SHAFER ZAHNER ZAHNER
OFFICE OF ARCHITECTURE

December 4, 2020
GS# 210-070 New Bookstore
Mississippi Delta Community College
Moorhead, Mississippi

Addendum No. 1

This Addendum forms part of the Contract Documents for the above referenced project. All other requirements of the original Contract Documents shall remain in effect except as specifically modified in this Addendum. Bidder is to acknowledge receipt of this Addendum with their bid proposal. Failure to do so may subject the Bidder to disqualification. This Addendum is issued to all known Plan Holders.

1. A Pre-Bid Meeting was held on November 30, 2020. See this addendum for resolution of questions asked and other information discussed at this meeting. See the Pre-Bid Conference Meeting Minutes and Pre-Bid Conference Attendance Roster attached.
2. **Please send any questions to Shafer Zahner Zahner by C.O.B. Wednesday, December 9, 2020.**
3. Clarifications:
    a. There are no 4x4 stub columns at the north-west and north-east corners of the high roof. Refer to 3/S402 for framing condition at this location. There are 4x4 stub columns at the ridge of the high roof on the north and south side.
    b. Helical Piles
        i. Helical piles shall be galvanized
        ii. No load test are required for Helical Piles
        iii. Length of piles shall be determined by GC based on Geotechnical Report referenced on Sheet S001.
        iv. Helical pile submittal shall be submitted to structural engineer of record.
        v. There are 19 Helical Piles supporting the foundations.
    c. The geotechnical report for the existing Vandiver Student Union was referenced for this project as an addition on the existing building. See attached geotechnical report.

Contents: This addendum consists of **44** (8 ½" x 11") sheets.

End of Addendum No. 1 for: GS# 210-070 New Bookstore

510 University Drive ●Starkville, Mississippi 39759 ●662.323.1628 **T** ● info@szzarch.com **E**
A LIMITED LIABILITY CORPORATION

SHAFER ZAHNER ZAHNER
OFFICE OF ARCHITECTURE

PRE-BID CONFERENCE

Project: **GS# 210-070**
New Bookstore
Mississippi Delta Community College
Date/Time: November 30, 2020 @ 1:30 PM
Location: Vandiver Student Union (the project site), Moorhead, MS 38761
Present: See attached sign-in sheet

1. Project Team:
   - **Shafer Zahner Zahner: Gary Shafer, Sally Zahner 662-323-1628, szahner@szzarch.com**
   - **Edmonds Engineering: Tim Groover 601-362-6478 cell 601-951-2819**
   - **Structural Design Group: Will Grigg 615-255-5537**
   - **Live Oak Engineering: Les Seymour 228-424-0269**
   - **Bureau of Building: Randy Turner, Mario Smith**

Bid Date: *December 15, 2020 at 2:00 pm @* the office of the Bureau of Building(14th floor), Grounds and Real Property Management, 501 North West Street [Woolfolk Building], Jackson, Mississippi, 39201. Official Time is by the BOB

- Current Bidders List: **6 current** General Contractors
- Construction days: **180** calendar days for project (see *Proposal Form*) – will be corrected via Addendum
- Notice to Proceed – by BOB. Must hold price per specifications.

2. Instructions to bidders
   - Any bidders who would like to visit the site, please contact Facilities Maintenance – 662-246-6441 or campus police – 662-207-8011
   - Proposed addendum dates: Before 5:00 p.m. Thursday, December 10, 2020.
     i. **Last day for questions to SZZ: December 9, 2020 COB.**
   - Division One…….follow all BOB rules.
3. Contract Administration: Architects will be on site to inspect weekly.
   - Construction Progress Meetings held monthly as required by Division 1.
4. Scope of work: Selective demolition, renovation to existing conference room and addition to the existing Vandiver building to create new bookstore.
   - There are no Bid Alternates –
   - There is one Allowance for control system - $24,000
5. Construction Access and Special Phasing; Discuss:
   - Building is occupied. Secure the jobsite, Coordinate work affecting occupants with Using Agency
   - Coordinate sequencing of the work with Using Agency for renovation of existing conference room space
   - Staging Areas/Fencing/Access/Construction Sign: **Discussed/to be addressed**
     i. **Maintain right of ways in adjacent streets**

ii. **Lay down areas, parking, fencing locations to be addressed in the Pre-Construction Meeting with College's representative**

6. Bidding rules: Pay attention to *Instructions To Bidders*
7. Common mistakes:
    - Certificate of Responsibility and Contractor's License number on envelope.
    - Any changes to bid on outside of envelope. Initial and date.
    - Acknowledge addenda.
8. Questions –
9. Walk through of existing facility and site

Shafer Zahner Zahner
Project #2018

PRE-BID MEETING SIGN IN SHEET

Project: GS# 210-070 New ~~Administration Building~~ Bookstore **Meeting Date:** 11/30/2020

Place/Room: Vandiver Building (the site)

Name	Company	Phone	E-Mail
Sally Zahner	Shafer Zahner Zahner	662-364-1456	szahner@szzarch.com
~~Gary Shafer~~	~~Shafer Zahner Zahner~~	~~662-323-1628~~	~~gshafer@szzarch.com~~
Robert Carter	KT Builder	6624537765	jim@KTBUILDER.COM
Willard McIlwain	MSI	334-313-3424	
RANDY TURNER	BOB	6019496069	RANDY.TURNER@DFA.MS.GOV
Brien Ables	DCSI	662-836-6736	b.ables@dsmithconstructioninc.com
TIM GROOVER	EDMONDS	601 3626478	tgroover@edmondsengineering.com
Marsha Lee	MDCC	662-246-6314	mlee@msdelta.edu
David Carroll	DCServices	662-202-8336	david@dcs-build.com
Ronnie Bush	SHERWIN-WILLIAMS	662-616-1410	RONNIE.R.BUSH@SHERWIN.COM
Billy Brozovich	Willmer Painting	662-335-2069	Billy@willmerpainting.com
Carl Willmer	Willmer Painting	662-335-2069	Carl@willmerpainting.com
Tyrone Jackson	MDCC	662-246-6301	tjackson@msdelta.edu
Don Lee	MDCC	662-822-7036	dlee@msdelta.edu

GEOTECHNICAL INVESTIGATION

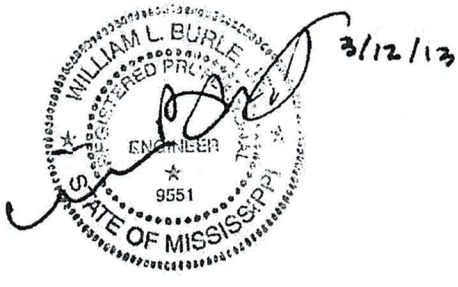
AND

ENGINEERING REPORT

FOR

GS #210-057
STUDENT ACTIVITY CENTER
MISSISSIPPI DELTA COMMUNITY COLLEGE
MOORHEAD, MISSISSIPPI

Submitted To:
Beard + Riser Architects, PLLC
201 Main Street
Greenwood, MS 38930



3/12/13

March 12, 2013

W.L.BURLE
ENGINEERS, P.A.
111 S. Walnut Street · P.O. Box 1293 · Greenville, MS 38702-1293
662.332.2619 · Fax 662.332.2622 · www.wlburle.com

Project No. 05470-4-0213

W.L.BURLE
ENGINEERS, P.A.

March 12, 2013

Mr. John Beard, AIA,
Dale + Riser Architects, PLLC
201 Main Street
Greenwood, MS 38930

Re: Geotechnical Investigation and Engineering Report
GS #210-057
Student Activity Center
Mississippi Delta Community College
Moorhead, MS

Dear Mr. Beard:

W. L. Burle, Engineers, P.A. has completed the authorized geotechnical investigation and engineering report for the referenced project. This report contains the results of our findings, an engineering interpretation of these with respect to the available project characteristics and recommendations to aid in the design and construction of the foundation and pavement systems for the proposed project.

We appreciate having the opportunity to work with you during the site investigation phase of this project and look forward to assisting you during the construction phase. If we can be of further assistance or should you have any questions regarding this report, please contact our office.

Sincerely,

W. L. BURLE, ENGINEERS, P.A.

William L. Burle, Jr., Ph.D., P.E., P.G.

WLB/jnh

pc: Mr. Chad Fowler, P.E., Fowler Engineering, LLC

111 S. Walnut Street · P.O. Box 1293 · Greenville, MS 38702-1293
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APPENDICES

1.0 INTRODUCTION AND PURPOSE

Beard + Riser Architects, PLLC (CLIENT) of Greenwood, MS, retained W.L. Burle, Engineers, P.A. (BURLE) to conduct a geotechnical investigation for the Student Activity Center Project located on the Mississippi Delta Community College (MDCC) campus in Moorhead, MS.

The purpose of the geotechnical investigation is to:

- determine the general, on-site, sub-surface soil and groundwater conditions,
- evaluate the findings with respect to the proposed construction,
- identify potential problems which may develop during construction, and
- recommend appropriate foundation and pavement systems for the proposed project.

2.0 PROJECT CHARACTERISTICS

The project site is in Section 10, Township 18 North, Range 3 West, Moorhead, Sunflower County, Mississippi. The site is located on the MDCC campus. The site is referenced on Figure 1.

