APPENDIX F.2

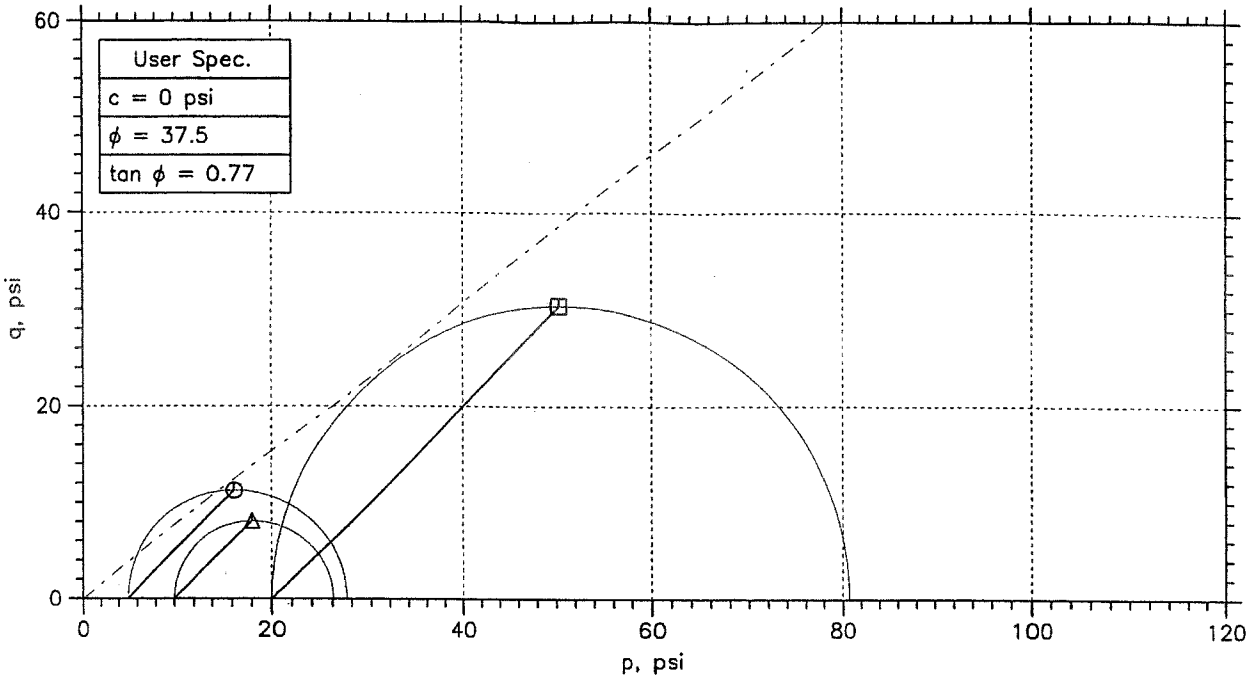
SOIL STRENGTH TESTS

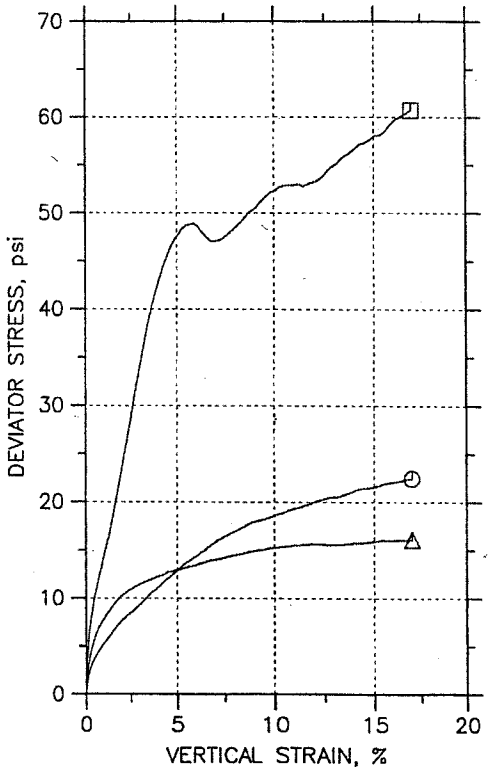
NORTH ANNA COL

DATA REPORT REV. 0
JANUARY 23, 2007

MACTEC PROJECT NO. 6468-06-1472

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767





Symbol		⊙	△	⊡	
Sample No.		UD-2	UD-2	UD-2	
Test No.		6765.1	6765.2	6765.3	
Depth		10 ft.	10.5 ft.	11.0 ft.	
Initial	Diameter, in	2.876	2.847	2.841	
	Height, in	5.6	6	6	
	Water Content, %	17.8	14.7	14.1	
	Dry Density, pcf	95.68	90.04	103.9	
	Saturation, %	63.0	45.6	61.4	
	Void Ratio	0.762	0.872	0.622	
Before Shear	Water Content, %	25.7	26.7	20.8	
	Dry Density, pcf	99.54	97.95	107.9	
	Saturation*, %	100.0	100.0	100.0	
	Void Ratio	0.693	0.721	0.562	
	Back Press., psi	105.	110.	105.	
Ver. Eff. Cons. Stress, psi		4.999	10.01	20.01	
Shear Strength, psi		11.22	8.036	30.34	
Strain at Failure, %		17	17	17	
Strain Rate, %/min		0.1	0.1	0.1	
B-Value		0.95	0.94	0.92	
Estimated Specific Gravity		2.7	2.7	2.7	
Liquid Limit		---	---	---	
Plastic Limit		---	---	---	

Project: North Anna COL

Location: B-901 UD-2 @ 9.5-11.5'

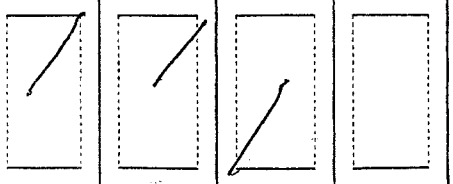
Project No.: 6468061472

Boring No.: B-901

Sample Type: Shelby Tube

Description: Tan Brown Silty Sand

Remarks: ASTM D 4767-04



Phase calculations based on start and end of test.

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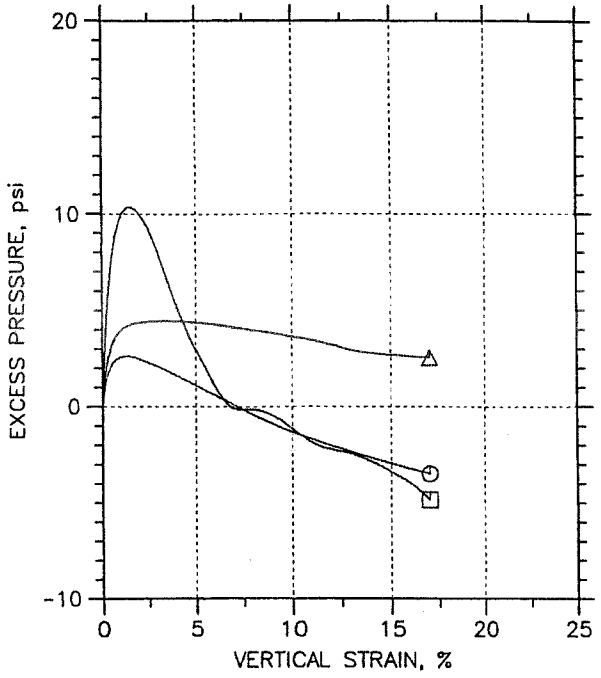
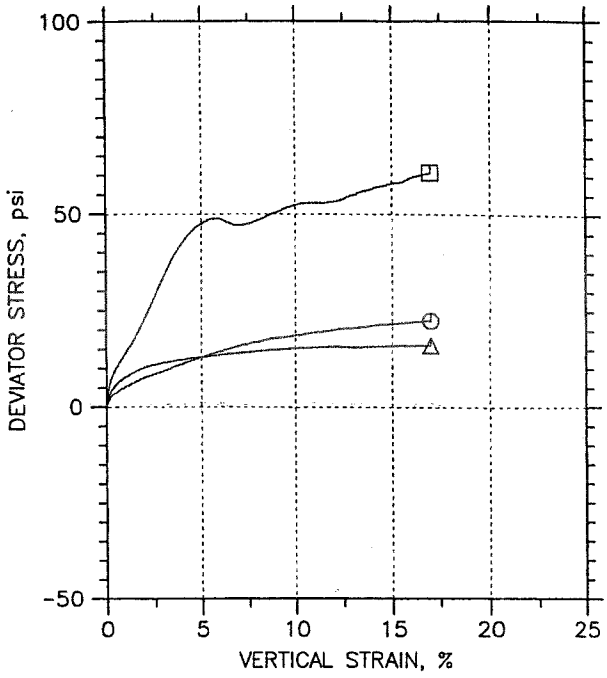
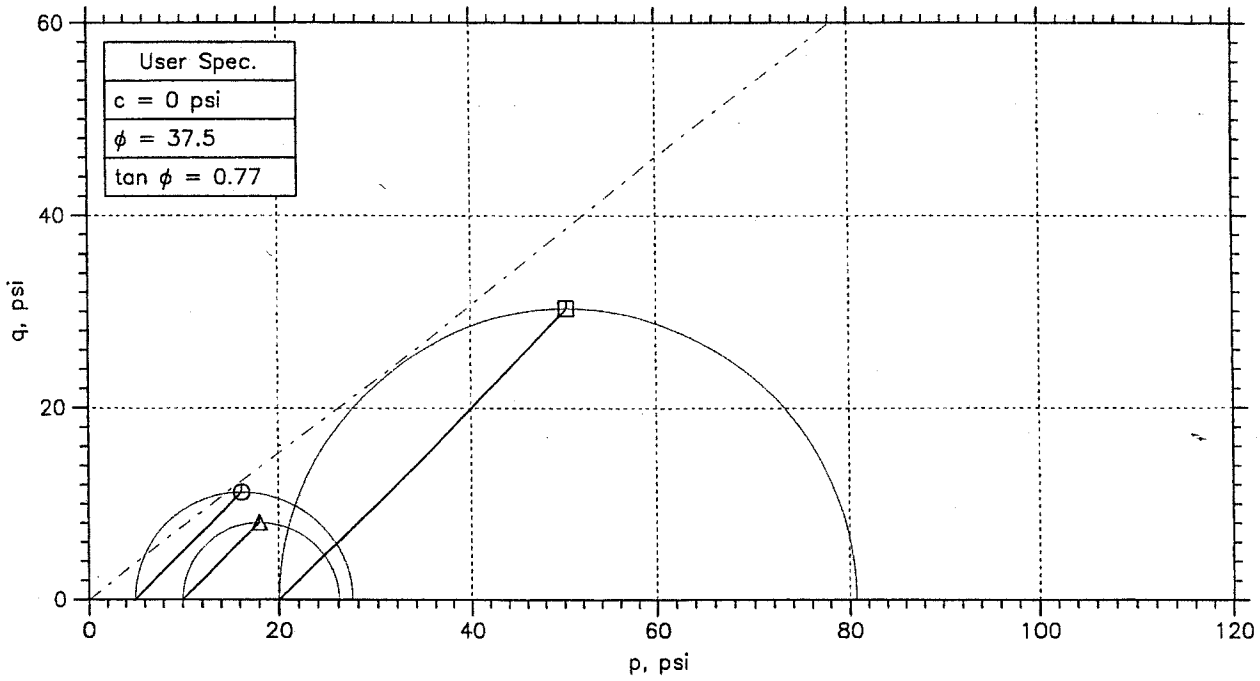
* Saturation is set to 100% for phase calculations.

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767







	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
⊙	UD-2	6765.1	10 ft.	HJ	12/5/06	JL	1/2/07	6765.1_65.dat
△	UD-2	6765.2	10.5 ft.	HJ	12/5/06	JL	1/2/07	6765.2_68.dat
□	UD-2	6765.3	11.0 ft.	HJ	12/5/06	JL	1/2/07	6765.3_71.dat

Project: North Anna COL	Location: B-901 UD-2 @ 9.5-11.5	Project No.: 6468061472
Boring No.: B-901	Sample Type: Shelby Tube	
Description: Tan Brown Silty Sand		
Remarks: ASTM D 4767-04		

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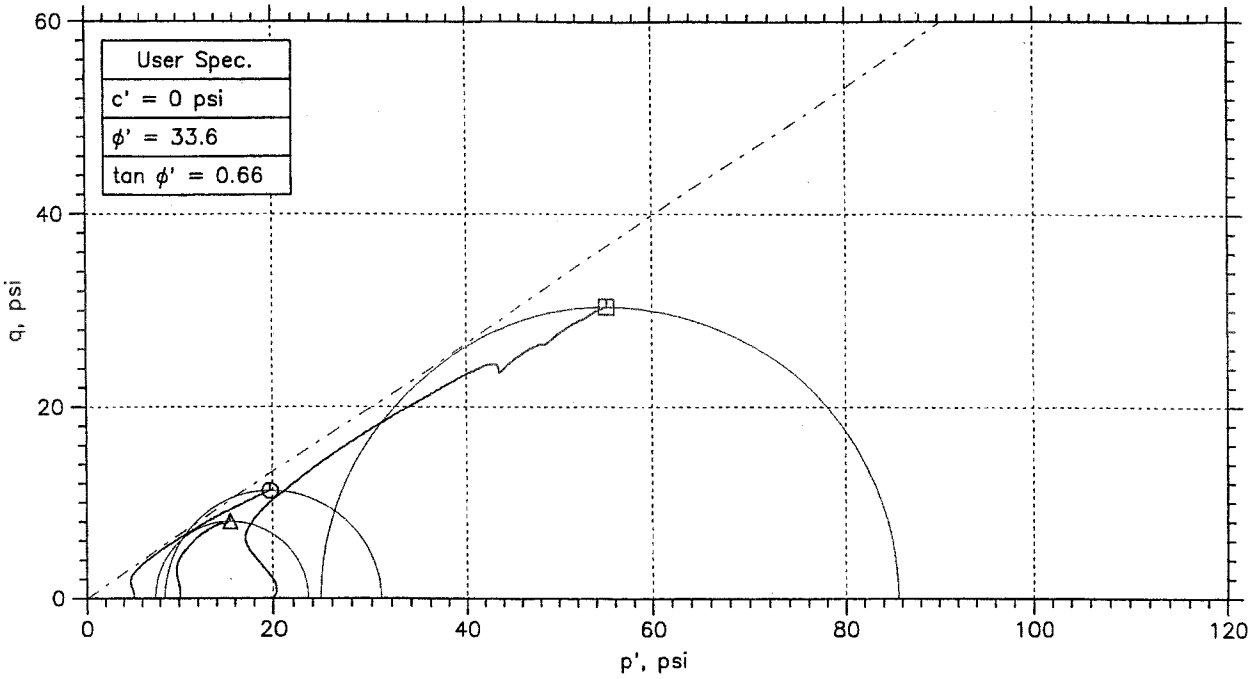
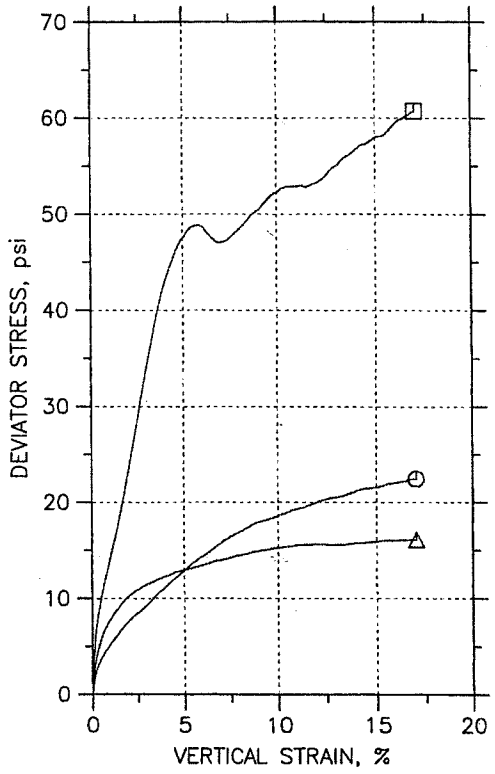
CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767





Symbol		⊙	△	□	
Sample No.		UD-2	UD-2	UD-2	
Test No.		6765.1	6765.2	6765.3	
Depth		10 ft.	10.5 ft.	11.0 ft.	
Initial	Diameter, in	2.876	2.847	2.841	
	Height, in	5.6	6	6	
	Water Content, %	17.8	14.7	14.1	
	Dry Density, pcf	95.68	90.04	103.9	
	Saturation, %	63.0	45.6	61.4	
	Void Ratio	0.762	0.872	0.622	
Before Shear	Water Content, %	25.7	26.7	20.8	
	Dry Density, pcf	99.54	97.95	107.9	
	Saturation*, %	100.0	100.0	100.0	
	Void Ratio	0.693	0.721	0.562	
	Back Press., psi	105.	110.	105.	
Ver. Eff. Cons. Stress, psi		4.999	10.01	20.01	
Shear Strength, psi		11.22	8.036	30.34	
Strain at Failure, %		17	17	17	
Strain Rate, %/min		0.1	0.1	0.1	
B-Value		0.95	0.94	0.92	
Estimated Specific Gravity		2.7	2.7	2.7	
Liquid Limit		---	---	---	
Plastic Limit		---	---	---	

Project: North Anna COL

Location: B-901 UD-2 @ 9.5-11.5'

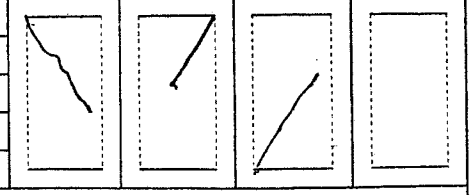
Project No.: 6468061472

Boring No.: B-901

Sample Type: Shelby Tube

Description: Tan Brown Silty Sand

Remarks: ASTM D 4767-04



Phase calculations based on start and end of test.

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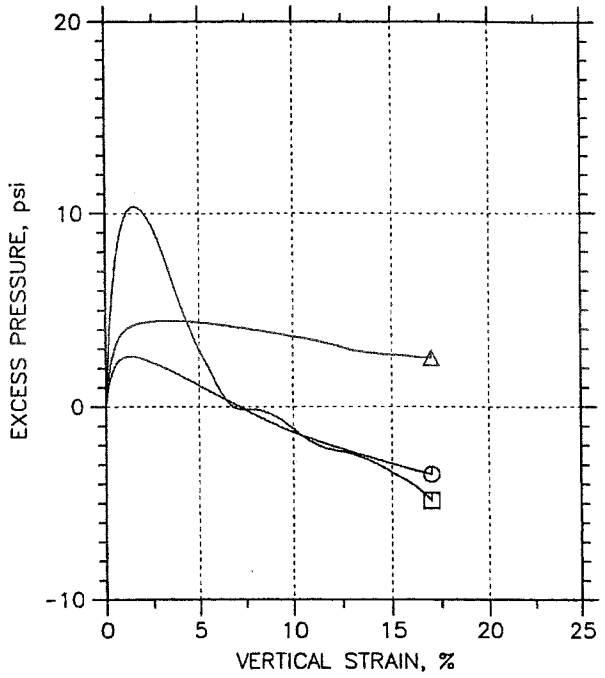
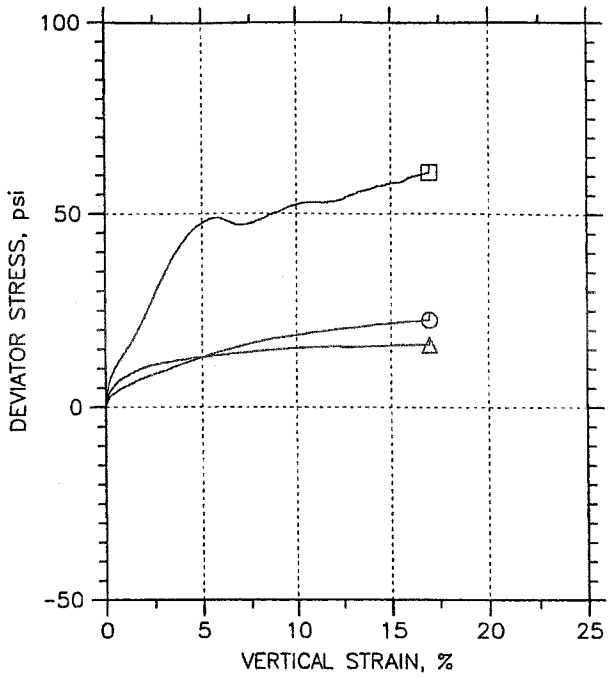
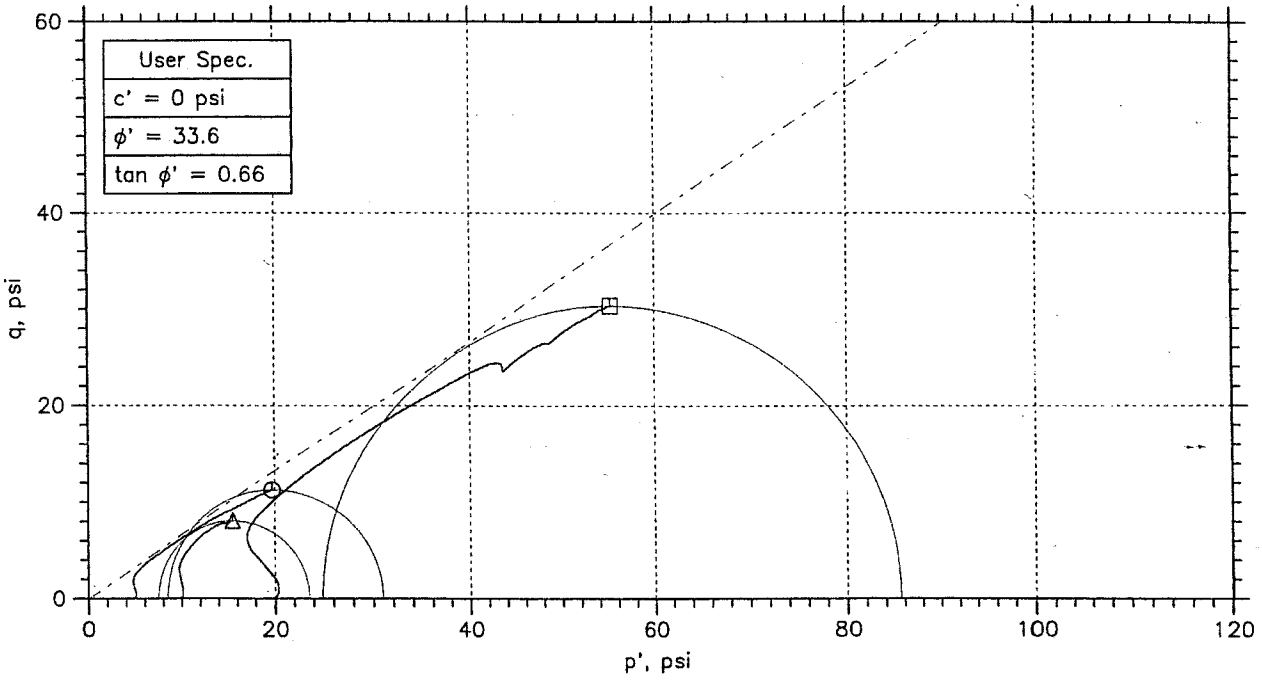
* Saturation is set to 100% for phase calculations.

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767







	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
⊙	UD-2	6765.1	10 ft.	HJ	12/5/06	JL	1/2/07	6765.1_65.dat
△	UD-2	6765.2	10.5 ft.	HJ	12/5/06	JL	1/2/07	6765.2_68.dat
⊡	UD-2	6765.3	11.0 ft.	HJ	12/5/06	JL	1/2/07	6765.3_71.dat

Project: North Anna COL	Location: B-901 UD-2 @ 9.5-11.5	Project No.: 6468061472
Boring No.: B-901	Sample Type: Shelby Tube	
Description: Tan Brown Silty Sand		
Remarks: ASTM D 4767-04		

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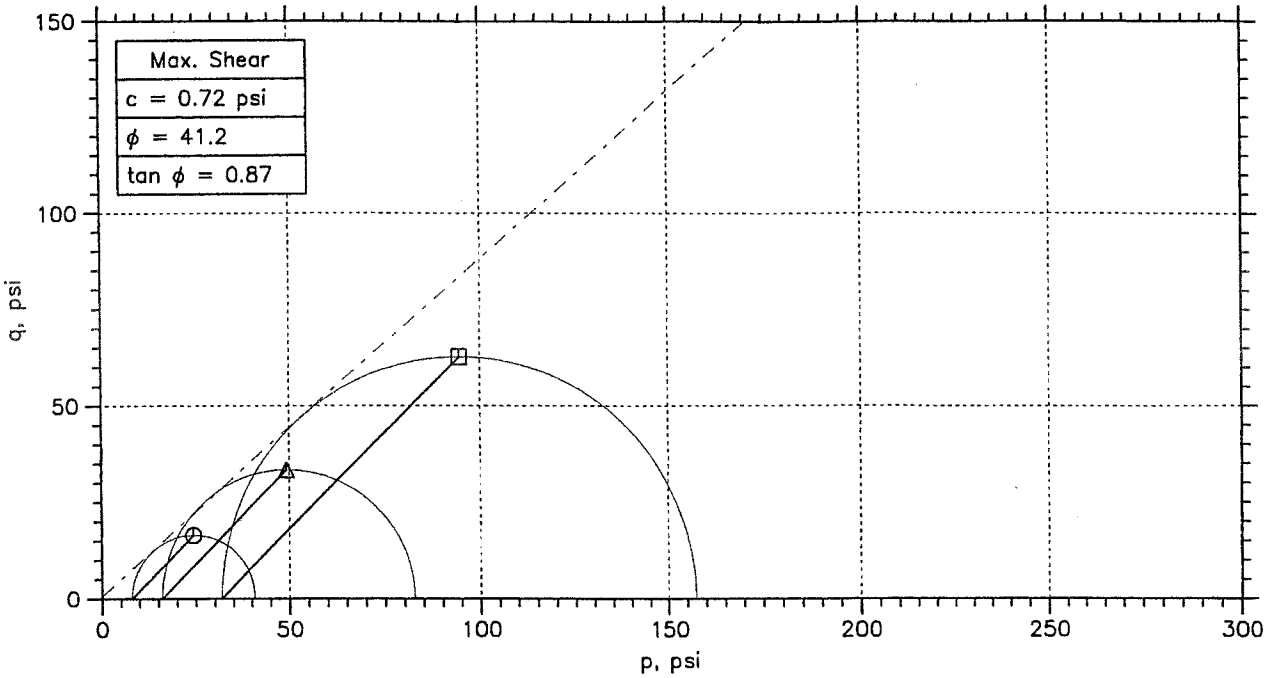
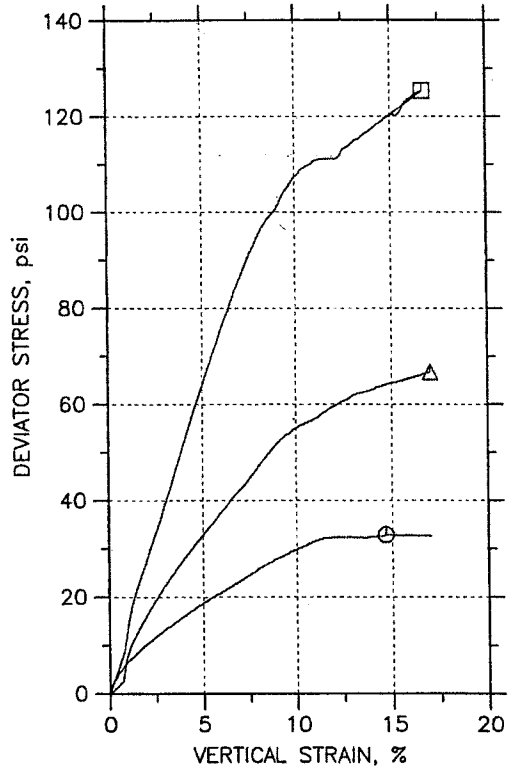
CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767





Symbol		⊙	△	⊡	
Sample No.		UD-3	UD-3	UD-3	
Test No.		6767.1	6767.2	6767.3	
Depth		20.5 ft.	21 ft.	21.5 ft.	
Initial	Diameter, in	2.869	2.857	2.84	
	Height, in	6	6	6	
	Water Content, %	18.9	17.0	15.3	
	Dry Density, pcf	103.5	106.4	110.9	
	Saturation, %	81.2	78.5	79.6	
	Void Ratio	0.629	0.584	0.52	
Before Shear	Water Content, %	21.3	19.8	17.5	
	Dry Density, pcf	107.	109.8	114.5	
	Saturation*, %	100.0	100.0	100.0	
	Void Ratio	0.575	0.535	0.472	
	Back Press., psi	77.	110.	83.99	
Ver. Eff. Cons. Stress, psi		7.998	15.99	32.01	
Shear Strength, psi		16.4	33.3	62.65	
Strain at Failure, %		14.7	17	16.7	
Strain Rate, %/min		0.1	0.1	0.1	
B-Value		0.95	0.98	0.95	
Estimated Specific Gravity		2.7	2.7	2.7	
Liquid Limit		---	---	---	
Plastic Limit		---	---	---	

Project: North Anna COL

Location: B-928A UD-3 @ 20-22'

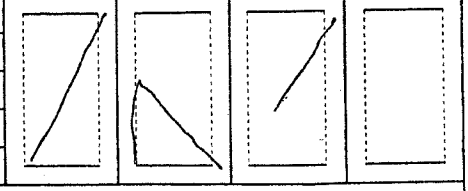
Project No.: 6468061472

Boring No.: B-928A

Sample Type: Shelby Tube

Description: Tan Silty Sand

Remarks: ASTM D 4767-04



Phase calculations based on start and end of test.

* Saturation is set to 100% for phase calculations.

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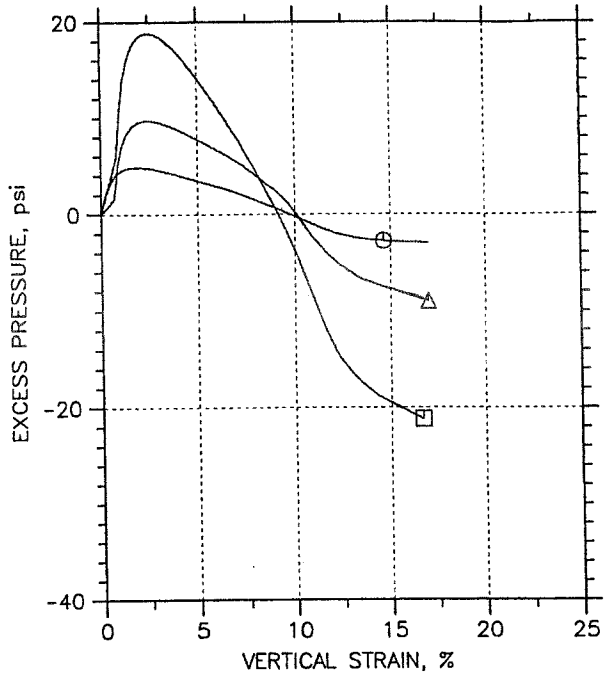
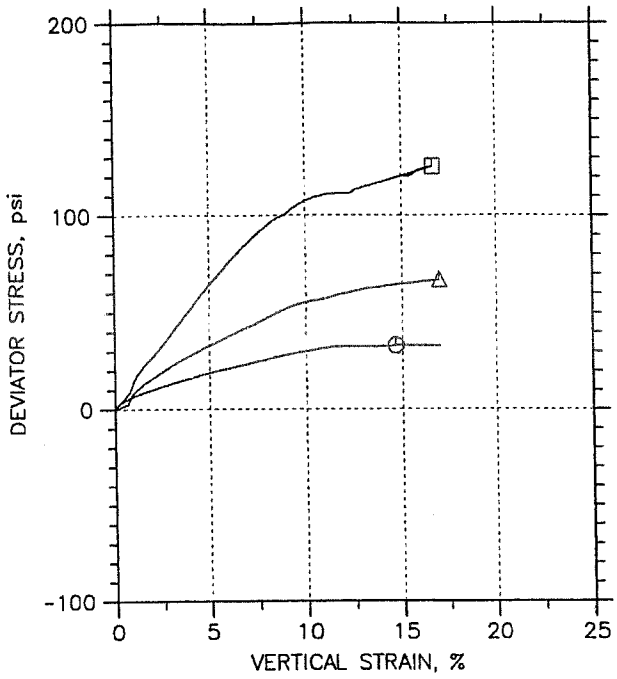
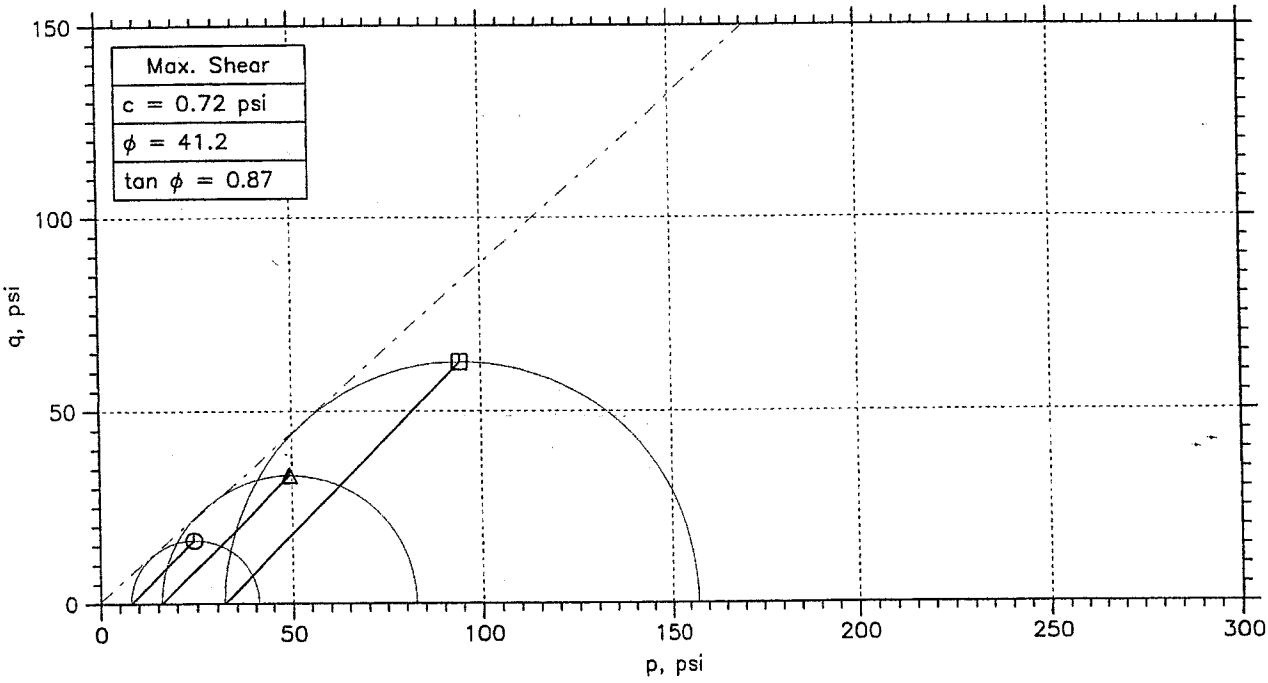
CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767







	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
⊙	UD-3	6767.1	20.5 ft.	HJ	12/6/06	JL	1/2/07	6767.1_65.dat
△	UD-3	6767.2	21 ft.	HJ	12/6/06	JL	1/2/07	6767.2_68.dat
⊡	UD-3	6767.3	21.5 ft.	HJ	12/6/06	JL	1/2/07	6767.3_71.dat

Project: North Anna COL	Location: B-928A UD-3 @ 20-22'	Project No.: 6468061472
Boring No.: B-928A	Sample Type: Shelby Tube	
Description: Tan Silty Sand		
Remarks: ASTM D 4767-04		

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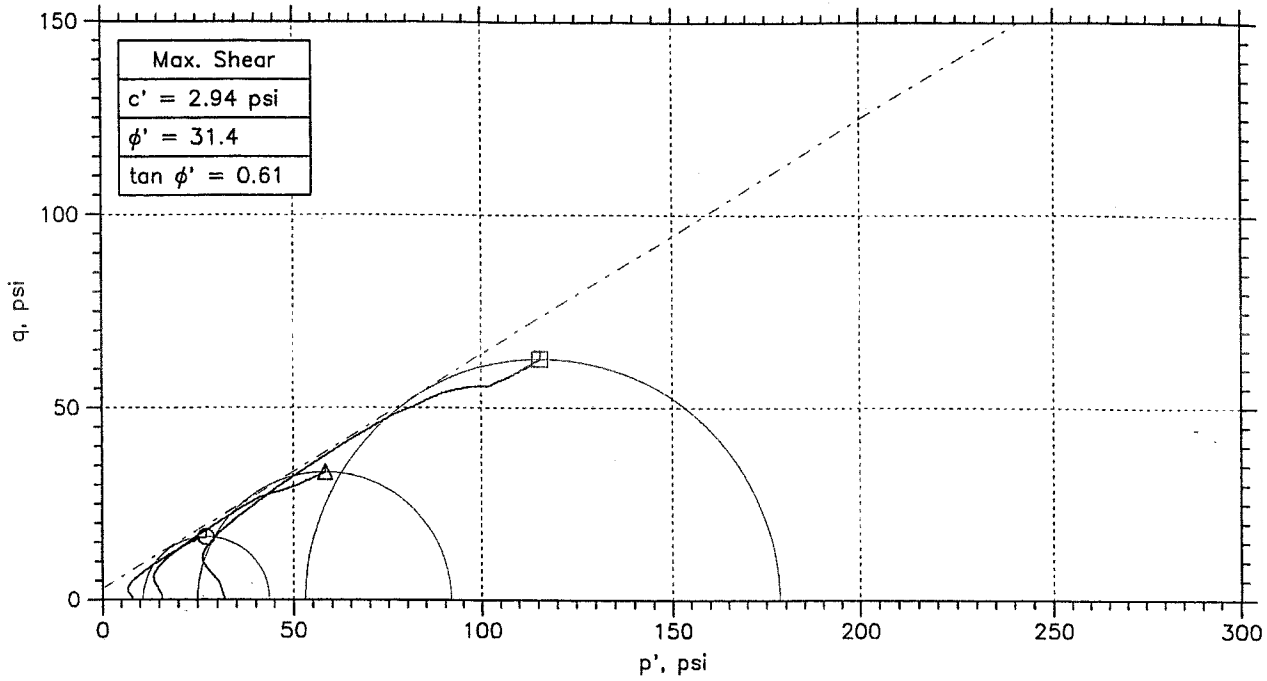
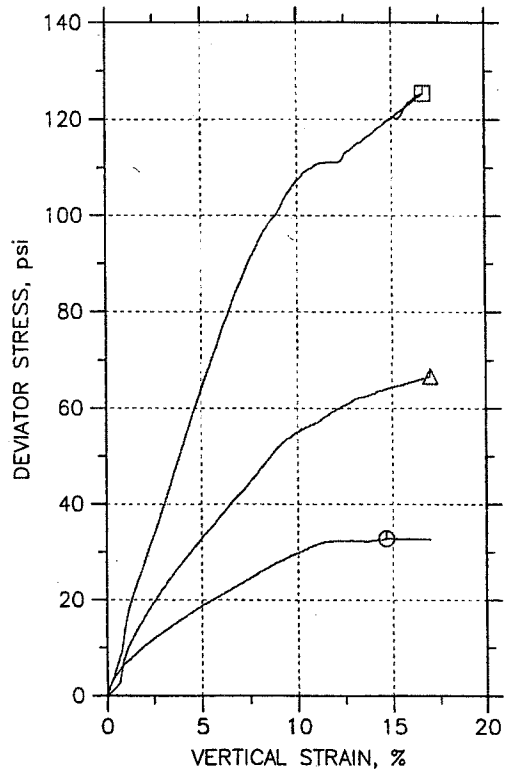
CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767





Symbol		⊙	△	⊡	
Sample No.		UD-3	UD-3	UD-3	
Test No.		6767.1	6767.2	6767.3	
Depth		20.5 ft.	21 ft.	21.5 ft.	
Initial	Diameter, in	2.869	2.857	2.84	
	Height, in	6	6	6	
	Water Content, %	18.9	17.0	15.3	
	Dry Density, pcf	103.5	106.4	110.9	
	Saturation, %	81.2	78.5	79.6	
	Void Ratio	0.629	0.584	0.52	
Before Shear	Water Content, %	21.3	19.8	17.5	
	Dry Density, pcf	107.	109.8	114.5	
	Saturation*, %	100.0	100.0	100.0	
	Void Ratio	0.575	0.535	0.472	
	Back Press., psi	77.	110.	83.99	
Ver. Eff. Cons. Stress, psi		7.998	15.99	32.01	
Shear Strength, psi		16.4	33.3	62.65	
Strain at Failure, %		14.7	17	16.7	
Strain Rate, %/min		0.1	0.1	0.1	
B-Value		0.95	0.98	0.95	
Estimated Specific Gravity		2.7	2.7	2.7	
Liquid Limit		---	---	---	
Plastic Limit		---	---	---	

Project: North Anna COL

Location: B-928A UD-3 @ 20-22'

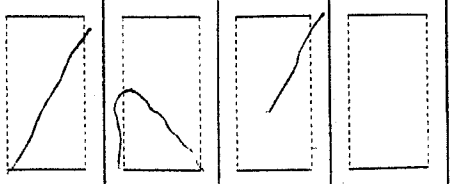
Project No.: 6468061472

Boring No.: B-928A

Sample Type: Shelby Tube

Description: Tan Silty Sand

Remarks: ASTM D 4767-04



Phase calculations based on start and end of test.

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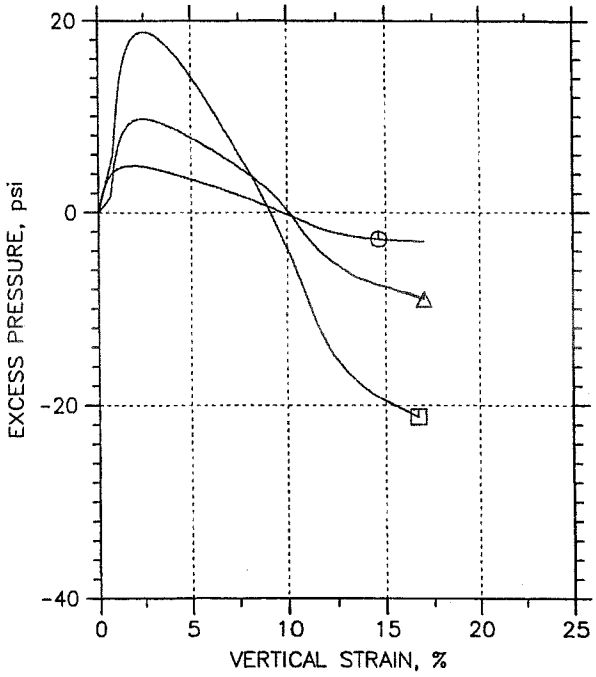
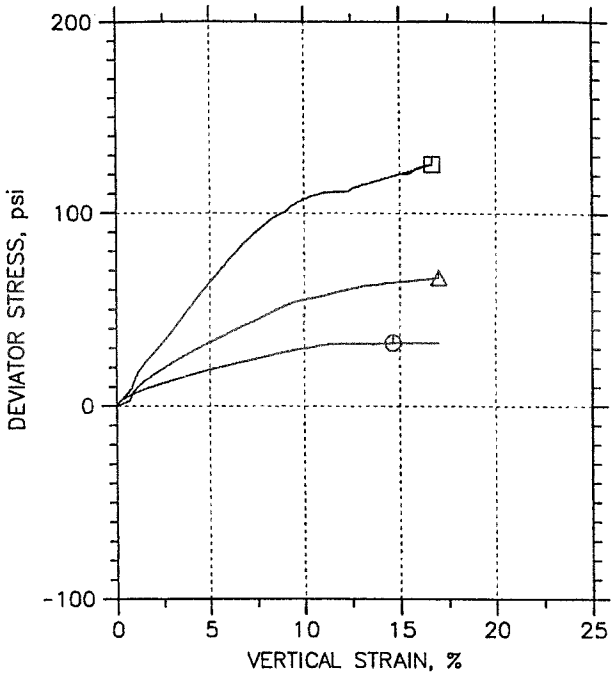
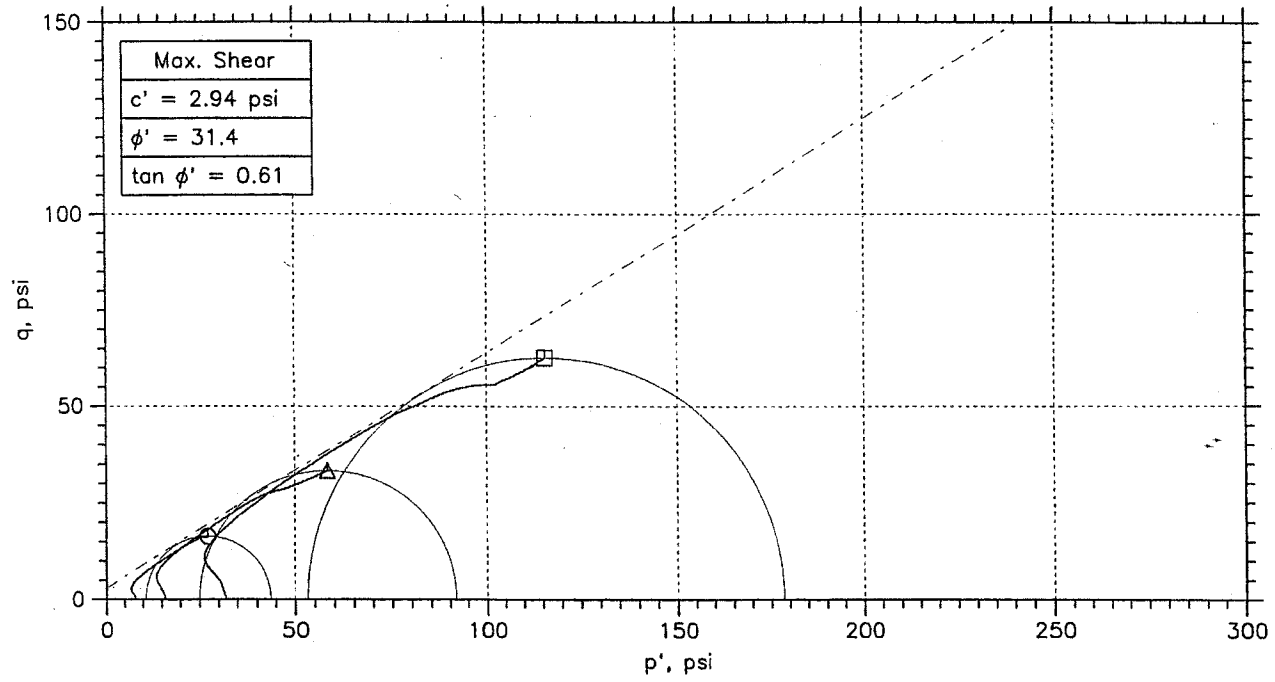
* Saturation is set to 100% for phase calculations.

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767







	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
⊙	UD-3	6767.1	20.5 ft.	HJ	12/6/06	JL	1/2/07	6767.1_65.dat
△	UD-3	6767.2	21 ft.	HJ	12/6/06	JL	1/2/07	6767.2_68.dat
⊡	UD-3	6767.3	21.5 ft.	HJ	12/6/06	JL	1/2/07	6767.3_71.dat

Project: North Anna COL	Location: B-928A UD-3 @ 20-22'	Project No.: 6468061472
Boring No.: B-928A	Sample Type: Shelby Tube	
Description: Tan Silty Sand		
Remarks: ASTM D 4767-04		

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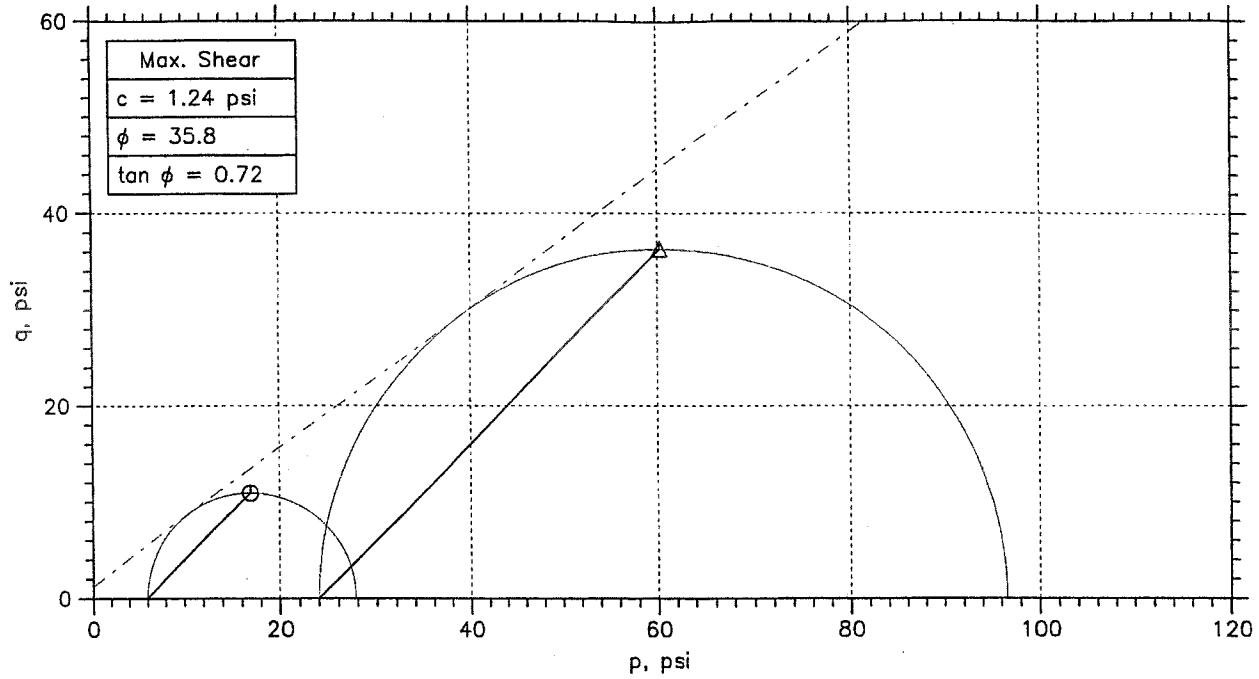
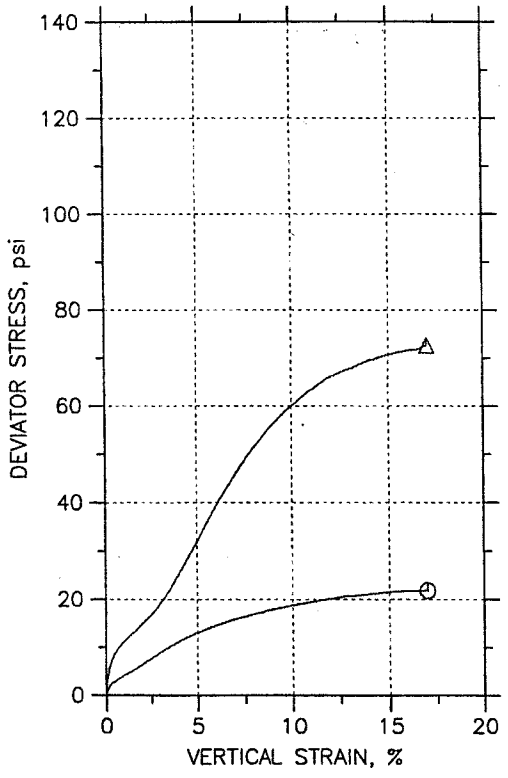
CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767





Symbol		⊙	△		
Sample No.		UD-1	UD-1		
Test No.		6768.1	6768.2		
Depth		15.5 ft.	16 ft.		
Initial	Diameter, in	2.872	2.853		
	Height, in	5.6	6		
	Water Content, %	13.5	12.4		
	Dry Density, pcf	93.03	99.21		
	Saturation, %	45.0	47.8		
	Void Ratio	0.812	0.699		
Before Shear	Water Content, %	25.1	21.2		
	Dry Density, pcf	100.5	107.2		
	Saturation*, %	100.0	100.0		
	Void Ratio	0.677	0.572		
	Back Press., psi	104.9	109.9		
Ver. Eff. Cons. Stress, psi		5.997	24.		
Shear Strength, psi		10.89	36.27		
Strain at Failure, %		17	17		
Strain Rate, %/min		0.1	0.1		
B-Value		0.95	0.95		
Estimated Specific Gravity		2.7	2.7		
Liquid Limit		---	---		
Plastic Limit		---	---		

Project: North Anna COL

Location: B-929A UD-1@ 15-16.75'

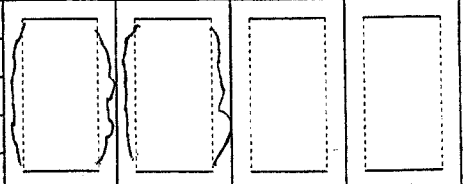
Project No.: 6468061472

Boring No.: B-929A

Sample Type: Shelby Tube

Description: Gray Silty Sand

Remarks: ASTM D 4767-04



Phase calculations based on start and end of test.

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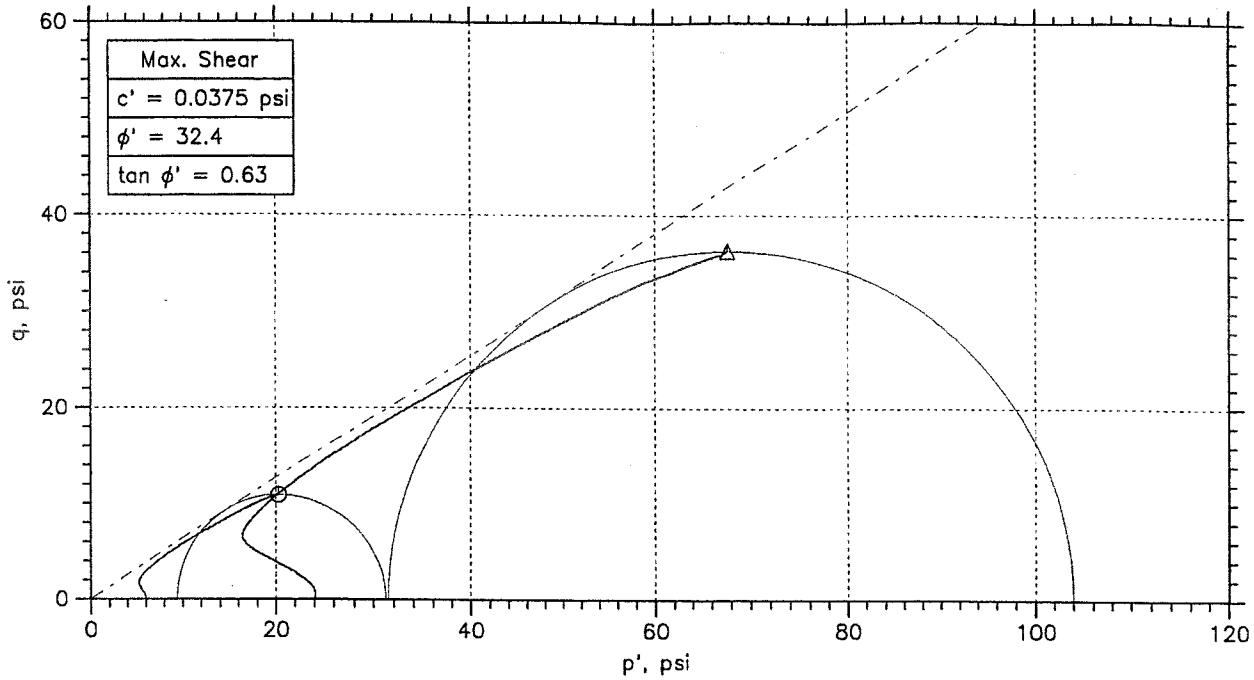
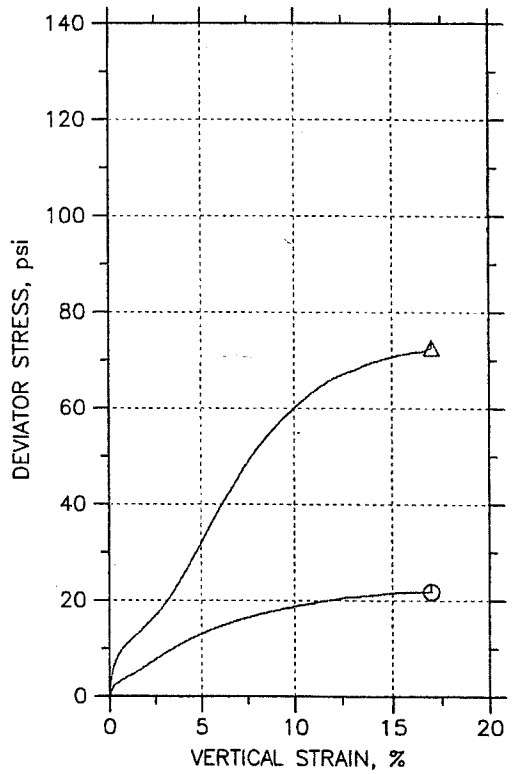
* Saturation is set to 100% for phase calculations.

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767





Symbol		⊙	△		
Sample No.		UD-1	UD-1		
Test No.		6768.1	6768.2		
Depth		15.5 ft.	16 ft.		
Initial	Diameter, in	2.872	2.853		
	Height, in	5.6	6		
	Water Content, %	13.5	12.4		
	Dry Density, pcf	93.03	99.21		
	Saturation, %	45.0	47.8		
	Void Ratio	0.812	0.699		
Before Shear	Water Content, %	25.1	21.2		
	Dry Density, pcf	100.5	107.2		
	Saturation*, %	100.0	100.0		
	Void Ratio	0.677	0.572		
	Back Press., psi	104.9	109.9		
Ver. Eff. Cons. Stress, psi		5.997	24.		
Shear Strength, psi		10.89	36.27		
Strain at Failure, %		17	17		
Strain Rate, %/min		0.1	0.1		
B-Value		0.95	0.95		
Estimated Specific Gravity		2.7	2.7		
Liquid Limit		---	---		
Plastic Limit		---	---		

Project: North Anna COL

Location: B-929A UD-1@ 15-16.75'

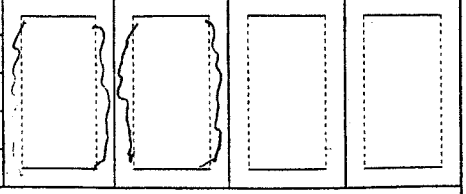
Project No.: 6468061472

Boring No.: B-929A

Sample Type: Shelby Tube

Description: Gray Silty Sand

Remarks: ASTM D 4767-04



Phase calculations based on start and end of test.

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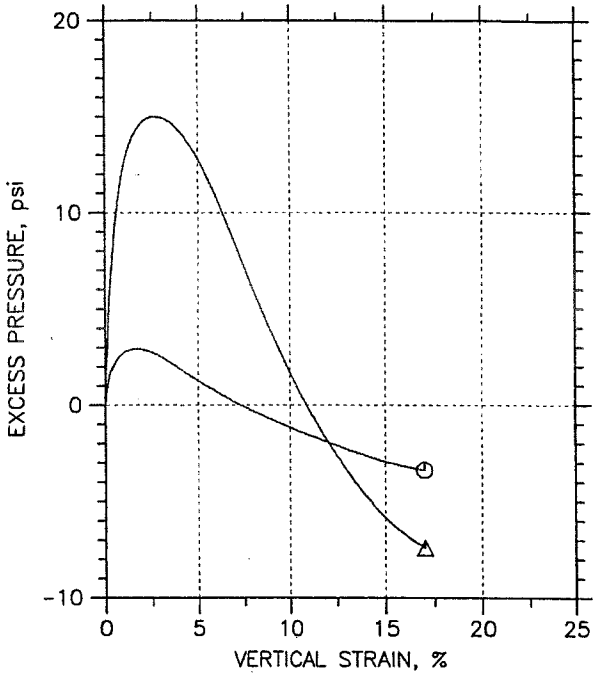
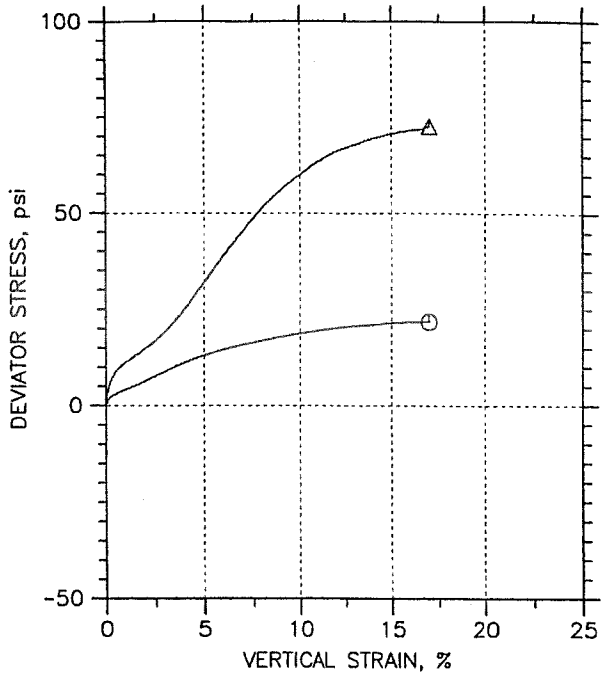
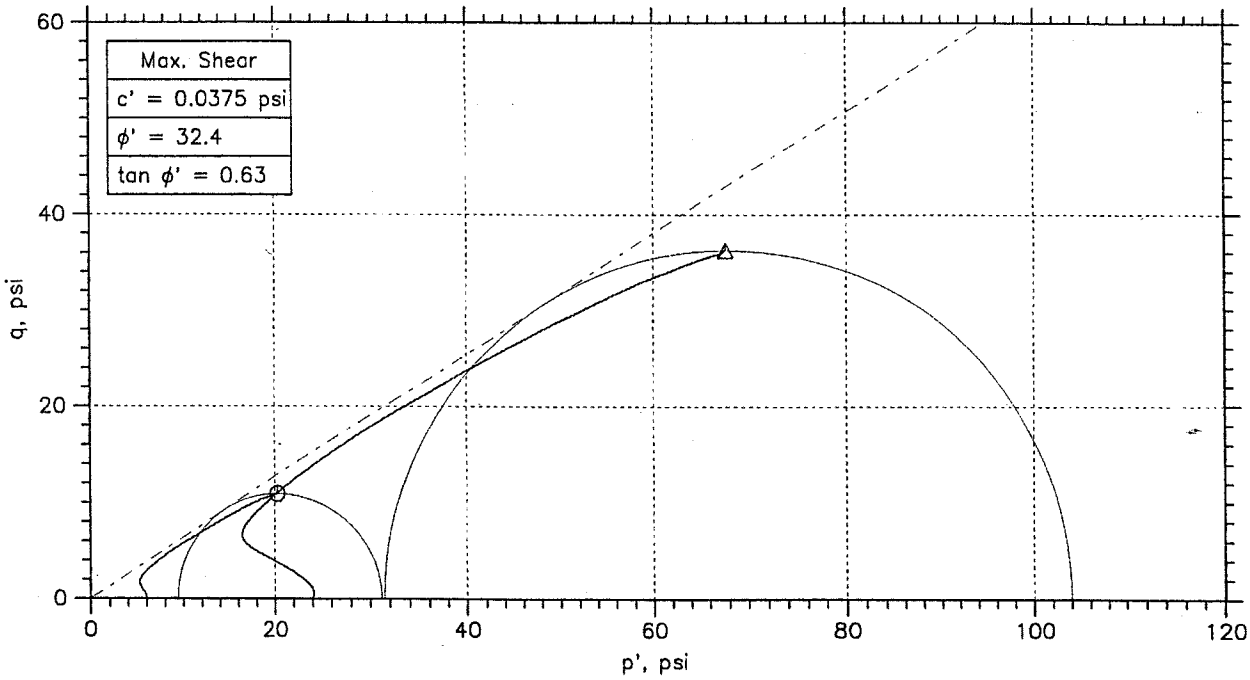
* Saturation is set to 100% for phase calculations.

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767







	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
⊙	UD-1	6768.1	15.5 ft.	HJ	12/7/06	JL	1/2/07	6768.1_65.dat
△	UD-1	6768.2	16 ft.	HJ	12/6/06	JL	1/2/07	6768.2_68.dat

Project: North Anna COL	Location: B-929A UD-1@ 15-16.7	Project No.: 6468061472
Boring No.: B-929A	Sample Type: Shelby Tube	
Description: Gray Silty Sand		
Remarks: ASTM D 4767-04		

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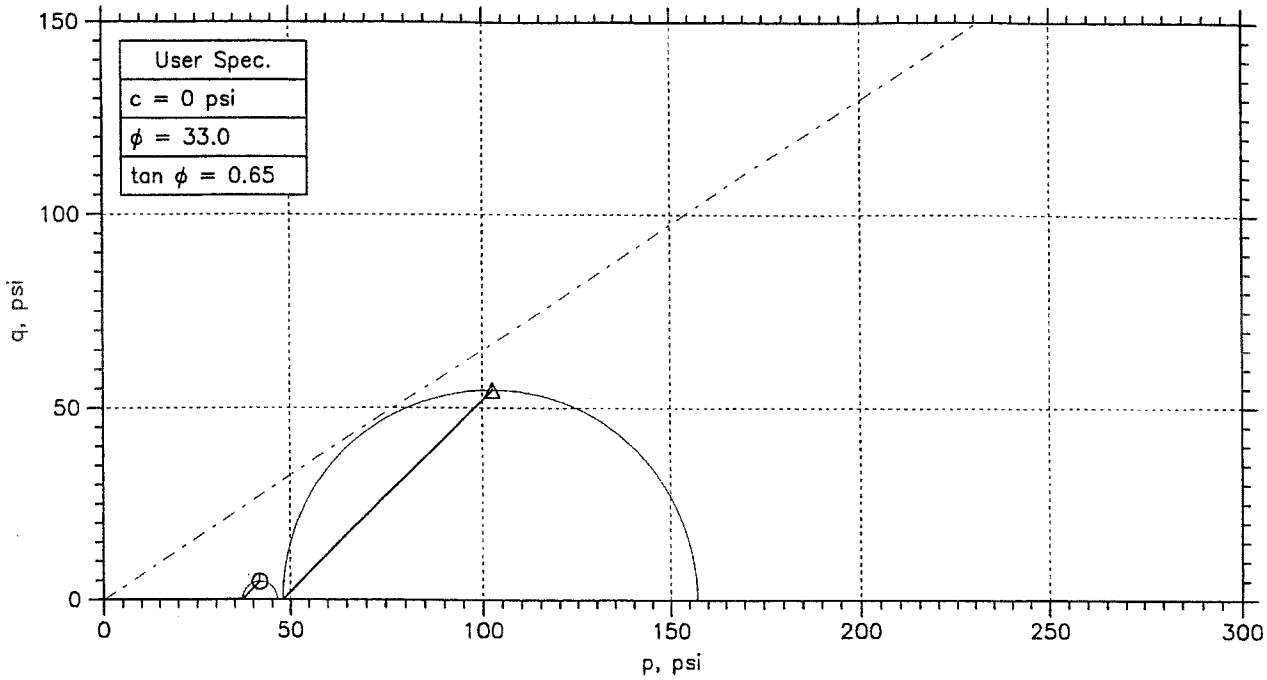
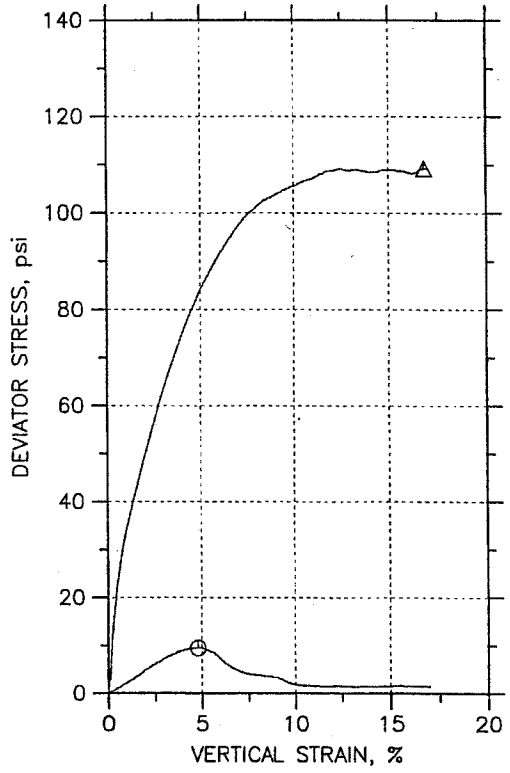
CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767





Symbol		⊙	△		
Sample No.		UD-4	UD-4		
Test No.		6769.3	6769.1		
Depth		31 ft.	30.5 ft.		
Initial	Diameter, in	2.89	2.89		
	Height, in	6	6		
	Water Content, %	19.2	16.9		
	Dry Density, pcf	99.37	104.5		
	Saturation, %	74.6	74.7		
	Void Ratio	0.696	0.613		
Before Shear	Water Content, %	28.5	17.4		
	Dry Density, pcf	95.09	114.7		
	Saturation*, %	99.7	100.0		
	Void Ratio	0.773	0.47		
	Back Press., psi	1.352	105.		
Ver. Eff. Cons. Stress, psi		27.48	48.		
Shear Strength, psi		4.731	54.58		
Strain at Failure, %		4.79	16.8		
Strain Rate, %/min		0.1	0.1		
B-Value		1.12	0.97		
Estimated Specific Gravity		2.7	2.7		
Liquid Limit		---	---		
Plastic Limit		---	---		

Project: North Anna COL

Location: B-929A UD-4 @ 30-31.5'

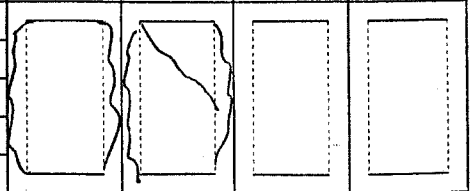
Project No.: 6468061472

Boring No.: B-929A

Sample Type: Shelby Tube

Description: Light Gray Silty Sand

Remarks: ASTM D 4767-04



Phase calculations based on start and end of test.

* Saturation is set to 100% for phase calculations.

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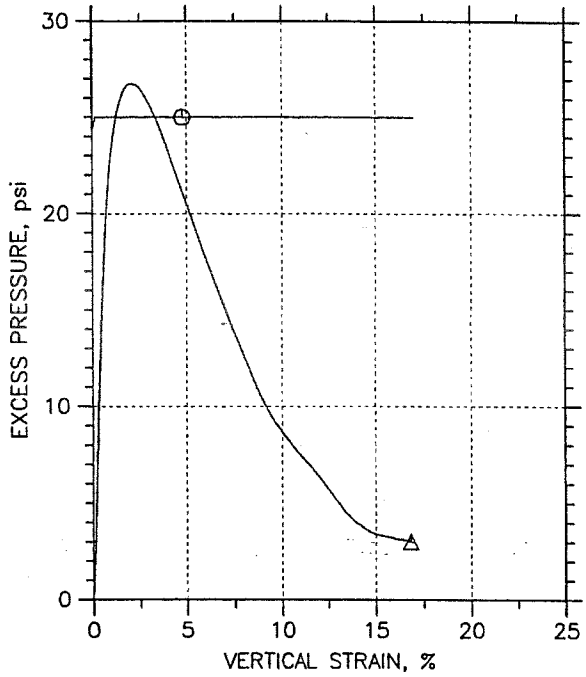
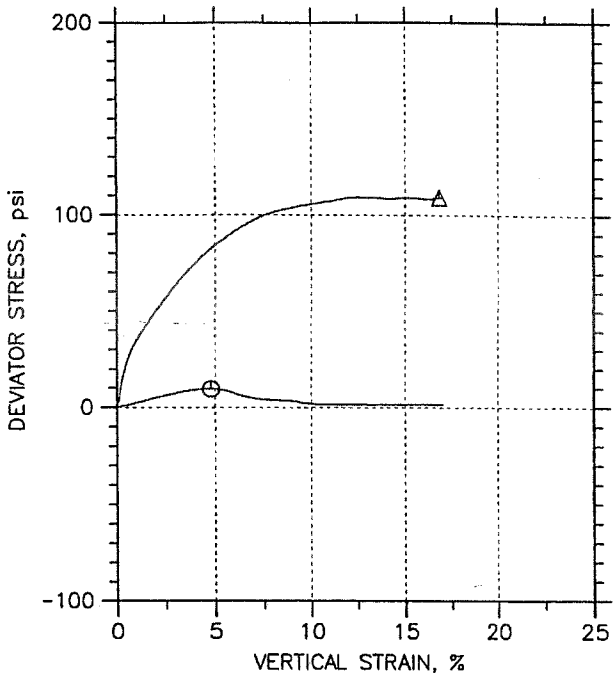
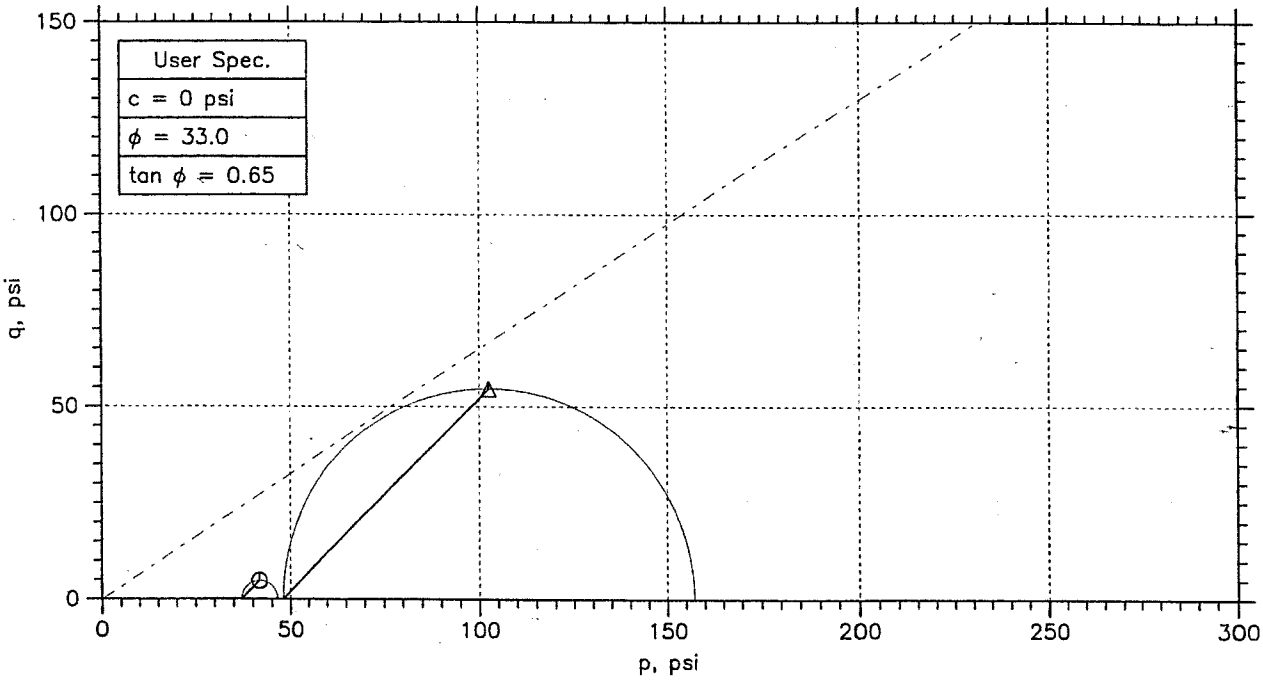
CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767







	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
⊙	UD-4	6769.3	31 ft.	HJ	12/6/06	JL	1/24/07	6769.3_71.dat
△	UD-4	6769.1	30.5 ft.	HJ	12/07/06	JL	1/24/07	6769.1_96.dat

Project: North Anna COL	Location: B-929A UD-4 @ 30-31.5	Project No.: 6468061472
Boring No.: B-929A	Sample Type: Shelby Tube	
Description: Light Gray Silty Sand		
Remarks: ASTM D 4767-04		

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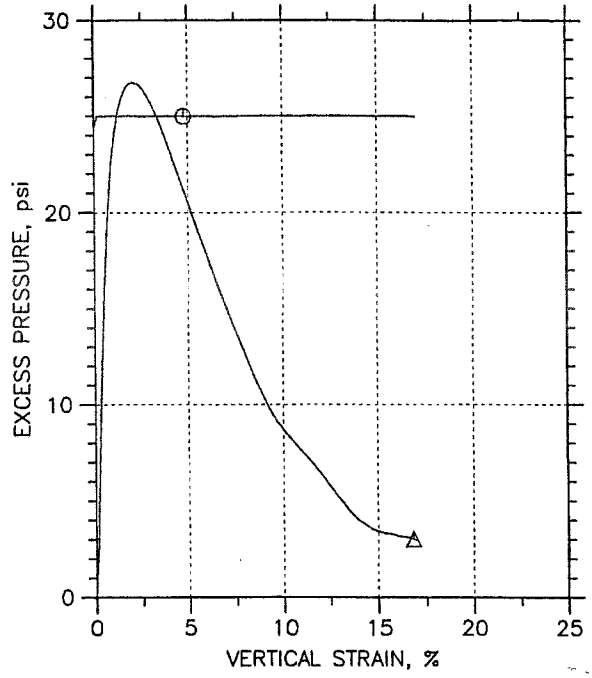
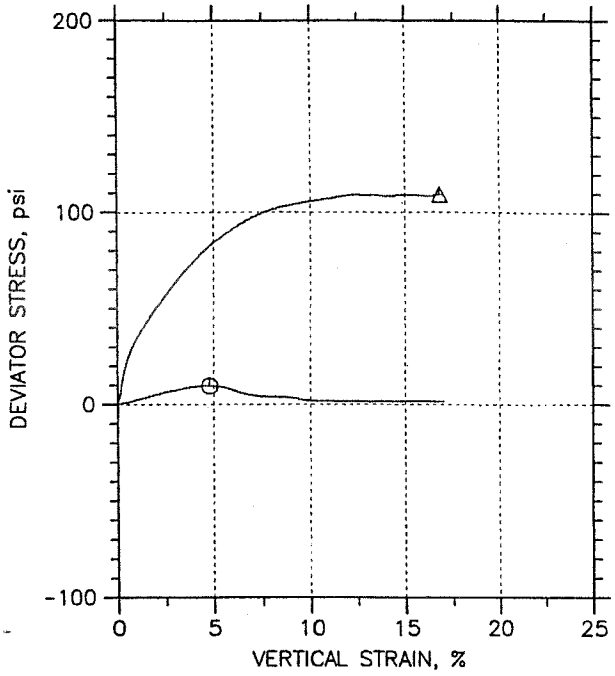
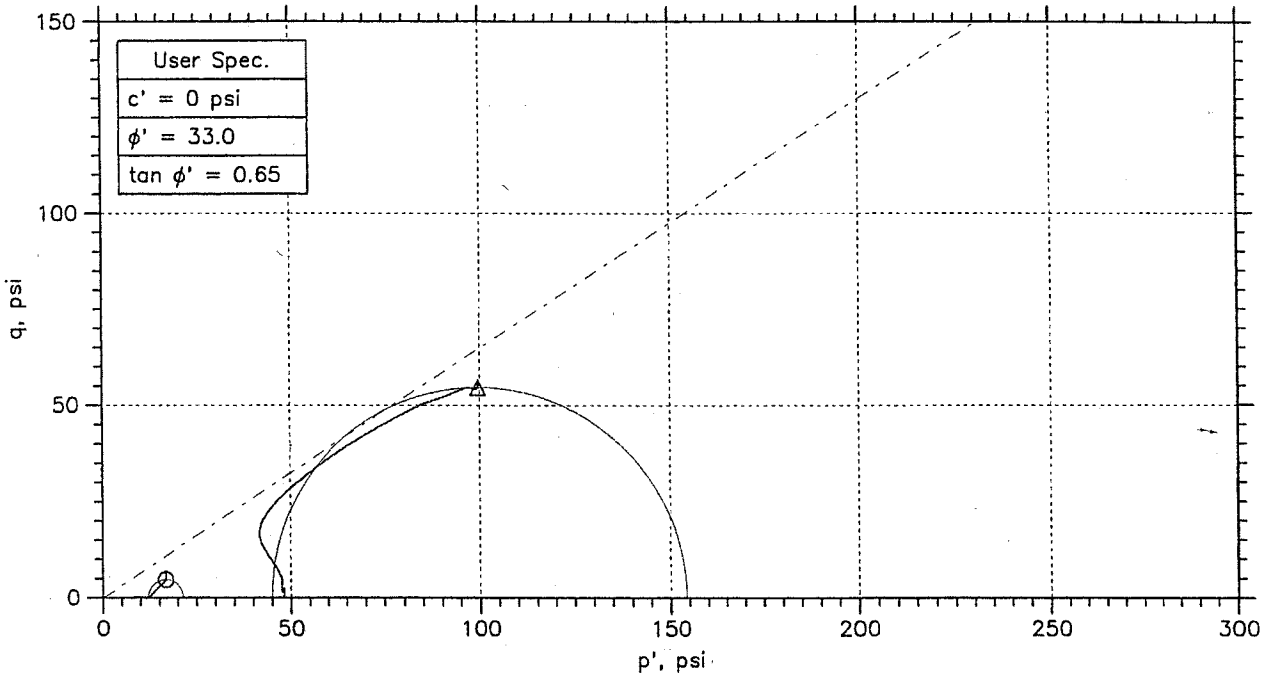
CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767







	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
⊙	UD-4	6769.3	31 ft.	HJ	12/6/06	JL	1/2/07	6769.3_71.dat
△	UD-4	6769.1	30.5 ft.	HJ	12/07/06	JL	1/2/07	6769.1_96.dat

Project: North Anna COL	Location: B-929A UD-4 @ 30-31.5	Project No.: 6468061472
Boring No.: B-929A	Sample Type: Shelby Tube	
Description: Light Gray Silty Sand		
Remarks: ASTM D 4767-04		

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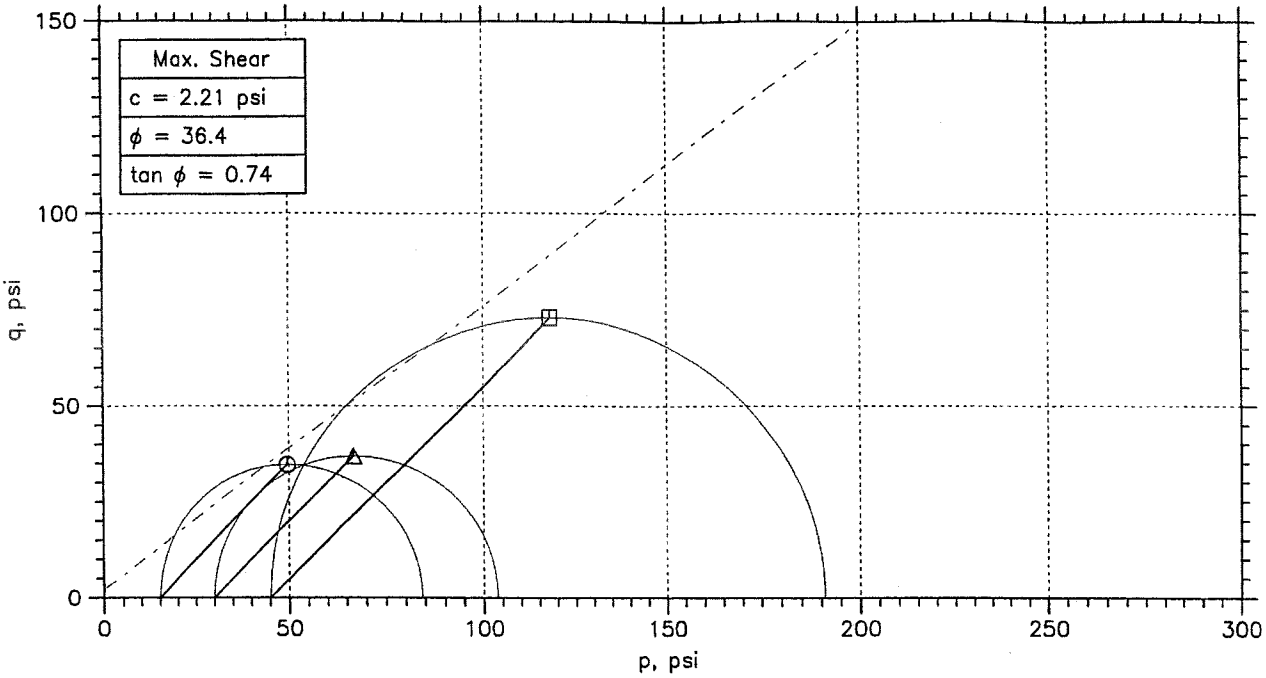
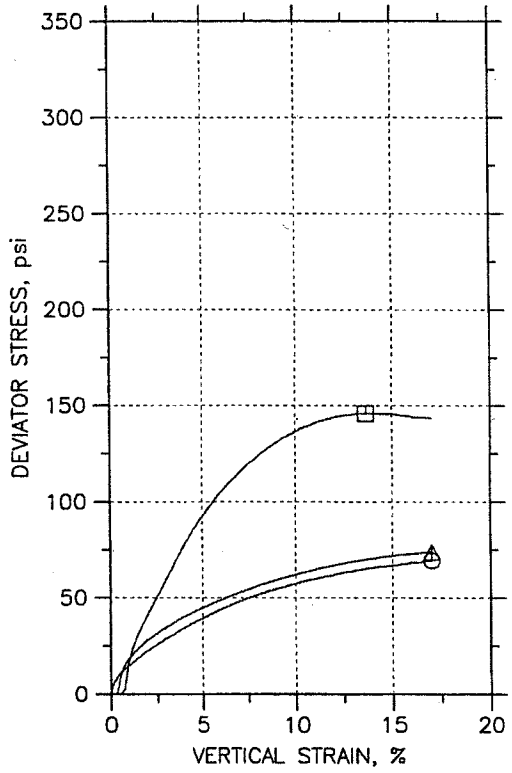
CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767





Symbol		⊙	△	⊡	
Sample No.		UD-6	UD-6	UD-6	
Test No.		6770.1	6770.1	6770.3	
Depth		40.5 ft.	41 ft	42 ft.	
Initial	Diameter, in	2.875	2.882	2.865	
	Height, in	5.6	6	6	
	Water Content, %	18.7	19.0	16.5	
	Dry Density, pcf	103.5	101.3	107.1	
	Saturation, %	80.1	77.5	77.7	
	Void Ratio	0.629	0.664	0.575	
Before Shear	Water Content, %	21.2	21.1	18.5	
	Dry Density, pcf	107.2	107.4	112.3	
	Saturation*, %	100.0	100.0	100.0	
	Void Ratio	0.572	0.569	0.501	
	Back Press., psi	105.	105.	89.99	
Ver. Eff. Cons. Stress, psi		15.	30.01	45.12	
Shear Strength, psi		34.61	36.82	72.89	
Strain at Failure, %		17	17	13.7	
Strain Rate, %/min		0.1	0.1	0.1	
B-Value		0.98	0.98	0.98	
Estimated Specific Gravity		2.7	2.7	2.7	
Liquid Limit		---	---	---	
Plastic Limit		---	---	---	

Project: North Anna COL

Location: B-929A UD-6 @ 40-41.5

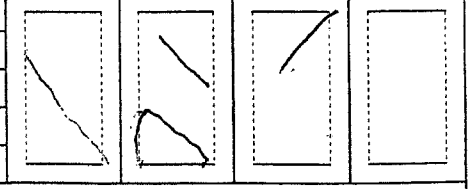
Project No.: 6468061472

Boring No.: B-929A

Sample Type: Shelby Tube

Description: Tan Silty Sand

Remarks: ASTM D 4767-04



Phase calculations based on start and end of test.

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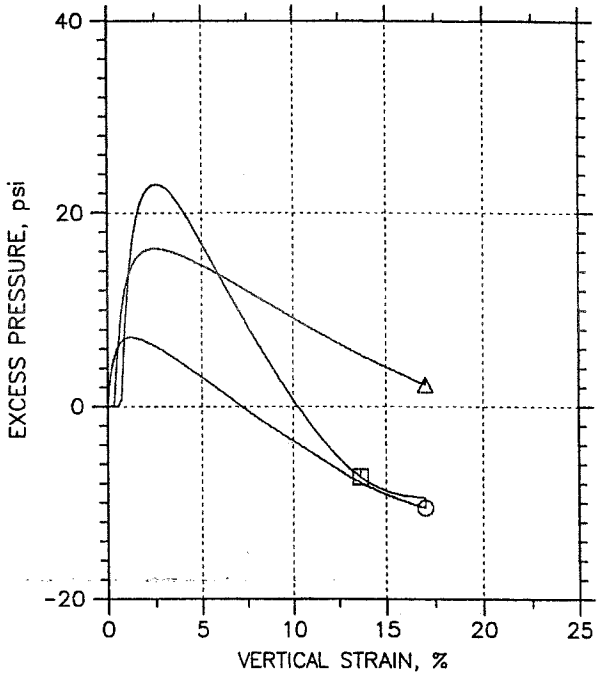
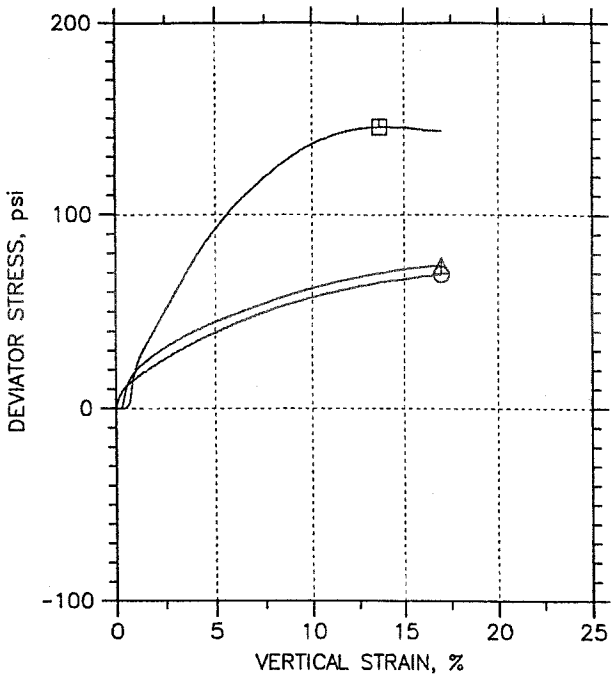
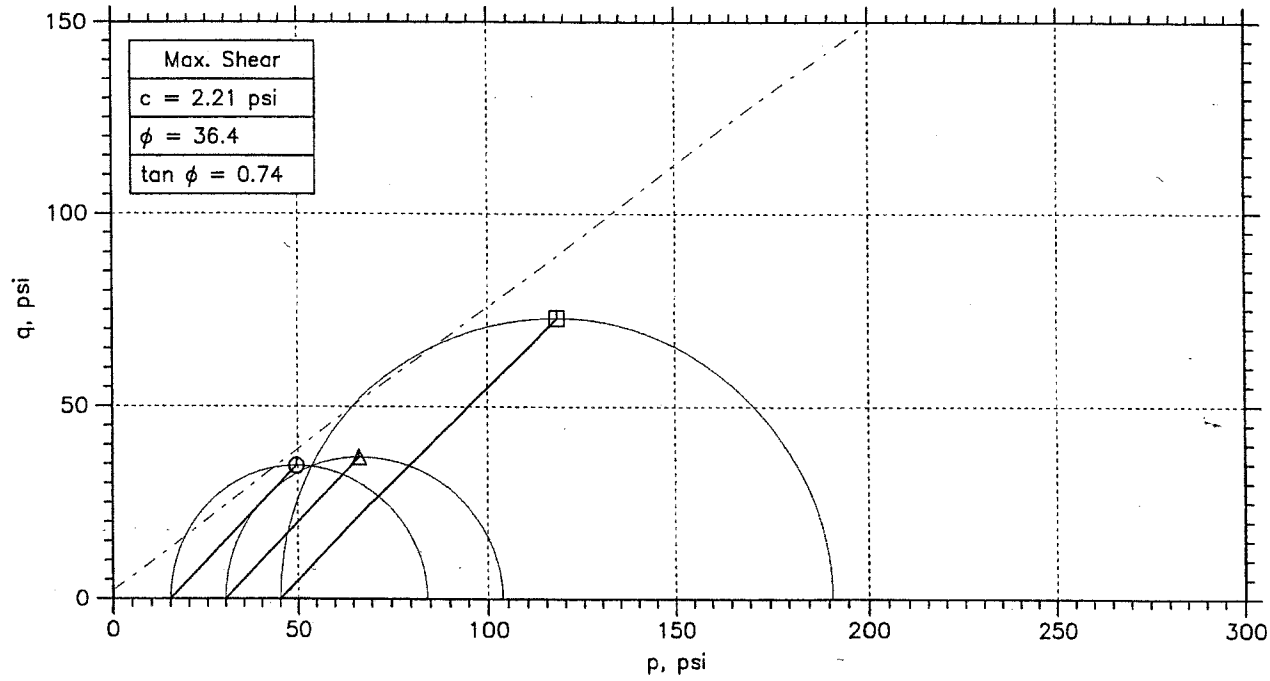
* Saturation is set to 100% for phase calculations.

CONSOLIDATED UNDRAINED TRIAXIAL TEST by ASTM D4767







	Sample No.	Test No.	Depth	Tested By	Test Date	Checked By	Check Date	Test File
⊙	UD-6	6770.1	40.5 ft.	HJ	12/10/06	JL	1/2/07	6770.1_96.dat
△	UD-6	6770.1	41 ft	HJ	12/10/06	JL	1/2/07	6770.2_93.dat
⊡	UD-6	6770.3	42 ft.	HJ	12/10/06	JL	1/2/07	6770.3a_90.dat

Project: North Anna COL	Location: B-929A UD-6 @ 40-41.5	Project No.: 6468061472
Boring No.: B-929A	Sample Type: Shelby Tube	
Description: Tan Silty Sand		
Remarks: ASTM D 4767-04		

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