Geotechnical Engineering Report
Roadway and Retaining Walls
State Project 155-H025
Hartford, Connecticut

Volume III

Prepared for:

URS Corporation
500 Enterprise Drive
Suite 3B
Rocky Hill, CT 06067

Prepared by:

Geo**Design**, Inc.
984 Southford Road
Middlebury, CT 06762

April 2009

Appendix 1

Consolidation Test Results

2003 Consolidation Tests

2008 Constant Rate of Strain Consolidation Tests

2008 Incremental Load Consolidation Tests

2003 Consolidation Tests

LABORATORY TESTING DATA SHEET

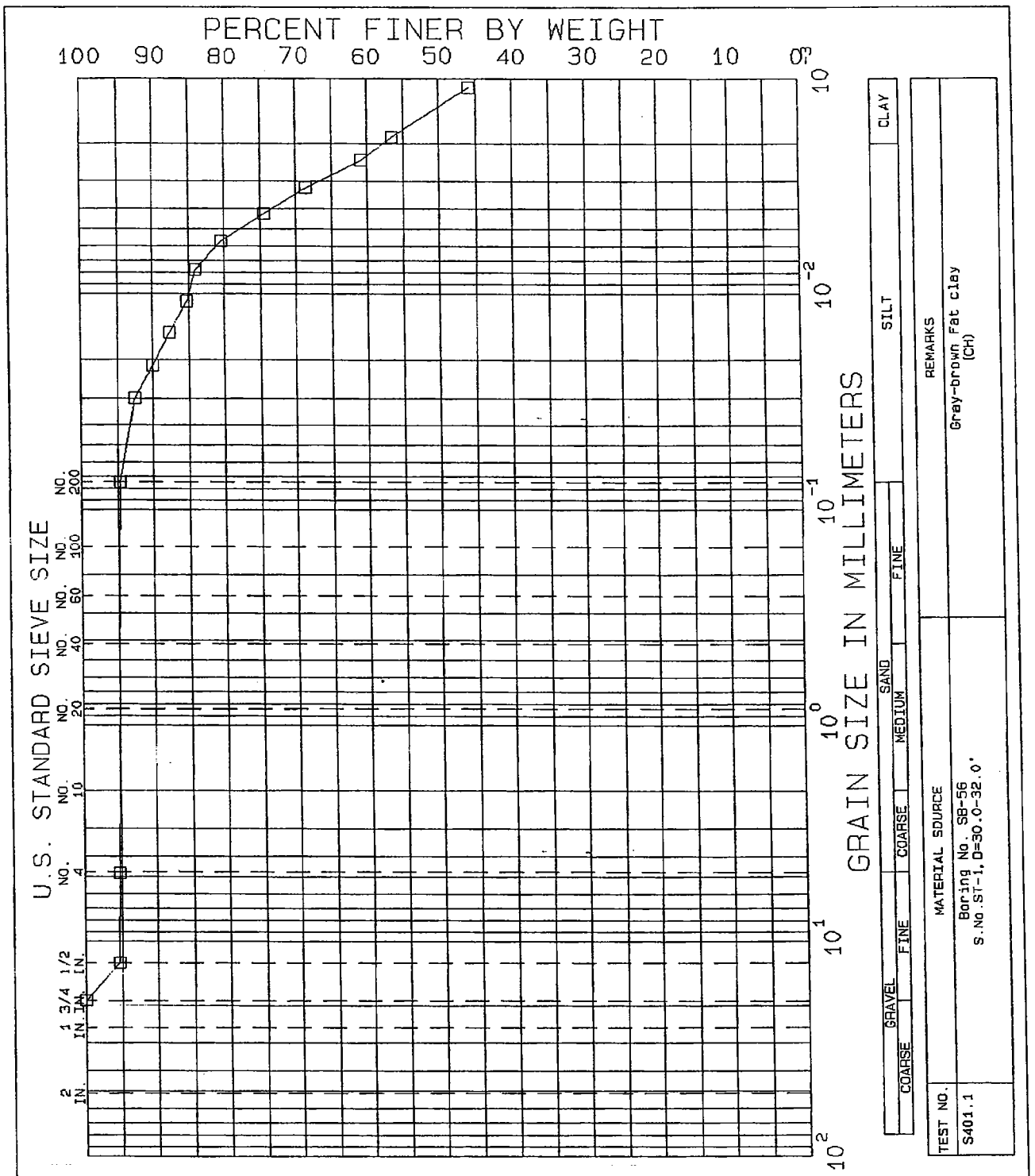
Project Name: NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
Project No.: L17828
Project Engineer: D. SCHULZE
Assigned By: D. Gaffney
Date: Feb.04
Reviewed By: Don Schulze
Date Reviewed: 2/24/04

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
SB-56	ST-1	30.0-32.0	401	Average Total Unit Weight (30.0-32.0') = 103.0 Pcf																Gray-brown Varved Soil as follows: Fat Clay (CH) grading to Silt (ML)
		30.1		62.8	(Clay Portion)									Tv= 0.20 tsf						
		30.1-30.6		60.3							62.9			CIU	4320	P/A MAX	2027	5.7		
		30.6		44.5	(Silt Portion)									Tv= 0.20 tsf						Varve thickness varies from 0.5-1.5" Clay portion varies from 0.25-1.25" in thickness and comprises approx. 25-50% of total varve
		30.6-31.1		60.5							65.5			CIU	5760	P/A MAX	2846	5.1		
		31.1		53.6	(entire varve)									Tv= 0.21 tsf						Note: 0.5" piece of Siltstone observed at 30.5'
		31.1-31.7		62.0							63.8			CIU	7200	P/A MAX	3395	6.6		
		31.7-31.8		66.1							61.6			Tv= 0.20 tsf					0.20	
		31.0-32.0		60.2	56	27	95	57		2.85	(Clay Portion)									

GZA GeoEnvironmental, Inc.

Q:\NEWTON\LAB\LABFORM7.XLS

labform1.xls

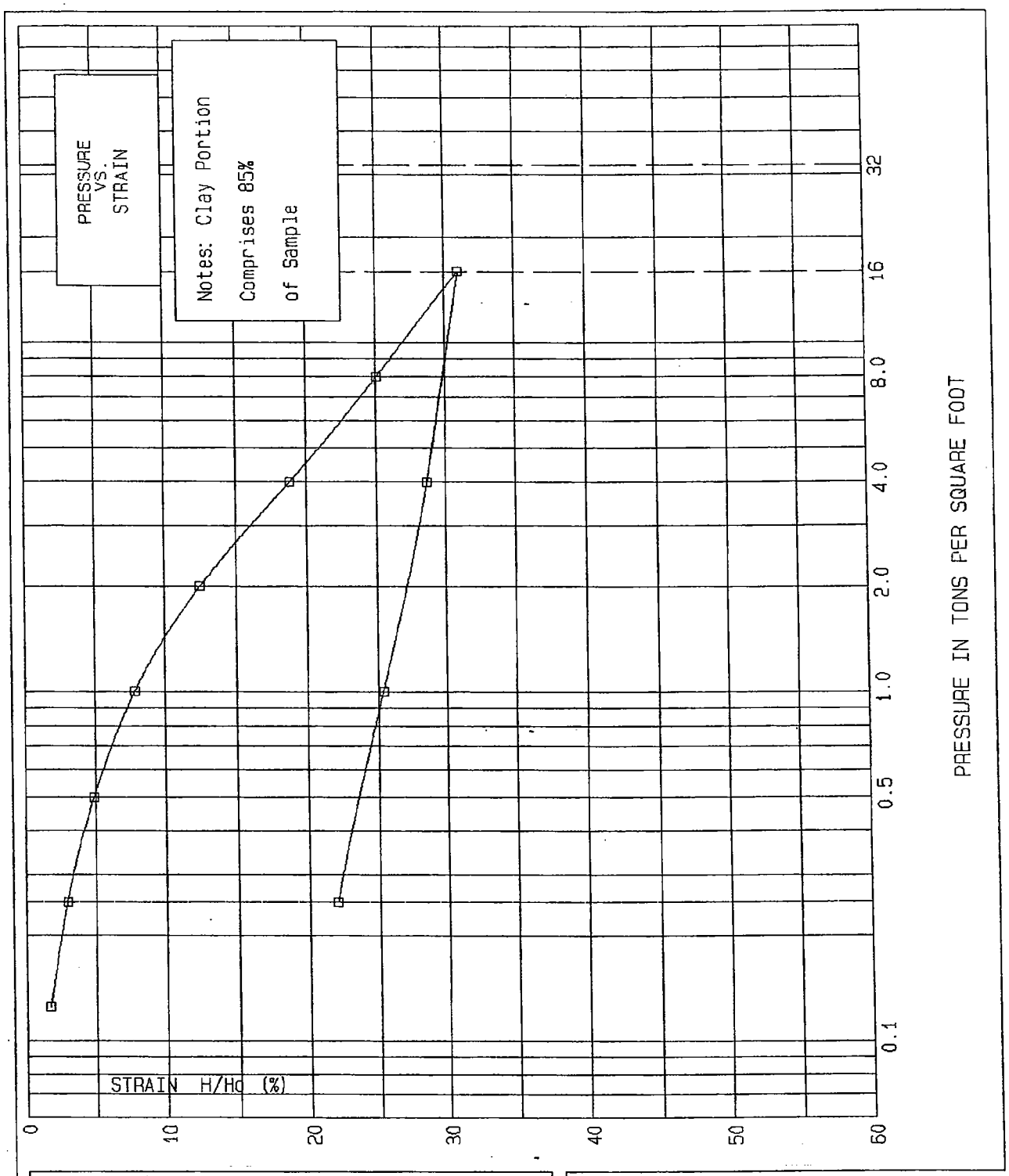


NEW BRITAIN-HARTFORD BUSWAY

CONNECTICUT

GRADATION TESTS

BORING NO.	SB-56	TEST SERIES	
SAMPLE	ST-1	NO.	401
DEPTH	30.0-32.0'	DATE	Feb.04
TECH.	PEC		
REVIEWER	MBP	FILE	L17828



SOIL DESCRIPTION: See Summary Sheet

SAMPLE DIAM. 2.5 IN.	LIQUID LIMIT 0 %	PLASTIC LIMIT 0 %	SPECIFIC GRAVITY 2.85

	WATER CONTENT, %	DRY UNIT WEIGHT, pcf	VOID RATIO	SATURATION, %	SAMPLE HEIGHT, INCH
INITIAL	66.10	61.55			0.80
FINAL	46.30	78.91			0.62

New Britain-Hartford Busway

CONSOLIDATION TEST

BORING NO.	SB-56	TEST SERIES NO.	C401.1
SAMPLE	ST-1	DATE	2/23/04
DEPTH	31.7-31.8'		
TECH.	MST		
REVIEWER	DAS	FILE	L17828

FIGURE

Job Number L17828
Project Name ..... New Britain-Hartford Busway
Test Number C401.1
Sample Description .. See Summary Sheet
Boring Number SB-56
Sample Number ST-1
Depth ..... 31.7-31.8'

Technician ..... MST
Reviewer ..... DAS

NOTES: Clay Portion
Comprises 85%
of Sample

Specific Gravity ..... 2.8500E+00
Sample Dry Weight ..... 6.3450E+01
Sample Diameter ..... 2.5000E+00
Initial Void Ratio ..... 0.0000E+00
Initial Sample Height 8.0000E-01
Final Sample Height 6.2400E-01
Initial Water Content .... 6.6100E+01
Final Water Content ..... 4.6300E+01
Liquid Limit ..... 0.0000E+00
Plastic Limit ..... 0.0000E+00
Initial Saturation ..... 0.0000E+00
Final Saturation ..... 0.0000E+00
T50 data excluded
T90 data included

Increment umber	Pressure (TSF)	Final Dial	Percent Strain	Void Ratio	T90 (min)	Cv (T90) (/10000)	C_α
1	0.000	0.0	0.00	1.889			
2	0.125	131.0	1.64	1.842			
3	0.250	236.0	2.95	1.804	11.6	12.01	0.0020
4	0.500	393.0	4.91	1.747	9.6	14.03	0.0024
5	1.000	630.0	7.87	1.662	7.8	16.39	
6	2.000	998.0	12.47	1.529	9.6	12.26	
7	4.000	1505.0	18.81	1.346	10.2	10.18	
8	8.000	2005.0	25.06	1.165	7.8	11.40	0.0039
9	16.000	2481.0	31.01	0.993	6.3	11.99	
10	4.000	2295.0	28.69	1.060			
11	1.000	2030.0	25.37	1.156			
12	0.250	1757.0	21.96	1.255			

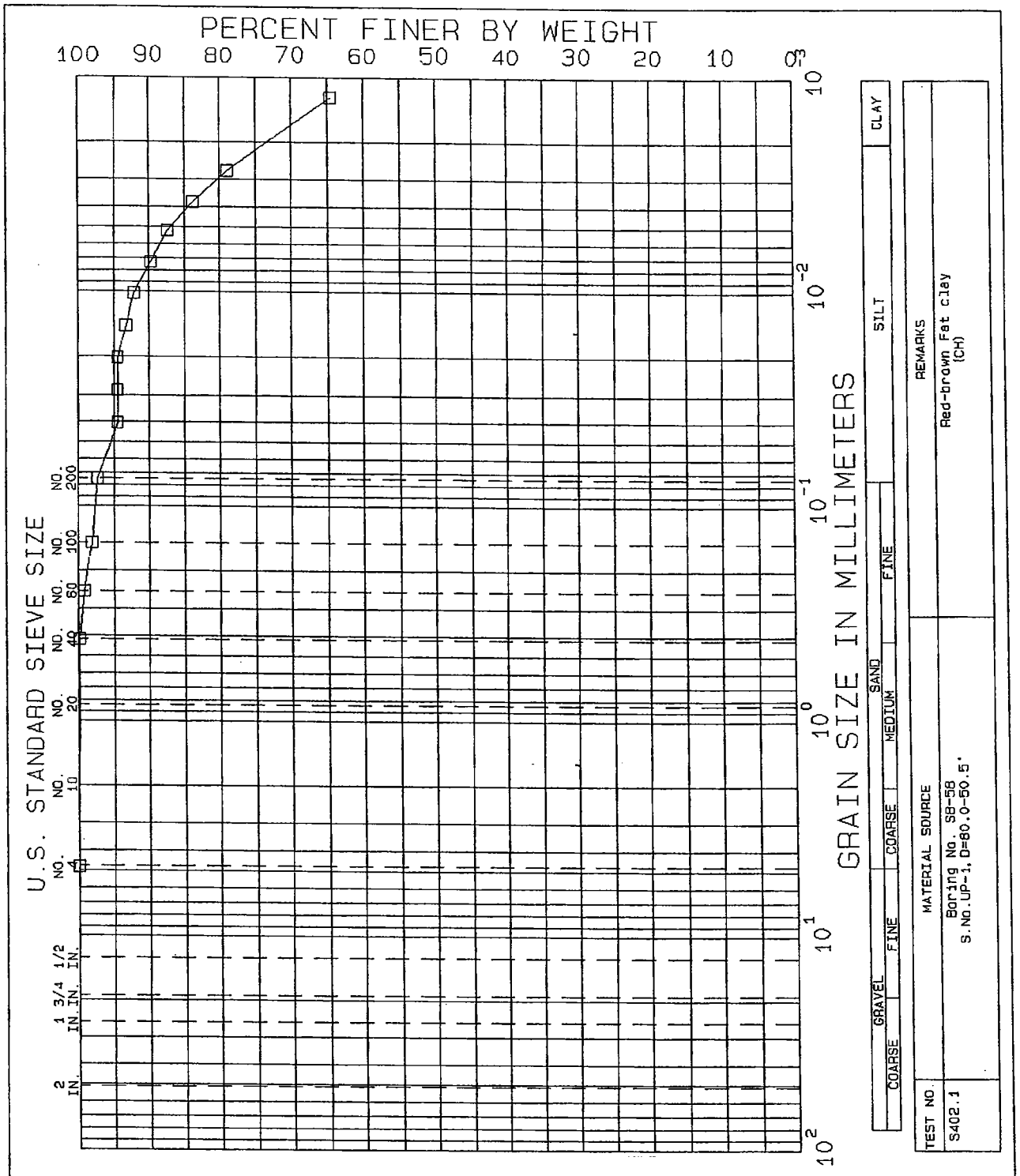
LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
Project No.: L17828
Project Engineer: D. SCHULZE
Assigned By: D. Gaffney
Date: Feb.03
Reviewed By: Don Schulze
Date Reviewed: 2/24/04

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
SB-58	UP-1	80.0-82.0	402		Average Total Unit Weight (80.0-80.5') = 90.3 Pcf															Red-brown Varved Soil as follows: Fat Clay (CH) grading to Silt (ML)
		80.1		65.1	(Clay Portion)									Tv= 0.22 tsf						
		80.3		38.8	(Silt Portion)									Tv= 0.20 tsf						
		80.3-80.4		67.0							61.4								0.22	Varve thickness varies from 0.5-1.5" Clay portion varies from 0.25-.5" in thickness and comprises approx. 25-50% of total varve
		80.4		44.5	(entire varve)															
		80.0-80.5*			53	25														
		80.0-80.5*					97	74												* Note: Hydrometer, Specific Gravity, and Atterberg Limit samples taken from clay layers throughout the tube sample
		80.0-80.5*								2.79										

GZA GeoEnvironmental, Inc.
Q:\NEWTON\LAB\LABFORM7.XLS

labform1.xls

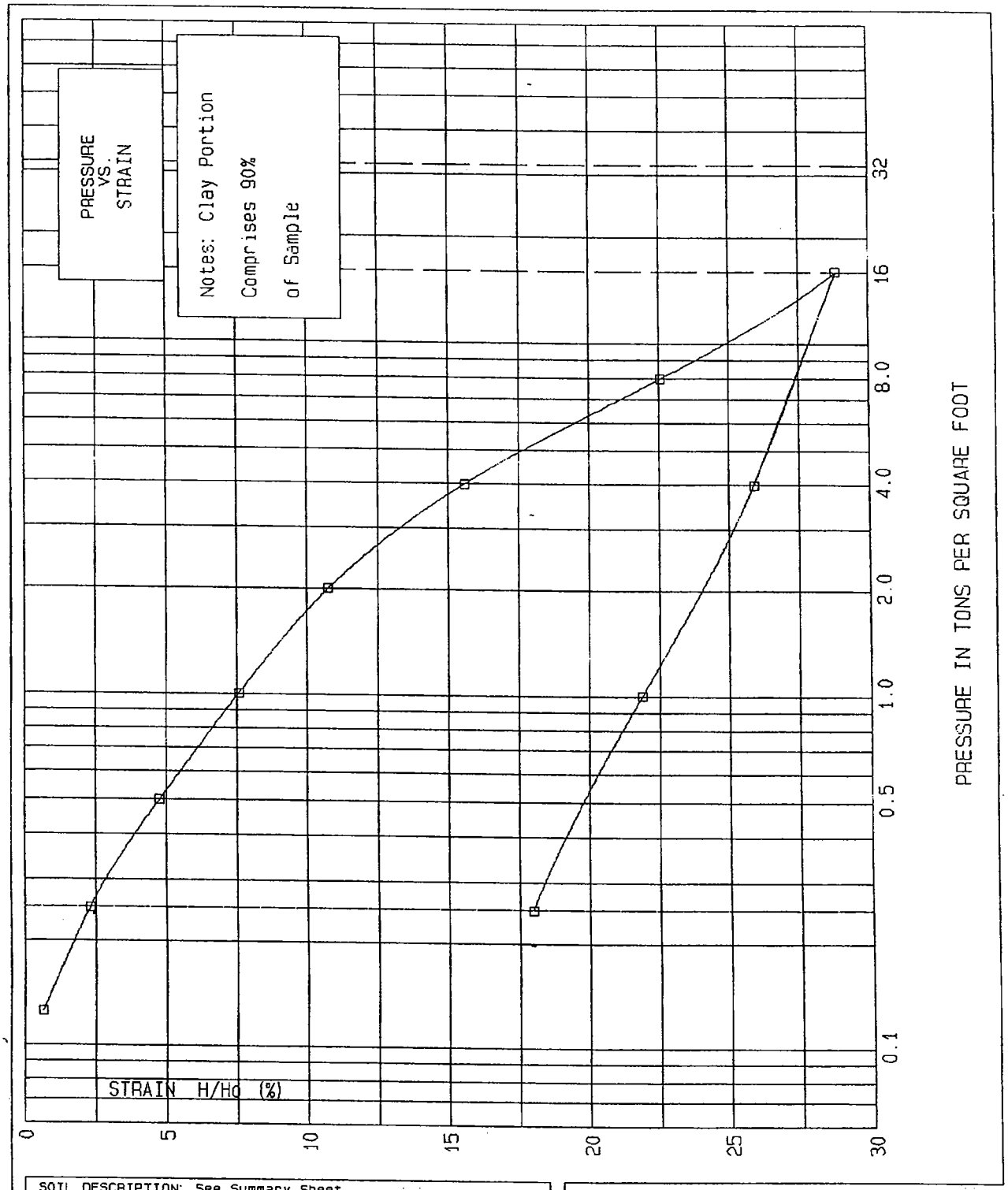


NEW BRITAIN-HARTFORD BUSWAY

CONNECTICUT

GRADATION TESTS

BORING NO.	SB-58	TEST SERIES	
SAMPLE	UP-1	NO.	402
DEPTH	80.0-80.5'	DATE	Feb.04
TECH.	PEC		
REVIEWER	MBP	FILE	L17828



SOIL DESCRIPTION: See Summary Sheet

SAMPLE DIAM. 2.5 IN.	LIQUID LIMIT 0 %	PLASTIC LIMIT 0 %	SPECIFIC GRAVITY 2.79

	WATER CONTENT, %	DRY UNIT WEIGHT, pcf	VOID RATIO	SATURATION, %	SAMPLE HEIGHT, INCH
INITIAL	67.00	61.41			0.80
FINAL	49.10	74.89			0.66

New Britain-Hartford Busway

CONSOLIDATION TEST

BORING NO.	SB-58	TEST SERIES	
SAMPLE	UP-1	NO.	C402.1
DEPTH	80.3-80.4'	DATE	2/23/04
TECH.	MST		
REVIEWER	DAS	FILE	L17828

FIGURE ____

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

Job Number L17828
Project Name ..... New Britain-Hartford Busway
Test Number C402.1
Sample Description .. See Summary Sheet
Boring Number SB-58
Sample Number UP-1
Depth ..... 80.3-80.4'

Technician ..... MST
Reviewer ..... DAS

NOTES: Clay Portion
Comprises 90%
of Sample

Specific Gravity ..... 2.7900E+00
Sample Dry Weight ..... 6.3300E+01
Sample Diameter ..... 2.5000E+00
Initial Void Ratio ..... 0.0000E+00
Initial Sample Height 8.0000E-01
Final Sample Height 6.5600E-01
Initial Water Content .... 6.7000E+01
Final Water Content ..... 4.9100E+01
Liquid Limit ..... 0.0000E+00
Plastic Limit ..... 0.0000E+00
Initial Saturation ..... 0.0000E+00
Final Saturation ..... 0.0000E+00
T50 data excluded
T90 data included

Increment umber	Pressure (TSF)	Final Dial	Percent Strain	Void Ratio	T90 (min)	Cv (T90) (/10000)	C_α
1	0.000	0.0	0.00	1.835			
2	0.125	51.0	0.64	1.817			
3	0.250	186.0	2.32	1.769	32.5	4.36	
4	0.500	381.0	4.76	1.700	25.0	5.43	0.0031
5	1.000	605.0	7.56	1.621	17.6	7.30	0.0031
6	2.000	860.0	10.75	1.530	13.7	8.79	
7	4.000	1247.0	15.59	1.393	15.2	7.24	
8	8.000	1805.0	22.56	1.195	25.0	3.82	0.0050
9	16.000	2307.0	28.84	1.018	12.2	6.60	
10	4.000	2071.0	25.89	1.101			
11	1.000	1750.0	21.87	1.215			
12	0.250	1438.0	17.97	1.325			

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
Project No.: L17828 — Assigned By: D. Gaffney — Reviewed By: [signature]
Project Engineer: D. SCHULZE — Date: Feb.04 — Date Reviewed: 3/24/04

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{\Delta e}{1 + e_0}$	Laboratory Log and Soil Description
SB-67	ST-1	70.0-72.0	403		Average Total Unit Weight (70.0-72.0') = 110.5 Pcf															Upper 4.5" of sample appeared to be disturbed
		70.4		64.1	(Clay Portion)									Tv= 0.25 tsf						
		70.5-70.8		48.1							74.2			CIU	7200	P/A MAX	5360	15.4		Brown Varved Soil as follows: Fat Clay (CH) grading to Silt (ML)
		70.9		66.7	(Clay Portion)									Tv= 0.27 tsf						
		70.9-71.3		47.0							76.4			CIU	10800	P/A MAX	5779	15.5		Varve thickness varies from 2.0-4.0" Clay portion varies from 0.75-1.00" in thickness and comprises approx. 25-50% of total varve
		71.3		76.8	(Clay Portion)									Tv= 0.24 tsf						
		71.3-71.4		64.7							64.4								0.27	
		71.5-71.8		43.9							77.6			CIU	14400	P/A MAX	10256	15.6		
		71.8-71.9		43.1	(Entire Varve)															
		71.9		39.0	(Silt Portion)															
		70.0-72.0		67.8	70	32	100	78		2.76	(Clay Portion)									Note: Specific gravity, limits and sieve/hydrometer run on clay portion

GZA GeoEnvironmental, Inc.

Q:\NEWTON\LAB\LABFORM7.XLS

labform1.xls

LABORATORY TESTING DATA SHEET

Project Name: BRITAIN-HARTFORD BUSWAY
NECTICUT

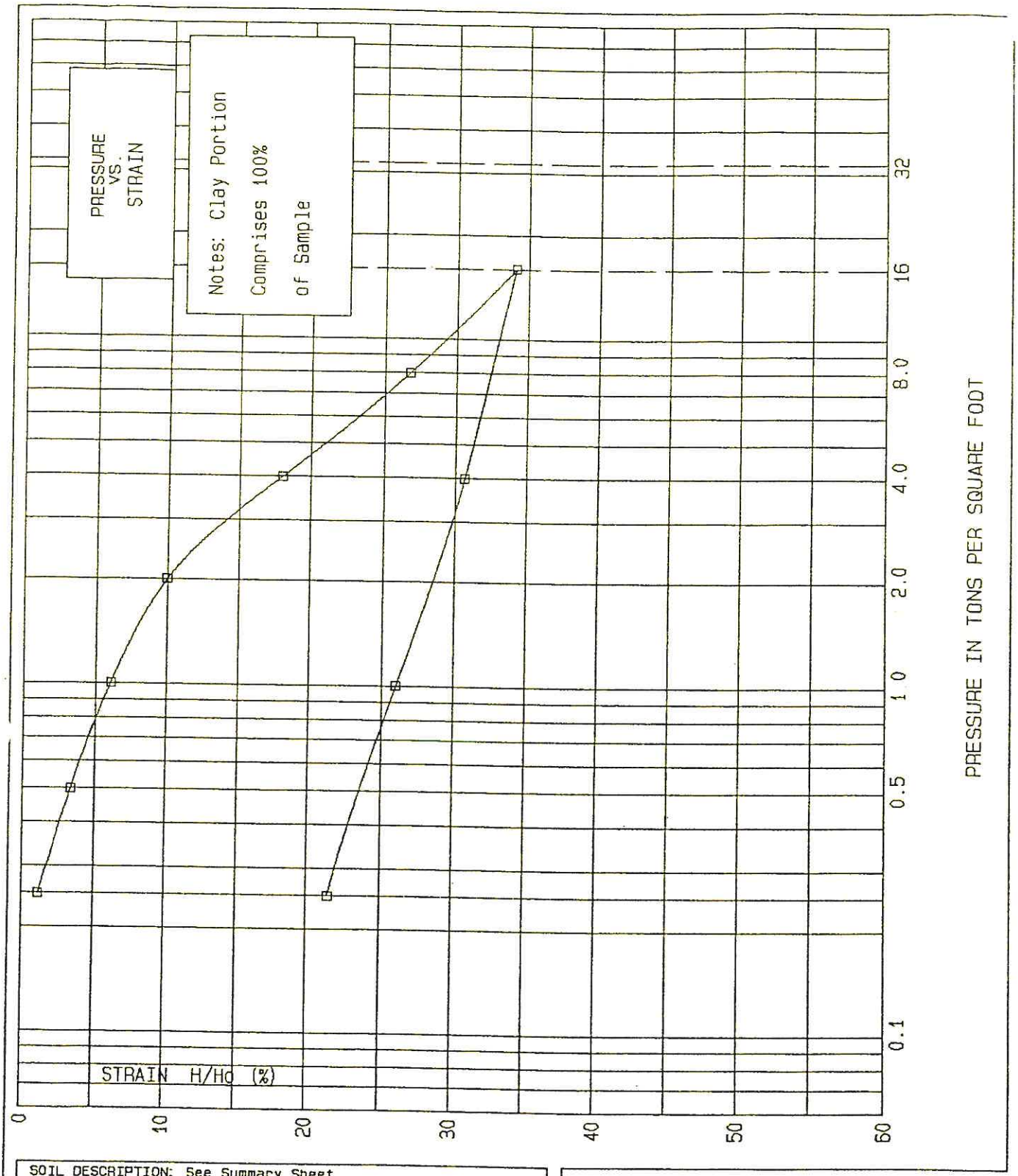
Project No. L17828 | Assigned By D. Gaffney | Reviewed By Don Schulze

Project Engineer D. SCHULZE | Date Nov.03 | Date Reviewed 11/24/03

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{\Delta e}{1 + e_0}$	Laboratory Log and Soil Description
SB-62	UP-1	60-62	391		Average Total Unit Weight (60.0-61.9') = 108.53 Pcf															Brown Varved Soil as follows:
		60.3		66.4	(Clay Portion)									Tv= 0.25 tsf						Fat Clay (CH) grading to Silt (ML)
		60.4		40.7	(Silt Portion)															
		60.5 60.7		49.0	(entire varve)															Varve thickness varies from 0.5-2.5" Clay portion varies from 0.125-1.0"
		60.8 60.9		71.0							59.4								0.26	in thickness and comprises approx. 25-40% of total varve
		61.1		69.8	74	29														
		61.2		34.9	32	31														
		61.3					100	90		2.84										
		61.4					100	12												

GZA GeoEnvironmental, Inc.
Q:\NEWTON\LAB\LABFORM7.XLS

labform1.xls



SOIL DESCRIPTION: See Summary Sheet

SAMPLE DIAM.	LIQUID LIMIT	PLASTIC LIMIT	SPECIFIC GRAVITY
2.5 IN.	0 %	0 %	2.84

	WATER CONTENT, %	DRY UNIT WEIGHT, pcf	VOID RATIO	SATURATION, %	SAMPLE HEIGHT, INCH
INITIAL	71.00	59.37			0.80
FINAL	51.00	76.24			0.62

NEW BRITAIN-HARTFORD BUSWAY

CONSOLIDATION TEST

BORING NO.	SB-62	TEST SERIES NO.	391.1
SAMPLE	UP-1	DATE	11/20/03
DEPTH	60.8-60.9'		
TECH.	MST		
REVIEWER	DAS	FILE	L17828

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

ob Number L17828
roject Name ..... NEW BRITAIN-HARTFORD BUSWAY
est Number 391.1
mple Description .. See Summary Sheet
g Number SB-62
ample Number UP-1
epth ..... 60.8-60.9'

echnician ..... MST
eviewer ..... DAS

OTES: Clay Portion
omprises 100%
f Sample

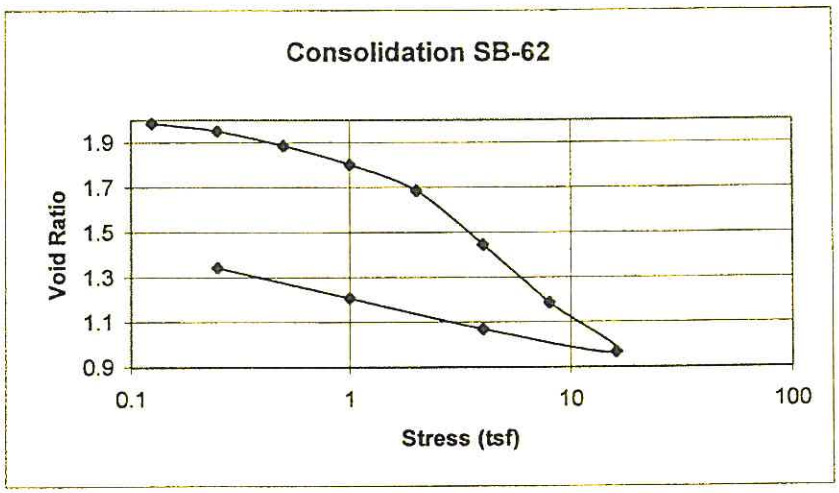
pecific Gravity ..... 2.8400E+00
ample Dry Weight ..... 6.1200E+01
ample Diameter ..... 2.5000E+00
nitial Void Ratio ..... 0.0000E+00
nitial Sample Height 8.0000E-01
nal Sample Height 6.2300E-01
nitial Water Content .... 7.1000E+01
nal Water Content ..... 5.1000E+01
quid Limit ..... 0.0000E+00
astic Limit ..... 0.0000E+00
nitial Saturation ..... 0.0000E+00
nal Saturation ..... 0.0000E+00
0 data excluded
0 data included

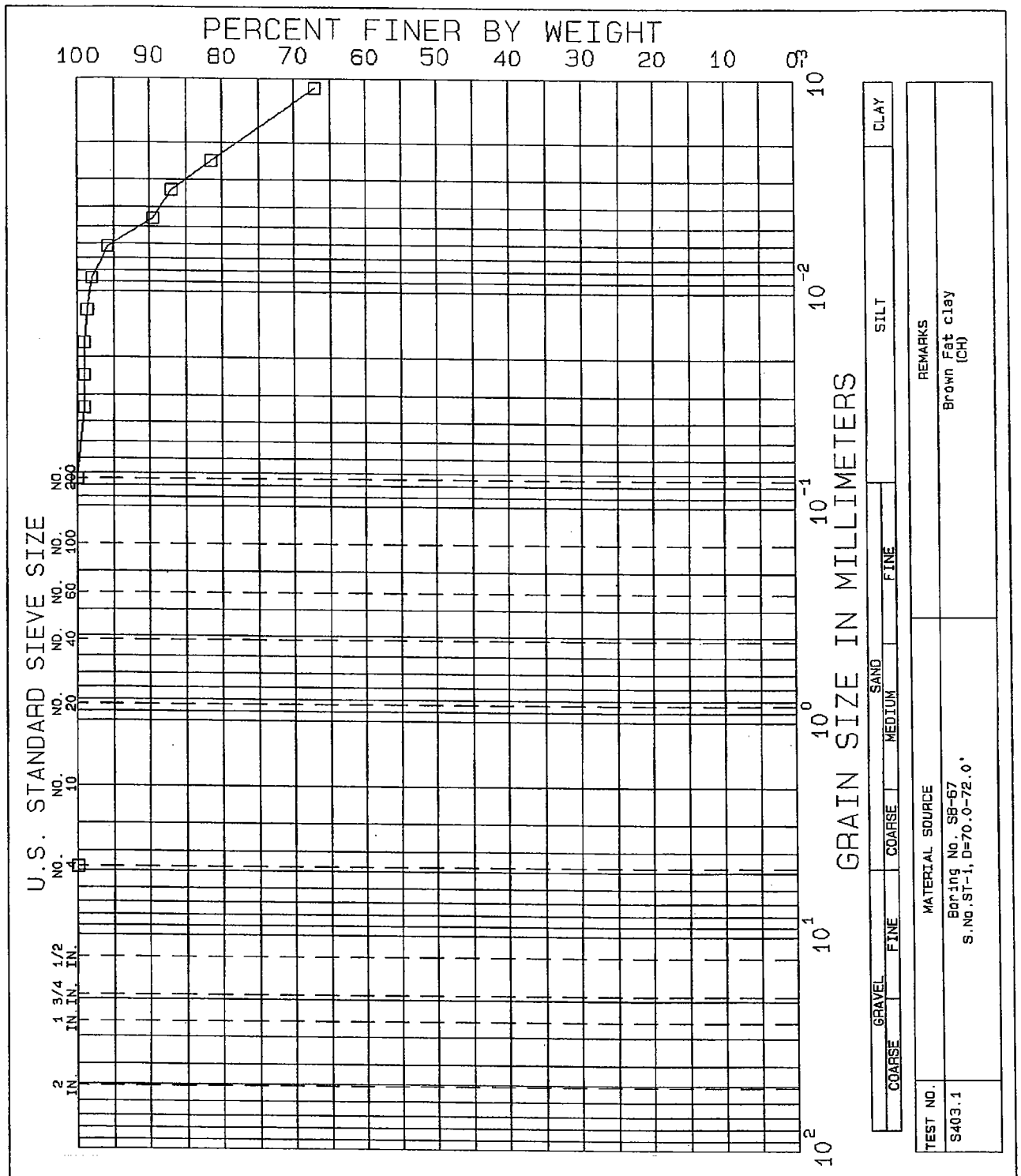
ncrement ber	Pressure (TSF)	Final Dial	Percent Strain	Void Ratio	T90 (min)	Cv (T90) (/10000) cm²/sec	C_α
1	0.125	49.0	0.00	1.985			
2	0.250	142.0	1.16	1.950	12.3	11.72	
3	0.500	318.0	3.36	1.885	28.0	4.98	0.0023
4	1.000	538.0	6.11	1.802	17.6	7.52	0.0023
5	2.000	849.0	10.00	1.686	20.3	6.08	
6	4.000	1490.0	18.01	1.447	34.8	3.10	0.010
7	8.000	2190.0	26.76	1.186	25.0	3.52	0.0063
8	16.000	2778.0	34.11	0.967	14.4	4.90	
9	4.000	2503.0	30.67	1.069			
10	1.000	2131.0	26.02	1.208			
11	0.250	1766.0	21.46	1.344			

Hartford Busway

Consolidation data for SB-62, UP-1

Stress (tsf)	Void Ratio
0.125	1.985
0.25	1.95
0.5	1.885
1	1.802
2	1.686
4	1.447
8	1.186
16	0.967
4	1.069
1	1.208
0.25	1.344



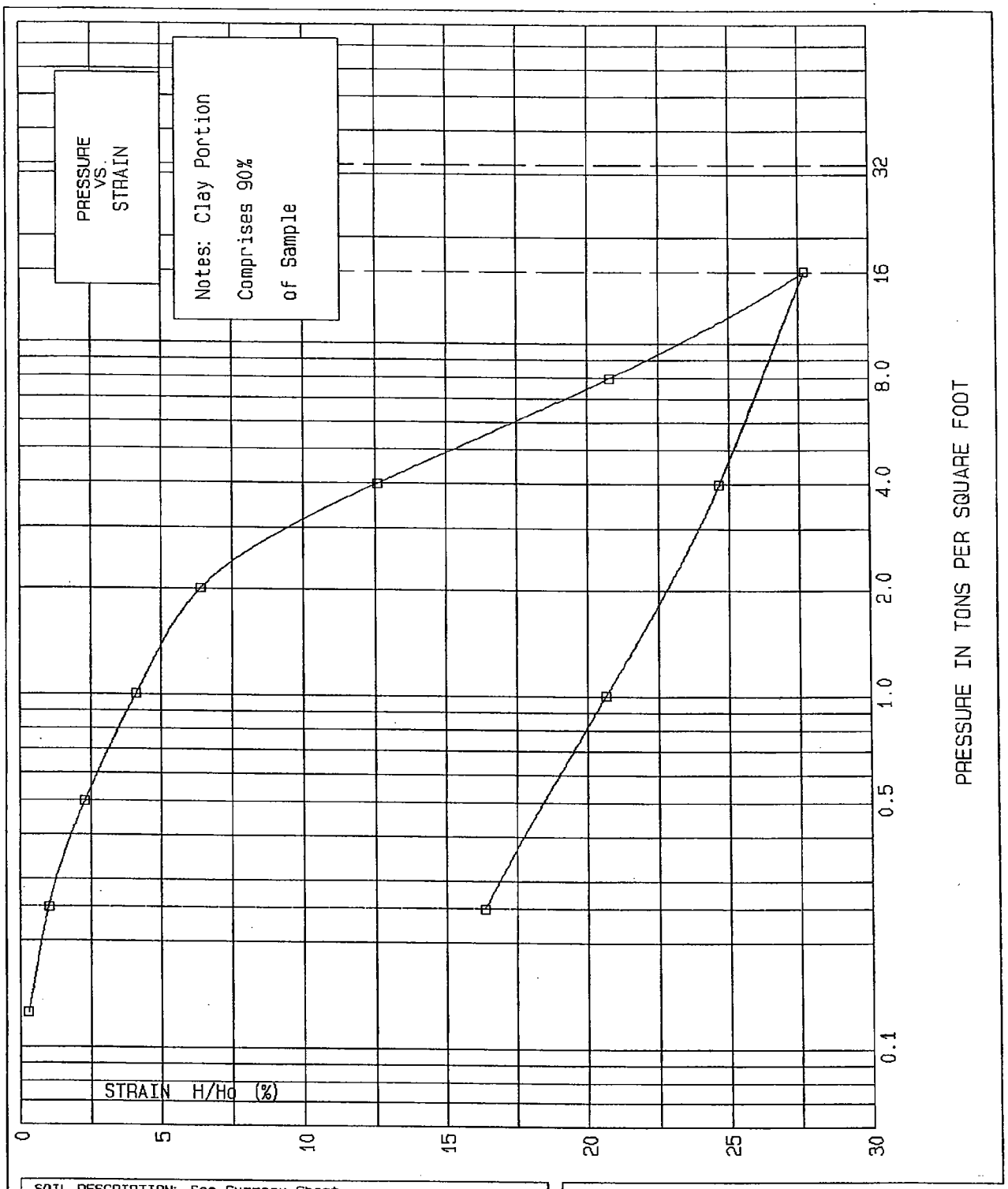


NEW BRITAIN-HARTFORD BUSWAY

CONNECTICUT

GRADATION TESTS

BORING NO.	SB-67	TEST SERIES	
SAMPLE	ST-1	NO.	403
DEPTH	70.0-72.0'	DATE	Mar.04
TECH.	PEC		
REVIEWER	MBP	FILE	L17828



SOIL DESCRIPTION: See Summary Sheet

SAMPLE DIAM.	LIQUID LIMIT	PLASTIC LIMIT	SPECIFIC GRAVITY
2.5 IN.	0 %	0 %	2.76

	WATER CONTENT, %	DRY UNIT WEIGHT, pcf	VOID RATIO	SATURATION, %	SAMPLE HEIGHT, INCH
INITIAL	64.70	64.41			0.80
FINAL	48.10	77.03			0.67

New Britain-Hartford Busway

CONSOLIDATION TEST

BORING NO.	SB-67	TEST SERIES NO.	C403
SAMPLE	ST-1	DATE	3/24/04
DEPTH	71.3-71.4'		
TECH.	MST		
REVIEWER	DAS	FILE	L17828

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

Job Number L17828
Project Name ..... New Britain-Hartford Busway
Test Number C403
Sample Description .. See Summary Sheet
Boring Number SB-67
Sample Number ST-1
Depth ..... 71.3-71.4'

Technician ..... MST
Reviewer ..... DAS

NOTES: Clay Portion
Comprises 90%
of Sample

Specific Gravity ..... 2.7600E+00
Sample Dry Weight ..... 6.6400E+01
Sample Diameter ..... 2.5000E+00
Initial Void Ratio ..... 0.0000E+00
Initial Sample Height 8.0000E-01
Final Sample Height 6.6900E-01
Initial Water Content .... 6.4700E+01
Final Water Content ..... 4.8100E+01
Liquid Limit ..... 0.0000E+00
Plastic Limit ..... 0.0000E+00
Initial Saturation ..... 0.0000E+00
Final Saturation ..... 0.0000E+00
T50 data excluded
T90 data included

Increment umber	Pressure (TSF)	Final Dial	Percent Strain	Void Ratio	T90 (min)	Cv (T90) (/10000)	C_α
1	0.000	0.0	0.00	1.674			
2	0.125	23.0	0.29	1.666			
3	0.250	80.0	1.00	1.647	6.3	22.86	
4	0.500	184.0	2.30	1.612	12.3	11.47	0.0015
5	1.000	329.0	4.11	1.564	7.3	18.72	
6	2.000	511.0	6.39	1.503	7.8	16.79	
7	4.000	1008.0	12.60	1.337	12.3	9.72	
8	8.000	1661.0	20.76	1.119	14.4	7.03	0.0073
9	16.000	2216.0	27.70	0.933	7.3	11.47	
10	4.000	1973.0	24.66	1.014			
11	1.000	1651.0	20.64	1.122			
12	0.250	1310.0	16.37	1.236			

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
Project No.: L17828 — Assigned By: D. Gaffney — Reviewed By: [signature]
Project Engineer: D. SCHULZE — Date: Mar 04 — Date Reviewed: 3/22/04

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Permeability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
SB-73	UP-1	30.0-32.0	405	Average Total Unit Weight (30.0-32.0') = 127.6 Pcf																Gray Lean clay (CL)
		30.3		30.5										Tv= 0.45 tsf						
		30.3-30.6		29.5							94.5			CIU	4320	σ1/σ3 MAX	5008	10.2		
		30.6-30.7		31.2							91.6								0.11	
		30.7		24.3										Tv= 0.55 tsf						
		30.8-31.1		26.8							99.6			CIU	5760	σ1/σ3 MAX	6742	8.2		
		31.2		26.9										Tv= 0.60 tsf						
		31.3		24.3	29	21														
		31.3					86	17												
		31.4								2.72										
		31.4-31.7		23.1							106.4			CIU	7200	σ1/σ3 MAX	9951	10.6		

LABORATORY TESTING DATA SHEET

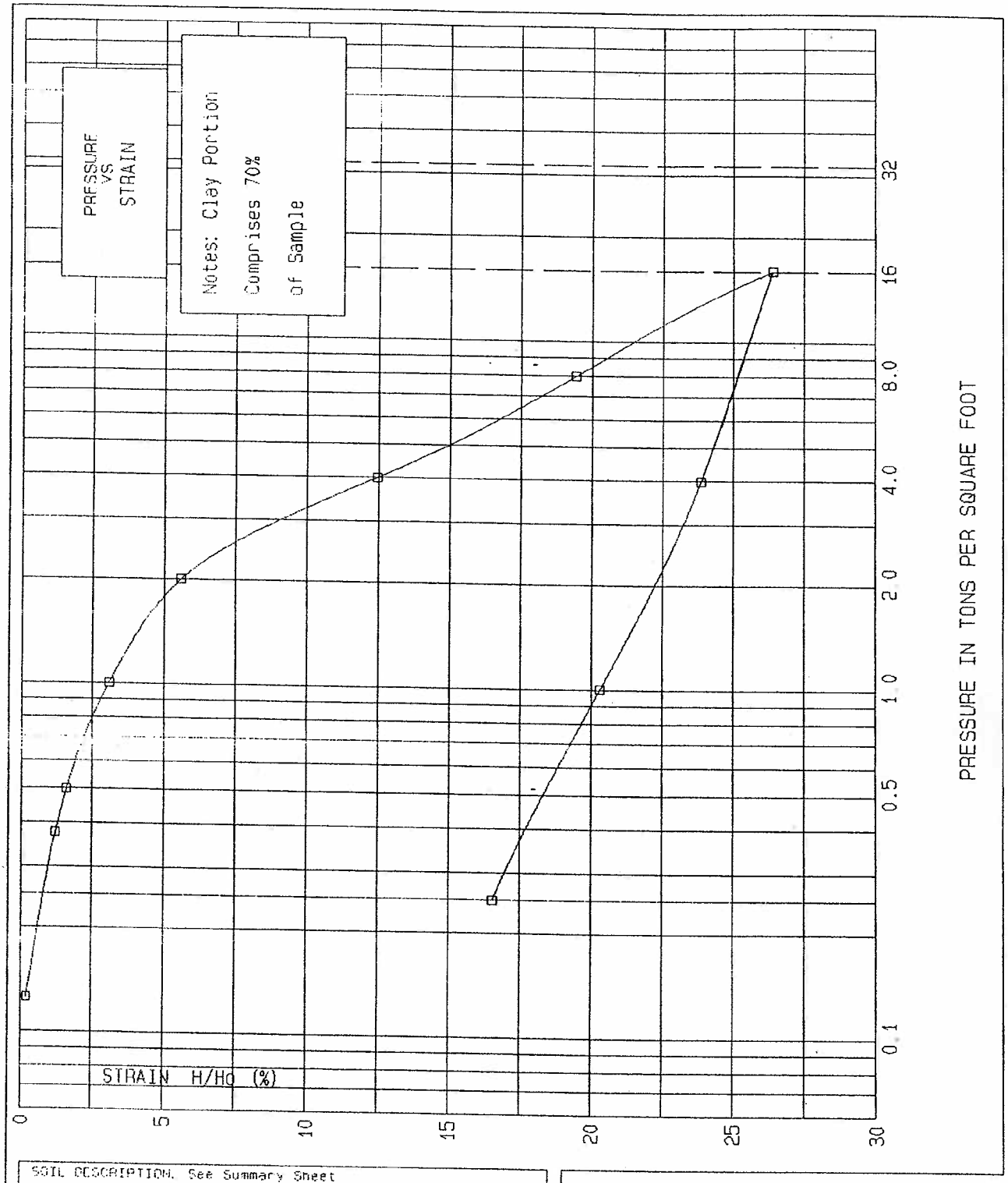
Project Name: NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
Project No.: L17828
Project Engineer: D. SCHULZE
Assigned By: D. Gaffney
Date: Mar.04
Reviewed By: [signature]
Date Reviewed: 3/18/04

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
SB-70	UP-1	50.0-52.0	404		Average Total Unit Weight (50.0-52.0') = 106.6 Pcf															Brown Varved Soil as follows:
		50.1		71.5	(Clay Portion)									Tv= 0.28 tsf						Fat Clay (CH) grading to Silt (ML)
		50.2-50.5		61.3							64.7			CIU	7200	P/A MAX	3211	2.6		
		50.5-50.9		57.1							67.1			CIU	10800	P/A MAX	4813	4.7		Varve thickness varies from 0.375-1.0"
		50.9		70.4	(Clay Portion)									Tv= 0.30 tsf						Clay portion varies from 0.25-1" in thickness and comprises approx. 70-90% of total varve
		51.1-51.2		59.6							66.6								0.23	
		51.4-51.8		57.6							67.1			CIU	14400	P/A MAX	6756	5.3		
		51.8		71.6	(Clay Portion)									Tv= 0.30 tsf						
		50.0-52.0		67.4	63	30	100	74		2.86	(Clay Portion)									Note: Specific gravity, limits and sieve/hydrometer run on clay portion

GZA GeoEnvironmental, Inc.

O:\NEWTON\LAB\LABFORM7.XLS

labform1.xls



SOIL DESCRIPTION. See Summary Sheet

SAMPLE DIAM. 2.5 IN.	LIQUID LIMIT 63 %	PLASTIC LIMIT 30 %	SPECIFIC GRAVITY 2.86 -

	WATER CONTENT, %	DRY UNIT WEIGHT, pcf	VOID RATIO	SATURATION, %	SAMPLE HEIGHT, INCH
INITIAL	59 60	66 56			0 80
FINAL	44 90	79 71			0.67

New Britain-Hartford Busway

CONSOLIDATION TEST

BORING NO.	SB-70	TEST SERIES NO.	C404
SAMPLE	UP-1	DATE	3/18/04
DEPTH	51 1-51 2'		
TECH	MST		
REVIEWER	DAS	FILE	L17828

FIGURE

GZA GEOENVIRONMENTAL, INC
ENGINEERS AND SCIENTISTS

Job Number L17828
Project Name ..... New Britain-Hartford Busway
Test Number C404
Sample Description .. See Summary Sheet
Boring Number SB-70
Sample Number UP-1
Depth ..... 51.1-51.2'

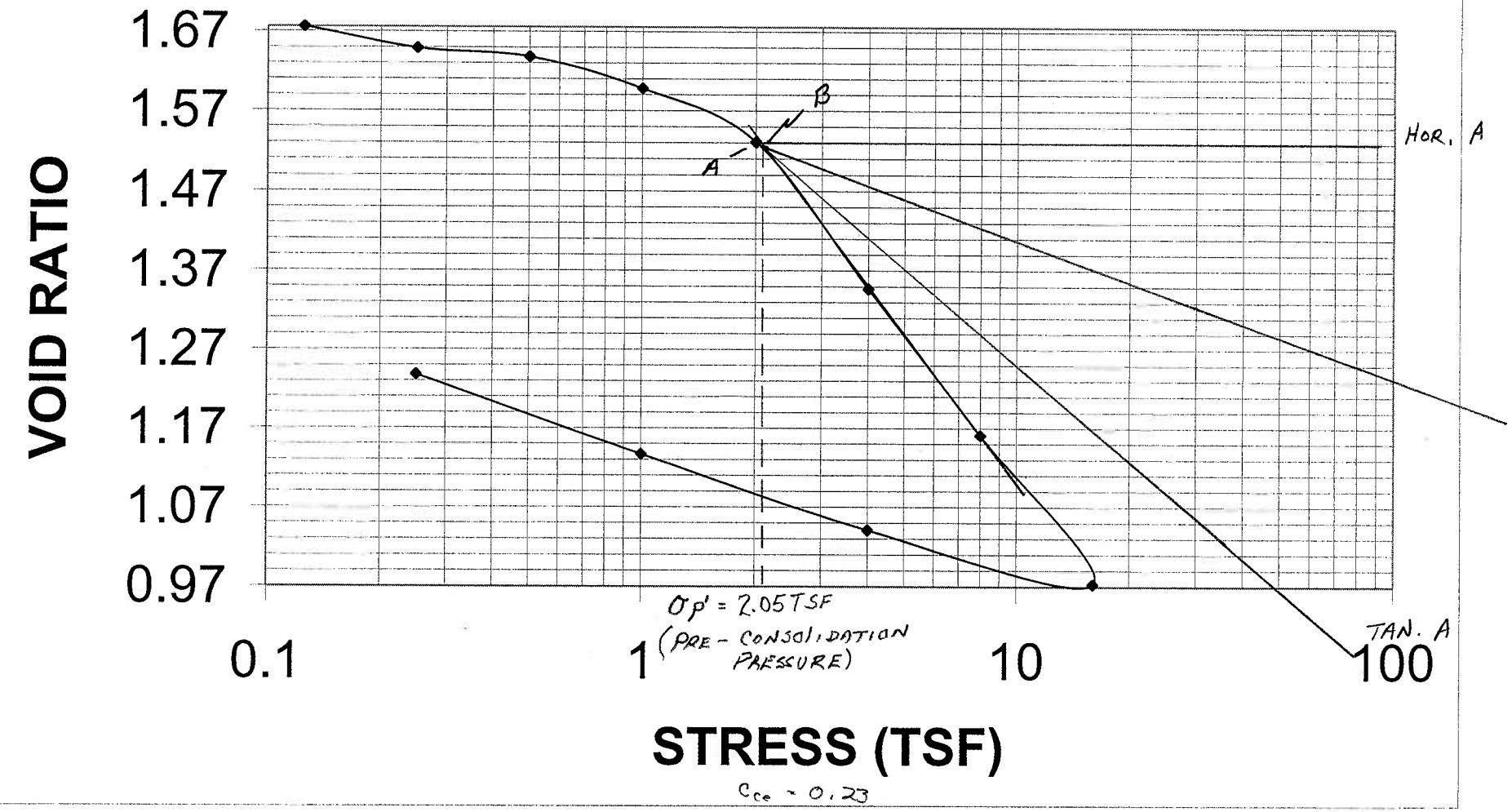
Technician ..... MST
Reviewer ..... DAS

NOTES: Clay Portion
Comprises 70%
of Sample

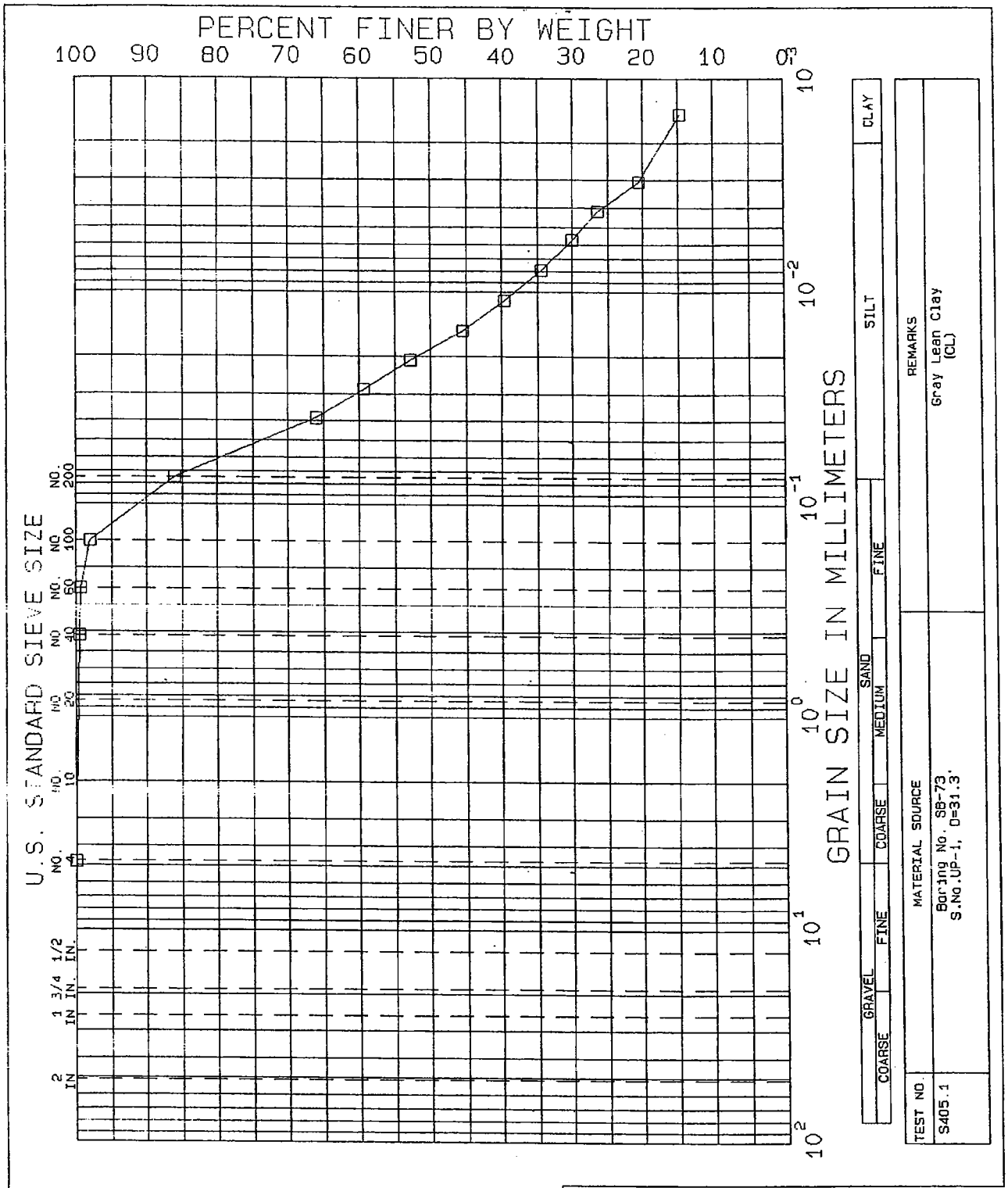
Specific Gravity ..... 2.8600E+00
Sample Dry Weight ..... 6.8610E+01
Sample Diameter ..... 2.5000E+00
Initial Void Ratio ..... 0.0000E+00
Initial Sample Height 8.0000E-01
Final Sample Height 6.6800E-01
Initial Water Content .... 5.9600E+01
Final Water Content ..... 4.4900E+01
Liquid Limit ..... 6.3000E+01
Plastic Limit ..... 3.0000E+01
Initial Saturation ..... 0.0000E+00
Final Saturation ..... 0.0000E+00
T50 data excluded
T90 data included

Increment umber	Pressure (TSF)	Final Dial	Percent Strain	Void Ratio	T90 (min)	Cv (T90) (/10000)	C_α
1	0.000	0.0	0.00	1.681			
2	0.125	15.0	0.19	1.676			
3	0.375	96.0	1.20	1.649	3.2	44.96	0.0008
4	0.500	128.0	1.60	1.638	3.2	44.32	
5	1.000	248.0	3.10	1.598	3.6	38.64	
6	2.000	447.0	5.59	1.531	4.0	33.37	
7	4.000	998.0	12.47	1.347	10.2	11.84	0.0088
8	8.000	1553.0	19.41	1.161	7.8	13.22	
9	16.000	2112.0	26.40	0.973	6.3	13.76	0.0038
10	4.000	1910.0	23.87	1.041			
11	1.000	1623.0	20.29	1.137			
12	0.250	1323.0	16.54	1.238			

SB-70 Consolidation



$C_{cc} \approx 0.23$

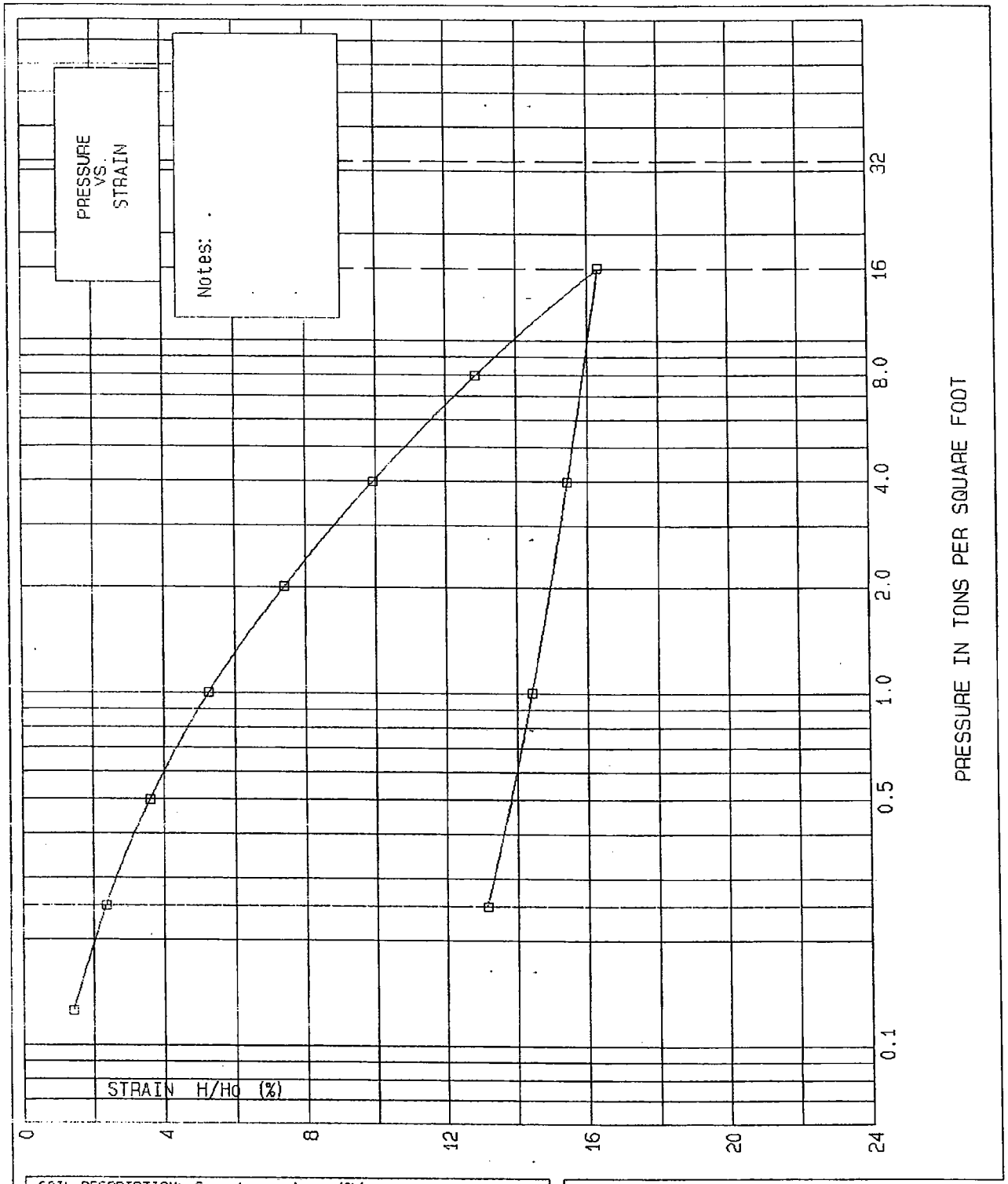


NEW BRITAIN-HARTFORD BUSWAY

CONNECTICUT

GRADATION TESTS

BORING NO.	SB-73	TEST SERIES	
SAMPLE	UP-1	NO.	405
DEPTH	31.3'	DATE	Mar.04
TECH.	PEC		
REVIEWER	MBP	FILE	L17828



SOIL DESCRIPTION: Gray Lean clay (CL)

SAMPLE DIAM.	LIQUID LIMIT	PLASTIC LIMIT	SPECIFIC GRAVITY
2 5 IN.	29 %	21 %	2.72

	WATER CONTENT, %	DRY UNIT WEIGHT, pcf	VOID RATIO	SATURATION, %	SAMPLE HEIGHT, INCH
INITIAL	31 20	91.61			0.80
FINAL	23 60	105 45			0.69

New Britain-Hartford Busway

CONSOLIDATION TEST

BORING NO.	SB-73	TEST SERIES NO.	C405
SAMPLE	UP-1	DATE	3/18/04
DEPTH	30.6-30.7'		
TECH	MST		
REVIEWER	DAS	FILE	L17828

FIGURE

Job Number L17828
Project Name ..... New Britain-Hartford Busway
Test Number C405
Sample Description .. Gray Lean clay with organics- CL
Boring Number SB-73
Sample Number UP-1
Depth ..... 30.6-30.7'

Technician ..... MST
Reviewer ..... DAS

NOTES:

Specific Gravity ..... 2.7200E+00
Sample Dry Weight ..... 9.4430E+01
Sample Diameter ..... 2.5000E+00
Initial Void Ratio ..... 0.0000E+00
Initial Sample Height 8.0000E-01
Final Sample Height 6.9500E-01
Initial Water Content .... 3.1200E+01
Final Water Content ..... 2.3600E+01
Liquid Limit ..... 2.9000E+01
Plastic Limit ..... 2.1000E+01
Initial Saturation ..... 0.0000E+00
Final Saturation ..... 0.0000E+00
T50 data excluded
T90 data included

Increment umber	Pressure (TSF)	Final Dial	Percent Strain	Void Ratio	T90 (min)	Cv (T90) (/10000)	C_α
1	0.000	0.0	0.00	0.853			
2	0.125	114.0	1.42	0.826			
3	0.250	189.0	2.36	0.809	6.3	22.29	
4	0.500	289.0	3.61	0.786	4.8	28.61	0.0017
5	1.000	421.0	5.26	0.755	4.0	33.31	
6	2.000	590.0	7.37	0.716	1.7	75.32	
7	4.000	795.0	9.94	0.669	2.3	52.93	
8	8.000	1029.0	12.86	0.614	1.7	67.37	
9	16.000	1304.0	16.30	0.551	1.7	62.62	0.0036
10	4.000	1234.0	15.42	0.567			
11	1.000	1153.0	14.41	0.586			
12	0.250	1051.0	13.14	0.609			

LABORATORY TESTING DATA SHEET

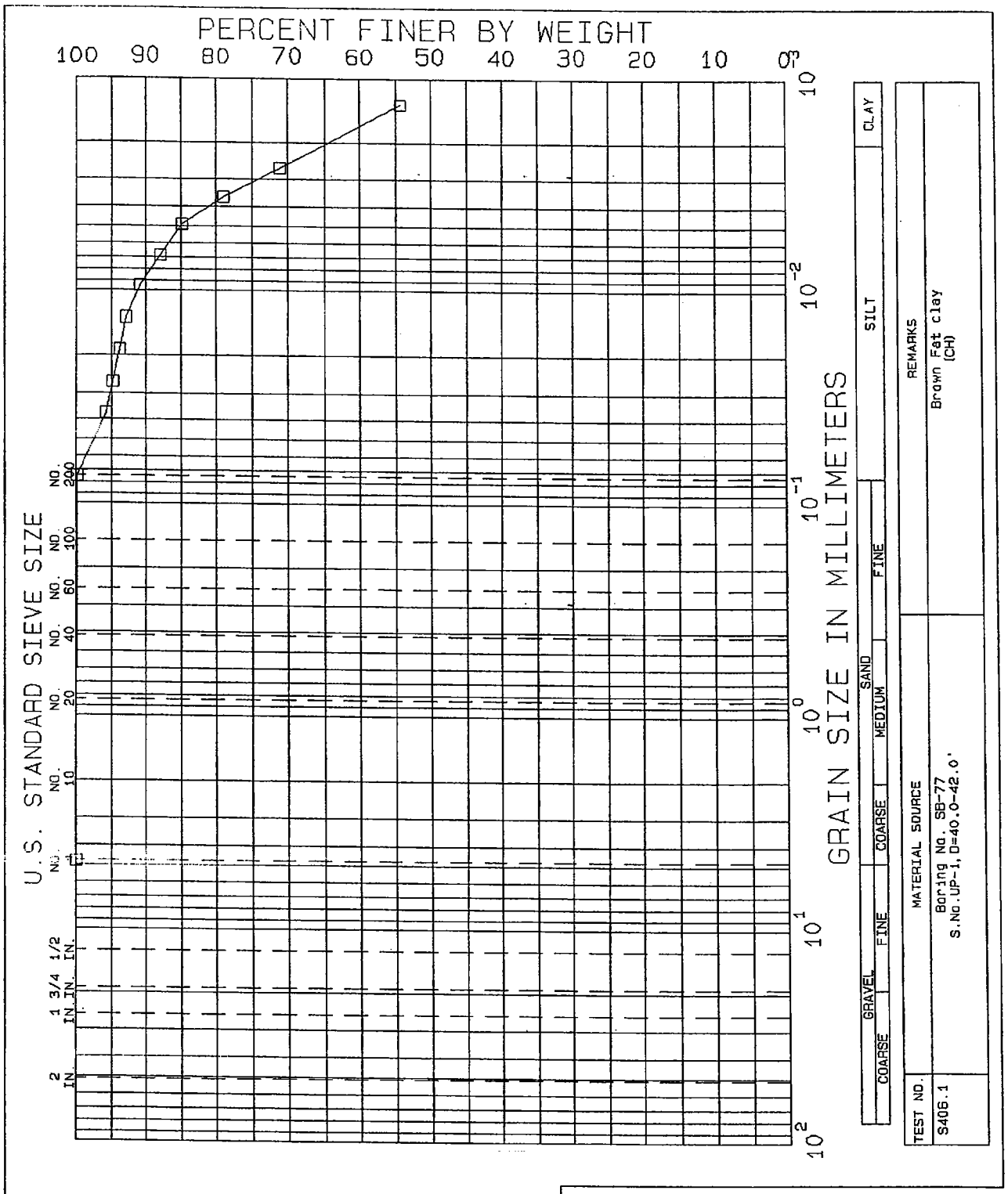
Project Name: NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
Project No.: L17828
Project Engineer: D. SCHULZE
Assigned By: D. Gaffney
Date: Feb.04
Reviewed By: [signature]
Date Reviewed: 3/9/04

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) W_{opt} (%)	Permeability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1-\sigma_3$ or τ psf	Strain %	Consol. $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
SB-77	UP-1	40.0-42.0	406		Average Total Unit Weight (40.0-42.0') = 103.3 Pcf															Brown Varved Soil as follows: Fat Clay (CH) grading to Silt (ML)
		40.2		76.1	(Clay Portion)									Tv= 0.32 tsf						
		40.2-40.6		61.1							64.4			CIU	4320	P/A MAX	2956	4.1		
		40.6-41.1		63.6							62.1			CIU	5760	P/A MAX	2818	2.1		Varve thickness varies from 0.5-1.5" Clay portion varies from 0.25-1.25" in thickness and comprises approx. 50-75% of total varve
		41.1		39.5	(Silt Portion)									Tv= 0.27 tsf						
		41.1-41.5		57.5							66.3			CIU	7200	P/A MAX	3436	2.6		
		41.5		58.9	(entire varve)									Tv= 0.25 tsf						
		41.6-41.7		62.8							64.1								0.21	
		40.0-42.0		72.1	74	43	100	65		2.78	(Clay Portion)									Note: Specific gravity, limits and sieve/hydrometer run on clay portion

GZA GeoEnvironmental, Inc.

Q:\NEWTON\LAB\LABFORM7.XLS

labform1.xls

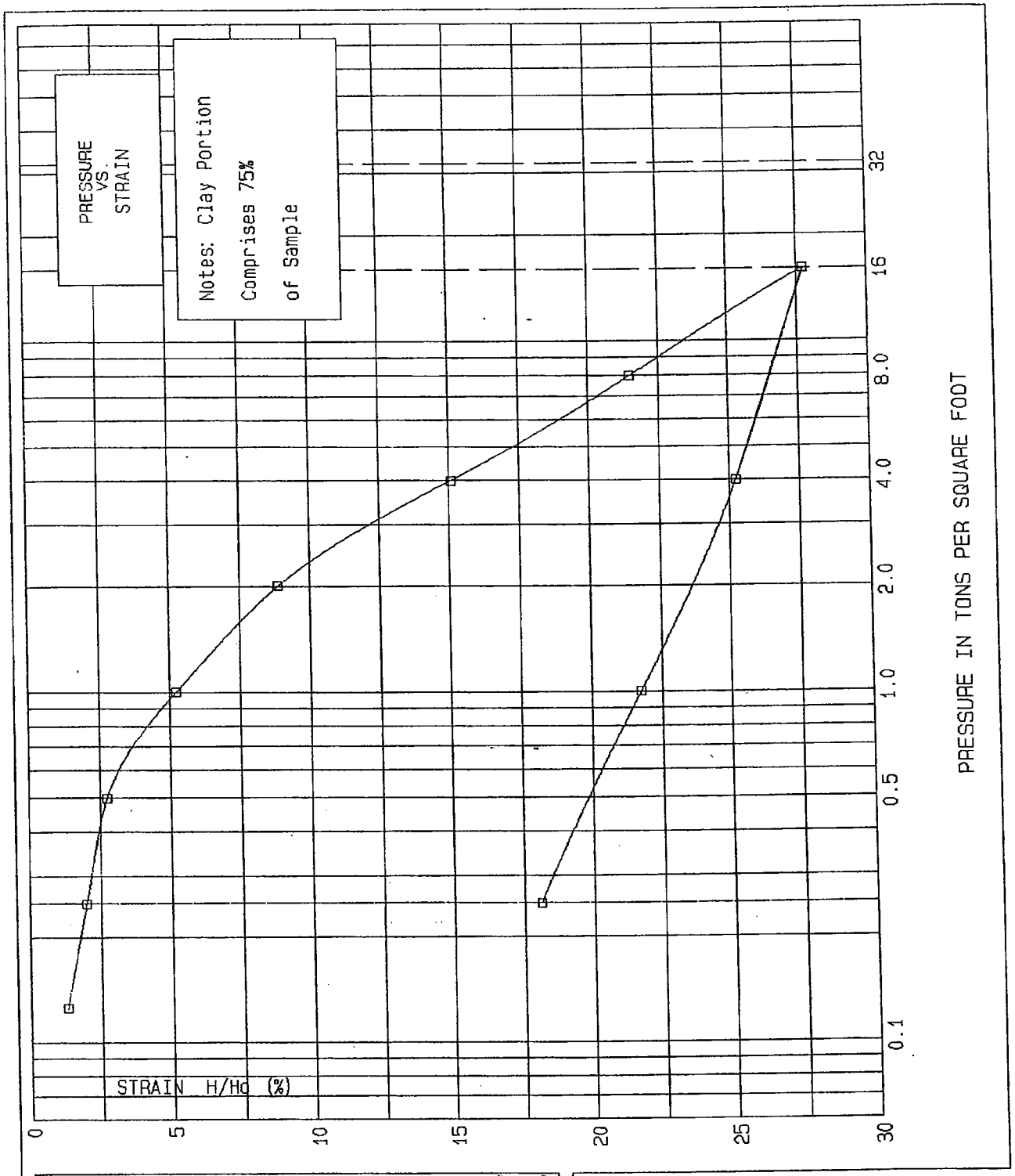


NEW BRITAIN-HARTFORD BUSWAY

CONNECTICUT

GRADATION TESTS

BORING NO.	SB-77	TEST SERIES	
SAMPLE	UP-1	NO.	406
DEPTH	40.0-42.0'	DATE	Mar.04
TECH.	MJD		
REVIEWER	MBP	FILE	L17828



SOIL DESCRIPTION: See Summary Sheet

SAMPLE DIAM.	LIQUID LIMIT	PLASTIC LIMIT	SPECIFIC GRAVITY
2.5 IN.	74 %	43 %	2.78

	WATER CONTENT, %	DRY UNIT WEIGHT, pcf	VOID RATIO	SATURATION, %	SAMPLE HEIGHT, INCH
INITIAL	62.80	64.06			0.80
FINAL	47.40	78.24			0.65

New Britain-Hartford Busway

CONSOLIDATION TEST

BORING NO.	SB-77	TEST SERIES NO.	C406
SAMPLE	UP-1	DATE	3/9/04
DEPTH	41.6-41.7'		
TECH.	MST		
REVIEWER	DAS	FILE	L17828

FIGURE

Job Number L17828
Project Name ..... New Britain-Hartford Busway
Test Number C406
Sample Description .. See Summary Sheet
Boring Number SB-77
Sample Number UP-1
Depth ..... 41.6-41.7'

Technician ..... MST
Reviewer ..... DAS

NOTES: Clay Portion
Comprises 75%
of Sample

Specific Gravity ..... 2.7800E+00
Sample Dry Weight ..... 6.6030E+01
Sample Diameter ..... 2.5000E+00
Initial Void Ratio ..... 0.0000E+00
Initial Sample Height 8.0000E-01
Final Sample Height 6.5500E-01
Initial Water Content .... 6.2800E+01
Final Water Content ..... 4.7400E+01
Liquid Limit ..... 7.4000E+01
Plastic Limit ..... 4.3000E+01
Initial Saturation ..... 0.0000E+00
Final Saturation ..... 0.0000E+00
T50 data excluded
T90 data included

Increment umber	Pressure (TSF)	Final Dial	Percent Strain	Void Ratio	T90 (min)	Cv (T90) (/10000)	C_α
1	0.000	0.0	0.00	1.708			
2	0.125	102.0	1.27	1.674			
3	0.250	160.0	2.00	1.654	6.8	20.76	
4	0.500	221.0	2.76	1.633	8.4	16.55	0.0022
5	1.000	418.0	5.22	1.567	7.8	17.24	
6	2.000	708.0	8.85	1.468	9.0	14.01	
7	4.000	1206.0	15.07	1.300	11.6	9.75	
8	8.000	1720.0	21.50	1.126	7.8	12.49	
9	16.000	2218.0	27.72	0.957	4.8	17.27	0.0044
10	4.000	2020.0	25.25	1.024			
11	1.000	1741.0	21.76	1.119			
12	0.250	1448.0	18.10	1.218			

2008
Constant Rate of Strain Consolidation Tests

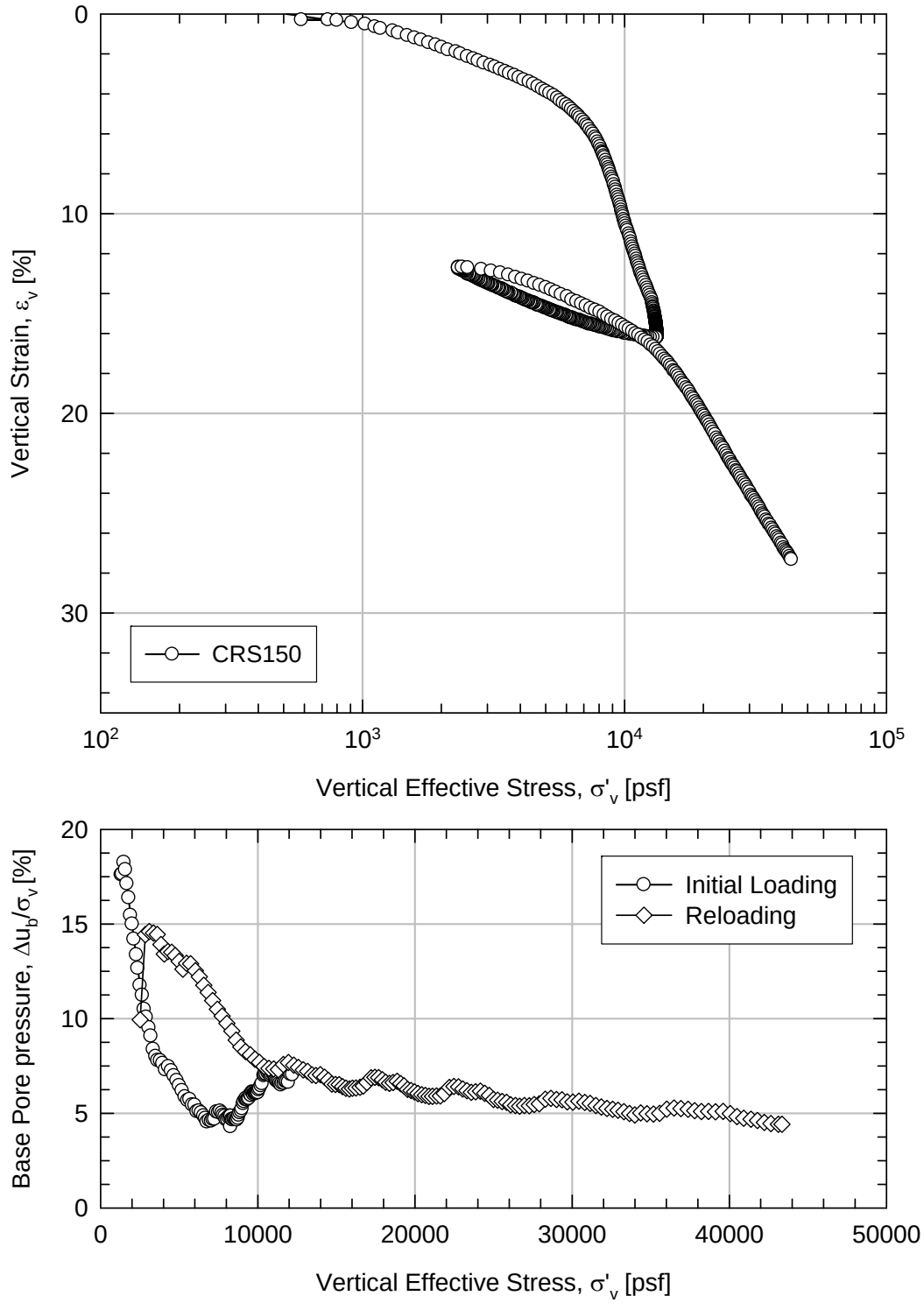


Figure 5.3.18 Vertical strain and normalized base pore pressure versus vertical effective stress for test CRS150 on sample AARW-10-40 UP-1 63-65 ft

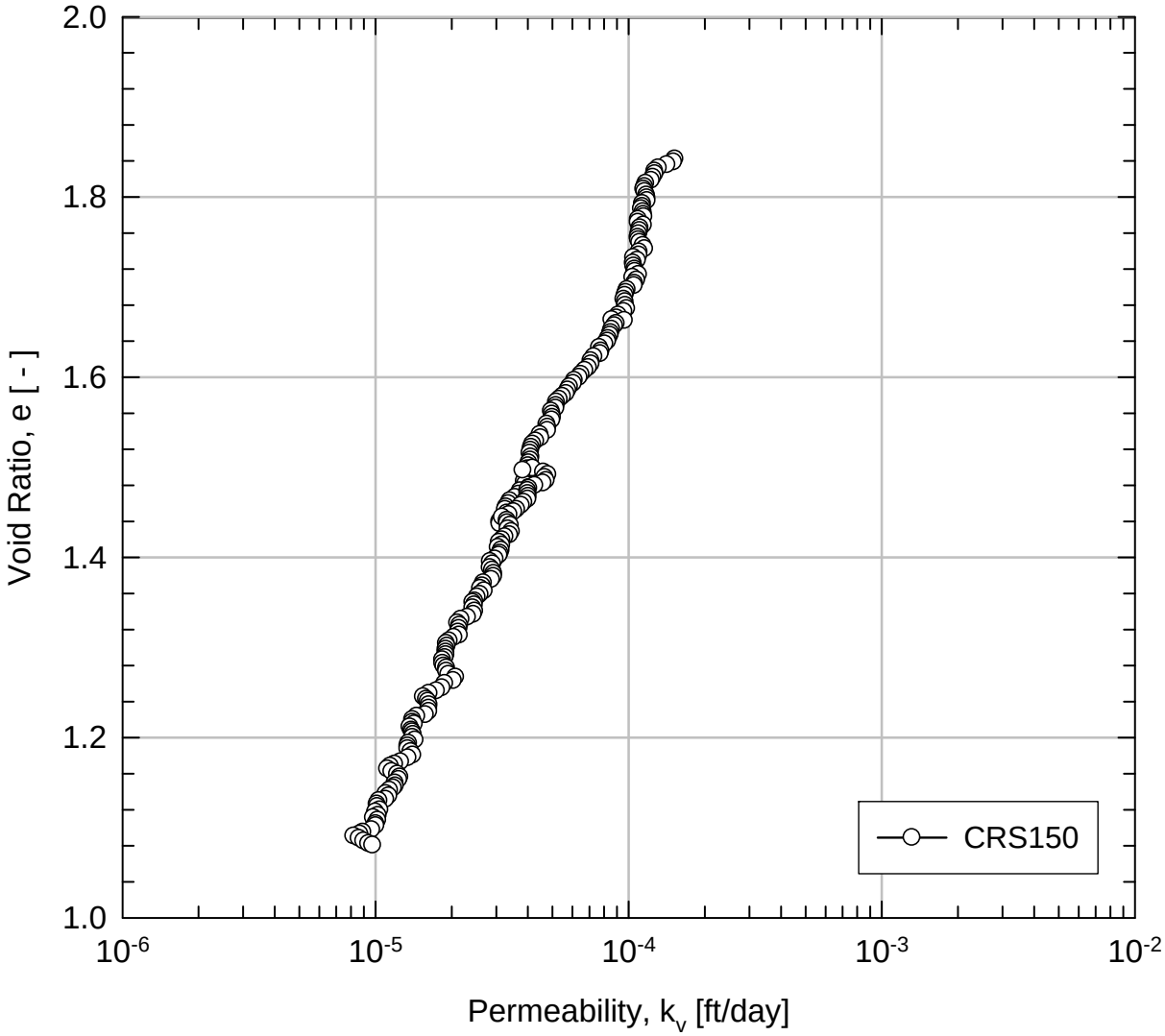


Figure 5.3.19 Void ratio versus permeability for CRS150 on sample AARW-10-40 UP-1 63-65 ft.

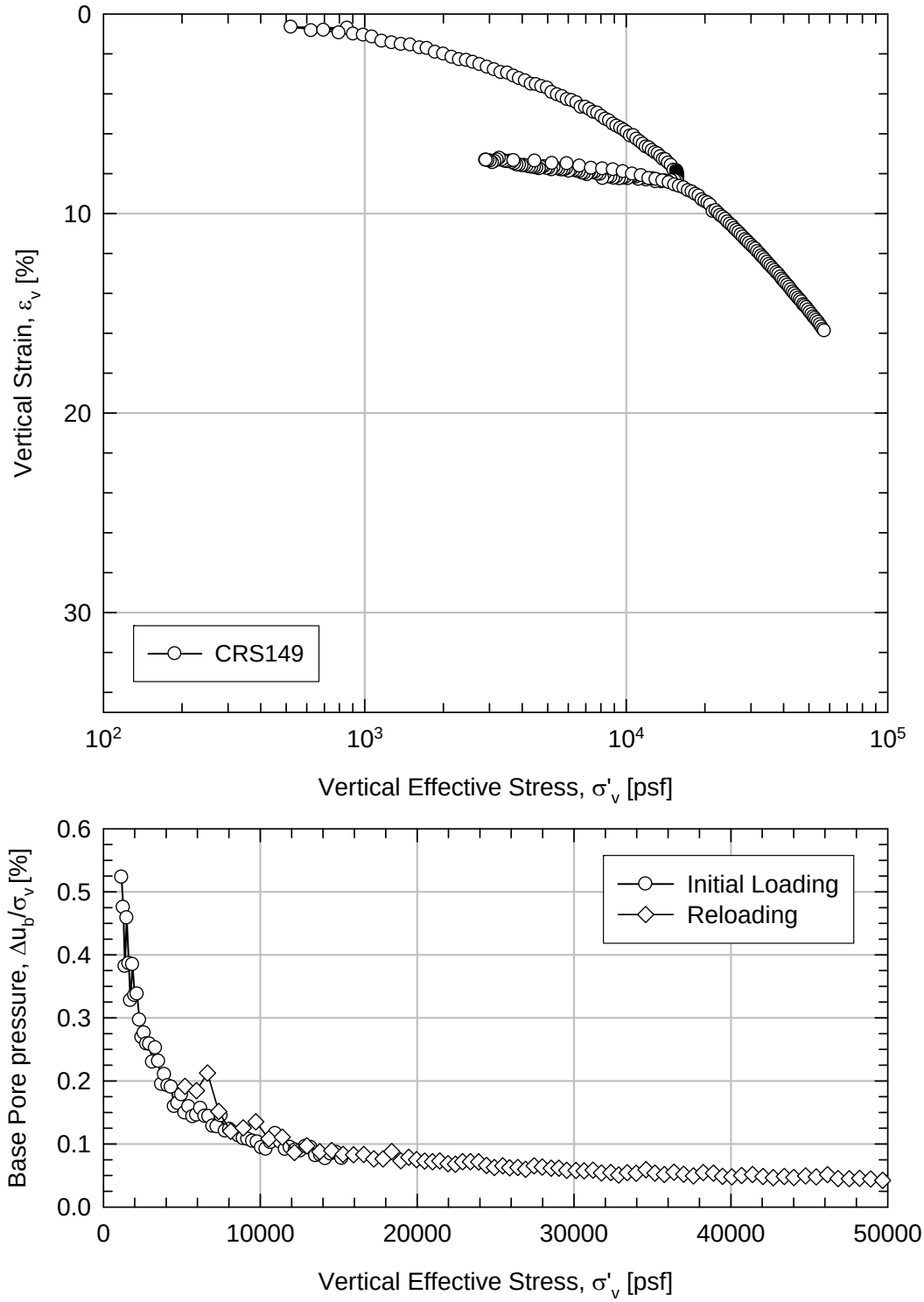


Figure 5.3.14 Vertical strain and normalized base pore pressure versus vertical effective stress for test CRS149 on sample AARW-10-40 UP-2 98-100 ft.

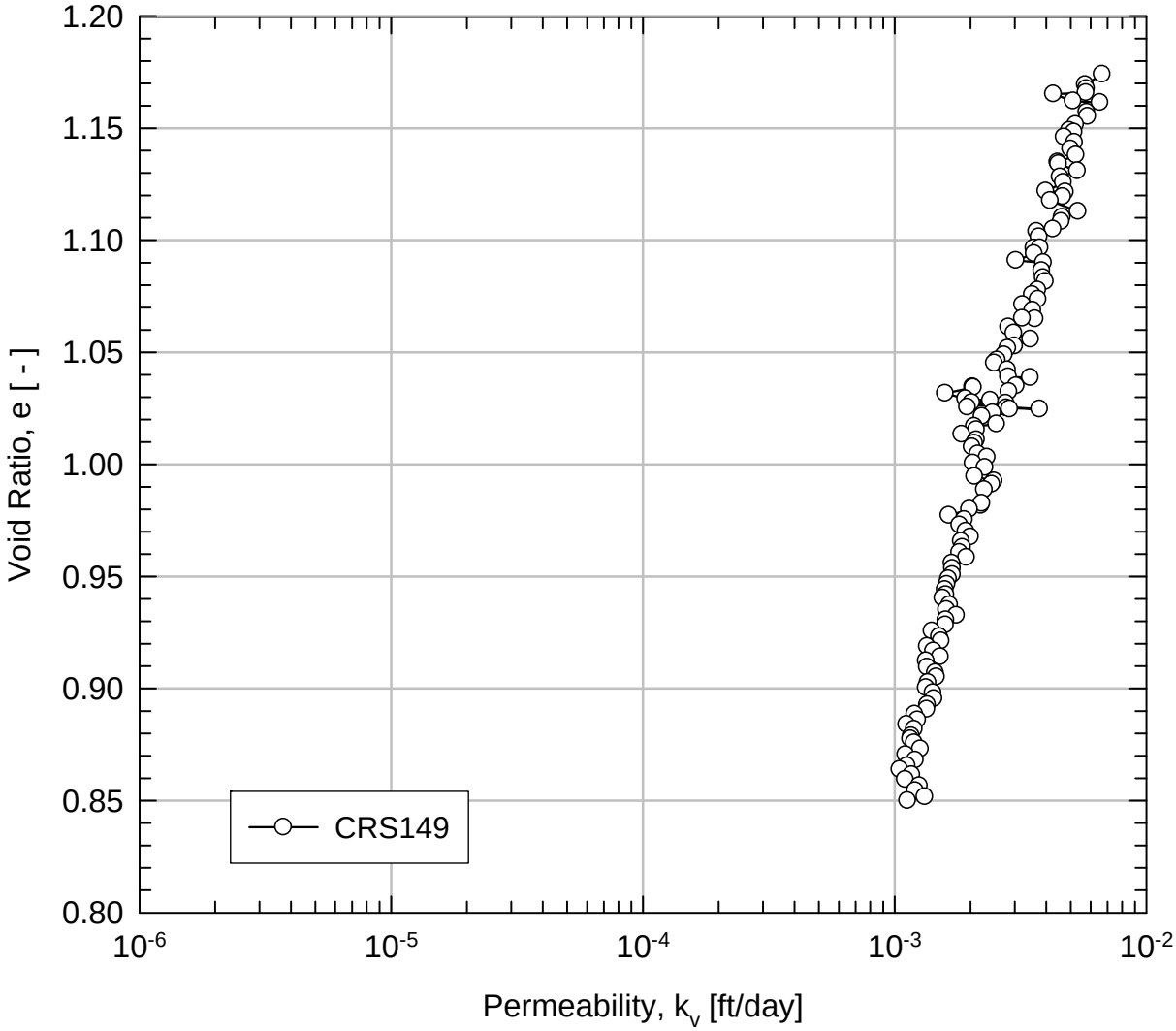
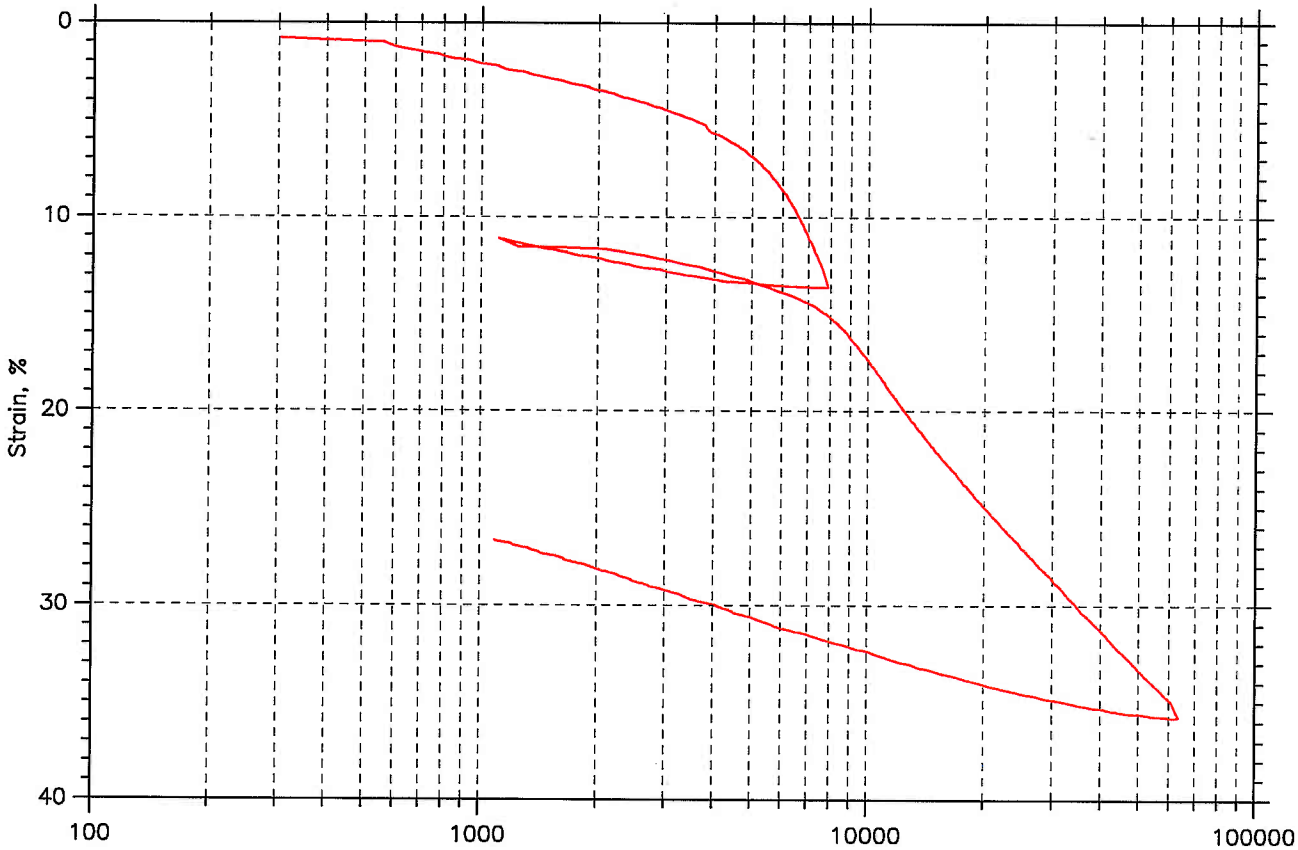


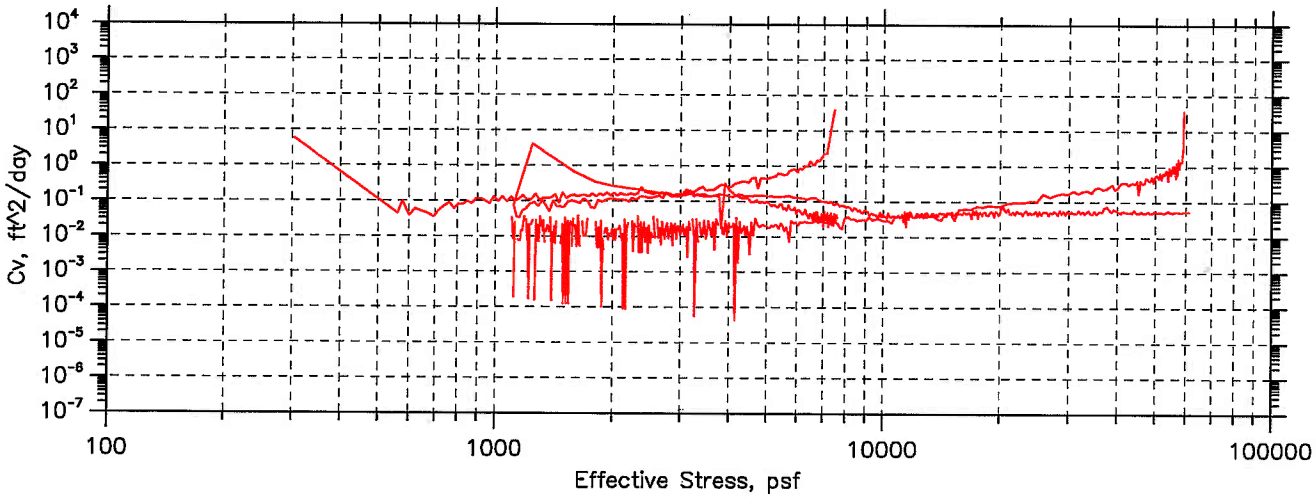
Figure 5.3.15 Void ratio versus permeability for CRS149 on sample AARW-10-40 UP-2 98-100 ft.

Constant Rate of Consolidation

Constant Strain Rate by ASTM D4186

Summary Report





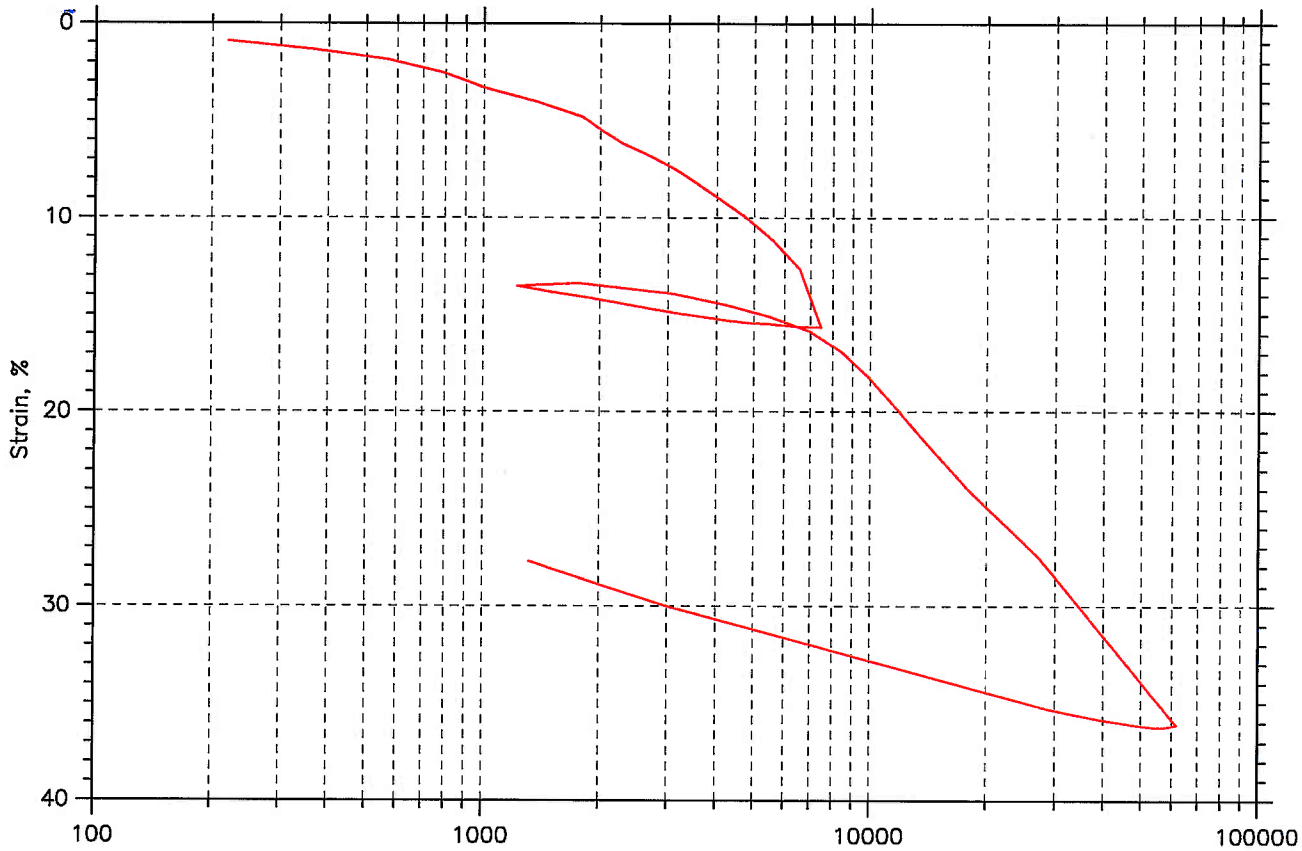
Project: Hartford Busway	Location: Hartford, CT	Project No.: GTX-8398
Boring No.: R-125	Tested By: md	Checked By: jdt
Sample No.: UP-2	Test Date: 08/29/2008	Depth: 35-37 ft
Test No.: CRC-10	Sample Type: tube	Elevation: ---
Description: Moist, brown layered clay with sand lenses		
Remarks: System E		

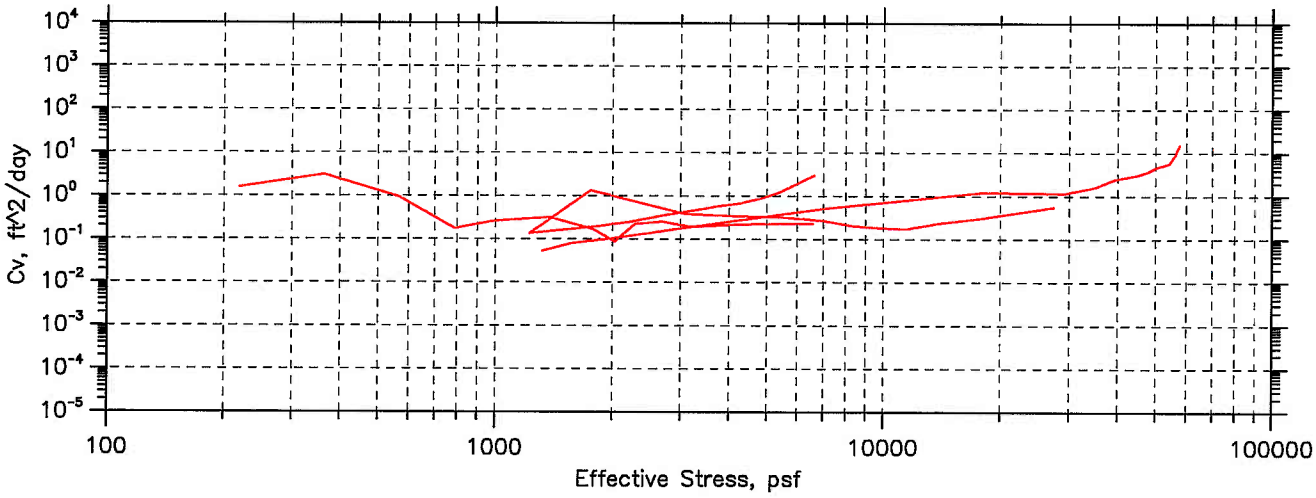
Thu, 18-SEP-2008 13:05:51

Constant Rate of Consolidation

Constant Strain Rate by ASTM D4186

Summary Report





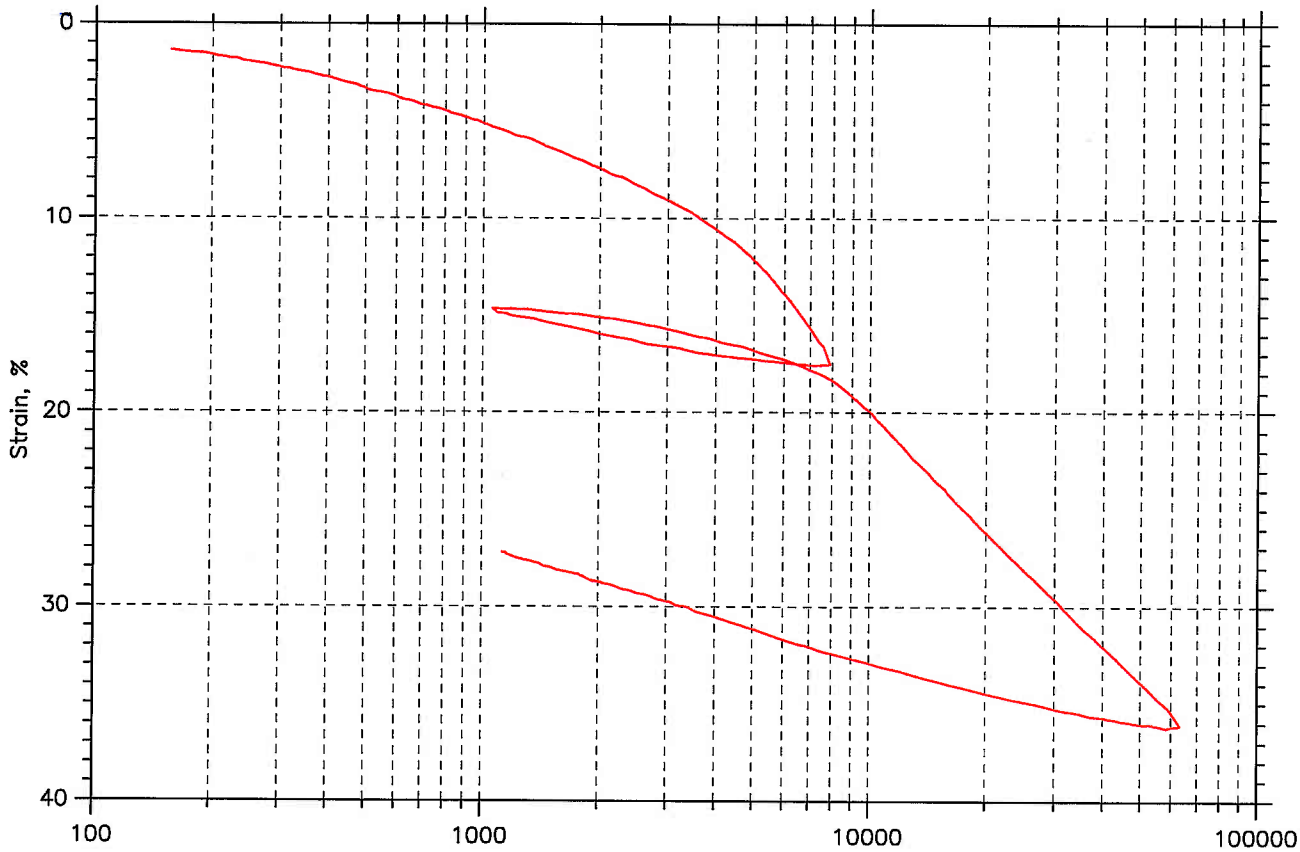
Project: Hartford Busway	Location: Hartford, CT	Project No.: GTX-8398
Boring No.: R-125	Tested By: md	Checked By: jdt
Sample No.: UP-3	Test Date: 08/13/08	Depth: 50-52
Test No.: CRC-4	Sample Type: tube	Elevation: ---
Description: Moist, reddish brown clay		
Remarks: System S		

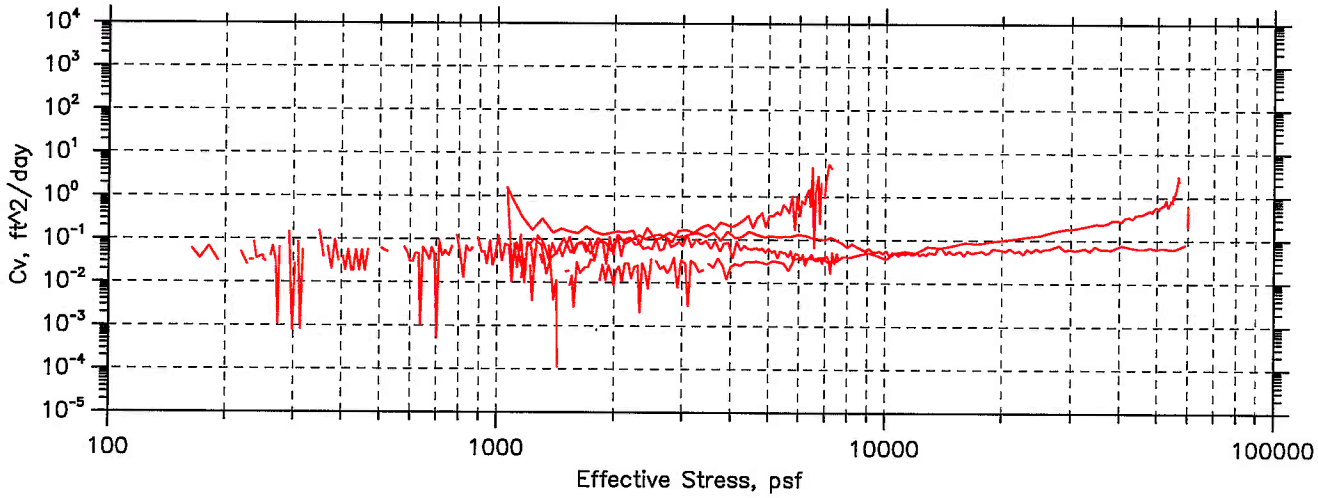
Tue, 26-AUG-2008 17:19:43

Constant Rate of Consolidation

Constant Strain Rate by ASTM D4186

Summary Report





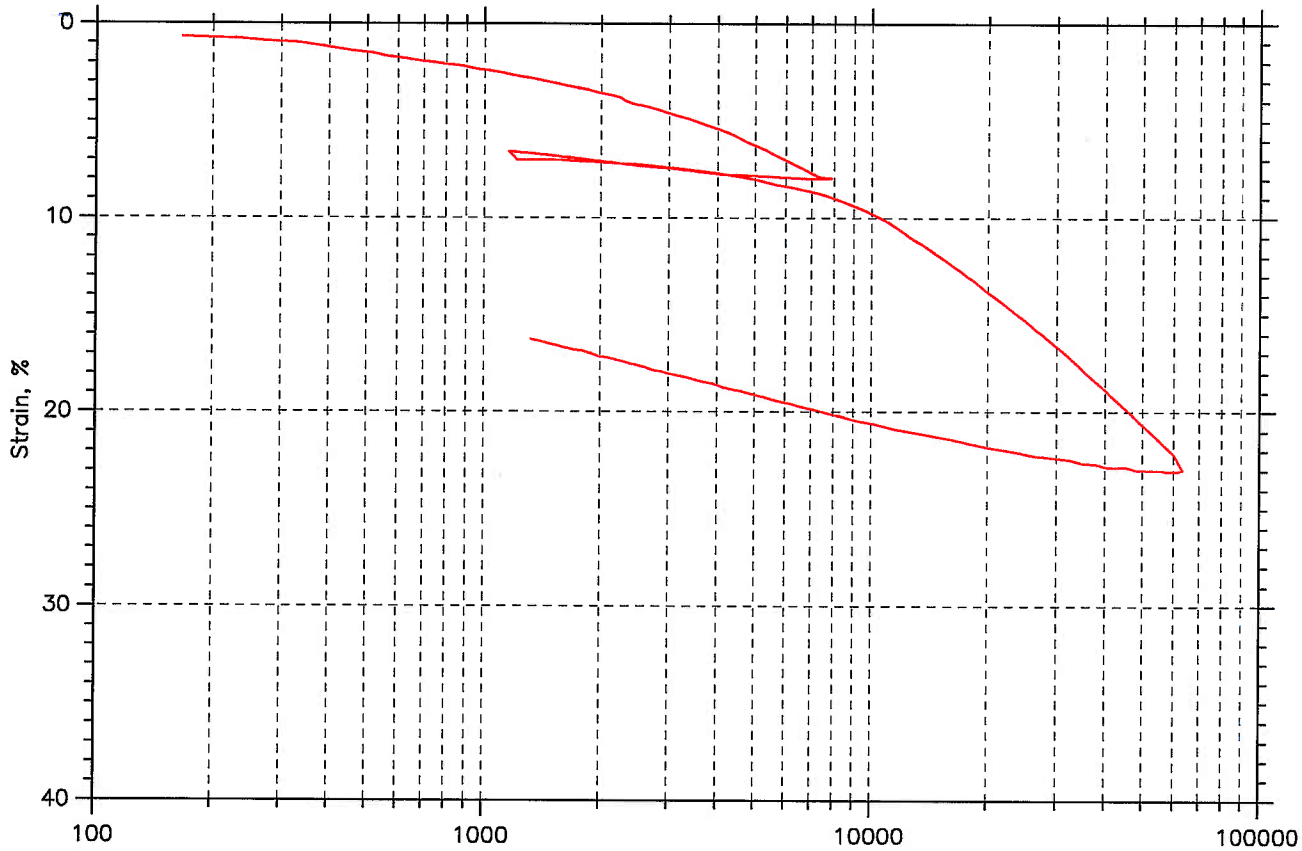
Project: Hartford Busway	Location: Hartford, CT	Project No.: GTX-8398
Boring No.: RW-4	Tested By: md	Checked By: jdt
Sample No.: UP-2	Test Date: 08/04/08	Depth: 45-47
Test No.: CRC-1	Sample Type: tube	Elevation: ---
Description: Moist, reddish brown silt		
Remarks: System T		

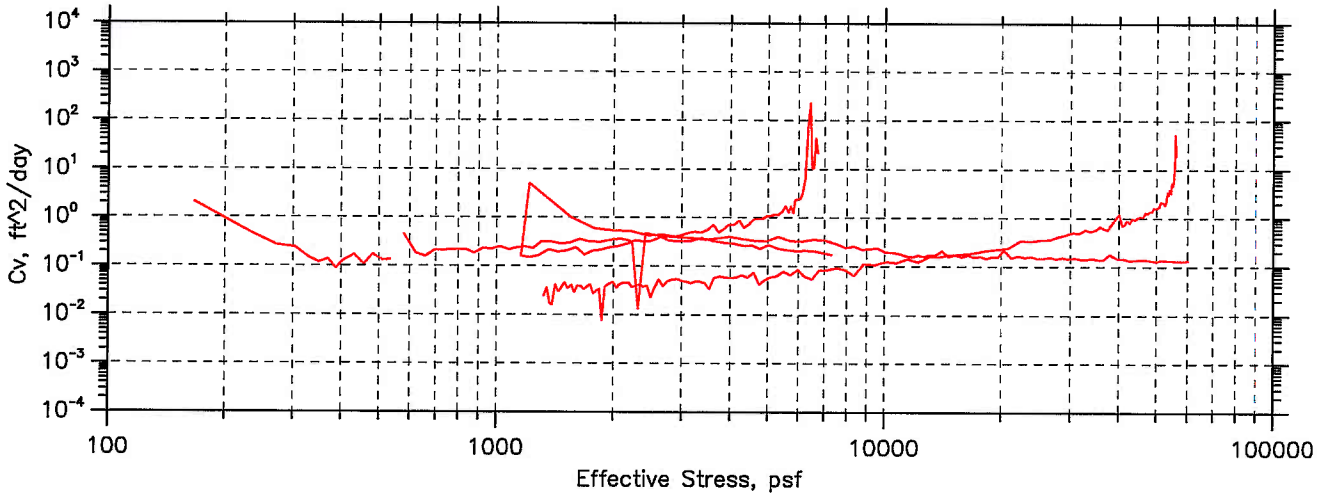
Tue, 26-AUG-2008 13:34:21

Constant Rate of Consolidation

Constant Strain Rate by ASTM D4186

Summary Report





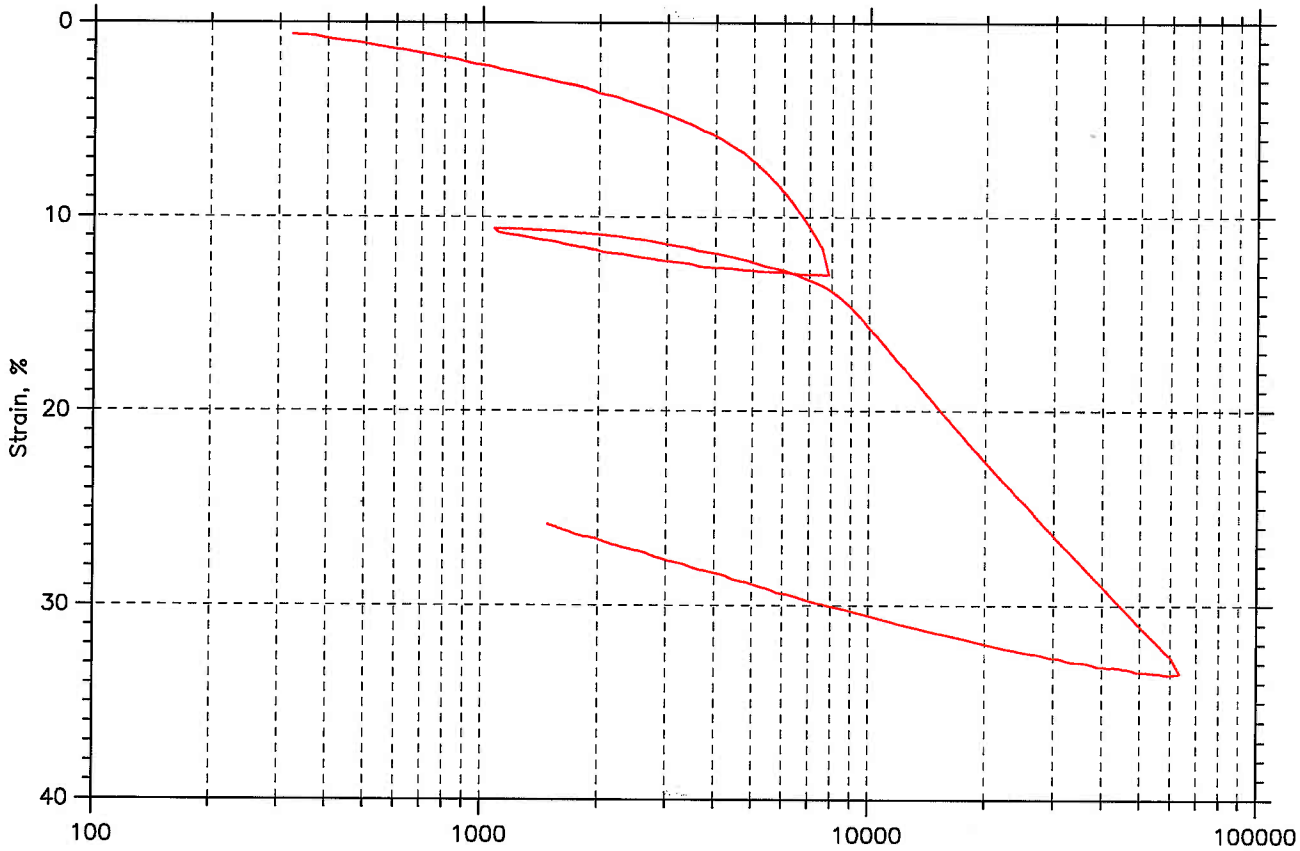
Project: Hartford Busway	Location: Hartford, CT	Project No.: GTX-8398
Boring No.: RW-6	Tested By: md	Checked By: jdt
Sample No.: UP-1	Test Date: 08/13/2008	Depth: 20-22 ft
Test No.: CRC-5	Sample Type: tube	Elevation: ---
Description: Moist, brown clay with sand lenses		
Remarks: System E		

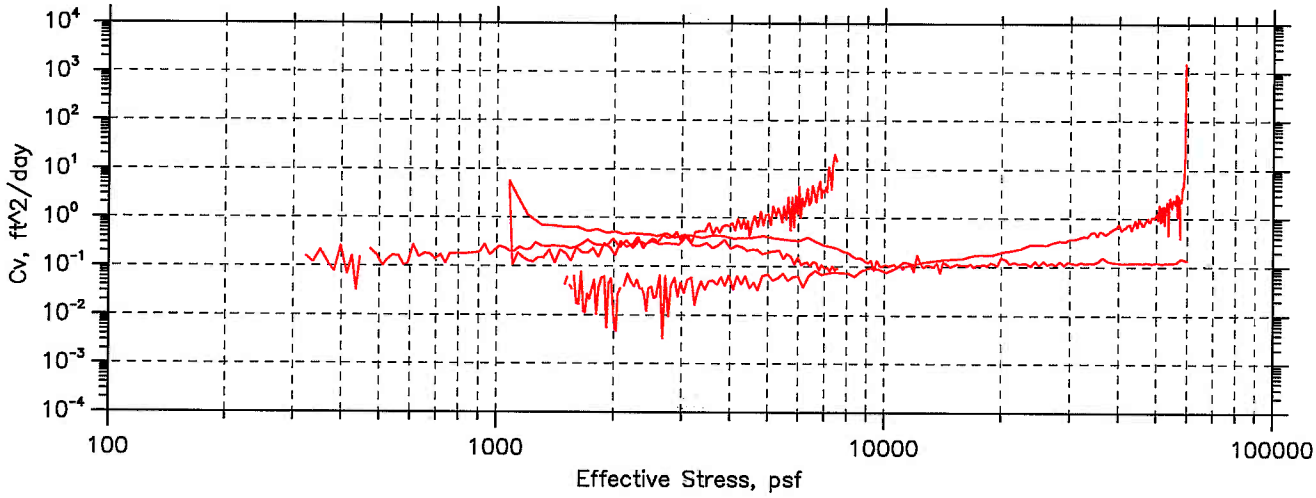
Wed, 27-AUG-2008 15:25:32

Constant Rate of Consolidation

Constant Strain Rate by ASTM D4186

Summary Report





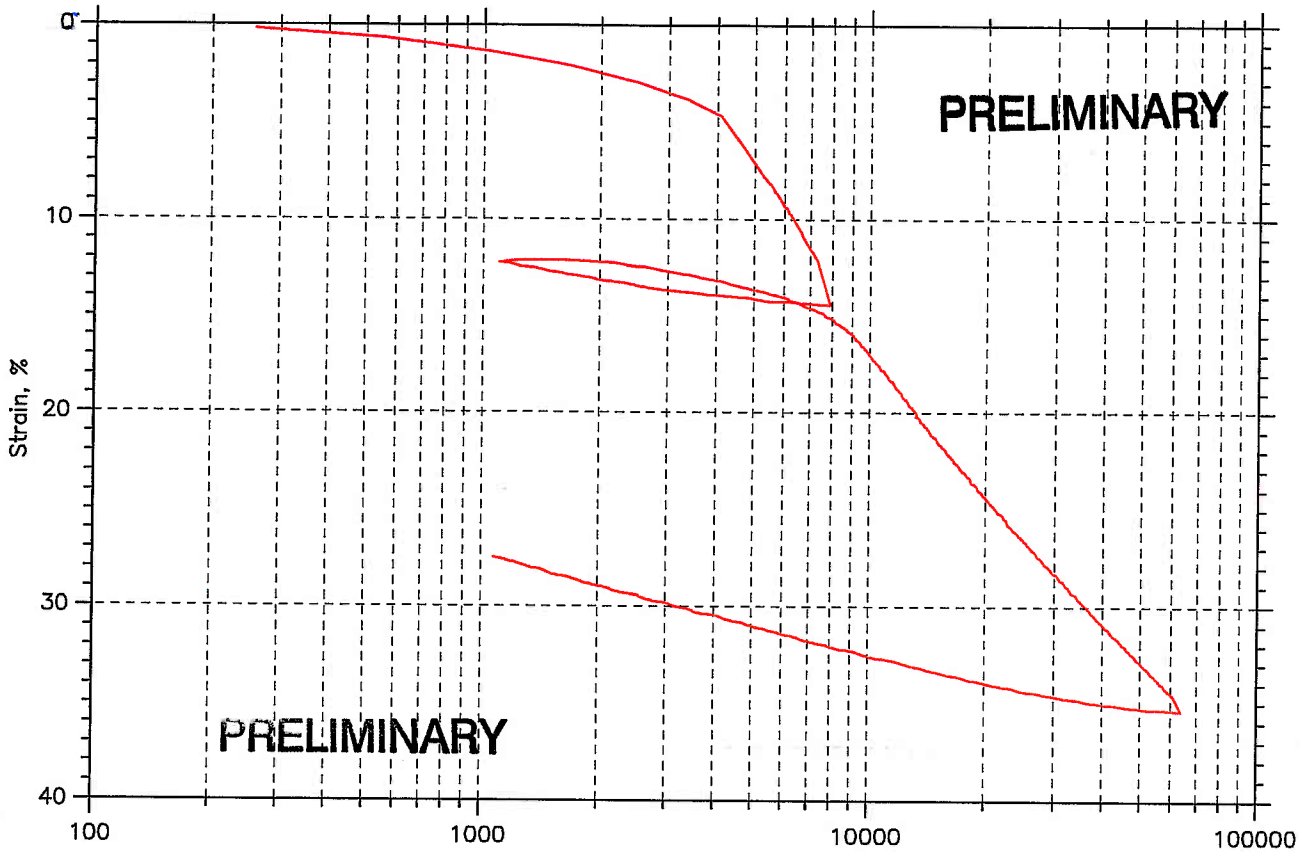
Project: Hartford Busway	Location: Hartford, CT	Project No.: GTX-8398
Boring No.: RW-6	Tested By: md	Checked By: jdt
Sample No.: UP-2	Test Date: 09/07/08	Depth: 30-32 ft
Test No.: CRC-6A	Sample Type: tube	Elevation: ---
Description: Moist, brown layered clay with sand lenses		
Remarks: System T		

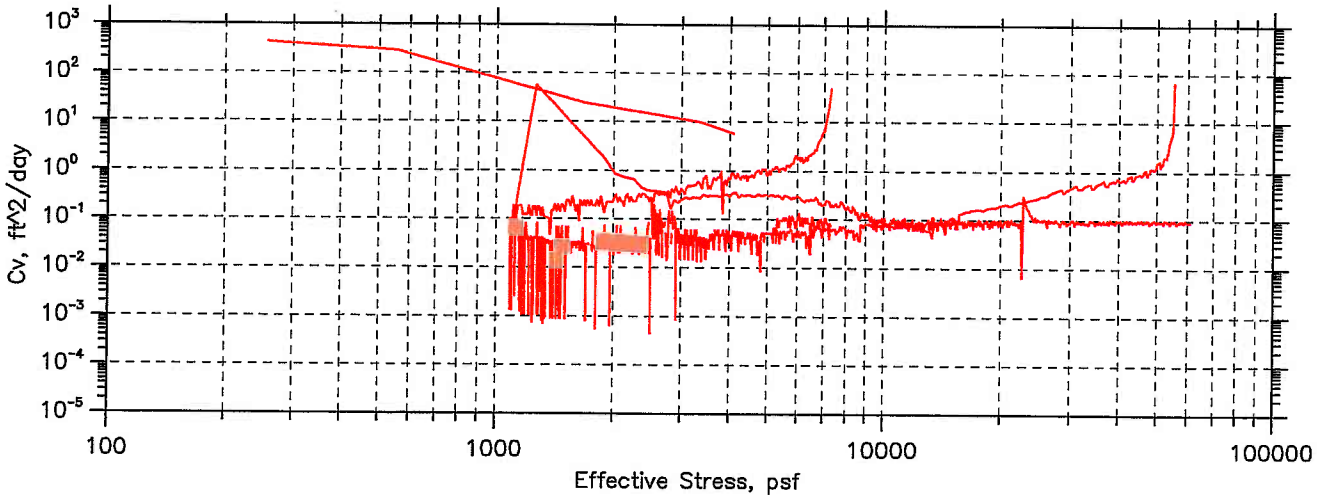
Thu, 18-SEP-2008 13:04:11

Constant Rate of Consolidation

Constant Strain Rate by ASTM D4186

Summary Report





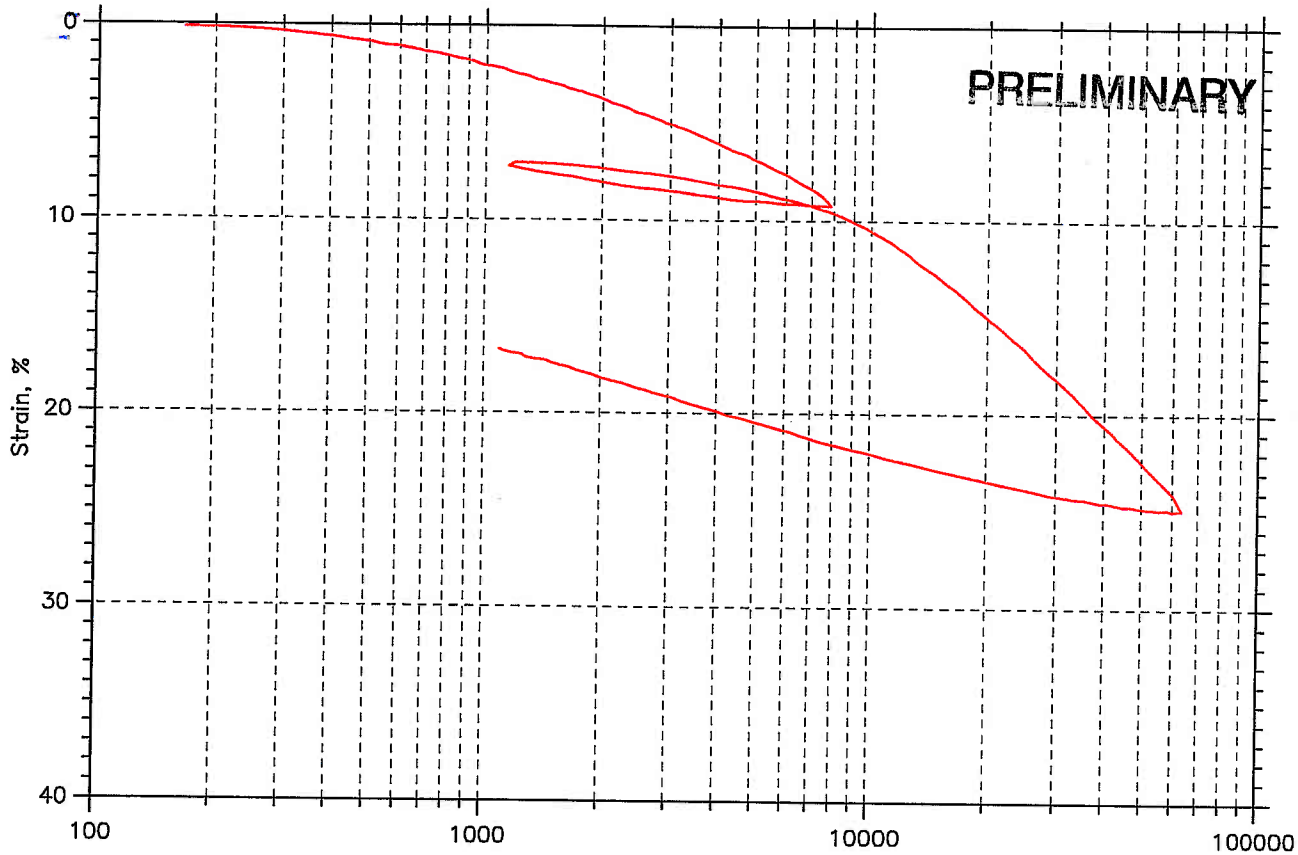
Project: Hartford Busway	Location: Hartford, CT	Project No.: GTX-8398
Boring No.: RW-7	Tested By: njh	Checked By: jdt
Sample No.: UP-1	Test Date: 08/19/08	Depth: 30-32
Test No.: CRC-2A	Sample Type: tube	Elevation: ---
Description: Moist, brown clay		
Remarks: System 0		

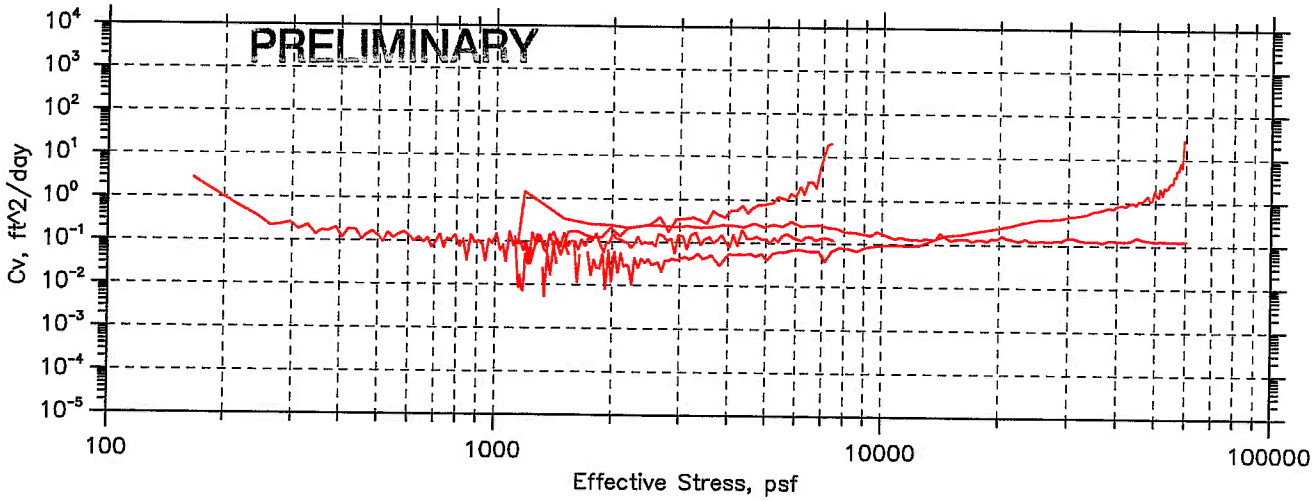
Tue, 26-AUG-2008 16:19:58

Constant Rate of Consolidation

Constant Strain Rate by ASTM D4186

Summary Report





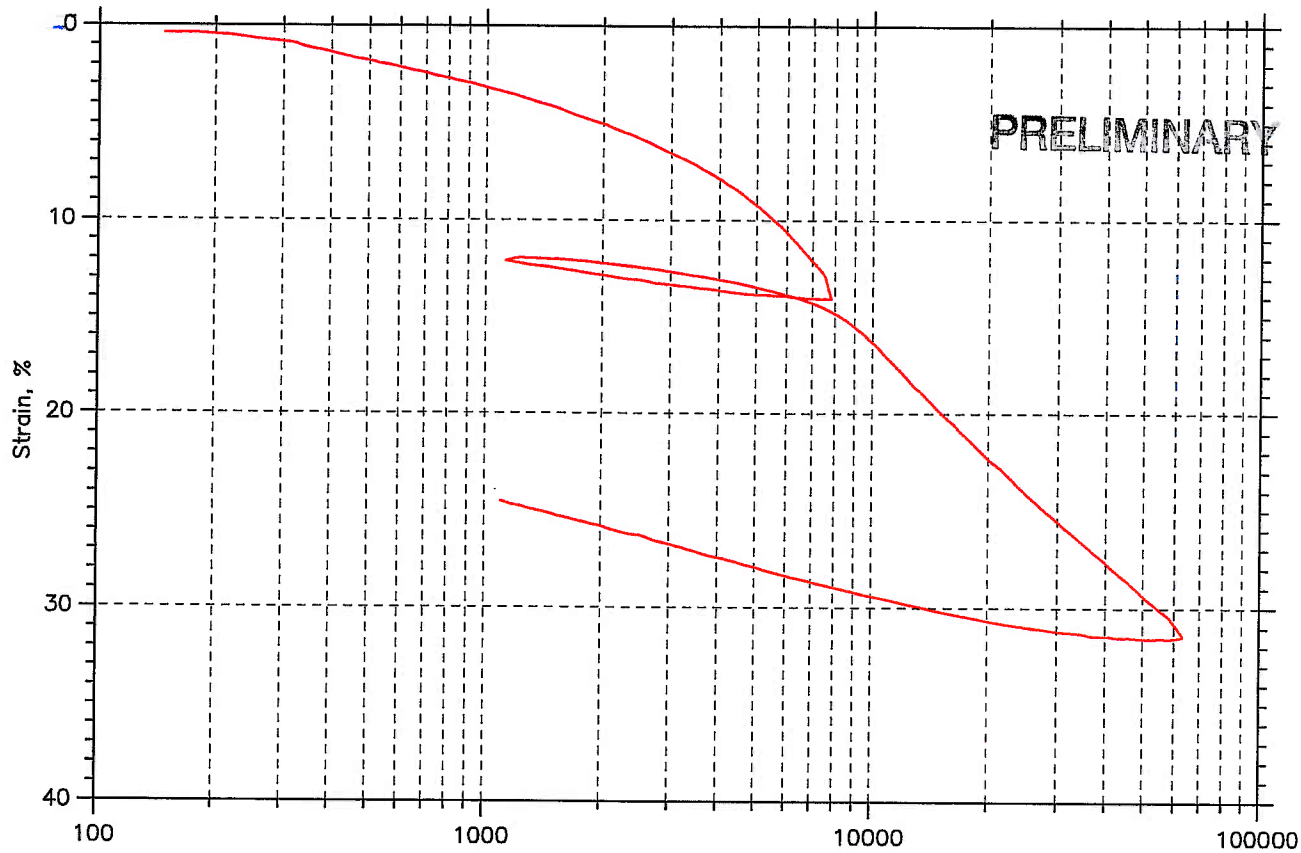
Project: Hartford Busway	Location: Hartford, CT	Project No.: GTX-8398
Boring No.: RW-17	Tested By: md	Checked By: jdt
Sample No.: UP-1	Test Date: 08/15/08	Depth: 15-17
Test No.: CRC-7	Sample Type: tube	Elevation: ---
Description: Moist, brown clay with sand		
Remarks: System T		

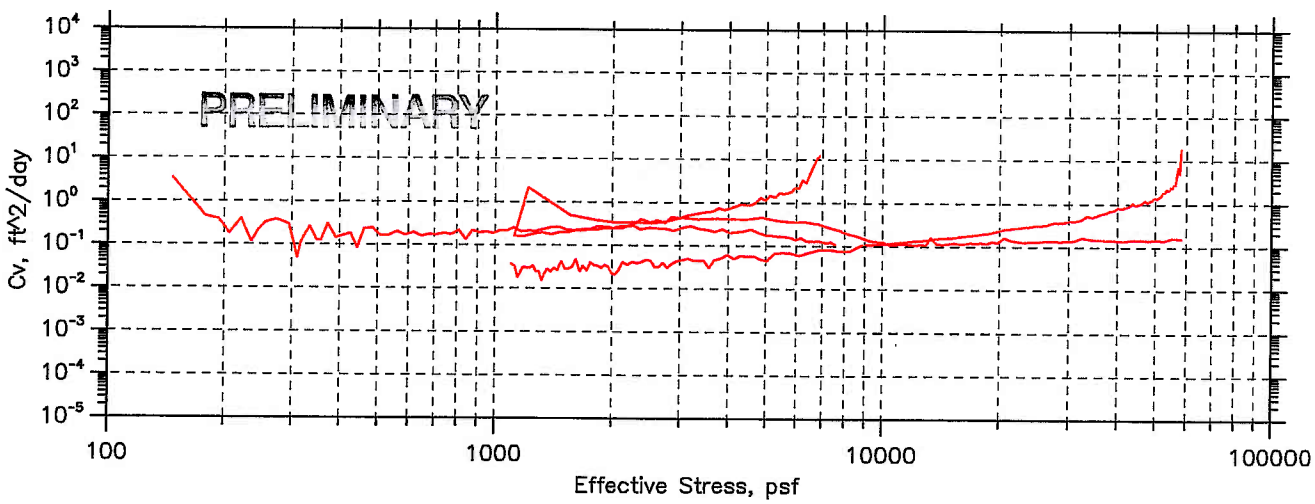
Wed, 27-AUG-2008 15:31:49

Constant Rate of Consolidation

Constant Strain Rate by ASTM D4186

Summary Report





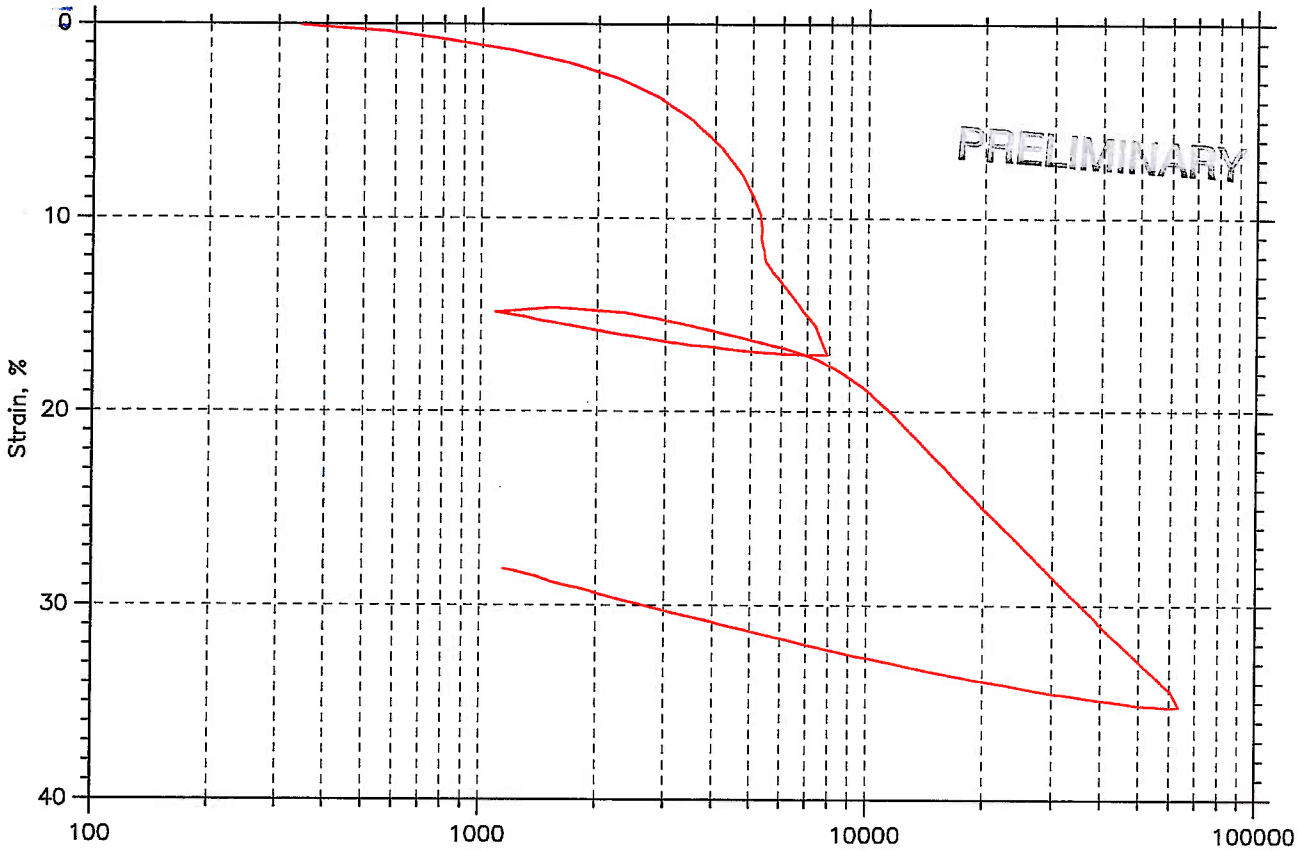
Project: Hartford Busway	Location: Hartford, CT	Project No.: GTX-8398
Boring No.: RW-28	Tested By: njh	Checked By: jdt
Sample No.: UP-1	Test Date: 08/18/08	Depth: 15-17
Test No.: CRC-8	Sample Type: tube	Elevation: ---
Description: Moist, grayish brown clay		
Remarks: System K		

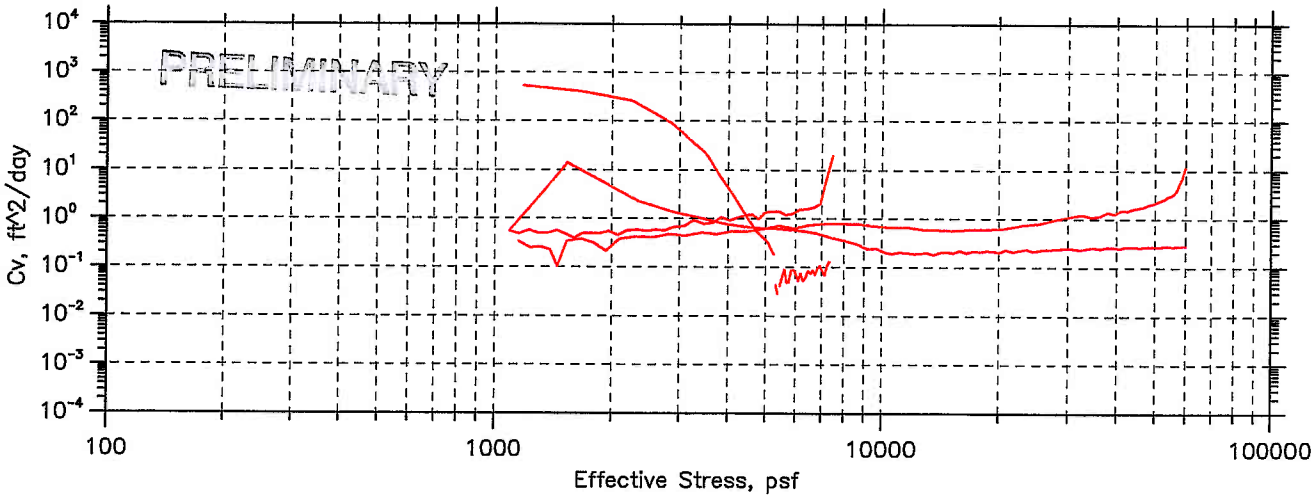
Wed, 27-AUG-2008 15:37:32

Constant Rate of Consolidation

Constant Strain Rate by ASTM D4186

Summary Report





Project: Hartford Busway	Location: Hartford, CT	Project No.: GTX-8398
Boring No.: RW-31	Tested By: md	Checked By: jdt
Sample No.: UP-1	Test Date: 08/26/2008	Depth: 15-17 ft
Test No.: CRC-9	Sample Type: tube	Elevation:
Description: Moist, brownish gray clay		
Remarks: System E		

Wed, 27-AUG-2008 16:11:16

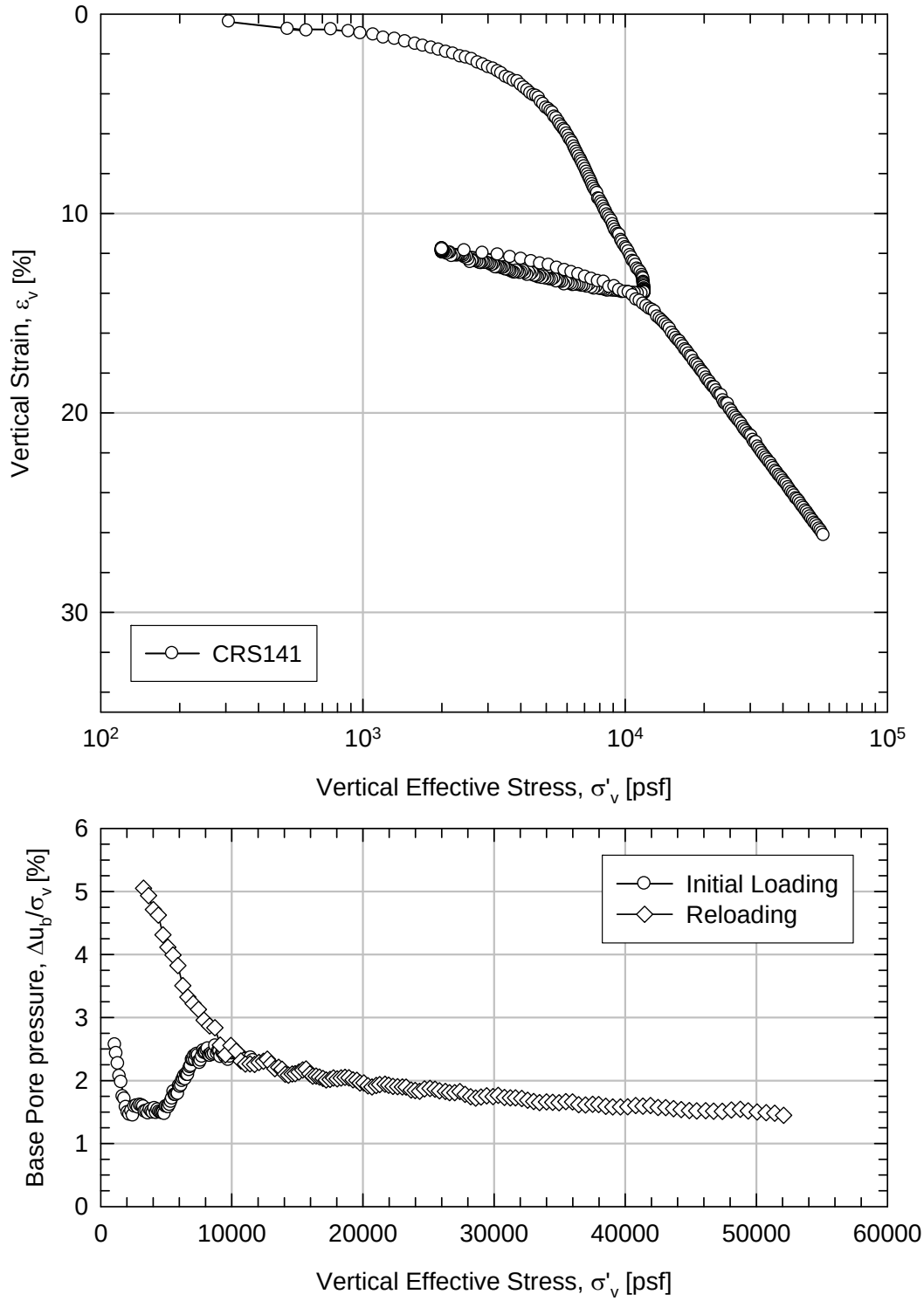


Figure 5.3.6 Vertical strain and normalized base pore pressure versus vertical effective stress for test CRS141 on sample SB-01-1 UP2 30-32 ft.

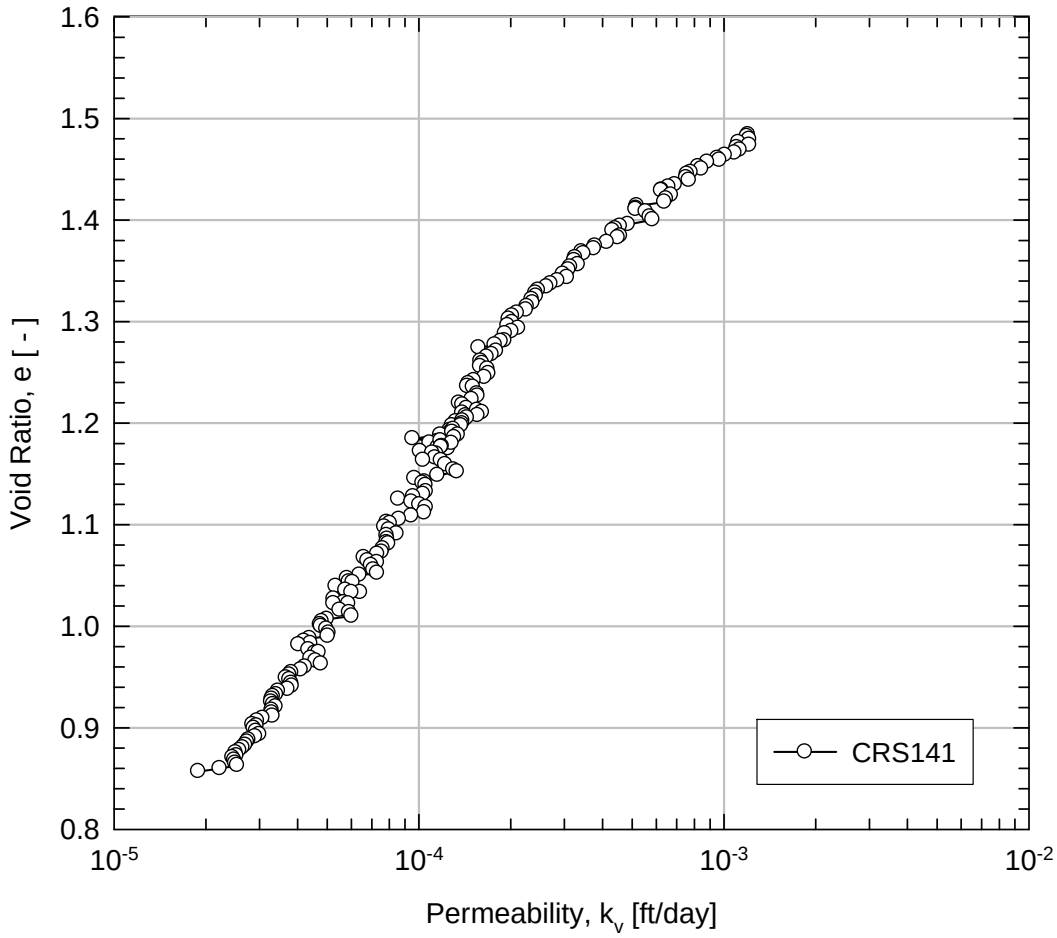
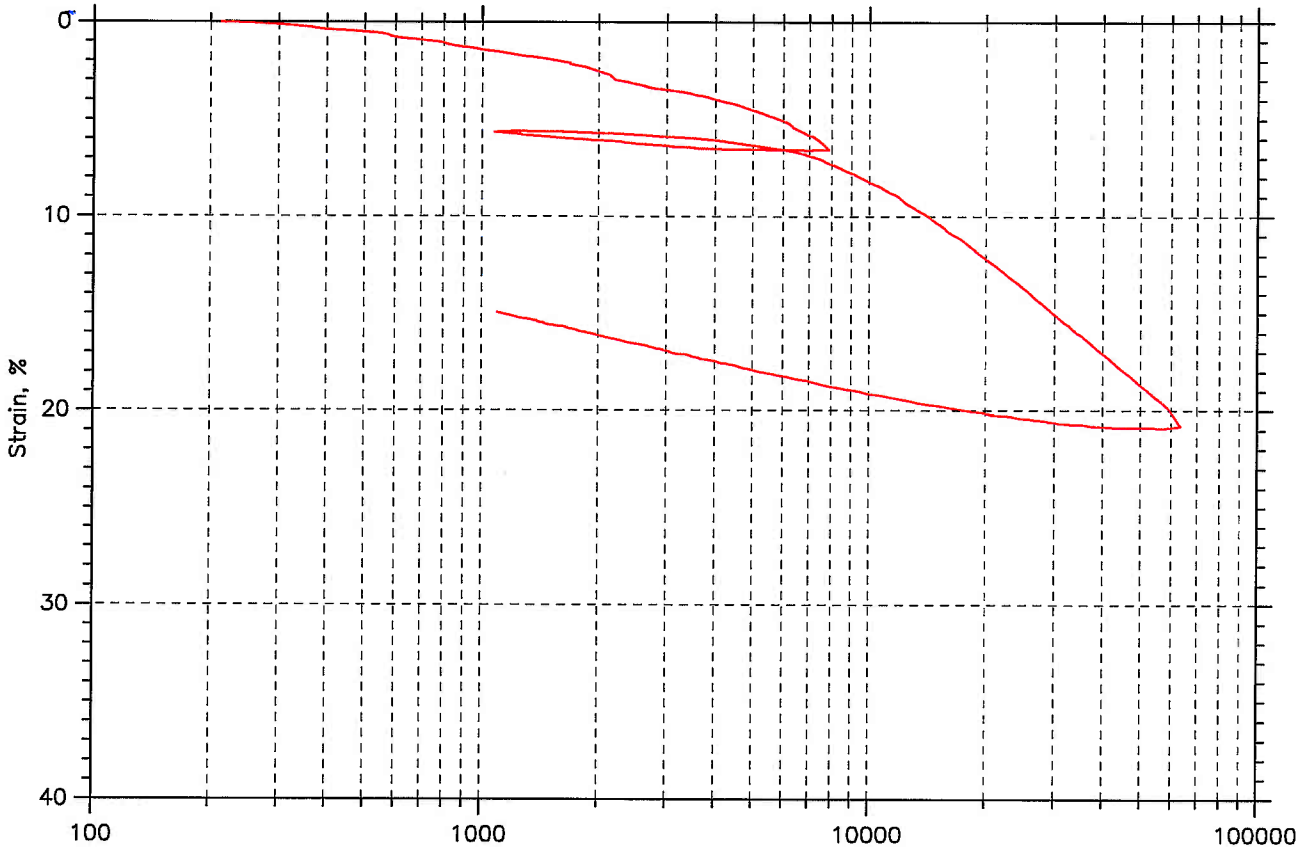


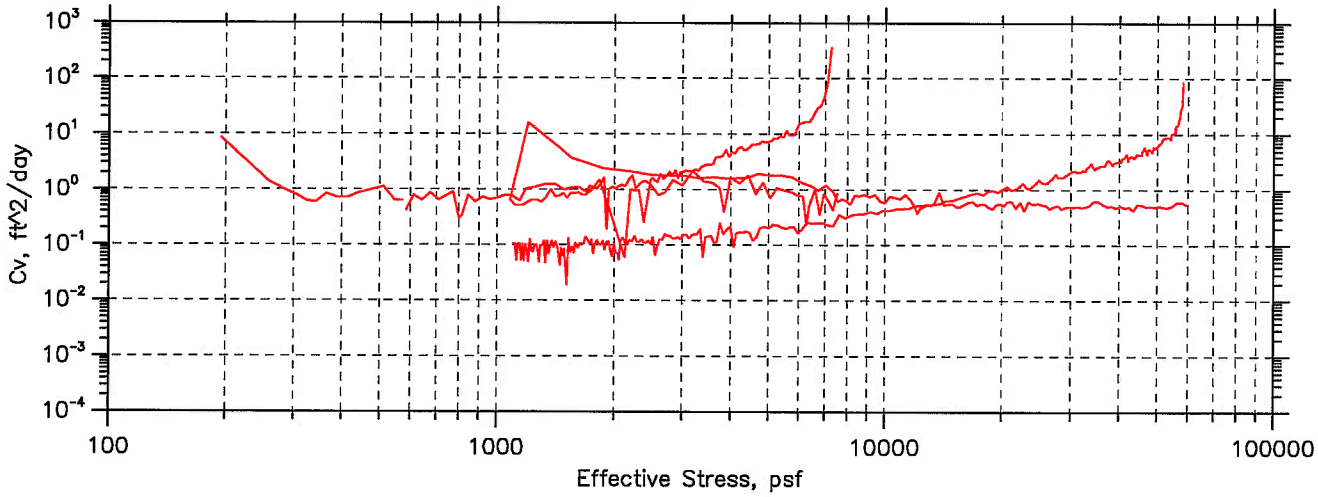
Figure 5.3.7 Void ratio versus permeability for CRS141 on sample SB-01-1 UP2 30-32 ft.