The project site is a grass-covered yard. The site occupies an area of approximately 3.5 acres (~300' x ~500'). It is located in the northeast quadrant of the MS Hwy 3/Lucas Drive intersection. On-site improvements consist of signage/landscaping , parking and underground utilities (e.g. fiber optic telephone, natural gas, water and sewer). On-site drainage is directed to perimeter ditches located south and west of the site. The site is referenced on Figure 2.

The proposed project will consist of the construction of the Student Activity Center. The building will be a single-story, structure. A mezzanine area will be constructed within the building. The exterior wall system will consist of a metal panel, brick veneer system. Parking facilities and access drives will serve the facility. The project is referenced on Figure 2.

The anticipated building loads were provided by the structural engineer, Mr. Chad Fowler, P.E. with Fowler Engineering, LLC of Hernando, MS. The column loads should not exceed 45 kips. The wall load should not exceed 3.5 kips per linear foot.

3.0 GEOLOGICAL SETTING

A study of the geologic survey of Mississippi indicates that this site is in the Atlantic/Gulf Coastal Plain Province. The site is specifically in the Mississippi River Alluvial Section of the province. The deposit is of Holocene age. This deposit consists of poorly drained, nearly level and gently sloping soils on natural levees and low terraces.

The alluvial deposit is essentially one stratigraphic unit consisting of an upper zone composed of fine-grained soils of silt and clay and a lower zone composed of sands and gravels. The upper zone typically contains highly plastic clays which can exhibit volumetric change. The lower zone typically consists of stable sands and gravels composed primarily of brown chert, quartz, gneiss and diorite. The formation varies in depth throughout the Delta and is approximately 150 feet thick in the Moorhead area.

4.0 FIELD AND LABORATORY METHODS

Twelve (12) soil test borings, designated B-1 through B-12, were drilled at the site at the approximate locations shown in the appendices. They were carried to depths of 50 feet below ground surface (bgs) within the proposed building footprint and to depths of 5 feet bgs within proposed pavement areas. Actual boring locations were selected by BURLE. The boring locations were referenced in the field from the existing on-site improvements.

The borings were made with a truck-mounted drill rig using the hollow-stem auger (HSA) drilling method. The Standard Penetration Test (STP) method (ASTM D-1586) was used to obtain disturbed soil samples at maximum intervals of five feet or at major changes in soil conditions. Shelby tube samplers were used to obtain relatively, undisturbed cohesive soil samples. The recovered samples were visually classified (ASTM D-2487) in the field, logged and sealed in moisture proof containers.

Groundwater levels were monitored during the drilling operation. All readings were recorded on the field boring logs. Upon completion of all field activities, the open boreholes were properly abandoned in accordance with Mississippi Department of Environmental Quality standards.

Preliminary test boring logs were developed on the job site by the drill foreman. At the completion of the field program, the samples were taken to the laboratory where they were again examined and classified, in accordance with the Unified Soil Classification System (USCS), by a soils technician and/or the project engineer; the field classifications were revised where necessary. The soil descriptions, USCS symbols and SPT values (N) are referenced on the Test Boring Logs.

In addition to the field investigation, supplementary laboratory analyses were performed to aid in the soil classification and to further define the pertinent physical properties of the foundation soils. Atterberg Limits and moisture content tests were performed on selected samples. Sieve analyses were performed on select samples to aid in determining soil classification. Unconfined compressive strength tests were performed on selected, cohesive soil samples. All laboratory testing was conducted in accordance with appropriate ASTM standards. Results of the laboratory tests are referenced on the test boring logs and/or in the appendices of this report.

5.0 SUBSURFACE FINDINGS

5.1 Site Geology

Two (2) strata of soil existed to the termination depths referenced on the boring logs.

The surficial stratum was a fine-grain deposit consisting of a clay (CL and/or CH). The following comments describe the deposit:

1. The site was primarily blanketed with a surficial layer of organic, grass-covered topsoil; asphalt pavement covered the sites of borings B-10 and B-11. The topsoil thickness varied from ~6 inches to ~1 foot. The surficial clay deposit was encountered beneath the topsoil/pavement layer; it extended to the termination depths of 5 feet bgs in the shallow borings and to depths of ~10 to ~15 feet bgs in the deeper borings.

2. SPT N values ranged from 3 to 13, indicating the soil's consistency varied from soft to stiff.

3. The soil's moisture content ranged from 25 to 52% and varied with both depth and the clay content of the soil.

4. The surficial CH clay's Liquid Limit (LL) ranged from 52 to 91 and its Plasticity Index (PI) ranged from 32 to 59; such soils typically exhibit a high shrink/swell potential actuated by soil moisture loss/gain. (*Since the heavy clay deposit was encountered within the Active Zone (which, in the Mississippi Delta, is the sub-surface vertical zone from the ground surface to depths varying from 5 to 10 feet bgs; soils within this zone can experience changes in soil moisture content), there is a high probability that these soils will experience seasonal variations in moisture content which can translate to volumetric changes (i.e. shrink/swell)*).

5. The surficial CL clay's LL ranged from 35 to 50 and its PI ranged from 14 to 27; (*such soils typically exhibit a low to moderate shrink/swell potential actuated by soil moisture loss/gain. Since the lean clay deposit was also encountered within the Active Zone, there is a moderate probability that these soils will experience seasonal variations in moisture content which can translate to volumetric changes (i.e. shrink/swell)*).

6. The soil's unconfined compressive strength, within a vertical zone of 4.5 to 6.5 feet bgs, ranged from 1.31 tons per square foot (tsf) (boring B-2) to 1.90 tsf (boring B-4).

7. A silt (ML) lense was encountered beneath the clay deposit in boring B-1. The following describes the deposit:

   - The lense was encountered within a vertical zone from ~10 to ~15 feet bgs.
   - The SPT N value was 11, indicating the consistency was stiff.
   - The moisture content was 18%.

The second stratum was a coarse-grained deposit consisting of a **sand** (SM, SM-SP and/or SP). The following comments describe the deposit:

8. The deposit was encountered beneath the silt lense and/or clay deposit in all of the deeper borings. The deposit extended to the boring termination depths of 50 feet bgs.

9. The soil's SPT N values ranged from 9 to 50+ and typically increased with depth; the deposit's relative density ranged from loose to very dense.

10. The soil's moisture content ranged from 3 to 20% and typically increased with depth and/or clay/silt content.

5.2 Hydrogeology

The surficial aquifer's capillary fringe was encountered at depths ranging from 45 to 46 feet bgs. Subsequent readings could not be made due to the collapse of the open boreholes. (*These findings are representative of the surficial, unconfined aquifer in the Moorhead area.*)

6.0 DESIGN RECOMMENDATIONS

The following recommendations are made based on the subsurface findings and the project characteristics:

6.1 Site Work

1. Demolition Activities:

The entire project site will require demolition activities. All conflicting foundations, pavement and/or utility systems should be either relocated or completely removed prior to construction. The debris should be disposed of off-site at an approved recycling/disposal facility.

2. Clearing/Grubbing Activities:

The project site should be cleared/grubbed. The operation will remove the trees/vegetation top soil within the proposed building and pavement areas. The excavation should be sufficient in depth to remove the vegetation and associated root systems and should extend horizontally 5' outside the exterior lines of the building/pavement areas.

The excavated material is unsuitable for use on-site and should be disposed of off-site.

A geotechnical engineer should be on-site during the clearing/grubbing activities to inspect and monitor the work.

3. Under-Cutting Operation:

The building footprint should be undercut. This will remove a portion of the the expansive surficial clays located within the Active Zone beneath the building footprint. The horizontal limits of the undercutting operation should extend 5 feet outside the exterior limits of the proposed building footprint. The undercutting should be carried to a depth of 2 feet below existing grade for the deep foundation system option (see Section 6.2.1) or to a depth of 7 feet below existing grade for the shallow foundation system option (see Section 6.2.2).

4. Engineered Fill Construction:

Upon completion of the demolition/clearing and grubbing/under-cutting activities, the cleared sub-grade should be graded and compacted to 95% Standard Proctor Density (ASTM D-698) on the wet side of the optimum moisture content. If unstable soil conditions (i.e. pumping) and/or groundwater are encountered, the situation should be reviewed by a geotechnical engineer as noted in Section 6.8 of this report.

After the sub-grade has been properly prepared, the engineered fill should then be immediately constructed within the excavated area. The fill will serve to build the site to grade. The select fill material should consist of imported, non-organic and debris-free, silty clays (CL), sandy clays (CL) or clayey sands (SC) having a PI within range of 5 to 25 and a LL less than 35.

The fill should be placed in 8" loose lifts and compacted to 95% Standard Proctor density at moisture contents within 3% of optimum moisture. The lifts/benches should be level. The fill should be constructed in this manner until the site is brought to grade.

Testing services, consisting of the testing of the compacted fill, should be performed. The density and moisture content of the in-place fill material should be verified by testing at a frequency of one test per 2,500 square feet per six (6) inch compacted lift. Nuclear gauge (ASTM D-2922) or sand cone methods (ASTM D-1556) are approved testing methods for density verification.

