ARKANSAS DEPARTMENT OF TRANSPORTATION

SUBSURFACE INVESTIGATION

STATE JOB NO. BR2503

FEDERAL AID PROJECT NO. STPB-0025(15)

SPRING RIVER STR. & APPRS. (S)

COUNTY ROAD NO. CR 42

IN FULTON **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

August 7, 2013

TO: Mr. Carl Fuselier, Bridge Engineer

SUBJECT: Job No. BR2503
Spring River Str. & Apprs. (S)
County Road 42
Fulton County

Transmitted herewith is a brief summary of the geology and site conditions, unconfined compressive strength test results, D50 analysis test results, and logs of the borings conducted for the structures and approaches of the above referenced job. 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.

All interior bents will be founded on drilled shafts. Drilled shafts socketed a minimum of 10 feet into competent, gray, slightly weathered, hard dolostone with chert layers should be designed based on the values provided in Table 1.

TABLE 1 – Bearing Resistance Recommendation for Drilled Shafts

Foundation Description	Nominal Shaft Side Resistance (ksf)	Factored Shaft Side Resistance (ksf)	Nominal Shaft Tip Resistance (ksf)	Factored Shaft Tip Resistance (ksf)
Drilled Shaft	17.5	9.6	27.8	13.9

It is anticipated that the end bents will be founded on trestle piles tipped in the competent, gray, slightly weathered, hard dolostone with chert layers.

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

Michael C. Benson
Materials Engineer

MCB:rpt
cc: State Construction Engineer - Master File Copy
District 9 Engineer

GEOLOGY AND SITE CONDITIONS
Job No. BR2530

Spring River Str. & Apprs. (S)
Fulton County
County Road 42

Site Conditions

The structure to be replaced is a narrow, one-lane, low water bridge located over the Spring River. The bridge is constructed of concrete with no guardrails. Parts of the deck have curbs showing extensive damage. The roadway turns sharply to the south, east of the bridge. A railroad track parallels the east side of roadway, east of the bridge. An overhead power line parallels the north side of the bridge and is buried east and west of the bridge. The east side of the Spring River is moderately to heavily wooded. The southwest bank of the river is lined with trees, with a residence a short distance beyond. There is a canoe rental business to the northwest of the bridge with close cut grasses. There is a moderately wooded island just to the south of the bridge, in the river.

Site Geology

The project alignment is located in the mapped outcrop of the Cotter/Jefferson City Formation undifferentiated (Ocjc). The Cotter Dolomite is composed of dolostone of predominantly two types: a fine-grained, argillaceous, earthy textured, relatively soft, white to buff or gray dolostone locally called "cotton rock", and a more massive, medium-grained, gray dolostone that weathers to a somewhat hackly surface texture and becomes dark on exposure. The formation contains chert, some minor beds of greenish shale, and occasional thin interbedded sandstone. Due to similarities in composition, there has been no success in differentiating the Cotter Formation from the Jefferson City Formation in Arkansas, although the contact is considered disconformable. The thickness is about 340 feet in the vicinity of Cotter, but the interval may range up to 500 feet thick in places. The depth to bedrock in borings ranges in depth from 6.0 to 15.5 feet below ground level. Elevations to the top of bedrock range from 354.3 to 357 feet above mean seal level.

Subsurface Conditions

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

0 to 6.0 Feet:	Consists of moist, loose, brown **clayey sand with gravel** to moist to wet, medium dense, brown **sand with gravel (chert fragments)** to **gravel**.
6.0 to 15.5 Feet:	Varies from moist, loose to very dense, brown **sand with gravel** to stiff, brown **sandy clay with gravel (chert fragments)** to moderately hard, gray, slightly weathered **dolostone with frequent chert layers**.
15.5 to 48.8 Feet:	Consists of moderately hard, gray, slightly weathered **dolostone with frequent chert layers**. There are numerous vertical fractures.

