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October 26, 2011

Linda Smith, ASLA
Director, Facilities Management
Delta State University
1417 Maple Street
Cleveland, MS 38733

Reference: FINAL REPORT
Building Structural Evaluation
George Walker Natatorium
Delta State University – Cleveland Campus
JEI Job No: 2011-229

Dear Mrs. Smith:

On Tuesday, August 27, 2011, at your request and in your presence, a visual structural evaluation was conducted on the referenced building. The purpose of the survey was to examine the natatorium for damage, assess the degree of damage present, and offer general recommendations as needed. We understand there are issues regarding excessive leakage from the enclosed pool and the university is concerned with the overall condition of the building.

Due to the potential subsurface issues, Pritchard Engineering Inc. was retained to perform borings and soil testing at interior and exterior locations. A copy of their soil report is attached as part of this report.

OBSERVATIONS:

The natatorium structure is a single story prefabricated metal building constructed over a slab-on-grade foundation system. The building faces Leflore Circle to the east. Overall building dimensions were measured to be approximately 105 feet long by 60 feet wide. Discussions with you and Ronnie Mayers, Aquatics Director, indicated that the original natatorium and pool were built in 1969. The structure is surrounded by concrete pads on the south and west sides. Dressing rooms constructed of load bearing concrete masonry and brick veneer were located along the natatorium's front (east wall). The overall footprint of the enclosed areas was approximately 60 feet long by 20 feet wide.

A small prefabricated metal building addition approximately 20 feet wide was constructed on the north side in 1985. This addition extends the length of the original natatorium and is adjacent to the Wyatt Gymnasium/Fitness Center.

FIGURE 1

FIGURE 2

Figure 1 shows the front of the 1969 natatorium structure (white siding), the 1985 addition (yellow siding), and the front dressing room enclosure. Figure 2 shows the front of the addition constructed on the north side of the original natatorium.

Exterior observations at the pool area found slight to moderate deterioration/rust of the metal siding around the perimeter. The deterioration was limited to the bottom of the siding in direct contact with the concrete. Numerous separations were present in the surrounding concrete. Water seepage from a separation west of the rear wall was observed. Addition observations found several separations in the brick veneer along the front area. A hairline diagonal separation was located beneath the concession window near the southeast corner. Horizontal and diagonal separations approximately 1/2 inch wide were present around the front entry doors. Sloping mortar lines were discovered around the entryway as well. A horizontal separation in the veneer was observed near the northeast corner.

FIGURE 3

FIGURE 4

Figures 3 and 4 illustrate the separations in the brick veneer around the front entry doors.

Interior observations taken around the pool area found 5 bays of framing with steel support frames spaced at about 21 feet on center. The frames supported roof purlins spaced at approximately 5 feet on center. The baseplates and bottom of the columns were encased with concrete and a steel cover plate. Moderate to severe deterioration of the outer plate was observed at several columns. Examination of the roof purlins found deterioration ranging from moderate to severe in nature. However, the damaged purlins were limited to those directly under translucent roof panels. The remaining purlins away from the roof panels appeared to be undamaged with only minor surface rust/deterioration. Examination of the north addition found comparable but less severe deterioration of the roof purlins around translucent panels.

Interior observations taken in the front dressing rooms found numerous separations in the concrete masonry walls. The front (east) exterior wall contained separations generally ranging from about 1/8 to 3/8 inch wide. Similar but less severe separations were common in the front lobby and adjacent office.

Interior examination of the buildings adjacent to the natatorium found no significant structural damage. A few diagonal separations were visible in the concrete masonry walls of the fitness center, north of the pool building.

