
USE OF ACCELERATED FLOWABLE FILL IN PAVEMENT SECTION

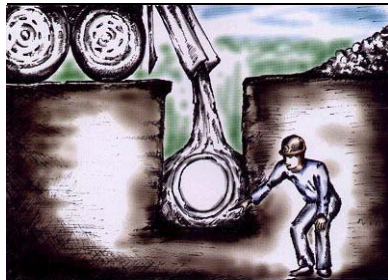
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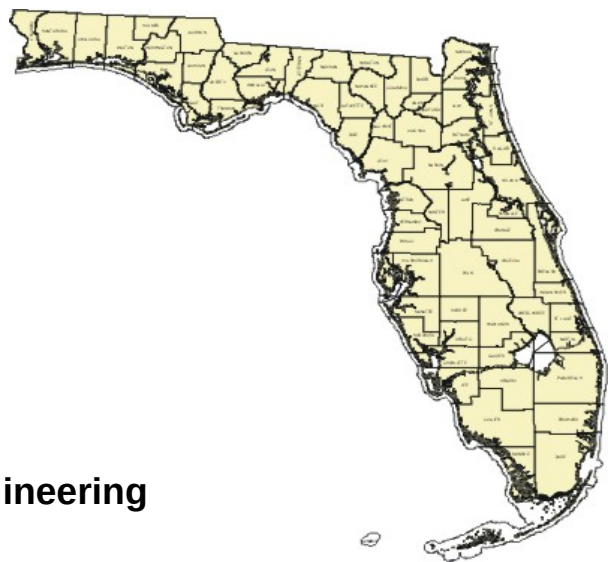
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“The opinions, findings and conclusions expressed in this publication are those of the authors and not necessarily those of the Florida Department of Transportation or the U.S. Department of Transportation.

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CONTENT

This report consists of two volumes. Volume 1 presents a background on flowable fill, objectives of the study, a literature review, trial testing prior to the start of research, development of a laboratory procedure for testing flowable fill, information on materials, laboratory design mixes, response summary for flowable fill questionnaire, laboratory results and discussions, accelerated strength testing, statistical analysis, and finally, the conclusions and recommendations. Volume 2 contains the appendices of the report.

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16. Abstract Flowable fill is a relatively new technology whose use has grown over the years. It describes a fill technology that is used in place of compacted backfill. Flowable fill is an answer for fill that allows a fast return to traffic, will not settle, does not require vibration or other means of compaction, can be excavated, is fast placing, and safer than other forms of fill. The objective of this research was to evaluate flowable fill in the pavement section using accelerated and non-accelerated mixtures. The evaluation included determination of strength, set time, and flow applicable to conditions in Florida. The unit weight, air content, and compressive strength were analyzed to establish the conformity of the contractor-provided mixes and those produced in the lab to the FDOT specifications. Further, a relationship was established between the LBR and penetrometer readings for different mix designs to help measure the strength of the underlying mix in the field. Unit weights of the mixes depicted substantial variability among different mix designs as well as among different districts within the same mix design. However, a majority of the readings did not comply with the FDOT specifications. Similar conclusions were drawn for the air content of different mixes. However, it may be noticed that air content for a majority of the districts was within the FDOT specified range for both excavatable, as well as non-excavatable design mixes. The compressive strength was above the FDOT specified range for excavatable mixes, except for Districts 2 and 5. For the non-excavatable mixes, the compressive strength did comply with the FDOT specifications but its value may be considered too high. The relationship between LBR readings and penetrometer readings was established and the models were checked for adequacy. After removing the unusual observations, pertinent regression equations relating LBR to the penetrometer data were obtained. It is recommended that more data be collected for all design mixes in a controlled environment. It is recommended that FDOT districts be provided with target values for different mixes to improve consistency. It is also recommended that the equations relating the LBR readings with those obtained from the penetrometer be validated by employing field data for strength of the underlying mixes.			
17. Key Words Flowable Fill, Controlled Low Strength Material, Backfill, Compressive Strength, Fast Return to Traffic, Accelerated and Non-accelerated Mixture, Unit Weight, Air Content, LBR, Penetrometer, Pogo Stick.		18. Distribution Statement No restrictions. This document is available to the public through the National Technical Information service, Springfield, VA, 22161.	
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SI* (MODERN METRIC) CONVERSION FACTORS

APPROXIMATE CONVERSIONS TO SI UNITS					APPROXIMATE CONVERSIONS FROM SI UNITS				
Symbol	When You Know	Multiply By	To Find	Symbol	Symbol	When You Know	Multiply By	To Find	Symbol
LENGTH					LENGTH				
in	inches	25.4	millimeters	mm	mm	millimeters	0.039	inches	in
ft	feet	0.305	meters	m	m	meters	3.28	feet	ft
yd	yards	0.914	meters	m	m	meters	1.09	yards	yd
mi	miles	1.61	kilometers	km	km	kilometers	0.621	miles	mi
AREA					AREA				
in ²	square inches	645.2	square millimeters	mm ²	mm ²	square millimeters	0.0016	square inches	in ²
ft ²	square feet	0.093	square meters	m ²	m ²	square meters	10.764	square feet	ft ²
yd ²	square yards	0.836	square meters	m ²	m ²	square meters	1.195	square yards	yd ²
ac	acres	0.405	hectares	ha	ha	hectares	2.47	acres	ac
mi ²	square miles	2.59	square kilometers	km ²	km ²	square kilometers	0.386	square miles	mi ²
VOLUME					VOLUME				
fl oz	fluid ounces	29.57	milliliters	mL	mL	milliliters	0.034	fluid ounces	fl oz
gal	gallons	3.785	liters	L	L	liters	0.264	gallons	gal
ft ³	cubic feet	0.028	cubic meters	m ³	m ³	cubic meters	35.71	cubic feet	ft ³
yd ³	cubic yards	0.765	cubic meters	m ³	m ³	cubic meters	1.307	cubic yards	yd ³
NOTE: Volumes greater than 1000L shall be shown in m ³ .									
MASS					MASS				
oz	ounces	28.35	grams	g	G	grams	0.035	ounces	oz
lb	pounds	0.454	kilograms	kg	kg	kilograms	2.202	pounds	lb
T	short tons (2000 lb)	0.907	megagrams (or "metric ton")	Mg (or "t")	Mg	megagrams (or "metric ton")	1.103	short tons (2000 lb)	T
TEMPERATURE (exact)					TEMPERATURE (exact)				
°F	Fahrenheit temperature	5(F-32)/9 or (F-32)/1.8	Celsius temperature	°C	°C	Celsius temperature	1.8C + 32	Fahrenheit temperature	°F
ILLUMINATION					ILLUMINATION				
Fc	foot-candles	10.76	lux	lx	lx	lux	0.0929	foot-candles	fc
Fl	foot-Lamberts	3.426	candela/m ²	cd/m ²	fl	candela/m ²	0.2919	foot-Lamberts	fl
FORCE and PRESSURE or STRESS					FORCE and PRESSURE or STRESS				
lbf	poundforce	4.45	newtons	N	N	newtons	0.225	poundforce	lbf
lbf/in ²	poundforce per square inch	6.89	kilopascals	kPa	kPa	kilopascals	0.145	poundforce per square inch	lbf/in ²

* SI is the symbol for the International System of Units. Appropriate rounding should be made to comply with Section 4 of ASTM E380

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APPENDIX A – QUESTIONNAIRE

Part “A” questionnaire is one-page of inquiries concerning flowable fill prepared along with a brief introductory note asking various county, city and Florida Department of Transportation (FDOT) officials to respond.

Part “B” questionnaire is one page of five questions prepared along with a brief introductory note asking the maintenance and yard engineers of the seven FDOT districts to respond.

Dear Sir/ Madam,

We are conducting research on flowable fill verifying the existing test methods (e.g. compressive strength). This project is sponsored by the Florida Department of Transportation. Your inputs on the following questions are highly appreciated that will be very useful for us in this ongoing research.

1) Please list the applications for which your agency is currently using the Flowable fill?

2) What is the total estimated volume of Flowable fill used by your agency per year?

3) For how many years Flowable fill has been used in your agency's projects? _____

4) What in your opinion are the advantages and disadvantages of using Flowable fill?

Advantages: _____

Disadvantages: _____

5) What is the nature of problems that you have encountered with the use of Flowable fill in different applications at the time of use? _____

6) Which Florida District's Specs for Flowable fill mix design are used by your agency? _____

7) What field test methods are currently used to ensure Flowable fill quality control on short and long terms basis? _____

8) What criterion is used by your agency to ensure that Flowable fill will be able to excavate at later stages? _____

9) List any environmental issues or durability problems that your agency encountered using Flowable fill.

10) Comments or suggestions: _____

=====

Please provide the following information:

Name: _____ Title: _____

Address: _____

Telephone: _____ Fax: _____ E-mail: _____

Figure A.1 Part "A" – One-page Questionnaire on Flowable Fill Sent to County, City and FDOT Officials

Dear Sir or Madam:

We are conducting research on flowable fill verifying the existing test method (e.g., compressive strength). This project is sponsored by the Florida Department of Transportation. Your answer to the attached five simple questions are highly appreciated. I need your answers as soon as you can. Thank you for your kind cooperation and your valuable inputs to this research work.

1) Have you used Flowable Fill to back fill a trench out in the pavement?

2) How high did you bring the Flowable Fill?

- a) Top of Embank _____
- b) Top of Sub grade _____
- c) Top of Base _____

3) How wide was the trench?

4) Was it longitudinal or transverse to the pavement?

5) How did it perform?

Best Regards,

Sincerely,

Please e-mail your answer to:

fnaja@ce.ufl.edu

Fazil Najafi Ph.D.
Professor
University of Florida
P.O. Box 116580
Gainesville, FL 32611
(o) 352-392-9537 x1493
(f) 352-392-3394

Figure A.2 Part “B” – One Page of Five Questions to Personnel of Seven FDOT Districts

Table A.1 District 1 FDOT Personnel Responses to Part “B”

Question	Responses
Question-1 Have you used Flow able Fill to back fill a trench out in the pavement?	1)Yes
	2)We used it many times in permitting to expedite opening the roadway to traffic
	3)Yes
	4)Yes. This was usually done because of either time constraints (wanted to speed construction because of MOT constraints) or construction restraints (The trench was deep and it would have been prohibitive to try to get compaction equipment into the trench).
	5)Yes
	6)Yes
	7)I have used Flowable Fill on one of the projects (milling and resurfacing) to back fill a trench
Question-2 How high did you bring the Flow able Fill?	1)Top of Sub grade
	2)Per_Specs and Cant be used for Base
	3)Top of Sub-grade
	4)Top of Sub-grade
	5)Top of Sub-grade
	6)Top of Base with 3' asphalt patch
	7)Top of Base (asphalt)
Question-3 How wide was the trench?	1)Couple of feet to lane width-12 feet
	2)20 feet wide and 4 feet deep approx
	3)4 feet
	4)4 feet to 8 feet
	5)Varied, these were of pipes crossing 5-12 feet
	6)4' –6'
	7) 6 feet trench
Question-4 Was it longitudinal or transverse to the pavement?	1)Many locations were rectangular in shape due to use is repair of failed utility installations. Longitudinal applications have not been used. This permits section of the old maintenance unit had received guidance to refrain from using flowable fill in longitudinal trenches because of the potential for interfering with movement of water in the subgrade to the outside of the road bed

Table A.1 continued

Question-4 Was it longitudinal or transverse to the pavement?	2)Mostly transverse and couple of times longitudinally	
	3)Transverse	
	4)Transverse in all cases, I am aware of	
	5)Transverse	
	6)Transverse	
	7) Longitudinal	
Questions-5 How did it perform?	1)Flowable fill has been used in the polk county area on state roads for several years with very acceptable results	
	2)Great	
	3)Don't quite know but this has been done in several locations without failure to my knowledge	
	4)Performance has been very good to date (If I am remembering correctly it has been under traffic for 1 to 2 years; this was on US 92 in Volusia county /D-5). If it were cheaper you do see a lot getting placed around the state	
	5)On some of the pipe crossings, the road settled. The CEI folks determined that flowable fill shrank	
	6)Very Well. This was persormed at the contractors option to minimize impacts to traveling public. ½” steel plated were utilized over the trench until the flowable fill had cured	
	7)It worked very well and the reason we brought it up to top of asphalt was first it was milling and resurfacing project which would mill any excess material and second because of shrinkage. Care needs to be taken for bicycle riders if the fill shrink and leave a drop off (lower than asphalt) in the trench	

Table A.2 District 2 FDOT Personnel Responses to Part “B”

Question	Responses
Question-1 Have you used Flow able Fill to back fill a trench out in the pavement?	1)Yes, We use it on the majority of our flexible pavement utility open cuts and for emergency road repairs
	2)Yes numerous occasions on cave-ins (Drainage problems) and utility installations via permit
Question-2 How high did you bring the Flow able Fill?	1)Top of the base
	2)Tob of subgrade and also Top of Base
Question-3 How wide was the trench?	1) For utility work it is typically 4’X6’ wide. For emergency roadway repairs it has been as large as 12' X 12'
	2) Varied 2’ to 12’ some times wider if a bore / utility failed
Question-4 Was it longitudinal or transverse to the pavement?	1) Both Cases
	2) Varied
Questions-5 How did it perform?	1) It performed extremely well
	2) If underlaying problem was solved, it functioned well

Table A.3 District 4 FDOT Personnel Responses to Part “B”

Question	Responses
Question-1 Have you used Flow able Fill to back fill a trench out in the pavement?	1)Yes
Question-2 How high did you bring the Flow able Fill?	1)Top of the Base
Question-3 How wide was the trench?	1)5'
Question-4 Was it longitudinal or transverse to the pavement?	1)Transverse
Questions-5 How did it perform?	1)Well but over time it did not settle as the surrounding areas did. Also some of the flowable mix is as hard to excavate as class I concrete

Table A.4 District 5 FDOT Personnel Responses to Part “B”

Question	Responses
Question-1 Have you used Flow able Fill to back fill a trench out in the pavement?	1)Yes and we have also specified it in our maintenance contracts
Question-2 How high did you bring the Flow able Fill?	1)Top of the Subgrade, This seems to work best , some times the flowable fill settles and we then use a thicker base layer. Some contractors decide to use a black base instead of limerock for a speedy completion
Question-3 How wide was the trench?	1)Varies, A small trench say 3 feet to larger trenches for pipe failures about 40 foot wide
Question-4 Was it longitudinal or transverse to the pavement?	1)We have used it both even at trenches that angled across the road
Questions-5 How did it perform?	1)Good, No obvious signs of settlement also use for our bridge approach slab voids.

Table A.5 District 6 FDOT Personnel Responses to Part “B”

Question	Responses
Question-1 Have you used Flow able Fill to back fill a trench out in the pavement?	1)Yes
Question-2 How high did you bring the Flow able Fill?	1)Top of Embank / Top of Base
Question-3 How wide was the trench?	1)Varied from 5’ to 12’
Question-4 Was it longitudinal or transverse to the pavement?	1)Transverse
Questions-5 How did it perform?	1)Very good so far

Table A.6 District 7 FDOT Personnel Responses to “Part B”

Question	Responses
Question-1 Have you used Flow able Fill to back fill a trench out in the pavement?	1)Yes
Question-2 How high did you bring the Flow able Fill?	
Question-3 How wide was the trench?	1) 6 feet
Question-4 Was it longitudinal or transverse to the pavement?	1) Longitudinal
Questions-5 How did it perform?	1)Perform well

APPENDIX B – CHEMICAL AND PHYSICAL TESTS ON CEMENT

This appendix includes the chemical and physical analyses of test results conducted on type I Portland cement by the FDOT State Materials office. The cement was provided by the Lafarge Company, Rinker, Tarmac and Uniland groups and was used in the laboratory mix.



FORM 691-15A
REVISED 10/07/99

STATE OF FLORIDA DEPARTMENT OF
TRANSPORTATION
STATE MATERIALS OFFICE
2006 N.E. WALDO ROAD
GAINESVILLE, FL 32609
(352) 337-3115

TESTS OF PORTLAND CEMENT

PROJECT NO.:	99902-5000	LINE ITEM NO.:	---	CEMENT TYPE:	I
MATERIAL NO.:	465F	SAMPLE NO.:	1	DATE SAMPLED:	03/18/02
STATION FROM:	---	STATION TO:	---	SAMPLE FROM:	----
LAB NO.:	33317	TESTED BY:	CAMPS	CODE PASS/FAIL:	PASS
REPORT DATE:	04/22/02	REPORT NO.:	33317.022	DATE TEST COMP:	04/16/02

DISTRICT:	TWO	CONTRACT:	N/A	ROAD:	N/A
SOURCE:	TAMPA	PLANT NO.:	----	QUANTITY:	----
PRODUCER:	LAFARGE	INTENDED USE:	CONCRETE		
SUBMITTED BY:	W. LOVENCIN	ADDRESS:	DISTRICT TWO MATERIALS OFFICE		

CHEMICAL ANALYSIS

LOSS OF IGNITION	0.5%	SILICON DIOXIDE	----
INSOLUBLE RESIDUE	0.12%	ALUMINUM OXIDE	----
SULFUR TRIOXIDE	2.8%	FERRIC OXIDE	----
MAGNESIUM OXIDE	0.9%	TRICALCIUM SILICATE	----
TRICALCUM ALUMINATE	4.5%		
TOTAL ALKALI AS Na_2O	0.29%		

Figure B.1 FDOT Analyses of Type I Portland Cement Manufactured by Company A

PHYSICAL ANALYSIS

COMPRESSIVE STRENGTH		FINENESS SQ.M./KG	SETTING TIME (GILMORE)		SOUNDNESS	NORMAL CONSISTENCY
3 DAYS	7 DAYS		INITIAL MINUTES	FINAL	AUTOCLAVE	
AVERAGE (psi)	AVERAGE (psi)			MINUTES		
3860	5220	362	110	175	+0.02	-

CONDITION OF SAMPLE: SATISFACTORY

DATE SAMPLE RECEIVED: 03/18/02REMARKS: **PASSES SPECIFICATIONS FOR TYPE I CEMENT****C-114, C-109,C-151,C-187,C-204, C-266**Tested by: CAMPS/dbENGINEER: Thomas O. Malerk, P.E., State Materials Engineercc: D.M.E. 2
FILE

Figure B.1 continued



FORM 691-15A
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STATE OF FLORIDA DEPARTMENT OF
TRANSPORTATION
STATE MATERIALS OFFICE
2006 N.E. WALDO ROAD
GAINESVILLE, FL 32609
(352) 337-3115

TESTS OF PORTLAND CEMENT

PROJECT NO.:	99902-5000	LINE ITEM NO.:	---	CEMENT TYPE:	I
MATERIAL NO.:	465F	SAMPLE NO.:	2	DATE SAMPLED:	03/18/02
STATION FROM:	---	STATION TO:	---	SAMPLE FROM:	----
LAB NO.:	33318	TESTED BY:	CAMPS	CODE PASS/FAIL:	PASS
REPORT DATE:	04/22/02	REPORT NO.:	33318.022	DATE TEST COMP:	04/16/02

DISTRICT:	TWO	CONTRACT:	N/A	ROAD:	N/A
SOURCE:	MIAMI	PLANT NO.:	----	QUANTITY:	----
PRODUCER:	RINKER	INTENDED USE:	CONCRETE		
SUBMITTED BY:	W. LOVENCIN	ADDRESS:	DISTRICT TWO MATERIALS OFFICE		

CHEMICAL ANALYSIS

LOSS OF IGNITION	0.3%	SILICON DIOXIDE	----
INSOLUBLE RESIDUE	0.10%	ALUMINUM OXIDE	----
SULFUR TRIOXIDE	2.6%	FERRIC OXIDE	----
MAGNESIUM OXIDE	1.5%	TRICALCIUM SILICATE	----
TRICALCUM ALUMINATE	3.2%		
TOTAL ALKALI AS Na_2O	0.51%		

Figure B.2 FDOT Analyses of Type I Portland Cement Manufactured by Company B

PHYSICAL ANALYSIS

COMPRESSIVE STRENGTH		FINENESS	SETTING TIME (GILMORE)		SOUNDNESS	NORMAL CONSISTENCY
3 DAYS	7 DAYS				AUTOCLAVE	
AVERAGE (psi)	AVERAGE (psi)	SQ.M./KG	INITIAL MINUTES	FINAL MINUTES		
4300	5390	371	101	167	+0.03	-

CONDITION OF SAMPLE: SATISFACTORY

DATE SAMPLE RECEIVED: 03/18/02

REMARKS: **PASSES SPECIFICATIONS FOR TYPE I CEMENT**

C-114, C-109,C-151,C-187,C-204, C-266

Tested by: CAMPS/db

ENGINEER: Thomas O. Malerk, P.E., State Materials Engineer

cc: D.M.E. 2
FILE

Figure B.2 continued



FORM 691-15A
REVISED 10/07/99

STATE OF FLORIDA DEPARTMENT OF
TRANSPORTATION
STATE MATERIALS OFFICE
2006 N.E. WALDO ROAD
GAINESVILLE, FL 32609
(352) 337-3115

TESTS OF PORTLAND CEMENT

PROJECT NO.:	99902-5000	LINE ITEM NO.:	---	CEMENT TYPE:	I
MATERIAL NO.:	465F	SAMPLE NO.:	2	DATE SAMPLED:	03/18/02
STATION FROM:	---	STATION TO:	---	SAMPLE FROM:	----
LAB NO.:	33319	TESTED BY:	CAMPS	CODE PASS/FAIL:	PASS
REPORT DATE:	04/22/02	REPORT NO.:	33319.022	DATE TEST COMP:	04/16/02

DISTRICT:	TWO	CONTRACT:	N/A	ROAD:	N/A
SOURCE:	TAMPA	PLANT NO.:	----	QUANTITY:	----
PRODUCER:	TARMAC	INTENDED USE:	CONCRETE		
SUBMITTED BY:	W. LOVENCIN	ADDRESS:	DISTRICT TWO MATERIALS OFFICE		

CHEMICAL ANALYSIS

LOSS OF IGNITION	0.3%	SILICON DIOXIDE	----
INSOLUBLE RESIDUE	0.11%	ALUMINUM OXIDE	----
SULFUR TRIOXIDE	2.9%	FERRIC OXIDE	----
MAGNESIUM OXIDE	0.8%	TRICALCIUM SILICATE	----
TRICALCUM ALUMINATE	5.5%		
TOTAL ALKALI AS Na_2O	0.29%		

Figure B.3 FDOT Analyses of Type I Portland Cement Manufactured by Company C

PHYSICAL ANALYSIS

COMPRESSIVE STRENGTH		FINENESS SQ.M./KG	SETTING TIME (GILMORE)		SOUNDNESS	NORMAL CONSISTENCY
3 DAYS	7 DAYS		INITIAL	FINAL	AUTOCLAVE	
AVERAGE (psi)	AVERAGE (psi)		MINUTES	MINUTES		
3680	5330	380	123	203	-0.02	-

CONDITION OF SAMPLE: SATISFACTORY

DATE SAMPLE RECEIVED: 03/18/02

REMARKS: **PASSES SPECIFICATIONS FOR TYPE I CEMENT**

C-114, C-109,C-151,C-187,C-204, C-266

Tested by: CAMPS/db

ENGINEER: Thomas O. Malerk, P.E., State Materials Engineer

cc: D.M.E. 2
FILE

Figure B.3 continued



FORM 691-15A
REVISED 10/07/99

STATE OF FLORIDA DEPARTMENT OF
TRANSPORTATION
STATE MATERIALS OFFICE
2006 N.E. WALDO ROAD
GAINESVILLE, FL 32609
(352) 337-3115

TESTS OF PORTLAND CEMENT

PROJECT NO.:	99902-5000	LINE ITEM NO.:	---	CEMENT TYPE:	I
MATERIAL NO.:	465F	SAMPLE NO.:	2	DATE SAMPLED:	03/18/02
STATION FROM:	---	STATION TO:	---	SAMPLE FROM:	----
LAB NO.:	33321	TESTED BY:	CAMPS	CODE PASS/FAIL:	PASS
REPORT DATE:	04/22/02	REPORT NO.:	33321.022	DATE TEST COMP:	04/16/02

DISTRICT:	TWO	CONTRACT:	N/A	ROAD:	N/A
SOURCE:	UNILAND	PLANT NO.:	----	QUANTITY:	----
PRODUCER:	TARMAC	INTENDED USE:	CONCRETE		
SUBMITTED BY:	W. LOVENCIN	ADDRESS:	DISTRICT TWO MATERIALS OFFICE		

CHEMICAL ANALYSIS

LOSS OF IGNITION	0.4%	SILICON DIOXIDE	----
INSOLUBLE RESIDUE	0.13%	ALUMINUM OXIDE	----
SULFUR TRIOXIDE	2.7%	FERRIC OXIDE	----
MAGNESIUM OXIDE	1.1%	TRICALCIUM SILICATE	----
TRICALCUM ALUMINATE	5.2%		
TOTAL ALKALI AS Na_2O	0.19%		

Figure B.4 FDOT Analyses of Type I Portland Cement Manufactured by Company D

PHYSICAL ANALYSIS

COMPRESSIVE STRENGTH		FINENESS SQ.M./KG	SETTING TIME (GILMORE)		SOUNDNESS	NORMAL CONSISTENCY
3 DAYS	7 DAYS		INITIAL MINUTES	FINAL MINUTES	AUTOCLAVE	
AVERAGE (psi)	AVERAGE (psi)					
4070	4720	375	118	197	+0.02	-

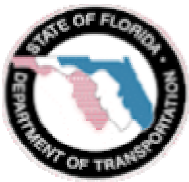
CONDITION OF SAMPLE: SATISFACTORY

DATE SAMPLE RECEIVED: 03/18/02REMARKS: **PASSES SPECIFICATIONS FOR TYPE I CEMENT****C-114, C-109,C-151,C-187,C-204, C-266**Tested by: CAMPS/dbENGINEER: Thomas O. Malerk, P.E., State Materials Engineercc: D.M.E. 2
FILE

Figure B.4 continued

APPENDIX C – TESTS ON FLY ASH

This appendix includes the chemical and physical analyses of test results conducted on fly ash by the FDOT State Materials office. The fly ash was provided by the Lafarge Company and was used in the laboratory mix.



STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

STATE MATERIALS OFFICE
2006 N.E. WALDO ROAD
GAINESVILLE, FL 32609
(352) 337-3115

TESTS OF FLY ASH

FORM 691-15A
REVISED 10/07/99

PROJECT NO.:	2139401A102	LINE ITEM NO.:	---	CLASS:	F
MATERIAL NO.:	468F	SAMPLE NO.:	1	DATE SAMPLED:	05/06/02
STATION FROM:	---	STATION TO:	---	SAMPLE FROM:	UNKNOWN
LAB NO.:	34004	TESTED BY:	CAMPS	CODE PASS/FAIL:	PASS
REPORT DATE:	06/05/02	REPORT NO.:	34004.022	DATE TEST COMP:	06/04/02

DISTRICT:	2	CONTRACT:	N/A	ROAD:	N/A
SOURCE:	MARTIN LAKE	PLANT NO.:	UNKNOWN	QUANTITY:	-----
PRODUCER:	ISG	INTENDED USE:	-----		
SUBMITTED BY:	F. NIENICZENIA	ADDRESS:	DISTRICT 2 MATERIALS OFFICE; LAKE CITY, FL		

CHEMICAL ANALYSIS

OXIDES OF SILICON, IRON & ALUMINUM	77.3%
SULFUR TRIOXIDE	0.58%
MOISTURE CONTENT	0.1%
LOSS OF IGNITION	0.2%

Figure C.1 FDOT Analyses of Fly Ash

PHYSICAL ANALYSIS

STRENGTH 7 DAYS	FINENESS #325 SIEVE	SOUNDNESS	% WATER	SPECIFIC GRAVITY
82%	24%	-0.01	100%	2.45

CONDITION OF SAMPLE: SATISFACTORY

DATE SAMPLE RECEIVED: 05/08/02

REMARKS: **PASSES SPECIFICATIONS FOR CLASS F FLY ASH**

C-114, C-311

Tested by: CAMPS/sf

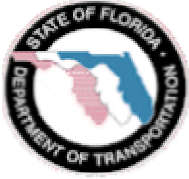
ENGINEER: Thomas O. Malerk, P.E., State Materials Engineer

cc: D.M.E. 2
W. LOVENCIN

Figure C.1 continued

APPENDIX D – GROUND GRANULATED BLAST FURNACE SLAG

This appendix includes the chemical and physical analyses of test results conducted on slag by the FDOT State Materials office. The slag was provided by the Lafarge Company and was used in the laboratory mix.



STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
 STATE MATERIALS OFFICE
 2006 N.E. WALDO ROAD
 GAINESVILLE, FL 32609
 (352) 337-3115

**TESTS OF GROUND GRANULATED
 BLAST FURNACE SLAG**

FORM 691-15A
REVISED 10/07/99

PROJECT NO.:	1909701A101	LINE ITEM NO.:	---	
MATERIAL NO.:	466F	SAMPLE NO.:	N1478	DATE SAMPLED: 03/11/02
STATION FROM:	---	STATION TO:	---	SAMPLE FROM: DRUM
LAB NO.:	33280	TESTED BY:	CAMPS	CODE PASS/FAIL: PASS
REPORT DATE:	04/30/02	REPORT NO.:	33280.02	DATE TEST COMP: 04/25/02

DISTRICT:	SMO	CONTRACT:	N/A	ROAD:	N/A
SOURCE:	TAMPA	PLANT NO.:	N/A	QUANTITY:	N/A
PRODUCER:	LAFARGE	INTENDED USE:	PORTLAND CEMENT CONCRETE		
SUBMITTED BY:	R. DELORENZO	ADDRESS:	STATE MATERIALS OFFICE		

CHEMICAL ANALYSIS

SULFUR TRIOXIDE	2.3%	SLAG ACTIVITY INDEX	---
SULFIDE SULFUR	0.9%	7 DAYS	96%
		28 DAYS	132%

Figure D.1 FDOT Analyses of Ground Blast Furnace Slag

PHYSICAL ANALYSIS

STRENGTH (LBS/SQ. IN.)				FINENESS
7 DAYS STD AVERAGE	7 DAYS SLAG AVERAGE	28 DAYS STD AVERAGE	28 DAYS SLAG AVERAGE	#325 SLAG
4750	4380	5900	7810	2%

CONDITION OF SAMPLE: SATISFACTORY

DATE SAMPLE RECEIVED: 03/15/02

REMARKS: **PASSES SPECIFICATIONS FOR GROUND GRANULATED BLAST FURNACE SLAG
C-989, C114, C109, C430**

Tested by CAMPS/cr

ENGINEER: Thomas O. Malerk, P.E., State Materials Engineer

cc: W. LOVENCIN

Figure D.1 continued

APPENDIX E – LBR DATA OBTAINED IN THE LABORATORY

This appendix includes the LBR data obtained for all laboratory mixes.

APPENDIX E.1

DISTRICT 1 – LBR DATA EXCAVATABLE MIX

Penetration (in)	Sample 1			Sample 2		
	Load (lbs)	Unit Load lb/in ²	LBR Value	Load (lbs)	Unit Load lb/in ²	LBR Value
0.010	3	1.00	0.13	4	1.33	0.17
0.020	4	1.33	0.17	6	2.00	0.25
0.030	6	2.00	0.25	9	3.00	0.38
0.040	7	2.33	0.29	12	4.00	0.50
0.050	9	3.00	0.38	14	4.67	0.58
0.060	10	3.33	0.42	17	5.67	0.71
0.070	12	4.00	0.50	21	7.00	0.88
0.080	12	4.00	0.50	25	8.33	1.04
0.090	14	4.67	0.58	28	9.33	1.17
0.100	15	5.00	0.63	32	10.67	1.33
0.110	17	5.67	0.71	35	11.67	1.46
0.120	18	6.00	0.75	38	12.67	1.58
0.130	18	6.00	0.75	41	13.67	1.71
0.140	19	6.33	0.79	43	14.33	1.79
0.150	19	6.33	0.79	47	15.67	1.96
0.160				50	16.67	2.08
0.170				52	17.33	2.17
0.180				54	18.00	2.25
0.190				57	19.00	2.38
0.200				59	19.67	2.46
0.225				66	22.00	2.75
0.250				69	23.00	2.88
0.275				74	24.67	3.08
0.300				82	27.33	3.42
0.325				88	29.33	3.67
0.350						

LBR

0.791667

3.666667

Average:

2.229167

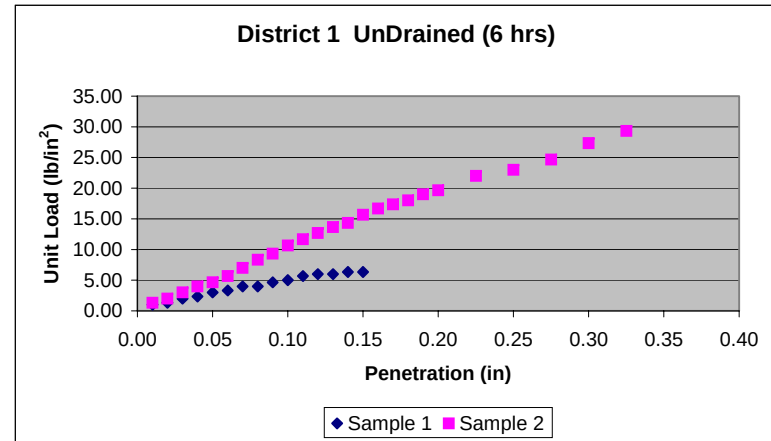


Figure E.1.1 District 1 – LBR Values for Excavatable Mix Samples Undrained for Six Hours

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Value	Load (lbs)	Unit Load lb/in ²	LBR Value
0.010	5	1.67	0.21	3	1.00	0.13
0.020	7	2.33	0.29	5	1.67	0.21
0.030	8	2.67	0.33	7	2.33	0.29
0.040	10	3.33	0.42	9	3.00	0.38
0.050	12	4.00	0.50	12	4.00	0.50
0.060	15	5.00	0.63	17	5.67	0.71
0.070	19	6.33	0.79	21	7.00	0.88
0.080	23	7.67	0.96	26	8.67	1.08
0.090	28	9.33	1.17	30	10.00	1.25
0.100	31	10.33	1.29	34	11.33	1.42
0.110	35	11.67	1.46	38	12.67	1.58
0.120	39	13.00	1.63	41	13.67	1.71
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
0.200						
0.225						
0.250						
0.275						
0.300						
0.325						
0.350						

LBR

1.625

1.708333

Average:

1.666667

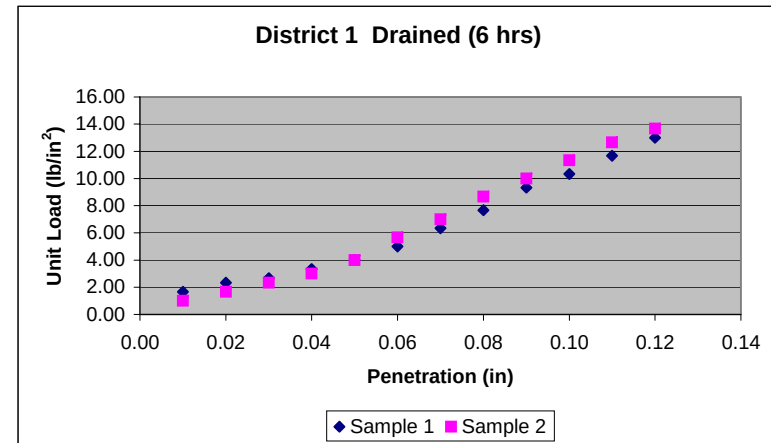


Figure E.1.2 District 1 – LBR Values for Excavatable Mix Samples Drained for Six Hours

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Value	Load (lbs)	Unit Load lb/in ²	LBR Value
0.010	11	3.67	0.46	76	25.33	3.17
0.020	27	9.00	1.13	180	60.00	7.50
0.030	55	18.33	2.29	206	68.67	8.58
0.040	85	28.33	3.54	236	78.67	9.83
0.050	117	39.00	4.88	270	90.00	11.25
0.060	125	41.67	5.21	303	101.00	12.63
0.070	128	42.67	5.33	339	113.00	14.13
0.080	152	50.67	6.33	381	127.00	15.88
0.090	179	59.67	7.46	426	142.00	17.75
0.100	214	71.33	8.92	472	157.33	19.67
0.110	252	84.00	10.50	516	172.00	21.50
0.120	286	95.33	11.92	555	185.00	23.13
0.130	323	107.67	13.46			
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
0.200						
0.225						
0.250						

LBR
Average:

9

14

19

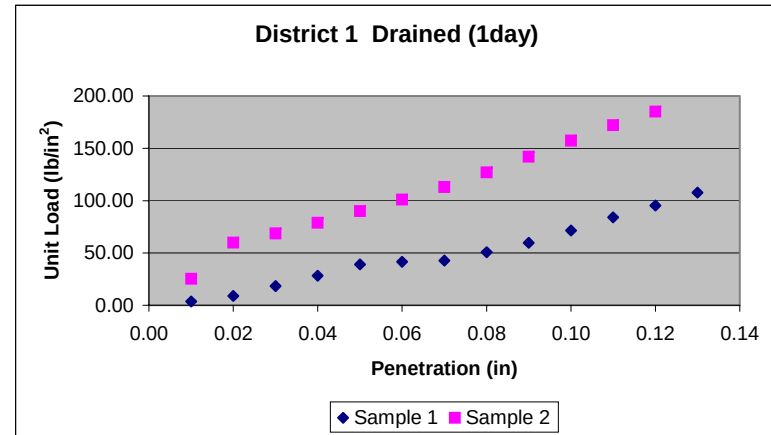


Figure E.1.3 District 1 – LBR Values for Excavatable Mix Samples Drained for One Day

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Value	Load (lbs)	Unit Load lb/in ²	LBR Value
0.010	19	6.33	0.79	131	43.67	5.46
0.020	50	16.67	2.08	455	151.67	18.96
0.030	109	36.33	4.54	615	205.00	25.63
0.040	204	68.00	8.50	623	207.67	25.96
0.050	321	107.00	13.38	733	244.33	30.54
0.060	414	138.00	17.25	843	281.00	35.13
0.070	545	181.67	22.71	943	314.33	39.29
0.080	694	231.33	28.92	1046	348.67	43.58
0.090	830	276.67	34.58	1150	383.33	47.92
0.100	960	320.00	40.00	1252	417.33	52.17
0.110	1081	360.33	45.04	1349	449.67	56.21
0.120	1192	397.33	49.67	1441	480.33	60.04
0.130	1297	432.33	54.04			
0.140	1397	465.67	58.21			
0.150						
0.160						
0.170						
0.180						
0.190						
0.200						

LBR
Average:

52

52.5

53

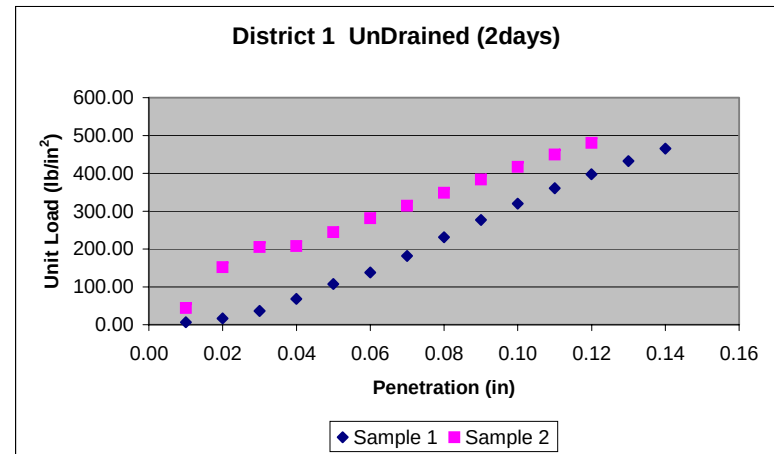


Figure E.1.4 District 1 – LBR Values for Excavatable Mix Samples Undrained for Two Days

District 1 Drained (7days)

Penetration (in)	Unit Load (lb/in²) - Sample 1	Unit Load (lb/in²) - Sample 2
0.015	50	0
0.020	100	20
0.030	150	40
0.040	230	50
0.050	320	70
0.060	410	120
0.070	470	180
0.080	500	240
0.090	560	310
0.100	600	400
0.110	660	480
0.120	730	560
0.130	-	640
0.140	-	710
0.150	-	800
0.160	-	880
0.170	-	980

Figure E.1.6 District 1 – LBR Values for Excavatable Mix Samples Drained for Seven Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Value	Load (lbs)	Unit Load lb/in ²	LBR Value
0.010	165	55.00	6.88	102	34.00	4.25
0.020	451	150.33	18.79	333	111.00	13.88
0.030	623	207.67	25.96	578	192.67	24.08
0.040	899	299.67	37.46	929	309.67	38.71
0.050	1198	399.33	49.92	1332	444.00	55.50
0.060	1514	504.67	63.08	1816	605.33	75.67
0.070	1835	611.67	76.46	2362	787.33	98.42
0.080	2036	678.67	84.83	2953	984.33	123.04
0.090	2313	771.00	96.38	3546	1182.00	147.75
0.100	2664	888.00	111.00	4118	1372.67	171.58
0.110	3098	1032.67	129.08	4641	1547.00	193.38
0.120	3549	1183.00	147.88	5103	1701.00	212.63
0.130				5523	1841.00	230.13
0.140				5940	1980.00	247.50
0.150				6311	2103.67	262.96
0.160						
0.170						
0.180						
0.190						

LBR	120	233
Average:	176.5	

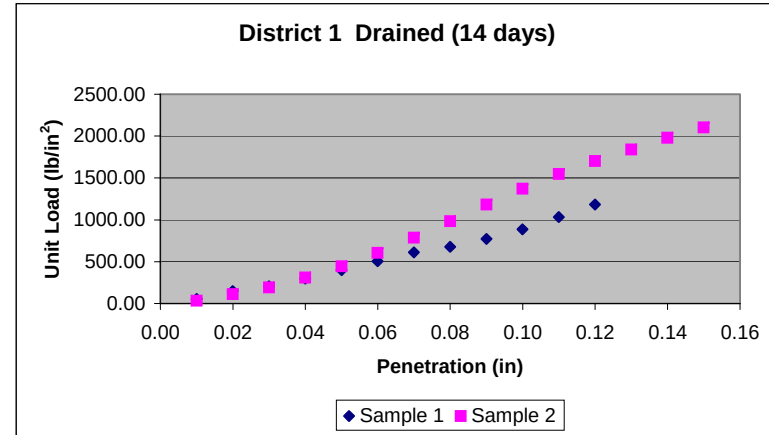


Figure E.1.7 District 1 – LBR Values for Excavatable Mix Samples Drained for 14 Days

Penetration (in)	Sample 1			Sample 2		
	Load (lbs)	Unit Load lb/in ²	LBR Value	Load (lbs)	Unit Load lb/in ²	LBR Value
0.010	58	19.33	2.42	66	22.00	2.75
0.020	179	59.67	7.46	269	89.67	11.21
0.030	364	121.33	15.17	636	212.00	26.50
0.040	599	199.67	24.96	1138	379.33	47.42
0.050	904	301.33	37.67	1750	583.33	72.92
0.060	1225	408.33	51.04	2374	791.33	98.92
0.070	1578	526.00	65.75	2949	983.00	122.88
0.080	1948	649.33	81.17	3021	1007.00	125.88
0.090	2346	782.00	97.75	3425	1141.67	142.71
0.100	2328	776.00	97.00	3765	1255.00	156.88
0.110	2791	930.33	116.29	4031	1343.67	167.96
0.120	3138	1046.00	130.75	4267	1422.33	177.79
0.130	3467	1155.67	144.46	4476	1492.00	186.50
0.140	3730	1243.33	155.42	4671	1557.00	194.63
0.150	4019	1339.67	167.46			
0.160						
0.170						
0.180						
0.190						

LBR
Average:

147

164

181

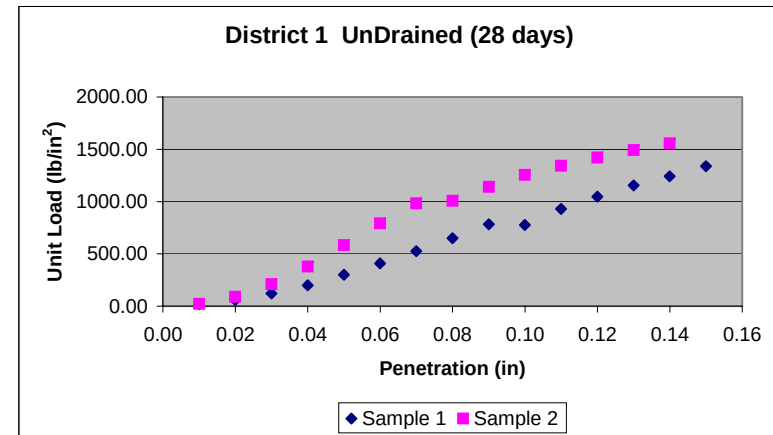


Figure E.1.8 District 1 – LBR Values for Excavatable Mix Samples Undrained for 28 Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Value	Load (lbs)	Unit Load lb/in ²	LBR Value
0.010	70	23.33	2.92	62	20.67	2.58
0.020	337	112.33	14.04	143	47.67	5.96
0.030	521	173.67	21.71	272	90.67	11.33
0.040	763	254.33	31.79	463	154.33	19.29
0.050	1042	347.33	43.42	725	241.67	30.21
0.060	1329	443.00	55.38	1037	345.67	43.21
0.070	1606	535.33	66.92	1419	473.00	59.13
0.080	1893	631.00	78.88	1883	627.67	78.46
0.090	2193	731.00	91.38	2298	766.00	95.75
0.100	2505	835.00	104.38	2722	907.33	113.42
0.110	2878	959.33	119.92	3139	1046.33	130.79
0.120	3262	1087.33	135.92	3621	1207.00	150.88
0.130				4102	1367.33	170.92
0.140				4577	1525.67	190.71
0.150				5020	1673.33	209.17
0.160				5429	1809.67	226.21
0.170						
0.180						
0.190						
LBR			117			194
Average:			155.5			

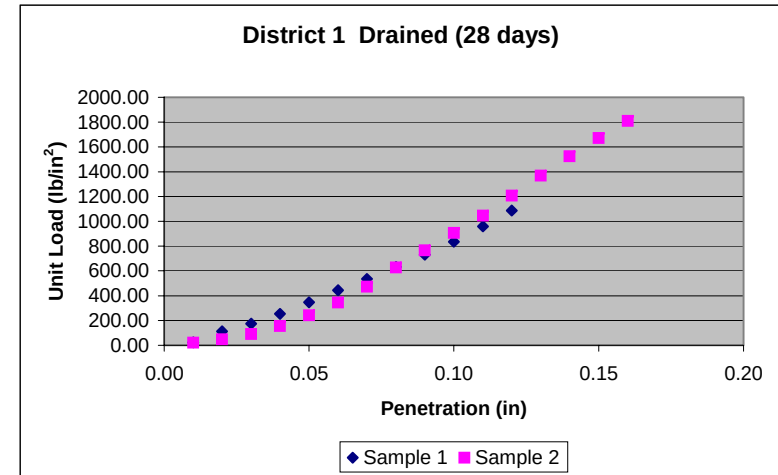


Figure E.1.9 District 1 – LBR Values for Excavatable Mix Samples Drained for 28 Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Value	Load (lbs)	Unit Load lb/in ²	LBR Value
0.010	101	33.67	4.21	147	49.00	6.13
0.020	178	59.33	7.42	291	97.00	12.13
0.030	272	90.67	11.33	393	131.00	16.38
0.040	387	129.00	16.13	542	180.67	22.58
0.050	522	174.00	21.75	751	250.33	31.29
0.060	714	238.00	29.75	1021	340.33	42.54
0.070	991	330.33	41.29	1286	428.67	53.58
0.080	1369	456.33	57.04	1564	521.33	65.17
0.090	1750	583.33	72.92	1846	615.33	76.92
0.100	2099	699.67	87.46	2078	692.67	86.58
0.110	2354	784.67	98.08	2247	749.00	93.63
0.120	2577	859.00	107.38	2438	812.67	101.58
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
0.200						
LBR			88			89
Average:			88.5			

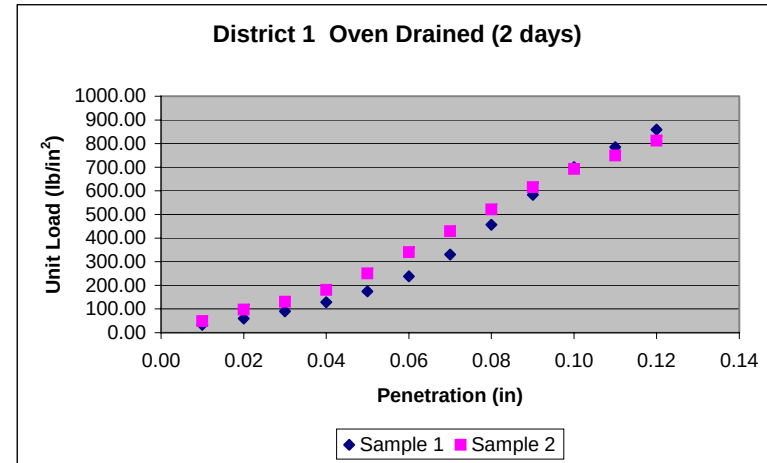


Figure E.1.11 District 1 – LBR Values for Excavatable Mix Samples Drained and Oven Cured for Two Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Value	Load (lbs)	Unit Load lb/in ²	LBR Value
0.010	26	8.67	1.08	0	0.00	0.00
0.020	96	32.00	4.00	13	4.33	0.54
0.030	214	71.33	8.92	71	23.67	2.96
0.040	394	131.33	16.42	205	68.33	8.54
0.050	648	216.00	27.00	448	149.33	18.67
0.060	988	329.33	41.17	788	262.67	32.83
0.070	1404	468.00	58.50	1293	431.00	53.88
0.080	1492	497.33	62.17	1880	626.67	78.33
0.090	1514	504.67	63.08	2300	766.67	95.83
0.100	1741	580.33	72.54	2012	670.67	83.83
0.110	2007	669.00	83.63	2185	728.33	91.04
0.120	2269	756.33	94.54	2356	785.33	98.17
0.130	2484	828.00	103.50	2443	814.33	101.79
0.140	2697	899.00	112.38	2626	875.33	109.42
0.150	2878	959.33	119.92	2812	937.33	117.17
0.160				2991	997.00	124.63
0.170				3164	1054.67	131.83
0.180						
0.190						

LBR

111

117

Average:

114

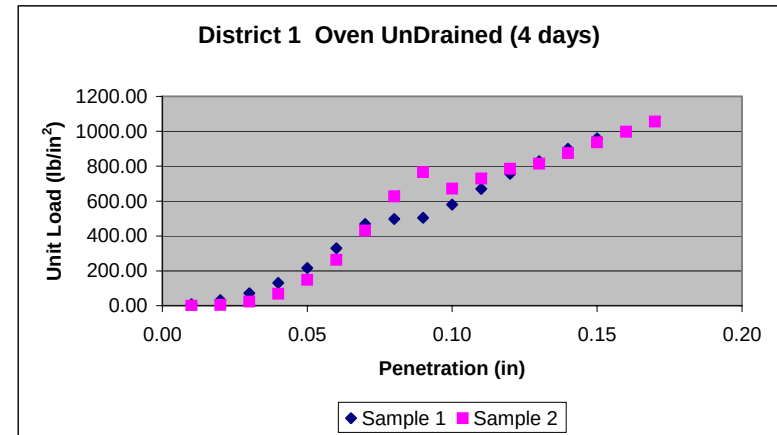


Figure E.1.12 District 1 – LBR Values for Excavatable Mix Samples Undrained and Oven Cured for Four Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Value	Load (lbs)	Unit Load lb/in ²	LBR Value
0.010	78	26.00	3.25	0	0.00	0.00
0.020	247	82.33	10.29	0	0.00	0.00
0.030	385	128.33	16.04	0	0.00	0.00
0.040	526	175.33	21.92	0	0.00	0.00
0.050	691	230.33	28.79	123	41.00	5.13
0.060	883	294.33	36.79	222	74.00	9.25
0.070	1078	359.33	44.92	315	105.00	13.13
0.080	1282	427.33	53.42	431	143.67	17.96
0.090	1311	437.00	54.63	575	191.67	23.96
0.100	1401	467.00	58.38	757	252.33	31.54
0.110	1620	540.00	67.50	980	326.67	40.83
0.120	1882	627.33	78.42	1204	401.33	50.17
0.130				1262	420.67	52.58
0.140				1576	525.3333	65.67
0.150				1676	558.6667	69.83
0.160				1843	614.3333	76.79
0.170						
0.180						
0.190						
0.200						

LBR	63	66
Average:	64.5	

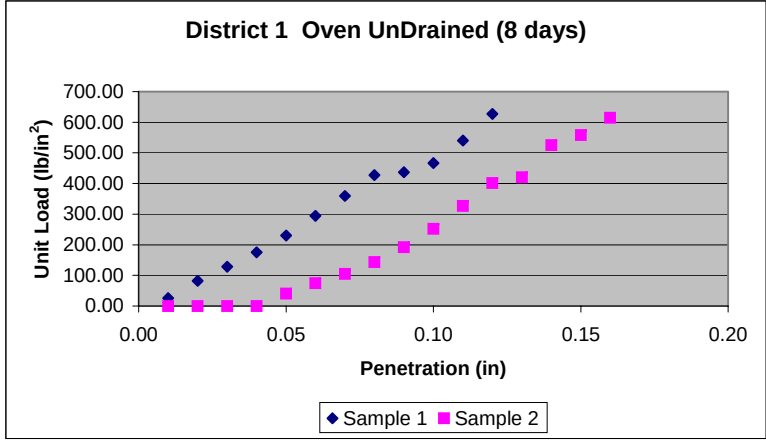


Figure E.1.14 District 1 – LBR Values for Excavatable Mix Samples Undrained and Oven Cured for Eight Days

APPENDIX E.2

DISTRICT 1 – LBR DATA EXCAVATABLE ACCELERATED MIX

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Value	Load (lbs)	Unit Load lb/in ²	LBR Value
0.010	13	4.33	0.54	18	6.00	0.75
0.020	16	5.33	0.67	46	15.33	1.92
0.030	20	6.67	0.83	87	29.00	3.63
0.040	23	7.67	0.96	139	46.33	5.79
0.050	26	8.67	1.08	183	61.00	7.63
0.060	28	9.33	1.17	229	76.33	9.54
0.070	30	10.00	1.25	275	91.67	11.46
0.080	32	10.67	1.33	317	105.67	13.21
0.090	34	11.33	1.42	353	117.67	14.71
0.100	36	12.00	1.50	386	128.67	16.08
0.110	38	12.67	1.58	417	139.00	17.38
0.120	40	13.33	1.67	446	148.67	18.58
0.130				472	157.33	19.67
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
0.200						
0.225						
0.250						
0.275						
0.300						
0.325						
0.350						

LBR

1.666667

16

Average:

8.833333

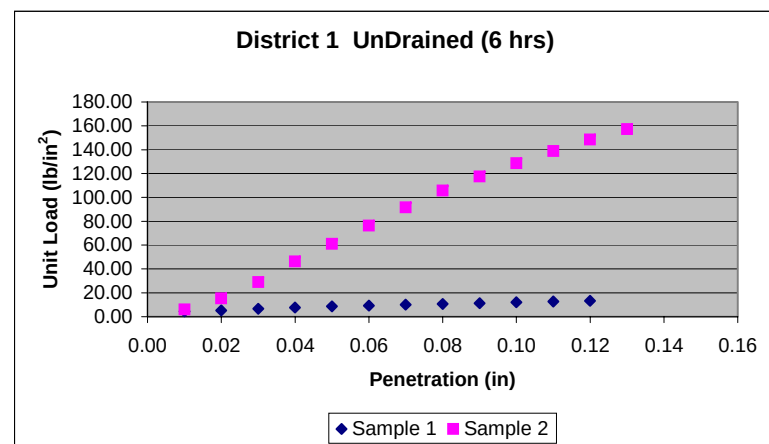


Figure E.2.1 District 1 – LBR Values for Excavatable Accelerated Mix Samples Undrained for Six Hours

