

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT



SUBSURFACE INVESTIGATION

STATE JOB NO. 040750

FEDERAL AID PROJECT NO. ER-0017(43) & ER-0072(51)

HWY. 59 SLIDE REPAIR (WASHINGTON & CRAWFORD COS.) (S)

STATE HIGHWAY 59 SECTION 4 & 5

IN WASHINGTON & CRAWFORD COUNTY

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.

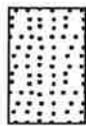
LEGEND

SOIL TYPES

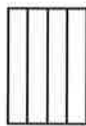
(SHOWN IN SYMBOL COLUMN)
(PREDOMINANT TYPE SHOWN HEAVY)



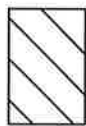
GRAVEL



SAND



SILT



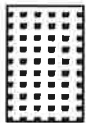
CLAY



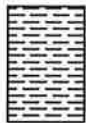
ORGANIC
MATTER

ROCK TYPES

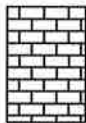
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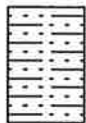
SANDSTONE



SHALE
or
SILTSTONE



LIMESTONE
or
DOLOMITE



ALTERNATING
LAYERS of
SHALE and
SANDSTONE



OTHER

SAMPLER TYPES

(SHOWN IN SAMPLE COLUMN)

SHELBY TUBE



UNDISTURBED
SAMPLE
RECOVERY

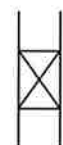


DISTURBED
SAMPLE
RECOVERY



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 ^o Value	Density	*N ^o Value	Consistency	*N ^o Value	Consistency	*N ^o 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: $\frac{6}{8-9} \Rightarrow 8+9 = 17 \text{blows} / \text{ft}$. The “N” Value corrected to 60% efficiency (N₆₀) can be obtained by multiplying N_f by the hammer correction factor published on the boring log.

ARKANSAS HWY. & TRANS. DEPARTMENT		BORING NO. 1	
MATERIALS DIVISION - GEOTECHNICAL SEC.		PAGE 1 OF 2	
JOB NO. 040750	Crawford County	DATE: June 3, 2015	
JOB NAME: Hwy 59 Slide Repair		TYPE OF DRILLING: Hollow Stem Auger - Diamond Core	
STATION: 236+85		EQUIPMENT: CME 75	
LOCATION: 13' Left of Centerline of Existing Roadway		HAMMER CORRECTION FACTOR: 1.37	
LOGGED BY: Stanley Bates			


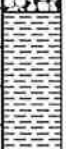
COMPLETION DEPTH: 43.8

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.	% T C R	% R Q D
			SURFACE ELEVATION: 500.1									
5			Dry, Very Loose, Brown Sand with Gravel (Sandstone Fragments)							2 1-1		
10			Dry, Very Loose, Brown Sand with some Gravel (Sandstone Fragments)							1 2-1		
15			Dry, Dense, Brown Sand with Gravel (Sandstone Fragments)							2 9-27		
20			Moist, Medium Dense, Brown Clayey Sand with Gravel (Sandstone Fragments)							7 8-6		
25			Sandstone Boulders							24 (0)	76	8
30											8	0
35			Sandy Clay with Cobbles and Boulders									

REMARKS:

ARKANSAS HWY. & TRANS. DEPARTMENT		BORING NO. 1
MATERIALS DIVISION - GEOTECHNICAL SEC.		PAGE 2 OF 2
JOB NO. 040750	Crawford County	DATE: June 3, 2015
JOB NAME: Hwy 59 Slide Repair		TYPE OF DRILLING: Hollow Stem Auger - Diamond Core
STATION: 236+85		EQUIPMENT: CME 75
LOCATION: 13' Left of Centerline of Existing Roadway		HAMMER CORRECTION FACTOR: 1.37
LOGGED BY: Stanley Bates		

COMPLETION DEPTH: 43.8

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.	% T C R	% R Q D
			SURFACE ELEVATION: 500.1									
40											8	0
			SHALE - Weathered to Slightly Weathered, Medium Hard, Slight Dip, Dark Gray								58	50
45			Boring Terminated									
50												
55												
60												
65												
70												

REMARKS:

JOB NO. 040750 Crawford County JOB NAME: Hwy 59 Slide Repair STATION: 237+48 LOCATION: 16' Right of Centerline of Existing Roadway LOGGED BY: Stanley Bates	DATE: June 3, 2015 TYPE OF DRILLING: Hollow Stem Auger - Diamond Core EQUIPMENT: CME 75 HAMMER CORRECTION FACTOR: 1.37
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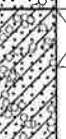


COMPLETION DEPTH: 25.5

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.	% T C R	% R Q D
			SURFACE ELEVATION: 502.0									
5			Moist, Very Loose, Brown Clayey Sand with Some Gravel (Rock Fragments)							1 1-2		
10			Moist, Medium Dense, Brown Gravel (Sandstone Fragments) with Sand							6 6-6		
15			Moist, Loose, Brown Clayey Sand with Gravel (Sandstone Fragments)							3 3-5		
20			Wet, Loose, Brown Clayey Sand with Gravel (Sandstone Fragments)							50 (1)		
			SHALE - Weathered, Hard, Dark Gray									
25			SHALE WITH OCCASSIONAL SANDSTONE SEAMS - Medium Hard, Slightly Weathered, Slight Dip, Dark Gray								97	84
			Boring Terminated								81	81
30												
35												

REMARKS:

JOB NO. 040750 Crawford County JOB NAME: Hwy 59 Slide Repair STATION: 237+58 LOCATION: 11' Left of Centerline of Existing Roadway LOGGED BY: Stanley Bates	DATE: June 4, 2015 TYPE OF DRILLING: Hollow Stem Auger EQUIPMENT: CME 75 HAMMER CORRECTION FACTOR: 1.37
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COMPLETION DEPTH: 21.4

