### ARKANSAS DEPARTMENT OF TRANSPORTATION



### **SUBSURFACE INVESTIGATION**

STATE JOB NO.		100870								
FEDERAL AID PROJECT NO.		NHPP-0028(4	4)							
HWY. 34 STRS. & APPRS. (S)										
STATE HIGHWAY	34	SECTION	4							
IN		GREENE		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.



### ARKANSAS DEPARTMENT OF TRANSPORTATION

ARDOT.gov | IDriveArkansas.com | Scott E. Bennett, P.E., Director

### **MATERIALS DIVISION**

11301 West Baseline Road | P.O. Box 2261 | Little Rock, AR 72203-2261 | Phone: 501.569.2185 | Fax: 501.569.2368

August 29, 2017

TO:

Mr. Rick Ellis, Bridge Engineer

SUBJECT:

Job No. 100870

Hwy. 34 Strs. & Apprs. (S) Route 34 Section 4

Greene County

Transmitted herewith are a brief summary of the geology and site conditions, summary of percent material passing #200 sieve and Atterberg Limits test results (for liquefaction susceptibility analysis), D50 scour analysis, and the logs of the borings conducted for the structures and approaches of the above referenced project. The samples obtained by the Standard Penetration Tests were brought to the laboratory and visually classified by experienced lab personnel to confirm the field identifications.

This project consists of replacing the bridges crossing Hurricane Ditch and Big Slough, on Highway 34, east of Marmaduke. The new bridges will be constructed on the existing alignment and temporary detour bridges will be constructed to maintain traffic. Four of the eight requested borings, all intermediate bents, were inaccessible due to conflicts with utilities, low bridge clearance, and high water levels. The four borings that were not obtained were located at: 110+42 C.L. Construction, 110+90 C.L. Construction, 210+86 C.L. Construction, and 211+61 C.L. Construction.

Based on plans provided by Bridge Division and the findings from this subsurface investigation, it is anticipated that all bents will be founded on concrete filled steel shell piles.

Although these bridges are located in a moderately high seismic area with a horizontal acceleration coefficient of 0.622, as provided by Bridge Design, it is recommended that no reinforcement be used in the bridge embankments. A global stability analysis was performed for this embankment configuration and provides for a satisfactory Factor of Safety for seismic and static conditions. However, if the embankment geometry is altered in any way the embankment will need to be reanalyzed for seismic and static conditions.

If you have any questions concerning these recommendations, please contact the Geotechnical Section.

MCB:rpt:mlg

cc: State Construction Engineer - Master File Copy

District 10 Engineer

G.C. File

Michael C Benson Materials Engineer

### GEOLOGY AND SITE CONDITIONS Job No. 100870

### Hwy. 34 Strs. & Apprs. (S) Route 34 Section 4 Greene County

### **Site Conditions**

There are two bridges associated with this job. Existing **Bridge 1** crosses Hurricane Ditch. Bridge 1 is a five span bridge constructed of concrete deck with timber caps and pilings. The end walls are constructed of timber. The deck for spans 1, 2, 4, and 5 is supported by 15 sets of timber beams. The deck over span 3 is supported by six steel beams. The guardrail is constructed of steel with steel posts. Overhead power lines parallel the south side of the roadway. There is a telecommunication line, buried east and west of the channel and overhead above the channel, paralleling the north side of the roadway. The stream flows from north to south at the bridge site. Another channel parallels the roadway to the north, west of the bridge, and intersects Hurricane Ditch at the project site just to the north of the bridge. The channels are lined with trees and brush with agricultural fields beyond.

Existing **Bridge 2** is a four span bridge that crosses Big Slough. The deck is constructed of concrete. On spans 1, 2 and 4, the deck is supported by seven sets of steel beams. The channel is primarily under span 3 and partially under span 2. Span 3 is supported by a steel truss. The piers are constructed of timber pilings. The guardrail is constructed of steel supported by steel posts. Trees and brush line the channel with agricultural fields surrounding the bridge site. A farm is located just to the southeast of the bridge. Overhead power lines parallel the north side of the roadway, to the east, and cross the roadway on the west side of the channel and then parallel the south side of the roadway. The slough flows from northeast to southwest.

### Site Geology

Both bridges are located on valley train deposits (map symbol Pvcl and Pvl 2). Valley train deposits are laid down by swiftly flowing, sediment-choked braided streams. The deposits were derived from glacial outwash from the Mississippi and Ohio River drainage basins and deposited by those streams. The glacial outwash is composed primarily of sand.

### **Subsurface Conditions**

Based on the results of the borings at stations 109+96 to 111+34 (**Bridge** 1 - Hurricane Ditch), the subsurface stratigraphy may be generalized as follows:

0 to 15 Feet: Varies from moist to wet, loose to medium dense, gray sandy silt to sand to medium stiff to stiff, gray clay.

15 to 35 Feet: Consists of wet, very loose to medium dense, gray **silt with sand** to **sand**.

Varies from wet, very loose to medium dense, gray **silt with sand** to stiff gray sandy slav

stiff, gray sandy clay.

40 to 121.5 Feet:

Consists of wet, medium dense to very dense, gray sand with silt to sand.

Some samples from this zone contained a trace to some gravel.

Based on the results of the borings at stations 210+26 to 212+45 (**Bridge 2** - Big Slough), the subsurface stratigraphy may be generalized as follows:

0 to 15 Feet:

Varies from moist, loose, brown sand to medium stiff to stiff, brown and gray

sandy clay.

15 to 30 Feet:

Consists of wet, loose to medium dense, brown to gray sand. One sample in this

zone consisted of sand with silt and one sample contained a trace of gravel.

30 to 60 Feet:

Consists of wet, medium dense, brown to gray sand to sand with trace gravel.

60 to 101.5 Feet:

Consists of wet, medium dense to very dense, brown to gray sand to sand with

trace gravel. One sample in this zone consisted of sand with silt and trace

gravel.

### Lab Test Summary

Project:

100870

Page 1

Ctotion	Lagation	Depth	Plastic	Liquid	Plasticity	% Passing
Station	Location	Ft.	Limit	Limit	Index	No. 200
111+34	5' LT.	4.5	NP			65
111+34	5' LT.	9.5	19	57	38	94
111+34	5' LT.	15	NP			82
111+34	5' LT.	20	NP			7
111+34	5' LT.	25	NP			16
111+34	5' LT.	30	NP			3
111+34	5' LT.	35	NP			3
111+34	5' LT.	40	NP			3
111+34	5' LT.	45	NP			4
111+34	5' LT.	50	NP			5
111+34	5' LT.	55	NP			4
111+34	5' LT.	60	NP			2
111+34	5' LT.	65	NP			3
111+34	5' LT.	70	NP			3
111+34	5' LT.	75	NP			3
111+34	5' LT.	80	NP			2
111+34	5' LT.	85	NP			2
111+34	5' LT.	90	NP			3
111+34	5' LT.	95	NP			2
111+34	5' LT.	100	NP			3
111+34	5' LT.	105	NP			6
111+34	5' LT.	110	NP			4
111+34	5' LT.	115	NP			3
111+34	5' LT.	120	NP			3
212+45	20' RT.	4.5	15	48	33	61
212+45	20' RT.	9.5	15	60	45	54
212+45	20' RT.	15	NP			12
212+45	20' RT.	20	NP			2
212+45	20' RT.	25	NP			2
212+45	20' RT.	30	NP			2
212+45	20' RT.	35	NP			3
212+45	20' RT.	40	NP			2
212+45	20' RT.	45	NP			3
212+45	20' RT.	50	NP			2
212+45	20' RT.	55	NP			1
212+45	20' RT.	60	NP			3
212+45	20' RT.	65	NP			4
212+45	20' RT.	70	NP			5
212+45	20' RT.	75	NP			3
212+45	20' RT.	80	NP			3

### Lab Test Summary Project: 100870

Project:

Page 2

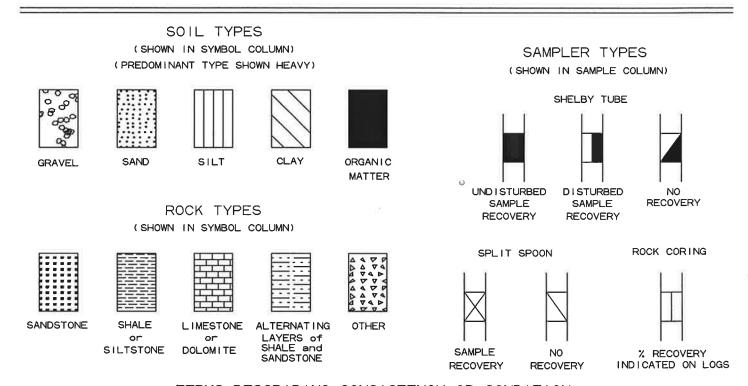
212+45	20' RT.	85	NP	3
212+45	20' RT.	90	NP	3
212+45	20' RT.	95	NP	3
212+45	20' RT.	100	NP	3

### D<sub>50</sub> AGGREGATE ANALYSIS FOR SCOUR CALCULATIONS

.loh	No	100870
.10303	IMO	

Creek Name	Station	Sample Type	Location	Depth (FT)	Aggregate Size (D50) (IN)
Hurricane Ditch	110+34	Creek Bank	19' Lt. C.L. Construction	N/A	Less Than 0.0029
Big Slough	211+68	Creek Bank	12' Rt. C.L. Construction	N/A	Less Than 0.0029

### LEGEND



1	EKIVIS	DESCRIBING	CONSTSTEN	ICY UR	CONDIT	LON

GRANU	LAR SOIL		CLAY	CLA	Y-SHALE	SHALE					
'N' Value	Density	'N' Value	Consistency	N' Value	Consistency	N' Value Cor	nsistency				
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	0ver 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	Penetration					
		91-60	Hard	31-60	Hard	in 60 Blows: N	Medium Hard				
		0ver 60	Very Hard	0ver 60	Very Hard	Less than 2'					
						Penetration					
						in 60 Blows: H	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:  $\frac{6}{8-9} \Rightarrow 8+9=17 blows/ft$ . 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.