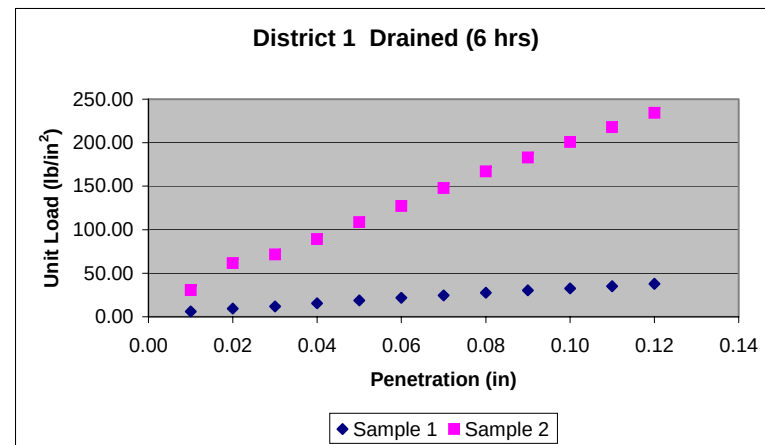


Figure E.2.2 District 1 – LBR Values for Excavatable Accelerated Mix Samples Drained for Six Hours

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Value	Load (lbs)	Unit Load lb/in ²	LBR Value
0.010	51	17.00	2.13	6	2.00	0.25
0.020	84	28.00	3.50	14	4.67	0.58
0.030	127	42.33	5.29	35	11.67	1.46
0.040	179	59.67	7.46	84	28.00	3.50
0.050	200	66.67	8.33	151	50.33	6.29
0.060	209	69.67	8.71	233	77.67	9.71
0.070	244	81.33	10.17	266	88.67	11.08
0.080	279	93.00	11.63	294	98.00	12.25
0.090	316	105.33	13.17	325	108.33	13.54
0.100	352	117.33	14.67	355	118.33	14.79
0.110	383	127.67	15.96	386	128.67	16.08
0.120	408	136.00	17.00	418	139.33	17.42
0.130				447	149.00	18.63
0.140				480	160.00	20.00
0.150				516	172.00	21.50
0.160						
0.170						
0.180						

LBR
Average:

14

15.5

17

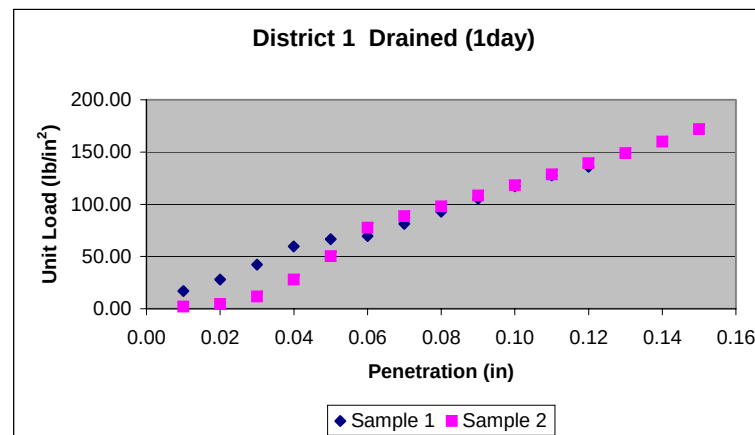


Figure E.2.3 District 1 – LBR Values for Excavatable Accelerated Mix Samples Drained for One Day

Penetration (in)	Sample 1			Sample 2		
	Load (lbs)	Unit Load lb/in ²	LBR Value	Load (lbs)	Unit Load lb/in ²	LBR Value
0.010	9	3.00	0.38	92	30.67	3.83
0.020	45	15.00	1.88	272	90.67	11.33
0.030	126	42.00	5.25	538	179.33	22.42
0.040	249	83.00	10.38	831	277.00	34.63
0.050	413	137.67	17.21	1183	394.33	49.29
0.060	634	211.33	26.42	1620	540.00	67.50
0.070	986	328.67	41.08	1943	647.67	80.96
0.080	1364	454.67	56.83	2298	766.00	95.75
0.090	1739	579.67	72.46	2653	884.33	110.54
0.100	1973	657.67	82.21	2961	987.00	123.38
0.110	2200	733.33	91.67	3222	1074.00	134.25
0.120	2507	835.67	104.46	3479	1159.67	144.96
0.130	2812	937.33	117.17	3722	1240.67	155.08
0.140	3104	1034.67	129.33	3963	1321.00	165.13
0.150	3357	1119.00	139.88			
0.160	3584	1194.67	149.33			
0.170						
0.180						
0.190						
LBR			133			150
Average:			141.5			

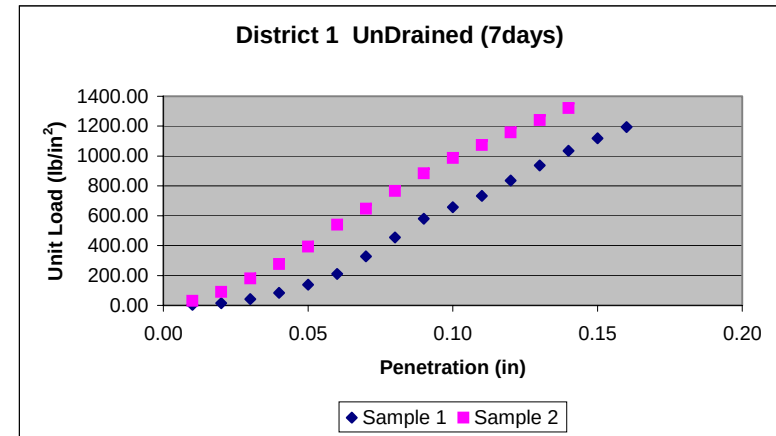


Figure E.2.5 District 1 – LBR Values for Excavatable Accelerated Mix Samples Undrained for Seven Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Value	Load (lbs)	Unit Load lb/in ²	LBR Value
0.010	28	9.33	1.17	29	9.67	1.21
0.020	96	32.00	4.00	71	23.67	2.96
0.030	244	81.33	10.17	180	60.00	7.50
0.040	530	176.67	22.08	404	134.67	16.83
0.050	943	314.33	39.29	658	219.33	27.42
0.060	1520	506.67	63.33	1042	347.33	43.42
0.070	2165	721.67	90.21	1533	511.00	63.88
0.080	2821	940.33	117.54	2199	733.00	91.63
0.090	3486	1162.00	145.25	3020	1006.67	125.83
0.100	3917	1305.67	163.21	3835	1278.33	159.79
0.110	4282	1427.33	178.42	4431	1477.00	184.63
0.120	4658	1552.67	194.08	4789	1596.33	199.54
0.130	5017	1672.33	209.04	5187	1729.00	216.13
0.140	5302	1767.33	220.92	5548	1849.33	231.17
0.150	5598	1866.00	233.25	5885	1961.67	245.21
0.160				6232	2077.33	259.67
0.170				6560	2186.67	273.33
0.180						
0.190						
LBR			218			253
Average:			235.5			

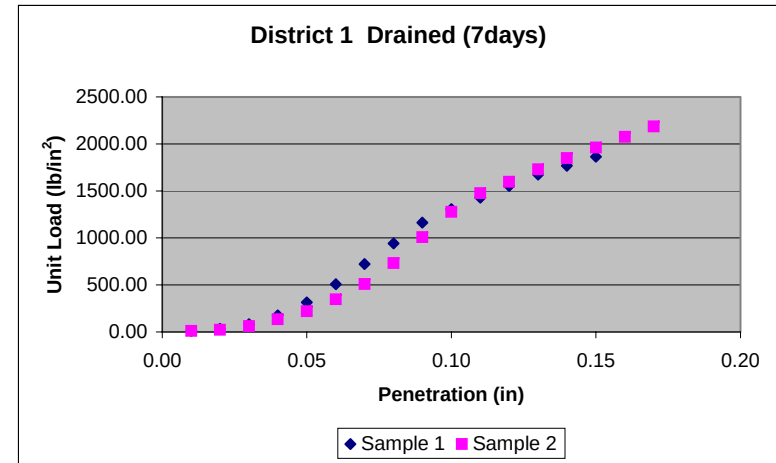


Figure E.2.6 District 1 – LBR Values for Excavatable Accelerated Mix Samples Drained for Seven Days

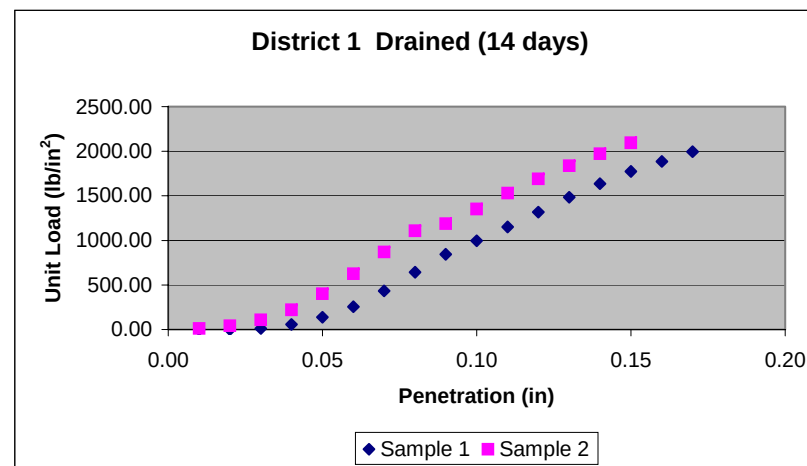


Figure E.2.7 District 1 – LBR Values for Excavatable Accelerated Mix Samples Drained for 14 Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Value	Load (lbs)	Unit Load lb/in ²	LBR Value
0.010	1	0.33	0.04	52	17.33	2.17
0.020	3	1.00	0.13	140	46.67	5.83
0.030	11	3.67	0.46	268	89.33	11.17
0.040	40	13.33	1.67	432	144.00	18.00
0.050	112	37.33	4.67	641	213.67	26.71
0.060	276	92.00	11.50	895	298.33	37.29
0.070	517	172.33	21.54	1181	393.67	49.21
0.080	821	273.67	34.21	1535	511.67	63.96
0.090	1204	401.33	50.17	1932	644.00	80.50
0.100	1644	548.00	68.50	2372	790.67	98.83
0.110	2127	709.00	88.63	2830	943.33	117.92
0.120	2617	872.33	109.04	3215	1071.67	133.96
0.130	2712	904.00	113.00	3645	1215.00	151.88
0.140	3214	1071.33	133.92	4103	1367.67	170.96
0.150	3685	1228.33	153.54	4556	1518.67	189.83
0.160	4111	1370.33	171.29	5001	1667.00	208.38
0.170	4514	1504.67	188.08	5413	1804.33	225.54
0.180	4881	1627.00	203.38			
0.190						

LBR
Average:

186

187.5

189

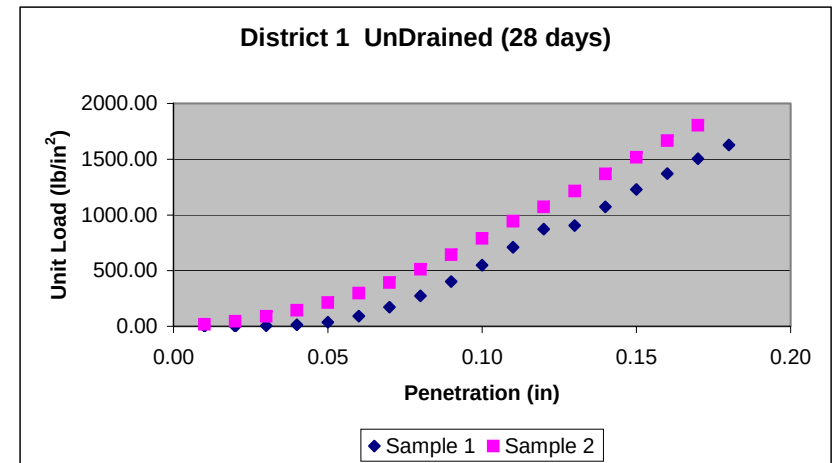
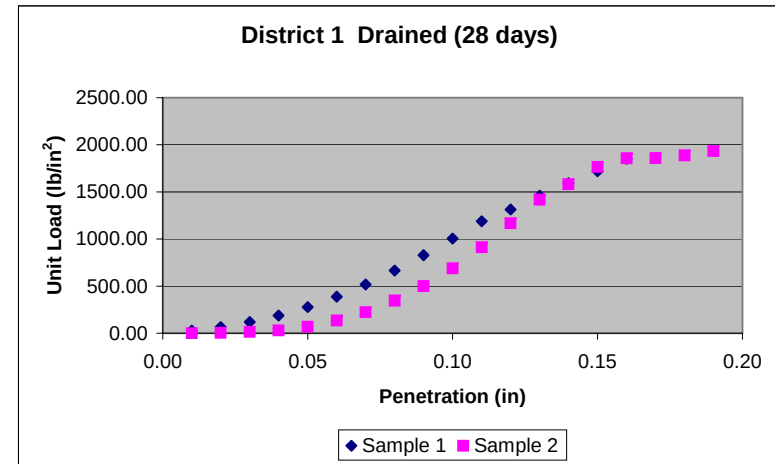


Figure E.2.8 District 1 – LBR Values for Excavatable Accelerated Mix Samples Undrained for 28 Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Value	Load (lbs)	Unit Load lb/in ²	LBR Value
0.010	82	27.33	3.42	3	1.00	0.13
0.020	199	66.33	8.29	19	6.33	0.79
0.030	356	118.67	14.83	45	15.00	1.88
0.040	564	188.00	23.50	93	31.00	3.88
0.050	837	279.00	34.88	207	69.00	8.63
0.060	1163	387.67	48.46	409	136.33	17.04
0.070	1554	518.00	64.75	674	224.67	28.08
0.080	1998	666.00	83.25	1044	348.00	43.50
0.090	2487	829.00	103.63	1497	499.00	62.38
0.100	3018	1006.00	125.75	2069	689.67	86.21
0.110	3568	1189.33	148.67	2739	913.00	114.13
0.120	3943	1314.33	164.29	3506	1168.67	146.08
0.130	4381	1460.33	182.54	4254	1418.00	177.25
0.140	4772	1590.67	198.83	4747	1582.33	197.79
0.150	5155	1718.33	214.79	5297	1765.67	220.71
0.160	5554	1851.33	231.42	5573	1857.67	232.21
0.170				5580	1860.00	232.50
0.180				5663	1887.67	235.96
0.190				5803	1934.333	241.79



LBR
Average:

207

221

235

Figure E.2.9 District 1 – LBR Values for Excavatable Accelerated Mix Samples Drained for 28 Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Value	Load (lbs)	Unit Load lb/in ²	LBR Value
0.010	51	17.00	2.13	115	38.33	4.79
0.020	166	55.33	6.92	386	128.67	16.08
0.030	385	128.33	16.04	517	172.33	21.54
0.040	668	222.67	27.83	658	219.33	27.42
0.050	1005	335.00	41.88	810	270.00	33.75
0.060	918	306.00	38.25	637	212.33	26.54
0.070	1001	333.67	41.71	824	274.67	34.33
0.080	1052	350.67	43.83	998	332.67	41.58
0.090	1067	355.67	44.46	1156	385.33	48.17
0.100	1123	374.33	46.79	1311	437.00	54.63
0.110	1177	392.33	49.04	1312	437.33	54.67
0.120	1244	414.67	51.83	1390	463.33	57.92
0.130	1298	432.67	54.08			
0.140	1378	459.33	57.42			
0.150						
0.160						
0.170						
0.180						
LBR Average:			52			55
			53.5			

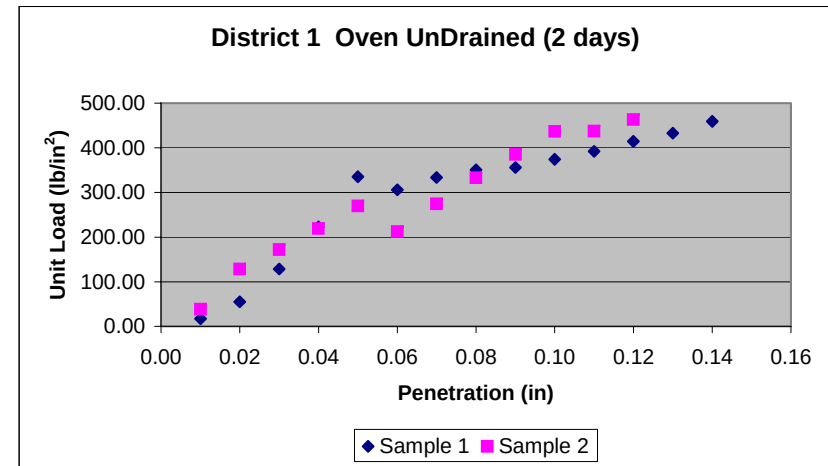


Figure E.2.10 District 1 – LBR Values for Excavatable Accelerated Mix Samples Undrained and Oven Cured for Two Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Value	Load (lbs)	Unit Load lb/in ²	LBR Value
0.010	166	55.33	6.92	142	47.33	5.92
0.020	352	117.33	14.67	266	88.67	11.08
0.030	533	177.67	22.21	403	134.33	16.79
0.040	785	261.67	32.71	588	196.00	24.50
0.050	1107	369.00	46.13	862	287.33	35.92
0.060	1212	404.00	50.50	1299	433.00	54.13
0.070	1315	438.33	54.79	1573	524.33	65.54
0.080	1581	527.00	65.88	1790	596.67	74.58
0.090	1830	610.00	76.25	1990	663.33	82.92
0.100	1985	661.67	82.71	2138	712.67	89.08
0.110	2126	708.67	88.58	2236	745.33	93.17
0.120	2283	761.00	95.13	2396	798.67	99.83
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
0.200						

LBR
Average:

83

86

89

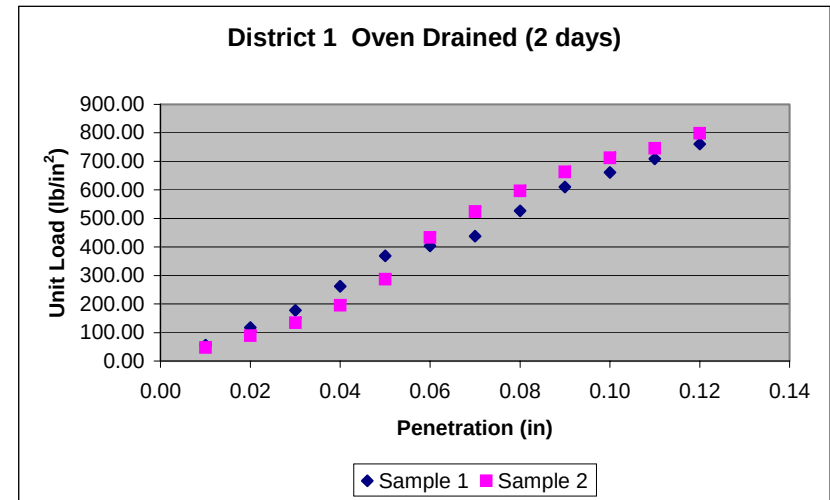


Figure E.2.11 District 1 – LBR Values for Excavatable Accelerated Mix Samples Drained and Oven Cured for Two Days



	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Value	Load (lbs)	Unit Load lb/in ²	LBR Value
0.010	40	13.33	1.67	73	24.33	3.04
0.020	95	31.67	3.96	251	83.67	10.46
0.030	182	60.67	7.58	568	189.33	23.67
0.040	316	105.33	13.17	1046	348.67	43.58
0.050	548	182.67	22.83	1635	545.00	68.13
0.060	879	293.00	36.63	2352	784.00	98.00
0.070	1326	442.00	55.25	3121	1040.33	130.04
0.080	1854	618.00	77.25	3715	1238.33	154.79
0.090	2398	799.33	99.92	4249	1416.33	177.04
0.100	2879	959.67	119.96	4775	1591.67	198.96
0.110	3262	1087.33	135.92	5274	1758.00	219.75
0.120	3532	1177.33	147.17	5702	1900.67	237.58
0.130	3754	1251.33	156.42	6097	2032.33	254.04
0.140	3802	1267.33	158.42	6487	2162.33	270.29
0.150	3923	1307.67	163.46	6851	2283.67	285.46
0.160	4154	1384.67	173.08			
0.170						
0.180						
0.190						
0.200						

LBR
Average:

161

207.5

254

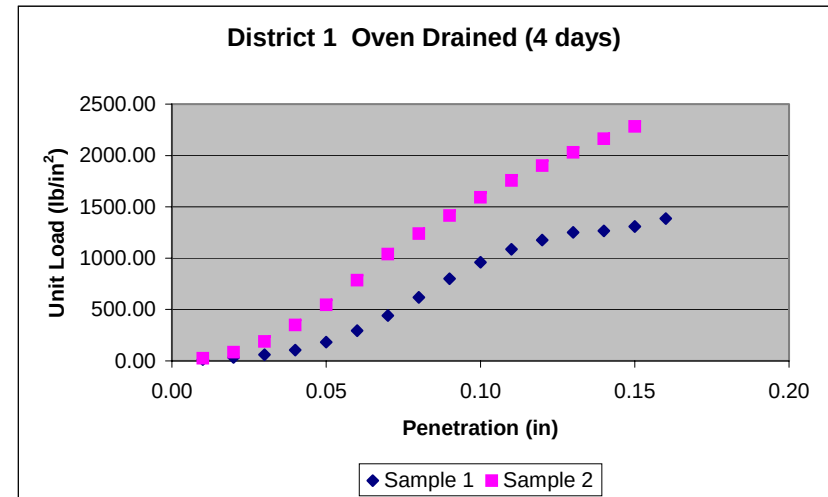


Figure E.2.13 District 1 – LBR Values for Excavatable Accelerated Mix Samples Drained and Oven Cured for Four Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Value	Load (lbs)	Unit Load lb/in ²	LBR Value
0.010	41	13.67	1.71	144	48.00	6.00
0.020	181	60.33	7.54	488	162.67	20.33
0.030	480	160.00	20.00	894	298.00	37.25
0.040	956	318.67	39.83	1438	479.33	59.92
0.050	1568	522.67	65.33	2026	675.33	84.42
0.060	2266	755.33	94.42	2367	789.00	98.63
0.070	2140	713.33	89.17	2008	669.33	83.67
0.080	1954	651.33	81.42	2094	698.00	87.25
0.090	1917	639.00	79.88	2176	725.33	90.67
0.100	1972	657.33	82.17	1984	661.33	82.67
0.110	2007	669.00	83.63	2115	705.00	88.13
0.120	2074	691.33	86.42	2278	759.33	94.92
0.130	2176	725.33	90.67	2449	816.33	102.04
0.140	2304	768.00	96.00			
0.150	2384	794.67	99.33			
0.160	2253	751.00	93.88			
0.170	2366	788.67	98.58			
0.180	2493	831.00	103.88			
0.190	2570	856.67	107.08			
0.200	2598	866.00	108.25			
0.225	2814	938.00	117.25			
0.250	2749	916.33	114.54			
0.275	2992	997.33	124.67			
0.300						

LBR
Average:

90

91.5

93

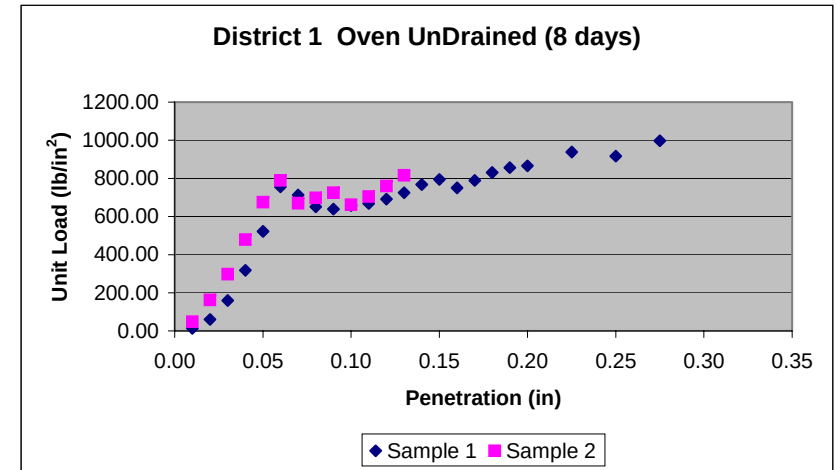


Figure E.2.14 District 1 – LBR Values for Excavatable Accelerated Mix Samples Undrained and Oven Cured for Eight Days

Penetration (in)	Sample 1			Sample 2		
	Load (lbs)	Unit Load lb/in ²	LBR Value	Load (lbs)	Unit Load lb/in ²	LBR Value
0.010	62	20.67	2.58	67	22.33	2.79
0.020	129	43.00	5.38	257	85.67	10.71
0.030	213	71.00	8.88	380	126.67	15.83
0.040	326	108.67	13.58	608	202.67	25.33
0.050	450	150.00	18.75	891	297.00	37.13
0.060	630	210.00	26.25	1219	406.33	50.79
0.070	904	301.33	37.67	1591	530.33	66.29
0.080	1253	417.67	52.21	2057	685.67	85.71
0.090	1717	572.33	71.54	2531	843.67	105.46
0.100	2270	756.67	94.58	3047	1015.67	126.96
0.110	2866	955.33	119.42	3521	1173.67	146.71
0.120	3564	1188.00	148.50	4011	1337.00	167.13
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
0.200						

LBR
Average: 99 119.5 140

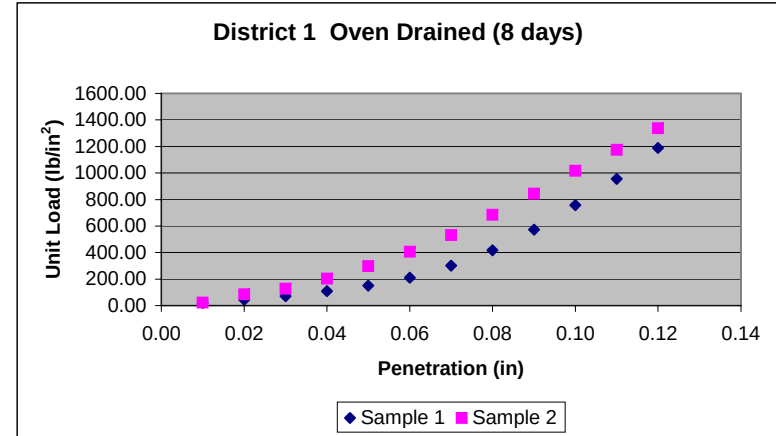


Figure E.2.15 District 1 – LBR Values for Excavatable Accelerated Mix Samples Drained and Oven Cured for Eight Days

APPENDIX E.3

DISTRICT 1 – LBR DATA NON-EXCAVATABLE MIX

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	1	0.33	0.04	2	0.67	0.08
0.020	2	0.67	0.08	2	0.67	0.08
0.030	2	0.67	0.08	3	1.00	0.13
0.040	2	0.67	0.08	2	0.67	0.08
0.050	2	0.67	0.08	3	1.00	0.13
0.060	3	1.00	0.13	2	0.67	0.08
0.070	4	1.33	0.17	3	1.00	0.13
0.080	3	1.00	0.13	3	1.00	0.13
0.090	3	1.00	0.13	4	1.33	0.17
0.100	4	1.33	0.17	4	1.33	0.17
0.110	4	1.33	0.17	5	1.67	0.21
0.120	4	1.33	0.17	5	1.67	0.21
0.130	5	1.67	0.21	5	1.67	0.21
0.140	5	1.67	0.21	6	2.00	0.25
0.150				6	2.00	0.25
0.160				6	2.00	0.25
0.170				7	2.33	0.29
0.180				7	2.33	0.29
0.190				7	2.33	0.29
0.200				8	2.67	0.33
0.225				8	2.67	0.33
0.250				9	3.00	0.38
0.275				9	3.00	0.38
0.300				11	3.67	0.46
0.325				12	4.00	0.50
0.350						

LBR

0.208333

0.5

Average:

0.354167

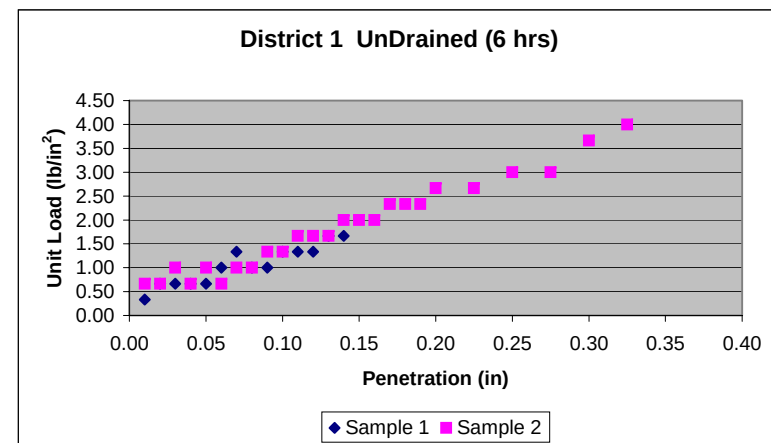


Figure E.3.1 District 1 – LBR Values for Non-excavatable Mix Samples Undrained for Six Hours

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	90	30.00	3.75	37	12.33	1.54
0.020	227	75.67	9.46	155	51.67	6.46
0.030	464	154.67	19.33	390	130.00	16.25
0.040	798	266.00	33.25	793	264.33	33.04
0.050	1255	418.33	52.29	1316	438.67	54.83
0.060	1712	570.67	71.33	1888	629.33	78.67
0.070	2137	712.33	89.04	2398	799.33	99.92
0.080	2223	741.00	92.63	2532	844.00	105.50
0.090	2573	857.67	107.21	2926	975.33	121.92
0.100	2850	950.00	118.75	3304	1101.33	137.67
0.110	3172	1057.33	132.17	3651	1217.00	152.13
0.120	3492	1164.00	145.50	3992	1330.67	166.33
0.130	3810	1270.00	158.75	4350	1450.00	181.25
0.140	4116	1372.00	171.50	4710	1570.00	196.25
0.150						
0.160						
0.170						
0.180						
0.190						
0.200						
0.225						
0.250						

LBR

150

178

Average:

164

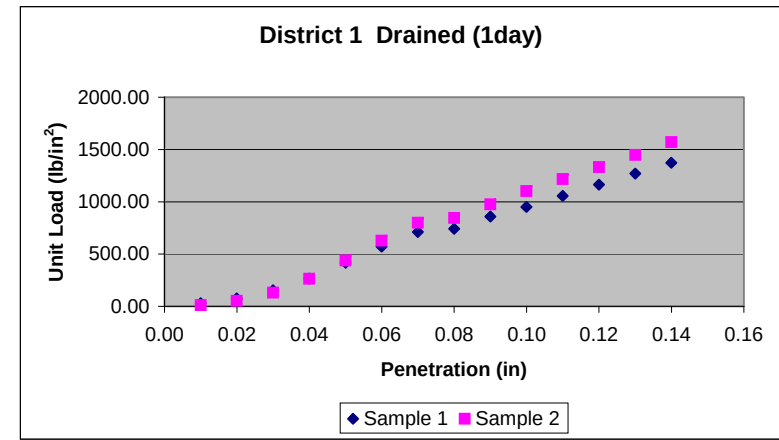


Figure E.3.3 District 1 – LBR Values for Non-excavatable Mix Samples Drained for One Day

District 1 UnDrained (2days)

Penetration (in)	Unit Load (lb/in²) - Sample 1	Unit Load (lb/in²) - Sample 2
0.015	100.00	0.00
0.020	300.00	100.00
0.025	700.00	250.00
0.035	1100.00	600.00
0.050	1500.00	1000.00
0.060	1400.00	1300.00
0.070	1500.00	1500.00
0.080	1700.00	1450.00
0.090	1900.00	1650.00
0.100	2100.00	1900.00
0.110	2300.00	2100.00
0.120	2450.00	2300.00
0.130	2700.00	2500.00
0.140	-	2650.00

Figure E.3.4 District 1 – LBR Values for Non-excavatable Mix Samples Undrained for Two Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	121	40.33	5.04	43	14.33	1.79
0.020	361	120.33	15.04	134	44.67	5.58
0.030	634	211.33	26.42	311	103.67	12.96
0.040	941	313.67	39.21	617	205.67	25.71
0.050	1312	437.33	54.67	1311	437.00	54.63
0.060	1698	566.00	70.75	2398	799.33	99.92
0.070	2110	703.33	87.92	3746	1248.67	156.08
0.080	2617	872.33	109.04	5372	1790.67	223.83
0.090	3254	1084.67	135.58	7458	2486.00	310.75
0.100	4075	1358.33	169.79	10000	3333.33	416.67
0.110	5013	1671.00	208.88			
0.120	6030	2010.00	251.25			
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
LBR			200			415
Average:				307.5		

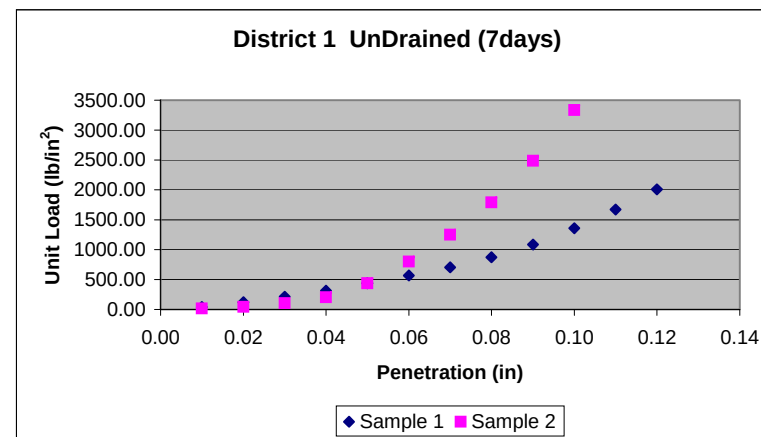


Figure E.3.5 District 1 – LBR Values for Non-excavatable Mix Samples Undrained for Seven Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	0	0.00	0.00	0	0.00	0.00
0.020	0	0.00	0.00	21	7.00	0.88
0.030	49	16.33	2.04	120	40.00	5.00
0.040	309	103.00	12.88	319	106.33	13.29
0.050	977	325.67	40.71	694	231.33	28.92
0.060	1472	490.67	61.33	1283	427.67	53.46
0.070	1769	589.67	73.71	2144	714.67	89.33
0.080	2165	721.67	90.21	3185	1061.67	132.71
0.090	2584	861.33	107.67	4410	1470.00	183.75
0.100	3069	1023.00	127.88	5729	1909.67	238.71
0.110	3577	1192.33	149.04	7141	2380.33	297.54
0.120	4106	1368.67	171.08	8806	2935.33	366.92
0.130	4663	1554.33	194.29			
0.140	5370	1790.00	223.75			
0.150	5992	1997.33	249.67			
0.160						
0.170						
0.180						
0.190						

LBR
Average:

222
294.4583

366.9167

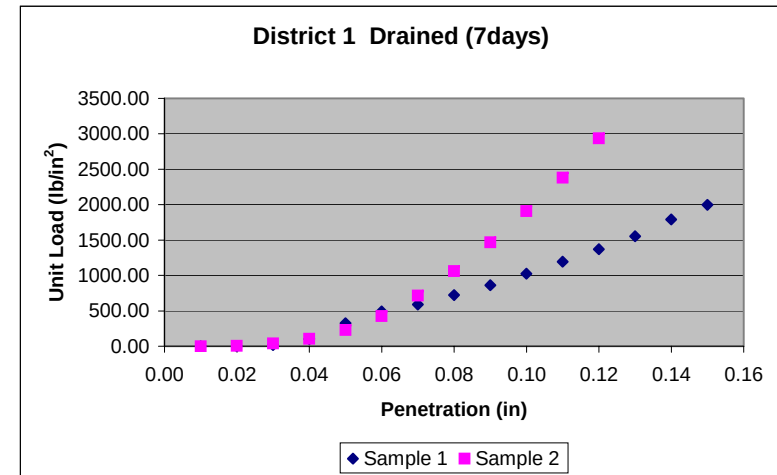


Figure E.3.6 District 1 – LBR Values for Non-excavatable Mix Samples Drained for Seven Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	74	24.67	3.08	33	11.00	1.38
0.020	397	132.33	16.54	131	43.67	5.46
0.030	1166	388.67	48.58	308	102.67	12.83
0.040	2300	766.67	95.83	598	199.33	24.92
0.050	3857	1285.67	160.71	1109	369.67	46.21
0.060	5749	1916.33	239.54	1868	622.67	77.83
0.070	7888	2629.33	328.67	2843	947.67	118.46
0.080				3979	1326.33	165.79
0.090				5382	1794.00	224.25
0.100				6517	2172.33	271.54
0.110				7553	2517.67	314.71
0.120				9148	3049.33	381.17
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						

LBR	328.6667	381.1667
Average:	354.9167	

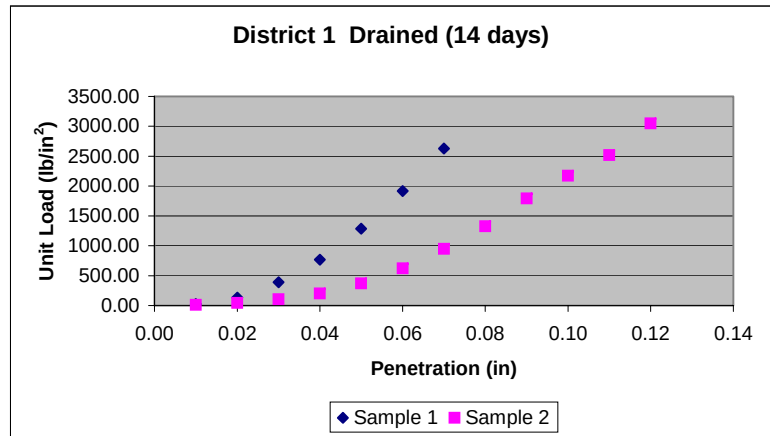


Figure E.3.7 District 1 – LBR Values for Non-excavatable Mix Samples Drained for 14 Days

Penetration (in)	Sample 1			Sample 2		
	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	21	7.00	0.88	21	7.00	0.88
0.020	160	53.33	6.67	37	12.33	1.54
0.030	567	189.00	23.63	86	28.67	3.58
0.040	1295	431.67	53.96	166	55.33	6.92
0.050	2281	760.33	95.04	341	113.67	14.21
0.060	3660	1220.00	152.50	766	255.33	31.92
0.070	5459	1819.67	227.46	1527	509.00	63.63
0.080	7766	2588.67	323.58	2607	869.00	108.63
0.090				4152	1384.00	173.00
0.100				6021	2007.00	250.88
0.110				8337	2779.00	347.38
0.120				9151	3050.33	381.29
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
LBR		323.5833				251
Average:			287.2917			

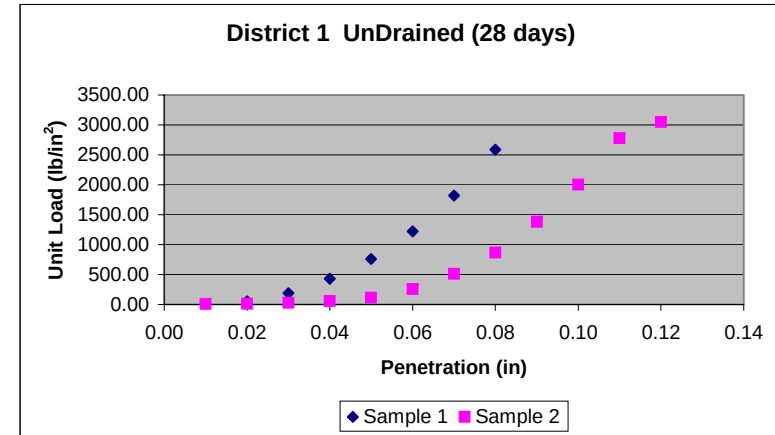


Figure E.3.8 District 1 – LBR Values for Non-excavatable Mix Samples Undrained for 28 Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	16	5.33	0.67	151	50.33	6.29
0.020	35	11.67	1.46	935	311.67	38.96
0.030	68	22.67	2.83	1736	578.67	72.33
0.040	68	22.67	2.83	2505	835.00	104.38
0.050	108	36.00	4.50	3294	1098.00	137.25
0.060	173	57.67	7.21	4146	1382.00	172.75
0.070	289	96.33	12.04	5001	1667.00	208.38
0.080	407	135.67	16.96	5832	1944.00	243.00
0.090	557	185.67	23.21	6773	2257.67	282.21
0.100	729	243.00	30.38	7767	2589.00	323.63
0.110	921	307.00	38.38	8769	2923.00	365.38
0.120	1212	404.00	50.50	9823	3274.33	409.29
0.130	1675	558.33	69.79			
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
LBR			39			370
Average:			204.5			

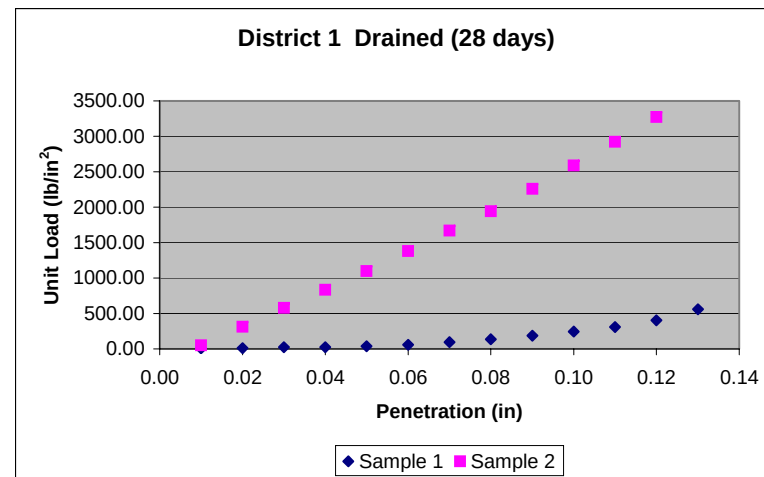


Figure E.3.9 District 1 – LBR Values for Non-excavatable Mix Samples Drained for 28 Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	124	41.33	5.17	114	38.00	4.75
0.020	482	160.67	20.08	517	172.33	21.54
0.030	1129	376.33	47.04	1208	402.67	50.33
0.040	1749	583.00	72.88	2183	727.67	90.96
0.050	2467	822.33	102.79	3553	1184.33	148.04
0.060	3292	1097.33	137.17	5163	1721.00	215.13
0.070	4266	1422.00	177.75	6968	2322.67	290.33
0.080	5449	1816.33	227.04	8809	2936.33	367.04
0.090	6943	2314.33	289.29			
0.100	8692	2897.33	362.17			
0.110						
0.120						
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
0.200						

LBR

362.1667

367.0417

Average:

364.6042

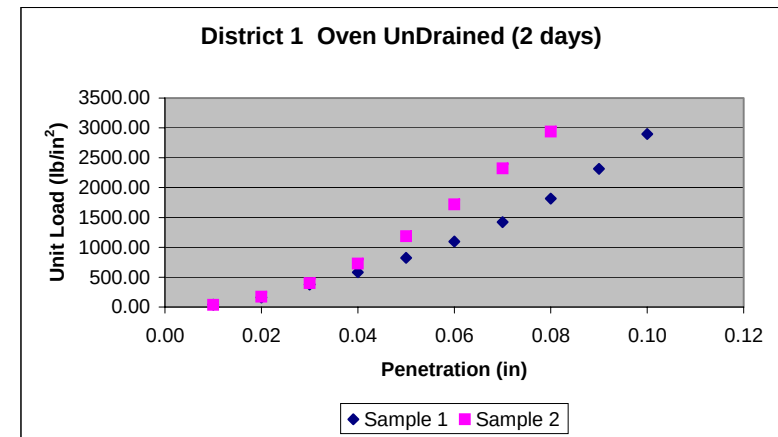


Figure E.3.10 District 1 – LBR Values for Non-excavatable Mix Samples Undrained and Oven Cured for Two Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	209	69.67	8.71	128	42.67	5.33
0.020	738	246.00	30.75	465	155.00	19.38
0.030	1639	546.33	68.29	1082	360.67	45.08
0.040	2874	958.00	119.75	2013	671.00	83.88
0.050	4376	1458.67	182.33	3315	1105.00	138.13
0.060	6168	2056.00	257.00	5019	1673.00	209.13
0.070	8167	2722.33	340.29	7079	2359.67	294.96
0.080				9345	3115.00	389.38
0.090						
0.100						
0.110						
0.120						
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
0.200						
LBR			340.2917			389.375
Average:			364.8333			

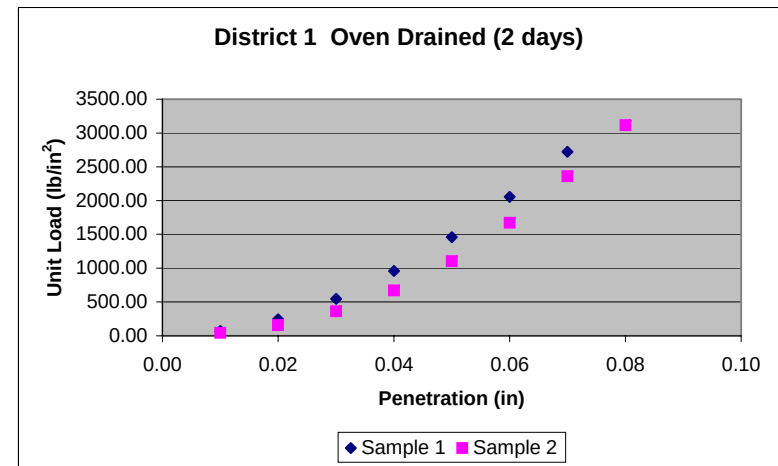


Figure E.3.11 District 1 – LBR Values for Non-excavatable Mix Samples Drained and Oven Cured for Two Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	41	13.67	1.71	130	43.33	5.42
0.020	210	70.00	8.75	498	166.00	20.75
0.030	566	188.67	23.58	1000	333.33	41.67
0.040	1371	457.00	57.13	1766	588.67	73.58
0.050	2701	900.33	112.54	2746	915.33	114.42
0.060	4396	1465.33	183.17	3937	1312.33	164.04
0.070	6364	2121.33	265.17	5351	1783.67	222.96
0.080	8515	2838.33	354.79	6838	2279.33	284.92
0.090				8670	2890.00	361.25
0.100						
0.110						
0.120						
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						

LBR

354.7917

361.25

Average:

358.0208

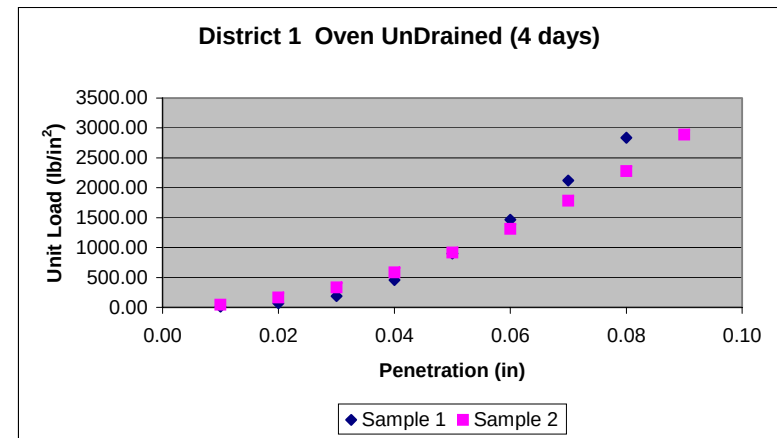


Figure E.3.12 District 1 – LBR Values for Non-excavatable Mix Samples Undrained and Oven Cured for Four Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	60	20.00	2.50	127	42.33	5.29
0.020	214	71.33	8.92	644	214.67	26.83
0.030	571	190.33	23.79	1413	471.00	58.88
0.040	1373	457.67	57.21	2183	727.67	90.96
0.050	2489	829.67	103.71	3197	1065.67	133.21
0.060	3964	1321.33	165.17	4439	1479.67	184.96
0.070	5821	1940.33	242.54	5833	1944.33	243.04
0.080	8038	2679.33	334.92	7361	2453.67	306.71
0.090				9035	3011.67	376.46
0.100						
0.110						
0.120						
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
0.200						

LBR	334.9167	376.4583
Average:	355.6875	

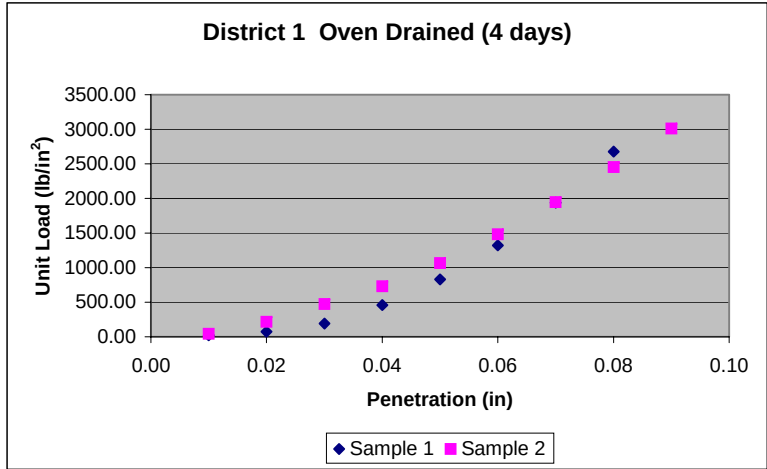


Figure E.3.13 District 1 – LBR Values for Non-excavatable Mix Samples Drained and Oven Cured for Four Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	86	28.67	3.58	92	30.67	3.83
0.020	400	133.33	16.67	354	118.00	14.75
0.030	1055	351.67	43.96	858	286.00	35.75
0.040	2032	677.33	84.67	1704	568.00	71.00
0.050	3297	1099.00	137.38	2913	971.00	121.38
0.060	4926	1642.00	205.25	4394	1464.67	183.08
0.070	6886	2295.33	286.92	6115	2038.33	254.79
0.080	9030	3010.00	376.25	8057	2685.67	335.71
0.090				10000	3333.33	416.67
0.100						
0.110						
0.120						
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
0.200						

LBR

376.25

416.6667

Average:

396.4583

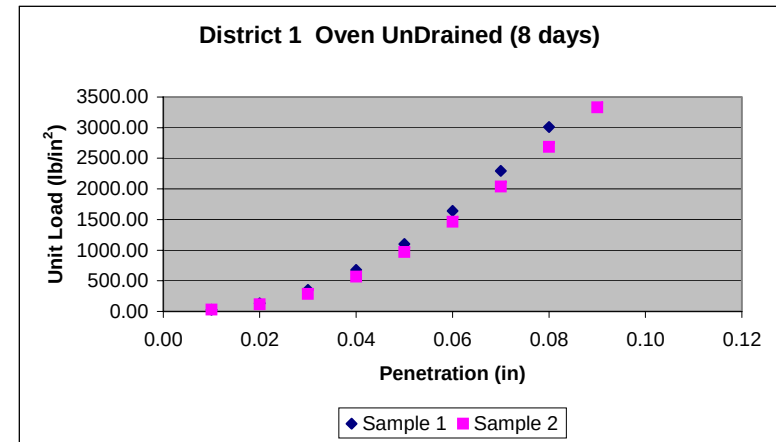


Figure E.3.14 District 1 – LBR Values for Non-excavatable Mix Samples Undrained and Oven Cured for Eight Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	77	25.67	3.21	105	35.00	4.38
0.020	405	135.00	16.88	485	161.67	20.21
0.030	870	290.00	36.25	1153	384.33	48.04
0.040	1399	466.33	58.29	2289	763.00	95.38
0.050	2075	691.67	86.46	3775	1258.33	157.29
0.060	2882	960.67	120.08	5553	1851.00	231.38
0.070	3778	1259.33	157.42	7570	2523.33	315.42
0.080	4815	1605.00	200.63	10000	3333.33	416.67
0.090	6103	2034.33	254.29			
0.100	7738	2579.33	322.42			
0.110	9740	3246.67	405.83			
0.120						
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
0.200						

LBR
Average:

372
394.3333

416.6667

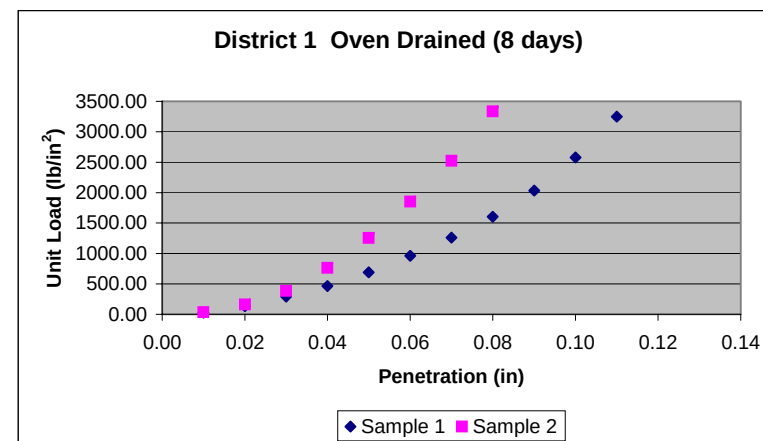


Figure E.3.15 District 1 – LBR Values for Non-excavatable Mix Samples Drained and Oven Cured for Eight Days

APPENDIX E.4

DISTRICT 1 – LBR DATA NON-EXCAVATABLE ACCELERATED MIX

Penetration (in)	Sample 1			Sample 2		
	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	1	0.33	0.04	1	0.33	0.04
0.020	1	0.33	0.04	1	0.33	0.04
0.030	1	0.33	0.04	1	0.33	0.04
0.040	2	0.67	0.08	1	0.33	0.04
0.050	2	0.67	0.08	1	0.33	0.04
0.060	2	0.67	0.08	1	0.33	0.04
0.070	2	0.67	0.08	1	0.33	0.04
0.080	2	0.67	0.08	2	0.67	0.08
0.090	2	0.67	0.08	2	0.67	0.08
0.100	2	0.67	0.08	2	0.67	0.08
0.110	2	0.67	0.08	2	0.67	0.08
0.120	2	0.67	0.08	2	0.67	0.08
0.130				3	1.00	0.13
0.140				2	0.67	0.08
0.150				2	0.67	0.08
0.160				2	0.67	0.08
0.170				2	0.67	0.08
0.180				3	1.00	0.13
0.190				3	1.00	0.13
0.200				3	1.00	0.13
0.225				3	1.00	0.13
0.250				3	1.00	0.13
0.275				4	1.33	0.17
0.300				4	1.33	0.17
0.325				5	1.67	0.21
0.350						

LBR

0.083333

0.208333

Average:

0.145833

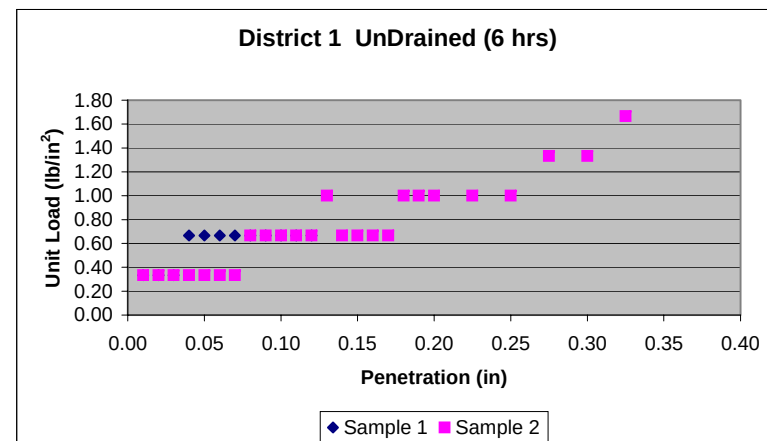


Figure E.4.1 District 1 – LBR Values for Non-excavatable Accelerated Mix Samples Undrained for Six Hours

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	0	0.00	0.00	1	0.33	0.04
0.020	0	0.00	0.00	2	0.67	0.08
0.030	0	0.00	0.00	2	0.67	0.08
0.040	0	0.00	0.00	3	1.00	0.13
0.050	0	0.00	0.00	3	1.00	0.13
0.060	0	0.00	0.00	4	1.33	0.17
0.070	1	0.33	0.04	4	1.33	0.17
0.080	1	0.33	0.04	4	1.33	0.17
0.090	1	0.33	0.04	3	1.00	0.13
0.100	1	0.33	0.04	2	0.67	0.08
0.110	1	0.33	0.04	3	1.00	0.13
0.120				3	1.00	0.13
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
0.200						
0.225						
0.250						
0.275						
0.300						
0.325						
0.350						

LBR

0.041667

0.166667

Average:

0.104167

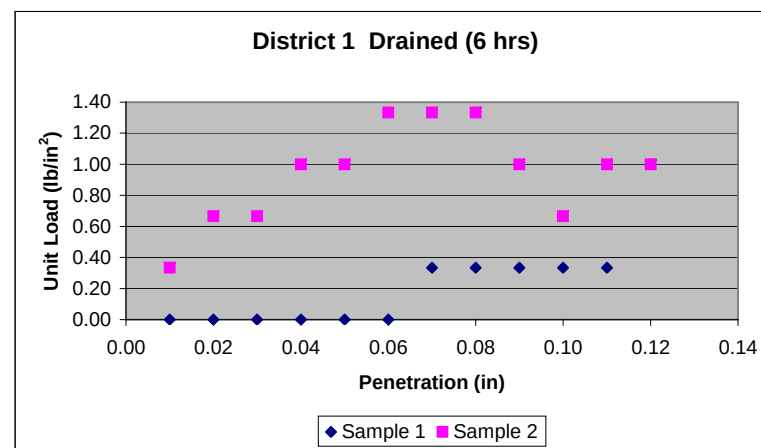


Figure E.4.2 District 1 – LBR Values for Non-excavatable Accelerated Mix Samples Drained for Six Hours

District 1 Drained (1day)

Penetration (in)	Unit Load (lb/in²) - Sample 1	Unit Load (lb/in²) - Sample 2
0.012	0	25
0.020	25	75
0.030	60	105
0.040	90	130
0.050	120	160
0.060	145	180
0.070	165	205
0.080	190	230
0.090	210	255
0.100	235	280
0.110	260	305
0.120	285	330
0.130	310	-

Figure E.4.3 District 1 – LBR Values for Non-excavatable Accelerated Mix Samples Drained for One Day

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	95	31.67	3.96	0	0.00	0.00
0.020	215	71.67	8.96	0	0.00	0.00
0.030	442	147.33	18.42	0	0.00	0.00
0.040	766	255.33	31.92	6	2.00	0.25
0.050	1217	405.67	50.71	179	59.67	7.46
0.060	1796	598.67	74.83	494	164.67	20.58
0.070	2416	805.33	100.67	989	329.67	41.21
0.080	2315	771.67	96.46	1708	569.33	71.17
0.090	2648	882.67	110.33	2440	813.33	101.67
0.100	2929	976.33	122.04	2449	816.33	102.04
0.110	3270	1090.00	136.25	2690	896.67	112.08
0.120	3687	1229.00	153.63	3064	1021.33	127.67
0.130	4036	1345.33	168.17	3530	1176.67	147.08
0.140	4423	1474.33	184.29	3946	1315.33	164.42
0.150	4824	1608.00	201.00	4341	1447.00	180.88
0.160				4716	1572.00	196.50
0.170				5053	1684.33	210.54
0.180						
0.190						
0.200						

LBR

Average:

171

182.5

194

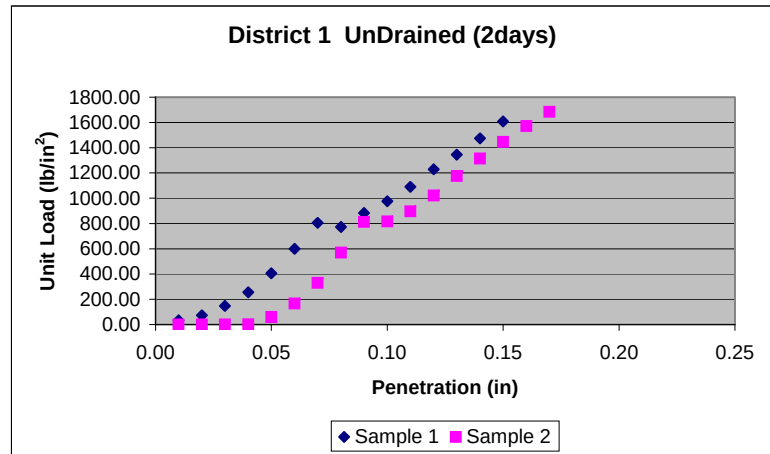


Figure E.4.4 District 1 – LBR Values for Non-excavatable Accelerated Mix Samples Undrained for Two Days





Penetration (in)	Sample 1			Sample 2		
	Stress (lbs)	Unit Load lb/in ²	LBR Reading	Stress (lbs)	Unit Load lb/in ²	LBR Reading
0.010	71	23.67	2.96	19	6.33	0.79
0.020	195	65.00	8.13	33	11.00	1.38
0.030	404	134.67	16.83	84	28.00	3.50
0.040	743	247.67	30.96	213	71.00	8.88
0.050	1124	374.67	46.83	383	127.67	15.96
0.060	1535	511.67	63.96	728	242.67	30.33
0.070	1957	652.33	81.54	1348	449.33	56.17
0.080	2460	820.00	102.50	2382	794.00	99.25
0.090	3244	1081.33	135.17	3820	1273.33	159.17
0.100	4190	1396.67	174.58	5564	1854.67	231.83
0.110	5302	1767.33	220.92	7642	2547.33	318.42
0.120	6580	2193.33	274.17	9841	3280.33	410.04
0.130	8038	2679.33	334.92			
0.140	9604	3201.33	400.17			
0.150						
0.160						
0.170						
0.180						
0.190						
LBR			196			240
Average:			218			

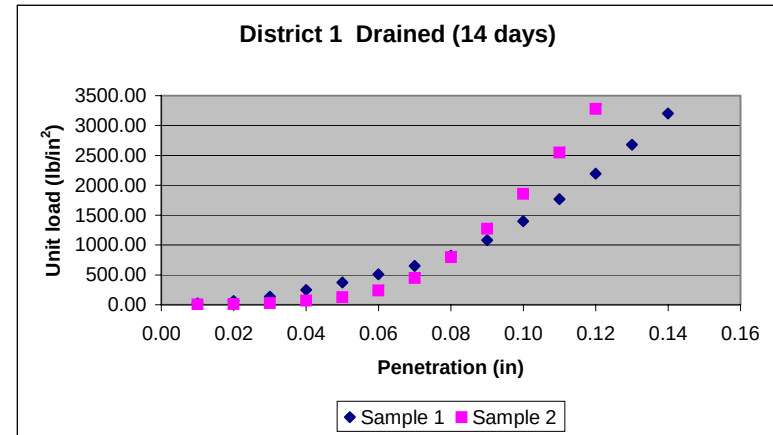


Figure E.4.7 District 1 – LBR Values for Non-excavatable Accelerated Mix Samples Drained for 14 Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	61	20.33	2.54	24	8.00	1.00
0.020	217	72.33	9.04	101	33.67	4.21
0.030	517	172.33	21.54	283	94.33	11.79
0.040	1065	355.00	44.38	652	217.33	27.17
0.050	2013	671.00	83.88	1327	442.33	55.29
0.060	3419	1139.67	142.46	2476	825.33	103.17
0.070	5141	1713.67	214.21	3951	1317.00	164.63
0.080	7130	2376.67	297.08	5660	1886.67	235.83
0.090	9329	3109.67	388.71	7516	2505.33	313.17
0.100				9450	3150.00	393.75
0.110						
0.120						
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
0.200						

LBR
Average:

388.7083

391.2292

393.75

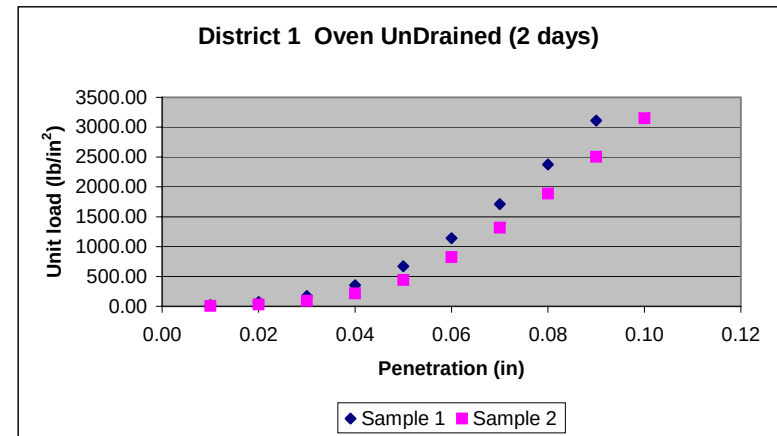


Figure E.4.8 District 1 – LBR Values for Non-excavatable Accelerated Mix Samples Undrained and Oven Cured for Two Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	0	0.00	0.00	38	12.67	1.58
0.020	47	15.67	1.96	128	42.67	5.33
0.030	236	78.67	9.83	350	116.67	14.58
0.040	534	178.00	22.25	782	260.67	32.58
0.050	1090	363.33	45.42	1439	479.67	59.96
0.060	1811	603.67	75.46	2369	789.67	98.71
0.070	2703	901.00	112.63	3544	1181.33	147.67
0.080	3928	1309.33	163.67	4862	1620.67	202.58
0.090	5635	1878.33	234.79	6323	2107.67	263.46
0.100	7679	2559.67	319.96	7873	2624.33	328.04
0.110	9407	3135.67	391.96	9548	3182.67	397.83
0.120						
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
0.200						

LBR
Average: 391.9583 394.8958 397.8333

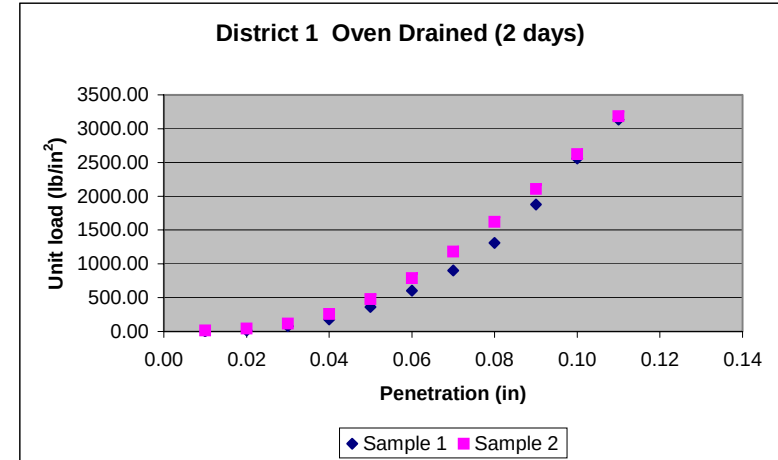


Figure E.4.9 District 1 – LBR Values for Non-excavatable Accelerated Mix Samples Drained and Oven Cured for Two Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	105	35.00	4.38	78	26.00	3.25
0.020	393	131.00	16.38	405	135.00	16.88
0.030	833	277.67	34.71	1282	427.33	53.42
0.040	1395	465.00	58.13	2067	689.00	86.13
0.050	2122	707.33	88.42	3010	1003.33	125.42
0.060	3012	1004.00	125.50	4166	1388.67	173.58
0.070	4064	1354.67	169.33	5469	1823.00	227.88
0.080	5242	1747.33	218.42	6951	2317.00	289.63
0.090	6797	2265.66667	283.21	8699	2899.67	362.46
0.100	8576	2858.66667	357.33			
0.110						
0.120						
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						

LBR	357.3333	362.4583
Average:	359.8958	

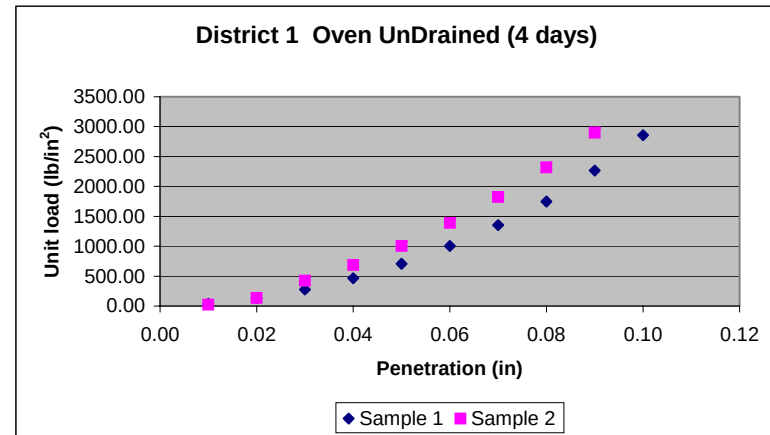


Figure E.4.10 District 1 – LBR Values for Non-excavatable Accelerated Mix Samples Undrained and Oven Cured for Four Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	28	9.33	1.17	42	14.00	1.75
0.020	113	37.67	4.71	186	62.00	7.75
0.030	316	105.33	13.17	564	188.00	23.50
0.040	700	233.33	29.17	1307	435.67	54.46
0.050	1409	469.67	58.71	2581	860.33	107.54
0.060	2604	868.00	108.50	4378	1459.33	182.42
0.070	4323	1441.00	180.13	6513	2171.00	271.38
0.080	6383	2127.67	265.96	8887	2962.33	370.29
0.090	8614	2871.33	358.92			
0.100						
0.110						
0.120						
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
0.200						

LBR
Average: **358.9167** 364.6042 **370.2917**

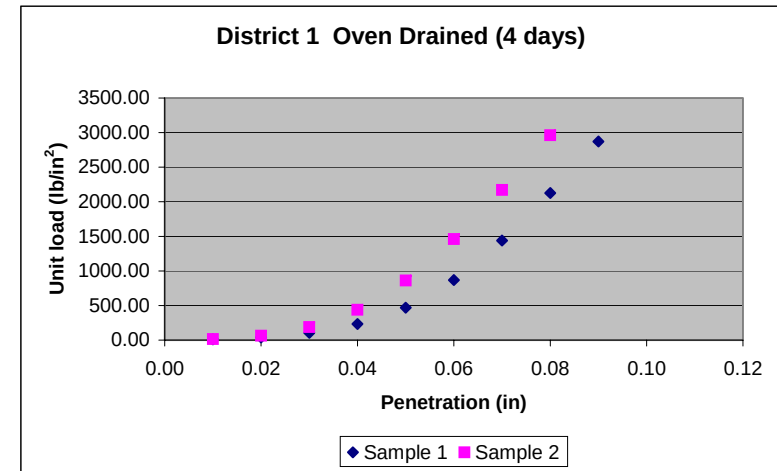


Figure E.4.11 District 1 – LBR Values for Non-excavatable Accelerated Mix Samples Drained and Oven Cured for Four Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	16	5.33	0.67	18	6.00	0.75
0.020	66	22.00	2.75	48	16.00	2.00
0.030	215	71.67	8.96	121	40.33	5.04
0.040	550	183.33	22.92	293	97.67	12.21
0.050	1075	358.33	44.79	614	204.67	25.58
0.060	1841	613.67	76.71	1173	391.00	48.88
0.070	2987	995.67	124.46	1972	657.33	82.17
0.080	4475	1491.67	186.46	3032	1010.67	126.33
0.090	6296	2098.67	262.33	4361	1453.67	181.71
0.100	8370	2790.00	348.75	5914	1971.33	246.42
0.110				7741	2580.33	322.54
0.120				9780	3260.00	407.50
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
0.200						

LBR

348.75

407.5

Average:

378.125

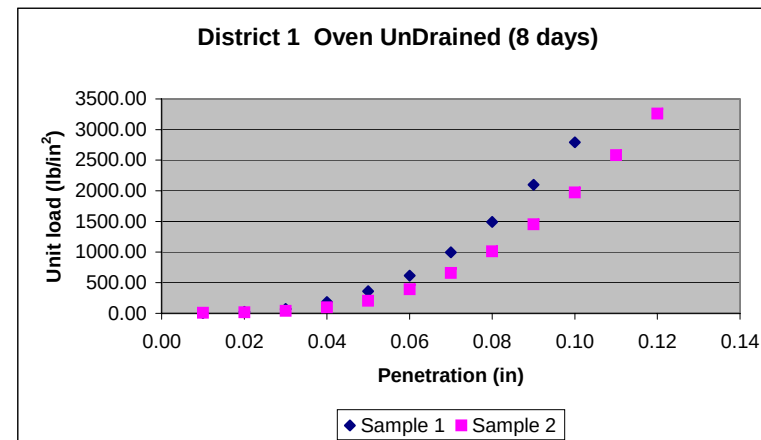


Figure E.4.12 District 1 – LBR Values for Non-excavatable Accelerated Mix Samples Undrained and Oven Cured for Eight Days

Penetration (in)	Sample 1			Sample 2		
	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	47	15.67	1.96	87	29.00	3.63
0.020	209	69.67	8.71	387	129.00	16.13
0.030	620	206.67	25.83	802	267.33	33.42
0.040	1223	407.67	50.96	1346	448.67	56.08
0.050	2261	753.67	94.21	1988	662.67	82.83
0.060	3804	1268.00	158.50	2718	906.00	113.25
0.070	5816	1938.67	242.33	3575	1191.67	148.96
0.080	8122	2707.33	338.42	4591	1530.33	191.29
0.090				5780	1926.67	240.83
0.100				7157	2385.67	298.21
0.110				8614	2871.33	358.92
0.120						
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
0.200						

LBR
Average:

338.4167

348.66667

358.9167

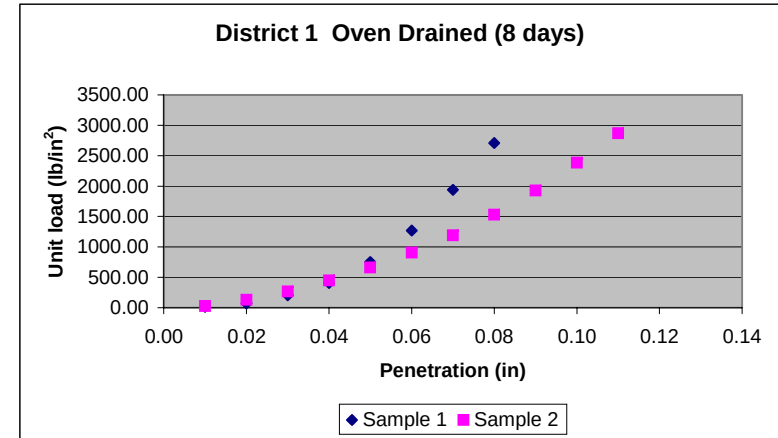


Figure E.4.13 District 1 – LBR Values for Non-excavatable Accelerated Mix Samples Drained and Oven Cured for Eight Days

APPENDIX E.5

DISTRICT 2 – LBR DATA EXCAVATABLE MIX

Penetration (in)	Sample 1			Sample 2		
	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	3	1.00	0.13	5	1.67	0.21
0.020	8	2.67	0.33	9	3.00	0.38
0.030	12	4.00	0.50	13	4.33	0.54
0.040	16	5.33	0.67	17	5.67	0.71
0.050	20	6.67	0.83	20	6.67	0.83
0.060	23	7.67	0.96	22	7.33	0.92
0.070	27	9.00	1.13	25	8.33	1.04
0.080	29	9.67	1.21	28	9.33	1.17
0.090	31	10.33	1.29	30	10.00	1.25
0.100	32	10.67	1.33	32	10.67	1.33
0.110	33	11.00	1.38	34	11.33	1.42
0.120	35	11.67	1.46	35	11.67	1.46
0.130				37	12.33	1.54
0.140				39	13.00	1.63
0.150				40	13.33	1.67
0.160				41	13.67	1.71
0.170				41	13.67	1.71
0.180				41	13.67	1.71
0.190				41	13.67	1.71
0.200				44	14.67	1.83
0.225				49	16.33	2.04
0.250				54	18.00	2.25
0.275				57	19.00	2.38
0.300				62	20.67	2.58
0.325				63	21.00	2.63
0.350						

LBR

1.458333

2.625

Average:

2.041667

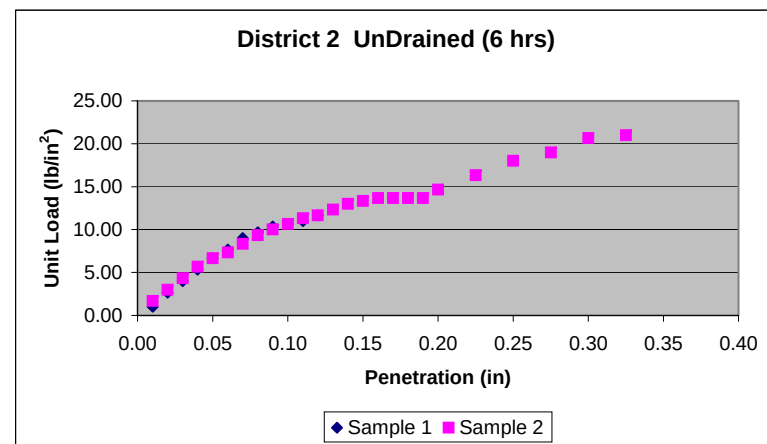


Figure E.5.1 District 2 – LBR Values for Excavatable Mix Samples Undrained for Six Hours

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	0	0.00	0.00	14	4.67	0.58
0.020	0	0.00	0.00	18	6.00	0.75
0.030	4	1.33	0.17	22	7.33	0.92
0.040	9	3.00	0.38	26	8.67	1.08
0.050	12	4.00	0.50	29	9.67	1.21
0.060	16	5.33	0.67	30	10.00	1.25
0.070	19	6.33	0.79	32	10.67	1.33
0.080	21	7.00	0.88	35	11.67	1.46
0.090	23	7.67	0.96	39	13.00	1.63
0.100	25	8.33	1.04	43	14.33	1.79
0.110	26	8.67	1.08	46	15.33	1.92
0.120	27	9.00	1.13	49	16.33	2.04
0.130	28	9.33	1.17			
0.140	30	10.00	1.25			
0.150						
0.160						
0.170						
0.180						
0.190						
0.200						
0.225						
0.250						
0.275						
0.300						
0.325						
0.350						

LBR
Average: 1.25 1.125 1

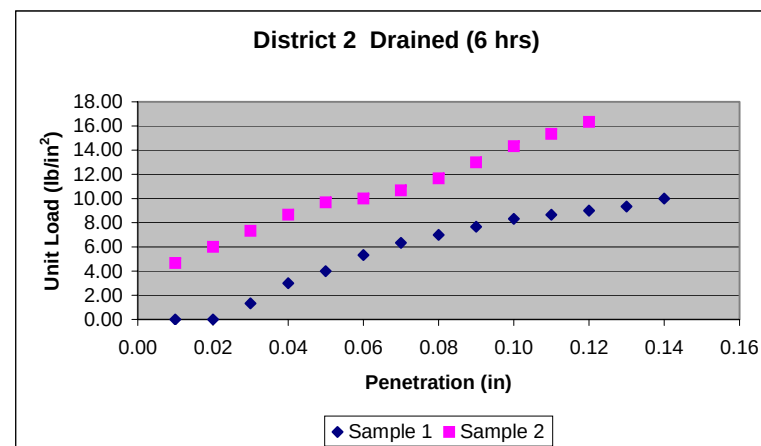


Figure E.5.2 District 2 – LBR Values for Excavatable Mix Samples Drained for Six Hours

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	104	34.67	4.33	85	28.33	3.54
0.020	145	48.33	6.04	130	43.33	5.42
0.030	177	59.00	7.38	163	54.33	6.79
0.040	201	67.00	8.38	194	64.67	8.08
0.050	212	70.67	8.83	240	80.00	10.00
0.060	222	74.00	9.25	282	94.00	11.75
0.070	228	76.00	9.50	319	106.33	13.29
0.080	232	77.33	9.67	355	118.33	14.79
0.090	239	79.67	9.96	391	130.33	16.29
0.100	246	82.00	10.25	424	141.33	17.67
0.110	254	84.67	10.58	453	151.00	18.88
0.120	266	88.67	11.08	480	160.00	20.00
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						

LBR
Average:

9

13

17

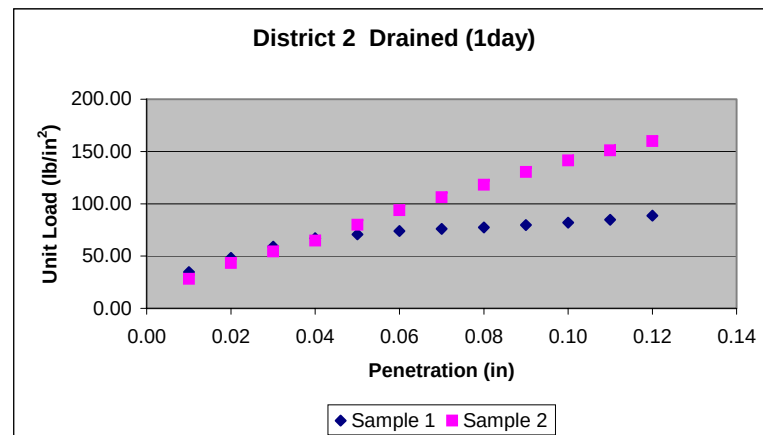


Figure E.5.3 District 2 – LBR Values for Excavatable Mix Samples Drained for One Day

District 2 UnDrained (2days)

Penetration (in)	Unit Load (lb/in ²) - Sample 1	Unit Load (lb/in ²) - Sample 2
0.012	5	15
0.020	20	65
0.030	55	130
0.040	95	165
0.050	135	185
0.060	180	170
0.070	190	160
0.080	160	155
0.090	165	155
0.100	110	150
0.110	110	145
0.120	125	140
0.130	140	135
0.140	150	-

Figure E.5.4 District 2 – LBR Values for Excavatable Mix Samples Undrained for Two Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	84	28.00	3.50	734	244.67	30.58
0.020	339	113.00	14.13	818	272.67	34.08
0.030	535	178.33	22.29	1049	349.67	43.71
0.040	738	246.00	30.75	1187	395.67	49.46
0.050	796	265.33	33.17	1241	413.67	51.71
0.060	805	268.33	33.54	1333	444.33	55.54
0.070	870	290.00	36.25	1417	472.33	59.04
0.080	907	302.33	37.79	1501	500.33	62.54
0.090	944	314.67	39.33	1566	522.00	65.25
0.100	952	317.33	39.67	1621	540.33	67.54
0.110	949	316.33	39.54	1668	556.00	69.50
0.120	944	314.67	39.33	1704	568.00	71.00
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
LBR			39			66
Average:			52.5			

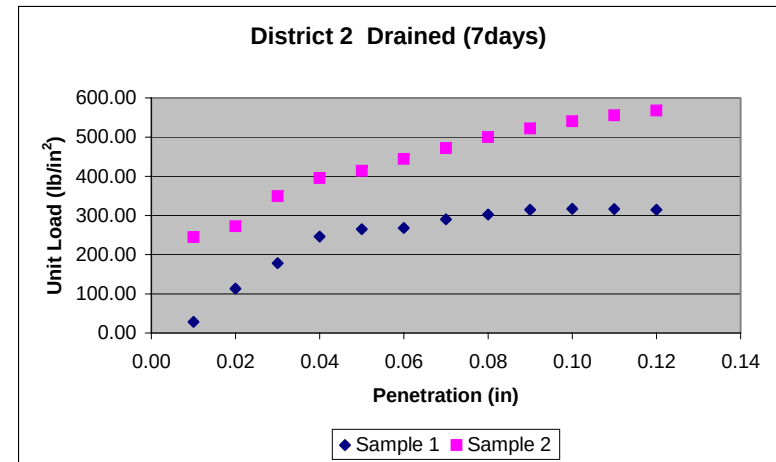


Figure E.5.6 District 2 – LBR Values for Excavatable Mix Samples Drained for Seven Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	44	14.67	1.83	49	16.33	2.04
0.020	152	50.67	6.33	135	45.00	5.63
0.030	285	95.00	11.88	278	92.67	11.58
0.040	448	149.33	18.67	452	150.67	18.83
0.050	670	223.33	27.92	565	188.33	23.54
0.060	805	268.33	33.54	728	242.67	30.33
0.070	932	310.67	38.83	908	302.67	37.83
0.080	1000	333.33	41.67	1154	384.67	48.08
0.090	1142	380.67	47.58	1345	448.33	56.04
0.100	1303	434.33	54.29	1533	511.00	63.88
0.110	1455	485.00	60.63	1716	572.00	71.50
0.120	1593	531.00	66.38	1890	630.00	78.75
0.130	1711	570.33	71.29	2048	682.67	85.33
0.140	1826	608.67	76.08			
0.150						
0.160						
0.170						
0.180						
0.190						

LBR
Average: 66 75
 70.5

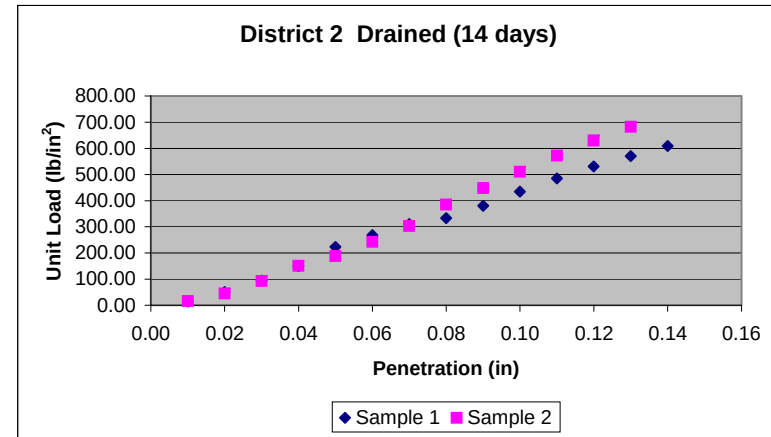


Figure E.5.7 District 2 – LBR Values for Excavatable Mix Samples Drained for 14 Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	14	4.67	0.58	25	8.33	1.04
0.020	28	9.33	1.17	71	23.67	2.96
0.030	53	17.67	2.21	165	55.00	6.88
0.040	94	31.33	3.92	325	108.33	13.54
0.050	151	50.33	6.29	544	181.33	22.67
0.060	245	81.67	10.21	762	254.00	31.75
0.070	372	124.00	15.50	817	272.33	34.04
0.080	528	176.00	22.00	949	316.33	39.54
0.090	682	227.33	28.42	1063	354.33	44.29
0.100	793	264.33	33.04	1152	384.00	48.00
0.110	925	308.33	38.54	1249	416.33	52.04
0.120	1026	342.00	42.75	1343	447.67	55.96
0.130				1416	472.00	59.00
0.140				1478	492.67	61.58
0.150						
0.160						
0.170						
0.180						
0.190						
LBR			32			57
Average:				44.5		

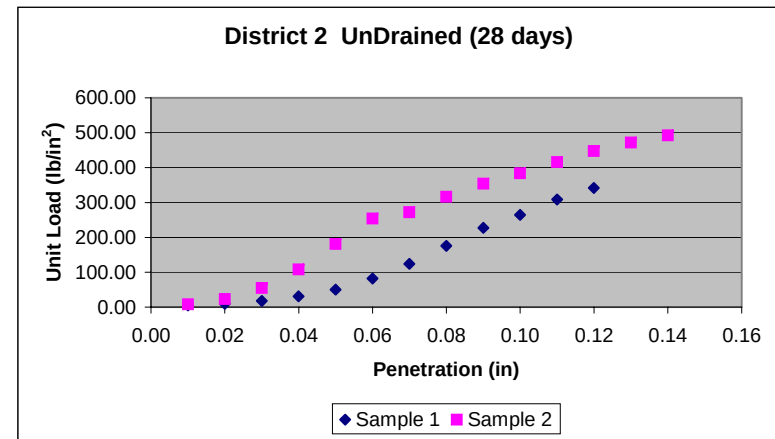


Figure E.5.8 District 2 – LBR Values for Excavatable Mix Samples Undrained for 28 Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	18	6.00	0.75	28	9.33	1.17
0.020	61	20.33	2.54	104	34.67	4.33
0.030	135	45.00	5.63	247	82.33	10.29
0.040	246	82.00	10.25	435	145.00	18.13
0.050	392	130.67	16.33	667	222.33	27.79
0.060	542	180.67	22.58	931	310.33	38.79
0.070	662	220.67	27.58	1084	361.33	45.17
0.080	924	308.00	38.50	1244	414.67	51.83
0.090	972	324.00	40.50	1411	470.33	58.79
0.100	1071	357.00	44.63	1530	510.00	63.75
0.110	1203	401.00	50.13	1631	543.67	67.96
0.120	1313	437.67	54.71	1729	576.33	72.04
0.130	1406	468.67	58.58	1803	601.00	75.13
0.140	1493	497.67	62.21	1862	620.67	77.58
0.150	1576	525.33	65.67			
0.160	1652	550.67	68.83			
0.170						
0.180						
0.190						
LBR			63			73
Average:			68			

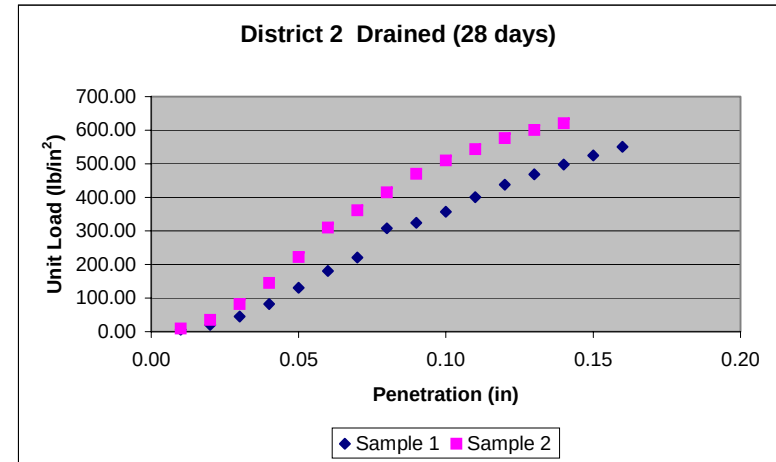


Figure E.5.9 District 2 – LBR Values for Excavatable Mix Samples Drained for 28 Days

Penetration (in)	Sample 1			Sample 2		
	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	90	30.00	3.75	32	10.67	1.33
0.020	231	77.00	9.63	94	31.33	3.92
0.030	366	122.00	15.25	290	96.67	12.08
0.040	518	172.67	21.58	583	194.33	24.29
0.050	657	219.00	27.38	994	331.33	41.42
0.060	797	265.67	33.21	1373	457.67	57.21
0.070	940	313.33	39.17	1707	569.00	71.13
0.080	1129	376.33	47.04	1934	644.67	80.58
0.090	1365	455.00	56.88	2164	721.33	90.17
0.100	1579	526.33	65.79	2398	799.33	99.92
0.110	1786	595.33	74.42	2602	867.33	108.42
0.120	1990	663.33	82.92	2780	926.67	115.83
0.130				2956	985.33	123.17
0.140				3121	1040.33	130.04
0.150						
0.160						
0.170						
0.180						
0.190						
LBR			68			120
Average:				94		

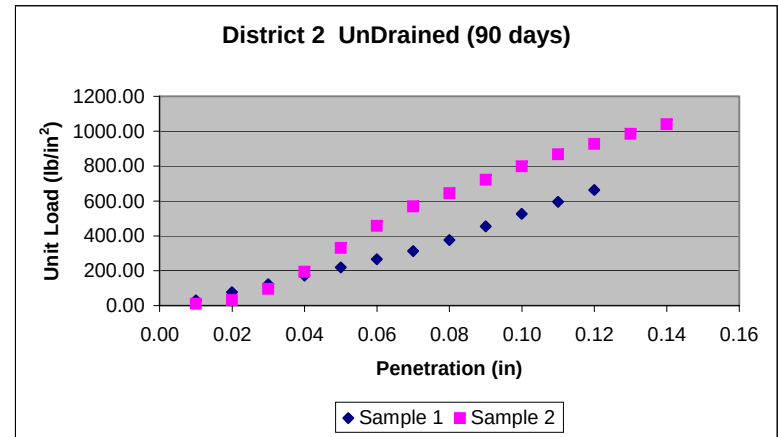


Figure E.5.10 District 2 – LBR Values for Excavatable Mix Samples Undrained for 90 Days



	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	99	33.00	4.13	0	0.00	0.00
0.020	324	108.00	13.50	0	0.00	0.00
0.030	464	154.67	19.33	10	3.33	0.42
0.040	466	155.33	19.42	38	12.67	1.58
0.050	585	195.00	24.38	128	42.67	5.33
0.060	690	230.00	28.75	280	93.33	11.67
0.070	699	233.00	29.13	480	160.00	20.00
0.080	725	241.67	30.21	622	207.33	25.92
0.090	757	252.33	31.54	695	231.67	28.96
0.100	789	263.00	32.88	761	253.67	31.71
0.110	806	268.67	33.58	781	260.33	32.54
0.120	821	273.67	34.21	867	289.00	36.13
0.130				940	313.33	39.17
0.140				1021	340.33	42.54
0.150				1100	366.67	45.83
0.160				1170	390.00	48.75
0.170						
0.180						
0.190						
0.200						
LBR Average:			32			45
			38.5			

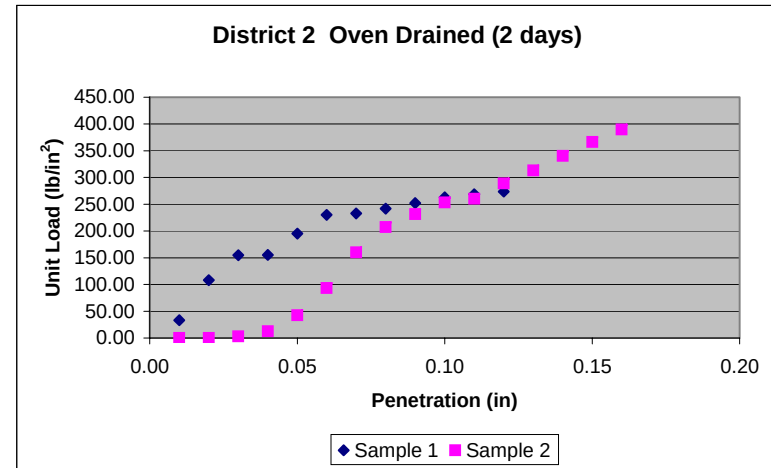


Figure E.5.12 District 2 – LBR Values for Excavatable Mix Samples Drained and Oven Cured for Two Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	45	15.00	1.88	55	18.33	2.29
0.020	269	89.67	11.21	167	55.67	6.96
0.030	490	163.33	20.42	317	105.67	13.21
0.040	611	203.67	25.46	423	141.00	17.63
0.050	755	251.67	31.46	497	165.67	20.71
0.060	676	225.33	28.17	624	208.00	26.00
0.070	732	244.00	30.50	721	240.33	30.04
0.080	683	227.67	28.46	656	218.67	27.33
0.090	651	217.00	27.13	674	224.67	28.08
0.100	652	217.33	27.17	705	235.00	29.38
0.110	642	214.00	26.75	735	245.00	30.63
0.120	635	211.67	26.46	761	253.67	31.71
0.130	600	200.00	25.00	766	255.33	31.92
0.140						
0.150						
0.160						
0.170						
0.180						
LBR	26			29		
Average:	27.5					

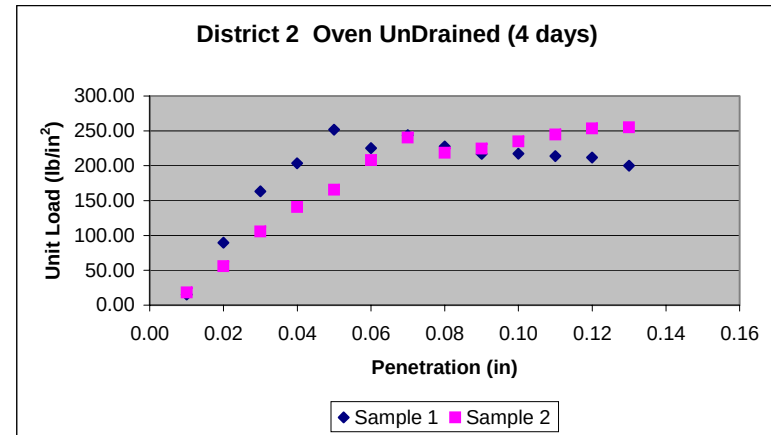


Figure E.5.13 District 2 – LBR Values for Excavatable Mix Samples Undrained and Oven Cured for Four Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	45	15.00	1.88	25	8.33	1.04
0.020	160	53.33	6.67	75	25.00	3.13
0.030	318	106.00	13.25	205	68.33	8.54
0.040	475	158.33	19.79	422	140.67	17.58
0.050	692	230.67	28.83	622	207.33	25.92
0.060	885	295.00	36.88	777	259.00	32.38
0.070	1060	353.33	44.17	912	304.00	38.00
0.080	1254	418.00	52.25	1076	358.67	44.83
0.090	1376	458.67	57.33	1193	397.67	49.71
0.100	1427	475.67	59.46	1338	446.00	55.75
0.110	1440	480.00	60.00	1466	488.67	61.08
0.120	1422	474.00	59.25	1592	530.67	66.33
0.130	1367	455.67	56.96	1698	566.00	70.75
0.140	1343	447.67	55.96	1797	599.00	74.88
0.150						
0.160						
0.170						
0.180						
0.190						
0.200						

LBR
Average:

58

62

66

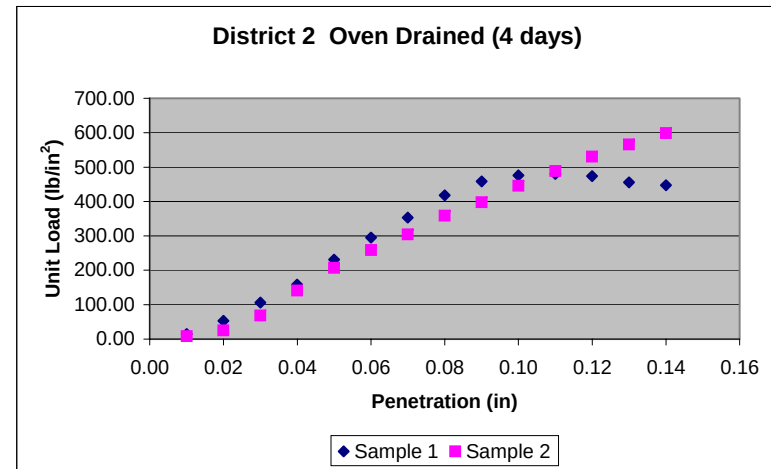


Figure E.5.14 District 2 – LBR Values for Excavatable Mix Samples Drained and Oven Cured for Four Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	50	16.67	2.08	103	34.33	4.29
0.020	87	29.00	3.63	170	56.67	7.08
0.030	154	51.33	6.42	256	85.33	10.67
0.040	282	94.00	11.75	359	119.67	14.96
0.050	437	145.67	18.21	427	142.33	17.79
0.060	537	179.00	22.38	469	156.33	19.54
0.070	549	183.00	22.88	566	188.67	23.58
0.080	595	198.33	24.79	560	186.67	23.33
0.090	583	194.33	24.29	566	188.67	23.58
0.100	583	194.33	24.29	648	216.00	27.00
0.110	505	168.33	21.04	711	237.00	29.63
0.120	460	153.33	19.17	712	237.33	29.67
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						
LBR			22			26
Average:			24			

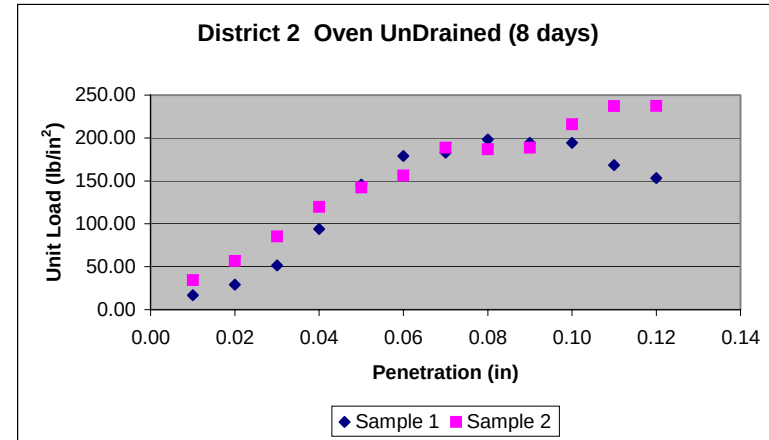


Figure E.5.15 District 2 – LBR Values for Excavatable Mix Samples Undrained and Oven Cured for Eight Days

Penetration (in)	Sample 1			Sample 2		
	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	119	39.67	4.96	43	14.33	1.79
0.020	242	80.67	10.08	106	35.33	4.42
0.030	359	119.67	14.96	225	75.00	9.38
0.040	499	166.33	20.79	446	148.67	18.58
0.050	621	207.00	25.88	722	240.67	30.08
0.060	615	205.00	25.63	1063	354.33	44.29
0.070	720	240.00	30.00	1440	480.00	60.00
0.080	846	282.00	35.25	1757	585.67	73.21
0.090	993	331.00	41.38	1581	527.00	65.88
0.100	1179	393.00	49.13	1696	565.33	70.67
0.110	1368	456.00	57.00	1816	605.33	75.67
0.120	1416	472.00	59.00	1954	651.33	81.42
0.130				2098	699.33	87.42
0.140				2236	745.33	93.17
0.150				2373	791.00	98.88
0.160						
0.170						
0.180						
LBR	50			89		
Average:	69.5					

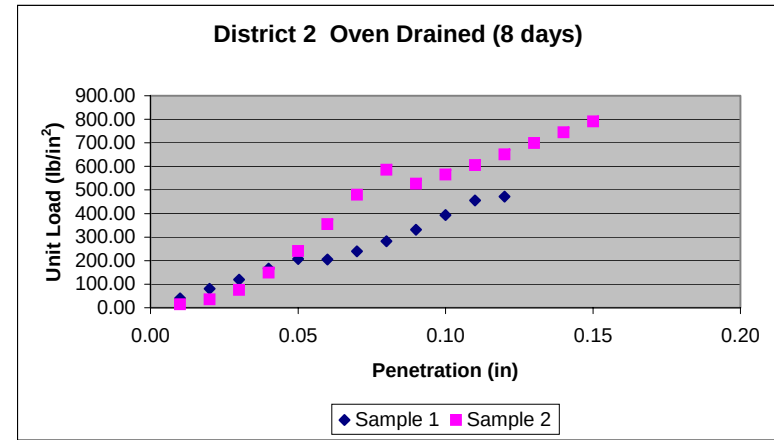


Figure E.5.16 District 2 – LBR Values for Excavatable Mix Samples Drained and Oven Cured for Eight Days

APPENDIX E.6

**DISTRICT 2 – LBR DATA
EXCAVATABLE ACCELERATED MIX**

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	4	1.33	0.17	3	1.00	0.13
0.020	10	3.33	0.42	5	1.67	0.21
0.030	16	5.33	0.67	9	3.00	0.38
0.040	23	7.67	0.96	14	4.67	0.58
0.050	28	9.33	1.17	20	6.67	0.83
0.060	33	11.00	1.38	26	8.67	1.08
0.070	38	12.67	1.58	33	11.00	1.38
0.080	42	14.00	1.75	35	11.67	1.46
0.090	46	15.33	1.92	43	14.33	1.79
0.100	49	16.33	2.04	50	16.67	2.08
0.110	52	17.33	2.17	56	18.67	2.33
0.120	54	18.00	2.25	31	10.33	1.29
0.130				66	22.00	2.75
0.140				70	23.33	2.92
0.150						
0.160						
0.170						
0.180						
0.190						
0.200						
0.225						
0.250						
0.275						
0.300						
0.325						
0.350						

LBR

1

1

Average:

1

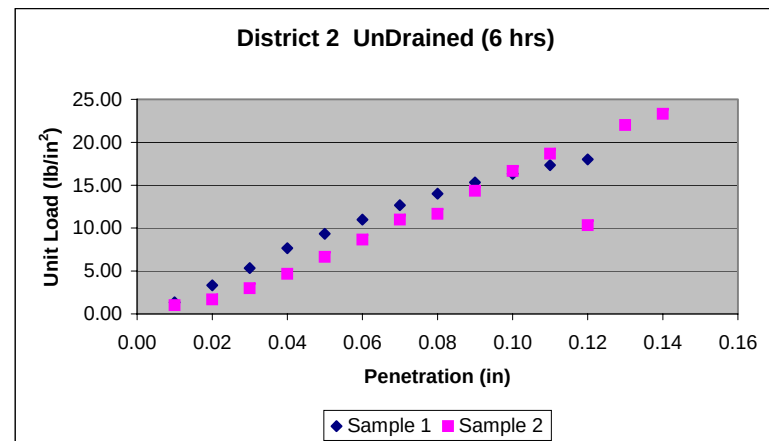


Figure E.6.1 District 2 – LBR Values for Excavatable Accelerated Mix Samples Undrained for Six Hours

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	6	2.00	0.25	7	2.33	0.29
0.020	14	4.67	0.58	17	5.67	0.71
0.030	24	8.00	1.00	32	10.67	1.33
0.040	35	11.67	1.46	48	16.00	2.00
0.050	53	17.67	2.21	70	23.33	2.92
0.060	74	24.67	3.08	91	30.33	3.79
0.070	95	31.67	3.96	111	37.00	4.63
0.080	113	37.67	4.71	133	44.33	5.54
0.090	130	43.33	5.42	158	52.67	6.58
0.100	150	50.00	6.25	181	60.33	7.54
0.110	173	57.67	7.21	205	68.33	8.54
0.120	198	66.00	8.25	232	77.33	9.67
0.130	222	74.00	9.25	260	86.67	10.83
0.140	242	80.67	10.08	289	96.33	12.04
0.150				317	105.67	13.21
0.160				344	114.67	14.33
0.170				368	122.67	15.33
0.180				392	130.67	16.33
0.190				416	138.67	17.33
0.200				438	146.00	18.25
0.225				491	163.67	20.46
0.250				535	178.33	22.29
0.275				573	191.00	23.88
0.300				607	202.33	25.29
0.325				639	213.00	26.63
0.350						

LBR
Average:

8

8.5

9

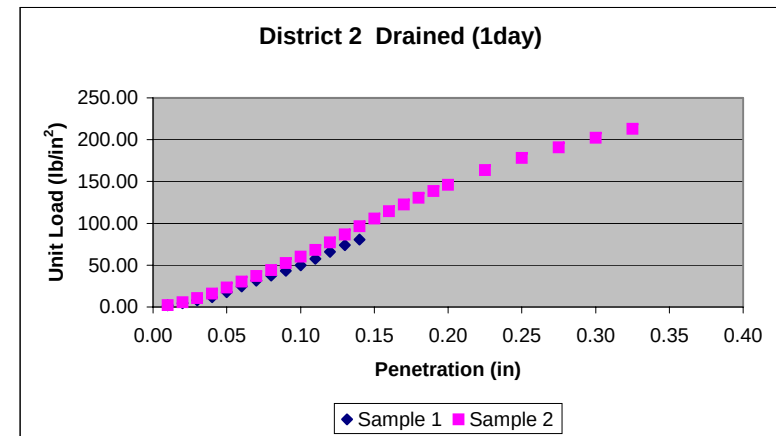


Figure E.6.3 District 2 – LBR Values for Excavatable Accelerated Mix Samples Drained for One Day

Figure E.6.4 District 2 – LBR Values for Excavatable Accelerated Mix Samples Undrained for Two Days



	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	68	22.67	2.83	13	4.33	0.54
0.020	141	47.00	5.88	31	10.33	1.29
0.030	171	57.00	7.13	58	19.33	2.42
0.040	204	68.00	8.50	109	36.33	4.54
0.050	241	80.33	10.04	189	63.00	7.88
0.060	286	95.33	11.92	278	92.67	11.58
0.070	329	109.67	13.71	364	121.33	15.17
0.080	359	119.67	14.96	450	150.00	18.75
0.090	397	132.33	16.54	539	179.67	22.46
0.100	455	151.67	18.96	625	208.33	26.04
0.110	518	172.67	21.58	702	234.00	29.25
0.120	586	195.33	24.42	775	258.33	32.29
0.130				847	282.33	35.29
0.140				913	304.33	38.04
0.150				981	327.00	40.88
0.160						
0.170						
0.180						
0.190						
LBR			19			34
Average:			26.5			

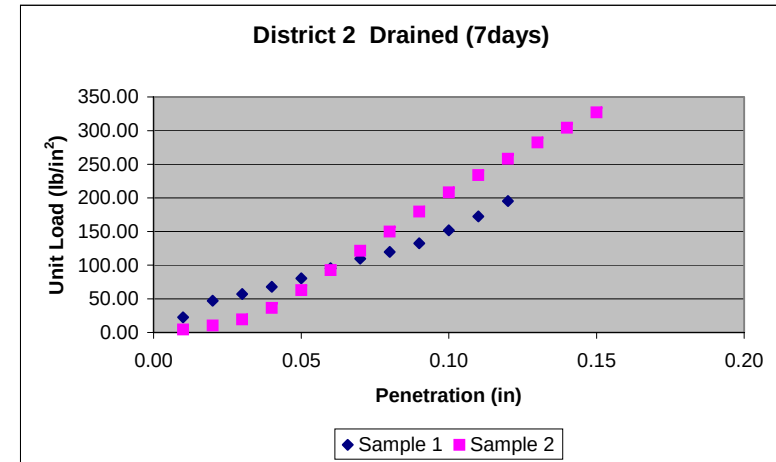


Figure E.6.6 District 2 – LBR Values for Excavatable Accelerated Mix Samples Drained for Seven Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	9	3.00	0.38	4	1.33	0.17
0.020	20	6.67	0.83	27	9.00	1.13
0.030	33	11.00	1.38	48	16.00	2.00
0.040	54	18.00	2.25	80	26.67	3.33
0.050	80	26.67	3.33	114	38.00	4.75
0.060	98	32.67	4.08	149	49.67	6.21
0.070	141	47.00	5.88	198	66.00	8.25
0.080	183	61.00	7.63	253	84.33	10.54
0.090	238	79.33	9.92	317	105.67	13.21
0.100	307	102.33	12.79	386	128.67	16.08
0.110	390	130.00	16.25	438	146.00	18.25
0.120	476	158.67	19.83	469	156.33	19.54
0.130	567	189.00	23.63	556	185.33	23.17
0.140	655	218.33	27.29	626	208.67	26.08
0.150				678	226.00	28.25
0.160				720	240.00	30.00
0.170						
0.180						
0.190						