Constant Rate of Consolidation

Constant Strain Rate by ASTM D4186

Summary Report





Project: Hartford Busway	Location: Hartford, CT	Project No.: GTX-8398
Boring No.: SB-01-2	Tested By: md	Checked By: jdt
Sample No.: UP-1	Test Date: 08/10/08	Depth: 15-17
Test No.: CRC-3	Sample Type: tube	Elevation: ---
Description: Moist, brown clay		
Remarks: System K		

Tue, 26-AUG-2008 16:28:11

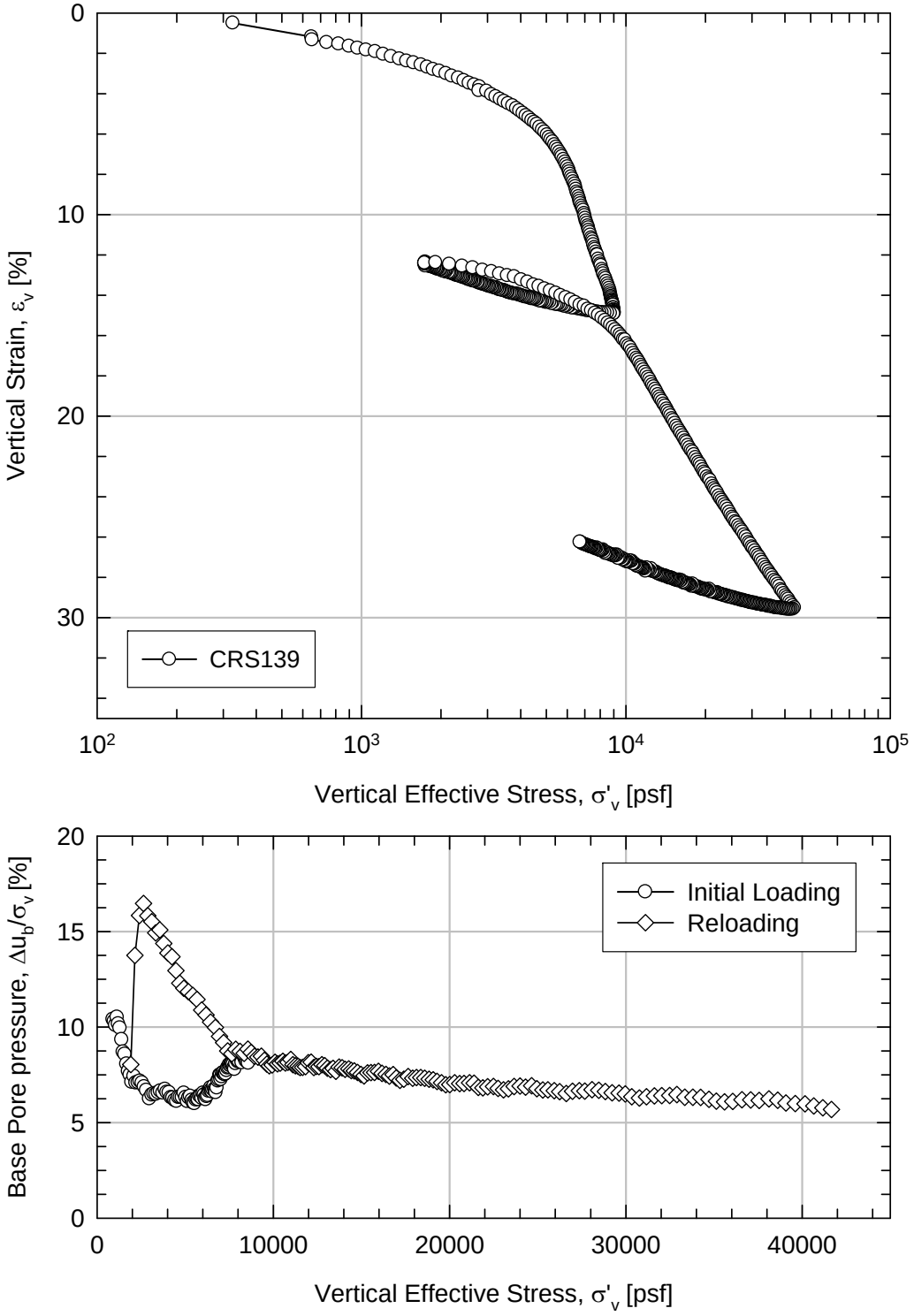


Figure 5.3.2 Vertical strain and normalized base pore pressure versus vertical effective stress for test CRS139 on sample SB-01-4 UP2 40-42 ft.

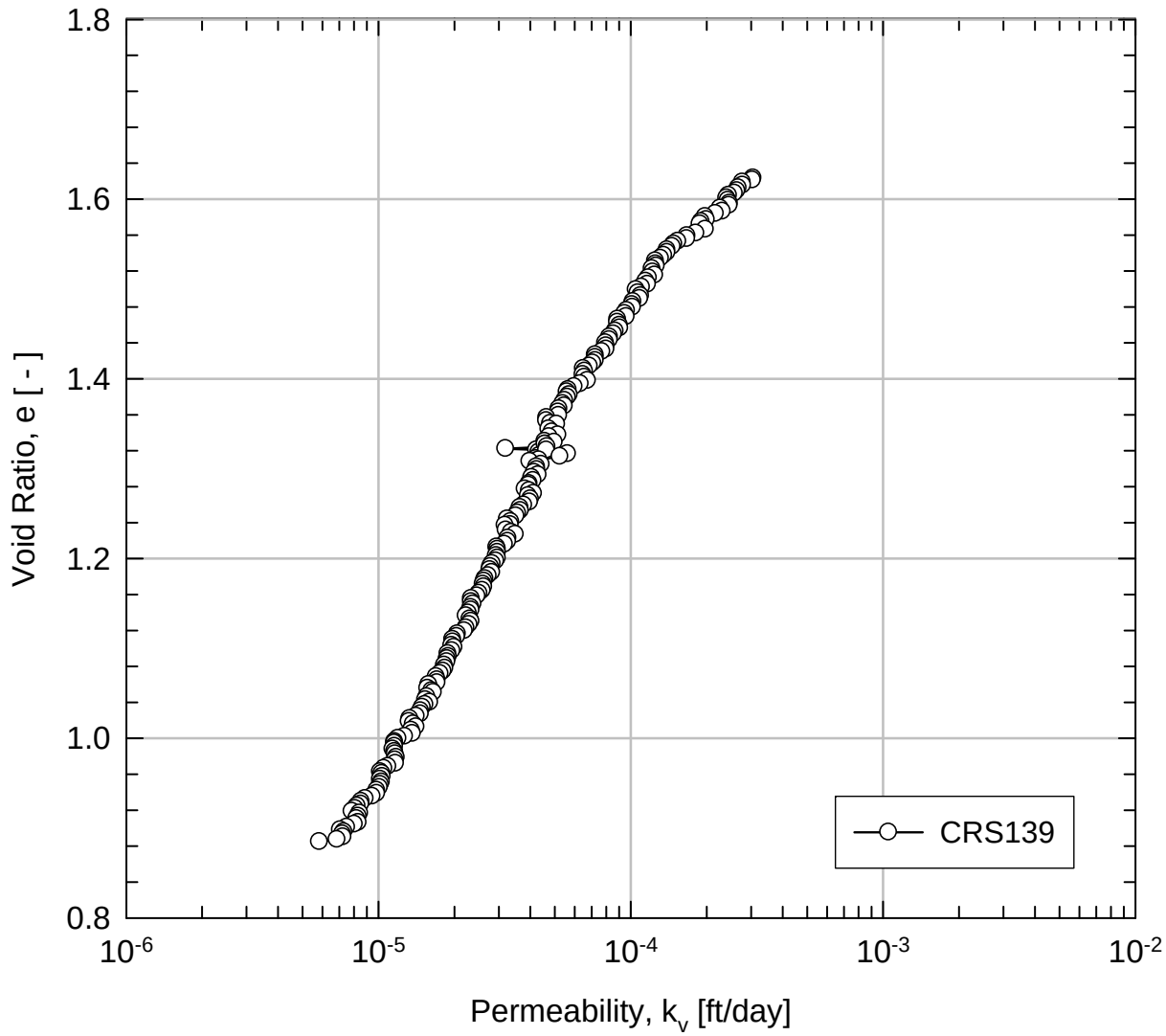
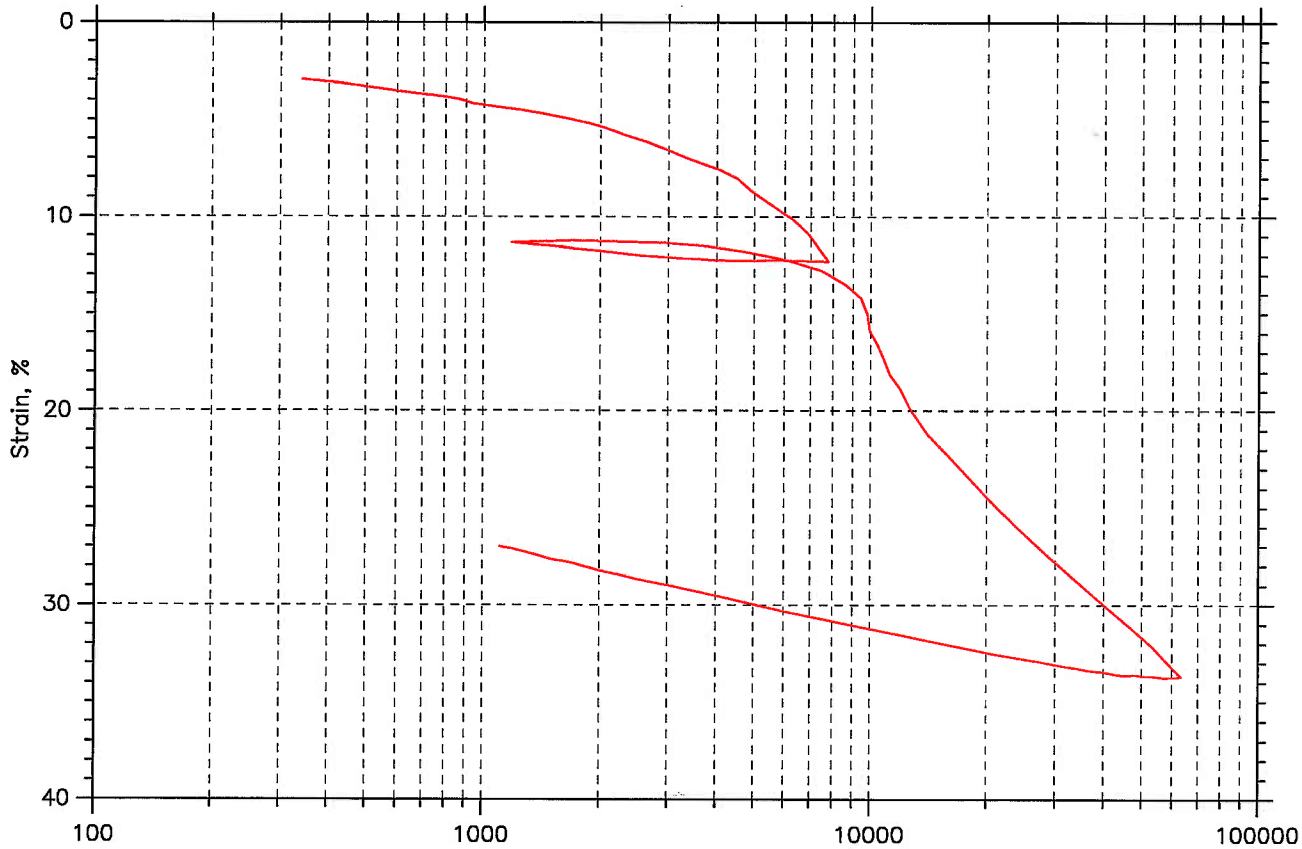


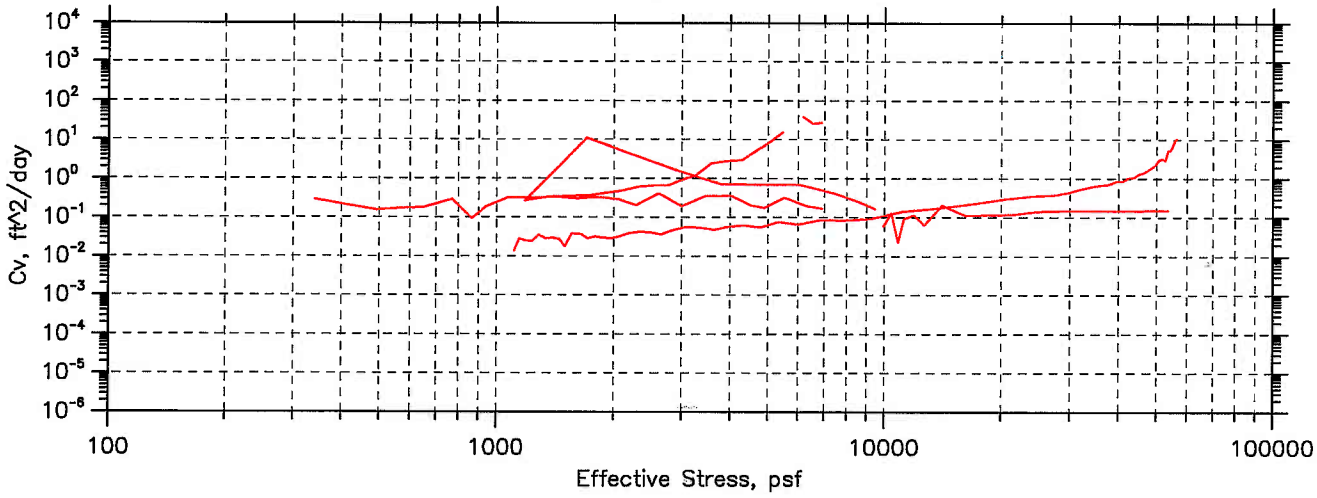
Figure 5.3.3 Void ratio versus permeability for CRS139 on sample SB-01-4 UP2 40-42 ft.

Constant Rate of Consolidation

Constant Strain Rate by ASTM D4186

Summary Report





Project: Hartford Busway	Location: Hartford, CT	Project No.: GTX-8398
Boring No.: SB-03-2	Tested By: md	Checked By: jdt
Sample No.: UP-2	Test Date: 09/02/08	Depth: 40-42
Test No.: CRC-13	Sample Type: tube	Elevation: ---
Description: Moist, brown clay		
Remarks: System T		

Thu, 18-SEP-2008 13:09:34

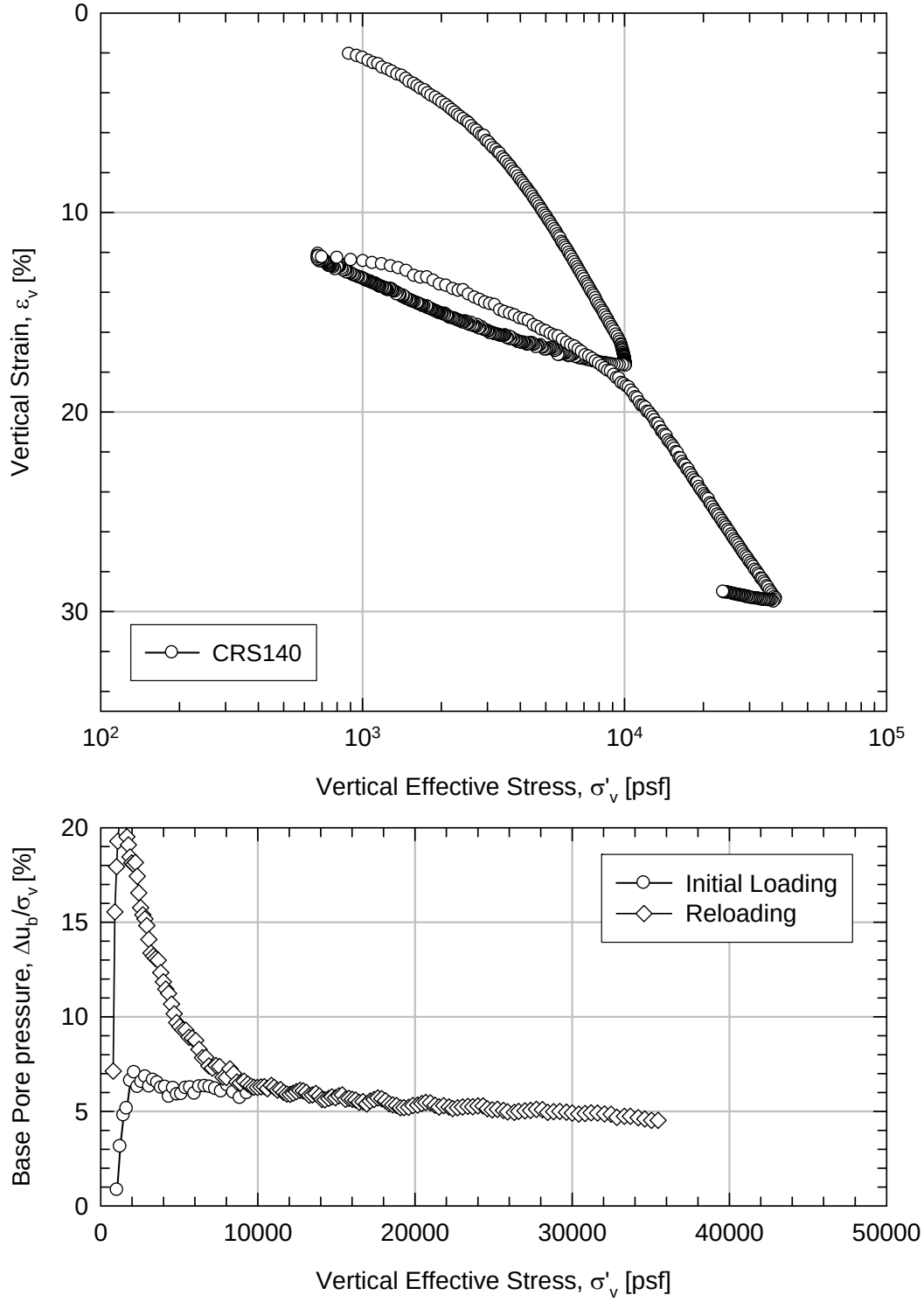


Figure 5.3.18 Vertical strain and normalized base pore pressure versus vertical effective stress for test CRS140 on sample SB-06-3 UP1 45-47 ft.

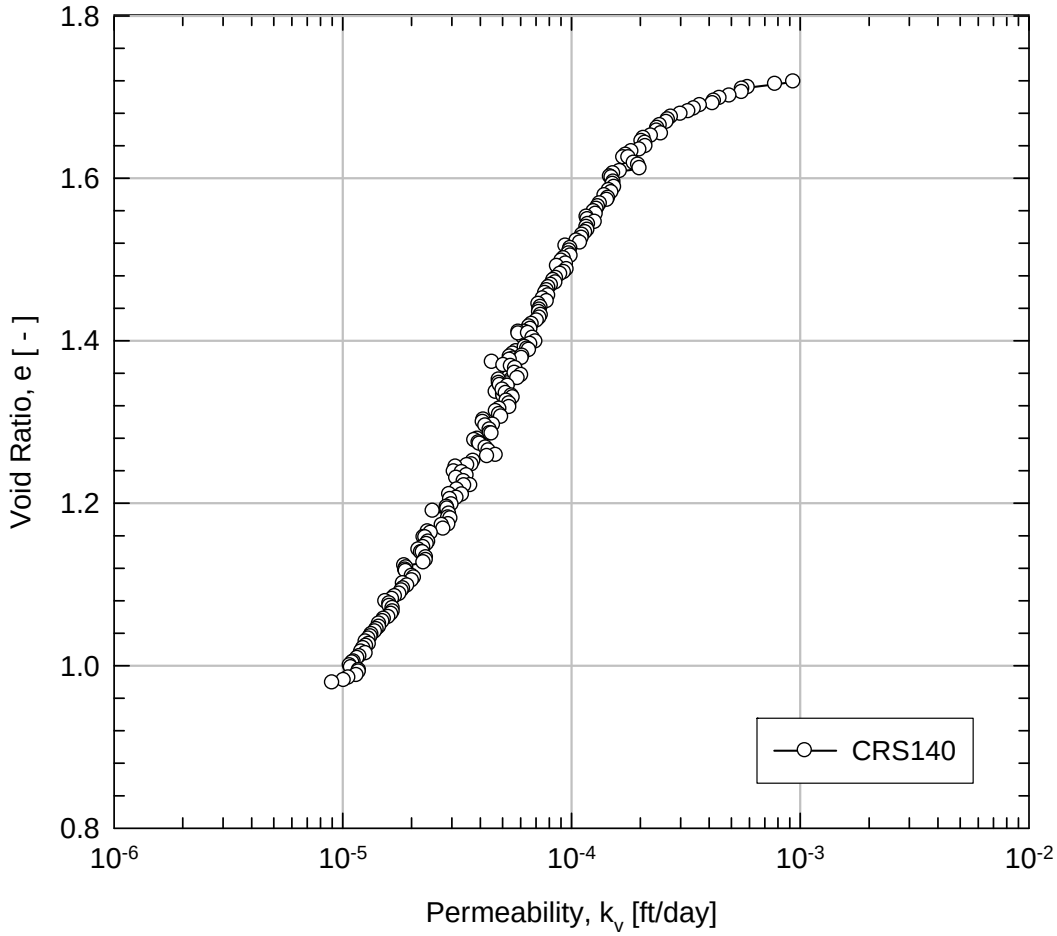


Figure 5.3.19 Void ratio versus permeability for CRS140 on sample SB-06-3 UP1 45-47 ft.

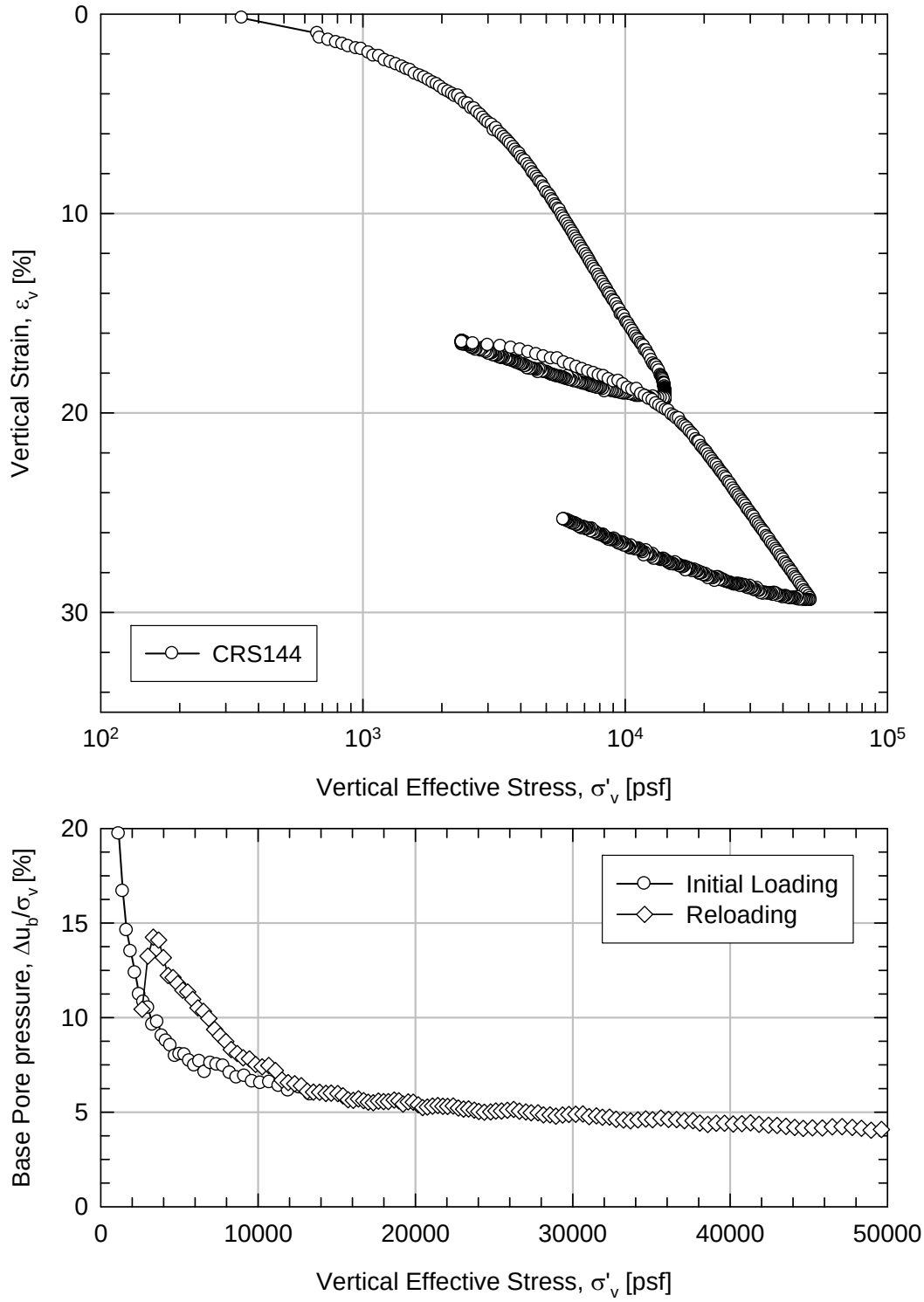


Figure 5.3.22 Vertical strain and normalized base pore pressure versus vertical effective stress for test CRS144 on sample SB-06-3 UP1 45-47 ft

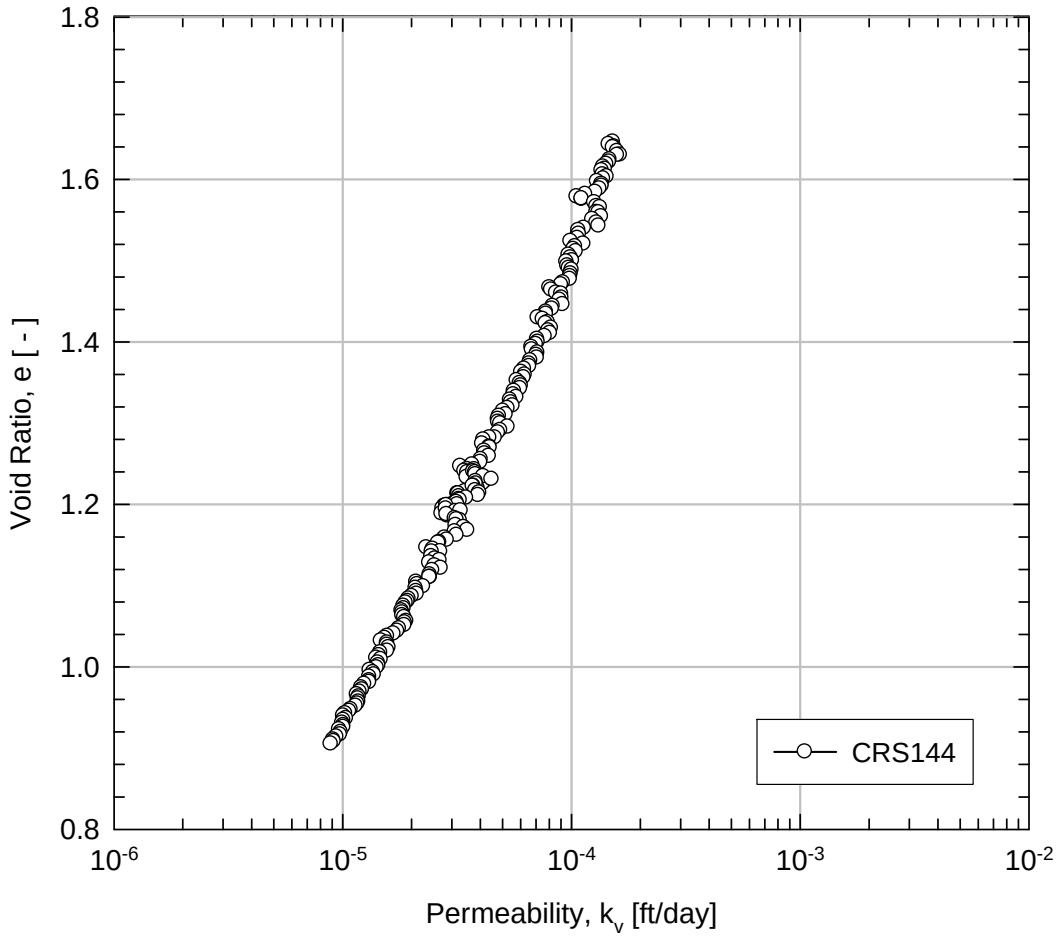
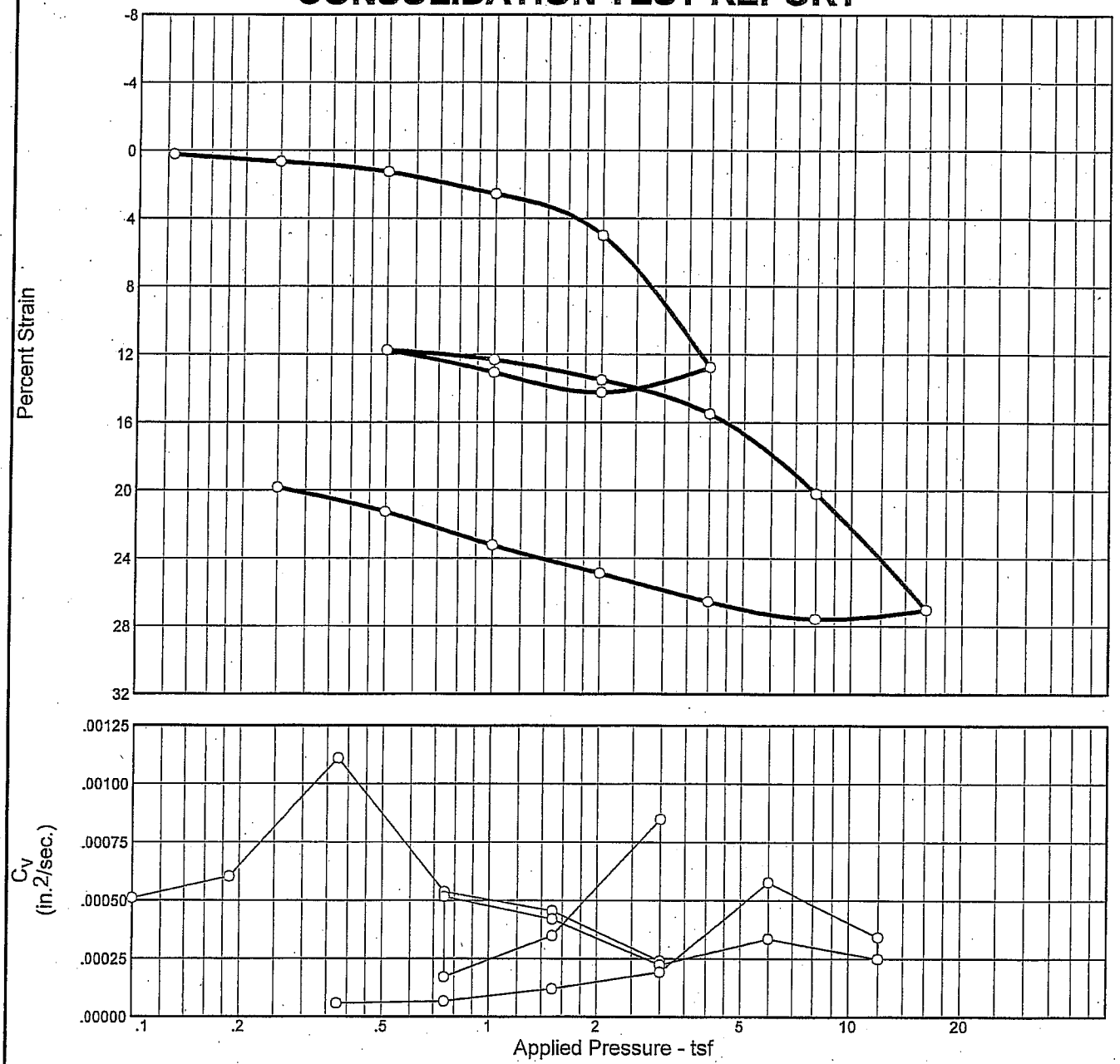


Figure 5.3.23 Void ratio versus permeability for CRS144 on sample SB-06-3 UP1 45-47 ft

2008
Incremental Load Consolidation Tests

CONSOLIDATION TEST REPORT



Natural Sat.	Natural Moist.	Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (tsf)	P_c (tsf)	C_c	C_r	Swell Press. (tsf)	Heave %	e_o
96.3 %	54.3 %	66.6	49	26	2.679		1.64	0.58	0.11			1.512

MATERIAL DESCRIPTION	USCS	AASHTO
	CL	A-7-6

Project No.

Project: New Britain-Hartford Busway #155-H025

Source: Boring RW-4 (Flatbush Ave., over Busway)

Test-Con, Inc.
P.O. Box 3116
Danbury, CT 06813-3116

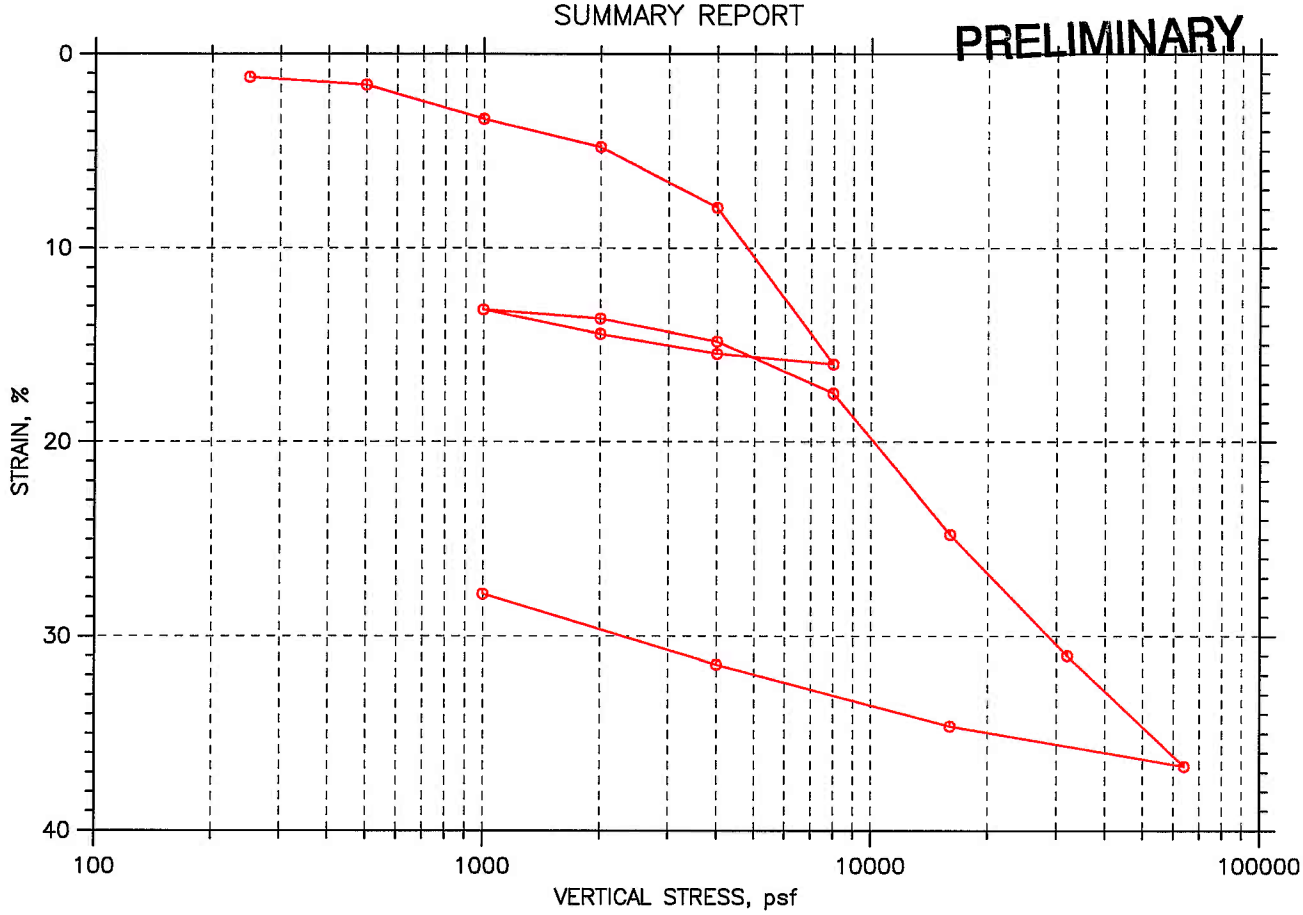
Remarks:
Boring RW-4, Sample No UP1.
Depth from 35' to 37'

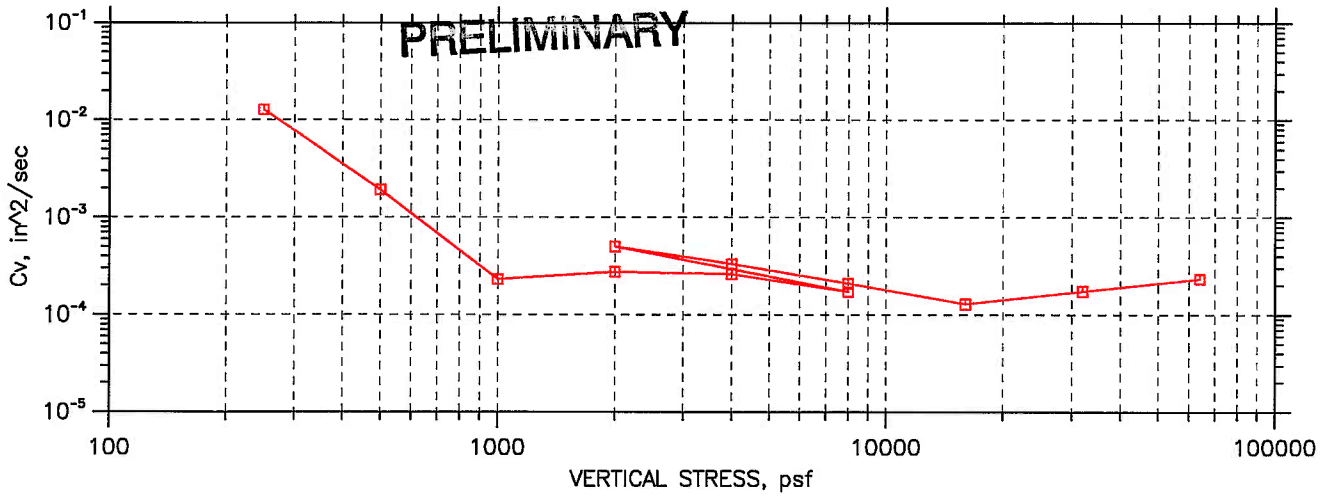
E-MAILED SEP 02 2008

Figure 1

CONSOLIDATION TEST DATA

SUMMARY REPORT

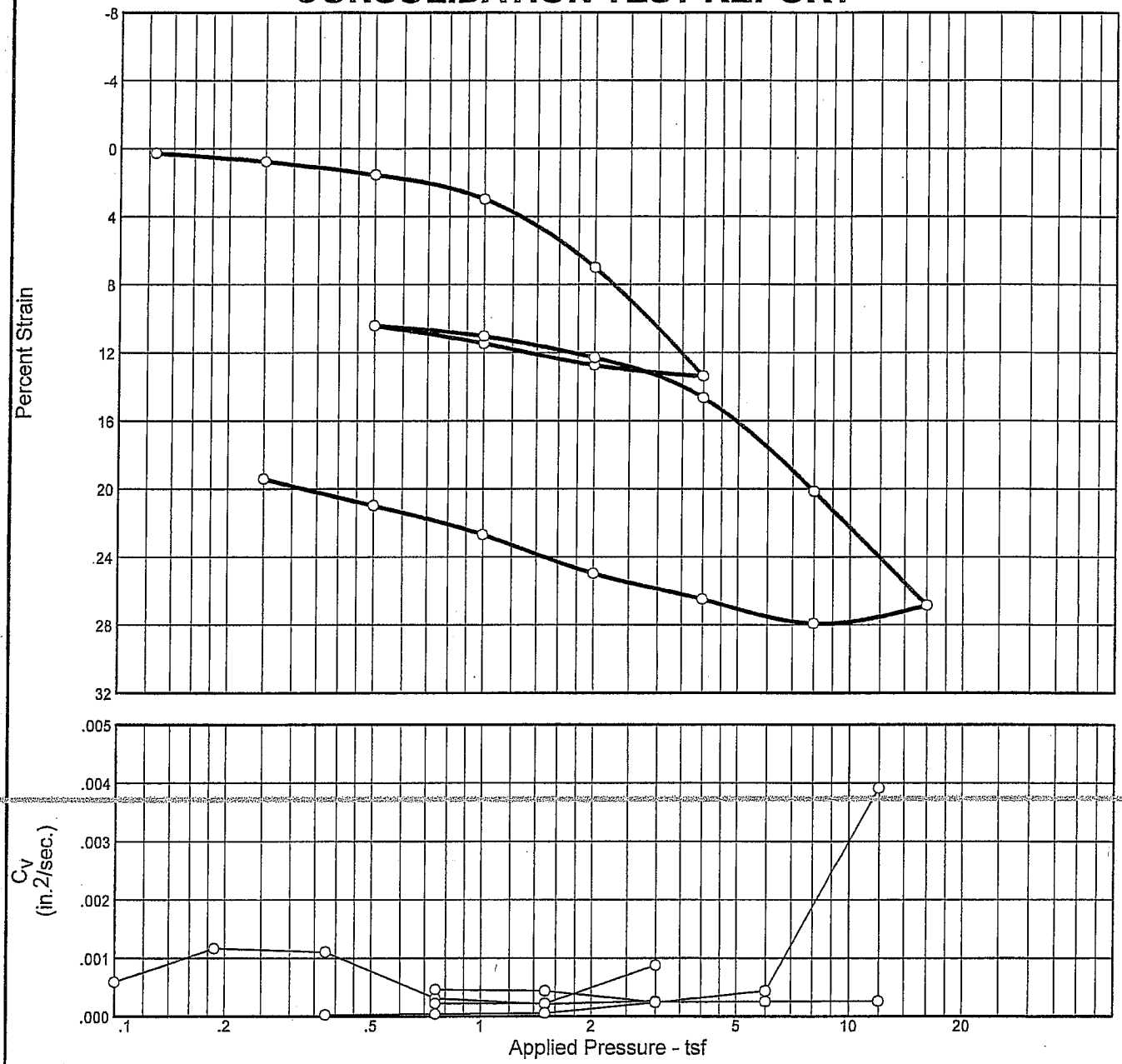




GeoTesting express a subsidiary of Geocomp Corporation	Project: Busway	Location: Hartford CT	Project No.: GTX-8398
	Boring No.: RW-4	Tested By: md	Checked By: jdt
	Sample No.: UP-2	Test Date: 08/04/08	Depth: 45-47 ft
	Test No.: C-1	Sample Type: Tube	Elevation: ---
	Description: Moist reddish brown clay		
	Remarks: System G		

Mon, 18-AUG-2008 14:51:00

CONSOLIDATION TEST REPORT



Natural Sat.	Natural Moist.	Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (tsf)	P_c (tsf)	C_c	C_r	Swell Press. (tsf)	Heave %	e_o
98.7 %	55.0 %	67.2			2.691		1.47	0.56	0.12			1.500

MATERIAL DESCRIPTION	USCS	AASHTO

Project No. **Client:** GeoDesign

Project: New Britain-Hartford Busway #155-H025

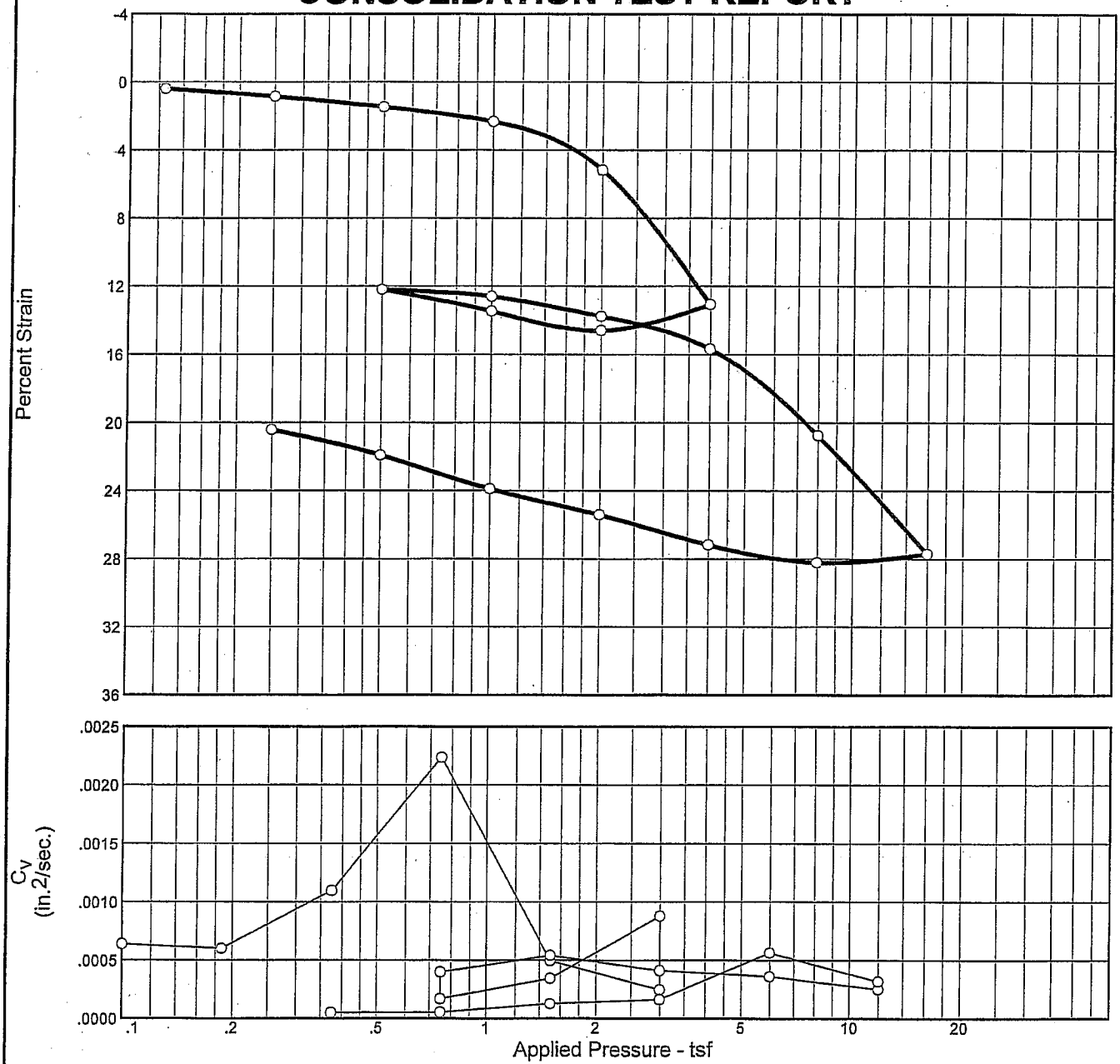
Source: Boring RW-8 (Flatbush **Sample No.:** UP-1 **Elev./Depth:** from 20' to 22'

TEST-CON INCORPORATED
PO BOX 3116
Danbury, CT 06813-3116

Remarks:
Date tested: 09/28/2008.
Boring No: RW-8, Sample No: UP-1, Depth from 20' to 22'.

Figure

CONSOLIDATION TEST REPORT



Natural Sat.	Natural Moist.	Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (tsf)	P_c (tsf)	C_c	C_r	Swell Press. (tsf)	Heave %	e_o
98.9 %	50.9 %	71.1	49	25	2.747		1.53	0.56	0.10			1.412

MATERIAL DESCRIPTION	USCS	AASHTO
	CL	A-7-6

Project No.

Project: New Britain-Hartford Busway #155-H025

Source: Boring RW-8 (Flatbush Ave., over Busway)

Test-Con, Inc.
P.O. Box 3116
Danbury, CT 06813-3116

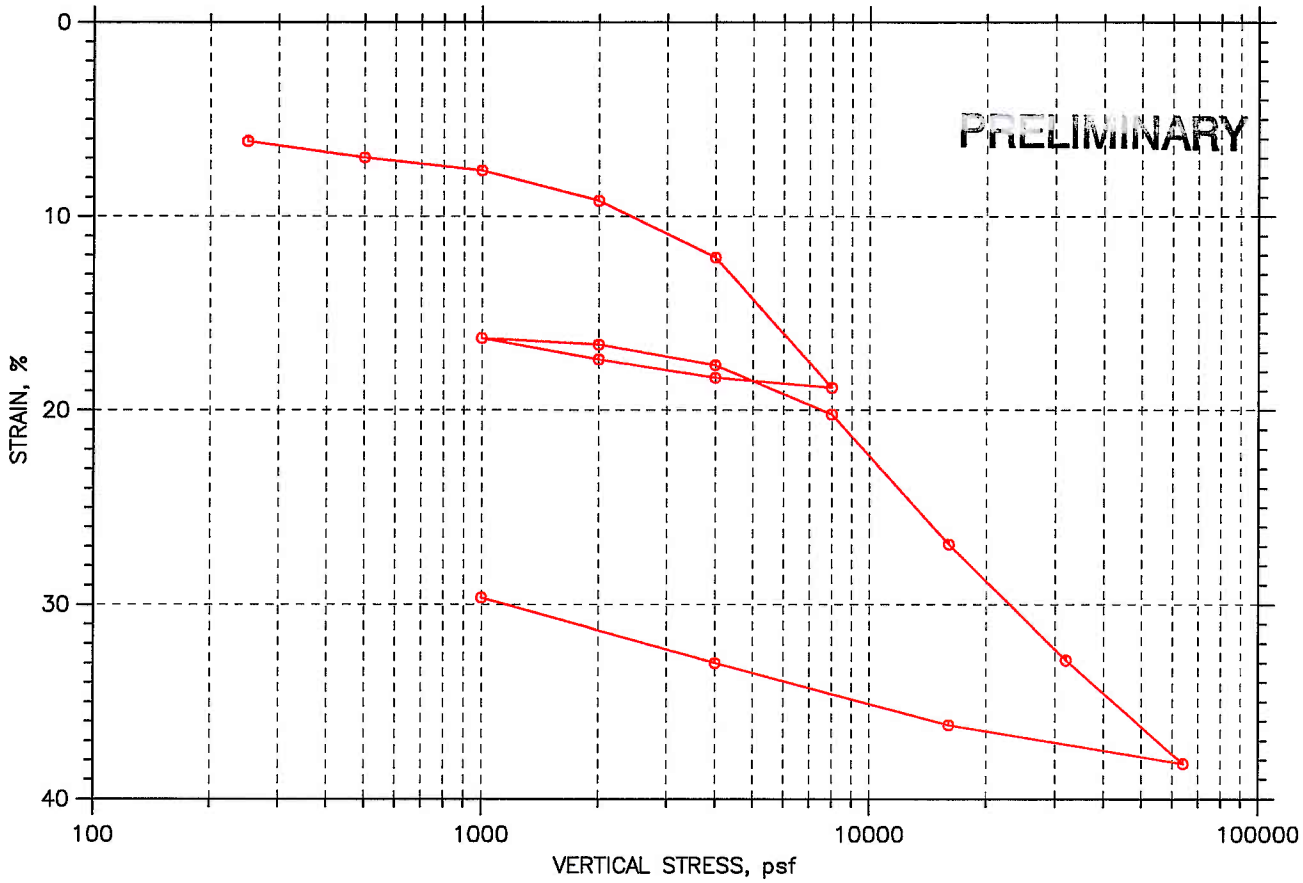
Remarks:
Boring RW-8, Sample No UP2
Depth from 30' to 32'

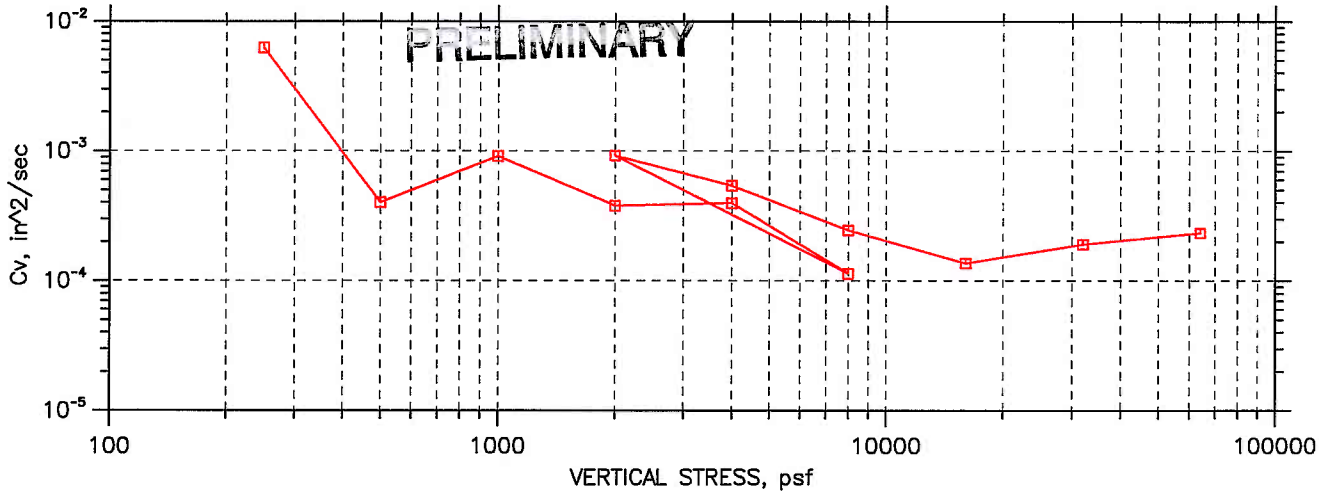
E-MAILED SEP 02 2008

Figure 1

CONSOLIDATION TEST DATA

SUMMARY REPORT

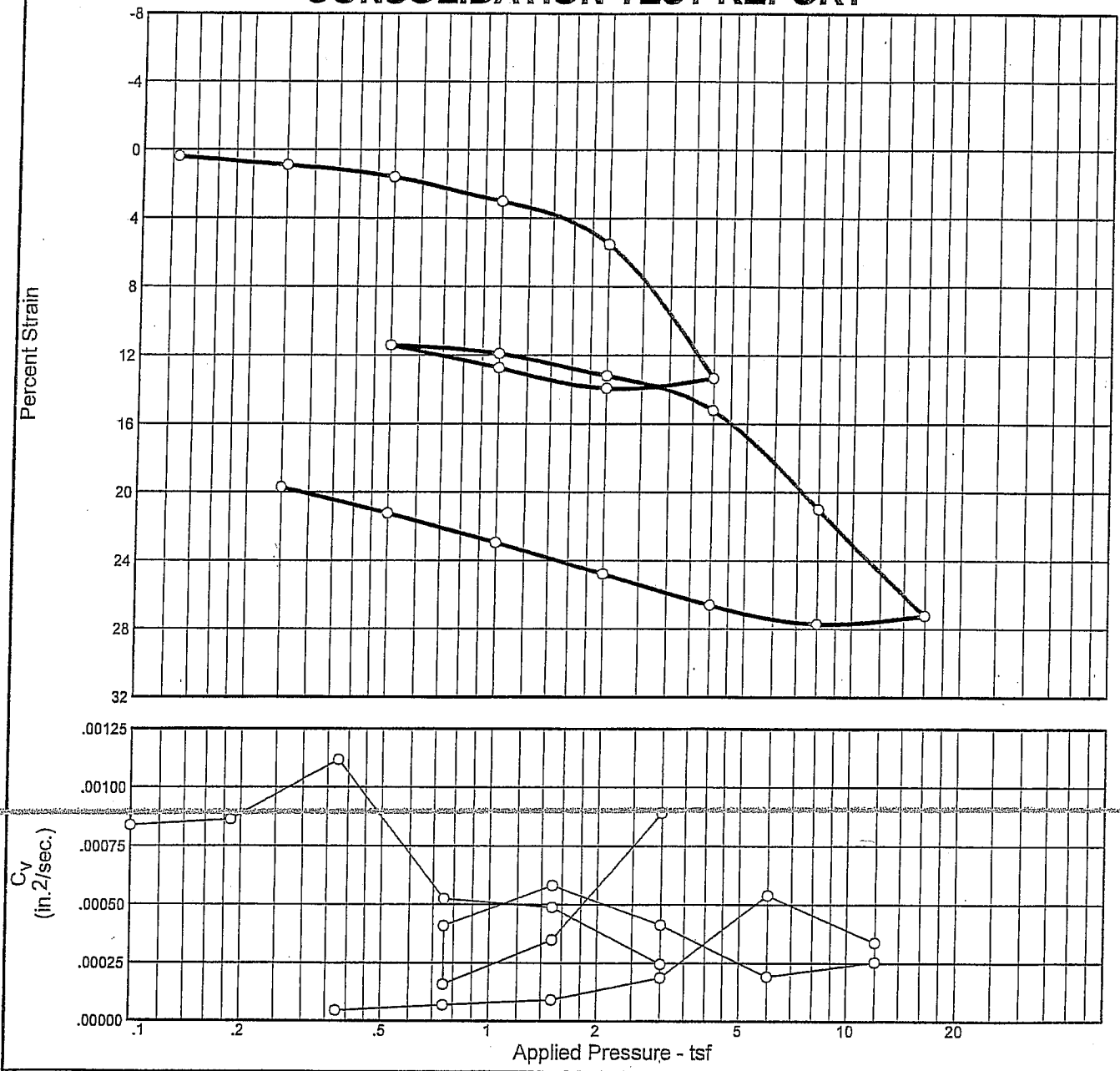




GeoTesting express a subsidiary of Geocomp Corporation	Project: Busway	Location: Hartford CT	Project No.: GTX-8398
	Boring No.: RW-8	Tested By: md	Checked By: jdt
	Sample No.: UP-3	Test Date: 08/06/08	Depth: 40-42 ft
	Test No.: C-2	Sample Type: Tube	Elevation: ---
	Description: Moist reddish brown clay		
	Remarks: System G		

Mon, 18-AUG-2008 14:51:47

CONSOLIDATION TEST REPORT



Natural Sat.	Natural Moist.	Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (tsf)	P_c (tsf)	C_c	C_r	Swell Press. (tsf)	Heave %	e_o
99.5 %	51.4 %	70.3			2.688		1.09	0.49	0.10			1.387

MATERIAL DESCRIPTION	USCS	AASHTO

Project No. **Client:** GeoDesign

Project: New Britain-Hartford Busway #155-H025

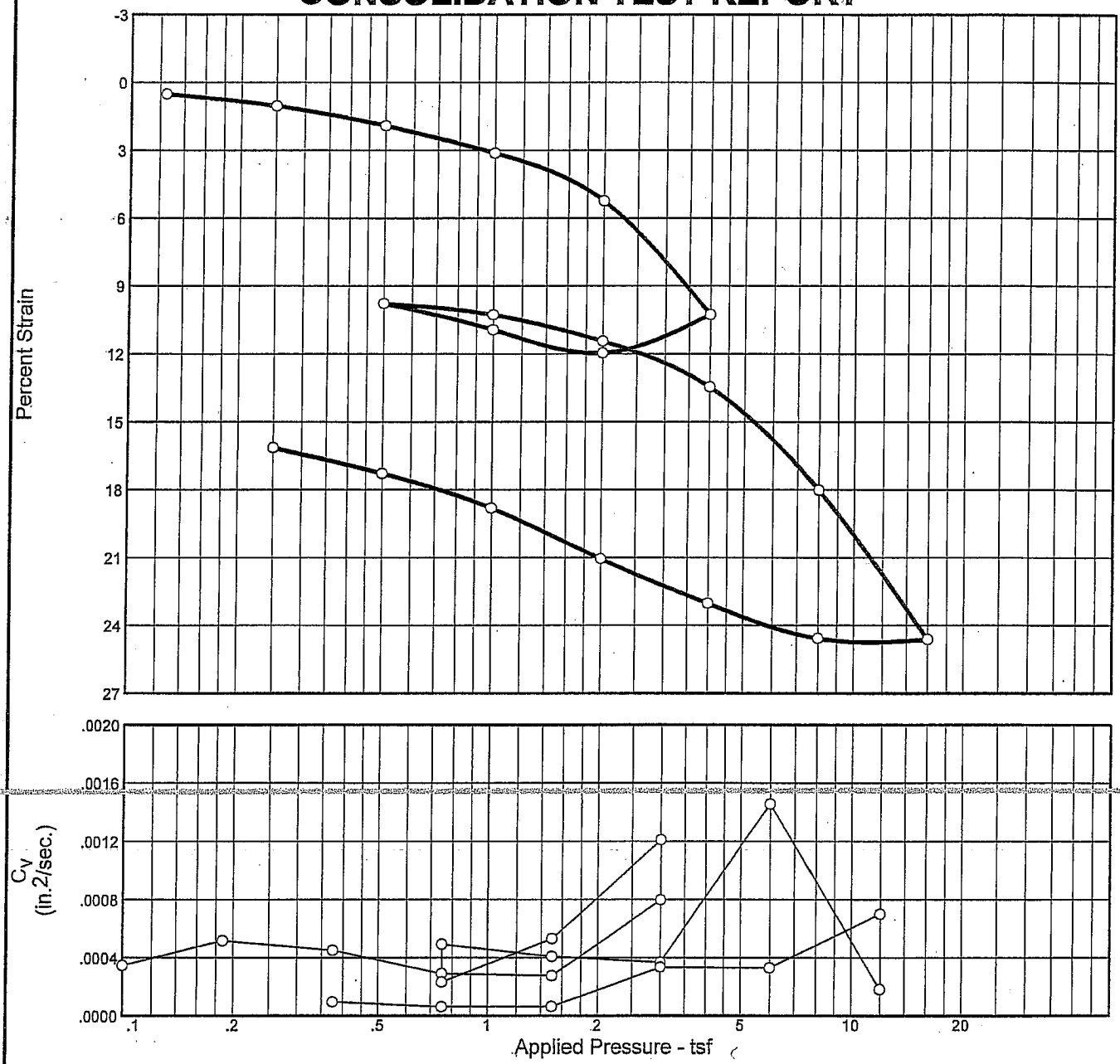
Source: Boring RW-23 (Flatbush **Sample No.:** UP-1 **Elev./Depth:** from 25' to 27'

TEST-CON INCORPORATED
PO BOX 3116
Danbury, CT 06813-3116

Remarks:
Date Tested 09/07/08.
Boring RW-23, Sample No UP-1, Depth from 25' to 27'.

Figure

CONSOLIDATION TEST REPORT



Natural Sat.	Natural Moist.	Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (tsf)	P_c (tsf)	C_c	C_r	Swell Press. (tsf)	Heave %	e_o
102.0 %	57.7 %	66.8	44	21	2.715		2.24	0.56	0.11			1.535

MATERIAL DESCRIPTION	USCS	AASHTO

Project No. **Client:** GeoDesign

Project: New Britain-Hartford Busway #155-H025

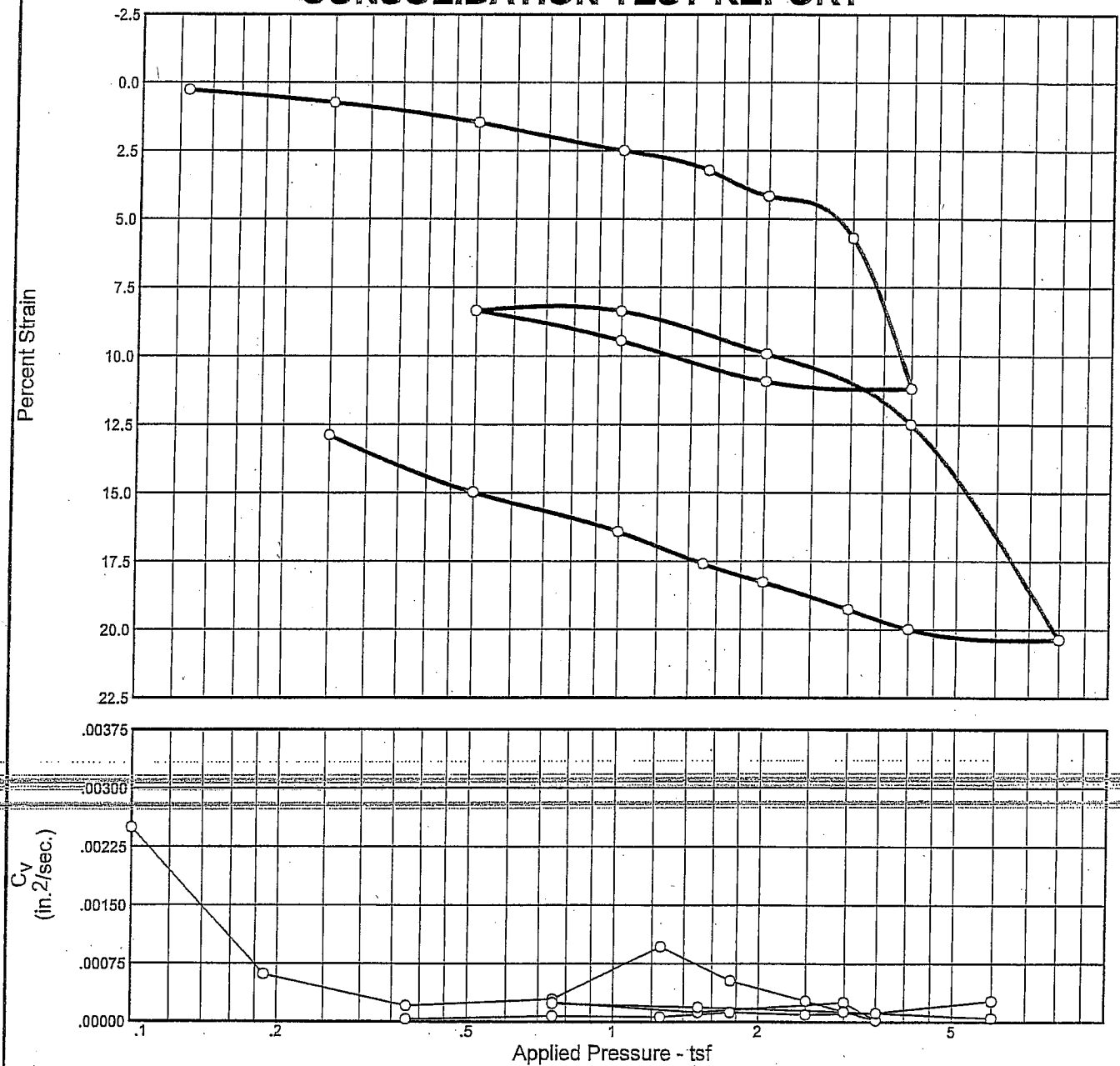
Source: Boring RW-23 (flatbush **Sample No.:** UP-2 **Elev./Depth:** from 40' to 42'

TEST-CON INCORPORATED
PO BOX 3116
Danbury, CT 06813-3116

Remarks:
DateTested: 09/30/2008.
Boring No: RW-23, Sample No UP- 2, Depth from 40' to 42'.

Figure

CONSOLIDATION TEST REPORT



Natural Sat.	Natural Moist.	Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (tsf)	P_c (tsf)	C_c	C_r	Swell Press. (tsf)	Heave %	e_o
96.9 %	51.3 %	69.3			2.691		2.06	0.69	0.11			1.424

MATERIAL DESCRIPTION	USCS	AASHTO

Project No. **Client:** GeoDesign

Project: New Britain-Hartford Busway #155-H025

Source: Boring RW-28 (Flatbush **Sample No.:** UP-2 **Elev./Depth:** from 25' to 27'

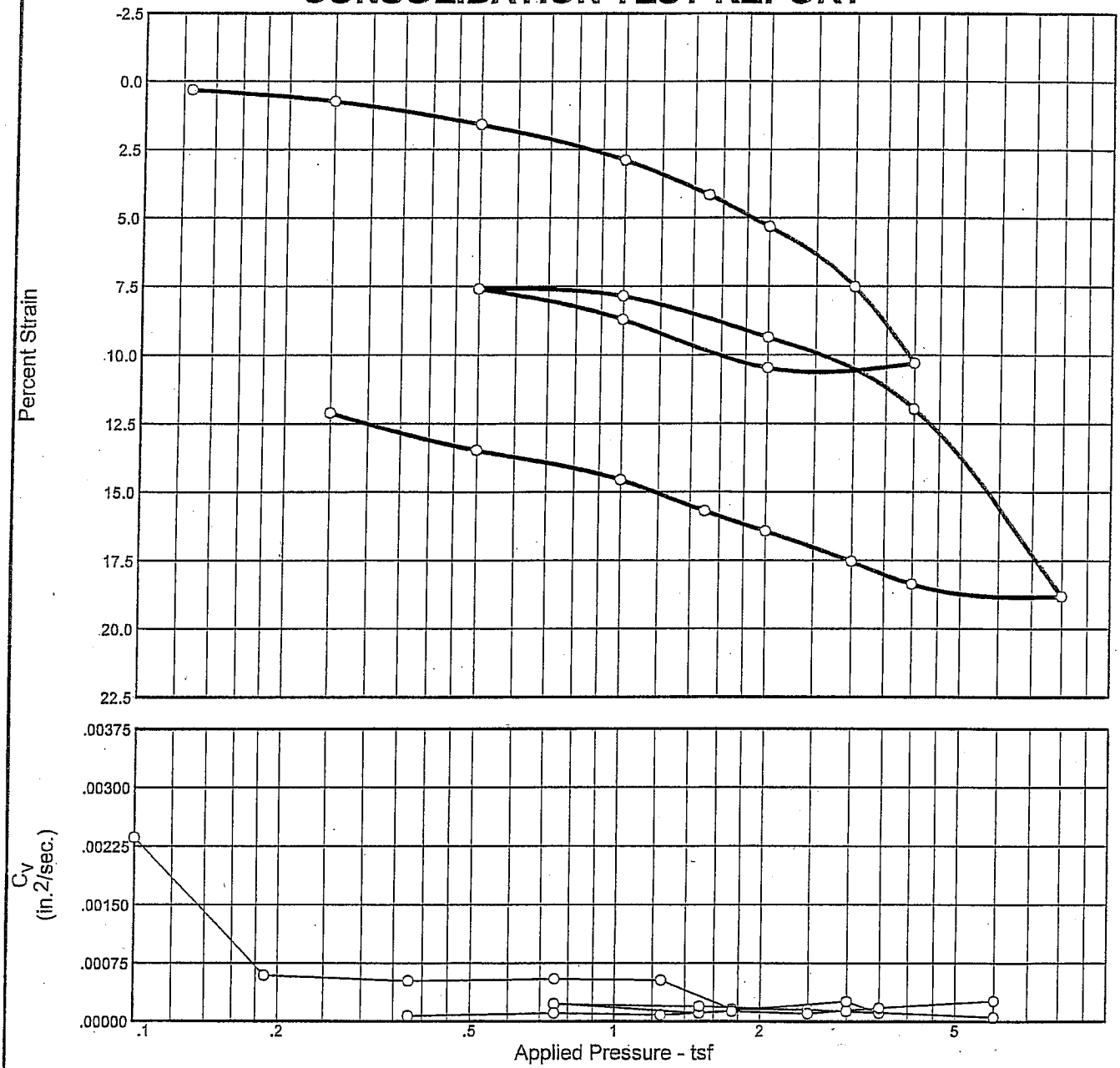
TEST-CON INCORPORATED
PO BOX 3116
Danbury, CT 06813-3116

Remarks:

Date tested 09/13/2008.
Boring RW-28, Sample No UP-2,
Depth from 25' to 27'.

Figure

CONSOLIDATION TEST REPORT



Natural Sat.	Natural Moist.	Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (tsf)	P_c (tsf)	C_c	C_r	Swell Press. (tsf)	Heave %	e_o
96.6 %	50.8 %	69.9			2.722		3.28	0.70	0.11			1.431

MATERIAL DESCRIPTION	USCS	AASHTO

Project No. **Client:** GeoDesign

Project: New Britain-Hartford Busway #155-H025

Source: Boring RW-29 (Flatbush **Sample No.:** UP-3 **Elev./Depth:** form 47' to 49

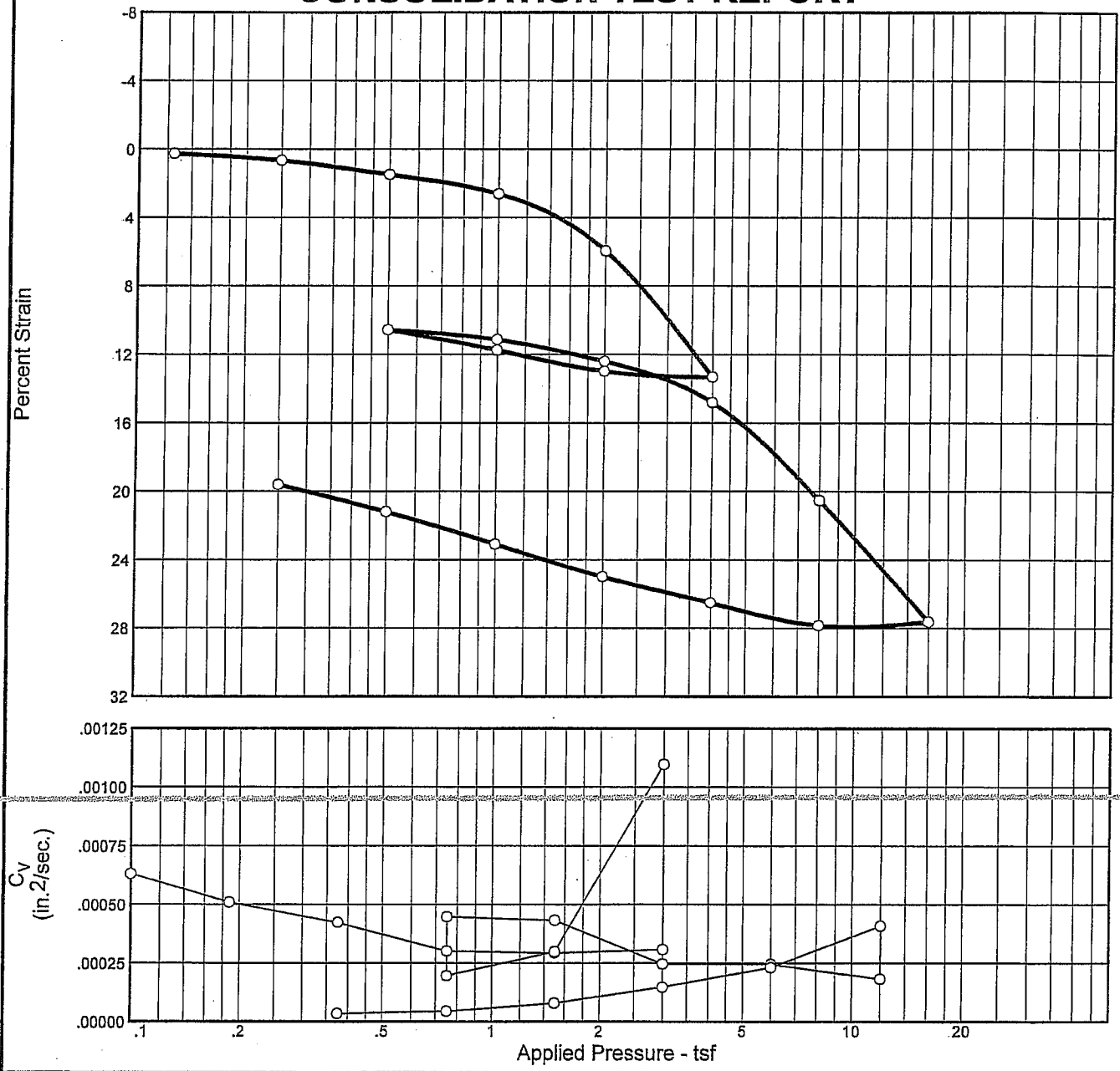
TEST-CON INCORPORATED
PO BOX 3116
Danbury, CT 06813-3116

Remarks:

Date Tested 09/14/2008.
Boring RW-29, Sample No UP-3,
Depth from 45' to 47'

Figure

CONSOLIDATION TEST REPORT



Natural Sat.	Natural Moist.	Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (tsf)	P_c (tsf)	C_c	C_r	Swell Press. (tsf)	Heave %	e_o
99.0 %	58.8 %	65.0			2.724		1.79	0.62	0.11			1.618

MATERIAL DESCRIPTION	USCS	AASHTO

Project No. **Client:** GeoDesign

Project: New Britain-Hartford Busway #155-H025

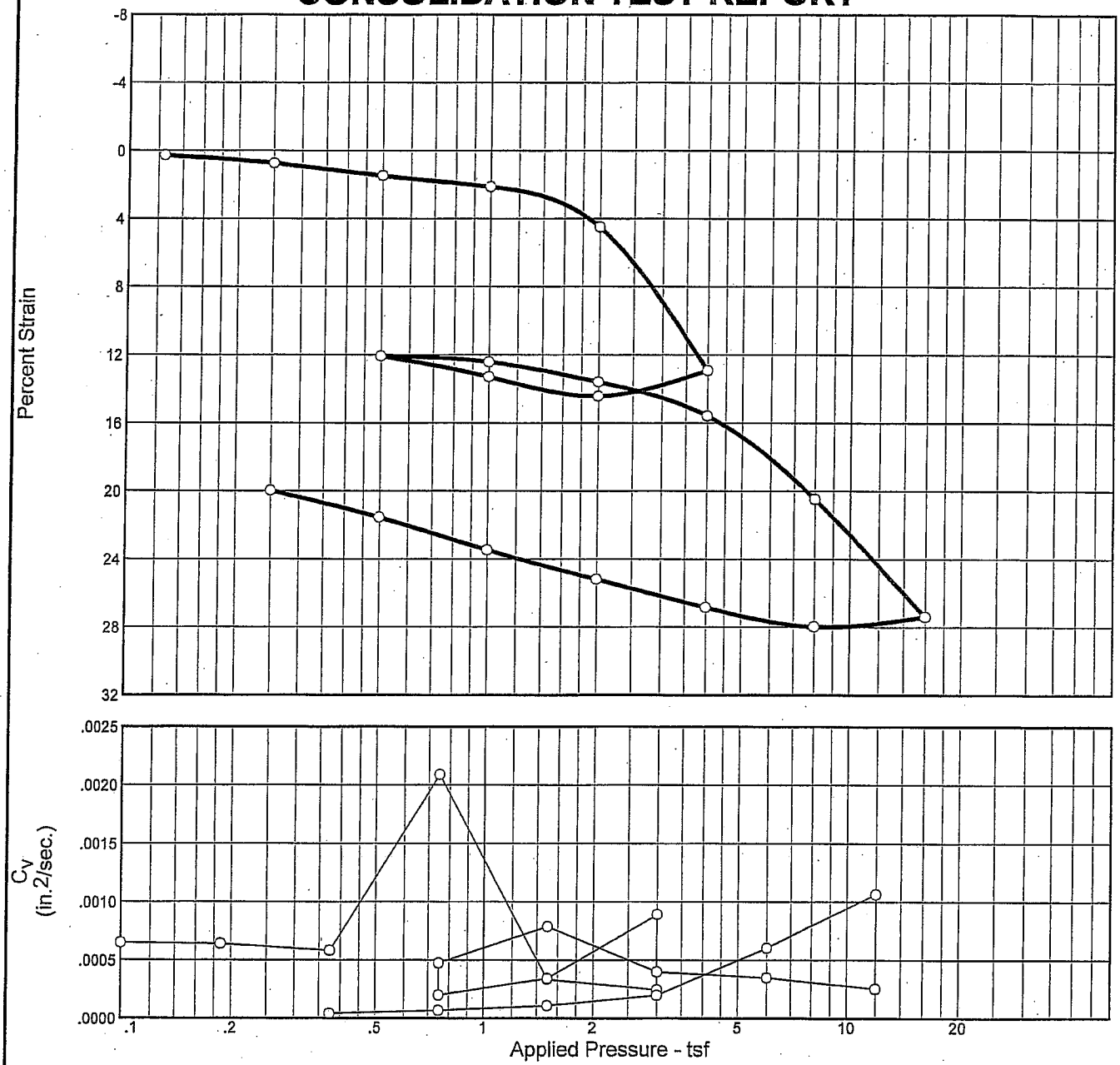
Source: Boring RW-30 (Flatbush **Sample No.:** UP-1 **Elev./Depth:** from 15' to 17'

TEST-CON INCORPORATED
PO BOX 3116
Danbury, CT 06813-3116

Remarks:
Date tested: 09/30/2008.
Boring No: RW-30, Sample No UP- 1, Depth from 15' to 17'.

Figure

CONSOLIDATION TEST REPORT



Natural Sat.	Natural Moist.	Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (tsf)	P_c (tsf)	C_c	C_r	Swell Press. (tsf)	Heave %	e_o
98.3 %	46.2 %	74.3	49	25	2.699		1.44	0.53	0.10			1.269

MATERIAL DESCRIPTION	USCS	AASHTO
	CL	A-7-6

Project No.

Project: New Britain-Hartford Busway #155-H025

Source: Boring SB-01-1 (Flatbush Ave., over Busway)

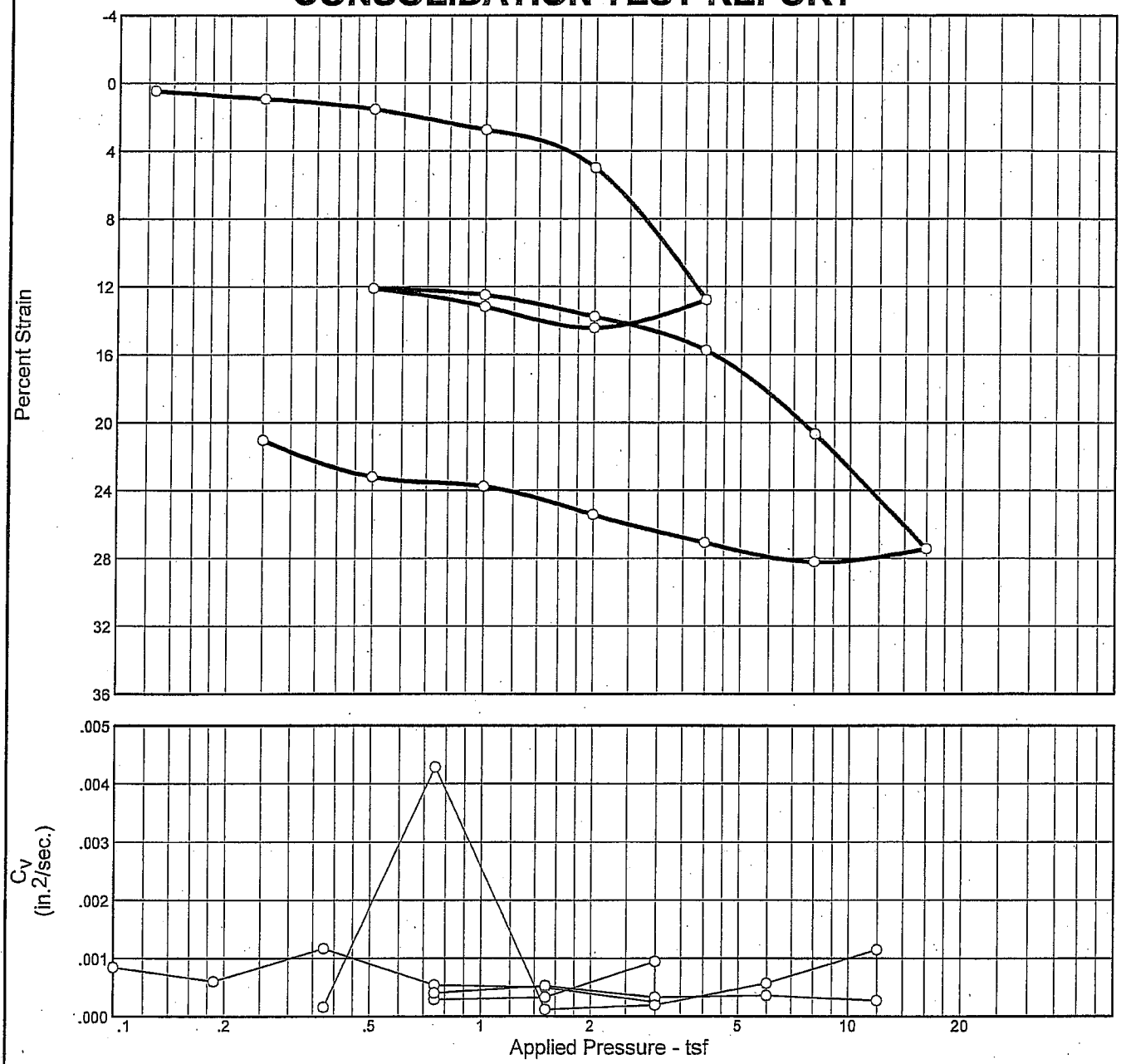
Test-Con, Inc.
P.O. Box 3116
Danbury, CT 06813-3116

Remarks:
Boring No SB-01-1, Sample No UP1, Depth from 20'to 22'

E-MAILED SEP 02 2008

Figure 1

CONSOLIDATION TEST REPORT



Natural Sat.	Natural Moist.	Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (tsf)	P_c (tsf)	C_c	C_r	Swell Press. (tsf)	Heave %	e_o
88.2 %	51.2 %	65.8	49	24	2.712		1.46	0.58	0.11			1.575

MATERIAL DESCRIPTION	USCS	AASHTO
	CL	A-7-6

Project No.

Project: New Britain-Hartford Busway #155-H025

Source: SB-01-2 (Flatbush Ave., over Busway)

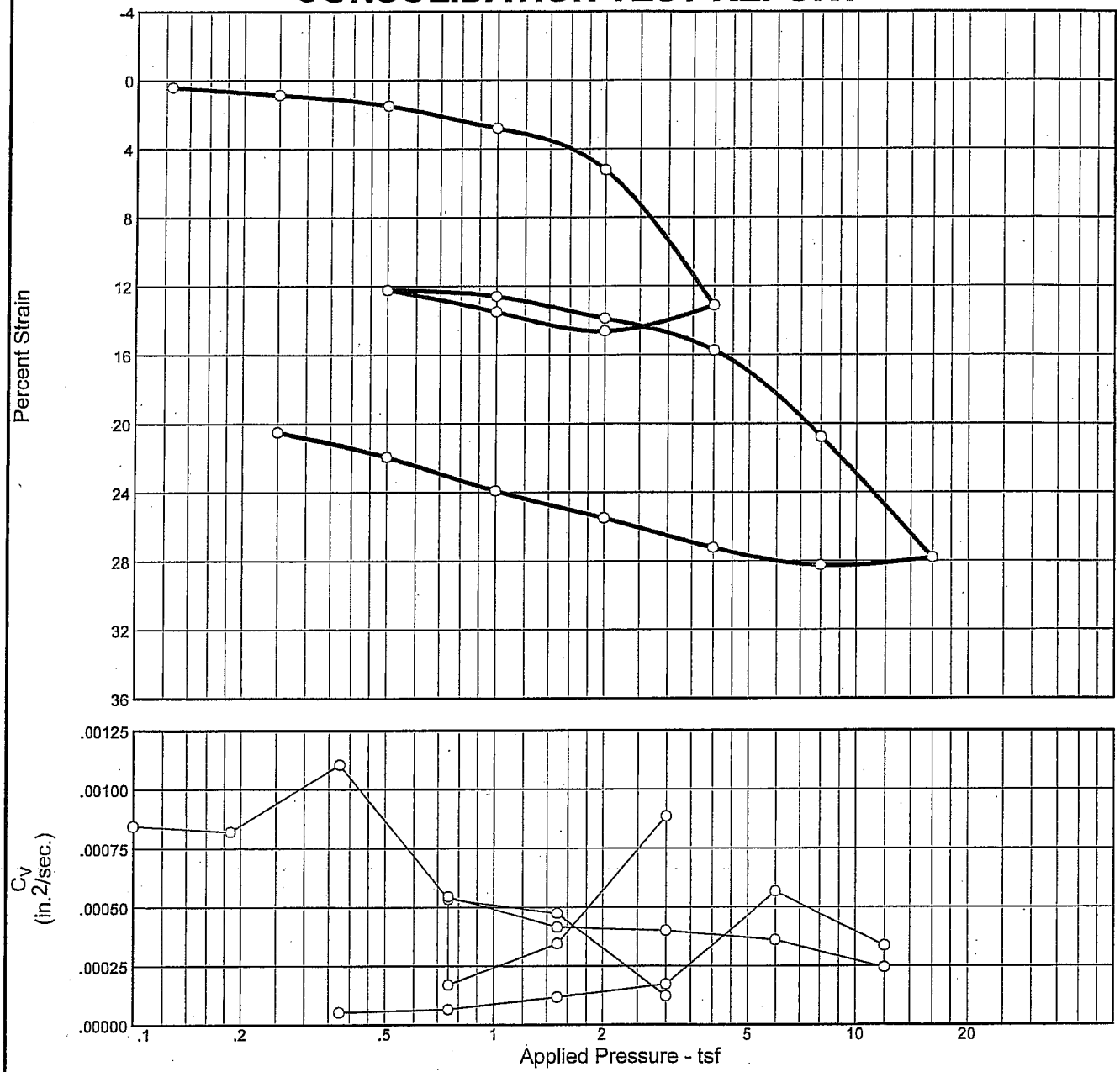
Test-Con, Inc.
P.O. Box 3116
Danbury, CT 06813-3116

Remarks:
Boring SB-01-2, Sample No UP2.
Depth from 25' to 27'

E-MAILED SEP 02 2008

Figure 1

CONSOLIDATION TEST REPORT



Natural Sat.	Natural Moist.	Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (tsf)	P_c (tsf)	C_c	C_r	Swell Press. (tsf)	Heave %	e_o
92.8 %	53.9 %	67.5	50	26	2.907		1.63	0.63	0.12			1.687

MATERIAL DESCRIPTION	USCS	AASHTO
	CH	

Project No.

Project: New Britain-Hartford Busway #155-H025

Source: Boring SB-01-4 (Flatbush Ave., over Busway)

Test-Con, Inc.
P.O. Box 3116
Danbury, CT 06813-3116

Remarks:
Boring No SB-01-4, Sample No UP1, Depth from 30' to 32'

E-MAILED SEP 02 2008

Figure

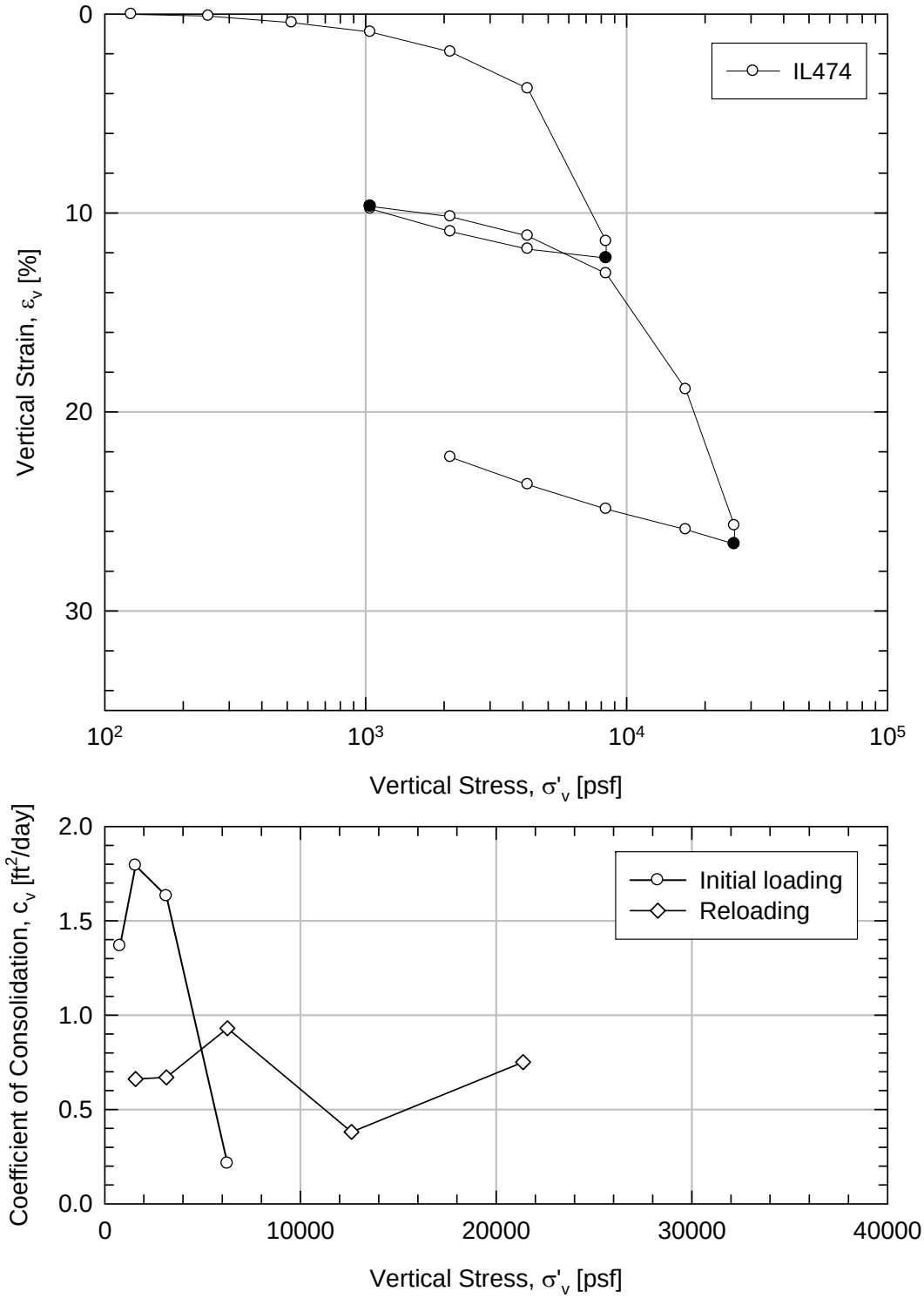


Figure 5.3.25 Vertical strain and coefficient of consolidation versus vertical effective stress for test IL474 on sample SB-01-4 UP2 40-42 ft.

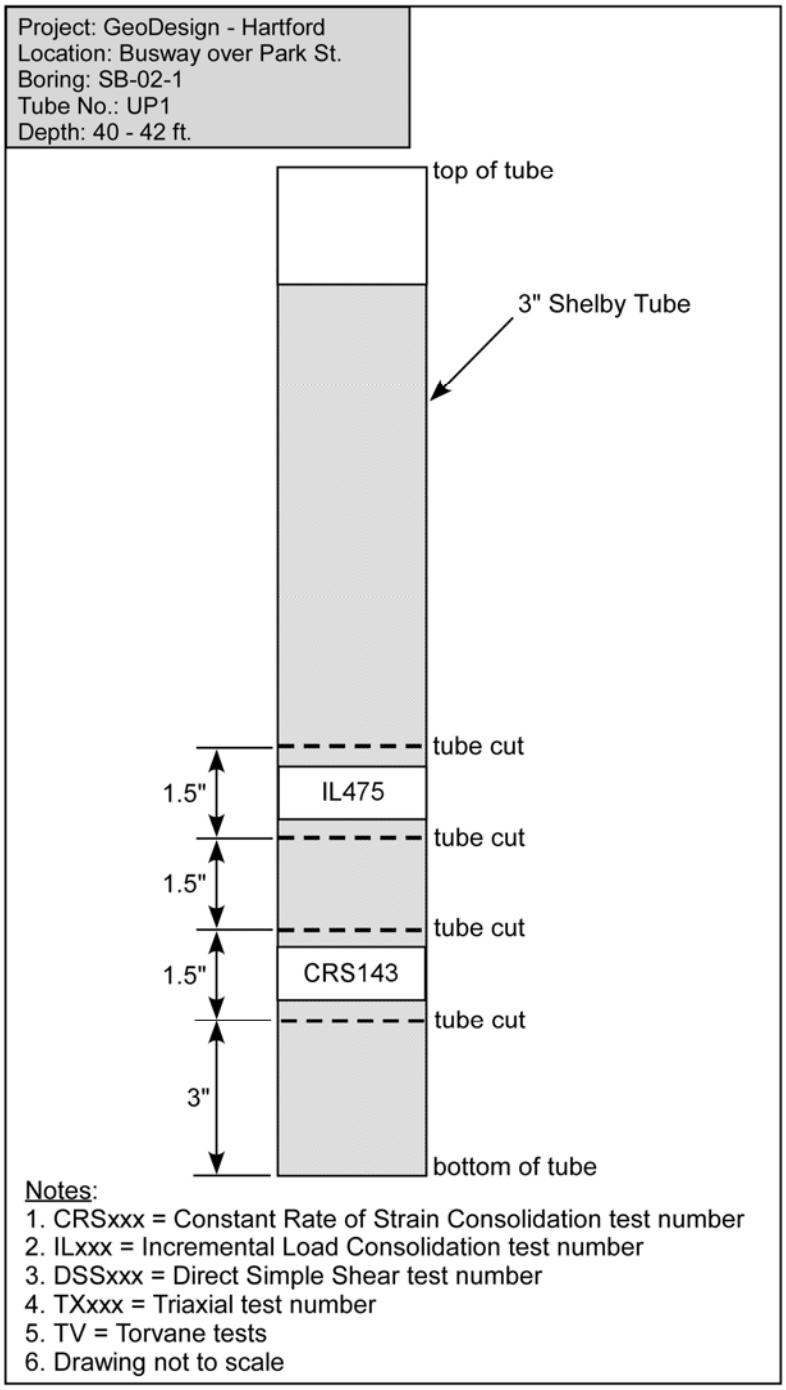


Figure 5.1.3 Test locations for Busway over Park St. Sample SB-02-1 UP1 40-42 ft.

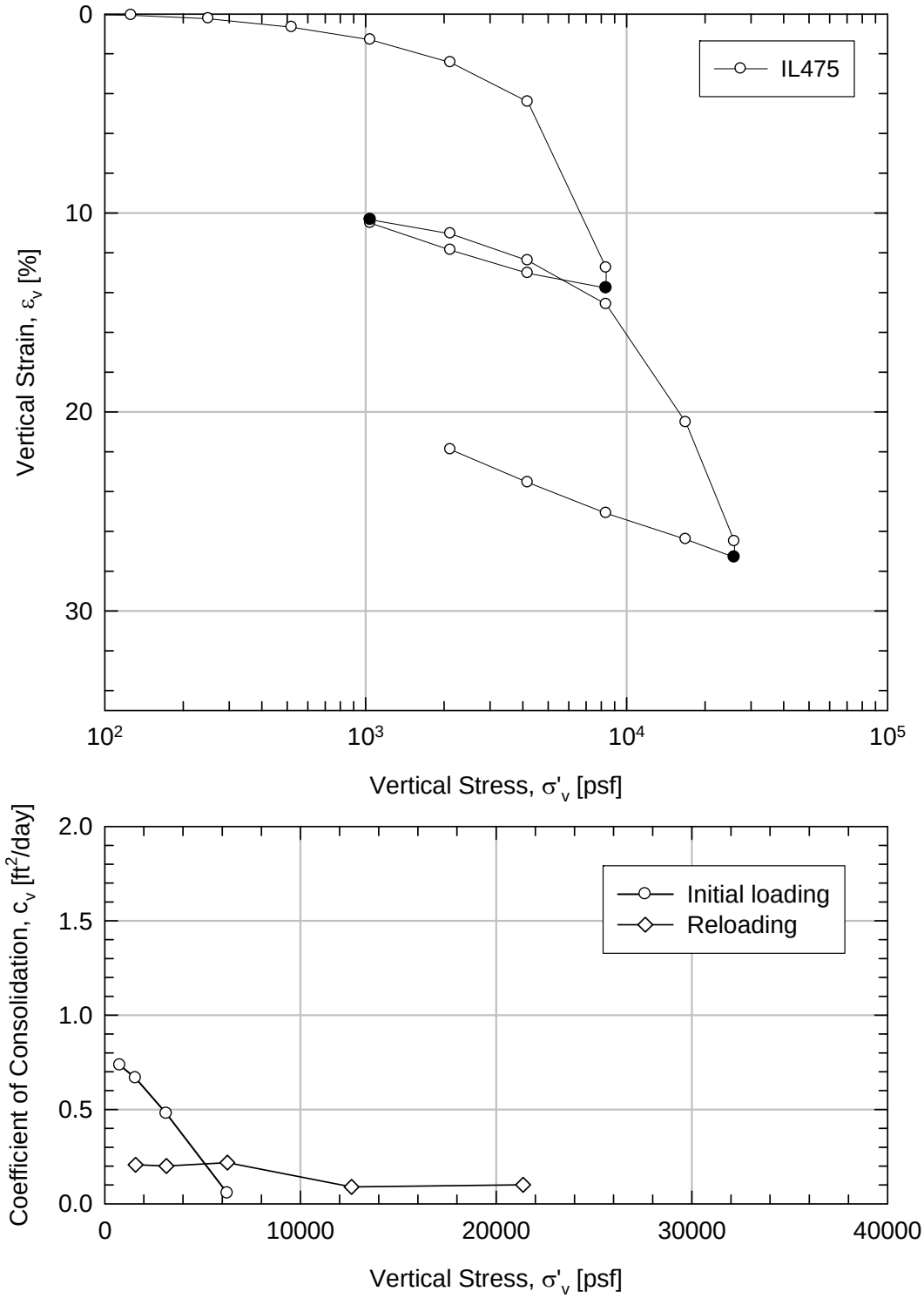
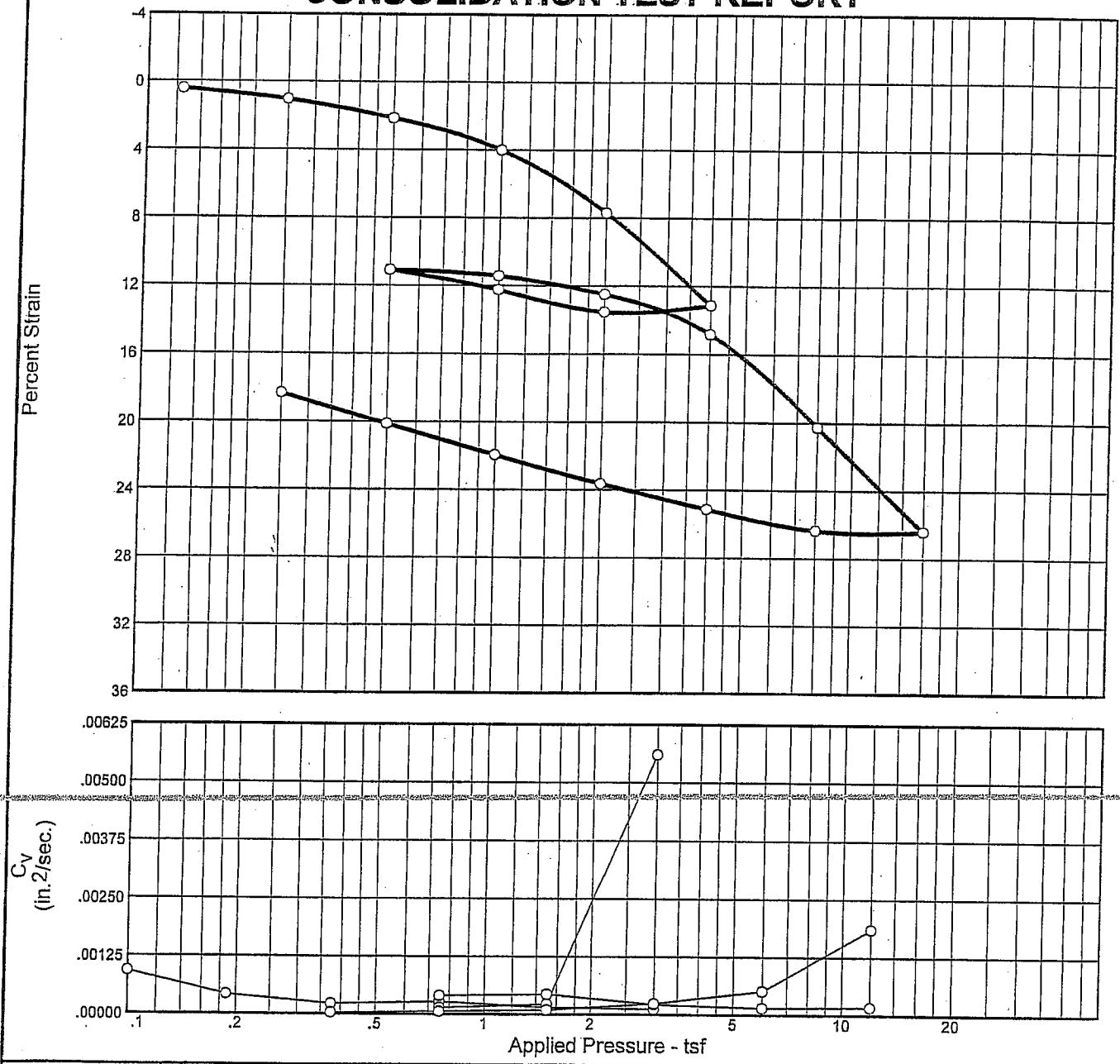


Figure 5.3.26 Vertical strain and coefficient of consolidation versus vertical effective stress for test IL475 on sample SB-02-1 UP1 40-42 ft.

CONSOLIDATION TEST REPORT



Natural Sat.	Natural Moist.	Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (tsf)	P_c (tsf)	C_c	C_r	Swell Press. (tsf)	Heave %	e_o
97.3 %	51.1 %	69.7			2.698		1.37	0.49	0.10			1.416

MATERIAL DESCRIPTION	USCS	AASHTO

Project No. **Client:** GeoDesign

Project: New Britain-Hartford Busway #155-H025

Source: Boring SB-06-1A (Flatbush Ave. over Busway) **Elev./Depth:** from 45' to 47'

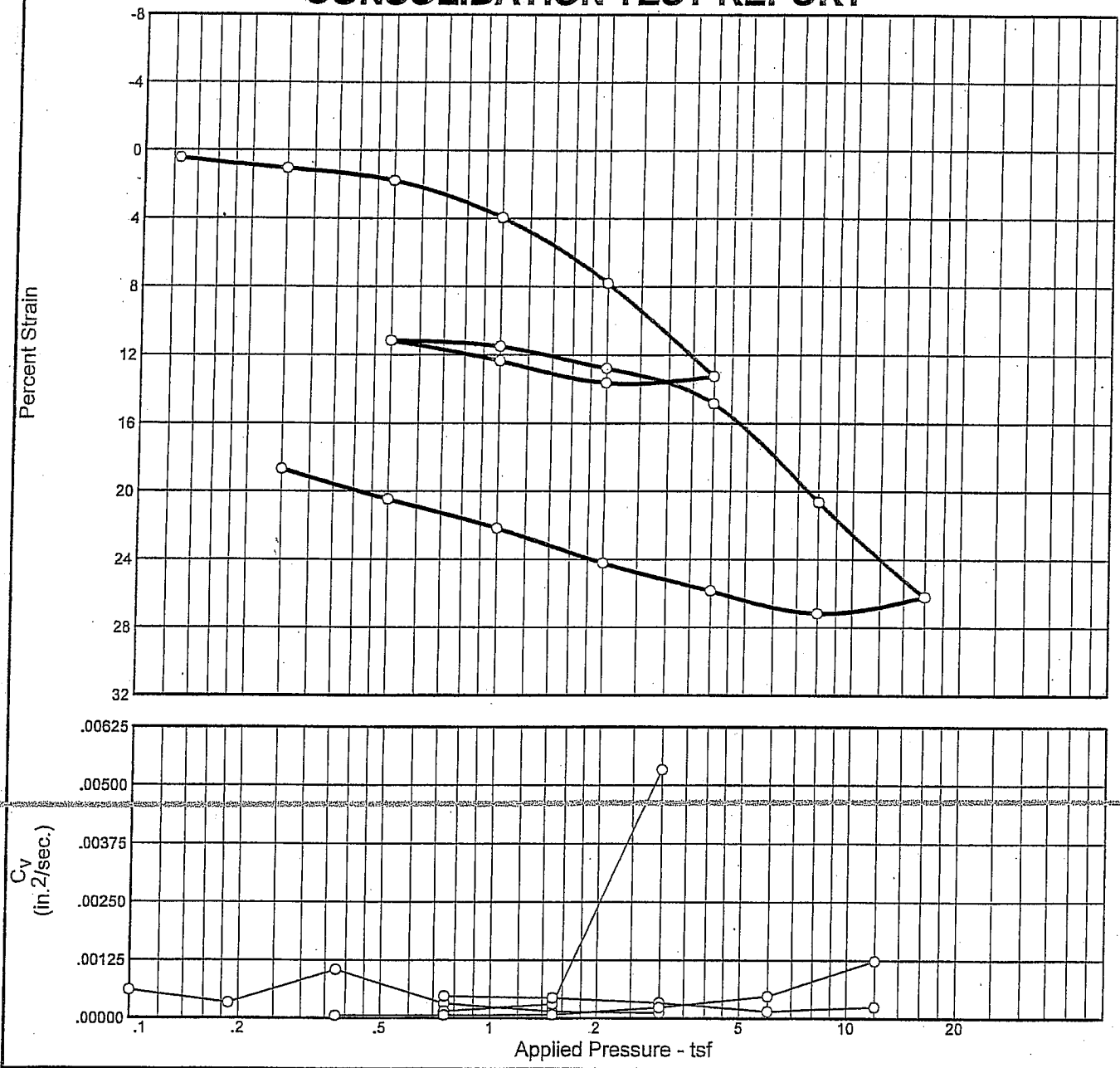
TEST-CON INCORPORATED
PO BOX 3116
Danbury, CT 06813-3116

Remarks:

Date tested09/06/08. Boring SB-06-1A, Sample No UP- 1, Depth from 45' to 47'.

Figure

CONSOLIDATION TEST REPORT



Natural Sat.	Natural Moist.	Dry Dens. (pcf)	LL	PI	Sp. Gr.	Overburden (tsf)	P_c (tsf)	C_c	C_r	Swell Press. (tsf)	Heave %	e_o
105.1 %	54.9 %	70.0			2.712		0.76	0.44	0.11			1.418

MATERIAL DESCRIPTION	USCS	AASHTO

Project No. **Client:** GeoDesign

Project: New Britain-Hartford Busway #155-H025

Source: Boring SB-06-03 **Sample No.:** UP-2 **Elev./Depth:** from 70' to 72'

TEST-CON INCORPORATED
PO BOX 3116
Danbury, CT 06813-3116

Remarks:
Date Tested 09/06/08.
Boring SB-06-3, Sample No UP-2,
Depth from 70' to 72'

Figure

Appendix 2

Strength Tests

2003 Triaxial Strength Tests

2008 Direct Simple Shear Tests

2008 Unconfined Compression Test (Rock)

2003 Triaxial Strength Tests

LABORATORY TESTING DATA SHEET

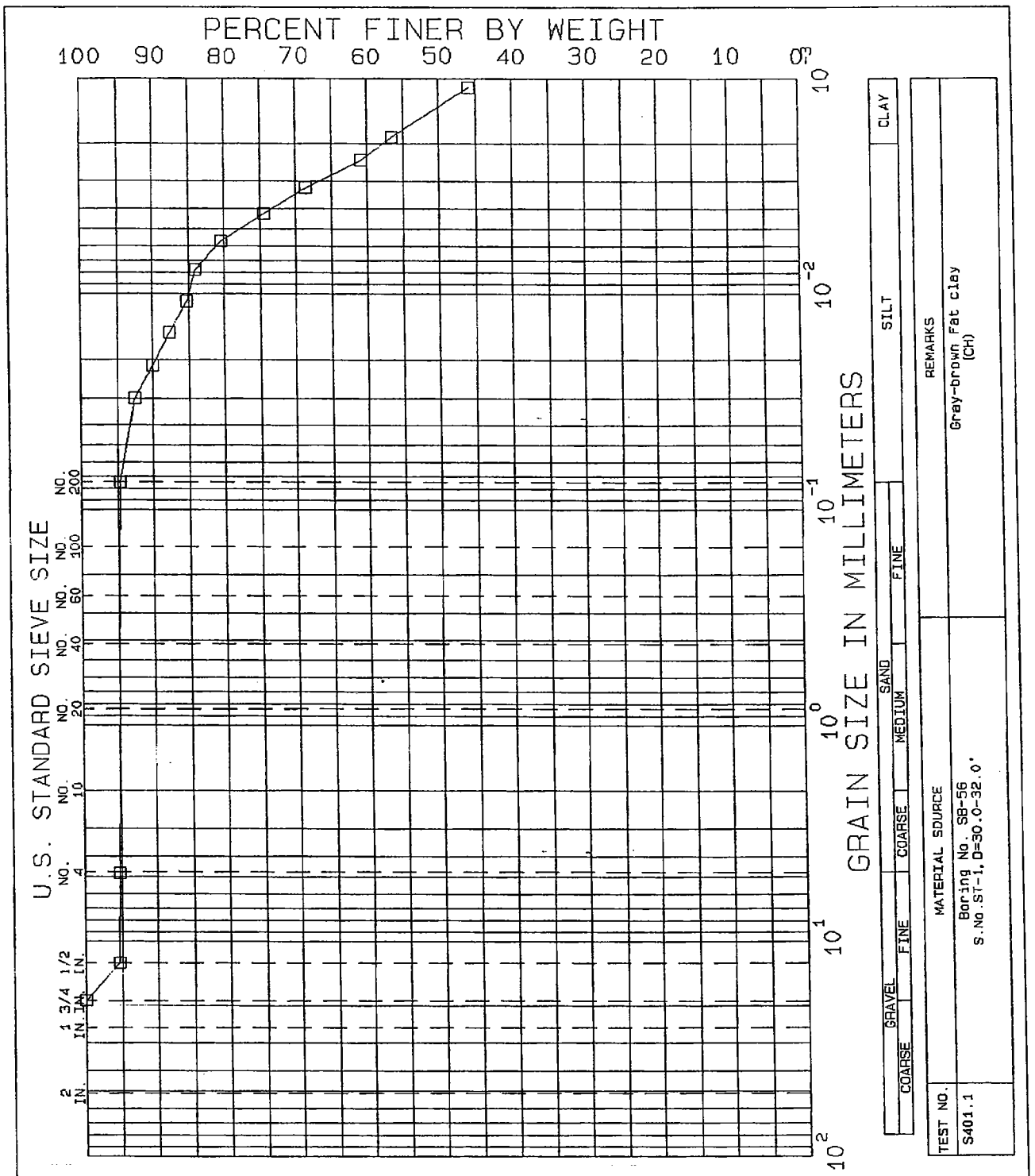
Project Name: NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
Project No.: L17828
Project Engineer: D. SCHULZE
Assigned By: D. Gaffney
Date: Feb.04
Reviewed By: Don Schulze
Date Reviewed: 2/24/04

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
SB-56	ST-1	30.0-32.0	401	Average Total Unit Weight (30.0-32.0') = 103.0 Pcf																Gray-brown Varved Soil as follows: Fat Clay (CH) grading to Silt (ML)
		30.1		62.8	(Clay Portion)									Tv= 0.20 tsf						
		30.1-30.6		60.3							62.9			CIU	4320	P/A MAX	2027	5.7		
		30.6		44.5	(Silt Portion)									Tv= 0.20 tsf						Varve thickness varies from 0.5-1.5" Clay portion varies from 0.25-1.25" in thickness and comprises approx. 25-50% of total varve
		30.6-31.1		60.5							65.5			CIU	5760	P/A MAX	2846	5.1		
		31.1		53.6	(entire varve)									Tv= 0.21 tsf						Note: 0.5" piece of Siltstone observed at 30.5'
		31.1-31.7		62.0							63.8			CIU	7200	P/A MAX	3395	6.6		
		31.7-31.8		66.1							61.6			Tv= 0.20 tsf					0.20	
		31.0-32.0		60.2	56	27	95	57		2.85	(Clay Portion)									

GZA GeoEnvironmental, Inc.

Q:\NEWTON\LAB\LABFORM7.XLS

labform1.xls

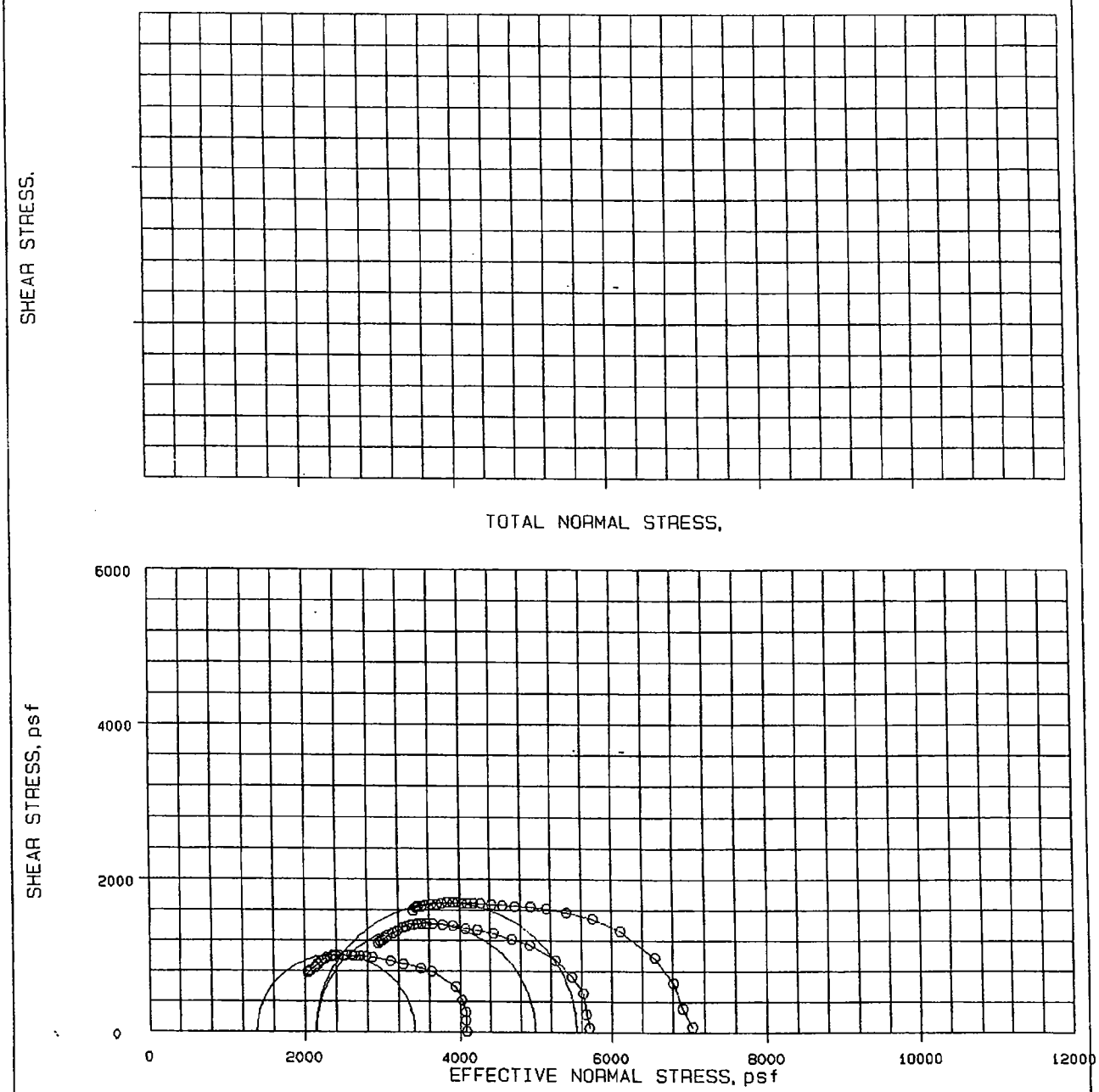


NEW BRITAIN-HARTFORD BUSWAY

CONNECTICUT

GRADATION TESTS

BORING NO.	SB-56	TEST SERIES	
SAMPLE	ST-1	NO.	401
DEPTH	30.0-32.0'	DATE	Feb.04
TECH.	PEC		
REVIEWER	MBP	FILE	L17828



SOIL DESCRIPTION:	See Summary Sheet				
LIQUID LIMIT	0 %	PLASTIC LIMIT	0	SPECIFIC GRAVITY	0

FAILURE CRITERIA $\sigma_1 - \sigma_3$ MAX

REMARKS

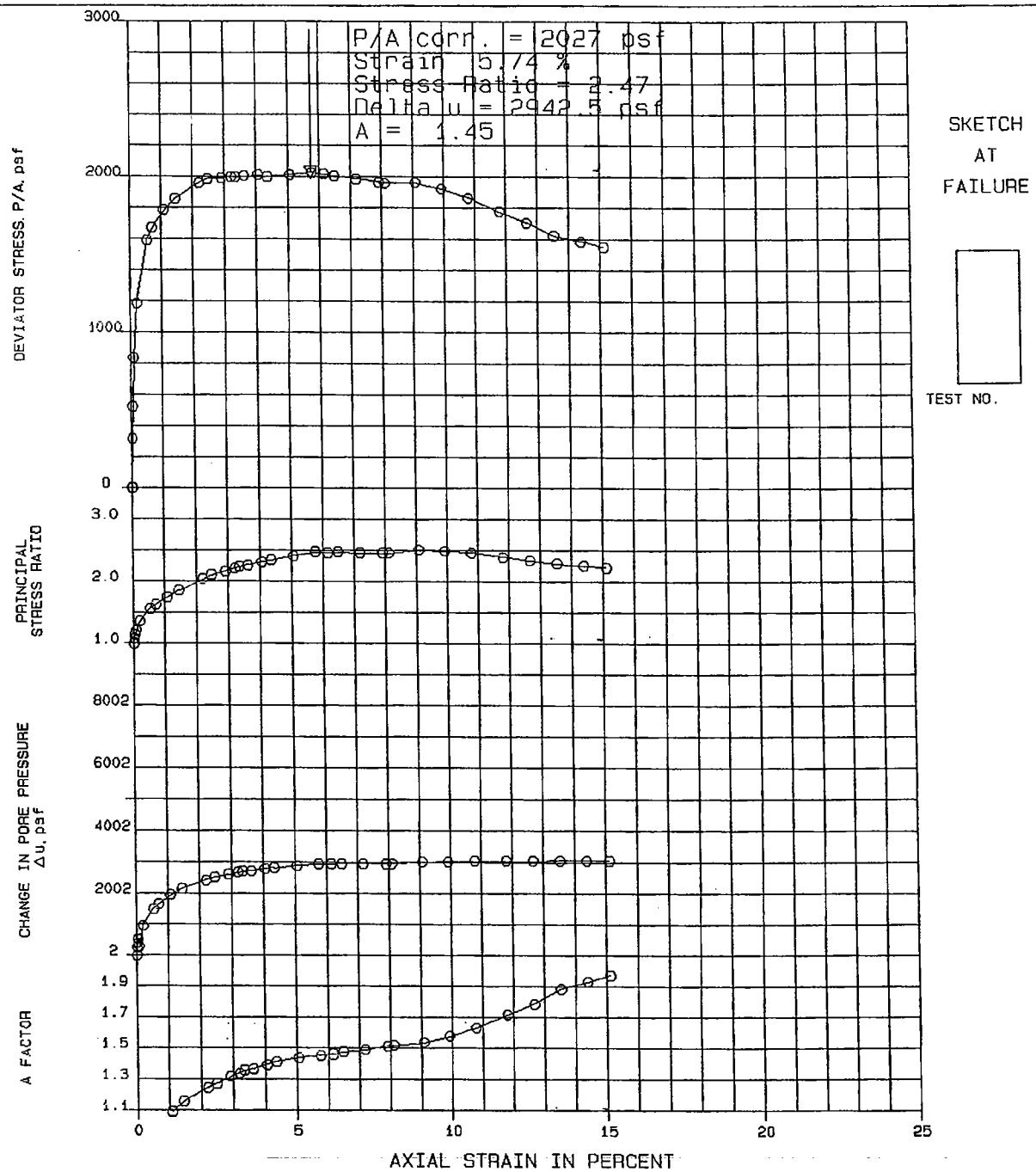
NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

MOHR STRENGTH ENVELOPE

TRIAXIAL COMPRESSION TESTS (CIU)

FIGURE

BORING NO.	SB-56	TEST SERIES NO.	401
SAMPLE	ST-1	DATE	Feb.04
DEPTH	31.1-31.7'		
TECH	MST		
REVIEWER		FILE	L1782B



TEST NO./SYMBOL	INITIAL CONDITIONS: INITIAL WATER CONTENT, %	INITIAL CONDITIONS: INITIAL DRY UNIT WEIGHT, pcf	INITIAL CONDITIONS: SAMPLE HEIGHT & DIAMETER, IN.	CONDITIONS BEFORE SHEAR: INITIAL STRESSES $\bar{\sigma}_1 = \bar{\sigma}_3$, ksf	CONDITIONS BEFORE SHEAR: FINAL BACK PRESSURE, ksf	CONDITIONS BEFORE SHEAR: VOLUMETRIC STRAIN, %	CONDITIONS BEFORE SHEAR: PORE PRESSURE RESPONSE, %	FINAL CONDITIONS: FINAL WATER CONTENT, %	FINAL CONDITIONS: FINAL DRY UNIT WEIGHT,	RATE OF STRAIN, PERCENT PER MINUTE
401.1.1	60.3	62.9	5.821 2.834	4.32	10.08	12.9	95.8	49.6	72.2	.004

SOIL DESCRIPTION: See Summary Sheet

LIQUID LIMIT 0 % PLASTIC LIMIT 0 % SPECIFIC GRAVITY 0

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

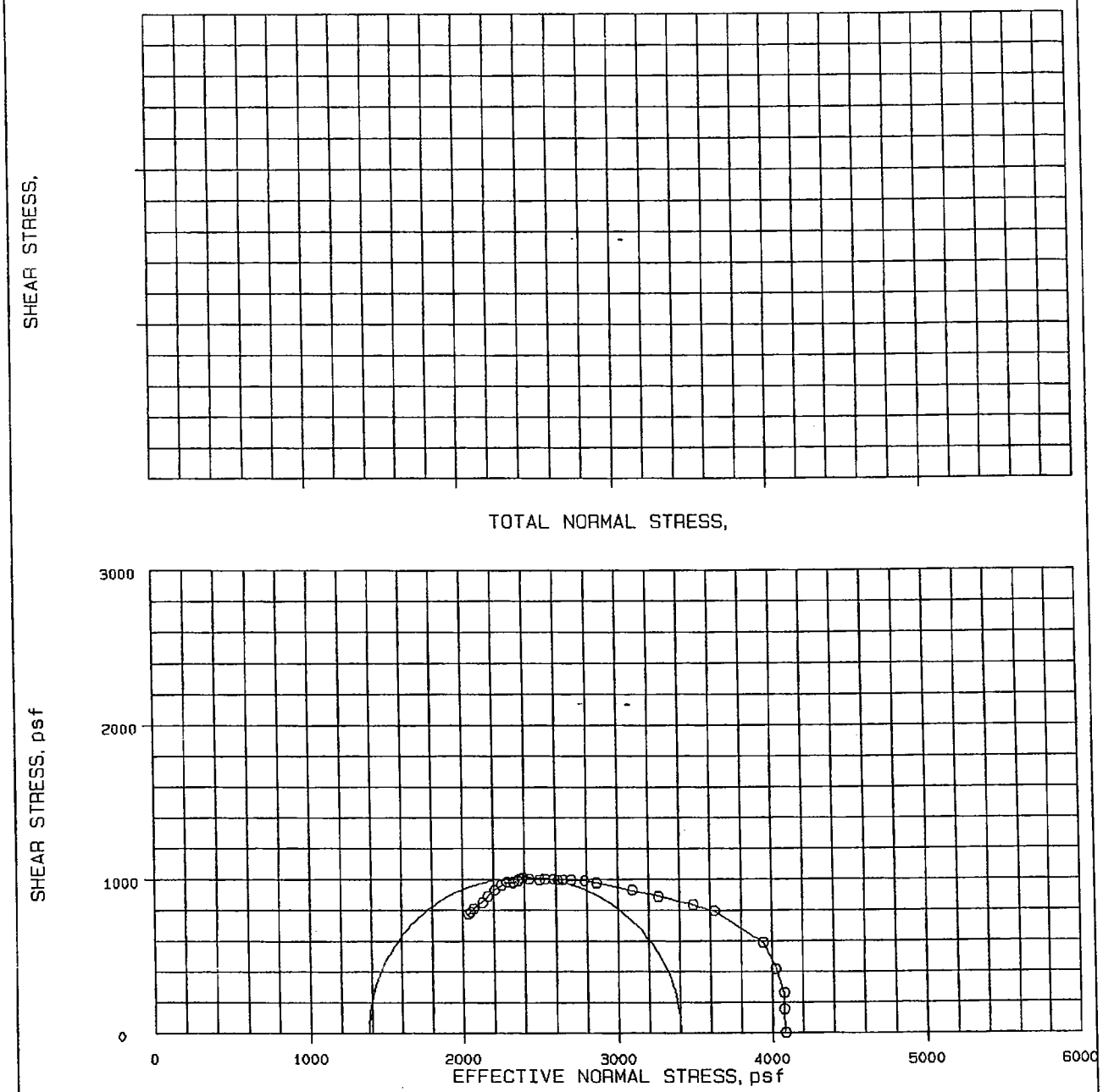
TRIAXIAL COMPRESSION TESTS ($\overline{CIU}$)

BORING NO. SB-56
SAMPLE ST-1
DEPTH 30.1-30.6'
TECH. MST
REVIEWER

TEST SERIES NO. 401
DATE Feb.04
FILE L1782B

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



SOIL DESCRIPTION:	See Summary Sheet				
LIQUID LIMIT	0 %	PLASTIC LIMIT	0	SPECIFIC GRAVITY	0

FAILURE CRITERIA $\sigma_1 - \sigma_3$ MAX

REMARKS

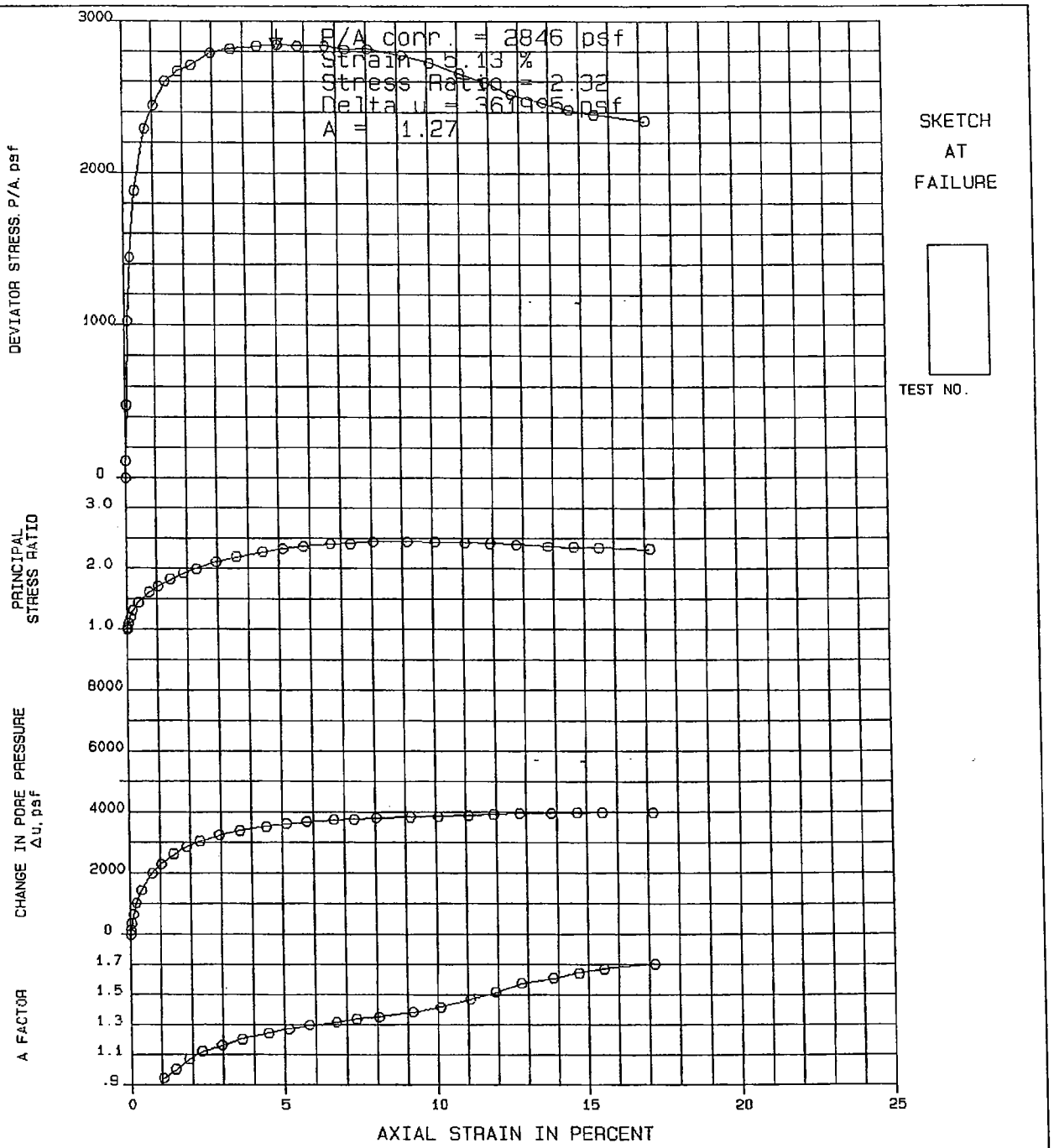
NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

MOHR STRENGTH ENVELOPE

TRIAXIAL COMPRESSION TESTS (CIU)

FIGURE

BORING NO.	SB-56	TEST SERIES NO.	401
SAMPLE	ST-1	DATE	Feb.04
DEPTH	30.1-30.6'		
TECH.	MST		
REVIEWER		FILE	L1782B



TEST NO./SYMBOL	INITIAL CONDITIONS: INITIAL WATER CONTENT, %	INITIAL CONDITIONS: INITIAL DRY UNIT WEIGHT, pcf	INITIAL CONDITIONS: SAMPLE HEIGHT & DIAMETER, IN.	CONDITIONS BEFORE SHEAR: INITIAL STRESSES $\sigma_1 = \sigma_3$, ksf	CONDITIONS BEFORE SHEAR: FINAL BACK PRESSURE, ksf	CONDITIONS BEFORE SHEAR: VOLUMETRIC STRAIN, %	CONDITIONS BEFORE SHEAR: PORE PRESSURE RESPONSE, %	FINAL CONDITIONS: FINAL WATER CONTENT, %	FINAL CONDITIONS: FINAL DRY UNIT WEIGHT,	RATE OF STRAIN, PERCENT PER MINUTE
401.1.2	60.5	65.5	5.703 2.815	5.76	8.64	13.2	95.5	46.8	75.5	.006

SOIL DESCRIPTION: See Summary Sheet

LIQUID LIMIT 0 % PLASTIC LIMIT 0 % SPECIFIC GRAVITY 0

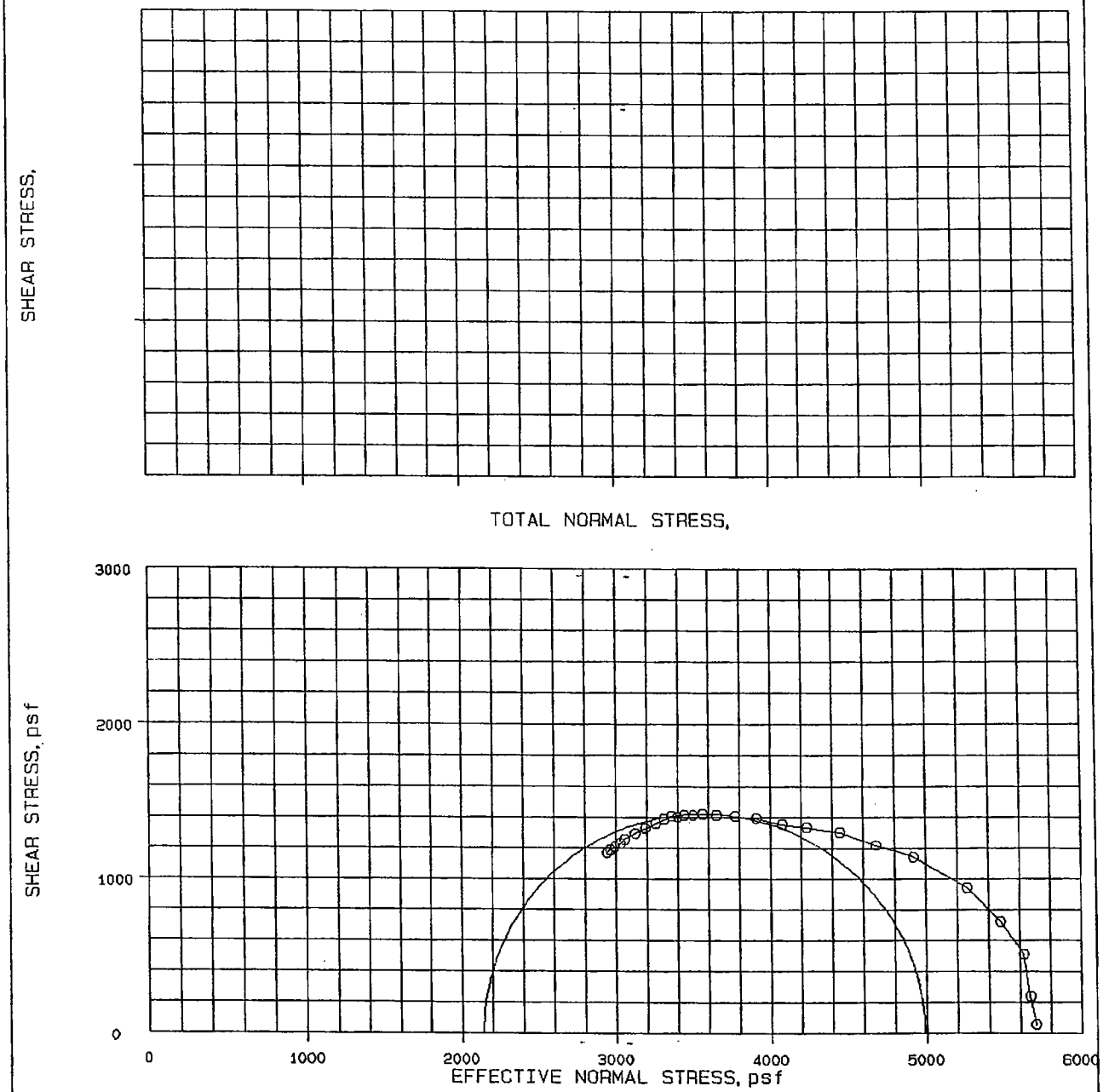
NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
TRIAXIAL COMPRESSION TESTS (CIU)

BORING NO. SB-56
SAMPLE ST-1
DEPTH 30.6-31.1'
TECH. MST
REVIEWER

TEST SERIES NO. 401
DATE Feb.04
FILE L1782B

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



SOIL DESCRIPTION:	See Summary Sheet				
LIQUID LIMIT	0 %	PLASTIC LIMIT	0	SPECIFIC GRAVITY	0

FAILURE CRITERIA $\sigma_1 - \sigma_3$ MAX

REMARKS

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

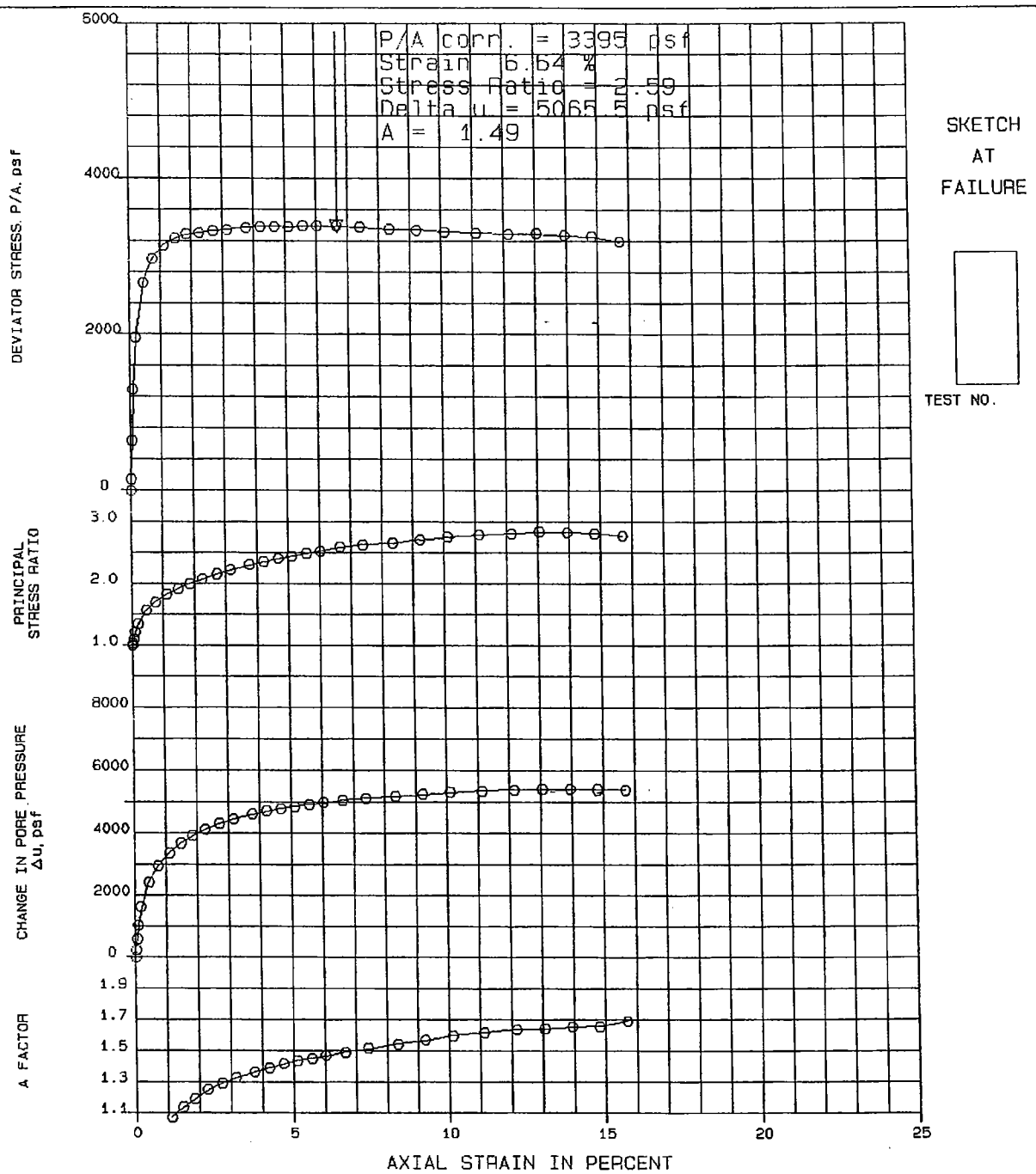
MOHR STRENGTH ENVELOPE

TRIAXIAL COMPRESSION TESTS (CIU)

FIGURE

BORING NO.	SB-56	TEST SERIES NO.	401
SAMPLE	ST-1	DATE	Feb.04
DEPTH	30.6-31.1'		
TECH.	MST		
REVIEWER		FILE	L1762B

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



TEST NO./SYMBOL	INITIAL CONDITIONS: INITIAL WATER CONTENT, %	INITIAL CONDITIONS: INITIAL DRY UNIT WEIGHT, pcf	INITIAL CONDITIONS: SAMPLE HEIGHT & DIAMETER, IN.	CONDITIONS BEFORE SHEAR: INITIAL STRESSES $\bar{\sigma}_1 = \bar{\sigma}_3$, ksf	CONDITIONS BEFORE SHEAR: FINAL BACK PRESSURE, ksf	CONDITIONS BEFORE SHEAR: VOLUMETRIC STRAIN, %	CONDITIONS BEFORE SHEAR: PORE PRESSURE RESPONSE, %	FINAL CONDITIONS: FINAL WATER CONTENT, %	FINAL CONDITIONS: FINAL DRY UNIT WEIGHT,	RATE OF STRAIN, PERCENT PER MINUTE
401.1.3	62	63.8	5.62 2.83	7.2	8.64	11.7	92.8	47.8	72.2	.004

SOIL DESCRIPTION: See Summary Sheet

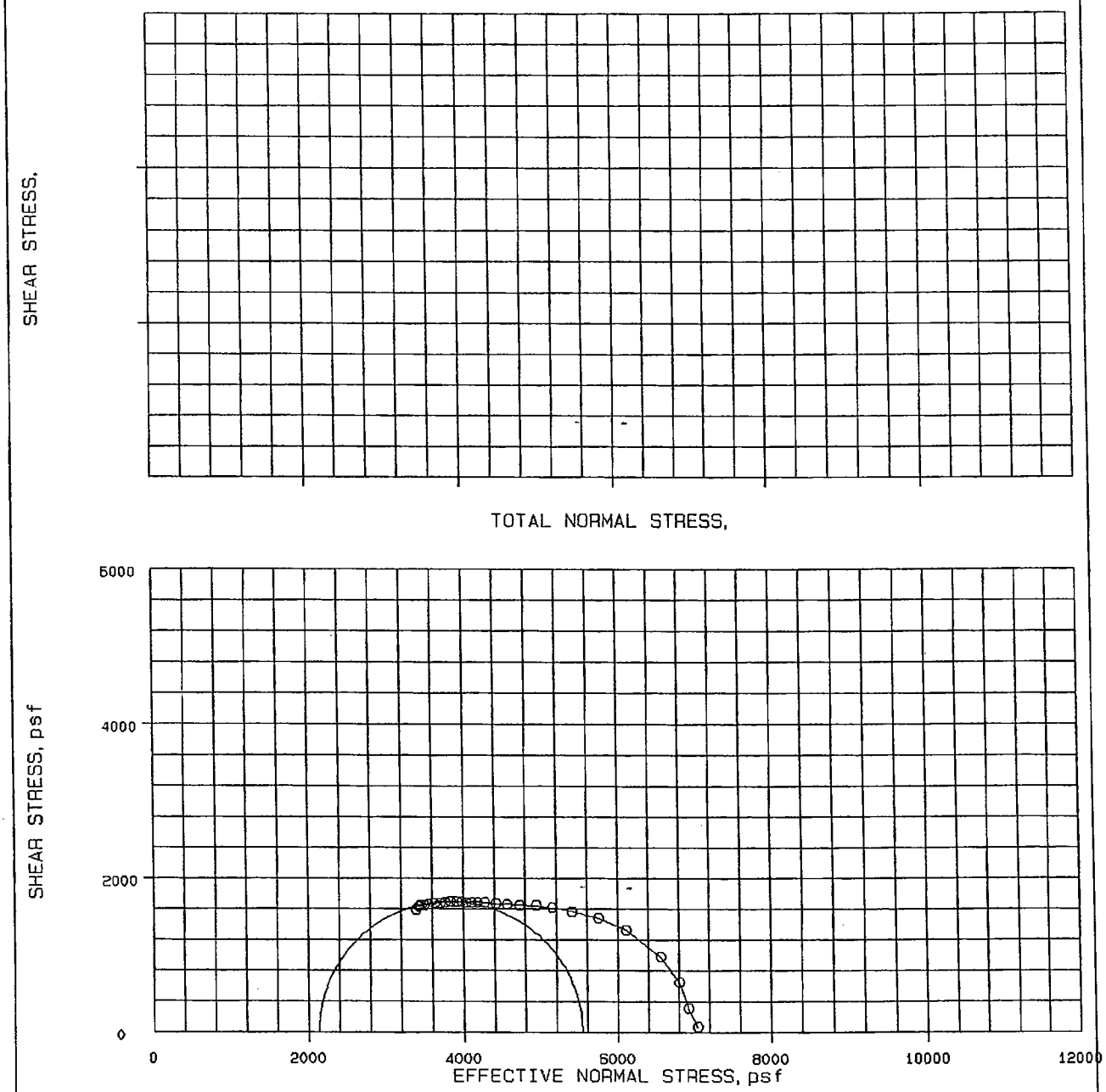
LIQUID LIMIT	0 %	PLASTIC LIMIT	0 %	SPECIFIC GRAVITY	0

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
TRIAXIAL COMPRESSION TESTS ($\overline{CIU}$)

BORING NO	SB-56	TEST SERIES NO.	401
SAMPLE	ST-1	DATE	Feb.04
DEPTH	31.1-31.7'		
TECH.	MST		
REVIEWER		FILE	L1782B

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



SOIL DESCRIPTION:	See Summary Sheet	
LIQUID LIMIT 0 %	PLASTIC LIMIT 0	SPECIFIC GRAVITY 0

FAILURE CRITERIA $\sigma_1 - \sigma_3$ MAX

REMARKS

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

MOHR STRENGTH ENVELOPE

TRIAXIAL COMPRESSION TESTS (CIU)

FIGURE

BORING NO.	SB-56	TEST SERIES NO.	401
SAMPLE	ST-1	DATE	Feb.04
DEPTH	31.1-31.7'		
TECH.	MST		
REVIEWER		FILE	L1782B

LABORATORY TESTING DATA SHEET

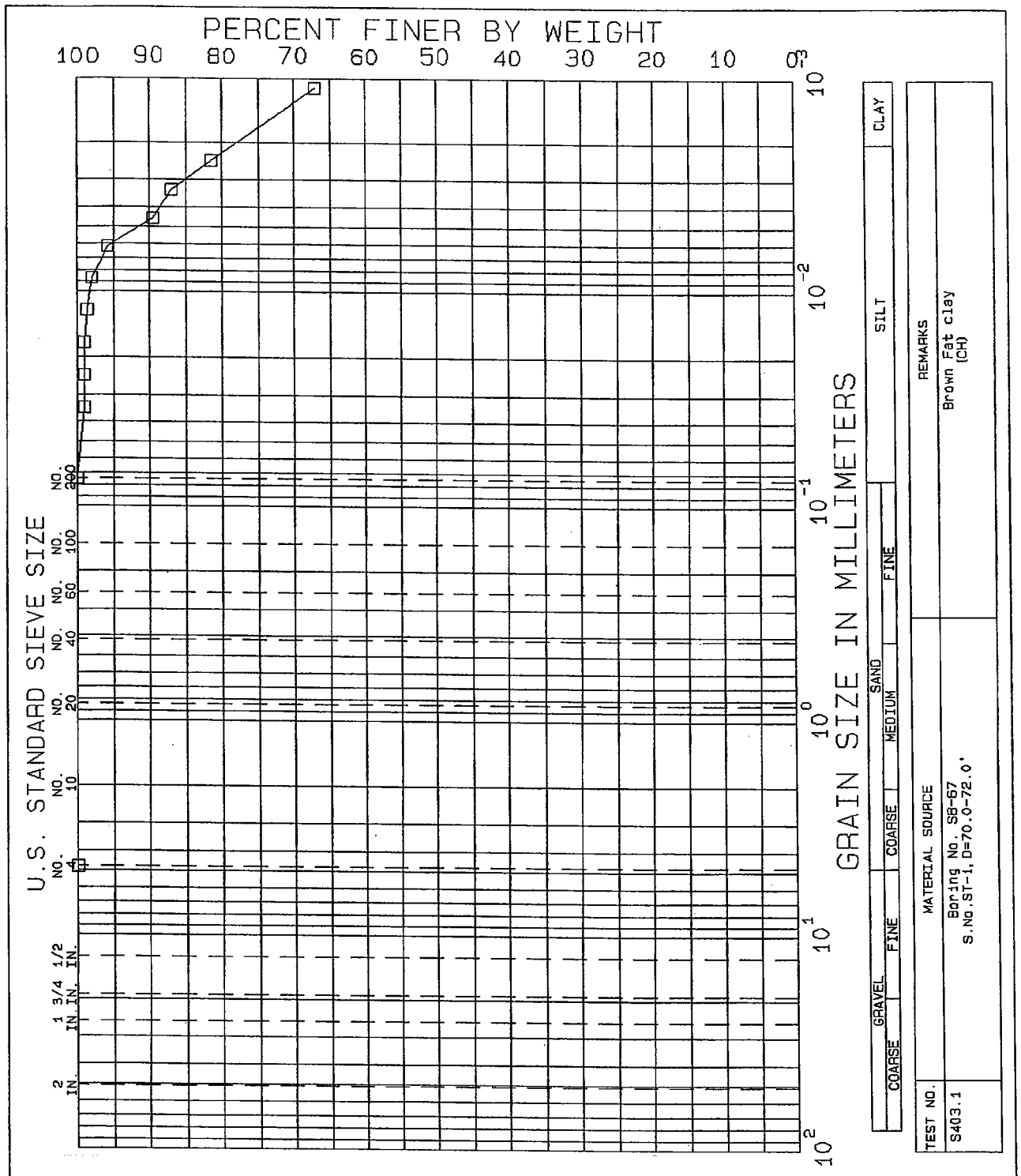
Project Name: NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
Project No.: L17828 — Assigned By: D. Gaffney — Reviewed By: [signature]
Project Engineer: D. SCHULZE — Date: Feb.04 — Date Reviewed: 3/24/04

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{\Delta e}{1 + e_0}$	Laboratory Log and Soil Description
SB-67	ST-1	70.0-72.0	403		Average Total Unit Weight (70.0-72.0') = 110.5 Pcf															Upper 4.5" of sample appeared to be disturbed
		70.4		64.1	(Clay Portion)									Tv= 0.25 tsf						
		70.5-70.8		48.1							74.2			CIU	7200	P/A MAX	5360	15.4		Brown Varved Soil as follows: Fat Clay (CH) grading to Silt (ML)
		70.9		66.7	(Clay Portion)									Tv= 0.27 tsf						
		70.9-71.3		47.0							76.4			CIU	10800	P/A MAX	5779	15.5		Varve thickness varies from 2.0-4.0" Clay portion varies from 0.75-1.00" in thickness and comprises approx. 25-50% of total varve
		71.3		76.8	(Clay Portion)									Tv= 0.24 tsf						
		71.3-71.4		64.7							64.4								0.27	
		71.5-71.8		43.9							77.6			CIU	14400	P/A MAX	10256	15.6		
		71.8-71.9		43.1	(Entire Varve)															
		71.9		39.0	(Silt Portion)															
		70.0-72.0		67.8	70	32	100	78		2.76	(Clay Portion)									Note: Specific gravity, limits and sieve/hydrometer run on clay portion

GZA GeoEnvironmental, Inc.