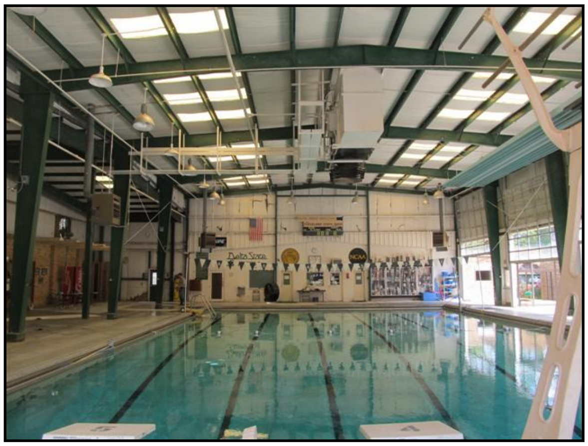

FIGURE 5

FIGURE 6

FIGURE 7

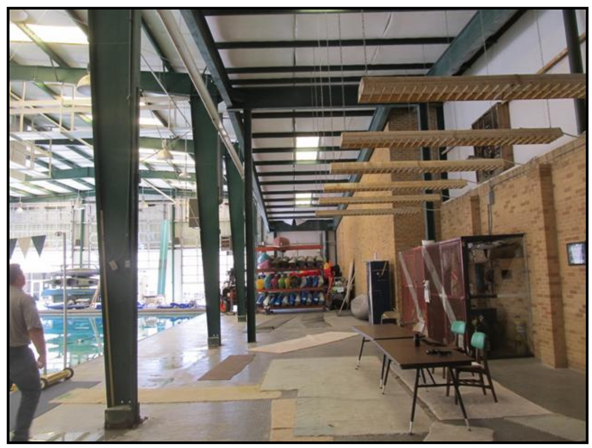

FIGURE 8

Figure 5 shows the primary frames and roof purlins above the swimming pool. Figure 6 shows severe deterioration to the steel cover plate around a column base. Figure 7 illustrates the purlin deterioration at the light panels. Figure 8 shows the north addition roof framing.

Soil borings were attempted at each corner of the pool and at two locations around the rear of the building. Several borings were limited in depth and were terminated due to debris and obstructions. Reportedly, the present pool structure and building were constructed over an older pool foundation. The two borings at the pool's west end extended approximately 15 feet while the two east borings were terminated at about 3 to 4 feet due to obstructions. However, all interior borings found weak and saturated soil conditions around the pool. The two exterior corings were aborted due to interference from multiple concrete layers. Please see the attached subsurface evaluation for boring locations, field logs, and laboratory data.

CONCLUSIONS AND RECOMMENDATIONS:

Obviously, the building has a history of structural issues, some of which are unrelated to the leaking pool and associated poor soil conditions. Deterioration of the columns, baseplates, and roof purlins has been ongoing for some time. The saturated soil conditions caused by the pool leak have compromised the building foundation. Without addressing the soil problems, building conditions will only worsen. Additionally, the present soil conditions may threaten the foundation of adjacent buildings.

The condition of the columns and baseplates is cause for concern. The concrete encasements are not original and their installation was likely prompted by long term deterioration/rust of the previously exposed baseplates. It is probable that the original baseplates, anchor bolts, and lower column sections have experienced further deterioration. Since the column bases are hidden, the extent of structural damage is unknown and warrants further investigation.

The numerous separations in the brick veneer and concrete masonry are the result of differential foundation movement along the front of the building. The degree of damage would be considered moderate to severe in nature, depending on location. The movement that has occurred has not affected the overall stability of the structure. However, the movement can be expected to continue without proper foundation repair. This could involve installing helical piers around the perimeter followed by raising the foundation to its original position. We anticipate that repair will be required along much of the front (east) exterior wall. This will be followed by pressure grouting underneath the perimeter grade beam and portions of the interior slab to fill in any void spaces created by the lifting procedure.

The first step to correcting the inundated soil conditions is the removal of the leak source. The pool would have to be properly repaired and resealed to prevent further water infiltration into the surrounding soil. Unfortunately, due to the building layout and surrounding concrete pads, attempts to improve the underlying soil will be difficult. As indicated in the geotechnical report, soil stabilization methods would be an extreme risk due to the potential adverse affect on surrounding buildings, storm drains, and existing utilities. Therefore, removing much of the concrete deck (both layers) surrounding the pool and isolated removal of the perimeter pads/sidewalks would be anticipated.