Rock Core Unconfined Compression Test Summary

Project Number: BR2503
Project Name: SPRING RIVER STR. & APPRS.
Date Tested: 8/5/2013

Station	Location	Sample No.	Depth (ft)	Diameter (in)	Height (in)	Total Load (lbs)	Correction Factor	Stress (psi)	Remarks
102+88	C.L.	1	20.0	1.75	3.60	15,850	1.000	6590	
102+88	C.L.	2	30.5	1.75	3.60	38,880	1.000	16160	
104+17	C.L.	3	16.0	1.75	3.65	9,860	1.000	4100	
104+17	C.L.	4	24.0	1.75	3.80	10,520	1.000	4370	
104+98	C.L.	5	22.0	1.75	3.60	22,540	1.000	9370	
104+98	C.L.	6	31.0	1.75	3.65	22,840	1.000	9500	
106+94	C.L.	7	19.0	1.75	3.70	8,310	1.000	3460	
106+94	C.L.	8	28.0	1.75	3.80	13,120	1.000	5460	

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

D_{50} AGGREGATE ANALYSIS FOR SCOUR CALCULATIONS

Job No. BR2503

Creek Name	Station	Sample Type	Location	Depth (FT)	Aggregate Size (D50) (IN)
Spring River	106+94	River Bank	5' Lt. C.L. Construction	NA	

ROCK MASS RATING SUMMARY

JOB # BR2503

SAMPLE #1

Station/Location	102+88/CL
Depth (ft)	20
	Relative Rating
Uniaxial Compressive Strength	4
RQD	8
Spacing of Joints	10
Condition of Joints	20
Groundwater Conditions	7
Sum	*49*
Class Number	III
Description	FAIR ROCK

SAMPLE #2

Station/Location	102+88/CL
Depth (ft)	30.5
	Relative Rating
Uniaxial Compressive Strength	12
RQD	13
Spacing of Joints	10
Condition of Joints	20
Groundwater Conditions	7
Sum	*62*
Class Number	II
Description	GOOD ROCK

SAMPLE #3

Station/Location	104+17/CL
Depth (ft)	16
	Relative Rating
Uniaxial Compressive Strength	4
RQD	17
Spacing of Joints	10
Condition of Joints	20
Groundwater Conditions	7
Sum	*58*
Class Number	III
Description	FAIR ROCK

SAMPLE #4

Station/Location	104+17/CL
Depth (ft)	24
	Relative Rating
Uniaxial Compressive Strength	4
RQD	8
Spacing of Joints	10
Condition of Joints	20
Groundwater Conditions	7
Sum	*49*
Class Number	III
Description	FAIR ROCK

SAMPLE #5

Station/Location	104+98/CL
Depth (ft)	22
	Relative Rating
Uniaxial Compressive Strength	7
RQD	17
Spacing of Joints	10
Condition of Joints	20
Groundwater Conditions	7
Sum	*61*
Class Number	II
Description	GOOD ROCK

SAMPLE #6

Station/Location	104+98/CL
Depth (ft)	31
	Relative Rating
Uniaxial Compressive Strength	7
RQD	17
Spacing of Joints	10
Condition of Joints	20
Groundwater Conditions	7
Sum	*61*
Class Number	II
Description	GOOD ROCK

SAMPLE #7

Station/Location	106+94/CL
Depth (ft)	19
	Relative Rating
Uniaxial Compressive Strength	2
RQD	20
Spacing of Joints	10
Condition of Joints	20
Groundwater Conditions	7
Sum	*59*
Class Number	III
Description	FAIR ROCK

SAMPLE #8

Station/Location	106+94/CL
Depth (ft)	28
	Relative Rating
Uniaxial Compressive Strength	4
RQD	20
Spacing of Joints	10
Condition of Joints	12
Groundwater Conditions	7
Sum	*53*
Class Number	III
Description	FAIR ROCK

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

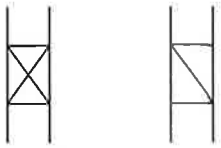
SAMPLER TYPES

(SHOWN IN SAMPLE COLUMN)

SHELBY TUBE

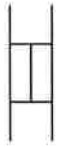
UNDISTURBED SAMPLE RECOVERY | DISTURBED SAMPLE RECOVERY | NO RECOVERY

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
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JOB NO. BR2503 Fulton County
JOB NAME: Spring River Str. & Apprs.
County Road No. 42
STATION: 102+21
LOCATION: Center Line of Construction
LOGGED BY: David Allen

DATE: July 15-16, 2013
TYPE OF DRILLING: Hollow Stem Auger & Diamond Coring
EQUIPMENT: CME 850 w/ CME Automatic Hammer
HAMMER CORRECTION FACTOR: 1.29

