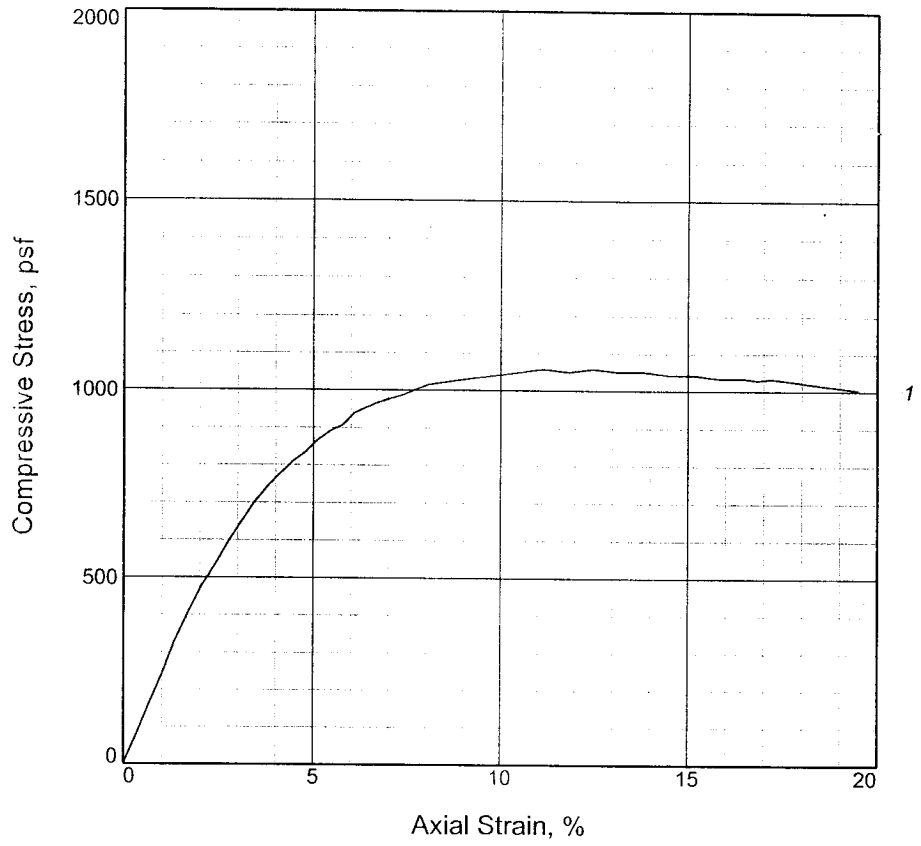
UNCONFINED COMPRESSION TEST



Specimen No.	1			
Unconfined strength, psf	1056.7			
Undrained shear strength, psf	528.4			
Failure strain, %	11.2			
Strain rate, in./min.	0.059			
Water content, %	47.9			
Wet density, pcf	101.6			
Dry density, pcf	68.7			
Saturation, %	88.6			
Void ratio	1.4710			
Specimen diameter, in.	1.388			
Specimen height, in.	2.930			
Height/diameter ratio	2.11			

Description: M GR CH3 W/ ARS SM

LL =	PL =	PI =	**Assumed GS=** 2.72	**Type:** UNDISTURBED

Project No.: 19082
Date: 12/06/05

Remarks:
TORVANE = 0.250 TSF

Client: URS Corporation

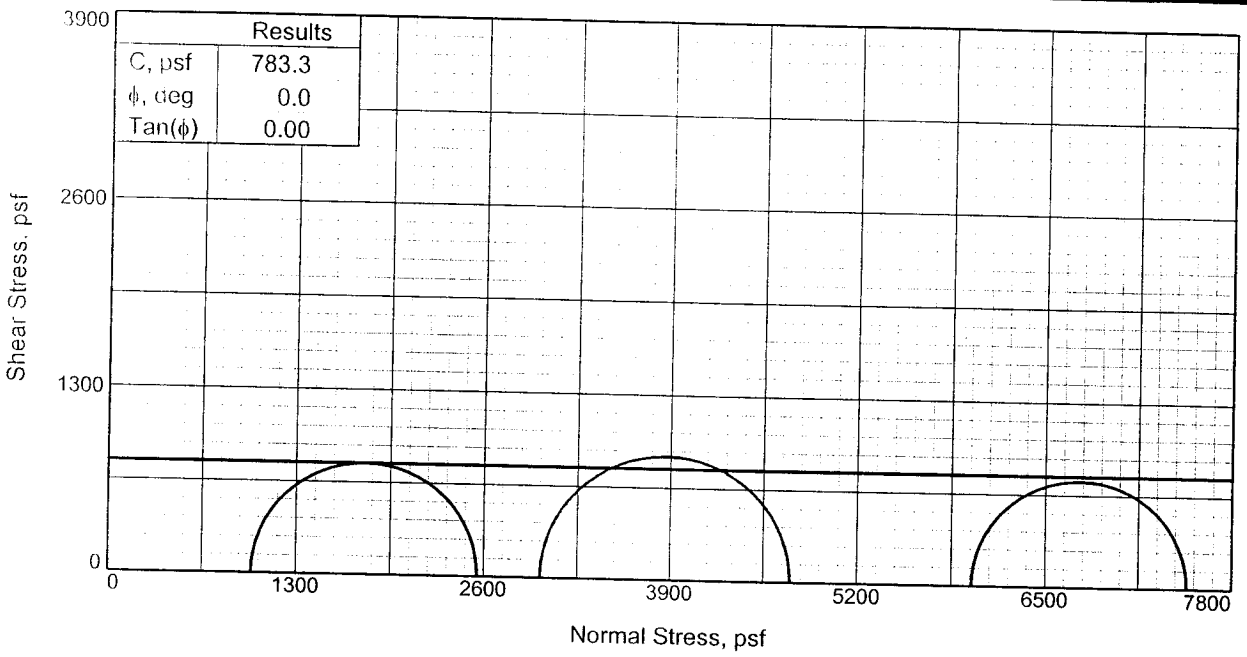
Project: U.S. Army Corps of Engineers
Inner Harbor Navigational Canal
Source of Sample: IHNC-TFG-4U **Depth:** 15.8
Sample Number: 1B

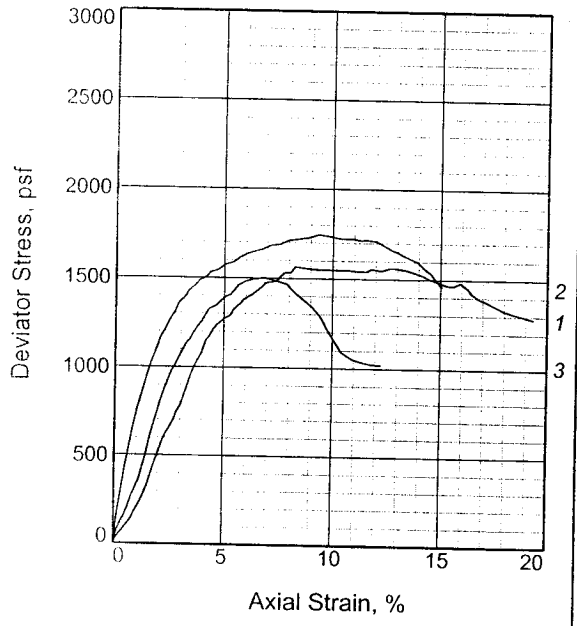
UNCONFINED COMPRESSION TEST

Figure 1

EUSTIS ENGINEERING COMPANY, INC.

Tested By: ZH **Checked By:** DP





Specimen No.		1	2	3
Initial	Water Content,	52.9	51.5	52.1
	Dry Density, pcf	67.4	68.5	68.3
	Saturation,	94.7	94.9	95.2
	Void Ratio	1.5203	1.4776	1.4867
	Diameter, in.	1.388	1.388	1.388
	Height, in.	2.930	2.930	2.930
At Test	Water Content,	55.8	54.2	54.6
	Dry Density, pcf	67.4	68.6	68.3
	Saturation,	100.0	100.0	100.0
	Void Ratio	1.5177	1.4750	1.4847
	Diameter, in.	1.388	1.388	1.388
	Height, in.	2.929	2.929	2.929
Strain rate, in./min.		0.029	0.029	0.029
Back Pressure, psf		0.0	0.0	0.0
Cell Pressure, psf		993.6	2995.2	5990.4
Fail. Stress, psf		1563.5	1743.4	1500.0
Ult. Stress, psf		1282.3	1455.8	1019.0
σ_1 Failure, psf		2557.1	4738.6	7490.4
σ_3 Failure, psf		993.6	2995.2	5990.4

Type of Test:
Unconsolidated Undrained
Sample Type: UNDISTURBED
Description: M GR CH4 W/ ARS SM, TR-WD

LL= 90 **PL=** 24 **PI=** 66
Assumed Specific Gravity= 2.72
Remarks: TORVANE = 0.400 TSF

Client: URS Corporation

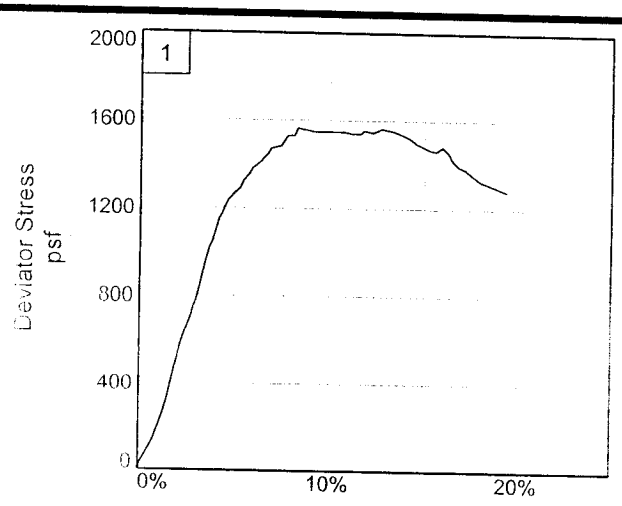
Project: U.S. Army Corps of Engineers
Inner Harbor Navigational Canal
Source of Sample: IHNC-TFG-4U **Depth:** 19.8
Sample Number: 2B
Proj. No.: 19082 **Date:** 12-6-05

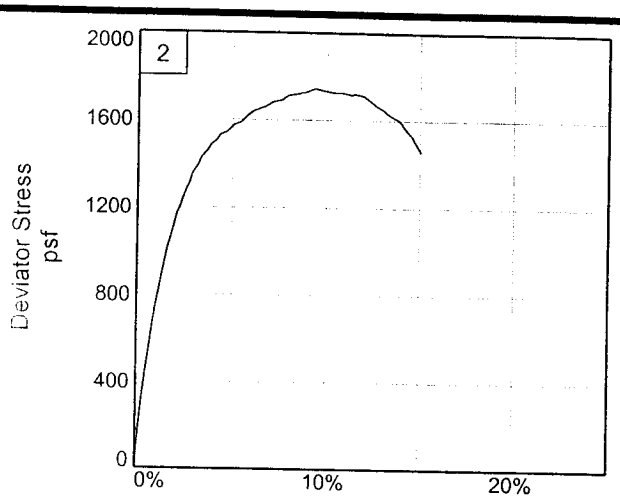
TRIAXIAL SHEAR TEST REPORT

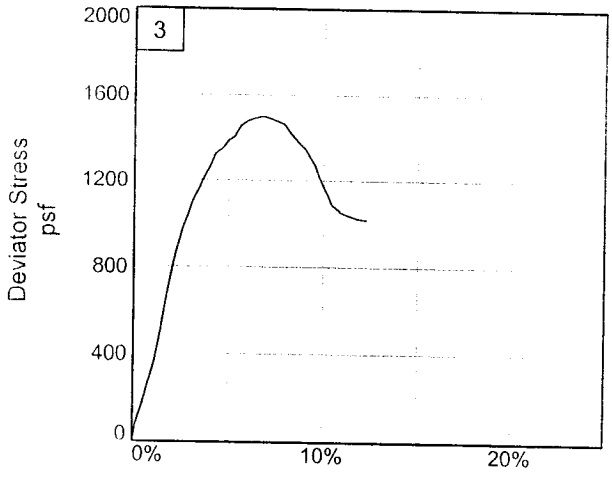
EUSTIS ENGINEERING COMPANY, INC.

