



MATERIALS DIVISION

11301 West Baseline Road | P.O. Box 2261, Little Rock, AR 72203-2261
Phone: (501) 569-2185 | Fax: (501) 569-2368

March 18, 2025

TO: Mr. Shane Wood, District 10 Engineer

SUBJECT: Job No.A00074
Osceola - West (S)
Route 140 Section 5
Mississippi County

Attached is the soil survey, pavement soundings (Attachment A), resilient modulus (Attachment B), and site photographs (Attachment C) for the above referenced job. The proposed project is to level and overlay approximately 4.75 miles of Highway 140 west of Osceola. The main lanes are comprised of 9 to 12 inches of ACHM underlain by 9 inches of PCCP. The shoulders consist of 4 to 14 inches of ACHM supported by 3 to 10 inches of aggregate base. The paved shoulders have failed due to the weak underlying soils and heavy farm equipment.

Two alternatives are provided herein to repair the shoulder failures. Both options involve notch-cutting the existing pavement. The first option requires 8 inches of cutting and the second requires 6 inches of cutting. The subgrade soils should be stabilized with 8% Portland cement treated to a depth of 18 inches.

The first option is placing a 6-inch Geocell Confined Subbase Reinforcement on the treated subgrade. A special provision is included in attachment D. Geocell infill should be comprised of Concrete Coarse Aggregate (#57 stone) of Section 802 of the Standard Specifications Edition 2014. The stone infill must be capped with 2 inches of compacted Class 7 Base Course from Section 303. Two inches of ACHM surface course of Section 407 should be placed across the entire road width.

The second option is placing 6 inches of ACHM Binder of Section 406 on the prepared subgrade. A 2-inch overlay is also applied to the entire roadway width.

The Qualified Products List (QPL) indicates that Aggregate Base Course (Class CL-7) is available from the river port near Osceola.



Paul Tinsley
Materials Engineer

RPT:yz:bjj
Attachments
cc: Roadway Design
Construction
Maintenance
G. C. File

Attachment A

Soil Survey

Pavement Soundings

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

PAUL TINSLEY, MATERIALS ENGINEER

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

DATE	- 11/25/24	SEQUENCE NO.	- 2
JOB NUMBER	- A00074	MATERIAL CODE	- SSRVPS
FEDERAL AID NO.	- TO BE ASSIGNED	SPEC. YEAR	- 2014
PURPOSE	- SOIL SURVEY SAMPLE	SUPPLIER ID.	- 1
SPEC. REMARKS	- NO SPECIFICATION CHECK	COUNTY/STATE	- 47
SUPPLIER NAME	- STATE	DISTRICT NO.	- 10
NAME OF PROJECT	- OSCEOLA-WEST (S)		
PROJECT ENGINEER	- NOT APPLICABLE		
PIT/QUARRY	- ARKANSAS		
LOCATION	- MISSISSIPPI COUNTY	DATE SAMPLED	- 10/16/24
SAMPLED BY	- d.thornton	DATE RECEIVED	- 10/21/24
SAMPLE FROM	- TEST HOLE	DATE TESTED	- 11/25/24
MATERIAL DESC.	- SOIL SURVEY - R VALUE- PAVEMENT SOUNDINGS		

LAB NUMBER	- 20242010	- 20242011	- 20242012
SAMPLE ID	- S251	- S252	- S253
TEST STATUS	- INFORMATION ONLY	- INFORMATION ONLY	- INFORMATION ONLY
STATION	- 09.5	- 09.75	- 09.75
LOCATION	- 12 RT	- 10.1 LT	- 16 LT
DEPTH IN FEET	- 0-5.0	- 0-5.0	- 0-5.0
MAT'L COLOR	- GRAY	- GRAY	- GRAY
MAT'L TYPE	-	-	-
LATITUDE DEG-MIN-SEC	- 35 41 54.60	- 35 41 54.70	- 35 41 54.80
LONGITUDE DEG-MIN-SEC	- 90 08 33.50	- 90 08 17.50	- 90 08 17.50
% PASSING	2 IN. -	-	-
	1 1/2 IN. -	-	-
	3/4 IN. - 100	- 100	- 100
	3/8 IN. - 91	- 99	- 98
	NO. 4 - 81	- 98	- 91
	NO. 10 - 71	- 95	- 85
	NO. 40 - 57	- 90	- 77
	NO. 80 - 48	- 85	- 72
	NO. 200 - 42	- 80	- 67
LIQUID LIMIT	- 34	- 59	- 59
PLASTICITY INDEX	- 18	- 35	- 40
AASHTO SOIL	- A-6(3)	- A-7-6(30)	- A-7-6(25)
UNIFIED SOIL	-	-	-
% MOISTURE CONTENT	- 25.2	- 36.5	- 33.5
ACHM SC (IN)	- 13.0W	- 9.0W	- 14.0W
SAND ASPHALT (IN)	- --	- 2.0	- --
PCCP (IN)	- --	- 9.5	- --
AGGR BASE CRS CL5 (IN)	- 4.0	- --	- 3.0
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-

REMARKS - X=STRIPPED W=MULTIPLE LAYERS Z=AUGER REFUSAL

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AASHTO TESTS : T24 T88 T89 T90 T265

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

PAUL TINSLEY, MATERIALS ENGINEER

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

DATE - 11/25/24 SEQUENCE NO. - 3
 JOB NUMBER - A00074 MATERIAL CODE - SSRVPS
 FEDERAL AID NO. - TO BE ASSIGNED SPEC. YEAR - 2014
 PURPOSE - SOIL SURVEY SAMPLE SUPPLIER ID. - 1
 SPEC. REMARKS - NO SPECIFICATION CHECK COUNTY/STATE - 47
 SUPPLIER NAME - STATE DISTRICT NO. - 10
 NAME OF PROJECT - OSCEOLA-WEST (S)
 PROJECT ENGINEER - NOT APPLICABLE
 PIT/QUARRY - ARKANSAS
 LOCATION - MISSISSIPPI COUNTY DATE SAMPLED - 10/16/24
 SAMPLED BY - d.thornton DATE RECEIVED - 10/21/24
 SAMPLE FROM - TEST HOLE DATE TESTED - 11/25/24
 MATERIAL DESC. - SOIL SURVEY - R VALUE- PAVEMENT SOUNDINGS

LAB NUMBER	20242013	20242014	20242015
SAMPLE ID	S254	S255	S256
TEST STATUS	INFORMATION ONLY	INFORMATION ONLY	INFORMATION ONLY
STATION	10.0	10.0	10.25
LOCATION	09.7 LT	16 LT	09.1 RT
DEPTH IN FEET	0-5.0	0-5.0	0-5.0
MAT'L COLOR	GRAY	GRAY	GRAY
MAT'L TYPE			
LATITUDE DEG-MIN-SEC	35 41 54.40	35 41 54.50	35 41 54.60
LONGITUDE DEG-MIN-SEC	90 08 .80	90 08 .80	90 07 46.90
% PASSING			
2 IN.	-	-	-
1 1/2 IN.	-	-	-
3/4 IN.	-	-	100
3/8 IN.	100	100	99
NO. 4	99	99	97
NO. 10	98	97	93
NO. 40	95	92	88
NO. 80	85	80	85
NO. 200	75	70	84
LIQUID LIMIT	44	45	73
PLASTICITY INDEX	27	29	48
AASHTO SOIL	A-7-6(19)	A-7-6(18)	A-7-6(44)
UNIFIED SOIL			
% MOISTURE CONTENT	28.2	29.2	46.6
ACHM SC (IN)	3.5XW	11.25	9.0
ACHM SC (IN)	6.0	--	--
SAND ASPHALT (IN)	3.0	--	3.0
PCCP (IN)	8.75	--	7.0
AGGR BASE CRS CL5 (IN)	--	7.0	--

REMARKS - X=STRIPPED W=MULTIPLE LAYERS Z=AUGER REFUSAL

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AASHTO TESTS : T24 T88 T89 T90 T265