LBR	19	26
Average:	22.5	

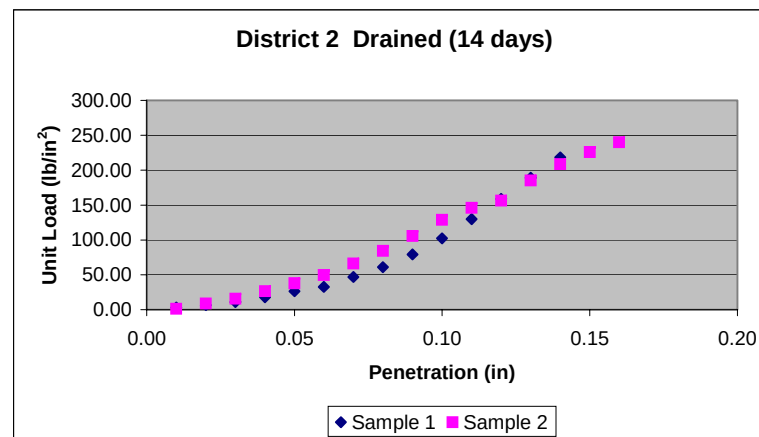


Figure E.6.7 District 2 – LBR Values for Excavatable Accelerated Mix Samples Drained for 14 Days



Penetration (in)	Sample 1			Sample 2		
	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	4	1.33	0.17	43	14.33	1.79
0.020	12	4.00	0.50	115	38.33	4.79
0.030	23	7.67	0.96	218	72.67	9.08
0.040	37	12.33	1.54	347	115.67	14.46
0.050	56	18.67	2.33	511	170.33	21.29
0.060	84	28.00	3.50	716	238.67	29.83
0.070	118	39.33	4.92	951	317.00	39.63
0.080	160	53.33	6.67	1184	394.67	49.33
0.090	222	74.00	9.25	1231	410.33	51.29
0.100	294	98.00	12.25	1387	462.33	57.79
0.110	383	127.67	15.96	1544	514.67	64.33
0.120	480	160.00	20.00	1683	561.00	70.13
0.130	556	185.33	23.17	1795	598.33	74.79
0.140	648	216.00	27.00	1913	637.67	79.71
0.150	755	251.67	31.46	2017	672.33	84.04
0.160	873	291.00	36.38			
0.170	982	327.33	40.92			
0.180	1098	366.00	45.75			
0.190	1181	393.67	49.21			

LBR
Average:

42

58.5

75

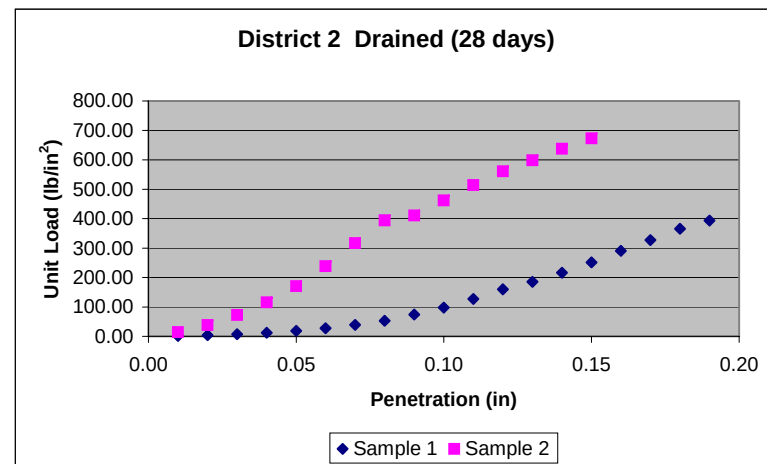


Figure E.6.9 District 2 – LBR Values for Excavatable Accelerated Mix Samples Drained for 28 Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	2	0.67	0.08	14	4.67	0.58
0.020	3	1.00	0.13	42	14.00	1.75
0.030	8	2.67	0.33	102	34.00	4.25
0.040	15	5.00	0.63	205	68.33	8.54
0.050	30	10.00	1.25	281	93.67	11.71
0.060	48	16.00	2.00	327	109.00	13.63
0.070	74	24.67	3.08	375	125.00	15.63
0.080	105	35.00	4.38	423	141.00	17.63
0.090	157	52.33	6.54	452	150.67	18.83
0.100	227	75.67	9.46	478	159.33	19.92
0.110	286	95.33	11.92	500	166.67	20.83
0.120	332	110.67	13.83	513	171.00	21.38
0.130	372	124.00	15.50	525	175.00	21.88
0.140	400	133.33	16.67	536	178.67	22.33
0.150	430	143.33	17.92			
0.160	457	152.33	19.04			
0.170	482	160.67	20.08			
0.180	507.00	169.00	21.13			

LBR
Average:

19

20

21

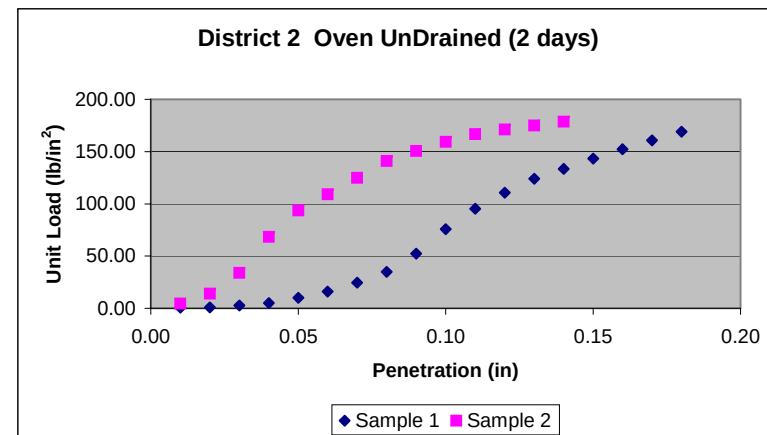


Figure E.6.10 District 2 – LBR Values for Excavatable Accelerated Mix Samples Undrained and Oven Cured for Two Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	49	16.33	2.04	20	6.67	0.83
0.020	89	29.67	3.71	72	24.00	3.00
0.030	132	44.00	5.50	102	34.00	4.25
0.040	176	58.67	7.33	139	46.33	5.79
0.050	187	62.33	7.79	176	58.67	7.33
0.060	216	72.00	9.00	197	65.67	8.21
0.070	271	90.33	11.29	236	78.67	9.83
0.080	323	107.67	13.46	295	98.33	12.29
0.090	368	122.67	15.33	355	118.33	14.79
0.100	421	140.33	17.54	408	136.00	17.00
0.110	470	156.67	19.58	465	155.00	19.38
0.120	520	173.33	21.67	522	174.00	21.75
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
0.200						

LBR
Average:

17

17

17

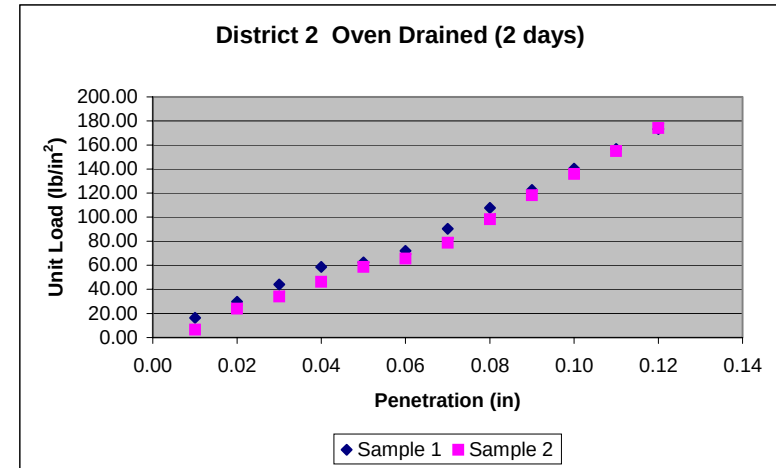
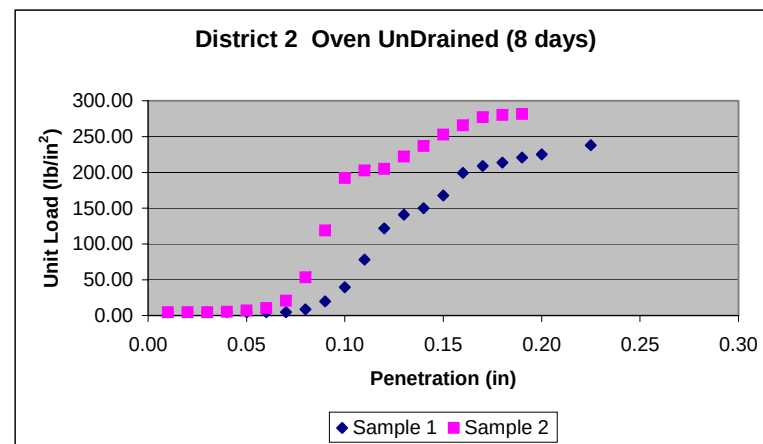


Figure E.6.11 District 2 – LBR Values for Excavatable Accelerated Mix Samples Drained and Oven Cured for Two Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	14	4.67	0.58	14	4.67	0.58
0.020	14	4.67	0.58	14	4.67	0.58
0.030	14	4.67	0.58	14	4.67	0.58
0.040	14	4.67	0.58	16	5.33	0.67
0.050	14	4.67	0.58	21	7.00	0.88
0.060	14	4.67	0.58	31	10.33	1.29
0.070	14	4.67	0.58	62	20.67	2.58
0.080	26	8.67	1.08	160	53.33	6.67
0.090	59	19.67	2.46	356	118.67	14.83
0.100	119	39.67	4.96	577	192.33	24.04
0.110	235	78.33	9.79	608	202.67	25.33
0.120	365	121.67	15.21	615	205.00	25.63
0.130	423	141.00	17.63	666	222.00	27.75
0.140	450	150.00	18.75	711	237.00	29.63
0.150	503	167.67	20.96	758	252.67	31.58
0.160	598	199.33	24.92	797	265.67	33.21
0.170	627	209.00	26.13	832	277.33	34.67
0.180	641	213.67	26.71	841	280.33	35.04
0.190	662	220.67	27.58	845	281.67	35.21
0.200	676	225.33	28.17			
0.225	714	238.00	29.75			
0.250						
0.275						



LBR
Average:

27

30.5

34

Figure E.6.14 District 2 – LBR Values for Excavatable Accelerated Mix Samples Undrained and Oven Cured for Eight Days

Penetration (in)	Sample 1			Sample 2		
	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	14	4.67	0.58	14	4.67	0.58
0.020	14	4.67	0.58	14	4.67	0.58
0.030	14	4.67	0.58	46	15.33	1.92
0.040	16	5.33	0.67	113	37.67	4.71
0.050	139	46.33	5.79	240	80.00	10.00
0.060	248	82.67	10.33	383	127.67	15.96
0.070	355	118.33	14.79	545	181.67	22.71
0.080	472	157.33	19.67	658	219.33	27.42
0.090	581	193.67	24.21	749	249.67	31.21
0.100	581	193.67	24.21	876	292.00	36.50
0.110	700	233.33	29.17	1016	338.67	42.33
0.120	807	269.00	33.63	1173	391.00	48.88
0.130	913	304.33	38.04	1329	443.00	55.38
0.140	1017	339.00	42.38	1480	493.33	61.67
0.150	1120	373.33	46.67	1620	540.00	67.50
0.160	1224	408.00	51.00			
0.170						
0.180						
LBR	42			51		
Average:				60		

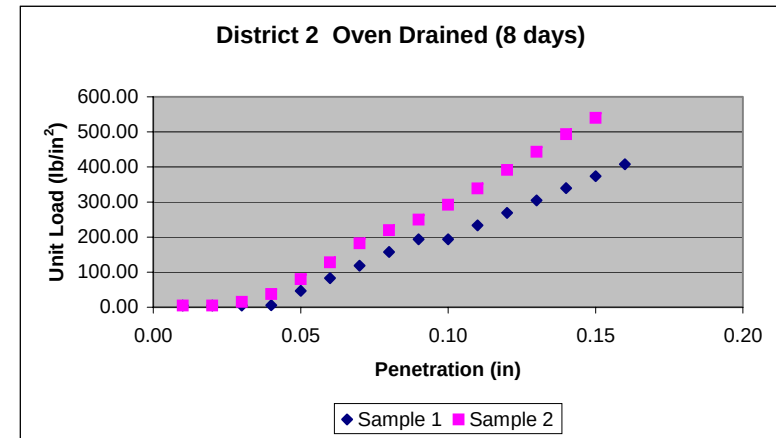


Figure E.6.15 District 2 – LBR Values for Excavatable Accelerated Mix Samples Drained and Oven Cured for Eight Days

APPENDIX E.7

**DISTRICT 2 – LBR DATA
NON-EXCAVATABLE MIX**

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	6	2.00	0.25	7	2.33	0.29
0.020	10	3.33	0.42	17	5.67	0.71
0.030	14	4.67	0.58	28	9.33	1.17
0.040	20	6.67	0.83	38	12.67	1.58
0.050	25	8.33	1.04	49	16.33	2.04
0.060	32	10.67	1.33	60	20.00	2.50
0.070	38	12.67	1.58	69	23.00	2.88
0.080	45	15.00	1.88	78	26.00	3.25
0.090	51	17.00	2.13	88	29.33	3.67
0.100	55	18.33	2.29	95	31.67	3.96
0.110	61	20.33	2.54	103	34.33	4.29
0.120	68	22.67	2.83	110	36.67	4.58
0.130	72	24.00	3.00	116	38.67	4.83
0.140	76	25.33	3.17	123	41.00	5.13
0.150	81	27.00	3.38	130	43.33	5.42
0.160	86	28.67	3.58	138	46.00	5.75
0.170	91	30.33	3.79	144	48.00	6.00
0.180	96	32.00	4.00	151	50.33	6.29
0.190	100	33.33	4.17	157	52.33	6.54
0.200	105	35.00	4.38	165	55.00	6.88
0.225	115	38.33	4.79	178	59.33	7.42
0.250	122	40.67	5.08	192	64.00	8.00
0.275	133	44.33	5.54	205	68.33	8.54
0.300	139	46.33	5.79	217	72.33	9.04
0.325	148	49.33	6.17	230	76.67	9.58
0.350						

LBR

1

9.58333333

Average:

5.291667

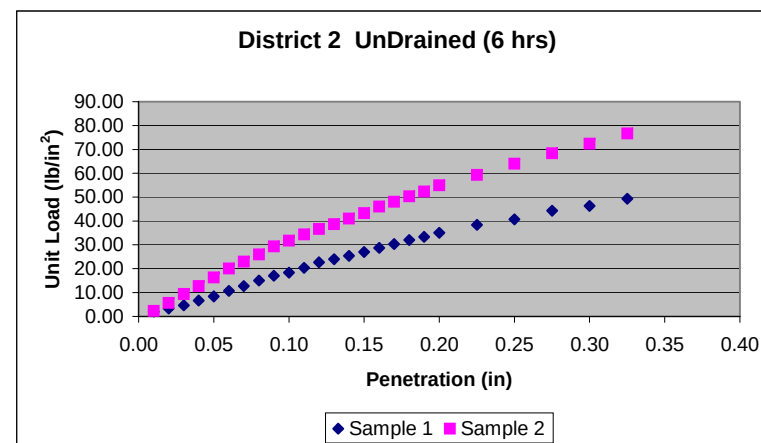


Figure E.7.1 District 2 – LBR Values for Non-excavatable Mix Samples Undrained for Six Hours

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	7	2.33	0.29	0	0.00	0.00
0.020	11	3.67	0.46	0	0.00	0.00
0.030	15	5.00	0.63	0	0.00	0.00
0.040	20	6.67	0.83	5	1.67	0.21
0.050	26	8.67	1.08	10	3.33	0.42
0.060	32	10.67	1.33	16	5.33	0.67
0.070	38	12.67	1.58	23	7.67	0.96
0.080	45	15.00	1.88	32	10.67	1.33
0.090	54	18.00	2.25	43	14.33	1.79
0.100	64	21.33	2.67	57	19.00	2.38
0.110	74	24.67	3.08	72	24.00	3.00
0.120	86	28.67	3.58	88	29.33	3.67
0.130	98	32.67	4.08	104	34.67	4.33
0.140	109	36.33	4.54	120	40.00	5.00
0.150	120	40.00	5.00	136	45.33	5.67
0.160	132	44.00	5.50	152	50.67	6.33
0.170	144	48.00	6.00	167	55.67	6.96
0.180				180	60.00	7.50
0.190				194	64.67	8.08
0.200				207	69.00	8.63
0.225				239	79.67	9.96
0.250				268	89.33	11.17
0.275				296	98.67	12.33
0.300				320	106.67	13.33
0.325				343	114.33	14.29
0.350						

LBR
Average:

4

5

6

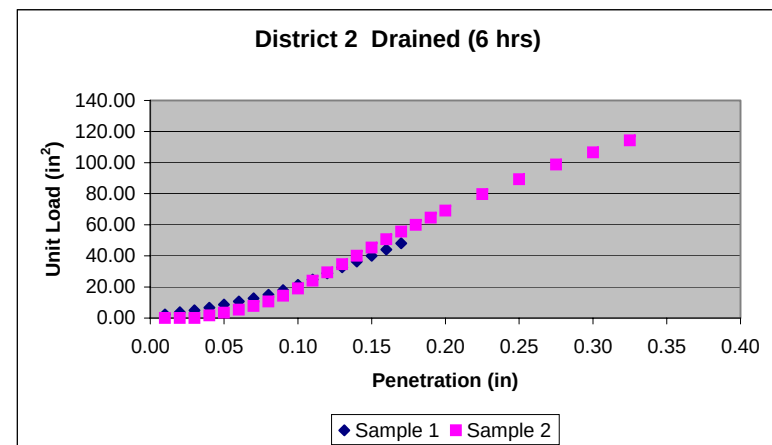


Figure E.7.2 District 2 – LBR Values for Non-excavatable Mix Samples Drained for Six Hours

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	36	12.00	1.50	33	11.00	1.38
0.020	75	25.00	3.13	86	28.67	3.58
0.030	130	43.33	5.42	174	58.00	7.25
0.040	205	68.33	8.54	300	100.00	12.50
0.050	291	97.00	12.13	422	140.67	17.58
0.060	397	132.33	16.54	517	172.33	21.54
0.070	450	150.00	18.75	676	225.33	28.17
0.080	480	160.00	20.00	798	266.00	33.25
0.090	636	212.00	26.50	860	286.67	35.83
0.100	813	271.00	33.88	938	312.67	39.08
0.110	937	312.33	39.04	1010	336.67	42.08
0.120	1091	363.67	45.46	1093	364.33	45.54
0.130				1154	384.67	48.08
0.140						
0.150						
0.160						
0.170						
0.180						

LBR
Average:

34

39

44

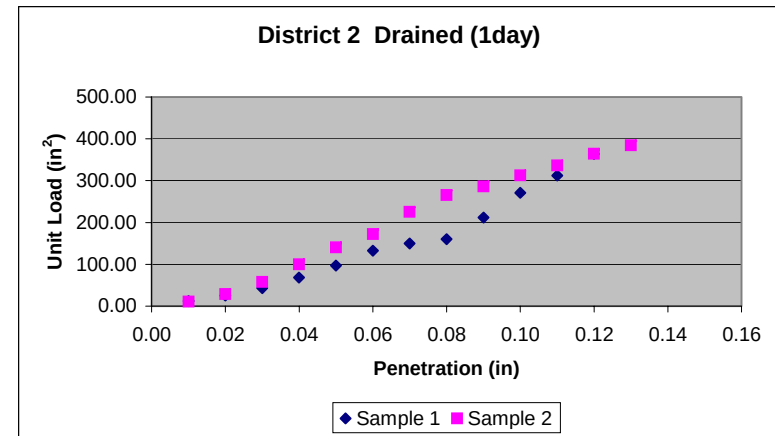


Figure E.7.3 District 2 – LBR Values for Non-excavatable Mix Samples Drained for One Day



	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	40	13.33	1.67	6	2.00	0.25
0.020	100	33.33	4.17	37	12.33	1.54
0.030	208	69.33	8.67	162	54.00	6.75
0.040	402	134.00	16.75	372	124.00	15.50
0.050	650	216.67	27.08	718	239.33	29.92
0.060	946	315.33	39.42	1204	401.33	50.17
0.070	1280	426.67	53.33	1834	611.33	76.42
0.080	1776	592.00	74.00	2860	953.33	119.17
0.090	2427	809.00	101.13	4256	1418.67	177.33
0.100	3117	1039.00	129.88	5823	1941.00	242.63
0.110	3867	1289.00	161.13	7287	2429.00	303.63
0.120	4265	1421.67	177.71	8588	2862.67	357.83
0.130	5043	1681.00	210.13	9777	3259.00	407.38
0.140	5754	1918.00	239.75			
0.150	6426	2142.00	267.75			
0.160	7043	2347.67	293.46			
0.170	7608	2536.00	317.00			
0.180	8148	2716.00	339.50			
0.190						

LBR

294

407.375

Average:

350.6875

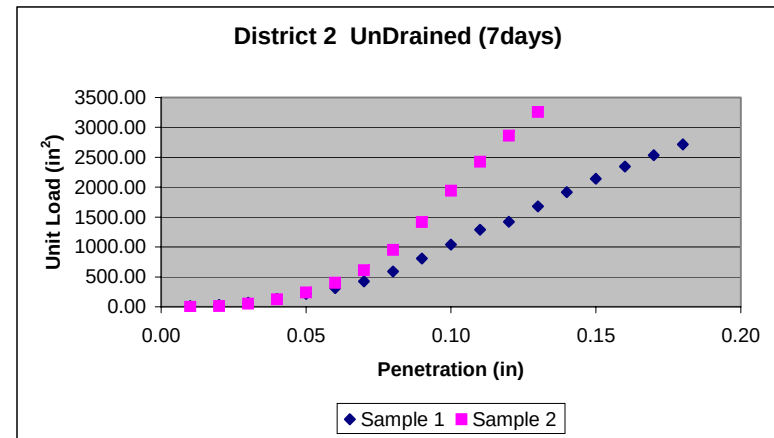


Figure E.7.5 District 2 – LBR Values for Non-excavatable Mix Samples Undrained for Seven Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	126	42.00	5.25	60	20.00	2.50
0.020	197	65.67	8.21	236	78.67	9.83
0.030	314	104.67	13.08	515	171.67	21.46
0.040	468	156.00	19.50	968	322.67	40.33
0.050	714	238.00	29.75	1663	554.33	69.29
0.060	1084	361.33	45.17	2524	841.33	105.17
0.070	1641	547.00	68.38	3583	1194.33	149.29
0.080	2575	858.33	107.29	4802	1600.67	200.08
0.090	3716	1238.67	154.83	6087	2029.00	253.63
0.100	5065	1688.33	211.04	7307	2435.67	304.46
0.110	6572	2190.67	273.83	8409	2803.00	350.38
0.120	8072	2690.67	336.33	7172	2390.67	298.83
0.130				7710	2570.00	321.25
0.140				8450	2816.67	352.08
0.150				9142	3047.33	380.92
0.160				9764	3254.67	406.83
0.170						
0.180						
0.190						

LBR	217	364
Average:	290.5	

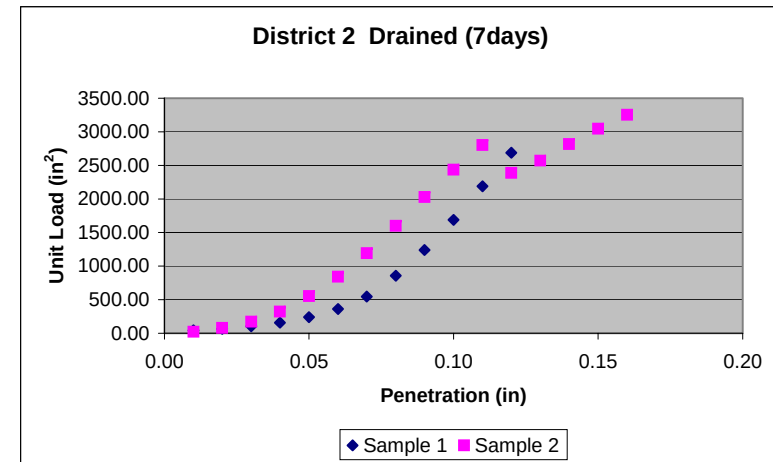
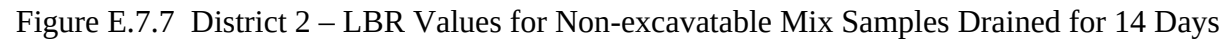


Figure E.7.6 District 2 – LBR Values for Non-excavatable Mix Samples Drained for Seven Days



	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	68	22.67	2.83	120	40.00	5.00
0.020	261	87.00	10.88	328	109.33	13.67
0.030	461	153.67	19.21	641	213.67	26.71
0.040	777	259.00	32.38	1183	394.33	49.29
0.050	1345	448.33	56.04	1955	651.67	81.46
0.060	2290	763.33	95.42	2912	970.67	121.33
0.070	3571	1190.33	148.79	3939	1313.00	164.13
0.080	5084	1694.67	211.83	5015	1671.67	208.96
0.090	6569	2189.67	273.71	6147	2049.00	256.13
0.100	7981	2660.33	332.54	7335	2445.00	305.63
0.110	9244	3081.33	385.17	8624	2874.67	359.33
0.120	9110	3036.67	379.58	9847	3282.33	410.29
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
LBR			380			406
Average:			393			

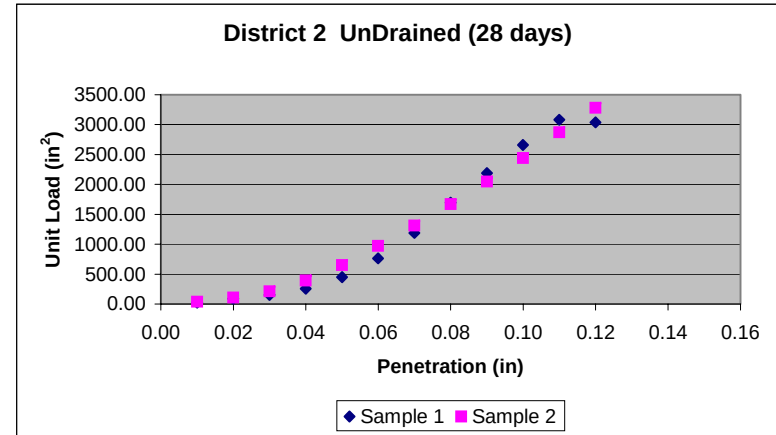
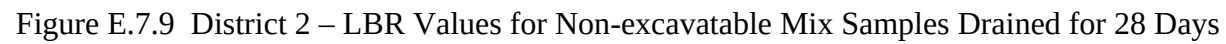


Figure E.7.8 District 2 – LBR Values for Non-excavatable Mix Samples Undrained for 28 Days



District 2 Drained (90 days)

This scatter plot displays the relationship between Unit Load (in²) on the Y-axis and Penetration (in) on the X-axis for two samples, Sample 1 and Sample 2. The Y-axis ranges from 0.00 to 3500.00 in increments of 500.00. The X-axis ranges from 0.00 to 0.25 in increments of 0.05. Sample 1 is represented by dark blue diamonds, and Sample 2 is represented by magenta squares. Both samples show a positive correlation between unit load and penetration, with Sample 2 generally exhibiting higher unit loads for a given penetration compared to Sample 1.

Penetration (in)	Unit Load (in ²) - Sample 1	Unit Load (in ²) - Sample 2
0.015		0.00
0.025		0.00
0.035		0.00
0.045		100.00
0.055	0.00	200.00
0.065	100.00	400.00
0.075	200.00	600.00
0.085	300.00	900.00
0.095	500.00	1200.00
0.105	700.00	1700.00
0.115	900.00	2200.00
0.125	1100.00	2800.00
0.135	1300.00	
0.145	1500.00	
0.155	1800.00	
0.165	2100.00	
0.175	2400.00	
0.185	2700.00	
0.195	2500.00	
0.205	2900.00	

Figure E.7.10 District 2 – LBR Values for Non-excavatable Mix Samples Drained for 90 Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	37	12.33	1.54	32	10.67	1.33
0.020	126	42.00	5.25	108	36.00	4.50
0.030	248	82.67	10.33	245	81.67	10.21
0.040	458	152.67	19.08	501	167.00	20.88
0.050	805	268.33	33.54	924	308.00	38.50
0.060	1313	437.67	54.71	1507	502.33	62.79
0.070	1965	655.00	81.88	2281	760.33	95.04
0.080	2803	934.33	116.79	3177	1059.00	132.38
0.090	3810	1270.00	158.75	4174	1391.33	173.92
0.100	4839	1613.00	201.63	3333	1111.00	138.88
0.110	5863	1954.33	244.29	2885	961.67	120.21
0.120	2635	878.33	109.79	2642	880.67	110.08
0.130	2117	705.67	88.21	2889	963.00	120.38
0.140	1703	567.67	70.96	3230	1076.67	134.58
0.150	1427	475.67	59.46	3613	1204.33	150.54
0.160	1166	388.67	48.58	3999	1333.00	166.63
0.170	1039	346.33	43.29			
0.180						

LBR
Average:

53

93

133

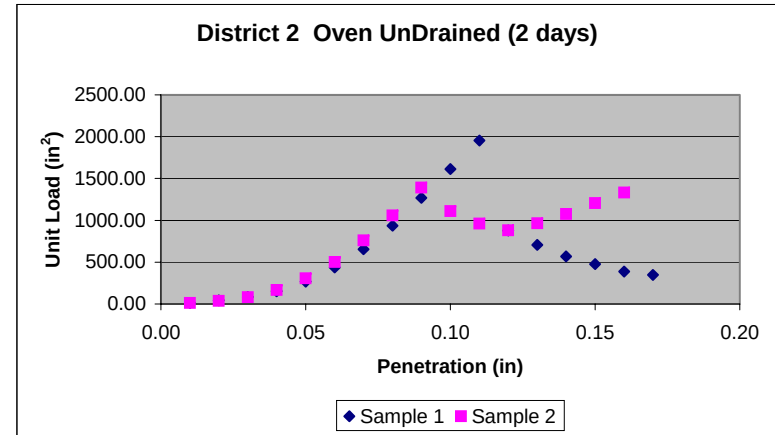


Figure E.7.11 District 2 – LBR Values for Non-excavatable Mix Samples Undrained and Oven Cured for Two Days

Penetration (in)	Sample 1			Sample 2		
	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	37	12.33	1.54	0	0.00	0.00
0.020	142	47.33	5.92	0	0.00	0.00
0.030	354	118.00	14.75	17	5.67	0.71
0.040	749	249.67	31.21	78	26.00	3.25
0.050	1490	496.67	62.08	199	66.33	8.29
0.060	2531	843.67	105.46	404	134.67	16.83
0.070	3798	1266.00	158.25	683	227.67	28.46
0.080	5278	1759.33	219.92	1014	338.00	42.25
0.090	6816	2272.00	284.00	1533	511.00	63.88
0.100	8343	2781.00	347.63	2302	767.33	95.92
0.110	8373	2791.00	348.88	3285	1095.00	136.88
0.120	9072	3024.00	378.00	4351	1450.33	181.29
0.130	9930	3310.00	413.75	5491	1830.33	228.79
0.140				6641	2213.67	276.71
0.150				6663	2221.00	277.63
0.160				7483	2494.33	311.79
0.170				8315	2771.67	346.46
0.180				9150	3050.00	381.25
0.190				10000	3333.33	416.67
0.200						

LBR
Average: **413.75** 397

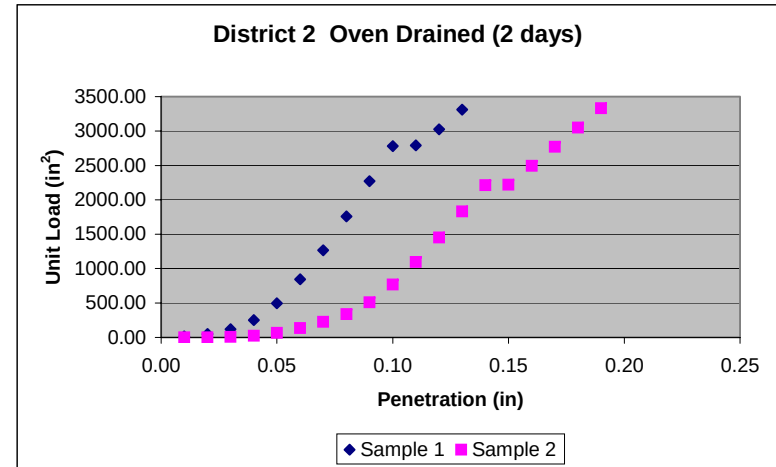


Figure E.7.12 District 2 – LBR Values for Non-excavatable Mix Samples Drained and Oven Cured for Two Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	37	12.33	1.54	86	28.67	3.58
0.020	143	47.67	5.96	421	140.33	17.54
0.030	368	122.67	15.33	969	323.00	40.38
0.040	737	245.67	30.71	1704	568.00	71.00
0.050	1211	403.67	50.46	2637	879.00	109.88
0.060	1817	605.67	75.71	3631	1210.33	151.29
0.070	2568	856.00	107.00	4553	1517.67	189.71
0.080	3387	1129.00	141.13	4826	1608.67	201.08
0.090	4157	1385.67	173.21	5774	1924.67	240.58
0.100	4896	1632.00	204.00	7124	2374.67	296.83
0.110	5544	1848.00	231.00	8544	2848.00	356.00
0.120	6006	2002.00	250.25	9554	3184.67	398.08
0.130	6371	2123.67	265.46			
0.140	6388	2129.33	266.17			
0.150	5372	1790.67	223.83			
0.160	4060	1353.33	169.17			
0.170						
0.180						
0.190						
0.200						
LBR			266			415
Average:			340.5			

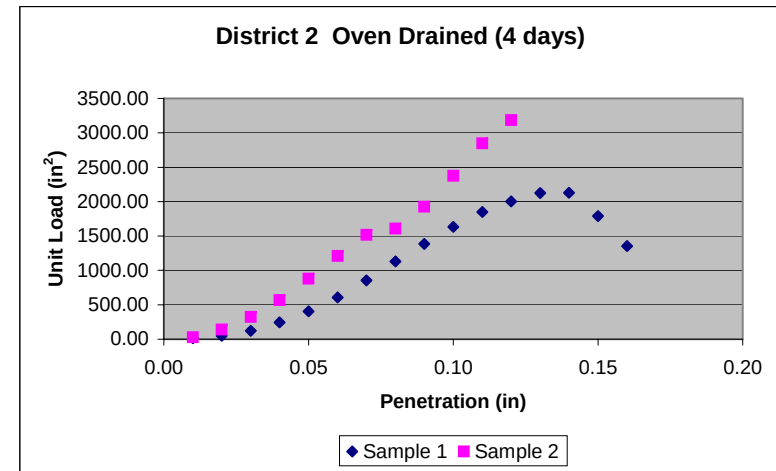


Figure E.7.14 District 2 – LBR Values for Non-excavatable Mix Samples Drained and Oven Cured for Four Days

Penetration (in)	Sample 1			Sample 2		
	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	34	11.33	1.42	138	46.00	5.75
0.020	225	75.00	9.38	535	178.33	22.29
0.030	688	229.33	28.67	1126	375.33	46.92
0.040	1442	480.67	60.08	2048	682.67	85.33
0.050	2405	801.67	100.21	3249	1083.00	135.38
0.060	3598	1199.33	149.92	4641	1547.00	193.38
0.070	4947	1649.00	206.13	6164	2054.67	256.83
0.080	6401	2133.67	266.71	7804	2601.33	325.17
0.090	7960	2653.33	331.67	9504	3168.00	396.00
0.100	8272	2757.33	344.67			
0.110	9224	3074.67	384.33			
0.120						
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						

LBR
Average: **384.3333** **396**
390.1667

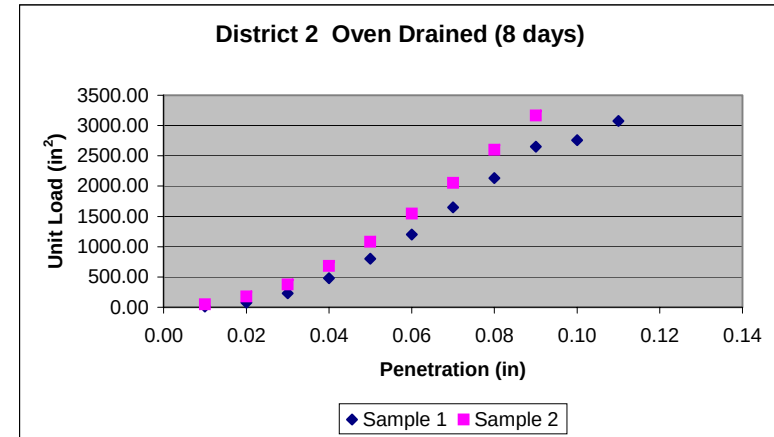


Figure E.7.16 District 2 – LBR Values for Non-excavatable Mix Samples Drained and Oven Cured for Eight Days

APPENDIX E.8

DISTRICT 2 – LBR DATA NON-EXCAVATABLE ACCELERATED MIX

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	56	18.67	2.33	54	18.00	2.25
0.020	93	31.00	3.88	102	34.00	4.25
0.030	132	44.00	5.50	169	56.33	7.04
0.040	175	58.33	7.29	219	73.00	9.13
0.050	213	71.00	8.88	266	88.67	11.08
0.060	251	83.67	10.46	317	105.67	13.21
0.070	287	95.67	11.96	370	123.33	15.42
0.080	327	109.00	13.63	424	141.33	17.67
0.090	369	123.00	15.38	475	158.33	19.79
0.100	405	135.00	16.88	525	175.00	21.88
0.110	442	147.33	18.42	575	191.67	23.96
0.120	482	160.67	20.08	623	207.67	25.96
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
0.200						
0.225						
0.250						
0.275						
0.300						
0.325						
0.350						

LBR

16

21

Average:

18.5

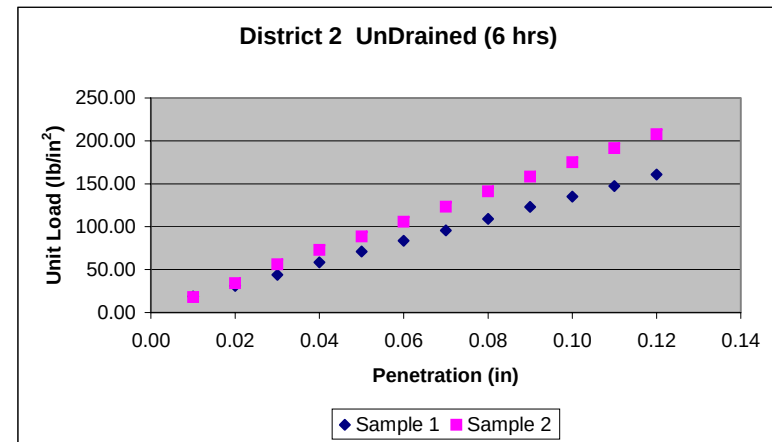


Figure E.8.1 District 2 – LBR Values for Non-excavatable Accelerated Mix Samples Undrained for Six Hours

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	19	6.33	0.79	66	22.00	2.75
0.020	36	12.00	1.50	133	44.33	5.54
0.030	64	21.33	2.67	190	63.33	7.92
0.040	103	34.33	4.29	243	81.00	10.13
0.050	178	59.33	7.42	301	100.33	12.54
0.060	268	89.33	11.17	364	121.33	15.17
0.070	344	114.67	14.33	428	142.67	17.83
0.080	406	135.33	16.92	488	162.67	20.33
0.090	461	153.67	19.21	548	182.67	22.83
0.100	516	172.00	21.50	607	202.33	25.29
0.110	579	193.00	24.13	664	221.33	27.67
0.120	640	213.33	26.67	720	240.00	30.00
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
0.200						
0.225						
0.250						
0.275						
0.300						
0.325						
0.350						

LBR
Average: 21 22.5 24

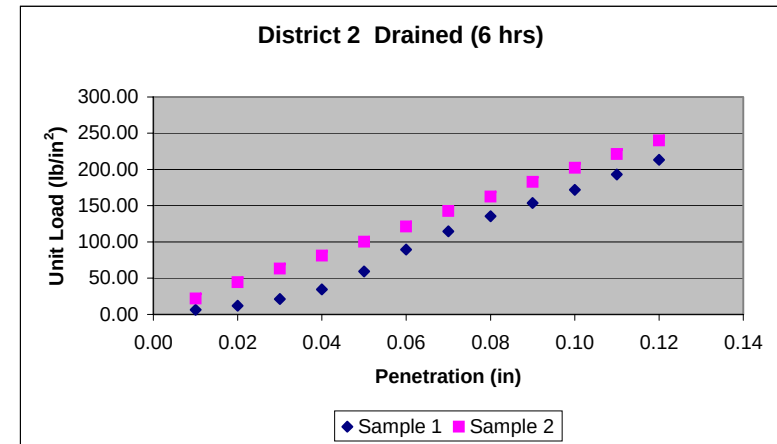


Figure E.8.2 District 2 – LBR Values for Non-excavatable Accelerated Mix Samples Drained for Six Hours

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	19	6.33	0.79	49	16.33	2.04
0.020	46	15.33	1.92	96	32.00	4.00
0.030	85	28.33	3.54	152	50.67	6.33
0.040	136	45.33	5.67	207	69.00	8.63
0.050	189	63.00	7.88	265	88.33	11.04
0.060	242	80.67	10.08	319	106.33	13.29
0.070	296	98.67	12.33	367	122.33	15.29
0.080	348	116.00	14.50	411	137.00	17.13
0.090	392	130.67	16.33	449	149.67	18.71
0.100	431	143.67	17.96	483	161.00	20.13
0.110	467	155.67	19.46	512	170.67	21.33
0.120	502	167.33	20.92	542	180.67	22.58
0.130	534	178.00	22.25			
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
0.200						
0.225						
0.250						

LBR
Average: 19 19

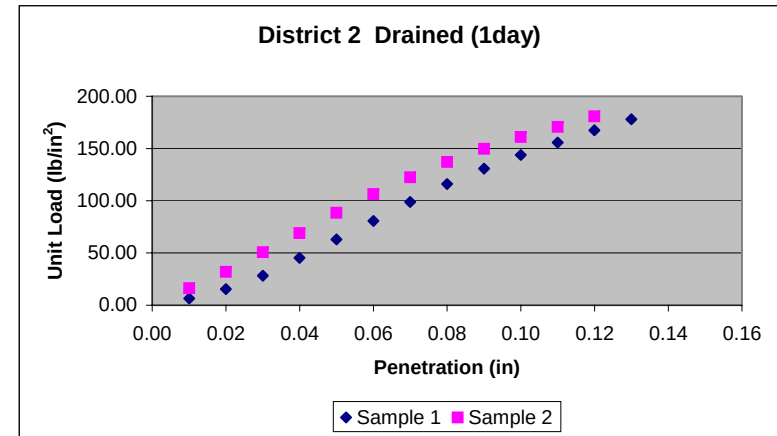
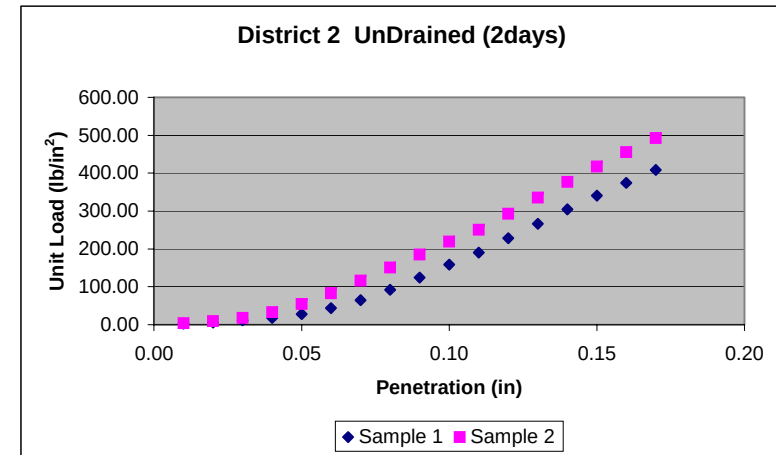


Figure E.8.3 District 2 – LBR Values for Non-excavatable Accelerated Mix Samples Drained for One Day

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	8	2.67	0.33	12	4.00	0.50
0.020	18	6.00	0.75	28	9.33	1.17
0.030	34	11.33	1.42	54	18.00	2.25
0.040	53	17.67	2.21	98	32.67	4.08
0.050	83	27.67	3.46	164	54.67	6.83
0.060	131	43.67	5.46	249	83.00	10.38
0.070	195	65.00	8.13	348	116.00	14.50
0.080	276	92.00	11.50	452	150.67	18.83
0.090	373	124.33	15.54	556	185.33	23.17
0.100	476	158.67	19.83	659	219.67	27.46
0.110	570	190.00	23.75	751	250.33	31.29
0.120	685	228.33	28.54	880	293.33	36.67
0.130	800	266.67	33.33	1006	335.33	41.92
0.140	913	304.33	38.04	1131	377.00	47.13
0.150	1022	340.67	42.58	1252	417.33	52.17
0.160	1123	374.33	46.79	1367	455.67	56.96
0.170	1225	408.33	51.04	1478	492.67	61.58
0.180						
0.190						
0.200						
0.225						
0.250						



LBR
Average:

44

48.5

53

Figure E.8.4 District 2 – LBR Values for Non-excavatable Accelerated Mix Samples Undrained for Two Days

Penetration (in)	Sample 1			Sample 2		
	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	157	52.33	6.54	21	7.00	0.88
0.020	338	112.67	14.08	58	19.33	2.42
0.030	454	151.33	18.92	143	47.67	5.96
0.040	605	201.67	25.21	340	113.33	14.17
0.050	774	258.00	32.25	610	203.33	25.42
0.060	972	324.00	40.50	942	314.00	39.25
0.070	1194	398.00	49.75	1310	436.67	54.58
0.080	1418	472.67	59.08	1734	578.00	72.25
0.090	1680	560.00	70.00	2232	744.00	93.00
0.100	1984	661.33	82.67	2840	946.67	118.33
0.110	2341	780.33	97.54	3516	1172.00	146.50
0.120	2722	907.33	113.42	4201	1400.33	175.04
0.130				4866	1622.00	202.75
0.140				5088	1696.00	212.00
0.150				5718	1906.00	238.25
0.160				6276	2092.00	261.50
0.170				6802	2267.33	283.42
0.180				7307	2435.67	304.46
0.190						
LBR			89			261
Average:				175		

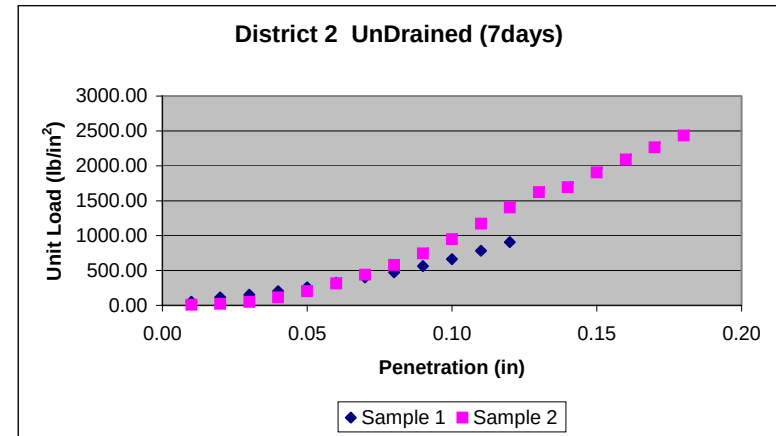


Figure E.8.5 District 2 – LBR Values for Non-excavatable Accelerated Mix Samples Undrained for Seven Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	145	48.33	6.04	158	52.67	6.58
0.020	223	74.33	9.29	480	160.00	20.00
0.030	295	98.33	12.29	709	236.33	29.54
0.040	371	123.67	15.46	1050	350.00	43.75
0.050	457	152.33	19.04	1442	480.67	60.08
0.060	545	181.67	22.71	1867	622.33	77.79
0.070	639	213.00	26.63	1970	656.67	82.08
0.080	755	251.67	31.46	2357	785.67	98.21
0.090	919	306.33	38.29	2859	953.00	119.13
0.100	1175	391.67	48.96	3407	1135.67	141.96
0.110	1622	540.67	67.58	3948	1316.00	164.50
0.120	2304	768.00	96.00	4583	1527.67	190.96
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
LBR Average:			52			156
						104

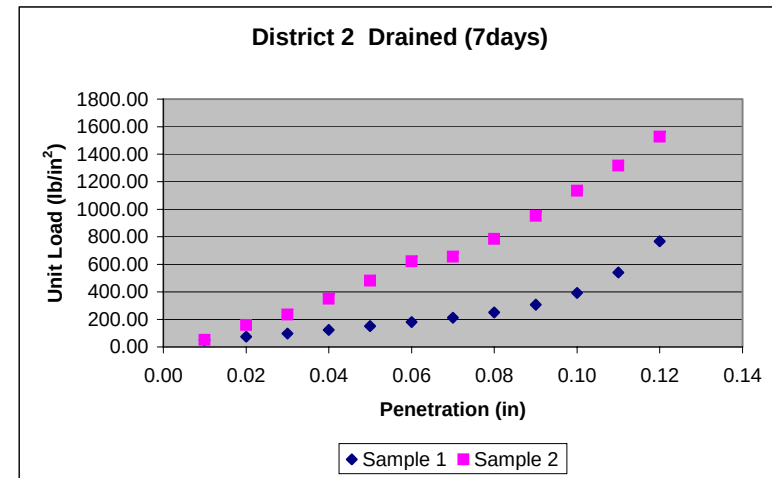


Figure E.8.6 District 2 – LBR Values for Non-excavatable Accelerated Mix Samples Drained for Seven Days

Penetration (in)	Sample 1			Sample 2		
	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	93	31.00	3.88	163	54.33	6.79
0.020	269	89.67	11.21	532	177.33	22.17
0.030	540	180.00	22.50	875	291.67	36.46
0.040	935	311.67	38.96	1274	424.67	53.08
0.050	1378	459.33	57.42	1747	582.33	72.79
0.060	1866	622.00	77.75	2199	733.00	91.63
0.070	2356	785.33	98.17	2805	935.00	116.88
0.080	2650	883.33	110.42	3500	1166.67	145.83
0.090	2895	965.00	120.63	4303	1434.33	179.29
0.100	3260	1086.67	135.83	5278	1759.33	219.92
0.110	4001	1333.67	166.71	6349	2116.33	264.54
0.120	4658	1552.67	194.08	7402	2467.33	308.42
0.130	5218	1739.33	217.42			
0.140	5603	1867.67	233.46			
0.150						
0.160						
0.170						
0.180						
0.190						
LBR			204			251
Average:			227.5			

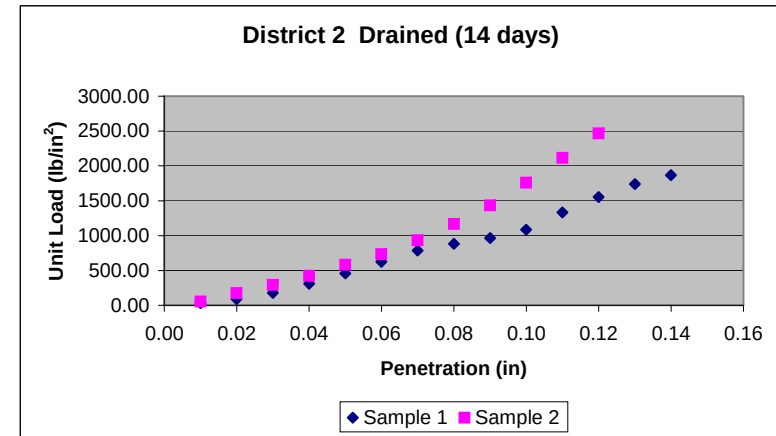


Figure E.8.7 District 2 – LBR Values for Non-excavatable Accelerated Mix Samples Drained for 14 Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	48	16.00	2.00	101	33.67	4.21
0.020	68	22.67	2.83	215	71.67	8.96
0.030	108	36.00	4.50	336	112.00	14.00
0.040	190	63.33	7.92	502	167.33	20.92
0.050	312	104.00	13.00	688	229.33	28.67
0.060	483	161.00	20.13	922	307.33	38.42
0.070	716	238.67	29.83	1233	411.00	51.38
0.080	969	323.00	40.38	1614	538.00	67.25
0.090	1282	427.33	53.42	2054	684.67	85.58
0.100	1672	557.33	69.67	2553	851.00	106.38
0.110	2133	711.00	88.88	3231	1077.00	134.63
0.120	2624	874.67	109.33	4165	1388.33	173.54
0.130				5308	1769.33	221.17
0.140				6606	2202.00	275.25
0.150				8014	2671.33	333.92
0.160				9406	3135.33	391.92
0.170						
0.180						
0.190						

LBR
Average: 70 391.9167 230.9583

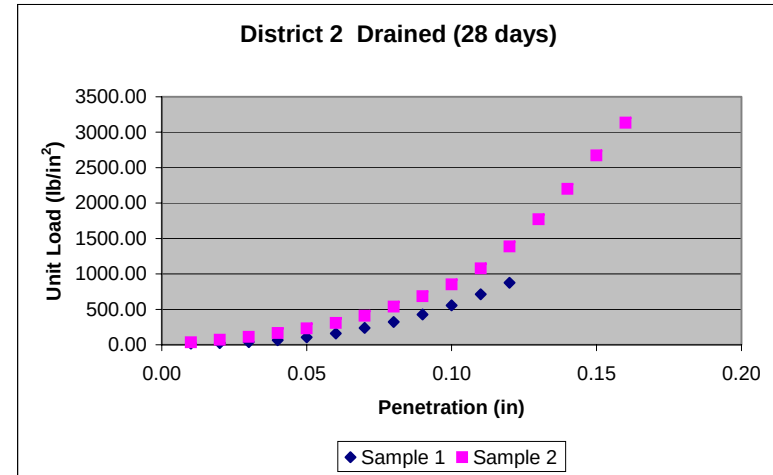


Figure E.8.9 District 2 – LBR Values for Non-excavatable Accelerated Mix Samples Drained for 28 Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	47	15.67	1.96	0	0.00	0.00
0.020	105	35.00	4.38	0	0.00	0.00
0.030	199	66.33	8.29	0	0.00	0.00
0.040	298	99.33	12.42	0	0.00	0.00
0.050	407	135.67	16.96	0	0.00	0.00
0.060	536	178.67	22.33	0	0.00	0.00
0.070	702	234.00	29.25	23	7.67	0.96
0.080	904	301.33	37.67	96	32.00	4.00
0.090	1147	382.33	47.79	265	88.33	11.04
0.100	1423	474.33	59.29	607	202.33	25.29
0.110	1730	576.67	72.08	1026	342.00	42.75
0.120	2060	686.67	85.83	1483	494.33	61.79
0.130	2409	803.00	100.38	1927	642.33	80.29
0.140				2357	785.67	98.21
0.150				2594	864.67	108.08
0.160				1993	664.33	83.04
0.170				1935	645.00	80.63
0.180				2004	668.00	83.50
0.190				2165	721.67	90.21
0.200				2145	715.00	89.38
0.225				2358	786.00	98.25

LBR
Average:

71

80

89

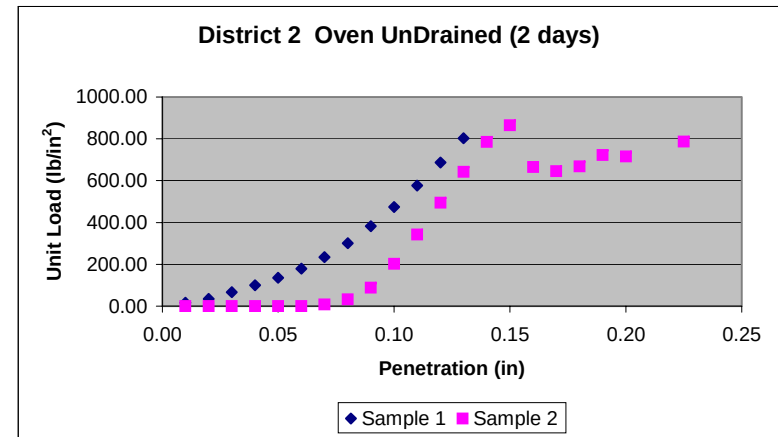


Figure E.8.10 District 2 – LBR Values for Non-excavatable Accelerated Mix Samples Undrained and Oven Cured for Two Days

District 2 Oven UnDrained (4 days)

Penetration (in)	Unit Load (lb/in²) - Sample 1	Unit Load (lb/in²) - Sample 2
0.015	0.00	0.00
0.025	0.00	50.00
0.035	100.00	100.00
0.045	200.00	300.00
0.055	300.00	450.00
0.065	450.00	650.00
0.075	700.00	900.00
0.085	1050.00	1150.00
0.095	1450.00	1450.00
0.105	1600.00	1750.00
0.115	1750.00	1600.00
0.125	1950.00	1650.00
0.135	1450.00	1650.00
0.145	1300.00	1700.00
0.155	1300.00	1700.00
0.165	1300.00	1800.00
0.175	1350.00	-

Figure E.8.12 District 2 – LBR Values for Non-excavatable Accelerated Mix Samples Undrained and Oven Cured for Four Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	67	22.33	2.79	80	26.67	3.33
0.020	323	107.67	13.46	378	126.00	15.75
0.030	530	176.67	22.08	905	301.67	37.71
0.040	762	254.00	31.75	1394	464.67	58.08
0.050	1025	341.67	42.71	1983	661.00	82.63
0.060	1434	478.00	59.75	2655	885.00	110.63
0.070	2086	695.33	86.92	3392	1130.67	141.33
0.080	2925	975.00	121.88	4227	1409.00	176.13
0.090	3854	1284.67	160.58	5062	1687.33	210.92
0.100	4703	1567.67	195.96	5838	1946.00	243.25
0.110	5474	1824.67	228.08	6541	2180.33	272.54
0.120	6191	2063.67	257.96	7220	2406.67	300.83
0.130				7840	2613.33	326.67
0.140				8425	2808.33	351.04
0.150				8978	2992.67	374.08
0.160						
0.170						
0.180						
0.190						
0.200						
LBR			225			330
Average:			277.5			

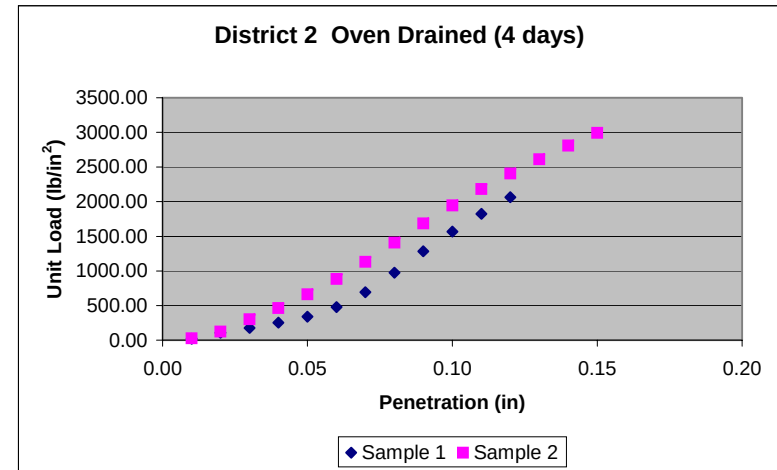


Figure E.8.13 District 2 – LBR Values for Non-excavatable Accelerated Mix Samples Drained and Oven Cured for Four Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	14	4.67	0.58	14	4.67	0.58
0.020	14	4.67	0.58	14	4.67	0.58
0.030	14	4.67	0.58	20	6.67	0.83
0.040	14	4.67	0.58	41	13.67	1.71
0.050	14	4.67	0.58	107	35.67	4.46
0.060	23	7.67	0.96	307	102.33	12.79
0.070	49	16.33	2.04	644	214.67	26.83
0.080	116	38.67	4.83	1160	386.67	48.33
0.090	230	76.67	9.58	1949	649.67	81.21
0.100	397	132.33	16.54	2945	981.67	122.71
0.110	668	222.67	27.83	4029	1343.00	167.88
0.120	1073	357.67	44.71	5146	1715.33	214.42
0.130	1654	551.33	68.92	6263	2087.67	260.96
0.140	2424	808.00	101.00	7328	2442.67	305.33
0.150	3406	1135.33	141.92	5187	1729.00	216.13
0.160	4540	1513.33	189.17	5512	1837.33	229.67
0.170	5762	1920.67	240.08	5845	1948.33	243.54
0.180	7025	2341.67	292.71	6135	2045.00	255.63
0.190	8313	2771.00	346.38	5734	1911.33	238.92
0.200	5715	1905.00	238.13			
0.225	5351	1783.67	222.96			
0.250	6327	2109.00	263.63			
0.275	7087	2362.33	295.29			
0.300						

LBR
Average:

225

238

251

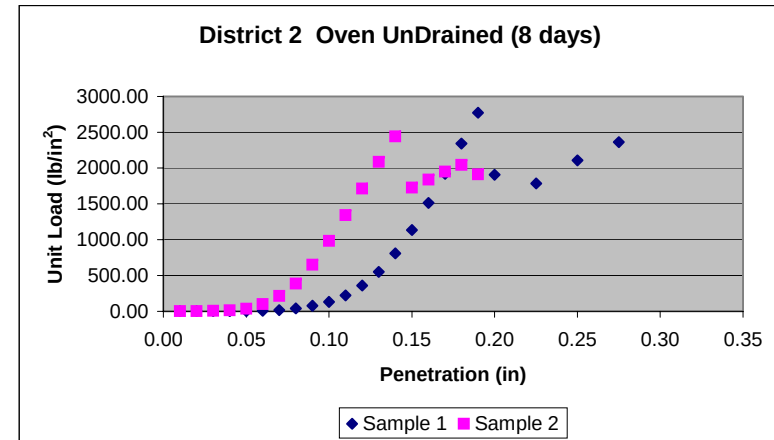


Figure E.8.14 District 2 – LBR Values for Non-excavatable Accelerated Mix Samples Undrained and Oven Cured for Eight Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	14	4.67	0.58	135	45.00	5.63
0.020	14	4.67	0.58	215	71.67	8.96
0.030	14	4.67	0.58	338	112.67	14.08
0.040	14	4.67	0.58	467	155.67	19.46
0.050	14	4.67	0.58	632	210.67	26.33
0.060	14	4.67	0.58	850	283.33	35.42
0.070	14	4.67	0.58	1237	412.33	51.54
0.080	14	4.67	0.58	2008	669.33	83.67
0.090	16	5.33	0.67	2995	998.33	124.79
0.100	75	25.00	3.13	4072	1357.33	169.67
0.110	287	95.67	11.96	5311	1770.33	221.29
0.120	613	204.33	25.54	6588	2196.00	274.50
0.130				7885	2628.33	328.54
0.140				8843	2947.67	368.46
0.150				9906	3302.00	412.75
0.160						
0.170						
0.180						
0.190						
0.200						

LBR
Average:

1

206.875

412.75

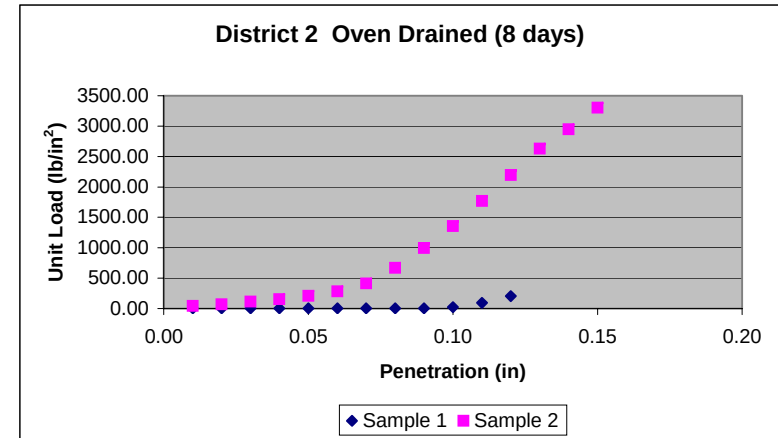


Figure E.8.15 District 2 – LBR Values for Non-excavatable Accelerated Mix Samples Drained and Oven Cured for Eight Days

APPENDIX E.9

DISTRICT 4&6 – LBR DATA EXCAVATABLE MIX

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	3	1.00	0.13	3	1.00	0.13
0.020	4	1.33	0.17	5	1.67	0.21
0.030	6	2.00	0.25	6	2.00	0.25
0.040	7	2.33	0.29	8	2.67	0.33
0.050	9	3.00	0.38	10	3.33	0.42
0.060	10	3.33	0.42	12	4.00	0.50
0.070	12	4.00	0.50	14	4.67	0.58
0.080	14	4.67	0.58	17	5.67	0.71
0.090	15	5.00	0.63	19	6.33	0.79
0.100	16	5.33	0.67	21	7.00	0.88
0.110	18	6.00	0.75	23	7.67	0.96
0.120	19	6.33	0.79	24	8.00	1.00
0.130				25	8.33	1.04
0.140				27	9.00	1.13
0.150				30	10.00	1.25
0.160				32	10.67	1.33
0.170				32	10.67	1.33
0.180				33	11.00	1.38
0.190				35	11.67	1.46
0.200				36	12.00	1.50
0.225				40	13.33	1.67
0.250				43	14.33	1.79
0.275				46	15.33	1.92
0.300				49	16.33	2.04
0.325				48	16.00	2.00
0.350						

LBR

0.791667

2.041667

Average:

1.416667

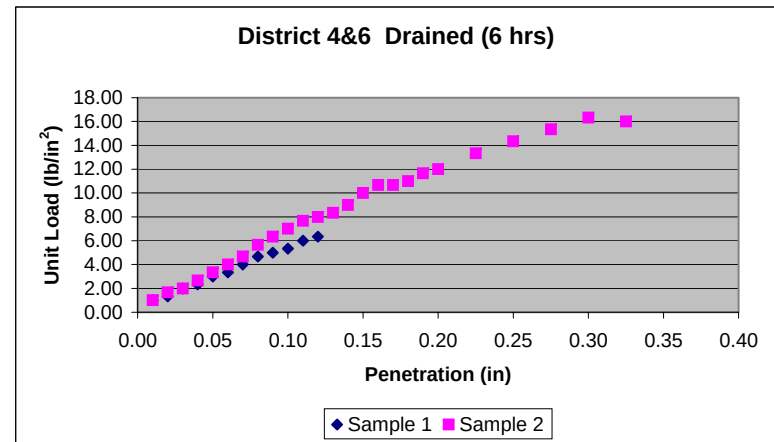


Figure E.9.1 District 4&6 – LBR Values for Excavatable Mix Samples Drained for Six Hours

Penetration (in)	Sample 1			Sample 2		
	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	3	1.00	0.13	9	3.00	0.38
0.020	4	1.33	0.17	19	6.33	0.79
0.030	6	2.00	0.25	29	9.67	1.21
0.040	8	2.67	0.33	42	14.00	1.75
0.050	10	3.33	0.42	54	18.00	2.25
0.060	12	4.00	0.50	66	22.00	2.75
0.070	14	4.67	0.58	76	25.33	3.17
0.080	15	5.00	0.63	83	27.67	3.46
0.090	16	5.33	0.67	91	30.33	3.79
0.100	18	6.00	0.75	99	33.00	4.13
0.110	19	6.33	0.79	105	35.00	4.38
0.120	21	7.00	0.88	109	36.33	4.54
0.130	22	7.33	0.92			
0.140	24	8.00	1.00			
0.150	25	8.33	1.04			
0.160	26	8.67	1.08			
0.170	26	8.67	1.08			
0.180	27	9.00	1.13			
0.190	28	9.33	1.17			
0.200	30	10.00	1.25			
0.225	35	11.67	1.46			
0.250	38	12.67	1.58			
0.275	42	14.00	1.75			
0.300	43	14.33	1.79			
0.325	45	15.00	1.88			
0.350						

LBR
Average: **1.875** 2.4375 3

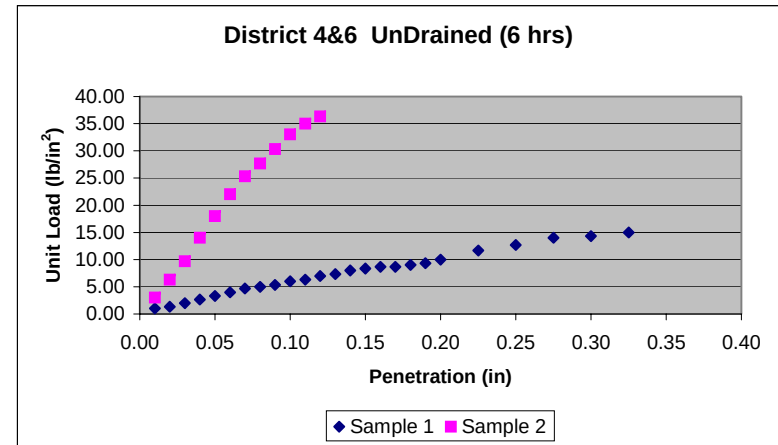


Figure E.9.2 District 4&6 – LBR Values for Excavatable Mix Samples Undrained for Six Hours

Penetration (in)	Sample 1			Sample 2		
	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	41	13.67	1.71	41	13.67	1.71
0.020	58	19.33	2.42	74	24.67	3.08
0.030	71	23.67	2.96	81	27.00	3.38
0.040	82	27.33	3.42	90	30.00	3.75
0.050	94	31.33	3.92	104	34.67	4.33
0.060	111	37.00	4.63	121	40.33	5.04
0.070	126	42.00	5.25	138	46.00	5.75
0.080	142	47.33	5.92	155	51.67	6.46
0.090	160	53.33	6.67	173	57.67	7.21
0.100	178	59.33	7.42	193	64.33	8.04
0.110	195	65.00	8.13	216	72.00	9.00
0.120	212	70.67	8.83	239	79.67	9.96
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						

LBR
Average:

6

7

8

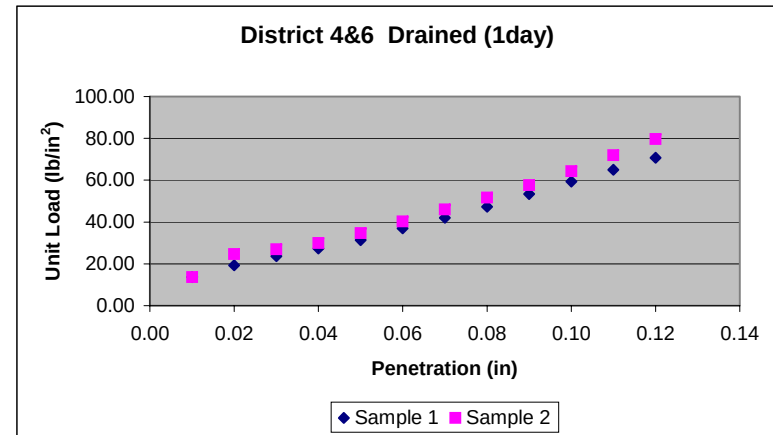


Figure E.9.3 District 4&6 – LBR Values for Excavatable Mix Samples Drained for One Day

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	106	35.33	4.42	3	1.00	0.13
0.020	180	60.00	7.50	4	1.33	0.17
0.030	224	74.67	9.33	7	2.33	0.29
0.040	265	88.33	11.04	17	5.67	0.71
0.050	285	95.00	11.88	41	13.67	1.71
0.060	318	106.00	13.25	99	33.00	4.13
0.070	356	118.67	14.83	189	63.00	7.88
0.080	398	132.67	16.58	287	95.67	11.96
0.090	435	145.00	18.13	398	132.67	16.58
0.100	471	157.00	19.63	514	171.33	21.42
0.110	501	167.00	20.88	639	213.00	26.63
0.120	533	177.67	22.21	770	256.67	32.08
0.130				898	299.33	37.42
0.140				1018	339.33	42.42
0.150				1127	375.67	46.96
0.160				1225	408.33	51.04
0.170				1317	439.00	54.88
0.180				1393	464.33	58.04
0.190						

LBR	19	50
Average:	34.5	

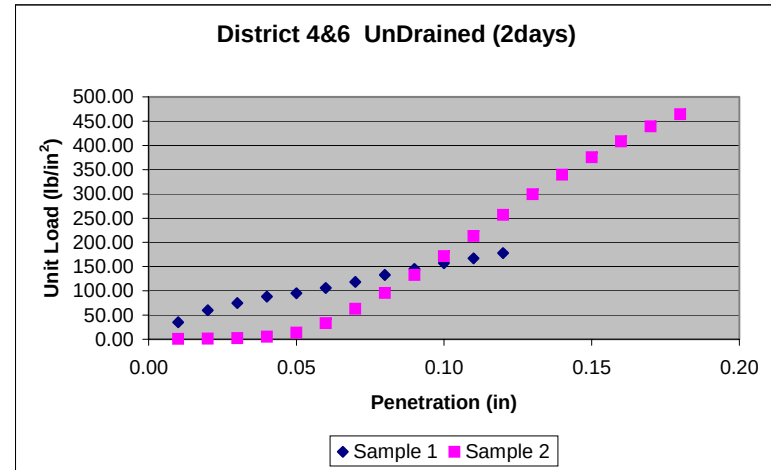


Figure E.9.4 District 4&6 – LBR Values for Excavatable Mix Samples Undrained for Two Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	57	19.00	2.38	70	23.33	2.92
0.020	192	64.00	8.00	136	45.33	5.67
0.030	317	105.67	13.21	210	70.00	8.75
0.040	323	107.67	13.46	267	89.00	11.13
0.050	343	114.33	14.29	274	91.33	11.42
0.060	382	127.33	15.92	345	115.00	14.38
0.070	433	144.33	18.04	411	137.00	17.13
0.080	475	158.33	19.79	509	169.67	21.21
0.090	511	170.33	21.29	604	201.33	25.17
0.100	549	183.00	22.88	684	228.00	28.50
0.110	586	195.33	24.42	756	252.00	31.50
0.120	625	208.33	26.04	815	271.67	33.96
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
LBR			22			27
Average:			24.5			

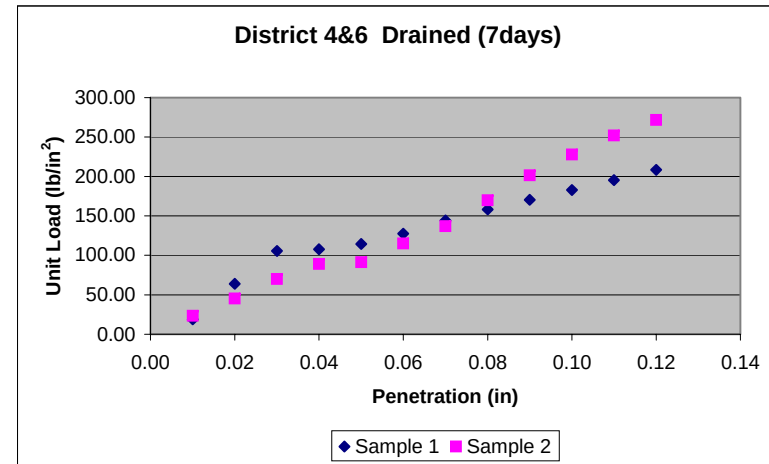


Figure E.9.6 District 4&6 – LBR Values for Excavatable Mix Samples Drained for Seven Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	27	9.00	1.13	367	122.33	15.29
0.020	82	27.33	3.42	395	131.67	16.46
0.030	191	63.67	7.96	437	145.67	18.21
0.040	337	112.33	14.04	471	157.00	19.63
0.050	435	145.00	18.13	556	185.33	23.17
0.060	425	141.67	17.71	638	212.67	26.58
0.070	470	156.67	19.58	709	236.33	29.54
0.080	504	168.00	21.00	785	261.67	32.71
0.090	576	192.00	24.00	850	283.33	35.42
0.100	669	223.00	27.88	912	304.00	38.00
0.110	754	251.33	31.42	976	325.33	40.67
0.120	843	281.00	35.13	1036	345.33	43.17
0.130	947	315.67	39.46			
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
LBR			34			37
Average:			35.5			

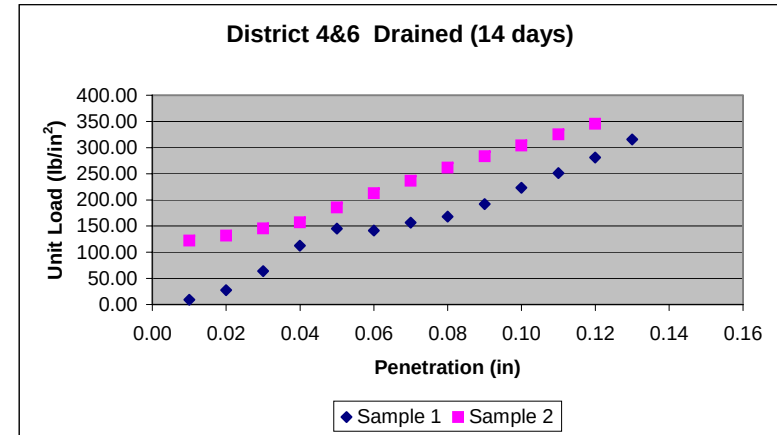


Figure E.9.7 District 4&6 – LBR Values for Excavatable Mix Samples Drained for 14 Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	0	0.00	0.00	66	22.00	2.75
0.020	0	0.00	0.00	156	52.00	6.50
0.030	84	28.00	3.50	210	70.00	8.75
0.040	133	44.33	5.54	248	82.67	10.33
0.050	205	68.33	8.54	305	101.67	12.71
0.060	299	99.67	12.46	383	127.67	15.96
0.070	389	129.67	16.21	484	161.33	20.17
0.080	489	163.00	20.38	586	195.33	24.42
0.090	565	188.33	23.54	691	230.33	28.79
0.100	640	213.33	26.67	795	265.00	33.13
0.110	732	244.00	30.50	893	297.67	37.21
0.120	825	275.00	34.38	986	328.67	41.08
0.130	914	304.67	38.08			
0.140	1000	333.33	41.67			
0.150						
0.160						
0.170						
0.180						
0.190						
LBR			34			34
Average:				34		

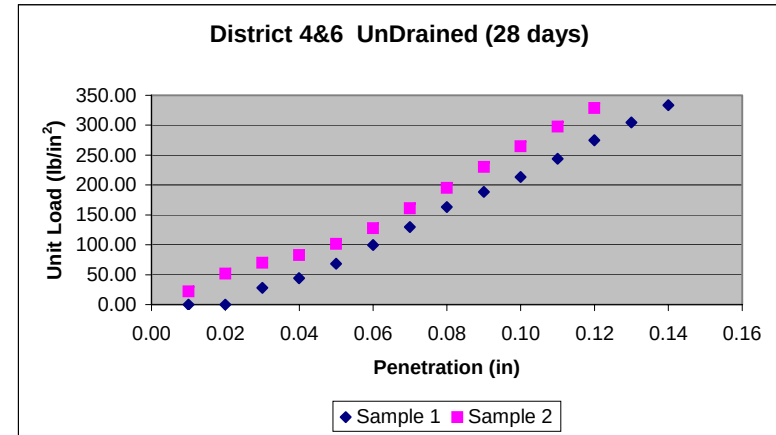


Figure E.9.8 District 4&6 – LBR Values for Excavatable Mix Samples Undrained for 28 Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	10	3.33	0.42	101	33.67	4.21
0.020	25	8.33	1.04	354	118.00	14.75
0.030	27	9.00	1.13	508	169.33	21.17
0.040	35	11.67	1.46	468	156.00	19.50
0.050	45	15.00	1.88	584	194.67	24.33
0.060	51	17.00	2.13	709	236.33	29.54
0.070	67	22.33	2.79	830	276.67	34.58
0.080	77	25.67	3.21	945	315.00	39.38
0.090	104	34.67	4.33	1020	340.00	42.50
0.100	160	53.33	6.67	1135	378.33	47.29
0.110	252	84.00	10.50	1260	420.00	52.50
0.120	393	131.00	16.38	1378	459.33	57.42
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
LBR			8			50
Average:				29		

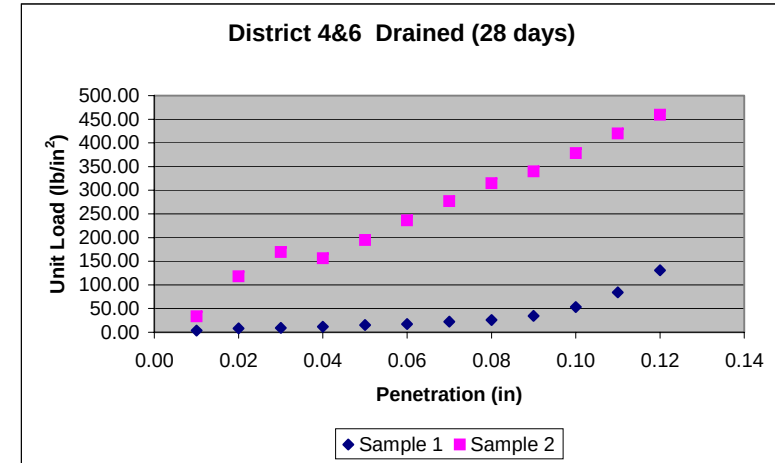


Figure E.9.9 District 4&6 – LBR Values for Excavatable Mix Samples Drained for 28 Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	32	10.67	1.33	8	2.67	0.33
0.020	94	31.33	3.92	25	8.33	1.04
0.030	176	58.67	7.33	75	25.00	3.13
0.040	257	85.67	10.71	151	50.33	6.29
0.050	302	100.67	12.58	257	85.67	10.71
0.060	328	109.33	13.67	442	147.33	18.42
0.070	360	120.00	15.00	674	224.67	28.08
0.080	429	143.00	17.88	897	299.00	37.38
0.090	504	168.00	21.00	1000	333.33	41.67
0.100	592	197.33	24.67	1172	390.67	48.83
0.110	710	236.67	29.58	1391	463.67	57.96
0.120	835	278.33	34.79	1621	540.33	67.54
0.130	962	320.67	40.08	1848	616.00	77.00
0.140				2068	689.33	86.17
0.150				2272	757.33	94.67
0.160				2473	824.33	103.04
0.170						
0.180						
0.190						
LBR Average:			29		58.5	88

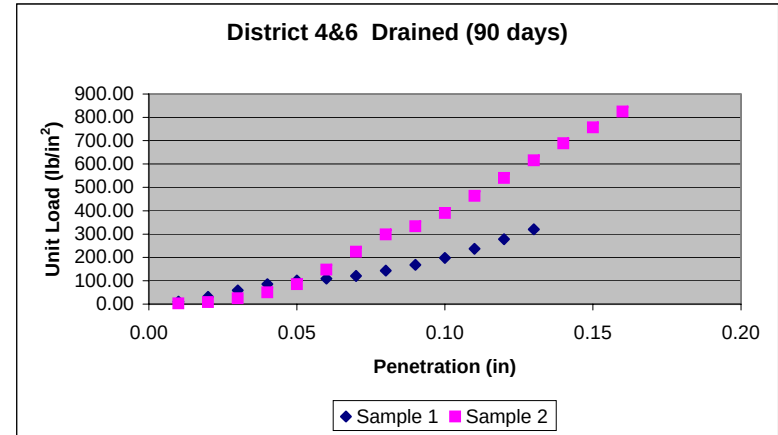


Figure E.9.10 District 4&6 – LBR Values for Excavatable Mix Samples Drained for 90 Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	42	14.00	1.75	8	2.67	0.33
0.020	69	23.00	2.88	34	11.33	1.42
0.030	89	29.67	3.71	93	31.00	3.88
0.040	99	33.00	4.13	232	77.33	9.67
0.050	123	41.00	5.13	393	131.00	16.38
0.060	154	51.33	6.42	375	125.00	15.63
0.070	196	65.33	8.17	405	135.00	16.88
0.080	225	75.00	9.38	423	141.00	17.63
0.090	243	81.00	10.13	403	134.33	16.79
0.100	291	97.00	12.13	408	136.00	17.00
0.110	312	104.00	13.00	463	154.33	19.29
0.120	316	105.33	13.17	511	170.33	21.29
0.130				536	178.67	22.33
0.140				561	187.00	23.38
0.150						
0.160						
0.170						
0.180						

LBR
Average:

11

16

21

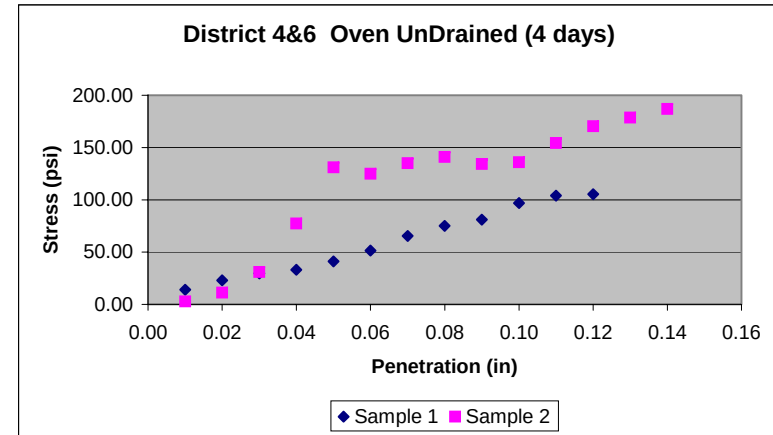


Figure E.9.13 District 4&6 – LBR Values for Excavatable Mix Samples Undrained and Oven Cured for Four Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	44	14.67	1.83	31	10.33	1.29
0.020	186	62.00	7.75	133	44.33	5.54
0.030	415	138.33	17.29	352	117.33	14.67
0.040	467	155.67	19.46	533	177.67	22.21
0.050	564	188.00	23.50	670	223.33	27.92
0.060	678	226.00	28.25	738	246.00	30.75
0.070	782	260.67	32.58	793	264.33	33.04
0.080	906	302.00	37.75	888	296.00	37.00
0.090	1032	344.00	43.00	1003	334.33	41.79
0.100	1149	383.00	47.88	1131	377.00	47.13
0.110	1245	415.00	51.88	1259	419.67	52.46
0.120	1355	451.67	56.46	1383	461.00	57.63
0.130	1448	482.67	60.33	1507	502.33	62.79
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
0.200						
LBR			52			55
Average:			53.5			

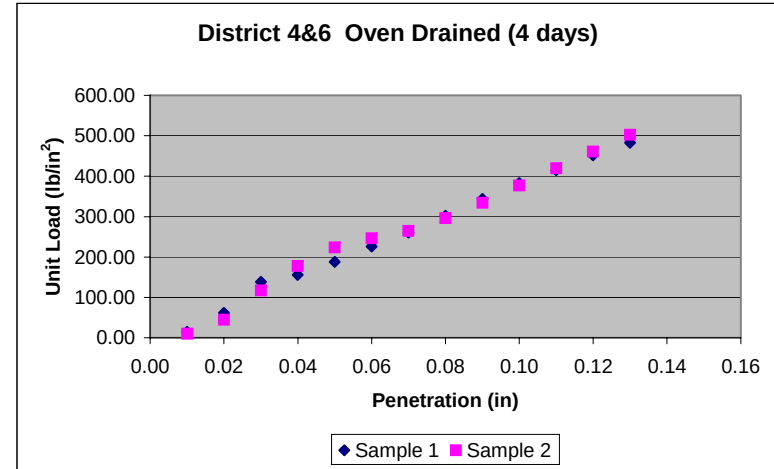
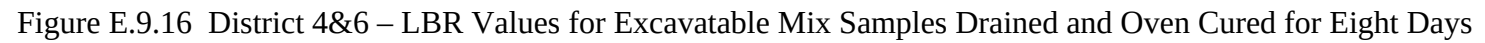


Figure E.9.14 District 4&6 – LBR Values for Excavatable Mix Samples Drained and Oven Cured for Four Days



APPENDIX E.10

**DISTRICT 4&6 – LBR DATA
EXCAVATABLE ACCELERATED MIX**

Penetration (in)	Sample 1			Sample 2		
	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	4	1.33	0.17	6	2.00	0.25
0.020	7	2.33	0.29	12	4.00	0.50
0.030	10	3.33	0.42	18	6.00	0.75
0.040	12	4.00	0.50	23	7.67	0.96
0.050	13	4.33	0.54	27	9.00	1.13
0.060	15	5.00	0.63	33	11.00	1.38
0.070	18	6.00	0.75	39	13.00	1.63
0.080	19	6.33	0.79	44	14.67	1.83
0.090	20	6.67	0.83	49	16.33	2.04
0.100	21	7.00	0.88	53	17.67	2.21
0.110	21	7.00	0.88	57	19.00	2.38
0.120	24	8.00	1.00	62	20.67	2.58
0.130	25	8.33	1.04			
0.140	27	9.00	1.13			
0.150	29	9.67	1.21			
0.160	31	10.33	1.29			
0.170	32	10.67	1.33			
0.180	33	11.00	1.38			
0.190	35	11.67	1.46			
0.200	37	12.33	1.54			
0.225	41	13.67	1.71			
0.250	43	14.33	1.79			
0.275	47	15.67	1.96			
0.300	47	15.67	1.96			
0.325	49	16.33	2.04			
0.350						

LBR

0

1

Average:

0.5

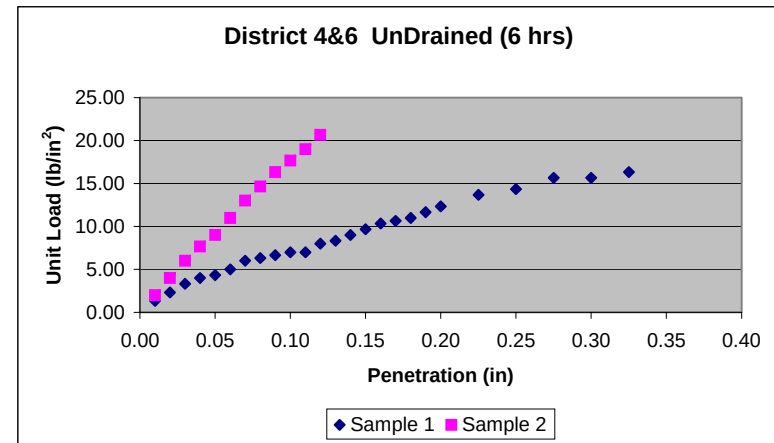


Figure E.10.1 District 4&6 – LBR Values for Excavatable Accelerated Mix Samples Undrained for Six Hours



Penetration (in)	Sample 1			Sample 2		
	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	64	21.33	2.67	22	7.33	0.92
0.020	144	48.00	6.00	52	17.33	2.17
0.030	184	61.33	7.67	118	39.33	4.92
0.040	204	68.00	8.50	184	61.33	7.67
0.050	201	67.00	8.38	226	75.33	9.42
0.060	216	72.00	9.00	246	82.00	10.25
0.070	240	80.00	10.00	283	94.33	11.79
0.080	261	87.00	10.88	309	103.00	12.88
0.090	275	91.67	11.46	327	109.00	13.63
0.100	288	96.00	12.00	351	117.00	14.63
0.110	299	99.67	12.46	395	131.67	16.46
0.120	302	100.67	12.58	410	136.67	17.08
0.130				450	150.00	18.75
0.140						
0.150						
0.160						
0.170						
0.180						
LBR			11			16
Average:			13.5			

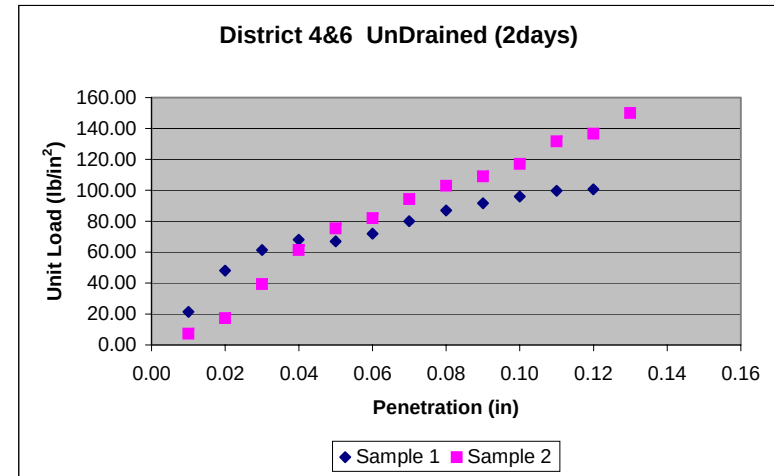


Figure E.10.4 District 4&6 – LBR Values for Excavatable Accelerated Mix Samples Undrained for Two Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	84	28.00	3.50	51	17.00	2.13
0.020	165	55.00	6.88	325	108.33	13.54
0.030	252	84.00	10.50	328	109.33	13.67
0.040	265	88.33	11.04	393	131.00	16.38
0.050	322	107.33	13.42	475	158.33	19.79
0.060	351	117.00	14.63	553	184.33	23.04
0.070	348	116.00	14.50	619	206.33	25.79
0.080	364	121.33	15.17	702	234.00	29.25
0.090	411	137.00	17.13	791	263.67	32.96
0.100	447	149.00	18.63	879	293.00	36.63
0.110	483	161.00	20.13	967	322.33	40.29
0.120	520	173.33	21.67	1051	350.33	43.79
0.130				1137	379.00	47.38
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
LBR Average:			17			39
			28			

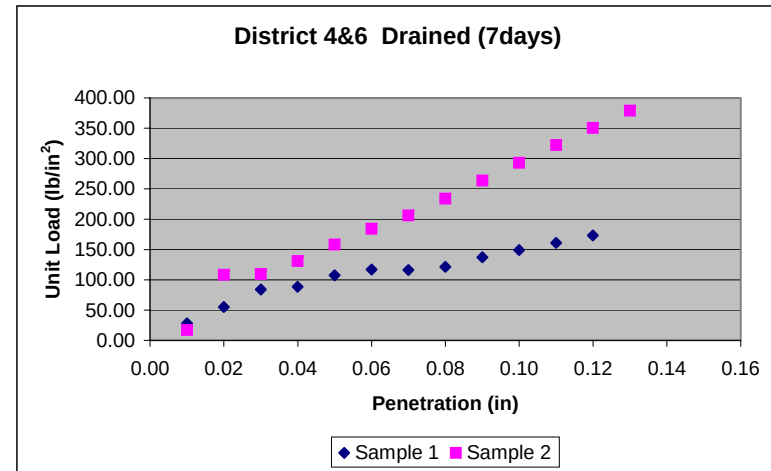


Figure E.10.6 District 4&6 – LBR Values for Excavatable Accelerated Mix Samples Drained for Seven Days

Figure E.10.7 District 4&6 – LBR Values for Excavatable Accelerated Mix Samples Drained for 14 Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	59	19.67	2.46	0	0.00	0.00
0.020	132	44.00	5.50	0	0.00	0.00
0.030	224	74.67	9.33	0	0.00	0.00
0.040	287	95.67	11.96	0	0.00	0.00
0.050	354	118.00	14.75	0	0.00	0.00
0.060	464	154.67	19.33	0	0.00	0.00
0.070	575	191.67	23.96	0	0.00	0.00
0.080	673	224.33	28.04	5	1.67	0.21
0.090	758	252.67	31.58	12	4.00	0.50
0.100	844	281.33	35.17	60	20.00	2.50
0.110	924	308.00	38.50	129	43.00	5.38
0.120	1006	335.33	41.92	181	60.33	7.54
0.130				227	75.67	9.46
0.140				363	121.00	15.13
0.150				518	172.67	21.58
0.160				694	231.33	28.92
0.170				851	283.67	35.46
0.180				978	326.00	40.75
0.190				1086	362.00	45.25
0.200				1183	394.33	49.29
0.225				1387	462.33	57.79
LBR Average:			37			45
						41

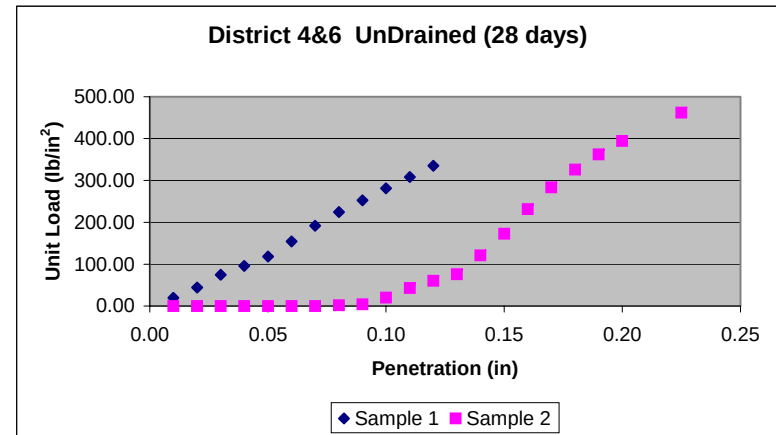


Figure E.10.8 District 4&6 – LBR Values for Excavatable Accelerated Mix Samples Undrained for 28 Days

Penetration (in)	Sample 1			Sample 2		
	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	26	8.67	1.08	32	10.67	1.33
0.020	65	21.67	2.71	96	32.00	4.00
0.030	122	40.67	5.08	198	66.00	8.25
0.040	198	66.00	8.25	334	111.33	13.92
0.050	255	85.00	10.63	490	163.33	20.42
0.060	284	94.67	11.83	597	199.00	24.88
0.070	327	109.00	13.63	743	247.67	30.96
0.080	392	130.67	16.33	895	298.33	37.29
0.090	454	151.33	18.92	1042	347.33	43.42
0.100	518	172.67	21.58	1191	397.00	49.63
0.110	582	194.00	24.25	1333	444.33	55.54
0.120	648	216.00	27.00	1464	488.00	61.00
0.130	710	236.67	29.58	1585	528.33	66.04
0.140				1692	564.00	70.50
0.150						
0.160						
0.170						
0.180						
0.190						
LBR Average:	26			43		
				60		

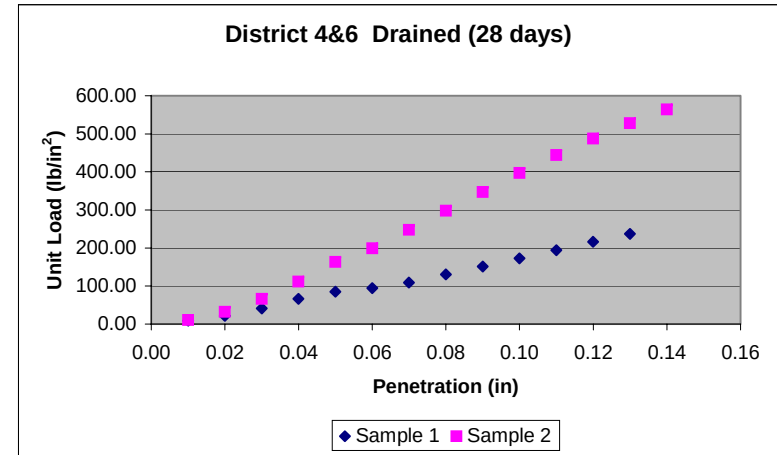


Figure E.10.9 District 4&6 – LBR Values for Excavatable Accelerated Mix Samples Drained for 28 Days





Penetration (in)	Sample 1			Sample 2		
	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	22	7.33	0.92	49	16.33	2.04
0.020	73	24.33	3.04	182	60.67	7.58
0.030	185	61.67	7.71	434	144.67	18.08
0.040	270	90.00	11.25	536	178.67	22.33
0.050	369	123.00	15.38	594	198.00	24.75
0.060	424	141.33	17.67	674	224.67	28.08
0.070	437	145.67	18.21	726	242.00	30.25
0.080	415	138.33	17.29	715	238.33	29.79
0.090	436	145.33	18.17	748	249.33	31.17
0.100	456	152.00	19.00	794	264.67	33.08
0.110	468	156.00	19.50	839	279.67	34.96
0.120	490	163.33	20.42	873	291.00	36.38
0.130	519	173.00	21.63	908	302.67	37.83
0.140						
0.150						
0.160						
0.170						
0.180						
LBR			19			34
Average:			26.5			

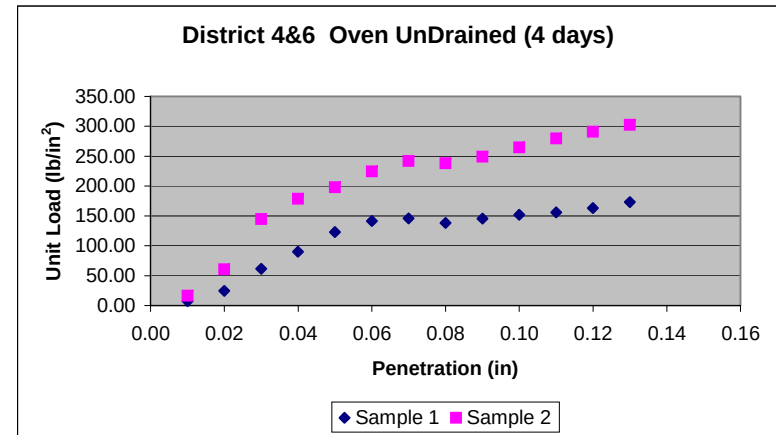


Figure E.10.13 District 4&6 – LBR Values for Excavatable Accelerated Mix Samples Undrained and Oven Cured for Four Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	76	25.33	3.17	23	7.67	0.96
0.020	299	99.67	12.46	87	29.00	3.63
0.030	437	145.67	18.21	264	88.00	11.00
0.040	518	172.67	21.58	537	179.00	22.38
0.050	592	197.33	24.67	875	291.67	36.46
0.060	670	223.33	27.92	866	288.67	36.08
0.070	720	240.00	30.00	897	299.00	37.38
0.080	759	253.00	31.63	1017	339.00	42.38
0.090	813	271.00	33.88	1154	384.67	48.08
0.100	873	291.00	36.38	1282	427.33	53.42
0.110	951	317.00	39.63	1401	467.00	58.38
0.120	1027	342.33	42.79	1504	501.33	62.67
0.130	1109	369.67	46.21	1599	533.00	66.63
0.140				1683	561.00	70.13
0.150						
0.160						
0.170						
0.180						
0.190						
0.200						

LBR

39

65

Average:

52

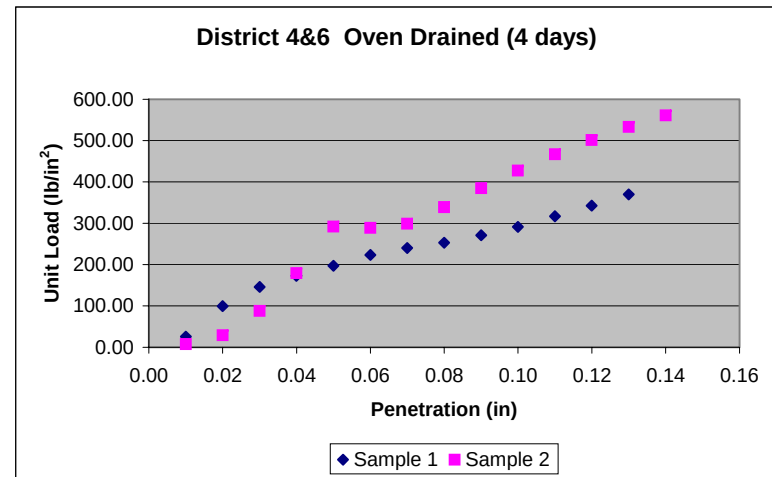


Figure E.10.14 District 4&6 – LBR Values for Excavatable Accelerated Mix Samples Drained and Oven Cured for Four Days

Penetration (in)	Sample 1			Sample 2		
	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	53	17.67	2.21	0	0.00	0.00
0.020	135	45.00	5.63	0	0.00	0.00
0.030	220	73.33	9.17	0	0.00	0.00
0.040	229	76.33	9.54	2	0.67	0.08
0.050	305	101.67	12.71	61	20.33	2.54
0.060	435	145.00	18.13	253	84.33	10.54
0.070	560	186.67	23.33	650	216.67	27.08
0.080	643	214.33	26.79	876	292.00	36.50
0.090	736	245.33	30.67	779	259.67	32.46
0.100	720	240.00	30.00	653	217.67	27.21
0.110	732	244.00	30.50	636	212.00	26.50
0.120	770	256.67	32.08	682	227.33	28.42
0.130				724	241.33	30.17
0.140				754	251.33	31.42
0.150				796	265.33	33.17
0.160				844	281.33	35.17
0.170				874	291.33	36.42
0.180						
LBR			29			34
Average:			31.5			

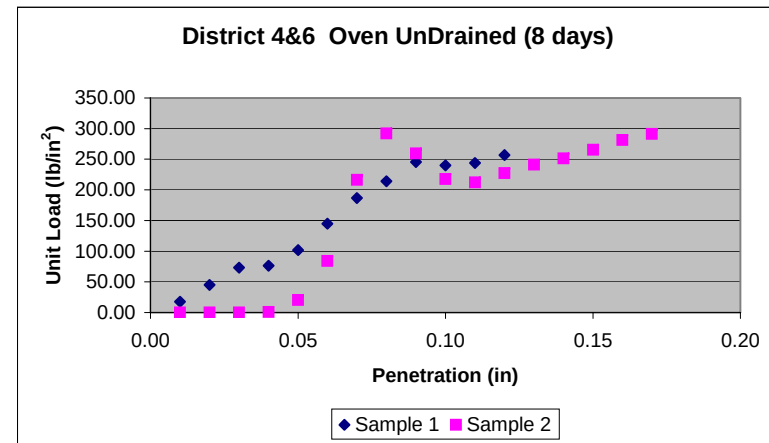


Figure E.10.15 District 4&6 – LBR Values for Excavatable Accelerated Mix Samples Undrained and Oven Cured for Eight Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	23	7.67	0.96	18	6.00	0.75
0.020	66	22.00	2.75	60	20.00	2.50
0.030	195	65.00	8.13	142	47.33	5.92
0.040	381	127.00	15.88	313	104.33	13.04
0.050	478	159.33	19.92	514	171.33	21.42
0.060	516	172.00	21.50	530	176.67	22.08
0.070	611	203.67	25.46	664	221.33	27.67
0.080	703	234.33	29.29	814	271.33	33.92
0.090	786	262.00	32.75	917	305.67	38.21
0.100	873	291.00	36.38	1049	349.67	43.71
0.110	971	323.67	40.46	1199	399.67	49.96
0.120	1074	358.00	44.75	1350	450.00	56.25
0.130	1168	389.33	48.67	1511	503.67	62.96
0.140	1262	420.67	52.58	1671	557.00	69.63
0.150						
0.160						
0.170						
0.180						
LBR Average:			44			58

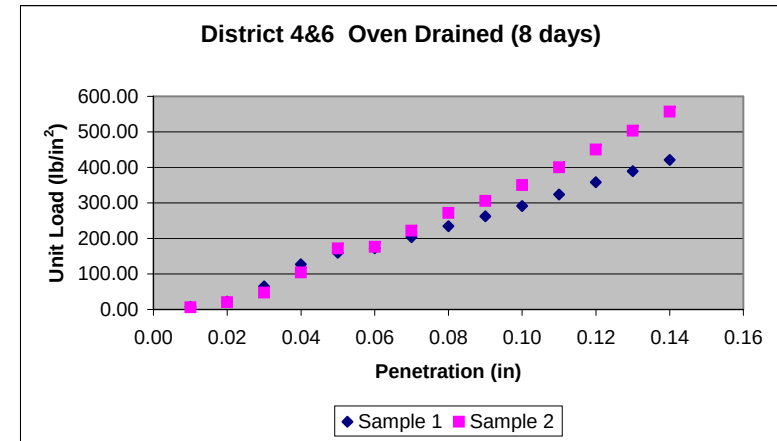


Figure E.10.16 District 4&6 – LBR Values for Excavatable Accelerated Mix Samples Drained and Oven Cured for Eight Days

APPENDIX E.11

**DISTRICT 4&6 – LBR DATA
NON-EXCAVATABLE MIX**

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	7	2.33	0.29	9	3.00	0.38
0.020	18	6.00	0.75	26	8.67	1.08
0.030	32	10.67	1.33	54	18.00	2.25
0.040	50	16.67	2.08	90	30.00	3.75
0.050	69	23.00	2.88	128	42.67	5.33
0.060	91	30.33	3.79	170	56.67	7.08
0.070	113	37.67	4.71	216	72.00	9.00
0.080	138	46.00	5.75	266	88.67	11.08
0.090	167	55.67	6.96	322	107.33	13.42
0.100	199	66.33	8.29	381	127.00	15.88
0.110	233	77.67	9.71	446	148.67	18.58
0.120	268	89.33	11.17	511	170.33	21.29
0.130	304	101.33	12.67	577	192.33	24.04
0.140	341	113.67	14.21	642	214.00	26.75
0.150	379	126.33	15.79	709	236.33	29.54
0.160	420	140.00	17.50	780	260.00	32.50
0.170	461	153.67	19.21	850	283.33	35.42
0.180	503	167.67	20.96	919	306.33	38.29
0.190	543	181.00	22.63	988	329.33	41.17
0.200	586	195.33	24.42	1056	352.00	44.00
0.225	694	231.33	28.92	1223	407.67	50.96
0.250	605	201.67	25.21	1372	457.33	57.17
0.275	917	305.67	38.21	1508	502.67	62.83
0.300	1029	343.00	42.88	1634	544.67	68.08
0.325	1137	379.00	47.38	1741	580.33	72.54
0.350						

LBR

19

29

Average:

24

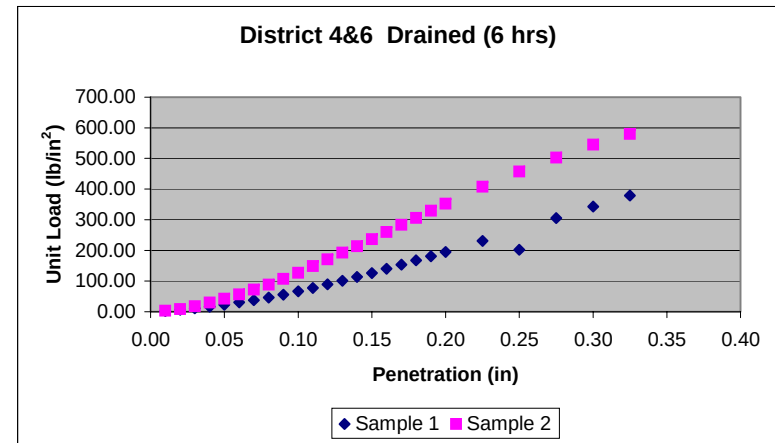


Figure E.11.1 District 4&6 – LBR Values for Non-excavatable Mix Samples Drained for Six Hours

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	6	2.00	0.25	35	11.67	1.46
0.020	11	3.67	0.46	73	24.33	3.04
0.030	18	6.00	0.75	87	29.00	3.63
0.040	25	8.33	1.04	99	33.00	4.13
0.050	34	11.33	1.42	111	37.00	4.63
0.060	43	14.33	1.79	121	40.33	5.04
0.070	52	17.33	2.17	132	44.00	5.50
0.080	63	21.00	2.63	140	46.67	5.83
0.090	72	24.00	3.00	149	49.67	6.21
0.100	82	27.33	3.42	157	52.33	6.54
0.110	91	30.33	3.79	167	55.67	6.96
0.120	101	33.67	4.21	175	58.33	7.29
0.130	112	37.33	4.67			0.00
0.140	123	41.00	5.13			0.00
0.150	133	44.33	5.54			0.00
0.160	143	47.67	5.96			0.00
0.170	152	50.67	6.33			0.00
0.180	161	53.67	6.71			0.00
0.190	169	56.33	7.04			0.00
0.200	178	59.33	7.42			0.00
0.225	201	67.00	8.38			0.00
0.250	221	73.67	9.21			0.00
0.275	242	80.67	10.08			0.00
0.300	261	87.00	10.88			0.00
0.325	276	92.00	11.50			0.00
0.350						

LBR
Average:

3

4.5

6

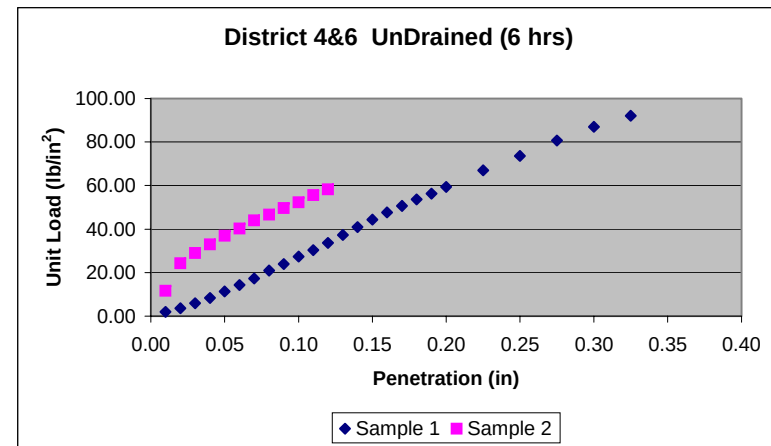


Figure E.11.2 District 4&6 – LBR Values for Non-excavatable Mix Samples Undrained for Six Hours

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	30	10.00	1.25	14	4.67	0.58
0.020	89	29.67	3.71	69	23.00	2.88
0.030	175	58.33	7.29	259	86.33	10.79
0.040	305	101.67	12.71	525	175.00	21.88
0.050	487	162.33	20.29	854	284.67	35.58
0.060	744	248.00	31.00	1211	403.67	50.46
0.070	1036	345.33	43.17	1611	537.00	67.13
0.080	1359	453.00	56.63	2020	673.33	84.17
0.090	1714	571.33	71.42	2431	810.33	101.29
0.100	2063	687.67	85.96	2824	941.33	117.67
0.110	2409	803.00	100.38	3203	1067.67	133.46
0.120	2749	916.33	114.54	3557	1185.67	148.21
0.130	3080	1026.67	128.33	3911	1303.67	162.96
0.140	3401	1133.67	141.71	4252	1417.33	177.17
0.150	3712	1237.33	154.67	4583	1527.67	190.96
0.160	4001	1333.67	166.71			
0.170						
0.180						
LBR			147			166
Average:			156.5			

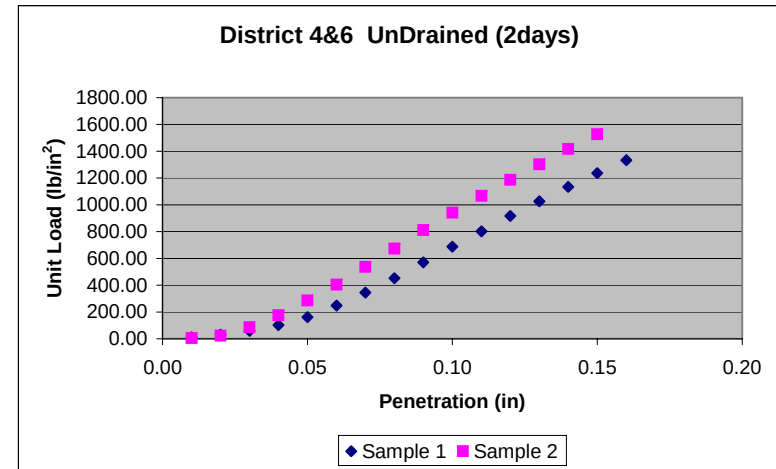
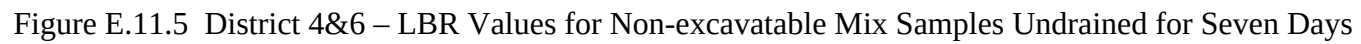


Figure E.11.4 District 4&6 – LBR Values for Non-excavatable Mix Samples Undrained for Two Days



	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	14	4.67	0.58	40	13.33	1.67
0.020	35	11.67	1.46	105	35.00	4.38
0.030	92	30.67	3.83	278	92.67	11.58
0.040	218	72.67	9.08	558	186.00	23.25
0.050	409	136.33	17.04	989	329.67	41.21
0.060	681	227.00	28.38	1597	532.33	66.54
0.070	1021	340.33	42.54	2332	777.33	97.17
0.080	1508	502.67	62.83	3132	1044.00	130.50
0.090	2131	710.33	88.79	4029	1343.00	167.88
0.100	2901	967.00	120.88	5025	1675.00	209.38
0.110	3734	1244.67	155.58	6064	2021.33	252.67
0.120	4618	1539.33	192.42	7188	2396.00	299.50
0.130	5542	1847.33	230.92	8387	2795.67	349.46
0.140	6262	2087.33	260.92	7352	2450.67	306.33
0.150	6745	2248.33	281.04	7773	2591.00	323.88
0.160	7561	2520.33	315.04	8525	2841.67	355.21
0.170	8294	2764.67	345.58	9306	3102.00	387.75
0.180	8962	2987.33	373.42			
0.190	9576.00	3192.00	399.00			
LBR Average:			349		355.5	362

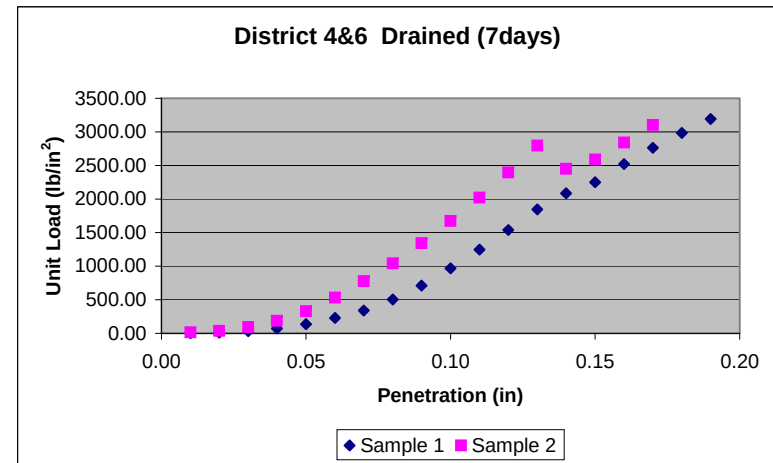


Figure E.11.6 District 4&6 – LBR Values for Non-excavatable Mix Samples Drained for Seven Days

Penetration (in)	Sample 1			Sample 2		
	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	54	18.00	2.25	85	28.33	3.54
0.020	109	36.33	4.54	351	117.00	14.63
0.030	223	74.33	9.29	625	208.33	26.04
0.040	458	152.67	19.08	947	315.67	39.46
0.050	865	288.33	36.04	1356	452.00	56.50
0.060	1458	486.00	60.75	1920	640.00	80.00
0.070	2205	735.00	91.88	2819	939.67	117.46
0.080	3093	1031.00	128.88	4052	1350.67	168.83
0.090	4108	1369.33	171.17	5518	1839.33	229.92
0.100	5218	1739.33	217.42	7049	2349.67	293.71
0.110	6384	2128.00	266.00	8617	2872.33	359.04
0.120	7660	2553.33	319.17	9729	3243.00	405.38
0.130	9051	3017.00	377.13			
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
LBR Average:			251			359
						305

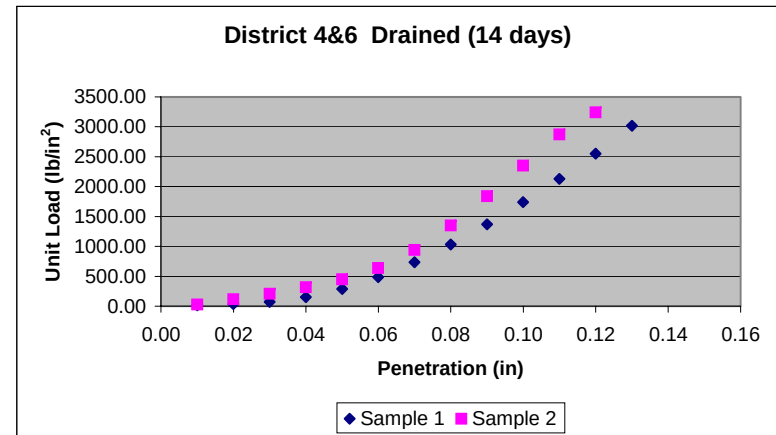


Figure E.11.7 District 4&6 – LBR Values for Non-excavatable Mix Samples Drained for 14 Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	12	4.00	0.50	54	18.00	2.25
0.020	35	11.67	1.46	146	48.67	6.08
0.030	87	29.00	3.63	346	115.33	14.42
0.040	190	63.33	7.92	640	213.33	26.67
0.050	364	121.33	15.17	1075	358.33	44.79
0.060	582	194.00	24.25	1613	537.67	67.21
0.070	854	284.67	35.58	2265	755.00	94.38
0.080	1181	393.67	49.21	3031	1010.33	126.29
0.090	1553	517.67	64.71	3796	1265.33	158.17
0.100	1987	662.33	82.79	4621	1540.33	192.54
0.110	2476	825.33	103.17	5403	1801.00	225.13
0.120	3056	1018.67	127.33	6211	2070.33	258.79
0.130	3719	1239.67	154.96	7044	2348.00	293.50
0.140	4443	1481.00	185.13	7818	2606.00	325.75
0.150	5269	1756.33	219.54	8604	2868.00	358.50
0.160	6213	2071.00	258.88	9466	3155.33	394.42
0.170	7210	2403.33	300.42			
0.180	8224	2741.33	342.67			
0.190	9199.00	3066.33	383.29			

LBR

383.2917

344

Average:

363.6458

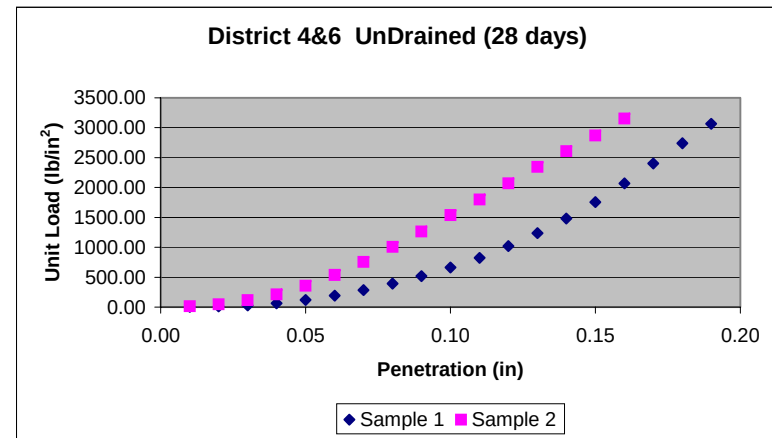


Figure E.11.8 District 4&6 – LBR Values for Non-excavatable Mix Samples Undrained for 28 Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	31	10.33	1.29	29	9.67	1.21
0.020	101	33.67	4.21	139	46.33	5.79
0.030	221	73.67	9.21	446	148.67	18.58
0.040	402	134.00	16.75	1015	338.33	42.29
0.050	646	215.33	26.92	1770	590.00	73.75
0.060	1003	334.33	41.79	2698	899.33	112.42
0.070	1452	484.00	60.50	3767	1255.67	156.96
0.080	2034	678.00	84.75	4960	1653.33	206.67
0.090	2733	911.00	113.88	6242	2080.67	260.08
0.100	3502	1167.33	145.92	7579	2526.33	315.79
0.110	4323	1441.00	180.13	8945	2981.67	372.71
0.120	5154	1718.00	214.75			
0.130	6045	2015.00	251.88			
0.140	6952	2317.33	289.67			
0.150	7935	2645.00	330.63			
0.160	9137	3045.67	380.71			
0.170						
0.180						
0.190						
LBR Average:			145			316
			230.5			

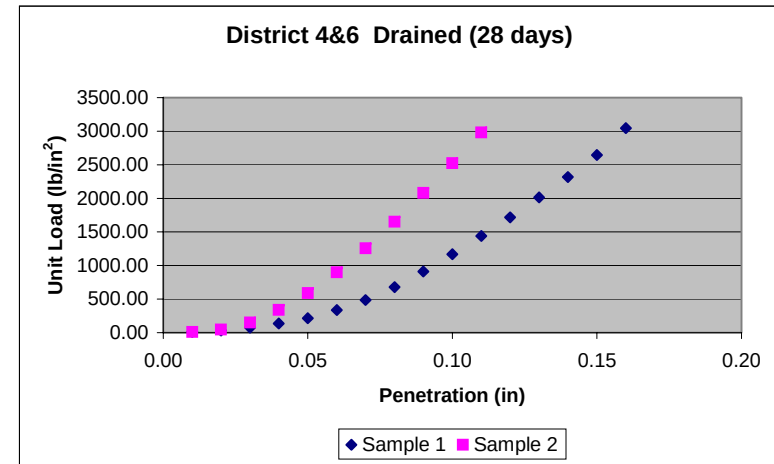


Figure E.11.9 District 4&6 – LBR Values for Non-excavatable Mix Samples Drained for 28 Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	0	0.00	0.00	61	20.33	2.54
0.020	0	0.00	0.00	283	94.33	11.79
0.030	0	0.00	0.00	738	246.00	30.75
0.040	0	0.00	0.00	1512	504.00	63.00
0.050	55	18.33	2.29	2546	848.67	106.08
0.060	118	39.33	4.92	3791	1263.67	157.96
0.070	205	68.33	8.54	5226	1742.00	217.75
0.080	355	118.33	14.79	6841	2280.33	285.04
0.090	664	221.33	27.67	8622	2874.00	359.25
0.100	1157	385.67	48.21			
0.110	2041	680.33	85.04			
0.120	3247	1082.33	135.29			
0.130	4785	1595.00	199.38			
0.140	6589	2196.33	274.54			
0.150	8560	2853.33	356.67			
0.160						
0.170						
0.180						
0.190						

LBR
Average: 356.6667 357.9583 359.25

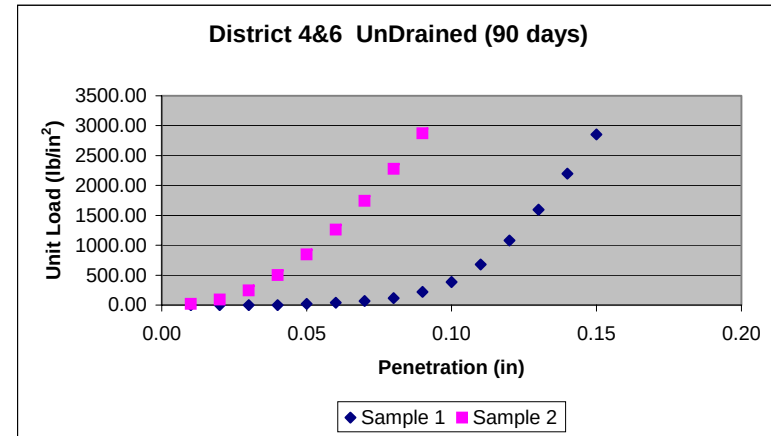


Figure E.11.10 District 4&6 – LBR Values for Non-excavatable Mix Samples Undrained for 90 Days



	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	68	22.67	2.83	89	29.67	3.71
0.020	242	80.67	10.08	390	130.00	16.25
0.030	528	176.00	22.00	774	258.00	32.25
0.040	1065	355.00	44.38	1255	418.33	52.29
0.050	1850	616.67	77.08	1910	636.67	79.58
0.060	3040	1013.33	126.67	2865	955.00	119.38
0.070	4547	1515.67	189.46	4119	1373.00	171.63
0.080	6307	2102.33	262.79	5525	1841.67	230.21
0.090	8088	2696.00	337.00	7027	2342.33	292.79
0.100	9915	3305.00	413.13	8523	2841.00	355.13
0.110				9957	3319.00	414.88
0.120						
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
0.200						

LBR
Average: **413.125** 414 **414.875**

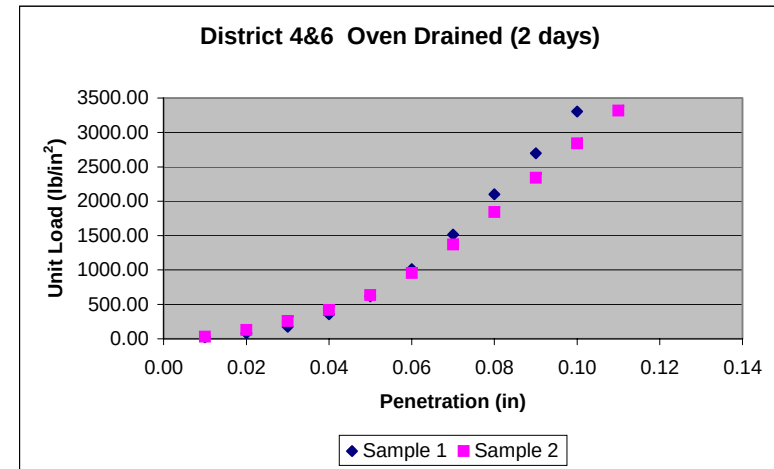


Figure E.11.12 District 4&6 – LBR Values for Non-excavatable Mix Samples Drained and Oven Cured for Two Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	42	14.00	1.75	38	12.67	1.58
0.020	290	96.67	12.08	128	42.67	5.33
0.030	940	313.33	39.17	339	113.00	14.13
0.040	2004	668.00	83.50	713	237.67	29.71
0.050	3489	1163.00	145.38	1277	425.67	53.21
0.060	5179	1726.33	215.79	2002	667.33	83.42
0.070	6871	2290.33	286.29	2944	981.33	122.67
0.080	8457	2819.00	352.38	4071	1357.00	169.63
0.090	9920	3306.67	413.33	5346	1782.00	222.75
0.100	1177	392.33	49.04	6738	2246.00	280.75
0.110	2806	935.33	116.92	8259	2753.00	344.13
0.120	4436	1478.67	184.83	9911	3303.67	412.96
0.130	5574	1858.00	232.25			
0.140	5579	1859.67	232.46			
0.150	5653	1884.33	235.54			
0.160						
0.170						
0.180						

LBR
Average: 232 322.4792 412.9583

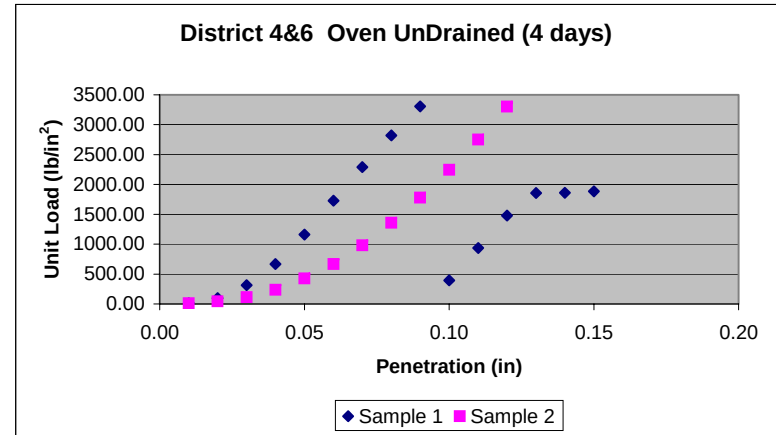


Figure E.11.13 District 4&6 – LBR Values for Non-excavatable Mix Samples Undrained and Oven Cured for Four Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	44	14.67	1.83	36	12.00	1.50
0.020	145	48.33	6.04	153	51.00	6.38
0.030	368	122.67	15.33	387	129.00	16.13
0.040	714	238.00	29.75	788	262.67	32.83
0.050	1217	405.67	50.71	1441	480.33	60.04
0.060	1969	656.33	82.04	2332	777.33	97.17
0.070	3039	1013.00	126.63	3483	1161.00	145.13
0.080	4299	1433.00	179.13	4802	1600.67	200.08
0.090	5685	1895.00	236.88	6259	2086.33	260.79
0.100	7049	2349.67	293.71	7793	2597.67	324.71
0.110	6781	2260.33	282.54	9308	3102.67	387.83
0.120	7390	2463.33	307.92			
0.130	7531	2510.33	313.79			
0.140	7019	2339.67	292.46			
0.150	6645	2215.00	276.88			
0.160	6320	2106.67	263.33			
0.170	6367	2122.33	265.29			
0.180						

LBR
Average: 274 387.8333 330.9167

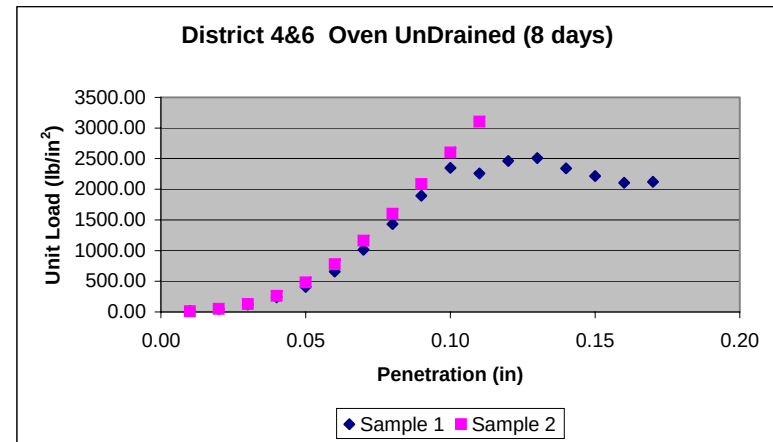


Figure E.11.15 District 4&6 – LBR Values for Non-excavatable Mix Samples Undrained and Oven Cured for Eight Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	70	23.33	2.92	17	5.67	0.71
0.020	314	104.67	13.08	97	32.33	4.04
0.030	883	294.33	36.79	327	109.00	13.63
0.040	1802	600.67	75.08	801	267.00	33.38
0.050	3058	1019.33	127.42	1487	495.67	61.96
0.060	4570	1523.33	190.42	2550	850.00	106.25
0.070	6319	2106.33	263.29	4041	1347.00	168.38
0.080	8237	2745.67	343.21	5841	1947.00	243.38
0.090				7810	2603.33	325.42
0.100				9877	3292.33	411.54
0.110						
0.120						
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						

LBR
Average: **343.2083** **377.375** **411.5417**

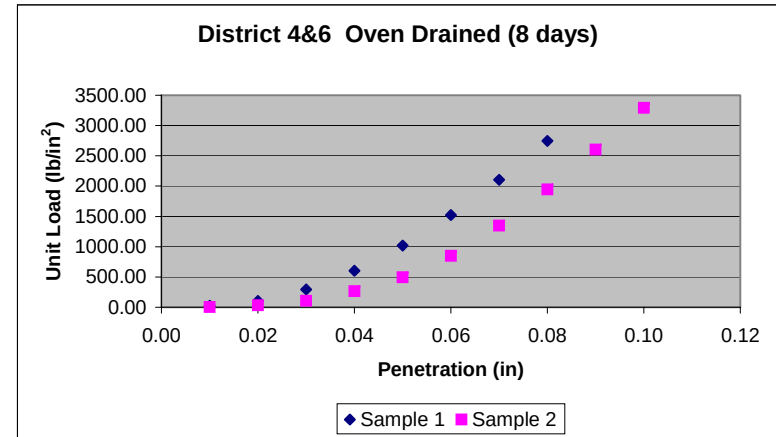


Figure E.11.16 District 4&6 – LBR Values for Non-excavatable Mix Samples Drained and Oven Cured for Eight Days

APPENDIX E.12

**DISTRICT 4&6 – LBR DATA
NON-EXCAVATABLE ACCELERATED MIX**

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	11	3.67	0.46	42	14.00	1.75
0.020	23	7.67	0.96	67	22.33	2.79
0.030	37	12.33	1.54	96	32.00	4.00
0.040	52	17.33	2.17	126	42.00	5.25
0.050	68	22.67	2.83	158	52.67	6.58
0.060	86	28.67	3.58	193	64.33	8.04
0.070	106	35.33	4.42	230	76.67	9.58
0.080	127	42.33	5.29	268	89.33	11.17
0.090	150	50.00	6.25	307	102.33	12.79
0.100	175	58.33	7.29	346	115.33	14.42
0.110	200	66.67	8.33	385	128.33	16.04
0.120	227	75.67	9.46	424	141.33	17.67
0.130	253	84.33	10.54			
0.140	280	93.33	11.67			
0.150	307	102.33	12.79			
0.160	334	111.33	13.92			
0.170	362	120.67	15.08			
0.180	388	129.33	16.17			
0.190	415	138.33	17.29			
0.200	439	146.33	18.29			
0.225	503	167.67	20.96			
0.250	563	187.67	23.46			
0.275	619	206.33	25.79			
0.300	671	223.67	27.96			
0.325	717	239.00	29.88			
0.350						

LBR
Average:

9

11

13

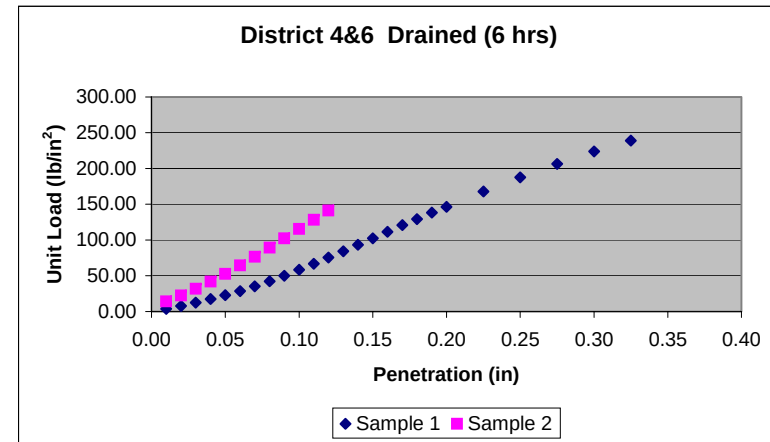


Figure E.12.1 District 4&6 – LBR Values for Non-excavatable Accelerated Mix Samples Drained for Six Hours

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	5	1.67	0.21	5	1.67	0.21
0.020	9	3.00	0.38	10	3.33	0.42
0.030	13	4.33	0.54	16	5.33	0.67
0.040	18	6.00	0.75	22	7.33	0.92
0.050	24	8.00	1.00	29	9.67	1.21
0.060	30	10.00	1.25	35	11.67	1.46
0.070	36	12.00	1.50	41	13.67	1.71
0.080	42	14.00	1.75	47	15.67	1.96
0.090	48	16.00	2.00	54	18.00	2.25
0.100	55	18.33	2.29	60	20.00	2.50
0.110	61	20.33	2.54	67	22.33	2.79
0.120	67	22.33	2.79	74	24.67	3.08
0.130	73	24.33	3.04	80	26.67	3.33
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
0.200						
0.225						
0.250						
0.275						
0.300						
0.325						
0.350						

LBR	1	1
Average:	1	

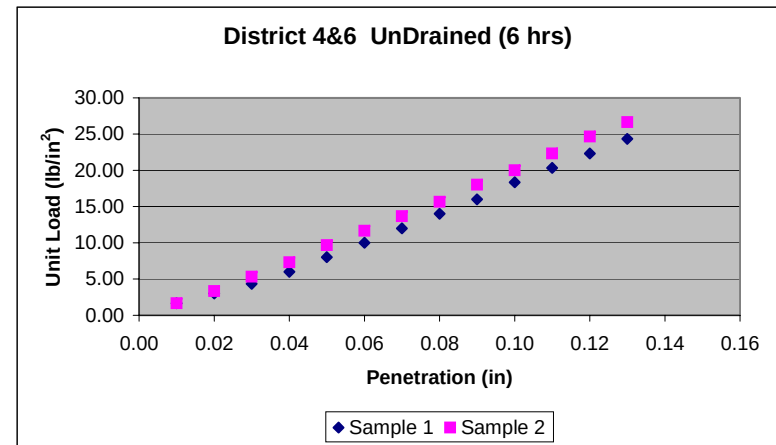


Figure E.12.2 District 4&6 – LBR Values for Non-excavatable Accelerated Mix Samples Undrained for Six Hours

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	15	5.00	0.63	69	23.00	2.88
0.020	47	15.67	1.96	320	106.67	13.33
0.030	115	38.33	4.79	671	223.67	27.96
0.040	243	81.00	10.13	1094	364.67	45.58
0.050	433	144.33	18.04	1514	504.67	63.08
0.060	693	231.00	28.88	1872	624.00	78.00
0.070	978	326.00	40.75	1985	661.67	82.71
0.080	1277	425.67	53.21	2278	759.33	94.92
0.090	1577	525.67	65.71	2584	861.33	107.67
0.100	1735	578.33	72.29	2877	959.00	119.88
0.110	1706	568.67	71.08	3164	1054.67	131.83
0.120	1910	636.67	79.58	3451	1150.33	143.79
0.130	2122	707.33	88.42	3732	1244.00	155.50
0.140	2341	780.33	97.54			
0.150	2553	851.00	106.38			
0.160						
0.170						
0.180						
LBR			96			138
Average:			117			

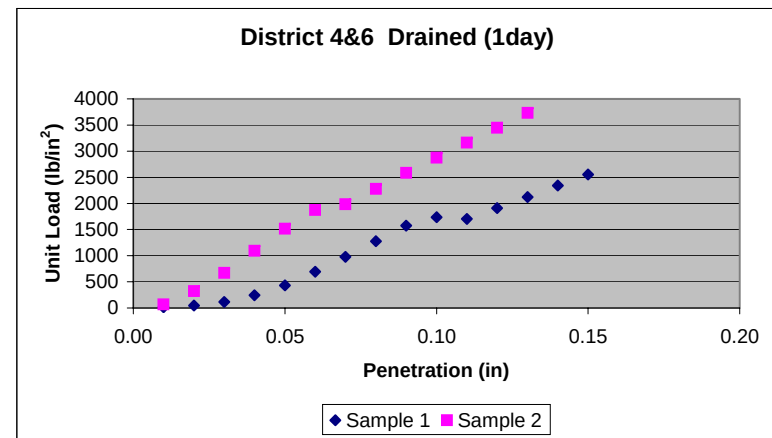


Figure E.12.3 District 4&6 – LBR Values for Non-excavatable Accelerated Mix Samples Undrained for Six Hours

Penetration (in)	Sample 1			Sample 2		
	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010			0.00			0.00
0.020			0.00			0.00
0.030			0.00			0.00
0.040			0.00			0.00
0.050			0.00			0.00
0.060			0.00			0.00
0.070			0.00			0.00
0.080			0.00			0.00
0.090			0.00			0.00
0.100			0.00			0.00
0.110			0.00			0.00
0.120			0.00			0.00
0.130			0.00			0.00
0.140			0.00			0.00
0.150			0.00			0.00
0.160			0.00			0.00
0.170			0.00			0.00
0.180			0.00			0.00
0.190			0.00			0.00

LBR

156

398

Average:

277

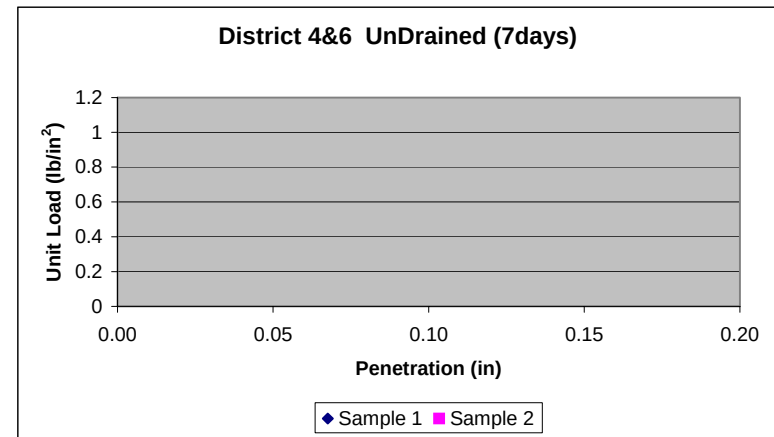


Figure E.12.5 District 4&6 – LBR Values for Non-excavatable Accelerated Mix Samples Undrained for Seven Days



	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	52	17.33	2.17	54	18.00	2.25
0.020	215	71.67	8.96	191	63.67	7.96
0.030	547	182.33	22.79	476	158.67	19.83
0.040	1078	359.33	44.92	972	324.00	40.50
0.050	1831	610.33	76.29	1644	548.00	68.50
0.060	2778	926.00	115.75	2458	819.33	102.42
0.070	3866	1288.67	161.08	3499	1166.33	145.79
0.080	5015	1671.67	208.96	4737	1579.00	197.38
0.090	6226	2075.33	259.42	6215	2071.67	258.96
0.100	7478	2492.67	311.58	7855	2618.33	327.29
0.110	8431	2810.33	351.29	9293	3097.67	387.21
0.120	6925	2308.33	288.54			
0.130	7249	2416.33	302.04			
0.140	7763	2587.67	323.46			
0.150	8341	2780.33	347.54			
0.160						
0.170						
0.180						
0.190						

LBR
Average: 328 357.6042 387.2083

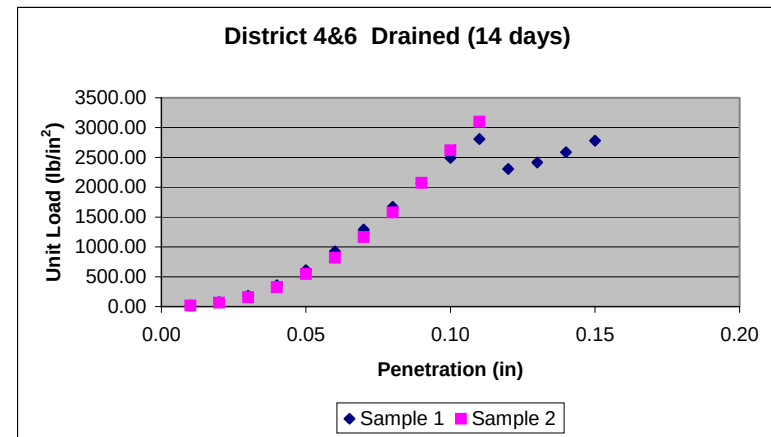
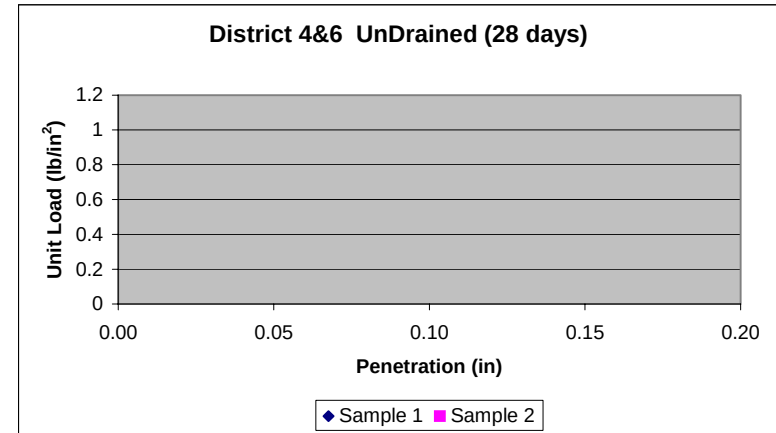


Figure E.12.7 District 4&6 – LBR Values for Non-excavatable Accelerated Mix Samples Drained for 14 Days

Penetration (in)	Sample 1			Sample 2		
	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010			0.00			0.00
0.020			0.00			0.00
0.030			0.00			0.00
0.040			0.00			0.00
0.050			0.00			0.00
0.060			0.00			0.00
0.070			0.00			0.00
0.080			0.00			0.00
0.090			0.00			0.00
0.100			0.00			0.00
0.110			0.00			0.00
0.120			0.00			0.00
0.130			0.00			0.00
0.140			0.00			0.00
0.150			0.00			0.00
0.160			0.00			0.00
0.170			0.00			0.00
0.180			0.00			0.00
0.190			0.00			0.00

LBR
Average: 0 0 0



Note: No data exist

Figure E.12.8 District 4&6 – LBR Values for Non-excavatable Accelerated Mix Samples Undrained for 28 Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	57	19.00	2.38	65	21.67	2.71
0.020	171	57.00	7.13	219	73.00	9.13
0.030	345	115.00	14.38	445	148.33	18.54
0.040	629	209.67	26.21	803	267.67	33.46
0.050	1020	340.00	42.50	1334	444.67	55.58
0.060	1477	492.33	61.54	2012	670.67	83.83
0.070	2009	669.67	83.71	2840	946.67	118.33
0.080	2729	909.67	113.71	3837	1279.00	159.88
0.090	3712	1237.33	154.67	5029	1676.33	209.54
0.100	4981	1660.33	207.54	6372	2124.00	265.50
0.110	6467	2155.67	269.46	7848	2616.00	327.00
0.120	8094	2698.00	337.25	9382	3127.33	390.92
0.130	9768	3256.00	407.00			
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
LBR			263			320
Average:				291.5		

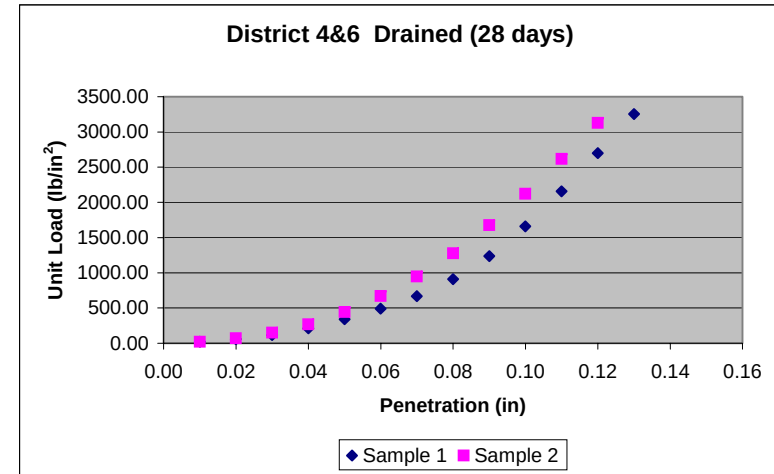


Figure E.12.9 District 4&6 – LBR Values for Non-excavatable Accelerated Mix Samples Drained for 28 Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	24	8.00	1.00	76	25.33	3.17
0.020	94	31.33	3.92	329	109.67	13.71
0.030	256	85.33	10.67	630	210.00	26.25
0.040	509	169.67	21.21	1083	361.00	45.13
0.050	859	286.33	35.79	1684	561.33	70.17
0.060	1333	444.33	55.54	2506	835.33	104.42
0.070	2050	683.33	85.42	3467	1155.67	144.46
0.080	3055	1018.33	127.29	4531	1510.33	188.79
0.090	4349	1449.67	181.21	5725	1908.33	238.54
0.100	5864	1954.67	244.33	7008	2336.00	292.00
0.110	7474	2491.33	311.42	8429	2809.67	351.21
0.120	9176	3058.67	382.33	9919	3306.33	413.29
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
LBR			318			357
Average:			337.5			

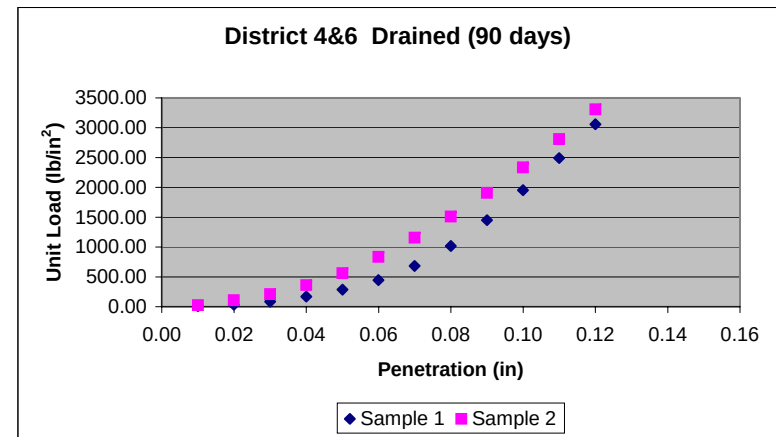


Figure E.12.10 District 4&6 – LBR Values for Non-excavatable Accelerated Mix Samples Drained for 90 Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	47	15.67	1.96	42	14.00	1.75
0.020	154	51.33	6.42	164	54.67	6.83
0.030	362	120.67	15.08	389	129.67	16.21
0.040	657	219.00	27.38	832	277.33	34.67
0.050	1006	335.33	41.92	1486	495.33	61.92
0.060	1393	464.33	58.04	2384	794.67	99.33
0.070	1775	591.67	73.96	3486	1162.00	145.25
0.080	2165	721.67	90.21	4673	1557.67	194.71
0.090	2548	849.33	106.17	5826	1942.00	242.75
0.100	2921	973.67	121.71	6862	2287.33	285.92
0.110	3277	1092.33	136.54	5246	1748.67	218.58
0.120	3618	1206.00	150.75	5113	1704.33	213.04
0.130	3948	1316.00	164.50	4975	1658.33	207.29
0.140	4274	1424.67	178.08	5122	1707.33	213.42
0.150				5378	1792.67	224.08
0.160				5672	1890.67	236.33
0.170						
0.180						
0.190						
0.200						
LBR			158			215
Average:			186.5			

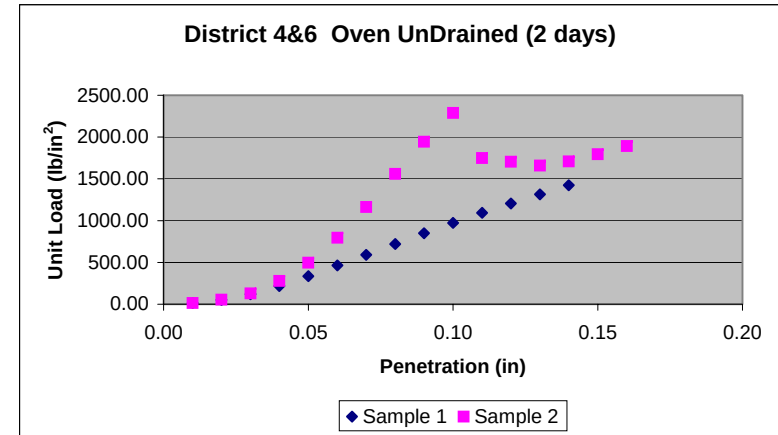


Figure E.12.11 District 4&6 – LBR Values for Non-excavatable Accelerated Mix Samples Undrained and Oven Cured for Two Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	19	6.33	0.79	19	6.33	0.79
0.020	87	29.00	3.63	87	29.00	3.63
0.030	292	97.33	12.17	292	97.33	12.17
0.040	707	235.67	29.46	707	235.67	29.46
0.050	1372	457.33	57.17	1372	457.33	57.17
0.060	2382	794.00	99.25	2382	794.00	99.25
0.070	3740	1246.67	155.83	3740	1246.67	155.83
0.080	5351	1783.67	222.96	5351	1783.67	222.96
0.090	7075	2358.33	294.79	7075	2358.33	294.79
0.100	8850	2950.00	368.75	8850	2950.00	368.75
0.110						
0.120						
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
0.200						

LBR
Average: **368.75** **368.75**

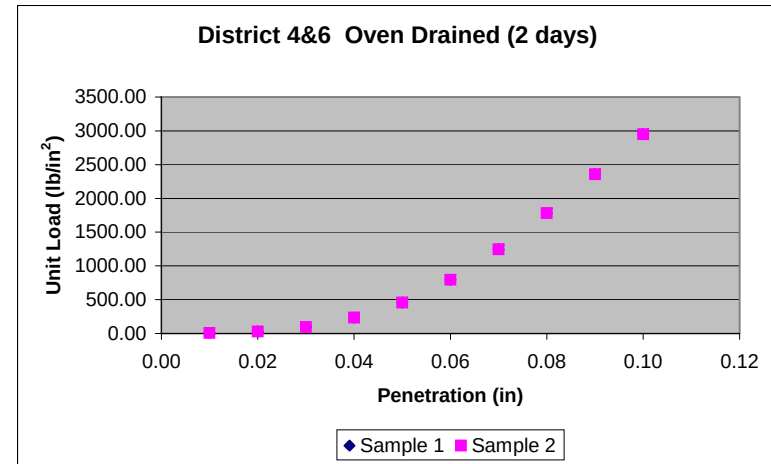


Figure E.12.12 District 4&6 – LBR Values for Non-excavatable Accelerated Mix Samples Drained and Oven Cured for Two Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	168	56.00	7.00	0	0.00	0.00
0.020	393	131.00	16.38	7	2.33	0.29
0.030	757	252.33	31.54	77	25.67	3.21
0.040	1335	445.00	55.63	217	72.33	9.04
0.050	2141	713.67	89.21	408	136.00	17.00
0.060	3171	1057.00	132.13	687	229.00	28.63
0.070	4293	1431.00	178.88	1030	343.33	42.92
0.080	5412	1804.00	225.50	1487	495.67	61.96
0.090	6535	2178.33	272.29	2144	714.67	89.33
0.100	7623	2541.00	317.63	3041	1013.67	126.71
0.110	8687	2895.67	361.96	4151	1383.67	172.96
0.120	5868	1956.00	244.50	5391	1797.00	224.63
0.130	4746	1582.00	197.75	6705	2235.00	279.38
0.140	4422	1474.00	184.25	8048	2682.67	335.33
0.150	4390	1463.33	182.92	9330	3110.00	388.75
0.160				6232	2077.33	259.67
0.170				6108	2036.00	254.50
0.180				6359	2119.67	264.96
0.190				6818	2272.67	284.08
0.200				7317	2439.00	304.88
0.225				7853	2617.67	327.21
0.250						

LBR

189

269

Average:

229

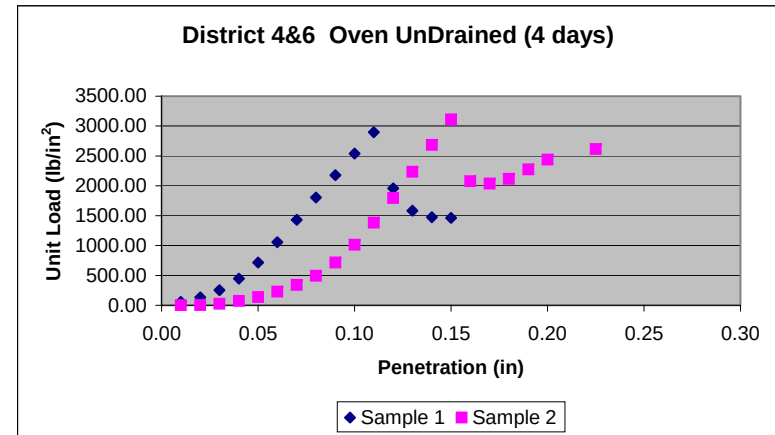


Figure E.12.13 District 4&6 – LBR Values for Non-excavatable Accelerated Mix Samples Undrained and Oven Cured for Four Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	145	48.33	6.04	60	20.00	2.50
0.020	482	160.67	20.08	150	50.00	6.25
0.030	828	276.00	34.50	292	97.33	12.17
0.040	1168	389.33	48.67	499	166.33	20.79
0.050	1546	515.33	64.42	839	279.67	34.96
0.060	1961	653.67	81.71	1327	442.33	55.29
0.070	2438	812.67	101.58	1963	654.33	81.79
0.080	3003	1001.00	125.13	2823	941.00	117.63
0.090	3640	1213.33	151.67	3993	1331.00	166.38
0.100	4380	1460.00	182.50	5358	1786.00	223.25
0.110	5252	1750.67	218.83	6918	2306.00	288.25
0.120	6306	2102.00	262.75	8636	2878.67	359.83
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
0.200						
LBR Average:			215			281
			248			

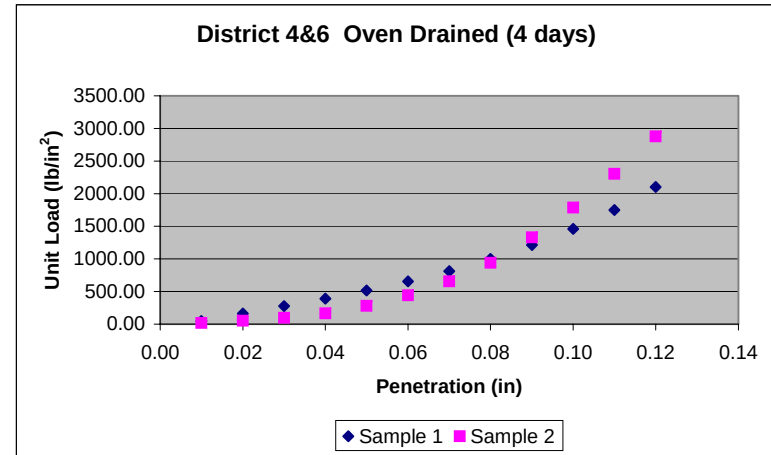


Figure E.12.14 District 4&6 – LBR Values for Non-excavatable Accelerated Mix Samples Drained and Oven Cured for Four Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	13	4.33	0.54	30	10.00	1.25
0.020	50	16.67	2.08	52	17.33	2.17
0.030	124	41.33	5.17	92	30.67	3.83
0.040	249	83.00	10.38	205	68.33	8.54
0.050	427	142.33	17.79	469	156.33	19.54
0.060	671	223.67	27.96	934	311.33	38.92
0.070	1038	346.00	43.25	1660	553.33	69.17
0.080	1537	512.33	64.04	2773	924.33	115.54
0.090	2212	737.33	92.17	4257	1419.00	177.38
0.100	3066	1022.00	127.75	5926	1975.33	246.92
0.110	4108	1369.33	171.17	7666	2555.33	319.42
0.120	5297	1765.67	220.71	9430	3143.33	392.92
0.130	6566	2188.67	273.58			
0.140	7920	2640.00	330.00			
0.150	6666	2222.00	277.75			
0.160	6628	2209.33	276.17			
0.170	5697	1899.00	237.38			
0.180	4872	1624.00	203.000			
0.190	3751	1250.33	156.292			
0.200	3328	1109.33	138.667			
0.225	2993	997.67	124.708			
0.250						

LBR
Average:

187

224

261

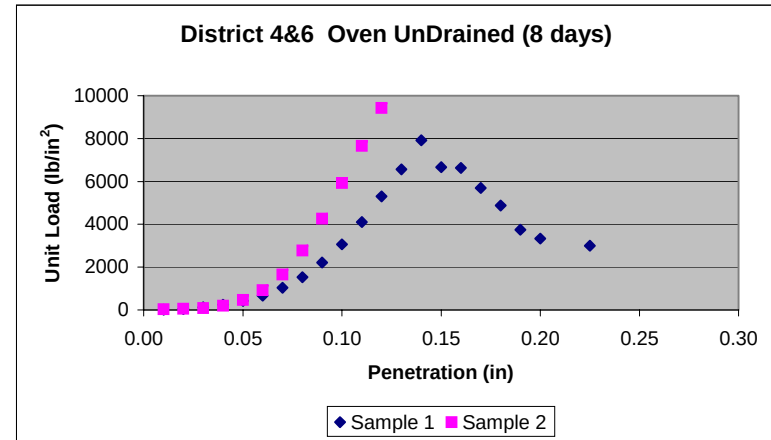


Figure E.12.15 District 4&6 – LBR Values for Non-excavatable Accelerated Mix Samples Undrained and Oven Cured for Eight Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	38	12.67	1.58	33	11.00	1.38
0.020	121	40.33	5.04	141	47.00	5.88
0.030	308	102.67	12.83	444	148.00	18.50
0.040	769	256.33	32.04	954	318.00	39.75
0.050	1616	538.67	67.33	1839	613.00	76.63
0.060	2852	950.67	118.83	3170	1056.67	132.08
0.070	4419	1473.00	184.13	4895	1631.67	203.96
0.080	6240	2080.00	260.00	7004	2334.67	291.83
0.090	8181	2727.00	340.88	9364	3121.33	390.17
0.100						
0.110						
0.120						
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						

LBR
Average: **340.875** **390.1667**

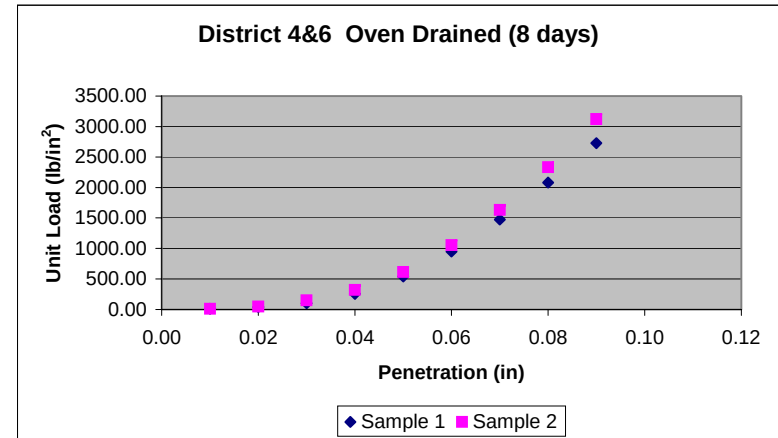


Figure E.12.16 District 4&6 – LBR Values for Non-excavatable Accelerated Mix Samples Drained and Oven Cured for Eight Days

APPENDIX E.13

**DISTRICT 5 – LBR DATA
EXCAVATABLE MIX**

District 5 Drained (1day)

Penetration (in)	Unit Load (lb/in²) - Sample 1	Unit Load (lb/in²) - Sample 2
0.012	20	15
0.020	40	40
0.032	48	50
0.040	55	60
0.050	62	70
0.060	72	80
0.070	82	88
0.080	88	95
0.090	95	102
0.100	100	110
0.110	108	118
0.120	112	125

Figure E.13.3 District 5 – LBR Values for Excavatable Mix Samples Drained for One Day

District 5 UnDrained (2days)

This scatter plot displays the relationship between Penetration (in) on the x-axis and Unit Load (lb/in²) on the y-axis for two samples, Sample 1 and Sample 2. The x-axis ranges from 0.00 to 0.16 with increments of 0.02. The y-axis ranges from 0.00 to 300.00 with increments of 50.00. Sample 1 is represented by dark blue diamonds, and Sample 2 is represented by magenta squares. Both samples show a positive correlation between penetration and unit load, with Sample 2 generally exhibiting higher unit loads for a given penetration compared to Sample 1.

