Exhibit AA.
Highway 1 Leonard Road Site
Preliminary Geotechnical Engineering Report

LOUISIANA ECONOMIC DEVELOPMENT CERTIFIED SITE

north louisiana economic partnership

Highway 1 Leonard Road Site Preliminary Geotechnical Engineering Report

PRELIMINARY GEOTECHNICAL INVESTIGATION
432 ACRE SITE – HIGHWAY 1 AND LEONARD ROAD SITE
SHREVEPORT, LOUISIANA

PREPARED FOR:
FRANKS INVESTMENT COMPANY LLC
P.O. BOX 7626
SHREVEPORT, LOUISIANA 71137

PREPARED BY:

ARDAMAN & ASSOCIATES, INC.
7222 GREENWOOD ROAD
SHREVEPORT, LOUISIANA 71119

ARDAMAN PROJECT NO.: 113-13-94-8583
AAI SHREVEPORT FILE NO.: 13.94.060

JULY 16, 2013

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Ardaman & Associates, Inc.

Geotechnical, Environmental and
Materials Consultants

July 16, 2013

Franks Investment Company LLC
P.O. Box 7626
Shreveport, Louisiana 71137

Attention: Mr. Jacob Herrington

Reference: Preliminary Geotechnical Investigation
432 Acre Site
LA Highway 1 and Leonard Road Site
Shreveport, Louisiana
Ardaman Project No.: 113-13-94-8583
AAI Shreveport File No.: 13.94.060

Gentlemen:

Attached is AAI's Preliminary Geotechnical Investigation Report for the above referenced project. Ardaman & Associates, Inc. (AAI) will be happy to assist you further on this project by furnishing any Construction Materials Testing Services you or the future purchaser may require. We are a full service laboratory with a local presence in Shreveport, Louisiana and can provide any soils or concrete testing you may require.

It has been a pleasure to perform this work for you. If we can be of any further assistance, please do not hesitate to call on us.

Very truly yours,

ARDAMAN & ASSOCIATES, INC.

James M. Belt, P.E.
Branch Manager
Shreveport Area Operations

Lloyd G. Hoover, P.E.
Principal Engineer
Shreveport Area Operations

STATE OF LOUISIANA
LLOYD G. HOOVER
REG. No. 11968
REGISTERED
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING

cc: (2) client

Location: 7222 Greenwood Road, Shreveport, Louisiana 71119 Phone (318) 636-3673 Fax (318) 636-3723
Mailing Address: PO Box 19220, Shreveport, Louisiana 71149-0220
Louisiana: Alexandria, Baton Rouge, Monroe, New Orleans, Shreveport
Florida: Bartow, Cocoa, Fort Myers, Miami, Orlando, Port St. Lucie, Sarasota, Tallahassee, Tampa, West Palm Beach

PRELIMINARY GEOTECHNICAL INVESTIGATION
432 ACRE SITE
LA HIGHWAY 1 AND LEONARD ROAD
SHREVEPORT, LOUISIANA

GENERAL

This study was authorized by Mr. Bobby E. Jelks, Manager of Franks Investment Company, L.L.C. on April 7, 2013. The purposes of the study were to (1) explore the subsurface conditions present at this site, (2) determine the pertinent engineering properties of the materials encountered, (3) characterize the sites soil and groundwater conditions, and (4) determine if unfavorable soil conditions exist at the site. Item 4 is general in nature and each boring has brief analysis and conditions presented.

PROJECT DESCRIPTION

The tract lies south of Flournoy-Lucas Road and is bordered by UP railroad and LA Highway 1/Youree Drive on the north and east, Leonard Road is on the south and Bayou Pierre and Sand Bayou is on the west. The site is owned by Franks Investments Company LLC. This report is part of a prerequisite for the Louisiana Economic Development "Certified Site" program.

FIELD OPERATIONS

The geotechnical investigation consisted of a total of four (4) test borings. The four (4) borings were drilled in separate areas over the proposed site. These borings were advanced to a depth of twenty-five (25) feet below the existing ground surface. This investigation was conducted on May 23, 2013. Boring locations were selected by the geotechnical engineer.

