ARKANSAS DEPARTMENT OF TRANSPORTATION



SUBSURFACE INVESTIGATION

IN		LEE		COUNTY
STATE HIGHWAY	78	SECTION	3	
MCNULTY LA	AKE, SPRING &	HOG TUSK CREEKS	STRS. & A	PPRS. (S)
FEDERAL AID PROJEC	CT NO. STI	PB-STPR-0039(21)		
STATE JOB NO.		110616		

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

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MATERIALS DIVISION

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

October 8, 2019

TO:

Mr. Rick Ellis, Bridge Engineer

SUBJECT:

Job No. 110616

McNulty Lake & Hog Tusk Creek Strs. & Apprs. (S)

Lee County

Route 78 Section 3

Transmitted herewith are a brief summary of the geology and site conditions, D50 scour analysis, summary of percent material passing #200 sieve and Atterberg Limits test results (for liquefaction susceptibility analysis), and the logs of the borings conducted for the structure 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 bridge crossing McNulty Lake, on Route 78, west of Aubrey. The new bridge is to be constructed northeast of the existing alignment. Due to unfavorable field conditions and the depth of the water at the proposed bridge location only three borings were obtained. The obtained borings had to be offset to the existing roadway and bridge deck. The borings that were obtained are located at: 309+03 33' Lt. of Construction Centerline, 311+32 57' Lt. of Construction Centerline, and 313+35 35' Lt. of Construction Centerline.

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 piling.

Embankment analyses included global stability with seismic design consideration utilizing a horizontal acceleration coefficient of 0.351, as provided by Bridge Design. One-half of this value was used in the design. The proposed embankment configuration 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.

Michael C. Benson Materials Engineer

MCB:rpt:mlg

CC:

State Construction Engineer - Master File Copy

District 1 Engineer

G.C. File

GEOLOGY AND SITE CONDITIONS Job No. 110616

McNulty Lake & Hog Tusk Creek Strs. & Apprs. (S) Lee County Route 78 Section 3

Site Conditions

The existing bridge is an eight span bridge crossing McNulty Lake. The bridge deck is constructed of open grate steel (a bailey bridge). The deck is supported by timber pilings with timber caps and six sets of steel beams. The guardrail consists of steel supported by steel posts leading up to the bridge and timber posts on the bridge. Overhead power lines parallel the northwest side of the bridge and cross the roadway northeast of the bridge. McNulty Lake is part of the Big Creek and flows slowly to the southeast. The area around the channel is heavily wooded with agricultural fields beyond. (The wooded area adjacent to the channel was flooded at the time of observation.) A farm and residence are located a short distance northeast of the bridge.

Site Geology

The proposed bridge is located on the mapped outcrop of early Wisconsin Stage valley train level 2 (map symbol Pve 2). These deposits are composed of glacial outwash or valley train deposits laid down by swiftly flowing, sediment-choked braided streams and consist of sands and gravels. In many places, fine-grained silty and clayey sediments 15 or more feet thick overlie the coarser glacial outwash material in the relict channels. Much of this was deposited in Holocene times by the local drainage that now occupies these topographic lows. In the interfluve areas, sandy surface soils occur grading into clean sands and gravels within 20 to 25 feet of the surface. These coarse-grained deposits extend to depths of 100 to 180 feet. The valley train deposits at McNulty Lake are encountered in borings at a depth of 20 to 40 feet below ground level (bgl) (from 141.2 to 145.3 feet above MSL).

Subsurface Conditions

Based on the results of the borings, the subsurface stratigraphy may be generalized as follows:

0 to 20 Feet:

Varies from moist to wet, soft to medium stiff, reddish brown to gray sandy clay

to clay to very loose to loose gray silt to sand with silt.

20 to 60 Feet:

Varies from wet, soft to medium stiff, reddish brown to gray clay to very loose to

dense gray silty sand to sandy silt.

60 to 70 Feet:

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

Many samples in this zone contain a trace to some gravel.

70 to 101.5 Feet:

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

gravel to gravel with sand.

110 to 121.5 Feet: Consists of moist to wet, very dense to hard, gray sandy clay to silty sand.

D₅₀ AGGREGATE ANALYSIS FOR SCOUR CALCULATIONS

Job No. 110616

Creek Name	Station	Sample Type	Location	Depth (ft.)	Plastic Limit	Liquid Limit	Soil Description	Aggregate Size (D50) (in.)
McNulty Lake	309+79	Creek Bank	20' RT Const. C.L.	N/A	19	25	CL-ML Sandy Silty Clay	Less than 0.0029

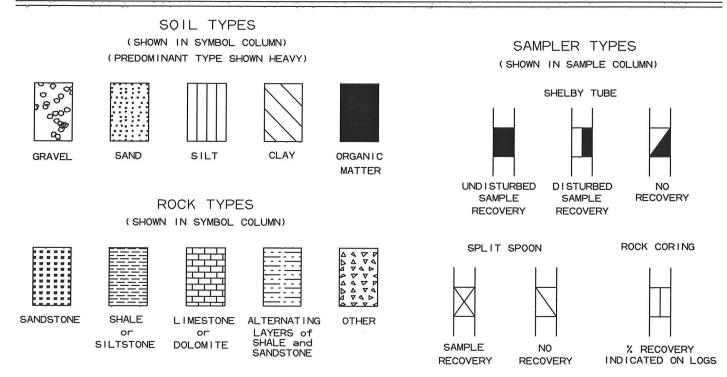
Lab Test Summary

Project Number: Project Name:

McNulty Lake & Hog Tusk Creek Strs. & Apprs. (S)

