GeoTesting EXPRESS

Consolidated Undrained Direct Simple Shear Testing of Cohesive Soils by ASTM D 6528

Client:	Golder Associates, Inc.	GTX#:	12376
Project Name:	CWM/RMU-2 GC Sampling	Test Date:	10/29/12
Project Location:	Lewiston, NY		
Boring ID:	SB12-02		
Sample ID:	SB12-02		
Depth, ft:	24-26		

Visual Description: Moist, brown clay

Test Equipment: Top and bottom box (circular) = 2.62 in diameter. Load cells and LVDT's connected to data acquisition system for shear force, normal load, horizontal and vertical displacement; surface area = 5.39 in^2, soil height = 1 inch. Reinforced Membrane used. Set up included porous stones with pins.

Test Condition: Inundated prior to consolidation

Sample Type and Preparation: Extruded from tube, cut, trimmed and placed into apparatus at as-received density and moisture content.

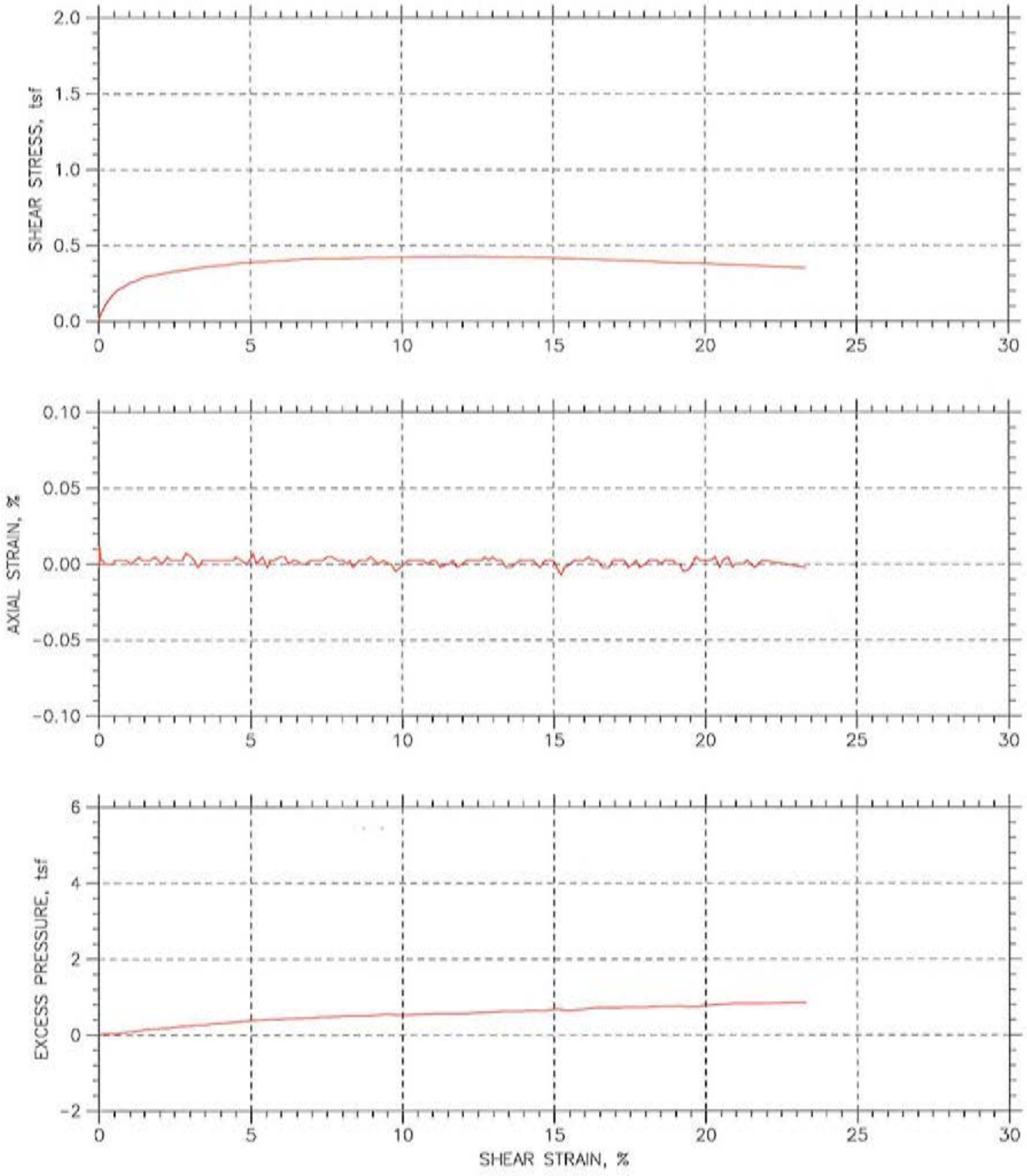
Parameter	Point 1	Point 2	Point 3	Point 4	Point 5
Test No.	DSS-1	DSS-2	DSS-3		
Initial Moisture Content, %	34.9	33.0	33.9		
Initial Dry Density, pcf	87.4	89.8	87.4		
Nominal Rate of Shear Strain, /hr	0.05	0.05	0.05		
Vertical Consolidation Stress, tsf	2	4	6		
Final Moisture Content, %	33.0	29.8	28.6		
Measured Peak Shear Stress, tsf	0.426	0.802	1.19		
Shear Strain at Peak Shear Stress, %	12.0	14.6	13.8		
Membrane Correction, tsf	0.005	0.010	0.033		
Corrected Peak Shear Stress, tsf	0.421	0.792	1.157		
S_u / σ'_{vc}	0.21	0.20	0.19		

Comments:

Tested By: md/njh Checked By: jdt

Notes: These results apply only to the sample tested for the specific test conditions. The test procedures employed follow accepted industry practice and the indicated test method. GeoTesting Express has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

DIRECT SIMPLE SHEAR TEST by ASTM D6528



GeoTesting EXPRESS	Project: CWM/RMU-2 GC	Location: Lewiston, NY	Project No.: GTX-12376
	Boring No.: SB12-02	Tested By: md	Checked By: jdt
	Sample No.: SB12-02	Test Date: 11/02/12	Test No.: DSS-1
	Depth: 24-26 ft	Sample Type: intact	Elevation: ---
	Description: Moist, brown clay		
	Remarks: System J		
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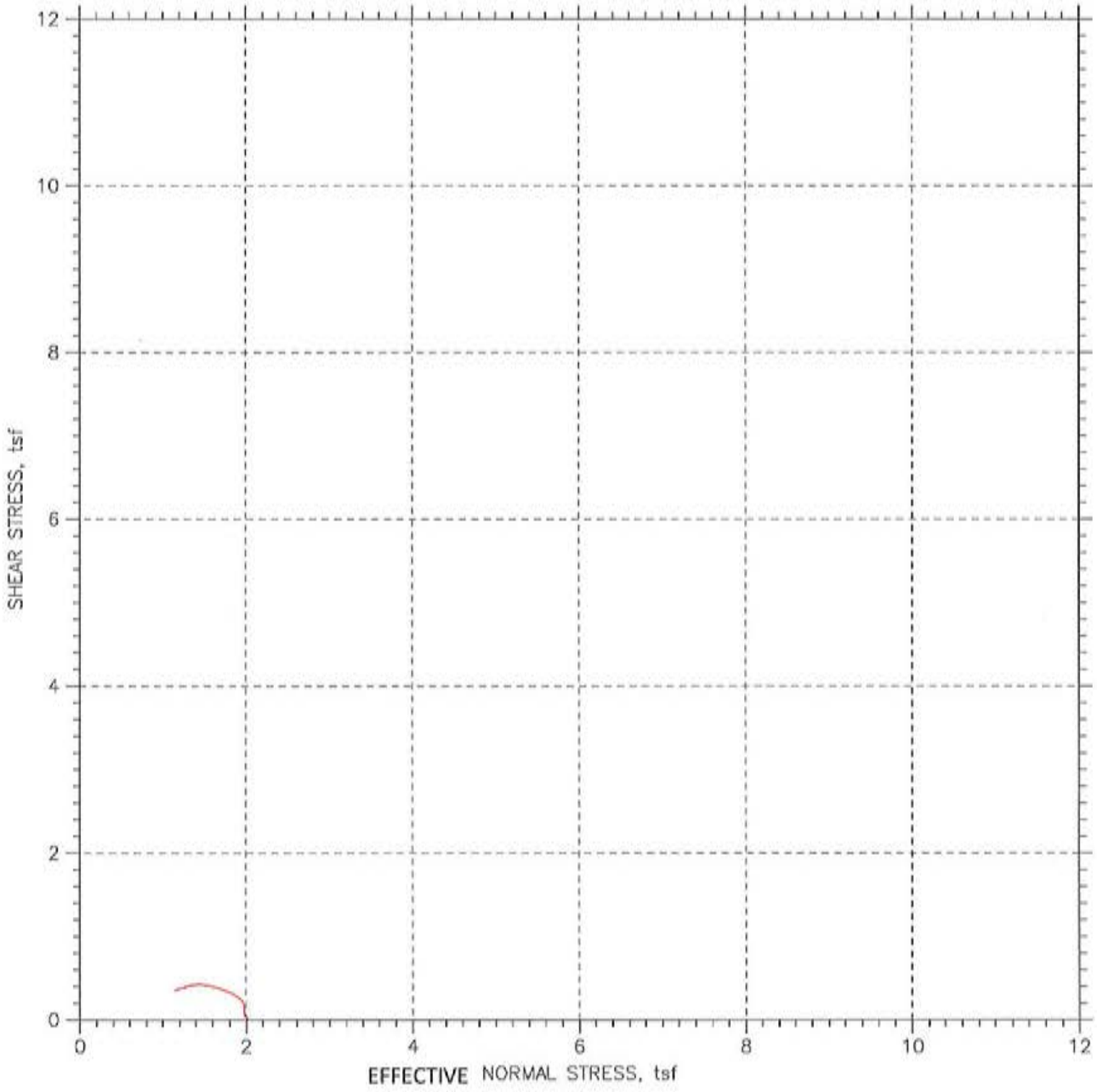
DIRECT SIMPLE SHEAR TEST by ASTM D6528



GeoTesting EXPRESS	Project: CWM/RMU-2 GC	Location: Lewiston, NY	Project No.: GTX-12376
	Boring No.: SB12-02	Tested By: md	Checked By: jdt
	Sample No.: SB12-02	Test Date: 11/02/12	Test No.: DSS-1
	Depth: 24-26 ft	Sample Type: intact	Elevation: ---
	Description: Moist, brown clay		
	Remarks: System J		
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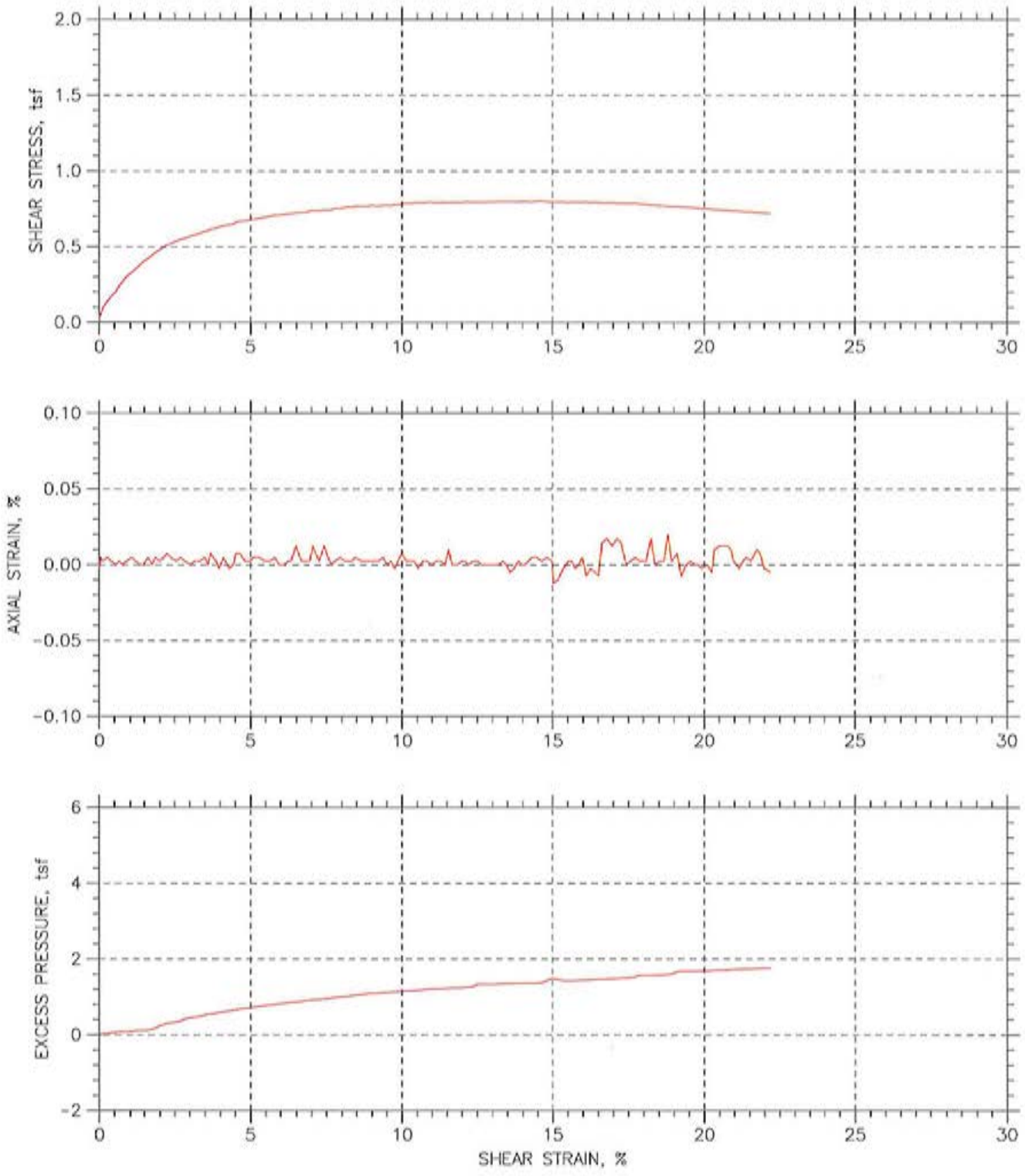
DIRECT SIMPLE SHEAR TEST by ASTM D6528



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	Boring No.: SB12-02	Tested By: md	Checked By: jdt
	Sample No.: SB12-02	Test Date: 10/30/12	Test No.: DSS-2
	Depth: 24-26 ft	Sample Type: intact	Elevation: ---
	Description: Moist, brown clay		
	Remarks: System J		
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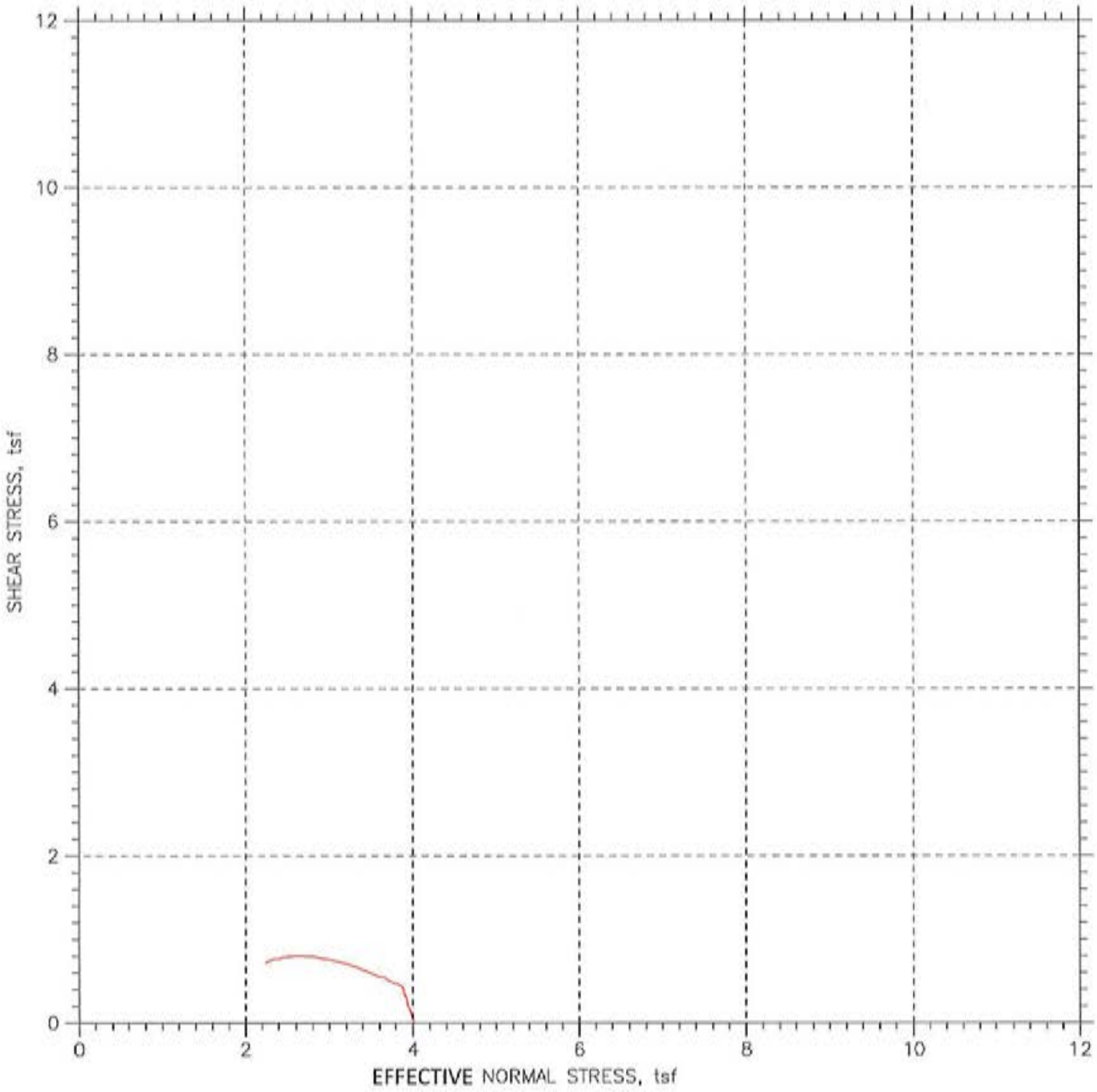
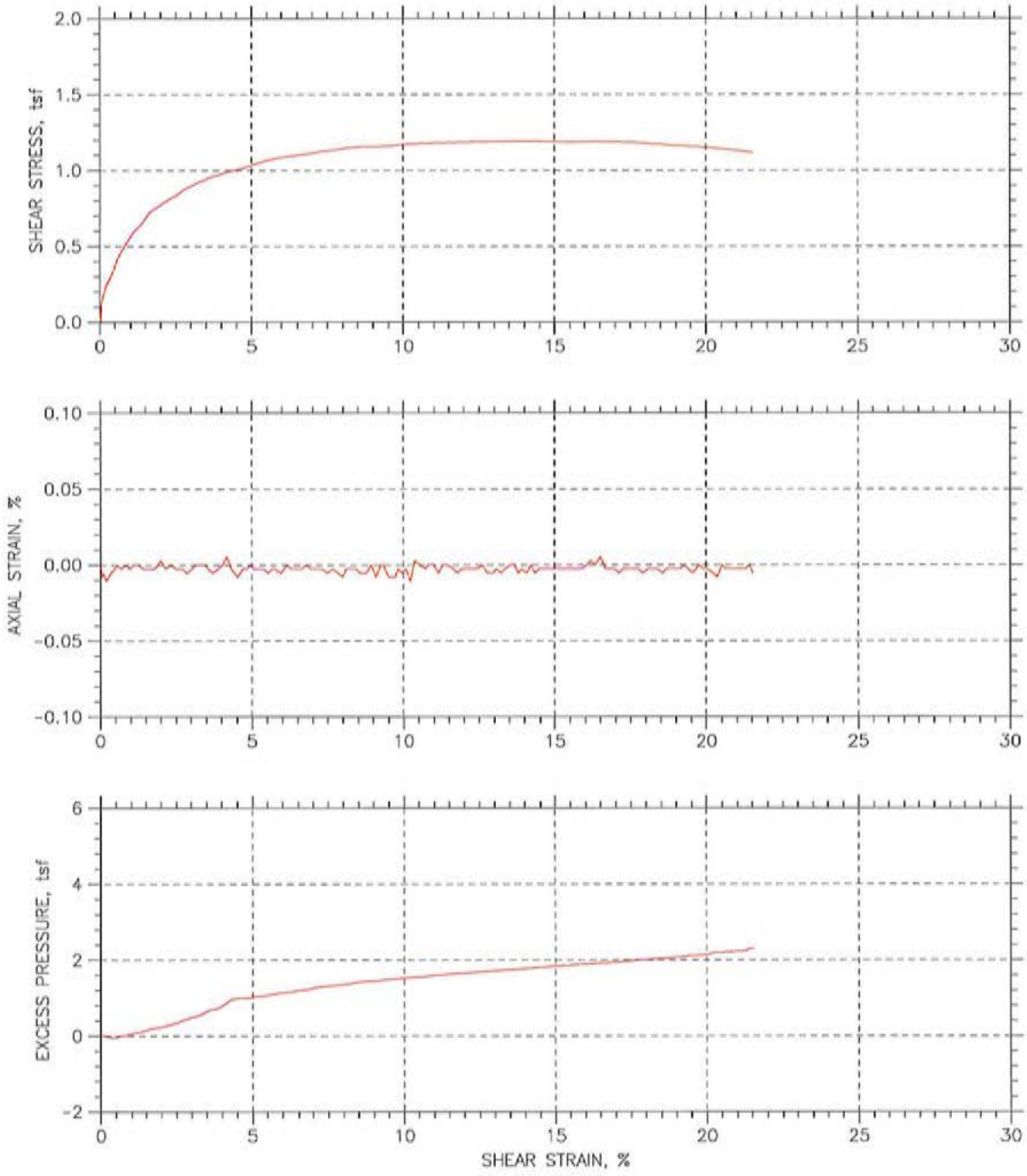
DIRECT SIMPLE SHEAR TEST by ASTM D6528



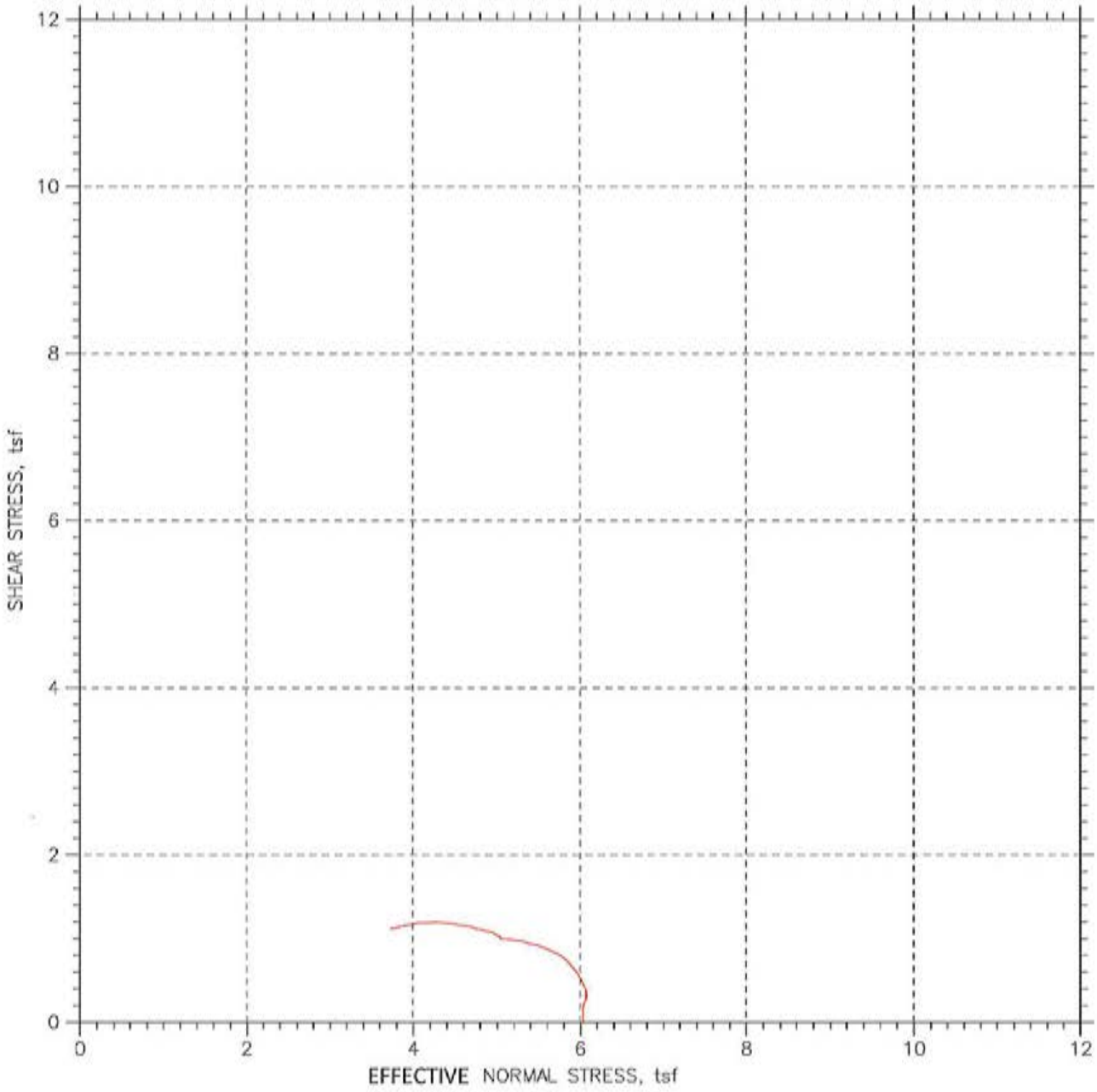
GeoTesting EXPRESS	Project: CWM/RMU-2 GC	Location: Lewiston, NY	Project No.: GTX-12376
	Boring No.: SB12-02	Tested By: rnd	Checked By: jdt
	Sample No.: SB12-02	Test Date: 10/30/12	Test No.: DSS-2
	Depth: 24-26 ft	Sample Type: intact	Elevation: ---
	Description: Moist, brown clay		
	Remarks: System J		
	File: \\Geocompdb1\Projects\GTX12376\DSS\12376-DSS-2n.dat		Page 5 of 7

DIRECT SIMPLE SHEAR TEST by ASTM D6528



GeoTesting EXPRESS	Project: CWM/RMU-2 GC	Location: Lewiston, NY	Project No.: GTX-12376
	Boring No.: SB12-02	Tested By: md	Checked By: jdt
	Sample No.: SB12-02	Test Date: 10/31/12	Test No.: DSS-3
	Depth: 24-26 ft	Sample Type: intact	Elevation: ---
	Description: Moist, brown clay		
	Remarks: System J		
	File: \\Geocompdb1\Projects\GTX12376\DSS\12376-DSS-3n.dat		Page 6 of 7

DIRECT SIMPLE SHEAR TEST by ASTM D6528



GeoTesting EXPRESS	Project: CWM/RMU-2 GC	Location: Lewiston, NY	Project No.: GTX-12376
	Boring No.: SB12-02	Tested By: md	Checked By: jdt
	Sample No.: SB12-02	Test Date: 10/31/12	Test No.: DSS-3
	Depth: 24-26 ft	Sample Type: intact	Elevation: ---
	Description: Moist, brown clay		
	Remarks: System J		
	File: \\Geocompdb1\Projects\GTX12376\DSS\12376-DSS-3n.dat		Page 7 of 7

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TYPE OF CLAY	I_p (%)	K_o	$\varkappa$	φ_e	$\frac{p_c}{p_o}$	D_M
Medium plastic	50	0.65	0.15	15°	1.6	0.45

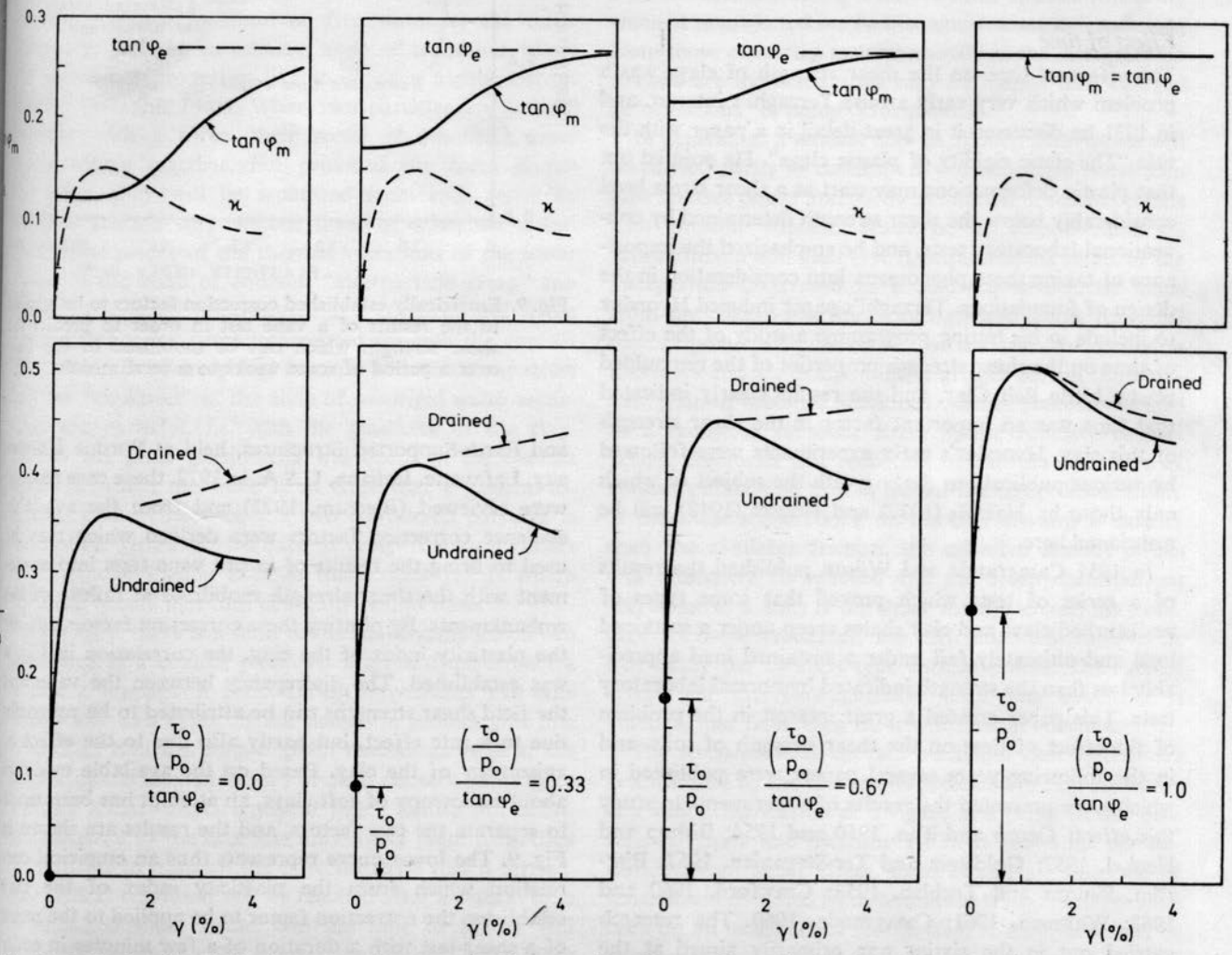


Fig. 8. Drained and undrained stress-strain curves for four samples of a medium plastic clay which initially has carried the same vertical normal stress, p_o, but different horizontal shear stresses, τ_o. The curves are constructed to show the difference in critical shear stress corresponding to different degree of initial mobilization of the effective friction.

constructed, assuming that the cohesion-strain relation is independent of the mobilized friction, as found by Schmertmann and Hall in their tests (1961).

Each of four stress-strain curves shows an initial "elastic" deformation during which the structural arrangement of the clay remains essentially intact, and therefore no further friction is mobilized. At a relatively small strain, a critical shear stress is reached and this coincides with the full mobilization of the effective cohesion. Any increase in shear stress beyond this value is associated with a rearrangement of the structure required to mobilize more friction. In a normally consolidated clay this is accompanied by a tendency for volume reduction. Under undrained conditions this means that pore pressures are set up, leading to a reduction in effective stress and thus to failure. The critical shear stress level at which the effective cohesion is fully mobilized represents therefore the maximum shear stress which can be mobilized under undrained conditions. Under drained conditions the shear stress level at which the cohesion is fully mobilized also represents a critical value, but not the maximum value. The mobilization of additional strength beyond this value requires large strains and is accompanied by a considerable volume change. The stress-strain curve will therefore show a sharp break at the critical shear stress level, and the behaviour of the clay changes abruptly at this stage.

We can thus conclude that for any clay with a loose structure, the stage where the cohesive resistance is fully mobilized and where further increase in shear stress requires mobilization of further friction represents a

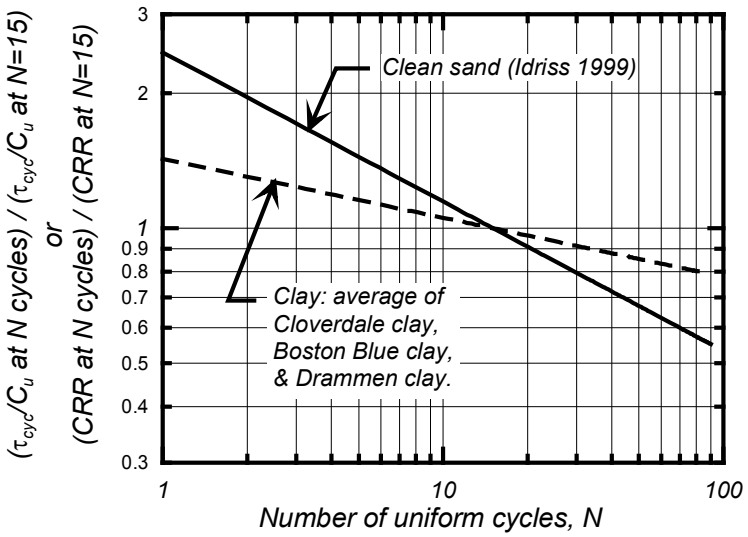


Fig. 25: Variation in cyclic strengths for clay (τ_{cyc}/C_u) and sand (CRR), normalized by the cyclic strength at 15 uniform loading cycles, versus number of uniform loading cycles.

The τ_{cyc}/C_u versus N relations in Figure 24 clearly illustrate that OCR has a strong effect on cyclic strength because of its effects on C_u. For natural deposits of cohesive soils, the approximate relation between undrained shear strength (in simple shear), vertical consolidation stress, and OCR can be expressed as (Ladd and Foott 1974):

$$C_u = \left(\frac{C_u}{\sigma'_{vc}}\right)_{NC} \sigma'_{vc} OCR^{0.8} \tag{29}$$

where $(C_u/\sigma'_{vc})_{NC}$ is the undrained shear strength ratio for normally consolidated conditions (OCR =1). The value of $(C_u/\sigma'_{vc})_{NC}$ is typically equal to 0.20 to 0.24, with higher and lower values being observed for different types of silts and clays, as reported by Ladd (1991). Based on these relations, increasing OCR from 1 to 2 would be accompanied by a 74% increase in C_u. If the ratio τ_{cyc}/C_u is unchanged by the increase in OCR, as observed for Boston Blue clay (Figure 24), then the cyclic resistance τ_{cyc} is also increased by 74%. The importance of OCR on field behavior was well illustrated by Idriss (1985) in showing that the occurrence and nonoccurrence of landslides in Anchorage during the 1964 earthquake could be explained by the differences in OCR at different locations.

The relation between cyclic strength and number of loading cycles is significantly different for clay than for sand, and this has several important consequences on how the simplified procedure might be applied to clay. Figure 25 shows the variation in cyclic strength ratio for clay (τ_{cyc}/C_u) and cyclic resistance ratio for sand (CRR), both normalized by their respective values for 15 uniform loading cycles, versus the number of uniform loading cycles. The slope of the line for the clay is much flatter than that for sand, which indicates that the behavior of the clay is much more dependent on the strongest cycles of loading in an irregular time series. In adapting the procedures previously described for sand, this means that clay will have substantially different relations for (i) equivalent number of loading cycles versus earthquake magnitude, and (ii) MSF. More detailed analyses of how to analyze clay soils within the same framework as sands, and hence facilitate simpler comparisons, are currently in progress. In the mean time, the key point is that clays can develop significant strains and deformation during earthquake loading if the level and duration of shaking are sufficient to overcome the peak resistance of the soil. If that were to happen and sufficient movement were to accrue, the strength of the soil would reduce to its residual (or remolded) strength and if the shaking continues beyond that stage, large movement would ensue. Examples of such behavior are the landslides caused by the strength loss in the Bootlegger Cove clay in downtown Anchorage in the 1964 Alaska earthquake (e.g., Idriss 1985).

There are also those soils that exhibit behavior that is intermediate to those of cohesionless and cohesive soils, and these are the most difficult to address. These soils still require further studies to develop reliable evaluation procedures. The ongoing studies of the field behavior of fine-grained soils during the 1999 Kocaeli (e.g., Sancio et al 2002) and 1999 Chi-Chi (e.g., Stewart et al 2003) earthquakes are particularly interesting.

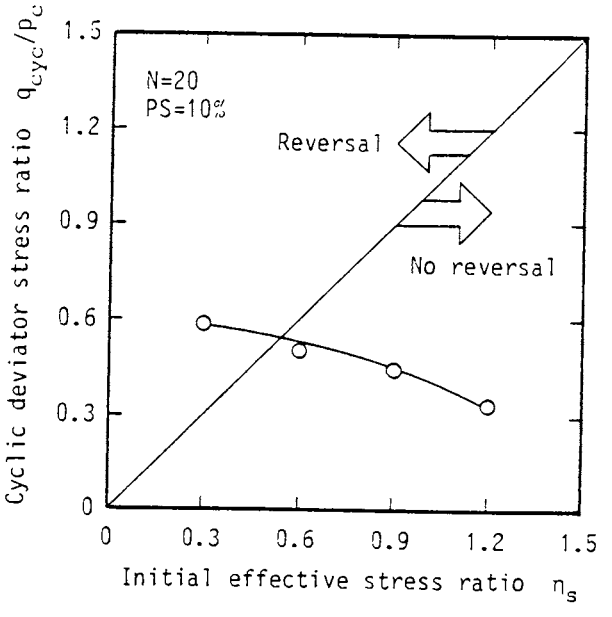


Figure 5 Relationship between normalized cyclic deviator stress and initial static deviator stress to cause PS=10% at 20 cycles

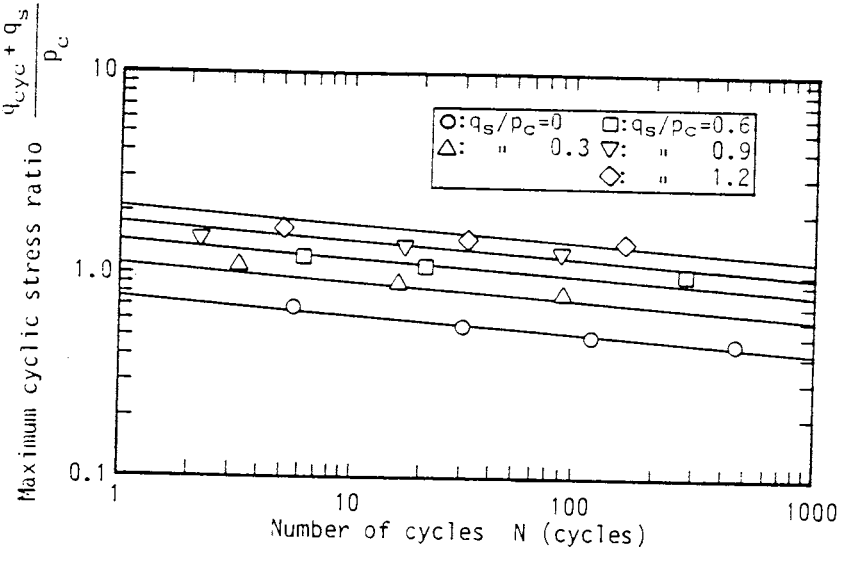


Figure 6 Relationship between cyclic deviator stress ratio $(q_s+q_{cyc})/p_c$ and number of cycles to cause peak axial strain PS=10%

ATTACHMENT 8

P.J.Carey & Associates, P.C.

P J Carey & Associates, PC

CLIENT : CWM SHEET 1 OF 3

PROJECT: RMU-2 DATE:6/17/09

PJCA-JOB No.:

PERFORMED BY: Peter J. Carey

SUBJECT: RMU-2 Triaxial Data

Object of Worksheet:Determine information from test forms of triaxial compression tests with pore pressure

Evaluation of Sample Sully's sample, shear strength only

$$data1 := \begin{pmatrix} 16.81 & 9.87 & 6.9 \\ 30.09 & 15.44 & 14.7 \\ 59.93 & 28.97 & 31 \end{pmatrix} \cdot psi$$

array of p' and q and σ'_3 taken at maximum obliquity

$$fit := line\left(\frac{data1^{\langle 1 \rangle}}{psi}, \frac{data1^{\langle 2 \rangle}}{psi}\right) \qquad fit = \begin{pmatrix} 2.257 \\ 0.445 \end{pmatrix} \qquad stderr\left(data1^{\langle 1 \rangle}, data1^{\langle 2 \rangle}\right) = 0.249 \cdot psi$$

$$\varphi' := asin\left(fit_2\right) \qquad \varphi' = 26.405 \cdot deg$$

for a linear fit

$$c' := \frac{fit_1}{\cos(\varphi')} psi \qquad c' = 362.855 \cdot psf$$

$$\varphi_L := \operatorname{asin}\left(\frac{\text{data1}^{\langle 2\rangle}}{\text{data1}^{\langle 1\rangle}}\right) \qquad \varphi_L = \begin{pmatrix} 35.955 \\ 30.872 \\ 28.908 \end{pmatrix} \cdot \text{deg}$$

$$\sigma'_n := \frac{\overrightarrow{\text{data1}^{\langle 2\rangle}}}{\tan(\varphi_L)}$$

$$\sigma'_n = \begin{pmatrix} 13.607 \\ 25.827 \\ 52.463 \end{pmatrix} \text{psi} \qquad q_f := \text{data1}^{\langle 2\rangle} \qquad q_f = \begin{pmatrix} 9.87 \\ 15.44 \\ 28.97 \end{pmatrix} \text{psi}$$

try a fit using the generic form of the hyperbolic

where the 100 refers to the values at 100 kPa

$$q(\sigma'_n) = \sigma'_n \cdot \tan(\varphi_{p100}) \cdot \left(\frac{100\text{kPa}}{\sigma'_n}\right)^{1-m_p}$$

$\tan(\varphi_{p100})$ can be redined as A and $1\text{-}m_p$ as b

define genfit vectors

$$F(n, A, b) := \begin{bmatrix} A \cdot n \cdot \left(\frac{2089}{n}\right)^b \\ n \cdot \left(\frac{2089}{n}\right)^b \\ A \cdot n \cdot \ln\left(\frac{2089}{n}\right) \cdot \left(\frac{2089}{n}\right)^b \end{bmatrix} \qquad \text{guess} := \begin{pmatrix} .5 \\ .1 \end{pmatrix}$$

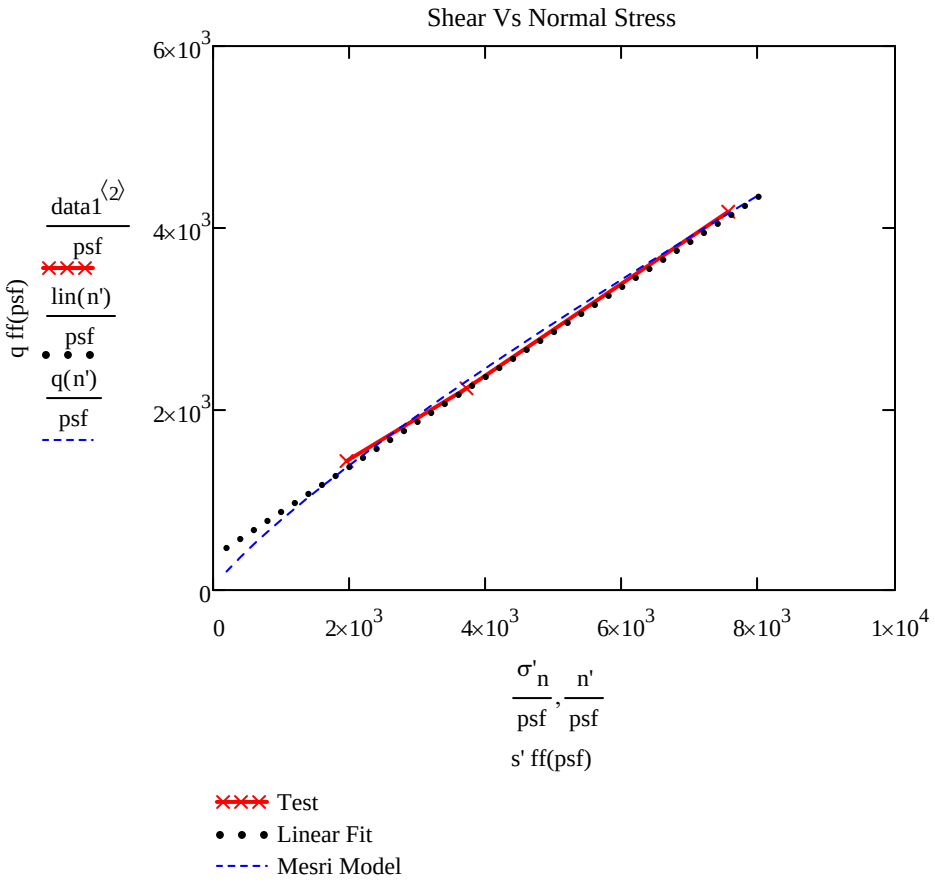
$$cg := \text{genfit}\left(\frac{\sigma'_n}{\text{psf}}, \frac{q_f}{\text{psf}}, \text{guess}, F\right) = \begin{pmatrix} 0.682 \\ 0.168 \end{pmatrix}$$

$$\varphi_{p100} := \operatorname{atan}(cg_1) = 34.295 \cdot \text{deg}$$

$$m_p := 1 - cg_2 = 0.832$$

$$c' = 2.52\,\text{psi}$$

$$\text{lin}(n') := n' \tan(\varphi') + c' \qquad q(n') := n' \cdot \left[cg_1 \cdot \left(\frac{2089\text{psf}}{n'}\right)^{cg_2}\right]$$


Shear Vs Normal Stress
6×10^3
4×10^3
2×10^3
0
0
2×10^3
4×10^3
6×10^3
8×10^3
1×10^4
σ'n / psf , n' / psf
s' ff(psf)
q ff(psf)
data1⟨2⟩ / psf
lin(n') / psf
q(n') / psf
Test
Linear Fit
Mesri Model

P.J.Carey & Associates, P.C.

P J Carey & Associates, PC

CLIENT : CWM SHEET 1 OF 3

PROJECT: RMU-2 DATE:6/19/09

PJCA-JOB No.:

PERFORMED BY: Peter J. Carey

SUBJECT: RMU-2 Triaxial Data

Object of Worksheet:Determine information from test forms of triaxial compression tests with pore pressure

Evaluation of Sample FAC Pond 3 WEST sample, shear strength only

$$data1 := \begin{pmatrix} 16.63 & 9.25 & 25.88 \\ 32.44 & 16.62 & 15.8 \\ 64.06 & 31.95 & 32.1 \end{pmatrix} \cdot psi$$

array of p' and q and σ'_3 taken at maximum obliquity

$$fit := line\left(\frac{data1^{\langle 1 \rangle}}{psf}, \frac{data1^{\langle 2 \rangle}}{psf}\right) \qquad fit = \begin{pmatrix} 171.622 \\ 0.479 \end{pmatrix} \qquad stderr\left(data1^{\langle 1 \rangle}, data1^{\langle 2 \rangle}\right) = 0.158 \cdot psi$$

$$\varphi' := asin\left(fit_2\right) \qquad \varphi' = 28.652 \cdot deg$$

$$c' := \frac{fit_1}{\cos(\varphi')} psf \qquad c' = 195.57 \cdot psf$$

for a linear fit

$$\varphi_L := \operatorname{asin}\left(\frac{\text{data1}^{\langle 2\rangle}}{\text{data1}^{\langle 1\rangle}}\right) \qquad \varphi_L = \begin{pmatrix} 33.795 \\ 30.819 \\ 29.917 \end{pmatrix} \cdot \text{deg}$$

$$\sigma'_n := \frac{\overrightarrow{\text{data1}^{\langle 2\rangle}}}{\tan(\varphi_L)}$$

$$\sigma'_n = \begin{pmatrix} 13.82 \\ 27.859 \\ 55.524 \end{pmatrix} \text{psi} \qquad q_f := \text{data1}^{\langle 2\rangle} \qquad q_f = \begin{pmatrix} 9.25 \\ 16.62 \\ 31.95 \end{pmatrix} \text{psi}$$

try a fit using the generic form of the hyperbolic

where the 100 refers to the values at 100 kPa

$$q(\sigma'_n) = \sigma'_n \cdot \tan(\varphi_{p100}) \cdot \left(\frac{100\text{kPa}}{\sigma'_n}\right)^{1-m_p}$$

$\tan(\varphi_{p100})$ can be redined as A and $1\text{-}m_p$ as b

define genfit vectors

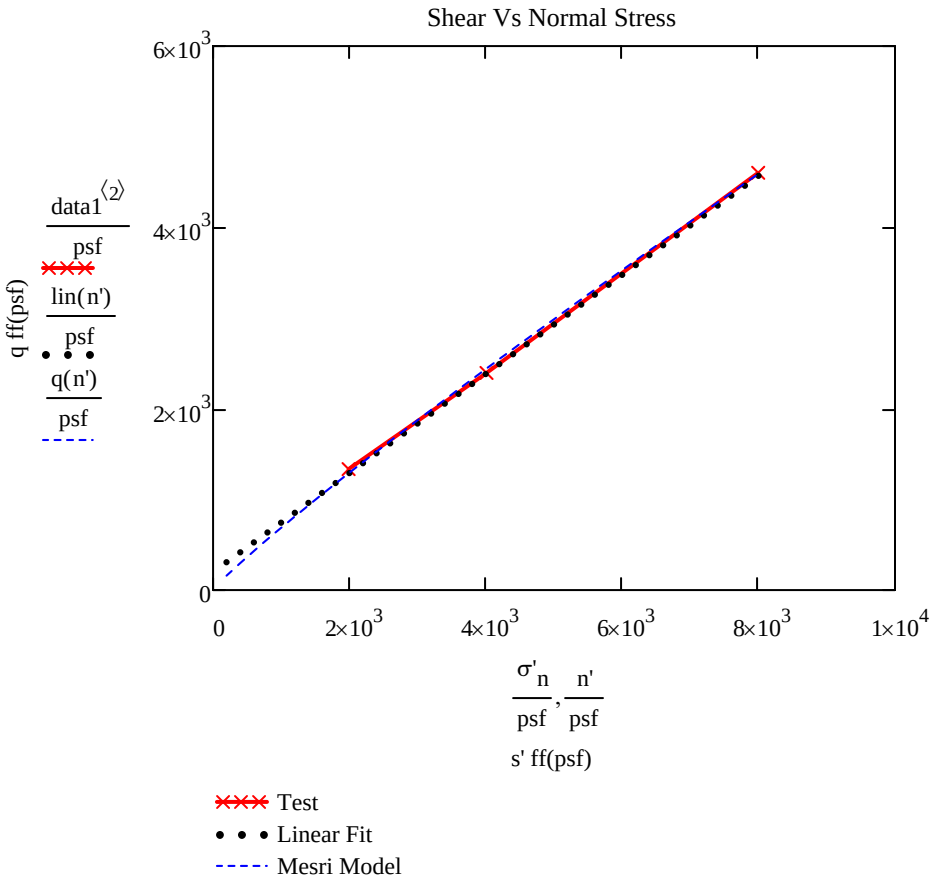
$$F(n, A, b) := \begin{bmatrix} A \cdot n \cdot \left(\frac{2089}{n}\right)^b \\ n \cdot \left(\frac{2089}{n}\right)^b \\ A \cdot n \cdot \ln\left(\frac{2089}{n}\right) \cdot \left(\frac{2089}{n}\right)^b \end{bmatrix} \qquad \text{guess} := \begin{pmatrix} .5 \\ .9 \end{pmatrix}$$

$$cg := \text{genfit}\left(\frac{\sigma'_n}{\text{psf}}, \frac{q_f}{\text{psf}}, \text{guess}, F\right) = \begin{pmatrix} 0.644 \\ 0.086 \end{pmatrix}$$

$$\varphi_{p100} := \operatorname{atan}(cg_1) = 32.767 \cdot \text{deg}$$

$$m_p := 1 - cg_2 = 0.914$$

$$\text{lin}(n') := n' \tan(\varphi') + c' \qquad q(n') := n' \cdot \left[cg_1 \cdot \left(\frac{2089\text{psf}}{n'}\right)^{cg_2}\right]$$


Shear Vs Normal Stress
6×10^3
4×10^3
2×10^3
0
0
2×10^3
4×10^3
6×10^3
8×10^3
1×10^4
q ff(psf)
data1⟨2⟩ / psf
lin(n') / psf
q(n') / psf
σ'n / psf , n' / psf
s' ff(psf)
Test
Linear Fit
Mesri Model

ARCADIS

Appendix A-2

Letter Report Entitled
Geotechnical Investigation for Proposed Residuals Management Unit Number 2 Western Expansion Area (Golder, December 2002)

Golder Associates Inc.

2221 Niagara Falls Boulevard, Suite 9
Niagara Falls, NY USA 14304
Telephone (716) 215-0650
Fax (716) 215-0655

Golder Associates

December 18, 2002

013-9309

CWM Chemical Services, L.L.C.
Model City TSD Facility
1550 Balmer Road
Model City, New York 14107

Attention: Mr. John Hino

RE: LETTER REPORT ON
GEOTECHNICAL INVESTIGATION FOR
PROPOSED RESIDUALS MANAGEMENT UNIT NUMBER 2
WESTERN EXPANSION AREA
MODEL CITY TSD FACILITY, MODEL CITY, NEW YORK

Dear Mr. Hino:

Golder Associates Inc. (Golder) is pleased to submit this letter report for the geotechnical investigation for the proposed Residual Management Unit Number 2 (RMU-2) to be located at the CWM Chemical Services, L.L.C. (CWM) Model City Treatment, Storage, and Disposal (TSD) facility in Model City, New York. The geotechnical investigation was performed directly to the west (Western Expansion) of RMU-1. The investigation was performed in accordance with Change Order No.4/Cost Estimate, prepared by Golder, dated October 31, 2002, in support of landfill design and permitting of RMU-2 by Blasland, Bouck & Lee, Inc. (BB&L). Preliminary results of the investigation were provided to BB&L as they became available.

The geotechnical investigation included the drilling of geotechnical boreholes, field testing, collection of soil samples, and geotechnical laboratory testing. Ten (10) soil borings were drilled as part of the geotechnical investigation between November 5 and November 14, 2002 at the locations shown on Figure 1. The soil borings were logged in the field by a Golder geologist and the logs are provided in Attachment A. A borehole summary is presented in Table 1, which includes soil sample descriptions and depths, Standard Penetration Test (SPT) blow counts, and interpreted stratigraphic breaks in the subsurface soil encountered. Soil samples were collected for visual classification in the field. Selected soil samples were subjected to geotechnical laboratory testing. A summary of the soil samples collected for geotechnical testing and the specific tests performed on each sample is provided in Table 2. Field vane shear tests were performed in three of the boreholes (SB-02-2, SB-02-3, and SB-02-4) and the results are included in Table 3.

in three of the boreholes (SB-02-2, SB-02-3, and SB-02-4) and the results are included in Table 3.

Geotechnical laboratory testing on soil samples collected during the investigation was performed by Golder at our laboratories in Cherry Hill, New Jersey, Atlanta, Georgia, and Mississauga, Ontario, Canada. The samples tested for unconsolidated undrained (UU) triaxial shear were transported by Golder personnel to the Mississauga laboratory to minimize sample disturbance during shipment. A summary of the geotechnical laboratory test results is presented in Table 4. Laboratory test data sheets are provided in Attachment B.

Golder appreciates the continued opportunity to provide CWM with engineering services. If you have any questions or comments, please call the undersigned at (716) 215-0650.

Very truly yours,

GOLDER ASSOCIATES INC.

Jonathan P. Rizzo
Senior Project Geologist

Francis T. Adams, P.E.
Associate/Senior Consultant

Brian C. Senefelder, CHMM
Associate/Office Manager

Attachments

Table 1	Borehole Summary
Table 2	Geotechnical Sample Summary
Table 3	Summary of Field Vane Shear Test Results
Table 4	Geotechnical Laboratory Results Summary
Attachment A	Soil Borehole Logs
Attachment B	Geotechnical Laboratory Results

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TABLE 1
BOREHOLE SUMMARY
GEOTECHNICAL INVESTIGATION - PROPOSED RMU-2 WESTERN EXPANSION AREA
MODEL CITY TSD FACILITY
MODEL CITY, NEW YORK

BOREHOLE NUMBER	COORDINATES		GROUND ELEVATION (ft vsd)	TOP OF UCT ELEVATION (ft vsd)	TOP OF UST ELEVATION (ft vsd)	TOP OF UGC ELEVATION (ft vsd) (1)	THICKNESS OF UGC (ft) (1)	TOP OF MST ELEVATION (ft vsd)	THICKNESS OF MST (ft)	TOP OF LGC ELEVATION (ft vsd)	TOP OF GSS ELEVATION (ft vsd)	THICKNESS OF LGC (ft)	TOP OF BRT ELEVATION (ft vsd)	THICKNESS OF GSS (ft)
	NORTHING	EASTING												
SB-02-01	9,950.62	10,169.11	316.35	316.3	300.3	293.0	0.7	n/a	n/a	n/a	292.3	n/a	280.2	12.1
SB-02-02	8,764.22	10,505.74	321.07	319.1	n/a	307.1	4.0	303.1	4.5	298.6	288.0	10.6	n/a	>7.3
SB-02-2A	8,772.16	10,504.81	320.99	-	-	-	-	-	-	-	-	-	-	-
SB-02-3	9,600.00	10,570.73	321.83	321.8	n/a	307.8	4.0	303.8	6.0	297.8	289.8	8.0	n/a	>4
SB-02-3A	9,588.43	10,561.50	321.20	-	-	-	-	-	-	-	-	-	-	-
SB-02-4	10,001.91	11,015.36	319.76	315.8	n/a	310.9	8.1	302.8	5.4	297.4	285.8	11.6	276.8	9.0
SB-02-5	9,881.80	10,249.01	317.37	317.4	n/a	307.4	17.1	n/a	n/a	n/a	290.3	n/a	n/a	>2.9
SB-02-6	9,950.73	10,255.52	315.02	315.0	n/a	305.0	0.7	304.3	5.3	299.0	291.0	8.0	n/a	>6.0
SB-02-7	9,920.30	10,334.07	316.06	316.1	n/a	303.6	14.2	n/a	n/a	n/a	289.4	n/a	278.1	11.3
SB-02-8	9,945.35	10,430.85	315.54	315.5	309.5	304.9	1.9	303.0	11.5	291.5	289.7	1.8	277.5	12.2

Notes:
- na = Not applicable/not available
- UCT = Upper Clay Till Unit
- UST = Upper Silt Till Unit
- UGC = Upper Glaciolacustrine Clay Unit
- MST = Middle Silt Till Unit
- LGC = Lower Glaciolacustrine Clay Unit
- GSS = Glaciolacustrine Silt/Sand Unit
- BRT = Basal Red Till Unit
- (1) = Also refers to the top of the Glaciolacustrine Clay unit when the LGC is not present.
- ft = Feet
- ft vsd = Feet CWM Vertical Site Datum
- - = Stratigraphic breaks were not logged during drilling.

Table By:	JPR
Reviewed:	FTA
Date:	12/18/02

December 2002

013-9309

TABLE 2
GEOTECHNICAL SAMPLE SUMMARY
GEOTECHNICAL INVESTIGATION
PROPOSED RMU-2 WESTERN EXPANSION AREA
MODEL CITY TSD FACILITY
MODEL CITY, NEW YORK

Sample Identification		Depth (ft bgs)	Sampled Unit	Unit Weight	M%	Atterberg Limits	Triaxial U/U	Triaxial C/U	Consol-idation
Borehole Number	Sample Number								
SB-02-2	SA-7	14-16	UGC		x				
SB-02-2	SA-8	16-18	UGC		x				
SB-02-2	SA-12	24-26	LGC		x				
SB-02-2	SA-13	26-28	LGC		x				
SB-02-2	SA-14	28-30	LGC	x	x	x	x		
SB-02-2	SA-15	30-32	LGC		x				
SB-02-2	SA-16	32-34	LGC		x				
SB-02-2A	SA-1	16-18	UGC		x	x			
SB-02-2A	SA-2	24-26	LGC	x	x		x		
SB-02-2A	SA-3	26-28	LGC	x	x			x	
SB-02-2A	SA-4	28-30	LGC	x	x				x
SB-02-2A	SA-5	30-32	LGC	x	x			x	
SB-02-3	SA-9	16-18	UGC		x				
SB-02-3	SA-13	24-26	LGC		x				
SB-02-3	SA-15	28-30	LGC		x	x			
SB-02-3A	SA-1	14-16	UGC	x	x				x
SB-02-3A	SA-3	28-30	LGC	x	x				x
SB-02-4	SA-6	10-12	UGC	x	x			x	
SB-02-4	SA-7	12-14	UGC	x	x			x	
SB-02-4	SA-12	22-24	LGC		x				
SB-02-4	SA-13	24-26	LGC	x	x		x		
SB-02-4	SA-14	26-28	LGC	x	x		x		
SB-02-4	SA-15	28-30	LGC	x	x			x	
SB-02-4	SA-16	30-32	LGC	x	x	x	x		
SB-02-5	SA-6	10-12	GC		x				
SB-02-5	SA-7	12-14	GC		x				
SB-02-5	SA-8	14-16	GC		x				
SB-02-5	SA-9	16-18	GC		x				
SB-02-5	SA-10	18-20	GC		x				

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TABLE 2
GEOTECHNICAL SAMPLE SUMMARY
GEOTECHNICAL INVESTIGATION
PROPOSED RMU-2 WESTERN EXPANSION AREA
MODEL CITY TSD FACILITY
MODEL CITY, NEW YORK

Sample Identification		Depth (ft bgs)	Sampled Unit	Unit Weight	M%	Atterberg Limits	Triaxial U/U	Triaxial C/U	Consol-idation
Borehole Number	Sample Number								
SB-02-5	SA-11	20-22	GC		x				
SB-02-5	SA-12	22-24	GC		x				
SB-02-5	SA-13	24-26	GC		x				
SB-02-5	SA-14	26-27	GC		x				
SB-02-6	SA-9	16-18	LGC		x				
SB-02-6	SA-10	18-20	LGC		x				
SB-02-6	SA-11	20-22	LGC		x				
SB-02-6	SA-12	22-24	LGC		x				
SB-02-7	SA-7B	12.5-13.2	GC		x				
SB-02-7	SA-8	14-16	GC		x				
SB-02-7	SA-9	16-18	GC		x				
SB-02-7	SA-10	18-20	GC		x				
SB-02-7	SA-11	20-22	GC		x				
SB-02-7	SA-12	22-24	GC		x				
SB-02-7	SA-13	24-26	GC		x				
SB-02-7	SA-14	26-26.7	GC		x				
SB-02-8	SA-13	24-26	LGC		x				

Notes:
ft bgs = Feet below ground surface
GC = Glaciolacustrine Clay Unit
UGC = Upper Glaciolacustrine Clay Unit
LGC = Lower Glaciolacustrine Clay Unit
UT = Upper Tills Unit
GSS = Glaciolacustrine Silt/Sand Unit
M% = Natural Moisture Content
Triaxial U/U = Unconsolidated Undrained Triaxial Shear (ASTM D2850)
Triaxial C/U = Consolidated Undrained Triaxial Shear (ASTM D4767)
Atterberg Limits (ASTM D4318)
Consolidation (ASTM D2435)

Table By:	JPR
Reviewed:	FTA
Date:	12/18/02

TABLE 3
SUMMARY OF FIELD VANE SHEAR TEST RESULTS
GEOTECHNICAL INVESTIGATION - PROPOSED RMU-2 WESTERN EXPANSION AREA
MODEL CITY TSD FACILITY
MODEL CITY, NEW YORK

BOREHOLE NUMBER	DEPTH OF TEST (ft bgs)	INSITU FORCE (lbs)	FORCE ROD RADIUS (inches)	PEAK UNDRAINED SHEAR STRENGTH (psf)	RESIDUAL FORCE (lbs)	FORCE ROD RADIUS (inches)	RESIDUAL UNDRAINED SHEAR STRENGTH (psf)
SB-02-2	31.5	26	12	1040	8	12	320
SB-02-3	31.5	26.5	12	1060	14.5	12	580
SB-02-4	33.5	24	12	960	15	12	600

Notes: ft bgs = Feet Below Ground Surface bottom of vane shear apparatus located.
lbs = Pounds
psf = Pounds per square foot

Table By:	JPR
Reviewed:	FTA
Date:	12/18/02

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TABLE 4
GEOTECHNICAL LABORATORY RESULTS SUMMARY
GEOTECHNICAL INVESTIGATION - RMU-2 WESTERN EXPANSION AREA
MODEL CITY TSD FACILITY
MODEL CITY, NEW YORK

Sample Identification		Sample Type	Sample Depth (ft bgs)	Soil Classification	Natural Moisture %	Atterberg Limits			Gs	Unit Weight		Additional Tests Conducted (See Notes)
Boring Number	Sample Number					L.L.	P.L.	P.I.		Moisture %	Dry (lb/cuft)	
SB-02-2	SA-7	Jar	14-16	(CL)	21.8	-	-	-	-	-	-	-
SB-02-2	SA-8	Jar	16-18	(CL)	21.3	-	-	-	-	-	-	-
SB-02-2	SA-12	Jar	24-26	(CL)	33.6	-	-	-	-	-	-	-
SB-02-2	SA-13	Jar	26-28	(CL)	33.2	-	-	-	-	-	-	-
SB-02-2	SA-14	UD	28-30	CL	28.9	36	18	18		30.6	93.3	T U/U
SB-02-2	SA-15	Jar	30-32	(CL)	23.5	-	-	-	-	-	-	-
SB-02-2	SA-16	Jar	32-34	(CL)	34.5	-	-	-	-	-	-	-
SB-02-2A	SA-1	Jar	16-18	CL	22.3	29	16	13	-	-	-	-
SB-02-2A	SA-2	UD	24-26	(CL)	33.1	-	-	-		33.1	89.0	T U/U
SB-02-2A	SA-3	UD	26-28	(CL)	31.4	-	-	-		31.4	96.2	T C/U
SB-02-2A	SA-4	UD	28-30	(CL)	32.3	-	-	-		32.3	79.7	C
SB-02-2A	SA-5	UD	30-32	(CL)	32.8	-	-	-		32.8	92.6	T C/U
SB-02-3	SA-9	Jar	16-18	(CL)	19.2	-	-	-	-	-	-	-
SB-02-3	SA-13	Jar	24-26	(CL)	31.8	-	-	-	-	-	-	-
SB-02-3	SA-15	Jar	28-30	CL	25.7	28	15	13	-	-	-	-
SB-02-3A	SA-1	UD	14-16	(CL)	17.7	-	-	-	-	17.7	115.6	C
SB-02-3A	SA-3	UD	28-30	(CL)	15.7	-	-	-	-	15.7	112.0	C
SB-02-4	SA-6	UD	10-12	(CL)	14.6	-	-	-	2.75	14.6	120.6	T C/U
SB-02-4	SA-7	UD	12-14	(CL)	13.1	-	-	-	2.77	13.1	125.1	T C/U
SB-02-4	SA-12	Jar	22-24	(CL)	32.5	-	-	-	-	-	-	-
SB-02-4	SA-13	UD	24-26	(CL)	28.8	-	-	-	2.77	28.8	95.6	T U/U
SB-02-4	SA-14	UD	26-28	(CL)	27.1	-	-	-	2.76	27.1	98.2	T U/U
SB-02-4	SA-15	UD	28-30	(CL)	26.1	-	-	-	2.81	26.1	99.9	T C/U
SA-02-4	SA-16	UD	30-32	CL	25.3	33	18	16	2.75	25.5	100.1	T U/U
SB-02-5	SA-6	Jar	10-12	(CL)	17.2	-	-	-	-	-	-	-
SB-02-5	SA-7	Jar	12-14	(CL)	18.3	-	-	-	-	-	-	-
SB-02-5	SA-8	Jar	14-16	(CL)	18.7	-	-	-	-	-	-	-
SB-02-5	SA-9	Jar	16-18	(CL)	15.8	-	-	-	-	-	-	-
SB-02-5	SA-10	Jar	18-20	(CL)	17.8	-	-	-	-	-	-	-

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TABLE 4
GEOTECHNICAL LABORATORY RESULTS SUMMARY
GEOTECHNICAL INVESTIGATION - RMU-2 WESTERN EXPANSION AREA
MODEL CITY TSD FACILITY
MODEL CITY, NEW YORK

Sample Identification		Sample Type	Sample Depth (ft bgs)	Soil Classification	Natural Moisture %	Atterberg Limits			Gs	Unit Weight		Additional Tests Conducted (See Notes)
Boring Number	Sample Number					L.L.	P.L.	P.I.		Moisture %	Dry (lb/cuft)	
SB-02-5	SA-11	Jar	20-22	(CL)	29.2	-	-	-	-	-	-	-
SB-02-5	SA-12	Jar	22-24	(CL)	28.5	-	-	-	-	-	-	-
SB-02-5	SA-13	Jar	24-26	(CL)	24.2	-	-	-	-	-	-	-
SB-02-5	SA-14	Jar	26-27	(CL)	19.2	-	-	-	-	-	-	-
SB-02-6	SA-9	Jar	16-18	(CL)	17.9	-	-	-	-	-	-	-
SB-02-6	SA-10	Jar	18-20	(CL)	13.0	-	-	-	-	-	-	-
SB-02-6	SA-11	Jar	20-22	(CL)	13.6	-	-	-	-	-	-	-
SB-02-6	SA-12	Jar	22-24	(CL)	20.3	-	-	-	-	-	-	-
SB-02-7	SA-7B	Jar	12.4-13.2	(CL)	37.3	-	-	-	-	-	-	-
SB-02-7	SA-8	Jar	14-16	(CL)	35.8	-	-	-	-	-	-	-
SB-02-7	SA-9	Jar	16-18	(CL)	37.4	-	-	-	-	-	-	-
SB-02-7	SA-10	Jar	18-20	(CL)	43.2	-	-	-	-	-	-	-
SB-02-7	SA-11	Jar	20-22	(CL)	35.7	-	-	-	-	-	-	-
SB-02-7	SA-12	Jar	22-24	(CL)	30.6	-	-	-	-	-	-	-
SB-02-7	SA-13	Jar	24-26	(CL)	31.7	-	-	-	-	-	-	-
SB-02-7	SA-14	Jar	26-26.8	(CL)	31.2	-	-	-	-	-	-	-
SB-02-8	SA-13	Jar	24-26	(CL)	21.3	-	-	-	-	-	-	-

NOTES:

LIQUID LIMIT (LL)
PLASTIC LIMIT (PL)
PLASTICITY INDEX (PI)
LIQUIDITY INDEX (LI)
SPECIFIC GRAVITY (Gs)
MOISTURE (Me)
T U/U = TRIAXIAL UNCONSOLIDATED UNDRAINED SHEAR
T C/U = TRIAXIAL CONSOLIDATED UNDRAINED SHEAR
C = CONSOLIDATION TEST
UD = UNDISTURBED

Table By:	JPR
Reviewed:	FTA
Date:	12/18/02

ATTACHMENT A

SOIL BOREHOLE LOGS

GOLDER ASSOCIATES INC.

SOIL BOREHOLE LOG

SITE NAME AND LOCATION
CWM CHEMICAL SERVICES, L.L.C.,
MODEL CITY, NY

RMU-2 GEOTECHNICAL INVESTIGATION
WESTERN EXPANSION

N: 9950.62 E: 10169.11
DATUM MSL ELEVATION 316.3

DRILLING METHOD:
4 1/4" ID HOLLOW STEM AUGER

SAMPLING METHOD: 24" SPLIT SPOON (S.S)
3" x 24" Thin Walled Tube
Piston (TP) and Standard (TO)

BORING NO. SB-02-1

SHEET 1 OF 2

					DRILLING START	DRILLING FINISH
WATER LEVEL	N/A					
TIME	N/A				TIME 1115	TIME 1515
DATE	N/A				DATE 11/11/02	DATE 11/11/02
CASING DEPTH	N/A					

DRILL RIG CME-550 ATV
ANGLE VERTICAL BEARING N/A
SAMPLE HAMMER TORQUE 140 lb. 30 in.
SURFACE CONDITIONS

DRILLING CONTR Joe Jenson
SJB SERVICES, INC.

LOGGED BY ANTHONY NOTARO
DATE 12/18/02 CHKD BY JPR

DEPTH IN FEET	BLOWS/6 IN. ON SAMPLER (RECOVERY)	SYMBOL	SAMPLE NUMBER AND DESCRIPTION OF MATERIAL	SAMPLER AND BIT	CASING TYPE	BLOWS/FOOT ON CASING	TEST RESULTS: WATER CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	PLASTIC INDEX	Pocket Pen. (TSF)
0.0	6-12-18-18 (58%)		1	SS							>4.5
	20-22-30-20 (63%)		2	SS							>4.5
5.0	12-14-18-15 (58%)		3	SS							>4.5
	14-19-15-16 (79%)		4 UPPER CLAY TILL	SS							>4.5
	9-9-16-25 (79%)		5 firm to hard, dark brown, clayey SILT to silty CLAY, trace fine to coarse sand, trace gravel (ML-CL)	SS							2.75
10.0	17-20-18-27 (13%)		6	SS							>4.5
	22-19-18-23 (25%)		7	SS							1.7
	15-17-15-15 (0%)		8	SS							1
15.0			16.0 (300.3)								
	13-15-18-20 (63%)		9 UPPER SILT TILL	SS							2.0
	7-9-8-12 (58%)		10 compact, brown, SILT and fine SAND; little to some clay, trace gravel; wet to saturated at 20ft. to 22ft. (ML)	SS							3.5
20.0	8-12-12-13 (54%)		11	SS							2.0
	13-9-8-8 (100%)		12 23.33 (292.97)	SS							0.5
	9-11-12-13 (54%)		24.0 (292.30) GLACIOLACUSTRINE CLAY 13 soft, brown-gray, silty CLAY; trace fine sand, trace gravel (CL)	SS							1.6
25.0	15-17-15-14 (83%)		GLACIOLACUSTRINE SILT and SAND 14 compact to very dense, brown-gray to brown, SILT and fine to medium SAND, trace to some clay, trace to little gravel;	SS							>4.5
	12-22-30-60 (75%)		15 stiff brown-gray clayey SILT at 26ft. to 28ft. (ML-SM) saturated at 28ft. to 30ft. and 32ft. to 34ft.	SS							2.2
30.0											

GOLDER ASSOCIATES INC.

SOIL BOREHOLE LOG

SITE NAME AND LOCATION
CWM CHEMICAL SERVICES, L.L.C.,
MODEL CITY, NY

RMU-2 GEOTECHNICAL INVESTIGATION
WESTERN EXPANSION

N: 9950.62 E: 10169.11
DATUM MSL ELEVATION 316.3

DRILLING METHOD:
4 1/4" ID HOLLOW STEM AUGER

SAMPLING METHOD: 24" SPLIT SPOON (S.S)
3" x 24" Thin Walled Tube
Piston (TP) and Standard (TO)

BORING NO. SB-02-1

SHEET 2 OF 2

		DRILLING START	DRILLING FINISH
WATER LEVEL	N/A		
TIME	N/A	TIME 1115	TIME 1515
DATE	N/A	DATE 11/11/02	DATE 11/11/02
CASING DEPTH	N/A		

DRILL RIG CME-550 ATV
ANGLE VERTICAL BEARING N/A
SAMPLE HAMMER TORQUE 140 lb. 30 in.
SURFACE CONDITIONS

DRILLING CONTR Joe Jenson
SJB SERVICES, INC.