The test borings were advanced utilizing continuous-flight, solid stem augers and samples were obtained for laboratory evaluation in general accordance with provisions of ASTM D1586 and ASTM D1587. Standard, thin-walled, seamless Shelby tube samplers were used to obtain specimens of cohesive materials. These specimens were taken continuously to a depth of ten (10) feet below the existing ground surface. Below this depth, samples were obtained at intervals of five (5) feet as the borings were advanced.

Soils which contained enough cohesionless material or were sufficiently dense to prevent recovery of undisturbed specimens with Shelby Tube samplers were evaluated by means of the Standard Penetration test. This test consists of determining the number of blows required by a 140 pound hammer dropped 30 inches to achieve one foot penetration of the soil. This number is then related to "in situ" density of the material.

All samples obtained were logged, sealed and packaged in the field to protect them from disturbance and maintain their in situ moisture content during transportation to our laboratory. The results of our boring program (Logs of Boring) are included as Appendix "A" of this report.

LABORATORY TESTING

Upon return to our laboratory selected samples were subjected to standard laboratory tests under the supervision of a soils engineer. The Atterberg Limits, in situ unit weights, percent of material passing a #200 sieve, and moisture contents of the different subsurface soils were determined. These soil properties were used to classify the soils and evaluate their potential for volumetric change. Standard Penetration and unconfined compression tests performed on selected undisturbed samples were used to evaluate the shear strength of the different subsurface materials. The results of our testing program are included on the Logs of Boring in Appendix "A" of this report.

SOIL CONDITIONS

Soil conditions described in this section are of a generalized nature and intended to emphasize key features and characteristics. For a more detailed description of the subsurface materials encountered refer to the soil profile on each Log of Boring in Appendix "A". Strata contacts indicated on our Logs are approximate. Actual transitions may be gradual in nature.

Boring 1 indicates a stiff to very stiff lean clay exist in about the upper thirteen (13) feet. This is underlain by a loose to firm silt to about twenty-three (23) feet where a loose silty sand is encountered. The boring was terminated in the silty sand at the twenty-five (25) foot depth.

In boring B-2 area the soil was stiff red clay with slicken-sides to the six (6) foot depth. This was underlain by a lean clay to the eight (8) foot depth where a loose sandy silt is encountered. The soil between the eight (8) and twenty-five (25) foot depth is loose to firm sandy silt and silty sand. The boring was terminated at the twenty-five (25) foot depth.

In Boring B-3 a very stiff to hard clay with gravel is found. This material exists to about the three (3) foot depth. A sandy silt is found between three (3) and six (6) feet. At six (6) feet a medium clay is found and extends to the thirteen (13) foot depth. At this depth firm sand with silt is found and becomes loose near the twenty-three (23) foot depth. The boring was terminated in the stratum at twenty-five (25) feet.

Boring B-4 indicates a very stiff lean clay exists between the ground surface and thirteen (13) feet. At this depth very loose silt with sand exists. The boring was terminated in this stratum at twenty-five (25) feet.

GROUNDWATER

Shallow groundwater was encountered at a depth of thirteen (13) feet, eighteen (18) feet, sixteen (16) feet and thirteen (13) feet in borings B-1, B-2, B-3 and B-4 respectively during operations. Based on the soil stratification, if excavation below a depth of about ten (10) feet is necessary the groundwater may become a construction problem.

SUBGRADE PREPARATION

Prior construction activity on this site, top soil stripping will be required. Provide drainage of the exposed subgrade by sloping grades and ditching away from the construction site so positive drainage can be maintained throughout the construction phase of the project. Existing natural drainage should help in keeping this site well drained during any construction.

As a general practice after the undisturbed subgrade is exposed, the upper twelve (12) inches should be scarified; moisture conditioned, and then compacted to a minimum of ninety-five (95) percent of the laboratory maximum density as determined by ASTM D698 at one (1) to three (3) percent above optimum moisture content prior to subsequent fill placement.