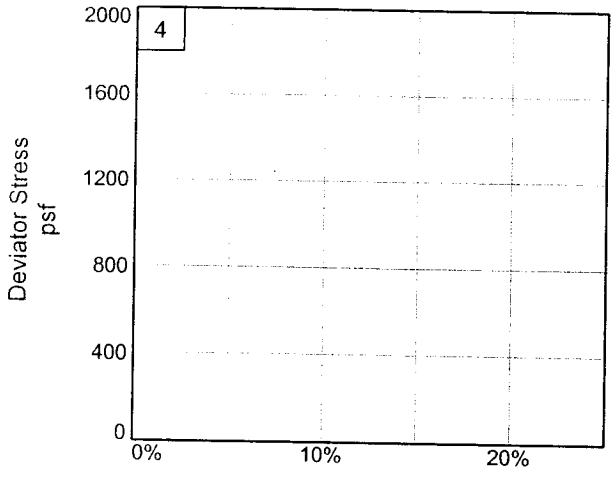
Figure 1

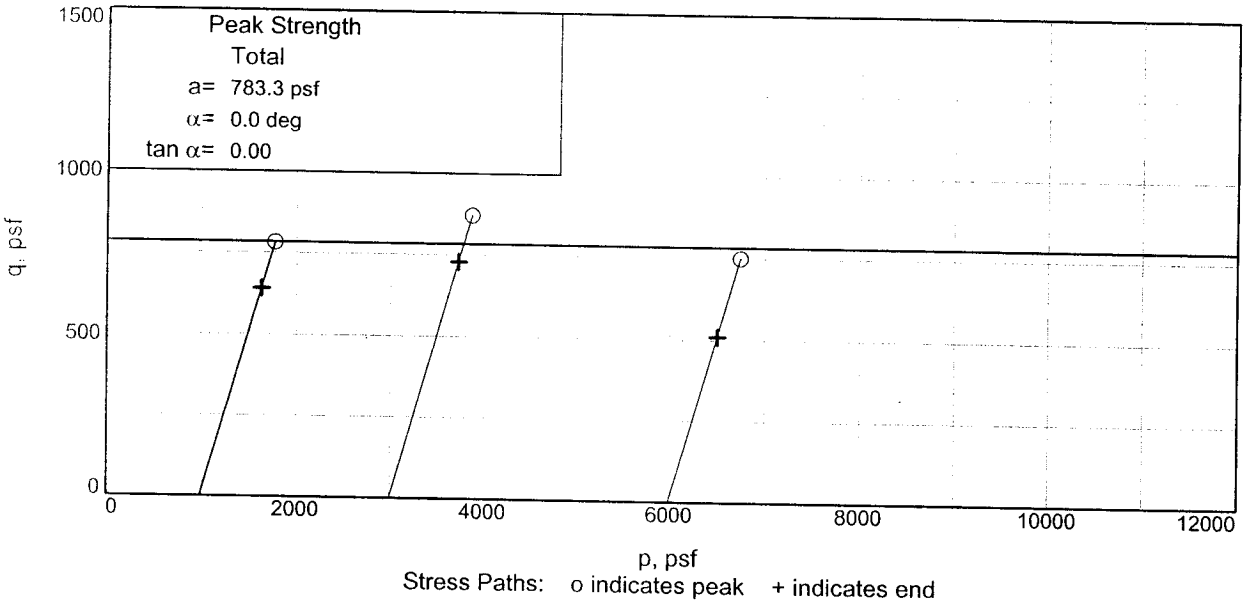
Tested By: ZH **Checked By:** JS











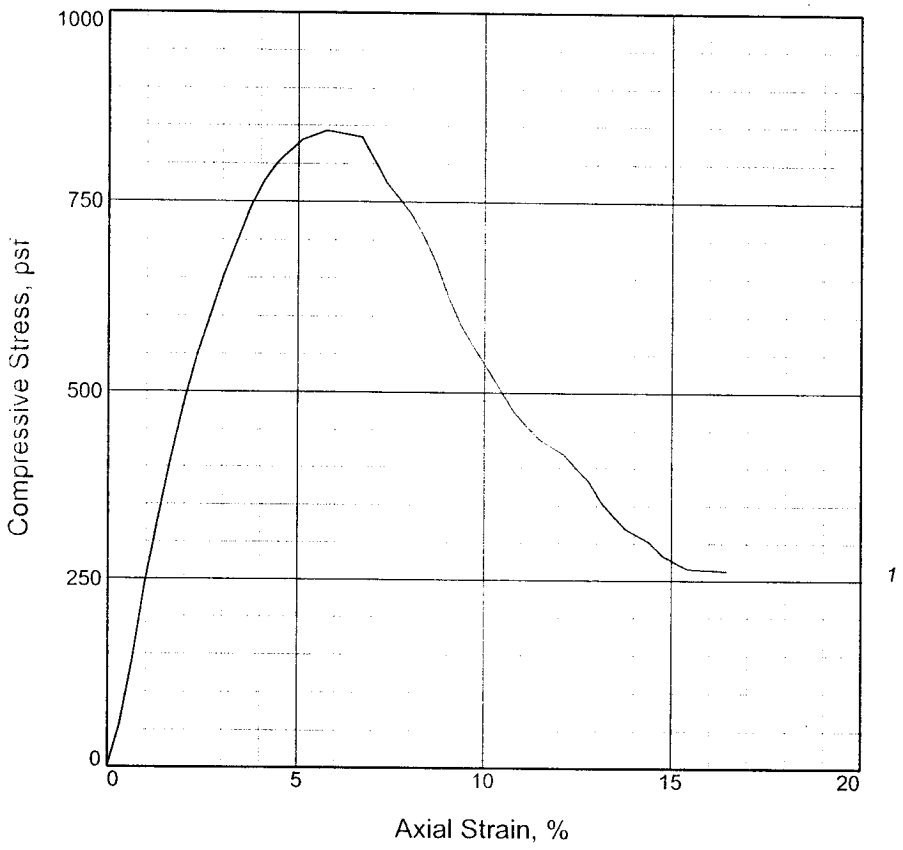
Stress Paths: o indicates peak + indicates end

Client: URS Corporation
Project: U.S. Army Corps of Engineers
Source of Sample: IHNC-TFG-4U **Depth:** 19.8 **Sample Number:** 2B
Project No.: 19082 **Figure** 2

EUSTIS ENGINEERING COMPANY, INC.

Tested By: ZH **Checked By:** JS

UNCONFINED COMPRESSION TEST



Specimen No.	1			
Unconfined strength, psf	843.0			
Undrained shear strength, psf	421.5			
Failure strain, %	5.8			
Strain rate, in./min.	0.059			
Water content, %	72.1			
Wet density, pcf	94.1			
Dry density, pcf	54.7			
Saturation, %	93.2			
Void ratio	2.1045			
Specimen diameter, in.	1.388			
Specimen height, in.	2.930			
Height/diameter ratio	2.11			

Description: SO GR CH4 W/ ARS SM, SL, TR-WD

LL =	PL =	PI =	Assumed GS= 2.72	Type: UNDSITURBED

Project No.: 19082
Date: 12/06/05

Remarks:
TORVANE = 0.300 TSF

Client: URS Corporation

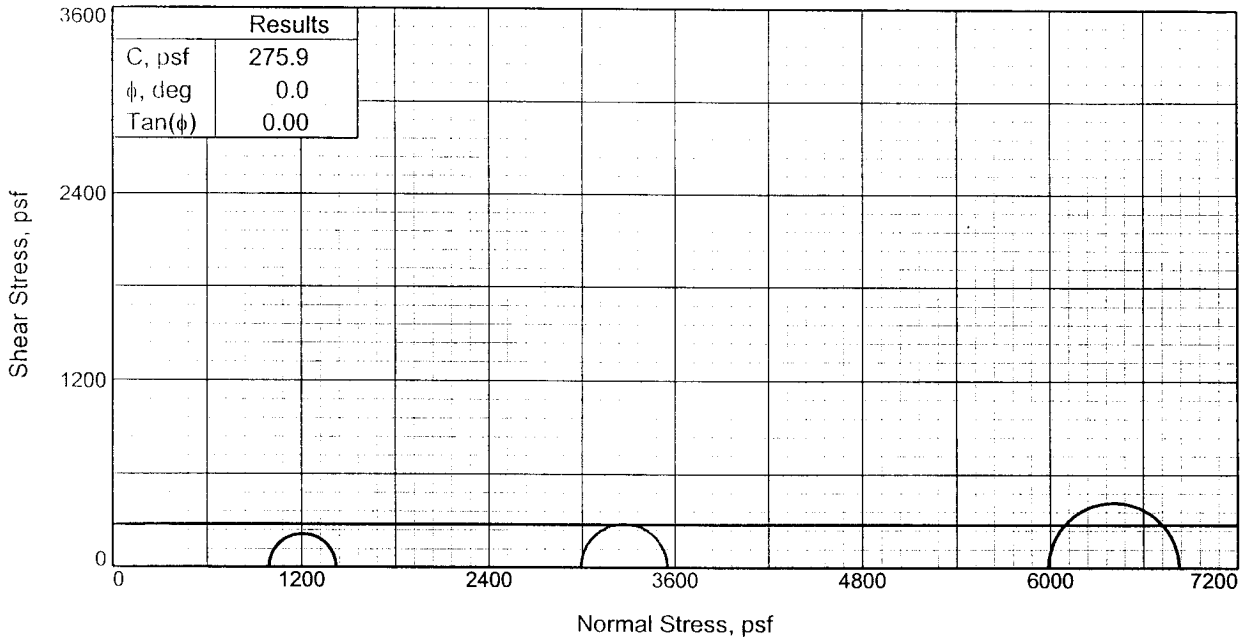
Project: U.S. Army Corps of Engineers
Inner Harbor Navigational Canal
Source of Sample: IHNC-TFG-4U **Depth:** 21.8
Sample Number: 3B

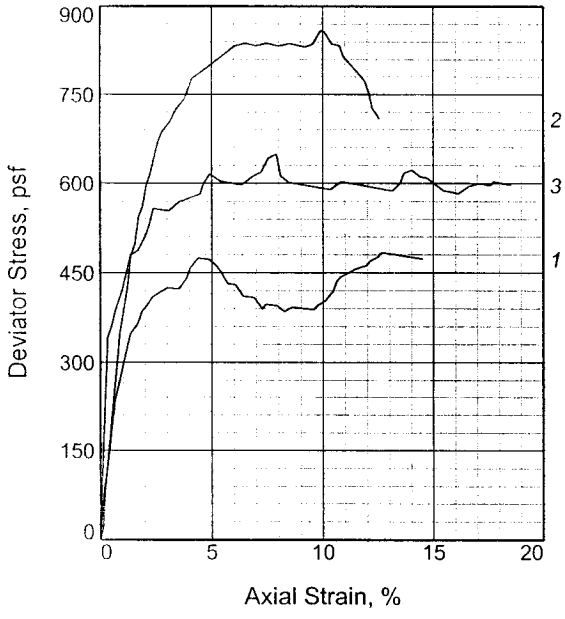
UNCONFINED COMPRESSION TEST

EUSTIS ENGINEERING COMPANY, INC.