Significant remedial efforts are necessary, based on numerous structural deficiencies and the underlying soil conditions. Unfortunately, the building rehabilitation, foundation repairs, and soil stabilization will be substantial, both in scope of size and cost. Considerable demolition and reconstruction of concrete surfaces, building components, and interior and exterior finishes would be involved. Based on the complexities, it would be prudent for the university to consider the cost of repairs and the expected building's usefulness in light of other ongoing, long-term planning. Removing the building from the site might be the best course of action. Clearly, to avoid further damages to adjacent structures and to mitigate poor soil conditions, the natatorium will have to either be demolished or undergo extensive rehabilitation.

This visual structural evaluation has been conducted according to standard professional practice. The visual examination and report are limited to those areas readily visible during the site visit. No attempt has been made to determine if any hidden defects or deficiencies are present in this structure. Further study would be required to determine and evaluate any hidden defects or deficiencies which might be present. We warrant that the findings, recommendations, and professional advice contained herein have been made after being prepared in accordance with generally accepted professional engineering practice in the field of structural engineering. In no way does this report state any guarantees regarding future structural or foundation movement, mold/mildew growth, or latent conditions. This report should be viewed only as an assessment of the current condition on August 27, 2011. No other warranties are implied or expressed. This structural evaluation letter does not create any right or benefits for parties other than Jenkins Engineering, Inc. and Delta State University. Parties other than the aforementioned should contact the structural engineer's office with questions and/or additional requests. Should conditions contrary to those stated be encountered or expected, we respectively request an opportunity to re-evaluate our recommendations based on such information.

We appreciate this opportunity to provide structural engineering services to Delta State University. Should you have any questions or if we can be of further service to you, please feel free to call us.

Sincerely,
Jenkins Engineering, Inc.

Jeremy South, PE
MS Reg No 17416

Mark Watson, PE, SECB, CBIE
MS Reg No 13616
(Certified Building Inspection Engineer)

Peer Review

PRITCHARD ENGINEERING, INC.
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OCTOBER 24, 2011

JENKINS ENGINEERING
MR. JEREMY SOUTH, P.E.
P.O. BOX 2101
TUPELO, MS 38803

EMAIL: jsouth@jenkins-engineering.com

RE: FORENSIC SUBSURFACE EXPLORATION
DELTA STATE NATATORIUM
CLEVELAND, MISSISSIPPI

Dear Mr. South:

Pritchard Engineering, Inc. appreciates the opportunity to participate as geotechnical consultant for the project captioned above. The accompanying report presents field and laboratory methods employed in accumulating data for assessment of the subsurface soils and conditions encountered. All field and laboratory procedures were accomplished in accordance with applicable ASTM standard specifications to insure quality assurance. A description of the generalized soil stratigraphy is provided. Data generated from this effort was utilized in developing commentary regarding subsurface conditions surrounding the natatorium.

Feel free to contact us should you have any questions regarding the information provided or if we may be of additional service.

Respectfully,

CLYDE L. PRITCHARD
REGISTERED
9697
PROFESSIONAL ENGINEER
STATE OF MISSISSIPPI

Clyde L. Pritchard, P.E.
Pritchard Engineering, Inc.

GEOTECHNICAL REPORT

FORENSIC SUBSURFACE EXPLORATION
DELTA STATE NATATORIUM
CLEVELAND, MISSISSIPPI

PROMPT / AUTHORIZATION

The subject investigation is prompted by demise of the existing pool and natatorium facility at Delta State University which reportedly includes severe leakage and associated damage to the surrounding structure and hardscape. Authorization to conduct the exploration was granted by Jenkins Engineering, Inc., serving as civil/structural consultant for Delta State University in accordance with the Geotechnical Services Proposal offered by Pritchard Engineering, Inc., July 20, 2011.

SITE / STRUCTURE CHARACTERISTICS

The natatorium building is a steel frame building with exterior roll-up doors housing an athletic pool ranging in depth from approximately 4 feet to 12 feet. Beyond the pool the surrounding surface consists entirely of concrete sidewalks. A photograph depicting the structure is provided as Appendix (D).

FIELD EXPLORATION

Prior to initiating field exploration activities existing utilities were identified by representatives of the Delta State University physical plant who assisted in verifying acceptable coring / drilling locations.