01-11	1 #	Depth	Plastic	Liquid	Plasticity	% Passing	Unified Soil
Station	Location	(ft.)	Limit	Limit	Index	No. 200	Classification
309+03	33' Lt Const. C.L.	4.5	NT			NT	-
309+03	33' Lt Const. C.L.	9.5	ŃŤ			89	-
309+03	33' Lt Const. C.L.	15	12	32	20	60	CL
309+03	33' Lt Const. C.L.	20	17	50	33	96	CH
309+03	33' Lt Const. C.L.	25	NP			36	SM
309+03	33' Lt Const. C.L.	30	NP			34	SM
309+03	33' Lt Const. C.L.	35	NP .			57	ML
309+03	33' Lt Const. C.L.	40	NP			10	SP-SM
309+03	33' Lt Const. C.L.	45	NP			27	SM
309+03	33' Lt Const. C.L.	50	NP			7	SP-SM
309+03	33' Lt Const. C.L.	55	NP			15	SM
309+03	33' Lt Const. C.L.	60	NP			13	SM
309+03	33' Lt Const. C.L.	65	NP			17	SM
309+03	33' Lt Const. C.L.	70	NP			8	SP-SM
309+03	33' Lt Const. C.L.	75	NP			9	SP-SM
309+03	33' Lt Const. C.L.	80	NP			7	SP-SM
309+03	33' Lt Const. C.L.	85	NP			6	SP-SM
309+03	33' Lt Const. C.L.	90	NP			5	SP-SM
309+03	33' Lt Const. C.L.	95	NP			8	SP-SM
309+03	33' Lt Const. C.L.	100	NP			6	SP-SM
313+35	35' Lt Const. C.L.	4.5	NT			94	-
313+35	35' Lt Const. C.L.	9.5	NT			93	-
313+35	35' Lt Const. C.L.	15	NT			87	
313+35	35' Lt Const. C.L.	20	15	30	15	94	CL
313+35	35' Lt Const. C.L.	25	NP			61	ML
313+35	35' Lt Const. C.L.	30	NP		, ,	60	ML
313+35	35' Lt Const. C.L.	35	20	44	24	89	CL
313+35	35' Lt Const. C.L.	40	NP			29	SM
313+35	35' Lt Const. C.L.	45	NP			9	SW-SM
313+35	35' Lt Const. C.L.	50	NP			38	SM
313+35	35' Lt Const. C.L.	55	NT			30	-
313+35	35' Lt Const. C.L.	60	NP			7	SP-SM
313+35	35' Lt Const. C.L.	65	NP			8	SP-SM
313+35	35' Lt Const. C.L.	70	NP			4	SP
313+35	35' Lt Const. C.L.	75	NP			4	SW
313+35	35' Lt Const. C.L.	80	NP			6	SP-SM
313+35	35' Lt Const. C.L.	85	NP			5	SP-SM
313+35	35' Lt Const. C.L.	90	NP			6	SP-SM
313+35	35' Lt Const. C.L.	95	NP			7	SP-SM
313+35	35' Lt Const. C.L.	100	NP			5	SP-SM

LEGEND



TEL WILL BEGON TO THE CONTROL OF CONDITION	TERMS	DESCRIBING	CONSISTENCY	OR	CONDITION
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GRANU	LAR SOIL		CLAY	CLA	Y-SHALE	S	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	0ver 60	
31-50	Dense	9-15	Stiff	9-15	Stiff	More than	2'
Over 50	Very Dense	16-30	Very Stiff	16-30	Very Stiff	Penetratio	n
		31-60	Hard	31-60	Hard	in 60 Blow	s: Medium Hard
		Over 60	Very Hard	0ver 60	Very Hard	Less than	2'
						Penetratio	on
						in 60 Blow	s: 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, and 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 (N₆₀) can be obtained by multiplying N_f by the hammer correction factor published on the boring log.

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FT.	L		SURFACE ELEVATION: 165.3		PLASTIC LIMIT	% N	LIQUID	DRY	LBS PER CU.FT	NO. OF BLOWS	PER 6-IN.		
										1:	-		
										30-	35		
			Wet, Very Dense, Gray Sand with Silt and Trace										
			Gravel										
75													
		\bigvee								9			
		\leftarrow								12-	15		
								19					
80			Wet, Medium Dense, Gray Sand with Silt and										
		\bigvee	Trace Gravel							9			
		\hookrightarrow								13-	13		
85													
	0,000	\bigvee								15			
	60 g	\leftarrow								14-	14		
	0.000		Wet, Medium Dense, Gray Sand with Gravel										
	B B C												
90	8												
	\$600 F	X								17			
	්දුරු පුත ප	$\overline{}$								21-2	23		j
	go o o Bao O		Wet, Dense, Gray Sand with Gravel										
	00 B												
95	о. Ф												
	B.000 60	X		i e						4 16-1	_		
	a. 88									10-1	14		
	000 000 000		W-1 M-1'- B 0 0 0 1 1 1 1 1										
	9:		Wet, Medium Dense, Gray Gravel with Sand										
100	8:0:0									100			
	80000	\times								4 10-1	16		
	4.00	1	Boring Terminated						_	10-		_	\dashv
											800		
105													
REMA	KKS												

			DEPARTMENT OF TRANSPORTATION DIVISION - GEOTECHNICAL SEC.		BORIN			. 0					
JOB N	The state of the s		110616 Lee County		PAGE	1	OF	3		7, 20	10		-
	NAME:		McNulty Lake & Hog Tusk Creek Strs. & Apprs. (S)		DATE: TYPE C	E DD	ILLING		zust	7, 20	19		
			Route 78 Sec. 3				tem A		· - R	otary	Wa	sh	
STAT	ION:		313+35		EQUIPN			ugei		ME '		511	
LOCA	ATION:		35' Left of Construction Centerline										
LOGO	GED BY	: S	tanley Bates		HAMM	ER CC	RRECT	TION I	FACT	OR:		1.37	
COM	IPLET	ION	DEPTH: 101.5										
D	s	S											
E	Ϋ́	A							Ξ:	S		%	%
P T	M	M P	DESCRIPTION OF MATERIAL	SOIL				HT	U.F	WO.		T	R
H	ВО	L		GROUP	JC J	ST.		ÆIC	3R C	BL	Ż	C R	Q D
	١٢	E			PLASTIC LIMIT	% MOIST.	LIQUID	DRY WEIGHT	LBS PER CU.FT	NO. OF BLOWS	PER 6-IN.	K	D
FT.	_	S	SURFACE ELEVATION: 181.2		PL,	%	LIN	DR	LB	S N	PE		
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L -				-									
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<u> </u>		\triangle		NT*						2-	3		
			Moist, Medium Stiff, Gray Sandy Clay	-									
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<u> </u>			Wet, Soft, Gray Clay										
<u> </u>				-									
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- $+$		X		CL	13		30			2-3			
			Mat Madiana Oliff O										
		ı	Wet, Medium Stiff, Gray Lean Clay	_									5
	11		*										
25					NP					3			
- $-$		X		ML						2-2			
			Mot Moral page Crew Sandy Silt										
— ⊣		•	Wet, Very Loose, Gray Sandy Silt	_									
30		1			NP					3			
— <u>-</u>		X		ML						8-8			
— ⊣ :			Wet, Medium Dense, Gray Sandy Silt										
— - ∦			vict, Medium Dense, Gray Saffuy Sill	_									
35													
	RKS	* 1	NT = not tested.										_
		•											- 1