	ARKANSAS HWY. & TRANS. DEPARTMENT MATERIALS DIVISION - GEOTECHNICAL SEC.					BORING NO. 1 PAGE 1 OF 3							
JOB N			100870 Greene County		DATE:				ıy 3,	2017	7		
JOB N		1	Hwy. 34 Strs. & Apprs. (S)		TYPE OF DRILLING:								
			Route 34 Section 4		Holl	ow S	tem A	Luge	r - R	otary	v Wa	sh	
STATI	ON:		109+96		EQUIP	MENT			CI	ME 7	5		
LOCA	TION:	(	6' Left of Construction Centerline										- 1
LOGG	ED BY	' C	oty Campbell		HAMM	ER C	ORREC'	ΓΙΟΝ	FAC	ΓOR:		1.37	
COM	PLET	ION	DEPTH: 101.5										
D E P T H	SYMBOL	SAMPLE	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
FT.		S	SURFACE ELEVATION: 261.5		PL LI	%	H	DR	LB	N N	PE		
5		X	Moist, Loose, Gray Sand with Silt	·-						3-	2-2		
15		$\Delta$	Moist, Medium Stiff, Gray Clay							2-			
		X	Wet, Medium Dense, Gray Sand with Clay							6-	-5		
		X	Wet, Medium Dense, Gray Sand			mc;				11-	<u>7</u> -15		
		X	Wet, Very Loose, Gray Silty Sand							2-	1 -2		
		X	Wet, Medium Dense, Gray Sand							9-	10		
	ARKS	: ⊦	lurricane Ditch										

ARKANSAS HWY. & TRANS. DEPARTMENT MATERIALS DIVISION - GEOTECHNICAL SEC.					BORIN PAGE	IG NO 2		3					
JOB N			100870 Greene County		DATE:		- 01		v 3.	2017	7		$\neg$
JOB N.			Hwy. 34 Strs. & Apprs. (S)		TYPE C	F DR	ILLING		J - ,				
			Route 34 Section 4		Holl	ow S	tem A	uge	r - R	otary	. Wa	sh	- 1
STATI	ON:		109+96	1	EQUIPN	MENT	:	_	CN	ME 7	5		- 1
LOCA'	TION:	(	6' Left of Construction Centerline										- 1
LOGG	ED BY	: C	oty Campbell		HAMM	ER CO	ORREC	ΓΙΟΝ	FACT	OR:		1.37	
COM	PLET	ION	DEPTH: 101.5								9		
D	S	S											
<u>E</u>	Y	Α							Ľ	S		%	%
P T	М	M P	DESCRIPTION OF MATERIAL	SOIL				HT	U.F	0 W		Т	R
	В	L		GROUP	ပ္	ST.		EIG	R C	BL	z	C R	Q
	0	Ē			VST TTI	% MOIST		DRY WEIGHT	LBS PER CU.FT	NO. OF BLOWS	PER 6-IN.	K	D
FT.	L	S	SURFACE ELEVATION: 261.5		PLASTIC LIMIT	W 3	LIQUID LIMIT	DR	LB	NO NO	PE		
	//,	$\bigvee$								1	2.0		
	//,	$\hookrightarrow$	7							2-	-8		
	//,		Wet, Stiff, Gray Sandy Clay										
	///												- 1
40	///												
		$\bigvee$								_3			
		$\triangle$								7-	.8		
													1
 45													
45		$\overline{}$	Wet, Medium Dense, Gray Sand							e	6		
		$\triangle$								10-	-10		
50	*****									· •	6		
		X									14		
			Wet, Medium Dense, Gray Sand with Trace										
<b>—</b> ;			Gravel										
55	*****									,	3		
		X								9-			
		( )											
60			Wet, Medium Dense, Gray Sand										- 1
		$\setminus$	vvet, Medium Bense, Gray Gand							-3	3 -9		
		$\sim$								0-	9		
65			74										
		V									9		
		$\triangle$								10-	-14		
 70			Wet, Medium Dense, Gray Sand with Trace										
	ARKS	S: H	Hurricane Ditch										

	ARKANSAS HWY. & TRANS. DEPARTMENT MATERIALS DIVISION - GEOTECHNICAL SEC.					BORING NO. 1 PAGE 3 OF 3							
JOB N			100870 Greene County		DATE: May 3, 2017								
JOB N			Hwy. 34 Strs. & Apprs. (S)		TYPE C	F DR	ILLING		-,				
			Route 34 Section 4		Holl	ow S	Stem A	Auge	r - R	otary	Wa	sh	- 1
STATI	ON:		109+96		EQUIPN	MENT	<b>`</b> :		C)	ME 7	5		- 1
LOCA'	TION:	6	6' Left of Construction Centerline										- 1
-			oty Campbell		HAMM	ER C	ORREC"	TION	FAC	ΓOR:		1.37	_
COM	PLET	ION	DEPTH: 101.5		_			_			_	_	
D	s	S											- 1
E P	Y	A M						١,	Į.	S.		%	%
T	М	Р	DESCRIPTION OF MATERIAL	SOIL				E	CU.I	ő		т	R
H	B O	L		GROUP	121	IST.	ام	VEL	ER (	F BI	Ζį	C R	Q D
	L	E			PLASTIC LIMIT	% MOIST.	LIQUID	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS	PER 6-IN.		_
FT.		S	SURFACE ELEVATION: 261.5		12.13	%	33	ă			_		$\dashv$
		X	Gravel							13-			- 1
		$\hookrightarrow$								13-	17		- 1
													- 1
													- 1
75										10	,		
<u> </u>		X								15-			
_													- 1
													ı
													- 1
80		$\overline{}$								10	0		- 1
		Х								22-			- 1
-													- 1
<u> </u>													- 1
<u> </u>													- 1
85			Wet, Dense, Gray Sand with Trace Gravel							9			
		X								13-			- 1
===													- 1
							l l						- 1
													- 1
90		$\overline{}$	i.							   g			1
<u> </u>		X								16-			- 1
													- 1
<u> </u>													- 1
95										g			- 1
<u> </u>		X								13-			- 1
<u> </u>			Wet Dance Cray Sand with Sans Crays										- 1
			Wet, Dense, Gray Sand with Some Gravel										- 1
100	*****			22						10	0		ı
		X	Wet, Dense, Gray Sand with Trace Gravel							24-			
			Boring Terminated										
													1
10-													1
105		_	Lurriagna Ditah										$\dashv$
KEM/	4KKS	·. Ի	lurricane Ditch										