COMPLETION DEPTH: 48.8

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL SURFACE ELEVATION: 372.5	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% SCR	% RQD
5			Moist. Loose, Brown Clayey Sand						3 3-4		
10			Moist, Stiff, Brown Sandy Clay with Gravel (Chert Fragments) *						16 4-5		
15			Wet, Very Dense, Brown Sand with Gravel (Chert Fragments)						60 (3") 60 (.01")		
			DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip **							90	84
20			DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Very Thick Bedded, Slightly Weathered, Hard, with Slight Dip							100	98
25			DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Very Thick Bedded, Slightly Weathered, Hard, with Slight Dip and Vertically Fractured Layer							100	95
30			DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Very Thick Bedded, Slightly Weathered, Hard, with Slight Dip							100	94
35											

REMARKS: * A water stratum was encountered at 14.2'. ** Total water loss was encountered at 15.9'.

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

BORING NO. 1
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JOB NO. BR2503 Fulton County
JOB NAME: Spring River Str. & Apprs: County Road No. 42
STATION: 102+21
LOCATION: Center Line of Construction
LOGGED BY: David Allen

DATE: July 15-16, 2013
TYPE OF DRILLING: Hollow Stem Auger & Diamond Coring
EQUIPMENT: CME 850 w/ CME Automatic Hammer
HAMMER CORRECTION FACTOR: 1.29

COMPLETION DEPTH: 48.8

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL SURFACE ELEVATION: 372.5	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% SCR	% RQD
			DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Thick Bedded, Slightly Weathered, Hard, with Slight Dip							100	92
40										100	74
45			DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Thick Bedded, Slightly Weathered, Hard, with Slight Dip with Fractured Layers							98	72
50			Boring Terminated								
55											
60											
65											
70											

REMARKS: * A water stratum was encountered at 14.2'. ** Total water loss was encountered at 15.9'.

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

BORING NO. 2
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JOB NO. BR2503 Fulton County
JOB NAME: Spring River Str. & Apprs.
County Road No. 42
STATION: 102+88
LOCATION: Center Line of Construction
LOGGED BY: David Allen

DATE: July 16, 2013
TYPE OF DRILLING: Hollow Stem Auger & Diamond Coring
EQUIPMENT: CME 850 w/ CME Automatic Hammer
HAMMER CORRECTION FACTOR: 1.29

COMPLETION DEPTH: 40.7

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL SURFACE ELEVATION: 366.9	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% SCR	% RQD
5			Moist, Loose, Brown Clayey Sand						3 2-3		
10			Moist, Very Dense, Gray and Brown Clayey Sand with Gravel (Chert Fragments)						60 (4") 60 (.01")		
			DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip and Fractured Layers							88	22
15			DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Thick Bedded, Slightly Weathered, Hard, with Slight Dip							100	98
20			DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Thick Bedded, Slightly Weathered, Hard, with Moderate Dip and Fractured Layers							96	64
25			DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Thin Bedded, Slightly Weathered, Hard, with Moderate Dip and frequent Fractured Layers							100	0
30			DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Thick Bedded, Slightly Weathered, Hard, with Slight Dip							100	86
35											

REMARKS:

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

BORING NO. 2
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JOB NO. BR2503 Fulton County
JOB NAME: Spring River Str. & Apprs.
County Road No. 42
STATION: 102+88
LOCATION: Center Line of Construction
LOGGED BY: David Allen

DATE: July 16, 2013
TYPE OF DRILLING: Hollow Stem Auger & Diamond Coring
EQUIPMENT: CME 850 w/ CME Automatic Hammer
HAMMER CORRECTION FACTOR: 1.29

COMPLETION DEPTH: 40.7

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.	% SCR	% RQD
			SURFACE ELEVATION: 366.9								
			DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Thick Bedded, Slightly Weathered, Hard, with Slight Dip and Fractured Layers							100	46
40			DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Medium Bedded, Weathered, Vuggy, Hard, with Slight Dip and frequent Fractured Layers							100	20
			Boring Terminated								
45											
50											
55											
60											
65											
70											

REMARKS:

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

BORING NO. 3
PAGE 1 OF 2

JOB NO. BR2503 Fulton County
JOB NAME: Spring River Str. & Apprs.
County Road No. 42
STATION: 104+17
LOCATION: Center Line of Construction
LOGGED BY: David Allen

DATE: July 17, 2013
TYPE OF DRILLING: Hollow Stem Auger & Diamond Coring
EQUIPMENT: CME 850 w/ CME Automatic Hammer
HAMMER CORRECTION FACTOR: 1.29

COMPLETION DEPTH: 37

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL SURFACE ELEVATION: 362.3	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% SCR	% RQD
			Moist, Medium Dense, Brown Sand with Gravel (Chert Fragments)								
5			Wet, Medium Dense, Brown Sand with Gravel (Chert Fragments) *						7 7-9		
			DOLOSTONE - Gray, Hard DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Medium Bedded, Weathered, Hard, with Moderate Dip						60 (.01")	100	57
10			DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Medium Bedded, Slightly Weathered, Hard, with Moderate Dip and Fractured Layers							100	52
15			DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Thick Bedded, Slightly Weathered, Hard, with Moderate Dip and occasional Fractured Layers							100	74
20			DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip							100	72
25			DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Thick Bedded, Slightly Weathered, Hard, with Moderate Dip and frequent Fractured Layers							100	60
30			DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Medium Bedded, Slightly Weathered, Hard, with Moderate Dip and frequent Fractured Layers							100	28
35			DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Thick Bedded, Slightly							100	86

REMARKS: * A water stratum was encountered at 2.7'.

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

BORING NO. 3
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JOB NO. BR2503 Fulton County
JOB NAME: Spring River Str. & Apprs.
County Road No. 42
STATION: 104+17
LOCATION: Center Line of Construction
LOGGED BY: David Allen

DATE: July 17, 2013
TYPE OF DRILLING: Hollow Stem Auger & Diamond Coring
EQUIPMENT: CME 850 w/ CME Automatic Hammer
HAMMER CORRECTION FACTOR: 1.29

COMPLETION DEPTH: 37

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.	% SCR	% RQD
			SURFACE ELEVATION: 362.3								
			Weathered, Hard, with Slight Dip								
			Boring Terminated								
40											
45											
50											
55											
60											
65											
70											

REMARKS: * A water stratum was encountered at 2.7'.

ARKANSAS HWY. & TRANS. DEPARTMENT
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BORING NO. 4
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JOB NO. BR2503 Fulton County
JOB NAME: Spring River Str. & Apprs.
County Road No. 42
STATION: 104+98
LOCATION: Center Line of Construction
LOGGED BY: David Allen

DATE: July 17, 2013
TYPE OF DRILLING: Hollow Stem Auger & Diamond Coring
EQUIPMENT: CME 850 w/ CME Automatic Hammer
HAMMER CORRECTION FACTOR: 1.29

COMPLETION DEPTH: 43

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.	% SCR	% RQD
			SURFACE ELEVATION: 366.7								
5			Moist, Medium Dense, Brown Sand with Gravel (Chert Fragments)						5 7-10		
10			Wet, Very Dense, Brown Sand with Gravel (White Chert Fragments) and Trace of Gray Clay						60 (4")		
			DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Medium Bedded, Weathered, Moderately Hard, with Moderate Dip and Fractured Layers						60 (.01")	100	21
15			DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Thin Bedded, Weathered, Moderately Hard, with Moderate Dip and Fractured Layers							100	17
20			DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Very Thick Bedded, Slightly Weathered, Hard, with Slight Dip							100	100
25			DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Thick Bedded, Slightly Weathered, Hard, with Slight Dip							100	80
30			DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Very Thick Bedded, Slightly Weathered, Hard, with Slight Dip							98	94
35											

REMARKS:

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

BORING NO. 4
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JOB NO. BR2503 Fulton County
JOB NAME: Spring River Str. & Apprs.
County Road No. 42
STATION: 104+98
LOCATION: Center Line of Construction
LOGGED BY: David Allen

DATE: July 17, 2013
TYPE OF DRILLING: Hollow Stem Auger & Diamond Coring
EQUIPMENT: CME 850 w/ CME Automatic Hammer
HAMMER CORRECTION FACTOR: 1.29