			DEPARTMENT OF TRANSPORTATION		BORIN			_					
JOB N			DIVISION - GEOTECHNICAL SEC. 110616 Lee County		PAGE 2 OF 3 DATE: August 7, 2019								
	IAME:		110616 Lee County McNulty Lake & Hog Tusk Creek Strs. & Apprs. (S	,	DATE: TYPE O	E DDI	LLING	_	gust	7, 20	19		
JOBIN	AWIL.		Route 78 Sec. 3	,			tem A		- R	otary	Was	sh	
STAT	ION:		313+35		EQUIPN			ugei		ME 7		311	
LOCA		3	35' Left of Construction Centerline										
LOGG	ED BY	: S	tanley Bates		HAMMI	ER CC	RRECT	ION I	FACT	OR:		1.37	_
COM	PLET	ION	DEPTH: 101.5										
D	s	S											
E P	Υ	A M	DECORIDION OF MATERIAL					L	FT.	SN		%	%
T	M B	Р	DESCRIPTION OF MATERIAL	SOIL GROUP				GH	CU.	ΓΟ/		T C	R
Н	Ö	L		GROOT	\subseteq	ISI	U L	WEI	ER)FB	Z.	R	Q D
FT.	L	E S	SURFACE ELEVATION: 181.2		PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT	NO. OF BLOWS	PER 6-IN.		
	1		CONTACT ELEVATION: 101.2		44	6	20			1	-		
		\triangle		CL			20			2-			
			Wet, Soft, Gray Lean Clay										
			,,	-									
40													
		X		SM	NP					9			
		$\stackrel{\prime}{\rightarrow}$			-					14-	T1		
			Wet, Medium Dense, Gray Silty Sand										
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45					NP					7	8		
		\times		SW-SM	ן אף					9-1			
	i i i i i i i i i i i i i i i i i i i	Ì	Mat Madium Danas Cost Cost Will Cit		1								
		- 1	Wet, Medium Dense, Gray Sand with Silt	_									
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30		$ egthinspace{1.5em} $		014	NP					6			
	4	\triangle		SM						3-6	6		
			Wet, Loose, Gray Silty Sand										
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 55													
		X		NT						7 5-8			
		$\stackrel{\prime}{\rightarrow}$			1 1					5-0	٦		
			Wet, Loose, Gray Silty Sand										
				-									
60		\rightarrow			NP					7			
		\times		SP-SM	INF					9-1			
			Wet, Medium Dense, Poorly Graded Sand with										- 1
			Silt	-									- 1
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65		1		00.011	NP					16	,		
		\triangle		SP-SM						27-3	31		
- 1			Wet, Very Dense, Poorly Graded Sand with Silt										
_			, ,	-									
70													
REMA	RKS:	*	NT = not tested.										

			DEPARTMENT OF TRANSPORTATION DIVISION - GEOTECHNICAL SEC.		BORIN	IG NO							
JOB N			110616 Lee County		PAGE DATE:	3	OF	3 Aug	ruct	7, 20	10		
JOB N			McNulty Lake & Hog Tusk Creek Strs. & Apprs. (S	,	TYPE C	E DD	LLING		gust	7, 20	19		
l vob i			Route 78 Sec. 3	, I			tem A		- R	otary	Was	sh	
STATI	ON:		313+35		EQUIPN			ugei		ME 7		511	
LOCA			35' Left of Construction Centerline		LQUII	ILITI	•			AVIL /	3		
LOGG	ED BY		tanley Bates		HAMM	ER CC	RRECT	ION I	FACT	OR:		1.37	
COM	PLET	ION	DEPTH: 101.5										-
D	S	S											
Е	Y	Α											
P T	М	M P	DESCRIPTION OF MATERIAL	SOIL				HT	U.F	W.C		% T	% R
Η	В	L		GROUP	0	ST.		EIG	RC	BL(ż	C	Q
	0	Ē			STI	% MOIST.		DRY WEIGHT	LBS PER CU.FT	NO. OF BLOWS	. 6-IN.	R	D
FT.	L	S	SURFACE ELEVATION: 181.2		PLASTIC LIMIT	N %	LIQUID LIMIT	DR	LBS	NO.	PER		
	o 003::	\bigvee		SP	NP					12			
	0000	\triangle		- 01	-					12-	11		
	po B		Wet, Medium Dense, Poorly Graded Sand with Gravel										
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	a o a	\bigvee		SW	NP					8	0.00000000		
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	0 00		Wet, Medium Dense, Well Graded Sand with Gravel										
	д. 6		Gravei	-									
80	00 00										-		
		\bigvee		SP-SM						11			
	¥	$\stackrel{\wedge}{\rightarrow}$	144.5	OI -OIVI						16-	18		
			Wet, Dense, Poorly Graded Sand with Silt and Trace Gravel										
			Trace Graver	-									
85													
		X		SP-SM	NP					10	**********		
	∠	$\stackrel{\sim}{\rightarrow}$	Wet Medium Deves Developed October 100 1 199							13-1	15		
			Wet, Medium Dense, Poorly Graded Sand with Silt and Trace Gravel										
			Oilt and Trace Graver	-									
90													
		X		SP-SM	NP					14			
]		$\stackrel{\sim}{\rightarrow}$	Wet Ver Brown Brown Co. L. 100 J. W. OW.							31-3	38		
			Wet, Very Dense, Poorly Graded Sand with Silt and Trace Gravel								1		
			and Trace Graver	-									
95													
		X		SP-SM	NP					19			- 1
		\rightarrow	Wet Very Barre Bar	O. O						33-5	5		- 1
	9 0 0		Wet, Very Dense, Poorly Graded Sand with Silt and Gravel										1
			and Staver	-									
100													
		X^{-}	Wet, Dense, Poorly Graded Sand with Silt and	SP-SM	NP					15			
	ia:ia?ia\	\rightarrow	Gravel Boring Terminated		-				-	22-2			-
			Borning Terminiated										
105													
REMA	RKS:	*	NT = not tested.										

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

April 3, 2017

TO:

Mr. Trinity Smith, Engineer of Roadway Design

SUBJECT:

Job No. 110616

McNulty Lake and Hog Tusk Creek Strs. & Apprs. (S)

Route 78 Section 3

Lee 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 the bridges crossing Hog Tusk Creek and McNulty Lake on Highway 78. Samples were obtained in the existing travel lanes and ditch line. There were no paved shoulders within the project limits.