Q:\NEWTON\LAB\LABFORM7.XLS

labform1.xls

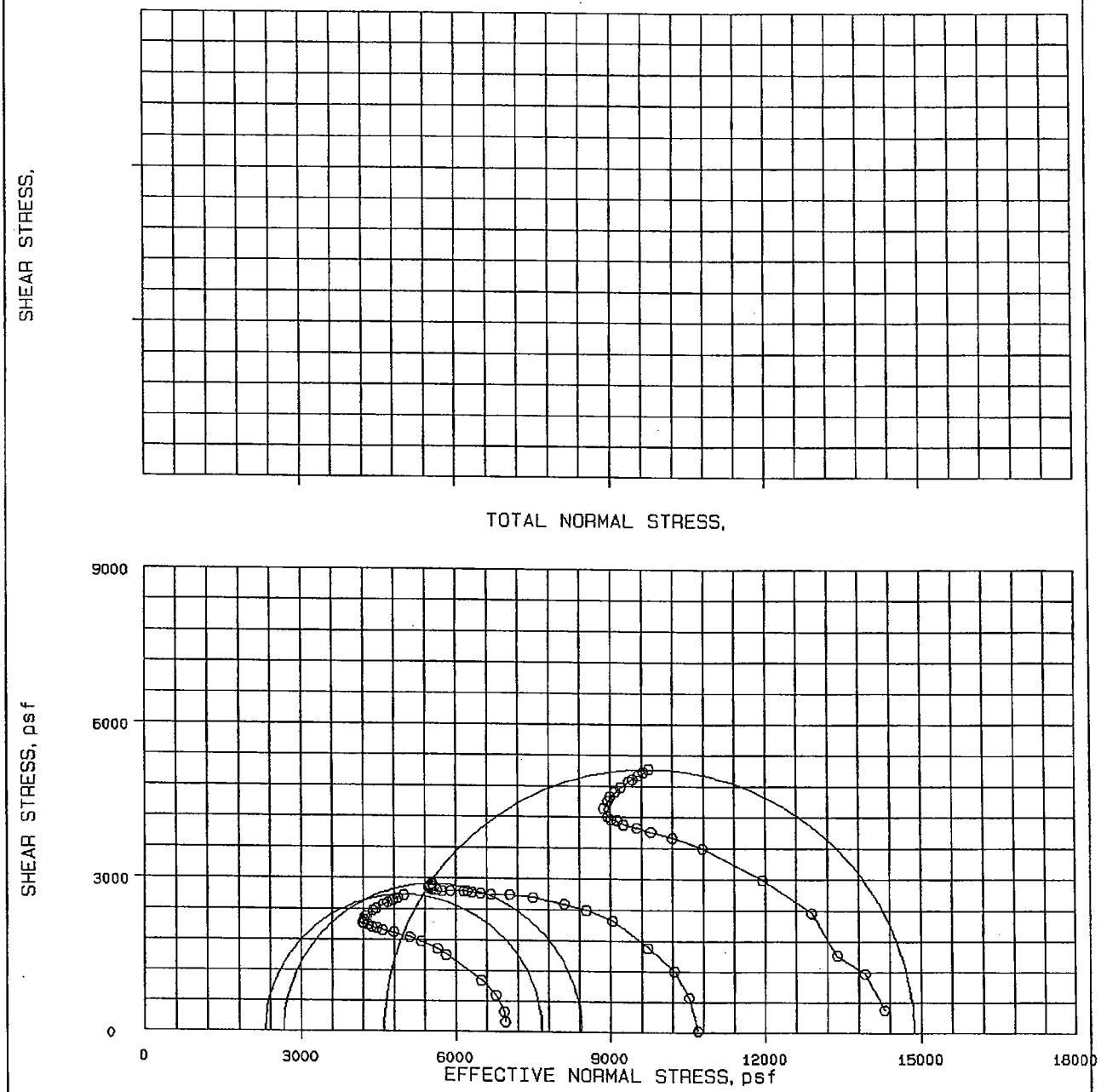


NEW BRITAIN-HARTFORD BUSWAY

CONNECTICUT

GRADATION TESTS

BORING NO.	SB-67	TEST SERIES	
SAMPLE	ST-1	NO.	403
DEPTH	70.0-72.0'	DATE	Mar.04
TECH.	PEC		
REVIEWER	MBP	FILE	L17828



SOIL DESCRIPTION:		See Summary Sheet			
LIQUID LIMIT	0 %	PLASTIC LIMIT	0	SPECIFIC GRAVITY	2.76

FAILURE CRITERIA P/A MAX

REMARKS

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

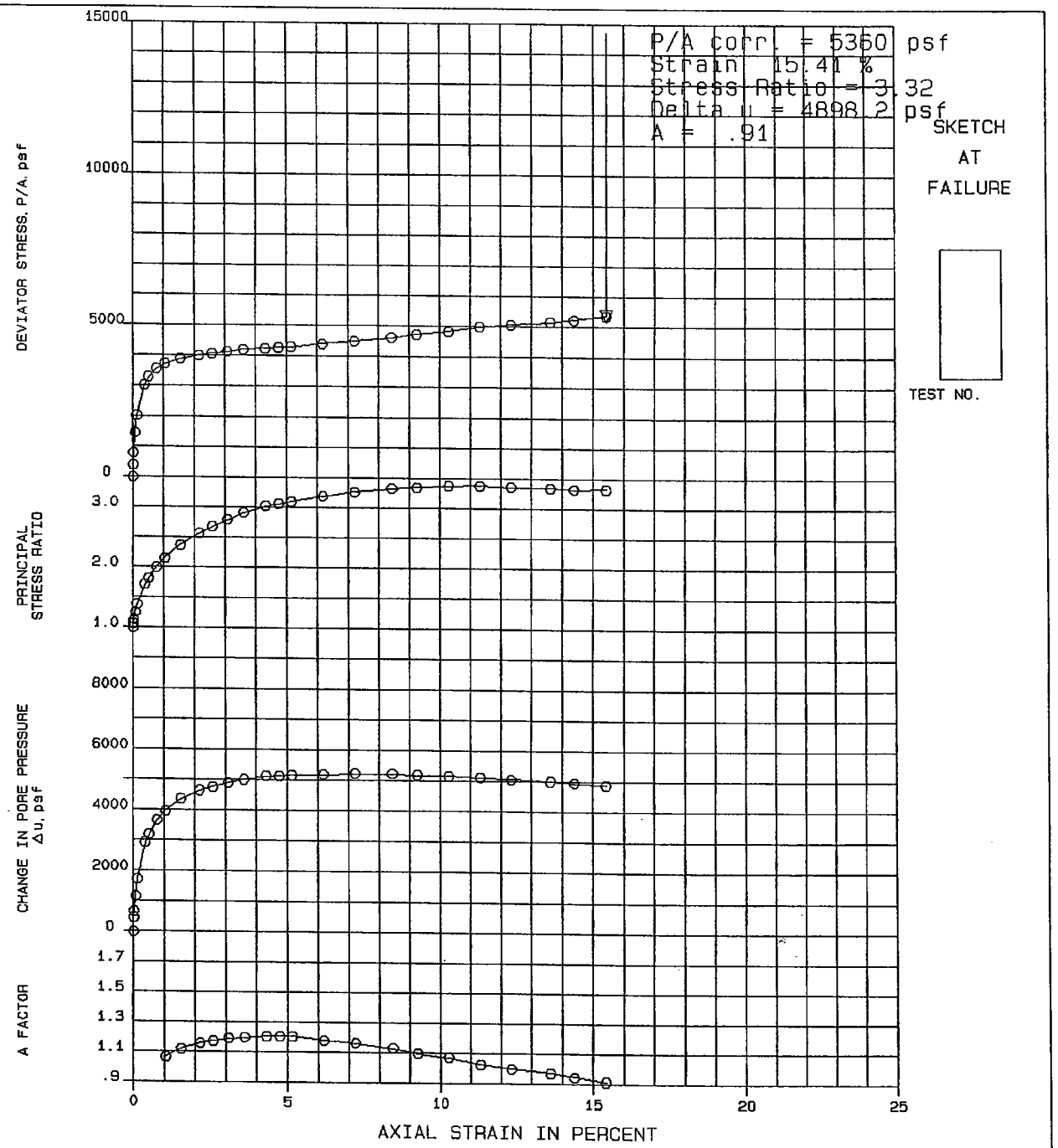
MOHR STRENGTH ENVELOPE

TRIAXIAL COMPRESSION TESTS (CIU)

FIGURE

BORING NO.	SB-67	TEST SERIES NO.	403
SAMPLE	ST-1	DATE	Mar.04
DEPTH	71.5-71.8'		
TECH.	MST		
REVIEWER		FILE	L1782B

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



TEST NO./SYMBOL	INITIAL CONDITIONS: INITIAL WATER CONTENT, %	INITIAL DRY UNIT WEIGHT, pcf	SAMPLE HEIGHT & DIAMETER, IN.	CONDITIONS BEFORE SHEAR: INITIAL STRESSES $\bar{\sigma}_1 = \bar{\sigma}_3$, ksf	FINAL BACK PRESSURE, ksf	VOLUMETRIC STRAIN, %	PORE PRESSURE RESPONSE, %	FINAL CONDITIONS: FINAL WATER CONTENT, %	FINAL DRY UNIT WEIGHT,	RATE OF STRAIN, PERCENT PER MINUTE
403.1.1	48.1	74.2	3.998 1.975	7.2	8.64	6	98	39.0	80.7	.03

SOIL DESCRIPTION: See Summary Sheet

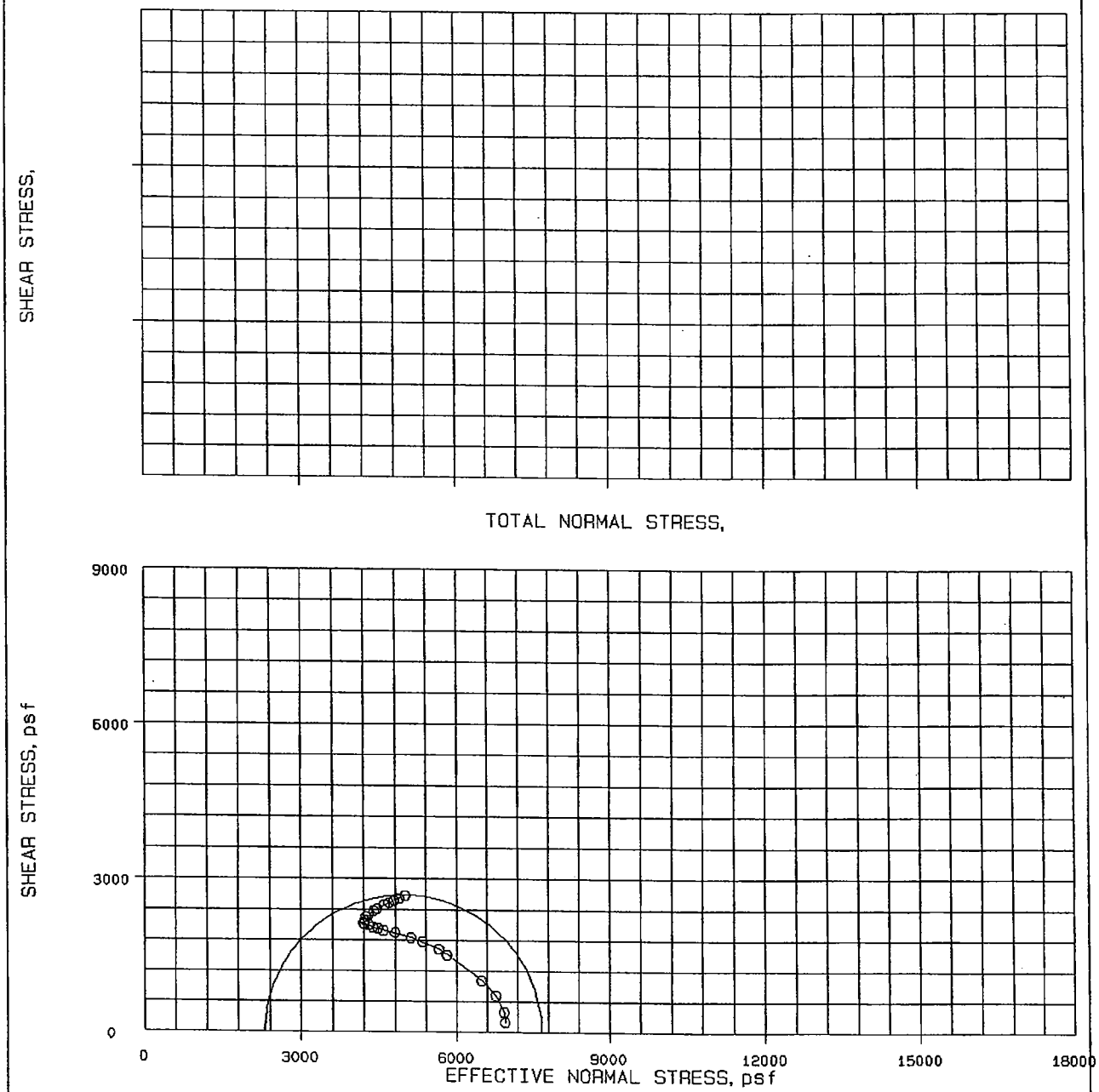
LIQUID LIMIT	0 %	PLASTIC LIMIT	0 %	SPECIFIC GRAVITY	2.76

NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
TRIAXIAL COMPRESSION TESTS ($\overline{CIU}$)

BORING NO.	SB-67	TEST SERIES NO.	403
SAMPLE	ST-1	DATE	Mar.04
DEPTH	70.5-70.8'		
TECH.	MST		
REVIEWER		FILE	L17828

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



SOIL DESCRIPTION:	See Summary Sheet				
LIQUID LIMIT	0 %	PLASTIC LIMIT	0	SPECIFIC GRAVITY	2.76

FAILURE CRITERIA P/A MAX

REMARKS

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

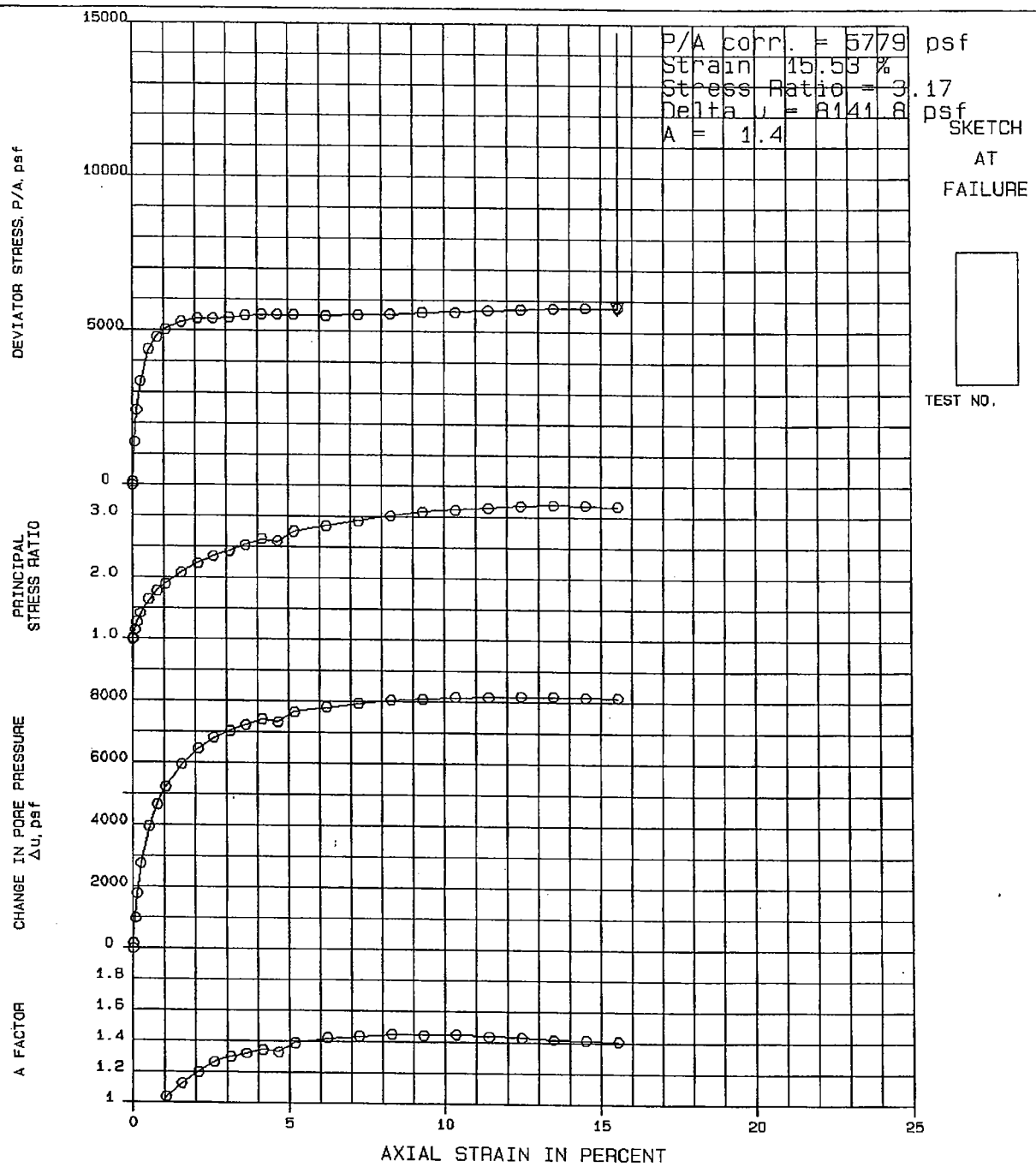
MOHR STRENGTH ENVELOPE

TRIAXIAL COMPRESSION TESTS (CIU)

BORING NO.	SB-67	TEST SERIES NO.	403
SAMPLE	ST-1	DATE	Mar.04
DEPTH	70.5-70.8'		
TECH.	MST		
REVIEWER		FILE	L17B2B

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



TEST NO./SYMBOL	INITIAL CONDITIONS: INITIAL WATER CONTENT, %	INITIAL CONDITIONS: INITIAL DRY UNIT WEIGHT, pcf	INITIAL CONDITIONS: SAMPLE HEIGHT & DIAMETER, IN.	CONDITIONS BEFORE SHEAR: INITIAL STRESSES $\bar{\sigma}_1 = \bar{\sigma}_3$, ksf	CONDITIONS BEFORE SHEAR: FINAL BACK PRESSURE, ksf	CONDITIONS BEFORE SHEAR: VOLUMETRIC STRAIN, %	CONDITIONS BEFORE SHEAR: PORE PRESSURE RESPONSE, %	FINAL CONDITIONS: FINAL WATER CONTENT, %	FINAL CONDITIONS: FINAL DRY UNIT WEIGHT,	RATE OF STRAIN, PERCENT PER MINUTE
403.1.2	47	76.4	4.004 1.978	10.8	5.76	10.6	95	39.6	85.5	.03

SOIL DESCRIPTION: See Summary Sheet

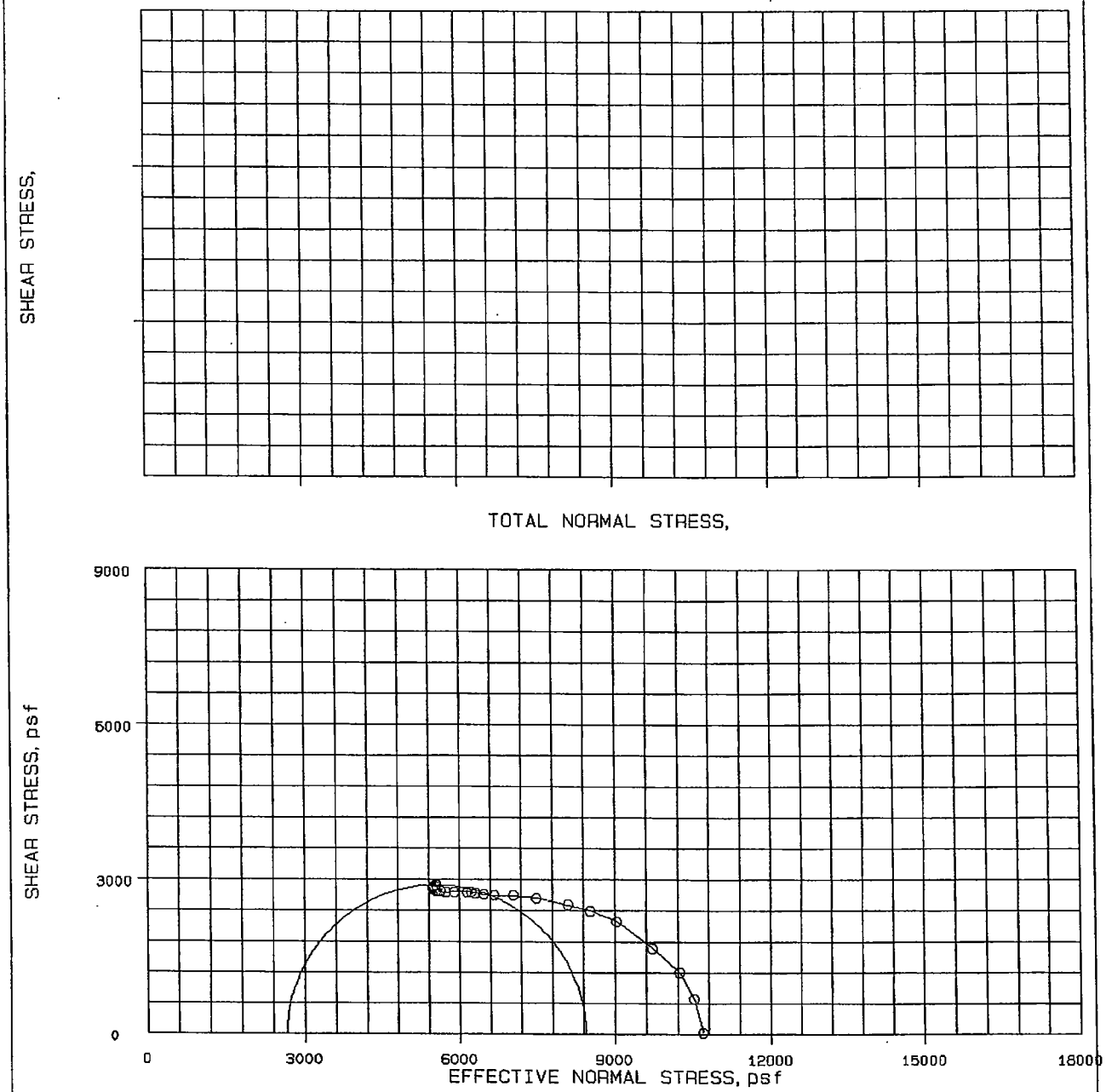
LIQUID LIMIT	0 %	PLASTIC LIMIT	0 %	SPECIFIC GRAVITY	2.76

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
TRIAXIAL COMPRESSION TESTS (CIU)

BORING NO.	SB-67	TEST SERIES NO.	403
SAMPLE	ST-1	DATE	Mar.04
DEPTH	70.9-71.3'		
TECH.	MST		
REVIEWER	-	FILE	L1782B

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



SOIL DESCRIPTION:		See Summary Sheet			
LIQUID LIMIT	0 %	PLASTIC LIMIT	0	SPECIFIC GRAVITY	2.76

FAILURE CRITERIA P/A MAX

REMARKS

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

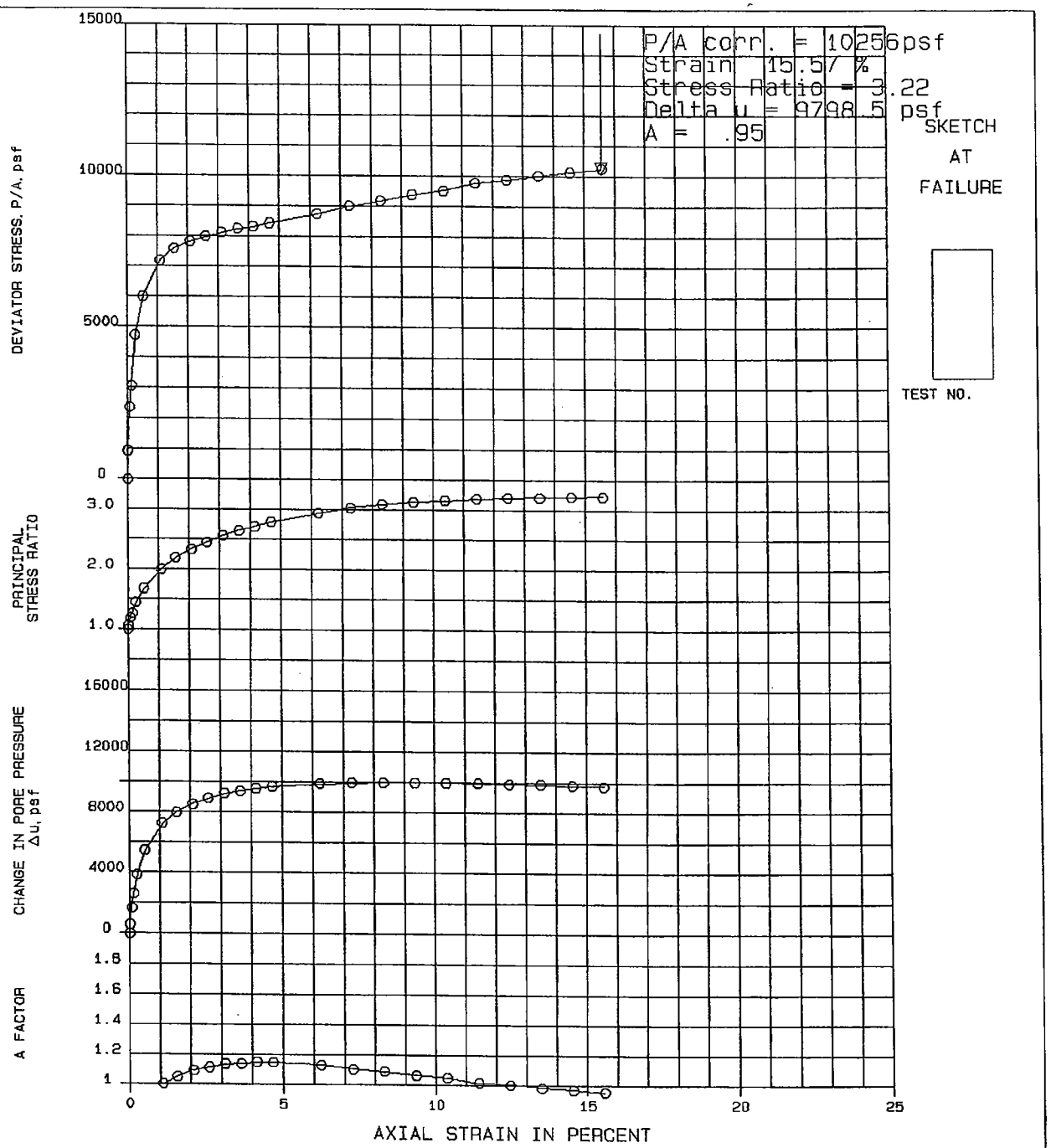
MOHR STRENGTH ENVELOPE

TRIAXIAL COMPRESSION TESTS (CIU)

FIGURE

BORING NO.	SB-67	TEST SERIES	
SAMPLE	ST-1	NO.	403
DEPTH	70.9-71.3'	DATE	Mar.04
TECH.	MST		
REVIEWER		FILE	L1782B

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



TEST NO./SYMBOL	INITIAL CONDITIONS: INITIAL WATER CONTENT, %	INITIAL CONDITIONS: INITIAL DRY UNIT WEIGHT, pcf	INITIAL CONDITIONS: SAMPLE HEIGHT & DIAMETER, IN.	CONDITIONS BEFORE SHEAR: INITIAL STRESSES $\bar{\sigma}_1 = \bar{\sigma}_3$, ksf	CONDITIONS BEFORE SHEAR: FINAL BACK PRESSURE, ksf	CONDITIONS BEFORE SHEAR: VOLUMETRIC STRAIN, %	CONDITIONS BEFORE SHEAR: PORE PRESSURE RESPONSE, %	FINAL CONDITIONS: FINAL WATER CONTENT, %	FINAL CONDITIONS: FINAL DRY UNIT WEIGHT,	RATE OF STRAIN, PERCENT PER MINUTE
403.1.3	43.9	77.6	4.002 1.977	14.4	2.16	11.1	95.4	36.1	87.3	.07

SOIL DESCRIPTION: See Summary Sheet

LIQUID LIMIT 0 % PLASTIC LIMIT 0 % SPECIFIC GRAVITY 2.76

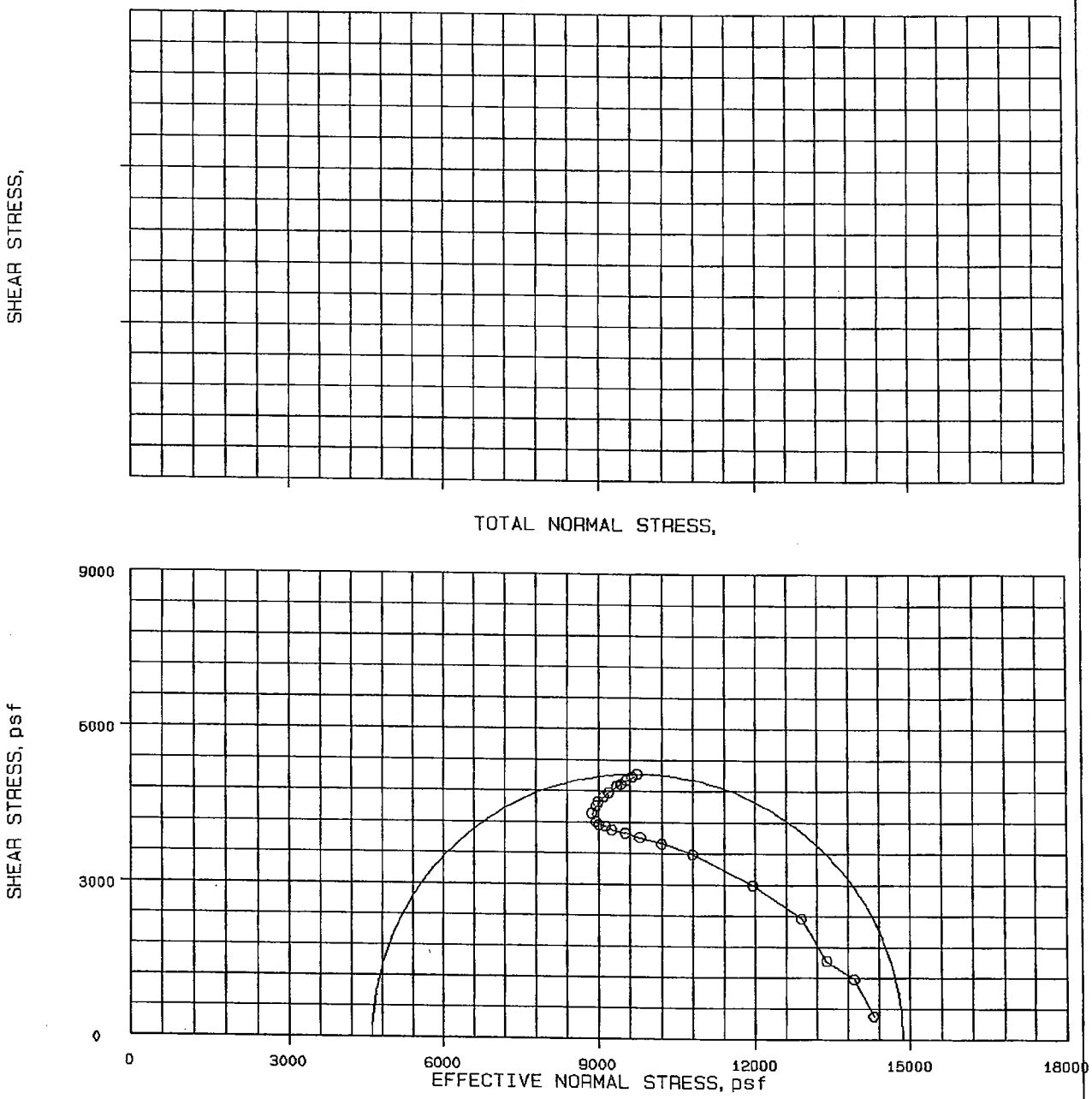
NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
TRIAXIAL COMPRESSION TESTS ($\overline{CIU}$)

BORING NO. SB-67
SAMPLE ST-1
DEPTH 71.5-71.8'
TECH MST
REVIEWER

TEST SERIES NO. 403
DATE Mar.04
FILE L1782B

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



SOIL DESCRIPTION:	See Summary Sheet				
LIQUID LIMIT	0 %	PLASTIC LIMIT	0	SPECIFIC GRAVITY	2.76

FAILURE CRITERIA P/A MAX

REMARKS

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

MOHR STRENGTH ENVELOPE

TRIAXIAL COMPRESSION TESTS (CIU)

FIGURE

BORING NO.	SB-67	TEST SERIES NO.	403
SAMPLE	ST-1	DATE	Mar.04
DEPTH	71.5-71.8'		
TECH.	MST		
REVIEWER		FILE	L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

LABORATORY TESTING DATA SHEET

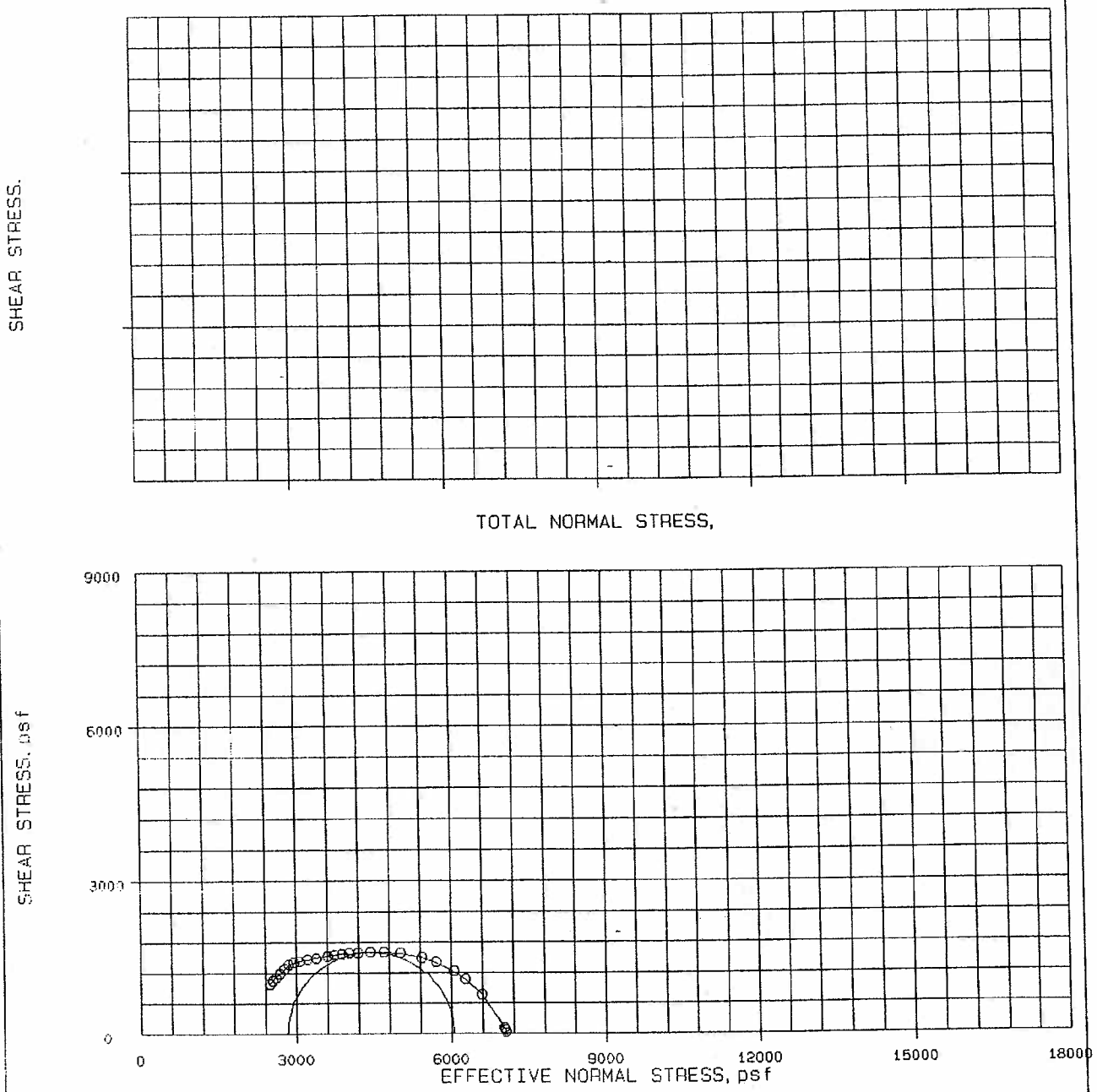
Project Name: NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
Project No.: L17828
Project Engineer: D. SCHULZE
Assigned By: D. Gaffney
Date: Mar.04
Reviewed By: [signature]
Date Reviewed: 3/18/04

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	σ_c psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
SB-70	UP-1	50.0-52.0	404		Average Total Unit Weight (50.0-52.0') = 106.6 Pcf															Brown Varved Soil as follows:
		50.1		71.5	(Clay Portion)									Tv= 0.28 tsf						Fat Clay (CH) grading to Silt (ML)
		50.2-50.5		61.3							64.7			CIU	7200	P/A MAX	3211	2.6		
		50.5-50.9		57.1							67.1			CIU	10800	P/A MAX	4813	4.7		Varve thickness varies from 0.375-1.0"
		50.9		70.4	(Clay Portion)									Tv= 0.30 tsf						Clay portion varies from 0.25-1" in thickness and comprises approx. 70-90% of total varve
		51.1-51.2		59.6							66.6								0.23	
		51.4-51.8		57.6							67.1			CIU	14400	P/A MAX	6756	5.3		
		51.8		71.6	(Clay Portion)									Tv= 0.30 tsf						
		50.0-52.0		67.4	63	30	100	74		2.86	(Clay Portion)									Note: Specific gravity, limits and sieve/hydrometer run on clay portion

GZA GeoEnvironmental, Inc.

O:\NEWTON\LAB\LABFORM7.XLS

labform1.xls



SOIL DESCRIPTION:		See Summary Sheet			
LIQUID LIMIT	0 %	PLASTIC LIMIT	0	SPECIFIC GRAVITY	2.06

FAILURE CRITERIA

REMARKS

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

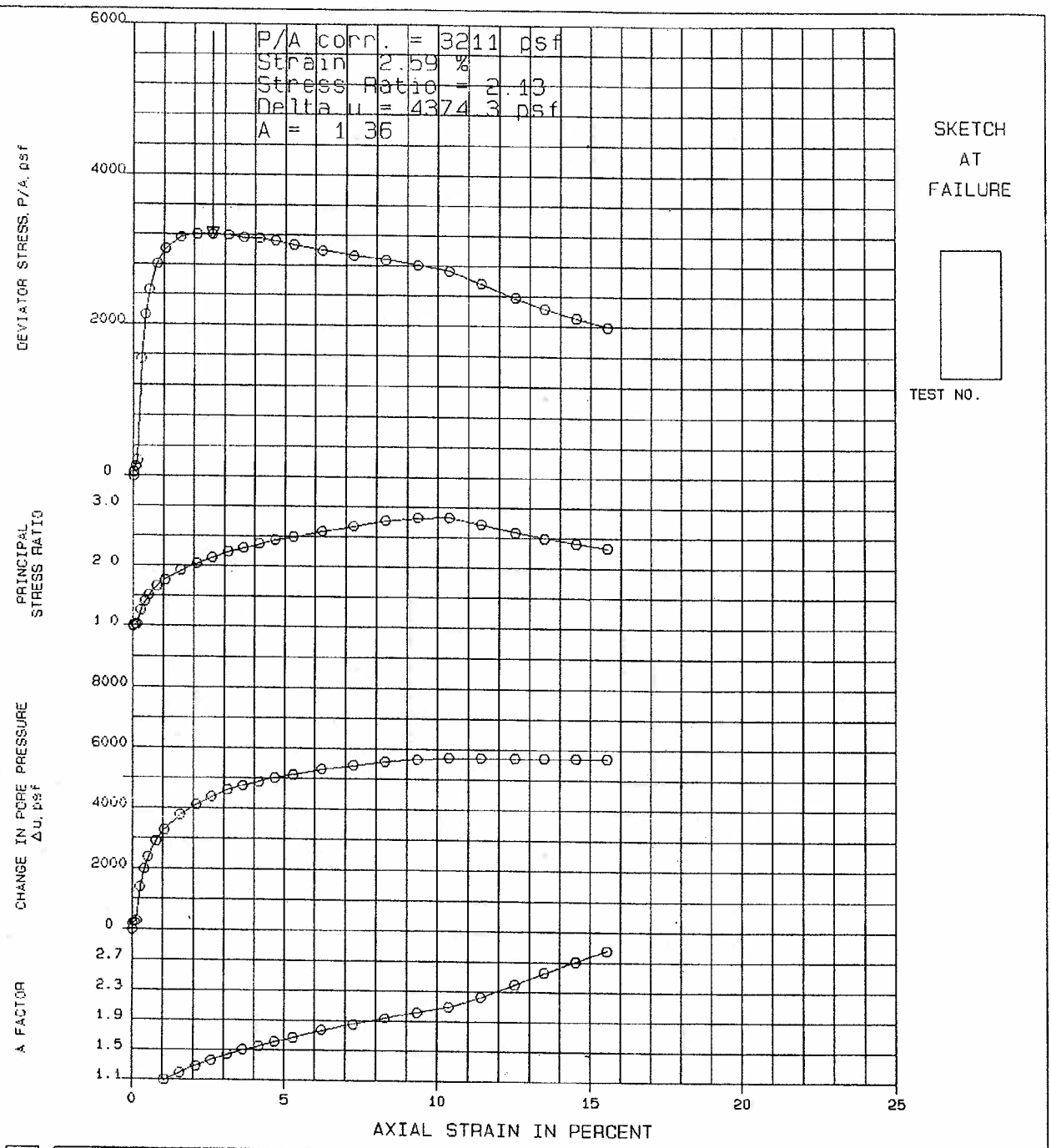
MOHR STRENGTH ENVELOPE

TRIAXIAL COMPRESSION TESTS (CIU)

FIGURE

BORING NO	SB-70	TEST SERIES NO.	404
SAMPLE	UP-1	DATE	Mar.04
DEPTH	50.2-50.5'		
TECH.	MST		
REVIEWER		FILE	L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



TEST NO./SYMBOL	INITIAL CONDITIONS: INITIAL WATER CONTENT, %	INITIAL DRY UNIT WEIGHT, pcf	SAMPLE HEIGHT & DIAMETER, IN	CONDITIONS BEFORE SHEAR: INITIAL STRESSES $\bar{\sigma}_1 = \bar{\sigma}_3$, ksf	FINAL BACK PRESSURE, ksf	VOLUMETRIC STRAIN, %	PORE PRESSURE RESPONSE, %	FINAL CONDITIONS: FINAL WATER CONTENT, %	FINAL DRY UNIT WEIGHT,	RATE OF STRAIN, PERCENT PER MINUTE
404 1.1	61.3	64.7	4.002 1.971	7.2	8.64	10.8	96	51.2	72.6	03

SOIL DESCRIPTION: See Summary Sheet

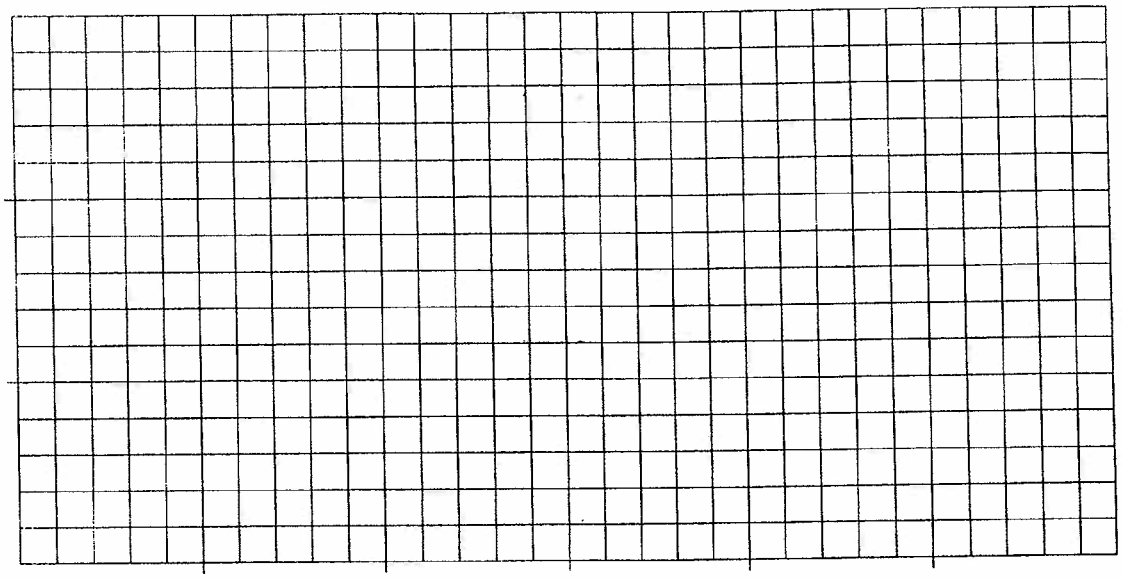
LIQUID LIMIT	0 %	PLASTIC LIMIT	0 %	SPECIFIC GRAVITY	2.86

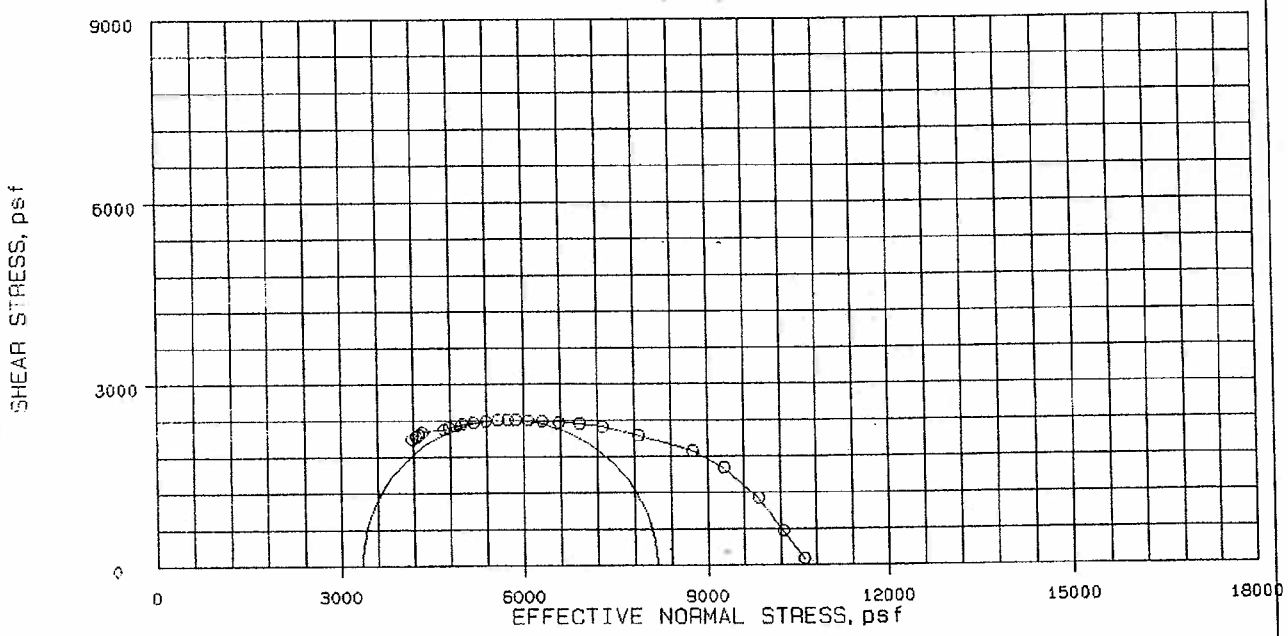
NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
TRIAXIAL COMPRESSION TESTS ($\overline{CIU}$)

BORING NO.	SB-70	TEST SERIES NO.	404
SAMPLE	UP-1	DATE	Mar.04
DEPTH	50.2-50.5'		
TECH	MST		
REVIEWER		FILE	L17828

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS





SOIL DESCRIPTION:	See Summary Sheet				
LIQUID LIMIT	0 %	PLASTIC LIMIT	0	SPECIFIC GRAVITY	2.86

FAILURE CRITERIA

REMARKS

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

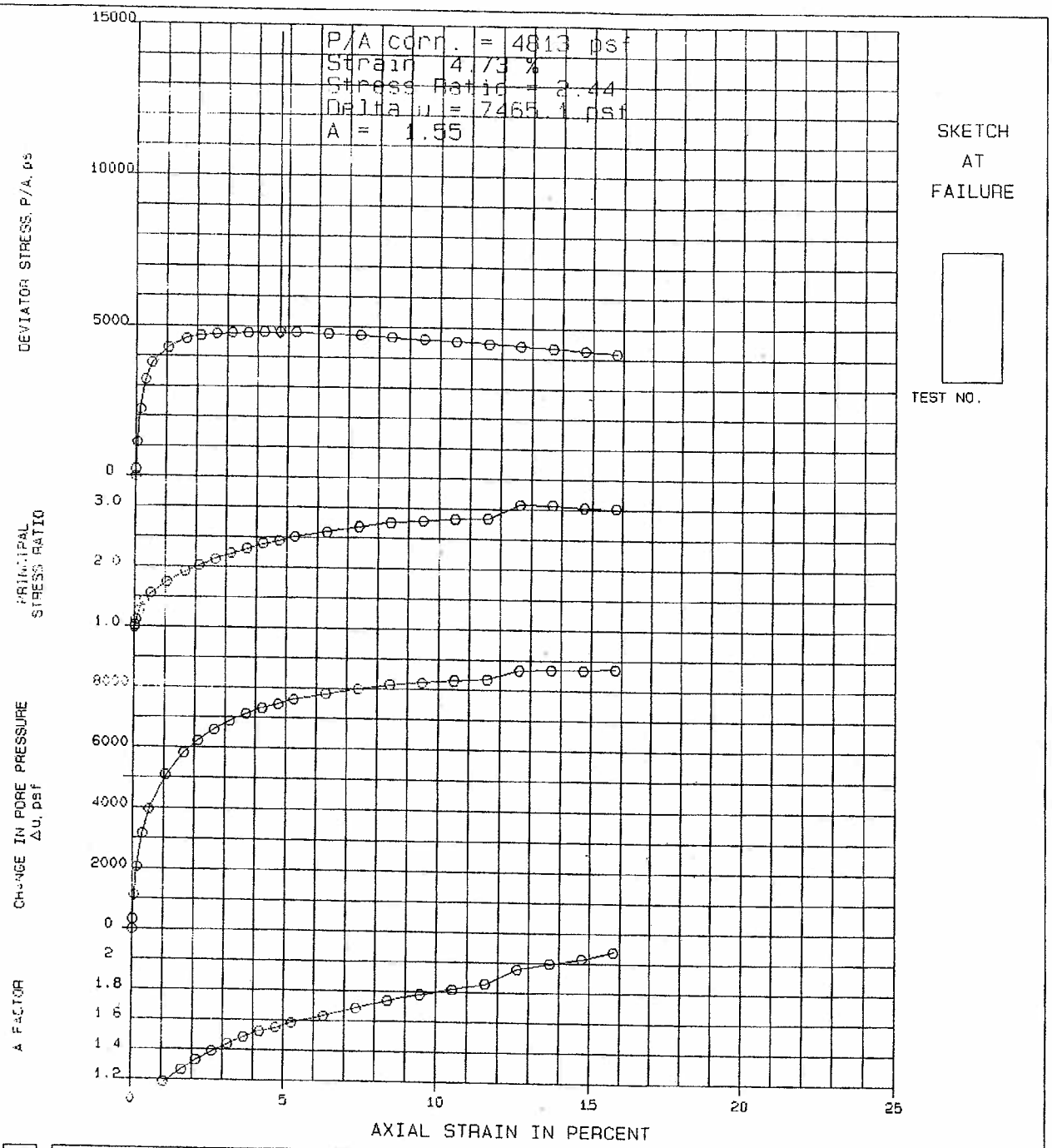
MOHR STRENGTH ENVELOPE

TRIAXIAL COMPRESSION TESTS (CIU)

FIGURE

BORING NO.	SB-70	TEST SERIES NO	404
SAMPLE	UP-1	DATE	Mar.04
DEPTH	50.5-50.9'		
TECH	MST		
REVIEWER		FILE	L1782B

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



TEST NO /SYMBOL	INITIAL CONDITIONS: INITIAL WATER CONTENT, %	INITIAL CONDITIONS: INITIAL DRY UNIT WEIGHT, pcf	INITIAL CONDITIONS: SAMPLE HEIGHT & DIAMETER, IN.	CONDITIONS BEFORE SHEAR: INITIAL STRESSES $\bar{\sigma}_1 = \bar{\sigma}_3$, ksf	CONDITIONS BEFORE SHEAR: FINAL BACK PRESSURE, ksf	CONDITIONS BEFORE SHEAR: VOLUMETRIC STRAIN, %	CONDITIONS BEFORE SHEAR: PORE PRESSURE RESPONSE, %	FINAL CONDITIONS: FINAL WATER CONTENT, %	FINAL CONDITIONS: FINAL DRY UNIT WEIGHT	RATE OF STRAIN, PERCENT PER MINUTE
404 1.2	57.1	67.1	4.001 1.97	10.8	5.76	14.9	96	44.4	78.9	.02

SOIL DESCRIPTION: See Summary Sheet

LIQUID LIMIT 0 % PLASTIC LIMIT 0 % SPECIFIC GRAVITY 2.86

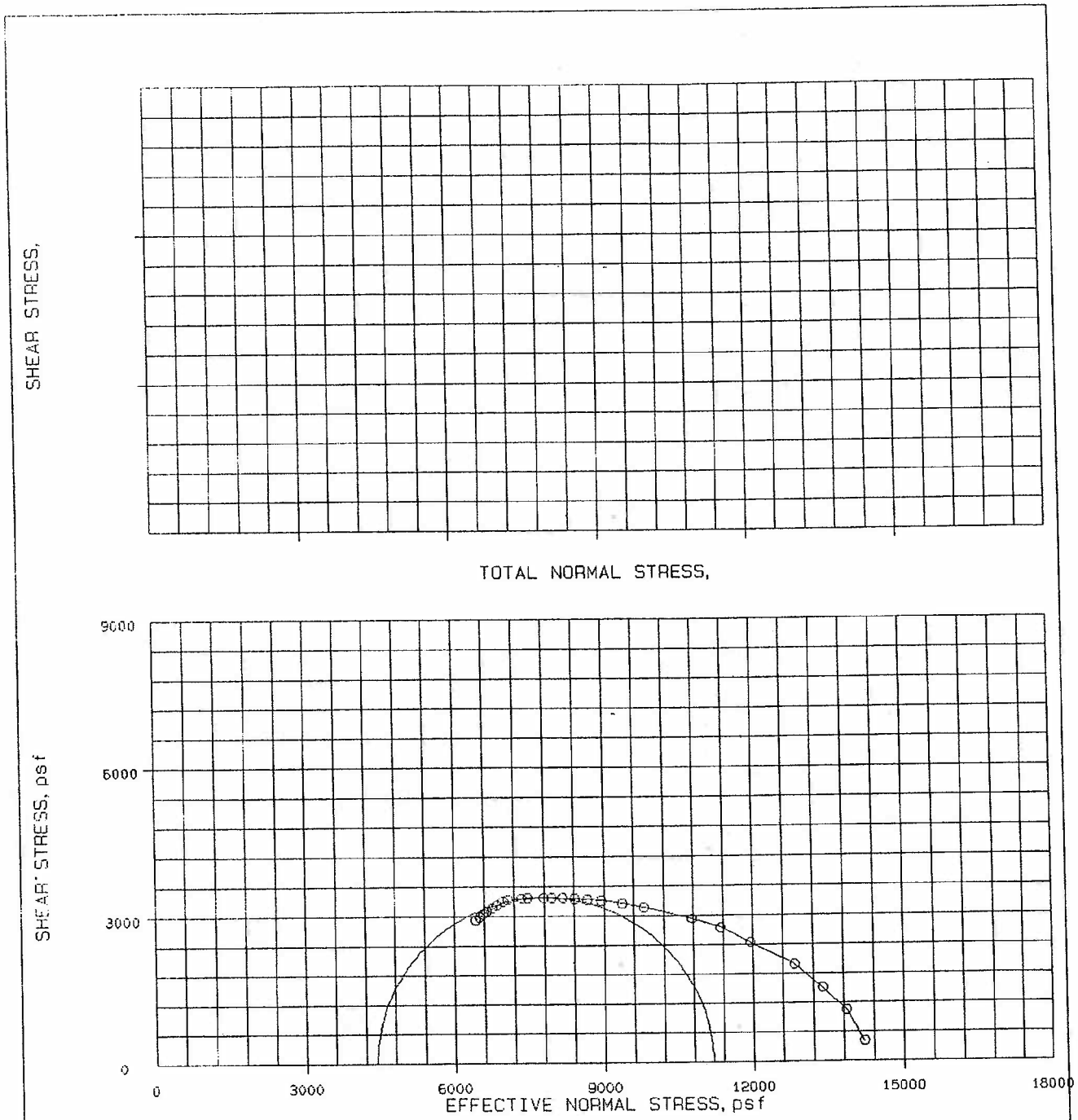
NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
TRIAXIAL COMPRESSION TESTS (CIU)

BORING NO SB-70
SAMPLE UP-1
DEPTH 50.5-50.9'
TECH. MST
REVIEWER

TEST SERIES NO. 404
DATE Mar.04
FILE L1782B

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



SOIL DESCRIPTION:		See Summary Sheet			
LIQUID LIMIT	0 %	PLASTIC LIMIT	0	SPECIFIC GRAVITY	2.86

FAILURE CRITERIA

REMARKS

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

MOHR STRENGTH ENVELOPE

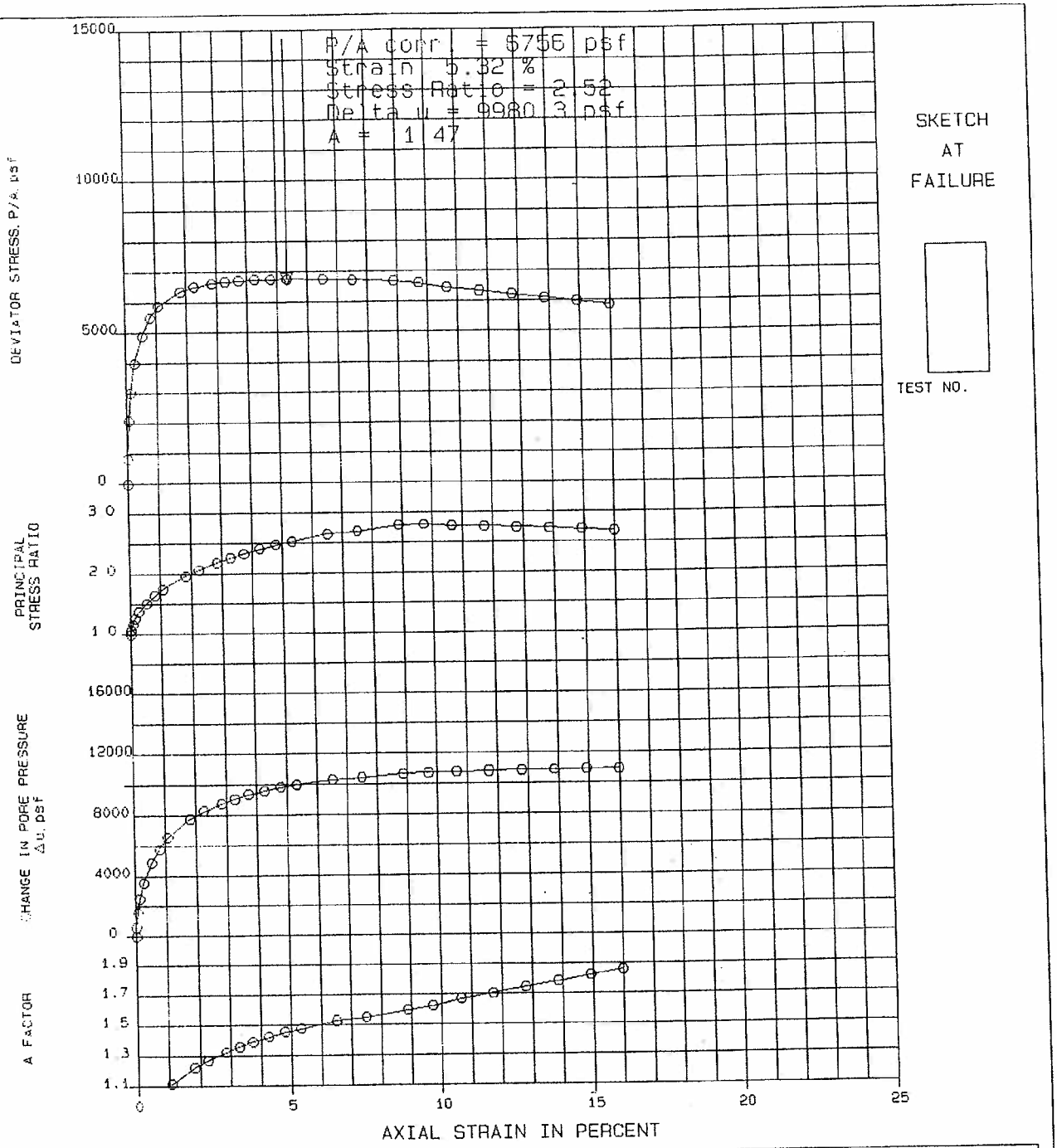
TRIAXIAL COMPRESSION TESTS (CIU)

BORING NO	SB-70	TEST SERIES NO	404
SAMPLE	UP-1	DATE	Mar.04
DEPTH	51.4-51.8'		
TECH.	MST		
REVIEWER		FILE	L1782B

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

T.10



TEST NO /SYMBOL	INITIAL CONDITIONS: INITIAL WATER CONTENT, %	INITIAL CONDITIONS: INITIAL DRY UNIT WEIGHT, pcf	INITIAL CONDITIONS: SAMPLE HEIGHT & DIAMETER, IN.	CONDITIONS BEFORE SHEAR: INITIAL STRESSES $\sigma_1 = \sigma_3$, ksf	CONDITIONS BEFORE SHEAR: FINAL BACK PRESSURE, ksf	CONDITIONS BEFORE SHEAR: VOLUMETRIC STRAIN, %	CONDITIONS BEFORE SHEAR: PORE PRESSURE RESPONSE, %	FINAL CONDITIONS: FINAL WATER CONTENT, %	FINAL CONDITIONS: FINAL DRY UNIT WEIGHT	RATE OF STRAIN, PERCENT PER MINUTE
404 1 3	57.6	67.1	4.00 / 1.97	14.4	2.16	18.3	92.6	40.8	82.2	.007

SOIL DESCRIPTION: See Summary Sheet

LIQUID LIMIT 0 % PLASTIC LIMIT 0 % SPECIFIC GRAVITY 2.86

NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT TRIAXIAL COMPRESSION TESTS ($\overline{CIU}$)

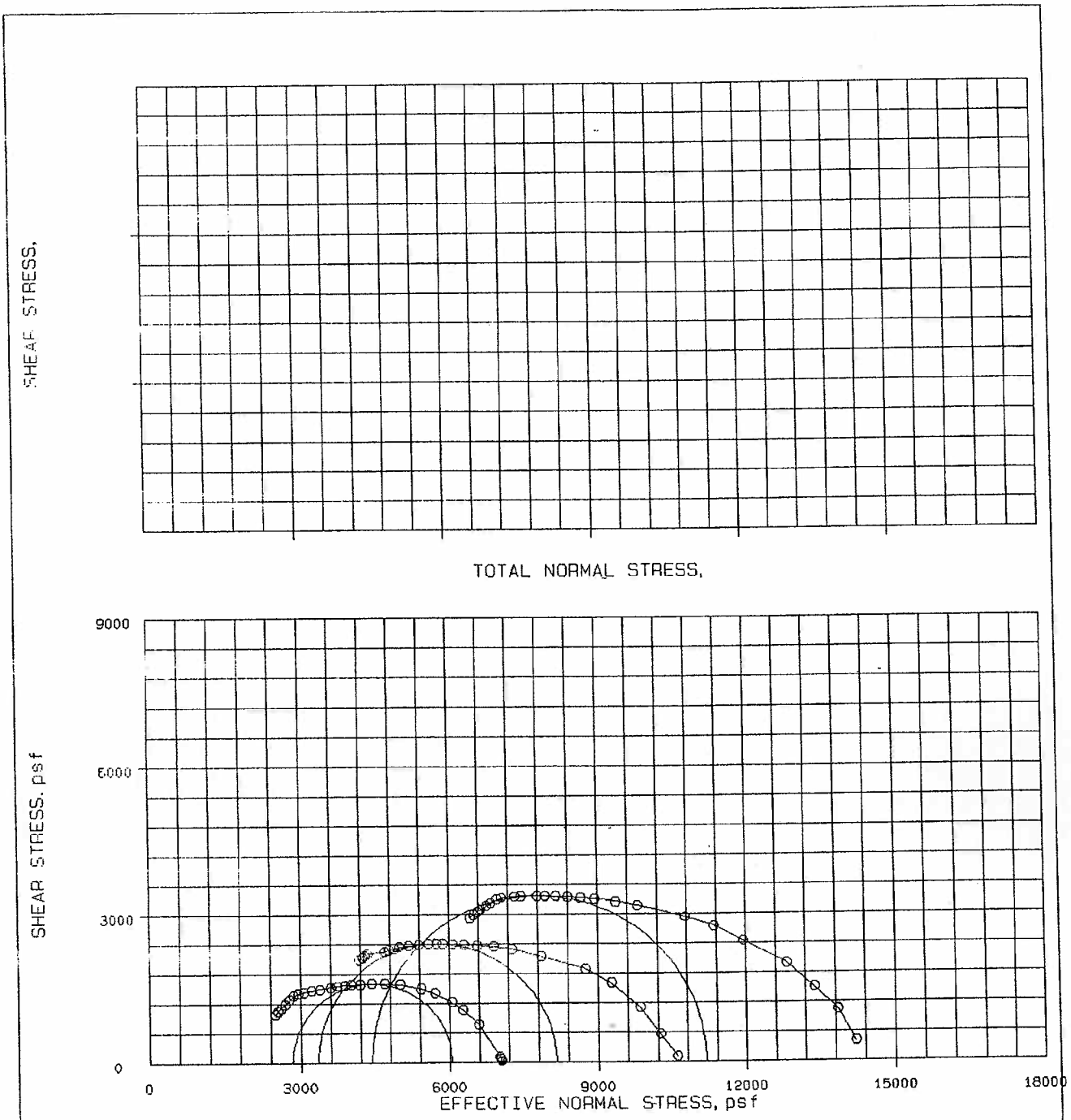
BORING NO. SB-70
SAMPLE UP-1
DEPTH 51.4-51.8'
TECH MST
REVIEWER

TEST SERIES NO. 404
DATE Mar 04
FILE L17828

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

T 9



SOIL DESCRIPTION:		See Summary Sheet			
LIQUID LIMIT	0 %	PLASTIC LIMIT	0	SPECIFIC GRAVITY	2.66

FAILURE CRITERIA P/A MAX

REMARKS

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

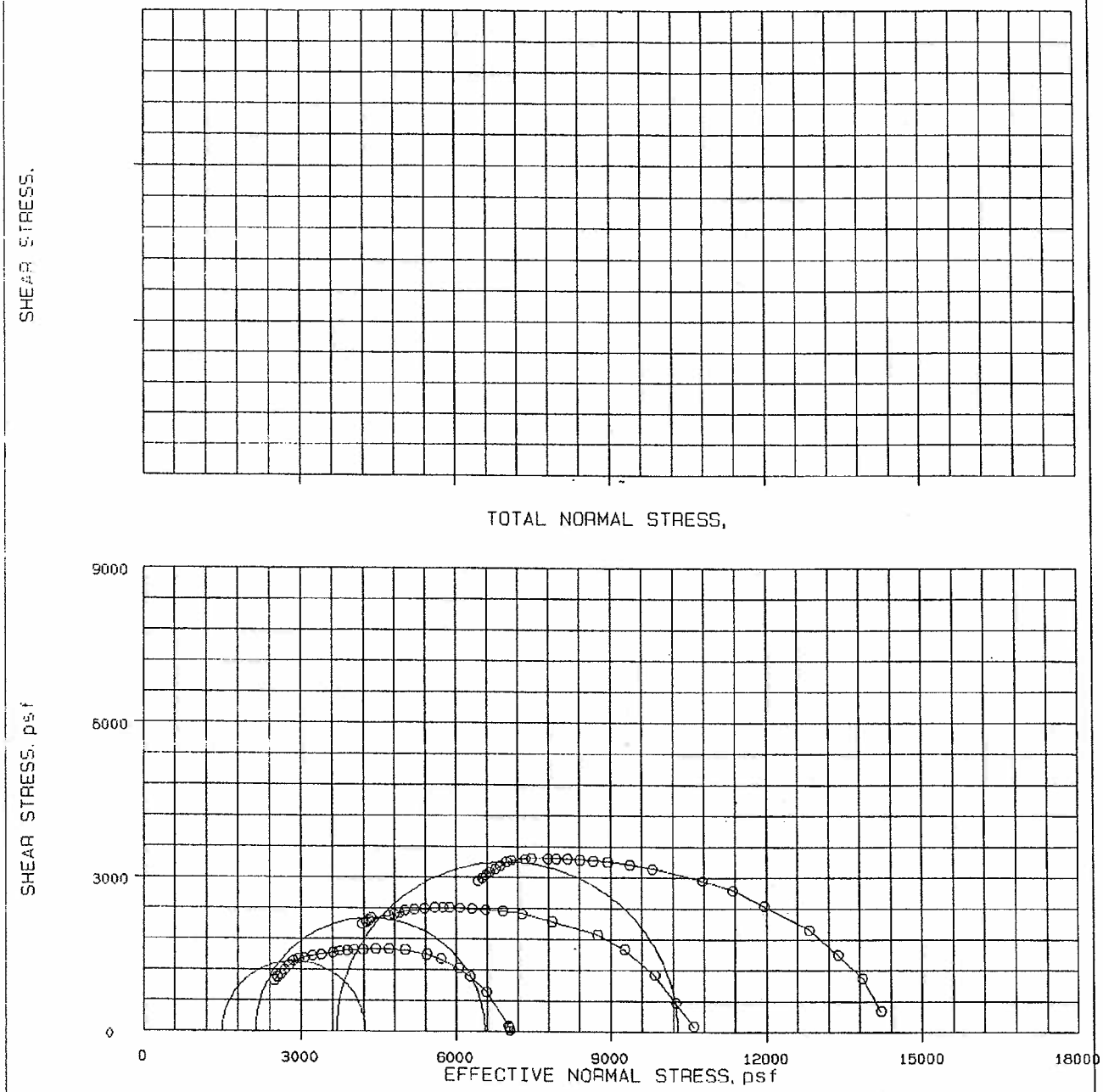
MOHR STRENGTH ENVELOPE

TRIAXIAL COMPRESSION TESTS (CIU)

BORING NO.	SB-70	TEST SERIES NO.	404
SAMPLE	UP-1	DATE	Mar.04
DEPTH	51.4-51.8'		
TECH	MST		
REVIEWER		FILE	L1782B

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



SOIL DESCRIPTION:	See Summary Sheet				
LIQUID LIMIT	0 %	PLASTIC LIMIT	0	SPECIFIC GRAVITY	2.86

FAILURE CRITERIA σ_1/σ_3 MAX

REMARKS

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

MOHR STRENGTH ENVELOPE

TRIAXIAL COMPRESSION TESTS (CIU)

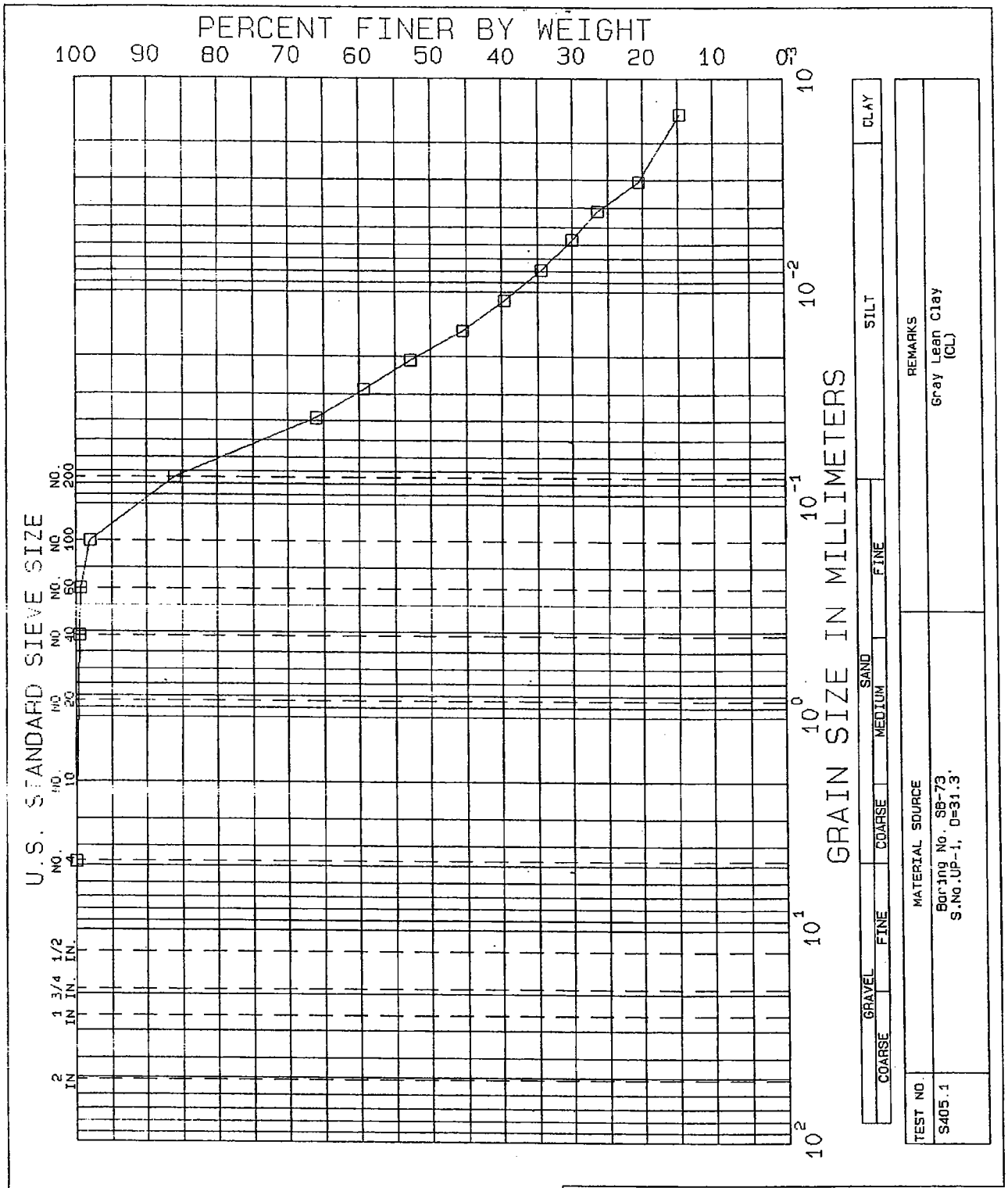
BORING NO	SB-70	TEST SERIES NO.	404
SAMPLE	UP-1	DATE	Mar.04
DEPTH	51.4-51.8'		
TECH	MST		
REVIEWER		FILE	L1782B

FIGURE

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
Project No.: L17828 — Assigned By: D. Gaffney — Reviewed By: [signature]
Project Engineer: D. SCHULZE — Date: Mar 04 — Date Reviewed: 3/22/04

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Permeability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
SB-73	UP-1	30.0-32.0	405	Average Total Unit Weight (30.0-32.0') = 127.6 Pcf																Gray Lean clay (CL)
		30.3		30.5										Tv= 0.45 tsf						
		30.3-30.6		29.5							94.5			CIU	4320	σ1/σ3 MAX	5008	10.2		
		30.6-30.7		31.2							91.6								0.11	
		30.7		24.3										Tv= 0.55 tsf						
		30.8-31.1		26.8							99.6			CIU	5760	σ1/σ3 MAX	6742	8.2		
		31.2		26.9										Tv= 0.60 tsf						
		31.3		24.3	29	21														
		31.3					86	17												
		31.4								2.72										
		31.4-31.7		23.1							106.4			CIU	7200	σ1/σ3 MAX	9951	10.6		

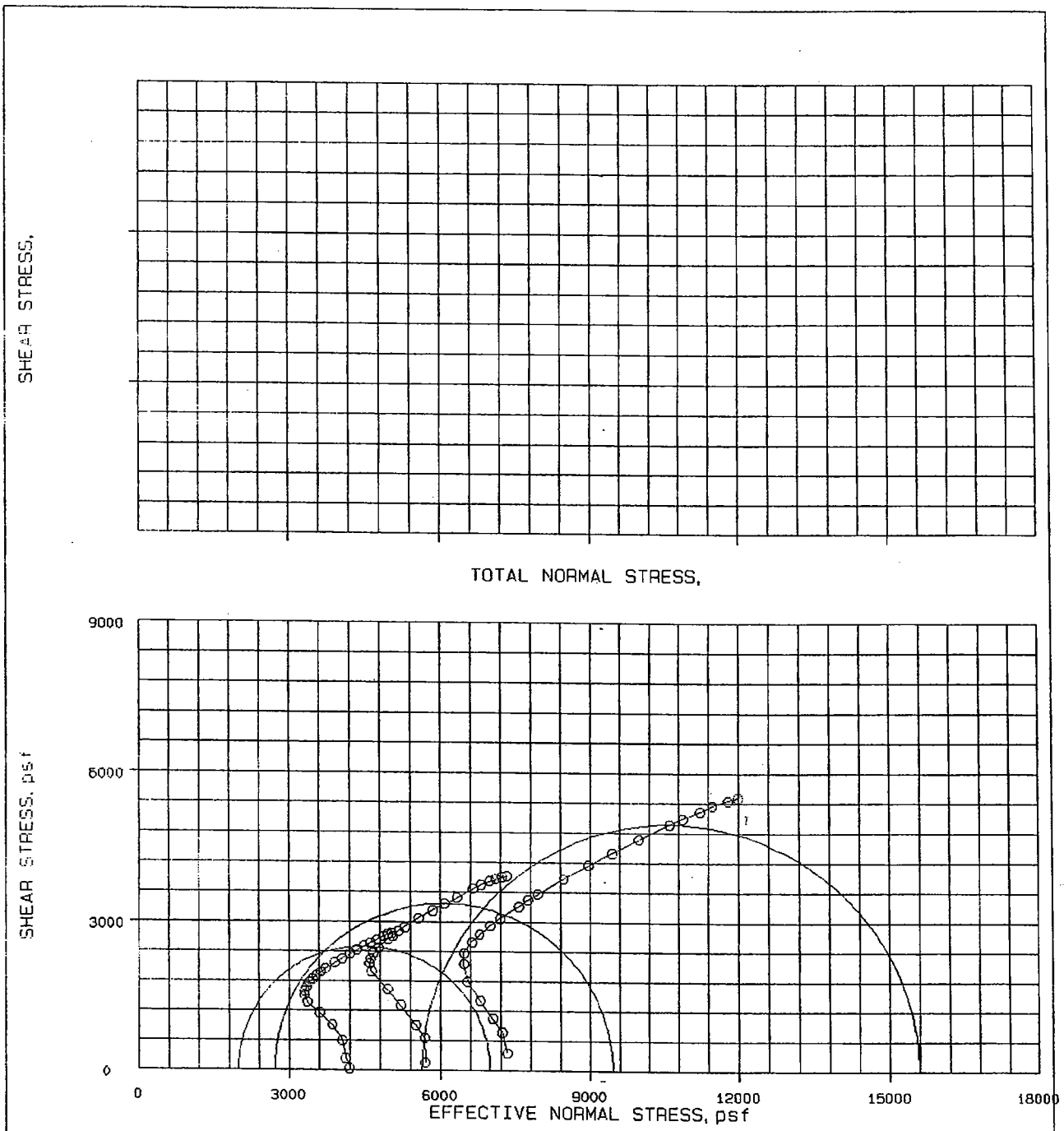


NEW BRITAIN-HARTFORD BUSWAY

CONNECTICUT

GRADATION TESTS

BORING NO.	SB-73	TEST SERIES	
SAMPLE	UP-1	NO.	405
DEPTH	31.3'	DATE	Mar.04
TECH.	PEC		
REVIEWER	MBP	FILE	L17828



SOIL DESCRIPTION:		Gray Lean clay (CL)			
LIQUID LIMIT	29 %	PLASTIC LIMIT	21	SPECIFIC GRAVITY	2.72

FAILURE CRITERIA σ_1/σ_3 MAX

REMARKS

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

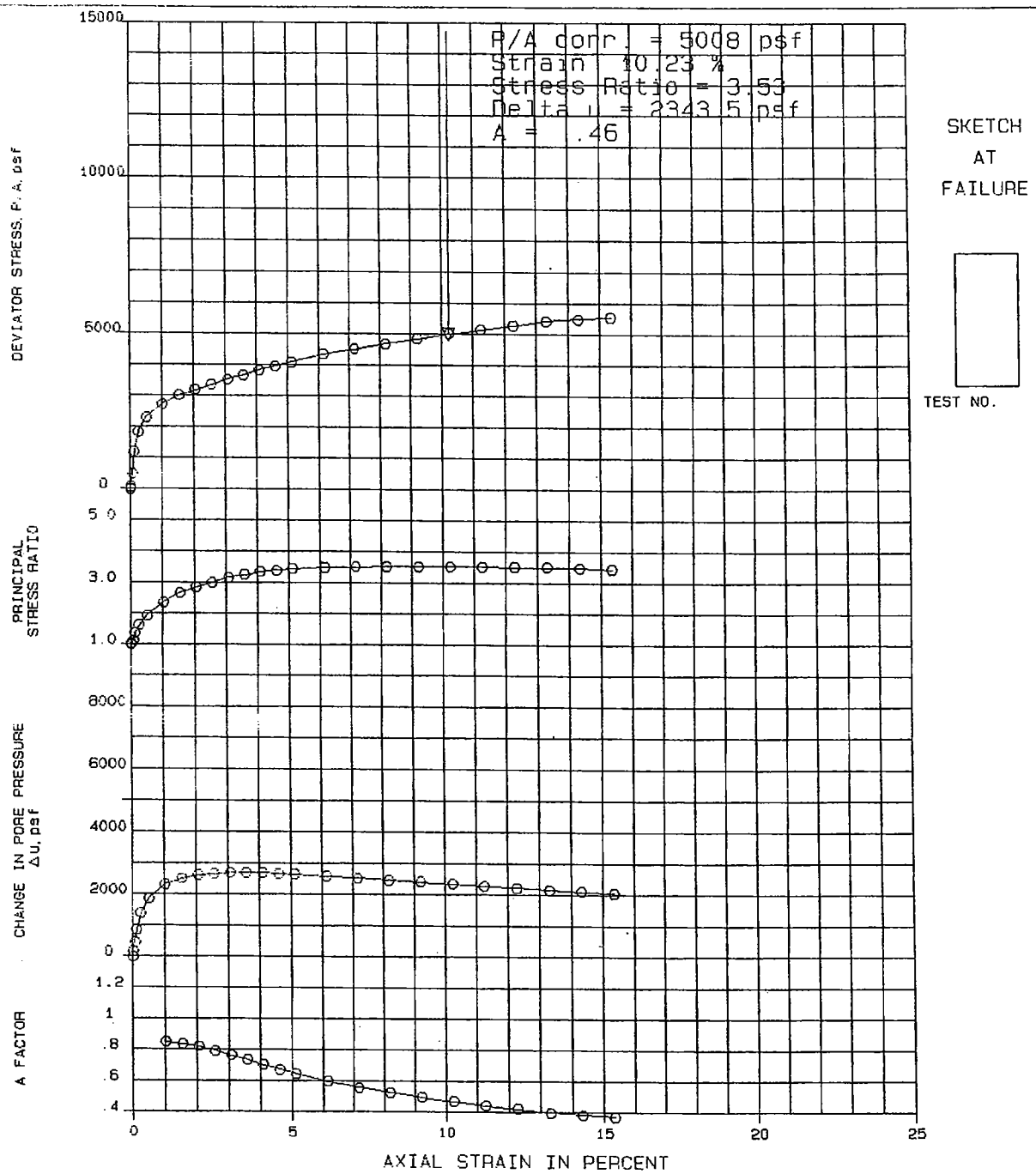
MOHR STRENGTH ENVELOPE

TRIAXIAL COMPRESSION TESTS (CIU)

FIGURE

BORING NO.	SB-73	TEST SERIES	
SAMPLE	UP-1	NO.	405
DEPTH	31.4-31.7'	DATE	Mar.04
TECH.	MST		
REVIEWER		FILE	L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



SKETCH AT FAILURE

TEST NO.

TEST NO./SYMBOL	INITIAL CONDITIONS: INITIAL WATER CONTENT, %	INITIAL CONDITIONS: INITIAL DRY UNIT WEIGHT, pcf	INITIAL CONDITIONS: SAMPLE HEIGHT & DIAMETER, IN.	CONDITIONS BEFORE SHEAR: INITIAL STRESSES $\bar{\sigma}_1 = \bar{\sigma}_3$, ksf	CONDITIONS BEFORE SHEAR: FINAL BACK PRESSURE, ksf	CONDITIONS BEFORE SHEAR: VOLUMETRIC STRAIN, %	CONDITIONS BEFORE SHEAR: PORE PRESSURE RESPONSE, %	FINAL CONDITIONS: FINAL WATER CONTENT, %	FINAL CONDITIONS: FINAL DRY UNIT WEIGHT,	RATE OF STRAIN, PERCENT PER MINUTE
405.1.1	29.5	94.5	3.999 1.965	4.32	10.08	6.7	96.9	25.1	101.3	.1

SOIL DESCRIPTION: Gray Lean clay (CL)

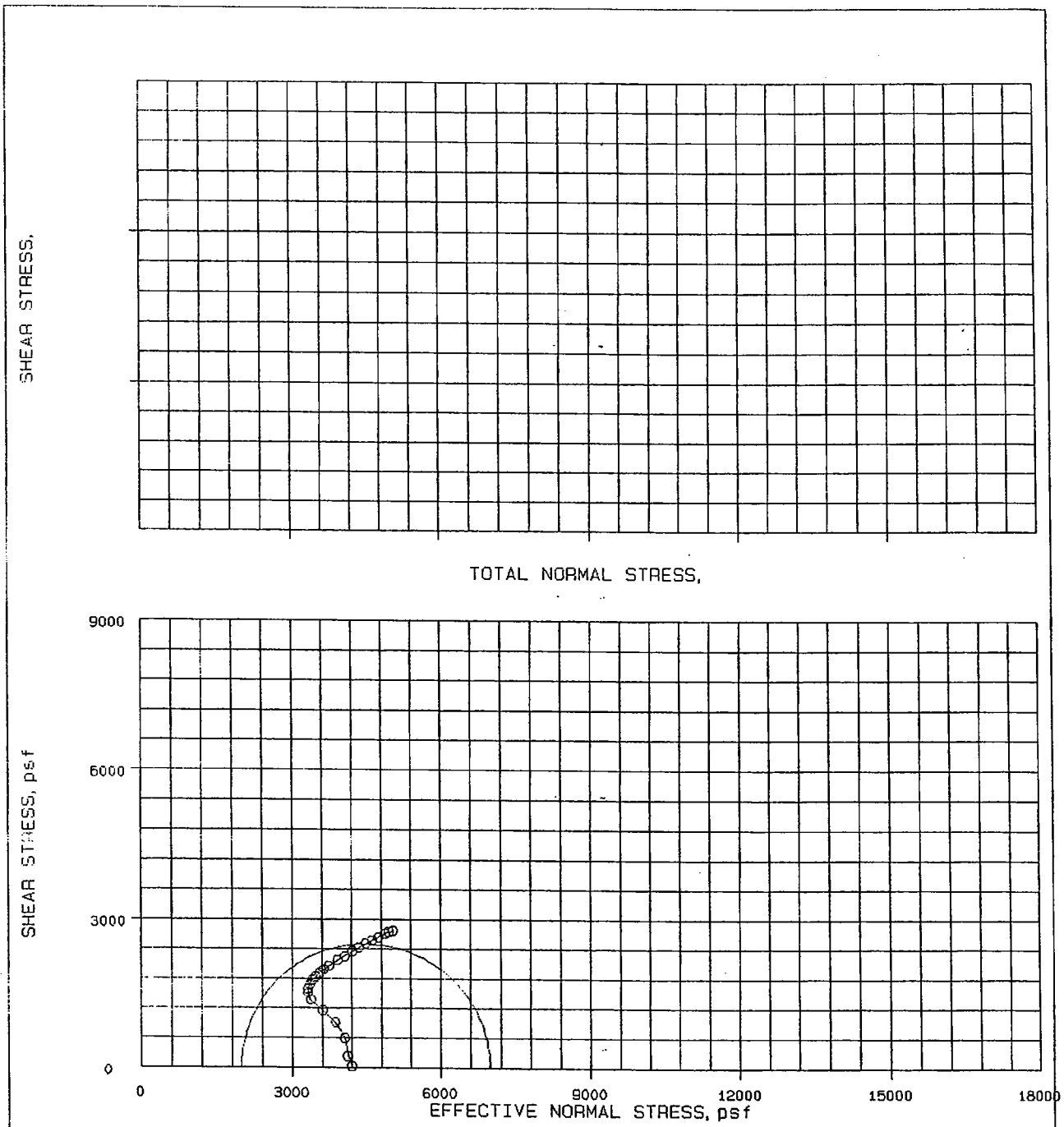
LIQUID LIMIT	29 %	PLASTIC LIMIT	21 %	SPECIFIC GRAVITY	2.72

NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
TRIAXIAL COMPRESSION TESTS ($\overline{CIU}$)

BORING NO.	SB-73	TEST SERIES NO.	405
SAMPLE	UP-1	DATE	Mar.04
DEPTH	30.3-30.6'		
TECH.	MST		
REVIEWER		FILE	L17828

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



SOIL DESCRIPTION:	Gray Lean clay (CL)				
LIQUID LIMIT	29 %	PLASTIC LIMIT	21	SPECIFIC GRAVITY	2.72

FAILURE CRITERIA σ_1/σ_3 MAX

REMARKS

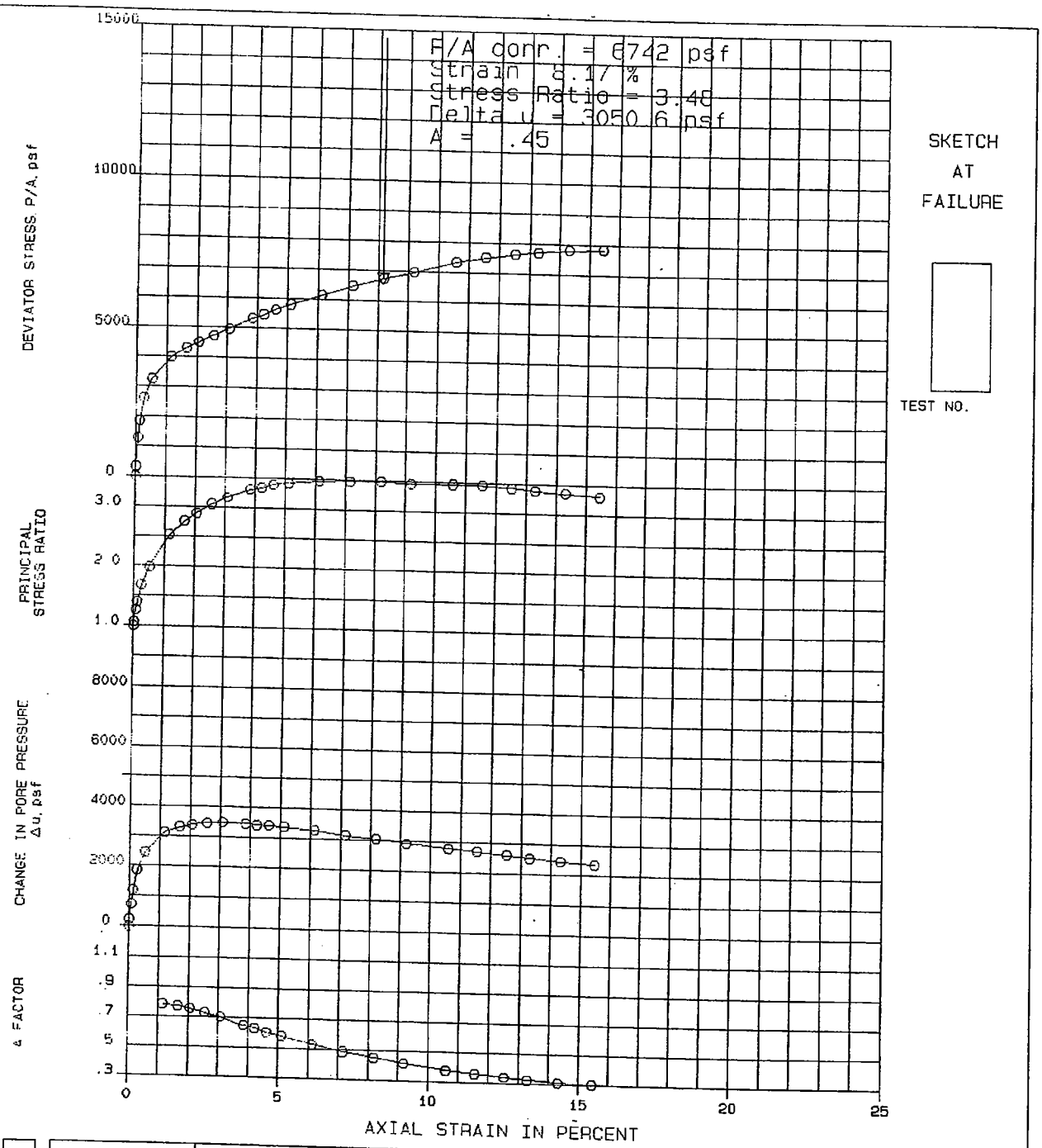
NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

MOHR STRENGTH ENVELOPE

TRIAXIAL COMPRESSION TESTS (CIU)

FIGURE

BORING NO.	SB-73	TEST SERIES	
SAMPLE	UP-1	NO	405
DEPTH	30.3-30.6'	DATE	Mar.04
TECH	MST		
REVIEWER		FILE	L17828



TEST NO./SYMBOL	INITIAL CONDITIONS: INITIAL WATER CONTENT, %	INITIAL CONDITIONS: INITIAL DRY UNIT WEIGHT, pcf	INITIAL CONDITIONS: SAMPLE HEIGHT & DIAMETER, IN.	CONDITIONS BEFORE SHEAR: INITIAL STRESSES $\bar{\sigma}_1 = \bar{\sigma}_3$, ksf	CONDITIONS BEFORE SHEAR: FINAL BACK PRESSURE, ksf	CONDITIONS BEFORE SHEAR: VOLUMETRIC STRAIN, %	CONDITIONS BEFORE SHEAR: PORE PRESSURE RESPONSE, %	FINAL CONDITIONS: FINAL WATER CONTENT, %	FINAL CONDITIONS: FINAL DRY UNIT WEIGHT,	RATE OF STRAIN, PERCENT PER MINUTE
405.1.2	26.8	99.5	4.001 1.963	5.75	8.64	6.4	96.8	22.6	106.4	.075

SOIL DESCRIPTION: Gray Lean clay (CL)

LIQUID LIMIT 29 % PLASTIC LIMIT 21 % SPECIFIC GRAVITY 2.72

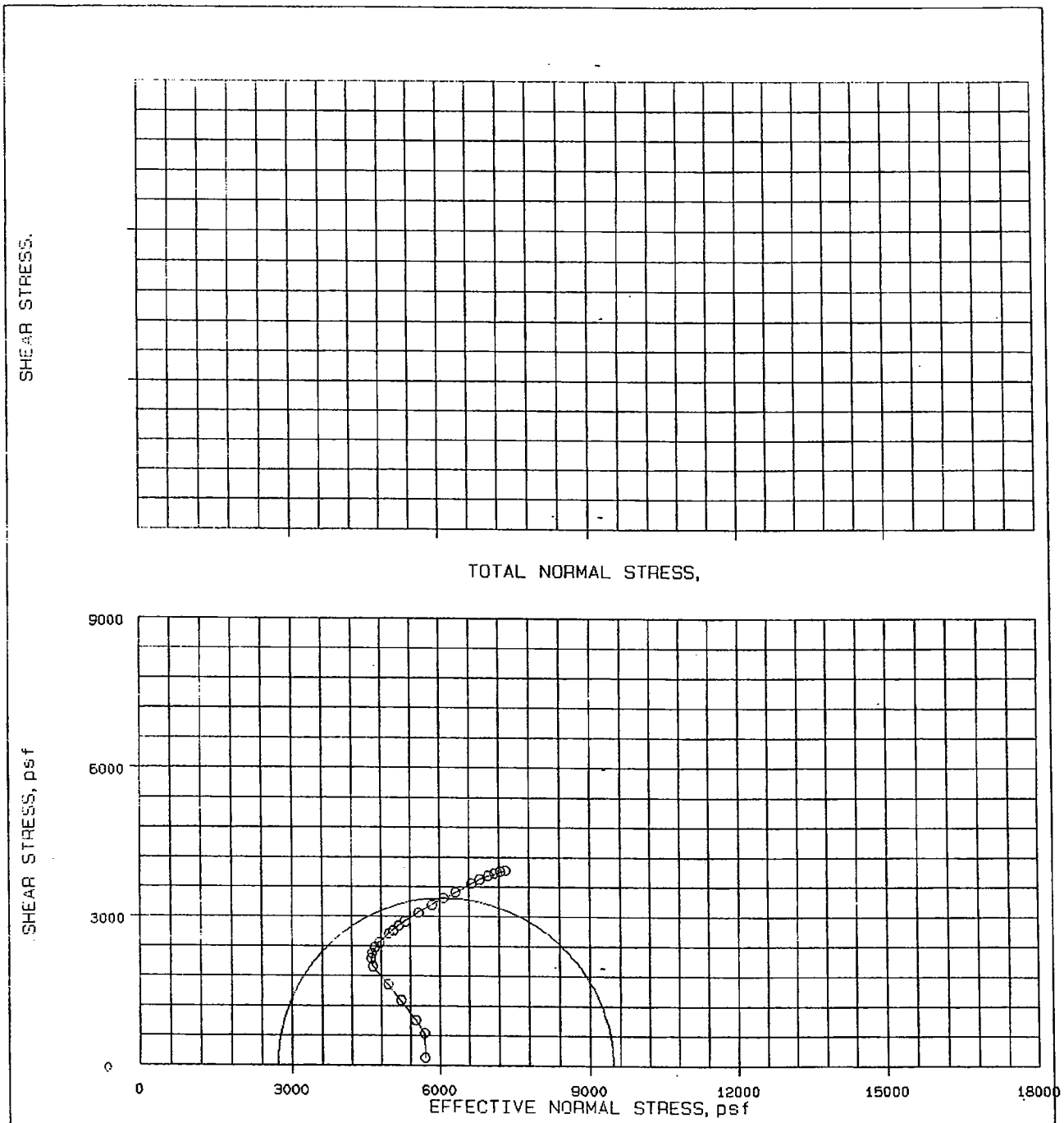
NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
TRIAXIAL COMPRESSION TESTS ($\overline{CIU}$)

BORING NO. SB-73
SAMPLE UP-1
DEPTH 30.8-31.1'
TECH. MST
REVIEWER

TEST SERIES NO. 405
DATE Mar.04
FILE L17828

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



SOIL DESCRIPTION:	Gray Lean clay (CL)				
LIQUID LIMIT	29 %	PLASTIC LIMIT	21	SPECIFIC GRAVITY	2.72

FAILURE CRITERIA σ_1/σ_3 MAX

REMARKS

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

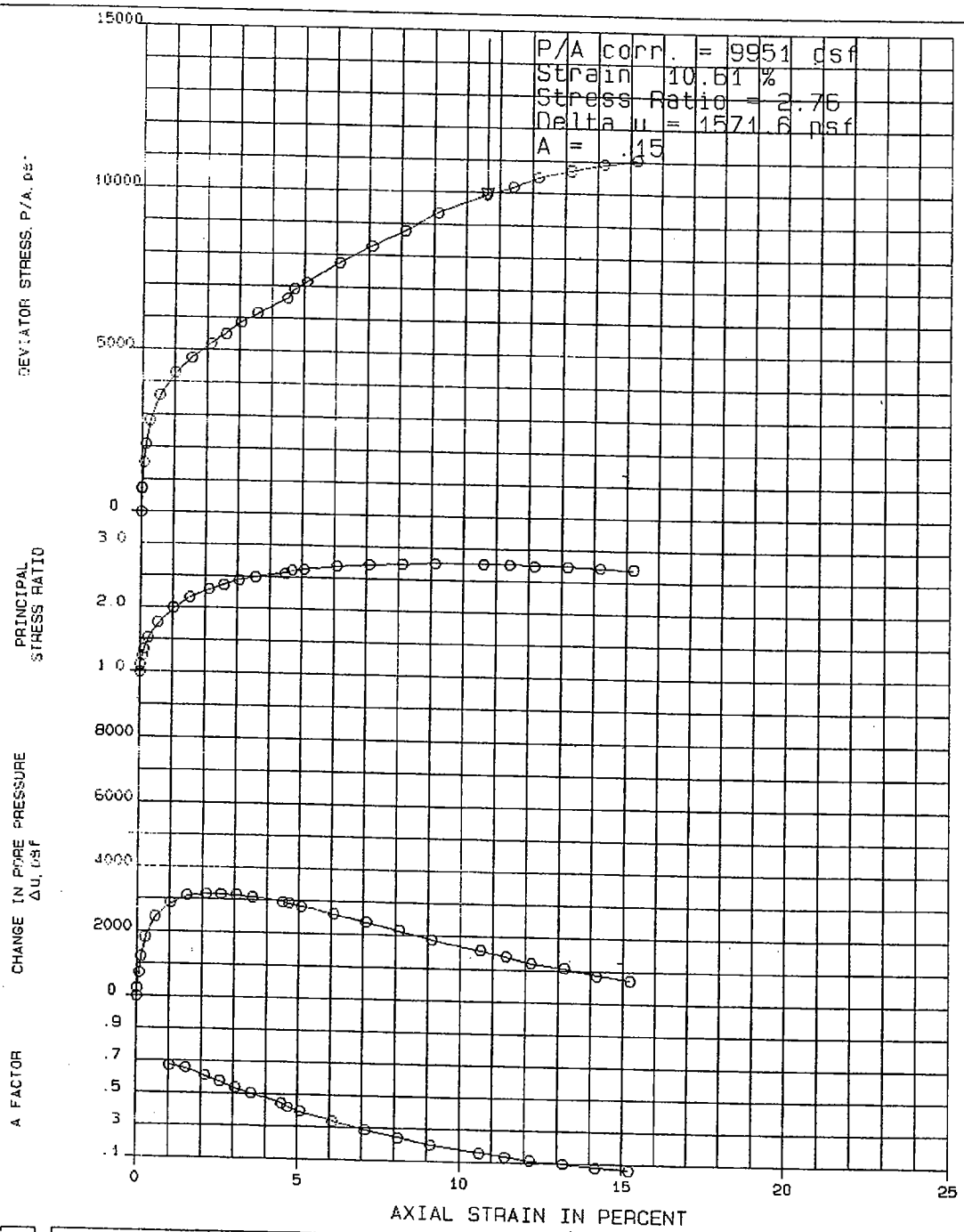
MOHR STRENGTH ENVELOPE

TRIAXIAL COMPRESSION TESTS (CIU)

FIGURE

BORING NO.	SB-73	TEST SERIES NO.	405
SAMPLE	UP-1	DATE	Mar.04
DEPTH	30.6-31.1'		
TECH	MST		
REVIEWER		FILE	L1782B

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



SKETCH AT FAILURE

TEST NO.

TEST NO /SYMBOL	INITIAL CONDITIONS: INITIAL WATER CONTENT, %	INITIAL DRY UNIT WEIGHT, pcf	SAMPLE HEIGHT & DIAMETER, IN.	CONDITIONS BEFORE SHEAR: INITIAL STRESSES $\bar{\sigma}_1 = \bar{\sigma}_3$, ksf	FINAL BACK PRESSURE, ksf	VOLUMETRIC STRAIN, %	PORE PRESSURE RESPONSE, %	FINAL CONDITIONS: FINAL WATER CONTENT, %	FINAL DRY UNIT WEIGHT,	RATE OF STRAIN, PERCENT PER MINUTE
405.1.3	23.1	106.4	4.015 1.967	7.2	8.64	5.1	96	20.1	112.3	.075

SOIL DESCRIPTION: Gray Lean clay (CL)

LIQUID LIMIT 29 % PLASTIC LIMIT 21 % SPECIFIC GRAVITY 2.72

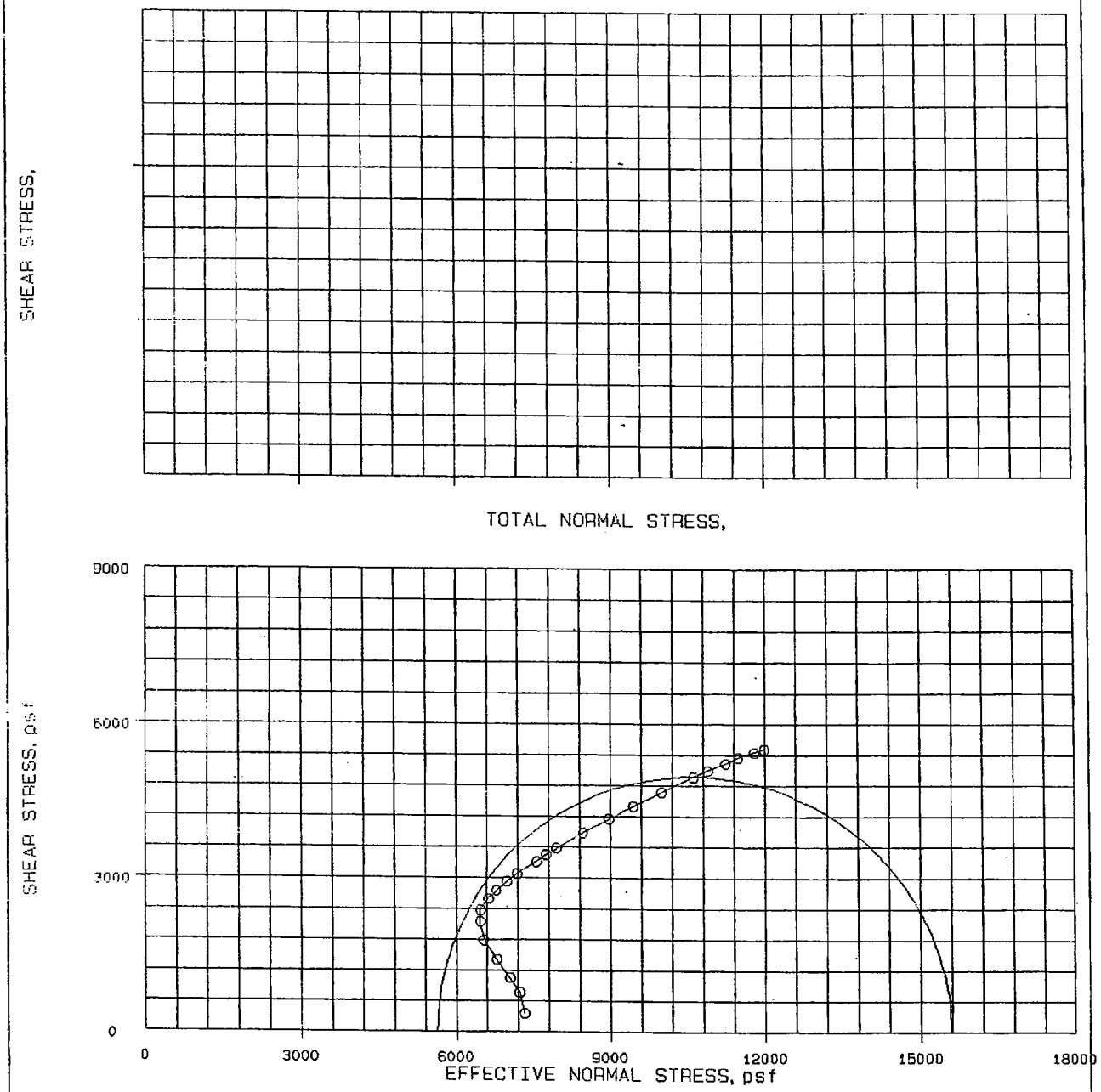
NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
TRIAXIAL COMPRESSION TESTS ($\overline{CIU}$)

BORING NO. SB-73
SAMPLE UP-1
DEPTH 31.4-31.7'
TECH. MST
REVIEWER

TEST SERIES NO. 405
DATE Mar.04
FILE L17828

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



SOIL DESCRIPTION:	Gray Lean clay (CL)				
LIQUID LIMIT	29 %	PLASTIC LIMIT	21	SPECIFIC GRAVITY	2.72

FAILURE CRITERIA σ_1/σ_3 MAX

REMARKS

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

MOHR STRENGTH ENVELOPE

TRIAXIAL COMPRESSION TESTS (CIU)

FIGURE

BORING NO.	SB-73	TEST SERIES NO.	405.
SAMPLE	UP-1	DATE	Mar.04
DEPTH	31.4-31.7'		
TECH.	MST		
REVIEWER		FILE	L17B2B

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

LABORATORY TESTING DATA SHEET

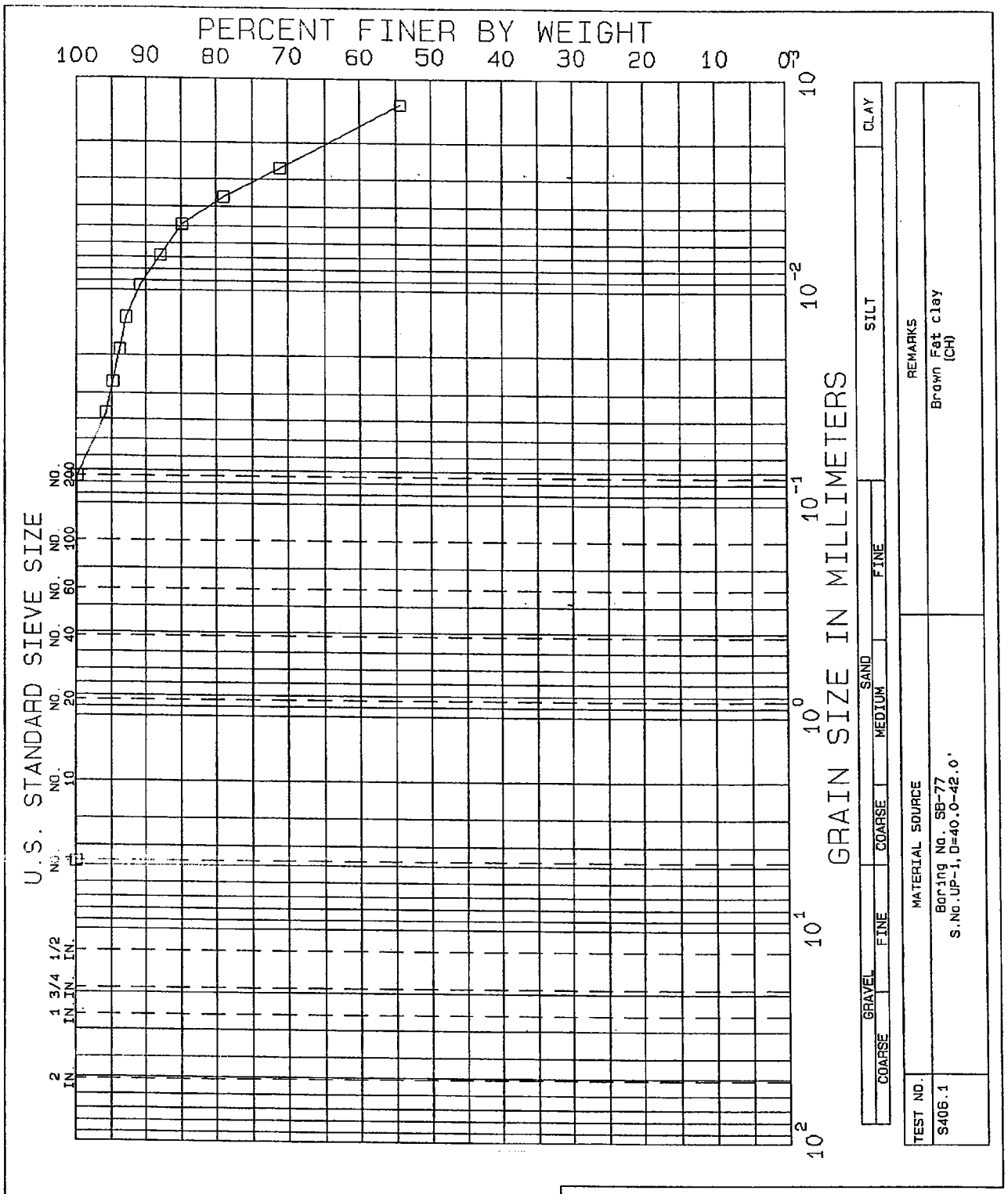
Project Name: NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
Project No.: L17828
Project Engineer: D. SCHULZE
Assigned By: D. Gaffney
Date: Feb.04
Reviewed By: [signature]
Date Reviewed: 3/9/04

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) W_{opt} (%)	Permeability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1-\sigma_3$ or τ psf	Strain %	Consol. $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
SB-77	UP-1	40.0-42.0	406		Average Total Unit Weight (40.0-42.0') = 103.3 Pcf															Brown Varved Soil as follows: Fat Clay (CH) grading to Silt (ML)
		40.2		76.1	(Clay Portion)									Tv= 0.32 tsf						
		40.2-40.6		61.1							64.4			CIU	4320	P/A MAX	2956	4.1		
		40.6-41.1		63.6							62.1			CIU	5760	P/A MAX	2818	2.1		Varve thickness varies from 0.5-1.5" Clay portion varies from 0.25-1.25" in thickness and comprises approx. 50-75% of total varve
		41.1		39.5	(Silt Portion)									Tv= 0.27 tsf						
		41.1-41.5		57.5							66.3			CIU	7200	P/A MAX	3436	2.6		
		41.5		58.9	(entire varve)									Tv= 0.25 tsf						
		41.6-41.7		62.8							64.1								0.21	
		40.0-42.0		72.1	74	43	100	65		2.78	(Clay Portion)									Note: Specific gravity, limits and sieve/hydrometer run on clay portion

GZA GeoEnvironmental, Inc.

Q:\NEWTON\LAB\LABFORM7.XLS

labform1.xls

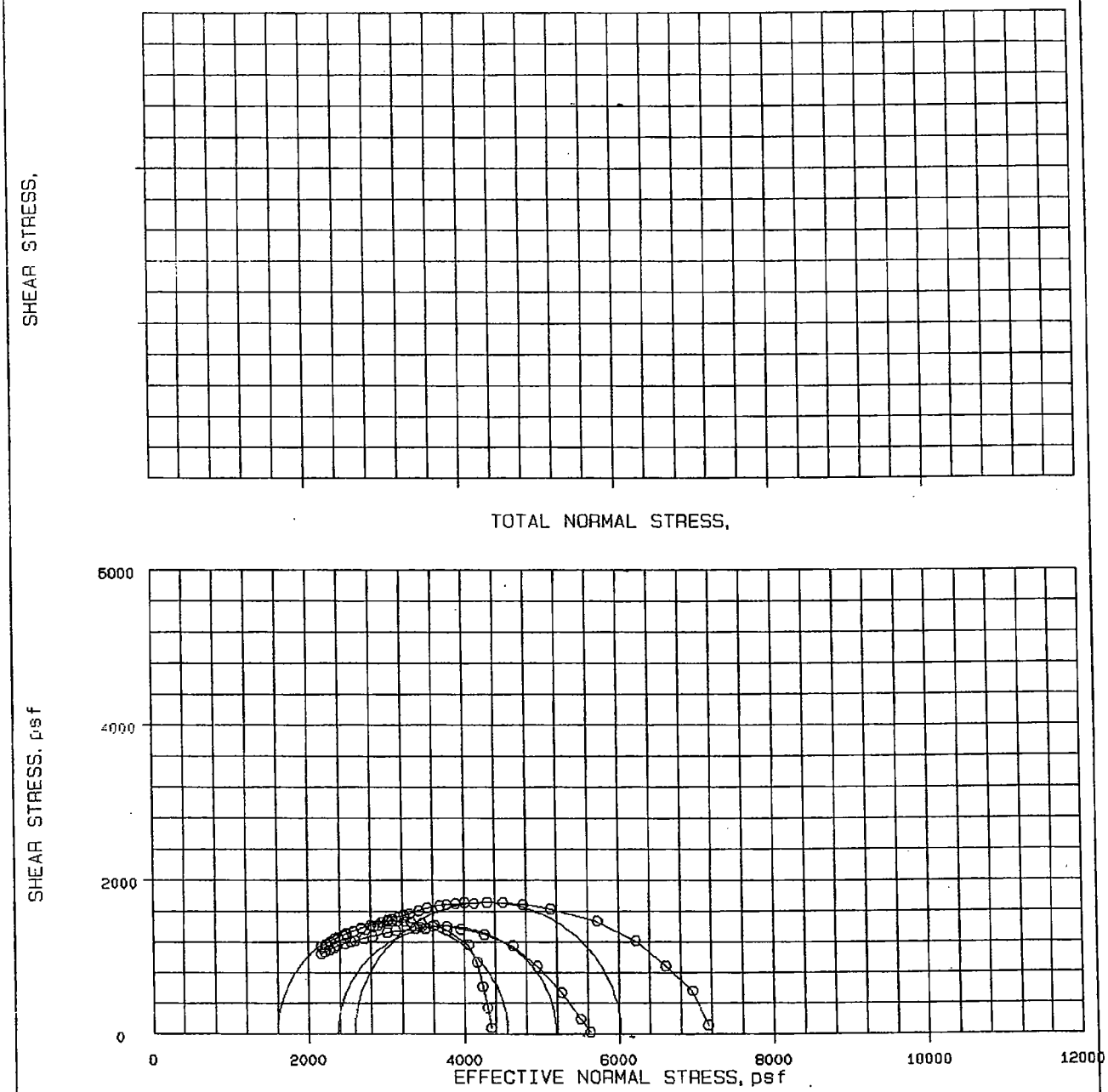


NEW BRITAIN-HARTFORD BUSWAY

CONNECTICUT

GRADATION TESTS

BORING NO.	SB-77	TEST SERIES	
SAMPLE	UP-1	NO.	406
DEPTH	40.0-42.0'	DATE	Mar.04
TECH.	MJD		
REVIEWER	MBP	FILE	L17828



SOIL DESCRIPTION:		See Summary Sheet			
LIQUID LIMIT	0 %	PLASTIC LIMIT	0	SPECIFIC GRAVITY	2.78

FAILURE CRITERIA $\sigma_1 - \sigma_3$ MAX

REMARKS

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

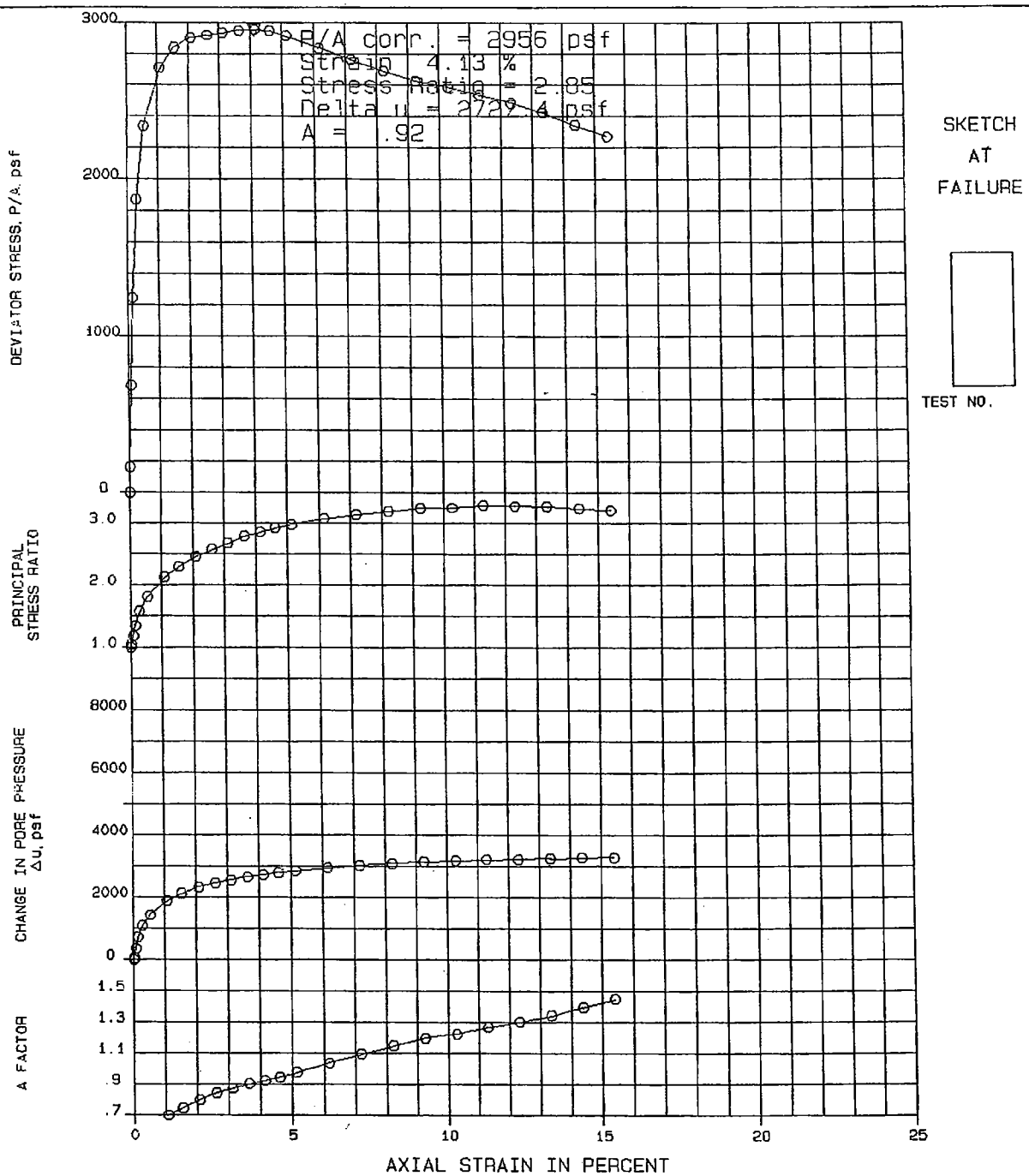
MOHR STRENGTH ENVELOPE

TRIAXIAL COMPRESSION TESTS (CIU)

FIGURE

BORING NO.	SB-77	TEST SERIES NO.	406
SAMPLE	UP-1	DATE	Mar.04
DEPTH	41.1-41.5'		
TECH.	MST		
REVIEWER		FILE	L1782B

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



TEST NO./SYMBOL	INITIAL CONDITIONS: INITIAL WATER CONTENT, %	INITIAL CONDITIONS: INITIAL DRY UNIT WEIGHT, pcf	INITIAL CONDITIONS: SAMPLE HEIGHT & DIAMETER, IN.	CONDITIONS BEFORE SHEAR: INITIAL STRESSES $\bar{\sigma}_1 = \bar{\sigma}_3$, ksf	CONDITIONS BEFORE SHEAR: FINAL BACK PRESSURE, ksf	CONDITIONS BEFORE SHEAR: VOLUMETRIC STRAIN, %	CONDITIONS BEFORE SHEAR: PORE PRESSURE RESPONSE, %	FINAL CONDITIONS: FINAL WATER CONTENT, %	FINAL CONDITIONS: FINAL DRY UNIT WEIGHT,	RATE OF STRAIN, PERCENT PER MINUTE
406.1.1	61.1	64.4	4.01 1.97	4.32	10.08	8.5	94	53.1	70.4	.03

SOIL DESCRIPTION: See Summary Sheet

LIQUID LIMIT 0 % PLASTIC LIMIT 0 % SPECIFIC GRAVITY 2.78

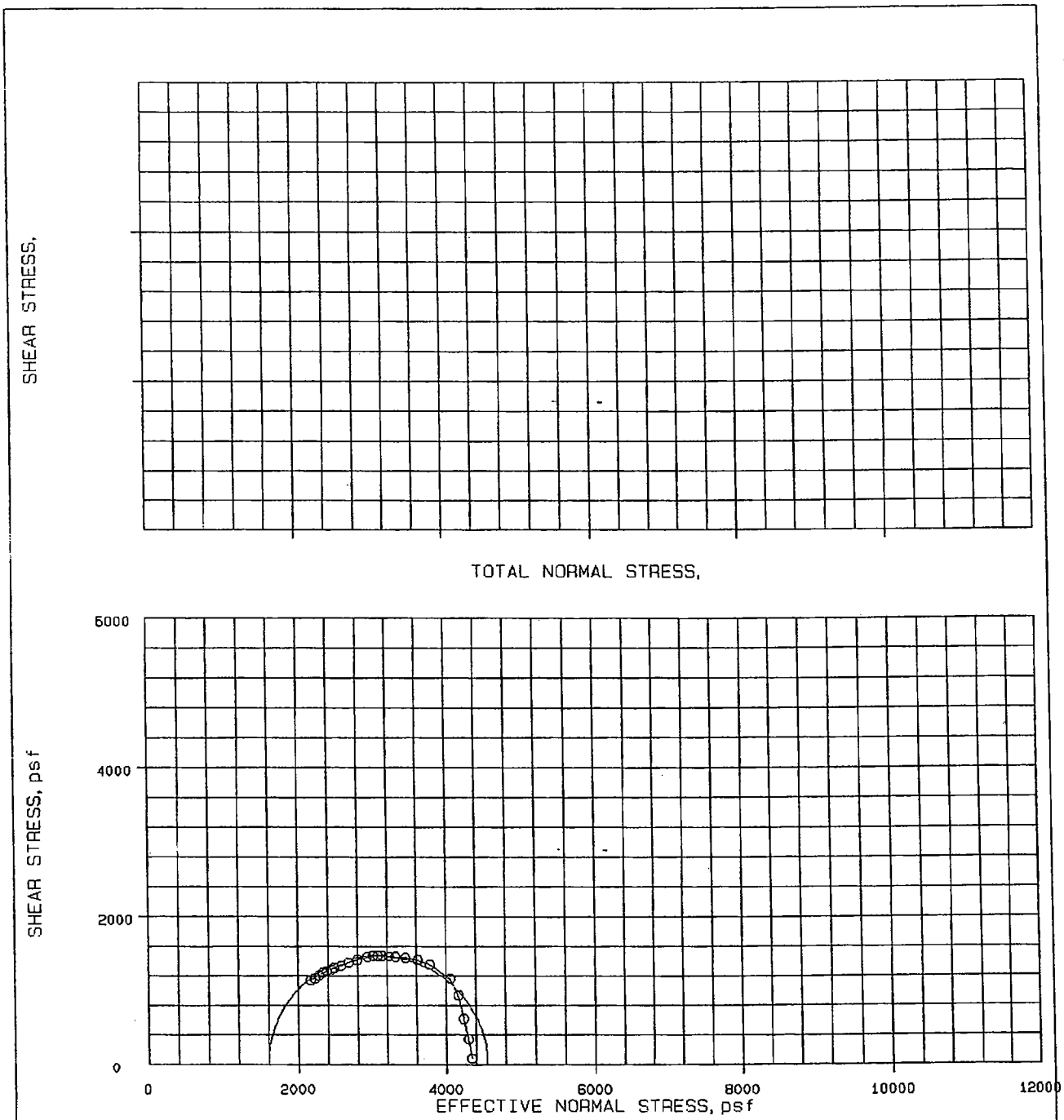
NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
TRIAXIAL COMPRESSION TESTS ($\overline{CIU}$)

BORING NO. SB-77
SAMPLE UP-1
DEPTH 40.2-40.6'
TECH MST
REVIEWER

TEST SERIES NO. 406
DATE Mar.04
FILE L1782B

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



SOIL DESCRIPTION:	See Summary Sheet				
LIQUID LIMIT	0 %	PLASTIC LIMIT	0	SPECIFIC GRAVITY	2.78

FAILURE CRITERIA $\sigma_1 - \sigma_3$ MAX

REMARKS

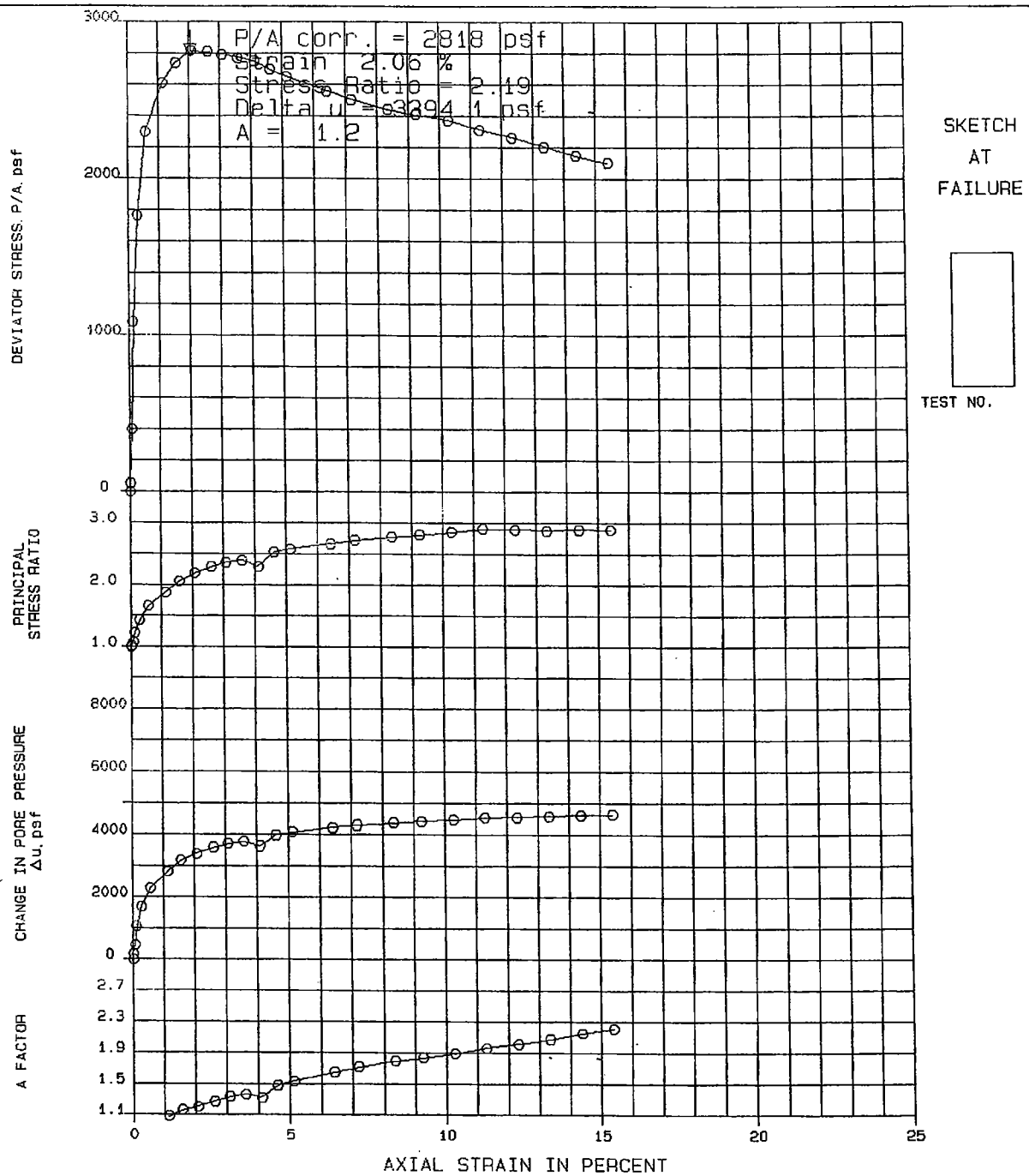
NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

MOHR STRENGTH ENVELOPE

TRIAXIAL COMPRESSION TESTS (CIU)

FIGURE

BORING NO.	SB-77	TEST SERIES NO.	406
SAMPLE	UP-1	DATE	Mar.04
DEPTH	40.2-40.6'		
TECH.	MST		
REVIEWER		FILE	L1782B



TEST NO./SYMBOL	INITIAL CONDITIONS: INITIAL WATER CONTENT, %	INITIAL CONDITIONS: INITIAL DRY UNIT WEIGHT, pcf	INITIAL CONDITIONS: SAMPLE HEIGHT & DIAMETER, IN.	CONDITIONS BEFORE SHEAR: INITIAL STRESSES $\bar{\sigma}_1 = \bar{\sigma}_3$, ksf	CONDITIONS BEFORE SHEAR: FINAL BACK PRESSURE, ksf	CONDITIONS BEFORE SHEAR: VOLUMETRIC STRAIN, %	CONDITIONS BEFORE SHEAR: PORE PRESSURE RESPONSE, %	FINAL CONDITIONS: FINAL WATER CONTENT, %	FINAL CONDITIONS: FINAL DRY UNIT WEIGHT,	RATE OF STRAIN, PERCENT PER MINUTE
406.1.2	63.6	62.1	4.015 1.978	5.76	8.64	8.9	98.2	55.9	68.2	.02

SOIL DESCRIPTION: See Summary Sheet

LIQUID LIMIT 0 % PLASTIC LIMIT 0 % SPECIFIC GRAVITY 2.78

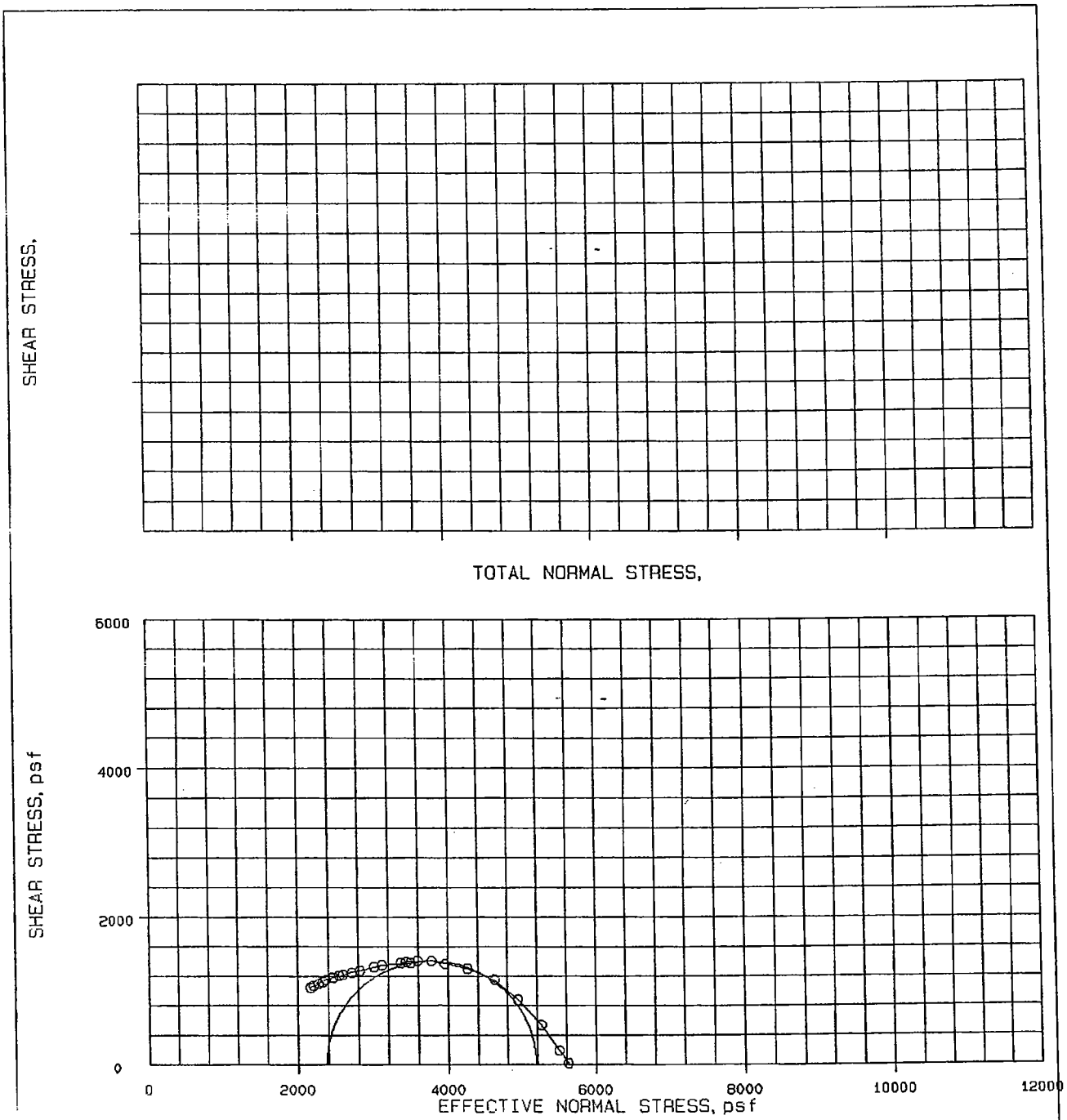
NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
TRIAXIAL COMPRESSION TESTS (CIU)

BORING NO. SB-77
SAMPLE UP-1
DEPTH 40.6-41.1'
TECH. MST
REVIEWER

TEST SERIES NO. 406
DATE Mar.04
FILE L1782B

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



SOIL DESCRIPTION:	See Summary Sheet		
LIQUID LIMIT 0 %	PLASTIC LIMIT 0	SPECIFIC GRAVITY	2.78

FAILURE CRITERIA $\sigma_1 - \sigma_3$ MAX

REMARKS

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

MOHR STRENGTH ENVELOPE

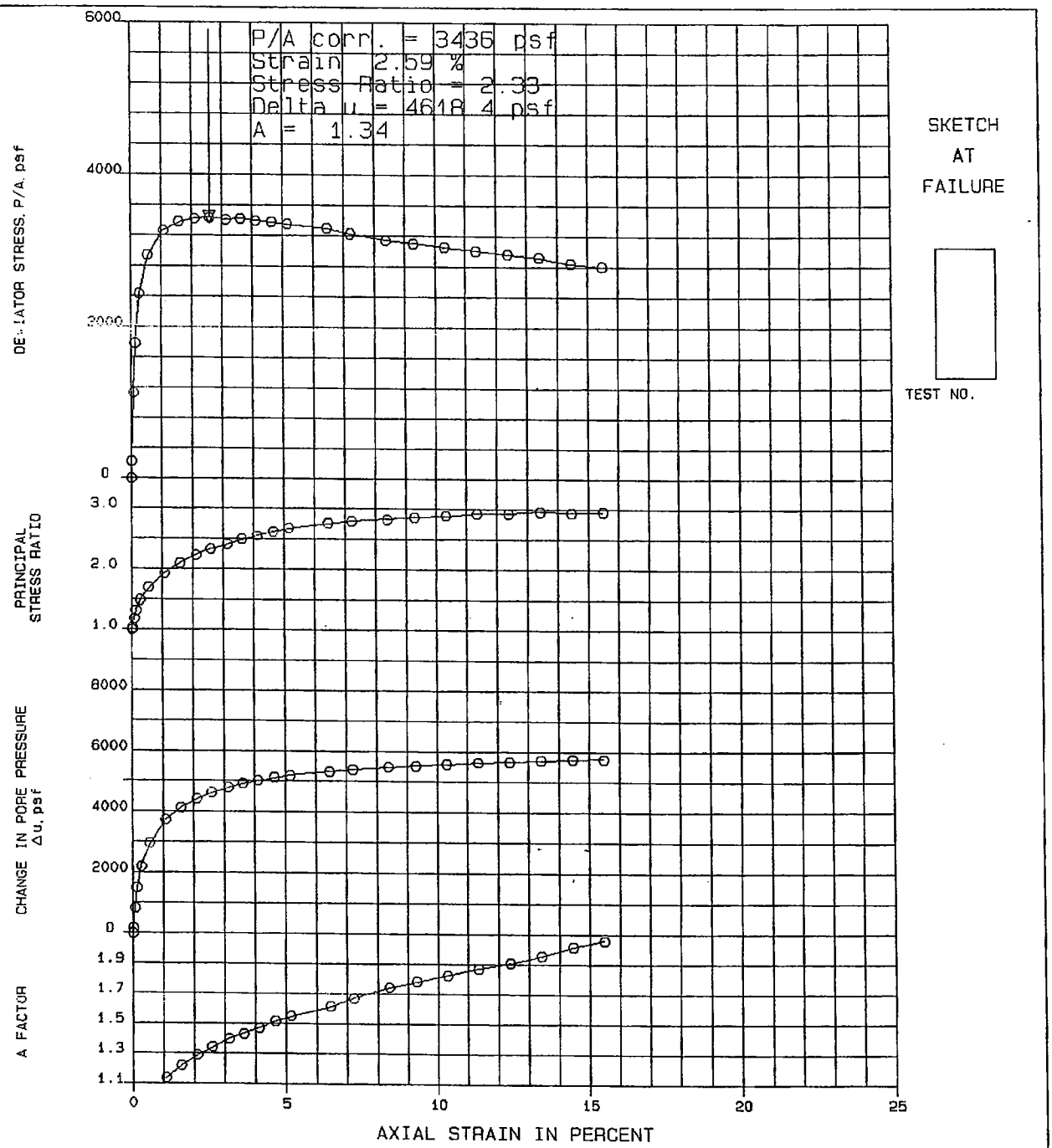
TRIAXIAL COMPRESSION TESTS (CIU)

FIGURE

BORING NO.	SB-77	TEST SERIES NO.	406
SAMPLE	UP-1	DATE	Mar.94
DEPTH	40.6-41.1'		
TECH.	MST		
REVIEWER		FILE	L1782B

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

T.10



TEST NO./SYMBOL	INITIAL CONDITIONS: INITIAL WATER CONTENT, %	INITIAL CONDITIONS: INITIAL DRY UNIT WEIGHT, pcf	INITIAL CONDITIONS: SAMPLE HEIGHT & DIAMETER, IN.	CONDITIONS BEFORE SHEAR: INITIAL STRESSES $\bar{\sigma}_1 = \bar{\sigma}_3$, ksf	CONDITIONS BEFORE SHEAR: FINAL BACK PRESSURE, ksf	CONDITIONS BEFORE SHEAR: VOLUMETRIC STRAIN, %	CONDITIONS BEFORE SHEAR: PORE PRESSURE RESPONSE, %	FINAL CONDITIONS: FINAL WATER CONTENT, %	FINAL CONDITIONS: FINAL DRY UNIT WEIGHT,	RATE OF STRAIN, PERCENT PER MINUTE
406.1.3	57.5	66.3	3.998 1.975	7.2	8.64	9	96	49.4	73	.02

SOIL DESCRIPTION: See Summary Sheet

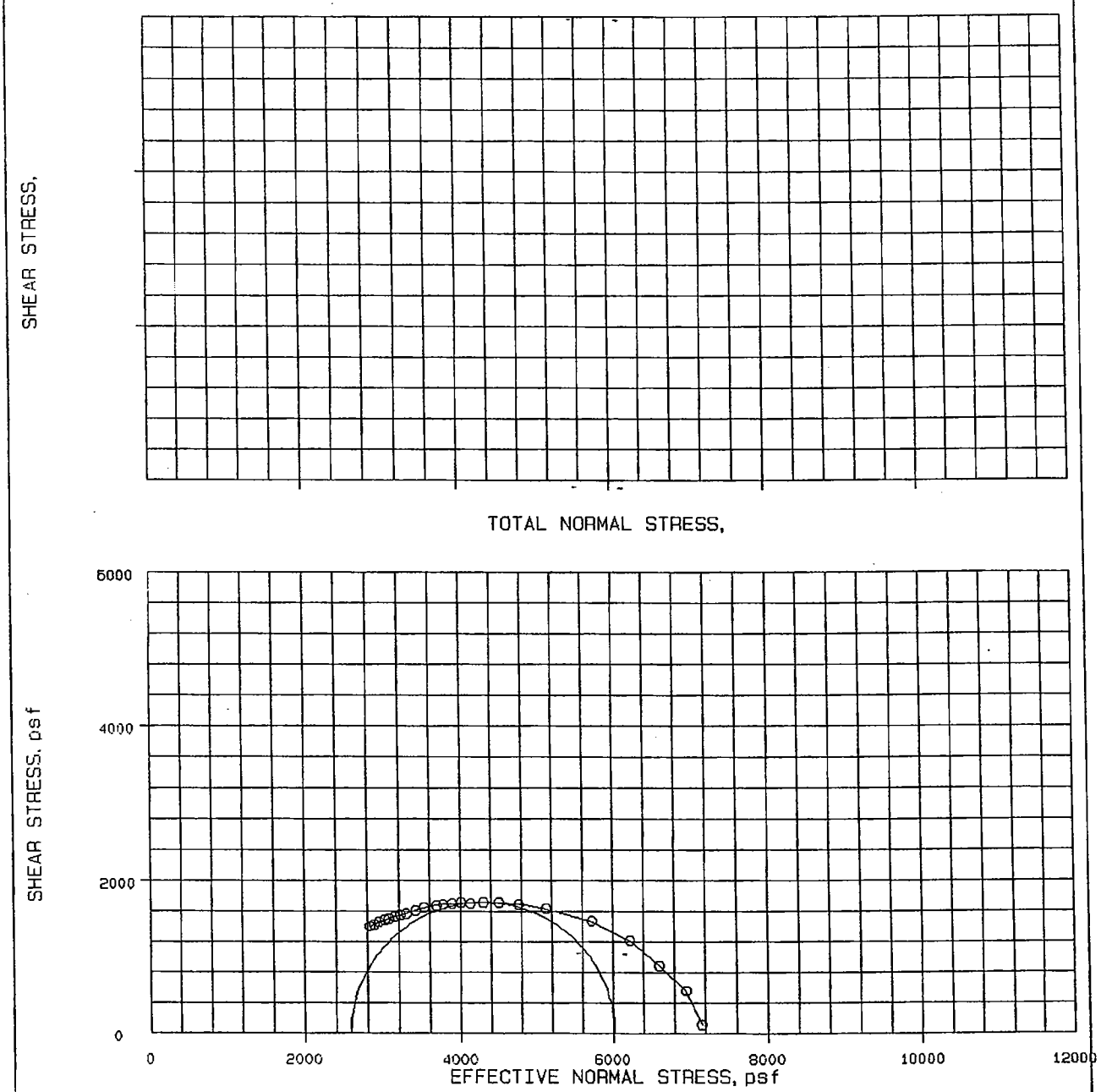
LIQUID LIMIT	0 %	PLASTIC LIMIT	0 %	SPECIFIC GRAVITY	2.78

NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
TRIAXIAL COMPRESSION TESTS (CIU)

BORING NO.	SB-77	TEST SERIES NO.	406
SAMPLE	UP-1	DATE	Mar.04
DEPTH	41.1-41.5'		
TECH.	MST		
REVIEWER		FILE	L1782B

FIGURE

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



SOIL DESCRIPTION:		See Summary Sheet			
LIQUID LIMIT	0 %	PLASTIC LIMIT	0	SPECIFIC GRAVITY	2.78

FAILURE CRITERIA $\sigma_1 - \sigma_3$ MAX

REMARKS

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

MOHR STRENGTH ENVELOPE

TRIAXIAL COMPRESSION TESTS (CIU)

FIGURE

BORING NO.	SB-77	TEST SERIES NO.	406
SAMPLE	UP-1	DATE	Mar.04
DEPTH	41.1-41.5'		
TECH.	MST		
REVIEWER		FILE	L17828

2008 Direct Simple Shear Tests

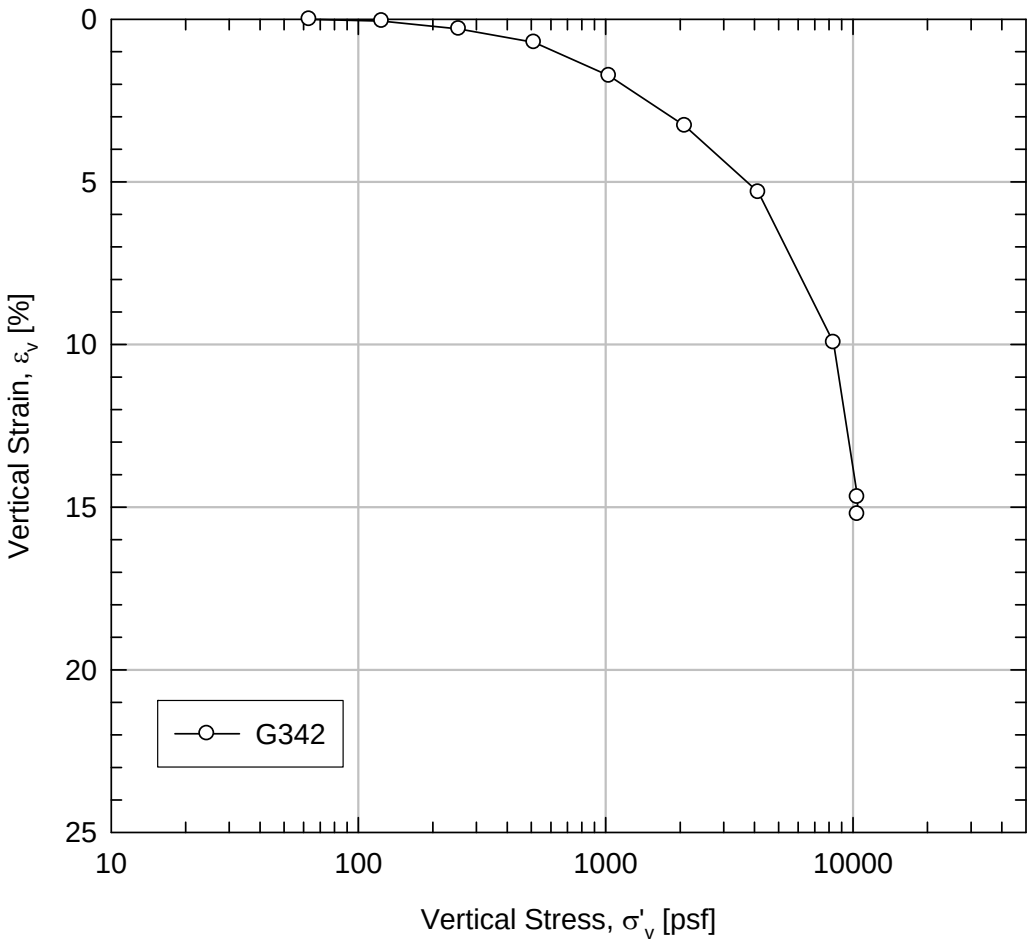


Figure 5.4.16 Vertical strain versus vertical effective stress for test DSS G342 on sample AARW-10-40 UP-1 63-65 ft.

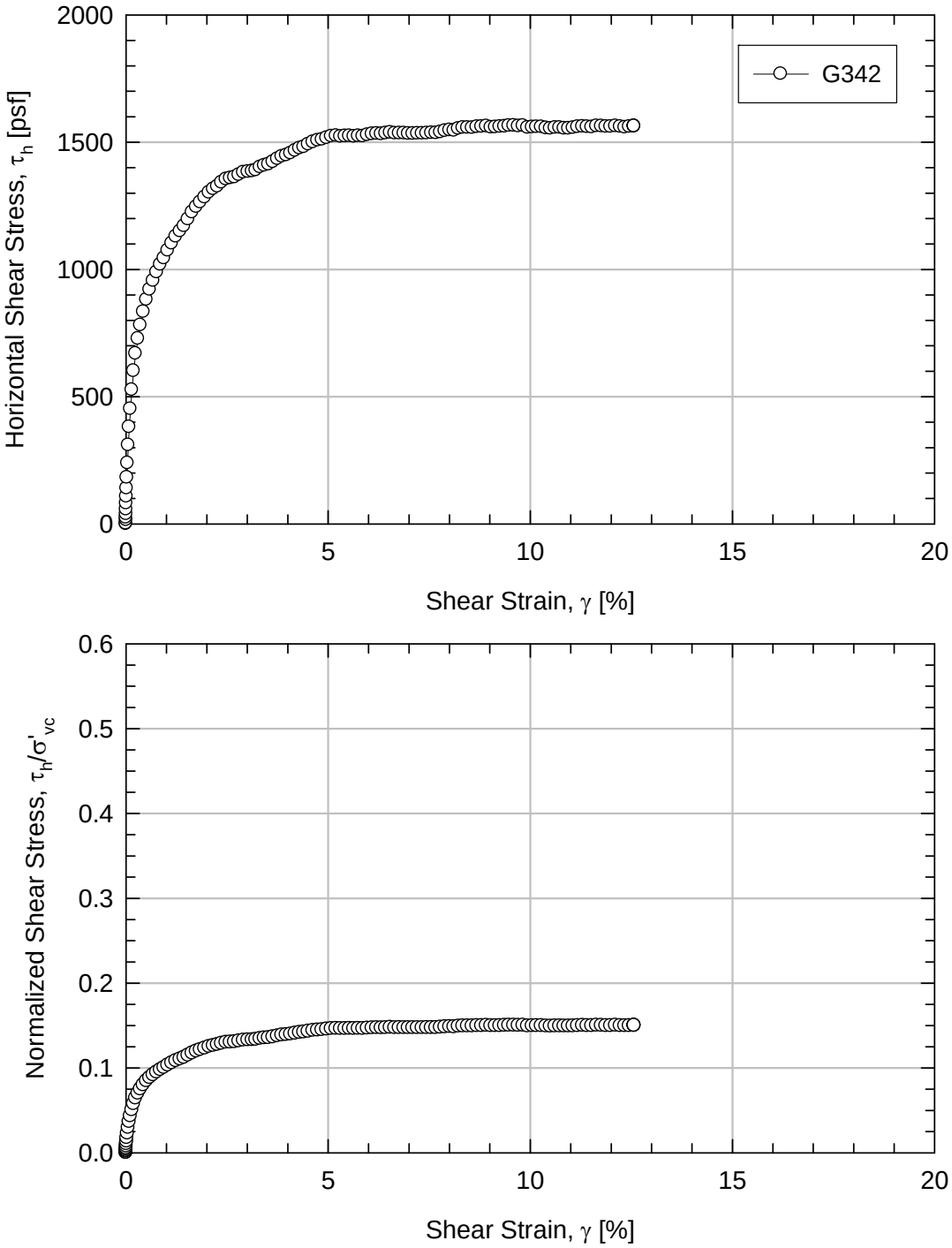


Figure 5.4.17 Horizontal shear stress and normalized shear stress versus shear strain for test DSS G342 on sample AARW-10-40 UP-1 63-65 ft.

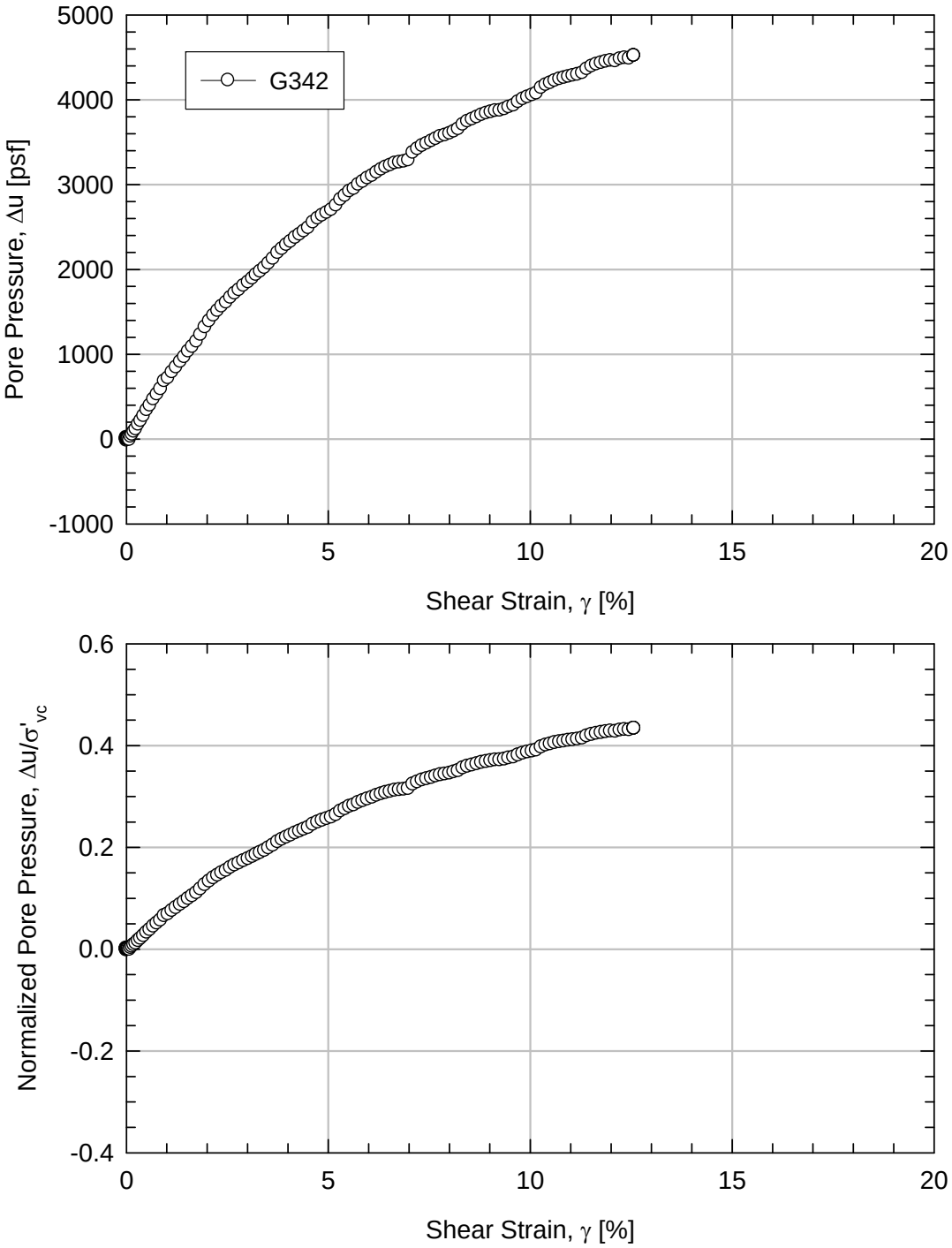


Figure 5.4.18 Pore pressure and normalized pore pressure versus shear strain for test DSS G342 on sample AARW-10-40 UP-1 63-65 ft.

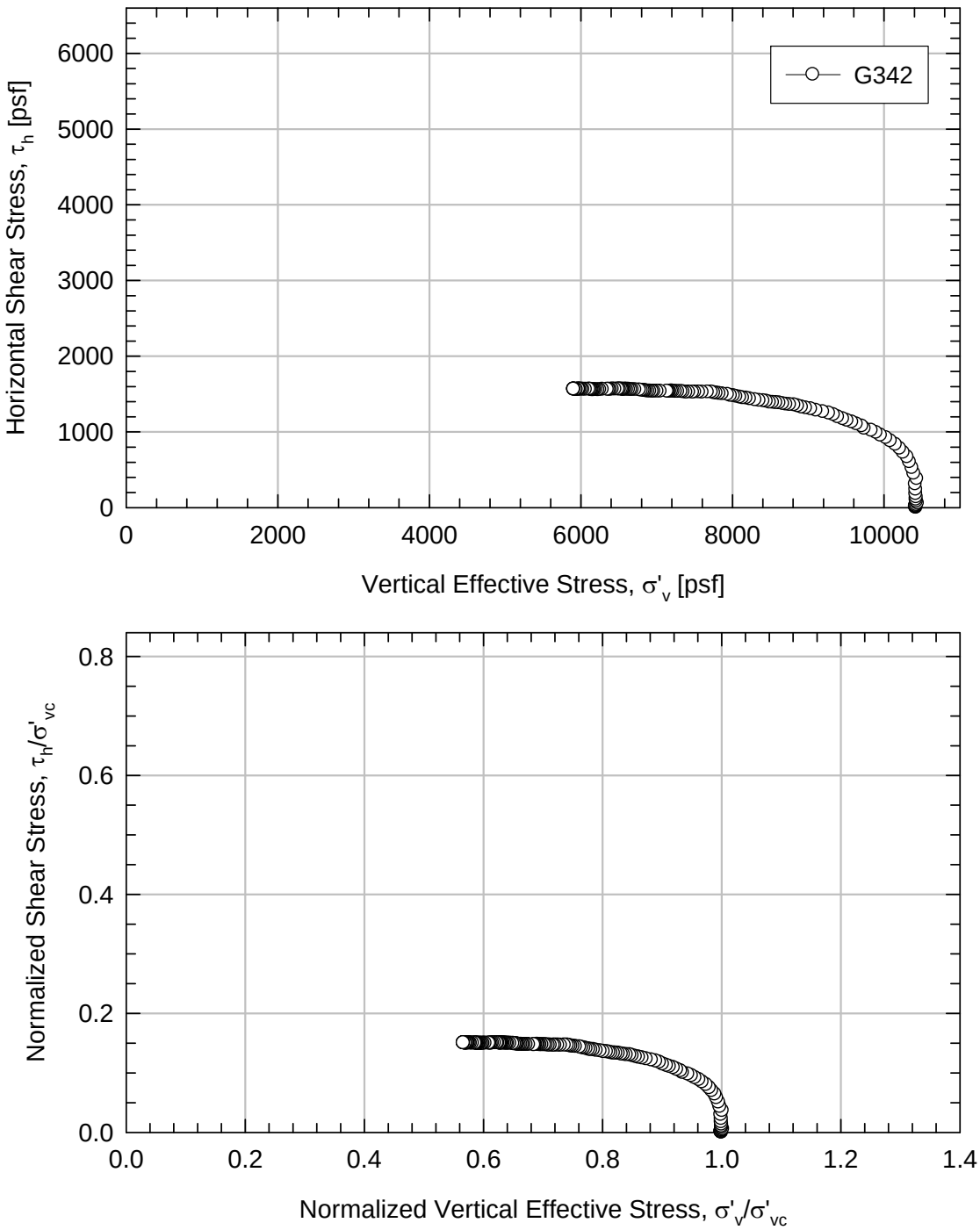


Figure 5.4.19 Horizontal shear stress versus vertical effective stress and normalized shear stress versus normalized vertical effective stress for test DSS G342 on sample AARW-10-40 UP-1 63-65 ft.