FILL RECOMMENDATIONS

If any projects require a higher elevation place subsequent lifts of structural fill as necessary to achieve the desired finished grade elevation. Lifts should be placed in thin horizontal layers not exceeding eight (8) inches in loose thickness, moisture conditioned to within two (2) percentage points of optimum moisture and re-compacted to a minimum of ninety-five (95) percent ASTM D698. All imported fill material should be "select". Select materials classify as SC or CL (clayey sand or sandy lean clay) in accordance with the Unified Soils Classification System and will have liquid limits (LL) no greater than thirty-eight (38), plasticity indices (PI) between eight (8) and eighteen (18) with no more than sixty (60) percent passing the No. 200 sieve. Typical specifications for compaction of sandy clay and clayey sand soils are included in Appendix "B" of this report. The onsite fill materials previously recommended for removal are suitable materials for reuse beneath the building or pavements with adequate moisture conditioning and compaction control.

FOUNDATION RECOMMENDATIONS

Boring B-1

The near surface soils encountered within the upper thirteen (13) feet below the existing ground surface are considered inactive and are of good bearing quality. As such, they are suitable to support of a shallow foundation system. A conventionally reinforced, slab-on-grade, shallow foundation system can be used. The base of any footings should be placed approximately one (1) to two (2) feet below the ground surface in the stiff lean clay or in the density controlled fill material. An allowable bearing value of 2,300 PSF can be utilized to proportion continuous footings placed as described above. The bearing value contains a minimum factor of safety of two (2) against shear failure of the bearing stratum and was selected to minimize settlement potential of the weaker materials found below a depth of thirteen (13) feet. A minimum footing width of eighteen (18) inches should be maintained for all continuous footings as protection against potential isolated shear failure.

Interior columns or other areas of concentrated load in this area can be supported by isolated spread footings. The base of the footings should be placed in the previously described stratum. An allowable bearing value of 3,000 PSF can be used to proportion all spread footings. The bearing value contains a minimum factor of safety of two (2) against shear failure of the bearing stratum. A minimum footing width of twenty-four (24) inches should be maintained for all spread footings.

The slab for the proposed structure can be placed directly on the in-situ soil or density controlled fill. AAI recommends the slab be structurally tired to the foundation to differential movement potential. Use of a polyethylene moisture (vapor) barrier is recommended under all climate controlled areas.

Some consolidation settlement should be expected in the clay soils beneath this site. However, if the site is properly prepared and allowable bearing capacities not exceeded, settlement should be limited to an inch or less. These are general requirements for this area and should be verified with a final geotechnical investigation.

Boring B-2

The upper five (5) to six (6) feet at B-2 area is considered active clay. The consistency was stiff. For shallow foundations in this area the active clay must be addressed. It can be removed and replaced, the elevation of the site can be raised five (5) to six (6) feet, or a combination of removal and replacement to obtain final six (6) feet of inactive material can be utilized to support light to medium loaded structures. Heavily loaded structures that can withstand some settlement could be founded on the stiff clay if the swell pressure does not exceed the bearing pressures.

Boring B-3

Active clay exists in the upper three (3) feet. To support shallow foundation in this area the upper three (3) feet should be removed and replaced with a sandy clay or clayey sand. Lightly loaded to medium loaded structure then could be founded on a shallow foundation system.

Boring B-4

The soil in this area is marginal for a shallow foundation system. The consistency is very good and with proper drainage established a shallow foundation system can be utilized to support structure that will exert 3,000 PSF or less on the soil, heavier loads may require a deeper foundation system.

Heavy Load (B-1 thru B-4)

Probably the most economical way to support heavily loaded structures is with an augercast pile system. The site is ideal for utilizing augercast piles to support heavier loads or to minimize settlement. All four areas can support heavily loaded structures on an augercast pile foundation. Timber piles, concrete piles and helical piers can also be utilized.

CONSTRUCTION CONCERNS

The upper soils at the site are fine-grained materials composed of significant silt and clay fractions. Silty and/or clayey soils are subject to changes in shear strength with varying moisture conditions. If construction is initiated during wetter seasons of the year, it may be difficult to move equipment about the site. Once these type soils become saturated, compaction operations can be hampered by a tendency of the silt to "pump" and the clay to “shear”.