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.	% T C R	% R Q D
			SURFACE ELEVATION: 504.1									
5		X	Dry, Medium Dense, Brown Gravel (Sandstone Fragments) with Sand							6 — 6-5		
10		X	Moist, Medium Dense, Brown Clayey Sand with (Sandstone Fragments)							7 — 6-5		
15		X	Moist, Soft, Brown Sandy Clay with Some Gravel (Rock Fragments)							1 — 2-2		
20		X	Moist, Loose, Brown Sand with Gravel (Sandstone Fragments)							3 — 4-6		
			Boring Terminated									
25												
30												
35												

REMARKS:

ARKANSAS HWY. & TRANS. DEPARTMENT MATERIALS DIVISION - GEOTECHNICAL SEC.		BORING NO. 4 PAGE 1 OF 1	
JOB NO. 040750	Crawford County	DATE: June 3, 2015	
JOB NAME: Hwy 59 Slide Repair		TYPE OF DRILLING: Hollow Stem Auger - Diamond Core	
STATION: 237+67		EQUIPMENT: CME 75	
LOCATION: 9' Left of Centerline of Existing Roadway		HAMMER CORRECTION FACTOR: 1.37	
LOGGED BY: Stanley Bates			

COMPLETION DEPTH: 23.6

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.	% T C R	% R Q D
			SURFACE ELEVATION: 504.8									
5			Dry, Loose, Brown Sand with Gravel (Sandstone Fragments)							3 3-5		
10			Dry, Very Dense, Brown Sand with Gravel (Sandstone Fragments)							35 (1)		
15			Sandstone Boulders with Sandy Clay								35	0
20			Reddish Brown Sandy Clay with Boulders								38	0
25			Boring Terminated								8	0
30												
35												

REMARKS:

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

BORING NO. 1
PAGE 1 OF 1

JOB NO. 040750 Washington County
JOB NAME: Hwy 59 Slide Repair


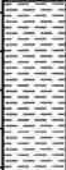
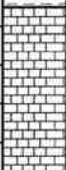
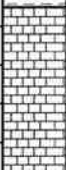
STATION: 10+56
LOCATION: 10' Right of Center Line of Hwy. 59
LOGGED BY: Wade Boughner

DATE: October 6, 2011
TYPE OF DRILLING: Hollow Stem Auger &

EQUIPMENT: CME 75 w/ CME Automatic

HAMMER CORRECTION FACTOR: 1.38

COMPLETION DEPTH: 22.5

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.	% T C R	% R O D
			SURFACE ELEVATION: 509.8									
5		X	Moist, Medium Stiff, Brown and Gray Clay with Gravel (Sandstone and Shale Fragments)							3 3-3		
10		X	SHALE - Brown and Gray, Highly Weathered, Soft							4 6-7		
15		X	LIMESTONE - Gray, Thin Bedded, Slightly Weathered, Hard, with Slight Dip							4 4-3		
20											100	65
25			Boring Terminated									
30												
35												

REMARKS: Long. = -94.46999941; Lat. = 35.760815801

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

BORING NO. 2
PAGE 1 OF 1

JOB NO. 040750 Washington County
JOB NAME: Hwy 59 Slide Repair
STATION: 11+11
LOCATION: 10' Right of Center Line of Hwy. 59
LOGGED BY: Wade Boughner

DATE: October 5, 2011
TYPE OF DRILLING: Hollow Stem Auger &
EQUIPMENT: CME 75 w/ CME Automatic
HAMMER CORRECTION FACTOR: 1.38



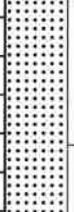
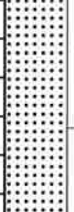
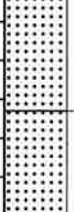
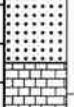

COMPLETION DEPTH: 32.9

DEPTH 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.	% T C R	% R Q D
			SURFACE ELEVATION: 511.5									
5		X	Moist, Very Stiff, Brown Clay with Gravel (Sandstone Fragments)							3 7-9		
10		X	SHALE - Gray, Highly Weathered, Medium Hard							15 35-46		
15			SANDSTONE - Gray, Medium Bedded, Slightly Weathered, Calcareous, Well-Cemented, with Slight Dip							10 (0")	94	78
20			LIMESTONE - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip								100	88
25			LIMESTONE - Gray, Thick Bedded, Slightly Weathered, Hard, with Slight Dip *								100	94
30			LIMESTONE - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip and Vertically Fractured Layers								100	68
35			Boring Terminated									

REMARKS: * Total water loss was encountered at 24.4'. Long. = -94.46992153; Lat. = 35.760968954

ARKANSAS HWY. & TRANS. DEPARTMENT		BORING NO. 3	
MATERIALS DIVISION - GEOTECHNICAL SEC.		PAGE 1 OF 2	
JOB NO. 040750	Washington County	DATE:	October 5, 2011
JOB NAME: Hwy 59 Slide Repair		TYPE OF DRILLING:	Hollow Stem Auger &
STATION: 12+62		EQUIPMENT:	CME 75 w/ CME Automatic
LOCATION: 7' Right of Center Line of Hwy. 59		HAMMER CORRECTION FACTOR:	1.38
LOGGED BY: Wade Boughner			

COMPLETION DEPTH: 37.3

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.	% T C R	% R Q D	
SURFACE ELEVATION: 515.7													
5		X	Moist, Hard, Brown Clay with Gravel (Sandstone Fragments) and Organic Matter							8 9-42			
10		X	SHALE - Brown and Gray, Highly Weathered, Soft							9 15-14			
15			SANDSTONE - Gray, Medium Bedded, Slightly Weathered, Calcareous, Well-Cemented, with Slight Dip *							10 (0")	100	72	
20												100	92
25												100	84
30			SANDSTONE - Gray, Medium Bedded, Slightly Weathered, Calcareous, Well-Cemented, with Slight Dip with Vertically Fractured Layers								100	44	
35			LIMESTONE WITH SHALE PARTINGS - Gray, Medium Bedded, Slightly Weathered, Hard, with										

REMARKS: * Total water loss was encountered at 24.8'. Long. = -94.46976702; Lat. = 35.761337648

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

BORING NO. 3
PAGE 2 OF 2


JOB NO. 040750 Washington County
JOB NAME: Hwy 59 Slide Repair

DATE: October 5, 2011
TYPE OF DRILLING: Hollow Stem Auger &

STATION: 12+62
LOCATION: 7' Right of Center Line of Hwy. 59
LOGGED BY: Wade Boughner

EQUIPMENT: CME 75 w/ CME Automatic
HAMMER CORRECTION FACTOR: 1.38

COMPLETION DEPTH: 37.3

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.	% T C R	% R Q D
			SURFACE ELEVATION: 515.7									
			Moderate Dip								100	58
40			Boring Terminated									
45												
50												
55												
60												
65												
70												

REMARKS: * Total water loss was encountered at 24.8'. Long. = -94.46976702; Lat. = 35.761337648

ARKANSAS HWY. & TRANS. DEPARTMENT		BORING NO. 4
MATERIALS DIVISION - GEOTECHNICAL SEC.		PAGE 1 OF 2
JOB NO. 040750	Washington County	DATE: October 3, 2011
JOB NAME: Hwy 59 Slide Repair		TYPE OF DRILLING: Hollow Stem Auger &
STATION: 24+58		EQUIPMENT: CME 75 w/ CME Automatic
LOCATION: 8' Right of Center Line of Hwy. 59		HAMMER CORRECTION FACTOR: 1.38
LOGGED BY: Wade Boughner		

COMPLETION DEPTH: 48.5

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.	% T C R	% R Q D
			SURFACE ELEVATION: 580.9									
5		X	Moist, Stiff, Brown Clay with Gravel (Sandstone Fragments)							6 6-5		
10		X	Moist, Medium Dense, Brown and Gray Sand with Gravel (Sandstone Fragments)							57 18-9		
15		X	Moist, Stiff, Brown Clay with Gravel (Sandstone Fragments)							3 9-6		
20		X	Moist, Dense, Brown and Gray Sand with Gravel (Sandstone Fragments)							18 9-22		
25			SANDSTONE - Brown, Very Thin Bedded, Slightly Weathered, Cemented, with Slight Dip								48	0
30			SANDSTONE WITH SHALE LAYERS - Gray, Very Thin Bedded, Slightly Weathered, Cemented, with Slight Dip								99	0
35												

REMARKS: Long. = -94.46858664; Lat. = 35.764474087

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

BORING NO. 4
PAGE 2 OF 2

JOB NO. 040750 Washington County

DATE: October 3, 2011

JOB NAME: Hwy 59 Slide Repair

TYPE OF DRILLING: Hollow Stem Auger &

STATION: 24+58

EQUIPMENT: CME 75 w/ CME Automatic

LOCATION: 8' Right of Center Line of Hwy. 59

LOGGED BY: Wade Boughner

HAMMER CORRECTION FACTOR: 1.38

COMPLETION DEPTH: 48.5

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.	% T C R	% R Q D
			SURFACE ELEVATION: 580.9									
40			SHALE WITH SANDSTONE LAYERS - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip								100	28
45			SHALE WITH SLIGHTLY CALCAREOUS SANDSTONE LAYERS - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip								100	44
50			Boring Terminated									
55												
60												
65												
70												

REMARKS: Long. = -94.46858664; Lat. = 35.764474087

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

BORING NO. 5
PAGE 1 OF 2

JOB NO. 040750 Washington County
JOB NAME: Hwy 59 Slide Repair

DATE: October 3, 2011
TYPE OF DRILLING: Hollow Stem Auger &

STATION: 26+46
LOCATION: 7' Right of Center Line of Hwy. 59
LOGGED BY: Wade Boughner

EQUIPMENT: CME 75 w/ CME Automatic
HAMMER CORRECTION FACTOR: 1.38

COMPLETION DEPTH: 43

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.	% T C R	% R Q D	
													SURFACE ELEVATION: 595.1
5		X	Moist, Stiff, Brown Clay with Gravel (Sandstone Fragments), Cobbles and Boulders							5 7-6			
10			Moist, Very Hard, Brown Clay with Gravel (Sandstone Fragments), Cobbles and Boulders							50 (2")			
15			Moist, Stiff, Brown Clay with Gravel (Sandstone Fragments) and Organic Matter								5 6-5		
20			Moist, Stiff, Brown Clay with Gravel (Sandstone Fragments)								2 5-6		
25			SANDSTONE - Gray, Thin Bedded, Slightly Weathered, Slightly Calcareous, Well-Cemented, with Slight Dip and Vertically Fractured Layers							10 (0")	100	54	
30			SHALE WITH SANDSTONE LAYERS - Dark Gray, Laminated, Slightly Weathered, Hard, with Slight Dip and Vertically Fractured Layers									100	36
35													

REMARKS: Long. = -94.46842805; Lat. = 35.764979458

ARKANSAS HWY. & TRANS. DEPARTMENT		BORING NO. 5	
MATERIALS DIVISION - GEOTECHNICAL SEC.		PAGE 2 OF 2	
JOB NO. 040750	Washington County	DATE: October 3, 2011	
JOB NAME: Hwy 59 Slide Repair		TYPE OF DRILLING: Hollow Stem Auger &	
STATION: 26+46		EQUIPMENT: CME 75 w/ CME Automatic	
LOCATION: 7' Right of Center Line of Hwy. 59		HAMMER CORRECTION FACTOR: 1.38	
LOGGED BY: Wade Boughner			

COMPLETION DEPTH: 43

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.	% T C R	% R O D
			SURFACE ELEVATION: 595.1									
			SANDSTONE WITH SHALE LAYERS - Gray, Thin Bedded, Slightly Weathered, Well- Cemented, with Slight Dip								100	16
40			SANDSTONE WITH SHALE LAYERS - Gray, Very Thin Bedded, Slightly Weathered, Well- Cemented, with Slight Dip								86	8
45			Boring Terminated									
50												
55												
60												
65												
70												

REMARKS: Long. = -94.46842805; Lat. = 35.764979458



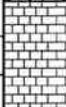

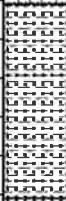
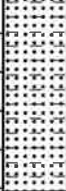

**ARKANSAS HWY. & TRANS. DEPARTMENT
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 6
PAGE 1 OF 2

JOB NO. 040750 Washington County
JOB NAME: Hwy 59 Slide Repair
STATION: 27+36
LOCATION: 10' Right of Center Line of Hwy. 59
LOGGED BY: Wade Boughner

DATE: October 3, 2011
TYPE OF DRILLING: Hollow Stem Auger &
EQUIPMENT: CME 75 w/ CME Automatic
HAMMER CORRECTION FACTOR: 1.38

COMPLETION DEPTH: 38.1

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.	% T C R	% R Q D
		SURFACE ELEVATION: 601.8									
5		Moist, Stiff, Brown Clay with Gravel (Sandstone Fragments)							5 5-5		
10		Gravel (Sandstone Fragments), Cobbles and Boulders with Clay							30 (1")		
15		LIMESTONE - Brown and Gray, Thin Bedded, Slightly Weathered, Hard, with Slight Dip								80	24
20		LIMESTONE WITH SANDSTONE LAYERS AND SHALE SEAMS - Brown and Gray to Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip								100	48
25		SHALE WITH FREQUENT SANDSTONE LAYERS - Dark Gray, Laminated, Slightly Weathered, Hard, with Moderate Dip								48	8
30		SANDSTONE WITH FREQUENT SHALE LAYERS - Gray, Medium Bedded, Slightly Weathered, Well-Cemented, with Slight Dip								100	72
35											

REMARKS: * Poor core recovery due to a piece of core lodged in core barrel. Long. = -94.46835546; Lat. = 35.765215686

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

BORING NO. 6
PAGE 2 OF 2

JOB NO. 040750 Washington County
JOB NAME: Hwy 59 Slide Repair
STATION: 27+36
LOCATION: 10' Right of Center Line of Hwy. 59
LOGGED BY: Wade Boughner

DATE: October 3, 2011
TYPE OF DRILLING: Hollow Stem Auger &
EQUIPMENT: CME 75 w/ CME Automatic
HAMMER CORRECTION FACTOR: 1.38

COMPLETION DEPTH: 38.1

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.	% T C R	% R Q D
			SURFACE ELEVATION: 601.8									
			ALTERNATING LAYERS OF SHALE AND SANDSTONE - Dark Gray, Laminated, Slightly Weathered, Hard, with Slight Dip (Shale); Gray, Very Thin Bedded, Slightly Weathered, Well-Cemented, with Slight Dip (Sandstone)								100	12
40			Boring Terminated									
45												
50												
55												
60												
65												
70												

REMARKS: * Poor core recovery due to a piece of core lodged in core barrel. Long. = -94.46835546; Lat. = 35.765215686

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

BORING NO. 7
PAGE 1 OF 2

JOB NO. 040750 Washington County
JOB NAME: Hwy 59 Slide Repair

DATE: September 28, 2011
TYPE OF DRILLING: Hollow Stem Auger &

STATION: 54+71
LOCATION: 10' Right of Center Line of Hwy. 59
LOGGED BY: Wade Boughner

EQUIPMENT: CME 75 w/ CME Automatic
HAMMER CORRECTION FACTOR: 1.38

COMPLETION DEPTH: 38

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.	% T C R	% R Q D
			SURFACE ELEVATION: 779.9									
5			Moist, Stiff, Brown and Gray Clay with Gravel (Sandstone Fragments)							3 4-5		
10											5 9-6	
15			LIMESTONE - Gray, Medium Bedded, Slightly Weathered, Moderately Hard, with Slight Dip							10 (0")	63	73
			SHALE - Brown and Gray, Weathered, Medium Hard									
20			LIMESTONE WITH FREQUENT SHALE LAYERS - Gray, Thick Bedded, Slightly Weathered, Hard, with Slight Dip								78	74
25			LIMESTONE WITH FREQUENT SHALE LAYERS - Gray, Medium Bedded, Slightly Weathered, Hard, with Moderate Dip								100	66
30			LIMESTONE WITH FREQUENT SHALE LAYERS - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip								100	58
35												

REMARKS: Long. = -94.47046255; Lat. = 35.772197193

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

BORING NO. 7
PAGE 2 OF 2


JOB NO. 040750 Washington County
JOB NAME: Hwy 59 Slide Repair

DATE: September 28, 2011
TYPE OF DRILLING: Hollow Stem Auger &
EQUIPMENT: CME 75 w/ CME Automatic

STATION: 54+71
LOCATION: 10' Right of Center Line of Hwy. 59
LOGGED BY: Wade Boughner

HAMMER CORRECTION FACTOR: 1.38

COMPLETION DEPTH: 38

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.	% T C R	% R Q D
			SURFACE ELEVATION: 779.9									
											100	88
40			Boring Terminated									
45												
50												
55												
60												
65												
70												

REMARKS: Long. = -94.47046255; Lat. = 35.772197193

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

BORING NO. 8
PAGE 1 OF 2

JOB NO. 040750 Washington County

DATE: September 27, 2011

JOB NAME: Hwy 59 Slide Repair

TYPE OF DRILLING: Hollow Stem Auger &

STATION: 55+43





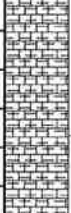
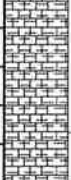
EQUIPMENT: CME 75 w/ CME Automatic

