ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

SUBSURFACE INVESTIGATION

STATE JOB NO. BR6507

FEDERAL AID PROJECT NO. STPB-0065(49)

BRANCH OF VINEYARD CREEK STR. & APPRS. (S)

COUNTY ROAD NO. 42

IN SEBASTIAN **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 STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

February 12, 2016

TO: Mr. Rick Ellis, Bridge Engineer

SUBJECT: Job No. BR6507
Branch of Vineyard Creek Str. & Apprs. (S)
County Road 42
Sebastian County

Transmitted herewith are summaries of the site geology and subsurface conditions, unconfined compressive strength test results, RMR, D50 analysis test results, 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. The rock cores are available for inspection at the Materials Division.

Based on the depth at which bedrock was encountered, it is anticipated that the interior bents will be founded on spread footings. Spread footings should be sized based on the values provided in Table 1.

TABLE 1 – Bearing Capacity Recommendations for Interior bents

Foundation Description	Nominal Bearing Resistance (ksf)	Resistance Factor	Factored Bearing Resistance (ksf)	Presumptive Bearing Resistance at Service Limit State (ksf)
Spread Footing	56	0.45	25	20

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

Michael C. Benson
Materials Engineer

MCB:rpt:mlg

cc: State Construction Engineer - Master File Copy
District 4 Engineer
State Aid
G.C. File

GEOLOGY AND SITE CONDITIONS
Job No. BR6507

Branch of Vineyard Creek Str. & Apprs. (S)
Sebastian County
County Road 42

Site Conditions

The proposed bridge is to be located over a Branch of Vineyard Creek on County Road 42 approximately 0.25 miles east of the intersection with Highway 71 in Sebastian County. The existing bridge is a single span structure with five steel beams supporting a concrete deck. The bridge ends are constructed of rock and mortar and the guardrail is constructed of steel pipes supported by concrete posts. Channel flow is to the north and riprap has been placed on the banks of both sides of the bridge. Outcropping rocks in the creek bed are dipping towards the northwest. Underground telecommunication lines run east to west on the north side of the existing structure. Overhead power lines parallel the road for a short distance on the north side of the bridge and cross the road to the east of the bridge. Both sides of the channel are lined with scattered trees to the north and to the south. Residences exist to the northwest of the bridge above sloping bluffs and also to the southeast among pastures and sparsely treed farmland.

Site Geology

The project alignment is located on the mapped outcrop of the upper part of the Atoka Formation (Pau). The site is located on the northern flank of the Washburn Anticline in the Arkansas Valley region. Rocks dipping on the north flank range from 3 to 90 degrees and are overturned in a few places. Multiple thrust faults exist to the north of the project alignment with the potential for nearby unmapped faults. The Atoka Formation is a sequence of marine, mostly tan to gray silty sandstones and grayish-black shales. Some rare calcareous beds and siliceous shales are known. In this region of the state, the Atoka Formation has been subdivided into upper, middle, and lower lithic parts based on regionally mappable shale or sandstone intervals. The unit locally contains discontinuous streaks of coal and coaly shale. The formation is conformable with the underlying Bloyd Shale in the Boston Mountains and with the underlying Johns Valley Shale in the Ouachita Mountains. Bedrock was encountered in borings at the job site at an average depth of 9.4 feet below ground level.

Subsurface Conditions

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

0 to 9.4 Feet:	Consists of moist, loose, brown and gray **sand with gravel** to **sandy clay**.
9.4 to 10.4 Feet:	Consists of highly weathered, medium hard, moderately dipping dark gray **shale**.
10.4 to 28.0 Feet:	Consists of slightly weathered to unweathered, hard, moderately dipping dark gray **shale**.

Rock Core Unconfined Compression Test Summary

Project Number: BR6507
Project Name: Branch of Vineyard Creek Str. & Apprs. (S)
Date Tested: 2/4/2016

Station	Location	Sample No.	Depth (ft)	Diameter (in)	Height (in)	Total Load (lbs)	Correction Factor	Stress (psi)	Remarks
105+99	8' Lt	1	10.5	1.75	3.71	3,610	1.00	1,500	Shale
106+28	6' Rt	2	12.7	1.75	3.70	3,280	1.00	1,365	Shale

* Please note any broken samples, fractures or other characteristics of sample in Remarks.