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

PAUL TINSLEY, MATERIALS ENGINEER

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

DATE - 11/25/24 SEQUENCE NO. - 4
JOB NUMBER - A00074 MATERIAL CODE - SSRVPS
FEDERAL AID NO. - TO BE ASSIGNED SPEC. YEAR - 2014
PURPOSE - SOIL SURVEY SAMPLE SUPPLIER ID. - 1
SPEC. REMARKS - NO SPECIFICATION CHECK COUNTY/STATE - 47
SUPPLIER NAME - STATE DISTRICT NO. - 10
NAME OF PROJECT - OSCEOLA-WEST (S)
PROJECT ENGINEER - NOT APPLICABLE
PIT/QUARRY - ARKANSAS
LOCATION - MISSISSIPPI COUNTY DATE SAMPLED - 10/16/24
SAMPLED BY - d.thornton DATE RECEIVED - 10/21/24
SAMPLE FROM - TEST HOLE DATE TESTED - 11/25/24
MATERIAL DESC. - SOIL SURVEY - R VALUE- PAVEMENT SOUNDINGS

LAB NUMBER	20242016	20242017	20242018
SAMPLE ID	S257	S258	S259
TEST STATUS	INFORMATION ONLY	INFORMATION ONLY	INFORMATION ONLY
STATION	10.25	10.5	10.5
LOCATION	12 RT	10.5 LT	13.8 LT
DEPTH IN FEET	0-5.0	0-5.0	0-5.0
MAT'L COLOR	GRAY	GRAY	GRAY
MAT'L TYPE			
LATITUDE DEG-MIN-SEC	35 41 54.60	35 41 54.30	35 41 54.30
LONGITUDE DEG-MIN-SEC	90 07 46.90	90 07 31.60	90 07 31.60
% PASSING			
2 IN.			
1 1/2 IN.			
3/4 IN.		100	100
3/8 IN.	100	99	91
NO. 4	99	97	79
NO. 10	98	93	67
NO. 40	95	88	54
NO. 80	92	84	46
NO. 200	90	81	42
LIQUID LIMIT	77	64	47
PLASTICITY INDEX	52	46	32
AASHTO SOIL	A-7-6(53)	A-7-6(38)	A-7-6(8)
UNIFIED SOIL			
% MOISTURE CONTENT	45.9	38.7	25.7
BST (IN)	--	.5	--
ACHM SC (IN)	2.0X	2.25X	--
ACHM SC (IN)	2.0	.25X	--
ACHM SC (IN)	--	2.5	--
AGGR BASE CRS CL5 (IN)	2.0	2.0	--

REMARKS - X=STRIPPED W=MULTIPLE LAYERS Z=AUGER REFUSAL

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AASHTO TESTS : T24 T88 T89 T90 T265

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

DATE - 01/15/25 SEQUENCE NO. - 5
JOB NUMBER - A00074 MATERIAL CODE - SSRVPS
FEDERAL AID NO. - TO BE ASSIGNED SPEC. YEAR - 2014
PURPOSE - SOIL SURVEY SAMPLE SUPPLIER ID. - 1
SPEC. REMARKS - NO SPECIFICATION CHECK COUNTY/STATE - 47
SUPPLIER NAME - STATE DISTRICT NO. - 10
NAME OF PROJECT - OSCEOLA-WEST (S)
PROJECT ENGINEER - NOT APPLICABLE
PIT/QUARRY - ARKANSAS
LOCATION - MISSISSIPPI COUNTY DATE SAMPLED - 10/16/24
SAMPLED BY - d.thornton DATE RECEIVED - 10/21/24
SAMPLE FROM - TEST HOLE DATE TESTED - 11/25/24
MATERIAL DESC. - SOIL SURVEY - R VALUE- PAVEMENT SOUNDINGS

LAB NUMBER	20242019	20242020	20242021
SAMPLE ID	S260	S261	S263
TEST STATUS	INFORMATION ONLY	INFORMATION ONLY	INFORMATION ONLY
STATION	10.75	10.75	11.0
LOCATION	10.1 RT	16 RT	09.11 LT
DEPTH IN FEET	0-5.0	0-5.0	0-5.0
MAT'L COLOR	GRAY	GRAY	GRAY
MAT'L TYPE			
LATITUDE DEG-MIN-SEC	35 41 54.50	35 41 54.60	35 41 54.30
LONGITUDE DEG-MIN-SEC	90 07 15.00	90 07 15.00	90 07 .10
% PASSING			
2 IN.	-	-	-
1 1/2 IN.	-	-	-
3/4 IN.	100	100	-
3/8 IN.	99	96	100
NO. 4	98	94	99
NO. 10	97	92	95
NO. 40	95	89	88
NO. 80	90	85	82
NO. 200	84	80	79
LIQUID LIMIT	64	62	53
PLASTICITY INDEX	47	45	35
AASHTO SOIL	A-7-6(41)	A-7-6(37)	A-7-6(28)
UNIFIED SOIL			
% MOISTURE CONTENT	37.0	45.0	34.8
ACHM SC (IN)	3.5X	7.0W	10.5W
ACHM SC (IN)	3.5	--	--
ACHM SC (IN)	2.0	--	--
PCCP (IN)	9.0	--	--
AGGR BASE CRS CL5 (IN)	--	--	6.0

REMARKS - X=STRIPPED W=MULTIPLE LAYERS Z=AUGER REFUSAL

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

DATE	- 11/25/24	SEQUENCE NO.	- 7
JOB NUMBER	- A00074	MATERIAL CODE	- SSRVPS
FEDERAL AID NO.	- TO BE ASSIGNED	SPEC. YEAR	- 2014
PURPOSE	- SOIL SURVEY SAMPLE	SUPPLIER ID.	- 1
SPEC. REMARKS	- NO SPECIFICATION CHECK	COUNTY/STATE	- 47
SUPPLIER NAME	- STATE	DISTRICT NO.	- 10
NAME OF PROJECT	- OSCEOLA-WEST (S)		
PROJECT ENGINEER	- NOT APPLICABLE		
PIT/QUARRY	- ARKANSAS	DATE SAMPLED	- 10/16/24
LOCATION	- MISSISSIPPI COUNTY	DATE RECEIVED	- 10/21/24
SAMPLED BY	- d.thornton	DATE TESTED	- 11/25/24
SAMPLE FROM	- TEST HOLE		
MATERIAL DESC.	- SOIL SURVEY - R VALUE- PAVEMENT SOUNDINGS		

LAB NUMBER	- 20242025	- 20242026	- 20242027
SAMPLE ID	- S266	- S267	- S268
TEST STATUS	- INFORMATION ONLY	- INFORMATION ONLY	- INFORMATION ONLY
STATION	- 11.5	- 11.5	- 11.75
LOCATION	- 09.2 LT	- 11.0 LT	- 10.10 RT
DEPTH IN FEET	- 0-5.0	- 0-5.0	- 0-5.0
MAT'L COLOR	- GRAY	- GRAY	- GRAY
MAT'L TYPE	-	-	-
LATITUDE DEG-MIN-SEC	- 35 41 54.40	- 35 41 54.40	- 35 41 54.60
LONGITUDE DEG-MIN-SEC	- 90 06 28.30	- 90 06 28.30	- 90 06 11.40
% PASSING	2 IN. -	-	-
	1 1/2 IN. -	-	-
	3/4 IN. - 100	- 100	- 100
	3/8 IN. - 98	- 99	- 99
	NO. 4 - 97	- 95	- 97
	NO. 10 - 95	- 92	- 94
	NO. 40 - 91	- 85	- 90
	NO. 80 - 86	- 75	- 86
	NO. 200 - 82	- 69	- 82
LIQUID LIMIT	- 55	- 51	- 54
PLASTICITY INDEX	- 35	- 37	- 37
AASHTO SOIL	- A-7-6(30)	- A-7-6(23)	- A-7-6(31)
UNIFIED SOIL	-	-	-
% MOISTURE CONTENT	- 27.4	- 36.9	- 36.3
ACHM SC (IN)	- 6.0W	- 10.0W	- 6.75W
ACHM SC (IN)	- --	- --	- 6.0X
ACHM SC (IN)	- --	- --	- 1.5
SAND ASPHALT (IN)	- 3.0	- --	- --
PCCP (IN)	- 9.0	- --	- --
AGGR BASE CRS CL5 (IN)	- --	- 7.0	- 3.0
	-	-	-
	-	-	-
	-	-	-

REMARKS - X=STRIPPED W=MULTIPLE LAYERS Z=AUGER REFUSAL

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AASHTO TESTS : T24 T88 T89 T90 T265

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

PAUL TINSLEY, MATERIALS ENGINEER

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

DATE - 11/25/24 SEQUENCE NO. - 8
 JOB NUMBER - A00074 MATERIAL CODE - SSRVPS
 FEDERAL AID NO. - TO BE ASSIGNED SPEC. YEAR - 2014
 PURPOSE - SOIL SURVEY SAMPLE SUPPLIER ID. - 1
 SPEC. REMARKS - NO SPECIFICATION CHECK COUNTY/STATE - 47
 SUPPLIER NAME - STATE DISTRICT NO. - 10
 NAME OF PROJECT - OSCEOLA-WEST (S)
 PROJECT ENGINEER - NOT APPLICABLE
 PIT/QUARRY - ARKANSAS
 LOCATION - MISSISSIPPI COUNTY DATE SAMPLED - 10/16/24
 SAMPLED BY - d.thornton DATE RECEIVED - 10/21/24
 SAMPLE FROM - TEST HOLE DATE TESTED - 11/25/24
 MATERIAL DESC. - SOIL SURVEY - R VALUE- PAVEMENT SOUNDINGS

LAB NUMBER	-	20242028	-	20242029	-	20242030
SAMPLE ID	-	S269	-	S270	-	S271
TEST STATUS	-	INFORMATION ONLY	-	INFORMATION ONLY	-	INFORMATION ONLY
STATION	-	11.75	-	12.0	-	12.0
LOCATION	-	12.3 RT	-	08 RT	-	18 RT
DEPTH IN FEET	-	0-5.0	-	0-5.0	-	0-5.0
MAT'L COLOR	-	GRAY	-	GRAY	-	GRAY
MAT'L TYPE	-	-	-	-	-	-
LATITUDE DEG-MIN-SEC	-	35 41 54.70	-	35 41 54.50	-	35 41 54.50
LONGITUDE DEG-MIN-SEC	-	90 06 11.40	-	90 05 53.90	-	90 05 53.70
% PASSING	2	IN. -	-	-	-	-
	1 1/2	IN. -	-	-	-	-
	3/4	IN. -	100	100	-	-
	3/8	IN. -	98	99	-	-
	NO. 4	-	94	98	-	-
	NO. 10	-	93	96	-	-
	NO. 40	-	90	94	-	-
	NO. 80	-	85	92	-	100
	NO. 200	-	82	89	-	94
LIQUID LIMIT	-	59	-	59	-	54
PLASTICITY INDEX	-	38	-	42	-	29
AASHTO SOIL	-	A-7-6(33)	-	A-7-6(40)	-	A-7-6(31)
UNIFIED SOIL	-	-	-	-	-	-
% MOISTURE CONTENT	-	22.7	-	44.3	-	28.1
ACHM SC	(IN) -	7.0W	-	8.75W	-	4.0W
ACHM SC	(IN) -	3.5	-	2.25	-	2.5X
ACHM SC	(IN) -	--	-	--	-	1.5
BST	(IN) -	--	-	.25	-	--
SAND ASPHALT	(IN) -	--	-	1.5	-	--
PCCP	(IN) -	--	-	10.0	-	--
AGGR BASE CRS CL7	(IN) -	3.0	-	--	-	--
AGGR BASE CRS CL5	(IN) -	--	-	--	-	7.0
	-	-	-	-	-	-

REMARKS - X=STRIPPED W=MULTIPLE LAYERS Z=AUGER REFUSAL

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AASHTO TESTS : T24 T88 T89 T90 T265

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

PAUL TINSLEY, MATERIALS ENGINEER

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

DATE	- 01/15/25	SEQUENCE NO.	- 9
JOB NUMBER	- A00074	MATERIAL CODE	- SSRVPS
FEDERAL AID NO.	- TO BE ASSIGNED	SPEC. YEAR	- 2014
PURPOSE	- SOIL SURVEY SAMPLE	SUPPLIER ID.	- 1
SPEC. REMARKS	- NO SPECIFICATION CHECK	COUNTY/STATE	- 47
SUPPLIER NAME	- STATE	DISTRICT NO.	- 10
NAME OF PROJECT	- OSCEOLA-WEST (S)		
PROJECT ENGINEER	- NOT APPLICABLE		
PIT/QUARRY	- ARKANSAS		
LOCATION	- MISSISSIPPI COUNTY	DATE SAMPLED	- 10/16/24
SAMPLED BY	- d.thornton	DATE RECEIVED	- 10/21/24
SAMPLE FROM	- TEST HOLE	DATE TESTED	- 11/25/24
MATERIAL DESC.	- SOIL SURVEY - R VALUE- PAVEMENT SOUNDINGS		

LAB NUMBER	- 20242031	- 20242032	- 20242033
SAMPLE ID	- S272	- S273	- S274
TEST STATUS	- INFORMATION ONLY	- INFORMATION ONLY	- INFORMATION ONLY
STATION	- 12.25	- 12.25	- 12.5
LOCATION	- 15 RT	- 22 RT	- 09.4 LT
DEPTH IN FEET	- 0-5.0	- 0-5.0	- 0-5.0
MAT'L COLOR	- GRAY	- GRAY	- GRAY
MAT'L TYPE	-	-	-
LATITUDE DEG-MIN-SEC	- 35 41 54.60	- 35 41 54.50	- 35 41 54.80
LONGITUDE DEG-MIN-SEC	- 90 05 29.00	- 90 05 29.00	- 90 05 12.90
% PASSING	2 IN. -	-	-
	1 1/2 IN. -	-	-
	3/4 IN. -	100	-
	3/8 IN. - 100	99	-
	NO. 4 - 99	98	-
	NO. 10 - 96	96	-
	NO. 40 - 87	92	-
	NO. 80 - 55	87	100
	NO. 200 - 42	85	93
LIQUID LIMIT	- 38	- 51	- 62
PLASTICITY INDEX	- 22	- 34	- 40
AASHTO SOIL	- A-6(5)	- A-7-6(30)	- A-7-6(41)
UNIFIED SOIL	-	-	-
% MOISTURE CONTENT	- 29.5	- 41.4	- 46.8
ACHM SC (IN)	- 4.5W	- 4.0	- 3.0W
ACHM SC (IN)	- 5.25	- 1.0X	- --
SAND ASPHALT (IN)	- 5.0X	- --	- 4.0
ACHM SC (IN)	- --	- 1.0	- 2.0
PCCP (IN)	- 9.5	- --	- 8.5
AGGR BASE CRS CL5 (IN)	- 7.0	- --	- 4.0
	-	-	-
	-	-	-
	-	-	-

REMARKS - X=STRIPPED W=MULTIPLE LAYERS Z=AUGER REFUSAL

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AASHTO TESTS : T24 T88 T89 T90 T265

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

PAUL TINSLEY, MATERIALS ENGINEER

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

DATE - 11/25/24 SEQUENCE NO. - 10
JOB NUMBER - A00074 MATERIAL CODE - SSRVPS
FEDERAL AID NO. - TO BE ASSIGNED SPEC. YEAR - 2014
PURPOSE - SOIL SURVEY SAMPLE SUPPLIER ID. - 1
SPEC. REMARKS - NO SPECIFICATION CHECK COUNTY/STATE - 47
SUPPLIER NAME - STATE DISTRICT NO. - 10
NAME OF PROJECT - OSCEOLA-WEST (S)
PROJECT ENGINEER - NOT APPLICABLE
PIT/QUARRY - ARKANSAS
LOCATION - MISSISSIPPI COUNTY DATE SAMPLED - 10/16/24
SAMPLED BY - d.thornton DATE RECEIVED - 10/21/24
SAMPLE FROM - TEST HOLE DATE TESTED - 11/25/24
MATERIAL DESC. - SOIL SURVEY - R VALUE- PAVEMENT SOUNDINGS