6.2 Foundation System

If the under-cutting/engineered fill activities are performed as referenced in Section 6.1.3 and 6.1.4 of this report, both a deep foundation system and a shallow foundation system are viable options for the project. These options are discussed below:

1. Deep Foundation System Option:

A deep foundation system is a viable option for the project. Driven pile systems are not recommended due to the noise and vibrations generated during installation and the close proximity of the proposed building site to existing buildings. An augered, pressure-grouted concrete pile system is, therefore, considered the most viable, non-impinging deep foundation option for the project. The system is discussed as follows:

- Augered, Pressure-Grouted Concrete Pile:

  An augered, pressure-grouted pile is recommended for the project. The piles should be designed by a licensed structural engineer. The auger piles should be founded in the deeper, dense sands which were encountered at depths of ~30 to ~50 feet bgs. A tabulation of allowable compression/tension capacities for various diameters/lengths of individual piles are referenced below:

TABLE 1- INDIVIDUAL PILE CAPACITIES

Pile Type	Pile Diameter, In.	Minimum Embedment, ft.	Maximum Allowable Capacity*, tons	
			Compression	Tension
Cast-in-Place, Auger Cast Pile	12	30	18	11
		35	28	13
	14	30	23	13
		35	35	16

*Safety Factor= 3.0

To verify the pile capacity, a compressive pile test (ASTM D-1143) should be performed in the vicinity of the project site. The results of the pile test should be used to confirm the allowable capacity of the piles, as well as to calculate the expected settlement under pile groups during the service life of the structure.

For pile groups, the piles should be spaced a minimum of three pile widths center-to-center apart. The piles should be installed from the center of the group outward. The butt elevations of all piles should be recorded after installation and monitored during the installation of adjoining piles within the group.

The pile installation operation should be performed by a contractor experienced in pile installation/construction. The pile installation equipment should be properly sized to accommodate both the dimensions of the pile and the requirements needed to install the pile.

Given these requirements/concerns, it is recommended that the pile operations be observed/documented by a geotechnical engineer.

2. Shallow Foundation System Option:

If the under-cutting activites and engineered fill construction activities are performed as referenced in Sections 6.1.3 and 6.1.4 of this report, a shallow foundation system, consisting of spread and/or continuous footings, is also a viable foundation option for the project. The allowable gross soil bearing capacity is 2.5 kips per square foot (ksf). The Safety Factor is 3.0. Settlement under this loading is anticipated to be less than 1.0 inch.

The following information applies to both options and is provided to assist in designing the foundation systems:

- Foundation Design- The foundation system should be designed by a structural engineer. The base of the foundation should extend to a depth of at least 24 inches below final grade.

- Seismic Information- The site class identification for the building site is Site Class D (IBC 2009 Section 1613)

6.3 Floor Slab

The flooring system should be a reinforced-concrete, slab-on-grade system. The floors should be supported by a prepared sub-grade. Two (2) equivalent options are offered for preparing the sub-grade.

1. Option 1 – Granular Mat :

A mat of granular material (4" thick) may be placed upon the prepared engineered fill. This material should be naturally-occurring earth material, fairly well-graded with an upper particle size diameter of 1 inch. A minimum of 30% should pass the No. 10 sieve and a maximum of 5% should pass the No. 200 sieve. This material should be spread uniformly over the sub-grade and tamped or rolled to provide a firm, true surface for placing concrete. A moisture barrier should be placed over the granular material.

2. Option 2 – Engineered Fill :

The engineered fill described in Section 6.1.4 of this report can serve as the sub-grade for the floor slab system. A moisture barrier should be placed over the fill prior to the construction of the floor slab/foundation system.

6.4 Pavement System

The pavement recommendations have been prepared suing the AASHTO Structural Number (SN) analysis for asphalt system and the Portland Cement

Association (PCA) design protocol for concrete pavement system. The following are recommended pavement options for the project:

1. Asphalt Pavement Option- Automobile Traffic:

   The required, weighted SN for the roadway is 3.35. This number is based on a Group Index of 12, a sub-base CBR value of 5, an equivalent daily traffic value of 300 and a regional weighting factor of 3.0.

   The following is recommended asphalt pavement design for the project:

   - Asphalt Pavement/Base Course - The pavement system should consist of:
     - 5.0 inches of hot bituminous asphalt pavement; and
     - 12 inches of compacted, crushed limestone (GC) (Size No. 610 Gradation - Mississippi Department of Transportation (MDOT) specification) base course.

   These are discussed as follows:

   - Asphalt Pavement - The asphalt pavement should consist of a single-lift, 1.5 inches thick wearing course (HMA ST 9.5 mm) supported by two-lifts of 1.75 inch (total 3.5 inches) thick base course (HMA ST 12.5 mm). The asphalt should be constructed in accordance with MDOT Specifications.
   - Base Course - As mentioned, the base course should be crushed limestone (GC) material meeting a No. 610 gradation. The base material should be placed in 8 inch loose lifts and compacted to 100% Standard Proctor density (ASTM D-698) at moisture contents within 4% of optimum moisture; density tests should be performed as specified in Section 6.1.4 of this report. The lifts/benches should be level. The fill should be constructed in this manner until the base course is brought to grade.

2. Concrete Pavement Option- Automobile Drives/Parking Lot:

   The pavement system may consist of a 6 inch thick, reinforced concrete pavement system. The concrete mix should have a 28-day, compressive strength of 3500 pounds per square inch (psi). If needed, an engineered fill, consisting of compacted select fill material, can be constructed to bring the base to grade; applicable fill construction specifications are referenced in Section 6.1.4 of this report.

3. Concrete Pavement Option- Truck Drives/Dumpsters:

A concrete pavement system should be used for the truck service drives and dumpster pad area. The pavement system should consist of an 8 inch thick reinforced concrete pavement system. The concrete mix should have a 28-day, compressive strength of 3500 psi. If needed, an engineered fill, consisting of compacted select fill material, can be constructed to bring the base to grade; applicable fill construction specifications are referenced in Section 6.1.4 of this report.

6.5 Drainage

Adequate drainage should be provided to minimize any increase in the moisture content of the foundation soils. The drainage from the roof systems, pavement areas and/or yard should be directed away from the foundation systems to prevent the ponding of water around the building.

6.6 Landscaping

All trees should be at least 30' from the foundation systems. This will reduce the soil moisture loss from beneath the building and thus reduce the potential for shrinkage of the foundation soils. Shrubbery may be planted closer to the building, however, the issue of soil moisture loss should be considered when choosing shrubbery type.

6.7 Excavations

All excavations should be constructed in accordance with applicable United States Department of Labor, Occupational Safety and Health Administration (OSHA) regulations/guidelines. These guidelines are found in 29 Code of Federal Regulations (CFR) 1926. These regulations are strictly enforced by OSHA and, if not adhered to by the contractor, can not only result in worker injuries and/or fatalities but also in substantial penalties and fines levied by OSHA.

The burden of adhering to OSHA regulations falls solely on the contractor. The contractor is responsible for not only the design of the excavations but also their construction. The contractor will assign a "responsible person" as defined in 29 CFR 1926, to evaluate such excavations as part of the contractor's health and safety plan. In no case should the contractor subject workers to excavations which do not comply with OSHA regulations/guidelines.

6.8 Potential Construction Problems/Issues

1. Unstable Soil Conditions:

In the Mississippi River Delta, the potential always exists for unstable (i.e. pumping) soil conditions to be encountered during site preparation work. Undrained, saturated soils are typically the cause. Unless otherwise noted in this report, the problem is typically:

- localized or confined to an area, such as a ditch or low-lying area that is poorly drained;
- associated with an area that is affected by the groundwater situation; and/or
- associated with an area that has conveyed/held water in the past.

If normal site work activities, such as discing and aeration, cannot dry the soil to a moisture level that will allow proper compaction and stabilization, the area should be inspected by a geotechnical engineer so that a remedial plan can be developed. Such a plan typically involves either:

- over excavation of the unstable soils and construction of an engineered fill to bridge the affected area; and/or
- installation of a geogrid material/aggregate mat over the affected area.

7.0 REPORT LIMITATIONS

The recommendations provided herein were developed from the information obtained from both the site reconnaissance and the test borings which depict subsurface conditions only at the specific locations and the particular time designated on the logs. Soil conditions at other locations may differ from conditions occurring at the boring locations. The nature and extent of variations between the borings may not become evident until the course of construction. If variations are encountered, it will be necessary to re-evaluate the recommendations of this report after performing on-site observations during the excavation period and noting the characteristics of these variations.

Our professional services have been performed, our findings obtained and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices. This warranty is in lieu of all other warranties either expressed or implied. BURLE is not responsible for the independent conclusions, opinions or recommendations made by others based on the field exploration and laboratory test data presented in this report.

8.0 USER RELIANCE

This report was requested/authorized by CLIENT. It was prepared for use by CLIENT and CLIENT's sub-consultants based on the CLIENT-approved scope of services, schedule and cost estimate. This report shall not be relied upon by and/or transferred to another party without the written consent of BURLE.