ROCK MASS RATING SUMMARY

JOB # BR6507

SAMPLE #1

Station/Location	105+99
Depth (ft)	10.5
	Relative Rating
Uniaxial Compressive Strength	2
RQD	13
Spacing of Joints	30
Condition of Joints	25
Groundwater Conditions	7
Sum	77
Class Number	II
Description	GOOD ROCK

SAMPLE #2

Station/Location	106+28
Depth (ft)	12.7
	Relative Rating
Uniaxial Compressive Strength	2
RQD	17
Spacing of Joints	25
Condition of Joints	25
Groundwater Conditions	7
Sum	76
Class Number	II
Description	GOOD ROCK

SAMPLE #3

Station/Location	
Depth (ft)	
	Relative Rating
Uniaxial Compressive Strength	
RQD	
Spacing of Joints	
Condition of Joints	
Groundwater Conditions	
Sum	
Class Number	
Description	

SAMPLE #4

Station/Location	
Depth (ft)	
	Relative Rating
Uniaxial Compressive Strength	
RQD	
Spacing of Joints	
Condition of Joints	
Groundwater Conditions	
Sum	
Class Number	
Description	

SAMPLE #5

Station/Location	
Depth (ft)	
Uniaxial Compressive Strength	
RQD	
Spacing of Joints	
Condition of Joints	
Groundwater Conditions	
Sum	
Class Number	
Description	

SAMPLE #6

Station/Location	
Depth (ft)	
	Relative Rating
Uniaxial Compressive Strength	
RQD	
Spacing of Joints	
Condition of Joints	
Groundwater Conditions	
Sum	
Class Number	
Description	

SAMPLE #7

Station/Location	
Depth (ft)	
	Relative Rating
Uniaxial Compressive Strength	
RQD	
Spacing of Joints	
Condition of Joints	
Groundwater Conditions	
Sum	
Class Number	
Description	

SAMPLE #8

Station/Location	
Depth (ft)	
Uniaxial Compressive Strength	
RQD	
Spacing of Joints	
Condition of Joints	
Groundwater Conditions	
Sum	
Class Number	
Description	

D_{50} AGGREGATE ANALYSIS FOR SCOUR CALCULATIONS

Job No. BR6507

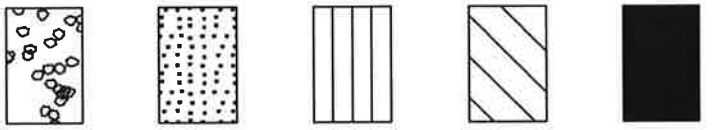
Creek Name	Station	Sample Type	Location	Depth (FT)	Aggregate Size (D50) (IN)
Branch of Vineyard Creek	106+34	Creek Bank	15' Rt. C.L. Existing	N/A	0.187

LEGEND

SOIL TYPES

(SHOWN IN SYMBOL COLUMN)

(PREDOMINANT TYPE SHOWN HEAVY)



GRAVEL | SAND | SILT | CLAY | ORGANIC MATTER

ROCK TYPES

(SHOWN IN SYMBOL COLUMN)

SANDSTONE | SHALE or SILTSTONE | LIMESTONE or DOLOMITE | ALTERNATING LAYERS of SHALE and SANDSTONE | OTHER

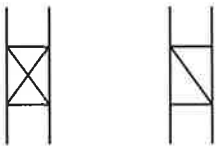
SAMPLER TYPES

(SHOWN IN SAMPLE COLUMN)

SHELBY TUBE

UNDISTURBED SAMPLE RECOVERY | DISTURBED SAMPLE RECOVERY | NO RECOVERY

SPLIT SPOON



SAMPLE RECOVERY | NO RECOVERY

ROCK CORING

% RECOVERY INDICATED ON LOGS

TERMS DESCRIBING CONSISTENCY OR CONDITION

GRANULAR SOIL		CLAY		CLAY-SHALE		SHALE	
"N" Value	Density	"N" Value	Consistency	"N" Value	Consistency	"N" Value	Consistency
0-4	Very Loose	0-1	Very Soft	0-1	Very Soft		
5-10	Loose	2-4	Soft	2-4	Soft	31-60	Soft
11-30	Medium Dense	5-8	Medium Stiff	5-8	Medium Stiff	Over 60	
31-50	Dense	9-15	Stiff	9-15	Stiff	More than 2'	
Over 50	Very Dense	16-30	Very Stiff	16-30	Very Stiff	Penetration	
		31-60	Hard	31-60	Hard	in 60 Blows:	Medium Hard
		Over 60	Very Hard	Over 60	Very Hard	Less than 2'	
						Penetration	
						in 60 Blows:	Hard

1. Ground water elevations indicated on boring logs represent ground water elevations at date or time shown on boring log. Absence of water surface implies that no ground water data is available but does not necessarily mean that ground water will not be encountered at locations or within the vertical reaches of these borings.
2. Borings represent subsurface conditions at their respective locations for their respective depths. Variations in conditions between or adjacent to boring locations may be encountered.
3. Terms used for describing soils according to their texture or grain size distribution are in accordance with the Unified Soil Classification System.