LAB NUMBER	20242034	20242035	20242036
SAMPLE ID	S275	S276	S277
TEST STATUS	INFORMATION ONLY	INFORMATION ONLY	INFORMATION ONLY
STATION	12.5	12.75	12.75
LOCATION	16 LT	09.7 RT	16 RT
DEPTH IN FEET	0-5.0	0-5.0	0-5.0
MAT'L COLOR	GRAY	GRAY	GRAY
MAT'L TYPE			
LATITUDE DEG-MIN-SEC	35 41 54.80	35 41 54.70	35 41 54.60
LONGITUDE DEG-MIN-SEC	90 05 13.00	90 04 56.90	90 04 56.90
% PASSING			
2 IN.			
1 1/2 IN.			
3/4 IN.			100
3/8 IN.	100	100	99
NO. 4	99	96	94
NO. 10	99	93	89
NO. 40	95	90	79
NO. 80	85	84	69
NO. 200	81	77	61
LIQUID LIMIT	58	51	49
PLASTICITY INDEX	42	34	30
AASHTO SOIL	A-7-6(34)	A-7-6(26)	A-7-6(16)
UNIFIED SOIL			
% MOISTURE CONTENT	45.6	29.5	34.5
ACHM SC (IN)	3.0	1.75W	3.0
ACHM SC (IN)	3.0X	5.0X	3.5XW
SAND ASPHALT (IN)	--	3.0	--
PCCP (IN)	--	8.0	--
AGGR BASE CRS CL5 (IN)	5.0	--	6.0

REMARKS - X=STRIPPED W=MULTIPLE LAYERS Z=AUGER REFUSAL

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AASHTO TESTS : T24 T88 T89 T90 T265

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

PAUL TINSLEY, MATERIALS ENGINEER

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

DATE	- 11/25/24	SEQUENCE NO.	- 11
JOB NUMBER	- A00074	MATERIAL CODE	- SSRVPS
FEDERAL AID NO.	- TO BE ASSIGNED	SPEC. YEAR	- 2014
PURPOSE	- SOIL SURVEY SAMPLE	SUPPLIER ID.	- 1
SPEC. REMARKS	- NO SPECIFICATION CHECK	COUNTY/STATE	- 47
SUPPLIER NAME	- STATE	DISTRICT NO.	- 10
NAME OF PROJECT	- OSCEOLA-WEST (S)		
PROJECT ENGINEER	- NOT APPLICABLE		
PIT/QUARRY	- ARKANSAS	DATE SAMPLED	- 10/16/24
LOCATION	- MISSISSIPPI COUNTY	DATE RECEIVED	- 10/21/24
SAMPLED BY	- d.thornton	DATE TESTED	- 11/25/24
SAMPLE FROM	- TEST HOLE		
MATERIAL DESC.	- SOIL SURVEY - R VALUE- PAVEMENT SOUNDINGS		

LAB NUMBER	- 20242037	- 20242038	- 20242039
SAMPLE ID	- S278	- S279	- S280
TEST STATUS	- INFORMATION ONLY	- INFORMATION ONLY	- INFORMATION ONLY
STATION	- 13.0	- 13.0	- 13.25
LOCATION	- 08 LT	- 10.1 LT	- 09.1 RT
DEPTH IN FEET	- 0-5.0	- 0-5.0	- 0-5.0
MAT'L COLOR	- GRAY	- GRAY	- GRAY
MAT'L TYPE	-	-	-
LATITUDE DEG-MIN-SEC	- 35 41 54.70	- 35 41 54.70	- 35 41 54.40
LONGITUDE DEG-MIN-SEC	- 90 04 41.10	- 90 04 41.10	- 90 04 25.50
% PASSING	2 IN. -	-	-
	1 1/2 IN. -	-	-
	3/4 IN. - 100	- 100	- 100
	3/8 IN. - 99	- 99	- 99
	NO. 4 - 96	- 98	- 96
	NO. 10 - 93	- 95	- 92
	NO. 40 - 89	- 89	- 89
	NO. 80 - 81	- 84	- 86
	NO. 200 - 75	- 80	- 80
LIQUID LIMIT	- 29	- 51	- 51
PLASTICITY INDEX	- 15	- 31	- 35
AASHTO SOIL	- A-6(9)	- A-7-6(25)	- A-7-6(28)
UNIFIED SOIL	-	-	-
% MOISTURE CONTENT	- 38.8	- 35.0	- 40.7
ACHM SC (IN)	- 8.0	- 5.75W	- 8.0W
SAND ASPHALT (IN)	- 4.0	- --	- --
PCCP (IN)	- 9.5	- --	- 9.0
AGGR BASE CRS CL5 (IN)	- --	- 7.0	- 3.5
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-

REMARKS - X=STRIPPED W=MULTIPLE LAYERS Z=AUGER REFUSAL
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AASHTO TESTS : T24 T88 T89 T90 T265
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ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT - LITTLE ROCK, ARKANSAS
MATERIALS DIVISION

PAUL TINSLEY, MATERIALS ENGINEER

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

DATE	- 11/25/24	SEQUENCE NO.	- 12
JOB NUMBER	- A00074	MATERIAL CODE	- SSRVPS
FEDERAL AID NO.	- TO BE ASSIGNED	SPEC. YEAR	- 2014
PURPOSE	- SOIL SURVEY SAMPLE	SUPPLIER ID.	- 1
SPEC. REMARKS	- NO SPECIFICATION CHECK	COUNTY/STATE	- 47
SUPPLIER NAME	- STATE	DISTRICT NO.	- 10
NAME OF PROJECT	- OSCEOLA-WEST (S)		
PROJECT ENGINEER	- NOT APPLICABLE		
PIT/QUARRY	- ARKANSAS		
LOCATION	- MISSISSIPPI COUNTY	DATE SAMPLED	- 10/16/24
SAMPLED BY	- d.thornton	DATE RECEIVED	- 10/21/24
SAMPLE FROM	- TEST HOLE	DATE TESTED	- 11/25/24
MATERIAL DESC.	- SOIL SURVEY - R VALUE- PAVEMENT SOUNDINGS		

LAB NUMBER	- 20242040	- 20242041	- 20242042
SAMPLE ID	- S281	- S282	- S283
TEST STATUS	- INFORMATION ONLY	- INFORMATION ONLY	- INFORMATION ONLY
STATION	- 13.25	- 13.5	- 13.5
LOCATION	- 10.2 RT	- 08.1 LT	- 16 LT
DEPTH IN FEET	- 0-5.0	- 0-5.0	- 0-5.0
MAT'L COLOR	- GRAY	- GRAY	- GRAY
MAT'L TYPE	-	-	-
LATITUDE DEG-MIN-SEC	- 35 41 54.40	- 35 41 54.50	- 35 41 54.50
LONGITUDE DEG-MIN-SEC	- 90 04 25.50	- 90 04 8.20	- 90 04 8.20
% PASSING	2 IN. -	-	-
	1 1/2 IN. -	-	-
	3/4 IN. - 100	- 100	-
	3/8 IN. - 99	- 92	- 100
	NO. 4 - 95	- 92	- 95
	NO. 10 - 88	- 91	- 90
	NO. 40 - 80	- 90	- 81
	NO. 80 - 74	- 87	- 75
	NO. 200 - 67	- 81	- 69
LIQUID LIMIT	- 51	- 49	- 68
PLASTICITY INDEX	- 32	- 33	- 45
AASHTO SOIL	- A-7-6(20)	- A-7-6(26)	- A-7-6(30)
UNIFIED SOIL	-	-	-
% MOISTURE CONTENT	- 40.4	- 40.8	- 38.4
ACHM SC (IN)	- 4.5W	- 2.0	- 4.0
SAND ASPHALT (IN)	- --	- 3.0	- --
PCCP (IN)	- --	- 9.0	- --
AGGR BASE CRS CL5 (IN)	- 6.0	- --	- 6.0
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-

REMARKS - X=STRIPPED W=MULTIPLE LAYERS Z=AUGER REFUSAL

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AASHTO TESTS : T24 T88 T89 T90 T265

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

PAUL TINSLEY, MATERIALS ENGINEER

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

DATE	- 11/25/24	SEQUENCE NO.	- 13
JOB NUMBER	- A00074	MATERIAL CODE	- SSRVPS
FEDERAL AID NO.	- TO BE ASSIGNED	SPEC. YEAR	- 2014
PURPOSE	- SOIL SURVEY SAMPLE	SUPPLIER ID.	- 1
SPEC. REMARKS	- NO SPECIFICATION CHECK	COUNTY/STATE	- 47
SUPPLIER NAME	- STATE	DISTRICT NO.	- 10
NAME OF PROJECT	- OSCEOLA-WEST (S)		
PROJECT ENGINEER	- NOT APPLICABLE		
PIT/QUARRY	- ARKANSAS		
LOCATION	- MISSISSIPPI COUNTY	DATE SAMPLED	- 10/16/24
SAMPLED BY	- d.thornton	DATE RECEIVED	- 10/21/24
SAMPLE FROM	- TEST HOLE	DATE TESTED	- 11/25/24
MATERIAL DESC.	- SOIL SURVEY - R VALUE- PAVEMENT SOUNDINGS		