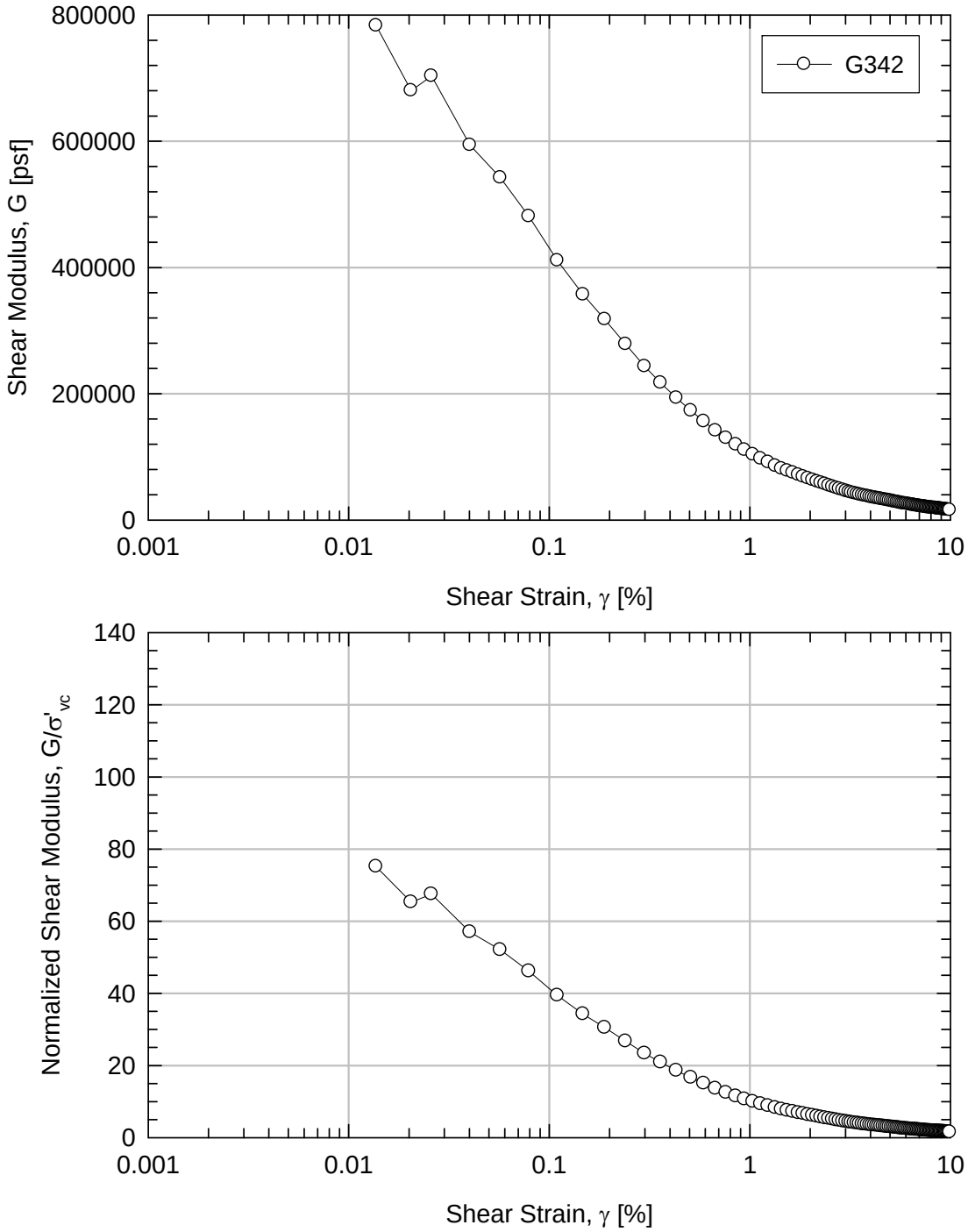


Figure 5.4.20 Shear modulus and normalized shear modulus versus shear strain for test DSS G342 on sample AARW-10-40 UP-1 63-65 ft.

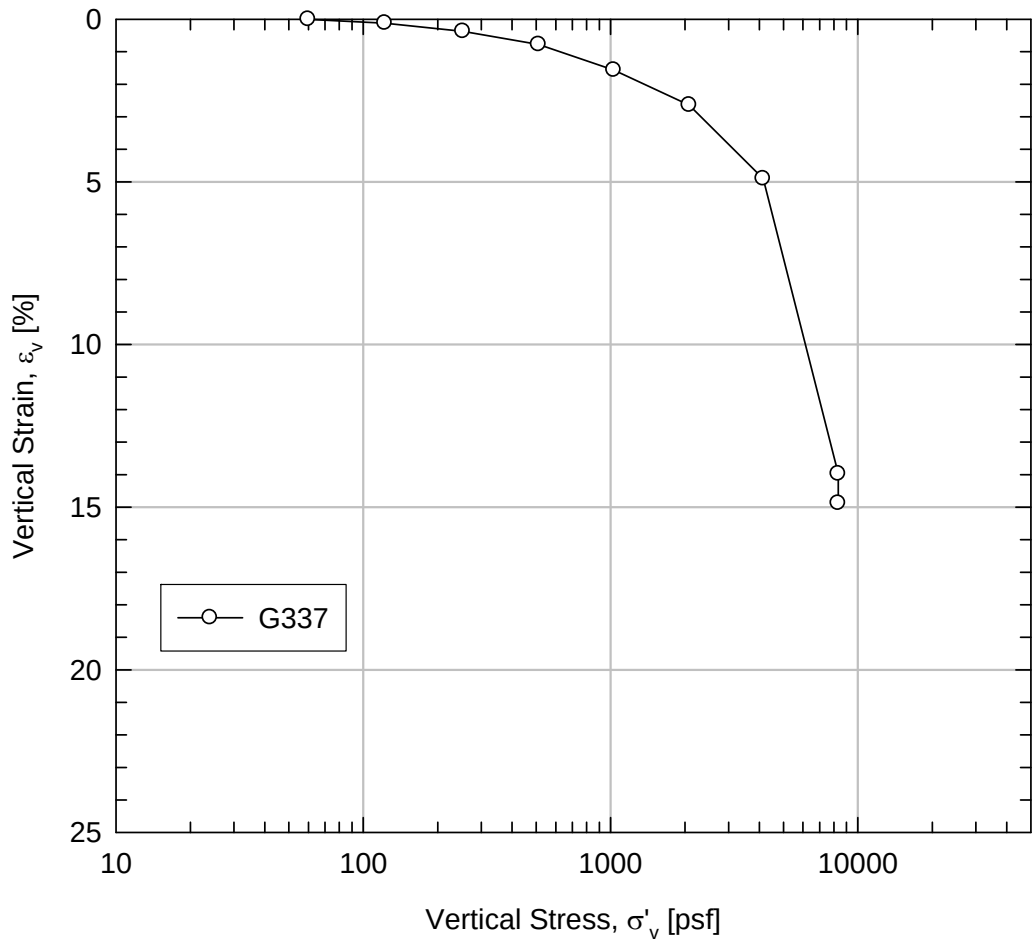


Figure 5.4.6 Vertical strain versus vertical effective stress for test DSS G337 on sample SB-01-1 UP2 30-32 ft

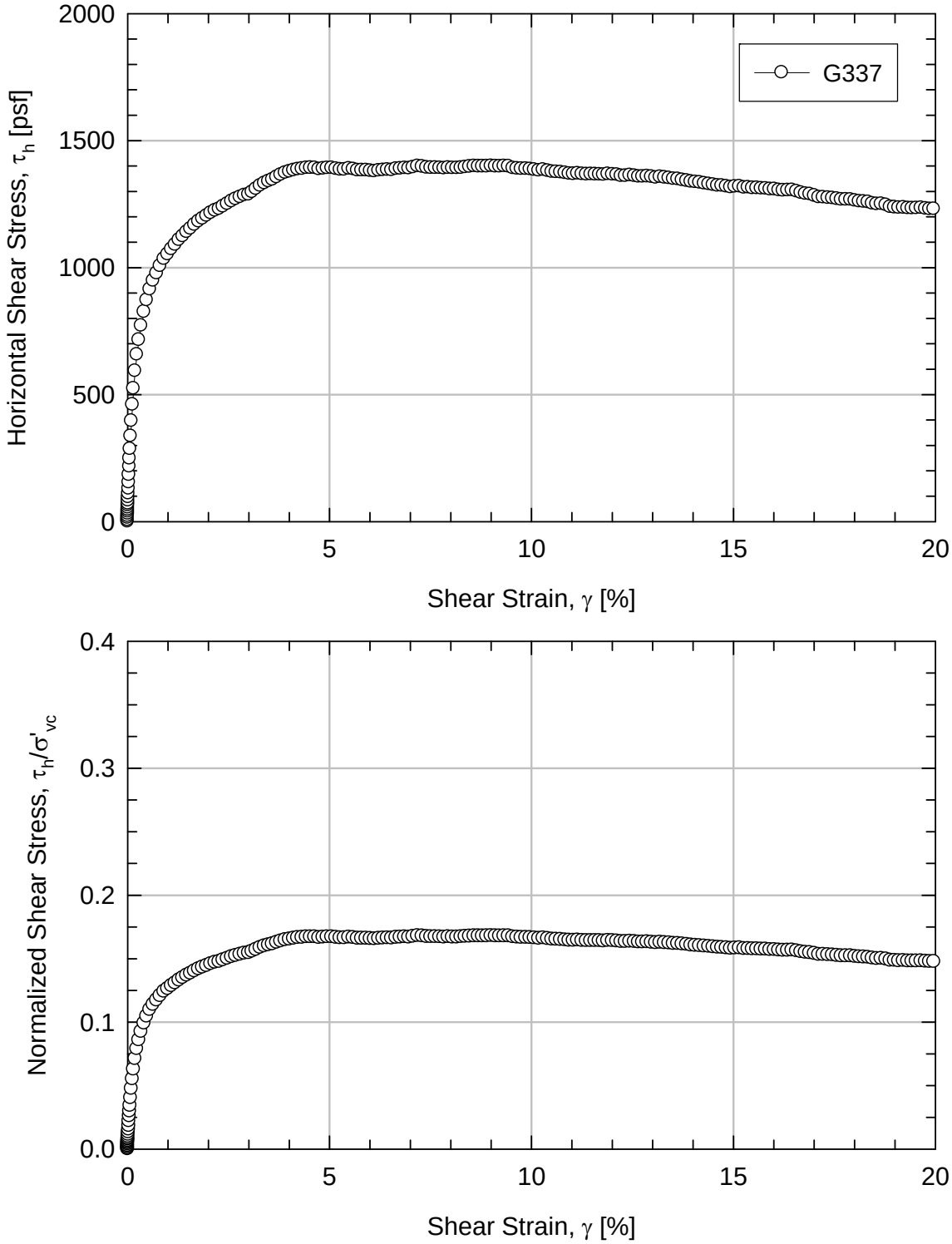


Figure 5.4.7 Horizontal shear stress and normalized shear stress versus shear strain for test DSS G337 on sample SB-01-1 UP2 30-32 ft

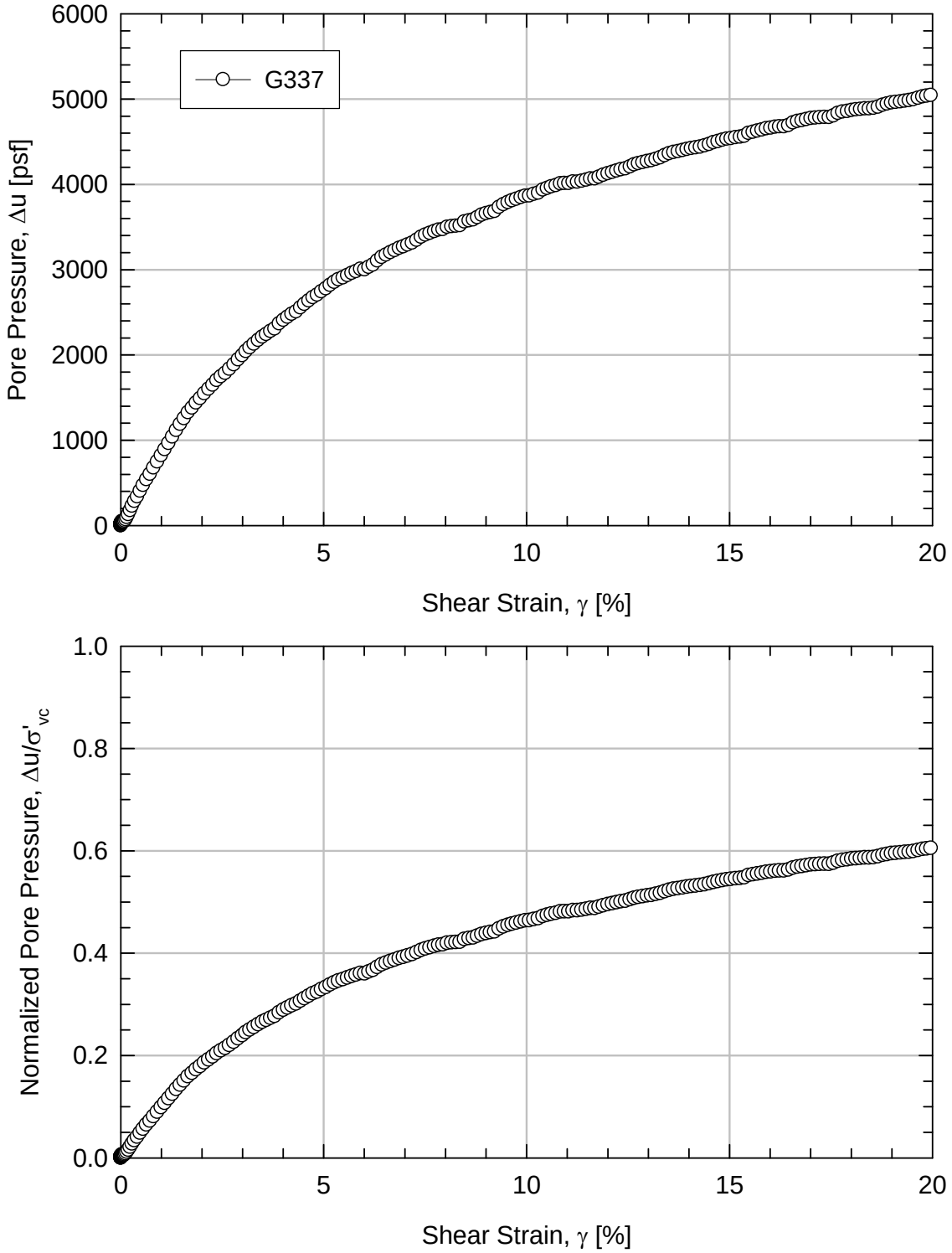


Figure 5.4.8 Pore pressure and normalized pore pressure versus shear strain for test DSS G337 on sample SB-01-1 UP2 30-32 ft

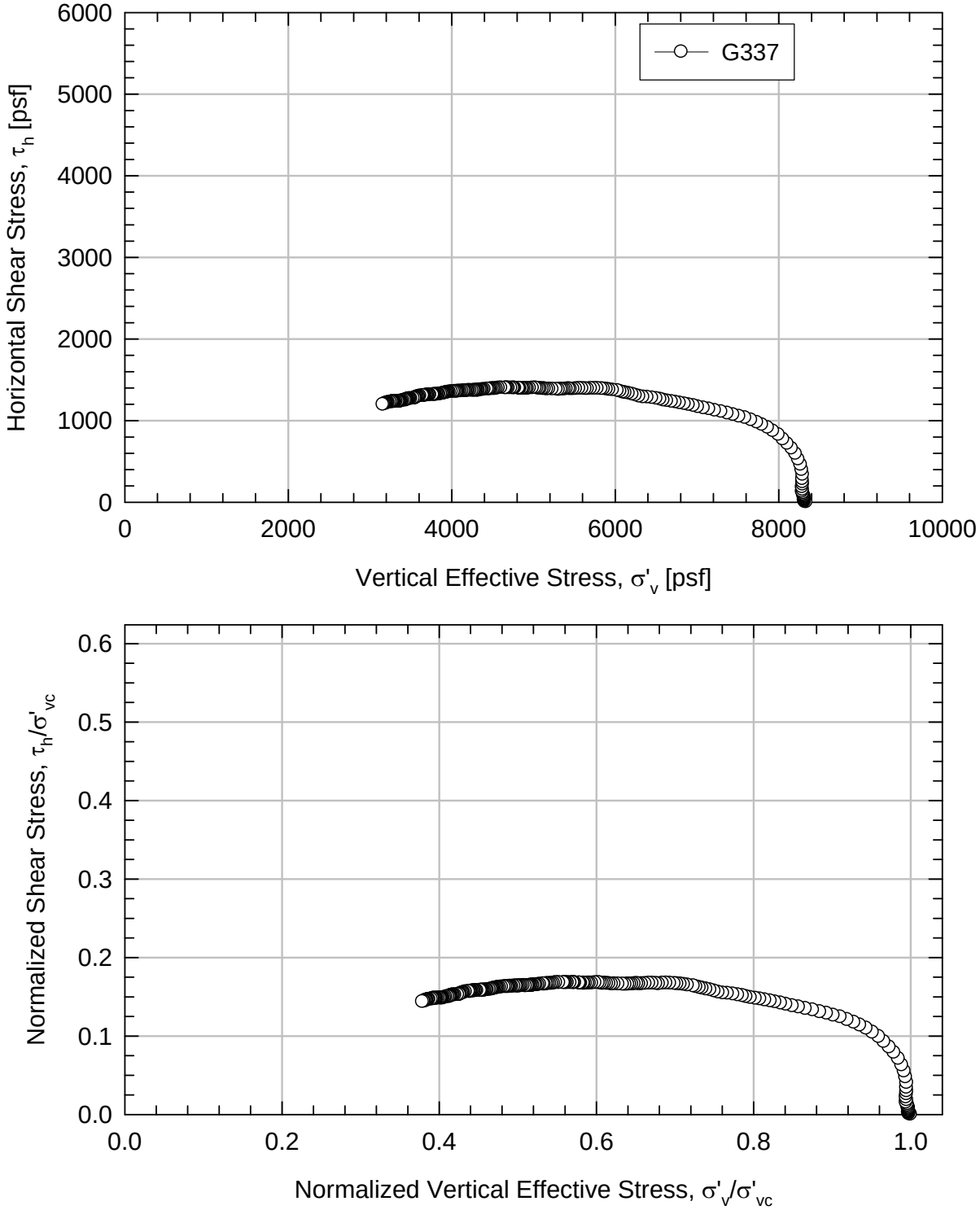


Figure 5.4.9 Horizontal shear stress versus vertical effective stress and normalized shear stress versus normalized vertical effective stress for test DSS G337 on sample SB-01-1 UP2 30-32 ft

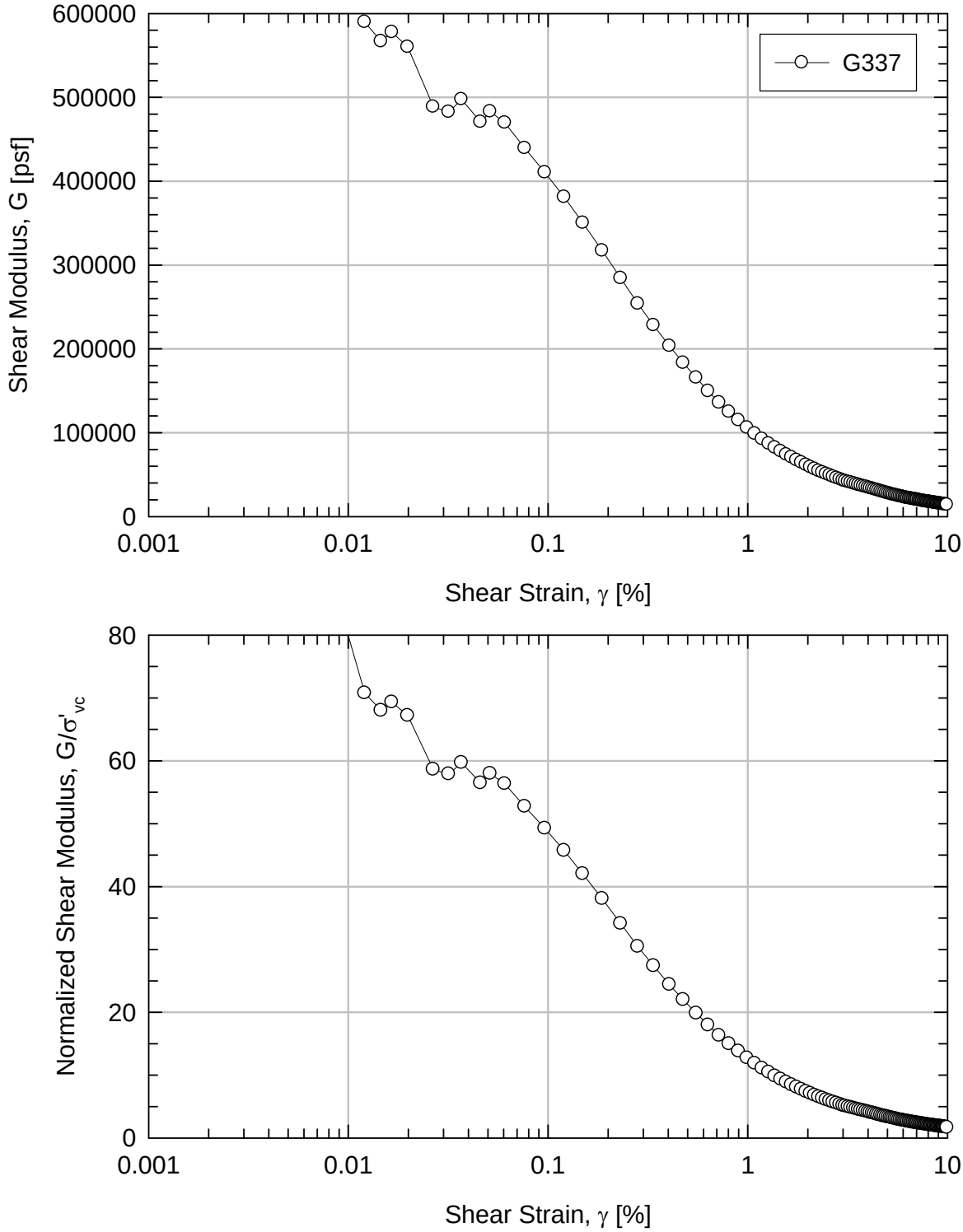


Figure 5.4.10 Shear modulus and normalized shear modulus versus shear strain for test DSS G337 on sample SB-01-1 UP2 30-32 ft.

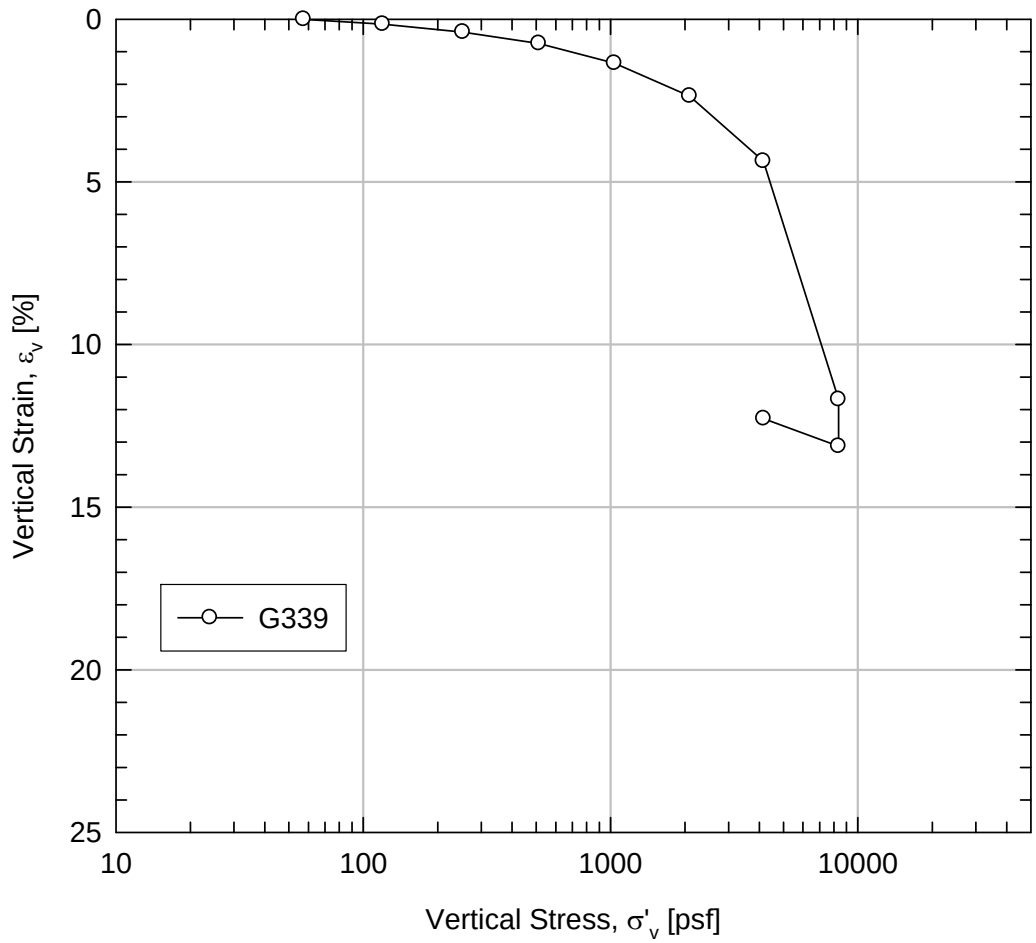


Figure 5.4.16 Vertical strain versus vertical effective stress for test DSS G339 on sample SB-01-1 UP2 30-32 ft.

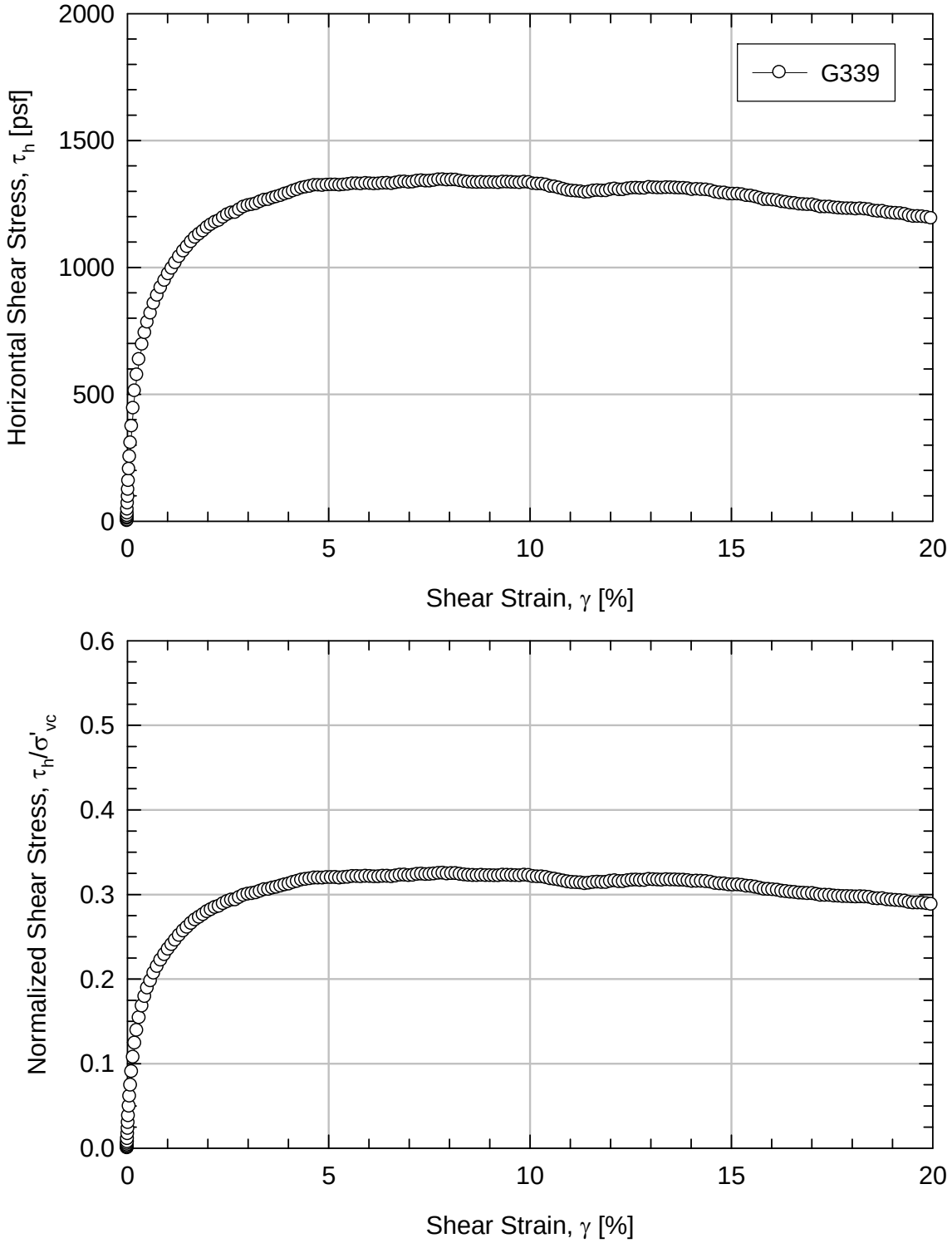


Figure 5.4.17 Horizontal shear stress and normalized shear stress versus shear strain for test DSS G339 on sample SB-01-1 UP2 30-32 ft.

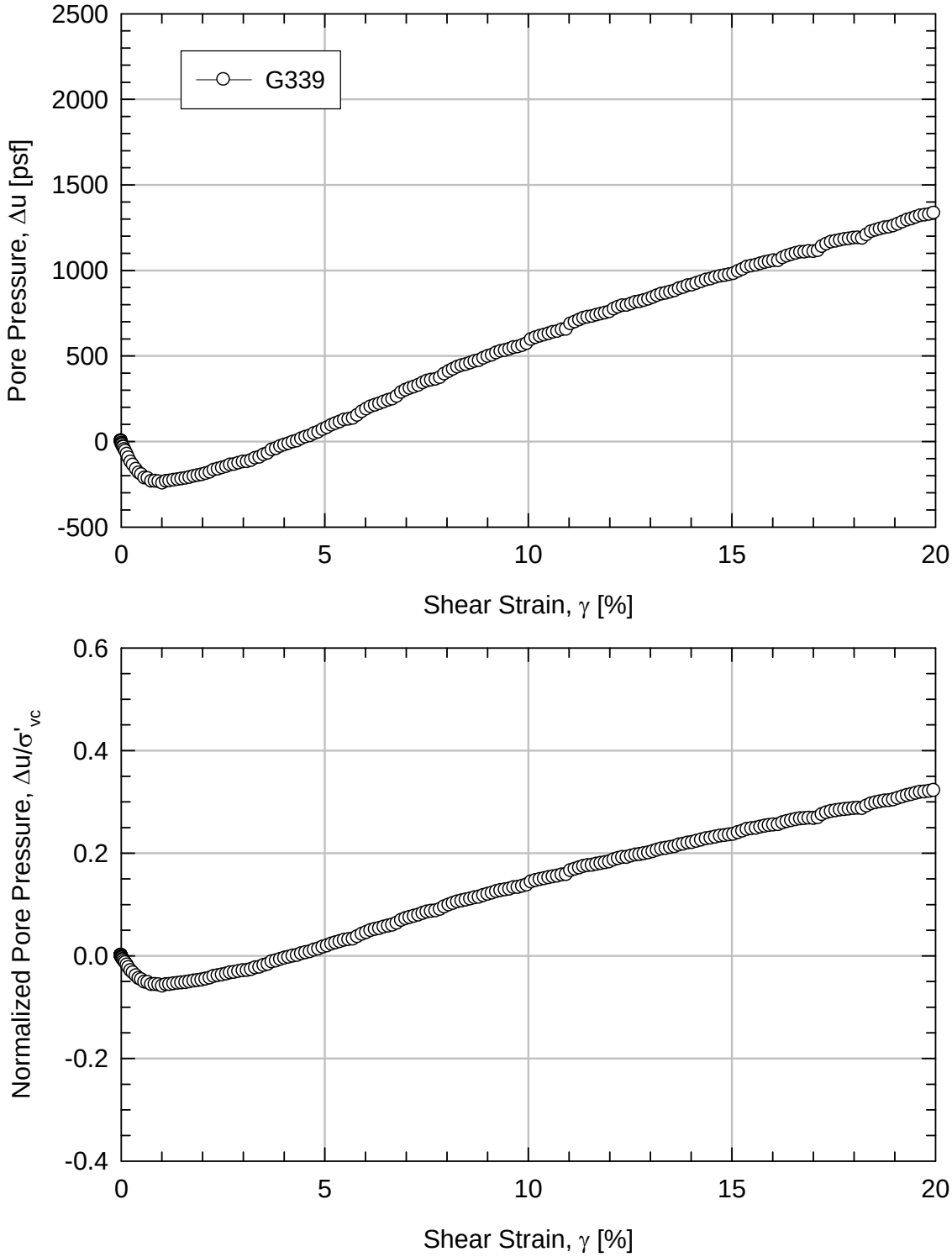


Figure 5.4.18 Pore pressure and normalized pore pressure versus shear strain for test DSS G339 on sample SB-01-1 UP2 30-32 ft.

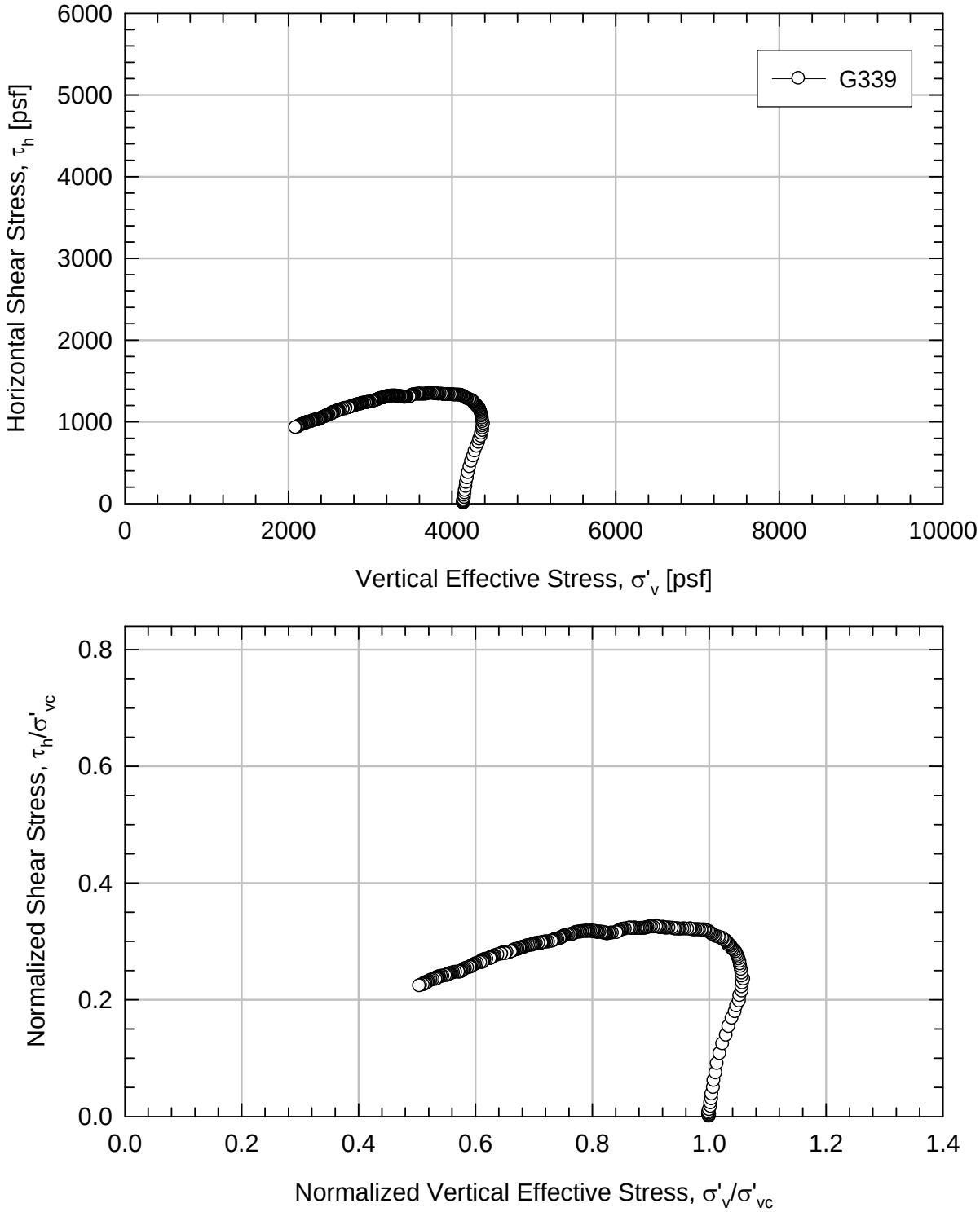


Figure 5.4.19 Horizontal shear stress versus vertical effective stress and normalized shear stress versus normalized vertical effective stress for test DSS G339 on sample SB-01-1 UP2 30-32 ft.

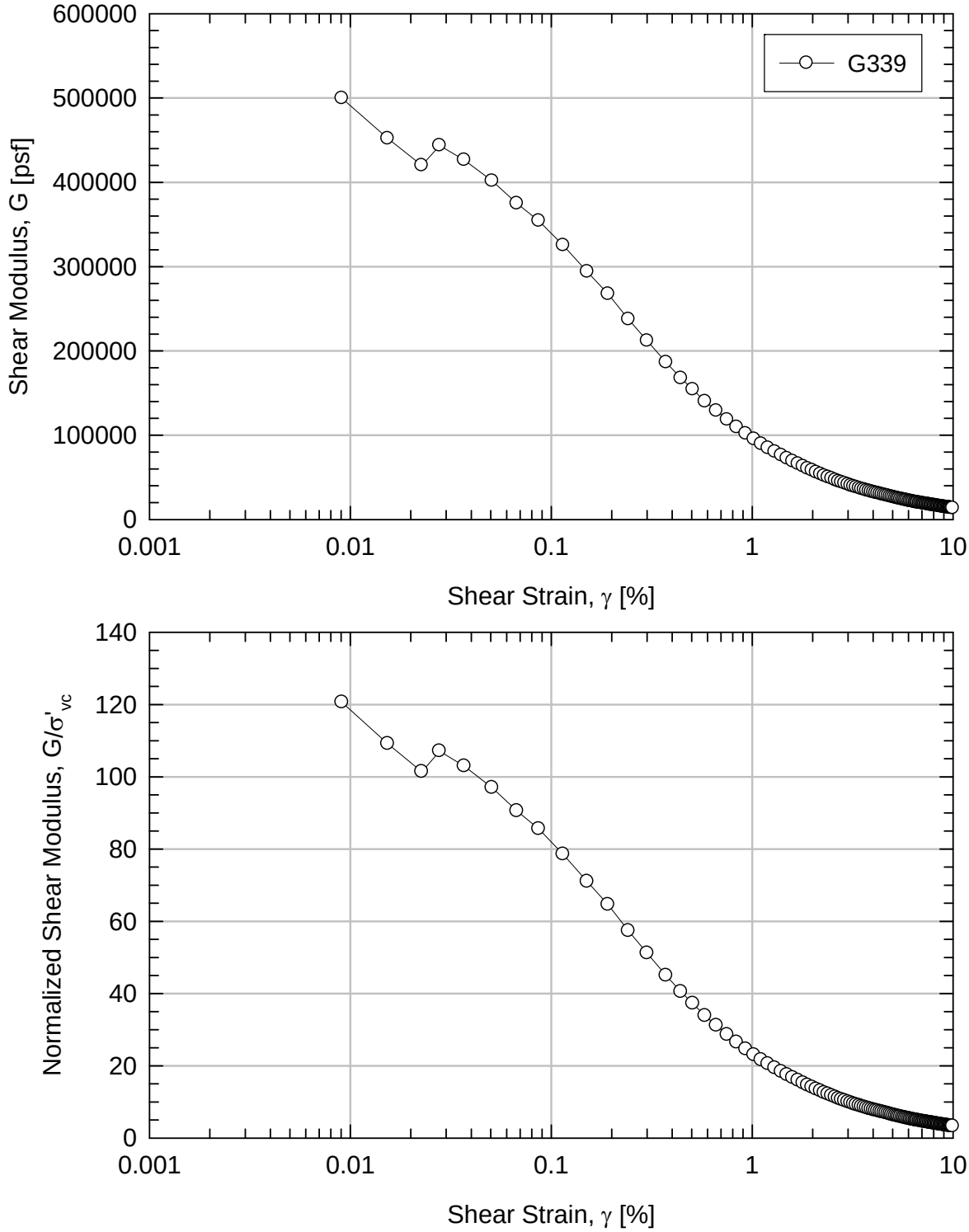


Figure 5.4.20 Shear modulus and normalized shear modulus versus shear strain for test DSS G339 on sample SB-01-1 UP2 30-32 ft.

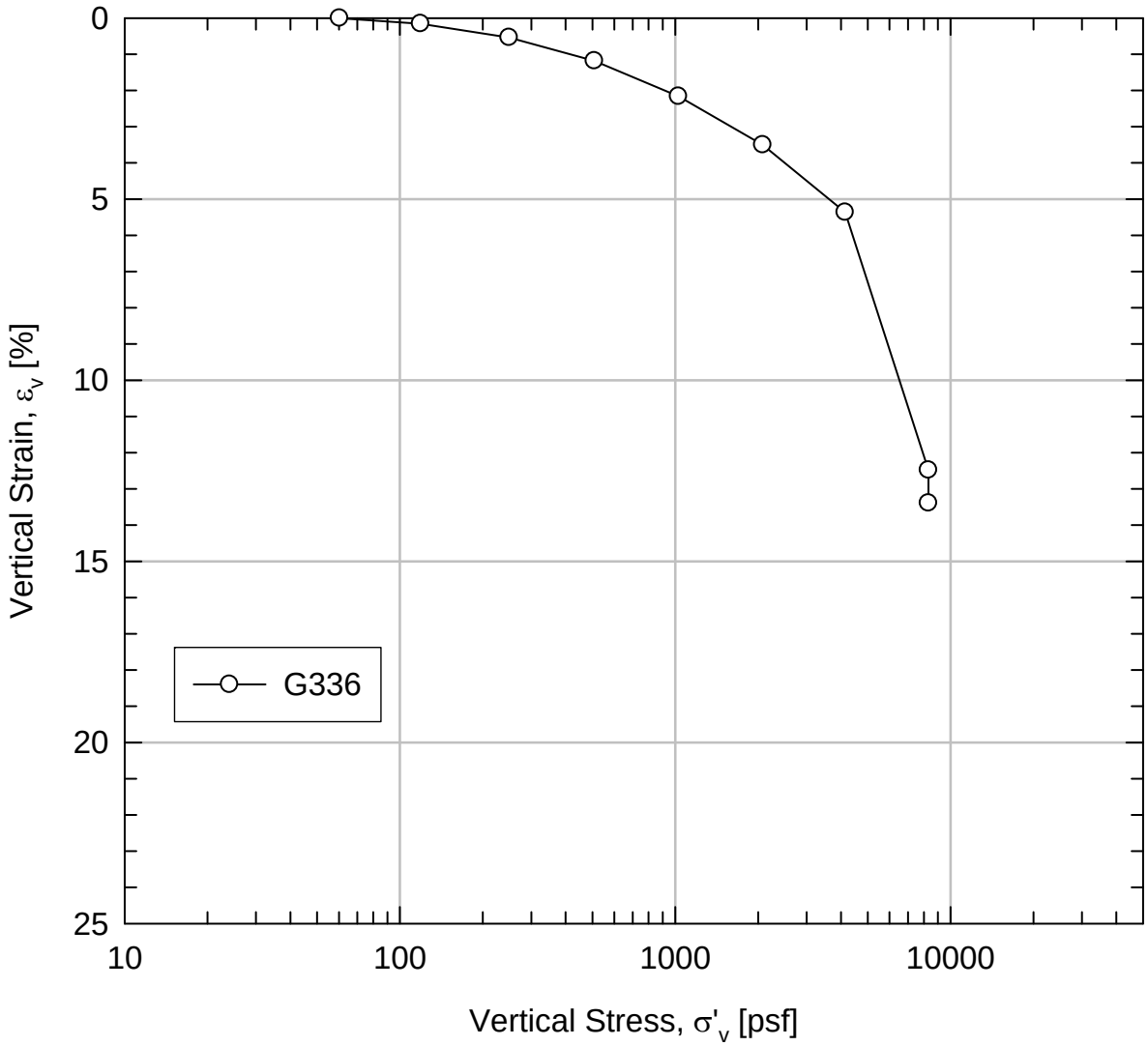


Figure 5.4.1 Vertical strain versus vertical effective stress for test DSS G336 on sample SB-01-04 UP2 40-42 ft.

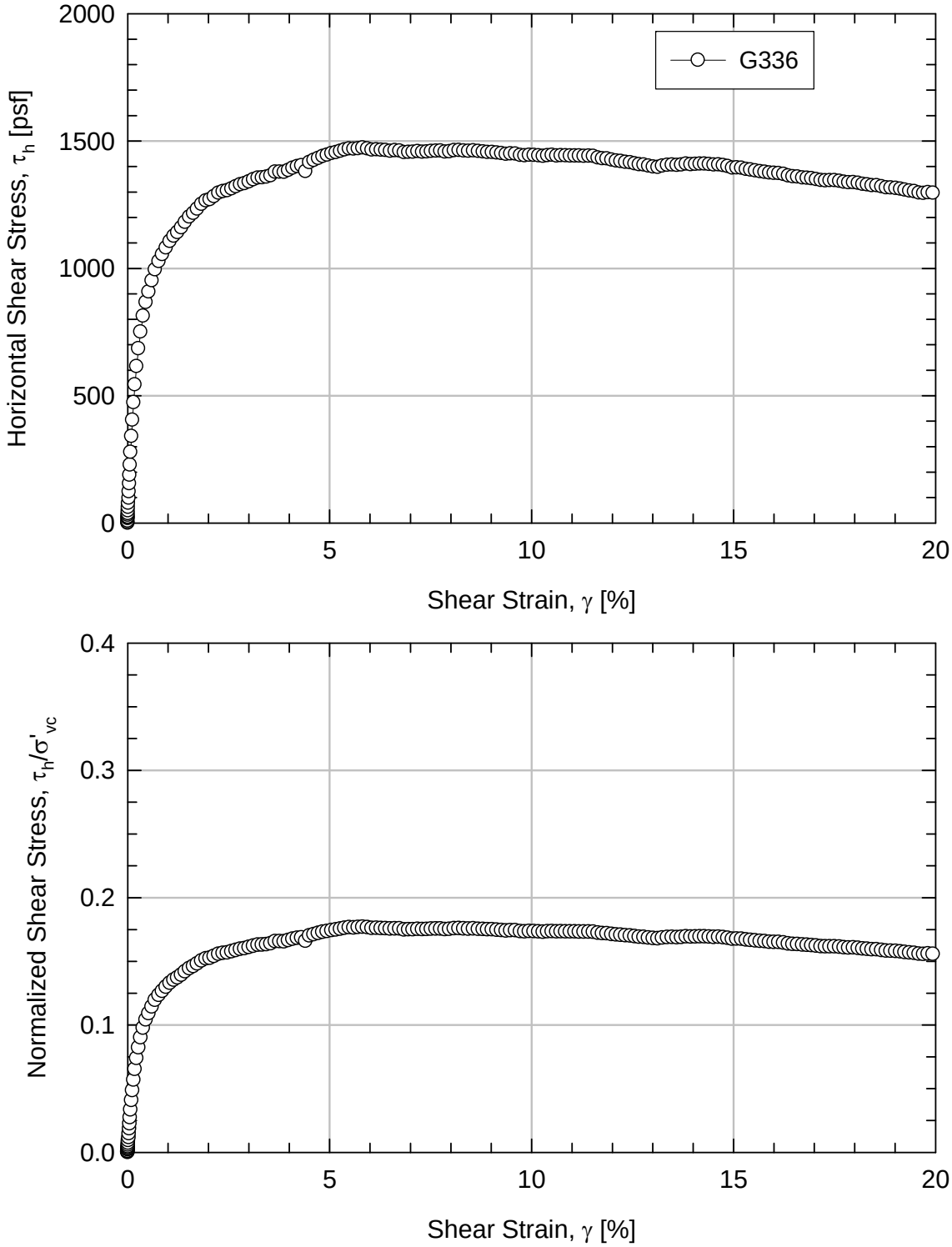


Figure 5.4.2 Horizontal shear stress and normalized shear stress versus shear strain for test DSS G336 on sample SB-01-04 UP2 40-42 ft.

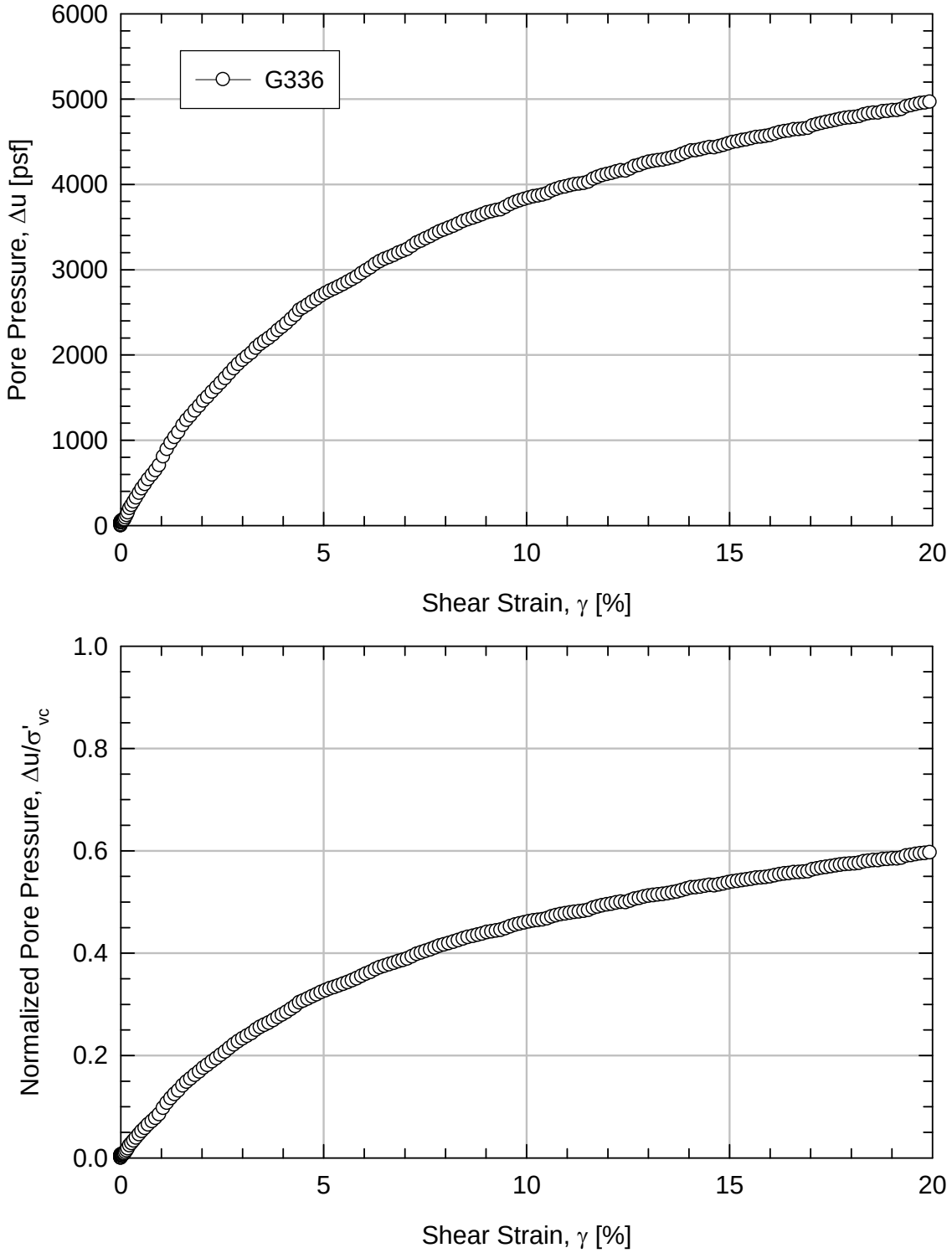


Figure 5.4.3 Pore pressure and normalized pore pressure versus shear strain for test DSS G336 on sample SB-01-04 UP2 40-42 ft.

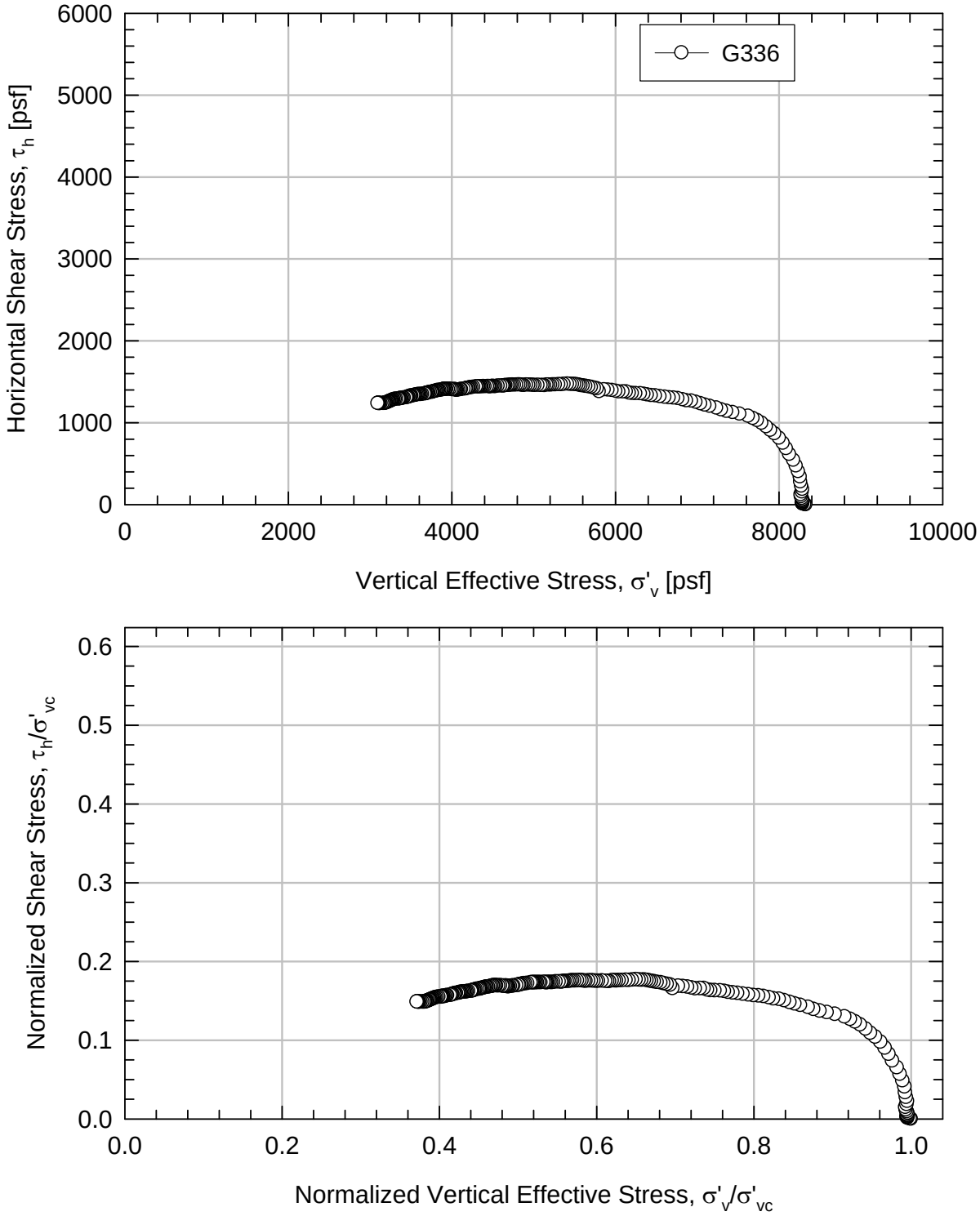


Figure 5.4.4 Horizontal shear stress versus vertical effective stress and normalized shear stress versus normalized vertical effective stress for test DSS G336 on sample SB-01-04 UP2 40-42 ft.

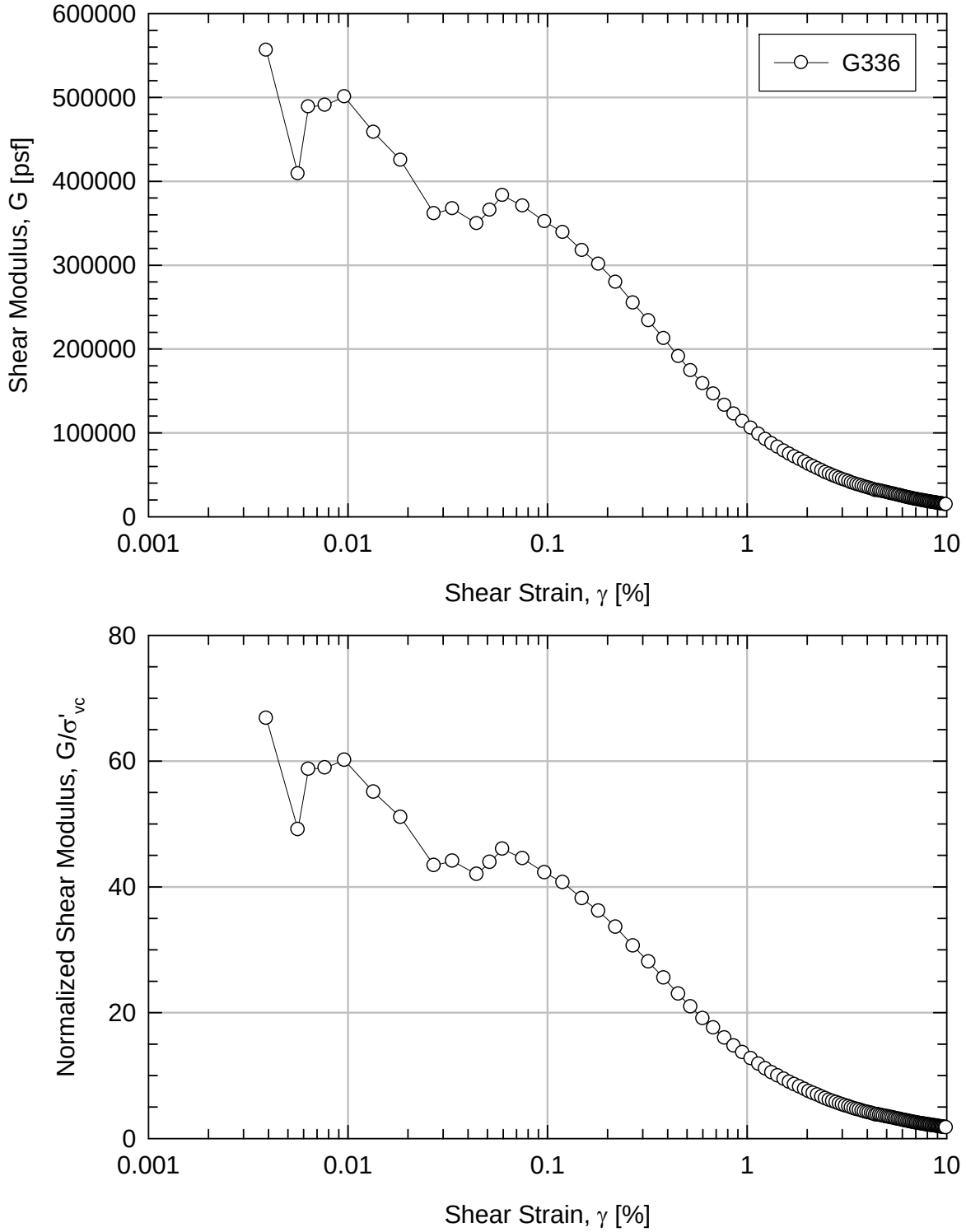


Figure 5.4.5 Shear modulus and normalized shear modulus versus shear strain for test DSS G336 on sample SB-01-04 UP2 40-42 ft.

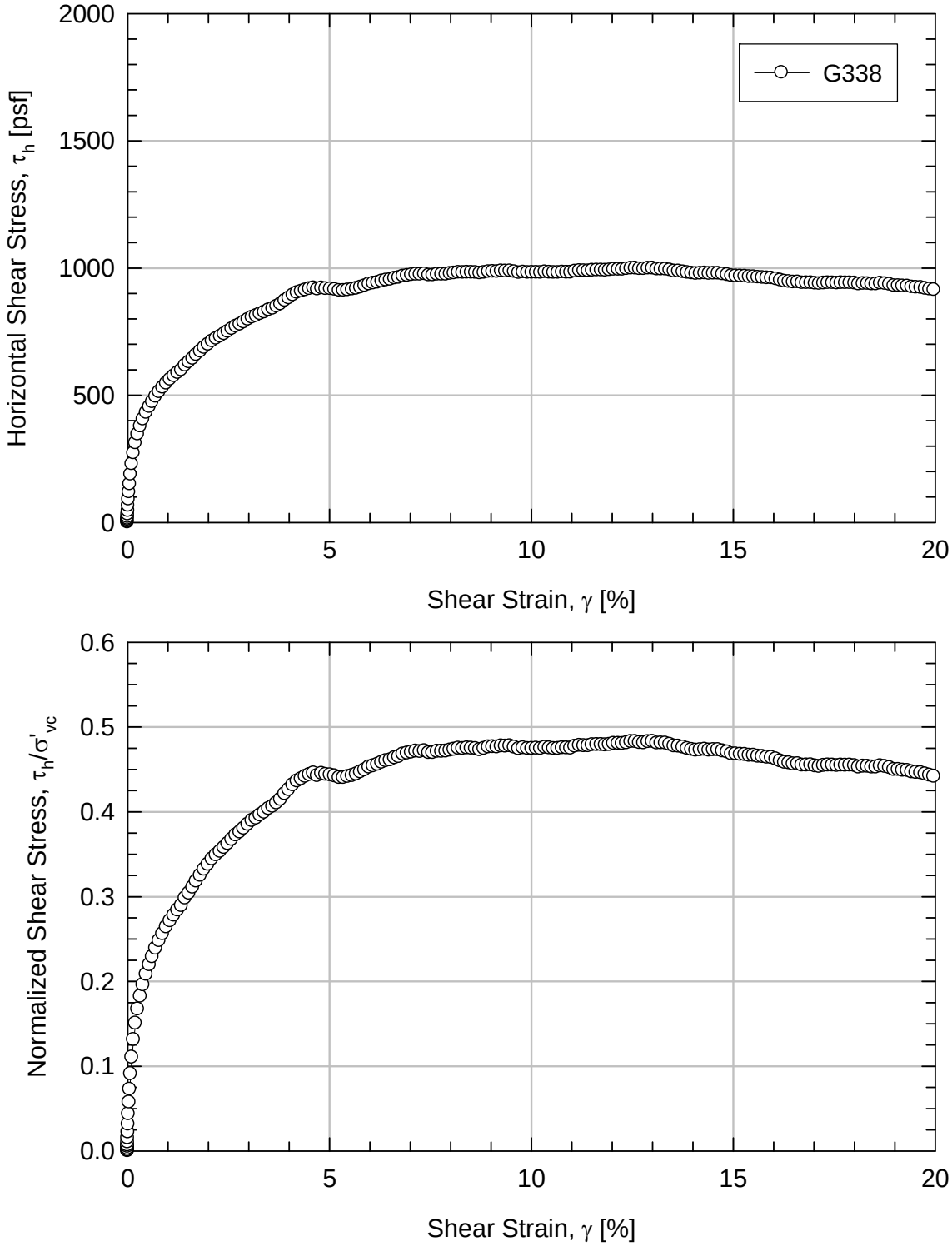


Figure 5.4.12 Horizontal shear stress and normalized shear stress versus shear strain for test DSS G338 on sample SB-01-04 UP2 40-42 ft.

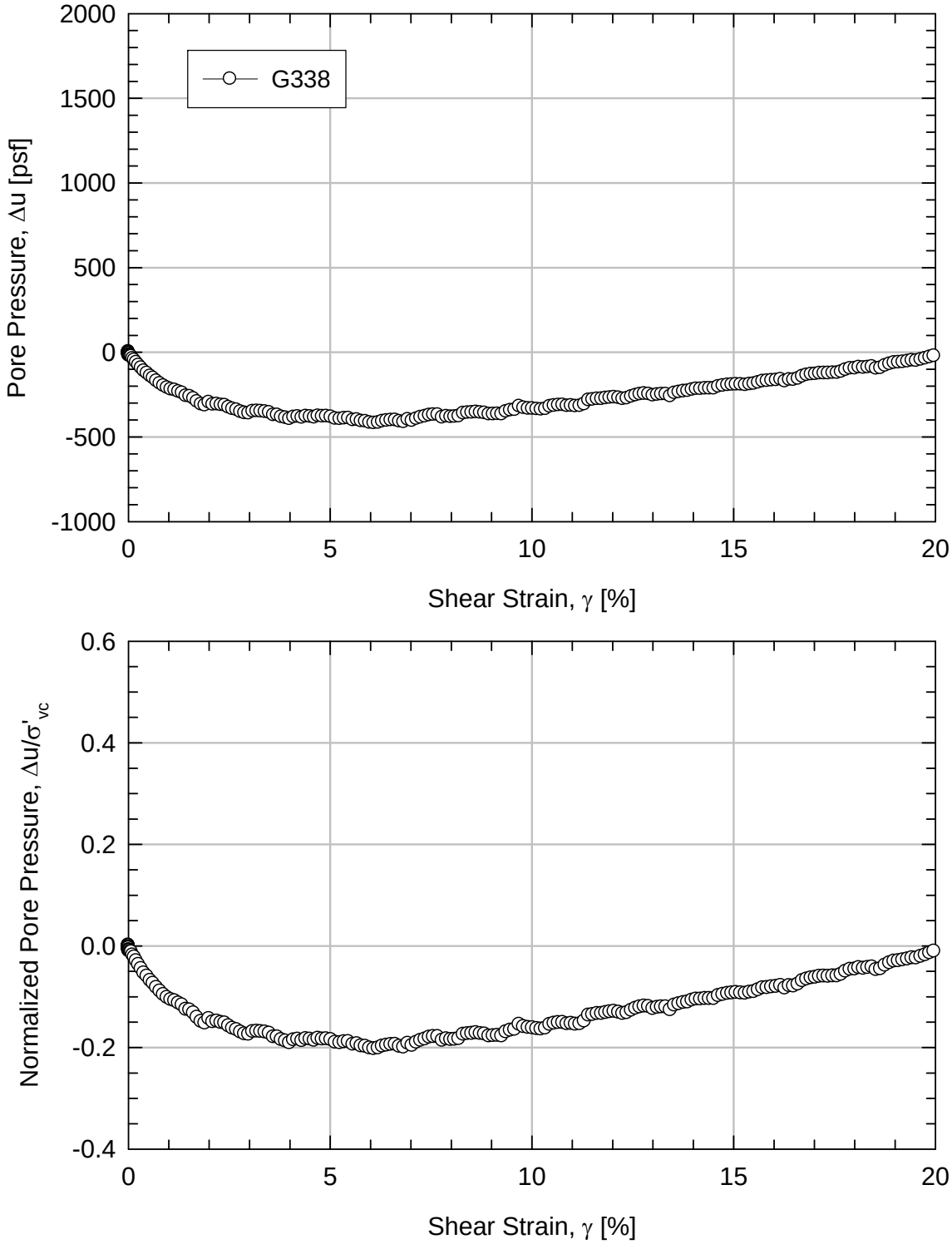


Figure 5.4.13 Pore pressure and normalized pore pressure versus shear strain for test DSS G338 on sample SB-01-04 UP2 40-42 ft.

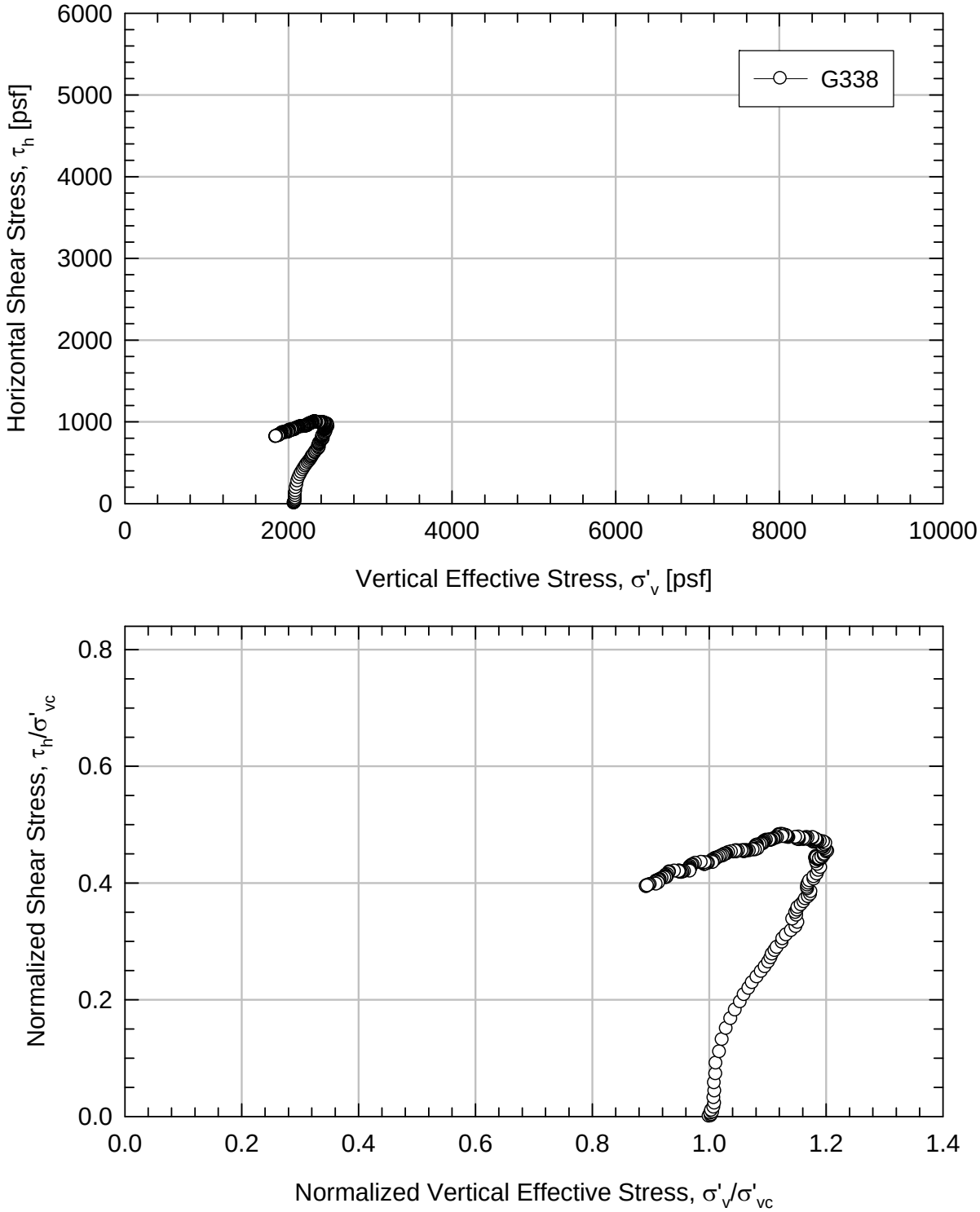


Figure 5.4.14 Horizontal shear stress versus vertical effective stress and normalized shear stress versus normalized vertical effective stress for test DSS G338 on sample SB-01-04 UP2 40-42 ft.

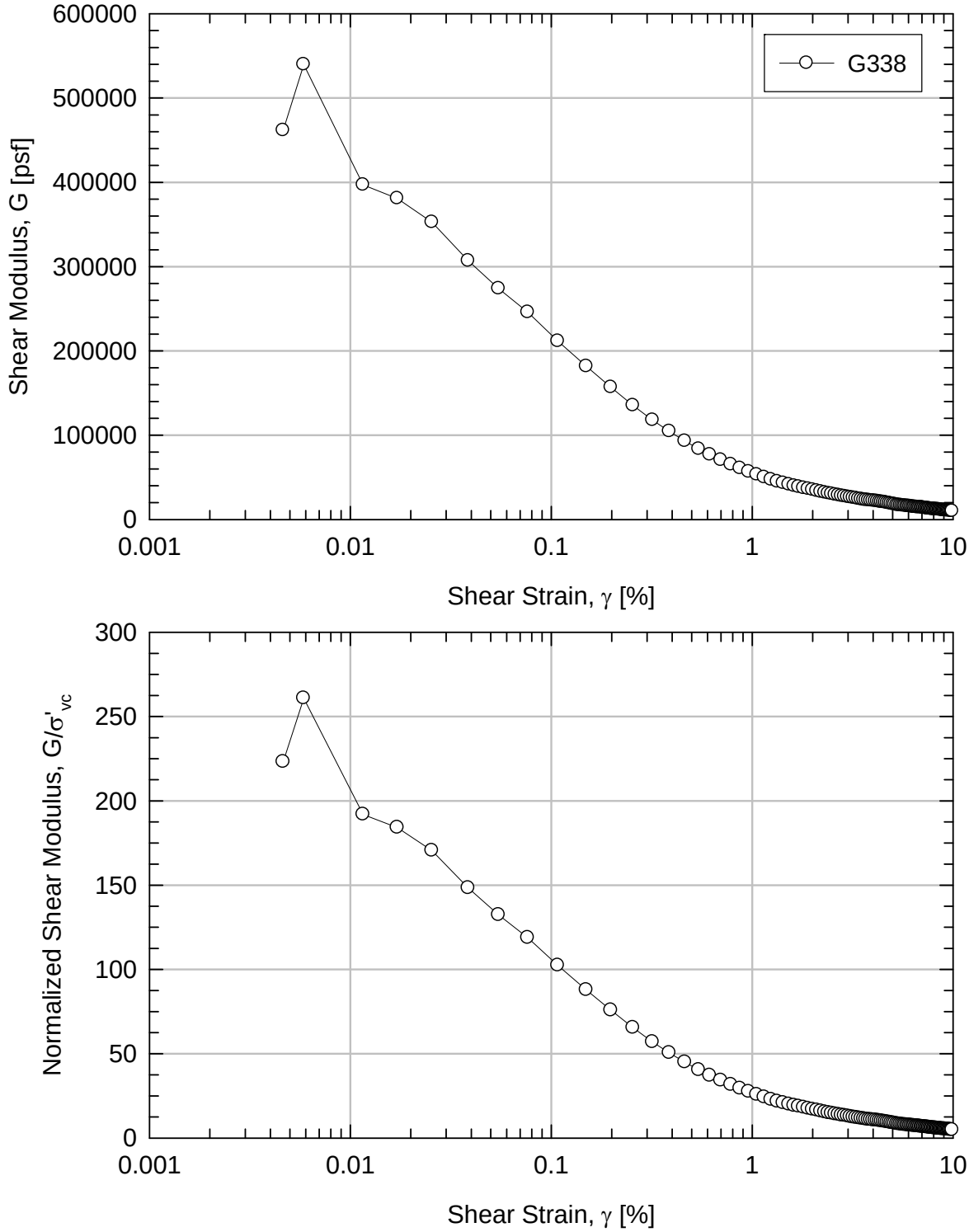


Figure 5.4.15 Shear modulus and normalized shear modulus versus shear strain for test DSS G338 on sample SB-01-04 UP2 40-42 ft.

2008 Unconfined Compression Test (Rock)

Appendix 3

Atterberg Limits and Moisture Contents

2003 Atterberg Limits

2008 Atterberg Limits

2003 Moisture Contents

2008 Moisture Contents

2003 Atterberg Limits

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
Project No.: L17828
Project Engineer: D. SCHULZE
Assigned By: D. GAFFNEY
Date: NOV.03
Reviewed By: Don Schulze
Date Reviewed: 11/18/03

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{G_s}{1 + e_0}$	Laboratory Log and Soil Description
SB-54	S-6	16.5-18.0	127	20.1	21	20	43	9												Brown Silty sand (SM)
SB-54	S-15	55.0-56.5	128	42.1	44	22	98	44												Red-brown Lean clay (CL)
SB-55	S-4	10.0-11.5	129	18.5	22	20	39	8												Brown Silty sand with gravel (SM)
SB-55	S-17	65.0-66.5	130	33.7	29	22	99	25												Red-brown Silty clay (CL-ML)
SB-55	S-28	120.0-121.5	131	16.1	NP	NP	25													Brown Silty sand (SM)
SB-56	S-15	55.0-56.5	132	40.2	41	25	100	40												Red-brown Lean clay (CL)
SB-56	S-25	105.0-106.5	133	15.2	NP	NP	15													Brown Silty sand (SM)
SB-57	S-15	55.0-56.5	134	45.7	42	23	100	35												Red-brown Lean clay (CL)
SB-58	S-14	50.0-51.5	135	56.6	53	25	100	60												Brown Fat clay (CH)
SB-58	S-21	90.0-91.5	136	34.2	24	24	100	15												Red-brown Silt (ML)
SB-58	S-25	110.0-111.5	137	23.1	NP	NP	30	5												Red-brown Silty sand (SM)

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

Project No.: L17828 | Assigned By: D. GAFFNEY | Reviewed By: Don Schulze

Project Engineer: D. SCHULZE | Date: NOV.03 | Date Reviewed: 11/25/03

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
SB-59	S-25 S-26	105.0-111.5	138	23.7	NP	NP	93	6												Red-brown Silt (ML)
SB-60	S-5	13.5-15.0	139	33.1	25	22	98	17												Gray Silt (ML)
SB-60	S-11	35.0-36.5	140	55.4	60	27	100	55												Gray-brown Fat clay (CH)
SB-60	S-18	70.0-71.5	141	45.8	48	23	100	46												Red-brown Lean clay (CL)
SB-60	S-26	110.0-111.5	142	22.7	NP	NP	76	4												Red-brown Silt with sand (ML)
SB-60	S-29	125.0-126.5	143	28.0	33	25	99	26												Red-brown Silt (ML)
SB-61	S-12	40.0-41.5	144	58.1	64	23	99	64												Brown Fat clay (CH)
SB-61	S-22	90.0-91.5	145	31.2	25	23	100	11												Red-brown Silt (ML)
SB-62	S-11	35.0-36.5	146	59.2	60	26	100	57												Brown Fat clay (CH)
SB-62	S-20	85.0-86.5	147	68.3	34	24	100	28												Red-brown Silt (ML)
SB-62	S-26	115.0-116.5	148	11.9	16	14	8													Red-brown Poorly-graded sand with silt and gravel (SP-SM)
SB-62	S-27	120.0-121.5	149	21.6	NP	NP	19													Red-brown Silty sand (SM)

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT

Project No.: L17828 | Assigned By: D. GAFFNEY | Reviewed By: [signature]

Project Engineer: D. SCHULZE | Date: NOV.03 | Date Reviewed: 11/20/03

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
SB-63	S-6	16.5-18.0	150	41.9	41	22	99	36												Gray-brown Lean clay (CL)
SB-63	S-14	50.0-51.5	151	57.5	56	25	99	56												Brown Fat clay (CH)
SB-63	S-22	90.0-91.5	152	35.9	29	24	100	26												Red-brown Silt (ML)
SB-63	S-31	135.0-136.5	153	11.7	NP	NP	35	6												Red-brown Silty sand with gravel (SM)
SB-64	S-10	28.5-30.0	154	55.2	63	27	100	62												Brown Fat clay (CH)
SB-64	S-18	70.0-71.5	155	41.5	44	23	100	32												Brown Lean clay (CL)
SB-64	S-26	110.0-111.5	156	23.5	NP	NP	23													Red-brown Silty sand (SM)
SB-64	S-31	135.0-135.9	157	9.6	*	*	22		* Insufficient sample for limit test											Red-brown Silty sand with gravel (SM)
SB-65	S-23	95.0-96.5	158	29.9	24	24	100	13												Red-brown Silt (ML)

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

Project No.: 1.17828 | Assigned By: D. GAFFNEY | Reviewed By: Don Schulze

Project Engineer: D. SCHULZE | Date: DEC.03 | Date Reviewed: 12/3/03

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) W_{opt} (%)	Permeability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
SB-66	S-11	35.0-36.5	159	61.1	60	28	100	74												Brown Fat clay (CH)
SB-66	S-18	70.0-71.5	160	47.8	43	24	100	29												Brown Lean clay (CL)
SB-66	S-31	135.0-136.5	161	10.8	21	15	16													Red-brown Silty-clayey sand with gravel (SC-SM)
SB-67	S-13	45.0-46.5	162	54.6	58	27	100	65												Brown Fat clay (CH)
SB-67	S-24 S-25	105.0-112.0	163	20.3	NP	NP	20													Red-brown Silty sand (SM)
SB-69	S-3	7.5-9.0	164	36.7	30	25	81	18												Brown Silt with gravel (SM)
SB-69	S-14	50.0-51.5	165	44.0	56	26	100	67												Brown Fat clay (CH)
SB-69	S-23	95.0-96.5	166	34.3	24	24	100	13												Red-brown Silt (ML)
SB-69	S-33	145.0-146.5	167	12.1	18	15	21													Red-brown Silty gravel with sand (GM)
SB-70	S-15	60.0-61.5	168	48.7	52	23	100	42												Brown Fat clay (CH)

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
Project No.: L17828 | Assigned By: D. GAFFNEY | Reviewed By: [signature]
Project Engineer: D. SCHULZE | Date: DEC.03 | Date Reviewed: 12/3/05

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
SB-71	S-13	45.0-46.5	169	54.9	56	26	100	64												Brown Fat clay (CH)
SB-71	S-21	85.0-86.5	170	38.9	29	25	100	21												Red-brown Silt (ML)
SB-71	S-27	115.0-116.5	171	12.0	17	16	14													Red-brown Silty sand with gravel (SM)
SB-72	S-9	25.0-26.5	172	49.6	47	24	100	41												Brown Lean clay (CL)
SB-72	S-17	65.0-66.5	173	50.5	55	26	100	64												Brown Fat clay (CH)
SB-72	S-25	105.0-106.5	174	24.5	20	20	92	12												Red-brown Silt (ML)
SB-72	S-31	135.0-136.5	175	12.8	*	*	10		* Insufficient sample for limit test											Brown Poorly graded gravel with silt and sand (GP-GM)
SB-73	S-10	28.5-30.0	176	33.1	NP	NP	60													Red-brown Sandy silt (ML)
SB-73	S-18	70.0-71.5	177	46.1	48	23	100	45												Red-brown Lean clay (CL)
SB-73	S-27	115.0-116.5	178	21.4	NP	NP	28													Red-brown Silty sand (SM)

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
Project No.: L17828
Project Engineer: D. SCHULZE
Assigned By: D. GAFFNEY
Date: DEC.03
Reviewed By: Don Schulze
Date Reviewed: 12/10/03

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: C_c / $1 + e_0$	Laboratory Log and Soil Description
SB-74	S-3	7.5-9.0	179	27.6	NP	NP	78	5												Red-brown Silt with sand (ML)
SB-74	S-20	85.0-86.5	180	44.9	58	25	100	49												Brown Fat clay (CH)
SB-74	S-27	120.0-121.5	181	12.8	22	17	15	5												Red-brown Silty-clayey gravel with sand (GC-GM)
SB-75	S-14	50.0-51.5	182	53.3	57	25	100	65												Brown Fat clay (CH)
SB-75	S-26	110.0-111.5	183	24.8	NP	NP	94	4												Red-brown Silt (ML)
SB-76	S-10	28.5-30.0	184	51.6	59	26	100	61												Brown Fat clay (CH)
SB-76	S-20	80.0-81.5	185	43.6	41	25	100	36												Red-brown Lean clay (CL)
SB-76	S-30	130.0-131.5	186	19.2	NP	NP	10													Brown Poorly-graded sand with silt (SP-SM)
SB-77	S-9	25.0-26.5	187	44.1	44	26	100	42												Red-brown Lean clay (CL)
SB-77	S-20	85.0-86.5	188	42.3	35	25	100	32												Red-brown Silt (ML)
SB-77	S-29	130.0-131.5	189	11.3	17	16	20													Red-brown Silty sand with gravel (SM)

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
Project No.: L17828 | Assigned By: D. GAFFNEY | Reviewed By: Don Schulze
Project Engineer: D. SCHULZE | Date: DEC.03 | Date Reviewed: 12/18/03

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{C_c}{1 + e_0}$	Laboratory Log and Soil Description
SB-78	S-10	28.5-30.0	190	56.7	51	25	100	54												Gray Fat clay (CH)
SB-78	S-20	80.0-81.5	191	43.9	38	24	100	36												Brown Lean clay (CL)
SB-78	S-31	130.0-131.5	192	9.9	18	16	18													Red-brown Silty sand with gravel (SM)
SB-79	S-16	60.0-61.5	193	50.1	63	27	100	65												Brown Fat clay (CH)
SB-79	S-33	145.0-146.5	194	11.5	20	17	18													Red-brown Silty sand with gravel (SM)
SB-80	S-4	10.0-11.5	195	37.4	30	27	99	15												Gray Silt (ML)
SB-80	S-12	40.0-41.5	196	46.2	50	27	99	60												Gray Fat clay (CH)
SB-80	S-18	70.0-71.5	197	51.0	55	28	100	69												Brown Fat clay (CH)
SB-80	S-24	100.0-101.5	198	44.9	42	24	100	31												Brown Lean clay (CL)
SB-80	S-30	130.0-131.5	199	19.1	NP	NP	11													Brown Poorly-graded sand with silt and gravel (SP-SM)

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
Project No.: L17828
Project Engineer: D. SCHULZE
Assigned By: D. GAFFNEY
Date: DEC.03
Reviewed By: Dan Schulze
Date Reviewed: 12/23/03

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
SB-81	S-14	50.0-51.5	200	51.0	59	27	100	64												Brown Fat clay (CH)
SB-82	S-6	16.5-18.0	201	39.1	36	24	99	26												Gray Lean clay (CL)
SB-82	S-14	50.0-51.5	202	60.2	59	27	100	66												Gray-brown Fat clay (CH)
SB-82	S-22	95.0-96.5	203	46.9	42	25	100	37												Brown Lean clay (CL)
SB-82	S-28	125.0-126.5	204	11.0	NP	NP	8													Red-brown Well-graded sand with silt (SW-SM)
SB-83	S-3	7.5-9.0	205	35.7	NP	NP	99	13												Gray Silt (ML)
SB-83	S-18	70.0-71.5	206	52.0	59	27	100	65												Brown Fat clay (CH)
SB-83	S-30	130.0-131.5	207	10.6	NP	NP	7													Red-brown Well-graded sand with silt and gravel (SW-SM)

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
Project No.: L17828
Project Engineer: D. SCHULZE
Assigned By: D. GAFFNEY
Date: DEC.03
Reviewed By: Dan Schulze
Date Reviewed: 12/29/03

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Permeability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
SB-84	S-2	4.5-6.0	208	4.5	*	*	12		* Insufficient sample for limit test											Red-brown Well-graded sand with silt (SW-SM)
SB-84	S-8	25.5-27.0	209	46.8	44	25	100	45												Gray Lean clay (CL)
SB-84	S-14	50.0-51.5	210	56.5	62	28	100	55												Gray Fat clay (CH)
SB-84	S-22	90.0-91.5	211	46.9	58	26	100	58												Red-brown Fat clay (CH)
SB-84	S-30 S-31	130.0-136.5	212	11.7	21	17	11	3												Red-brown Poorly-graded gravel with silt and sand (GP-GM)
SB-85	S-9	25.0-26.5	213	46.6	59	29	100	62												Gray Fat clay (CH)
SB-85	S-19	75.0-76.5	214	53.1	53	23	100	42												Brown Fat clay (CH)
SB-85	S-26	110.0-111.5	215	10.8	17	16	41	10												Red-brown Gravelly silt with sand (ML)
SB-86	S-5	13.5-15.0	216	35.1	45	25	97	43												Gray Lean clay (CL)
SB-86	S-12	40.0-41.5	217	42.9	56	28	100	72												Gray Fat clay (CH)
SB-86	S-19	75.0-76.5	218	43.3	43	24	100	40												Red-brown Lean clay (CL)
SB-86	S-26	110.0-111.5	219	11.6	15	14	30													Brown Silty sand (SM)

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
Project No.: L17828
Project Engineer: D. SCHULZE
Assigned By: D. GAFFNEY
Date: DEC.03
Reviewed By: [signature]
Date Reviewed: 1/8/04

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
SB-87	S-6	16.5-18.0	220	55.7	54	26	94	52												Brown Fat clay (CH)
SB-87	S-15	55.0-56.5	221	57.4	55	26	100	65												Brown Fat clay (CH)
SB-88	S-6	16.5-18.0	222	33.9	57	28	99	60												Brown Fat clay (CH)
SB-88	S-12	40.0-41.5	223	49.7	36	24	100	32												Brown Lean clay (CL)
SB-88	S-18	70.0-71.5	224	26.3	28	19	88	29												Brown Lean clay (CL)
SB-89	S-5	13.5-15.0	225	35.2	42	25	94	37												Brown Lean clay (CL)
SB-90	S-6	16.5-18.0	226	22.6	51	24	85	43												Brown Fat clay (CH)
SB-90	S-11	35.0-36.5	227	47.0	43	25	100	44												Brown Lean clay (CL)
SB-91	S-3	7.5-9.0	228	8.5	18	15	42	10												Brown Silty sand with gravel (SM)
SB-91	S-6 S-7	16.5-20.0	229	11.7	23	17	18													Brown Silty clayey sand with gravel (SC-SM)

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
Project No.: L17828
Project Engineer: D. SCHULZE
Assigned By: D. GAFFNEY
Date: DEC.03
Reviewed By: [illegible]
Date Reviewed: 1/8/04

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
SB-102	S-4	10.0-11.5	240	29.5	52	22	88	50												Gray Fat clay (CH)
SB-103	S-2	4.5-6.0	241	37.2	43	24	91	34												Brown Lean clay (CL)
SB-103	S-5	13.5-15.0	242	40.9	40	24	99	37												Brown Lean clay (CL)
SB-104	S-4	10.5-12.0	243	16.5	26	20	48	12												Brown Silty clayey sand with gravel (SC-SM)
SB-104	S-8	22.5-24.0	244	42.2	44	23	98	55												Brown Lean clay (CL)
SB-105	S-8	22.5-24.0	245	62.3	59	27	100	73												Gray Fat clay (CH)
SB-105	S-18	70.0-71.5	246	49.3	43	24	100	32												Brown Lean clay (CL)
SB-105	S-27	115.0-116.5	247	8.7	*	*	12		* Insufficient sample for limit test											Brown Silty sand (SM)

GZA GeoEnvironmental, Inc.
Q:\NEWTON\LAB\LABFORM7.XLS

labform1.xls

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
Project No.: L17828 — Assigned By: D. GAFFNEY — Reviewed By: Dan Schulze
Project Engineer: D. SCHULZE — Date: Feb.04 — Date Reviewed: 2/13/04

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Permeability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{C_c}{1 + e_0}$	Laboratory Log and Soil Description
SB-1	S-1, S-2 & S-3	1.5-9.0	408	15.9	25	21	24	6												Brown Silty gravel with sand (GM)
SB-1	S-6	16.5-18.0	409	12.3	NP	NP	45	8												Red-brown Silty sand (SM)
SB-39	S-1	1.5-3.0	410	9.1	NP	NP	10	2												Brown Well-graded sand with silt and gravel (SW-SM)
SB-39	S-2	4.5-6.0	411	10.5	NP	NP	14	2												Red-brown Silty sand with gravel (SM)
SB-39	S-6	16.5-18.0	412	31.4	34	21	93	34												Red-brown Lean clay (CL)
SB-54	S-3 S-4	7.5-11.5	413	20.9	24	23	54	11												Brown Sandy silt (ML)
SB-54	S-8	22.5-24.5	414	24.2	18	17	42	8												Red-brown Silty sand (SM)
SB-59	S-1 & S-4	1.5-11.5	415	46.5	42	23	97	40												Gray Lean clay (CL)
SB-59	S-7	19.5-21.0	416	48.9	47	25	100	45												Gray Lean clay (CL)
RB-10	S-1	1.5-3.0	417	8.9	NP	NP	15	2												Black Silty sand with gravel (SM)
RB-10	S-3	7.5-9.0	418	9.3	NP	NP	25	3												Red-brown Silty sand (SM)

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

Project No.: L17828 | Assigned By: D. GAFFNEY | Reviewed By: Alan Schulze

Project Engineer: D. SCHULZE | Date: NOV.03 | Date Reviewed: 11/6/03

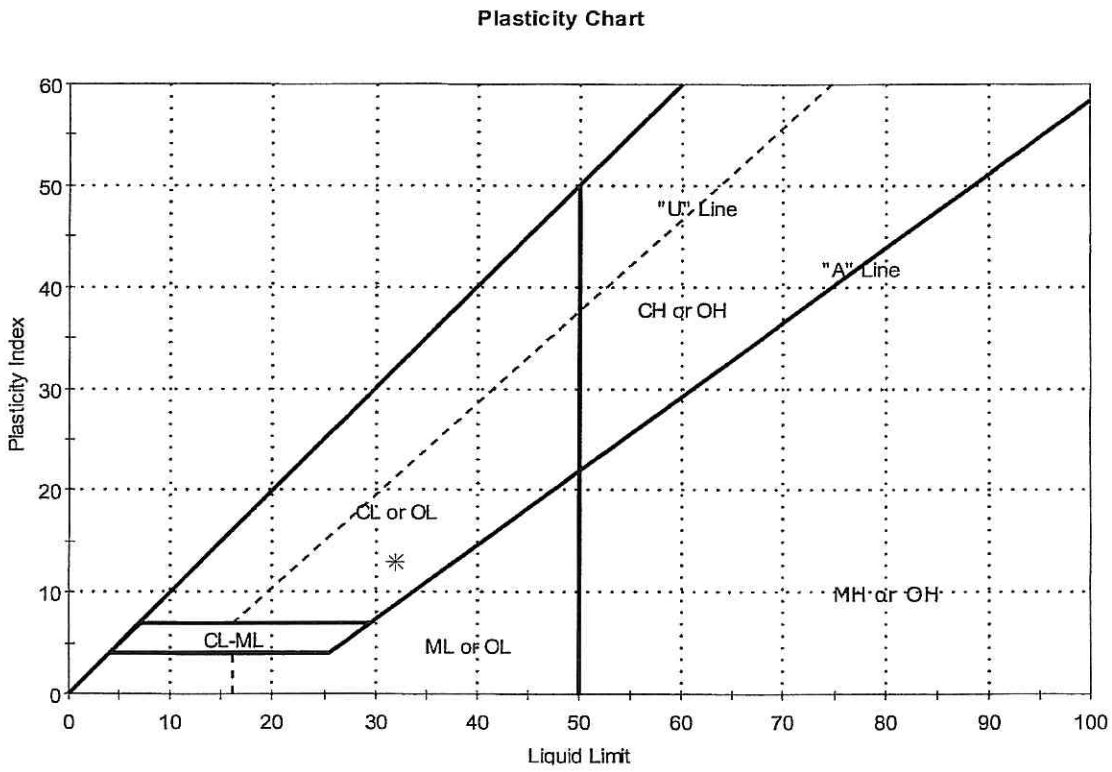
Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Permeability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $C_c / (1 + e_0)$	Laboratory Log and Soil Description
RB-34	S-1	1.5-3.0	96	27.4	*	*	20		* Insufficient sample for limit test											Dark gray Silty sand with gravel (SM) Fill: slag & cinders
RB-34	S-4	10-11.5	97	41.6	39	23	99	34												Red-brown Lean clay (CL)
RB-35	S-5	13.5-15.0	98	36.1	36	21	98	27												Gray-brown Lean clay (CL)
RB-36	S-2	4.5-6.0	99	31.0	34	24	98	17												Brown Lean clay (CL)
RB-37	S-3	7.5-9.0	100	32.0	26	26	97	14												Gray-brown Silt (ML)
RB-38	S-1	1.5-3.0	101	5.2	NP	NP	10													Gray-brown Poorly-graded sand with silt and gravel (SP-SM)
RB-38	S-5	13.5-15.0	102	35.3	29	22	99	27												Gray-brown Silty clay (CL-ML)
RB-39	S-2	4.5-6.0	103	31.5	NP	NP	56													Brown Sandy silt (ML)
RB-40	S-5	13.5-15.0	104	43.0	49	24	99	38												Gray-brown Lean clay (CL)
RB-41	S-4	10.0-11.5	105	65.7	62	26	97	63												Brown Fat clay (CH)
RB-42	S-3	7.5-9.0	106	10.6	NP	NP	18													Brown Silty sand with gravel (SM)
RB-42	S-8 S-9	22.5-28.5	107	10.4	25	14	48	17												Red-brown Clayey sand with gravel (SC)

2008 Atterberg Limits

GeoTesting express
a subsidiary of Geocomp Corporation

Client:	GeoDesign, Inc.				
Project:	Amtrak Access Road				
Location:	Newington, West Hartford, & Hartford			Project No:	GTX-8565
Boring ID:	AARB-17	Sample Type:	jar	Tested By:	ap
Sample ID:	S-4	Test Date:	10/17/08	Checked By:	jdt
Depth :	10-12 ft	Test Id:	139621		
Test Comment:	---				
Sample Description:	Moist, olive gray clay				
Sample Comment:	---				

Atterberg Limits - ASTM D 4318-05



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
*	S-4	AARB-17	10-12 ft	40	32	19	13	2	

Sample Prepared using the WET method

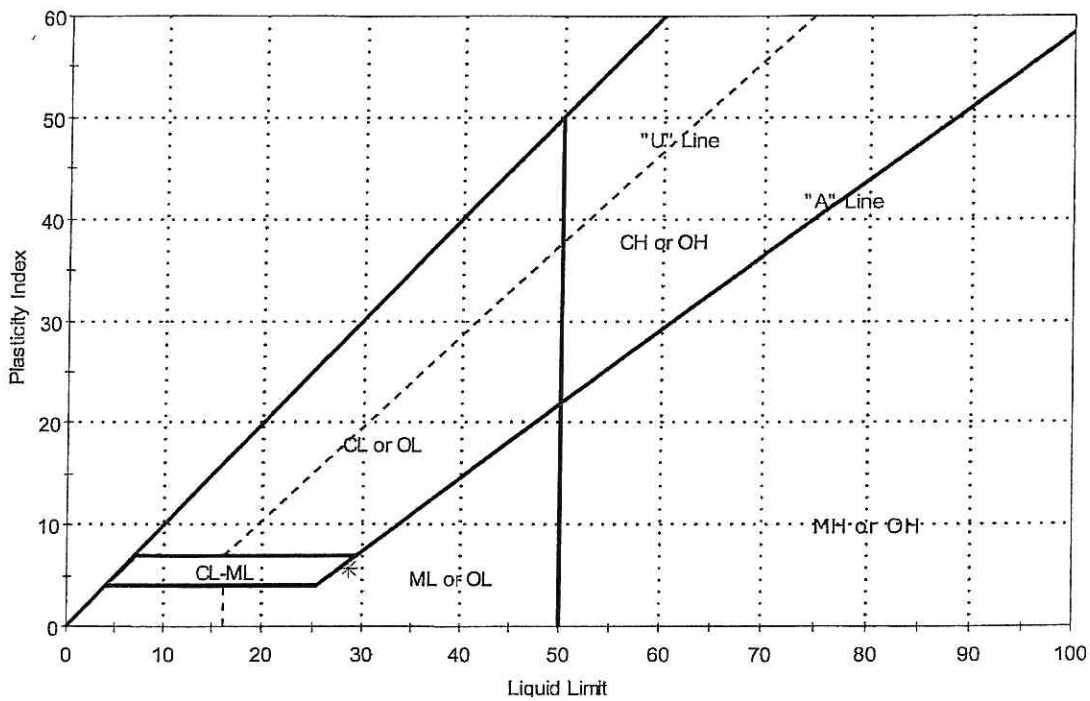
Dry Strength: VERY HIGH
Dilentancy: SLOW
Toughness: LOW

printed 10/23/2008 11:28:22 AM

GeoTesting express
a subsidiary of Geocomp Corporation

Client:	GeoDesign, Inc.		
Project:	Amtrak Access Road		
Location:	Newington, West Hartford, & Hartford	Project No:	GTX-8565
Boring ID: AARW-10-40	Sample Type: jar	Tested By:	ap
Sample ID:S-5	Test Date: 10/17/08	Checked By:	jdt
Depth : 10-12 ft	Test Id: 139595		
Test Comment: ---			
Sample Description: Moist, olive silt			
Sample Comment: ---			

Atterberg Limits - ASTM D 4318-05



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
*	S-5	ARW-10-4	10-12 ft	41	29	23	6	3	

Sample Prepared using the WET method

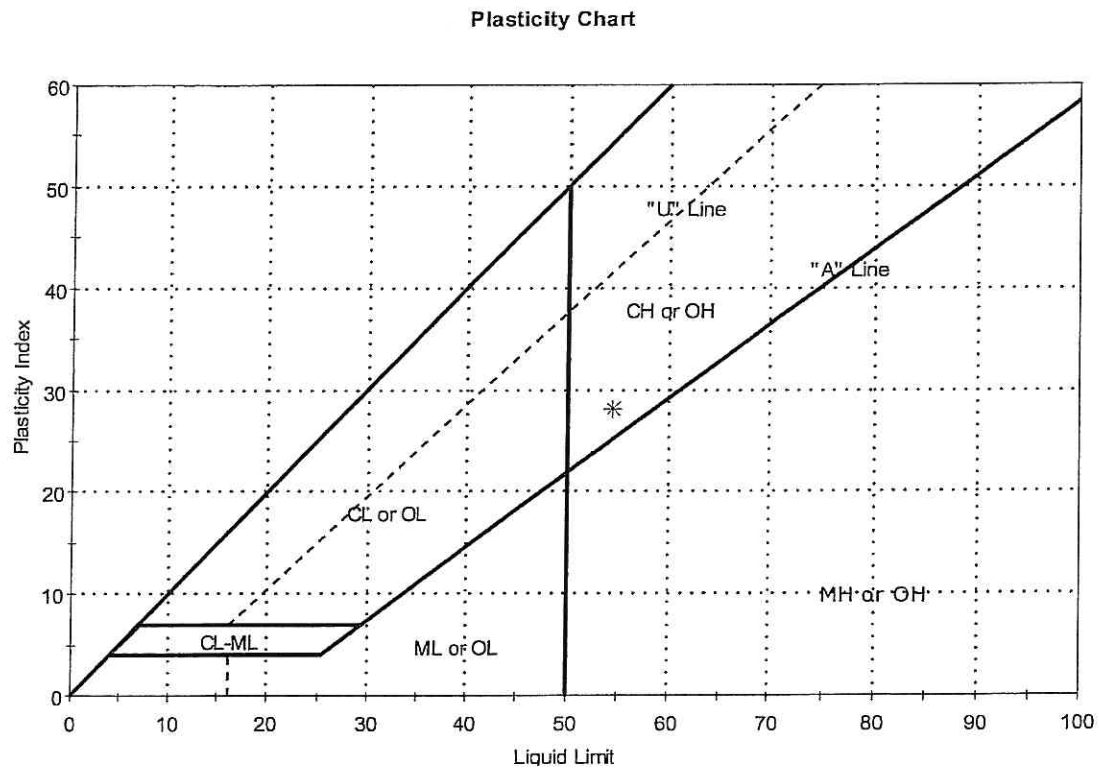
Dry Strength: HIGH
Dilentancy: SLOW
Toughness: LOW

printed 10/23/2008 11:31:40 AM

GeoTesting express
a subsidiary of Geocomp Corporation

Client:	GeoDesign, Inc.		
Project:	Amtrak Access Road		
Location:	Newington, West Hartford, & Hartford	Project No:	GTX-8565
Boring ID: AARW-10-40	Sample Type: jar	Tested By:	ap
Sample ID:S-10	Test Date: 10/17/08	Checked By:	jdt
Depth : 35-37 ft	Test Id: 139596		
Test Comment: ---			
Sample Description:	Moist, dark grayish brown clay		
Sample Comment: ---			

Atterberg Limits - ASTM D 4318-05



Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
*	S-10	ARW-10-4	35-37 ft	57	54	26	28	1	

Sample Prepared using the WET method

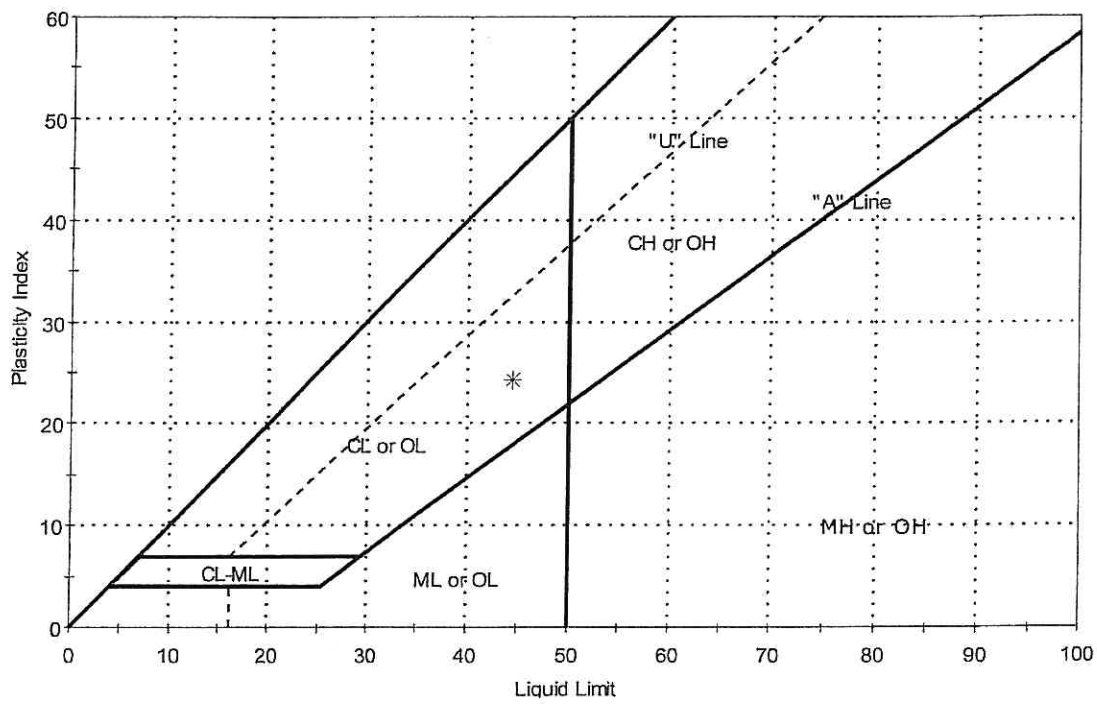
Dry Strength: VERY HIGH
Dilentancy: SLOW
Toughness: LOW

printed 10/23/2008 11:32:01 AM

GeoTesting express
a subsidiary of Geocomp Corporation

Client:	GeoDesign, Inc.		
Project:	Amtrak Access Road		
Location:	Newington, West Hartford, & Hartford	Project No:	GTX-8565
Boring ID: AARW-10-40	Sample Type: jar	Tested By:	ap
Sample ID:S-27	Test Date: 10/22/08	Checked By:	jdt
Depth : 120-122 ft	Test Id: 139597		
Test Comment: ---			
Sample Description: Moist, dark brown clay			
Sample Comment: ---			

Atterberg Limits - ASTM D 4318-05



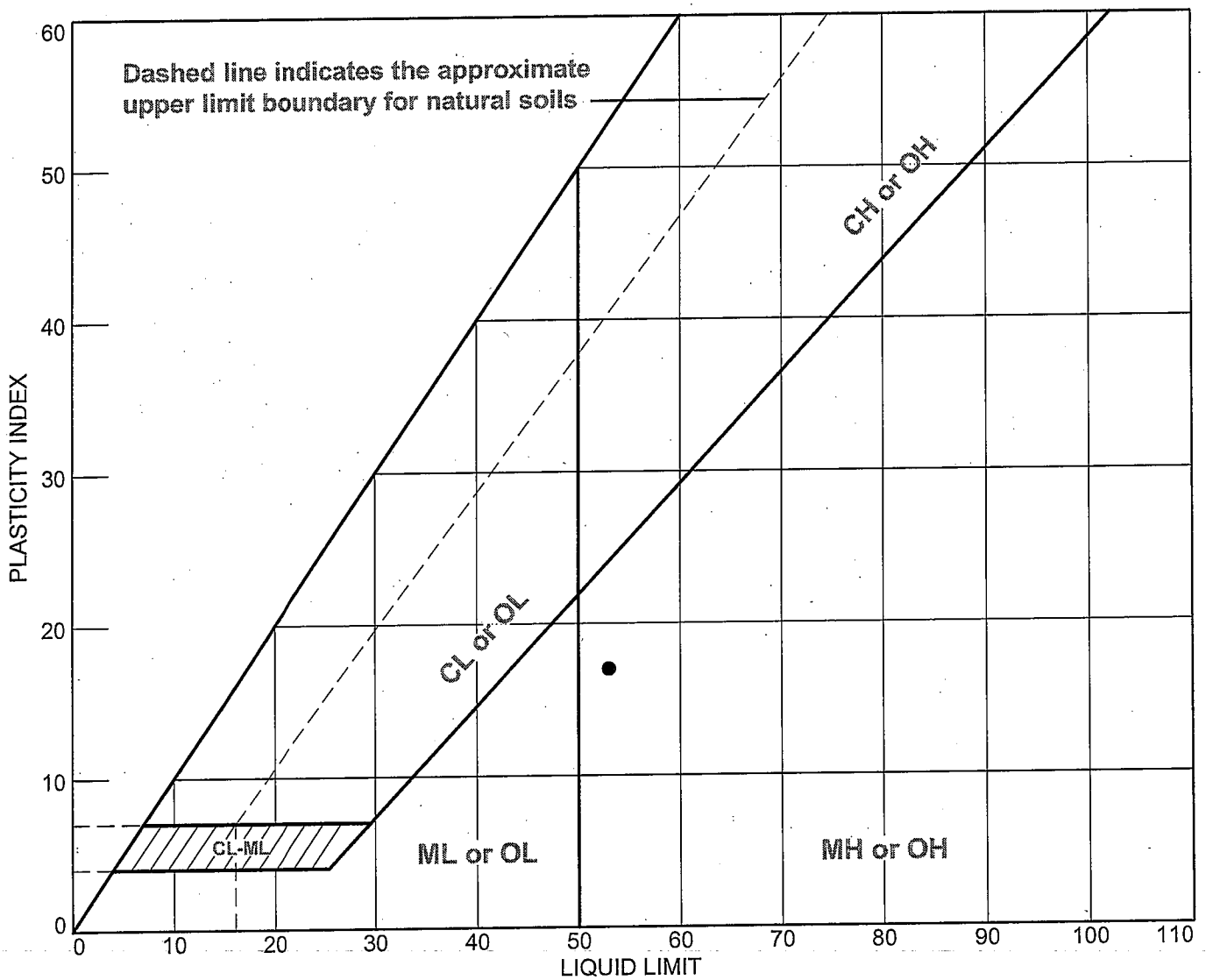
Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
*	S-27	ARW-10-4	120-122 ft	39	44	20	24	1	

Sample Prepared using the WET method

Dry Strength: VERY HIGH
Dilentancy: SLOW
Toughness: LOW

printed 10/23/2008 11:32:20 AM

LIQUID AND PLASTIC LIMITS TEST REPORT

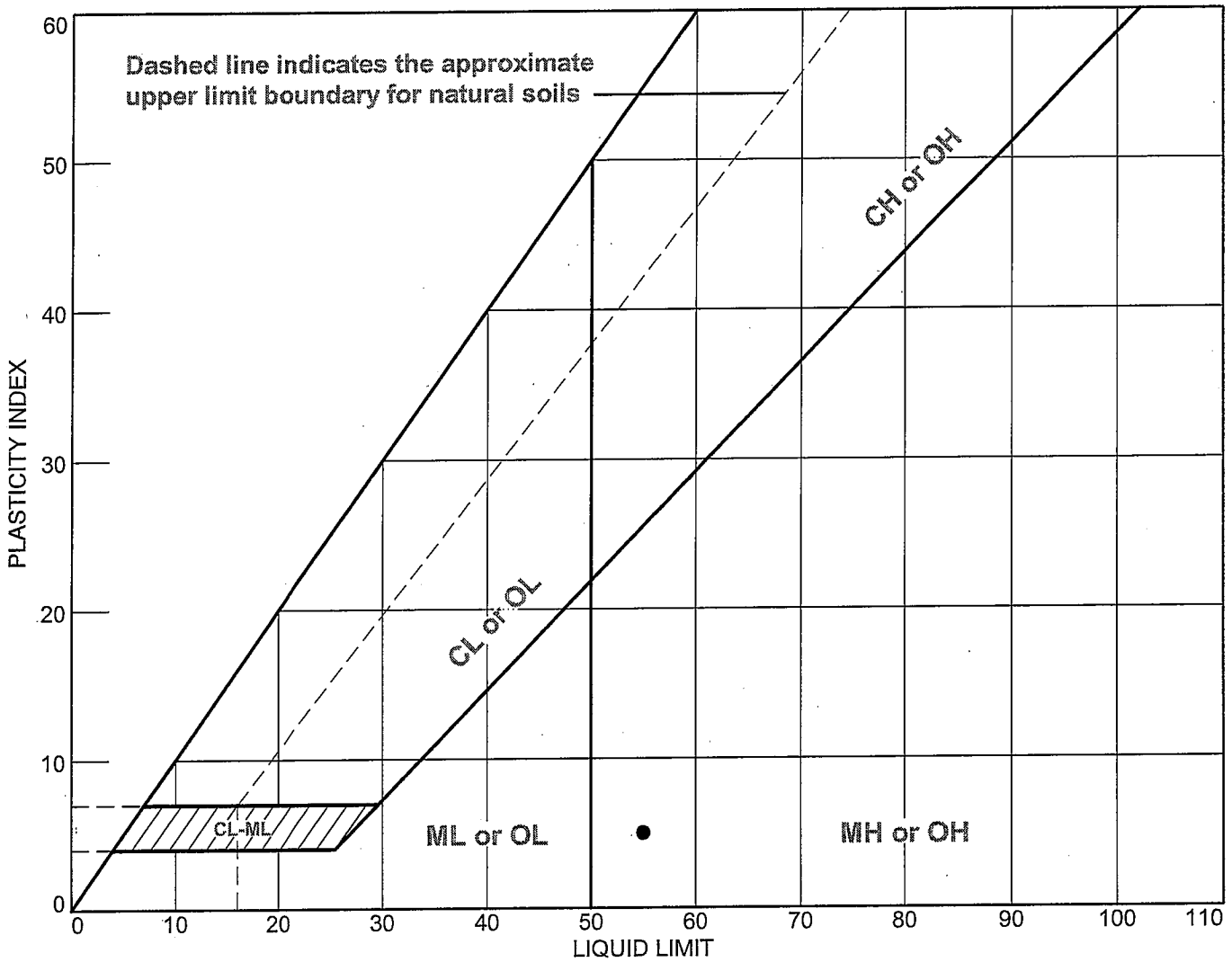


SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	R-123	S-10	30' - 32'		36	53	17	

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No.:
Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

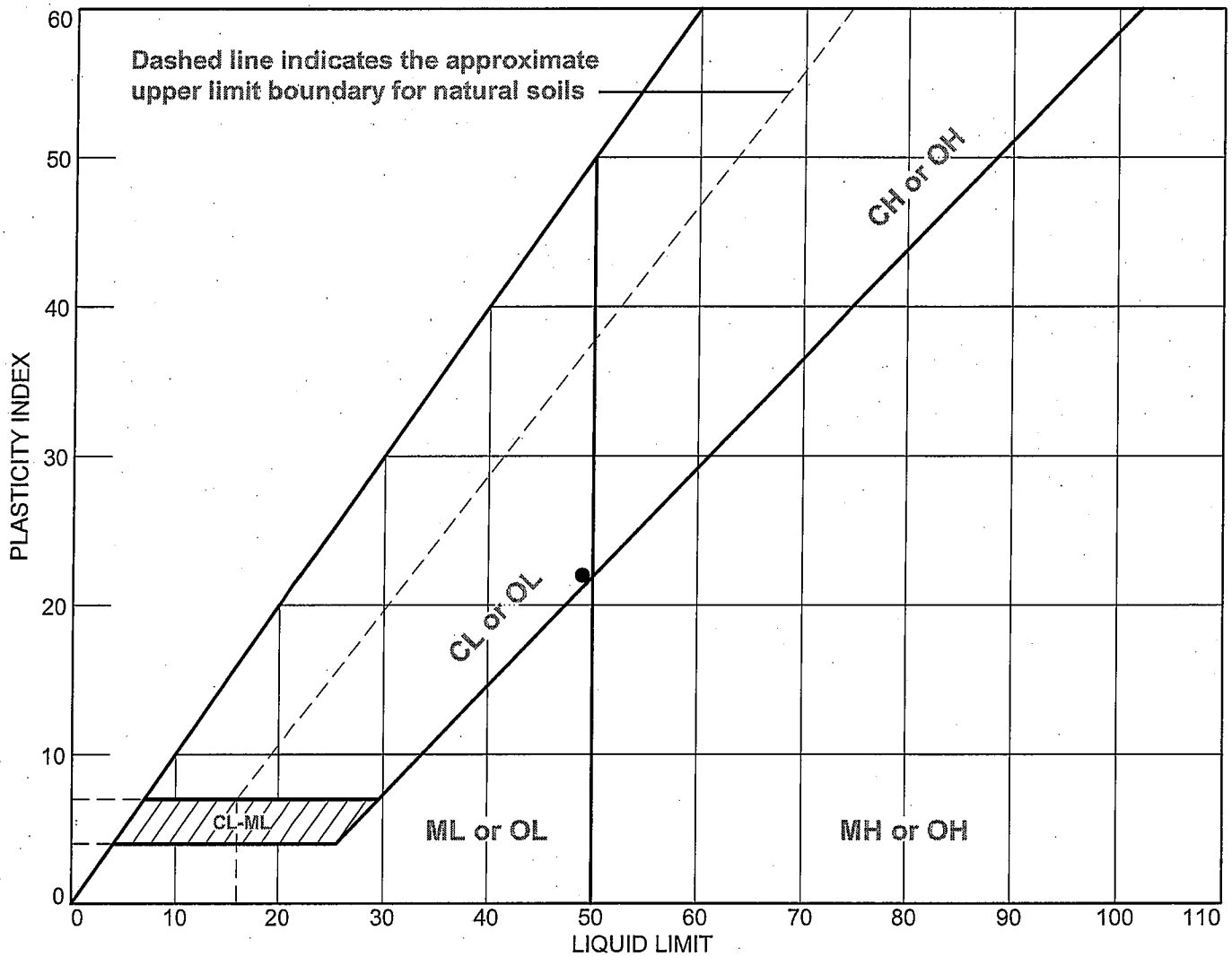
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	R-123	S-12			50	55	5	

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No.:
Figure

Tested By: R. DeCesare

LIQUID AND PLASTIC LIMITS TEST REPORT



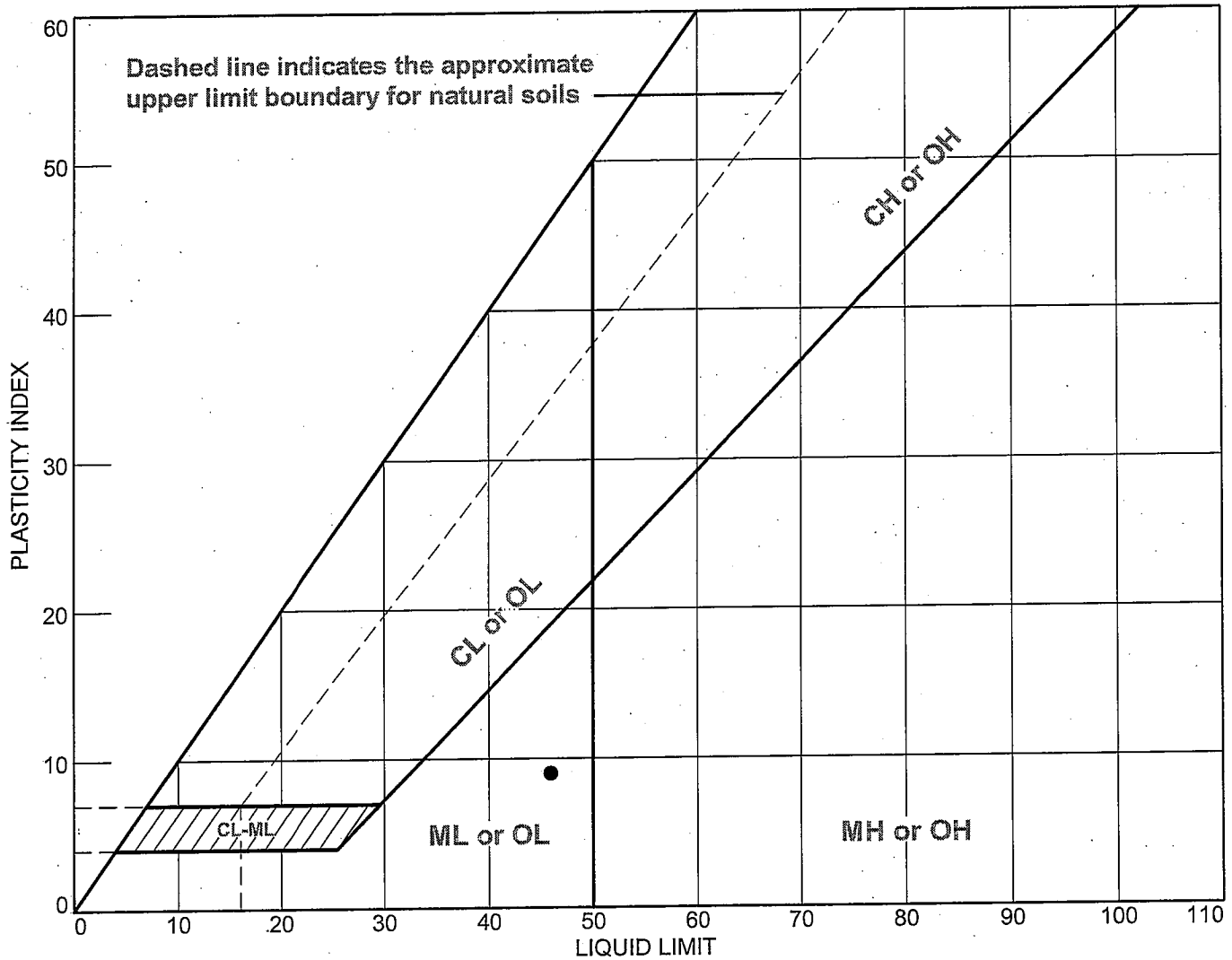
SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	R-125	S-8	20' -22'		27	49	22	

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No.:
Figure

Tested By: R. DeCesare

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

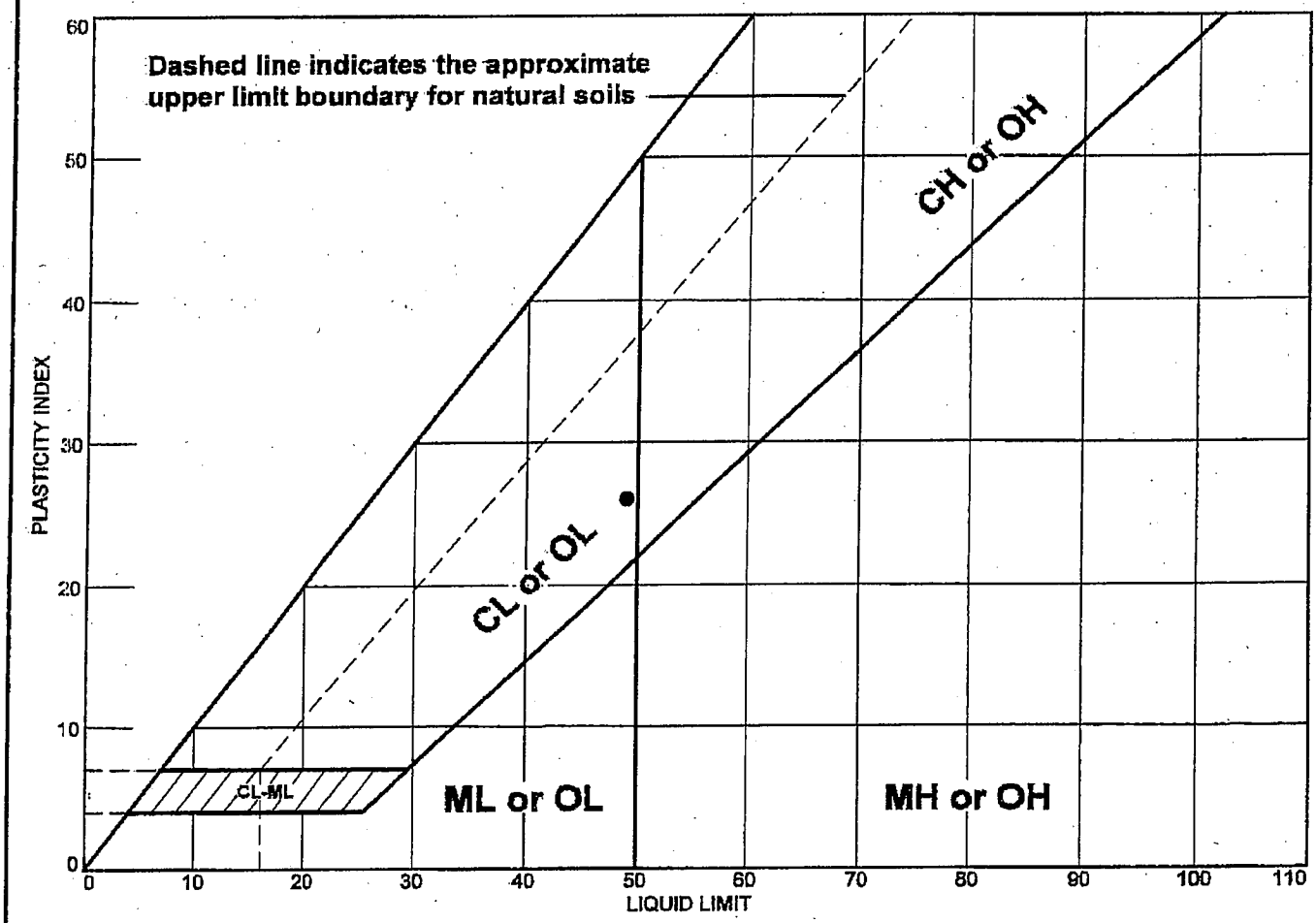
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	R-125	S-10	30' - 32'		37	46	9	

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No.:
Figure

Tested By: R. DeCesare

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Olive color, lean clay	49	23	26	100.0	99.4	CL

Project No.

Project: New Britain-Hartford Busway #155-H025

● **Sample Source:** Boring RW-4 (Flatbush Ave., over Busway)

Remarks:

● Sampled and Dropped off by the Client,

TEST-CON INCORPORATED
PO BOX 3116
Danbury, CT 06813-3116

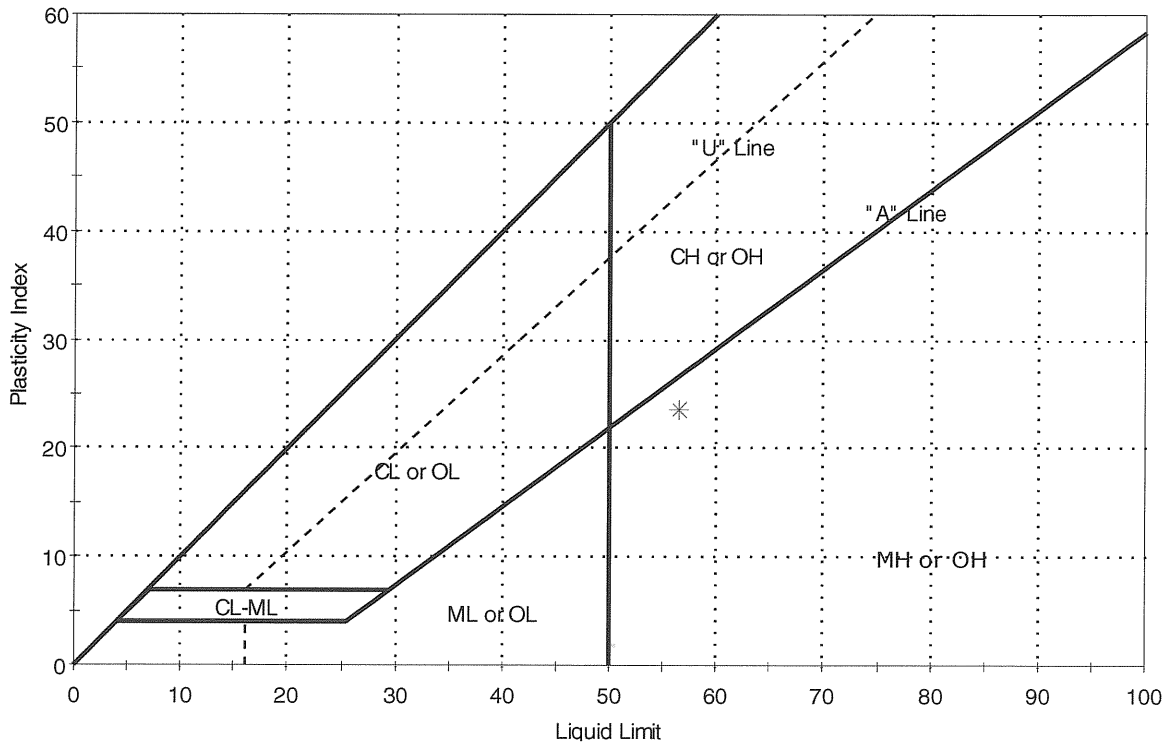
page

Tested By: _____ **Checked By:** _____

GeoTesting express
a subsidiary of Geocomp Corporation

Client:	GeoDesign, Inc.		
Project:	Hartford Busway		
Location:	Hartford, CT	Project No:	GTX-8398
Boring ID: RW-4	Sample Type: tube	Tested By:	ap
Sample ID:UP-2	Test Date: 08/15/08	Checked By:	jdt
Depth : 45-47 ft	Test Id: 136050		
Test Comment:	---		
Sample Description:	Moist, reddish brown silt		
Sample Comment:	---		

Atterberg Limits - ASTM D 4318-05



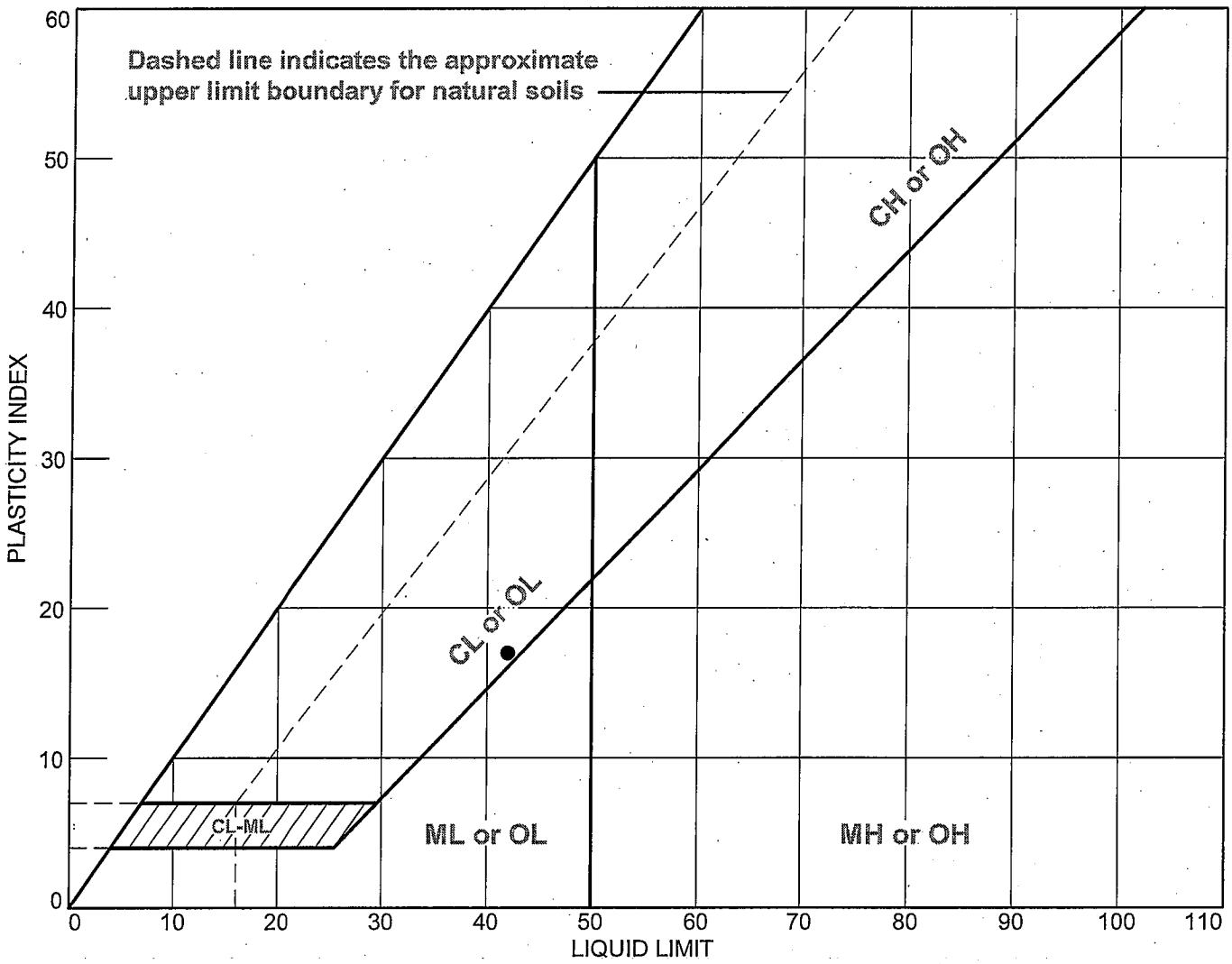
Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
✳	UP-2	RW-4	45-47 ft	54	56	33	23	1	

Sample Prepared using the WET method

Dry Strength: VERY HIGH
Dilentancy: SLOW
Toughness: LOW

printed 9/30/2008 11:13:08 AM

LIQUID AND PLASTIC LIMITS TEST REPORT

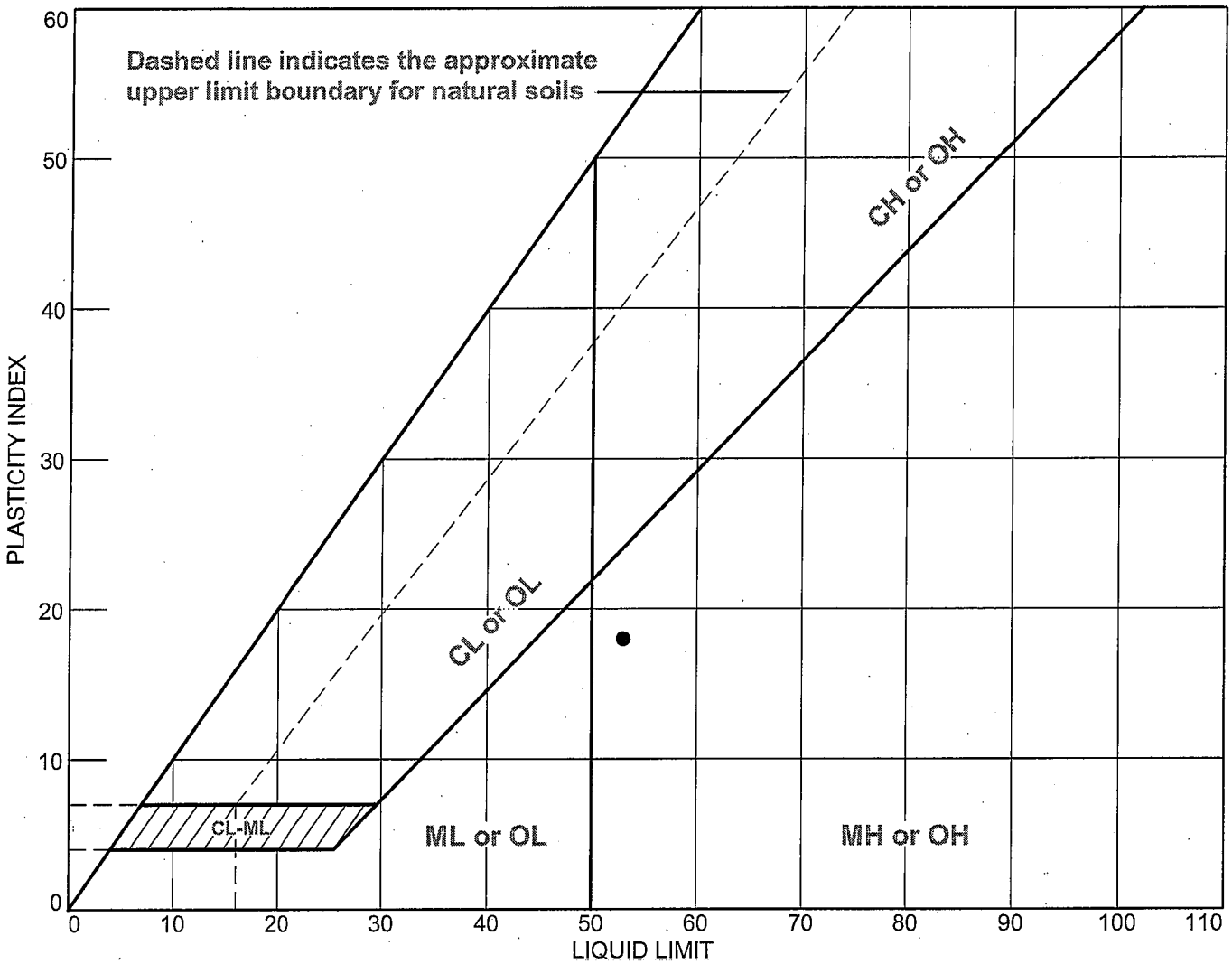


SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	RW-6	S-7	22' - 24'		25	42	17	

TEST-CON INCORPORATED 16 East Franklin Street, PO BOX 3116 DANBURY, CT 06813-3116	**Client:** GeoDesign **Project:** New Britain-Hartford Busway #155-H025 **Project No.:** **Figure**

Tested By: R. DeCesare

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	RW - 6	S-9	32' - 34'		35	53	18	

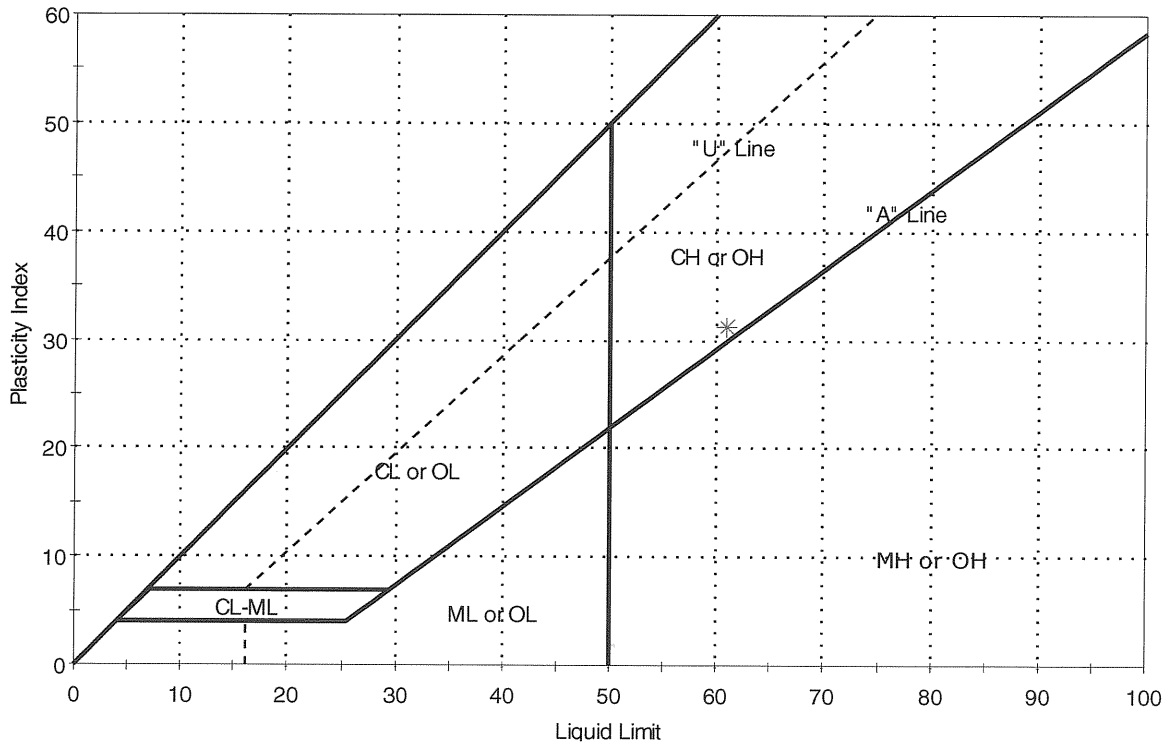
TEST-CON INCORPORATED 16 East Franklin Street, PO BOX 3116 DANBURY, CT 06813-3116	**Client:** GeoDesign **Project:** New Britain-Hartford Busway #155-H025 **Project No.:** **Figure**

Tested By: R. DeCesare

GeoTesting express
a subsidiary of Geocomp Corporation

Client:	GeoDesign, Inc.		
Project:	Hartford Busway		
Location:	Hartford, CT	Project No:	GTX-8398
Boring ID: RW-7	Sample Type: tube	Tested By:	ap
Sample ID:UP-1	Test Date: 08/08/08	Checked By:	jdt
Depth : 30-32 ft	Test Id: 136051		
Test Comment:	---		
Sample Description:	Moist, brown clay		
Sample Comment:	---		

Atterberg Limits - ASTM D 4318-05



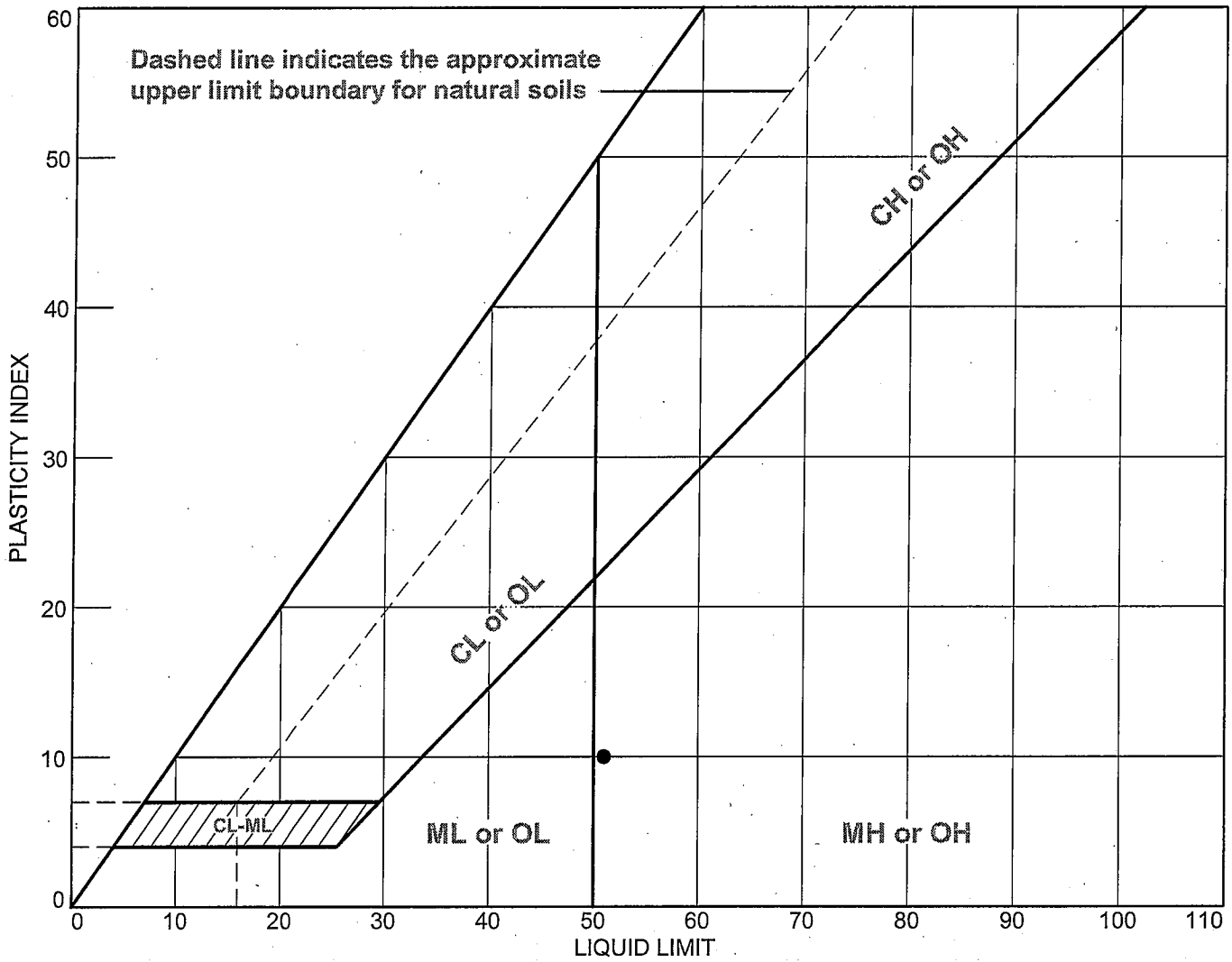
Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
✳	UP-1	RW-7	30-32 ft	60	61	30	31	1	

Sample Prepared using the WET method

Dry Strength: VERY HIGH
Dilentancy: SLOW
Toughness: LOW

printed 9/30/2008 11:13:17 AM

LIQUID AND PLASTIC LIMITS TEST REPORT



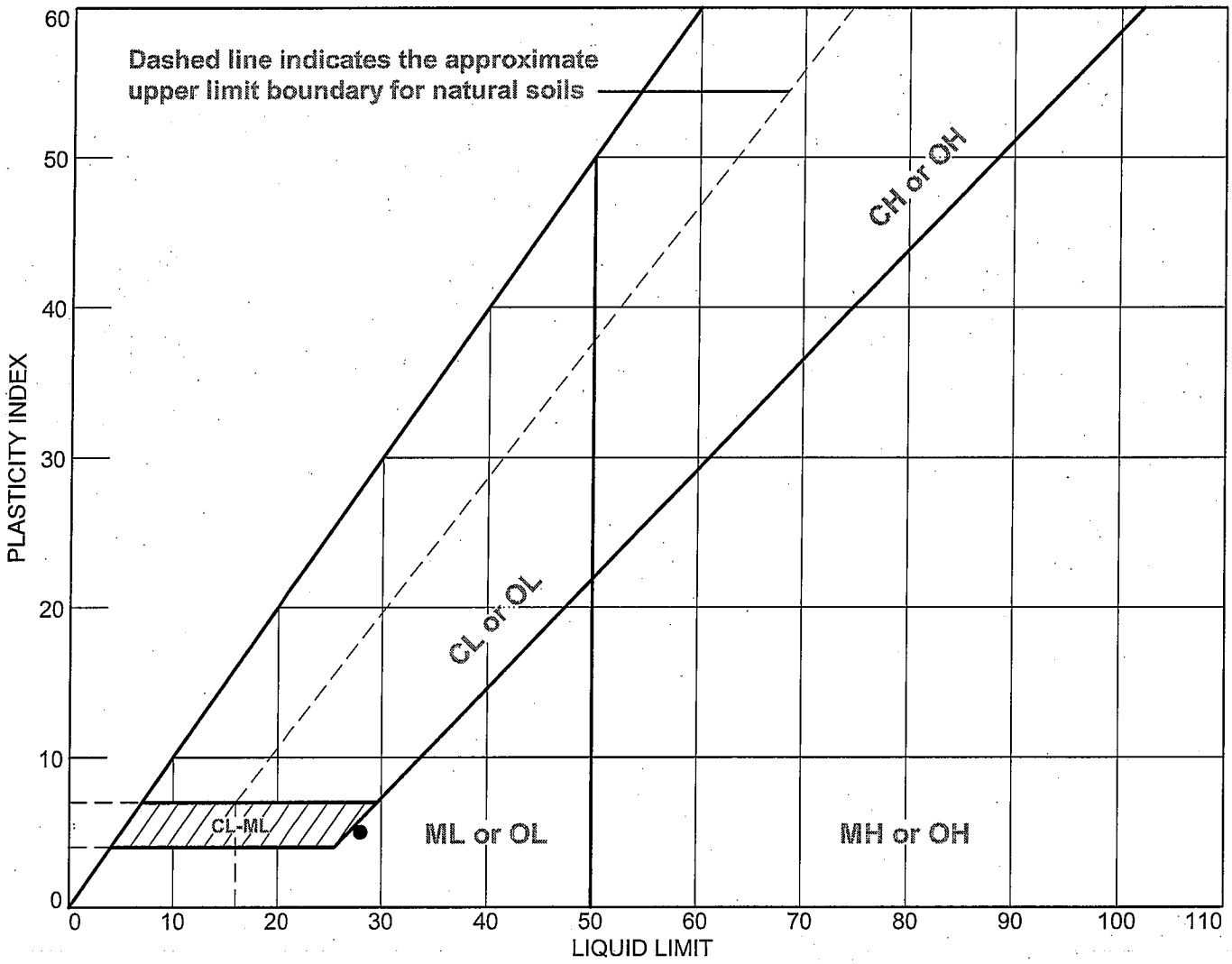
SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	RW-7	S-9	32' - 34'		41	51	10	

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No.:
Figure

Tested By: R. DeCesare

LIQUID AND PLASTIC LIMITS TEST REPORT



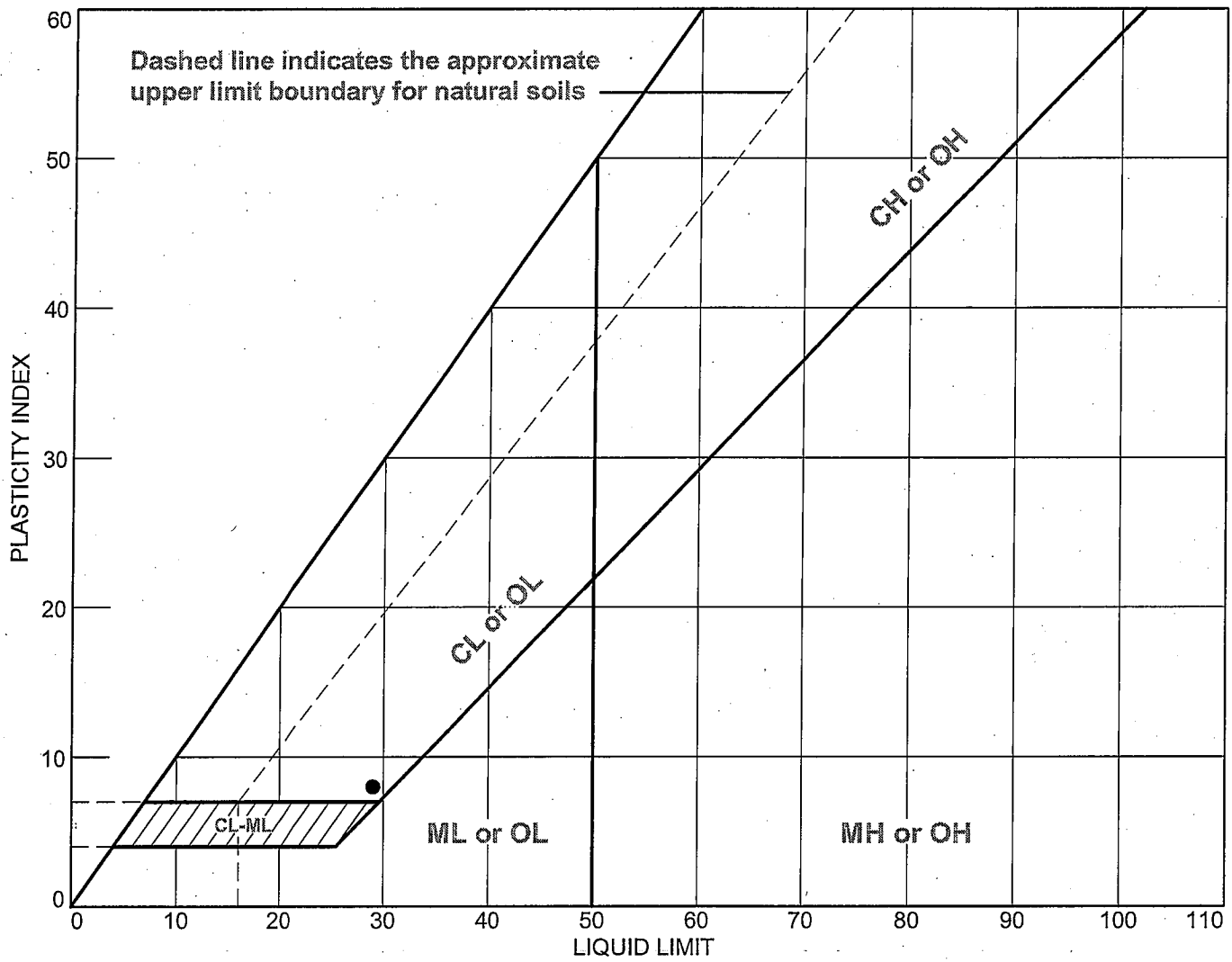
SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	RW-7	S-12	45' - 47'		23	28	5	

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No.:
Figure

Tested By: R. DeCesare

LIQUID AND PLASTIC LIMITS TEST REPORT



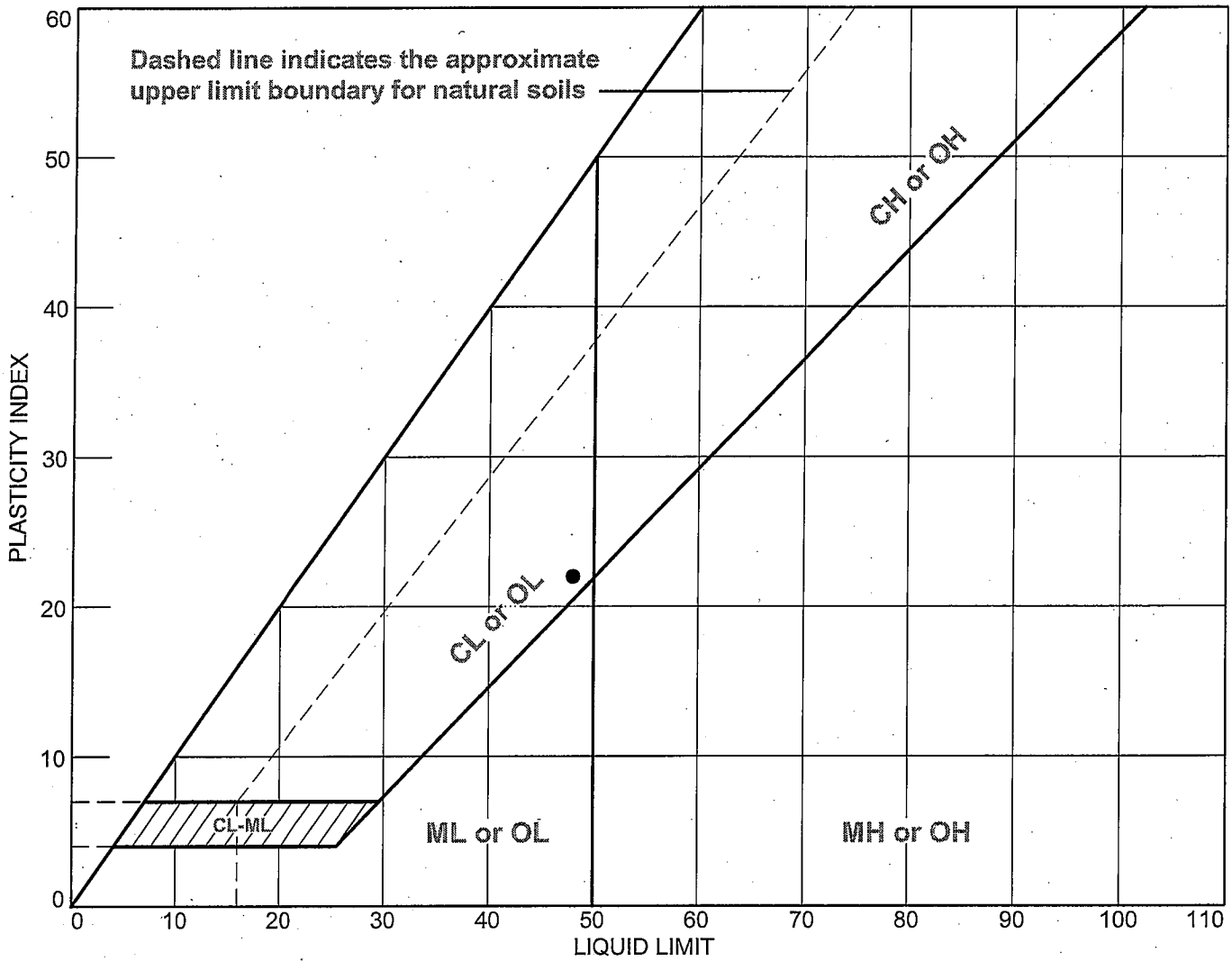
SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	RW-7	S-14	55' - 57'		21	29	8	

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No.:
Figure

Tested By: R. DeCesare

LIQUID AND PLASTIC LIMITS TEST REPORT



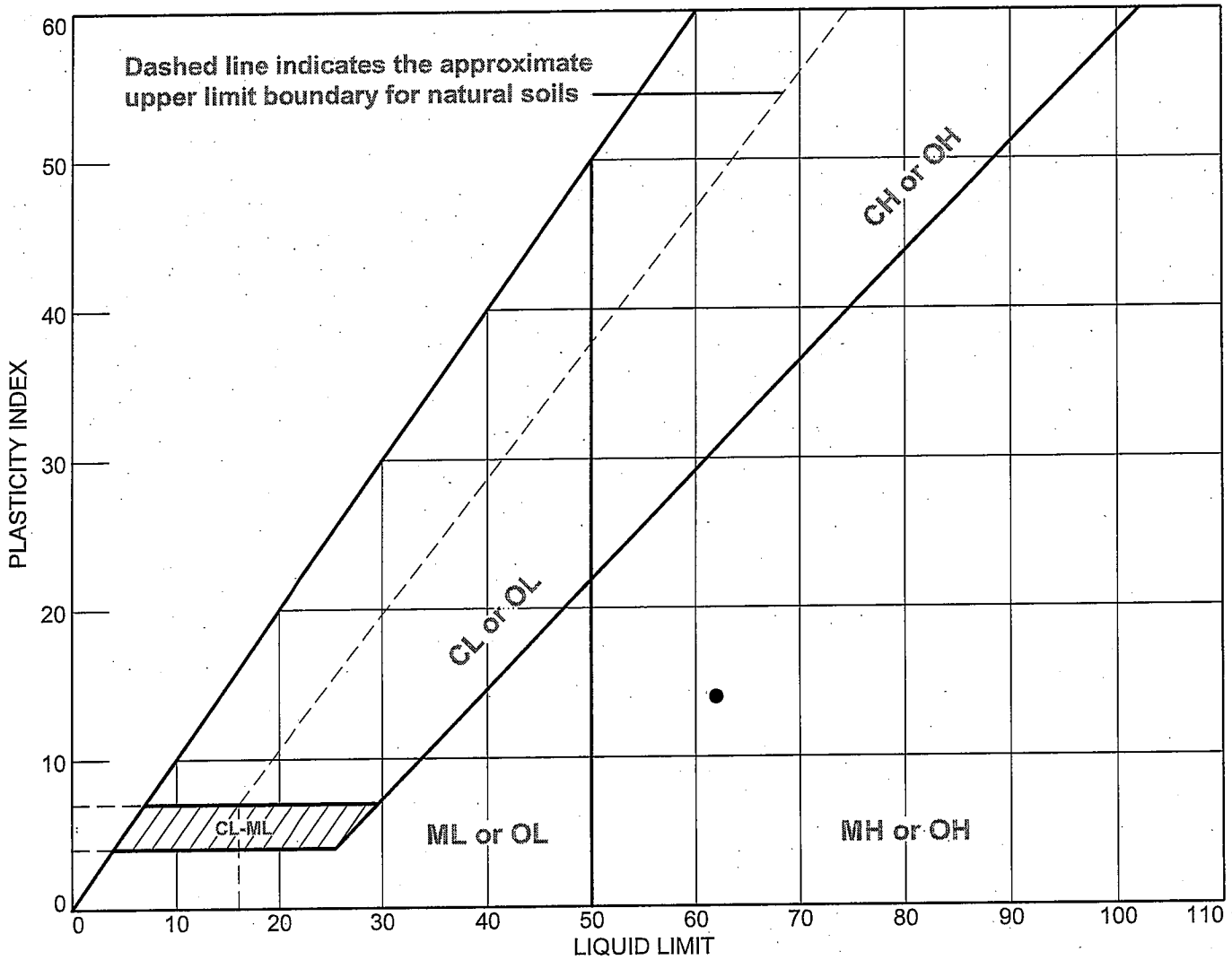
SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	RW-8	S-7	22' - 24'		26	48	22	

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No.:
Figure

Tested By: R. DeCesare

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

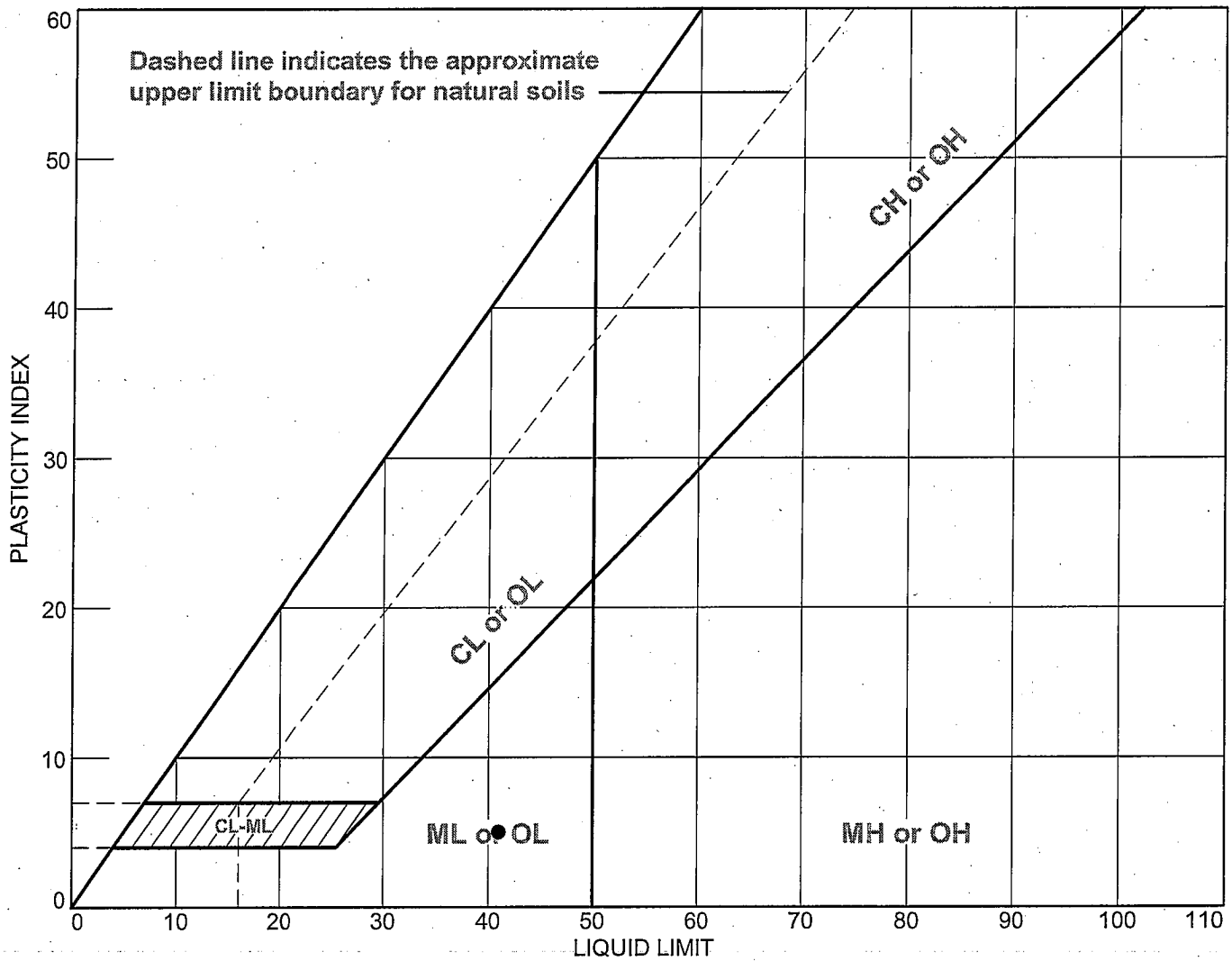
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	RW-8	S-11	42' - 44'		48	62	14	

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No.:
Figure

Tested By: R. DeCesare

LIQUID AND PLASTIC LIMITS TEST REPORT



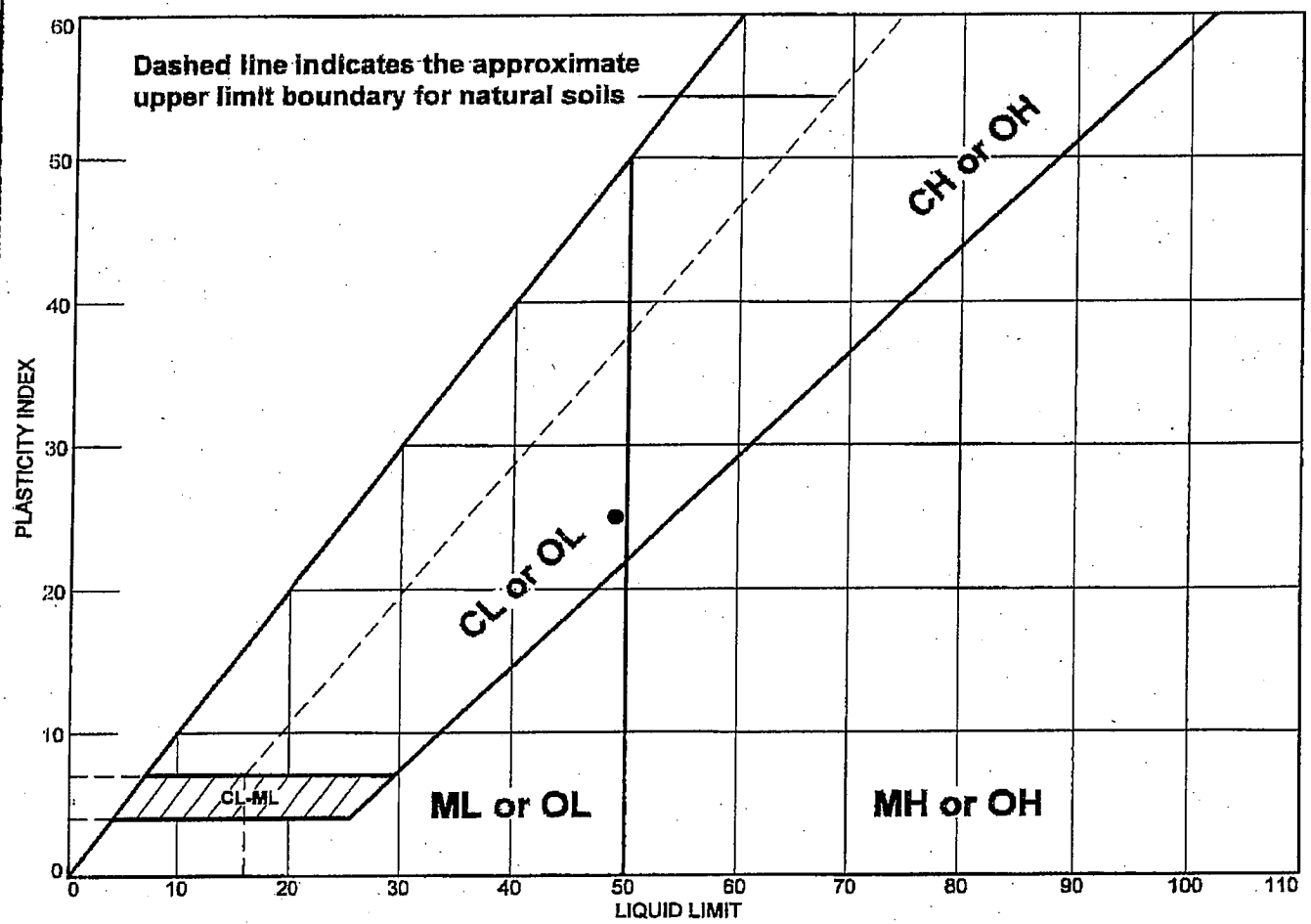
SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	RW-8	S-14	55' - 57'		36	41	5	

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No.:
Figure

Tested By: R. DeCesare

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		49	24	25	100.0	99.6	CL

Project No.