Standard Penetration Test – Driving a 2.0" O.D., 1-3/8" I.D. sampler a distance of 1.0 foot into undisturbed soil with a 140 pound hammer free falling a distance of 30 inches. It is customary to drive the spoon 6.0 inches to seat into undisturbed soil, then perform the test. The number of hammer blows for seating the spoon and performing the test are recorded for each 6 inches of penetration on the drill log. The field "N" Value (N_f) can be obtained by adding the bottom two numbers for example: $\frac{6}{8-9} \Rightarrow 8+9=17 blows/ft$. The "N" Value corrected to 60% efficiency (N_{60}) can be obtained by multiplying N_f by the hammer correction factor published on the boring log.

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

BORING NO. 1
PAGE 1 OF 1

JOB NO. BR6507 Sebastian County
JOB NAME: Branch of Vineyard Creek Str. & Apprs.

STATION: 105+70
LOCATION: 6' Right of Existing Centerline
LOGGED BY: Stanley Bates

DATE: January 20,2016
TYPE OF DRILLING: Hollow Stem Auger - Diamond Core
EQUIPMENT: CME 75

HAMMER CORRECTION FACTOR: 1.37

COMPLETION DEPTH: 27.6

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL SURFACE ELEVATION: 576.2	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% TCR	% RQD
5			Moist, Soft, Brown Sandy Clay With Some Gravel						1 1-2		
10			SHALE - Highly Weathered, Soft, Gray						20 40 (4")		
			SHALE - Slightly Weathered, Hard, Moderately Dipping, Dark Gray							99	90
15										100	77
20			SHALE - Unweathered, Hard, Moderately Dipping, Dark Gray							96	92
25										99	90
30			Boring Terminated								
35											

REMARKS:

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

BORING NO. 2
PAGE 1 OF 1

JOB NO. BR6507 Sebastian County
JOB NAME: Branch of Vineyard Creek Str. & Apprs.

STATION: 105+99
LOCATION: 8' Left of Existing Road
LOGGED BY: Stanley Bates

DATE: January 13, 2019
TYPE OF DRILLING: Hollow Stem Auger - Diamond Core
EQUIPMENT: CME 75

HAMMER CORRECTION FACTOR: 1.37

COMPLETION DEPTH: 28.3

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL SURFACE ELEVATION: 575.5	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% TCR	% RQD
			Moist, Medium Dense, Brown Sand with Gravel								
5			Moist, Medium Dense, Brown Sand with Gravel (Shale Fragments)						1 7-7		
10			SHALE - Highly Weathered, Medium Hard, Dark Gray						28 60 (4")		
			SHALE - Weathered, Medium Hard, Moderately Dipping, Dark Gray							83	48
15			SHALE - Slightly Weathered, Hard, Moderately Dipping, Dark Gray							100	87
20										99	70
25			SHALE - Unweathered, Hard, Moderately Dipping, Dark Gray							99	94
30			Boring Terminated								
35											

REMARKS:

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

BORING NO. 3
PAGE 1 OF 1

JOB NO. BR6507 Sebastian County
JOB NAME: Branch of Vineyard Creek Str. & Apprs.

STATION: 106+28
LOCATION: 6' Right of Existing Centerline
LOGGED BY: Stanley Bates

DATE: January 13, 2016
TYPE OF DRILLING: Hollow Stem Auger - Diamond Core
EQUIPMENT: CME 75

HAMMER CORRECTION FACTOR: 1.37

COMPLETION DEPTH: 28.7

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL SURFACE ELEVATION: 575.5	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% TCR	% RQD
5			Dry, Loose, Brown and Gray Sand with Gravel (Shale Fragments)						2 3-2		
10			SHALE - Highly Weathered, Medium Hard, Gray						24 24-60 (10")		
			SHALE - Highly Weathered, Soft, Moderately Dipping, Dark Gray							100	28
			SHALE - Slightly Weathered, Hard, Moderately Dipping, Dark Gray								
15										100	92
20			SHALE - Unweathered, Hard, Moderately Dipping, Dark Gray							100	76
25										96	90
30			Boring Terminated								
35											

REMARKS:

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

BORING NO. 4
PAGE 1 OF 1

JOB NO. BR6507 Sebastian County
JOB NAME: Branch of Vineyard Creek Str. & Apprs.