LAB NUMBER	- 20242043	- 20242044	- 20242045
SAMPLE ID	- S284	- S285	- S286
TEST STATUS	- INFORMATION ONLY	- INFORMATION ONLY	- INFORMATION ONLY
STATION	- 13.75	- 13.75	- 14.0
LOCATION	- 08.7 RT	- 16 RT	- 09.0 LT
DEPTH IN FEET	- 0-5.0	- 0-5.0	- 0-5.0
MAT'L COLOR	- GRAY	- GRAY	- GRAY
MAT'L TYPE	-	-	-
LATITUDE DEG-MIN-SEC	- 35 41 54.10	- 35 41 54.10	- 35 41 54.10
LONGITUDE DEG-MIN-SEC	- 90 03 52.00	- 90 03 52.00	- 90 03 35.90
% PASSING			
2 IN.	-	-	-
1 1/2 IN.	-	-	- 100
3/4 IN.	- 100	-	- 97
3/8 IN.	- 99	- 100	- 92
NO. 4	- 98	- 99	- 91
NO. 10	- 96	- 97	- 88
NO. 40	- 93	- 94	- 84
NO. 80	- 89	- 91	- 80
NO. 200	- 86	- 89	- 75
LIQUID LIMIT	- 52	- 60	- 51
PLASTICITY INDEX	- 33	- 36	- 31
AASHTO SOIL	- A-7-6(30)	- A-7-6(35)	- A-7-6(23)
UNIFIED SOIL	-	-	-
% MOISTURE CONTENT	- 44.8	- 45.8	- 41.0
ACHM SC (IN)	- 6.0W	- 4.75	- 1.5
ACHM SC (IN)	- --	- --	- 4.0
ACHM SC (IN)	- --	- --	- 1.5
SAND ASPHALT (IN)	- 3.0	- --	- 6.0
SAND ASPHALT (IN)	- --	- --	- 4.0X
PCCP (IN)	- 9.0	- --	- 5.0
AGGR BASE CRS CL5 (IN)	- 3.0	- 6.0	- --
	-	-	-
	-	-	-

REMARKS - X=STRIPPED W=MULTIPLE LAYERS Z=AUGER REFUSAL

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AASHTO TESTS : T24 T88 T89 T90 T265

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

PAUL TINSLEY, MATERIALS ENGINEER

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

DATE	- 11/25/24	SEQUENCE NO.	- 14
JOB NUMBER	- A00074	MATERIAL CODE	- SSRVPS
FEDERAL AID NO.	- TO BE ASSIGNED	SPEC. YEAR	- 2014
PURPOSE	- SOIL SURVEY SAMPLE	SUPPLIER ID.	- 1
SPEC. REMARKS	- NO SPECIFICATION CHECK	COUNTY/STATE	- 47
SUPPLIER NAME	- STATE	DISTRICT NO.	- 10
NAME OF PROJECT	- OSCEOLA-WEST (S)		
PROJECT ENGINEER	- NOT APPLICABLE		
PIT/QUARRY	- ARKANSAS	DATE SAMPLED	- 10/16/24
LOCATION	- MISSISSIPPI COUNTY	DATE RECEIVED	- 10/21/24
SAMPLED BY	- d.thornton	DATE TESTED	- 11/25/24
SAMPLE FROM	- TEST HOLE		
MATERIAL DESC.	- SOIL SURVEY - R VALUE- PAVEMENT SOUNDINGS		

LAB NUMBER	- 20242046	- 20242047	- 20242048
SAMPLE ID	- S287	- S288	- S289
TEST STATUS	- INFORMATION ONLY	- INFORMATION ONLY	- INFORMATION ONLY
STATION	- 14.0	- 14.25	- 14.25
LOCATION	- 16 LT	- 09.2 RT	- 18 RT
DEPTH IN FEET	- 0-5.0	- 0-5.0	- 0-5.0
MAT'L COLOR	- GRAY	- GRAY	- GRAY
MAT'L TYPE	-	-	-
LATITUDE DEG-MIN-SEC	- 35 41 54.20	- 35 41 53.80	- 35 41 53.80
LONGITUDE DEG-MIN-SEC	- 90 03 35.90	- 90 03 19.90	- 90 03 19.90
% PASSING	2 IN. -	-	-
	1 1/2 IN. -	-	-
	3/4 IN. -	-	-
	3/8 IN. - 100	- 100	-
	NO. 4 - 99	- 99	- 100
	NO. 10 - 98	- 98	- 99
	NO. 40 - 95	- 93	- 95
	NO. 80 - 92	- 89	- 80
	NO. 200 - 88	- 77	- 67
LIQUID LIMIT	- 56	- 47	- 50
PLASTICITY INDEX	- 34	- 31	- 35
AASHTO SOIL	- A-7-6(32)	- A-7-6(23)	- A-7-6(21)
UNIFIED SOIL	-	-	-
% MOISTURE CONTENT	- 33.8	- 30.7	- 25.0
ACHM SC (IN)	- 5.0W	- 6.0W	- 4.5W
ACHM SC (IN)	- --	- 5.0X	- --
PCCP (IN)	- --	- 8.0	- --
AGGR BASE CRS CL5 (IN)	- 9.0	- --	- 7.0
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-
	-	-	-

REMARKS - X=STRIPPED W=MULTIPLE LAYERS Z=AUGER REFUSAL

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AASHTO TESTS : T24 T88 T89 T90 T265

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Attachment B

Resilient Modulus

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT - LITTLE ROCK, ARKANSAS
MATERIALS DIVISION
PAUL TINSLEY, MATERIALS ENGINEER
*** SOIL SURVEY STRENGTH TEST REPORT ***

DATE - 01/15/2025
JOB NUMBER - A00074

SEQUENCE NO. - 1
MATERIAL CODE - SSRVPS
SPEC. YEAR - 2014
SUPPLIER ID. - 1
COUNTY/STATE - 47
DISTRICT NO. - 10

JOB NAME - OSCEOLA-WEST (S)

* STATION LIMITS R-VALUE AT 240 psi *

RESILIENT MODULUS
L.M. 12 4869
L.M. 13 7072

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.	A00074	Material Code	RV
Date Sampled:	10/16/2024	Station No.:	12
Date Tested:	January 13, 2025	Location:	30RT
Name of Project:	OSCEOLA-WEST(S) ROUTE 140 SECTION 2		
County:	Code: 47	Name:	MISSISSIPPI
Sampled By:	AM	Depth:	0-5.0
Lab No.:	20242051	AASHTO Class:	A-7-6(48)
Sample ID:	RV290	Material Type (1 or 2):	2
LATITUDE:		LONGITUDE:	

1. Testing Information:

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 (0-15)	15

2. Specimen Information:

Specimen Diameter (in):	
Top	4.01
Middle	4.01
Bottom	3.99
Average	4.01
Membrane Thickness (in):	0.00
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):	12.60
Initial Volume, AoLo (cu. in):	101.05

3. Soil Specimen Weight:

Weight of Wet Soil Used (g):	2924.80
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4. Soil Properties:

Optimum Moisture Content (%):	24.5
Maximum Dry Density (pcf):	91.6
95% of MDD (pcf):	87.0
In-Situ Moisture Content (%):	N/A

5. Specimen Properties:

Wet Weight (g):	2924.80
Compaction Moisture content (%):	30.7
Compaction Wet Density (pcf):	110.28
Compaction Dry Density (pcf):	84.38
Moisture Content After Mr Test (%):	30.5

6. Quick Shear Test (Y=Yes, N=No, N/A=Not Applicable):

#VALUE!