Consequently it is recommended, adequate site drainage be established prior to, during, and following construction operations to prevent water ponding on or adjacent to construction areas. Compaction operations may be expedited by using light compaction equipment and thin lifts of soil. Rolling only as necessary to obtain compaction is advisable because further repetitive loading may cause the subgrade to "pump" or fail. Once soils begin to pump, it is usually necessary to either start the moisture conditioning process over or remove and replace the saturated material. AAI can provide experience soils technicians to monitor the contractor’s compaction operations and assist in expediting the site work.

Compaction operations and installation of the foundations should be supervised by a qualified soils technician under the supervision of the Geotechnical Engineer. All foundation excavations should be inspected to verify cleanliness and adequate bearing. Concrete should be placed in foundation excavations as soon as practical after forming and final clean-up have been approved, to avoid prolonged exposure of the bearing stratum and possible disturbance due to standing water, desiccation or other construction operations.

Earthwork performed during wet periods of the climatic cycle may warrant special considerations. The use of hydrated lime or Portland cement stabilization should be considered to provide a working platform. The need for such techniques is dependent upon earthwork scheduling with respect to weather patterns and good site management of drainage during the construction phase.

LIMITATIONS

This study has been prepared in accordance with generally accepted preliminary geotechnical engineering principles and practices in this area at this time. We make no other warranty either express or implied.

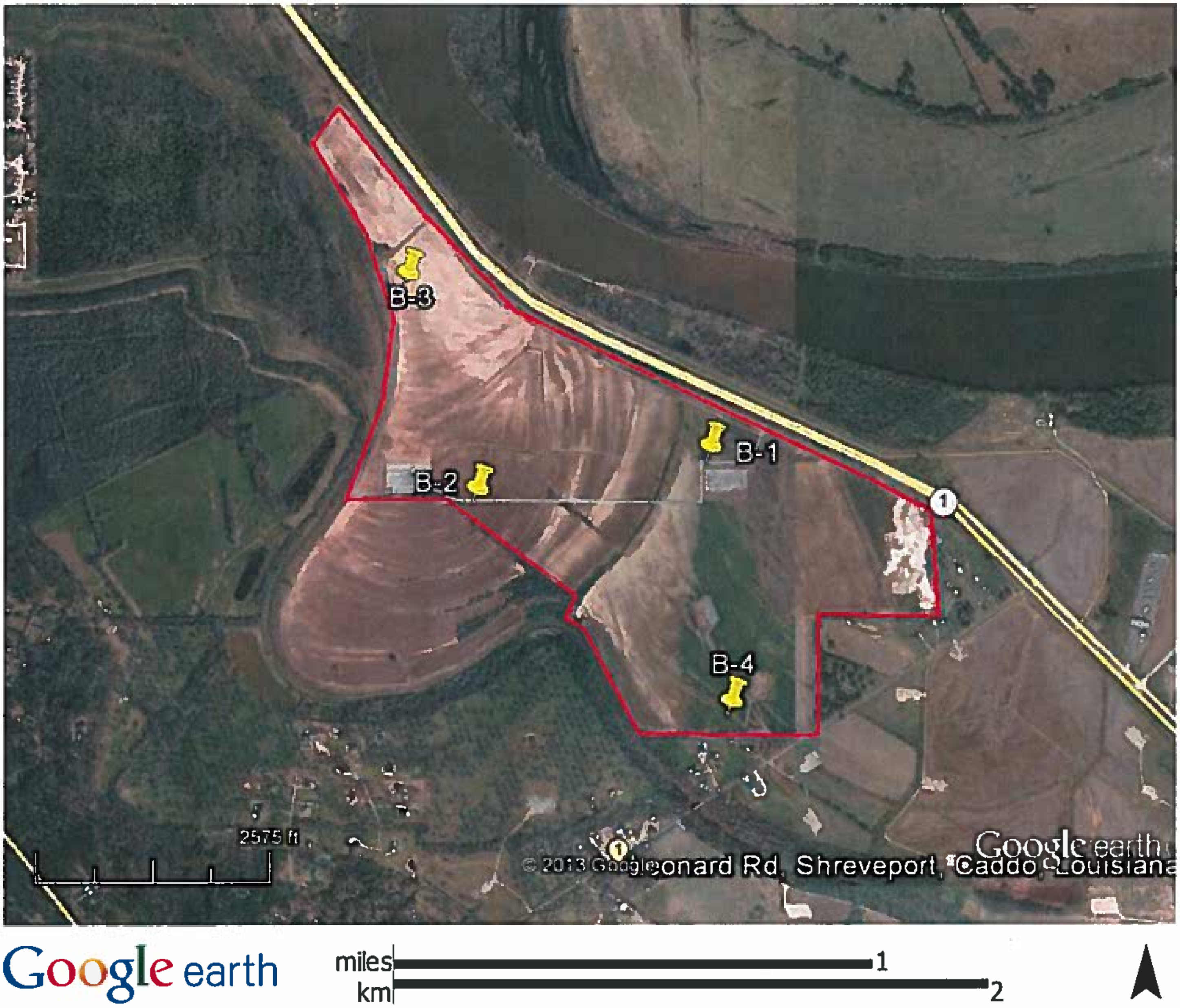
The conclusions and recommendations submitted in this report are based upon the data obtained from the preliminary exploratory borings drilled at the location(s) indicated in Appendix A, the different possible type of construction, and our experience in the area. Our findings include interpolation and extrapolation of the subsurface conditions identified at the exploratory boring(s) and variations in the subsurface conditions may not become evident until excavations are performed.

