

ARKANSAS DEPARTMENT OF TRANSPORTATION



SUBSURFACE INVESTIGATION

STATE JOB NO. 040746

FEDERAL AID PROJECT NO. CMF-STPU-TAPLC-TAPU-9142(48) & 9030

TRUCKERS DR. – HOWARD NICKELL RD. (FAYETTEVILLE) (S)

STATE HIGHWAY 112 SECTION 1

IN WASHINGTON 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.



September 16, 2024

TO: Mr. Rick Ellis, Bridge Engineer
SUBJECT: Job No. 040746
Truckers Dr. – Howard Nickell Rd. (Fayetteville) (S)
Washington County
Route 112 Section 1

INTRODUCTION

Submitted herein are results of the subsurface investigation and geotechnical recommendations developed for the proposed retaining walls planned along Highway 112 in Washington County.

It is understood conventional retaining walls are planned for the pedestrian tunnel and at the Roundabout 3 (RAB3) location. These walls will be cast-in-place concrete structures. Geotechnical recommendations were requested in August 2024. Preliminary recommendations have been provided and are confirmed in this report.

SUBSURFACE INVESTIGATION

Subsurface conditions were investigated by performing a combination of dynamic cone penetrometer (DCP) tests and auger borings. Standard Penetration Tests (SPT) were not conducted in the auger borings due to the urgency of this project. 6 DCP tests (DCP 1 through 6) were performed with a portable, hand-held DCP device and 6 borings (Borings 2 through 7) were drilled by a truck-mounted drill rig. Most borings were drilled at the DCP test locations. The planned Boring 1 was not performed at the DCP 1 location due to inaccessibility to the private property. Boring 7 was added to the subsurface investigation after field DCP tests were completed.

The approximate locations of the DCP tests and borings are presented in the Plan of Borings included in Attachment A for the Tunnel walls and Attachment B for the RAB3 walls, respectively. The respective DCP test results and boring logs are also included in Attachment A and Attachment B.

RECOMMENDATIONS

Pedestrian Tunnel Walls. The tunnel side walls will be up to 13 feet tall. Tunnel bottom slab (footings) is generally planned at approximately 2 to 3 feet below existing grade.

Based on the results of the subsurface conditions and wall drawings, it is recommended the wall backfill be comprised of No. 57 stone and the wall footings be supported on a minimum of 2 feet of compacted Class 7 Aggregate Base (ARDOT Standard Specifications Section 303). Section 625 Type 5 fabric should be utilized between the granular backfill and soil. A conceptual wall backfill sketch is included in Attachment C.

For the wall backfill and foundation improvement, the following parameters are recommended for geotechnical design of the pedestrian tunnel wingwalls.

- An angle of internal friction (ϕ_{fill}) of 38° and a unit weight (γ_{fill}) of 105 pcf for the wall backfill comprised of No. 57 Stone.



- A coefficient of active earth pressure (k_a) of 0.22 and an equivalent fluid pressure (EFP) of 23 pcf.
- A nominal bearing resistance (q_n) of 7.5 ksf and a resistance factor (ϕ_b) of 0.55 for footings supported on compacted Class 7 Base.
- A nominal coefficient of friction ($\tan\delta$) of 0.62 and a resistance factor (ϕ_r) of 1.0 for concrete footing sliding on compacted Class 7 Base.

The tunnel section under the roadway will include a top slab and will be a box culvert-type structure. The tunnel walls will be framed at the top and bottom by top and bottom slabs. At-rest earth pressure will be mobilized on the box culvert walls. The following parameters are recommended for geotechnical design of the box culvert walls.

- An angle of internal friction (ϕ_{fill}) of 38° and a unit weight (γ_{fill}) of 105 pcf for the wall backfill comprised of No. 57 Stone.
- A coefficient of at-rest earth pressure (k_o) of 0.38 and an equivalent fluid pressure (EFP) of 40 pcf.
- A nominal bearing resistance (q_n) of 7.5 ksf and a resistance factor (ϕ_b) of 0.55 for footings supported on compacted Class 7 Base.

RAB3 Walls. The RAB3 retaining walls (including the walls for Hwy. 112 E-W, RAB3, and Hwy. 112 N) will be up to 19 feet tall. Footing depth of these walls varies from approximately 2 feet to 15 feet below existing grade.

Based on the results of the subsurface conditions and relevant wall drawings, it is recommended the wall backfill be comprised of No. 57 stone and the wall footings be supported on a minimum of 3 feet of compacted Class 7 Aggregate Base. Type 5 fabric should be utilized between the granular backfill and soil. The conceptual wall backfill sketch is included in Attachment D for RAB3 walls.

For the wall backfill and foundation improvement, the following parameters are recommended for design of the RAB3 walls.

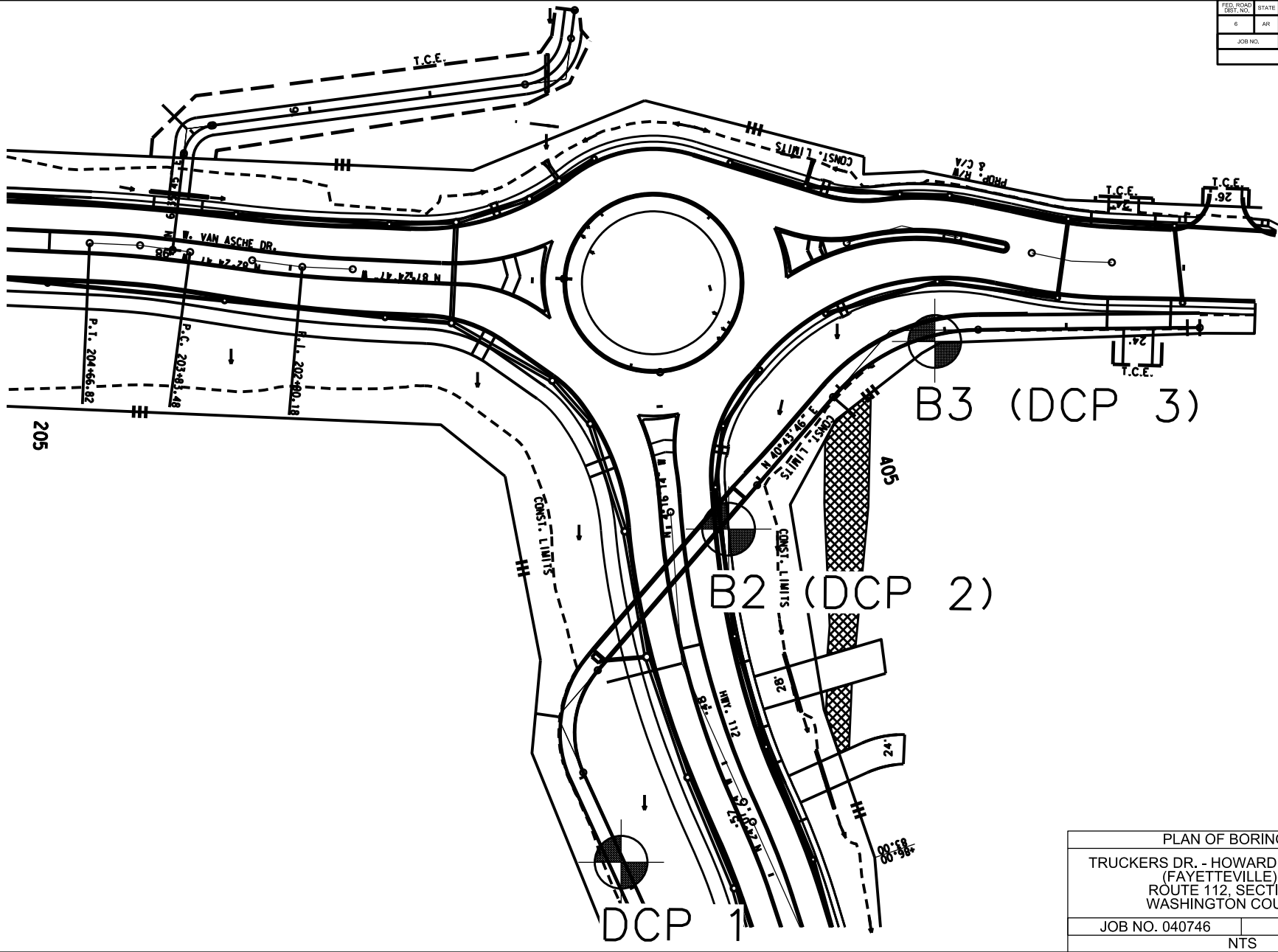
- An angle of internal friction (ϕ_{fill}) of 38° and a unit weight of (γ_{fill}) of 105 pcf for the wall backfill comprised of No. 57 Stone.
- A coefficient of active earth pressure (k_a) of 0.22 and an equivalent fluid pressure (EFP) of 23 pcf.
- A nominal bearing resistance (q_n) of 7.5 ksf and a resistance factor (ϕ_b) of 0.55 for footings supported on compacted Class 7 Base.
- A nominal coefficient of friction ($\tan\delta$) of 0.62 and a resistance factor (ϕ_r) of 1.0 for concrete footing sliding on compacted Class 7 Base.

Paul Tinsley
Materials Engineer

PT:dec:yz:mlg:bjj:pjt:pwc
cc: State Construction Engineer
District 4 Engineer
Roadway Design Engineer

Attachment A

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	AR			
JOB NO.		040746		
PLAN OF BORINGS				



PLAN OF BORINGS	
TRUCKERS DR. - HOWARD NICKELL RD. (FAYETTEVILLE)(S) ROUTE 112, SECTION 1 WASHINGTON COUNTY	
JOB NO. 040746	SHEET 1/2
NTS	

DCP TEST RESULTS

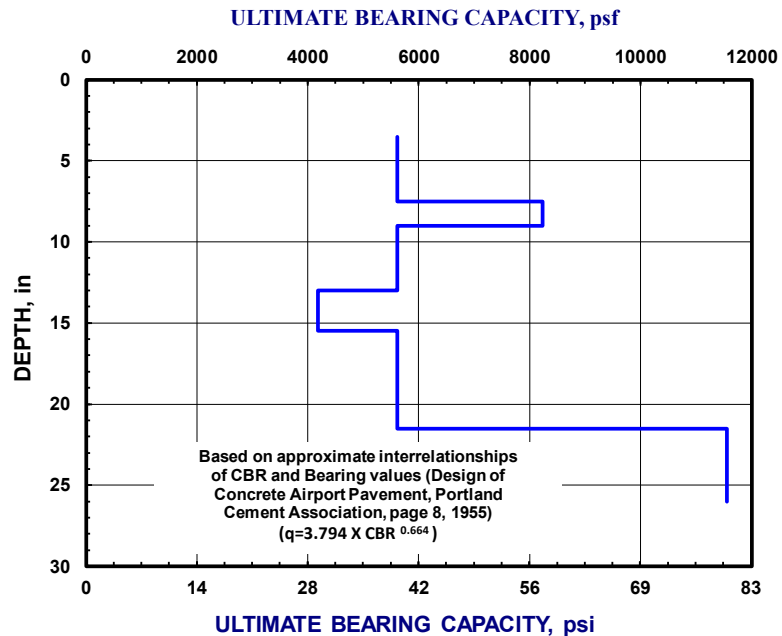
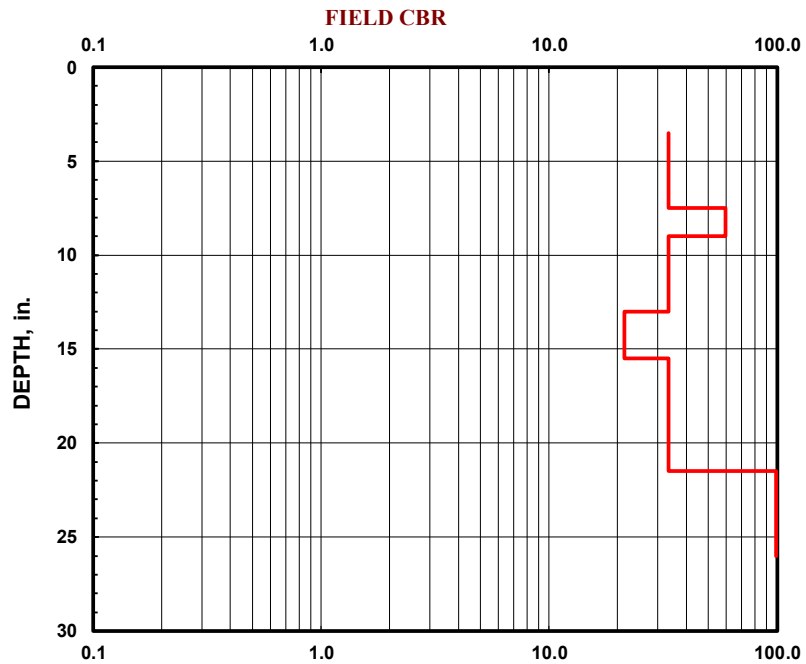
Project: 040746
Location: 801+83 CL (Tunnel)
DCP NO.: 1