IOB NO.   100870   Greene County   IOB NAME:   Hwy. 34 Strs. & Apprs. (S)   Remarks:   Hurricane Ditch		ARKANSAS HWY. & TRANS. DEPARTMENT MATERIALS DIVISION - GEOTECHNICAL SEC.				BORING NO. 2 PAGE 1 OF 4								
JOB NAME:   Hwy, 34 Strs. & Apprs. (S)   Route 34 Section 4   Hollow Stem Auger - Rotary Wash   Hollow Step Auger - Rotary Wash   Hollow Ste										v 2.	2017	7		_
Route 34 Section 4 STATION: 111+34 LOCATION: 5' Left of Construction Centerline LOGGED BY: Coty Campbell  THAMMER CORRECTION FACTOR: 1.37  DESCRIPTION OF MATERIAL THOMAS A MOIST, LOOSE, Gray Sandy Silt  Moist, Loose, Gray Sandy Silt  Moist, Stiff, Gray Clay  Wet, Medium Dense, Gray Sand with Silt  SW NP  Wet, Medium Dense, Gray Silty Sand  SW NP  Wet, Medium Dense, Gray Silty Sand  SW NP  Hollow Stem Auger - Rotary Wash EQUIPMENT: CME 75  CME 75  CME 75  CME 75  Language - Rotary Companies  CME 75  CME 75  Language - Rotary Wash EQUIPMENT: CME 75  CME 75  Language - Rotary Wash EQUIPMENT: CME 75  Language - Rotary Basic  Language - Rotary Wash EQUIPMENT: CME 75  Language - Rotary Basic  Language - Rotary Basic				•			F DR	ILLING		,				
STATION: 111-34   EQUIPMENT: CME 75   LOCATION: 5' Left of Construction Centerline   LOCATION: 5' Left of Construction Centerline   LOCATION: 5' Left of Construction Centerline   LOCATION: 25' Left of Construction Center										r - R	otary	w Wa	sh	
LOGGED BY: Coty Campbell   SAME CORRECTION FACTOR: 1.37	STATI	ON:		111+34							_			
D   S   S   A   DESCRIPTION OF MATERIAL   SOIL GROUP   DISTRIBUTION OF MATERIAL   DISTRIBUTION OF MATERIAL   SOIL GROUP   DISTRIBUTION OF MATERIAL   DI	LOCA	TION:	;	5' Left of Construction Centerline										
DESCRIPTION OF MATERIAL   SOIL GROUP   SURFACE ELEVATION: 261.6   SOIL GROUP   SURFACE ELEVATION: 261.6   SOIL GROUP   SURFACE ELEVATION: 261.6   SOIL GROUP	LOGG	ED BY	<u>: C</u>	oty Campbell		HAMM	ER CO	ORREC'	ΓΙΟΝ	FAC	TOR:		1.37	
Figure   F	COM	PLET	ION	J DEPTH: 121.5								2		
P		٥												
FT										T,	S		04	0/-
Moist, Loose, Gray Sandy Silt				DESCRIPTION OF MATERIAL	SOIL	1			H	U.F	M 0			
Moist, Loose, Gray Sandy Silt					GROUP	ပြွ	ST.		EIG	RC	BL	ż	C	Q
Moist, Loose, Gray Sandy Silt	i''					IST	101		≱  ×	PE	OF	I-9	K	ש
Moist, Loose, Gray Sandy Silt  ML NP 3 3-3 3-3  CH 19 57 3 3-9  Moist, Stiff, Gray Clay  ML NP 2 2-3  Wet, Loose, Gray Silt with Sand  SW-SM NP Wet, Medium Dense, Gray Sand with Silt  SM NP Wet, Medium Dense, Gray Silty Sand  NP 8 9-13  NP 4 4-9  - NP 4 4-9	FT,	L		SURFACE ELEVATION: 261.6		LIN	<b>№</b>		DR	LBS	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	PER		
MIL														
MIL														
MIL					100									
MIL														
MIL				Basist Lagas Cray Sandy Silt		- L						,		
10	ا ا		X	Moist, Loose, Gray Sandy Silt	ML	INP	ļ.							
15			$\rightarrow$	(		1					ľ	•		
15	—:-													
Moist, Stiff, Gray Clay  Moist, Stiff, Gray Clay  ML  NP  2 2-3  Wet, Loose, Gray Silt with Sand  Wet, Medium Dense, Gray Sand with Silt  SW-SM  NP  SW-SM  NP  8 9-13  Wet, Medium Dense, Gray Silty Sand  SW  NP  8 9-13  NP  4 4-9														
Moist, Stiff, Gray Clay  Moist, Stiff, Gray Clay  ML  NP  2 2-3  Wet, Loose, Gray Silt with Sand  Wet, Medium Dense, Gray Sand with Silt  SW-SM  NP  SW-SM  NP  8 9-13  Wet, Medium Dense, Gray Silty Sand  SW  NP  8 9-13  NP  4 4-9	<u> </u>													
Moist, Stiff, Gray Clay  ML  Wet, Loose, Gray Silt with Sand  SW-SM  Wet, Medium Dense, Gray Sand with Silt  SM  Wet, Medium Dense, Gray Silty Sand  SW  NP  SW  NP  SW  NP  SW  NP  SW  NP  SW  NP  A  A  A  A  A  A  A  A  A  A  A  A  A	10		X		СН	19		57						
Wet, Loose, Gray Silt with Sand  Wet, Medium Dense, Gray Sand with Silt  Wet, Medium Dense, Gray Silty Sand  SW-SM  NP  88 9-13  Wet, Medium Dense, Gray Silty Sand  SW  NP  88 9-13  SW  NP  44 4-9						-					3	-9		
Wet, Loose, Gray Silt with Sand  Wet, Medium Dense, Gray Sand with Silt  Wet, Medium Dense, Gray Silty Sand  SW-SM  NP  88 9-13  Wet, Medium Dense, Gray Silty Sand  SW  NP  88 9-13  SW  NP  44 4-9		//		Moist Stiff Gray Clay		1								
Wet, Loose, Gray Silt with Sand  Wet, Loose, Gray Silt with Sand  SW-SM  Wet, Medium Dense, Gray Sand with Silt  SM  NP  SM  NP  8 9-13  Wet, Medium Dense, Gray Silty Sand  SW  NP  SW  NP  4 4-9		//		moiot, out, oray oray	::=	1								
Wet, Loose, Gray Silt with Sand  Wet, Loose, Gray Silt with Sand  SW-SM  Wet, Medium Dense, Gray Sand with Silt  SM  NP  SM  NP  8 9-13  Wet, Medium Dense, Gray Silty Sand  SW  NP  SW  NP  4 4-9		//												
Wet, Loose, Gray Silt with Sand  SW-SM  Wet, Medium Dense, Gray Sand with Silt  SM  NP  8  9-13  Wet, Medium Dense, Gray Silty Sand  SW  NP  8  9-13  NP  4  4-9	15	//		7		NP						,		
Wet, Loose, Gray Silt with Sand  SW-SM  Wet, Medium Dense, Gray Sand with Silt  SM  NP  8 9-13  Wet, Medium Dense, Gray Silty Sand  SM  NP  8 9-13  NP  4 4-9			X		ML	'`''					2	-3		
20 :::::  Wet, Medium Dense, Gray Sand with Silt  25				l		1								
Wet, Medium Dense, Gray Sand with Silt  SW-SM  NP  SM  NP  8  9-13  Wet, Medium Dense, Gray Silty Sand  SW  NP  8  9-13  NP  4  4-9	<u> </u>			Wet, Loose, Gray Silt with Sand	l									)
Wet, Medium Dense, Gray Sand with Silt  SW-SM  NP  SM  NP  8  9-13  Wet, Medium Dense, Gray Silty Sand  SW  NP  8  9-13  NP  4  4-9	<u> </u>				_									
Wet, Medium Dense, Gray Sand with Silt  SM NP  SM NP  Wet, Medium Dense, Gray Silty Sand  SW NP  SW NP  4 4-9	20					ND					١,			
Wet, Medium Dense, Gray Sand with Silt  SM  Wet, Medium Dense, Gray Silty Sand  Wet, Medium Dense, Gray Silty Sand  SW  NP  4 4-9			X		SW-SN	1 NP								
25   NP   8   9-13   SM   NP   4   4-9   SW   SW   SW   SW   Sw   SW   Sw   Sw				l .		1					ັ	-		
SM   NP   8   9-13				Wet, Medium Dense, Gray Sand with Silt										
SM   NP   8   9-13					-									
Wet, Medium Dense, Gray Silty Sand  SM  9-13  SW  NP  4 4-9	25			47 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 -										
Wet, Medium Dense, Gray Silty Sand			X		SM	NP								
30 SW NP 4 4-9						-					9-	13		
30 SW NP 4 4-9				Wet, Medium Dense, Gray Silty Sand										
SW NP 4 4-9					-									
SW NP 4 4-9	30													
35			$\bigvee$		SIM	NP						1		
			$\triangle$		344	-					4	-9		
	<u> </u>													
					+:									
	25													
NEW STOP TRITIONIO DITOR		ARKS	. L	L Hurricane Ditch	1	1		L						
	\	, 11 VI V	, (	Idinodilo Ditoli										

ARKANSAS HWY. & TRANS. DEPARTMENT MATERIALS DIVISION - GEOTECHNICAL SEC.						BORING NO. 2 PAGE 2 OF 4							
		_			PAGE	2	OF		_	2015	_	_	$\dashv$
JOB N			100870 Greene County	- 1	DATE:				y 2,	2017	/		- 1
JOB N	AME:		Hwy. 34 Strs. & Apprs. (S) Route 34 Section 4		TYPE O		itting Stem A		D	0 t 0 ===	. W.	ah	- 1
STATI	ONL		111+34					luger		ME 7		SII	1
LOCA			5' Left of Construction Centerline		EQUIPN	AEN I	:		Cı	VIE /	3		
			oty Campbell		HAMMER CORRECTION FACTOR: 1.37								- 1
			DEPTH: 121.5		I MANUEL CORRECTION FACTOR. 1.37								
D		S	DEI III. IEI.		T								$\neg$
E	S	A							**				
Р	Y M	М	DESCRIPTION OF MATERIAL	SOIL				Ħ	I.F	M.S		%   T	% R
Т	В	Р	BESSIAN FISH OF MATERIAL	GROUP	()	Ľ,		IGE	CC	BLC	÷	$\begin{bmatrix} 1 \\ C \end{bmatrix}$	Q
Н	ō	L E			STI	OIS		WE	PER	OF 1	U-9	R	D
FT.	L		SURFACE ELEVATION: 261.6		PLASTIC LIMIT	% MOIST.	LIQUID	DRY WEIGHT	LBS PER CU.FT	NO. OF BLOWS	PER 6-IN.		
	:::::::		CONTROL ELEVATION. 201.0		NP	0,	нн	н	П	- 4	_	$\dashv$	_
		$\triangle$		SW	] ' ''					6-			- 1
			Wet, Medium Dense, Gray Sand										- 1
-,,,-			vvet, Medidili Derise, Gray Sand	-								w	- 1
40													- 1
40					NP					5	5		- 1
89-		$\triangle$		SW						9-	9		
			1	S <del>e</del> s									
45													
45					NP					8	3		- 1
		$\triangle$		SW						13-	-13		- 1
			Wet, Medium Dense, Gray Sand with Trace										- 1
			Gravel	S. <del></del>									i
													- 1
50				0)4/ 01	NP					8	3		
		$\triangle$		SW-SM	1					9.	-8		- 1
			Wet, Medium Dense, Gray Sand with Silt and										
			Trace Gravel	2.E									
 55													- 1
55		7		0144	NP						7		- 1
		$\triangle$		SW						13	-19		ı
			   Wet, Dense, Gray Sand										
			vvot, bende, dray dand	S#5									
60													
-00	1.11111			0)4/	NP						1		
<u> </u>		$\triangle$		SW						11	-9		
				35									
<u>_</u> -													
65					NP					;	7		
		$oxed{igwedge}$	,	SW							-14		
			Wet, Medium Dense, Gray Sand with Trace										
			Gravel	2.5									
70													
70 DEM	VDNC	) L	l Iurricane Ditch		1	34			_				
	MUNC	). Г	iumoane Diton										

			HWY. & TRANS. DEPARTMENT		BORIN			- 4					
-			DIVISION - GEOTECHNICAL SEC.		PAGE	3	OF	· 4		201			
JOB N			100870 Greene County		DATE:	E DD			y 2,	201	/		
JOB N	AME:		Hwy. 34 Strs. & Apprs. (S) Route 34 Section 4		TYPE O				. D	otom	. W.	ah	
OTT A TEST	OM		111+34				Stem A	Lugei		otary ME 7		SII	
STATI			5' Left of Construction Centerline		EQUIPN	MENI	:		Cı	VIE	3		
LOCA			oty Campbell		HAMM	ED CO	ነወወፎር"	TION :	E A C'I	rop.		1.37	
			DEPTH: 121.5		TIAIVIIVI	EK CC	IKKEC.	I IOIV	raci	OK.	_	1.57	
D		s	DEI III. 121.5	ĺ	Т								_
E P T H	S Y M B	O A M P L	DESCRIPTION OF MATERIAL	SOIL GROUP	IC	ST.		EIGHT	LBS PER CU.FT.	NO. OF BLOWS	Ż	% T C	% R Q
FT;	O L	ES	SURFACE ELEVATION: 261.6		PLASTIC LIMIT	% MOIST	LIQUID	DRY WEIGHT	LBS PE	NO. OF	PER 6-IN.	R	D
		X		sw	NP	0.		-			7 -17		
			188	-									
75		X		sw	NP						8 -14		
			Wet, Medium Dense, Gray Sand								, ,		
80				()									
		$\boxtimes$		sw	NP						7		
85			Wet, Medium Dense, Gray Sand with Trace Gravel	-							œ.		
		X		SW	NP						8 -14		
90			Wet, Medium Dense, Gray Sand										
		X		sw	NP						1 -18		
  95			Wet, Dense, Gray Sand with Trace Gravel										
		X		sw	NP						6 ·10		
100			Wet, Medium Dense, Gray Sand										
<u> </u>		X		sw	NP						0 -27		
— - — - 105			Wet, Dense, Gray Sand	25									
	ARKS	S: H	Hurricane Ditch				are.						