DEPTH IN FEET	BLOWS/6 IN. ON SAMPLER (RECOVERY)	SYMBOL	SAMPLE NUMBER AND DESCRIPTION OF MATERIAL	SAMPLER AND BIT	CASING TYPE	BLOWS/FOOT ON CASING	TEST RESULTS: WATER CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	PLASTIC INDEX	Pocket Pen. (TSF)
30.0	27-50 (75%)		16	SS							
	30-30-50 (78%)		17 GLACIOLACUSTRINE SILT and SAND	SS							
35.0	21-50 (100%)		18 very dense, brown-gray to brown, medium to coarse SAND and fine to coarse GRAVEL, trace silt, trace clay (SW)	SS							
	29-50/3" (100%)		36.17 (280.13) 19 BASAL RED TILL	SS							
40.0	50/4" (100%)		20 very dense, red-brown, clayey SILT, trace to little fine to coarse sand, trace to little gravel (ML)	SS							
	52/4" (100%)		21	SS							
			42.0 (274.3) END OF BOREHOLE								
45.0											
50.0											
55.0											
60.0											

LOGGED BY ANTHONY NOTARO
DATE 12/18/02 CHKD BY JPR

GOLDER ASSOCIATES INC.

SOIL BOREHOLE LOG

SITE NAME AND LOCATION
CWM CHEMICAL SERVICES, L.L.C.,
MODEL CITY, NY

RMU–2 GEOTECHNICAL INVESTIGATION
WESTERN EXPANSION

N: 8764.22 E: 10505.74
DATUM MSL ELEVATION 321.1

DRILLING METHOD:
4 1/4" ID HOLLOW STEM AUGER

SAMPLING METHOD: 24" SPLIT SPOON (S.S)
3" x 24" Thin Walled Tube
Piston (TP) and Standard (TO)

					START	FINISH
WATER LEVEL	N/A				TIME	TIME
TIME	N/A				1030	1000
DATE	N/A				DATE	DATE
CASING DEPTH	N/A				11/5/02	11/6/02

BORING NO. SB-02-2
SHEET 1 OF 2
DRILLING

DRILL RIG CME–550 ATV
ANGLE VERTICAL BEARING N/A
SAMPLE HAMMER TORQUE 140 lb. 30 in.
SURFACE CONDITIONS

DRILLING CONTR Joe Jenson
SJB SERVICES, INC.

LOGGED BY ANTHONY NOTARO
DATE 12/18/02 CHKD BY JPR

DEPTH IN FEET	BLOWS/6 IN. ON SAMPLER (RECOVERY)	SYMBOL	SAMPLE NUMBER AND DESCRIPTION OF MATERIAL	SAMPLER AND BIT	CASING TYPE	BLOWS/FOOT ON CASING	TEST RESULTS: WATER CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	PLASTIC INDEX	Pocket Pen. (TSF)
0.0	—		GRAVEL ROAD BASE (augered with no sampling)								
			2.0' (319.1)								
	15-16-15-16 (67%)		1 UPPER CLAY TILL	SS							>4.5
5.0	6-10-14-14 (50%)		2 soft to very stiff, dark brown to brown-red, silty	SS							>4.5
	15-15-16-15 (58%)		3 CLAY, trace gravel; trace fine sand; some gray	SS							2.0
	6-7-7-6 (71%)		4 clay infilling of fractures (CL)	SS							1.75
10.0	2-3-3-4 (83%)		5	SS							1.5
	5-7-6-7 (75%)		6	SS							1.0
			14.0 (307.1)								
	2-3-3-3 (46%)		7 UPPER GLACIOLACUSTRINE CLAY	SS							0.4
15.0	4-4-7-16 (71%)		8 soft, brown, silty CLAY, trace coarse sand, trace fine gravel (CL)	SS							0.25
			18.0 (303.1)								
	25-30-33-34 (75%)		9 MIDDLE SILT TILL	SS							/
20.0	15-20-15-11 (42%)		10 dense to very dense, brown-red, SILT and fine SAND, trace to some gravel; angular rock fragments (SM)	SS							2.1
			22.5' (298.6)								
	13-14-12-13 (50%)		11 LOWER GLACIOLACUSTRINE CLAY	SS							0.4
	2-3-3-3 (100%)		12 soft to very soft, brown to gray, silty CLAY, trace	SS							0.4
25.0	3-3-2-4 (75%)		13 gravel, trace fine sand (CL)	SS							0.25
	—		14	TP							/
	(84%)										
30.0											

GOLDER ASSOCIATES INC.

SOIL BOREHOLE LOG

SITE NAME AND LOCATION
CWM CHEMICAL SERVICES, L.L.C.,
MODEL CITY, NY.

RMU-2 GEOTECHNICAL INVESTIGATION
WESTERN EXPANSION

N: 8764.22 E: 10505.74
DATUM MSL ELEVATION 321.1

DRILLING METHOD:
4 1/4" ID HOLLOW STEM AUGER

SAMPLING METHOD: 24" SPLIT SPOON (S.S)
3" x 24" Thin Walled Tube
Piston (TP) and Standard (TO)

BORING NO. SB-02-2
SHEET 2 OF 2

					DRILLING START	DRILLING FINISH
WATER LEVEL	N/A				TIME	TIME
TIME	N/A				1030	1000
DATE	N/A				DATE	DATE
CASING DEPTH	N/A				11/5/02	11/6/02

DRILL RIG CME-550 ATV
ANGLE VERTICAL BEARING N/A
SAMPLE HAMMER TORQUE 140 lb. 30 in.
SURFACE CONDITIONS

DRILLING CONTR Joe Jenson
SJB SERVICES, INC.

DEPTH IN FEET	BLOWS/6 IN. ON SAMPLER (RECOVERY)	SYMBOL	SAMPLE NUMBER AND DESCRIPTION OF MATERIAL	SAMPLER AND BIT	CASING TYPE	BLOWS/FOOT ON CASING	TEST RESULTS: WATER CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	PLASTIC INDEX	Pocket Pen. (TSF)
30.0	V.S.		15 LOWER GLACIOLACUSTRINE CLAY								/
	— (54%)		33.1 (288.0) 16 GLACIOLACUSTRINE SILT and SAND	TO							/
35.0	6-8-7-10 (46%)		17 compact to very dense, dark brown to red-brown, silty	SS							/
	13-15-18-30 (29%)		18 fine SAND; soft to hard, dark brown to red-brown	SS							3.8
	40-27-23-2 (25%)		clayey SILT; trace gravel; 19 very dense, red-brown, medium to coarse SAND and	SS							/
40.0	33-50 (100%)		GRAVEL, trace silt, wet to saturated from 38 ft. to 20 40 ft. (SM-ML)	SS							/
	/		(42 ft to 44 ft augered with no sampling)								/
45.0	50/3" (100%)		21 46.0 (275.1)	SS							/
			END OF BOREHOLE								
50.0											
55.0											
60.0											

LOGGED BY ANTHONY NOTARO
DATE 12/18/02 CHKD BY JPR

GOLDER ASSOCIATES INC.

SOIL BOREHOLE LOG

SITE NAME AND LOCATION
CWM CHEMICAL SERVICES, L.L.C.,
MODEL CITY, NY

RMU-2 GEOTECHNICAL INVESTIGATION
WESTERN EXPANSION

N: 8772.16 E: 10504.81
DATUM MSL ELEVATION 321.0

DRILLING METHOD:
4 1/4" ID HOLLOW STEM AUGER

SAMPLING METHOD: 24" SPLIT SPOON (S.S)
3" x 24" Thin Walled Tube
Piston (TP) and Standard (TO)

					DRILLING START	DRILLING FINISH
WATER LEVEL	N/A				TIME	TIME
TIME	N/A				1100	1430
DATE	N/A				DATE	DATE
CASING DEPTH	N/A				11/6/02	11/6/02

BORING NO. SB-02-2A
SHEET 1 OF 2

DRILL RIG CME-550 ATV
ANGLE VERTICAL BEARING N/A
SAMPLE HAMMER TORQUE 140 lb. 30 in.
SURFACE CONDITIONS

DRILLING CONTR Joe Jenson
SJB SERVICES, INC.

LOGGED BY ANTHONY NOTARO
DATE 12/18/02 CHKD BY JPR

DEPTH IN FEET	BLOWS/6 IN. ON SAMPLER (RECOVERY)	SYMBOL	SAMPLE NUMBER AND DESCRIPTION OF MATERIAL	SAMPLER AND BIT	CASING TYPE	BLOWS/FOOT ON CASING	TEST RESULTS: WATER CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	PLASTIC INDEX	Pocket Pen. (TSF)
0.0			AUGERED WITH NO SAMPLING								
			(see borehole log SB-02-2 for soil description)								
10.0											
			14.0 (307.0)								
15.0	— (0%)		UPPER GLACIOLACUSTRINE CLAY	TO							
	— (63%)	1	soft, brown, silty CLAY to clayey SILT; trace coarse sand, trace gravel (CL)	TP							
			18.0 (303.0)								
20.0			AUGERED WITH NO SAMPLING								
			22.0 (299.0)								
	2-2-2-2 (100%)		LOWER GLACIOLACUSTRINE CLAY	SS							
25.0	— (100%)	2	soft to very soft, brown-gray, silty CLAY, trace fine sand, trace fine gravel (CL)	TP							
	— (100%)	3		TO							
	— (100%)	4		TP							
30.0											

GOLDER ASSOCIATES INC.

SOIL BOREHOLE LOG

SITE NAME AND LOCATION
CWM CHEMICAL SERVICES, L.L.C.,
MODEL CITY, NY

RMU-2 GEOTECHNICAL INVESTIGATION
WESTERN EXPANSION

N: 8772.16 E: 10504.81
DATUM MSL ELEVATION 321.0

DRILLING METHOD: 4 1/4" ID HOLLOW STEM AUGER

SAMPLING METHOD: 24" SPLIT SPOON (S.S)
3" x 24" Thin Walled Tube
Piston (TP) and Standard (TO)

BORING NO. SB-02-2A

SHEET 2 OF 2

					DRILLING START	DRILLING FINISH
WATER LEVEL	N/A					
TIME	N/A				TIME 1100	TIME 1430
DATE	N/A				DATE 11/6/02	DATE 11/6/02
CASING DEPTH	N/A					

DRILL RIG CME-550 ATV
ANGLE VERTICAL BEARING N/A
SAMPLE HAMMER TORQUE 140 lb. 30 in.

SURFACE CONDITIONS

DRILLING CONTR Joe Jenson
SJB SERVICES, INC.

DEPTH IN FEET	BLOWS/ 6 IN. ON SAMPLER (RECOVERY)	SYMBOL	SAMPLE NUMBER AND DESCRIPTION OF MATERIAL	SAMPLER AND BIT	CASING TYPE	BLOWS/FOOT ON CASING	TEST RESULTS: WATER CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	PLASTIC INDEX	Pocket Pen. (TSF)
30.0	— (92%)		5 32.0 (289.0) LOWER GLACIOLACUSTRINE CLAY	TO							
			END OF BOREHOLE								
35.0											
40.0											
45.0											
50.0											
55.0											
60.0											

LOGGED BY ANTHONY NOTARO
DATE 12/18/02 CHKD BY JPR

GOLDER ASSOCIATES INC.

SOIL BOREHOLE LOG

SITE NAME AND LOCATION
CWM CHEMICAL SERVICES, L.L.C.,
MODEL CITY, NY

RMU-2 GEOTECHNICAL INVESTIGATION
WESTERN EXPANSION

N: 9600.0 E: 10570.73
DATUM MSL ELEVATION 321.8

DRILLING METHOD: 4 1/4" ID HOLLOW STEM AUGER
SAMPLING METHOD: 24" SPLIT SPOON (S.S)
3" x 24" Thin Walled Tube
Piston (TP) and Standard (TO)

BORING NO. SB-02-3
SHEET 1 OF 2

		DRILLING START	DRILLING FINISH
WATER LEVEL	N/A		
TIME	N/A	0905	1145
DATE	N/A	11/7/02	11/7/02
CASING DEPTH	N/A		

DRILL RIG CME-550 ATV
ANGLE VERTICAL BEARING N/A
SAMPLE HAMMER TORQUE 140 lb. 30 in.
SURFACE CONDITIONS

DRILLING CONTR Joe Jenson
SJB SERVICES, INC.

LOGGED BY ANTHONY NOTARO
DATE 12/18/02 CHKD BY JPR

DEPTH IN FEET	BLOWS/6 IN. ON SAMPLER (RECOVERY)	SYMBOL	SAMPLE NUMBER AND DESCRIPTION OF MATERIAL	SAMPLER AND BIT	CASING TYPE	BLOWS/FOOT ON CASING	TEST RESULTS: WATER CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	PLASTIC INDEX	Pocket Pen. (TSF)
0.0	3-8-10-11 (38%)		1	SS							>4.5
	10-15-14-15 (42%)		2	SS							2.5
5.0	8-17-14-20 (54%)		3 UPPER CLAY TILL	SS							>4.5
	22-26-30-30 (67%)		4 very stiff to firm, brown to brown-red, silty CLAY to clayey SILT, trace fine to coarse sand, trace gravel;	SS							>4.5
	10-13-14-16 (67%)		5 brown sandy SILT, trace gravel 7ft 10in. to 8ft. 3in. (CL-ML)	SS							>4.5
10.0	5-7-10-10 (79%)		6	SS							2.5
	13-13-17-10 (50%)		7 14.0 (307.8)	SS							1.4
15.0	1-2-3-4 (100%)		8 UPPER GLACIOLACUSTRINE CLAY	SS							0.5
	4-5-6-6 (67%)		9 soft, brown-gray, silty CLAY, trace fine to coarse sand, trace gravel (CL) 18.0 (303.8)	SS							0.25
	5-7-8-9 (71%)		10 MIDDLE SILT TILL	SS							1.1
20.0	3-10-17-22 (67%)		11 soft to firm, clayey SILT to compact brown, SILT and silty fine to medium SAND, trace clay, trace coarse sand,	SS							3.5
	22-33-20-20 (71%)		12 trace to little gravel (ML) 24.0 (297.8)	SS							—
25.0	4-4-4-4 (71%)		13 LOWER GLACIOLACUSTRINE CLAY	SS							0.5
	6-7-8-7 (75%)		14 firm to very soft, brown-gray, silty CLAY; trace fine to coarse sand, trace to little gravel (CL)	SS							0.3
30.0	2-3-4-4 (50%)		15	SS							0.3

GOLDER ASSOCIATES INC.

SOIL BOREHOLE LOG

SITE NAME AND LOCATION
CWM CHEMICAL SERVICES, L.L.C.,
MODEL CITY, NY

RMU-2 GEOTECHNICAL INVESTIGATION
WESTERN EXPANSION

N: 9600.0 E: 10570.73
DATUM MSL ELEVATION 321.8

DRILLING METHOD:
4 1/4" ID HOLLOW STEM AUGER

SAMPLING METHOD: 24" SPLIT SPOON (S.S)
3" x 24" Thin Walled Tube
Piston (TP) and Standard (TO)

BORING NO. SB-02-3
SHEET 2 OF 2

					DRILLING START	DRILLING FINISH
WATER LEVEL	N/A				TIME	TIME
TIME	N/A				0905	1145
DATE	N/A				DATE	DATE
CASING DEPTH	N/A				11/7/02	11/7/02

DRILL RIG CME-550 ATV
ANGLE VERTICAL BEARING N/A
SAMPLE HAMMER TORQUE 140 lb. 30 in.
SURFACE CONDITIONS

DRILLING CONTR Joe Jenson
SJB SERVICES, INC.

DEPTH IN FEET	BLOWS/6 IN. ON SAMPLER (RECOVERY)	SYMBOL	SAMPLE NUMBER AND DESCRIPTION OF MATERIAL	SAMPLER AND BIT	CASING TYPE	BLOWS/FOOT ON CASING	TEST RESULTS: WATER CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	PLASTIC INDEX	Pocket Pen. (TSF)
30.0	V.S.		LOWER GLACIOLACUSTRINE CLAY 32.0 (289.8)	-							
	— (75%)		16 GLACIOLACUSTRINE SILT and SAND loose to compact, gray, coarse SAND and GRAVEL,	TO							
35.0	7-8-9-12 (54%)		17 firm brown SILT; trace fine sand, trace gravel; saturated (SP-ML)	SS							
			36.0 (285.8) END OF BOREHOLE								
40.0											
45.0											
50.0											
55.0											
60.0											

LOGGED BY ANTHONY NOTARO
DATE 12/18/02 CHKD BY JPR

GOLDER ASSOCIATES INC.

SOIL BOREHOLE LOG

SITE NAME AND LOCATION
CWM CHEMICAL SERVICES, L.L.C.,
MODEL CITY, NY

RMU-2 GEOTECHNICAL INVESTIGATION
WESTERN EXPANSION

N: 9588.43 E: 10561.50
DATUM MSL ELEVATION 321.2

DRILLING METHOD:
4 1/4" ID HOLLOW STEM AUGER

SAMPLING METHOD: 24" SPLIT SPOON (S.S)
3" x 24" Thin Walled Tube
Piston (TP) and Standard (TO)

					DRILLING START	DRILLING FINISH
WATER LEVEL	N/A				TIME	TIME
TIME	N/A				1300	1600
DATE	N/A				DATE	DATE
CASING DEPTH	N/A				11/7/02	11/7/02

BORING NO. SB-02-3A
SHEET 1 OF 1

DRILL RIG CME-550 ATV
ANGLE VERTICAL BEARING N/A
SAMPLE HAMMER TORQUE 140 lb. 30 in.
SURFACE CONDITIONS

DRILLING CONTR Joe Jenson
SJB SERVICES, INC.

LOGGED BY ANTHONY NOTARO
DATE 12/8/02 CHKD BY JPR

DEPTH IN FEET	BLOWS/6 IN. ON SAMPLER (RECOVERY)	SYMBOL	SAMPLE NUMBER AND DESCRIPTION OF MATERIAL	SAMPLER AND BIT	CASING TYPE	BLOWS/FOOT ON CASING	TEST RESULTS: WATER CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	PLASTIC INDEX	Pocket Pen. (TSF)
0.0			AUGERED WITH NO SAMPLING								
			(see borehole log SB-02-3 for soil description)								
14.0 (307.2)											
15.0	— (88%)	1	UPPER GLACIOLACUSTRINE CLAY soft brown silty CLAY, trace fine sand, trace gravel (CL)	TO							
16.0 (305.2)											
			AUGERED WITH NO SAMPLING								
20.0											
24.0 (297.2)											
25.0	— (63%)	2	LOWER GLACIOLACUSTRINE CLAY soft brown-gray silty CLAY; trace coarse sand, trace gravel (CL)	TP							
	— (13%)			TO							
	— (83%	3		TP							
30.0											

300 (291.20) END OF BOREHOLE

GOLDER ASSOCIATES INC.

SOIL BOREHOLE LOG

SITE NAME AND LOCATION
CWM CHEMICAL SERVICES, L.L.C.,
MODEL CITY, NY

RMU-2 GEOTECHNICAL INVESTIGATION
WESTERN EXPANSION

N: 10001.91 E: 11015.36
DATUM MSL ELEVATION 319.8

DRILL RIG CME-550 ATV
ANGLE VERTICAL BEARING N/A
SAMPLE HAMMER TORQUE 140 lb. 30 in.

DRILLING METHOD:
4 1/4" ID HOLLOW STEM AUGER

SAMPLING METHOD: 24" SPLIT SPOON (S.S)
3" x 24" Thin Walled Tube
Piston (TP) and Standard (TO)

					START	FINISH
WATER LEVEL	N/A				TIME	TIME
TIME	N/A				0910	0915
DATE	N/A				DATE	DATE
CASING DEPTH	N/A				11/8/02	11/11/02

BORING NO. SB-02-4
SHEET 1 OF 2
DRILLING

SURFACE CONDITIONS

DRILLING CONTR Joe Jenson
SJB SERVICES, INC.

LOGGED BY ANTHONY NOTARO
DATE 12/18/02 CHKD BY JPB

DEPTH IN FEET	BLOWS/6 IN. ON SAMPLER (RECOVERY)	SYMBOL	SAMPLE NUMBER AND DESCRIPTION OF MATERIAL	SAMPLER AND BIT	CASING TYPE	BLOWS/FOOT ON CASING	TEST RESULTS: WATER CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	PLASTIC INDEX	Pocket Pen. (TSF)
0.0	30-40-25-16 (58%)		1 GRAVEL ROAD BASE	SS							—
	20-16-19-30 (50%)		2 2.0 (317.8) very dense, brown, SILT and fine SAND, some clay, little gravel (SM) · FILL	SS							4.1
5.0	10-14-20-24 (71%)		3 4.0 (315.8) UPPER CLAY TILL	SS							>4.5
	— (42%)		4 very stiff, brown, clayey SILT, trace gravel	TO							—
	10-10-10-18 (96%)		5 8.92 (310.88)	SS							3.0
10.0	— (100%)		6 UPPER GLACIOLACUSTRINE CLAY	TO							—
	— (92%)		7 stiff to soft, brown-gray, silty CLAY, trace fine to medium sand, trace to little gravel (CL)	TO							—
15.0	2-3-14-27 (75%)		8	SS							1.5
	37-34-27-15 (21%)		9 17.0 (302.8)	SS							1.0
	20-14-18-17 (67%)		10 MIDDLE SILT TILL	SS							3.2
20.0	6-12-12-20 (58%)		11 compact, brown, SILT, little to some fine sand, little to some clay, some gravel (ML)	SS							3.0
	10-9-10-10 (96%)		12 22.42 (297.38)	SS							0.1
25.0	— (96%)		13 LOWER GLACIOLACUSTRINE CLAY	TO							—
	— (100%)		14 very soft to soft, brown-gray, CLAY, trace silt, trace gravel (CL)	TP							—
	— (100%)		15	TO							—
30.0											

GOLDER ASSOCIATES INC.

SOIL BOREHOLE LOG

SITE NAME AND LOCATION
CWM CHEMICAL SERVICES, L.L.C.,
MODEL CITY, NY

RMU-2 GEOTECHNICAL INVESTIGATION
WESTERN EXPANSION

N: 10001.41 E: 11015.36

DATUM MSL ELEVATION 319.8

DRILLING METHOD:
4 1/4" ID HOLLOW STEM AUGER

SAMPLING METHOD: 24" SPLIT SPOON (S.S)
3" x 24" Thin Walled Tube
Piston (TP) and Standard (TO)

BORING NO. SB-02-4

SHEET 2 OF 2

					DRILLING START	DRILLING FINISH
WATER LEVEL	N/A				TIME	TIME
TIME	N/A				0910	0915
DATE	N/A				DATE	DATE
CASING DEPTH	N/A				11/8/02	11/11/02

DRILL RIG CME-550 ATV
ANGLE VERTICAL BEARING N/A
SAMPLE HAMMER TORQUE 140 lb. 30 in.
SURFACE CONDITIONS

DRILLING CONTR Joe Jenson
SJB SERVICES, INC.

DEPTH IN FEET	BLOWS/6 IN. ON SAMPLER (RECOVERY)	SYMBOL	SAMPLE NUMBER AND DESCRIPTION OF MATERIAL	SAMPLER AND BIT	CASING TYPE	BLOWS/FOOT ON CASING	TEST RESULTS: WATER CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	PLASTIC INDEX	Pocket Pen. (TSF)
30.0	— (96%) VS		16 LOWER GLACIOLACUSTRINE CLAY	TP							—
35.0	(100%) 13-11-12-13 (46%)		34.0 (285.8) 17 18 GLACIOLACUSTRINE SILT and SAND	TO SS							—
	15-13-20-21 (54%)		19 compact to very dense, brown, SILT and fine SAND, trace clay, trace gravel;	SS							—
40.0	10-26-30-30 (67%)		20 saturated from 37ft. to 43ft. (ML)	SS							—
	55/6" (100%)		21	SS							—
	50/3" (100%)		43.0 (276.8) 22 BASAL RED TILL	SS							—
45.0	50/2" (100%)		23 very dense, brown-red, SILT and fine SAND; trace clay, some gravel (ML)	SS							—
			47.0 (272.8) END OF BOREHOLE								
50.0											
55.0											
60.0											

LOGGED BY ANTHONY NOTARO
DATE 12/19/02 CHKD BY JPR

GOLDER ASSOCIATES INC.

SOIL BOREHOLE LOG

SITE NAME AND LOCATION
CWM CHEMICAL SERVICES, L.L.C.,
MODEL CITY, NY

RMU–2 GEOTECHNICAL INVESTIGATION
WESTERN EXPANSION

N: 9881.80 E: 10249.01

DATUM MSL ELEVATION 317.40

DRILLING METHOD:
4 1/4" ID HOLLOW STEM AUGER

SAMPLING METHOD: 24" SPLIT SPOON (S.S)
3" x 24" Thin Walled Tube
Piston (TP) and Standard (TO)

BORING NO. SS-02-5

SHEET 1 OF 1

					DRILLING START	DRILLING FINISH
WATER LEVEL	N/A				TIME	TIME
TIME	N/A				1000	1200
DATE	N/A				DATE	DATE
CASING DEPTH	N/A				11/12/02	11/12/02

DRILL RIG CME–550 ATV
ANGLE VERTICAL BEARING N/A
SAMPLE HAMMER TORQUE 140 lb. 30 in.

SURFACE CONDITIONS

DRILLING CONTR Joe Jenson
SJB SERVICES, INC.

LOGGED BY ANTHONY NOTARO
DATE 12/18/02 CHKD BY JPR

DEPTH IN FEET	BLOWS/6 IN. ON SAMPLER (RECOVERY)	SYMBOL	SAMPLE NUMBER AND DESCRIPTION OF MATERIAL	SAMPLER AND BIT	CASING TYPE	BLOWS/FOOT ON CASING	TEST RESULTS: WATER CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	PLASTIC INDEX	Pocket Pen. (TSF)
0.0	2-13-14-16 (50%)		1 UPPER CLAY TILL	SS							>4.5
	10-14-18-20 (58%)		2 firm to very stiff, dark brown to brown, silty CLAY to clayey SILT, trace to little fine sand, trace to little gravel, trace organics;	SS							>4.5
5.0	12-20-20-24 (71%)		3 gray clay infilling of fractures from 8ft. to 10ft. (ML-CL)	SS							>4.5
	21-20-15-16 (46%)		4	SS							1.6
	4-5-7-10 (83%)		5	SS							4.2
10.0	4-5-6-6 (88%)		10.0 (307.40) 6 GLACIOLACUSTRINE CLAY (soft)	SS							1.2
	6-6-6-5 (25%)		7 firm to soft, brown-gray to red-gray, clayey SILT to silty CLAY, little to some fine to medium sand,	SS							0.3
15.0	1-2-4-3 (100%)		8 trace to little gravel (CL)	SS							0.1
	4-5-7-7 (92%)		9	SS							0.1
	1-3-4-5 (8%)		10	SS							—
20.0	2-2-2-3 (58%)		20.0 (247.40) 11 GLACIOLACUSTRINE CLAY (very soft)	SS							—
	2-3-3-3 (100%)		12 very soft to soft, brown-gray to red-gray to gray,	SS							—
25.0	2-3-4-16 (8%)		13 CLAY to silty CLAY, trace to little fine to medium sand, trace to little gravel (CL)	SS							—
	8-9-8/2" (100%)		14 27.16 (290.24) GLACIOLACUSTRINE SILT and SAND	SS							—
	16-24-50 (100%)		15 very dense, dark brown-gray, SILT and fine to medium SAND; some clay, trace coarse sand, trace gravel (SM)	SS							—
30.0			END OF BOREHOLE								

GOLDER ASSOCIATES INC.

SOIL BOREHOLE LOG

SITE NAME AND LOCATION
CWM CHEMICAL SERVICES, L.L.C.,
MODEL CITY, NY

RMU-2 GEOTECHNICAL INVESTIGATION
WESTERN EXPANSION

N: 9950.73 E: 10255.52

DATUM MSL ELEVATION 315.00

DRILLING METHOD:
4 1/4" ID HOLLOW STEM AUGER

SAMPLING METHOD: 24" SPLIT SPOON (S.S)
3" x 24" Thin Walled Tube
Piston (TP) and Standard (TO)

BORING NO. SB-02-6

SHEET 1 OF 1

					DRILLING START	DRILLING FINISH
WATER LEVEL	N/A				TIME	TIME
TIME	N/A				1345	1600
DATE	N/A				DATE	DATE
CASING DEPTH	N/A				11/12/02	11/12/02

DRILL RIG CME-550 ATV
ANGLE VERTICAL BEARING N/A
SAMPLE HAMMER TORQUE 140 lb. 30 in.

SURFACE CONDITIONS

DRILLING CONTR Joe Jenson
SJB SERVICES, INC.

DEPTH IN FEET	BLOWS/6 IN. ON SAMPLER (RECOVERY)	SYMBOL	SAMPLE NUMBER AND DESCRIPTION OF MATERIAL	SAMPLER AND BIT	CASING TYPE	BLOWS/FOOT ON CASING	TEST RESULTS: WATER CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	PLASTIC INDEX	Pocket Pen. (TSF)
0.0	3-5-6-8 (58%)		1	SS							2.6
	15-22-20-26 (42%)		2 UPPER CLAY TILL	SS							>4.5
5.0	10-13-15-16 (63%)		3 firm to very stiff, brown, clayey SILT, trace to little fine to medium sand, trace gravel, little organics (ML)	SS							>4.5
	16-19-20-18 (50%)		4	SS							3.5
	4-6-7-9 (88%)		5 10.0 (305.00)	SS							2.2
10.0	10-12-20-24 (58%)		6 10.7 (304.20) UPPER GLACIOLACUSTRINE CLAY firm to soft, brown-gray, silty CLAY, trace medium to coarse sand (CL)	SS							1.2
	18-17-12-10 (46%)		7 MIDDLE SILT TILL	SS							0.8
15.0	4-8-10-8 (67%)		8 compact, brown, SILT and fine SAND; grading to firm brown clayey SILT, trace to some gravel, trace clay (SM)	SS							4.2
	6-10-10-13 (38%)		9 16.0 (299.00) LOWER GLACIOLACUSTRINE CLAY	SS							0.5
	3-4-5-6 (71%)		10 firm to very soft, reddish-gray to brown-gray to dark gray, silty CLAY, trace fine to coarse sand, trace to little gravel (CL)	SS							0.8
20.0	6-6-6-7 (50%)		11	SS							0.5
	10-10-10-10 (96%)		12	SS							–
	6-10-12-20 (58%)		13 24.00 (291.00) GLACIOLACUSTRINE SILT and SAND	SS							–
25.0	28-50-- (100%)		14 compact to very dense, brown, SILT and fine SAND, trace to little clay, trace gravel saturated to wet from 24 ft. to 29 ft. (SM)	SS							–
	26-29-50-- (100%)		15	SS							–
30.0			END OF BOREHOLE								

LOGGED BY ANTHONY NOTARO
DATE 12/19/02 CHKD BY JPR

GOLDER ASSOCIATES INC.

SOIL BOREHOLE LOG

SITE NAME AND LOCATION
CWM CHEMICAL SERVICES, L.L.C.,
MODEL CITY, NY

RMU–2 GEOTECHNICAL INVESTIGATION
WESTERN EXPANSION

N: 9920.30 E: 10334.07

DATUM MSL ELEVATION 316.10

DRILLING METHOD:
4 1/4" ID HOLLOW STEM AUGER

SAMPLING METHOD: 24" SPLIT SPOON (S.S)
3" x 24" Thin Walled Tube
Piston (TP) and Standard (TO)

BORING NO. SB-02-7

SHEET 1 OF 2

					DRILLING START	DRILLING FINISH
WATER LEVEL	N/A				TIME	TIME
TIME	N/A				0840	1145
DATE	N/A				DATE	DATE
CASING DEPTH	N/A				11/13/02	11/13/02

DRILL RIG CME–550 ATV
ANGLE VERTICAL BEARING N/A
SAMPLE HAMMER TORQUE 140 lb. 30 in.

SURFACE CONDITIONS

DRILLING CONTR Joe Jenson
SJB SERVICES, INC.

LOGGED BY ANTHONY NOTARO
DATE 12/18/02 CHKD BY JAR

DEPTH IN FEET	BLOWS/6 IN. ON SAMPLER (RECOVERY)	SYMBOL	SAMPLE NUMBER AND DESCRIPTION OF MATERIAL	SAMPLER AND BIT	CASING TYPE	BLOWS/FOOT ON CASING	TEST RESULTS: WATER CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	PLASTIC INDEX	Pocket Pen. (TSF)
0.0	4-8-35-25 (50%)		1	SS							3.0
	18-22-25-28 (29%)		2	SS							>4.5
5.0	8-11-21-33 (63%)		3	SS							>4.5
	33-50/— (25%)		4	SS							>4.5
	8-9-11-16 (79%)		5	SS							3.8
10.0	6-16-13-16 (50%)		6	SS							2.2
	8-9-8-10 (63%)		7	SS							0.1
15.0	2-3-2-2 (100%)		8	SS							0
	4-3-3-2 (100%)		9	SS							—
	3-3-2-3 (100%)		10	SS							—
20.0	2-2-3-3 (67%)		11	SS							—
	2-3-3-6 (83%)		12	SS							—
25.0	2-2-4-4 (63%)		13	SS							—
	11-19-50/— (56%)		14	SS							—
	18-20-30-30 (79%)		15	SS							—
30.0											

12.50 (303.60)

UPPER CLAY TILL

firm to very stiff, dark brown to brown, silty CLAY to clayey SILT; trace fine sand, trace to little gravel, trace organics; gray clay infilling of fractures 10ft. to 12ft. (ML)

GLACIOLACUSTRINE CLAY

soft to very soft, dark gray, to brown-gray silty CLAY, trace to little fine to medium, trace to little gravel (CL)

26.67 (289.43)

GLACIOLACUSTRINE SILT and SAND

GOLDER ASSOCIATES INC.

SOIL BOREHOLE LOG

SITE NAME AND LOCATION
CWM CHEMICAL SERVICES, L.L.C.,
MODEL CITY, NY

RMU-2 GEOTECHNICAL INVESTIGATION
WESTERN EXPANSION

N: 9920.30 E: 10334.07

DATUM MSL ELEVATION 316.10

DRILLING METHOD: 4 1/4" ID HOLLOW STEM AUGER

SAMPLING METHOD: 24" SPLIT SPOON (S.S)
3" x 24" Thin Walled Tube
Piston (TP) and Standard (TO)

BORING NO. SB-02-7

SHEET 2 OF 2

					DRILLING START	DRILLING FINISH
WATER LEVEL	N/A				TIME	TIME
TIME	N/A				0840	1145
DATE	N/A				DATE	DATE
CASING DEPTH	N/A				11/13/02	11/13/02

DRILL RIG CME-550 ATV

ANGLE VERTICAL BEARING N/A

SAMPLE HAMMER TORQUE 140 lb. 30 in.

SURFACE CONDITIONS

DRILLING CONTR Joe Jenson
SJB SERVICES, INC.

DEPTH IN FEET	BLOWS/6 IN. ON SAMPLER (RECOVERY)	SYMBOL	SAMPLE NUMBER AND DESCRIPTION OF MATERIAL	SAMPLER AND BIT	CASING TYPE	BLOWS/FOOT ON CASING	TEST RESULTS: WATER CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	PLASTIC INDEX	Pocket Pen. (TSF)
30.0	36-50/— (100%)		16 GLACIOLACUSTRINE SILT and SAND	SS							—
	24-50/— (83%)		17 very dense, brown-gray, SILT, little to some fine sand, trace gravel (26ft. 8in. to 32ft.); grading to:	SS							—
35.0	17-20-50/— (78%)		18 very dense brown to red-brown SILT and fine SAND, some medium to coarse sand, trace to little clay, trace to little gravel; grading to:	SS							—
	60/6" (100%)		19 very dense brown-gray medium SAND (36ft. to 36ft 2in.) (SM-SW)	SS							—
	69/6" (67%)		38.0 (278.10) 20 BASAL RED TILL	SS							—
40.0	50/3" (100%)		21 very dense red-brown clayey SILT, trace gravel (ML)	SS							—
			42.0 (274.10) END OF BOREHOLE								
45.0											
50.0											
55.0											
60.0											

LOGGED BY ANTHONY NOTARO
DATE 12/18/02 CHKD BY JPR

GOLDER ASSOCIATES INC.

SOIL BOREHOLE LOG

SITE NAME AND LOCATION
CWM CHEMICAL SERVICES, L.L.C.,
MODEL CITY, NY

RMU-2 GEOTECHNICAL INVESTIGATION
WESTERN EXPANSION

N: 9945.35 E: 10430.85

DATUM MSL ELEVATION 315.50

DRILLING METHOD:
4 1/4" ID HOLLOW STEM AUGER

SAMPLING METHOD: 24" SPLIT SPOON (S.S)
3" x 24" Thin Walled Tube
Piston (TP) and Standard (TO)

BORING NO. SB-02-8

SHEET 1 OF 2

					DRILLING START	DRILLING FINISH
WATER LEVEL	N/A				TIME	TIME
TIME	N/A				1415	1130
DATE	N/A				DATE	DATE
CASING DEPTH	N/A				11/13/02	11/14/02

DRILL RIG CME-550 ATV
ANGLE VERTICAL BEARING N/A
SAMPLE HAMMER TORQUE 140 lb. 30 in.

SURFACE CONDITIONS

DRILLING CONTR Joe Jenson
SJB SERVICES, INC.

LOGGED BY ANTHONY NOTARO
DATE 12/19/02 CHKD BY JPC

DEPTH IN FEET	BLOWS/6 IN. ON SAMPLER (RECOVERY)	SYMBOL	SAMPLE NUMBER AND DESCRIPTION OF MATERIAL	SAMPLER AND BIT	CASING TYPE	BLOWS/FOOT ON CASING	TEST RESULTS: WATER CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	PLASTIC INDEX	Pocket Pen. (TSF)
0.0	4-13-12-16 (46%)		1 UPPER CLAY TILL	SS							3.6
	16-15-16-20 (50%)		2 very stiff, dark brown to brown, clayey SILT, trace fine sand, trace gravel, trace to little organics (ML)	SS							>4.5
5.0	26-26-20-15 (46%)		3	SS							>4.5
	18-20-15-10 (0%)		6.0 (309.50) 4 UPPER SILT TILL	SS							—
	8-12-20-33 (63%)		5 compact, brown, SILT and fine SAND, trace medium to coarse sand, trace gravel (SM)	SS							3.5
10.0	23-12-8-8 (63%)		10.58 (304.92) UPPER GLACIOLACUSTRINE CLAY	SS							2.0
	20-17-12-12 (42%)		12.50 (303.00) 7 firm to soft, brown, silty CLAY, trace fine to medium sand, trace gravel (CL)	SS							0.7
15.0	10-16-25-25 (0%)		8 MIDDLE SILT TILL	SS							1
	35-30-20-16 (0%)		9 compact, brown, SILT and fine SAND, little medium to coarse sand, trace gravel; grading to dense brown	SS							—
	18-17-20-25 (38%)		10 SILT, trace clay, trace to little fine sand, trace	SS							3.25
20.0	5-18-20-15 (42%)		11 gravel, some angular rock fragments (SM-ML)	SS							2.0
	20-17-15-19 (54%)		12	SS							2.2
	4-9-12-15 (79%)		24.0 (291.50) 13 LOWER GLACIOLACUSTRINE CLAY	SS							2.6
25.0	18-30-40-50/4" (73%)		25.75 (289.75) 14 soft to firm, brown, silty CLAY, trace gravel (CL)	SS							3.6
	100/4" (0%)		15 GLACIOLACUSTRINE SILT and SAND	SS							—
30.0											

GOLDER ASSOCIATES INC.

SOIL BOREHOLE LOG

SITE NAME AND LOCATION
CWM CHEMICAL SERVICES, L.L.C.,
MODEL CITY, NY

RMU-2 GEOTECHNICAL INVESTIGATION
WESTERN EXPANSION

N: 9945.35 E: 10430.85

DATUM MSL ELEVATION 315.50

DRILLING METHOD:
4 1/4" ID HOLLOW STEM AUGER

SAMPLING METHOD: 24" SPLIT SPOON (S.S)
3" x 24" Thin Walled Tube
Piston (TP) and Standard (TO)

BORING NO. SB-02-8

SHEET 2 OF 2

					DRILLING START	DRILLING FINISH
WATER LEVEL	N/A					
TIME	N/A				TIME 1415	TIME 1130
DATE	N/A				DATE 11/13/02	DATE 11/14/02
CASING DEPTH	N/A					

DRILL RIG CME-550 ATV
ANGLE VERTICAL BEARING N/A
SAMPLE HAMMER TORQUE 140 lb. 30 in.

SURFACE CONDITIONS

DRILLING CONTR Joe Jenson
SJB SERVICES, INC.

DEPTH IN FEET	BLOWS/6 IN. ON SAMPLER (RECOVERY)	SYMBOL	SAMPLE NUMBER AND DESCRIPTION OF MATERIAL	SAMPLER AND BIT	CASING TYPE	BLOWS/FOOT ON CASING	TEST RESULTS: WATER CONTENT %	LIQUID LIMIT %	PLASTIC LIMIT %	PLASTIC INDEX	Pocket Pen. (TSF)
30.0	25-21-5 3/4" (88%)		16 GLACIOLACUSTRINE SILT and SAND	SS							2.75
	15-30-60 — (67%)		17 compact to very dense, brown to red-brown, SILT to SILT and fine SAND, trace medium to coarse sand,	SS							0.25
35.0	51 — — (100%)		18 trace to little clay, trace to some gravel (ML)	SS							1
	50/4" (50%)		19	SS							1
	60/6" (83%)		38.0 (277.50) 20 BASAL RED TILL	SS							1
40.0	50/6" (67%)		21 very dense, red-brown, SILT, little fine to medium sand, little gravel (ML)	SS							1
			42.0 (273.50) END OF BOREHOLE								
45.0											
50.0											
55.0											
60.0											

LOGGED BY ANTHONY NOTARO
DATE 12/18/02 CHKD BY SJR

ATTACHMENT B

GEOTECHNICAL LABORATORY RESULTS

ATTACHMENT B-1

GEOTECHNICAL LABORATORY RESULTS

MOISTURE CONTENT

MOISTURE CONTENT

ASTM D 2216

CWM/GW Plan/NY
013-9309.011

DATE	11/19/02
TECH	GD/RDD
REVIEW	RMW

MOISTURE CONTENT (Delivered Moisture)

Sample Identification	SA-7	SA-8	SA-12	SA-13	SA-15
Boring #	SB-02-2	SB-02-2	SB-02-2	SB-02-2	SB-02-2
Depth	14-16	16-18	24-26	26-28	30-32
tare #	GH10	25	8	84	32
wt soil&tare,moist (g)	300.47	539.88	648.74	575.20	629.01
wt soil&tare,dry (g)	273.91	504.73	570.42	515.04	578.76
wt tare (g)	152.12	339.79	337.06	333.86	365.02
wt moisture (g)	26.56	35.15	78.32	60.16	50.25
wt dry soil (g)	121.79	164.94	233.36	181.18	213.74
% moisture	**21.81%**	**21.31%**	**33.56%**	**33.20%**	**23.51%**

MOISTURE CONTENT (Delivered Moisture)

Sample Identification	SA-16
Boring #	SB-02-2
Depth	32-34
tare #	7
wt soil&tare,moist (g)	574.14
wt soil&tare,dry (g)	518.80
wt tare (g)	358.54
wt moisture (g)	55.34
wt dry soil (g)	160.26
% moisture	**34.53%**

GOLDER ASSOCIATES INC.
CHERRY HILL, NEW JERSEY

MOISTURE CONTENT

ASTM D 2216

CWM/GW Plan/NY
013-9309.011

DATE	11/15/02
TECH	RDD
REVIEW	RMW

MOISTURE CONTENT (Delivered Moisture)

Sample Identification	SA-1	SA-9	SA-13	SA-15
Boring #	SB-02-2A	SB-02-3	SB-02-3	SB-02-3
Depth	16'-18'	16'-18'	24'-26'	28'-30'
tare #	27	89	91	RW9
wt soil&tare,moist (g)	713.58	526.16	557.48	314.23
wt soil&tare,dry (g)	645.62	498.64	504.54	281.76
wt tare (g)	340.58	355.46	338.26	155.52
wt moisture (g)	67.96	27.52	52.94	32.47
wt dry soil (g)	305.04	143.18	166.28	126.24
% moisture	**22.28%**	**19.22%**	**31.84%**	**25.72%**

GOLDER ASSOCIATES INC.
CHERRY HILL, NEW JERSEY

MOISTURE CONTENT

ASTM D 2216

CWM/GW Plan/NY
013-9309.011

DATE	11/25/02
TECH	GD
REVIEW	RMW

MOISTURE CONTENT (Delivered Moisture)

Sample Identification	SA-6	SA-7	SA-8	SA-9	SA-10
Boring #	SB02-5	SB02-5	SB02-5	SB02-5	SB02-5
Depth					
tare #	26	80	GH8	GH18	GH3
wt soil&tare,moist (g)	643.70	569.22	504.57	523.01	249.17
wt soil&tare,dry (g)	601.21	534.37	449.66	472.84	234.96
wt tare (g)	353.68	343.59	156.53	155.25	155.28
wt moisture (g)	42.49	34.85	54.91	50.17	14.21
wt dry soil (g)	247.53	190.78	293.13	317.59	79.68
% moisture	**17.17%**	**18.27%**	**18.73%**	**15.80%**	**17.83%**

MOISTURE CONTENT (Delivered Moisture)

Sample Identification	SA-9	SA-10	SA-11	SA-12
Boring #	SB02-6	SB02-6	SB02-6	SB02-6
Depth				
tare #	RW15	79	9	41
wt soil&tare,moist (g)	403.70	636.19	629.73	687.09
wt soil&tare,dry (g)	366.28	603.48	597.02	627.10
wt tare (g)	156.75	351.27	355.87	332.16
wt moisture (g)	37.42	32.71	32.71	59.99
wt dry soil (g)	209.53	252.21	241.15	294.94
% moisture	**17.86%**	**12.97%**	**13.56%**	**20.34%**

GOLDER ASSOCIATES INC.
CHERRY HILL, NEW JERSEY

MOISTURE CONTENT

ASTM D 2216

CWM/GW Plan/NY
013-9309.011

DATE	11/19/02
TECH	GD/RDD
REVIEW	RMW

MOISTURE CONTENT (Delivered Moisture)

Sample Identification	SA-7B	SA-8	SA-9	SA-10	SA-11
Boring #	SB-02-7	SB-02-7	SB-02-7	SB-02-7	SB-02-7
Depth	12.4'-13.2'	14'-16'	16'-18'	18'-20'	20'-22'
tare #	RW14	MM74	GH19	RW4	GH20
wt soil&tare,moist (g)	428.64	417.72	424.49	415.48	440.60
wt soil&tare,dry (g)	352.16	346.95	351.44	337.49	365.33
wt tare (g)	147.26	149.03	155.98	157.08	154.50
wt moisture (g)	76.48	70.77	73.05	77.99	75.27
wt dry soil (g)	204.90	197.92	195.46	180.41	210.83
% moisture	**37.33%**	**35.76%**	**37.37%**	**43.23%**	**35.70%**

MOISTURE CONTENT (Delivered Moisture)

Sample Identification	SA-12	SA-13	SA-14
Boring #	SB-02-7	SB-02-7	SB-02-7
Depth	22'-24'	24'-26'	26'-26.8'
tare #	GH11	RW8	GH4
wt soil&tare,moist (g)	468.21	480.90	431.16
wt soil&tare,dry (g)	393.85	403.15	366.48
wt tare (g)	150.93	157.91	159.05
wt moisture (g)	74.36	77.75	64.68
wt dry soil (g)	242.92	245.24	207.43
% moisture	**30.61%**	**31.70%**	**31.18%**

GOLDER ASSOCIATES INC.
CHERRY HILL, NEW JERSEY

MOISTURE CONTENT

ASTM D 2216

CWM/GW Plan/NY
013-9309.011

DATE	11/20/02
TECH	GD/RDD
REVIEW	RMW

MOISTURE CONTENT (Delivered Moisture)

Sample Identification	SA-11	SA-12	SA-13	SA-14	SA-13
Boring #	SB02-5	SB02-5	SB02-5	SB02-5	SB02-8
Depth	20-22	22-24	24-26	26-27	24-26
tare #	RW3	RW14	MM74	GH20	RW18
wt soil&tare,moist (g)	466.86	467.27	286.01	532.70	450.14
wt soil&tare,dry (g)	396.50	396.25	259.36	471.80	398.05
wt tare (g)	155.20	147.25	149.11	154.60	153.61
wt moisture (g)	70.36	71.02	26.65	60.90	52.09
wt dry soil (g)	241.30	249.00	110.25	317.20	244.44
% moisture	**29.16%**	**28.52%**	**24.17%**	**19.20%**	**21.31%**

GOLDER ASSOCIATES INC.
CHERRY HILL, NEW JERSEY

ATTACHMENT B-2

GEOTECHNICAL LABORATORY RESULTS

ATTERBERG LIMTS/MOISTURE CONTENT

SUMMARY OF WATER CONTENT DETERMINATIONS

PROJECT NUMBER	013-9309
PROJECT NAME	CWM / RMU-2 / GW Plan / NY
DATE TESTED	November, 2002

Borehole No.	Sample No.	Depth (ft)	Depth (m)	Water Content (%)	Atterberg Limits LL, PL, PI
SB-02-2	SA-14	28-30	8.53-9.14	28.9%	LL=35.6, PL=18.1, PI=17.5
SB-02-4	SA-16	30-32	9.14-9.75	25.3%	LL=33.3, PL=17.6, PI=15.7

TECH	JM
DATE	11/15/02
CHECKED	MM
REVIEWED	FTA

ATTERBERG LIMITS
ASTM D 4318

CWM/GW Plan/NY 013-9309.011		SAMPLE #:	SB-02-2A SA-1
		DEPTH:	16'-18'

SAMPLE PREPARATION

Wet or Dry: Wet

PLASTIC LIMIT

tare #	CH27	CH45	
wt soil&tare,moist (g)	40.40	40.80	
wt soil&tare,dry (g)	39.15	39.51	
wt tare (g)	31.55	31.63	
wt moisture (g)	1.25	1.29	
wt dry soil (g)	7.60	7.88	AVERAGE
% moisture	**16.45**	**16.37**	**16**

LIQUID LIMIT

Number of Blows	30	28	
tare #	B7	CH10	
wt soil&tare,moist (g)	33.47	34.73	
wt soil&tare,dry (g)	30.75	31.86	
wt tare (g)	21.30	21.70	
wt moisture (g)	2.72	2.87	
wt dry soil (g)	9.45	10.16	
% moisture	28.78	28.25	AVERAGE
LL	**29.43**	**28.64**	**29**

LIQUID LIMIT:	29
PLASTIC LIMIT:	16
PLASTICITY INDEX:	13
WET COLOR:	Brown
USCS:	CL

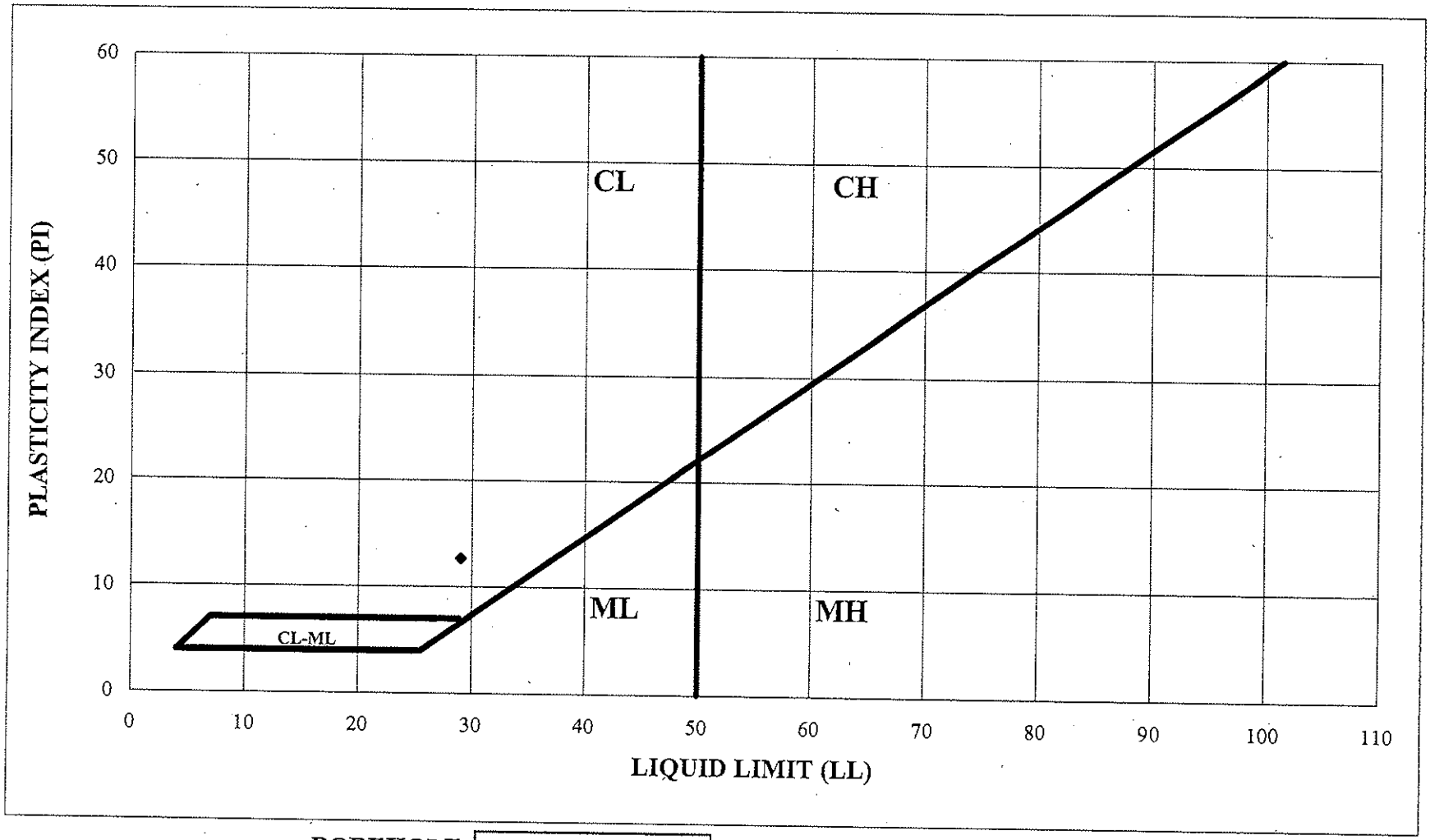
USCS Classification is based upon material passing the #40 sieve ONLY.

LL CALCULATION: % moisture*((Number of Blows/25)^0.121))

DATE	11/19/02
TECH	GD
REVIEW	RMW

GOLDER ASSOCIATES INC.
CHERRY HILL, NEW JERSEY

CWM/GW Plan/NY 013-9309.011



BOREHOLE:	**SB-02-2A**
SAMPLE:	**SA-1**
DEPTH:	**16'-18'**

DATE	11/19/02
TECH	GD
REVIEW	RMW

ATTERBERG LIMITS
ASTM D 4318

CWM/GW Plan/NY 013-9309.011		SAMPLE #:	SB-02-3 SA-15
		DEPTH:	28'-30'

SAMPLE PREPARATION

Wet or Dry: Wet

PLASTIC LIMIT

tare #	CH23	N2	
wt soil&tare,moist (g)	41.48	41.44	
wt soil&tare,dry (g)	40.14	40.16	
wt tare (g)	31.52	31.78	
wt moisture (g)	1.34	1.28	
wt dry soil (g)	8.62	8.38	AVERAGE
% moisture	**15.55**	**15.27**	**15**

LIQUID LIMIT

Number of Blows	22	22	
tare #	CP2	35C	
wt soil&tare,moist (g)	36.19	34.74	
wt soil&tare,dry (g)	33.01	31.70	
wt tare (g)	21.73	20.84	
wt moisture (g)	3.18	3.04	
wt dry soil (g)	11.28	10.86	
% moisture	28.19	27.99	AVERAGE
LL	**27.76**	**27.56**	**28**

LIQUID LIMIT:	28
PLASTIC LIMIT:	15
PLASTICITY INDEX:	13

WET COLOR: Gray

USCS: CL

USCS Classification is based upon material passing the #40 sieve ONLY.

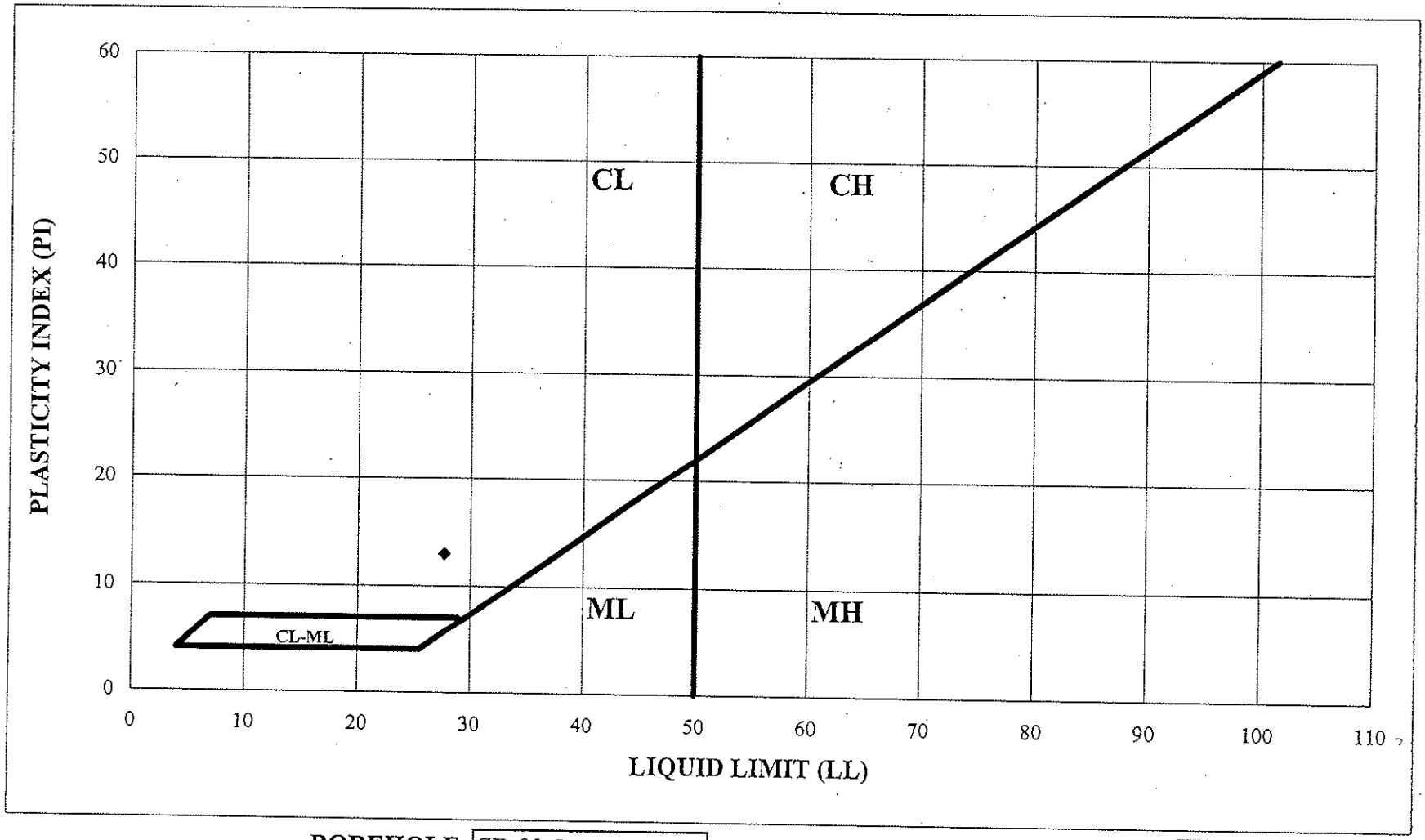
LL CALCULATION: % moisture*((Number of Blows/25)^0.121))

DATE	11/19/02
TECH	GD
REVIEW	RMW

GOLDER ASSOCIATES INC.

CHERRY HILL, NEW JERSEY

CWM/GW Plan/NY 013-9309.011



BOREHOLE:	SB-02-3
SAMPLE:	SA-15
DEPTH:	28'-30'

DATE	11/19/02
TECH	GD
REVIEW	RMW

ATTACHMENT B-3

GEOTECHNICAL LABORATORY RESULTS

UNCONSOLIDATED UNDRAINED TRIAXIAL SHEAR

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST (UU)

SAMPLE IDENTIFICATION

PROJECT NUMBER	013-9309	SAMPLE NUMBER	SA-14
BOREHOLE NUMBER	SB-02-2	SAMPLE DEPTH, ft bgs	8.53-9.14

TEST CONDITIONS

RATE OF AXIAL STRAIN, %/m	1.00	CELL PRESSURE, kPa	167.6
MACHINE SPEED, mm/min	1.01		

SAMPLE INFORMATION

SAMPLE HEIGHT, cm	10.07	WATER CONTENT, %	34.60
SAMPLE DIAMETER, cm	5.06	UNIT WEIGHT, kN/m^3	18.70
SAMPLE AREA, cm^2	20.11	DRY UNIT WT., kN/m^3	13.89
SAMPLE VOLUME, cc	202.50	SPECIFIC GRAVITY, assum	2.70
WET WEIGHT, g	386.26	POROSITY, %	47.51
DRY WEIGHT, g	286.97		

TEST RESULTS

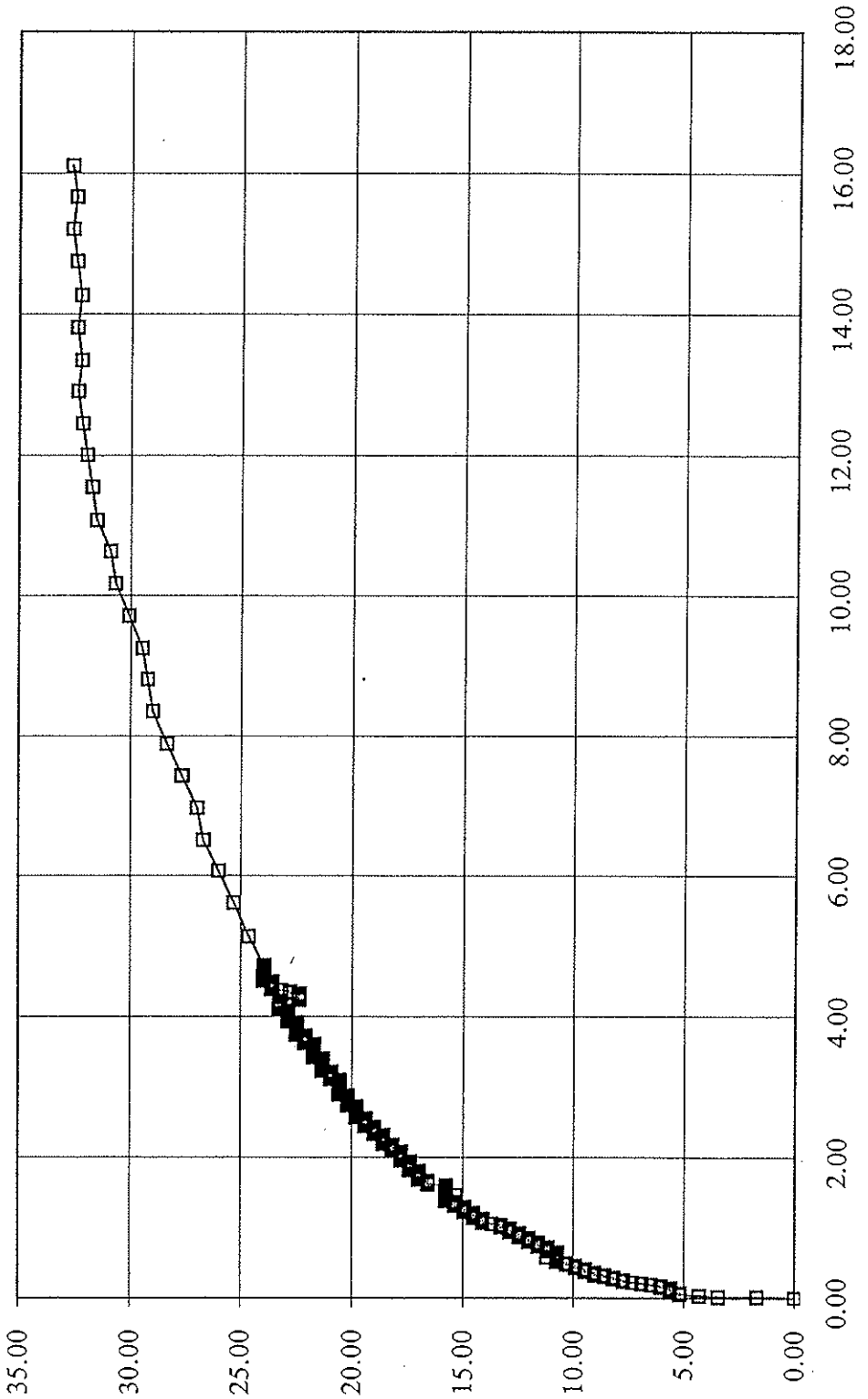
COMPRESSIVE STRESS, kPa	32	STRAIN AT FAILURE, %	12.9

TECH	RO
DATE	11/15/02
CHECKED	MM
REVIEWED	FTA

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST (UU)

Date: 11/15/02
Checked: MM
Reviewed: FTA

BOREHOLE SB-02-2 SAMPLE NUMBER SA-14 σ_3=167.6kPa



Project No. 013-9309

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST (UU)

SAMPLE IDENTIFICATION

PROJECT NUMBER	013-9309	SAMPLE NUMBER	SA-14
BOREHOLE NUMBER	SB-02-2	SAMPLE DEPTH, m	8.53-9.14

TEST CONDITIONS

RATE OF AXIAL STRAIN, %/m	1.00	CELL PRESSURE, kPa	335.2
MACHINE SPEED, mm/min	1.01		

SAMPLE INFORMATION

SAMPLE HEIGHT, cm	10.08	WATER CONTENT, %	29.13
SAMPLE DIAMETER, cm	5.04	UNIT WEIGHT, kN/m^3	19.44
SAMPLE AREA, cm^2	19.95	DRY UNIT WT., kN/m^3	15.06
SAMPLE VOLUME, cc	201.10	SPECIFIC GRAVITY, assum	2.70
WET WEIGHT, g	398.86	POROSITY, %	43.11
DRY WEIGHT, g	308.88		

TEST RESULTS

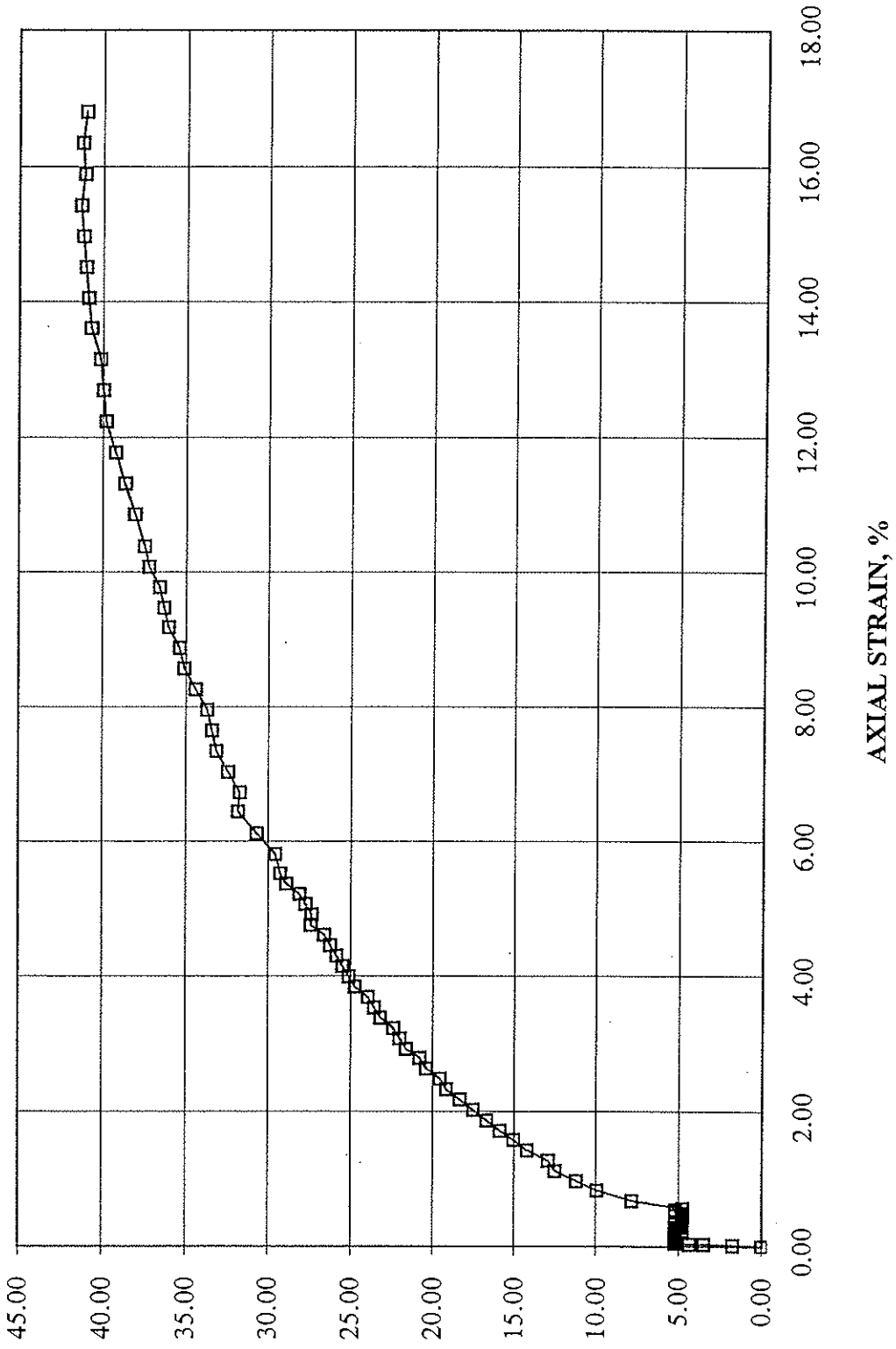
COMPRESSIVE STRESS, kPa	41	STRAIN AT FAILURE, %	15.4

TECH	RO
DATE	11/15/02
CHECKED	MM
REVIEWED	FTA

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST (UU)

Date: 11/15/02
Checked: MM
Reviewed: FTA

BOREHOLE SB-02-2 SAMPLE NUMBER SA-14 σ_3=335.2kPa



Project No. 013-9309

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST (UU)

SAMPLE IDENTIFICATION

PROJECT NUMBER	013-9309	SAMPLE NUMBER	SA-14
BOREHOLE NUMBER	SB-02-2	SAMPLE DEPTH, m	8.53-9.14

TEST CONDITIONS

RATE OF AXIAL STRAIN, %/m	1.00	CELL PRESSURE, kPa	478.8
MACHINE SPEED, mm/min	1.00		

SAMPLE INFORMATION

SAMPLE HEIGHT, cm	10.02	WATER CONTENT, %	28.13
SAMPLE DIAMETER, cm	5.05	UNIT WEIGHT, kN/m^3	19.24
SAMPLE AREA, cm^2	20.03	DRY UNIT WT., kN/m^3	15.02
SAMPLE VOLUME, cc	200.70	SPECIFIC GRAVITY, assum	2.70
WET WEIGHT, g	393.94	POROSITY, %	43.26
DRY WEIGHT, g	307.45		

TEST RESULTS

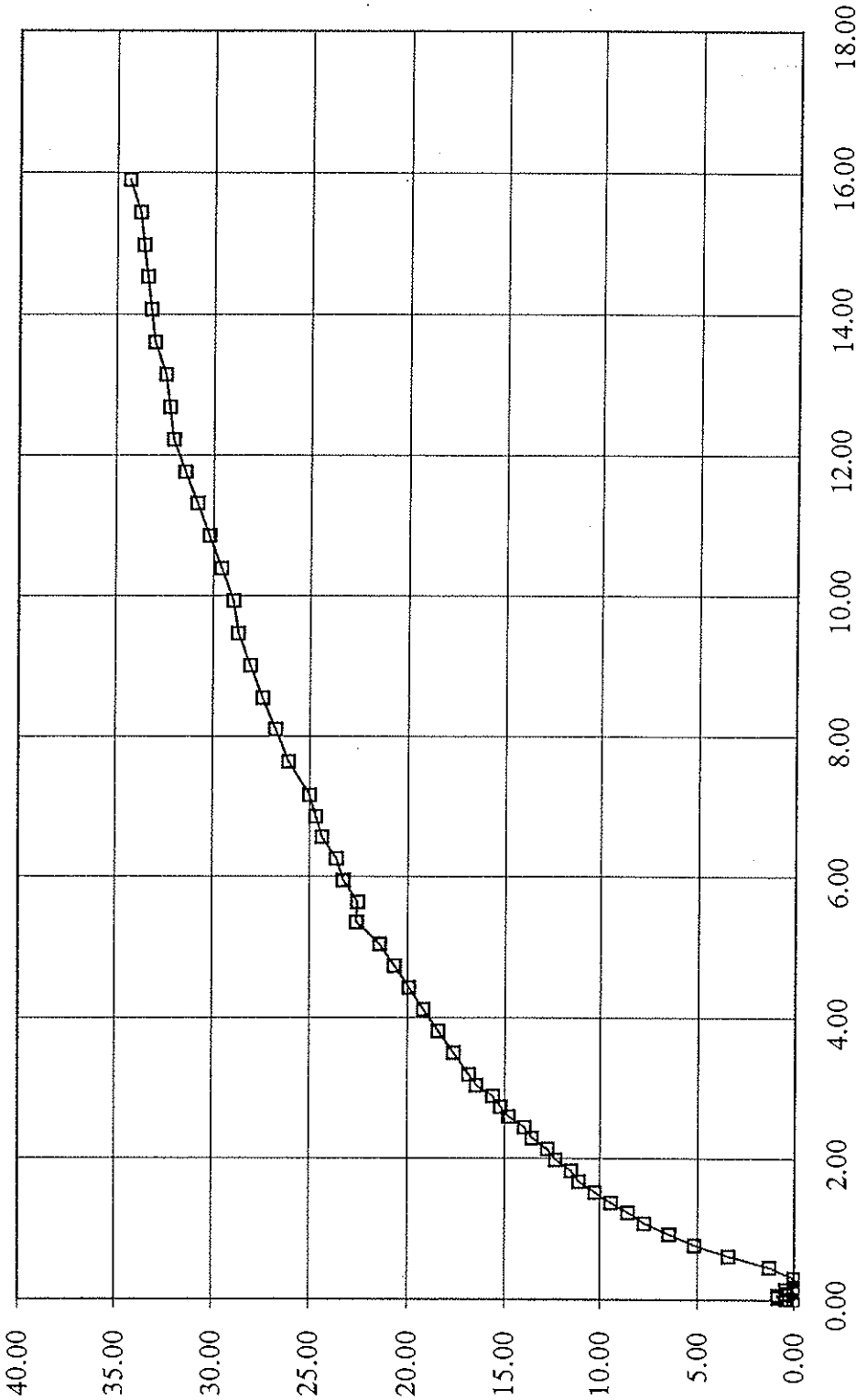
COMPRESSIVE STRESS, kPa	34	STRAIN AT FAILURE, %	15.9

TECH	RO
DATE	11/15/02
CHECKED	MM
REVIEWED	FTA

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST (UU)

Date: 11/15/02
Checked: MM
Reviewed: FTA

BOREHOLE SB-02-2 SAMPLE NUMBER SA-14 σ_3=478.8kPa



Project No. 013-9309

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST (UU)