Penetration of the existing concrete deck and sidewalks was attempted at six (6) locations utilizing a 4.25" diameter diamond impregnated rotary core barrel. Coring was successful at the location of borings (1) through (4). Concrete at these locations consisted of two (2) layers having a combined measured thickness ranging from approximately 5.4" to 6.5". Coring was aborted at the location of borings (5) and (6) at depths of 9" to 10". Representatives of Delta State indicated consecutive overlaid slabs of concrete may be present in these areas.

Four (4) borings were advanced within the interior of the building adjacent to the existing pool. Appendix (C) provides a site schematic illustrating boring locations with respect to the project limits.

Drilling was accomplished by the dry auger method utilizing continuous flight auger advanced by a tractor mounted Giddings Model TS-25 hydraulic boring rig. Borings (1) and (3) were terminated at a depth of fifteen (15) feet below the finish floor elevation. Hard obstructions were encountered in borings (2) and (4) at depths of approximately 4 feet and 2.5 feet, respectively.

The obstructions were suspected to represent unidentified subterranean utilities and drilling was terminated at the request of Delta State University.

The standard penetration resistance (N) value is the number of blows required to drive a standard 18-inch split-barrel sampler the final 12 inches utilizing a 140-pound hammer and a freefall height of 30 inches. Standard penetration values provide an indication of soil consistency and are utilized in formulating design recommendations through empirical relations including but not limited to bearing capacity and potential settlement under loading conditions. "N" values are depicted by depth and location on the boring logs. Representative specimens of the various soils encountered were retrieved at changes in strata and at intervals not exceeding 2 feet in depth. Samples retrieved during the field investigation were immediately placed in sealed containers to preserve their physical characteristics for transportation and future analysis in the laboratory.

The depth at which free water was first detected during drilling is indicated on the boring logs. Prior to closure, the depth to ground water and/or borehole caving was determined. This information is also recorded on the boring logs and was obtained after an elapsed period of approximately one (1) to four (4) hours.

LABORATORY ANALYSIS

Procedures employed in performing laboratory analysis were accomplished in general accordance with applicable American Society for Testing and Materials (ASTM) standard specifications for quality assurance. Tests were conducted on representative samples of the various soils encountered as designated by the Engineer. A synopsis of the tests performed including a summary of the results obtained is presented as follows:

(Soil Classification) – ASTM D-2487

All soil samples were classified both visually and in accordance with criteria stipulated by the Unified Soil Classification System. (See boring logs.) Under the Unified Soil Classification System, coarse-grained soils (gravels and sands) are classified based upon grain-size. Fine-grained materials (silts and clays) are classified on the basis of plasticity (PI) as related to the Casagrande "A" line. For your convenience, a description of the symbols employed by the Unified Soil Classification and their meaning is presented as Appendix (A). Where appropriate, dual symbols are employed to signify borderline soils.

(Water Content) – ASTM D-2216

In-situ (or field) moisture contents were determined by placing extracted samples in sealed containers immediately upon removal from the drill cavity. Field moisture contents are valuable in assessing the general subsurface conditions and in evaluating the magnitude of volume change, which might be anticipated in soils having a high shrink-swell potential. Also, the degree of wetting or drying which may be required to achieve moisture contents approaching optimum for soils involved in site grading may be estimated. Information generated from the analysis performed indicates in-situ moisture contents within the soils surrounding the pool basin approach 100% saturation. Moisture content data is presented on the boring logs as W (%).

(Liquid and Plastic Limits) – ASTM 4318

Liquid and plastic limits, commonly referred to as Atterburg Limits, were performed on representative samples of the cohesive soils encountered. The plastic limit (PL) is the moisture content representing the lower boundary range of plastic behavior of a soil. The liquid limit (LL) is the moisture content representing the upper range of plastic behavior; above which a soil will essentially have the shear strength of a fluid. Both values are expressed as percent (%) moisture. The plasticity index (PI) is the numerical difference between the liquid limit and plastic limit and is utilized in soil classification and empirical relations developed regarding volume change, strength, and permeability. Typically, soils exhibiting a high PI are susceptible to significant changes in volume (i.e. shrinkage and swelling) with fluctuations in moisture content and experience a severe loss of shear strength upon saturation. Low PI soils are relatively inactive with respect to moisture induced volume change and are normally suitable as a supporting subgrade soil. Data generated from this investigation indicates the plasticity index (PI) of the materials identified within the upper soil horizon ranges from 10 to 21 which is indicative of a low shrink-swell potential. Atterburg limit data is depicted by liquid limit (LL) and PI on the boring logs.