			WY. & TRANS. DEPARTMENT		BORIN							1
			DIVISION - GEOTECHNICAL SEC.		PAGE	4	OF	₹ 4				_
JOB N			100870 Greene County		DATE:				y 2,	2017		
JOB N	AME:		Hwy. 34 Strs. & Apprs. (S)		TYPE C				_			
			Route 34 Section 4					Lugei		otary W	'ash	
STATI			111+34		EQUIP	MENT	:		CI	ME 75		
LOCA			5' Left of Construction Centerline		****	TD 66	DDE C	ELONI.		200	1.37	,
			oty Campbell		HAMM	ER CC	JRREC!	HON .	FACI	OR:	1.37	
	PLEI		DEPTH: 121.5		1						$\overline{}$	-
D	S	S A										
E P T	Υ	м	DECODIDITION OF MATERIAL						FT	NS WS	%	%
+	М	P	DESCRIPTION OF MATERIAL	SOIL GROUP				HS	CO.	20	T C	R
н	В	L		GROOF	12.	IST	ا. روا	WEI	ER	FB	R	Q D
	Ĺ	E			PLASTIC LIMIT	% MOIST.	LIQUID	DRY WEIGHT	LBS PER CU.FT	NO. OF BLOWS	4	
FT,	1111111111	S	SURFACE ELEVATION: 261.6		44011	%	33		LI		4	
		X		SW-SN	NP					20 34-50	21	
					-					34-30		
			Wet, Very Dense, Gray Sand with Silt									
				; <del>-</del> -:								
110												
		M		sw	NP					14 24-26		
					-					24-20		
			Wet, Dense, Gray Sand									
				:=:								
115												
		$\bigvee$		sw	NP					5		
		$\wedge$			-					7-10		
			Wet, Medium Dense, Gray Sand									
120												
120				sw	NP					10		
		$\triangle$		300						9-11	+	
			Boring Terminated									
125											11.1	
123											10.0	
:-												
			~									
120												
130												
<u> </u>												
135												
140												
REM	ARKS	S: H	lurricane Ditch									

			HWY. & TRANS. DEPARTMENT DIVISION - GEOTECHNICAL SEC.		BORIN PAGE	IG NO		- 3					
JOB N			100870 Greene County		DATE:				6 &	17, 2	017		
JOB N.			Hwy. 34 Strs. & Apprs. (S)		TYPE C	F DR				,			- 1
			Route 34 Section 4				Stem A		r - R	otary	wa Wa	sh	1
STATI	ON:		210+26		EQUIPN					ME 7			
LOCA'		:	20' Right of Construction Centerline										
LOGG	ED BY		roy Frazier		HAMM	ER CO	ORREC	TION	FACT	ΓOR:		1.37	
COM	PLET:	ION	DEPTH: 101.5										
D		s											
E	S Y	Ā		1					40				
P	М	М	DESCRIPTION OF MATERIAL	SOIL				Ħ	J.F	<u>≋</u>		% T	% R
I T	В	P		GROUP		Ţ		SIG	SCI	BEC	÷	C	Q
Н	0	L E			STI	OIS	百日	₹	PEI	OF.	1I-9	R	D
FT.	L		SURFACE ELEVATION: 256.1		PLASTIC LIMIT	% MOIST	LIQUID	)RY	LBS PER CU.FT	NO. OF BLOWS	PER 6-IN.		
	1011111	Ť	SON AGE ELEVATION. 230.1			0	нн	п		-	<u> </u>	$\dashv$	-
<u> </u>													1
<u> </u>													
5		$\overline{}$	Moist, Loose, Brown Sand								1		
		$\triangle$								2.	-3		
10	· · · · ·			1							3		
10	//	X								4		1	
<u> </u>	//	(-)	f .							,			
	//		Moist, Stiff, Brown and Gray Sandy Clay										
-	//												
	//							1					
15	11		11	-						١.	3		
		X									11		
			<u>.</u>										
			Wet, Medium Dense, Brown Sand										
20				]									
L _		$\setminus$									3 -11		
										10	-11		
			Wet, Medium Dense, Gray Sand										
25													
<u>-</u> ~				1							3		
		$\triangle$								4	-6		
			Wet, Loose, Gray Sand							œ.			
<b>—</b> =			Yvet, Loose, Cray Carlu					1					
<u> </u>													
30				-							6		
		X									-10		
			Wet, Medium Dense, Gray Sand					1					
35													
	ARKS	S: E	Big Slough										
L													

			HWY. & TRANS. DEPARTMENT DIVISION - GEOTECHNICAL SEC.		BORIN PAGE	IG NO		- 3					
JOB N			100870 Greene County		DATE:				6 &	17, 2	017		
JOB N			Hwy. 34 Strs. & Apprs. (S)		TYPE C	F DR		-		,			
			Route 34 Section 4		Holl	ow S	Stem A	luge	r - R	otary	Wa	sh	
STATI	ON:	:	210+26		EQUIPN	<b>MENT</b>	:		Cl	ME 7	5		
LOCA			20' Right of Construction Centerline										
			roy Frazier		HAMM	ER CO	ORREC'	TION	FAC	ror:		1.37	
COM	PLET	ION	DEPTH: 101.5					_				_	
D	s	S											
E P	Y	A							H	S.		%	%
T	М	M P	DESCRIPTION OF MATERIAL	SOIL				GHT]	CU.I	ဝို		T	R
H	В	Ľ		GROUP	' ဥ	ST.		VEI	ER (	BI	Ż	C R	Q D
	O L	Е			PLASTIC LIMIT	% MOIST.	LIQUID	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS	PER 6-IN.	``	
FT,	_	s	SURFACE ELEVATION: 256.1		되고	%	35	DR		_	_		
		X								8-			
			Wet Medium Dance Cray Sand with Trace							8-	.9		
			Wet, Medium Dense, Gray Sand with Trace Gravel										
			Siavai										
40										_ ا			
		X								9-2			
<u>L</u> _		$\leftarrow$								"	- 1		
L _													
					1								
45			Wet, Medium Dense, Gray Sand		1								
		X	vvet, Medium Dense, Gray Sand							9-			
										9-	9		
							:						
50													
		$\bigvee$		1						40			
		$\sim$								10-	15		
					1								
55			Wet, Medium Dense, Gray Sand with Trace		1								
		V	Gravel							_ 6			
		$\triangle$								9-	12		
$\vdash$													
60													
				1							7		
		$\triangle$								9-	11		
					1								
65													
00		7	Wet, Medium Dense, Gray Sand								7		
		$\triangle$								11-	-14		
<u> </u>													
<u> </u>					1								
<u>-</u> ,-													
70 DEM	VDNO		I Big Slough			L	L	1					
I KEIVI	~!\/\	). C	org Glough										

			IWY. & TRANS. DEPARTMENT DIVISION - GEOTECHNICAL SEC.		BORIN PAGE	IG NO		3					
JOB N			100870 Greene County		DATE:				6 &	17, 2	017		
JOB N.	AME:	ı	Hwy. 34 Strs. & Apprs. (S)		TYPE C	F DR	ILLING	:					
			Route 34 Section 4		Holl	ow S	Stem A	Auge	r - R	otary	Wa	sh	
STATI	ON:	2	210+26		EQUIPN	ИENT	:		C	ME 7	5		
LOCA'	TION:	2	20' Right of Construction Centerline										
LOGG	ED BY		roy Frazier		HAMM	ER CO	ORREC"	TION	FAC'	TOR:		1.37	
COM	PLET	ION	DEPTH: 101.5										
D		s											
E	S Y	Ā					li .		8				
Р	М	М	DESCRIPTION OF MATERIAL	SOIL				H	J.FJ	×		% T	% R
T	В	Р		GROUP	اں	μř		EIG.	SC	BL(	ا بر	C	Q
н	0	E			STI	OIS		Ĭ.	PEI	OF	6-II	R	D
FT.	L		SURFACE ELEVATION: 256.1		PLASTIC LIMIT	% MOIST	LIQUID	DRY WEIGHT	LBS PER CU.FT	NO. OF BLOWS	PER 6-IN.		- 1
- 1:1		$\overline{}$	SON ACE ELEVATION: 230.1			0				20			-
		X								34-			
<u> </u>													
			Wet, Very Dense, Gray Sand with Trace Gravel										1
			,		1								
75	()									7			
		X		2.						13-			
			k.							'	``		
													i
80													
		$\nabla$	Wet, Medium Dense, Gray Sand							_ 5			
		$\triangle$								10-	15		
-													
85	1 11 11 1									6	3		
		X								11-	15		
			11										
90			Wet, Medium Dense, Gray Sand with Trace							١,	,		
		X	Gravel							11-			
										''	10		
95													
		V								1			
		$\triangle$								20-	29		
			Wet, Dense, Gray Sand										
			110, 20,00, 0,0, 00,00									1	
100		Ų.											
100										1:	5		
<u> </u>		X	Wet, Dense, Gray Sand with Trace Gravel							18-	18		
<u> </u>			Boring Terminated										
105		ļ											
REM	ARKS	3: E	ig Slough										

**ARKANSAS HWY. & TRANS. DEPARTMENT** BORING NO. 4 MATERIALS DIVISION - GEOTECHNICAL SEC. 1 OF 3 PAGE JOB NO. 100870 **Greene County** May 22 & 23, 2017 DATE: JOB NAME: Hwy. 34 Strs. & Apprs. (S) TYPE OF DRILLING: Route 34 Section 4 Hollow Stem Auger - Rotary Wash STATION: 212+45 EQUIPMENT: **CME 75** LOCATION: 20' Right of Construction Centerline LOGGED BY: Troy Frazier HAMMER CORRECTION FACTOR: 1.37 **COMPLETION DEPTH: 101.5** S S E Α Υ LBS PER CU.FT. % T NO. OF BLOWS % P M DRY WEIGHT **DESCRIPTION OF MATERIAL** М SOIL R Т Ρ C **GROUP** Q В PLASTIC LIMIT % MOIST. PER 6-IN. Н L LIQUID R 0 FT. SURFACE ELEVATION: 256.9 Moist, Medium Stiff, Brown Sandy Clay 48 2 15 CL 3-5 10 15 60 CH 3-4 Moist, Medium Stiff, Brown Sandy Clay 15 NP 2 SW-SM 5-6 Wet, Medium Dense, Gray Sand with Silt 20 NP SW 5-10 Wet, Medium Dense, Gray Sand 25 NP SW 6-10 Wet, Medium Dense, Gray Sand with Trace Gravel 30 NP 6 SW 7-8 Wet, Medium Dense, Gray Sand REMARKS: Big Slough