SAMPLE IDENTIFICATION

PROJECT NUMBER	013-9309	SAMPLE NUMBER	SA-2
BOREHOLE NUMBER	SB-02-2A	SAMPLE DEPTH, m	7.32-7.92

TEST CONDITIONS

RATE OF AXIAL STRAIN, %/m	1.00	CELL PRESSURE, kPa	167.6
MACHINE SPEED, mm/min	1.02		

SAMPLE INFORMATION

SAMPLE HEIGHT, cm	10.15	WATER CONTENT, %	33.20
SAMPLE DIAMETER, cm	5.06	UNIT WEIGHT, kN/m^3	18.57
SAMPLE AREA, cm^2	20.11	DRY UNIT WT., kN/m^3	13.94
SAMPLE VOLUME, cc	204.11	SPECIFIC GRAVITY, assum	2.70
WET WEIGHT, g	386.70	POROSITY, %	47.32
DRY WEIGHT, g	290.32		

TEST RESULTS

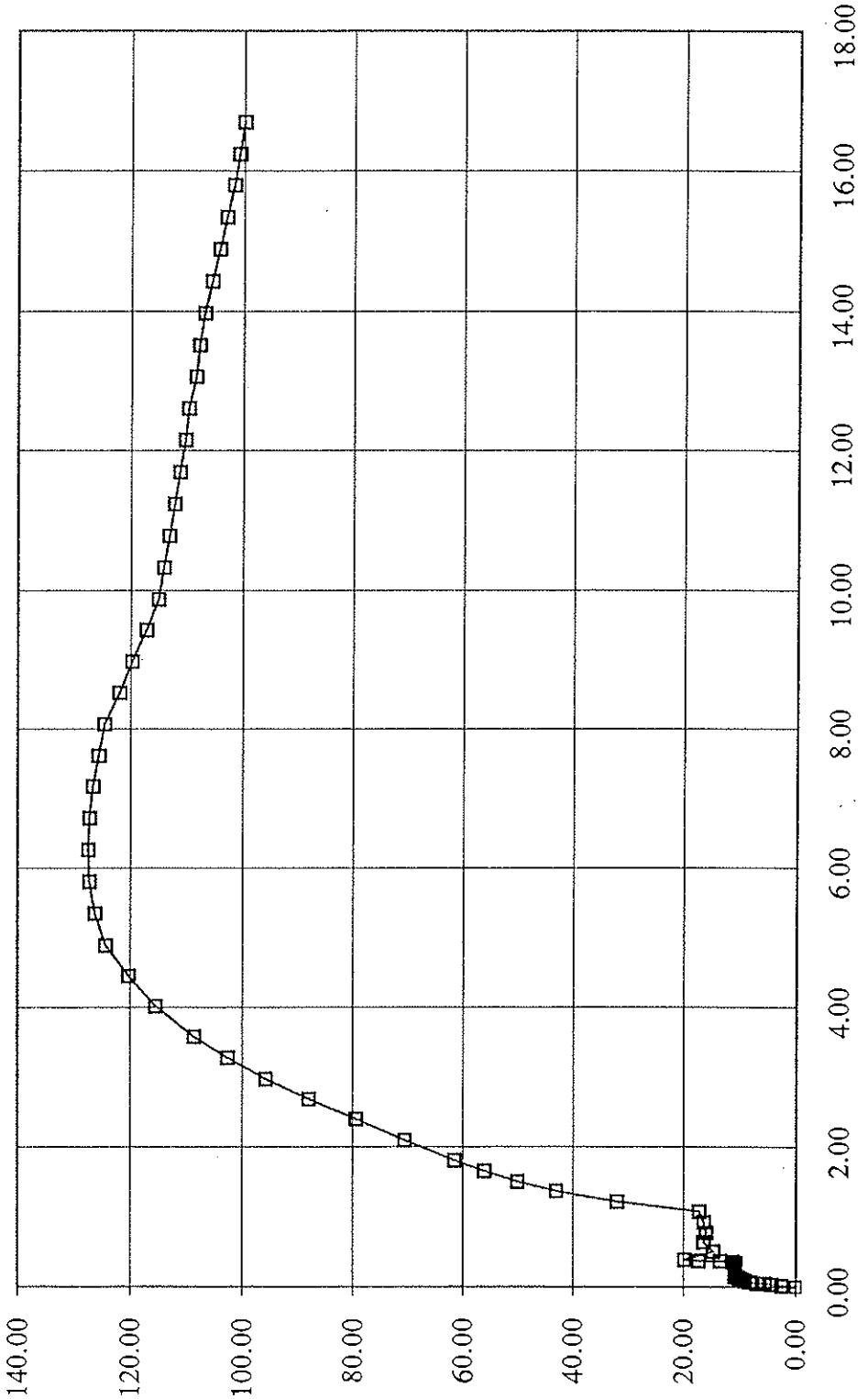
COMPRESSIVE STRESS, kPa	127	STRAIN AT FAILURE, %	6.3

TECH	RO
DATE	11/15/02
CHECKED	MM
REVIEWED	FTA

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST (UU)

Date: 11/15/02
Checked: MM
Reviewed: FTA

BOREHOLE SB-02-2A SAMPLE NUMBER SA-2 σ_3=167.6kPa



Project No. 013-9309

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST (UU)

SAMPLE IDENTIFICATION

PROJECT NUMBER	013-9309	SAMPLE NUMBER	SA-2
BOREHOLE NUMBER	SB-02-2A	SAMPLE DEPTH, m	7.32-7.92

TEST CONDITIONS

RATE OF AXIAL STRAIN, %/m	1.00	CELL PRESSURE, kPa	335.2
MACHINE SPEED, mm/min	1.02		

SAMPLE INFORMATION

SAMPLE HEIGHT, cm	10.15	WATER CONTENT, %	33.42
SAMPLE DIAMETER, cm	5.06	UNIT WEIGHT, kN/m^3	18.61
SAMPLE AREA, cm^2	20.11	DRY UNIT WT., kN/m^3	13.95
SAMPLE VOLUME, cc	204.11	SPECIFIC GRAVITY, assum	2.70
WET WEIGHT, g	387.52	POROSITY, %	47.30
DRY WEIGHT, g	290.45		

TEST RESULTS

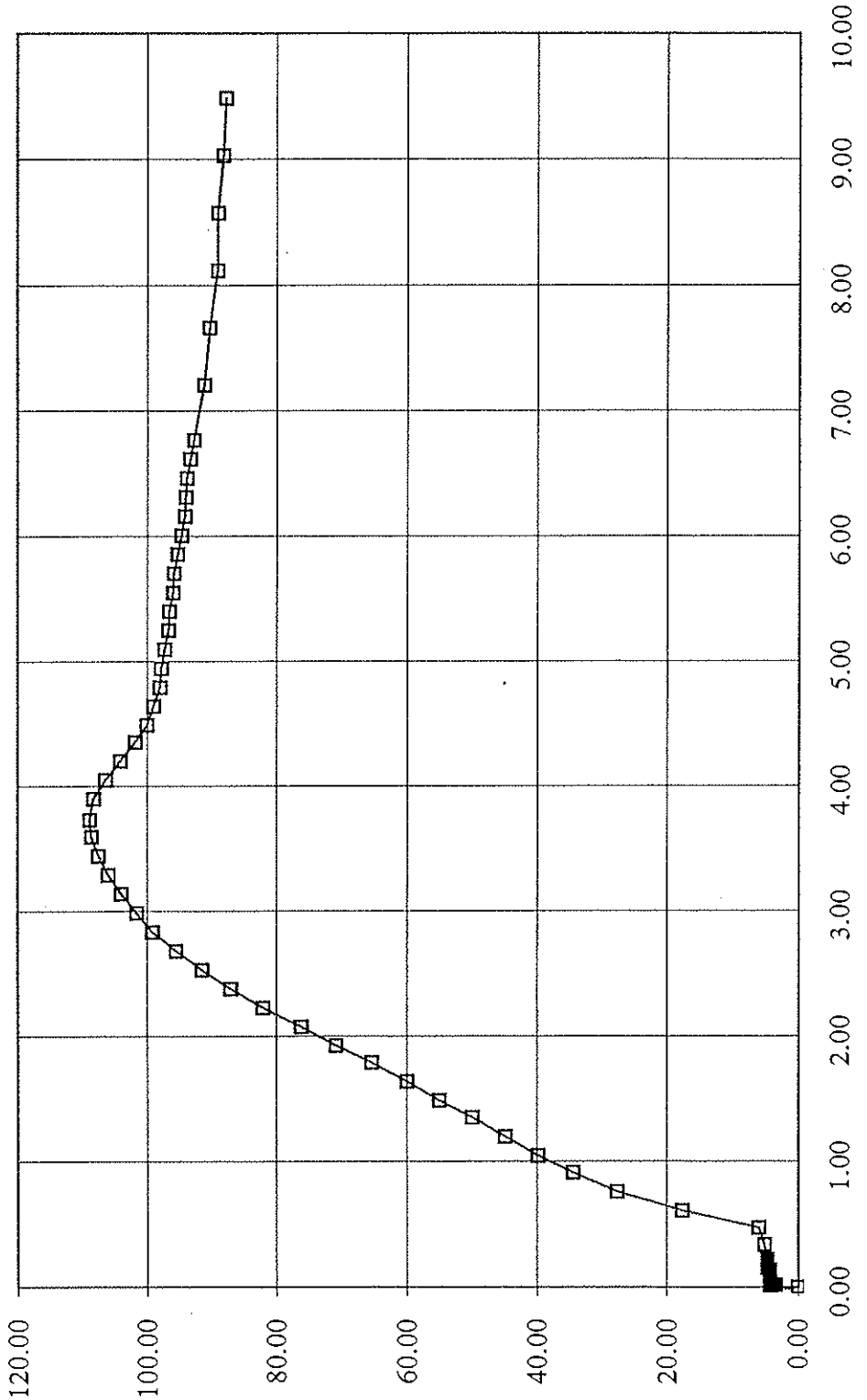
COMPRESSIVE STRESS, kPa	109	STRAIN AT FAILURE, %	3.7

TECH	RO
DATE	11/15/02
CHECKED	MM
REVIEWED	FTA

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST (UU)

Date: 11/15/02
Checked: MM
Reviewed: FTA

BOREHOLE SB-02-2A SAMPLE NUMBER SA-2 σ_3=335.2kPa



Project No. 013-9309

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST (UU)

SAMPLE IDENTIFICATION

PROJECT NUMBER	013-9309	SAMPLE NUMBER	SA-2
BOREHOLE NUMBER	SB-02-2A	SAMPLE DEPTH, m	7.32-7.92

TEST CONDITIONS

RATE OF AXIAL STRAIN, %/m	1.00	CELL PRESSURE, kPa	478.8
MACHINE SPEED, mm/min	1.02		

SAMPLE INFORMATION

SAMPLE HEIGHT, cm	10.16	WATER CONTENT, %	32.80
SAMPLE DIAMETER, cm	5.03	UNIT WEIGHT, kN/m^3	18.64
SAMPLE AREA, cm^2	19.87	DRY UNIT WT., kN/m^3	14.04
SAMPLE VOLUME, cc	201.89	SPECIFIC GRAVITY, assum	2.70
WET WEIGHT, g	383.94	POROSITY, %	46.96
DRY WEIGHT, g	289.11		

TEST RESULTS

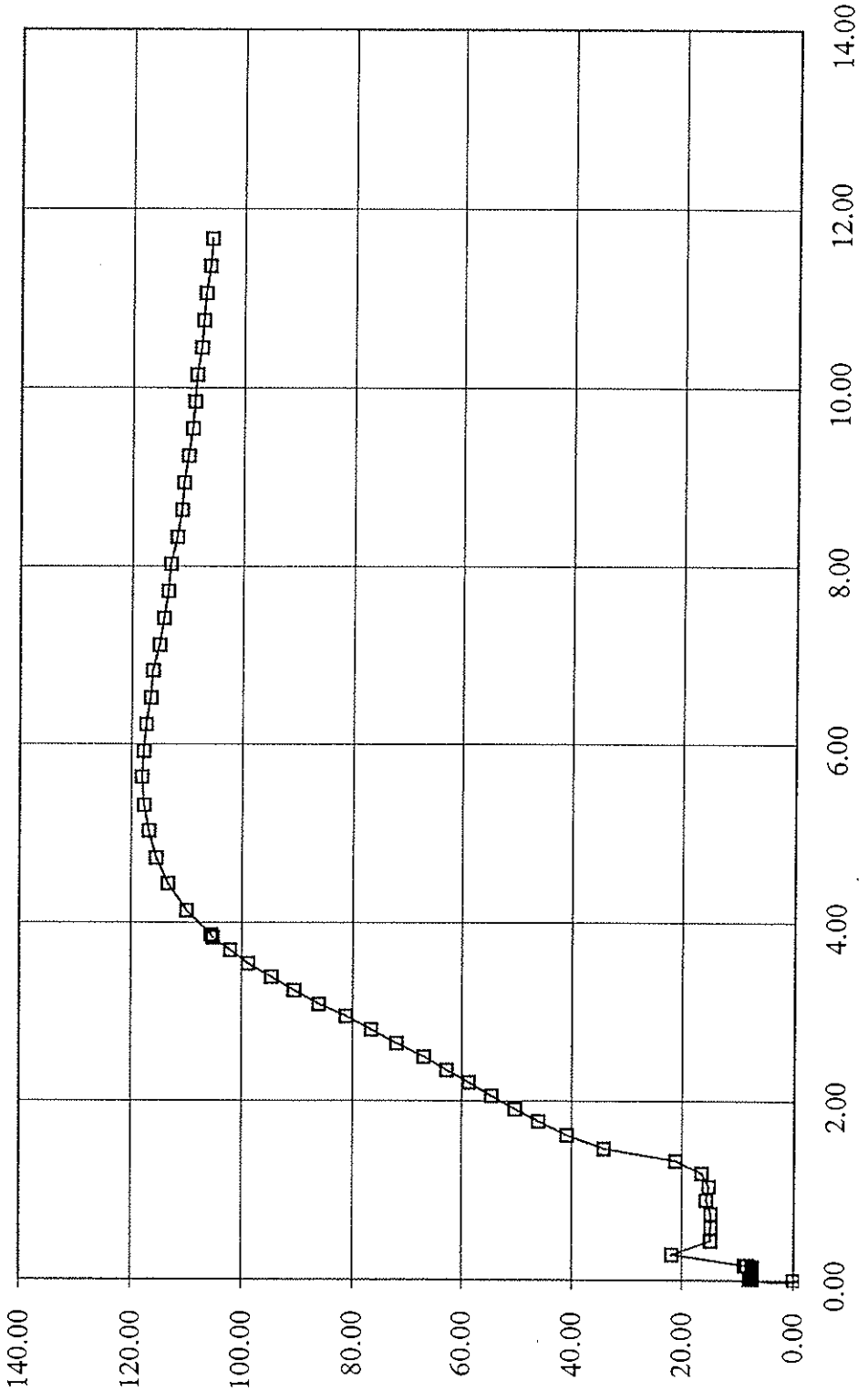
COMPRESSIVE STRESS, kPa	118	STRAIN AT FAILURE, %	5.6

TECH	RO
DATE	11/15/02
CHECKED	MM
REVIEWED	FTA

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST (UU)

Date: 11/15/02
Checked: MM
Reviewed: FTA

BOREHOLE SB-02-2A SAMPLE NUMBER SA-2 σ_3=478.8kPa



Project No. 013-9309

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST (UU)

SAMPLE IDENTIFICATION

PROJECT NUMBER	013-9309	SAMPLE NUMBER	SA-13
BOREHOLE NUMBER	SB-02-4	SAMPLE DEPTH, m	7.312-7.92

TEST CONDITIONS

RATE OF AXIAL STRAIN, %/m	1.00	CELL PRESSURE, kPa	167.6
MACHINE SPEED, mm/min	1.40		

SAMPLE INFORMATION

SAMPLE HEIGHT, cm	14.02	WATER CONTENT, %	28.43
SAMPLE DIAMETER, cm	7.20	UNIT WEIGHT, kN/m^3	19.39
SAMPLE AREA, cm^2	40.72	DRY UNIT WT., kN/m^3	15.10
SAMPLE VOLUME, cc	570.83	SPECIFIC GRAVITY, measu	2.77
WET WEIGHT, g	1128.90	POROSITY, %	44.41
DRY WEIGHT, g	879.00		

TEST RESULTS

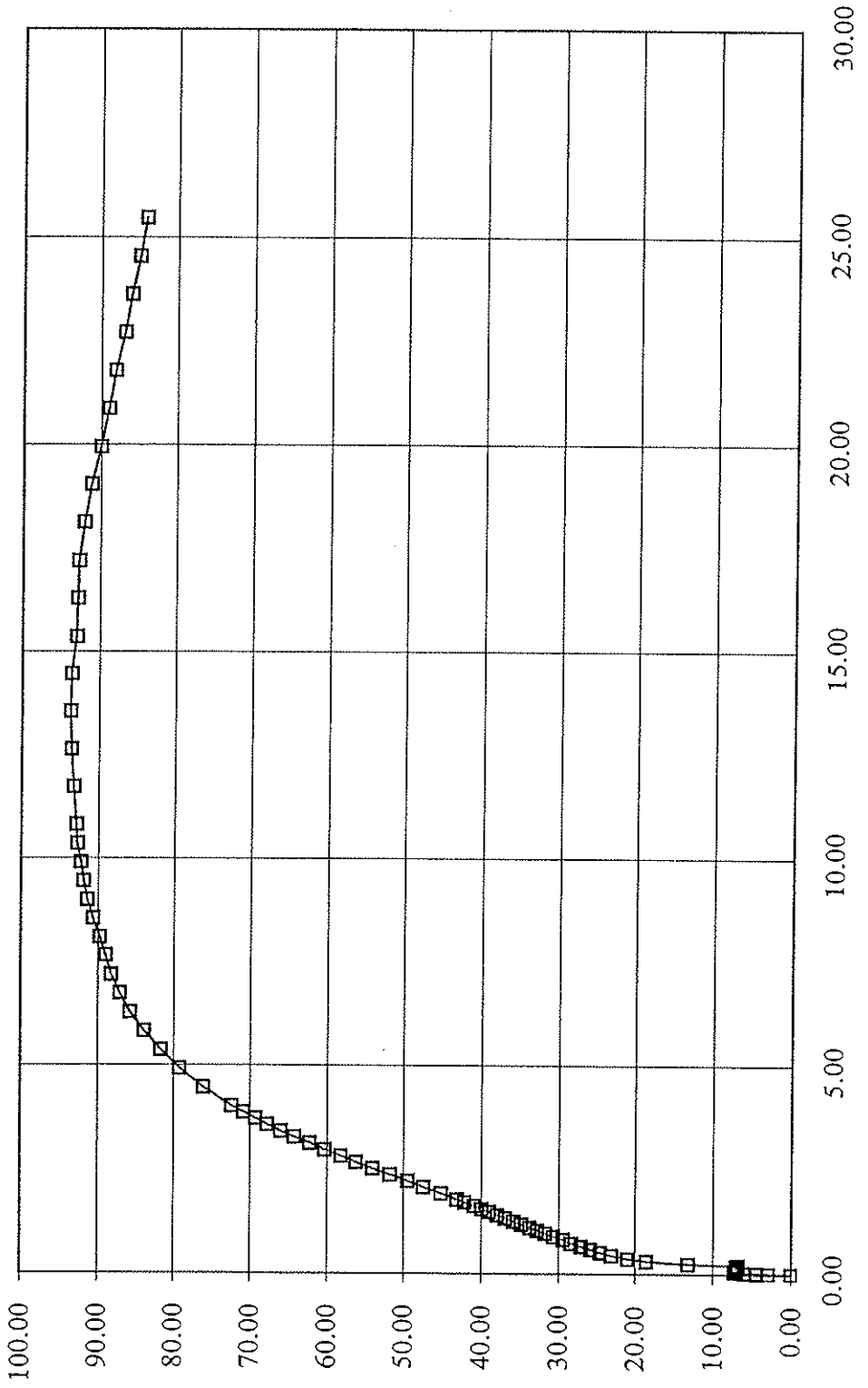
COMPRESSIVE STRESS, kPa	94	STRAIN AT FAILURE, %	13.5

TECH	RO
DATE	11/15/02
CHECKED	MM
REVIEWED	FTA

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST (UU)

Date: 11/15/02
Checked: MM
Reviewed: FTA

BOREHOLE SB-02-4 SAMPLE NUMBER SA-13 σ_3=167.62kPa



Project No. 013-9309

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST (UU)

SAMPLE IDENTIFICATION

PROJECT NUMBER	013-9309	SAMPLE NUMBER	SA-13
BOREHOLE NUMBER	SB-02-4	SAMPLE DEPTH, m	7.312-7.92

TEST CONDITIONS

RATE OF AXIAL STRAIN, %/m	1.00	CELL PRESSURE, kPa	335.2
MACHINE SPEED, mm/min	1.44		

SAMPLE INFORMATION

SAMPLE HEIGHT, cm	14.44	WATER CONTENT, %	28.60
SAMPLE DIAMETER, cm	7.23	UNIT WEIGHT, kN/m^3	19.36
SAMPLE AREA, cm^2	41.06	DRY UNIT WT., kN/m^3	15.05
SAMPLE VOLUME, cc	592.84	SPECIFIC GRAVITY, measu	2.77
WET WEIGHT, g	1170.60	POROSITY, %	44.57
DRY WEIGHT, g	910.26		

TEST RESULTS

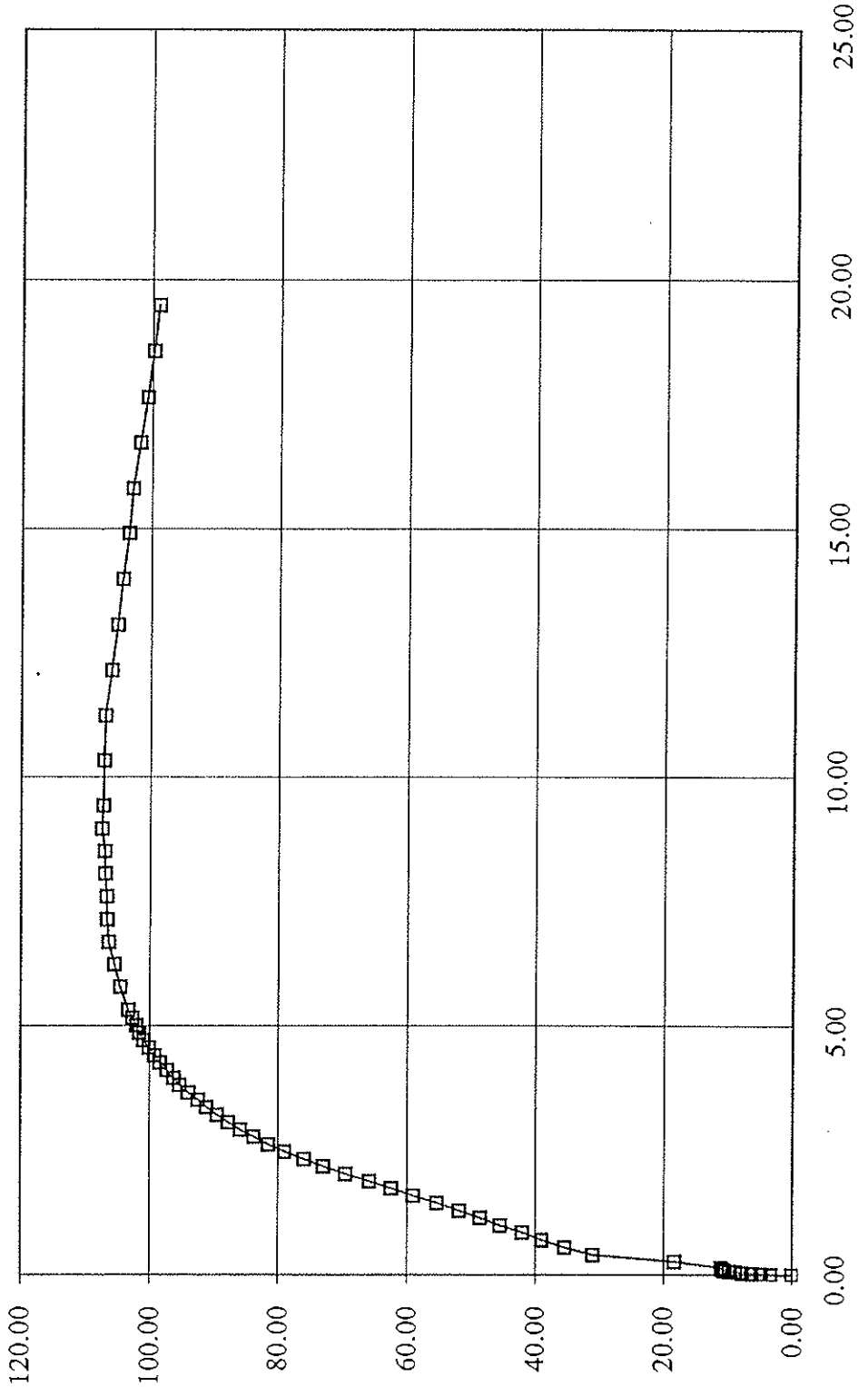
COMPRESSIVE STRESS, kPa	107	STRAIN AT FAILURE, %	9.0

TECH	RO
DATE	11/15/02
CHECKED	MM
REVIEWED	FTA

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST (UU)

Date: 11/15/02
Checked: MM
Reviewed: FTA

BOREHOLE SB-02-4 SAMPLE NUMBER SA-13 σ_3=335.2kPa



Project No. 013-9309

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST (UU)

SAMPLE IDENTIFICATION

PROJECT NUMBER	013-9309	SAMPLE NUMBER	SA-13
BOREHOLE NUMBER	SB-02-4	SAMPLE DEPTH, m	7.312-7.92

TEST CONDITIONS

RATE OF AXIAL STRAIN, %/m	1.00	CELL PRESSURE, kPa	478.8
MACHINE SPEED, mm/min	1.46		

SAMPLE INFORMATION

SAMPLE HEIGHT, cm	14.55	WATER CONTENT, %	29.34
SAMPLE DIAMETER, cm	7.24	UNIT WEIGHT, kN/m^3	19.27
SAMPLE AREA, cm^2	41.17	DRY UNIT WT., kN/m^3	14.90
SAMPLE VOLUME, cc	599.01	SPECIFIC GRAVITY, measu	2.77
WET WEIGHT, g	1177.20	POROSITY, %	45.15
DRY WEIGHT, g	910.16		

TEST RESULTS

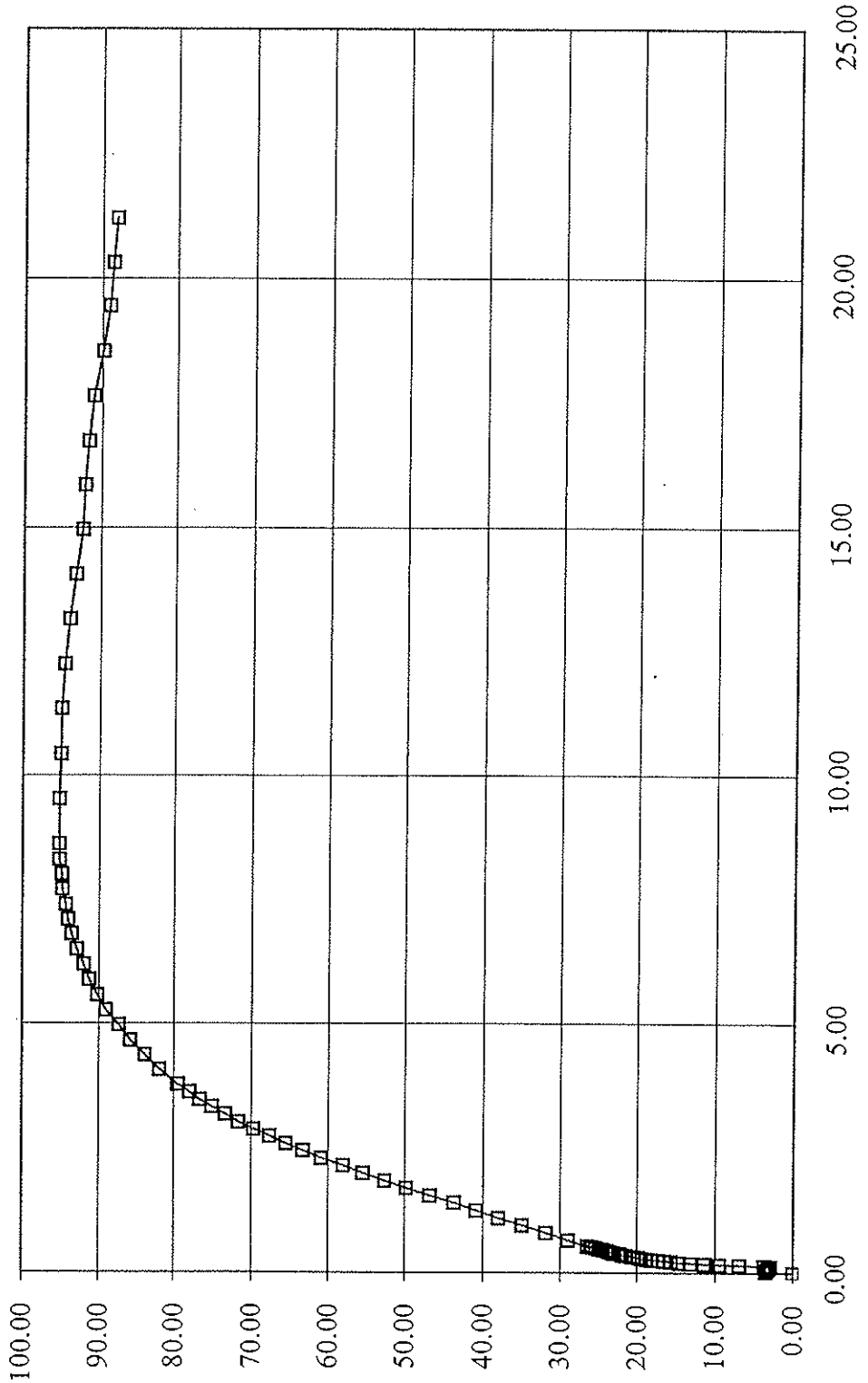
COMPRESSIVE STRESS, kPa	95	STRAIN AT FAILURE, %	9.5

TECH	RO
DATE	11/15/02
CHECKED	MM
REVIEWED	FTA

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST (UU)

Date: 11/15/02
Checked: MM
Reviewed: FTA

BOREHOLE SB-02-4 SAMPLE NUMBER SA-13 σ_3=478.8kPa



Project No. 013-9309

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST (UU)

SAMPLE IDENTIFICATION

PROJECT NUMBER	013-9309	SAMPLE NUMBER	SA-14
BOREHOLE NUMBER	SB-02-4	SAMPLE DEPTH, m	7.92-8.53

TEST CONDITIONS

RATE OF AXIAL STRAIN, %/m	1.00	CELL PRESSURE, kPa	167.6
MACHINE SPEED, mm/min	1.47		

SAMPLE INFORMATION

SAMPLE HEIGHT, cm	14.69	WATER CONTENT, %	27.12
SAMPLE DIAMETER, cm	7.20	UNIT WEIGHT, kN/m^3	19.70
SAMPLE AREA, cm^2	40.72	DRY UNIT WT., kN/m^3	15.50
SAMPLE VOLUME, cc	598.11	SPECIFIC GRAVITY, measu	2.76
WET WEIGHT, g	1202.10	POROSITY, %	42.72
DRY WEIGHT, g	945.64		

TEST RESULTS

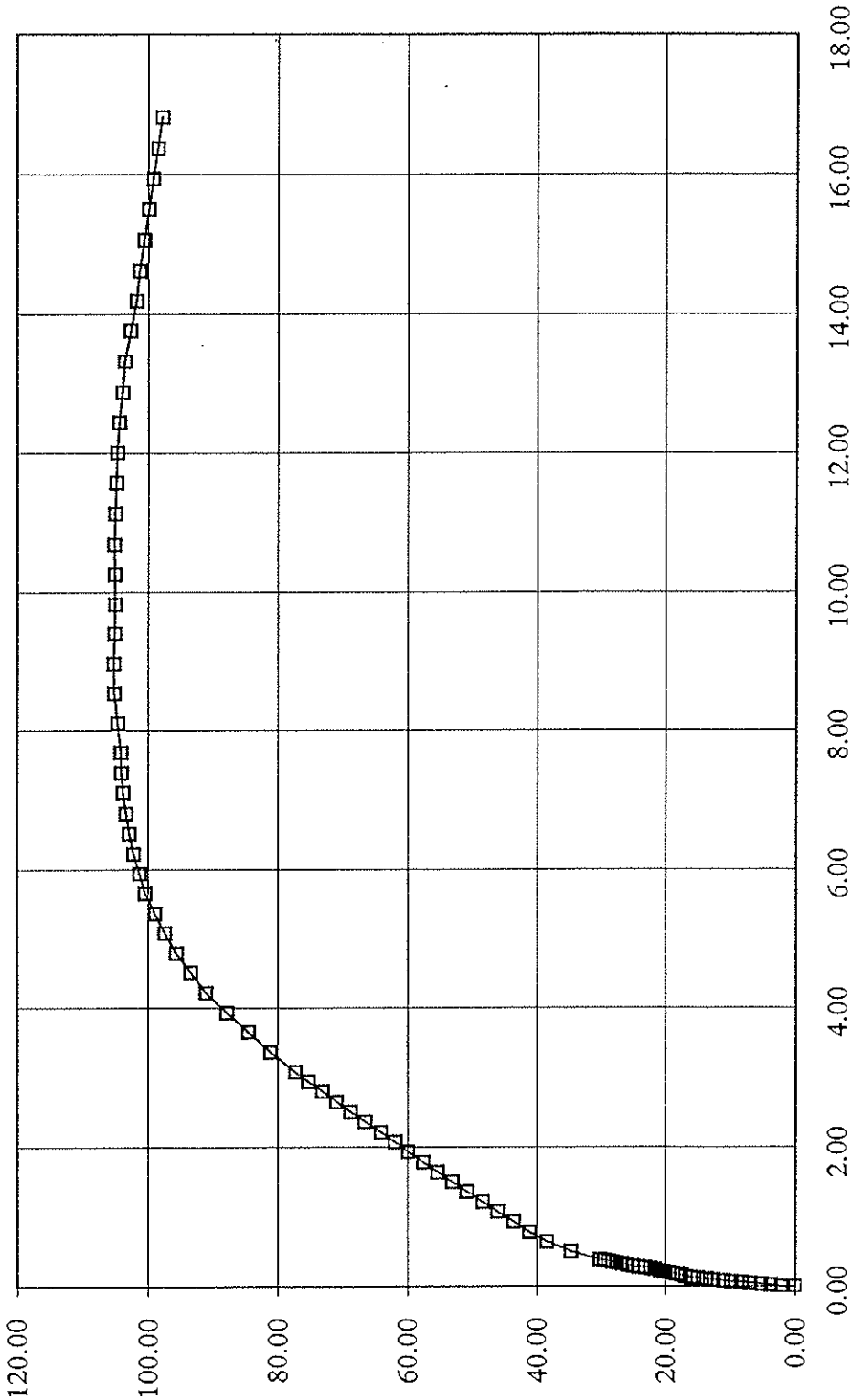
COMPRESSIVE STRESS, kPa	105	STRAIN AT FAILURE, %	9.0

TECH	RO
DATE	11/15/02
CHECKED	MM
REVIEWED	FTA

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST (UU)

Date: 11/15/02
Checked: MM
Reviewed: FTA

BOREHOLE SB-02-4 SAMPLE NUMBER SA-14 σ_3=167.6kPa



Project No. 013-9309

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST (UU)

SAMPLE IDENTIFICATION

PROJECT NUMBER	013-9309	SAMPLE NUMBER	SA-14
BOREHOLE NUMBER	SB-02-4	SAMPLE DEPTH, m	7.92-8.53

TEST CONDITIONS

RATE OF AXIAL STRAIN, %/m	1.00	CELL PRESSURE, kPa	335.2
MACHINE SPEED, mm/min	1.49		

SAMPLE INFORMATION

SAMPLE HEIGHT, cm	14.91	WATER CONTENT, %	26.80
SAMPLE DIAMETER, cm	7.22	UNIT WEIGHT, kN/m^3	19.61
SAMPLE AREA, cm^2	40.94	DRY UNIT WT., kN/m^3	15.47
SAMPLE VOLUME, cc	610.44	SPECIFIC GRAVITY, measu	2.76
WET WEIGHT, g	1221.40	POROSITY, %	42.83
DRY WEIGHT, g	963.25		

TEST RESULTS

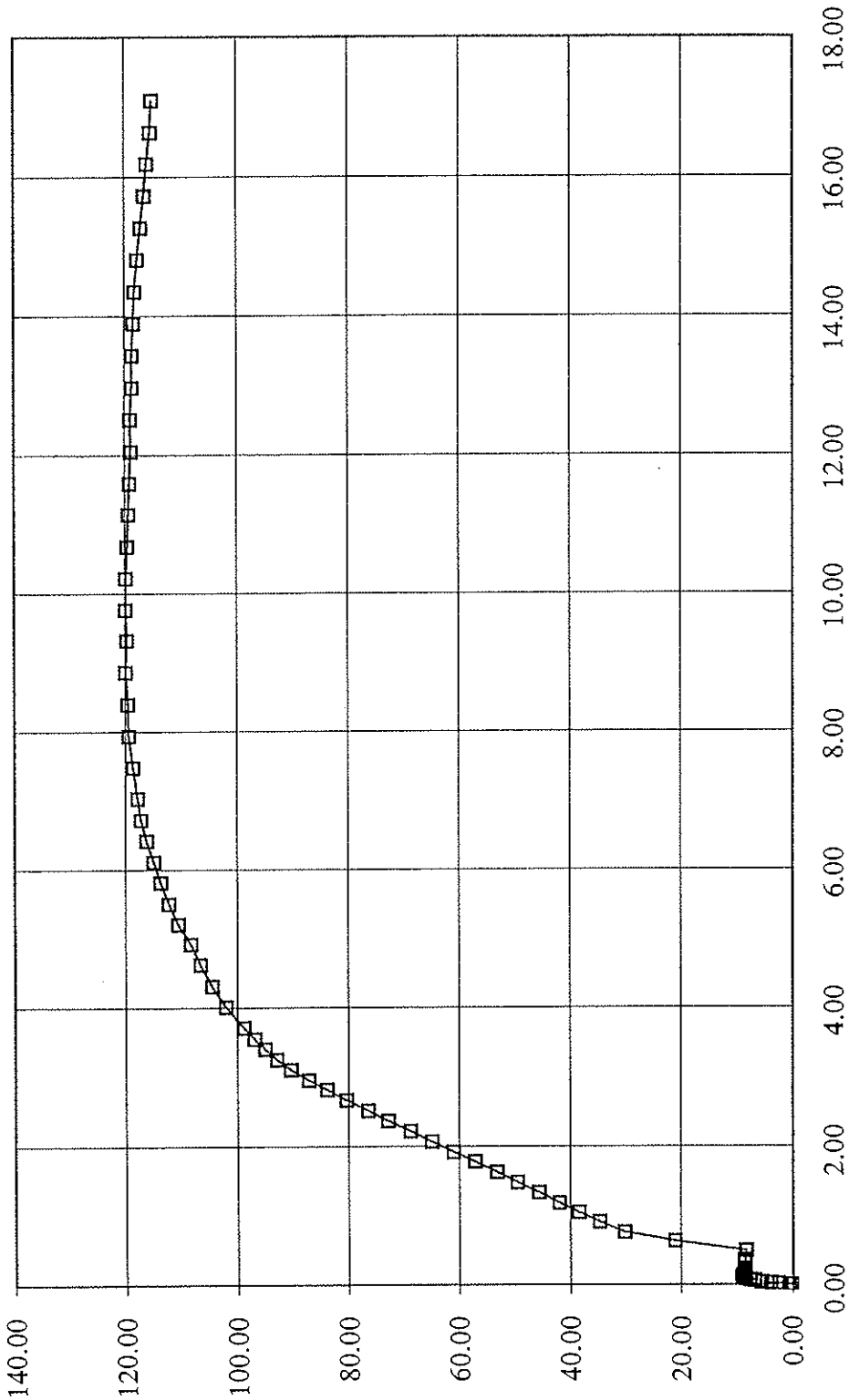
COMPRESSIVE STRESS, kPa	120	STRAIN AT FAILURE, %	8.9

TECH	RO
DATE	11/15/02
CHECKED	MM
REVIEWED	FTA

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST (UU)

Date: 11/15/02
Checked: MM
Reviewed: FTA

BOREHOLE SB-02-4 SAMPLE NUMBER SA-14 σ_3=335.2kPa



Project No. 013-9309

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST (UU)

SAMPLE IDENTIFICATION

PROJECT NUMBER	013-9309	SAMPLE NUMBER	SA-14
BOREHOLE NUMBER	SB-02-4	SAMPLE DEPTH, m	7.92-8.53

TEST CONDITIONS

RATE OF AXIAL STRAIN, %/m	1.00	CELL PRESSURE, kPa	478.8
MACHINE SPEED, mm/min	1.45		

SAMPLE INFORMATION

SAMPLE HEIGHT, cm	14.53	WATER CONTENT, %	27.50
SAMPLE DIAMETER, cm	7.24	UNIT WEIGHT, kN/m^3	19.54
SAMPLE AREA, cm^2	41.17	DRY UNIT WT., kN/m^3	15.32
SAMPLE VOLUME, cc	598.18	SPECIFIC GRAVITY, measu	2.76
WET WEIGHT, g	1192.10	POROSITY, %	43.37
DRY WEIGHT, g	934.98		

TEST RESULTS

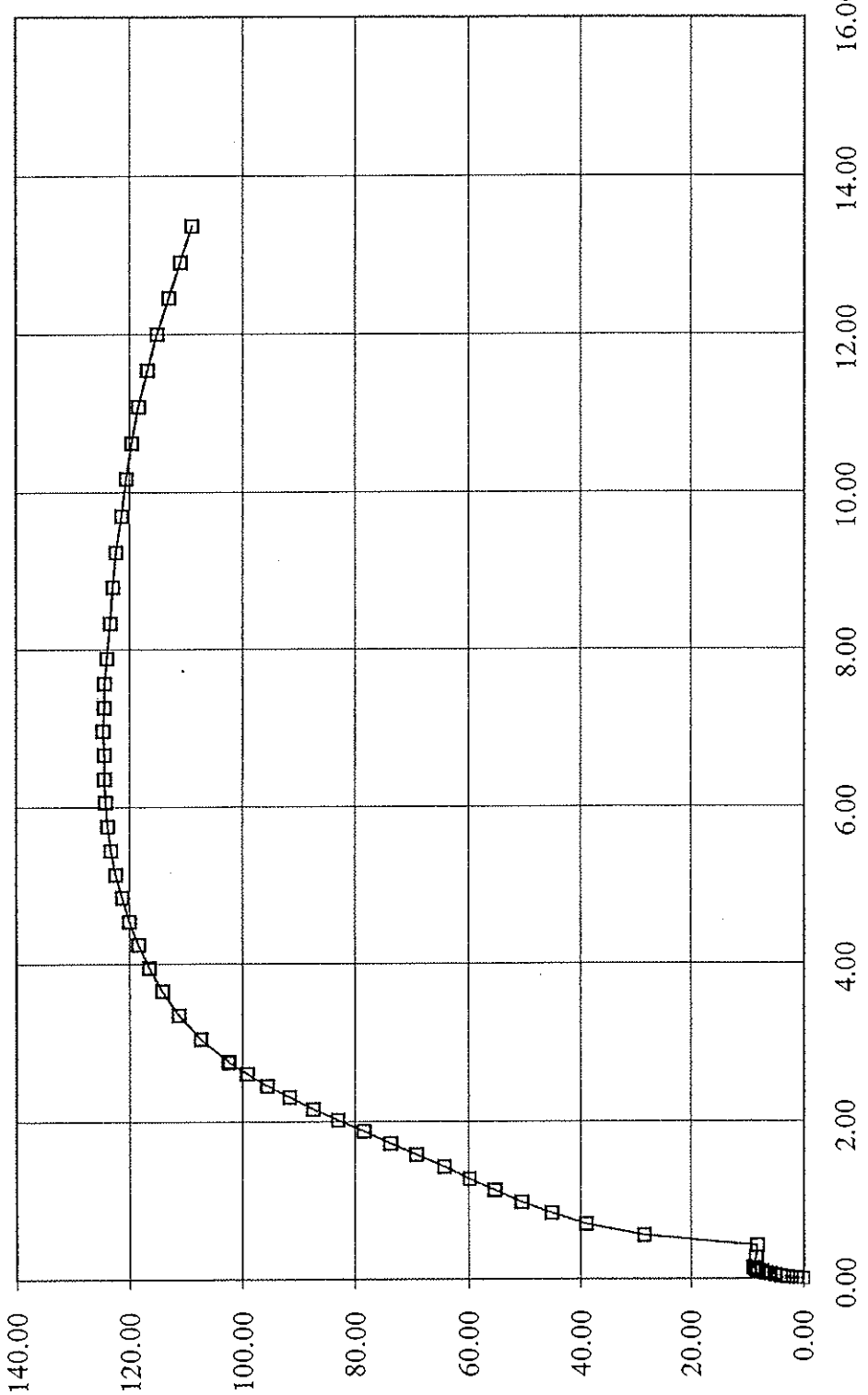
COMPRESSIVE STRESS, kPa	123	STRAIN AT FAILURE, %	8.8

TECH	RO
DATE	11/15/02
CHECKED	MM
REVIEWED	FTA

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST (UU)

Date: 11/15/02
Checked: MM
Reviewed: FTA

BOREHOLE SB-02-4 SAMPLE NUMBER SA-14 σ_3=478.8kPa



Project No. 013-9309

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST (UU)

SAMPLE IDENTIFICATION

PROJECT NUMBER	013-9309	SAMPLE NUMBER	SA-16
BOREHOLE NUMBER	SB-02-4	SAMPLE DEPTH, m	9.14-9.75

TEST CONDITIONS

RATE OF AXIAL STRAIN, %/m	1.00	CELL PRESSURE, kPa	167.6
MACHINE SPEED, mm/min	1.46		

SAMPLE INFORMATION

SAMPLE HEIGHT, cm	14.63	WATER CONTENT, %	25.16
SAMPLE DIAMETER, cm	7.22	UNIT WEIGHT, kN/m^3	19.93
SAMPLE AREA, cm^2	40.94	DRY UNIT WT., kN/m^3	15.93
SAMPLE VOLUME, cc	598.98	SPECIFIC GRAVITY, measu	2.75
WET WEIGHT, g	1218.00	POROSITY, %	40.92
DRY WEIGHT, g	973.15		

TEST RESULTS

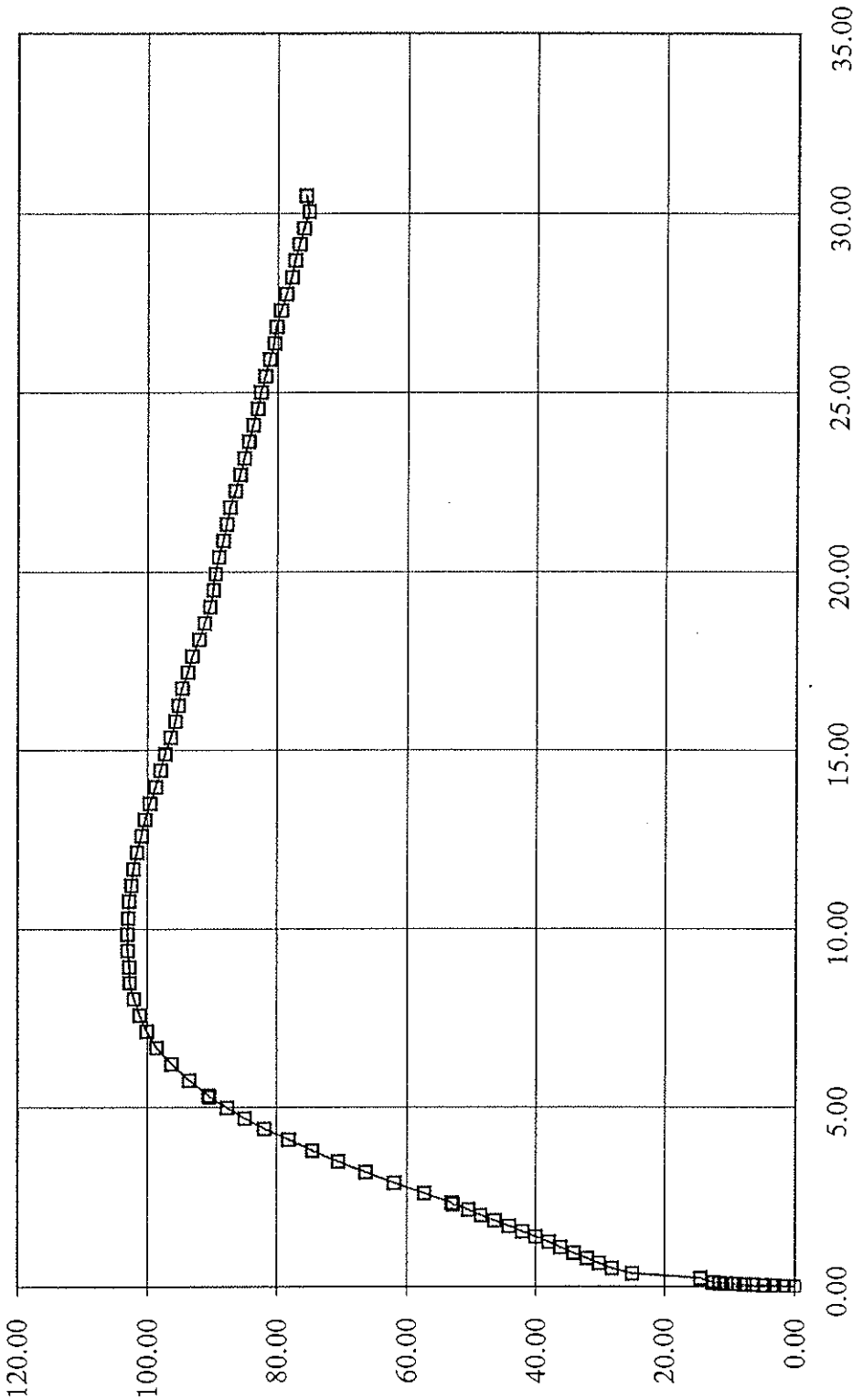
COMPRESSIVE STRESS, kPa	103	STRAIN AT FAILURE, %	9.8

TECH	RO
DATE	11/15/02
CHECKED	MM
REVIEWED	FTA

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST (UU)

Date: 11/15/02
Checked: MM
Reviewed: FTA

BOREHOLE SB-02-4 SAMPLE NUMBER SA-16 σ_3=167.6kPa



Project No. 013-9309

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST (UU)

SAMPLE IDENTIFICATION

PROJECT NUMBER	013-9309	SAMPLE NUMBER	SA-16
BOREHOLE NUMBER	SB-02-4	SAMPLE DEPTH, m	9.14-9.75

TEST CONDITIONS

RATE OF AXIAL STRAIN, %/m	1.00	CELL PRESSURE, kPa	335.2
MACHINE SPEED, mm/min	1.01		

SAMPLE INFORMATION

SAMPLE HEIGHT, cm	10.10	WATER CONTENT, %	27.01
SAMPLE DIAMETER, cm	5.08	UNIT WEIGHT, kN/m^3	19.48
SAMPLE AREA, cm^2	20.27	DRY UNIT WT., kN/m^3	15.33
SAMPLE VOLUME, cc	204.71	SPECIFIC GRAVITY, measu	2.75
WET WEIGHT, g	406.71	POROSITY, %	43.12
DRY WEIGHT, g	320.22		

TEST RESULTS

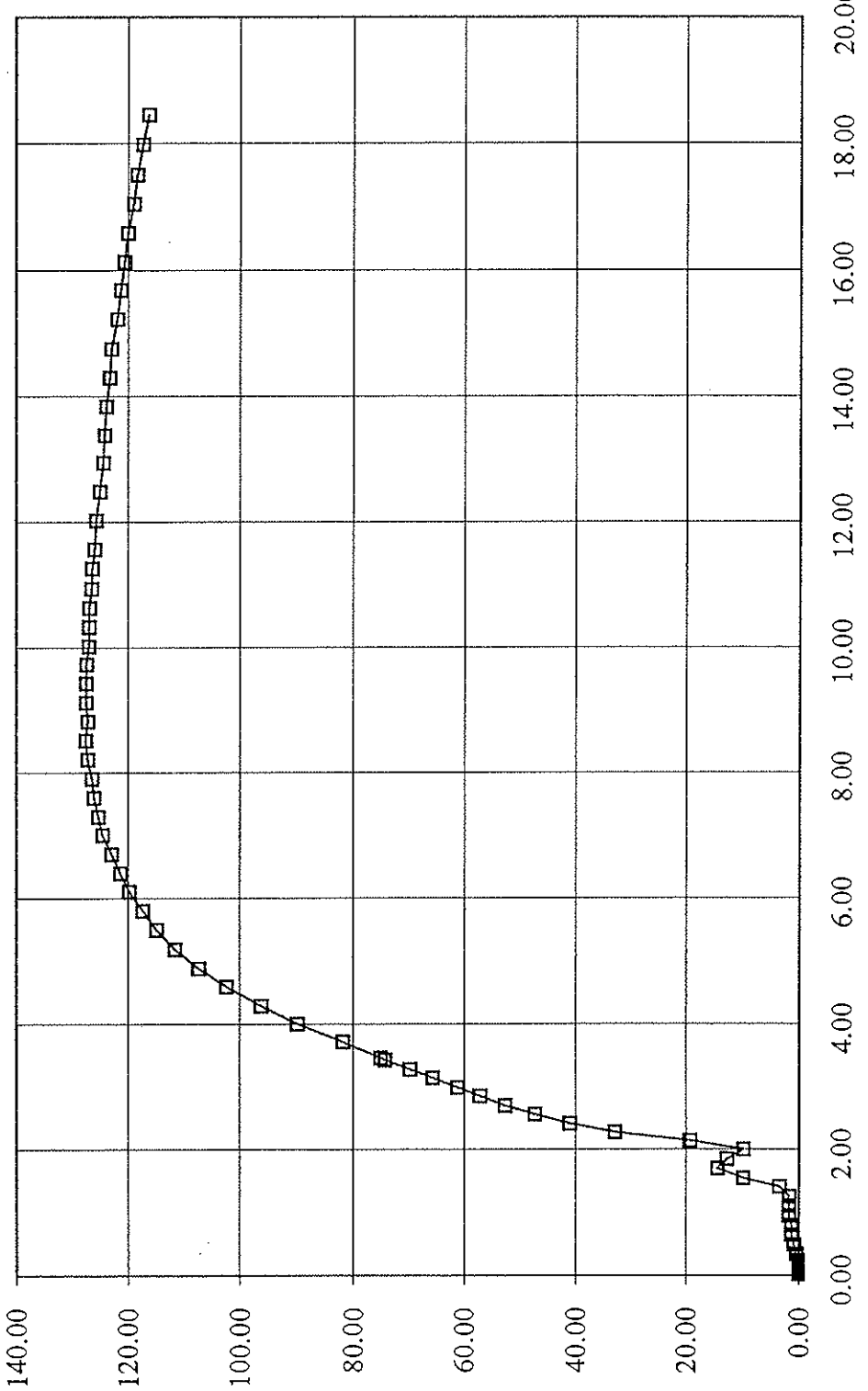
COMPRESSIVE STRESS, kPa	128	STRAIN AT FAILURE, %	8.5

TECH	RO
DATE	11/15/02
CHECKED	MM
REVIEWED	FTA

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST (UU)

Date: 11/15/02
Checked: MM
Reviewed: FTA

BOREHOLE SB-02-4 SAMPLE NUMBER SA-16 σ_3=335.2kPa



Project No. 013-9309

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST (UU)

SAMPLE IDENTIFICATION

PROJECT NUMBER	013-9309	SAMPLE NUMBER	SA-16
BOREHOLE NUMBER	SB-02-4	SAMPLE DEPTH, m	9.14-9.75

TEST CONDITIONS

RATE OF AXIAL STRAIN, %/m	1.00	CELL PRESSURE, kPa	478.8
MACHINE SPEED, mm/min	1.40		

SAMPLE INFORMATION

SAMPLE HEIGHT, cm	14.01	WATER CONTENT, %	24.37
SAMPLE DIAMETER, cm	7.24	UNIT WEIGHT, kN/m^3	19.81
SAMPLE AREA, cm^2	41.17	DRY UNIT WT., kN/m^3	15.93
SAMPLE VOLUME, cc	576.77	SPECIFIC GRAVITY, measu	2.75
WET WEIGHT, g	1165.40	POROSITY, %	40.92
DRY WEIGHT, g	937.04		

TEST RESULTS

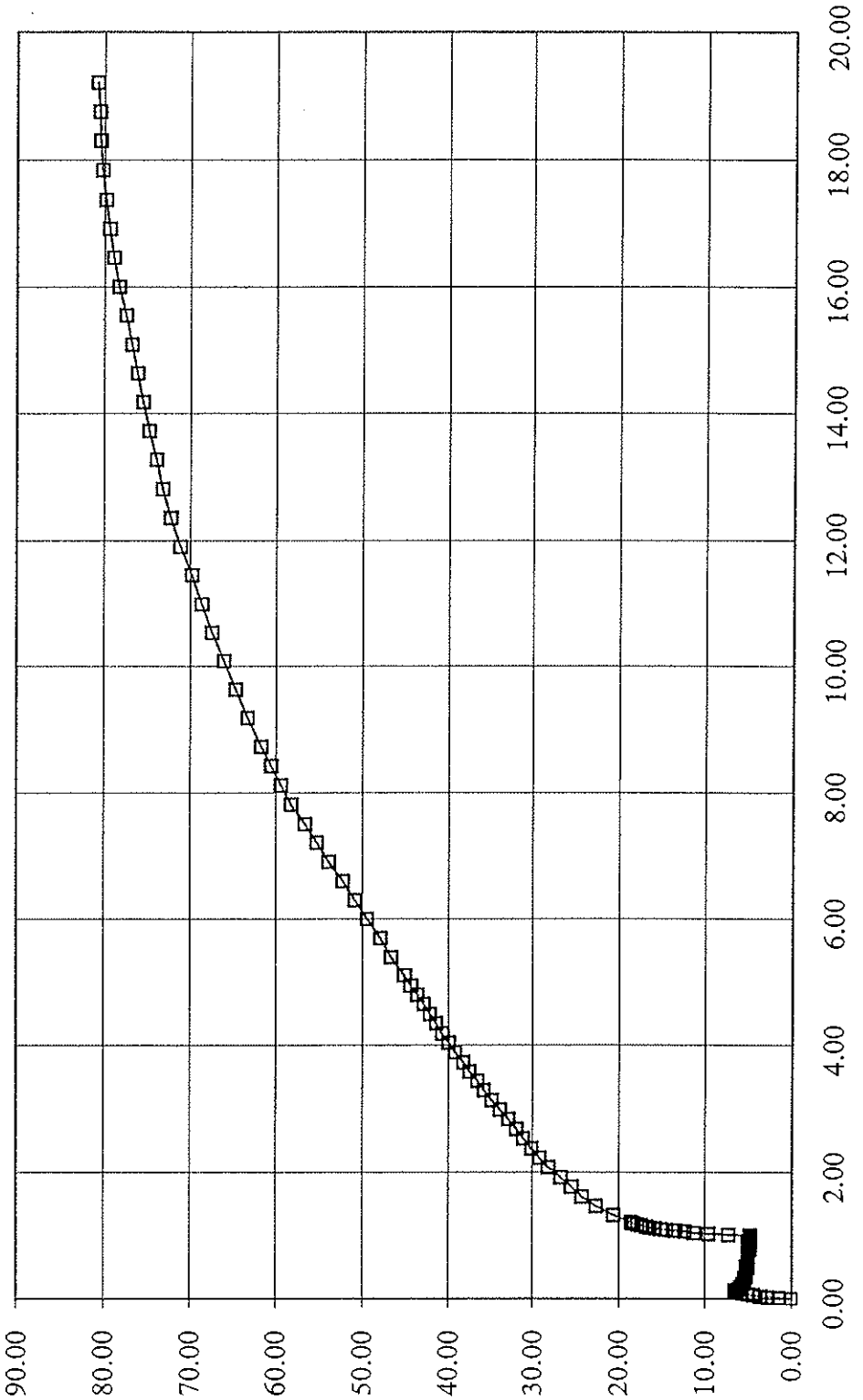
COMPRESSIVE STRESS, kPa	81	STRAIN AT FAILURE, %	19.2

TECH	RO
DATE	11/15/02
CHECKED	MM
REVIEWED	FTA

UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TEST (UU)

Date: 11/15/02
Checked: MM
Reviewed: FTA

BOREHOLE SB-02-4 SAMPLE NUMBER SA-16 σ_3=478.8kPa



Project No. 013-9309

SPECIFIC GRAVITY TEST RESULTS

ASTM D 854-98 TEST METHOD A

PROJECT NUMBER	013-9309
PROJECT NAME	CWM / RMU-2 / GW Plan / NY
DATE TESTED	November, 2002

Borehole No.	Sample No.	Specific Gravity
SB-02-4	SA-13	2.77
SB-02-4	SA-14	2.76
SB-02-4	SA-16	2.75

TECH	JM
DATE	11/15/02
CHECKED	MM
REVIEWED	FTA

Note: Test carried out on soil particles <4.75mm using distilled water .

ATTACHMENT B-4

GEOTECHNICAL LABORATORY RESULTS

CONSOLIDATED UNDRAINED TRIAXIAL SHEAR

CONSOLIDATED UNDRAINED W/ PORE PRESSURE MEASUREMENT

ASTM D 4767

CWM/RMU-2 GW Plan/NY
013-9309.011

SAMPLE #: SB-02-2A / SA-3
DEPTH: 26-28

DATE: 11/14/02
TECH: GD/KD
REVIEW: RMW

SAMPLE DATA

height (in)	6.345
diameter (in)	2.770
area (in^2)	6.026
height/diameter ratio	2.29
volume (in^3)	38.24
% moisture,initial	31.40%
weight (g)	1288.08
specific gravity	2.80
moist density (pcf)	128.28
dry density (pcf)	97.62

confining pressure (psi)	24.3
machine speed (in/min)	0.001
strain rate (%/min)	0.02
final "B" value	0.97
t_{50} (min)	58.9
volume,solids	22.80
volume,voids	15.44
void ratio	0.677
% saturation,initial	95.68%
% saturation,final	93.50%

MOISTURE CONTENT

tare #	GH18
wt soil&tare,moist	1413.96
wt soil&tare,dry	1177.39
wt tare	155.24
wt moisture	236.57
wt dry soil	1022.15
% moisture,final	23.14%

DESCRIPTION:

TIME (min)	DEFLECTION (in)	AXIAL LOAD (lbs)	PORE PRESSURE,U (psi)	d_0 (psf) (cumulative)	STRAIN (ε)	(1-ε)	AREA CORR (in^2)	HEIGHT CORR (in)	DEVIATOR STRESS (psf)	SIGMA 1 (psf)	EFFECTIVE SIGMA 1 (psf)	EFFECTIVE SIGMA 3 (psf)	EFF PRN STR RATIO (S_1'/S_3')	P' (psf)	Q' (psf)
0.0	0.000	0.0	29.6	0.0	0.00%	1.00	6.026	6.345	0.00	3499.20	3499.20	3499.20	1.00	3499.20	0.00
0.5	0.001	1.0	31.5	273.6	0.01%	1.00	6.027	6.345	23.89	3523.09	3249.49	3225.60	1.01	3237.55	11.95
1.0	0.001	6.0	32.0	345.6	0.02%	1.00	6.027	6.344	143.35	3642.55	3296.95	3153.60	1.05	3225.27	71.67
1.5	0.002	9.0	32.5	417.6	0.02%	1.00	6.028	6.344	215.01	3714.21	3296.61	3081.60	1.07	3189.10	107.50
2.0	0.002	11.0	32.6	432.0	0.03%	1.00	6.028	6.343	262.77	3761.97	3329.97	3067.20	1.09	3198.58	131.38
2.5	0.003	12.0	32.8	460.8	0.04%	1.00	6.029	6.343	286.63	3785.83	3325.03	3038.40	1.09	3181.72	143.32
3.0	0.003	14.0	33.1	504.0	0.05%	1.00	6.029	6.342	334.38	3833.58	3329.58	2995.20	1.11	3162.39	167.19
3.5	0.004	15.0	33.3	532.8	0.06%	1.00	6.030	6.342	358.23	3857.43	3324.63	2966.40	1.12	3145.52	179.12
4.0	0.004	15.0	33.5	561.6	0.06%	1.00	6.030	6.341	358.20	3857.40	3295.80	2937.60	1.12	3116.70	179.10
4.5	0.005	16.0	33.6	576.0	0.07%	1.00	6.031	6.341	382.05	3881.25	3305.25	2923.20	1.13	3114.23	191.03
5.0	0.005	17.0	33.9	619.2	0.08%	1.00	6.031	6.340	405.90	3905.10	3285.90	2880.00	1.14	3082.95	202.95
5.5	0.006	18.0	34.1	648.0	0.09%	1.00	6.032	6.340	429.74	3928.94	3280.94	2851.20	1.15	3066.07	214.87
6.0	0.006	19.0	34.3	676.8	0.09%	1.00	6.032	6.339	453.58	3952.78	3275.98	2822.40	1.16	3049.19	226.79
6.5	0.007	19.0	34.3	676.8	0.10%	1.00	6.032	6.339	453.55	3952.75	3275.95	2822.40	1.16	3049.17	226.77
7.0	0.007	20.0	34.4	691.2	0.11%	1.00	6.033	6.338	477.38	3976.58	3285.38	2808.00	1.17	3046.69	238.69
7.5	0.008	21.0	34.5	705.6	0.12%	1.00	6.033	6.338	501.21	4000.41	3294.81	2793.60	1.18	3044.20	250.60
8.0	0.008	22.0	34.5	705.6	0.13%	1.00	6.034	6.337	525.03	4024.23	3318.63	2793.60	1.19	3056.12	262.52
8.5	0.009	21.0	34.6	720.0	0.13%	1.00	6.034	6.337	501.13	4000.33	3280.33	2779.20	1.18	3029.76	250.56
9.0	0.009	22.0	34.7	734.4	0.14%	1.00	6.035	6.336	524.95	4024.15	3289.75	2764.80	1.19	3027.28	262.48
9.5	0.010	23.0	34.9	763.2	0.15%	1.00	6.035	6.336	548.77	4047.97	3284.77	2736.00	1.20	3010.38	274.38
10.0	0.010	23.0	35.0	777.6	0.16%	1.00	6.036	6.335	548.73	4047.93	3270.33	2721.60	1.20	2995.96	274.36
11.0	0.011	23.0	35.1	792.0	0.17%	1.00	6.037	6.334	548.64	4047.84	3255.84	2707.20	1.20	2981.52	274.32
12.0	0.012	23.0	35.2	806.4	0.19%	1.00	6.038	6.333	548.55	4047.75	3241.35	2692.80	1.20	2967.08	274.28
13.0	0.013	24.0	35.3	820.8	0.20%	1.00	6.039	6.332	572.31	4071.51	3250.71	2678.40	1.21	2964.56	286.16
14.0	0.014	24.0	35.4	835.2	0.22%	1.00	6.040	6.331	572.22	4071.42	3236.22	2664.00	1.21	2950.11	286.11
15.0	0.015	25.0	35.5	849.6	0.24%	1.00	6.041	6.330	595.97	4095.17	3245.57	2649.60	1.22	2947.59	297.99
16.0	0.016	26.0	35.7	878.4	0.25%	1.00	6.042	6.329	619.71	4118.91	3240.51	2620.80	1.24	2930.66	309.86
17.0	0.017	27.0	35.8	892.8	0.27%	1.00	6.042	6.328	643.45	4142.65	3249.85	2606.40	1.25	2928.12	321.72
18.0	0.018	28.0	36.0	921.6	0.28%	1.00	6.043	6.327	667.17	4166.37	3244.77	2577.60	1.26	2911.19	333.59
19.0	0.019	29.0	36.1	936.0	0.30%	1.00	6.044	6.326	690.89	4190.09	3254.09	2563.20	1.27	2908.64	345.44
20.0	0.020	29.0	36.2	950.4	0.32%	1.00	6.045	6.325	690.78	4189.98	3239.58	2548.80	1.27	2894.19	345.39
21.0	0.021	30.0	36.3	964.8	0.33%	1.00	6.046	6.324	714.49	4213.69	3248.89	2534.40	1.28	2891.64	357.24
22.0	0.022	30.0	36.3	964.8	0.35%	1.00	6.047	6.323	714.37	4213.57	3248.77	2534.40	1.28	2891.59	357.19
23.0	0.023	31.0	36.4	979.2	0.36%	1.00	6.048	6.322	738.07	4237.27	3258.07	2520.00	1.29	2889.04	369.04
24.0	0.024	31.0	36.5	993.6	0.38%	1.00	6.049	6.321	737.95	4237.15	3243.55	2505.60	1.29	2874.58	368.98
25.0	0.025	31.0	36.6	1008.0	0.39%	1.00	6.050	6.320	737.84	4237.04	3229.04	2491.20	1.30	2860.12	368.92
26.0	0.026	32.0	36.6	1008.0	0.41%	1.00	6.051	6.319	761.52	4260.72	3252.72	2491.20	1.31	2871.96	380.76
27.0	0.027	32.0	36.7	1022.4	0.43%	1.00	6.052	6.318	761.40	4260.60	3238.20	2476.80	1.31	2857.50	380.70

CONSOLIDATED UNDRAINED V _ PORE PRESSURE MEASUREMENT

ASTM D 4767

CWM/RMU-2 GW Plan/NY 013-9309.011	SAMPLE #:	SB-02-2A SA-3	DATE: 11/14/02 TECH: GD/KD
	DEPTH:	26-28	REVIEW: RMW

SAMPLE DATA

height (in)	6.345	confining pressure (psi)	24.3	**MOISTURE CONTENT**	
diameter (in)	2.770	machine speed (in/min)	0.001	tare #	GH18
area (in^2)	6.026	strain rate (%/min)	0.02	wt soil&tare,moist	1413.96
height/diameter ratio	2.29	final "B" value	0.97	wt soil&tare,dry	1177.39
volume (in^3)	38.24	t_{50} (min)	58.9	wt tare	155.24
% moisture,initial	31.40%	volume,solids	22.80	wt moisture	236.57
weight (g)	1288.08	volume,voids	15.44	wt dry soil	1022.15
specific gravity	2.80	void ratio	0.677	% moisture,final	23.14%
moist density (pcf)	128.28	% saturation,initial	95.68%		
dry density (pcf)	97.62	% saturation,final	93.50%		

DESCRIPTION:

TIME (min)	DEFLECTION (in)	AXIAL LOAD (lbs)	PORE PRESSURE,U (psi)	d_U (psf) (cumulative)	STRAIN (ε)	(1-ε)	AREA CORR (in^2)	HEIGHT CORR (in)	DEVIATOR STRESS (psf)	SIGMA 1 (psf)	EFFECTIVE SIGMA 1 (psf)	EFFECTIVE SIGMA 3 (psf)	EFF PRN STR RATIO (S_1'/S_3')	P' (psf)	Q' (psf)
28.0	0.028	33.0	36.8	1036.8	0.44%	1.00	6.053	6.317	785.07	4284.27	3247.47	2462.40	1.32	2854.93	392.53
29.0	0.029	34.0	36.9	1051.2	0.46%	1.00	6.054	6.316	808.73	4307.93	3256.73	2448.00	1.33	2852.36	404.36
30.0	0.030	34.0	37.0	1065.6	0.47%	1.00	6.055	6.315	808.60	4307.80	3242.20	2433.60	1.33	2837.90	404.30
31.0	0.031	35.0	37.0	1065.6	0.49%	1.00	6.056	6.314	832.25	4331.45	3265.85	2433.60	1.34	2849.73	416.13
32.0	0.032	36.0	37.1	1080.0	0.50%	0.99	6.057	6.313	855.89	4355.09	3275.09	2419.20	1.35	2847.15	427.95
33.0	0.033	36.0	37.1	1080.0	0.52%	0.99	6.058	6.312	855.76	4354.96	3274.96	2419.20	1.35	2847.08	427.88
34.0	0.034	36.0	37.2	1094.4	0.54%	0.99	6.059	6.311	855.62	4354.82	3260.42	2404.80	1.36	2832.61	427.81
35.0	0.035	37.0	37.3	1108.8	0.55%	0.99	6.060	6.310	879.25	4378.45	3269.65	2390.40	1.37	2830.03	439.63
36.0	0.036	38.0	37.4	1123.2	0.57%	0.99	6.061	6.309	902.87	4402.07	3278.87	2376.00	1.38	2827.44	451.44
37.0	0.037	39.0	37.4	1123.2	0.58%	0.99	6.062	6.308	926.48	4425.68	3302.48	2376.00	1.39	2839.24	463.24
38.0	0.038	39.0	37.5	1137.6	0.60%	0.99	6.063	6.307	926.34	4425.54	3287.94	2361.60	1.39	2824.77	463.17
39.0	0.039	40.0	37.6	1152.0	0.61%	0.99	6.064	6.306	949.94	4449.14	3297.14	2347.20	1.40	2822.17	474.97
40.0	0.040	40.0	37.6	1152.0	0.63%	0.99	6.065	6.305	949.79	4448.99	3296.99	2347.20	1.40	2822.09	474.89
41.0	0.041	41.0	37.6	1152.0	0.65%	0.99	6.065	6.304	973.38	4472.58	3320.58	2347.20	1.41	2833.89	486.69
42.0	0.042	41.0	37.7	1166.4	0.66%	0.99	6.066	6.303	973.22	4472.42	3306.02	2332.80	1.42	2819.41	486.61
43.0	0.043	42.0	37.8	1180.8	0.68%	0.99	6.067	6.302	996.80	4496.00	3315.20	2318.40	1.43	2816.80	498.40
44.0	0.044	42.0	37.8	1180.8	0.69%	0.99	6.068	6.301	996.64	4495.84	3315.04	2318.40	1.43	2816.72	498.32
45.0	0.045	42.0	37.9	1195.2	0.71%	0.99	6.069	6.300	996.49	4495.69	3300.49	2304.00	1.43	2802.24	498.24
46.0	0.046	43.0	38.0	1209.6	0.72%	0.99	6.070	6.299	1020.05	4519.25	3309.65	2289.60	1.45	2799.63	510.03
47.0	0.047	44.0	38.1	1224.0	0.74%	0.99	6.071	6.298	1043.61	4542.81	3318.81	2275.20	1.46	2797.00	521.80
48.0	0.048	45.0	38.1	1224.0	0.76%	0.99	6.072	6.297	1067.16	4566.36	3342.36	2275.20	1.47	2808.78	533.58
49.0	0.049	45.0	38.2	1238.4	0.77%	0.99	6.073	6.296	1066.99	4566.19	3327.79	2260.80	1.47	2794.29	533.49
50.0	0.050	46.0	38.3	1252.8	0.79%	0.99	6.074	6.295	1090.52	4589.72	3336.92	2246.40	1.49	2791.66	545.26
51.0	0.051	46.0	38.3	1252.8	0.80%	0.99	6.075	6.294	1090.35	4589.55	3336.75	2246.40	1.49	2791.58	545.18
52.0	0.052	46.0	38.3	1252.8	0.82%	0.99	6.076	6.293	1090.18	4589.38	3336.58	2246.40	1.49	2791.49	545.09
53.0	0.053	46.0	38.4	1267.2	0.84%	0.99	6.077	6.292	1090.00	4589.20	3322.00	2232.00	1.49	2777.00	545.00
54.0	0.054	47.0	38.4	1267.2	0.85%	0.99	6.078	6.291	1113.52	4612.72	3345.52	2232.00	1.50	2788.76	556.76
55.0	0.055	47.0	38.5	1281.6	0.87%	0.99	6.079	6.290	1113.35	4612.55	3330.95	2217.60	1.50	2774.27	556.67
56.0	0.056	48.0	38.6	1296.0	0.88%	0.99	6.080	6.289	1136.85	4636.05	3340.05	2203.20	1.52	2771.63	568.43
57.0	0.057	48.0	38.6	1296.0	0.90%	0.99	6.081	6.288	1136.67	4635.87	3339.87	2203.20	1.52	2771.54	568.34
58.0	0.058	49.0	38.6	1296.0	0.91%	0.99	6.082	6.287	1160.17	4659.37	3363.37	2203.20	1.53	2783.28	580.08
59.0	0.059	49.0	38.7	1310.4	0.93%	0.99	6.083	6.286	1159.98	4659.18	3348.78	2188.80	1.53	2768.79	579.99
60.0	0.060	53.0	38.7	1310.4	0.95%	0.99	6.084	6.285	1254.48	4753.68	3443.28	2188.80	1.57	2816.04	627.24
65.0	0.065	55.0	38.8	1324.8	1.02%	0.99	6.089	6.280	1300.78	4799.98	3475.18	2174.40	1.60	2824.79	650.39
70.0	0.070	57.0	39.0	1353.6	1.10%	0.99	6.094	6.275	1347.01	4846.21	3492.61	2145.60	1.63	2819.10	673.50
75.0	0.075	57.0	39.2	1382.4	1.18%	0.99	6.098	6.270	1345.93	4845.13	3462.73	2116.80	1.64	2789.77	672.97
80.0	0.080	58.0	39.4	1411.2	1.26%	0.99	6.103	6.265	1368.45	4867.65	3456.45	2088.00	1.66	2772.23	684.23
85.0	0.085	59.0	39.5	1425.6	1.34%	0.99	6.108	6.260	1390.94	4890.14	3464.54	2073.60	1.67	2769.07	695.47