END OF REPORT

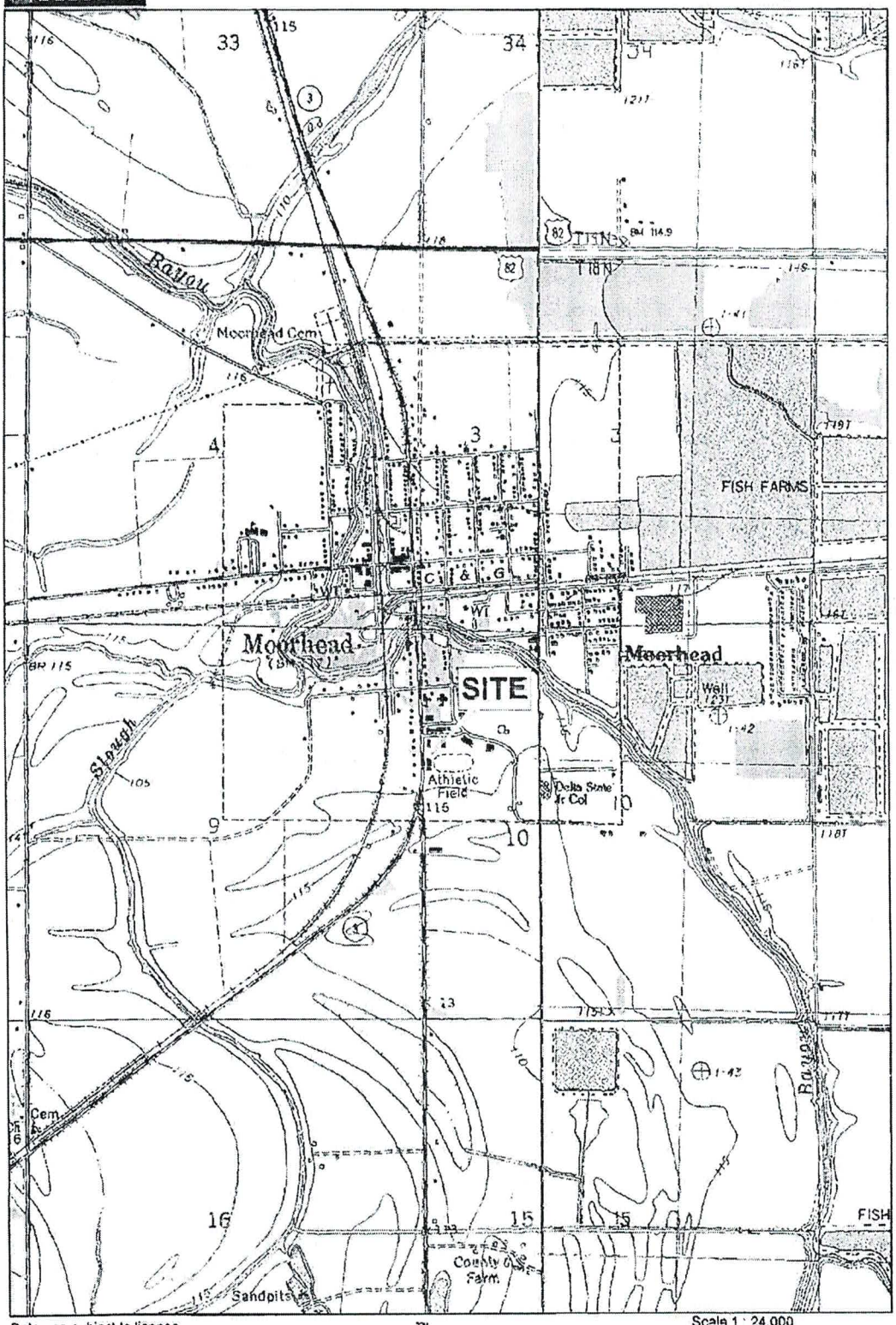
FIGURES

FIGURE 1

VICINITY MAP

DeLORME

Topo USA® 6.0



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Scale 1 : 24,000

1" = 2,000.0 ft

Data Zoom 13-0

W. L. BURLE
ENGINEERS, P.A.
111 South Walnut Street
Greenville, MS 38701

FIGURE 1
VICINITY MAP

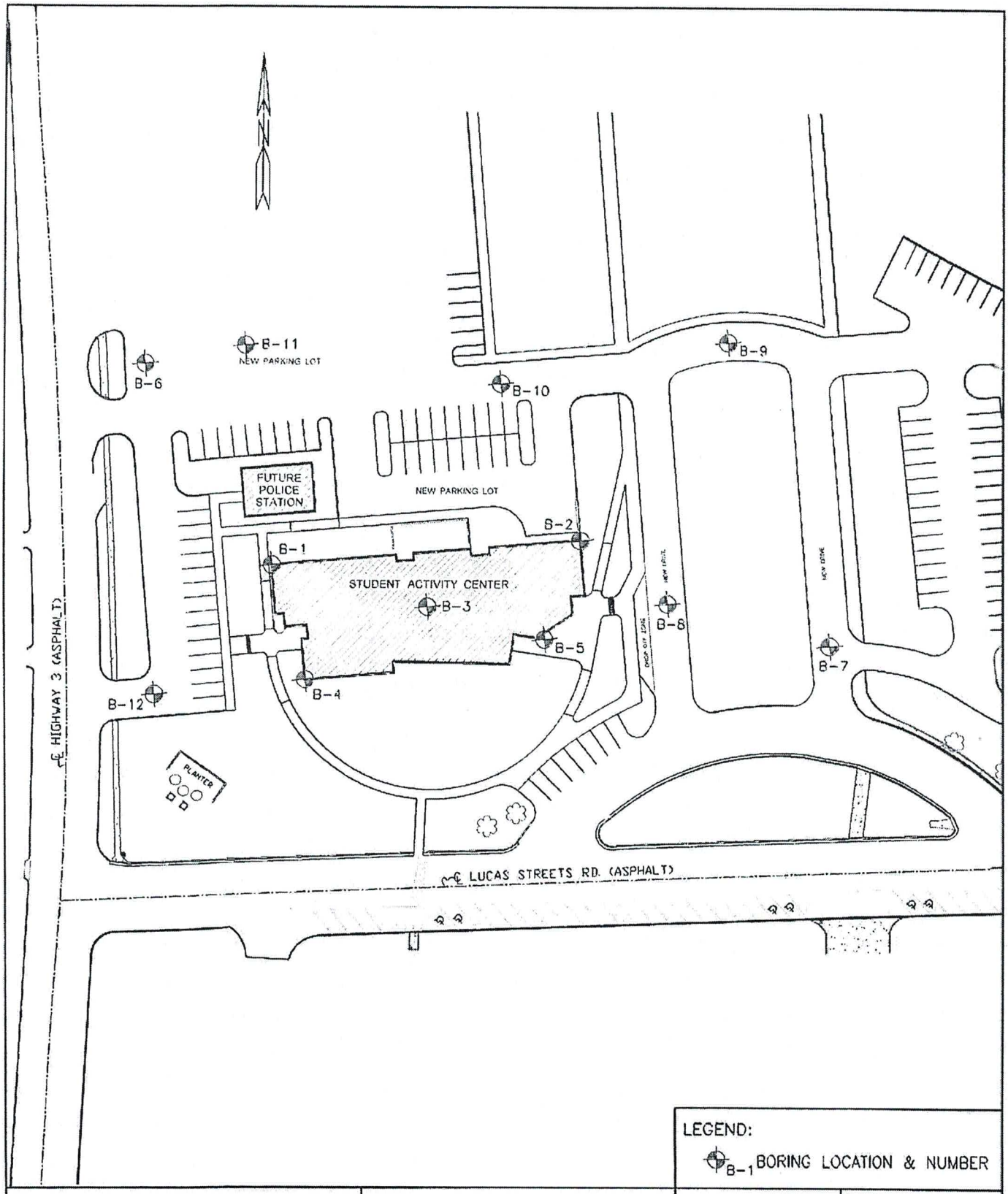
GEOTECHNICAL INVESTIGATION
G.S. NO. 210-057
STUDENT ACTIVITY CENTER
MDCC
MOORHEAD, MISSISSIPPI

QUADRANGLE LOCATION

Proj. No.	05470-4-0113
CAD File No.	MDCC VICINITY BORDER B.DWG
Drawn By:	MJJ
Chkd. By:	WLB, JR.
Date:	3/4/2013
Scale:	1" = 2000'
Dwg. No.	1

FIGURE 2

BORING LOCATION SITE MAP



LEGEND:

B-1 BORING LOCATION & NUMBER

W. L. BURLE ENGINEERS, P.A. 111 South Walnut Street Greenville, MS 38701	GEOTECHNICAL INVESTIGATION G.S. NO. 210-057 STUDENT ACTIVITY CENTER MDCC MOORHEAD, MISSISSIPPI	FIGURE 2 BORING LOCATION SITE MAP	Proj. No. 05470-4-0113 CAD File No. StudentActivityCenter.DWG Drawn By: M.J.J Chkd. By: W.L.B. JR Date: 3/4/2013 Scale: 1"=80' Dwg. No. 2