JOB NO.   100870   Greene County   Hwy, 34 Strs. & Apprs. (S)   Route 34 Section 4   STATION: 212445   CME 75				IWY. & TRANS. DEPARTMENT DIVISION - GEOTECHNICAL SEC.		BORING NO. 4 PAGE 2 OF 3								
JOB NAME										2 &	23, 2	017		
Route 34 Section 4   Hollow Stem Auger - Rotary Wash   EQUIPMENT: CME 75	JOB N	AME:		•			F DR		-					
STATION: 212-145   LOCATION: 20 Right of Construction Centerline   LOCATION: 20 Right of Construction Factors: 1.37				*						r - R	otarv	. Wa	sh	
LOCATION: 20 Right of Construction Centerline   HAMMER CORRECTION FACTOR: 1.37   1.3	STATI	ON:							3,					
LOGGED BY: Troy Frazier   LAMMER CORRECTION FACTOR: 1.37	LOCA	TION:	:	20' Right of Construction Centerline		,								
COMPLETION DEPTH: 101.5   S   S   A   DESCRIPTION OF MATERIAL   SOIL GROUP   SOIL SIJENT   SOIL GROUP   SOIL SIJENT   SOIL GROUP   SO						HAMM	ER CO	ORREC'	TION	FAC	TOR:		1.37	
P														
P			$\overline{}$											
P														
Wet, Medium Dense, Gray Sand with Trace   SW   NP   7   11-18				DESCRIPTION OF MATERIAL	SOII				=	J.FT	§			
Wet, Medium Dense, Gray Sand with Trace   SW   NP   7   11-18			P			(1)	1		[5]	CC	128	<b>∴</b>		
Wet, Medium Dense, Gray Sand with Trace   SW   NP   7   11-18	+		닏			III.	SIC		ME	PER	E E	Q-II	R	Ď
Wet, Medium Dense, Gray Sand with Trace   SW   NP   7   11-18	ET	L		SUDEACE ELEVATION: 256 0		I Y	W.W		RY	BS	0	ER		
Wet, Medium Dense, Gray Sand with Trace  40  Wet, Medium Dense, Gray Sand  Wet, Medium Dense, Gray Sand  SW  NP  7 711-11  SW  NP  6 7-9  - SW  NP  6 9-10  SW  NP  4 5-8  Wet, Medium Dense, Gray Sand with Trace Gravel  SW  NP  4 5-8  - SW  NP  11-18  7 11-18  7 11-18  7 11-18  7 11-18  7 11-11  7 11	113	I 11 11 1	9	SURFACE ELEVATION. 230.9		ND P J	%	177			_			
Wet, Medium Dense, Gray Sand with Trace	<u> </u>		X		SW	INP								1
Gravel				Wet. Medium Dense, Gray Sand with Trace							' '			
SW   NP   T   11-11														
SW   NP   T   11-11					=									
SW	40	(111)									١.			
Wet, Medium Dense, Gray Sand  SW NP 6 7-9  SW NP 6 9-10  Wet, Medium Dense, Gray Sand with Trace Gravel  SW NP 4 5-8  SW NP 6 15-21			X		sw	NP								
SW   NP   6   7-9			$\vdash$								'''			
SW   NP   6   7-9				Wet, Medium Dense, Gray Sand										
SW   NP   6   7-9					=									
SW   NP   6   7-9	45													
50 Wet, Medium Dense, Gray Sand with Trace Gravel  SW NP  6 9-10  SW NP  4 5-8  - NP 6 15-21  Wet, Dense, Gray Sand with Trace Gravel SW NP  11 22-28  - 70	- 13	10117	$\nabla$		SW	NP								
Wet, Medium Dense, Gray Sand with Trace Gravel   SW   NP			$\triangle$		300	-					7-	9		
Wet, Medium Dense, Gray Sand with Trace Gravel   SW   NP														
Wet, Medium Dense, Gray Sand with Trace Gravel   SW   NP					-									
Wet, Medium Dense, Gray Sand with Trace Gravel   SW   NP														
Wet, Medium Dense, Gray Sand with Trace Gravel  SW  NP  4 5-8  - 60  SW  NP  6 15-21  Wet, Dense, Gray Sand with Trace Gravel SW  NP  11 22-28	50					NP					6	3		
Gravel   -			X		SW	' ''								
Gravel   -				Wet. Medium Dense. Grav Sand with Trace										
SW NP	<u> </u>													
SW NP					-									
SW   SW   S-8	55					ND					١,			
60 SW NP 6 15-21 SW NP 11 22-28 - 70			X		sw	INP								
SW   NP   6   15-21			$\vdash$									-		
SW   NP   6   15-21														
SW   NP   6   15-21					-									
SW   NP   6   15-21	60													
Wet, Dense, Gray Sand with Trace Gravel  SW NP 11 22-28			X		sw	NP								
vvet, Derise, Gray Sand With Trace Gravel SW NP - 11 22-28											15	-21		
vvet, Derise, Gray Sand With Trace Gravel SW NP - 11 22-28	_ =													
vvet, Derise, Gray Sand With Trace Gravel SW NP - 11 22-28					-									
vvet, Derise, Gray Sand With Trace Gravel SW NP - 11 22-28	GE -													
70 SW 22-28	- 00		7	Wet, Dense, Gray Sand with Trace Gravel		NP					1	1		
	<del></del>		$\triangle$		SW						22-	-28		
					_									
REMARKS: Big Slough		::::::::::::::::::::::::::::::::::::::												
	REM	ARKS	S: E	ig Slough										

			HWY. & TRANS. DEPARTMENT		BORING NO. 4								
			DIVISION - GEOTECHNICAL SEC.		PAGE	3		F 3					
JOB N			100870 Greene County		DATE:			lay 2	2 &	23, 2	2017		
JOR N	IAME:		Hwy. 34 Strs. & Apprs. (S)		TYPE C								
G T A T	T011		Route 34 Section 4				Stem A	Luger		-		sh	
STAT			212+45		EQUIPN	MENT	:		Cl	ME 7	75		
	TION:		20' Right of Construction Centerline										
			roy Frazier		HAMM	ER CO	ORREC'	LION	FACT	ΓOR:		1.37	
	PLEI		DEPTH: 101.5		_	_					_	_	
D E P T H	S Y M B O L	8 A M P L III 0	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: 256.9		_	_%	בת	Q	7		_	$\blacksquare$	
		X		SW-SM	NP					22-			
			Wet, Dense, Gray Sand with Silt and Trace		1			l		22-	20		
			Gravel										
				-									
75									- 1				
		X		sw	NP					10-			
		-			1					10-	10		
			Wet, Medium Dense, Gray Sand										
				-									
80													
		X		sw	NP				- 1	9			
		$\hookrightarrow$								16-	16		
			Wet, Dense, Gray Sand with Trace Gravel										
			4)	:=									
85													
		$\bigvee$		SW	NP					7		1 1	
		$\hookrightarrow$								18-	23		
			Wet, Dense, Gray Sand										
				:=:							- 1		
90													
		V		SW	NP					18			
===311=		$\triangle$		300						25-	28	1	
			Wet, Very Dense, Gray Sand with Trace Gravel								ĺ		ĺ
			, , , , , , , , , , , , , , , , , , , ,	:=:									
 95												- 1	
				CIA	NP					10			1
		$\triangle$		SW						15-	21		
			Wet, Dense, Gray Sand with Trace Gravel								- 1		1
			The state of the s	i <del></del>									
100		ı											- 1
100			W. B. O. O. I		NP					7			
		$\triangle$	Wet, Dense, Gray Sand	SW						15-2	10000		
-			Boring Terminated								T		
			8								- 1		
105													
	7BK6	. p:	g Slough						_1				$\dashv$
		ات .	g Clough										

### ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

May 16, 2017

TO:

Mr. Trinity Smith, Engineer of Roadway Design

SUBJECT:

Job No. 100870

Hwy. 34 Strs. & Apprs. (S)

Route 34 Section 4
Greene County

Transmitted herewith is the requested Soil Survey, strength data and Resilient Modulus test results for the above referenced job. The project consists of replacing three bridges on Highway 34. Samples were obtained in the existing travel lanes and ditch line. There were no paved shoulders within the project.

Based on laboratory results of samples obtained, the subgrade soils consist primarily of highly plastic clay with sand. The subgrade soils are expected to provide a stable working platform with normal drying and compactive effort if the weather is favorable during construction.

Based on currently available cross-sections the maximum embankment height is approximately 10 feet. The embankment may be constructed with locally available unspecified material utilizing the slope configuration shown in the cross-sections.

Listed below is the additional information requested for use in developing the plans:

1. The Qualified Products List (QPL) indicates that Aggregate Base Course (Class CL-7) is available from commercial producers located at the river port near Amorel.

### 2. Asphalt Concrete Hot Mix

Туре	PG 64-22	
	Asphalt Cement %	Mineral Aggregate %
Surface Course	5.2	94.8
Binder Course	4.1	95.9
Base Course	3.9	96.1
	PG 70-22	
Type	Asphalt Cement %	Mineral Aggregate %
Surface Course	5.1	94.9
Binder Course	4.1	95.9
Base Course	3.7	96.3
	PG 76-22	30.0
Түре	Asphalt Cement %	Mineral Aggregate %
Surface Course	5.2	94.8
Binder Course	4.2	95.8
Base Course	3.8	96.2

Michael C. Benson Materials Engineer

MCB:pt:bjj Attachment

cc: State Constr. Eng. – Master File Copy District 10 Engineer System Information and Research Div.