CONSOLIDATED UNDRAINED W[illegible]PORE PRESSURE MEASUREMENT

ASTM D 4767

CWM/RMU-2 GW Plan/NY 013-9309.011	SAMPLE #:	SB-02-2A SA-3	DATE: 11/14/02 TECH: GD/KD
	DEPTH:	26-28	REVIEW: RMW

SAMPLE DATA

height (in)	6.345	confining pressure (psi)	24.3	**MOISTURE CONTENT**	
diameter (in)	2.770	machine speed (in/min)	0.001	tare #	GH18
area (in^2)	6.026	strain rate (%/min)	0.02	wt soil&tare,moist	1413.96
height/diameter ratio	2.29	final "B" value	0.97	wt soil&tare,dry	1177.39
volume (in^3)	38.24	t_{50} (min)	58.9	wt tare	155.24
% moisture,initial	31.40%	volume,solids	22.80	wt moisture	236.57
weight (g)	1288.08	volume,voids	15.44	wt dry soil	1022.15
specific gravity	2.80	void ratio	0.677	% moisture,final	23.14%
moist density (pcf)	128.28	% saturation,initial	95.68%		
dry density (pcf)	97.62	% saturation,final	93.50%		

DESCRIPTION:

TIME (min)	DEFLECTION (in)	AXIAL LOAD (lbs)	PORE PRESSURE,U (psi)	d_U (psf) (cumulative)	STRAIN (ε)	(1-ε)	AREA CORR (in^2)	HEIGHT CORR (in)	DEVIATOR STRESS (psf)	SIGMA 1 (psf)	EFFECTIVE SIGMA 1 (psf)	EFFECTIVE SIGMA 3 (psf)	EFF PRN STR RATIO (S_1'/S_3')	P' (psf)	Q' (psf)
90.0	0.090	60.0	39.7	1454.4	1.42%	0.99	6.113	6.255	1413.38	4912.58	3458.18	2044.80	1.69	2751.49	706.69
95.0	0.095	62.0	39.9	1483.2	1.50%	0.99	6.118	6.250	1459.33	4958.53	3475.33	2016.00	1.72	2745.66	729.66
100.0	0.100	64.0	40.1	1512.0	1.58%	0.98	6.123	6.245	1505.20	5004.40	3492.40	1987.20	1.76	2739.80	752.60
105.0	0.105	65.0	40.3	1540.8	1.65%	0.98	6.128	6.240	1527.49	5026.69	3485.89	1958.40	1.78	2722.15	763.75
110.0	0.110	66.0	40.4	1555.2	1.73%	0.98	6.133	6.235	1549.75	5048.95	3493.75	1944.00	1.80	2718.88	774.88
115.0	0.115	68.0	40.5	1569.6	1.81%	0.98	6.138	6.230	1595.43	5094.63	3525.03	1929.60	1.83	2727.32	797.72
120.0	0.120	68.0	40.5	1569.6	1.89%	0.98	6.142	6.225	1594.15	5093.35	3523.75	1929.60	1.83	2726.68	797.08
125.0	0.125	69.0	40.7	1598.4	1.97%	0.98	6.147	6.220	1616.30	5115.50	3517.10	1900.80	1.85	2708.95	808.15
130.0	0.130	70.0	40.8	1612.8	2.05%	0.98	6.152	6.215	1638.40	5137.60	3524.80	1886.40	1.87	2705.60	819.20
135.0	0.135	71.0	40.8	1612.8	2.13%	0.98	6.157	6.210	1660.47	5159.67	3546.87	1886.40	1.88	2716.64	830.24
140.0	0.140	72.0	40.9	1627.2	2.21%	0.98	6.162	6.205	1682.50	5181.70	3554.50	1872.00	1.90	2713.25	841.25
145.0	0.145	72.0	41.0	1641.6	2.29%	0.98	6.167	6.200	1681.15	5180.35	3538.75	1857.60	1.91	2698.17	840.57
150.0	0.150	73.0	41.1	1656.0	2.36%	0.98	6.172	6.195	1703.12	5202.32	3546.32	1843.20	1.92	2694.76	851.56
155.0	0.155	74.0	41.1	1656.0	2.44%	0.98	6.177	6.190	1725.06	5224.26	3568.26	1843.20	1.94	2705.73	862.53
160.0	0.160	75.0	41.2	1670.4	2.52%	0.97	6.182	6.185	1746.96	5246.16	3575.76	1828.80	1.96	2702.28	873.48
165.0	0.165	76.0	41.3	1684.8	2.60%	0.97	6.187	6.180	1768.82	5268.02	3583.22	1814.40	1.97	2698.81	884.41
170.0	0.170	77.0	41.4	1699.2	2.68%	0.97	6.192	6.175	1790.64	5289.84	3590.64	1800.00	1.99	2695.32	895.32
175.0	0.175	77.0	41.4	1699.2	2.76%	0.97	6.197	6.170	1789.19	5288.39	3589.19	1800.00	1.99	2694.60	894.60
180.0	0.180	78.0	41.5	1713.6	2.84%	0.97	6.202	6.165	1810.96	5310.16	3596.56	1785.60	2.01	2691.08	905.48
185.0	0.185	78.0	41.5	1713.6	2.92%	0.97	6.207	6.160	1809.49	5308.69	3595.09	1785.60	2.01	2690.35	904.75
190.0	0.190	78.0	41.6	1728.0	2.99%	0.97	6.212	6.155	1808.02	5307.22	3579.22	1771.20	2.02	2675.21	904.01
195.0	0.195	79.0	41.6	1728.0	3.07%	0.97	6.217	6.150	1829.72	5328.92	3600.92	1771.20	2.03	2686.06	914.86
200.0	0.200	79.0	41.6	1728.0	3.15%	0.97	6.222	6.145	1828.23	5327.43	3599.43	1771.20	2.03	2685.31	914.11
205.0	0.205	80.0	41.7	1742.4	3.23%	0.97	6.227	6.140	1849.86	5349.06	3606.66	1756.80	2.05	2681.73	924.93
210.0	0.210	80.0	41.7	1742.4	3.31%	0.97	6.233	6.135	1848.36	5347.56	3605.16	1756.80	2.05	2680.98	924.18
215.0	0.215	80.0	41.7	1742.4	3.39%	0.97	6.238	6.130	1846.85	5346.05	3603.65	1756.80	2.05	2680.23	923.43
220.0	0.220	81.0	41.8	1756.8	3.47%	0.97	6.243	6.125	1868.41	5367.61	3610.81	1742.40	2.07	2676.61	934.21
225.0	0.225	81.0	41.8	1756.8	3.55%	0.96	6.248	6.120	1866.89	5366.09	3609.29	1742.40	2.07	2675.84	933.44
230.0	0.230	81.0	41.9	1771.2	3.62%	0.96	6.253	6.115	1865.36	5364.56	3593.36	1728.00	2.08	2660.68	932.68
235.0	0.235	82.0	41.9	1771.2	3.70%	0.96	6.258	6.110	1886.85	5386.05	3614.85	1728.00	2.09	2671.42	943.42
240.0	0.240	82.0	41.9	1771.2	3.78%	0.96	6.263	6.105	1885.30	5384.50	3613.30	1728.00	2.09	2670.65	942.65
245.0	0.245	82.0	42.0	1785.6	3.86%	0.96	6.268	6.100	1883.76	5382.96	3597.36	1713.60	2.10	2655.48	941.88
250.0	0.250	82.0	42.0	1785.6	3.94%	0.96	6.273	6.095	1882.21	5381.41	3595.81	1713.60	2.10	2654.71	941.11
255.0	0.255	83.0	42.0	1785.6	4.02%	0.96	6.279	6.090	1903.60	5402.80	3617.20	1713.60	2.11	2665.40	951.80

GOLDER ASSOCIATES INC.
CHERRY HILL, NEW JERSEY

DEVIATORIC STRESS AT FAILURE: 1898.25

EFFECTIVE PRINCIPAL STRESS RATIO AT FAILURE: 2.11

CONSOLIDATED UNDRAINED W___PORE PRESSURE MEASUREMENT

ASTM D 4767

CWM/RMU-2 GW Plan/NY	SAMPLE #:	SB-02-2A	DATE: 11/14/02
013-9309.011		SA-3	TECH: GD/KD
	DEPTH:	26-28	REVIEW: RMW

SAMPLE DATA

height (in)	6.088	confining pressure (psi)	48.6	MOISTURE CONTENT	
diameter (in)	2.819	machine speed (in/min)	0.001	tare #	RW15
area (in^2)	6.241	strain rate (%/min)	0.02	wt soil&tare,moist	1399.31
height/diameter ratio	2.16	final "B" value	0.96	wt soil&tare,dry	1141.50
volume (in^3)	38.00	t_{50} (min)	68.7	wt tare	156.74
% moisture,initial	31.40%	volume,solids	22.03	wt moisture	257.81
weight (g)	1275.52	volume,voids	15.97	wt dry soil	984.76
specific gravity	2.80	void ratio	0.725	% moisture,final	26.18%
moist density (pcf)	127.83	% saturation,initial	101.15%		
dry density (pcf)	97.28	% saturation,final	98.54%		

DESCRIPTION:

TIME (min)	DEFLECTION (in)	AXIAL LOAD (lbs)	PORE PRESSURE,U (psi)	d_U (psf) (cumulative)	STRAIN (ε)	$(1-\varepsilon)$	AREA CORR (in^2)	HEIGHT CORR (in)	DEVIATOR STRESS (psf)	SIGMA 1 (psf)	EFFECTIVE SIGMA 1 (psf)	EFFECTIVE SIGMA 3 (psf)	EFF PRN STR RATIO (S_1'/S_3')	P' (psf)	Q' (psf)
0.0	0.000	0.0	29.7	0.0	0.00%	1.00	6.241	6.088	0.00	6998.40	6998.40	6998.40	1.00	6998.40	0.00
0.5	0.001	2.0	29.7	0.0	0.01%	1.00	6.242	6.088	46.14	7044.54	7044.54	6998.40	1.01	7021.47	23.07
1.0	0.001	4.0	29.6	-14.4	0.02%	1.00	6.242	6.087	92.27	7090.67	7105.07	7012.80	1.01	7058.94	46.14
1.5	0.002	8.0	29.6	-14.4	0.02%	1.00	6.243	6.087	184.53	7182.93	7197.33	7012.80	1.03	7105.06	92.26
2.0	0.002	10.0	29.6	-14.4	0.03%	1.00	6.243	6.086	230.64	7229.04	7243.44	7012.80	1.03	7128.12	115.32
2.5	0.003	13.0	29.7	0.0	0.04%	1.00	6.244	6.086	299.81	7298.21	7298.21	6998.40	1.04	7148.31	149.91
3.0	0.003	14.0	29.7	0.0	0.05%	1.00	6.244	6.085	322.85	7321.25	7321.25	6998.40	1.05	7159.82	161.42
3.5	0.004	16.0	29.7	0.0	0.06%	1.00	6.245	6.085	368.94	7367.34	7367.34	6998.40	1.05	7182.87	184.47
4.0	0.004	18.0	29.8	14.4	0.07%	1.00	6.245	6.084	415.02	7413.42	7399.02	6984.00	1.06	7191.51	207.51
4.5	0.005	20.0	29.9	28.8	0.07%	1.00	6.246	6.084	461.10	7459.50	7430.70	6969.60	1.07	7200.15	230.55
5.0	0.005	21.0	30.0	43.2	0.08%	1.00	6.247	6.083	484.11	7482.51	7439.31	6955.20	1.07	7197.26	242.06
5.5	0.006	22.0	30.1	57.6	0.09%	1.00	6.247	6.083	507.12	7505.52	7447.92	6940.80	1.07	7194.36	253.56
6.0	0.006	25.0	30.1	57.6	0.10%	1.00	6.248	6.082	576.23	7574.63	7517.03	6940.80	1.08	7228.91	288.11
6.5	0.007	27.0	30.2	72.0	0.11%	1.00	6.248	6.082	622.27	7620.67	7548.67	6926.40	1.09	7237.54	311.14
7.0	0.007	28.0	30.3	86.4	0.11%	1.00	6.249	6.081	645.27	7643.67	7557.27	6912.00	1.09	7234.63	322.63
7.5	0.008	31.0	30.5	115.2	0.12%	1.00	6.249	6.081	714.35	7712.75	7597.55	6883.20	1.10	7240.37	357.17
8.0	0.008	33.0	30.6	129.6	0.13%	1.00	6.250	6.080	760.37	7758.77	7629.17	6868.80	1.11	7248.99	380.19
8.5	0.009	36.0	30.7	144.0	0.14%	1.00	6.250	6.080	829.43	7827.83	7683.83	6854.40	1.12	7269.11	414.71
9.0	0.009	38.0	30.8	158.4	0.15%	1.00	6.251	6.079	875.43	7873.83	7715.43	6840.00	1.13	7277.72	437.72
9.5	0.010	39.0	31.0	187.2	0.16%	1.00	6.251	6.079	898.40	7896.80	7709.60	6811.20	1.13	7260.40	449.20
10.0	0.010	40.0	31.2	216.0	0.16%	1.00	6.252	6.078	921.36	7919.76	7703.76	6782.40	1.14	7243.08	460.68
11.0	0.011	42.0	31.4	244.8	0.18%	1.00	6.253	6.077	967.27	7965.67	7720.87	6753.60	1.14	7237.23	483.63
12.0	0.012	43.0	31.8	302.4	0.20%	1.00	6.254	6.076	990.13	7988.53	7686.13	6696.00	1.15	7191.07	495.07
13.0	0.013	45.0	32.0	331.2	0.21%	1.00	6.255	6.075	1036.02	8034.42	7703.22	6667.20	1.16	7185.21	518.01
14.0	0.014	48.0	32.2	360.0	0.23%	1.00	6.256	6.074	1104.90	8103.30	7743.30	6638.40	1.17	7190.85	552.45
15.0	0.015	49.0	32.4	388.8	0.25%	1.00	6.257	6.073	1127.74	8126.14	7737.34	6609.60	1.17	7173.47	563.87
16.0	0.016	52.0	32.6	417.6	0.26%	1.00	6.258	6.072	1196.58	8194.98	7777.38	6580.80	1.18	7179.09	598.29
17.0	0.017	54.0	32.9	460.8	0.28%	1.00	6.259	6.071	1242.40	8240.80	7780.00	6537.60	1.19	7158.80	621.20
18.0	0.018	56.0	33.0	475.2	0.30%	1.00	6.260	6.070	1288.20	8286.60	7811.40	6523.20	1.20	7167.30	644.10
19.0	0.019	58.0	33.2	504.0	0.31%	1.00	6.261	6.069	1333.99	8332.39	7828.39	6494.40	1.21	7161.40	667.00
20.0	0.020	60.0	33.4	532.8	0.33%	1.00	6.262	6.068	1379.76	8378.16	7845.36	6465.60	1.21	7155.48	689.88
21.0	0.021	62.0	33.6	561.6	0.34%	1.00	6.263	6.067	1425.52	8423.92	7862.32	6436.80	1.22	7149.56	712.76
22.0	0.022	65.0	33.8	590.4	0.36%	1.00	6.264	6.066	1494.25	8492.65	7902.25	6408.00	1.23	7155.13	747.13
23.0	0.023	68.0	34.0	619.2	0.38%	1.00	6.265	6.065	1562.96	8561.36	7942.16	6379.20	1.25	7160.68	781.48
24.0	0.024	70.0	34.2	648.0	0.39%	1.00	6.266	6.064	1608.66	8607.06	7959.06	6350.40	1.25	7154.73	804.33
25.0	0.025	71.0	34.6	705.6	0.41%	1.00	6.267	6.063	1631.37	8629.77	7924.17	6292.80	1.26	7108.49	815.69
26.0	0.026	72.0	35.1	777.6	0.43%	1.00	6.268	6.062	1654.08	8652.48	7874.88	6220.80	1.27	7047.84	827.04
27.0	0.027	74.0	35.4	820.8	0.44%	1.00	6.269	6.061	1699.75	8698.15	7877.35	6177.60	1.28	7027.47	849.87

CONSOLIDATED UNDRAINED W PORE PRESSURE MEASUREMENT

ASTM D 4767

CWM/RMU-2 GW Plan/NY	SAMPLE #:	SB-02-2A	DATE: 11/14/02
013-9309.011		SA-3	TECH: GD/KD
	DEPTH:	26-28	REVIEW: RMW

SAMPLE DATA

height (in)	6.088	confining pressure (psi)	48.6	MOISTURE CONTENT		DESCRIPTION:	
diameter (in)	2.819	machine speed (in/min)	0.001	tare #	RW15		
area (in^2)	6.241	strain rate (%/min)	0.02	wt soil&tare,moist	1399.31		
height/diameter ratio	2.16	final "B" value	0.96	wt soil&tare,dry	1141.50		
volume (in^3)	38.00	t_{50} (min)	68.7	wt tare	156.74		
% moisture,initial	31.40%	volume,solids	22.03	wt moisture	257.81		
weight (g)	1275.52	volume,voids	15.97	wt dry soil	984.76		
specific gravity	2.80	void ratio	0.725	% moisture,final	26.18%		
moist density (pcf)	127.83	% saturation,initial	101.15%				
dry density (pcf)	97.28	% saturation,final	98.54%				

TIME (min)	DEFLECTION (in)	AXIAL LOAD (lbs)	PORE PRESSURE,U (psi)	d_U (psf) (cumulative)	STRAIN (ε)	$(1-\varepsilon)$	AREA CORR (in^2)	HEIGHT CORR (in)	DEVIATOR STRESS (psf)	SIGMA 1 (psf)	EFFECTIVE SIGMA 1 (psf)	EFFECTIVE SIGMA 3 (psf)	EFF PRN STR RATIO (S_1'/S_3')	P' (psf)	Q' (psf)
28.0	0.028	75.0	35.8	878.4	0.46%	1.00	6.270	6.060	1722.43	8720.83	7842.43	6120.00	1.28	6981.22	861.22
29.0	0.029	76.0	35.8	878.4	0.48%	1.00	6.271	6.059	1745.11	8743.51	7865.11	6120.00	1.29	6992.55	872.55
30.0	0.030	78.0	35.9	892.8	0.49%	1.00	6.272	6.058	1790.74	8789.14	7896.34	6105.60	1.29	7000.97	895.37
31.0	0.031	79.0	36.0	907.2	0.51%	0.99	6.273	6.057	1813.40	8811.80	7904.60	6091.20	1.30	6997.90	906.70
32.0	0.032	80.0	36.2	936.0	0.53%	0.99	6.274	6.056	1836.05	8834.45	7898.45	6062.40	1.30	6980.42	918.02
33.0	0.033	81.0	36.5	979.2	0.54%	0.99	6.275	6.055	1858.69	8857.09	7877.89	6019.20	1.31	6948.55	929.35
34.0	0.034	82.0	36.6	993.6	0.56%	0.99	6.276	6.054	1881.33	8879.73	7886.13	6004.80	1.31	6945.46	940.66
35.0	0.035	83.0	37.1	1065.6	0.57%	0.99	6.277	6.053	1903.95	8902.35	7836.75	5932.80	1.32	6884.78	951.98
36.0	0.036	84.0	37.2	1080.0	0.59%	0.99	6.278	6.052	1926.58	8924.98	7844.98	5918.40	1.33	6881.69	963.29
37.0	0.037	85.0	37.4	1108.8	0.61%	0.99	6.280	6.051	1949.19	8947.59	7838.79	5889.60	1.33	6864.19	974.59
38.0	0.038	86.0	37.6	1137.6	0.62%	0.99	6.281	6.050	1971.79	8970.19	7832.59	5860.80	1.34	6846.70	985.90
39.0	0.039	87.0	37.9	1180.8	0.64%	0.99	6.282	6.049	1994.39	8992.79	7811.99	5817.60	1.34	6814.80	997.20
40.0	0.040	88.0	38.1	1209.6	0.66%	0.99	6.283	6.048	2016.98	9015.38	7805.78	5788.80	1.35	6797.29	1008.49
41.0	0.041	89.0	38.2	1224.0	0.67%	0.99	6.284	6.047	2039.57	9037.97	7813.97	5774.40	1.35	6794.18	1019.78
42.0	0.042	90.0	38.4	1252.8	0.69%	0.99	6.285	6.046	2062.14	9060.54	7807.74	5745.60	1.36	6776.67	1031.07
43.0	0.043	91.0	38.7	1296.0	0.71%	0.99	6.286	6.045	2084.71	9083.11	7787.11	5702.40	1.37	6744.75	1042.35
44.0	0.044	92.0	38.8	1310.4	0.72%	0.99	6.287	6.044	2107.27	9105.67	7795.27	5688.00	1.37	6741.63	1053.63
45.0	0.045	93.0	39.0	1339.2	0.74%	0.99	6.288	6.043	2129.82	9128.22	7789.02	5659.20	1.38	6724.11	1064.91
46.0	0.046	94.0	39.4	1396.8	0.76%	0.99	6.289	6.042	2152.37	9150.77	7753.97	5601.60	1.38	6677.78	1076.18
47.0	0.047	95.0	39.7	1440.0	0.77%	0.99	6.290	6.041	2174.90	9173.30	7733.30	5558.40	1.39	6645.85	1087.45
48.0	0.048	96.0	39.9	1468.8	0.79%	0.99	6.291	6.040	2197.43	9195.83	7727.03	5529.60	1.40	6628.32	1098.72
49.0	0.049	97.0	40.0	1483.2	0.80%	0.99	6.292	6.039	2219.96	9218.36	7735.16	5515.20	1.40	6625.18	1109.98
50.0	0.050	98.0	40.2	1512.0	0.82%	0.99	6.293	6.038	2242.47	9240.87	7728.87	5486.40	1.41	6607.64	1121.24
51.0	0.051	99.0	40.3	1526.4	0.84%	0.99	6.294	6.037	2264.98	9263.38	7736.98	5472.00	1.41	6604.49	1132.49
52.0	0.052	100.0	40.4	1540.8	0.85%	0.99	6.295	6.036	2287.48	9285.88	7745.08	5457.60	1.42	6601.34	1143.74
53.0	0.053	101.0	40.7	1584.0	0.87%	0.99	6.296	6.035	2309.97	9308.37	7724.37	5414.40	1.43	6569.39	1154.99
54.0	0.054	102.0	40.9	1612.8	0.89%	0.99	6.297	6.034	2332.46	9330.86	7718.06	5385.60	1.43	6551.83	1166.23
55.0	0.055	103.0	41.2	1656.0	0.90%	0.99	6.298	6.033	2354.93	9353.33	7697.33	5342.40	1.44	6519.87	1177.47
56.0	0.056	104.0	41.3	1670.4	0.92%	0.99	6.299	6.032	2377.40	9375.80	7705.40	5328.00	1.45	6516.70	1188.70
57.0	0.057	105.0	41.4	1684.8	0.94%	0.99	6.300	6.031	2399.86	9398.26	7713.46	5313.60	1.45	6513.53	1199.93
58.0	0.058	106.0	41.4	1684.8	0.95%	0.99	6.301	6.030	2422.32	9420.72	7735.92	5313.60	1.46	6524.76	1211.16
59.0	0.059	107.0	41.5	1699.2	0.97%	0.99	6.302	6.029	2444.76	9443.16	7743.96	5299.20	1.46	6521.58	1222.38
60.0	0.060	108.0	41.6	1713.6	0.99%	0.99	6.303	6.028	2467.20	9465.60	7752.00	5284.80	1.47	6518.40	1233.60
65.0	0.065	110.0	42.3	1814.4	1.07%	0.99	6.309	6.023	2510.81	9509.21	7694.81	5184.00	1.48	6439.40	1255.40
70.0	0.070	113.0	43.0	1915.2	1.15%	0.99	6.314	6.018	2577.14	9575.54	7660.34	5083.20	1.51	6371.77	1288.57
75.0	0.075	115.0	43.5	1987.2	1.23%	0.99	6.319	6.013	2620.58	9618.98	7631.78	5011.20	1.52	6321.49	1310.29
80.0	0.080	118.0	44.2	2088.0	1.31%	0.99	6.324	6.008	2686.70	9685.10	7597.10	4910.40	1.55	6253.75	1343.35
85.0	0.085	120.0	44.8	2174.4	1.40%	0.99	6.330	6.003	2729.97	9728.37	7553.97	4824.00	1.57	6188.98	1364.98

CONSOLIDATED UNDRAINED W\ PORE PRESSURE MEASUREMENT

ASTM D 4767

CWM/RMU-2 GW Plan/NY	SAMPLE #:	SB-02-2A	DATE: 11/14/02
013-9309.011		SA-3	TECH: GD/KD
	DEPTH:	26-28	REVIEW: RMW

SAMPLE DATA

height (in)	6.088	confining pressure (psi)	48.6	MOISTURE CONTENT		DESCRIPTION:	
diameter (in)	2.819	machine speed (in/min)	0.001	tare #	RW15		
area (in^2)	6.241	strain rate (%/min)	0.02	wt soil&tare,moist	1399.31		
height/diameter ratio	2.16	final "B" value	0.96	wt soil&tare,dry	1141.50		
volume (in^3)	38.00	t_{50} (min)	68.7	wt tare	156.74		
% moisture,initial	31.40%	volume,solids	22.03	wt moisture	257.81		
weight (g)	1275.52	volume,voids	15.97	wt dry soil	984.76		
specific gravity	2.80	void ratio	0.725	% moisture,final	**26.18%**		
moist density (pcf)	127.83	% saturation,initial	101.15%				
dry density (pcf)	97.28	% saturation,final	98.54%				

TIME (min)	DEFLECTION (in)	AXIAL LOAD (lbs)	PORE PRESSURE,U (psi)	d_U (psf) (cumulative)	STRAIN (ε)	(1-ε)	AREA CORR (in^2)	HEIGHT CORR (in)	DEVIATOR STRESS (psf)	SIGMA 1 (psf)	EFFECTIVE SIGMA 1 (psf)	EFFECTIVE SIGMA 3 (psf)	EFF PRN STR RATIO (S_1'/S_3')	P' (psf)	Q' (psf)
90.0	0.090	122.0	45.1	2217.6	1.48%	0.99	6.335	5.998	2773.15	9771.55	7553.95	4780.80	1.58	6167.38	1386.58
95.0	0.095	124.0	45.5	2275.2	1.56%	0.98	6.340	5.993	2816.27	9814.67	7539.47	4723.20	1.60	6131.33	1408.13
100.0	0.100	125.0	46.0	2347.2	1.64%	0.98	6.346	5.988	2836.61	9835.01	7487.81	4651.20	1.61	6069.50	1418.30
105.0	0.105	128.0	46.1	2361.6	1.72%	0.98	6.351	5.983	2902.26	9900.66	7539.06	4636.80	1.63	6087.93	1451.13
110.0	0.110	130.0	46.6	2433.6	1.81%	0.98	6.356	5.978	2945.15	9943.55	7509.95	4564.80	1.65	6037.37	1472.57
115.0	0.115	131.0	46.7	2448.0	1.89%	0.98	6.362	5.973	2965.32	9963.72	7515.72	4550.40	1.65	6033.06	1482.66
120.0	0.120	132.0	47.0	2491.2	1.97%	0.98	6.367	5.968	2985.46	9983.86	7492.66	4507.20	1.66	5999.93	1492.73
125.0	0.125	133.0	47.3	2534.4	2.05%	0.98	6.372	5.963	3005.55	10003.95	7469.55	4464.00	1.67	5966.78	1502.78
130.0	0.130	134.0	47.8	2606.4	2.14%	0.98	6.378	5.958	3025.61	10024.01	7417.61	4392.00	1.69	5904.81	1512.81
135.0	0.135	135.0	48.2	2664.0	2.22%	0.98	6.383	5.953	3045.63	10044.03	7380.03	4334.40	1.70	5857.22	1522.82
140.0	0.140	136.0	48.3	2678.4	2.30%	0.98	6.388	5.948	3065.62	10064.02	7385.62	4320.00	1.71	5852.81	1532.81
145.0	0.145	137.0	48.4	2692.8	2.38%	0.98	6.394	5.943	3085.56	10083.96	7391.16	4305.60	1.72	5848.38	1542.78
150.0	0.150	138.0	48.6	2721.6	2.46%	0.98	6.399	5.938	3105.47	10103.87	7382.27	4276.80	1.73	5829.53	1552.73
155.0	0.155	139.0	48.7	2736.0	2.55%	0.97	6.404	5.933	3125.34	10123.74	7387.74	4262.40	1.73	5825.07	1562.67
160.0	0.160	140.0	49.1	2793.6	2.63%	0.97	6.410	5.928	3145.17	10143.57	7349.97	4204.80	1.75	5777.38	1572.58
165.0	0.165	141.0	49.6	2865.6	2.71%	0.97	6.415	5.923	3164.96	10163.36	7297.76	4132.80	1.77	5715.28	1582.48
170.0	0.170	141.0	49.8	2894.4	2.79%	0.97	6.421	5.918	3162.29	10160.69	7266.29	4104.00	1.77	5685.15	1581.15
175.0	0.175	142.0	50.0	2923.2	2.87%	0.97	6.426	5.913	3182.03	10180.43	7257.23	4075.20	1.78	5666.21	1591.01
180.0	0.180	143.0	50.0	2923.2	2.96%	0.97	6.432	5.908	3201.73	10200.13	7276.93	4075.20	1.79	5676.06	1600.86
185.0	0.185	143.0	50.1	2937.6	3.04%	0.97	6.437	5.903	3199.02	10197.42	7259.82	4060.80	1.79	5660.31	1599.51
190.0	0.190	143.0	50.7	3024.0	3.12%	0.97	6.442	5.898	3196.31	10194.71	7170.71	3974.40	1.80	5572.55	1598.15
195.0	0.195	144.0	50.7	3024.0	3.20%	0.97	6.448	5.893	3215.93	10214.33	7190.33	3974.40	1.81	5582.37	1607.97
200.0	0.200	144.0	50.8	3038.4	3.29%	0.97	6.453	5.888	3213.20	10211.60	7173.20	3960.00	1.81	5566.60	1606.60
205.0	0.205	145.0	50.9	3052.8	3.37%	0.97	6.459	5.883	3232.77	10231.17	7178.37	3945.60	1.82	5561.98	1616.38
210.0	0.210	146.0	51.0	3067.2	3.45%	0.97	6.464	5.878	3252.30	10250.70	7183.50	3931.20	1.83	5557.35	1626.15
215.0	0.215	146.0	51.2	3096.0	3.53%	0.96	6.470	5.873	3249.53	10247.93	7151.93	3902.40	1.83	5527.17	1624.77
220.0	0.220	147.0	51.3	3110.4	3.61%	0.96	6.475	5.868	3269.00	10267.40	7157.00	3888.00	1.84	5522.50	1634.50
225.0	0.225	148.0	51.4	3124.8	3.70%	0.96	6.481	5.863	3288.44	10286.84	7162.04	3873.60	1.85	5517.82	1644.22
230.0	0.230	148.0	51.6	3153.6	3.78%	0.96	6.486	5.858	3285.63	10284.03	7130.43	3844.80	1.85	5487.62	1642.82
235.0	0.235	148.0	51.7	3168.0	3.86%	0.96	6.492	5.853	3282.83	10281.23	7113.23	3830.40	1.86	5471.81	1641.41
240.0	0.240	148.0	51.8	3182.4	3.94%	0.96	6.498	5.848	3280.02	10278.42	7096.02	3816.00	1.86	5456.01	1640.01
245.0	0.245	148.0	52.0	3211.2	4.02%	0.96	6.503	5.843	3277.22	10275.62	7064.42	3787.20	1.87	5425.81	1638.61

GOLDER ASSOCIATES INC.
CHERRY HILL, NEW JERSEY

DEVIATORIC STRESS AT FAILURE: **3277.92**

EFFECTIVE PRINCIPAL STRESS RATIO AT FAILURE: **2.58**

CONSOLIDATED UNDRAINED W. _PORE PRESSURE MEASUREMENT

ASTM D 4767

CWM/RMU-2 GW Plan/NY	SAMPLE #:	SB-02-2A	DATE: 11/14/02
013-9309.011		SA-3	TECH: GD/KD
	DEPTH:	26-28	REVIEW: RMW

SAMPLE DATA

height (in)	6.296	confining pressure (psi)	69.4		
diameter (in)	2.869	machine speed (in/min)	0.001		
area (in^2)	6.465	strain rate (%/min)	0.02		
height/diameter ratio	2.19	final "B" value	0.98		
volume (in^3)	40.70	t_{50} (min)	94.8		
% moisture,initial	31.40%	volume,solids	22.07		
weight (g)	1314.79	volume,voids	18.63		
specific gravity	2.80	void ratio	0.844		
moist density (pcf)	123.01	% saturation,initial	98.93%		
dry density (pcf)	93.61	% saturation,final	89.37%		

MOISTURE CONTENT

tare #	GH8
wt soil&tare,moist	1344.21
wt soil&tare,dry	1071.38
wt tare	156.51
wt moisture	272.83
wt dry soil	914.87
% moisture,final	29.82%

DESCRIPTION:

TIME (min)	DEFLECTION (in)	AXIAL LOAD (lbs)	PORE PRESSURE,U (psi)	d_U (psf) (cumulative)	STRAIN (ε)	$(1-\varepsilon)$	AREA CORR (in^2)	HEIGHT CORR (in)	DEVIATOR STRESS (psf)	SIGMA 1 (psf)	EFFECTIVE SIGMA 1 (psf)	EFFECTIVE SIGMA 3 (psf)	EFF PRN STR RATIO (S_1'/S_3')	P' (psf)	Q' (psf)
0.0	0.000	0.0	31.9	0.0	0.00%	1.00	6.465	6.296	0.00	9993.60	9993.60	9993.60	1.00	9993.60	0.00
0.5	0.001	2.0	32.3	57.6	0.01%	1.00	6.465	6.296	44.55	10038.15	9980.55	9936.00	1.00	9958.27	22.27
1.0	0.001	2.0	32.4	72.0	0.02%	1.00	6.466	6.295	44.54	10038.14	9966.14	9921.60	1.00	9943.87	22.27
1.5	0.002	3.0	33.0	158.4	0.02%	1.00	6.466	6.295	66.81	10060.41	9902.01	9835.20	1.01	9868.60	33.40
2.0	0.002	3.0	33.3	201.6	0.03%	1.00	6.467	6.294	66.80	10060.40	9858.80	9792.00	1.01	9825.40	33.40
2.5	0.003	4.0	33.8	273.6	0.04%	1.00	6.467	6.294	89.06	10082.66	9809.06	9720.00	1.01	9764.53	44.53
3.0	0.003	4.0	33.9	288.0	0.05%	1.00	6.468	6.293	89.06	10082.66	9794.66	9705.60	1.01	9750.13	44.53
3.5	0.004	5.0	34.4	360.0	0.06%	1.00	6.468	6.293	111.31	10104.91	9744.91	9633.60	1.01	9689.26	55.66
4.0	0.004	8.0	34.6	388.8	0.06%	1.00	6.469	6.292	178.08	10171.68	9782.88	9604.80	1.02	9693.84	89.04
4.5	0.005	12.0	34.8	417.6	0.07%	1.00	6.469	6.292	267.11	10260.71	9843.11	9576.00	1.03	9709.55	133.55
5.0	0.005	15.0	35.0	446.4	0.08%	1.00	6.470	6.291	333.85	10327.45	9881.05	9547.20	1.03	9714.13	166.93
5.5	0.006	19.0	35.0	446.4	0.09%	1.00	6.470	6.291	422.85	10416.45	9970.05	9547.20	1.04	9758.62	211.42
6.0	0.006	22.0	35.2	475.2	0.10%	1.00	6.471	6.290	489.58	10483.18	10007.98	9518.40	1.05	9763.19	244.79
6.5	0.007	25.0	35.6	532.8	0.10%	1.00	6.471	6.290	556.29	10549.89	10017.09	9460.80	1.06	9738.95	278.15
7.0	0.007	28.0	35.8	561.6	0.11%	1.00	6.472	6.289	623.00	10616.60	10055.00	9432.00	1.07	9743.50	311.50
7.5	0.008	31.0	36.3	633.6	0.12%	1.00	6.472	6.289	689.69	10683.29	10049.69	9360.00	1.07	9704.85	344.85
8.0	0.008	33.0	37.1	748.8	0.13%	1.00	6.473	6.288	734.13	10727.73	9978.93	9244.80	1.08	9611.87	367.07
8.5	0.009	36.0	37.6	820.8	0.14%	1.00	6.473	6.288	800.81	10794.41	9973.61	9172.80	1.09	9573.20	400.40
9.0	0.009	38.0	38.0	878.4	0.14%	1.00	6.474	6.287	845.23	10838.83	9960.43	9115.20	1.09	9537.81	422.61
9.5	0.010	41.0	38.3	921.6	0.15%	1.00	6.475	6.287	911.88	10905.48	9983.88	9072.00	1.10	9527.94	455.94
10.0	0.010	43.0	38.5	950.4	0.16%	1.00	6.475	6.286	956.29	10949.89	9999.49	9043.20	1.11	9521.35	478.15
11.0	0.011	48.0	38.6	964.8	0.17%	1.00	6.476	6.285	1067.32	11060.92	10096.12	9028.80	1.12	9562.46	533.66
12.0	0.012	52.0	38.8	993.6	0.19%	1.00	6.477	6.284	1156.08	11149.68	10156.08	9000.00	1.13	9578.04	578.04
13.0	0.013	56.0	39.1	1036.8	0.21%	1.00	6.478	6.283	1244.81	11238.41	10201.61	8956.80	1.14	9579.20	622.40
14.0	0.014	57.0	39.5	1094.4	0.22%	1.00	6.479	6.282	1266.83	11260.43	10166.03	8899.20	1.14	9532.62	633.42
15.0	0.015	58.0	39.9	1152.0	0.24%	1.00	6.480	6.281	1288.85	11282.45	10130.45	8841.60	1.15	9486.03	644.43
16.0	0.016	60.0	40.2	1195.2	0.25%	1.00	6.481	6.280	1333.08	11326.68	10131.48	8798.40	1.15	9464.94	666.54
17.0	0.017	61.0	40.6	1252.8	0.27%	1.00	6.482	6.279	1355.09	11348.69	10095.89	8740.80	1.16	9418.34	677.54
18.0	0.018	62.0	40.8	1281.6	0.29%	1.00	6.483	6.278	1377.08	11370.68	10089.08	8712.00	1.16	9400.54	688.54
19.0	0.019	63.0	41.6	1396.8	0.30%	1.00	6.484	6.277	1399.07	11392.67	9995.87	8596.80	1.16	9296.34	699.54
20.0	0.020	66.0	42.0	1454.4	0.32%	1.00	6.485	6.276	1465.46	11459.06	10004.66	8539.20	1.17	9271.93	732.73
21.0	0.021	69.0	42.3	1497.6	0.33%	1.00	6.486	6.275	1531.83	11525.43	10027.83	8496.00	1.18	9261.91	765.91
22.0	0.022	72.0	43.0	1598.4	0.35%	1.00	6.487	6.274	1598.17	11591.77	9993.37	8395.20	1.19	9194.29	799.09
23.0	0.023	75.0	43.6	1684.8	0.37%	1.00	6.488	6.273	1664.50	11658.10	9973.30	8308.80	1.20	9141.05	832.25
24.0	0.024	77.0	43.9	1728.0	0.38%	1.00	6.489	6.272	1708.61	11702.21	9974.21	8265.60	1.21	9119.91	854.31
25.0	0.025	80.0	44.2	1771.2	0.40%	1.00	6.491	6.271	1774.90	11768.50	9997.30	8222.40	1.22	9109.85	887.45
26.0	0.026	83.0	44.5	1814.4	0.41%	1.00	6.492	6.270	1841.16	11834.76	10020.36	8179.20	1.23	9099.78	920.58
27.0	0.027	87.0	44.7	1843.2	0.43%	1.00	6.493	6.269	1929.59	11923.19	10079.99	8150.40	1.24	9115.19	964.79

CONSOLIDATED UNDRAINED W/ PORE PRESSURE MEASUREMENT

ASTM D 4767

CWM/RMU-2 GW Plan/NY	SAMPLE #:	SB-02-2A	DATE: 11/14/02
013-9309.011		SA-3	TECH: GD/KD
	DEPTH:	26-28	REVIEW: RMW

SAMPLE DATA

height (in)	6.296	confining pressure (psi)	69.4	MOISTURE CONTENT		DESCRIPTION:	
diameter (in)	2.869	machine speed (in/min)	0.001	tare #	GH8		
area (in^2)	6.465	strain rate (%/min)	0.02	wt soil&tare,moist	1344.21		
height/diameter ratio	2.19	final "B" value	0.98	wt soil&tare,dry	1071.38		
volume (in^3)	40.70	t_{50} (min)	94.8	wt tare	156.51		
% moisture,initial	31.40%	volume,solids	22.07	wt moisture	272.83		
weight (g)	1314.79	volume,voids	18.63	wt dry soil	914.87		
specific gravity	2.80	void ratio	0.844	% moisture,final	29.82%		
moist density (pcf)	123.01	% saturation,initial	98.93%				
dry density (pcf)	93.61	% saturation,final	89.37%				

TIME (min)	DEFLECTION (in)	AXIAL LOAD (lbs)	PORE PRESSURE,U (psi)	d_U (psf) (cumulative)	STRAIN (ε)	$(1-\varepsilon)$	AREA CORR (in^2)	HEIGHT CORR (in)	DEVIATOR STRESS (psf)	SIGMA 1 (psf)	EFFECTIVE SIGMA 1 (psf)	EFFECTIVE SIGMA 3 (psf)	EFF PRN STR RATIO (S_1'/S_3')	P' (psf)	Q' (psf)
28.0	0.028	89.0	45.0	1886.4	0.44%	1.00	6.494	6.268	1973.63	11967.23	10080.83	8107.20	1.24	9094.02	986.82
29.0	0.029	90.0	45.2	1915.2	0.46%	1.00	6.495	6.267	1995.49	11989.09	10073.89	8078.40	1.25	9076.14	997.74
30.0	0.030	92.0	45.7	1987.2	0.48%	1.00	6.496	6.266	2039.51	12033.11	10045.91	8006.40	1.25	9026.15	1019.75
31.0	0.031	94.0	45.9	2016.0	0.49%	1.00	6.497	6.265	2083.51	12077.11	10061.11	7977.60	1.26	9019.36	1041.76
32.0	0.032	95.0	46.1	2044.8	0.51%	0.99	6.498	6.264	2105.34	12098.94	10054.14	7948.80	1.26	9001.47	1052.67
33.0	0.033	97.0	46.3	2073.6	0.52%	0.99	6.499	6.263	2149.32	12142.92	10069.32	7920.00	1.27	8994.66	1074.66
34.0	0.034	98.0	46.6	2116.8	0.54%	0.99	6.500	6.262	2171.13	12164.73	10047.93	7876.80	1.28	8962.37	1085.57
35.0	0.035	103.0	46.9	2160.0	0.56%	0.99	6.501	6.261	2281.54	12275.14	10115.14	7833.60	1.29	8974.37	1140.77
36.0	0.036	104.0	47.1	2188.8	0.57%	0.99	6.502	6.260	2303.32	12296.92	10108.12	7804.80	1.30	8956.46	1151.66
37.0	0.037	105.0	47.3	2217.6	0.59%	0.99	6.503	6.259	2325.10	12318.70	10101.10	7776.00	1.30	8938.55	1162.55
38.0	0.038	107.0	47.5	2246.4	0.60%	0.99	6.504	6.258	2369.01	12362.61	10116.21	7747.20	1.31	8931.70	1184.50
39.0	0.039	109.0	48.0	2318.4	0.62%	0.99	6.505	6.257	2412.90	12406.50	10088.10	7675.20	1.31	8881.65	1206.45
40.0	0.040	110.0	48.2	2347.2	0.64%	0.99	6.506	6.256	2434.65	12428.25	10081.05	7646.40	1.32	8863.72	1217.32
41.0	0.041	111.0	48.4	2376.0	0.65%	0.99	6.507	6.255	2456.39	12449.99	10073.99	7617.60	1.32	8845.79	1228.19
42.0	0.042	113.0	48.6	2404.8	0.67%	0.99	6.508	6.254	2500.25	12493.85	10089.05	7588.80	1.33	8838.92	1250.12
43.0	0.043	115.0	48.7	2419.2	0.68%	0.99	6.509	6.253	2544.09	12537.69	10118.49	7574.40	1.34	8846.45	1272.05
44.0	0.044	116.0	48.7	2419.2	0.70%	0.99	6.510	6.252	2565.81	12559.41	10140.21	7574.40	1.34	8857.30	1282.90
45.0	0.045	118.0	49.2	2491.2	0.71%	0.99	6.511	6.251	2609.63	12603.23	10112.03	7502.40	1.35	8807.21	1304.81
46.0	0.046	122.0	49.4	2520.0	0.73%	0.99	6.512	6.250	2697.66	12691.26	10171.26	7473.60	1.36	8822.43	1348.83
47.0	0.047	123.0	49.6	2548.8	0.75%	0.99	6.513	6.249	2719.33	12712.93	10164.13	7444.80	1.37	8804.47	1359.67
48.0	0.048	124.0	49.8	2577.6	0.76%	0.99	6.514	6.248	2741.00	12734.60	10157.00	7416.00	1.37	8786.50	1370.50
49.0	0.049	125.0	50.0	2606.4	0.78%	0.99	6.515	6.247	2762.67	12756.27	10149.87	7387.20	1.37	8768.53	1381.33
50.0	0.050	126.0	50.2	2635.2	0.79%	0.99	6.516	6.246	2784.32	12777.92	10142.72	7358.40	1.38	8750.56	1392.16
51.0	0.051	127.0	50.4	2664.0	0.81%	0.99	6.518	6.245	2805.97	12799.57	10135.57	7329.60	1.38	8732.58	1402.98
52.0	0.052	128.0	50.7	2707.2	0.83%	0.99	6.519	6.244	2827.61	12821.21	10114.01	7286.40	1.39	8700.21	1413.81
53.0	0.053	129.0	50.9	2736.0	0.84%	0.99	6.520	6.243	2849.25	12842.85	10106.85	7257.60	1.39	8682.22	1424.62
54.0	0.054	131.0	51.0	2750.4	0.86%	0.99	6.521	6.242	2892.96	12886.56	10136.16	7243.20	1.40	8689.68	1446.48
55.0	0.055	133.0	51.2	2779.2	0.87%	0.99	6.522	6.241	2936.65	12930.25	10151.05	7214.40	1.41	8682.73	1468.33
56.0	0.056	133.0	51.6	2836.8	0.89%	0.99	6.523	6.240	2936.18	12929.78	10092.98	7156.80	1.41	8624.89	1468.09
57.0	0.057	134.0	52.0	2894.4	0.91%	0.99	6.524	6.239	2957.78	12951.38	10056.98	7099.20	1.42	8578.09	1478.89
58.0	0.058	135.0	52.4	2952.0	0.92%	0.99	6.525	6.238	2979.38	12972.98	10020.98	7041.60	1.42	8531.29	1489.69
59.0	0.059	136.0	52.7	2995.2	0.94%	0.99	6.526	6.237	3000.97	12994.57	9999.37	6998.40	1.43	8498.88	1500.48
60.0	0.060	136.0	53.0	3038.4	0.95%	0.99	6.527	6.236	3000.49	12994.09	9955.69	6955.20	1.43	8455.44	1500.24
65.0	0.065	141.0	53.4	3096.0	1.03%	0.99	6.532	6.231	3108.31	13101.91	10005.91	6897.60	1.45	8451.75	1554.15
70.0	0.070	146.0	54.1	3196.8	1.11%	0.99	6.537	6.226	3215.95	13209.55	10012.75	6796.80	1.47	8404.77	1607.97
75.0	0.075	148.0	54.8	3297.6	1.19%	0.99	6.543	6.221	3257.38	13250.98	9953.38	6696.00	1.49	8324.69	1628.69
80.0	0.080	151.0	55.6	3412.8	1.27%	0.99	6.548	6.216	3320.74	13314.34	9901.54	6580.80	1.50	8241.17	1660.37
85.0	0.085	155.0	56.1	3484.8	1.35%	0.99	6.553	6.211	3405.96	13399.56	9914.76	6508.80	1.52	8211.78	1702.98

CONSOLIDATED UNDRAINED W[illegible] PORE PRESSURE MEASUREMENT

ASTM D 4767

CWM/RMU-2 GW Plan/NY	SAMPLE #:	SB-02-2A	DATE: 11/14/02
013-9309.011		SA-3	TECH: GD/KD
	DEPTH:	26-28	REVIEW: RMW

SAMPLE DATA

height (in)	6.296	confining pressure (psi)	69.4	MOISTURE CONTENT	
diameter (in)	2.869	machine speed (in/min)	0.001	tare #	GH8
area (in^2)	6.465	strain rate (%/min)	0.02	wt soil&tare,moist	1344.21
height/diameter ratio	2.19	final "B" value	0.98	wt soil&tare,dry	1071.38
volume (in^3)	40.70	t_{50} (min)	94.8	wt tare	156.51
% moisture,initial	31.40%	volume,solids	22.07	wt moisture	272.83
weight (g)	1314.79	volume,voids	18.63	wt dry soil	914.87
specific gravity	2.80	void ratio	0.844	% moisture,final	29.82%
moist density (pcf)	123.01	% saturation,initial	98.93%		
dry density (pcf)	93.61	% saturation,final	89.37%		

DESCRIPTION:

TIME (min)	DEFLECTION (in)	AXIAL LOAD (lbs)	PORE PRESSURE,U (psi)	d_U (psf) (cumulative)	STRAIN (ε)	(1-ε)	AREA CORR (in^2)	HEIGHT CORR (in)	DEVIATOR STRESS (psf)	SIGMA 1 (psf)	EFFECTIVE SIGMA 1 (psf)	EFFECTIVE SIGMA 3 (psf)	EFF PRN STR RATIO (S_1'/S_3')	P' (psf)	Q' (psf)
90.0	0.090	156.0	57.2	3643.2	1.43%	0.99	6.558	6.206	3425.18	13418.78	9775.58	6350.40	1.54	8062.99	1712.59
95.0	0.095	158.0	57.6	3700.8	1.51%	0.98	6.564	6.201	3466.30	13459.90	9759.10	6292.80	1.55	8025.95	1733.15
100.0	0.100	160.0	57.7	3715.2	1.59%	0.98	6.569	6.196	3507.34	13500.94	9785.74	6278.40	1.56	8032.07	1753.67
105.0	0.105	161.0	58.0	3758.4	1.67%	0.98	6.574	6.191	3526.42	13520.02	9761.62	6235.20	1.57	7998.41	1763.21
110.0	0.110	163.0	58.4	3816.0	1.75%	0.98	6.580	6.186	3567.34	13560.94	9744.94	6177.60	1.58	7961.27	1783.67
115.0	0.115	164.0	58.8	3873.6	1.83%	0.98	6.585	6.181	3586.32	13579.92	9706.32	6120.00	1.59	7913.16	1793.16
120.0	0.120	165.0	59.1	3916.8	1.91%	0.98	6.590	6.176	3605.27	13598.87	9682.07	6076.80	1.59	7879.44	1802.64
125.0	0.125	166.0	59.4	3960.0	1.99%	0.98	6.596	6.171	3624.19	13617.79	9657.79	6033.60	1.60	7845.69	1812.09
130.0	0.130	169.0	59.7	4003.2	2.06%	0.98	6.601	6.166	3686.69	13680.29	9677.09	5990.40	1.62	7833.75	1843.35
135.0	0.135	170.0	60.5	4118.4	2.14%	0.98	6.606	6.161	3705.50	13699.10	9580.70	5875.20	1.63	7727.95	1852.75
140.0	0.140	171.0	61.2	4219.2	2.22%	0.98	6.612	6.156	3724.27	13717.87	9498.67	5774.40	1.64	7636.54	1862.14
145.0	0.145	171.0	61.6	4276.8	2.30%	0.98	6.617	6.151	3721.25	13714.85	9438.05	5716.80	1.65	7577.42	1860.62
150.0	0.150	172.0	61.9	4320.0	2.38%	0.98	6.623	6.146	3739.97	13733.57	9413.57	5673.60	1.66	7543.58	1869.98
155.0	0.155	172.0	62.3	4377.6	2.46%	0.98	6.628	6.141	3736.92	13730.52	9352.92	5616.00	1.67	7484.46	1868.46
160.0	0.160	174.0	62.5	4406.4	2.54%	0.97	6.633	6.136	3777.30	13770.90	9364.50	5587.20	1.68	7475.85	1888.65
165.0	0.165	176.0	62.8	4449.6	2.62%	0.97	6.639	6.131	3817.60	13811.20	9361.60	5544.00	1.69	7452.80	1908.80
170.0	0.170	177.0	63.1	4492.8	2.70%	0.97	6.644	6.126	3836.16	13829.76	9336.96	5500.80	1.70	7418.88	1918.08
175.0	0.175	177.0	63.4	4536.0	2.78%	0.97	6.650	6.121	3833.03	13826.63	9290.63	5457.60	1.70	7374.12	1916.52
180.0	0.180	177.0	63.7	4579.2	2.86%	0.97	6.655	6.116	3829.90	13823.50	9244.30	5414.40	1.71	7329.35	1914.95
185.0	0.185	177.0	63.7	4579.2	2.94%	0.97	6.660	6.111	3826.77	13820.37	9241.17	5414.40	1.71	7327.78	1913.38
190.0	0.190	178.0	64.1	4636.8	3.02%	0.97	6.666	6.106	3845.24	13838.84	9202.04	5356.80	1.72	7279.42	1922.62
195.0	0.195	179.0	64.3	4665.6	3.10%	0.97	6.671	6.101	3863.68	13857.28	9191.68	5328.00	1.73	7259.84	1931.84
200.0	0.200	179.0	64.3	4665.6	3.18%	0.97	6.677	6.096	3860.51	13854.11	9188.51	5328.00	1.72	7258.26	1930.26
205.0	0.205	180.0	64.6	4708.8	3.26%	0.97	6.682	6.091	3878.89	13872.49	9163.69	5284.80	1.73	7224.25	1939.45
210.0	0.210	180.0	64.8	4737.6	3.34%	0.97	6.688	6.086	3875.71	13869.31	9131.71	5256.00	1.74	7193.85	1937.85
215.0	0.215	180.0	64.9	4752.0	3.41%	0.97	6.693	6.081	3872.53	13866.13	9114.13	5241.60	1.74	7177.86	1936.26
220.0	0.220	181.0	65.1	4780.8	3.49%	0.97	6.699	6.076	3890.84	13884.44	9103.64	5212.80	1.75	7158.22	1945.42
225.0	0.225	181.0	65.3	4809.6	3.57%	0.96	6.704	6.071	3887.64	13881.24	9071.64	5184.00	1.75	7127.82	1943.82
230.0	0.230	182.0	65.5	4838.4	3.65%	0.96	6.710	6.066	3905.90	13899.50	9061.10	5155.20	1.76	7108.15	1952.95
235.0	0.235	182.0	65.7	4867.2	3.73%	0.96	6.715	6.061	3902.68	13896.28	9029.08	5126.40	1.76	7077.74	1951.34
240.0	0.240	182.0	66.0	4910.4	3.81%	0.96	6.721	6.056	3899.46	13893.06	8982.66	5083.20	1.77	7032.93	1949.73
245.0	0.245	183.0	66.1	4924.8	3.89%	0.96	6.726	6.051	3917.64	13911.24	8986.44	5068.80	1.77	7027.62	1958.82
250.0	0.250	183.0	66.4	4968.0	3.97%	0.96	6.732	6.046	3914.41	13908.01	8940.01	5025.60	1.78	6982.80	1957.20
255.0	0.255	183.0	66.7	5011.2	4.05%	0.96	6.738	6.041	3911.17	13904.77	8893.57	4982.40	1.78	6937.99	1955.59

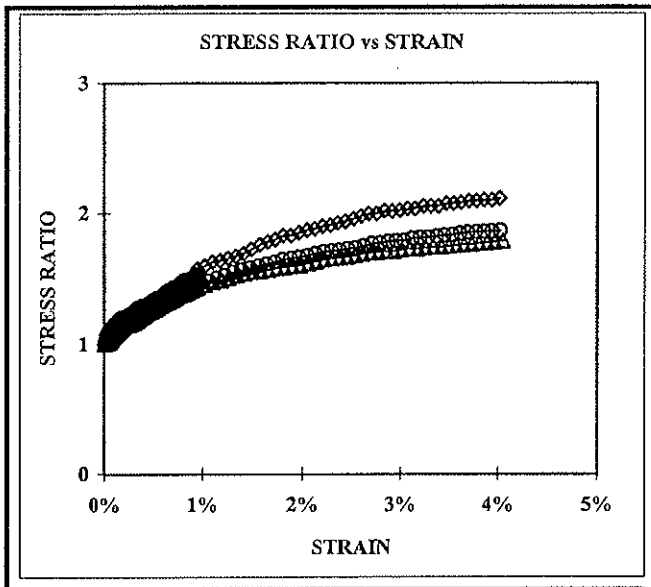
GOLDER ASSOCIATES INC.
CHERRY HILL, NEW JERSEY

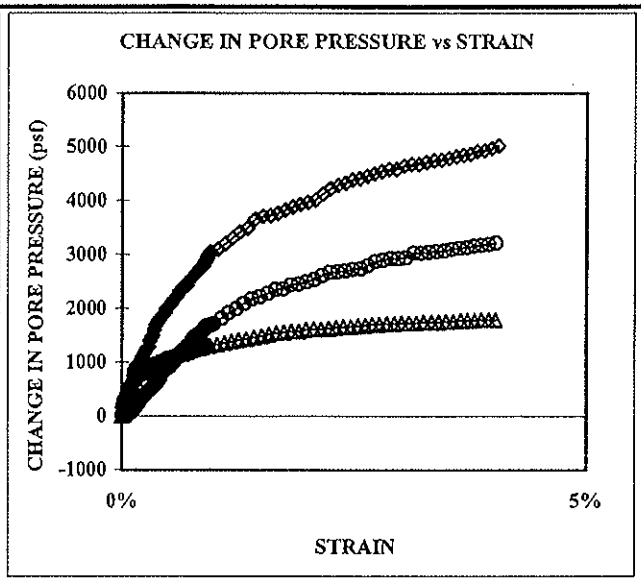
DEVIATORIC STRESS AT FAILURE: 3913.20

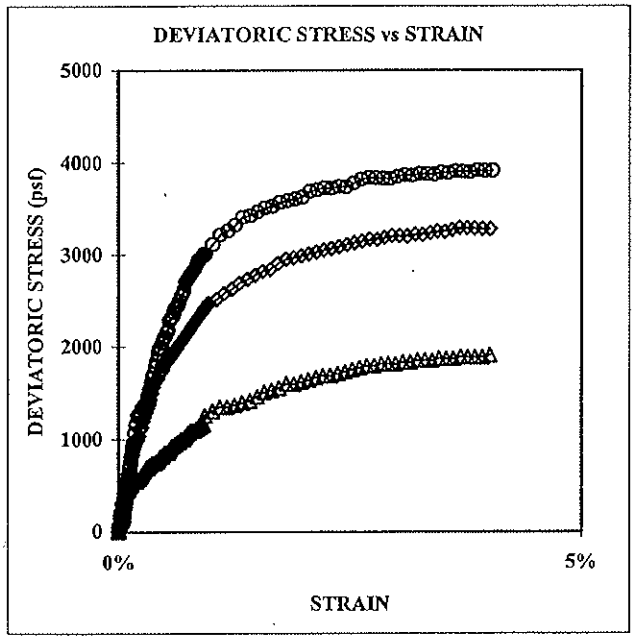
EFFECTIVE PRINCIPAL STRESS RATIO AT FAILURE: 1.58

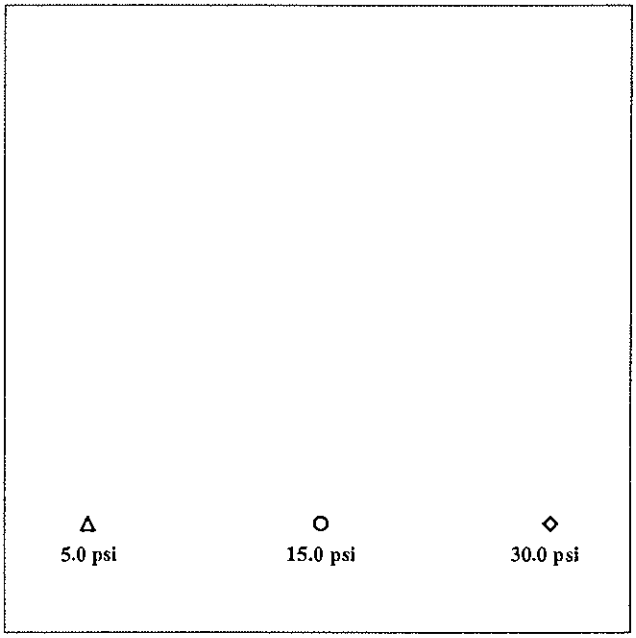
CONSOLIDATED UNDRAINED WITH PORE PRESSURE MEASUREMENT

ASTM D 4767









SAMPLE #:	SB-02-2A
	SA-3
DEPTH:	26-28

CONFINING PRES(psi)	24.3	48.6	69.4
MOIST DENSITY(pcf)	128.28	127.83	123.01
% MOISTURE	23.14%	26.18%	29.82%
STRAIN RATE(%/min)	0.02	0.02	0.02

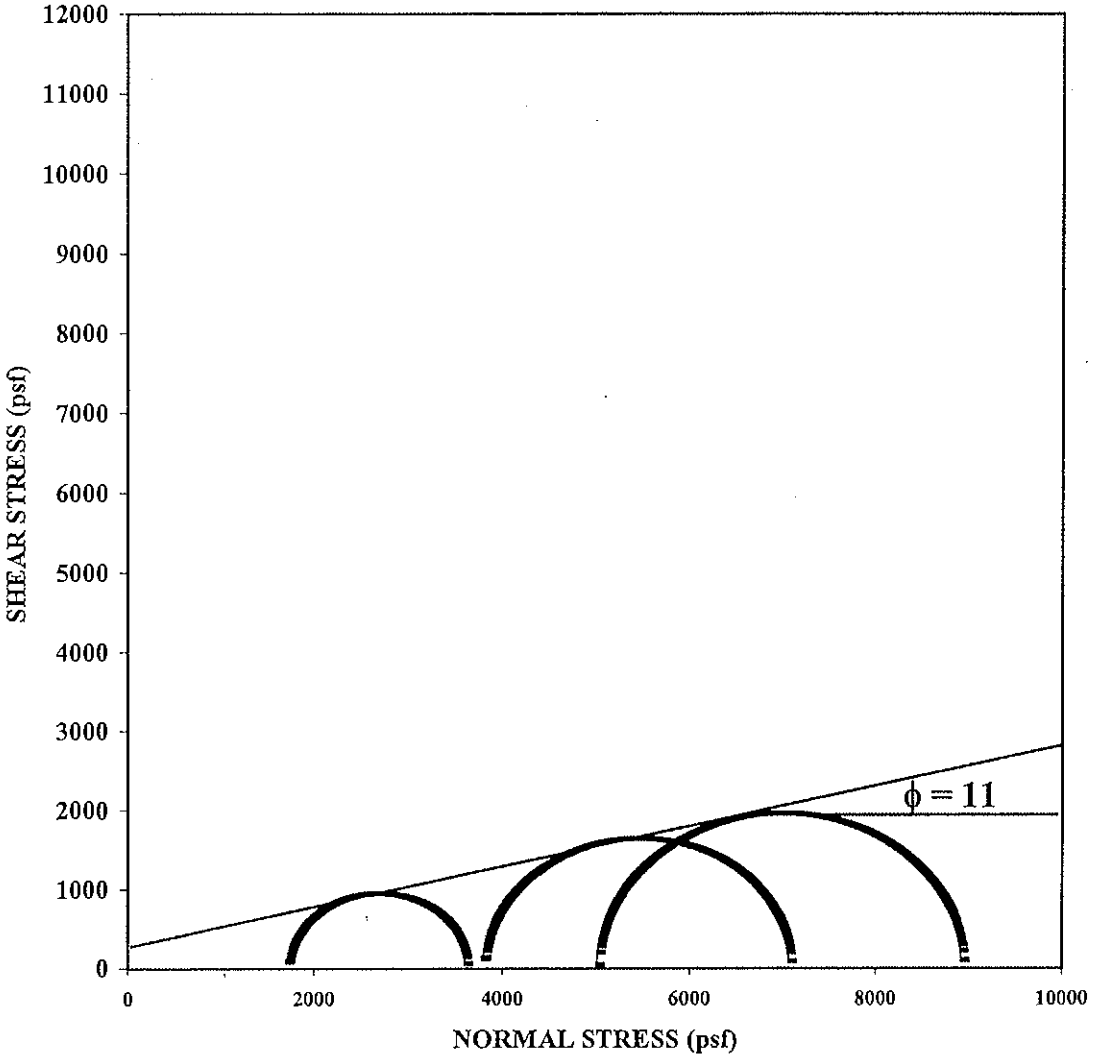
FAILURE BASED UPON 4% STRAIN

DATE	11/14/02
TECH	GD/KD
REVIEW	RMW

CWM/RMU-2 GW Plan/NY
013-9309.011

GOLDER ASSOCIATES INC.
CHERRY HILL, NEW JERSEY

CONSOLIDATED UNDRAINED WITH PORE PRESSURE MEASUREMENT
ASTM D 4767



SAMPLE #:	SB-02-2A
	SA-3
DEPTH:	26-28

CONFINING PRES(psi)	24.3	48.6	69.4
MOIST DENSITY(pcf)	128.28	127.83	123.01
% MOISTURE	23.14%	26.18%	29.82%
STRAIN RATE(%/min)	0.02	0.02	0.02

FAILURE BASED UPON 4% STRAIN

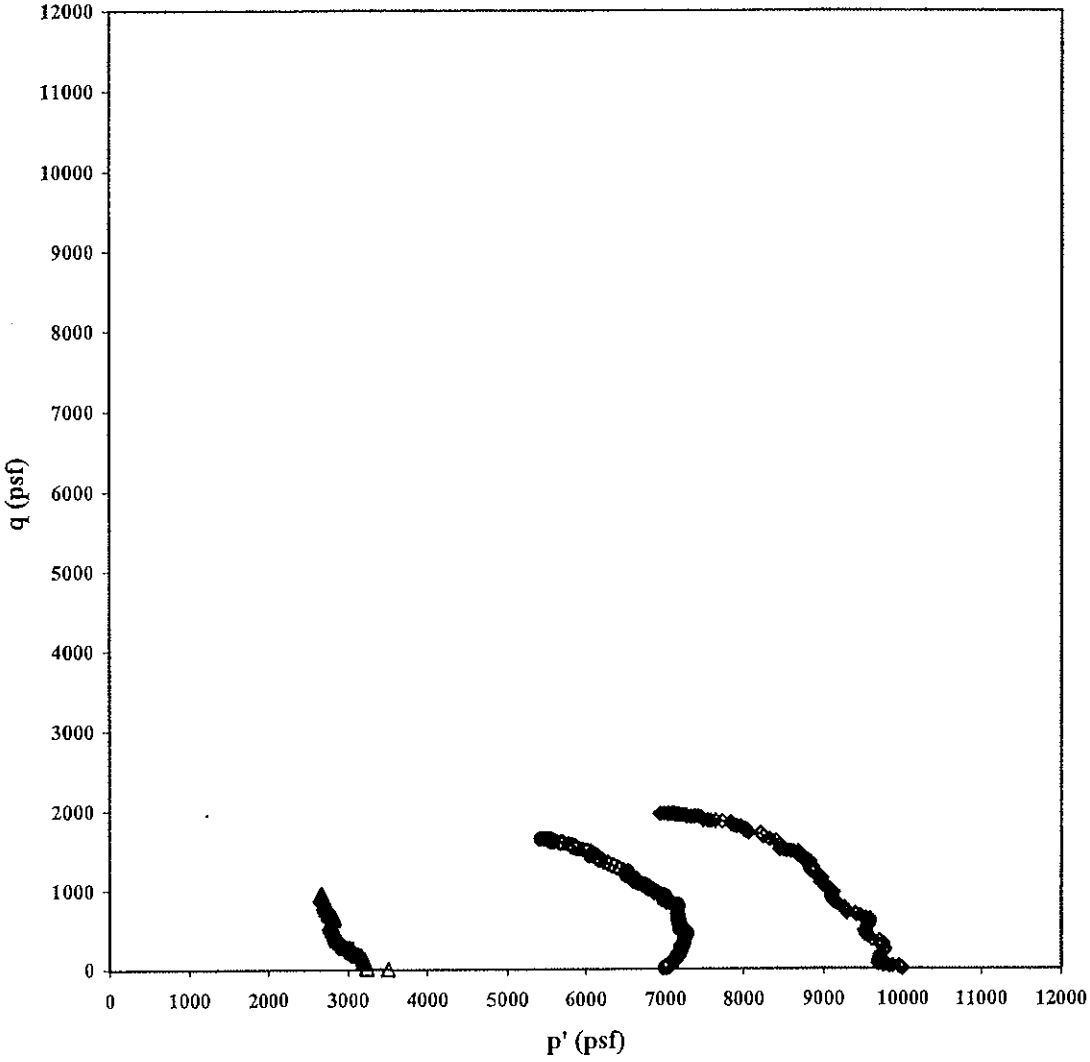
c (psf):	417
ϕ:	11

DATE	11/14/02
TECH	GD/KD
REVIEW	RMW

CWM/RMU-2 GW Plan/NY
013-9309.011

GOLDER ASSOCIATES INC.
CHERRY HILL, NEW JERSEY

CONSOLIDATED UNDRAINED WITH PORE PRESSURE MEASUREMENT
ASTM D 4767



SAMPLE #:	SB-02-2A
	SA-3
DEPTH:	26-28

CONFINING PRES(psi)	24.3	48.6	69.4
MOIST DENSITY(pcf)	128.28	127.83	123.01
% MOISTURE	23.14%	26.18%	29.82%
STRAIN RATE(%/min)	0.02	0.02	0.02

FAILURE BASED UPON 4% STRAIN

DATE	11/14/02
TECH	GD/KD
REVIEW	RMW

CWM/RMU-2 GW Plan/NY
013-9309.011

CONSOLIDATED UNDRAINED V. PORE PRESSURE MEASUREMENT

ASTM D 4767

CWM/RMU-2 GW Plan/NY 013-9309.011	SAMPLE #:	SB-02-02A SA-5	DATE: 11/14/02 TECH: GD/KD
	DEPTH:	30-32	REVIEW: RMW

SAMPLE DATA

height (in)	6.043	confining pressure (psi)	48.6		
diameter (in)	2.845	machine speed (in/min)	0.002		
area (in^2)	6.357	strain rate (%/min)	0.03		
height/diameter ratio	2.12	final "B" value	0.97		
volume (in^3)	38.42	t_{50} (min)	12.0		
% moisture,initial	34.20%	volume,solids	21.29		
weight (g)	1234.16	volume,voids	17.12		
specific gravity	2.81	void ratio	0.804		
moist density (pcf)	122.33	% saturation,initial	90.39%		
dry density (pcf)	91.16	% saturation,final	89.30%		

MOISTURE CONTENT

tare #	GH12
wt soil&tare,moist	1370.79
wt soil&tare,dry	1120.24
wt tare	151.49
wt moisture	250.55
wt dry soil	968.75
% moisture,final	25.86%

DESCRIPTION:

TIME (min)	DEFLECTION (in)	AXIAL LOAD (lbs)	PORE PRESSURE,U (psi)	d_U (psf) (cumulative)	STRAIN (ε)	(1-ε)	AREA CORR (in^2)	HEIGHT CORR (in)	DEVIATOR STRESS (psf)	SIGMA 1 (psf)	EFFECTIVE SIGMA 1 (psf)	EFFECTIVE SIGMA 3 (psf)	EFF PRN STR RATIO (S_1'/S_3')	P' (psf)	Q' (psf)
0.0	0.000	0.0	36.8	0.0	0.00%	1.00	6.357	6.043	0.00	6998.40	6998.40	6998.40	1.00	6998.40	0.00
0.5	0.001	8.0	37.2	57.6	0.02%	1.00	6.358	6.042	181.19	7179.59	7121.99	6940.80	1.03	7031.39	90.59
1.0	0.002	10.0	37.6	115.2	0.03%	1.00	6.359	6.041	226.45	7224.85	7109.65	6883.20	1.03	6996.42	113.22
1.5	0.003	13.0	38.3	216.0	0.05%	1.00	6.360	6.040	294.33	7292.73	7076.73	6782.40	1.04	6929.57	147.17
2.0	0.004	14.0	38.7	273.6	0.07%	1.00	6.361	6.039	316.92	7315.32	7041.72	6724.80	1.05	6883.26	158.46
2.5	0.005	16.0	39.1	331.2	0.08%	1.00	6.362	6.038	362.13	7360.53	7029.33	6667.20	1.05	6848.27	181.07
3.0	0.006	18.0	39.6	403.2	0.10%	1.00	6.363	6.037	407.33	7405.73	7002.53	6595.20	1.06	6798.87	203.67
3.5	0.007	19.0	39.9	446.4	0.12%	1.00	6.364	6.036	429.89	7428.29	6981.89	6552.00	1.07	6766.95	214.95
4.0	0.008	21.0	40.2	489.6	0.13%	1.00	6.365	6.035	475.06	7473.46	6983.86	6508.80	1.07	6746.33	237.53
4.5	0.009	22.0	40.6	547.2	0.15%	1.00	6.367	6.034	497.60	7496.00	6948.80	6451.20	1.08	6700.00	248.80
5.0	0.010	24.0	41.0	604.8	0.17%	1.00	6.368	6.033	542.75	7541.15	6936.35	6393.60	1.08	6664.98	271.38
5.5	0.011	25.0	41.3	648.0	0.18%	1.00	6.369	6.032	565.27	7563.67	6915.67	6350.40	1.09	6633.04	282.64
6.0	0.012	26.0	41.5	676.8	0.20%	1.00	6.370	6.031	587.78	7586.18	6909.38	6321.60	1.09	6615.49	293.89
6.5	0.013	27.0	41.8	720.0	0.22%	1.00	6.371	6.030	610.29	7608.69	6888.69	6278.40	1.10	6583.55	305.15
7.0	0.014	28.0	42.0	748.8	0.23%	1.00	6.372	6.029	632.79	7631.19	6882.39	6249.60	1.10	6565.99	316.39
7.5	0.015	30.0	42.3	792.0	0.25%	1.00	6.373	6.028	677.88	7676.28	6884.28	6206.40	1.11	6545.34	338.94
8.0	0.016	31.0	42.6	835.2	0.26%	1.00	6.374	6.027	700.36	7698.76	6863.56	6163.20	1.11	6513.38	350.18
8.5	0.017	32.0	42.8	864.0	0.28%	1.00	6.375	6.026	722.83	7721.23	6857.23	6134.40	1.12	6495.81	361.41
9.0	0.018	33.0	43.1	907.2	0.30%	1.00	6.376	6.025	745.29	7743.69	6836.49	6091.20	1.12	6463.85	372.65
9.5	0.019	34.0	43.3	936.0	0.31%	1.00	6.377	6.024	767.75	7766.15	6830.15	6062.40	1.13	6446.27	383.87
10.0	0.020	35.0	43.6	979.2	0.33%	1.00	6.378	6.023	790.20	7788.60	6809.40	6019.20	1.13	6414.30	395.10
11.0	0.022	36.0	44.0	1036.8	0.36%	1.00	6.380	6.021	812.51	7810.91	6774.11	5961.60	1.14	6367.85	406.25
12.0	0.024	38.0	44.5	1108.8	0.40%	1.00	6.382	6.019	857.36	7855.76	6746.96	5889.60	1.15	6318.28	428.68
13.0	0.026	41.0	45.1	1195.2	0.43%	1.00	6.385	6.017	924.74	7923.14	6727.94	5803.20	1.16	6265.57	462.37
14.0	0.028	42.0	45.3	1224.0	0.46%	1.00	6.387	6.015	946.98	7945.38	6721.38	5774.40	1.16	6247.89	473.49
15.0	0.030	43.0	45.7	1281.6	0.50%	1.00	6.389	6.013	969.20	7967.60	6686.00	5716.80	1.17	6201.40	484.60
16.0	0.032	44.0	46.1	1339.2	0.53%	0.99	6.391	6.011	991.41	7989.81	6650.61	5659.20	1.18	6154.91	495.71
17.0	0.034	46.0	46.4	1382.4	0.56%	0.99	6.393	6.009	1036.13	8034.53	6652.13	5616.00	1.18	6134.07	518.07
18.0	0.036	47.0	46.7	1425.6	0.60%	0.99	6.395	6.007	1058.31	8056.71	6631.11	5572.80	1.19	6101.95	529.15
19.0	0.038	48.0	47.0	1468.8	0.63%	0.99	6.397	6.005	1080.46	8078.86	6610.06	5529.60	1.20	6069.83	540.23
20.0	0.040	49.0	47.4	1526.4	0.66%	0.99	6.399	6.003	1102.60	8101.00	6574.60	5472.00	1.20	6023.30	551.30
21.0	0.042	51.0	48.0	1612.8	0.70%	0.99	6.402	6.001	1147.23	8145.63	6532.83	5385.60	1.21	5959.21	573.61
22.0	0.044	52.0	48.1	1627.2	0.73%	0.99	6.404	5.999	1169.33	8167.73	6540.53	5371.20	1.22	5955.87	584.67
23.0	0.046	53.0	48.2	1641.6	0.76%	0.99	6.406	5.997	1191.42	8189.82	6548.22	5356.80	1.22	5952.51	595.71
24.0	0.048	54.0	48.4	1670.4	0.79%	0.99	6.408	5.995	1213.50	8211.90	6541.50	5328.00	1.23	5934.75	606.75
25.0	0.050	55.0	48.8	1728.0	0.83%	0.99	6.410	5.993	1235.56	8233.96	6505.96	5270.40	1.23	5888.18	617.78
26.0	0.052	56.0	49.0	1756.8	0.86%	0.99	6.412	5.991	1257.60	8256.00	6499.20	5241.60	1.24	5870.40	628.80
27.0	0.054	56.0	49.3	1800.0	0.89%	0.99	6.414	5.989	1257.18	8255.58	6455.58	5198.40	1.24	5826.99	628.59

CONSOLIDATED UNDRAINED V PORE PRESSURE MEASUREMENT

ASTM D 4767

CWM/RMU-2 GW Plan/NY 013-9309.011	SAMPLE #:	SB-02-02A SA-5	DATE: 11/14/02 TECH: GD/KD
	DEPTH:	30-32	REVIEW: RMW

SAMPLE DATA

height (in)	6.043	confining pressure (psi)	48.6		
diameter (in)	2.845	machine speed (in/min)	0.002		
area (in^2)	6.357	strain rate (%/min)	0.03		
height/diameter ratio	2.12	final "B" value	0.97		
volume (in^3)	38.42	t_{50} (min)	12.0		
% moisture,initial	34.20%	volume,solids	21.29		
weight (g)	1234.16	volume,voids	17.12		
specific gravity	2.81	void ratio	0.804		
moist density (pcf)	122.33	% saturation,initial	90.39%		
dry density (pcf)	91.16	% saturation,final	89.30%		

MOISTURE CONTENT

tare #	GH12
wt soil&tare,moist	1370.79
wt soil&tare,dry	1120.24
wt tare	151.49
wt moisture	250.55
wt dry soil	968.75
% moisture,final	25.86%

DESCRIPTION:

TIME (min)	DEFLECTION (in)	AXIAL LOAD (lbs)	PORE PRESSURE,U (psi)	d_u (psf) (cumulative)	STRAIN (ε)	(1-ε)	AREA CORR (in^2)	HEIGHT CORR (in)	DEVIATOR STRESS (psf)	SIGMA 1 (psf)	EFFECTIVE SIGMA 1 (psf)	EFFECTIVE SIGMA 3 (psf)	EFF PRN STR RATIO (S_1'/S_3')	P' (psf)	Q' (psf)
28.0	0.056	57.0	49.5	1828.8	0.93%	0.99	6.416	5.987	1279.20	8277.60	6448.80	5169.60	1.25	5809.20	639.60
29.0	0.058	58.0	49.8	1872.0	0.96%	0.99	6.419	5.985	1301.21	8299.61	6427.61	5126.40	1.25	5777.01	650.61
30.0	0.060	59.0	50.2	1929.6	0.99%	0.99	6.421	5.983	1323.20	8321.60	6392.00	5068.80	1.26	5730.40	661.60
31.0	0.062	60.0	50.3	1944.0	1.03%	0.99	6.423	5.981	1345.18	8343.58	6399.58	5054.40	1.27	5726.99	672.59
32.0	0.064	60.0	50.5	1972.8	1.06%	0.99	6.425	5.979	1344.73	8343.13	6370.33	5025.60	1.27	5697.97	672.37
33.0	0.066	61.0	50.6	1987.2	1.09%	0.99	6.427	5.977	1366.69	8365.09	6377.89	5011.20	1.27	5694.54	683.34
34.0	0.068	61.0	50.7	2001.6	1.13%	0.99	6.429	5.975	1366.23	8364.63	6363.03	4996.80	1.27	5679.91	683.11
35.0	0.070	62.0	51.0	2044.8	1.16%	0.99	6.432	5.973	1388.16	8386.56	6341.76	4953.60	1.28	5647.68	694.08
36.0	0.072	63.0	51.2	2073.6	1.19%	0.99	6.434	5.971	1410.08	8408.48	6334.88	4924.80	1.29	5629.84	705.04
37.0	0.074	63.0	51.3	2088.0	1.22%	0.99	6.436	5.969	1409.61	8408.01	6320.01	4910.40	1.29	5615.20	704.80
38.0	0.076	64.0	51.5	2116.8	1.26%	0.99	6.438	5.967	1431.50	8429.90	6313.10	4881.60	1.29	5597.35	715.75
39.0	0.078	64.0	51.7	2145.6	1.29%	0.99	6.440	5.965	1431.02	8429.42	6283.82	4852.80	1.29	5568.31	715.51
40.0	0.080	65.0	51.8	2160.0	1.32%	0.99	6.442	5.963	1452.89	8451.29	6291.29	4838.40	1.30	5564.85	726.45
41.0	0.082	66.0	52.1	2203.2	1.36%	0.99	6.444	5.961	1474.75	8473.15	6269.95	4795.20	1.31	5532.58	737.38
42.0	0.084	67.0	52.4	2246.4	1.39%	0.99	6.447	5.959	1496.59	8494.99	6248.59	4752.00	1.31	5500.30	748.30
43.0	0.086	67.0	52.4	2246.4	1.42%	0.99	6.449	5.957	1496.09	8494.49	6248.09	4752.00	1.31	5500.05	748.05
44.0	0.088	67.0	52.5	2260.8	1.46%	0.99	6.451	5.955	1495.59	8493.99	6233.19	4737.60	1.32	5485.39	747.79
45.0	0.090	68.0	52.7	2289.6	1.49%	0.99	6.453	5.953	1517.40	8515.80	6226.20	4708.80	1.32	5467.50	758.70
46.0	0.092	68.0	52.8	2304.0	1.52%	0.98	6.455	5.951	1516.89	8515.29	6211.29	4694.40	1.32	5452.85	758.45
47.0	0.094	69.0	53.0	2332.8	1.56%	0.98	6.457	5.949	1538.68	8537.08	6204.28	4665.60	1.33	5434.94	769.34
48.0	0.096	69.0	53.1	2347.2	1.59%	0.98	6.460	5.947	1538.16	8536.56	6189.36	4651.20	1.33	5420.28	769.08
49.0	0.098	70.0	53.2	2361.6	1.62%	0.98	6.462	5.945	1559.93	8558.33	6196.73	4636.80	1.34	5416.77	779.97
50.0	0.100	70.0	53.3	2376.0	1.65%	0.98	6.464	5.943	1559.41	8557.81	6181.81	4622.40	1.34	5402.10	779.70
51.0	0.102	71.0	53.4	2390.4	1.69%	0.98	6.466	5.941	1581.15	8579.55	6189.15	4608.00	1.34	5398.58	790.58
52.0	0.104	71.0	53.5	2404.8	1.72%	0.98	6.468	5.939	1580.62	8579.02	6174.22	4593.60	1.34	5383.91	790.31
53.0	0.106	71.0	53.7	2433.6	1.75%	0.98	6.471	5.937	1580.09	8578.49	6144.89	4564.80	1.35	5354.84	790.04
54.0	0.108	71.0	53.8	2448.0	1.79%	0.98	6.473	5.935	1579.55	8577.95	6129.95	4550.40	1.35	5340.18	789.78
55.0	0.110	72.0	53.8	2448.0	1.82%	0.98	6.475	5.933	1601.26	8599.66	6151.66	4550.40	1.35	5351.03	800.63
56.0	0.112	72.0	54.0	2476.8	1.85%	0.98	6.477	5.931	1600.72	8599.12	6122.32	4521.60	1.35	5321.96	800.36
57.0	0.114	73.0	54.2	2505.6	1.89%	0.98	6.479	5.929	1622.41	8620.81	6115.21	4492.80	1.36	5304.00	811.20
58.0	0.116	73.0	54.2	2505.6	1.92%	0.98	6.481	5.927	1621.86	8620.26	6114.66	4492.80	1.36	5303.73	810.93
59.0	0.118	73.0	54.3	2520.0	1.95%	0.98	6.484	5.925	1621.31	8619.71	6099.71	4478.40	1.36	5289.06	810.66
60.0	0.120	73.0	54.4	2534.4	1.99%	0.98	6.486	5.923	1620.77	8619.17	6084.77	4464.00	1.36	5274.38	810.38
61.0	0.122	74.0	54.4	2534.4	2.02%	0.98	6.488	5.921	1642.41	8640.81	6106.41	4464.00	1.37	5285.21	821.21
62.0	0.124	74.0	54.5	2548.8	2.05%	0.98	6.490	5.919	1641.86	8640.26	6091.46	4449.60	1.37	5270.53	820.93
63.0	0.126	74.0	54.6	2563.2	2.09%	0.98	6.492	5.917	1641.30	8639.70	6076.50	4435.20	1.37	5255.85	820.65
64.0	0.128	74.0	54.7	2577.6	2.12%	0.98	6.495	5.915	1640.75	8639.15	6061.55	4420.80	1.37	5241.17	820.37
65.0	0.130	74.0	54.8	2592.0	2.15%	0.98	6.497	5.913	1640.19	8638.59	6046.59	4406.40	1.37	5226.50	820.10

CONSOLIDATED UNDRAINED W__PORE PRESSURE MEASUREMENT

ASTM D 4767

CWM/RMU-2 GW Plan/NY	SAMPLE #:	SB-02-02A	DATE: 11/14/02
013-9309.011		SA-5	TECH: GD/KD
	DEPTH:	30-32	REVIEW: RMW

SAMPLE DATA

height (in)	6.043	confining pressure (psi)	48.6	**MOISTURE CONTENT**	
diameter (in)	2.845	machine speed (in/min)	0.002	tare #	GH12
area (in^2)	6.357	strain rate (%/min)	0.03	wt soil&tare,moist	1370.79
height/diameter ratio	2.12	final "B" value	0.97	wt soil&tare,dry	1120.24
volume (in^3)	38.42	t_{50} (min)	12.0	wt tare	151.49
% moisture,initial	34.20%	volume,solids	21.29	wt moisture	250.55
weight (g)	1234.16	volume,voids	17.12	wt dry soil	968.75
specific gravity	2.81	void ratio	0.804	% moisture,final	25.86%
moist density (pcf)	122.33	% saturation,initial	90.39%		
dry density (pcf)	91.16	% saturation,final	89.30%		

DESCRIPTION:

TIME (min)	DEFLECTION (in)	AXIAL LOAD (lbs)	PORE PRESSURE,U (psi)	d_U (psf) (cumulative)	STRAIN (ε)	(1-ε)	AREA CORR (in^2)	HEIGHT CORR (in)	DEVIATOR STRESS (psf)	SIGMA 1 (psf)	EFFECTIVE SIGMA 1 (psf)	EFFECTIVE SIGMA 3 (psf)	EFF PRN STR RATIO (S_1'/S_3')	P' (psf)	Q' (psf)
66.0	0.132	75.0	54.9	2606.4	2.18%	0.98	6.499	5.911	1661.80	8660.20	6053.80	4392.00	1.38	5222.90	830.90
67.0	0.134	75.0	55.0	2620.8	2.22%	0.98	6.501	5.909	1661.23	8659.63	6038.83	4377.60	1.38	5208.22	830.62
68.0	0.136	75.0	55.2	2649.6	2.25%	0.98	6.503	5.907	1660.67	8659.07	6009.47	4348.80	1.38	5179.14	830.34
69.0	0.138	76.0	55.2	2649.6	2.28%	0.98	6.506	5.905	1682.24	8680.64	6031.04	4348.80	1.39	5189.92	841.12
70.0	0.140	76.0	55.3	2664.0	2.32%	0.98	6.508	5.903	1681.67	8680.07	6016.07	4334.40	1.39	5175.24	840.84
71.0	0.142	76.0	55.4	2678.4	2.35%	0.98	6.510	5.901	1681.10	8679.50	6001.10	4320.00	1.39	5160.55	840.55
72.0	0.144	76.0	55.4	2678.4	2.38%	0.98	6.512	5.899	1680.53	8678.93	6000.53	4320.00	1.39	5160.27	840.27
73.0	0.146	76.0	55.5	2692.8	2.42%	0.98	6.514	5.897	1679.96	8678.36	5985.56	4305.60	1.39	5145.58	839.98
74.0	0.148	77.0	55.6	2707.2	2.45%	0.98	6.517	5.895	1701.49	8699.89	5992.69	4291.20	1.40	5141.95	850.75
75.0	0.150	77.0	55.6	2707.2	2.48%	0.98	6.519	5.893	1700.92	8699.32	5992.12	4291.20	1.40	5141.66	850.46
76.0	0.152	77.0	55.7	2721.6	2.52%	0.97	6.521	5.891	1700.34	8698.74	5977.14	4276.80	1.40	5126.97	850.17
77.0	0.154	77.0	55.7	2721.6	2.55%	0.97	6.523	5.889	1699.76	8698.16	5976.56	4276.80	1.40	5126.68	849.88
78.0	0.156	77.0	55.7	2721.6	2.58%	0.97	6.525	5.887	1699.18	8697.58	5975.98	4276.80	1.40	5126.39	849.59
79.0	0.158	77.0	55.7	2721.6	2.61%	0.97	6.528	5.885	1698.61	8697.01	5975.41	4276.80	1.40	5126.10	849.30
80.0	0.160	77.0	55.9	2750.4	2.65%	0.97	6.530	5.883	1698.03	8696.43	5946.03	4248.00	1.40	5097.01	849.01
81.0	0.162	77.0	55.9	2750.4	2.68%	0.97	6.532	5.881	1697.45	8695.85	5945.45	4248.00	1.40	5096.73	848.73
82.0	0.164	78.0	56.0	2764.8	2.71%	0.97	6.534	5.879	1718.91	8717.31	5952.51	4233.60	1.41	5093.06	859.46
83.0	0.166	78.0	56.1	2779.2	2.75%	0.97	6.537	5.877	1718.33	8716.73	5937.53	4219.20	1.41	5078.36	859.16
84.0	0.168	78.0	56.2	2793.6	2.78%	0.97	6.539	5.875	1717.74	8716.14	5922.54	4204.80	1.41	5063.67	858.87
85.0	0.170	78.0	56.2	2793.6	2.81%	0.97	6.541	5.873	1717.16	8715.56	5921.96	4204.80	1.41	5063.38	858.58
86.0	0.172	79.0	56.2	2793.6	2.85%	0.97	6.543	5.871	1738.58	8736.98	5943.38	4204.80	1.41	5074.09	869.29
87.0	0.174	79.0	56.2	2793.6	2.88%	0.97	6.546	5.869	1737.99	8736.39	5942.79	4204.80	1.41	5073.79	868.99
88.0	0.176	79.0	56.3	2808.0	2.91%	0.97	6.548	5.867	1737.40	8735.80	5927.80	4190.40	1.41	5059.10	868.70
89.0	0.178	79.0	56.3	2808.0	2.95%	0.97	6.550	5.865	1736.80	8735.20	5927.20	4190.40	1.41	5058.80	868.40
90.0	0.180	79.0	56.3	2808.0	2.98%	0.97	6.552	5.863	1736.21	8734.61	5926.61	4190.40	1.41	5058.51	868.11
91.0	0.182	79.0	56.3	2808.0	3.01%	0.97	6.554	5.861	1735.62	8734.02	5926.02	4190.40	1.41	5058.21	867.81
92.0	0.184	79.0	56.3	2808.0	3.04%	0.97	6.557	5.859	1735.03	8733.43	5925.43	4190.40	1.41	5057.91	867.51
93.0	0.186	79.0	56.3	2808.0	3.08%	0.97	6.559	5.857	1734.43	8732.83	5924.83	4190.40	1.41	5057.62	867.22
94.0	0.188	79.0	56.3	2808.0	3.11%	0.97	6.561	5.855	1733.84	8732.24	5924.24	4190.40	1.41	5057.32	866.92
95.0	0.190	79.0	56.3	2808.0	3.14%	0.97	6.563	5.853	1733.25	8731.65	5923.65	4190.40	1.41	5057.02	866.62
100.0	0.200	80.0	56.6	2851.2	3.31%	0.97	6.575	5.843	1752.19	8750.59	5899.39	4147.20	1.42	5023.30	876.10
105.0	0.210	80.0	56.6	2851.2	3.48%	0.97	6.586	5.833	1749.19	8747.59	5896.39	4147.20	1.42	5021.80	874.60
110.0	0.220	80.0	56.8	2880.0	3.64%	0.96	6.597	5.823	1746.19	8744.59	5864.59	4118.40	1.42	4991.50	873.10
115.0	0.230	81.0	57.3	2952.0	3.81%	0.96	6.609	5.813	1764.98	8763.38	5811.38	4046.40	1.44	4928.89	882.49
120.0	0.240	82.0	57.5	2980.8	3.97%	0.96	6.620	5.803	1783.70	8782.10	5801.30	4017.60	1.44	4909.45	891.85
125.0	0.250	82.0	57.8	3024.0	4.14%	0.96	6.631	5.793	1780.63	8779.03	5755.03	3974.40	1.45	4864.71	890.31

GOLDER ASSOCIATES INC.
CHERRY HILL, NEW JERSEY

DEVIATORIC STRESS AT FAILURE: 1783.16

EFFECTIVE PRINCIPAL STRESS RATIO AT FAILURE: 145.00

CONSOLIDATED UNDRAINED W___ PORE PRESSURE MEASUREMENT

ASTM D 4767

CWM/RMU-2 GW Plan/NY	SAMPLE #:	SB-02-02A	DATE: 11/14/02
013-9309.011		SA-5	TECH: GD/KD
	DEPTH:	30-32	REVIEW: RMW

SAMPLE DATA

height (in)	6.156	confining pressure (psi)	69.4		
diameter (in)	2.825	machine speed (in/min)	0.001		
area (in^2)	6.268	strain rate (%/min)	0.02		
height/diameter ratio	2.18	final "B" value	0.98		
volume (in^3)	38.59	t_{50} (min)	56.9		
% moisture,initial	31.40%	volume,solids	21.22		
weight (g)	1252.40	volume,voids	17.37		
specific gravity	2.81	void ratio	0.818		
moist density (pcf)	123.60	% saturation,initial	96.73%		
dry density (pcf)	94.06	% saturation,final	93.24%		

MOISTURE CONTENT

tare #	GH6
wt soil&tare,moist	1361.56
wt soil&tare,dry	1096.22
wt tare	154.22
wt moisture	265.34
wt dry soil	942.00
% moisture,final	28.17%

DESCRIPTION:

TIME (min)	DEFLECTION (in)	AXIAL LOAD (lbs)	PORE PRESSURE,U (psi)	d_U (psf) (cumulative)	STRAIN (ε)	$(1-\varepsilon)$	AREA CORR (in^2)	HEIGHT CORR (in)	DEVIATOR STRESS (psf)	SIGMA 1 (psf)	EFFECTIVE SIGMA 1 (psf)	EFFECTIVE SIGMA 3 (psf)	EFF PRN STR RATIO (S_1'/S_3')	P' (psf)	Q' (psf)
0.0	0.000	0.0	34.9	0.0	0.00%	1.00	6.268	6.156	0.00	9993.60	9993.60	9993.60	1.00	9993.60	0.00
0.5	0.001	2.0	35.0	14.4	0.01%	1.00	6.268	6.156	45.94	10039.54	10025.14	9979.20	1.00	10002.17	22.97
1.0	0.001	4.0	35.2	43.2	0.02%	1.00	6.269	6.155	91.88	10085.48	10042.28	9950.40	1.01	9996.34	45.94
1.5	0.002	8.0	35.4	72.0	0.02%	1.00	6.269	6.155	183.75	10177.35	10105.35	9921.60	1.02	10013.47	91.87
2.0	0.002	10.0	35.7	115.2	0.03%	1.00	6.270	6.154	229.66	10223.26	10108.06	9878.40	1.02	9993.23	114.83
2.5	0.003	13.0	35.8	129.6	0.04%	1.00	6.271	6.154	298.54	10292.14	10162.54	9864.00	1.03	10013.27	149.27
3.0	0.003	14.0	35.9	144.0	0.05%	1.00	6.271	6.153	321.48	10315.08	10171.08	9849.60	1.03	10010.34	160.74
3.5	0.004	16.0	36.1	172.8	0.06%	1.00	6.272	6.153	367.37	10360.97	10188.17	9820.80	1.04	10004.49	183.69
4.0	0.004	18.0	36.4	216.0	0.06%	1.00	6.272	6.152	413.26	10406.86	10190.86	9777.60	1.04	9984.23	206.63
4.5	0.005	20.0	36.6	244.8	0.07%	1.00	6.273	6.152	459.14	10452.74	10207.94	9748.80	1.05	9978.37	229.57
5.0	0.005	21.0	36.8	273.6	0.08%	1.00	6.273	6.151	482.06	10475.66	10202.06	9720.00	1.05	9961.03	241.03
5.5	0.006	22.0	37.0	302.4	0.09%	1.00	6.274	6.151	504.98	10498.58	10196.18	9691.20	1.05	9943.69	252.49
6.0	0.006	25.0	37.1	316.8	0.10%	1.00	6.274	6.150	573.79	10567.39	10250.59	9676.80	1.06	9963.69	286.89
6.5	0.007	27.0	37.2	331.2	0.11%	1.00	6.275	6.150	619.64	10613.24	10282.04	9662.40	1.06	9972.22	309.82
7.0	0.007	28.0	37.4	360.0	0.11%	1.00	6.275	6.149	642.54	10636.14	10276.14	9633.60	1.07	9954.87	321.27
7.5	0.008	31.0	37.5	374.4	0.12%	1.00	6.276	6.149	711.32	10704.92	10330.52	9619.20	1.07	9974.86	355.66
8.0	0.008	33.0	37.7	403.2	0.13%	1.00	6.276	6.148	757.16	10750.76	10347.56	9590.40	1.08	9968.98	378.58
8.5	0.009	36.0	37.9	432.0	0.14%	1.00	6.277	6.148	825.92	10819.52	10387.52	9561.60	1.09	9974.56	412.96
9.0	0.009	38.0	38.0	446.4	0.15%	1.00	6.277	6.147	871.73	10865.33	10418.93	9547.20	1.09	9983.07	435.87
9.5	0.010	39.0	38.2	475.2	0.15%	1.00	6.278	6.147	894.60	10888.20	10413.00	9518.40	1.09	9965.70	447.30
10.0	0.010	40.0	38.3	489.6	0.16%	1.00	6.278	6.146	917.47	10911.07	10421.47	9504.00	1.10	9962.73	458.73
11.0	0.011	42.0	38.4	504.0	0.18%	1.00	6.279	6.145	963.18	10956.78	10452.78	9489.60	1.10	9971.19	481.59
12.0	0.012	43.0	38.6	532.8	0.19%	1.00	6.280	6.144	985.95	10979.55	10446.75	9460.80	1.10	9953.78	492.98
13.0	0.013	45.0	38.8	561.6	0.21%	1.00	6.281	6.143	1031.64	11025.24	10463.64	9432.00	1.11	9947.82	515.82
14.0	0.014	48.0	39.0	590.4	0.23%	1.00	6.282	6.142	1100.24	11093.84	10503.44	9403.20	1.12	9953.32	550.12
15.0	0.015	49.0	39.1	604.8	0.24%	1.00	6.283	6.141	1122.98	11116.58	10511.78	9388.80	1.12	9950.29	561.49
16.0	0.016	52.0	39.1	604.8	0.26%	1.00	6.284	6.140	1191.54	11185.14	10580.34	9388.80	1.13	9984.57	595.77
17.0	0.017	54.0	39.2	619.2	0.28%	1.00	6.285	6.139	1237.17	11230.77	10611.57	9374.40	1.13	9992.98	618.58
18.0	0.018	56.0	39.3	633.6	0.29%	1.00	6.286	6.138	1282.78	11276.38	10642.78	9360.00	1.14	10001.39	641.39
19.0	0.019	58.0	39.4	648.0	0.31%	1.00	6.287	6.137	1328.38	11321.98	10673.98	9345.60	1.14	10009.79	664.19
20.0	0.020	60.0	39.4	648.0	0.32%	1.00	6.288	6.136	1373.96	11367.56	10719.56	9345.60	1.15	10032.58	686.98
21.0	0.021	62.0	39.4	648.0	0.34%	1.00	6.289	6.135	1419.53	11413.13	10765.13	9345.60	1.15	10055.36	709.76
22.0	0.022	65.0	39.4	648.0	0.36%	1.00	6.290	6.134	1487.97	11481.57	10833.57	9345.60	1.16	10089.59	743.99
23.0	0.023	68.0	39.5	662.4	0.37%	1.00	6.291	6.133	1556.39	11549.99	10887.59	9331.20	1.17	10109.40	778.20
24.0	0.024	70.0	39.5	662.4	0.39%	1.00	6.293	6.132	1601.91	11595.51	10933.11	9331.20	1.17	10132.15	800.95
25.0	0.025	71.0	39.6	676.8	0.41%	1.00	6.294	6.131	1624.53	11618.13	10941.33	9316.80	1.17	10129.06	812.26
26.0	0.026	72.0	39.6	676.8	0.42%	1.00	6.295	6.130	1647.14	11640.74	10963.94	9316.80	1.18	10140.37	823.57
27.0	0.027	74.0	39.7	691.2	0.44%	1.00	6.296	6.129	1692.62	11686.22	10995.02	9302.40	1.18	10148.71	846.31

CONSOLIDATED UNDRAINED V. PORE PRESSURE MEASUREMENT

ASTM D 4767

CWM/RMU-2 GW Plan/NY	SAMPLE #:	SB-02-02A	DATE: 11/14/02
013-9309.011		SA-5	TECH: GD/KD
	DEPTH:	30-32	REVIEW: RMW

SAMPLE DATA

height (in)	6.156	confining pressure (psi)	69.4		
diameter (in)	2.825	machine speed (in/min)	0.001		
area (in^2)	6.268	strain rate (%/min)	0.02		
height/diameter ratio	2.18	final "B" value	0.98		
volume (in^3)	38.59	t_{50} (min)	56.9		
% moisture,initial	31.40%	volume,solids	21.22		
weight (g)	1252.40	volume,voids	17.37		
specific gravity	2.81	void ratio	0.818		
moist density (pcf)	123.60	% saturation,initial	96.73%		
dry density (pcf)	94.06	% saturation,final	93.24%		

MOISTURE CONTENT

tare #	GH6
wt soil&tare,moist	1361.56
wt soil&tare,dry	1096.22
wt tare	154.22
wt moisture	265.34
wt dry soil	942.00
% moisture,final	28.17%

DESCRIPTION:

TIME (min)	DEFLECTION (in)	AXIAL LOAD (lbs)	PORE PRESSURE,U (psi)	d_U (psf) (cumulative)	STRAIN (ε)	(1-ε)	AREA CORR (in^2)	HEIGHT CORR (in)	DEVIATOR STRESS (psf)	SIGMA 1 (psf)	EFFECTIVE SIGMA 1 (psf)	EFFECTIVE SIGMA 3 (psf)	EFF PRN STR RATIO (S_1'/S_3')	P' (psf)	Q' (psf)
28.0	0.028	75.0	39.7	691.2	0.45%	1.00	6.297	6.128	1715.21	11708.81	11017.61	9302.40	1.18	10160.00	857.60
29.0	0.029	76.0	39.8	705.6	0.47%	1.00	6.298	6.127	1737.80	11731.40	11025.80	9288.00	1.19	10156.90	868.90
30.0	0.030	78.0	39.8	705.6	0.49%	1.00	6.299	6.126	1783.24	11776.84	11071.24	9288.00	1.19	10179.62	891.62
31.0	0.031	79.0	39.8	705.6	0.50%	0.99	6.300	6.125	1805.80	11799.40	11093.80	9288.00	1.19	10190.90	902.90
32.0	0.032	80.0	39.8	705.6	0.52%	0.99	6.301	6.124	1828.36	11821.96	11116.36	9288.00	1.20	10202.18	914.18
33.0	0.033	81.0	39.8	705.6	0.54%	0.99	6.302	6.123	1850.91	11844.51	11138.91	9288.00	1.20	10213.46	925.46
34.0	0.034	82.0	39.8	705.6	0.55%	0.99	6.303	6.122	1873.46	11867.06	11161.46	9288.00	1.20	10224.73	936.73
35.0	0.035	83.0	40.0	734.4	0.57%	0.99	6.304	6.121	1896.00	11889.60	11155.20	9259.20	1.20	10207.20	948.00
36.0	0.036	84.0	40.0	734.4	0.58%	0.99	6.305	6.120	1918.53	11912.13	11177.73	9259.20	1.21	10218.46	959.26
37.0	0.037	85.0	40.0	734.4	0.60%	0.99	6.306	6.119	1941.05	11934.65	11200.25	9259.20	1.21	10229.72	970.52
38.0	0.038	86.0	40.0	734.4	0.62%	0.99	6.307	6.118	1963.56	11957.16	11222.76	9259.20	1.21	10240.98	981.78
39.0	0.039	87.0	40.0	734.4	0.63%	0.99	6.308	6.117	1986.07	11979.67	11245.27	9259.20	1.21	10252.24	993.04
40.0	0.040	88.0	40.1	748.8	0.65%	0.99	6.309	6.116	2008.57	12002.17	11253.37	9244.80	1.22	10249.09	1004.29
41.0	0.041	89.0	40.2	763.2	0.67%	0.99	6.310	6.115	2031.06	12024.66	11261.46	9230.40	1.22	10245.93	1015.53
42.0	0.042	90.0	40.2	763.2	0.68%	0.99	6.311	6.114	2053.55	12047.15	11283.95	9230.40	1.22	10257.17	1026.77
43.0	0.043	91.0	40.3	777.6	0.70%	0.99	6.312	6.113	2076.03	12069.63	11292.03	9216.00	1.23	10254.01	1038.01
44.0	0.044	92.0	40.3	777.6	0.71%	0.99	6.313	6.112	2098.50	12092.10	11314.50	9216.00	1.23	10265.25	1049.25
45.0	0.045	93.0	40.4	792.0	0.73%	0.99	6.314	6.111	2120.96	12114.56	11322.56	9201.60	1.23	10262.08	1060.48
46.0	0.046	94.0	40.4	792.0	0.75%	0.99	6.315	6.110	2143.41	12137.01	11345.01	9201.60	1.23	10273.31	1071.71
47.0	0.047	95.0	40.4	792.0	0.76%	0.99	6.316	6.109	2165.86	12159.46	11367.46	9201.60	1.24	10284.53	1082.93
48.0	0.048	96.0	40.4	792.0	0.78%	0.99	6.317	6.108	2188.30	12181.90	11389.90	9201.60	1.24	10295.75	1094.15
49.0	0.049	97.0	40.4	792.0	0.80%	0.99	6.318	6.107	2210.74	12204.34	11412.34	9201.60	1.24	10306.97	1105.37
50.0	0.050	98.0	40.4	792.0	0.81%	0.99	6.319	6.106	2233.16	12226.76	11434.76	9201.60	1.24	10318.18	1116.58
51.0	0.051	99.0	40.4	792.0	0.83%	0.99	6.320	6.105	2255.58	12249.18	11457.18	9201.60	1.25	10329.39	1127.79
52.0	0.052	100.0	40.4	792.0	0.84%	0.99	6.321	6.104	2277.99	12271.59	11479.59	9201.60	1.25	10340.59	1138.99
53.0	0.053	101.0	40.4	792.0	0.86%	0.99	6.322	6.103	2300.39	12293.99	11501.99	9201.60	1.25	10351.80	1150.20
54.0	0.054	102.0	40.4	792.0	0.88%	0.99	6.323	6.102	2322.79	12316.39	11524.39	9201.60	1.25	10362.99	1161.39
55.0	0.055	103.0	40.5	806.4	0.89%	0.99	6.324	6.101	2345.18	12338.78	11532.38	9187.20	1.26	10359.79	1172.59
56.0	0.056	104.0	40.6	820.8	0.91%	0.99	6.326	6.100	2367.56	12361.16	11540.36	9172.80	1.26	10356.58	1183.78
57.0	0.057	105.0	40.6	820.8	0.93%	0.99	6.327	6.099	2389.93	12383.53	11562.73	9172.80	1.26	10367.76	1194.96
58.0	0.058	106.0	40.6	820.8	0.94%	0.99	6.328	6.098	2412.29	12405.89	11585.09	9172.80	1.26	10378.95	1206.15
59.0	0.059	107.0	40.7	835.2	0.96%	0.99	6.329	6.097	2434.65	12428.25	11593.05	9158.40	1.27	10375.73	1217.33
60.0	0.060	108.0	40.7	835.2	0.97%	0.99	6.330	6.096	2457.00	12450.60	11615.40	9158.40	1.27	10386.90	1228.50
65.0	0.065	110.0	40.7	835.2	1.06%	0.99	6.335	6.091	2500.45	12494.05	11658.85	9158.40	1.27	10408.63	1250.23
70.0	0.070	110.0	40.7	835.2	1.14%	0.99	6.340	6.086	2498.40	12492.00	11656.80	9158.40	1.27	10407.60	1249.20
75.0	0.075	110.0	40.8	849.6	1.22%	0.99	6.345	6.081	2496.35	12489.95	11640.35	9144.00	1.27	10392.17	1248.17
80.0	0.080	111.0	41.0	878.4	1.30%	0.99	6.350	6.076	2516.97	12510.57	11632.17	9115.20	1.28	10373.68	1258.48
85.0	0.085	111.0	41.0	878.4	1.38%	0.99	6.356	6.071	2514.90	12508.50	11630.10	9115.20	1.28	10372.65	1257.45

CONSOLIDATED UNDRAINED W/ PORE PRESSURE MEASUREMENT

ASTM D 4767

CWM/RMU-2 GW Plan/NY	SAMPLE #:	SB-02-02A	DATE: 11/14/02
013-9309.011		SA-5	TECH: GD/KD
	DEPTH:	30-32	REVIEW: RMW

SAMPLE DATA

height (in)	6.156	confining pressure (psi)	69.4	MOISTURE CONTENT		DESCRIPTION:	
diameter (in)	2.825	machine speed (in/min)	0.001	tare #	GH6		
area (in^2)	6.268	strain rate (%/min)	0.02	wt soil&tare,moist	1361.56		
height/diameter ratio	2.18	final "B" value	0.98	wt soil&tare,dry	1096.22		
volume (in^3)	38.59	t_{50} (min)	56.9	wt tare	154.22		
% moisture,initial	31.40%	volume,solids	21.22	wt moisture	265.34		
weight (g)	1252.40	volume,voids	17.37	wt dry soil	942.00		
specific gravity	2.81	void ratio	0.818	% moisture,final	28.17%		
moist density (pcf)	123.60	% saturation,initial	96.73%				
dry density (pcf)	94.06	% saturation,final	93.24%				

TIME (min)	DEFLECTION (in)	AXIAL LOAD (lbs)	PORE PRESSURE,U (psi)	d_U (psf) (cumulative)	STRAIN (ε)	(1-ε)	AREA CORR (in^2)	HEIGHT CORR (in)	DEVIATOR STRESS (psf)	SIGMA 1 (psf)	EFFECTIVE SIGMA 1 (psf)	EFFECTIVE SIGMA 3 (psf)	EFF PRN STR RATIO (S_1'/S_3')	P' (psf)	Q' (psf)
90.0	0.090	111.0	41.1	892.8	1.46%	0.99	6.361	6.066	2512.83	12506.43	11613.63	9100.80	1.28	10357.21	1256.41
95.0	0.095	112.0	41.4	936.0	1.54%	0.98	6.366	6.061	2533.37	12526.97	11590.97	9057.60	1.28	10324.29	1266.69
100.0	0.100	112.0	41.4	936.0	1.62%	0.98	6.371	6.056	2531.28	12524.88	11588.88	9057.60	1.28	10323.24	1265.64
105.0	0.105	113.0	41.4	936.0	1.71%	0.98	6.377	6.051	2551.78	12545.38	11609.38	9057.60	1.28	10333.49	1275.89
110.0	0.110	113.0	41.5	950.4	1.79%	0.98	6.382	6.046	2549.67	12543.27	11592.87	9043.20	1.28	10318.03	1274.83
115.0	0.115	114.0	41.5	950.4	1.87%	0.98	6.387	6.041	2570.10	12563.70	11613.30	9043.20	1.28	10328.25	1285.05
120.0	0.120	115.0	41.6	964.8	1.95%	0.98	6.393	6.036	2590.50	12584.10	11619.30	9028.80	1.29	10324.05	1295.25
125.0	0.125	116.0	41.8	993.6	2.03%	0.98	6.398	6.031	2610.86	12604.46	11610.86	9000.00	1.29	10305.43	1305.43
130.0	0.130	118.0	42.0	1022.4	2.11%	0.98	6.403	6.026	2653.68	12647.28	11624.88	8971.20	1.30	10298.04	1326.84
135.0	0.135	117.0	42.0	1022.4	2.19%	0.98	6.409	6.021	2629.01	12622.61	11600.21	8971.20	1.29	10285.70	1314.50
140.0	0.140	118.0	42.1	1036.8	2.27%	0.98	6.414	6.016	2649.27	12642.87	11606.07	8956.80	1.30	10281.44	1324.64
145.0	0.145	119.0	43.3	1209.6	2.36%	0.98	6.419	6.011	2669.51	12663.11	11453.51	8784.00	1.30	10118.75	1334.75
150.0	0.150	120.0	43.4	1224.0	2.44%	0.98	6.425	6.006	2689.70	12683.30	11459.30	8769.60	1.31	10114.45	1344.85
155.0	0.155	121.0	43.6	1252.8	2.52%	0.97	6.430	6.001	2709.86	12703.46	11450.66	8740.80	1.31	10095.73	1354.93
160.0	0.160	122.0	44.1	1324.8	2.60%	0.97	6.435	5.996	2729.97	12723.57	11398.77	8668.80	1.31	10033.79	1364.99
165.0	0.165	123.0	46.2	1627.2	2.68%	0.97	6.441	5.991	2750.06	12743.66	11116.46	8366.40	1.33	9741.43	1375.03
170.0	0.170	124.0	48.1	1900.8	2.76%	0.97	6.446	5.986	2770.10	12763.70	10862.90	8092.80	1.34	9477.85	1385.05
175.0	0.175	125.0	49.9	2160.0	2.84%	0.97	6.451	5.981	2790.11	12783.71	10623.71	7833.60	1.36	9228.65	1395.05
180.0	0.180	126.0	51.4	2376.0	2.92%	0.97	6.457	5.976	2810.08	12803.68	10427.68	7617.60	1.37	9022.64	1405.04
185.0	0.185	127.0	52.7	2563.2	3.01%	0.97	6.462	5.971	2830.01	12823.61	10260.41	7430.40	1.38	8845.40	1415.00
190.0	0.190	128.0	53.8	2721.6	3.09%	0.97	6.468	5.966	2849.90	12843.50	10121.90	7272.00	1.39	8696.95	1424.95
195.0	0.195	129.0	54.6	2836.8	3.17%	0.97	6.473	5.961	2869.76	12863.36	10026.56	7156.80	1.40	8591.68	1434.88
200.0	0.200	130.0	56.5	3110.4	3.25%	0.97	6.478	5.956	2889.58	12883.18	9772.78	6883.20	1.42	8327.99	1444.79
205.0	0.205	134.0	57.3	3225.6	3.33%	0.97	6.484	5.951	2975.99	12969.59	9743.99	6768.00	1.44	8256.00	1488.00
210.0	0.210	139.0	58.4	3384.0	3.41%	0.97	6.489	5.946	3084.44	13078.04	9694.04	6609.60	1.47	8151.82	1542.22
215.0	0.215	143.0	59.7	3571.2	3.49%	0.97	6.495	5.941	3170.54	13164.14	9592.94	6422.40	1.49	8007.67	1585.27
220.0	0.220	146.0	60.3	3657.6	3.57%	0.96	6.500	5.936	3234.33	13227.93	9570.33	6336.00	1.51	7953.16	1617.16
225.0	0.225	148.0	60.9	3744.0	3.65%	0.96	6.506	5.931	3275.87	13269.47	9525.47	6249.60	1.52	7887.54	1637.94
230.0	0.230	150.0	61.2	3787.2	3.74%	0.96	6.511	5.926	3317.34	13310.94	9523.74	6206.40	1.53	7865.07	1658.67
235.0	0.235	151.0	61.6	3844.8	3.82%	0.96	6.517	5.921	3336.64	13330.24	9485.44	6148.80	1.54	7817.12	1668.32
240.0	0.240	154.0	62.4	3960.0	3.90%	0.96	6.522	5.916	3400.06	13393.66	9433.66	6033.60	1.56	7733.63	1700.03
245.0	0.245	155.0	62.8	4017.6	3.98%	0.96	6.528	5.911	3419.24	13412.84	9395.24	5976.00	1.57	7685.62	1709.62
250.0	0.250	156.0	63.0	4046.4	4.06%	0.96	6.533	5.906	3438.39	13431.99	9385.59	5947.20	1.58	7666.39	1719.19

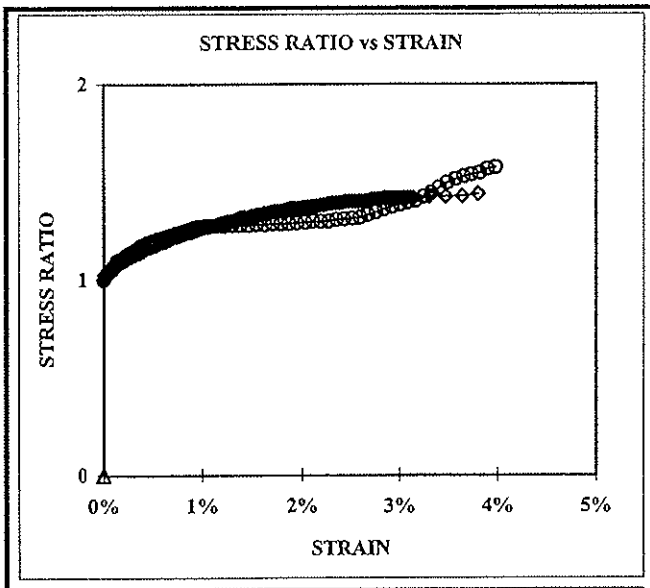
GOLDER ASSOCIATES INC.
CHERRY HILL, NEW JERSEY

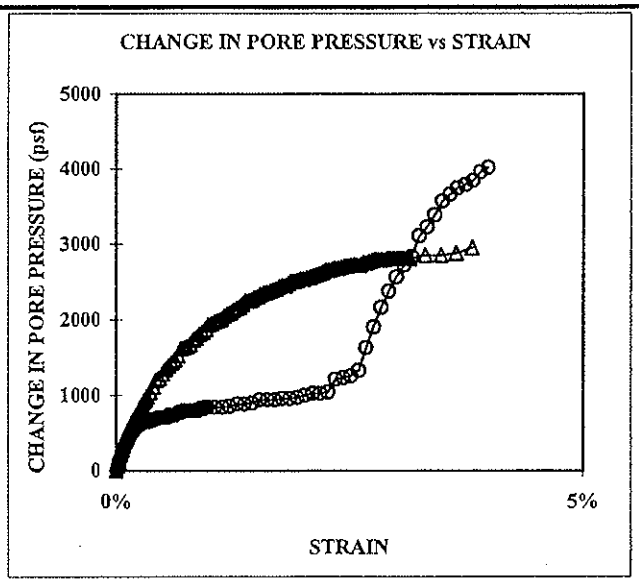
DEVIATORIC STRESS AT FAILURE: 3424.30

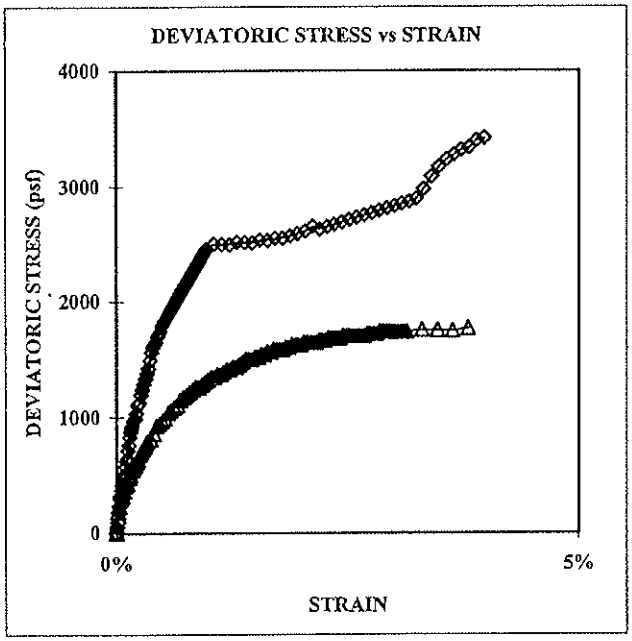
EFFECTIVE PRINCIPAL STRESS RATIO AT FAILURE: 1.58

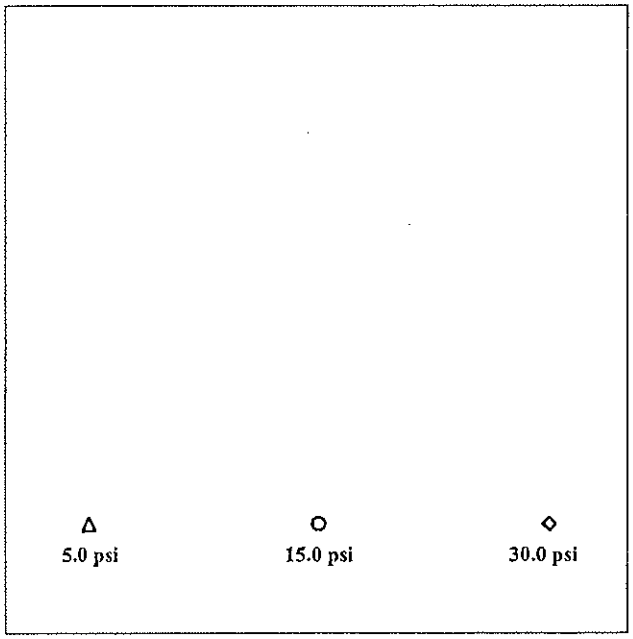
CONSOLIDATED UNDRAINED WITH PORE PRESSURE MEASUREMENT

ASTM D 4767









SAMPLE #:	SB-02-02A
	SA-5
DEPTH:	30-32

CONFINING PRES(psi)	48.6	69.4
MOIST DENSITY(pcf)	122.33	123.60
% MOISTURE	25.86%	28.17%
STRAIN RATE(%/min)	0.03	0.02

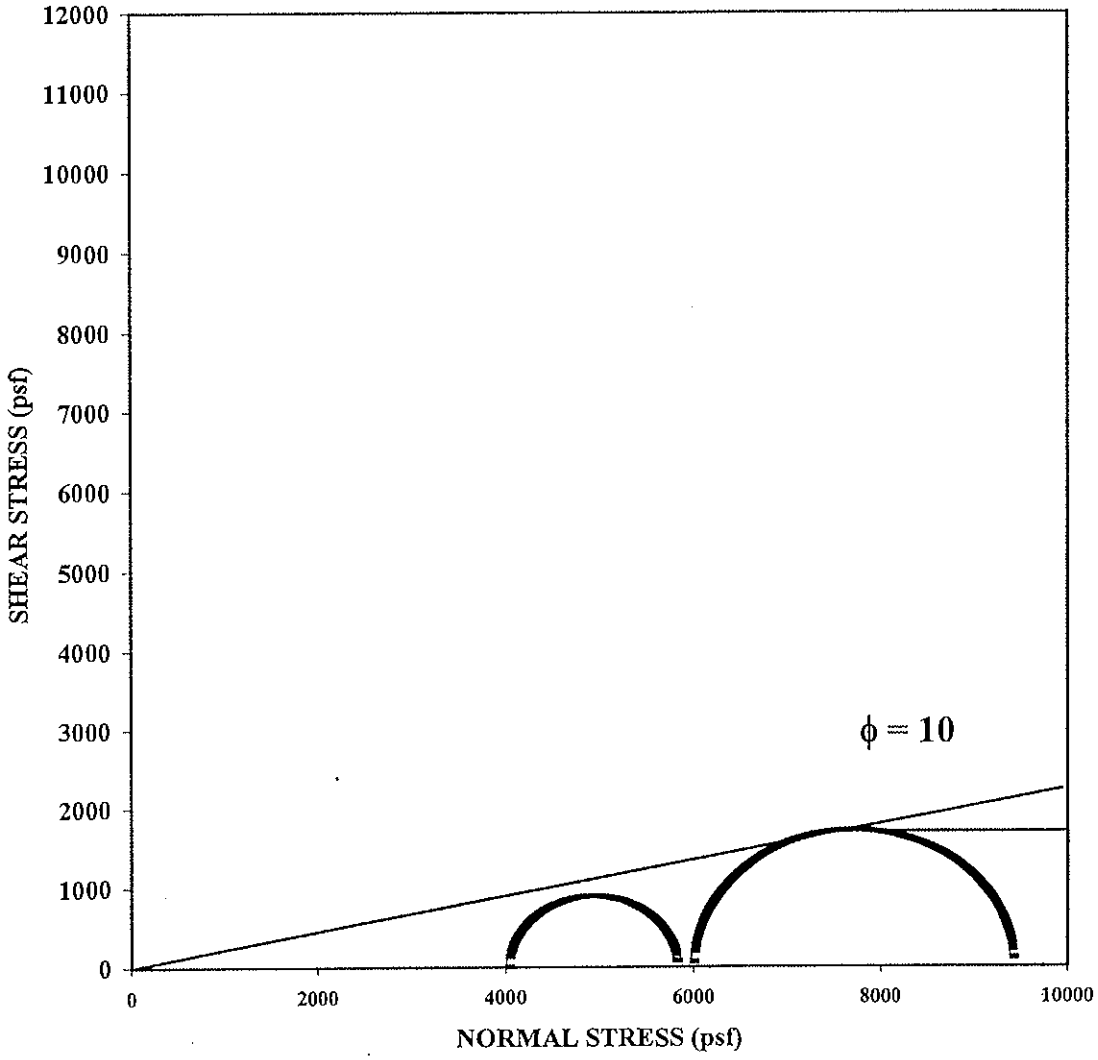
FAILURE BASED UPON 4% STRAIN

DATE	11/14/02
TECH	GD/KD
REVIEW	RMW

CWM/RMU-2 GW Plan/NY
013-9309.011

GOLDER ASSOCIATES INC.
CHERRY HILL, NEW JERSEY

CONSOLIDATED UNDRAINED WITH PORE PRESSURE MEASUREMENT
ASTM D 4767



SAMPLE #:	SB-02-02A
	SA-5
DEPTH:	30-32

CONFINING PRES(psi)	48.6	69.4
MOIST DENSITY(pcf)	122.33	123.60
% MOISTURE	25.86%	28.17%
STRAIN RATE(%/min)	0.03	0.02

FAILURE BASED UPON 4% STRAIN

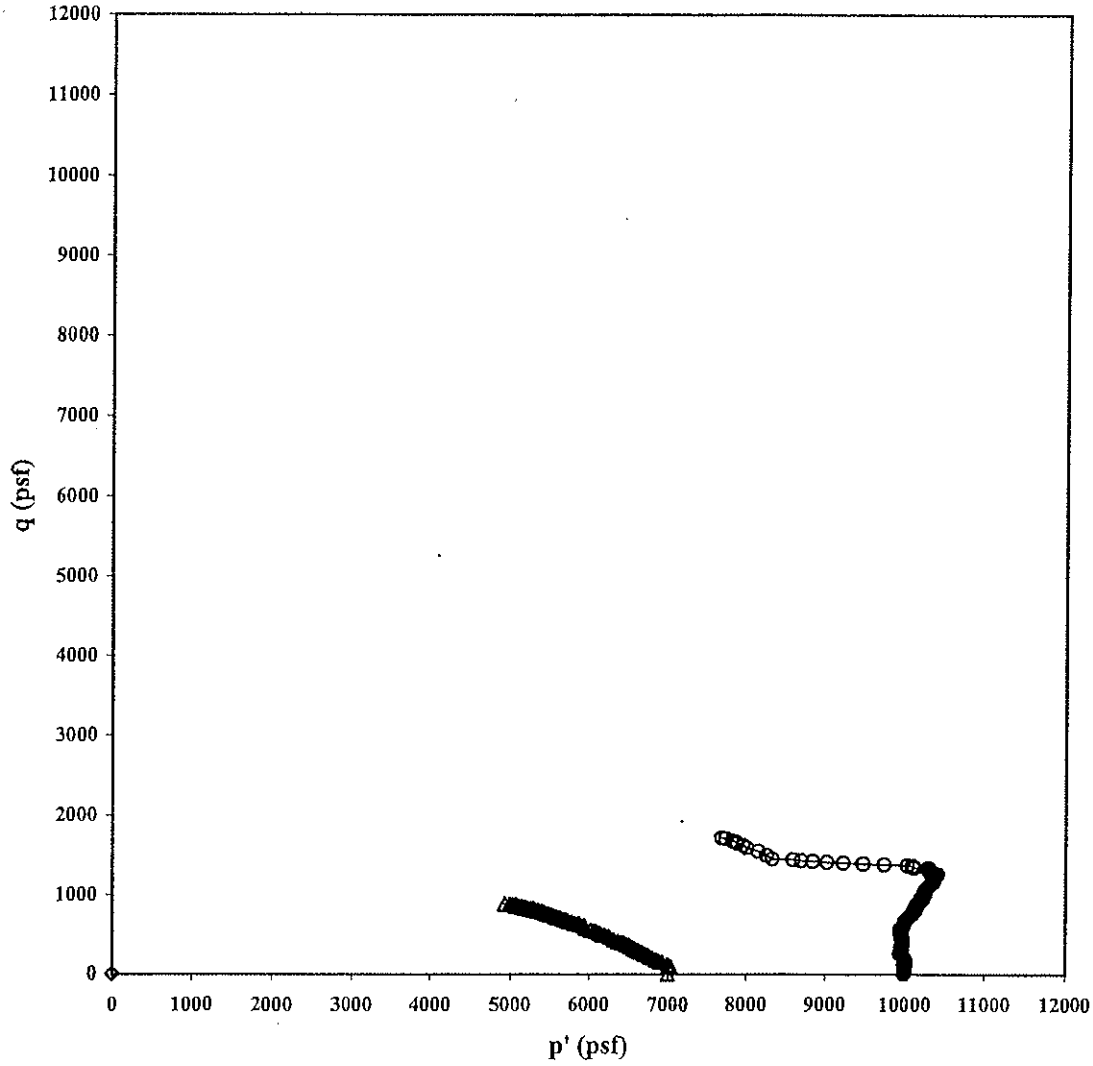
c (psf):	0
ϕ:	10

DATE	11/14/02
TECH	GD/KD
REVIEW	RMW

CWM/RMU-2 GW Plan/NY
013-9309.011

GOLDER ASSOCIATES INC.
CHERRY HILL, NEW JERSEY

CONSOLIDATED UNDRAINED WITH PORE PRESSURE MEASUREMENT
ASTM D 4767



SAMPLE #:	SB-02-02A
	SA-5
DEPTH:	30-32

CONFINING PRES(psi)	48.6	69.4
MOIST DENSITY(pcf)	122.33	123.60
% MOISTURE	25.86%	28.17%
STRAIN RATE(%/min)	0.03	0.02

FAILURE BASED UPON 4% STRAIN

CWM/RMU-2 GW Plan/NY
013-9309.011

DATE	11/14/02
TECH	GD/KD
REVIEW	RMW

TRIAXIAL COMPRESSION TEST (ASTM D-4767) CONSOLIDATED UNDRAINED WITH PORE PRESSURE

PROJECT TITLE	CWM/RMU - 2 GW PLAN/NY		INITIAL SAMPLE DATA	cm	in	corrected		CORRECTED SAMPLE DATA			
PROJECT NUMBER	013-9309		HEIGHT	15.375	6.053	5.986		DRY DENSITY, calc (pcf)	120.3		
SAMPLE ID	SB-02-4	SA - 6	DIAMETER	7.305	2.876	2.847		VOLUME OF SOLIDS	438.16		
SAMPLE TYPE	UD		AREA	41.91	6.50	6.37		VOLUME OF VOIDS	186.22		
DEPTH INTERVAL	10.0 - 12.0'		VOLUME	644.38	39.32	38.10		VOID RATIO	0.425		
MACHINE SPEED (in/min)	0.0012		WEIGHT (g)	1403.39		1393.39					
STRAIN RATE (%/min)	0.020		% MOISTURE	16.5		15.72					
CELL PRESSURE (psi)	65.0		SPECIFIC GRAVITY	2.75				WATER CONTENT (% MOISTURE)			
SAMPLE PRESSURE (psi)	40.0		MOIST DENSITY (pcf)	135.9				WT SOIL & TARE, MOIST (g)	1393.39		
EFF. CONSOLIDATION			DRY DENSITY, calc (pcf)	116.6				WT SOIL & TARE, DRY (g)	1204.15		
PRESSURE, σ_3 (psi)	25.0		VOLUME OF SOLIDS	438.16				WT TARE (g)	0.00		
PRESSURE, σ_3 (psf)	3600.0		VOLUME OF VOIDS	206.22				WT MOISTURE (g)	189.24		
FINAL "B" VALUE	0.97		VOID RATIO	0.471				WT DRY SOIL (g)	1204.15		
t_{50} (minutes)	17.28		SATURATION	96.6				% MOISTURE	15.72		

TIME (MIN)	ACCUM. DEFLECT. (inches)	AXIAL LOAD (lbs)	PORE PRESS. (psi)=U	PWP change DU (psf) (acc)	ε % STRAIN (%)	(1-ε)	CORR. AREA (in 2)	CORR. HEIGHT (in)	DEV. STRESS (psf)	SIGMA 1 devstr+cp (σ_1)	SIGMA 1 EFF. (σ_1-dU)	SIGMA 3 EFF. (σ_3-dU)	EFF.PRN STR RATIO (σ_1'/σ_3')	$\frac{(\sigma_1'+\sigma_3')}{2}$ (P)	$\frac{(\sigma_1-\sigma_3)}{2}$ (Q)	(A)
0.0	0.000	19	40.0	0.0	0.00	1.00	6.37	5.986	0.0	3600.0	3600.0	3600.0	1.00	3600.0	0.0	0.00
2.5	0.003	65	43.2	460.8	0.05	1.00	6.37	5.983	1040.1	4640.1	4179.3	3139.2	1.33	3659.3	520.1	0.44
5.0	0.006	75	44.3	619.2	0.10	1.00	6.37	5.980	1265.6	4865.6	4246.4	2980.8	1.42	3613.6	632.8	0.49
7.5	0.009	83	45.3	763.2	0.15	1.00	6.37	5.977	1445.7	5045.7	4282.5	2836.8	1.51	3559.7	722.9	0.53
10.0	0.012	89	46.3	907.2	0.20	1.00	6.38	5.974	1580.4	5180.4	4273.2	2692.8	1.59	3483.0	790.2	0.57
12.5	0.015	95	47.0	1008.0	0.25	1.00	6.38	5.971	1715.1	5315.1	4307.1	2592.0	1.66	3449.5	857.5	0.59
20.8	0.025	107	48.8	1267.2	0.42	1.00	6.39	5.961	1982.5	5582.5	4315.3	2332.8	1.85	3324.1	991.3	0.64
41.7	0.050	131	51.1	1598.4	0.84	0.99	6.42	5.936	2512.6	6112.6	4514.2	2001.6	2.26	3257.9	1256.3	0.64
62.5	0.075	151	52.3	1771.2	1.25	0.99	6.45	5.911	2948.8	6548.8	4777.6	1828.8	2.61	3303.2	1474.4	0.60
83.3	0.100	164	52.7	1828.8	1.67	0.98	6.47	5.886	3225.6	6825.6	4996.8	1771.2	2.82	3384.0	1612.8	0.57
104.2	0.125	181	53.0	1872.0	2.09	0.98	6.50	5.861	3588.4	7188.4	5316.4	1728.0	3.08	3522.2	1794.2	0.52
125.0	0.150	195	52.9	1857.6	2.51	0.97	6.53	5.836	3881.9	7481.9	5624.3	1742.4	3.23	3683.4	1941.0	0.48
145.8	0.175	208	52.6	1814.4	2.92	0.97	6.56	5.811	4150.8	7750.8	5936.4	1785.6	3.32	3861.0	2075.4	0.44
166.7	0.200	221	52.2	1756.8	3.34	0.97	6.59	5.786	4417.2	8017.2	6260.4	1843.2	3.40	4051.8	2208.6	0.40
265.0	0.318	275	49.6	1382.4	5.31	0.95	6.72	5.668	5483.9	9083.9	7701.5	2217.6	3.47	4959.5	2741.9	0.25
291.7	0.350	285	48.7	1252.8	5.85	0.94	6.76	5.636	5665.9	9265.9	8013.1	2347.2	3.41	5180.2	2833.0	0.22
333.3	0.400	299	47.3	1051.2	6.68	0.93	6.82	5.586	5911.2	9511.2	8460.0	2548.8	3.32	5504.4	2955.6	0.18
375.0	0.450	310	46.1	878.4	7.52	0.92	6.88	5.536	6088.4	9688.4	8810.0	2721.6	3.24	5765.8	3044.2	0.14
416.7	0.500	318	45.1	734.4	8.35	0.92	6.95	5.486	6199.3	9799.3	9064.9	2865.6	3.16	5965.3	3099.7	0.12
458.3	0.550	325	44.2	604.8	9.19	0.91	7.01	5.436	6286.6	9886.6	9281.8	2995.2	3.10	6138.5	3143.3	0.10
545.8	0.655	337	43.1	446.4	10.94	0.89	7.15	5.331	6407.0	10007.0	9560.6	3153.6	3.03	6357.1	3203.5	0.07
583.3	0.700	343	42.0	288.0	11.69	0.88	7.21	5.286	6472.8	10072.8	9784.8	3312.0	2.95	6548.4	3236.4	0.04
631.7	0.758	349	41.4	201.6	12.66	0.87	7.29	5.228	6520.3	10120.3	9918.7	3398.4	2.92	6658.5	3260.1	0.03
669.2	0.803	354	41.0	144.0	13.41	0.87	7.35	5.183	6562.1	10162.1	10018.1	3456.0	2.90	6737.1	3281.1	0.02
750.0	0.900	371	39.8	-28.8	15.04	0.85	7.49	5.086	6766.1	10366.1	10394.9	3628.8	2.86	7011.8	3383.0	0.00
858.3	1.030	374	39.6	-57.6	17.21	0.83	7.69	4.956	6649.3	10249.3	10306.9	3657.6	2.82	6982.3	3324.7	-0.01

DU @ FAILURE	1382.4	DEVIATORIC STRESS @ FAILURE	5483.9	EFFECTIVE PRINCIPLE STRESS RATIO @ FAILURE	3.47	TECH	PWM/DA/JH
						DATE	11/14/02
						CHECKED	BSS
						REVIEWED	FTA

Golder Associates Inc.

TRIAXIAL COMPRESSION TEST (ASTM D-4767) CONSOLIDATED UNDRAINED WITH PORE PRESSURE

PROJECT TITLE	CWM/RMU - 2 GW PLAN/NY	
PROJECT NUMBER	013-9309	
SAMPLE ID	SB-02-4	SA - 6
SAMPLE TYPE	UD	
DEPTH INTERVAL	10.0 - 12.0'	
MACHINE SPEED (in/min)	0.0008	
STRAIN RATE (%/min)	0.013	
CELL PRESSURE (psi)	90.0	
SAMPLE PRESSURE (psi)	40.0	
EFF. CONSOLIDATION PRESSURE, σ_3 (psi)	50.0	
PRESSURE, σ_3 (psf)	7200.0	
FINAL "B" VALUE	1.00	
t_{50} (minutes)	28.79	

INITIAL SAMPLE DATA	cm	in	corrected
HEIGHT	15.961	6.284	6.219
DIAMETER	7.320	2.882	2.847
AREA	42.08	6.52	6.36
VOLUME	671.65	40.99	39.58
WEIGHT (g)	1502.90		1488.90
% MOISTURE	13.7		12.59
SPECIFIC GRAVITY	2.75		
MOIST DENSITY (pcf)	139.6		
DRY DENSITY, calc (pcf)	122.9		
VOLUME OF SOLIDS	481.17		
VOLUME OF VOIDS	190.47		
VOID RATIO	0.396		
SATURATION	94.8		

CORRECTED SAMPLE DATA	
DRY DENSITY, calc (pcf)	127.2
VOLUME OF SOLIDS	481.17
VOLUME OF VOIDS	167.47
VOID RATIO	0.348

WATER CONTENT (% MOISTURE)	
WT SOIL & TARE, MOIST (g)	1488.90
WT SOIL & TARE, DRY (g)	1322.37
WT TARE (g)	0.00
WT MOISTURE (g)	166.53
WT DRY SOIL (g)	1322.37
% MOISTURE	12.59

TIME (MIN)	ACCUM. DEFLECT. (inches)	AXIAL LOAD (lbs)	PORE PRESS. (psi)=U	PWP change DU (psf) (acc)	ε % STRAIN (%)	(1-ε)	CORR. AREA (in 2)	CORR. HEIGHT (in)	DEV. STRESS (psf)	SIGMA 1 devstr+cp (σ_1)	SIGMA 1 EFF. (σ_1-dU)	SIGMA 3 EFF. (σ_3-dU)	EFF.PRN STR RATIO (σ_1'/σ_3')	$\frac{(\sigma_1'+\sigma_3')}{2}$ (P)	$\frac{(\sigma_1-\sigma_3)}{2}$ (Q)	(A)
0.0	0.000	20	40.0	0.0	0.00	1.00	6.36	6.219	0.0	7200.0	7200.0	7200.0	1.00	7200.0	0.0	0.00
3.8	0.003	27	42.0	288.0	0.05	1.00	6.37	6.216	158.3	7358.3	7070.3	6912.0	1.02	6991.1	79.1	1.82
7.5	0.006	27	42.0	288.0	0.10	1.00	6.37	6.213	158.2	7358.2	7070.2	6912.0	1.02	6991.1	79.1	1.82
11.3	0.009	28	42.0	288.0	0.14	1.00	6.37	6.210	180.7	7380.7	7092.7	6912.0	1.03	7002.4	90.4	1.59
15.0	0.012	28	42.0	288.0	0.19	1.00	6.38	6.207	180.6	7380.6	7092.6	6912.0	1.03	7002.3	90.3	1.59
18.8	0.015	28	42.1	302.4	0.24	1.00	6.38	6.204	180.6	7380.6	7078.2	6897.6	1.03	6987.9	90.3	1.67
31.3	0.025	153	51.6	1670.4	0.40	1.00	6.39	6.194	2996.9	10196.9	8526.5	5529.6	1.54	7028.1	1498.5	0.56
62.5	0.050	257	61.1	3038.4	0.80	0.99	6.42	6.169	5318.9	12518.9	9480.5	4161.6	2.28	6821.0	2659.4	0.57
93.8	0.075	308	64.1	3470.4	1.21	0.99	6.44	6.144	6437.2	13637.2	10166.8	3729.6	2.73	6948.2	3218.6	0.54
125.0	0.100	338	64.9	3585.6	1.61	0.98	6.47	6.119	7078.9	14278.9	10693.3	3614.4	2.96	7153.8	3539.4	0.51
156.3	0.125	365	64.9	3585.6	2.01	0.98	6.50	6.094	7648.5	14848.5	11262.9	3614.4	3.12	7438.7	3824.3	0.47
193.8	0.155	383	64.3	3499.2	2.49	0.98	6.53	6.064	8008.0	15208.0	11708.8	3700.8	3.16	7704.8	4004.0	0.44
250.0	0.200	406	63.1	3326.4	3.22	0.97	6.58	6.019	8452.2	15652.2	12325.8	3873.6	3.18	8099.7	4226.1	0.39
322.5	0.258	420	62.1	3182.4	4.15	0.96	6.64	5.961	8674.3	15874.3	12691.9	4017.6	3.16	8354.8	4337.2	0.37
375.0	0.300	427	61.2	3052.8	4.82	0.95	6.69	5.919	8763.9	15963.9	12911.1	4147.2	3.11	8529.2	4382.0	0.35
593.8	0.475	457	59.9	2865.6	7.64	0.92	6.89	5.744	9131.7	16331.7	13466.1	4334.4	3.11	8900.3	4565.9	0.31
625.0	0.500	460	59.4	2793.6	8.04	0.92	6.92	5.719	9154.4	16354.4	13560.8	4406.4	3.08	8983.6	4577.2	0.31
700.0	0.560	469	59.1	2750.4	9.00	0.91	6.99	5.659	9243.6	16443.6	13693.2	4449.6	3.08	9071.4	4621.8	0.30
750.0	0.600	474	59.0	2736.0	9.65	0.90	7.04	5.619	9280.5	16480.5	13744.5	4464.0	3.08	9104.3	4640.3	0.29
812.5	0.650	480	58.8	2707.2	10.45	0.90	7.11	5.569	9319.5	16519.5	13812.3	4492.8	3.07	9152.5	4659.7	0.29
875.0	0.700	487	58.3	2635.2	11.26	0.89	7.17	5.519	9376.3	16576.3	13941.1	4564.8	3.05	9253.0	4688.2	0.28
953.8	0.763	495	58.0	2592.0	12.27	0.88	7.25	5.456	9428.1	16628.1	14036.1	4608.0	3.05	9322.1	4714.1	0.27
1000.0	0.800	500	57.6	2534.4	12.86	0.87	7.30	5.419	9462.7	16662.7	14128.3	4665.6	3.03	9397.0	4731.4	0.27
1062.5	0.850	509	57.4	2505.6	13.67	0.86	7.37	5.369	9551.2	16751.2	14245.6	4694.4	3.03	9470.0	4775.6	0.26
1125.0	0.900	515	57.1	2462.4	14.47	0.86	7.44	5.319	9578.4	16778.4	14316.0	4737.6	3.02	9526.8	4789.2	0.26
1178.8	0.943	522	56.8	2419.2	15.16	0.85	7.50	5.276	9635.3	16835.3	14416.1	4780.8	3.02	9598.4	4817.6	0.25
0.0																

DU @ FAILURE	3326.4	DEVIATORIC STRESS @ FAILURE	8452.2	EFFECTIVE PRINCIPLE STRESS RATIO @ FAILURE	3.18

TECH	PWM/DA/JH
DATE	11/14/02
CHECKED	BSS
REVIEWED	FTA

Golder Associates Inc.