Project: New Britain-Hartford Busway #155-H025

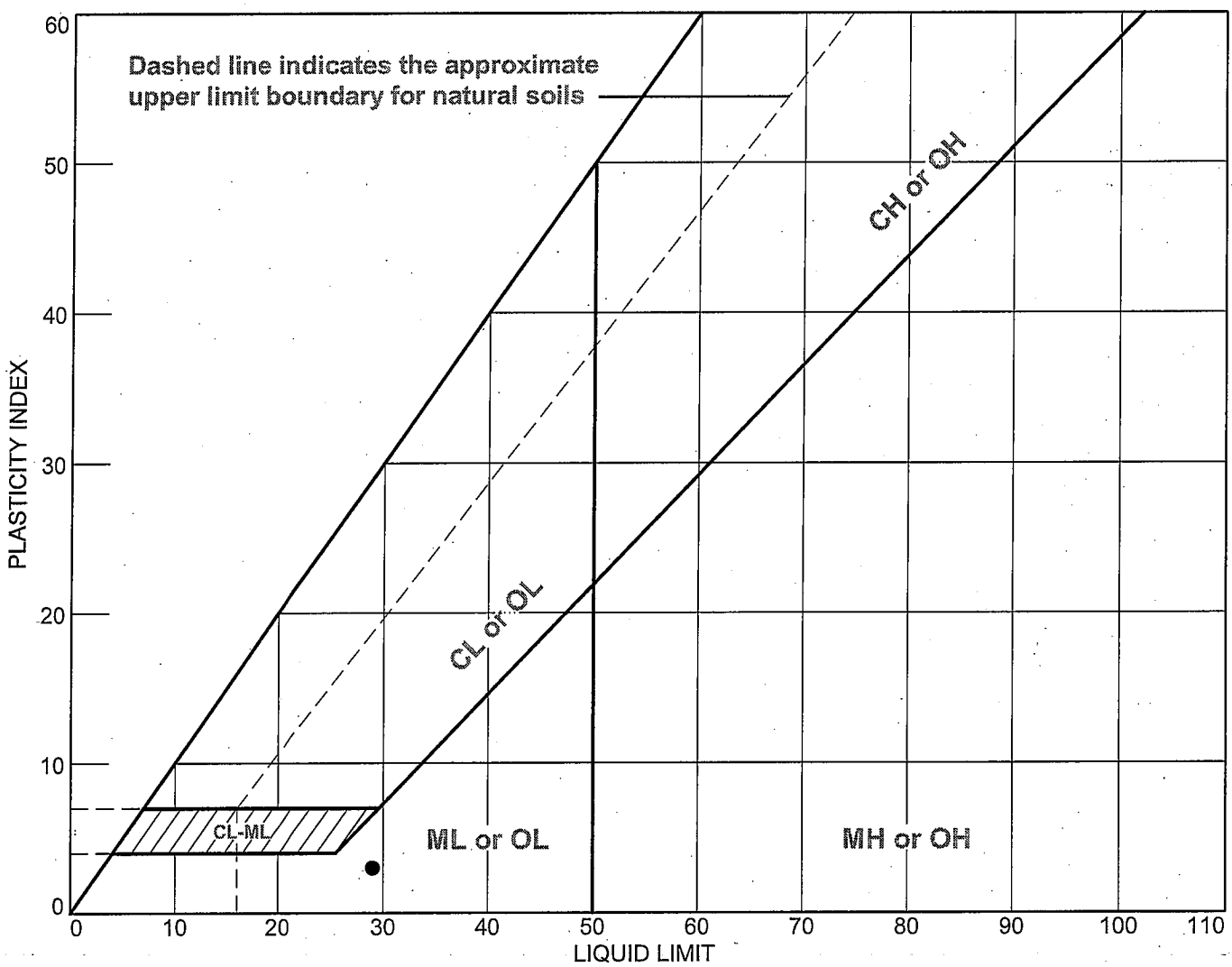
● **Sample Source:** Boring RW-8 (Flatbush Ave., over Busway)

Remarks:

● Sampled and Dropped off by the Client,

TEST-CON INCORPORATED
PO BOX 3116
Danbury, CT 06813-3116

LIQUID AND PLASTIC LIMITS TEST REPORT



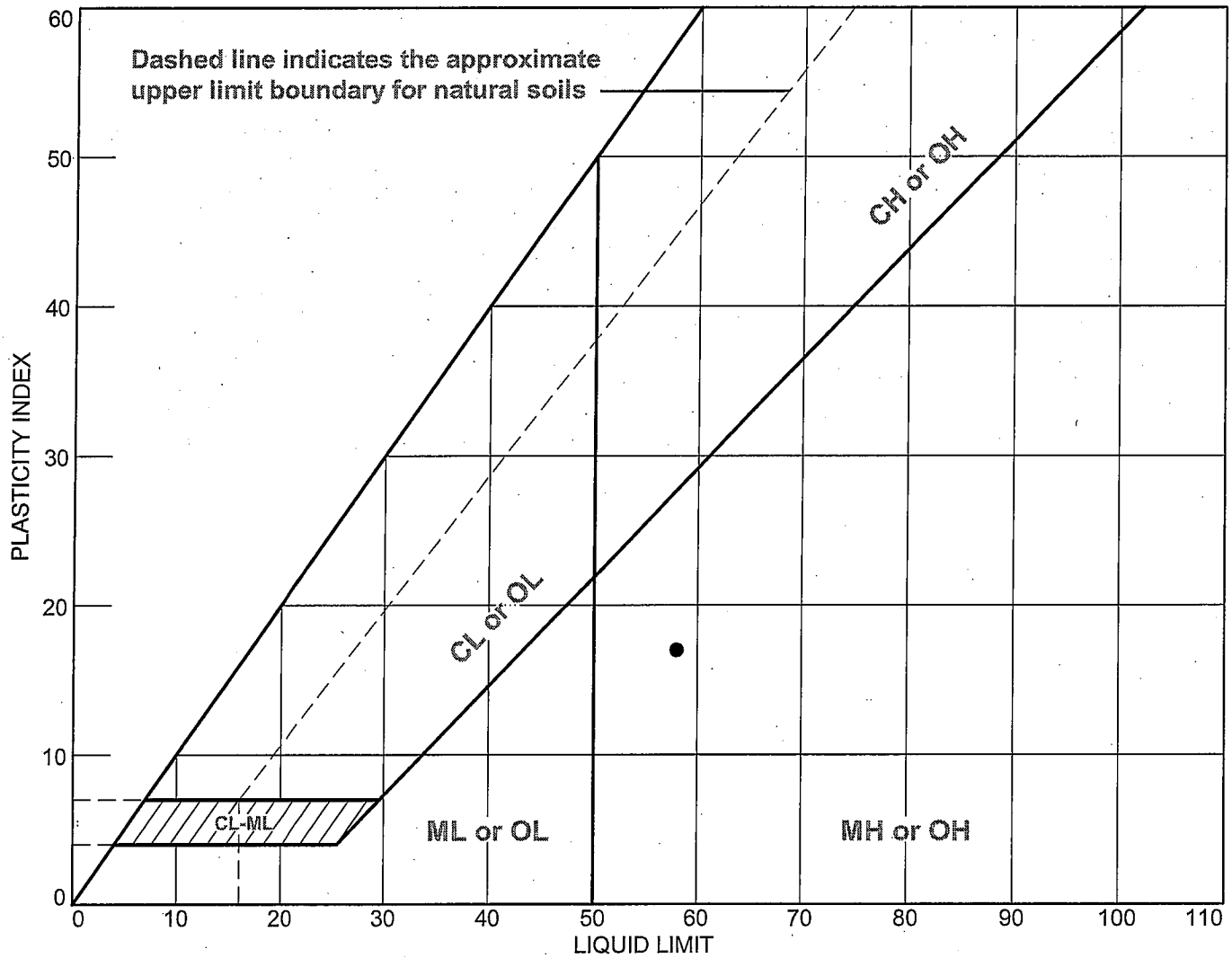
SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	RW-9	S-5	10' - 12'		26	29	3	

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No.:
Figure

Tested By: R. DeCesare

LIQUID AND PLASTIC LIMITS TEST REPORT



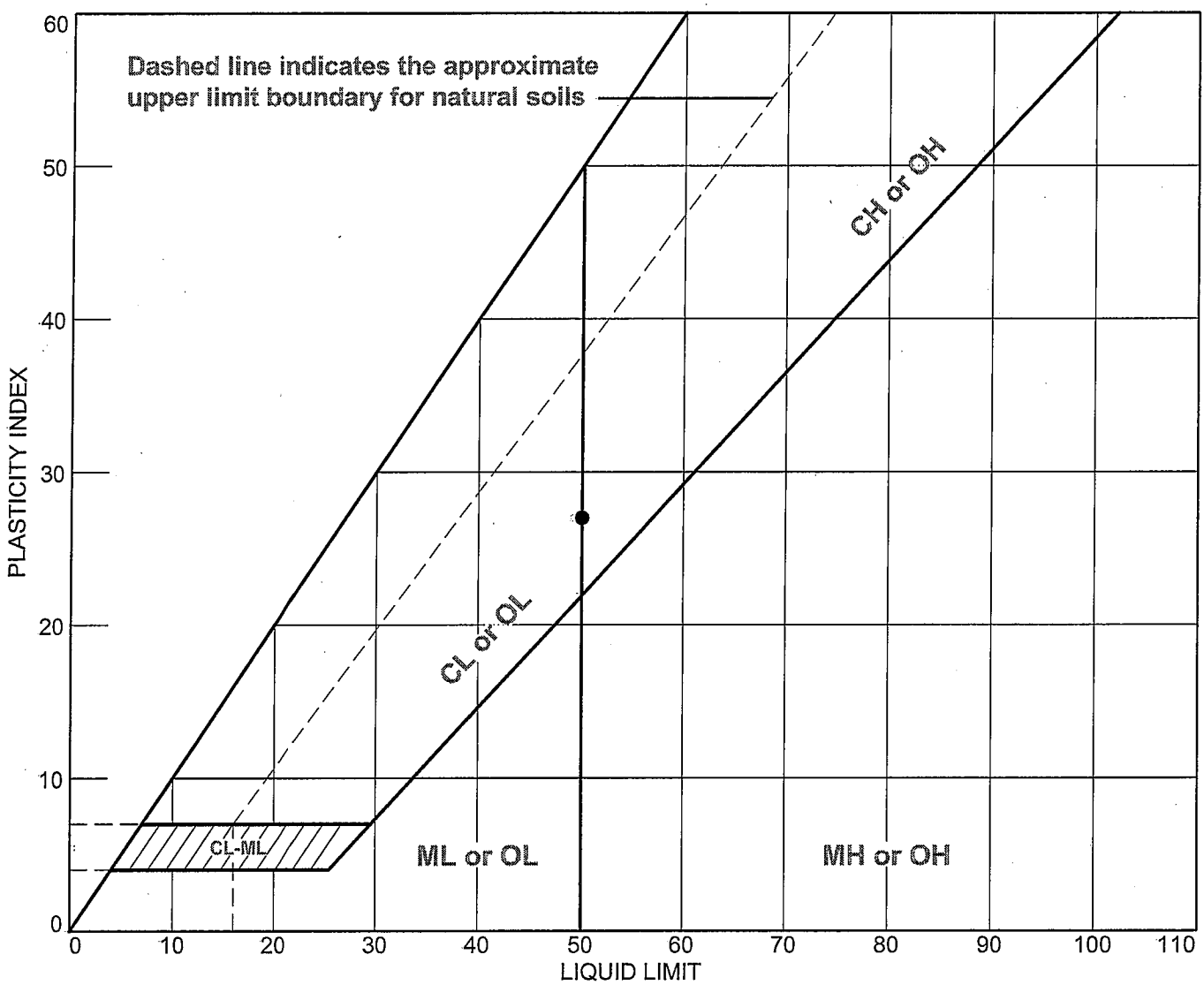
SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	RW-9	S-10	35' - 37'		41	58	17	

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No.:
Figure

Tested By: R. DeCesare

LIQUID AND PLASTIC LIMITS TEST REPORT

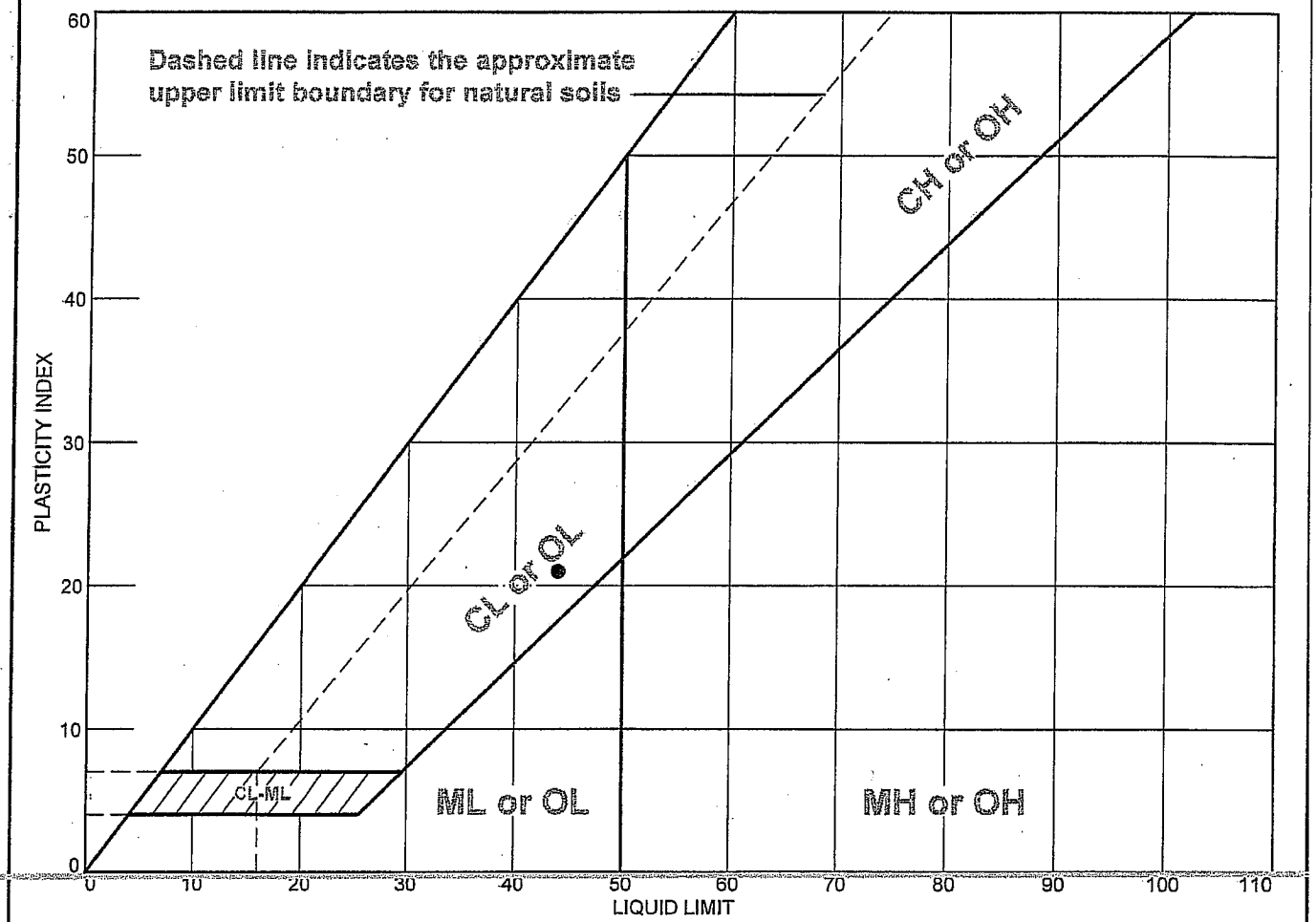


SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Boring RW-23 UP1	UP1	25' to 27'		23	50	27	CH

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No.:
Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●		44	23	21			

Project No. **Client:** GeoDesign

Project: New Britain-Hartford Busway #155-H025

● **Sample Source:** Boring RW-23 (flatbush Ave. over Busway)

Remarks:

● Date Tested: 09/29/2008. Boring No RW-23, Sample No UP-2, Depth from 40' to 42'.

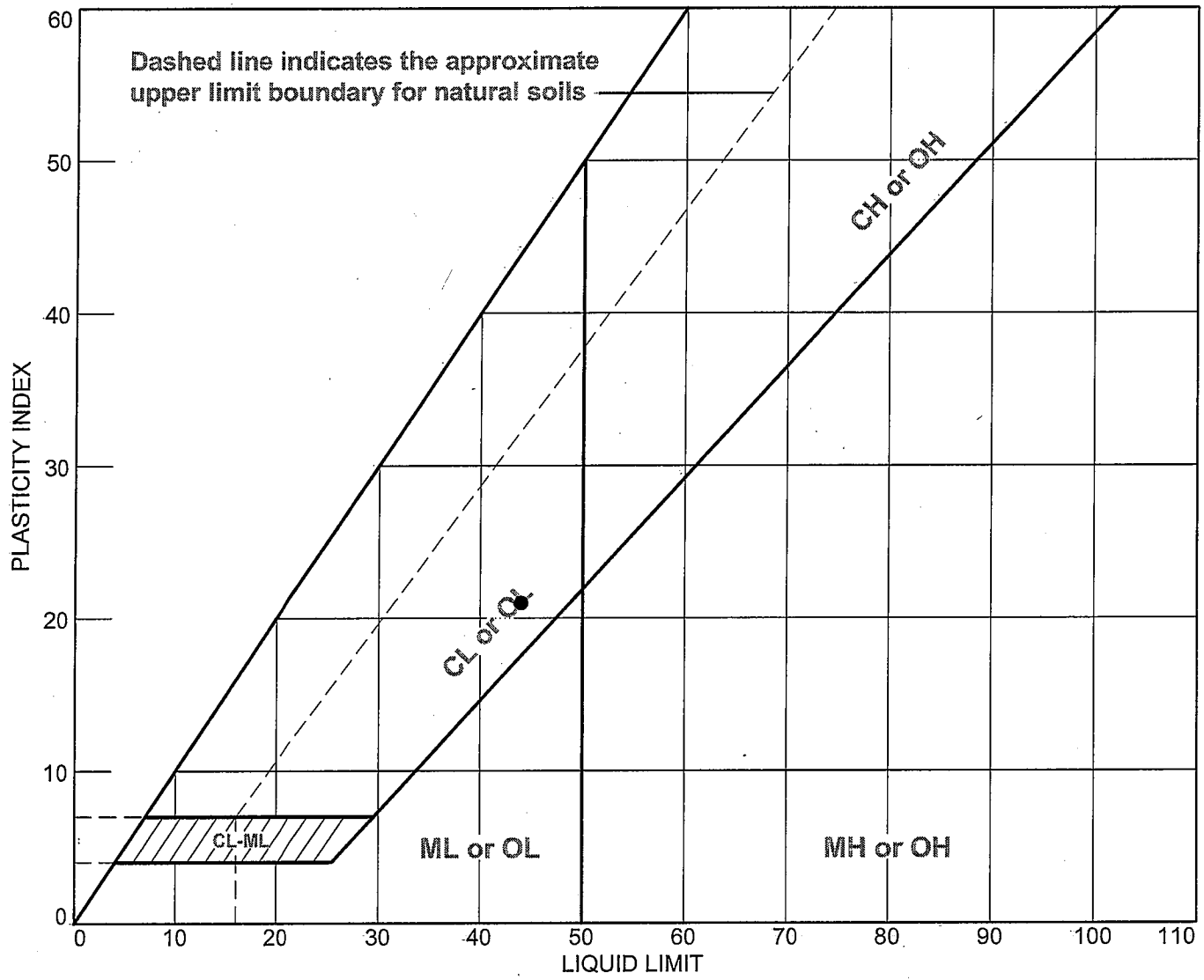
American Standard Testing and Consulting Laboratories, Inc.

Great Neck, NY

Figure

Tested By: R. Sanchez **Checked By:** A.S.

LIQUID AND PLASTIC LIMITS TEST REPORT

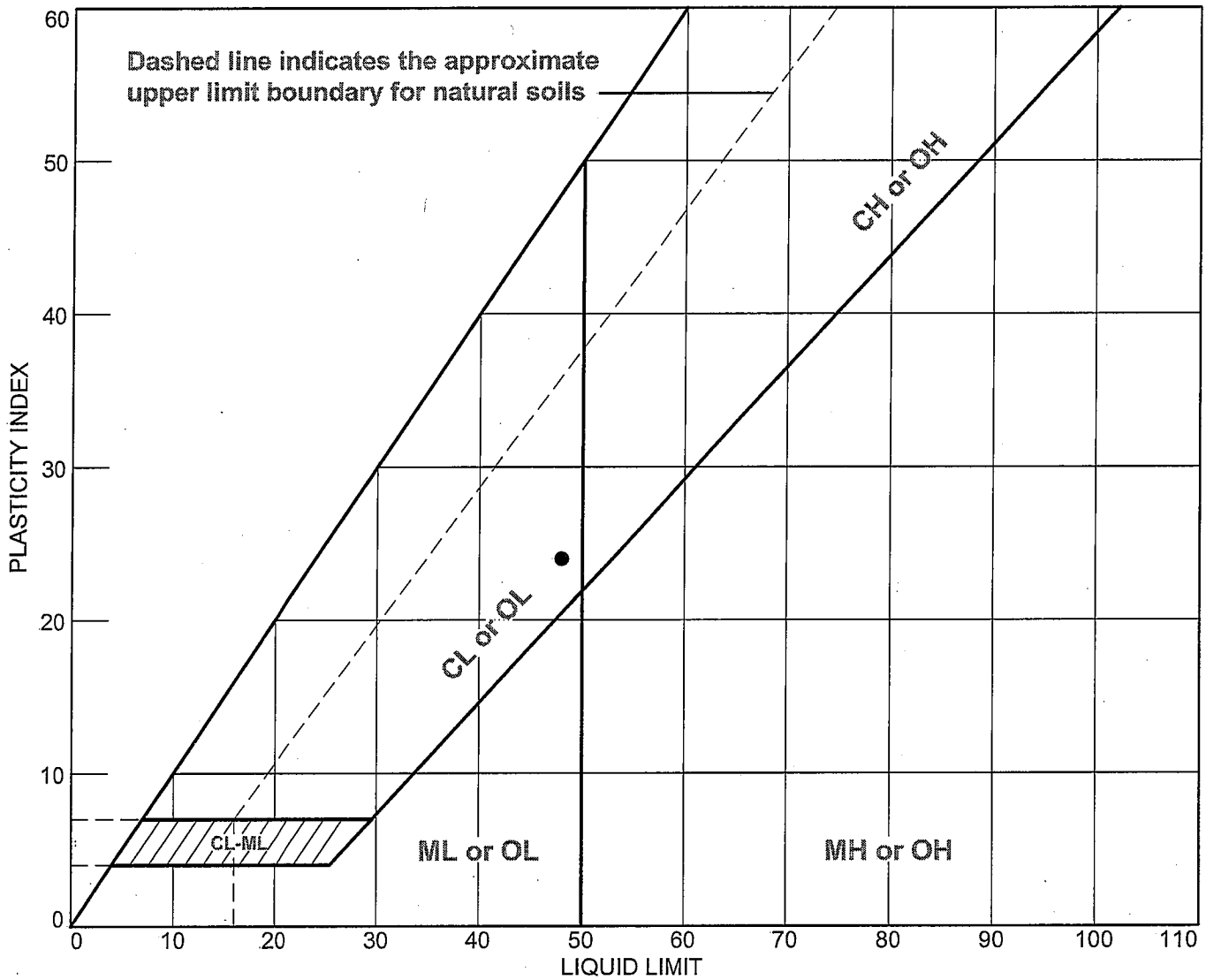


SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Boring RW-23 - UP2	UP2	40' to 42'		23	44	21	CL

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No.:
Figure

LIQUID AND PLASTIC LIMITS TEST REPORT

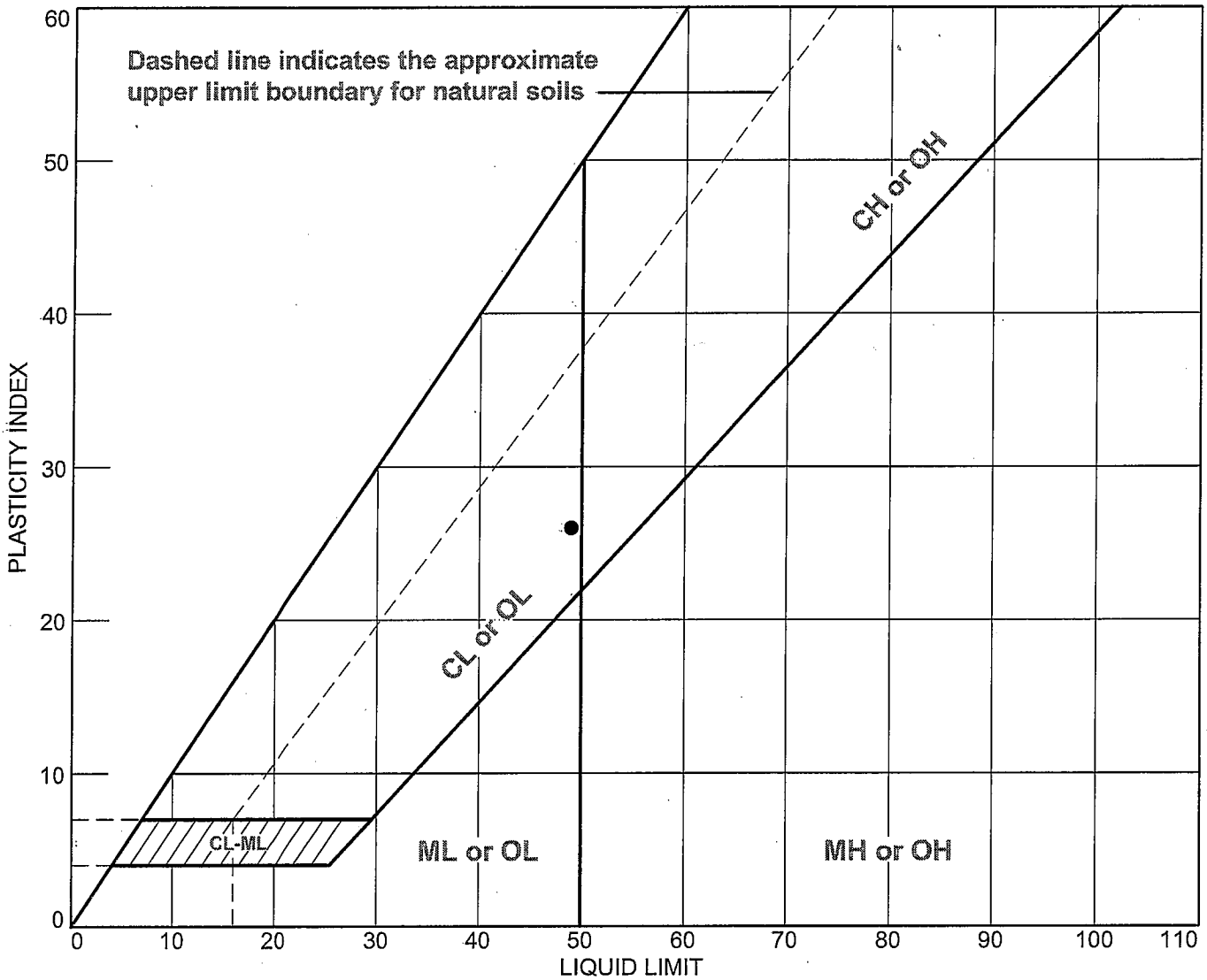


SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Boring RW-28 UP2	UP2	25' to 27'		24	48	24	CL

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No.:
Figure

LIQUID AND PLASTIC LIMITS TEST REPORT

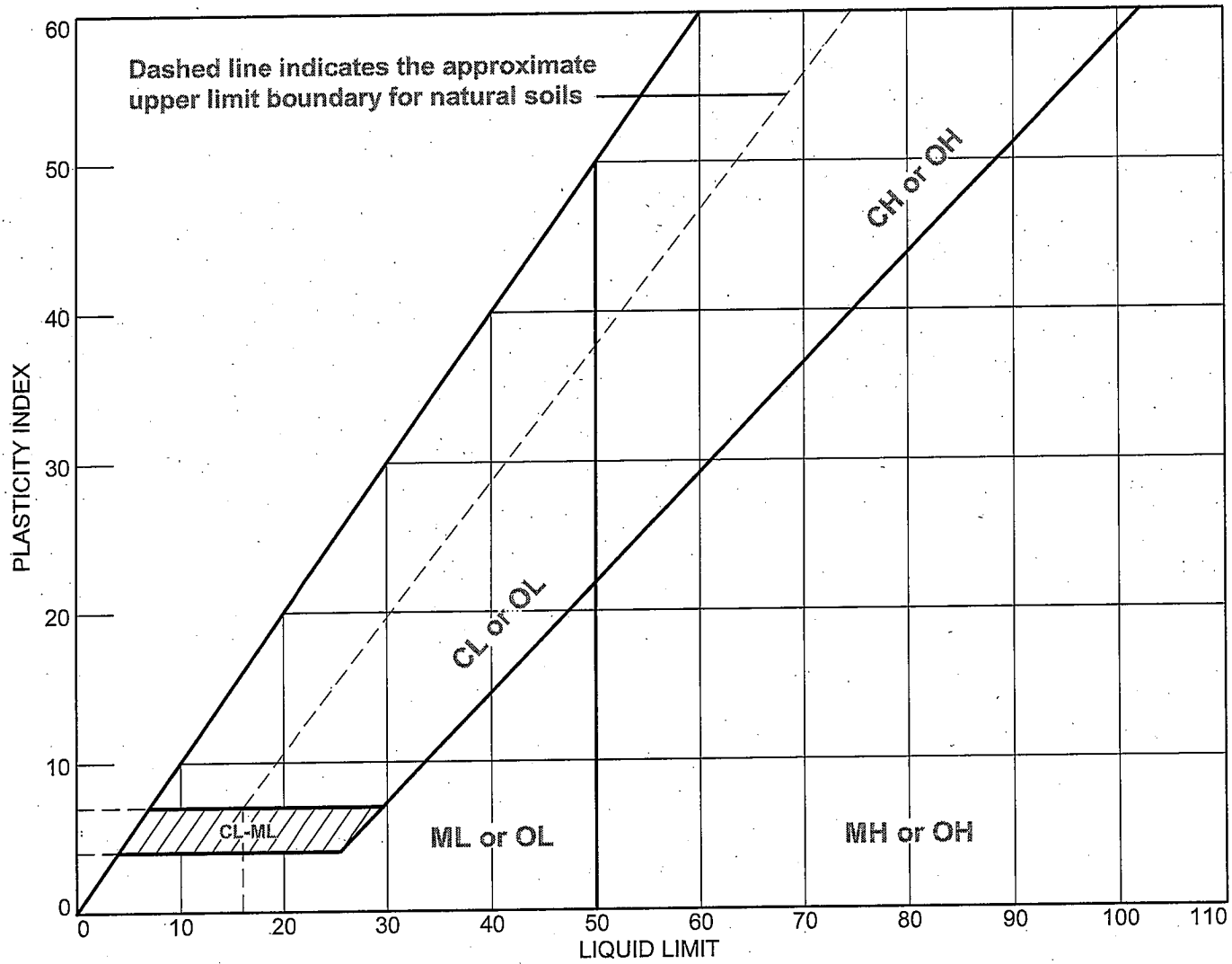


SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Boring RW-29 - UP3	UP3	45' to 47'		23	49	26	CL

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No.:
Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

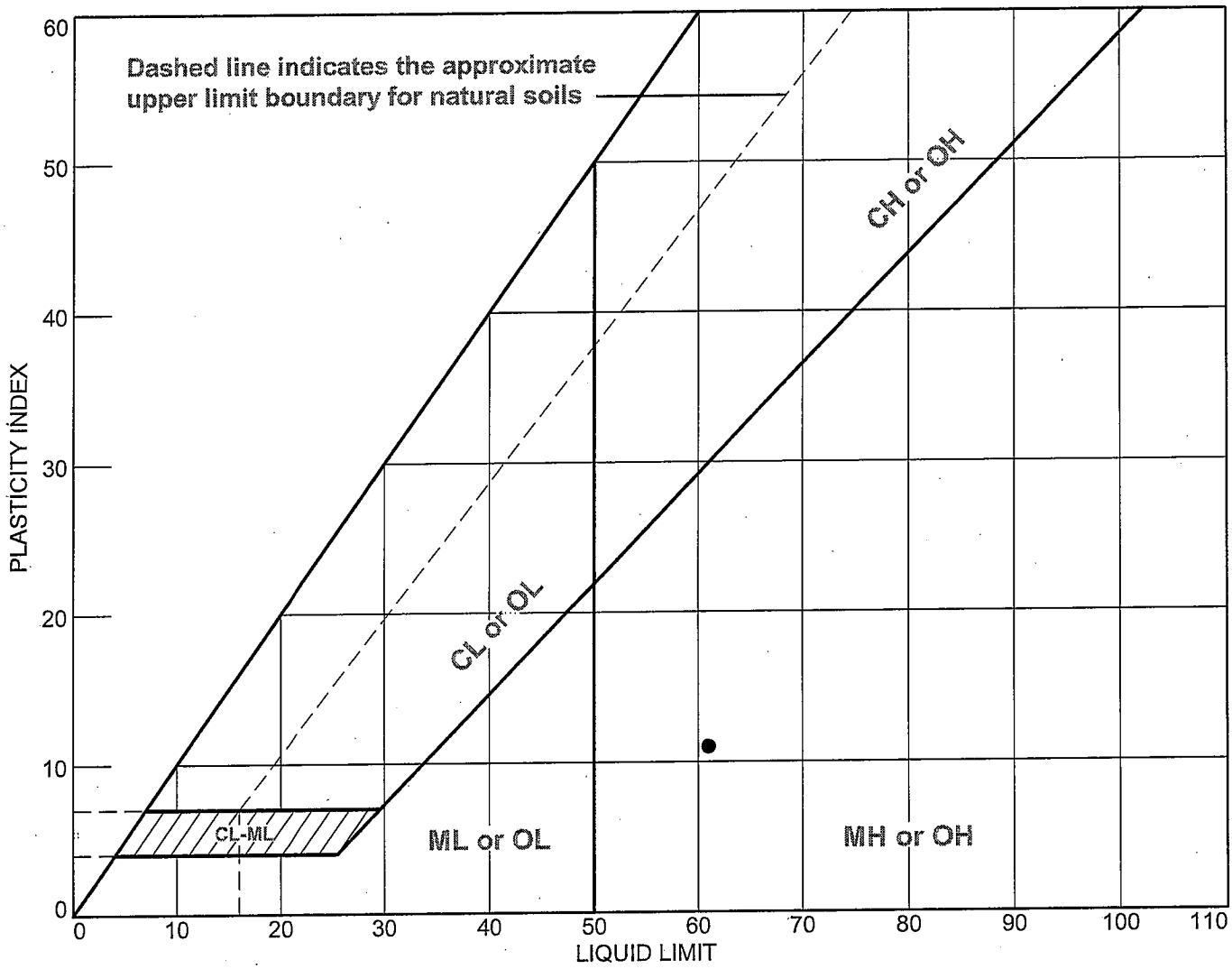
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	SB-01-1 (S-7)	S-7	22' - 24'		34	32	NP	

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No.:
Figure

Tested By: R. DeCesare

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

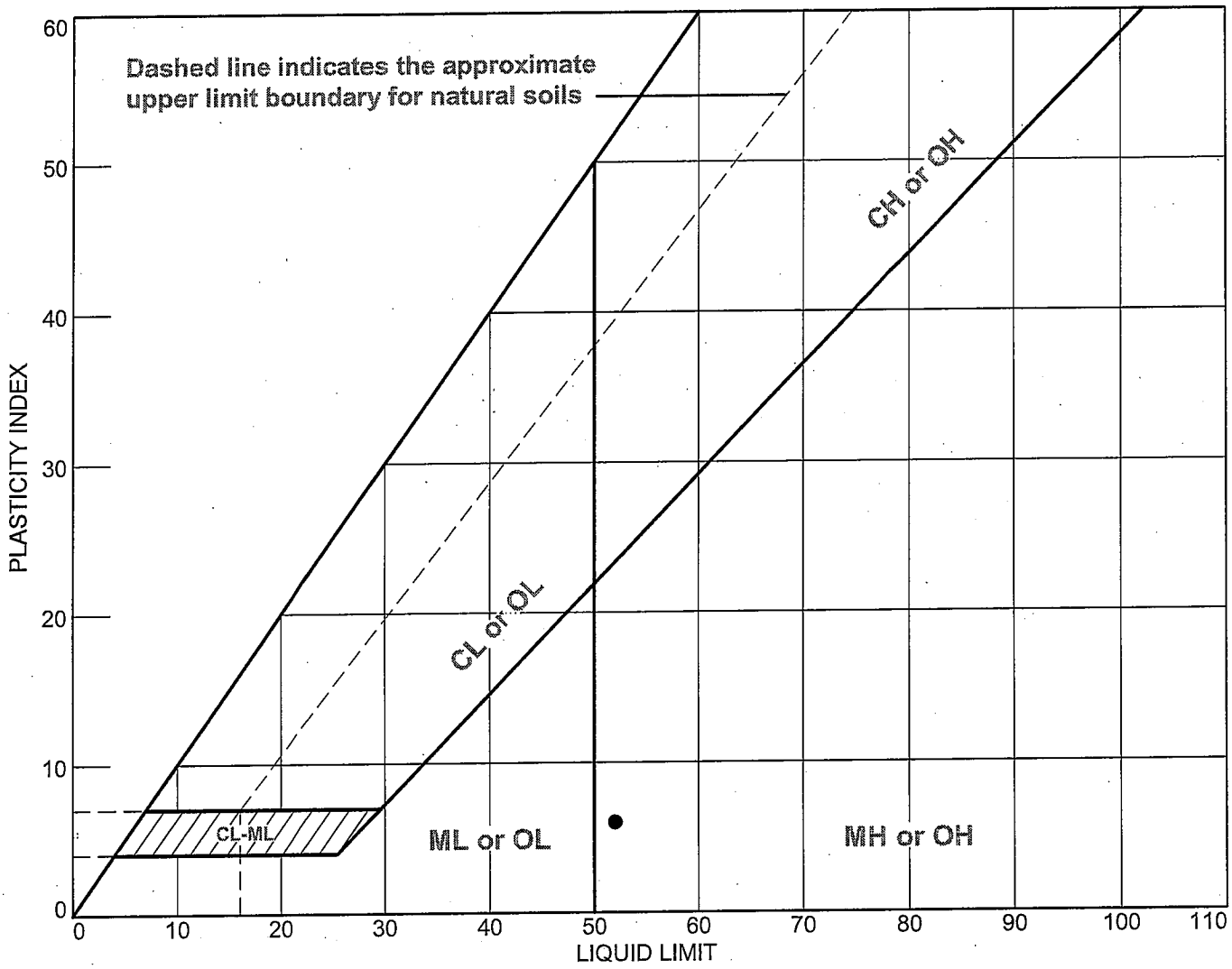
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	SB-01-1	S-11	40' - 42'		50	61	11	

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No.:
Figure

Tested By: R. DeCesare

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

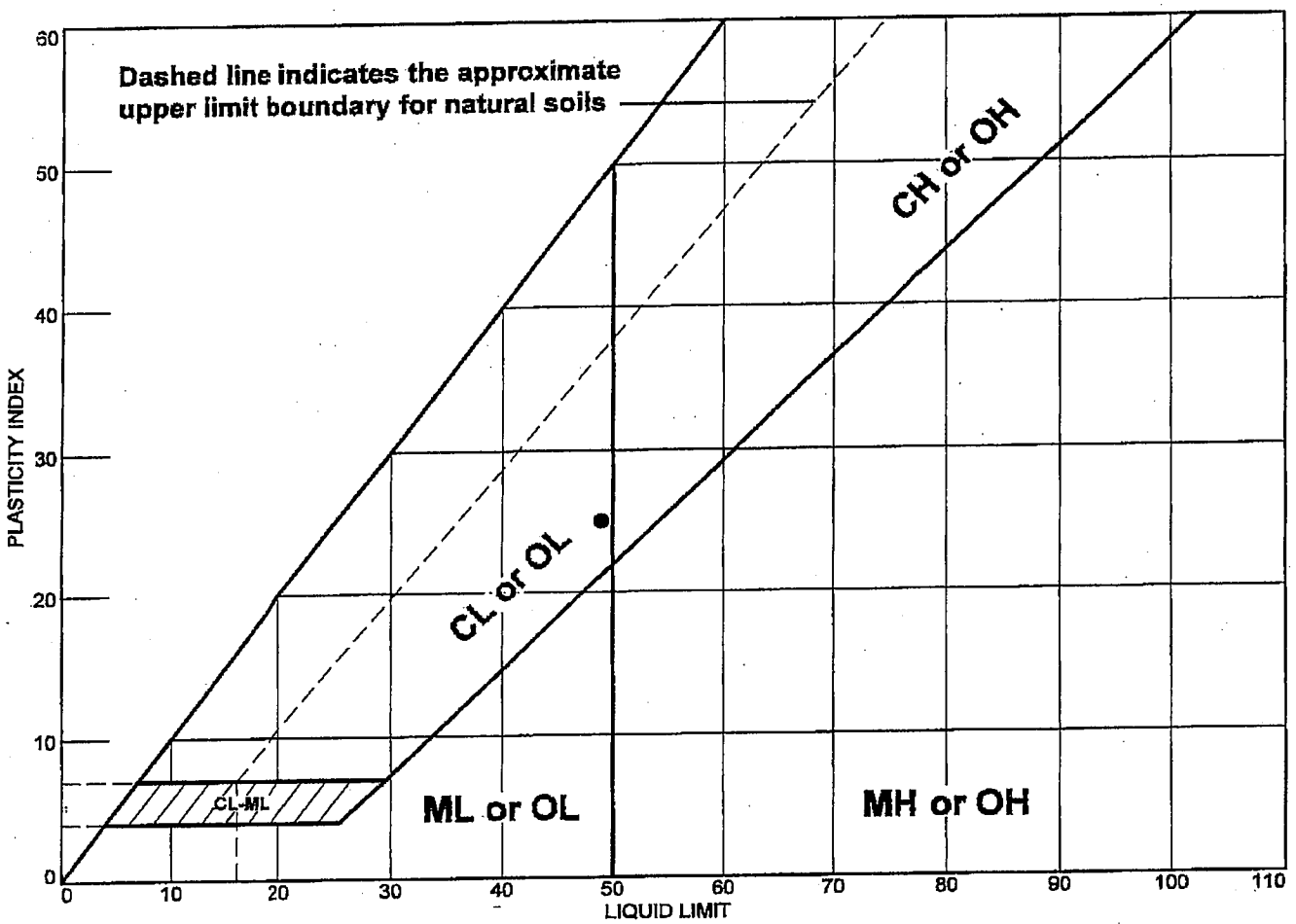
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	SB-01-1 (S-13)	S-13	50' - 52'		46	52	6	

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No.:
Figure

Tested By: R. DeCesare

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Olive color, lean clay	49	24	25	100.0	99.4	CL

Project No.

Project: New Britain-Hartford Busway #155-H025

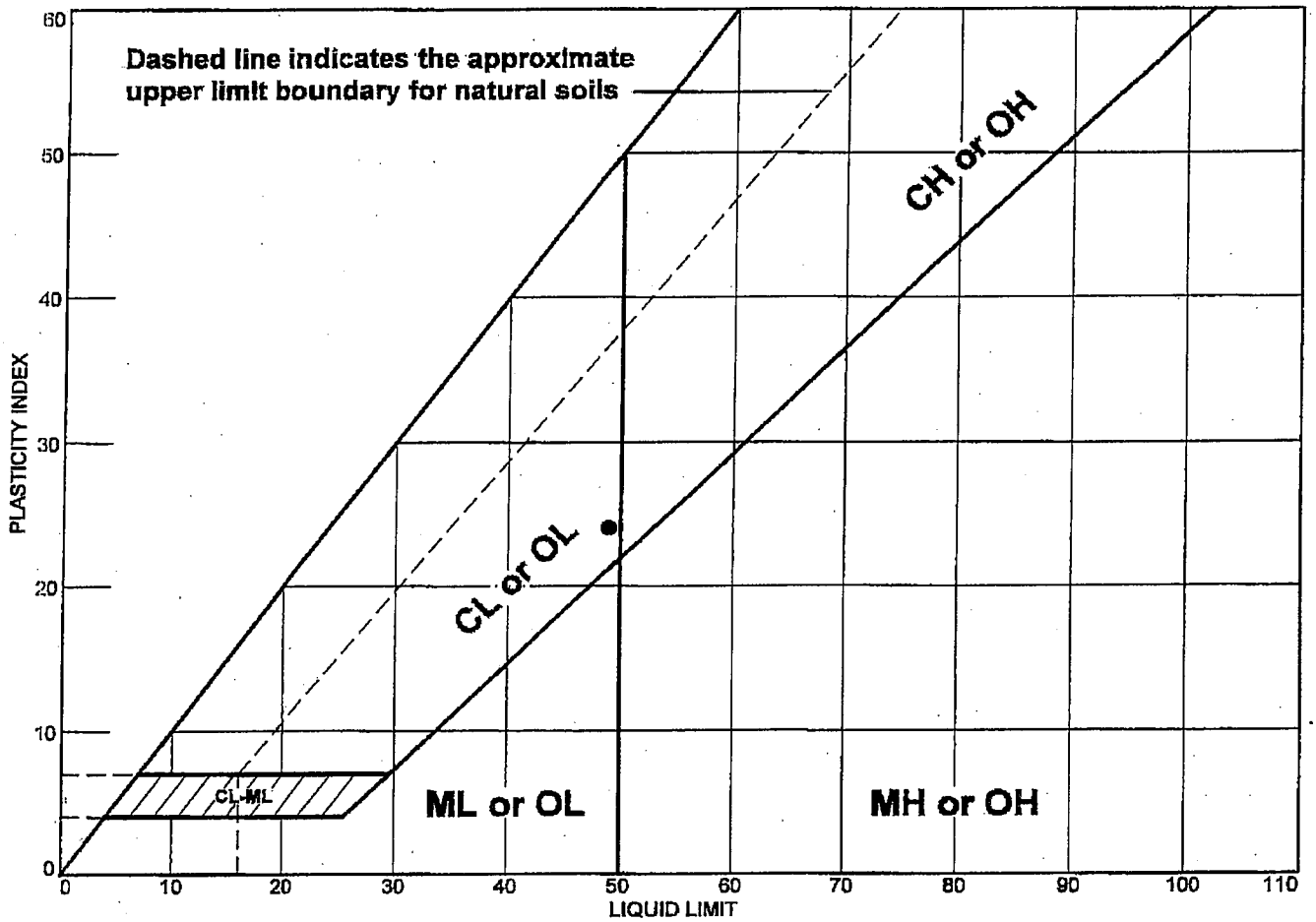
● **Sample Source:** Boring SB-01-1 (Flatbush Ave., over Busway)

Remarks:

● Sampled and Dropped off by the Client,

TEST-CON INCORPORATED
PO BOX 3116
Danbury, CT 06813-3116

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Olive color, lean clay	49	25	24	100.0	99.4	CL

Project No.

Project: New Britain-Hartford Busway #155-H025

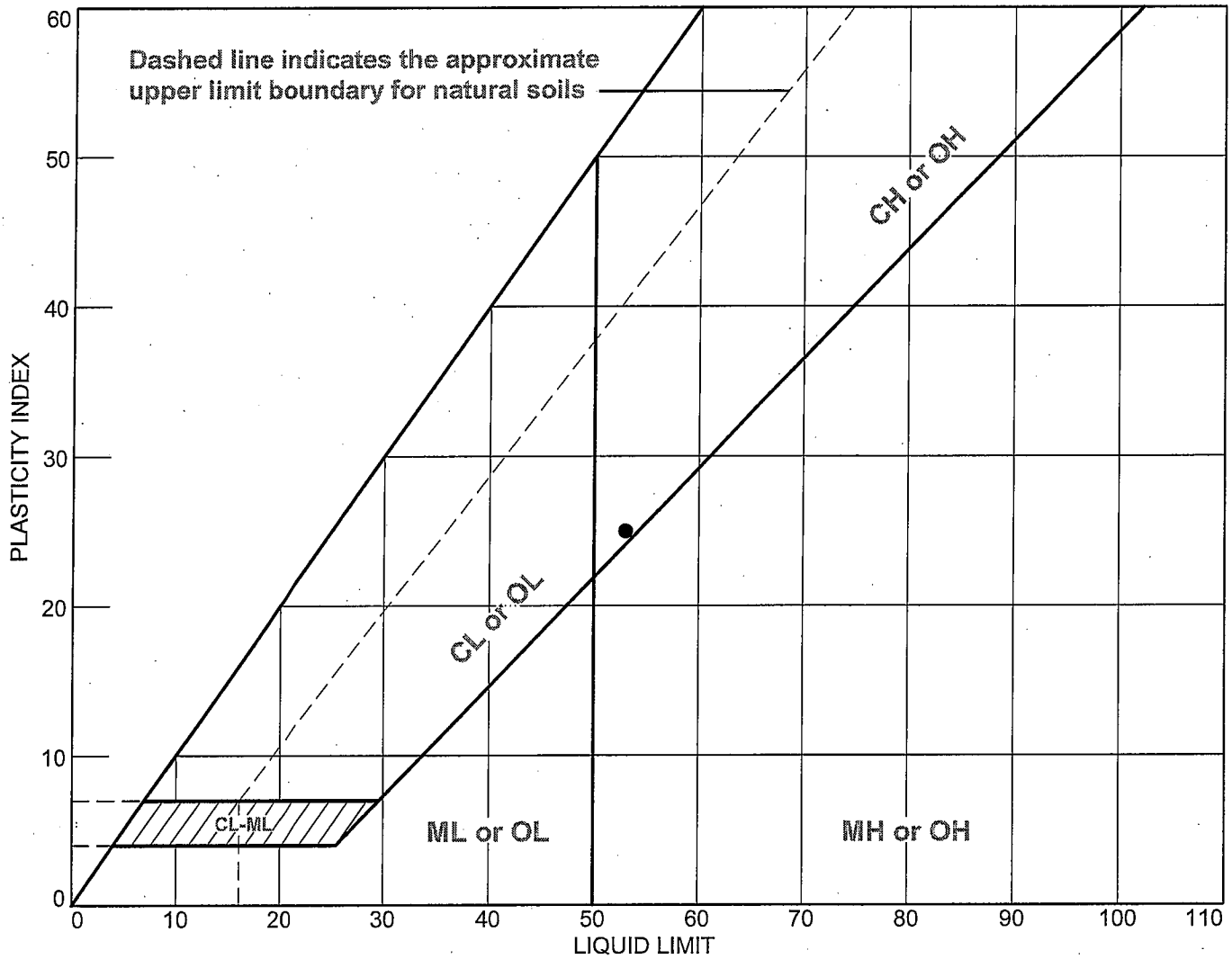
● **Source of Sample:** SB-01-2 (Flatbush Ave., over Busway)

Remarks:

● Sampled and Dropped off by the Client,

TEST-CON INCORPORATED
PO BOX 3116
Danbury, CT 06813-3116

LIQUID AND PLASTIC LIMITS TEST REPORT



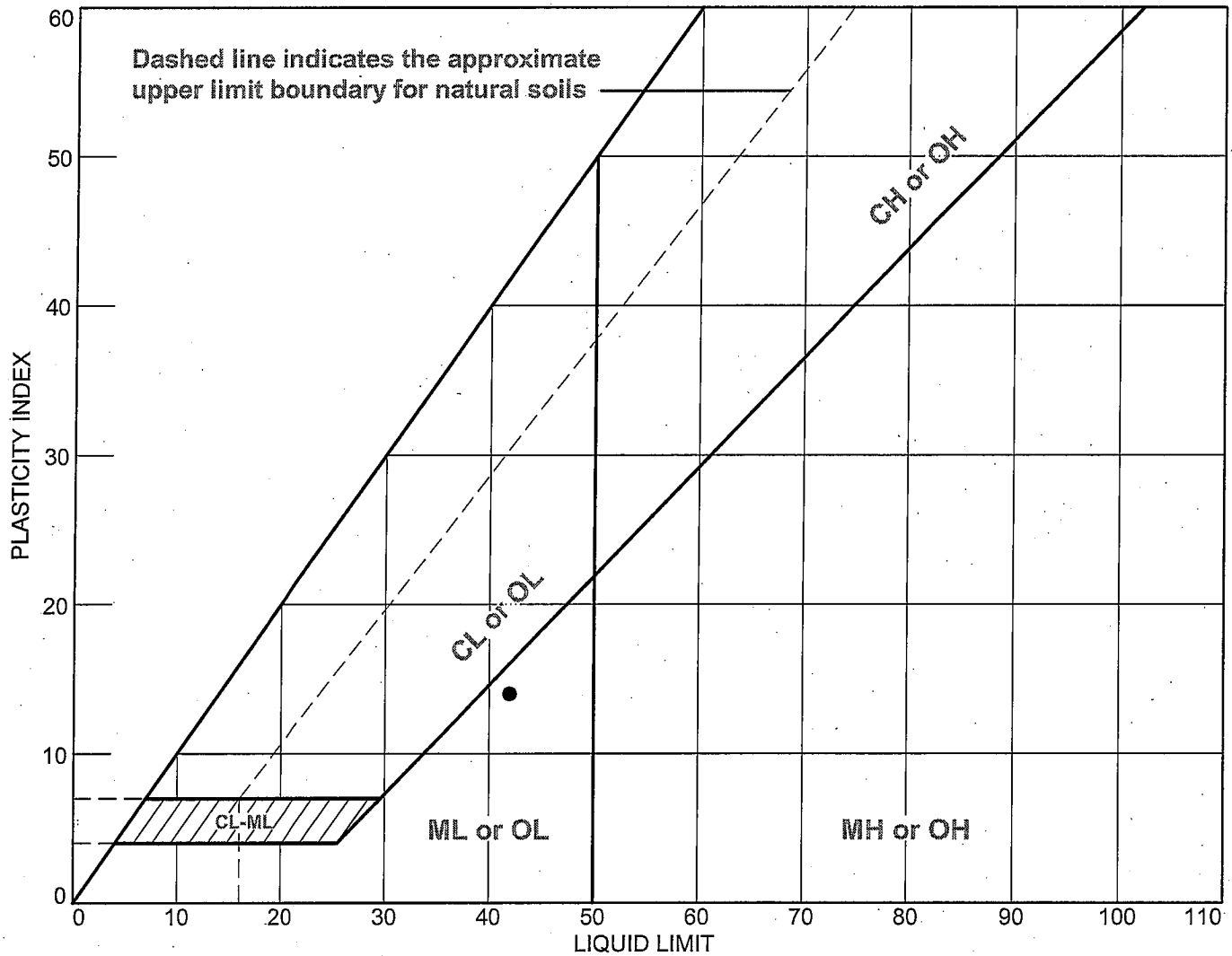
SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	SB-01-3	S-10	30' - 32'		28	53	25	

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No.:
Figure

Tested By: R. DeCesare

LIQUID AND PLASTIC LIMITS TEST REPORT



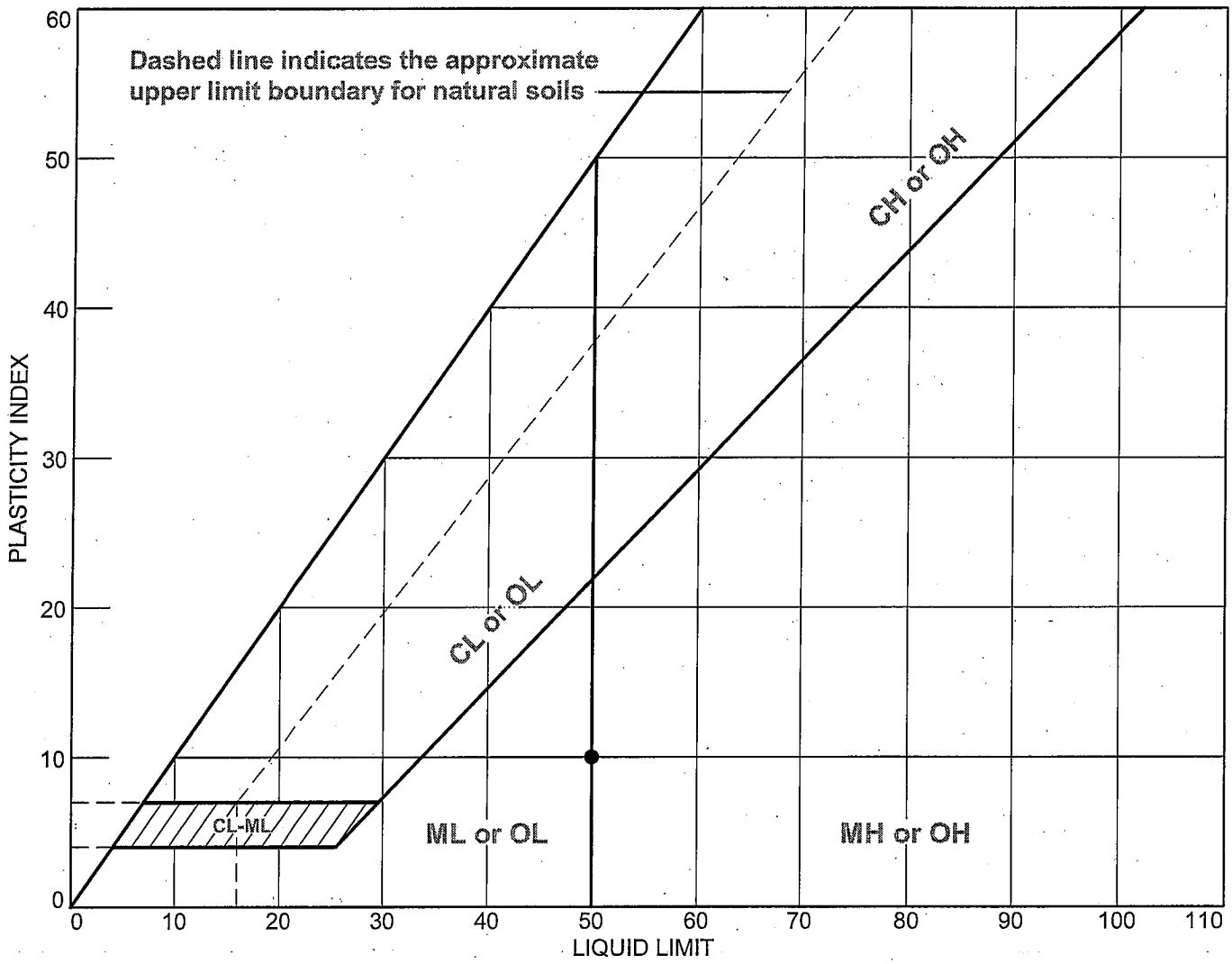
SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	SB-01-3	S-12	40' - 42'		28	42	14	

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No.:
Figure

Tested By: R. DeCesare

LIQUID AND PLASTIC LIMITS TEST REPORT



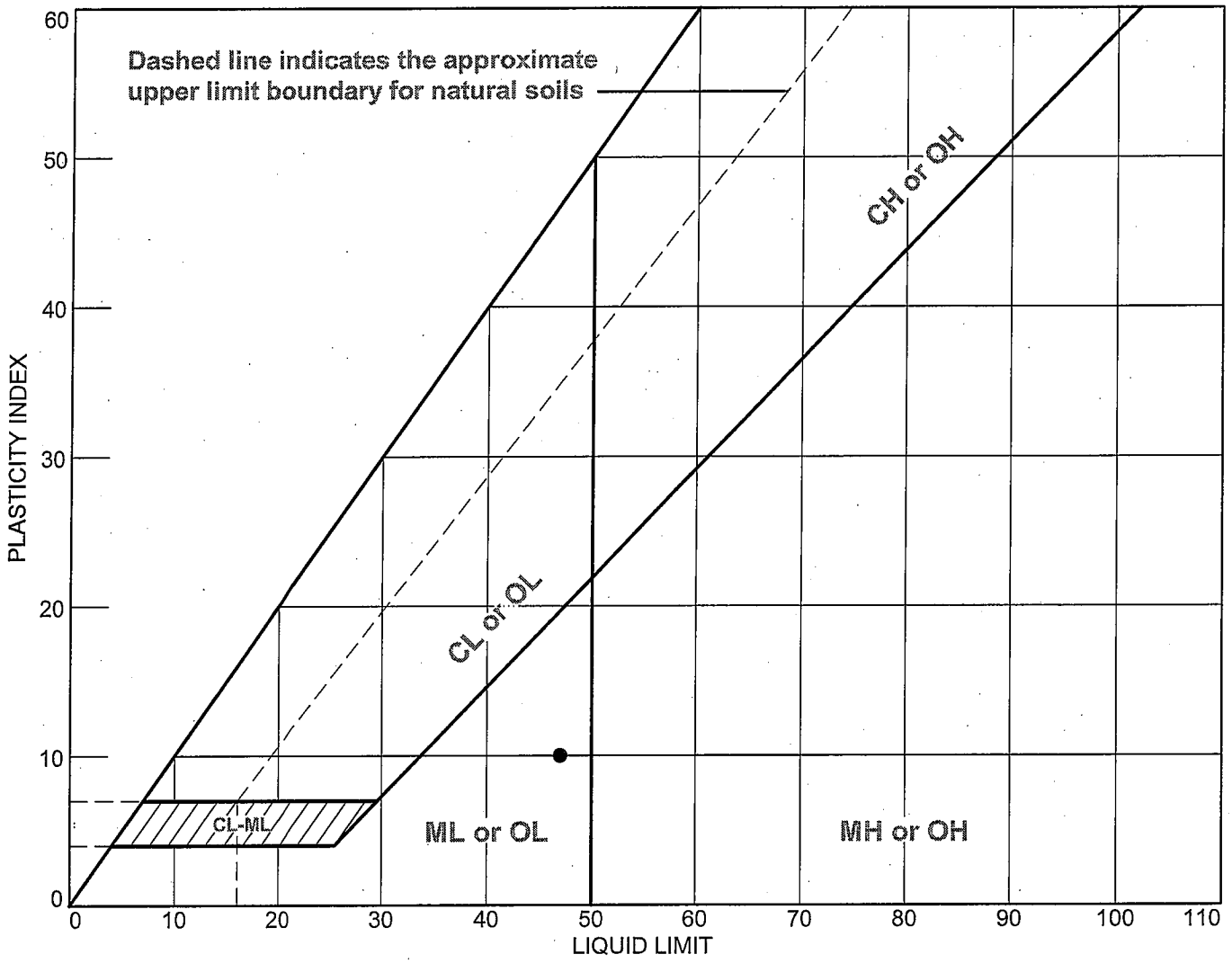
SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	SB-01-4	S-6	20' - 22'		40	50	10	

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No.:
Figure

Tested By: R. DeCesare

LIQUID AND PLASTIC LIMITS TEST REPORT



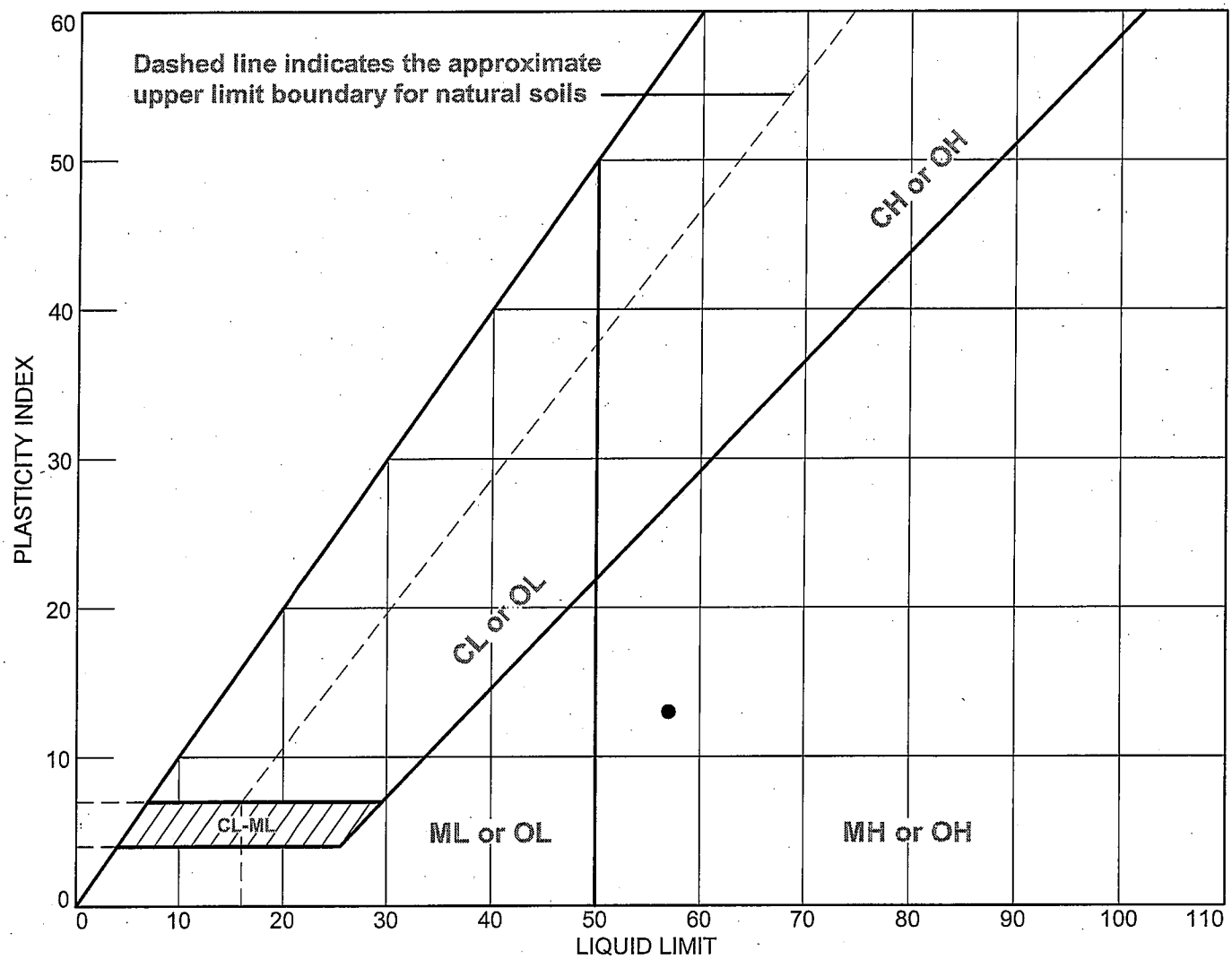
SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	SB-01-4	S-8	32' - 34'		37	47	10	

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No.:
Figure

Tested By: R. DeCesare

LIQUID AND PLASTIC LIMITS TEST REPORT



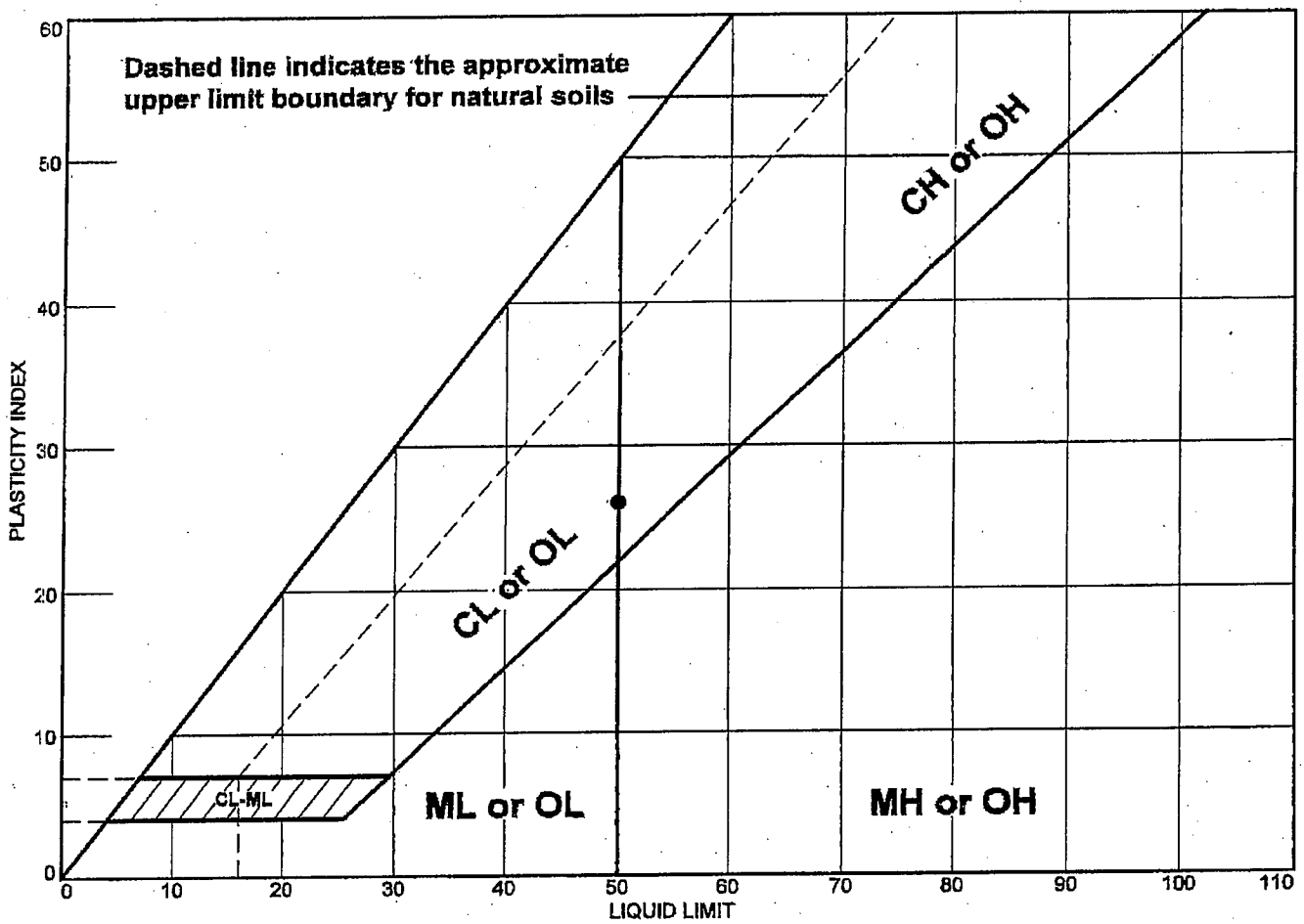
SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	SB-01-4	S-10	42' - 44'		44	57	13	

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No.:
Figure

Tested By: R. DeCesare

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Olive Color, fat clay	50	24	26	100.0	99.8	CH

Project No.

Project: New Britain-Hartford Busway #155-H025

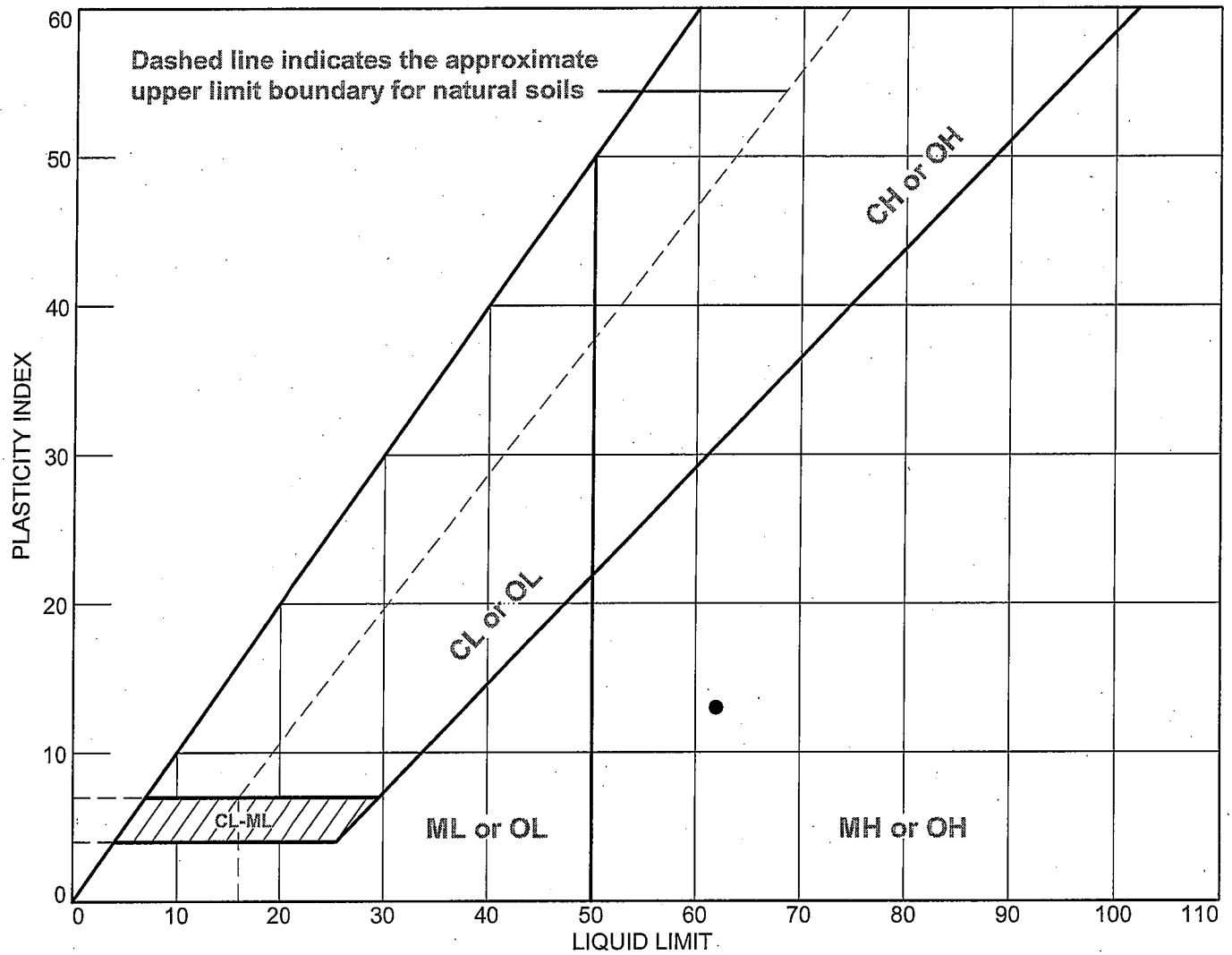
● **Sample Source:** Boring SB-01-4 (Flatbush Ave., over Busway)

Remarks:

● Sampled and Dropped off by the Client,

TEST-CON INCORPORATED
PO BOX 3116
Danbury, CT 06813-3116

LIQUID AND PLASTIC LIMITS TEST REPORT



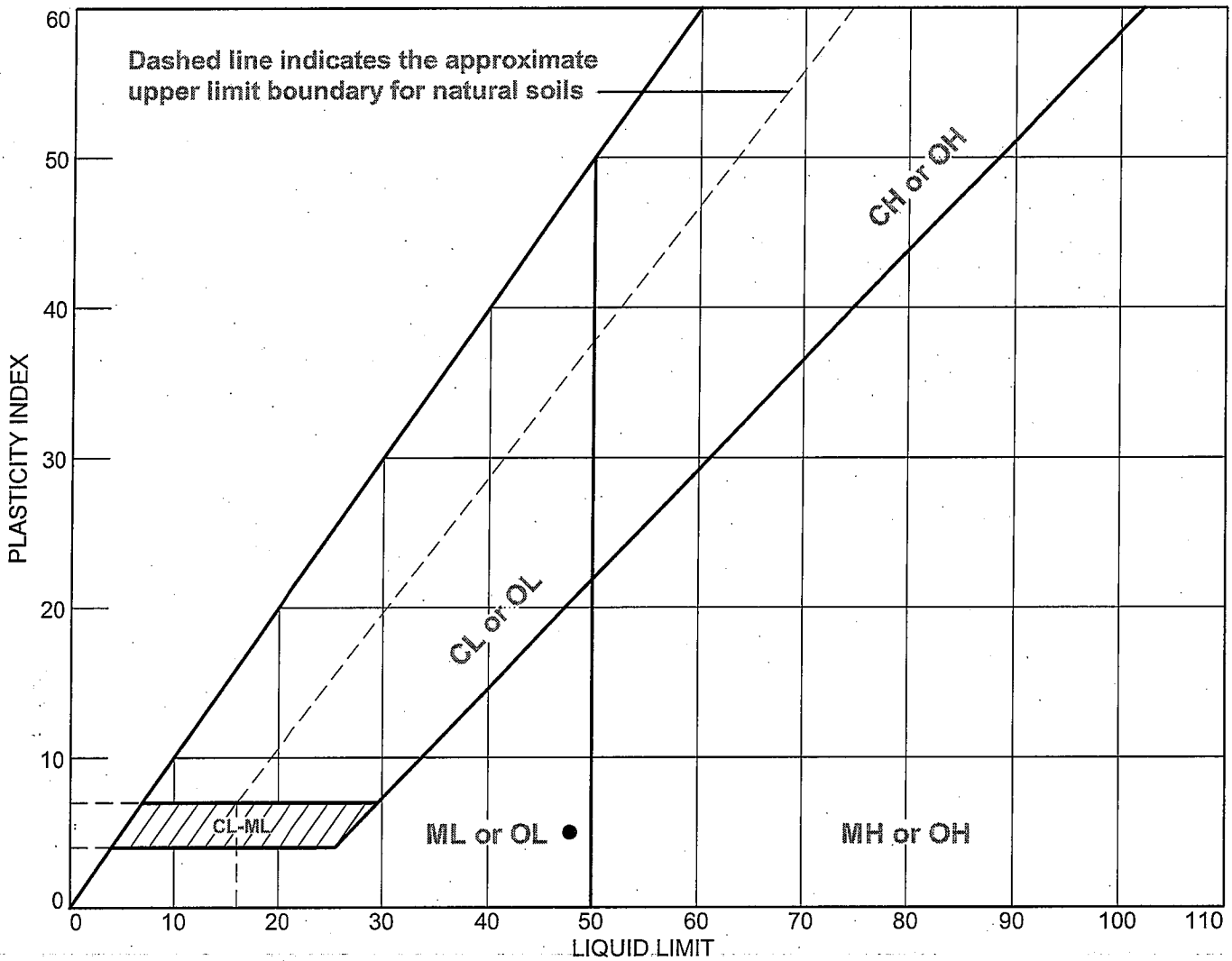
SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	SB-02-1	S-10	45' - 47'		49	62	13	

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No.:
Figure

Tested By: R. DeCesare

LIQUID AND PLASTIC LIMITS TEST REPORT

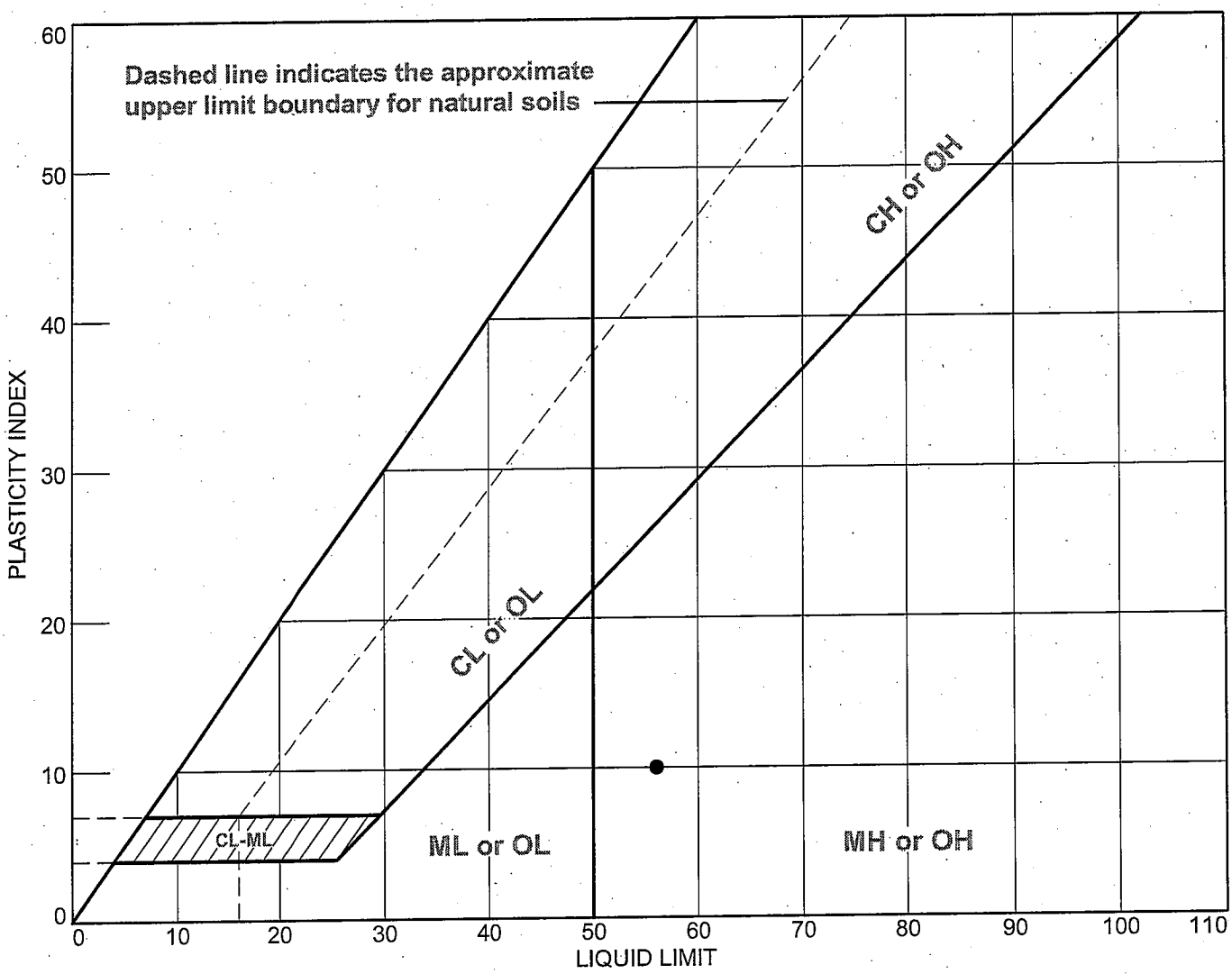


SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	SB-02-1	S-12	55' - 57'		43	48	5	

TEST-CON INCORPORATED 16 East Franklin Street, PO BOX 3116 DANBURY, CT 06813-3116	**Client:** GeoDesign **Project:** New Britain-Hartford Busway #155-H025 **Project No.:** **Figure**

Tested By: R. DeCesare

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

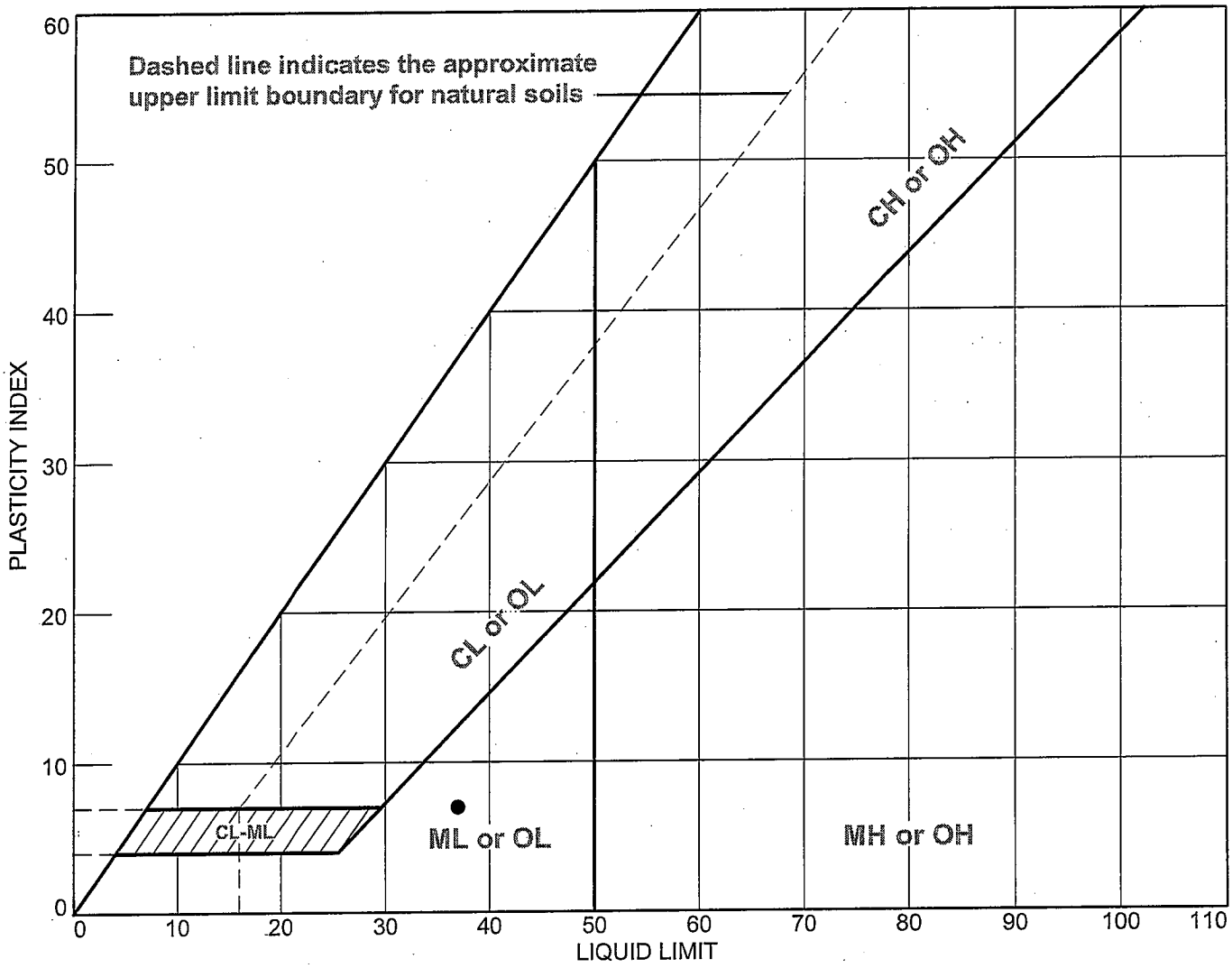
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	SB-02-1	S-14	65' - 67'		46	56	10	

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No.:
Figure

Tested By: R. DeCesare

LIQUID AND PLASTIC LIMITS TEST REPORT



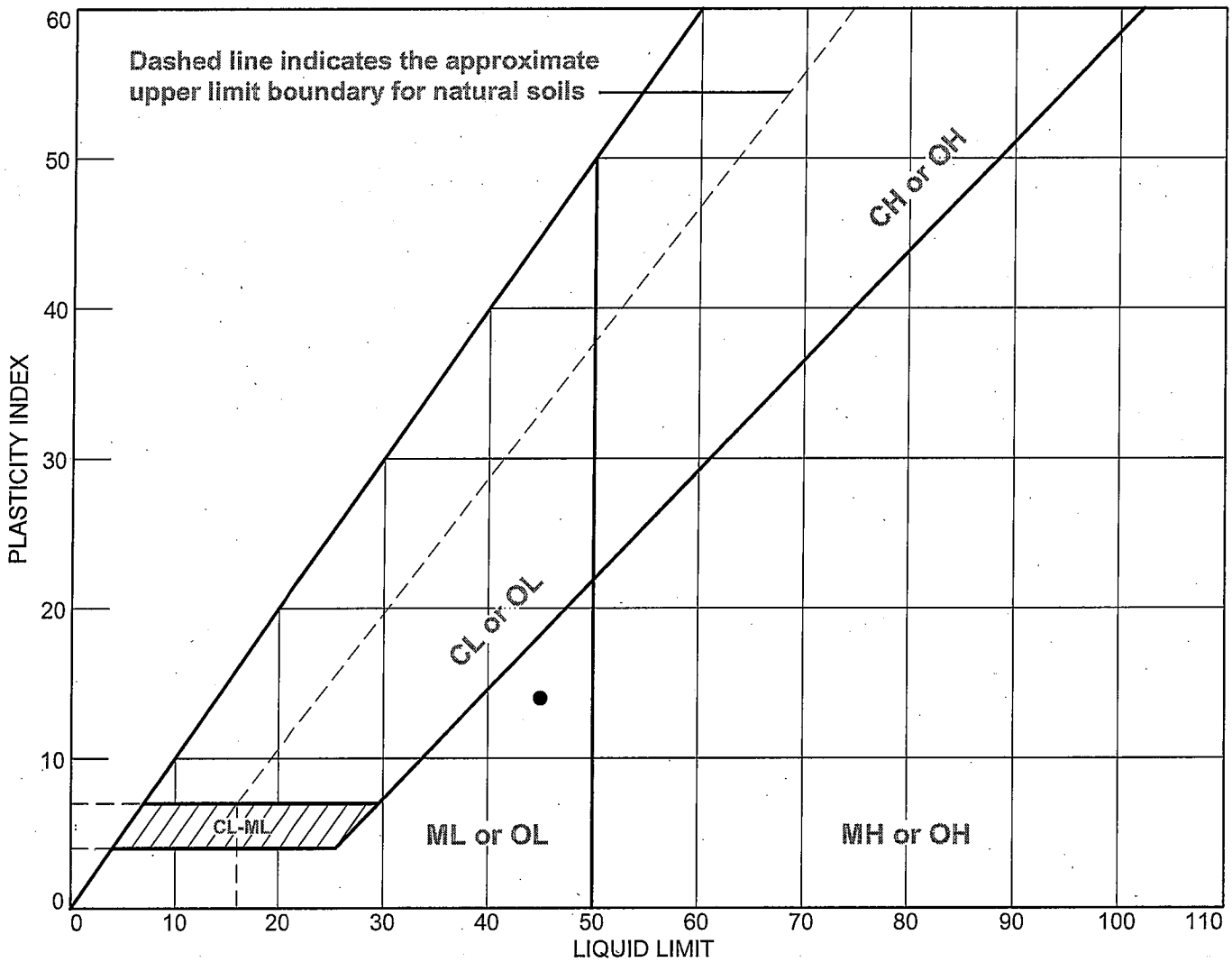
SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	SB-02-1	S-17	80' - 80'		30	37	7	

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No.:
Figure

Tested By: R. DeCesare

LIQUID AND PLASTIC LIMITS TEST REPORT



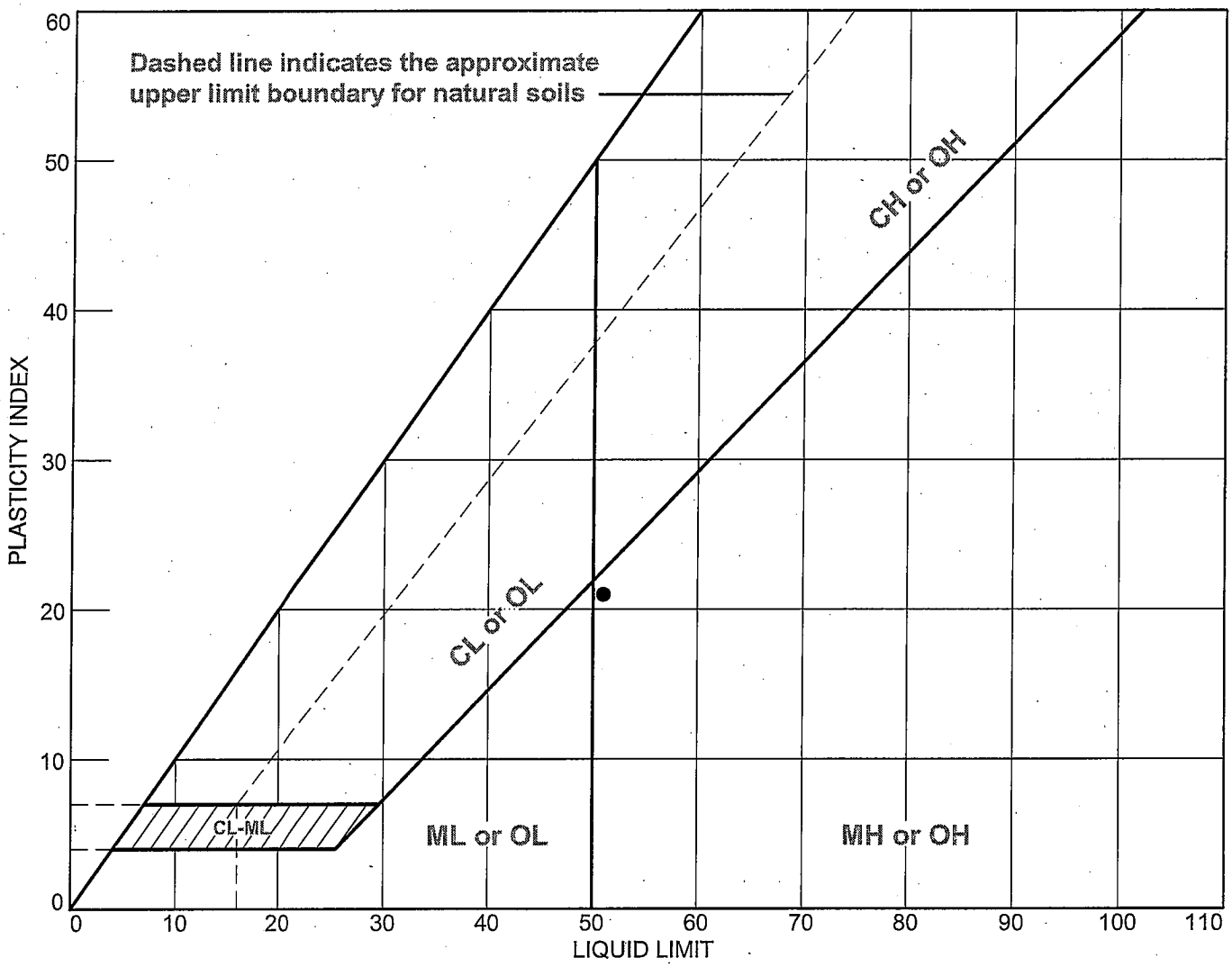
SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	SB-02-3	S-7	20' - 22'		31	45	14	

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No.:
Figure

Tested By: R. DeCesare

LIQUID AND PLASTIC LIMITS TEST REPORT



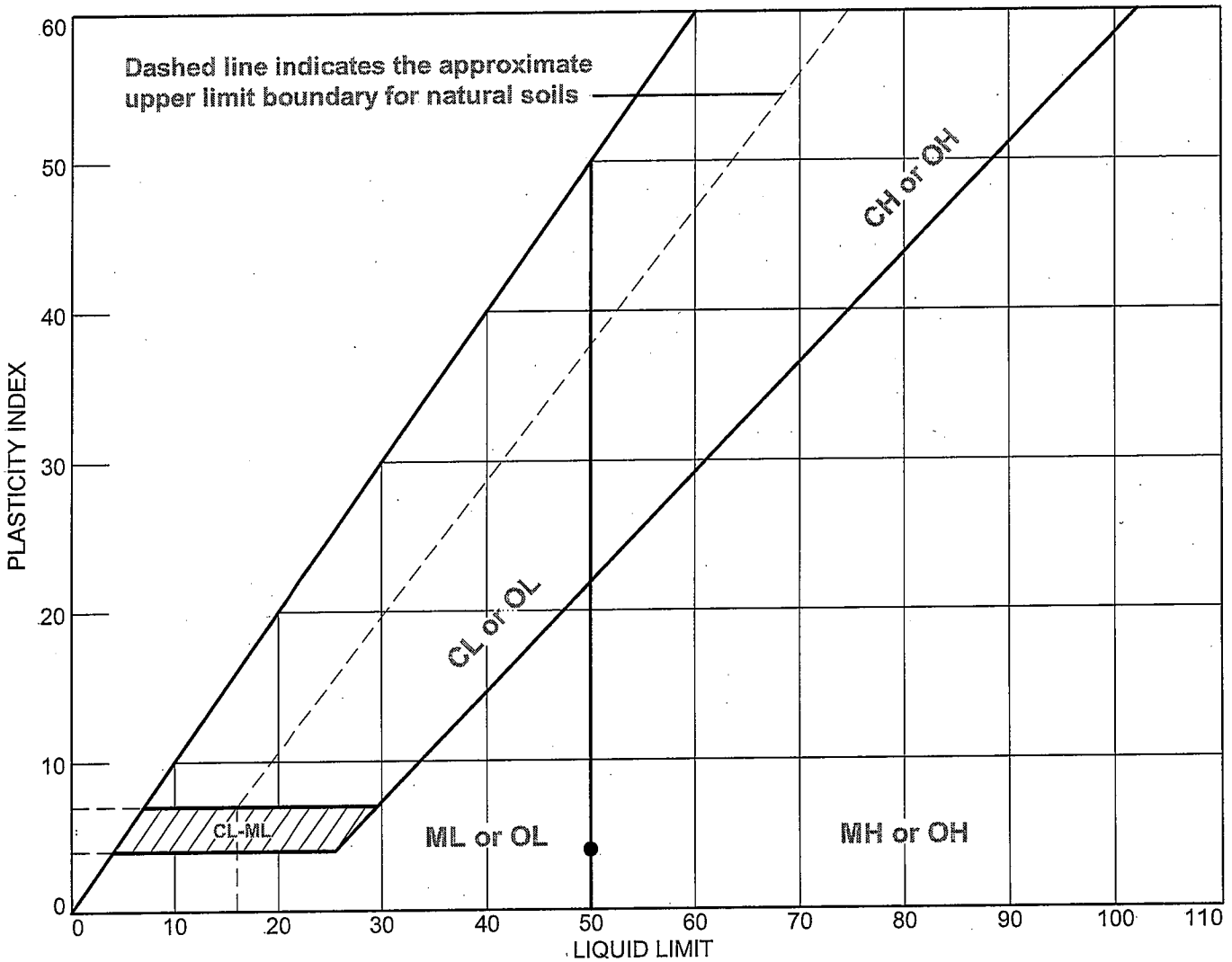
SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	SB-02-3	S-10	35' - 37'		30	51	21	

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No.:
Figure

Tested By: R. DeCesare

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	SB-02-3	S-15	60' - 62'		46	50	4	

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

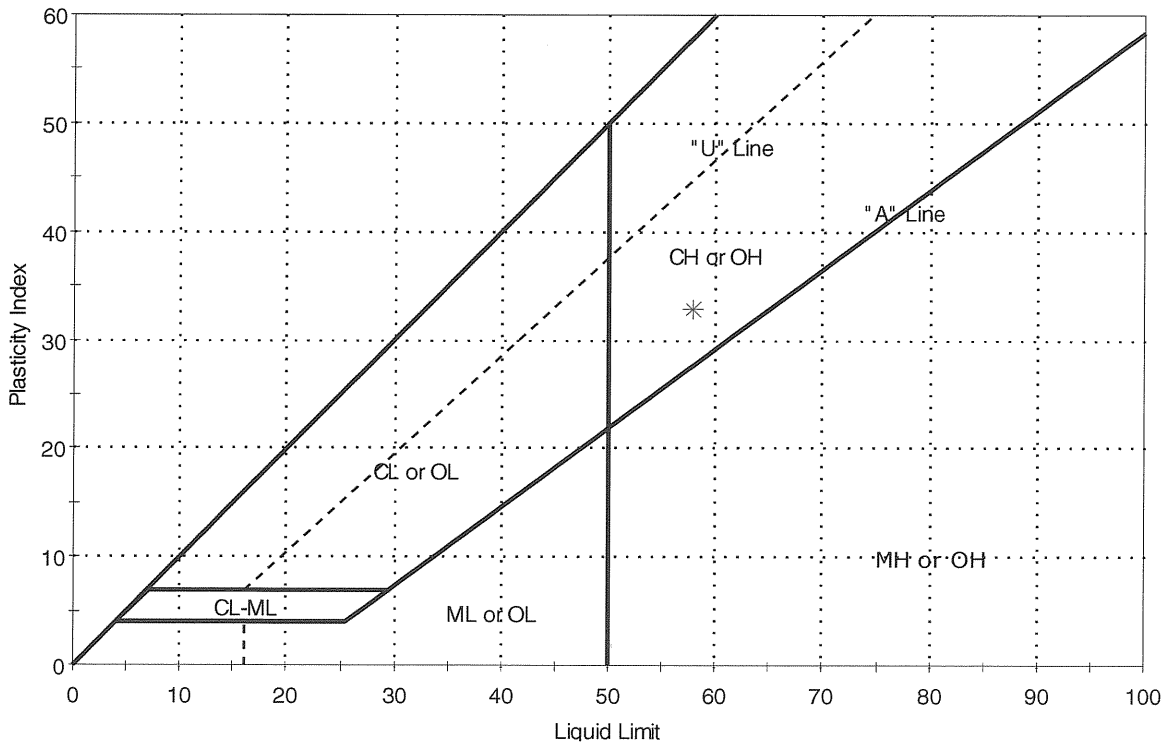
Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No.:
Figure

Tested By: R. DeCesare

GeoTesting express
a subsidiary of Geocomp Corporation

Client:	GeoDesign, Inc.		
Project:	Hartford Busway		
Location:	Hartford, CT	Project No:	GTX-8398
Boring ID: SB-03-2	Sample Type: tube	Tested By:	ap
Sample ID:UP-2	Test Date: 09/03/08	Checked By:	jdt
Depth : 40-42 ft	Test Id: 136053		
Test Comment:	---		
Sample Description:	Moist, brown clay		
Sample Comment:	---		

Atterberg Limits - ASTM D 4318-05



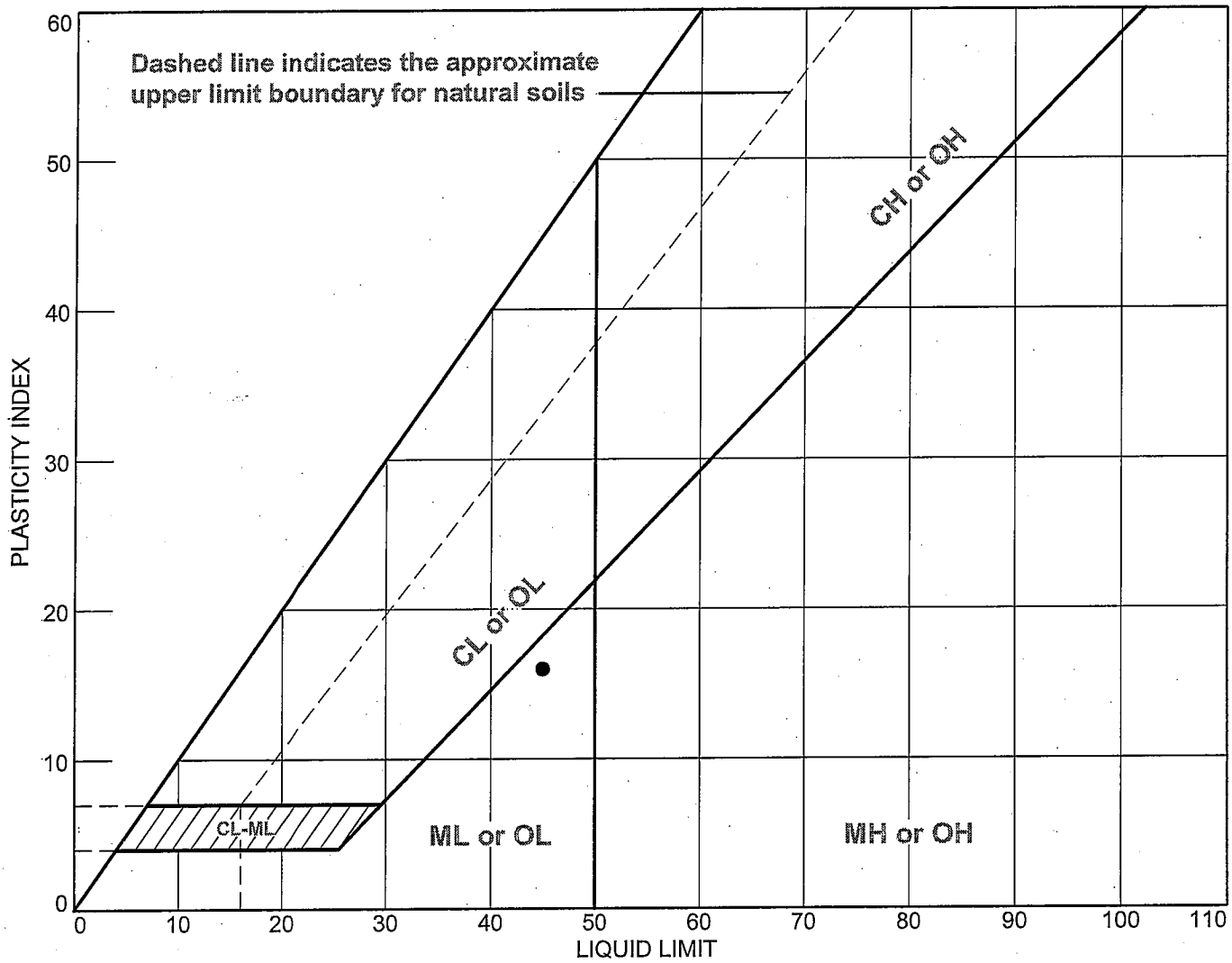
Symbol	Sample ID	Boring	Depth	Natural Moisture Content,%	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
✳	UP-2	SB-03-2	40-42 ft	57	58	25	33	1	

Sample Prepared using the WET method

Dry Strength: VERY HIGH
Dilentancy: SLOW
Toughness: LOW

printed 9/30/2008 11:16:20 AM

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

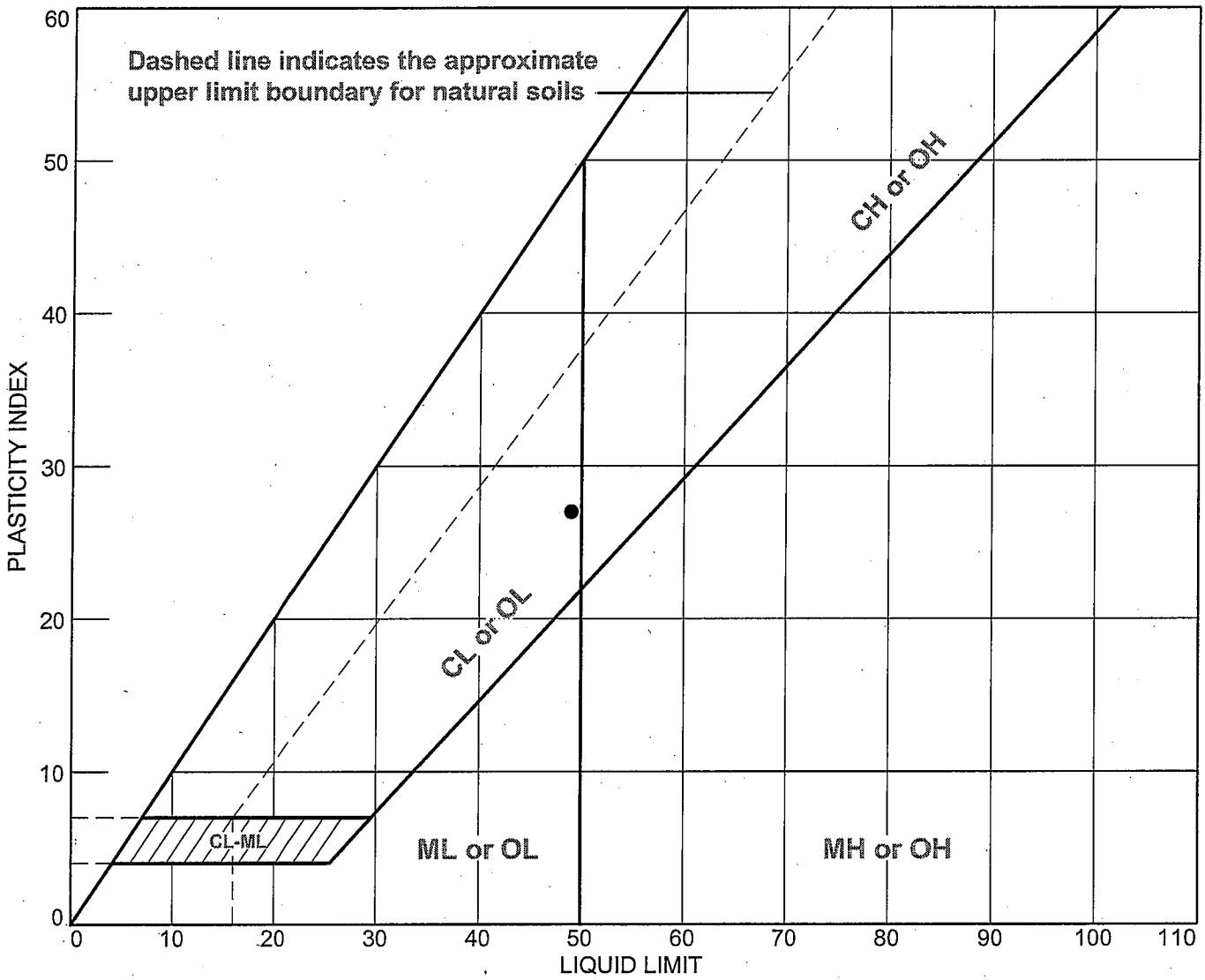
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	SB-03-3	S-22	90' - 92'		29	45	16	

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No.:
Figure

Tested By: R. DeCesare

LIQUID AND PLASTIC LIMITS TEST REPORT

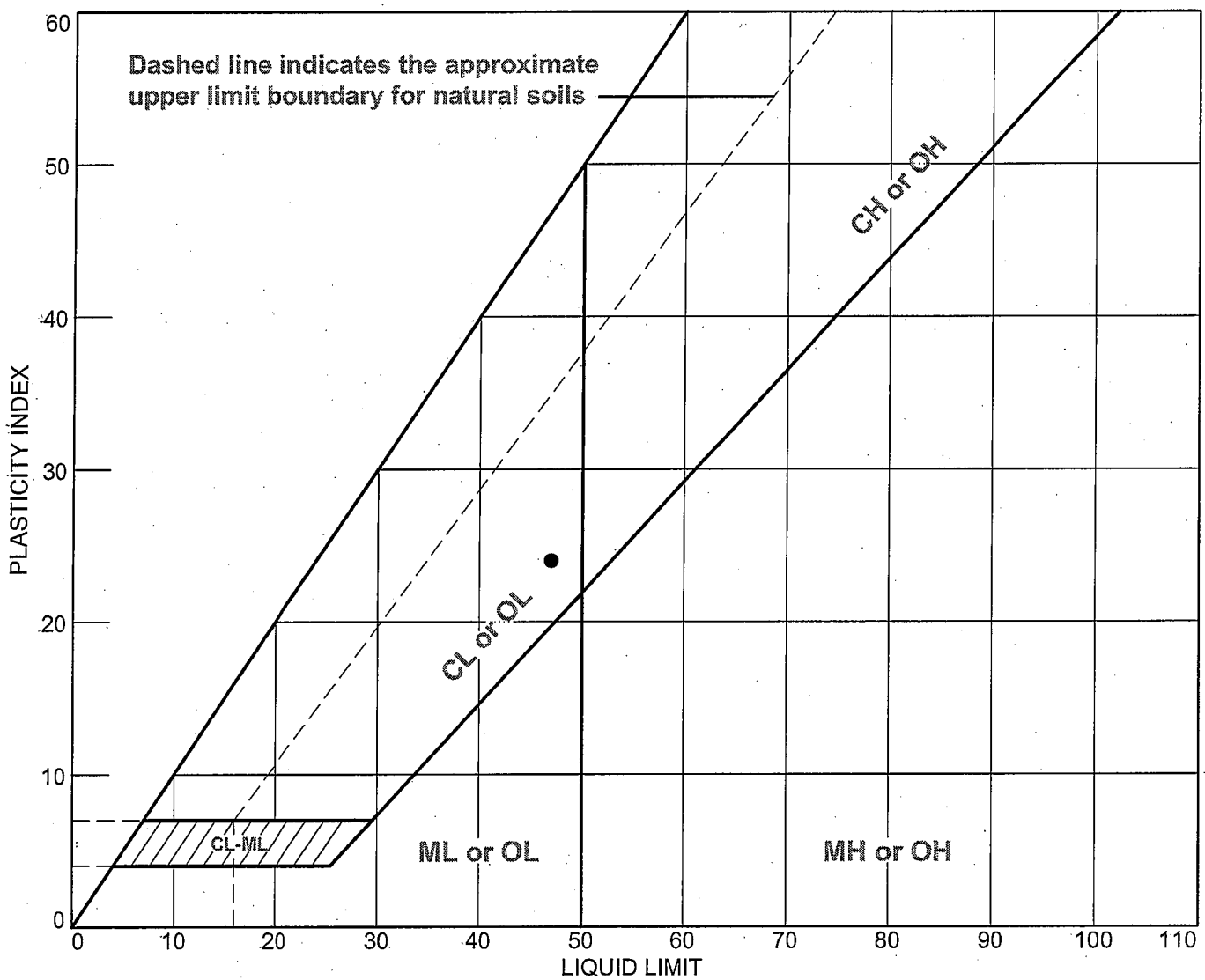


SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Boring SB-06-1A	UP1	from 45' to 47'		22	49	27	

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No.:
Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	Boring SB-06-3	UP2	from 70' to 72'		23	47	24	

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No.:
Figure

2003 Moisture Contents

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

Project No.: L17828
Project Engineer: D. SCHULZE

Assigned By: D. GAFFNEY
Date: NOV.03

Reviewed By: Matthew Pa[illegible]
Date Reviewed: 11/11/03

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) W_{opt} (%)	Permeability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{G_s}{1 + e_0}$	Laboratory Log and Soil Description
RB-26	S-6	16.5-18.0	248	9.2																
RB-27	S-2	4.5-6.0	249	15.8																
RB-27	S-5	13.5-15.0	250	26.2																
RB-28	S-4	10.0-11.5	251	19.1																
RB-28	S-9	25.0-26.5	252	27.2																
RB-29	S-2	4.5-6.0	253	28.7																
RB-30	S-3	7.5-9.0	254	31.7																
RB-30	S-6	16.5-18.0	255	44.2																
RB-31	S-9	25.0-26.5	256	38.5																
RB-32	S-2	4.5-6.0	257	38.1																
RB-32	S-9	25.0-26.5	258	21.5																
RB-33	S-6	16.5-18.0	259	44.7																
RB-34	S-9	25.0-26.5	260	60.6																
RB-35	S-3	7.5-9.0	261	38.7																
RB-35	S-9	25.5-27.0	262	55.6																

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
Project No.: L17828
Project Engineer: D. SCHULZE
Assigned By: D. GAFFNEY
Date: NOV.03
Reviewed By: [signature]
Date Reviewed: 11/11/03

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Permeability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
RB-36	S-4	10.0-11.5	263	38.7																
RB-36	S-9	25.0-26.5	264	58.9																
RB-37	S-5	13.5-15.0	265	40.1																
RB-37	S-10	28.5-30.0	266	59.7																
RB-38	S-8	22.5-24.0	267	49.6																
RB-39	S-6	16.5-18.0	268	35.8																
RB-40	S-2	4.5-6.0	269	33.0																
RB-40	S-9	25.0-26.5	270	46.8																
RB-41	S-2	4.5-6.0	271	59.4																
RB-41	S-6	16.5-18.0	272	66.1																
RB-41	S-9	25.0-26.5	273	50.9																
RB-42	S-6	16.5-18.0	274	40.8																

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
Project No.: L17828
Project Engineer: D. SCHULZE
Assigned By: D. GAFFNEY
Date: NOV.03
Reviewed By: Matthew Colby
Date Reviewed: 11/11/03

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Permeability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
SB-50	S-2	4.5-6.0	289	32.6																
SB-50	S-10	28.5-30.0	290	55.5																
SB-51	S-5	13.5-15.0	291	49.0																
SB-51	S-13	45.0-46.5	292	21.1																
SB-52	S-10	28.5-30.0	293	23.8																
SB-53	S-13	45.0-46.5	294	41.2																
SB-54	S-21	85.0-86.5	295	24.3																
SB-55	S-10	28.5-30.0	296	54.9																
SB-55	S-25	105.0-106.5	297	20.9																
SB-56	S-19	75.0-76.5	298	27.3																
SB-57	S-10	28.5-30.0	299	57.1																
SB-57	S-22	90.0-91.5	300	22.5																
SB-58	S-4	10.0-11.5	301	32.7																
SB-58	S-11	35.0-36.5	302	59.5																

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

Project No.: L17828 | Assigned By: D. GAFFNEY | Reviewed By: [signature]

Project Engineer: D. SCHULZE | Date: DEC.03 | Date Reviewed: 12-24-03

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{C_c}{1 + e_0}$	Laboratory Log and Soil Description
SB-59	S-3	7.5-9.0	303	27.8																
SB-59	S-14	50.0-51.5	304	55.2																
SB-60	S-14	50.0-51.5	305	57.8																
SB-60	S-22	90.0-91.5	306	43.4																
SB-62	S-4	10.0-11.5	307	28.6																
SB-64	S-2	4.5-6.0	308	33.0																
SB-64	S-4	10.5-12.0	309	24.8																
SB-64	S-5	13.5-15.0	310	40.5																
SB-64	S-6	16.5-18.0	311	47.4																
SB-64	S-7	19.5-21.0	312	55.0																
SB-64	S-8	22.5-24.0	313	58.3																
SB-64	S-9	25.0-27.0	314	61.1																
SB-64	S-11	35.0-36.5	315	61.7																
SB-64	S-12	40.0-41.5	316	57.0																

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

Project No.: L17828
Project Engineer: D. SCHULZE

Assigned By: D. GAFFNEY
Date: DEC.03

Reviewed By: [illegible]
Date Reviewed: 12-24-03

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{C_c}{1 + e_0}$	Laboratory Log and Soil Description
SB-64	S-13	45.0-46.5	317	53.5																
SB-64	S-14	50.0-51.5	318	48.3																
SB-64	S-15	55.0-56.5	319	41.4																
SB-64	S-16	60.0-61.5	320	40.1																
SB-64	S-17	65.0-66.5	321	51.2																
SB-64	S-19	75.0-76.5	322	41.8																
SB-64	S-20	80.0-81.5	323	40.8																
SB-64	S-21	85.0-86.5	324	42.7																
SB-64	S-22	90.0-91.5	325	40.8																
SB-64	S-23	95.0-96.5	326	24.1																
SB-64	S-24	100.0-101.5	327	40.5																

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
Project No.: L17828
Project Engineer: D. SCHULZE
Assigned By: D. GAFFNEY
Date: DEC.03
Reviewed By: [signature]
Date Reviewed: 12/8/03

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
SB-65	S-5	13.5-15.0	328	28.9																
SB-65	S-29	125.0-126.5	329	14.6																
SB-67	S-22	95.0-96.5	330	46.2																
SB-70	S-5	13.5-15.0	331	29.2																
SB-70	S-10	28.5-30.0	332	54.0																
SB-70	S-24	105.0-106.5	333	24.0																
SB-71	S-4	10.0-11.5	334	34.8																
SB-71	S-5	13.5-15.0	335	39.2																
SB-71	S-6	16.5-18.0	336	34.4																
SB-71	S-7	19.5-21.0	337	43.5																
SB-71	S-8	22.5-24.0	338	54.1																
SB-71	S-9	25.0-26.5	339	53.0																
SB-71	S-10	28.5-30.0	340	53.5																
SB-71	S-11	35.0-36.5	341	51.0																
SB-71	S-12	40.0-41.5	342	34.8																

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
Project No.: L17828
Project Engineer: D. SCHULZE
Assigned By: D. GAFFNEY
Date: DEC.03
Reviewed By: Dan Schulze
Date Reviewed: 12/30/03

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: C_c / $1 + e_0$	Laboratory Log and Soil Description
SB-72	S-6	16.5-18.0	353	39.3																
SB-73	S-6	16.5-18.0	354	29.9																
SB-74	S-9	25.0-26.5	355	63.5																
SB-75	S-6	16.5-18.0	356	43.8																
SB-76	S-4	10.5-12.0	357	53.0																
SB-77	S-4	10.0-11.5	358	25.8																
SB-78	S-5	13.5-15.0	359	32.1																
SB-79	S-5	13.5-15.0	360	41.2																
SB-80	S-8	22.5-24.0	361	48.8																
SB-81	S-3	7.5-9.0	362	31.9																
SB-81	S-6	16.5-18.0	363	53.2																
SB-81	S-10	28.5-30.0	364	45.9																

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

Project No.: L17828
Project Engineer: D. SCHULZE

Assigned By: D. GAFFNEY
Date: DEC.03

Reviewed By: Dee Schulze
Date Reviewed: 12/20/03

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: C_c / $1 + e_0$	Laboratory Log and Soil Description
SB-83	S-10	28.5-30.0	365	44.8																
SB-85	S-6	16.5-18.0	366	23.3																
SB-87	S-8	22.5-24.0	367	59.1																
SB-88	S-3	7.5-9.0	368	23.6																
SB-88	S-10	28.5-30.0	369	54.2																
SB-90	S-4	10.5-12.0	370	40.3																
SB-93	S-7	19.5-21.0	371	14.1																
SB-97	S-4	13.5-15.0	372	9.7																
SB-98	S-6	16.5-18.0	373	11.1																
SB-99	S-6	16.5-18.0	374	11.6																
SB-99	S-7	19.5-21.0	375	23.2																
SB-99	S-8	22.5-24.0	376	30.3																
SB-99	S-10	28.5-30.0	377	11.0																

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
Project No.: L17828
Project Engineer: D. SCHULZE
Assigned By: D. GAFFNEY
Date: DEC.03
Reviewed By:
Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
SB-101	S-10	28.5-30.0	378	48.7																
SB-102	S-3	7.5-9.0	379	31.6																
SB-102	S-6	16.5-18.0	380	35.9																
SB-104	S-2	4.5-6.0	381	15.6																
SB-104	S-3	7.5-9.0	382	20.3																
SB-104	S-5	13.5-15.0	383	19.2																
SB-104	S-6	16.5-18.0	384	25.1																
SB-104	S-7	19.5-21.0	385	33.1																
SB-104	S-9	25.5-27.0	386	37.9																
SB-104	S-10	28.5-30.0	387	11.5																
SB-104	S-11	35.0-36.5	388	9.6																
SB-105	S-3	7.5-9.0	389	41.9																

2008 Moisture Contents

GeoTesting express
a subsidiary of Geocomp Corporation

Client:	GeoDesign, Inc.		
Project:	Amtrak Access Road		
Location:	Newington, West Hartford, & Hartford	Project No:	GTX-8565
Boring ID: ---	Sample Type: ---	Tested By:	ap
Sample ID:---	Test Date: 10/23/08	Checked By:	jdt
Depth : ---	Sample Id: ---		

Moisture Content of Soil - ASTM D 2216-05

Boring ID	Sample ID	Depth	Description	Moisture Content,%
AARW-06-25	S-10	30-32 ft	Moist, reddish brown clay	43.9
AARW-06-26	S-12	35-37 ft	Moist, dark brown clay	0
AARW-06-26	S-18	65-67 ft	Moist, reddish brown clay	29.4
AARW-10-40	S-7	20-22 ft	Moist, gray clay	38.3
AARW-10-40	S-13	50-52 ft	Moist, gray clay	59.8
AARW-10-40	S-18	75-77 ft	Moist, reddish gray clay	50.9
AARW-10-40	S-21	90-92 ft	Moist, reddish brown clay	45.4
AARW-10-40	S-25	110-112 ft	Moist, dark reddish brown silty clay	41.3

Notes: Temperature of Drying : 110° Celsius

Table 4 Summary of Constant Rate of Strain (CRS) and Incremental Load (IL) specimen properties and test results

Test #	Boring Sample	Depth	w	e_0	γ_t	γ_d	σ'_{v0}	Sample Quality (at σ'_{v0})		σ'_p		OCR		Figure Numbers
								$\Delta e/e_0$	ε_v	Casa.	S.E.	Casa.	S.E.	
-	-	ft	%	-	pcf	pcf	psf	-	%	psf	psf	-	-	-
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
CRS139	SB-01-4 UP2	40-42	59	1.670	104	65	2109	0.048 (2)	3.0 (C)	5200	5117	2.47	2.43	5.3.1 to 5.3.4
CRS141	SB-01-1 UP2	30-32	53	1.514	106	69	1703	0.027 (1)	1.6 (B)	4992	4678	2.93	2.75	5.3.5 to 5.3.8
CRS142	SB-02-1 UP2	50-52	70	1.871	103	61	2900	0.050 (2)	3.3 (C)	5576	5472	1.92	1.89	5.3.9 to 5.3.12
CRS143	SB-02-1 UP1	40-42	69	1.921	101	60	2500	0.036 (2)	2.3 (C)	5472	5493	2.19	2.20	5.3.13 to 5.3.12
CRS140	SB-06-3 UP1	45-47	64	1.798	102	62	3558	0.116 (3)	7.5 (D)	3342	4177	0.94	1.17	5.3.17 to 5.3.20
CRS144	SB-06-3 UP1	45-47	60	1.687	104	65	3558	0.100 (3)	6.3 (D)	3759	4073	1.06	1.14	5.3.21 to 5.3.24
IL474	SB-01-4 UP2	40-42	54	1.561	107	69	2109	0.040 (1)	2.4 (C)	3822	3864	1.81	1.83	
IL475	SB-02-1 UP1	40-42	65	1.802	103	62	2500	0.045 (2)	2.9 (C)	3843	3906	1.54	1.56	

Notes:
1. Notation given in Section 7
2. e_0 based on assumed specific gravity = 2.80
3. σ'_{v0} values provided by GeoDesign Inc
4. For estimates of σ'_p: Casa. = Casagrande construction; S.E. = strain energy method of Becker et al. (1987)
5. Sample quality evaluation methods:
   i) Lunne et al. (2006) quality ratings: 1 = very good to excellent, 2 = fair to good, 3 = poor, 4 = very poor

OCR	$\Delta e/e_0$ at σ'_{v0}			
1 to 2	< 0.04	0.04 – 0.07	0.07 – 0.14	> 0.14

GEODESIGN, INC.
LAB ASSIGNMENT SHEET

Project Name: New Britain-Hartford Busway #155-H025
Location (*Town,State*): Hartford/West Hartford, CT (Retaining Walls)
GeoDesign File No.: 380-04
Client / Company Name: URS/Washington Group
Project Engineer's Name: Chi Zhang
Contact Phone: (203) 758 8836 x 119

Page 1 of 1
Date Samples Submitted 7/30/2008
Date Results Requested
Samples Collected By Robert Marshall
Date(s) Samples Collected 5/12/2008-6/17/08
Assigned to GeoDesign, Inc.

SAMPLE IDENTIFICATION				IDENTIFICATION TESTS							ROCK STRENGTH	CONSOLIDATION			SOIL STRENGTH			CORROSITIVITY		
Boring / Test Pit No.	Sample No.	From Depth (ft)	To Depth (ft)	Water Content (%)	Atterberg Limits	Washed Sieve -200 (%)	Hydrometer	Sieve - Hydrometer	Organic Content Determination (%)	Soil Specific Gravity	Unconfined Compressive Strength	Thin Walled Tube Extrusion [1,2]	Consolidation Test with Coefficent of Consolidation Data (Constant Rate of Strain Consolidation with Unload - Reload Cycle)	Consolidation Test with Coefficent of Consolidation Data (Incremental Consolidation with Unload - Reload Cycle)	Unconsolidated Undrained (UU)	Consolidated Undrained (CIU)	Direct Simple Shear (DSS)	pH	Sulfides	NOTES
RW-31	S-3			37.1																
RW-31	S-6			67.1																
RW-31	S-9			60.2																
RW-31	S-12			53																
RW-31	S-14			62.3																
RW-31	S-16			46.5																

[1]Tube Extrusion includes Torvane measurements and Natural Water Contents.
[2] "C" stands for cut tube for test material and reseal

Submitted By		*Date*	
Printed Name			
Samples Received By		*Date*	
Printed Name			

GEODESIGN INCORPORATED
984 Southford Rd
Middlbury, CT 06762
Phone: 203 758 8836 Fax: 203 758 8842

GEODESIGN, INC
LAB ASSIGNMENT SHEET

Project Name: New Britain-Hartford Busway

Location (*Town,State*): Hartford/West Hartford, CT (Flatbush Ave.) #155-H025

GeoDesign File No.: 380-04

Client / Company Name: URS/Washington Group

Project Engineer's Name: Chi Zhang

Contact Phone: (203) 758 8836 x 119

Page 1 of 6

Date Samples Submitted

Date Results Requested

Samples Collected By Matt Volovski

Date(s) Samples Collected 06/09/08-06/12/08

Assigned to GeoDesign, Inc.

SAMPLE IDENTIFICATION				IDENTIFICATION TESTS							ROCK STRENGTH	CONSOLIDATION			SOIL STRENGTH			CORROSITIVITY		
Boring / Test Pit No.	Sample No.	From Depth (ft)	To Depth (ft)	Water Content (%)	Atterberg Limits	Washed Sieve -200 (%)	Hydrometer	Sieve - Hydrometer	Organic Content Determination (%)	Soil Specific Gravity	Unconfined Compressive Strength	Thin Walled Tube Extrusion [1]	Consolidation Test with Coefficent of Consolidation Data (Constant Rate of Strain Consolidation)	Consolidation Test with Coefficent of Consolidation Data (With unload - reload)	Unconsolidated Undrained (UU)	Consoildated Undrained (CIU)	Direct Simple Shear (DSS)	pH	Sulfides	NOTES
SB-01-3	S-7	17	19	40																
SB-01-3	S-9	25	27	56																
SB-01-3	S-11	35	37	60																
SB-01-3	S-13	45	47	57																
SB-01-3	S-15	55	57	42																
SB-01-3	S-17	65	67	52																
SB-01-3	S-19	75	77	25																

[1]Tube Extrusion includes Torvane measurements and Natural Water Contents.

Submitted By		*Date*	
Printed Name			
Samples Received By		*Date*	
Printed Name			

GEODESIGN INCORPORATED
984 Southford Rd
Middlbury, CT 06762
Phone: 203 758 8836 Fax: 203 758 8842

GEODESIGN, INC.

LAB ASSIGNMENT SHEET

Project Name: New Britain-Hartford Busway

Location (*Town,State*): Hartford/West Hartford, CT (Flatbush Ave.) #155-H025

GeoDesign File No.: 380-04

Client / Company Name: URS/Washington Group

Project Engineer's Name: Chi Zhang

Contact Phone: (203) 758 8836 x 119

Page: 2 of 6

Date Samples Submitted:

Date Results Requested:

Samples Collected By: Ben Brandt

Date(s) Samples Collected: 06/13/2008-06/17/2008

Assigned to: GeoDesign, Inc.

SAMPLE IDENTIFICATION				IDENTIFICATION TESTS							ROCK STRENGTH	CONSOLIDATION			SOIL STRENGTH			CORROSITIVITY		
Boring / Test Pit No.	Sample No.	From Depth (ft)	To Depth (ft)	Water Content (%)	Atterberg Limits	Washed Sieve -200 (%)	Hydrometer	Sieve - Hydrometer	Organic Content Determination (%)	Soil Specific Gravity	Unconfined Compressive Strength	Thin Walled Tube Extrusion [1]	Consolidation Test with Coefficent of Consolidation Data (Constant Rate of Strain Consolidation)	Consolidation Test with Coefficent of Consolidation Data (With unload - reload)	Unconsolidated Undrained (UU)	Consoildated Undrained (CIU)	Direct Simple Shear (DSS)	pH	Sulfides	NOTES
RW-6	S-4	7	9	35.7																
RW-6	S-6	15	17	42.9																
RW-6	S-8	25	27	63.5																
RW-6	S-10	35	37	59.8																
RW-6	S-12	45	47	57																
RW-6	S-14	55	57	53.3																
RW-6	S-16	65	67	50.3																

[1]Tube Extrusion includes Torvane measurements and Natural Water Contents.

Submitted By		*Date*	
Printed Name			
Samples Received By		*Date*	
Printed Name			

GEODESIGN INCORPORATED
984 Southford Rd
Middlbury, CT 06762
Phone: 203 758 8836 Fax: 203 758 8842

GEODESIGN, INC.
LAB ASSIGNMENT SHEET

Project Name: New Britain-Hartford Busway

Location (*Town,State*): Hartford/West Hartford, CT (Flatbush Ave.) #155-H025

GeoDesign File No.: 380-04

Client / Company Name: URS/Washington Group

Project Engineer's Name: Chi Zhang

Contact Phone: (203) 758 8836 x 119

Page 3 of 6

Date Samples Submitted

Date Results Requested

Samples Collected By Robert Marshall / Matt Volovski

Date(s) Samples Collected 06/05/2008-06/13/2008

Assigned to GeoDesign, Inc.

SAMPLE IDENTIFICATION				IDENTIFICATION TESTS							ROCK STRENGTH	CONSOLIDATION			SOIL STRENGTH			CORROSITIVITY		NOTES
Boring / Test Pit No.	Sample No.	From Depth (ft)	To Depth (ft)	Water Content (%)	Atterberg Limits	Washed Sieve -200 (%)	Hydrometer	Sieve - Hydrometer	Organic Content Determination (%)	Soil Specific Gravity	Unconfined Compressive Strength	Thin Walled Tube Extrusion [1]	Consolidation Test with Coefficent of Consolidation Data (Constant Rate of Strain Consolidation)	Consolidation Test with Coefficent of Consolidation Data (With unload - reload)	Unconsolidated Undrained (UU)	Consolidated Undrained (CIU)	Direct Simple Shear (DSS)	pH	Sulfides	
RW-7	S-5	10	12	32.1																
RW-7	S-8	25	27	55.2																
RW-7	S-10	35	37	58.4																
RW-7	S-13	50	52	63.1																
RW-7	S-16	65	67	48.5																
RW-7	S-19	80	82	44.3																
SB-01-4	S-5	5	7	44.5																

[1]Tube Extrusion includes Torvane measurements and Natural Water Contents.

Submitted By		*Date*	
Printed Name			
Samples Received By		*Date*	
Printed Name			

GEODESIGN INCORPORATED
984 Southford Rd
Middlbury, CT 06762
Phone: 203 758 8836 Fax: 203 758 8842

GEODESIGN, INC.
LAB ASSIGNMENT SHEET

Project Name: New Britain-Hartford Busway

Location (*Town,State*): Hartford/West Hartford, CT (Flatbush Ave.) #155-H025

GeoDesign File No.: 380-04

Client / Company Name: URS/Washington Group

Project Engineer's Name: Chi Zhang

Contact Phone: (203) 758 8836 x 119

Page 4 of 6

Date Samples Submitted

Date Results Requested

Samples Collected By Robert Marshall / Matt Volovski

Date(s) Samples Collected 06/05/2008-06/13/2008

Assigned to GeoDesign, Inc.

SAMPLE IDENTIFICATION				IDENTIFICATION TESTS							ROCK STRENGTH	CONSOLIDATION			SOIL STRENGTH			CORROSITIVITY		NOTES
Boring / Test Pit No.	Sample No.	From Depth (ft)	To Depth (ft)	Water Content (%)	Atterberg Limits	Washed Sieve -200 (%)	Hydrometer	Sieve - Hydrometer	Organic Content Determination (%)	Soil Specific Gravity	Unconfined Compressive Strength	Thin Walled Tube Extrusion [1]	Consolidation Test with Coefficent of Consolidation Data (Constant Rate of Strain Consolidation)	Consolidation Test with Coefficent of Consolidation Data (With unload - reload)	Unconsolidated Undrained (UU)	Consoildated Undrained (CIU)	Direct Simple Shear (DSS)	pH	Sulfides	
SB-01-4	S-6	20	22	53.6																
SB-01-4	S-9	35	37	62.1																
SB-01-4	S-12	40	42	53.4																
SB-01-4	S-15	65	67	45.5																
SB-01-4	S-18	80	82	43.2																
RW-9	S-7	20	22	65.2																
RW-9	S-9	30	32	58.1																

[1]Tube Extrusion includes Torvane measurements and Natural Water Contents.

Submitted By		*Date*	
Printed Name			
Samples Received By		*Date*	
Printed Name			

GEODESIGN INCORPORATED
984 Southford Rd
Middlbury, CT 06762
Phone: 203 758 8836 Fax: 203 758 8842

GEODESIGN, INC

LAB ASSIGNMENT SHEET

Project Name: New Britain-Hartford Busway

Location (*Town,State*): Hartford/West Hartford, CT (Flatbush Ave.) #155-H025

GeoDesign File No.: 380-04

Client / Company Name: URS/Washington Group

Project Engineer's Name: Chi Zhang

Contact Phone: (203) 758 8836 x 119

Page 5 of 6

Date Samples Submitted

Date Results Requested

Samples Collected By Ben Brandt

Date(s) Samples Collected 61.5

Assigned to GeoDesign, Inc.

SAMPLE IDENTIFICATION				IDENTIFICATION TESTS							ROCK STRENGTH	CONSOLIDATION			SOIL STRENGTH			CORROSITIVITY		
Boring / Test Pit No.	Sample No.	From Depth (ft)	To Depth (ft)	Water Content (%)	Atterberg Limits	Washed Sieve -200 (%)	Hydrometer	Sieve - Hydrometer	Organic Content Determination (%)	Soil Specific Gravity	Unconfined Compressive Strength	Thin Walled Tube Extrusion [1]	Consolidation Test with Coefficent of Consolidation Data (Constant Rate of Strain Consolidation)	Consolidation Test with Coefficent of Consolidation Data (With unload - reload)	Unconsolidated Undrained (UU)	Consoildated Undrained (CIU)	Direct Simple Shear (DSS)	pH	Sulfides	NOTES
RW-9	S-11	40	42	61.5																
SB-01-1	S-6	15	17	32																
SB-01-1	S-9	32	34	57.4																
SB-01-1	S-12	45	47	62.3																
SB-01-1	S-15	60	62	40.4																
SB-01-1	S-18	75	77	52.1																
SB-01-1	S-21	90	92	38.2																

[1]Tube Extrusion includes Torvane measurements and Natural Water Contents.

Submitted By		*Date*	
Printed Name			
Samples Received By		*Date*	
Printed Name			

GEODESIGN INCORPORATED
984 Southford Rd
Middlbury, CT 06762
Phone: 203 758 8836 Fax: 203 758 8842

GEODESIGN, INC.

LAB ASSIGNMENT SHEET

Project Name: New Britain-Hartford Busway

Location (*Town,State*): Hartford/West Hartford, CT (Flatbush Ave.) #155-H025

GeoDesign File No.: 380-04

Client / Company Name: URS/Washington Group

Project Engineer's Name: Chi Zhang

Contact Phone: (203) 758 8836 x 119

Page 6 of 6

Date Samples Submitted

Date Results Requested

Samples Collected By Robert Marshall

Date(s) Samples Collected 06/12/08-06/13/08

Assigned to GeoDesign, Inc

SAMPLE IDENTIFICATION				IDENTIFICATION TESTS							ROCK STRENGTH	CONSOLIDATION			SOIL STRENGTH			CORROSITIVITY		NOTES
Boring / Test Pit No.	Sample No.	From Depth (ft)	To Depth (ft)	Water Content (%)	Atterberg Limits	Washed Sieve -200 (%)	Hydrometer	Sieve - Hydrometer	Organic Content Determination (%)	Soil Specific Gravity	Unconfined Compressive Strength	Thin Walled Tube Extrusion [1]	Consolidation Test with Coefficent of Consolidation Data (Constant Rate of Strain Consolidation)	Consolidation Test with Coefficent of Consolidation Data (With unload - reload)	Unconsolidated Undrained (UU)	Consoildated Undrained (CIU)	Direct Simple Shear (DSS)	pH	Sulfides	
RW-8	S-6	15	17	34.6																
RW-8	S-9	32	34	57.3																
RW-8	S-12	45	47	59.2																
RW-8	S-15	60	62	42.5																
RW-8	S-18	75	77	53.8																
RW-8	S-21	90	92	35.2																

[1]Tube Extrusion includes Torvane measurements and Natural Water Contents.

Submitted By		*Date*	
Printed Name			
Samples Received By		*Date*	
Printed Name			

GEODESIGN
INCORPORATED
984 Southford Rd
Middlbury, CT 06762
Phone: 203 758 8836 Fax: 203 758 8842

GEO**DESIGN**, INC.

LAB ASSIGNMENT SHEET

Project Name: New Britain-Hartford Busway

Location (*Town,State*): Hartford/West Hartford, CT (Busway over Park St.) #155-H025

GeoDesign File No.: 380-04

Client / Company Name: URS/Washington Group

Project Engineer's Name: Chi Zhang

Contact Phone: (203) 758 8836 x 119

Page 1 of 3

Date Samples Submitted

Date Results Requested

Samples Collected By Robert Marshall

Date(s) Samples Collected 05/12/2008-05/16/2008

Assigned to GeoDesign, Inc.

SAMPLE IDENTIFICATION				IDENTIFICATION TESTS							ROCK STRENGTH	CONSOLIDATION			SOIL STRENGTH			CORROSITIVITY		
Boring / Test Pit No.	Sample No.	From Depth (ft)	To Depth (ft)	Water Content (%)	Atterberg Limits	Washed Sieve -200 (%)	Hydrometer	Sieve - Hydrometer	Organic Content Determination (%)	Soil Specific Gravity	Unconfined Compressive Strength	Thin Walled Tube Extrusion [1]	Consolidation Test with Coefficent of Consolidation Data (Constant Rate of Strain Consolidation)	Consolidation Test with Coefficent of Consolidation Data (With unload - reload)	Unconsolidated Undrained (UU)	Consolidated Undrained (CIU)	Direct Simple Shear (DSS)	pH	Sulfides	NOTES
SB-02-1	S-3	10	12	34.5																
SB-02-1	S-5	20	22	50.2																
SB-02-1	S-7	30	32	53.5																
SB-02-1	S-9	40	42	64.2																
SB-02-1	S-11	50	52	65.6																
SB-02-1	S-13	60	62	57.8																
SB-02-1	S-15	70	72	59.7																

[1]Tube Extrusion includes Torvane measurements and Natural Water Contents.

Submitted By		*Date*	
Printed Name			
Samples Received By		*Date*	
Printed Name			

GEODESIGN INCORPORATED
984 Southford Rd
Middlbury, CT 06762
Phone: 203 758 8836 Fax: 203 758 8842

GEODESIGN, INC.

LAB ASSIGNMENT SHEET

Project Name: New Britain-Hartford Busway

Location (*Town,State*): Hartford/West Hartford, CT (Busway over Park St.) #155-H025

GeoDesign File No.: 380-04

Client / Company Name: URS/Washington Group

Project Engineer's Name: Chi Zhang

Contact Phone: (203) 758 8836 x 119

Page: 2 of 3

Date Samples Submitted:

Date Results Requested:

Samples Collected By: Robert Marshall

Date(s) Samples Collected: 05/12/2008-06/03/2008

Assigned to: GeoDesign, Inc.

SAMPLE IDENTIFICATION				IDENTIFICATION TESTS							ROCK STRENGTH	CONSOLIDATION			SOIL STRENGTH			CORROSITIVITY		NOTES
Boring / Test Pit No.	Sample No.	From Depth (ft)	To Depth (ft)	Water Content (%)	Atterberg Limits	Washed Sieve -200 (%)	Hydrometer	Sieve - Hydrometer	Organic Content Determination (%)	Soil Specific Gravity	Unconfined Compressive Strength	Thin Walled Tube Extrusion [1]	Consolidation Test with Coefficent of Consolidation Data (Constant Rate of Strain Consolidation)	Consolidation Test with Coefficent of Consolidation Data (With unload - reload)	Unconsolidated Undrained (UU)	Consolidated Undrained (CIU)	Direct Simple Shear (DSS)	pH	Sulfides	
SB-02-1	S-17	80	82	49.4																
SB-02-1	S-19	90	92	51.5																
SB-02-1	S-21	100	102	48.1																
SB-02-3	S-6	15	17	53.7																
SB-02-3	S-8	25	27	49.7																
SB-02-3	S-10	35	37	61.1																
SB-02-3	S12	45	47	52.6																

[1]Tube Extrusion includes Torvane measurements and Natural Water Contents.

Submitted By		*Date*	
Printed Name			
Samples Received By		*Date*	
Printed Name			

GEODESIGN INCORPORATED
984 Southford Rd
Middlbury, CT 06762
Phone: 203 758 8836 Fax: 203 758 8842

GEODESIGN, INC.

LAB ASSIGNMENT SHEET

Project Name: New Britain-Hartford Busway

Location (*Town,State*): Hartford/West Hartford , CT (Busway over Park St.) #155-H025

GeoDesign File No.: 380-04

Client / Company Name: URS/Washington Group

Project Engineer's Name: Chi Zhang

Contact Phone: (203) 758 8836 x 119

Page 3 of 3

Date Samples Submitted

Date Results Requested

Samples Collected By Robert Marshall

Date(s) Samples Collected 05/29/2008-06/03/2008

Assigned to GeoDesign, Inc.

SAMPLE IDENTIFICATION				IDENTIFICATION TESTS							ROCK STRENGTH	CONSOLIDATION			SOIL STRENGTH			CORROSITIVITY		NOTES
Boring / Test Pit No.	Sample No.	From Depth (ft)	To Depth (ft)	Water Content (%)	Atterberg Limits	Washed Sieve -200 (%)	Hydrometer	Sieve - Hydrometer	Organic Content Determination (%)	Soil Specific Gravity	Unconfined Compressive Strength	Thin Walled Tube Extrusion [1]	Consolidation Test with Coefficent of Consolidation Data (Constant Rate of Strain Consolidation)	Consolidation Test with Coefficent of Consolidation Data (With unload - reload)	Unconsolidated Undrained (UU)	Consolidated Undrained (CIU)	Direct Simple Shear (DSS)	pH	Sulfides	
SB-02-3	S-14	55	57	61.4																
SB-02-3	S-16	65	67	44.3																
SB-02-3	S-18	75	77	59.7																
SB-02-3	S-20	85	87	46.9																
SB-02-3	S-22	95	97	42.9																
SB-02-3	S-24	105	107	48.6																

[1]Tube Extrusion includes Torvane measurements and Natural Water Contents.

Submitted By		*Date*	
Printed Name			
Samples Received By		*Date*	
Printed Name			

GEODESIGN INCORPORATED
984 Southford Rd
Middlbury, CT 06762
Phone: 203 758 8836 Fax: 203 758 8842

GEODESIGN, INC.

LAB ASSIGNMENT SHEET

Project Name: New Britain-Hartford Busway

Location (*Town,State*): Hartford/West Hartford, CT (Busway over Capitol Ave.) #155-H025

GeoDesign File No.: 380-04

Client / Company Name: URS/Washington Group

Project Engineer's Name: Chi Zhang

Contact Phone: (203) 758 8836 x 119

Page: 1 of 3

Date Samples Submitted:

Date Results Requested:

Samples Collected By: Robert Marshall

Date(s) Samples Collected: 05/12/2008-05/16/2008

Assigned to: GeoDesign, Inc.

SAMPLE IDENTIFICATION				IDENTIFICATION TESTS							ROCK STRENGTH	CONSOLIDATION			SOIL STRENGTH			CORROSITIVITY		NOTES
Boring / Test Pit No.	Sample No.	From Depth (ft)	To Depth (ft)	Water Content (%)	Atterberg Limits	Washed Sieve -200 (%)	Hydrometer	Sieve - Hydrometer	Organic Content Determination (%)	Soil Specific Gravity	Unconfined Compressive Strength	Thin Walled Tube Extrusion [1]	Consolidation Test with Coefficent of Consolidation Data (Constant Rate of Strain Consolidation)	Consolidation Test with Coefficent of Consolidation Data (With unload - reload)	Unconsolidated Undrained (UU)	Consolidated Undrained (CIU)	Direct Simple Shear (DSS)	pH	Sulfides	
SB-03-1	S-4	10	12	59.8																
SB-03-1	S-6	20	22	62.3																
SB-03-1	S-8	30	32	59.2																
SB-03-1	S-10	40	42	53.1																
SB-03-1	S-12	50	52	59.8																
SB-03-1	S-14	60	62	38.96																
SB-03-1	S-16	70	72	42.2																

[1]Tube Extrusion includes Torvane measurements and Natural Water Contents.