Based on laboratory results of samples obtained, the subgrade soils consist primarily of moderate to highly plastic clay. Cross sections are not currently available; it is assumed that the construction grade line will closely match that of the existing roadway. The subgrade soils are expected to provide a stable working platform with normal drying and compactive efforts, if the weather is favorable during construction. No slides were observed within the project limits.

Additional earthwork requirements will be made upon request when plans are further developed. Due to seismic considerations embankment recommendations will be made after the subsurface investigation is completed.

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 ports near West Helena.

2. Asphalt Concrete Hot Mix

1	PG	64-22
	- 0	U4-22

Type	Asphalt Cement %	Mineral Aggregate %
Surface Course	5.3	94.7
Binder Course	4.3	95.7
Base Course	4.0	96.0
	PG 70-2	2
Type	Asphalt Cement %	Mineral Aggregate %
Surface Course	5.3	94.7
Binder Course	4.3	95.7
Base Course	4.0	96.0
	PG 76-2	2
Type	Asphalt Cement %	Mineral Aggregate %
Surface Course	5.3	94.7
Binder Course	4.3	95.7
Base Course	3.8	96.2
		V

Michael C. Benson
Materials Engineer

MCB:pt:bjj Attachment

CC:

State Constr. Eng. - Master File Copy

District 1 Engineer

System Information and Research Div.

G. C. File

MICHAEL BENSON, MATERIALS ENGINEER

*** SOIL SURVEY STRENGTH TEST REPORT ***

DATE - 03/17/2017 SEQUENCE NO. - 1

MATERIAL CODE - SSRV JOB NUMBER - 110616

SPEC. YEAR - 2014

SUPPLIER ID. - 1

COUNTY/STATE - 39

DISTRICT NO. - 01

JOB NAME - MCNULTY LAKE & HOG TUSK CREEK STRS. & APPRS. (S)

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

LESS THAN 5

RESILIENT MODULUS

BEGIN JOB - END JOB

STA. 105+00 7299 STA. 206+00 5991

REMARKS -

AASHTO TESTS : T190

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

Job No.	110616	Material Code	SSRVPS
Date Sampled: Date Tested:	2/14/17 March 15, 2017	Station No.: Location:	105+00 15RT
Name of Project:	MCNULTY LAKE & HOG TUSK CREEK STR		ISKI
County:	Code: 39 Name: LEE	(3. & Al I K3. (3)	
Sampled By:	THORNTON/TAYLOR	Depth:	0-5
Lab No.:	20170611	AASHTO Class:	A-6(11)
Sample ID:	RV175	Material Type (1 or 2)	
LATITUDE:		LONGITUDE:	-
1. Testing Inform	nation:		
	Preconditioning - Permanent Strain > 5% (Y=Yes or N= No)	N
	Testing - Permanent Strain > 5% (Y=Yes or	N=No)	N
	Number of Load Sequences Completed (0-1	5)	15
2. Specimen Info	ormation:		
	Specimen Diameter (in):		
	Тор		3.96
	Middle		3.95
	Bottom		3.95
	Average		3.95
	Membrane Thickness (in):		0.01
	Height of Specimen, Cap and Base (in):		8.01
	Height of Cap and Base (in):		0.00
	Initial Length, Lo (in):		8.01
	Initial Area, Ao (sq. in):		12.20
	Initial Volume, AoLo (cu. in):		97.73
3. Soil Specime	n Weight:		
	Weight of Wet Soil Used (g):		2990.20
4. Soil Propertie	s:		
	Optimum Moisture Content (%):		17.5
	Maximum Dry Density (pcf):		103.9
	95% of MDD (pcf):		98.7
	In-Situ Moisture Content (%):		N/A
5. Specimen Pro	perties:		
	Wet Weight (g):		2990.20
	Compaction Moisture content (%):		17.7
	Compaction Wet Density (pcf):		116.59
	Compaction Dry Density (pcf):		99.05
	Moisture Content After Mr Test (%):		17.7
6. Quick Shear T	est (Y=Yes, N=No, N/A=Not Applicable):		#VALUE!
7. Resilient Mod	ulus, Mr:	6976(5	Sc)^-0.11245(S3)^0.33964
8. Comments		4.00	
9. Tested By:	GW	Date: March 15, 2017	

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

SSRVPS 105+00 15RT Material Code Station No.: Location: March 15, 2017 110616 2/14/17 Date Sampled: Date Tested:

Job No.

MCNULTY LAKE & HOG TUSK CREEK STRS. & APPRS. (S) Name of Project:

Name: Code: 39 County:

Material Type (1 or 2): 2 LONGITUDE: AASHTO Class: Depth: THORNTON/TAYLOR 20170611 RV175 Sampled By: LATITUDE: Sample ID: Lab No.:

A-6(11)

0-5

r-			_						_	_			_			_			_
Resilient Modulus			Ā	psi	12,353	11,579	10,701	9,850	9,324	10,697	9,973	9,367	8,927	8,632	7,496	7,585	7,367	7,309	7 299
Resilient Strain			ຜ່	in/in	0.00015	0.00031	0.00051	0.00072	0.00095	0.00017	0.00036	0.00057	0.00079	0.00102	0.00024	0.00047	0.00072	0.00095	0.00119
Average Recov Def.	LVDT 1 and 2		Havg	.⊑	0.00119	0.00252	0.00405	0.00581	0.00758	0.00136	0.00290	0.00459	0.00635	0.00816	0.00191	0.00376	0.00574	0.00764	0.00951
Actual Applied	Contact Stress		Scontact	psi	0.2	0.2	0.3	0.5	0.7	0.2	0.2	0.2	0.4	9.0	0.2	0.2	0.2	0.4	9.0
Actual Applied	Cyclic Stress		Scyclic	psi	1.8	3.6	5.4	7.1	8.8	1.8	3.6	5.4	7.1	8.8	1.8	3.6	5.3	7.0	8.7
Actual Applied	Max. Axial	Stress	S _{max}	psi	2.1	3.9	5.7	7.6	9.5	2.1	3.8	5.6	7.5	9.4	2.0	3.8	5.5	7.3	9.2
Actual Applied	Contact Load		Pcontact	lbs	2.8	2.9	3.6	6.1	8.5	2.8	2.9	2.8	5.3	7.7	2.9	2.8	2.8	4.4	6.8
Actual Applied	Cyclic Load		P _{cyclic}	sql	22.3	44.5	66.1	87.1	107.7	22.2	44.0	65.5	86.4	107.3	21.8	43.4	64.4	85.0	105.7
Actual Applied	Max. Axial Load		Р _{шах}	sql	25.2	47.3	69.7	93.2	116.3	25.1	46.8	68.3	91.7	115.0	24.6	46.2	67.3	89.4	112.5
Nominal Maximum	Axial Stress		Scyclic	psi	2.0	4.0	0.9	8.0	10.0	2.0	4.0	0.9	8.0	10.0	2.0	4.0	6.0	8.0	10.0
Chamber Confining	Pressure		လိ	psi	0.9	0.9	0.9	0.9	0.9	4.0	4.0	4.0	4.0	4.0	2.0	2.0	2.0	2.0	2.0
	PARAMETER		DESIGNATION	UNIT	Sequence 1	Sequence 2	Sequence 3	Sequence 4	Sequence 5	Sequence 6	Sequence 7	Sequence 8	Sequence 9	Sequence 10	Sequence 11	Sequence 12	Sequence 13	Sequence 14	Sequence 15