G. C. File

### MICHAEL BENSON, MATERIALS ENGINEER

\*\*\* SOIL SURVEY STRENGTH TEST REPORT \*\*\*

DATE - 05/01/2017 SEQUENCE NO. - 1

MATERIAL CODE = SSRV JOB NUMBER - 100870

SPEC. YEAR = 2014

SUPPLIER ID. - 1

COUNTY/STATE - 28

DISTRICT NO. - 10

JOB NAME - HWY.34 STR. & APPRS. (S)

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

STATION LIMITS R-VALUE AT 240 psi \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

BEGIN JOB = END JOB LESS THAN 5

RESILIENT MODULUS

STA. 114+90 5137 STA. 206+10 6718

REMARKS =

AASHTO TESTS : T190

### ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT MATERIALS DIVISION

### AASHTO T 307-99 - RESILIENT MODULUS OF SUBGRADE SOILS RECOMPACTED SAMPLES

Job No. Date Sampled: Date Tested: Name of Project: County: Sampled By: Lab No.: Sample ID: LATITUDE:	100870 3/28/17 April 27, 2017 HWY. 34 STR. & APPRS. (S) Code: 28 Name: GREENE THORNTON/TAYLOR 20171267 RV319	Material Code Station No.: Location:  Depth: AASHTO Class: Material Type (1 o	SSRVPS 114+90 18LT	0-5 A-6(6) 2
1. Testing Inforn		/_\/ NI NI_\		N
	Preconditioning - Permanent Strain > 5% (\			N
	Testing - Permanent Strain > 5% (Y=Yes or Number of Load Sequences Completed (0-1			N 15
	Number of Load Sequences Completed (0-1	3)		15
2. Specimen Info	ormation:			
0,000	Specimen Diameter (in):			
	Тор			3.92
	Middle			3.92
	Bottom			3.92
	Average			3.92
	Membrane Thickness (in):			0.01
	Height of Specimen, Cap and Base (in):			8.03
	Height of Cap and Base (in):			0.00
	Initial Length, Lo (in):			8.03
	Initial Area, Ao (sq. in):			11.99
	Initial Volume, AoLo (cu. in):			96.32
3. Soil Specimer				
	Weight of Wet Soil Used (g):			3229.50
4. Soil Properties				4 - 4
	Optimum Moisture Content (%):			15.4
	Maximum Dry Density (pcf):			110.2
	95% of MDD (pcf):			104.7
	In-Situ Moisture Content (%):			N/A
5. Specimen Pro	nortice:			
o. opecimen i io	Wet Weight (g):			3229.50
	Compaction Moisture content (%):			15.4
	Compaction Wet Density (pcf):			127.75
	Compaction Dry Density (pcf):			110.71
	Moisture Content After Mr Test (%):			15.4
6. Quick Shear T	est (Y=Yes, N=No, N/A=Not Applicable):			#VALUE!
7. Resilient Mod	ulus, Mr:	739	94(Sc)^-0.29605	5(S3)^0.34734
0. Commercial				
8. Comments	<del>}</del>			
	<u> </u>			
9. Tested By:	GW	Date: April 27, 2017		

# ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT MATERIALS DIVISION

## AASHTO T 307-99 - RESILIENT MODULUS OF SUBGRADE SOILS RECOMPACTED SAMPLES

SSRVPS 114+90 18LT

Material Code Station No.: Location: HWY. 34 STR. & APPRS. (S) April 27, 2017 3/28/17 100870 Name of Project: Date Sampled: Date Tested: Job No.

GREENE

Name:

Code: 28

County:

Sampled By: THORNTON/TAYLOR

Lab No.: 20171267

Sample ID: RV319

LATITUDE:

AASHTO Class: 0-5
Material Type (1 or 2): 2
LONGITUDE:

	Chamber	Nominal	Actual	Actual	Actual	Actual	Actual	Actual	Average	Resilient	Resilient
	Confining	Maximum	Applied	Applied	Applied	Applied	Applied	Applied	Recov Def.	Strain	Modulus
PARAMETER	Pressure	Axia/	Max. Axial	Cyclic Load	Contact	Мах.	Cyclic	Contact	LVDT 1		
		Stress	Load		Load	Axial	Stress	Stress	and 2		
						Stress					
DESIGNATION	လိ	Seyclic	P <sub>max</sub>	P <sub>cyclic</sub>	Pcontact	Smax	Scyclic	Scontact	H <sub>avg</sub>	ಹ	M
TINO	psi	psi	sql	sql	sql	psi	psi	psi	u	in/in	psi
Sequence 1	6.0	2.0	24.9	22.1	2.8	2.1	1.8	0.2	0.00131	0.00016	11,275
Sequence 2	0.9	4.0	46.8	44.0	2.8	3.9	3.7	0.2	0.00289	0.00036	10,202
Sequence 3	0.9	0.9	68.7	65.2	3.5	5.7	5.4	0.3	0.00486	09000.0	8,984
Sequence 4	0.9	8.0	6.06	85.0	5.9	2.6	7.1	0.5	0.00741	0.00092	7,682
Sequence 5	0.9	10.0	113.1	104.8	8.3	9.4	8.7	0.7	0.01017	0.00127	6,903
Sequence 6	4.0	2.0	24.8	22.1	2.7	2.1	1.8	0.2	0.00153	0.00019	9,662
Sequence 7	4.0	4.0	45.9	43.2	2.7	3.8	3.6	0.2	0.00358	0.00045	8,080
Sequence 8	4.0	0.9	66.3	63.5	2.7	5.5	5.3	0.2	0.00598	0.00074	7,114
Sequence 9	4.0	8.0	88.8	83.8	5.0	7.4	7.0	9.4	0.00860	0.00107	6,529
Sequence 10	4.0	10.0	111.2	103.9	7.3	9.3	8.7	9.0	0.01135	0.00141	6,129
Sequence 11	2.0	2.0	24.6	21.8	2.7	2.0	1.8	0.2	0.00187	0.00023	7,838
Sequence 12	2.0	4.0	44.8	42.0	2.8	3.7	3.5	0.2	0.00429	0.00053	6,556
Sequence 13	2.0	0.9	64.6	61.9	2.7	5.4	5.2	0.2	0.00714	0.00089	5,805
Sequence 14	2.0	8.0	85.7	91.6	4.1	7.1	6.8	0.3	0.01010	0.00126	5,410
Sequence 15	2.0	10.0	107.8	101.3	6.5	9.0	8.4	0.5	0.01320	0.00164	5,137

April 27, 2017	o h
DATE	DATE
GW	
TESTED BY	REVIEWED BY

### ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT **MATERIALS DIVISION**

### AASHTO T 307-99 - RESILIENT MODULUS OF SUBGRADE SOILS RECOMPACTED / THINWALL TUBE SAMPLES

Job No.

100870

**Material Code SSRVPS** 

**Date Sampled:** 

3/28/17

**Station No.:** 114+90

**Date Tested:** 

Location: 18LT

Name of Project: HWY. 34 STR. & APPRS. (S)

April 27, 2017

County:

Code: 28

Name: GREENE

Sampled By:

THORNTON/TAYLOR

Depth: 0-5

Lab No.:

20171267

**AASHTO Class:** A-6(6)

Sample ID:

RV319

Material Type (1 or 2): 2

LATITUDE:

LONGITUDE:

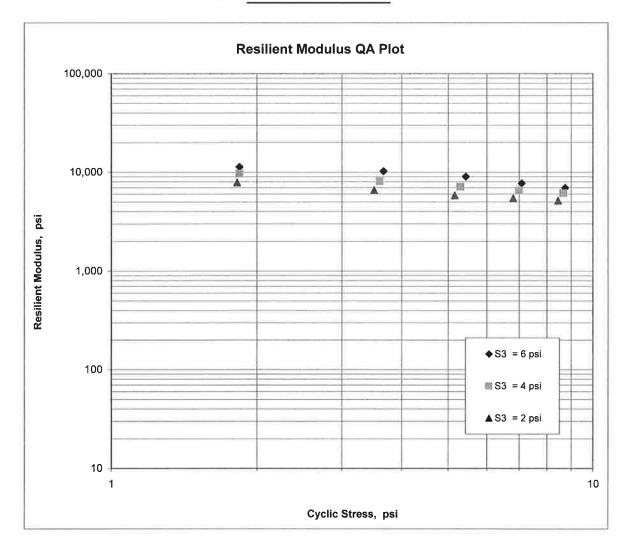
$$M_R = K1 (S_C)^{K2} (S_3)^{K5}$$

$$K1 = 7,394$$

$$K2 = -0.29605$$

$$K5 = 0.34734$$

$$R^2 = 0.97$$



### ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT MATERIALS DIVISION

### AASHTO T 307-99 - RESILIENT MODULUS OF SUBGRADE SOILS RECOMPACTED SAMPLES

Job No. Date Sampled:	100870 3/28/17	Material Code Station No.:	SSRVPS 206+10	
Date Tested:	April 27, 2017	Location:	18RT	
Name of Project:	HWY. 34 STR. & APPRS. (S)			
County:	Code: 28 Name: GREENE			
Sampled By:	THORNTON/TAYLOR	Depth:		0-5
Lab No.:	20171268	<b>AASHTO Class:</b>		A-4(1)
Sample ID:	RV320	Material Type (1	or 2):	2
LATITUDE:		LONGITUDE:		
1. Testing Inform		(V-V N- N-)		N.
	Preconditioning - Permanent Strain > 5%			N
	Testing - Permanent Strain > 5% (Y=Yes o			N 15
	Number of Load Sequences Completed (0-	15)		15
2. Specimen Info				
	Specimen Diameter (in):			
	Тор			3.95
	Middle			3.94
	Bottom			3.95
	Average			3.95
	Membrane Thickness (in):			0.01
	Height of Specimen, Cap and Base (in):			8.02
	Height of Cap and Base (in):			0.00
	Initial Length, Lo (in):			8.02
	Initial Area, Ao (sq. in):			12.16
	Initial Volume, AoLo (cu. in):			97.52
3. Soil Specimen				
	Weight of Wet Soil Used (g):			3207.20
4. Soil Properties	<b>:</b> :			
	Optimum Moisture Content (%):			12.3
	Maximum Dry Density (pcf):			117.7
	95% of MDD (pcf):			111.8
	In-Situ Moisture Content (%):			N/A
5. Specimen Pro	perties:			
	Wet Weight (g):			3207.20
	Compaction Moisture content (%):			12.3
	Compaction Wet Density (pcf):		8	125.31
	Compaction Dry Density (pcf):			111.59
	Moisture Content After Mr Test (%):			12.2
6. Quick Shear T	est (Y=Yes, N=No, N/A=Not Applicable):			#VALUE!
7. Resilient Modu	ılus, Mr:	70	594(Sc)^-0.19808	(S3)^0.36821
8. Comments				
ři.				
9. Tested By:	GW	Date: April 27, 2017		

## ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT **MATERIALS DIVISION**

### AASHTO T 307-99 - RESILIENT MODULUS OF SUBGRADE SOILS RECOMPACTED SAMPLES

SSRVPS 206+10 18RT

Material Code Station No.: Location: HWY. 34 STR. & APPRS. (S) April 27, 2017 100870 3/28/17 Name of Project: Date Sampled: Date Tested: Job No.