TRIAXIAL COMPRESSION TEST (ASTM D-4767) CONSOLIDATED UNDRAINED WITH PORE PRESSURE

PROJECT TITLE	CWM/RMU - 2 GW PLAN/NY		
PROJECT NUMBER	013-9309		
SAMPLE ID	SB-02-4	SA - 6	
SAMPLE TYPE	UD		
DEPTH INTERVAL	10.0 - 12.0'		
MACHINE SPEED (in/min)	0.0008		
STRAIN RATE (%/min)	0.014		
CELL PRESSURE (psi)	110.0		
SAMPLE PRESSURE (psi)	40.0		
EFF. CONSOLIDATION PRESSURE, σ_3 (psi)	70.0		
PRESSURE, σ_3 (psf)	10080.0		
FINAL "B" VALUE	0.99		
t_{50} (minutes)	29.89		

INITIAL SAMPLE DATA	cm	in	corrected
HEIGHT	14.425	5.679	5.594
DIAMETER	7.348	2.893	2.855
AREA	42.41	6.57	6.40
VOLUME	611.73	37.33	35.80
WEIGHT (g)	1363.10		1345.10
% MOISTURE	13.7		12.23
SPECIFIC GRAVITY	2.75		
MOIST DENSITY (pcf)	139.0		
DRY DENSITY, calc (pcf)	122.3		
VOLUME OF SOLIDS	436.12		
VOLUME OF VOIDS	175.61		
VOID RATIO	0.403		
SATURATION	93.7		

CORRECTED SAMPLE DATA	
DRY DENSITY, calc (pcf)	127.5
VOLUME OF SOLIDS	436.12
VOLUME OF VOIDS	150.61
VOID RATIO	0.345

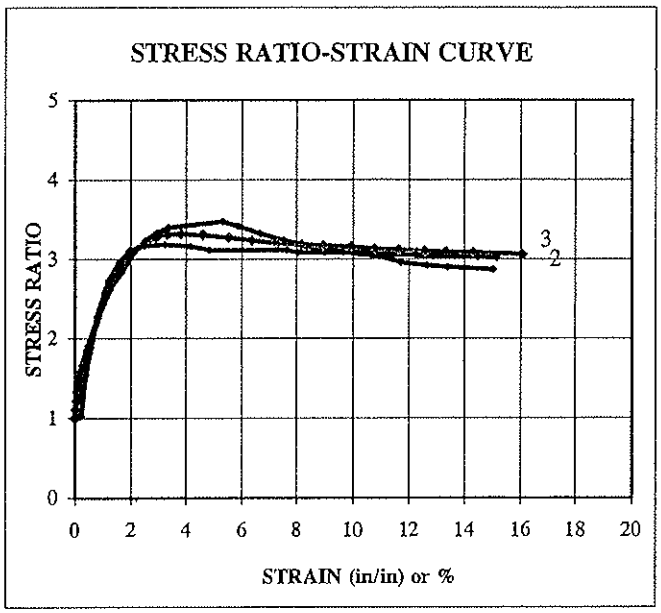
WATER CONTENT (% MOISTURE)	
WT SOIL & TARE, MOIST (g)	1345.10
WT SOIL & TARE, DRY (g)	1198.55
WT TARE (g)	0.00
WT MOISTURE (g)	146.55
WT DRY SOIL (g)	1198.55
% MOISTURE	12.23

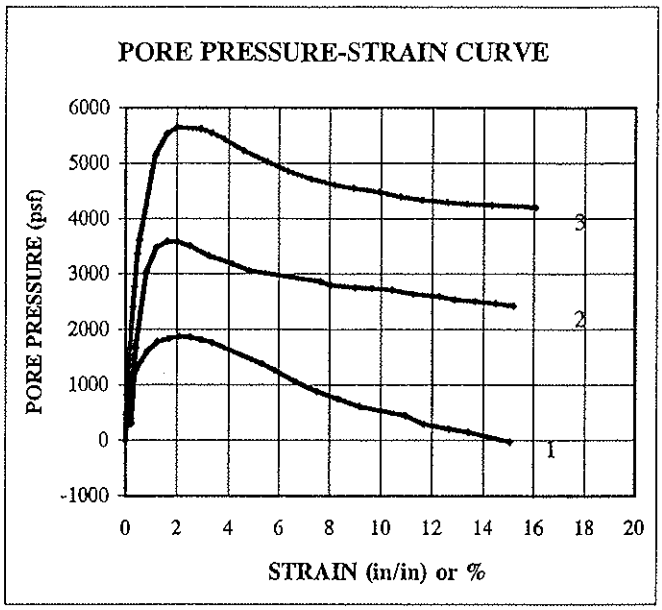
TIME (MIN)	ACCUM. DEFLECT. (inches)	AXIAL LOAD (lbs)	PORE PRESS. (psi)=U	PWP change DU (psf) (acc)	ε % STRAIN (%)	(1-ε)	CORR. AREA (in 2)	CORR. HEIGHT (in)	DEV. STRESS (psf)	SIGMA 1 devstr+cp (σ_1)	SIGMA 1 EFF. (σ_1-dU)	SIGMA 3 EFF. (σ_3-dU)	EFF.PRN STR RATIO (σ_1'/σ_3')	$\frac{(\sigma_1'+\sigma_3')}{2}$ (P)	$\frac{(\sigma_1-\sigma_3)}{2}$ (Q)	(A)
0.0	0.000	19	40.0	0.0	0.00	1.00	6.40	5.594	0.0	10080.0	10080.0	10080.0	1.00	10080.0	0.0	0
2.5	0.002	65	43.3	475.2	0.04	1.00	6.40	5.592	1043.5	11123.5	10648.3	9604.8	1.11	10126.6	521.8	0.46
5.0	0.004	107	45.6	806.4	0.07	1.00	6.41	5.590	1982.9	12062.9	11256.5	9273.6	1.21	10265.1	991.5	0.41
8.8	0.007	142	48.3	1195.2	0.13	1.00	6.41	5.587	2759.3	12839.3	11644.1	8884.8	1.31	10264.5	1379.7	0.43
12.5	0.010	171	51.2	1612.8	0.18	1.00	6.41	5.584	3413.6	13493.6	11880.8	8467.2	1.40	10174.0	1706.8	0.47
21.3	0.017	216	56.7	2404.8	0.30	1.00	6.42	5.577	4427.6	14507.6	12102.8	7675.2	1.58	9889.0	2213.8	0.54
25.0	0.020	234	59.2	2764.8	0.36	1.00	6.42	5.574	4826.5	14906.5	12141.7	7315.2	1.66	9728.5	2413.3	0.57
32.5	0.026	265	63.4	3369.6	0.46	1.00	6.43	5.568	5513.3	15593.3	12223.7	6710.4	1.82	9467.1	2756.7	0.61
37.5	0.030	278	65.1	3614.4	0.54	0.99	6.44	5.564	5800.3	15880.3	12265.9	6465.6	1.90	9365.7	2900.1	0.62
80.0	0.064	371	75.7	5140.8	1.14	0.99	6.47	5.530	7819.9	17899.9	12759.1	4939.2	2.58	8849.1	3909.9	0.66
112.5	0.090	412	78.4	5529.6	1.61	0.98	6.51	5.504	8690.7	18770.7	13241.1	4550.4	2.91	8895.7	4345.3	0.64
140.0	0.112	441	79.2	5644.8	2.00	0.98	6.53	5.482	9306.4	19386.4	13741.6	4435.2	3.10	9088.4	4653.2	0.61
203.8	0.163	485	79.0	5616.0	2.91	0.97	6.59	5.431	10174.3	20254.3	14638.3	4464.0	3.28	9551.2	5087.2	0.55
232.5	0.186	502	78.5	5544.0	3.32	0.97	6.62	5.408	10503.1	20583.1	15039.1	4536.0	3.32	9787.6	5251.6	0.53
266.3	0.213	517	77.7	5428.8	3.81	0.96	6.65	5.381	10771.0	20851.0	15422.2	4651.2	3.32	10036.7	5385.5	0.50
320.0	0.256	539	76.3	5227.2	4.58	0.95	6.71	5.338	11165.8	21245.8	16018.6	4852.8	3.30	10435.7	5582.9	0.47
386.3	0.309	558	74.9	5025.6	5.52	0.94	6.77	5.285	11463.1	21543.1	16517.5	5054.4	3.27	10785.9	5731.5	0.44
445.0	0.356	573	73.7	4852.8	6.36	0.94	6.84	5.238	11666.6	21746.6	16893.8	5227.2	3.23	11060.5	5833.3	0.42
508.8	0.407	585	72.7	4708.8	7.28	0.93	6.90	5.187	11801.2	21881.2	17172.4	5371.2	3.20	11271.8	5900.6	0.40
572.5	0.458	597	72.0	4608.0	8.19	0.92	6.97	5.136	11929.0	22009.0	17401.0	5472.0	3.18	11436.5	5964.5	0.39
625.0	0.500	603	71.6	4550.4	8.94	0.91	7.03	5.094	11964.6	22044.6	17494.2	5529.6	3.16	11511.9	5982.3	0.38
695.0	0.556	614	71.1	4478.4	9.94	0.90	7.11	5.038	12055.9	22135.9	17657.5	5601.6	3.15	11629.6	6028.0	0.37
753.8	0.603	621	70.5	4392.0	10.78	0.89	7.17	4.991	12075.9	22155.9	17763.9	5688.0	3.12	11726.0	6038.0	0.36
813.8	0.651	629	70.1	4334.4	11.64	0.88	7.24	4.943	12126.8	22206.8	17872.4	5745.6	3.11	11809.0	6063.4	0.36
880.0	0.704	636	69.8	4291.2	12.58	0.87	7.32	4.890	12134.4	22214.4	17923.2	5788.8	3.10	11856.0	6067.2	0.35
932.5	0.746	641	69.6	4262.4	13.34	0.87	7.39	4.848	12123.8	22203.8	17941.4	5817.6	3.08	11879.5	6061.9	0.35
1001.3	0.801	648	69.5	4248.0	14.32	0.86	7.47	4.793	12127.0	22207.0	17959.0	5832.0	3.08	11895.5	6063.5	0.35
1122.5	0.898	660	69.2	4204.8	16.05	0.84	7.62	4.696	12106.3	22186.3	17981.5	5875.2	3.06	11928.4	6053.2	0.35
1182.5	0.946	665	69.0	4176.0	16.91	0.83	7.70	4.648	12070.4	22150.4	17974.4	5904.0	3.04	11939.2	6035.2	0.35
1245.0	0.996	672	68.8	4147.2	17.80	0.82	7.79	4.598	12075.6	22155.6	18008.4	5932.8	3.04	11970.6	6037.8	0.34
		672	68.8													

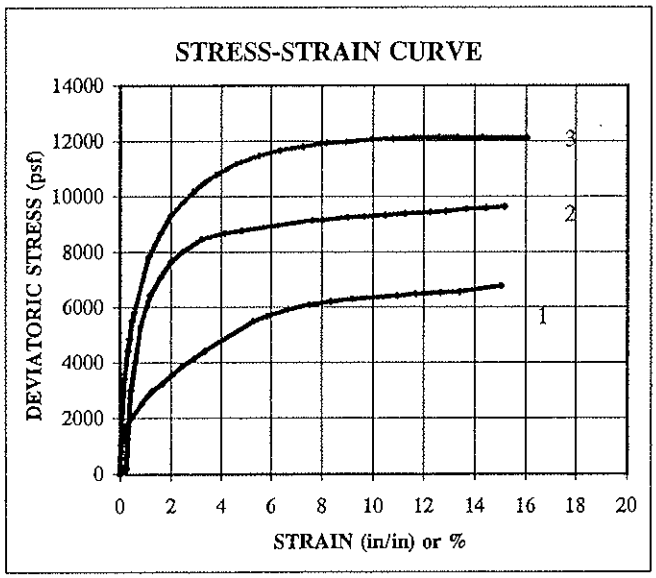
DU @ FAILURE	5544.0	DEVIATORIC STRESS @ FAILURE	10503.1	EFFECTIVE PRINCIPLE STRESS RATIO @ FAILURE	3.32

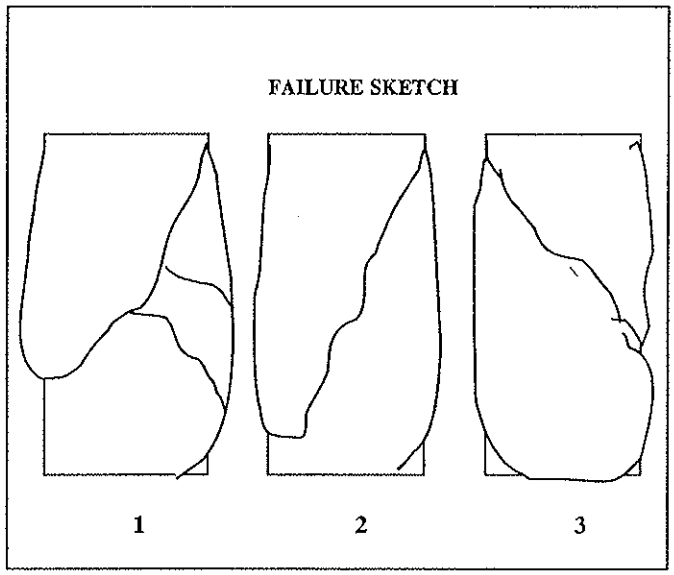
TECH	PWM/DA/JH
DATE	11/14/02
CHECKED	BSS
REVIEWED	PTA

TRIAXIAL COMPRESSION TEST
CONSOLIDATED UNDRAINED WITH PORE PRESSURE









DESCRIPTION	Weak Reddish Brown, SILTY CLAY, some fine sand, trace fine gravel.
USCS	(CH)

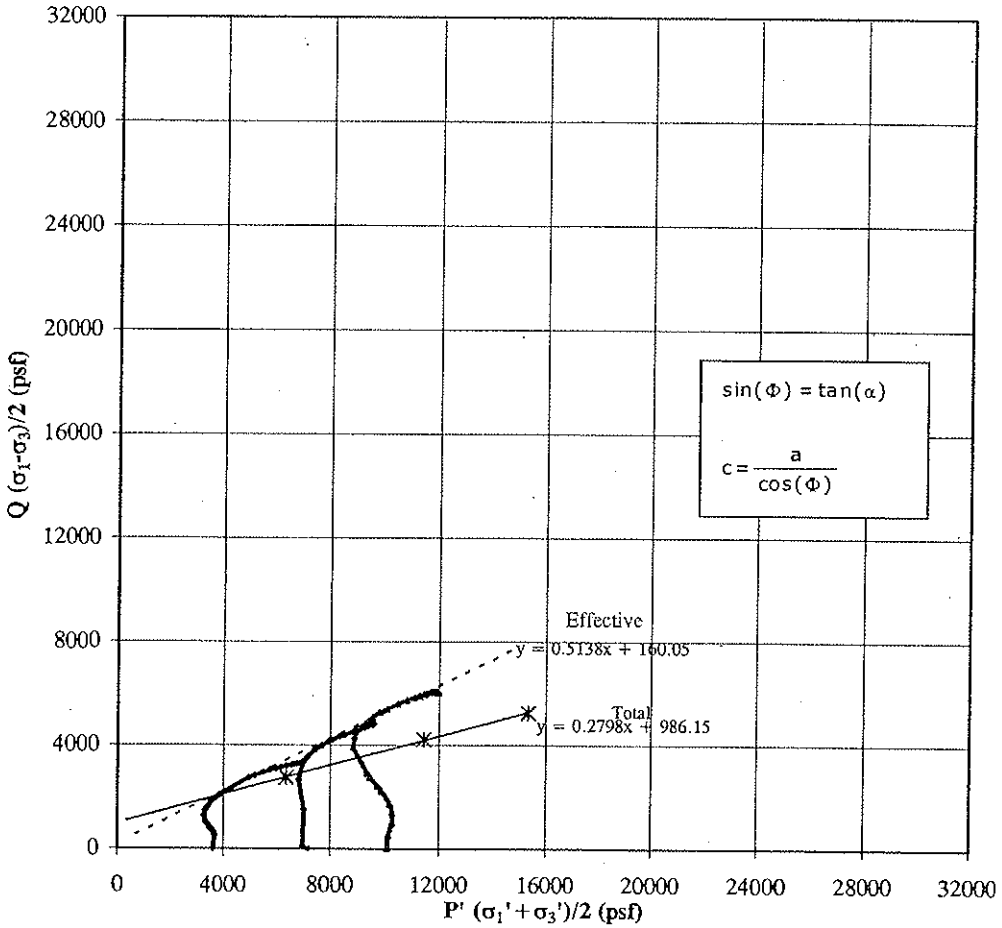
LL	-
PL	-
PI	-
Gs	2.75

	1	2	3
EFFECTIVE CONSOLIDATION PRESS (psf)	3600	7200	10080
INITIAL DRY DENSITY (pcf)	116.6	122.9	122.3
INITIAL WATER CONTENT (%)	16.5	13.7	13.7
STRAIN RATE (%/min)	0.020	0.013	0.014

PROJECT NAME	CWM/RMU - 2 GW PLAN/NY		
PROJECT NUMBER	013-9309		
SAMPLE ID	SB-02-4	SA-6	10.0 - 12.0'
SAMPLE TYPE	UD		

CHECKED	BSS
REVIEWED	ETA

TRIAXIAL COMPRESSION TEST EFFECTIVE STRESS PATH
ASTM D 4767



*TOTAL STRENGTH PARAMETERS				*EFFECTIVE STRESS PARAMETERS			
α	15.6 °	ϕ =	16.2 °	α	27.2 °	ϕ' =	30.9 °
a	986.2 psf	C =	1027.2 psf	a	160.1 psf	C' =	186.6 psf

DESCRIPTION	Weak Reddish Brown, SILTY CLAY, some fine sand, trace fine gravel.
USCS	(CH)

LL	-
PL	-
PI	-
Gs	2.75

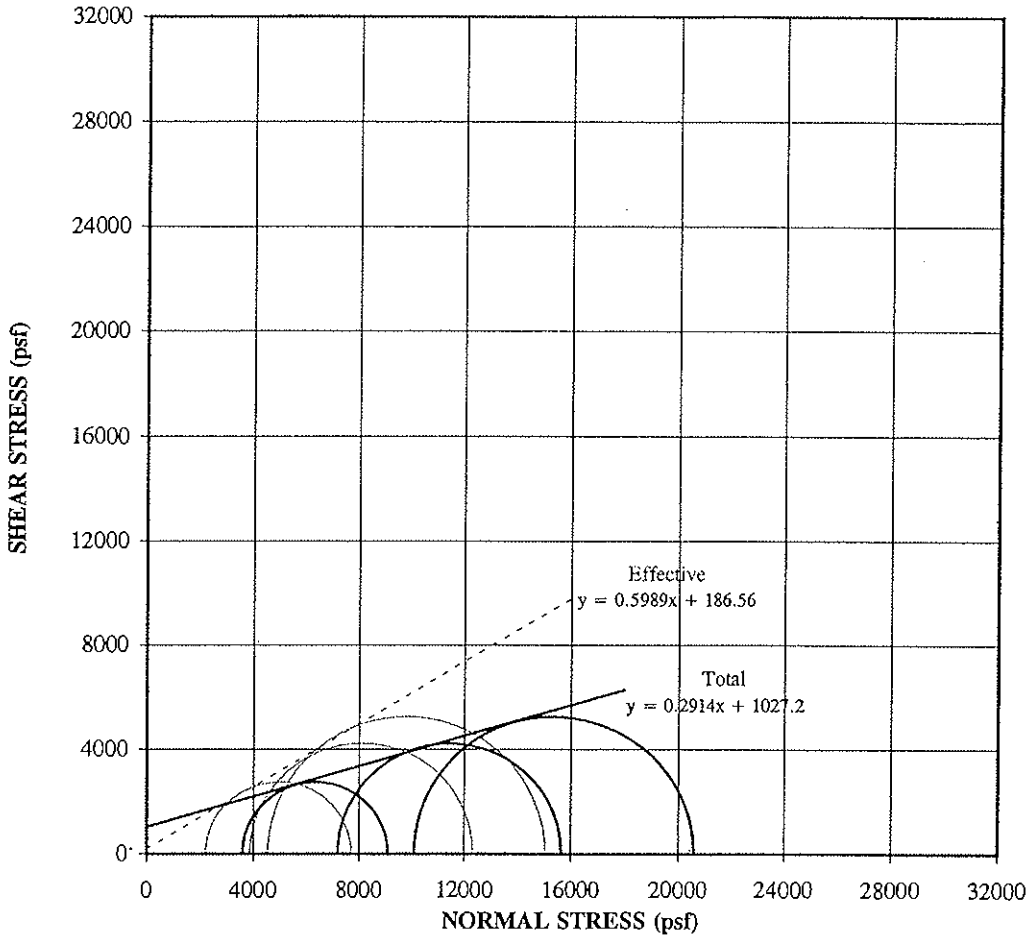
	1	2	3
EFFECTIVE CONSOLIDATION PRESS (psf)	3600	7200	10080
INITIAL DRY DENSITY (pcf)	116.6	122.9	122.3
INITIAL WATER CONTENT %	16.5	13.7	13.7

PROJECT TITLE	CWM/RMU - 2 GW PLAN/NY
PROJECT NUMBER	013-9309
SAMPLE ID	SB-02-4 SA-6 10.0 - 12.0'
SAMPLE TYPE	UD

* Failure based on the maximum principal effective stress ratio or the stress at 15% strain.

CHECKED	BSS
REVIEWED	FTA

TRIAXIAL COMPRESSION TEST TOTAL AND EFFECTIVE MOHR CIRCLES - ASTM D 4767



*TOTAL STRENGTH PARAMETERS	
ϕ =	16.2 ^{0}
C =	1027.2 psf

*EFFECTIVE STRENGTH PARAMETERS	
ϕ' =	30.9 ^{0}
C' =	186.6 psf

DESCRIPTION	Weak Reddish Brown, SILTY CLAY, some fine sand, trace fine gravel.
USCS	(CH)

LL	-
PL	-
PI	-
Gs	2.75

	1	2	3
EFFECTIVE CONSOLIDATION PRESS (psf)	3600	7200	10080
INITIAL DRY DENSITY (pcf)	116.6	122.9	122.3
INITIAL WATER CONTENT, %	16.5	13.7	13.7

PROJECT TITLE	CWM/RMU - 2 GW PLAN/NY		
PROJECT NUMBER	013-9309		
SAMPLE ID	SB-02-4	SA-6	10.0 - 12.0'
SAMPLE TYPE	UD		

* Failure based on the maximum principal effective stress ratio or the stress at 15% strain.

CHECKED	BSS
REVIEWED	FTA

TRIAXIAL COMPRESSION TEST (ASTM D-4767) CONSOLIDATED UNDRAINED WITH PORE PRESSURE

PROJECT TITLE	CWM/RMU - 2 GW PLAN/NY
PROJECT NUMBER	013-9309
SAMPLE ID	SB-02-4 / SA - 7
SAMPLE TYPE	UD
DEPTH INTERVAL	12.0 - 14.0'
MACHINE SPEED (in/min)	0.0012
STRAIN RATE (%/min)	0.020
CELL PRESSURE (psi)	65.0
SAMPLE PRESSURE (psi)	40.0
EFF. CONSOLIDATION PRESSURE, σ_3 (psi)	25.0
PRESSURE, σ_3 (psf)	3600.0
FINAL "B" VALUE	0.97
t_{50} (minutes)	17.28

INITIAL SAMPLE DATA	cm	in	corrected
HEIGHT	15.631	6.154	6.094
DIAMETER	7.297	2.873	2.834
AREA	41.82	6.48	6.31
VOLUME	653.76	39.90	38.43
WEIGHT (g)	1471.54		1453.54
% MOISTURE	13.7		12.28
SPECIFIC GRAVITY	2.77		
MOIST DENSITY (pcf)	140.5		
DRY DENSITY, calc (pcf)	123.6		
VOLUME OF SOLIDS	468.16		
VOLUME OF VOIDS	185.60		
VOID RATIO	0.396		
SATURATION	95.4		

CORRECTED SAMPLE DATA	
DRY DENSITY, calc (pcf)	128.3
VOLUME OF SOLIDS	468.16
VOLUME OF VOIDS	161.60
VOID RATIO	0.345

WATER CONTENT (% MOISTURE)	
WT SOIL & TARE, MOIST (g)	1453.54
WT SOIL & TARE, DRY (g)	1294.51
WT TARE (g)	0.00
WT MOISTURE (g)	159.03
WT DRY SOIL (g)	1294.51
% MOISTURE	12.28

TIME (MIN)	ACCUM. DEFLECT. (inches)	AXIAL LOAD (lbs)	PORE PRESS. (psi)=U	PWP change DU (psf) (acc)	ε % STRAIN (%)	(1-ε)	CORR. AREA (in 2)	CORR. HEIGHT (in)	DEV. STRESS (psf)	SIGMA 1 devstr+cp (σ_1)	SIGMA 1 EFF. (σ_1-dU)	SIGMA 3 EFF. (σ_3-dU)	EFF.PRN STR RATIO (σ_1'/σ_3')	$\frac{(\sigma_1'+\sigma_3')}{2}$ (P)	$\frac{(\sigma_1-\sigma_3)}{2}$ (Q)	(A)
0.0	0.000	15	40.9	0.0	0.00	1.00	6.31	6.094	0.0	3600.0	3600.0	3600.0	1.00	3600.0	0.0	0.00
0.0	0.000	16	41.2	43.2	0.00	1.00	6.31	6.094	22.8	3622.8	3579.6	3556.8	1.01	3568.2	11.4	1.89
2.5	0.003	17	41.4	72.0	0.05	1.00	6.31	6.091	54.8	3654.8	3582.8	3528.0	1.02	3555.4	27.4	1.31
6.7	0.008	43	43.6	388.8	0.13	1.00	6.31	6.086	643.1	4243.1	3854.3	3211.2	1.20	3532.7	321.5	0.60
10.0	0.012	70	46.1	748.8	0.20	1.00	6.32	6.082	1258.0	4858.0	4109.2	2851.2	1.44	3480.2	629.0	0.60
14.2	0.017	86	47.7	979.2	0.28	1.00	6.32	6.077	1619.0	5219.0	4239.8	2620.8	1.62	3430.3	809.5	0.60
18.3	0.022	97	49.0	1166.4	0.36	1.00	6.33	6.072	1865.7	5465.7	4299.3	2433.6	1.77	3366.4	932.8	0.63
22.5	0.027	105	50.1	1324.8	0.44	1.00	6.33	6.067	2055.1	5655.1	4330.3	2275.2	1.90	3302.7	1027.5	0.64
25.8	0.031	112	51.2	1483.2	0.51	0.99	6.34	6.063	2199.1	5799.1	4315.9	2116.8	2.04	3216.4	1099.6	0.67
30.0	0.036	118	51.8	1569.6	0.59	0.99	6.34	6.058	2329.0	5929.0	4359.4	2030.4	2.15	3194.9	1164.5	0.67
33.3	0.040	123	52.2	1627.2	0.66	0.99	6.35	6.054	2440.9	6040.9	4413.7	1972.8	2.24	3193.2	1220.4	0.67
47.5	0.057	136	53.3	1785.6	0.94	0.99	6.37	6.037	2746.2	6346.2	4560.6	1814.4	2.51	3187.5	1373.1	0.65
79.2	0.095	161	54.5	1958.4	1.56	0.98	6.41	5.999	3275.1	6875.1	4916.7	1641.6	3.00	3279.2	1637.6	0.60
105.8	0.127	180	54.6	1972.8	2.08	0.98	6.44	5.967	3684.7	7284.7	5311.9	1627.2	3.26	3469.5	1842.3	0.54
139.2	0.167	199	54.4	1944.0	2.74	0.97	6.48	5.927	4079.7	7679.7	5735.7	1656.0	3.46	3695.9	2039.9	0.48
171.7	0.206	216	53.7	1843.2	3.38	0.97	6.53	5.888	4430.2	8030.2	6187.0	1756.8	3.52	3971.9	2215.1	0.42
200.0	0.240	230	52.8	1713.6	3.94	0.96	6.56	5.854	4720.4	8320.4	6606.8	1886.4	3.50	4246.6	2360.2	0.36
231.7	0.278	246	52.1	1612.8	4.56	0.95	6.61	5.816	5038.5	8638.5	7025.7	1987.2	3.54	4506.4	2519.2	0.32
264.2	0.317	260	51.3	1497.6	5.20	0.95	6.65	5.777	5309.9	8909.9	7412.3	2102.4	3.53	4757.4	2655.0	0.28
325.8	0.391	284	50.0	1310.4	6.42	0.94	6.74	5.703	5744.1	9344.1	8033.7	2289.6	3.51	5161.6	2872.0	0.23
388.3	0.466	304	48.2	1051.2	7.65	0.92	6.83	5.628	6096.6	9696.6	8645.4	2548.8	3.39	5597.1	3048.3	0.17
450.8	0.541	322	46.8	849.6	8.88	0.91	6.92	5.553	6381.6	9981.6	9132.0	2750.4	3.32	5941.2	3190.8	0.13
510.8	0.613	337	46.0	734.4	10.06	0.90	7.01	5.481	6602.8	10202.8	9468.4	2865.6	3.30	6167.0	3301.4	0.11
577.5	0.693	351	44.8	561.6	11.37	0.89	7.12	5.401	6801.9	10401.9	9840.3	3038.4	3.24	6439.3	3400.9	0.08
637.5	0.765	363	44.2	475.2	12.55	0.87	7.21	5.329	6942.8	10542.8	10067.6	3124.8	3.22	6596.2	3471.4	0.07
701.7	0.842	373	43.4	360.0	13.82	0.86	7.32	5.252	7041.3	10641.3	10281.3	3240.0	3.17	6760.6	3520.6	0.05
763.3	0.916	382	42.8	273.6	15.03	0.85	7.42	5.178	7126.4	10726.4	10452.8	3326.4	3.14	6889.6	3563.2	0.04
823.3	0.988	391	42.5	230.4	16.21	0.84	7.53	5.106	7188.0	10788.0	10557.6	3369.6	3.13	6963.6	3594.0	0.03
890.0	1.068	400	41.9	144.0	17.53	0.82	7.65	5.026	7250.5	10850.5	10706.5	3456.0	3.10	7081.3	3625.3	0.02

DU @ FAILURE	1843.2	DEVIATORIC STRESS @ FAILURE	4430.2	EFFECTIVE PRINCIPLE STRESS RATIO @ FAILURE	3.52

TECH	PWM/DA/JH
DATE	11/14/02
CHECKED	BSS
REVIEWED	FTA

TRIAXIAL COMPRESSION TEST (ASTM D-4767) CONSOLIDATED UNDRAINED WITH PORE PRESSURE

PROJECT TITLE	CWM/RMU - 2 GW PLAN/NY
PROJECT NUMBER	013-9309
SAMPLE ID	SB-02-4 / SA - 7
SAMPLE TYPE	UD
DEPTH INTERVAL	12.0 - 14.0'
MACHINE SPEED (in/min)	0.0013
STRAIN RATE (%/min)	0.022
CELL PRESSURE (psi)	90.0
SAMPLE PRESSURE (psi)	40.0
EFF. CONSOLIDATION PRESSURE, σ_3 (psi)	50.0
PRESSURE, σ_3 (psf)	7200.0
FINAL "B" VALUE	0.97
t_{50} (minutes)	18.93

INITIAL SAMPLE DATA	cm	in	corrected
HEIGHT	15.398	6.062	5.982
DIAMETER	7.306	2.877	2.848
AREA	41.93	6.50	6.37
VOLUME	645.59	39.40	38.11
WEIGHT (g)	1473.04		1455.04
% MOISTURE	12.5		11.09
SPECIFIC GRAVITY	2.77		
MOIST DENSITY (pcf)	142.4		
DRY DENSITY, calc (pcf)	126.6		
VOLUME OF SOLIDS	473.69		
VOLUME OF VOIDS	171.89		
VOID RATIO	0.363		
SATURATION	95.0		

CORRECTED SAMPLE DATA	
DRY DENSITY, calc (pcf)	130.9
VOLUME OF SOLIDS	473.69
VOLUME OF VOIDS	150.89
VOID RATIO	0.319

WATER CONTENT (% MOISTURE)	
WT SOIL & TARE, MOIST (g)	1455.04
WT SOIL & TARE, DRY (g)	1309.81
WT TARE (g)	0.00
WT MOISTURE (g)	145.23
WT DRY SOIL (g)	1309.81
% MOISTURE	11.09

TIME (MIN)	ACCUM. DEFLECT. (inches)	AXIAL LOAD (lbs)	PORE PRESS. (psi)=U	PWP change DU (psf) (acc)	ε % STRAIN (%)	(1-ε)	CORR. AREA (in 2)	CORR. HEIGHT (in)	DEV. STRESS (psf)	SIGMA 1 devstr+cp (σ_1)	SIGMA 1 EFF. (σ_1-dU)	SIGMA 3 EFF. (σ_3-dU)	EFF.PRN STR RATIO (σ_1'/σ_3')	$\frac{(\sigma_1'+\sigma_3')}{2}$ (P)	$\frac{(\sigma_1-\sigma_3)}{2}$ (Q)	(A)
0.0	0.000	18	40.6	0.0	0.00	1.00	6.37	5.982	0.0	7200.0	7200.0	7200.0	1.00	7200.0	0.0	0.00
0.8	0.001	54	44.4	547.2	0.02	1.00	6.37	5.981	820.3	8020.3	7473.1	6652.8	1.12	7062.9	410.1	0.67
2.3	0.003	102	48.2	1094.4	0.05	1.00	6.37	5.979	1886.3	9086.3	7991.9	6105.6	1.31	7048.7	943.1	0.58
6.2	0.008	141	52.3	1684.8	0.13	1.00	6.38	5.974	2767.2	9967.2	8282.4	5515.2	1.50	6898.8	1383.6	0.61
38.5	0.050	210	65.0	3513.6	0.84	0.99	6.42	5.932	4303.2	11503.2	7989.6	3686.4	2.17	5838.0	2151.6	0.82
76.9	0.100	270	70.0	4233.6	1.67	0.98	6.48	5.882	5600.4	12800.4	8566.8	2966.4	2.89	5766.6	2800.2	0.76
115.4	0.150	320	70.0	4233.6	2.51	0.97	6.54	5.832	6654.5	13854.5	9620.9	2966.4	3.24	6293.6	3327.2	0.64
153.8	0.200	350	69.5	4161.6	3.34	0.97	6.59	5.782	7252.8	14452.8	10291.2	3038.4	3.39	6664.8	3626.4	0.57
192.3	0.250	380	69.0	4089.6	4.18	0.96	6.65	5.732	7839.8	15039.8	10950.2	3110.4	3.52	7030.3	3919.9	0.52
230.8	0.300	397	68.0	3945.6	5.01	0.95	6.71	5.682	8136.4	15336.4	11390.8	3254.4	3.50	7322.6	4068.2	0.48
271.5	0.353	410	67.2	3830.4	5.90	0.94	6.77	5.629	8326.3	15526.3	11695.9	3369.6	3.47	7532.8	4163.2	0.46
275.4	0.358	410	67.0	3801.6	5.98	0.94	6.78	5.624	8321.1	15521.1	11719.5	3398.4	3.45	7558.9	4160.5	0.46
279.2	0.363	411	66.9	3787.2	6.07	0.94	6.78	5.619	8345.5	15545.5	11758.3	3412.8	3.45	7585.6	4172.8	0.45
282.3	0.367	413	66.7	3758.4	6.13	0.94	6.79	5.615	8369.3	15569.3	11810.9	3441.6	3.43	7626.2	4184.6	0.45
285.4	0.371	413	66.6	3744.0	6.20	0.94	6.79	5.611	8382.4	15582.4	11838.4	3456.0	3.43	7647.2	4191.2	0.45
288.5	0.375	414	66.5	3729.6	6.27	0.94	6.80	5.607	8391.2	15591.2	11861.6	3470.4	3.42	7666.0	4195.6	0.44
290.8	0.378	415	66.5	3729.6	6.32	0.94	6.80	5.604	8412.2	15612.2	11882.6	3470.4	3.42	7676.5	4206.1	0.44
302.3	0.393	419	66.5	3729.6	6.57	0.93	6.82	5.589	8476.2	15676.2	11946.6	3470.4	3.44	7708.5	4238.1	0.44
335.4	0.436	432	66.0	3657.6	7.29	0.93	6.87	5.546	8679.2	15879.2	12221.6	3542.4	3.45	7882.0	4339.6	0.42
369.2	0.480	443	65.6	3600.0	8.02	0.92	6.93	5.502	8839.0	16039.0	12439.0	3600.0	3.46	8019.5	4419.5	0.41
396.2	0.515	449	64.5	3441.6	8.61	0.91	6.97	5.467	8908.8	16108.8	12667.2	3758.4	3.37	8212.8	4454.4	0.39
429.2	0.558	460	64.1	3384.0	9.33	0.91	7.03	5.424	9060.1	16260.1	12876.1	3816.0	3.37	8346.0	4530.0	0.37
462.3	0.601	469	63.7	3326.4	10.05	0.90	7.08	5.381	9165.1	16365.1	13038.7	3873.6	3.37	8456.2	4582.6	0.36
488.5	0.635	472	63.6	3326.4	10.61	0.89	7.13	5.347	9169.9	16369.9	13043.5	3873.6	3.37	8458.5	4584.9	0.36
523.1	0.680	482	63.4	3326.4	11.37	0.89	7.19	5.302	9293.0	16493.0	13166.6	3873.6	3.40	8520.1	4646.5	0.36
580.8	0.755	492	62.2	3326.4	12.62	0.87	7.29	5.227	9365.0	16565.0	13238.6	3873.6	3.42	8556.1	4682.5	0.36
650.0	0.845	507	62.0	3326.4	14.13	0.86	7.42	5.137	9494.9	16694.9	13368.5	3873.6	3.45	8621.0	4747.4	0.35
709.2	0.922	514	61.4	3326.4	15.41	0.85	7.53	5.060	9486.4	16686.4	13360.0	3873.6	3.45	8616.8	4743.2	0.35
768.5	0.999	520	60.9	3326.4	16.70	0.83	7.65	4.983	9451.2	16651.2	13324.8	3873.6	3.44	8599.2	4725.6	0.35

DU @ FAILURE	4089.6	DEVIATORIC STRESS @ FAILURE	7839.8	EFFECTIVE PRINCIPLE STRESS RATIO @ FAILURE	3.52

TECH	PWM/DA/JH
DATE	11/14/02
CHECKED	BSS
REVIEWED	FTA

TRIAXIAL COMPRESSION TEST (ASTM D-4767) CONSOLIDATED UNDRAINED WITH PORE PRESSURE

PROJECT TITLE	CWM/RMU - 2 GW PLAN/NY
PROJECT NUMBER	013-9309
SAMPLE ID	SB-02-4 / SA - 7
SAMPLE TYPE	UD
DEPTH INTERVAL	12.0 - 14.0'
MACHINE SPEED (in/min)	0.0008
STRAIN RATE (%/min)	0.013
CELL PRESSURE (psi)	110.0
SAMPLE PRESSURE (psi)	40.0
EFF. CONSOLIDATION PRESSURE, σ_3 (psi)	70.0
PRESSURE, σ_3 (psf)	10080.0
FINAL "B" VALUE	0.98
t_{50} (minutes)	30.90

INITIAL SAMPLE DATA	cm	in	corrected
HEIGHT	15.527	6.113	6.019
DIAMETER	7.320	2.882	2.839
AREA	42.09	6.52	6.33
VOLUME	653.48	39.88	38.11
WEIGHT (g)	1479.18		1451.18
% MOISTURE	13.0		10.89
SPECIFIC GRAVITY	2.77		
MOIST DENSITY (pcf)	141.2		
DRY DENSITY, calc (pcf)	125.0		
VOLUME OF SOLIDS	473.29		
VOLUME OF VOIDS	180.19		
VOID RATIO	0.381		
SATURATION	94.6		

CORRECTED SAMPLE DATA	
DRY DENSITY, calc (pcf)	130.8
VOLUME OF SOLIDS	473.29
VOLUME OF VOIDS	151.19
VOID RATIO	0.319

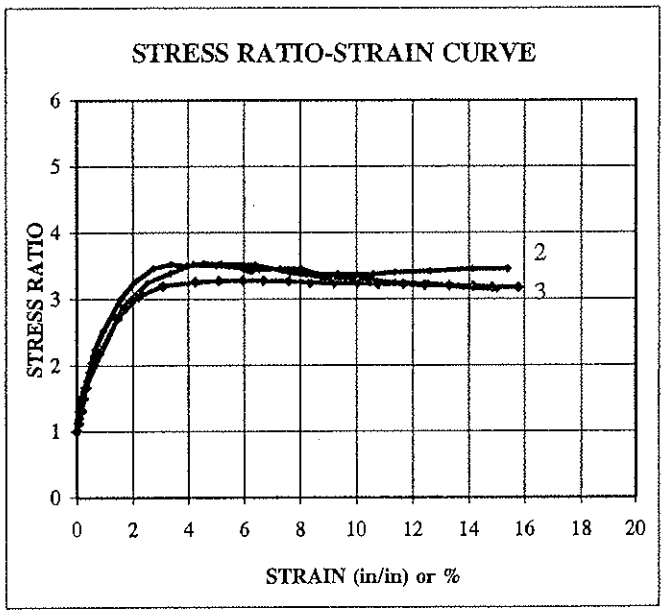
WATER CONTENT (% MOISTURE)	
WT SOIL & TARE, MOIST (g)	1451.18
WT SOIL & TARE, DRY (g)	1308.70
WT TARE (g)	0.00
WT MOISTURE (g)	142.48
WT DRY SOIL (g)	1308.70
% MOISTURE	10.89

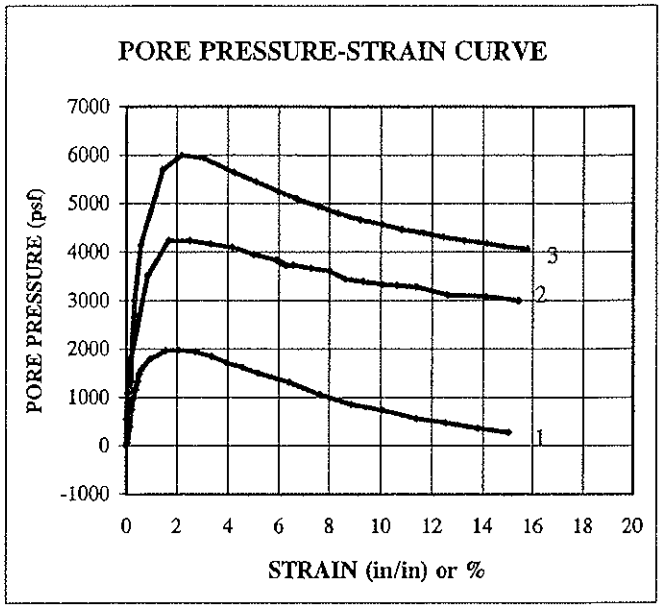
TIME (MIN)	ACCUM. DEFLECT. (inches)	AXIAL LOAD (lbs)	PORE PRESS. (psi)=U	PWP change DU (psf) (acc)	ε % STRAIN (%)	(1-ε)	CORR. AREA (in 2)	CORR. HEIGHT (in)	DEV. STRESS (psf)	SIGMA 1 devstr+cp (σ_1)	SIGMA 1 EFF. (σ_1-dU)	SIGMA 3 EFF. (σ_3-dU)	EFF.PRN STR RATIO (σ_1'/σ_3')	$\frac{(\sigma_1'+\sigma_3')}{2}$ (P)	$\frac{(\sigma_1-\sigma_3)}{2}$ (Q)	(A)
0.0	0.000	21	40.8	0.0	0.00	1.00	6.33	6.019	0.0	10080.0	10080.0	10080.0	1.00	10080.0	0.0	0
6.3	0.005	71	44.3	504.0	0.08	1.00	6.34	6.014	1140.8	11220.8	10716.8	9576.0	1.12	10146.4	570.4	0.44
13.8	0.011	141	50.2	1353.6	0.18	1.00	6.34	6.008	2719.8	12799.8	11446.2	8726.4	1.31	10086.3	1359.9	0.50
18.8	0.015	193	56.3	2232.0	0.25	1.00	6.35	6.004	3895.4	13975.4	11743.4	7848.0	1.50	9795.7	1947.7	0.57
25.0	0.020	228	61.7	3009.6	0.33	1.00	6.35	5.999	4701.4	14781.4	11771.8	7070.4	1.66	9421.1	2350.7	0.64
42.5	0.034	277	69.6	4147.2	0.56	0.99	6.37	5.985	5778.3	15858.3	11711.1	5932.8	1.97	8821.9	2889.1	0.72
108.8	0.087	354	80.4	5702.4	1.45	0.99	6.42	5.932	7453.1	17533.1	11830.7	4377.6	2.70	8104.1	3726.5	0.77
165.0	0.132	396	82.4	5990.4	2.19	0.98	6.47	5.887	8342.0	18422.0	12431.6	4089.6	3.04	8260.6	4171.0	0.72
230.0	0.184	434	82.0	5932.8	3.06	0.97	6.53	5.835	9108.4	19188.4	13255.6	4147.2	3.20	8701.4	4554.2	0.65
320.0	0.256	481	79.9	5630.4	4.25	0.96	6.61	5.763	10015.1	20095.1	14464.7	4449.6	3.25	9457.2	5007.6	0.56
383.8	0.307	510	78.6	5443.2	5.10	0.95	6.67	5.712	10543.8	20623.8	15180.6	4636.8	3.27	9908.7	5271.9	0.52
447.5	0.358	535	77.3	5256.0	5.95	0.94	6.73	5.661	10984.4	21064.4	15808.4	4824.0	3.28	10316.2	5492.2	0.48
505.0	0.404	555	76.2	5097.6	6.71	0.93	6.79	5.615	11330.1	21410.1	16312.5	4982.4	3.27	10647.5	5665.1	0.45
570.0	0.456	575	75.1	4939.2	7.58	0.92	6.85	5.563	11647.7	21727.7	16788.5	5140.8	3.27	10964.7	5823.9	0.42
627.5	0.502	591	74.1	4795.2	8.34	0.92	6.91	5.517	11880.8	21960.8	17165.6	5284.8	3.25	11225.2	5940.4	0.40
692.5	0.554	608	73.2	4665.6	9.20	0.91	6.97	5.465	12124.0	22204.0	17538.4	5414.4	3.24	11476.4	6062.0	0.38
756.3	0.605	623	72.5	4564.8	10.05	0.90	7.04	5.414	12323.9	22403.9	17839.1	5515.2	3.23	11677.1	6161.9	0.37
811.3	0.649	636	71.8	4464.0	10.78	0.89	7.10	5.370	12487.5	22567.5	18103.5	5616.0	3.22	11859.8	6243.8	0.36
877.5	0.702	650	71.3	4392.0	11.66	0.88	7.17	5.317	12633.5	22713.5	18321.5	5688.0	3.22	12004.7	6316.7	0.35
936.3	0.749	660	70.7	4305.6	12.44	0.88	7.23	5.270	12719.0	22799.0	18493.4	5774.4	3.20	12133.9	6359.5	0.34
1000.0	0.800	672	70.2	4233.6	13.29	0.87	7.30	5.219	12844.4	22924.4	18690.8	5846.4	3.20	12268.6	6422.2	0.33
1065.0	0.852	684	69.8	4176.0	14.16	0.86	7.38	5.167	12939.0	23019.0	18843.0	5904.0	3.19	12373.5	6469.5	0.32
1117.5	0.894	693	69.3	4104.0	14.85	0.85	7.44	5.125	13008.1	23088.1	18984.1	5976.0	3.18	12480.0	6504.0	0.32
1187.5	0.950	703	69.0	4060.8	15.78	0.84	7.52	5.069	13069.0	23149.0	19088.2	6019.2	3.17	12553.7	6534.5	0.31
1243.8	0.995	710	68.7	4017.6	16.53	0.83	7.59	5.024	13080.2	23160.2	19142.6	6062.4	3.16	12602.5	6540.1	0.31
1306.3	1.045	720	68.6	4003.2	17.36	0.83	7.66	4.974	13132.3	23212.3	19209.1	6076.8	3.16	12642.9	6566.1	0.30
1372.5	1.098	727	68.2	3945.6	18.24	0.82	7.74	4.921	13118.8	23198.8	19253.2	6134.4	3.14	12693.8	6559.4	0.30

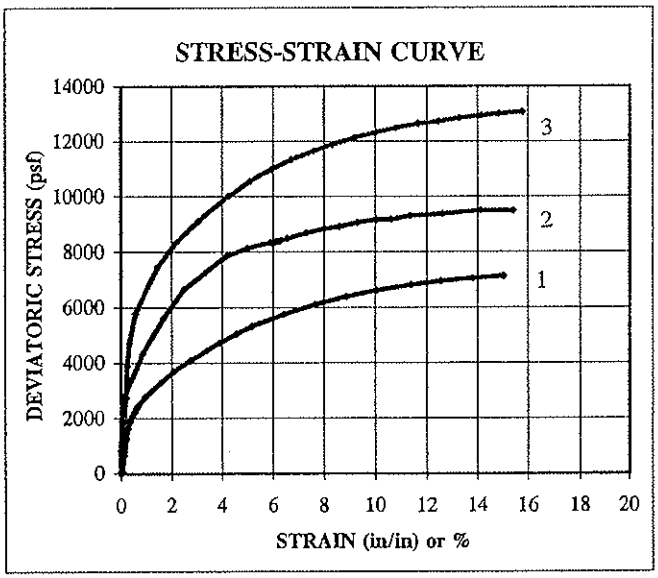
DU @ FAILURE	5256.0	DEVIATORIC STRESS @ FAILURE	10984.4	EFFECTIVE PRINCIPLE STRESS RATIO @ FAILURE	3.28

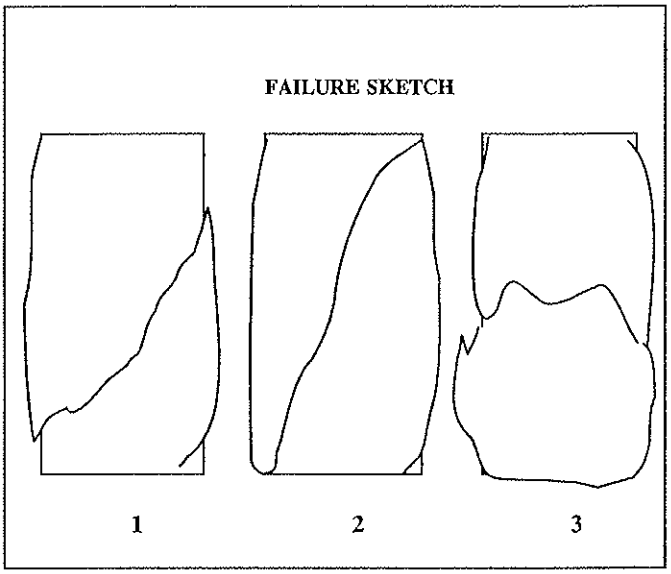
TECH	PWM/DA/JH
DATE	11/14/02
CHECKED	BSS
REVIEWED	FTA

TRIAXIAL COMPRESSION TEST
CONSOLIDATED UNDRAINED WITH PORE PRESSURE









DESCRIPTION	Weak Reddish Brown, SILTY CLAY, some fine sand, trace fine gravel.
USCS	(CH)

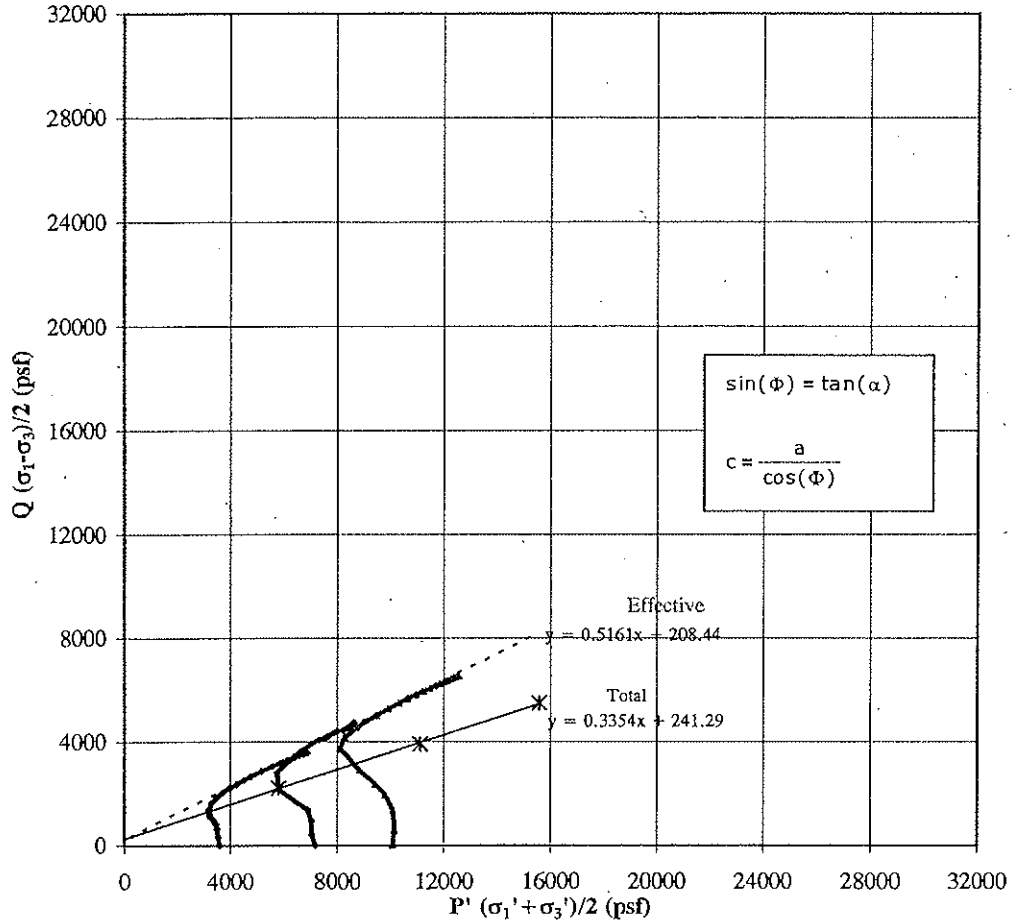
LL	-
PL	-
PI	-
Gs	2.77

	1	2	3
EFFECTIVE CONSOLIDATION PRESS (psf)	3600	7200	10080
INITIAL DRY DENSITY (pcf)	123.6	126.6	125.0
INITIAL WATER CONTENT (%)	13.7	12.5	13.0
STRAIN RATE (%/min)	0.020	0.022	0.013

PROJECT NAME	CWM/RMU - 2 GW PLAN/NY		
PROJECT NUMBER	013-9309		
SAMPLE ID	SB-02-4	SA-7	12.0 - 14.0'
SAMPLE TYPE	UD		

CHECKED	BSS
REVIEWED	FTA

TRIAXIAL COMPRESSION TEST EFFECTIVE STRESS PATH
ASTM D 4767



*TOTAL STRENGTH PARAMETERS				*EFFECTIVE STRESS PARAMETERS			
α	18.5 °	ϕ =	19.6 °	α	27.3 °	ϕ' =	31.1 °
a	241.3 psf	C =	256.1 psf	a	208.4 psf	C' =	243.4 psf

DESCRIPTION	Weak Reddish Brown, SILTY CLAY, some fine sand, trace fine gravel.
USCS	(CH)

LL	-
PL	-
PI	-
Gs	2.77

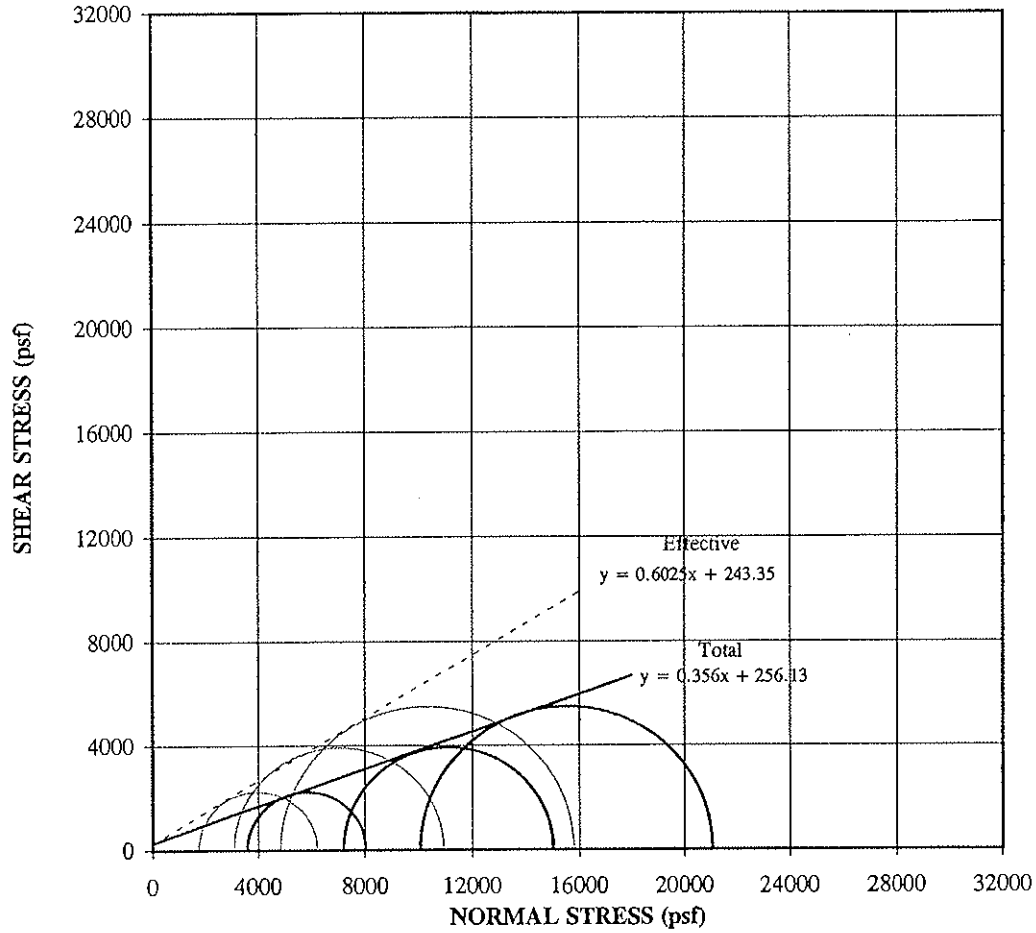
	1	2	3
EFFECTIVE CONSOLIDATION PRESS (psf)	3600	7200	10080
INITIAL DRY DENSITY (pcf)	123.6	126.6	125.0
INITIAL WATER CONTENT %	13.7	12.5	13.0

PROJECT TITLE	CWM/RMU - 2 GW PLAN/NY		
PROJECT NUMBER	013-9309		
SAMPLE ID	SB-02-4	SA-7	12.0 - 14.0'
SAMPLE TYPE	UD		

* Failure based on the maximum principal effective stress ratio or the stress at 15% strain.

CHECKED	BSS
REVIEWED	FTA

TRIAXIAL COMPRESSION TEST TOTAL AND EFFECTIVE MOHR CIRCLES - ASTM D 4767



*TOTAL STRENGTH PARAMETERS	
ϕ =	19.6 ^{0}
C =	256.1 psf

*EFFECTIVE STRENGTH PARAMETERS	
ϕ' =	31.1 ^{0}
C' =	243.4 psf

DESCRIPTION: Weak Reddish Brown, SILTY CLAY, some fine sand, trace fine gravel.
USCS: (CH)

LL	-
PL	-
PI	-
Gs	2.77

	1	2	3
EFFECTIVE CONSOLIDATION PRESS (psf)	3600	7200	10080
INITIAL DRY DENSITY (pcf)	123.6	126.6	125.0
INITIAL WATER CONTENT, %	13.7	12.5	13.0

PROJECT TITLE	CWM/RMU - 2 GW PLAN/NY
PROJECT NUMBER	013-9309
SAMPLE ID	SB-02-4 SA-7 12.0 - 14.0'
SAMPLE TYPE	UD

* Failure based on the maximum principal effective stress ratio or the stress at 15% strain.

CHECKED	BSS
REVIEWED	FTA

TRIAXIAL COMPRESSION TEST (ASTM D-4767) — CONSOLIDATED UNDRAINED WITH PORE PRESSURE

PROJECT TITLE	CWM/RMU - 2 GW PLAN/NY
PROJECT NUMBER	013-9309
SAMPLE ID	SB-02-04 / SA - 15
SAMPLE TYPE	UD
DEPTH INTERVAL	28.0 - 30.0'
MACHINE SPEED (in/min)	0.0005
STRAIN RATE (%/min)	0.008
CELL PRESSURE (psi)	65.0
SAMPLE PRESSURE (psi)	40.0
EFF. CONSOLIDATION PRESSURE, σ_3 (psi)	25.0
PRESSURE, σ_3 (psf)	3600.0
FINAL "B" VALUE	0.97
t_{50} (minutes)	47.11

INITIAL SAMPLE DATA	cm	in	corrected
HEIGHT	15.202	5.985	5.927
DIAMETER	7.262	2.859	2.811
AREA	41.42	6.42	6.20
VOLUME	629.63	38.42	36.77
WEIGHT (g)	1274.88		1252.88
% MOISTURE	26.0		23.85
SPECIFIC GRAVITY	2.81		
MOIST DENSITY (pcf)	126.3		
DRY DENSITY, calc (pcf)	100.3		
VOLUME OF SOLIDS	359.49		
VOLUME OF VOIDS	270.14		
VOID RATIO	0.751		
SATURATION	97.5		

CORRECTED SAMPLE DATA	
DRY DENSITY, calc (pcf)	104.7
VOLUME OF SOLIDS	359.49
VOLUME OF VOIDS	243.14
VOID RATIO	0.676

WATER CONTENT (% MOISTURE)	
WT SOIL & TARE, MOIST (g)	1252.88
WT SOIL & TARE, DRY (g)	1011.61
WT TARE (g)	0.00
WT MOISTURE (g)	241.27
WT DRY SOIL (g)	1011.61
% MOISTURE	23.85

TIME (MIN)	ACCUM. DEFLECT. (inches)	AXIAL LOAD (lbs)	PORE PRESS. (psi)=U	PWP change DU (psf) (acc)	ε % STRAIN (%)	(1-ε)	CORR. AREA (in 2)	CORR. HEIGHT (in)	DEV. STRESS (psf)	SIGMA 1 devstr+cp (σ_1)	SIGMA 1 EFF. (σ_1-dU)	SIGMA 3 EFF. (σ_3-dU)	EFF.PRN STR RATIO (σ_1'/σ_3')	$\frac{(\sigma_1'+\sigma_3')}{2}$ (P)	$\frac{(\sigma_1-\sigma_3)}{2}$ (Q)	(A)
0.0	0.000	12	41.0	0.0	0.00	1.00	6.20	5.927	0.0	3600.0	3600.0	3600.0	1.00	3600.0	0.0	0.00
2.0	0.001	31	43.5	360.0	0.02	1.00	6.21	5.926	431.6	4031.6	3671.6	3240.0	1.13	3455.8	215.8	0.83
4.0	0.002	41	44.3	475.2	0.03	1.00	6.21	5.925	679.8	4279.8	3804.6	3124.8	1.22	3464.7	339.9	0.70
6.0	0.003	48	45.3	619.2	0.05	1.00	6.21	5.924	839.7	4439.7	3820.5	2980.8	1.28	3400.7	419.9	0.74
10.0	0.005	53	45.7	676.8	0.08	1.00	6.21	5.922	957.7	4557.7	3880.9	2923.2	1.33	3402.1	478.9	0.71
14.0	0.007	58	46.2	748.8	0.12	1.00	6.21	5.920	1057.1	4657.1	3908.3	2851.2	1.37	3379.7	528.5	0.71
18.0	0.009	62	46.9	849.6	0.15	1.00	6.21	5.918	1147.1	4747.1	3897.5	2750.4	1.42	3323.9	573.5	0.74
20.0	0.010	65	47.3	907.2	0.17	1.00	6.22	5.917	1225.7	4825.7	3918.5	2692.8	1.46	3305.6	612.8	0.74
24.0	0.012	68	47.6	950.4	0.20	1.00	6.22	5.915	1294.7	4894.7	3944.3	2649.6	1.49	3297.0	647.4	0.73
28.0	0.014	71	47.8	979.2	0.24	1.00	6.22	5.913	1356.8	4956.8	3977.6	2620.8	1.52	3299.2	678.4	0.72
32.0	0.016	73	48.0	1008.0	0.27	1.00	6.22	5.911	1411.9	5011.9	4003.9	2592.0	1.54	3298.0	706.0	0.71
46.0	0.023	80	48.8	1123.2	0.39	1.00	6.23	5.904	1572.1	5172.1	4048.9	2476.8	1.63	3262.8	786.0	0.71
76.0	0.038	92	50.2	1324.8	0.64	0.99	6.24	5.889	1847.1	5447.1	4122.3	2275.2	1.81	3198.7	923.5	0.72
104.0	0.052	100	51.0	1440.0	0.88	0.99	6.26	5.875	2022.1	5622.1	4182.1	2160.0	1.94	3171.1	1011.1	0.71
128.0	0.064	106	51.6	1526.4	1.08	0.99	6.27	5.863	2164.9	5764.9	4238.5	2073.6	2.04	3156.1	1082.5	0.71
166.0	0.083	113	52.0	1584.0	1.40	0.99	6.29	5.844	2313.5	5913.5	4329.5	2016.0	2.15	3172.8	1156.8	0.68
198.0	0.099	117	52.3	1627.2	1.67	0.98	6.31	5.828	2396.2	5996.2	4369.0	1972.8	2.21	3170.9	1198.1	0.68
232.0	0.116	121	52.6	1670.4	1.96	0.98	6.33	5.811	2487.1	6087.1	4416.7	1929.6	2.29	3173.1	1243.5	0.67
264.0	0.132	124	52.8	1699.2	2.23	0.98	6.35	5.795	2541.5	6141.5	4442.3	1900.8	2.34	3171.5	1270.7	0.67
328.0	0.164	129	53.2	1756.8	2.77	0.97	6.38	5.763	2635.8	6235.8	4479.0	1843.2	2.43	3161.1	1317.9	0.67
384.0	0.192	131	53.4	1785.6	3.24	0.97	6.41	5.735	2679.1	6279.1	4493.5	1814.4	2.48	3153.9	1339.5	0.67
452.0	0.226	135	52.9	1713.6	3.81	0.96	6.45	5.701	2754.7	6354.7	4641.1	1886.4	2.46	3263.8	1377.4	0.62
518.0	0.259	138	53.0	1728.0	4.37	0.96	6.49	5.668	2798.7	6398.7	4670.7	1872.0	2.50	3271.4	1399.4	0.62
580.0	0.290	140	53.2	1756.8	4.89	0.95	6.52	5.637	2825.4	6425.4	4668.6	1843.2	2.53	3255.9	1412.7	0.62
640.0	0.320	141	53.1	1742.4	5.40	0.95	6.56	5.607	2823.5	6423.5	4681.1	1857.6	2.52	3269.3	1411.7	0.62
704.0	0.352	142	53.0	1728.0	5.94	0.94	6.60	5.575	2846.7	6446.7	4718.7	1872.0	2.52	3295.3	1423.3	0.61
770.0	0.385	144	53.1	1742.4	6.50	0.94	6.64	5.542	2868.9	6468.9	4726.5	1857.6	2.54	3292.0	1434.4	0.61
830.0	0.415	145	53.3	1771.2	7.00	0.93	6.67	5.512	2872.8	6472.8	4701.6	1828.8	2.57	3265.2	1436.4	0.62
892.0	0.446	146	53.0	1728.0	7.52	0.92	6.71	5.481	2867.4	6467.4	4739.4	1872.0	2.53	3305.7	1433.7	0.60
956.0	0.478	147	53.1	1742.4	8.06	0.92	6.75	5.449	2878.4	6478.4	4736.0	1857.6	2.55	3296.8	1439.2	0.61
1024.0	0.512	148	53.4	1785.6	8.64	0.91	6.79	5.415	2883.7	6483.7	4698.1	1814.4	2.59	3256.3	1441.9	0.62
1082.0	0.541	148	53.0	1728.0	9.13	0.91	6.83	5.386	2866.2	6466.2	4738.2	1872.0	2.53	3305.1	1433.1	0.60
1144.0	0.572	148	53.1	1742.4	9.65	0.90	6.87	5.355	2853.9	6453.9	4711.5	1857.6	2.54	3284.5	1426.9	0.61
1210.0	0.605	149	53.5	1800.0	10.21	0.90	6.91	5.322	2859.2	6459.2	4659.2	1800.0	2.59	3229.6	1429.6	0.63
1278.0	0.639	150	53.1	1742.4	10.78	0.89	6.95	5.288	2861.6	6461.6	4719.2	1857.6	2.54	3288.4	1430.8	0.61

DU @ FAILURE	1785.6	DEVIATORIC STRESS @ FAILURE	2679.1	EFFECTIVE PRINCIPLE STRESS RATIO @ FAILURE	2.48

TECH	PWM/JH
DATE	11/20/02
CHECKED	BSS
REVIEWED	PSA

Golder Associates Inc.