Penetration (in)	Unit Load (lb/in²) - Sample 1	Unit Load (lb/in²) - Sample 2
0.015		15
0.020	40	60
0.030	65	55
0.040	95	100
0.050		125
0.060		150
0.070	165	175
0.080	180	200
0.090	195	225
0.100	205	240
0.110	215	255
0.120	220	270
0.130	225	280

Figure E.13.4 District 5 – LBR Values for Excavatable Mix Samples Undrained for Two Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	28	9.33	1.17	48	16.00	2.00
0.020	95	31.67	3.96	174	58.00	7.25
0.030	218	72.67	9.08	391	130.33	16.29
0.040	381	127.00	15.88	648	216.00	27.00
0.050	500	166.67	20.83	814	271.33	33.92
0.060	656	218.67	27.33	1032	344.00	43.00
0.070	845	281.67	35.21	1257	419.00	52.38
0.080	1029	343.00	42.88	1462	487.33	60.92
0.090	1192	397.33	49.67	1644	548.00	68.50
0.100	1341	447.00	55.88	1809	603.00	75.38
0.110	1480	493.33	61.67	1953	651.00	81.38
0.120	1608	536.00	67.00	2083	694.33	86.79
0.130	1723	574.33	71.79	2199	733.00	91.63
0.140	1829	609.67	76.21			
0.150						
0.160						
0.170						
0.180						
0.190						
LBR			66			84
Average:				75		

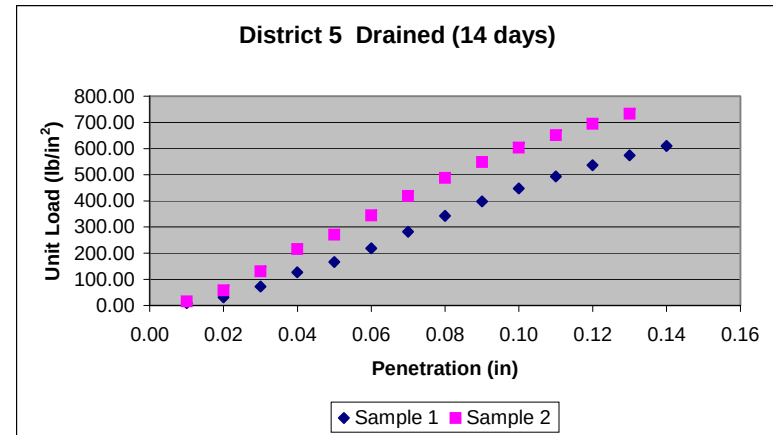


Figure E.13.7 District 5 – LBR Values for Excavatable Mix Samples Drained for 14 Days

Penetration (in)	Sample 1			Sample 2		
	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	56	18.67	2.33	18	6.00	0.75
0.020	102	34.00	4.25	62	20.67	2.58
0.030	122	40.67	5.08	120	40.00	5.00
0.040	145	48.33	6.04	185	61.67	7.71
0.050	162	54.00	6.75	263	87.67	10.96
0.060	179	59.67	7.46	381	127.00	15.88
0.070	196	65.33	8.17	485	161.67	20.21
0.080	210	70.00	8.75	585	195.00	24.38
0.090	225	75.00	9.38	679	226.33	28.29
0.100	252	84.00	10.50	762	254.00	31.75
0.110	283	94.33	11.79	838	279.33	34.92
0.120	319	106.33	13.29	901	300.33	37.54
0.130				957	319.00	39.88
0.140				1006	335.33	41.92
0.150						
0.160						
0.170						
0.180						
0.190						

LBR
Average:

9

23

37

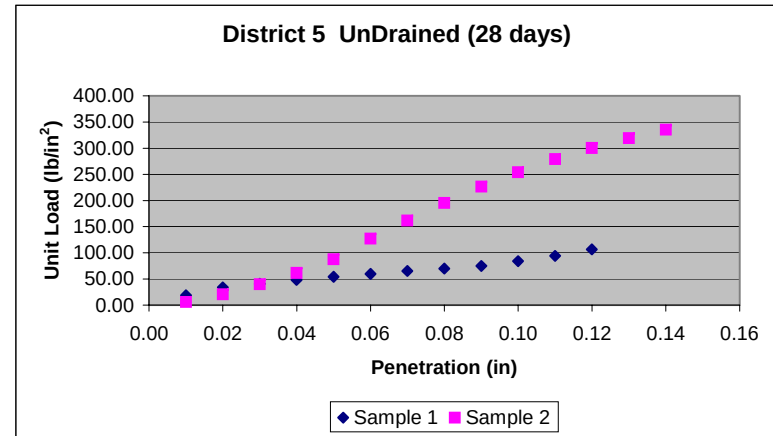


Figure E.13.8 District 5 – LBR Values for Excavatable Mix Samples Undrained for 28 Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	53	17.67	2.21	34	11.33	1.42
0.020	118	39.33	4.92	123	41.00	5.13
0.030	193	64.33	8.04	255	85.00	10.63
0.040	258	86.00	10.75	289	96.33	12.04
0.050	325	108.33	13.54	363	121.00	15.13
0.060	381	127.00	15.88	424	141.33	17.67
0.070	401	133.67	16.71	484	161.33	20.17
0.080	447	149.00	18.63	545	181.67	22.71
0.090	457	152.33	19.04	605	201.67	25.21
0.100	512	170.67	21.33	661	220.33	27.54
0.110	561	187.00	23.38	712	237.33	29.67
0.120	611	203.67	25.46	764	254.67	31.83
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
0.200						
LBR			22			29
Average:				25.5		

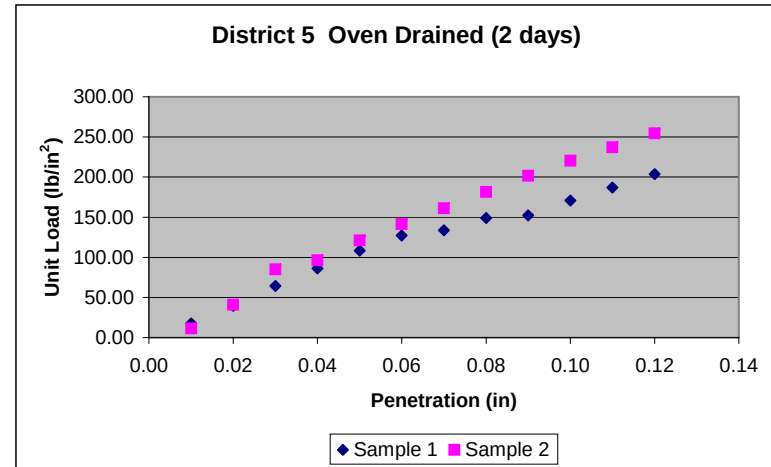


Figure E.13.12 District 5 – LBR Values for Excavatable Mix Samples Drained and Oven Cured for Two Days



	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	26	8.67	1.08	64	21.33	2.67
0.020	76	25.33	3.17	137	45.67	5.71
0.030	143	47.67	5.96	213	71.00	8.88
0.040	224	74.67	9.33	248	82.67	10.33
0.050	241	80.33	10.04	297	99.00	12.38
0.060	327	109.00	13.63	384	128.00	16.00
0.070	399	133.00	16.63	471	157.00	19.63
0.080	457	152.33	19.04	571	190.33	23.79
0.090	518	172.67	21.58	646	215.33	26.92
0.100	581	193.67	24.21	715	238.33	29.79
0.110	640	213.33	26.67	812	270.67	33.83
0.120	697	232.33	29.04	909	303.00	37.88
0.130	749	249.67	31.21			
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
0.200						

LBR
Average:

27

29

31

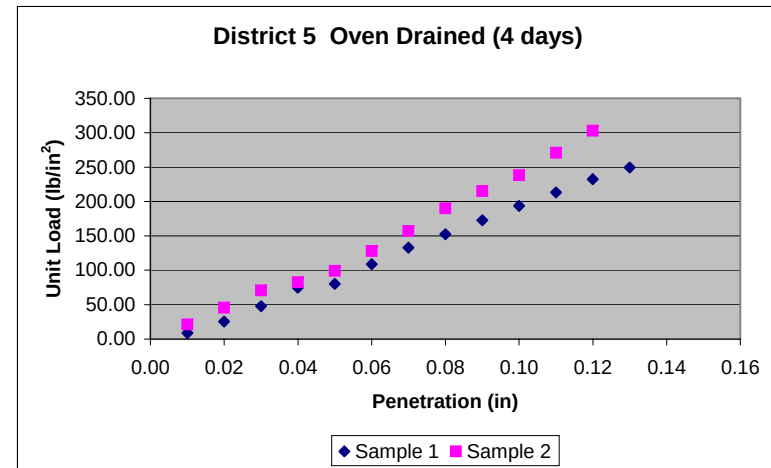


Figure E.13.14 District 5 – LBR Values for Excavatable Mix Samples Drained and Oven Cured for Four Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	21	7.00	0.88	35	11.67	1.46
0.020	73	24.33	3.04	103	34.33	4.29
0.030	173	57.67	7.21	267	89.00	11.13
0.040	267	89.00	11.13	375	125.00	15.63
0.050	411	137.00	17.13	515	171.67	21.46
0.060	474	158.00	19.75	586	195.33	24.42
0.070	457	152.33	19.04	621	207.00	25.88
0.080	471	157.00	19.63	659	219.67	27.46
0.090	482	160.67	20.08	717	239.00	29.88
0.100	517	172.33	21.54	784	261.33	32.67
0.110	476	158.67	19.83	847	282.33	35.29
0.120	455	151.67	18.96	887	295.67	36.96
0.130	417	139.00	17.38	920	306.67	38.33
0.140	379	126.33	15.79			
0.150						
0.160						
0.170						
0.180						

LBR
Average:

17

26

35

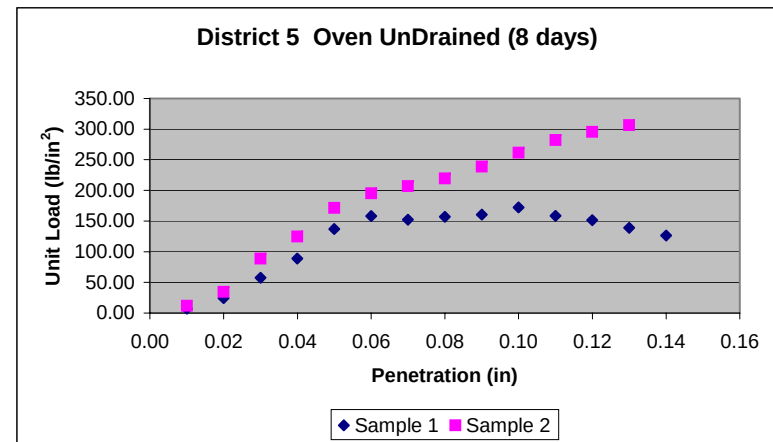


Figure E.13.15 District 5 – LBR Values for Excavatable Mix Samples Undrained and Oven Cured for Eight Days

APPENDIX E.14

**DISTRICT 5 – LBR DATA
EXCAVATABLE ACCELERATED MIX**

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	7	2.33	0.29	5	1.67	0.21
0.020	11	3.67	0.46	9	3.00	0.38
0.030	17	5.67	0.71	14	4.67	0.58
0.040	23	7.67	0.96	17	5.67	0.71
0.050	29	9.67	1.21	22	7.33	0.92
0.060	34	11.33	1.42	28	9.33	1.17
0.070	39	13.00	1.63	36	12.00	1.50
0.080	45	15.00	1.88	43	14.33	1.79
0.090	50	16.67	2.08	51	17.00	2.13
0.100	56	18.67	2.33	59	19.67	2.46
0.110	60	20.00	2.50	66	22.00	2.75
0.120	64	21.33	2.67	74	24.67	3.08
0.130				81	27.00	3.38
0.140				89	29.67	3.71
0.150				97	32.33	4.04
0.160				104	34.67	4.33
0.170				111	37.00	4.63
0.180				117	39.00	4.88
0.190				124	41.33	5.17
0.200				129	43.00	5.38
0.225				146	48.67	6.08
0.250				161	53.67	6.71
0.275				176	58.67	7.33
0.300				189	63.00	7.88
0.325				202	67.33	8.42
0.350						

LBR

1

8.416667

Average:

4.708333

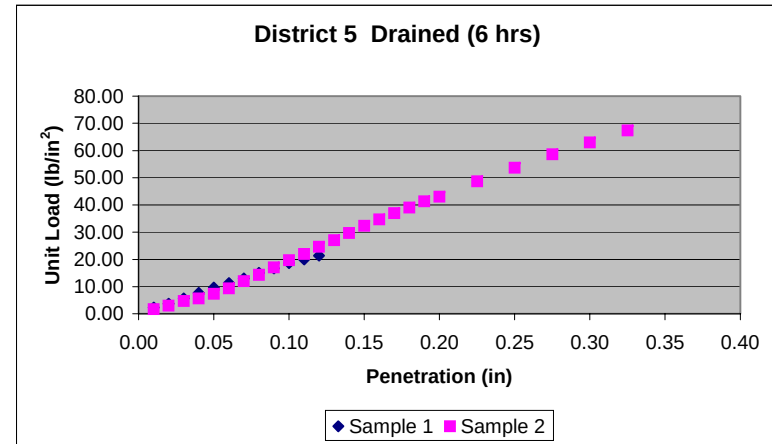


Figure E.14.2 District 5 – LBR Values for Excavatable Accelerated Mix Samples Drained for Six Hours

Penetration (in)	Sample 1			Sample 2		
	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	70	23.33	2.92	67	22.33	2.79
0.020	88	29.33	3.67	99	33.00	4.13
0.030	110	36.67	4.58	120	40.00	5.00
0.040	135	45.00	5.63	146	48.67	6.08
0.050	170	56.67	7.08	182	60.67	7.58
0.060	213	71.00	8.88	224	74.67	9.33
0.070	259	86.33	10.79	268	89.33	11.17
0.080	302	100.67	12.58	314	104.67	13.08
0.090	348	116.00	14.50	361	120.33	15.04
0.100	394	131.33	16.42	409	136.33	17.04
0.110	438	146.00	18.25	456	152.00	19.00
0.120	482	160.67	20.08	501	167.00	20.88
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						

LBR
Average:

16

16

16

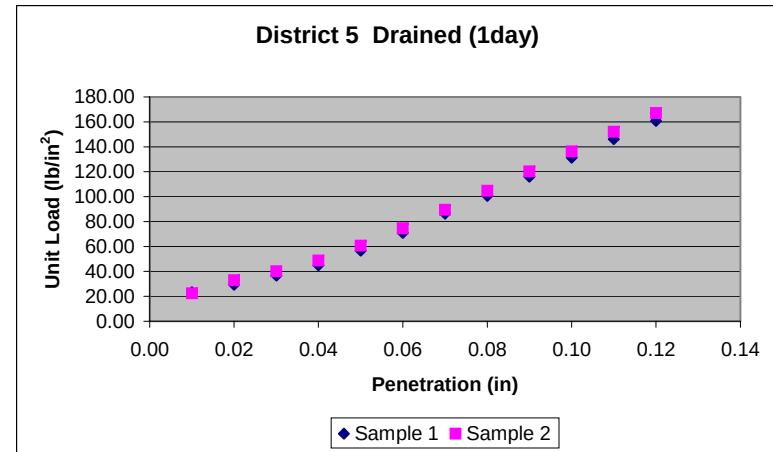


Figure E.14.3 District 5 – LBR Values for Excavatable Accelerated Mix Samples Drained for One Day

Penetration (in)	Sample 1			Sample 2		
	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	93	31.00	3.88	39	13.00	1.63
0.020	217	72.33	9.04	145	48.33	6.04
0.030	333	111.00	13.88	313	104.33	13.04
0.040	462	154.00	19.25	497	165.67	20.71
0.050	605	201.67	25.21	658	219.33	27.42
0.060	745	248.33	31.04	795	265.00	33.13
0.070	876	292.00	36.50	913	304.33	38.04
0.080	993	331.00	41.38	1015	338.33	42.29
0.090	1099	366.33	45.79	1104	368.00	46.00
0.100	1187	395.67	49.46	1179	393.00	49.13
0.110	1259	419.67	52.46	1244	414.67	51.83
0.120	1313	437.67	54.71	1298	432.67	54.08
0.130				1339	446.33	55.79
0.140						
0.150						
0.160						
0.170						
0.180						

LBR
Average:

50

51

52

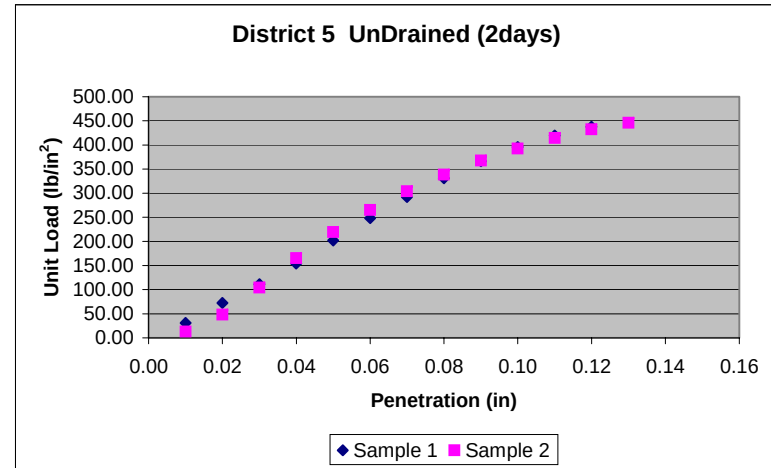


Figure E.14.4 District 5 – LBR Values for Excavatable Accelerated Mix Samples Undrained for Two Days

Penetration (in)	Sample 1			Sample 2		
	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	13	4.33	0.54	28	9.33	1.17
0.020	30	10.00	1.25	78	26.00	3.25
0.030	46	15.33	1.92	185	61.67	7.71
0.040	73	24.33	3.04	252	84.00	10.50
0.050	113	37.67	4.71	314	104.67	13.08
0.060	166	55.33	6.92	374	124.67	15.58
0.070	206	68.67	8.58	432	144.00	18.00
0.080	263	87.67	10.96	487	162.33	20.29
0.090	319	106.33	13.29	539	179.67	22.46
0.100	370	123.33	15.42	590	196.67	24.58
0.110	416	138.67	17.33	639	213.00	26.63
0.120	455	151.67	18.96	684	228.00	28.50
0.130				725	241.67	30.21
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						

LBR
Average:

14

20

26

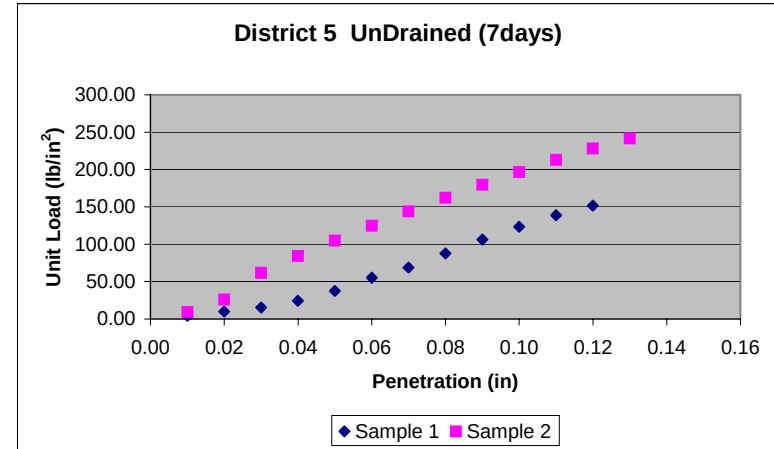


Figure E.14.5 District 5 – LBR Values for Excavatable Accelerated Mix Samples Undrained for Seven Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	0	0.00	0.00	0	0.00	0.00
0.020	11	3.67	0.46	0	0.00	0.00
0.030	90	30.00	3.75	43	14.33	1.79
0.040	200	66.67	8.33	134	44.67	5.58
0.050	276	92.00	11.50	273	91.00	11.38
0.060	347	115.67	14.46	339	113.00	14.13
0.070	417	139.00	17.38	401	133.67	16.71
0.080	484	161.33	20.17	459	153.00	19.13
0.090	542	180.67	22.58	506	168.67	21.08
0.100	596	198.67	24.83	567	189.00	23.63
0.110	352	117.33	14.67	637	212.33	26.54
0.120	706	235.33	29.42	709	236.33	29.54
0.130	756	252.00	31.50	782	260.67	32.58
0.140	805	268.33	33.54	852	284.00	35.50
0.150				917	305.67	38.21
0.160						
0.170						
0.180						
0.190						
LBR Average:			29			30.5
						32

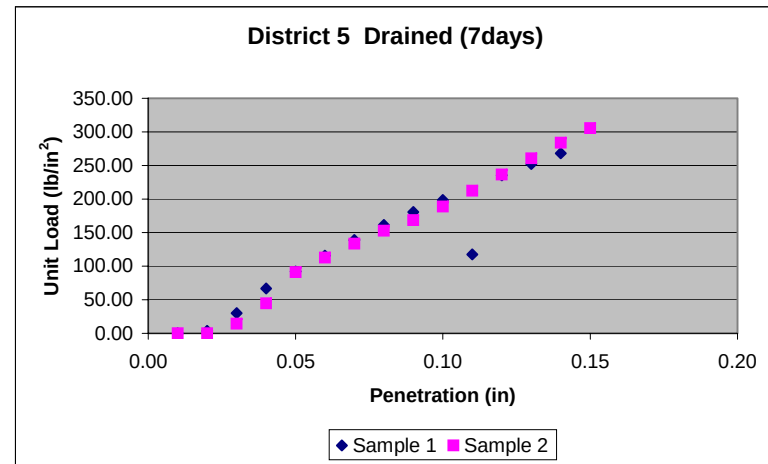


Figure E.14.6 District 5 – LBR Values for Excavatable Accelerated Mix Samples Drained for Seven Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	0	0.00	0.00	61	20.33	2.54
0.020	29	9.67	1.21	154	51.33	6.42
0.030	73	24.33	3.04	281	93.67	11.71
0.040	148	49.33	6.17	393	131.00	16.38
0.050	242	80.67	10.08	513	171.00	21.38
0.060	326	108.67	13.58	652	217.33	27.17
0.070	422	140.67	17.58	781	260.33	32.54
0.080	514	171.33	21.42	899	299.67	37.46
0.090	599	199.67	24.96	1012	337.33	42.17
0.100	681	227.00	28.38	1115	371.67	46.46
0.110	756	252.00	31.50	1210	403.33	50.42
0.120	823	274.33	34.29	1301	433.67	54.21
0.130	886	295.33	36.92	1386	462.00	57.75
0.140	943	314.33	39.29			
0.150						
0.160						
0.170						
0.180						
0.190						
LBR Average:			34			49
			41.5			

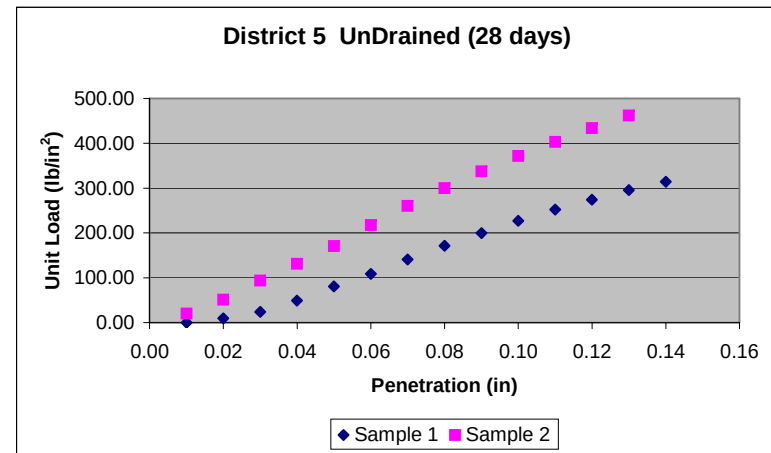


Figure E.14.8 District 5 – LBR Values for Excavatable Accelerated Mix Samples Undrained for 28 Days



	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	68	22.67	2.83	21	7.00	0.88
0.020	118	39.33	4.92	82	27.33	3.42
0.030	142	47.33	5.92	186	62.00	7.75
0.040	191	63.67	7.96	262	87.33	10.92
0.050	233	77.67	9.71	342	114.00	14.25
0.060	287	95.67	11.96	432	144.00	18.00
0.070	351	117.00	14.63	524	174.67	21.83
0.080	417	139.00	17.38	622	207.33	25.92
0.090	487	162.33	20.29	718	239.33	29.92
0.100	562	187.33	23.42	810	270.00	33.75
0.110	619	206.33	25.79	895	298.33	37.29
0.120	680	226.67	28.33	979	326.33	40.79
0.130				1063	354.33	44.29
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
0.200						
LBR			22			39
Average:			30.5			

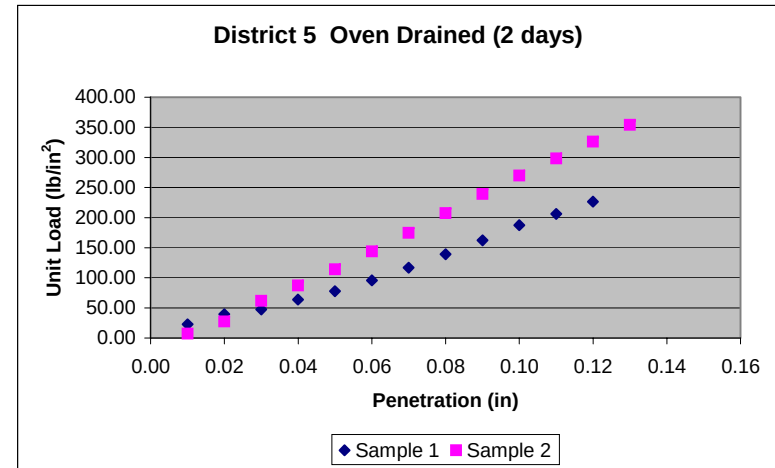


Figure E.14.12 District 5 – LBR Values for Excavatable Accelerated Mix Samples Drained and Oven Cured for Two Days

District 5 Oven UnDrained (4 days)

Penetration (in)	Unit Load (lb/in²) - Sample 1	Unit Load (lb/in²) - Sample 2
0.015	0	8
0.020	50	18
0.030	105	45
0.040	85	95
0.050	83	115
0.060	83	122
0.070	77	132
0.080	70	145
0.090	67	140
0.100	64	128
0.110	63	122
0.120	62	132
0.130	62	138
0.140		150

Figure E.14.13 District 5 – LBR Values for Excavatable Accelerated Mix Samples Undrained and Oven Cured for Four Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	93	31.00	3.88	105	35.00	4.38
0.020	192	64.00	8.00	416	138.67	17.33
0.030	314	104.67	13.08	670	223.33	27.92
0.040	464	154.67	19.33	814	271.33	33.92
0.050	641	213.67	26.71	967	322.33	40.29
0.060	840	280.00	35.00	1018	339.33	42.42
0.070	1018	339.33	42.42	1120	373.33	46.67
0.080	1196	398.67	49.83	1224	408.00	51.00
0.090	1329	443.00	55.38	1320	440.00	55.00
0.100	1424	474.67	59.33	1418	472.67	59.08
0.110	1528	509.33	63.67	1513	504.33	63.04
0.120	1657	552.33	69.04	1600	533.33	66.67
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
0.200						

LBR
Average:

58

60

62

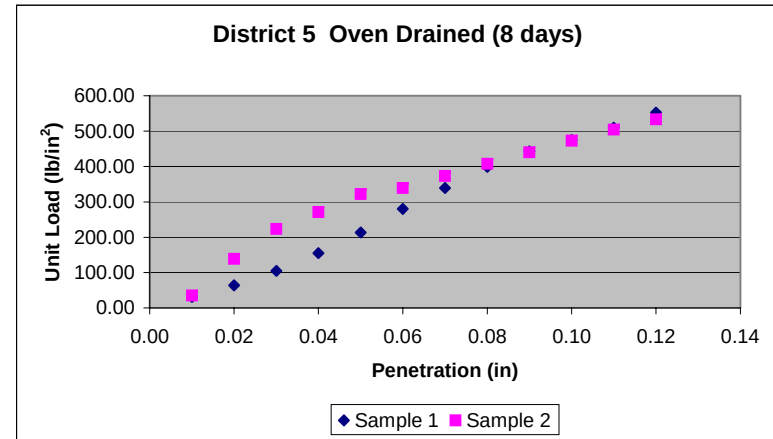


Figure E.14.16 District 5 – LBR Values for Excavatable Accelerated Mix Samples Drained and Oven Cured for Eight Days

APPENDIX E.15

**DISTRICT 5 – LBR DATA
NON-EXCAVATABLE MIX**

Penetration (in)	Sample 1			Sample 2		
	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	2	0.67	0.08	0	0.00	0.00
0.020	3	1.00	0.13	0	0.00	0.00
0.030	3	1.00	0.13	0	0.00	0.00
0.040	4	1.33	0.17	0	0.00	0.00
0.050	4	1.33	0.17	0	0.00	0.00
0.060	4	1.33	0.17	0	0.00	0.00
0.070	4	1.33	0.17	0	0.00	0.00
0.080	5	1.67	0.21	1	0.33	0.04
0.090	6	2.00	0.25	3	1.00	0.13
0.100	7	2.33	0.29	4	1.33	0.17
0.110	8	2.67	0.33	5	1.67	0.21
0.120	8	2.67	0.33	7	2.33	0.29
0.130	9	3.00	0.38	8	2.67	0.33
0.140	10	3.33	0.42	10	3.33	0.42
0.150	10	3.33	0.42	12	4.00	0.50
0.160				14	4.67	0.58
0.170				15	5.00	0.63
0.180				16	5.33	0.67
0.190				19	6.33	0.79
0.200						
0.225						
0.250						
0.275						
0.300						
0.325						
0.350						

LBR

0.416667

0.791667

Average:

0.604167

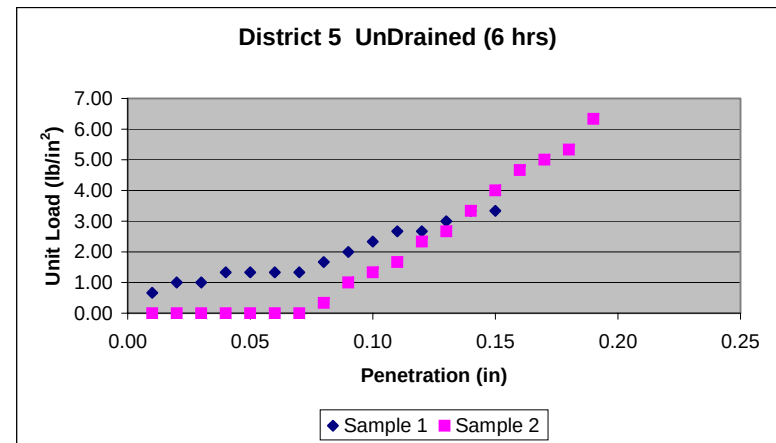


Figure E.15.1 District 5 – LBR Values for Non-excavatable Mix Samples Undrained for Six Hours

Penetration (in)	Sample 1			Sample 2		
	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	0	0.00	0.00	7	2.33	0.29
0.020	0	0.00	0.00	16	5.33	0.67
0.030	30	10.00	1.25	29	9.67	1.21
0.040	112	37.33	4.67	46	15.33	1.92
0.050	250	83.33	10.42	72	24.00	3.00
0.060	440	146.67	18.33	107	35.67	4.46
0.070	561	187.00	23.38	163	54.33	6.79
0.080	783	261.00	32.63	243	81.00	10.13
0.090	1049	349.67	43.71	373	124.33	15.54
0.100	1331	443.67	55.46	636	212.00	26.50
0.110	1569	523.00	65.38	1061	353.67	44.21
0.120	1868	622.67	77.83	1611	537.00	67.13
0.130	2192	730.67	91.33	1866	622.00	77.75
0.140	2532	844.00	105.50	2328	776.00	97.00
0.150	2882	960.67	120.08	2808	936.00	117.00
0.160				3272	1090.67	136.33
0.170				3733	1244.33	155.54
0.180				4187	1395.67	174.46
0.190				4634	1544.67	193.08
0.200				5076	1692.00	211.50
0.225				6165	2055.00	256.88
0.250						

LBR

102

196

Average:

149

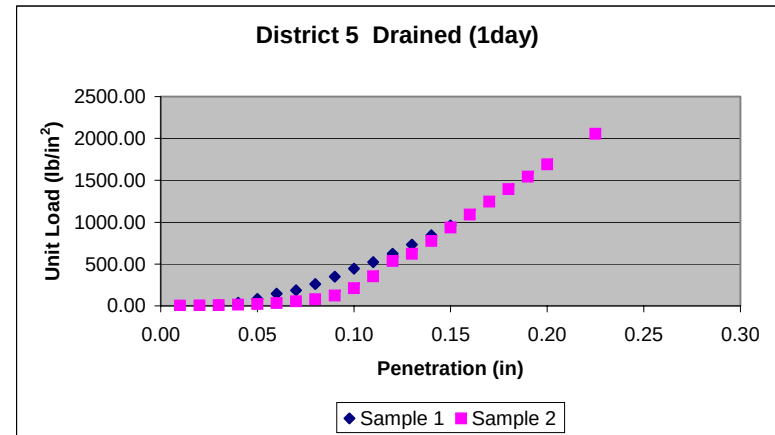
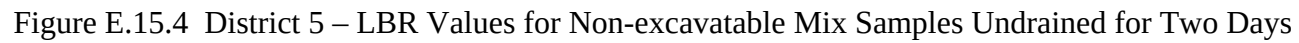


Figure E.15.3 District 5 – LBR Values for Non-excavatable Mix Samples Drained for One Day



	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	39	13.00	1.63	41	13.67	1.71
0.020	240	80.00	10.00	125	41.67	5.21
0.030	395	131.67	16.46	284	94.67	11.83
0.040	525	175.00	21.88	564	188.00	23.50
0.050	707	235.67	29.46	981	327.00	40.88
0.060	930	310.00	38.75	1583	527.67	65.96
0.070	1192	397.33	49.67	2334	778.00	97.25
0.080	1648	549.33	68.67	3163	1054.33	131.79
0.090	2038	679.33	84.92	4027	1342.33	167.79
0.100	2433	811.00	101.38	4843	1614.33	201.79
0.110	2843	947.67	118.46	5516	1838.67	229.83
0.120	3284	1094.67	136.83	6332	2110.67	263.83
0.130	3763	1254.33	156.79	7032	2344.00	293.00
0.140				7694	2564.67	320.58
0.150				8342	2780.67	347.58
0.160				8964	2988.00	373.50
0.170						
0.180						
0.190						
LBR Average:			119			334
			226.5			

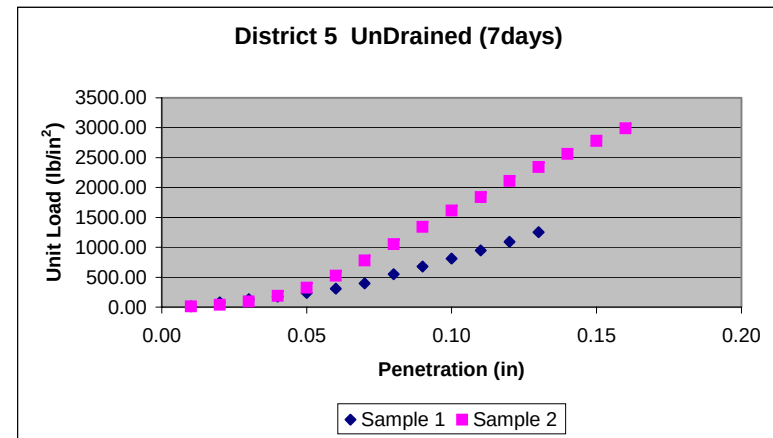


Figure E.15.5 District 5 – LBR Values for Non-excavatable Mix Samples Undrained for Seven Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	71	23.67	2.96	16	5.33	0.67
0.020	292	97.33	12.17	62	20.67	2.58
0.030	654	218.00	27.25	169	56.33	7.04
0.040	1106	368.67	46.08	414	138.00	17.25
0.050	1646	548.67	68.58	865	288.33	36.04
0.060	2324	774.67	96.83	1503	501.00	62.63
0.070	3295	1098.33	137.29	2325	775.00	96.88
0.080	4435	1478.33	184.79	3296	1098.67	137.33
0.090	5643	1881.00	235.13	4394	1464.67	183.08
0.100	7031	2343.67	292.96	5585	1861.67	232.71
0.110	8557	2852.33	356.54	6863	2287.67	285.96
0.120	10000	3333.33	416.67	8260	2753.33	344.17
0.130				9731	3243.67	405.46
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
LBR			357			406
Average:				381.5		

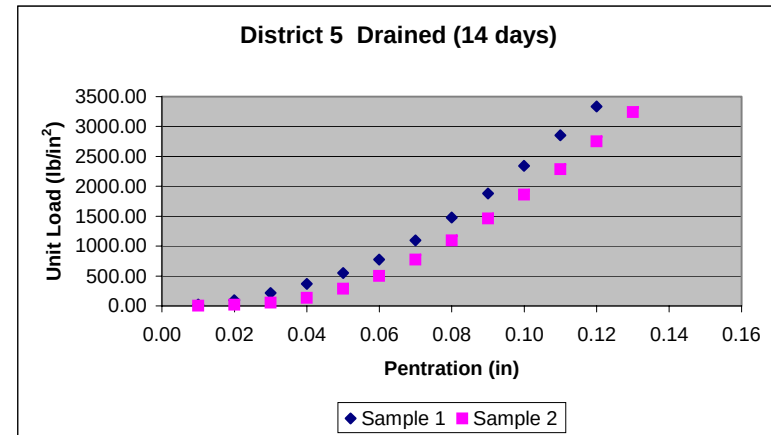
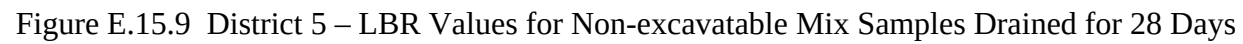


Figure E.15.7 District 5 – LBR Values for Non-excavatable Mix Samples Drained for 14 Days



District 5 Oven UnDrained (2 days)

This scatter plot displays the relationship between Unit Load (lb/in²) on the Y-axis and Penetration (in) on the X-axis for two samples. The Y-axis ranges from 0.00 to 2500.00 in increments of 500.00. The X-axis ranges from 0.00 to 0.20 in increments of 0.05. Sample 1 is represented by dark blue diamonds, and Sample 2 is represented by magenta squares. Both samples show a general trend of increasing unit load with increasing penetration, with Sample 2 generally exhibiting higher unit loads than Sample 1 for a given penetration value.

Penetration (in)	Sample 1 Unit Load (lb/in²)	Sample 2 Unit Load (lb/in²)
0.015	-	0.00
0.025	-	0.00
0.030	0.00	150.00
0.035	50.00	350.00
0.040	100.00	650.00
0.050	200.00	1000.00
0.060	350.00	1350.00
0.070	2050.00	950.00
0.080	750.00	1100.00
0.090	950.00	1150.00
0.100	900.00	1200.00
0.110	750.00	1250.00
0.120	850.00	1300.00
0.130	850.00	1300.00
0.140	950.00	1300.00
0.150	1000.00	1250.00
0.160	1050.00	-

Figure E.15.10 District 5 – LBR Values for Non-excavatable Mix Samples Undrained and Oven Cured for Two Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	94	31.33	3.92	32	10.67	1.33
0.020	366	122.00	15.25	113	37.67	4.71
0.030	917	305.67	38.21	336	112.00	14.00
0.040	1757	585.67	73.21	768	256.00	32.00
0.050	2885	961.67	120.21	1453	484.33	60.54
0.060	4374	1458.00	182.25	2367	789.00	98.63
0.070	6190	2063.33	257.92	3535	1178.33	147.29
0.080	8124	2708.00	338.50	4914	1638.00	204.75
0.090	9319	3106.33	388.29	6482	2160.67	270.08
0.100				8154	2718.00	339.75
0.110				9424	3141.33	392.67
0.120						
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
0.200						

LBR
Average:

388.2917

390.4792

392.6667

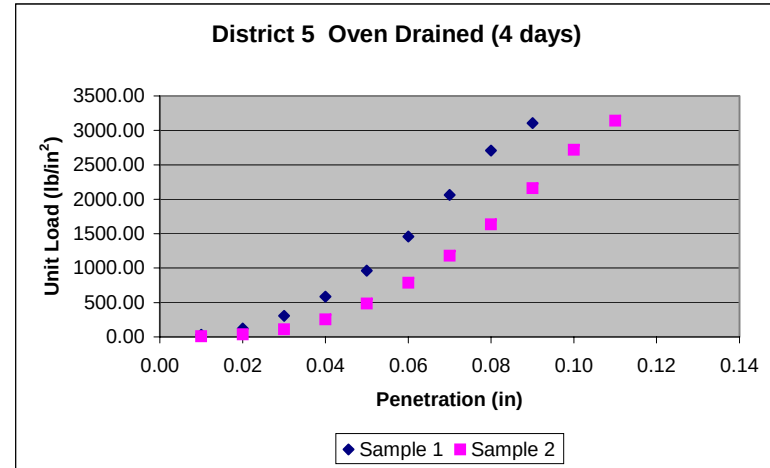


Figure E.15.13 District 5 – LBR Values for Non-excavatable Mix Samples Drained and Oven Cured for Four Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	0	0.00	0.00	168	56.00	7.00
0.020	0	0.00	0.00	393	131.00	16.38
0.030	0	0.00	0.00	752	250.67	31.33
0.040	0	0.00	0.00	1401	467.00	58.38
0.050	0	0.00	0.00	2266	755.33	94.42
0.060	0	0.00	0.00	3344	1114.67	139.33
0.070	1	0.33	0.04	4598	1532.67	191.58
0.080	10	3.33	0.42	5982	1994.00	249.25
0.090	35	11.67	1.46	7474	2491.33	311.42
0.100	84	28.00	3.50	5742	1914.00	239.25
0.110	206	68.67	8.58	5973	1991.00	248.88
0.120	415	138.33	17.29	7101	2367.00	295.88
0.130	793	264.33	33.04	7698	2566.00	320.75
0.140	1454	484.67	60.58	8242	2747.33	343.42
0.150	2432	810.67	101.33	8853	2951.00	368.88
0.160	3671	1223.67	152.96	9315	3105.00	388.13
0.170	5063	1687.67	210.96			
0.180	6579	2193.00	274.13			
0.190	8113	2704.33	338.04			
0.200	8560	2853.33	356.67			

LBR

356.6667

346

Average:

351.3333

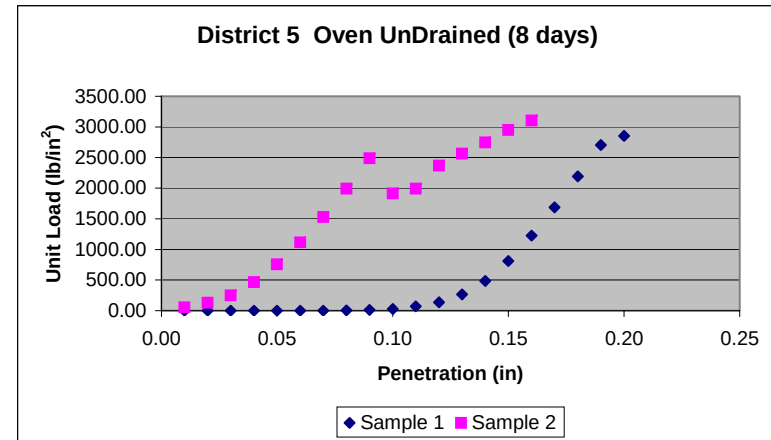


Figure E.15.14 District 5 – LBR Values for Non-excavatable Mix Samples Undrained and Oven Cured for Eight Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	63	21.00	2.63	40	13.33	1.67
0.020	227	75.67	9.46	226	75.33	9.42
0.030	505	168.33	21.04	685	228.33	28.54
0.040	911	303.67	37.96	1600	533.33	66.67
0.050	1557	519.00	64.88	2993	997.67	124.71
0.060	2393	797.67	99.71	4756	1585.33	198.17
0.070	3497	1165.67	145.71	6805	2268.33	283.54
0.080	4969	1656.33	207.04	9013	3004.33	375.54
0.090	6717	2239.00	279.88			
0.100	8738	2912.67	364.08			
0.110						
0.120						
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
0.200						

LBR

364.0833

375.5417

Average:

369.8125

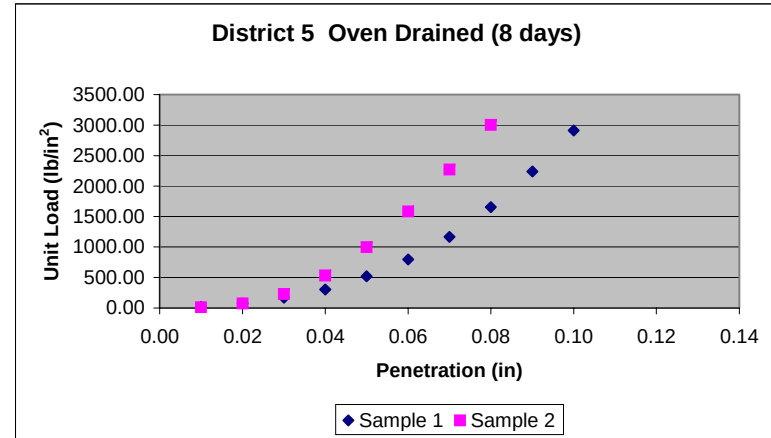


Figure E.15.15 District 5 – LBR Values for Non-excavatable Mix Samples Drained and Oven Cured for Eight Days

APPENDIX E.16

**DISTRICT 5 – LBR DATA
NON-EXCAVATABLE ACCELERATED MIX**

Note: No data recorded for sample 1



	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	2	0.67	0.08	2	0.67	0.08
0.020	3	1.00	0.13	3	1.00	0.13
0.030	4	1.33	0.17	4	1.33	0.17
0.040	4	1.33	0.17	4	1.33	0.17
0.050	5	1.67	0.21	5	1.67	0.21
0.060	6	2.00	0.25	6	2.00	0.25
0.070	7	2.33	0.29	7	2.33	0.29
0.080	8	2.67	0.33	8	2.67	0.33
0.090	9	3.00	0.38	9	3.00	0.38
0.100	8	2.67	0.33	10	3.33	0.42
0.110	8	2.67	0.33	11	3.67	0.46
0.120	9	3.00	0.38	11	3.67	0.46
0.130	10	3.33	0.42	11	3.67	0.46
0.140	11	3.67	0.46	12	4.00	0.50
0.150	11	3.67	0.46	13	4.33	0.54
0.160	12	4.00	0.50	14	4.67	0.58
0.170	13	4.33	0.54	15	5.00	0.63
0.180	14	4.67	0.58	16	5.33	0.67
0.190	14	4.67	0.58	17	5.67	0.71
0.200	15	5.00	0.63	19	6.33	0.79
0.225	16	5.33	0.67	21	7.00	0.88
0.250	17	5.67	0.71	23	7.67	0.96
0.275	19	6.33	0.79	25	8.33	1.04
0.300	19	6.33	0.79	27	9.00	1.13
0.325	20	6.67	0.83	28	9.33	1.17
0.350						

LBR

0.833333

1.166667

Average:

1

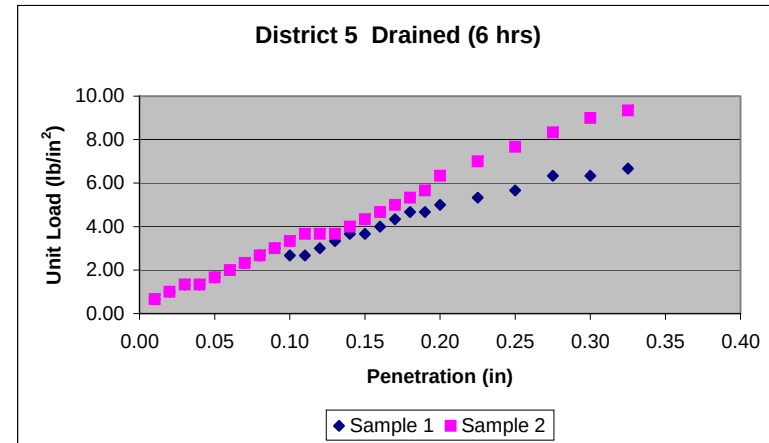


Figure E.16.2 District 5 – LBR Values for Non-excavatable Accelerated Mix Samples Drained for Six Hours

Figure E.16.3 District 5 – LBR Values for Non-excavatable Accelerated Mix Samples Drained for One Day

Note: No data recorded for sample 1



	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	14	4.67	0.58	26	8.67	1.08
0.020	32	10.67	1.33	121	40.33	5.04
0.030	83	27.67	3.46	303	101.00	12.63
0.040	198	66.00	8.25	543	181.00	22.63
0.050	378	126.00	15.75	847	282.33	35.29
0.060	650	216.67	27.08	1196	398.67	49.83
0.070	983	327.67	40.96	1584	528.00	66.00
0.080	1351	450.33	56.29	1996	665.33	83.17
0.090	1722	574.00	71.75	2431	810.33	101.29
0.100	2106	702.00	87.75	2876	958.67	119.83
0.110	2466	822.00	102.75	3297	1099.00	137.38
0.120	2818	939.33	117.42	3698	1232.67	154.08
0.130	3153	1051.00	131.38	4130	1376.67	172.08
0.140	3471	1157.00	144.63	4555	1518.33	189.79
0.150	3763	1254.33	156.79	4969	1656.33	207.04
0.160	4040	1346.67	168.33			
0.170						
0.180						
0.190						
LBR			153			184
Average:			168.5			

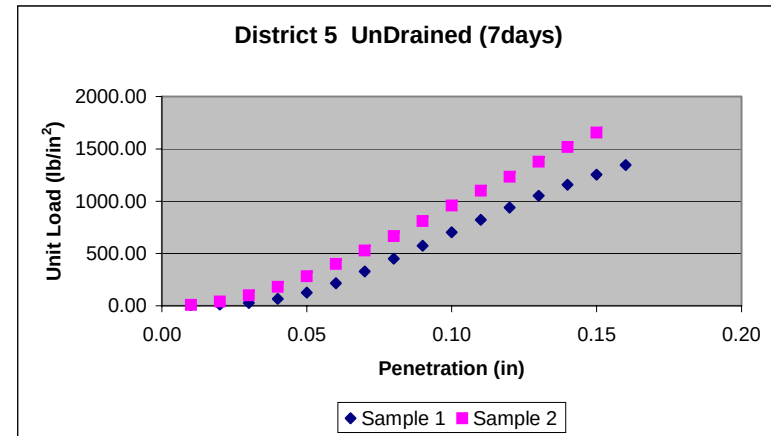


Figure E.16.5 District 5 – LBR Values for Non-excavatable Accelerated Mix Samples Undrained for Seven Days



Penetration (in)	Sample 1			Sample 2		
	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	79	26.33	3.29	37	12.33	1.54
0.020	358	119.33	14.92	159	53.00	6.63
0.030	842	280.67	35.08	572	190.67	23.83
0.040	1528	509.33	63.67	1252	417.33	52.17
0.050	2396	798.67	99.83	2200	733.33	91.67
0.060	3473	1157.67	144.71	3267	1089.00	136.13
0.070	4728	1576.00	197.00	4467	1489.00	186.13
0.080	5985	1995.00	249.38	5755	1918.33	239.79
0.090	7235	2411.67	301.46	7119	2373.00	296.63
0.100	8422	2807.33	350.92	8345	2781.67	347.71
0.110	9302	3100.67	387.58	8728	2909.33	363.67
0.120				9378	3126.00	390.75
0.130				9844	3281.33	410.17
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						

LBR

387.5833

410.1667

Average:

398.875

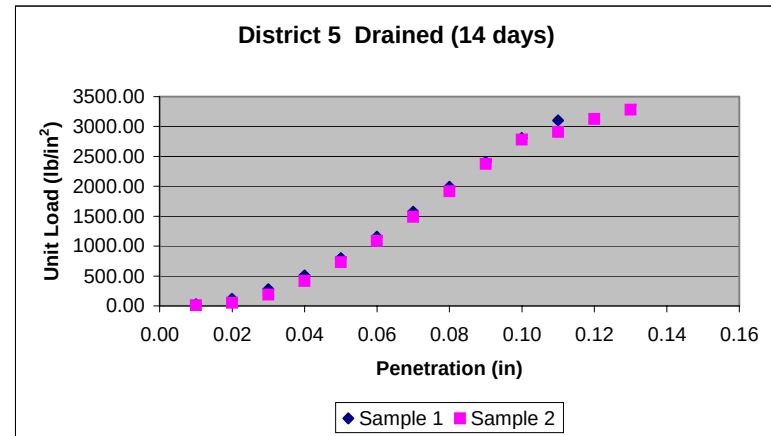


Figure E.16.7 District 5 – LBR Values for Non-excavatable Accelerated Mix Samples Drained for 14 Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	115	38.33	4.79	2	0.67	0.08
0.020	519	173.00	21.63	2	0.67	0.08
0.030	852	284.00	35.50	2	0.67	0.08
0.040	1249	416.33	52.04	2	0.67	0.08
0.050	1691	563.67	70.46	2	0.67	0.08
0.060	2193	731.00	91.38	2	0.67	0.08
0.070	2749	916.33	114.54	2	0.67	0.08
0.080	3356	1118.67	139.83	2	0.67	0.08
0.090	4056	1352.00	169.00	2	0.67	0.08
0.100	4906	1635.33	204.42	2	0.67	0.08
0.110	5943	1981.00	247.63	1	0.33	0.04
0.120	7124	2374.67	296.83	2	0.67	0.08
0.130				18	6.00	0.75
0.140				143	47.67	5.96
0.150				483	161.00	20.13
0.160				986	328.67	41.08
0.170				1623	541.00	67.63
0.180				2521	840.33	105.04
0.190				3627	1209.00	151.13
0.200				4857	1619.00	202.38
0.225				8099	2699.67	337.46
0.250						

LBR 238 337.4583
Average: 287.7292

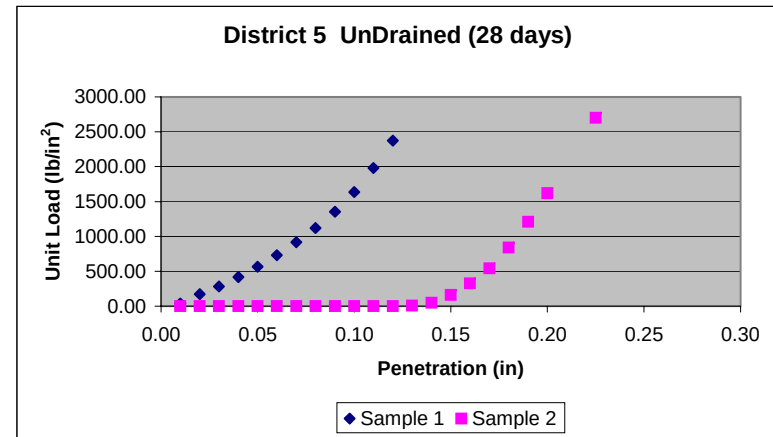


Figure E.16.8 District 5 – LBR Values for Non-excavatable Accelerated Mix Samples Undrained for 28 Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	52	17.33	2.17	81	27.00	3.38
0.020	281	93.67	11.71	300	100.00	12.50
0.030	757	252.33	31.54	742	247.33	30.92
0.040	1548	516.00	64.50	1466	488.67	61.08
0.050	2871	957.00	119.63	2488	829.33	103.67
0.060	4714	1571.33	196.42	3768	1256.00	157.00
0.070	6905	2301.67	287.71	5176	1725.33	215.67
0.080	9312	3104.00	388.00	6700	2233.33	279.17
0.090				8264	2754.67	344.33
0.100				9871	3290.33	411.29
0.110						
0.120						
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
LBR			388			411.2917
Average:			399.6458			

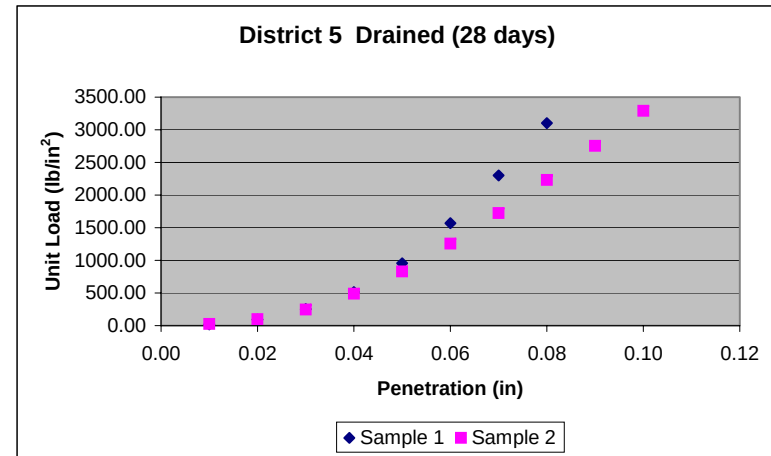


Figure E.16.9 District 5 – LBR Values for Non-excavatable Accelerated Mix Samples Drained for 28 Days

Penetration (in)	Sample 1			Sample 2		
	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	14	4.67	0.58	17	5.67	0.71
0.020	52	17.33	2.17	87	29.00	3.63
0.030	142	47.33	5.92	260	86.67	10.83
0.040	272	90.67	11.33	547	182.33	22.79
0.050	473	157.67	19.71	910	303.33	37.92
0.060	734	244.67	30.58	1331	443.67	55.46
0.070	1044	348.00	43.50	1787	595.67	74.46
0.080	1408	469.33	58.67	2213	737.67	92.21
0.090	1538	512.67	64.08	2607	869.00	108.63
0.100	1509	503.00	62.88	2951	983.67	122.96
0.110	1685	561.67	70.21	2681	893.67	111.71
0.120	1915	638.33	79.79	2351	783.67	97.96
0.130	2134	711.33	88.92	2371	790.33	98.79
0.140	1986	662.00	82.75	2397	799.00	99.88
0.150	1814	604.67	75.58	2529	843.00	105.38
0.160	1831	610.33	76.29			
0.170						
0.180						

LBR
Average: 78 87 96

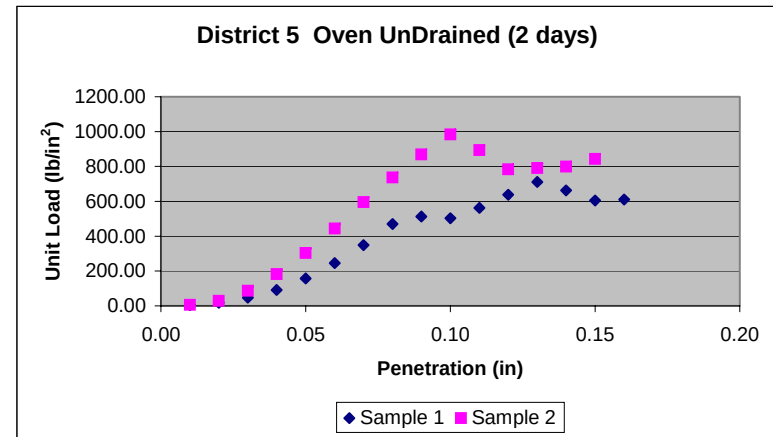


Figure E.16.10 District 5 – LBR Values for Non-excavatable Accelerated Mix Samples Undrained and Oven Cured for Two Days

	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	25	8.33	1.04	114	38.00	4.75
0.020	199	66.33	8.29	408	136.00	17.00
0.030	588	196.00	24.50	855	285.00	35.63
0.040	1277	425.67	53.21	1462	487.33	60.92
0.050	2320	773.33	96.67	2205	735.00	91.88
0.060	3619	1206.33	150.79	3159	1053.00	131.63
0.070	4930	1643.33	205.42	4362	1454.00	181.75
0.080	6135	2045.00	255.63	5221	1740.33	217.54
0.090	6372	2124.00	265.50	6286	2095.33	261.92
0.100	7231	2410.33	301.29	7104	2368.00	296.00
0.110	7958	2652.67	331.58	7878	2626.00	328.25
0.120	8352	2784.00	348.00	8576	2858.67	357.33
0.130	8854	2951.33	368.92	9232	3077.33	384.67
0.140	9392	3130.67	391.33	9872	3290.67	411.33
0.150	9977	3325.67	415.71			
0.160						
0.170						
0.180						
0.190						
0.200						
LBR Average:			377			405
			391			

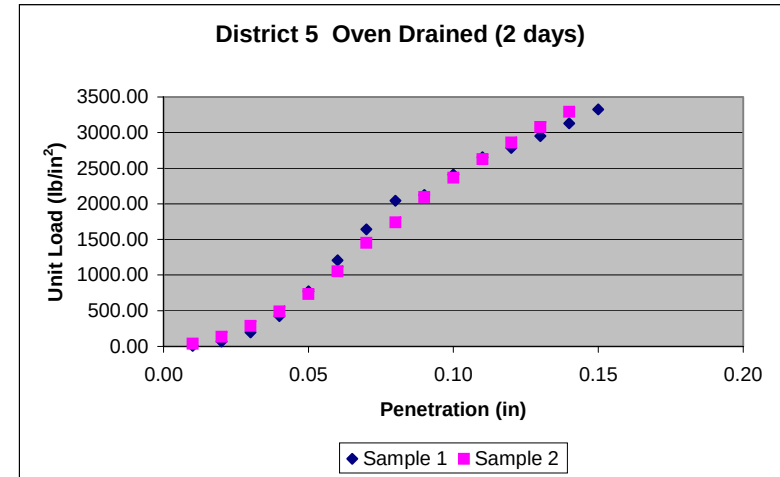
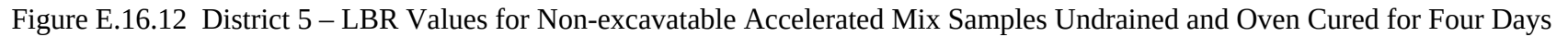


Figure E.16.11 District 5 – LBR Values for Non-excavatable Accelerated Mix Samples Drained and Oven Cured for Two Days



	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	120	40.00	5.00	117	39.00	4.88
0.020	423	141.00	17.63	366	122.00	15.25
0.030	885	295.00	36.88	751	250.33	31.29
0.040	1698	566.00	70.75	1263	421.00	52.63
0.050	3045	1015.00	126.88	2017	672.33	84.04
0.060	4825	1608.33	201.04	3175	1058.33	132.29
0.070	6873	2291.00	286.38	4643	1547.67	193.46
0.080	9046	3015.33	376.92	6331	2110.33	263.79
0.090				8150	2716.67	339.58
0.100				10000	3333.33	416.67
0.110						
0.120						
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
0.200						

LBR

376.9167

416.6667

Average:

396.7917

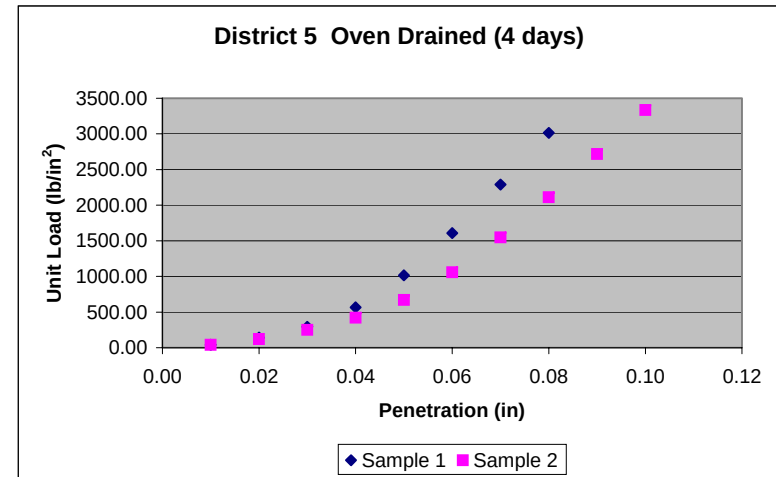


Figure E.16.13 District 5 – LBR Values for Non-excavatable Accelerated Mix Samples Drained and Oven Cured for Four Days



	Sample 1			Sample 2		
Penetration (in)	Load (lbs)	Unit Load lb/in ²	LBR Reading	Load (lbs)	Unit Load lb/in ²	LBR Reading
0.010	8	2.67	0.33	11	3.67	0.46
0.020	12	4.00	0.50	84	28.00	3.50
0.030	28	9.33	1.17	381	127.00	15.88
0.040	79	26.33	3.29	1016	338.67	42.33
0.050	293	97.67	12.21	2091	697.00	87.13
0.060	720	240.00	30.00	3646	1215.33	151.92
0.070	1491	497.00	62.13	5577	1859.00	232.38
0.080	2833	944.33	118.04	7797	2599.00	324.88
0.090	4596	1532.00	191.50	10000	3333.33	416.67
0.100	6651	2217.00	277.13			
0.110	8873	2957.67	369.71			
0.120						
0.130						
0.140						
0.150						
0.160						
0.170						
0.180						
0.190						
0.200						

LBR
Average: 277 346.8333 416.6667

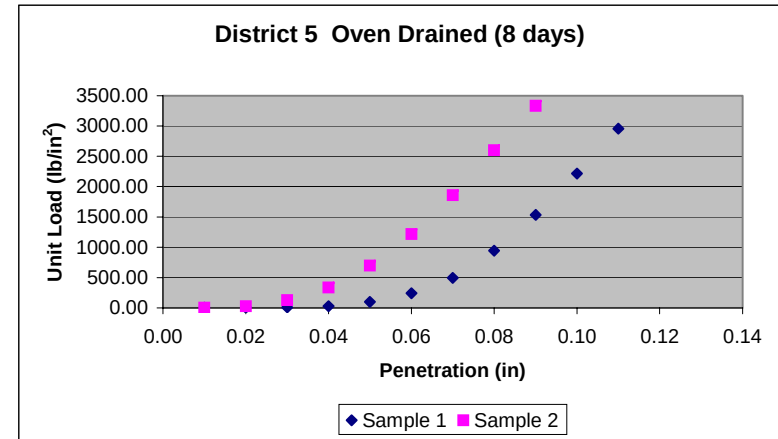


Figure E.16.15 District 5 – LBR Values for Non-excavatable Accelerated Mix Samples Drained and Oven Cured for Eight Days

APPENDIX F – PROCTOR PENETROMETER DATA OBTAINED IN THE LABORATORY

This appendix includes the Proctor penetrometer data obtained for all laboratory mixes.

**Table F.1 Proctor Penetrometer Data for District 1 – Drained
Excavatable Mixture Samples**

			Penetrometer (Pogo Stick) Reading (lbs)							
			Drained							
Test Date	Duration	Tip Area in ²	Sample 1 (lbs)				Sample 2 (lbs)			
8/19/2002	6 - hrs	1.0	110	130	117	116	107	105	107	107
8/20/2002	1 - day	0.50	113	116	117	117	126	122	130	130
8/26/2002	7 - day	0.20	130	130	130	130	130	130	130	130
9/2/2002	14 - day	0.10	111	124	119	121	105	107	117	129
9/16/2002	28 - day	0.05	112	112	119	124	119	129	128	124
	90 - day	0.033	110	119	120	121	130	119	123	124
Stress Conversion (psi)										
Drained										
Sample 1 (lb/in ²)			Sample 1 Average	Sample 2 (lb/in ²)				Sample 2 Average	Overall Average	
110.00	130.00	117.00	116.00	118.25	107.00	105.00	107.00	107.00	106.50	112.38
226.00	232.00	234.00	234.00	231.50	252.00	244.00	260.00	260.00	254.00	242.75
260.00	650.00	650.00	650.00	552.50	650.00	650.00	650.00	650.00	650.00	601.25
111.00	1240.00	1190.00	1210.00	937.75	1050.00	1070.00	1170.00	1290.00	1145.00	1041.38
2240.00	2240.00	2380.00	2480.00	2335.00	2380.00	2580.00	2560.00	2480.00	2500.00	2417.50
3333.33	3606.06	3636.36	3666.67	3560.61	3939.39	3606.06	3727.27	3757.58	3757.58	3659.09

**Table F.2 Proctor Penetrometer Data for District 1 – Undrained
Excavatable Mixture Samples**

			Penetrometer (Pogo Stick) Reading (lbs)							
			UnDrained							
Test Date	Duration	Tip Area in ²	Sample 1 (lbs)				Sample 2 (lbs)			
8/19/2002	6 - hrs	1.0	80	72	81	81	79	91	93	68
8/21/2002	2 - day	0.33	121	115	121	125	130	127	130	111
8/26/2002	7 - day	0.20	115	120	108	106	118	122	121	119
9/16/2002	28 - day	0.05	121	119	120	122	126	121	120	128
Stress Conversion (psi)										
UnDrained										
Sample 1 (lb/in ²)			Sample 1 Average	Sample 2 (lb/in ²)				Sample 2 Average	Overall Average	
80.00	72.00	81.00	81.00	78.50	79.00	91.00	93.00	68.00	82.75	80.63
363.00	345.00	363.00	375.00	361.50	390.00	381.00	390.00	333.00	373.50	367.50
575.00	600.00	540.00	530.00	561.25	590.00	610.00	605.00	595.00	600.00	580.63
2420.00	2380.00	2400.00	2440.00	2410.00	2520.00	2420.00	2400.00	2560.00	2475.00	2442.50

**Table F.3 Proctor Penetrometer Data for District 1 – Drained
Excavatable Accelerated Mixture Samples**

			Penetrometer (Pogo Stick) Reading (lbs) Drained							
Test Date	Duration	Tip Area in ²	Sample 1 (lbs)				Sample 2 (lbs)			
8/26/2002	6 - hrs	1.0	110	111	111	119	111	120	111	116
8/27/2002	1 - day	0.75	110	119	113	115	115	122	128	130
9/3/2002	7 - day	0.33	121	122	113	122	129	120	124	119
9/9/2002	14 - day	0.10	127	113	116	112	109	102	111	121
9/23/2002	28 - day	0.05	120	125	126	127	124	127	126	128
	90 - day	0.033	130	129	120	124	129	129	130	129
Stress Conversion (psi)										
Drained										
Sample 1 (lb/in ²)			Sample 1 Average	Sample 2 (lb/in ²)				Sampe 2 Average	Overall Average	
110	111	111	119	112.75	111	120	111	116	114.5	113.63
146.6666667	158.666667	150.6666667	153.333	152.33333	153.3	162.666667	170.6667	173.3	165	158.67
363	366	339	366	358.5	387	360	372	357	369	363.75
1270	1130	1160	1120	1170	1090	1020	1110	1210	1107.5	1138.75
2400	2500	2520	2540	2490	2480	2540	2520	2560	2525	2507.50
3939.393939	3909.09091	3636.363636	3757.58	3810.6061	3909	3909.09091	3939.394	3909	3916.67	3863.64

**Table F.4 Proctor Penetrometer Data for District 1 – Undrained
Excavatable Accelerated Mixture Samples**

			Penetrometer (Pogo Stick) Reading (lbs) UnDrained							
Test Date	Duration	Tip Area in ²	Sample 1 (lbs)				Sample 2 (lbs)			
8/26/2002	6 - hrs	1.0	94	91	103	108	96	82	81	97
8/28/2002	2 - day	0.50	122	128	130	121	125	130	123	130
9/3/2002	7 - day	0.33	110	121	122	112	125	116	114	122
9/23/2002	28 - day	0.05	120	122	125	119	118	128	129	126
Stress Conversion (psi)										
UnDrained										
Sample 1 (lb/in ²)			Sample 1 Average	Sample 2 (lb/in ²)				Sampe 2 Average	Overall Average	
94	91	103	108	99	96	82	81	97	89	94.00
244	256	260	242	250.5	250	260	246	260	254	252.25
330	363	366	336	348.75	375	348	342	366	357.75	353.25
2400	2440	2500	2380	2430	2360	2560	2580	2520	2505	2467.50

**Table F.5 Proctor Penetrometer Data for District 1 – Drained
Non-excavatable Mixture Samples**

			Penetrometer (Pogo Stick) Reading (lbs) Drained							
Test Date	Duration	Tip Area in ²	Sample 1 (lbs)				Sample 2 (lbs)			
9/9/2002	6 - hrs	1.0	93	113	116	130	130	102	123	105
9/10/2002	1 - day	0.33	110	118	116	110	112	108	111	120
9/16/2002	7 - day	0.1	120	125	128	128	129	112	128	126
9/23/2002	14 - day	0.05	129	130	130	120	122	128	120	130
10/7/2002	28 - day	0.033	130	130	130	130	130	130	130	130
	90 - day	0.025	130	130	130	130	130	129	128	130
Stress Conversion (psi)										
Drained										
			Sample 1 (lb/in ²)		Sample 1 Average	Sample 2 (lb/in ²)			Sample 2 Average	Overall Average
93.00	113.00	116.00	130.00	113.00	93.00	113.00	116.00	130.00	113.00	113.00
333.33	357.58	351.52	333.33	343.94	339.39	327.27	336.36	363.64	341.67	342.80
1200.00	1250.00	1280.00	1280.00	1252.50	1290.00	1120.00	1280.00	1260.00	1237.50	1245.00
2580.00	2600.00	2600.00	2400.00	2545.00	2440.00	2560.00	2400.00	2600.00	2500.00	2522.50
3939.39	3939.39	3939.39	3939.39	3939.39	3939.39	3939.39	3939.39	3939.39	3939.39	3939.39
5200.00	5200.00	5200.00	5200.00	5200.00	5200.00	5160.00	5120.00	5200.00	5170.00	5185.00

**Table F.6 Proctor Penetrometer Data for District 1 – Undrained
Non-excavatable Mixture Samples**

			Penetrometer (Pogo Stick) Reading (lbs) UnDrained							
Test Date	Duration	Tip Area in ²	Sample 1 (lbs)				Sample 2 (lbs)			
9/9/2002	6 - hrs	1.0	105	125	115	111	121	114	110	111
9/11/2002	2 - day	0.20	102	127	111	113	119	114	121	121
9/16/2002	7 - day	0.1	126	112	126	128	130	127	128	130
10/7/2002	28 - day	0.033	130	130	130	129	120	130	128	129
Stress Conversion (psi)										
UnDrained										
			Sample 1 (lb/in ²)		Sample 1 Average	Sample 2 (lb/in ²)			Sample 2 Average	Overall Average
105.00	125.00	115.00	111.00	114.00	121.00	114.00	110.00	111.00	114.00	114.00
510.00	635.00	555.00	565.00	566.25	595.00	570.00	605.00	605.00	593.75	580.00
1260.00	1120.00	1260.00	1280.00	1230.00	1300.00	1270.00	1280.00	1300.00	1287.50	1258.75
3939.39	3939.39	3939.39	3909.09	3931.82	3636.36	3939.39	3878.79	3909.09	3840.91	3886.36

**Table F.7 Proctor Penetrometer Data for District 1 – Drained
Non-excavatable Accelerated Mixture Samples**

			Penetrometer (Pogo Stick) Reading (lbs) Drained							
Test Date	Duration	Tip Area in ²	Sample 1 (lbs)				Sample 2 (lbs)			
9/16/2002	6 - hrs	1.0	93	113	116	130	130	102	123	105
9/17/2002	1 - day	0.33	108	112	16	117	119	120	122	120
9/23/2002	7 - day	0.1	120	126	127	122	120	129	126	124
9/30/2002	14 - day	0.05	127	128	128	126	120	130	129	125
10/14/2002	28 - day	0.033	130	128	130	130	129	129	130	130
	90 - day	0.025	130	130	130	130	130	130	130	129
Stress Conversion (psi)										
Drained										
Sample 1 (lb/in ²)			Sample 1 Average	Sample 2 (lb/in ²)				Sample 2 Average	Overall Average	
93.00	113.00	116.00	130.00	113.00	130.00	102.00	123.00	105.00	115.00	114.00
327.27	339.39	48.48	354.55	267.42	360.61	363.64	369.70	363.64	364.39	315.91
1200.00	1260.00	1270.00	1220.00	1237.50	1200.00	1290.00	1260.00	1240.00	1247.50	1242.50
2540.00	2560.00	2560.00	2520.00	2545.00	2400.00	2600.00	2580.00	2500.00	2520.00	2532.50
3939.39	3878.79	3939.39	3939.39	3924.24	3909.09	3909.09	3939.39	3939.39	3924.24	3924.24
5200.00	5200.00	5200.00	5200.00	5200.00	5200.00	5200.00	5200.00	5160.00	5190.00	5195.00

**Table F.8 Proctor Penetrometer Data for District 1 – Undrained
Non-excavatable Accelerated Mixture Samples**

			Penetrometer (Pogo Stick) Reading (lbs) UnDrained							
Test Date	Duration	Tip Area in ²	Sample 1 (lbs)				Sample 2 (lbs)			
9/16/2002	6 - hrs	1.0	105	125	115	111	121	114	110	111
9/18/2002	2 - day	0.20	120	119	119	112	129	127	120	121
9/23/2002	7 - day	0.1	122	123	123	124	128	127	124	120
10/14/2002	28 - day	0.033	130	130	130	129	130	128	130	130
Stress Conversion (psi)										
UnDrained										
Sample 1 (lb/in ²)			Sample 1 Average	Sample 2 (lb/in ²)				Sample 2 Average	Overall Average	
105.00	125.00	115.00	111.00	114.00	121.00	114.00	110.00	111.00	114.00	114.00
600.00	595.00	595.00	560.00	587.50	645.00	635.00	600.00	605.00	621.25	604.38
1220.00	1230.00	1230.00	1240.00	1230.00	1280.00	1270.00	1240.00	1200.00	1247.50	1238.75
3939.39	3939.39	3939.39	3909.09	3931.82	3939.39	3878.79	3939.39	3939.39	3924.24	3928.03

**Table F.9 Proctor Penetrometer Data for District 2 – Drained
Excavatable Mixture Samples**

			Penetrometer (Pogo Stick) Reading (lbs) Drained							
Test Date	Duration	Tip Area in ²	Sample 1 (lbs)				Sample 2 (lbs)			
5/20/2002	6 - hrs	1	77.00	81.00	91.00	68.00	71.00	90.00	87.00	82.00
5/21/2002	1 - day	0.20	72.00	100.00	92.00	100.00	93.00	98.00	103.00	97.00
5/27/2002	7 - day	0.10	85.00	80.00	122.00	125.00	119.00	109.00	108.00	102.00
6/3/2002	14 - day	0.05	128.00	126.00	129.00	130.00	120.00	130.00	126.00	126.00
6/17/2002	28 - day	0.033	119.00	130.00	129.00	111.00	121.00	124.00	123.00	122.00
8/19/2002	90 - day	0.025	130.00	130.00	130.00	130.00	130.00	130.00	130.00	130.00
Stress Conversion (psi) Drained										
Sample 1 (lb/in ²)			Sample 1 Average	Sample 2 (lb/in ²)				Sample 2 Average	Overall Average	
77.00	81.00	91.00	68.00	79.25	71.00	90.00	87.00	82.00	77.00	78.13
360.00	500.00	460.00	500.00	455	465.00	490.00	515.00	485.00	488.75	471.88
850.00	800.00	1220.00	1250.00	1030	1190.00	1090.00	1080.00	1020.00	1095.00	1062.50
2560.00	2520.00	2580.00	2600.00	2565	2400.00	2600.00	2520.00	2520.00	2510.00	2537.50
3570.00	3900.00	3870.00	3330.00	3667.5	3630.00	3720.00	3690.00	3660.00	3675.00	3671.25
5200.00	5200.00	5200.00	5200.00	5200	5200.00	5200.00	5200.00	5200.00	5200.00	5200.00

**Table F.10 Proctor Penetrometer Data for District 2 – Undrained
Excavatable Mixture Samples**

			Penetrometer (Pogo Stick) Reading (lbs) UnDrained							
Test Date	Duration	Tip Area in ²	Sample 1 (lbs)				Sample 2 (lbs)			
5/20/2002	6 - hrs	1	80	72	75	83	79	80	85	79
5/22/2002	2 - day	0.2	102	110	101	112	82	86	90	112
5/27/2002	7 - day	0.1	112	114	117	116	119	128	122	130
6/17/2002	28 - day	0.033	120	129	12	130	121	129	130	129
Stress Conversion (psi) UnDrained										
Sample 1 (lb/in ²)			Sample 1 Average	Sample 2 (lb/in ²)				Sample 2 Average	Overall Average	
80.00	72.00	75.00	83.00	77.5	79	80	85	79	80.75	79.13
510.00	550.00	505.00	560.00	531.25	410	430	450	560	462.50	496.88
1120.00	1140.00	1170.00	1160.00	1147.5	1190	1280	1220	1300	1247.50	1197.50
3636.36	3909.09	363.64	3939.39	2962.121	3666.67	3909.09	3939.39	3909.09	3856.06	3409.09

**Table F.11 Proctor Penetrometer Data for District 2 – Drained
Excavatable Accelerated Mixture Samples**

			Penetrometer (Pogo Stick) Reading (lbs)							
			Drained							
Test Date	Duration	Tip Area in ²	Sample 1 (lbs)				Sample 2 (lbs)			
9/23/2002	6 - hrs	1.0	109	108	104	101	105	92	102	100
9/24/2002	1 - day	0.33	98	98	93	90	101	102	115	107
9/30/2002	7 - day	0.20	120	112	123	119	112	122	113	110
10/1/2002	14 - day	0.10	110	123	122	121	121	123	12	122
10/15/2002	28 - day	0.05	120	125	125	127	129	128	122	129
	90 - day	0.025	130	130	130	130	130	130	130	130
Stress Conversion (psi)										
Drained										
Sample 1 (lb/in ²)			Sample 1 Average	Sample 2 (lb/in ²)				Sample 2 Average	Overall Average	
109	108	104	101	105.5	105	92	102	100	99.75	102.63
294	294	279	270	284.25	303	306	345	321	318.75	301.50
360	560	615	595	532.5	560	610	565	550	571.25	551.88
110	1230	1220	1210	942.5	1210	1230	120	1220	945	943.75
120	2500	2500	2540	1915	2580	2560	2440	2580	2540	2227.50
130	5200	5200	5200	3932.5	5200	5200	5200	5200	5200	4566.25

**Table F.12 Proctor Penetrometer Data for District 2 – Undrained
Excavatable Accelerated Mixture Samples**

			Penetrometer (Pogo Stick) Reading (lbs)							
			UnDrained							
Test Date	Duration	Tip Area in ²	Sample 1 (lbs)				Sample 2 (lbs)			
9/23/2002	6 - hrs	1.0	69	54	66	50	71	78	60	69
9/25/2002	2 - day	0.33	100	95	73	75	93	89	89	96
9/30/2002	7 - day	0.20	112	110	113	119	118	128	122	125
10/15/2002	28 - day	0.05	130	128	125	127	130	129	129	130
Stress Conversion (psi)										
UnDrained										
Sample 1 (lb/in ²)			Sample 1 Average	Sample 2 (lb/in ²)				Sample 2 Average	Overall Average	
69	54	66	50	59.75	71	78	60	69	69.5	64.63
300	285	219	225	257.25	279	267	267	288	275.25	266.25
560	550	565	595	567.5	590	640	610	625	616.25	591.88
2600	2560	2500	2540	2550	2600	2580	2580	2600	2590	2570.00

**Table F.13 Proctor Penetrometer Data for District 2 – Drained
Non-excavatable Mixture Samples**

			Penetrometer (Pogo Stick) Reading (lbs)							
			Drained							
Test Date	Duration	Tip Area in ²	Sample 1 (lbs)				Sample 2 (lbs)			
6/17/2002	6 - hrs	0.75	100	108	111	127	97	99	88	89
6/18/2002	1 - day	0.2	68	83	69	84	79	66	72	74
6/24/2002	7 - day	0.10	130	130	130	130	130	130	130	130
7/1/2002	14 - day	0.05	130	129	123	128	120	130	130	130
7/15/2002	28 - day	0.033	130	130	130	130	130	130	130	130
9/16/2002	90 - day	0.025	130	130	130	130	130	130	130	130
Stress Conversion (psi)										
Drained										
Sample 1 (lb/in ²)			Sample 1 Average	Sample 2 (lb/in ²)				Sample 2 Average	Overall Average	
133.33	144.00	148.00	169.33	148.67	129.3	132	117.3	118.7	124.3333	136.5
340.00	415.00	345.00	420.00	380.00	395	330	360	370	363.75	371.875
1300.00	1300.00	1300.00	1300.00	1300.00	1300	1300	1300	1300	1300	1300
2600.00	2580.00	2460.00	2560.00	2550.00	2400	2600	2600	2600	2550	2550
3900.00	3900.00	3900.00	3900.00	3900.00	3900	3900	3900	3900	3900	3900
5200.00	5200.00	5200.00	5200.00	5200.00	5200	5200	5200	5200	5200	5200

**Table F.14 Proctor Penetrometer Data for District 2 – Undrained
Non-excavatable Mixture Samples**

			Penetrometer (Pogo Stick) Reading (lbs)							
			UnDrained							
Test Date	Duration	Tip Area in ²	Sample 1 (lbs)				Sample 2 (lbs)			
6/17/2002	6 - hrs	0.75	72	85	78	80	80	78	88	105
6/19/2002	2 - day	0.2	96	75	87	67	59	67	70	74
6/24/2002	7 - day	0.1	130	130	130	130	130	130	130	130
7/15/2002	28 - day	0.033	129	128	127	130	129	130	130	130
Stress Conversion (psi)										
UnDrained										
Sample 1 (lb/in ²)			Sample 1 Average	Sample 2 (lb/in ²)				Sample 2 Average	Overall Average	
96.00	113.33	104.00	106.67	105	106.7	104	117.3	140	117	111
480.00	375.00	435.00	335.00	406.25	295	335	350	370	337.5	371.875
1300.00	1300.00	1300.00	1300.00	1300	1300	1300	1300	1300	1300	1300
3909.09	3878.79	3848.48	3939.39	3893.939	3909	3939	3939	3939	3931.818	3912.88

**Table F.15 Proctor Penetrometer Data for District 2 – Drained
Non-excavatable Accelerated Mixture Samples**

			Penetrometer (Pogo Stick) Reading (lbs) Drained							
Test Date	Duration	Tip Area in ²	Sample 1 (lbs)				Sample 2 (lbs)			
9/23/2002	6 - hrs	1.0	117	110	97	99	109	117	115	113
9/24/2002	1 - day	0.33	107	115	117	116	105	106	109	108
9/30/2002	7 - day	0.10	120	123	123	126	122	129	128	119
10/1/2002	14 - day	0.05	120	130	129	129	129	129	120	123
10/15/2002	28 - day	0.033	130	130	130	130	130	130	130	130
	90 - day	0.025	130	130	130	130	130	130	130	130
Stress Conversion (psi) Drained										
Sample 1 (lb/in ²)			Sample 1 Average	Sample 2 (lb/in ²)				Sample 2 Average	Overall Average	
117.00	110.00	97.00	99.00	105.75	109.00	117.00	115.00	113.00	113.50	109.63
321.00	345.00	351.00	348.00	341.25	315.00	318.00	327.00	324.00	321.00	331.13
360.00	1230.00	1230.00	1260.00	1020.00	1220.00	1290.00	1280.00	1190.00	1245.00	1132.50
2400.00	2600.00	2580.00	2580.00	2540.00	2580.00	2580.00	2400.00	2460.00	2505.00	2522.50
3939.39	3939.39	3939.39	3939.39	3939.39	3939.39	3939.39	3939.39	3939.39	3939.39	3939.39
5200.00	5200.00	5200.00	5200.00	5200.00	5200.00	5200.00	5200.00	5200.00	5200.00	5200.00

**Table F.16 Proctor Penetrometer Data for District 2 – Undrained
Non-excavatable Accelerated Mixture Samples**

			Penetrometer (Pogo Stick) Reading (lbs) UnDrained							
Test Date	Duration	Tip Area in ²	Sample 1 (lbs)				Sample 2 (lbs)			
9/23/2002	6 - hrs	1.0	89	97	100	103	100	98	116	104
9/25/2002	2 - day	0.33	99	109	102	110	110	108	104	109
9/30/2002	7 - day	0.10	120	121	122	125	128	129	119	122
10/15/2002	28 - day	0.033	130	130	130	130	130	130	130	130
Stress Conversion (psi) UnDrained										
Sample 1 (lb/in ²)			Sample 1 Average	Sample 2 (lb/in ²)				Sample 2 Average	Overall Average	
89.00	97.00	100.00	103.00	97.25	100.00	98.00	116.00	104.00	104.50	100.88
297.00	327.00	306.00	330.00	315.00	330.00	324.00	312.00	327.00	323.25	319.13
1200.00	1210.00	1220.00	1250.00	1220.00	1280.00	1290.00	1190.00	1220.00	1245.00	1232.50
3939.39	3939.39	3939.39	3939.39	3939.39	3939.39	3939.39	3939.39	3939.39	3939.39	3939.39

**Table F.17 Proctor Penetrometer Data for Districts 4&6 – Drained
Excavatable Mixture Samples**

			Penetrometer (Pogo Stick) Reading (lbs) Drained							
Test Date	Duration	Tip Area in ²	Sample 1 (lbs)				Sample 2 (lbs)			
7/1/2002	6 - hrs	1.00	59	85	60	72	110	90	96	88
7/2/2002	1 - day	0.75	115	112	113	125	102	90	107	125
7/8/2002	7 - day	0.50	95	90	92	106	124	110	103	109
7/15/2002	14 - day	0.20	115	118	115	119	110	119	111	108
7/29/2002	28 - day	0.10	121	129	127	125	125	127	124	123
9/30/2002	90 - day	0.03	119	110	112	119	112	123	129	126
Stress Conversion (psi) Drained										
Sample 1 (lb/in ²)			Sample 1 Average	Sample 2 (lb/in ²)				Sample 2 Average	Overall Average	
59	85	60	72	69.00	110	90	96	88	96.00	82.5
153.3333333	149.3333333	150.6667	166.667	155.00	136	120	142.667	166.667	141.33	148.167
190	180	184	212	191.50	248	220	206	218	223.00	207.25
575	590	575	595	583.75	550	595	555	540	560.00	571.875
1210	1290	1270	1250	1255.00	1250	1270	1240	1230	1247.50	1251.25
3606.060606	3333.33333	3393.939	3606.06	3484.85	3393.94	3727.27	3909.09	3818.18	3712.12	3598.48

**Table F.18 Proctor Penetrometer Data for Districts 4&6 – Undrained
Excavatable Mixture Samples**

			Penetrometer (Pogo Stick) Reading (lbs) UnDrained							
Test Date	Duration	Tip Area in ²	Sample 1 (lbs)				Sample 2 (lbs)			
7/1/2002	6 - hrs	1.00	59	70	59	67	67	65	76	86
7/3/2002	2 - day	0.75	105	96	101	95	104	122	97	122
7/8/2002	7 - day	0.50	97	103	122	90	121	101	122	113
7/29/2002	28 - day	0.10	119	112	120	109	120	121	124	121
Stress Conversion (psi) UnDrained										
Sample 1 (lb/in ²)			Sample 1 Average	Sample 2 (lb/in ²)				Sample 2 Average	Overall Average	
59.00	70.00	59.00	67.00	63.75	67.00	65.00	76.00	86.00	73.50	68.63
140.00	128.00	134.67	126.67	132.33	138.67	162.67	129.33	162.67	148.33	140.33
194.00	206.00	244.00	180.00	206.00	242.00	202.00	244.00	226.00	228.50	217.25
1190.00	1120.00	1200.00	1090.00	1150.00	1200.00	1210.00	1240.00	1210.00	1215.00	1182.50

**Table F.19 Proctor Penetrometer Data for Districts 4&6 – Drained
Excavatable Accelerated Mixture Samples**

			Penetrometer (Pogo Stick) Reading (lbs) Drained							
Test Date	Duration	Tip Area in ²	Sample 1 (lbs)				Sample 2 (lbs)			
7/8/2002	6 - hrs	1.00	85	54	75	89	95	92	102	100
7/9/2002	1 - day	0.75	109	107	112	118	116	118	120	116
7/15/2002	7 - day	0.50	102	112	110	114	115	115	119	124
7/22/2002	14 - day	0.20	118	120	122	124	124	123	124	124
8/5/2002	28 - day	0.10	120	122	122	126	124	129	130	124
10/7/2002	90 - day	0.03	129	124	124	125	130	128	127	124
Stress Conversion (psi) Drained										
Sample 1 (lb/in ²)			Sample 1 Average	Sample 2 (lb/in ²)				Sample 2 Average	Overall Average	
85.00	54.00	75.00	89.00	75.75	95.00	92.00	102.00	100.00	97.25	86.50
145.33	142.67	149.33	157.33	148.67	154.67	157.33	160.00	154.67	156.67	152.67
204.00	224.00	220.00	228.00	219.00	230.00	230.00	238.00	248.00	236.50	227.75
590.00	600.00	610.00	620.00	605.00	620.00	615.00	620.00	620.00	618.75	611.88
1200.00	1220.00	1220.00	1260.00	1225.00	1240.00	1290.00	1300.00	1240.00	1267.50	1246.25
3909.09	3757.58	3757.58	3787.88	3803.03	3939.39	3878.79	3848.48	3757.58	3856.06	3829.55

**Table F.20 Proctor Penetrometer Data for Districts 4&6 – Undrained
Excavatable Accelerated Mixture Samples**

			Penetrometer (Pogo Stick) Reading (lbs) Undrained							
Test Date	Duration	Tip Area in ²	Sample 1 (lbs)				Sample 2 (lbs)			
7/8/2002	6 - hrs	1.00	39	68	72	83	87	56	92	76
7/10/2002	2 - day	0.75	102	113	110	112	115	116	116	118
7/15/2002	7 - day	0.50	117	110	118	114	119	119	120	119
8/5/2002	28 - day	0.10	123	125	125	122	120	127	127	126
Stress Conversion (psi) Undrained										
Sample 1 (lb/in ²)			Sample 1 Average	Sample 2 (lb/in ²)				Sample 2 Average	Overall Average	
39.00	68.00	72.00	83.00	65.50	87.00	56.00	92.00	76.00	77.75	71.63
136.00	150.67	146.67	149.33	145.67	153.33	154.67	154.67	157.33	155.00	150.33
234.00	220.00	236.00	228.00	229.50	238.00	238.00	240.00	238.00	238.50	234.00
1230.00	1250.00	1250.00	1220.00	1237.50	1200.00	1270.00	1270.00	1260.00	1250.00	1243.75

**Table F.21 Proctor Penetrometer Data for Districts 4&6 – Drained
Non-excavatable Mixture Samples**

			Penetrometer (Pogo Stick) Reading (lbs) Drained							
Test Date	Duration	Tip Area in ²	Sample 1 (lbs)				Sample 2 (lbs)			
6/3/2002	6 - hrs	1.00	112	119	117	130	122	122	129	124
6/4/2002	1 - day	0.5	130	130	130	130	130	130	130	130
6/10/2002	7 - day	0.2	130	130	130	130	130	130	130	130
6/17/2002	14 - day	0.05	130	130	130	130	130	130	130	130
7/1/2002	28 - day	0.033	130	130	130	130	130	130	130	130
9/3/2002	90 - day	0.025	130	130	130	130	130	130	130	130
Stress Conversion (psi)										
Drained										
Sample 1 (lb/in ²)			Sample 1 Average	Sample 2 (lb/in ²)				Sample 2 Average	Overall Average	
112.00	119.00	117.00	130.00	119.5	122	122	129	124	124.25	121.875
260.00	260.00	260.00	260.00	260.00	260	260	260	260	260	260
650.00	650.00	650.00	650.00	650	650	650	650	650	650	650
2600.00	2600.00	2600.00	2600.00	2600	2600	2600	2600	2600	2600	2600
3939.39	3939.39	3939.39	3939.39	3939.39	3939.394	3939.39	3939.394	3939.394	3939.394	3939.39
5200.00	5200.00	5200.00	5200.00	5200	5200	5200	5200	5200	5200	5200

**Table F.22 Proctor Penetrometer Data for Districts 4&6 – Undrained
Non-excavatable Mixture Samples**

			Penetrometer (Pogo Stick) Reading (lbs) UnDrained							
Test Date	Duration	Tip Area in ²	Sample 1 (lbs)				Sample 2 (lbs)			
6/3/2002	6 - hrs	1	117	130	130	127	130	130	130	129
6/5/2002	2 - day	0.5	116	116	122	130	130	130	130	130
6/10/2002	7 - day	0.2	130	130	130	130	130	130	130	130
7/1/2002	28 - day	0.033	130	130	130	130	130	130	130	130
Stress Conversion (psi)										
UnDrained										
Sample 1 (lb/in ²)			Sample 1 Average	Sample 2 (lb/in ²)				Sample 2 Average	Overall Average	
117.00	130.00	130.00	127.00	126.00	130.00	130.00	130.00	129.00	129.75	127.88
232.00	232.00	244.00	260.00	242.00	260.00	260.00	260.00	260.00	260.00	251.00
650.00	650.00	650.00	650.00	650.00	650.00	650.00	650.00	650.00	650.00	650.00
3939.39	3939.39	3939.39	3939.39	3939.39	3939.39	3939.39	3939.39	3939.39	3939.39	3939.39

**Table F.23 Proctor Penetrometer Data for Districts 4&6 – Drained
Non-excavatable Accelerated Mixture Samples**

			Penetrometer (Pogo Stick) Reading (lbs)							
			Drained							
Test Date	Duration	Tip Area in ²	Sample 1 (lbs)				Sample 2 (lbs)			
6/10/2002	6 - hrs	1.00	117	100	130	112	117	130	130	128
6/11/2002	1 - day	0.75	130	130	130	130	130	130	130	130
6/17/2002	7 - day	0.5	130	129	128	127	130	129	129	130
6/24/2002	14 - day	0.05	130	130	130	130	130	130	130	130
7/8/2002	28 - day	0.033	130	130	130	130	130	130	130	130
9/9/2002	90 - day	0.025	130	130	130	130	130	130	130	130
Stress Conversion (psi)										
Drained										
Sample 1 (lb/in ²)			Sample 1 Average	Sample 2 (lb/in ²)				Sample 2 Average	Overall Average	
117.00	100.00	130.00	112.00	114.75	117.00	130.00	130.00	128.00	126.25	120.50
173.33	173.33	173.33	173.33	173.33	173.33	173.33	173.33	173.33	173.33	173.33
260.00	258.00	256.00	254.00	257.00	260.00	258.00	258.00	260.00	259.00	258.00
2600.00	2600.00	2600.00	2600.00	2600.00	2600.00	2600.00	2600.00	2600.00	2600.00	2600.00
3939.39	3939.39	3939.39	3939.39	3939.39	3939.39	3939.39	3939.39	3939.39	3939.39	3939.39
5200.00	5200.00	5200.00	5200.00	5200.00	5200.00	5200.00	5200.00	5200.00	5200.00	5200.00

**Table F.24 Proctor Penetrometer Data for Districts 4&6 – Undrained
Non-excavatable Accelerated Mixture Samples**

			Penetrometer (Pogo Stick) Reading (lbs)							
			Undrained							
Test Date	Duration	Tip Area in ²	Sample 1 (lbs)				Sample 2 (lbs)			
6/10/2002	6 - hrs	1.00	119	103	92	118	111	106	110	89
6/12/2002	2 - day	0.75	130	130	130	130	130	130	130	130
6/17/2002	7 - day	0.5	130	130	130	130	130	130	130	130
7/8/2002	28 - day	0.033	130	130	130	130	130	130	130	130
Stress Conversion (psi)										
Undrained										
Sample 1 (lb/in ²)			Sample 1 Average	Sample 2 (lb/in ²)				Sample 2 Average	Overall Average	
119.00	103.00	92.00	118.00	108.00	111.00	106.00	110.00	89.00	104.00	106.00
173.33	173.33	173.33	173.33	173.33	173.33	173.33	173.33	173.33	173.33	173.33
260.00	260.00	260.00	260.00	260.00	260.00	260.00	260.00	260.00	260.00	260.00
3939.39	3939.39	3939.39	3939.39	3939.39	3939.39	3939.39	3939.39	3939.39	3939.39	3939.39

**Table F.25 Proctor Penetrometer Data for District 5 – Drained
Excavatable Mixture Samples**

			Penetrometer (Pogo Stick) Reading (lbs) Drained							
Test Date	Duration	Tip Area in ²	Sample 1 (lbs)				Sample 2 (lbs)			
7/15/2002	6 - hrs	1.0	84	89	105	107	113	98	122	111
7/16/2002	1 - day	0.75	99	99	89	104	113	106	113	121
7/22/2002	7 - day	0.20	126	92	113	130	120	129	130	130
7/29/2002	14 - day	0.10	119	122	121	120	122	126	124	122
8/12/2002	28 - day	0.05	130	123	119	109	120	126	125	130
10/14/2002	90 - day	0.033	126	125	121	124	124	126	121	120
Stress Conversion (psi) Drained										
Sample 1 (lb/in ²)			Sample 1 Average	Sample 2 (lb/in ²)				Sample 2 Average	Overall Average	
84.00	89.00	105.00	107.00	96.25	113.00	98.00	122.00	111.00	111.00	103.63
132.00	132.00	118.67	138.67	130.33	150.67	141.33	150.67	161.33	151.00	140.67
630.00	460.00	565.00	650.00	576.25	600.00	645.00	650.00	650.00	636.25	606.25
1190.00	1220.00	1210.00	1200.00	1205.00	1220.00	1260.00	1240.00	1220.00	1235.00	1220.00
2600.00	2460.00	2380.00	2180.00	2405.00	2400.00	2520.00	2500.00	2600.00	2505.00	2455.00
3818.18	3787.88	3666.67	3757.58	3757.58	3757.58	3818.18	3666.67	3636.36	3719.70	3738.64

**Table F.26 Proctor Penetrometer Data for District 5 – Undrained
Excavatable Mixture Samples**

			Penetrometer (Pogo Stick) Reading (lbs) Undrained							
Test Date	Duration	Tip Area in ²	Sample 1 (lbs)				Sample 2 (lbs)			
7/15/2002	6 - hrs	1.0	72	71	60	66	50	56	49	40
7/17/2002	2 - day	0.33	101	110	112	106	115	118	114	118
7/22/2002	7 - day	0.20	118	105	110	90	89	109	100	113
8/12/2002	28 - day	0.05	124	127	125	126	124	127	127	126
Stress Conversion (psi) Undrained										
Sample 1 (lb/in ²)			Sample 1 Average	Sample 2 (lb/in ²)				Sample 2 Average	Overall Average	
72.00	71.00	60.00	66.00	67.25	50.00	56.00	49.00	40.00	48.75	58.00
306.06	333.33	339.39	321.21	325.00	348.48	357.58	345.45	357.58	352.27	338.64
590.00	525.00	550.00	450.00	528.75	445.00	545.00	500.00	565.00	513.75	521.25
2480.00	2540.00	2500.00	2520.00	2510.00	2480.00	2540.00	2540.00	2520.00	2520.00	2515.00

**Table F.27 Proctor Penetrometer Data for District 5 – Drained
Excavatable Accelerated Mixture Samples**

			Penetrometer (Pogo Stick) Reading (lbs) Drained							
Test Date	Duration	Tip Area in ²	Sample 1 (lbs)				Sample 2 (lbs)			
7/22/2002	6 - hrs	1.00	62	69	70	63	82	69	75	62
7/23/2002	1 - day	0.75	103	104	122	113	122	130	125	130
7/29/2002	7 - day	0.33	110	116	118	120	126	126	125	124
7/29/2002	14 - day	0.20	122	121	128	127	128	128	130	126
8/19/2002	28 - day	0.10	122	119	118	116	126	123	121	130
10/21/2002	90 - day	0.05	129	126	128	125	125	129	129	127
Stress Conversion (psi)										
Drained										
Sample 1 (lb/in ²)			Sample 1 Average	Sample 2 (lb/in ²)				Sample 2 Average	Overall Average	
62.00	69.00	70.00	63.00	66.00	82.00	69.00	75.00	62.00	72.00	69.00
137.33	138.67	162.67	150.67	147.33	162.67	173.33	166.67	173.33	169.00	158.17
333.33	351.52	357.58	363.64	351.52	381.82	381.82	378.79	375.76	379.55	365.53
610.00	605.00	640.00	635.00	622.50	640.00	640.00	650.00	630.00	640.00	631.25
1220.00	1190.00	1180.00	1160.00	1187.50	1260.00	1230.00	1210.00	1300.00	1250.00	1218.75
2580.00	2520.00	2560.00	2500.00	2540.00	2500.00	2580.00	2580.00	2540.00	2550.00	2545.00

**Table F.28 Proctor Penetrometer Data for District 5 – Undrained
Excavatable Accelerated Mixture Samples**

			Penetrometer (Pogo Stick) Reading (lbs) UnDrained							
Test Date	Duration	Tip Area in ²	Sample 1 (lbs)				Sample 2 (lbs)			
7/22/2002	6 - hrs	1.0	72	82	75	62	70	81	70	69
7/24/2002	2 - day	0.50	130	113	130	118	130	128	122	118
7/29/2002	7 - day	0.33	128	123	120	119	112	117	92	100
8/19/2002	28 - day	0.10	124	125	127	129	110	102	130	129
Stress Conversion (psi)										
UnDrained										
Sample 1 (lb/in ²)			Sample 1 Average	Sample 2 (lb/in ²)				Sample 2 Average	Overall Average	
72.00	82.00	75.00	62.00	72.75	70.00	81.00	70.00	69.00	72.50	72.63
260.00	226.00	260.00	236.00	245.50	260.00	256.00	244.00	236.00	249.00	247.25
387.88	372.73	363.64	360.61	371.21	339.39	354.55	278.79	303.03	318.94	345.08
1240.00	1250.00	1270.00	1290.00	1262.50	1100.00	1020.00	1300.00	1290.00	1177.50	1220.00

**Table F.29 Proctor Penetrometer Data for District 5 – Drained
Non-excavatable Mixture Samples**

			Penetrometer (Pogo Stick) Reading (lbs) Drained							
Test Date	Duration	Tip Area in ²	Sample 1 (lbs)				Sample 2 (lbs)			
7/30/2002	6 - hrs	0.75	126	130	125	130	130	126	124	130
7/31/2002	1 - day	0.50	114	113	113	121	101	106	116	119
8/6/2002	7 - day	0.10	108	111	112	117	129	115	124	116
8/13/2002	14 - day	0.05	119	123	117	130	129	123	120	130
8/27/2002	28 - day	0.03	112	130	108	109	120	115	130	125
10/29/2002	90 - day	0.025	130	130	130	130	129	130	130	130
Stress Conversion (psi) Drained										
Sample 1 (lb/in ²)			Sample 1 Average	Sample 2 (lb/in ²)				Sample 2 Average	Overall Average	
168.00	173.33	166.67	173.33	170.33	173.33	168.00	165.33	173.33	170.00	170.17
228.00	226.00	226.00	242.00	230.50	202.00	212.00	232.00	238.00	221.00	225.75
1080.00	1110.00	1120.00	1170.00	1120.00	1290.00	1150.00	1240.00	1160.00	1210.00	1165.00
2380.00	2460.00	2340.00	2600.00	2445.00	2580.00	2460.00	2400.00	2600.00	2510.00	2477.50
3360.00	3900.00	3240.00	3270.00	3442.50	3600.00	3450.00	3900.00	3750.00	3675.00	3558.75
5200.00	5200.00	5200.00	5200.00	5200.00	5160.00	5200.00	5200.00	5200.00	5190.00	5195.00

**Table F.30 Proctor Penetrometer Data for District 5 – Undrained
Non-excavatable Mixture Samples**

			Penetrometer (Pogo Stick) Reading (lbs) UnDrained							
Test Date	Duration	Tip Area in ²	Sample 1 (lbs)				Sample 2 (lbs)			
7/30/2002	6 - hrs	0.75	103	130	115	81	128	129	130	129
8/1/2002	2 - day	0.10	127	115	130	125	118	122	115	127
8/6/2002	7 - day	0.05	114	115	118	120	111	110	130	124
8/27/2002	0.03	0.03	128	130	129	130	130	129	130	128
Stress Conversion (psi) UnDrained										
Sample 1 (lb/in ²)			Sample 1 Average	Sample 2 (lb/in ²)				Sample 2 Average	Overall Average	
137.33	173.33	153.33	108.00	143.00	170.67	172.00	173.33	172.00	172.00	157.50
1270.00	1150.00	1300.00	1250.00	1242.50	1180.00	1220.00	1150.00	1270.00	1205.00	1223.75
2280.00	2300.00	2360.00	2400.00	2335.00	2220.00	2200.00	2600.00	2480.00	2375.00	2355.00
4266.67	4333.33	4300.00	4333.33	4308.33	4333.33	4300.00	4333.33	4266.67	4308.33	4308.33

**Table F.31 Proctor Penetrometer Data for District 5 – Drained
Non-excavatable Accelerated Mixture Samples**

			Penetrometer (Pogo Stick) Reading (lbs) Drained							
Test Date	Duration	Tip Area in ²	Sample 1 (lbs)				Sample 2 (lbs)			
8/12/2002	6 - hrs	1.0	120	118	112	114	116	111	120	123
8/13/2002	1 - day	0.33	124	127	128	126	122	120	125	126
8/19/2002	7 - day	0.10	126	130	130	130	130	130	130	130
8/26/2002	14 - day	0.05	112	121	120	116	130	112	130	130
9/9/2002	28 - day	0.033	130	130	130	127	128	125	123	122
	90 - day	0.025	123	128	129	130	130	125	129	130
Stress Conversion (psi) Drained										
			Sample 1 (lb/in ²)		Sample 1 Average	Sample 2 (lb/in ²)			Sample 2 Average	Overall Average
120.00	118.00	112.00	114.00	116.00	116.00	111.00	120.00	123.00	117.50	116.75
375.76	384.85	387.88	381.82	382.58	369.70	363.64	378.79	381.82	373.48	378.03
1260.00	1300.00	1300.00	1300.00	1290.00	1300.00	1300.00	1300.00	1300.00	1300.00	1295.00
2240.00	2420.00	2400.00	2320.00	2345.00	2600.00	2240.00	2600.00	2600.00	2510.00	2427.50
3939.39	3939.39	3939.39	3848.48	3916.67	3878.79	3787.88	3727.27	3696.97	3772.73	3844.70
4920.00	5120.00	5160.00	5200.00	5100.00	5200.00	5000.00	5160.00	5200.00	5140.00	5120.00

**Table F.32 Proctor Penetrometer Data for District 5 – Undrained
Non-excavatable Accelerated Mixture Samples**

			Penetrometer (Pogo Stick) Reading (lbs) Undrained							
Test Date	Duration	Tip Area in ²	Sample 1 (lbs)				Sample 2 (lbs)			
8/12/2002	6 - hrs	1.0	121	120	115	116	120	125	125	123
8/14/2002	2 - day	0.20	121	119	119	118	129	125	125	124
8/19/2002	7 - day	0.10	130	130	130	130	130	111	116	122
9/9/2002	28 - day	0.033	130	130	129	128	130	130	128	129
Stress Conversion (psi) Undrained										
			Sample 1 (lb/in ²)		Sample 1 Average	Sample 2 (lb/in ²)			Sample 2 Average	Overall Average
121.00	120.00	115.00	116.00	118.00	120.00	125.00	125.00	123.00	123.25	120.63
605.00	595.00	595.00	590.00	596.25	645.00	625.00	625.00	620.00	628.75	612.50
1300.00	1300.00	1300.00	1300.00	1300.00	1300.00	1110.00	1160.00	1220.00	1197.50	1248.75
3939.39	3939.39	3909.09	3878.79	3916.67	3939.39	3939.39	3878.79	3909.09	3916.67	3916.67