COMPLETION DEPTH: 43

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.	% SCR	% RQD
			SURFACE ELEVATION: 366.7								
			DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Very Thick Bedded, Slightly Weathered, Hard, with Slight Dip and occasional Fractured Layers							100	80
40			DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Very Thick Bedded, Slightly Weathered, Hard, with Slight Dip							100	88
			Boring Terminated								
45											
50											
55											
60											
65											
70											

REMARKS:

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

BORING NO. 5
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JOB NO. BR2503 Fulton County
JOB NAME: Spring River Str. & Apprs.
County Road No. 42
STATION: 106+94
LOCATION: Center Line of Construction
LOGGED BY: David Allen

DATE: July 24, 2013
TYPE OF DRILLING: Hollow Stem Auger & Diamond Coring
EQUIPMENT: CME 850 w/ CME Automatic Hammer
HAMMER CORRECTION FACTOR: 1.29

COMPLETION DEPTH: 39.2

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL SURFACE ELEVATION: 361.2	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% SCR	% RQD
5			Gravel								
			DOLOSTONE - Gray, Moderately Hard								
			DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Medium Bedded, Slightly Weathered, Moderately Hard, with Slight Dip						60 (.01")	98	77
10										98	92
			DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Thick Bedded, Slightly Weathered, Hard, with Slight Dip								
15										98	88
20										100	92
			DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Very Thick Bedded, Slightly Weathered, Hard, with Slight Dip								
25										98	88
30			DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Very Thick Bedded, Slightly Weathered, Hard, with Slight Dip and occasional Fractured Layers							100	90
35											

REMARKS:

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

BORING NO. 5
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JOB NO. BR2503 Fulton County
JOB NAME: Spring River Str. & Apprs.
County Road No. 42
STATION: 106+94
LOCATION: Center Line of Construction
LOGGED BY: David Allen

DATE: July 24, 2013
TYPE OF DRILLING: Hollow Stem Auger & Diamond Coring
EQUIPMENT: CME 850 w/ CME Automatic Hammer
HAMMER CORRECTION FACTOR: 1.29

COMPLETION DEPTH: 39.2

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL SURFACE ELEVATION: 361.2	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% SCR	% RQD
			DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip and occasional Fractured Layers							100	80
40			Boring Terminated								
45											
50											
55											
60											
65											
70											

REMARKS:

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

BORING NO. 6
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JOB NO. BR2503 Fulton County
JOB NAME: Spring River Str. & Apprs.
County Road No. 42
STATION: 107+75
LOCATION: Center Line of Construction
LOGGED BY: David Allen

DATE: July 23, 2013
TYPE OF DRILLING: Hollow Stem Auger & Diamond Coring
EQUIPMENT: CME 850 w/ CME Automatic Hammer
HAMMER CORRECTION FACTOR: 1.29

COMPLETION DEPTH: 48.7

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL SURFACE ELEVATION: 370.3	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% SCR	% RQD
5			Moist. Loose, Brown Clayey Sand						2 3-3		
			Gravel								
10			Wet, Medium Dense, Brown Sand with Gravel (Dolostone Fragments) *						7 10-9		
15			Wet, Very Dense, Brown Sand with Gravel (Dolostone Fragments)						60 (1") 60 (.01")		
			DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip							98	76
20										100	70
25			DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Thick Bedded, Slightly Weathered, Hard, with Slight Dip							100	90
30										100	54
35											

REMARKS: * A water stratum was encountered at 9.1'.

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

BORING NO. 6
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JOB NO. BR2503 Fulton County
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County Road No. 42
STATION: 107+75
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DATE: July 23, 2013
TYPE OF DRILLING: Hollow Stem Auger & Diamond Coring
EQUIPMENT: CME 850 w/ CME Automatic Hammer
HAMMER CORRECTION FACTOR: 1.29

COMPLETION DEPTH: 48.7

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.	% SCR	% RQD
			SURFACE ELEVATION: 370.3								
			DOLOSTONE WITH FREQUENT CHERT LAYERS - Gray, Medium Bedded, Slightly Weathered, Hard, with Slight Dip and occasional Fractured Layers							100	40
40										100	48
45										100	56
50			Boring Terminated								
55											
60											
65											
70											

REMARKS: * A water stratum was encountered at 9.1'.