Figure 1

Tested By: ZH **Checked By:** DP





Specimen No.		1	2	3
Initial	Water Content,	112.7	119.5	113.1
	Dry Density, pcf	38.8	37.9	39.5
	Saturation,	91.1	93.5	93.0
	Void Ratio	3.3397	3.4488	3.3300
	Diameter, in.	1.388	1.388	1.388
	Height, in.	2.930	2.930	2.930
At Test	Water Content,	123.3	127.5	121.5
	Dry Density, pcf	38.9	38.0	39.5
	Saturation,	100.0	100.0	100.0
	Void Ratio	3.3295	3.4415	3.3300
	Diameter, in.	1.387	1.387	1.388
	Height, in.	2.928	2.928	2.930
Strain rate, in./min.		0.029	0.029	0.029
Back Pressure, psf		0.0	0.0	0.0
Cell Pressure, psf		993.6	5990.4	2995.2
Fail. Stress, psf		425.2	837.2	557.4
Ult. Stress, psf		472.6	708.2	596.9
σ_1 Failure, psf		1418.8	6827.6	3552.6
σ_3 Failure, psf		993.6	5990.4	2995.2

Type of Test:
Unconsolidated Undrained
Sample Type: UNDISTURBED
Description: SO DGR & GR CHOA W/ WD

LL= 196 PL= 48 PI= 148
Assumed Specific Gravity= 2.70
Remarks: TORVANE = 0.300 TSF

Client: URS Corporation

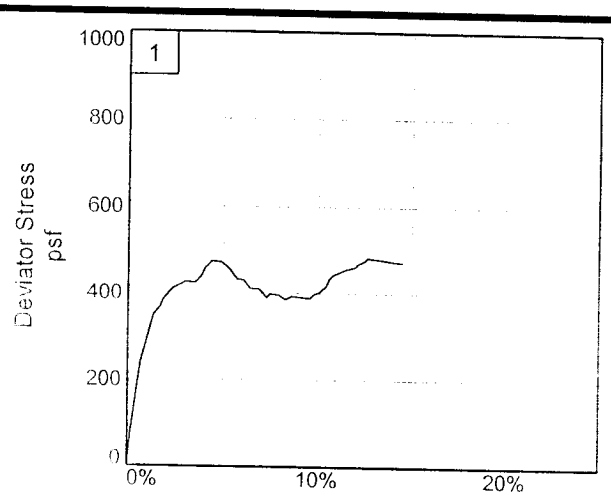
Project: U.S. Army Corps of Engineers
Inner Harbor Navigational Canal
Source of Sample: IHNC-TFG-4U **Depth:** 23.0
Sample Number: 4A
Proj. No.: 19082 **Date:** 12-6-05

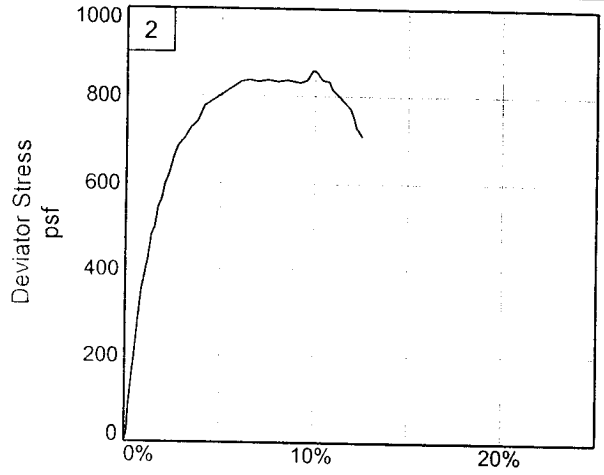
TRIAXIAL SHEAR TEST REPORT

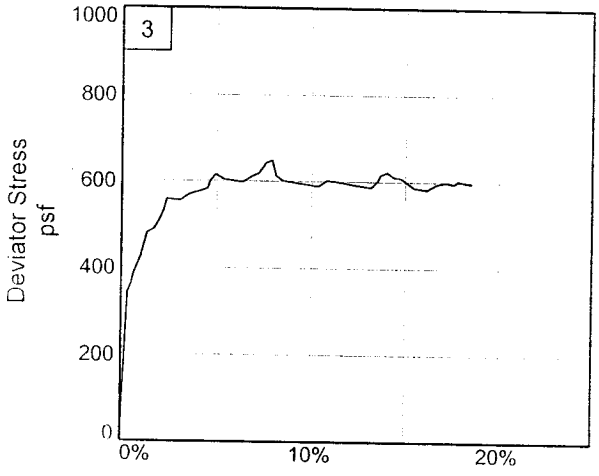
EUSTIS ENGINEERING COMPANY, INC.

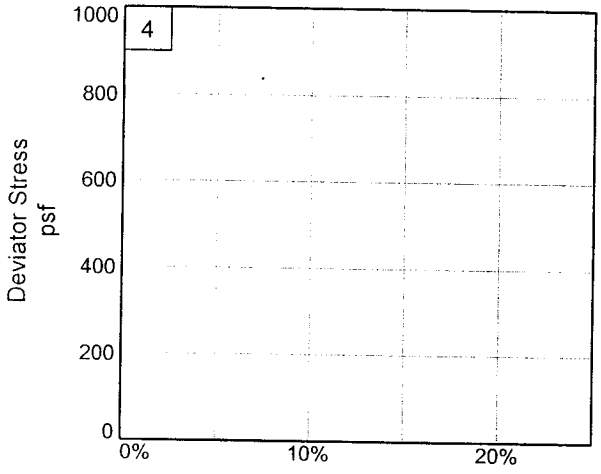
Figure 1

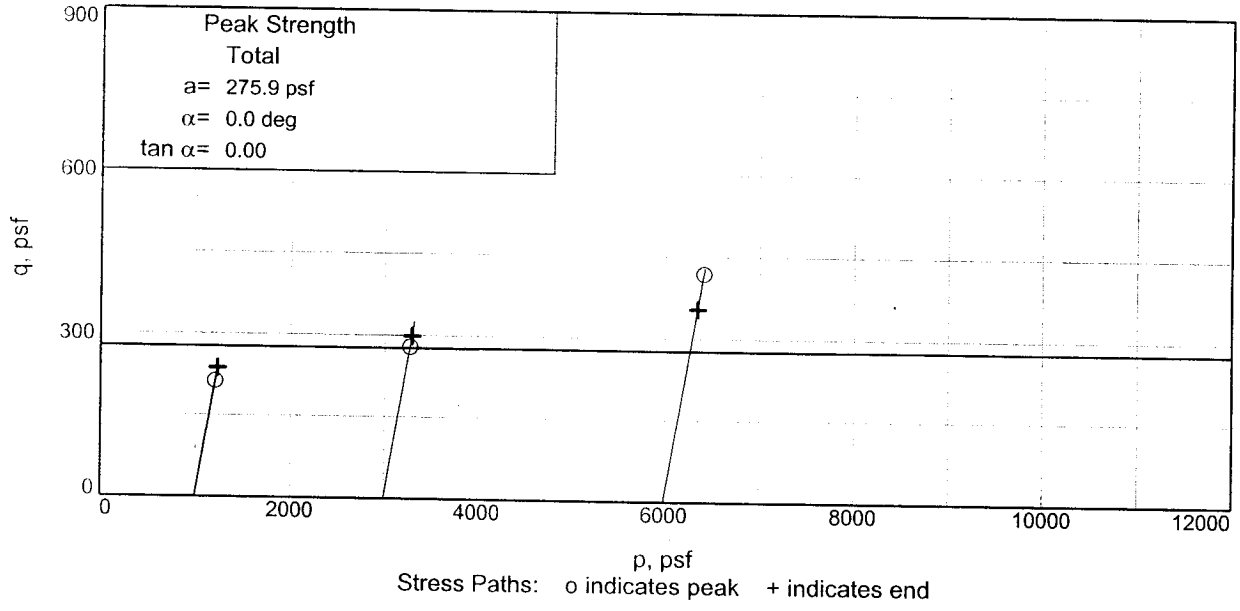
Tested By: ZH **Checked By:** JS







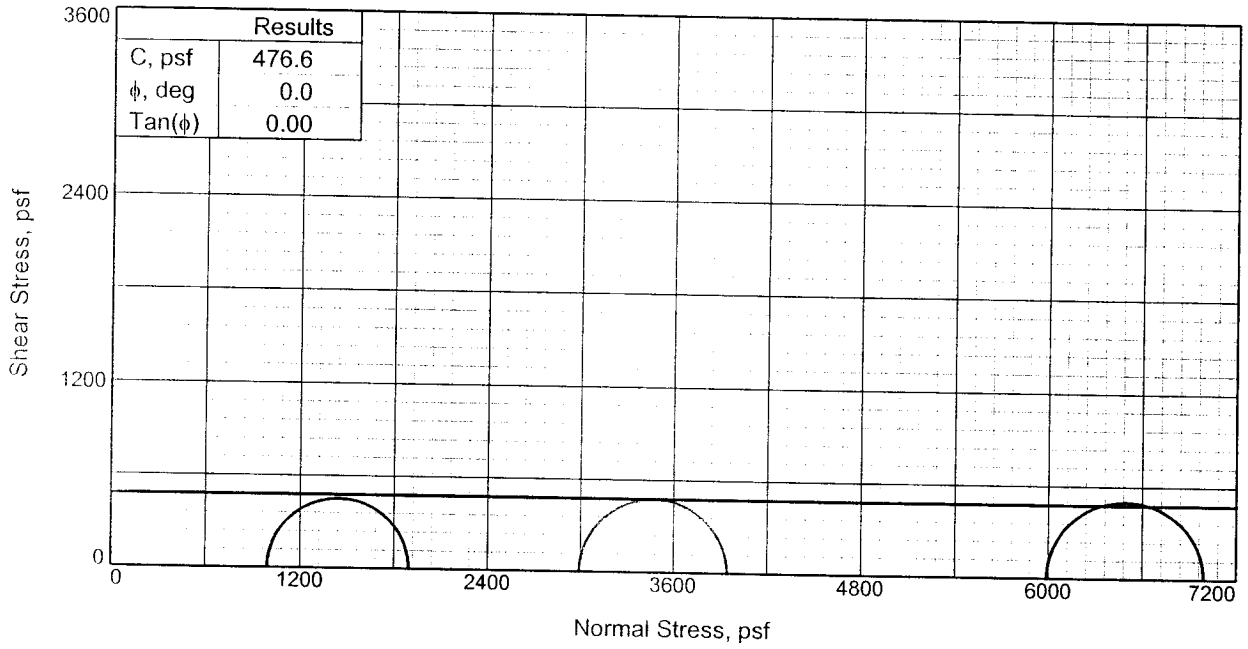


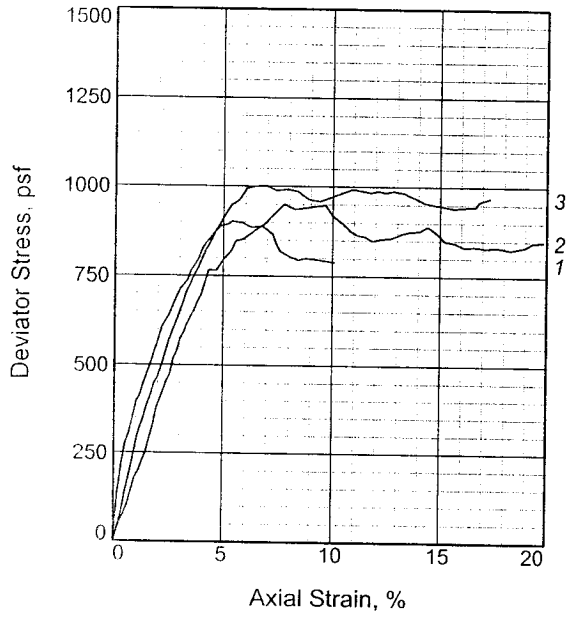


Client: URS Corporation
Project: U.S. Army Corps of Engineers
Source of Sample: IHNC-TFG-4U **Depth:** 23.0 **Sample Number:** 4A
Project No.: 19082 **Figure** 2

EUSTIS ENGINEERING COMPANY, INC.