(Grain-Size Analysis) – ASTM D-422

Mechanical grain-size analysis provides the particle size distribution of the various constituents comprising the soil mass. Where necessary, this procedure may be complimented by the hydrometer test (ASTM D-422) to provide delineation of the silt and clay fractions. Results of these tests are used in classifying soils in accordance with the Unified Soil Classification System and in estimating the California Bearing Ratio (CBR), modulus of subgrade reaction (k), and permeability from empirical relations developed with respect to grain size. Specimens retrieved from the subject borings were classified visually and on the basis of plasticity with no grain-size analysis required.

(Shear Strength)

Shear strength tests were performed on undisturbed and remolded specimens of the various soils encountered. Methods employed in assessing shear strength were designated by the geotechnical engineer and are briefly summarized as follows:

- **(Pocket Penetrometer)**

  Selected cohesive soil specimens were tested utilizing a pocket penetrometer. This procedure allows for a quick approximation of the unconfined compressive strength of a soil through correlation of penetration of a calibrated plunger. Results are indicated as kips per square foot (ksf) by sample depth on the boring logs and represent the average of a minimum of four (4) readings per specimen.

- **(Unconfined Compression Test) – ASTM 2166**

  The unconfined compression test provides a relatively quick and economical approximation of the unconsolidated and undrained shear strength of a cohesive soil. Testing involves subjecting an "undisturbed" cylindrical sample of the soil (usually extracted from a Shelby tube) to a uniformly increasing load under controlled stress or controlled strain conditions until failure is reached through shear or excessive strain. The cohesive shear strength (c) is equivalent to one-half of the maximum normal stress realized during the test effort. Specimens retrieved from the borings performed sustained maximum normal loads of 0.6 to 1.4 kips (1,000 pounds) per square foot of contact area. Test results are presented as unconfined compressive strength on the boring logs.

SOIL PROFILE

The generalized soil profile presented is based upon engineering interpretation of the boring logs and related laboratory analysis as presented in Appendix (B).

Prevalent soils identified adjacent to the pool walls consisted of low to medium plasticity silty clays. According to the criteria stipulated by the Unified Soil Classification System these soils are designated CL (lean clays). The extent to which these soils represent relatively undisturbed native materials or soils selectively imported as backfill for the pool is undefined. As noted previously, these soils are highly saturated. Consistency of the near surface materials as estimated by the driller and verified by standard penetration resistance "N" values of 2 to 4 ranges from **very soft to soft.**

The soils described are underlain by medium plasticity silty clays (Unified Classification CL and CL-CH) which were intercepted at depths of approximately 5 to 7 feet and extended to the limits of exploration. Consistency of the lower clay strata was noted as **soft** to stiff.

Free water was detected as each of the borings were advanced at depths ranging from 1 to 2 feet. Water depths as measured upon examination of the drill cavities approximately 1 to 4 hours after removal of the auger ranged from 1.0 to 1.3 feet. All indications are the water table within the soils surrounding the pool is essentially the pool water surface elevation.

COMMENTARY

It is our understanding this investigation is intended to provide information regarding subsurface soil and water conditions surrounding the pool to assist in evaluation of possible mitigation and/or reclamation of the natatorium facility. With respect to same we would note:

- The surrounding soils are typically very soft and saturated and the lateral limits of saturation and seepage are as of yet undefined.

- Higher plasticity clays common to the delta are susceptible to high volume change when subjected to wetting and drying. Visible evidence suggests damage to the subject structure and surrounding improvements has occurred and is likely due to swelling associated with the pool leakage and associated saturation.