March 15, 2017	
DATE	DATE
GW	
TESTED BY	REVIEWED BY

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

Job No. 110616 Material Code SSRVPS

Date Sampled:2/14/17Station No.: 105+00Date Tested:March 15, 2017Location: 15RT

Name of Project: MCNULTY LAKE & HOG TUSK CREEK STRS. & APPRS. (S)

County: Code: 39 Name: LEE

Sampled By: THORNTON/TAYLOR Depth: 0-5

Lab No.: 20170611 **AASHTO Class:** A-6(11)

Sample ID: RV175 Material Type (1 or 2): 2 LATITUDE: LONGITUDE:

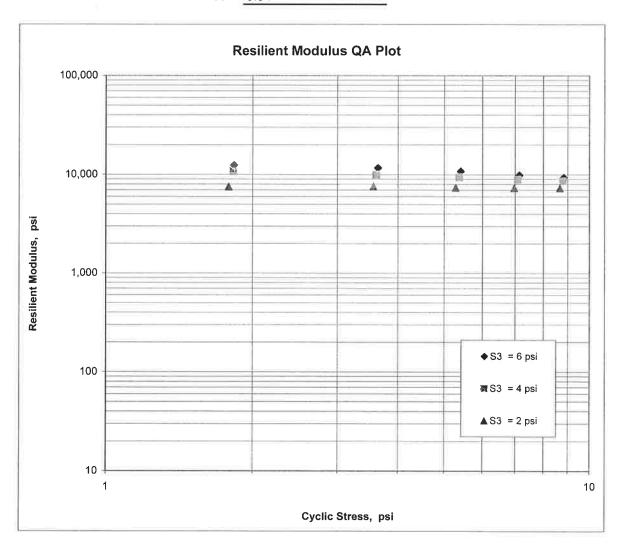
 $M_R = K1 (S_C)^{K2} (S_3)^{K5}$

K1 = 6,976

K2 = -0.11245

K5 = 0.33964

 $R^2 = 0.94$



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

Job No. Date Sampled: Date Tested: Name of Project:	110616 2/14/17 March 15, 2017 MCNULTY LAKE & HOG TUSK CREEK STRS. &	Material Code Station No.: Location: t APPRS. (S)	SSRVPS 206+00 18LT
County: Sampled By:	Code: 39 Name: LEE THORNTON/TAYLOR	Donth	0-5
Lab No.: Sample ID: LATITUDE:	20170612 RV176	Depth: AASHTO Class: Material Type (1 or 2) LONGITUDE:	A-6(12)
1. Testing Inform	nation:		
g	Preconditioning - Permanent Strain > 5% (Y=Y Testing - Permanent Strain > 5% (Y=Yes or N=Number of Load Sequences Completed (0-15)	•	N N 15
2. Specimen Info	rmation:		
	Specimen Diameter (in):		
	Тор		3.95
	Middle		3.95
	Bottom		3.96
	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):		12.20
	Initial Volume, AoLo (cu. in):		97.85
3. Soil Specimen	Weight:		
	Weight of Wet Soil Used (g):		3075.90
4. Soil Properties	2.		
4. Son Properties	Optimum Moisture Content (%):		17.1
	Maximum Dry Density (pcf):		104
	95% of MDD (pcf):		98.8
	In-Situ Moisture Content (%):		N/A
F. Omention of P			
5. Specimen Pro			2075 00
	Wet Weight (g): Compaction Moisture content (%):		3075.90 17.3
	Compaction Wet Density (pcf):		119.78
	Compaction Dry Density (pcf):		102.11
	Moisture Content After Mr Test (%):		16.9
6. Quick Shear T	est (Y=Yes, N=No, N/A=Not Applicable):		#VALUE!
7. Resilient Modu	ulus, Mr:	6263(S	Sc)^-0.15197(S3)^0.35901
8. Comments			
	· · · · · · · · · · · · · · · · · · ·		
9. Tested By:	<u>GW</u> Da	te: March 15, 2017	

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

SSRVPS

206+00

18LT

Material Code Station No.: Location: MCNULTY LAKE & HOG TUSK CREEK STRS. & APPRS. (S) March 15, 2017 110616 2/14/17 Name of Project: Date Sampled: Date Tested: Job No.

County: Code: 39 Name: LEE

AASHTO Class: Depth: THORNTON/TAYLOR 20170612 **RV176** Sampled By: Sample ID: Lab No.:

LATITUDE:

Material Type (1 or 2): 2 LONGITUDE:

A-6(12)