Tested By: ZH **Checked By:** JS





Specimen No.		1	2	3
Initial	Water Content,	262.8	246.9	265.0
	Dry Density, pcf	16.6	17.9	16.4
	Saturation,	77.8	79.4	77.4
	Void Ratio	8.7818	8.0848	8.9080
	Diameter, in.	1.388	1.388	1.388
	Height, in.	2.930	2.930	2.930
At Test	Water Content,	337.2	310.1	342.1
	Dry Density, pcf	16.6	17.9	16.4
	Saturation,	100.0	100.0	100.0
	Void Ratio	8.7667	8.0634	8.8959
	Diameter, in.	1.387	1.387	1.387
	Height, in.	2.929	2.928	2.929
Strain rate, in./min.		0.030	0.029	0.030
Back Pressure, psf		0.0	0.0	0.0
Cell Pressure, psf		993.6	2995.2	5990.4
Fail. Stress, psf		901.3	949.3	1001.8
Ult. Stress, psf		787.7	848.0	968.5
σ_1 Failure, psf		1894.9	3944.5	6992.2
σ_3 Failure, psf		993.6	2995.2	5990.4

Type of Test:
Unconsolidated Undrained
Sample Type: UNDISTURBED
Description: SO DGR & BR CHOC W/ RT, WD

LL= 366 **PL=** 194 **PI=** 172
Assumed Specific Gravity= 2.60
Remarks: TORVANE = 0.270 TSF

Client: URS Corporation

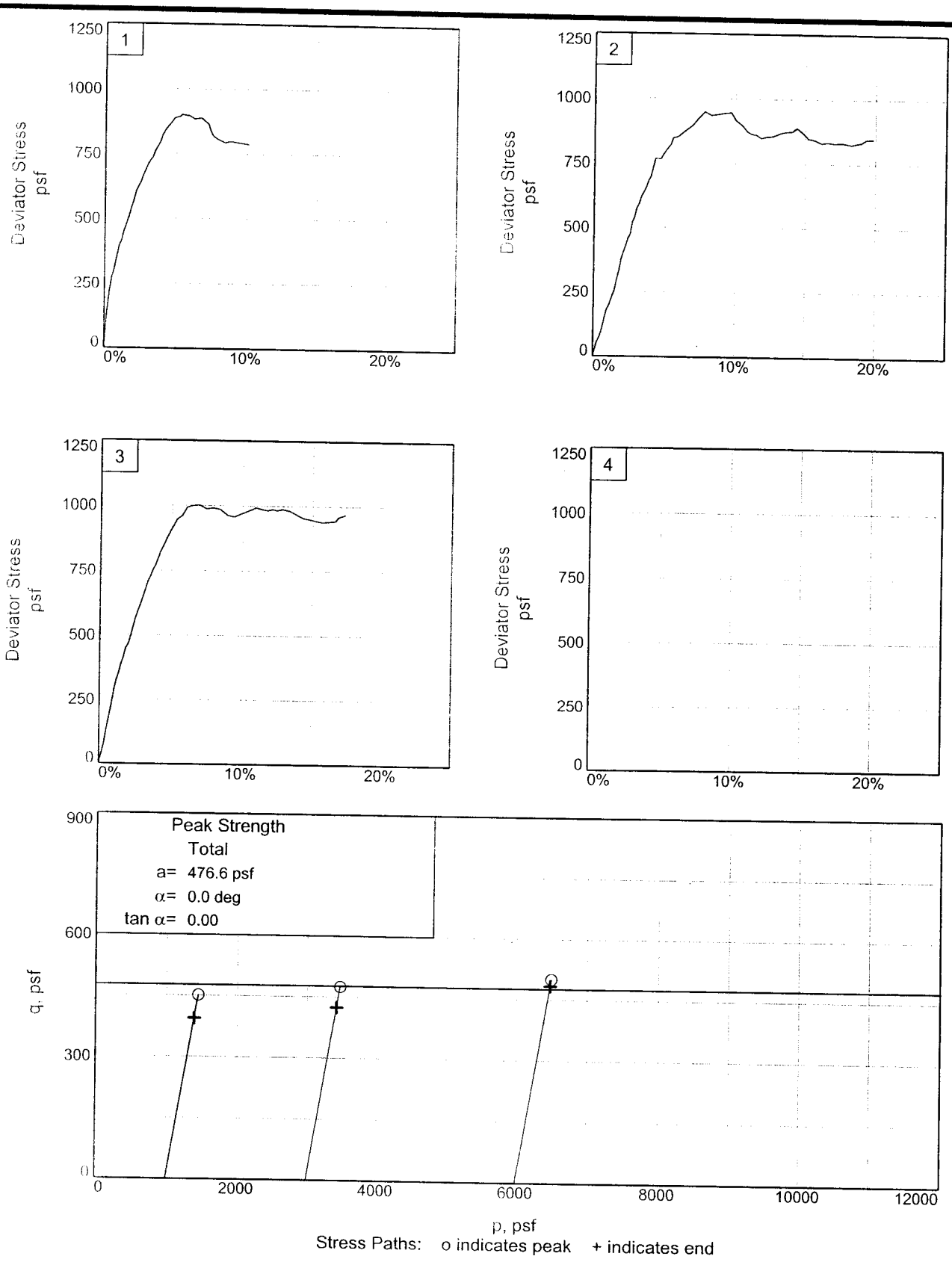
Project: U.S. Army Corps of Engineers
Inner Harbor Navigational Canal
Source of Sample: IHNC-TFG-4U **Depth:** 29.7
Sample Number: 6C
Proj. No.: 19082 **Date:** 12-6-05

TRIAXIAL SHEAR TEST REPORT

EUSTIS ENGINEERING COMPANY, INC.

Figure 1

Tested By: ZH **Checked By:** JS

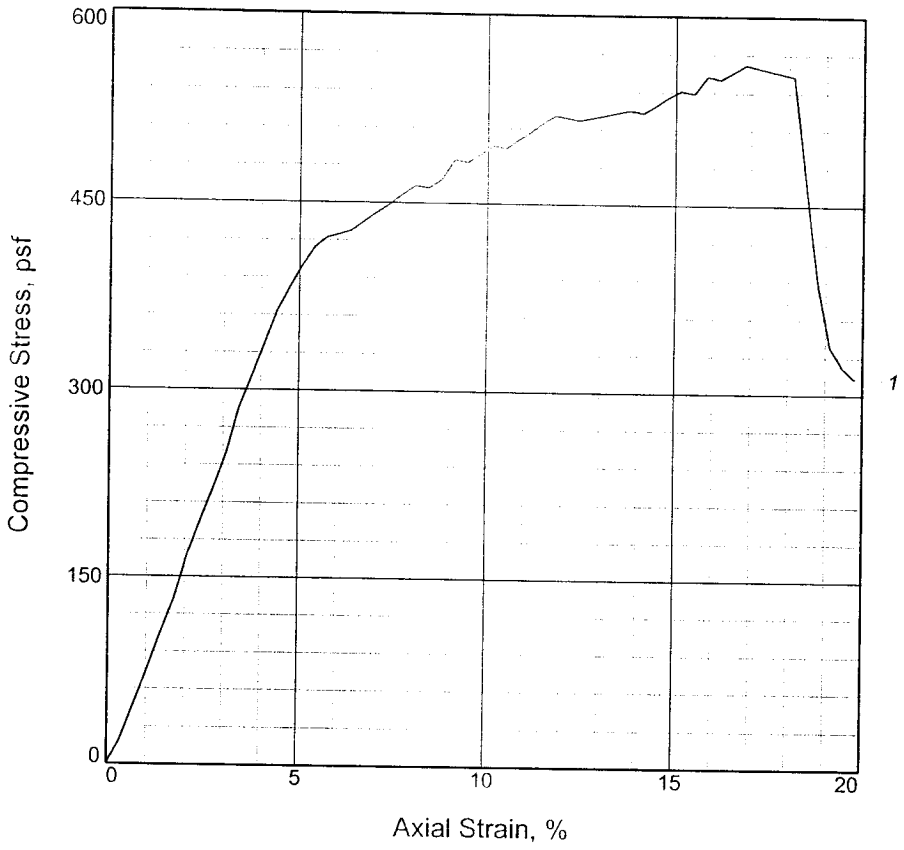


Client: URS Corporation
Project: U.S. Army Corps of Engineers
Source of Sample: IHNC-TFG-4U **Depth:** 29.7 **Sample Number:** 6C
Project No.: 19082 **Figure** 2

EUSTIS ENGINEERING COMPANY, INC.

Tested By: ZH **Checked By:** JS

UNCONFINED COMPRESSION TEST



Specimen No.	1			
Unconfined strength, psf	463.6			
Undrained shear strength, psf	231.8			
Failure strain, %	8.1			
Strain rate, in./min.	0.059			
Water content, %	34.5			
Wet density, pcf	111.9			
Dry density, pcf	83.2			
Saturation, %	90.7			
Void ratio	1.0253			
Specimen diameter, in.	1.388			
Specimen height, in.	2.930			
Height/diameter ratio	2.11			

Description: VSO GR CL4 W/ LYS CH, WD

LL =	PL =	PI =	Assumed GS= 2.7	Type: UNDISTURBED

Project No.: 19082
Date: 12/05/05
Remarks:

Client: URS Corporation

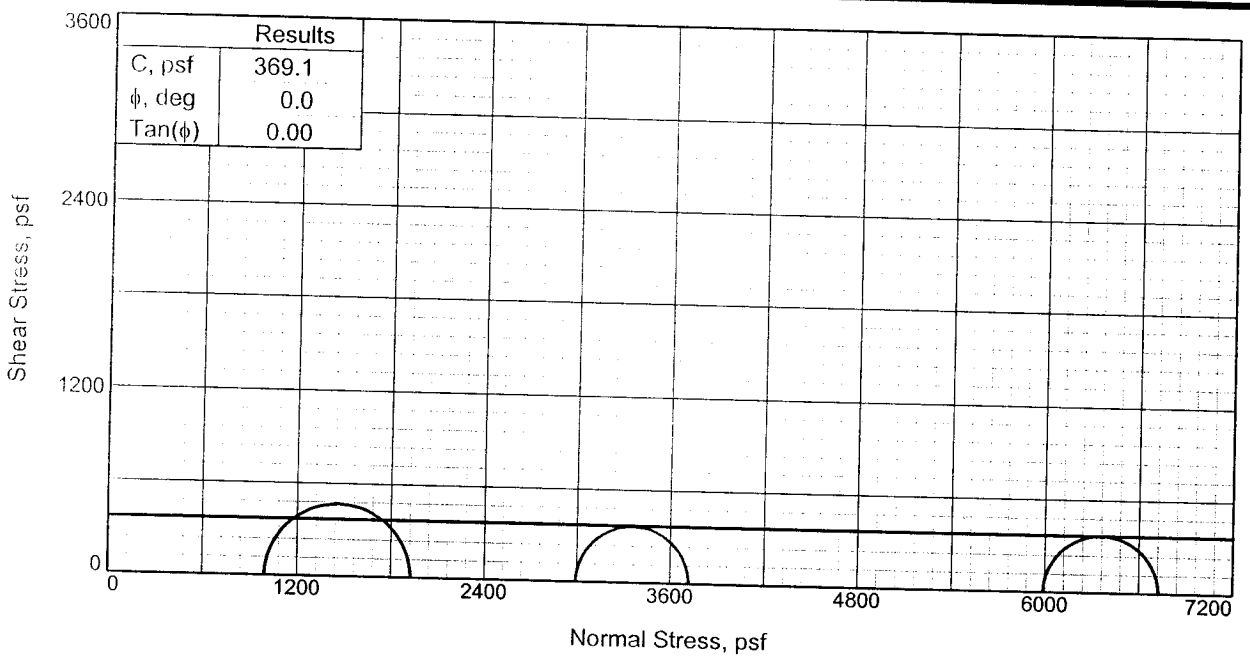
Project: U.S. Army Corps of Engineers
Inner Harbor Navigational Canal
Source of Sample: IHNC-TFG-4U **Depth:** 32.0
Sample Number: 7A

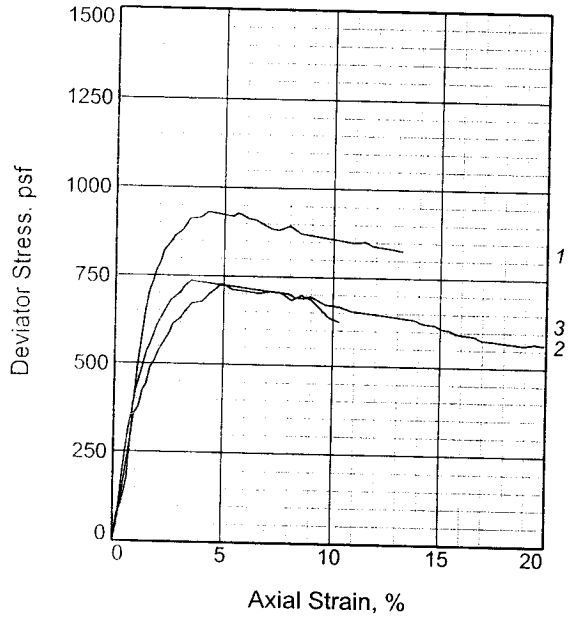
UNCONFINED COMPRESSION TEST

EUSTIS ENGINEERING COMPANY, INC.