APPENDICES

APPENDIX A

TEST BORING RECORDS

TEST BORING RECORD

PROJECT: GS#210-057, Student Activity Center, MDCC, Moorhead, MS
SHEET 1 **OF** 1
CLIENT: Beard + Riser Architects, Greenwood, MS
DATE: 2-27-13
BORING NO.: 1 **LOCATION:** SEE SITE MAP
PROJECT NO.: 05470-4-0213
ELEVATION: UNKNOWN **DRILLING METHOD:** 3.25 I.D. HSA
DRILLER: OLIVI

DEPTH (FT)	USCS	LEGEND	SAMPLE	DESCRIPTION	PID (PPM)	N Value	W	PL	LL	PI	REMARKS
0	CL			BROWN SILTY CLAY		9	29	23	43	20	
	CH			BROWN & GREY CLAY		8	37	26	63	37	
	CL			BROWN & GREY SILTY CLAY		9	30	22	46	24	
						11	27	19	43	24	
10	ML			BROWN SANDY SILT		11	18				50.1% PASSING #200 WET SIEVE
	SP-SM			BROWN SLIGHTLY SILTY SAND		22	3				6.3% PASSING #200 WET SIEVE
20						14	4				5.4% PASSING #200 WET SIEVE
	SM			BROWN SILTY SAND		16	9				18.0% PASSING #200 WET SIEVE
30	SP-SM			BROWN SLIGHTLY SILTY SAND		21	5				9.9% PASSING #200 WET SIEVE
						29	4				7.2% PASSING #200 WET SIEVE
40						35	4				5.5% PASSING #200 WET SIEVE
	SP			BROWN SAND		26	17				4.0% PASSING #200 WET SIEVE
50						39	19				2.0% PASSING #200 WET SIEVE
60											
70											

DEPTH TO WATER: INITIAL ▽ 46' **AFTER** NR **HOURS** ▽ NR **BORING TERMINATED AT** 50 **FT**

W.L. BURLE ENGINEERS, P.A.

TEST BORING RECORD

PROJECT: GS#210-057, Student Activity Center, MDCC, Moorhead, MS **SHEET** 1 **OF** 1

CLIENT: Beard + Riser Architects, Greenwood, MS **DATE:** 2-28-13

BORING NO.: 2 **LOCATION:** SEE SITE MAP **PROJECT NO.:** 05470-4-0213

ELEVATION: UNKNOWN **DRILLING METHOD:** 3.25 I.D. HSA **DRILLER:** OLIVI

DEPTH (FT)	USCS	LEGEND	SAMPLE	DESCRIPTION	PID (PPM)	N Value	W	PL	LL	PI	REMARKS
0	CL			BROWN & GREY SILTY CLAY		3	34				
	CH			GREY & BROWN CLAY		5	40				
	CL			BROWN & GREY SILTY CLAY		10	26				
							26	21	35	14	
10	SM			BROWN SILTY SAND		10	15				
						12	15				
20	SP-SM			BROWN SLIGHTLY SILTY SAND		11	12				
	SM			BROWN SILTY SAND		23	10				
30	SP-SM			BROWN SLIGHTLY SILTY SAND		21	4				
						33	4				
40						50+	3				
						29	11				
50	SP			BROWN SAND		40	17				
60											
70											

DEPTH TO WATER: INITIAL ▽ 45' **AFTER** NR **HOURS** ▽ NR **BORING TERMINATED AT** 50 **FT**

W.L. BURLE ENGINEERS, P.A.

TEST BORING RECORD

PROJECT: GS#210-057, Student Activity Center, MDCC, Moorhead, MS
SHEET 1 **OF** 1
CLIENT: Beard + Riser Architects, Greenwood, MS
DATE: 2-27-13
BORING NO.: 3 **LOCATION:** SEE SITE MAP
PROJECT NO.: 05470-4-0213
ELEVATION: UNKNOWN **DRILLING METHOD:** 3.25 I.D. HSA
DRILLER: OLIVI

DEPTH (FT)	USCS	LEGEND	SAMPLE	DESCRIPTION	PID (PPM)	N Value	W	PL	LL	PI	REMARKS
0	CL			BROWN SILTY CLAY		8	32	23	40	17	
	CH			GREY & BROWN CLAY		7	35	27	66	39	
	CL			GREY & BROWN SILTY CLAY		9	29	21	48	27	
							25	20	34	14	
10	SM			BROWN SILTY SAND		10	16				35.4% PASSING #200 WET SIEVE
	SP-SM			BROWN SLIGHTLY SILTY SAND		19	9				10.0% PASSING #200 WET SIEVE
20	SM			BROWN SILTY SAND		13	8				12.7% PASSING #200 WET SIEVE
						15	8				14.9% PASSING #200 WET SIEVE
30	SP-SM			BROWN SLIGHTLY SILTY SAND		22	6				10.7% PASSING #200 WET SIEVE
	SM			BROWN SILTY SAND		28	13				14.4% PASSING #200 WET SIEVE
40	SP			BROWN SAND		38	3				3.8% PASSING #200 WET SIEVE
	SP-SM			BROWN SLIGHTLY SILTY SAND		43	16				5.5% PASSING #200 WET SIEVE
50	SP			BROWN SAND		38	20				1.7% PASSING #200 WET SIEVE
60											
70											

DEPTH TO WATER: INITIAL ▽ 45' **AFTER** NR **HOURS** ▽ NR **BORING TERMINATED AT** 50 **FT**

W.L.BURLE ENGINEERS, P.A.

TEST BORING RECORD

PROJECT: GS#210-057, Student Activity Center, MDCC, Moorhead, MS **SHEET** 1 **OF** 1

CLIENT: Beard + Riser Architects, Greenwood, MS **DATE:** 2-27-13

BORING NO.: 4 **LOCATION:** SEE SITE MAP **PROJECT NO.:** 05470-4-0213

ELEVATION: UNKNOWN **DRILLING METHOD:** 3.25 I.D. HSA **DRILLER:** OLIVI

DEPTH (FT)	USCS	LEGEND	SAMPLE	DESCRIPTION	PID (PPM)	N Value	W	PL	LL	PI	REMARKS
0	CL			BROWN SILTY CLAY		6	30				
	CH			BROWN & GREY CLAY		8	35				
						9	28				
	CL			BROWN & GREY SILTY CLAY			28	23	50	27	
10				BROWN SILTY SAND		9	12				
						10	11				
20	SM					11	12				
						17	11				
30				BROWN SLIGHTLY SILTY SAND		23	3				
	SP-SM					32	4				
40						36	3				
	SP					36	19				
50						44	19				
60											
70											

DEPTH TO WATER: INITIAL ▽ 45' **AFTER** NR **HOURS** ▽ NR **BORING TERMINATED AT** 50 **FT**

W.L. BURLE ENGINEERS, P.A.

TEST BORING RECORD

PROJECT: GS#210-057, Student Activity Center, MDCC, Moorhead, MS
SHEET 1 **OF** 1
CLIENT: Beard + Riser Architects, Greenwood, MS
DATE: 2-28-13
BORING NO.: 5 **LOCATION:** SEE SITE MAP
PROJECT NO.: 05470-4-0213
ELEVATION: UNKNOWN **DRILLING METHOD:** 3.25 I.D. HSA
DRILLER: OLIVI

DEPTH (FT)	USCS	LEGEND	SAMPLE	DESCRIPTION	PID (PPM)	N Value	W	PL	LL	PI	REMARKS
0	CL			BROWN SILTY CLAY		5	38	24	48	24	
				BROWN & GREY CLAY		6	42	27	72	45	
						12	35	32	91	59	
						13	34	35	88	53	
	CH										
10						11	26	20	52	32	
				BROWN SANDY SILT		12	10				41.9% PASSING #200 WET SIEVE
20	SM					11					27.8% PASSING #200 WET SIEVE
				BROWN SLIGHTLY SILTY SAND		14					6.8% PASSING #200 WET SIEVE
30	SP-SM					16					9.6% PASSING #200 WET SIEVE
						45					7.0% PASSING #200 WET SIEVE
40				BROWN SLIGHTLY SILTY SAND		26	4				3.9% PASSING #200 WET SIEVE
▽	SP					40	15				4.7% PASSING #200 WET SIEVE
50						29	15				4.0% PASSING #200 WET SIEVE
60											
70											

DEPTH TO WATER: INITIAL ▽ 45' **AFTER** NR **HOURS** ▽ NR **BORING TERMINATED AT** 50 **FT**

W.L.BURLE ENGINEERS, P.A.

TEST BORING RECORD

PROJECT: GS#210-057, Student Activity Center, MDCC, Moorhead, MS **SHEET** 1 **OF** 1

CLIENT: Beard + Riser Architects, Greenwood, MS **DATE:** 2-28-13

BORING NO.: 6 **LOCATION:** SEE SITE MAP **PROJECT NO.:** 05470-4-0213

ELEVATION: UNKNOWN **DRILLING METHOD:** 3.25 I.D. HSA **DRILLER:** OLIVI

DEPTH (FT)	USCS	LEGEND	SAMPLE	DESCRIPTION	PID (PPM)	N Value	W	PL	LL	PI	REMARKS
0	CL			BROWN SILTY CLAY		5	38				
						5	40				
	CH			BROWN & GREY CLAY		9	34				
						10	27				
10											
20											
30											
40											
50											
60											
70											

DEPTH TO WATER: INITIAL ▽ NE **AFTER** NR **HOURS** ▽ NR **BORING TERMINATED AT** 4.5 **FT**

W.L. BURLE ENGINEERS, P.A.

TEST BORING RECORD

PROJECT: GS#210-057, Student Activity Center, MDCC, Moorhead, MS
SHEET 1 **OF** 1
CLIENT: Beard + Riser Architects, Greenwood, MS
DATE: 2-28-13
BORING NO.: 7 **LOCATION:** SEE SITE MAP
PROJECT NO.: 05470-4-0213
ELEVATION: UNKNOWN **DRILLING METHOD:** 3.25" I.D. HSA
DRILLER: OLIVI

DEPTH (FT)	USCS	LEGEND	SAMPLE	DESCRIPTION	PID (PPM)	N Value	W	PL	LL	PI	REMARKS
0	CL			BROWN SILTY CLAY		4	28	24	41	17	
						6	36	24	50	26	
	CH			BROWN & GREY CLAY		6	39	21	59	38	
						7	40	29	74	45	
10											
20											
30											
40											
50											
60											
70											

DEPTH TO WATER: INITIAL ▽ NE **AFTER** NR **HOURS** ▼ NR **BORING TERMINATED AT** 4.5 **FT**

W.L. BURLE ENGINEERS, P.A.

TEST BORING RECORD

PROJECT: GS#210-057, Student Activity Center, MDCC, Moorhead, MS
SHEET 1 **OF** 1
CLIENT: Beard + Riser Architects, Greenwood, MS
DATE: 2-28-13
BORING NO.: 8 **LOCATION:** SEE SITE MAP
PROJECT NO.: 05470-4-0213
ELEVATION: UNKNOWN **DRILLING METHOD:** 3.25" I.D. HSA
DRILLER: OLIVI

DEPTH (FT)	USCS	LEGEND	SAMPLE	DESCRIPTION	PID (PPM)	N Value	W	PL	LL	PI	REMARKS
0	CL			BROWN SILTY CLAY		8	30				
						5	39				
	CH			BROWN CLAY		6	47				
						7	42				
10											
20											
30											
40											
50											
60											
70											

DEPTH TO WATER: INITIAL ▽ NE **AFTER** NR **HOURS** ▽ NR **BORING TERMINATED AT** 4.5 **FT**

WILBURN ENGINEERS, P.A.

TEST BORING RECORD

PROJECT: GS#210-057, Student Activity Center, MDCC, Moorhead, MS
SHEET 1 **OF** 1
CLIENT: Beard + Riser Architects, Greenwood, MS
DATE: 2-28-13
BORING NO.: 9 **LOCATION:** SEE SITE MAP
PROJECT NO.: 05470-4-0213
ELEVATION: UNKNOWN **DRILLING METHOD:** 3.25" I.D. HSA
DRILLER: OLIVI

DEPTH (FT)	USCS	LEGEND	SAMPLE	DESCRIPTION	PID (PPM)	N Value	W	PL	LL	PI	REMARKS
0	CL			BROWN SILTY CLAY		3	40	23	44	21	
				BROWN & GREY SILTY CLAY		6	37	21	42	21	
	CH			BROWN & GRYE CLAY		6	50	31	90	59	
						5	46	31	84	53	
10											
20											
30											
40											
50											
60											
70											

DEPTH TO WATER: INITIAL ▽ NE **AFTER** NR **HOURS** ▽ NR **BORING TERMINATED AT** 4.5 **FT**

W.L. BURLE ENGINEERS, P.A.

TEST BORING RECORD

PROJECT: GS#210-057, Student Activity Center, MDCC, Moorhead, MS
SHEET 1 **OF** 1
CLIENT: Beard + Riser Architects, Greenwood, MS
DATE: 2-28-13
BORING NO.: 10 **LOCATION:** SEE SITE MAP
PROJECT NO.: 05470-4-0213
ELEVATION: UNKNOWN **DRILLING METHOD:** 3.25" I.D. HSA
DRILLER: OLIVI

DEPTH (FT)	USCS	LEGEND	SAMPLE	DESCRIPTION	PID (PPM)	N Value	W	PL	LL	PI	REMARKS
0	GW			ASPHALT PAVEMENT (5" Thick)							
				CRUSHED LIMESTONE (6" Thick)		7	39				
	CH			BROWN & GREY CLAY		7	40				
						9	36				
10											
20											
30											
40											
50											
60											
70											

DEPTH TO WATER: INITIAL ▽ NE **AFTER** NR **HOURS** ▼ NR **BORING TERMINATED AT** 4.5 **FT**

W.L. BURLE ENGINEERS, P.A.

TEST BORING RECORD

PROJECT: GS#210-057, Student Activity Center, MDCC, Moorhead, MS
SHEET 1 **OF** 1
CLIENT: Beard + Riser Architects, Greenwood, MS
DATE: 2-28-13
BORING NO.: 11 **LOCATION:** SEE SITE MAP
PROJECT NO.: 05470-4-0213
ELEVATION: UNKNOWN **DRILLING METHOD:** 3.25" I.D. HSA
DRILLER: OLIVI

DEPTH (FT)	USCS	LEGEND	SAMPLE	DESCRIPTION	PID (PPM)	N Value	W	PL	LL	PI	REMARKS
0	GC			ASPHALT PAVEMENT (5" Thick)							
				CLAY GRAVEL BASE (10" Thick)							
	CH			BROWN & GREY CLAY		4	44	31	68	37	
						5	52	31	82	51	
						5	42	30	84	54	
10											
20											
30											
40											
50											
60											
70											

DEPTH TO WATER: INITIAL ▽ NE **AFTER** NR **HOURS** ▼ NR **BORING TERMINATED AT** 4.5 **FT**

W.L. BURLE ENGINEERS, P.A.

TEST BORING RECORD

PROJECT: GS#210-057, Student Activity Center, MDCC, Moorhead, MS
SHEET 1 OF 1
CLIENT: Beard + Riser Architects, Greenwood, MS
DATE: 2-28-13
BORING NO.: 12 LOCATION: SEE SITE MAP
PROJECT NO.: 05470-4-0213
ELEVATION: UNKNOWN DRILLING METHOD: 3.25" I.D. HSA
DRILLER: OLIVI

DEPTH (FT)	USCS	LEGEND	SAMPLE	DESCRIPTION	PID (PPM)	N Value	W	PL	LL	PI	REMARKS
0	CL			BROWN SILTY CLAY		8	22				
	CH			BROWN CLAY		8	27				
						10	36				
						10	27				
10											
20											
30											
40											
50											
60											
70											

DEPTH TO WATER: INITIAL ▽ NE AFTER NR HOURS ▽ NR BORING TERMINATED AT 4.5 FT

W.L. BURLE ENGINEERS, P.A.

KEY TO SYMBOLS

Symbol Description

Strata symbols


Low plasticity clay


High plasticity clay


Silt


Poorly graded sand with silt


Silty sand


Poorly graded sand


Paving


Well graded gravel


Clayey gravel

Misc. Symbols


Water table during drilling

Soil Samplers


Standard penetration test


Undisturbed thin wall Shelby tube

Notes:

NR = Not Recorded
NE = Not Encountered
NA = Not Applicable

APPENDIX B

LABORATORY RESULTS

Date 3/6/2013

UNCONFINED COMPRESSION TEST DATA

This procedure was performed in accordance with ASTM D 2166. Any deviation from this standard is described in the remarks section.

Project GS #210-057 STUDENT ACTIVITY CENTER Job No. 05470-4-0112

Address MDCC, Moorhead, MS Client Beard + Riser Architects, Greenwood, MS

Sample No. SB-2 Date Sample Received 2/28/2013 Date Sample Tested 3/4/2013

Sample Location 4.5'-6.5' bgs Description of Soil Brown Silty Clay (CL)

Test Apparatus Load Ring Geotext 1500 Constant (LRC) 4115 if Load Dial < 0.0821" 13,244 x (Load Dial - 0.0566") if Load Dial > 0.0821"

Diameter 2.8 in. Area (A_o) 0.0428 s.f. Height (L_o) 5.6 in. Volume 0.01995 c.f.