TRIAXIAL COMPRESSION TEST (ASTM D-4767) CONSOLIDATED UNDRAINED WITH PORE PRESSURE

PROJECT TITLE	CWM/RMU - 2 GW PLAN/NY
PROJECT NUMBER	013-9309
SAMPLE ID	SB-02-04 / SA - 15
SAMPLE TYPE	UD
DEPTH INTERVAL	28.0 - 30.0'
MACHINE SPEED (in/min)	0.0006
STRAIN RATE (%/min)	0.010
CELL PRESSURE (psi)	90.0
SAMPLE PRESSURE (psi)	40.0
EFF. CONSOLIDATION PRESSURE, σ_3 (psi)	50.0
PRESSURE, σ_3 (psf)	7200.0
FINAL "B" VALUE	0.97
t_{50} (minutes)	39.49

INITIAL SAMPLE DATA	cm	in	corrected
HEIGHT	15.524	6.112	6.024
DIAMETER	7.297	2.873	2.815
AREA	41.82	6.48	6.22
VOLUME	649.30	39.62	37.49
WEIGHT (g)	1309.26		1286.26
% MOISTURE	25.7		23.48
SPECIFIC GRAVITY	2.81		
MOIST DENSITY (pcf)	125.8		
DRY DENSITY, calc (pcf)	100.1		
VOLUME OF SOLIDS	370.18		
VOLUME OF VOIDS	279.12		
VOID RATIO	0.754		
SATURATION	95.9		

CORRECTED SAMPLE DATA	
DRY DENSITY, calc (pcf)	105.8
VOLUME OF SOLIDS	370.18
VOLUME OF VOIDS	244.12
VOID RATIO	0.659

WATER CONTENT (% MOISTURE)	
WT SOIL & TARE, MOIST (g)	1286.26
WT SOIL & TARE, DRY (g)	1041.69
WT TARE (g)	0.00
WT MOISTURE (g)	244.57
WT DRY SOIL (g)	1041.69
% MOISTURE	23.48

TIME (MIN)	ACCUM. DEFLECT. (inches)	AXIAL LOAD (lbs)	PORE PRESS. (psi)=U	PWP change DU (psf) (acc)	ε % STRAIN (%)	(1-ε)	CORR. AREA (in 2)	CORR. HEIGHT (in)	DEV. STRESS (psf)	SIGMA 1 devstr+cp (σ_1)	SIGMA 1 EFF. (σ_1-dU)	SIGMA 3 EFF. (σ_3-dU)	EFF.PRN STR RATIO (σ_1'/σ_3')	$\frac{(\sigma_1'+\sigma_3')}{2}$ (P)	$\frac{(\sigma_1-\sigma_3)}{2}$ (Q)	(A)
0.0	0.000	16	40.0	0.0	0.00	1.00	6.22	6.024	0.0	7200.0	7200.0	7200.0	1.00	7200.0	0.0	0.00
1.7	0.001	17	40.4	57.6	0.02	1.00	6.22	6.023	23.1	7223.1	7165.5	7142.4	1.00	7154.0	11.6	2.49
5.0	0.003	39	42.5	360.0	0.05	1.00	6.23	6.021	527.3	7727.3	7367.3	6840.0	1.08	7103.7	263.7	0.68
11.7	0.007	66	44.9	705.6	0.12	1.00	6.23	6.017	1151.0	8351.0	7645.4	6494.4	1.18	7069.9	575.5	0.61
18.3	0.011	86	46.8	979.2	0.18	1.00	6.23	6.013	1607.6	8807.6	7828.4	6220.8	1.26	7024.6	803.8	0.61
21.7	0.013	100	48.3	1195.2	0.22	1.00	6.24	6.011	1937.3	9137.3	7942.1	6004.8	1.32	6973.4	968.6	0.62
28.3	0.017	111	49.8	1411.2	0.28	1.00	6.24	6.007	2185.2	9385.2	7974.0	5788.8	1.38	6881.4	1092.6	0.65
33.3	0.020	120	50.9	1569.6	0.33	1.00	6.24	6.004	2394.0	9594.0	8024.4	5630.4	1.43	6827.4	1197.0	0.66
38.3	0.023	127	51.8	1699.2	0.38	1.00	6.25	6.001	2565.7	9765.7	8066.5	5500.8	1.47	6783.6	1282.8	0.66
43.3	0.026	134	52.7	1828.8	0.43	1.00	6.25	5.998	2707.2	9907.2	8078.4	5371.2	1.50	6724.8	1353.6	0.68
48.3	0.029	139	53.5	1944.0	0.48	1.00	6.25	5.995	2827.9	10027.9	8083.9	5256.0	1.54	6670.0	1414.0	0.69
66.7	0.040	153	55.7	2260.8	0.66	0.99	6.26	5.984	3146.9	10346.9	8086.1	4939.2	1.64	6512.6	1573.4	0.72
103.3	0.062	171	59.4	2793.6	1.03	0.99	6.29	5.962	3552.1	10752.1	7958.5	4406.4	1.81	6182.5	1776.1	0.79
145.0	0.087	183	61.8	3139.2	1.44	0.99	6.31	5.937	3801.8	11001.8	7862.6	4060.8	1.94	5961.7	1900.9	0.83
190.0	0.114	191	63.7	3412.8	1.89	0.98	6.34	5.910	3968.4	11168.4	7755.6	3787.2	2.05	5771.4	1984.2	0.86
233.3	0.140	196	65.0	3600.0	2.32	0.98	6.37	5.884	4061.7	11261.7	7661.7	3600.0	2.13	5630.8	2030.8	0.89
276.7	0.166	199	66.1	3758.4	2.76	0.97	6.40	5.858	4111.2	11311.2	7552.8	3441.6	2.19	5497.2	2055.6	0.91
310.0	0.186	200	66.9	3873.6	3.09	0.97	6.42	5.838	4126.3	11326.3	7452.7	3326.4	2.24	5389.6	2063.2	0.94
356.7	0.214	203	67.5	3960.0	3.55	0.96	6.45	5.810	4173.5	11373.5	7413.5	3240.0	2.29	5326.8	2086.8	0.95
443.3	0.266	207	68.6	4118.4	4.42	0.96	6.51	5.758	4220.2	11420.2	7301.8	3081.6	2.37	5191.7	2110.1	0.98
521.7	0.313	208	69.3	4219.2	5.20	0.95	6.56	5.711	4212.1	11412.1	7192.9	2980.8	2.41	5086.8	2106.0	1.00
608.3	0.365	211	69.8	4291.2	6.06	0.94	6.62	5.659	4241.1	11441.1	7149.9	2908.8	2.46	5029.4	2120.6	1.01
695.0	0.417	213	70.1	4334.4	6.92	0.93	6.69	5.607	4234.4	11434.4	7100.0	2865.6	2.48	4982.8	2117.2	1.02
775.0	0.465	214	70.4	4377.6	7.72	0.92	6.74	5.559	4219.6	11419.6	7042.0	2822.4	2.50	4932.2	2109.8	1.04
861.7	0.517	216	70.6	4406.4	8.58	0.91	6.81	5.507	4226.6	11426.6	7020.2	2793.6	2.51	4906.9	2113.3	1.04
936.7	0.562	216	70.8	4435.2	9.33	0.91	6.86	5.462	4190.0	11390.0	6954.8	2764.8	2.52	4859.8	2095.0	1.06
1023.3	0.614	217	71.1	4478.4	10.19	0.90	6.93	5.410	4181.3	11381.3	6902.9	2721.6	2.54	4812.2	2090.6	1.07
1110.0	0.666	218	71.2	4492.8	11.06	0.89	7.00	5.358	4157.5	11357.5	6864.7	2707.2	2.54	4786.0	2078.8	1.08
1190.0	0.714	218	71.4	4521.6	11.85	0.88	7.06	5.310	4126.4	11326.4	6804.8	2678.4	2.54	4741.6	2063.2	1.10
1276.7	0.766	219	71.5	4536.0	12.72	0.87	7.13	5.258	4102.2	11302.2	6766.2	2664.0	2.54	4715.1	2051.1	1.11
1348.3	0.809	220	71.7	4564.8	13.43	0.87	7.19	5.215	4080.6	11280.6	6715.8	2635.2	2.55	4675.5	2040.3	1.12
1440.0	0.864	220	71.8	4579.2	14.34	0.86	7.26	5.160	4035.6	11235.6	6656.4	2620.8	2.54	4638.6	2017.8	1.13
1526.7	0.916	222	71.8	4579.2	15.21	0.85	7.34	5.108	4036.2	11236.2	6657.0	2620.8	2.54	4638.9	2018.1	1.13
1605.0	0.963	221	71.8	4579.2	15.99	0.84	7.41	5.061	3975.7	11175.7	6596.5	2620.8	2.52	4608.6	1987.8	1.15
1696.7	1.018	222	71.9	4593.6	16.90	0.83	7.49	5.006	3957.5	11157.5	6563.9	2606.4	2.52	4585.1	1978.7	1.16

DU @ FAILURE	4478.4	DEVIATORIC STRESS @ FAILURE	4181.3	EFFECTIVE PRINCIPLE STRESS RATIO @ FAILURE	2.54

TECH	PWM/JH
DATE	11/20/02
CHECKED	BSS
REVIEWED	ETA

TRIAXIAL COMPRESSION TEST (ASTM D-4767) — CONSOLIDATED UNDRAINED WITH PORE PRESSURE

PROJECT TITLE	CWM/RMU - 2 GW PLAN/NY
PROJECT NUMBER	013-9309
SAMPLE ID	SB-02-04 / SA - 15
SAMPLE TYPE	UD
DEPTH INTERVAL	28.0 - 30.0'
MACHINE SPEED (in/min)	0.0006
STRAIN RATE (%/min)	0.010
CELL PRESSURE (psi)	110.0
SAMPLE PRESSURE (psi)	40.0
EFF. CONSOLIDATION PRESSURE, σ_3 (psi)	70.0
PRESSURE, σ_3 (psf)	10080.0
FINAL "B" VALUE	0.96
t_{50} (minutes)	39.49

INITIAL SAMPLE DATA	cm	in	corrected
HEIGHT	15.794	6.218	6.133
DIAMETER	7.310	2.878	2.786
AREA	41.97	6.51	6.10
VOLUME	662.86	40.45	37.40
WEIGHT (g)	1334.36		1290.36
% MOISTURE	26.7		22.48
SPECIFIC GRAVITY	2.81		
MOIST DENSITY (pcf)	125.6		
DRY DENSITY, calc (pcf)	99.2		
VOLUME OF SOLIDS	374.40		
VOLUME OF VOIDS	288.47		
VOID RATIO	0.770		
SATURATION	97.3		

CORRECTED SAMPLE DATA	
DRY DENSITY, calc (pcf)	107.3
VOLUME OF SOLIDS	374.40
VOLUME OF VOIDS	238.47
VOID RATIO	0.637

WATER CONTENT (% MOISTURE)	
WT SOIL & TARE, MOIST (g)	1290.36
WT SOIL & TARE, DRY (g)	1053.55
WT TARE (g)	0.00
WT MOISTURE (g)	236.81
WT DRY SOIL (g)	1053.55
% MOISTURE	22.48

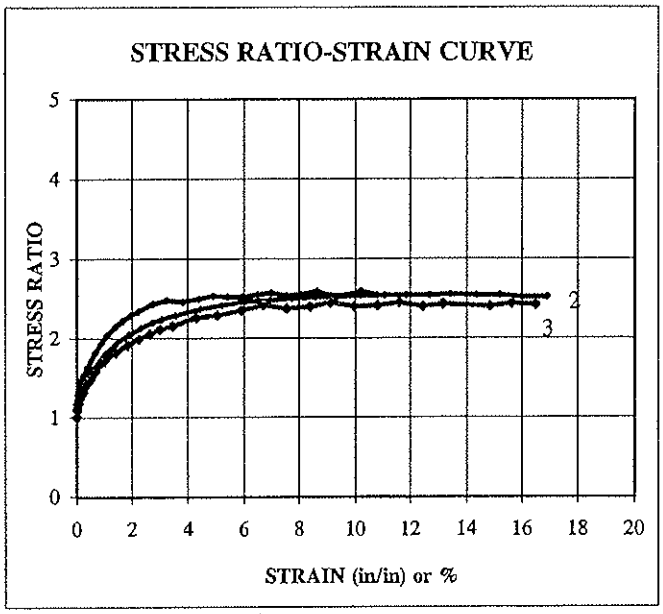
TIME (MIN)	ACCUM. DEFLECT. (inches)	AXIAL LOAD (lbs)	PORE PRESS. (psi)=U	PWP change DU (psf) (acc)	ε % STRAIN (%)	(1-ε)	CORR. AREA (in 2)	CORR. HEIGHT (in)	DEV. STRESS (psf)	SIGMA 1 devstr+cp (σ_1)	SIGMA 1 EFF. (σ_1-dU)	SIGMA 3 EFF. (σ_3-dU)	EFF.PRN STR RATIO (σ_1'/σ_3')	$\frac{(\sigma_1'+\sigma_3')}{2}$ (P)	$\frac{(\sigma_1-\sigma_3)}{2}$ (Q)	(A)
0.0	0.000	22	40.9	0.0	0.00	1.00	6.10	6.133	0.0	10080.0	10080.0	10080.0	1.00	10080.0	0.0	0
1.7	0.001	59	45.0	590.4	0.02	1.00	6.10	6.132	878.3	10958.3	10367.9	9489.6	1.09	9928.8	439.2	0.67
5.0	0.003	88	47.3	921.6	0.05	1.00	6.10	6.130	1553.1	11633.1	10711.5	9158.4	1.17	9934.9	776.5	0.59
10.0	0.006	109	49.4	1224.0	0.10	1.00	6.10	6.127	2047.7	12127.7	10903.7	8856.0	1.23	9879.9	1023.9	0.60
16.7	0.010	124	51.1	1468.8	0.16	1.00	6.11	6.123	2414.2	12494.2	11025.4	8611.2	1.28	9818.3	1207.1	0.61
21.7	0.013	137	52.7	1699.2	0.21	1.00	6.11	6.120	2702.8	12782.8	11083.6	8380.8	1.32	9732.2	1351.4	0.63
26.7	0.016	147	55.3	2073.6	0.26	1.00	6.11	6.117	2948.8	13028.8	10955.2	8006.4	1.37	9480.8	1474.4	0.70
31.7	0.019	155	56.5	2246.4	0.31	1.00	6.12	6.114	3140.4	13220.4	10974.0	7833.6	1.40	9403.8	1570.2	0.72
38.3	0.023	163	57.3	2361.6	0.38	1.00	6.12	6.110	3312.4	13392.4	11030.8	7718.4	1.43	9374.6	1656.2	0.71
43.3	0.026	169	58.0	2462.4	0.42	1.00	6.12	6.107	3456.6	13536.6	11074.2	7617.6	1.45	9345.9	1728.3	0.71
48.3	0.029	175	58.8	2577.6	0.47	1.00	6.13	6.104	3586.5	13666.5	11088.9	7502.4	1.48	9295.6	1793.2	0.72
65.0	0.039	190	62.7	3139.2	0.64	0.99	6.14	6.094	3946.7	14026.7	10887.5	6940.8	1.57	8914.1	1973.3	0.80
100.0	0.060	214	67.0	3758.4	0.98	0.99	6.16	6.073	4496.6	14576.6	10818.2	6321.6	1.71	8569.9	2248.3	0.84
143.3	0.086	229	70.0	4190.4	1.40	0.99	6.18	6.047	4824.3	14904.3	10713.9	5889.6	1.82	8301.7	2412.1	0.87
188.3	0.113	240	72.5	4550.4	1.84	0.98	6.21	6.020	5046.1	15126.1	10575.7	5529.6	1.91	8052.6	2523.0	0.90
230.0	0.138	248	74.3	4809.6	2.25	0.98	6.24	5.995	5221.3	15301.3	10491.7	5270.4	1.99	7881.1	2610.7	0.92
271.7	0.163	255	75.7	5011.2	2.66	0.97	6.26	5.970	5344.4	15424.4	10413.2	5068.8	2.05	7741.0	2672.2	0.94
306.7	0.184	260	76.9	5184.0	3.00	0.97	6.29	5.949	5440.1	15520.1	10336.1	4896.0	2.11	7616.1	2720.1	0.95
353.3	0.212	263	77.8	5313.6	3.46	0.97	6.32	5.921	5501.1	15581.1	10267.5	4766.4	2.15	7517.0	2750.6	0.97
438.3	0.263	270	80.0	5630.4	4.29	0.96	6.37	5.870	5612.0	15692.0	10061.6	4449.6	2.26	7255.6	2806.0	1.00
515.0	0.309	276	80.3	5673.6	5.04	0.95	6.42	5.824	5686.8	15766.8	10093.2	4406.4	2.29	7249.8	2843.4	1.00
603.3	0.362	279	81.5	5846.4	5.90	0.94	6.48	5.771	5717.3	15797.3	9950.9	4233.6	2.35	7092.3	2858.7	1.02
686.7	0.412	283	82.7	6019.2	6.72	0.93	6.54	5.721	5744.9	15824.9	9805.7	4060.8	2.41	6933.2	2872.4	1.05
770.0	0.462	285	81.9	5904.0	7.53	0.92	6.59	5.671	5740.5	15820.5	9916.5	4176.0	2.37	7046.3	2870.3	1.03
856.7	0.514	287	82.3	5961.6	8.38	0.92	6.66	5.619	5742.0	15822.0	9860.4	4118.4	2.39	6989.4	2871.0	1.04
931.7	0.559	291	83.3	6105.6	9.11	0.91	6.71	5.574	5766.8	15846.8	9741.2	3974.4	2.45	6857.8	2883.4	1.06
1018.3	0.611	291	82.5	5990.4	9.96	0.90	6.77	5.522	5719.4	15799.4	9809.0	4089.6	2.40	6949.3	2859.7	1.05
1105.0	0.663	292	82.9	6048.0	10.81	0.89	6.84	5.470	5692.9	15772.9	9724.9	4032.0	2.41	6878.5	2846.5	1.06
1186.7	0.712	294	83.7	6163.2	11.61	0.88	6.90	5.421	5671.1	15751.1	9587.9	3916.8	2.45	6752.4	2835.6	1.09
1273.3	0.764	294	83.0	6062.4	12.46	0.88	6.97	5.369	5625.0	15705.0	9642.6	4017.6	2.40	6830.1	2812.5	1.08
1346.7	0.808	297	83.4	6120.0	13.17	0.87	7.02	5.325	5644.5	15724.5	9604.5	3960.0	2.43	6782.3	2822.3	1.08
1516.7	0.910	297	83.5	6134.4	14.84	0.85	7.16	5.223	5522.3	15602.3	9467.9	3945.6	2.40	6706.8	2761.2	1.11
1598.3	0.959	297	84.4	6264.0	15.64	0.84	7.23	5.174	5478.5	15558.5	9294.5	3816.0	2.44	6555.2	2739.2	1.14
1686.7	1.012	296	84.5	6278.4	16.50	0.83	7.30	5.121	5402.6	15482.6	9204.2	3801.6	2.42	6502.9	2701.3	1.16

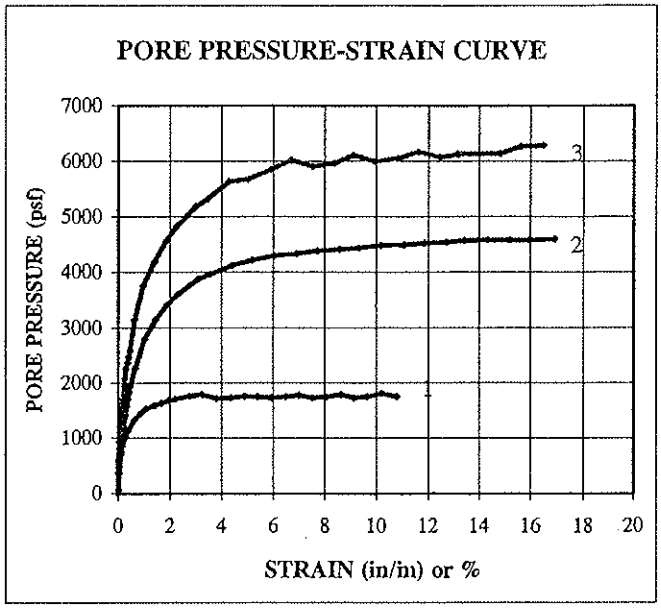
@ FAILURE	5904.0	DEVIATORIC STRESS @ FAILURE	5744.9	EFFECTIVE PRINCIPLE STRESS RATIO @ FAILURE	2.41

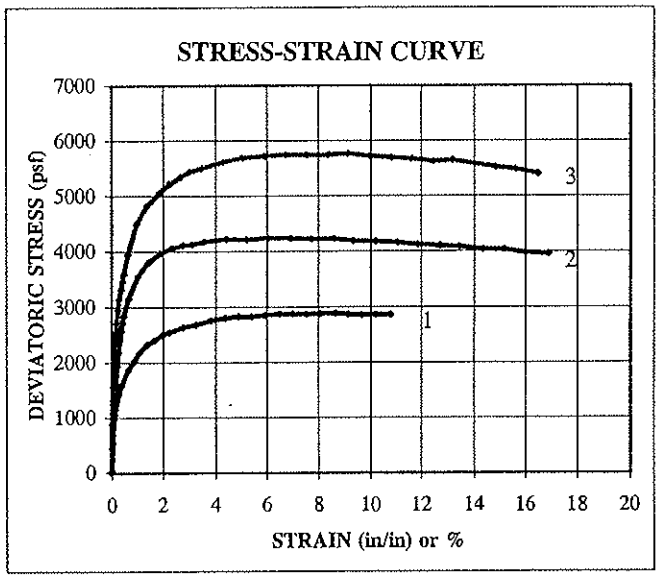
TECH	PWM/JH
DATE	11/20/02
CHECKED	BSS
REVIEWED	

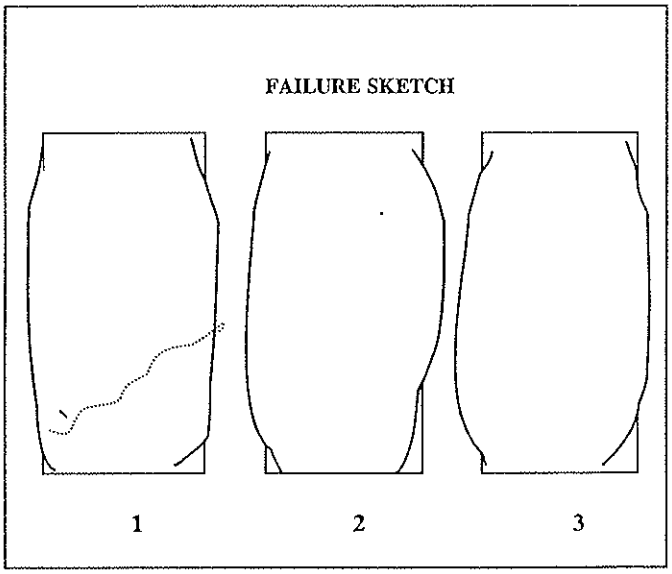
Golder Associates Inc.

TRIAXIAL COMPRESSION TEST
CONSOLIDATED UNDRAINED WITH PORE PRESSURE









DESCRIPTION	Weak Reddish Brown, SILTY CLAY, some fine sand.
USCS	(CH)

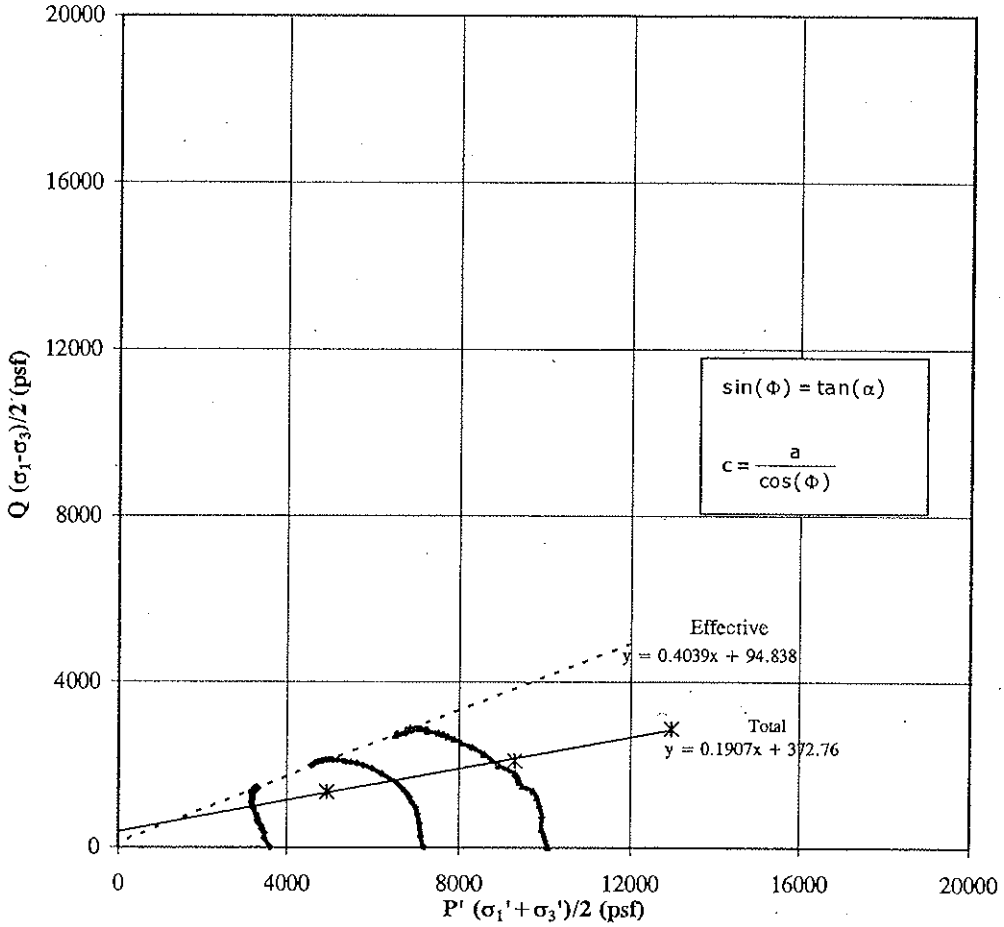
LL	-
PL	-
PI	-
Gs	2.81

	1	2	3
EFFECTIVE CONSOLIDATION PRESS (psf)	3600	7200	10080
INITIAL DRY DENSITY (pcf)	100.3	100.1	99.2
INITIAL WATER CONTENT (%)	26.0	25.7	26.7
STRAIN RATE (%/min)	0.008	0.010	0.010

PROJECT NAME	CWM/RMU - 2 GW PLAN/NY		
PROJECT NUMBER	013-9309		
SAMPLE ID	SB-02-04	SA - 15	28.0 - 30.0'
SAMPLE TYPE	UD		

CHECKED	BSS
REVIEWED	FTA

TRIAXIAL COMPRESSION TEST EFFECTIVE STRESS PATH
ASTM D 4767



*TOTAL STRENGTH PARAMETERS				*EFFECTIVE STRESS PARAMETERS			
α	10.8 °	ϕ =	11.0 °	α	22.0 °	ϕ' =	23.8 °
a	372.8 psf	C =	379.7 psf	a	94.8 psf	C' =	103.7 psf

DESCRIPTION: Weak Reddish Brown, SILTY CLAY, some fine sand.
USCS: (CH)

LL	-
PL	-
PI	-
Gs	2.81

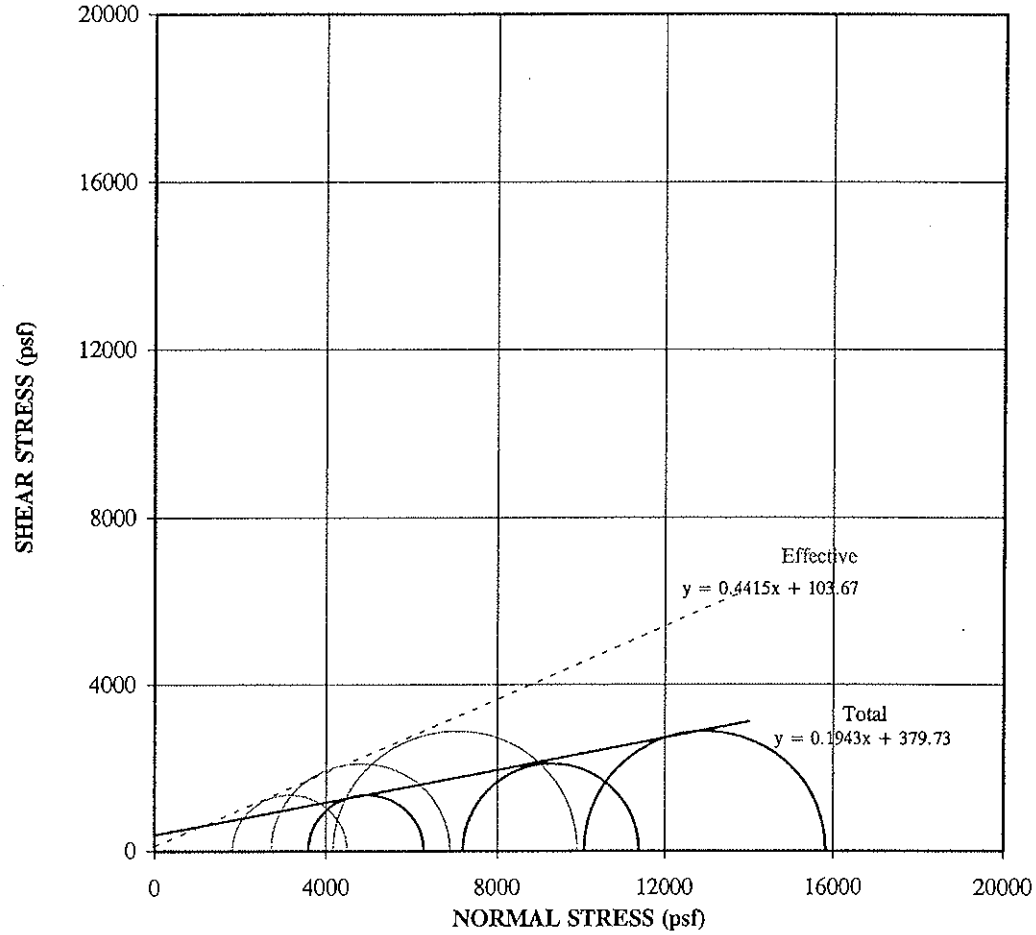
	1	2	3
EFFECTIVE CONSOLIDATION PRESS (psf)	3600	7200	10080
INITIAL DRY DENSITY (pcf)	100.3	100.1	99.2
INITIAL WATER CONTENT %	26.0	25.7	26.7

PROJECT TITLE	CWM/RMU - 2 GW PLAN/NY
PROJECT NUMBER	013-9309
SAMPLE ID	SB-02-04 SA - 15 28.0 - 30.0'
SAMPLE TYPE	UD

* Failure based on the maximum principal effective stress ratio or the stress at 15% strain.

CHECKED	BSS
REVIEWED	FTA

TRIAXIAL COMPRESSION TEST TOTAL AND EFFECTIVE MOHR CIRCLES - ASTM D 4767



*TOTAL STRENGTH PARAMETERS	
ϕ =	11.0 ^{0}
C =	379.7 psf

*EFFECTIVE STRENGTH PARAMETERS	
ϕ' =	23.8 ^{0}
C' =	103.7 psf

DESCRIPTION	Weak Reddish Brown, SILTY CLAY, some fine sand.
USCS	(CH)

LL	-
PL	-
PI	-
Gs	2.81

	1	2	3
EFFECTIVE CONSOLIDATION PRESS (psf)	3600	7200	10080
INITIAL DRY DENSITY (pcf)	100.3	100.1	99.2
INITIAL WATER CONTENT, %	26.0	25.7	26.7

PROJECT TITLE	CWM/RMU - 2 GW PLAN/NY
PROJECT NUMBER	013-9309
SAMPLE ID	SB-02-04 SA - 15 28.0 - 30.0'
SAMPLE TYPE	UD

* Failure based on the maximum principal effective stress ratio or the stress at 15% strain.

CHECKED	BSS
REVIEWED	FTA

ATTACHMENT B-5

GEOTECHNICAL LABORATORY RESULTS

CONSOLIDATION

ONE-DIMENSIONAL CONSOLIDATION

ASTM D 2435

CWM/RMU-2 GW Plan/NY 013-9309.011	SAMPLE:	SB-02-2A SA-4	DATE 11/11/02 TECH NT/RMW
	DEPTH:	28-30	REVIEW RMW

SAMPLE DATA, GENERAL

height (in)	0.750
diameter (in)	2.500
area (in²)	4.909
volume (in³)	3.682
specimen weight,wet (g)	110.16
specimen weight,dry (g)	77.04
water weight (g)	33.12

SAMPLE DATA, INITIAL

total height (in)	0.750
height of solids (in)	0.341
height of voids (in)	0.409
height of water (in)	0.412
void ratio	1.202
% saturation	100.53%
dry density (pcf)	79.72
moist density (pcf)	113.99

SAMPLE DATA, FINAL

total height (in)	0.652
height of solids (in)	0.341
height of voids (in)	0.311
height of water (in)	0.327
void ratio	0.913
% saturation	105.26%
dry density (pcf)	91.74
moist density (pcf)	123.12

DESCRIPTION

LL:	-
PL:	-
PI:	-
Gs:	2.81

MOISTURE CONTENT, INITIAL

tare #	N8
wt soil&tare,moist	75.71
wt soil&tare,dry	64.94
wt tare	31.57
wt moisture	10.77
wt dry soil	33.37
% moisture	32.27%

MOISTURE CONTENT, FINAL

tare #	F006
wt soil&tare,moist	152.50
wt soil&tare,dry	126.15
wt tare	49.11
wt moisture	26.35
wt dry soil	77.04
% moisture	34.20%

PRESSURE (tsf)	R_{90} DIAL READING	DIAL CHANGE (in)	FITTING TIME (sec) t_{90}	SPECIMEN HEIGHT (in)	HEIGHT OF VOIDS H_v	VOID RATIO e	CHANGE IN HEIGHT (cumulative)	STRAIN %	DRAINAGE PATH (DOUBLE DRAINAGE) H (in)	DRAINAGE PATH (DOUBLE DRAINAGE) H^2 (cm^2)	COEFFICIENT OF CONSOLIDATION C_v (cm^2/sec)	COEFFICIENT OF CONSOLIDATION (ft^2/day)
0.000	0.3408	0.0000	0	0.7500	0.4094	1.2017	0.0000	0.0000	0.0000	0.0000	0.00E+00	0.00E+00
0.250	0.3455	0.0047	397	0.7453	0.4047	1.1879	0.0047	0.0063	0.2033	0.2667	5.70E-04	5.30E-02
0.500	0.3597	0.0142	1500	0.7311	0.3905	1.1462	0.0189	0.0252	0.1967	0.2496	1.41E-04	1.31E-02
1.000	0.3682	0.0085	1104	0.7226	0.3820	1.1213	0.0274	0.0365	0.1919	0.2375	1.82E-04	1.70E-02
2.000	0.3840	0.0158	466	0.7068	0.3662	1.0749	0.0432	0.0576	0.1854	0.2216	4.04E-04	3.75E-02
1.000	0.3863	0.0023	566	0.7045	0.3639	1.0681	0.0455	0.0607	0.1813	0.2119	3.18E-04	2.95E-02
2.000	0.3892	0.0029	419	0.7016	0.3610	1.0596	0.0484	0.0645	0.1810	0.2114	4.28E-04	3.98E-02
4.000	0.4115	0.0223	900	0.6793	0.3387	0.9941	0.0707	0.0943	0.1736	0.1944	1.83E-04	1.70E-02
8.000	0.4391	0.0276	334	0.6517	0.3111	0.9131	0.0983	0.1311	0.1609	0.1669	4.24E-04	3.94E-02

GOLDER ASSOCIATES INC.
CHERRY HILL, NEW JERSEY

ONE-DIMENSION CONSOLIDATION

ASTM D 2435

CWM/RMU-2 GW Plan/NY	SAMPLE:	SB-02-2A	DATE	11/11/02
013-9309.011		SA-4	TECH	NT/RMW
	DEPTH:	28-30	REVIEW	RMW

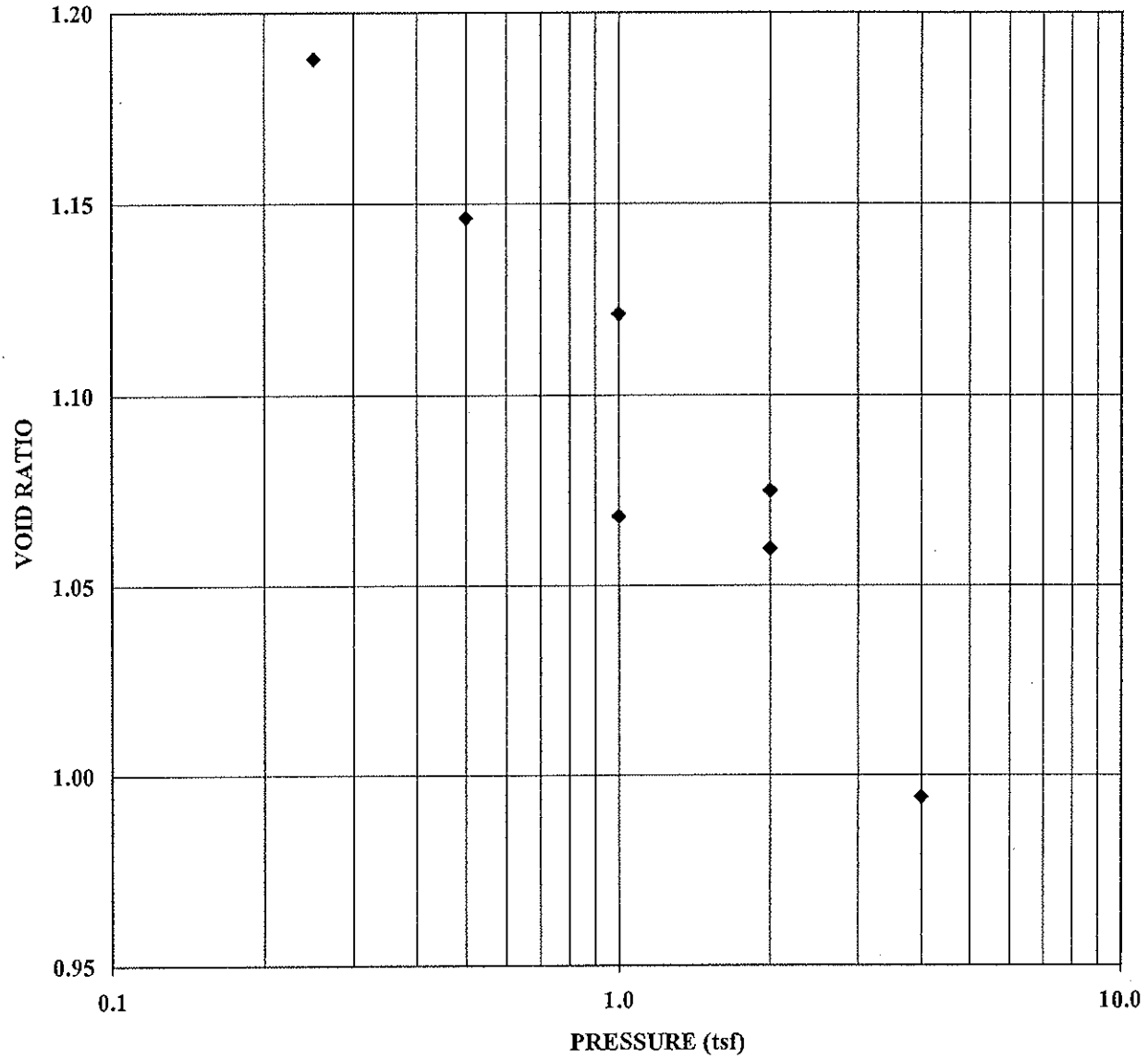
SAMPLE DATA, INITIAL		SAMPLE DATA, FINAL			
void ratio	1.202	void ratio	0.913	LL:	-
% saturation	100.53%	% saturation	105.26%	PL:	-
dry density (pcf)	79.72	dry density (pcf)	91.74	PI:	-
% moisture	32.27%	% moisture	34.20%	Gs:	2.81

PRESSURE (tsf)	R_{90} DIAL READING	DIAL CHANGE (in)	FITTING TIME (sec) t_{90}	SPECIMEN HEIGHT (in)	HEIGHT OF VOIDS H_v	VOID RATIO e	CHANGE IN HEIGHT (cumulative)	STRAIN %	DRAINAGE PATH (DOUBLE DRAINAGE) H (in)	DRAINAGE PATH (DOUBLE DRAINAGE) H^2 (cm^2)	COEFFICIENT OF CONSOLIDATION C_v (cm^2/sec)	COEFFICIENT OF CONSOLIDATION (ft^2/day)
0.000	0.3408	0.0000	0	0.7500	0.4094	1.2017	0.0000	0.0000	0.0000	0.0000	0.E+00	0.E+00
0.250	0.3455	0.0047	397	0.7453	0.4047	1.1879	0.0047	0.0063	0.2033	0.2667	6.E-04	5.E-02
0.500	0.3597	0.0142	1500	0.7311	0.3905	1.1462	0.0189	0.0252	0.1967	0.2496	1.E-04	1.E-02
1.000	0.3682	0.0085	1104	0.7226	0.3820	1.1213	0.0274	0.0365	0.1919	0.2375	2.E-04	2.E-02
2.000	0.3840	0.0158	466	0.7068	0.3662	1.0749	0.0432	0.0576	0.1854	0.2216	4.E-04	4.E-02
1.000	0.3863	0.0023	566	0.7045	0.3639	1.0681	0.0455	0.0607	0.1813	0.2119	3.E-04	3.E-02
2.000	0.3892	0.0029	419	0.7016	0.3610	1.0596	0.0484	0.0645	0.1810	0.2114	4.E-04	4.E-02
4.000	0.4115	0.0223	900	0.6793	0.3387	0.9941	0.0707	0.0943	0.1736	0.1944	2.E-04	2.E-02
8.000	0.4391	0.0276	334	0.6517	0.3111	0.9131	0.0983	0.1311	0.1609	0.1669	4.E-04	4.E-02

GOLDER ASSOCIATES INC.

CHERRY HILL, NEW JERSEY

ONE-DIMENSIONAL CONSOLIDATION



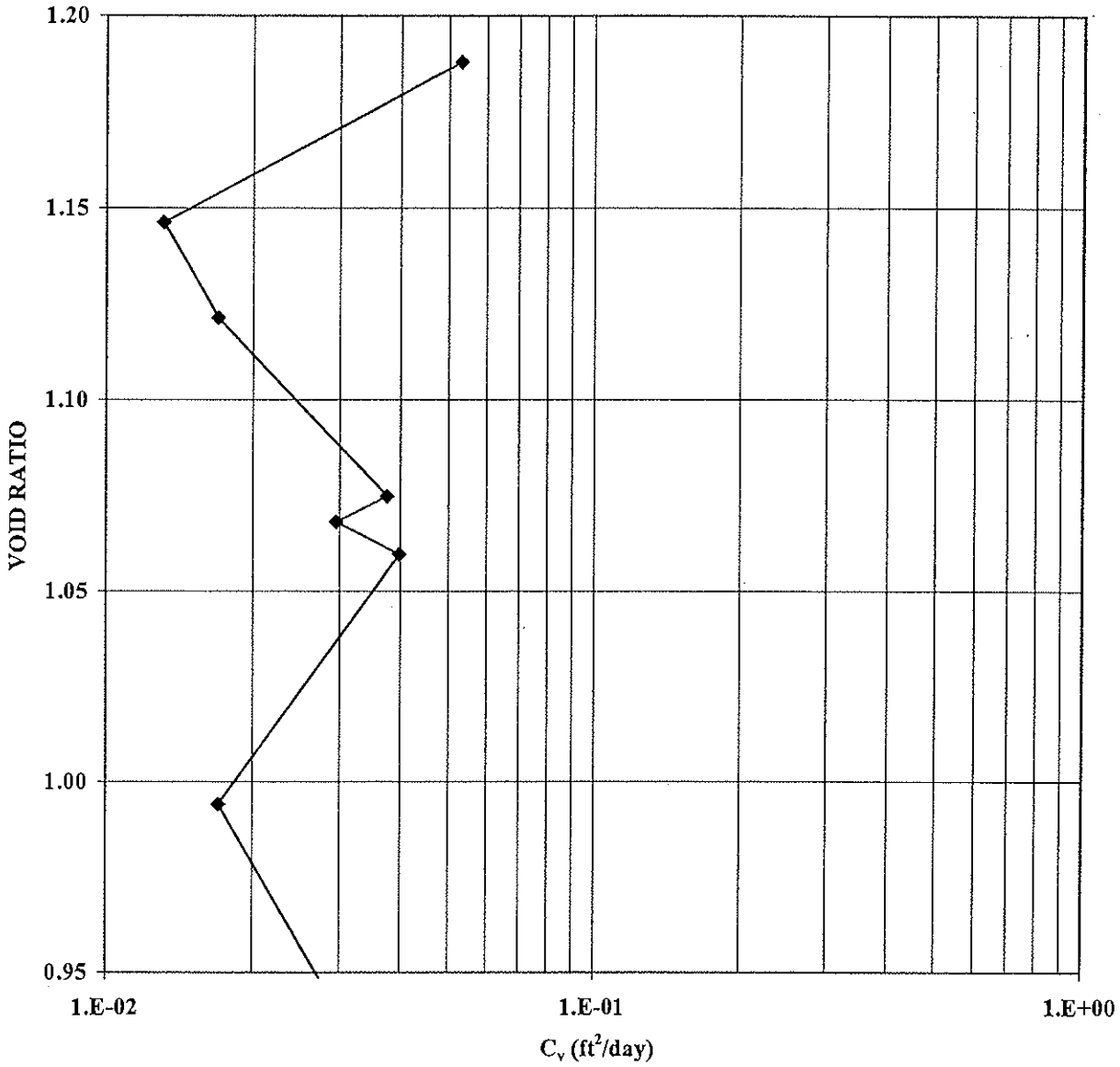
SAMPLE #:	SB-02-2A
	SA-4
DEPTH:	28-30

DATE	11/11/02
TECH	NT/RMW
REVIEW	RMW

CWM/RMU-2 GW Plan/NY
013-9309.011

GOLDER ASSOCIATES INC.
CHERRY HILL, NEW JERSEY

ONE-DIMENSIONAL CONSOLIDATION



SAMPLE #:	SB-02-2A
	SA-4
DEPTH:	28-30

DATE	11/11/02
TECH	NT/RMW
REVIEW	RMW

CWM/RMU-2 GW Plan/NY
013-9309.011

GOLDER ASSOCIATES INC.
CHERRY HILL, NEW JERSEY

ONE-DIMENSIONAL CONSOLIDATION

ASTM D 2435

CWM/RMU-2 GW Plan/NY 013-9309.011	SAMPLE:	SB-02-3A	DATE	11/14/02
		SA-1	TECH	NT/RMW
	DEPTH:	14-16	REVIEW	RMW

SAMPLE DATA, GENERAL

height (in)	0.750
diameter (in)	2.500
area (in²)	4.909
volume (in³)	3.682
specimen weight,wet (g)	132.57
specimen weight,dry (g)	111.76
water weight (g)	20.81

SAMPLE DATA, INITIAL

total height (in)	0.750
height of solids (in)	0.500
height of voids (in)	0.250
height of water (in)	0.259
void ratio	0.501
% saturation	103.22%
dry density (pcf)	115.64
moist density (pcf)	137.18

SAMPLE DATA, FINAL

total height (in)	0.694
height of solids (in)	0.500
height of voids (in)	0.195
height of water (in)	0.217
void ratio	0.390
% saturation	111.18%
dry density (pcf)	124.92
moist density (pcf)	144.40

DESCRIPTION

LL:	-
PL:	-
PI:	-
Gs:	2.78

MOISTURE CONTENT, INITIAL

tare #	CH22
wt soil&tare,moist	78.92
wt soil&tare,dry	71.83
wt tare	31.65
wt moisture	7.09
wt dry soil	40.18
% moisture	17.65%

MOISTURE CONTENT, FINAL

tare #	RW18
wt soil&tare,moist	445.23
wt soil&tare,dry	427.80
wt tare	316.04
wt moisture	17.43
wt dry soil	111.76
% moisture	15.60%

PRESSURE (tsf)	R_{90} DIAL READING	DIAL CHANGE (in)	FITTING TIME (sec) t_{90}	SPECIMEN HEIGHT (in)	HEIGHT OF VOIDS H_v	VOID RATIO e	CHANGE IN HEIGHT (cumulative)	STRAIN %	DRAINAGE PATH (DOUBLE DRAINAGE) H (in)	DRAINAGE PATH (DOUBLE DRAINAGE) H^2 (cm^2)	COEFFICIENT OF CONSOLIDATION C_v (cm^2/sec)	COEFFICIENT OF CONSOLIDATION (ft^2/day)
0.000	0.2949	0.0000	0	0.7500	0.2505	0.5015	0.0000	0.0000	0.0000	0.0000	0.00E+00	0.00E+00
0.250	0.3000	0.0051	648	0.7449	0.2454	0.4913	0.0051	0.0068	0.2262	0.3300	4.32E-04	4.01E-02
0.500	0.3051	0.0051	1770	0.7398	0.2403	0.4811	0.0102	0.0136	0.2230	0.3208	1.54E-04	1.43E-02
1.000	0.3109	0.0058	1500	0.7340	0.2345	0.4695	0.0160	0.0213	0.2206	0.3138	1.77E-04	1.65E-02
2.000	0.3206	0.0097	798	0.7243	0.2248	0.4500	0.0257	0.0343	0.2162	0.3016	3.20E-04	2.98E-02
1.000	0.3217	0.0011	313	0.7232	0.2237	0.4478	0.0268	0.0357	0.2139	0.2952	7.99E-04	7.43E-02
2.000	0.3232	0.0015	176	0.7217	0.2222	0.4448	0.0283	0.0377	0.2137	0.2945	1.42E-03	1.32E-01
4.000	0.3331	0.0099	466	0.7118	0.2123	0.4250	0.0382	0.0509	0.2101	0.2847	5.18E-04	4.82E-02
8.000	0.3506	0.0175	618	0.6943	0.1948	0.3900	0.0557	0.0743	0.2021	0.2634	3.61E-04	3.36E-02

GOLDER ASSOCIATES INC.
CHERRY HILL, NEW JERSEY

ONE-DIMENSIO[illegible] CONSOLIDATION

ASTM D 2435

CWM/RMU-2 GW Plan/NY	SAMPLE:	SB-02-3A	DATE	11/14/02
013-9309.011		SA-1	TECH	NT/RMW
	DEPTH:	14-16	REVIEW	RMW

SAMPLE DATA, INITIAL		SAMPLE DATA, FINAL			
void ratio	0.501	void ratio	0.390	LL:	-
% saturation	103.22%	% saturation	111.18%	PL:	-
dry density (pcf)	115.64	dry density (pcf)	124.92	PI:	-
% moisture	17.65%	% moisture	15.60%	Gs:	2.78

PRESSURE (tsf)	R_{90} DIAL READING	DIAL CHANGE (in)	FITTING TIME (sec) t_{90}	SPECIMEN HEIGHT (in)	HEIGHT OF VOIDS H_v	VOID RATIO e	CHANGE IN HEIGHT (cumulative)	STRAIN %	DRAINAGE PATH (DOUBLE DRAINAGE) H (in)	DRAINAGE PATH (DOUBLE DRAINAGE) H^2 (cm^2)	COEFFICIENT OF CONSOLIDATION C_v (cm^2/sec)	COEFFICIENT OF CONSOLIDATION (ft^2/day)
0.000	0.2949	0.0000	0	0.7500	0.2505	0.5015	0.0000	0.0000	0.0000	0.0000	0.E+00	0.E+00
0.250	0.3000	0.0051	648	0.7449	0.2454	0.4913	0.0051	0.0068	0.2262	0.3300	4.E-04	4.E-02
0.500	0.3051	0.0051	1770	0.7398	0.2403	0.4811	0.0102	0.0136	0.2230	0.3208	2.E-04	1.E-02
1.000	0.3109	0.0058	1500	0.7340	0.2345	0.4695	0.0160	0.0213	0.2206	0.3138	2.E-04	2.E-02
2.000	0.3206	0.0097	798	0.7243	0.2248	0.4500	0.0257	0.0343	0.2162	0.3016	3.E-04	3.E-02
1.000	0.3217	0.0011	313	0.7232	0.2237	0.4478	0.0268	0.0357	0.2139	0.2952	8.E-04	7.E-02
2.000	0.3232	0.0015	176	0.7217	0.2222	0.4448	0.0283	0.0377	0.2137	0.2945	1.E-03	1.E-01
4.000	0.3331	0.0099	466	0.7118	0.2123	0.4250	0.0382	0.0509	0.2101	0.2847	5.E-04	5.E-02
8.000	0.3506	0.0175	618	0.6943	0.1948	0.3900	0.0557	0.0743	0.2021	0.2634	4.E-04	3.E-02

GOLDER ASSOCIATES INC.

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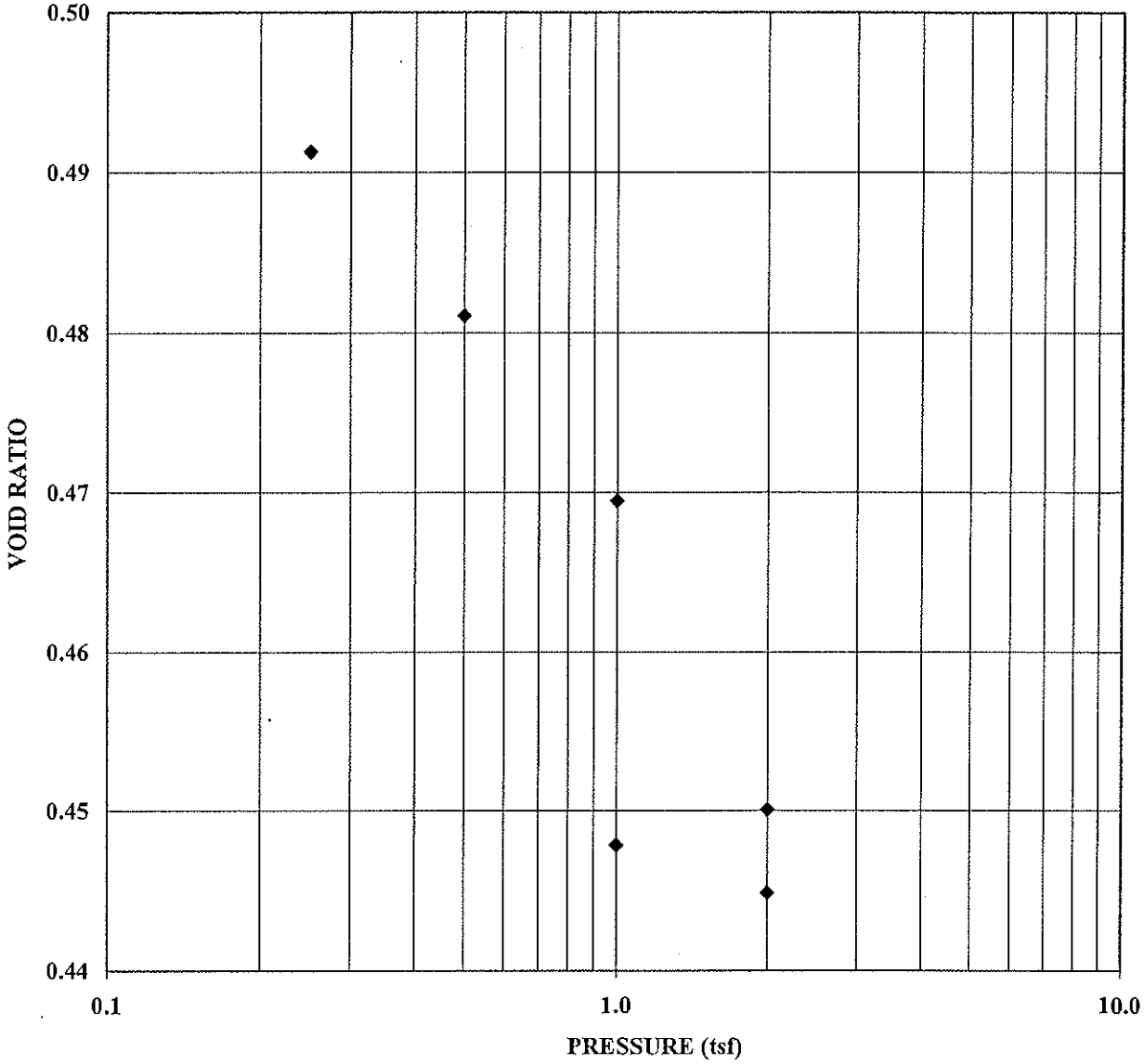
ONE-DIMENSIONAL CONSOLIDATION



SAMPLE #:	SB-02-3A
	SA-1
DEPTH:	14-16

DATE	11/14/02
TECH	NT/RMW
REVIEW	RMW

CWM/RMU-2 GW Plan/NY
013-9309.011

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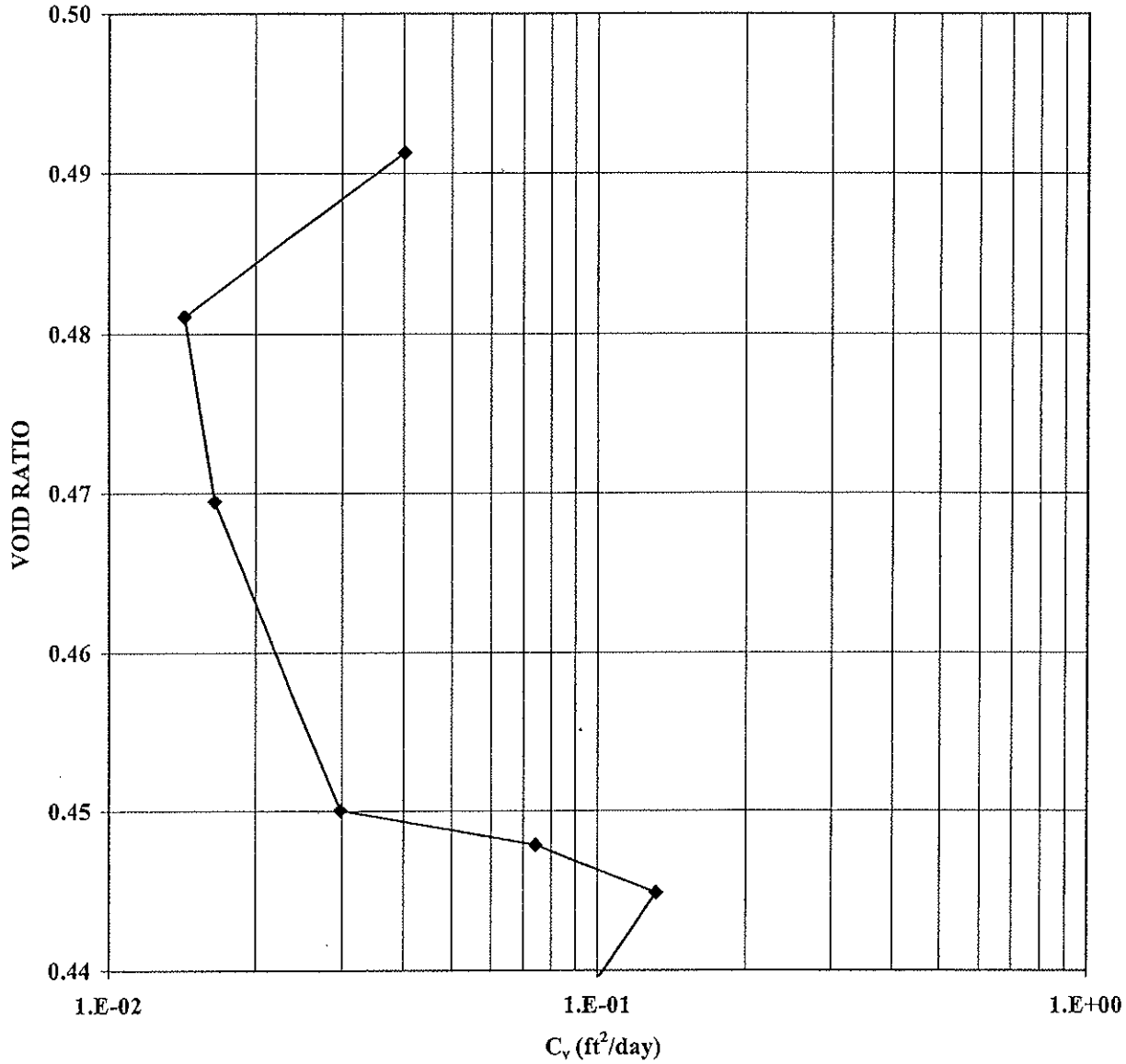
ONE-DIMENSIONAL CONSOLIDATION



SAMPLE #:	SB-02-3A
	SA-1
DEPTH:	14-16

DATE	11/14/02
TECH	NT/RMW
REVIEW	RMW

CWM/RMU-2 GW Plan/NY
013-9309.011

GOLDER ASSOCIATES INC.
CHERRY HILL, NEW JERSEY

ONE-DIMENSIO[N] CONSOLIDATION

ASTM D 2435

CWM/RMU-2 GW Plan/NY	SAMPLE:	SB-02-3A	DATE: 11/14/02
013-9309.011		SA-3	TECH: NT/RMW
	DEPTH:	28-30	REVIEW: RMW

SAMPLE DATA, GENERAL

height (in)	0.750
diameter (in)	2.500
area (in²)	4.909
volume (in³)	3.682
specimen weight,wet (g)	131.24
specimen weight,dry (g)	108.36
water weight (g)	22.88

SAMPLE DATA, INITIAL

total height (in)	0.750
height of solids (in)	0.481
height of voids (in)	0.269
height of water (in)	0.284
void ratio	0.560
% saturation	105.62%
dry density (pcf)	112.13
moist density (pcf)	135.80

SAMPLE DATA, FINAL

total height (in)	0.657
height of solids (in)	0.481
height of voids (in)	0.177
height of water (in)	0.192
void ratio	0.367
% saturation	108.80%
dry density (pcf)	127.92
moist density (pcf)	146.17

DESCRIPTION

LL:	-
PL:	-
PI:	-
Gs:	2.80

MOISTURE CONTENT, INITIAL

tare #	N5
wt soil&tare,moist	115.79
wt soil&tare,dry	104.36
wt tare	31.38
wt moisture	11.43
wt dry soil	72.98
% moisture	15.66%

MOISTURE CONTENT, FINAL

tare #	GH11
wt soil&tare,moist	274.88
wt soil&tare,dry	259.42
wt tare	151.06
wt moisture	15.46
wt dry soil	108.36
% moisture	14.27%

PRESSURE (tsf)	R_{90} DIAL READING	DIAL CHANGE (in)	FITTING TIME (sec) t_{90}	SPECIMEN HEIGHT (in)	HEIGHT OF VOIDS H_v	VOID RATIO e	CHANGE IN HEIGHT (cumulative)	STRAIN %	DRAINAGE PATH (DOUBLE DRAINAGE) H (in)	DRAINAGE PATH (DOUBLE DRAINAGE) H^2 (cm²)	COEFFICIENT OF CONSOLIDATION C_v (cm²/sec)	COEFFICIENT OF CONSOLIDATION (ft²/day)
0.000	0.2543	0.0000	0	0.7500	0.2692	0.5597	0.0000	0.0000	0.0000	0.0000	0.00E+00	0.00E+00
0.250	0.2723	0.0180	3600	0.7320	0.2512	0.5223	0.0180	0.0240	0.2429	0.3805	8.96E-05	8.33E-03
0.500	0.2837	0.0114	1800	0.7206	0.2398	0.4986	0.0294	0.0392	0.2350	0.3561	1.68E-04	1.56E-02
1.000	0.2939	0.0102	3600	0.7104	0.2296	0.4774	0.0396	0.0528	0.2295	0.3397	8.00E-05	7.44E-03
2.000	0.3055	0.0116	1218	0.6988	0.2180	0.4533	0.0512	0.0683	0.2245	0.3250	2.26E-04	2.10E-02
1.000	0.3070	0.0015	312	0.6973	0.2165	0.4501	0.0527	0.0703	0.2213	0.3158	8.58E-04	7.98E-02
2.000	0.3091	0.0021	354	0.6952	0.2144	0.4458	0.0548	0.0731	0.2209	0.3147	7.54E-04	7.01E-02
4.000	0.3226	0.0135	593	0.6817	0.2009	0.4177	0.0683	0.0911	0.2164	0.3021	4.32E-04	4.02E-02
8.000	0.3469	0.0243	660	0.6574	0.1766	0.3672	0.0926	0.1235	0.2056	0.2726	3.50E-04	3.26E-02

GOLDER ASSOCIATES INC.
CHERRY HILL, NEW JERSEY

ONE-DIMENSION CONSOLIDATION

ASTM D 2435

CWM/RMU-2 GW Plan/NY	SAMPLE:	SB-02-3A	DATE	11/14/02
013-9309.011		SA-3	TECH	NT/RMW
	DEPTH:	28-30	REVIEW	RMW

SAMPLE DATA, INITIAL		SAMPLE DATA, FINAL			
void ratio	0.560	void ratio	0.367	LL:	-
% saturation	105.62%	% saturation	108.80%	PL:	-
dry density (pcf)	112.13	dry density (pcf)	127.92	PI:	-
% moisture	15.66%	% moisture	14.27%	Gs:	2.80

PRESSURE (tsf)	R_{90} DIAL READING	DIAL CHANGE (in)	FITTING TIME (sec) t_{90}	SPECIMEN HEIGHT (in)	HEIGHT OF VOIDS H_v	VOID RATIO e	CHANGE IN HEIGHT (cumulative)	STRAIN %	DRAINAGE PATH (DOUBLE DRAINAGE) H (in)	DRAINAGE PATH (DOUBLE DRAINAGE) H^2 (cm^2)	COEFFICIENT OF CONSOLIDATION C_v (cm^2/sec)	COEFFICIENT OF CONSOLIDATION (ft^2/day)
0.000	0.2543	0.0000	0	0.7500	0.2692	0.5597	0.0000	0.0000	0.0000	0.0000	0.E+00	0.E+00
0.250	0.2723	0.0180	3600	0.7320	0.2512	0.5223	0.0180	0.0240	0.2429	0.3805	9.E-05	8.E-03
0.500	0.2837	0.0114	1800	0.7206	0.2398	0.4986	0.0294	0.0392	0.2350	0.3561	2.E-04	2.E-02
1.000	0.2939	0.0102	3600	0.7104	0.2296	0.4774	0.0396	0.0528	0.2295	0.3397	8.E-05	7.E-03
2.000	0.3055	0.0116	1218	0.6988	0.2180	0.4533	0.0512	0.0683	0.2245	0.3250	2.E-04	2.E-02
1.000	0.3070	0.0015	312	0.6973	0.2165	0.4501	0.0527	0.0703	0.2213	0.3158	9.E-04	8.E-02
2.000	0.3091	0.0021	354	0.6952	0.2144	0.4458	0.0548	0.0731	0.2209	0.3147	8.E-04	7.E-02
4.000	0.3226	0.0135	593	0.6817	0.2009	0.4177	0.0683	0.0911	0.2164	0.3021	4.E-04	4.E-02
8.000	0.3469	0.0243	660	0.6574	0.1766	0.3672	0.0926	0.1235	0.2056	0.2726	4.E-04	3.E-02

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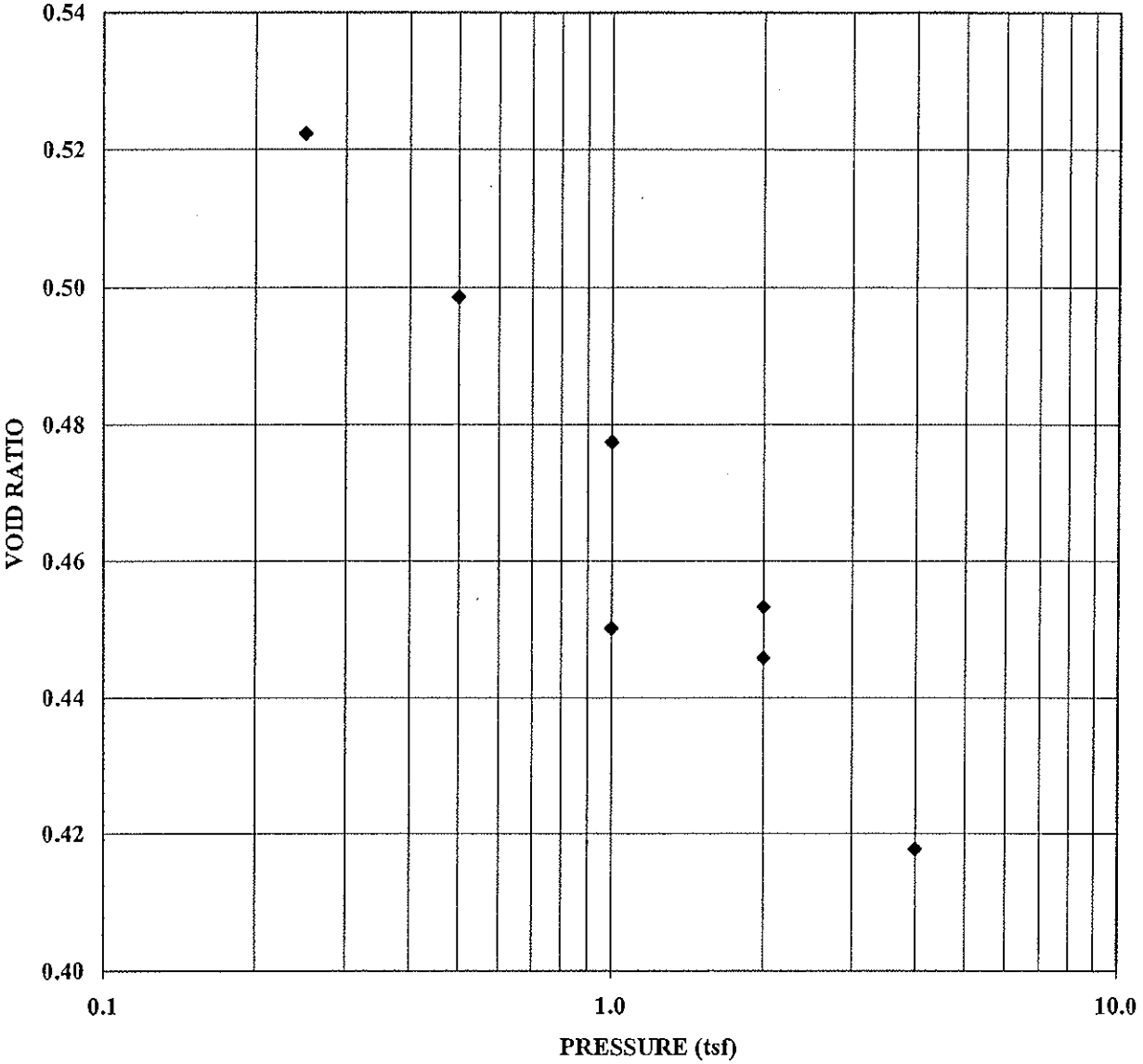
ONE-DIMENSIONAL CONSOLIDATION



SAMPLE #:	SB-02-3A
	SA-3
DEPTH:	28-30

DATE	11/14/02
TECH	NT/RMW
REVIEW	RMW

CWM/RMU-2 GW Plan/NY
013-9309.011

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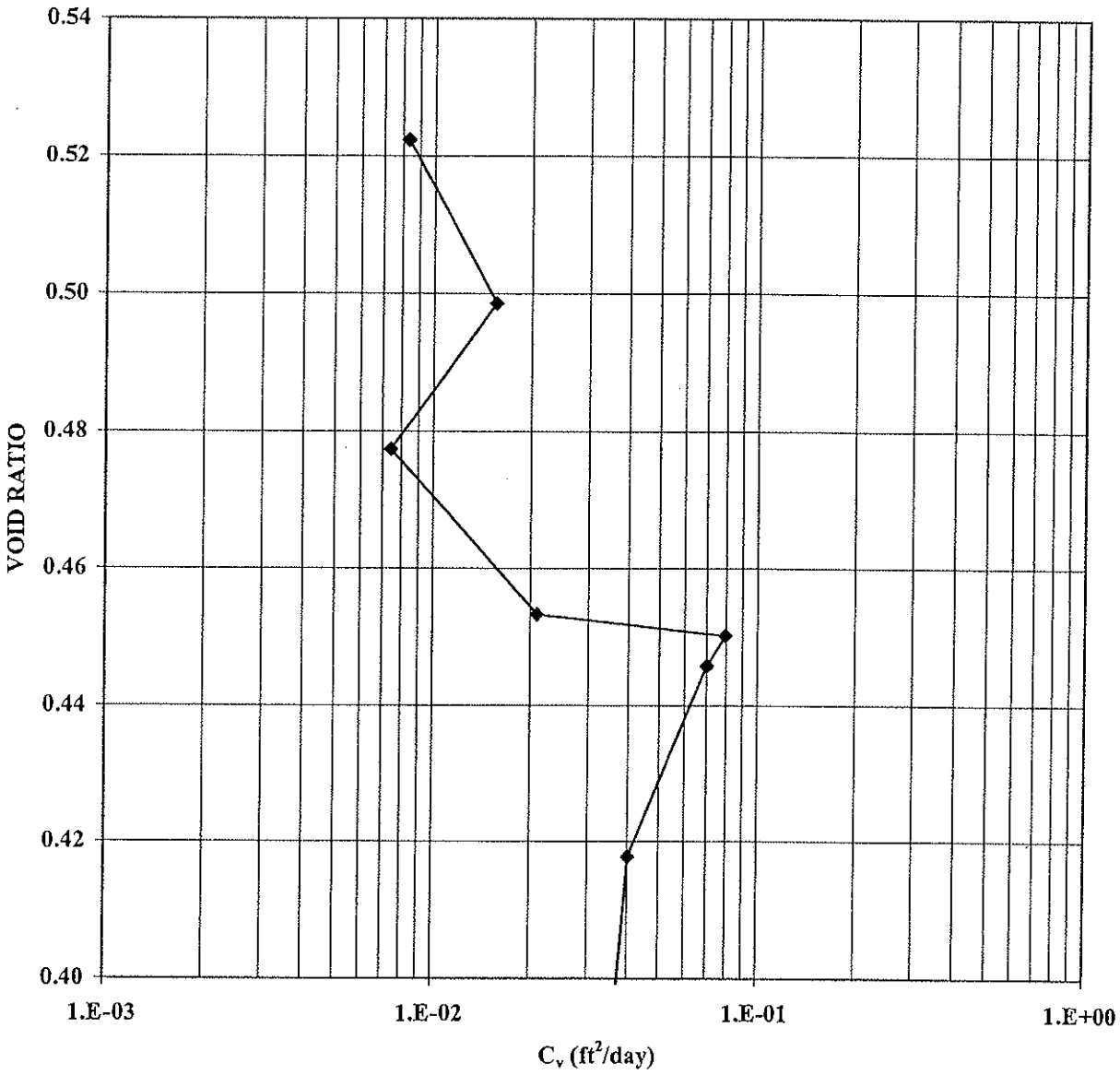

SAMPLE #:	SB-02-3A
	SA-3
DEPTH:	28-30

DATE	11/14/02
TECH	NT/RMW
REVIEW	RMW

CWM/RMU-2 GW Plan/NY
013-9309.011

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Appendix A-3

Laboratory Testing – Structural Fill
(Geotechnics, August 2009)

Geotechnics
.....GEOTECHNICAL AND
GEOSYNTHETIC SERVICES

August 17, 2009

Project No. 2009-296-01

Mr. Peter J. Carey
P.J. Carey & Associates, PC
5878 Valine Way
Sugar Hill, GA 30518

Transmittal
Laboratory Test Results
CMW / RMU-2

Please find attached the laboratory test results for the above referenced project. The tests were outlined on the Project Verification Form that was faxed to your firm prior to the testing. The testing was performed in general accordance with the methods listed on the enclosed data sheets. The test results are believed to be representative of the samples that were submitted for testing and are indicative only of the specimens which were evaluated. We have no direct knowledge of the origin of the samples and imply no position with regard to the nature of the test results, i.e. pass/fail and no claims as to the suitability of the material for its intended use.

The test data and all associated project information provided shall be held in strict confidence and disclosed to other parties only with authorization by our Client. The test data submitted herein is considered integral with this report and is not to be reproduced except in whole and only with the authorization of the Client and Geotechnics. The remaining sample materials for this project will be retained for a minimum of 90 days as directed by the Geotechnics' Quality Program.

We are pleased to provide these testing services. Should you have any questions or if we may be of further assistance, please contact our office.

Respectively submitted,
Geotechnics, Inc.

David R. Backstrom
Laboratory Director

We understand that you have a choice in your laboratory services and we thank you for choosing Geotechnics.