7. Resilient Modulus, Mr:

8895(Sc)^{-0.29421}(S3)^{0.08695}

8. Comments

9. Tested By:

ADM _____

Date: January 13, 2025

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

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

Job No. A00074
 Date Sampled: 10/16/2024
 Date Tested: January 13, 2025
 Name of Project: OSCEOLA-WEST(S) ROUTE 140 SECTION 2
 County: Code: 47 Name: MISSISSIPPI
 Sampled By: AM
 Lab No.: 20242051
 Sample ID: RV290
 LATITUDE:

Material Code RV
 Station No.: 12
 Location: 30RT
 Depth: 0-5.0
 AASHTO Class: A-7-6(48)
 Material Type (1 or 2): 2
 LONGITUDE:

PARAMETER	Chamber Confining Pressure	Nominal Maximum Axial Stress	Actual Applied Max. Axial Load	Actual Applied Cyclic Load	Actual Applied Contact Load	Actual Applied Max. Axial Stress	Actual Applied Cyclic Stress	Actual Applied Contact Stress	Average Recov Def. LVDT 1 and 2	Resilient Strain	Resilient Modulus
	S ₃ psi	S _{cyclic} psi	P _{max} lbs	P _{cyclic} lbs	P _{contact} lbs	S _{max} psi	S _{cyclic} psi	S _{contact} psi	H _{avg} in	ε _r in/in	M _r psi
Sequence 1	6.0	2.0	26.1	23.2	2.8	2.1	1.8	0.2	0.00175	0.00022	8,460
Sequence 2	6.0	4.0	48.8	46.0	2.8	3.9	3.6	0.2	0.00373	0.00047	7,840
Sequence 3	6.0	6.0	71.1	67.2	3.9	5.6	5.3	0.3	0.00628	0.00078	6,816
Sequence 4	6.0	8.0	92.8	86.4	6.4	7.4	6.9	0.5	0.00961	0.00120	5,724
Sequence 5	6.0	10.0	113.2	104.3	8.9	9.0	8.3	0.7	0.01355	0.00169	4,896
Sequence 6	4.0	2.0	26.0	23.2	2.8	2.1	1.8	0.2	0.00185	0.00023	7,989
Sequence 7	4.0	4.0	48.5	45.7	2.8	3.8	3.6	0.2	0.00395	0.00049	7,370
Sequence 8	4.0	6.0	70.0	67.1	2.9	5.6	5.3	0.2	0.00647	0.00081	6,593
Sequence 9	4.0	8.0	92.3	86.9	5.5	7.3	6.9	0.4	0.00964	0.00120	5,736
Sequence 10	4.0	10.0	113.3	105.2	8.0	9.0	8.4	0.6	0.01343	0.00167	4,987
Sequence 11	2.0	2.0	25.9	23.2	2.7	2.1	1.8	0.2	0.00207	0.00026	7,135
Sequence 12	2.0	4.0	48.4	45.7	2.8	3.8	3.6	0.2	0.00434	0.00054	6,705
Sequence 13	2.0	6.0	69.7	67.0	2.7	5.5	5.3	0.2	0.00691	0.00086	6,174
Sequence 14	2.0	8.0	91.2	86.6	4.6	7.2	6.9	0.4	0.01003	0.00125	5,498
Sequence 15	2.0	10.0	112.6	105.6	7.1	8.9	8.4	0.6	0.01380	0.00172	4,869

TESTED BY _____ DATE January 13, 2025
 REVIEWED BY _____ DATE _____

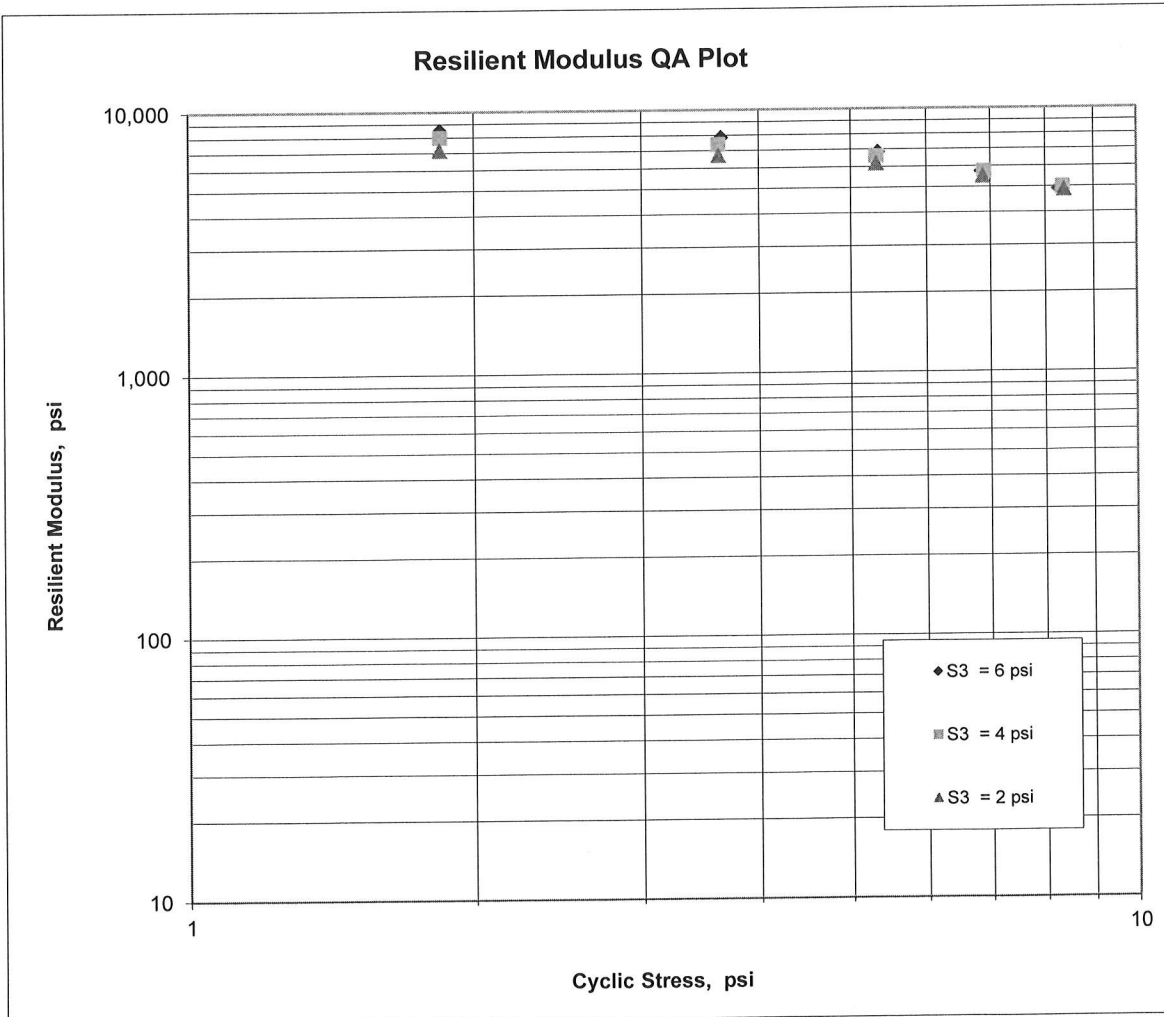
ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
MATERIALS DIVISION

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

Job No.	A00074	Material Code	RV
Date Sampled:	10/16/2024	Station No.:	12
Date Tested:	January 13, 2025	Location:	30RT
Name of Project:	OSCEOLA-WEST(S) ROUTE 140 SECTION 2		
County:	Code: 47	Name:	MISSISSIPPI
Sampled By:	AM	Depth:	0-5.0
Lab No.:	20242051	AASHTO Class:	A-7-6(48)
Sample ID:	RV290	Material Type (1 or 2):	2
LATITUDE:		LONGITUDE:	

$$M_R = K_1 (S_C)^{K_2} (S_3)^{K_5}$$

$K_1 = \underline{8,895}$
 $K_2 = \underline{-0.29421}$
 $K_5 = \underline{0.08695}$
 $R^2 = \underline{0.85}$



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

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

Job No.	A00074	Material Code	RV
Date Sampled:	10/26/2024	Station No.:	13
Date Tested:	January 3, 2025	Location:	25LT
Name of Project:	OSCEOLA-WEST(S)ROUTE 140 SECTION		
County:	Code: 47	Name:	MISSISSIPPI
Sampled By:	ADM	Depth:	0-5.0
Lab No.:	20242052	AASHTO Class:	A-7-6(64)
Sample ID:	RV291	Material Type (1 or 2):	2
LATITUDE:		LONGITUDE:	

1. Testing Information:

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 (0-15)	15

2. Specimen Information:

Specimen Diameter (in):	
Top	3.95
Middle	3.96
Bottom	4.01
Average	3.97
Membrane Thickness (in):	0.00
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):	12.39
Initial Volume, AoLo (cu. in):	99.38

3. Soil Specimen Weight:

Weight of Wet Soil Used (g):	2884.60
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4. Soil Properties:

Optimum Moisture Content (%):	28.5
Maximum Dry Density (pcf):	87.8
95% of MDD (pcf):	83.4
In-Situ Moisture Content (%):	N/A

5. Specimen Properties:

Wet Weight (g):	2884.60
Compaction Moisture content (%):	32.7
Compaction Wet Density (pcf):	110.60
Compaction Dry Density (pcf):	83.35
Moisture Content After Mr Test (%):	32.6

6. Quick Shear Test (Y=Yes, N=No, N/A=Not Applicable):

#VALUE!