Weight 2.513 lbs Type of Sample x Undisturbed _____ Remolded

Water Content, w% 25.6% Dry Unit Weight 100.29 lbs/cf Wet Unit Weight 125.96 lbs/cf

Load Dial Reading	Load Dial (Inches)	Sample Deformation (ΔL) (Inches)	Unit Strain ($\Delta L/L_o$)	Area Correction Factor (1 - Col 4)	Corrected Area, A', (sf) (A_o / Col 5)	Load On Sample (lbs) (Col 2 x LRC)	Compressive Stress	
							lbs/sf (Col 7 ÷ Col 6)	tons/sf (Col 8 ÷ 2000)
1	2	3	4	5	6	7	8	9
88	0.0088	0.056	1%	0.99	0.04323	36.212	838	0.419
146	0.0146	0.112	2%	0.98	0.04367	60.079	1,376	0.688
208	0.0208	0.168	3%	0.97	0.04412	85.592	1,940	0.970
252	0.0252	0.224	4%	0.96	0.04458	103.698	2,326	1.163
277	0.0277	0.280	5%	0.95	0.04505	113.9855	2,530	1.265
289	0.0289	0.336	6%	0.94	0.04553	118.9235	2,612	1.306
288	0.0288	0.392	7%	0.93	0.04602	118.512	2,575	1.288
278	0.0278	0.448	8%	0.92	0.04652	114.397	2,459	1.230
	0	0.504	9%	0.91	0.04703	0	0	0.000
	0	0.560	10%	0.90	0.04756	0	0	0.000
	0	0.616	11%	0.89	0.04809	0	0	0.000
	0	0.672	12%	0.88	0.04864	0	0	0.000
	0	0.728	13%	0.87	0.04920	0	0	0.000
	0	0.784	14%	0.86	0.04977	0	0	0.000
	0	0.840	15%	0.85	0.05035	0	0	0.000
	0	0.896	16%	0.84	0.05095	0	0	0.000
	0	0.952	17%	0.83	0.05157	0	0	0.000
	0	1.008	18%	0.82	0.05220	0	0	0.000

Maximum Stress from Col 8 and Col 9 = Unconfined Compressive Strength (q_u) = 2,612 lbs/sf = 1.306 tons/sf

Remarks Maximum Load Dial Reading was 291.

W.L. BURLE, ENGINEERS, P.A.

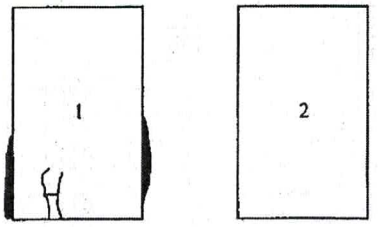
DATE 3/6/2013

UNCONFINED COMPRESSION TEST CHART
(ASTM D 2166)

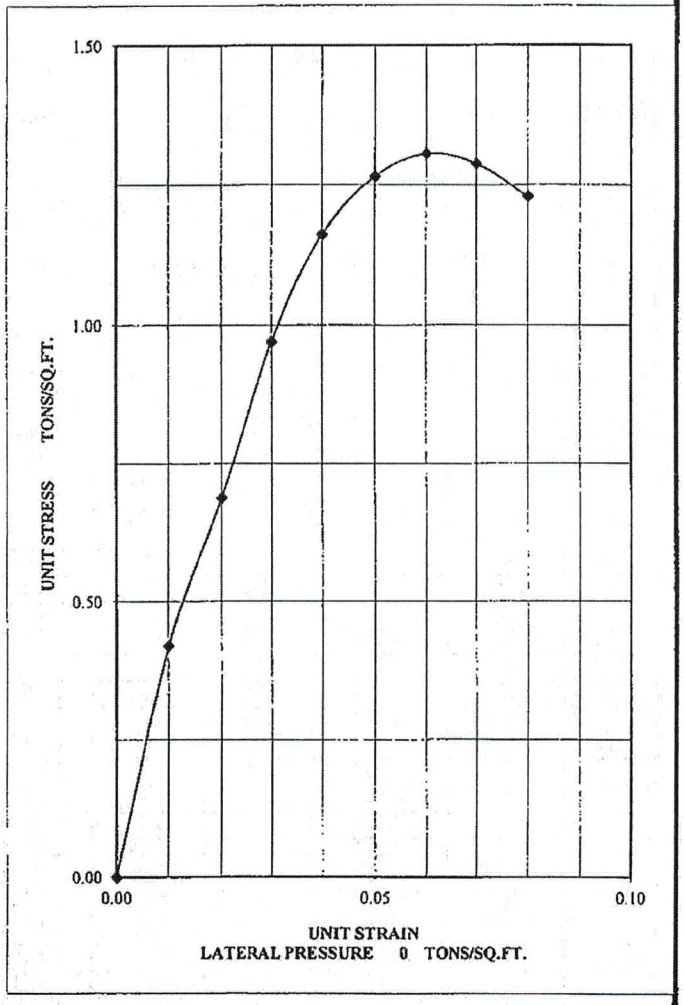
PROJECT GS #210-057 STUDENT ACTIVITY CENTER JOB NO. 05470-4-0112

ADDRESS MDCC, Moorhead, MS CLIENT Beard + Riser Architects, Greenwood, MS

CLASSIFICATION		
Brown Silty Clay (CL)		
LL 35	PL 21	G -
TEST NO.	SB-2	-
WATER CONTENT	25.6%	-
DRY DENSITY	100.29 pcf	-
VOID RATIO	-	-
SATURATION %	-	-
DURATION OF TEST	2' 11"	-
TYPE SPECIMEN	UNDISTURBED	-
DIAMETER	2.8 in.	-
HEIGHT	5.6 in.	-



FAILURE SKETCH



TECHNICIAN D. Hunter / D. Martinek

W.L. BURLE, ENGINEERS, P.A.

Date 3/6/2013

UNCONFINED COMPRESSION TEST DATA

This procedure was performed in accordance with ASTM D 2166. Any deviation from this standard is described in the remarks section.

Project GS #210-057 STUDENT ACTIVITY CENTER Job No. 05470-4-0112

Address MDCC, Moorhead, MS Client Beard + Riser Architects, Greenwood, MS

Sample No. SB-3 Date Sample Received 2/27/2013 Date Sample Tested 3/4/2013

Sample Location 4.5'-6.5' bgs Description of Soil Brown Silty Clay (CL)

Test Apparatus Load Ring Geotext 1500 Constant (LRC) 4115 if Load Dial < 0.0821" 13,244 x (Load Dial - 0.0566") if Load Dial > 0.0821"

Diameter 2.8 in. Area (A_o) 0.0428 s.f. Height (L_o) 5.6 in. Volume 0.01995 c.f.

Weight 2.518 lbs Type of Sample x Undisturbed _____ Remolded

Water Content, w% 24.7% Dry Unit Weight 101.22 lbs/cf Wet Unit Weight 126.22 lbs/cf

Load Dial Reading	Load Dial (Inches)	Sample Deformation (ΔL) (Inches)	Unit Strain ($\Delta L/L_o$)	Area Correction Factor (1 - Col 4)	Corrected Area, A', (sf) (A_o / Col 5)	Load On Sample (lbs) (Col 2 x LRC)	Compressive Stress	
							lbs/sf (Col 7 ÷ Col 6)	tons/sf (Col 8 ÷ 2000)
1	2	3	4	5	6	7	8	9
61	0.0061	0.056	1%	0.99	0.04323	25.1015	581	0.290
104	0.0104	0.112	2%	0.98	0.04367	42.796	980	0.490
145	0.0145	0.168	3%	0.97	0.04412	59.6675	1,352	0.676
190	0.019	0.224	4%	0.96	0.04458	78.185	1,754	0.877
227	0.0227	0.280	5%	0.95	0.04505	93.4105	2,073	1.037
254	0.0254	0.336	6%	0.94	0.04553	104.521	2,296	1.148
278	0.0278	0.392	7%	0.93	0.04602	114.397	2,486	1.243
294	0.0294	0.448	8%	0.92	0.04652	120.981	2,601	1.300
303	0.0303	0.504	9%	0.91	0.04703	124.6845	2,651	1.326
304	0.0304	0.560	10%	0.90	0.04756	125.096	2,631	1.315
302	0.0302	0.616	11%	0.89	0.04809	124.273	2,584	1.292
291	0.0291	0.672	12%	0.88	0.04864	119.7465	2,462	1.231
	0	0.728	13%	0.87	0.04920	0	0	0.000
	0	0.784	14%	0.86	0.04977	0	0	0.000
	0	0.840	15%	0.85	0.05035	0	0	0.000
	0	0.896	16%	0.84	0.05095	0	0	0.000
	0	0.952	17%	0.83	0.05157	0	0	0.000
	0	1.008	18%	0.82	0.05220	0	0	0.000

Maximum Stress from Col 8 and Col 9 = Unconfined Compressive Strength (q_u) = 2,651 lbs/sf = 1.326 tons/sf

Remarks Maximum Load Dial Reading was 304.

W.L. BURLE, ENGINEERS, P.A.

