

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT



SUBSURFACE INVESTIGATION

STATE JOB NO. 110586

FEDERAL AID PROJECT NO. NHPP-0068(38)

HWY. 261 STR. & APPRS. (S)

STATE HIGHWAY 261 SECTION 2

IN ST. FRANCIS COUNTY

LETTING OF NOVEMBER 2, 2016

The information contained herein was obtained by the Department for design and estimating purposes only. It is being furnished with the express understanding that said information does not constitute a part of the Proposal or Contract and represents only the best knowledge of the Department as to the location, character and depth of the materials encountered. The information is only included and made available so that bidders may have access to subsurface information obtained by the Department and is not intended to be a substitute for personal investigation, interpretation and judgment of the bidder. The bidder should be cognizant of the possibility that conditions affecting the cost and/or quantities of work to be performed may differ from those indicated herein.

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

May 23, 2011

TO: Mr. Carl Fuselier, Bridge Engineer

SUBJECT: Job No. 110543
Hwys. 261, 38 & 149 Strs. & Apprs. (F)
Route 40, Section 51
St. Francis County

Transmitted herewith are summaries of the site geology and subsurface conditions, percent material passing #200 sieve (for liquefaction susceptibility analysis), 24-hour water level readings, undisturbed Shelby tube test results (including unconsolidated-undrained triaxial shear, Atterberg Limits, gradation, and moisture content), and the logs of the rotary wash borings for the above referenced job. Existing embankments are constructed with silty clay having properties of 93.0 pcf Dry Unit Weight and 1800 pcf Undrained Shear Strength recommended for use during shoring design. Embankment designs will be included in an additional report when analyses are complete.

The samples obtained by the standard penetration tests were brought to the laboratory and visually classified by experienced lab personnel to verify the field identifications.



Michael C. Benson
Materials Engineer

MCB:jaa:
Attachments

cc: State Construction Engineer - Master File Copy
District 1 Engineer
G.C. File

GEOLOGY AND SITE CONDITIONS

Job No. 110543

Hwys. 261, 38, & 149 Strs. & Apprs. (F)

St. Francis County

Route 40 Section 51

Site Conditions

There are three overpasses associated with this job. All of the overpasses are quite similar to each other. The existing westernmost overpass, **Overpass 1**, is a 4 span structure for Hwy 261 to cross over IH-30. The new overpass is proposed to be placed to the right of the existing bridge. The existing bridge is constructed with a concrete deck and concrete piers. The deck is supported by 5 sets of I-beams. The guardrail leading up to the bridge is constructed of steel with an aluminum guardrail on the bridge. The end walls are constructed of concrete. Concrete aprons have also been placed on the end slopes. Steel guardrails have been placed along the interstate adjacent to the piers. Concrete walls have been placed at the base of the piers. There is a buried telecommunication line parallels the existing overpass on the east. The area adjacent to the bridge is vegetated with close cut grasses. The area southeast and southwest of the overpass is moderately wooded. The area northwest has some trees, and the area northeast has a few scattered small diameter trees.

The existing middle overpass, **Overpass 2**, is a 4 span overpass for Hwy 38 to cross over IH-30. The new overpass is proposed to be placed to the right of the existing bridge. The existing bridge is constructed with a concrete deck and concrete piers. The deck is supported by 5 sets of I-beams. The guardrail leading up to the bridge is constructed of steel with an aluminum guardrail on the bridge. The end walls are constructed of concrete. Concrete aprons have also been placed on the end slopes. Steel guardrails have been placed along the interstate adjacent to the piers. Concrete walls have been placed at the base of the piers. The area adjacent to the bridge is vegetated with close cut grasses. The area northeast, southeast, and southwest is moderately wooded. The area northwest of the overpass has some trees and a large gravel parking area.

The existing easternmost bridge, **Overpass 3**, is a 4 span overpass for Hwy 149 to cross over IH-30. The new overpass is proposed to be placed to the right of the existing bridge. The existing bridge is constructed with a concrete deck and concrete piers. The deck is supported by 5 sets of I-beams. The guardrail leading up to the bridge is constructed of steel with an aluminum guardrail on the bridge. The end walls are constructed of concrete. Concrete aprons have also been placed on the end slopes. Steel guardrails have been placed along the interstate adjacent to the piers. Concrete walls have been placed at the base of the piers. An oxbow lake parallels the overpass and is located just to the west of the power lines. The area adjacent to the bridge is vegetated with close cut grasses. The area northwest of the bridge has some trees and a public campground. The areas northeast and southeast of the bridge are open fields with a few scattered small diameter trees. The area southwest of the overpass is vegetated with close grasses with trees lining oxbow lake.

Site Geology

The proposed **overpass 1** is located on the mapped outcrop of Quaternary terrace deposits (map symbol Qt). The terrace deposits consist of a complex sequence of unconsolidated gravels, sandy gravels, sands, silty sands, silts, clayey silts, and clays. Individual deposits are often lenticular and

discontinuous. This area has been further delineated as early Wisconsin age valley train deposits (map symbol Pve 3). These deposits are composed of glacial outwash or valley train deposits laid down by swiftly flowing, sediment-choked braided streams. In the western lowlands area, west of Crowley's Ridge, the sediments were derived from glacial outwash from the Mississippi and Missouri River drainage basins and deposited by those streams. Fine-grained silty and clayey sediments 15 or more feet thick overlying coarser material occur in the relict channels. Much of this was deposited in Holocene times by the local drainage that now occupies these topographic lows. In the interfluvial areas, sandy surface soils occur grading into clean sands and gravels within 20 to 25 feet of the surface. These coarse-grained deposits extend to depths of 100 to 180 feet.

The proposed **overpasses 2 and 3** to the east of Forrest City are located on the mapped outcrop of Quaternary alluvium (stream overbank) (map symbol Qso). The alluvial (stream overbank) deposits are composed of similar material as the terrace deposits. The alluvium (stream overbank) deposits are composed of deposits of small streams, the overbank deposits of major streams, or older meander belt deposits of major streams. This area has been further delineated as point bar deposits of Mississippi River meander belts (map symbol Hpm 3 and Hpm 4) which consist of point bar deposits of Mississippi River meander belts. These deposits overlie valley train deposits.

Subsurface Conditions

Based on the results of the borings for Stations 113+94 to 117+15 (Hwy 261), the subsurface stratigraphy may be generalized as follows:

- 0 to 20 Feet: Consists of moist, medium stiff to very stiff, brown to gray **clay**. Many samples from this zone contained some amount of organic matter.
- 20 to 26.5 Feet: Varies from moist to wet, stiff, brown to gray **clay** to loose to medium dense, brown **silty to clayey sand**.
- 26.5 to 55 Feet: Consists moist to wet, loose to dense, brown to gray, **silty sand to clayey sand to sand**. Some samples from this zone contained some amount of organic matter.
- 55 to 106.5 Feet: Consists of moist to wet, loose to very dense, brown to gray, **sand to sand with silt**. Intervals of gravel were encountered in this zone.

Based on the results of the borings for Station 211+13 to 214+72 (Hwy 38), the subsurface stratigraphy may be generalized as follows:

- 0 to 25 Feet: Consists of moist to wet, medium stiff to stiff, brown and gray **clay**. Some samples from this zone contained organic matter.
- 25 to 50 Feet: Varies from moist to wet, soft to stiff, brown and gray clay to loose to medium dense, brown and gray **sand**. Some samples from this zone contained organic matter.
- 50 to 85 Feet: Consists of wet, medium dense to dense, gray **sand** with some intervals of soft to stiff, gray **sandy clay to clay**.

85 to 115 Feet: Consists of wet, very loose to very dense, gray **sand** to **silty sand**. Some zones in this interval contain gravel.

115 to 121.5 Feet: Varies from wet, medium dense, gray **sand** to hard, gray **clay with sand**. Some zones in this interval contain gravel.

Based on the results of the borings for Station 313+20 to 315+70 (Hwy 149), the subsurface stratigraphy may be generalized as follows:

0 to 25 Feet: Consists of moist, medium stiff to stiff, brown and gray **clay**. Many samples in this zone contain some amount of organic matter.

25 to 70 Feet: Varies from moist to wet, soft to hard, brown and gray **clay** to silt clay to loose to dense, gray **clayey sand** to **sand**.

70 to 101.5 Feet: Consists of wet, medium dense to very dense, gray to brown **sand**. Many samples in this zone contain some amount of gravel. Some samples in this zone contain some amount of organic matter.

Lab Test Summary

Project: 110543

Station	Location	Depth (ft)	Plastic Limit	Liquid Limit	Plasticity Index	% Passing No. 200
116+57	32' RT	4.1	22	37	15	99
116+57	32' RT	9.1	20	36	16	98
116+57	32' RT	15.0	18	55	37	98
116+57	32' RT	20.0	NP	ND		57
116+57	32' RT	25.0	NP	ND		14
116+57	32' RT	30.0	NP	ND		14
116+57	32' RT	35.0	NP	ND		6
116+57	32' RT	40.0	NP	ND		7
116+57	32' RT	45.0	NP	ND		6
116+57	32' RT	50.0	NP	ND		6
116+57	32' RT	55.0	NP	ND		3
116+57	32' RT	60.0	NP	ND		2
116+57	32' RT	65.0	NP	ND		2
116+57	32' RT	70.0	NP	ND		5
116+57	32' RT	75.0	NP	ND		5
116+57	32' RT	80.0	NP	ND		6
116+57	32' RT	85.0	NP	ND		5
116+57	32' RT	90.0	NP	ND		4
116+57	32' RT	95.0	NP	ND		5
116+57	32' RT	100.0	NP	ND		2
211+13	18' LT	3.8	19	62	43	97
211+13	18' LT	8.8	18	44	26	90
211+13	18' LT	15.0	19	67	48	98
211+13	18' LT	20.0	16	49	32	94
211+13	18' LT	25.0	15	48	33	94
211+13	18' LT	30.0	18	55	37	99
211+13	18' LT	35.0	16	50	34	99
211+13	18' LT	40.0	19	37	18	94
211+13	18' LT	45.0	20	29	9	86
211+13	18' LT	50.0	NP	ND		40
211+13	18' LT	55.0	15	29	14	78
211+13	18' LT	60.0	NP	ND		9
211+13	18' LT	65.0	NP	ND		6
211+13	18' LT	70.0	NP	ND		5
211+13	18' LT	75.0	NP	ND		23
211+13	18' LT	80.0	NP	ND		38
211+13	18' LT	85.0	NP	ND		15
211+13	18' LT	90.0	NP	ND		28
211+13	18' LT	95.0	NP	ND		8
211+13	18' LT	100.0	NP	ND		8

Lab Test Summary, pg. 2

Project: 110543

314+95	36' RT	4.7	18	66	48	95
314+95	36' RT	9.7	21	87	61	99
314+95	36' RT	15.0	21	91	70	97
314+95	36' RT	20.0	24	91	67	99
314+95	36' RT	25.0	21	39	18	97
314+95	36' RT	30.0	22	38	16	97
314+95	36' RT	35.0	26	33	7	98
314+95	36' RT	40.0	21	22	1	77
314+95	36' RT	45.0	NP	ND		8
314+95	36' RT	50.0	NP	ND		6
314+95	36' RT	55.0	NP	ND		6
314+95	36' RT	60.0	NP	ND		5
314+95	36' RT	65.0	NP	ND		6
314+95	36' RT	70.0	NP	ND		5
314+95	36' RT	75.0	NP	ND		6
314+95	36' RT	80.0	NP	ND		6
314+95	36' RT	85.0	NP	ND		5
314+95	36' RT	90.0	NP	ND		6
314+95	36' RT	95.0	NP	ND		17
314+95	36' RT	100.0	NP	ND		8

Shelby Tube Test Results Summary

Project: 110543

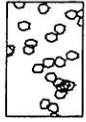
Hwy. 261, 38 & 149 Strs. & Apprs.

Station	Location	Depth (ft)	Plastic Limit	Liquid Limit	Plasticity Index	% Passing No. 200	Moist Unit Wt. (pcf)	Moisture Content (%)	Dry Unit Wt. (pcf)	Undrained Shear Strength (psf)	Description
114+22	47' RT	4.5-6.5	22	31	9	100	114.0	23	92.3	1,810	Lean Clay (A-4 (9))
114+22	47' RT	9.5-11.5	19	32	13	98	128.6	21	106.7	3,200	Lean Clay (A-6 (13))
114+22	47' RT	14.5-16.5	20	72	52	99	127.5	24	103.0	4,060	Fat Clay (A-7-6 (58))
213+98	50' RT.	4.8-6.8	19	49	30	94	116.8	29	90.8	1,800	Lean Clay (A-7-6 (30))
213+98	50' RT.	9.8-11.8	18	46	28	98	123.0	25	98.5	2,890	Lean Clay (A-7-6 (29))
213+98	50' RT.	14.8-16.8	20	59	39	100	117.0	30	89.9	1,860	Fat Clay (A-7-6 (44))
213+98	50' RT.	19.8-21.8	20	39	19	100	114.8	34	85.5	1,340	Lean Clay (A-6 (20))
315+70	33' RT	4.5-6.5	19	61	42	91	123.2	28	96.1	2,020	Fat Clay (A-7-6 (41))
315+70	33' RT	9.5-11.5	21	88	63	91	112.2	38	81.4	1,560	Fat Clay (A-7-6 (65))
315+70	33' RT	14.5-16.5	25	92	67	99	118.6	33	89.4	2,480	Fat Clay (A-7-6 (77))

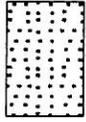
LEGEND

SOIL TYPES

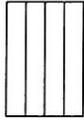
(SHOWN IN SYMBOL COLUMN)
(PREDOMINANT TYPE SHOWN HEAVY)



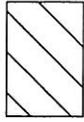
GRAVEL



SAND



SILT



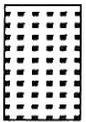
CLAY



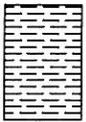
ORGANIC
MATTER

ROCK TYPES

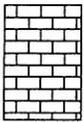
(SHOWN IN SYMBOL COLUMN)



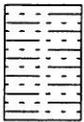
SANDSTONE



SHALE
or
SILTSTONE



LIMESTONE
or
DOLOMITE



ALTERNATING
LAYERS of
SHALE and
SANDSTONE



OTHER

SAMPLER TYPES

(SHOWN IN SAMPLE COLUMN)

SHELBY TUBE



UNDISTURBED
SAMPLE
RECOVERY



DISTURBED
SAMPLE
RECOVERY



NO
RECOVERY

SPLIT SPOON

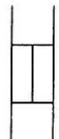


SAMPLE
RECOVERY



NO
RECOVERY

ROCK CORING



% RECOVERY
INDICATED ON LOGS

TERMS DESCRIBING CONSISTENCY OR CONDITION

GRANULAR SOIL		CLAY		CLAY-SHALE		SHALE	
*N' Value	Density	*N' Value	Consistency	*N' Value	Consistency	*N' Value	Consistency
0-4	Very Loose	0-1	Very Soft	0-1	Very Soft		
5-10	Loose	2-4	Soft	2-4	Soft	31-60	Soft
11-30	Medium Dense	5-8	Medium Stiff	5-8	Medium Stiff	Over 60	
31-50	Dense	9-15	Stiff	9-15	Stiff	More than 2'	
Over 50	Very Dense	16-30	Very Stiff	16-30	Very Stiff	Penetration	
		31-60	Hard	31-60	Hard	in 60 Blows:	Medium Hard
		Over 60	Very Hard	Over 60	Very Hard	Less than 2'	
						Penetration	
						in 60 Blows:	Hard

1. Ground water elevations indicated on boring logs represent ground water elevations at date or time shown on boring log. Absence of water surface implies that no ground water data is available but does not necessarily mean that ground water will not be encountered at locations or within the vertical reaches of these borings.
2. Borings represent subsurface conditions at their respective locations for their respective depths. Variations in conditions between or adjacent to boring locations may be encountered.
3. Terms used for describing soils according to their texture or grain size distribution are in accordance with the Unified Soil Classification System.

Standard Penetration Test – Driving a 2.0" O.D., 1-3/8" I.D. sampler a distance of 1.0 foot into undisturbed soil with a 140 pound hammer free falling a distance of 30 inches. It is customary to drive the spoon 6.0 inches to seat into undisturbed soil, then perform the test. The number of hammer blows for seating the spoon and performing the test are recorded for each 6 inches of penetration on the drill log. The field "N" Value (N_f) can be obtained by

adding the bottom two numbers for example: $\frac{6}{8-9} \Rightarrow 8+9 = 17 \text{ blows/ft}$. The "N" Value corrected to 60%

efficiency (N_{60}) can be obtained by multiplying N_f by the hammer correction factor published on the boring log.

**ARKANSAS HWY. & TRANS. DEPARTMENT
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 1
PAGE 1 OF 1

JOB NO. 110543 St. Francis County
JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs.
I-40 - Hwy. 261 Bridge
STATION: 113+94
LOCATION: 31' Left of Center Line of Construction
LOGGED BY: Wade Boughner

DATE: March 10, 2011
TYPE OF DRILLING: Hollow Stem Auger
EQUIPMENT: CME 75 w/ CME Automatic Hammer
HAMMER CORRECTION FACTOR: 1.38

COMPLETION DEPTH: 25.7

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R Q D
			SURFACE ELEVATION: 231.5									
5		X	Moist, Medium Stiff, Brown and Gray Clay with Sand and some Organic Matter							$\frac{2}{3-3}$		
10		X	Moist, Medium Stiff, Brown and Gray Clay with some Organic Matter							$\frac{2}{2-3}$		
15		X	Moist, Medium Stiff, Brown and Gray Clay							$\frac{2}{3-4}$		
20		X	Moist, Medium Stiff, Brown Clay							$\frac{6}{4-4}$		
25		X	Moist, Stiff, Brown Clay							$\frac{3}{4-6}$		
			Boring Terminated									
30												
35												

REMARKS:

**ARKANSAS HWY. & TRANS. DEPARTMENT
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 2
PAGE 1 OF 3

JOB NO. 110543 St. Francis County
JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs.
I-40 - Hwy. 261 Bridge
STATION: 114+22
LOCATION: 47' Right of Center Line of Construction
LOGGED BY: Tracy Henderson

DATE: February 2, 2011
TYPE OF DRILLING: Rotary Wash
EQUIPMENT: CME 850 w/ CME Automatic Hammer
HAMMER CORRECTION FACTOR: 1.29

COMPLETION DEPTH: 101.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C C R	% R O Q D
			SURFACE ELEVATION: 210.6								
5			Moist, Stiff, Brown Clay	CL	22	23	31	92.3			
				-					4 4-6		
10			Moist, Stiff, Brown Clay	CL	19	21	32	106.7			
				-					4 6-9		
15			Moist, Very Stiff, Brown Clay	CH	20	24	72	103.0			
									4 8-12		
20			Moist, Medium Dense, Brown Silty Sand						5 6-7		
25									6 7-8		
30									9 10-12		
35											

REMARKS: Hollow stem augers were utilized to a depth of 14.5'.

**ARKANSAS HWY. & TRANS. DEPARTMENT
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 2
PAGE 2 OF 3

JOB NO. 110543 St. Francis County
JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs.
I-40 - Hwy. 261 Bridge
STATION: 114+22
LOCATION: 47' Right of Center Line of Construction
LOGGED BY: Tracy Henderson

DATE: February 2, 2011
TYPE OF DRILLING: Rotary Wash
EQUIPMENT: CME 850 w/ CME Automatic Hammer
HAMMER CORRECTION FACTOR: 1.29

COMPLETION DEPTH: 101.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R Q D
			SURFACE ELEVATION: 210.6									
		X	Wet, Medium Dense, Brown Silty Sand							10 12-14		
40		X	Wet, Medium Dense, Brown and Gray Sand							6 8-11		
45		X	Wet, Dense, Brown Sand							11 14-20		
50		X	Wet, Medium Dense, Brown Sand							9 11-14		
55		X	Wet, Medium Dense, Brown Sand							5 7-12		
60		X	Wet, Medium Dense, Brown Sand							8 10-12		
65		X	Wet, Medium Dense, Brown Sand							5 7-9		
70		X	Wet, Medium Dense, Brown Sand with Trace of									

REMARKS: Hollow stem augers were utilized to a depth of 14.5'.

JOB NO. 110543 St. Francis County
 JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs.
 I-40 - Hwy. 261 Bridge
 STATION: 114+22
 LOCATION: 47' Right of Center Line of Construction
 LOGGED BY: Tracy Henderson

DATE: February 2, 2011
 TYPE OF DRILLING: Rotary Wash
 EQUIPMENT: CME 850 w/ CME Automatic Hammer
 HAMMER CORRECTION FACTOR: 1.29

COMPLETION DEPTH: 101.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R Q D
			SURFACE ELEVATION: 210.6									
		X	Gravel							6 8-11		
75		X	Wet, Very Dense, Brown Sand with Trace of Gravel							13 25-31		
80		X	Wet, Very Dense, Brown and Gray Sand							17 34-56 (4")		
85		X	Wet, Very Dense, Brown Sand with some Gravel							13 20-36		
90		X	Wet, Very Dense, Brown Sand with Trace of Gravel							17 23-28		
95		X	Wet, Dense, Brown Sand with some Gravel							12 13-20		
100		X	Wet, Dense, Brown Sand with Trace of Gravel							11 14-21		
			Boring Terminated									
105												

REMARKS: Hollow stem augers were utilized to a depth of 14.5'.

**ARKANSAS HWY. & TRANS. DEPARTMENT
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 3
PAGE 1 OF 3

JOB NO. 110543 St. Francis County
JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs.
I-40 - Hwy. 261 Bridge
STATION: 114+92
LOCATION: 8' Left of Center Line of Construction
LOGGED BY: Tracy Henderson

DATE: Jan. 31 - Feb. 1, 2011
TYPE OF DRILLING: Rotary Wash
EQUIPMENT: CME 850 w/ CME Automatic Hammer
HAMMER CORRECTION FACTOR: 1.29

COMPLETION DEPTH: 101.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R Q D
			SURFACE ELEVATION: 212.8									
			Moist, Medium Stiff, Light Brown Clay with some Organic Matter							4 6-6		
5			Moist, Stiff, Light Brown Clay with some Organic Matter							2 2-4		
10			Moist, Medium Stiff, Light Gray and Light Brown Clay with some Organic Matter							3 5-8		
15			Moist, Stiff, Light Gray and Light Brown Clay with some Organic Matter							5 6-8		
20			Moist, Stiff, Light Gray and Light Brown Clay							5 5-7		
25			Wet, Medium Dense, Light Brown Clayey Sand							4 4-6		
30			Wet, Loose, Light Brown Clayey Sand									
35												

REMARKS: Hollow stem augers were utilized to a depth of 10.4'.

**ARKANSAS HWY. & TRANS. DEPARTMENT
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 3
PAGE 2 OF 3

JOB NO. 110543 St. Francis County
JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs.
I-40 - Hwy. 261 Bridge
STATION: 114+92
LOCATION: 8' Left of Center Line of Construction
LOGGED BY: Tracy Henderson

DATE: Jan. 31 - Feb. 1, 2011
TYPE OF DRILLING: Rotary Wash
EQUIPMENT: CME 850 w/ CME Automatic Hammer
HAMMER CORRECTION FACTOR: 1.29

COMPLETION DEPTH: 101.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R Q D
			SURFACE ELEVATION: 212.8									
40		X	Wet, Medium Dense, Light Brown to Brown Silty Sand							7 10-11		
45		X	Wet, Dense, Brown Silty Sand							8 7-8		
50		X	Wet, Dense, Light Brown Sand							12 16-22		
55		X	Wet, Medium Dense, Light Brown Sand with Trace of Organic Matter							12 18-20		
60		X	Wet, Dense, Light Brown Sand							5 6-8		
65		X	Wet, Dense, Light Brown Sand							12 15-18		
70		X	Wet, Medium Dense, Brown Sand with Trace of Gravel							6 9-12		

REMARKS: Hollow stem augers were utilized to a depth of 10.4'.

**ARKANSAS HWY. & TRANS. DEPARTMENT
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 3
PAGE 3 OF 3

JOB NO. 110543 St. Francis County
JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs.
I-40 - Hwy. 261 Bridge
STATION: 114+92
LOCATION: 8' Left of Center Line of Construction
LOGGED BY: Tracy Henderson

DATE: Jan. 31 - Feb. 1, 2011
TYPE OF DRILLING: Rotary Wash
EQUIPMENT: CME 850 w/ CME Automatic Hammer
HAMMER CORRECTION FACTOR: 1.29

COMPLETION DEPTH: 101.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R Q D
			SURFACE ELEVATION: 212.8									
		X	Wet, Dense, Brown Sand with Trace of Gravel							12 15-18		
			Gravel									
75		X	Wet, Dense, Brown Sand							9 13-19		
80		X	Wet, Medium Dense, Brown Sand with some Gravel							7 11-14		
85		X	Wet, Dense, Gray Sand							6 10-22		
90		X	Wet, Very Dense, Brown Sand with some Gravel							21 41-41		
95		X	Wet, Very Dense, Brown Sand							16 25-35		
100		X	Wet, Very Dense, Brown Sand							15 26-37		
			Boring Terminated									
105												

REMARKS: Hollow stem augers were utilized to a depth of 10.4'.

**ARKANSAS HWY. & TRANS. DEPARTMENT
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 4
PAGE 1 OF 4

JOB NO. 110543 St. Francis County
JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs.
I-40 - Hwy. 261 Bridge
STATION: 115+64
LOCATION: 8' Left of Center Line of Construction
LOGGED BY: Wade Boughner

DATE: March 8-9, 2011
TYPE OF DRILLING: Rotary Wash
EQUIPMENT: CME 75 w/ CME Automatic Hammer
HAMMER CORRECTION FACTOR: 1.38

COMPLETION DEPTH: 106.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R O D
			SURFACE ELEVATION: 212.7									
5		X	Moist, Stiff, Brown Clay with some Organic Matter							4 4-7		
10		X	Moist, Medium Stiff, Brown Clay with some Organic Matter							2 3-5		
15		X								4 5-8		
20		X	Moist, Stiff, Brown Clay							3 4-6		
25		X								4 8-10		
30		X	Wet, Medium Dense, Brown Sand with Clay							6 6-6		
35		X	Wet, Medium Dense, Brown Sand with Clay and some Organic Matter									

REMARKS: Hollow stem augers were utilized to a depth of 9.6'.

JOB NO. 110543 St. Francis County JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs. I-40 - Hwy. 261 Bridge STATION: 115+64 LOCATION: 8' Left of Center Line of Construction LOGGED BY: Wade Boughner	DATE: March 8-9, 2011 TYPE OF DRILLING: Rotary Wash EQUIPMENT: CME 75 w/ CME Automatic Hammer HAMMER CORRECTION FACTOR: 1.38
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COMPLETION DEPTH: 106.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R Q D
			SURFACE ELEVATION: 212.7									
40		X	Wet, Medium Dense, Brown Sand with some Organic Matter							$\frac{4}{7-7}$		
45		X	Wet, Medium Dense, Brown and Gray Sand							$\frac{5}{6-8}$		
50		X	Wet, Dense, Brown Sand							$\frac{10}{15-17}$		
55		X	Wet, Medium Dense, Brown Sand							$\frac{9}{10-10}$		
60		X	Wet, Medium Dense, Brown and Gray Sand with some Organic Matter							$\frac{6}{7-8}$		
65		X	Wet, Medium Dense, Reddish Brown Sand							$\frac{11}{14-15}$		
70		X	Wet, Medium Dense, Reddish Brown Sand with Trace of Gravel							$\frac{5}{8-13}$		

REMARKS: Hollow stem augers were utilized to a depth of 9.6'.

JOB NO. 110543 St. Francis County
 JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs.
 I-40 - Hwy. 261 Bridge
 STATION: 115+64
 LOCATION: 8' Left of Center Line of Construction
 LOGGED BY: Wade Boughner

DATE: March 8-9, 2011
 TYPE OF DRILLING: Rotary Wash
 EQUIPMENT: CME 75 w/ CME Automatic Hammer
 HAMMER CORRECTION FACTOR: 1.38

COMPLETION DEPTH: 106.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R Q D
			SURFACE ELEVATION: 212.7									
75		X	Wet, Dense, Reddish Brown Sand							12 17-15		
80		X	Wet, Medium Dense, Reddish Brown Sand with Trace of Gravel							7 10-11		
85		X	Wet, Medium Dense, Brown Sand with some Gravel							6 9-11		
90		X	Wet, Dense, Gray Sand with Trace of Gravel							7 11-20		
95		X	Wet, Very Dense, Brown Sand							12 21-32		
100		X	Wet, Dense, Brown Sand with some Gravel							12 17-23		
105		X	Wet, Very Dense, Brown Sand							12 19-36		

REMARKS: Hollow stem augers were utilized to a depth of 9.6'.

JOB NO. 110543 St. Francis County
 JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs.
 I-40 - Hwy. 261 Bridge
 STATION: 115+64
 LOCATION: 8' Left of Center Line of Construction
 LOGGED BY: Wade Boughner

DATE: March 8-9, 2011
 TYPE OF DRILLING: Rotary Wash
 EQUIPMENT: CME 75 w/ CME Automatic Hammer
 HAMMER CORRECTION FACTOR: 1.38

COMPLETION DEPTH: 106.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R Q D
			SURFACE ELEVATION: 212.7									
		X	Wet, Dense, Brown Sand							12 20-27		
			Boring Terminated									
110												
115												
120												
125												
130												
135												
140												

REMARKS: Hollow stem augers were utilized to a depth of 9.6'.

**ARKANSAS HWY. & TRANS. DEPARTMENT
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 5
PAGE 1 OF 3

JOB NO. 110543 St. Francis County
JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs.
I-40 - Hwy. 261 Bridge
STATION: 116+57
LOCATION: 32' Right of Center Line of Construction
LOGGED BY: Troy Frazier

DATE: January 18-20, 2011
TYPE OF DRILLING: Rotary Wash
EQUIPMENT: CME 850 w/ CME Automatic Hammer
HAMMER CORRECTION FACTOR: 1.29

COMPLETION DEPTH: 101.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU. FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R Q D
			SURFACE ELEVATION: 210.7									
5		X	Moist, Stiff, Brown Clay	CL	22		37			$\frac{3}{4-5}$		
10		X	Moist, Medium Stiff, Brown and Gray Clay	CL	20		36			$\frac{2}{3-5}$		
15		X	Moist, Stiff, Brown and Gray Clay	CH	18		55			$\frac{3}{5-6}$		
20		X	Moist, Loose, Brown Sandy Silt	ML	NP					$\frac{3}{5-4}$		
25		X	Wet, Medium Dense, Brown Silty Sand	SM	NP					$\frac{5}{6-9}$		
30		X	Wet, Loose, Brown Silty Sand with Trace of Organic Matter	SM	NP					$\frac{3}{4-5}$		

REMARKS: Hollow stem augers were utilized to a depth of 9.1'.

ARKANSAS HWY. & TRANS. DEPARTMENT MATERIALS DIVISION - GEOTECHNICAL SEC.		BORING NO. 5 PAGE 2 OF 3
JOB NO. 110543	St. Francis County	DATE: January 18-20, 2011
JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs. I-40 - Hwy. 261 Bridge		TYPE OF DRILLING: Rotary Wash
STATION: 116+57		EQUIPMENT: CME 850 w/ CME Automatic Hammer
LOCATION: 32' Right of Center Line of Construction		HAMMER CORRECTION FACTOR: 1.29
LOGGED BY: Troy Frazier		

COMPLETION DEPTH: 101.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R Q D
			SURFACE ELEVATION: 210.7									
40		X	Wet, Medium Dense, Brown Sand with Silt	SW-SM	NP					4 6-7		
45		X	Wet, Medium Dense, Brown and Gray Sand with Silt	SW-SM	NP					4 7-8		
50		X	Wet, Dense, Brown Sand with Silt	SW-SM	NP					12 17-20		
55		X	Wet, Medium Dense, Brown and Gray Sand with Silt and Trace of Organic Matter	SW-SP	NP					6 8-10		
60		X	Wet, Medium Dense, Brown Sand		NP					5 7-14		
65		X			NP					5 8-12		
70		X			NP					6 9-16		

REMARKS: Hollow stem augers were utilized to a depth of 9.1'.

**ARKANSAS HWY. & TRANS. DEPARTMENT
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 5
PAGE 3 OF 3

JOB NO. 110543 St. Francis County
JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs.
I-40 - Hwy. 261 Bridge
STATION: 116+57
LOCATION: 32' Right of Center Line of Construction
LOGGED BY: Troy Frazier

DATE: January 18-20, 2011
TYPE OF DRILLING: Rotary Wash
EQUIPMENT: CME 850 w/ CME Automatic Hammer
HAMMER CORRECTION FACTOR: 1.29

COMPLETION DEPTH: 101.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R Q D
			SURFACE ELEVATION: 210.7									
75		X	Wet, Dense, Brown Sand with Silt and Trace of Gravel	SW-SM	NP					13 21-20		
80		X	Wet, Dense, Brown Sand with Silt	SW-SM	NP					10 20-30		
85		X	Wet, Very Dense, Gray and Brown Sand with Silt	SW-SM	NP					8 21-33		
90		X	Wet, Medium Dense, Gray Sand with Silt	SW-SM	NP					7 11-15		
95		X	Wet, Dense, Brown Sand	SW	NP					13 19-26		
100		X	Wet, Dense, Brown Sand with Silt	SW-SM	NP					13 16-19		
		X	Wet, Dense, Brown Sand	SW	NP					13 15-20		
			Boring Terminated									
105												

REMARKS: Hollow stem augers were utilized to a depth of 9.1'.

**ARKANSAS HWY. & TRANS. DEPARTMENT
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 6
PAGE 1 OF 3

JOB NO. 110543 St. Francis County
JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs.
I-40 - Hwy. 261 Bridge
STATION: 117+15
LOCATION: 32' Right of Center Line of Construction
LOGGED BY: Troy Frazier

DATE: January 26, 2011
TYPE OF DRILLING: Rotary Wash
EQUIPMENT: CME 850 w/ CME Automatic Hammer
HAMMER CORRECTION FACTOR: 1.29

COMPLETION DEPTH: 101.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU. FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R Q D
			SURFACE ELEVATION: 210.2									
5		X	Moist, Stiff, Brown Clay with Trace of Organic Matter							5 5-10		
10		X								3 4-6		
15		X	Moist, Stiff, Brown Clay							3 3-6		
20		X								5 5-7		
25		X	Moist, Medium Dense, Brown Sand							4 6-10		
30		X								4 6-6		
35		X										

REMARKS: Hollow stem augers were utilized to a depth of 9.0'.

**ARKANSAS HWY. & TRANS. DEPARTMENT
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 6
PAGE 2 OF 3

JOB NO. 110543 St. Francis County
JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs.
I-40 - Hwy. 261 Bridge
STATION: 117+15
LOCATION: 32' Right of Center Line of Construction
LOGGED BY: Troy Frazier

DATE: January 26, 2011
TYPE OF DRILLING: Rotary Wash
EQUIPMENT: CME 850 w/ CME Automatic Hammer
HAMMER CORRECTION FACTOR: 1.29

COMPLETION DEPTH: 101.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R Q D
			SURFACE ELEVATION: 210.2									
		X	Wet, Medium Dense, Brown Sand							3 6-8		
40		X								3 5-7		
45		X	Wet, Dense, Brown Sand							11 17-16		
50		X	Wet, Medium Dense, Brown Sand							10 13-17		
55		X	Wet, Medium Dense, Brown Sand with Trace of Gravel							5 7-13		
60		X	Wet, Dense, Brown Sand with Trace of Gravel							6 12-19		
65		X	Wet, Medium Dense, Brown Sand							6 10-15		
70												

REMARKS: Hollow stem augers were utilized to a depth of 9.0'.

**ARKANSAS HWY. & TRANS. DEPARTMENT
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 6
PAGE 3 OF 3

JOB NO. 110543 St. Francis County
JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs.
I-40 - Hwy. 261 Bridge
STATION: 117+15
LOCATION: 32' Right of Center Line of Construction
LOGGED BY: Troy Frazier

DATE: January 26, 2011
TYPE OF DRILLING: Rotary Wash
EQUIPMENT: CME 850 w/ CME Automatic Hammer
HAMMER CORRECTION FACTOR: 1.29

COMPLETION DEPTH: 101.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU. FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R Q D
			SURFACE ELEVATION: 210.2									
75		X	Wet, Dense, Brown Sand with Trace of Gravel							10 16-23		
80		X	Wet, Dense, Brown Sand							10 16-21		
85		X	Wet, Dense, Light Gray and Brown Sand with some Gravel							19 21-19		
90		X	Wet, Dense, Light Gray and Brown Sand with Gravel							10 14-18		
95		X	Wet, Dense, Light Gray and Brown Sand with some Gravel							17 19-21		
100		X	Wet, Dense, Brown Sand with Trace of Gravel							10 14-18		
		X	Wet, Dense, Brown Sand							11 15-17		
			Boring Terminated									
105												

REMARKS: Hollow stem augers were utilized to a depth of 9.0'.

ARKANSAS HWY. & TRANS. DEPARTMENT		BORING NO. 7
MATERIALS DIVISION - GEOTECHNICAL SEC.		PAGE 1 OF 3
JOB NO. 110543	St. Francis County	DATE: February 14-15, 2011
JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs.	I-40 - Hwy. 38 Bridge	TYPE OF DRILLING: Rotary Wash
STATION: 211+13		EQUIPMENT: CME 850 w/ CME Automatic Hammer
LOCATION: 18' Left of Center Line of Construction		HAMMER CORRECTION FACTOR: 1.29
LOGGED BY: Tracy Henderson		

COMPLETION DEPTH: 101.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R Q D
			SURFACE ELEVATION: 227.3									
5		X	Moist, Medium Stiff, Brown Clay	CH	19		62			$\frac{2}{2-4}$		
				-								
10		X	Moist, Stiff, Brown and Gray Clay	CL	18		44			$\frac{3}{4-6}$		
				-								
15		X		CH	19		67			$\frac{2}{2-3}$		
				-								
20		X	Moist, Medium Stiff, Gray Clay	CL	17		49			$\frac{1}{3-4}$		
				-								
25		X		CL	15		48			$\frac{2}{2-4}$		
				-								
30		X	Moist, Stiff, Gray and Brown Clay	CH	18		57			$\frac{3}{4-7}$		
				-								
35												

REMARKS: Hollow stem augers were utilized to a depth of 8.8'. * Partial drilling circulation fluid loss was encountered from 60.0' to 65.0'.

ARKANSAS HWY. & TRANS. DEPARTMENT MATERIALS DIVISION - GEOTECHNICAL SEC.	BORING NO. 7 PAGE 2 OF 3
JOB NO. 110543 St. Francis County	DATE: February 14-15, 2011
JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs. I-40 - Hwy. 38 Bridge	TYPE OF DRILLING: Rotary Wash
STATION: 211+13	EQUIPMENT: CME 850 w/ CME Automatic Hammer
LOCATION: 18' Left of Center Line of Construction	HAMMER CORRECTION FACTOR: 1.29
LOGGED BY: Tracy Henderson	

COMPLETION DEPTH: 101.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R Q D
			SURFACE ELEVATION: 227.3									
40		X	Moist, Medium Stiff, Gray and Brown Clay some Organic Matter	CH	16		50			$\frac{2}{3-5}$		
				-								
45		X	Moist, Medium Stiff, Gray Clay with some Organic Matter	CL	19		37			$\frac{2}{3-5}$		
				-								
50		X	Wet, Medium Stiff, Brown Clay with some Sand	CL	20		29			$\frac{0}{3-5}$		
				-								
55		X	Wet, Medium Dense, Brown Silty Sand	SM	NP					$\frac{4}{5-6}$		
				-								
60		X	Wet, Medium Stiff, Gray Clay with Sand	CL	15		29			$\frac{5}{4-3}$		
				-								
65		X	Wet, Medium Dense, Brown and Gray Sand with Silt *	SW-SM	NP					$\frac{8}{11-14}$		
				-								
70		X	Wet, Medium Dense, Gray Sand with Silt and Organic Matter	SW-SM	NP					$\frac{7}{9-13}$		
				-								

REMARKS: Hollow stem augers were utilized to a depth of 8.8'. * Partial drilling circulation fluid loss was encountered from 60.0' to 65.0'.

**ARKANSAS HWY. & TRANS. DEPARTMENT
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 7
PAGE 3 OF 3

JOB NO. 110543 St. Francis County
JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs.
I-40 - Hwy. 38 Bridge
STATION: 211+13
LOCATION: 18' Left of Center Line of Construction
LOGGED BY: Tracy Henderson

DATE: February 14-15, 2011
TYPE OF DRILLING: Rotary Wash
EQUIPMENT: CME 850 w/ CME Automatic Hammer
HAMMER CORRECTION FACTOR: 1.29

COMPLETION DEPTH: 101.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R Q D
			SURFACE ELEVATION: 227.3									
75		X	Wet, Medium Dense, Gray Sand with Silt	SW-SM	NP					7 11-10		
				-								
80		X	Wet, Dense, Gray Silty Sand	SM	NP					12 18-23		
				-								
85		X	Wet, Medium Dense, Gray Sand with Clay	SC	NP					6 12-14		
				-								
90		X	Wet, Medium Dense, Gray Silty Sand	SM	NP					7 11-18		
				-								
95		X	Wet, Medium Dense, Gray Silty Sand with Trace of Gravel	SM	NP					3 12-17		
				-								
100		X	Wet, Medium Dense, Gray Sand with Silt	SW-SM	NP					9 13-16		
				-								
		X	Wet, Dense, Gray Sand with Silt	SW-SM	NP					9 14-17		
			Boring Terminated									
105												

REMARKS: Hollow stem augers were utilized to a depth of 8.8'. * Partial drilling circulation fluid loss was encountered from 60.0' to 65.0'.

**ARKANSAS HWY. & TRANS. DEPARTMENT
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 8
PAGE 1 OF 4

JOB NO. 110543 St. Francis County
JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs.
I-40 - Hwy. 38 Bridge
STATION: 212+08
LOCATION: 16' Right of Center Line of Construction
LOGGED BY: Tracy Henderson

DATE: February 15-16, 2011
TYPE OF DRILLING: Rotary Wash
EQUIPMENT: CME 850 w/ CME
Automatic Hammer
HAMMER CORRECTION FACTOR: 1.29

COMPLETION DEPTH: 111.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R Q D
			SURFACE ELEVATION: 206.9									
5		X	Moist, Medium Stiff, Brown Clay							$\frac{2}{4.4}$		
10		X	Moist, Stiff, Brown and Gray Clay							$\frac{3}{5.6}$		
15		X	Moist, Medium Stiff, Brown and Gray Clay with some Organic Matter							$\frac{2}{3.5}$		
20		X	Wet, Medium Stiff, Brown Silty Clay							$\frac{0}{3.3}$		
25		X	Wet, Loose, Gray and Brown Silty Sand							$\frac{0}{3.3}$		
30		X	Wet, Loose, Brown and Gray Sand							$\frac{4}{5.5}$		
35												

REMARKS: Hollow stem augers were utilized to a depth of 8.9'. * Partial drilling circulation fluid loss was encountered from 57.5'.

**ARKANSAS HWY. & TRANS. DEPARTMENT
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 8
PAGE 2 OF 4

JOB NO. 110543 St. Francis County
JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs.
I-40 - Hwy. 38 Bridge
STATION: 212+08
LOCATION: 16' Right of Center Line of Construction
LOGGED BY: Tracy Henderson

DATE: February 15-16, 2011
TYPE OF DRILLING: Rotary Wash
EQUIPMENT: CME 850 w/ CME Automatic Hammer
HAMMER CORRECTION FACTOR: 1.29

COMPLETION DEPTH: 111.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R Q D
			SURFACE ELEVATION: 206.9									
40		X	Wet, Medium Dense, Gray and Brown Sand							7 11-11		
45		X	Wet, Medium Dense, Gray and Brown Sand with Organic Matter							5 6-8		
50		X	Wet, Medium Dense, Gray Sand with Trace of Gravel							1 7-13		
55		X	Wet, Medium Dense, Gray Sand with Trace of Organic Matter							7 11-13		
60		X	Wet, Medium Dense, Gray Sand *							6 13-15		
65		X	Wet, Medium Dense, Gray Sand *							3 7-12		
70		X	Wet, Medium Dense, Gray Sand with Trace of Gravel							9 13-14		

REMARKS: Hollow stem augers were utilized to a depth of 8.9'. * Partial drilling circulation fluid loss was encountered from 57.5'.

ARKANSAS HWY. & TRANS. DEPARTMENT MATERIALS DIVISION - GEOTECHNICAL SEC.		BORING NO. 8 PAGE 3 OF 4
JOB NO. 110543 St. Francis County	DATE: February 15-16, 2011	
JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs. I-40 - Hwy. 38 Bridge	TYPE OF DRILLING: Rotary Wash	
STATION: 212+08	EQUIPMENT: CME 850 w/ CME Automatic Hammer	
LOCATION: 16' Right of Center Line of Construction	HAMMER CORRECTION FACTOR: 1.29	
LOGGED BY: Tracy Henderson		

COMPLETION DEPTH: 111.5

DEPTH FT.	SYMBOL	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R Q D
		SURFACE ELEVATION: 206.9							6 9-15		
75		Wet, Medium Dense, Gray Sand							5 8-18		
80		Wet, Medium Stiff, Gray Clay							0 2-3		
85		Wet, Medium Dense, Gray Sand with Clay and some Organic Matter							4 8-10		
90		Wet, Medium Dense, Gray Sand							5 11-16		
95		Wet, Medium Dense, Gray Sand							7 12-13		
100		Wet, Dense, Gray Sand							11 16-21		
105											

REMARKS: Hollow stem augers were utilized to a depth of 8.9'. * Partial drilling circulation fluid loss was encountered from 57.5'.

JOB NO. 110543 St. Francis County JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs. I-40 - Hwy. 38 Bridge STATION: 212+08 LOCATION: 16' Right of Center Line of Construction LOGGED BY: Tracy Henderson	DATE: February 15-16, 2011 TYPE OF DRILLING: Rotary Wash EQUIPMENT: CME 850 w/ CME Automatic Hammer HAMMER CORRECTION FACTOR: 1.29
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COMPLETION DEPTH: 111.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R O D
			SURFACE ELEVATION: 206.9									
	X		Wet, Very Dense, Gray Sand							21 34-27		
110			Wet, Very Dense, Gray Sand with Gravel									
	X		Wet, Dense, Gray Sand with Gravel, Clay and Cemented Sand Seams							45 20-30		
			Boring Terminated									
115												
120												
125												
130												
135												
140												

REMARKS: Hollow stem augers were utilized to a depth of 8.9'. * Partial drilling circulation fluid loss was encountered from 57.5'.

ARKANSAS HWY. & TRANS. DEPARTMENT MATERIALS DIVISION - GEOTECHNICAL SEC.		BORING NO. 9 PAGE 1 OF 4
JOB NO. 110543 St. Francis County	DATE: March 22, 2011	EQUIPMENT: CME 75 w/ CME Automatic Hammer HAMMER CORRECTION FACTOR: 1.38
JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs. I-40 - Hwy. 38 Bridge	TYPE OF DRILLING: Rotary Wash	
STATION: 212+74		
LOCATION: 1' Left of Center Line of Construction		
LOGGED BY: Wade Boughner		

COMPLETION DEPTH: 116.5

D E P T H FT.	S Y M B O L	S A M P L E S	DESCRIPTION OF MATERIAL	SOIL GROUP	P L A S T I C L I M I T	% M O I S T.	L I Q U I D L I M I T	D R Y W E I G H T	L B S P E R C U. F T.	N O. O F B L O W S P E R 6- I N.	% S C R	% R Q D
			SURFACE ELEVATION: 208.9									
5		X	Moist, Medium Stiff, Gray Clay with Sand and some Organic Matter							2 4-4		
10		X	Moist, Stiff, Brown and Gray Clay with some Organic Matter							2 4-6		
15		X	Moist, Medium Stiff, Gray Clay							2 3-4		
20		X	Wet, Medium Stiff, Gray and Brown Clay							2 3-3		
25		X	Wet, Soft, Brown and Gray Clay							2 2-2		
30		X	Wet, Loose, Brown and Gray Clayey Sand							3 4-4		
35												

REMARKS: Hollow stem augers were utilized to a depth of 9.5'. Water level was 5.0' at 24 hrs.

ARKANSAS HWY. & TRANS. DEPARTMENT MATERIALS DIVISION - GEOTECHNICAL SEC.		BORING NO. 9 PAGE 2 OF 4
JOB NO. 110543 St. Francis County	DATE: March 22, 2011	TYPE OF DRILLING: Rotary Wash EQUIPMENT: CME 75 w/ CME Automatic Hammer HAMMER CORRECTION FACTOR: 1.38
JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs. I-40 - Hwy. 38 Bridge		
STATION: 212+74		
LOCATION: 1' Left of Center Line of Construction		
LOGGED BY: Wade Boughner		

COMPLETION DEPTH: 116.5

D E P T H FT.	S Y M B O L	S A M P L E S	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R Q D
			SURFACE ELEVATION: 208.9									
		X	Wet, Medium Dense, Gray Sand with Clay							8 11-8		
40		X	Wet, Medium Dense, Gray and Brown Sand with Trace of Gravel and Organic Matter							6 9-7		
45		X	Wet, Medium Dense, Gray and Brown Sand with Gravel and some Organic Matter							5 9-12		
50		X	Wet, Medium Dense, Gray and Brown Sand with Gravel and some Organic Matter							8 10-11		
55		X	Wet, Medium Dense, Gray and Brown Sand with Organic Matter and some Gravel							10 10-15		
60		X	Wet, Dense, Gray Sand with Clay							0 18-19		
65		X	Wet, Medium Dense, Gray and Brown Sand with Trace of Organic Matter							14 14-14		
70		X										

REMARKS: Hollow stem augers were utilized to a depth of 9.5'. Water level was 5.0' at 24 hrs.

ARKANSAS HWY. & TRANS. DEPARTMENT MATERIALS DIVISION - GEOTECHNICAL SEC.		BORING NO. 9 PAGE 3 OF 4
JOB NO. 110543 St. Francis County	DATE: March 22, 2011	TYPE OF DRILLING: Rotary Wash EQUIPMENT: CME 75 w/ CME Automatic Hammer HAMMER CORRECTION FACTOR: 1.38
JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs. I-40 - Hwy. 38 Bridge		
STATION: 212+74		
LOCATION: 1' Left of Center Line of Construction		
LOGGED BY: Wade Boughner		

COMPLETION DEPTH: 116.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R Q D
			SURFACE ELEVATION: 208.9									
	X		Wet, Soft, Gray Silty Clay							2 2-2		
75	X		Wet, Medium Dense, Gray Sand with some Gravel and Organic Matter							5 12-13		
80	X		Wet, Medium Dense, Gray Sand with some Clay and Organic Matter							3 8-11		
85	X		Wet, Medium Dense, Gray Sand with Trace of Organic Matter							7 9-11		
90	X		Wet, Medium Dense, Gray Sand with Gravel							7 9-10		
95	X		Wet, Medium Dense, Gray Sand with some Organic Matter							7 12-16		
100	X		Wet, Medium Dense, Gray Sand with some Organic Matter							11 14-16		
105	X											

REMARKS: Hollow stem augers were utilized to a depth of 9.5'. Water level was 5.0' at 24 hrs.

JOB NO. 110543 St. Francis County JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs. I-40 - Hwy. 38 Bridge STATION: 212+74 LOCATION: 1' Left of Center Line of Construction LOGGED BY: Wade Boughner	DATE: March 22, 2011 TYPE OF DRILLING: Rotary Wash EQUIPMENT: CME 75 w/ CME Automatic Hammer HAMMER CORRECTION FACTOR: 1.38
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COMPLETION DEPTH: 116.5

D E P T H FT.	S Y M B O L	S A M P L E S	DESCRIPTION OF MATERIAL	SOIL GROUP	P L A S T I C L I M I T	% M O I S T.	L I Q U I D L I M I T	D R Y W E I G H T	L B S P E R C U. F T.	N O. O F B L O W S P E R 6- I N.	% S C R	% R O D
			SURFACE ELEVATION: 208.9									
		X	Wet, Medium Dense, Gray Sand							8 12-14		
110		X	Wet, Medium Dense, Gray Sand with Gravel							8 49-60 (3")		
115		X	Wet, Very Dense, Gray Sand with Cemented Sand and Trace of Organic Matter							11 17-25		
		X	Wet, Hard, Gray Clay with Sand									
			Boring Terminated									
120												
125												
130												
135												
140												

REMARKS: Hollow stem augers were utilized to a depth of 9.5'. Water level was 5.0' at 24 hrs.

JOB NO. 110543 St. Francis County JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs. I-40 - Hwy. 38 Bridge STATION: 214+18 LOCATION: 50' Right of Center Line of Construction LOGGED BY: Troy Frazier	DATE: February 23-24, 2011 TYPE OF DRILLING: Rotary Wash EQUIPMENT: CME 850 w/ CME Automatic Hammer HAMMER CORRECTION FACTOR: 1.29
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COMPLETION DEPTH: 101.5

DEPTH FT.	SYMBOLS	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R Q D
		SURFACE ELEVATION: 206.5									
5		Moist, Stiff, Brown Clay	CL	19	29	49	90.8		$\frac{3}{3-6}$		
			-								
10		Moist, Medium Stiff, Brown and Gray Clay	CL	18	25	46	98.5		$\frac{0}{3-4}$		
			-								
15		Moist, Medium Stiff, Brown Clay with some Organic Matter	CH	20	30	59	89.9		$\frac{2}{2-3}$		
			-								
20		Moist, Medium Stiff, Brown and Gray Clay with Trace of Sand	CL	20	34	39	85.5		$\frac{2}{3-4}$		
			-								
25		Wet, Medium Dense, Brown and Gray Sand with Trace of Organic Matter							$\frac{0}{2-2}$		
30									$\frac{3}{7-7}$		
35											

REMARKS: Hollow stem augers were utilized to a depth of 19.8'.

**ARKANSAS HWY. & TRANS. DEPARTMENT
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 10
PAGE 2 OF 3

JOB NO. 110543 St. Francis County
JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs.
I-40 - Hwy. 38 Bridge
STATION: 214+18
LOCATION: 50' Right of Center Line of Construction
LOGGED BY: Troy Frazier

DATE: February 23-24, 2011
TYPE OF DRILLING: Rotary Wash
EQUIPMENT: CME 850 w/ CME Automatic Hammer
HAMMER CORRECTION FACTOR: 1.29

COMPLETION DEPTH: 101.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R O D
			SURFACE ELEVATION: 206.5									
40		X	Wet, Medium Dense, Gray and Brown Sand with Trace of Organic Matter and Gravel							7 13-13		
45		X	Wet, Medium Dense, Gray Sand with Trace of Organic Matter and Gravel							7 8-9		
50		X	Wet, Dense, Gray Sand with Trace of Gravel							6 13-16		
55		X	Wet, Dense, Gray Sand with Trace of Gravel							8 13-20		
60		X	Wet, Medium Dense, Gray Sand with Trace of Organic Matter and Gravel							7 12-13		
65		X	Wet, Loose, Gray Sand with Clay							0 3-4		
70		X	Wet, Medium Dense, Gray Sand with Organic Matter							11 16-9		
			Wet, Stiff, Gray Sandy Clay									

REMARKS: Hollow stem augers were utilized to a depth of 19.8'.

ARKANSAS HWY. & TRANS. DEPARTMENT		BORING NO. 10
MATERIALS DIVISION - GEOTECHNICAL SEC.		PAGE 3 OF 3
JOB NO. 110543	St. Francis County	DATE: February 23-24, 2011
JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs.	I-40 - Hwy. 38 Bridge	TYPE OF DRILLING: Rotary Wash
STATION: 214+18		EQUIPMENT: CME 850 w/ CME Automatic Hammer
LOCATION: 50' Right of Center Line of Construction		HAMMER CORRECTION FACTOR: 1.29
LOGGED BY: Troy Frazier		

COMPLETION DEPTH: 101.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R Q D
			SURFACE ELEVATION: 206.5									
75		X	Wet, Medium Dense, Gray Sand							9 12-17		
80		X	Wet, Dense, Gray Sand							14 18-19		
85		X	Wet, Medium Dense, Gray Sand with Trace of Organic Matter							8 11-16		
90		X	Wet, Medium Dense, Gray Sand with some Clayey Sand							6 12-14		
95		X	Wet, Medium Dense, Gray Sand with Trace of Organic Matter							6 12-14		
100		X	Wet, Medium Dense, Gray Sand							8 13-17		
			Boring Terminated									
105												

REMARKS: Hollow stem augers were utilized to a depth of 19.8'.

JOB NO. 110543 St. Francis County JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs. I-40 - Hwy. 38 Bridge STATION: 214+72 LOCATION: 19' Left of Center Line of Construction LOGGED BY: Tracy Henderson	DATE: February 16-17 & 22-23, 2011 TYPE OF DRILLING: Rotary Wash EQUIPMENT: CME 850 w/ CME Automatic Hammer HAMMER CORRECTION FACTOR: 1.29
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COMPLETION DEPTH: 121.5

D E P T H FT.	S Y M B O L	S A M P L E S	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R Q D
			SURFACE ELEVATION: 225.8									
5	X	X	Moist, Medium Stiff, Brown and Gray Clay							2 3-4		
10	X	X	Moist, Medium Stiff, Gray Clay							2 2-4		
15	X	X	Moist, Medium Stiff, Gray Clay							1 2-4		
20	X	X	Moist, Medium Stiff, Gray Clay with some Organic Matter							2 4-4		
25	X	X	Moist, Stiff, Gray Clay							3 3-6		
30	X	X	Moist, Stiff, Brown Clay with some Organic Matter							3 4-5		
35												

REMARKS: Hollow stem augers were utilized to a depth of 9.1'.

**ARKANSAS HWY. & TRANS. DEPARTMENT
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 11
PAGE 2 OF 4

JOB NO. 110543 St. Francis County
JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs.
I-40 - Hwy. 38 Bridge
STATION: 214+72
LOCATION: 19' Left of Center Line of Construction
LOGGED BY: Tracy Henderson

DATE: February 16-17 & 22-23, 2011
TYPE OF DRILLING: Rotary Wash
EQUIPMENT: CME 850 w/ CME Automatic Hammer
HAMMER CORRECTION FACTOR: 1.29

COMPLETION DEPTH: 121.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R Q D
		X	Moist, Medium Stiff, Brown Clay with some Organic Matter							2 3-3		
40			Wet, Loose, Brown Silty Sand							0 0-2		
45		X	Wet, Soft, Brown Silty Clay with some Organic Matter							0 0-2		
50		X	Wet, Soft, Gray Silty Clay with Sand							9 8-12		
55		X	Wet, Medium Dense, Brown Sand with Clay							6 4-4		
60		X	Wet, Loose, Gray Clayey Sand							6 7-6		
65		X	Wet, Medium Dense, Gray Sand with some Clay							9 9-13		
70		X	Wet, Medium Dense, Gray Sand with Trace of Organic Matter									

REMARKS: Hollow stem augers were utilized to a depth of 9.1'.

**ARKANSAS HWY. & TRANS. DEPARTMENT
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 11
PAGE 3 OF 4

JOB NO. 110543 St. Francis County
JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs.
I-40 - Hwy. 38 Bridge
STATION: 214+72
LOCATION: 19' Left of Center Line of Construction
LOGGED BY: Tracy Henderson

DATE: February 16-17 & 22-23, 2011
TYPE OF DRILLING: Rotary Wash
EQUIPMENT: CME 850 w/ CME Automatic Hammer
HAMMER CORRECTION FACTOR: 1.29

COMPLETION DEPTH: 121.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R Q D
			SURFACE ELEVATION: 225.8									
75		X	Wet, Dense, Gray Sand							10 14-22		
80		X	Wet, Medium Dense, Gray Sand							13 13-14		
85		X	Wet, Medium Dense, Gray Sand with Organic Matter							6 7-8		
90		X	Wet, Medium Dense, Gray Sand with Clay							5 8-8		
95		X	Wet, Very Loose, Gray Clayey Sand							0 0-2		
100		X	Wet, Medium Dense, Gray Sand with Clay							7 13-14		
105		X	Wet, Loose, Gray Sand with Clay							4 6-4		

REMARKS: Hollow stem augers were utilized to a depth of 9.1'.

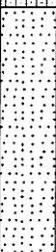
**ARKANSAS HWY. & TRANS. DEPARTMENT
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 11
PAGE 4 OF 4

JOB NO. 110543 St. Francis County
JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs.
I-40 - Hwy. 38 Bridge
STATION: 214+72
LOCATION: 19' Left of Center Line of Construction
LOGGED BY: Tracy Henderson

DATE: February 16-17 & 22-23, 2011
TYPE OF DRILLING: Rotary Wash
EQUIPMENT: CME 850 w/ CME Automatic Hammer
HAMMER CORRECTION FACTOR: 1.29

COMPLETION DEPTH: 121.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R Q D
			SURFACE ELEVATION: 225.8									
110		X	Wet, Medium Dense, Gray Sand with Clay							4 7-8		
115		X	Wet, Medium Dense, Gray Silty Sand							6 9-10		
120		X	Wet, Medium Dense, Gray Sand							6 9-10		
125			Boring Terminated							13 14-11		
130												
135												
140												

REMARKS: Hollow stem augers were utilized to a depth of 9.1'.

ARKANSAS HWY. & TRANS. DEPARTMENT MATERIALS DIVISION - GEOTECHNICAL SEC.		BORING NO. 12 PAGE 1 OF 3
JOB NO. 110543 St. Francis County	DATE: March 22-23, 2011	
JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs. I-40 - Hwy. 149 Bridge	TYPE OF DRILLING: Rotary Wash	
STATION: 310+90	EQUIPMENT: CME 850 w/ CME Automatic Hammer	
LOCATION: 27' Left of Center Line of Construction	HAMMER CORRECTION FACTOR: 1.29	
LOGGED BY: Troy Frazier		

COMPLETION DEPTH: 101.5

D E P T H FT.	S Y M B O L	S A M P L E S	DESCRIPTION OF MATERIAL	SOIL GROUP	P L A S T I C L I M I T	% M O I S T.	L I Q U I D L I M I T	D R Y W E I G H T	L B S P E R C U. F T.	N O. O F B L O W S P E R 6- I N.	% S C R	% R O D
			SURFACE ELEVATION: 226.9									
5	X	X	Moist, Medium Stiff, Brown and Gray Clay with Trace of Organic Matter							1 3-3		
10	X	X	Moist, Stiff, Brown and Gray Clay with some Organic Matter							2 4-5		
15	X	X	Moist, Medium Stiff, Gray and Brown Clay							2 3-5		
20	X	X	Moist, Stiff, Gray and Brown Clay							2 4-6		
25	X	X	Moist, Medium Stiff, Gray and Brown Clay							2 3-3		
30	X	X	Wet, Medium Stiff, Gray and Brown Clay							2 2-4		
35												

REMARKS: Hollow stem augers were utilized to a depth of 9.2'.

**ARKANSAS HWY. & TRANS. DEPARTMENT
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 12
PAGE 2 OF 3

JOB NO. 110543 St. Francis County
JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs.
I-40 - Hwy. 149 Bridge
STATION: 310+90
LOCATION: 27' Left of Center Line of Construction
LOGGED BY: Troy Frazier

DATE: March 22-23, 2011
TYPE OF DRILLING: Rotary Wash
EQUIPMENT: CME 850 w/ CME Automatic Hammer
HAMMER CORRECTION FACTOR: 1.29

COMPLETION DEPTH: 101.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R Q D
			SURFACE ELEVATION: 226.9									
40		X	Moist, Stiff, Gray and Brown Clay							2 4-6		
45		X	Moist, Medium Stiff, Gray and Brown Clay							2 3-4		
50		X	Moist, Loose, Gray Clayey Sand							0 3-6		
55		X	Wet, Loose, Gray Clayey Sand							1 1-5		
60		X	Wet, Loose, Gray Sand with Clay and Trace of Organic Matter							1 2-3		
65		X	Wet, Loose, Gray Sand with Clay							0 2-4		
70		X	Wet, Medium Dense, Gray Sand with Trace of Organic Matter							1 8-18		

REMARKS: Hollow stem augers were utilized to a depth of 9.2'.

ARKANSAS HWY. & TRANS. DEPARTMENT		BORING NO. 12
MATERIALS DIVISION - GEOTECHNICAL SEC.		PAGE 3 OF 3
JOB NO. 110543	St. Francis County	DATE: March 22-23, 2011
JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs.	I-40 - Hwy. 149 Bridge	TYPE OF DRILLING: Rotary Wash
STATION: 310+90		EQUIPMENT: CME 850 w/ CME Automatic Hammer
LOCATION: 27' Left of Center Line of Construction		HAMMER CORRECTION FACTOR: 1.29
LOGGED BY: Troy Frazier		

COMPLETION DEPTH: 101.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R O D
			SURFACE ELEVATION: 226.9									
75		X	Wet, Dense, Gray Sand with Trace of Gravel							11 15-18		
80		X	Wet, Dense, Gray Sand with Cemented Sand and Trace of Organic Matter							10 18-26		
		X	Gravel							10 17-22		
85		X	Wet, Dense, Gray to Brown Sand with Cemented Sand and Trace of Gravel and Organic Matter							10 16-24		
90		X	Wet, Dense, Brown Sand with Cemented Sand, some Organic Matter and Trace of Gravel							11 24-26		
95		X	Wet, Dense, Brown Sand with Cemented Sand and some Gravel							10 22-29		
100		X	Wet, Very Dense, Brown Sand with Cemented Sand and Trace of Gravel and Organic Matter							13 16-24		
			Boring Terminated									
105												

REMARKS: Hollow stem augers were utilized to a depth of 9.2'.

JOB NO. 110543 St. Francis County JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs. I-40 - Hwy. 149 Bridge STATION: 311+60 LOCATION: 27' Left of Center Line of Construction LOGGED BY: Wade Boughner	DATE: March 17, 21 & 23, 2011 TYPE OF DRILLING: Rotary Wash EQUIPMENT: CME 750 w/ CME Automatic Hammer HAMMER CORRECTION FACTOR: 1.28
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COMPLETION DEPTH: 101.5

D E P T H	S Y M B O L	S A M P L E S	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R Q D
			SURFACE ELEVATION: 228.1									
5		X	Moist, Medium Stiff, Brown and Gray Clay with some Organic Matter							1 --- 3-4		
10		X	Moist, Stiff, Gray and Brown Clay with some Organic Matter							2 --- 4-5		
15		X								2 --- 3-6		
20		X	Moist, Stiff, Gray and Brown Clay							1 --- 4-5		
25		X	Moist, Stiff, Gray Clay							3 --- 3-6		
30		X								2 --- 4-3		
35		X	Moist, Medium Stiff, Gray Clay									

REMARKS: Hollow stem augers were utilized to a depth of 8.7'. Hole caved to 5.0' at pullout.

**ARKANSAS HWY. & TRANS. DEPARTMENT
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 13
PAGE 2 OF 3

JOB NO. 110543 St. Francis County
JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs.
I-40 - Hwy. 149 Bridge
STATION: 311+60
LOCATION: 27' Left of Center Line of Construction
LOGGED BY: Wade Boughner

DATE: March 17, 21 & 23, 2011
TYPE OF DRILLING: Rotary Wash
EQUIPMENT: CME 750 w/ CME Automatic Hammer
HAMMER CORRECTION FACTOR: 1.28

COMPLETION DEPTH: 101.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R O D
40		X	Moist, Stiff, Gray and Brown Clay							3 4-6		
45		X	Moist, Medium Stiff, Gray and Brown Clay							3 3-5		
50		X	Moist, Stiff, Gray Clay							2 2-7		
55		X	Wet, Soft, Gray Silty Clay							2 1-3		
60		X	Wet, Medium Dense, Gray Clayey Silt							2 2-2		
65		X	Wet, Hard, Gray Clay with Sand							2 4-7		
70		X	Wet, Hard, Gray Clay with Sand							2 15-22		

REMARKS: Hollow stem augers were utilized to a depth of 8.7'. Hole caved to 5.0' at pullout.

JOB NO. 110543 St. Francis County JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs. I-40 - Hwy. 149 Bridge STATION: 311+60 LOCATION: 27' Left of Center Line of Construction LOGGED BY: Wade Boughner	DATE: March 17, 21 & 23, 2011 TYPE OF DRILLING: Rotary Wash EQUIPMENT: CME 750 w/ CME Automatic Hammer HAMMER CORRECTION FACTOR: 1.28
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COMPLETION DEPTH: 101.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R O D
			SURFACE ELEVATION: 228.1									
75		X	Wet, Dense, Gray Sand							13 17-15		
80		X	Wet, Medium Dense, Gray Sand							9 12-15		
85		X	Wet, Dense, Gray Sand with Organic Matter							14 24-21		
90		X	Wet, Dense, Gray Sand with Gravel							8 17-22		
95		X	Wet, Dense, Gray Sand with some Gravel							10 18-18		
100		X	Wet, Very Dense, Gray Sand with Trace of Organic Matter							12 24-30		
		X	Wet, Dense, Gray Sand with Trace of Organic Matter							12 23-21		
			Boring Terminated									
105												

REMARKS: Hollow stem augers were utilized to a depth of 8.7'. Hole caved to 5.0' at pullout.

JOB NO. 110543 St. Francis County	DATE: March 21-22, 2011
JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs. I-40 - Hwy. 149 Bridge	TYPE OF DRILLING: Rotary Wash
STATION: 312+47	EQUIPMENT: CME 850 w/ CME Automatic Hammer
LOCATION: 23' Right of Center Line of Construction	HAMMER CORRECTION FACTOR: 1.29
LOGGED BY: Troy Frazier	

COMPLETION DEPTH: 101.5

DEPTH FT.	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R Q D
		SURFACE ELEVATION: 209.0									
		Asphalt Pavement with Gravel									
5	X	Moist, Medium Stiff, Brown and Gray Clay with Sand and some Organic Matter							$\frac{2}{3-4}$		
10	X	Moist, Very Stiff, Gray Clay with some Organic Matter							$\frac{4}{8-10}$		
15	X								$\frac{2}{3-4}$		
20	X	Moist, Medium Stiff, Brown Clay with some Organic Matter							$\frac{2}{3-5}$		
25	X								$\frac{2}{3-3}$		
30	X	Moist, Medium Stiff, Gray Clay							$\frac{2}{2-3}$		
35	X	Moist, Loose, Gray Clayey Sand									

REMARKS: Hollow stem augers were utilized to a depth of 9.8'.

JOB NO. 110543 St. Francis County JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs. I-40 - Hwy. 149 Bridge STATION: 312+47 LOCATION: 23' Right of Center Line of Construction LOGGED BY: Troy Frazier	DATE: March 21-22, 2011 TYPE OF DRILLING: Rotary Wash EQUIPMENT: CME 850 w/ CME Automatic Hammer HAMMER CORRECTION FACTOR: 1.29
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COMPLETION DEPTH: 101.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R Q D
			SURFACE ELEVATION: 209.0									
	X	X	Moist, Loose, Gray Sand with Clay							2 3-5		
40	X	X	Wet, Loose, Gray Clayey Sand							0 3-5		
45	X	X	Wet, Loose, Gray Clayey Sand with Trace of Organic Matter							3 3-4		
50	X	X	Wet, Dense, Gray Sand							12 18-22		
55	X	X	Wet, Dense, Gray Sand							10 20-31		
60	X	X	Wet, Dense, Gray Sand with Trace of Gravel and Organic Matter							12 20-29		
65	X	X	Wet, Dense, Gray Sand with Trace of Gravel and Organic Matter							9 15-19		
70												

REMARKS: Hollow stem augers were utilized to a depth of 9.8'.

**ARKANSAS HWY. & TRANS. DEPARTMENT
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 14
PAGE 3 OF 3

JOB NO. 110543 St. Francis County
JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs.
I-40 - Hwy. 149 Bridge
STATION: 312+47
LOCATION: 23' Right of Center Line of Construction
LOGGED BY: Troy Frazier

DATE: March 21-22, 2011
TYPE OF DRILLING: Rotary Wash
EQUIPMENT: CME 850 w/ CME Automatic Hammer
HAMMER CORRECTION FACTOR: 1.29

COMPLETION DEPTH: 101.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R Q D
			SURFACE ELEVATION: 209.0									
		X	Wet, Dense, Gray Sand with Trace of Gravel							18 22-22		
			Wet, Dense, Gray Sand with Gravel									
75		X	Wet, Dense, Gray Sand with Trace of Gravel and Organic Matter							8 17-24		
			Wet, Dense, Gray Sand with Gravel									
80		X	Wet, Dense, Gray Sand with Trace of Gravel and Organic Matter							11 22-24		
			Wet, Dense, Gray Sand with Trace of Gravel and Organic Matter									
85		X	Wet, Very Dense, Gray Sand with Trace of Gravel and Organic Matter							10 18-23		
			Gravel									
90		X	Wet, Dense, Gray Sand with Trace of Gravel and Organic Matter							16 30-37		
			Wet, Dense, Gray Sand with Trace of Gravel and Organic Matter									
95		X	Wet, Dense, Gray Sand with Trace of Gravel and Organic Matter							8 16-17		
			Wet, Dense, Gray Sand with Trace of Gravel and Organic Matter									
100		X	Wet, Dense, Gray Sand with Trace of Gravel and Organic Matter							10 18-21		
			Wet, Dense, Gray Sand with Trace of Gravel and Organic Matter									
			Boring Terminated									
105												

REMARKS: Hollow stem augers were utilized to a depth of 9.8'.

**ARKANSAS HWY. & TRANS. DEPARTMENT
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 15
PAGE 1 OF 3

JOB NO. 110543 St. Francis County
JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs.
I-40 - Hwy. 149 Bridge
STATION: 313+20
LOCATION: 9' Left of Center Line of Construction
LOGGED BY: Wade Boughner

DATE: March 15, 2011
TYPE OF DRILLING: Rotary Wash
EQUIPMENT: CME 750 w/ CME Automatic Hammer
HAMMER CORRECTION FACTOR: 1.28

COMPLETION DEPTH: 101.5

DEPTH FT.	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R Q D	
		SURFACE ELEVATION: 206.9										
5	X	Moist, Stiff, Gray Clay with some Organic Matter							2 8-7			
10	X								3 6-7			
15	X	Moist, Stiff, Gray Clay							5 6-8			
20	X								5 6-8			
25	X	Moist, Medium Dense, Gray Sand with Clay							5 7-7			
30	X								5 8-8			
35	X	Moist, Medium Dense, Gray Clayey Sand										

REMARKS: Hollow stem augers were utilized to a depth of 9.1'.

**ARKANSAS HWY. & TRANS. DEPARTMENT
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 15
PAGE 2 OF 3

JOB NO. 110543 St. Francis County
JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs.
I-40 - Hwy. 149 Bridge
STATION: 313+20
LOCATION: 9' Left of Center Line of Construction
LOGGED BY: Wade Boughner

DATE: March 15, 2011
TYPE OF DRILLING: Rotary Wash
EQUIPMENT: CME 750 w/ CME Automatic Hammer
HAMMER CORRECTION FACTOR: 1.28

COMPLETION DEPTH: 101.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.		% S C R	% R O D
			SURFACE ELEVATION: 206.9										
			Wet, Medium Stiff, Gray Clay with Sand							0 2-5			
40			Wet, Medium Stiff, Gray Silty Clay with Sand							0 2-4			
45			Wet, Dense, Gray Sand with Organic Matter							13 22-21			
50			Wet, Dense, Gray Sand							15 16-20			
55			Wet, Dense, Gray Sand							15 21-27			
60			Wet, Dense, Gray Sand with Trace of Gravel and Organic Matter							14 16-17			
65			Wet, Medium Dense, Gray Sand with Gravel							14 14-14			
70													

REMARKS: Hollow stem augers were utilized to a depth of 9.1'.

ARKANSAS HWY. & TRANS. DEPARTMENT		BORING NO. 15
MATERIALS DIVISION - GEOTECHNICAL SEC.		PAGE 3 OF 3
JOB NO. 110543	St. Francis County	DATE: March 15, 2011
JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs.	I-40 - Hwy. 149 Bridge	TYPE OF DRILLING: Rotary Wash
STATION: 313+20		EQUIPMENT: CME 750 w/ CME Automatic Hammer
LOCATION: 9' Left of Center Line of Construction		HAMMER CORRECTION FACTOR: 1.28
LOGGED BY: Wade Boughner		

COMPLETION DEPTH: 101.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R O D
			SURFACE ELEVATION: 206.9									
75		X	Wet, Dense, Gray Sand with Organic Matter and Trace of Gravel							16 23-22		
80		X	Wet, Very Dense, Gray Sand with Trace of Gravel							18 27-27		
85		X	Wet, Medium Dense, Gray Sand with Trace of Gravel and Organic Matter							14 14-15		
90		X	Wet, Very Dense, Gray Sand with Organic Matter							22 32-31		
95		X	Wet, Dense, Gray Sand with Organic Matter							9 12-20		
100		X	Wet, Dense, Gray Sand with Gravel							17 22-25		
		X	Wet, Dense, Gray Sand with some Gravel							16 18-19		
			Boring Terminated									
105												

REMARKS: Hollow stem augers were utilized to a depth of 9.1'.

ARKANSAS HWY. & TRANS. DEPARTMENT MATERIALS DIVISION - GEOTECHNICAL SEC.	BORING NO. 16 PAGE 1 OF 3
JOB NO. 110543 St. Francis County JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs. I-40 - Hwy. 149 Bridge STATION: 313+83 LOCATION: 15' Right of Center Line of Construction LOGGED BY: Tracy Henderson	DATE: March 14 & 16, 2011 TYPE OF DRILLING: Rotary Wash EQUIPMENT: CME 850 w/ CME Automatic Hammer HAMMER CORRECTION FACTOR: 1.29

COMPLETION DEPTH: 101.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R O D
			SURFACE ELEVATION: 208.8									
5	X		Moist, Medium Stiff, Brown and Gray Clay							1 — 2-4		
10	X		Moist, Stiff, Gray Clay							4 — 7-7		
15	X		Moist, Stiff, Gray Clay							1 — 4-6		
20	X		Moist, Medium Stiff, Gray Clay							2 — 4-4		
25	X		Moist, Medium Stiff, Gray Clay							2 — 3-4		
30	X		Wet, Soft, Gray Clay with Sand							1 — 2-2		
35												

REMARKS: Hollow stem augers were utilized to a depth of 8.7'. * Partial drilling circulation fluid loss was encountered at 68.3' and 73.7'.

ARKANSAS HWY. & TRANS. DEPARTMENT MATERIALS DIVISION - GEOTECHNICAL SEC.	BORING NO. 16 PAGE 2 OF 3
JOB NO. 110543 St. Francis County JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs. I-40 - Hwy. 149 Bridge STATION: 313+83 LOCATION: 15' Right of Center Line of Construction LOGGED BY: Tracy Henderson	DATE: March 14 & 16, 2011 TYPE OF DRILLING: Rotary Wash EQUIPMENT: CME 850 w/ CME Automatic Hammer HAMMER CORRECTION FACTOR: 1.29

COMPLETION DEPTH: 101.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R O D
			SURFACE ELEVATION: 208.8									
40		X	Wet, Medium Stiff, Gray Clay with Sand							$\frac{1}{3-4}$		
45		X	Wet, Loose, Gray Sand with Clay							$\frac{0}{1-4}$		
50		X	Wet, Dense, Gray Sand with Trace of Organic Matter							$\frac{12}{21-16}$		
55		X	Wet, Dense, Gray Sand with Organic Matter							$\frac{12}{19-20}$		
60		X	Wet, Dense, Gray Sand with Organic Matter							$\frac{10}{14-18}$		
65		X	Wet, Dense, Gray Sand with Organic Matter							$\frac{10}{15-22}$		
70		X	Wet, Dense, Gray Sand with Gravel *									

REMARKS: Hollow stem augers were utilized to a depth of 8.7'. * Partial drilling circulation fluid loss was encountered at 68.3' and 73.7'.

JOB NO. 110543 St. Francis County JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs. I-40 - Hwy. 149 Bridge STATION: 313+83 LOCATION: 15' Right of Center Line of Construction LOGGED BY: Tracy Henderson	DATE: March 14 & 16, 2011 TYPE OF DRILLING: Rotary Wash EQUIPMENT: CME 850 w/ CME Automatic Hammer HAMMER CORRECTION FACTOR: 1.29
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COMPLETION DEPTH: 101.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R O D
			SURFACE ELEVATION: 208.8									
75		X	Wet, Dense, Gray Sand with Trace of Gravel and Organic Matter *							11 21-21		
80		X	Wet, Dense, Gray Sand with Trace of Organic Matter							15 22-23		
85		X	Wet, Very Dense, Gray Sand							16 23-29		
90		X	Wet, Dense, Gray Sand with Organic Matter							12 16-16		
95		X	Wet, Dense, Gray Sand with some Gravel							12 16-19		
100		X	Wet, Medium Dense, Gray Sand with some Gravel							7 12-16		
		X	Wet, Dense, Gray Sand with Gravel							16 19-22		
			Boring Terminated									
105												

REMARKS: Hollow stem augers were utilized to a depth of 8.7'. * Partial drilling circulation fluid loss was encountered at 68.3' and 73.7'.

ARKANSAS HWY. & TRANS. DEPARTMENT MATERIALS DIVISION - GEOTECHNICAL SEC.	BORING NO. 17 PAGE 1 OF 3
JOB NO. 110543 St. Francis County	DATE: March 8-9, 2011
JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs. I-40 - Hwy. 149 Bridge	TYPE OF DRILLING: Rotary Wash
STATION: 314+95	EQUIPMENT: CME 850 w/ CME Automatic Hammer
LOCATION: 36' Right of Center Line of Construction	HAMMER CORRECTION FACTOR: 1.29
LOGGED BY: Tracy Henderson	

COMPLETION DEPTH: 101.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R O D
			SURFACE ELEVATION: 208.1									
5		X	Moist, Medium Stiff, Brown Clay	CH	18	66				$\frac{2}{3-4}$		
10		X	Moist, Stiff, Gray Clay	CH	21	87				$\frac{2}{4-6}$		
15		X	Moist, Stiff, Gray Clay	CH	21	91				$\frac{2}{4-5}$		
20		X	Moist, Medium Stiff, Gray Clay with some Calcareous Nodules	CH	24	91				$\frac{2}{3-4}$		
25		X	Moist, Medium Stiff, Gray Clay	CL	21	39				$\frac{1}{3-4}$		
30		X	Wet, Soft, Gray Clay	CL	22	38				$\frac{0}{0-3}$		
35												

REMARKS: Hollow stem augers were utilized to a depth of 9.7'. * Partial drilling circulation fluid loss was encountered at 66.5'.

