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 - LITTLE ROCK, ARKANSAS
MATERIALS DIVISION
MICHAEL BENSON, MATERIALS ENGINEER
*** SOIL SURVEY STRENGTH TEST REPORT ***

DATE - 02/11/2020
JOB NUMBER - 110664
SEQUENCE NO. - 1
MATERIAL CODE - SSRV
SPEC. YEAR - 2014
SUPPLIER ID. - 1
COUNTY/STATE - 48
DISTRICT NO. - 01

JOB NAME - PRAIRIE CO. LINE - HWY 17 (S)

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

BEGIN JOB - END JOB                     LESS THAN 5

RESILIENT MODULUS
STA. LM .168  9190
STA. LM 3.3   5703

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.: 110664
Date Sampled: 1/22/2020
Date Tested: February 6, 2020
Name of Project: PRARIE CO. LINE - HWY. 17 (S)
County: Code: 48  Name: MONROE
Sampled By: THORNTON / BUNTON / DILLMAN
Lab No.: 20200224
Sample ID: RV64

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                          3.94
   Middle                      3.95
   Bottom                      3.94
   Average                     3.94
   Membrane Thickness (in):
   Height of Specimen, Cap and Base (in):
   Height of Cap and Base (in): 8.02
   Initial Length, Lo (in):     8.02
   Initial Area, Ao (sq. in):   12.14
   Initial Volume, AoLo (cu. in): 97.35

3. Soil Specimen Weight:
   Weight of Wet Soil Used (g): 3255.90

4. Soil Properties:
   Optimum Moisture Content (%): 11.6
   Maximum Dry Density (pcf): 118.5
   95% of MDD (pcf): 112.6
   In-Situ Moisture Content (%): N/A

5. Specimen Properties:
   Wet Weight (g): 3255.90
   Compaction Moisture content (%): 11.5
   Compaction Wet Density (pcf): 127.43
   Compaction Dry Density (pcf): 114.29
   Moisture Content After Mr Test (%): 11.4

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

7. Resilient Modulus, Mr:
   6753(Sc)^-0.22201(S3)^0.41497

8. Comments

9. Tested By: GW
   Date: February 6, 2020
ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
MATERIALS DIVISION

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

Job No.: 110664
Date Sampled: 1/22/2020
Date Tested: February 6, 2020
Name of Project: PRARIE CO. LINE - HWY. 17 (S)
County: Code: 48 Name: MONROE
Sampled By: THORNTON / BUNTON / DILLMAN
Lab No.: 20200224
Sample ID: RV64
LATITUDE:

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<th>PARAMETER</th>
<th>Chamber Confining Pressure</th>
<th>Nominal Maximum Axial Stress</th>
<th>Actual Applied Max. Axial Load</th>
<th>Actual Applied Cyclic Load</th>
<th>Actual Applied Contact Load</th>
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TESTED BY
REVIEWED BY

DATE
DATE
February 6, 2020
M_R = K1 (S_c)^K2 (S_a)^K5

K1 = 6.753
K2 = -0.22201
K5 = 0.41497
R^2 = 0.98
ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT  
MATERIALS DIVISION  

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

Job No.: 110664  
Date Sampled: 1/22/2020  
Date Tested: February 6, 2020  
Name of Project: PRARIE CO. LINE - HWY. 17 (S)  
County: Code: 48  
Name: MONROE  
Sampled By: THORNTON / BUNTON / DILLMAN  
Lab No.: 20200223  
Sample ID: RV63  
LATITUDE:  

Material Code: SSRVPS  
Station No.: LM .168  
Location: 08LT  
Depth: 0-5  
AASHTO Class: A-6 (2)  
Material Type (1 or 2): 2  
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: 3.95  
Bottom: 3.95  
Average: 3.95  
Membrane Thickness (in): 0.01  
Height of Specimen, Cap and Base (in): 8.03  
Height of Cap and Base (in): 0.00  
Initial Length, L0 (in): 8.03  
Initial Area, Ao (sq. in): 12.18  
Initial Volume, AoLo (cu. in): 97.80  

3. Soil Specimen Weight:  
Weight of Wet Soil Used (g): 3246.50  

4. Soil Properties:  
Optimum Moisture Content (%): 13.4  
Maximum Dry Density (pcf): 115.9  
95% of MDD (pcf): 110.1  
In-Situ Moisture Content (%): N/A  

5. Specimen Properties:  
Wet Weight (g): 3246.50  
Compaction Moisture content (%): 13.7  
Compaction Wet Density (pcf): 126.48  
Compaction Dry Density (pcf): 111.24  
Moisture Content After Mr Test (%): 13.3  

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

7. Resilient Modulus, Mr:  
12720(Sc)^-0.21886(S3)^0.22162  

8. Comments  

9. Tested By: GW  
Date: February 6, 2020
### ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
### MATERIALS DIVISION

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

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### Parameter Table

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<th>DESIGNATION</th>
<th>Chamber Confining Pressure</th>
<th>Nominal Maximum Axial Stress</th>
<th>Actual Applied Max. Axial Load</th>
<th>Actual Applied Cyclic Load</th>
<th>Actual Applied Contact Load</th>
<th>Actual Applied Max. Axial Stress</th>
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<th>Average Recov Def. LVDT 1 and 2</th>
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**Tested By**: GW  **Date**: February 6, 2020

**Reviewed By**:  **Date**: February 6, 2020
ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
MATERIALS DIVISION

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

Job No.: 110664
Date Sampled: 1/22/2020
Date Tested: February 6, 2020
Name of Project: PRARIE CO. LINE - HWY. 17 (S)
County: THORNTON / BUNTON / DILLMAN
Sampled By: MONROE
Lab No.: 20200223
Sample ID: RV63
LATITUDE: 

Material Code: SSRVPS
Station No.: LM .168
Location: 08'LT

Depth: 0-5
AASHTO Class: A-6 (2)
Material Type (1 or 2): 2
LONGITUDE:

\[ M_R = K_1 (S_C)^{K_2} (S_3)^{K_5} \]

\[ K_1 = 12,720 \]
\[ K_2 = -0.21886 \]
\[ K_5 = 0.22162 \]
\[ R^2 = 0.93 \]

Resilient Modulus QA Plot

Cyclic Stress, psi

Resilient Modulus, psi
DATE - 02/11/20
JOB NUMBER - 110664
FEDERAL AID NO.- TO BE ASSIGNED
PURPOSE - SOIL SURVEY SAMPLE
SPEC. REMARKS - NO SPECIFICATION CHECK
SUPPLIER NAME - STATE
NAME OF PROJECT - PRAIRIE CO. LINE - HWY 17 (S)
PROJECT ENGINEER - NOT APPLICABLE
PIT/QUARRY - ARKANSAS
LOCATION - MONROE, COUNTY
SAMPLED BY - THORNTON/BUN TEN/DILLMAN
SAMPLE FROM - TEST HOLE
DATE SAMPLED - 01/22/20
DATE RECEIVED - 01/23/20
DATE TESTED - 02/11/20
MATERIAL DESC. - SOIL SURVEY - R VALUE- PAVEMENT SOUNDINGS

LAB NUMBER - 20200219
SAMPLE ID - S59
TEST STATUS - INFORMATION ONLY
STATION - LM .168
LOCATION - 08 LT
DEPTH IN FEET - 0-5
MAT'L COLOR - BROWN
MAT'L TYPE -