Submitted By		*Date*	
Printed Name			
Samples Received By		*Date*	
Printed Name			

GEODESIGN INCORPORATED
984 Southford Rd
Middlbury, CT 06762
Phone: 203 758 8836 Fax: 203 758 8842

GEODESIGN, INC.

LAB ASSIGNMENT SHEET

Project Name: New Britain-Hartford Busway

Location (*Town,State*): Hartford/West Hartford, CT (Busway over Capitol Ave.) #155-H025

GeoDesign File No.: 380-04

Client / Company Name: URS/Washington Group

Project Engineer's Name: Chi Zhang

Contact Phone: (203) 758 8836 x 119

Page 2 of 3

Date Samples Submitted

Date Results Requested

Samples Collected By Robert Marshall

Date(s) Samples Collected 05/12/2008-05/16/2008

Assigned to GeoDesign, Inc.

SAMPLE IDENTIFICATION				IDENTIFICATION TESTS							ROCK STRENGTH	CONSOLIDATION			SOIL STRENGTH			CORROSITIVITY		NOTES
Boring / Test Pit No.	Sample No.	From Depth (ft)	To Depth (ft)	Water Content (%)	Atterberg Limits	Washed Sieve -200 (%)	Hydrometer	Sieve - Hydrometer	Organic Content Determination (%)	Soil Specific Gravity	Unconfined Compressive Strength	Thin Walled Tube Extrusion [1]	Consolidation Test with Coefficent of Consolidation Data (Constant Rate of Strain Consolidation)	Consolidation Test with Coefficent of Consolidation Data (With unload - reload)	Unconsolidated Undrained (UU)	Consoldated Undrained (CIU)	Direct Simple Shear (DSS)	pH	Sulfides	
SB-03-1	S-18	80	82	40.3																
SB-03-1	S-22	90	92	40																
SB-03-1	S-24	100	102	25.7																
SB-03-2	S-6	15	17	48.7																
SB-03-2	S-8	25	27	62.9																
SB-03-2	S-10	35	37	59																
SB-03-2	S-12	45	47	53.2																

[1]Tube Extrusion includes Torvane measurements and Natural Water Contents.

Submitted By		*Date*	
Printed Name			
Samples Received By		*Date*	
Printed Name			

GEODESIGN INCORPORATED
984 Southford Rd
Middlbury, CT 06762
Phone: 203 758 8836 Fax: 203 758 8842

GEODESIGN, INC.

LAB ASSIGNMENT SHEET

Project Name: New Britain-Hartford Busway

Location (*Town,State*): Hartford/West Hartford, CT (Busway over Capitol Ave.) #155-H025

GeoDesign File No.: 380-04

Client / Company Name: URS/Washington Group

Project Engineer's Name: Chi Zhang

Contact Phone: (203) 758 8836 x 119

Page 3 of 3

Date Samples Submitted

Date Results Requested

Samples Collected By Robert Marshall

Date(s) Samples Collected 05/12/2008-05/16/2008

Assigned to GeoDesign, Inc.

SAMPLE IDENTIFICATION				IDENTIFICATION TESTS							ROCK STRENGTH	CONSOLIDATION			SOIL STRENGTH			CORROSITIVITY		
Boring / Test Pit No.	Sample No.	From Depth (ft)	To Depth (ft)	Water Content (%)	Atterberg Limits	Washed Sieve -200 (%)	Hydrometer	Sieve - Hydrometer	Organic Content Determination (%)	Soil Specific Gravity	Unconfined Compressive Strength	Thin Walled Tube Extrusion [1]	Consolidation Test with Coefficent of Consolidation Data (Constant Rate of Strain Consolidation)	Consolidation Test with Coefficent of Consolidation Data (With unload - reload)	Unconsolidated Undrained (UU)	Consoildated Undrained (CIU)	Direct Simple Shear (DSS)	pH	Sulfides	NOTES
SB-03-2	S-14	55	57	47.8																
SB-03-2	S-16	65	67	48.8																
SB-03-2	S-18	75	77	42.7																
SB-03-2	S-20	85	87	52																
SB-03-2	S-21	90	92	64.3																
SB-03-2	S-22	95	97	45.6																

[1]Tube Extrusion includes Torvane measurements and Natural Water Contents.

Submitted By		*Date*	
Printed Name			
Samples Received By		*Date*	
Printed Name			

GEODESIGN INCORPORATED
984 Southford Rd
Middlbury, CT 06762
Phone: 203 758 8836 Fax: 203 758 8842

GEODESIGN, INC.
LAB ASSIGNMENT SHEET

Project Name: New Britain-Hartford Busway

Location (*Town,State*): Hartford/West Hartford, CT (Old Park River Culvert) #155-H025

GeoDesign File No.: 380-04

Client / Company Name: URS/Washington Group

Project Engineer's Name: Chi Zhang

Contact Phone: (203) 758 8836 x 119

Page 1 of 4

Date Samples Submitted

Date Results Requested

Samples Collected By Robert Marshall

Date(s) Samples Collected 05/12/2008-05/16/2008

Assigned to GeoDesign, Inc.

SAMPLE IDENTIFICATION				IDENTIFICATION TESTS							ROCK STRENGTH	CONSOLIDATION			SOIL STRENGTH			CORROSITIVITY		NOTES
Boring / Test Pit No.	Sample No.	From Depth (ft)	To Depth (ft)	Water Content (%)	Atterberg Limits	Washed Sieve -200 (%)	Hydrometer	Sieve - Hydrometer	Organic Content Determination (%)	Soil Specific Gravity	Unconfined Compressive Strength	Thin Walled Tube Extrusion [1]	Consolidation Test with Coefficent of Consolidation Data (Constant Rate of Strain Consolidation)	Consolidation Test with Coefficent of Consolidation Data (With unload - reload)	Unconsolidated Undrained (UU)	Consolidated Undrained (CIU)	Direct Simple Shear (DSS)	pH	Sulfides	
SB-06-4	S-10	27	29	63.2																
SB-06-4	S-13	40	42	68.3																
SB-06-4	S-16	55	57	59.5																
SB-06-4	S-19	70	72	54.5																
SB-06-4	S-23	90	92	55.5																
R-123	S-5	10	12	31.8																
R-123	S-7	15	17	25																

[1]Tube Extrusion includes Torvane measurements and Natural Water Contents.

Submitted By		*Date*	
Printed Name			
Samples Received By		*Date*	
Printed Name			

GEODESIGN INCORPORATED
984 Southford Rd
Middlbury, CT 06762
Phone: 203 758 8836 Fax: 203 758 8842

GEODESIGN, INC.

LAB ASSIGNMENT SHEET

Project Name: New Britain-Hartford Busway

Location (*Town,State*): Hartford/West Hartford, CT (Busway over Capitol Ave.) #155-H025

GeoDesign File No.: 380-04

Client / Company Name: URS/Washington Group

Project Engineer's Name: Chi Zhang

Contact Phone: (203) 758 8836 x 119

Page: 2 of 4

Date Samples Submitted:

Date Results Requested:

Samples Collected By: Robert Marshall

Date(s) Samples Collected: 05/12/2008-05/16/2008

Assigned to: GeoDesign, Inc.

SAMPLE IDENTIFICATION				IDENTIFICATION TESTS							ROCK STRENGTH	CONSOLIDATION			SOIL STRENGTH			CORROSITIVITY		
Boring / Test Pit No.	Sample No.	From Depth (ft)	To Depth (ft)	Water Content (%)	Atterberg Limits	Washed Sieve -200 (%)	Hydrometer	Sieve - Hydrometer	Organic Content Determination (%)	Soil Specific Gravity	Unconfined Compressive Strength	Thin Walled Tube Extrusion [1]	Consolidation Test with Coefficent of Consolidation Data (Constant Rate of Strain Consolidation)	Consolidation Test with Coefficent of Consolidation Data (With unload - reload)	Unconsolidated Undrained (UU)	Consoildated Undrained (CIU)	Direct Simple Shear (DSS)	pH	Sulfides	NOTES
R-123	S-9	25	27	67.7																
R-123	S-11	35	37	61.4																
R-123	S-13	45	47	61.7																
R-123	S-15	55	57	48.3																
R-123	S-17	65	67	42.7																
R-123	S-19	75	77	56.8																
R-123	S-21	85	87	46.4																

[1]Tube Extrusion includes Torvane measurements and Natural Water Contents.

Submitted By		*Date*	
Printed Name			
Samples Received By		*Date*	
Printed Name			

GEODESIGN INCORPORATED
984 Southford Rd
Middlbury, CT 06762
Phone: 203 758 8836 Fax: 203 758 8842

GEODESIGN, INC
LAB ASSIGNMENT SHEET

Project Name: New Britain-Hartford Busway

Location (*Town,State*): Hartford/West Hartford, CT (Busway over Capitol Ave.) #155-H025

GeoDesign File No: 380-04

Client / Company Name: URS/Washington Group

Project Engineer's Name: Chi Zhang

Contact Phone: (203) 758 8836 x 119

Page 3 of 4

Date Samples Submitted

Date Results Requested

Samples Collected By Robert Marshall

Date(s) Samples Collected 05/12/2008-05/16/2008

Assigned to GeoDesign, Inc.

SAMPLE IDENTIFICATION				IDENTIFICATION TESTS							ROCK STRENGTH	CONSOLIDATION			SOIL STRENGTH			CORROSITIVITY		NOTES
Boring / Test Pit No.	Sample No.	From Depth (ft)	To Depth (ft)	Water Content (%)	Atterberg Limits	Washed Sieve -200 (%)	Hydrometer	Sieve - Hydrometer	Organic Content Determination (%)	Soil Specific Gravity	Unconfined Compressive Strength	Thin Walled Tube Extrusion [1]	Consolidation Test with Coefficent of Consolidation Data (Constant Rate of Strain Consolidation)	Consolidation Test with Coefficent of Consolidation Data (With unload - reload)	Unconsolidated Undrained (UU)	Consoildated Undrained (CIU)	Direct Simple Shear (DSS)	pH	Sulfides	
R-125	S-7	15	17	53.5																
R-125	S-9	25	27	64.3																
R-125	S-11	37	39	60.4																
R-125	S-13	45	47	62.6																
R-125	S-15	55	57	52.8																
R-125	S-17	65	67	48.1																
R-125	S-19	75	77	38.5																

[1]Tube Extrusion includes Torvane measurements and Natural Water Contents.

Submitted By		*Date*	
Printed Name			
Samples Received By		*Date*	
Printed Name			

GEODESIGN
INCORPORATED
984 Southford Rd
Middlbury, CT 06762
Phone: 203 758 8836 Fax: 203 758 8842

GEODESIGN, INC.

LAB ASSIGNMENT SHEET

Project Name: New Britain-Hartford Busway

Location (*Town,State*): Hartford/West Hartford, CT (Busway over Capitol Ave.) #155-H025

GeoDesign File No.: 380-04

Client / Company Name: URS/Washington Group

Project Engineer's Name: Chi Zhang

Contact Phone: (203) 758 8836 x 119

Page: 4 of 4

Date Samples Submitted:

Date Results Requested:

Samples Collected By: Robert Marshall

Date(s) Samples Collected: 05/12/2008-05/16/2008

Assigned to: GeoDesign, Inc.

SAMPLE IDENTIFICATION				IDENTIFICATION TESTS							ROCK STRENGTH	CONSOLIDATION			SOIL STRENGTH			CORROSITIVITY		
Boring / Test Pit No.	Sample No.	From Depth (ft)	To Depth (ft)	Water Content (%)	Atterberg Limits	Washed Sieve -200 (%)	Hydrometer	Sieve - Hydrometer	Organic Content Determination (%)	Soil Specific Gravity	Unconfined Compressive Strength	Thin Walled Tube Extrusion [1]	Consolidation Test with Coefficent of Consolidation Data (Constant Rate of Strain Consolidation)	Consolidation Test with Coefficent of Consolidation Data (With unload - reload)	Unconsolidated Undrained (UU)	Consoldated Undrained (CIU)	Direct Simple Shear (DSS)	pH	Sulfides	NOTES
R-125	S-21	85	87	42																
R-125	S-23	95	97	38																
R-125	S-25	105	107	36.4																

[1]Tube Extrusion includes Torvane measurements and Natural Water Contents.

Submitted By		*Date*	
Printed Name			
Samples Received By		*Date*	
Printed Name			

GEODESIGN INCORPORATED
984 Southford Rd
Middlbury, CT 06762
Phone: 203 758 8836 Fax: 203 758 8842

Appendix 4

Gradation and Hydrometer Tests

2003 Gradation and Hydrometer Tests

2008 Gradation Tests

2008 Minus No. 200 Gradation Tests

2008 Hydrometer Tests

2003 Gradation and Hydrometer Tests

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
Project No.: L17828
Project Engineer: D. SCHULZE
Assigned By: D. GAFFNEY
Date: NOV.03
Reviewed By: Don Schulze
Date Reviewed: 11/18/03

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{G_s}{1 + e_0}$	Laboratory Log and Soil Description
SB-54	S-6	16.5-18.0	127	20.1	21	20	43	9												Brown Silty sand (SM)
SB-54	S-15	55.0-56.5	128	42.1	44	22	98	44												Red-brown Lean clay (CL)
SB-55	S-4	10.0-11.5	129	18.5	22	20	39	8												Brown Silty sand with gravel (SM)
SB-55	S-17	65.0-66.5	130	33.7	29	22	99	25												Red-brown Silty clay (CL-ML)
SB-55	S-28	120.0-121.5	131	16.1	NP	NP	25													Brown Silty sand (SM)
SB-56	S-15	55.0-56.5	132	40.2	41	25	100	40												Red-brown Lean clay (CL)
SB-56	S-25	105.0-106.5	133	15.2	NP	NP	15													Brown Silty sand (SM)
SB-57	S-15	55.0-56.5	134	45.7	42	23	100	35												Red-brown Lean clay (CL)
SB-58	S-14	50.0-51.5	135	56.6	53	25	100	60												Brown Fat clay (CH)
SB-58	S-21	90.0-91.5	136	34.2	24	24	100	15												Red-brown Silt (ML)
SB-58	S-25	110.0-111.5	137	23.1	NP	NP	30	5												Red-brown Silty sand (SM)

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

Project No.: L17828 | Assigned By: D. GAFFNEY | Reviewed By: Don Schulze

Project Engineer: D. SCHULZE | Date: NOV.03 | Date Reviewed: 11/25/03

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
SB-59	S-25 S-26	105.0-111.5	138	23.7	NP	NP	93	6												Red-brown Silt (ML)
SB-60	S-5	13.5-15.0	139	33.1	25	22	98	17												Gray Silt (ML)
SB-60	S-11	35.0-36.5	140	55.4	60	27	100	55												Gray-brown Fat clay (CH)
SB-60	S-18	70.0-71.5	141	45.8	48	23	100	46												Red-brown Lean clay (CL)
SB-60	S-26	110.0-111.5	142	22.7	NP	NP	76	4												Red-brown Silt with sand (ML)
SB-60	S-29	125.0-126.5	143	28.0	33	25	99	26												Red-brown Silt (ML)
SB-61	S-12	40.0-41.5	144	58.1	64	23	99	64												Brown Fat clay (CH)
SB-61	S-22	90.0-91.5	145	31.2	25	23	100	11												Red-brown Silt (ML)
SB-62	S-11	35.0-36.5	146	59.2	60	26	100	57												Brown Fat clay (CH)
SB-62	S-20	85.0-86.5	147	68.3	34	24	100	28												Red-brown Silt (ML)
SB-62	S-26	115.0-116.5	148	11.9	16	14	8													Red-brown Poorly-graded sand with silt and gravel (SP-SM)
SB-62	S-27	120.0-121.5	149	21.6	NP	NP	19													Red-brown Silty sand (SM)

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT

Project No.: L17828 | Assigned By: D. GAFFNEY | Reviewed By: [signature]

Project Engineer: D. SCHULZE | Date: NOV.03 | Date Reviewed: 11/20/03

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
SB-63	S-6	16.5-18.0	150	41.9	41	22	99	36												Gray-brown Lean clay (CL)
SB-63	S-14	50.0-51.5	151	57.5	56	25	99	56												Brown Fat clay (CH)
SB-63	S-22	90.0-91.5	152	35.9	29	24	100	26												Red-brown Silt (ML)
SB-63	S-31	135.0-136.5	153	11.7	NP	NP	35	6												Red-brown Silty sand with gravel (SM)
SB-64	S-10	28.5-30.0	154	55.2	63	27	100	62												Brown Fat clay (CH)
SB-64	S-18	70.0-71.5	155	41.5	44	23	100	32												Brown Lean clay (CL)
SB-64	S-26	110.0-111.5	156	23.5	NP	NP	23													Red-brown Silty sand (SM)
SB-64	S-31	135.0-135.9	157	9.6	*	*	22		* Insufficient sample for limit test											Red-brown Silty sand with gravel (SM)
SB-65	S-23	95.0-96.5	158	29.9	24	24	100	13												Red-brown Silt (ML)

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

Project No.: 1.17828 | Assigned By: D. GAFFNEY | Reviewed By: Don Schulze

Project Engineer: D. SCHULZE | Date: DEC.03 | Date Reviewed: 12/3/03

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) W_{opt} (%)	Permeability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
SB-66	S-11	35.0-36.5	159	61.1	60	28	100	74												Brown Fat clay (CH)
SB-66	S-18	70.0-71.5	160	47.8	43	24	100	29												Brown Lean clay (CL)
SB-66	S-31	135.0-136.5	161	10.8	21	15	16													Red-brown Silty-clayey sand with gravel (SC-SM)
SB-67	S-13	45.0-46.5	162	54.6	58	27	100	65												Brown Fat clay (CH)
SB-67	S-24 S-25	105.0-112.0	163	20.3	NP	NP	20													Red-brown Silty sand (SM)
SB-69	S-3	7.5-9.0	164	36.7	30	25	81	18												Brown Silt with gravel (SM)
SB-69	S-14	50.0-51.5	165	44.0	56	26	100	67												Brown Fat clay (CH)
SB-69	S-23	95.0-96.5	166	34.3	24	24	100	13												Red-brown Silt (ML)
SB-69	S-33	145.0-146.5	167	12.1	18	15	21													Red-brown Silty gravel with sand (GM)
SB-70	S-15	60.0-61.5	168	48.7	52	23	100	42												Brown Fat clay (CH)

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
Project No.: L17828 | Assigned By: D. GAFFNEY | Reviewed By: [signature]
Project Engineer: D. SCHULZE | Date: DEC.03 | Date Reviewed: 12/3/05

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
SB-71	S-13	45.0-46.5	169	54.9	56	26	100	64												Brown Fat clay (CH)
SB-71	S-21	85.0-86.5	170	38.9	29	25	100	21												Red-brown Silt (ML)
SB-71	S-27	115.0-116.5	171	12.0	17	16	14													Red-brown Silty sand with gravel (SM)
SB-72	S-9	25.0-26.5	172	49.6	47	24	100	41												Brown Lean clay (CL)
SB-72	S-17	65.0-66.5	173	50.5	55	26	100	64												Brown Fat clay (CH)
SB-72	S-25	105.0-106.5	174	24.5	20	20	92	12												Red-brown Silt (ML)
SB-72	S-31	135.0-136.5	175	12.8	*	*	10		* Insufficient sample for limit test											Brown Poorly graded gravel with silt and sand (GP-GM)
SB-73	S-10	28.5-30.0	176	33.1	NP	NP	60													Red-brown Sandy silt (ML)
SB-73	S-18	70.0-71.5	177	46.1	48	23	100	45												Red-brown Lean clay (CL)
SB-73	S-27	115.0-116.5	178	21.4	NP	NP	28													Red-brown Silty sand (SM)

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
Project No.: L17828
Project Engineer: D. SCHULZE
Assigned By: D. GAFFNEY
Date: DEC.03
Reviewed By: Don Schulze
Date Reviewed: 12/10/03

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: C_c / $1 + e_0$	Laboratory Log and Soil Description
SB-74	S-3	7.5-9.0	179	27.6	NP	NP	78	5												Red-brown Silt with sand (ML)
SB-74	S-20	85.0-86.5	180	44.9	58	25	100	49												Brown Fat clay (CH)
SB-74	S-27	120.0-121.5	181	12.8	22	17	15	5												Red-brown Silty-clayey gravel with sand (GC-GM)
SB-75	S-14	50.0-51.5	182	53.3	57	25	100	65												Brown Fat clay (CH)
SB-75	S-26	110.0-111.5	183	24.8	NP	NP	94	4												Red-brown Silt (ML)
SB-76	S-10	28.5-30.0	184	51.6	59	26	100	61												Brown Fat clay (CH)
SB-76	S-20	80.0-81.5	185	43.6	41	25	100	36												Red-brown Lean clay (CL)
SB-76	S-30	130.0-131.5	186	19.2	NP	NP	10													Brown Poorly-graded sand with silt (SP-SM)
SB-77	S-9	25.0-26.5	187	44.1	44	26	100	42												Red-brown Lean clay (CL)
SB-77	S-20	85.0-86.5	188	42.3	35	25	100	32												Red-brown Silt (ML)
SB-77	S-29	130.0-131.5	189	11.3	17	16	20													Red-brown Silty sand with gravel (SM)

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
Project No.: L17828 | Assigned By: D. GAFFNEY | Reviewed By: Don Schulze
Project Engineer: D. SCHULZE | Date: DEC.03 | Date Reviewed: 12/18/03

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{C_c}{1 + e_0}$	Laboratory Log and Soil Description
SB-78	S-10	28.5-30.0	190	56.7	51	25	100	54												Gray Fat clay (CH)
SB-78	S-20	80.0-81.5	191	43.9	38	24	100	36												Brown Lean clay (CL)
SB-78	S-31	130.0-131.5	192	9.9	18	16	18													Red-brown Silty sand with gravel (SM)
SB-79	S-16	60.0-61.5	193	50.1	63	27	100	65												Brown Fat clay (CH)
SB-79	S-33	145.0-146.5	194	11.5	20	17	18													Red-brown Silty sand with gravel (SM)
SB-80	S-4	10.0-11.5	195	37.4	30	27	99	15												Gray Silt (ML)
SB-80	S-12	40.0-41.5	196	46.2	50	27	99	60												Gray Fat clay (CH)
SB-80	S-18	70.0-71.5	197	51.0	55	28	100	69												Brown Fat clay (CH)
SB-80	S-24	100.0-101.5	198	44.9	42	24	100	31												Brown Lean clay (CL)
SB-80	S-30	130.0-131.5	199	19.1	NP	NP	11													Brown Poorly-graded sand with silt and gravel (SP-SM)

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
Project No.: L17828
Project Engineer: D. SCHULZE
Assigned By: D. GAFFNEY
Date: DEC.03
Reviewed By: Dan Schulze
Date Reviewed: 12/23/03

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
SB-81	S-14	50.0-51.5	200	51.0	59	27	100	64												Brown Fat clay (CH)
SB-82	S-6	16.5-18.0	201	39.1	36	24	99	26												Gray Lean clay (CL)
SB-82	S-14	50.0-51.5	202	60.2	59	27	100	66												Gray-brown Fat clay (CH)
SB-82	S-22	95.0-96.5	203	46.9	42	25	100	37												Brown Lean clay (CL)
SB-82	S-28	125.0-126.5	204	11.0	NP	NP	8													Red-brown Well-graded sand with silt (SW-SM)
SB-83	S-3	7.5-9.0	205	35.7	NP	NP	99	13												Gray Silt (ML)
SB-83	S-18	70.0-71.5	206	52.0	59	27	100	65												Brown Fat clay (CH)
SB-83	S-30	130.0-131.5	207	10.6	NP	NP	7													Red-brown Well-graded sand with silt and gravel (SW-SM)

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
Project No.: L17828
Project Engineer: D. SCHULZE
Assigned By: D. GAFFNEY
Date: DEC.03
Reviewed By: Dan Schulze
Date Reviewed: 12/29/03

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Permeability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
SB-84	S-2	4.5-6.0	208	4.5	*	*	12		* Insufficient sample for limit test											Red-brown Well-graded sand with silt (SW-SM)
SB-84	S-8	25.5-27.0	209	46.8	44	25	100	45												Gray Lean clay (CL)
SB-84	S-14	50.0-51.5	210	56.5	62	28	100	55												Gray Fat clay (CH)
SB-84	S-22	90.0-91.5	211	46.9	58	26	100	58												Red-brown Fat clay (CH)
SB-84	S-30 S-31	130.0-136.5	212	11.7	21	17	11	3												Red-brown Poorly-graded gravel with silt and sand (GP-GM)
SB-85	S-9	25.0-26.5	213	46.6	59	29	100	62												Gray Fat clay (CH)
SB-85	S-19	75.0-76.5	214	53.1	53	23	100	42												Brown Fat clay (CH)
SB-85	S-26	110.0-111.5	215	10.8	17	16	41	10												Red-brown Gravelly silt with sand (ML)
SB-86	S-5	13.5-15.0	216	35.1	45	25	97	43												Gray Lean clay (CL)
SB-86	S-12	40.0-41.5	217	42.9	56	28	100	72												Gray Fat clay (CH)
SB-86	S-19	75.0-76.5	218	43.3	43	24	100	40												Red-brown Lean clay (CL)
SB-86	S-26	110.0-111.5	219	11.6	15	14	30													Brown Silty sand (SM)

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
Project No.: L17828
Project Engineer: D. SCHULZE
Assigned By: D. GAFFNEY
Date: DEC.03
Reviewed By: [signature]
Date Reviewed: 1/8/04

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
SB-87	S-6	16.5-18.0	220	55.7	54	26	94	52												Brown Fat clay (CH)
SB-87	S-15	55.0-56.5	221	57.4	55	26	100	65												Brown Fat clay (CH)
SB-88	S-6	16.5-18.0	222	33.9	57	28	99	60												Brown Fat clay (CH)
SB-88	S-12	40.0-41.5	223	49.7	36	24	100	32												Brown Lean clay (CL)
SB-88	S-18	70.0-71.5	224	26.3	28	19	88	29												Brown Lean clay (CL)
SB-89	S-5	13.5-15.0	225	35.2	42	25	94	37												Brown Lean clay (CL)
SB-90	S-6	16.5-18.0	226	22.6	51	24	85	43												Brown Fat clay (CH)
SB-90	S-11	35.0-36.5	227	47.0	43	25	100	44												Brown Lean clay (CL)
SB-91	S-3	7.5-9.0	228	8.5	18	15	42	10												Brown Silty sand with gravel (SM)
SB-91	S-6 S-7	16.5-20.0	229	11.7	23	17	18													Brown Silty clayey sand with gravel (SC-SM)

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
Project No.: L17828
Project Engineer: D. SCHULZE
Assigned By: D. GAFFNEY
Date: DEC.03
Reviewed By: [illegible]
Date Reviewed: 1/8/04

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Perme-ability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{C_c}{1+e_0}$	Laboratory Log and Soil Description
SB-102	S-4	10.0-11.5	240	29.5	52	22	88	50												Gray Fat clay (CH)
SB-103	S-2	4.5-6.0	241	37.2	43	24	91	34												Brown Lean clay (CL)
SB-103	S-5	13.5-15.0	242	40.9	40	24	99	37												Brown Lean clay (CL)
SB-104	S-4	10.5-12.0	243	16.5	26	20	48	12												Brown Silty clayey sand with gravel (SC-SM)
SB-104	S-8	22.5-24.0	244	42.2	44	23	98	55												Brown Lean clay (CL)
SB-105	S-8	22.5-24.0	245	62.3	59	27	100	73												Gray Fat clay (CH)
SB-105	S-18	70.0-71.5	246	49.3	43	24	100	32												Brown Lean clay (CL)
SB-105	S-27	115.0-116.5	247	8.7	*	*	12		* Insufficient sample for limit test											Brown Silty sand (SM)

GZA GeoEnvironmental, Inc.
Q:\NEWTON\LAB\LABFORM7.XLS

labform1.xls

LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY CONNECTICUT
Project No.: L17828 — Assigned By: D. GAFFNEY — Reviewed By: Dan Schulze
Project Engineer: D. SCHULZE — Date: Feb.04 — Date Reviewed: 2/13/04

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Permeability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol. $\frac{C_c}{1 + e_0}$	Laboratory Log and Soil Description
SB-1	S-1, S-2 & S-3	1.5-9.0	408	15.9	25	21	24	6												Brown Silty gravel with sand (GM)
SB-1	S-6	16.5-18.0	409	12.3	NP	NP	45	8												Red-brown Silty sand (SM)
SB-39	S-1	1.5-3.0	410	9.1	NP	NP	10	2												Brown Well-graded sand with silt and gravel (SW-SM)
SB-39	S-2	4.5-6.0	411	10.5	NP	NP	14	2												Red-brown Silty sand with gravel (SM)
SB-39	S-6	16.5-18.0	412	31.4	34	21	93	34												Red-brown Lean clay (CL)
SB-54	S-3 S-4	7.5-11.5	413	20.9	24	23	54	11												Brown Sandy silt (ML)
SB-54	S-8	22.5-24.5	414	24.2	18	17	42	8												Red-brown Silty sand (SM)
SB-59	S-1 & S-4	1.5-11.5	415	46.5	42	23	97	40												Gray Lean clay (CL)
SB-59	S-7	19.5-21.0	416	48.9	47	25	100	45												Gray Lean clay (CL)
RB-10	S-1	1.5-3.0	417	8.9	NP	NP	15	2												Black Silty sand with gravel (SM)
RB-10	S-3	7.5-9.0	418	9.3	NP	NP	25	3												Red-brown Silty sand (SM)

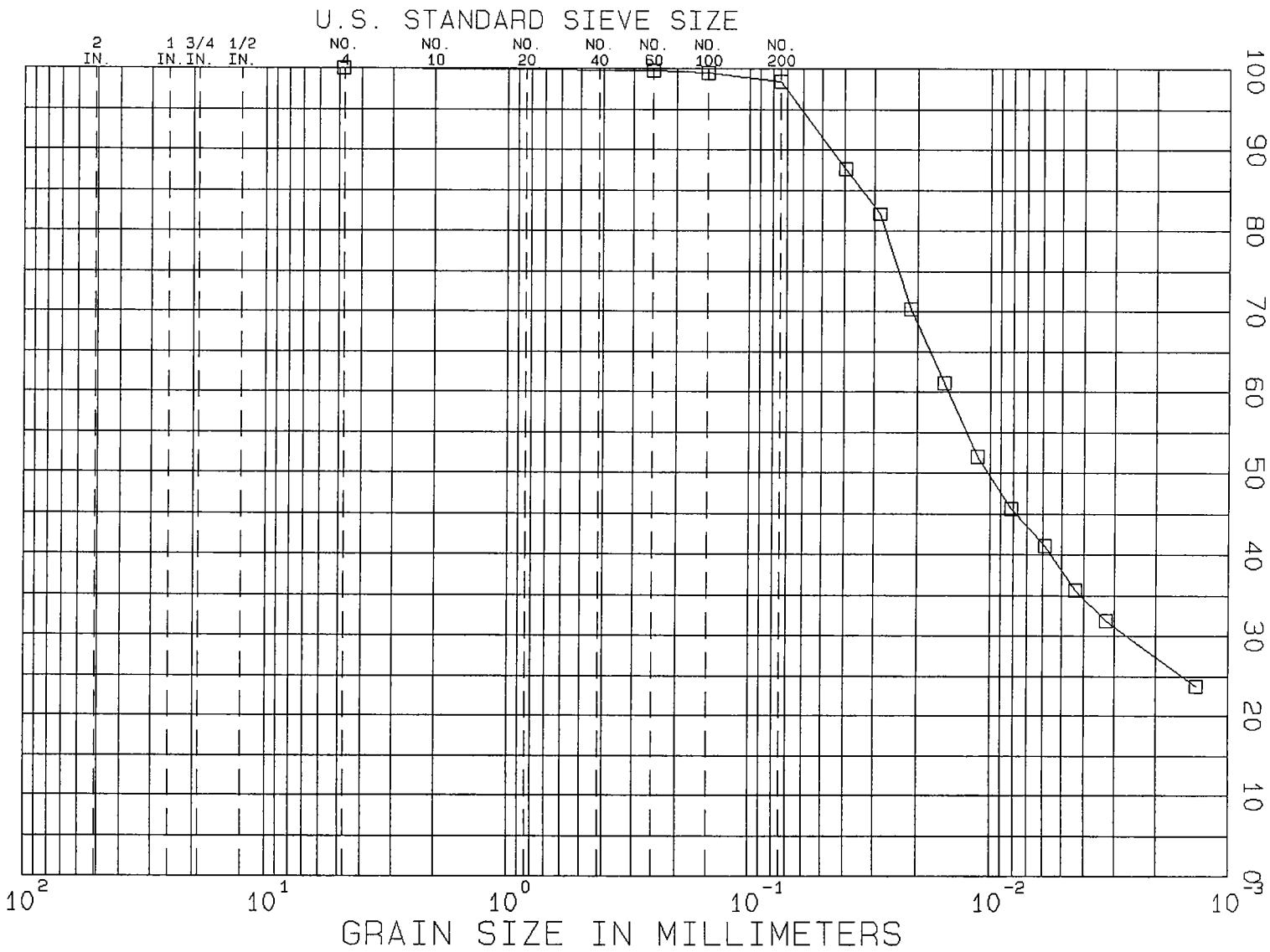
LABORATORY TESTING DATA SHEET

Project Name: NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

Project No.: L17828 | Assigned By: D. GAFFNEY | Reviewed By: Alan Schulze

Project Engineer: D. SCHULZE | Date: NOV.03 | Date Reviewed: 11/6/03

Boring/ Test Pit No.	Sample No.	Depth ft.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Density: γ_d MAX (pcf) / W_{opt} (%)	Permeability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_c$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or τ psf	Strain %	Consol.: $C_c / (1 + e_0)$	Laboratory Log and Soil Description
RB-34	S-1	1.5-3.0	96	27.4	*	*	20		* Insufficient sample for limit test											Dark gray Silty sand with gravel (SM) Fill: slag & cinders
RB-34	S-4	10-11.5	97	41.6	39	23	99	34												Red-brown Lean clay (CL)
RB-35	S-5	13.5-15.0	98	36.1	36	21	98	27												Gray-brown Lean clay (CL)
RB-36	S-2	4.5-6.0	99	31.0	34	24	98	17												Brown Lean clay (CL)
RB-37	S-3	7.5-9.0	100	32.0	26	26	97	14												Gray-brown Silt (ML)
RB-38	S-1	1.5-3.0	101	5.2	NP	NP	10													Gray-brown Poorly-graded sand with silt and gravel (SP-SM)
RB-38	S-5	13.5-15.0	102	35.3	29	22	99	27												Gray-brown Silty clay (CL-ML)
RB-39	S-2	4.5-6.0	103	31.5	NP	NP	56													Brown Sandy silt (ML)
RB-40	S-5	13.5-15.0	104	43.0	49	24	99	38												Gray-brown Lean clay (CL)
RB-41	S-4	10.0-11.5	105	65.7	62	26	97	63												Brown Fat clay (CH)
RB-42	S-3	7.5-9.0	106	10.6	NP	NP	18													Brown Silty sand with gravel (SM)
RB-42	S-8 S-9	22.5-28.5	107	10.4	25	14	48	17												Red-brown Clayey sand with gravel (SC)



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

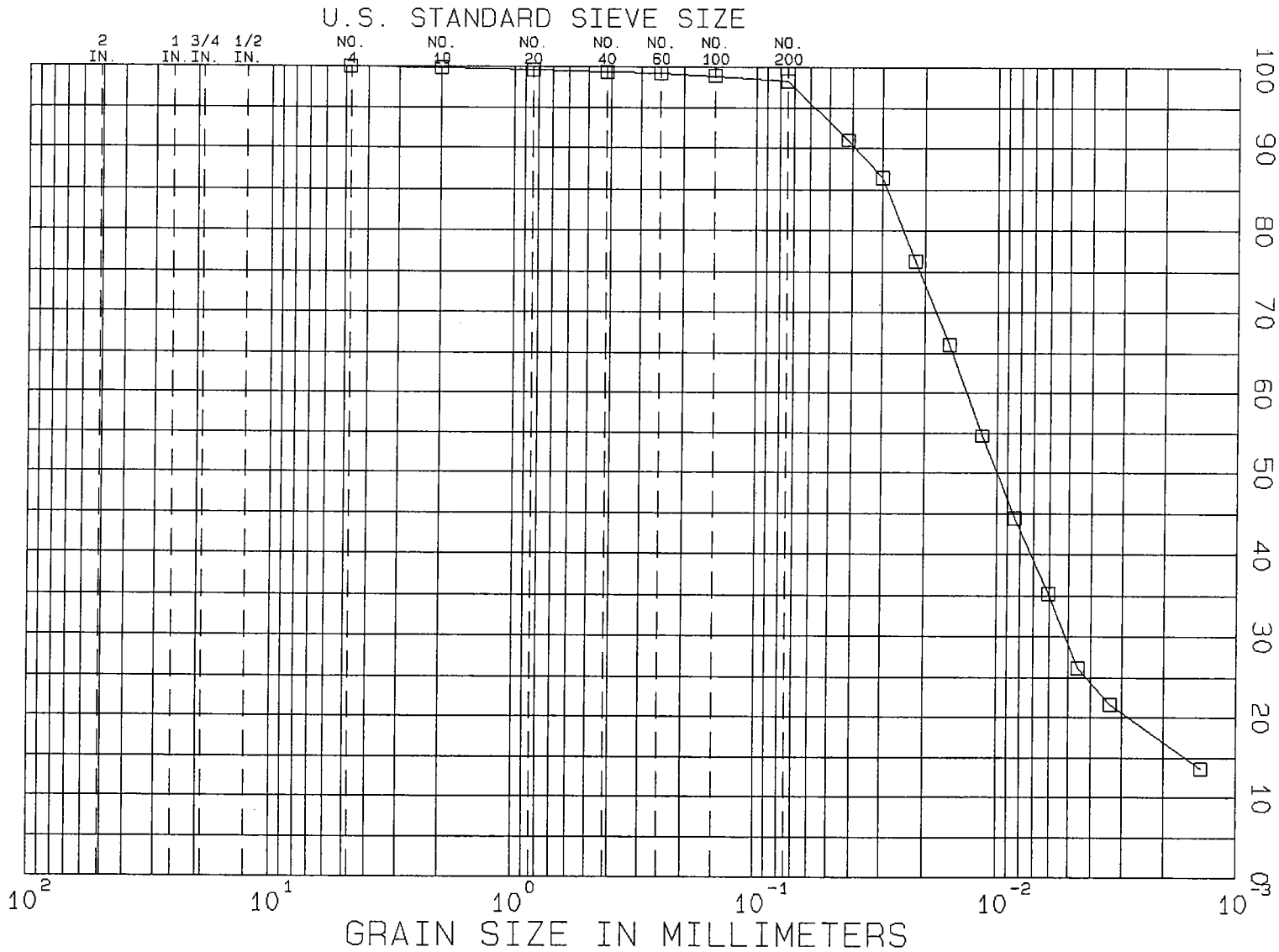
TEST NO.	MATERIAL SOURCE	REMARKS
S98.1	Boring No. RB-35 S.No.S-5, D=13.5-15'	Gray-brown Lean Clay (CL)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. RB-35
SAMPLE S-5
DEPTH 13.5-15'
TECH. PEC
REVIEWER MBP

TEST SERIES 98
NO.
DATE Nov.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

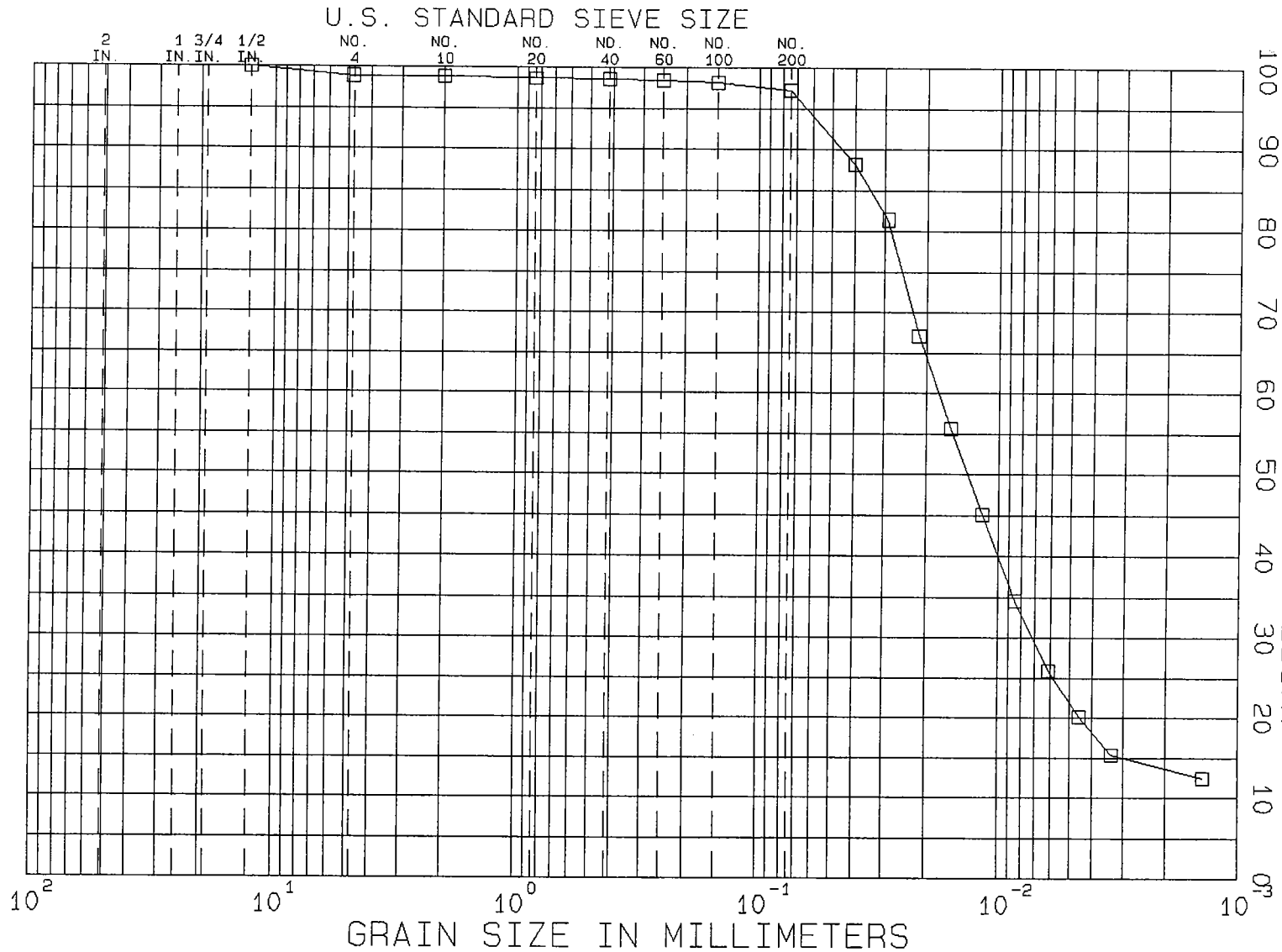
TEST NO.	MATERIAL SOURCE	REMARKS
S99.1	Boring No. RB-36 S.No.S-2, D=4.5-6'	Brown Lean clay (CL)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. RB-36
SAMPLE S-2
DEPTH 4.5-6'
TECH. CAG
REVIEWER MBP

TEST SERIES NO. 99
DATE Nov.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

TEST NO.	MATERIAL SOURCE	REMARKS
S100.1	Boring No. RB-37 S.No.S-3, D=7.5-9'	Gray-brown Silt (ML)

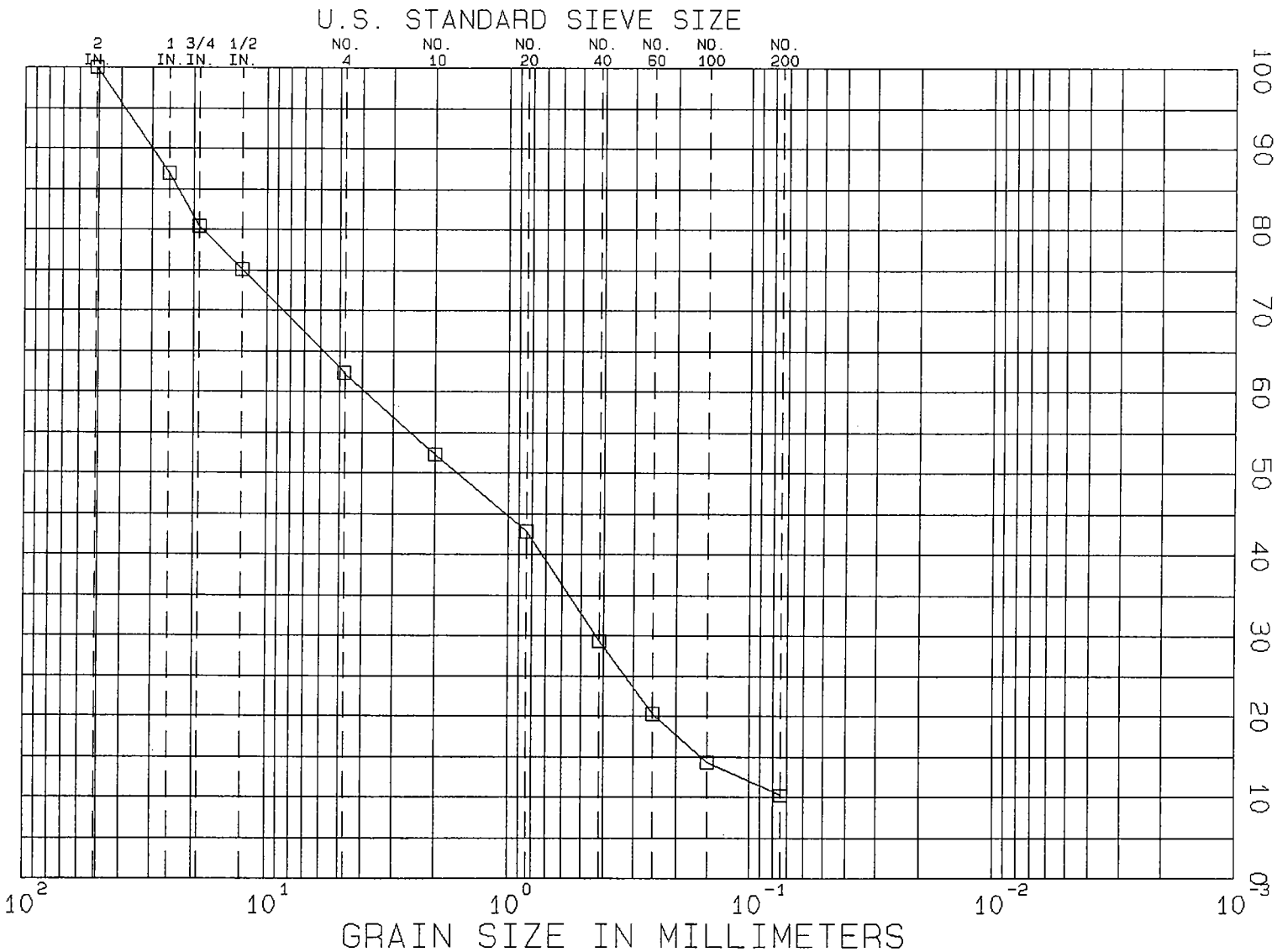
NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

GRADATION TESTS

BORING NO. RB-37
SAMPLE S-3
DEPTH 7.5-9'
TECH. CAG
REVIEWER MBP

TEST SERIES NO. 100
DATE Nov.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

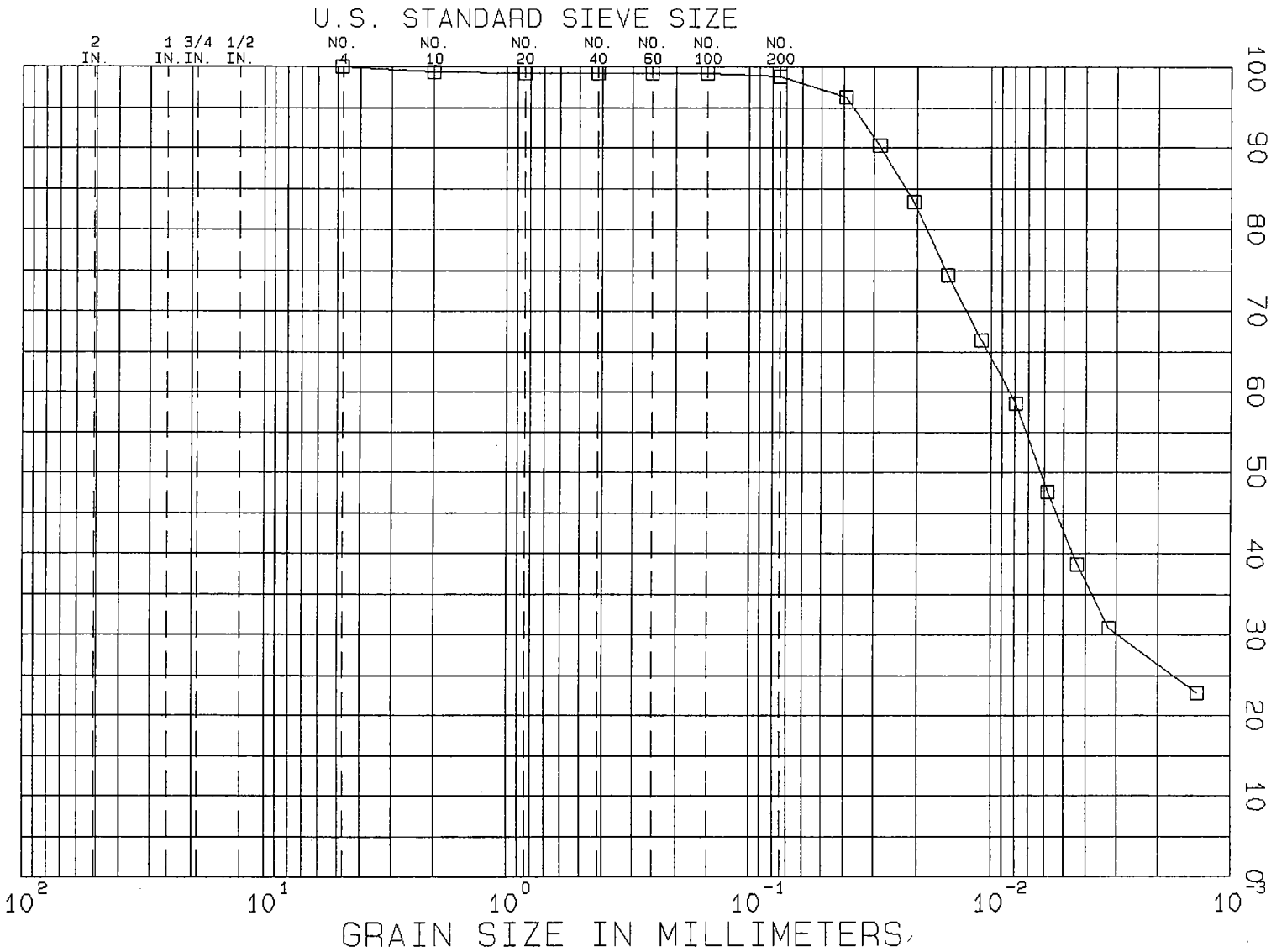
TEST NO.	MATERIAL SOURCE	REMARKS
S101.1	Boring No. RB-38 S.No.S-1, D=1.5-3'	Gray-brown Poorly-graded sand with silt and gravel (SP-SM)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. RB-38
SAMPLE S-1
DEPTH 1.5-3'
TECH. CAG
REVIEWER MBP

TEST SERIES NO. 101
DATE Nov.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

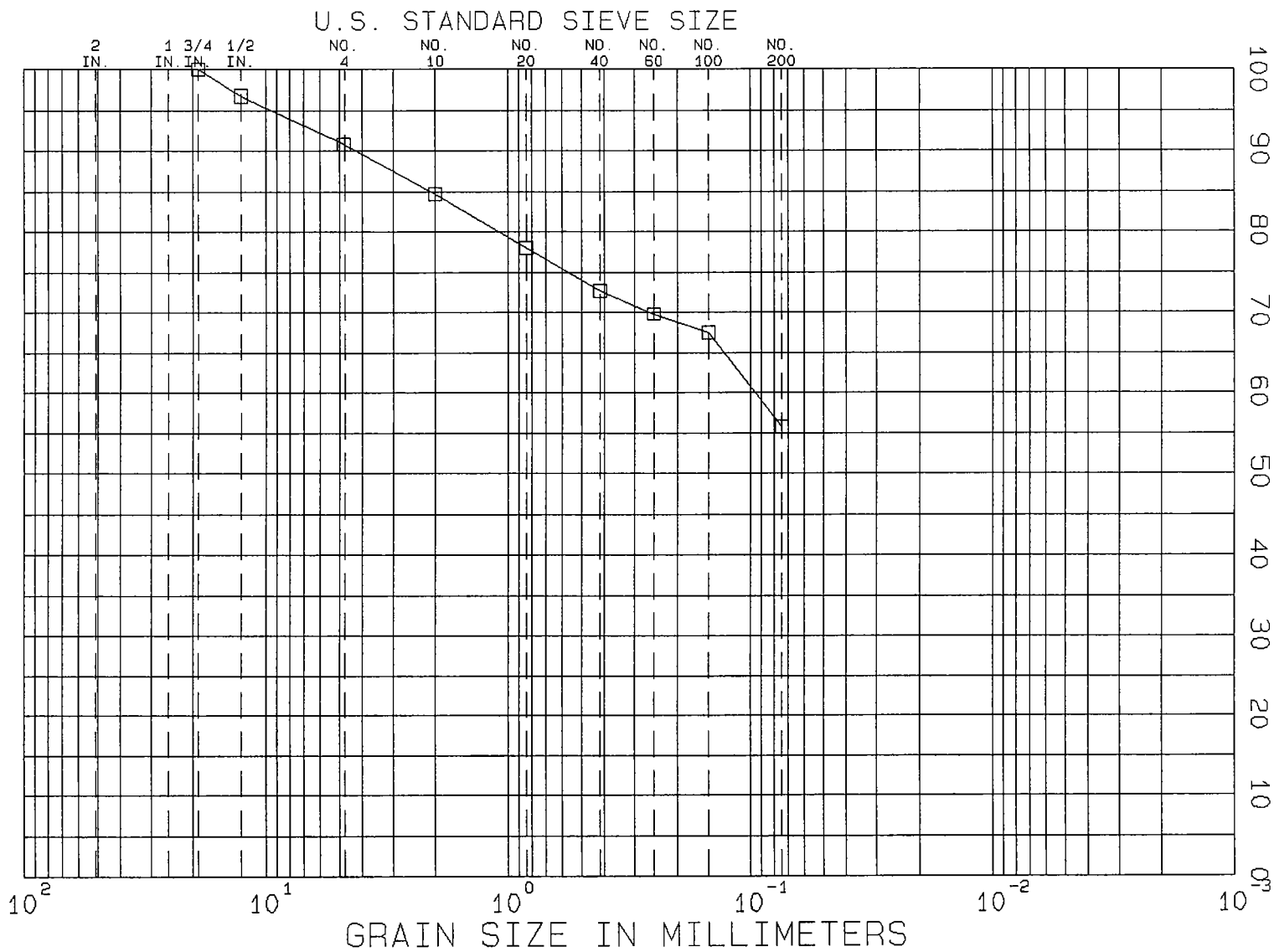
TEST NO.	MATERIAL SOURCE	REMARKS
S102.1	Boring No. RB-38 S.No.S-5, D=13.5-15'	Gray-brown Silty clay (CL-ML)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. RB-38
SAMPLE S-5
DEPTH 13.5-15'
TECH. CAG
REVIEWER MBP

TEST SERIES NO. 102
DATE Nov.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

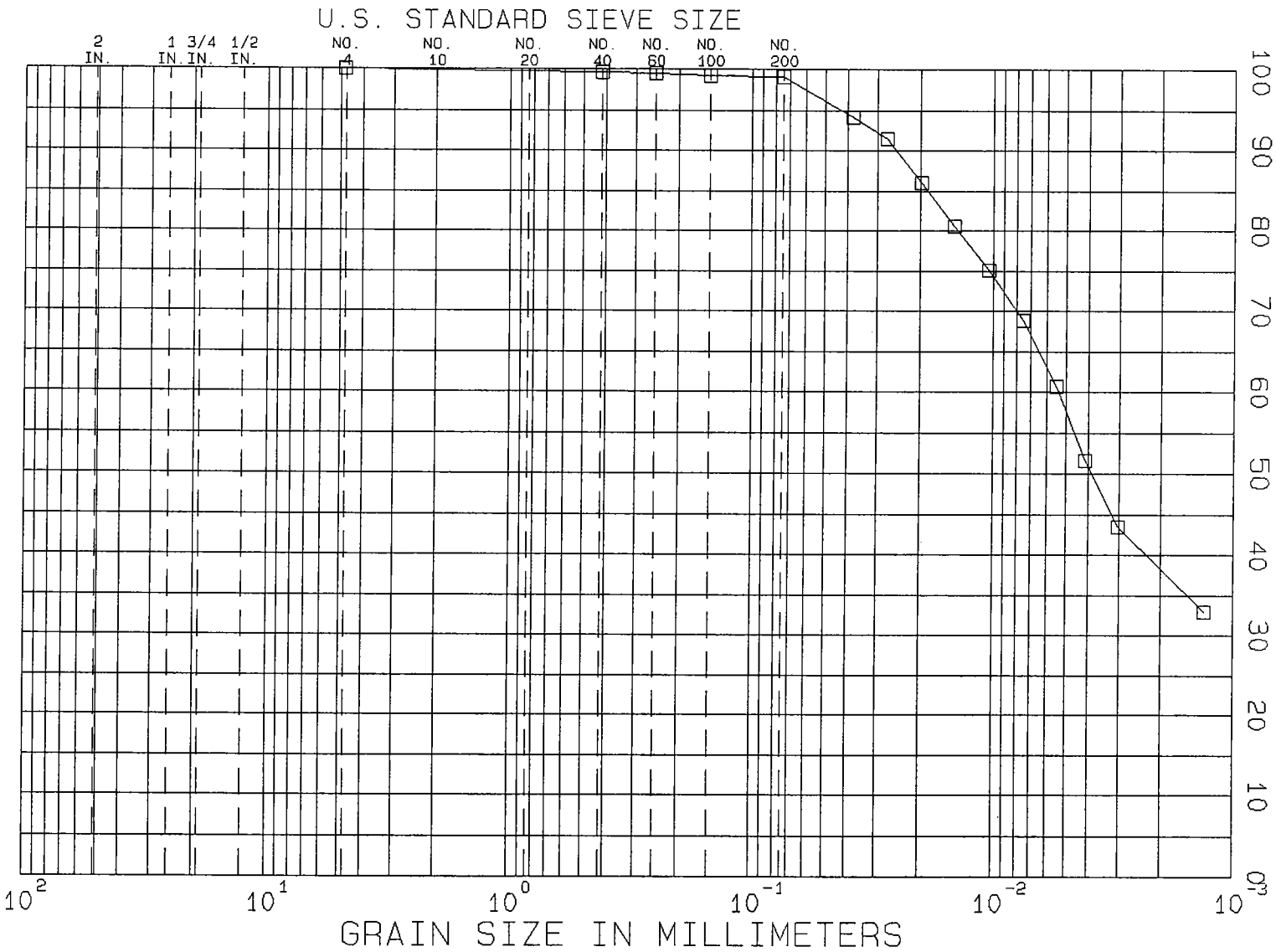
TEST NO.	MATERIAL SOURCE	REMARKS
S103.1	Boring No. RB-39 S.No.S-2, D=4.5-6'	Brown Sandy silt (ML)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. RB-39
SAMPLE S-2
DEPTH 4.5-6'
TECH. MCM
REVIEWER MBP

TEST SERIES NO. 103
DATE Nov.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

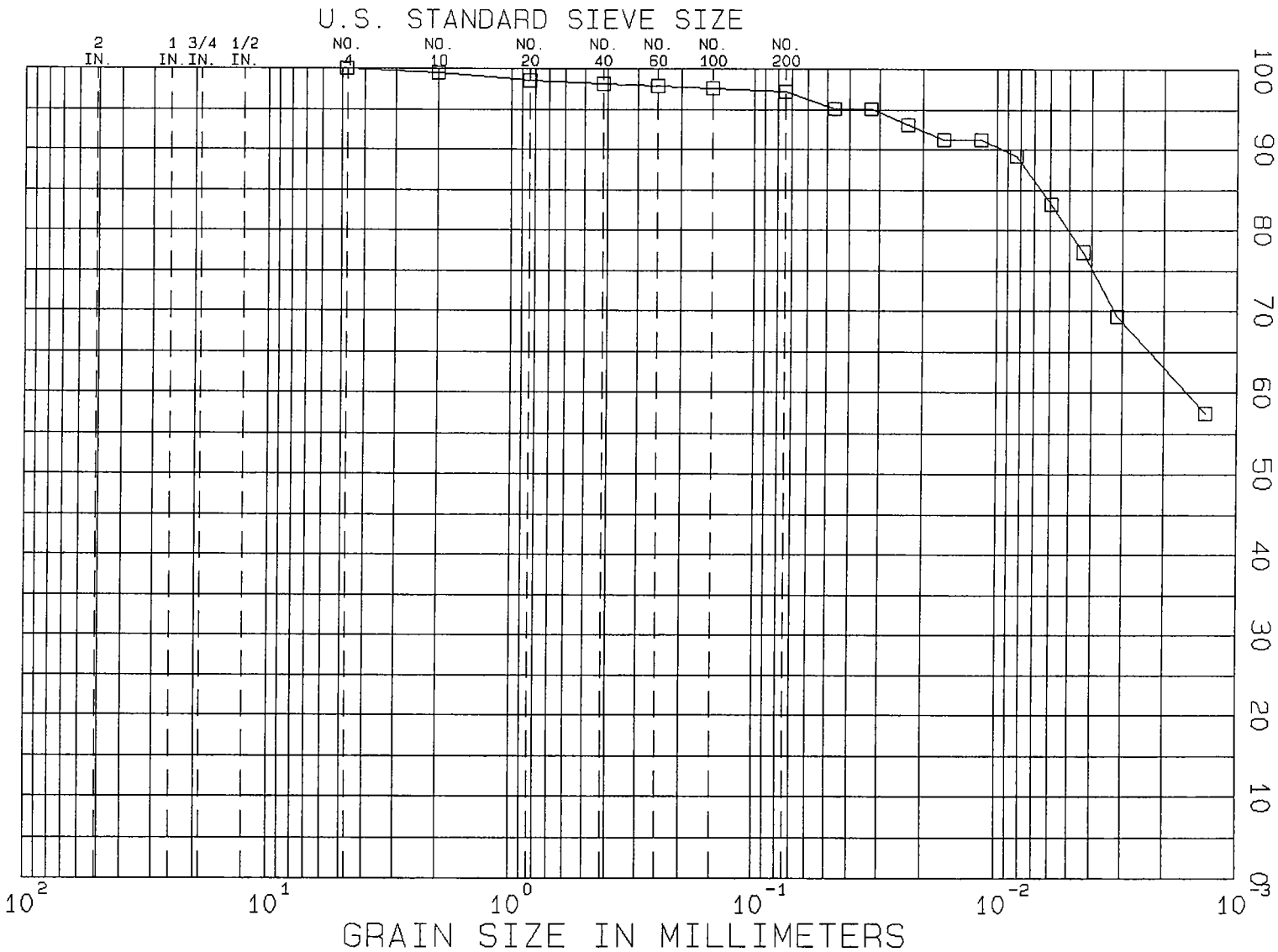
TEST NO.	MATERIAL SOURCE	REMARKS
S104.1	Boring No. RB-40 S.No.S-5, D=13.5-15'	Gray-brown Lean clay (CL)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. RB-40
SAMPLE S-5
DEPTH 13.5-15'
TECH. CAG
REVIEWER MBP

TEST SERIES NO. 104
DATE Nov.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

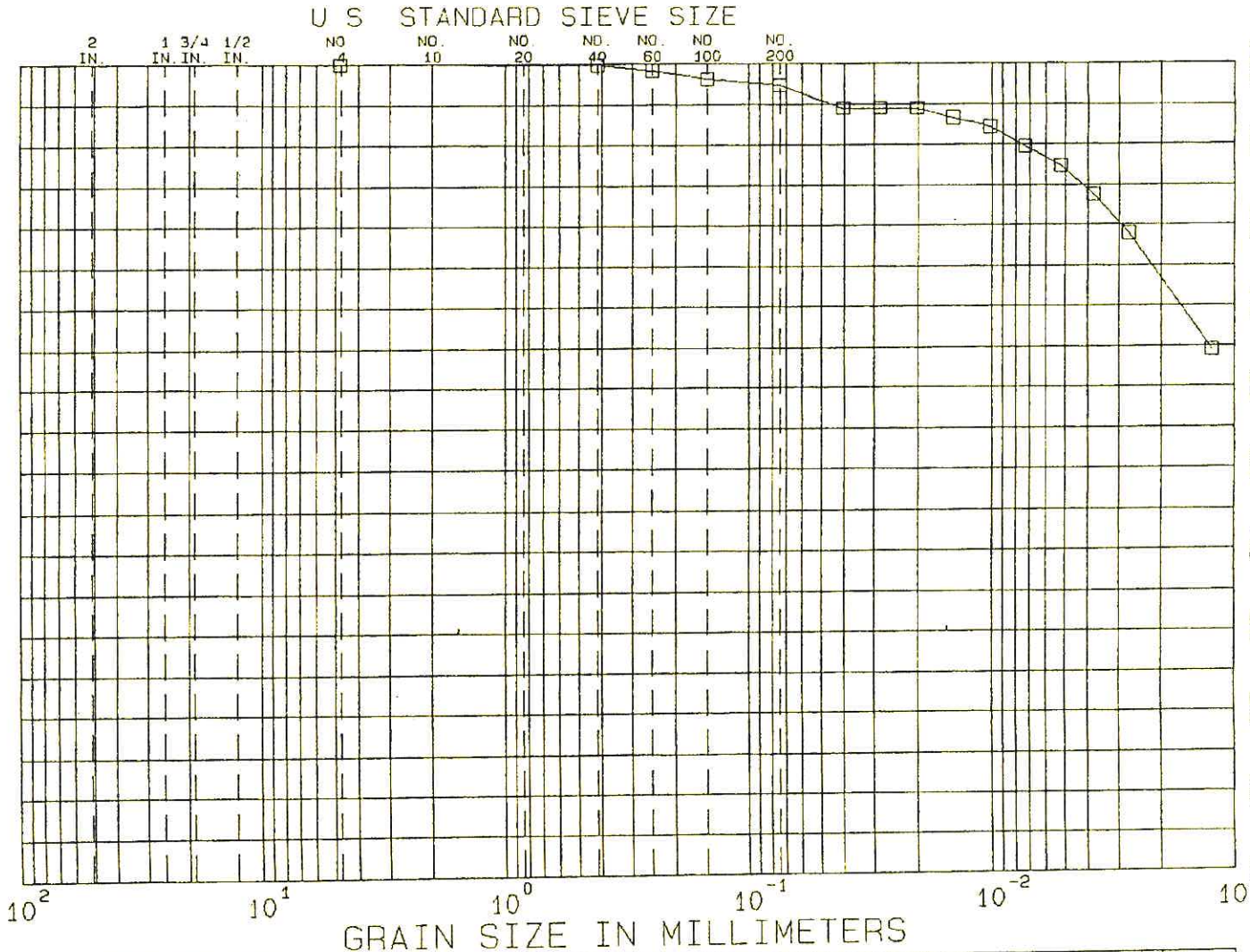
TEST NO.	MATERIAL SOURCE	REMARKS
S105.1	Boring No. RB-41 S.No.S-4, D=10-11.5'	Brown Fat clay (CH)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. RB-41
SAMPLE S-4
DEPTH 10-11.5'
TECH. CAG
REVIEWER MBP

TEST SERIES NO. 105
DATE Nov.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

TEST NO.	MATERIAL SOURCE	REMARKS
S402.1	Boring No. S8-58 S.No.UP-1, D=80.0-50.5	Red-brown Fat clay (CH)

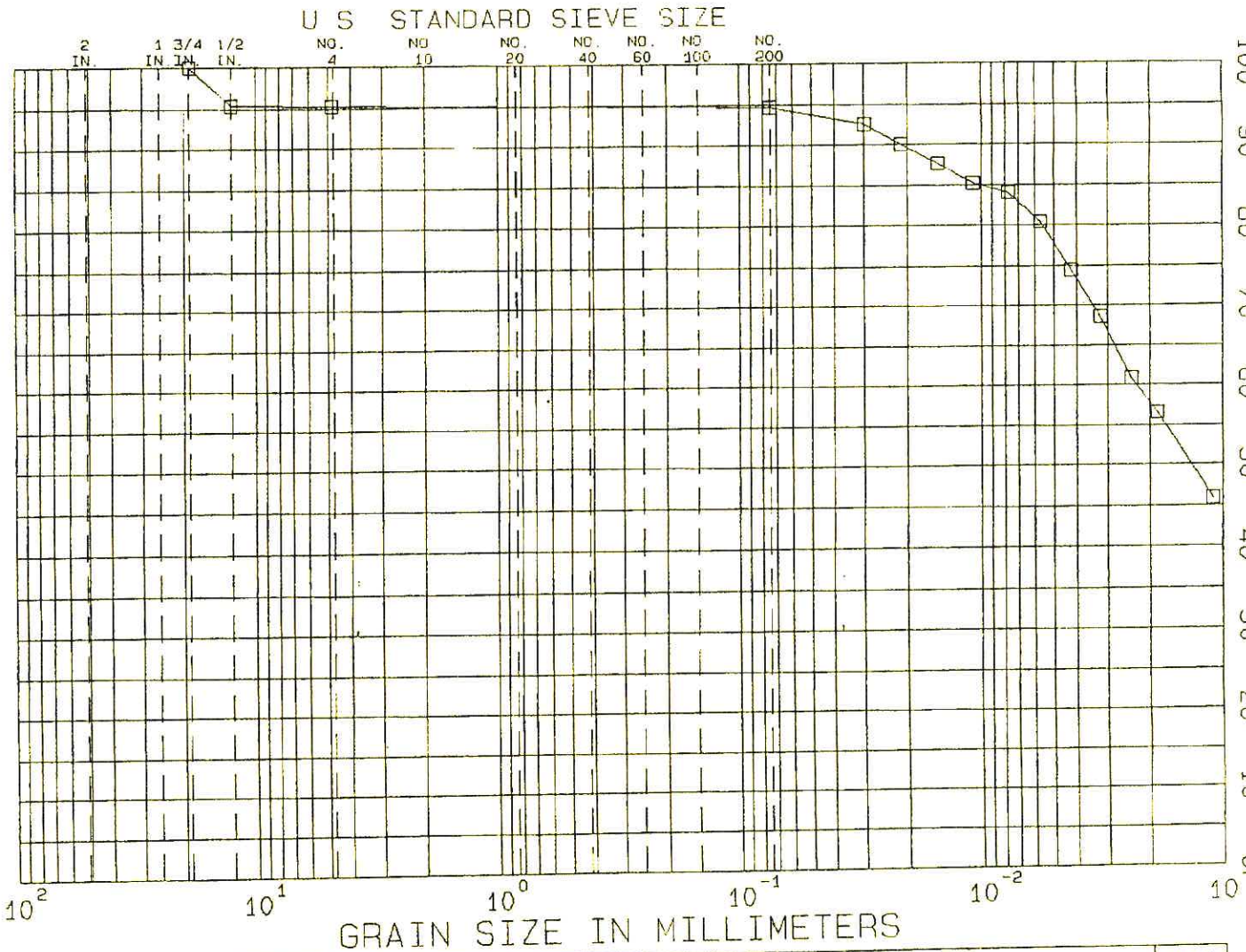
NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. S8-58
SAMPLE UP-1
DEPTH 80.0-80.5'
TECH. PEC
REVIEWER MBP

TEST SERIES NO 402
DATE Feb 04
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

APPENDIX E-9



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

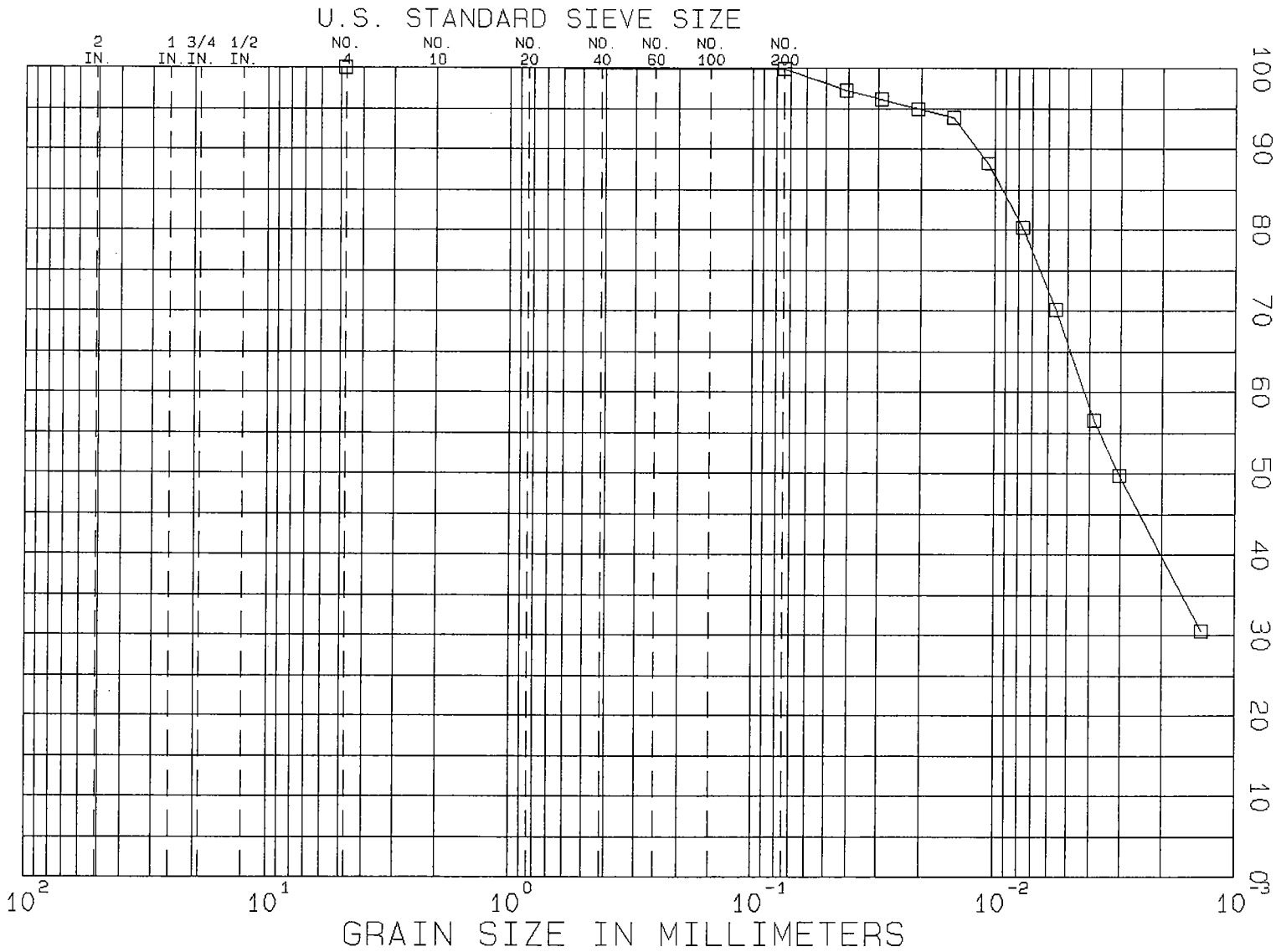
TEST NO.	MATERIAL SOURCE	REMARKS
S401.1	Boring No. SB-56 S.No.ST-1, D=30.0-32.0	Gray-brown Fat clay (CH)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-56
SAMPLE ST-1
DEPTH 30.0-32.0'
TECH. PEC
REVIEWER MBP

TEST SERIES NO. 401
DATE Feb.04
FILE L17926

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

TEST NO.	MATERIAL SOURCE	REMARKS
S132.1	Boring No. SB-56 S.No.S-15, D=55-56.5'	Brown Lean clay (CL)

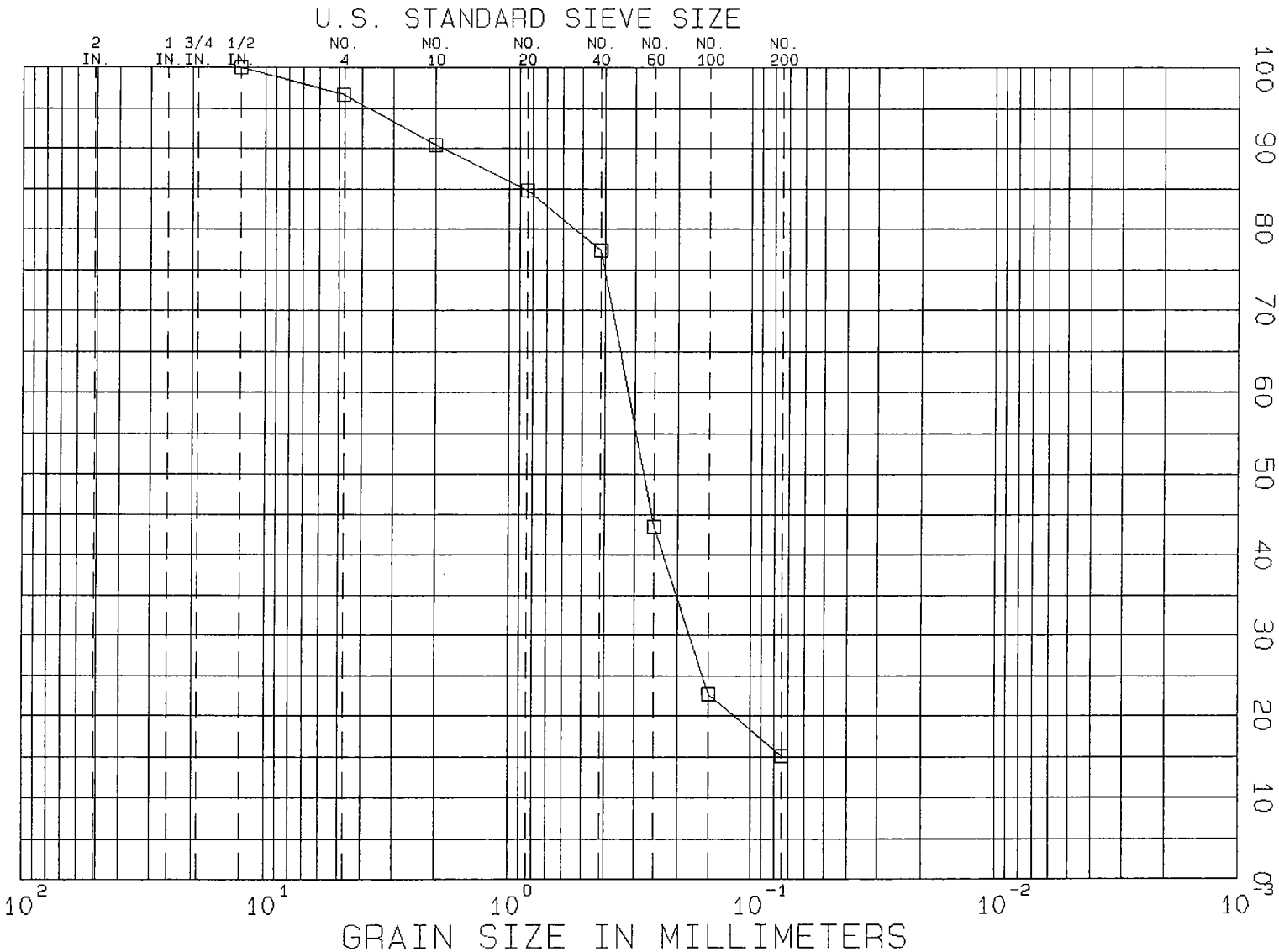
NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-56
SAMPLE S-15
DEPTH 55-56.5'
TECH. PEC
REVIEWER MBP

TEST SERIES
NO. 132
DATE Nov.03

FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

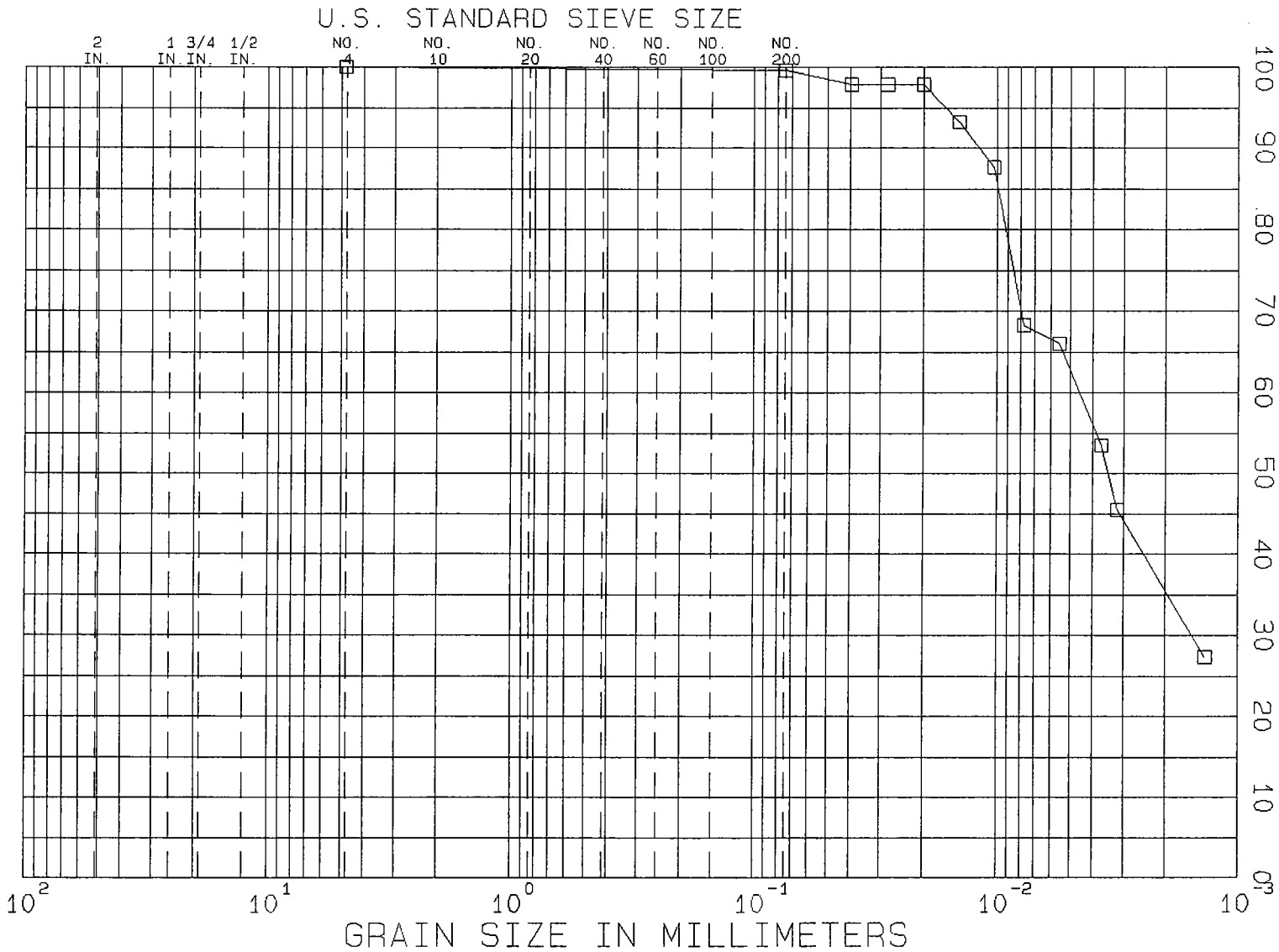
TEST NO.	MATERIAL SOURCE	REMARKS
S133.1	Boring No. SB-56 S.No.S-25, D=105-106.5'	Brown Silty sand (SM)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-56
SAMPLE S-25
DEPTH 105-106.5'
TECH. PEC
REVIEWER MBP

TEST SERIES NO. 133
DATE Nov.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

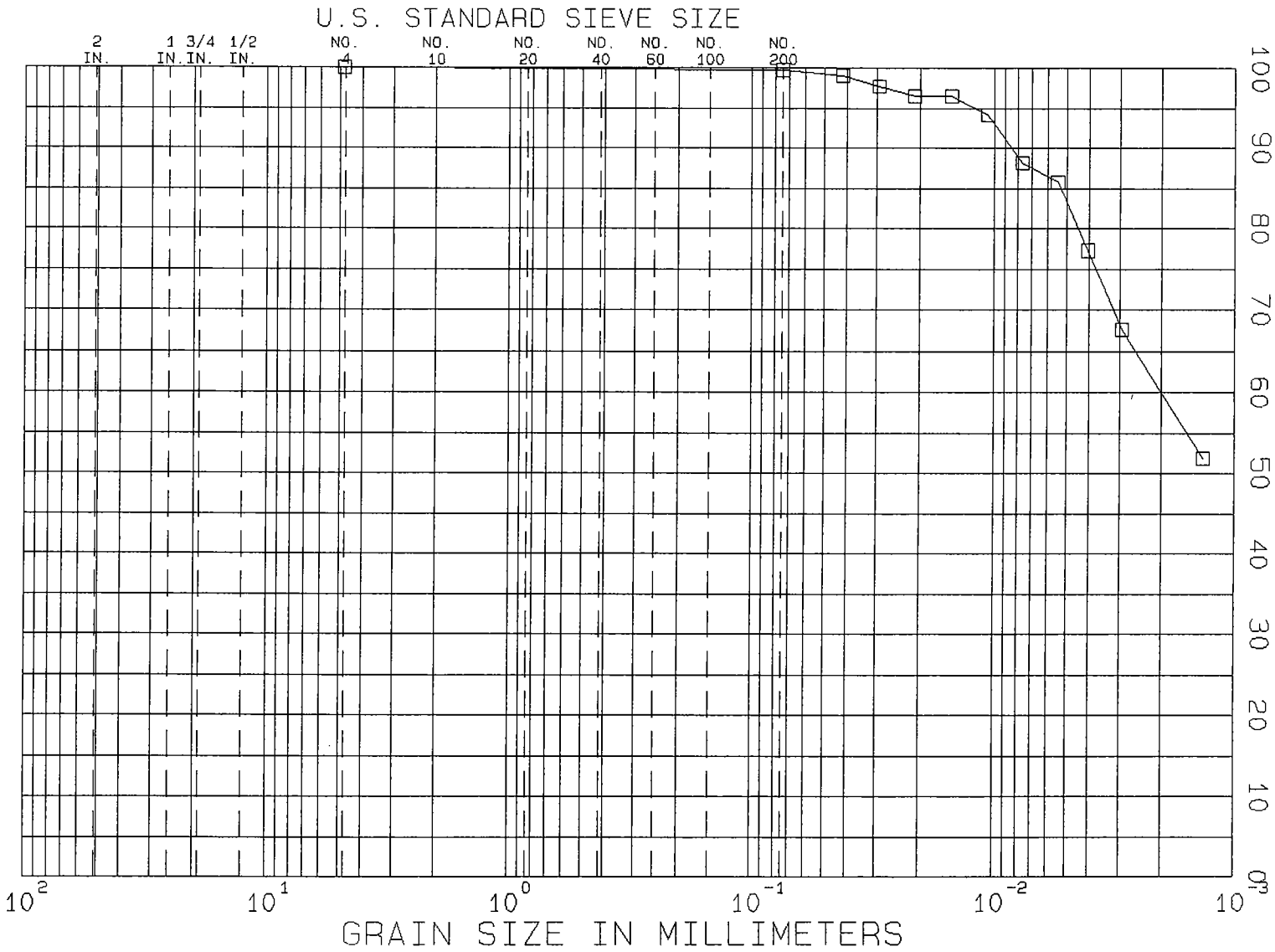
TEST NO.	MATERIAL SOURCE	REMARKS
S134.1	Boring No. SB-57 S.No.S-15, D=55-56.5'	Red-brown Lean clay (CL)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO SB-57
SAMPLE S-15
DEPTH 55-56.5'
TECH. PEC
REVIEWER MBP

TEST SERIES NO. 134
DATE Nov.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

TEST NO.	MATERIAL SOURCE	REMARKS
S135.1	Boring No. SB-58 S.No.S-14, D=50-51.5'	Brown Fat clay (CH)

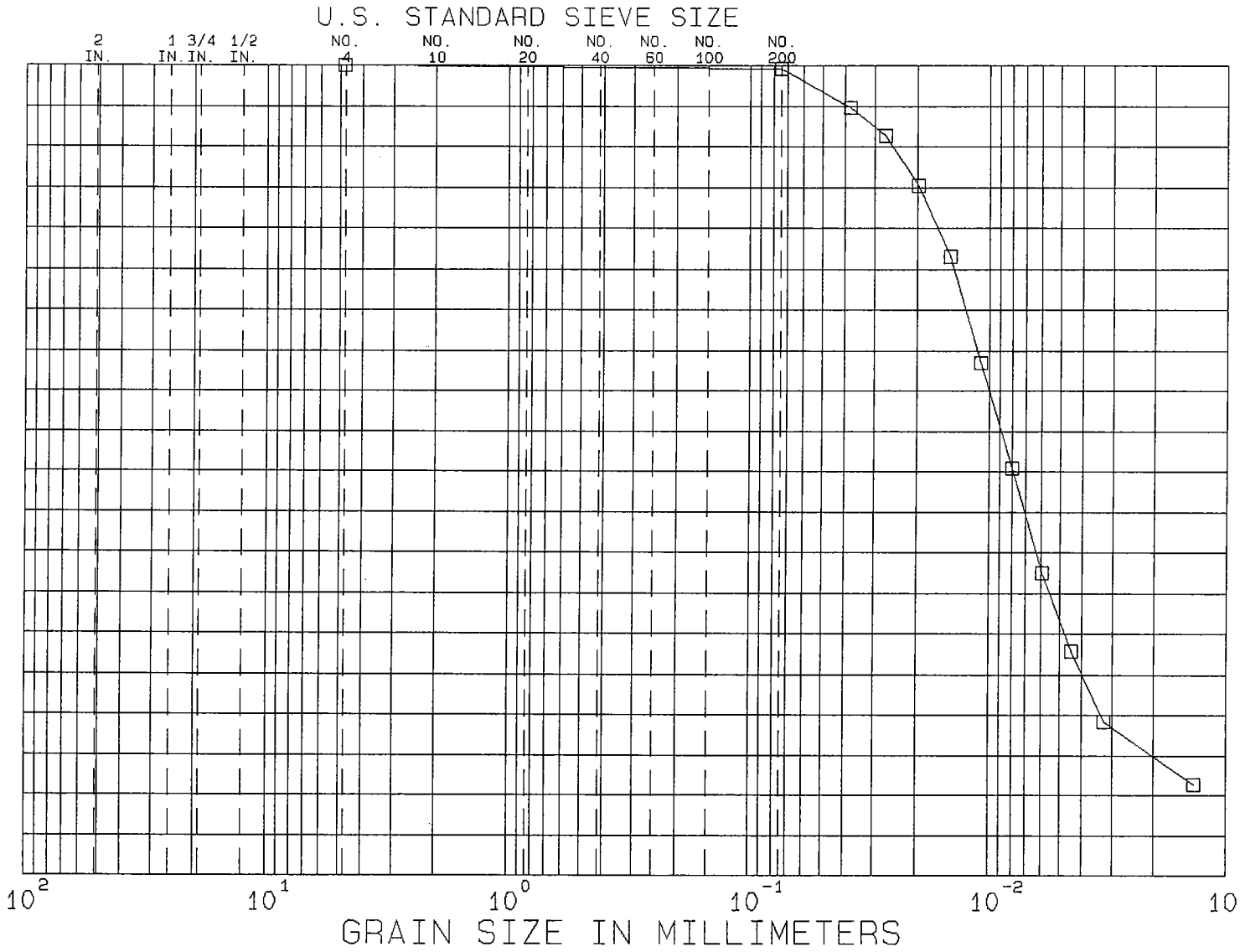
NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-58
SAMPLE S-14
DEPTH 50-51.5'
TECH. PEC
REVIEWER MBP

TEST SERIES NO. 135
DATE Nov.03

FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

TEST NO.	MATERIAL SOURCE	REMARKS
S136.1	Boring No. SB-58 S.No.S-21, D=90-91.5'	Red-brown Silt (ML)

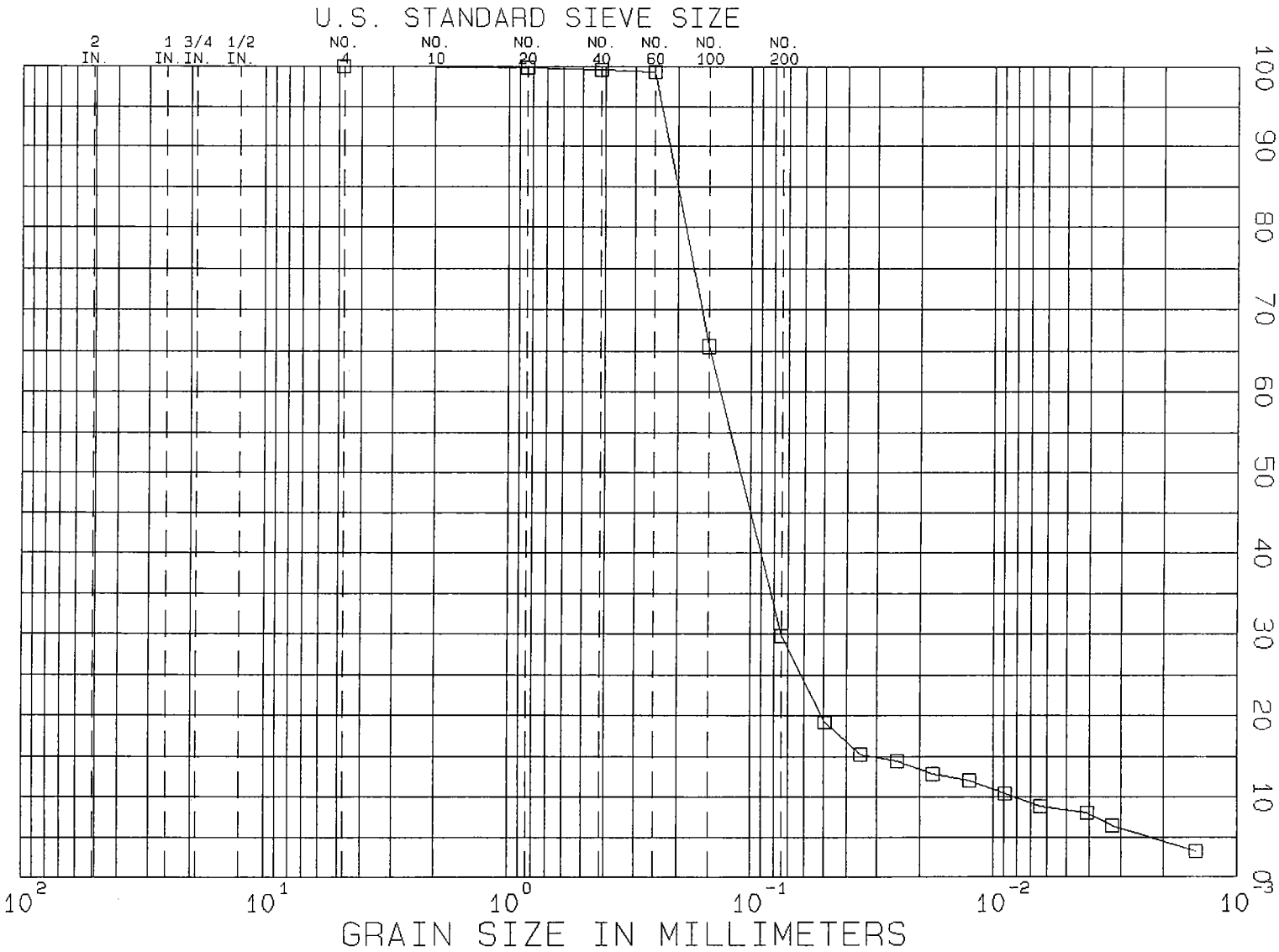
NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-58
SAMPLE S-21
DEPTH 90-91.5'
TECH. PEC
REVIEWER MBP

TEST SERIES NO. 136
DATE Nov.03

FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

TEST NO.	MATERIAL SOURCE	REMARKS
S137.1	Boring No. SB-58 S.No.S-25, D=110-111.5'	Red-brown Silty sand (SM)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

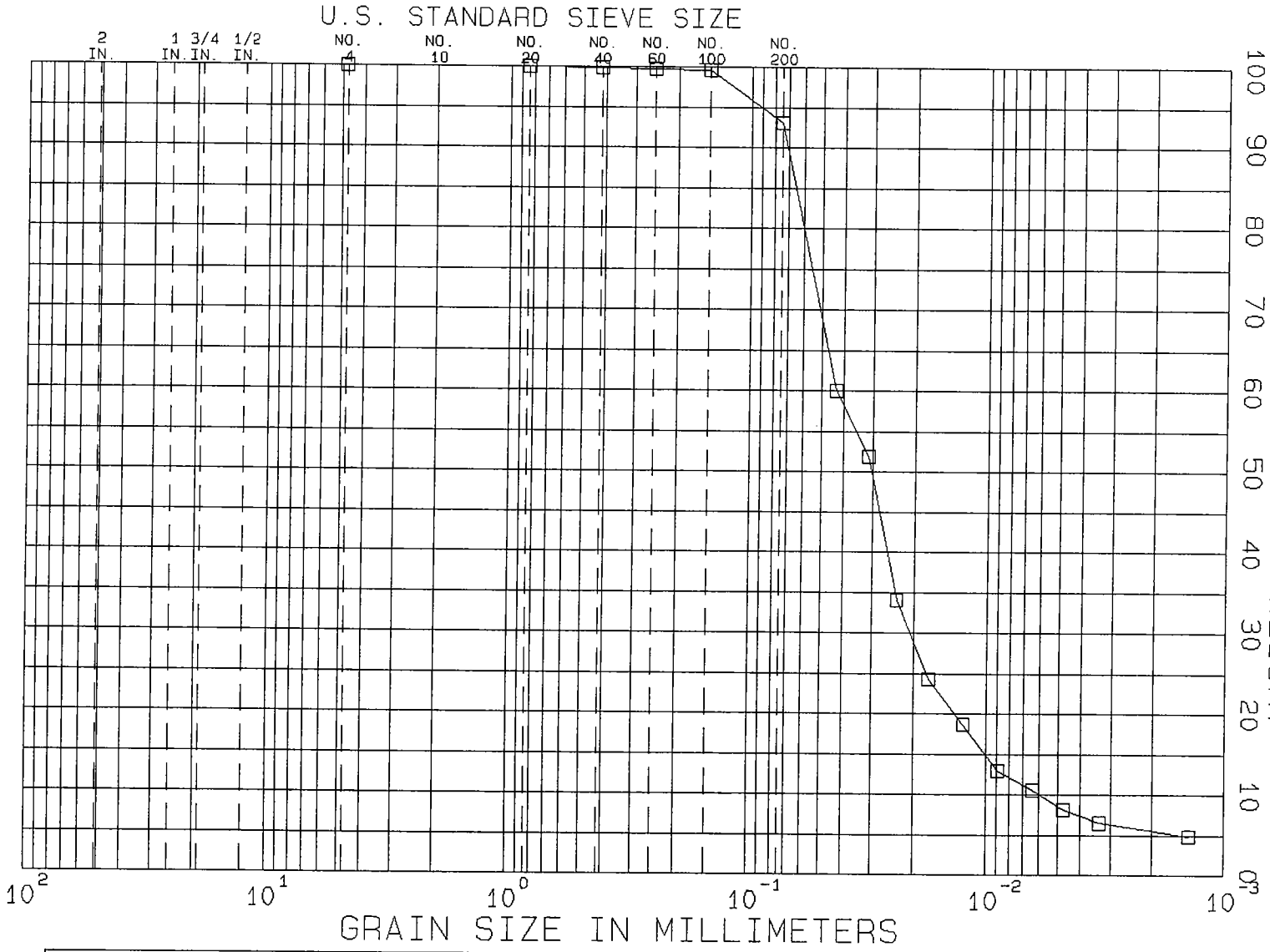
GRADATION TESTS

BORING NO. SB-58
SAMPLE S-25
DEPTH 110-111.5'
TECH. PEC
REVIEWER MBP

TEST SERIES NO. 137
DATE Nov.03

FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

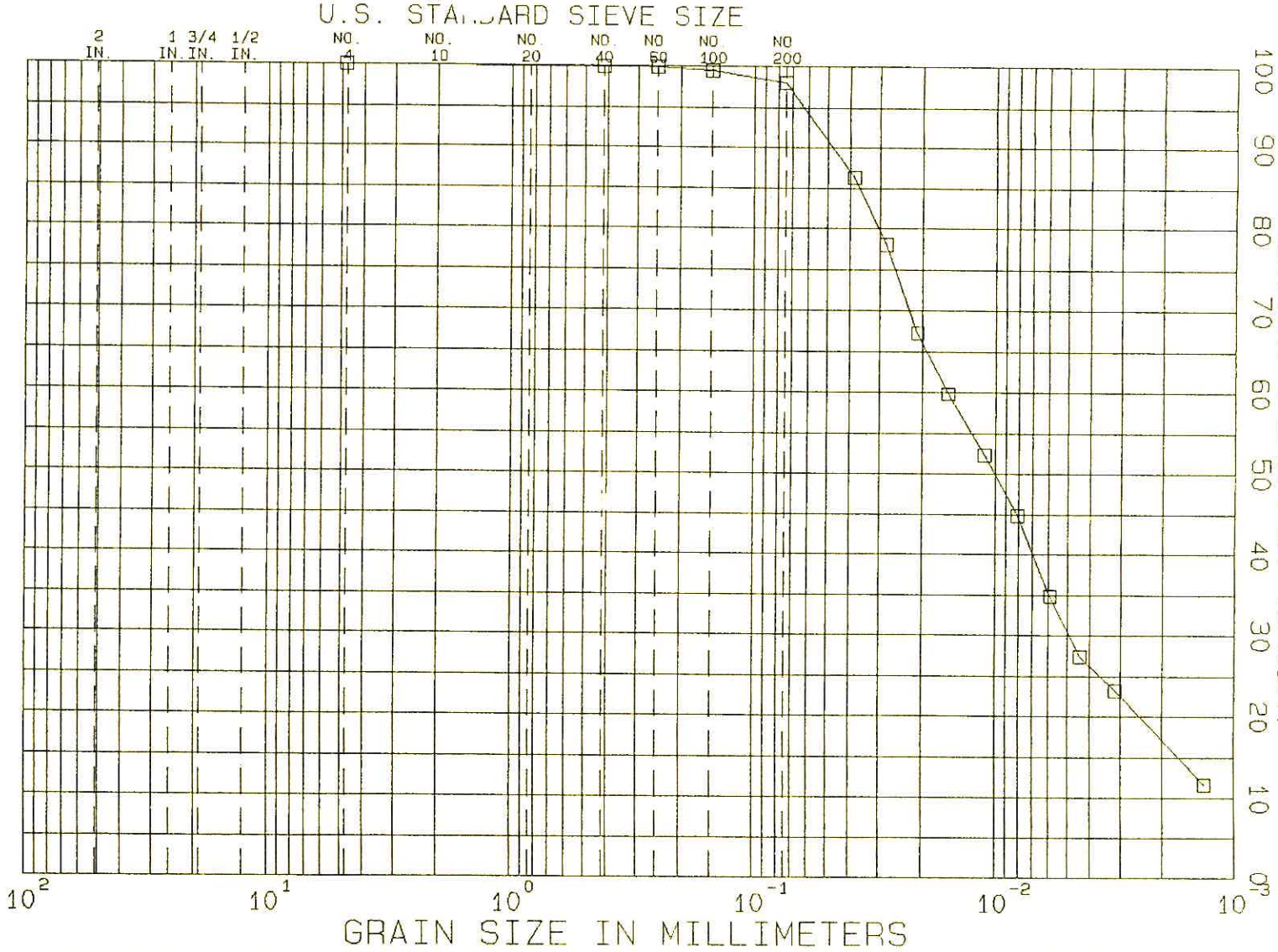
TEST NO.	MATERIAL SOURCE	REMARKS
S138.1	Boring No. SB-59 S-25&26 D=105-111.5'	Red-brown Silt (ML)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-59
SAMPLE S25&26
DEPTH 105-111.5'
TECH. PEC
REVIEWER MBP

TEST SERIES NO. 138
DATE Nov.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

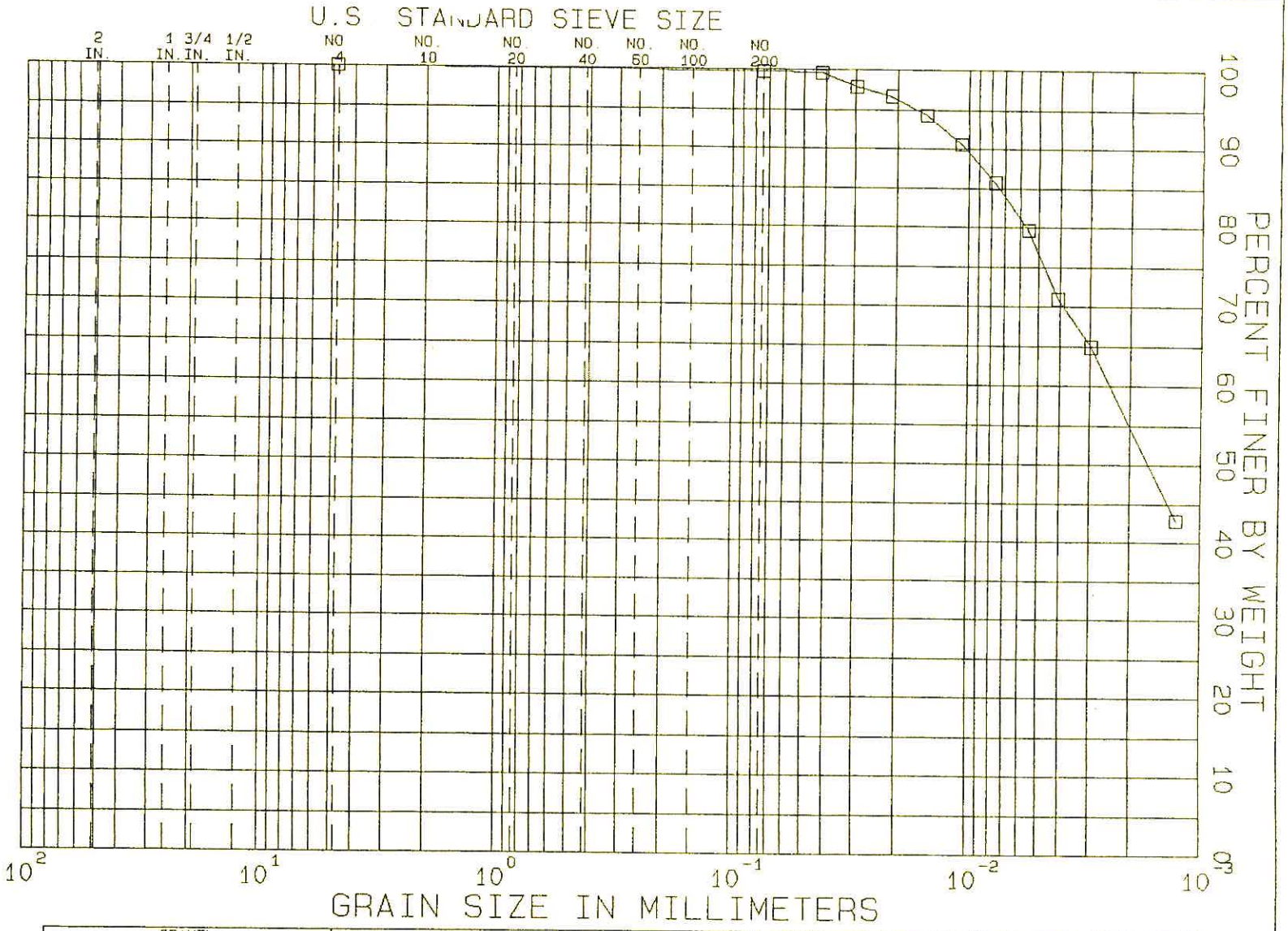
TEST NO.	MATERIAL SOURCE	REMARKS
S139.1	Boring No SB-60 S.No.S-5, D=13.5-15'	Gray Silt (ML)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-60
SAMPLE S-5
DEPTH 13.5-15'
TECH PEC
REVIEWER MBP

TEST SERIES NO. 139
DATE Nov.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

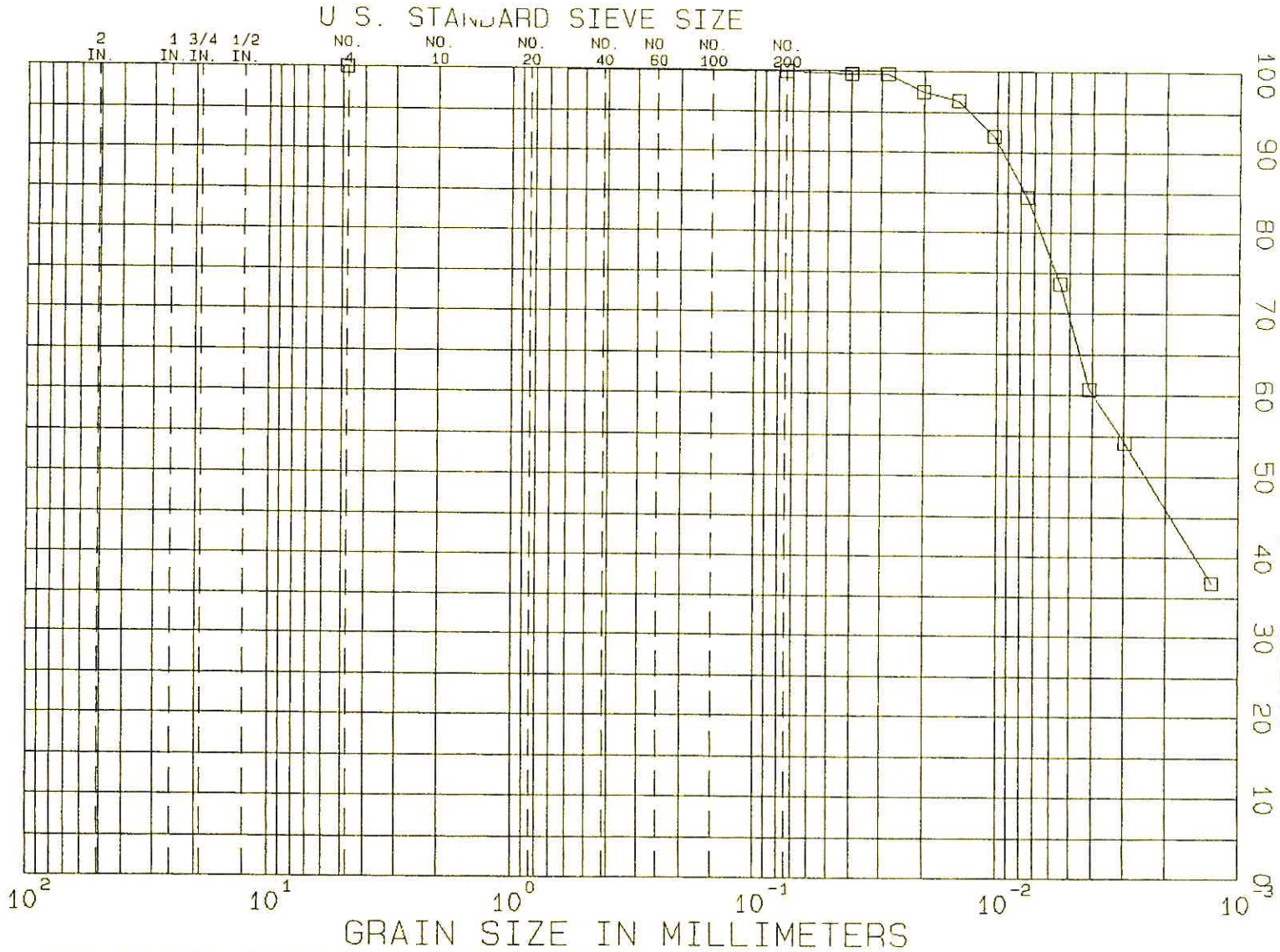
TEST NO.	MATERIAL SOURCE	REMARKS
S140.1	Boring No SB-60 S.No.S-11, D=35-36.5	Gray-brown Fat clay (CH)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-60
SAMPLE S-11
DEPTH 35-36.5'
TECH PEC
REVIEWER MBP

TEST SERIES NO. 140
DATE Nov.03
FILE L1782B

GZA GEOENVIRONMENTAL, INC
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

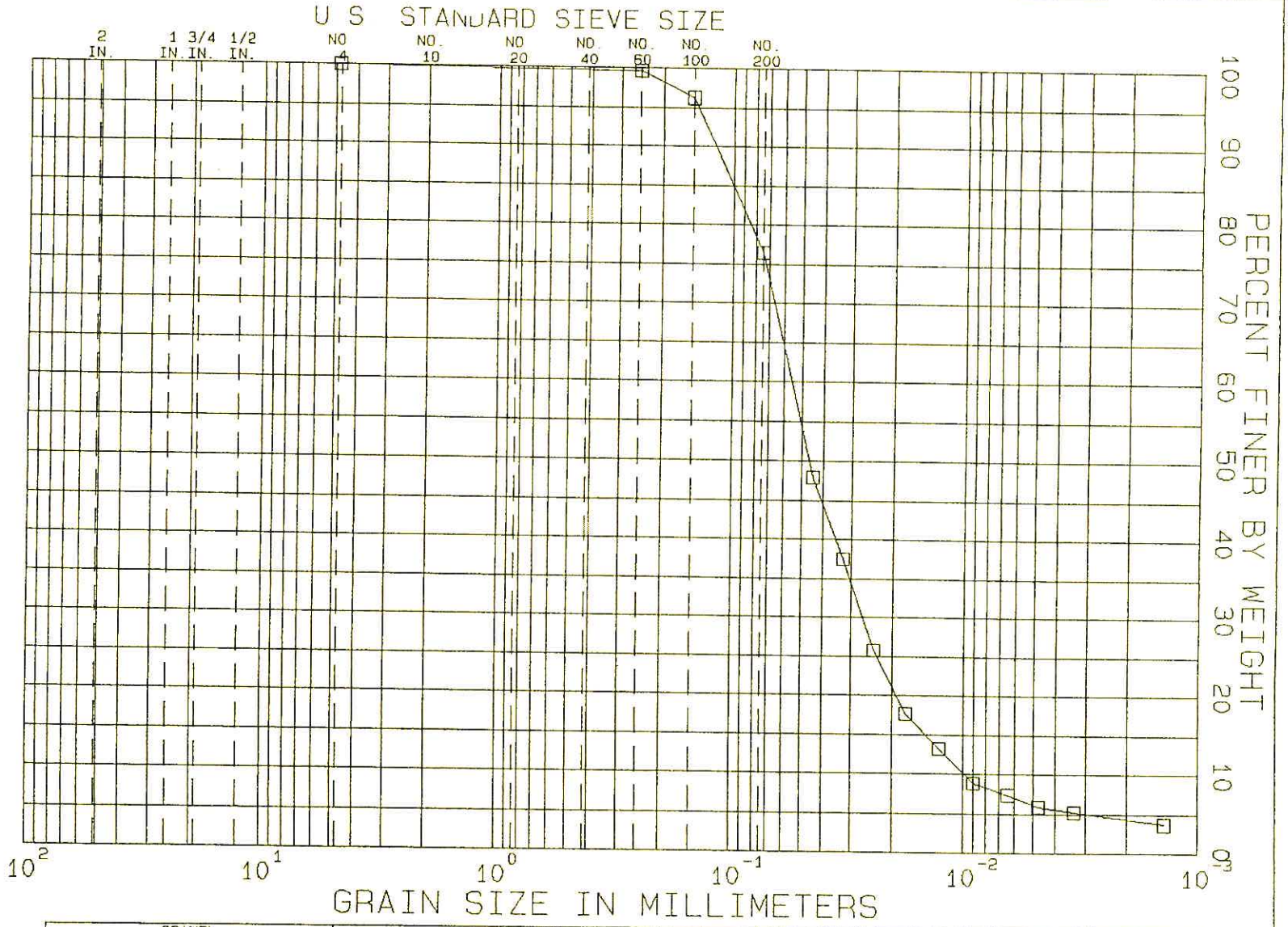
TEST NO.	MATERIAL SOURCE	REMARKS
S141.1	Boring No SB-60 S.No.S-18, D=70-71.5'	Red-brown Lean clay (CL)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-60
SAMPLE S-18
DEPTH 70-71 5'
TECH. PEC
REVIEWER MBP

TEST SERIES NO 141
DATE Nov 03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

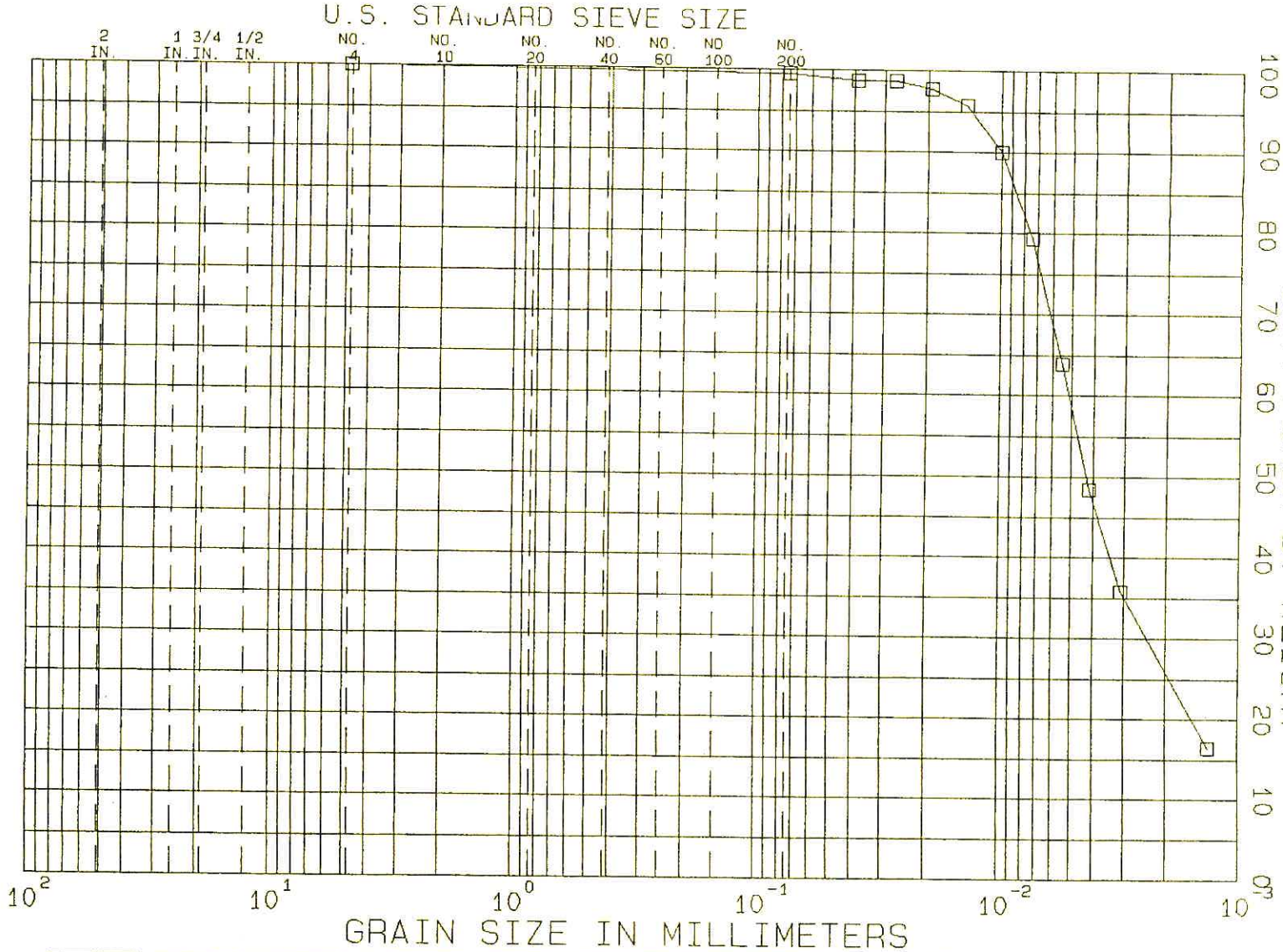
TEST NO.	MATERIAL SOURCE	REMARKS
S142 1	Boring No. SB-60 S.No.S-26, D=110-111.5'	Red-brown Silt with sand (ML)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-60
SAMPLE S-26
DEPTH 110-111.5'
TECH. PEC
REVIEWER MBP

TEST SERIES NO. 142
DATE Nov.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

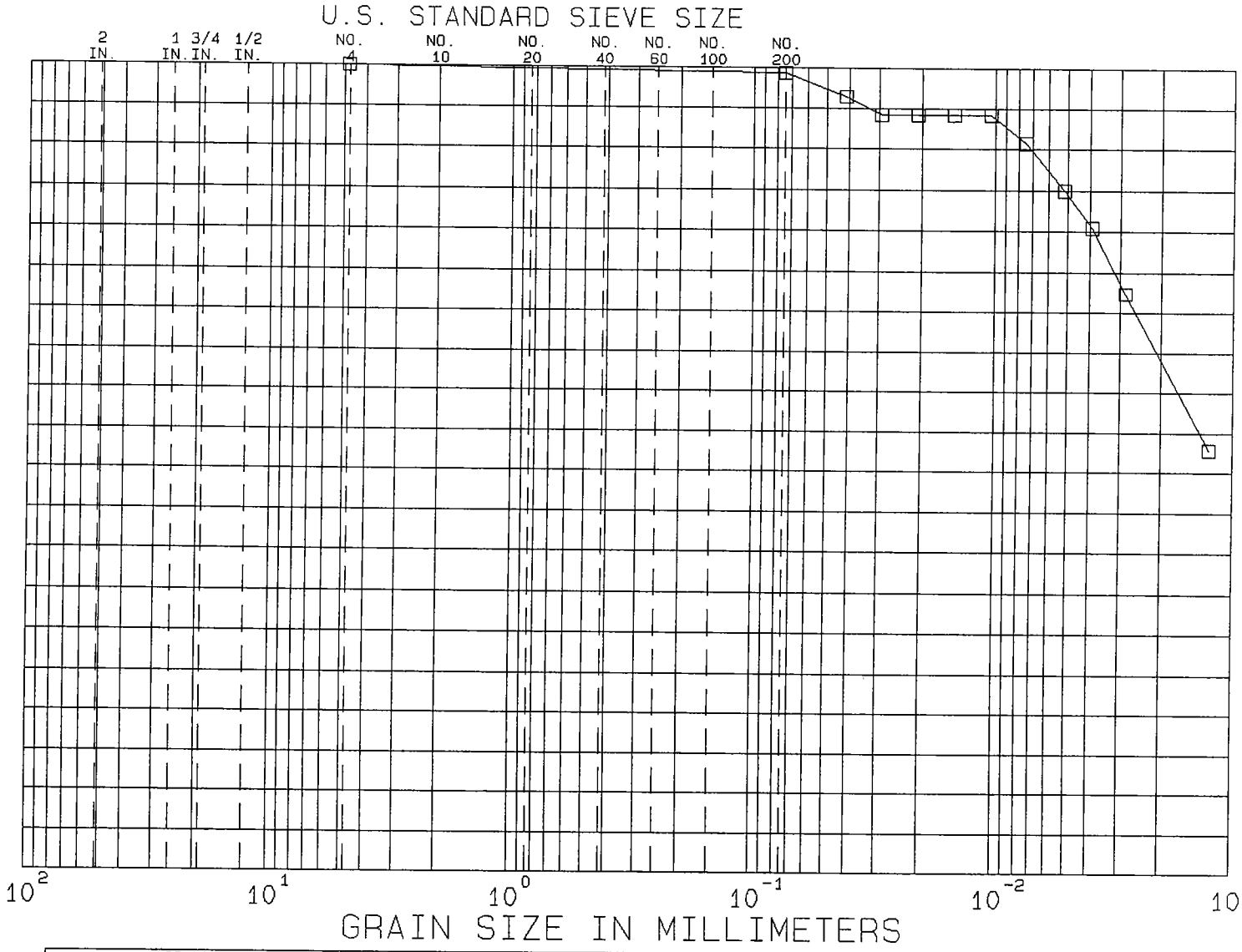
TEST NO.	MATERIAL SOURCE	REMARKS
S143.1	Boring No. SB-60 S.No.S-29, D=125-126.5'	Red-brown Silt (ML)

GZA GEOENVIRONMENTAL, INC
ENGINEERS AND SCIENTISTS

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-60
SAMPLE S-29
DEPTH 125-126.5
TECH PEC
REVIEWER MBP

TEST SERIES NO. 143
DATE Nov.03
FILE L17828



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

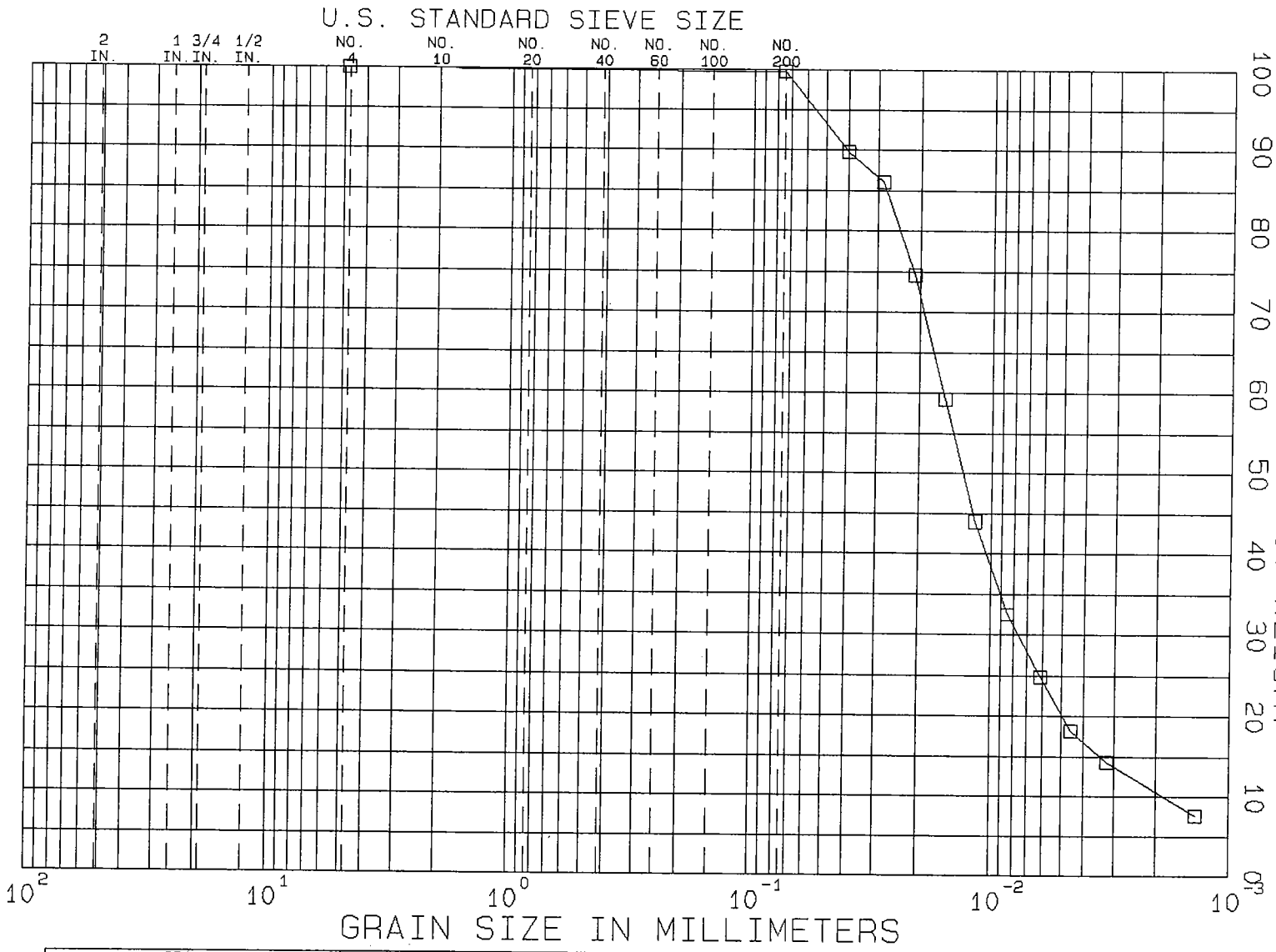
TEST NO.	MATERIAL SOURCE	REMARKS
S144.1	Boring No. SB-61 S.No.S-12, D=40-41.5'	Brown Fat clay (CH)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-61
SAMPLE S-12
DEPTH 40-41.5'
TECH. PEC
REVIEWER MBP

TEST SERIES NO. 144
DATE Nov.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

TEST NO.	MATERIAL SOURCE	REMARKS
S145.1	Boring No. SB-61 S.No.S-22, D=90-91.5'	Red-brown Silt (ML)

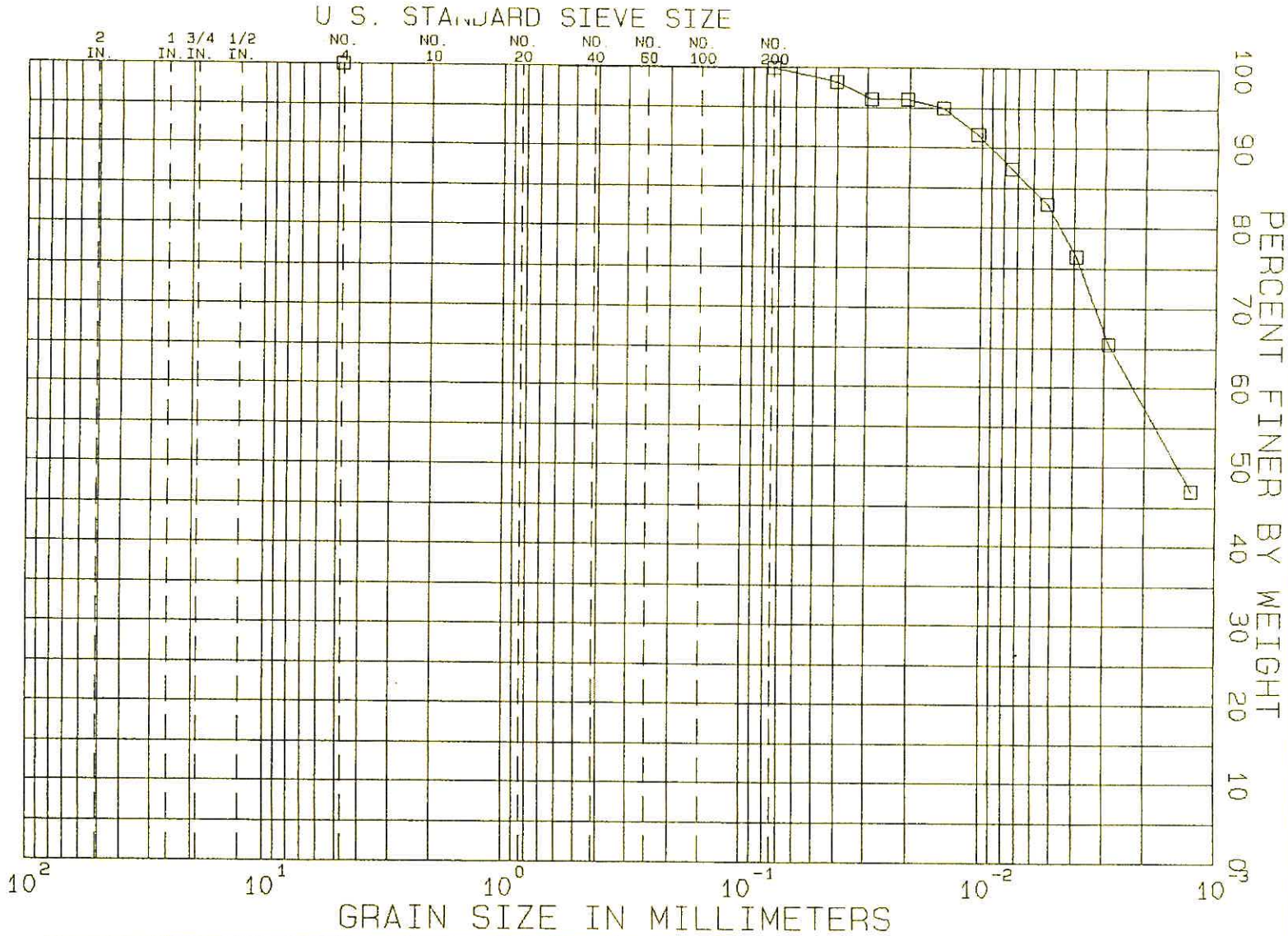
NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-61
SAMPLE S-22
DEPTH 90-91.5'
TECH. PEC
REVIEWER MBP

TEST SERIES NO. 145
DATE Nov.03

FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

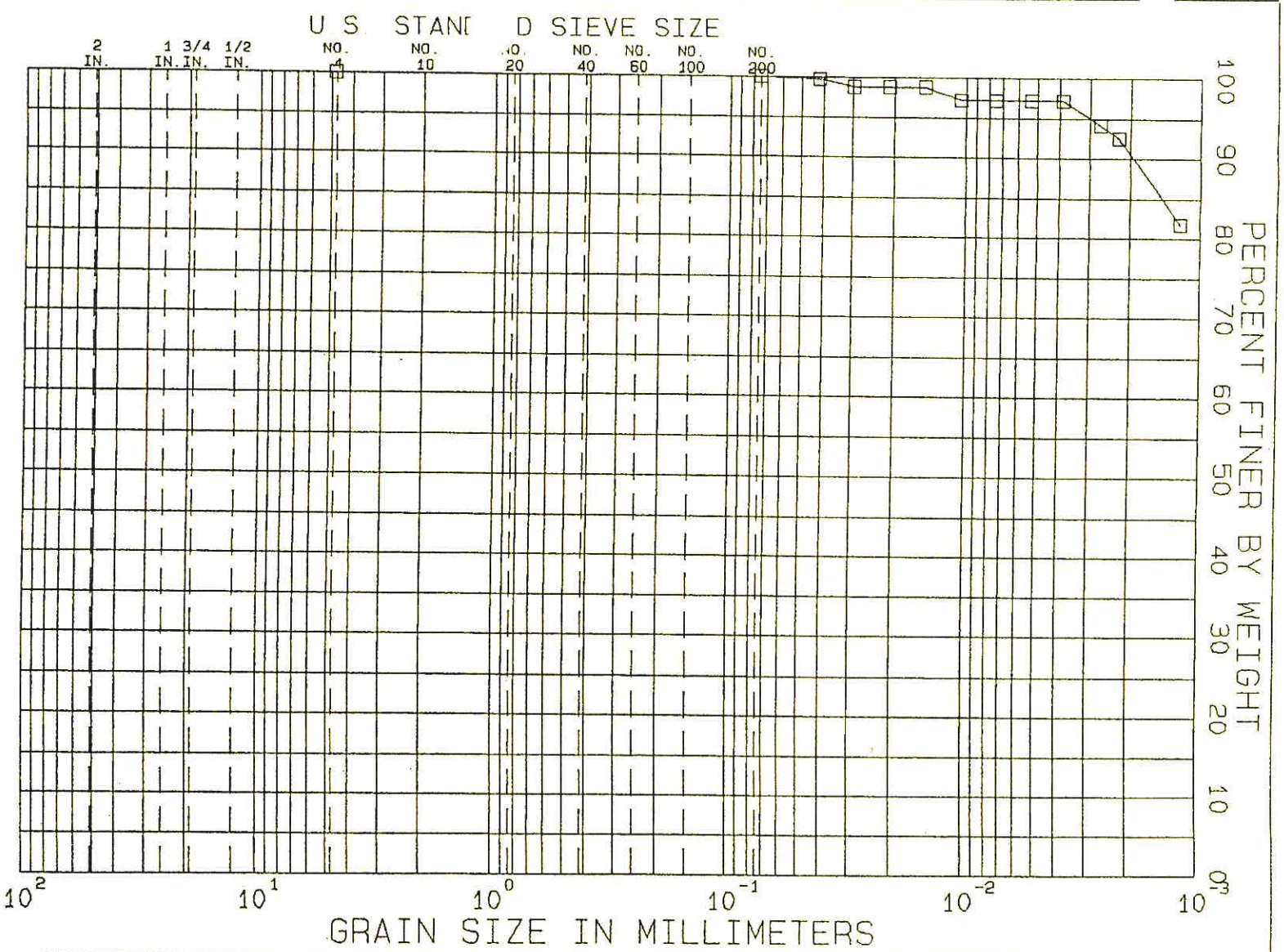
TEST NO	MATERIAL SOURCE	REMARKS
S146.1	Boring No. SB-62 S.No.S-11, D=35-36.5'	Brown Fat clay (CH)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-62
SAMPLE S-11
DEPTH 35-36.5'
TECH PEC
REVIEWER MBP

TEST SERIES NO. 146
DATE Nov.03
FILE L17828

GZA GEOENVIRONMENTAL, INC
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

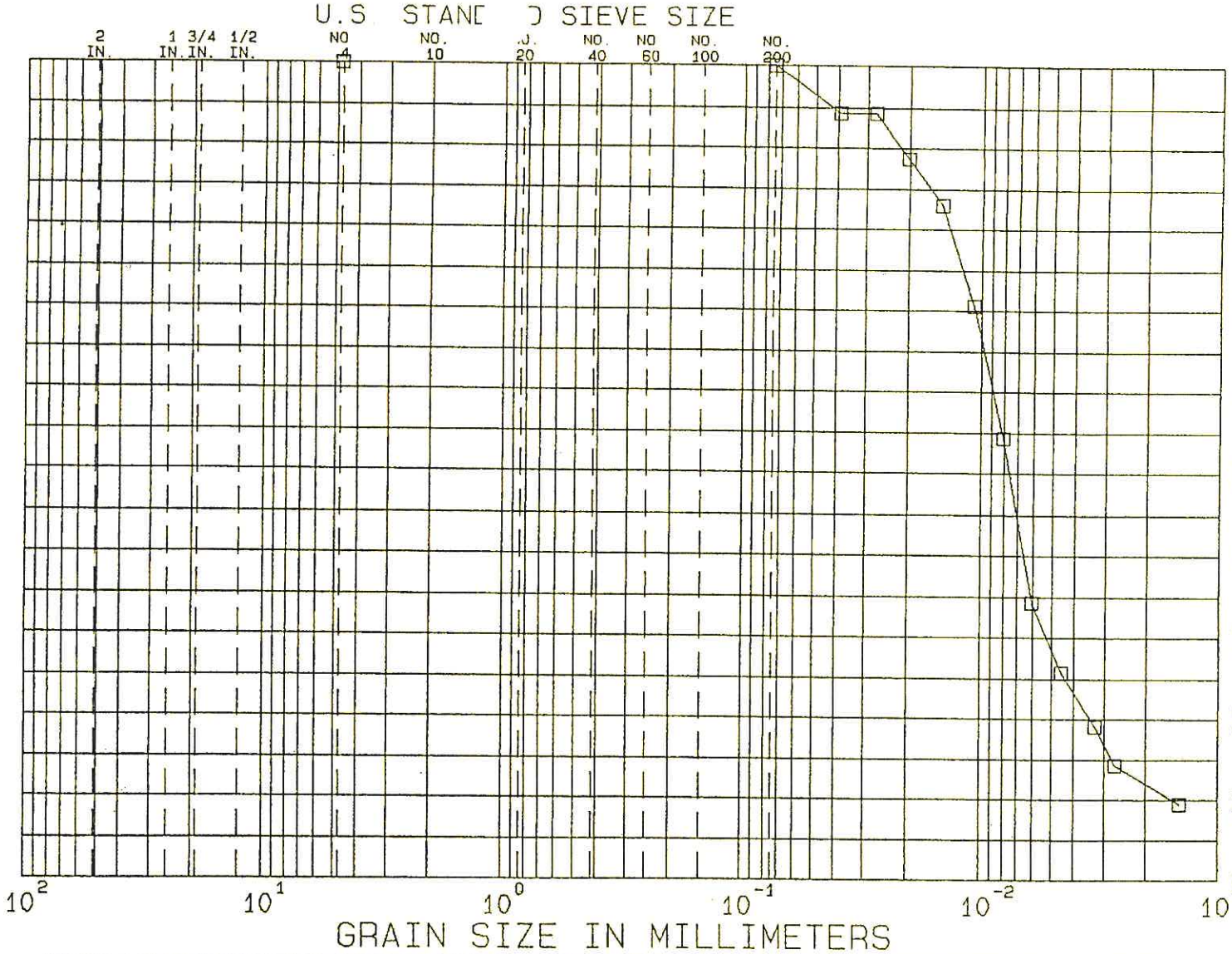
TEST NO.	MATERIAL SOURCE	REMARKS
S391.1	Boring No. SB-62 S.No.UP-1, D=61.3'	Red-brown Fat clay (CH)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-62
SAMPLE UP-1
DEPTH 61.3'
TECH. PEC
REVIEWER MBP

TEST SERIES NO. 391
DATE NOV.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

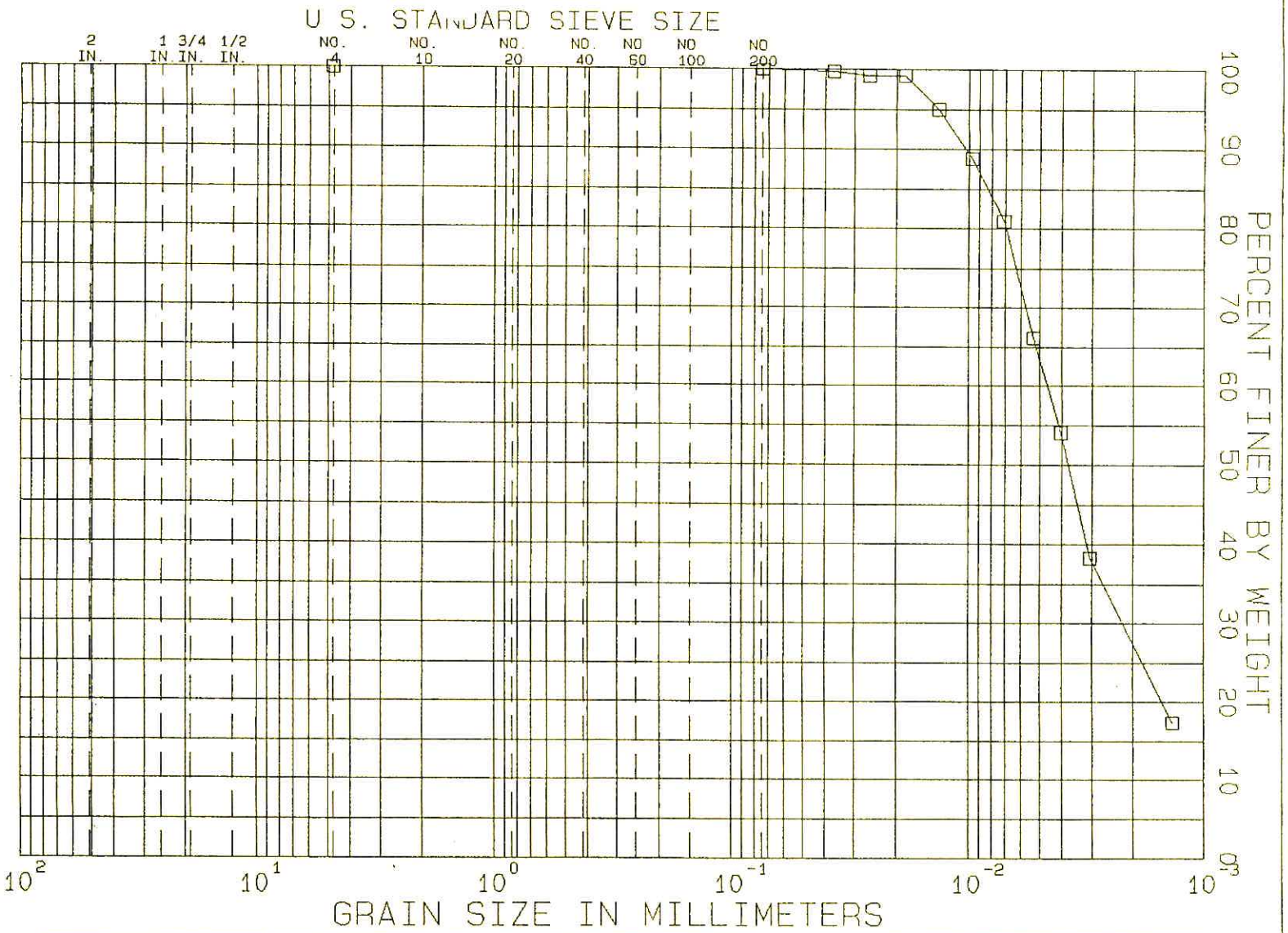
TEST NO.	MATERIAL SOURCE	REMARKS
S391.2	Boring No. SB-62 S.No.UP-1, D=61.4'	Gray-brown Silt (ML)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-62
SAMPLE UP-1
DEPTH 61.4
TECH. PEC
REVIEWER MBP

TEST SERIES NO. 391
DATE Nov.03
FILE L17628

GZA GEOENVIRONMENTAL, INC
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

TEST NO	MATERIAL SOURCE	REMARKS
S147.1	Boring No SB-62 S.No.S-20, D=85-86.5'	Red-brown Silt (ML)

NEW BRITAIN-HARTFORD BUSWAY

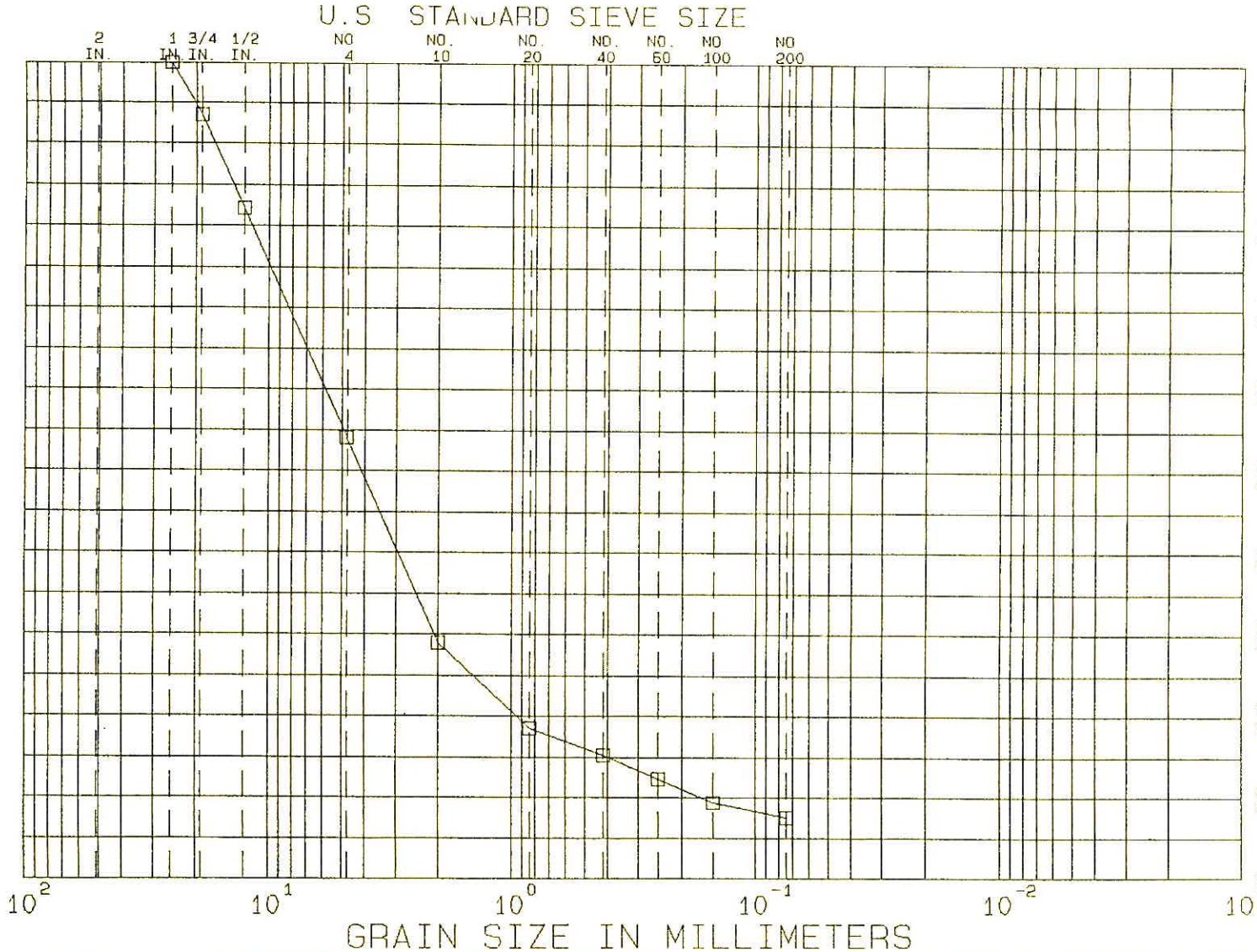
CONNECTICUT

GRADATION TESTS

BORING NO SB-62
SAMPLE S-20
DEPTH 85-86.5'
TECH PEC
REVIEWER MBP

TEST SERIES NO 147
DATE Nov 03
FILE L17828

GZA GEOENVIRONMENTAL, INC
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

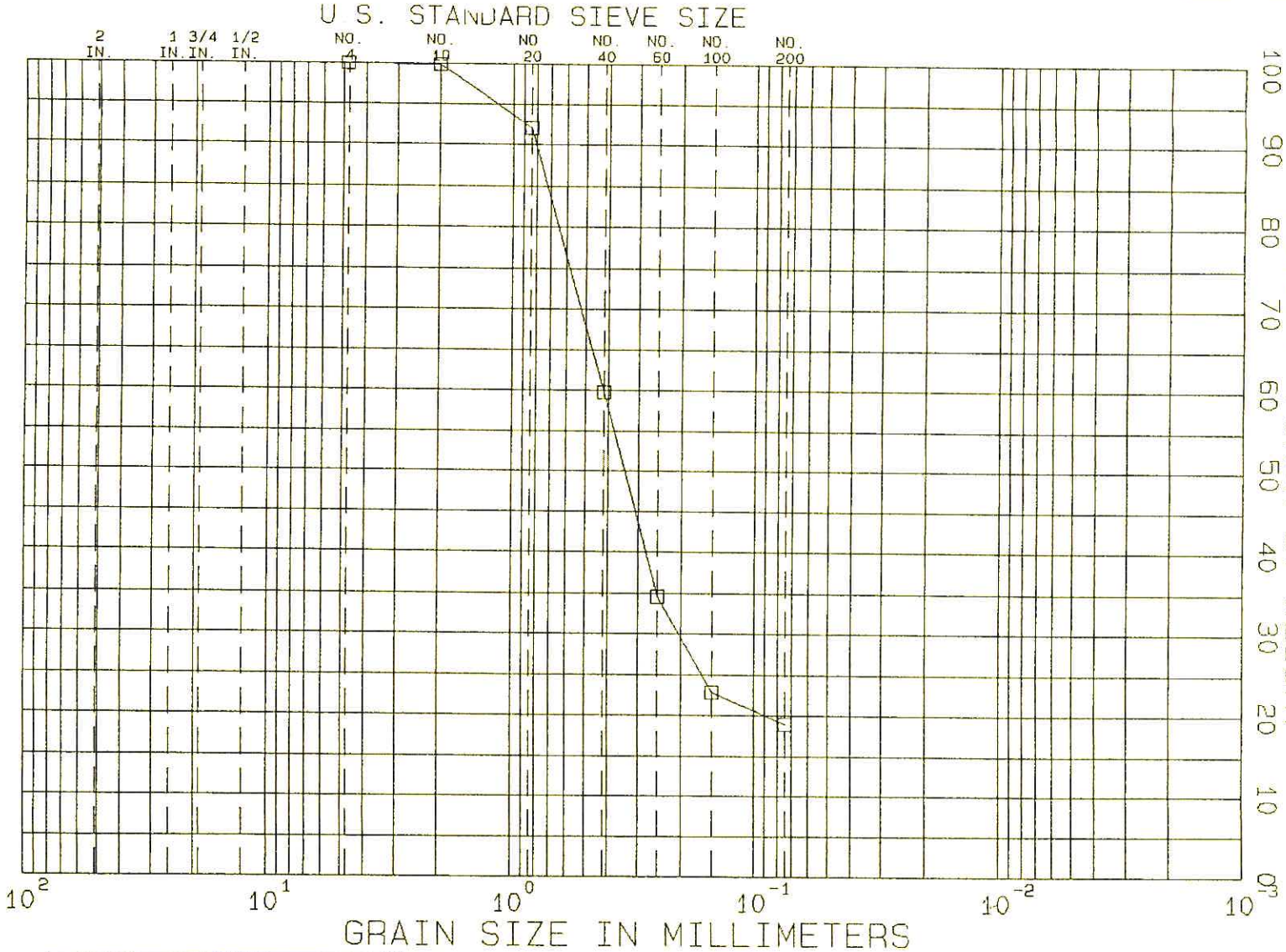
TEST NO.	MATERIAL SOURCE	REMARKS
S148.1	Boring No S8-62 S.No.S-26, D=115-116.5'	Red-brown Poorly graded sand with silt and gravel (SP-SM)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. S8-62
SAMPLE S-26
DEPTH 115-116.5
TECH. PEC
REVIEWER MBP

TEST SERIES NO. 148
DATE Nov.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

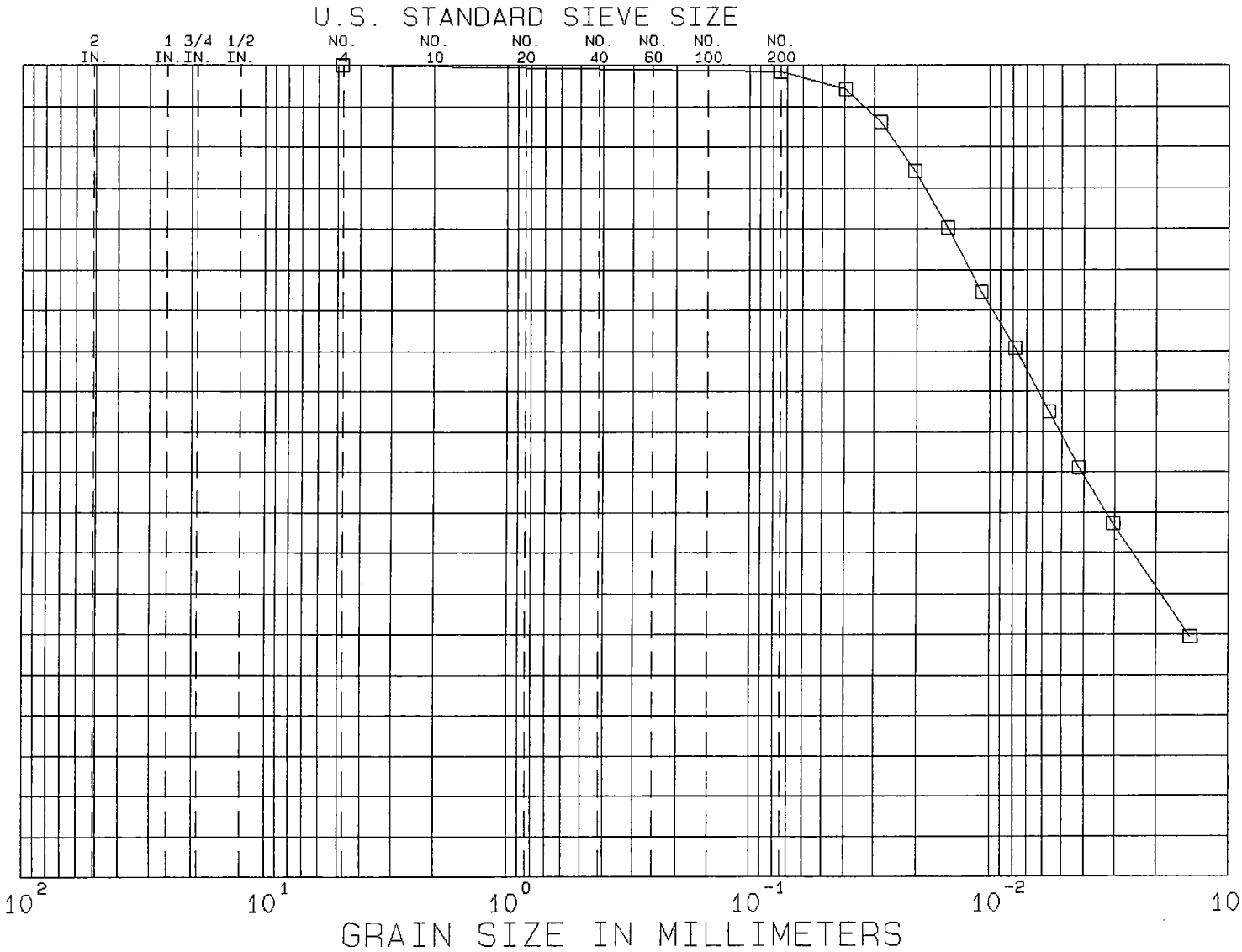
TEST NO.	MATERIAL SOURCE	REMARKS
S149.1	Boring No SB-62 S.No.S-27, D=120-121.5'	Red-brown Silty sand (SM)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-62
SAMPLE S-27
DEPTH 120-121.5
TECH. PEC
REVIEWER MBP