7. Resilient Modulus, Mr:

8838(Sc)^{-0.14039}(S3)^{0.12245}

8. Comments

9. Tested By:

ADM _____

Date: January 3, 2025 _____

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

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

Job No. A00074
Date Sampled: 10/26/2024
Date Tested: January 3, 2025

Material Code RV
Station No.: 13
Location: 25LT

Name of Project: OSCEOLA-WEST(S)ROUTE 140 SECTION
County: Code: 47 Name: MISSISSIPPI

Sampled By: ADM
Lab No.: 20242052
Sample ID: RV291

Depth: 0-5.0
AASHTO Class: A-7-6(64)
Material Type (1 or 2): 2
LONGITUDE:

PARAMETER	Chamber Confining Pressure	Nominal Maximum Axial Stress	Actual Applied Max. Axial Load	Actual Applied Cyclic Load	Actual Applied Contact Load	Actual Applied Max. Axial Stress	Actual Applied Cyclic Stress	Actual Applied Contact Stress	Average Recov Def. LVDT 1 and 2	Resilient Strain	Resilient Modulus
	S ₃ psi	S _{cyclic} psi	P _{max} lbs	P _{cyclic} lbs	P _{contact} lbs	S _{max} psi	S _{cyclic} psi	S _{contact} psi	H _{avg} in	ε _r in/in	M _r psi
Sequence 1	6.0	2.0	25.6	22.9	2.7	2.1	1.8	0.2	0.00147	0.00018	10,068
Sequence 2	6.0	4.0	48.1	45.4	2.7	3.9	3.7	0.2	0.00300	0.00037	9,801
Sequence 3	6.0	6.0	71.0	67.4	3.6	5.7	5.4	0.3	0.00476	0.00059	9,167
Sequence 4	6.0	8.0	94.2	88.1	6.1	7.6	7.1	0.5	0.00697	0.00087	8,182
Sequence 5	6.0	10.0	115.9	107.3	8.6	9.4	8.7	0.7	0.00961	0.00120	7,232
Sequence 6	4.0	2.0	25.7	23.0	2.7	2.1	1.9	0.2	0.00158	0.00020	9,412
Sequence 7	4.0	4.0	48.0	45.3	2.7	3.9	3.7	0.2	0.00322	0.00040	9,111
Sequence 8	4.0	6.0	70.0	67.2	2.8	5.6	5.4	0.2	0.00503	0.00063	8,651
Sequence 9	4.0	8.0	93.5	88.3	5.2	7.5	7.1	0.4	0.00709	0.00088	8,059
Sequence 10	4.0	10.0	115.8	108.1	7.7	9.3	8.7	0.6	0.00953	0.00119	7,341
Sequence 11	2.0	2.0	25.6	22.8	2.7	2.1	1.8	0.2	0.00183	0.00023	8,097
Sequence 12	2.0	4.0	47.9	45.2	2.7	3.9	3.6	0.2	0.00363	0.00045	8,061
Sequence 13	2.0	6.0	69.9	67.1	2.7	5.6	5.4	0.2	0.00550	0.00069	7,904
Sequence 14	2.0	8.0	92.6	88.2	4.4	7.5	7.1	0.4	0.00756	0.00094	7,549
Sequence 15	2.0	10.0	115.3	108.4	7.0	9.3	8.7	0.6	0.00992	0.00124	7,072

TESTED BY _____ DATE January 3, 2025
 REVIEWED BY _____ DATE _____

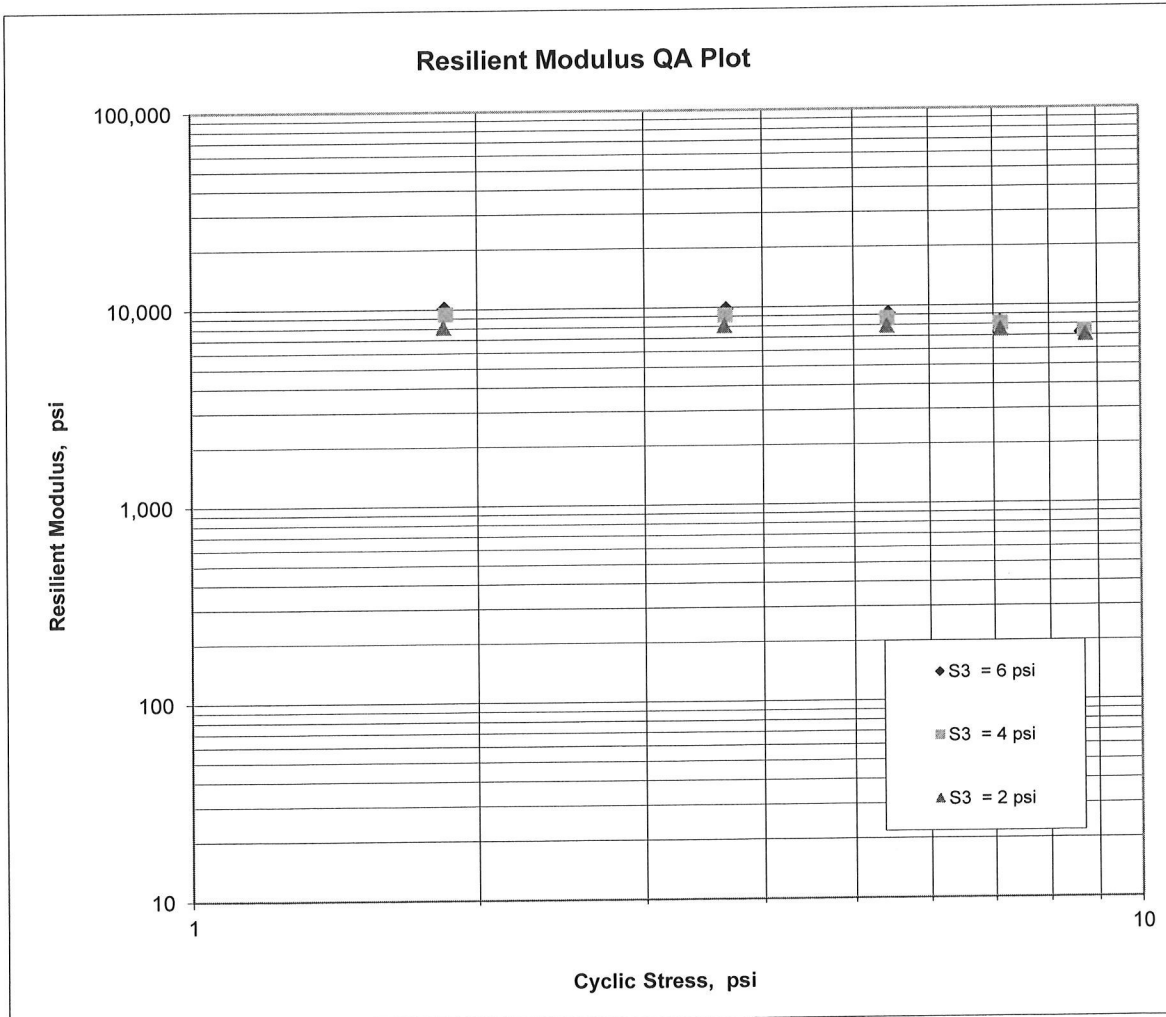
**ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
MATERIALS DIVISION**

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

Job No.	A00074	Material Code	RV
Date Sampled:	10/26/2024	Station No.:	13
Date Tested:	January 3, 2025	Location:	25LT
Name of Project:	OSCEOLA-WEST(S)ROUTE 140 SECTION		
County:	Code: 47	Name:	MISSISSIPPI
Sampled By:	ADM	Depth:	0-5.0
Lab No.:	20242052	AASHTO Class:	A-7-6(64)
Sample ID:	RV291	Material Type (1 or 2):	2
LATITUDE:		LONGITUDE:	

$$M_R = K_1 (S_C)^{K_2} (S_3)^{K_5}$$

K1 = <u>8,838</u>
K2 = <u>-0.14039</u>
K5 = <u>0.12245</u>
R ² = <u>0.78</u>



Attachment C

Site Photographs

Highway 140 west end of project looking west.