Figure 1

Tested By: ZH **Checked By:** DP





Specimen No.		1	2	3
Initial	Water Content,	56.3	65.5	56.5
	Dry Density, pcf	65.1	60.0	65.3
	Saturation,	94.6	97.1	95.6
	Void Ratio	1.6293	1.8500	1.6214
	Diameter, in.	1.388	1.388	1.388
	Height, in.	2.930	2.930	2.930
At Test	Water Content,	59.2	67.3	59.1
	Dry Density, pcf	65.2	60.1	65.3
	Saturation,	100.0	100.0	100.0
	Void Ratio	1.6218	1.8438	1.6192
	Diameter, in.	1.387	1.387	1.388
	Height, in.	2.927	2.928	2.929
Strain rate, in./min.		0.030	0.029	0.029
Back Pressure, psf		0.0	0.0	0.0
Cell Pressure, psf		993.6	2995.2	5990.4
Fail. Stress, psf		931.2	725.2	735.0
Ult. Stress, psf		827.4	565.0	623.4
σ_1 Failure, psf		1924.8	3720.4	6725.4
σ_3 Failure, psf		993.6	2995.2	5990.4

Type of Test:
Unconsolidated Undrained
Sample Type: UNDISTURBED
Description: SO GR CH4 W/ LNS ML

LL= 75 **PL=** 19 **PI=** 56
Assumed Specific Gravity= 2.74
Remarks: TORVANE = 0.200 TSF

Client: URS Corporation

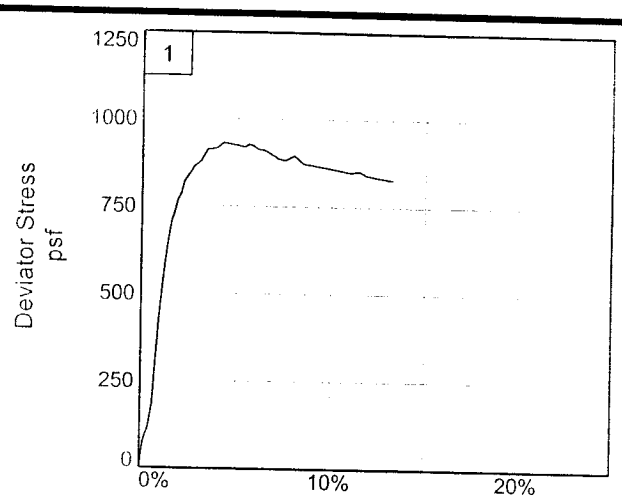
Project: U.S. Army Corps of Engineers
Inner Harbor Navigational Canal
Source of Sample: IHNC-TFG-4U **Depth:** 33.7
Sample Number: 7C
Proj. No.: 19082 **Date:** 12-6-05

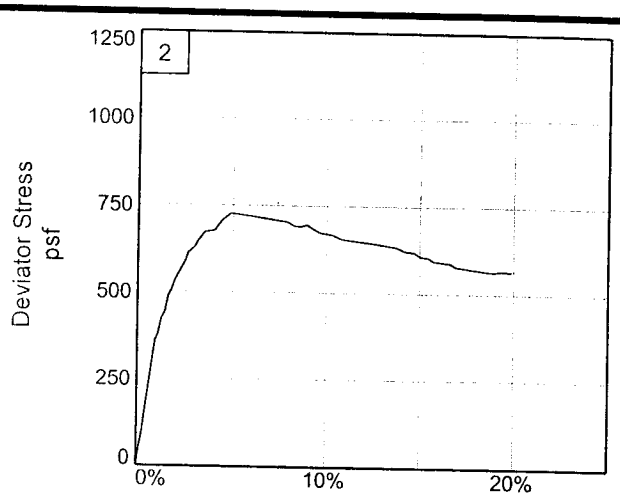
TRIAXIAL SHEAR TEST REPORT

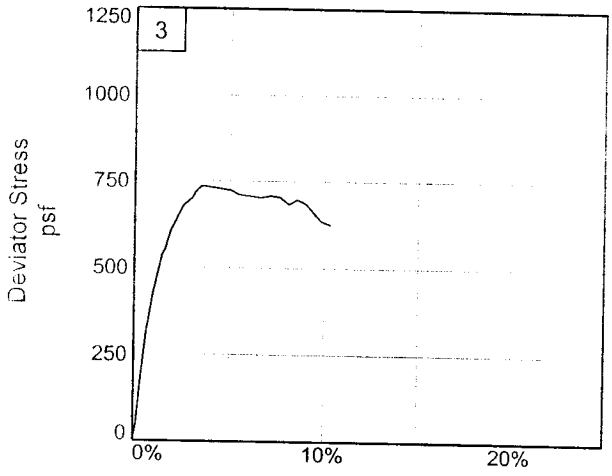
EUSTIS ENGINEERING COMPANY, INC.

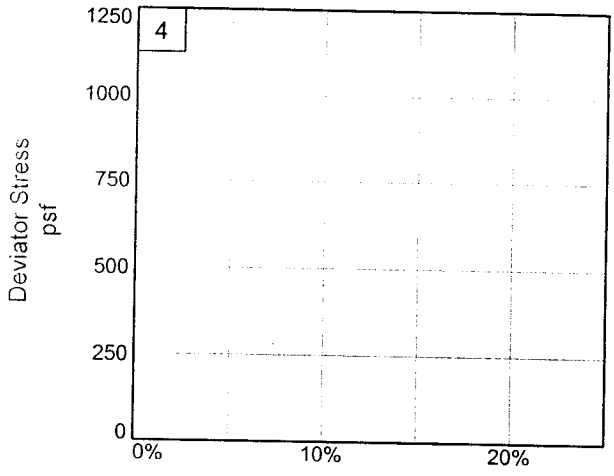
Figure 1

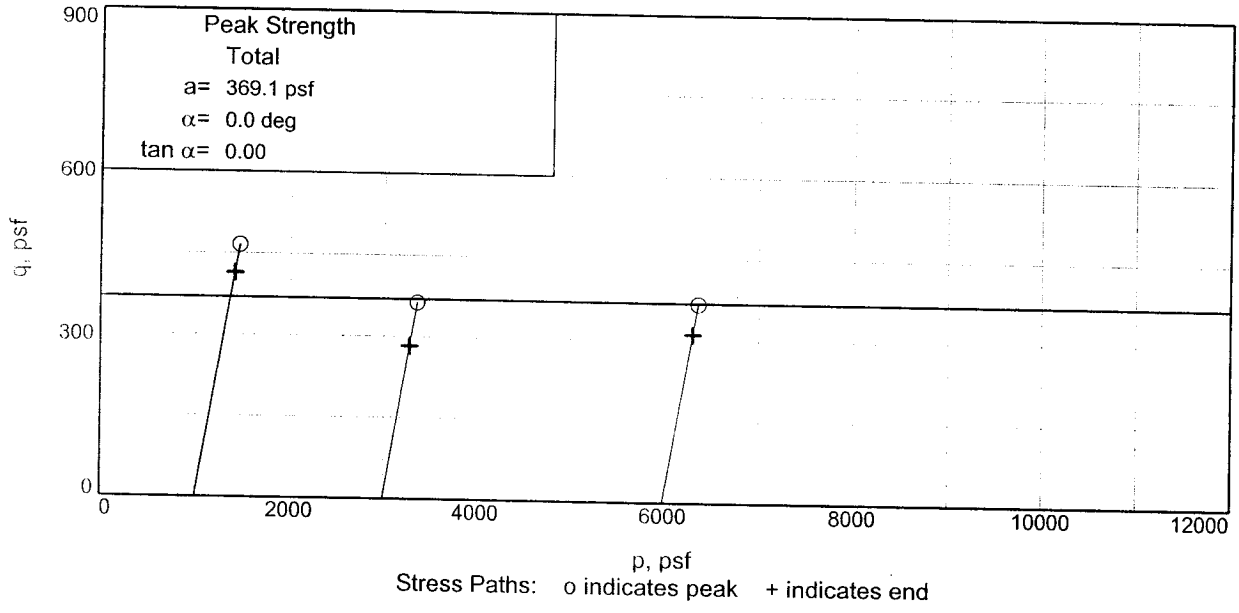
Tested By: ZH **Checked By:** JS









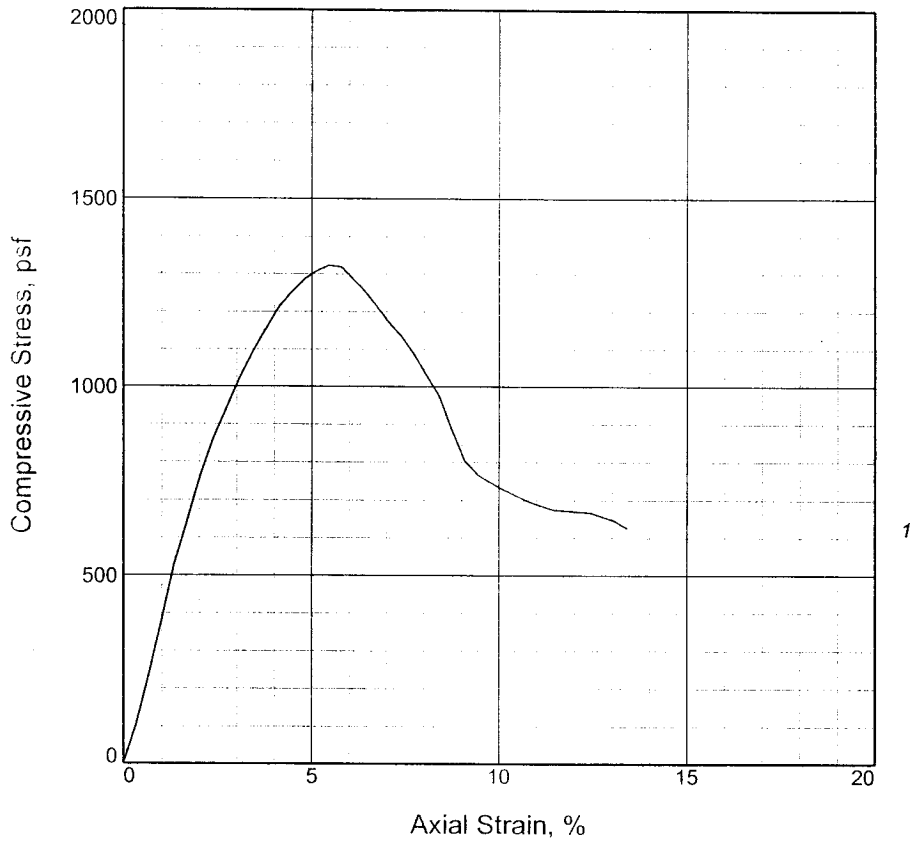


Client: URS Corporation
Project: U.S. Army Corps of Engineers
Source of Sample: IHNC-TFG-4U **Depth:** 33.7 **Sample Number:** 7C
Project No.: 19082 **Figure** 2

EUSTIS ENGINEERING COMPANY, INC.