TEST SERIES NO. 149
DATE Nov 03
FILE L17828

GZA GEOENVIRONMENTAL, INC
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

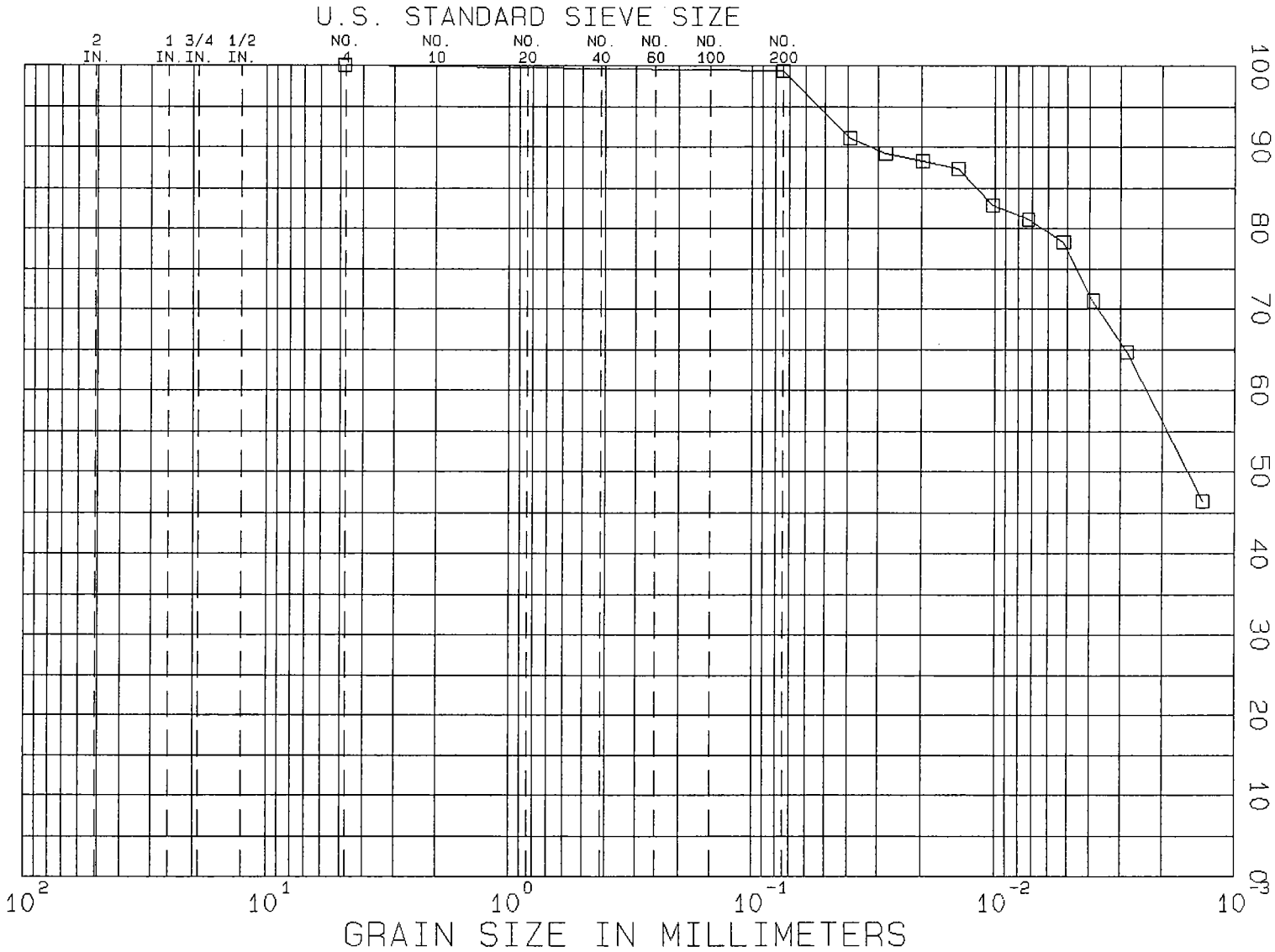
TEST NO.	MATERIAL SOURCE	REMARKS
S150.1	Boring No. SB-63 S.No.S-6, D=16.5-18'	Gray-brown Lean clay (CL)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-63
SAMPLE S-6
DEPTH 16.5-18'
TECH. PEC
REVIEWER MBP

TEST SERIES NO. 150
DATE Nov.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

TEST NO.	MATERIAL SOURCE	REMARKS
S151.1	Boring No. SB-63 S.No.S-14, D=50-51.5'	Brown Fat clay (CH)

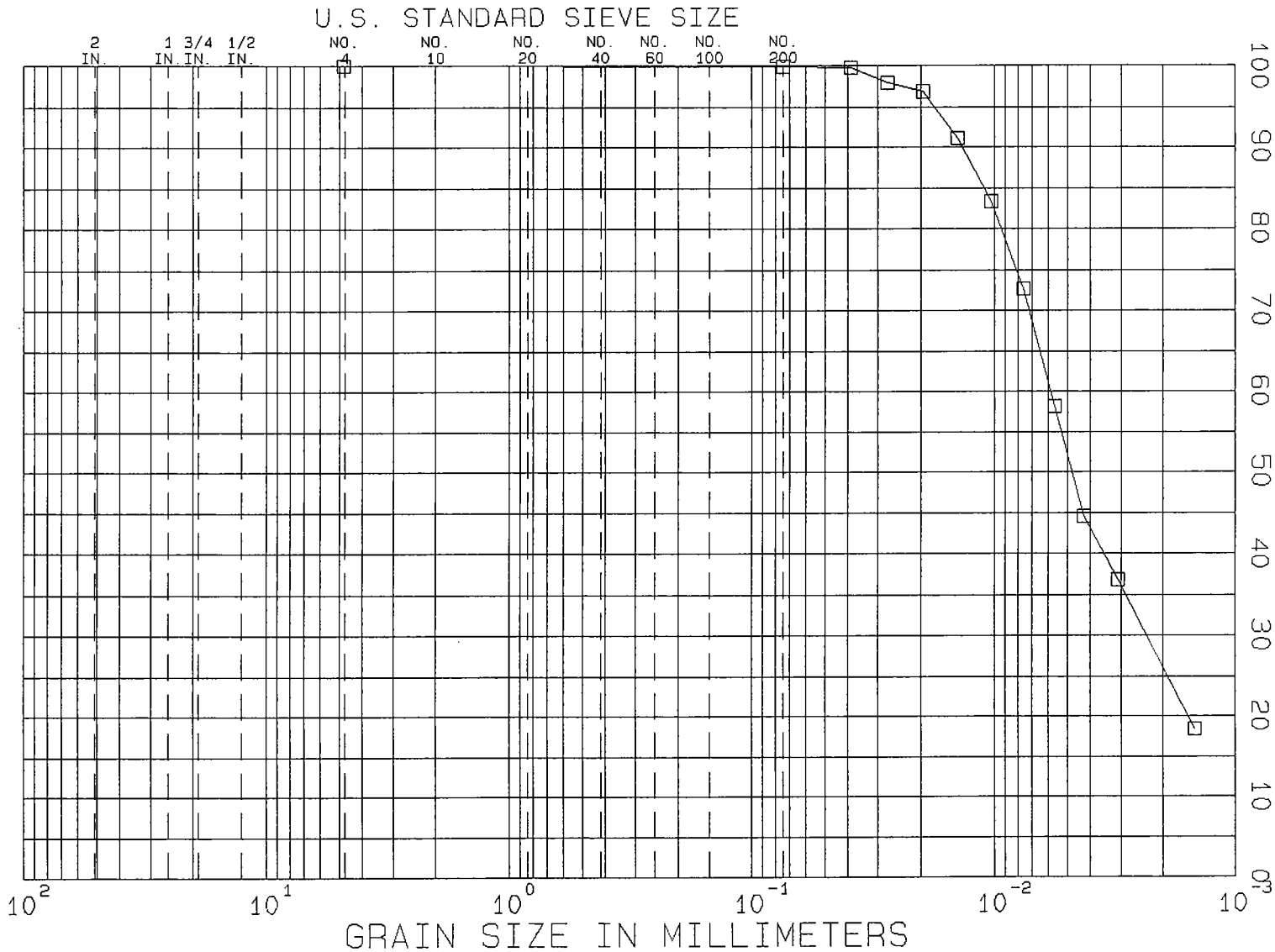
NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

GRADATION TESTS

BORING NO. SB-63
SAMPLE S-14
DEPTH 50-51.5'
TECH. PEC
REVIEWER MBP

TEST SERIES NO. 151
DATE Nov.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

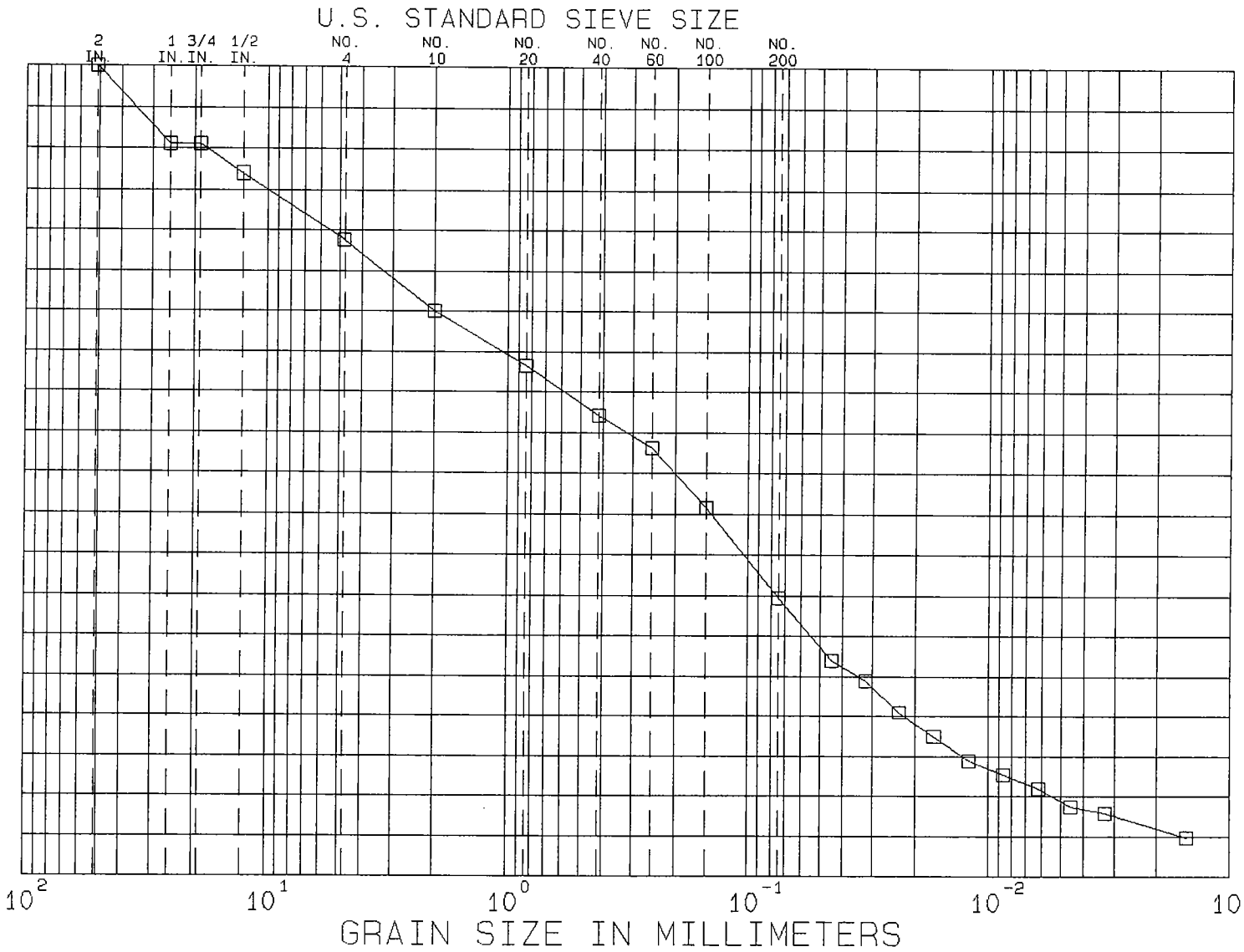
TEST NO.	MATERIAL SOURCE	REMARKS
S152.1	Boring No. SB-63 S.No.S-22, D=90-91.5'	Red-brown Silt (ML)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-63
SAMPLE S-22
DEPTH 90-91.5'
TECH. PEC
REVIEWER MBP

TEST SERIES NO. 152
DATE Nov.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

TEST NO.	MATERIAL SOURCE	REMARKS
S153.1	Boring No. SB-63 S.No.S-31, D=135-136.5'	Red-brown Silty sand with gravel (SM)

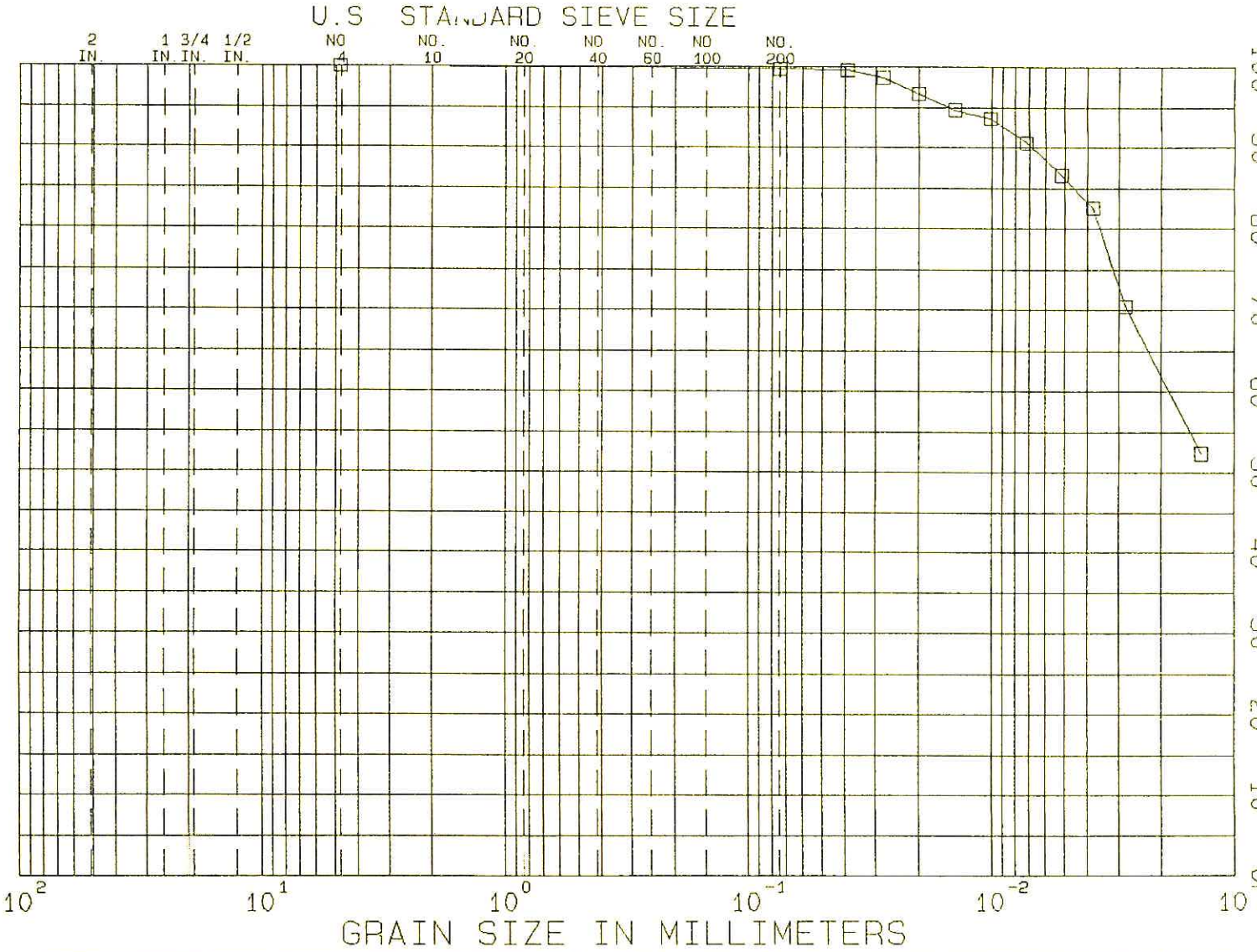
NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

GRADATION TESTS

BORING NO. SB-63
SAMPLE S-31
DEPTH 135-136.5'
TECH. PEC
REVIEWER MBP

TEST SERIES NO. 153
DATE Nov.03
FILE L17028

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

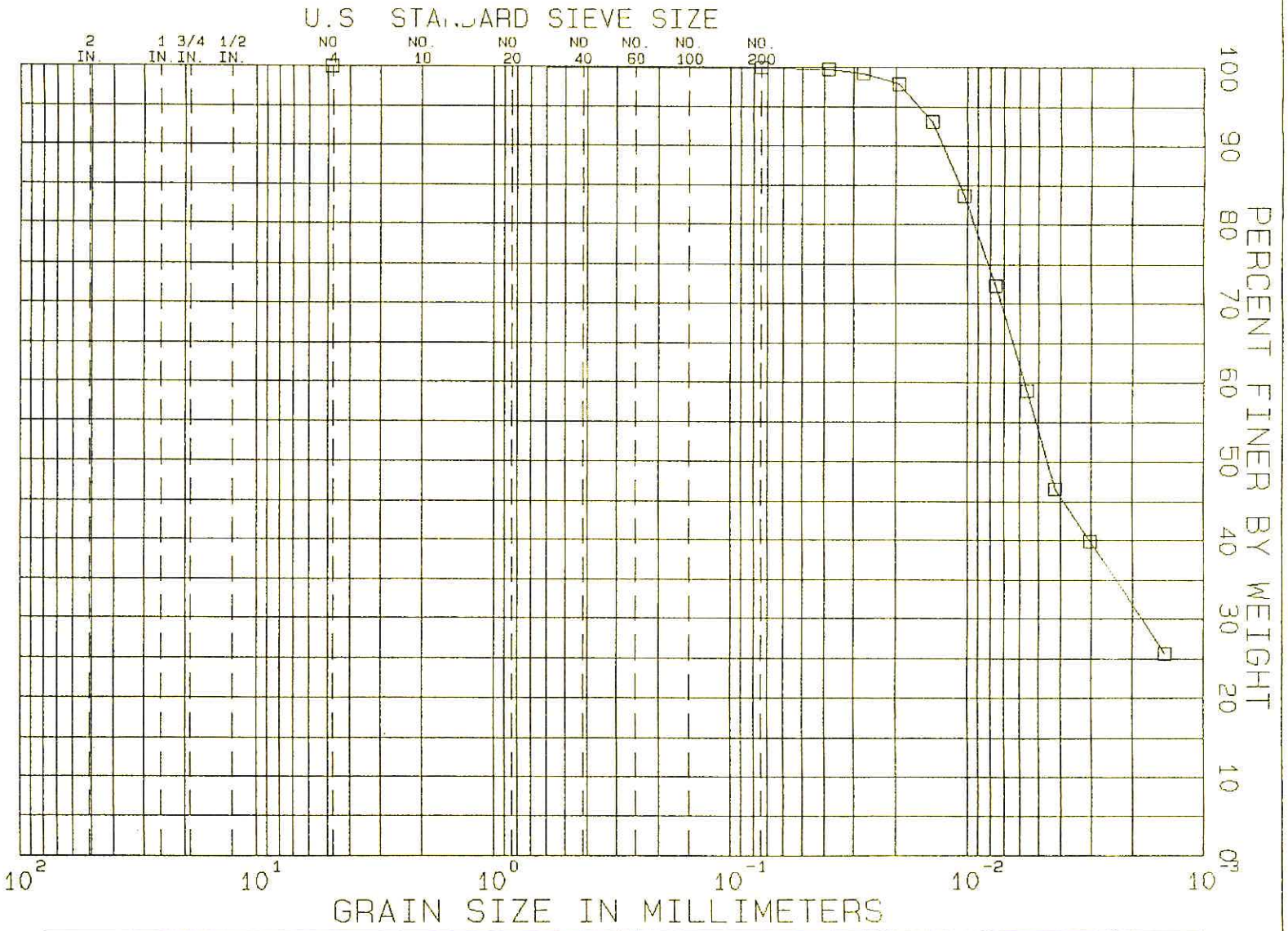
TEST NO.	MATERIAL SOURCE	REMARKS
S154 1	Boring No. SB-64 S.No.S-10, D=28.5-30'	Brown Fat clay (CH)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-64
SAMPLE S-10
DEPTH 28.5-30'
TECH PEC
REVIEWER MBP

TEST SERIES NO. 154
DATE Nov.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

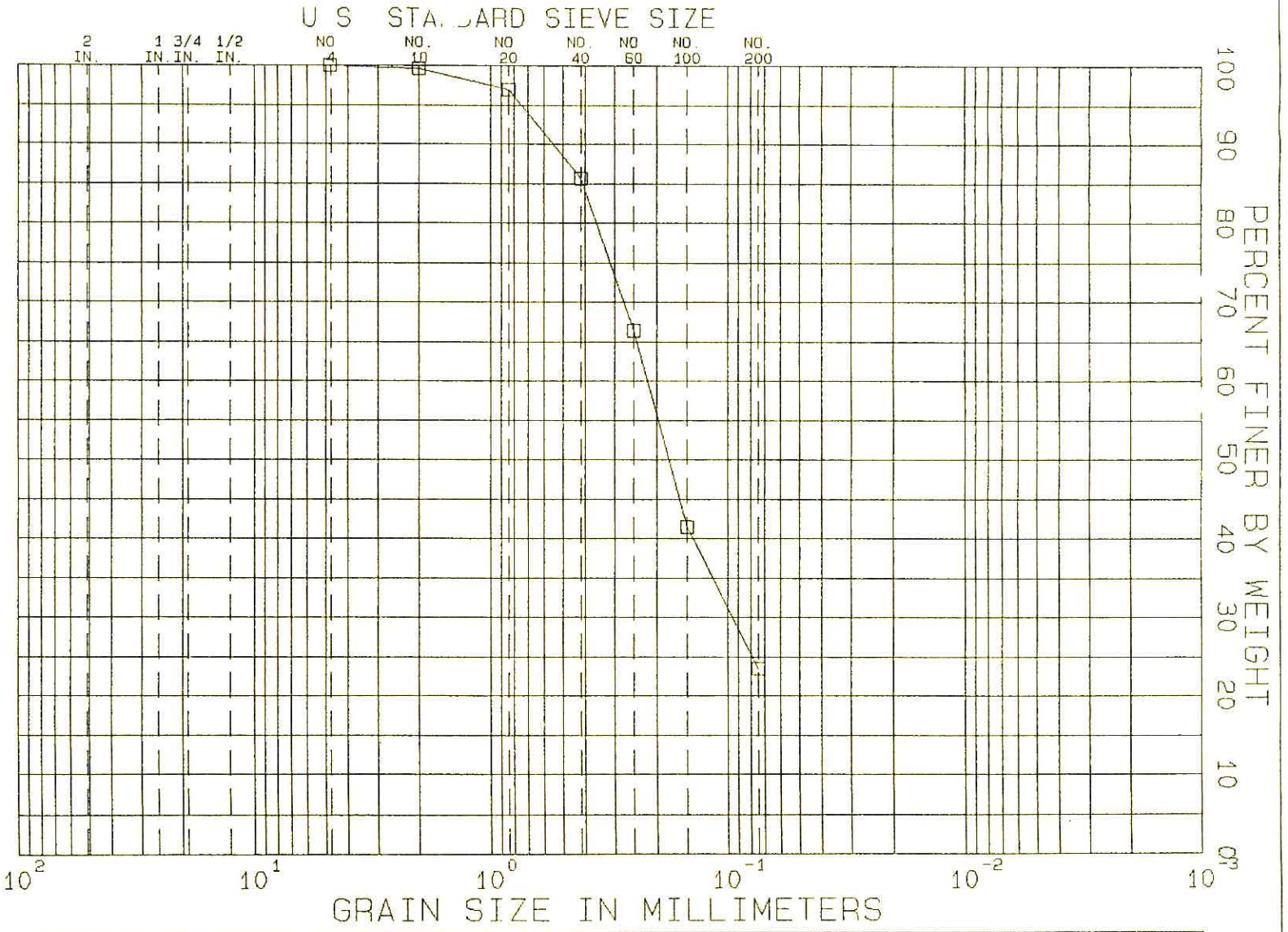
TEST NO.	MATERIAL SOURCE	REMARKS
S155 1	Boring No. SB-64 S.No.S-18, D=70-71 5	Brown Lean clay (CL)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-64
SAMPLE S-18
DEPTH 70-71 5'
TECH. PEC
REVIEWER MBP

TEST SERIES NO 155
DATE Nov 03
FILE L17828

GZA GEOENVIRONMENTAL, INC
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

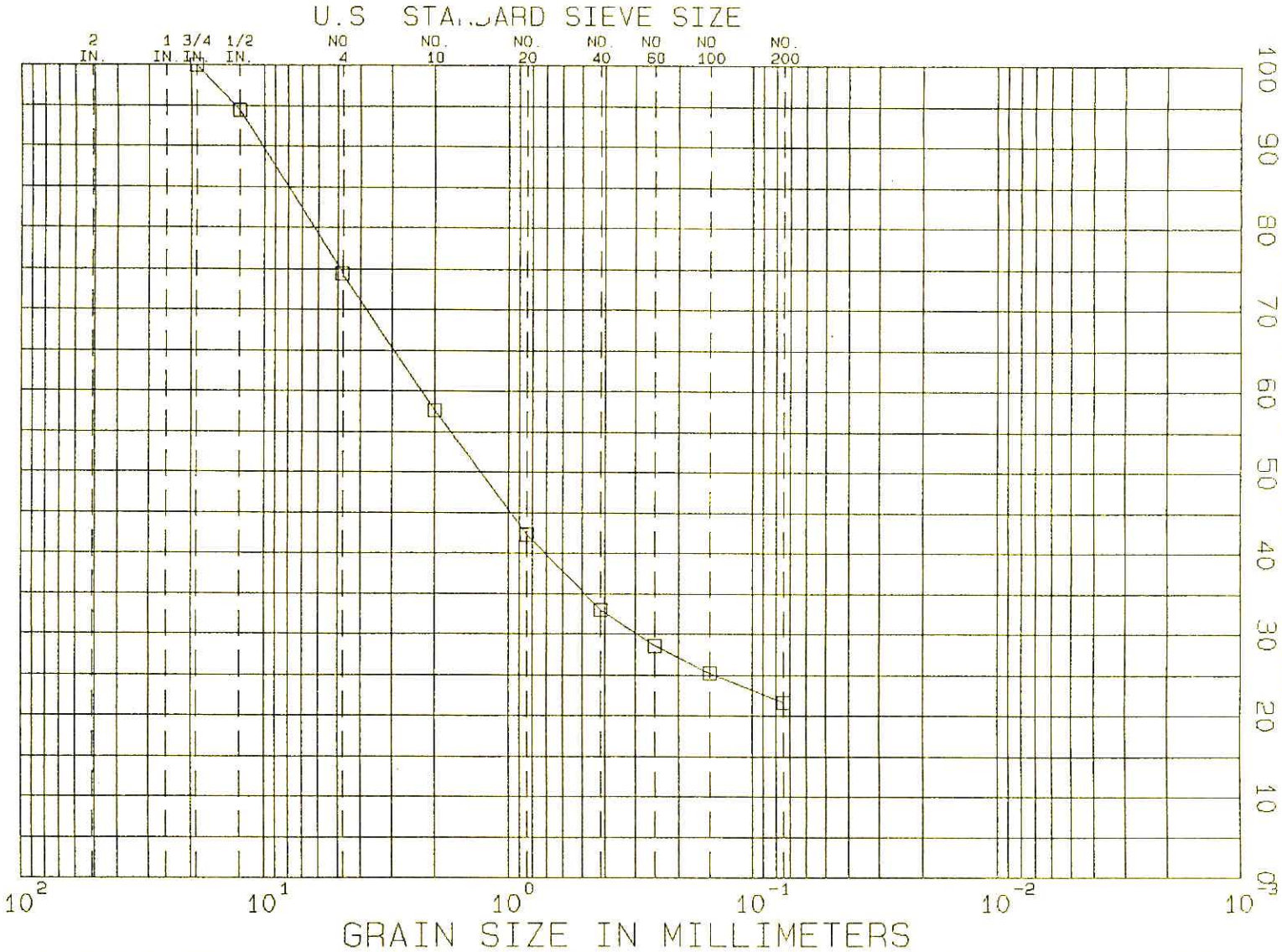
TEST NO.	MATERIAL SOURCE	REMARKS
S156.1	Boring No SB-64 S.No S-26, D=110-111.5'	Red-brown Silty sand (SM)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-64
SAMPLE S-26
DEPTH 110-111.5'
TECH. PEC
REVIEWER MBP

TEST SERIES NO. 156
DATE Nov 03
FILE L17828

GZA GEOENVIRONMENTAL, INC
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

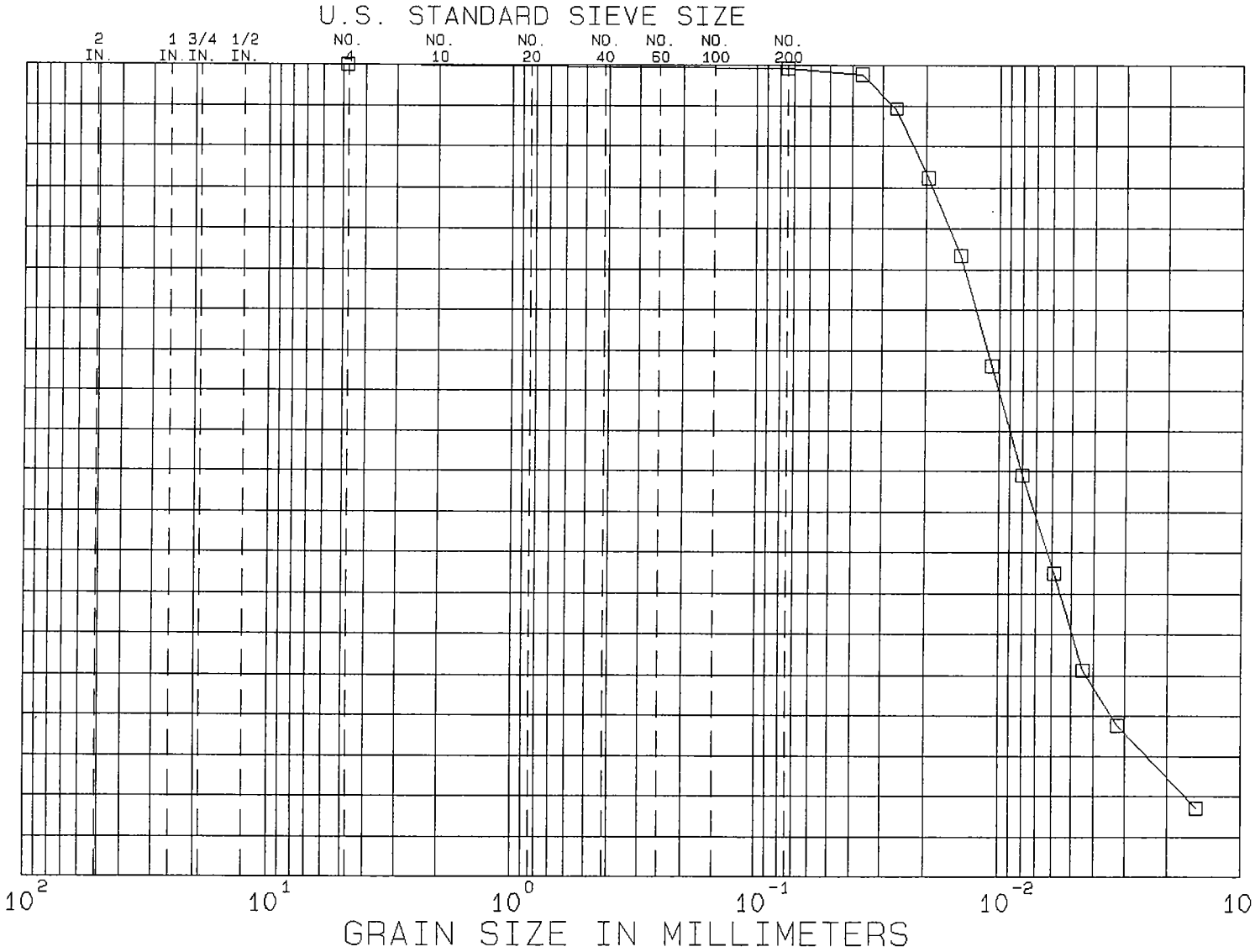
TEST NO.	MATERIAL SOURCE	REMARKS
S157.1	Boring No S8-64 S.No.S-31, D=135-135.9	Red-brown Silty sand with gravel (SM)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. S8-64
SAMPLE S-31
DEPTH 135-135.9'
TECH. PEC
REVIEWER MBP

TEST SERIES NO. 157
DATE Nov.03
FILE L17828

GZA GEOENVIRONMENTAL, INC
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

TEST NO.	MATERIAL SOURCE	REMARKS
S158.1	Boring No. SB-65 S.No.S-23, D=95-96.5'	Red-brown Silt (ML)

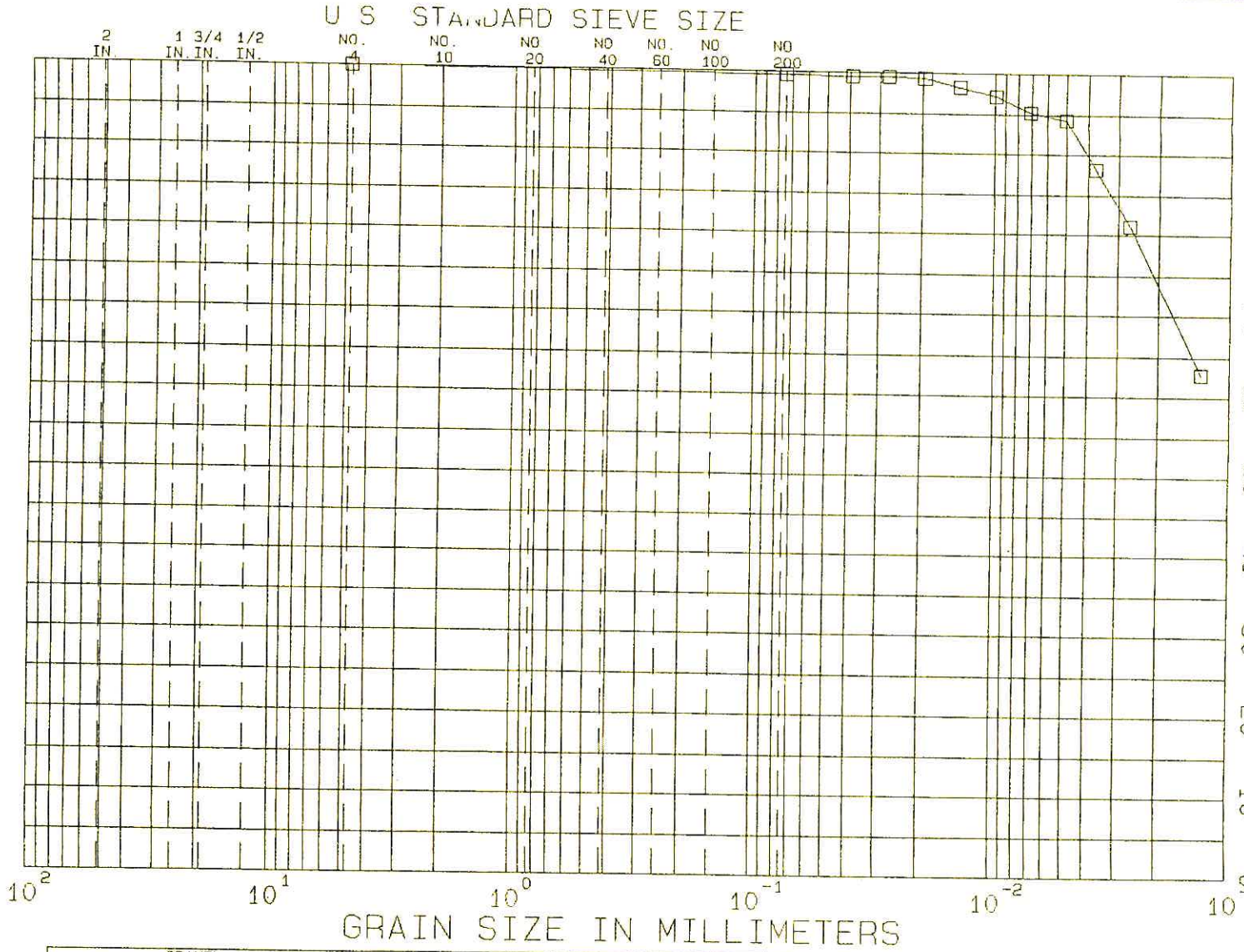
NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

GRADATION TESTS

BORING NO. SB-65
SAMPLE S-23
DEPTH 95-96.5'
TECH. PEC
REVIEWER MBP

TEST SERIES NO. 158
DATE Nov.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

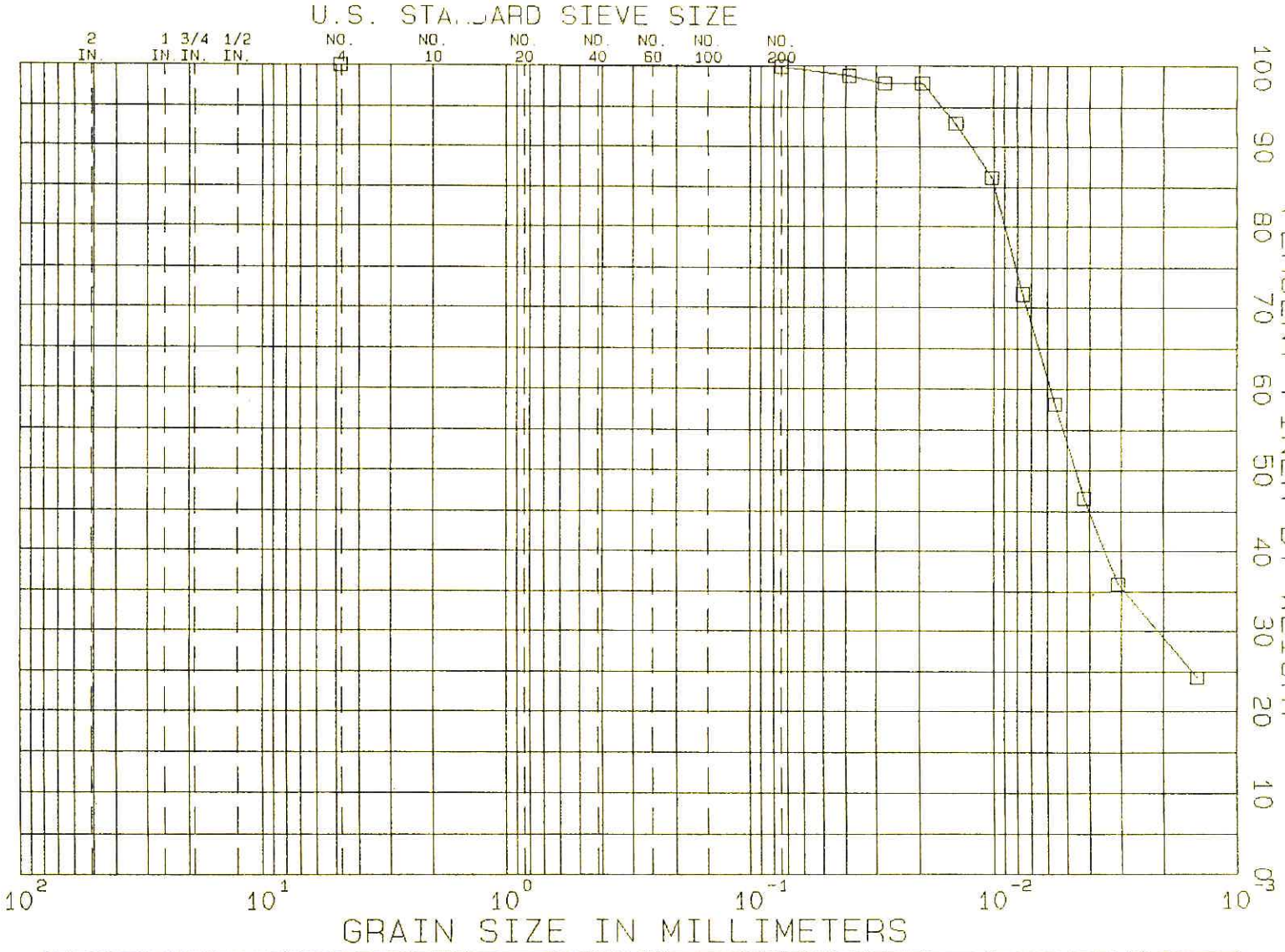
TEST NO	MATERIAL SOURCE	REMARKS
S159 1	Boring No S8-66 S.No S-11, D=35-36.5'	Brown Fat clay (CH)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-66
SAMPLE S-11
DEPTH 35-36.5
TECH. CAG
REVIEWER MBP

TEST SERIES NO 159
DATE [illegible]
FILE L17828

GZA GEOENVIRONMENTAL, INC
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

TEST NO	MATERIAL SOURCE	REMARKS
S160.1	Boring No. SB-66 S.No.S-18, D=70-71.5'	Brown Lean Clay (CL)

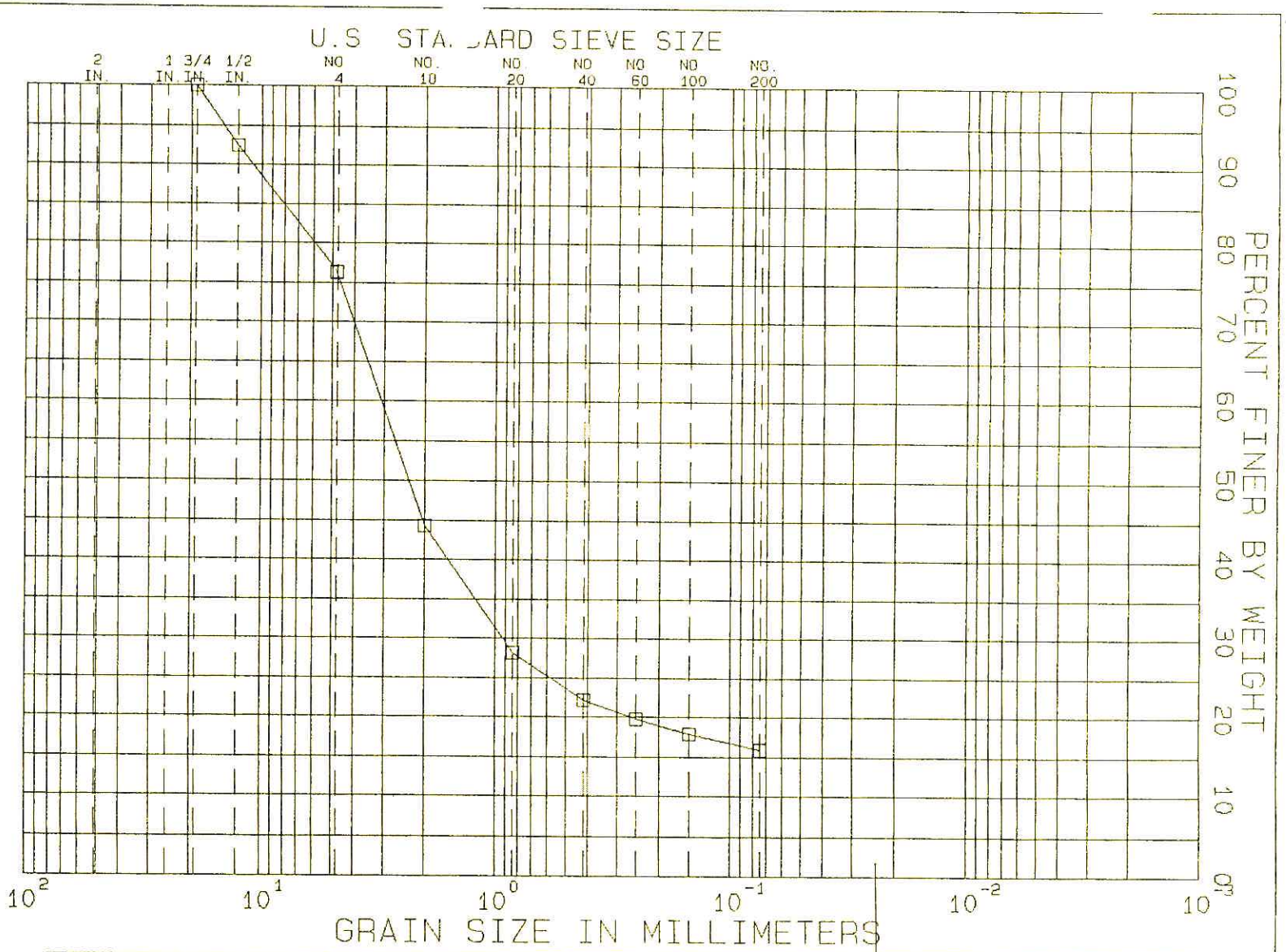
NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-66
SAMPLE S-18
DEPTH 70-71.5
TECH. CAG
REVIEWER MBP

TEST SERIES
DATE Dec 03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

APPENDIX E-9



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

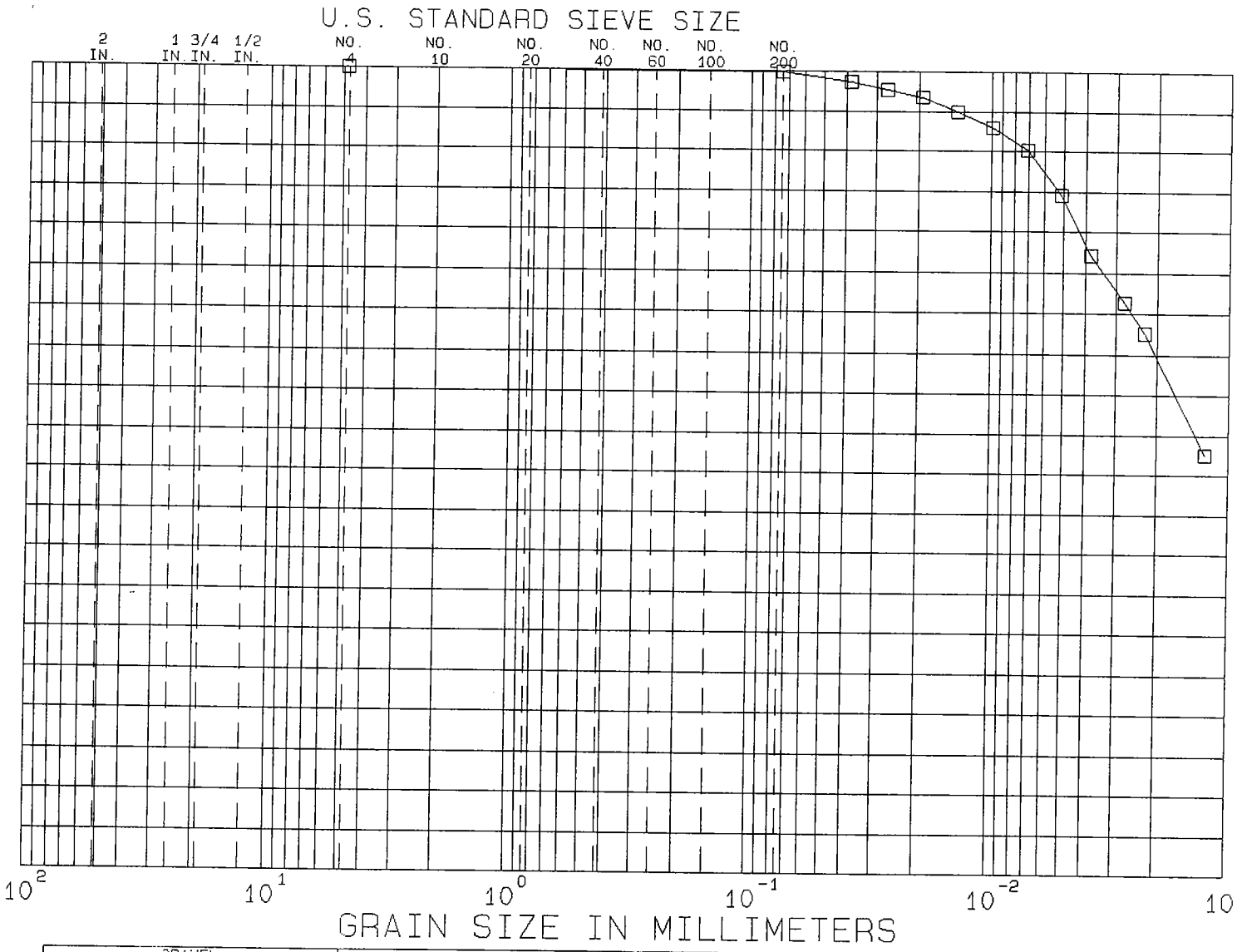
TEST NO	MATERIAL SOURCE	REMARKS
S161 1	Boring No SB-66 S.No.S-31, D=135-136.5	Red-brown Silty-clayey sand with gravel (SC-SM)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO SB-66
SAMPLE S-31
DEPTH 135-136.5'
TECH CAG
REVIEWER MBP

TEST SERIES NO. 161
DATE Dec 03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

TEST NO.	MATERIAL SOURCE	REMARKS
S162.1	Boring No. SB-67 S.No.S-13, D=45-46.5'	Brown Fat clay (CH)

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

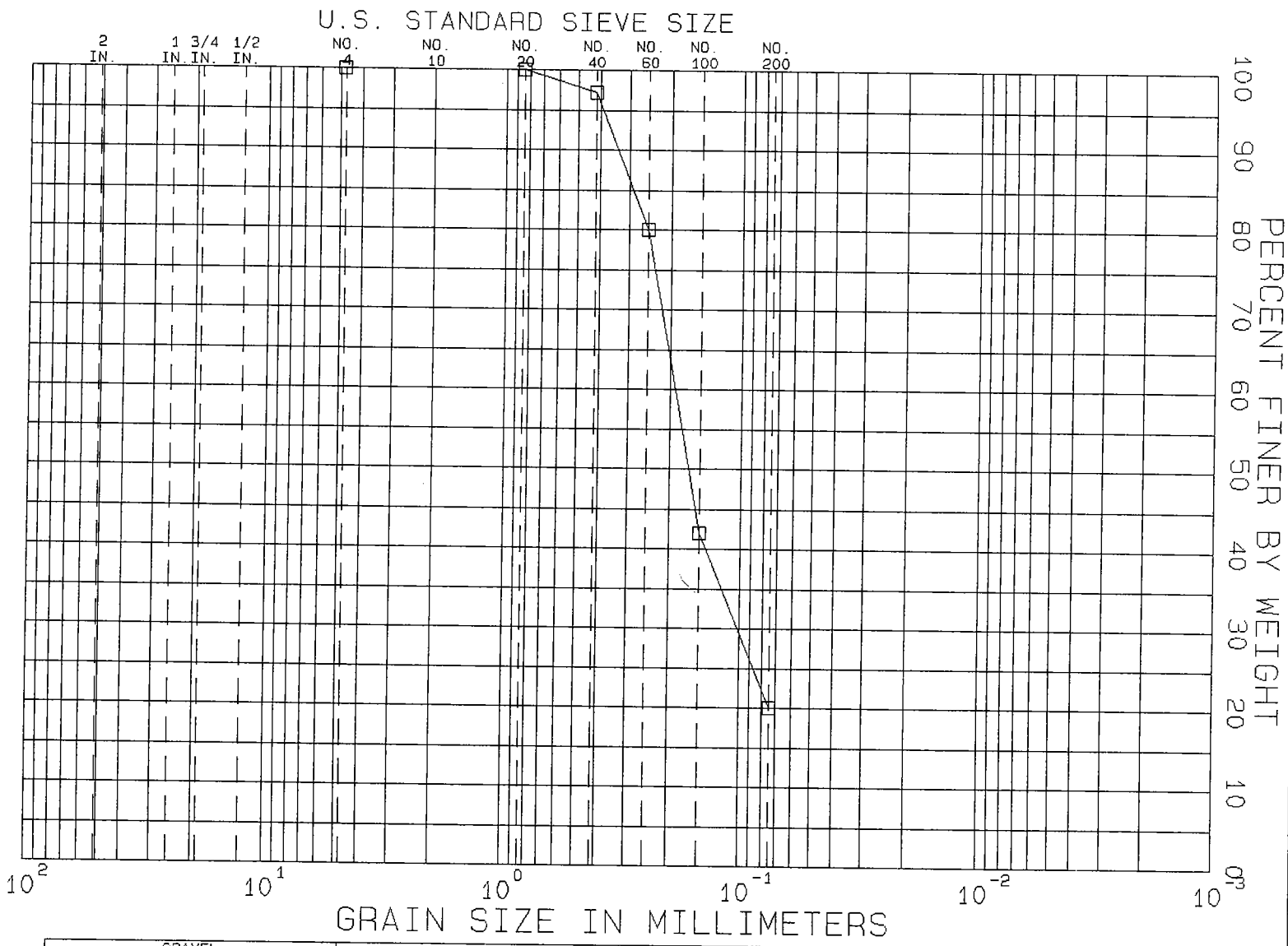
NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

GRADATION TESTS

BORING NO. SB-67
SAMPLE S-13
DEPTH 45-46.5'
TECH. CAG
REVIEWER MBP

TEST SERIES NO. 162
DATE Dec.03
FILE L17828

APPENDIX E-9



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

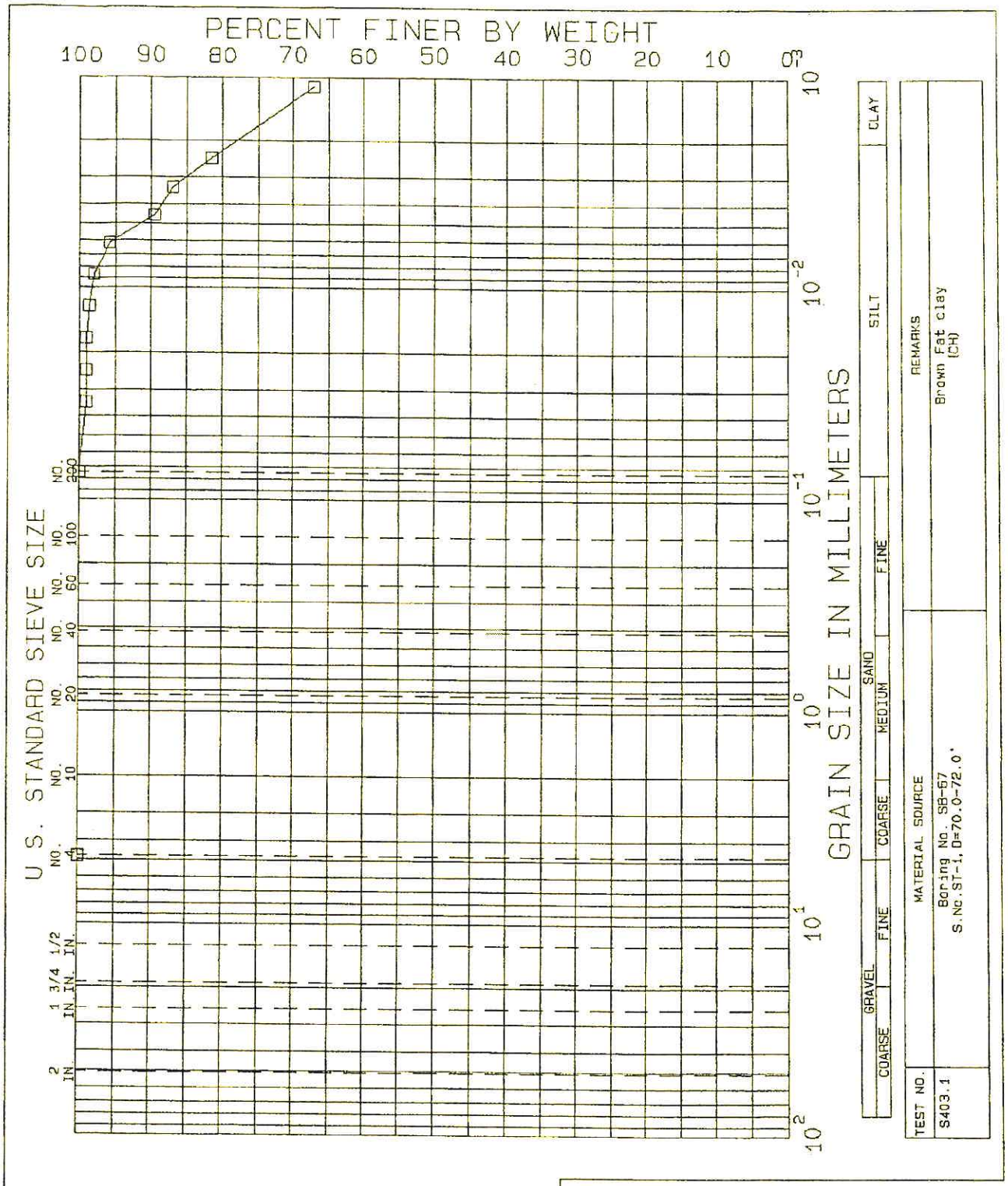
TEST NO.	MATERIAL SOURCE	REMARKS
S163.1	Boring No. SB-67 S-24&25, D=105-112'	Red-brown Silty sand (SM)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-67
SAMPLE S24&25
DEPTH 105-112'
TECH. CAG
REVIEWER MBP

TEST SERIES NO. 163
DATE Dec.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



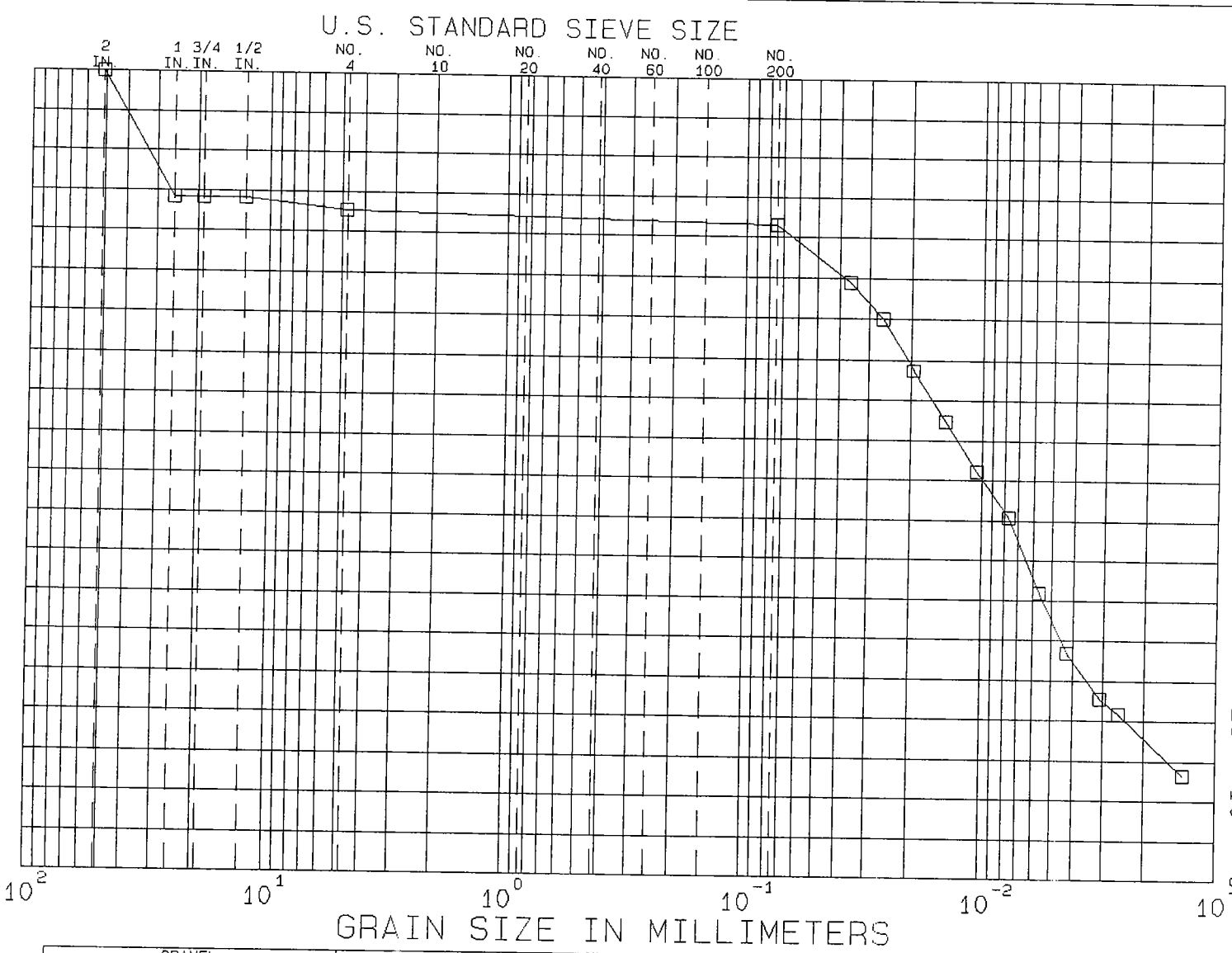
NEW BRITAIN-HARTFORD BUSWAY

CONNECTICUT

GRADATION TESTS

BORING NO.	SB-67	TEST SERIES	
SAMPLE	ST-1	NO.	403
DEPTH	70.0-72.0	DATE	Mar 04
TECH.	PEC		
REVIEWER	MBP	FILE	L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

TEST NO	MATERIAL SOURCE	REMARKS
S164.1	Boring No. SB-69 S.No.S-3, D=7.5-9'	Brown Silt with gravel (ML)

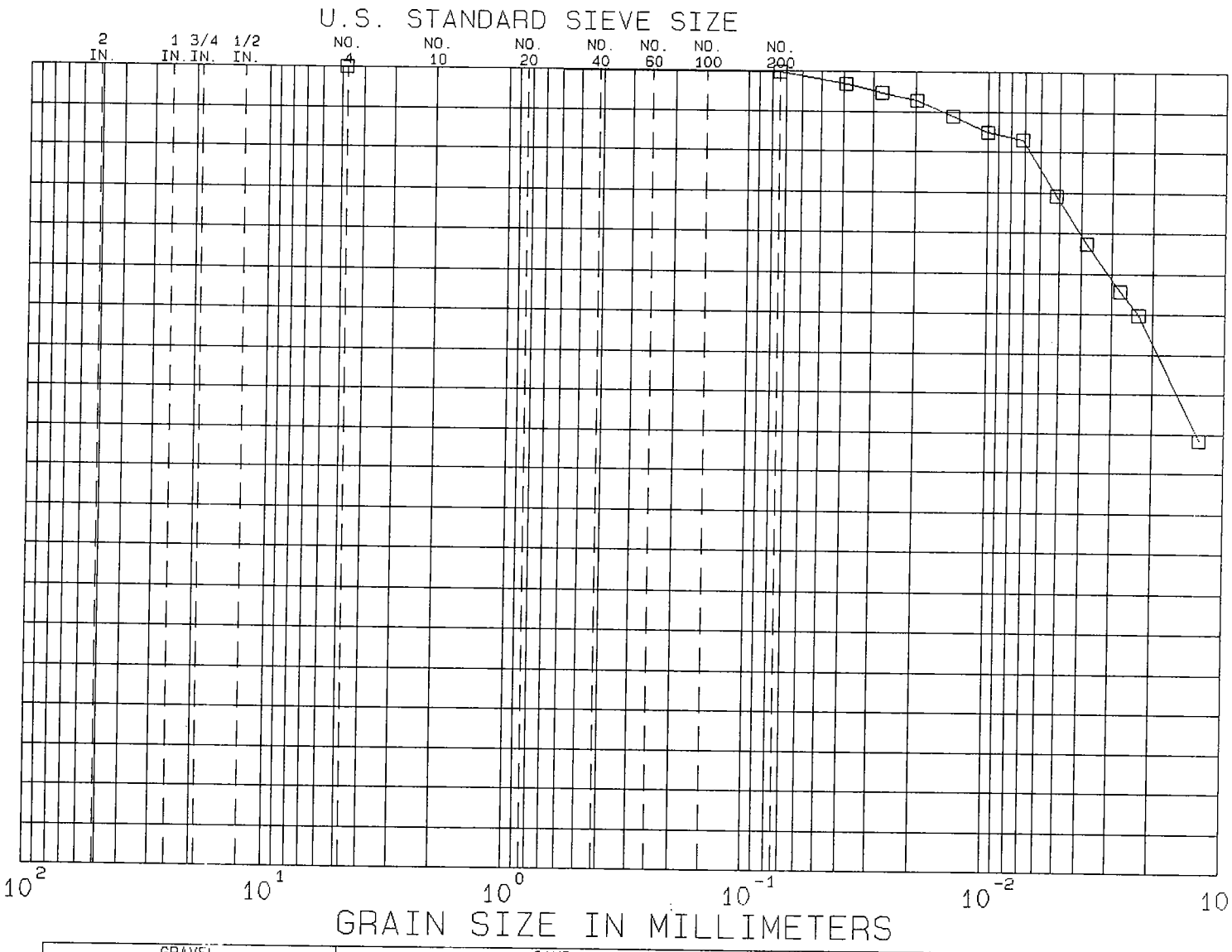
NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

GRADATION TESTS

BORING NO. SB-69
SAMPLE S-3
DEPTH 7.5-9'
TECH. CAG
REVIEWER MBP

TEST SERIES
NO. 164
DATE Dec.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

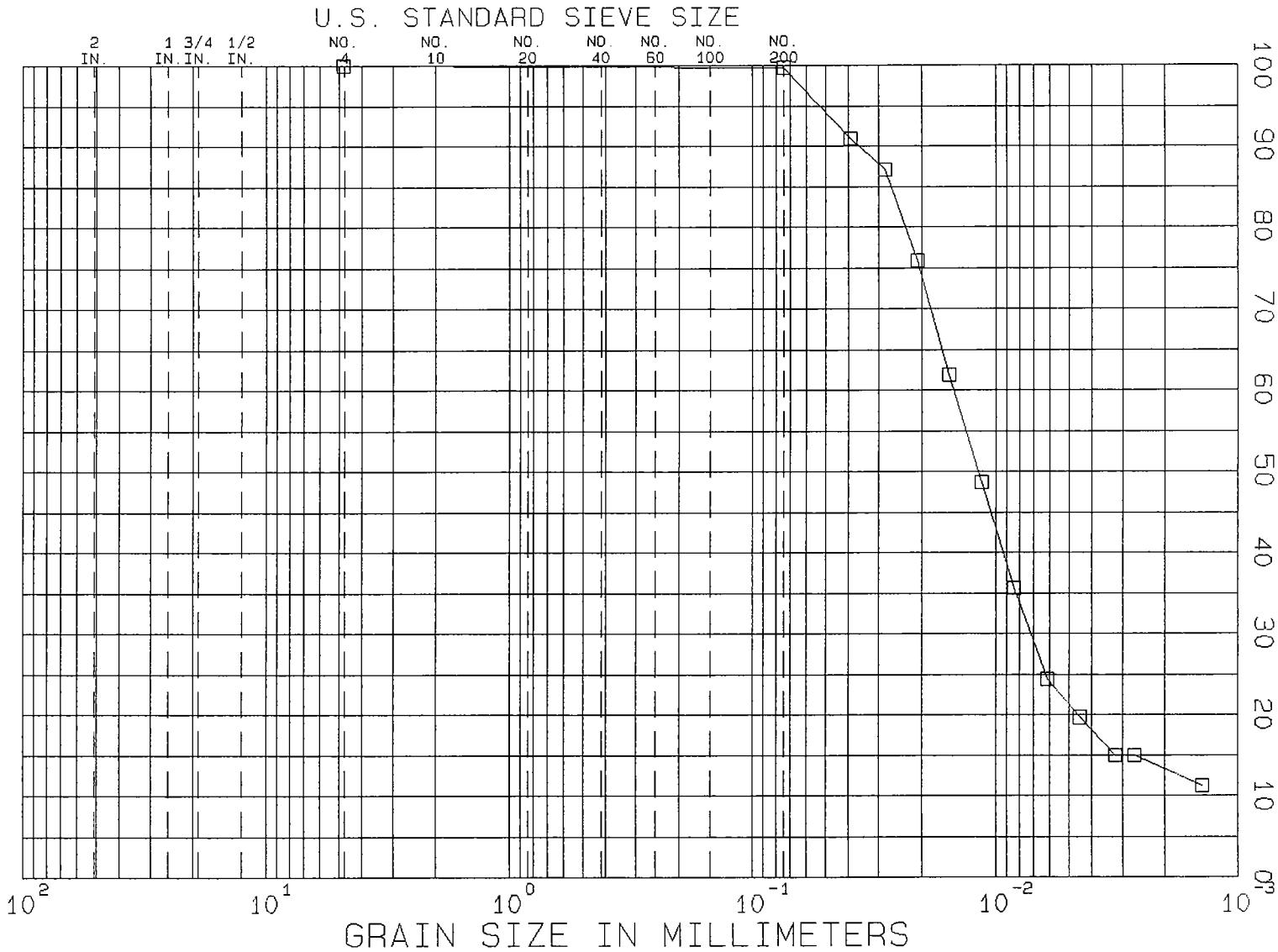
TEST NO	MATERIAL SOURCE	REMARKS
S165.1	Boring No. SB-69 S.No.S-14, D=50-51.5'	Brown Fat clay (CH)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-69
SAMPLE S-14
DEPTH 50-51.5'
TECH. CAG
REVIEWER MBP

TEST SERIES NO. 165
DATE Dec. 03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

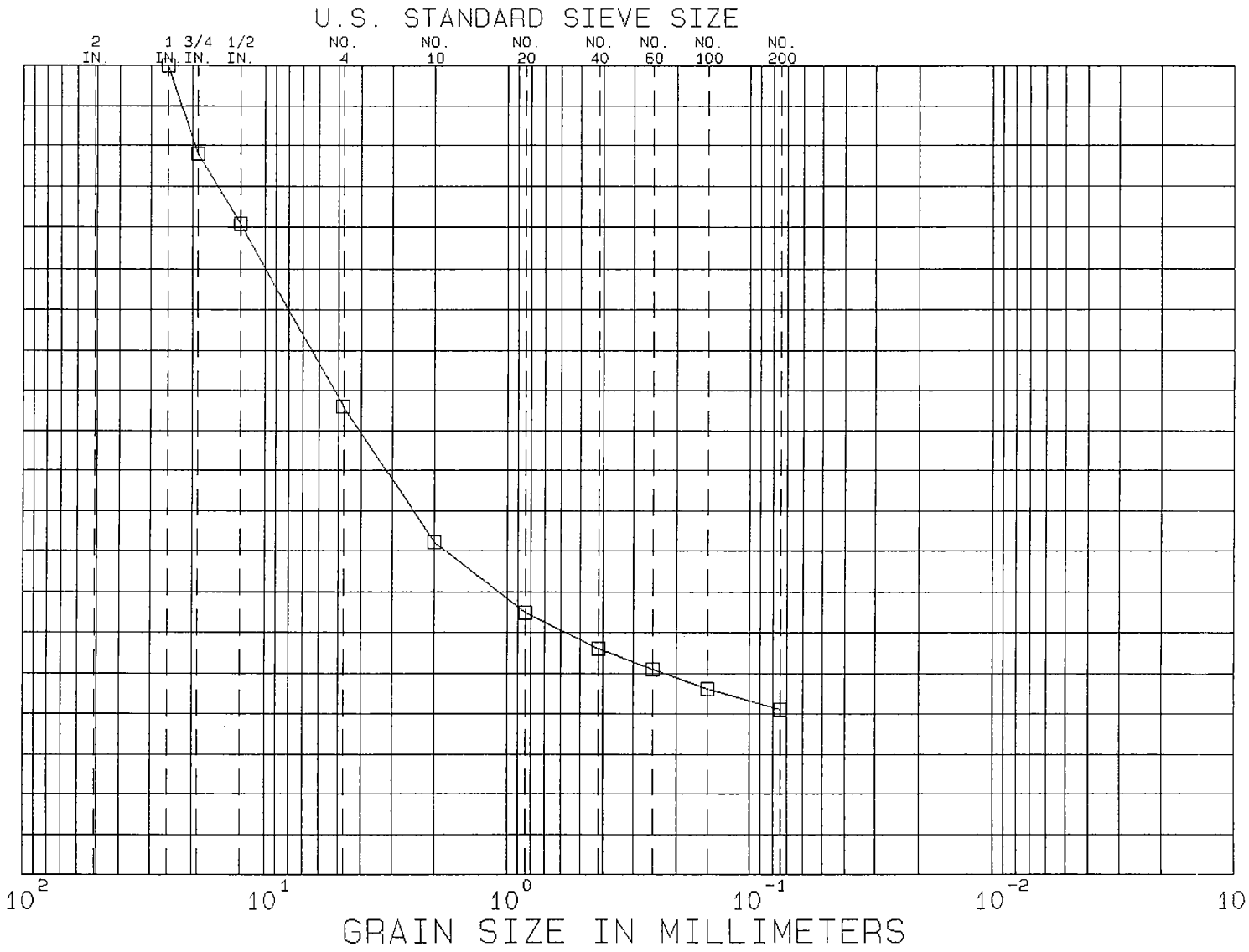
TEST No.	MATERIAL SOURCE	REMARKS
S166..	Boring No. SB-69 S.No.S-23, D=95-96.5'	Red-brown Silt (ML)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-69
SAMPLE S-23
DEPTH 95-96.5'
TECH. CAG
REVIEWER MBP

TEST SERIES NO. 166
DATE Dec.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

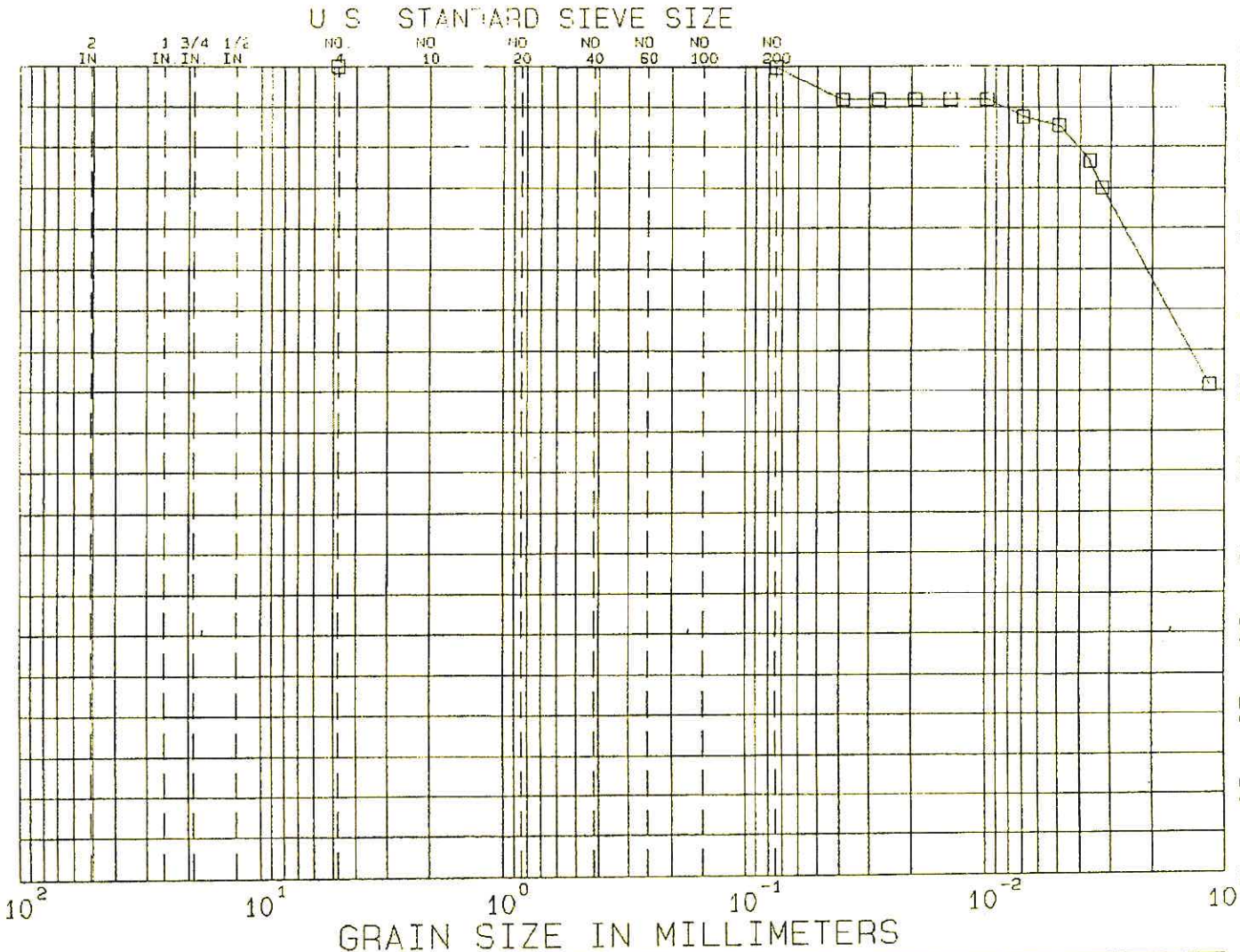
TEST NO.	MATERIAL SOURCE	REMARKS
S167.1	Boring No. SB-69 S.No.S-33, D=145-146.5'	Red-brown Silty gravel with sand (GM)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-69
SAMPLE S-33
DEPTH 145-146.5'
TECH. CAG
REVIEWER MBP

TEST SERIES NO. 167
DATE Dec.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

TEST NO.	MATERIAL SOURCE	REMARKS
S404 1	Boring No. SB-70 S.No.UP-1, D=50.0-52.0'	Brown Fat clay (CH)

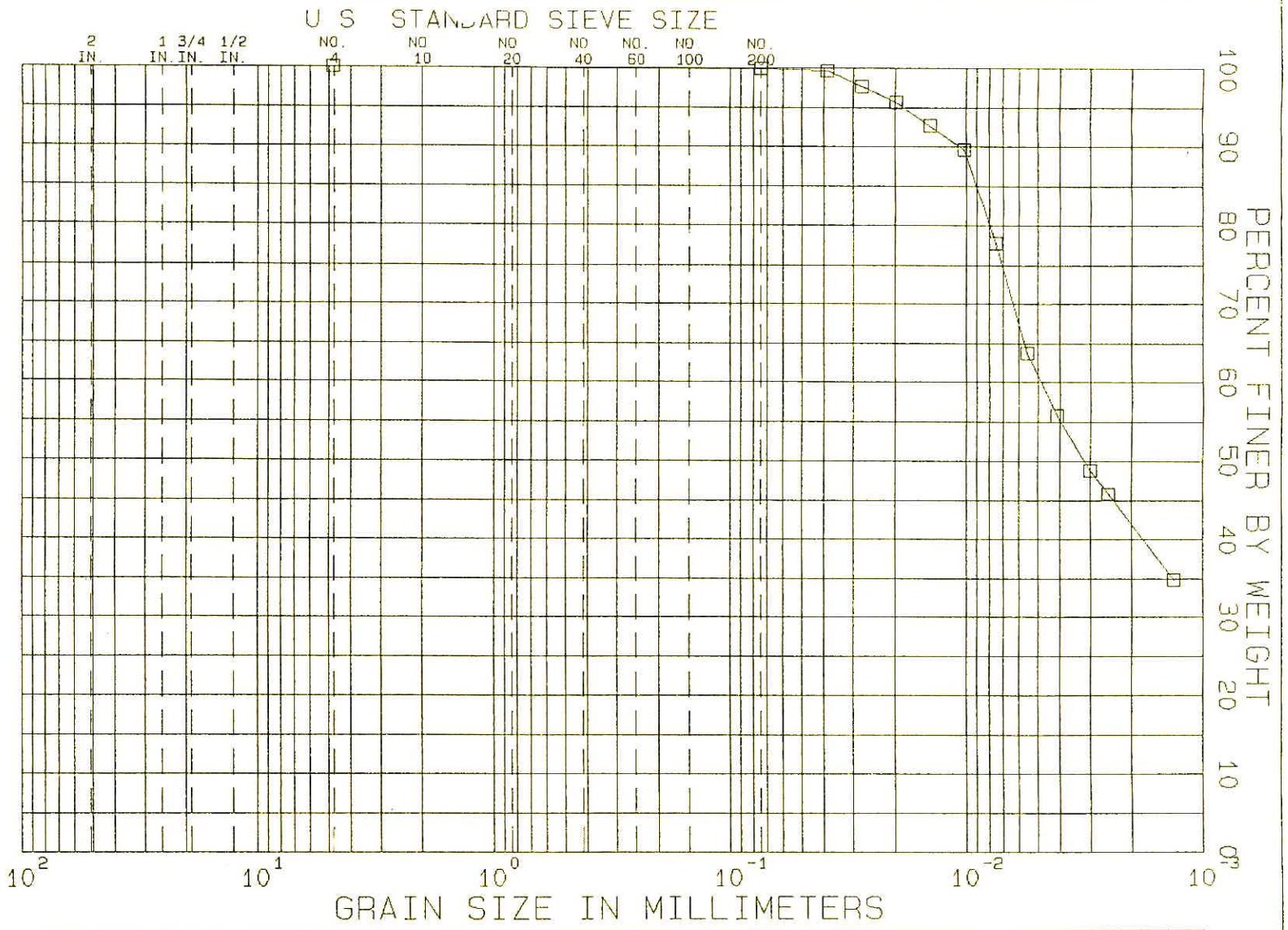
NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

GRADATION TESTS

BORING NO SB-70
SAMPLE UP-1
DEPTH 50.0-52.0
TECH. PEC
REVIEWER MBP

TEST SERIES NO. 404
DATE Mar.04
FILE L17828

GZA GEOENVIRONMENTAL, INC
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

TEST NO	MATERIAL SOURCE	REMARKS
S168 1	Boring No SB-70 S.No.S-15, D=60-61 5	Brown Fat clay (CH)

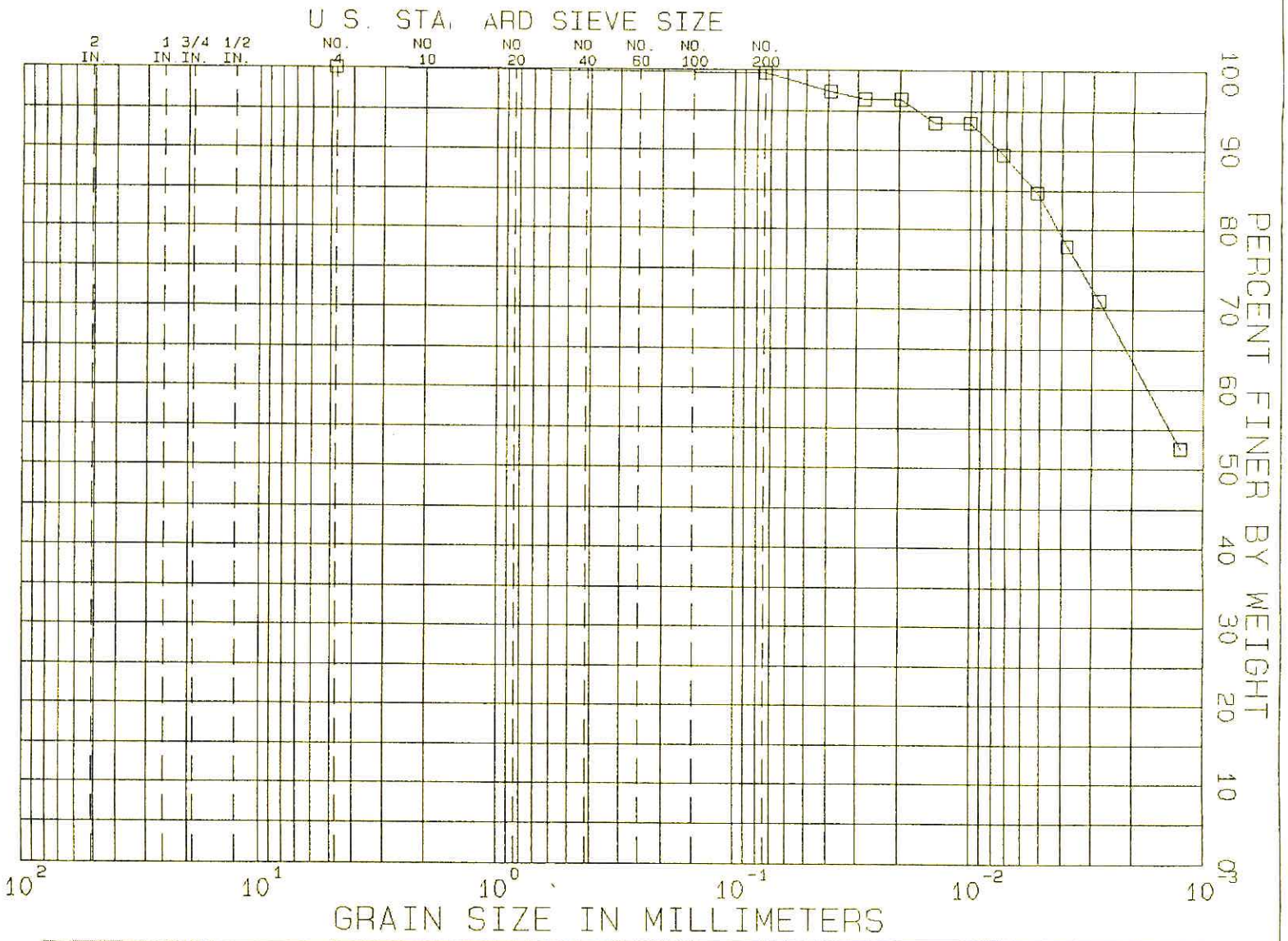
NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

GRADATION TESTS

BORING NO. SB-70
SAMPLE S-15
DEPTH 60-61.5'
TECH. CAG
REVIEWER MBP

TEST SERIES NO. 168
DATE Dec. 03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

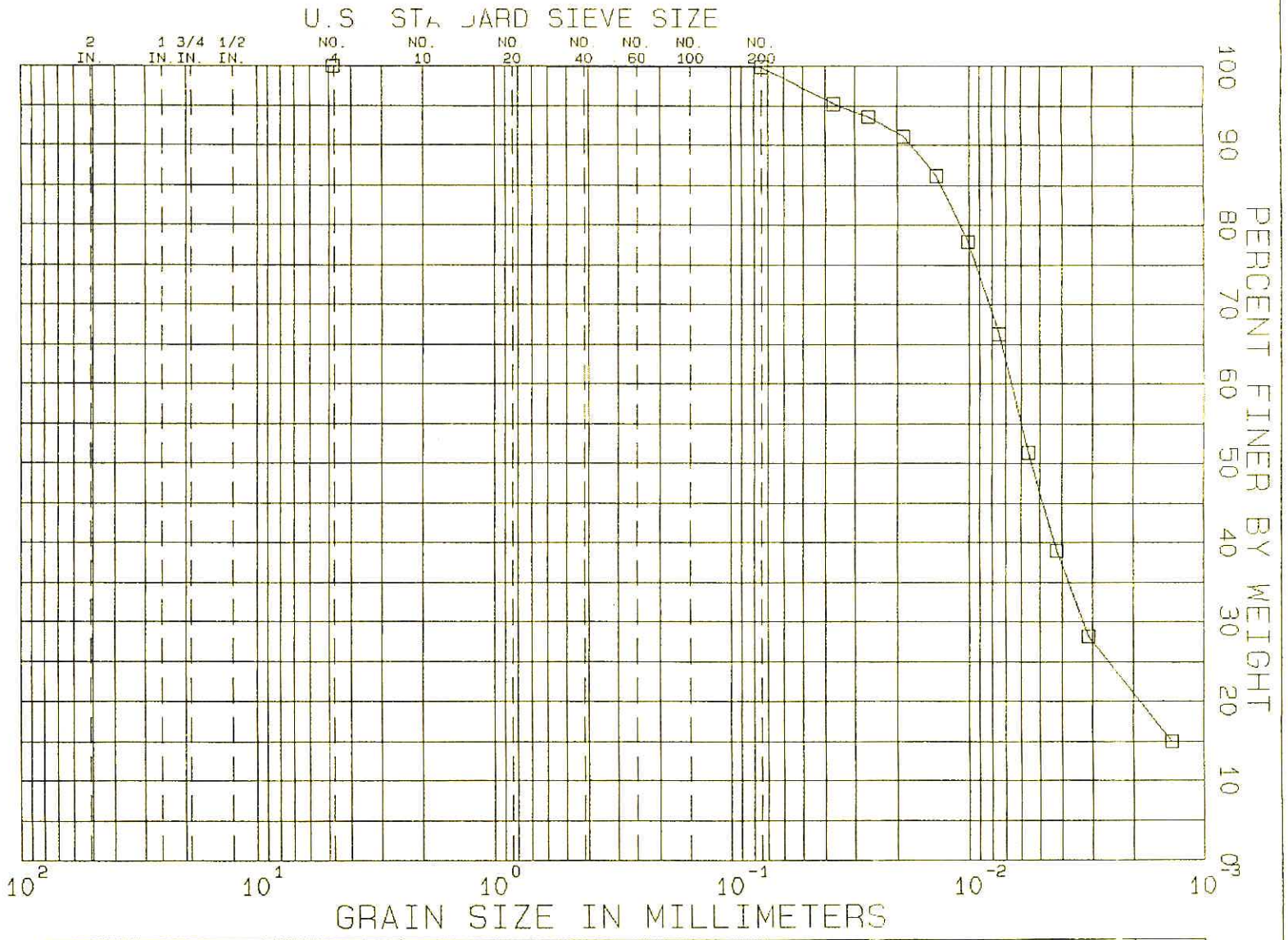
TEST NO.	MATERIAL SOURCE	REMARKS
S169 1	Boring No. SB-71 S.No.S-13, D=45-46.5'	Brown Fat clay (CH)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-71
SAMPLE S-13
DEPTH 45-46.5'
TECH. CAG
REVIEWER MBP

TEST SERIES NO. 169
DATE Dec.03
FILE L17028

GZA GEOENVIRONMENTAL, INC
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

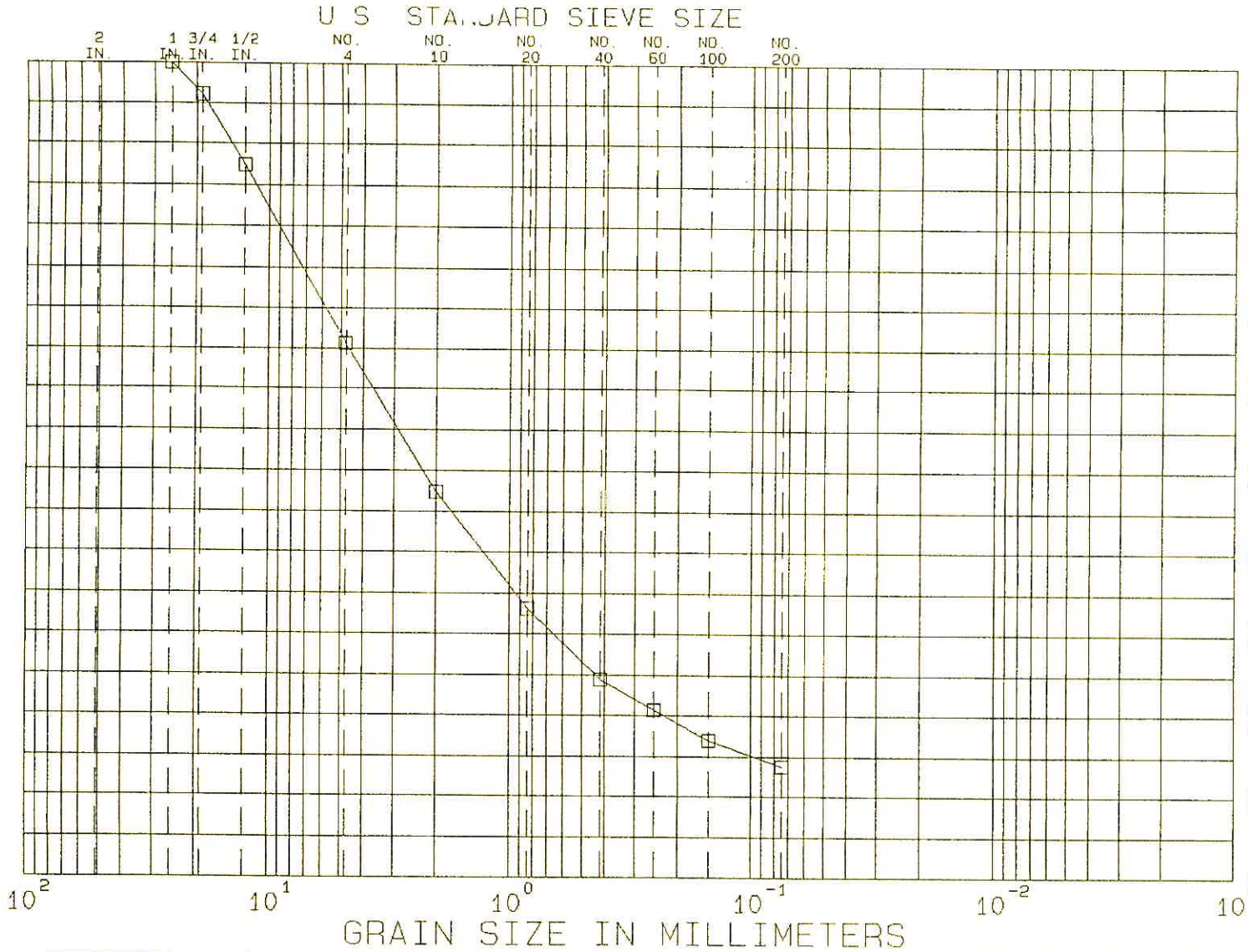
TEST NO.	MATERIAL SOURCE	REMARKS
S170.1	Boring No. SB-71 S.No.S-21, D=65-86.5'	Red-brown Silt (ML)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-71
SAMPLE S-21
DEPTH 85-86.5'
TECH. CAG
REVIEWER MBP

TEST SERIES 170
NO.
DATE Dec.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

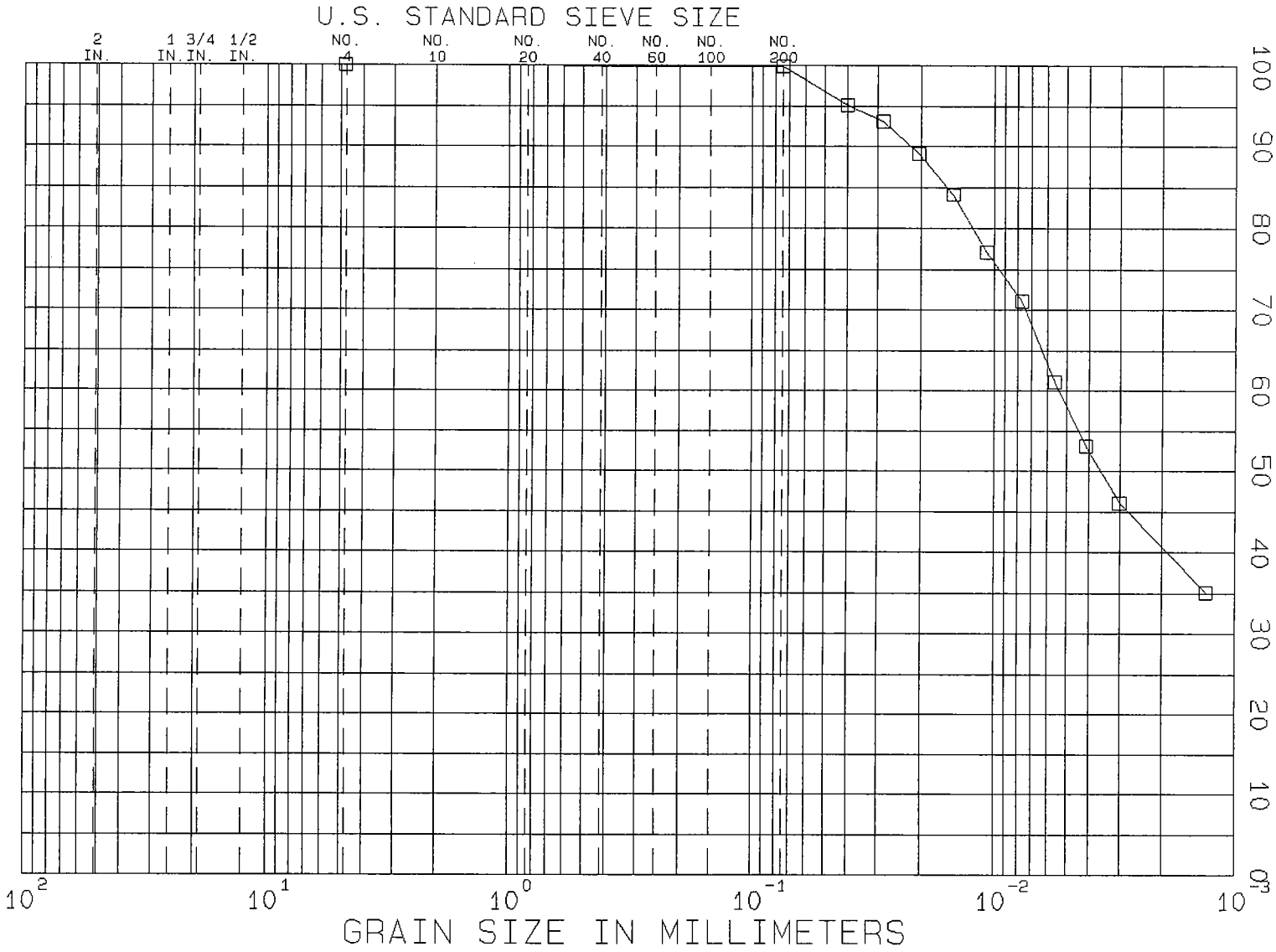
TEST NO.	MATERIAL SOURCE	REMARKS
S171.1	Boring No. SB-71 S.No.S-27, D=115-116.5'	Brown Silty sand with gravel (SM)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-71
SAMPLE S-27
DEPTH 115-116.5'
TECH. CAG
REVIEWER MBP

TEST SERIES NO. 171
DATE Dec.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

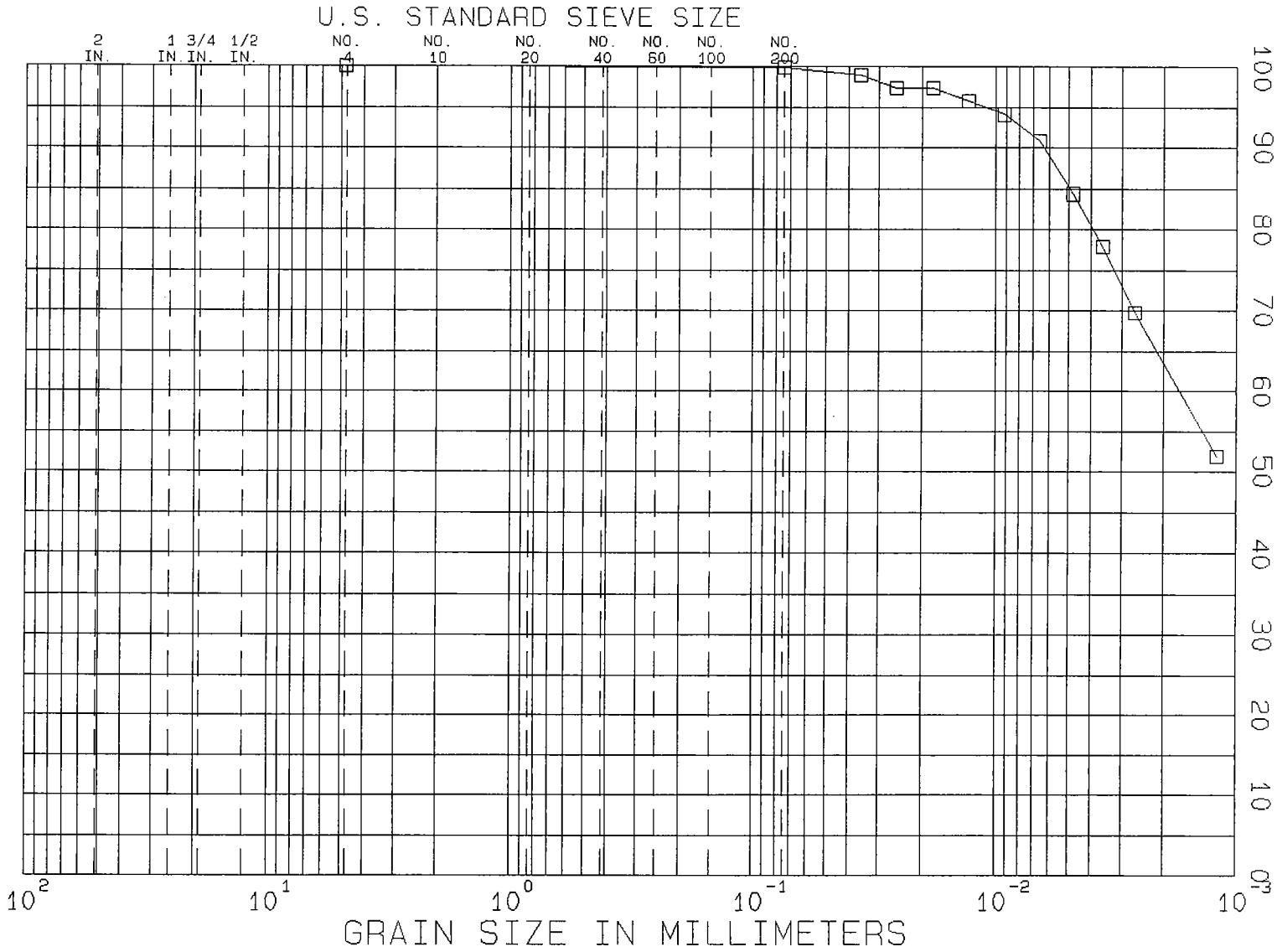
TEST NO.	MATERIAL SOURCE	REMARKS
S172.1	Boring No. SB-72 S.No.S-9, D=25-26.5'	Gray Lean clay (CL)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-72
SAMPLE S-9
DEPTH 25-26.5'
TECH. CAG
REVIEWER MBP

TEST SERIES NO. 172
DATE Dec.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

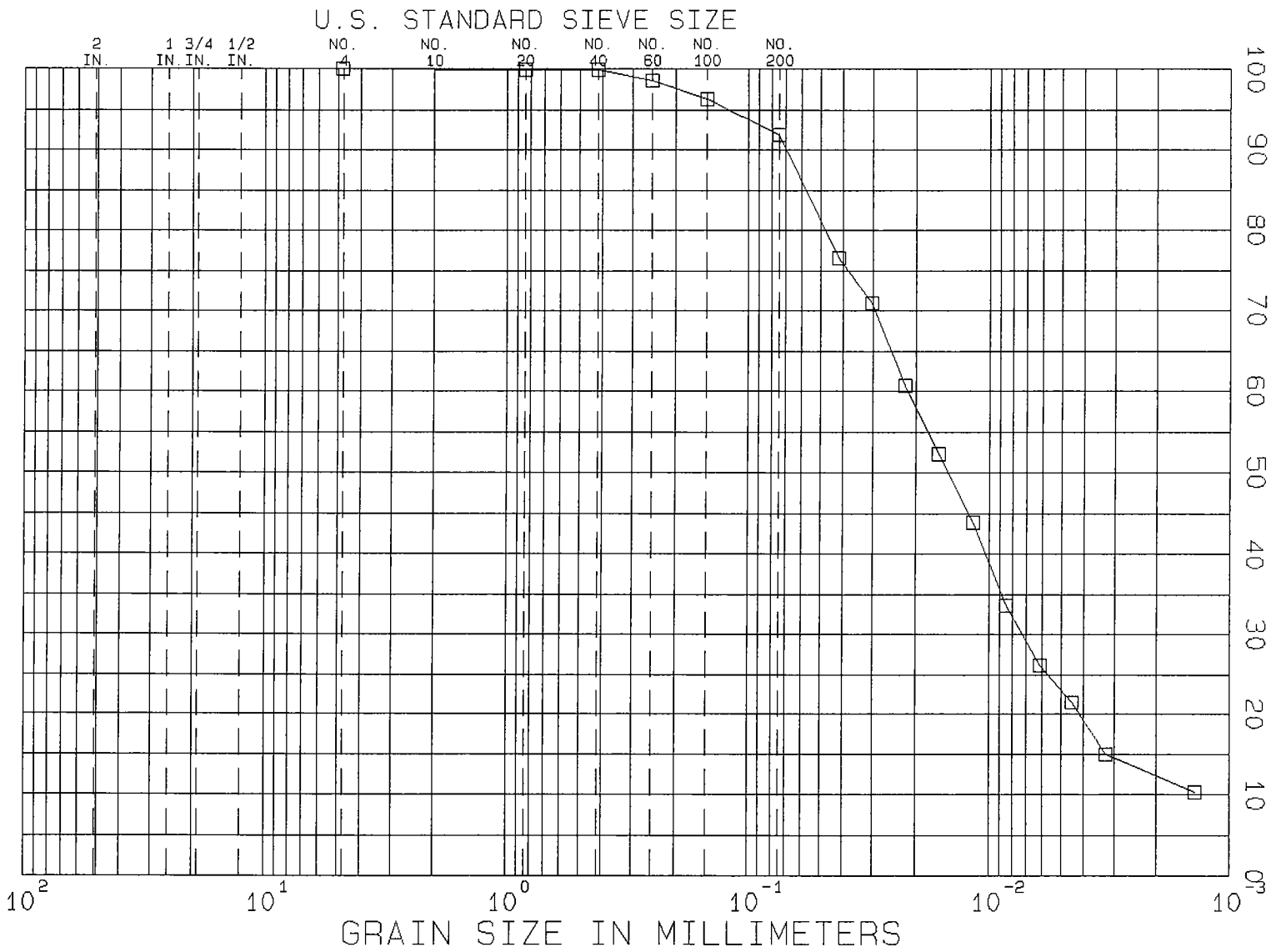
TEST NO.	MATERIAL SOURCE	REMARKS
S173.1	Boring No. SB-72 S.No.S-17, D=65-66.5'	Brown Fat clay (CH)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-72
SAMPLE S-17
DEPTH 65-66.5'
TECH. CAG
REVIEWER MBP

TEST SERIES NO. 173
DATE Dec.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

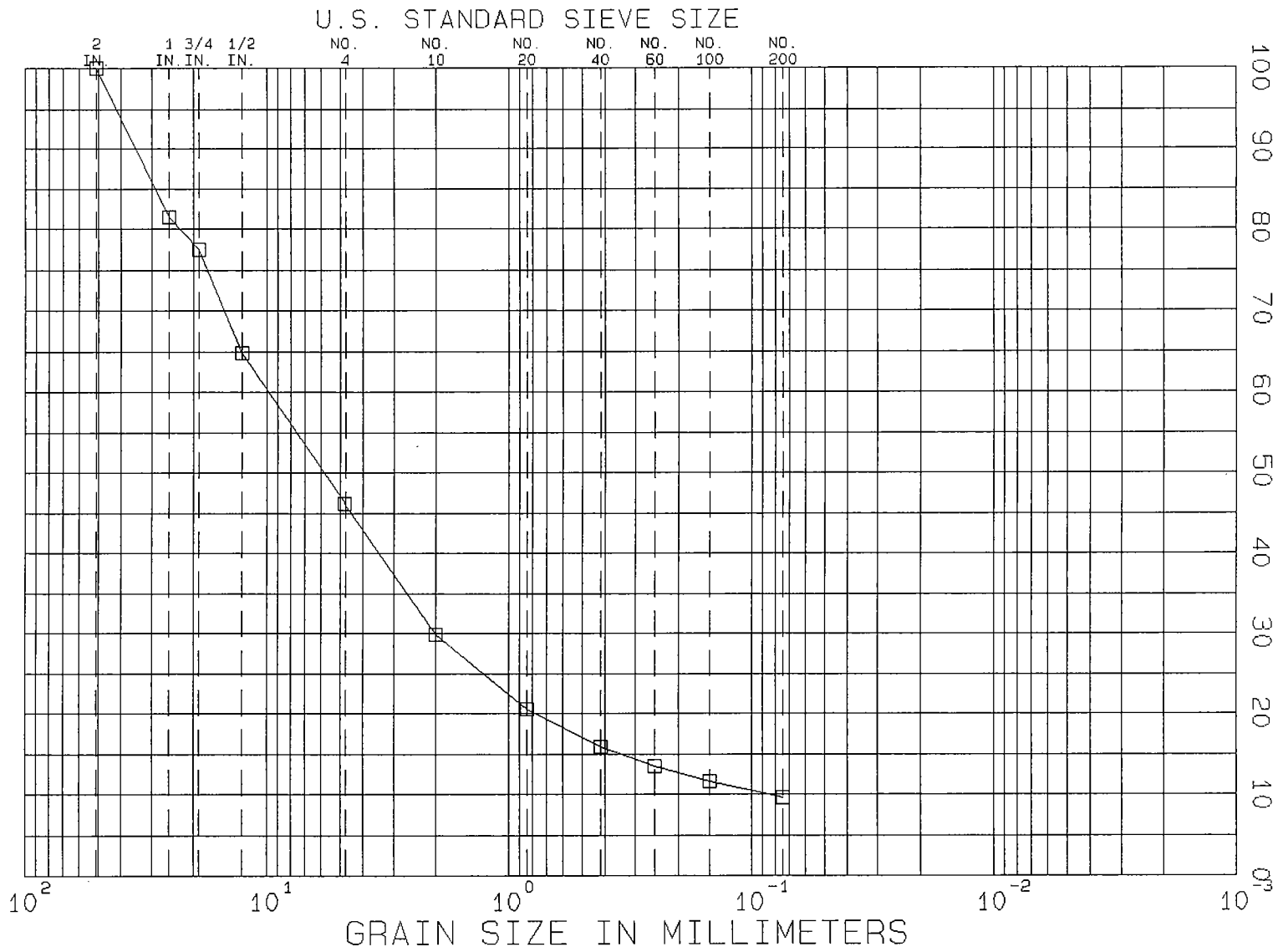
TEST NO.	MATERIAL SOURCE	REMARKS
S174.1	Boring No. SB-72 S.No.S-25, D=105-106.5'	Red-brown Silt (ML)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-72
SAMPLE S-25
DEPTH 105-106.5'
TECH. CAG
REVIEWER MBP

TEST SERIES NO. 174
DATE Dec. 03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

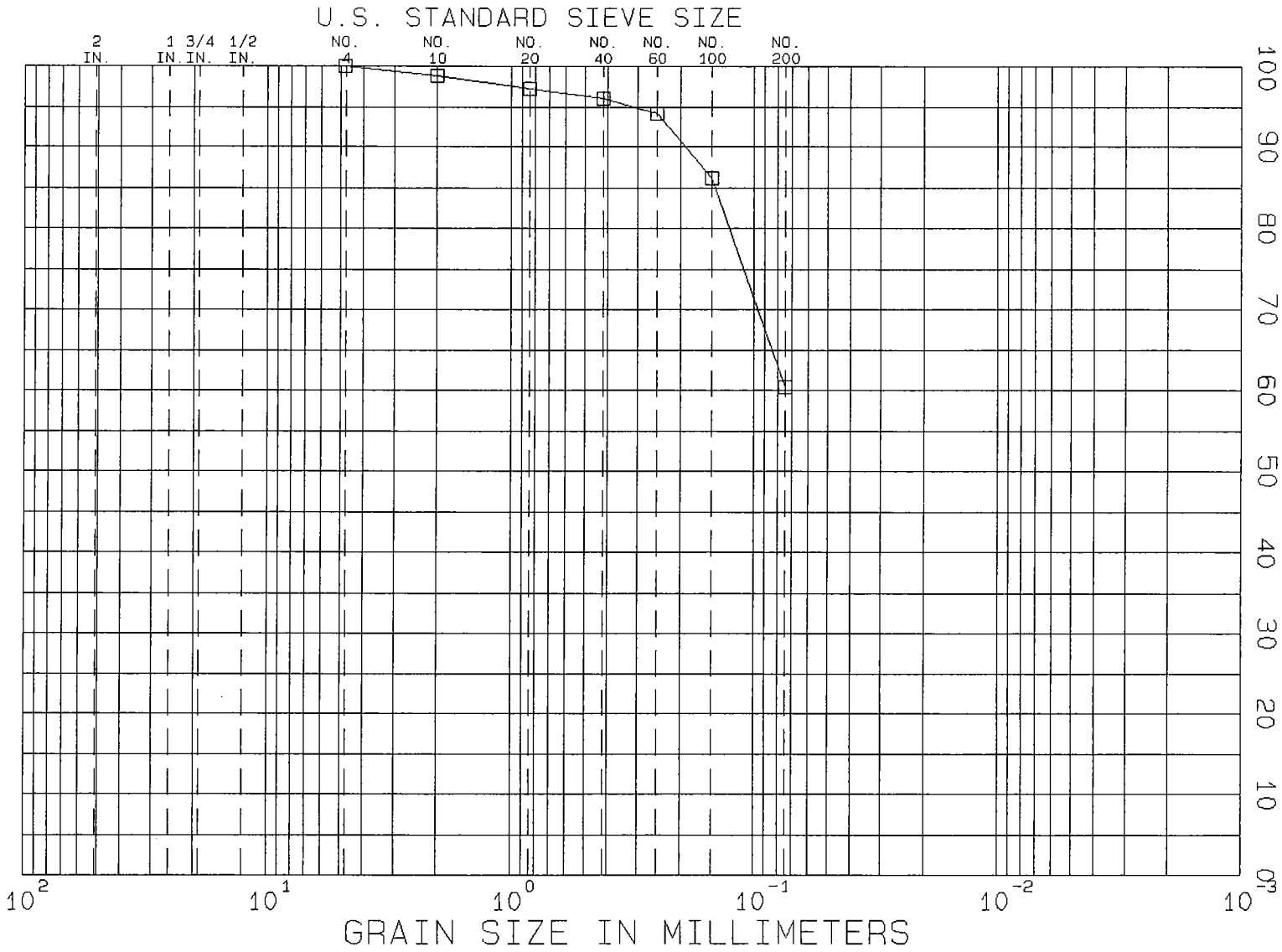
TEST NO.	MATERIAL SOURCE	REMARKS
S175.1	Boring No. SB-72 S.No.S-31, D=135-136.5'	Brown Poorly graded gravel with silt and sand (GP-GM)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-72
SAMPLE S-31
DEPTH 135-136.5'
TECH. CAG
REVIEWER MBP

TEST SERIES NO. 175
DATE Dec.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

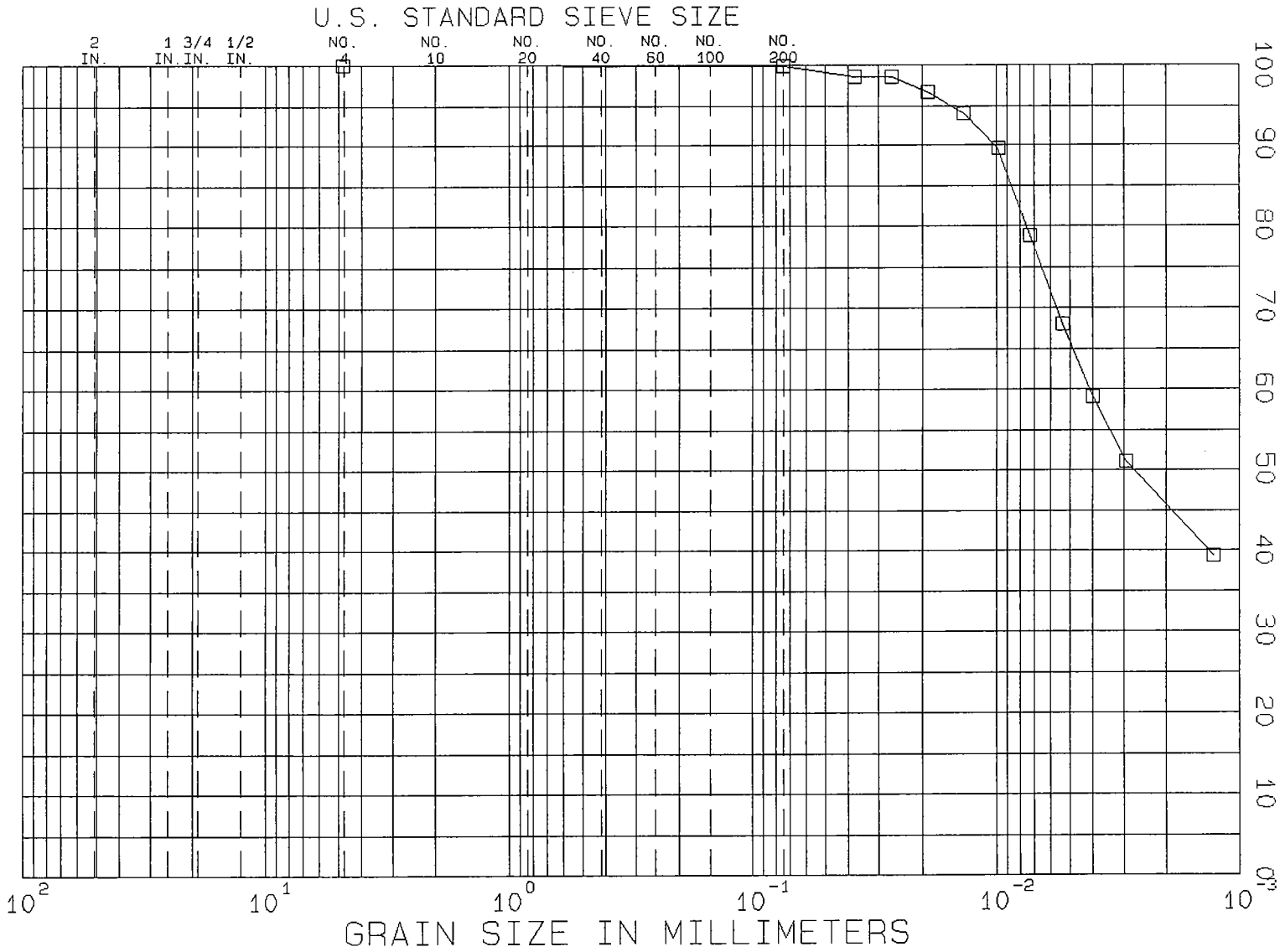
TEST NO.	MATERIAL SOURCE	REMARKS
S176.1	Boring No. SB-73 S.No.S-10, D=28.5-30'	Red-brown Sandy silt (ML)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-73
SAMPLE S-10
DEPTH 28.5-30'
TECH. CAG
REVIEWER MBP

TEST SERIES NO. 176
DATE Dec 03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

TEST NO.	MATERIAL SOURCE	REMARKS
S177.1	Boring No. SB-73 S.No.S-18, D=70-71.5'	Red-brown Lean Clay (CL)

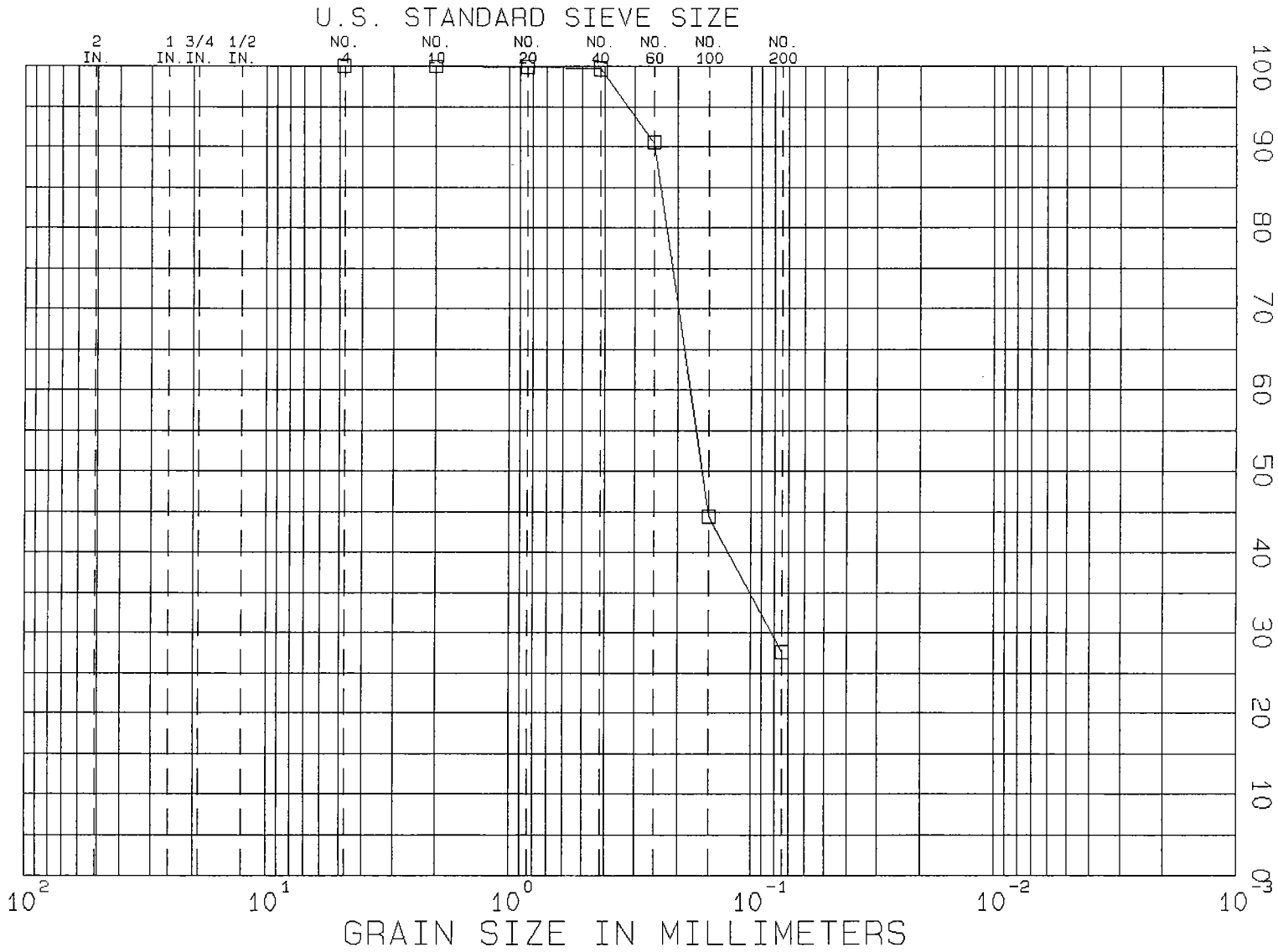
NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

GRADATION TESTS

BORING NO. SB-73
SAMPLE S-18
DEPTH 70-71.5'
TECH. CAG
REVIEWER MBP

TEST SERIES NO. 177
DATE Dec 03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

TEST NO.	MATERIAL SOURCE	REMARKS
S178.1	Boring No. SB-73 S.No.S-27, D=115-116.5'	Brown Silty sand (SM)

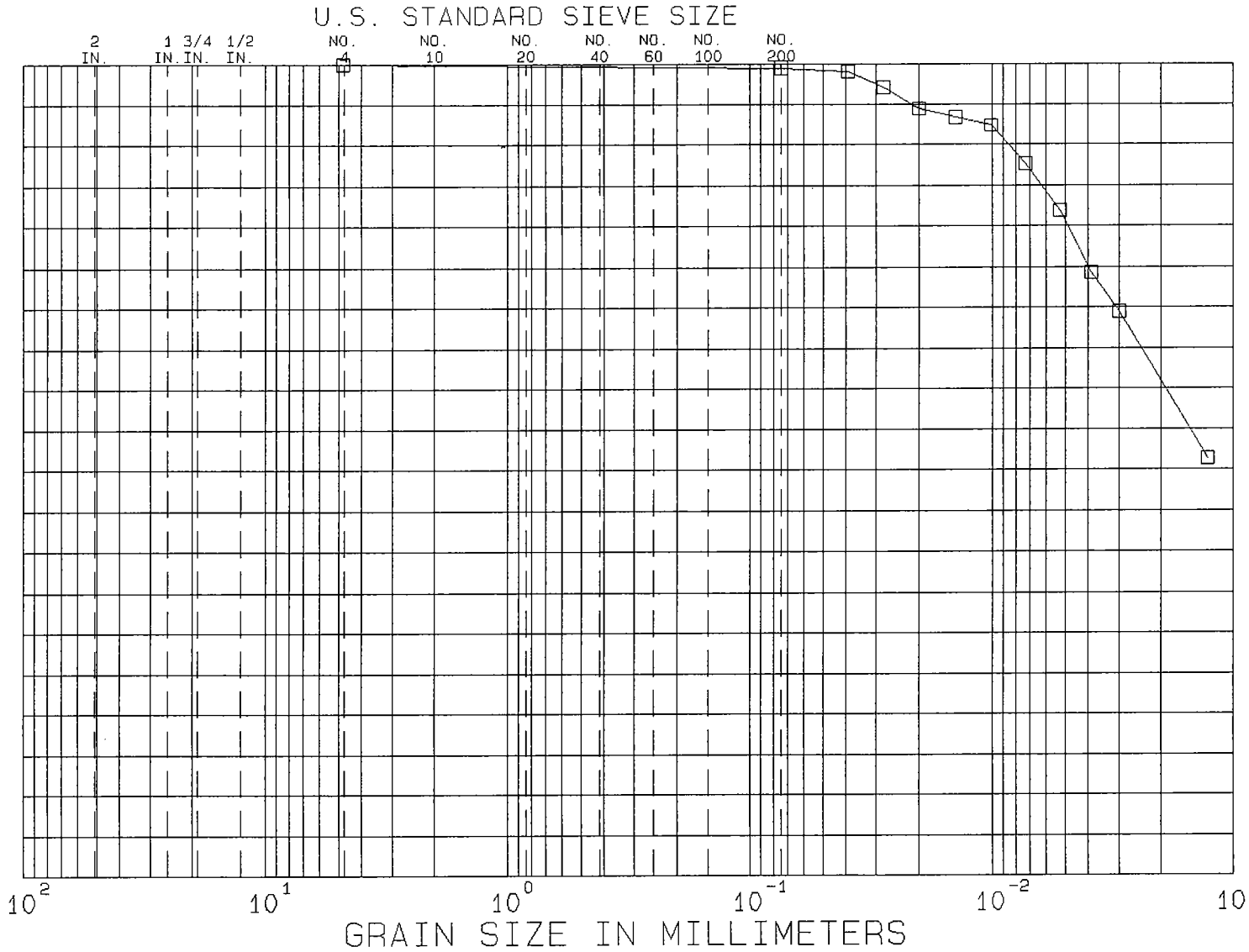
NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-73
SAMPLE S-27
DEPTH 115-116.5'
TECH. CAG
REVIEWER MBP

TEST SERIES NO. 178
DATE Dec.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

APPENDIX E-9



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

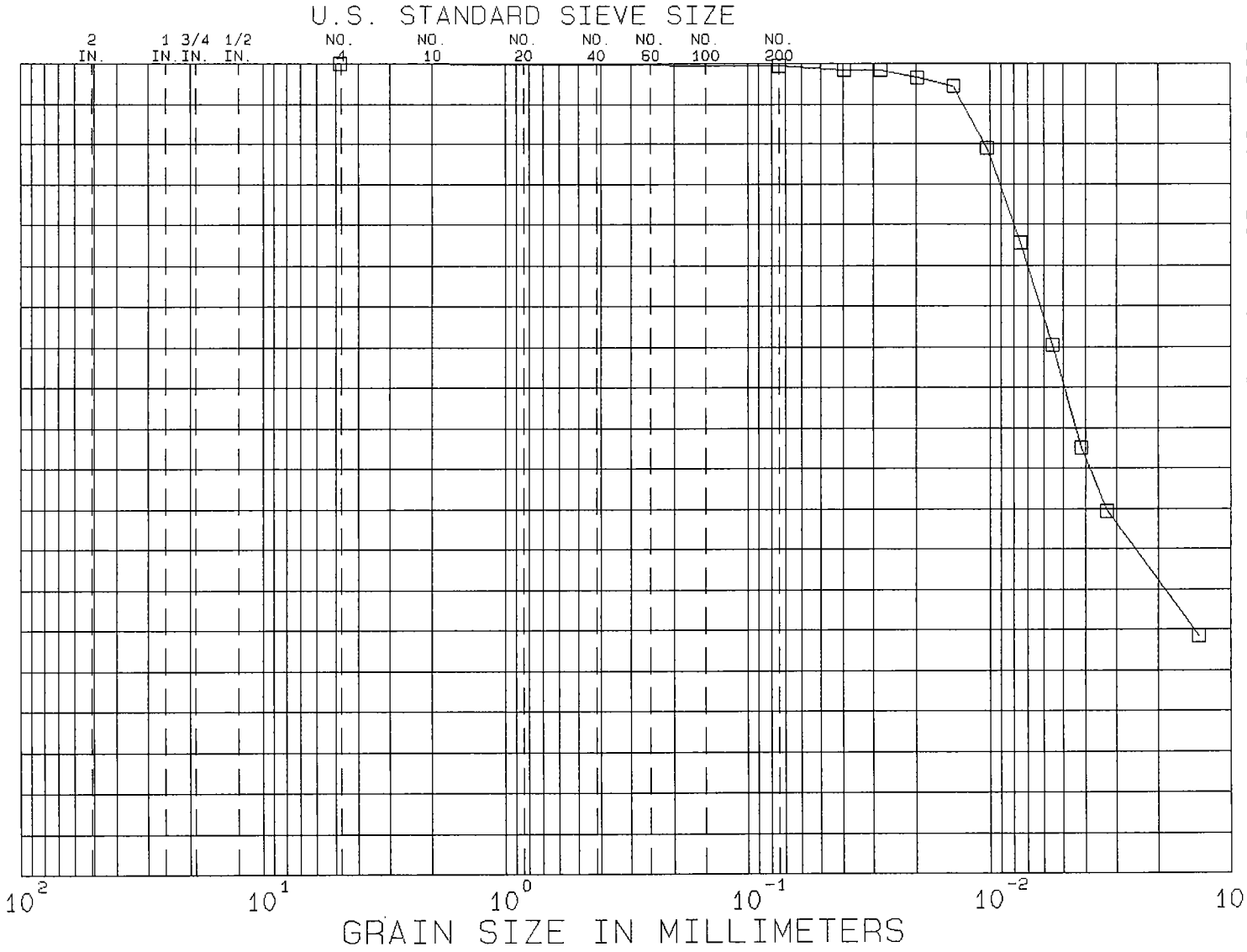
TEST NO.	MATERIAL SOURCE	REMARKS
S184.1	Boring No. SB-76 S.No.S-10, D=28.5-30'	Brown Fat clay (CH)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-76
SAMPLE S-10
DEPTH 28.5-30'
TECH. CAG
REVIEWER MBP

TEST SERIES NO. 184
DATE Dec.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

TEST NO.	MATERIAL SOURCE	REMARKS
S185.1	Boring No. SB-76 S.No.S-20, D=80-81.5'	Red-brown Lean clay (CL)

NEW BRITAIN-HARTFORD BUSWAY

CONNECTICUT

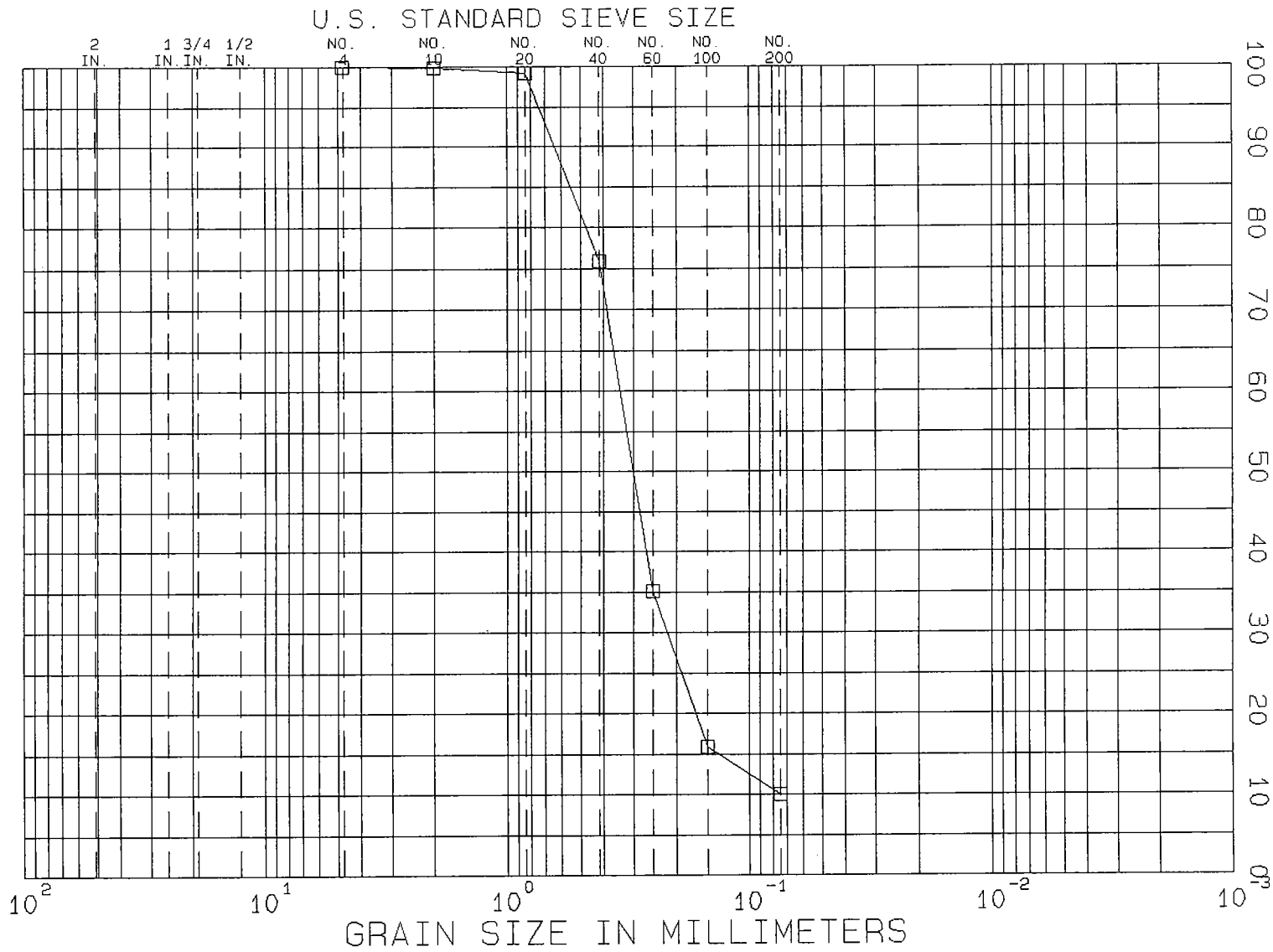
GRADATION TESTS

BORING NO. SB-76
SAMPLE S-20
DEPTH 80-81.5'
TECH. CAG
REVIEWER MBP

TEST SERIES
NO. 185
DATE Dec.03

FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

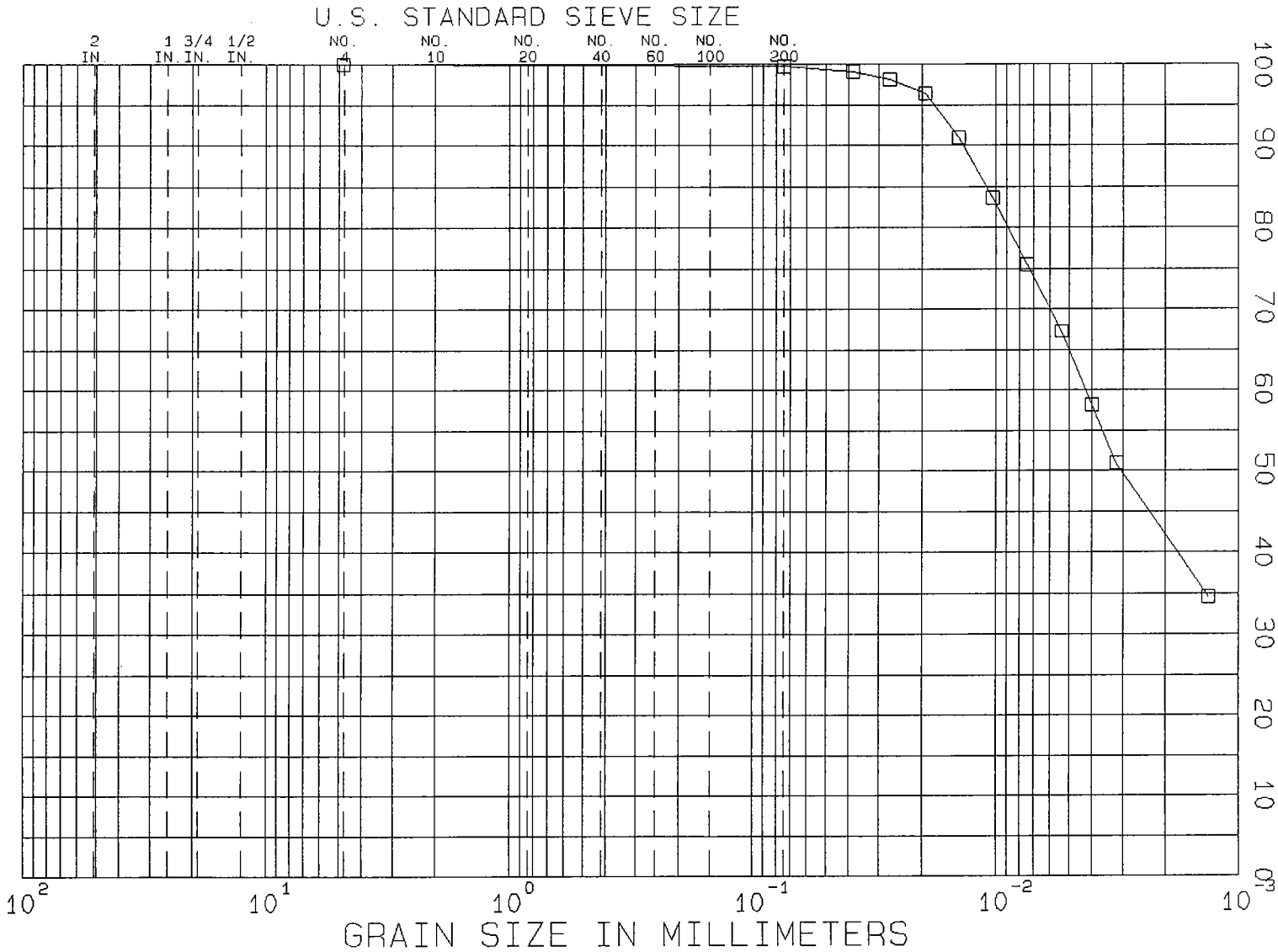
TEST NO.	MATERIAL SOURCE	REMARKS
S186.1	Boring No. SB-76 S.No.S-30, D=130-131.5'	Brown Poorly-graded sand with silt (SP-SM)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-76
SAMPLE S-30
DEPTH 130-131.5
TECH. CAG
REVIEWER MBP

TEST SERIES NO. 186
DATE Dec.03
FILE L17028

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

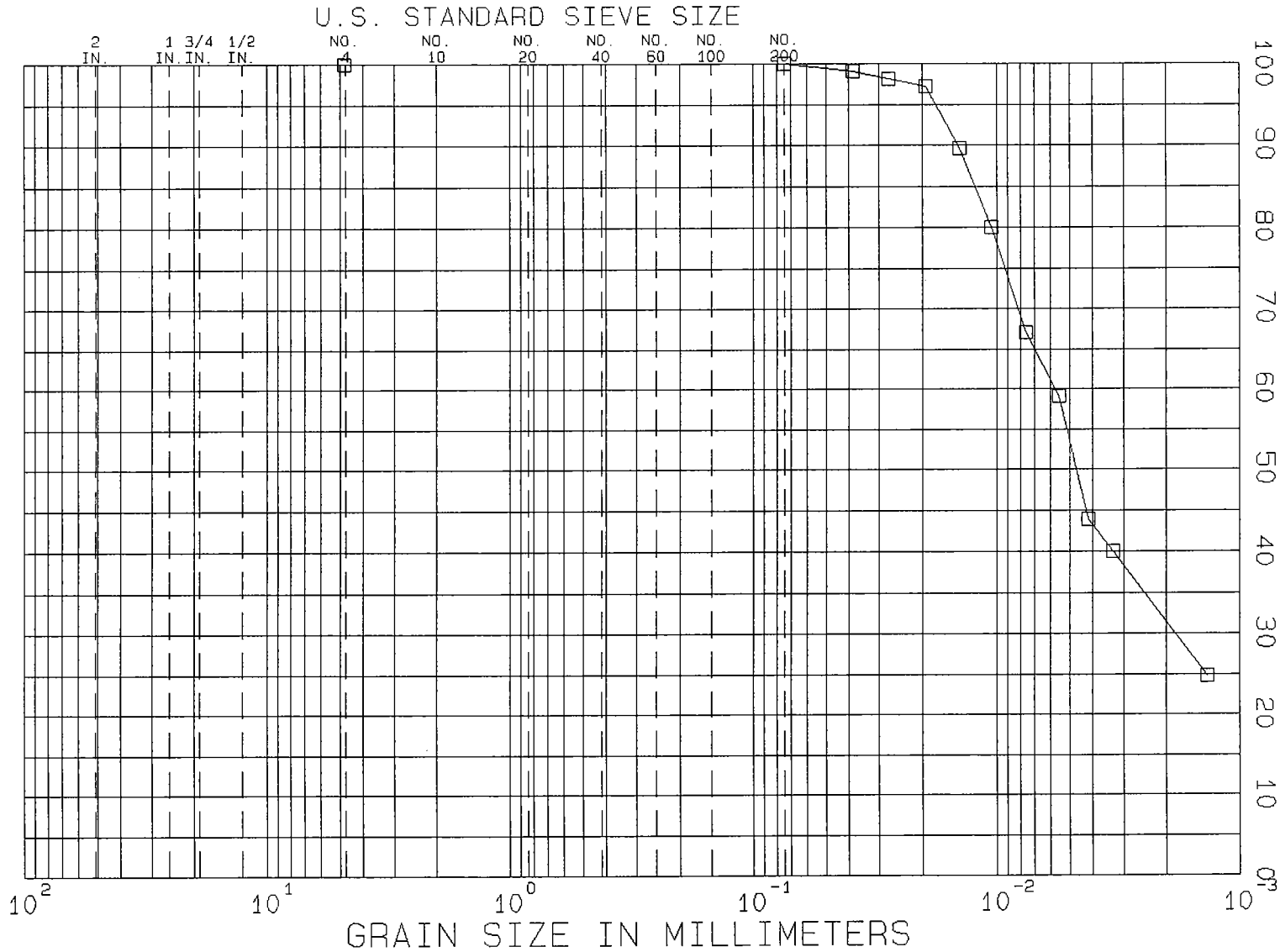
TEST NO.	MATERIAL SOURCE	REMARKS
S187.1	Boring No. SB-77 S.No.S-9, D=25-26.5'	Red-brown Lean clay (CL)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-77
SAMPLE S-9
DEPTH 25-26.5'
TECH CAG
REVIEWER MBP

TEST SERIES NO. 187
DATE Dec. 03
FILE L17628

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

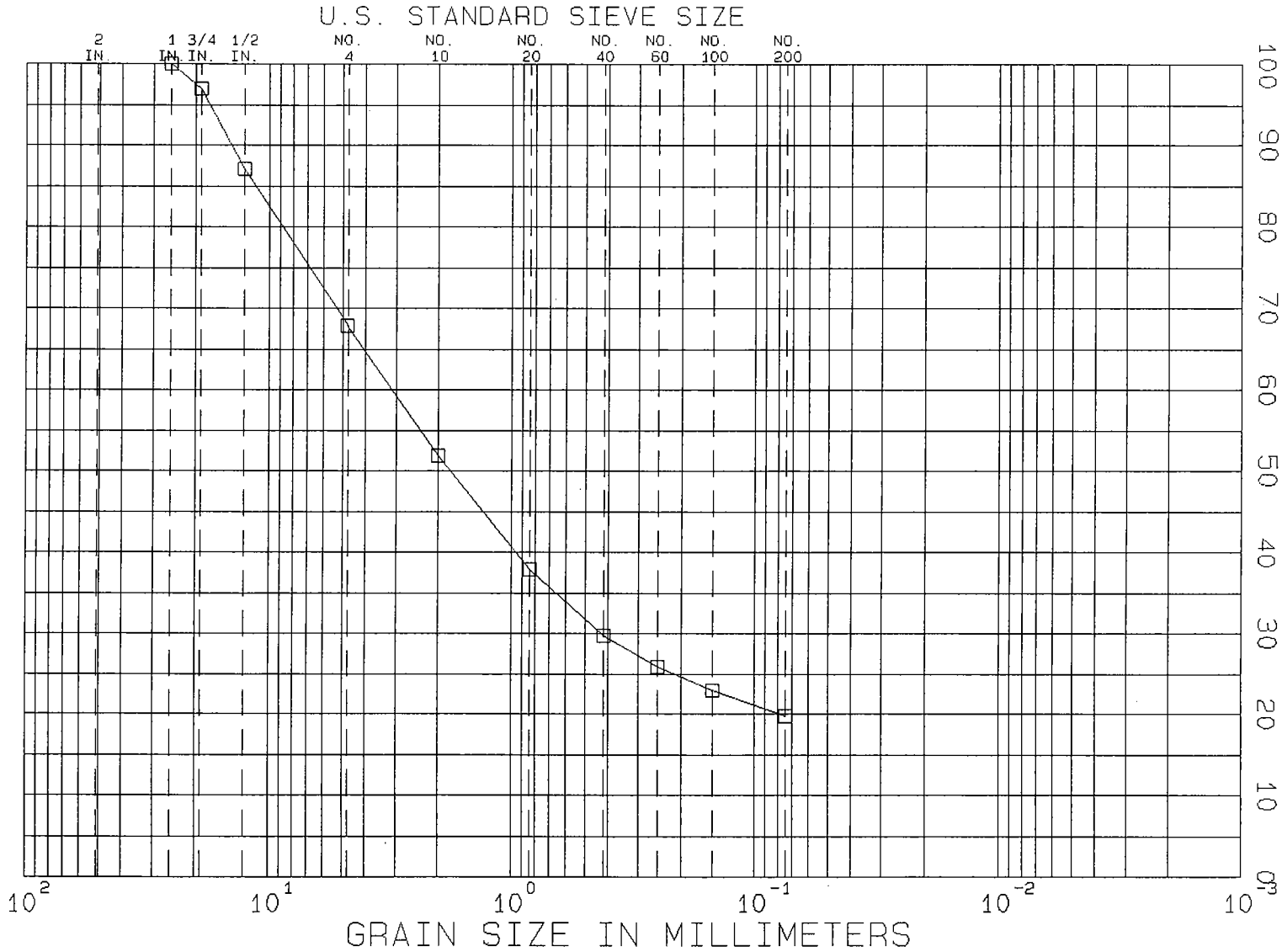
TEST NO.	MATERIAL SOURCE	REMARKS
S188.1	Boring No. SB-77 S.No.S-20, D=85-86.5'	Red-brown Silt (ML)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-77
SAMPLE S-20
DEPTH 85-86.5'
TECH. CAG
REVIEWER MBP

TEST SERIES NO. 188
DATE Dec.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

TEST NO.	MATERIAL SOURCE	REMARKS
S189.1	Boring No. SB-77 S.No.S-29, D=130-131.5'	Red-brown Silty sand with gravel (SM)

NEW BRITAIN-HARTFORD BUSWAY

CONNECTICUT

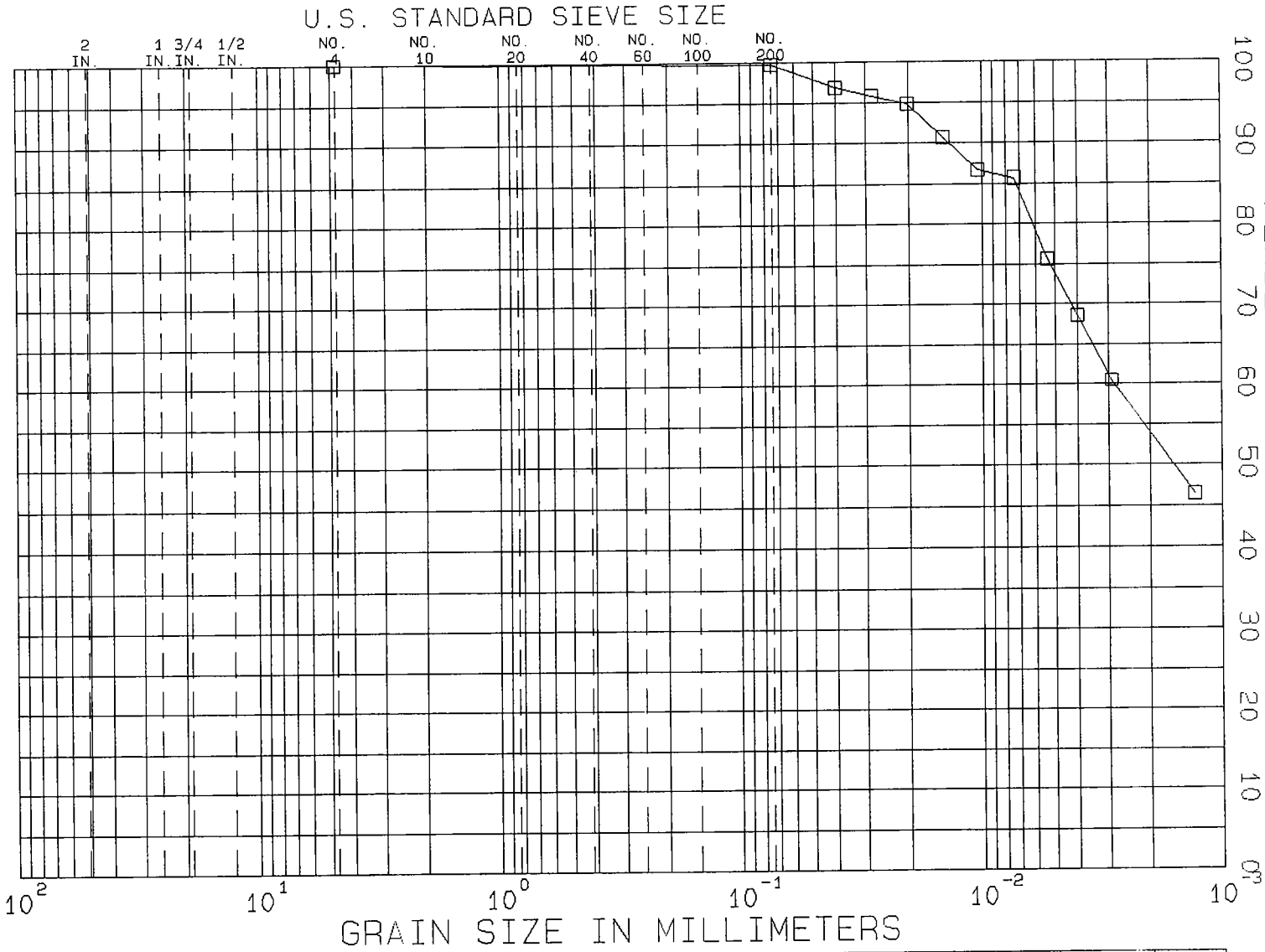
GRADATION TESTS

BORING NO. SB-77
SAMPLE S-29
DEPTH 130-131.5'
TECH. CAG
REVIEWER MBP

TEST SERIES NO. 189
DATE Dec.03

FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

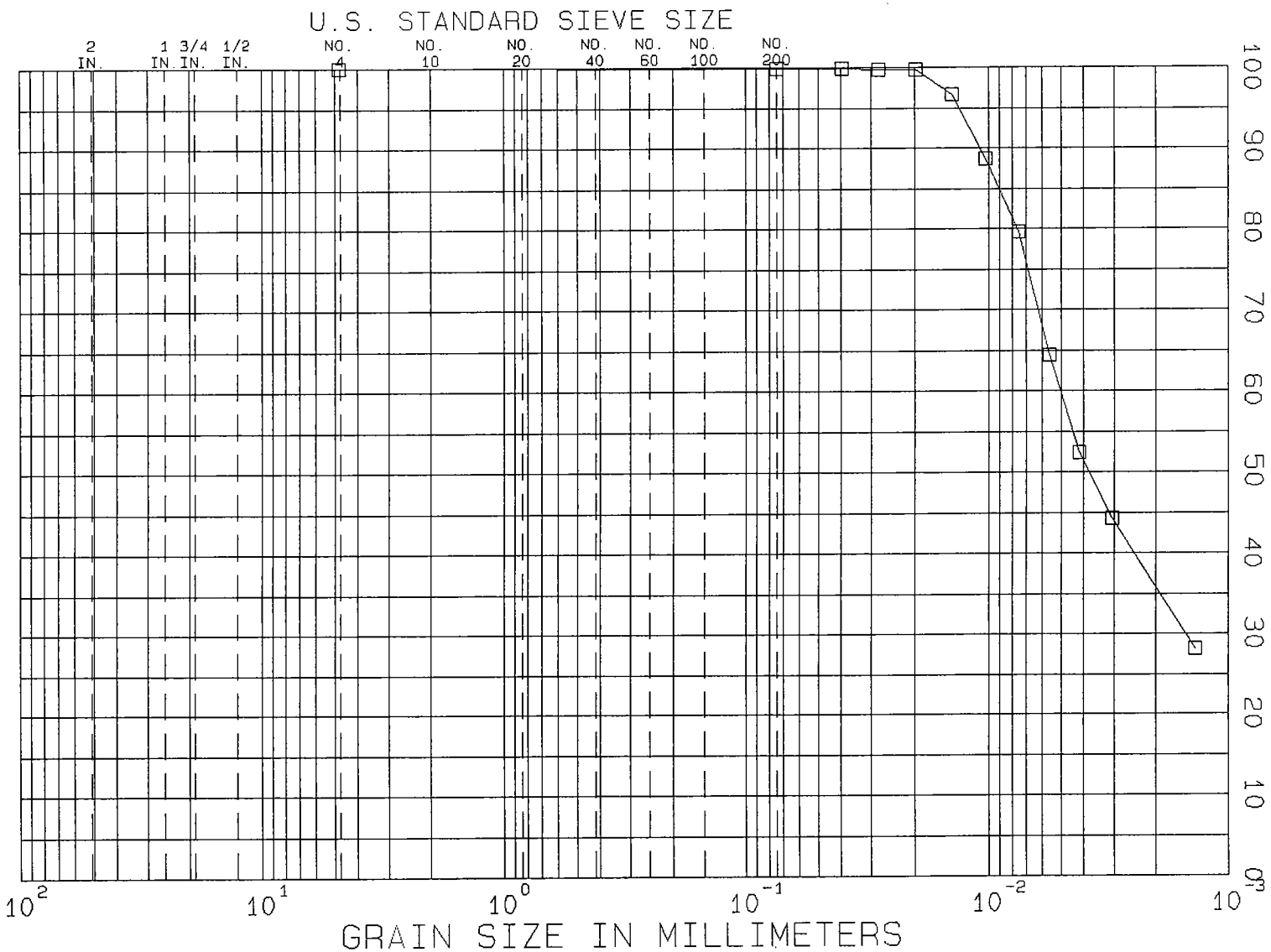
TEST NO.	MATERIAL SOURCE	REMARKS
S190.1	Boring No. S8-78 S.No.S-10, D=28.5-30'	Gray Fat clay (CH)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. S8-78
SAMPLE S-10
DEPTH 28.5-30'
TECH. CAG
REVIEWER MBP

TEST SERIES NO. 190
DATE Dec.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

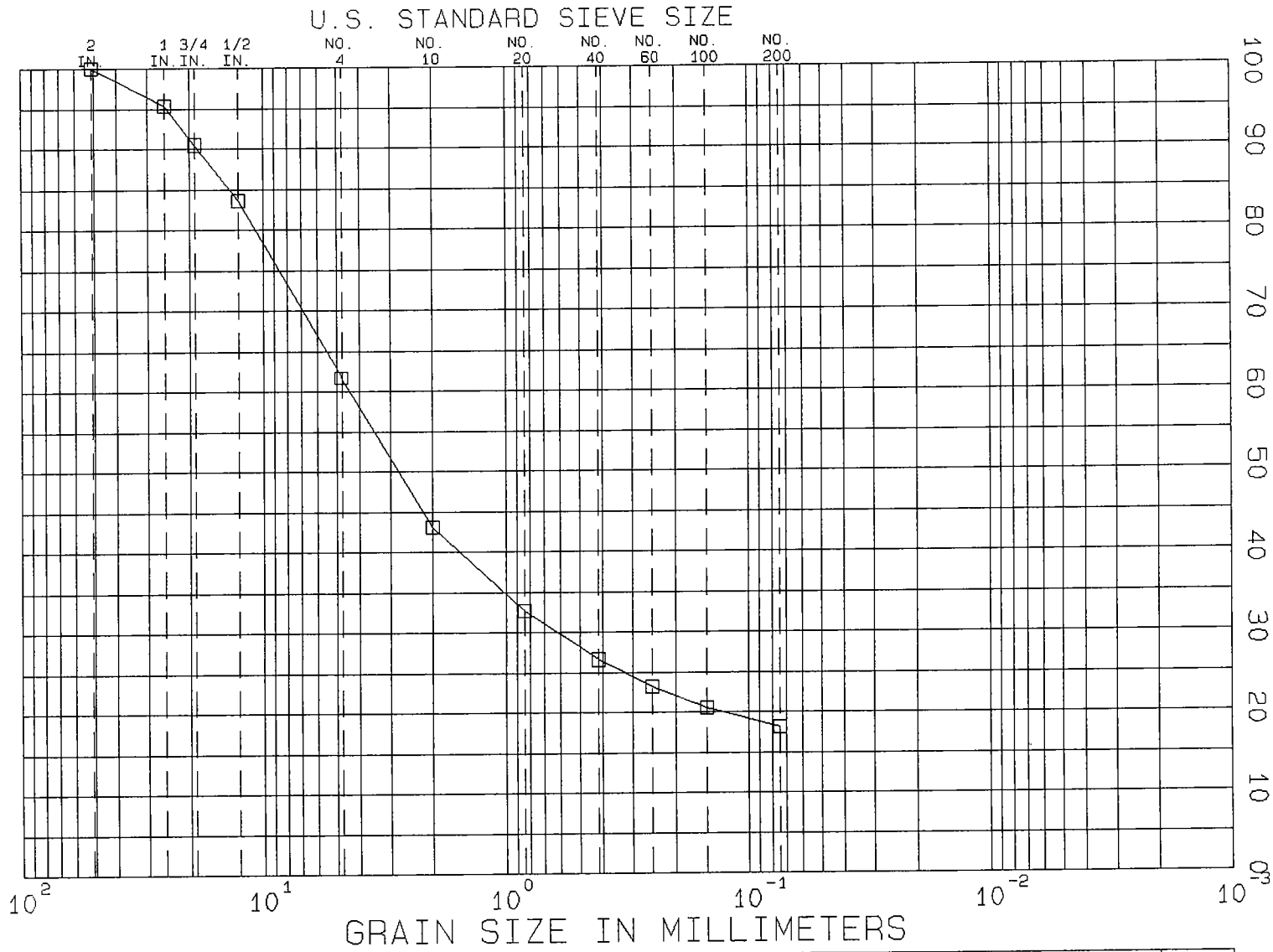
TEST NO.	MATERIAL SOURCE	REMARKS
S191.1	Boring No. SB-78 S.No.S-20, D=80-81.5'	Brown Lean clay (CL)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-78
SAMPLE S-20
DEPTH 80-81.5'
TECH. CAG
REVIEWER MBP

TEST SERIES NO. 191
DATE Dec.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