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INTEGRITY IN TESTING

MOISTURE CONTENT

ASTM D 2216 (SOP-S1)

Client	PJ CAREY & ASSOCIATES
Client Reference	CME/RMU-2
Project No.	2009-296-01

Lab ID	01	02	03
Boring No.	FAC POND 3	FAC POND 3	NA
Depth (ft)	NA	NA	NA
Sample No.	WEST	EAST	SULLY'S SAMPLE
Tare Number	603	1710	606
Wt. of Tare & WS (gm)	606.8	605.4	754.4
Wt. of Tare & DS (gm)	534.7	519.1	684.1
Wt. of Tare (gm)	84.14	82.29	85.54
Wt. of Water (gm)	72.1	86.3	70.3
Wt. of DS (gm)	450.56	436.81	598.56
Water Content (%)	**16.0**	**19.8**	**11.7**

Notes : *NA*

Tested By PC *Date* 7/14/09 *Checked By* AB *Date* 7-16-09

DCN: CT-S1 DATE 6-30-98 REVISION: 2

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SIEVE AND HYDROMETER ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

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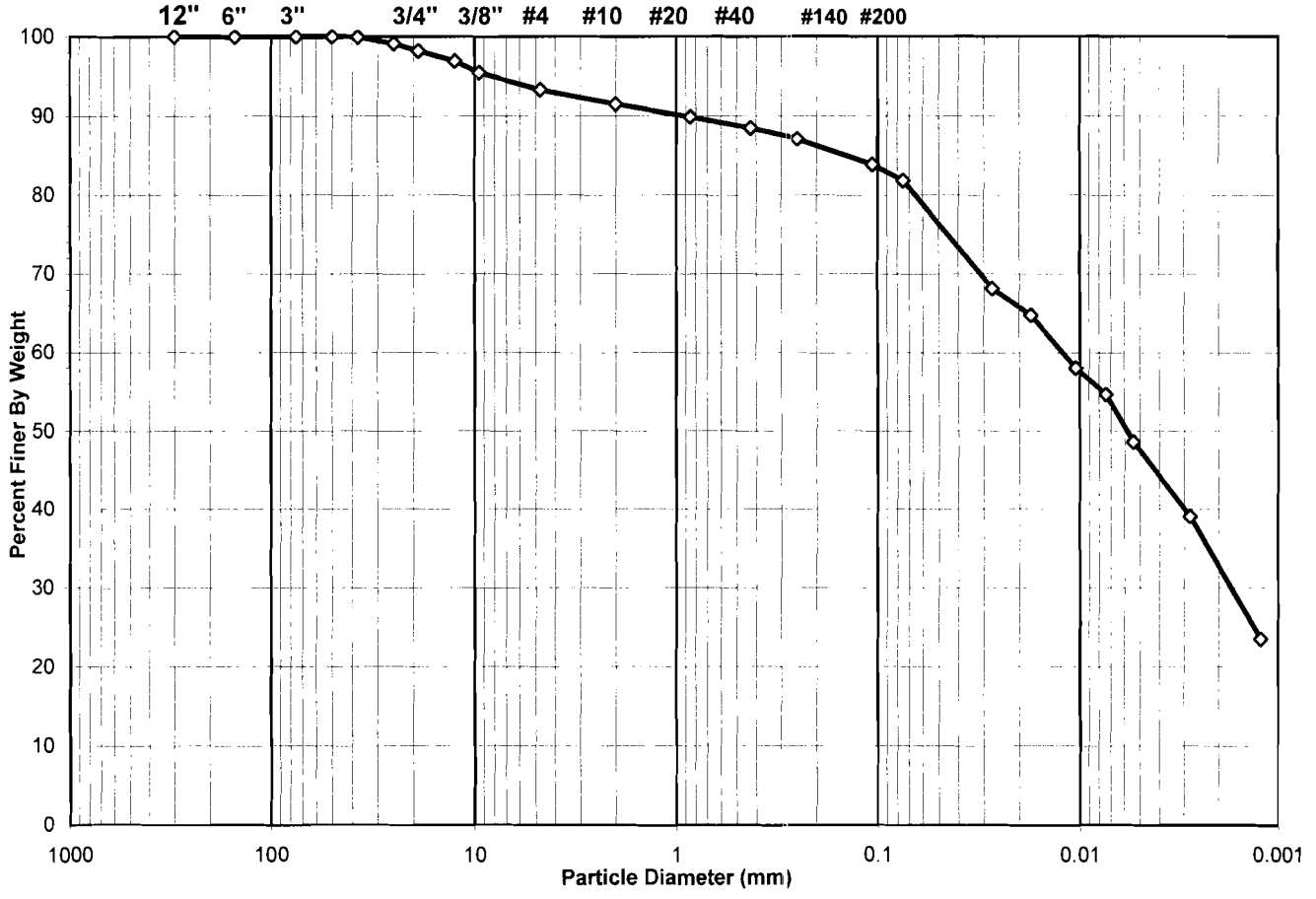
Client	P.J. CAREY & ASSOCIATES	Boring No.	FAC POND [illegible]
Client Reference	CMW / RMU-2	Depth (ft)	NA
Project No.	2009-296-01	Sample No.	WEST
Lab ID	2009-296-01-01	Soil Color	**BROWN**

	SIEVE ANALYSIS			HYDROMETER	
USCS	cobbles	gravel	sand	silt and clay fraction	
USDA	cobbles	gravel	sand	silt	clay



USCS Summary

Sieve Sizes (mm)		Percentage
Greater Than #4	*Gravel*	6.68
#4 To #200	*Sand*	11.49
Finer Than #200	*Silt & Clay*	81.83

USCS Symbol *CL, TESTED*

USCS Classification ***LEAN CLAY WITH SAND***

DCN: CT-S3B DATE:2/20/08 REVISION: 8

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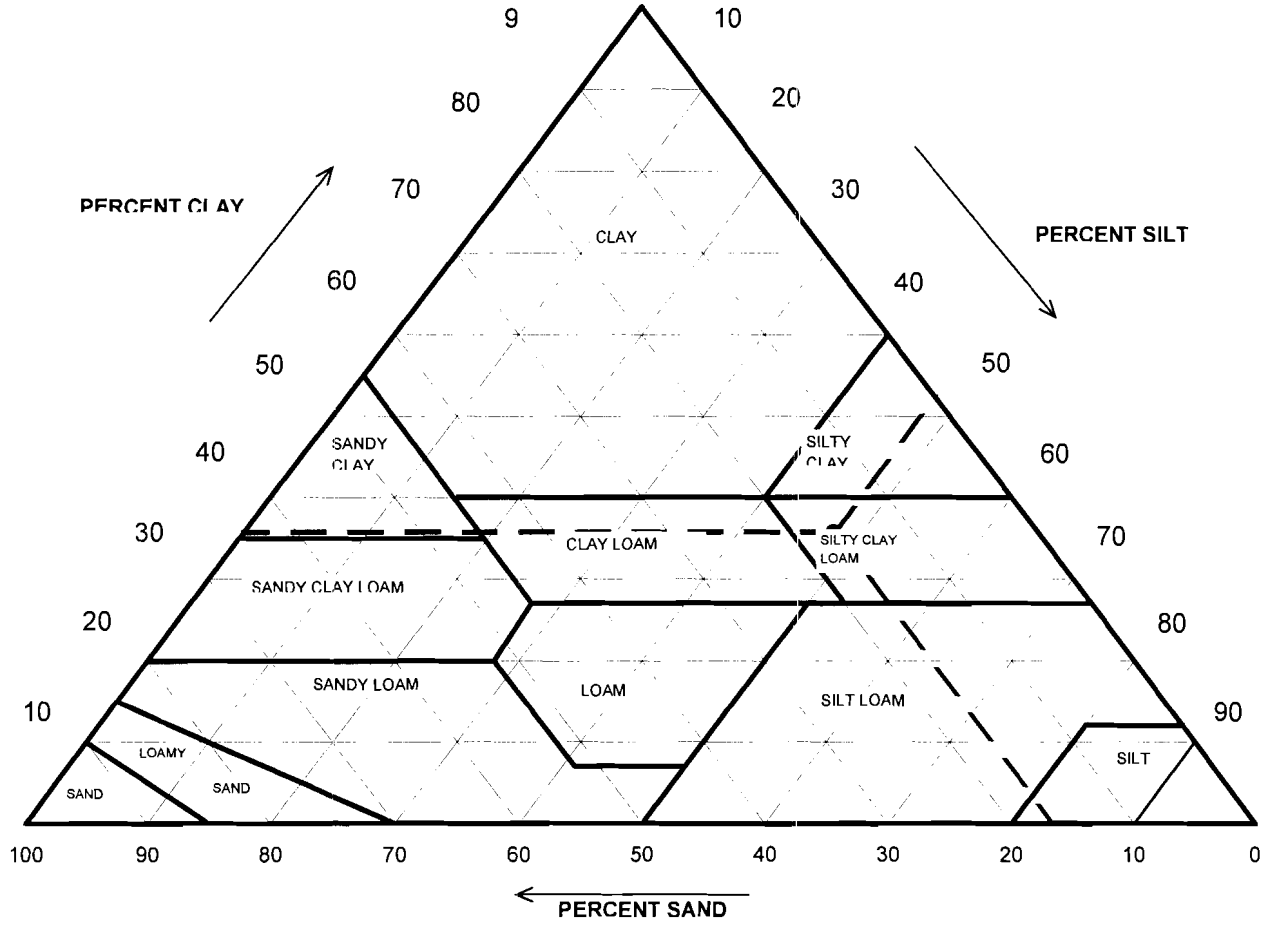
USDA CLASSIFICATION CHART

Client	P.J. CAREY & ASSOCIATES	Boring No.	FAC POND 3
Client Reference	CMW / RMU-2	Depth (ft)	NA
Project No.	2009-296-01	Sample No.	WEST
Lab ID	2009-296-01-01	Soil Color	BROWN



Particle Size (mm)	Percent Finer	USDA SUMMARY	Actual Percentage	Corrected % of Minus 2.0 mm material for USDA Classificat.
		Gravel	8.53	**0.00**
2	91.47	*Sand*	15.11	**16.52**
0.05	76.36	*Silt*	43.65	**47.72**
0.002	32.71	*Clay*	32.71	**35.76**

USDA Classification: ***SILTY CLAY LOAM***

DCN: CT-S3B DATE:2/20/08 REVISION: 8

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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	P.J. CAREY & ASSOCIATES	Boring No.	FAC POND 3
Client Reference	CMW / RMU-2	Depth (ft)	NA
Project No.	2009-296-01	Sample No.	WEST
Lab ID	2009-296-01-01	Soil Color	**BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	950	Tare No.	910
Wgt.Tare + Wet Specimen (gm)	1176.90	Wgt.Tare + Wet Specimen (gm)	480.70
Wgt.Tare + Dry Specimen (gm)	1036.30	Wgt.Tare + Dry Specimen (gm)	469.70
Weight of Tare (gm)	102.51	Weight of Tare (gm)	110.08
Weight of Water (gm)	140.60	Weight of Water (gm)	11.00
Weight of Dry Soil (gm)	933.79	Weight of Dry Soil (gm)	359.62
Moisture Content (%)	**15.1**	**Moisture Content (%)**	**3.1**

Wet Weight -3/4" Sample (gm)	22478	Weight of the Dry Specimen (gm)	933.79
Dry Weight - 3/4" Sample (gm)	19536.4	Weight of minus #200 material (gm)	778.14
Wet Weight +3/4" Sample (gm)	370.64	Weight of plus #200 material (gm)	155.65
Dry Weight + 3/4" Sample (gm)	359.64		
Total Dry Weight Sample (gm)	19896.1	**J - Factor (Percent Finer than 3/4")**	**0.9819**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	0.00		0.00	0.00	100.00	**100.00**
2"	50	0.00	(*)	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00		0.00	0.00	100.00	**100.00**
1"	25.0	176.83		0.86	0.86	99.14	**99.14**
3/4"	19.0	193.81		0.95	1.81	98.19	**98.19**
1/2"	12.5	12.03		1.29	1.29	98.71	**96.93**
3/8"	9.50	14.17		1.52	2.81	97.19	**95.44**
#4	4.75	20.14		2.16	4.96	95.04	**93.32**
#10	2.00	17.57		1.88	6.84	93.16	**91.47**
#20	0.85	15.03	(**)	1.61	8.45	91.55	**89.89**
#40	0.425	13.84		1.48	9.94	90.06	**88.44**
#60	0.250	12.61		1.35	11.29	88.71	**87.11**
#140	0.106	30.89		3.31	14.59	85.41	**83.86**
#200	0.075	19.37		2.07	16.67	83.33	**81.83**
Pan	-	778.14		83.33	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By JP Date 7/16/09 Checked By HB Date 7-23-09

DCN: CT-S3B DATE:2/20/08 REVISION: 8

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HYDROMETER ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	P.J. CAREY & ASSOCIATES	Boring No.	FAC POND 3
Client Reference	CMW / RMU-2	Depth (ft)	NA
Project No.	2009-296-01	Sample No.	WEST
Lab ID	2009-296-01-01	Soil Color	**BROWN**

Elapsed Time (min)	R Measured	Temp. (°C)	Composite Correction	R Corrected	N (%)	K Factor	Diameter (mm)	N' (%)
0	NA	NA	NA	NA	NA	NA	NA	NA
2	46.0	22.9	5.57	40.4	83.3	0.01299	0.0272	**68.1**
5	44.0	22.9	5.57	38.4	79.2	0.01299	0.0175	**64.8**
15	40.0	22.9	5.57	34.4	70.9	0.01299	0.0105	**58.0**
31	38.0	22.9	5.57	32.4	66.8	0.01299	0.0074	**54.7**
62	34.5	22.7	5.66	28.8	59.4	0.01302	0.0054	**48.6**
250	29.0	22.4	5.79	23.2	47.8	0.01307	0.0028	**39.1**
1440	19.0	24	5.06	13.9	28.7	0.01282	0.0012	**23.5**

Soil Specimen Data		**Other Corrections**	
Tare No.	2343		
Tare + Dry Material (gm)	150.73	a - Factor	0.99
Weight of Tare (gm)	97.66		
Weight of Deflocculant (gm)	5.0	Percent Finer than # 200	81.83
Weight of Dry Material (gm)	48.07		
		Specific Gravity	2.7 Assumed

Note: *Hydrometer test is performed on - # 200 sieve material.*

Tested By TO Date 7/20/09 Checked By HR Date 7-23-09

DCN: CT-S3B DATE:2/20/08 REVISION: 8

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ATTERBERG LIMITS

ASTM D 4318-05 / AASHTO T89 (SOP - S4A)

Client	P.J. CAREY & ASSOCIATES	Boring No.	FAC POND 3
Client Reference	CMW / RMU-2	Depth (ft)	NA
Project No.	2009-296-01	Sample No.	WEST
Lab ID	2009-296-01-01	Soil Description	**BROWN LEAN CLAY**

Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description. (Minus No. 40 sieve material, Airdried)

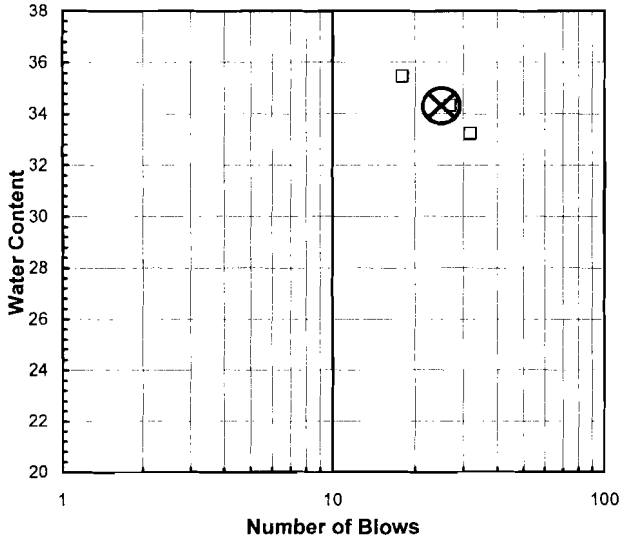
Liquid Limit Test	**1**	**2**	**3**	MULTIPOINT
Tare Number	35	280	312	
Wt. of Tare & WS (gm)	39.98	41.94	40.92	
Wt. of Tare & DS (gm)	34.60	35.70	35.26	
Wt. of Tare (gm)	18.40	17.51	19.29	
Wt. of Water (gm)	5.4	6.2	5.7	
Wt. of DS (gm)	16.2	18.2	16.0	
Moisture Content (%)	**33.2**	**34.3**	**35.4**	
Number of Blows	**32**	**27**	**18**	

Plastic Limit Test	**1**	**2**	**Range**
Tare Number	12	40	
Wt. of Tare & WS (gm)	22.00	21.67	
Wt. of Tare & DS (gm)	21.15	20.85	
Wt. of Tare (gm)	15.45	15.54	
Wt. of Water (gm)	0.9	0.8	
Wt. of DS (gm)	5.7	5.3	
Moisture Content (%)	**14.9**	**15.4**	**-0.5**

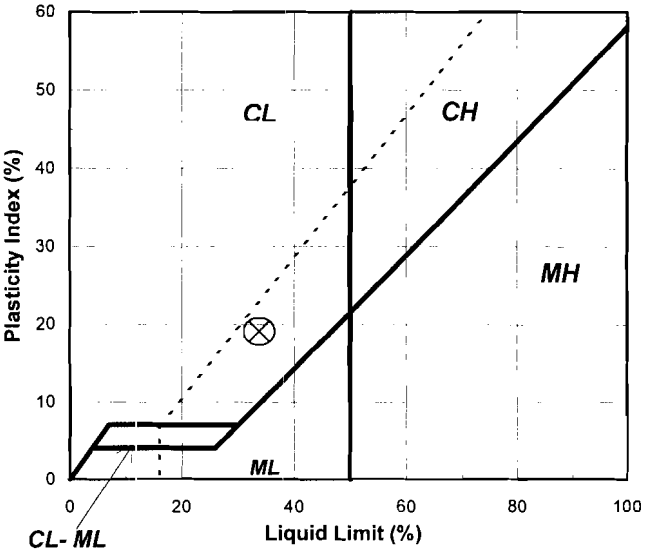
Note: The acceptable range of the two Moisture contents is ± 2.6

Test Results	
Liquid Limit (%)	**34**
Plastic Limit (%)	**15**
Plasticity Index (%)	**19**
USCS Symbol	**CL**

Flow Curve



Plasticity Chart



Tested By JP *Date* 7/22/09 *Checked By* KR *Date* 7-23-09

page 1 of 1 **DCN:** CT-S4B **DATE:** 12/20/06 **REVISION:** 3

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INTEGRITY IN TESTING

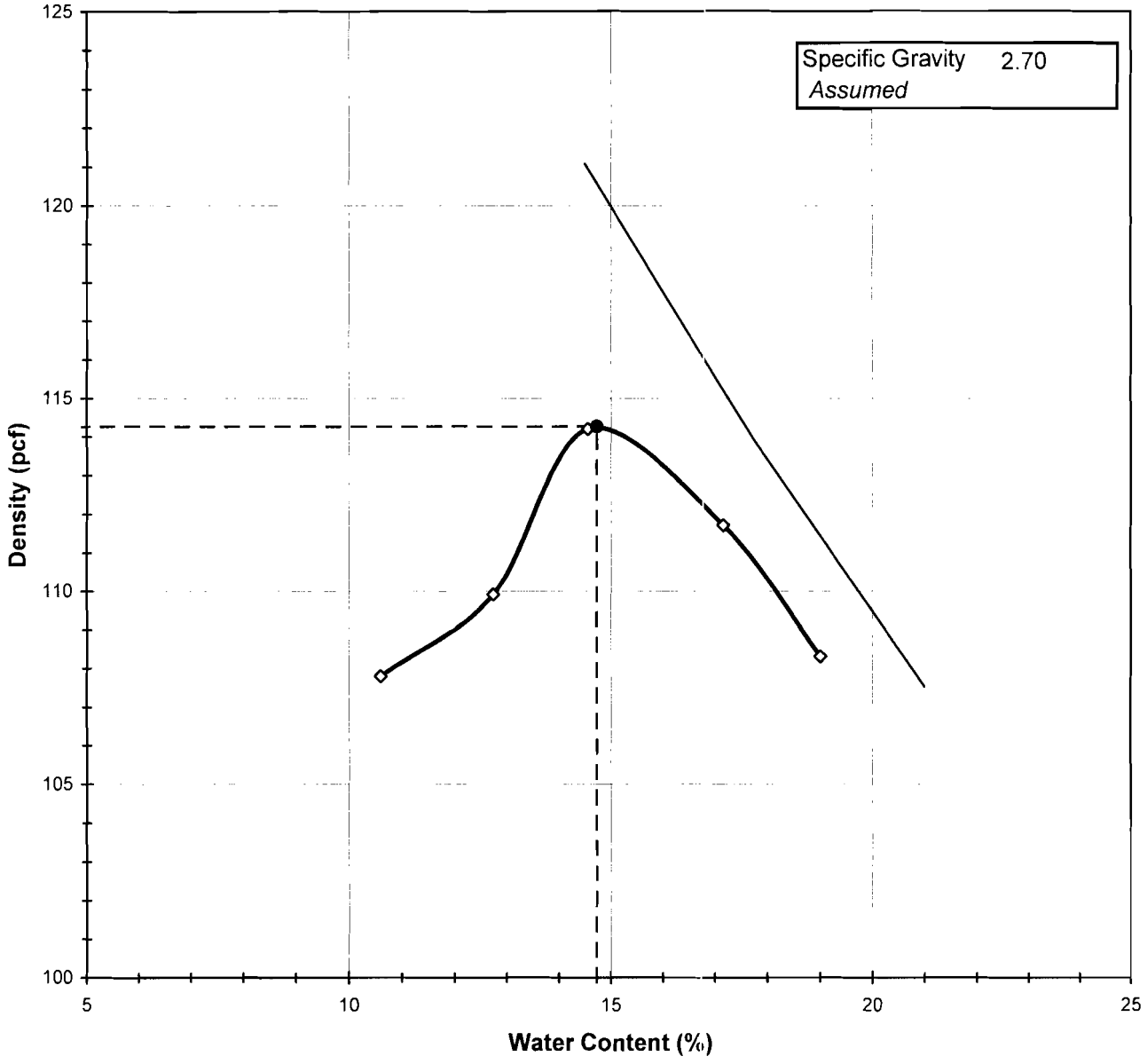
MOISTURE DENSITY RELATIONSHIP

ASTM D698-07 SOP-S12

Client	P.J. CAREY & ASSOCIATES	Boring No.	FAC POND 3
Client Reference	CMW / RMU-2	Depth (ft)	NA
Project No.	2009-296-01	Sample No.	WEST
Lab ID	2009-296-01-01	Test Method	**STANDARD**

Visual Description: BROWN CLAY WITH SOME ROCK FRAGMENTS

Optimum Water Content **14.7**
Maximum Dry Density **114.3**



Tested By JO *Date* 7/21/09 *Checked By* KB *Date* 7-22-09

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MOISTURE - DENSITY RELATIONSHIP

ASTM D698-07 SOP-S12

Client	P.J. CAREY & ASSOCIATES	Boring No.	FAC POND 3
Client Reference	CMW / RMU-2	Depth (ft)	NA
Project No.	2009-296-01	Sample No.	WEST
Lab ID	2009-296-01-01		

Visual Description: BROWN CLAY WITH SOME ROCK FRAGMENTS

Total Weight of the Sample (gm)	NA
As Received Water Content(%)	NA
Assumed Specific Gravity	2.70
Percent Retained on 3/4"	NA
Percent Retained on 3/8"	NA
Percent Retained on #4	NA
Oversize Material	Not included
Procedure Used	C

TestType		**STANDARD**
Rammer Weight (lbs)		5.5
Rammer Drop (in)		12
Rammer Type		MECHANICAL
Machine ID	G	774
Mold ID	G	1188
Mold diameter		6"
Weight of the Mold		6434
Volume of the Mold(cc)		2126

Mold / Specimen

Point No.	**1**	**2**	**3**	**4**	**5**
Wt. of Mold & WS (gm)	10496	10656	10891	10893	10826
Wt.of Mold (gm)	6434	6434	6434	6434	6434
Wt. of WS	4062	4222	4457	4459	4392
Mold Volume (cc)	2126	2126	2126	2126	2126

Moisture Content / Density

Tare Number	731	882	900	584	604
Wt. of Tare & WS (gm)	502.80	507.60	503.50	504.30	505.10
Wt. of Tare & DS (gm)	462.70	462.70	453.50	442.50	438.30
Wt. of Tare (gm)	84.40	110.35	110.00	82.26	87.01
Wt. of Water (gm)	40.10	44.90	50.00	61.80	66.80
Wt. of DS (gm)	378.30	352.35	343.50	360.24	351.29
Wet Density (gm/cc)	1.91	1.99	2.10	2.10	2.07
Wet Density (pcf)	119.2	123.9	130.8	130.9	128.9
Moisture Content (%)	**10.6**	**12.7**	**14.6**	**17.2**	**19.0**
Dry Density (pcf)	**107.8**	**109.9**	**114.2**	**111.7**	**108.3**

Zero Air Voids

Moisture Content (%)	14.5	17.7	21.0
Dry Unit Weight (pcf)	121.1	113.9	107.5

Tested By JO *Date* 7/21/09 *Checked By* KB *Date* 7-22-09

DCN:CT-S12 DATE:10/27/08 REVISION 9

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SPECIFIC GRAVITY

ASTM D 854-06, AASHTO T100-06 (SOP - S5)

Client	P.J. Carey & Associates	Boring No.	FAC POND 3
Client Reference	CMW / RMU-2	Depth (ft)	NA
Project No.	2009-296-01	Sample No.	WEST
Lab ID	2009-296-01-01	Visual Description	**BROWN CLAY**
			(Minus No.4 sieve material, airdried)

Replicate Number	**1**	**2**
Pycnometer ID	G 1156	G 1253
Weight of Pycnometer + Soil + Water (gm)	742.49	732.74
Temperature, T (°Celsius)	26.6	27.0
Weight of Pycnometer + Water (gm)	680.89	670.44
Tare Number	633	1678
Weight of Tare + Dry Soil (gm)	198.32	191.43
Weight of Tare (gm)	100.52	91.86
Weight of Dry Soil (gm)	97.80	99.57
Specific Gravity of Soil @ T	2.701	2.672
Specific Gravity of Water @ T	0.9967	0.9965
Conversion Factor for Temperature T	0.9984	0.9983
Specific Gravity @ 20° Celsius	2.706	2.676

Average Specific Gravity @ 20° Celsius	2.69

Tested By TO *Date* 7/20/09 *Checked By* KB *Date* 7-21-09

DCN: CT-S5 Date 01/20/09 Revision: 13

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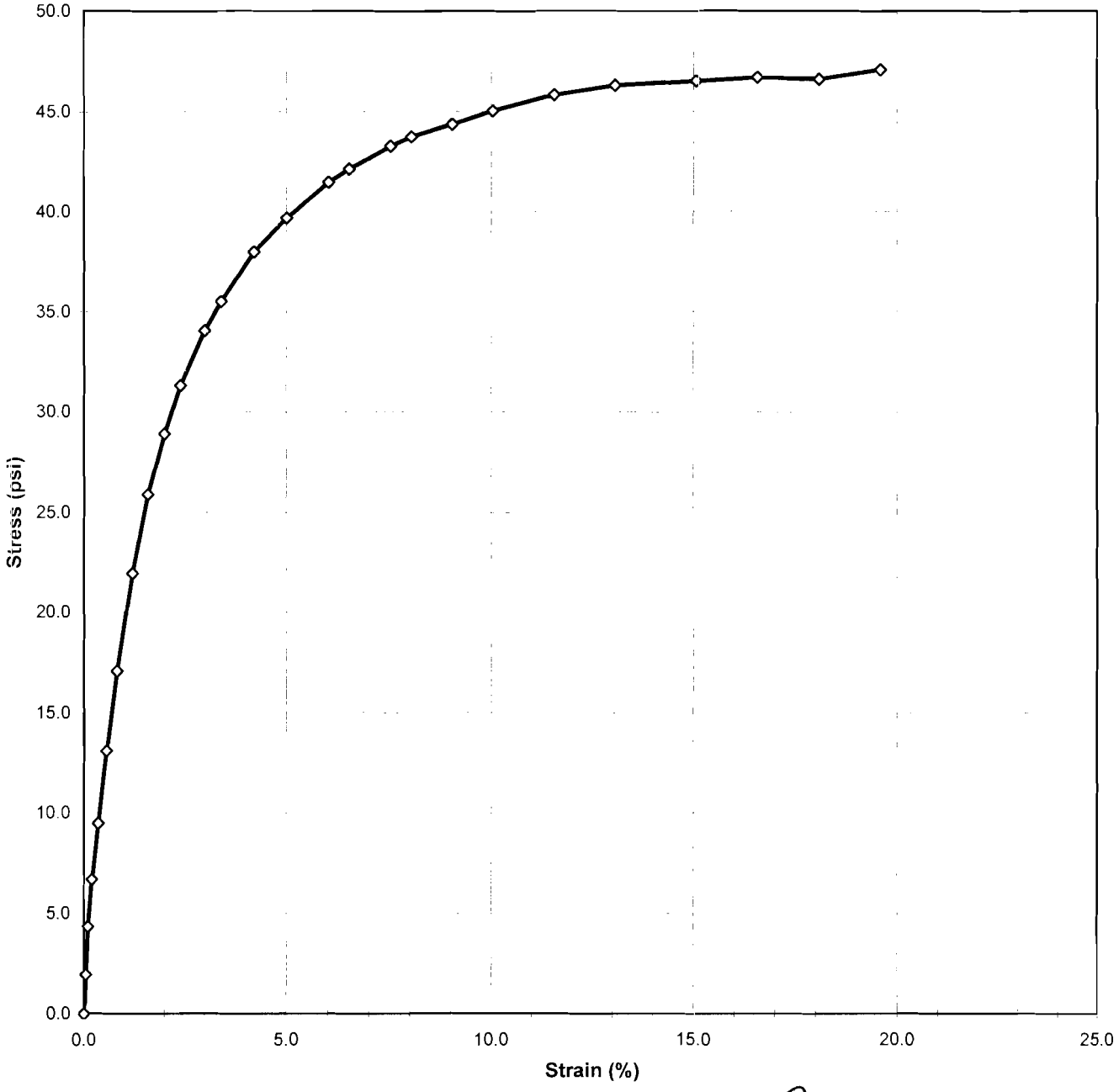
UNCONSOLIDATED UNDRAINED TRIAXIAL

ASTM D2850-95 (SOP S-29)

Client	P.J. CAREY & ASSOCIATES	Boring No.	FAC POND 3
Client Reference	CMW / RMU-2	Depth (ft.)	NA
Project No.	2009-296-01	Sample No.	WEST
Lab ID	2009-296-01-01	Visual	BROWN SANDY CLAY

CONFINING STRESS (psi) 6.9



Tested By JW Date 8/4/09 Approved By Jcm Date 8-5-09

DCN: CT-S29 DATE: 3-20-06 REVISION: 1

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UNCONSOLIDATED UNDRAINED TRIAXIAL
ASTM D2850-95 (SOP S-29)

Client	P.J. CAREY & ASSOCIATES	Boring No.	FAC POND 3
Client Reference	CMW / RMU-2	Depth (ft.)	NA
Project No.	2009-296-01	Sample No.	WEST
Lab ID	2009-296-01-01	Visual	BROWN SANDY CLAY

INITIAL SAMPLE DIMENSIONS

Length 1 (in)	6.011	Top Dia. (in)	2.867
Length 2 (in)	6.011	Mid. Dia. (in)	2.867
Length 3 (in)	6.011	Bot. Dia. (in)	2.867
Avg.Length (in)	6.011	Area (in^2.)	6.456

WATER CONTENT (AFTER TEST)

Total Wt. of Sample	1276.56
Tare No.	2471
Wt. Tare + WS.(gms)	1375.55
Wt. Tare + DS.(gms)	1210.50
Wt. of Tare(gms)	99.40
% Moisture	14.9

UNIT WEIGHT

Remolded Specimen

Wt. Tube & WS.(gms.)	3264.6	Sample Volume(cc.)	635.9
Wt. Of Tube(gms.)	1994.80	Unit Wet Wt.(gms/cc)	2.00
Wt. Of WS.(gms.)	1269.8	Unit Wet Wt.(pcf.)	124.60
Diameter (in.)	2.87	Moisture Content, %	14.9
Length (in.)	6.00	Unit Dry Wt.(pcf.)	108.5
Length (cm.)	15.27		

		Initial Dial Reading , mils	29
CONFINING STRESS (psi)	**6.9**	Dial Reading Before Shearing, mils	41

DEFORMATION (in)	*LOAD (lbs)*	*ELAPSED TIME (min.)*	*STRAIN (%)*	*STRESS (psi)*
0.000	1.1	0.0	0.00	0.00
0.003	13.8	0.07	0.05	1.96
0.006	29.2	0.12	0.10	4.35
0.012	44.4	0.22	0.20	6.69
0.022	62.7	0.37	0.36	9.51
0.034	86.2	0.58	0.57	13.11
0.050	112.3	0.83	0.83	17.08
0.072	144.5	1.22	1.21	21.96
0.096	171.0	1.62	1.60	25.90
0.120	191.5	2.02	2.00	28.91
0.144	208.2	2.42	2.41	31.32
0.180	227.7	3.02	3.01	34.05
0.204	238.4	3.42	3.41	35.51
0.252	257.0	4.22	4.21	37.98
0.301	270.8	5.02	5.01	39.68
0.362	285.9	6.02	6.03	41.46
0.392	291.9	6.52	6.53	42.11
0.452	303.1	7.53	7.54	43.26
0.482	308.0	8.03	8.04	43.73
0.543	316.0	9.03	9.04	44.37
0.603	324.3	10.03	10.05	45.03
0.693	335.7	11.53	11.56	45.84
0.784	344.9	13.05	13.06	46.30
0.904	354.7	15.05	15.07	46.53
0.995	362.4	16.55	16.58	46.69
1.085	368.5	18.07	18.09	46.62
1.175	379.1	19.57	19.60	47.09

Tested By JW Date 8/4/09 Input Checked By KB Date 8-5-09

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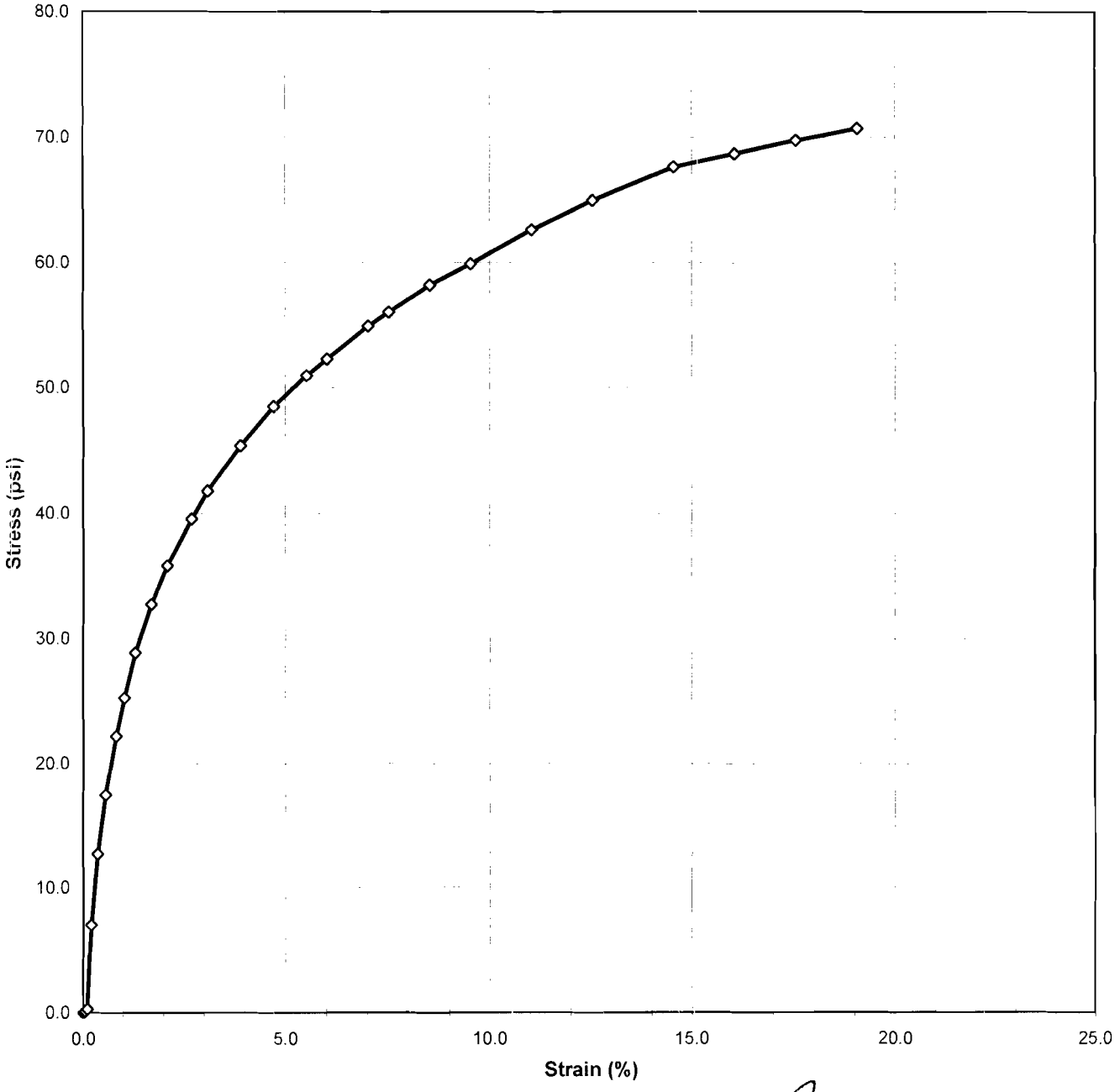
UNCONSOLIDATED UNDRAINED TRIAXIAL

ASTM D2850-95 (SOP S-29)

Client	P.J. CAREY & ASSOCIATES	Boring No.	FAC POND 3
Client Reference	CMW / RMU-2	Depth (ft.)	NA
Project No.	2009-296-01	Sample No.	WEST
Lab ID	2009-296-01-01	Visual	BROWN SANDY CLAY

CONFINING STRESS (psi) 20.8



Tested By JW Date 8/4/09 Approved By Jcm Date 8-5-09

DCN: CT-S29 DATE: 3-20-06 REVISION: 1

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UNCONSOLIDATED UNDRAINED TRIAXIAL
ASTM D2850-95 (SOP S-29)

Client	P.J. CAREY & ASSOCIATES	Boring No.	FAC POND 3
Client Reference	CMW / RMU-2	Depth (ft.)	NA
Project No.	2009-296-01	Sample No.	WEST
Lab ID	2009-296-01-01	Visual	BROWN SANDY CLAY

INITIAL SAMPLE DIMENSIONS

Length 1 (in)	6.011	Top Dia. (in)	2.867
Length 2 (in)	6.011	Mid. Dia. (in)	2.867
Length 3 (in)	6.011	Bot. Dia. (in)	2.867
Avg.Length (in)	6.011	Area (in^2.)	6.456

WATER CONTENT (AFTER TEST)

Total Wt. of Sample	1280.52
Tare No.	962
Wt. Tare + WS.(gms)	1382.88
Wt. Tare + DS.(gms)	1216.40
Wt. of Tare(gms)	102.64
% Moisture	14.9

UNIT WEIGHT

Remolded Specimen

Wt. Tube & WS.(gms.)	3267.9	Sample Volume(cc.)	635.9
Wt. Of Tube(gms.)	1994.80	Unit Wet Wt.(gms/cc)	2.00
Wt. Of WS.(gms.)	1273.1	Unit Wet Wt.(pcf.)	124.93
Diameter (in.)	2.87	Moisture Content, %	14.9
Length (in.)	6.00	Unit Dry Wt.(pcf.)	108.7
Length (cm.)	15.27		

		Initial Dial Reading , mils	27
CONFINING STRESS (psi)	**20.8**	Dial Reading Before Shearing, mils	34

DEFORMATION (in)	*LOAD (lbs)*	*ELAPSED TIME (min.)*	*STRAIN (%)*	*STRESS (psi)*
0.000	0.5	0.0	0.00	0.00
0.003	1.3	0.05	0.05	0.12
0.006	2.5	0.10	0.10	0.30
0.012	45.9	0.20	0.20	7.02
0.022	83.1	0.35	0.36	12.75
0.034	114.2	0.57	0.57	17.51
0.049	145.1	0.82	0.82	22.21
0.062	165.2	1.03	1.03	25.25
0.078	189.1	1.30	1.30	28.83
0.102	215.6	1.70	1.70	32.75
0.126	236.7	2.10	2.10	35.82
0.162	263.0	2.70	2.70	39.56
0.186	278.9	3.10	3.10	41.78
0.235	305.4	3.90	3.91	45.39
0.283	329.0	4.72	4.72	48.48
0.332	348.6	5.52	5.52	50.94
0.362	359.7	6.02	6.02	52.29
0.422	381.8	7.02	7.03	54.91
0.452	391.7	7.52	7.53	56.03
0.512	411.5	8.52	8.53	58.22
0.573	428.1	9.52	9.54	59.92
0.663	455.1	11.03	11.04	62.63
0.753	480.1	12.53	12.55	64.97
0.874	511.7	14.53	14.56	67.65
0.964	528.8	16.05	16.06	68.69
1.055	546.9	17.55	17.57	69.77
1.145	564.7	19.05	19.08	70.72

Tested By JW Date 8/4/09 Input Checked By KB Date 8-5-09

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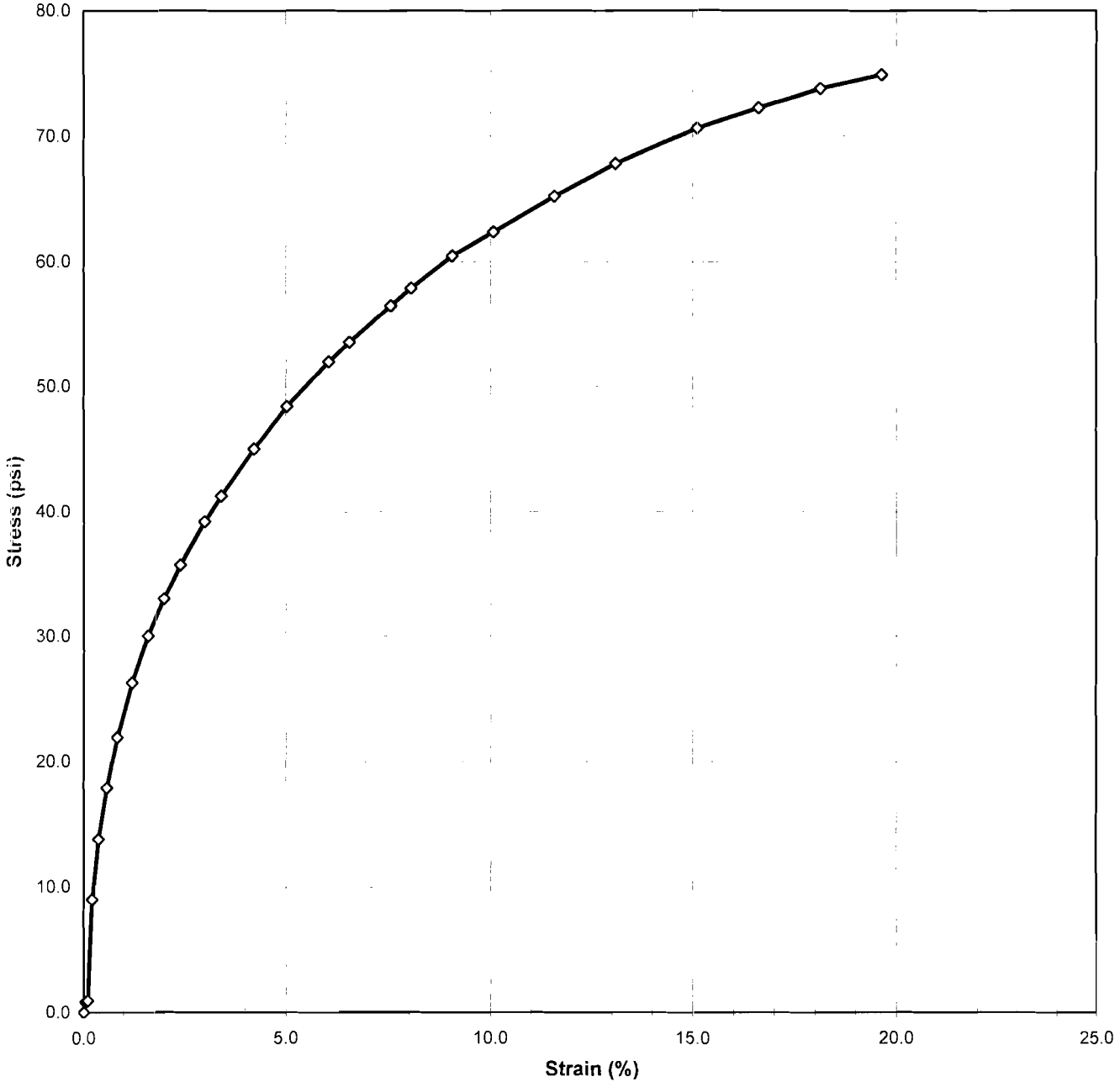
UNCONSOLIDATED UNDRAINED TRIAXIAL
ASTM D2850-95 (SOP S-29)

Client	P.J. CAREY & ASSOCIATES	Boring No.	FAC POND 3
Client Reference	CMW / RMU-2	Depth (ft.)	NA
Project No.	2009-296-01	Sample No.	WEST
Lab ID	2009-296-01-01	Visual	BROWN SANDY CLAY

CONFINING STRESS (psi) **34.7**



Tested By JW Date 8/4/09 Approved By Jm Date 8-5-09

DCN: CT-S29 DATE: 3-20-06 REVISION: 1

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UNCONSOLIDATED UNDRAINED TRIAXIAL
ASTM D2850-95 (SOP S-29)

Client	P.J. CAREY & ASSOCIATES	Boring No.	FAC POND 3
Client Reference	CMW / RMU-2	Depth (ft.)	NA
Project No.	2009-296-01	Sample No.	WEST
Lab ID	2009-296-01-01	Visual	BROWN SANDY CLAY

INITIAL SAMPLE DIMENSIONS

Length 1 (in)	6.011	Top Dia. (in)	2.867
Length 2 (in)	6.011	Mid. Dia. (in)	2.867
Length 3 (in)	6.011	Bot. Dia. (in)	2.867
Avg.Length (in)	6.011	Area (in^2.)	6.456

WATER CONTENT (AFTER TEST)

Total Wt. of Sample	1284.61
Tare No.	2485
Wt. Tare + WS.(gms)	1384.01
Wt. Tare + DS.(gms)	1216.60
Wt. of Tare(gms)	99.58
% Moisture	15.0

UNIT WEIGHT

Remolded Specimen

Wt. Tube & WS.(gms.)	3271.6	Sample Volume(cc.)	635.9
Wt. Of Tube(gms.)	1994.80	Unit Wet Wt.(gms/cc)	2.01
Wt. Of WS.(gms.)	1276.8	Unit Wet Wt.(pcf.)	125.29
Diameter (in.)	2.87	Moisture Content, %	15.0
Length (in.)	5.98	Unit Dry Wt.(pcf.)	109.0
Length (cm.)	15.27		

		Initial Dial Reading , mils	21
CONFINING STRESS (psi)	**34.7**	Dial Reading Before Shearing, mils	51

DEFORMATION (in)	*LOAD (lbs)*	*ELAPSED TIME (min.)*	*STRAIN (%)*	*STRESS (psi)*
0.000	2.4	0.0	0.00	0.00
0.003	7.8	0.05	0.05	0.84
0.006	8.5	0.10	0.10	0.94
0.012	60.9	0.22	0.21	9.05
0.022	92.1	0.37	0.36	13.84
0.034	118.7	0.58	0.58	17.92
0.050	145.1	0.83	0.84	21.92
0.072	174.1	1.22	1.21	26.27
0.096	199.3	1.62	1.61	30.01
0.120	220.0	2.02	2.01	33.03
0.144	238.9	2.42	2.41	35.75
0.180	263.4	3.02	3.01	39.21
0.204	278.2	3.42	3.41	41.26
0.252	305.7	4.22	4.22	45.00
0.300	331.7	5.02	5.02	48.44
0.361	359.7	6.02	6.04	52.00
0.392	372.4	6.52	6.55	53.56
0.452	396.9	7.52	7.55	56.50
0.482	409.0	8.02	8.06	57.90
0.542	431.6	9.02	9.06	60.45
0.602	450.0	10.03	10.07	62.35
0.693	478.6	11.53	11.58	65.21
0.783	506.2	13.03	13.10	67.82
0.904	539.5	15.03	15.11	70.62
0.994	561.7	16.55	16.62	72.23
1.085	584.2	18.05	18.13	73.77
1.175	603.9	19.55	19.64	74.87

Tested By JW Date 8/4/09 Input Checked By KB Date 8-5-09

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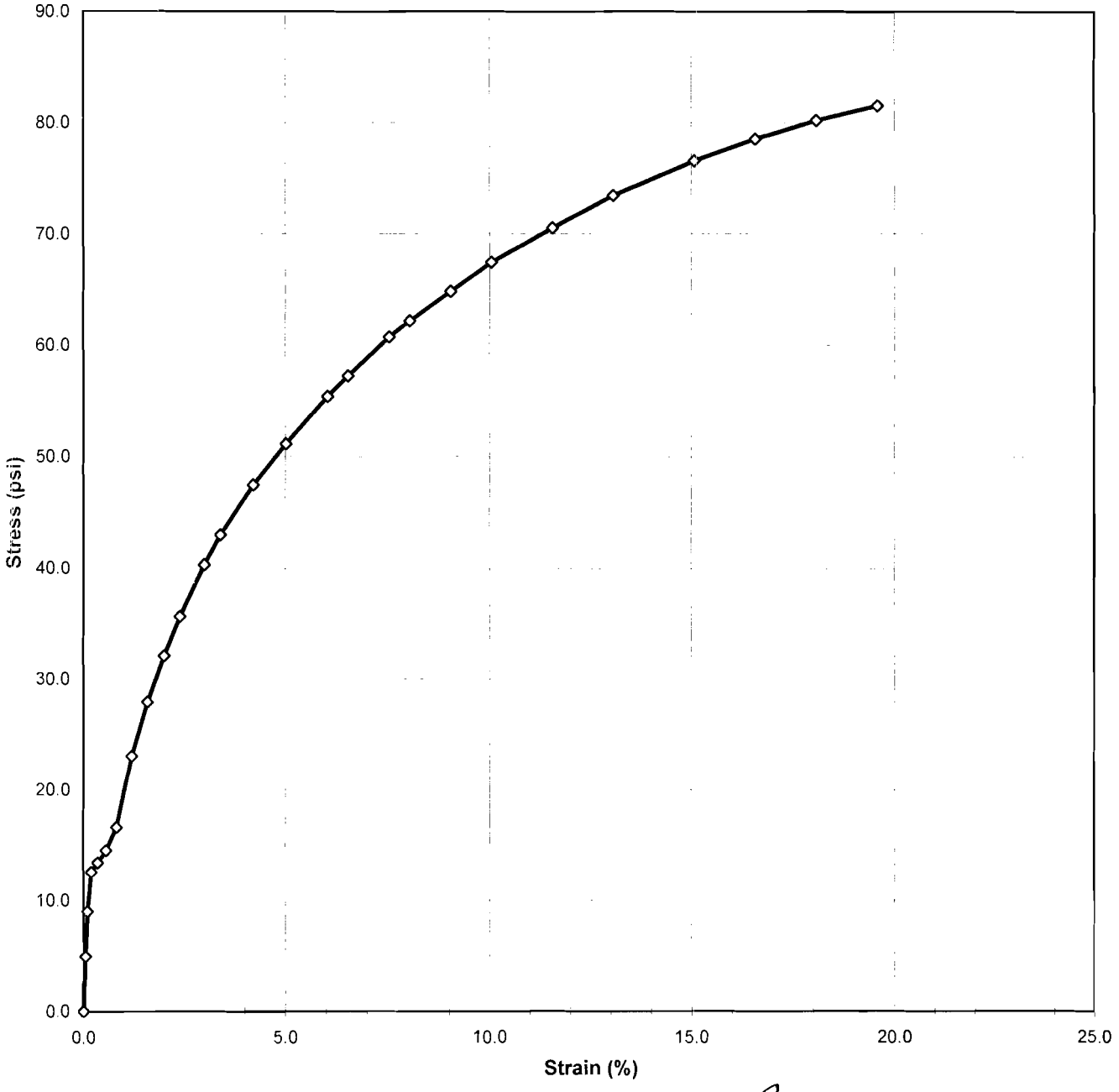
UNCONSOLIDATED UNDRAINED TRIAXIAL
ASTM D2850-95 (SOP S-29)

Client	P.J. CAREY & ASSOCIATES	Boring No.	FAC POND 3
Client Reference	CMW / RMU-2	Depth (ft.)	NA
Project No.	2009-296-01	Sample No.	WEST
Lab ID	2009-296-01-01	Visual	BROWN SANDY CLAY

CONFINING STRESS (psi) **48.6**



Tested By JW Date 8/4/09 Approved By Jm Date 8-5-09

DCN: CT-S29 DATE: 3-20-06 REVISION: 1

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UNCONSOLIDATED UNDRAINED TRIAXIAL

ASTM D2850-95 (SOP S-29)

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Client	P.J. CAREY & ASSOCIATES	Boring No.	FAC POND 3
Client Reference	CMW / RMU-2	Depth (ft.)	NA
Project No.	2009-296-01	Sample No.	WEST
Lab ID	2009-296-01-01	Visual	BROWN SANDY CLAY

INITIAL SAMPLE DIMENSIONS

Length 1 (in)	6.011	Top Dia. (in)	2.867
Length 2 (in)	6.011	Mid. Dia. (in)	2.867
Length 3 (in)	6.011	Bot. Dia. (in)	2.867
Avg.Length (in)	6.011	Area (in^2.)	6.456

WATER CONTENT (AFTER TEST)

Total Wt. of Sample	1285.45
Tare No.	1321
Wt. Tare + WS.(gms)	1385.08
Wt. Tare + DS.(gms)	1217.80
Wt. of Tare(gms)	99.82
% Moisture	15.0

UNIT WEIGHT

Remolded Specimen

Wt. Tube & WS.(gms.)	3272.8	Sample Volume(cc.)	635.9
Wt. Of Tube(gms.)	1994.80	Unit Wet Wt.(gms/cc)	2.01
Wt. Of WS.(gms.)	1278	Unit Wet Wt.(pcf.)	125.41
Diameter (in.)	2.87	Moisture Content, %	15.0
Length (in.)	6.00	Unit Dry Wt.(pcf.)	109.1
Length (cm.)	15.27		

		Initial Dial Reading , mils	52
CONFINING STRESS (psi)	**48.6**	Dial Reading Before Shearing, mils	65

DEFORMATION (in)	*LOAD (lbs)*	*ELAPSED TIME (min.)*	*STRAIN (%)*	*STRESS (psi)*
0.000	1.0	0.0	0.00	0.00
0.003	33.2	0.07	0.05	4.98
0.006	59.3	0.12	0.10	9.02
0.012	82.3	0.22	0.20	12.56
0.022	88.0	0.37	0.36	13.43
0.034	95.6	0.58	0.57	14.57
0.050	109.4	0.83	0.83	16.65
0.072	151.5	1.22	1.21	23.03
0.096	184.3	1.62	1.60	27.93
0.121	212.8	2.02	2.01	32.14
0.145	237.1	2.42	2.41	35.69
0.181	269.6	3.02	3.01	40.35
0.205	288.5	3.42	3.41	43.01
0.253	320.9	4.22	4.21	47.46
0.301	348.5	5.02	5.01	51.12
0.362	381.4	6.03	6.03	55.37
0.392	396.3	6.53	6.53	57.23
0.452	424.9	7.53	7.54	60.71
0.482	437.5	8.03	8.04	62.17
0.543	461.0	9.03	9.05	64.80
0.603	484.7	10.03	10.05	67.40
0.693	515.9	11.53	11.56	70.54
0.784	546.3	13.05	13.06	73.43
0.904	583.1	15.05	15.07	76.58
0.994	608.7	16.55	16.58	78.53
1.085	633.3	18.05	18.09	80.22
1.175	655.7	19.55	19.59	81.54

Tested By JW Date 8/4/09 Input Checked By MB Date 8-5-09

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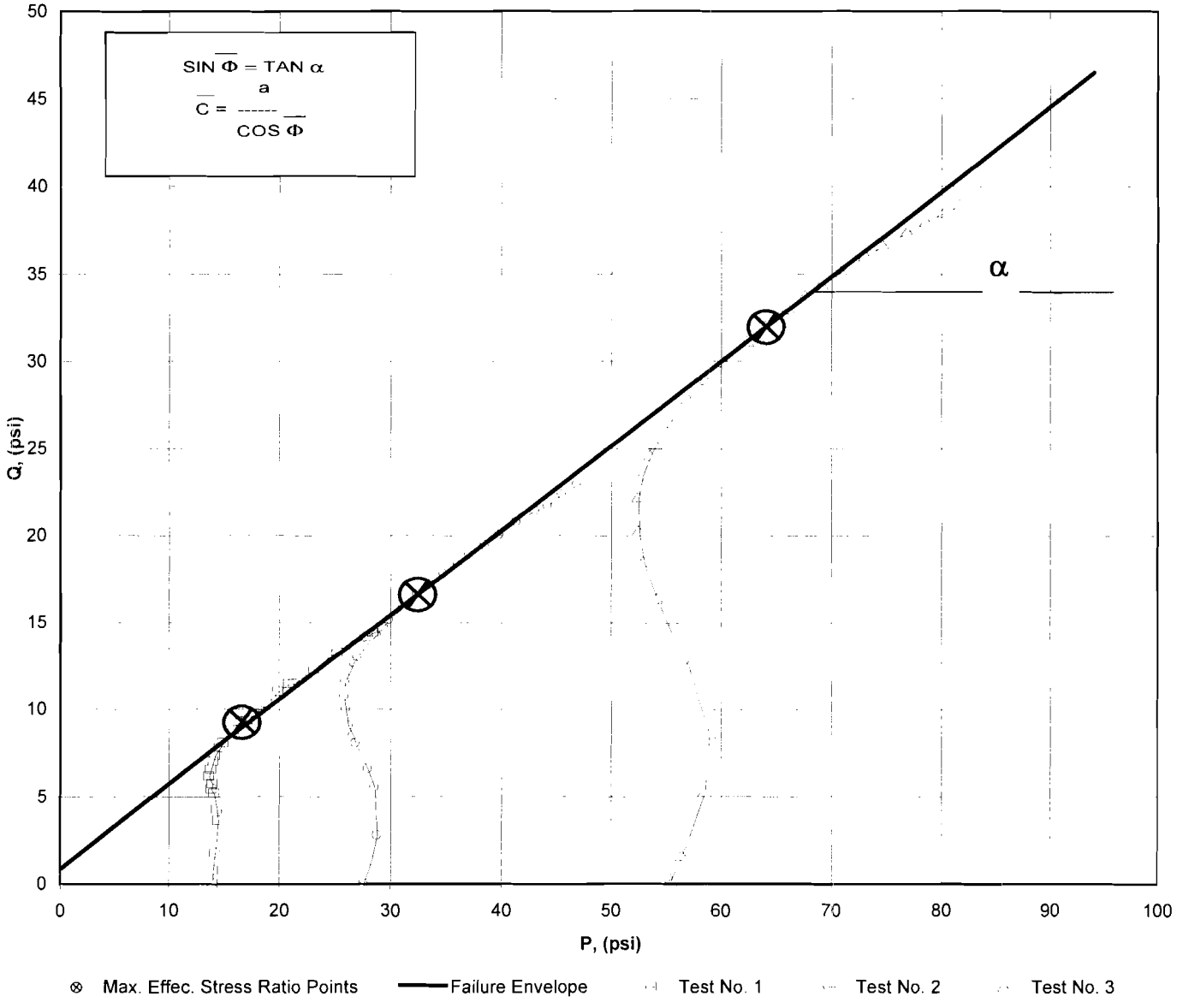
CONSOLIDATED UNDRAINED TRIAXIAL TEST
WITH PORE PRESSURE READINGS
ASTM D4767-95 / AASHTO T297-94 (SOP-S28)

Client	P.J. CAREY & ASSOCIATES	Boring No.	FAC POND 3
Client Reference	CMW / RMU-2	Depth(ft.)	NA
Project No.	2009-296-01	Sample No.	WEST
Lab ID	2009-296-01-01		

Consolidated Undrained Triaxial Test with Pore Pressure



a =	**0.89**	**$\bar{C}$ =**	**1.02**
α =	**25.9**	**$\bar{\Phi}$ =**	**29.01**

Tested By JCM Date 8/3/2009 Approved By DB Date 8/10/09

DCN. CT-S28 DATE 6-25-98 REVISION 1
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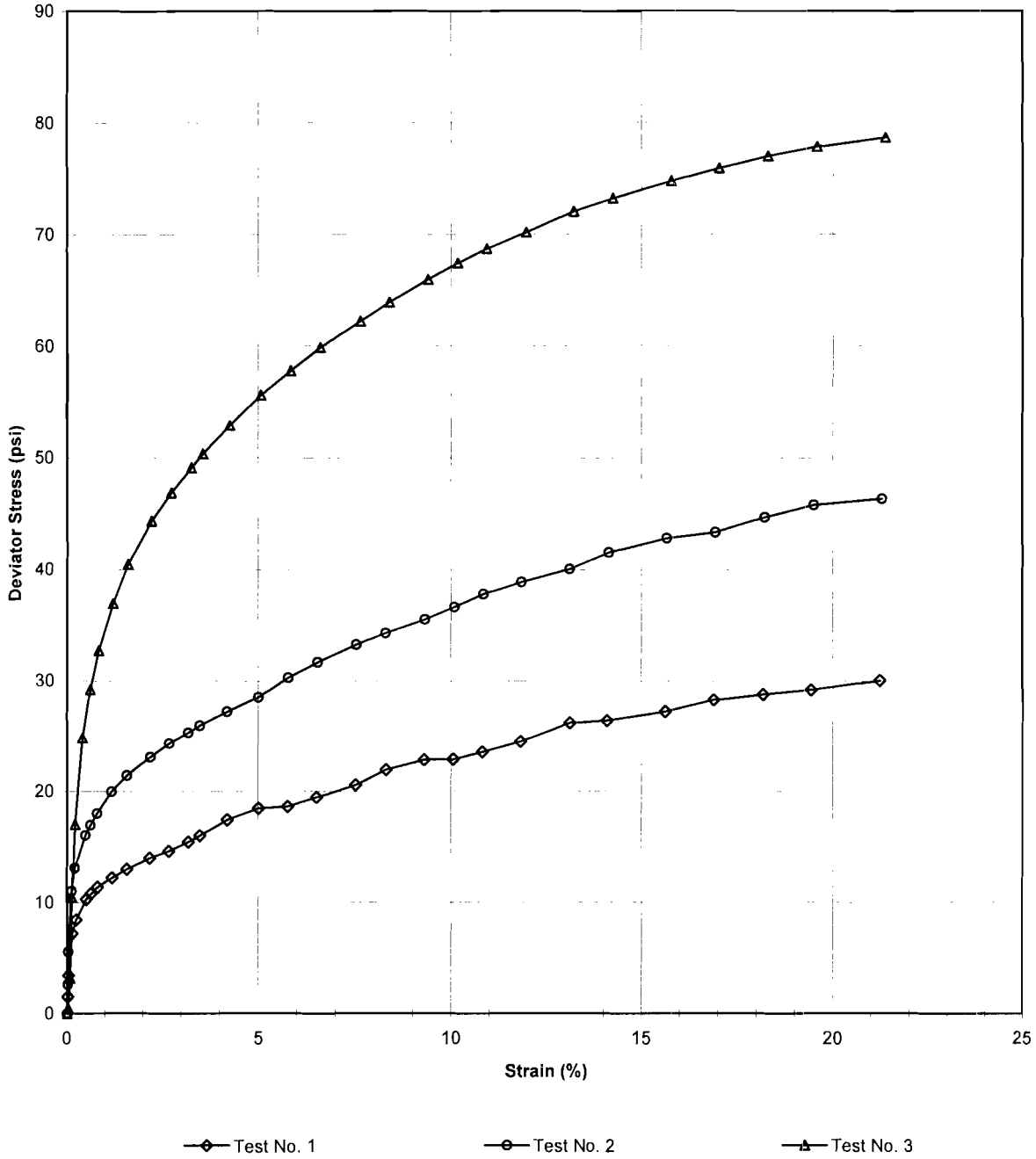
CONSOLIDATED UNDRAINED TRIAXIAL TEST
WITH PORE PRESSURE READINGS
ASTM D4767-95 / AASHTO T297-94 (SOP-S28)

Client	P.J. CAREY & ASSOCIATES	Boring No.	FAC POND 3
Client Reference	CMW / RMU-2	Depth(ft.)	NA
Project No.	2009-296-01	Sample No.	WEST
Lab ID	2009-296-01-01		
Visual Description:	BROWN CLAY (REMOLDED)		



Tested By JCM Date 8/3/2009 Approved By DB Date 8/10/09

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CONSOLIDATED UNDRAINED TRIAXIAL TEST
WITH PORE PRESSURE READINGS
ASTM D4767-95 / AASHTO T297-94 (SOP-S28)

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Client	P.J. CAREY & ASSOCIATES	Boring No.	FAC POND 3
Client Reference	CMW / RMU-2	Depth(ft.)	NA
Project No.	2009-296-01	Sample No.	WEST
Lab ID	2009-296-01-01		

Visual Description: BROWN CLAY (REMOLDED)

Stage No.	1
Test No	1

PRESSURES (psi)

Cell Pressure(psi)	55.6
Back Pressure(psi)	41.6
Eff. Cons. Pressure(psi)	14.0
Pore Pressure Response (%)	97

MAXIMUM OBLIQUITY POINTS

$\overline{P}$ = 16.63
Q = 9.25

INITIAL SAMPLE DIMENSIONS (in)

Length 1	6.011	Diameter 1	2.867
Length 2	6.011	Diameter 2	2.867
Length 3	6.011	Diameter 3	2.867
Avg Leng.=	6.011	Avg. Diam.=	2.867

VOLUME CHANGE

Initial Burette Reading (ml)	48.0
Final Burette Reading (ml)	25.3
Final Change (ml)	22.7
Initial Dial Reading (D.R.), mils	70
D.R. After Saturation, mils	64
D.R. After Consolidation, mils	105

LOAD (LBS)	DEFORMATION (INCHES)	PORE PRESSURE (PSI)
12.4	0.000	41.6
22.1	0.001	42.3
34.2	0.002	43.1
57.7	0.008	44.7
65.6	0.014	45.4
77.5	0.031	46.6
80.6	0.038	47.1
84.5	0.049	47.3
90.3	0.071	48.0
95.4	0.095	48.3
102.1	0.130	48.5
106.7	0.160	48.7
112.6	0.191	48.7
116.8	0.209	48.6
126.9	0.251	48.4
134.7	0.300	48.2
136.8	0.345	47.8
143.2	0.390	47.5
152.3	0.450	47.0
162.9	0.497	46.6
170.8	0.556	46.1
172.4	0.602	45.7
178.3	0.647	45.3
187.2	0.707	44.7
202.0	0.784	44.0
205.8	0.843	43.5
215.3	0.934	42.7
226.4	1.010	42.0
233.4	1.087	41.5
240.1	1.162	40.8
252.0	1.269	40.0

Tested By JCM Date 8/3/2009 Input Checked By KB Date 8-10-09

CONSOLIDATED UNDRAINED TRIAXIAL TEST
WITH PORE PRESSURE READINGS
ASTM D4767-95 / AASHTO T297-94 (SOP-S28)

Geotechnics
INTEGRITY IN TESTING

Client	P.J. CAREY & ASSOCIATES	Boring No.	FAC POND 3
Client Reference	CMW / RMU-2	Depth(ft.)	NA
Project No.	2009-296-01	Sample No.	WEST
Lab ID	2009-296-01-01		

Visual Description: BROWN CLAY (REMOLDED)

Effective Confining Pressure (psi)	14.0	*Stage No.*	1
		Test No	1

INITIAL DIMENSIONS

Initial Sample Length (in.)	6.01
Initial Sample Diameter (in.)	2.87
Initial Sample Area (in^2)	6.46
Initial Sample Volume (in^3)	38.81

VOLUME CHANGE

Volume After Consolidation (in^3)	37.54
Length After Consolidation (in)	5.98
Area After Consolidation (in^2)	6.281

Strain (%)	Deviation Stress	ΔU	$\overline{\sigma_1}$	$\overline{\sigma_3}$	Effective Principle Stress Ratio	$\overline{A}$	$\overline{P}$	Q
0.02	1.55	0.70	14.84	13.3	1.116	0.47	14.07	0.77
0.04	3.47	1.50	15.97	12.5	1.277	0.45	14.23	1.73
0.13	7.21	3.11	18.09	10.9	1.662	0.45	14.49	3.60
0.23	8.44	3.83	18.61	10.2	1.830	0.47	14.39	4.22
0.51	10.32	5.01	19.31	9.0	2.148	0.50	14.15	5.16
0.64	10.79	5.51	19.29	8.5	2.270	0.53	13.89	5.40
0.81	11.39	5.71	19.68	8.3	2.374	0.52	13.99	5.69
1.19	12.25	6.44	19.81	7.6	2.621	0.54	13.68	6.12
1.58	13.01	6.65	20.36	7.3	2.771	0.53	13.85	6.51
2.18	13.97	6.90	21.07	7.1	2.967	0.51	14.09	6.99
2.68	14.61	7.06	21.55	6.9	3.104	0.50	14.25	7.30
3.19	15.44	7.05	22.39	6.9	3.223	0.47	14.67	7.72
3.50	16.04	7.04	23.00	7.0	3.303	0.45	14.98	8.02
4.21	17.47	6.81	24.66	7.2	3.428	0.40	15.93	8.73
5.02	18.50	6.63	25.88	7.4	3.509	0.37	16.63	9.25
5.77	18.66	6.17	26.48	7.8	3.384	0.34	17.15	9.33
6.52	19.46	5.94	27.52	8.1	3.416	0.31	17.79	9.73
7.53	20.59	5.38	29.22	8.6	3.388	0.27	18.92	10.30
8.31	21.97	5.03	30.94	9.0	3.449	0.24	19.95	10.98
9.31	22.87	4.50	32.36	9.5	3.409	0.20	20.93	11.43
10.07	22.91	4.07	32.84	9.9	3.306	0.18	21.39	11.45
10.83	23.55	3.75	33.80	10.3	3.297	0.16	22.03	11.77
11.83	24.54	3.09	35.45	10.9	3.249	0.13	23.18	12.27
13.12	26.22	2.36	37.86	11.6	3.253	0.09	24.75	13.11
14.11	26.45	1.94	38.51	12.1	3.192	0.08	25.29	13.22
15.64	27.25	1.09	40.16	12.9	3.110	0.04	26.54	13.62
16.90	28.30	0.37	41.93	13.6	3.077	0.01	27.78	14.15
18.19	28.78	-0.11	42.89	14.1	3.040	0.00	28.50	14.39
19.44	29.20	-0.75	43.95	14.8	2.980	-0.03	29.35	14.60
21.23	30.05	-1.59	45.64	15.6	2.927	-0.05	30.61	15.02

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CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

ASTM D4767-95 / AASHTO T297-94 (SOP-S28)

geotechnics INTEGRITY IN TESTING

Client	P.J. CAREY & ASSOCIATES	Boring No.	FAC POND 3
Client Reference	CMW / RMU-2	Depth(ft.)	NA
Project No.	2009-296-01	Sample No.	WEST
Lab ID	2009-296-01-01		

Visual Description: BROWN CLAY (REMOLDED)

Stage No.	1
Test No	2

PRESSURES (psi)

Cell Pressure(psi)	69.2
Back Pressure(psi)	41.6
Eff. Cons. Pressure(ps	27.6
Pore Pressure Response (%)	96

MAXIMUM OBLIQUITY POINTS

$\overline{P}$	=	32.44
Q	=	16.62

INITIAL SAMPLE DIMENSIONS (in)

Length 1	6.011	Diameter 1	2.867
Length 2	6.011	Diameter 2	2.867
Length 3	6.011	Diameter 3	2.867
Avg Leng.=	6.011	Avg. Diam.=	2.867

VOLUME CHANGE

Initial Burette Reading (ml)	72.0
Final Burette Reading (ml)	36.3
Final Change (ml)	35.7
Initial Dial Reading (D.R.), mils	47
D.R. After Saturation, mils	47
D.R. After Consolidation, mils	118

LOAD (LBS)	DEFORMATION (INCHES)	PORE PRESSURE (PSI)
14.1	0.000	41.6
30.3	0.001	42.2
48.4	0.002	43.2
82.2	0.007	46.1
95.1	0.012	47.8
113.7	0.029	50.4
119.4	0.036	51.0
126.2	0.047	52.0
138.7	0.070	53.2
148.4	0.094	54.1
159.8	0.130	54.8
168.4	0.160	54.9
175.3	0.189	55.1
180.0	0.207	55.1
189.2	0.249	55.1
199.3	0.298	54.7
212.4	0.343	54.5
223.0	0.388	53.9
235.8	0.448	53.4
244.8	0.493	52.8
255.7	0.553	52.2
265.4	0.600	51.4
275.4	0.645	51.0
286.1	0.704	50.1
298.3	0.779	49.4
312.3	0.840	48.6
327.2	0.931	47.5
335.8	1.006	46.6
351.0	1.083	46.0
365.0	1.158	45.2
377.0	1.264	44.2

Tested By JCM Date 8/3/2009 Input Checked By KB Date 8-10-09

DCN: CT-S28 DATE 6-25-98 REVISION 1

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CONSOLIDATED UNDRAINED TRIAXIAL TEST
WITH PORE PRESSURE READINGS
ASTM D4767-95 / AASHTO T297-94 (SOP-S28)

Geotechnics INTEGRITY IN TESTING

Client	P.J. CAREY & ASSOCIATES	Boring No.	FAC POND 3
Client Reference	CMW / RMU-2	Depth(ft.)	NA
Project No.	2009-296-01	Sample No.	WEST
Lab ID	2009-296-01-01		

Visual Description: BROWN CLAY (REMOLDED)

Effective Confining Pressure (psi)	27.6	*Stage No.*	1
		Test No	2

INITIAL DIMENSIONS

Initial Sample Length (in.)	6.01
Initial Sample Diameter (in.)	2.87
Initial Sample Area (in^2)	6.46
Initial Sample Volume (in^3)	38.81

VOLUME CHANGE

Volume After Consolidation (in^3)	36.63
Length After Consolidation (in)	5.94
Area After Consolidation (in^2)	6.166

Strain (%)	Deviation Stress	ΔU	$\overline{\sigma}_1$	$\overline{\sigma}_3$	Effective Principle Stress Ratio	$\overline{A}$	$\overline{P}$	Q
0.01	2.63	0.62	29.62	27.0	1.098	0.24	28.30	1.32
0.03	5.56	1.58	31.58	26.0	1.214	0.30	28.80	2.78
0.11	11.03	4.53	34.10	23.1	1.478	0.43	28.59	5.51
0.21	13.11	6.16	34.55	21.4	1.611	0.49	27.99	6.55
0.48	16.07	8.78	34.89	18.8	1.854	0.57	26.85	8.03
0.61	16.97	9.44	35.13	18.2	1.935	0.58	26.65	8.49
0.79	18.04	10.39	35.25	17.2	2.048	0.60	26.23	9.02
1.17	19.98	11.58	36.00	16.0	2.247	0.60	26.01	9.99
1.58	21.43	12.46	36.57	15.1	2.415	0.61	25.86	10.72
2.19	23.11	13.20	37.51	14.4	2.605	0.60	25.95	11.56
2.69	24.36	13.34	38.61	14.3	2.708	0.57	26.44	12.18
3.18	25.31	13.53	39.38	14.1	2.799	0.56	26.73	12.66
3.49	25.96	13.53	40.03	14.1	2.845	0.54	27.05	12.98
4.19	27.21	13.49	41.32	14.1	2.928	0.52	27.72	13.60
5.01	28.53	13.10	43.02	14.5	2.968	0.48	28.76	14.26
5.78	30.29	12.89	45.01	14.7	3.059	0.44	29.86	15.15
6.54	31.67	12.31	46.96	15.3	3.071	0.40	31.13	15.83
7.54	33.25	11.78	49.07	15.8	3.101	0.37	32.44	16.62
8.30	34.31	11.17	50.74	16.4	3.088	0.34	33.58	17.15
9.32	35.53	10.55	52.58	17.0	3.084	0.31	34.81	17.76
10.09	36.65	9.82	54.43	17.8	3.061	0.28	36.11	18.32
10.85	37.78	9.39	55.99	18.2	3.074	0.26	37.10	18.89
11.85	38.88	8.53	57.96	19.1	3.039	0.23	38.52	19.44
13.12	40.05	7.77	59.88	19.8	3.020	0.20	39.85	20.03
14.15	41.52	6.98	62.13	20.6	3.013	0.18	41.38	20.76
15.67	42.81	5.92	64.49	21.7	2.975	0.14	43.09	21.41
16.93	43.33	5.03	65.90	22.6	2.920	0.12	44.24	21.67
18.23	44.68	4.41	67.87	23.2	2.927	0.10	45.53	22.34
19.50	45.81	3.62	69.79	24.0	2.910	0.08	46.89	22.90
21.28	46.33	2.62	71.31	25.0	2.855	0.06	48.14	23.16

Tested By JCM Date 8/3/2009 Input Checked By KR Date 8-10-09

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CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

ASTM D4767-95 / AASHTO T297-94 (SOP-S28)

Client	P.J. CAREY & ASSOCIATES	Boring No.	FAC POND 3
Client Reference	CMW / RMU-2	Depth(ft.)	NA
Project No.	2009-296-01	Sample No.	WEST
Lab ID	2009-296-01-01		

Visual Description: BROWN CLAY (REMOLDED)

Stage No.	1
Test No	3

PRESSURES (psi)

Cell Pressure(psi)	96.8
Back Pressure(psi)	41.2
Eff. Cons. Pressure(ps	55.6
Pore Pressure Response (%)	96

MAXIMUM OBLIQUITY POINTS

$\overline{P}$	=	64.06
Q	=	31.95

INITIAL SAMPLE DIMENSIONS (in)

Length 1	6.011	Diameter 1	2.867
Length 2	6.011	Diameter 2	2.867
Length 3	6.011	Diameter 3	2.867
Avg Leng.=	6.011	Avg. Diam.=	2.867

VOLUME CHANGE

Initial Burette Reading (ml)	72.0
Final Burette Reading (ml)	26.9
Final Change (ml)	45.1
Initial Dial Reading (D.R.), mils	52
D.R. After Saturation, mils	44
D.R. After Consolidation, mils	158

LOAD (LBS)	DEFORMATION (INCHES)	PORE PRESSURE (PSI)
19.4	0.000	41.2
22.2	0.002	41.5
39.1	0.004	41.9
83.6	0.007	43.5
124.3	0.012	46.3
172.4	0.024	52.1
199.5	0.036	56.0
221.8	0.049	59.0
248.9	0.072	62.3
271.6	0.095	64.5
297.4	0.132	66.4
314.8	0.163	67.3
330.6	0.193	67.7
339.6	0.211	67.9
358.3	0.252	67.9
378.7	0.300	67.6
395.9	0.345	67.1
412.4	0.390	66.4
432.4	0.451	65.5
447.2	0.496	64.7
465.6	0.556	63.6
479.7	0.601	62.8
492.5	0.646	62.0
508.1	0.707	61.0
528.4	0.781	59.7
542.8	0.841	58.7
563.8	0.932	57.3
580.4	1.006	56.1
597.2	1.082	55.0
612.8	1.157	54.0
632.6	1.262	52.7

Tested By JCM Date 8/3/2009 Input Checked By KB Date 3-10-09

DCN: CT-S28 DATE 6-25-98 REVISION 1

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CONSOLIDATED UNDRAINED TRIAXIAL TEST
WITH PORE PRESSURE READINGS
ASTM D4767-95 / AASHTO T297-94 (SOP-S28)

Client	P.J. CAREY & ASSOCIATES	Boring No.	FAC POND 3
Client Reference	CMW / RMU-2	Depth(ft.)	NA
Project No.	2009-296-01	Sample No.	WEST
Lab ID	2009-296-01-01		

Visual Description: BROWN CLAY (REMOLDED)

Effective Confining Pressure (psi)	55.6	*Stage No.*	1
		Test No	3

INITIAL DIMENSIONS

Initial Sample Length (in.)	6.01
Initial Sample Diameter (in.)	2.87
Initial Sample Area (in^2)	6.46
Initial Sample Volume (in^3)	38.81

VOLUME CHANGE

Volume After Consolidation (in^3)	36.21
Length After Consolidation (in)	5.91
Area After Consolidation (in^2)	6.132

Strain (%)	Deviation Stress	ΔU	$\overline{\sigma}_1$	$\overline{\sigma}_3$	Effective Principle Stress Ratio	$\overline{A}$	$\overline{P}$	Q
0.03	0.46	0.31	55.76	55.3	1.008	0.69	55.53	0.23
0.07	3.21	0.69	58.13	54.9	1.059	0.22	56.52	1.61
0.12	10.46	2.27	63.79	53.3	1.196	0.23	58.56	5.23
0.20	17.07	5.14	67.53	50.5	1.338	0.31	58.99	8.53
0.40	24.85	10.91	69.53	44.7	1.556	0.46	57.11	12.42
0.60	29.19	14.77	70.02	40.8	1.715	0.53	55.43	14.59
0.83	32.73	17.75	70.58	37.8	1.865	0.56	54.22	16.37
1.21	36.97	21.09	71.48	34.5	2.071	0.59	53.00	18.48
1.61	40.46	23.29	72.77	32.3	2.252	0.60	52.54	20.23
2.24	44.33	25.24	74.69	30.4	2.460	0.59	52.52	22.16
2.75	46.85	26.10	76.35	29.5	2.588	0.58	52.92	23.42
3.26	49.10	26.54	78.17	29.1	2.689	0.56	53.62	24.55
3.57	50.35	26.67	79.28	28.9	2.741	0.55	54.10	25.18
4.27	52.91	26.68	81.84	28.9	2.829	0.53	55.38	26.46
5.07	55.62	26.36	84.87	29.2	2.902	0.49	57.05	27.81
5.85	57.80	25.86	87.54	29.7	2.944	0.47	58.64	28.90
6.61	59.85	25.23	90.22	30.4	2.971	0.44	60.30	29.93
7.65	62.21	24.26	93.54	31.3	2.985	0.41	62.44	31.10
8.40	63.91	23.49	96.02	32.1	2.991	0.38	64.06	31.95
9.41	65.92	22.43	99.09	33.2	2.988	0.35	66.13	32.96
10.18	67.43	21.63	101.40	34.0	2.985	0.33	67.69	33.72
10.94	68.71	20.81	103.50	34.8	2.975	0.32	69.14	34.35
11.97	70.17	19.77	106.00	35.8	2.958	0.29	70.91	35.08
13.22	72.04	18.49	109.15	37.1	2.941	0.27	73.13	36.02
14.25	73.20	17.50	111.30	38.1	2.921	0.25	74.70	36.60
15.79	74.76	16.09	114.27	39.5	2.892	0.22	76.89	37.38
17.04	75.90	14.95	116.56	40.7	2.867	0.21	78.60	37.95
18.32	76.97	13.84	118.73	41.8	2.843	0.19	80.24	38.48
19.59	77.82	12.79	120.63	42.8	2.818	0.17	81.72	38.91
21.37	78.63	11.52	122.71	44.1	2.784	0.15	83.39	39.32

Tested By JCM Date 8/3/2009 Input Checked By KB Date 8-10-09

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CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

ASTM D4767-95 / AASHTO T297-94 (SOP-S28)

Client	P.J. CAREY & ASSOCIATES		
Client Reference	CMW / RMU-2		
Project No.	2009-296-01		
Lab ID	2009-296-01-01	Specific Gravity (assumed)	2.7

Visual Description: BROWN CLAY (REMOLDED)

SAMPLE CONDITION SUMMARY

Boring No.	FAC POND 3	FAC POND 3	FAC POND 3
Depth (ft)	NA	NA	NA
Sample No.	WEST	WEST	WEST
Test No.	T1	T2	T3
Deformation Rate (in/min)	0.002	0.002	0.0016
Back Pressure (psi)	41.6	41.6	41.2
Consolidation Time (days)	1	1	1
Initial State (w%)	14.9	14.9	14.9
Total Unit Weight (pcf)	125.5	125.3	125.1
Dry Unit Weight (pcf)	109.2	109.0	108.9
Final State (w%)	17.6	16.7	15.9
Initial State Void Ratio,e	0.544	0.546	0.548
Void Ratio at Shear, e	0.493	0.459	0.444

Tested By JCM Date 8/3/2009 Input Checked By KB Date 8-10-09

DCN: CT-S28 DATE 12-9-08 REVISION: 2

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