STATION: 106+76
LOCATION: 9' Right of Existing Centerline
LOGGED BY: Stanley Bates

DATE: January 12, 2016
TYPE OF DRILLING: Hollow Stem Auger - Diamond Core
EQUIPMENT: CME 75

HAMMER CORRECTION FACTOR: 1.37

COMPLETION DEPTH: 27.3

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% TCR	% RQD
			SURFACE ELEVATION: 575.1								
5		X	Moist, Loose, Brown and Gray Sand with Some Clay						2 3-2		
10		X	SHALE - Highly Weathered, Medium Hard, Brown and Gray						9 33-42 (8")		
			SHALE - Highly Weathered, Medium Hard, Gray							100	90
			SHALE - Weathered, Medium Hard, Moderately Dipping, Dark Gray								
15			SHALE - Slightly Weathered, Medium Hard, Moderately Dipping, Dark Gray							100	80
20										94	54
			SHALE - Unweathered, Hard, Moderately Dipping, Dark Gray								
25										94	92
			Boring Terminated								
30											
35											

REMARKS:

Rock Core Unconfined Compression Test Summary

Project Number: BR6507
Project Name: Branch of Vineyard Creek Str. & Apprs. (S)
Date Tested: 2/4/2016

Station	Location	Sample No.	Depth (ft)	Diameter (in)	Height (in)	Total Load (lbs)	Correction Factor	Stress (psi)	Remarks
105+99	21' Lt	1	10.5	1.75	3.71	3,610	1.00	1,500	Shale
106+28	12' Rt	2	12.7	1.75	3.70	3,280	1.00	1,365	Shale

* Please note any broken samples, fractures or other characteristics of sample in Remarks.

D_{50} AGGREGATE ANALYSIS FOR SCOUR CALCULATIONS

Job No. BR6507

Creek Name	Station	Sample Type	Location	Depth (FT)	Aggregate Size (D50) (IN)
Branch of Vineyard Creek	106+34	Creek Bank	25' Rt. C.L. of Const.	N/A	0.187

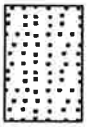
LEGEND

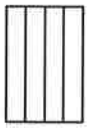
SOIL TYPES

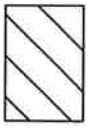
(SHOWN IN SYMBOL COLUMN)

(PREDOMINANT TYPE SHOWN HEAVY)


GRAVEL


SAND

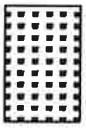

SILT

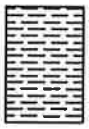

CLAY

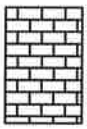

ORGANIC MATTER

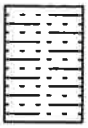
ROCK TYPES

(SHOWN IN SYMBOL COLUMN)


SANDSTONE


SHALE or SILTSTONE


LIMESTONE or DOLOMITE


ALTERNATING LAYERS of SHALE and SANDSTONE


OTHER

SAMPLER TYPES

(SHOWN IN SAMPLE COLUMN)

SHELBY TUBE


UNDISTURBED SAMPLE RECOVERY


DISTURBED SAMPLE RECOVERY


NO RECOVERY

SPLIT SPOON


SAMPLE RECOVERY


NO RECOVERY

ROCK CORING


% RECOVERY INDICATED ON LOGS

TERMS DESCRIBING CONSISTENCY OR CONDITION

GRANULAR SOIL		CLAY		CLAY-SHALE		SHALE	
"N" Value	Density	"N" Value	Consistency	"N" Value	Consistency	"N" Value	Consistency
0-4	Very Loose	0-1	Very Soft	0-1	Very Soft		
5-10	Loose	2-4	Soft	2-4	Soft	31-60	Soft
11-30	Medium Dense	5-8	Medium Stiff	5-8	Medium Stiff	Over 60	
31-50	Dense	9-15	Stiff	9-15	Stiff	More than 2"	
Over 50	Very Dense	16-30	Very Stiff	16-30	Very Stiff	Penetration	
		31-60	Hard	31-60	Hard	in 60 Blows:	Medium Hard
		Over 60	Very Hard	Over 60	Very Hard	Less than 2"	
						Penetration	
						in 60 Blows:	Hard

1. Ground water elevations indicated on boring logs represent ground water elevations at date or time shown on boring log. Absence of water surface implies that no ground water data is available but does not necessarily mean that ground water will not be encountered at locations or within the vertical reaches of these borings.
2. Borings represent subsurface conditions at their respective locations for their respective depths. Variations in conditions between or adjacent to boring locations may be encountered.
3. Terms used for describing soils according to their texture or grain size distribution are in accordance with the Unified Soil Classification System.