GREENE

Name: THORNTON/TAYLOR Code: 28 20171268 RV320 Sampled By: Sample ID: Lab No.: County:

LATITUDE:

0-5
Material Type (1 or 2): 2
LONGITUDE:

	Chamber	Nominal	Actual	Actual	Actual	Actual	Actual	Actual	Average	Resilient	Resilient
PARAMETER	Pressure	Axial	Max. Axial	Cyclic Load	Contact	Applied <b>M</b> ax.	Applied	Applied Contact	LVDT 1	Straill	spinooni
		Stress	Load		Load	Axial	Stress	Stress	and 2		
						Stress					
DESIGNATION	Š	S <sub>cyclic</sub>	P <sub>max</sub>	P <sub>cyclic</sub>	P <sub>contact</sub>	S <sub>max</sub>	Scyclic	Scontact	H <sub>avg</sub>	3	M
TINO	isd	psi	sql	sql	lbs	psi	psi	psi	u	in/in	psi
Sequence 1	6.0	2.0	25.1	22.4	2.6	2.1	1.8	0.2	0.00113	0.00014	13,104
Sequence 2	6.0	4.0	47.3	44.6	2.7	3.9	3.7	0.2	0.00244	0.00030	12,080
Sequence 3	0.9	0.9	69.7	66.3	3.5	5.7	5.5	0.3	0.00393	0.00049	11,126
Sequence 4	6.0	8.0	92.9	87.0	5.9	7.6	7.2	0.5	0.00574	0.00072	9,991
Sequence 5	0.9	10.0	116.5	108.1	8.4	9.6	8.9	0.7	0.00748	0.00093	9,525
Sequence 6	4.0	2.0	25.0	22.4	2.7	2.1	1.8	0.2	0.00132	0.00017	11,138
Sequence 7	4.0	4.0	46.5	43.8	2.7	3.8	3.6	0.2	0.00293	0.00037	9,857
Sequence 8	4.0	0.9	9'.29	64.8	2.8	5.6	5.3	0.2	0.00483	09000.0	8,853
Sequence 9	4.0	8.0	91.1	85.9	5.1	7.5	7.1	0.4	0.00665	0.00083	8,529
Sequence 10	4.0	10.0	114.4	107.0	7.5	9.4	8.8	9.0	0.00861	0.00107	8,196
Sequence 11	2.0	2.0	24.6	21.9	2.6	2.0	1.8	0.2	0.00162	0.00020	8,931
Sequence 12	2.0	4.0	45.4	42.7	2.7	3.7	3.5	0.2	0.00366	0.00046	7,703
Sequence 13	2.0	0.9	65.8	63.1	2.7	5.4	5.2	0.2	0.00586	0.00073	7,092
Sequence 14	2.0	8.0	87.9	83.7	4.2	7.2	6.9	0.3	0.00808	0.00101	6,832
Sequence 15	2.0	10.0	111.2	104.7	6.5	9.1	8.6	0.5	0.01027	0.00128	6,718

April 27, 2017

DATE DATE

GW

REVIEWED BY

TESTED BY

### ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT MATERIALS DIVISION

### AASHTO T 307-99 - RESILIENT MODULUS OF SUBGRADE SOILS RECOMPACTED / THINWALL TUBE SAMPLES

Job No.

100870

**Material Code SSRVPS** 

**Date Sampled:** 

3/28/17

**Station No.: 206+10** 

**Date Tested:** 

April 27, 2017

Name of Project: HWY. 34 STR. & APPRS. (S)

Location: 18RT

County:

Code: 28

Name: GREENE

Sampled By:

THORNTON/TAYLOR

Depth: 0-5

Lab No.:

20171268

**AASHTO Class:** A-4(1)

Sample ID:

Material Type (1 or 2): 2

RV320

LATITUDE:

LONGITUDE:

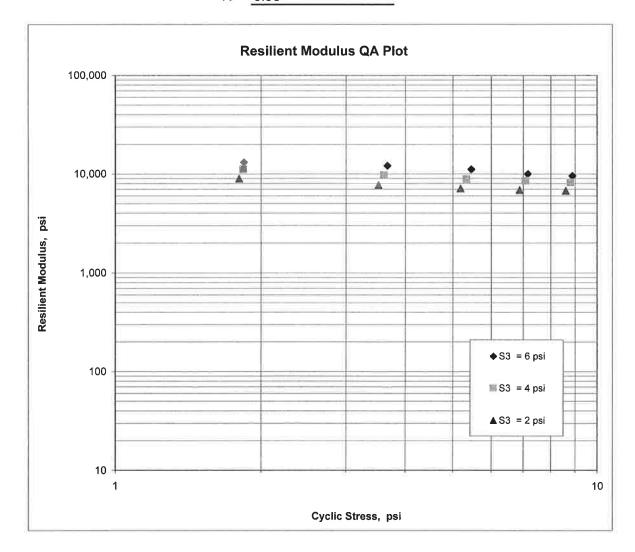
$$M_R = K1 (S_C)^{K2} (S_3)^{K5}$$

K1 = 7,694

 $K2 = \frac{1}{-0.19808}$ 

K5 = 0.36821

 $R^2 = 0.98$ 



### MICHAEL BENSON, MATERIALS ENGINEER

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

DATE - 05/0 JOB NUMBER - 1008 FEDERAL AID NO TO B PURPOSE - SOIL SPEC. REMARKS - NO S SUPPLIER NAME - STAT NAME OF PROJECT - HW PROJECT ENGINEER - NO PIT/QUARRY - ARKANS LOCATION - GREENE SAMPLED BY - THORNTO SAMPLE FROM - TEST H MATERIAL DESC SOII	70 E ASSIGN SURVEY PECIFICA E Y.34 STI APPLICA AS ON/TAYLO	SAMPLE ATION CHECK  R. & APPRS. (S)  CABLE  Y  R	₽.MG	'NT SOUNDING	SPEC. Y SUPPLIE COUNTY/ DISTRIC  DATE SA DATE RI DATE TE	L COD TEAR OR ID. STATE T NO.	DE - SSRVPS - 2014 - 1 - 28 - 10 - 03/28/17 ED - 03/31/17
LAB NUMBER SAMPLE ID TEST STATUS STATION LOCATION	- £ - 3 - 3		12	20171256 S308 INFORMATIO 106+00 18 RT		- S36 - IN	
DEPTH IN FEET MAT'L COLOR MAT'L TYPE	- (C	)-5 BRAY	7E	0-5 GRAY		- 0-! - GRZ	5
LATITUDE DEG-MIN-S LONGITUDE DEG-MIN-S			7 <u>2</u>		.0.80 21.80		36 11 10.90 90 20 10.90
1 1/2 3/4 3/8 NO. NO. NO.	IN IN 4 - 10 - 40 -	97 94 86		100 99 99 97 89 84		- : - : - :	00 99 97 96 94 83
LIQUID LIMIT PLASTICITY INDEX AASHTO SOIL UNIFIED SOIL % MOISTURE CONTENT	- - -	27 11 A-6(7)		28 12 A-6(8)		- 2: - 1: - A: -	
ACHMSC	- (IN) - (IN) - - - - - - -	14.9 1.25 6.0					16.9 1.25 7.0
PEMARKS - W-MIII.TTDI.	T.AVEDQ						

REMARKS - W=MULTIPLE LAYERS

---

(1)

### MICHAEL BENSON, MATERIALS ENGINEER \*\*\* SOIL SURVEY / PAVEMENT SOUNDING TEST REPORT \*\*\*

***	SOIL SURV	EY / PAVEMENT	SOUNDING T	EST REPORT '	***
DATE - 05/03  JOB NUMBER - 1008  FEDERAL AID NO TO BI PURPOSE - SOIL  SPEC. REMARKS - NO SI SUPPLIER NAME - STATI NAME OF PROJECT - HW PROJECT ENGINEER - NO PIT/QUARRY - ARKANS	70 E ASSIGNED SURVEY SA PECIFICATI E Y.34 STR. T APPLICAB	MPLE ON CHECK & APPRS. (S)		MATERIAL SPEC. YE SUPPLIER COUNTY/S	NO 2 CODE - SSRVPS AR - 2014 ID 1 TATE - 28
LOCATION - GREENE	, COUNTY			DATE SAN	MPLED - 03/28/17
SAMPLED BY - THORNTO	N/TAYLOR			DATE REC	CEIVED - 03/31/17
SAMPLE FROM - TEST HO					STED - 05/01/17
MATERIAL DESC SOIL	SURVEY -	R VALUE- PAV	JEMENT SOUND	INGS	
LAB NUMBER	- 201	71258		9 -	20171260
SAMPLE ID	- S31		_ S311		S312
			= INFORMA		INFORMATION ONLY
STATION	- 115		206+00		206+00
LOCATION	- 18		- 06 RT	=	18 RT
DEPTH IN FEET			0-5		0 3
MAT'L TYPE	- GRA		BROWN	-	BROWN
LATITUDE DEG-MIN-S					36 11 9.50
LONGITUDE DEG-MIN-SI	EC - 9	0 20 10.90	90 18	6.50	90 18 6.50
% PASSING 2 1 1/2 1	IN IN		-	<u>-</u>	
3/4	IN 10	0	- 100	-	
3/8 ]	IN 9	6	- 98		100
NO.	4 - 9	4	97		99
NO.		3	- 94	-	98
NO. 4	_		_ 88	<b>*</b>	93
NO. 8			- 72	-	· =
NO. 20	00 - 7	0	52		51
	- 26		= 19	-	ND
PLASTICITY INDEX			- 5		NP
AASHTO SOIL	- A-	6 (5)	A-4(0)		A-4(0)
UNIFIED SOIL	-			-	
% MOISTURE CONTENT		19.0	10.9		10.1
	IN)		- 4.0W	_	
	IN)		- 1.0 - 9.0	-	
AGG. BASE CRS CL-7			-	-	
	-		-	-	
	-		-	-	
	-		-	_	
	<u>-</u>		_	_	
	-		-	-	