Date: 8/28/2024
Soil Type(s): Cherty Clay

Hammer
 10.1 lbs.
 17.6 lbs.
 Both hammers used

Soil Type
 CH
 CL
 All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0		1
5	89	1
5	140	1
5	190	1
5	229	1
5	279	1
5	330	1
5	394	1
5	444	1
5	495	1
5	546	1
5	571	1
5	597	1
5	617	1
5	635	1
5	643	1
5	648	1
5	660	1
5	660	1



**ARKANSAS DEPARTMENT OF TRANSPORTATION
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 2
PAGE 1 OF 1

JOB NO. 040746 Washington County
JOB NAME: TRUCKERS DR. - HOWARD NICKELL RD.
(FAYETTEVILLE) (S) ROUTE 112 SECTION 1
STATION: 805+50
LOCATION: Construction CL (Tunnel)
LOGGED BY: Jessie Burdine

DATE: September 4, 2024
TYPE OF DRILLING:
Solid Stem Auger
EQUIPMENT: CME 45B
HAMMER CORRECTION FACTOR: 1.47

COMPLETION DEPTH: 15

DEPTH FT.	SYMBOL	SAMPLE	DESCRIPTION OF MATERIAL	SOIL GROUP	MOISTURE CONTENT (%)											PERCENT PASSING NO. 200 SIEVE	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
					PL	10	20	30	40	50	60	70	LL						
			SURFACE ELEVATION:																
			Dry, Loose, Brown Sand with Silt (Topsoil with Sod)																
			Moist, Hard, Reddish Brown Sandy Clay with Some Gravel																
			Harder Layer (possible gravel increase)																
5			Moist, Hard, Reddish Brown Sandy Clay with Some Gravel																
			Moist, Soft, Reddish Brown Sandy Clay with Gravel																
10			SHALE - Weathered, Medium Hard, Gray																
15			Boring Terminated																
20																			
25																			
30																			
35																			

REMARKS: Note that the reported changes in density reflect the opinion of the driller and no actual spt "N" values were collected. (36.116690, -94.180947)

**ARKANSAS DEPARTMENT OF TRANSPORTATION
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 3
PAGE 1 OF 1

JOB NO. 040746 Washington County
JOB NAME: TRUCKERS DR. - HOWARD NICKELL RD.
(FAYETTEVILLE) (S) ROUTE 112 SECTION 1
STATION: 808+10
LOCATION: Construction CL (Tunnel)
LOGGED BY: Jessie Burdine

DATE: September 3, 2024
TYPE OF DRILLING:
Solid Stem Auger
EQUIPMENT: CME 45B
HAMMER CORRECTION FACTOR: 1.47

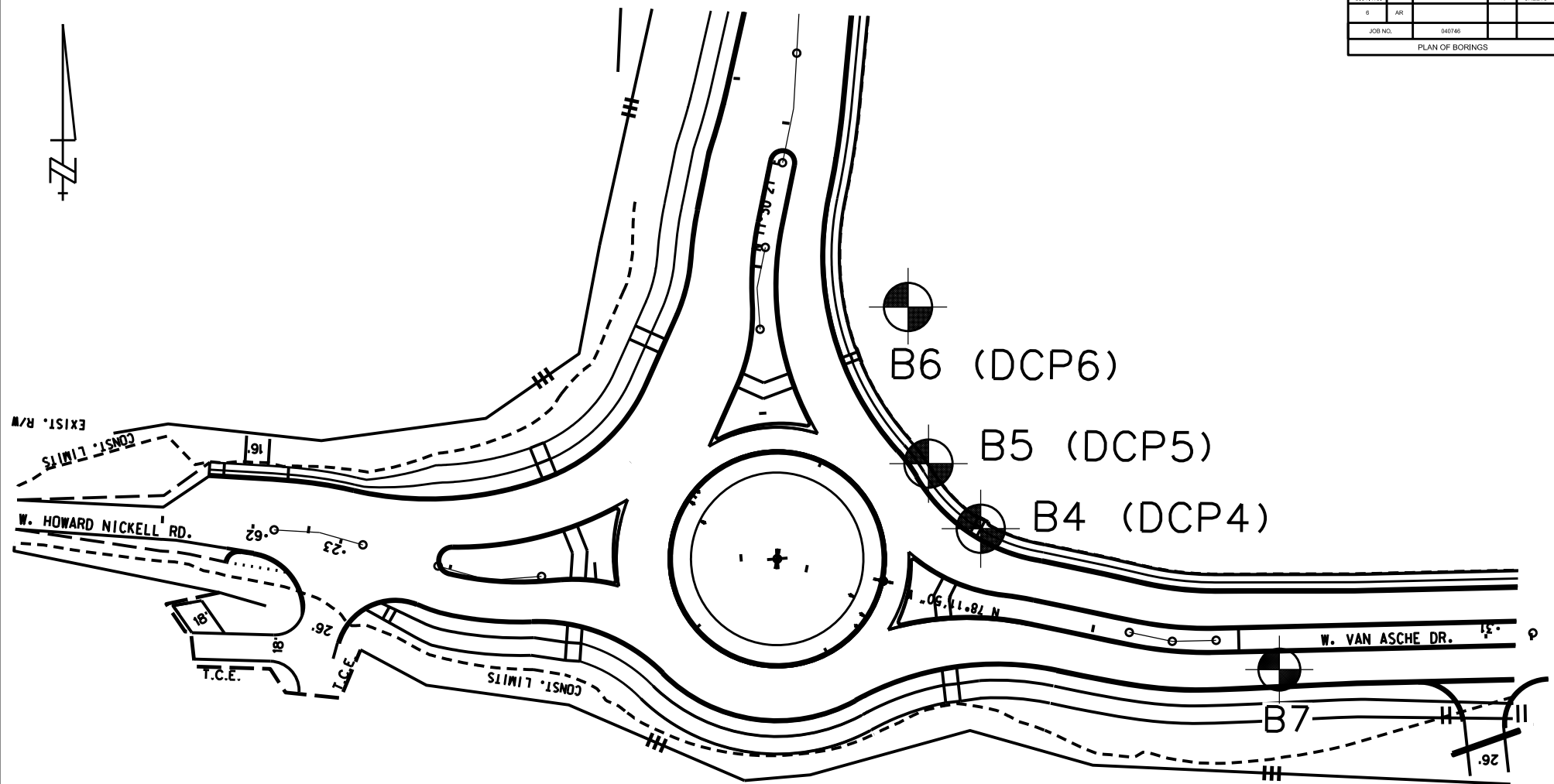
COMPLETION DEPTH: 10

D E P T H FT.	S Y M B O L	S A M P L E S	DESCRIPTION OF MATERIAL	SOIL GROUP	MOISTURE CONTENT (%)											PERCENT PASSING NO. 200 SIEVE	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
					PL	10	20	30	40	50	60	70	LL						
			SURFACE ELEVATION:																
			Dry, Loose, Brown Sand with Silt (Topsoil with Sod)																
			Moist, Medium Stiff, Reddish Brown Sandy Clay with Some Gravel																
			Moist, Stiff to Very Stiff, Reddish Brown Sandy Clay with Gravel																
5			Moist, Very Hard, Reddish Brown, Sandy Clay with Gravel																
			Moist, Soft to Medium Stiff, Reddish Brown Sandy Clay with Gravel																
10			SHALE - Weathered, Medium Hard, Gray																
			Boring Terminated																
15																			
20																			
25																			
30																			
35																			

REMARKS: Note that the reported changes in density reflect the opinion of the driller and no actual spt "N" values were collected. (36.116690, -94.180947)

Attachment B

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
6	AR			
JOB NO.		040746		
PLAN OF BORINGS				



PLAN OF BORINGS & DCP	
TRUCKERS DR. - HOWARD NICKELL RD. (FAYETTEVILLE)(S) ROUTE 112, SECTION 1 WASHINGTON COUNTY	
JOB NO. 040746	SHEET 2/2
NTS	

**ARKANSAS DEPARTMENT OF TRANSPORTATION
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 4
PAGE 1 OF 1

JOB NO. 040746 Washington County
JOB NAME: TRUCKERS DR. - HOWARD NICKELL RD.
(FAYETTEVILLE) (S) ROUTE 112 SECTION 1
STATION: 236+85
LOCATION: 60' Right of Construction CL (Hwy. 112 E-W)
LOGGED BY: Jessie Burdine

DATE: September 3, 2024
TYPE OF DRILLING:
Solid Stem Auger
EQUIPMENT: CME 45B
HAMMER CORRECTION FACTOR: 1.47

COMPLETION DEPTH: 24.8

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	MOISTURE CONTENT (%)											PERCENT PASSING NO. 200 SIEVE	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
					PL	10	20	30	40	50	60	70	LL						
			Surface Elevation:																
			Dry, Loose, Brown Sand with Silt (Topsoil with Sod)																
5			Moist, Hard, Reddish Brown Clay with Chert																
			Moist, Hard to Very Hard, Reddish Brown Clay with Some Chert																
10			Moist, Medium Stiff, Reddish Brown Clay																
			Moist, Medium Stiff to Very Hard, Reddish Brown Clay with Chert																
15			Moist, Soft to Medium Stiff, Reddish Brown Clay with Chert																
20			Moist, Very Soft to Medium Stiff, Reddish Brown Clay with Chert																
25			Hard Chert Rock Fragments (Auger Refusal) Boring Terminated																
30																			
35																			

REMARKS: Note that the reported changes in density reflect the opinion of the driller and no actual spt "N" values were collected. (36.117708, -94.193674)

**ARKANSAS DEPARTMENT OF TRANSPORTATION
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 5
PAGE 1 OF 1

JOB NO. 040746 Washington County
JOB NAME: TRUCKERS DR. - HOWARD NICKELL RD.
(FAYETTEVILLE) (S) ROUTE 112 SECTION 1
STATION: 237+12
LOCATION: 85' Right of Construction CL (Hwy. 112 E-W)
LOGGED BY: Jessie Burdine

DATE: September 3, 2024
TYPE OF DRILLING:
Solid Stem Auger
EQUIPMENT: CME 45B
HAMMER CORRECTION FACTOR: 1.47

COMPLETION DEPTH: 26

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	MOISTURE CONTENT (%)										PERCENT PASSING NO. 200 SIEVE	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
					PL	10	20	30	40	50	60	70	LL					
			SURFACE ELEVATION:															
			Dry, Loose, Brown Sand with Silt (Topsoil with Sod)															
5			Moist, Soft, Reddish Brown Clay with Chert															
			Chert Gravel Layer															
10			Moist, Medium Stiff to Hard, Reddish Brown Clay with Chert															
15			Moist, Soft to Medium Stiff, Reddish Brown Clay with Chert															
20			Moist, Medium Stiff to Very Hard, Reddish Brown Clay with Chert															
25			Moist, Very Dense, White and Reddish Brown Chert Rock Fragments (Auger Refusal)															
30			Boring Terminated Auger Refusal															
35																		

REMARKS: Note that the reported changes in density reflect the opinion of the driller and no actual spt "N" values were collected. 36.117805, -94.193764

DCP TEST RESULTS

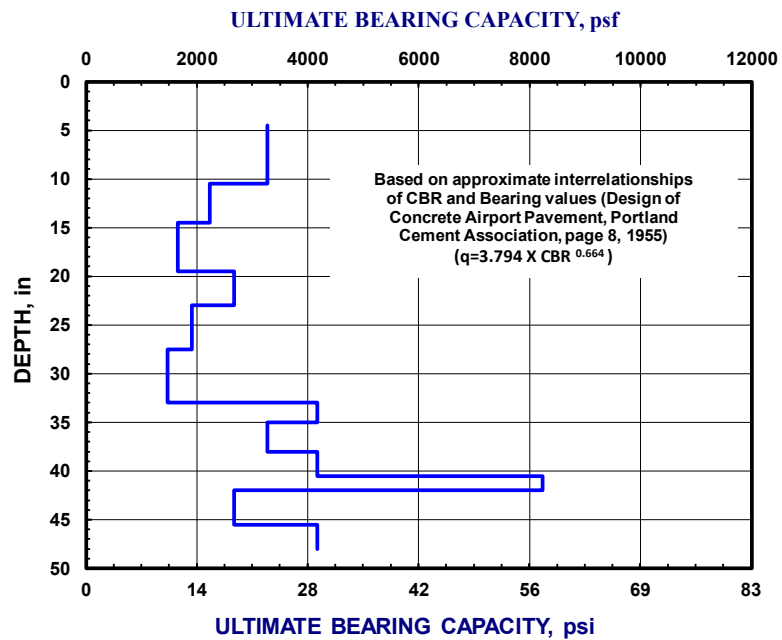
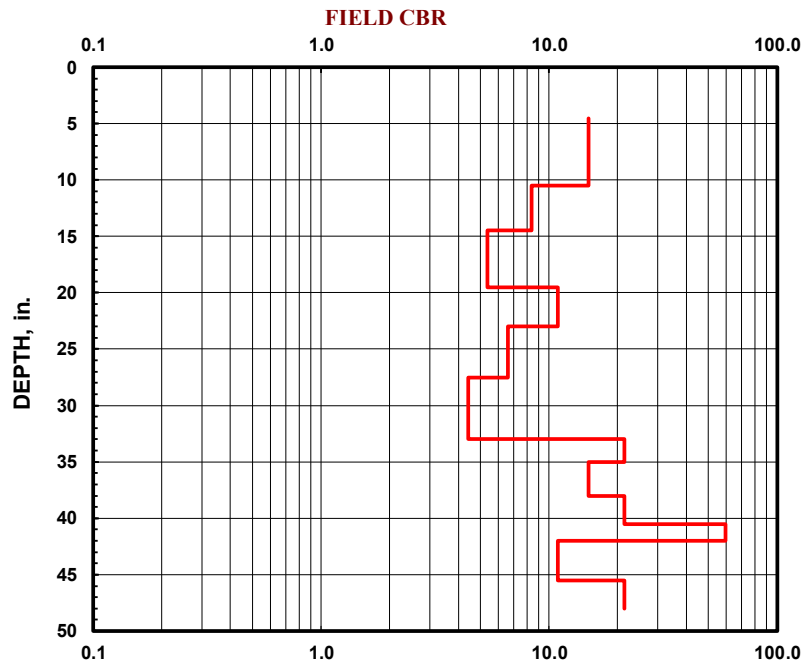
Project: 040746
Location: Sta. 237+12 85' Rt. (Hwy. 112 E-W)
DCP NO.: 5

Date: 8/28/2024
Soil Type(s): cherty clay

Hammer
 10.1 lbs.
 17.6 lbs.
 Both hammers used

Soil Type
 CH
 CL
 All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0		1
5	114	1
5	190	1
5	267	1
5	368	1
5	495	1
5	584	1
5	698	1
5	838	1
4	889	1
5	965	1
5	1029	1
5	1067	1
5	1156	1
5	1219	1



**ARKANSAS DEPARTMENT OF TRANSPORTATION
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 6
PAGE 1 OF 1

JOB NO. 040746 Washington County
JOB NAME: TRUCKERS DR. - HOWARD NICKELL RD.
(FAYETTEVILLE) (S) ROUTE 112 SECTION 1
STATION: 301+40
LOCATION: 90' Right of Construction CL (Hwy. 112 N)
LOGGED BY: Jessie Burdine

DATE: September 4, 2024
TYPE OF DRILLING:
Solid Stem Auger
EQUIPMENT: CME 45B
HAMMER CORRECTION FACTOR: 1.47

COMPLETION DEPTH: 23.2

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	MOISTURE CONTENT (%)										PERCENT PASSING NO. 200 SIEVE	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
					PL	10	20	30	40	50	60	70	LL					
			SURFACE ELEVATION:															
			Dry, Loose, Brown Sand with Silt (Topsoil with Sod)															
			Moist, Soft, Reddish Brown Clay with Chert															
			Hard Cherty Layer															
5			Moist, Soft, Reddish Brown Clay with Chert															
			Hard Cherty Layer															
10			Moist, Soft to Medium Stiff, Reddish Brown Clay with Chert															
15			Moist, Stiff to Hard, Reddish Brown Clay with Chert															
20			Moist, Hard, Reddish Brown Clay with Chert (Auger Refusal)															
25			Boring Terminated															
30																		
35																		

REMARKS: Note that the reported changes in density reflect the opinion of the driller and no actual spt "N" values were collected. (36.118021, -94.193853)

DCP TEST RESULTS

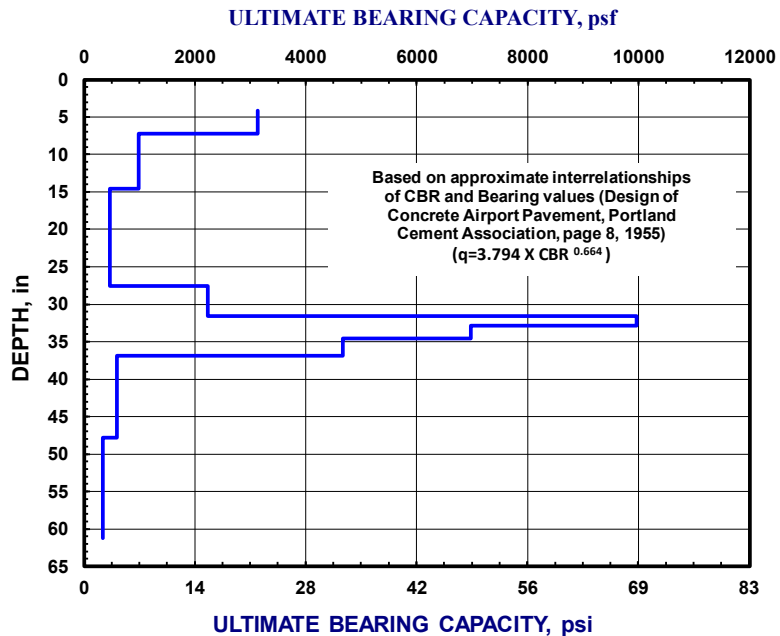
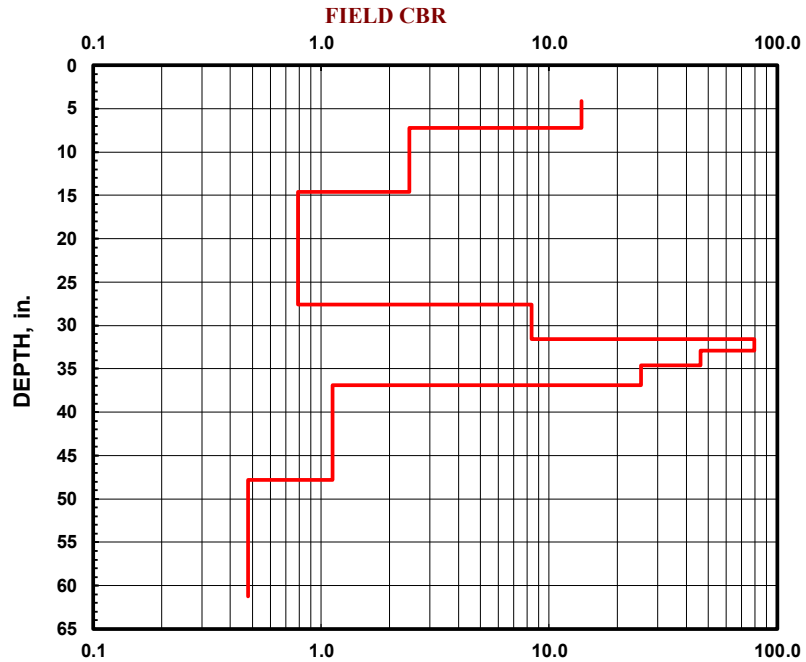
Project: 040746
Location: Sta. 301+40, 90' Rt. (Hwy. 112 N)
DCP NO.: 6

Date: 8/28/2024
Soil Type(s): cherty clay

Hammer
 10.1 lbs.
 17.6 lbs.
 Both hammers used

Soil Type
 CH
 CL
 All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0		1
5	104	1
5	183	1
5	371	1
5	701	1
5	803	1
5	836	1
5	879	1
5	937	1
5	1214	1
4	1554	1



**ARKANSAS DEPARTMENT OF TRANSPORTATION
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 7

PAGE 1 OF 1

JOB NO. 040746 Washington County
 JOB NAME: TRUCKERS DR. - HOWARD NICKELL RD.
 (FAYETTEVILLE) (S) ROUTE 112 SECTION 1
 STATION: 324+80
 LOCATION: Construction CL (Hwy. 112 E-W)
 LOGGED BY: Jessie Burdine

DATE: September 4, 2024
 TYPE OF DRILLING:
 Solid Stem Auger
 EQUIPMENT: CME 45B
 HAMMER CORRECTION FACTOR: 1.47

COMPLETION DEPTH: 24

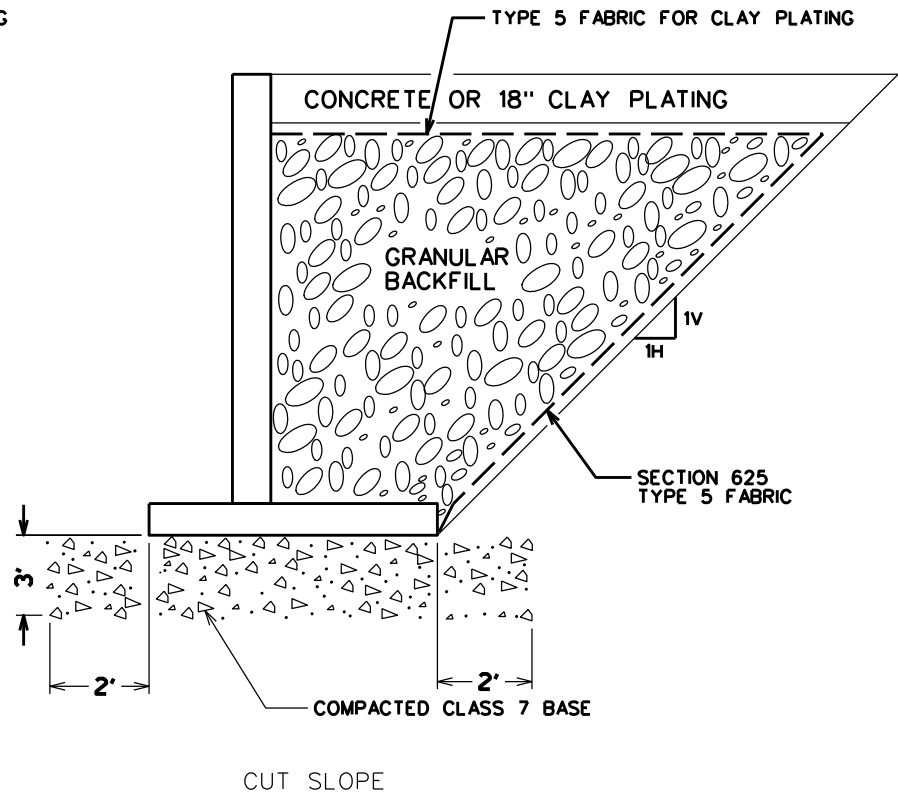
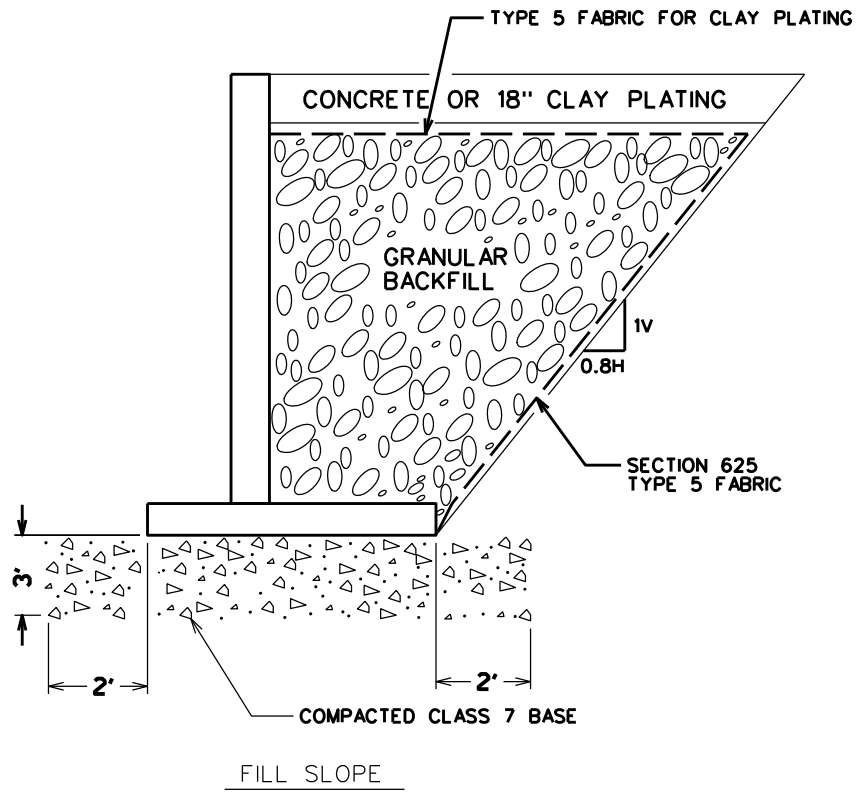
DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	MOISTURE CONTENT (%)						PERCENT PASSING NO. 200 SIEVE	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
					PL	-----				LL				
			SURFACE ELEVATION:											
			Dry, Loose, Brown Sand with Silt (Topsoil with Sod)											
			Moist, Soft, Reddish Brown Clay with Chert											
5														
10														
			Moist, Medium Stiff to Hard, Reddish Brown Clay with Chert											
15														
20														
			Very Moist, Soft, Reddish Brown Clay with Chert											
			Hard Cherty Layer											
25			Very Moist, Soft, Reddish Brown Clay with Chert											
			Boring Terminated											
30														
35														

REMARKS: Note that the reported changes in density reflect the opinion of the driller and no actual spt "N" values were collected. (36.117546, -94.193141)

Attachment C

Attachment D

DATE REVISED	DATE PLACED	DATE REVISED	DATE PLACED	DATE REVISED	DATE PLACED	SCALE	STATION	FED. AD. PROJECT	SHEET NO.	TOTAL SHEETS
									6	2
JOB NO. 040740										
GRANULAR BACKFILL FOR RETAINING WALL - RAB3										



GRANULAR BACKFILL FOR RETAINING WALL - RAB3



ARKANSAS DEPARTMENT OF TRANSPORTATION

AR DOT.gov | IDriveArkansas.com | Scott E. Bennett, P.E., Director

MATERIALS DIVISION

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

September 17, 2018

TO: Mr. Trinity Smith, Engineer of Roadway Design

SUBJECT: Job No. 040746
Truckers Dr. – Van Asche Dr. (Fayetteville) (S)
Route 112 Section 1
Washington County

Transmitted herewith is the requested Soil Survey, strength data and Resilient Modulus test results for the above referenced job. The project consists of widening approximately .5 miles of Highway 112 between Truckers Drive and Van Asche Drive. Samples were taken in the existing travel lanes and ditch line.

Based on laboratory results of samples obtained, the subgrade soils consist primarily of moderately to highly plastic cherty clay. Cross sections are not currently available, but it is assumed the construction grade line will closely match that of the existing roadway. The subgrade soils are expected to provide a stable working platform with conventional processing if the weather is favorable during construction.

If embankments encroach into the existing ditch line, all soft unstable organic material should be undercut prior to embankment construction. The undercut is anticipated to be no more than two feet. Further earthwork recommendations will be made upon request when plans are further developed and cross sections are available.

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 near Farmington.
2. Asphalt Concrete Hot Mix

Table with 3 columns: Type, Asphalt Cement %, Mineral Aggregate %. Rows include Surface Course, Binder Course, and Base Course.

Handwritten signature of Michael C. Benson, Materials Engineer

MCB:pt:bjj
Attachment

cc: State Constr. Eng. – Master File Copy
District 4 Engineer
System Information and Research Div.
G. C. File

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

DATE - 08/07/2018
JOB NUMBER - 040746

SEQUENCE NO. - 1
MATERIAL CODE - SSRV
SPEC. YEAR - 2014
SUPPLIER ID. - 1
COUNTY/STATE - 72
DISTRICT NO. - 04

JOB NAME - TRUCKERS DR. - VAN ASCHE DR. (FAYETTEVILLE) (S)

* STATION LIMITS R-VALUE AT 240 psi *

BEGIN JOB - END JOB 7

RESILIENT MODULUS
STA. 34+00 8409

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.	040746	Material Code	SSRVPS
Date Sampled:	7/10/18	Station No.:	34+00
Date Tested:	August 2, 2018	Location:	24'RT
Name of Project:	TRUCKERS DR. - VAN ASCHE DR. (FAYETTEVILLE)(S)		
County:	Code: 72	Name: WASHINGTON	
Sampled By:	DICKERSON	Depth:	0-5
Lab No.:	20181593	AASHTO Class:	A-6 (7)
Sample ID:	RV370	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	3.94
Bottom	3.95
Average	3.95
Membrane Thickness (in):	0.01
Height of Specimen, Cap and Base (in):	8.02
Height of Cap and Base (in):	0.00
Initial Length, Lo (in):	8.02
Initial Area, Ao (sq. in):	12.16
Initial Volume, AoLo (cu. in):	97.52

3. Soil Specimen Weight:

Weight of Wet Soil Used (g):	3193.70
------------------------------	---------

4. Soil Properties:

Optimum Moisture Content (%):	14.2
Maximum Dry Density (pcf):	114.1
95% of MDD (pcf):	108.4
In-Situ Moisture Content (%):	N/A

5. Specimen Properties:

Wet Weight (g):	3193.70
Compaction Moisture content (%):	14.8
Compaction Wet Density (pcf):	124.79
Compaction Dry Density (pcf):	108.70
Moisture Content After Mr Test (%):	14.4

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

#VALUE!

7. Resilient Modulus, Mr:

10741(Sc)^{-0.19128}(S3)^{0.23414}

8. Comments

9. Tested By:

GW

Date: August 2, 2018

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

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

Job No. 040746 **Material Code** SSRVPS
Date Sampled: 7/10/18 **Station No.:** 34+00
Date Tested: August 2, 2018 **Location:** 24'RT
Name of Project: TRUCKERS DR. - VAN ASCHE DR. (FAYETTEVILLE)(S)
County: Code: 72 **Name:** WASHINGTON
Sampled By: DICKERSON
Lab No.: 20181593
Sample ID: RV370
LATITUDE:
Depth: 0-5
AASHTO Class: A-6 (7)
Material Type (1 or 2): 2
LONGITUDE:

PARAMETER	Chamber Confining Pressure	Nominal Maximum Axial Stress	Actual Applied		Actual Applied		Actual Applied		Actual Applied		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			
Sequence 1	6.0	2.0	25.2	22.4	2.8	2.1	1.8	0.2	0.00101	0.00013	14,599		
Sequence 2	6.0	4.0	47.2	44.4	2.8	3.9	3.7	0.2	0.00215	0.00027	13,611		
Sequence 3	6.0	6.0	69.6	65.9	3.6	5.7	5.4	0.3	0.00351	0.00044	12,404		
Sequence 4	6.0	8.0	92.8	86.7	6.0	7.6	7.1	0.5	0.00516	0.00064	11,086		
Sequence 5	6.0	10.0	115.0	106.6	8.5	9.5	8.8	0.7	0.00694	0.00086	10,133		
Sequence 6	4.0	2.0	25.0	22.3	2.8	2.1	1.8	0.2	0.00115	0.00014	12,717		
Sequence 7	4.0	4.0	46.7	43.9	2.8	3.8	3.6	0.2	0.00247	0.00031	11,719		
Sequence 8	4.0	6.0	68.1	65.3	2.8	5.6	5.4	0.2	0.00398	0.00050	10,816		
Sequence 9	4.0	8.0	91.1	86.0	5.2	7.5	7.1	0.4	0.00557	0.00069	10,185		
Sequence 10	4.0	10.0	113.7	106.1	7.6	9.4	8.7	0.6	0.00739	0.00092	9,473		
Sequence 11	2.0	2.0	24.8	22.0	2.8	2.0	1.8	0.2	0.00134	0.00017	10,831		
Sequence 12	2.0	4.0	46.4	43.6	2.8	3.8	3.6	0.2	0.00285	0.00035	10,097		
Sequence 13	2.0	6.0	67.2	64.4	2.8	5.5	5.3	0.2	0.00452	0.00056	9,395		
Sequence 14	2.0	8.0	88.9	84.6	4.3	7.3	7.0	0.4	0.00629	0.00078	8,876		
Sequence 15	2.0	10.0	111.1	104.4	6.7	9.1	8.6	0.6	0.00819	0.00102	8,409		

TESTED BY _____ DATE August 2, 2018
 REVIEWED BY _____ DATE _____
 GW _____

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

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

Job No.	040746	Material Code	SSRVPS
Date Sampled:	7/10/18	Station No.:	34+00
Date Tested:	August 2, 2018	Location:	24'RT
Name of Project:	TRUCKERS DR. - VAN ASCHE DR. (FAYETTEVILLE)(S)		
County:	Code: 72	Name:	WASHINGTON
Sampled By:	DICKERSON	Depth:	0-5
Lab No.:	20181593	AASHTO Class:	A-6 (7)
Sample ID:	RV370	Material Type (1 or 2):	2
LATITUDE:		LONGITUDE:	

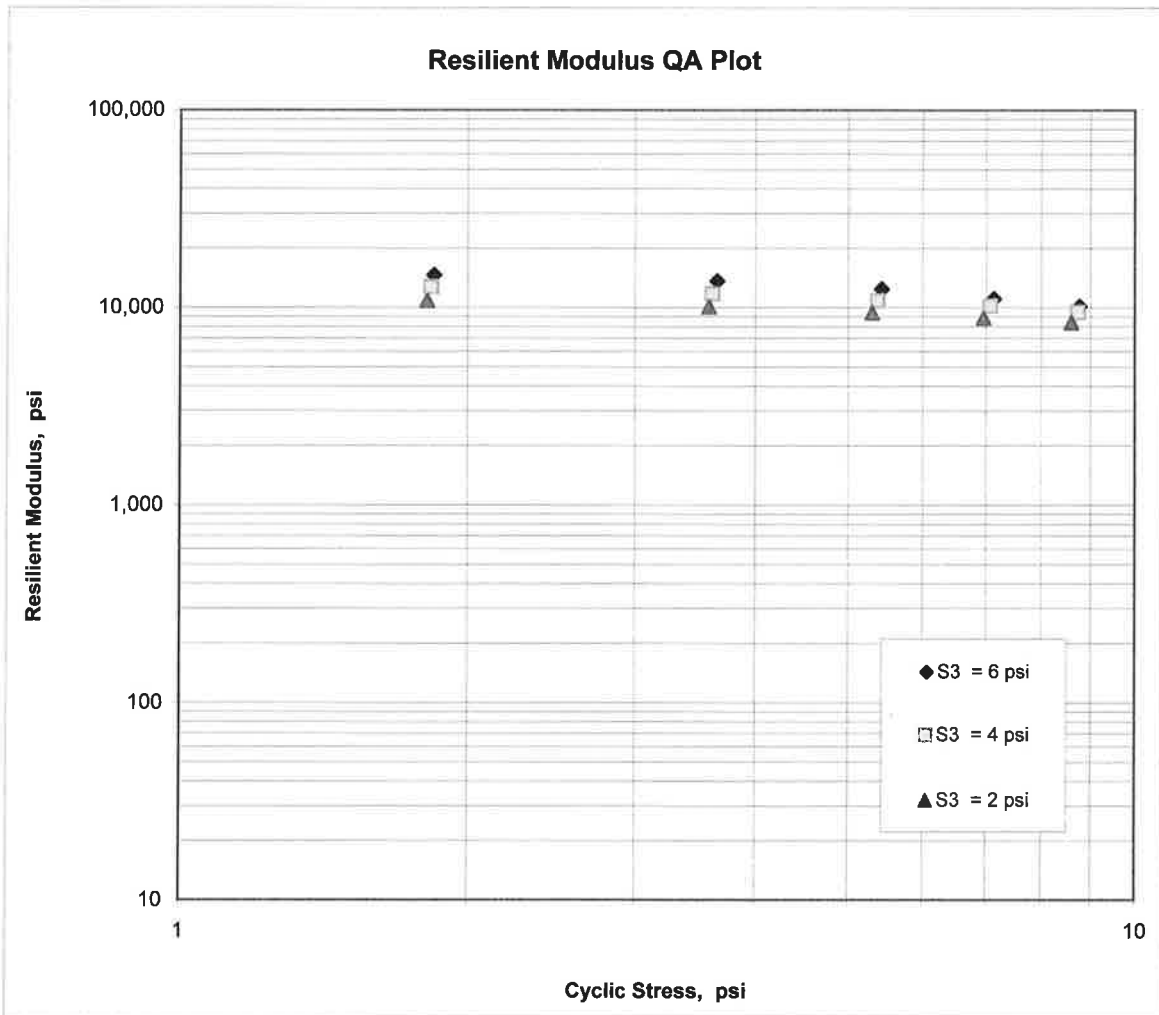
$$M_R = K_1 (S_C)^{K_2} (S_3)^{K_5}$$

$$K_1 = 10,741$$

$$K_2 = -0.19128$$

$$K_5 = 0.23414$$

$$R^2 = 0.95$$



JOB: 040746

Arkansas State Highway Transportation Department

JOB NAME: TRUCKERS DR. - VAN ASCHE DR. (FAYETTEVILLE)(S)

Materials Division

COUNTY NO. 72 DATE TESTED 7/30/2018

Michael Benson, Materials Engineer

STA.#	LOC.	DEPTH	COLOR	S I E V E S					L.L.	P.I.	SOIL CLASS	LAB #:	%MOISTURE
				#4	#10	#40	#80	#200					
34+00	24 RT	0-5	RD/BR	80	73	67	62	58	31	18	A-6(7)	RV370	
34+00	09 RT	0-5	BR/GR	100				97	27	10	A-4(8)	S363	21.5
34+00	18 RT	0-5	RD/BR	83	72	60	59	57	43	28	A-7-6(12)	S364	25.9
34+00	24 RT	0-5	RD/BR	73	62	52	48	45	36	22	A-6(5)	S365	20.7
42+00	05 LT	0-5	GRAY	100				90	59	42	A-7-6(40)	S366	29
42+00	12 LT	0-5	BR/GR	99	94	90	81	78	33	17	A-6(12)	S367	27.4
58+00	05 LT	0-5	RED	82	67	55	51	47	35	28	A-6(8)	S368	22.7
58+00	12 LT	0-5	BROWN	96	91	86	85	69	29	15	A-6(8)	S369	20.6

comments: W=MULTIPLE LAYERS

Wednesday, September 12, 2018

JOB: 040746

Arkansas State Highway Transportation Department
Materials Division

DATE TESTED
7/30/2018

JOB NAME: TRUCKERS DR. - VAN ASCHE DR. (FAYETTEVILLE)(S)

COUNTY NO. 72

Michael Benson, Materials Engineer

STA.# LOC.

PAVEMENT SOUNDINGS

34+00	09 RT	ACHMSC 2.5W	ACHMBC 13.5W	AGG. BASE CRS. CL-7 ---
34+00	18 RT	ACHMSC 3.5W	ACHMBC 11.5	AGG. BASE CRS. CL-7 8.0
34+00	24 RT	ACHMSC ---	ACHMBC ---	AGG. BASE CRS. CL-7 ---
42+00	05 LT	ACHMSC 7.0W	ACHMBC 1.0	ACHMSC 2.0
42+00	12 LT	ACHMSC ---	ACHMBC ---	ACHMSC ---
58+00	05 LT	ACHMSC 8.0W	ACHMBC ---	ACHMSC ---
				AGG. BASE CRS CL-7 8.0
				AGG. BASE CRS CL-7 ---
				AGG. BASE CRS CL-7 5.0

comments: W=MULTIPLE LAYERS



ARKANSAS DEPARTMENT OF TRANSPORTATION

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

MATERIALS DIVISION

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

February 6, 2020

TO: Mr. Trinity Smith, Engineer of Roadway Design

SUBJECT: Job No. 040746
Truckers Drive – Howard Nickell Rd. (Fayetteville) (S)
Route 112 Section 1
Washington County

Attached is the requested soil survey data for the above referenced job. Samples were obtained in the existing ditch line along Highway 112. September 17, 2018 an IOM covered the testing, R-Value and Resilient Modulus from station 101+00 to station 130+00.

The subgrade soils consist primarily of low to moderately plastic cherty clay. Isolated locations of highly plastic clay were encountered within the project limits. The subgrade soils are expected to provide a stable working platform with conventional processing if the weather is favorable during construction. If soil stabilization is needed to obtain a stable working platform, then lime is the most appropriate technique. The addition of 4% lime (by dry wt.) mixed to a depth of 16 inches should be used for quantity estimation purposes.

Cross sections are not currently available but it is anticipated that the construction grade line will closely match that of the existing roadway. Based on typical sections of improvement the widening will extend into wooded areas, hayfields and the existing ditch lines. Prior to embankment construction all soft organic material should be undercut, anticipated to be no more than two feet.

Additional earthwork recommendations will be made upon request when plans are further developed and cross sections are available.

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 in the vicinity of Farmington.

- 2. Asphalt Concrete Hot Mix

Table with 3 columns: Type, Asphalt Cement %, Mineral Aggregate %. Rows include Surface Course, Binder Course, and Base Course.

Handwritten signature of Michael C. Benson, Materials Engineer

MCB:pt:bjj
Attachment

cc: State Constr. Eng. – Master File Copy
District 4 Engineer
System Information and Research Div.
G. C. File

Geotechnical Engineering Report

Highway 112 Utility Relocation

Arkansas State Highway 112
Fayetteville, Arkansas
GTS Project No. 22-15045

May 4, 2022



Prepared For:

Hawkins-Weir Engineers, Inc.

110 South 7th Street
Van Buren, Arkansas 72957



www.gtsconsulting.net

www.gtsconsulting.net

May 4, 2022

Hawkins-Weir Engineers, Inc.
110 South 7th Street
Van Buren, Arkansas 72957

Attention: Mr. Barry K. McCormick, P.E.

RE: Report of Findings – Phase I
Arkansas Highway 112 Utility Relocation
Arkansas State Highway 112
Fayetteville, Arkansas
GTS Project No. 22-15045

Mr. McCormick:

The following report provides the results of the "Phase 1" subsurface exploration performed for the planned utility improvements along Arkansas Highway 112 (Highway 112) in Fayetteville, Arkansas. Phase 2 includes those borings which need to be performed on private property as well as those Phase 1 borings which were to be performed within Highway 112, the roadway, as explained below.

The borings that were to be drilled in the active roadway (Highway 112) were moved to Phase 2, Borings B-10 through B-12, due to not receiving an ARDOT permit within the allowed schedule/timeframe. In addition, the location for Boring B-6 was under 1 to 2 feet of water at the time of our subsurface exploration. Once the remaining borings have been performed, the results within this report will be combined with the results from Phase 2, and this report will be reissued.

A boring location plan showing the exploration locations in relation to Highway 112 is included at the end of this report.

Project Information

Our current understanding of the project is based on an electronically mailed message received from you, on March 21st, 2022, which included a request for proposal (RFP) as well as the following documents.

- **Phase 1 and Phase 2 Boring Location Details: each titled "Phase 1 Boring Locations, Highway 112 Utility Relocations & Phase 2 Boring Locations Requiring Right-of-Entry Agreements, Highway 112 Utility Relocations", both prepared by Hawkins-Weir Engineers, Inc. and dated March 29, 2022.** More specifically, this document includes a list of the requested borings that are to be completed during each phase of the project, the planned depth to which each boring is to be drilled and the Right of Way (ROW) location the boring is to be drilled within.



- **Sheets 1 to 18 titled, "GEOTECH SET", dated May 28, 2021, prepared by Hawkins-Weir Engineers, Inc.** More specifically, this document is a package that includes an overall boring location diagram of the project along with individual cross-sections of each planned boring location.

Briefly, based on the information provided in the RFP referenced above, it is our understanding that Hawkins Weir is currently in the design phase of the Highway 112 Utility Relocation Project in Fayetteville, Arkansas. Additionally, it is our understanding that this project includes the relocation of public water and sewer facilities along Arkansas Highway 112 from Truckers Drive to West Pierre Crossing (immediately north of Howard Nickell Road) for the City of Fayetteville. The planned project will generally be completed with open cut trenching, but there will also be a number of highway crossings that must be installed by horizontal drilling.

Subsurface Exploration and Procedures

The subsurface exploration for Phase 1 consisted of evaluating and sampling seventeen (17) boring locations. The boring locations were sampled to depths of either 10 or 15 feet below current grade or auger refusal, whichever was least. Table 1 below provides the Phase 1 boring numbers along with the initial depth proposed for each of the borings. The boring locations were marked in the field by GTS, Inc. (GTS) and their approximate locations are shown on the boring location diagram attached to the end of this letter. The evaluation was primarily performed to assess the potential for rock excavation means and methods to be required during the future excavation of the planned utility improvements.

Table 1: Phase 1 - Planned Boring Depths

Boring #'s	Number of Borings	Description
B-1, B-2, B-3, B-4, B-8, B-14, B-15, B-20, B-21 and B-28	10	Drill and sample to 10 feet below existing grades or to auger refusal depths, whichever is least.
B-16, B-17, B-18, B-22, B-23, B-24 and B-26	7	Drill and sample to 15 feet below existing grades or to auger refusal depths, whichever is least.

The borings were performed with either a buggy-mounted Deidrich D-50 or a truck-mounted CME-75 drill rig. Disturbed samples and estimates of the in-situ shear strength of the soil were obtained using an automatic-hammer-driven split-barrel sampler in general accordance with the Standard Penetration Test (SPT) at the boring locations.

The soil samples obtained in the field were sealed to reduce moisture loss and taken to the GTS soil laboratory for further examination, testing, and classification. Field logs were prepared during drilling and sampling documenting the sampling methods, sampling intervals, soil and groundwater conditions, and includes notes regarding soil and drilling conditions observed

between sample depths. The final boring logs, included in this report, have been prepared based on the field logs and have been modified, where appropriate, based on the results of the laboratory observation.

Subsurface Findings

General Soil Conditions

At the time of the subsurface drilling, the surface of the boring locations consisted of either grass cover or existing asphalt pavement. The asphalt pavement was encountered at Borings B-4, B-8, B-17 and B-18. Asphalt pavement thicknesses varied between about 1 to 2 inches and the pavements were generally underlain with an aggregate base section approximately 5 to 8 inches in thickness. The grass cover at the remaining thirteen (13) boring locations had root mats with varying thicknesses between about 1 and 6 inches. It should also be noted that at Boring B-4, a layer of concrete, about 5 inches in thickness, was encountered below the surface asphalt pavement.

Both existing fill material and possible existing fill material was encountered at twelve (12) of the seventeen (17) boring locations; the fill soils were identified as such due to the unnatural coloration and composition of the samples. The existing and possible fill material was highly variable in terms of composition; these soils consisted of a combination of fat clay, lean clay, silty clay, silt as well as gravel and sand soils with variable amounts of clay, sand, gravel (sandstone, limestone and chert) and organics. The fill generally had moderate in-place shear strength and extended to varying depths between 2 and 5 feet below existing grades, where encountered.

Below the site surface at the remaining locations and existing fill, where encountered, the on-site soils generally consisted of a combination of lean clay, fat clay, clayey gravel and clayey sand soils with varying amounts of sand and gravel. More generally, on-site soils generally consisted of interbedded fine-grained and coarse-grained soils, typical of the Boone Formation. These soils had variable plasticity, clay content, sand content and gravel content (sandstone and chert). The on-site soils generally had variable low to high shear strength at the time of drilling and sampling.

Water Measurements

The majority of our borings were dry during drilling and sampling. However, four (4) of the seventeen (17) boring locations encountered water during and/or upon completion of drilling. Where water was observed, the observations are shown in Table 2 on the following page, and also at the bottom of each boring log.



Table 2: Water Depth Measurements

Boring Number	Water Depth Measurements (feet below existing grades)	
	During Drilling	At Completion of Drilling
B-8	3 ½	3 ½
B-20	4 ½	Dry ¹
B-21	5	5
B-23	5	8

¹ Dry boreholes, where noted, may have been due to the relatively fast drilling of a shallow boring.

The presence of water at these depths is likely indicative of a perched water table present within the contact zone of the native soils and the underlying bedrock and/or a less permeable layer such as high plasticity, fat clays.

Fluctuations of the groundwater level can occur due to seasonal variations in the amount of rainfall; site topography and runoff; horizontal and vertical hydraulic conductivity of soil strata; and other factors not evident at the time the boring was performed. It is difficult to predict the magnitude of subsurface water fluctuations that might occur based on short-term observations. The installation and periodic measurement of monitoring wells would be required to establish seasonal piezometric surfaces below this project site. The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project.

Hard Drilling Conditions and Auger Refusal Material

Hard drilling, defined subjectively in this report as material as having a blow-count (partial N-value) of 30 or more over any 6-inch increment, was encountered at five (5) of the seventeen (17) boring locations above the planned terminal depths.

Hard drilling conditions were encountered within very dense gravelly soils, hard chert and/or hard shale beginning at depths of about 3 to 14 feet below the existing ground surface at the locations detailed below. Auger refusal was **only** encountered above the planned boring depths at one of the performed boring locations: Boring B-22 at a depth of 14 feet.

The depths to hard drilling conditions encountered at the performed boring locations are summarized in Table 3 on the following page.



Table 3: Depths to Hard Drilling Conditions

Boring Number	Depths of Hard Drilling Conditions (Feet below <u>Existing</u> Grades)	Material Description
B-1	6	Clayey Sand, with gravel
B-4	3	Clayey Sand (Fill)
B-22	13 ½	Sandy Shale/Shale
B-23	13 ½	Sandy Shale/Shale
B-24	14	Sandy Shale/Shale

Evaluation of Rock Excavation Potential

Rock excavation means and methods are anticipated to be intermittently required within confined excavations to penetrate very dense gravelly soils; seams, layers and/or boulders of hard chert; hard limestone and hard shale beginning at depths of about 3 to 14 feet below existing grades at and around the locations noted above. The depths where rock excavation techniques are anticipated to be required below generally correspond to the depths of hard drilling conditions and auger refusal material encountered at the performed boring locations summarized in Table 3 above.

In general, track hoes and dozers with rock excavation attachments are expected to be required below the depths where we encountered hard drilling. The use of hydraulic or pneumatic hammers, rock breakers, rock saws and controlled blasting could be required near and below the depths where we encountered competent rock near the bottom of several borings. Greater rock excavation effort is expected in limited access excavations.

Re-Use of On-Site Soils as Fill

The on-site clayey sand, clayey gravel, and lean clay soils are generally anticipated to be suitable for reuse as general or select fill material in areas of future planned development. Table 4 on the following page, summarizes the portions of on-site soils and rock at each boring location that we anticipate may be useable for general or select fill material.

However, it should be noted that soil classifications discussed in this report are generally based on approximately 2-inch diameter samples obtained during our field sampling. This type of sampling follows industry standards; however, this type of sampling can under- or over-estimate the amount of gravel within a soil formation.

Table 4: Depths to Soils and Rock Anticipated to be Suitable for Reuse as Fill

Boring Number	Depths of General Fill (feet below existing grades)	Depths of <u>Select</u> Fill (feet below existing grades)
B-1	2 to 3 ½	3 ½+
B-2	2 to 8 ½	8 ½+
B-3	2 to 5	14 ½+
B-4	½ to 3	3 to 8 ½
B-8	1 to 3 ½	5 to 10+
B-14	0 to 3 ½	3 ½ to 10+
B-15	0 to 3 ½ and 5 to 9 ½	3 ½ to 5 and 9 ½+
B-16	2 to 15	N/A
B-17	1 to 15	N/A
B-18	1 ½ to 14 ½	14 ½+
B-20	0 to 9 ½	9 ½+
B-21	0 to 7 ½	7 ½+
B-22	0 to 7 ½	7 ½+
B-23	0 to 7 ½	7 ½+
B-24	0 to 7 ½	7 ½+
B-26	0 to 3 ½ and 4 ½ to 6 ½	3 ½ to 4 ½ and 6 ½ to 15+
B-28	0 to 3 ½	3 ½ to 10+

While portions of the on-site soils with a high fraction of sand and gravel are anticipated to meet requirements for a select fill material as demonstrated in the table above, the on-site soils are anticipated to be intermixed during excavation and the resulting soil mass/stockpile will likely qualify as general fill.

On-site silts and fat clay soils should not be reused as fill material in areas of planned development.

Chert and any intact portions of the on-site shale (if excavated) are also anticipated to be suitable for reuse as select fill material at the project site, if they are not intermixed with the overburden soils. All rock should be crushed into fragments less than 3 inches in any dimension before reuse as fill material or during compaction breakdown.

Excavations

The contractor, by his contract, is typically responsible for designing and constructing stable, temporary excavations and should shore, slope, or bench the sides of the excavations as required to maintain stability of the excavation sides and bottom. All excavations should comply with applicable local, state, and federal safety regulations, including the current Occupational Safety and Health Administration (OSHA) Excavation and Trench Safety Standards.

Based on the results of our sample borings, the on-site soils and rock have been estimated following guidelines provided in the Occupational Safety and Health Administration's (OSHA) Excavation standards, *29 Code of Federal Regulations (CFR) Part 1926, Subpart P*. Table 5, below and on the following page, summarizes the estimated OSHA trench safety soil classifications of the on-site soils and rock at each boring location.

This information is provided for preliminary budgeting and planning purposes only and these classifications should be determined by a competent person based on site conditions as well as the structure and composition of the soil and rock deposits observed within the future excavations.

Table 5: Estimated OSHA Excavation Soil Classification

Boring Location	Depth (feet below <u>existing</u> grades)	Soil Classification
B-1	0 to 2 ½	C
	2 ½ to 10	B
B-2	0 to 2	C
	2 to 10	B
B-3	0 to 10	B
B-4	0 to 10	B
B-8	0 to 10	B
B-14	0 to 10	B
B-16	0 to 15	B
B-17	0 to 15	B
B-18	0 to 15	B
B-20	0 to 10	B

Boring Location	Depth (feet below <u>existing</u> grades)	Soil Classification
B-21	0 to 7 ½	B
	7 ½ to 10	A
B-22	0 to 7 ½	B
	7 ½ to 14	A
B-23	0 to 5	C
	5 to 7 ½	B
	7 ½ to 14	A
B-24	0 to 13 ½	B
	13 ½ to 15	A
B-26	0 to 15	B
B-28	0 to 8 ¼	B
	8 ½ to 10	A

Discussion Regarding Corrosive Properties of Soils

Per the client's request, we also analyzed the corrosion potential of the in-situ soils. Water soluble sulfate, chloride content, pH, electrical resistivity, redox potential, and sulfide tests are currently being performed in the laboratory on a two, composite samples. The samples were created by the combination of split-spoon samples within depth range as shown in the following table.

Table 5: Chemical Test Samples

Sample No.	Boring No. and Depths
1	B-20, 3 ½ to 5 feet
2	B-23, 3 ½ to 5 feet

The water-soluble sulfate test is being performed in accordance with ASTM C1580 and the chloride content test is being performed using Silver Nitrate Titration method. The chosen



samples have been sent off for testing and the results of the testing will be provided in the final report of findings for both Phase 1 and Phase 2.

Report Limitations

The observations contained in this report are based on our observations while drilling and our interpretation of subsurface conditions encountered within our explorations at the project site. Variations between the subsurface conditions encountered at our discrete boring locations and actual site conditions may occur away from the boring locations.

Closing

We appreciate the opportunity to provide engineering services for you on this project. Please contact us if you have questions regarding the contents provided in this report or if we can be of any further assistance.


Sincerely,



 5-4-2022

Thomas "Joey" Black
Geotechnical Associate



 5-4-22

Travis Willis, P.E.
Arkansas No. 18963

Copies to: Addressee (email – Barry.McCormick@hawkins-weir.com)

Attachments: Boring Location Diagram
Boring Logs





**Phase 1
 Boring
 Location
 Diagram**

*Prepared by GTS
 based on boring
 locations
 provided by
 Hawkins-Weir in
 the RFP*

**Hwy 112 Utility Relocation
 Arkansas State
 Highway 112
 Fayetteville, Arkansas
 GTS Project No. 22-15045**

LOG OF BORING NO.B-1

Highway 112 Utility Relocation
Arkansas Highway 112, Fayetteville, Arkansas



Fayetteville, AR

Project No.: 22-15045 Location: Shown On Attached Boring Location Diagram

DEPTH, FT	SYMBOL	SAMPLES	SAMPLE No.	RECOVERY (in.)	DESCRIPTION OF MATERIAL	USCS	%<#200	HAND PENETROMETER, TSF ■				BLOWS PER FT
								LAB. COHESION, TSF ▲				
					Surface Description= Grass Covered Rootmat = 6 Inches			0.4	0.8	1.2	1.6	
								WATER CONTENT, % ●				
								PL	LL			
								20	40	60	80	
0			1	18	<u>SILTY CLAY</u> soft, brown and dark gray, with trace rootlets, moist	CL-ML						2
2.5			2	18	<u>SANDY LEAN CLAY</u> , with gravel very stiff, light gray, tan, red and orange, with sand pockets, silt pockets and chert fragments	CL						15
5			3	17	<u>CLAYEY SAND</u> , with gravel dense, red, brown, light gray and orange, with fat clay pockets, silt pockets and chert fragments	SC						42
5			4	18	- cave in at 5 feet upon completion of drilling - very dense below 5 feet							
7.5												
10			5	17	<u>SANDY GRAVEL</u> orange, tan and red, with sandstone and chert fragments	GP						25/6" 50/5"
10					<u>CHERT</u> hard, differentially weathered, tan and light gray							
					BOTTOM OF BORING AT 10 FEET							
12.5												
15												
17.5												

COMPLETION DEPTH: 10 ft.

DATE: 4-12-2022

RIG: CME-75, Truck-Mounted, Auto-Hammer Assisted

DEPTH TO WATER: DURING DRILLING: Dry

AT COMPLETION: Dry

AT 24 HOURS: Backfilled



LOG OF BORING NO.B-2

Highway 112 Utility Relocation
Arkansas Highway 112, Fayetteville, Arkansas



Fayetteville, AR

Project No.: 22-15045 Location: Shown On Attached Boring Location Diagram

DEPTH, FT	SYMBOL	SAMPLES	SAMPLE No.	RECOVERY (in.)	DESCRIPTION OF MATERIAL	USCS	%<#200	HAND PENETROMETER, TSF ■				BLOWS PER FT
								LAB. COHESION, TSF ▲				
					Surface Description= Grass Covered Rootmat = 3 Inches			0.4	0.8	1.2	1.6	
								WATER CONTENT, % ●				
								PL			LL	
								20	40	60	80	
0					<u>SILTY CLAY</u> soft, brown and dark brown, moist	CL-ML						3
2.5			2	18	<u>SANDY LEAN CLAY</u> stiff, brown and orange, with sand pockets, moist	CL						10
					<u>CLAYEY SAND</u> medium dense, tan, brown and orange, with trace sandstone fragments	SC						
			3	13	<u>SANDY LEAN CLAY</u> , with gravel	CL						20
5			4	14	very stiff, red, light gray and tan, with silt pockets, sand pockets and chert fragments	CL						10
7.5					<u>SANDY LEAN CLAY</u> stiff, red, light gray and tan, with sand pockets, trace silt pockets and trace chert fragments	CL						
10			5	18	<u>CLAYEY SAND</u> , with gravel dense, red, orange and tan, with chert fragments and fat clay pockets and seams, moist - cave in at 9 feet upon completion of drilling	SC						34
					BOTTOM OF BORING AT 10 FEET							
12.5												
15												
17.5												

COMPLETION DEPTH: 10 ft.

DATE: 4-12-2022

RIG: CME-75, Truck-Mounted, Auto-Hammer Assisted

DEPTH TO WATER: DURING DRILLING: Dry

AT COMPLETION: Dry

AT 24 HOURS: Backfilled



LOG OF BORING NO.B-3

Highway 112 Utility Relocation
Arkansas Highway 112, Fayetteville, Arkansas



Fayetteville, AR

Project No.: 22-15045 Location: Shown On Attached Boring Location Diagram

DEPTH, FT	SYMBOL	SAMPLES	SAMPLE No.	RECOVERY (in.)	DESCRIPTION OF MATERIAL	USCS	%<#200	HAND PENETROMETER, TSF ■				BLOWS PER FT
								LAB. COHESION, TSF ▲				
					Surface Description= Grass Covered Rootmat = 5 Inches			0.4	0.8	1.2	1.6	
								WATER CONTENT, % ●				
								PL	LL			
								20	40	60	80	
0												
			1	13	<u>SILTY CLAY</u> medium stiff, brown and orange, with trace chert fragments	CL-ML						8
2.5			2	15	<u>LEAN CLAY</u> , with sand medium stiff, brown, orange and tan, with chert fragments, moist	CL						6
			3	16								13
5			4	15	<u>CLAYEY GRAVEL</u> medium dense, red, brown and tan, with sand pockets and chert fragments	GC						25
					<u>CLAYEY SAND</u> , with gravel medium dense, red, brown and tan, with fat clay pockets and chert fragments, moist	SC						
7.5												
			5	17	<u>SANDY LEAN CLAY</u> , with gravel very stiff, brown, red and orange, with chert fragments, moist - cave in at 9 feet upon completion of drilling	CL						33
10					<u>CLAYEY GRAVEL</u> dense, tan, orange and red, with fat clay pockets and sand pockets, moist BOTTOM OF BORING AT 10 FEET	GC						
12.5												
15												
17.5												

COMPLETION DEPTH: 10 ft.

DATE: 4-12-2022

RIG: CME-75, Truck-Mounted, Auto-Hammer Assisted

DEPTH TO WATER: DURING DRILLING: Dry

AT COMPLETION: Dry

AT 24 HOURS: Backfilled



LOG OF BORING NO.B-4

Highway 112 Utility Relocation
Arkansas Highway 112, Fayetteville, Arkansas



Fayetteville, AR

Project No.: 22-15045 Location: Shown On Attached Boring Location Diagram

DEPTH, FT	SYMBOL	SAMPLES	SAMPLE No.	RECOVERY (in.)	DESCRIPTION OF MATERIAL	USCS	%<#200	HAND PENETROMETER, TSF				BLOWS PER FT
								0.4	0.8	1.2	1.6	
Surface Description= Asphalt Pavement												
0					ASPHALT = 2 Inches							
					CRUSHED GRAVEL = 5 Inches							
			1	18	FILL - predominantly clayey sand, with gravel	FILL		●				41
					dense, red, tan and orange, with fat clay pockets and chert fragments							
2.5			2	18	POSSIBLE FILL - predominantly sandy lean clay	FILL		●				66
					very stiff, red and orange, with fat clay pockets, sand pockets and chert fragments	GC						
			3	18	CLAYEY GRAVEL	CH		●			3.25	31
					dense, red and light gray, with clay pockets, sand pockets and chert fragments							
5			4	10	FAT CLAY, with sand and gravel	SC		●				48
					very stiff, red, brown and light gray, with sand pockets and chert fragments							
7.5					CLAYEY SAND, with gravel							
					dense, red, orange and light gray, with fat clay pockets and seams, with chert fragments							
			5	16	FAT CLAY	CH		●			2.5	21
					very stiff, red, orange and dark gray, with sand pockets, trace chert fragments and trace organic staining							
10					- cave in at 10 feet upon completion of drilling							
					BOTTOM OF BORING AT 10 FEET							
12.5												
15												
17.5												

COMPLETION DEPTH: 10 ft.

DATE: 4-14-2022

RIG: CME-75, Truck-Mounted, Auto-Hammer Assisted

DEPTH TO WATER: DURING DRILLING: Dry

AT COMPLETION: Dry

AT 24 HOURS: Backfilled



LOG OF BORING NO.B-8

Highway 112 Utility Relocation
Arkansas Highway 112, Fayetteville, Arkansas



Fayetteville, AR

Project No.: 22-15045 Location: Shown On Attached Boring Location Diagram

DEPTH, FT	SYMBOL	SAMPLES	SAMPLE No.	RECOVERY (in.)	DESCRIPTION OF MATERIAL	USCS	%<#200	HAND PENETROMETER, TSF				BLOWS PER FT
								0.4	0.8	1.2	1.6	
								LAB. COHESION, TSF ▲				
								WATER CONTENT, % ●				
								PL	LL			
								20	40	60	80	
Surface Description= Asphalt Pavement												
0					ASPHALT = 4 Inches							
					CRUSHED GRAVEL = 8 Inches							
			1	10	FILL - predominantly clayey sand, with gravel	FILL		●				14
2.5			2	11	medium dense, red, brown, tan and light gray, with fat clay pockets chert fragments and limestone fragments	FILL		●				20
					POSSIBLE FILL - predominantly clayey gravel							
			3	10	medium dense, red, brown, orange and tan, with fat clay pockets and seams, with chert fragments, moist	CH		●			3.25	26
5					FAT CLAY, with sand and gravel							
			4	13	very stiff, red, brown and light gray, with chert fragments, moist			●				26
					CLAYEY GRAVEL, with sand	GC						
7.5					medium dense, red, brown, light gray and orange, with chert fragments, fat clay pockets and seams, wet							
					- cave in at 5 1/2 feet upon completion of drilling							
			5	17	CLAYEY SAND, with gravel	SC			●			42
10					dense, red, brown and tan, with fat clay seams and chert fragments, moist to wet							
					BOTTOM OF BORING AT 10 FEET							
12.5												
15												
17.5												

COMPLETION DEPTH: 10 ft.

DEPTH TO WATER: DURING DRILLING: 3.5 ft. ▼

DATE: 4-14-2022

AT COMPLETION: 3.5 ft. ▼

RIG: CME-75, Truck-Mounted, Auto-Hammer Assisted

AT 24 HOURS: Backfilled ▼

LOG OF BORING NO.B-14

Highway 112 Utility Relocation
Arkansas Highway 112, Fayetteville, Arkansas



Fayetteville, AR

Project No.: 22-15045 Location: Shown On Attached Boring Location Diagram

DEPTH, FT	SYMBOL	SAMPLES	SAMPLE No.	RECOVERY (in.)	DESCRIPTION OF MATERIAL	USCS	%<#200	HAND PENETROMETER, TSF ■				BLOWS PER FT	
								LAB. COHESION, TSF ▲					
					Surface Description= Grass Covered Rootmat = 5 Inches			0.4	0.8	1.2	1.6		
								WATER CONTENT, % ●					
								PL				LL	
								20	40	60	80		
0			1	13	FILL - predominantly silty clay stiff, brown, red and orange, with sand pockets and chert fragments	FILL		●					9
2.5			2	15	GRAVELLY LEAN CLAY, with sand stiff, light gray, orange, red and tan, with sand pockets, silt pockets and chert fragments	CL		●					14
			3	14	CLAYEY SAND medium dense, red, light gray, tan and orange, with fat clay pockets, silt pockets and chert fragments	SC		●					22
5			4	12	CLAYEY SAND, with gravel medium dense, red, orange, light gray and tan, with fat clay pockets, silt pockets and chert fragments	SC		●					18
7.5					- cave in at 5 1/2 feet upon completion of drilling								
			5	17	SANDY SHALE very soft, intensely weathered, gray, red, dark gray and orange			●					21
10					BOTTOM OF BORING AT 10 FEET								
12.5													
15													
17.5													

COMPLETION DEPTH: 10 ft.

DATE: 4-12-2022

RIG: CME-75, Truck-Mounted, Auto-Hammer Assisted

DEPTH TO WATER: DURING DRILLING: Dry

AT COMPLETION: Dry

AT 24 HOURS: Backfilled



LOG OF BORING NO.B-15

Highway 112 Utility Relocation
Arkansas Highway 112, Fayetteville, Arkansas



Fayetteville, AR

Project No.: 22-15045 Location: Shown On Attached Boring Location Diagram

DEPTH, FT	SYMBOL	SAMPLES	SAMPLE No.	RECOVERY (in.)	DESCRIPTION OF MATERIAL	USCS	%<#200	HAND PENETROMETER, TSF ■				BLOWS PER FT	
								LAB. COHESION, TSF ▲					
					Surface Description= Grass Covered Rootmat = 1 Inch			0.4	0.8	1.2	1.6		
								WATER CONTENT, % ●					
								PL	LL				
								20	40	60	80		
0					FILL - predominantly silty gravel medium dense, concrete debris, with silt pockets	GP							27
2.5			1	18	GRAVELLY LEAN CLAY, with sand very stiff, red, orange, tan and light gray, with sand pockets, silt pockets and chert fragments	CL							40
			2	17	CLAYEY SAND, with gravel medium dense, red, light gray, orange and tan, with fat clay pockets, silt pockets and chert fragments	SC							24
5			3	18	SANDY LEAN CLAY stiff, red, light gray and tan, with silt pockets, sand pockets and chert fragments	CL						3.5	15
7.5			4	12	- very stiff and light gray below 8 1/2 feet - cave in at 9 feet upon completion of drilling							3.0	17
10			5	15	SANDY SHALE very soft, intensely weathered, dark gray and orange BOTTOM OF BORING AT 10 FEET								
12.5													
15													
17.5													

COMPLETION DEPTH: 10 ft.

DATE: 4-12-2022

RIG: CME-75, Truck-Mounted, Auto-Hammer Assisted

DEPTH TO WATER: DURING DRILLING: Dry

AT COMPLETION: Dry

AT 24 HOURS: Backfilled



LOG OF BORING NO.B-16

Highway 112 Utility Relocation
Arkansas Highway 112, Fayetteville, Arkansas



Fayetteville, AR

Project No.: 22-15045 Location: Shown On Attached Boring Location Diagram

DEPTH, FT	SYMBOL	SAMPLES	SAMPLE No.	RECOVERY (in.)	DESCRIPTION OF MATERIAL	USCS	%<#200	HAND PENETROMETER, TSF ■				BLOWS PER FT
								LAB. COHESION, TSF ▲				
					Surface Description= Grass Covered Rootmat = 3 Inch			0.4	0.8	1.2	1.6	
								WATER CONTENT, % ●				
								PL			LL	
								20	40	60	80	
0					FILL - predominantly silt, with sand loose, brown, with rootlets, moist							
			1	13	- predominantly stiff, red, orange and tan fat clay, with gravel and chert fragments	FILL						11
2.5			2	0	POSSIBLE FILL - predominantly silty clay medium stiff, brown, red and dark gray, with silt pockets and trace chert fragments	FILL						7
			3	18	SILTY CLAY medium stiff, dark gray, dark brown, tan and orange, with organics, silt pockets and trace ferrous nodules	CL-ML						8
5			4	11	LEAN CLAY, with sand medium stiff, light gray, tan and dark gray, with sand pockets, fat clay pockets, silt pockets, trace organics and trace ferrous nodules	CL						7
7.5					- cave in at 8 1/2 feet upon completion of drilling							
10			5	4	FAT CLAY, with sand stiff, tan, light gray, orange and gray, with sand pockets, trace chert fragments and trace silt pockets	CH						10
12.5												
15			6	18	LEAN CLAY, with sand (DECOMPOSED SHALE) stiff, tan, light gray and orange, with trace organic staining and trace chert fragments	CL					2.25	13
17.5					BOTTOM OF BORING AT 15 FEET							

COMPLETION DEPTH: 15 ft.

DATE: 4-11-2022

RIG: Deidrich D-50, Buggy-Mounted, Auto-Hammer Assisted

DEPTH TO WATER: DURING DRILLING: Dry

AT COMPLETION: Dry

AT 24 HOURS: Backfilled



LOG OF BORING NO.B-17

Highway 112 Utility Relocation
Arkansas Highway 112, Fayetteville, Arkansas



Fayetteville, AR

Project No.: 22-15045 Location: Shown On Attached Boring Location Diagram

DEPTH, FT	SYMBOL	SAMPLES	SAMPLE No.	RECOVERY (in.)	DESCRIPTION OF MATERIAL	USCS	%<#200	HAND PENETROMETER, TSF ■				BLOWS PER FT
								LAB. COHESION, TSF ▲				
					Surface Description= Asphalt Pavement			0.4	0.8	1.2	1.6	
								WATER CONTENT, % ●				
								PL			LL	
								20	40	60	80	
0					ASPHALT = 3 Inches							
					CRUSHED GRAVEL = 5 Inches							
			1	14	FILL - predominantly fat clay, with gravel stiff, red, orange and light gray, with chert fragments	FILL						10
2.5			2	13	POSSIBLE FILL - predominantly silt, with sand loose, dark gray and brown, with sand pockets	FILL						7
			3	16	SILT loose, dark gray and brown	ML						7
5			4	14	SILTY CLAY stiff, dark gray, gray and brown, with silt pockets and trace ferrous nodules	CL-ML						12
7.5												
10			5	18	FAT CLAY stiff, tan, light gray and gray, with silt pockets and trace sand pockets - cave in at 9 1/2 feet upon completion of drilling	CH						13
12.5												
15			6	18	LEAN CLAY, with sand (DECOMPOSED SHALE) very stiff, tan, light gray, red and orange, with sand pockets and seams	CL						22
					BOTTOM OF BORING AT 15 FEET							
17.5												

COMPLETION DEPTH: 15 ft.

DATE: 4-11-2022

RIG: Deidrich D-50, Buggy-Mounted, Auto-Hammer Assisted

DEPTH TO WATER: DURING DRILLING: Dry

AT COMPLETION: Dry

AT 24 HOURS: Backfilled



LOG OF BORING NO.B-18

Highway 112 Utility Relocation
Arkansas Highway 112, Fayetteville, Arkansas



Fayetteville, AR

Project No.: 22-15045 Location: Shown On Attached Boring Location Diagram

DEPTH, FT	SYMBOL	SAMPLES	SAMPLE No.	RECOVERY (in.)	DESCRIPTION OF MATERIAL	USCS	%<#200	HAND PENETROMETER, TSF ■				BLOWS PER FT
								LAB. COHESION, TSF ▲				
								0.4	0.8	1.2	1.6	
								WATER CONTENT, % ●				
								PL			LL	
								20	40	60	80	
0					Surface Description= Asphalt Pavement							
					<u>ASPHALT</u> = 13 Inches							
			1	7	<u>CRUSHED GRAVEL</u> = 5 Inches				●			10
2.5			2	11	<u>FILL</u> - predominantly fat clay, with sand and gravel stiff, red, orange, gray and light gray, with sand pockets, silt pockets and chert fragments - medium stiff below 2 feet	FILL				●		7
5			3	12	<u>SILTY CLAY</u> medium stiff, dark gray and brown, with silt pockets, trace ferrous nodules and trace sandstone fragments	CL-ML			●	■		5
			4	0	<u>LEAN CLAY</u> , with sand medium stiff, brown and red, with trace chert fragments	CL			●			7
7.5												
10			5	18	- cave in at 8 ½ feet upon completion of drilling <u>FAT CLAY</u> , with sand very stiff, brown, gray, orange and dark gray, with sand pockets, silt pockets, trace ferrous nodules and trace chert fragments	CH			●			18
12.5												
15			6	17	<u>FAT CLAY</u> very stiff, red, tan, light gray and orange	CH			●		■	19
					<u>SANDY, CLAYEY SHALE</u> very soft, intensely weathered, dark gray and red							
					BOTTOM OF BORING AT 15 FEET							
17.5												

COMPLETION DEPTH: 15 ft.

DATE: 4-14-2022

RIG: CME-75, Truck-Mounted, Auto-Hammer Assisted

DEPTH TO WATER: DURING DRILLING: Dry

AT COMPLETION: Dry

AT 24 HOURS: Backfilled



LOG OF BORING NO.B-20

Highway 112 Utility Relocation
Arkansas Highway 112, Fayetteville, Arkansas



Fayetteville, AR

Project No.: 22-15045 Location: Shown On Attached Boring Location Diagram

DEPTH, FT	SYMBOL	SAMPLES	SAMPLE No.	RECOVERY (in.)	DESCRIPTION OF MATERIAL	USCS	%<#200	HAND PENETROMETER, TSF ■				BLOWS PER FT
								LAB. COHESION, TSF ▲				
					Surface Description= Grass Covered Rootmat = 4 Inch			0.4	0.8	1.2	1.6	
								WATER CONTENT, % ●				
								PL	LL			
								20	40	60	80	
0					SILTY CLAY stiff, dark gray and dark brown, with organics	CL-ML						9
1			1	17	LEAN CLAY , with sand stiff, brown, light gray and gray, with sand pockets and silt pockets	CL						
2.5			2	18	LEAN CLAY stiff, dark gray, gray, brown and red, with silt pockets and trace ferrous nodules	CL						10
3			3	13	FAT CLAY stiff, gray, red and dark gray, with sand pockets, moist	CH						10
5			4	13								10
7.5												
10			5	18	- cave in at 9 ½ feet upon completion of drilling SHALE very soft, intensely weathered, dark gray, dry BOTTOM OF BORING AT 10 FEET							19
12.5												
15												
17.5												

COMPLETION DEPTH: 10 ft.

DEPTH TO WATER: DURING DRILLING: 4.5 ft.

DATE: 4-11-2022

AT COMPLETION: Dry

RIG: Deidrich D-50, Buggy-Mounted, Auto-Hammer Assisted

AT 24 HOURS: Backfilled

LOG OF BORING NO.B-21

Highway 112 Utility Relocation
Arkansas Highway 112, Fayetteville, Arkansas



Fayetteville, AR

Project No.: 22-15045 Location: Shown On Attached Boring Location Diagram

DEPTH, FT	SYMBOL	SAMPLES	SAMPLE No.	RECOVERY (in.)	DESCRIPTION OF MATERIAL	USCS	%<#200	HAND PENETROMETER, TSF				BLOWS PER FT
								0.4	0.8	1.2	1.6	
								LAB. COHESION, TSF ▲				
								WATER CONTENT, % ●				
								PL ————— LL				
								20 40 60 80				
0					Surface Description= Grass Covered Rootmat = 4 Inch							
			1	15	FILL - predominantly gravelly fat clay stiff, red, orange and brown, with chert fragments, moist	FILL						7
					LEAN CLAY	CL						
2.5			2	18	medium stiff, dark brown, dark gray and red, with trace organics, silt pockets and sand pockets	CL						9
					LEAN CLAY, with sand	CL						
			3	9	dark brown, dark gray and red, with sand pockets and silt pockets							
					LEAN CLAY							
5			4	12	medium stiff, gray, dark gray, red and orange, with fat clay pockets/seams, sand pockets and silt pockets, moist - cave in at 5 feet upon completion of drilling and moist to wet and stiff below 5 feet	CL						6
7.5					SHALE							
			5	18	soft, highly weathered, dark gray							42
10					BOTTOM OF BORING AT 10 FEET							
12.5												
15												
17.5												

COMPLETION DEPTH: 10 ft.

DATE: 4-11-2022

RIG: Deidrich D-50, Buggy-Mounted, Auto-Hammer Assisted

DEPTH TO WATER: DURING DRILLING: 5.0 ft.

AT COMPLETION: 5.0 ft.

AT 24 HOURS: Backfilled



LOG OF BORING NO.B-22

Highway 112 Utility Relocation
Arkansas Highway 112, Fayetteville, Arkansas



Fayetteville, AR

Project No.: 22-15045 Location: Shown On Attached Boring Location Diagram

DEPTH, FT	SYMBOL	SAMPLES	SAMPLE No.	RECOVERY (in.)	DESCRIPTION OF MATERIAL	USCS	%<#200	HAND PENETROMETER, TSF ■				BLOWS PER FT	
								LAB. COHESION, TSF ▲					
					Surface Description= Grass Covered Rootmat = 4 Inch			0.4	0.8	1.2	1.6		
								WATER CONTENT, % ●					
								PL	LL				
								20	40	60	80		
0					FILL - predominantly silty clay medium stiff, brown, orange and tan, with chert fragments and trace rootlets	FILL							6
2.5			1	18									
			2	18	LEAN CLAY medium stiff, brown and orange, with sand pockets and trace chert fragments	CL							6
			3	16	LEAN CLAY, with sand very stiff, light gray, orange and brown, with sand pockets, silt pockets and trace chert fragments								16
5			4	0	- very stiff, brown, gray and orange, with trace sandstone fragments and trace chert fragments below 5 feet								
7.5					LEAN CLAY, with sand (DECOMPOSED SHALE) very stiff, dark gray, gray and orange	CL							29
10			5	18		CL							
12.5													
			6	2	SHALE hard, differentially weathered, dark gray								50/2"
15					AUGER REFUSAL AT 14 FEET								
17.5													

COMPLETION DEPTH: 14 ft.

DATE: 4-12-2022

RIG: Deidrich D-50, Buggy-Mounted, Auto-Hammer Assisted

DEPTH TO WATER: DURING DRILLING: Dry

AT COMPLETION: Dry

AT 24 HOURS: Backfilled



LOG OF BORING NO.B-23

Highway 112 Utility Relocation
Arkansas Highway 112, Fayetteville, Arkansas



Fayetteville, AR

Project No.: 22-15045 Location: Shown On Attached Boring Location Diagram

DEPTH, FT	SYMBOL	SAMPLES	SAMPLE No.	RECOVERY (in.)	DESCRIPTION OF MATERIAL	USCS	%<#200	HAND PENETROMETER, TSF ■				BLOWS PER FT
								LAB. COHESION, TSF ▲				
					Surface Description= Grass Covered Rootmat = 2 Inch			0.4	0.8	1.2	1.6	
								WATER CONTENT, % ●				
								PL	LL			
								20	40	60	80	
0			1	7	FILL - predominantly sandy lean clay medium stiff, brown and red, with trace chert fragments	FILL						7
2.5			2	0	- predominantly moist, medium stiff, dark gray and brown silty clay, with sand and chert fragments below 2 feet	FILL						5
5			3	11	POSSIBLE FILL - predominantly lean clay, with sand moist, medium stiff, light gray, red and orange, with sand pockets and silt pockets	FILL						6
5			4	18	SILTY CLAY medium stiff, gray, wet	CL- ML						18
7.5					LEAN CLAY, with sand and gravel very stiff, red and orange, with sand pockets, sandstone fragments and chert fragments, moist	CL						
10			5	15	LEAN CLAY, with sand (DECOMPOSED SHALE) very stiff, dark gray, gray and orange - cave in at 8 feet upon completion of drilling	CL						23
12.5												
15			6	4	SHALE hard, differentially weathered, dark gray and gray							50/4"
15					BOTTOM OF BORING AT 14 FEET							
17.5												

COMPLETION DEPTH: 14 ft.

DATE: 4-11-2022

RIG: Deidrich D-50, Buggy-Mounted, Auto-Hammer Assisted

DEPTH TO WATER: DURING DRILLING: 5.0 ft.

AT COMPLETION: 8.0 ft.

AT 24 HOURS: Backfilled

LOG OF BORING NO.B-24

Highway 112 Utility Relocation
Arkansas Highway 112, Fayetteville, Arkansas



Fayetteville, AR

Project No.: 22-15045 Location: Shown On Attached Boring Location Diagram

DEPTH, FT	SYMBOL	SAMPLES	SAMPLE No.	RECOVERY (in.)	DESCRIPTION OF MATERIAL	USCS	%<#200	HAND PENETROMETER, TSF				BLOWS PER FT
								0.4	0.8	1.2	1.6	
0					Surface Description= Grass Covered Rootmat = 3 Inch							
0 - 2.5			1	18	FILL - predominantly clayey gravel medium dense, brown, red, gray and tan, with chert fragments and limestone fragments - predominantly stiff, brown, orange, red and tan sandy lean clay, with chert/limestone/sandstone fragments	FILL						12
2.5 - 5			2	18	- very stiff, with organics and chert/sandstone gravel below 2 feet							23
5 - 7.5			3	0	SANDY LEAN CLAY stiff, red, brown and tan, with sand pockets and trace chert fragments	CL						9
7.5 - 10			4	16	FAT CLAY very stiff, light gray, red, orange and tan, with sand pockets and trace chert fragments	CH					2.5	19
10 - 12.5			5	16	LEAN CLAY, with sand (DECOMPOSED SHALE) very stiff, gray, red and orange	CL						18
12.5 - 15			6	18	SANDY SHALE soft, moderately weathered, gray and orange							90
15 - 17.5					SHALE soft to hard, differentially weathered, dark gray BOTTOM OF BORING AT 15 FEET							

COMPLETION DEPTH: 15 ft.
DATE: 4-12-2022
RIG: Deidrich D-50, Buggy-Mounted, Auto-Hammer Assisted

DEPTH TO WATER: DURING DRILLING: Dry
AT COMPLETION: Dry
AT 24 HOURS: Backfilled



LOG OF BORING NO.B-26

Highway 112 Utility Relocation
Arkansas Highway 112, Fayetteville, Arkansas



Fayetteville, AR

Project No.: 22-15045 Location: Shown On Attached Boring Location Diagram

DEPTH, FT	SYMBOL	SAMPLES	SAMPLE No.	RECOVERY (in.)	DESCRIPTION OF MATERIAL	USCS	%<#200	HAND PENETROMETER, TSF				BLOWS PER FT
								0.4	0.8	1.2	1.6	
0					Surface Description= Grass Covered Rootmat = 4 Inches							
1			1	18	<u>SILTY CLAY</u> medium stiff, brown, with trace rootlets, moist	CL-ML						
2.5			2	18	<u>LEAN CLAY</u> stiff, light gray, tan and red, light gray, tan and red, with silt pockets and sand pockets - very stiff below 2 feet	CL					3.5	13
5			3	10	<u>CLAYEY GRAVEL</u> medium dense, orange, light gray, red and tan, with fat clay pockets and chert fragments	GC					2.5	19
5			4	17	<u>FAT CLAY</u> very stiff, light gray and red, with trace chert fragments	CH					3.0	23
7.5					<u>CLAYEY, SANDY SHALE</u> very soft, intensely weathered, red, dark gray and orange, with silt seams							
10			5	18	<u>CLAYEY SHALE</u> very soft, intensely weathered, light gray, red, orange and dark gray							30
12.5					<u>CLAYEY, SANDY SHALE</u> very soft to soft, moderately weathered, gray, red, orange and yellow							
15			6	18	<u>SHALE</u> very soft, differentially weathered, dark gray and orange							24
17.5					BOTTOM OF BORING AT 15 FEET							

COMPLETION DEPTH: 15 ft.

DATE: 4-12-2022

RIG: CME-75, Truck-Mounted, Auto-Hammer Assisted

DEPTH TO WATER: DURING DRILLING: Dry

AT COMPLETION: Dry

AT 24 HOURS: Backfilled



LOG OF BORING NO.B-28

Highway 112 Utility Relocation
Arkansas Highway 112, Fayetteville, Arkansas



Fayetteville, AR

Project No.: 22-15045 Location: Shown On Attached Boring Location Diagram

DEPTH, FT	SYMBOL	SAMPLES	SAMPLE No.	RECOVERY (in.)	DESCRIPTION OF MATERIAL	USCS	%<#200	HAND PENETROMETER, TSF ■				BLOWS PER FT
								LAB. COHESION, TSF ▲				
					Surface Description= Grass Covered Rootmat = 5 Inches			0.4	0.8	1.2	1.6	
								WATER CONTENT, % ●				
								PL	LL			
								20	40	60	80	
0			1	12	FILL - predominantly silty gravel loose, brown, light gray and gray, with chert and limestone fragments	FILL						9
2.5			2	18	- predominantly loose, red, brown and gray silty clay, with gravel, sand pockets and chert fragments below 2 feet							
5			3	13	CLAYEY GRAVEL dense, light gray, red, orange and brown, with fat clay pockets and chert fragments	GC						47
5			4	18	- medium dense, with fat clay pockets and seams below 5 feet							
7.5					- cave in at 8 feet upon completion of drilling							
10			5	18	SANDY SHALE very soft, intensely weathered, dark gray, gray, orange and light gray							38
10					BOTTOM OF BORING AT 10 FEET							
12.5												
15												
17.5												

COMPLETION DEPTH: 10 ft.

DATE: 4-12-2022

RIG: CME-75, Truck-Mounted, Auto-Hammer Assisted

DEPTH TO WATER: DURING DRILLING: Dry

AT COMPLETION: Dry

AT 24 HOURS: Backfilled