This study has been prepared for the exclusive use by our client for preliminary purposes only. We are not responsible for technical interpretations by others of our exploratory information, which has not been described or documented in this report. As the site is eventually developed additional borings should be taken. Significant design changes could be required or modifications of the recommendations presented herein. We recommend on-site observation of excavations and foundation bearing strata by a representative of the geotechnical engineer.

Analysis by: Lloyd G. Hoover, P.E.

APPENDIX A

LOCATION DIAGRAMS
AND
LOGS OF BORING


B-3
B-2
B-1
B-4
1
2575 ft
© 2013 Google
Leonard Rd, Shreveport, Caddo, Louisiana
Google earth
Google earth
miles 1
km 2

LOG OF BORING NO. B-1

PROJECT: Hwy 1 & Leonard Road Site
SHEET 1 of 1

CLIENT: Franks Investment Co LLC
LOCATION: Shreveport, Louisiana

DATE: 5/28/13
SURFACE ELEV: 157' +/-

DRILLING METHOD(S): Auger

GROUNDWATER INFORMATION: Water encountered at thirteen (13) feet depth

FIELD DATA: N: SPT, BLOWS/FT; T: THD, BLOWS/FT; P: HAND PEN, TSF	MOISTURE CONTENT, %	DRY DENSITY POUNDS/CU.FT	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %	MINUS NO. 200 SIEVE, %	COMPRESSIVE STRENGTH, KSF	FAILURE STRAIN (%)	CONFINING PRESSURE PSI	DESCRIPTION OF STRATUM
	21	105	44	17	27		4.05	7.0		Stiff to very stiff brown and red lean clay (CL)
	19	106					3.35	7.2		--With silty sand
	22	102	26	19	7		1.78	5.8		--Medium
	18	105					1.62	6.7		
	24	99	46	17	29		3.07	7.1		--Stiff
										13.0
P=5	24					87				Loose to firm brown and red silt
N=10	24					83				
										23.0
N=6	21					32				Loose tan and red silty sand
										25.0
										Bottom of boring at 25 feet

DEPTH (FT): 5, 10, 15, 20, 25, 30

TUBE SAMPLE	AUGER SAMPLE	SPLIT-SPOON	ROCK CORE	THD CONE PEN.	NO RECOVERY

REMARKS:

LOG OF BORING NO. B-2

PROJECT: Hwy 1 & Leonard Road Site **SHEET** 1 of 1

CLIENT: Franks Investment Co LLC **LOCATION:** Shreveport, Louisiana

DATE: 5/28/13 **SURFACE ELEV:** 156' +/-

DRILLING METHOD(S): Auger

GROUNDWATER INFORMATION: Water encountered at eighteen (18) feet depth

FIELD DATA			LABORATORY DATA									
DEPTH (FT)	SAMPLE TYPE	N: SPT, BLOWS/FT T: THD, BLOWS/FT P: HAND PEN, TSF	MOISTURE CONTENT, %	DRY DENSITY POUNDS/CU.FT	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %	MINUS NO. 200 SIEVE, %	COMPRESSIVE STRENGTH, KSF	FAILURE STRAIN (%)	CONFINING PRESSURE PSI	DESCRIPTION OF STRATUM
0–1	Tube		26	99	56	23	33		3.20	7.0		Stiff brown and red clay (CH)
2	Tube		30	93					4.75	3.8		--Slicken-sided
4	Tube		25	99	60	20	40		6.10	2.5		--Slicken-sided
6.0	Tube		12	109	33	16	17		10.48	2.8		Very stiff brown and red clay (CL)
8.0	Tube		6					69				Loose tan sandy silt
13	Split-spoon	N = 9	4					7				--Loose to firm tan sand with silt (SM)
18	Split-spoon	N = 10	24					4				--Mostly fine sand with little silt
23	Split-spoon	N = 6	25					11				--Mostly fine sand with little silt
25.0												Bottom of boring at 25 feet

TUBE SAMPLE	AUGER SAMPLE	SPLIT-SPOON	ROCK CORE	THD CONE PEN.	NO RECOVERY

REMARKS:

LOG OF BORING NO. B-3

PROJECT: Hwy 1 & Leonard Road Site | **SHEET** 1 of 1

CLIENT: Franks Investment Co LLC | **LOCATION:** Shreveport, Louisiana

DATE: 5/28/13 | **SURFACE ELEV:** 159' +/-

DRILLING METHOD(S): Auger

GROUNDWATER INFORMATION: Water encountered at sixteen (16) feet depth

FIELD DATA				LABORATORY DATA									
SOIL & ROCK SYMBOL	DEPTH (FT)	SAMPLE TYPE	N: SPT, BLOWS/FT T: THD, BLOWS/FT P: HAND PEN, TSF	MOISTURE CONTENT, %	DRY DENSITY POUNDS/CU.FT	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %	MINUS NO. 200 SIEVE, %	COMPRESSIVE STRENGTH, KSF	FAILURE STRAIN (%)	CONFINING PRESSURE PSI	DESCRIPTION OF STRATUM
				21	104	55	18	37		11.13	3.4		Very stiff to hard brown and gray clay (CH) with gravel
				20	101					6.50	6.1		--Very stiff brown and red clay to a sandy silt (3.0)
	5			17		NP	NP	NP					Tan and red sandy silt (6.0)
				25	100					1.43	11.5		Medium brown clay (CH) to sandy silt
	10			30	92	68	25	43		1.43	4.7		--Medium brown clay (13.0)
	15		N = 11	19					15				Firm brown and red silty sand
	20		N = 16	23					7				--Firm tan sand with silt
	25		N = 4	21					11				--Loose tan sand with silt (25.0)
	30												Bottom of boring at 25 feet

TUBE SAMPLE	AUGER SAMPLE	SPLIT-SPOON	ROCK CORE	THD CONE PEN.	NO RECOVERY

REMARKS:

LOG OF BORING NO. B-4

PROJECT: Hwy 1 & Leonard Road Site | SHEET 1 of 1

CLIENT: Franks Investment Co LLC | LOCATION: Shreveport, Louisiana

DATE: 5/28/13 | SURFACE ELEV: 156' +/-

DRILLING METHOD(S): Auger

GROUNDWATER INFORMATION: Water encountered at thirteen (13) feet depth

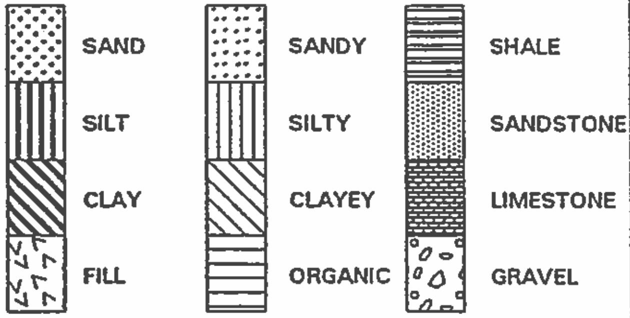
DEPTH (FT)	SAMPLE TYPE	N: SPT, BLOWS/FT T: THD, BLOWS/FT P: HAND PEN, TSF	MOISTURE CONTENT, %	DRY DENSITY POUNDS/CU.FT	LIQUID LIMIT, %	PLASTIC LIMIT, %	PLASTICITY INDEX, %	MINUS NO. 200 SIEVE, %	COMPRESSIVE STRENGTH, KSF	FAILURE STRAIN (%)	CONFINING PRESSURE PSI	DESCRIPTION OF STRATUM
0	Tube		22	104	47	19	28		6.93	9.0		Very stiff brown clay (CL)
	Tube		23	104					3.59	7.3		--Stiff
	Tube		26	101	41	16	25		1.83	15.0		--Medium
5	Tube		23	103					1.40	13.3		
	Tube		24	99	34	17	17		1.43	15.0		--Medium lean clay
13.0												
	Split-spoon	N = 1	26					87				Very loose brown and red silt (ML)
	Split-spoon	N = 2	29					75				--With sand
	Split-spoon	N = 2	29					38				--With sand
25.0												Bottom of boring at 25 feet

TUBE SAMPLE	AUGER SAMPLE	SPLIT-SPOON	ROCK CORE	THD CONE PEN.	NO RECOVERY

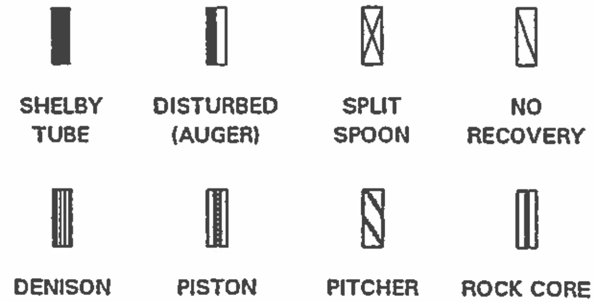
REMARKS:

KEY TO SOIL CLASSIFICATION TERMS AND SYMBOLS

SOIL OR ROCK TYPES



SAMPLER TYPES



CONSISTENCY OF COHESIVE SOILS (MAJOR PORTION PASSING NO. 200 SIEVE)

DESCRIPTIVE TERM	UNDRAINED SHEAR STRENGTH, KIPS/SQ FT
VERY SOFT	LESS THAN 0.25
SOFT	0.25 TO 0.5
FIRM	0.5 TO 1.0
STIFF	1.0 TO 2.0
VERY STIFF	2.0 TO 4.0
HARD	GREATER THAN 4.0

RELATIVE DENSITY OF GRANULAR SOILS (MAJOR PORTION RETAINED ON NO. 200 SIEVE)

DESCRIPTIVE TERM	RELATIVE DENSITY,%
VERY LOOSE	LESS THAN 15
LOOSE	15 TO 35
MEDIUM DENSE	35 TO 65
DENSE	65 TO 85
VERY DENSE	GREATER THAN 85

WATER LEVELS

- DEPTH GROUNDWATER FIRST ENCOUNTERED DURING DRILLING

- GROUNDWATER LEVEL AFTER 24 HOURS (UNLESS OTHERWISE NOTED)

TERMS DESCRIBING SOIL STRUCTURE

Parting: paper thin in thickness

Seam: 1/8" - 3" in thickness

Layer: greater than 3" in thickness

Calcareous: containing appreciable quanties of calcium carbonate

Ferrous: containing appreciable quantities of iron

Well-graded: having wide range in grain size & similar proportions of all intermediate sizes

Poorly graded: predominately one grain size or having a range of sizes with few or no particles of some intermediate sizes

Fissured: containing shrinkage cracks, frequently filled with fine sand or silt, usually more or less vertical

Interbedded: composed of alternate layers of different soil types

Laminated: composed of thin layers of varying color and texture

Slickensided: having inclined planes of weakness that are slick & glossy in appearance

<u>NOTE:</u> Clays possessing slickensided or fissured structure may exhibit lower measured shear strength than indicated by the described consistency. The consistency of such soil is interpreted using the measured shear strength along with pocket penetrometer results.