Tested By: ZH **Checked By:** JS

UNCONFINED COMPRESSION TEST



Specimen No.	1			
Unconfined strength, psf	1322.5			
Undrained shear strength, psf	661.2			
Failure strain, %	5.5			
Strain rate, in./min.	0.059			
Water content, %	65.2			
Wet density, pcf	100.1			
Dry density, pcf	60.6			
Saturation, %	98.0			
Void ratio	1.8232			
Specimen diameter, in.	1.388			
Specimen height, in.	2.930			
Height/diameter ratio	2.11			

Description: M GR CH4 W/ SL

LL =	PL =	PI =	**Assumed GS=** 2.74	**Type:** UNDISTURBED

Project No.: 19082
Date: 12/05/05

Remarks:
TORVANE = 0.300 TSF

Client: URS Corporation

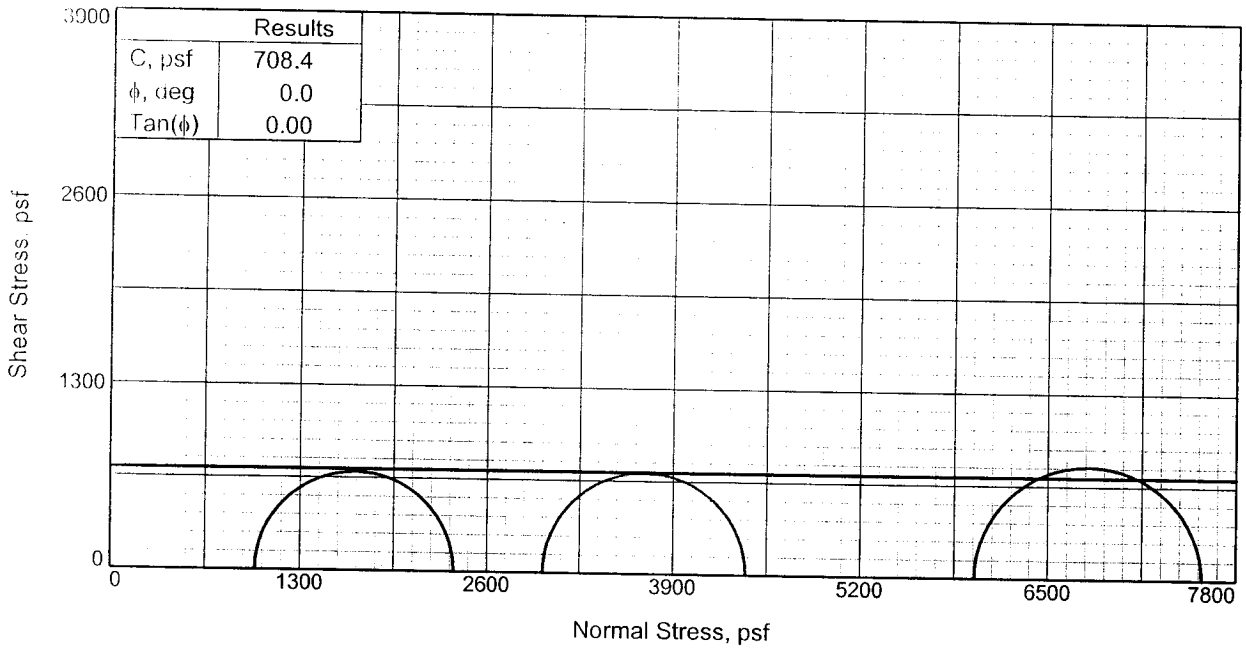
Project: U.S. Army Corps of Engineers
Inner Harbor Navigational Canal
Source of Sample: IHNC-TFG-4U **Depth:** 50.8
Sample Number: 8B

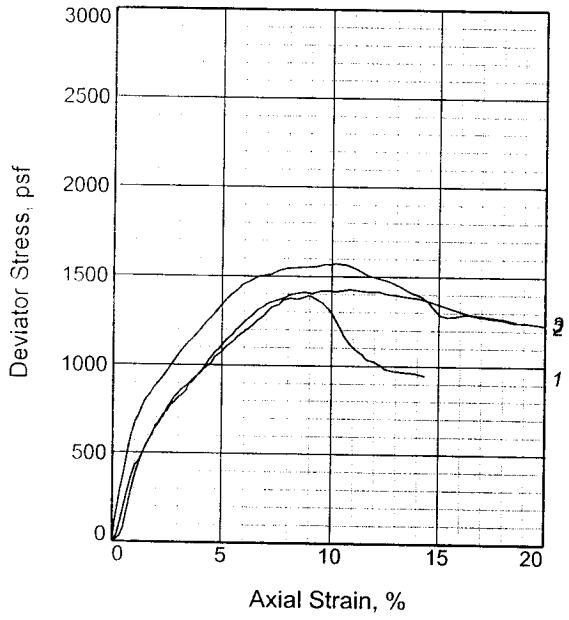
UNCONFINED COMPRESSION TEST

EUSTIS ENGINEERING COMPANY, INC.

Figure 1

Tested By: ZH **Checked By:** DP





Specimen No.		1	2	3
Initial	Water Content,	61.8	61.8	61.7
	Dry Density, pcf	61.8	61.9	62.5
	Saturation,	95.8	95.9	97.3
	Void Ratio	1.7680	1.7653	1.7368
	Diameter, in.	1.388	1.388	1.388
	Height, in.	2.930	2.930	2.930
At Test	Water Content,	64.3	64.0	63.3
	Dry Density, pcf	61.9	62.1	62.6
	Saturation,	100.0	100.0	100.0
	Void Ratio	1.7612	1.7549	1.7340
	Diameter, in.	1.387	1.386	1.388
	Height, in.	2.928	2.926	2.929
Strain rate, in./min.		0.030	0.029	0.030
Back Pressure, psf		0.0	0.0	0.0
Cell Pressure, psf		993.6	2995.2	5990.4
Fail. Stress, psf		1375.3	1409.8	1573.4
Ult. Stress, psf		947.1	1229.9	1247.4
σ_1 Failure, psf		2368.9	4405.0	7563.8
σ_3 Failure, psf		993.6	2995.2	5990.4

Type of Test:
Unconsolidated Undrained
Sample Type: UNDISTURBED
Description: M GR CH4 W/ LNS SM

LL= 80 **PL=** 23 **PI=** 57
Assumed Specific Gravity= 2.74
Remarks: TORVANE = 0.300 TSF

Client: URS Corporation

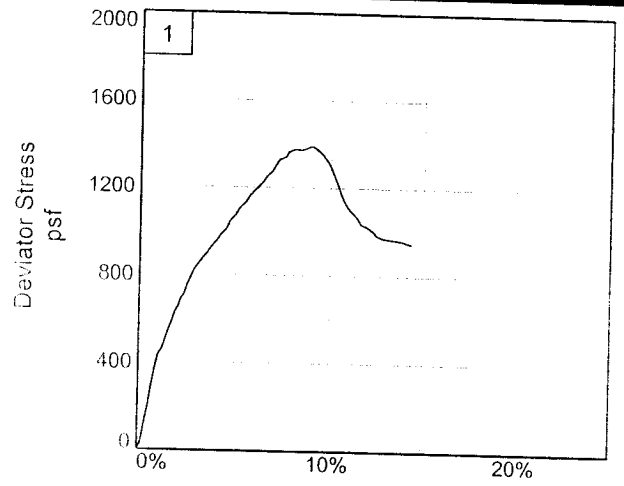
Project: U.S. Army Corps of Engineers
Inner Harbor Navigational Canal
Source of Sample: IHNC-TFG-4U **Depth:** 54.8
Sample Number: 9B
Proj. No.: 19082 **Date:** 12-6-05

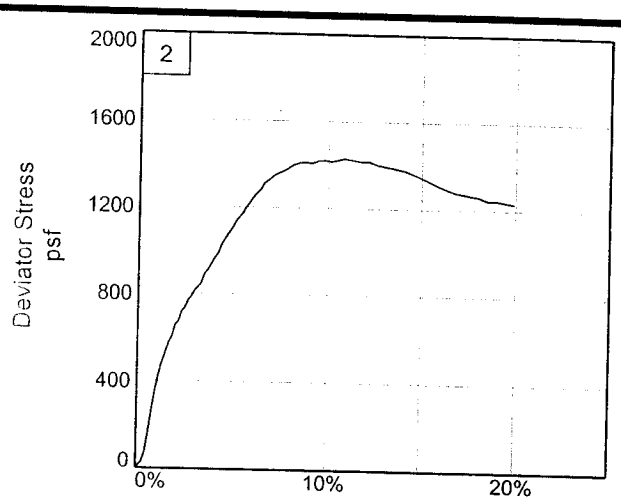
TRIAXIAL SHEAR TEST REPORT

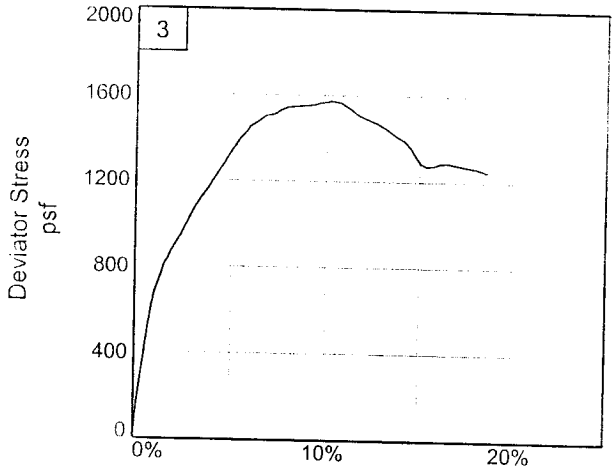
EUSTIS ENGINEERING COMPANY, INC.

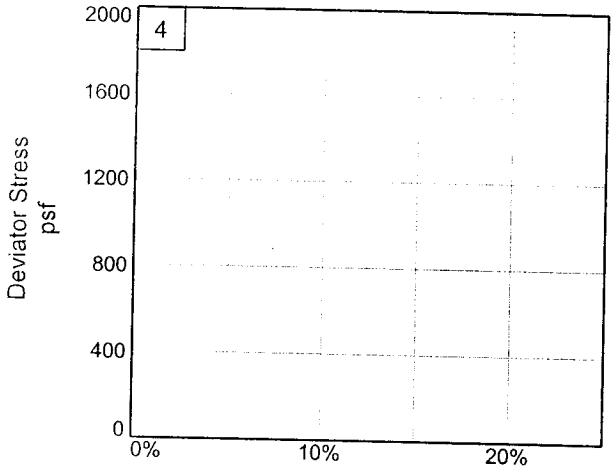
Figure 1

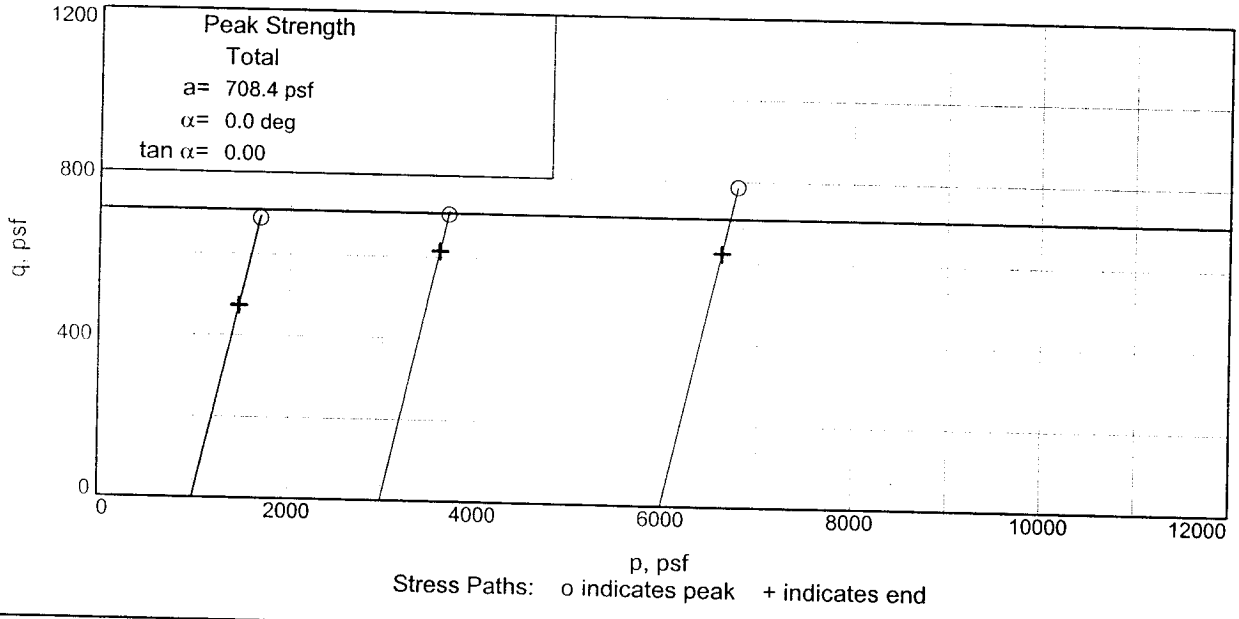
Tested By: ZH **Checked By:** JS











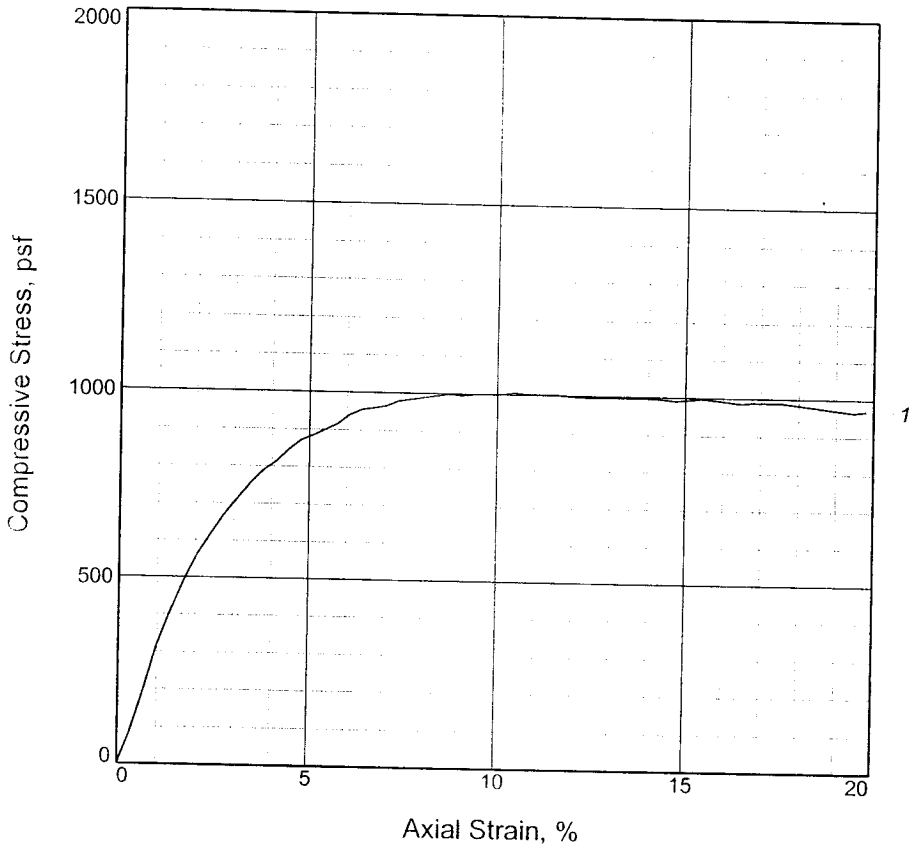
Stress Paths: o indicates peak + indicates end