LOCATION: 9' Right of Center Line of Hwy. 59

LOGGED BY: Wade Boughner

HAMMER CORRECTION FACTOR: 1.38

COMPLETION DEPTH: 43.7

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.	% T C R	% R Q D
			SURFACE ELEVATION: 784.8									
5		X	Moist, Medium Stiff, Brown and Gray Clay with Gravel (Sandstone Fragments)							3 3-5		
10		X	Moist, Medium Stiff, Brown and Gray Clay with Gravel (Sandstone and Shale Fragments)							2 3-3		
15		X	SHALE - Brown and Gray, Highly Weathered, Medium Hard							12 60 (5")		
20			LIMESTONE WITH FREQUENT SHALE LAYERS - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip and Vertically Fractured Layers								91	75
25			LIMESTONE WITH FREQUENT SHALE LAYERS - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip								100	74
30			LIMESTONE WITH FREQUENT SHALE LAYERS - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip								100	58
35			LIMESTONE WITH FREQUENT SHALE LAYERS - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip									

REMARKS: Long. = -94.47046255; Lat. = 35.772395017

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

BORING NO. 8
PAGE 2 OF 2

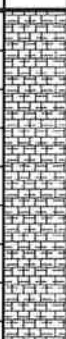
JOB NO. 040750 Washington County
JOB NAME: Hwy 59 Slide Repair

DATE: September 27, 2011
TYPE OF DRILLING: Hollow Stem Auger &

STATION: 55+43
LOCATION: 9' Right of Center Line of Hwy. 59
LOGGED BY: Wade Boughner

EQUIPMENT: CME 75 w/ CME Automatic
HAMMER CORRECTION FACTOR: 1.38

COMPLETION DEPTH: 43.7

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.	% TCR	% RQD
			SURFACE ELEVATION: 784.8									
40											100	96
												100
45			Boring Terminated									
50												
55												
60												
65												
70												

REMARKS: Long. = -94.47046255; Lat. = 35.772395017

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

BORING NO. 9
PAGE 1 OF 2

JOB NO. 040750 Washington County
JOB NAME: Hwy 59 Slide Repair
STATION: 56+11
LOCATION: 8' Right of Center Line of Hwy. 59
LOGGED BY: Wade Boughner

DATE: September 27, 2011
TYPE OF DRILLING: Hollow Stem Auger &
EQUIPMENT: CME 75 w/ CME Automatic
HAMMER CORRECTION FACTOR: 1.38

COMPLETION DEPTH: 43.1

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.	% T C R	% R Q D
			SURFACE ELEVATION: 789.1									
5		X	SHALE - Brown and Gray, Highly Weathered, Soft							4 5-6		
10		X	Moist, Very Stiff, Brown and Gray Clay with Organic Matter							3 9-13		
15		X	SHALE - Brown and Gray, Highly Weathered, Medium Hard							17 10-54		
20			LIMESTONE - Gray, Medium Bedded, Slightly Weathered, Moderately Hard, with Slight Dip							10 (0")	66	60
25			SHALE - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip								100	60
30			LIMESTONE WITH FREQUENT SHALE LAYERS - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip									
35			LIMESTONE WITH FREQUENT SHALE LAYERS - Gray, Medium Bedded, Slightly								100	78

REMARKS: Long. = -94.4706128; Lat. = 35.772510805

ARKANSAS HWY. & TRANS. DEPARTMENT MATERIALS DIVISION - GEOTECHNICAL SEC.		BORING NO. 9 PAGE 2 OF 2
JOB NO. 040750 Washington County	JOB NAME: Hwy 59 Slide Repair	DATE: September 27, 2011 TYPE OF DRILLING: Hollow Stem Auger & EQUIPMENT: CME 75 w/ CME Automatic
STATION: 56+11	LOCATION: 8' Right of Center Line of Hwy. 59	HAMMER CORRECTION FACTOR: 1.38
LOGGED BY: Wade Boughner		





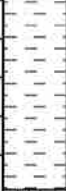
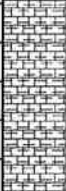


COMPLETION DEPTH: 43.1

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.	% TCR	% RQD
			SURFACE ELEVATION: 789.1									
			Weathered, Hard, with Slight Dip and Vertically Fractured Layers								100	70
40			CALCAREOUS SANDSTONE WITH SHALE LAYERS - Gray, Medium Bedded, Slightly Weathered, Well-Cemented, with Slight Dip								90	58
45			Boring Terminated									
50												
55												
60												
65												
70												

REMARKS: Long. = -94.4706128; Lat. = 35.772510805

ARKANSAS HWY. & TRANS. DEPARTMENT		BORING NO. 10
MATERIALS DIVISION - GEOTECHNICAL SEC.		PAGE 1 OF 2
JOB NO. 040750	Washington County	DATE: September 29, 2011
JOB NAME: Hwy 59 Slide Repair		TYPE OF DRILLING: Hollow Stem Auger &
STATION: 57+27		EQUIPMENT: CME 75 w/ CME Automatic
LOCATION: 7' Right of Center Line of Hwy. 59		HAMMER CORRECTION FACTOR: 1.38
LOGGED BY: Wade Boughner		


COMPLETION DEPTH: 42.9

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.	% T C R	% R Q D
			SURFACE ELEVATION: 797.2									
5		X	Sandstone Cobbles and Boulders							45 37-22		
10		X	Sandstone Cobbles and Boulders with some Clay							3 8-60 (9")		
			LIMESTONE WITH FREQUENT WEATHERED SHALE LAYERS - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip								92	16
15			SHALE WITH FREQUENT LIMESTONE LAYERS - Dark Gray, Laminated, Weathered, Soft, with Slight Dip								56	12
20			SHALE WITH FREQUENT LIMESTONE LAYERS - Dark Gray, Laminated, Highly Weathered, Soft, with Slight Dip								24	0
25			LIMESTONE WITH FREQUENT SHALE LAYERS - Gray, Thin Bedded, Slightly Weathered, Hard, with Slight Dip								100	54
30											100	50
35												