JOB NO. 110543 St. Francis County JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs. I-40 - Hwy. 149 Bridge STATION: 314+95 LOCATION: 36' Right of Center Line of Construction LOGGED BY: Tracy Henderson	DATE: March 8-9, 2011 TYPE OF DRILLING: Rotary Wash EQUIPMENT: CME 850 w/ CME Automatic Hammer HAMMER CORRECTION FACTOR: 1.29
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COMPLETION DEPTH: 101.5

DEPTH FT.	SYMBOLS	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R O D
		SURFACE ELEVATION: 208.1									
	X		CL-ML	26		33			$\frac{1}{1-3}$		
		Wet, Soft, Gray Silty Clay	-								
40	X		ML	21		22			$\frac{2}{3-4}$		
		Wet, Loose, Gray Silt with Sand	-								
45	X		SW-SM	NP					$\frac{11}{19-21}$		
		Wet, Dense, Gray Sand with Silt	-								
50	X		SW-SM	NP					$\frac{8}{12-7}$		
		Wet, Medium Dense, Gray Sand with Silt and some Organic Matter	-								
55	X		SW-SM	NP					$\frac{13}{16-22}$		
		Wet, Dense, Gray Sand with Silt	-								
60	X		SW-SM	NP					$\frac{10}{15-19}$		
		Wet, Dense, Gray Sand with Silt	-								
65	X		SW-SM	NP					$\frac{12}{17-23}$		
		Wet, Dense, Gray Sand with Silt and Trace of Organic Matter *	-								
70											

REMARKS: Hollow stem augers were utilized to a depth of 9.7'. * Partial drilling circulation fluid loss was encountered at 66.5'.

ARKANSAS HWY. & TRANS. DEPARTMENT		BORING NO. 17
MATERIALS DIVISION - GEOTECHNICAL SEC.		PAGE 3 OF 3
JOB NO. 110543	St. Francis County	DATE: March 8-9, 2011
JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs.	I-40 - Hwy. 149 Bridge	TYPE OF DRILLING: Rotary Wash
STATION: 314+95		EQUIPMENT: CME 850 w/ CME Automatic Hammer
LOCATION: 36' Right of Center Line of Construction		HAMMER CORRECTION FACTOR: 1.29
LOGGED BY: Tracy Henderson		

COMPLETION DEPTH: 101.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R O D
			SURFACE ELEVATION: 208.1									
		X	Wet, Dense, Gray Sand with Silt and Trace of Gravel	SW-SM	NP					16 19-27		
			Gravel	-								
75		X	Wet, Dense, Gray Sand with Silt and Trace of Gravel	SW-SM	NP					15 33-31		
			Wet, Very Dense, Gray Sand with Silt and Trace of Organic Matter	-								
			Organic Matter	-								
80		X	Wet, Very Dense, Gray Sand with Silt and Trace of Organic Matter	SW-SM	NP					16 31-34		
				-								
85		X	Wet, Dense, Gray Sand with Silt and Trace of Organic Matter and Gravel	SW-SM	NP					12 16-18		
				-								
90		X	Wet, Dense, Gray Sand with Silt and Trace of Gravel	SW-SM	NP					3 18-25		
				-								
95		X	Wet, Dense, Gray Sand with Trace of Organic Matter	SM	NP					11 13-19		
				-								
100		X	Wet, Dense, Gray Sand with Silt and Trace of Organic Matter	SW-SM	NP					9 14-21		
				-								
			Boring Terminated	-								
105												

REMARKS: Hollow stem augers were utilized to a depth of 9.7'. * Partial drilling circulation fluid loss was encountered at 66.5'.

ARKANSAS HWY. & TRANS. DEPARTMENT MATERIALS DIVISION - GEOTECHNICAL SEC.	BORING NO. 18 PAGE 1 OF 3
JOB NO. 110543 St. Francis County	DATE: Feb. 28 - Mar. 1 & 8, 2011
JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs. I-40 - Hwy. 149 Bridge	TYPE OF DRILLING: Rotary Wash
STATION: 315+70	EQUIPMENT: CME 850 w/ CME Automatic Hammer
LOCATION: 33' Right of Center Line of Construction	HAMMER CORRECTION FACTOR: 1.29
LOGGED BY: Tracy Henderson	

COMPLETION DEPTH: 101.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R O D
			SURFACE ELEVATION: 208.0									
5			Moist, Medium Stiff, Gray Clay with some Organic Matter	CH	19	28	61	96.1		2 3-5		
10			Moist, Stiff, Brown and Gray Clay	CH	25	38	88	81.4		3 4-5		
15			Moist, Stiff, Brown and Gray Clay with some Calcareous Nodules	CH	25	33	92	89.4		3 5-8		
20			Moist, Medium Stiff, Dark Gray Clay							3 3-4		
25			Moist, Medium Stiff, Gray Clay							1 2-3		
30			Wet, Soft, Gray Silty Clay							1 2-2		
35												

REMARKS: Hollow stem augers were utilized to a depth of 14.5'. * Partial drilling circulation fluid loss was encountered at 67.5' and 89.1'.

**ARKANSAS HWY. & TRANS. DEPARTMENT
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 18
PAGE 2 OF 3

JOB NO. 110543 St. Francis County
JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs.
I-40 - Hwy. 149 Bridge
STATION: 315+70
LOCATION: 33' Right of Center Line of Construction
LOGGED BY: Tracy Henderson

DATE: Feb. 28 - Mar. 1 & 8, 2011
TYPE OF DRILLING: Rotary Wash
EQUIPMENT: CME 850 w/ CME Automatic Hammer
HAMMER CORRECTION FACTOR: 1.29

COMPLETION DEPTH: 101.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R O D
40		X	Wet, Medium Stiff, Gray Clay with Sand							1 2-3		
45		X	Wet, Loose, Gray Clayey Sand							2 3-4		
50		X	Wet, Medium Dense, Gray Silty Sand							3 3-15		
55		X	Wet, Medium Dense, Gray Sand with Trace of Organic Matter							9 11-13		
60		X	Wet, Very Dense, Gray Sand with Trace of Gravel							23 29-24		
65		X	Wet, Dense, Gray Sand with Trace of Organic Matter *							12 18-26		
70		X	Wet, Dense, Gray Sand with Gravel and Trace of Organic Matter							10 12-21		

REMARKS: Hollow stem augers were utilized to a depth of 14.5'. * Partial drilling circulation fluid loss was encountered at 67.5' and 89.1'.

**ARKANSAS HWY. & TRANS. DEPARTMENT
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 18
PAGE 3 OF 3

JOB NO. 110543 St. Francis County
JOB NAME: Hwys. 261, 38, & 149 Strs. & Apprs.
I-40 - Hwy. 149 Bridge
STATION: 315+70
LOCATION: 33' Right of Center Line of Construction
LOGGED BY: Tracy Henderson

DATE: Feb. 28 - Mar. 1 & 8, 2011
TYPE OF DRILLING: Rotary Wash
EQUIPMENT: CME 850 w/ CME Automatic Hammer
HAMMER CORRECTION FACTOR: 1.29

COMPLETION DEPTH: 101.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% S C R	% R O D
			SURFACE ELEVATION: 208.0									
75		X	Wet, Dense, Gray Sand with Cemented Sand Seams and Trace of Gravel							10 16-18		
80		X	Wet, Dense, Gray Sand with Trace of Gravel							13 21-24		
85		X	Wet, Dense, Gray Sand with Trace of Organic Matter							9 15-23		
90		X	Wet, Dense, Gray Sand with Gravel							13 16-18		
			Gravel *									
		X	Wet, Dense, Gray Sand with Trace of Gravel							9 18-21		
95		X	Wet, Dense, Gray Sand with Trace of Gravel and Organic Matter									
		X	Wet, Dense, Gray Sand with Organic Matter							10 15-19		
100		X	Wet, Dense, Gray Sand with Gravel							13 21-28		
			Boring Terminated									
105												

REMARKS: Hollow stem augers were utilized to a depth of 14.5'. * Partial drilling circulation fluid loss was encountered at 67.5' and 89.1'.

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT - LITTLE ROCK, ARKANSAS
MATERIALS DIVISION

MICHAEL BENSON, MATERIALS ENGINEER

*** SOIL SURVEY / PAVEMENT SOUNDING TEST REPORT ***

DATE	- 05/23/11	SEQUENCE NO.	- 1
JOB NUMBER	- 110543	MATERIAL CODE	- SSRVPS
FEDERAL AID NO.	- TO BE ASSIGNED	SPEC. YEAR	- 2003
PURPOSE	- SOIL SURVEY SAMPLE	SUPPLIER ID.	- 1
SPEC. REMARKS	- NO SPECIFICATION CHECK	COUNTY/STATE	- 68
SUPPLIER NAME	- STATE	DISTRICT NO.	- 01
NAME OF PROJECT	- HWYS. 261, 38 & 149 STRS. & APPRS. (F)		
PROJECT ENGINEER	- NOT APPLICABLE		
PIT/QUARRY	- ARKANSAS		
LOCATION	- ST. FRANCIS COUNTY	DATE SAMPLED	- 02/07/11
SAMPLED BY	- D,KRAFT, D ALLEN	DATE RECEIVED	- 02/15/11
SAMPLE FROM	- TESTHOLE	DATE TESTED	- 03/02/11
MATERIAL DESC.	- SOIL SURVEY - R VALUE- PAVEMENT SOUNDINGS		

LAB NUMBER	- 20110315	- 20110316	- 20110317
SAMPLE ID	- S54	- S55	- S56
TEST STATUS	- INFORMATION ONLY	- INFORMATION ONLY	- INFORMATION ONLY
STATION	- 116+57	- 116+57	- 116+57
LOCATION	- 32'RT	- 32'RT	- 32'RT
DEPTH IN FEET	- 0-5	- 0-5	- 0-5
MAT'L COLOR	- BROWN	- BROWN	- BROWN
MAT'L TYPE	-	-	-
LATITUDE DEG-MIN-SEC	- 34 58 51.40	- 34 58 51.50	- 34 59 11.00
LONGITUDE DEG-MIN-SEC	- 90 54 11.80	- 90 54 11.70	- 90 59 22.10
% PASSING	2 IN. -	-	-
	1 1/2 IN. -	-	-
	3/4 IN. -	-	-
	3/8 IN. -	-	-
	NO. 4 - 100	- 100	- 100
	NO. 10 - 99	- 100	-
	NO. 40 - 96	- 98	-
	NO. 80 - 57	- 94	-
	NO. 200 - 24	- 84	- 91
LIQUID LIMIT	- ND	- 35	- 35
PLASTICITY INDEX	- NP	- 16	- 17
AASHTO SOIL	- A-2-4 (0)	- A-6 (14)	- A-6 (15)
UNIFIED SOIL	-	-	-
% MOISTURE CONTENT	- 24.4	- 28.3	- 24.7
ACHM SURFACE (IN)	- 1.25	-	- 4.0W
CHIPSEAL (IN)	- .25	-	-
ACHM SURFACE (IN)	- 3.25	-	-
CHIPSEAL (IN)	- .25	-	-
ACHM SURFACE (IN)	- 2.0	-	-
AGG BASE CRS CL5 (IN)	- 10.0	-	- 7.0
	-	-	-
	-	-	-
	-	-	-

REMARKS - W=MULTIPLE LAYERS

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AASHTO TESTS : T24 T88 T89 T90 T265

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