Client: URS Corporation
Project: U.S. Army Corps of Engineers
Source of Sample: IHNC-TFG-4U **Depth:** 54.8 **Sample Number:** 9B
Project No.: 19082 **Figure** 2

EUSTIS ENGINEERING COMPANY, INC.

Tested By: ZH **Checked By:** JS

UNCONFINED COMPRESSION TEST



Specimen No.	1			
Unconfined strength, psf	998.9			
Undrained shear strength, psf	499.4			
Failure strain, %	8.7			
Strain rate, in./min.	0.059			
Water content, %	43.0			
Wet density, pcf	109.0			
Dry density, pcf	76.2			
Saturation, %	98.9			
Void ratio	1.1304			
Specimen diameter, in.	1.388			
Specimen height, in.	2.930			
Height/diameter ratio	2.11			

Description: SO GR CH4 W/ SIF

LL =	PL =	PI =	Assumed GS= 2.60	Type: UNDISTURBED

Project No.: 19082
Date: 12-6-05

Remarks:
TORVANE = 0.300 TSF

Client: URS Corporation

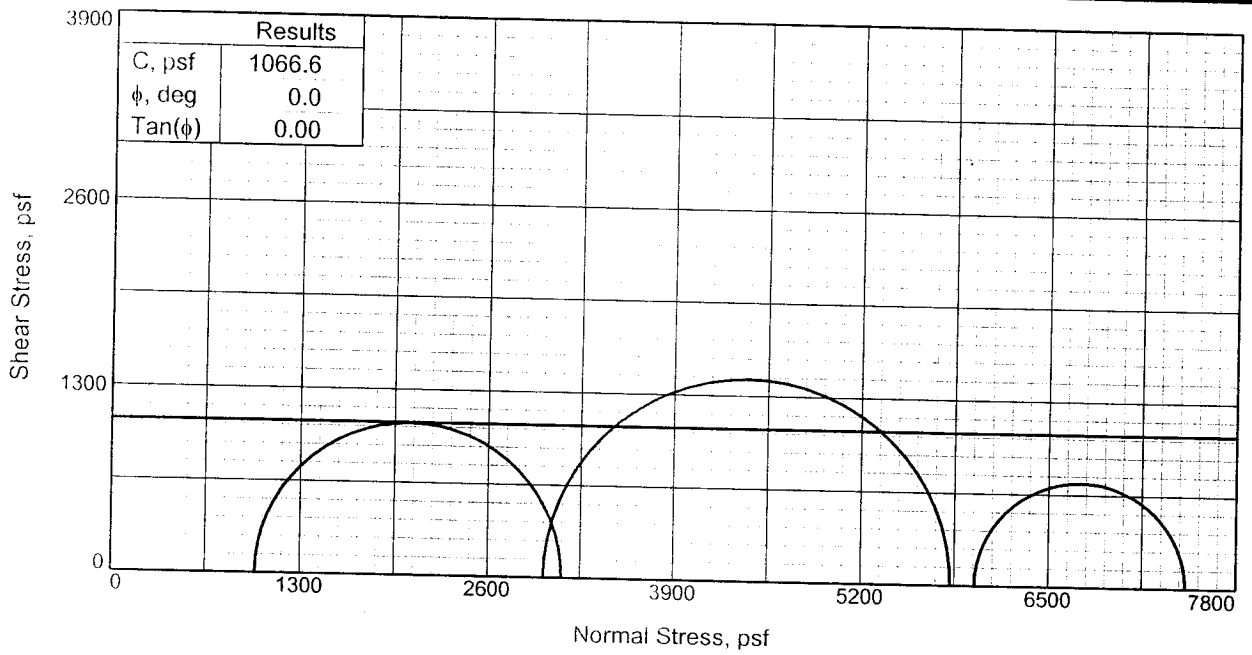
Project: U.S. Army Corps of Engineers
Inner Harbor Navigational Canal
Source of Sample: IHNC-TFG-4U **Depth:** 81.8
Sample Number: 20B

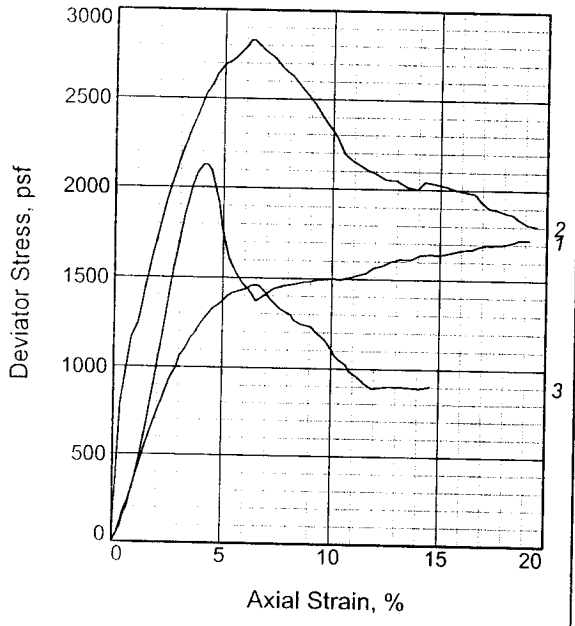
UNCONFINED COMPRESSION TEST

EUSTIS ENGINEERING COMPANY, INC.

Figure 1

Tested By: ZH **Checked By:** JS





Specimen No.		1	2	3
Initial	Water Content,	21.6	23.9	24.3
	Dry Density, pcf	103.3	99.4	98.5
	Saturation,	92.2	92.8	92.2
	Void Ratio	0.6319	0.6963	0.7109
	Diameter, in.	1.388	1.388	1.388
	Height, in.	2.930	2.930	2.930
At Test	Water Content,	23.4	25.7	26.3
	Dry Density, pcf	103.4	99.6	98.6
	Saturation,	100.0	100.0	100.0
	Void Ratio	0.6307	0.6928	0.7100
	Diameter, in.	1.388	1.387	1.388
	Height, in.	2.929	2.928	2.929
Strain rate, in./min.		0.029	0.030	0.029
Back Pressure, psf		0.0	0.0	0.0
Cell Pressure, psf		993.6	2995.2	5990.4
Fail. Stress, psf		2127.5	2829.0	1460.6
Ult. Stress, psf		1723.7	1801.3	902.5
σ_1 Failure, psf		3121.1	5824.2	7451.0
σ_3 Failure, psf		993.6	2995.2	5990.4

Type of Test:
Unconsolidated Undrained
Sample Type: UNDISTURBED
Description: ST LGR CL4-S

LL= 36 **PL=** 11 **PI=** 25
Assumed Specific Gravity= 2.70
Remarks: TORVANE = 0.300 TSF

Client: URS Corporation

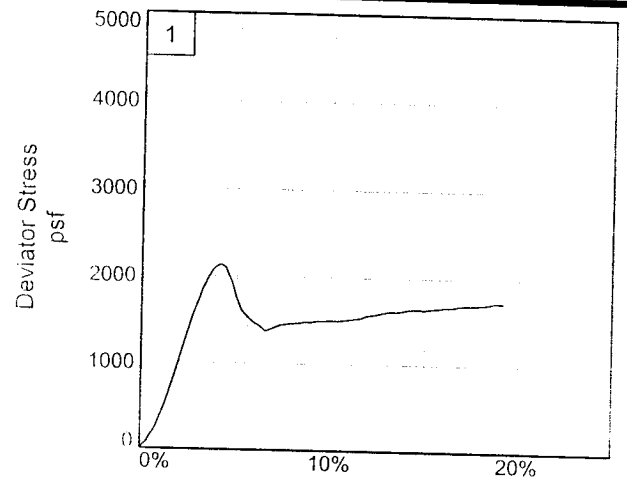
Project: U.S. Army Corps of Engineers
Inner Harbor Navigational Canal
Source of Sample: IHNC-TFG-4U **Depth:** 85.8
Sample Number: 21B
Proj. No.: 19082 **Date:** 12-6-05

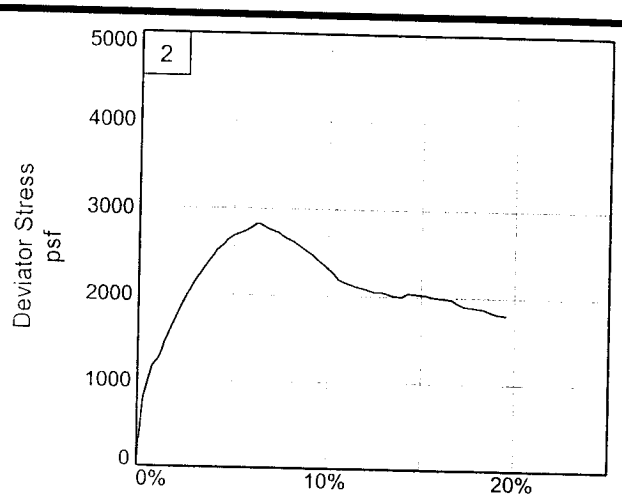
TRIAXIAL SHEAR TEST REPORT

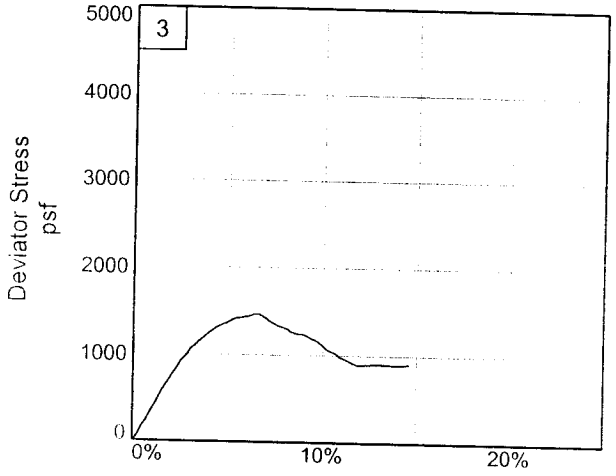
EUSTIS ENGINEERING COMPANY, INC.