- Should the integrity of the pool be restored, the surrounding soils will remain soft and saturated which will provide little support for the pool basin and continue to promote swelling. Although chemical injection and stabilization methods may be available to restore the consistency of the materials, utilization of these techniques would be an extreme risk to the university due to the potential adverse affect on surrounding underground stormdrain and utility installations.

PRITCHARD ENGINEERING, INC.
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PROJECT NO.	3497
NATATORIUM EVALUATION	
DELTA STATE UNIVERSITY	
BORING NO.	B-1
ELEVATION	
DRILLED	08/30/11
DRILLER	J.G.

DEPTH (FT)	SAMP (FT)	SR	VISUAL CLASSIFICATION / REMARKS	CONSIST.	SPT (N)	w %	LL	PI	-200 %	UNIFIED CLASS	q_u (tsf)
0			6" CONCRETE								
1			Brown and blue-gray silty **CLAY**	Soft		28	30	14		CL	
2			(Hit water @ 2')								
			(saturated)								
3	2-3.5	X		Soft	3	33	30	16		CL	0.6
4											
5	5-6.5	X		Soft	4	40	40	17		CL	0.7
6											
7				Soft		36				CL	
8			Reddish brown and gray **CLAY**	Stiff		27	44	21		CL	
9											
10				Stiff		32				CL	
11											
12				Stiff		32				CL-CH	
13											
14				Stiff		28				CL-CH	
15			**BORING TERMINATED**								
16											
17											
18											
19											
20											

SAMPLE RETRIEVAL (SR)

☐	DRY AUGER..................ASTMD-1452
■	SHELBY TUBE..............ASTM D-1582
X	PENETRATION TEST......ASTM D-1586

WATER OBSERVATION (S)

NONE ENCOUNTERED

1.3 FT. AFTER 4 HRS.

BOREHOLE CAVED AT 13 FT.

PRITCHARD ENGINEERING, INC.
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(662) 324-2205

PROJECT NO.	3497	BORING NO.	B-2
NATATORIUM EVALUATION		ELEVATION	
DELTA STATE UNIVERSITY		DRILLED	08/30/11
		DRILLER	J.G.

DEPTH (FT)	SAMP (FT)	SR	VISUAL CLASSIFICATION / REMARKS	CONSIST.	SPT (N)	w %	LL	PI	-200 %	UNIFIED CLASS	q_u (tsf)
0			6.5" CONCRETE								
1			Brown and blue-gray silty **CLAY**	Soft		29	33	15		CL	
2			Hit water @ 1.5'								
			(saturated)								
3				M. Stiff		26				CL	
4			* Hit obstruction at 4'								
5			**Boring Aborted**								
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20			**BORING TERMINATED**								

SAMPLE RETRIEVAL (SR)

- [ ] DRY AUGER..................ASTMD-1452
- [■] SHELBY TUBE..............ASTM D-1582
- [X] PENETRATION TEST......ASTM D-1586

WATER OBSERVATION (S)

NONE ENCOUNTERED

1.0 FT. AFTER 2.5 HRS.

BOREHOLE CAVED AT FT.

PRITCHARD ENGINEERING, INC.
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(662) 324-2205

PROJECT NO.	3497	BORING NO.	B-3
NATATORIUM EVALUATION		ELEVATION	
DELTA STATE UNIVERSITY		DRILLED	08/30/11
		DRILLER	J.G.

DEPTH (FT)	SAMP (FT)	SR	VISUAL CLASSIFICATION / REMARKS	CONSIST.	SPT (N)	w %	LL	PI	-200 %	UNIFIED CLASS	q_u (tsf)
0			5.4" CONCRETE								
1			Brown and gray sandy silty **CLAY**	Soft		25	26	10		CL	
2			(Hit water @ 2')								
3	2-3.5	X	(saturated)	V. Soft	2	21	24	10		CL	0.3
4											
5				V. Soft						CL	
6	5-6.5	X	Reddish brown and gray silty **CLAY**	Soft	4	31	31	17		CL	0.6
7											
8				Soft		29				CL	
9											
10				M. Stiff		30				CL	
11											
12				M. Stiff		27	38	20		CL	
13											
14				M. Stiff		27				CL	
15			**BORING TERMINATED**								
16											
17											
18											
19											
20											

SAMPLE RETRIEVAL (SR)

- [ ] DRY AUGER..................ASTMD-1452
- [■] SHELBY TUBE..............ASTM D-1582
- [X] PENETRATION TEST......ASTM D-1586

WATER OBSERVATION (S)

NONE ENCOUNTERED

1.0 FT. AFTER 1 HRS.

BOREHOLE CAVED AT 11 FT.