0-5

Resilient	Modulus				M	psi	11,000	10,306	9,370	8,541	8,010	9,676	8,645	8,000	7,598	7,225	869'9	6,555	6,309	
Resilient	Strain				చ్	in/in	0.00017	0.00036	0.00058	0.00084	0.00111	0.00019	0.00042	0.00067	0.00094	0.00123	0.00027	0.00055	0.00084	
Average	Recov Def.	LVDT 1	and 2		Havg	Ŀ	0.00134	0.00285	0.00467	0.00675	0.00893	0.00153	0.00337	0.00540	0.00753	0.00985	0.00219	0.00439	0.00676	
Actual	Applied	Contact	Stress		Scontact	psi	0.2	0.2	0.3	0.5	0.7	0.2	0.2	0.2	0.4	9.0	0.2	0.2	0.2	
Actual	Applied	Cyclic	Stress		Scyclic	psi	1.8	3.7	5.5	7.2	8.9	1.8	3.6	5.4	7.1	8.9	1.8	3.6	5.3	
Actual	Applied	Мах.	Axial	Stress	S _{max}	psi	2.1	3.9	5.8	7.7	9.6	2.1	3.9	5.6	9.7	9.5	2.1	3.8	5.5	
Actual	Applied	Contact	Load		Pcontact	sql	2.8	2.8	3.6	6.1	8.5	2.8	2.8	2.8	5.1	9.7	2.7	2.7	2.7	
Actual	Applied	Cyclic Load			P _{cyclic}	sql	22.4	44.7	66.5	87.7	108.8	22.4	44.3	65.8	87.1	108.2	22.3	43.8	64.8	
Actual	Applied	Max. Axial	Load		P _{max}	sql	25.2	47.6	70.2	93.8	117.3	25.2	47.1	68.5	92.2	115.8	25.1	46.5	67.5	
Nominal	Maximum	Axial	Stress		Sayalia	psi	2.0	4.0	0.9	8.0	10.0	2.0	4.0	0.9	8.0	10.0	2.0	4.0	6.0	
Chamber	Confining	Pressure			Š	psi	0.9	0.9	0.9	0.9	0.9	4.0	4.0	4.0	4.0	4.0	2.0	2.0	2.0	
		PARAMETER			DESIGNATION	UNIT	Sequence 1	Sequence 2	Sequence 3	Sequence 4	Sequence 5	Sequence 6	Sequence 7	Sequence 8	Sednence 9	Sequence 10	Sequence 11	Sequence 12	Sequence 13	

 TESTED BY
 GW
 DATE
 March 15, 2017

 REVIEWED BY
 DATE

6,223

0.00113

0.00908

0.3

7.0

7.4

4.2

85.9

90.1

8.0

2.0

Sequence 14 Sequence 15

6.7

106.4

113.1

10.0

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

Job No.110616Material Code SSRVPSDate Sampled:2/14/17Station No.: 206+00Date Tested:March 15, 2017Location: 18LT

Name of Project: MCNULTY LAKE & HOG TUSK CREEK STRS. & APPRS. (S)

County: Code: 39 Name: LEE

Sampled By:THORNTON/TAYLORDepth: 0-5Lab No.:20170612AASHTO Class: A-6(12)Sample ID:RV176Material Type (1 or 2): 2LATITUDE:LONGITUDE:

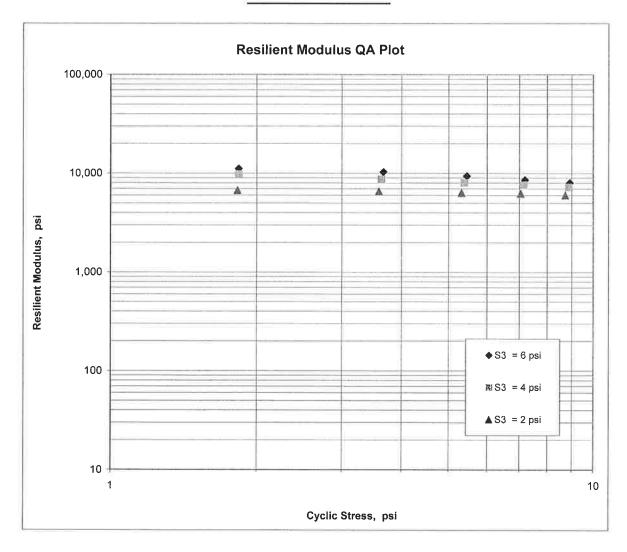
$$M_R = K1 (S_C)^{K2} (S_3)^{K5}$$

K1 = 6,263

K2 = -0.15197

K5 = 0.35901

 $R^2 = 0.96$



JOB: 110616

Arkansas State Highway Transporation Department

JOB NAME: MCNULTY LAKE & HOG TUSK CREEK STRS.& APPRS. (S)

Materials Division

COUN	TY NO.	39	DATE TESTE	D	3/8/	2017			M	ls Engin	eer		
STA.#	LOC.	DEPTH	COLOR	#4	#10	#40	#80	#200 E S -	L.L.	P.I.	SOIL CLASS	<i>LAB</i> #:	%MOISTURE
105+00	15'RT	0-5	BROWN	100	glezi			93	33	12	A-6(11)	RV175	
206+00	18'LT	0-5	BROWN	100	SIT I		10.10	93	32	13	A-6(12)	RV176	
105+00	05'RT	0-5	BROWN	100		(Pagro)		98	46	27	A-7-6(29)	S163	27.2
105+00	13'RT	0-5	BROWN	100		Myrig.	210	99	35	14	A-6(15)	S164	27.2
109+00	15'LT	0-5	BROWN	100	diversity.	V 14.	1000	96	28	8	A-4(7)	S165	24.8
116+00	15'LT	0-5	BR/GR	98	97	93	87	81	25	7	A-4(4)	S166	17.2
120+00	05'LT	0-5	BROWN	100	, visite j	B(B)		94	34	18	A-6(16)	S167	24.3
120+00	15'LT	0-5	BROWN	98	96	93	91	88	28	11	A-6(8)	S168	19.7
203+00	05'RT	0-5	BROWN	100			533	97	43	25	A-7-6(26)	S169	25.4
203+00	13'RT	0-5	BROWN	100	100		1000	99	40	21	A-6(22)	S170	26.3
206+00	15'LT	0-5	BROWN	100	100	jules.	Grade .	99	42	26	A-7-6(27)	S171	21.9
216+00	15'LT	0-5	BROWN	100	0.00	1180		90	33	15	A-6(13)	S172	21.7
222+00	05'LT	0-5	BROWN	95	90	84	81	79	33	18	A-6(13)	S173	23.8
222+00	15'LT	0-5	BROWN	100	-		2013	92	40	23	A-6(21)	S174	24.2

3/8/2017

Arkansas State Highway Transporation Department

Materials Division

 $JOB\ NAME$: MCNULTY LAKE & HOG TUSK CREEK STRS.& APPRS. (S)

110616

JOB:

Michael Benson, Materials Engineer

PAVEMENT SOUNDINGS SAND ASPHALT 5.0 7.5 ACHIMSC ACHMSC 1.0X 1.0 1.0 COUNTY NO. 39 13'RT 05'RT 15'LT 15'LT 05'LT STA.# LOC. 15'LT 05'LT 13'RT 05'RT 15'LT 15'LT 15'LT 105+00 105+00 109+00 116+00 120+00 120+00 203+00 206+00 216+00 222+00 222+00 203+00