LATITUDE DEG-MIN-SEC - 34 49 54.60
LONGITUDE DEG-MIN-SEC - 91 22 27.20

% PASSING
2 IN. -
1 1/2 IN. -
3/4 IN. -
3/8 IN. -
NO. 4 - 100
NO. 10 - 99
NO. 40 - 98
NO. 80 - 96
NO. 200 - 95

LIQUID LIMIT - 45
PLASTICITY INDEX - 31
AAASHTO SOIL - A-7-6(26)
UNIFIED SOIL -

% MOISTURE CONTENT - 25.9

CHIP SEAL (IN) - 0.25
ACHMSC (IN) - 3.0
ACHMSC (IN) - 0.5X
ACHMSC (IN) - 4.25W
ACHMSC (IN) - 1.0X
FCCP (IN) - 8.5

REMARKS - W=MULTIPLE LAYERS, X=STRIPPED

AASHTO TESTS: T24 T88 T89 T90 T265
**SOIL SURVEY / PAVEMENT SOUNDING TEST REPORT**

**DATE** - 02/11/20
**JOB NUMBER** - 110664
**FEDERAL AID NO.** - TO BE ASSIGNED
**PURPOSE** - SOIL SURVEY SAMPLE
**SPEC. REMARKS** - NO SPECIFICATION CHECK
**SUPPLIER NAME** - STATE
**NAME OF PROJECT** - PRAIRIE CO. LINE - HWY 17 (S)
**PROJECT ENGINEER** - NOT APPLICABLE
**PIT/QUARRY** - ARKANSAS
**LOCATION** - MONROE, COUNTY
**SAMPLED BY** - THORNTON/BUNLEN/DILLMAN
**SAMPLE FROM** - TEST HOLE
**DATE SAMPLED** - 01/22/20
**DATE RECEIVED** - 01/23/20
**DATE TESTED** - 02/11/20
**MATERIAL DESC.** - SOIL SURVEY - R VALUE - PAVEMENT SOUNDINGS

| LAB NUMBER | 20200222 |
| SAMPLE ID | S62 |
| TEST STATUS | INFORMATION ONLY |
| STATION | LM 3.3 |
| LOCATION | 08LT |
| DEPTH IN FEET | 0-5 |
| MAT'L COLOR | BR/GR |
| MAT'L TYPE | |
| LATITUDE DEG-MIN-SEC | 34 50 17.50 |
| LONGITUDE DEG-MIN-SEC | 91 19 6.50 |
| % PASSING | 2 IN. |
| | 1 1/2 IN. |
| | 3/4 IN. |
| | 3/8 IN. |
| NO. 4 | 100 |
| NO. 10 | 99 |
| NO. 40 | 97 |
| NO. 80 | 93 |
| NO. 200 | 81 |
| LIQUID LIMIT | 31 |
| PLASTICITY INDEX | 18 |
| AASHTO SOIL | A-6(12) |
| UNIFIED SOIL | |
| % MOISTURE CONTENT | 19.8 |

**REMARKS** - W=MULTIPLE LAYERS, X=STRIPPED

**AASHTO TESTS** - T24 T88 T89 T90 T265
**SOIL SURVEY / PAVEMENT SOUNDING TEST REPORT**

**DATE** - 02/11/20  
**JOB NUMBER** - 110664  
**FEDERAL AID NO.** - TO BE ASSIGNED  
**PURPOSE** - SOIL SURVEY SAMPLE  
**SPEC. REMARKS** - NO SPECIFICATION CHECK  
**SUPPLIER NAME** - STATE  
**NAME OF PROJECT** - PRAIRIE CO. LINE - HWY 17 (S)  
**PROJECT ENGINEER** - NOT APPLICABLE  
**PIT/QUARRY** - ARKANSAS  
**LOCATION** - MONROE, COUNTY  
**SAMPLED BY** - THORNTON/BUN TEN/DILLMAN  
**SAMPLE FROM** - TEST HOLE  
**DATE SAMPPLED** - 01/22/20  
**DATE RECEIVED** - 01/23/20  
**DATE TESTED** - 02/11/20  

**MATERIAL DESC.** - SOIL SURVEY - RESISTANCE R-VALUE ACTUAL RESULTS

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<td>MAT'L COLOR</td>
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<td>MAT'L TYPE</td>
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<td>LATITUDE DEG-MIN-SEC</td>
<td>34 49 54.60</td>
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<td>91 19 6.50</td>
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| % PASSING        | 2 IN.    |          |          |          |
|                 | 1 1/2 IN. |          |          |          |
|                 | 3/4 IN.  | 100      | 100      |          |
|                 | 3/8 IN.  | 97       | 87       |          |
| NO. 4           | 95       |          | 81       |          |
| NO. 10          | 93       |          | 78       |          |
| NO. 40          | 85       |          | 72       |          |
| NO. 80          | 64       |          | 63       |          |
| NO. 200         | 48       |          | 55       |          |

| LIQUID LIMIT     | 23       | ND       |          |          |
| PLASTICITY INDEX | 11       | NP       |          |          |
| AASHTO SOIL      | A-6(2)   | A-4(0)   |          |          |
| UNIFIED SOIL     |          |          |          |          |

| % MOISTURE CONTENT |          |          |          |          |

**REMARKS** - W=MULTIPLE LAYERS, X=STRIPPED

**AASHTO TESTS** - T24 T88 T89 T90 T265
**Arkansas State Highway and Transportation Department - Little Rock, Arkansas**

**Materials Division**

**Michael Benson, Materials Engineer**

***Soil Survey / Pavement Sounding Test Report***

**Date** - 02/11/20

**Sequence No.** - 1

**Job Number** - 110664

**Material Code** - 20SF

**Federal Aid No.** - To Be Assigned

**Spec. Year** - 2014

**Purpose** - Information Only Sample

**Supplier ID** - 1

**Spec. Remarks** - No Specification Check

**County/State** - 48

**Supplier Name** - State

**District No.** - 01

**Project** - Prairie Co. Line - Hwy 17 (S)

**Project Engineer** - Not Applicable

**Pit/Quarry** - Arkansas

**Location** - Monroe, County

**Sampled By** - T. Henderson

**Sample From** - Jobsite

**Sampled Date** - 02/11/20

**Date Received** - 01/29/20

**Date Tested** - 02/11/20

**Material Desc.** - Soil Foundation Investigation Sample - Soil - 2020

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<th>Sample ID</th>
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<th>Depth in Feet</th>
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<td>Information Only</td>
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**% Passing**

- 2 in. -
- 1 1/2 in. -
- 3/4 in. -
- 3/8 in. - 100
- No. 4 - 99
- No. 10 - 99
- No. 40 - 97
- No. 80 - 93
- No. 200 - 82

**Liquid Limit** - 54

**Plasticity Index** - 35

**AASHTO Soil** - A-7-6(34)

**Unified Soil** - CH

**% Moisture Content**

- 47

**AASHTO Tests** - T24 T88 T89 T90 T265
**ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT - LITTLE ROCK, ARKANSAS**  
**MATERIALS DIVISION**  
**MICHAEL BENSON, MATERIALS ENGINEER**  
***SOIL SURVEY / PAVEMENT SOUNGING TEST REPORT***

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**MATERIAL DESC.** - SOIL FOUNDATION INVESTIGATION  
**SAMPLE** - SOIL - 2020  

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**REMARKS** - *2=11.6-12.8, *3=15.1-17.1**  

**AASHTO TESTS** : T24 T98 T89 T90 T265
**SOIL SURVEY / PAVEMENT SOUNDING TEST REPORT**

**DATE**  -  02/11/20
**JOB NUMBER**  -  110664
**FEDERAL AID NO.**  -  TO BE ASSIGNED
**PURPOSE**  -  INFORMATION ONLY SAMPLE
**SPEC. REMARKS**  -  NO SPECIFICATION CHECK
**SUPPLIER NAME**  -  STATE
**NAME OF PROJECT**  -  PRAIRIE CO. LINE - HWY 17 (S)
**PROJECT ENGINEER**  -  NOT APPLICABLE
**PIT/QUARRY**  -  ARKANSAS
**LOCATION**  -  MONROE, COUNTY
**SAMPLED BY**  -  T. HENDERSON
**SAMPLE FROM**  -  JOBSITE
**DATE SAMPLED**  -  -
**DATE RECEIVED**  -  01/29/20
**DATE TESTED**  -  02/11/20

**MATERIAL DESC.**  -  SOIL FOUNDATION INVESTIGATION
**SAMPLE**  -  SOIL - 2020

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**% PASSING**

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**LIQUID LIMIT**  -  29
**PLASTICITY INDEX**  -  16
**AASHTO SOIL**  -  A-6(10)
**UNIFIED SOIL**  -  CL

**% MOISTURE CONTENT**  -  


**AASHTO TESTS**  -  T24 T88 T89 T90 T265
PAYMENTS DUE - LITTLE ROCK, ARKANSAS
MATERIALS DIVISION

MATERIALS ENGINEER

DATE - 02/11/20  SEQUENCE NO. - 4
JOB NUMBER - 110664  MATERIAL CODE - 20SF
FEDERAL AID NO. - TO BE ASSIGNED  SPEC. YEAR - 2014
PURPOSE - INFORMATION ONLY SAMPLE  SUPPLIER ID. - 1
SPEC. REMARKS - NO SPECIFICATION CHECK  COUNTY/STATE - 48
SUPPLIER NAME - STATE  DISTRICT NO. - 01
NAME OF PROJECT - PRAIRIE CO. LINE - HWY 17 (S)
PROJECT ENGINEER - NOT APPLICABLE
PIT/QUARRY - ARKANSAS  DATE SAMPLED -
LOCATION - MONROE, COUNTY  DATE RECEIVED - 01/29/20
SAMPLED BY - T.HENDERSON  DATE TESTED - 02/11/20
SAMPLE FROM - JOBSITE

MATERIAL DESC. - SOIL FOUNDATION INVESTIGATION  SAMPLE - SOIL - 2020

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% PASSING

| 2 IN. | - | - |
| 1 1/2 IN. | - | - |
| 3/4 IN. | - | - |
| 3/8 IN. | - | - |
| NO. 4 | - | - |
| NO. 10 | 100 | 100 | 100 |
| NO. 40 | 99 | 99 | 99 |
| NO. 80 | 98 | 91 | 38 |
| NO. 200 | 88 | 77 | 4 |

LIQUID LIMIT | 47 | 32 | - |
PLASTICITY INDEX | 29 | 18 | - |
AASHTO SOIL | A-7-6(26) | A-6(12) | - |
UNIFIED SOIL | CL | CL | SW |

% MOISTURE CONTENT | - | - | - |


AASHTO TESTS: T24 T88 T89 T90 T265
**SOIL SURVEY / PAVEMENT SOUNDING TEST REPORT**

**DATE**  
02/11/20

**SEQUENCE NO.**  
5

**JOB NUMBER**  
110664

**MATERIAL CODE**  
20SF

**FEDERAL AID NO.**  
TO BE ASSIGNED

**SPEC. YEAR**  
2014

**PURPOSE**  
INFORMATION ONLY SAMPLE

**SUPPLIER ID.**  
1

**SPEC. REMARKS**  
NO SPECIFICATION CHECK

**COUNTY/STATE**  
48

**SUPPLIER NAME**  
STATE

**DISTRICT NO.**  
01

**NAME OF PROJECT**  
PRAIRIE CO. LINE - HWY 17 (S)

**PROJECT ENGINEER**  
NOT APPLICABLE

**PIT/QUARRY**  
ARKANSAS

**LOCATION**  
MONROE, COUNTY

**DATE SAMPLED**

**SAMPLED BY**  
T.HENDERSON

**DATE RECEIVED**  
01/29/20

**SAMPLE FROM**  
LM 3.382

**DATE TESTED**  
02/11/20

**MATERIAL DESC.**  
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**LIQUID LIMIT**  
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**PLASTICITY INDEX**  
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**UNIFIED SOIL**

**% MOISTURE CONTENT**

**REMARKS**

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REMARKS

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AASHTO TESTS: T24 T88 T89 T90 T265
**SOIL SURVEY / PAVEMENT SOUNDING TEST REPORT**

**DATE** - 02/13/20  
**SEQUENCE NO.** - 8  
**JOB NUMBER** - 110664  
**MATERIAL CODE** - 20SF  
**FEDERAL AID NO.** - TO BE ASSIGNED  
**SPEC. YEAR** - 2014  
**PURPOSE** - INFORMATION ONLY SAMPLE  
**SUPPLIER ID.** - 1  
**SPEC. REMARKS** - NO SPECIFICATION CHECK  
**COUNTY/STATE** - 48  
**SUPPLIER NAME** - STATE  
**DISTRICT NO.** - 01  
**NAME OF PROJECT** - PRAIRIE CO. LINE - HWY 17 (S)  
**DATE SAMPLED** -  
**PROJECT ENGINEER** - NOT APPLICABLE  
**DATE RECEIVED** - 02/06/20  
**LOCATION** - MONROE, COUNTY  
**DATE TESTED** - 02/12/20  
**SAMPLE FROM** - LM 0.168  
**MATERIAL DESC.** - SOIL FOUNDATION INVESTIGATION SAMPLE - SOIL - 2020  

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REMARKS - *6-20-4-21.9, *7=24.4-25.9

AASHTO TESTS : T24 T88 T89 T90 T265
**SOIL SURVEY / PAVEMENT SOUNDING TEST REPORT**

**DATE** - 02/14/20  
**JOB NUMBER** - 110664  
**FEDERAL AID NO.** - TO BE ASSIGNED  
**PURPOSE** - INFORMATION ONLY SAMPLE  
**SPEC. REMARKS** - NO SPECIFICATION CHECK  
**SUPPLIER NAME** - STATE  
**NAME OF PROJECT** - PRAIRIE CO. LINE - HWY 17 (S)  
**PROJECT ENGINEER** - NOT APPLICABLE  
**PIT/QUARRY** - ARKANSAS  
**LOCATION** - MONROE, COUNTY  
**SAMPLED BY** - TRACY HENDERSON  
**SAMPLE FROM** - LM 2.43 @ 11'LT, LM 2.56  
**DATE SAMPLED** - 02/14/20  
**DATE RECEIVED** - 02/12/20  
**DATE TESTED** - 02/14/20  
**MATERIAL DESC.** - SOIL FOUNDATION INVESTIGATION SAMPLE - SOIL - 2020

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| NO. 200    | 88        | -            | -       | -        | -             | -           | -          | -                   | -                    | -        |

| LIQUID LIMIT | 41         | 54          | 79      | -        | -             | -           | -          | -                   | -                    | -        |
| PLASTICITY INDEX | 23         | 30          | 67      | -        | -             | -           | -          | -                   | -                    | -        |
| AASHTO SOIL | A-7-6(20) | A-7-6(35)  | A-7-6(72) | -        | -             | -           | -          | -                   | -                    | -        |
| UNIFIED SOIL | CL        | CH          | CH     | -        | -             | -           | -          | -                   | -                    | -        |

**% MOISTURE CONTENT**

| - | - |

**REMARKS**

| - | - |

**AASHTO TESTS**: T24 T88 T89 T90 T265
ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT - LITTLE ROCK, ARKANSAS
MATERIALS DIVISION

MICHAEL BENSON, MATERIALS ENGINEER
*** SOIL SURVEY / PAVEMENT SOUNDING TEST REPORT ***

DATE - 02/14/20
JOB NUMBER - 110664
FEDERAL AID NO. - TO BE ASSIGNED
PURPOSE - INFORMATION ONLY SAMPLE
SPEC. REMARKS - NO SPECIFICATION CHECK
SUPPLIER NAME - STATE
NAME OF PROJECT - PRAIRIE CO. LINE - HWY 17 (S)
PROJECT ENGINEER - NOT APPLICABLE
PIT/QUARRY - ARKANSAS
LOCATION - MONROE, COUNTY
SAMPLED BY - T. HENDERSON
SAMPLE FROM - LM 2.43 @ 11'LT, 2.56

MATERIAL DESC. - SOIL FOUNDATION INVESTIGATION SAMPLE - SOIL - 2020

LAB NUMBER - 20200330 - 20200331 - 20200332
SAMPLE ID - SF28 - SF29 - SF30
TEST STATUS - INFORMATION ONLY - INFORMATION ONLY - INFORMATION ONLY
STATION - LM 2.43 - LM 2.43 - LM 2.56
LOCATION - BORING #2 - BORING #2 - BORING #3
DEPTH IN FEET - *1. - *2 - 4.2-6.2
MAT'L COLOR - GRAY - BROWN - BROWN
MAT'L TYPE - - -
LATITUDE DEG-MIN-SEC - - -
LONGITUDE DEG-MIN-SEC - - -

% PASSING
2 IN. - - -
1 1/2 IN. - - -
3/4 IN. - - 100
3/8 IN. - - 96
NO. 4 - - 95
NO. 10 - - 94
NO. 40 - - 92
NO. 80 - - 90
NO. 200 - - 89

LIQUID LIMIT - 68 - 65 - 42
PLASTICITY INDEX - 48 - 47 - 26
AASHTO SOIL - A-7-6(53) - A-7-6(51) - A-7-6(24)
UNIFIED SOIL - CH - CH - CL

% MOISTURE CONTENT - - - - - - - - - - - - - - - - -

REMARKS - *1=14.70-016.7, *2=18.2 - 20.2

AASHTO TESTS: T24 T88 T89 T90 T265
DATE - 02/14/20
JOB NUMBER - 110664
FEDERAL AID NO.- TO BE ASSIGNED
PURPOSE - INFORMATION ONLY SAMPLE
SPEC. REMARKS - NO SPECIFICATION CHECK
SUPPLIER NAME - STATE
NAME OF PROJECT - PRAIRIE CO. LINE - HWY 17 (S)
PROJECT ENGINEER - NOT APPLICABLE
PIT/QUARRY - ARKANSAS
LOCATION - MONROE, COUNTY
SAMPLED BY - T. HENDERSON
SAMPLE FROM - LM 2.56
DATE SAMPLED - 01/27/20
DATE RECEIVED - 02/12/20
DATE TESTED - 02/14/20
MATERIAL DESC. - SOIL FOUNDATION INVESTIGATION SAMPLE - SOIL - 2020
LAB NUMBER - 20200333
SAMPLE ID - SF31
TEST STATUS - INFORMATION ONLY
STATION - LM 2.56
LOCATION - BORING #3
DEPTH IN FEET - 7.7-9.7
MAT' L COLOR - BROWN
MAT' L TYPE -
LATITUDE DEG-MIN-SEC -
LONGITUDE DEG-MIN-SEC -
% PASSING 2 IN. -
1 1/2 IN. -
3/4 IN. -
3/8 IN. -
NO. 4 -
NO. 10 -
NO. 40 -
NO. 80 -
NO. 200 -
LIQUID LIMIT - 53
PLASTICITY INDEX - 34
AASHTO SOIL - A-7-6(35)
UNIFIED SOIL - CH
% MOISTURE CONTENT -
- -
- -
- -
- -
- -
- -
- -
- -
- -
- -
REMARKS -
AASHTO TESTS : T24 T88 T89 T90 T265
<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Symbol</th>
<th>Soil Group</th>
<th>Plastic Limit</th>
<th>Liquid Limit</th>
<th>Dry Density (lbs per cu ft)</th>
<th>No. of Bore Points</th>
<th>TCR</th>
<th>RQD</th>
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<tr>
<td>5</td>
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<td>23</td>
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<td>18</td>
<td>27</td>
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<td>NP</td>
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<td>1-2</td>
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Boring Terminated

Remarks:
Arkansas Highway & Transportation Department
Unconsolidated Undrained Triaxial Test (ASTM D2850)

Mohr Circles

Stress-Strain Curve

<table>
<thead>
<tr>
<th>Before Test</th>
<th>Specimen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Content (%)</td>
<td>A</td>
</tr>
<tr>
<td>23.20</td>
<td>0.00</td>
</tr>
<tr>
<td>Dry Density (pcf)</td>
<td>110.85</td>
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<tr>
<td>Saturation (%)</td>
<td>93.06</td>
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<tr>
<td>Void Ratio</td>
<td>0.69</td>
</tr>
<tr>
<td>Diameter (in)</td>
<td>2.875</td>
</tr>
<tr>
<td>Height (in)</td>
<td>5.960</td>
</tr>
<tr>
<td>Liquid Limit</td>
<td></td>
</tr>
<tr>
<td>Plastic Limit</td>
<td></td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>2.750</td>
</tr>
<tr>
<td>After Test</td>
<td>A</td>
</tr>
<tr>
<td>Water Content (%)</td>
<td>13.17</td>
</tr>
<tr>
<td>Test Data</td>
<td>A</td>
</tr>
<tr>
<td>Strain Rate (in/min)</td>
<td>0.03</td>
</tr>
<tr>
<td>Peak Deviator Stress (psi)</td>
<td>19.048</td>
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<tr>
<td>Axial Strain @ Failure (%)</td>
<td>14.786</td>
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<tr>
<td>Cell Pressure</td>
<td></td>
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<tr>
<td>Cell (psi)</td>
<td>5.0</td>
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<tr>
<td>Back (psi)</td>
<td>n/a</td>
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<tr>
<td>Principle Stresses at Failure</td>
<td></td>
</tr>
<tr>
<td>$\sigma_1$ (psi)</td>
<td>24.0</td>
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<tr>
<td>$\sigma_3$ (psi)</td>
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Mohr-Coulomb Strength Parameters

<table>
<thead>
<tr>
<th>C (psi)</th>
<th>Friction Angle $\varnothing$</th>
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<tbody>
<tr>
<td>0.0</td>
<td>0.00</td>
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</tbody>
</table>

Sample Description

Clay 4.4-6.4

Project Information

Project Name:
Project Number: 110664
Location: Logmile 0.168, Lat: 34.8319, Long: -92.3743
Boring Number: 1
Sample Number: SF - 14

Remarks:
Arkansas Highway & Transportation Department

Unconsolidated Undrained Triaxial Test (ASTM D2850)

Mohr Circles

Stress-Strain Curve

<table>
<thead>
<tr>
<th>Water Content (%)</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
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<tbody>
<tr>
<td>20.70</td>
<td>0.00</td>
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<table>
<thead>
<tr>
<th>Dry Density (pcf)</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
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<tbody>
<tr>
<td>97.18</td>
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<table>
<thead>
<tr>
<th>Saturation (%)</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
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</thead>
<tbody>
<tr>
<td>78.10</td>
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<table>
<thead>
<tr>
<th>Void Ratio</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
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<tbody>
<tr>
<td>0.70</td>
<td>0.00</td>
<td>0.00</td>
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<td>0.00</td>
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<table>
<thead>
<tr>
<th>Diameter (in)</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
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<tbody>
<tr>
<td>2.875</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
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</table>

<table>
<thead>
<tr>
<th>Height (in)</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
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<tbody>
<tr>
<td>6.003</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
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<table>
<thead>
<tr>
<th>Liquid Limit</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
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</thead>
<tbody>
<tr>
<td>Plastic Limit</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
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<table>
<thead>
<tr>
<th>Specific Gravity</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
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<tbody>
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<td>2.650</td>
<td>0.000</td>
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<table>
<thead>
<tr>
<th>After Test Water Content (%)</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
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<tbody>
<tr>
<td>23.79</td>
<td>0.00</td>
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<td>0.00</td>
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<table>
<thead>
<tr>
<th>Test Data Strain Rate (in/min)</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.03</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Peak Deviator Stress (psi)</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>40.780</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
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</table>

<table>
<thead>
<tr>
<th>Axial Strain @ Failure (%)</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.017</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
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<table>
<thead>
<tr>
<th>Cell Pressure</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
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<tbody>
<tr>
<td>9.0</td>
<td>0.00</td>
<td>0.00</td>
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<table>
<thead>
<tr>
<th>Back (psi)</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
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<tr>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
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<table>
<thead>
<tr>
<th>Principle Stresses at Failure</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
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</thead>
<tbody>
<tr>
<td>$\sigma_1$ (psi)</td>
<td>49.8</td>
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<tr>
<td>$\sigma_3$ (psi)</td>
<td>9.0</td>
<td>0.0</td>
<td>0.0</td>
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<table>
<thead>
<tr>
<th>Mohr-Coulomb Strength Parameters</th>
<th>Sample Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>$C$ (psi)</td>
<td>Clay with Organic Matter (Roots)</td>
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<tr>
<td>Friction Angle $\theta$</td>
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Project Information

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<tr>
<th>Project Name:</th>
<th>Job Number:</th>
<th>110664</th>
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<tbody>
<tr>
<td>Project Number:</td>
<td>Boring Number:</td>
<td>I</td>
</tr>
<tr>
<td>Location: Logmile 0.168, 12' Left CL, Lat 34.8319, Long: -91.3743</td>
<td>Sample Number:</td>
<td></td>
</tr>
<tr>
<td>Client:</td>
<td>Remarks:</td>
<td></td>
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UU Triaxial Test - Results  Page 1 of 1  110664af16.HSD
Arkansas Highway & Transportation Department
Unconsolidated Undrained Triaxial Test (ASTM D2850)

Mohr Circles

Stress-Strain Curve

<table>
<thead>
<tr>
<th>Specimen</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
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</thead>
<tbody>
<tr>
<td>Water Content (%)</td>
<td>22.96</td>
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<tr>
<td>Dry Density (pcf)</td>
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<td>Saturation (%)</td>
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<td>Void Ratio</td>
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<tr>
<td>Height (in)</td>
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<td></td>
</tr>
<tr>
<td>Plastic Limit</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>2.750</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>After Test</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>Water Content (%)</td>
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<tr>
<td>Test Data</td>
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<td>B</td>
<td>C</td>
<td>D</td>
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<tr>
<td>Strain Rate (in/min)</td>
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<tr>
<td>Axial Strain @ Failure (%)</td>
<td>13.729</td>
<td>0.000</td>
<td>0.000</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Cell Pressure
| Cell (psi) | 12.0 | 0.0 | 0.0 | 0.0 |
| Back (psi) | n/a | n/a | n/a | n/a |

Principle Stresses at Failure
| σ1 (psi) | 35.3 | 0.0 | 0.0 | 0.0 |
| σ3 (psi) | 12.0 | 0.0 | 0.0 | 0.0 |

Mohr-Coulomb Strength Parameters
| C (psi) | 0.0 |
| Friction Angle θ | 0.00 |

Sample Description
| Clay 11.4-13.4 |

Project Information
| Project Name: |
| Project Number: |
| Location: LM 1.0168/12' Lt |
| Client: |
| Remarks: |

UU Triaxial Test - Results Page 1 of 1 110664sf18.HSD
## Mohr Circles

![Mohr Circles Graph](image)

## Stress-Strain Curve

![Stress-Strain Curve Graph](image)

### Before Test

<table>
<thead>
<tr>
<th>Specimen</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
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<td>0.00</td>
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<tr>
<td>Saturation (%)</td>
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<td>Diameter (in)</td>
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</tr>
<tr>
<td>Plastic Limit</td>
<td></td>
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<tr>
<td>Specific Gravity</td>
<td>2.700</td>
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### After Test

<table>
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<th>C</th>
<th>D</th>
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<tbody>
<tr>
<td>Water Content (%)</td>
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</tr>
<tr>
<td>Test Data</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strain Rate (in/min)</td>
<td>0.03</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Peak Deviator Stress (psi)</td>
<td>13.928</td>
<td>0.000</td>
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<tr>
<td>Axial Strain @ Failure (%)</td>
<td>9.770</td>
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### Cell Pressure

<table>
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<th>C</th>
<th>D</th>
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<tbody>
<tr>
<td>Cell (psi)</td>
<td>19.5</td>
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</tr>
<tr>
<td>Back (psi)</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
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</table>

### Principle Stresses at Failure

<table>
<thead>
<tr>
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<th>A</th>
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<th>C</th>
<th>D</th>
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</thead>
<tbody>
<tr>
<td>$\sigma_1$ (psi)</td>
<td>33.4</td>
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## Mohr-Coulomb Strength Parameters

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>C (psi)</td>
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<tr>
<td>Friction Angle $\varnothing$</td>
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## Sample Description

- Silty Clay 18.4 - 20.4

## Project Information

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<thead>
<tr>
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<tbody>
<tr>
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<td>Project Number:</td>
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<tr>
<td>Location:</td>
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<td>Job Number:</td>
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</tr>
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<td>Boring Number:</td>
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<td>Client:</td>
<td>Sample Number:</td>
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<td>Remarks:</td>
<td></td>
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<tr>
<td>Depth (Ft)</td>
<td>Samples</td>
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<td>---------</td>
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<tr>
<td>25</td>
<td>11</td>
</tr>
<tr>
<td>30</td>
<td>12</td>
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</table>

**REMARKS:**

- **Completion Depth:** 35.7
- **Hammer Correction Factor:** 1.37
- **Soil Group Symbols:**
  - CL: Clayey
  - CH: Clayey Heavy
  - CH: Clayey Heavy
  - CH: Clayey Heavy

**Description of Material:**

- Reddish Brown and Dark Brown Sand with Gravel
- Moist, Brown Lean Clay
- Moist, Very Stiff, Brown Clay with Trace Organic Matter
- Moist, Brown Fat Clay
- Moist, Stiff, Brown Clay with Trace Organic Matter
- Moist, Gray Fat Clay with Some Organic Matter
- Wet, Stiff, Gray Clay with Some Organic Matter
- Wet, Fat Gray Clay
- Wet, Gray Clay with Trace Organic
- Wet, Gray Fat Clay
- Wet, Stiff, Gray Clay with Sand
- Wet, Brown Clay with Sand and Trace Organic Matter
- Wet, Soft, Gray Clay with Sand

**Soil Group:**

- CL: Clayey
- CH: Clayey Heavy

**Plastic Limit:**

- 18
- 20
- 12
- 18

**Liquid Limit:**

- 29
- 27
- 34
- 28

**Dry Density (Lbs Per Cu. Ft.):**

- 41
- 54
- 79
- 65

**No. of Blows Per 6 In:**

- 5
- 8
- 3
- 3

**% T.C.R.**

- 8-11
- 3-7
- 3-7
- 4-6

**% R.Q.D:**

- 6-7
- 6-7
- 6-7
- 6-7

**Remarks:**

- Further details on soil properties and drilling conditions.
**JOB NO.:** 110664  
**MONROE COUNTY**

**JOB NAME:** Hwy 70 Subsidence investigation

**STATION:** LM 2.43  
**LOCATION:** 11' Left of Centerline

**LOGGED BY:** Connor Bunton

**DATE:** January 28, 2019  
**TYPE OF DRILLING:** Hollow Stem Auger - Shelby Tube

**EQUIPMENT:** CME 75  
**HAMMER CORRECTION FACTOR:** 1.37

**COMPLETION DEPTH:** 35.7

<table>
<thead>
<tr>
<th>FT.</th>
<th>SYMBOL</th>
<th>SAMPLER</th>
<th>DESCRIPTION OF MATERIAL</th>
<th>SOIL GROUP</th>
<th>PLASTIC LIMIT</th>
<th>% MOIST.</th>
<th>LIQUID LIMIT</th>
<th>DRY WEIGHT</th>
<th>LBS PER CU FT.</th>
<th>NO. OF BLOWS</th>
<th>PER 6-IN.</th>
<th>% TCR</th>
<th>% RQD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Wet, Loose, Gray Sand</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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</table>

**REMARKS:** Boring Terminated
Arkansas Highway & Transportation Department
Unconsolidated Undrained Triaxial Test (ASTM D2850)

Mohr Circles

Stress-Strain Curve

<table>
<thead>
<tr>
<th>Specimen</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Content (%)</td>
<td>34.04</td>
<td>0.00</td>
<td>0.00</td>
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<tr>
<td>Dry Density (pcf)</td>
<td>85.20</td>
<td>0.00</td>
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</tr>
<tr>
<td>Saturation (%)</td>
<td>92.24</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
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<tr>
<td>Void Ratio</td>
<td>1.01</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Diameter (in)</td>
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<td>0.000</td>
<td>0.000</td>
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</tr>
<tr>
<td>Height (in)</td>
<td>5.893</td>
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<td>0.000</td>
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<tr>
<td>Liquid Limit</td>
<td>Plastic Limit</td>
<td>Specific Gravity</td>
<td>2.750</td>
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<tr>
<td>Test Data</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>Strain Rate (in/min)</td>
<td>0.03</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
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<tr>
<td>Peak Deviator Stress (psi)</td>
<td>16.692</td>
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<tr>
<td>Axial Strain @ Failure (%)</td>
<td>13.442</td>
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<td>Cell Pressure</td>
<td>0.00</td>
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<td>Back (psi)</td>
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<td>n/a</td>
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<tr>
<td>Principle Stresses at Failure</td>
<td>σ1 (psi)</td>
<td>28.9</td>
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<tr>
<td>σ3 (psi)</td>
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</tbody>
</table>

Mohr-Coulomb Strength Parameters

| C (psi) | 0.0 |
| Friction Angle Ø | 0.00 |

Sample Description
Clay 11.2 - 13.2

Project Information

| Project Name: |  |
| Project Number: | 110664 |
| Location: | LM. 2.43, 11' LT CL |
| Client: |  |
| Remarks: |  |

UU Triaxial Test - Results  Page 1 of 1  110664s27.HSD
<table>
<thead>
<tr>
<th>Depth (FT)</th>
<th>Symbol</th>
<th>Samples</th>
<th>Surface Elevation:</th>
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<tr>
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</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td>Dark Brown Gravel with Sand</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td>Moist, Brown Lean Clay (CL) 16 27 42</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Moist, Medium Stiff, Brown Clay</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Moist, Brown Clay (CH) 19 27 53</td>
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<tr>
<td>15</td>
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<td>Moist, Medium Stiff, Brown Clay</td>
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<td></td>
<td></td>
<td></td>
<td>Moist, Brown Fat Clay (CH) 22 32 55</td>
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<td></td>
<td>Moist, Very Soft, Brown Clay (No Return)</td>
</tr>
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<td>Moist, Brown Fat Clay (CH) 23 27 55</td>
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<td>Moist, Very Stiff, Brown Clay</td>
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<tr>
<td>25</td>
<td></td>
<td></td>
<td>Moist, Stiff, Brown Clay with Trace Organic Matter*</td>
</tr>
<tr>
<td>30</td>
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<td></td>
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<tr>
<td>35</td>
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</table>

REMARKS: * Water was encountered at 33.1' below ground level.
### ARKANSAS DEPARTMENT OF TRANSPORTATION
**MATERIALS DIVISION - GEOTECHNICAL SEC.**

**JOB NO.:** 110664  **MONROE COUNTY**
**JOB NAME:** Hwy 70 Subsidence investigation
**STATION:** LM 2.56  **LOCATION:** 11' Left of Centerline
**LOGGED BY:** Austin Dillman

**COMPLETION DEPTH:** 40.4

<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>SAMPLES</th>
<th>DESCRIPTION OF MATERIAL</th>
<th>SOIL GROUP</th>
<th>PLASTIC LIMIT</th>
<th>% MOIST.</th>
<th>LIQUID LIMIT</th>
<th>DRY WEIGHT</th>
<th>LBS PER CU. FT.</th>
<th>NO. OF BLOWS PER 6-IN.</th>
<th>% TCR</th>
<th>% RQD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>Wet, Stiff, Brown Clay</td>
<td></td>
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<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Wet, Very Loose, Gray Sand</td>
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**SURFACE ELEVATION:**

**Boring Terminated**

**DATE:** January 27, 2020
**TYPE OF DRILLING:** Hollow Stem Auger - Shelby Tube
**EQUIPMENT:** CME 75
**HAMMER CORRECTION FACTOR:** 1.37

**REMARKS:** * Water was encountered at 33.1' below ground level.
Arkansas Highway & Transportation Department
Unconsolidated Undrained Triaxial Test (ASTM D2850)

Mohr Circles

Stress-Strain Curve

<table>
<thead>
<tr>
<th>Before Test</th>
<th>Specimen</th>
<th>Specimen</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
</tr>
<tr>
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<tr>
<td>Dry Density (pcf)</td>
<td>95.23</td>
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<tr>
<td>Saturation (%)</td>
<td>92.12</td>
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<tr>
<td>Void Ratio</td>
<td>0.80</td>
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</tr>
<tr>
<td>Diameter (in)</td>
<td>2.875</td>
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</tr>
<tr>
<td>Height (in)</td>
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<td>0.000</td>
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<tr>
<td>Liquid Limit</td>
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<tr>
<td>Plastic Limit</td>
<td></td>
<td></td>
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<tr>
<td>Specific Gravity</td>
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<td>A</td>
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<td>After Test</td>
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<tr>
<td>Water Content (%)</td>
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<tr>
<td>Test Data</td>
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<td>B</td>
</tr>
<tr>
<td>Strain Rate (in/min)</td>
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<tr>
<td>Peak Deviator Stress (psi)</td>
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<td>Axial Strain @ Failure (%)</td>
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<td>Cell Pressure</td>
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<td>Cell (psi)</td>
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<tr>
<td>Back (psi)</td>
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<tr>
<td>Principle Stresses at Failure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>σ1 (psi)</td>
<td>22.4</td>
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<tr>
<td>σ3 (psi)</td>
<td>5.2</td>
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</tbody>
</table>

Mohr-Coulomb Strength Parameters
- C (psi): 0.0
- Friction Angle θ: 0.00

Sample Description: Brown Clay 4.2 - 6.2

Project Information
- Project Name:
- Project Number: 110664
- Job Number: 110664
- Location:
- Boring Number: 3
- Client: Sample Number: S130
- Remarks:
Arkansas Highway & Transportation Department

Unconsolidated Undrained Triaxial Test (ASTM D2850)

Mohr Circles

Stress-Strain Curve

<table>
<thead>
<tr>
<th>Specimen</th>
<th>Before Test</th>
<th>Specimen B</th>
<th>Specimen C</th>
<th>Specimen D</th>
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<tbody>
<tr>
<td>Water Content (%)</td>
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<td>Dry Density (pcf)</td>
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<td>Saturation (%)</td>
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<tr>
<td>Void Ratio</td>
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<td>Diameter (in)</td>
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<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Height (in)</td>
<td>6.007</td>
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<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Liquid Limit</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Plastic Limit</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Specific Gravity</td>
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<td></td>
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</tr>
<tr>
<td>After Test</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Water Content (%)</td>
<td>28.82</td>
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<td>0.00</td>
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<tr>
<td>Test Data</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>Strain Rate (in/min)</td>
<td>0.03</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Peak Deviator Stress (psi)</td>
<td>14.327</td>
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</tr>
<tr>
<td>Axial Strain @ Failure (%)</td>
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</tr>
<tr>
<td>Cell Pressure</td>
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<td></td>
</tr>
<tr>
<td>Cell (psi)</td>
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<tr>
<td>Back (psi)</td>
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<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>

**Principle Stresses at Failure**

- σ1 (psi) | 23.0 | 0.0 | 0.0 | 0.0 |
- σ3 (psi) | 8.7 | 0.0 | 0.0 | 0.0 |

**Mohr-Coulomb Strength Parameters**

| C (psi) | 0.0 | Brown Clay 7.7 - 9.7 |
| Friction Angle θ | 0.00 |

**Project Information**

- Project Name: 
- Project Number: 110664
- Location: 
- Boring Number: 3
- Client: 
- Sample Number: 1
- Remarks: 

UU Triaxial Test - Results
Arkansas Highway & Transportation Department
Unconsolidated Undrained Triaxial Test (ASTM D2850)

Mohr Circles

<table>
<thead>
<tr>
<th>Normal Stress (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.000</td>
</tr>
<tr>
<td>10.000</td>
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<tr>
<td>20.000</td>
</tr>
<tr>
<td>30.000</td>
</tr>
<tr>
<td>40.000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Shear Stress (psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.000</td>
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<tr>
<td>10.000</td>
</tr>
<tr>
<td>20.000</td>
</tr>
<tr>
<td>30.000</td>
</tr>
<tr>
<td>40.000</td>
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Stress-Strain Curve

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<th>10.505</th>
<th>15.758</th>
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<tbody>
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Before Test

<table>
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<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
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</thead>
<tbody>
<tr>
<td>Dry Density (pcf)</td>
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</tr>
<tr>
<td>Void Ratio</td>
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<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Diameter (in)</td>
<td>2.875</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Height (in)</td>
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<td>0.00</td>
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Specimen

<table>
<thead>
<tr>
<th>Liquid Limit</th>
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<tr>
<td></td>
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<tr>
<td>Plastic Limit</td>
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<tr>
<td></td>
</tr>
<tr>
<td>Specific Gravity</td>
</tr>
<tr>
<td>After Test</td>
</tr>
<tr>
<td>Water Content (%)</td>
</tr>
<tr>
<td>Test Data</td>
</tr>
<tr>
<td>Strain Rate (in/min)</td>
</tr>
<tr>
<td>Peak Deviator Stress (psi)</td>
</tr>
<tr>
<td>Axial Strain @ Failure (%)</td>
</tr>
</tbody>
</table>

Cell Pressure

| Cell (psi) | 15.7 | 0.0  | 0.0  | 0.0  |
| Back (psi) | n/a  | n/a  | n/a  | n/a  |

<table>
<thead>
<tr>
<th>Principle Stresses at Failure</th>
</tr>
</thead>
<tbody>
<tr>
<td>σ1 (psi)</td>
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<tr>
<td>σ3 (psi)</td>
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Mohr-Coulomb Strength Parameters

<table>
<thead>
<tr>
<th>C (psi)</th>
<th>Friction Angle Ø</th>
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<tbody>
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Sample Description

Gray Clay 14.7 - 16.7

Project Information

<table>
<thead>
<tr>
<th>Project Name:</th>
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<tr>
<td>Location:</td>
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<td>Client:</td>
<td>Sample Number: ST 33</td>
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UU Triaxial Test - Results

Page 1 of 1

110664sf33.HSD
<table>
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<tr>
<th>Depth (FT)</th>
<th>Symbol</th>
<th>Samples</th>
<th>Description of Material</th>
<th>Soil Group</th>
<th>Plastic Limit</th>
<th>Moist Limit</th>
<th>Liquid Limit</th>
<th>Dry Weight</th>
<th>Lbs Per Cu.Ft.</th>
<th>No. of B/4.5 in.</th>
<th>% TC</th>
<th>% RQD</th>
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<tbody>
<tr>
<td>5</td>
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<td>Moist, Dark Brown Sand with Gravel</td>
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</tr>
<tr>
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<td></td>
<td>Moist, Gray Lean Clay with Sand</td>
<td>CL</td>
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<td>24</td>
<td>33</td>
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<tr>
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<td></td>
<td>Moist, Medium Stiff, Gray Fat Clay</td>
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<td>17</td>
<td>55</td>
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<td></td>
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<tr>
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<td>Moist, Lean Clay with Some Organic Matter</td>
<td>CL</td>
<td>16</td>
<td>20</td>
<td>47</td>
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<td>10</td>
<td></td>
<td>Moist, Stiff, Brown Lean Clay with Sand</td>
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<td></td>
<td>Moist, Clayey Sand</td>
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<td>13</td>
<td>26</td>
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<td>Moist, Gray Lean Clay</td>
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<td></td>
<td>Moist, Medium Stiff, Gray Lean Clay</td>
<td>CL</td>
<td>17</td>
<td>44</td>
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<tr>
<td>15</td>
<td></td>
<td>Moist, Gray Lean Clay with Sand and Some Organic Matter</td>
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<td>25</td>
<td>32</td>
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<td>CL</td>
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<td>25</td>
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<tr>
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<td></td>
<td>Moist, Very Stiff, Brown Lean Clay*</td>
<td>CL</td>
<td>18</td>
<td>47</td>
<td></td>
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<tr>
<td>20</td>
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<td>Moist, Gray Fat Clay</td>
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<td>19</td>
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<td>Moist, Stiff, Gray Lean Clay with Sand</td>
<td>CL</td>
<td>14</td>
<td>32</td>
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<td>30</td>
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<td>Wet, Loose, Gray Well Graded Sand</td>
<td>SW</td>
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<td></td>
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<tr>
<td>35</td>
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<td></td>
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</tbody>
</table>

Remarks: * Water encountered at 24.2' below ground level.
Arkansas Highway & Transportation Department
Unconsolidated Undrained Triaxial Test (ASTM D2850)

Mohr Circles

![Mohr Circle Graph]

Stress-Strain Curve

![Stress-Strain Curve Graph]

<table>
<thead>
<tr>
<th>Before Test</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
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<tbody>
<tr>
<td>Water Content (%)</td>
<td>23.96</td>
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<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Dry Density (pcf)</td>
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<tr>
<td>Saturation (%)</td>
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<tr>
<td>Void Ratio</td>
<td>0.73</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Diameter (in)</td>
<td>2.875</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
</tr>
<tr>
<td>Height (in)</td>
<td>6.133</td>
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<td>0.0000</td>
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</tr>
<tr>
<td>Liquid Limit</td>
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<td></td>
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<tr>
<td>Plastic Limit</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Specific Gravity</td>
<td>2.750</td>
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</table>

<table>
<thead>
<tr>
<th>After Test</th>
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<th>B</th>
<th>C</th>
<th>D</th>
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<tbody>
<tr>
<td>Water Content (%)</td>
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<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>Strain Rate (in/min)</td>
<td>0.03</td>
<td>0.00</td>
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<tr>
<td>Peak Deviator Stress (psi)</td>
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</tr>
<tr>
<td>Axial Strain @ Failure (%)</td>
<td>15.023</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Cell Pressure

| Cell (psi) | 5.0 | 0.0 | 0.0 | 0.0 |
| Back (psi) | n/a | n/a | n/a | n/a |

<table>
<thead>
<tr>
<th>Principle Stresses at Failure</th>
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</thead>
<tbody>
<tr>
<td>( \sigma_1 ) (psi)</td>
</tr>
<tr>
<td>( \sigma_3 ) (psi)</td>
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</tbody>
</table>

Mohr-Coulomb Strength Parameters

| C (psi) | 0.0 |
| Friction Angle \( \phi \) | 0.00 |

Sample Description

| Clay 4.6 - 6.6 |

Project Information

| Project Name: |
| Job Number: 110664 |
| Location: 1.M 3.382, 11.5 feet left |
| Boring Number: 4 |
| Client: |
| Sample Number: 1 |

Remarks:
Arkansas Highway & Transportation Department
Unconsolidated Undrained Triaxial Test (ASTM D2850)

Mohr Circles

Stress-Strain Curve

<table>
<thead>
<tr>
<th>Before Test</th>
<th>Specimen</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
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<tbody>
<tr>
<td>Water Content (%)</td>
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<td>17.53</td>
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<td>Height (in)</td>
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<td>Liquid Limit</td>
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<tr>
<td>Plastic Limit</td>
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<td></td>
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<tr>
<td>Specific Gravity</td>
<td></td>
<td>2.750</td>
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<td>After Test</td>
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<tr>
<td>Water Content (%)</td>
<td></td>
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<td>Strain Data</td>
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<tr>
<td>Strain Rate (in/min)</td>
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<tr>
<td>Peak Deviator Stress (psi)</td>
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<td>Cell Pressure</td>
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</tr>
<tr>
<td>Back (psi)</td>
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<tr>
<td>Principle Stresses at Failure</td>
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<tr>
<td>Σ1 (psi)</td>
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<td>Σ3 (psi)</td>
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<td>5.0</td>
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Mohr-Coulomb Strength Parameters

Clay 12.9-13.4.6

Project Information

Project Name:
Project Number:
Location: LM 3.382/11.5 Lt
Client:
Remarks:

Tested By: 
Checked By: 
Date:

UU Triaxial Test - Results
Page 1 of 1

110664sf4 HSD
Mohr Circles

Stress-Strain Curve

Before Test | Specimen A | Specimen B | Specimen C | Specimen D
---|---|---|---|---
Water Content (%) | 24.90 | 0.00 | 0.00 | 0.00
Dry Density (pcf) | 99.06 | 0.00 | 0.00 | 0.00
Saturation (%) | 93.41 | 0.00 | 0.00 | 0.00
Void Ratio | 0.73 | 0.00 | 0.00 | 0.00
Diameter (in) | 2.875 | 0.000 | 0.000 | 0.000
Height (in) | 6.040 | 0.000 | 0.000 | 0.000
Liquid Limit | 2.750 | 0.000 | 0.000 | 0.000
Plastic Limit | 2.750 | 0.000 | 0.000 | 0.000
Specific Gravity | 2.750 | 0.000 | 0.000 | 0.000
After Test | A | B | C | D
---|---|---|---|---
Water Content (%) | 23.07 | 0.00 | 0.00 | 0.00
Test Data | A | B | C | D
---|---|---|---|---
Strain Rate (in/min) | 0.03 | 0.00 | 0.00 | 0.00
Peak Deviator Stress (psi) | 3.342 | 0.000 | 0.000 | 0.000
Axial Strain @ Failure (%) | 15.005 | 0.000 | 0.000 | 0.000
Cell Pressure | 16.0 | 0.0 | 0.0 | 0.0
Back (psi) | n/a | n/a | n/a | n/a

Principle Stresses at Failure

| σ1 (psi) | 19.3 | 0.0 | 0.0 | 0.0
| σ3 (psi) | 16.0 | 0.0 | 0.0 | 0.0

Mohr-Coulomb Strength Parameters

| C (psi) | 0.0 | Clay 15.1-17.1 |
| Friction Angle | 0.00 |

Project Information

| Project Name: | Job Number: | 110664 |
| Location: | LM 3.382 | Boring Number: | 4 |
| Client: | Sample Number: | 7 |

Remarks:

UU Triaxial Test - Results
Mohr Circles

Stress-Strain Curve

<table>
<thead>
<tr>
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<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
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</tr>
<tr>
<td>Void Ratio</td>
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<td>0.00</td>
</tr>
<tr>
<td>Diameter (in)</td>
<td>2.875</td>
<td>0.000</td>
<td>0.000</td>
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</tr>
<tr>
<td>Height (in)</td>
<td>6.067</td>
<td>0.000</td>
<td>0.000</td>
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<td>Liquid Limit</td>
<td>Plastic Limit</td>
<td>Specific Gravity</td>
<td>2.750</td>
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<tr>
<td>After Test</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
</tr>
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<td>Water Content (%)</td>
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<td>Test Data</td>
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<td>B</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>Strain Rate (in/min)</td>
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<tr>
<td>Peak Deviator Stress (psi)</td>
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<td>Axial Strain @ Failure (%)</td>
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Cell Pressure

<table>
<thead>
<tr>
<th></th>
<th>Cell (psi)</th>
<th>Back (psi)</th>
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</thead>
<tbody>
<tr>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>

Principle Stresses at Failure

| Σ1 (psi) | 33.3 | 0.0 | 0.0 | 0.0 |
| Σ3 (psi) | 20.0 | 0.0 | 0.0 | 0.0 |

Mohr-Coulomb Strength Parameters

| C (psi) | 0.0 |
| Friction Angle Ø | 0.00 |

Sample Description

Depth 18.6 - 20.6

Project Information

Project Name: 110664
Job Number: 110664
Location: LM 3.382/11.5 Lt
Boring Number: 4
Client: Sample Number: 9
Remarks:
APPENDIX C

CROSS SECTIONS WITH PAVEMENT AND SUBSURFACE DATA
B1 L.M. 0.168
12' Lt. of CL
6.4-7.9, N=19
9.9-11.4, N=16
13.4-14.9, N=13
16.9-18.4, N=6
20.4-21.9, N=6
24.4-25.9, N=3

A1-Sand w/ Gravel
B1-Clay
C1-Sandy Clay
D1-Clayey Sand
E1-Sand
H1-Gravel
B3 L.M. 2.56
11' Lt. of CL
6.2-7.7, N=7
9.7-11.2, N=8
13.2-14.7, N=10
16.7-18.2, N=16
20.2-21.7, N=13
23.9-25.4, N=12
28.9-30.4, N=9
33.9-35.4, N=10
38.9-40.4, N=3

A1-Sand w/ Gravel
B1-Clay
C1-Sandy Clay
D1-Clayey Sand
E1-Sand
H1-Gravel

CROSS SECTION L.M. 2.56
B2 L.M. 2.43
11' Lt. of CL
6.2-7.7, N=19
9.7-11.2, N=10
13.2-14.7, N=10
16.7-18.2, N=10
20.2-21.7, N=13
24.2-25.7, N=12
29.2-30.7, N=3
34.2-35.7, N=5
A1-Sand w/ Gravel
B1-Clay
C1-Sandy Clay
D1-Clayey Sand
E1-Sand
H1-Gravel
B4 L.M. 3.36
11.5' Lt. of CL
6.6-8.1, N=8
10.6-11.6, N=12
13.6-15.1, N=7
17.1-18.6, N=7
20.6-22.1, N=18
24.6-26.1, N=12
29.6-31.1, N=7

A1-Sand w/ Gravel
B1-Clay
C1-Sandy Clay
D1-Clayey Sand
E1-Sand
H1-Gravel

ASPHALT 26.25°
CONCRETE 8.5°

3' SHELF

GRANITE 5.7'

6" LANE 6" LANE

205
200
195
190
185
180
175
170
165
160
155
150

-90 -80 -70 -60 -50 -40 -30 -20 -10 0 10 20 30 40 50 60 70 80 90
NORTH

LM. 3.36

150
160
170
180
190
200
210

SOUTH

CROSS SECTION L.M. 3.36