PRITCHARD ENGINEERING, INC.
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STARKVILLE, MS 39760
(662) 324-2205

PROJECT NO. 3497
NATATORIUM EVALUATION
DELTA STATE UNIVERSITY

BORING NO. B-4
ELEVATION
DRILLED 08/30/11
DRILLER J.G.

DEPTH (FT)	SAMP (FT)	SR	VISUAL CLASSIFICATION / REMARKS	CONSIST.	SPT (N)	w %	LL	PI	-200 %	UNIFIED CLASS	q_u (tsf)
0			6.2" CONCRETE								
1			Brown and blue-gray silty **CLAY**	Soft		29	30	12		CL	
2			(Hit water @ 1')								
3			* Hit obstruction								
			Boring Aborted at 2.5'								
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

SAMPLE RETRIEVAL (SR)

- [ ] DRY AUGER..................ASTMD-1452
- [■] SHELBY TUBE..............ASTM D-1582
- [X] PENETRATION TEST......ASTM D-1586

WATER OBSERVATION (S)

NONE ENCOUNTERED

1.0 FT. AFTER 3 HRS.

BOREHOLE CAVED AT FT.

PRITCHARD ENGINEERING, INC.
PO BOX 2523
STARKVILLE, MS 39760
(662) 324-2205

PROJECT NO.	3497	BORING NO.	B-5
NATATORIUM EVALUATION		ELEVATION	
DELTA STATE UNIVERSITY		DRILLED	08/30/11
		DRILLER	J.G.

DEPTH (FT)	SAMP (FT)	SR	VISUAL CLASSIFICATION / REMARKS	CONSIST.	SPT (N)	w %	LL	PI	-200 %	UNIFIED CLASS	q_u (tsf)
0			10" CONCRETE								
1			Could not penetrate								
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20			**BORING TERMINATED**								

SAMPLE RETRIEVAL (SR)

- [ ] DRY AUGER..................ASTMD-1452
- [■] SHELBY TUBE..............ASTM D-1582
- [X] PENETRATION TEST......ASTM D-1586

WATER OBSERVATION (S)

NONE ENCOUNTERED X

_____ FT. AFTER _____ HRS.

BOREHOLE CAVED AT _____ FT.

PRITCHARD ENGINEERING, INC.
PO BOX 2523
STARKVILLE, MS 39760
(662) 324-2205

PROJECT NO. 3497
NATATORIUM EVALUATION
DELTA STATE UNIVERSITY

BORING NO. B-6
ELEVATION
DRILLED 08/30/11
DRILLER J.G.

DEPTH (FT)	SAMP (FT)	SR	VISUAL CLASSIFICATION / REMARKS	CONSIST.	SPT (N)	w %	LL	PI	-200 %	UNIFIED CLASS	q_u (tsf)
0			9" CONCRETE								
1			Could not penetrate								
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20			**BORING TERMINATED**								

SAMPLE RETRIEVAL (SR)