REMARKS - W=MULTIPLE LAYERS

--

### MICHAEL BENSON, MATERIALS ENGINEER

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

JOB NUMBER - 1000 FEDERAL AID NO TO PURPOSE - SOI SPEC. REMARKS - NO SUPPLIER NAME - STA NAME OF PROJECT - E PROJECT ENGINEER - N PIT/QUARRY - ARKAN	BE ASSIC L SURVEY SPECIFIC TE WY.34 SY TOT APPLY SAS TE, COUNY TON/TAYLY HOLE	Y SAMPLE CATION CHE  FR. & APPR  ICABLE  FY  OR	CK .s. (s)	EME	NT SOUNDING	SEQUENCE MATERIA SPEC. Y SUPPLIE COUNTY/DISTRICE DATE SA DATE REDATE TE	L COD EAR R ID. STATE T NO.  AMPLEI ECEIVE	E - SS - 20 - 1 - 28 - 10 - 0: ED - 0:	014 3 0 3/28/17
LAB NUMBER SAMPLE ID TEST STATUS	- - -	S313 INFORMATI				N ONLY	- S31	ORMAT:	ION ONLY
STATION LOCATION DEPTH IN FEET MAT'L COLOR	-	216+00 06 LT 0-5 GRAY			216+00 18 LT 0-5 GRAY		- 226 - 06 - 0-5 - GRA	RT 5	
MAT'L TYPE LATITUDE DEG-MIN- LONGITUDE DEG-MIN-						10.10 55.20			10.00 42.70
3/4 3/8 NO. NO. NO.	4 - 10 - 40 -	94 93 91 86 65			100 98 96 94 88 64 44		- 9	00 99 99 95 71	
LIQUID LIMIT PLASTICITY INDEX AASHTO SOIL UNIFIED SOIL % MOISTURE CONTENT	- - - -			-	33 16 A-6(3)		- 25 - 13 - A-		
ACHMSC ACHMBC AGG.BASE CRS CL-7	(IN) -	6.5W  9.0					-	3.0W 1.0 8.0	

REMARKS - W=MULTIPLE LAYERS

5. 5. 9.

### MICHAEL BENSON, MATERIALS ENGINEER

***			PAVEMENT					т *	**		
DATE - 05/01, JOB NUMBER - 100870 FEDERAL AID NO TO BE PURPOSE - SOIL S SPEC. REMARKS - NO SPI SUPPLIER NAME - STATE NAME OF PROJECT - HWY PROJECT ENGINEER - NOT	ASSI EURVE ECIFI	Y SAMPLE CATION C	HECK				MATERI SPEC.	IAL YEZ IER I/ST		SS 20 - 20 - 28	SRVPS 914 8
PIT/QUARRY - ARKANSA; LOCATION - GREENE, SAMPLED BY - THORNTON SAMPLE FROM - TEST HO! MATERIAL DESC SOIL	S COUN /TAYI LE	TTY LOR	/ALUE- PA\	теме	ent sou	NDIN	DATE '	REC	EIVED	- 03	3/28/17 3/31/17 5/01/17
TEST STATUS STATION LOCATION DEPTH IN FEET	-	S316 INFORMA 226+00 18 RT	4 TION ONLY		S317	MTI(	ON ONLY	50 20 20	S318 INFOR 238+0 18 LT	MAT] 0	ON ONLY
LATITUDE DEG-MIN-SEC LONGITUDE DEG-MIN-SEC	C -	36 1 90 1	1 10.00 7 42.70	1			10.30 28.20		36 90		10.30 28.20
% PASSING 2 IN 1/2 IN 3/4 IN 3/8 IN NO. 40 NO. 40 NO. 200	1 - 1 - 1 -	99 99 96 73			100 97 94 93 88 40 23			-	100 99 99 94 46 22		
AASHTO SOIL UNIFIED SOIL		16 A-6(5)			A-2-4			5 3 4 ×	NP A-2-		
% MOISTURE CONTENT	=	16.7		-	9.	. 2		:==:	14	.7	

- 4.0W - 1.5 - 8.0

REMARKS - W=MULTIPLE LAYERS

ACHMSC (IN) - --ACHMBC (IN) - --AGG. BASE CRS CL-7 (IN) - ---

-

AASHTO TESTS : T24 T88 T89 T90 T265

17

### MICHAEL BENSON, MATERIALS ENGINEER \*\*\* SOIL SURVEY / PAVEMENT SOUNDING TEST REPORT \*\*\*

SPEC. REMARKS - NO S SUPPLIER NAME - STAT NAME OF PROJECT - HI PROJECT ENGINEER - NO PIT/QUARRY - ARKANS	870 BE ASSI L SURVE SPECIFI FE WY.34 S OT APPL	Y SAMPLE CATION CHECK TR. & APPRS. (S) ICABLE			SEQUENCE NO. MATERIAL CODE SPEC. YEAR SUPPLIER ID. COUNTY/STATE DISTRICT NO.		2014 1 28 10
LOCATION - GREEN SAMPLED BY - THORNT SAMPLE FROM - TEST I	ON/TAYL				DATE SAMPLED DATE RECEIVED DATE TESTED	-	03/31/17
MATERIAL DESC SOI	L SURVE	Y - RESISTANCE R-	VAI	UE ACTUAL	RESULTS		
LAB NUMBER  SAMPLE ID  TEST STATUS  STATION  LOCATION  DEPTH IN FEET  MAT'L COLOR  MAT'L TYPE  LATITUDE DEG-MIN-S  LONGITUDE DEG-MIN-S  * PASSING 2  1 1/2  3/4  3/8  NO.  NO.	FEC - IN IN IN 10 - 40 -	20171267 RV319 INFORMATION ONLY 114+90 18 LT 0-5 GRAY	- - -	20171268 RV320	- ON ONLY - - - - - -		
NO. 2	200 -	69		59			
LIQUID LIMIT PLASTICITY INDEX AASHTO SOIL UNIFIED SOIL % MOISTURE CONTENT	-	13		20 7 A-4(1)			

REMARKS - W=MULTIPLE LAYERS

JOB: 100870

JOB NAME: HWY.34 STR. & APPRS. (S)

Arkansas State Highway Transporation Department
Materials Division

**DATE TESTED**5/1/2017

COUNTY NO. 28
STA.# LOC.

Michael Benson, Materials Engineer

STA.#	LOC.			PAVEMENT SOUNDINGS
106+00	06 RT	ACHMSC	AGG BASE CRS CL-7	7
		1.25	6.0	
106+00	18 RT	ACHMSC	AGG BASE CRS CL-7	7
		1	1	
115+00	06 LT	ACHMSC	AGG BASE CRS CL-7	7
		1.25	7.0	
115+00	18 LT	ACHMSC	ACHMBC	AGG. BASE CRS CL-7
		1	1	I
206+00	06 RT	ACHMSC	ACHMBC	AGG. BASE CRS CL-7
		4.0W	1.0	9.0
206+00	18 RT	ACHMSC	ACHMBC	AGG. BASE CRS CL-7
		1	I	I
216+00	06 LT	ACHMSC	ACHMBC	AGG.BASE CRS CL-7
		6.5W	1	9.0
216+00	18 LT	ACHMSC	ACHMBC	AGG.BASE CRS CL-7
		Ī	I	
226+00	06 RT	ACHMSC	ACHMBC	AGG.BASE CRS CL-7
		3.0W	1.0	8.0
226+00	18 RT	ACHMSC	ACHMBC	AGG. BASE CRS CL-7
		ı	į	ſ
238+00	06 LT	ACHMSC	ACHMBC	AGG. BASE CRS CL-7
		4.0W	1.5	8.0
238+00	18 LT	ACHMSC	ACHMBC	AGG. BASE CRS CL-7
		Į	Ę	₹ E

*JOB*: 100870

Arkansas State Highway Transporation Department

JOB NAME: HWY.34 STR. & APPRS. (S)

Materials Division

**COUNTY NO.** 28 **DATE TESTED** 5/1/2017

Michael Benson, Materials Engineer

STA.#	LOC.	DEPTH	COLOR	#4	#10	#40	#80	#200	L.L.	P.I.	SOIL CLASS	<i>LAB</i> #:	%MOISTURE
114+90	18 LT	0-5	GRAY	85	84	82	75	E S 69	27	13	A-6(6)	RV319	
206+10	18 RT	0-5	BROWN	96	95	90	75	59	20	7	A-4(1)	RV320	
106+00	06 RT	0-5	GRAY	98	97	94	86	80	27	11	A-6(7)	S307	14.9
106+00	18 RT	0-5	GRAY	99	99	97	89	84	28	12	A-6(8)	S308	22.3
115+00	06 LT	0-5	GRAY	97	96	94	83	74	28	13	A-6(7)	S309	16.9
115+00	18 LT	0-5	GRAY	94	93	91	82	70	26	11	A-6(5)	S310	19
206+00	06 RT	0-5	BROWN	97	94	88	72	52	19	5	A-4(0)	S311	10.9
206+00	18 RT	0-5	BROWN	99	98	93	73	51	ND	NP	A-4(0)	S312	10.1
216+00	06 LT	0-5	GRAY	93	91	86	65	48	33	21	A-6(6)	S313	19.2
216+00	18 LT	0-5	GRAY	96	94	88	64	44	33	16	A-6(3)	S314	20.3
226+00	06 RT	0-5	GRAY	99	99	95	71	53	25	13	A-6(3)	S315	16
226+00	18 RT	0-5	GRAY	99	99	96	73	57	27	16	A-6(5)	S316	16.7
238+00	06 LT	0-5	BR/GR	94	93	88	40	23	ND	NP	A-2-4(0)	S317	9.2
238+00	18 LT	0-5	BR/GR	99	99	94	46	22	ND	NP	A-2-4(0)	S318	14.7