REMARKS: Long. = -94.47088392; Lat. = 35.772735804

ARKANSAS HWY. & TRANS. DEPARTMENT MATERIALS DIVISION - GEOTECHNICAL SEC.		BORING NO. 10 PAGE 2 OF 2
JOB NO. 040750 Washington County	JOB NAME: Hwy 59 Slide Repair	DATE: September 29, 2011 TYPE OF DRILLING: Hollow Stem Auger & EQUIPMENT: CME 75 w/ CME Automatic HAMMER CORRECTION FACTOR: 1.38
STATION: 57+27	LOCATION: 7' Right of Center Line of Hwy. 59	
LOGGED BY: Wade Boughner		

COMPLETION DEPTH: 42.9

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.	% T C R	% R Q D
			SURFACE ELEVATION: 797.2									
			LIMESTONE WITH FREQUENT SHALE LAYERS - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip								100	72
40											100	88
45			Boring Terminated									
50												
55												
60												
65												
70												

REMARKS: Long. = -94.47088392; Lat. = 35.772735804

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

BORING NO. 11
PAGE 1 OF 2

JOB NO. 040750 Washington County
JOB NAME: Hwy 59 Slide Repair

DATE: September 26, 2011
TYPE OF DRILLING: Hollow Stem Auger &
EQUIPMENT: CME 75 w/ CME Automatic

STATION: 58+17
LOCATION: 10' Right of Center Line of Hwy. 59
LOGGED BY: Wade Boughner

HAMMER CORRECTION FACTOR: 1.38

COMPLETION DEPTH: 55.2

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.	% T C R	% R Q D
			SURFACE ELEVATION: 803.2									
5			Moist, Very Stiff, Brown and Gray Clay with Gravel (Sandstone and Shale Fragments)							4 4-22		
10			Moist, Stiff, Brown and Gray Clay with Gravel (Sandstone Fragments)							3 6-7		
15			SHALE - Brown and Gray, Highly Weathered, Soft							3 3-6		
20			SHALE - Brown and Gray, Highly Weathered, Medium Hard							8 44-35		
25			SHALE - Brown and Gray, Highly Weathered, Soft *							9 5-5		
30			SHALE - Brown and Gray, Highly Weathered, Soft *							4 1-0		
35										10		

REMARKS: * Sample at 30.2' was wet. Long. = -94.47104165; Lat. = 35.772933392

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

BORING NO. 11
PAGE 2 OF 2

JOB NO. 040750 Washington County
JOB NAME: Hwy 59 Slide Repair
STATION: 58+17
LOCATION: 10' Right of Center Line of Hwy. 59
LOGGED BY: Wade Boughner

DATE: September 26, 2011
TYPE OF DRILLING: Hollow Stem Auger &
EQUIPMENT: CME 75 w/ CME Automatic
HAMMER CORRECTION FACTOR: 1.38

COMPLETION DEPTH: 55.2

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.	% T C R	% R Q D
			SURFACE ELEVATION: 803.2							(0')		
40			LIMESTONE WITH FREQUENT SHALE LAYERS - Gray, Thin Bedded, Slightly Weathered, Hard, with Slight Dip								100	48
45			LIMESTONE WITH FREQUENT SHALE LAYERS - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip								100	52
50			LIMESTONE WITH FREQUENT SHALE LAYERS - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip								100	72
55			SHALE WITH FREQUENT LIMESTONE LAYERS - Dark Gray, Laminated, Slightly Weathered, Hard, with Slight Dip								98	98
			Boring Terminated								96	34
60												
65												
70												

REMARKS: * Sample at 30.2' was wet. Long. = -94.47104165; Lat. = 35.772933392

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

BORING NO. 12
PAGE 1 OF 2

JOB NO. 040750 Washington County
JOB NAME: Hwy 59 Slide Repair

STATION: 59+53
LOCATION: 11' Right of Center Line of Hwy. 59
LOGGED BY: Wade Boughner

DATE: September 28, 2011
TYPE OF DRILLING: Hollow Stem Auger &
EQUIPMENT: CME 75 w/ CME Automatic
HAMMER CORRECTION FACTOR: 1.38

COMPLETION DEPTH: 53.1

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.	% F C R	% R O D
			SURFACE ELEVATION: 813.7									
5		X	Moist, Medium Stiff, Brown and Gray Clay with Gravel (Sandstone Fragments)							3 3-4		
10		X	Moist, Stiff, Brown and Gray Clay with Gravel (Sandstone and Shale Fragments)							2 4-8		
15		X	SHALE - Brown and Gray, Highly Weathered, Soft							9 11-12		
20		X	Moist, Stiff, Brown Clay							2 5-9		
25		X	SHALE - Brown and Gray, Highly Weathered, Medium Hard							44 60 (5")	100	0
30			SHALE - Brown and Gray, Laminated, Highly Soft, Weathered, with Slight Dip								58	0
35												

REMARKS: Long. = -94.47119574; Lat. = 35.773284367

ARKANSAS HWY. & TRANS. DEPARTMENT		BORING NO. 12	
MATERIALS DIVISION - GEOTECHNICAL SEC.		PAGE 2 OF 2	
JOB NO. 040750	Washington County	DATE: September 28, 2011	
JOB NAME: Hwy 59 Slide Repair		TYPE OF DRILLING: Hollow Stem Auger &	
STATION: 59+53		EQUIPMENT: CME 75 w/ CME Automatic	
LOCATION: 11' Right of Center Line of Hwy. 59		HAMMER CORRECTION FACTOR: 1.38	
LOGGED BY: Wade Boughner			







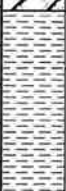
COMPLETION DEPTH: 53.1

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.	% TCR	% RQD
			SURFACE ELEVATION: 813.7									
			SHALE WITH FREQUENT LIMESTONE SEAMS - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip								60	12
40			LIMESTONE WITH FREQUENT SHALE LAYERS - Gray, Thin Bedded, Slightly Weathered, Hard, with Slight Dip								99	64
45			LIMESTONE WITH FREQUENT SHALE LAYERS - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip								100	72
50			LIMESTONE WITH FREQUENT SHALE SEAMS - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip								100	86
55			Boring Terminated									
60												
65												
70												

REMARKS: Long. = -94.47119574; Lat. = 35.773284367

JOB NO. 040750 Washington County JOB NAME: Hwy 59 Slide Repair STATION: 62+28 LOCATION: 10' Right of Center Line of Hwy. 59 LOGGED BY: Wade Boughner	DATE: September 21, 2011 TYPE OF DRILLING: Hollow Stem Auger & EQUIPMENT: CME 75 w/ CME Automatic HAMMER CORRECTION FACTOR: 1.38
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COMPLETION DEPTH: 58.3

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.	% T C R	% R O D
			SURFACE ELEVATION: 832.4									
5		X	Moist, Stiff, Gray and Brown Clay with Gravel (Limestone Fragments), Cobbles and Boulders							10 8-5		
10		X	Moist, Stiff, Gray and Brown Clay with Gravel (Shale Fragments)							3 4-5		
15		X	Moist, Stiff, Gray and Brown Clay with Gravel (Shale Fragments)							3 4-9		
20		X	Moist, Stiff, Gray and Brown Clay with Gravel (Shale Fragments)							4 3-4		
25		X	Moist, Medium Stiff, Brown Clay with Gravel (Shale Fragments)							6 11-19		
30		X	Moist, Very Stiff, Brown Clay with Gravel (Sandstone Fragments)							13 26-12		
35		X	SHALE - Gray, Highly Weathered, Soft									

REMARKS: Long. = -94.47122346; Lat. = 35.7774029437

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

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JOB NO. 040750 Washington County
JOB NAME: Hwy 59 Slide Repair

STATION: 62+28
LOCATION: 10' Right of Center Line of Hwy. 59
LOGGED BY: Wade Boughner

DATE: September 21, 2011
TYPE OF DRILLING: Hollow Stem Auger &

EQUIPMENT: CME 75 w/ CME Automatic

HAMMER CORRECTION FACTOR: 1.38

COMPLETION DEPTH: 58.3

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.	% T C R	% R Q D
			SURFACE ELEVATION: 832.4									
			SHALE WITH SANDSTONE FRAGMENTS - Gray, Weathered, Medium Hard							60 (4")		
			SHALE - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip and some Slickensides								96	20
40			SHALE WITH FREQUENT LIMESTONE LAYERS - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip								100	84
			SHALE - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip									
45											92	56
50			LIMESTONE WITH FREQUENT SHALE SEAMS - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip								96	72
55											100	96
60			Boring Terminated									
65												
70												

REMARKS: Long. = -94.47122346; Lat. = 35.7774029437

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

BORING NO. 14
PAGE 1 OF 2

JOB NO. 040750 Washington County
JOB NAME: Hwy 59 Slide Repair

DATE: September 21, 2011
TYPE OF DRILLING: Hollow Stem Auger &
EQUIPMENT: CME 75 w/ CME Automatic

STATION: 62+88
LOCATION: 9' Right of Center Line of Hwy. 59
LOGGED BY: Wade Boughner

HAMMER CORRECTION FACTOR: 1.38

COMPLETION DEPTH: 38.2

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.	% T C R	% R Q D
			SURFACE ELEVATION: 837.3									
5			Moist, Stiff, Brown Clay with Gravel (Sandstone Fragments), Cobbles and Boulders							7 5-5		
10			Moist, Stiff, Brown and Gray Clay with Gravel (Sandstone Fragments)							60 (4")		
15			Moist, Hard, Brown and Gray Clay with Gravel (Sandstone and Shale Fragments), Cobbles and Boulders							32 60 (3")	73	0
20			SHALE WITH SANDSTONE SEAMS - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip								90	48
25			SHALE - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip								100	48
30			LIMESTONE - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip								100	82
35												

REMARKS: Long. = -94.47116061; Lat. = 35.774214794

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

BORING NO. 14
PAGE 2 OF 2

JOB NO. 040750 Washington County

DATE: September 21, 2011

JOB NAME: Hwy 59 Slide Repair

TYPE OF DRILLING: Hollow Stem Auger &

STATION: 62+88

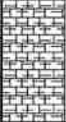
EQUIPMENT: CME 75 w/ CME Automatic

LOCATION: 9' Right of Center Line of Hwy. 59

LOGGED BY: Wade Boughner

HAMMER CORRECTION FACTOR: 1.38

COMPLETION DEPTH: 38.2

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.	% T C R	% R Q D
			SURFACE ELEVATION: 837.3									
			LIMESTONE WITH FREQUENT SHALE SEAMS - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip								100	90
40			Boring Terminated									
45												
50												
55												
60												
65												
70												

REMARKS: Long. = -94.47116061; Lat. = 35.774214794

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

BORING NO. 15
PAGE 1 OF 2

JOB NO. 040750 Washington County
JOB NAME: Hwy 59 Slide Repair

DATE: September 20, 2011
TYPE OF DRILLING: Hollow Stem Auger &
EQUIPMENT: CME 75 w/ CME Automatic

STATION: 65+69
LOCATION: 7' Right of Center Line of Hwy. 59
LOGGED BY: Wade Boughner

HAMMER CORRECTION FACTOR: 1.38

COMPLETION DEPTH: 43.8

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.	% T C R	% R Q D
			SURFACE ELEVATION: 857.2									
5			Moist, Stiff, Brown Clay with Gravel (Sandstone Fragments) and Cobbles							4 7-7		
10			Moist, Stiff, Brown Clay with Gravel (Sandstone Fragments)							4 6-6		
15			SHALE - Gray, Highly Weathered, Soft							7 7-9		
20			SHALE - Gray, Weathered, Medium Hard							60 (5")		
25			SHALE WITH SANDSTONE SEAMS - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip								68	0
30			SHALE - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip								100	16
35			SHALE - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip								98	50

