3.5')	VERY STIFF	13.3	30.0	13.0	74.2	CL	27
	X	TAN & GRAY LEAN CLAY W/SAND (3.5 - 5')	VERY STIFF	16.7	32.0	14.0	74.4	CL	18
5		RED CLAYEY SAND (5 - 10')		13.1	28.0	13.0	38.4	SC	
	X	TAN SANDY LEAN CLAY (10 - 15')	VERY STIFF	15.4	34.0	19.0	51.0	CL	18
15		TAN CLAYEY SAND (15 - 18.5')		15.6	44.0	26.0	39.2	SC	
		TAN CLAYEY SAND (18.5 - 20')		13.8	40.0	22.0	30.0	SC	
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.



**CONCEPTUAL SITE PLAN**  
**SULPHUR SPRINGS PARK**  
 MADISON COUNTY, MS

NOVEMBER 8, 2018



BASE PLAN WAS PREPARED FROM AERIAL PHOTOGRAPH AND IS APPROXIMATE.