Page I of I

MICHAEL BENSON, MATERIALS ENGINEER

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

L SURVEY SPECIFICA TE CNULTY LA OT APPLICA SAS OUNTY ON/TAYLO	SAMPLE ATION CHECK AKE & HOG TUSK CR CABLE R		K STRS.& AP	MATERIA SPEC. SUPPLI COUNTY DISTRIPES. (DATE DATE DATE DATE	IAL YEA IER Y/ST ICT S) SAMI	CODE - SSRVPS AR - 2014 ID 1 CATE - 39 NO 01 PLED - 02/14/17 EIVED - 02/17/17
- S - I - C - C - E	E163 INFORMATION ONLY L05+00 D5'RT D-5 BROWN	₩ ₩	S164 INFORMATION 105+00 13'RT 0-5 BROWN			109+00 15'LT 0-5 BROWN
						34 42 15.90 90 57 38.20 100
(IN)	46 27 A-7-6(29) 27.2 1.0X 5.0		35 14 A-6(15) 27.2			28 8 A-4(7) 24.8
	616 BE ASSIGN L SURVEY SPECIFICA TE CONULTY LA OT APPLIA SAS OUNTY ON/TAYLO HOLE LL SURVEY - 2 - 3 - 6 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7	616 BE ASSIGNED L SURVEY SAMPLE SPECIFICATION CHECK TE CONULTY LAKE & HOG TUSK CR OT APPLICABLE SAS OUNTY ON/TAYLOR HOLE L SURVEY - R VALUE- PAVE - 20170599 - S163 - INFORMATION ONLY - 105+00 - 05'RT - 0-5 - BROWN - SEC - 34 42 11.80 SEC - 90 57 41.80 IN IN IN IN IN IN 200 - 98 - 46 - 27 - A-7-6(29) - 27.2 (IN) - 1.0X	616 BE ASSIGNED L SURVEY SAMPLE SPECIFICATION CHECK TE CNULTY LAKE & HOG TUSK CREE OT APPLICABLE SAS OUNTY ON/TAYLOR HOLE L SURVEY - R VALUE- PAVEME - 20170599 - S163 - INFORMATION ONLY - 105+00 - 05'RT - 0-5 - BROWN - SEC - 34 42 11.80 - SEC - 90 57 41.80 IN	616 BE ASSIGNED L SURVEY SAMPLE SPECIFICATION CHECK TE CNULTY LAKE & HOG TUSK CREEK STRS. & AP OT APPLICABLE SAS OUNTY ON/TAYLOR HOLE L SURVEY - R VALUE- PAVEMENT SOUNDING - 20170599 - 20170600 - 5163 - 5164 - INFORMATION ONLY - INFORMATION - 105+00 - 105+00 - 05'RT - 13'RT - 0-5 - 0-5 - BROWN - BROWN - SEC - 34 42 11.80 - 34 42 1 SEC - 90 57 41.80 - 90 57 4 IN IN.	## MATER: ## BE ASSIGNED SPEC. L SURVEY SAMPLE SUPPL: ## SPECIFICATION CHECK COUNTY ## TE DISTR: ## CNULTY LAKE & HOG TUSK CREEK STRS. & APPRS. (OUNTY DATE ## CON/TAYLOR DATE ## CN/TAYLOR DATE ## CL SURVEY - R VALUE- PAVEMENT SOUNDINGS ## - 20170599 - 20170600 ## S163 - S164 ## INFORMATION ONLY - INFORMATION ONLY ## - 105+00 - 105+00 ## - 105+00 - 105+00 ## - 05'RT - 13'RT ## - 0-5 - 0-5 ## BROWN - BROWN ## SEC - 34 42 11.80 - 34 42 11.80 ## SSEC - 90 57 41.80 90 57 41.60 IN	MATERIAL BE ASSIGNED SPEC. YEA L SURVEY SAMPLE SUPPLIER SPECIFICATION CHECK COUNTY/ST TE DISTRICT CNULTY LAKE & HOG TUSK CREEK STRS. & APPRS. (S) OT APPLICABLE SAS OUNTY DATE SAM ON/TAYLOR DATE RECT HOLE DATE TEST L SURVEY - R VALUE- PAVEMENT SOUNDINGS - 20170599 - 20170600 S163 - S164 INFORMATION ONLY - INFORMATION ONLY 105+00 - 105+00 05'RT - 13'RT 0-5 - 0-5 BROWN BROWN SEC - 34 42 11.80 - 34 42 11.80 - SEC - 90 57 41.80 90 57 41.60 IN

REMARKS - X=STRIPPED

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- 8

AASHTO TESTS : T24 T88 T89 T90 T265

MICHAEL BENSON, MATERIALS ENGINEER

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

DATE - 03/ JOB NUMBER - 110 FEDERAL AID NO TO PURPOSE - SOI SPEC. REMARKS - NO SUPPLIER NAME - STA NAME OF PROJECT - M PROJECT ENGINEER - N PIT/QUARRY - ARKAN LOCATION - LEE C SAMPLED BY - THORNT SAMPLE FROM - TEST MATERIAL DESC SOI	616 BE ASSION SPECIFION TE CNULTY OT APPL SAS OUNTY ON/TAYL HOLE	Y SAMPLE CATION CHI LAKE & HOO ICABLE OR	ECK G TUSK CREI		MATERIAL SPEC. YEA SUPPLIER COUNTY/ST DISTRICT PPRS. (S) DATE SAM DATE RECT DATE TES'	ID 1 PLED - 02/14/17 EIVED - 02/17/17
LAB NUMBER SAMPLE ID TEST STATUS STATION LOCATION DEPTH IN FEET MAT'L COLOR MAT'L TYPE LATITUDE DEG-MIN-		116+00 15'LT 0-5 BR/GR	- ION ONLY - - - - - - - 21.00 -	120+00 05'LT 0-5 BROWN	- ON ONLY - - - - - - 21.50 -	20170604 S168 INFORMATION ONLY 120+00 15'LT 0-5 BROWN
3/4	IN IN IN IN 10 - 40 - 80 -	90 57 100 98 97 93 87 81	31.90	90 57 100 94	27.20	90 57 27.20 100 99 98 96 93 91 88
LIQUID LIMIT PLASTICITY INDEX AASHTO SOIL UNIFIED SOIL % MOISTURE CONTENT ACHMSC SAND ASPHALT	(IN) - (IN) -	25 7 A-4(4) 17.2		34 18 A-6(16) 24.3 1.0 5.0		28 11 A-6(8) 19.7