REMARKS: Long. = -94.47078692; Lat. = 35.774880401

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

BORING NO. 15
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JOB NO. 040750 Washington County
JOB NAME: Hwy 59 Slide Repair

DATE: September 20, 2011
TYPE OF DRILLING: Hollow Stem Auger &
EQUIPMENT: CME 75 w/ CME Automatic

STATION: 65+69
LOCATION: 7' Right of Center Line of Hwy. 59
LOGGED BY: Wade Boughner

HAMMER CORRECTION FACTOR: 1.38

COMPLETION DEPTH: 43.8

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.	% T C R	% R Q D
			SURFACE ELEVATION: 857.2									
40			SHALE WITH OCCASIONAL LIMESTONE LAYER - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip								96	52
			LIMESTONE WITH OCCASIONAL SHALE SEAMS - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip								100	72
45			Boring Terminated									
50												
55												
60												
65												
70												

REMARKS: Long. = -94.47078692; Lat. = 35.774880401

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

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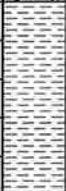


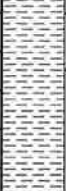

JOB NO. 040750 Washington County
JOB NAME: Hwy 59 Slide Repair

DATE: September 20, 2011
TYPE OF DRILLING: Hollow Stem Auger &
EQUIPMENT: CME 75 w/ CME Automatic

STATION: 66+31
LOCATION: 7' Right of Center Line of Hwy. 59
LOGGED BY: Wade Boughner

HAMMER CORRECTION FACTOR: 1.38

COMPLETION DEPTH: 52.9

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.	% T C R	% R Q D
			SURFACE ELEVATION: 861.3									
5		X	Moist, Soft, Dark Gray Clay with Gravel (Shale Fragments)							1 1-3		
10		X	SHALE - Brown and Gray, Highly Weathered, Soft							1 4-2		
15		X	SHALE - Gray, Highly Weathered, Soft							2 2-2		
20		X	SHALE - Gray and Brown, Highly Weathered, Soft							3 5-8		
25		X	SHALE - Gray, Weathered, Medium Hard							3 10-10		
30		X	SHALE - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip							60 (4")	100	32
35												

REMARKS: * A water stratum was encountered at 15.0'. Long. = -94.47069335; Lat. = 35.775034639

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

BORING NO. 16
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JOB NO. 040750 Washington County

DATE: September 20, 2011

JOB NAME: Hwy 59 Slide Repair

TYPE OF DRILLING: Hollow Stem Auger &

STATION: 66+31

EQUIPMENT: CME 75 w/ CME Automatic

LOCATION: 7' Right of Center Line of Hwy. 59

LOGGED BY: Wade Boughner

HAMMER CORRECTION FACTOR: 1.38

COMPLETION DEPTH: 52.9

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.	% T C R	% R Q D
			SURFACE ELEVATION: 861.3									
			SHALE WITH OCCASIONAL LIMESTONE LAYER - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip								88	50
40			SHALE - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip								100	88
45			LIMESTONE - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip								100	72
50			SHALE - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip								94	82
55			Boring Terminated									
60												
65												
70												

REMARKS: * A water stratum was encountered at 15.0'. Long. = -94.47069335; Lat. = 35.775034639

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

BORING NO. 17
PAGE 1 OF 2

JOB NO. 040750 Washington County
JOB NAME: Hwy 59 Slide Repair
STATION: 66+90
LOCATION: 7' Right of Center Line of Hwy. 59
LOGGED BY: Wade Boughner

DATE: September 15 & 19, 2011
TYPE OF DRILLING: Hollow Stem Auger &
EQUIPMENT: CME 75 w/ CME Automatic
HAMMER CORRECTION FACTOR: 1.38

COMPLETION DEPTH: 62.4

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.	% T C R	% R Q D
			SURFACE ELEVATION: 865.5									
			Asphalt Pavement (4")									
5			Moist, Very Stiff, Gray Sandy Clay with Gravel (Limestone Fragments)							7 13-11		
10			Moist, Medium Stiff, Dark Gray Clay with Gravel (Sandstone Fragments)							4 4-4		
15			Boulder							3 3-4		
20			Moist, Medium Stiff, Dark Gray Clay with Gravel (Shale Fragments)							4 6-10		
25			Moist, Very Stiff, Brown and Gray Clay with Trace of Gravel (Sandstone Fragments)							4 5-12		
30			Moist, Very Stiff, Brown Clay with Trace of Gravel (Sandstone Fragments) and Cemented Sand							3 5-7		
35			Moist, Stiff, Brown and Gray Clay with Gravel (Shale Fragments)									

REMARKS: Long. = -94.47060263; Lat. = 35.7775180408

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

BORING NO. 17
PAGE 2 OF 2

JOB NO. 040750 Washington County
JOB NAME: Hwy 59 Slide Repair

STATION: 66+90
LOCATION: 7' Right of Center Line of Hwy. 59
LOGGED BY: Wade Boughner

DATE: September 15 & 19, 2011
TYPE OF DRILLING: Hollow Stem Auger &

EQUIPMENT: CME 75 w/ CME Automatic

HAMMER CORRECTION FACTOR: 1.38

COMPLETION DEPTH: 62.4

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.	% T C R	% R Q D
			SURFACE ELEVATION: 865.5									
			Wet, Stiff, Brown Clay with Gravel (Shale Fragments)							4 5-7		
40			SHALE - Dark Gray, Weathered, Medium Hard SHALE - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip							60 (5")	100	28
45			LIMESTONE WITH FREQUENT SHALE SEAMS - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip								100	92
50			LIMESTONE - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip SHALE - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip								98	62
55			LIMESTONE - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip								98	78
60			LIMESTONE WITH OCCASIONAL SHALE SEAMS - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip								100	78
65			Boring Terminated									
70												

REMARKS: Long. = -94.47060263; Lat. = 35.7775180408