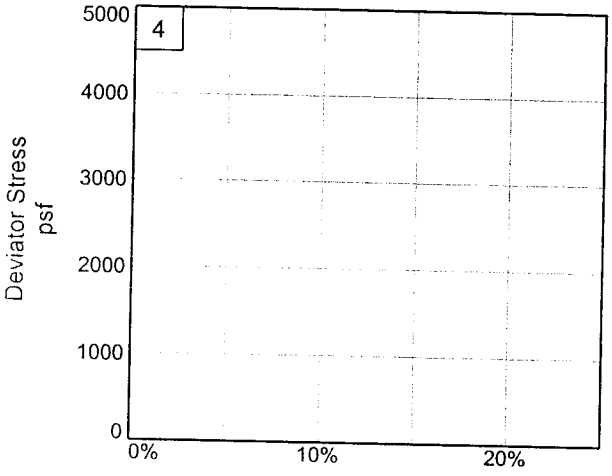
Figure 1

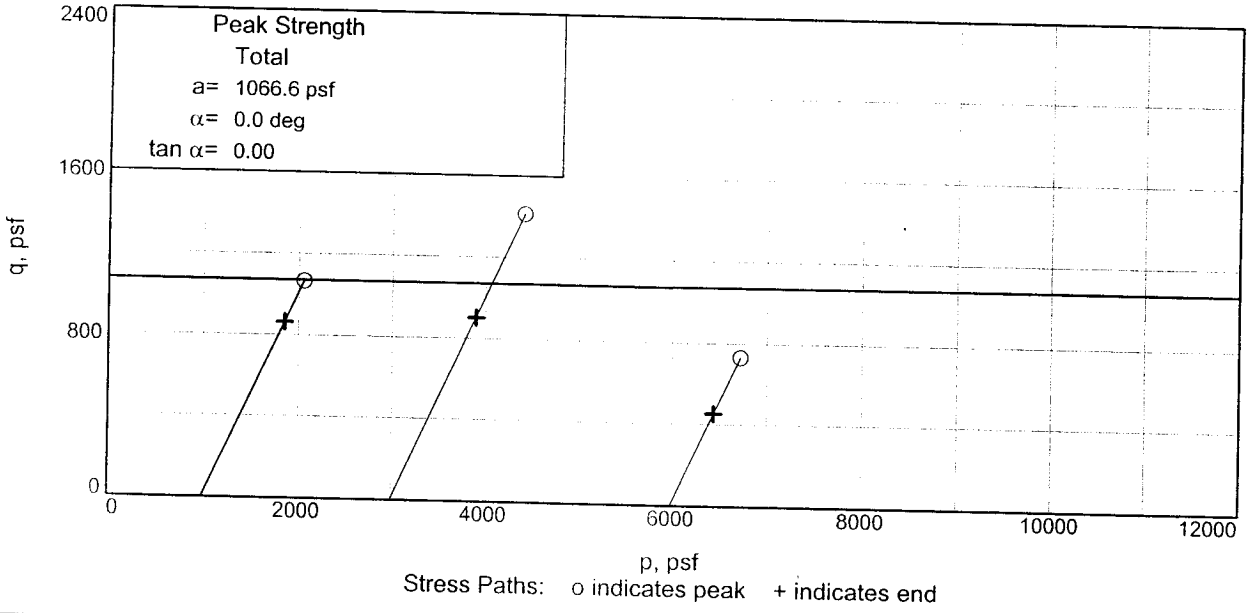
Tested By: ZH **Checked By:** JS











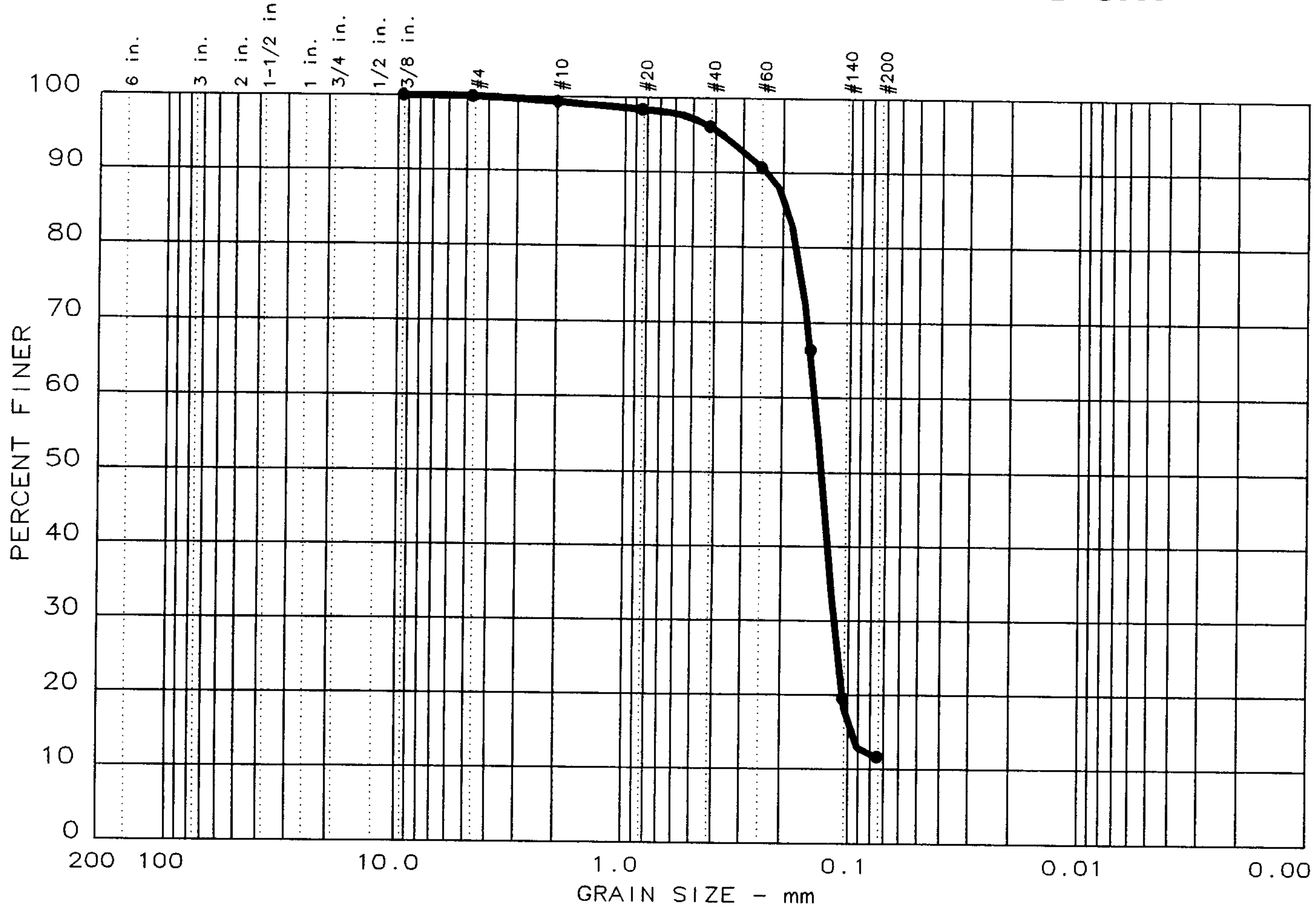
Stress Paths: o indicates peak + indicates end

Client: URS Corporation
Project: U.S. Army Corps of Engineers
Source of Sample: IHNC-TFG-4U **Depth:** 85.8 **Sample Number:** 21B
Project No.: 19082 **Figure** 2

EUSTIS ENGINEERING COMPANY, INC.

Tested By: ZH **Checked By:** JS

PARTICLE SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLAY	USCS	LL	PI
●	0.0	0.1	88.2	11.7		SM1-s		

SIEVE inches size	PERCENT FINER ●		
0.375	100.0		
	GRAIN SIZE		
D_{60}	0.14		
D_{30}	0.12		
D_{10}			
	COEFFICIENTS		
C_c			
C_u			

SIEVE number size	PERCENT FINER ●		
4	99.9		
10	99.3		
20	98.4		
40	96.2		
60	90.7		
100	66.4		
140	19.5		
200	11.7		

Sample information:

● BorIHNC-TFG4U,Sample 10
GR SM1-s W/ SIF

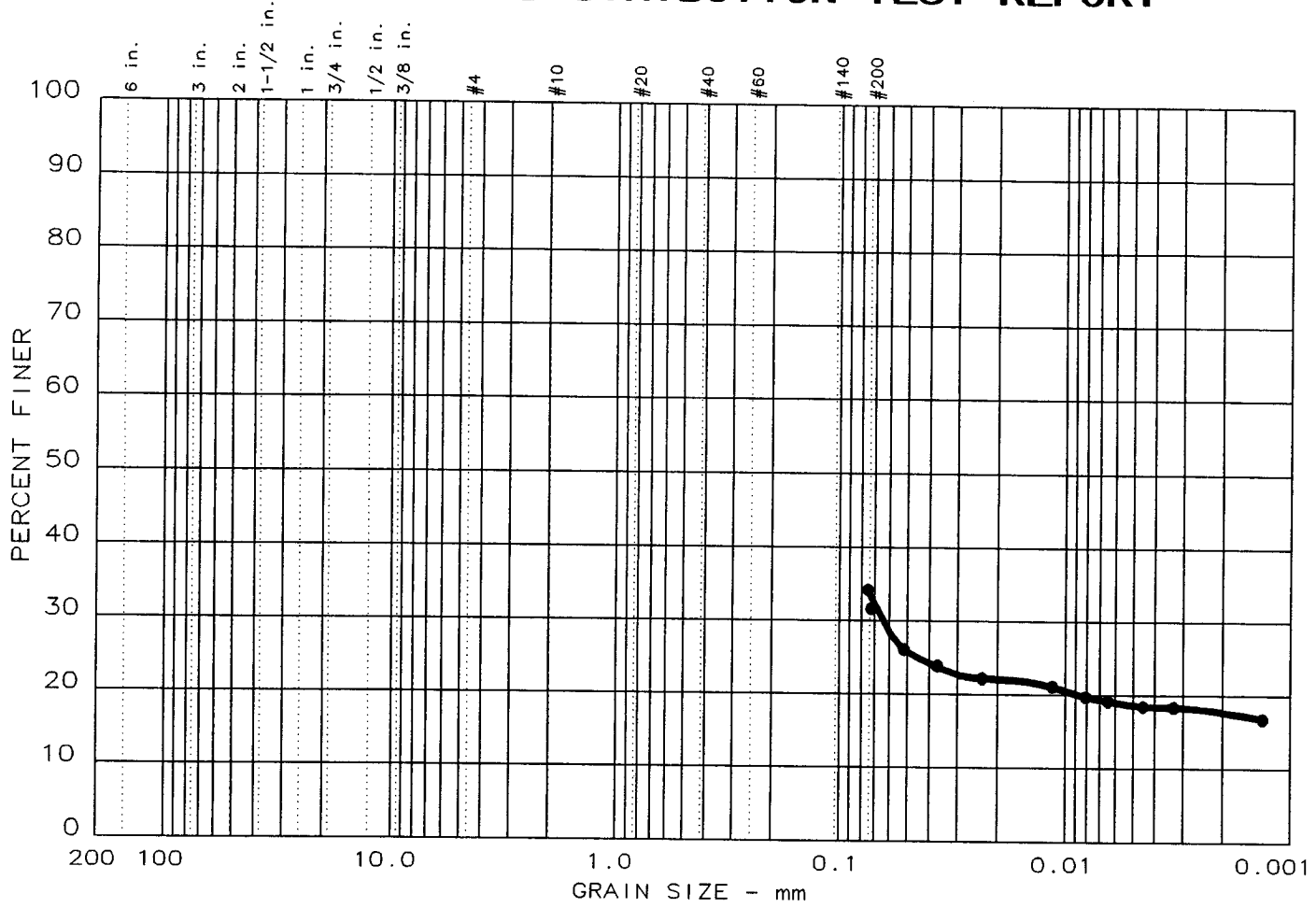
Remarks:
Sample depth 58.0'

Eustis Engineering Company, Inc.

Project No.: 19082
Project: USACE - IHNC

Date: 12-14-05 Data Sheet No. ____

PARTICLE SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLAY	USCS	LL	PI
●	0.0	0.0	65.8	15.6	18.6	SC1		

SIEVE inches size	PERCENT FINER ●		
	GRAIN SIZE		
D_{60} D_{30} D_{10}	0.07 0.07		
	COEFFICIENTS		
C_c C_u			

SIEVE number size	PERCENT FINER ●		
200	34.2		

Sample information:
● BorIHNC-TFG4U, Sample 13
GR SC1

Remarks:
Sample depth 65.5'

Eustis Engineering Company, Inc.

Project No.: 19082
Project: USACE - IHNC

Date: 12-19-05 Data Sheet No. ——