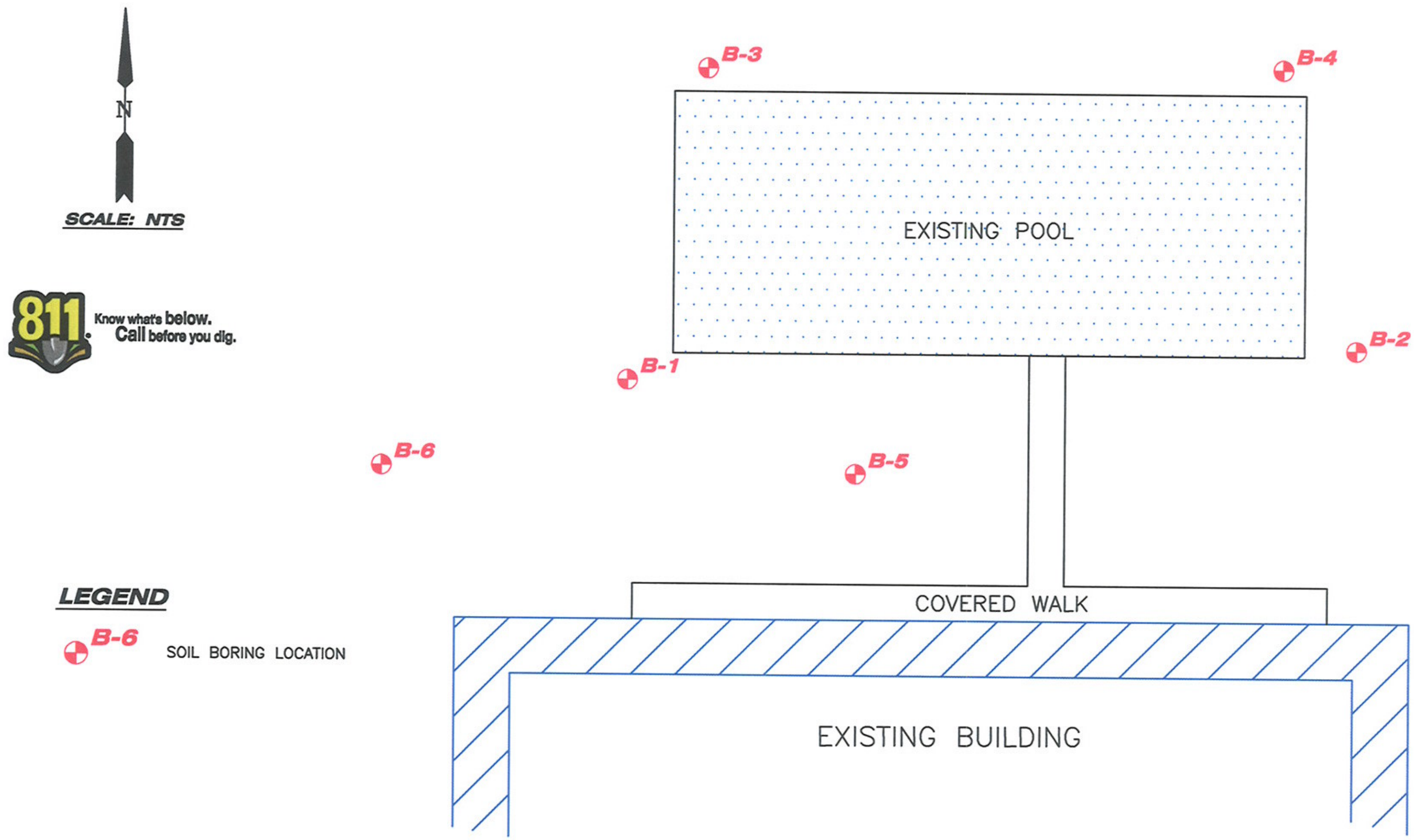
- [ ] DRY AUGER..................ASTMD-1452
- [■] SHELBY TUBE..............ASTM D-1582
- [X] PENETRATION TEST......ASTM D-1586

WATER OBSERVATION (S)

NONE ENCOUNTERED X

FT. AFTER HRS.

BOREHOLE CAVED AT FT.



PRITCHARD ENGINEERING, INC.
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STARKVILLE, MS 39760-2523
662-324-2205

BORING PLAN
DELTA STATE NATATORIUM
CLEVELAND, MISSISSIPPI

FOR

JENKINS ENGINEERING
TUPELO, MISSISSIPPI

DRAWN BY:	JD
CHECKED BY:	CLP
DATE:	9/12/2011
SCALE:	NTS
PROJ. #:	3497G-118
DWG #:	3497G-118-11

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