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

BORING NO. 1
PAGE 1 OF 1

JOB NO. BR6507 Sebastian County
JOB NAME: Branch of Vineyard Creek Str. & Apprs.
Co. Rd. 42
STATION: 105+70
LOCATION: 2' Left of Centerline Construction
LOGGED BY: Stanley Bates

DATE: January 20, 2016
TYPE OF DRILLING:
Hollow Stem Auger - Diamond Core
EQUIPMENT: CME 75

HAMMER CORRECTION FACTOR: 1.37

COMPLETION DEPTH: 27.6

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL SURFACE ELEVATION: 576.2	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% TCR	% RQD
5			Moist, Soft, Brown Sandy Clay With Some Gravel						1 1-2		
10			SHALE - Highly Weathered, Soft, Gray						20 40 (4")		
			SHALE - Slightly Weathered, Hard, Moderately Dipping, Dark Gray							99	90
15										100	77
20			SHALE - Unweathered, Hard, Moderately Dipping, Dark Gray							96	92
25										99	90
30			Boring Terminated								
35											

REMARKS:

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

BORING NO. 2
PAGE 1 OF 1

JOB NO. BR6507 Sebastian County
JOB NAME: Branch of Vineyard Creek Str. & Apprs.
Co. Rd. 42
STATION: 105+99
LOCATION: 21' Left of Centerline Construction
LOGGED BY: Stanley Bates

DATE: January 13, 2016
TYPE OF DRILLING:
Hollow Stem Auger - Diamond Core
EQUIPMENT: CME 75

HAMMER CORRECTION FACTOR: 1.37

COMPLETION DEPTH: 28.3

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL SURFACE ELEVATION: 575.5	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% TCR	% RQD
			Moist, Medium Dense, Brown Sand with Gravel								
5			Moist, Medium Dense, Brown Sand with Gravel (Shale Fragments)						1 7-7		
10			SHALE - Highly Weathered, Medium Hard, Dark Gray						28 60 (4")		
			SHALE - Weathered, Medium Hard, Moderately Dipping, Dark Gray							83	48
15			SHALE - Slightly Weathered, Hard, Moderately Dipping, Dark Gray							100	87
20			SHALE - Unweathered, Hard, Moderately Dipping, Dark Gray							99	70
25										99	94
30			Boring Terminated								
35											

REMARKS:

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

BORING NO. 3
PAGE 1 OF 1

JOB NO. BR6507 Sebastian County
JOB NAME: Branch of Vineyard Creek Str. & Apprs.
Co. Rd. 42
STATION: 106+28
LOCATION: 12' Right of Centerline Construction
LOGGED BY: Stanley Bates

DATE: January 13, 2016
TYPE OF DRILLING:
Hollow Stem Auger - Diamond Core
EQUIPMENT: CME 75

HAMMER CORRECTION FACTOR: 1.37

COMPLETION DEPTH: 28.7

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% TCR	% RQD
			SURFACE ELEVATION: 575.5								
5			Dry, Loose, Brown and Gray Sand with Gravel (Shale Fragments)						2 3-2		
10			SHALE - Highly Weathered, Medium Hard, Gray						24 24-60 (10")		
			SHALE - Highly Weathered, Soft, Moderately Dipping, Dark Gray							100	28
			SHALE - Slightly Weathered, Hard, Moderately Dipping, Dark Gray								
15										100	92
20			SHALE - Unweathered, Hard, Moderately Dipping, Dark Gray							100	76
25										96	90
30			Boring Terminated								
35											

REMARKS:

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

BORING NO. 4
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JOB NO. BR6507 Sebastian County
JOB NAME: Branch of Vineyard Creek Str. & Apprs.
Co. Rd. 42
STATION: 106+76
LOCATION: 26' Right of Centerline Construction
LOGGED BY: Stanley Bates

DATE: January 12, 2016
TYPE OF DRILLING:
Hollow Stem Auger - Diamond Core
EQUIPMENT: CME 75

HAMMER CORRECTION FACTOR: 1.37

COMPLETION DEPTH: 27.3

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% TCR	% RQD
			SURFACE ELEVATION: 575.1								
5			Moist, Loose, Brown and Gray Sand with Some Clay						2 3-2		
10			SHALE - Highly Weathered, Medium Hard, Brown and Gray						9 33-42 (8")		
			SHALE - Highly Weathered, Medium Hard, Gray							100	90
			SHALE - Weathered, Medium Hard, Moderately Dipping, Dark Gray								
15			SHALE - Slightly Weathered, Medium Hard, Moderately Dipping, Dark Gray							100	80
20										94	54
			SHALE - Unweathered, Hard, Moderately Dipping, Dark Gray								
25										94	92
30			Boring Terminated								
35											

REMARKS: