## ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

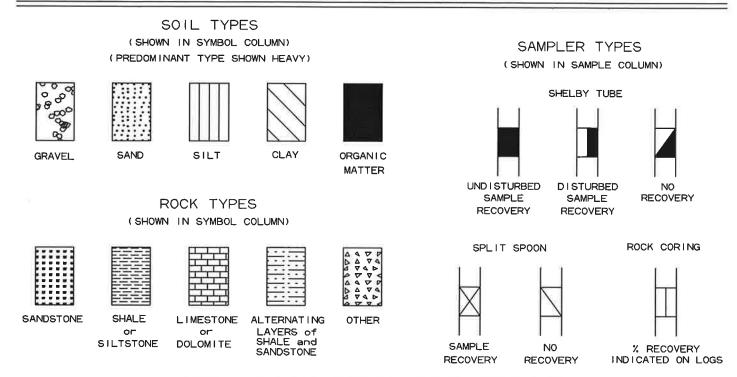


## SUBSURFACE INVESTIGATION

STATE JOB NO.		040750	
FEDERAL AID PROJEC	CT NO. ER-00°	17(43) & ER-0072(51)	
HWY. 59 S	LIDE REPAIR (	WASHINGTON & CRAWFO	ORD COS.) (S)
STATE HIGHWAY	59	SECTION	4 & 5
IN	WASHIN	IGTON & 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



## TERMS DESCRIBING CONSISTENCY OR CONDITION

GRANL	JLAR SOIL		CLAY	CL/	AY-SHALE	8	HALE
*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'
0ver 50	Very Dense	16-30	Very Stiff	16-30	Very Stiff	Penetratio	on.
		31-60	Hard	31-60	Hard	in 60 Blow	sı Medium Hard
		Over 60	Very Hard	0ver 60	Very Hard	Less than	2'
						Penetratio	on
						in 60 Blow	sı 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<sub>f</sub>) can be obtained by

adding the bottom two numbers for example:  $\frac{6}{8-9} \Rightarrow 8+9=17 blows/ft$ . The "N" Value corrected to 60% efficiency (N<sub>60</sub>) can be obtained by multiplying N<sub>f</sub> by the hammer correction factor published on the boring log.

			HWY. & TRANS. DEPARTMENT			RINC								
-			DIVISION - GEOTECHNICAL SEC.		PAG		1	OF		2	2017			
JOB N			040750 Crawford County		DAT						2015			
JOB N	IAME:		Hwy 59 Slide Repair		TYF	PE OF	DRI	LLING:	н		w Sto amo			Ι-
STAT	ION:		236+85		EOI	UIPMI	ENIT.				ME 7		010	
LOCA			13' Left of Centerline of Existing Roadway			OIFWII	DINI.			Cı	VIL /	,		
			Stanley Bates		HAN	MMFI	R CO	RRECT	'ION I	FACT	OR.		1.37	
			N DEPTH: 43.8		11111			rucei	1011	11101	OIG.		, ,	
D		s	VEH III, 1810		$\neg \vdash$									
ΙĔ	S	Ă												
Р	Y M	М	DESCRIPTION OF MATERIAL	SOIL					H	J.F.	WS		% T	% R
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FT.	L.	E S	SURFACE ELEVATION: 500.1		Ĭ	PLASHIC	% MOIST	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT	NO. OF BLOWS	PER 6-IN.		
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<del>-</del> -	8008													
_ =	g <sub>0</sub> ,8'													
	0 o													
5	90.0°		Dry, Very Loose, Brown Sand with Gravel (Sandstone Fragments)		1						2	2		
		X	(Sandstone Fragments)		4						1.	1		
	0.00°													
	800													
10	, a. 6										_ ا	1		
		X									2-			
		$\vdash$	Dry, Very Loose, Brown Sand with some Gravel								_			
			(Sandstone Fragments)											
			( canadiana i raginama)									).		
15														
	°.60.7	V									1.5	2		
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	800.0		Dry, Dense, Brown Sand with Gravel (Sandstone											
<u> </u>	0. OO		Fragments)											
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20	7	V										7		
		$\triangle$	Maiat Madium Davisa Brasses Olavisa Osada III								8-	-6		
			Moist, Medium Dense, Brown Clayey Sand with Gravel (Sandstone Fragments)											
	1													
	6/3	_									2	4		
25											(0	)		
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	000		Sandstone Boulders										76	8
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30														
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35	0		Sandy Clay with Cobbles and Boulders											
REM	ARK	S:	•											
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			HWY. & TRANS. DEPARTMENT DIVISION - GEOTECHNICAL SEC.		BORIN	G NC		2					
JOB N			040750 Crawford County		PAGE DATE:		OF		<sub>2</sub> 2	2015	5		
JOB N			Hwy 59 Slide Repair		TYPE O	ז פורן ג	LLING			2013 w Ste		luge	er-
I JOB N	WIME:		Titty oo olide Nepali		TIFEU	ואט	FFII4Q:	11		amo			/1 -
STAT	ION:		236+85		EQUIPM	ENT.				ME 7		-	
LOCA			13' Left of Centerline of Existing Roadway		LQUIII					,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	•		
			Stanley Bates		HAMME	R CO	RRECT	ION F	ACT	OR:		1.37	
			N DEPTH: 43.8										
D		s											
ΙE	S	Ă							. (6				
P	M	М	DESCRIPTION OF MATERIAL	SOIL				Ħ	J.F.	§ (		% T	% R
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FT.	L	S	SURFACE ELEVATION: 500.1		PLASTIC LIMIT	% MOIST.	LIQUID	DRY WEIGHT	LBS PER CU.FT	NO. OF BLOWS	PER 6-IN.		
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	14.0												
	20												_
40	O.H			-									
<u> </u>												58	50
			SHALE - Weathered to Slightly Weathered,										50
L -			Medium Hard, Slight Dip, Dark Gray										
L -		Ш	Paring Torminated	-	-	$\vdash$	-	_				-	
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JOB N			040750 Crawford County		DATE		_	Or		e 3	201:	<u> </u>	_	$\dashv$
JOB N			Hwy 59 Slide Repair				RII	LING:				em A	luge	r-
1021			<b>,</b> 55 5,55 1,5 <b>5</b>			-						nd C		
STATI	ON:		237+48		EQUII	PMEN	IT:			Cl	ME 7	75		
LOCA			16' Right of Centerline of Existing Roadway											
			Stanley Bates		HAM	MER (	COF	RRECT	ION I	FACT	OR:		1.37	_
COM	PLET	1OI	N DEPTH: 25.5											
D	S	S												
E P	Ÿ	A M								T.	S/S		%	%
Τ	М	P	DESCRIPTION OF MATERIAL	SOIL					GHI	20.7	00		Т	R
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	L	E			PLASTIC	LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT	NO. OF BLOWS	PER 6-IN.		
FT.	y.y.z.	S	SURFACE ELEVATION: 502.0		교	<u> </u>	8	77	ā	T	ž	PE		_
	///													
	///					1								
5			Moist, Very Loose, Brown Clayey Sand with											
	///	X	Some Gravel (Rock Fragments)									1 -2		
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	0.00 A	X					1				6	6 -6		
	8	$\hookrightarrow$	Moist, Medium Dense, Brown Gravel (Sandstone								ľ	Ū		
	90g o		Fragments) with Sand											
	д С	ri C								1				
15	70: o <sup>.6</sup>							:				,		
	77	X	-									3 -5		
		$\hookrightarrow$	Moist, Loose, Brown Clayey Sand with Gravel								Ŭ			
			(Sandstone Fragments)			1								
	77		Wet, Loose, Brown Clayey Sand with Gravel											
20	4/2		⇒ (Sandstone Fragments)								_	^		
			SHALE - Weathered, Hard, Dark Gray			-					5 (*	1)		
			SHALE WITH OCCASSIONAL SANDSTONE				- 1							
			SEAMS - Medium Hard, Slightly Weathered,										97	84
			Slight Dip, Dark Gray											
25		+											81	81
		-1-	Boring Terminated			$\dashv$	1						51	<del>-</del>
			<del></del>											
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REM	ARK	3:												

			HWY. & TRANS. DEPARTMENT DIVISION - GEOTECHNICAL SEC.		BORIN PAGE	G NC		1					
JOB N			040750 Crawford County		DATE:				e 4,	2015	5		
JOB N			Hwy 59 Slide Repair		TYPE O	7 DRI	LLING:			ow S		Aug	er
STATI			237+58		EQUIPM	ENT:			CI	ME 7	5		
LOCA			11' Left of Centerline of Existing Roadway Stanley Bates		HAMME	R CO	RRECT	ION F	аст	∩R•		1.37	
			N DEPTH: 21.4		I LI VIVII VII	IK CO	IddLC1	10111	7101	OIC,			_
D		S	( DDA XXXI DX) (		1								
E P T H FT.	SYMBOL	AMPLE	DESCRIPTION OF MATERIAL SURFACE ELEVATION: 504.1	SOIL GROU	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS	PER 6-IN.	% T C R	% R Q D
_	1000	_	SURFACE ELEVATION: 304.1	-		0			1	- Z	<u>Д</u>	_	_
5	84.00 25.00 25.00 20.00	X	Dry, Medium Dense, Brown Gravel (Sandstone Fragments) with Sand							6-	-5		
		X	Moist, Medium Dense, Brown Clayey Sand with (Sandstone Fragments)							6-			
20		X	Moist, Soft, Brown Sandy Clay with Some Gravel (Rock Fragments)  Moist, Loose, Brown Sand with Gravel							2-	3		
	0.00	$\triangle$	(Sandstone Fragments)		_					4-	-6	_	
25 30			Boring Terminated										
REM.	~\.\\\	٥.											

			HWY. & TRANS. DEPARTMENT		BORING								
			DIVISION - GEOTECHNICAL SEC.		PAGE	1	OF						
JOB N			040750 Crawford County		DATE:					2015			
JOB N	AME:		Hwy 59 Slide Repair		TYPE OF	DRI	LLING:	Н		w Ste			er -
C/D A /D)	10) I		237+67			F13. 100						ore	
STAT			9' Left of Centerline of Existing Roadway		EQUIPM	ENT:			Cr	ME 7	3		
			Stanley Bates		IAMME	R CO	RRECT	'ION F	ACT	ΩR•		1.37	
			N DEPTH: 23.6		11 11 11 11 11	100	racer	10111	7101	OK.		,	
D		s			П								
E	S Y	A							1/4				
P	м	M	DESCRIPTION OF MATERIAL	SOIL				H	U.F	) W		% T	% R
T H	В	Р		GROUP	ာ	T.		EIG	RC	BL(	ż	C	Q
1 11	0	E			STI	% MOIST.		×	PE.	NO. OF BLOWS	PER 6-IN.	R	D
FT	L	s	SURFACE ELEVATION: 504.8		PLASTIC LIMIT	% N	LIQUID	DRY WEIGHT	LBS PER CU.FT	NO.	PER		
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	8 8 8												
	oco }a												
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5	0000 0000 0000 0000	į	Dry, Loose, Brown Sand with Gravel (Sandstone Fragments)										
	. ф. С	$\bigvee$	i raginents)							3			
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	8.0												
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10	0000		Dry, Very Dense, Brown Sand with Gravel (Sandstone Fragments)							3   (1	5 I)		
	0 0 0 0 0 0 0 0		(Candstone Fragments)							Ì			
	9 8											35	0
	000												
		+	Sandstone Boulders with Sandy Clay										-
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	30 00 00 00 00 00 00 00 00 00 00 00 00 0											30	U
	20 CG												
	1	-											
20	17												
			Reddish Brown Sandy Clay with Boulders									8	0
			Reddish brown dandy diay with boulders										
	JUH:		Boring Terminated		$\vdash$								
25			Donnig Torrimia.co										
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35	ADI				<u> </u>								
REM	AKKS	5:											

ARKANSAS HWY. & TRANS. DEPARTMENT MATERIALS DIVISION - GEOTECHNICAL SEC.		BORIN PAGE	IG NO		- 1					
JOB NO. 040750 Washington County		DATE:				ber (	6, 20	11		
JOB NAME: Hwy 59 Slide Repair		TYPE C	F DR	ILLING	: H	ollov	w Ste	m A	uge	r &
STATION: 10+56		EQUIP	<i>M</i> ENT	: CM	IE 75	5 w/	CME	E Aut	toma	atic
LOCATION: 10' Right of Center Line of Hwy. 59										
LOGGED BY: Wade Boughner		HAMM	ER CO	ORREC	TION	FACT	ΓOR:		1.38	_
COMPLETION DEPTH: 22.5	T		-							
D S S A P M M DESCRIPTION OF MATERIAL B L C E S SURFACE ELEVATION: 509.8	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
THE GOOK ACE ELEVATION. 303.0	-		0		<del>                                     </del>		_			
Moist, Medium Stiff, Brown and Gray Clay with Gravel (Sandstone and Shale Fragments)							3-3-	.3		
SHALE - Brown and Gray, Highly Weathered, Soft							6-6-4-4-	7		
20 LIMESTONE - Gray, Thin Bedded, Slightly Weathered, Hard, with Slight Dip									100	65
Boring Terminated										
35  REMARKS: Long = -94.46999941; Lat = 35.760815801										
REMARKS: Long. = -94.46999941; Lat. = 35.760815801										

OB NO. 04075 OB NAME: Hwy 5 STATION: 11+1	59 Slide Repair		PAGE DATE: TYPE O	<u>1</u>	(	: 1 Octob	er 5	5, 20	11		
OB NAME: Hwy 5  STATION: 11+12  LOCATION: 10' Ri  LOGGED BY: Wade	59 Slide Repair			E DD1				,			
LOCATION: 10' Ri LOGGED BY: Wade		- 1		r DKI	LLING	: Но	llov	v Ste	m A	uge	r &
LOCATION: 10' Ri LOGGED BY: Wade										_	
LOGGED BY: Wade	ight of Center Line of Hwv. 59		EQUIPM	IENT:	CM	E 75	w/ (	CME	Au	oma	atic
	-			. n. a.a					1	120	
OMPLETION DEF			HAMMI	ER CC	RREC	HON F	ACT	OR:		1.38	
D S	111. 32.9										
E Y A M P B L F	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
	FACE ELEVATION: 511.5		PLAST LIMIT	% N	LIQ	DR	LBS	NO N	PEF		
(Sa	ist, Very Stiff, Brown Clay with Gravel andstone Fragments)							3 7-	9		
10 SH.	ALE - Gray, Highly Weathered, Medium Hard							15 35-	46		
We	NDSTONE - Gray, Medium Bedded, Slightly eathered, Calcareous, Well-Cemented, with ght Dip							(0		94	78
	MESTONE - Gray, Medium Bedded, Slightly eathered, Hard, with Slight Dip									100	88
	MESTONE - Gray, Thick Bedded, Slightly eathered, Hard, with Slight Dip *								,	100	94
We	MESTONE - Gray, Medium Bedded, Slightly eathered, Hard, with Slight Dip and Vertically actured Layers									100	68
	Boring Terminated										
35											

			HWY. & TRANS. DEPARTMENT DIVISION - GEOTECHNICAL SEC.		BORIN PAGE	IG N		F 2					
JOB NO			040750 Washington County		DATE:	- 1		Octo	her	5 20	11		_
JOB NA			Hwy 59 Slide Repair		TYPE O	F DR						luge	r &
			<del>-</del>									9	
STATI	ON:		12+62		EQUIPN	/ENT	: CM	IE 75	w/	CME	E Au	tom	atic
LOCA			7' Right of Center Line of Hwy. 59										
			/ade Boughner		HAMM	ER CO	ORREC'	TION	FACT	OR:		1.38	
	PLET		DEPTH: 37.3		, ,								
D   E	s	S											
-   P	Υ	A M	DECORIDATION OF MATERIAL					_ ا	FT.	WS		%	%
т	M B	Р	DESCRIPTION OF MATERIAL	SOIL Group		1901		IGH	CU	07		T C	R Q
н	0	L		GROOT	12 1	ISI	ے ا	WE	ER	)FB	NI-	R	D
FT.	Ĺ	E S	CUREAGE ELEVATION: 545.7		PLASTIC LIMIT	% MOIST.	LIQUID	DRY WEIGHT	LBS PER CU.FT	NO. OF BLOWS	PER 6-IN.		
F Ly	10	-	SURFACE ELEVATION: 515.7			<u>%</u>				Z	<u> </u>		
— - — - — - 5			Moist, Hard, Brown Clay with Gravel							8	3		
  		Χ	(Sandstone Fragments) and Organic Matter							9-4	42		
		X	SHALE - Brown and Gray, Highly Weathered, Soft							15-	-14		
 15 										(0	")	100	7
 20 			SANDSTONE - Gray, Medium Bedded, Slightly Weathered, Calcareous, Well-Cemented, with Slight Dip *									100	9
 												100	8
  30 			SANDSTONE - Gray, Medium Bedded, Slightly Weathered, Calcareous, Well-Cemented, with Slight Dip with Vertically Fractured Layers									100	4
35			LIMESTONE WITH SHALE PARTINGS - Gray, Medium Bedded, Slightly Weathered, Hard, with Total water loss was encountered at 24.8'. Long. =						- 1				

			HWY. & TRANS. DEPARTMENT DIVISION - GEOTECHNICAL SEC.		BORIN PAGE			₹ 2					
JOB N			040750 Washington County		DATE:			Octo	her 4	5 20	11		_
JOB N			Hwy 59 Slide Repair		TYPE C	)F DR						uge	r &
STATI	ON:		12+62		EQUIPN	MENT	: CM	ΙΕ 75	w/ (	CME	E Au	toma	atic
LOCA			7' Right of Center Line of Hwy. 59										
$\overline{}$			Vade Boughner		HAMM	ER CO	ORREC"	TION I	FACT	OR:		1.38	_
	PLET	_	DEPTH: 37.3			_			_	_	_		
D E P T H	S Y M B	S A M P -	DESCRIPTION OF MATERIAL	SOIL GROUP	၁	T		DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS	ż	% T C	% R Q
"	0 L	E			PLASTIC LIMIT	% MOIST.	LIQUID	ΥW	S PE	. OF	PER 6-IN.	R	D
FT,		S	SURFACE ELEVATION: 515.7		PL/ LIN	8	35	DR	LB	<u> </u>			
			Moderate Dip									100	58
			Boring Terminated										
40													
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45													
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50													
= -			8/										
55													
	l												
60													
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65													
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70													
REM	ARKS	S: *	Total water loss was encountered at 24.8'. Long. =	-94.46	97670	2; La	at. = 3	35.76	3133	3764	8		

			HWY. & TRANS. DEPARTMENT DIVISION - GEOTECHNICAL SEC.		BORIN PAGE			F 2					
JOB N			040750 Washington County		DATE:			Octo		3, 20			
JOB N	AME:		Hwy 59 Slide Repair		TYPE C	F DR	ILLING	: H	ollo	w Ste	m A	uge	r &
STATI	ION:	:	24+58		EQUIP	MENT	: CM	IE 75	5 w/	СМЕ	E <b>A</b> ut	toma	atic
LOCA			8' Right of Center Line of Hwy. 59										
			Vade Boughner  J DEPTH: 48.5		HAMM	ER C	ORREC'	ΓΙΟΝ	FAC	ΓOR:	]	1.38	_
D		s	NDEFIH: 48.5		T					<u> </u>			-
E P	S	Α							ï.	S.		%	%
T	M B	M P	DESCRIPTION OF MATERIAL	SOIL GROUP		, .		IGHT	LBS PER CU.FT,	NO. OF BLOWS		T C	R Q
Н	0	L		GROOT	1 🗆	% MOIST.	9 5	DRY WEIGHT	PER	OF B	PER 6-IN.	R	D
FT.	L	s	SURFACE ELEVATION: 580.9		PLAST LIMIT	W %	LIQUID	DRY	LBS	NO.	PER		
	11												
-	1												
 5	//		Moist, Stiff, Brown Clay with Gravel (Sandstone										
	//	X	Fragments)							6-			
	11												
	//												
10	//												
_ =		X								18			
	э. Х.:::		Moist, Meium Dense, Brown and Gray Sand										
			with Gravel (Sandstone Fragments)										
15													
_==	//	Х								9-			
	//		Moist, Stiff, Brown Clay with Gravel (Sandstone										
			Fragments)				1						
20	11									,	8		
	31.11 32.111	Х	Moist, Dense, Brown and Gray Sand with							9-:			
			Gravel (Sandstone Fragments)										
	3 G G	Т										$\dashv$	
25			CANDOTONE BY A VAN THE BUILD										
			SANDSTONE - Brown, Very Thin Bedded, Slightly Weathered, Cemented, with Slight Dip									48	0
												-	
30													
<u> </u>												99	0
			SANDSTONE WITH SHALE LAYERS - Gray,										
			Very Thin Bedded, Slightly Weathered,									1	
35 DEM	APVO	Ш	Cemented, with Slight Dip										-
I CEIVI		). L	ong. = -94.46858664; Lat. = 35.764474087										

			HWY. & TRANS. DEPARTMENT DIVISION - GEOTECHNICAL SEC.		BORIN PAGE			<i>-</i> 2					
JOB N			040750 Washington County		DATE:				ber :	3, 20	11		$\neg$
JOB N.	AME:		Hwy 59 Slide Repair		TYPE C	F DR	ILLING	: H	ollo	w Ste	em A	ugei	· &
STATI	ON:		24+58		EQUIP	MENT	: CM	IE 75	5 w/	CME	E Aut	oma	atic
LOCA			8' Right of Center Line of Hwy. 59			nn (1	20000		n	ron	1	20	
			Vade Boughner I DEPTH: 48.5		HAMM	ER CC	DRREC	HON	FAC.	IOR:		.38	$\dashv$
D		S	DEI 111. 40.3		T								
E	S Y	Α							<u>_</u>	· ·		0/	0/
P T	M	M P	DESCRIPTION OF MATERIAL	SOIL				H	Ü.F	) (0		% T	% R
	B O	L		GROUP	22.	IST.		VEIC	ER (	F BL	Ξį	C R	Q D
FT∈	L	E S	OUDEAGE ELEVATION 500.0		PLASTIC LIMIT	% MOIST.	LIQUID	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS	PER 6-IN.		
FIR	9:54	3	SURFACE ELEVATION: 580.9			%			口	Z		-	$\dashv$
	9.84 9.84										Ì	10d	28
- 1	gpg												
	g:p::	+									ł	-	$\dashv$
40													
_ =			SHALE WITH SANDSTONE LAYERS - Dark Gray, Laminated, Slightly Weathered, Medium								ł	10g	44
<u> </u>			Hard, with Slight Dip										
45			CHALE WITH CHOUTLY CALCADEOUS										
-10			SHALE WITH SLIGHTLY CALCAREOUS SANDSTONE LAYERS - Dark Gray, Laminated,										
			Slightly Weathered, Medium Hard, with Slight									10d	20
			Dip										
		_	Boring Terminated									7	
50													- 1
55													
<u> </u>													
60													
65						k							
70		_											_
REMA	ARKS	: L	ong. = -94.46858664; Lat. = 35.764474087										

			HWY. & TRANS. DEPARTMENT		BORIN								
			DIVISION - GEOTECHNICAL SEC.		PAGE	1		F 2	1.	2 20	1 1		
JOB N			040750 Washington County Hwy 59 Slide Repair		DATE:					3, 20			P.
JOB N	ANIE:		Tiwy 55 Olide Nepali		TYPE C	ır DK	ILLING	r. 11	OHO'	w sie	aut A	uge	i ox
STATI	ION·		26+46		EQUIP	MENT	- CV	IE 7	5 w/	CME	E <b>A</b> 11	tom:	atic
LOCA			7' Right of Center Line of Hwy. 59		EQUIT	VILITI	. 011		7 117	OIVII	J 1 Ku		
			Vade Boughner		HAMM	ER CO	ORREC'	TION	FAC1	ΓOR:		1.38	
COM	PLET	ION	DEPTH: 43										
D		S											
E	S	Α							_3	· ·			0.4
P	М	M	DESCRIPTION OF MATERIAL	SOIL				H	U.F	Š		%     T	% R
T H	В	Р		GROUP	ပ	T.		EIG	RC	BE(	ż	[ c ]	Q
l ''	0	Ē			PLASTIC LIMIT	% MOIST	S=	DRY WEIGHT	PE	OF	PER 6-IN.	R	D
FT <sub>0</sub>			SURFACE ELEVATION: 595.1		PLAST LIMIT	%	LIQUID	DR	LBS PER CU.FT.	NO. OF BLOWS	PER		
	1								$\neg$				
	1.7												
	12												
	27		Maiat Stiff Brauer Olaverith Gravel (Canadatana										
5	1		Moist, Stiff, Brown Clay with Gravel (Sandstone Fragments), Cobbles and Boulders							5	5		
		Х	ragmenta), obbbies and bodiders							7-			
	NA												
	200												
10		_								_	^		
										5 (2	U ")		
	. 6		Majot Vand Lland Brown Claussith Cross							,	<i>'</i>		
	200		Moist, Very Hard, Brown Clay with Gravel (Sandstone Fragments), Cobbles and Boulders										
L .	<b>*</b> /		(Canadana Fragmenta), Cobbies and Bodiders		1								
15													
		V											
	1	$\triangle$								6-	5		
	1/		Moist, Stiff, Brown Clay with Gravel (Sandstone										
	1/		Fragments) and Organic Matter										
20	10												
	11	$\nabla$								2			
	//	$\triangle$	Moist, Stiff, Brown Clay with Gravel (Sandstone							5-	6		
	//		Fragments)										
	1. 1	-								10			
 25			SANDSTONE - Gray, Thin Bedded, Slightly							(0			
23			Weathered, Slightly Calcareous, Well-									,,,	ΕΛ
			Cemented, with Slight Dip and Vertically									100	54
			Fractured Layers										
		+											
7,500													
30			SHALE WITH SANDSTONE LAYERS - Dark									لما	0.5
			Gray, Laminated, Slightly Weathered, Hard, with									100	36
<u> </u>			Slight Dip and Vertically Fractured Layers										
	1000	Ш											
	6 F.G												
35													
REMA	ARKS	: L	ong. = -94.46842805; Lat. = 35.764979458										

			HWY. & TRANS. DEPARTMENT DIVISION - GEOTECHNICAL SEC.		BORIN PAGE			F 2					
JOB N			040750 Washington County		DATE:				ber 1	3, 20	11		
JOB N			Hwy 59 Slide Repair		TYPE	F DR						uge	r &
STAT			26+46		EQUIP	MENT	: CM	IE 75	5 w/	СМЕ	E Au	toma	atic
LOCA			7' Right of Center Line of Hwy. 59				2555					1 20	
			Vade Boughner  V DEPTH: 43		HAMM	ER CO	ORREC"	HON	FAC	OR:		1.38	
D		s	N DEF I II. 43	Γ			Т						
ΙĔ	S	A							s				
P	Y M	М	DESCRIPTION OF MATERIAL	SOIL				   <del> </del>	LBS PER CU.FT	NO. OF BLOWS		% T	% R
T H	В	Р		GROUP	lo	ی			S CL	BLC	÷	C	Q
"	0	L			PLASTIC LIMIT	% MOIST		₹	PEI	OF	PER 6-IN.	R	D
ET <sub>a</sub>	L	s	SURFACE ELEVATION: 595.1		PLASTI LIMIT	<u>₩</u>	LIQUID LIMIT	DR)	LBS	NO.	PER		
			SANDSTONE WITH SHALE LAYERS - Gray,						-			100	16
			Thin Bedded, Slightly Weathered, Well-Cemented, with Slight Dip										
			Cemented, with Slight Dip	ļ									
				]									
40			SANDSTONE WITH SHALE LAYERS - Gray,										
			Very Thin Bedded, Slightly Weathered, Well-									86	8
			Cemented, with Slight Dip										
	122												
			Boring Terminated										
45													
_ =													
50													
 55													
_55_													
60													
65													
	1.												
70		Ų											
REMA	ARKS	: L	ong. = -94.46842805; Lat. = 35.764979458										

	HWY. & TRANS. DEPARTMENT DIVISION - GEOTECHNICAL SEC.		BORIN PAGE	IG NO		· 2					
	040750 Washington County		DATE:				ber 1	3, 20	11		
	Hwy 59 Slide Repair		TYPE C	F DR						ugeı	· &
STATION:	27+36		EQUIPN	/ENT	: CM	Œ 75	w/	CME	Au	toma	atic
	10' Right of Center Line of Hwy. 59										
	Vade Boughner		HAMM	ER CO	ORREC	ΓΙΟΝ	FACT	OR:		1.38	
COMPLETION	DEPTH: 38.1									_	
D E P T H E S	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS	PER 6-IN.	% T C R	% R Q D
FI. S	SURFACE ELEVATION: 601.8		<u> </u>	<u>%</u>	77			Z	<u> </u>		
5	Moist, Stiff, Brown Clay with Gravel (Sandstone Fragments)							5-	5		
	Gravel (Sandstone Fragments), Cobbles and Boulders with Clay							36 (1	o ")		
	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 5.765215686	n core b	arrel.	Lon	g. = -9	94.4	683	5546	; La	t. =	

			HWY. & TRANS. DEPARTMENT DIVISION - GEOTECHNICAL SEC.		BORIN PAGE			- 2					
JOB N		_	040750 Washington County		DATE:				ber 1	3, 20	11		
JOB N			Hwy 59 Slide Repair		TYPE C	F DR				-		uge	r &
STATI	ON.		27+36		EQUIPN	MENT	· CM	Œ 79	5 w/	СМЕ	Ar.	tom	atic
LOCA			10' Right of Center Line of Hwy. 59		LQOIT	VILLI VI	. 0141	11111111111	**/	CIVIL	, , , ,	COTT	ucio
			Vade Boughner		НАММ	ER CO	DRREC	LION	FACT	OR:	_	1.38	
	PLET		DEPTH: 38.1		Т		_				_		_
D E	S	S											
Р	Y M	М	DESCRIPTION OF MATERIAL	SOIL				   <del>!</del>	LBS PER CU.FT.	NO. OF BLOWS		% T	% R
T H	В	P L		GROUP	1 \( \text{\tin}\xi}\\ \text{\tin}\}\\ \text{\texi}\text{\text{\text{\text{\text{\text{\text{\texi}\text{\text{\texi}\text{\text{\text{\text{\text{\text{\text{\texi}\text{\text{\texi}\tex	ST.		DRY WEIGHT	R CI	BL(	ż	C R	Q
	O L	Е			PLASTIC LIMIT	% MOIST.	LIQUID	<u>*</u>	S PE	). OF	PER 6-IN.	K	ע
FT,		S	SURFACE ELEVATION: 601.8 ALTERNATING LAYERS OF SHALE AND		3 3	%	33	ă	EB	ž.	PE		
			SANDSTONE - Dark Gray, Laminated, Slightly									100	12
_			Weathered, Hard, with Slight Dip (Shale); Gray,										
= =	三甲		Very Thin Bedded, Slightly Weathered, Well- Cemented, with Slight Dip (Sandstone)		-				_			_	_
40			Boring Terminated										
45													
50													
 55													
55													
60													
65													
70 REM	V D V C	. *	Poor core recovery due to a piece of core lodged i	n coro b	arrol	Lon	g (	24.4	6834	5516	: 1 0	<del>                                     </del>	

35.765215686

	_		HWY. & TRANS. DEPARTMENT DIVISION - GEOTECHNICAL SEC.		BORIN PAGE			F 2		_			
JOB N			040750 Washington County		DATE:				nher	28, 2	2017	-	
JOB N			Hwy 59 Slide Repair		TYPE C	)F DR		-				пое	r &
	, 11+1LJ.		, 55 5.145556		LILL			. 11	5110	., 510	/111 AT	ugo	
STATI	ON:	:	54+71		EQUIP	MENT	: CM	IE 75	5 w/	СМЕ	E Au	tom	atic
LOCA	TION:		10' Right of Center Line of Hwy. 59	(									
LOGG.	ED BY	(: <b>V</b>	Vade Boughner		HAMM	ER CO	ORREC'	TION	FACT	TOR:		1.38	
COM	PLET	ION	I DEPTH: 38										
D	S	s											
E	Y	A							Ę.	တ		%	%
P T	M	M P	DESCRIPTION OF MATERIAL	SOIL				HE	Ü.F	ΝÓ		Т	R
#	В	L		GROUP	12	IST.		VEIC	ER C	F B1	ż	C R	Q D
	O L	Е			PLASTIC LIMIT	% MOIST.	LIQUID	DRY WEIGHT	LBS PER CU.FT	NO. OF BLOWS	PER 6-IN.	K	D
FT.		S	SURFACE ELEVATION: 779.9		F E	%	ĔĔ	<u>R</u>		ž	PE		
	//												
	//												
	11												
	//												
5	//									_			
	//	X		}						4-			
	//		Moist, Stiff, Brown and Gray Clay with Gravel								5		
	11.		(Sandstone Fragments)										
	1												
10	//		:							_			
	//	X								9-			
	//	$\hookrightarrow$								9-	O		
$\Box$	//												
┖┛┙	11												
15	//									10	0		
			LIMESTONE - Gray, Medium Bedded, Slightly							(0	")		
			Weathered, Moderately Hard, with Slight Dip									63	73
			SHALE - Brown and Gray, Weathered, Medium										
			Hard										
20	阻阻		LIMESTONE WITH FREQUENT SHALE										
			LAYERS - Gray, Thick Bedded, Slightly									78	74
	抽		Weathered, Hard, with Slight Dip										
	连持												
25			LIMESTONE WITH FREQUENT SHALE										
			LAYERS - Gray, Medium Bedded, Slightly									100	66
	語		Weathered, Hard, with Moderate Dip										
	至是							į.					
30													
	莊											10d	58
	排註		LIMECTONE WITH EDGOLISHT OLIVE										
	基基		LIMESTONE WITH FREQUENT SHALE LAYERS - Gray, Medium Bedded, Slightly										
	理		Weathered, Hard, with Slight Dip										
35	理員		, , - 5 - 17										
REMA	ARKS	: L	ong. = -94.47046255; Lat. = 35.772197193										

			HWY. & TRANS. DEPARTMENT		BORIN								
JOB N			DIVISION - GEOTECHNICAL SEC.  040750 Washington County		PAGE DATE:	2		F 2	her	28, 2	011		$\dashv$
JOB N			Hwy 59 Slide Repair		TYPE C	F DR						ugei	ا & ا
			• • • • • • • • • • • • • • • • • • •									0.	
STATI	ON:		54+71		EQUIPN	/ENT	: CM	IE 75	w/	CME	Au	toma	atic
LOCA			10' Right of Center Line of Hwy. 59										
			Vade Boughner		HAMM	ER CO	ORREC'	TION	FAC1	OR:		1.38	$\dashv$
$\overline{}$	PLET	_	DEPTH: 38		1			_	_				$\dashv$
D E	s	S A											
P	Y	M	DESCRIPTION OF MATERIAL	2011				  =	Ŧ.	WS		%	%
T	M B	Р	DESCRIPTION OF WATERIAL	SOIL GROUP	r)	្ន		1GH	no	310	_;	T C	R Q
Н	ō	E			STIC	OIS	OE T	≪E	PER	OF E	VI-9	C R	Ď
FT	L	S	SURFACE ELEVATION: 779.9		PLASTIC LIMIT	% MOIST.	LIQUID	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS	PER 6-IN.		
		Т				Ť					_	100	88
			Boring Terminated										
40													
_ =													
45													
-													
 50													
- 00			_										
55													
60													
			'										
65													
70													
REMA	ARKS	: L	ong. = -94.47046255; Lat. = 35.772197193										

			HWY. & TRANS. DEPARTMENT DIVISION - GEOTECHNICAL SEC.		BORIN PAGE	NG N		F 2					
JOB N			040750 Washington County		DATE:				nber	27, 2	2011		
JOB N	AME:		Hwy 59 Slide Repair		TYPE C	F DR	ILLING	H	ollo	w Ste	em Aı	uger	&
STATI			55+43		EQUIP	MENT	: CM	IE 75	5 w/	СМЕ	E Auto	oma	ıtic
LOCA			9' Right of Center Line of Hwy. 59								1	20	
-			Vade Boughner  J DEPTH: 43.7		HAMM	ER CC	DRREC	HON	FAC.	OR:	1	.38	
D		S	ODEI (III. 45.7								Т		
E	S	A							, 18				
P	М	M	DESCRIPTION OF MATERIAL	SOIL				H	U.FJ	SWC		%   T	% R
T H	В	P L		GROUP	2	ST.		ÆIG	SR C	BLO	zi l	C	Q D
	0 L	E			PLASTIC LIMIT	% MOIST.	LIQUID	DRY WEIGHT	LBS PER CU.FT	NO. OF BLOWS	PER 6-IN.	R	D
FT.	_	S	SURFACE ELEVATION: 784.8		LI LI	%	35	NA DE		ž	PE	_	
<u> </u>	11												
_	//												
	//												
<u> </u>	//		<b></b>										
5	1/		Moist, Medium Stiff, Brown and Gray Clay with Gravel (Sandstone Fragments)							3	3		
	11	X	Glaver (Garnasterio Fragiliania)							3-	-5		
	//												
	//												
10	11												
	//	X								2			
		$\sim$	Mariet Mardiner Chiff Decorate and Committee							3-	.3		
	//		Moist, Medium Stiff, Brown and Gray Clay with Gravel (Sandstone and Shale Fragments)										
	//		Graver (Garraeterio arra erraine i raginismo)										
15	1:1									_1:	,		
		$\sim$								6	0		
			SHALE - Brown and Gray, Highly Weathered,							(5	")		
			Medium Hard										
20												ŀ	
	114		LIMESTONE WITH FREQUENT SHALE								-	$\dashv$	
			LAYERS - Gray, Medium Bedded, Slightly									,,	7.5
			Weathered, Hard, with Slight Dip and Vertically									91	75
			Fractured Layers									-	
25													
	遊										,	od	71
											ľ	oq	14
	塑												
		$\top$										1	
30													
<b>—</b> –	譄										h	od	58
	掘												
	蝨		LIMESTONE WITH FREQUENT SHALE LAYERS - Gray, Medium Bedded, Slightly										
35			Weathered, Hard, with Slight Dip					Y					
	ARKS	3: L	ong. = -94.47046255; Lat. = 35.772395017										

			HWY. & TRANS. DEPARTMENT		BORIN								
-		_	<b>DIVISION - GEOTECHNICAL SEC.</b> 040750 Washington County		PAGE	2		2	h a ::	27.0	2011		
JOB N JOB N			040750 Washington County Hwy 59 Slide Repair		DATE: TYPE C	E DE		ptem					r &
	, ELVIL.		y oo ondo Nopuli				LULLING	. 110	, ( U V	, 510	, III 13	ugu	. ~
STATI			55+43		EQUIP	MENT	: CM	E 75	w/ (	СМЕ	E Au	toma	atic
LOCA			9' Right of Center Line of Hwy. 59 Vade Boughner		17.4.3.43.4	ED C	DBEC	PION F	A CIT	con.		1.38	
			I DEPTH: 43.7		HAMM	EK CC	JKKEC	HONF	ACI	UK:		1.56	_
D		s	DELTII. 13.7										
E	S Y	Α							. 1				
P T	м	M P	DESCRIPTION OF MATERIAL	SOIL				HH	U.FJ	OWS		% T	% R
ΙΗ	В	L		GROUP	1 =	ST.		EIG	RC	BL	ż	C R	Q D
	O L	E			PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT	NO. OF BLOWS	PER 6-IN.	K	D
FT,	-	S	SURFACE ELEVATION: 784.8		PL	%	35	D.R.	LB	ž	PE	Щ	
												100	96
	諡												
40	햂												
												100	98
	444	Н	Boring Terminated		1								
45			-										
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- 00													
60													
65													
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70													
	ARKS	: L	ong. = -94.47046255; Lat. = 35.772395017										
			<del>-</del>										

			HWY. & TRANS. DEPARTMENT DIVISION - GEOTECHNICAL SEC.		BORIN PAGE	iG No		. 2					
JOB N			040750 Washington County		DATE:			_	ıber	27, 2	2011		
JOB N	AME:	١	Hwy 59 Slide Repair		TYPE C	F DR	ILLING	: Н	ollov	w Ste	m A	ugei	&
STATI LOCA			56+11 8' Right of Center Line of Hwy. 59		EQUIPN	MENT	: CM	IE 75	5 w/	СМЕ	E Aut	toma	itic
			Vade Boughner		НАММ	ER CO	ORREC"	TION	FACT	ΓOR:		1.38	
COM	PLET	ION	DEPTH: 43.1		,								
D E P T H	S Y M B O L	SAMPLES	DESCRIPTION OF MATERIAL SURFACE ELEVATION: 789.1	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
H		Ŭ	OURI AGE ELEVATION. 700.1			-		Н	_	_			
5		X	SHALE - Brown and Gray, Highly Weathered, Soft							5-			
   15		X	Moist, Very Stiff, Brown and Gray Clay with Organic Matter							9-	13		
		X	SHALE - Brown and Gray, Highly Weathered, Medium Hard							10-			
			LIMESTONE - Gray, Medium Bedded, Slightly Weathered, Moderately Hard, with Slight Dip							1 (0	0 ")	66	60
25			SHALE - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip									100	60
			LIMESTONE WITH FREQUENT SHALE LAYERS - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip										
30		100										100	78
 			LIMESTONE WITH FREQUENT SHALE LAYERS - Gray, Medium Bedded, Slightly										
	ARKS	S: L	ong. = -94.4706128; Lat. = 35.772510805										

Discription				HWY. & TRANS. DEPARTMENT DIVISION - GEOTECHNICAL SEC.		BORIN PAGE			· 2					
AUDITOR   AUDI										nber	27, 2	2011		
LOCATION: 8 Right of Center Line of Hwy. 59   HAMMER CORRECTION FACTOR.   1.38	JOB N	AME:		Hwy 59 Slide Repair		TYPE C	)F DR	ILLING	: Н	ollov	w Ste	m A	uge	r &
LOGED BY: Wade Boughner						EQUIP	MENT	: CM	E 75	5 w/	CME	E Au	toma	atic
COMPLETION DEPTH: 43.1						LIANANA	ED C	ADDEC'	TION	EACT	rop.		1 32	
P	-					ITAIVIIVI	LKC	JKKLC	HON	IACI	OK.		1.50	
P		s												
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  Boring Terminated  80 65 65		Y		DESCRIPTION OF MATERIAL					  -	FT	NS			
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  Boring Terminated  80 65 65	Т		Р	DESCRIPTION OF MATERIAL			ے ا		IGH	CU.	31.0			
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  Boring Terminated  80 65 65	<b> </b> H				0.110.01	1 \( \text{-} \)	OIS	9 =	WE	PER	OF F	VI-9		Ď
Weathered, Hard, with Slight Dip and Vertically Fractured Layers  40  CALCAREOUS SANDSTONE WITH SHALE LAYERS - Gray, Medium Bedded, Slightly Weathered, Well-Cemented, with Slight Dip  Boring Terminated  Boring Terminated  60  60  65  70	FT:	L				PLA	W %	LIQ	DRY	LBS	NO.	PER		
40 CALCAREOUS SANDSTONE WITH SHALE LAYERS - Gray, Medium Bedded, Slightly Weathered, Well-Cemented, with Slight Dip  Boring Terminated  45													100	70
CALCAREOUS SANDSTONE WITH SHALE LAYERS - Gray, Medium Bedded, Slightly Weathered, Well-Cemented, with Slight Dip  Boring Terminated  Boring Terminated  Boring Terminated  Boring Terminated				Fractured Layers										
CALCAREOUS SANDSTONE WITH SHALE LAYERS - Gray, Medium Bedded, Slightly Weathered, Well-Cemented, with Slight Dip  Boring Terminated  Boring Terminated  Boring Terminated  Boring Terminated														
CALCAREOUS SANDSTONE WITH SHALE LAYERS - Gray, Medium Bedded, Slightly Weathered, Well-Cemented, with Slight Dip  Boring Terminated  Boring Terminated  Boring Terminated  Boring Terminated														
Weathered, Well-Cemented, with Slight Dip   Boring Terminated	40												90	58
Boring Terminated  Boring Terminated  Boring Terminated														
45 50 55 60 65 70														
50 55 60 60 70	<del>-</del>			Boring Terminated										
55 	45													
55 														
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60 65 70	50													
60 65 70														
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60 65 70														
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	_==													
70	60													
70														
70														
70														
70	— – 65													
		ARKS		ong. = -94.4706128; Lat. = 35.772510805										

	_	-	HWY. & TRANS. DEPARTMENT		BORIN								
JOB N			DIVISION - GEOTECHNICAL SEC.  040750 Washington County		PAGE DATE:	1		F 2	nhar	29, 2	2011	-	_
JOB N			Hwy 59 Slide Repair		TYPE C	F DR		•					r &
			,							.,			
STATI	ON:		57+27		EQUIP	MENT	: CM	IE 75	5 w/	CME	E Au	toma	atic
LOCA			7' Right of Center Line of Hwy. 59										
			Vade Boughner		HAMM	ER C	ORREC'	TION	FAC	ΓOR:		1.38	
	PLET		DEPTH: 42.9										
D E	S	S											
P	Y	м	DESCRIPTION OF MATERIAL					<u></u>	FT.	8W		%	%
<b> </b> ⊤	M B	Р	DESCRIPTION OF WATERIAL	SOIL GROUP		ا ا		H5	CU	3LO		T C	R Q
Н	Ö	Ļ		011001	STIC	OIST	E L	WE	PER	OF E	NI-9	R	Ď
FT.	L	E S	SURFACE ELEVATION: 797.2		PLASTIC LIMIT	% MOIST.	LIQUID	DRY WEIGHT	LBS PER CU.FT	NO. OF BLOWS	PER 6-IN		
100	0 FW =	Ť	OSKI NOE EEE WITTON. 131.2					-	_		Δ.	Н	_
	Sept.												
	268												
	65 A												
5	3												
١Ť	03	$\nabla$	Sandstone Cobbles and Boulders							4			
	19. C. A.	$\triangle$								37-	22		
	100												
	S 2.5												
10	75												
		X	Sandstone Cobbles and Boulders with some							3			
		=	Clay LIMESTONE WITH FREQUENT WEATHERED							8-6 (9	")		
			SHALE LAYERS - Gray, Medium Bedded,									92	16
	- = =		\Slightly Weathered, Hard, with Slight Dip										
15			SHALE WITH FREQUENT LIMESTONE										
	: = :		LAYERS - Dark Gray, Laminated, Weathered,									56	12
	-Ba		Soft, with Slight Dip										
	-1-7												
20			SHALE WITH FREQUENT LIMESTONE									_	
			LAYERS - Dark Gray, Laminated, Highly Weathered, Soft, with Slight Dip									24	0
			weathered, Soit, with Slight Dip						1				
		-											
25			LIMESTONE WITH FREQUENT SHALE									100	_
			LAYERS - Gray, Thin Bedded, Slightly Weathered, Hard, with Slight Dip									100	54
	强		Troubleton, Flara, With olight Dip										
		+											
30												100	50
	期間											100	50
	扫												
		+											
35 REM/	DVC	. 1	ong. = -94.47088392;										_
I VEIVIA	44170	·. L	ong37.7700032, Lat 33.772733004										

MATERIALS DIVISION - GEOTECHNICAL SEC. PAGE 2 OF 2		
JOB NO. 040750 Washington County DATE: September 29, 2011		
JOB NAME: Hwy 59 Slide Repair  TYPE OF DRILLING: Hollow Stem A		r &
STATION: 57+27 EQUIPMENT: CME 75 w/ CME Au	itom	atic
LOCATION: 7' Right of Center Line of Hwy. 59	1 20	
LOGGED BY: Wade Boughner HAMMER CORRECTION FACTOR: COMPLETION DEPTH: 42.9	1.38	
	П	
F   S   A		
P M M DESCRIPTION OF MATERIAL SOIL SOIL SOIL SOIL SOIL SOIL SOIL SOI	% T	% R
H B E C GROUP DE SE GROUP DE S	C R	Q D
P T M M P L SOIL GROUP  H B O L F TIMIT  DESCRIPTION OF MATERIAL  SOUL GROUP  TIMIT  DESCRIPTION: 797.2	"	
FT. S SURFACE ELEVATION: 797.2	100	70
LAYERS - Gray, Medium Bedded, Slightly	liou	72
— — Weathered, Hard, with Slight Dip		
40		
	100	88
Paring Torminated	$\vdash$	
Boring Terminated		
45		
50		
55		
60		
65		
70		
REMARKS: Long. = -94.47088392; Lat. = 35.772735804		

			HWY. & TRANS. DEPARTMENT		BORIN								
		_	DIVISION - GEOTECHNICAL SEC.		PAGE	1		F 2		2.			
JOB N			040750 Washington County		DATE:	VE 25.5		-		26, 2			O.
JOR N	IAME:		Hwy 59 Slide Repair		TYPE C	or DR	ILLING	r: H	0110	w Ste	em A	uge	r &
STAT	ION:	;	58+17		EQUIPN	ИĒNT	· CM	IE 79	5 w/	CME	ΞАп	tom	atic
	TION:		10' Right of Center Line of Hwy. 59		ZQUII.		. 0111	, .	, ,,,	Civii	3 1 10		4110
LOGG	ED BY		Vade Boughner		НАММ	ER CO	ORREC'	TION	FACT	ΓOR:		1.38	
COM	PLET	ION	DEPTH: 55.2										
D	s	S											
E P	Y	A M							<u></u>	ς.		%	%
-	M	P	DESCRIPTION OF MATERIAL	SOIL				HE	CU.F	Ő		Т	R
н	В	L		GROUP	12L	IST		VEI	ER (	F BI	Ż	C R	Q D
	L	E			PLASTIC LIMIT	% MOIST.	LIQUID	DRY WEIGHT	LBS PER CU.FT	NO. OF BLOWS	PER 6-IN.	^	
FΤ <sub>κ</sub>	,	5	SURFACE ELEVATION: 803.2		<u> </u>	%	33			ž	PE		
	11												
	//												
	//												
	//												
5	//		Moist, Very Stiff, Brown and Gray Clay with Gravel (Sandstone and Shale Fragments)								,		
	//	X	Graver (Gariustone and Griale Fragments)							4-:			
-	11												
	//												
10	11												
-10	//									3	3		
	//	$\triangle$								6-	7		
	//		Moist, Stiff, Brown and Gray Clay with Gravel										
	//		(Sandstone Fragments)										
15	//												
		abla								3	3		
		$\triangle$								3-	6		
			SHALE - Brown and Gray, Highly Weathered,										
			Soft										
20			×										
		$\bigvee$								4.4			
		$\hookrightarrow$	SHALE Drawn and Cross Highly Marthau							44-	აე		
			SHALE - Brown and Gray, Highly Weathered, Medium Hard										
25										_			
		$\times$								5-			
										Ū	_		
20			SHALE - Brown and Gray, Highly Weathered,										
30			Soft *							4			
		$\times$								1-	I		
35	775									4			
	-	. *	Sample at 30.2' was wet. Long. = -94.47104165; L	at. = 35	77293	3339	  2			1(			
,,		-		00	200		_						

	HWY. & TRANS. DEPARTMENT DIVISION - GEOTECHNICAL SEC.	- 1	BORIN PAGE			2				
JOB NO.	040750 Washington County	$\overline{}$	DATE:				er 🤉	26, 20	11	
	Hwy 59 Slide Repair			F DRI	ILLING	•				er &
	58+17 10' Right of Center Line of Hwy. 59	E	EQUIPM	IENT	: CM	E 75	w/ C	CME A	Luton	natic
LOGGED BY: \	Nade Boughner	E	IAMMI	ER CC	RRECT	TION F	ACT(	OR:	1.3	8
	N DEPTH: 55.2						-			_
D S A M P L E S FT.	DESCRIPTION OF MATERIAL SO	OIL Group	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS	% T C R R R R R R R R R R R R R R R R R R	% R Q D
	LIMESTONE WITH FREQUENT SHALE							(0")	100	48
40	LAYERS - Gray, Thin Bedded, Slightly Weathered, Hard, with Slight Dip								100	52
45	LIMESTONE WITH FREQUENT SHALE LAYERS - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip								100	72
50									98	98
55 = -	SHALE WITH FREQUENT LIMESTONE LAYERS - Dark Gray, Laminated, Slightly Weathered, Hard, with Slight Dip								96	34
65	Boring Terminated  Sample at 30.2' was wet. Long. = -94.47104165; Lat.									

	HWY. & TRANS. DEPARTMENT DIVISION - GEOTECHNICAL SEC.		BORIN PAGE	IG No		F 2					
	040750 Washington County		DATE:				nher	28, 2	<u>011</u>		
	Hwy 59 Slide Repair		TYPE C	F DR		-		-		ugei	&
	59+53		EQUIPM	AENT	: CM	IE 75	5 w/	СМЕ	Aut	oma	ntic
	11' Right of Center Line of Hwy. 59  Vade Boughner									2.0	
COMPLETION			HAMM	ER CO	)RREC	TION	FAC1	OR:	1	.38	
	DEPTH: 33.1		Т—						_	_	
D S A M P H B O L E S	DESCRIPTION OF MATERIAL SURFACE ELEVATION: 813.7	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
111	SURFACE ELEVATION: 813.7		I I	%				Z	픠	_	
5	Moist, Medium Stiff, Brown and Gray Clay with Gravel (Sandstone Fragments)							3	4		
15	Moist, Stiff, Brown and Gray Clay with Gravel (Sandstone and Shale Fragments)							4-			
20	SHALE - Brown and Gray, Highly Weathered, Soft							9	12		
25	Moist, Stiff, Brown Clay							5-9			
	SHALE - Brown and Gray, Highly Weathered, Medium Hard							60 (5"	_		
30	SHALE - Brown and Gray, Laminated, Highly Soft, Weathered, with Slight Dip							(0	1	58	0
35				-							
	ong. = -94.47119574; Lat. = 35.773284367										

		_	HWY. & TRANS. DEPARTMENT DIVISION - GEOTECHNICAL SEC.		BORIN PAGE	IG N		F 2					
JOB N			040750 Washington County		DATE:				ıber	28, 2	2011	_	
JOB N	AME:		Hwy 59 Slide Repair		TYPE C	F DR						uge	r &
STATI	ON:		59+53		EQUIP	MENT	: CM	IE 75	w/	СМЕ	E <b>A</b> u	toma	atic
LOCA			11' Right of Center Line of Hwy. 59										
-			Vade Boughner		HAMM	ER CO	ORREC'	TION	FACT	OR:		1.38	
D		s	J DEPTH: 53.1										
ΙĔ	S	A							35				
P	M	M	DESCRIPTION OF MATERIAL	SOIL				H	U.FT	SMC		% T	% R
T   H	В	P L		GROUP	2	ST		ÆIG	3R C	OF BLOWS	6-IN.	C R	Q D
	0 L	E			PLASTIC LIMIT	% MOIST.	LIQUID	DRY WEIGHT	LBS PER CU.FT	). OF	R 6-		ע
FT₄		S	SURFACE ELEVATION: 813.7 SHALE WITH FREQUENT LIMESTONE		3 3	%	33	P. P.	LB	NO.	PER		
<u> </u>			SEAMS - Dark Gray, Laminated, Slightly									60	12
_ =			Weathered, Medium Hard, with Slight Dip	3									
<u> </u>	語	H										-	
40			LIMESTONE WITH FREQUENT SHALE										
40			LAYERS - Gray, Thin Bedded, Slightly									99	64
	謹		Weathered, Hard, with Slight Dip										
	謹謹												
45			LIMESTONE WITH FREQUENT SHALE										
	碧		LAYERS - Gray, Medium Bedded, Slightly									100	72
<u> </u>			Weathered, Hard, with Slight Dip										
	排											-	_
50			LIMESTONE WITH FREQUENT SHALE										
- 00			SEAMS - Gray, Medium Bedded, Slightly									100	86
			Weathered, Hard, with Slight Dip										
	群語												
			Boring Terminated										
55													
60													
65													
— –													
<u> </u>													
70													
REMA	ARKS	3: L	ong. = -94.47119574; Lat. = 35.773284367										

			HWY. & TRANS. DEPARTMENT DIVISION - GEOTECHNICAL SEC.		BORIN PAGE			F 2					
JOB N			040750 Washington County		DATE:				nher	21, 2	2011	-	
JOB N			Hwy 59 Slide Repair		TYPE C	)F DR		•				uge	r &
			•										
STATI	ON:	(	62+28		EQUIP	MENT	: CM	IE 75	5 w/	CMF	E Au	tom	atic
LOCA'			10' Right of Center Line of Hwy. 59										
			Vade Boughner		HAMM	ER C	ORREC'	TION	FAC	ΓOR:		1.38	
COM	PLET	ION	DEPTH: 58.3		,							,—,	
D	s	S											
E P	Υ	A M							Ë	\S		%	%
-	М	P	DESCRIPTION OF MATERIAL	SOIL				멾	X.I.F	Ő		T	R
🗓	В	انا		GROUP	ည	ST.		Æ	3R C	BI	ż	C R	Q D
	O	E			PLASTIC LIMIT	% MOIST.	LIQUID	DRY WEIGHT	LBS PER CU.FT	NO. OF BLOWS	PER 6-IN.		U
FT.	_	S	SURFACE ELEVATION: 832.4		LI E	%	5 5	R	LB	S N	PE		
	35												
	100												
										ľ			
5	<b>V</b> .Y		Moist, Stiff, Gray and Brown Clay with Gravel										
	10	$\nabla$	(Limestone Fragments), Cobbles and Boulders								0		
	6-16	$\triangle$								8-	-5		
	7.7												
	1												
10	1%												
	1									3			
	//	$\triangle$								4-	5		
	11		Moist, Stiff, Gray and Brown Clay with Gravel										
	//		(Shale Fragments)										
15	11												
	11									3	3		
	//	$\triangle$								4-	9		
_ [	1		Moist, Stiff, Gray and Brown Clay with Gravel										
	//		(Shale Fragments)										
20	//												
	1												
	//									3-	4		
— - <sub></sub>	11		Moist, Medium Stiff, Brown Clay with Gravel										
	1		(Shale Fragments)										
25	//	y											
	11									6			
[	//	$\triangle$								11-	19		
[	//		Moist, Very Stiff, Brown Clay with Gravel										
	//		(Sandstone Fragments)										
30	1/												
-55	//									_ 1:			
		$\triangle$								26-	12		
			SHALE - Gray, Highly Weathered, Soft										
			Orbital - Oray, riigiliy vveatilered, oott										
 35													
	RKS	: L	ong. = -94.47122346; Lat. = 35.7774029437										

			HWY. & TRANS. DEPARTMENT DIVISION - GEOTECHNICAL SEC.		BORIN PAGE	IG N		F 2					
JOB N		_	040750 Washington County		DATE:			pten	ıber	21, 2	2011		$\neg$
JOB N	AME:		Hwy 59 Slide Repair		TYPE C	F DR		•				uge	r &
STATI	ION:	(	62+28		EQUIP	MENT	: CM	Œ 75	w/	CME	E Au	toma	atic
LOCA			10' Right of Center Line of Hwy. 59										
			Vade Boughner		HAMM	ER C	ORREC'	TION	FACT	ror:		1.38	_
-	PLET		I DEPTH: 58.3										-
D E	s	S											
P	Y M	м	DESCRIPTION OF MATERIAL	COII					FT.	WS		% T	%
I	B	P	BEGGIN HON GI INATENIAL	SOIL Group	O	ு		EIGF	SCL	BLO	<del>ヺ</del>	T C	R Q
H	0	L E			PLASTIC LIMIT	% MOIST.	1 E	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS	PER 6-IN	R	D
FT	L	s	SURFACE ELEVATION: 832.4		PLAST LIMIT	% N	LIQUID LIMIT	DRY	LBS	NO.	PER		
		*	SHALE WITH SANDSTONE FRAGMENTS -							6 (4	0		
			Gray, Weathered, Medium Hard SHALE - Dark Gray, Laminated, Slightly							(4	. )	96	20
			Weathered, Medium Hard, with Slight Dip and										
			\some Slickensides SHALE WITH FREQUENT LIMESTONE										
40			LAYERS - Dark Gray, Laminated, Slightly										
			Weathered, Medium Hard, with Slight Dip									100	84
			SHALE - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip										
	TOTS			E									
45													
45	望												-
												92	56
-													
		+											
50			LIMESTONE WITH FREQUENT SHALE										
	错		SEAMS - Gray, Medium Bedded, Slightly									96	72
	拍打		Weathered, Hard, with Slight Dip										
	甜												
55													
	語											10d	96
	<b>3</b> 444	4	Paring Tarminated		-				_				_
60			Boring Terminated										
65													
70													
	ARKS	 : I	ong. = -94.47122346; Lat. = 35.7774029437			<u>.</u>							-
//			5g. 5 1225 10, Eds. 55 17 7525767										

			HWY. & TRANS. DEPARTMENT DIVISION - GEOTECHNICAL SEC.		BORIN PAGE			F 2					
JOB N			040750 Washington County		DATE:				nber	21, 2	2011		
JOB N	AME:		Hwy 59 Slide Repair		TYPE C	F DR	ILLING	i: H	ollo	w Ste	m A	uge	r &
STATI	ION:	(	62+88		EQUIP	MENT	: CM	IE 75	5 w/	CME	E Aut	oma	atic
LOCA			9' Right of Center Line of Hwy. 59										
-			Vade Boughner  J DEPTH: 38.2		HAMM	ER CO	ORREC'	TION	FACT	TOR:		1.38	-
D		s	DEF I H. 38.2								_		
E P H	SYMBOL	AMPLE	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	JBS PER CU.FT.	NO. OF BLOWS	PER 6-IN.	% T C R	% R Q D
FT.	227	S	SURFACE ELEVATION: 837.3			%	33			Ž	<u>-</u>	-	_
			Moist, Stiff, Brown Clay with Gravel (Sandstone Fragments), Cobbles and Boulders										
		X	Moist, Stiff, Brown and Gray Clay with Gravel (Sandstone Fragments)							5-			
   15		×	Moist, Hard, Brown and Gray Clay with Gravel (Sandstone and Shale Fragments), Cobbles and Boulders							61 (4	O ")		
		X	SHALE WITH SANDSTONE FRAGMENTS - Gray, Weathered, Medium Hard SHALE WITH SANDSTONE SEAMS - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip							33 60 (3	o	73	0
20										ı		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								į	100	82
35 REM	ARKS	. L	ong. = -94.47116061; Lat. = 35.774214794										

NOB NO.   Q40750   Washington County   DATE   September 21, 2011   TYPHOP DRILLING: Hollow Stem Auger & STATION: 62+88   G2+88   EQUIPMINT CME 75 w/ CME Automatic LOCATION: 9 Right of Center Line of Hwy. 59   HAMMER CORRECTION FACTOR   1.38   COMPLETION DEPTH: 38.2				HWY. & TRANS. DEPARTMENT DIVISION - GEOTECHNICAL SEC.		BORIN PAGE			F 2					
JOB NAME	-									nber	21, 2	2011		$\neg$
LIMESTONE WITH FREQUENT SHALE   SAME SEAMS - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip							F DR		•				uge	r &
LOGGED BY: Wade Boughner						EQUIPM	MENT	: CM	IE 75	5 w/	СМЕ	Au	toma	atic
COMPLETION DEPTH: 38.2													1 20	
D   S   S   F   M   M   P   M   M   DESCRIPTION OF MATERIAL   SOIL GROUP   SOIL G						HAMM	ER CO	ORREC'	TION	FACT	TOR:		1.38	
P		PLEI		DEPTH: 38.2	1							-		_
P										Ţ,				
LIMESTONE WITH FREQUENT SHALE SEAMS - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip  Boring Terminated  45	Р		М	DESCRIPTION OF MATERIAL	COIL				l⊨	ı.FT	M.S			
LIMESTONE WITH FREQUENT SHALE SEAMS - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip  Boring Terminated  45				BESSIAI FISIA SI MIKITEMIKE		[5]	Ę.		E G	CC	BL0	;		
LIMESTONE WITH FREQUENT SHALE SEAMS - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip  Boring Terminated  45	"	0				STIČ	OIS		§	PEF	OF I	(I-9		D
LIMESTONE WITH FREQUENT SHALE SEAMS - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip  Boring Terminated  45	FT <sub>sec</sub>	L		SURFACE ELEVATION: 837.3		PLA	∑ %	N E	DRY	LBS	ON	PER		
SEANS - Gray, Medum Beaded, Signiy Weathered, Hard, with Slight Dip  Boring Terminated  45  50 60 65 70			Т	LIMESTONE WITH FREQUENT SHALE									100	90
40 														
40 				Boring Terminated						_				
50 55 60 60 65 70	40													
50 55 60 60 65 70														
50 55 60 60 65 70														
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	-	ARKS	-	ong = -94 47116061: Lat = 35 774214794										-

			HWY. & TRANS. DEPARTMENT DIVISION - GEOTECHNICAL SEC.		BORIN PAGE			- 2					
JOB N	_	_	040750 Washington County		DATE:				ıber	20, 2	2011		
JOB N.	AME:	١	Hwy 59 Slide Repair		TYPE C	F DR	ILLING	: H	ollov	w Ste	m A	uge	r &
STATI LOCA LOGG	TION:		65+69 7' Right of Center Line of Hwy. 59 Vade Boughner		EQUIPM							toma	
			DEPTH: 43.8										$\neg$
D E P T H FT.	S Y M B O L	SAMPLE	DESCRIPTION OF MATERIAL SURFACE ELEVATION: 857.2	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS	PER 6-IN.	% T C R	% R Q D
	11		0011.7101.11011.11011.11			-0`		_	_				
			Moist, Stiff, Brown Clay with Gravel (Sandstone Fragments) and Cobbles										
		X	Moist, Stiff, Brown Clay with Gravel (Sandstone Fragments)							7-			
15		X	SHALE - Gray, Highly Weathered, Soft							6- 7- 7-	6		
		$\times$	SHALE - Gray, Weathered, Medium Hard							6 (5	o ")		
	5551 6661 6661 5661		SHALE WITH SANDSTONE SEAMS - Dark									68	0
			Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip									100	16
30			SHALE - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip									98	50
35													
REMA	ARKS	: L	ong. = -94.47078692; Lat. = 35.774880401										

	S HWY. & TRANS. DEPARTMENT		BORIN								
JOB NO.	S DIVISION - GEOTECHNICAL SEC.  040750 Washington County	$\overline{}$	PAGE DATE:	2		F 2	her	20. 2	<u>Λ11</u>	_	_
JOB NAME:	Hwy 59 Slide Repair		TYPE O	F DR		•				uge	r &
STATION:	65+69		EQUIPN	MENT	: CM	IE 75	w/	СМЕ	Au	toma	atic
LOCATION: LOGGED BY:	7' Right of Center Line of Hwy. 59 Wade Boughner		HAMM	ER CO	ORREC'	TION	FACT	OR:		1.38	
COMPLETION	ON DEPTH: 43.8								_		
E P M B O -	F L E	OIL Roup	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS	PER 6-IN.	% T C R	% R Q D
FT <sub>e</sub>	S SURFACE ELEVATION: 857.2		E E	%	35	l E	LB	NC	PE		
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
55 	Boring Terminated  Long. = -94.47078692; Lat. = 35.774880401										

IOB NO. 040750 Washington County IOB NAME: Hwy 59 Slide Repair  STATION: 66+31 LOCATION: 7 Right of Center Line of Hwy. 59 LOGGED DY: Wadde Boughner  COMPLETION DEPTH: 52:9  DESCRIPTION OF MATERIAL FT. U.S. SURFACE ELEVATION: 861:3  SHALE - Brown and Gray, Highly Weathered, Soft  SHALE - Gray, Highly Weathered, Soft  25 SHALE - Gray and Brown, Highly Weathered, Soft  25 SHALE - Gray, Weathered, Medium Hard SHALE - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slightly				HWY. & TRANS. DEPARTMENT DIVISION - GEOTECHNICAL SEC.		BORIN PAGE	IG NO		F 2					
STATION: 66+31 LOCATION: 7' Right of Center Line of Hwy. 59 LOGGED BY: Wade Boughner COMPLETION DEPTH: 52.9  DESTRICTION OF MATERIAL THE PLAN AND AND AND AND AND AND AND AND AND A									_	nber	20, 2	2011		
LOCATION: 7' Right of Center Line of Hwy, 59 LOGGED DY: Wade Boughner  COMPLETION DEPTH: 52.9  DESCRIPTION OF MATERIAL  FIT. L S SURFACE ELEVATION: 861.3  SHALE - Brown and Gray, Highly Weathered, Soft  SHALE - Gray, Highly Weathered, Soft  SHALE - Gray and Brown, Highly Weathered, Soft  SHALE - Gray weathered, Medium Hard, with Slight Dip  SHALE - Gray, Weathered, Medium Hard, with Slight Dip  SHALE - Gray, Weathered, Medium Hard, with Slight Dip  SHALE - Gray, Weathered, Medium Hard, with Slight Dip  100 32	JOB N	IAME:		Hwy 59 Slide Repair		TYPE C	F DR	ILLING	: H	ollov	w Ste	m A	uge	r &
LOCATION: 7' Right of Center Line of Hwy, 59 LOGGED DY: Wade Boughner  COMPLETION DEPTH: 52.9  DESCRIPTION OF MATERIAL  FIT. L S SURFACE ELEVATION: 861.3  SHALE - Brown and Gray, Highly Weathered, Soft  SHALE - Gray, Highly Weathered, Soft  SHALE - Gray and Brown, Highly Weathered, Soft  SHALE - Gray weathered, Medium Hard, with Slight Dip  SHALE - Gray, Weathered, Medium Hard, with Slight Dip  SHALE - Gray, Weathered, Medium Hard, with Slight Dip  SHALE - Gray, Weathered, Medium Hard, with Slight Dip  100 32	STAT	ION·		66+31		FOLIP	<i>J</i> ENT	· CM	IE 75	5 w/	CME	An	toma	atic
D S S A DESCRIPTION OF MATERIAL GROUP PT M M P L SURFACE ELEVATION: 861.3  SURFACE ELEVATION: 861.3  Moist, Soft, Dark Gray Clay with Gravel (Shale Fragments)  SHALE - Brown and Gray, Highly Weathered, Soft  SHALE - Gray, Highly Weathered, Soft  SHALE - Gray and Brown, Highly Weathered, Soft  SHALE - Gray, Weathered, Medium Hard						EQUIT	VILDI V I	. 011	,.	, ,,,	CIVIL			
DESCRIPTION OF MATERIAL SOIL FT.  S Y A M P C C ELEVATION: 861.3  DESCRIPTION OF MATERIAL SOIL GROUP T B C S Y A M P C C ROUP T B C S S C ROUP S SURFACE ELEVATION: 861.3  Moist, Soft, Dark Gray Clay with Gravel (Shale Fragments)  SHALE - Brown and Gray, Highly Weathered, Soft  SHALE - Gray, Highly Weathered, Soft  SHALE - Gray and Brown, Highly Weathered, Soft  SHALE - Gray, Weathered, Medium Hard						HAMM	ER CO	ORREC'	TION	FACT	ror:		1.38	
E P M M P DESCRIPTION OF MATERIAL SOIL GROUP OF THE STANDARD STALE - Brown and Gray, Highly Weathered, Soft  SHALE - Gray and Brown, Highly Weathered, Soft  SHALE - Gray, Weathered, Medium Hard		PLET		N DEPTH: 52.9					_					
Moist, Soft, Dark Gray Clay with Gravel (Shale Fragments)  10  SHALE - Brown and Gray, Highly Weathered, Soft  2 2-2  SHALE - Gray, Highly Weathered, Soft  3 5-8  SHALE - Gray and Brown, Highly Weathered, Soft  3 5-8  SHALE - Gray and Brown, Highly Weathered, Soft  3 5-8  SHALE - Gray and Brown, Highly Weathered, Soft  3 5-8  SHALE - Gray and Brown, Highly Weathered, Soft  3 5-8  SHALE - Gray, Weathered, Medium Hard  SHALE - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slightl Dip	E P T H	Y M B O	A M P L E			LASTIC	MOIST	IQUID IMIT	RY WEIGHT	BS PER CU.FT.	O. OF BLOWS	ER 6-IN.	T C	R Q
Fragments)  10  SHALE - Brown and Gray, Highly Weathered, Soft  2 2-2-2  SHALE - Gray, Highly Weathered, Soft  2 3 5-8  SHALE - Gray and Brown, Highly Weathered, Soft  3 5-8  SHALE - Gray, Weathered, Medium Hard  SHALE - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip  10 32	Flo	/	0	SURFACE ELEVATION: 861.3			<u>%</u>	33	a		ž	<u> </u>		_
SHALE - Brown and Gray, Highly Weathered, Soft  2 2-2  SHALE - Gray, Highly Weathered, Soft  3 5-8  SHALE - Gray and Brown, Highly Weathered, Soft  3 10-10  SHALE - Gray, Weathered, Medium Hard  SHALE - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip  100 32			X								1-	3		
SHALE - Gray, Highly Weathered, Soft  SHALE - Gray and Brown, Highly Weathered, Soft  SHALE - Gray and Brown, Highly Weathered, Soft  SHALE - Gray, Weathered, Medium Hard SHALE - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip  100 32			X											
SHALE - Gray and Brown, Highly Weathered, Soft  SHALE - Gray, Weathered, Medium Hard  SHALE - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip  SHALE - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip			X	SHALE - Gray, Highly Weathered, Soft										
Soft  30  SHALE - Gray, Weathered, Medium Hard SHALE - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip  30  100  31  100  32			X	SHALE - Gray and Brown, Highly Weathered										
SHALE - Gray, Weathered, Medium Hard  SHALE - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip  35			X											
SHALE - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip  35	- m		><	SHALE - Gray, Weathered, Medium Hard							60 (4)	) ")		
	- 35 - 35 - 35			SHALE - Dark Gray, Laminated, Slightly									100	32
	35							,						
		ARKS	: *	A water stratum was encountered at 15.0'. Long. =	-94.47	06933	5; La	at. = 3	35.7	7503	3463	9	_	

ARKANSAS HWY. & TRANS. DEPARTMENT MATERIALS DIVISION - GEOTECHNICAL SEC.			BORING NO. 16 PAGE 2 OF 2										
JOB NO. 040750 Washington County			DATE: September 20, 2011										
JOB N	IAME:		Hwy 59 Slide Repair		TYPE C	F DR		•				uge	r &
STAT	ION:		66+31		EQUIP	MENT	: CM	IE 75	w/	СМЕ	E Au	toma	atic
	LOCATION: 7' Right of Center Line of Hwy. 59												
-		_	Vade Boughner		HAMM	ER CO	ORREC	TION	FACT	OR:		1.38	_
-	PLET		DEPTH: 52.9 		T		ī		_		_		-
D E	S	S											
Р	Y M	М	DESCRIPTION OF MATERIAL	SOIL				=	LBS PER CU.FT	SW(		% T	% R
T H	B	P		GROUP	l <sub>o</sub>	Ę.		EIGI	R CL	BLC	ż	C	Q
"	0	L E			PLASTIC LIMIT	% MOIST.	LIQUID	DRY WEIGHT	PE	NO. OF BLOWS	PER 6-IN.	R	D
FTes	L	S	SURFACE ELEVATION: 861.3		PLAST LIMIT	N %	LIV	DR	LBS	NO NO	PER		
			SHALE WITH OCCASIONAL LIMESTONE									88	50
			LAYER - Dark Gray, Laminated, Slightly Weathered, Medium Hard, with Slight Dip										
			Troduction, Modulati Flata, With Stight Stp										
			SHALE - Dark Gray, Laminated, Slightly										
40			Weathered, Medium Hard, with Slight Dip										00
	辯											100	88
<u> </u>	斑												
<u> </u>			ř.										
45			LIMESTONE - Gray, Medium Bedded, Slightly										
45			Weathered, Hard, with Slight Dip									100	72
												İ	
	瞱												
50													
			SHALE - Dark Gray, Laminated, Slightly									94	82
			Weathered, Medium Hard, with Slight Dip										
		Ш	Davis a Tamaia stad						_				_
			Boring Terminated										
55													
—: <del>::</del> :													
-													
-													
60													
- 55					11								
65													
70	V D N C	. *	A water stratum was encountered at 15.0'. Long. =	04.47	16022	5. J .	nt = 0	5 7	7500	2460	$\overline{}$		
LYCIVIA	-\r\r\c	<b>,</b> .	A water stratum was encountered at 13.0. Long	-54.47	ರಾವಾ	J, Là	at. – 3	J. 1 1	505	, <del>-1</del> U3	J		

MATERIALS DIVISION - GEOTECHNICAL SEC. PAGE 1 OF 2	BORING NO. 17 PAGE 1 OF 2										
JOB NAME: Hwy 59 Slide Repair TYPE OF DRILLING: Hollow Stem Au	ger &										
STATION: 66+90 EQUIPMENT: CME 75 w/ CME Auto	matic										
LOCATION: 7' Right of Center Line of Hwy. 59	EQUITMENT. CIVIL 13 W/ CIVIL Automatic										
•	.38										
COMPLETION DEPTH: 62.4											
E Y A DESCRIPTION OF MATERIAL SOIL	% %										
T M P DESCRIPTION OF MATERIAL SOIL SOIL GROUP O LE SOIL SOIL SOIL SOIL SOIL SOIL SOIL SOIL	T R C Q										
H H B LIGUID CHARTIC CIGNID CHART CH	R D										
H											
Asphalt Pavement (4")											
Moist, Very Stiff, Gray Sandy Clay with Gravel											
(Limestone Fragments)											
10 10 1											
Moist, Medium Stiff, Dark Gray Clay with Gravel (Sandstone Fragments)											
— (Sandstoffe Fragments)											
Boulder											
15											
3-4											
Moist, Medium Stiff, Dark Gray Clay with Gravel (Shale Fragments)											
20											
$\frac{4}{6-10}$											
Moist, Very Stiff, Brown and Gray Clay with											
Trace of Gravel (Sandstone Fragments)											
25											
Moist, Very Stiff, Brown Clay with Trace of											
Gravel (Sandstone Fragments) and Cemented											
Sand											
30 3											
— — — — — — — — — — — — — — — — — — —											
Moist, Stiff, Brown and Gray Clay with Gravel											
— — (Shale Fragments)											
35											
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			DATE: September 15 & 19, 2011  TYPE OF DRILLING: Hollow Stem Auger &												
JOBINI	uvil.	•	Twy oo ondo Nopali		TTLO	n Di	ibbii10		OHO	,, 0,,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	u <sub>b</sub> o			
STATION: 66+90 LOCATION: 7' Right of Center Line of Hwy. 59				EQUIPMENT: CME 75 w/ CME Automatic											
LOGGE	D BY	: W	/ade Boughner		HAMM	ER CO	ORREC	LION	FACT	OR:		1.38			
COMPI	LET	ON	DEPTH: 62.4												
D	s	s													
E	Ϋ́	A							Ţ.	\S		%	%		
P   T	М	M P	DESCRIPTION OF MATERIAL	SOIL				HE I	.U.	NO.		Т	R		
ان	ВО	Ĺ		GROUP	J.C	IST.		DRY WEIGHT	LBS PER CU.FT	NO. OF BLOWS	Ä	C R	Q D		
- 1	2	Εļ			PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	\ <u>\</u>	SPI	0.0	PER 6-IN.		D		
FT,		S	SURFACE ELEVATION: 865.5		LI Z	%	35	<u>a</u>		ž	PE				
/	/	X								4					
	//	$\hookrightarrow$	Mat Stiff Brown Clay with Croval (Shala							5-	٠/				
	//		Wet, Stiff, Brown Clay with Gravel (Shale Fragments)												
	//		raginonio,												
40	11									_	_				
		$\widetilde{\uparrow}$	SHALE - Dark Gray, Weathered, Medium Hard SHALE - Dark Gray, Laminated, Slightly							60 (5	")				
	囍		Weathered, Medium Hard, with Slight Dip							,-	′	100	28		
<u>_</u>		+		-2									_		
	題		LIMESTONE WITH FREQUENT SHALE												
45 算	蟲		SEAMS - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip									100	92		
	望		Weathered, Hard, With Slight Dip									100	02		
真	題														
			LIMESTONE - Gray, Medium Bedded, Slightly									$\dashv$	-		
			Weathered, Hard, with Slight Dip												
50			02									98	62		
			SHALE - Dark Gray, Laminated, Slightly										02		
			Weathered, Medium Hard, with Slight Dip												
		+	-												
55	描	Н										98	78		
	期		LIMESTONE - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip									30	, 0		
	盟		Weathered, Hard, With Slight Dip												
	##	+													
			LINACOTONIC VALITUL COCA CLONIAL CULAL C												
60			LIMESTONE WITH OCCASIONAL SHALE SEAMS - Gray, Medium Bedded, Slightly									100	72		
]#			Weathered, Hard, with Slight Dip									1 34	, 0		
	茁		, , ,												
	1111	$\dashv$	Boring Terminated									-			
			Soling Forninated												
65															
70															