REMARKS - X=STRIPPED

200

AASHTO TESTS : T24 T88 T89 T90 T265

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MICHAEL BENSON, MATERIALS ENGINEER

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

	DOIL	DORVET / TAVEREN	1 50	ONDING IESI	KELOKI	
DATE - 03/ JOB NUMBER - 110 FEDERAL AID NO TO PURPOSE - SOI SPEC. REMARKS - NO SUPPLIER NAME - STA NAME OF PROJECT - M PROJECT ENGINEER - M PIT/QUARRY - ARKAN LOCATION - LEE C SAMPLED BY - THORM SAMPLE FROM - TEST MATERIAL DESC SOI		DATE SAMPLED - 02/14/17 DATE RECEIVED - 02/17/17 DATE TESTED - 03/08/17				
LAB NUMBER	826	20170605	_	20170606	-	20170607
SAMPLE ID		S169		S170		S171
TEST STATUS						INFORMATION ONLY
STATION		203+00	_	203+00		206+00
LOCATION		05'RT	-	13'RT		15'LT
DEPTH IN FEET			-	0-5	-	0-5
			-	BROWN	-	BROWN
MAT'L TYPE		2107111	-	210,111	-	210111
LATITUDE DEG-MIN-	SEC -	34 42 53.70	_	34 42 5	- 53 70 -	34 42 56.50
LONGITUDE DEG-MIN-						90 57 12.50
		7 7 7 70120			13.10	37 12.30
% PASSING 2			=			
	IN.		7		=	
•	IN				-	
	IN.				-	
	4	100	-	100	-	100
	10 📻		~		-	
NO.			+		:=	
NO.			**		-	
NO.	200 -	97		99		99
LIQUID LIMIT	- 2	43	=	40	-	42
PLASTICITY INDEX	-	25	-	21	-	26
AASHTO SOIL	1.75	A-7-6(26)	-	A-6(22)	-	A-7-6(27)
UNIFIED SOIL			*		_	
% MOISTURE CONTENT	=	25.4	=	26.3	-	21.9
ACHMSC	(IN) -	1.0	-		=	22.2
SAND ASPHALT	(IN) -	7.5	-	3.50	=	***
) ;= ;		-		=	
	-		_			
	=		_		=	
	977		_			
			_		-	
	-		-		=	
	=		-		-	

REMARKS - X=STRIPPED

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AASHTO TESTS : T24 T88 T89 T90 T265

543

MICHAEL BENSON, MATERIALS ENGINEER

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

DATE - 03/21, JOB NUMBER - 110616 FEDERAL AID NO TO BE PURPOSE - SOIL S SPEC. REMARKS - NO SPI SUPPLIER NAME - STATE NAME OF PROJECT - MCNI PROJECT ENGINEER - NOT PIT/QUARRY - ARKANSAS LOCATION - LEE COUN SAMPLED BY - THORNTON SAMPLE FROM - TEST HOM MATERIAL DESC SOIL	DATE SAMPLED - 02/14/17 DATE RECEIVED - 02/17/17 DATE TESTED - 03/08/17								
LAB NUMBER SAMPLE ID TEST STATUS STATION LOCATION DEPTH IN FEET	- 203 - S1' - INI - 216 - 15 - 0-5 - BRO	170608 72 FORMATION ONLY 5+00 'LT 5 DWN	3 2 6 3 3 2 6 3	20170609 S173 INFORMATIO 222+00 05'LT 0-5 BROWN			222+00 15'LT 0-5 BROWN	ATI(ON ONLY .70 56.20
	1 1 1 1 1 1	90		100 95 90 84 81 79			100		
LIQUID LIMIT PLASTICITY INDEX AASHTO SOIL UNIFIED SOIL % MOISTURE CONTENT			± ± ±	33 18 A-6(13) 23.8			40 23 A-6(2		
	N) - - - - - - -			1.25 7.5		E B B B B B B B B B B B B B B B B B B B			

REMARKS - X=STRIPPED

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AASHTO TESTS : T24 T88 T89 T90 T265

MICHAEL BENSON, MATERIALS ENGINEER

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

- 03/21/17 DATE SEQUENCE NO. - 1 JOB NUMBER - 110616 MATERIAL CODE - RV FEDERAL AID NO.- TO BE ASSIGNED SPEC. YEAR - 2014 PURPOSE - SOIL SURVEY SAMPLE SUPPLIER ID. - 1 SPEC. REMARKS - NO SPECIFICATION CHECK COUNTY/STATE - 39 SUPPLIER NAME - STATE DISTRICT NO. - 01 NAME OF PROJECT - MCNULTY LAKE & HOG TUSK CREEK STRS. & APPRS. (S) PROJECT ENGINEER - NOT APPLICABLE PIT/QUARRY - ARKANSAS - LEE COUNTY LOCATION DATE SAMPLED - 02/14/17 SAMPLED BY - THORNTON/TAYLOR DATE RECEIVED - 02/17/17 SAMPLE FROM - TEST HOLE DATE TESTED - 03/08/17 MATERIAL DESC. - SOIL SURVEY - RESISTANCE R-VALUE ACTUAL RESULTS - 20170611 - RV175 LAB NUMBER - 20170612 _ RV176 SAMPLE ID - INFORMATION ONLY - INFORMATION ONLY -TEST STATUS STATION - 105+00 = 206+00 18'LT - 15'RT - 0-5 - BROWN LOCATION 0-5 DEPTH IN FEET BROWN MAT'L COLOR MAT'L TYPE LATITUDE DEG-MIN-SEC - 34 42 11.90 - 34 42 56.60 LONGITUDE DEG-MIN-SEC - 90 56 4.50 90 57 12.60 % PASSING 2 IN. -1 1/2 IN. -3/4 IN. -3/8 IN. -NO 4 - 100 100 NO. 10 -NO. 40 -NO. 80 NO. 200 - 93 93 LIQUID LIMIT = 32 33 = 13 PLASTICITY INDEX 12 AASHTO SOIL A-6(11) A-6(12) UNIFIED SOIL % MOISTURE CONTENT

REMARKS - X=STRIPPED

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AASHTO TESTS : T24 T88 T89 T90 T265

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