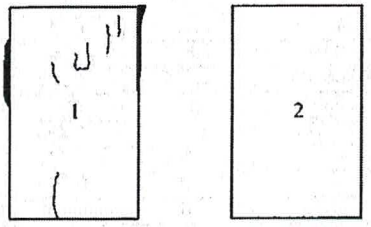
DATE 3/6/2013

UNCONFINED COMPRESSION TEST CHART
(ASTM D 2166)

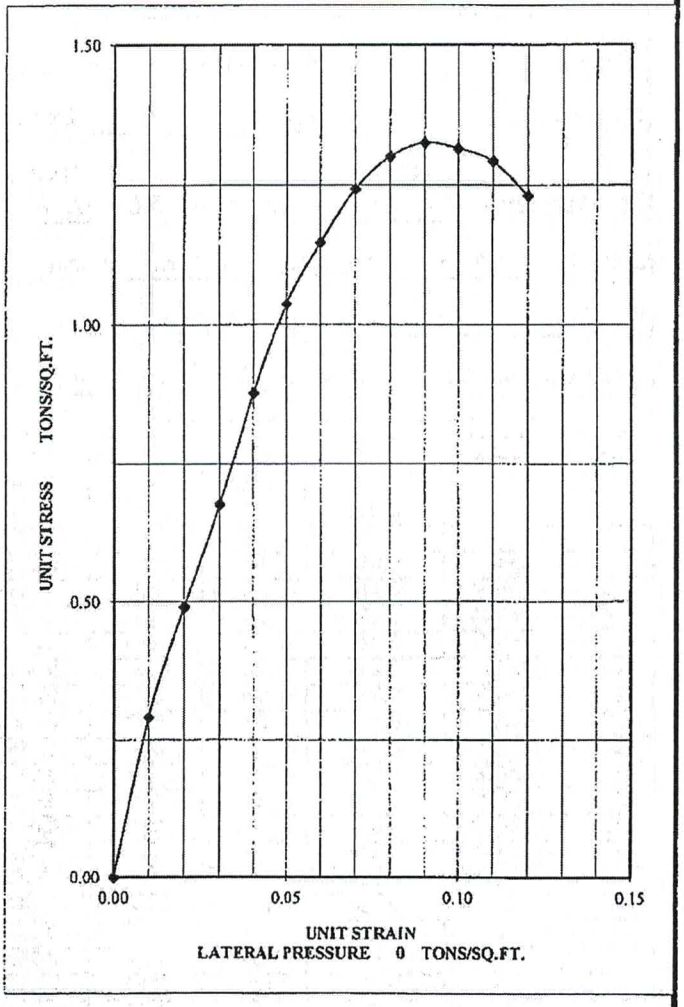
PROJECT GS #210-057 STUDENT ACTIVITY CENTER JOB NO. 05470-4-0112

ADDRESS MDCC, Moorhead, MS CLIENT Beard + Riser Architects, Greenwood, MS

CLASSIFICATION		
Brown Silty Clay (CL)		
LL 34	PL 20	G -
TEST NO.	SB-3	-
WATER CONTENT	24.7%	-
DRY DENSITY	101.22 pcf	-
VOID RATIO	-	-
SATURATION %	-	-
DURATION OF TEST	3' 03"	-
TYPE SPECIMEN	UNDISTURBED	-
DIAMETER	2.8 in.	-
HEIGHT	5.6 in.	-



FAILURE SKETCH



TECHNICIAN D. Hunter / D. Martinek

W.L. BURLE, ENGINEERS, P.A.

Date 3/6/2013

UNCONFINED COMPRESSION TEST DATA

This procedure was performed in accordance with ASTM D 2166. Any deviation from this standard is described in the remarks section.

Project GS #210-057 STUDENT ACTIVITY CENTER Job No. 05470-4-0112

Address MDCC, Moorhead, MS Client Beard + Riser Architects, Greenwood, MS

Sample No. SB-4 Date Sample Received 2/27/2013 Date Sample Tested 3/4/2013

Sample Location 4.5'-6.5' bgs Description of Soil Brown Clay (CL)

Test Apparatus Load Ring Geotext 1500 Constant (LRC) 4115 if Load Dial < 0.0821" 13,244 x (Load Dial - 0.0566") if Load Dial > 0.0821"

Diameter 2.8 in. Area (A_o) 0.0428 s.f. Height (L_o) 5.6 in. Volume 0.01995 c.f.

Weight 2.4665 lbs Type of Sample x Undisturbed _____ Remolded

Water Content, w% 27.7% Dry Unit Weight 96.81 lbs/cf Wet Unit Weight 123.63 lbs/cf

Load Dial Reading	Load Dial (Inches)	Sample Deformation (ΔL) (Inches)	Unit Strain ($\Delta L / L_o$)	Area Correction Factor (1 - Col 4)	Corrected Area, A', (sf) (A_o / Col 5)	Load On Sample (lbs) (Col 2 x LRC)	Compressive Stress	
							lbs/sf (Col 7 ÷ Col 6)	tons/sf (Col 8 ÷ 2000)
1	2	3	4	5	6	7	8	9
170	0.017	0.056	1%	0.99	0.04323	69.955	1,618	0.809
259	0.0259	0.112	2%	0.98	0.04367	106.5785	2,440	1.220
313	0.0313	0.168	3%	0.97	0.04412	128.7995	2,919	1.460
345	0.0345	0.224	4%	0.96	0.04458	141.9675	3,184	1.592
366	0.0366	0.280	5%	0.95	0.04505	150.609	3,343	1.671
382	0.0382	0.336	6%	0.94	0.04553	157.193	3,452	1.726
397	0.0397	0.392	7%	0.93	0.04602	163.3655	3,550	1.775
409	0.0409	0.448	8%	0.92	0.04652	168.3035	3,618	1.809
420	0.042	0.504	9%	0.91	0.04703	172.83	3,675	1.837
429	0.0429	0.560	10%	0.90	0.04756	176.5335	3,712	1.856
438	0.0438	0.616	11%	0.89	0.04809	180.237	3,748	1.874
447	0.0447	0.672	12%	0.88	0.04864	183.9405	3,782	1.891
453	0.0453	0.728	13%	0.87	0.04920	186.4095	3,789	1.895
459	0.0459	0.784	14%	0.86	0.04977	188.8785	3,795	1.898
464	0.0464	0.840	15%	0.85	0.05035	190.936	3,792	1.896
471	0.0471	0.896	16%	0.84	0.05095	193.8165	3,804	1.902
473	0.0473	0.952	17%	0.83	0.05157	194.6395	3,775	1.887
477	0.0477	1.008	18%	0.82	0.05220	196.2855	3,761	1.880

Maximum Stress from Col 8 and Col 9 = Unconfined Compressive Strength (q_u) = 3,804 lbs/sf = 1.902 tons/sf

Remarks Maximum Load Dial Reading was 477.

W.L. BURLE, ENGINEERS, P.A.

DATE 3/6/2013

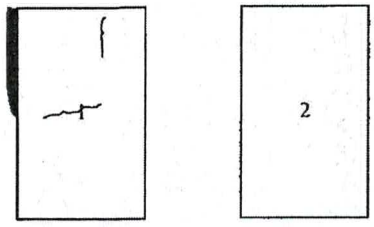
UNCONFINED COMPRESSION TEST CHART
(ASTM D 2166)

PROJECT GS #210-057 STUDENT ACTIVITY CENTER JOB NO. 05470-4-0112

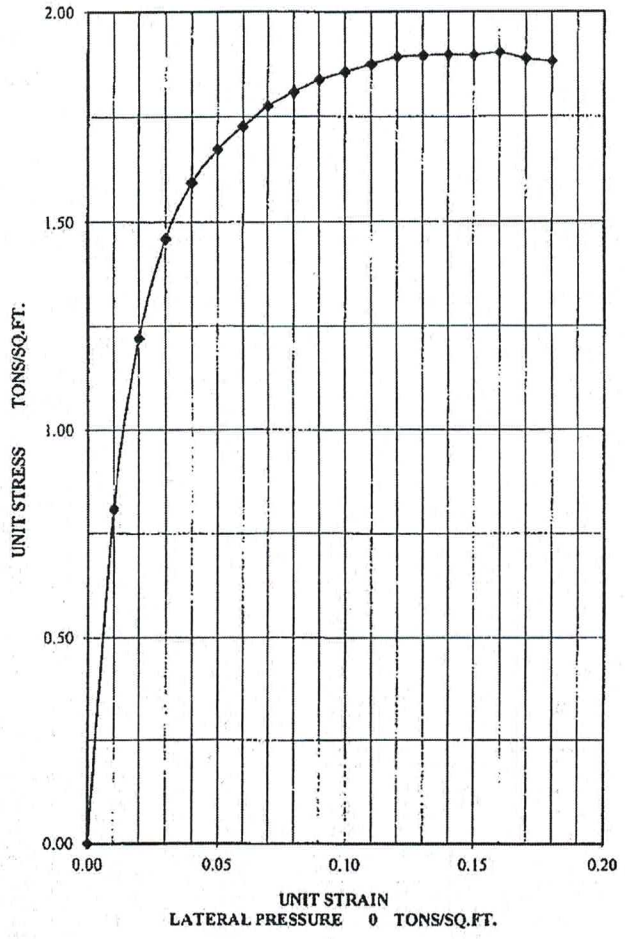
ADDRESS MDCC, Moorhead, MS CLIENT Beard + Riser Architects, Greenwood, MS

CLASSIFICATION		
Brown Clay (CL)		
LL 50	PL 27	G -

TEST NO.	SB-4	-
WATER CONTENT	27.7%	-
DRY DENSITY	96.81 pcf	-
VOID RATIO	-	-
SATURATION %	-	-
DURATION OF TEST	3' 03"	-
TYPE SPECIMEN	UNDISTURBED	-
DIAMETER	2.8 in.	-
HEIGHT	5.6 in.	-



FAILURE SKETCH



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