Shoulder failure north side of road looking west.



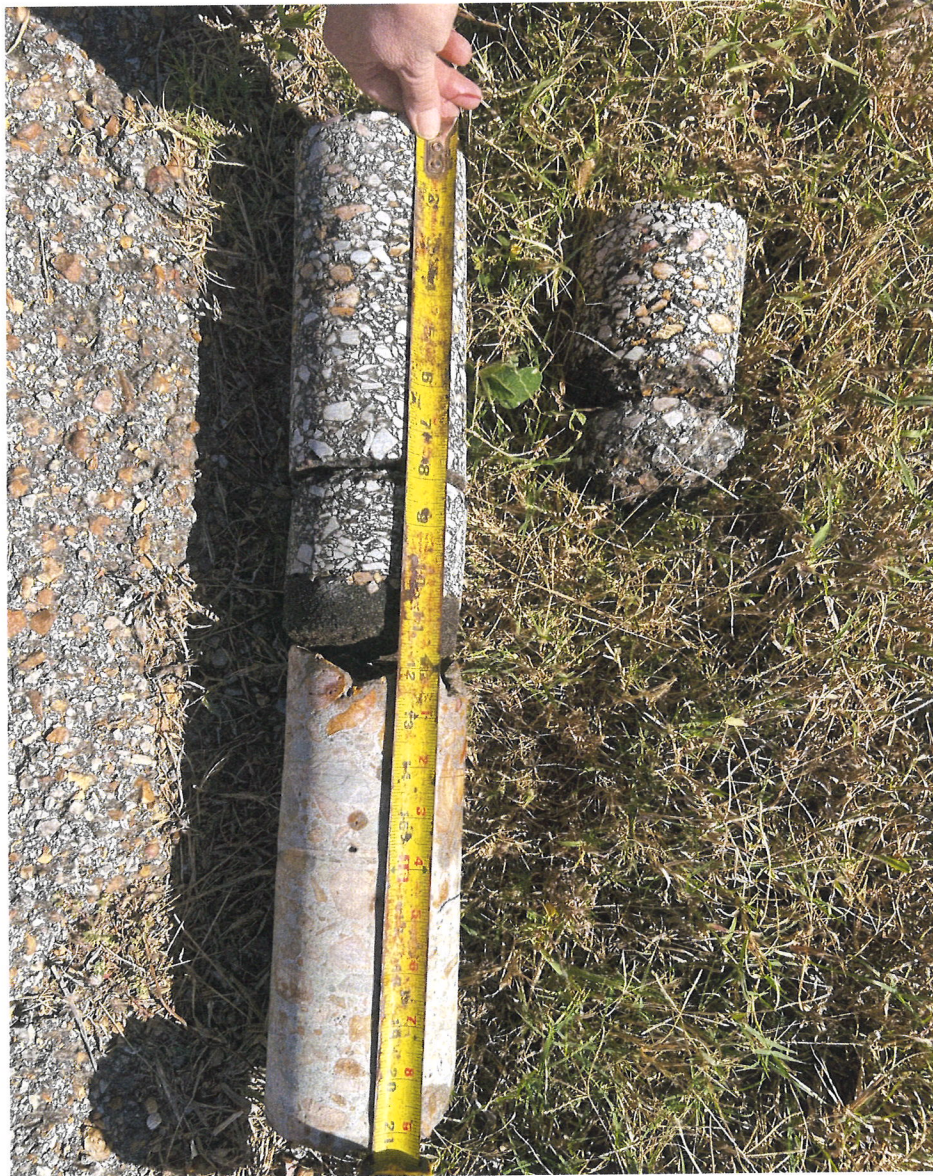
West bound lanes looking east.



Pavement coring operation.



Comparison of main lane core and shoulder core.



Sample locations of the main lane and shoulder.



Attachment D

Special Provision

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB NO. A00074

GEOCELL CONFINED SUBBASE REINFORCEMENT

Description. This work shall include the construction of a geocell confined base reinforcement system consisting of a woven geotextile, a three-dimensional geosynthetic cellular confinement product, and aggregate infill.

Materials. (a) Woven Geotextile Fabric. The woven geotextile shall be composed of a high tenacity polypropylene yarns woven into a dimensionally stable network designed to provide filtration, separation, and soil reinforcement. The geotextile shall be inert to biological degradation and resist naturally occurring soil chemicals. The geotextile fabric shall meet the properties shown in Table 1.

Table 1- Woven Geotextile Requirements

Property	Test Method	Units	MARV	
			MD	CD
Tensile at Ultimate	ASTM D4595	Lb./ft.	4800	4800
Tensile at (2% Strain)	ASTM D4595	Lb./ft.	960	1320
Tensile at (5% Strain)	ASTM D4595	Lb./ft.	2400	2700
Apparent Opening Size	ASTM D4751	U.S. Sieve	30	
Permittivity	ASTM D4491	Sec ⁻¹	0.40 sec	
UV Resistance (500hrs)	ASTM D4355	% Strength	80	

(b) Geocell Cellular Confinement. The three dimensional cellular system shall be designed to provide lateral confinement to infill material. It shall meet the requirements of Table 2.

Table 2- Geocell Cellular Confinement

Property	Test Method	Units	Test Value
Polymer Density	ASTM D 1505	Lb./ft ³	58.4 - 60.2
Carbon Black Content	ASTM D 1603	Min. % by Weight	1.5
Sheet Thickness (after Texturing)	ASTM D 5199	mm	1.52
Expanded Cell Size	n/a	in	11>13
Cell Depth	n/a	in	6
Minimum Seam Peel Strength	Mfr. Cert.	Lb. force	480

(c) Aggregate Infill. Aggregate infill shall be sourced from a location listed in Section 303 of the Department's Qualified Products list. It shall meet the material and gradation requirements of Subsection 802.02(c) of the Standard Specifications for Coarse Aggregate AASHTO M43 #57. Acceptance testing for gradation shall be performed in accordance with AASHTO T27. Subsections 306.03 and 306.04 of the Standard Specifications shall apply to acceptance testing for gradation except that the standard lot size shall be 1000 cubic yards.

ARKANSAS DEPARTMENT OF TRANSPORTATION**SPECIAL PROVISION****JOB NO. A00074****GEOCELL CONFINED SUBBASE REINFORCEMENT**

Quality Control and Acceptance. The Contractor shall furnish to the Engineer a production certification stating the Woven Geotextile Fabric and Geocell Cellular Confinement supplied meets the respective criteria set forth in these specifications. The certification shall state the name of the manufacturer, product name, and style number, chemical composition of the filaments, ribs, or yarns, and other information to fully describe the fabric. The manufacturer shall have an onsite GAI-LAP accredited laboratory used for their quality control program. The production lot number must be provided with the supplied material. Quality control test results shall be provided upon request by the Engineer.

Construction Requirements. Construction shall be performed in accordance with the Geocell Cellular Confinement material producer's recommendations. The woven geotextile shall be placed in accordance with the manufacture's recommendations. The woven geotextile shall be placed on subgrade prepared in accordance with Section 210 of the Standard Specifications. The Engineer shall evaluate the subgrade and may waive stability requirements when, in their opinion, the subgrade has been brought as near as reasonably possible to optimum moisture. Geocells shall then be spread across the woven geotextile fabric in accordance with the manufacturer's recommendations. The aggregate infill shall be spread into the geocells and shall be maintained approximately 2 inches above the cells at all times. The final section shall provide 2 inches of infill material above the geocells.

Method of Measurement. Geocell Confined Subbase Reinforcement will be measured by the square yard. Laps in material placed as per the manufacture's recommendations or for patching damaged areas will not be measured.

Basis of Payment. Work completed and accepted and measured as provided above will be paid at the contract unit price bid per square yard for Geocell Confined Subbase. The price shall be full compensation for furnishing and placing materials, including aggregate infill and for all labor, equipment, tools, and incidentals necessary to complete the work.

Payment will be made under:

Pay Item	Pay Unit
Geocell Confined Subbase Reinforcement	Square Yard