APPENDIX B

MATERIAL SPECIFICATIONS

B.1 SPECIFICATIONS FOR COMPACTION

Sandy Clay and Clayey Sand Soils

The thickness of lifts used should be no more than the height of the teeth on sheepsfoot rollers. Generally, for a forty-eight (48) inch diameter or smaller drum roller, the maximum compacted lift thickness acceptable is six (6) inches. For rollers with drums of sixty (60) inches in diameter and larger with teeth about nine (9) inches long, a nine (9) inch final compacted lift thickness will be acceptable. The sole determination of the thickness of a lift will be the capability of the contractor's equipment to obtain the required compaction.

When obtaining the average density of a lift to determine its conformance to specifications, the lift should be immediately rejected if any density is more than 2% below the required average.

Generally, sheepsfoot rollers are most suitable for compaction of sandy clay and clayey sand soils, the contractor may use spiketooth rollers, rubber tired rollers, or any fill compaction equipment that has sufficient mass to compact the soil. Generally, the drums of sheepsfoot rollers should be filled with water or for additional weight with both water and sand. Tractors or other vehicles used primarily for hauling WILL NOT be allowed as fill compaction equipment. The contractor should also have smooth wheel rollers to seal the working area at the end of the day's operations so overnight rains will not saturate the soil and delay his work. These rollers should also be used to seal the surface whenever rainfall is imminent.

The soil engineer or his representative will perform density tests and will accept or reject a lift within two (2) hours after being tested. No material will be placed on any lift that has not been accepted by the engineer.

B.2 COARSE AGGREGATE SPECIFICATIONS

Crushed Stone Crushed Concrete	Crushed stone base course shall be composed of crusher-run broken stone. The material shall be crushed and consist of durable particles of stone mixed with approved soil binder material.
Gradation	The base material shall meet the following requirements:

Pass #1-1/2"	100%
Pass #1"	90-100%
Pass #3/4"	70-100%
Pass #4	35-65%
Pass #40	12-32%
Pass #200	5-12%

Soil Binder	Material passing the No. 40 sieve shall be known as "soil binder" and shall meet the following requirements: Plasticity Index < 15
Compaction	Compaction shall be obtained by a minimum of 12 passes of a 5,000 pound sheepsfoot roller 3 to 4 feet wide. Surface shall be finished rolled by sufficient passes of a steel wheel roller to provide a smooth surface for application of the surface course.
Note	Extra binder material may be added with the approval of the geotechnical or design engineer. Soundness and Los Angeles abrasion tests should meet Louisiana Department of Transportation Specifications.

B.3 GEOTEXTILE FABRIC SPECIFICATIONS

The following proven woven Geotextile Fabrics are approved:

1. Amoco Pro Pex 2006
2. Beltech Style 980
3. ConTech C300
4. Mirafi 600X
5. Hanes (Terra Tex) HD

If alternate geotextile fabric from above is requested, the following qualifications should be met:

SPECIFICATIONS

Property	Test Method	Minimum Requirements
Fabric Structure	-	Woven
Polymer Composition	-	Polypropylene
Fabric Width	-	12½', 15', 17½'
Weight	ASTM D-3776C	5 oz. /yd.
Grab Strength	ASTM D-4632	300 x 300 lbs.
Elongation	ASTM D-4632	20%
Trap Tear Strength	ASTM D-4533	115 lbs. x 115 lbs.
Burst Strength	ASTM D-3786	575 psi.
Puncture	ASTM D-4833	120 lbs.
UV Resistance	ASTM D-4355	> 70%
A.O.S.	ASTM D-4751	35

NOTE:

1. Requires Mill Certification from manufacturer.

2. Minimum requirements are not minimum average values. Minimum average values per roll are not an acceptable specification.