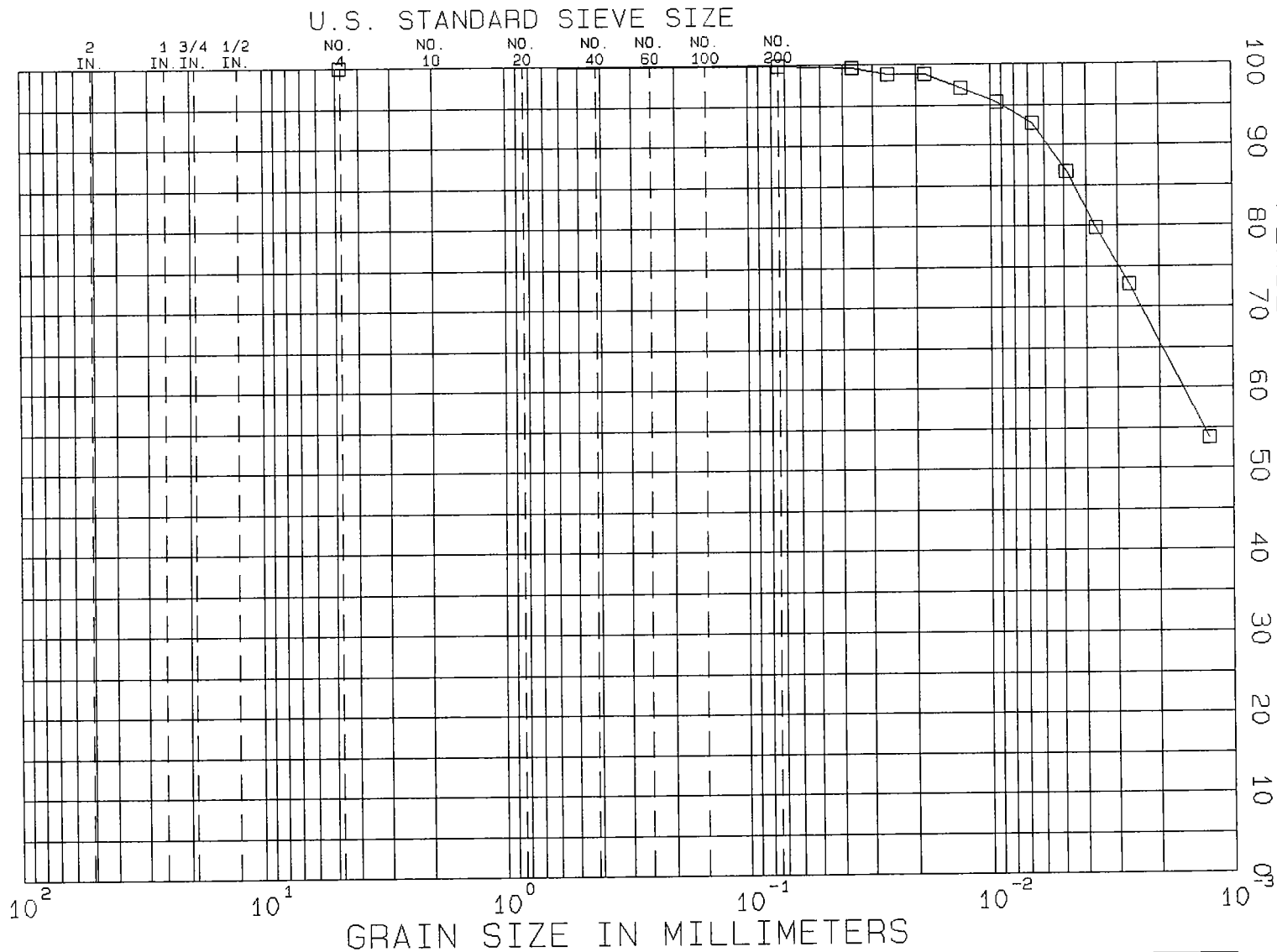
TEST NO.	MATERIAL SOURCE	REMARKS
S192.1	Boring No. SB-78 S.No.S-31, D=130-131.5'	Red-brown Silty sand with gravel (SM)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-78
SAMPLE S-31
DEPTH 130-131.5'
TECH. CAG
REVIEWER MBP

TEST SERIES NO. 192
DATE Dec.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

TEST NO.	MATERIAL SOURCE	REMARKS
S193.1	Boring No. SB-79 S.No.S-16, D=60-61.5'	Brown Fat clay (CH)

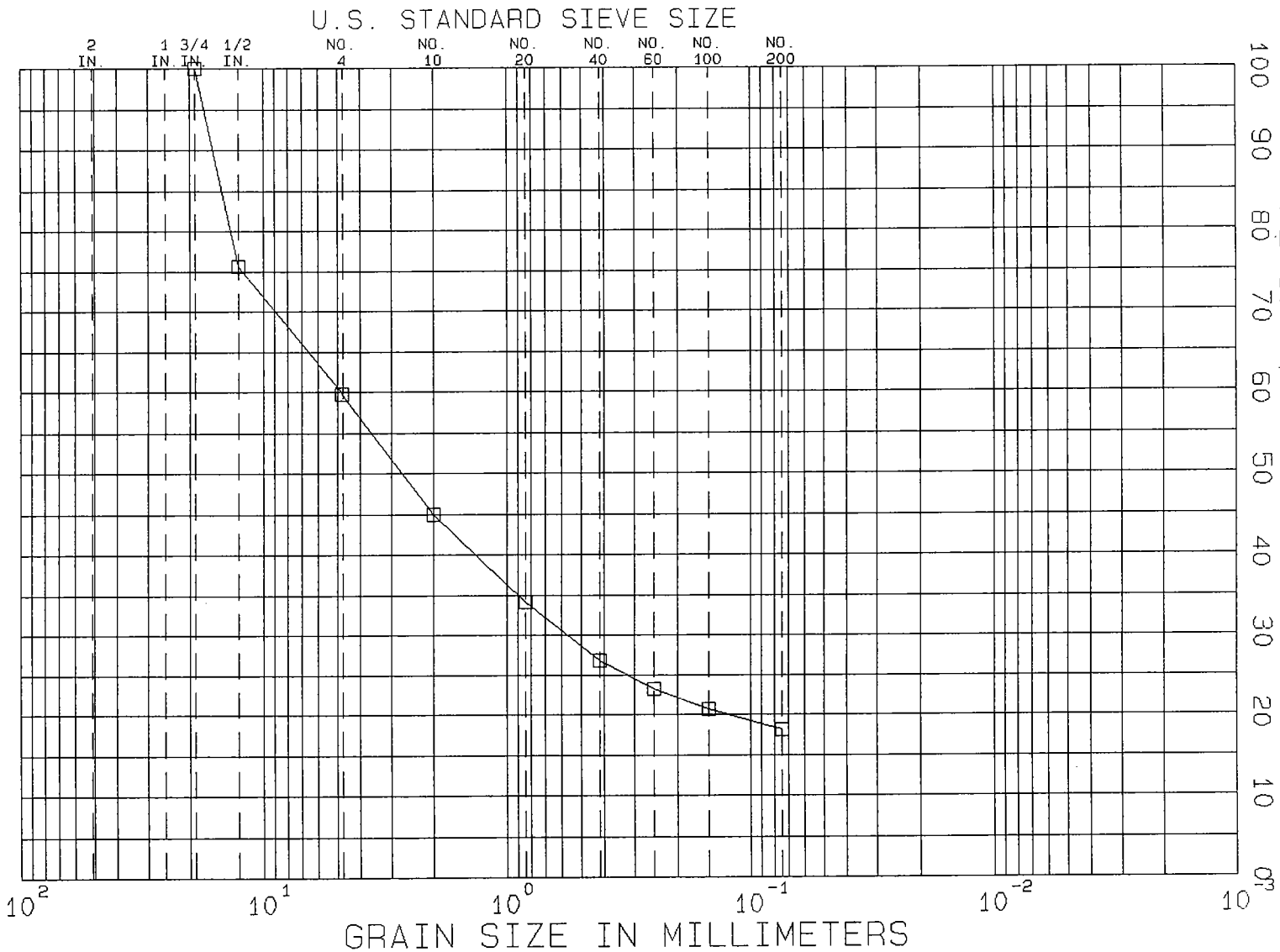
NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-79
SAMPLE S-16
DEPTH 60-61.5'
TECH. CAG
REVIEWER MBP

TEST SERIES NO. 193
DATE Dec.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

APPENDIX E-9



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

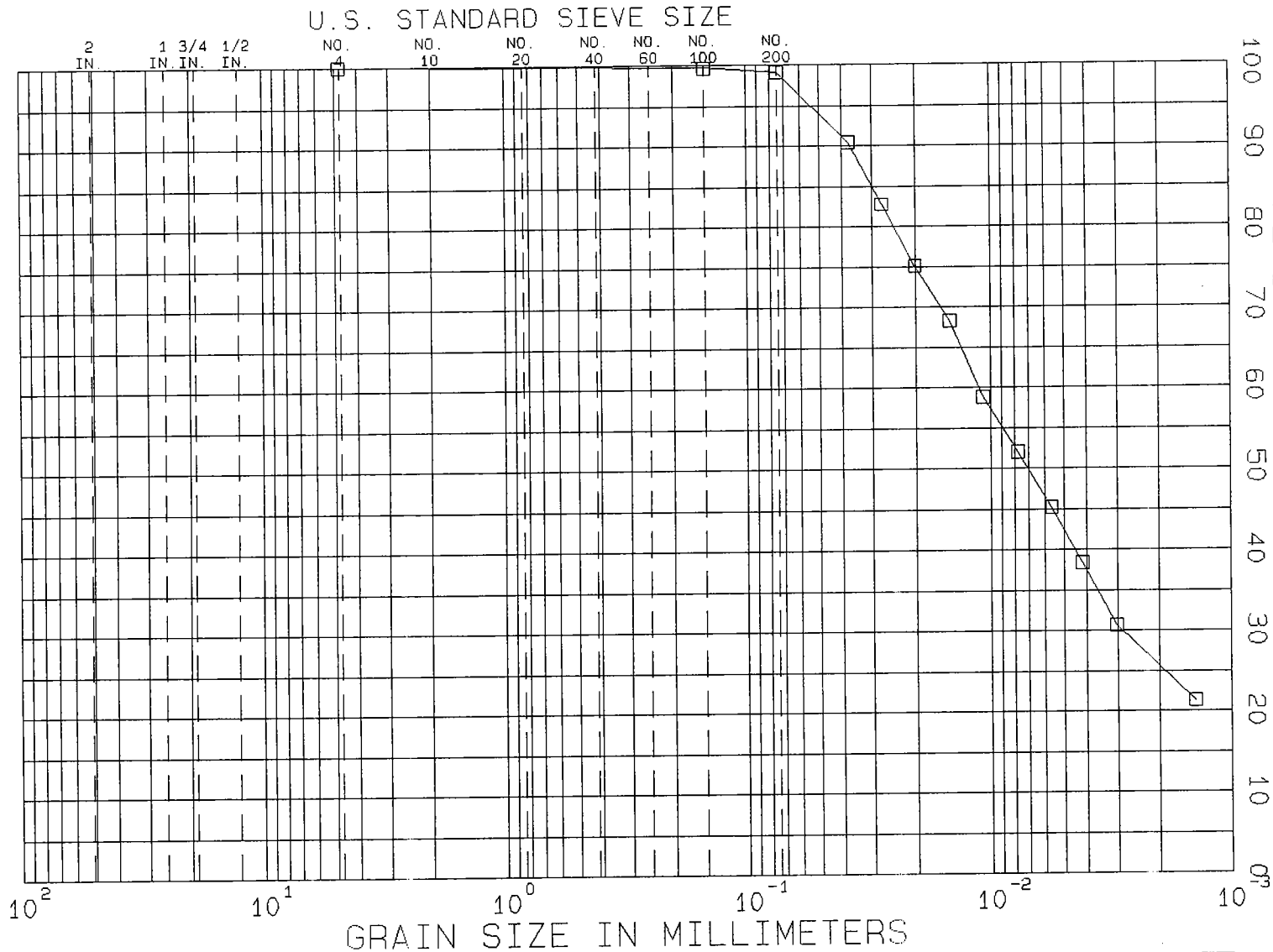
TEST NO.	MATERIAL SOURCE	REMARKS
S194.1	Boring No. SB-79 S.No.S-33, D=145-146.5'	Red-brown Silty sand with gravel (SM)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-79
SAMPLE S-33
DEPTH 145-146.5'
TECH. CAG
REVIEWER MBP

TEST SERIES NO. 194
DATE Dec.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

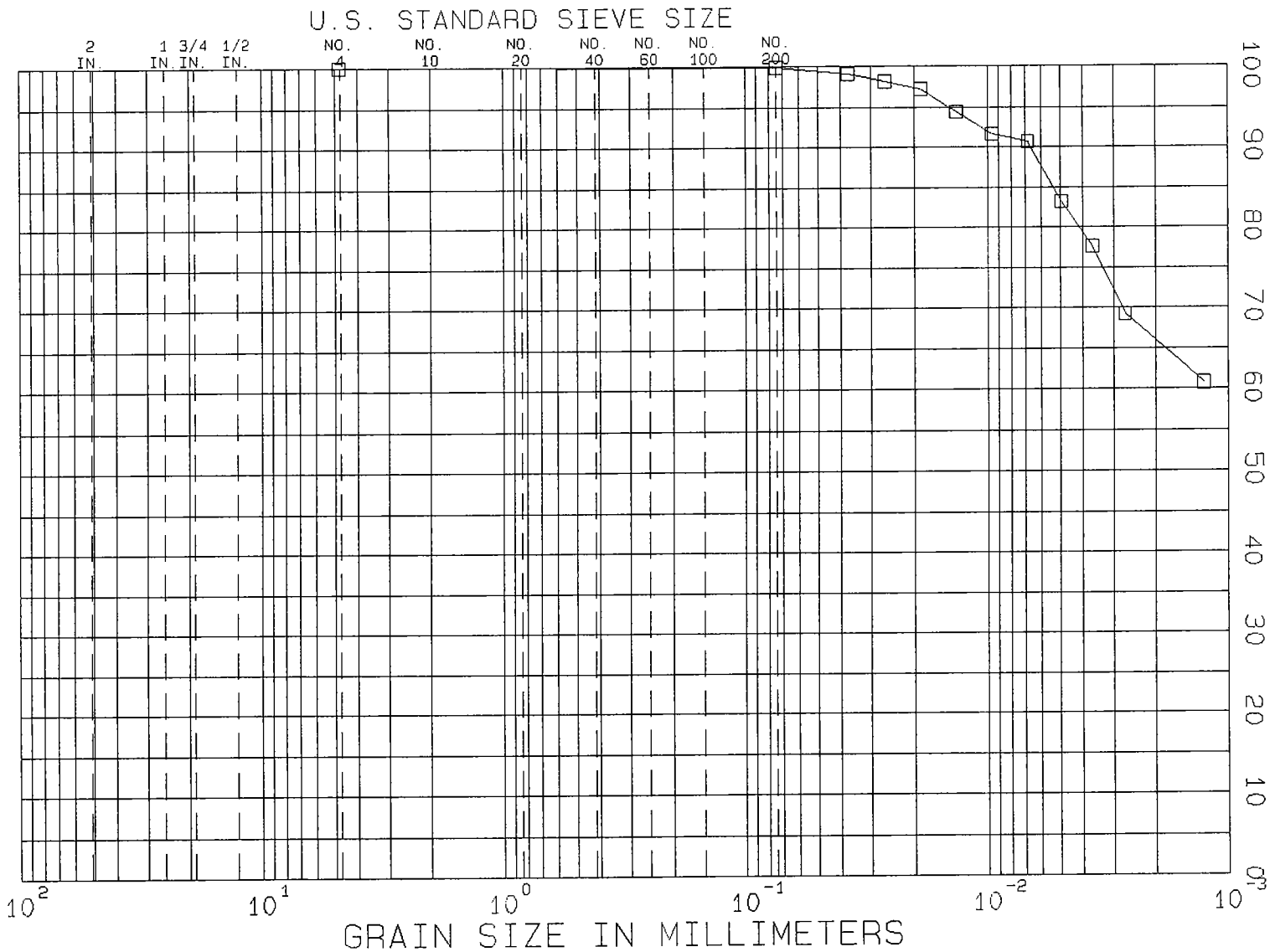
TEST NO.	MATERIAL SOURCE	REMARKS
S201.1	Boring No. S8-82 S.No.S-6, D=16.5-18'	Gray Lean clay (CL)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. S8-82
SAMPLE S-6
DEPTH 16.5-18'
TECH. CAG
REVIEWER MBP

TEST SERIES NO. 201
DATE Dec.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

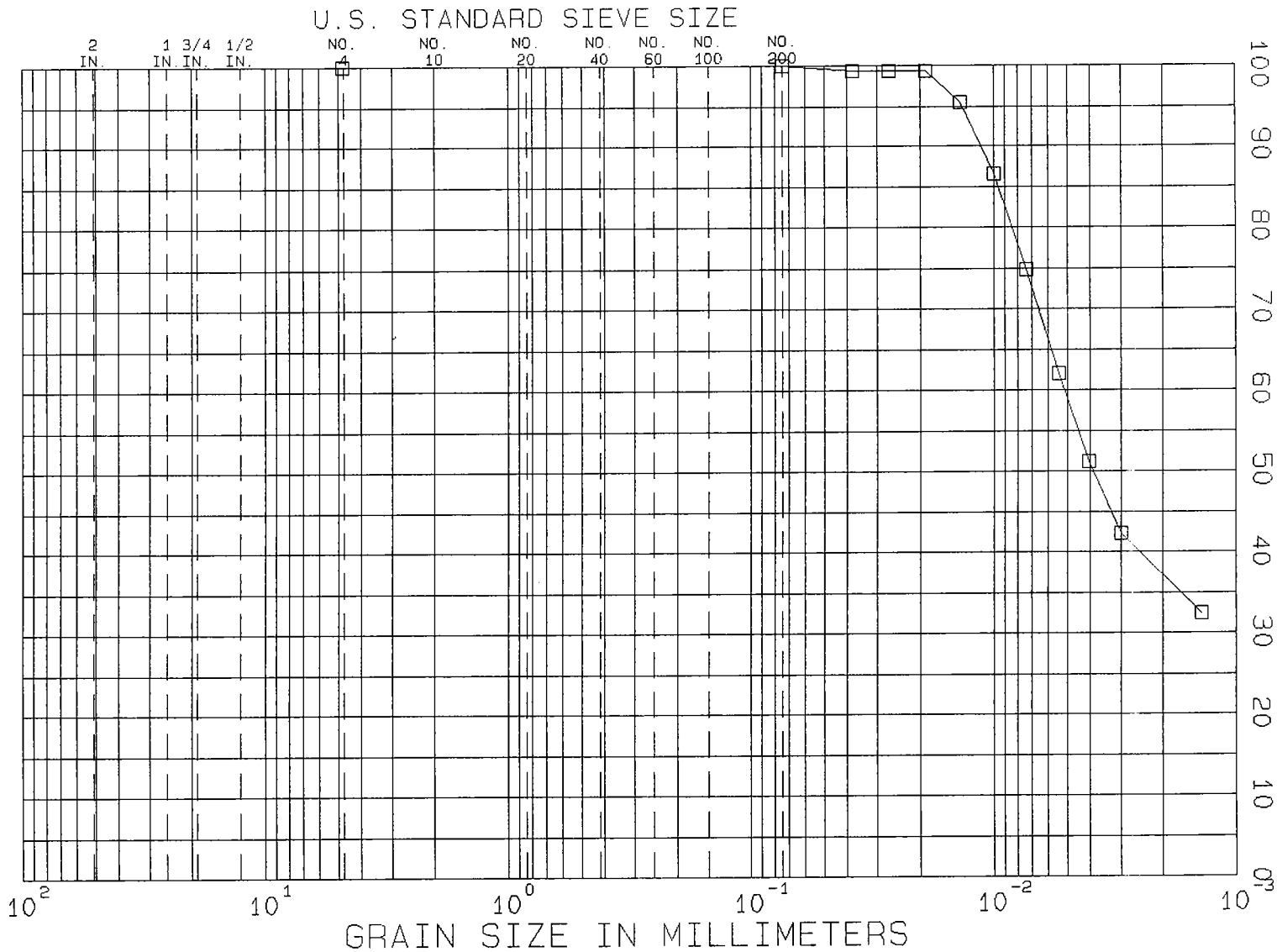
TEST NO.	MATERIAL SOURCE	REMARKS
S202.1	Boring No. SB-82 S.No.S-14, D=50-51.5'	Gray-brown Fat clay (CH)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-82
SAMPLE S-14
DEPTH 50-51.5'
TECH. CAG
REVIEWER MBP

TEST SERIES NO. 202
DATE Dec.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

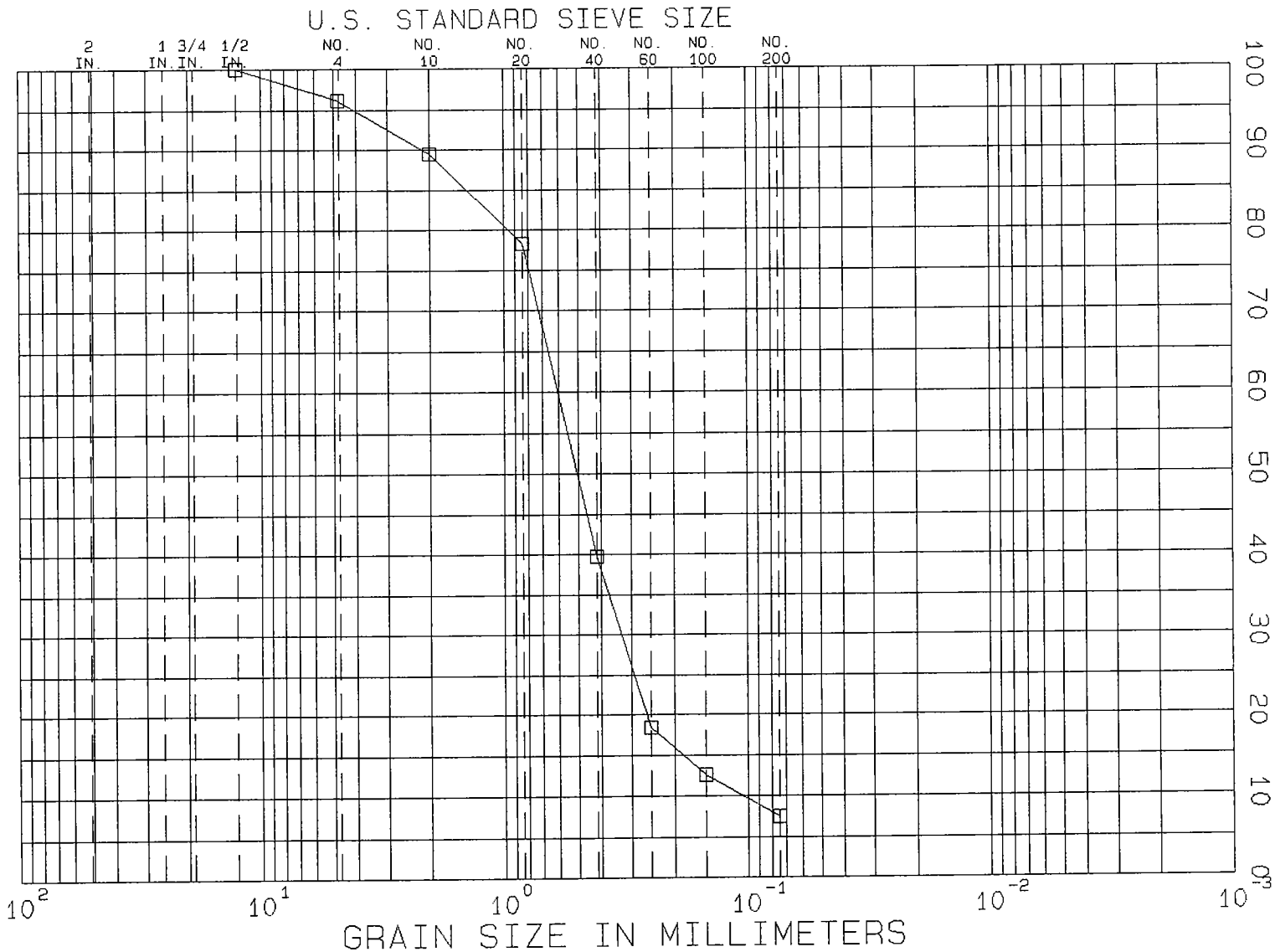
TEST NO.	MATERIAL SOURCE	REMARKS
S203.1	Boring No. SB-82 S.No.S-22, D=95-96.5'	Brown Lean clay (CL)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-82
SAMPLE S-22
DEPTH 95-96.5'
TECH. CAG
REVIEWER MBP

TEST SERIES NO. 203
DATE Dec.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

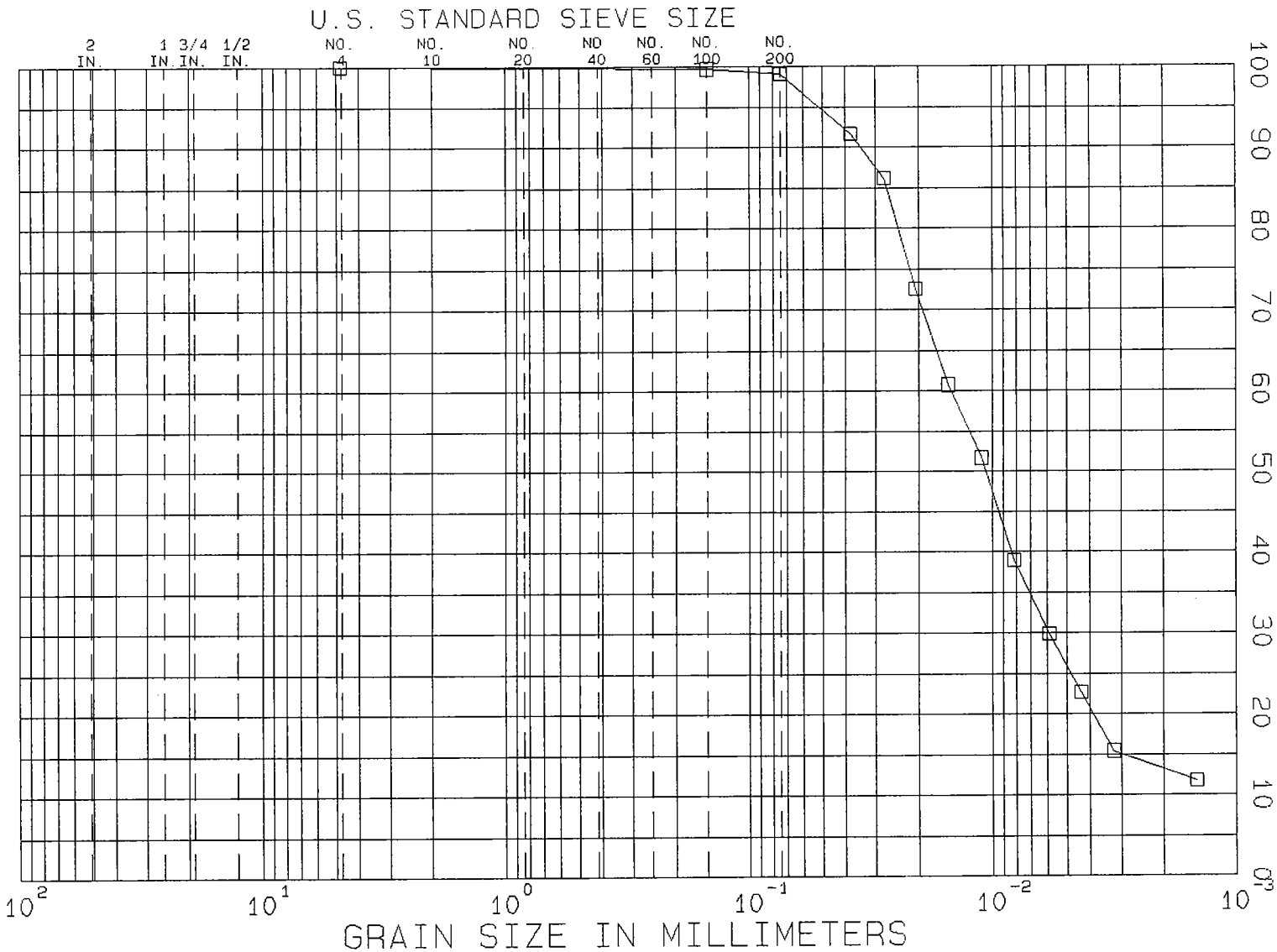
TEST NO.	MATERIAL SOURCE	REMARKS
S204.1	Boring No. SB-82 S.No.S-28, D=125-126.5'	Red-brown Well-graded sand with silt (SW-SM)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-82
SAMPLE S-28
DEPTH 125-126.5'
TECH. CAG
REVIEWER MBP

TEST SERIES NO. 204
DATE Dec. 03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

TEST NO.	MATERIAL SOURCE	REMARKS
S205.1	Boring No. SB-83 S.No.S-3, D=7.5-9'	Gray Silt (ML)

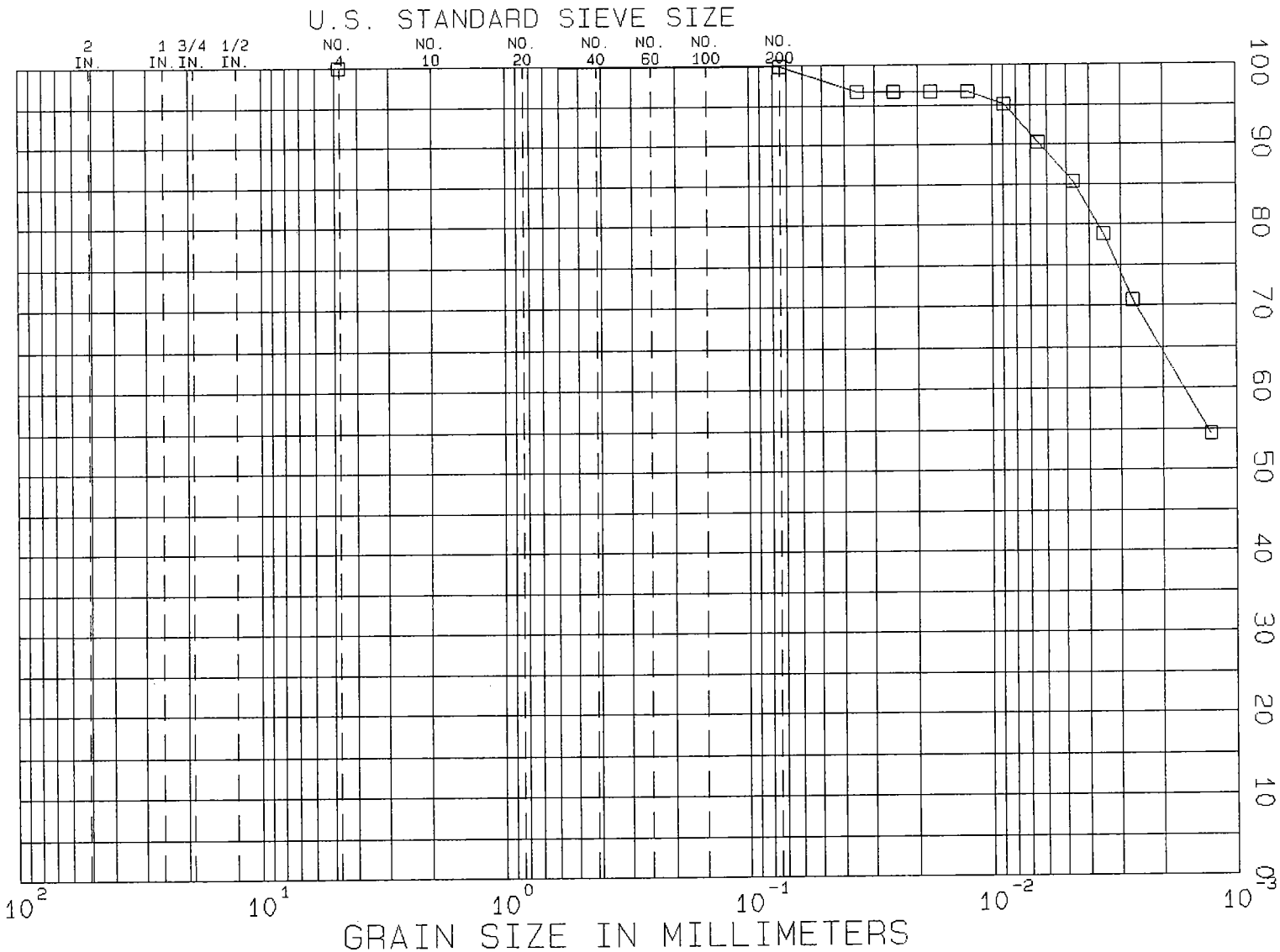
NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-83
SAMPLE S-3
DEPTH 7.5-9'
TECH. CAG
REVIEWER MBP

TEST SERIES 205
NO.
DATE Dec.03

FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

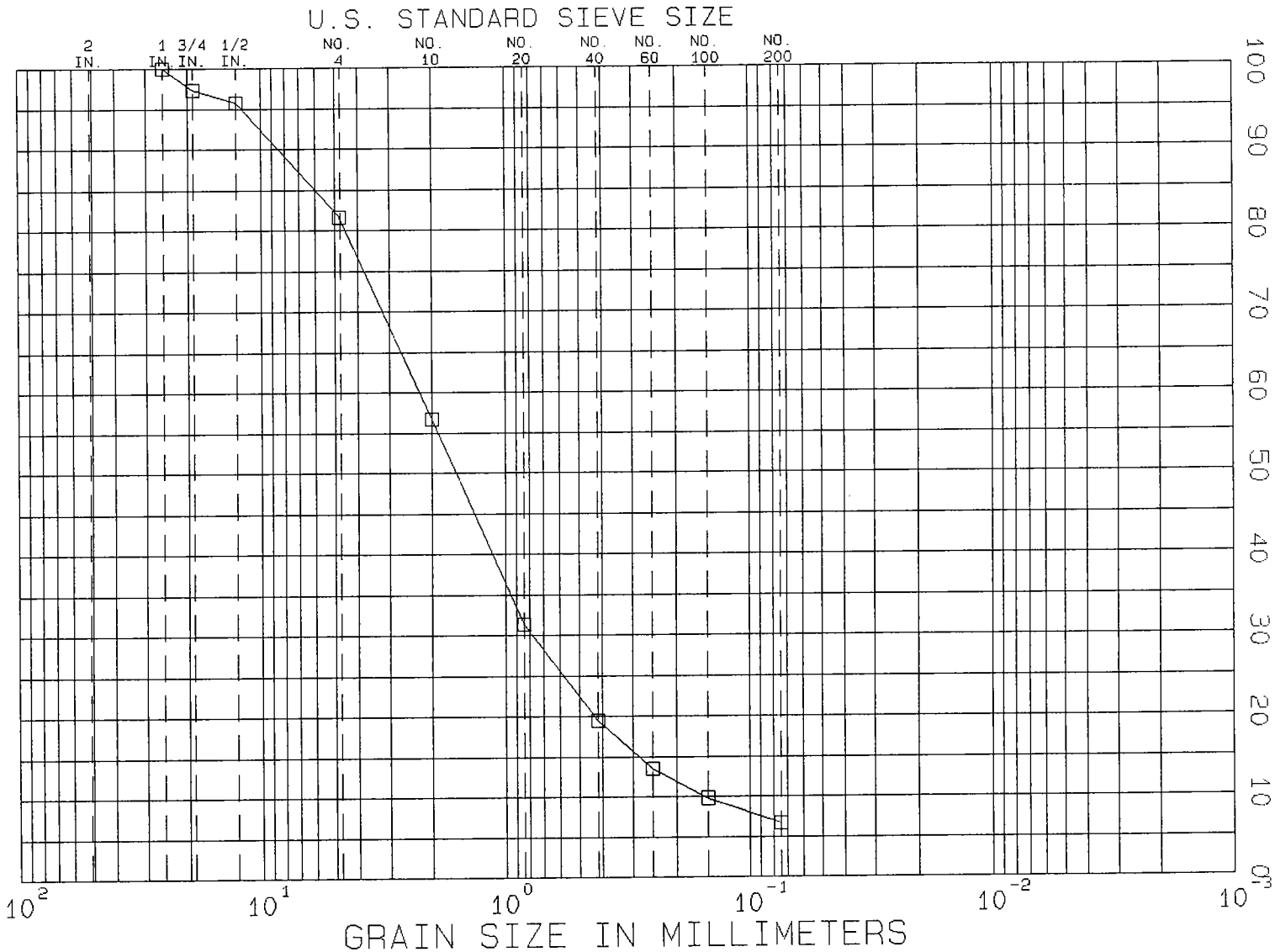
TEST NO.	MATERIAL SOURCE	REMARKS
S206.1	Boring No. SB-83 S.No.S-18, D=70-71.5'	Brown Fat clay (CH)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-83
SAMPLE S-18
DEPTH 70-71.5'
TECH. CAG
REVIEWER MBP

TEST SERIES NO. 206
DATE Dec.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

TEST NO.	MATERIAL SOURCE	REMARKS
S207.1	Boring No. SB-83 S.No.S-30, D=130-131.5'	Red-brown Well-graded sand with silt & gravel (SW-SM)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

GRADATION TESTS

BORING NO. SB-83
SAMPLE S-30
DEPTH 130-131.5'
TECH. CAG
REVIEWER MBP

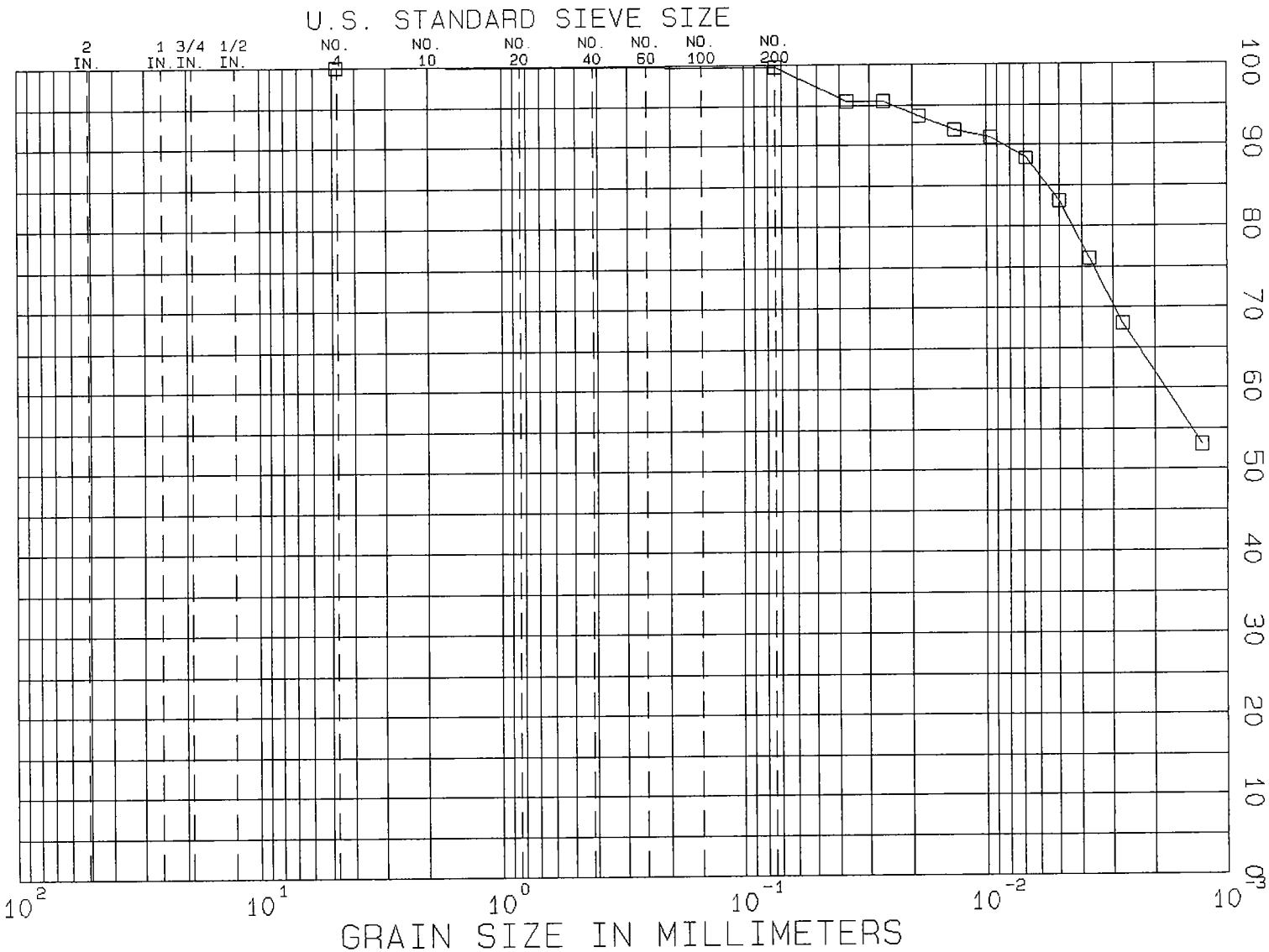
TEST SERIES NO. 207
DATE Dec.03

FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

APPENDIX E-9

S.3



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

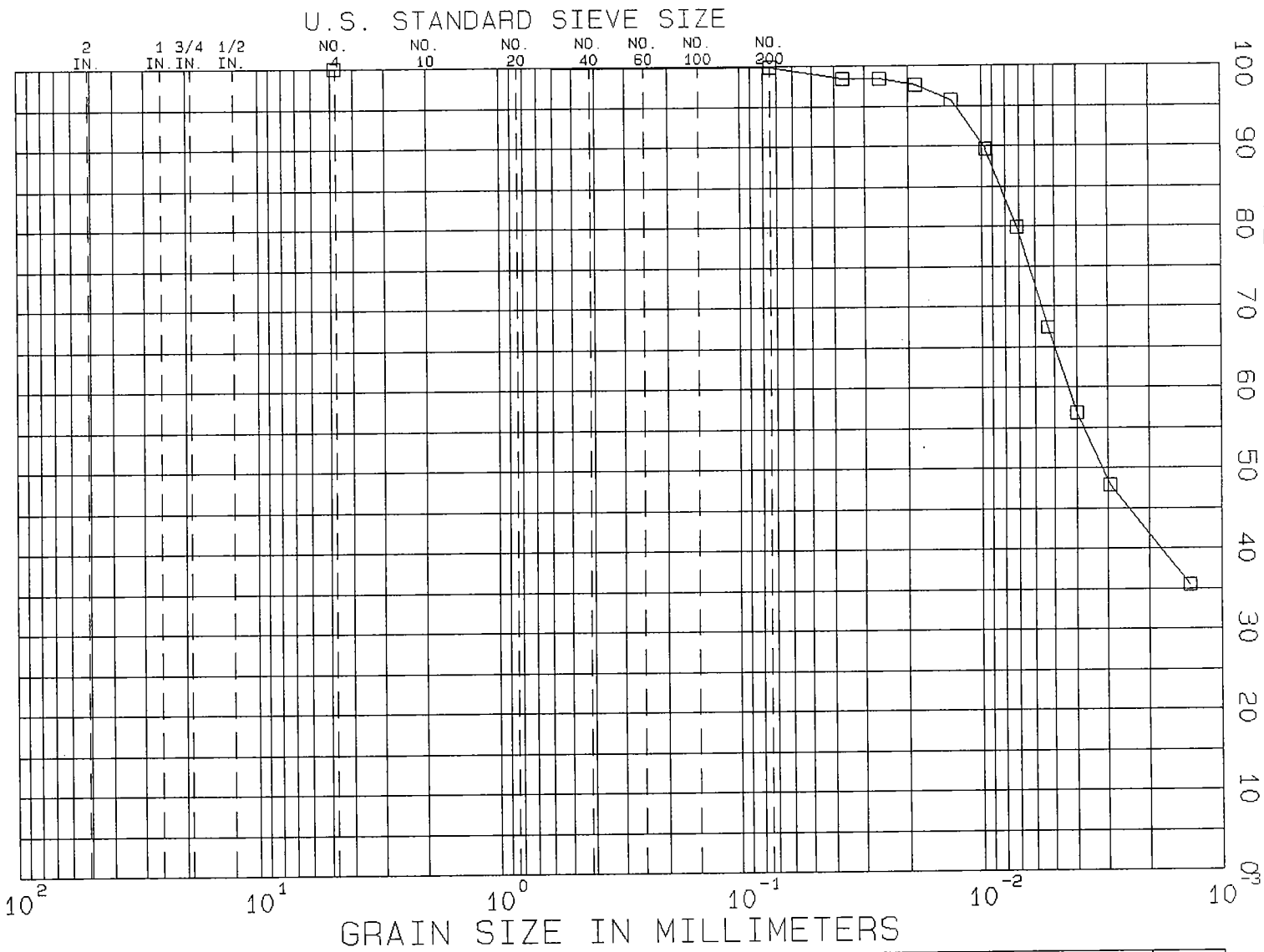
TEST NO.	MATERIAL SOURCE	REMARKS
S213.1	Boring No. SB-85 S.No.S-9, D=25-26.5'	Gray Fat clay (CH)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-85
SAMPLE S-9
DEPTH 25-26.5'
TECH. CAG
REVIEWER MBP

TEST SERIES NO. 213
DATE Dec.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

TEST NO.	MATERIAL SOURCE	REMARKS
S214.1	Boring No. SB-85 S.No.S-19, D=75-76.5'	Brown Fat clay (CH)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

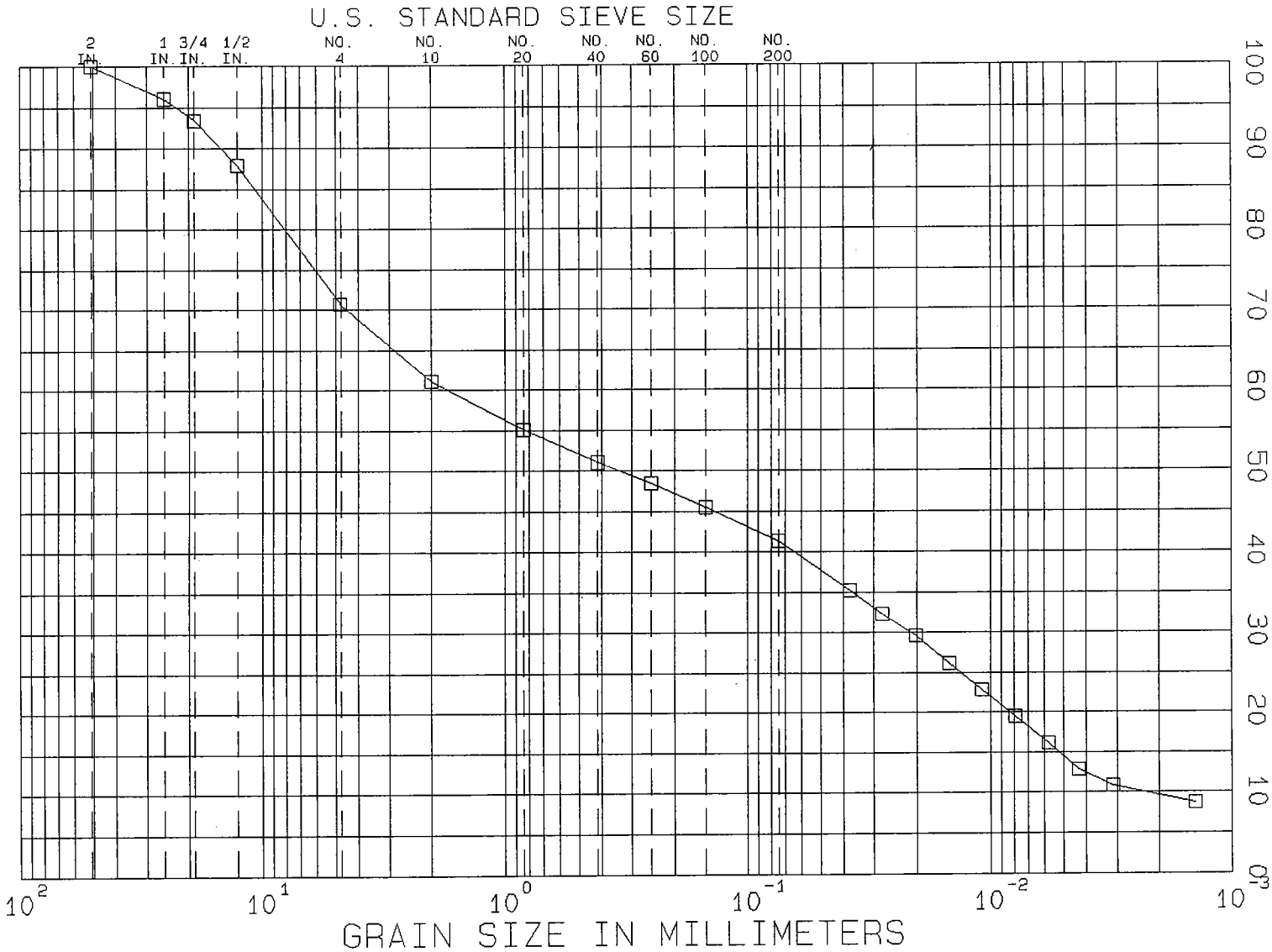
GRADATION TESTS

BORING NO. SB-85
SAMPLE S-19
DEPTH 75-76.5'
TECH. CAG
REVIEWER MBP

TEST SERIES NO. 214
DATE Dec.03

FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

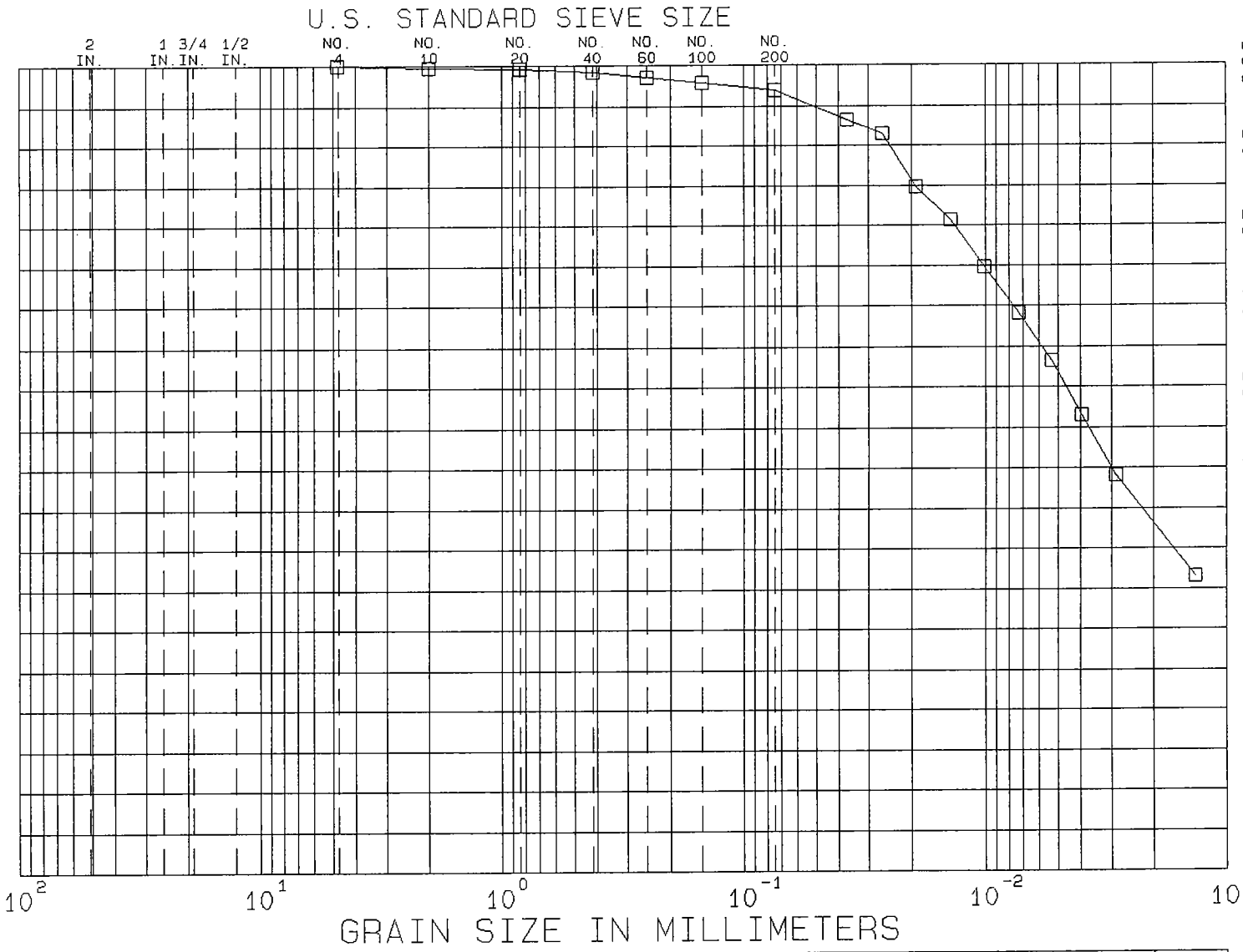
TEST NO.	MATERIAL SOURCE	REMARKS
S215.1	Boring No. SB-85 S.No.S-26, D=110-111.5'	Red-brown Gravelly silt with sand (ML)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-85
SAMPLE S-26
DEPTH 110-111.5'
TECH. CAG
REVIEWER MBP

TEST SERIES NO. 215
DATE Dec.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

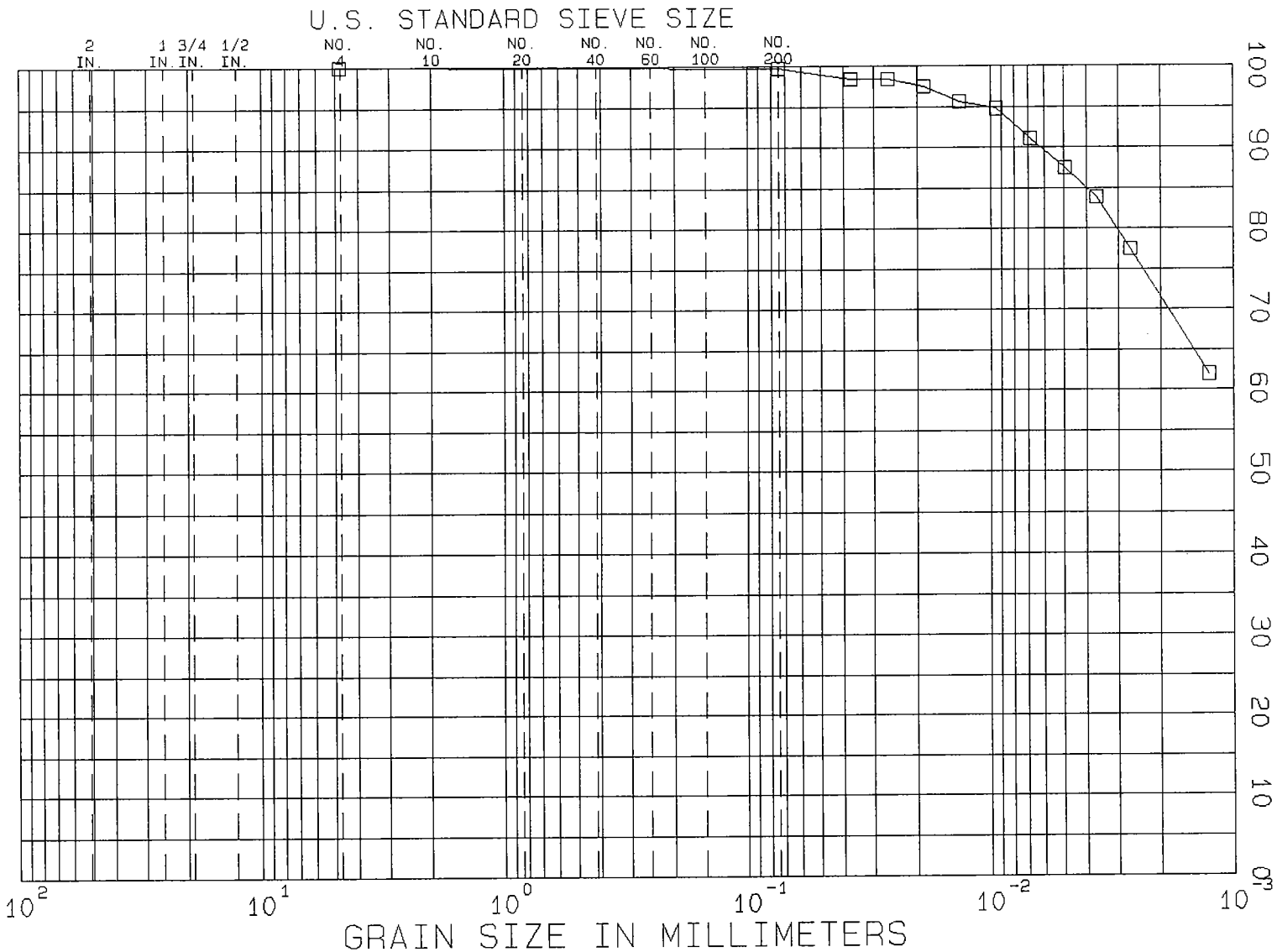
TEST NO.	MATERIAL SOURCE	REMARKS
S216.1	Boring No. SB-86 S.No.S-5, D=13.5-15'	Gray Lean clay (CL)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-86
SAMPLE S-5
DEPTH 13.5-15'
TECH. CAG
REVIEWER MBP

TEST SERIES NO. 216
DATE Dec.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

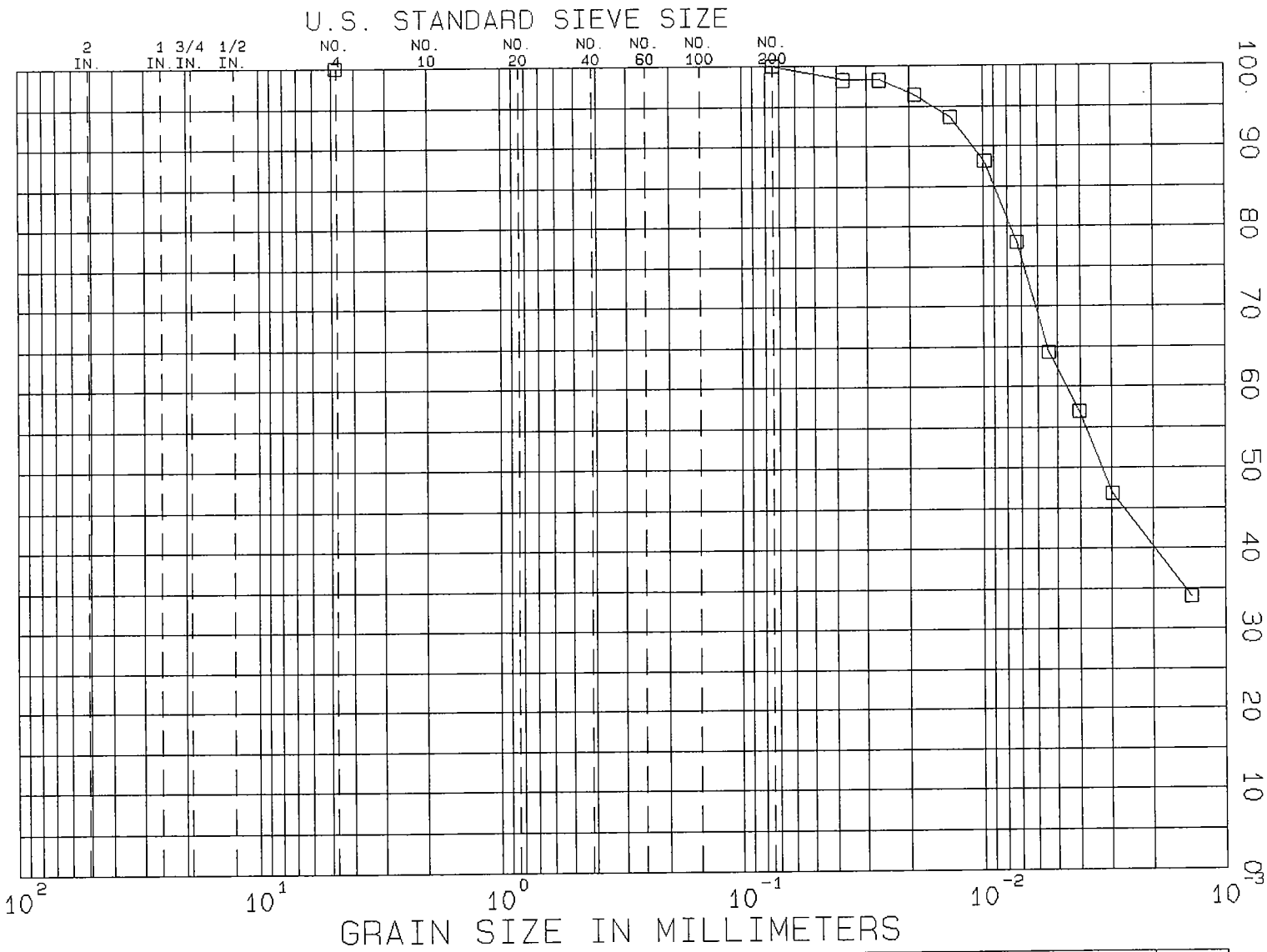
TEST NO.	MATERIAL SOURCE	REMARKS
S217.1	Boring No. SB-86 S.No.S-12, D=40-41.5'	Gray Fat clay (CH)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-86
SAMPLE S-12
DEPTH 40-41.5'
TECH. CAG
REVIEWER MBP

TEST SERIES NO. 217
DATE Dec.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

TEST NO.	MATERIAL SOURCE	REMARKS
S218.1	Boring No. SB-86 S.No.S-19, D=75-76.5'	Red-brown Lean clay (CL)

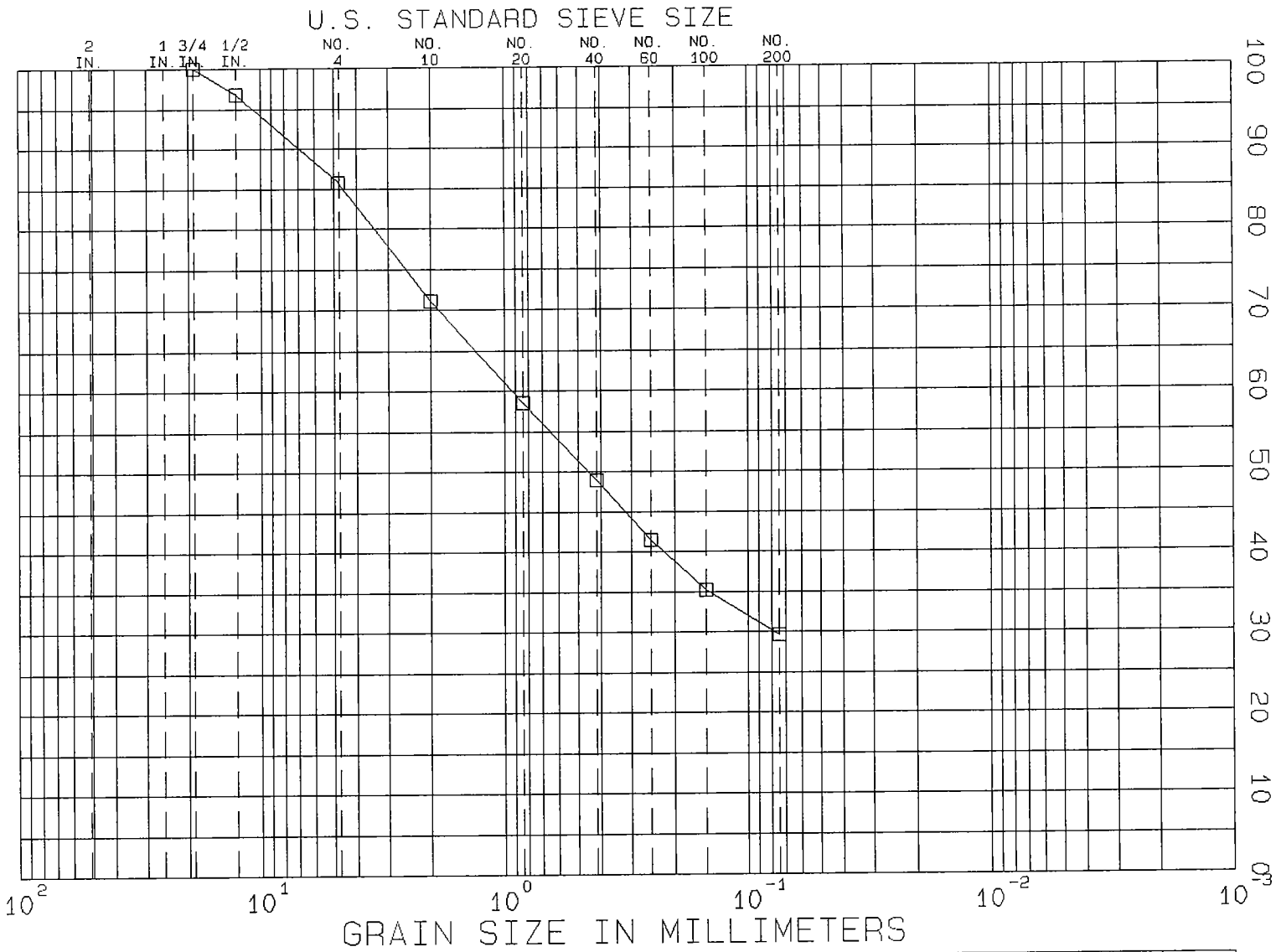
NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

GRADATION TESTS

BORING NO. SB-86
SAMPLE S-19
DEPTH 75-76.5'
TECH. CAG
REVIEWER MBP

TEST SERIES NO. 218
DATE Dec.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

TEST NO.	MATERIAL SOURCE	REMARKS
S219.1	Boring No. SB-86 S.No.S-26, D=110-111.5'	Brown Silty sand (SM)

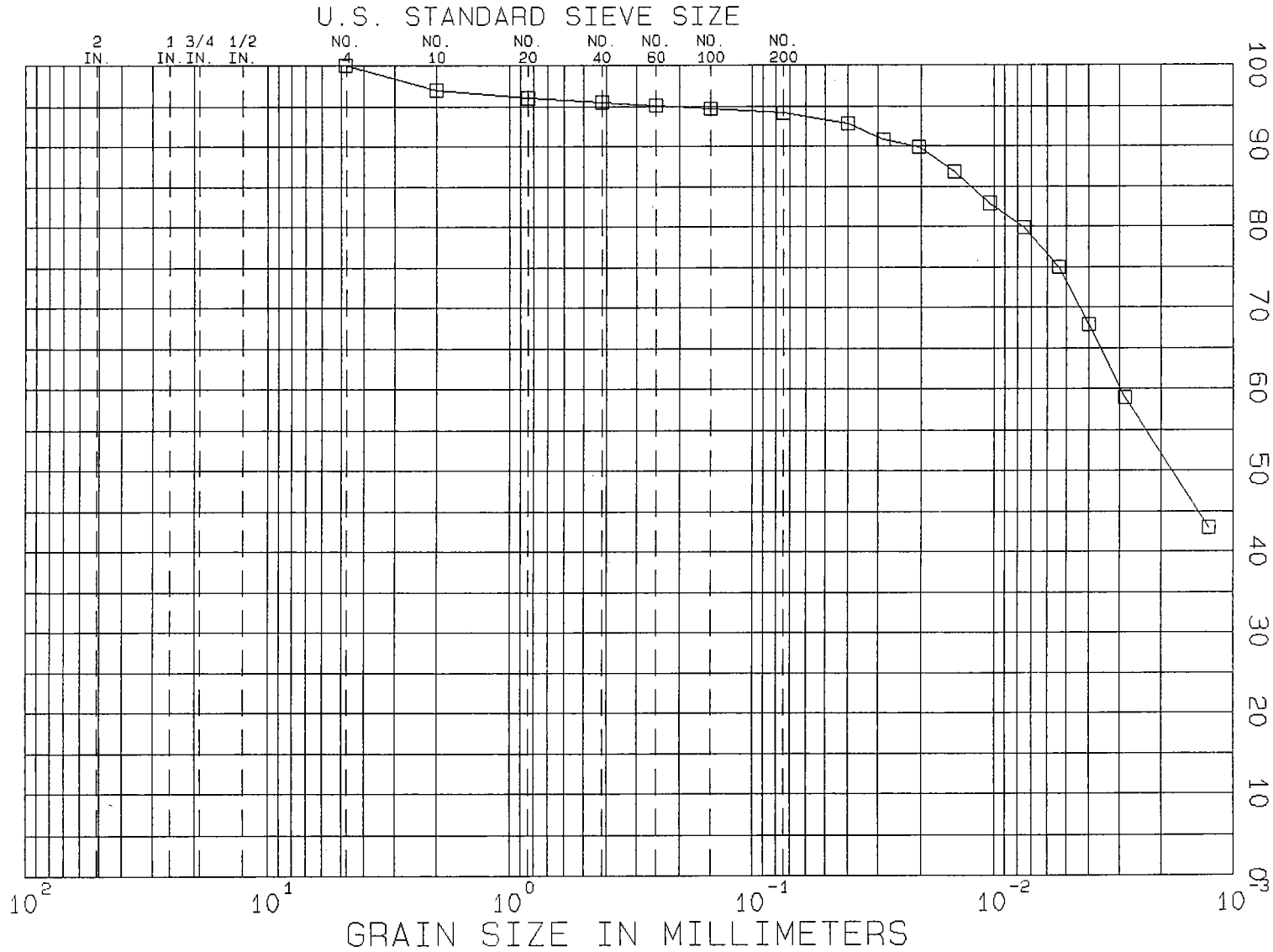
NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

GRADATION TESTS

BORING NO. SB-86
SAMPLE S-26
DEPTH 110-111.5'
TECH. CAG
REVIEWER MBP

TEST SERIES NO. 219
DATE Dec.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

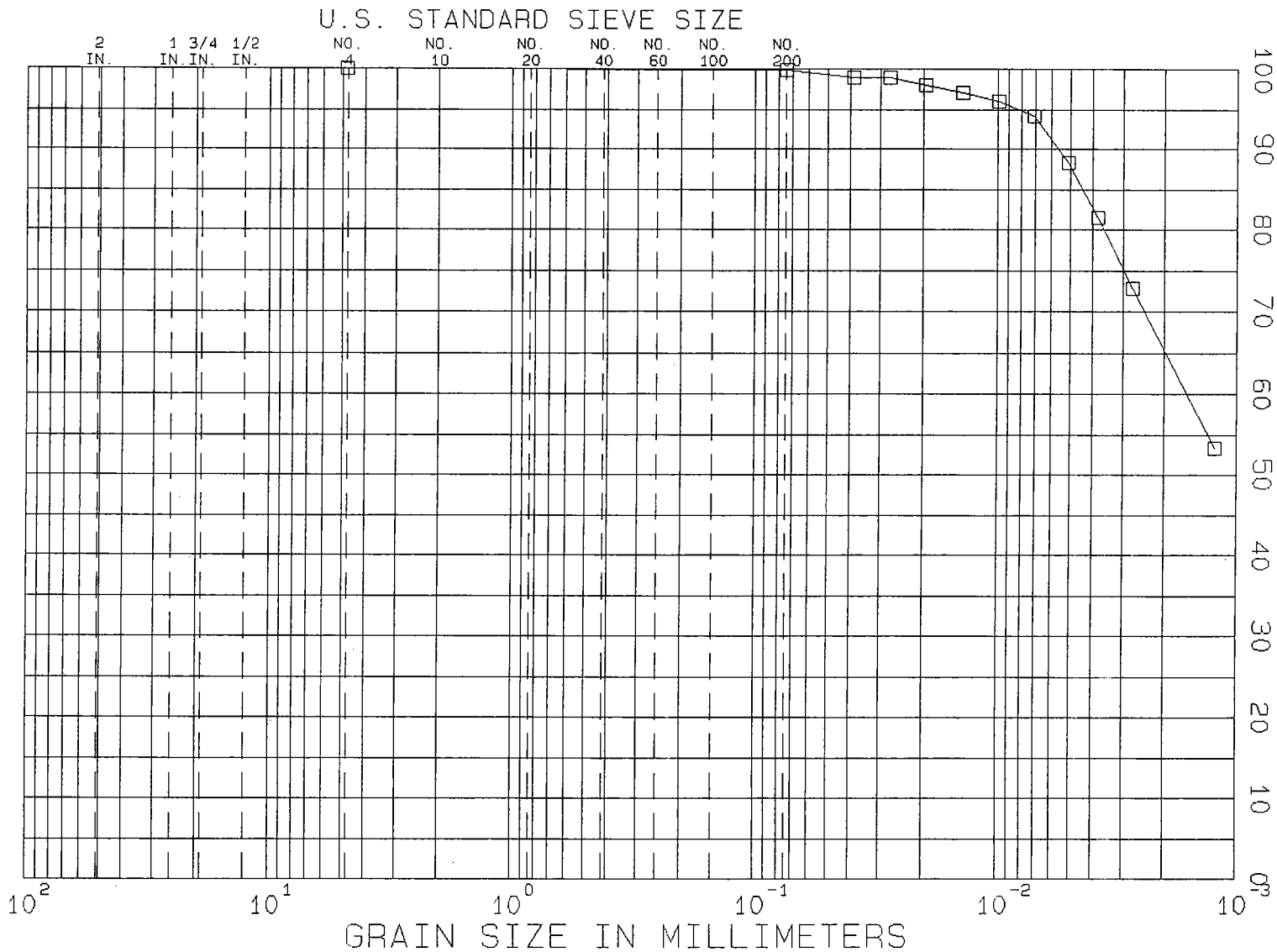
TEST NO.	MATERIAL SOURCE	REMARKS
S220.1	Boring No. SB-87 S.No.S-6, D=16.5-18'	Brown Fat Clay (CH)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO SB-87
SAMPLE S-6
DEPTH 16.5-18'
TECH CAG
REVIEWER MBP

TEST SERIES NO. 220
DATE Dec.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

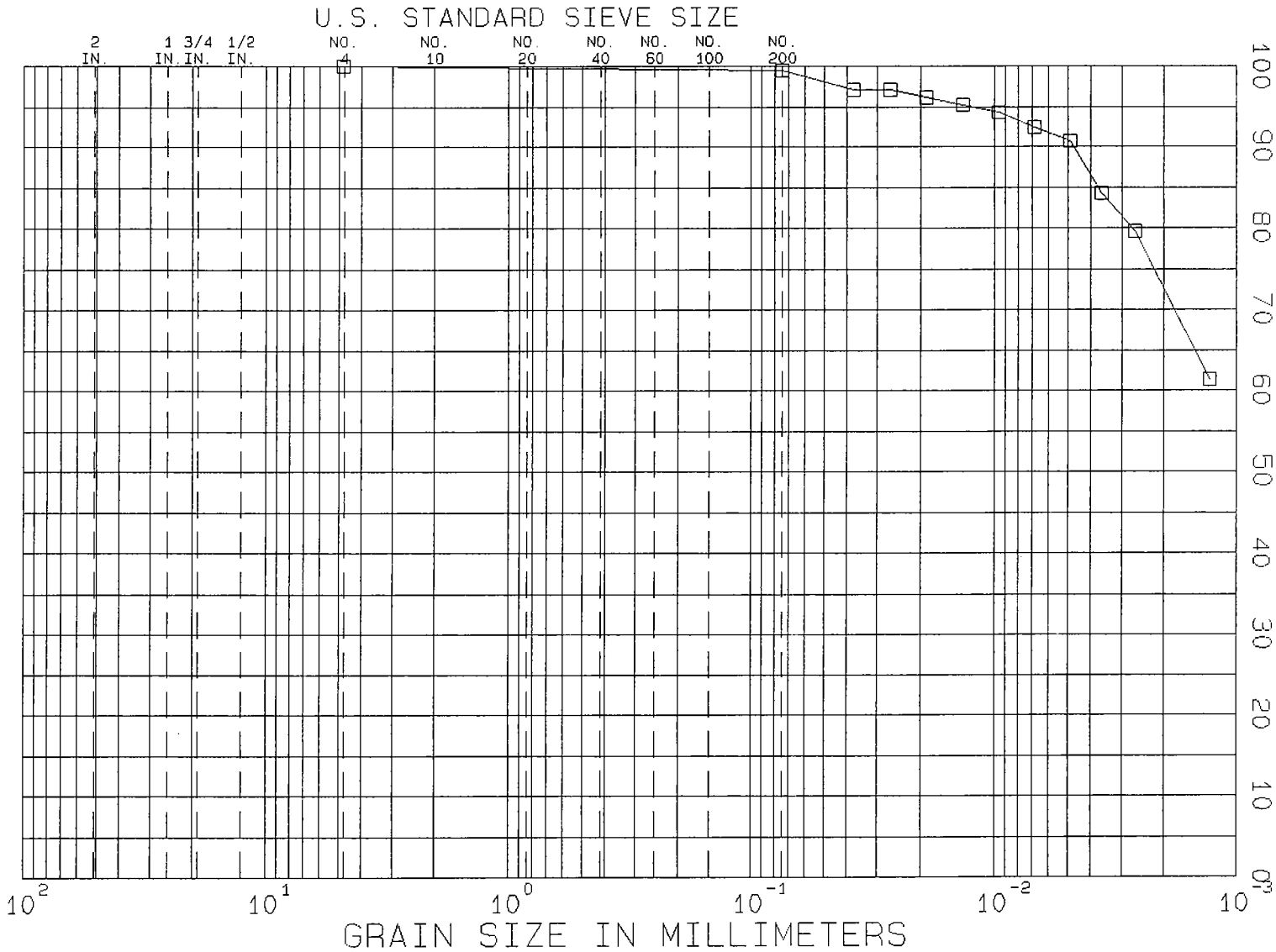
TEST NO.	MATERIAL SOURCE	REMARKS
S221.1	Boring No. SB-87 S.No.S-15, D=55-56.5'	Brown Fat clay (CH)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO SB-87
SAMPLE S-15
DEPTH 55-56.5'
TECH CAG
REVIEWER MBP

TEST SERIES NO. 221
DATE Dec.03
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

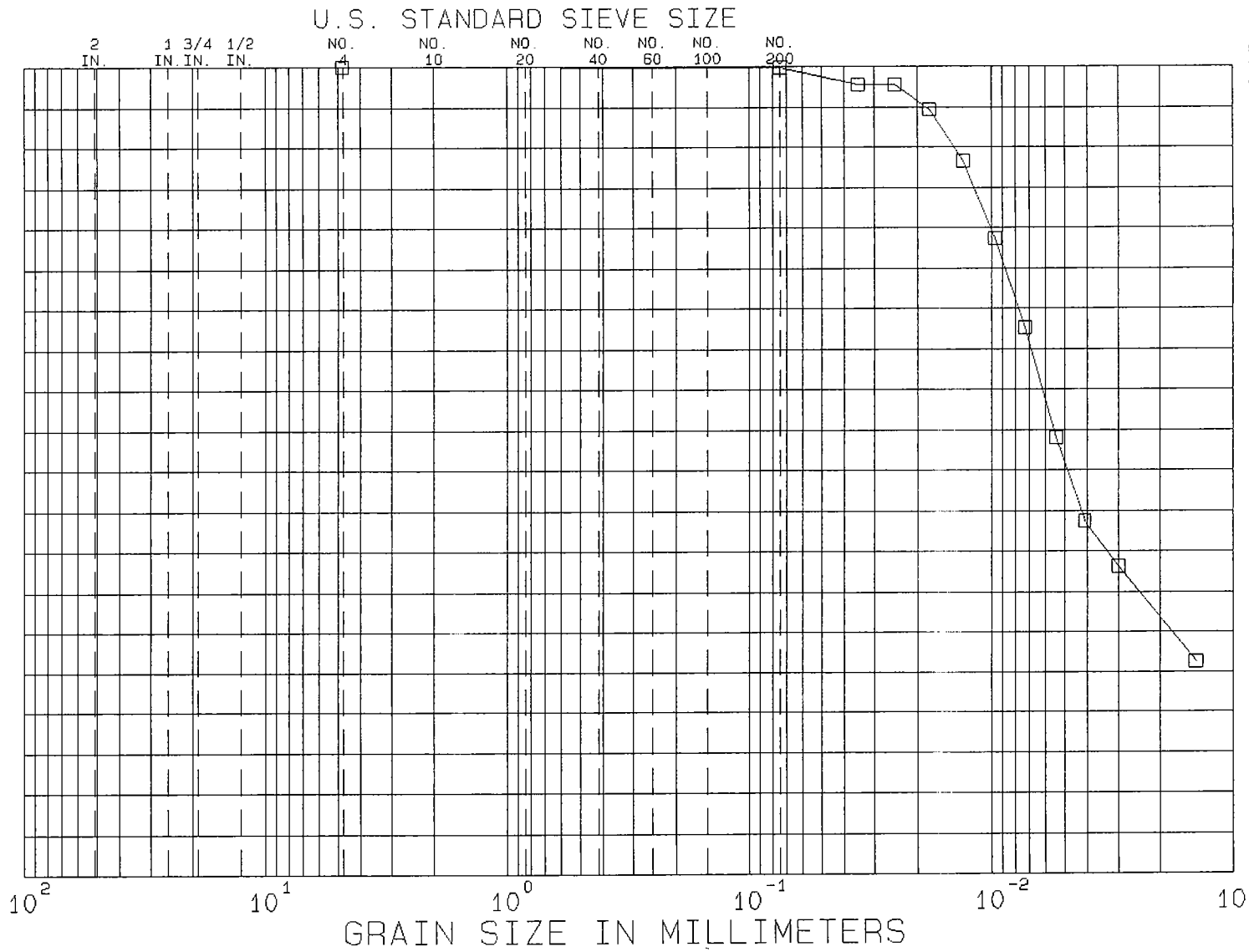
TEST NO.	MATERIAL SOURCE	REMARKS
S245.1	Boring No. SB-105 S.No.S-8, D=22.5-24'	Gray Fat clay (CH)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-105
SAMPLE S-8
DEPTH 22.5-24'
TECH. CAG
REVIEWER MBP

TEST SERIES NO. 245
DATE Jan 04
FILE L17028

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

TEST NO.	MATERIAL SOURCE	REMARKS
S246.1	Boring No. SB-105 S.No.S-18, D=70-71.5'	Brown Lean clay (CL)

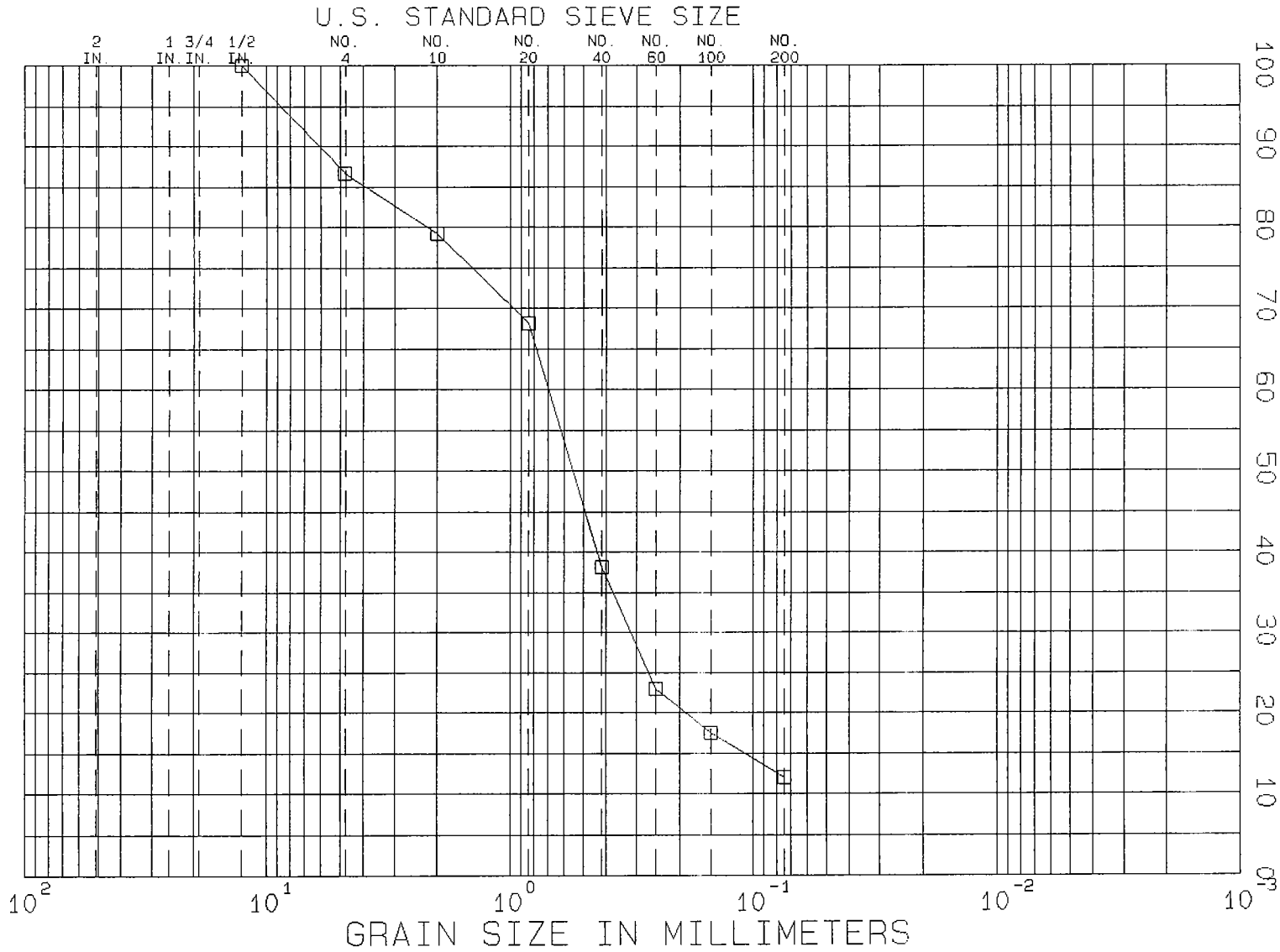
NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

GRADATION TESTS

BORING NO SB-105
SAMPLE S-18
DEPTH 70-71.5'
TECH CAG
REVIEWER MBP

TEST SERIES
NO. 246
DATE Jan.04
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

TEST NO.	MATERIAL SOURCE	REMARKS
S247.1	Boring No. SB-105 S.No.S-27, D=115-116.5'	Brown Silty sand (SM)

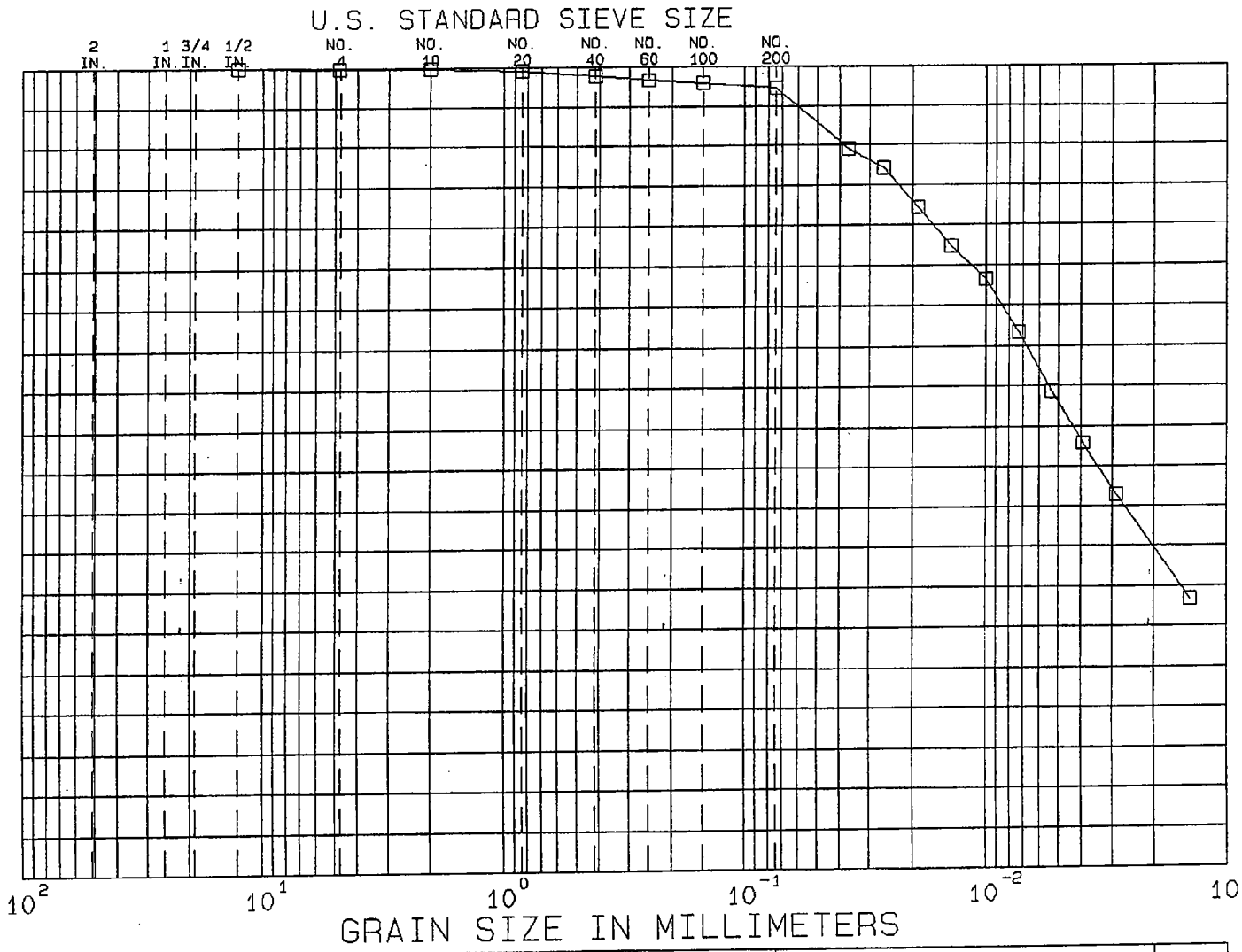
NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

GRADATION TESTS

BORING NO SB-105
SAMPLE S-27
DEPTH 115-116.5'
TECH CAG
REVIEWER MBP

TEST SERIES NO. 247
DATE Jan.04
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

TEST NO.	MATERIAL SOURCE	REMARKS
S415.1	Boring No. SB-59 S.No.S1SS4, D=1.5-11.5'	Gray Lean clay (CL)

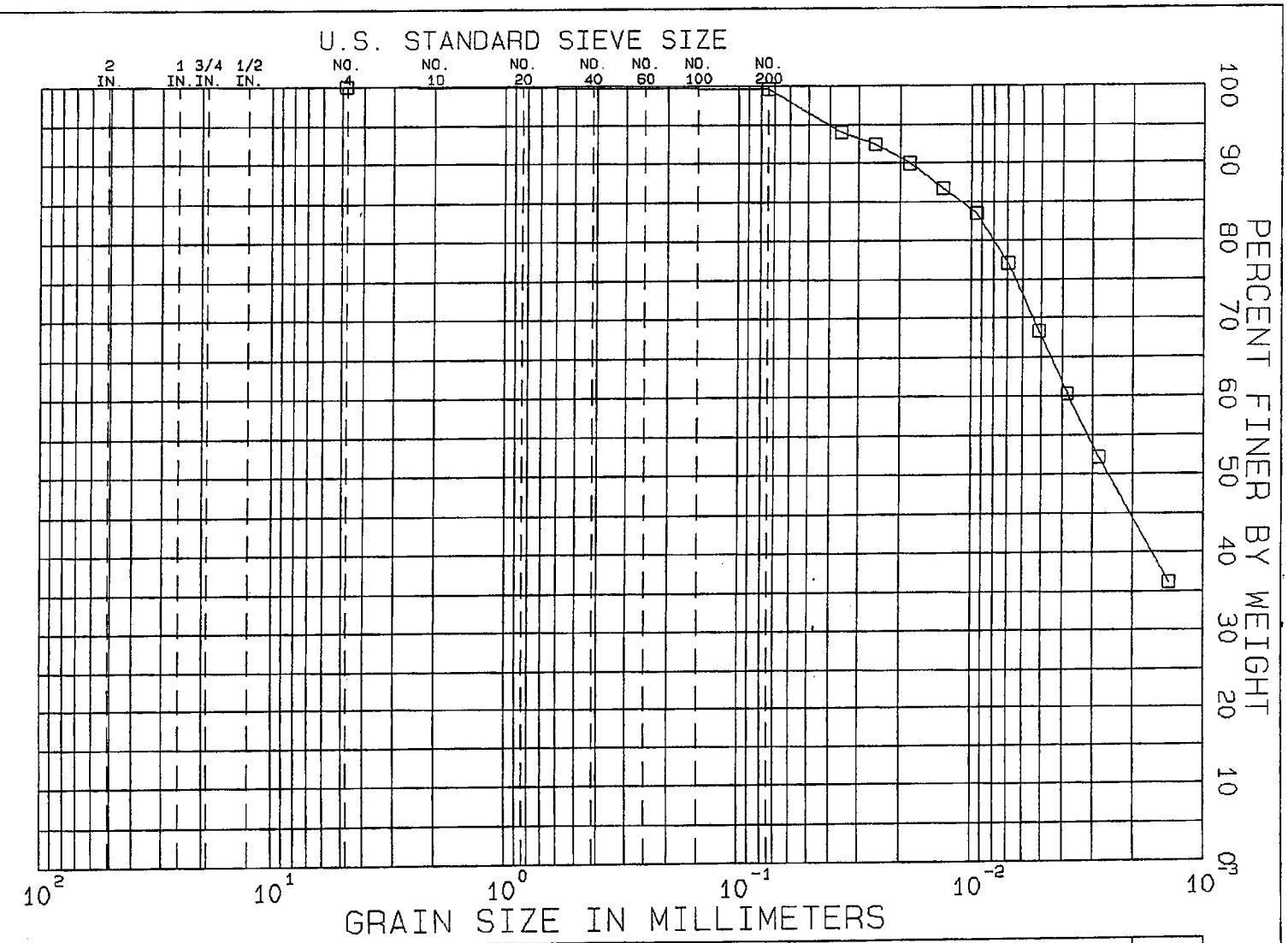
NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-59
SAMPLE S1SS4
DEPTH 1.5-11.5'
TECH. PEC
REVIEWER MBP

TEST SERIES NO. 415
DATE Feb.04

FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

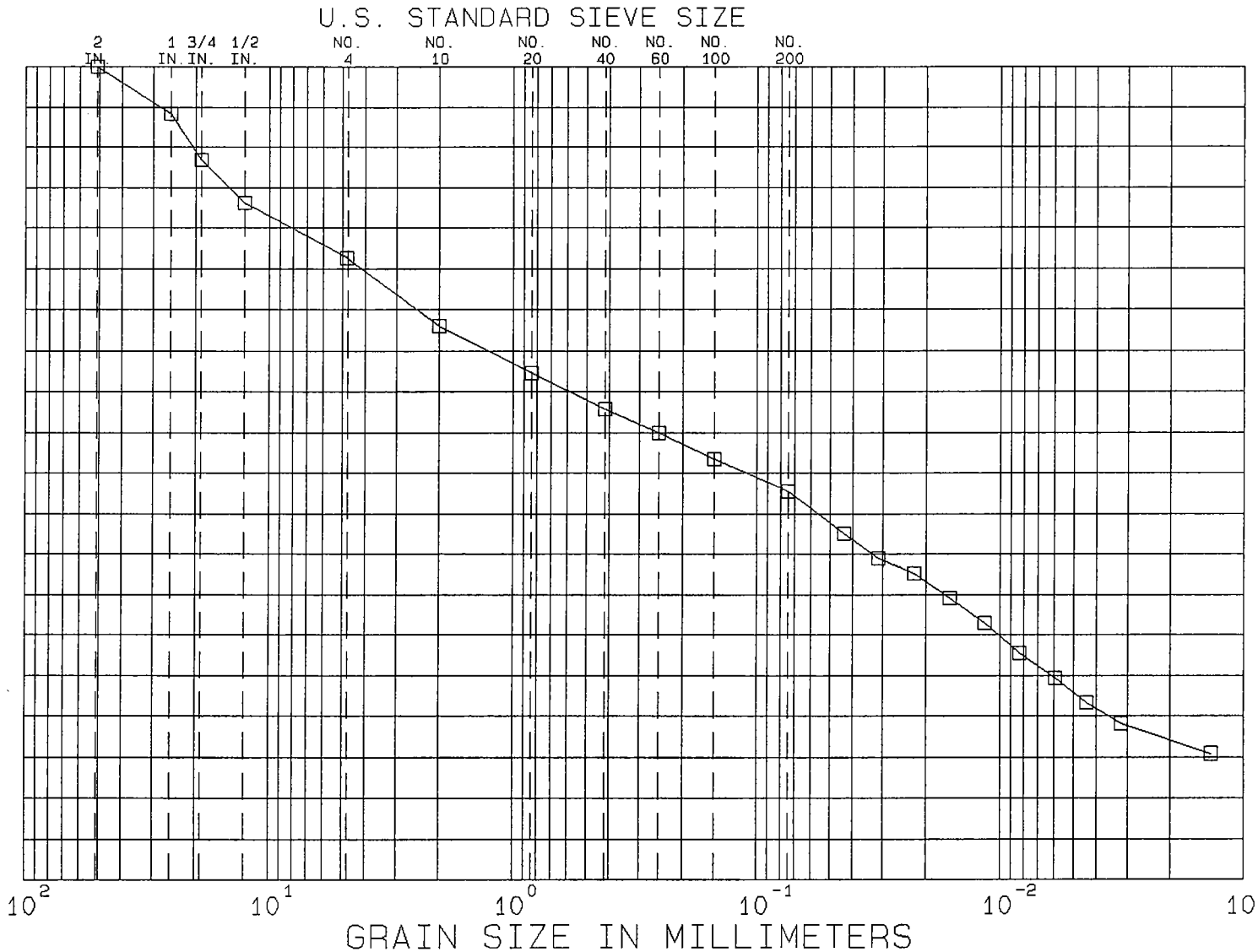
TEST NO.	MATERIAL SOURCE	REMARKS
S416.1	Boring No. SB-59 S.No.S-7, D=19.5-21'	Gray Lean clay (CL)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT
GRADATION TESTS

BORING NO. SB-59
SAMPLE S-7
DEPTH 19.5-21'
TECH. PEC
REVIEWER MBP

TEST SERIES NO. 416
DATE Feb.04
FILE L17828

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

TEST NO.	MATERIAL SOURCE	REMARKS
S107.1	Boring No. RB-42 S.No.S-8&9, D=22.5-28.5	Red-brown Clayey sand with gravel (SC)

NEW BRITAIN-HARTFORD BUSWAY
CONNECTICUT

GRADATION TESTS

BORING NO. RB-42
SAMPLE S-8&9
DEPTH 22.5-28.5'
TECH. CAG
REVIEWER MBP

TEST SERIES NO. 107
DATE Nov.03
FILE L17828

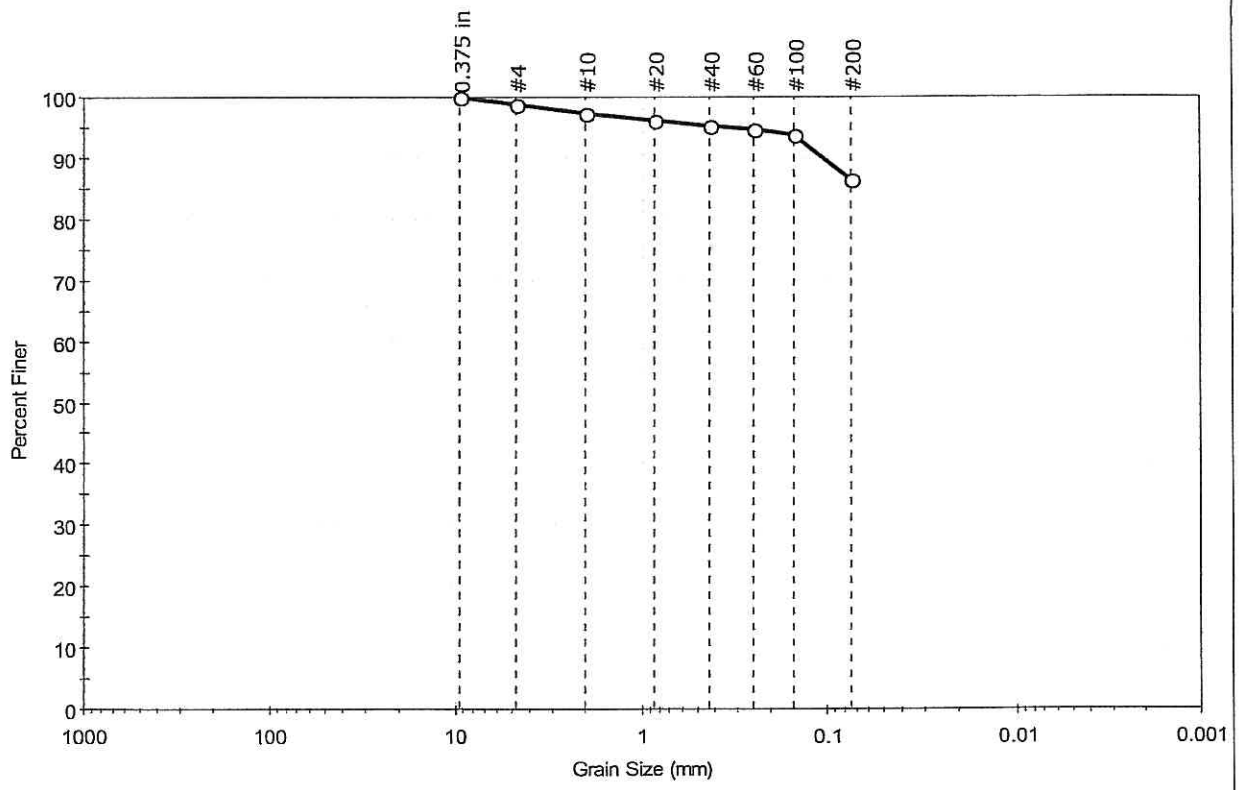
GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

2008 Gradation Tests

GeoTesting express
a subsidiary of Geocomp Corporation

Client:	GeoDesign, Inc.		
Project:	Amtrak Access Road		
Location:	Newington, West Hartford, & Hartford	Project No:	GTX-8565
Boring ID: AARB-17	Sample Type: jar	Tested By:	ap
Sample ID:S-2	Test Date: 10/17/08	Checked By:	jdt
Depth : 2-4 ft	Test Id: 139669		
Test Comment:	---		
Sample Description:	Moist, olive brown silt		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	1.3	12.4	86.3

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.375 in	9.50	100		
#4	4.75	99		
#10	2.00	97		
#20	0.85	96		
#40	0.42	95		
#60	0.25	95		
#100	0.15	94		
#200	0.075	86		

Coefficients

D_{85} =N/A D_{30} =N/A
D_{60} =N/A D_{15} =N/A
D_{50} =N/A D_{10} =N/A
C_u =N/A C_c =N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ROUNDED

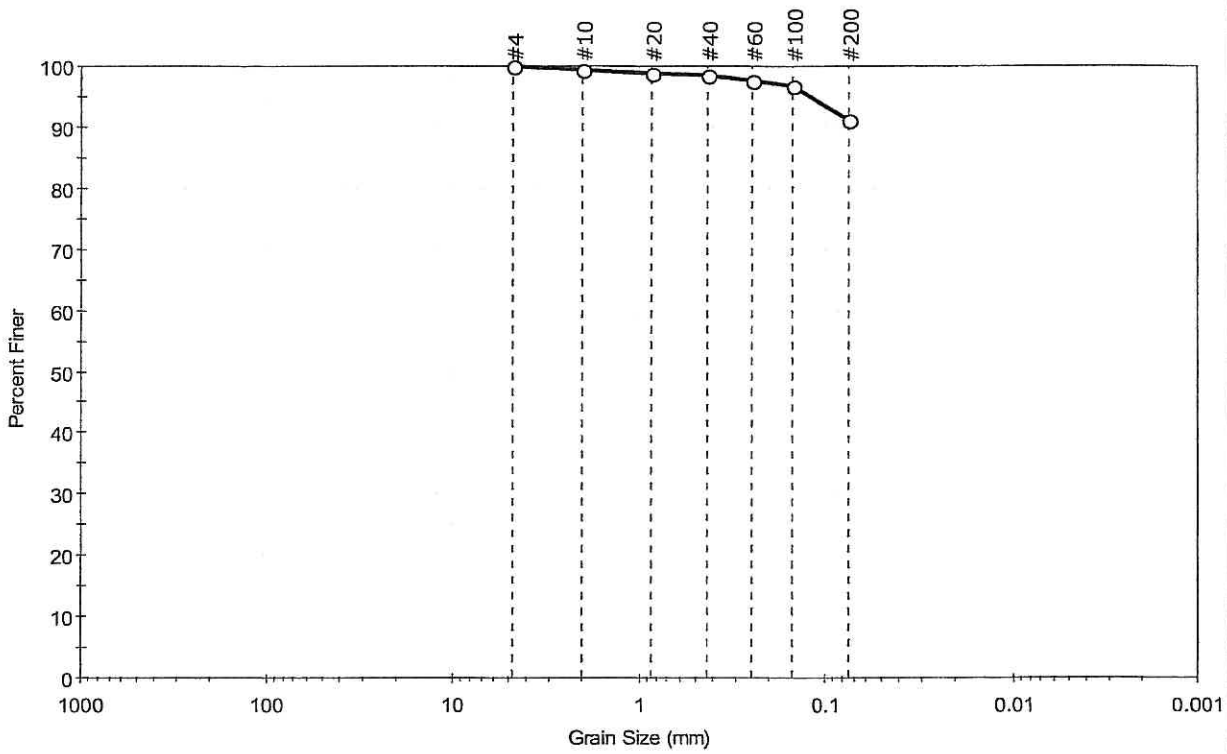
Sand/Gravel Hardness : HARD

printed 10/20/2008 11:10:00 AM

GeoTesting express
a subsidiary of Geocomp Corporation

Client:	GeoDesign, Inc.		
Project:	Amtrak Access Road		
Location:	Newington, West Hartford, & Hartford	Project No:	GTX-8565
Boring ID: AARB-18	Sample Type: jar	Tested By:	ap
Sample ID:S-2	Test Date: 10/17/08	Checked By:	jdt
Depth : 2-4 ft	Test Id: 139670		
Test Comment:	---		
Sample Description:	Moist, light olive brown silt		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	0.0	8.7	91.3

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Compiles
#4	4.75	100		
#10	2.00	99		
#20	0.85	99		
#40	0.42	99		
#60	0.25	98		
#100	0.15	97		
#200	0.075	91		

Coefficients

D_{85} =N/A	D_{30} =N/A
D_{60} =N/A	D_{15} =N/A
D_{50} =N/A	D_{10} =N/A
C_u =N/A	C_c =N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

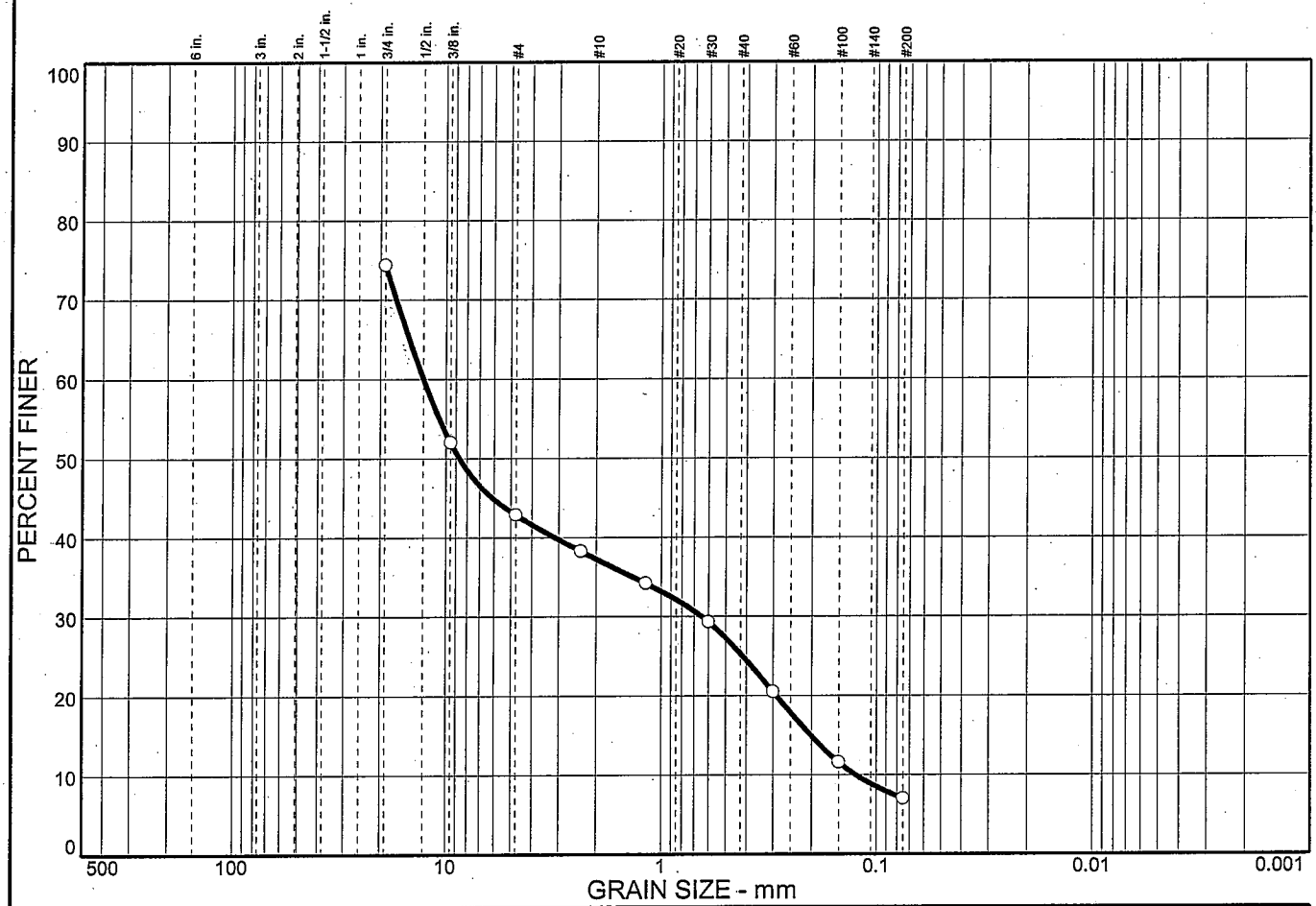
Sample/Test Description

Sand/Gravel Particle Shape : ROUNDED

Sand/Gravel Hardness : HARD

printed 10/20/2008 11:01:22 AM

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
		35.9	7.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75 in.	74.4		
.375 in.	52.0		
#4	42.9		
#8	38.3		
#16	34.2		
#30	29.3		
#50	20.5		
#100	11.6		
#200	7.0		

* (no specification provided)

Soil Description

Dark brown-Poorly graded gravel with silt and sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= D_{60}= 12.7 D_{50}= 8.66
D_{30}= 0.646 D_{15}= 0.202 D_{10}= 0.125
C_u= 101.76 C_c= 0.26

Classification

USCS= GP-GM AASHTO=

Remarks

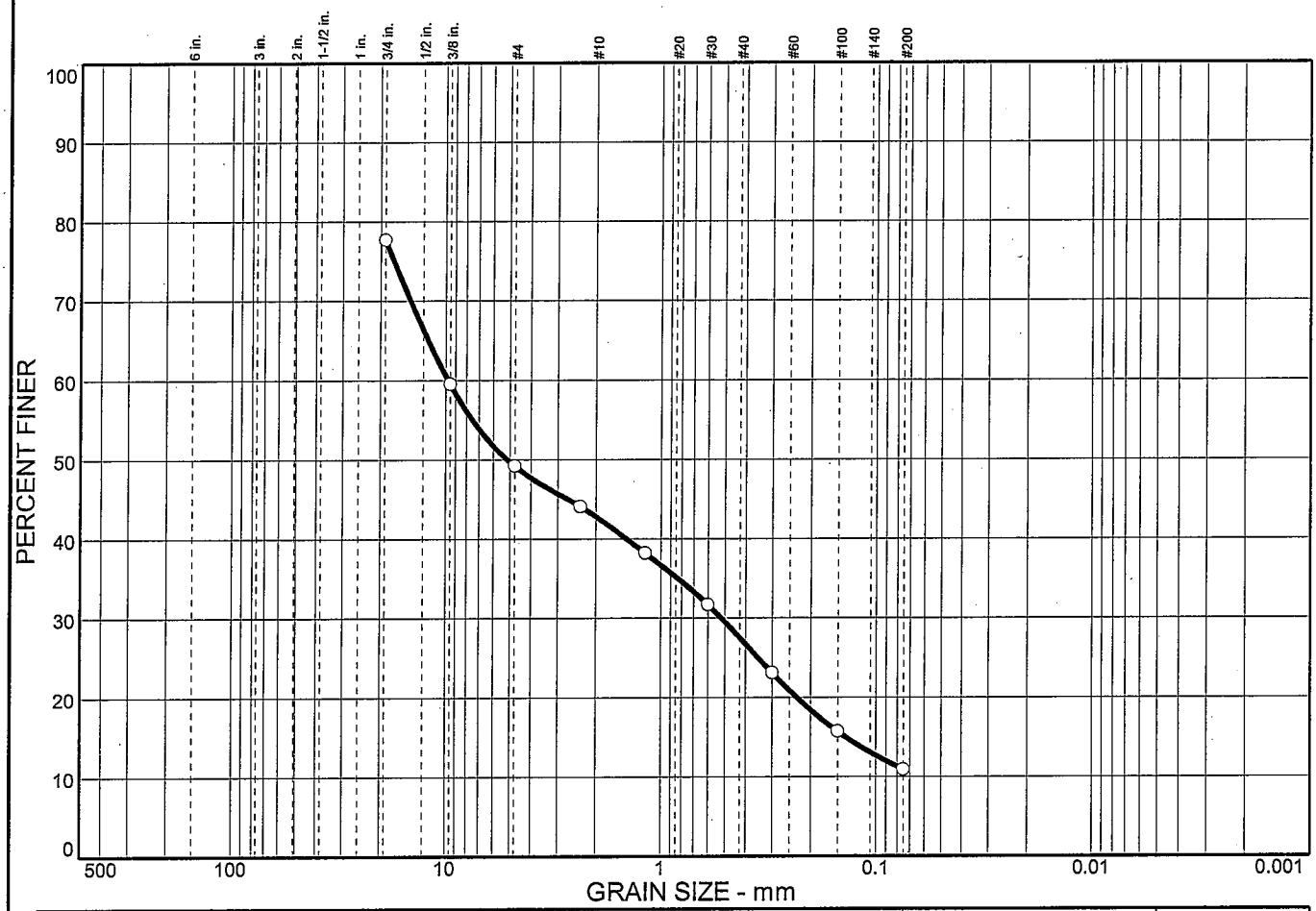
Sample delivered by client on 08/01/08. Tested by M. Mbakwe on 10/08/08.

Sample No.: 29 SA **Source of Sample:** R-100 (S-1) **Date:** 10/08/08
Location: **Elev./Depth:** 0'-2'

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No: **Plate**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
		38.3	10.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75 in.	77.7		
.375 in.	59.5		
#4	49.2		
#8	44.1		
#16	38.2		
#30	31.7		
#50	23.1		
#100	15.7		
#200	10.9		

* (no specification provided)

Soil Description

Dark reddish brown-Poorly graded gravel with silt and sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= D_{60}= 9.75 D_{50}= 5.15
D_{30}= 0.518 D_{15}= 0.138 D_{10}=
C_u= C_c=

Classification

USCS= GP-GM AASHTO=

Remarks

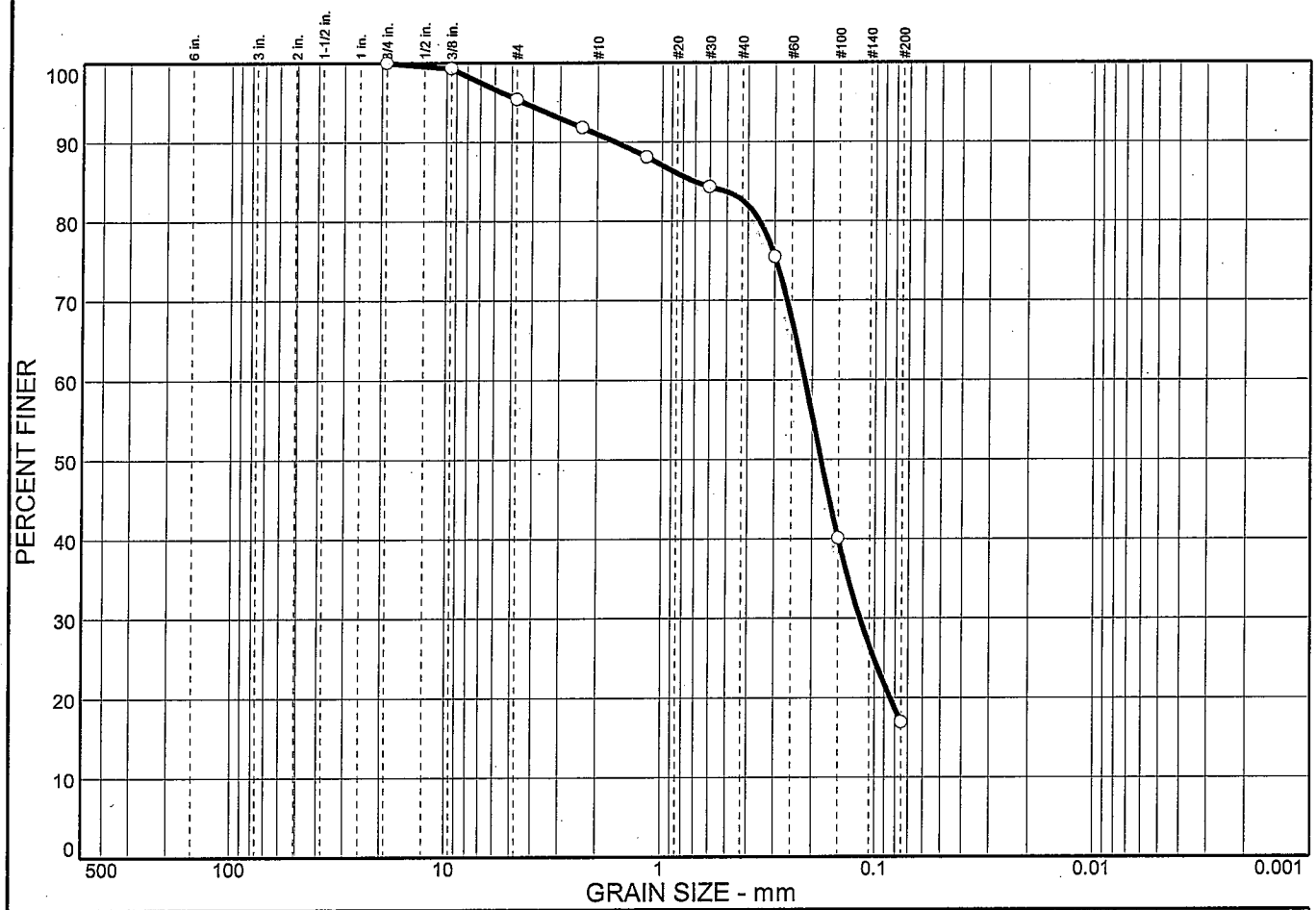
Sample delivered by client on 08/01/08. Tested by M. Mbakwe on 10/08/08.

Sample No.: 30 SA **Source of Sample:** R-102 (S-1) **Date:** 10/08/08
Location: **Elev./Depth:** 0.5'-2.5'

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No: **Plate**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	4.6	78.5	16.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75 in.	100.0		
.375 in.	99.3		
#4	95.4		
#8	91.8		
#16	88.1		
#30	84.3		
#50	75.5		
#100	40.1		
#200	16.9		

* (no specification provided)

Soil Description

Reddish Brown Black-Silty sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.706 D_{60}= 0.216 D_{50}= 0.181
D_{30}= 0.117 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO=

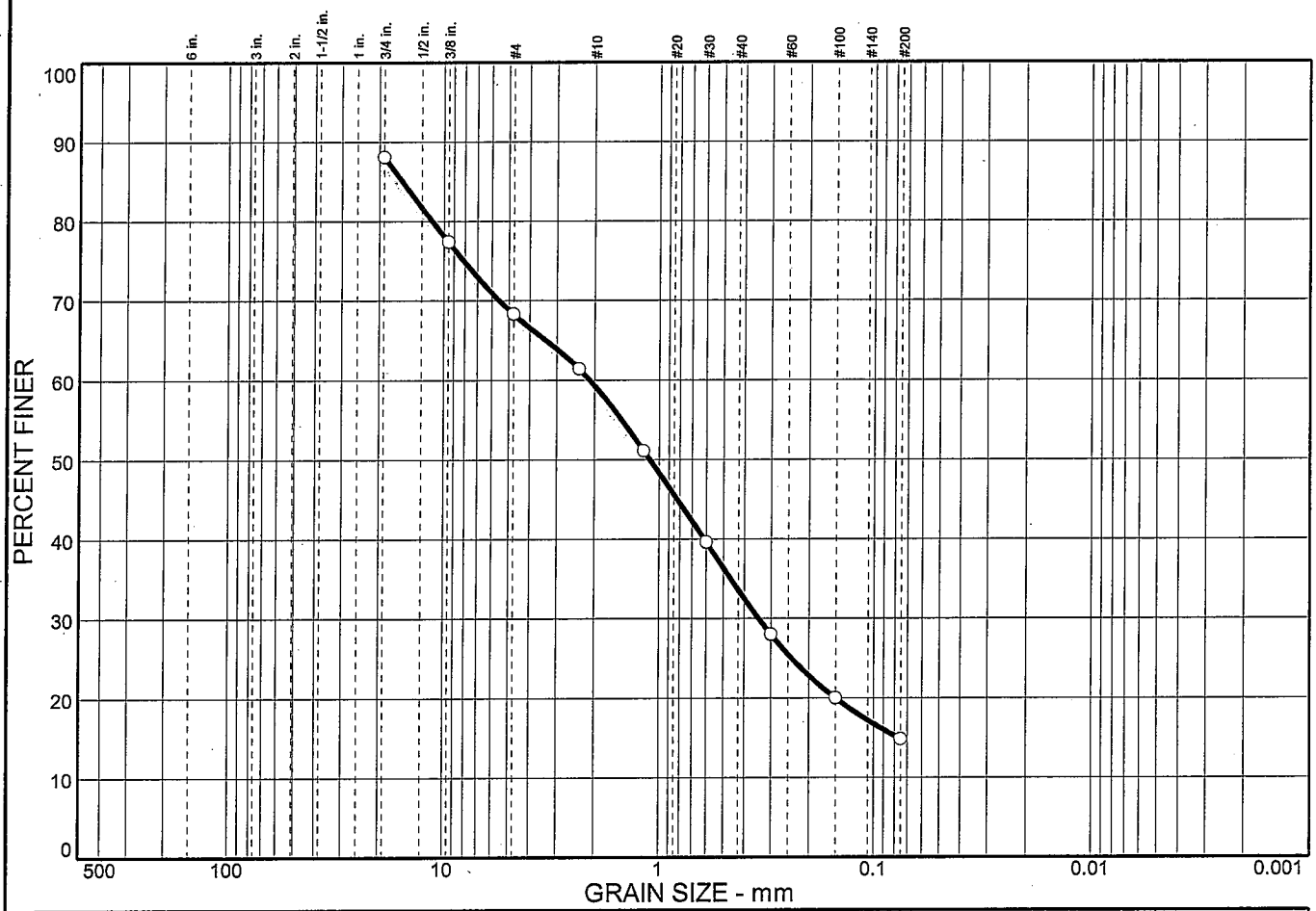
Remarks

Sample delivered by client on 08/01/08. Tested by M. Mbakwe on 10/08/08.

Sample No.: 21 SA **Source of Sample:** R-109 (S-2) **Date:** 10/08/08
Location: **Elev./Depth:** 2.5' - 4.5'

TEST-CON INCORPORATED **16 East Franklin Street, PO BOX 3116** **DANBURY, CT 06813-3116**	**Client:** GeoDesign **Project:** New Britain-Hartford Busway #155-H025 **Project No:** **Plate**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
		53.5	14.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75 in.	88.1		
.375 in.	77.4		
#4	68.3		
#8	61.4		
#16	51.1		
#30	39.6		
#50	28.0		
#100	20.0		
#200	14.8		

* (no specification provided)

Soil Description

Reddish Brown Gray-Silty sand with gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 15.6 D_{60}= 2.11 D_{50}= 1.10
D_{30}= 0.342 D_{15}= 0.0772 D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

Sample delivered by client on 08/01/08. Tested by M. Mbakwe on 10/08/08.

Sample No.: 20 SA **Source of Sample:** R-110 (S-1) **Date:** 10/08/08
Location: **Elev./Depth:** 0' - 2'

TEST-CON INCORPORATED 16 East Franklin Street, PO BOX 3116 DANBURY, CT 06813-3116	**Client:** GeoDesign **Project:** New Britain-Hartford Busway #155-H025 **Project No:** **Plate**

Particle Size Distribution Report

% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
		68.0	14.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75 in.	95.4		
.375 in.	90.8		
#4	82.7		
#8	77.0		
#16	68.7		
#30	56.7		
#50	38.6		
#100	22.6		
#200	14.7		

* (no specification provided)

Soil Description

Reddish brown-Silty sand with gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 5.83 D_{60}= 0.701 D_{50}= 0.457
D_{30}= 0.215 D_{15}= 0.0777 D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

Sample delivered by client on 08/01/08. Tested by M. Mbakwe on 10/08/08.

Sample No.: 19 SA **Source of Sample:** R-111 (S-2) **Date:** 10/08/08
Location: **Elev./Depth:** 2' - 4'

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No: **Plate**

Particle Size Distribution Report

% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
		61.1	14.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75 in.	83.0		
.375 in.	79.3		
#4	75.9		
#8	70.9		
#16	62.7		
#30	50.6		
#50	33.1		
#100	21.1		
#200	14.8		

* (no specification provided)

Soil Description

Reddish brown & gray-Silty sand with gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= D_{60}= 0.985 D_{50}= 0.585
D_{30}= 0.260 D_{15}= 0.0770 D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

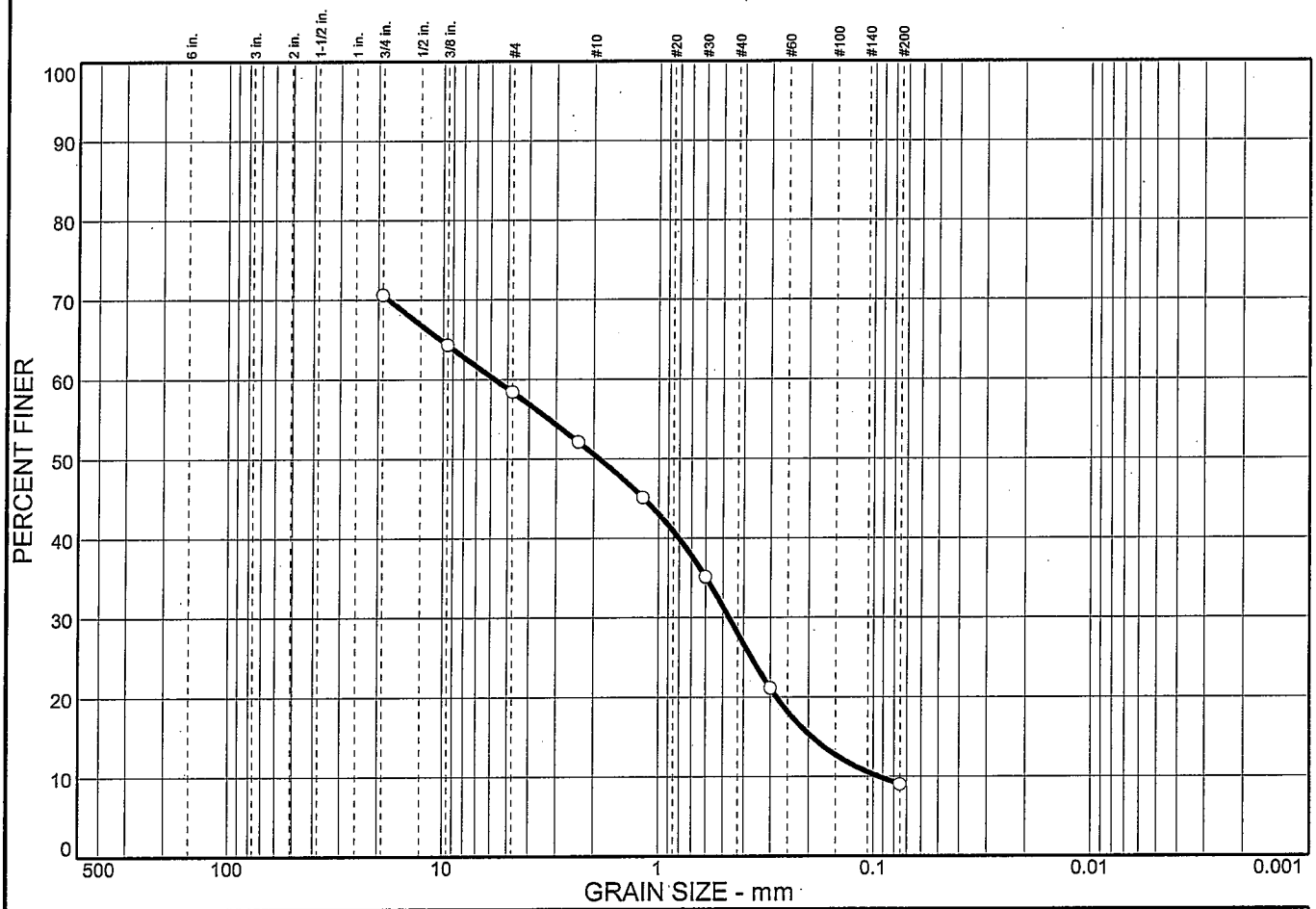
Sample delivered by client on 08/01/08. Tested by M. Mbakwe on 10/08/08.

Sample No.: 18 SA **Source of Sample:** R-113 (S-1) **Date:** 10/08/08
Location: **Elev./Depth:** 0' - 2'

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No: **Plate**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
		49.4	9.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75 in.	70.6		
.375 in.	64.3		
#4	58.4		
#8	52.1		
#16	45.1		
#30	35.1		
#50	21.1		
#200	9.0		

* (no specification provided)

Soil Description

Reddish gray brown-Poorly graded sand with silt and gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= D_{60}= 5.73 D_{50}= 1.89
D_{30}= 0.467 D_{15}= 0.193 D_{10}= 0.0939
C_u= 61.02 C_c= 0.40

Classification

USCS= SP-SM AASHTO=

Remarks

Sample delivered by client on 08/01/08. Tested by M. Mbakwe on 10/08/08.

Sample No.: 34 SA **Source of Sample:** R-114 (S-1) **Date:** 10/08/08
Location: **Elev./Depth:** 0'-2'

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No: **Plate**

Particle Size Distribution Report

% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
		49.2	14.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75 in.	84.3		
.375 in.	71.3		
#4	63.3		
#8	58.9		
#16	52.4		
#30	42.0		
#50	29.0		
#100	19.8		
#200	14.1		

* (no specification provided)

Soil Description

Brownish gray-Silty sand with gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= D_{60}= 2.81 D_{50}= 0.984
D_{30}= 0.318 D_{15}= 0.0848 D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

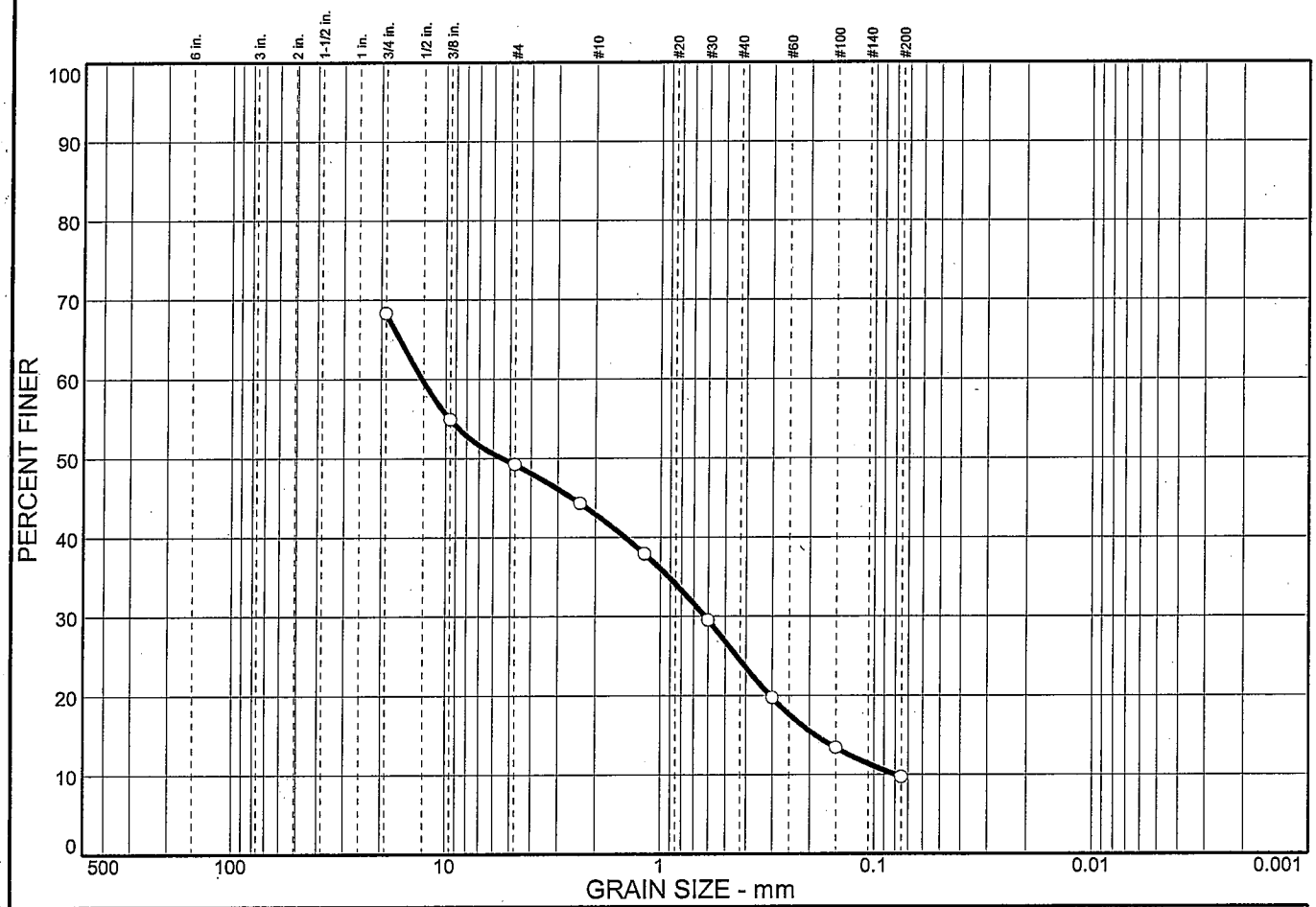
Sample delivered by client on 08/01/08. Tested by M. Mbakwe on 10/08/08.

Sample No.: 37 SA **Source of Sample:** R-118 (S-1) **Date:** 10/08/08
Location: **Elev./Depth:** 0'-2'

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No: **Plate**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
		39.5	9.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75 in.	68.3		
.375 in.	54.9		
#4	49.2		
#8	44.3		
#16	37.9		
#30	29.5		
#50	19.7		
#100	13.4		
#200	9.7		

* (no specification provided)

Soil Description

Dark Brown-Poorly graded gravel with silt and sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= D_{60}= 12.9 D_{50}= 5.44
D_{30}= 0.622 D_{15}= 0.187 D_{10}= 0.0799
C_u= 161.41 C_c= 0.37

Classification

USCS= GP-GM AASHTO=

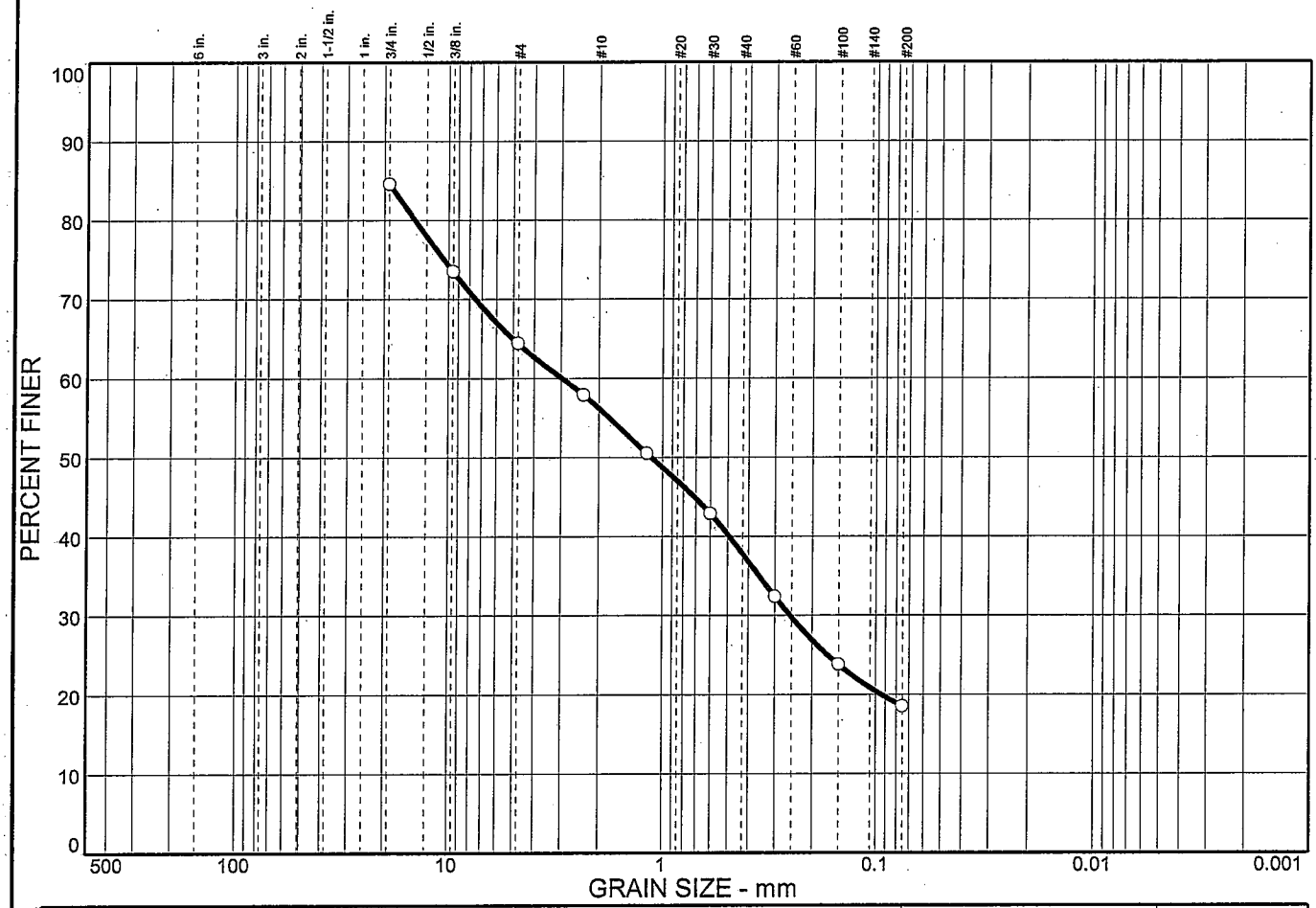
Remarks

Sample delivered by client on 08/01/08. Tested by M. Mbakwe on 10/08/08.

Sample No.: 24 SA **Source of Sample:** R-122 (S-2) **Date:** 10/08/08
Location: **Elev./Depth:** 2' - 4'

TEST-CON INCORPORATED **16 East Franklin Street, PO BOX 3116** **DANBURY, CT 06813-3116**	**Client:** GeoDesign **Project:** New Britain-Hartford Busway #155-H025 **Project No:** **Plate**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
		45.9	18.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75 in.	84.6		
.375 in.	73.5		
#4	64.4		
#8	57.9		
#16	50.5		
#30	42.9		
#50	32.4		
#100	23.8		
#200	18.5		

* (no specification provided)

Soil Description

Reddish brown

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

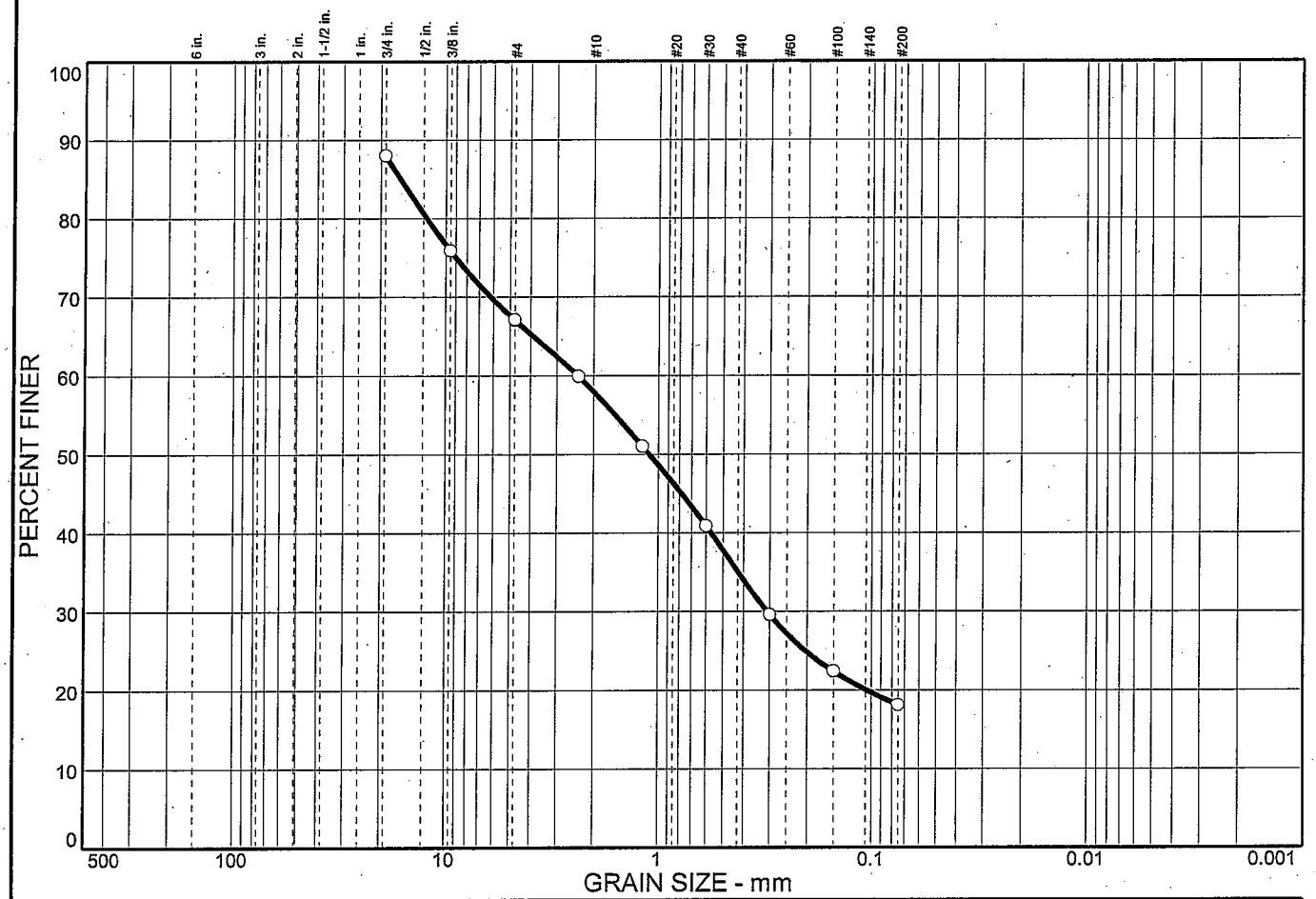
Remarks

Sample delivered by client on 08/01/08. Tested by M. Mbakwe on 10/08/08.

Sample No.: 26 SA **Source of Sample:** R-124 (S-1) **Date:** 10/08/08
Location: **Elev./Depth:** 0'-2'

TEST-CON INCORPORATED **16 East Franklin Street, PO BOX 3116** **DANBURY, CT 06813-3116**	**Client:** GeoDesign **Project:** New Britain-Hartford Busway #155-H025 **Project No:** **Plate**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
		49.0	18.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75 in.	88.0		
.375 in.	75.9		
#4	67.1		
#8	59.9		
#16	51.0		
#30	40.9		
#50	29.6		
#100	22.4		
#200	18.1		

* (no specification provided)

Soil Description

Light brown, gray and red-Silty sand with gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 16.2 D_{60}= 2.38 D_{50}= 1.10
D_{30}= 0.309 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

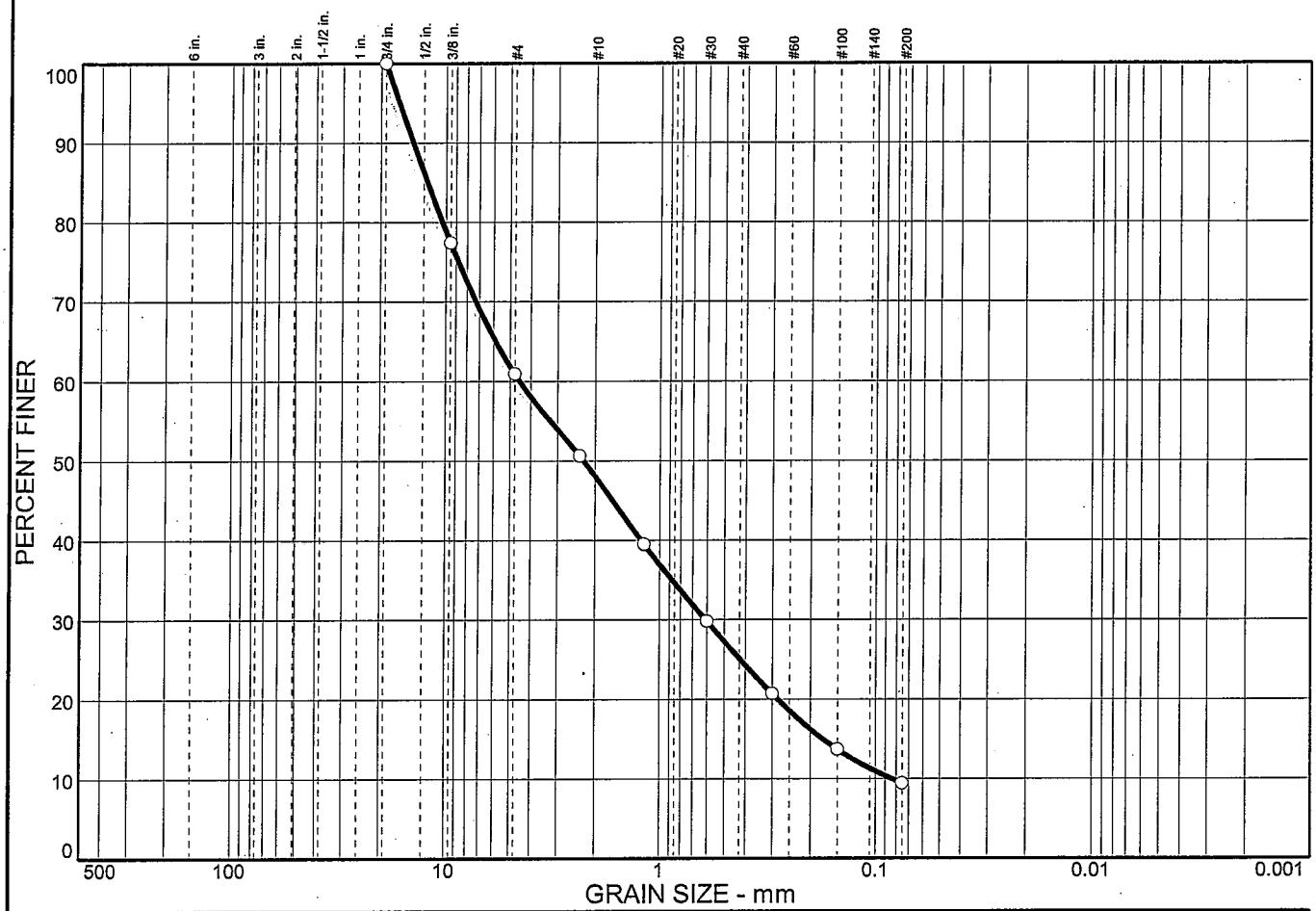
Sample delivered by client on 08/01/08. Tested by M. Mbakwe on 10/08/08.

Sample No.: 27 SA **Source of Sample:** R-125 (S-2) **Date:** 10/08/08
Location: **Elev./Depth:** 3'-5'

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No: **Plate**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	39.1	51.5	9.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75 in.	100.0		
.375 in.	77.4		
#4	60.9		
#8	50.6		
#16	39.5		
#30	29.8		
#50	20.7		
#100	13.7		
#200	9.4		

* (no specification provided)

Soil Description

Brown/Gray-Poorly graded sand with silt and gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 12.2 D_{60}= 4.51 D_{50}= 2.27
D_{30}= 0.609 D_{15}= 0.175 D_{10}= 0.0838
C_u= 53.81 C_c= 0.98

Classification

USCS= SP-SM AASHTO=

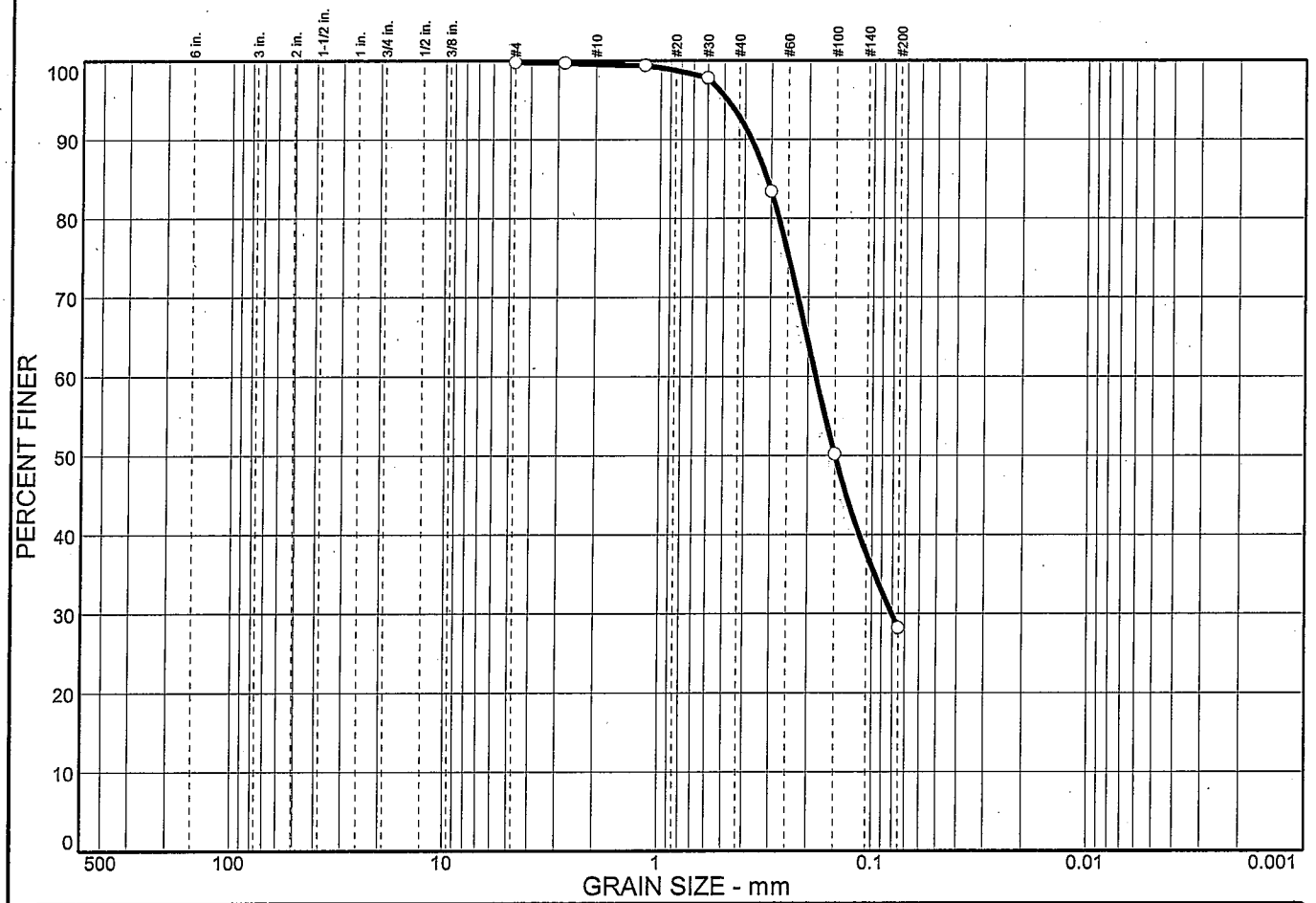
Remarks

Material delivered by client on 08/19/08. Tested by M. Mbakwe on 10/08/08.

Sample No.: 11 SA **Source of Sample:** R-127 (S-1) **Date:** 10/08/08
Location: **Elev./Depth:** 2' - 4'

TEST-CON INCORPORATED 16 East Franklin Street, PO BOX 3116 DANBURY, CT 06813-3116	**Client:** GeoDesign **Project:** New Britain-Hartford Busway #155-H025 **Project No:** **Plate**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
		71.6	28.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	99.8		
#7	99.7		
#16	99.4		
#30	97.8		
#50	83.4		
#100	50.2		
#200	28.2		

* (no specification provided)

Soil Description

Reddish brown - Silty sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.314 D_{60}= 0.184 D_{50}= 0.149
D_{30}= 0.0804 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

Sample delivered by client on 07/28/08. Tested by M. Mbakwe on 10/08/08

Sample No.: 1 SA **Source of Sample:** SB-02-1 (S-29) **Date:** 10/08/08
Location: **Elev./Depth:** 140' - 142'

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No: **Plate**

Particle Size Distribution Report

% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
		29.4	5.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75 in.	58.8		
.375 in.	42.2		
#4	34.5		
#8	31.2		
#16	27.4		
#30	22.6		
#50	16.0		
#100	9.1		
#200	5.1		

* (no specification provided)

Soil Description

Dark brown-Poorly graded gravel with silt and sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= D_{60}= D_{50}= 13.6
D_{30}= 1.85 D_{15}= 0.273 D_{10}= 0.167
C_u= C_c=

Classification

USCS= GP-GM AASHTO=

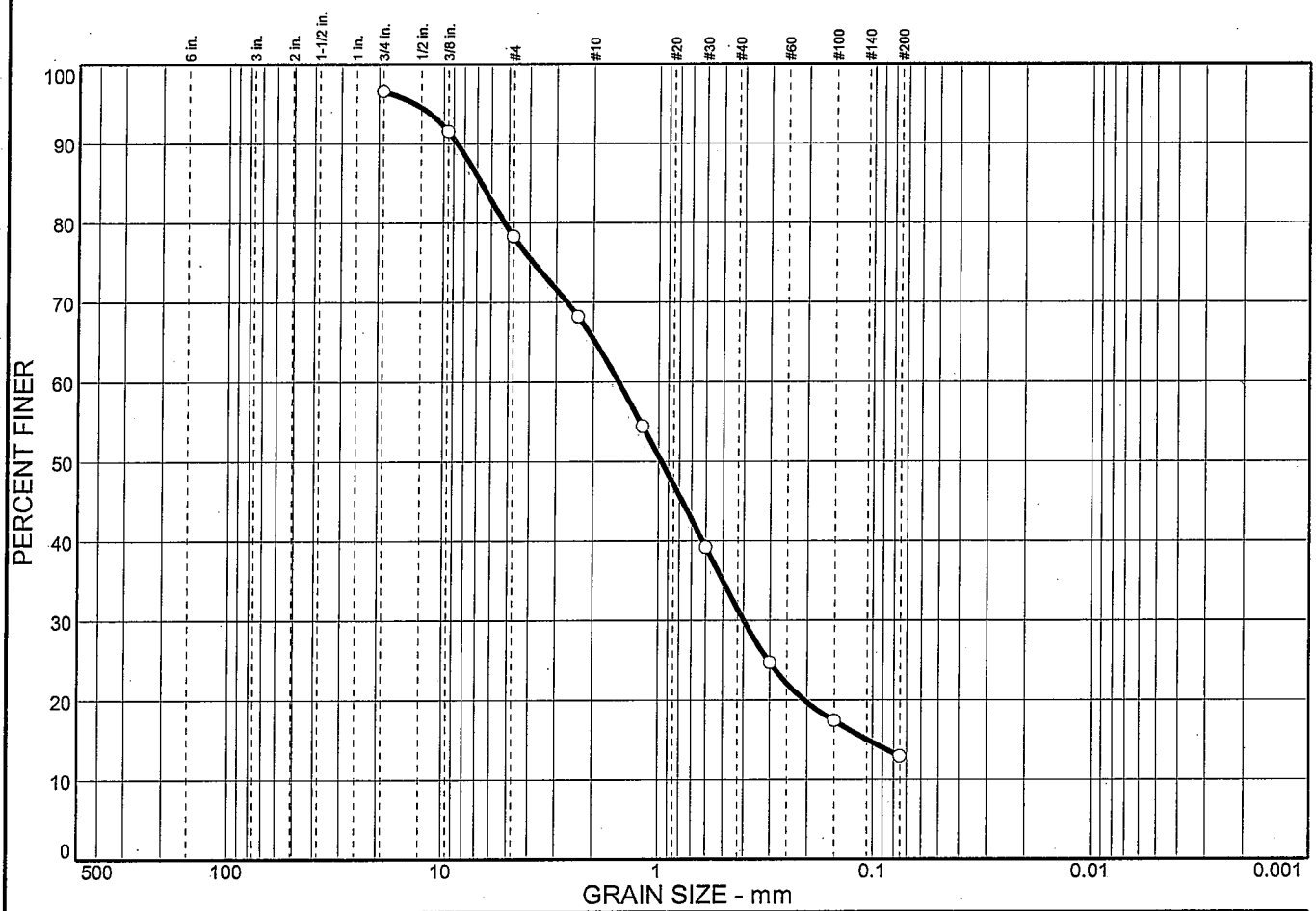
Remarks

Sample delivered by client on 08/01/08. Tested by M. Mbakwe on 10/08/08.

Sample No.: 41 SA **Source of Sample:** SB-02-2 (S-1) **Date:** 10/08/08
Location: **Elev./Depth:** 0'-2'

TEST-CON INCORPORATED 16 East Franklin Street, PO BOX 3116 DANBURY, CT 06813-3116	**Client:** GeoDesign **Project:** New Britain-Hartford Busway #155-H025 **Project No:** **Plate**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
		65.4	12.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75 in.	96.6		
.375 in.	91.5		
#4	78.3		
#8	68.2		
#16	54.4		
#30	39.2		
#50	24.7		
#100	17.4		
#200	12.9		

* (no specification provided)

Soil Description

Reddish brown & gray white-Silty sand with gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 6.67 D_{60}= 1.53 D_{50}= 0.967
D_{30}= 0.398 D_{15}= 0.105 D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO=

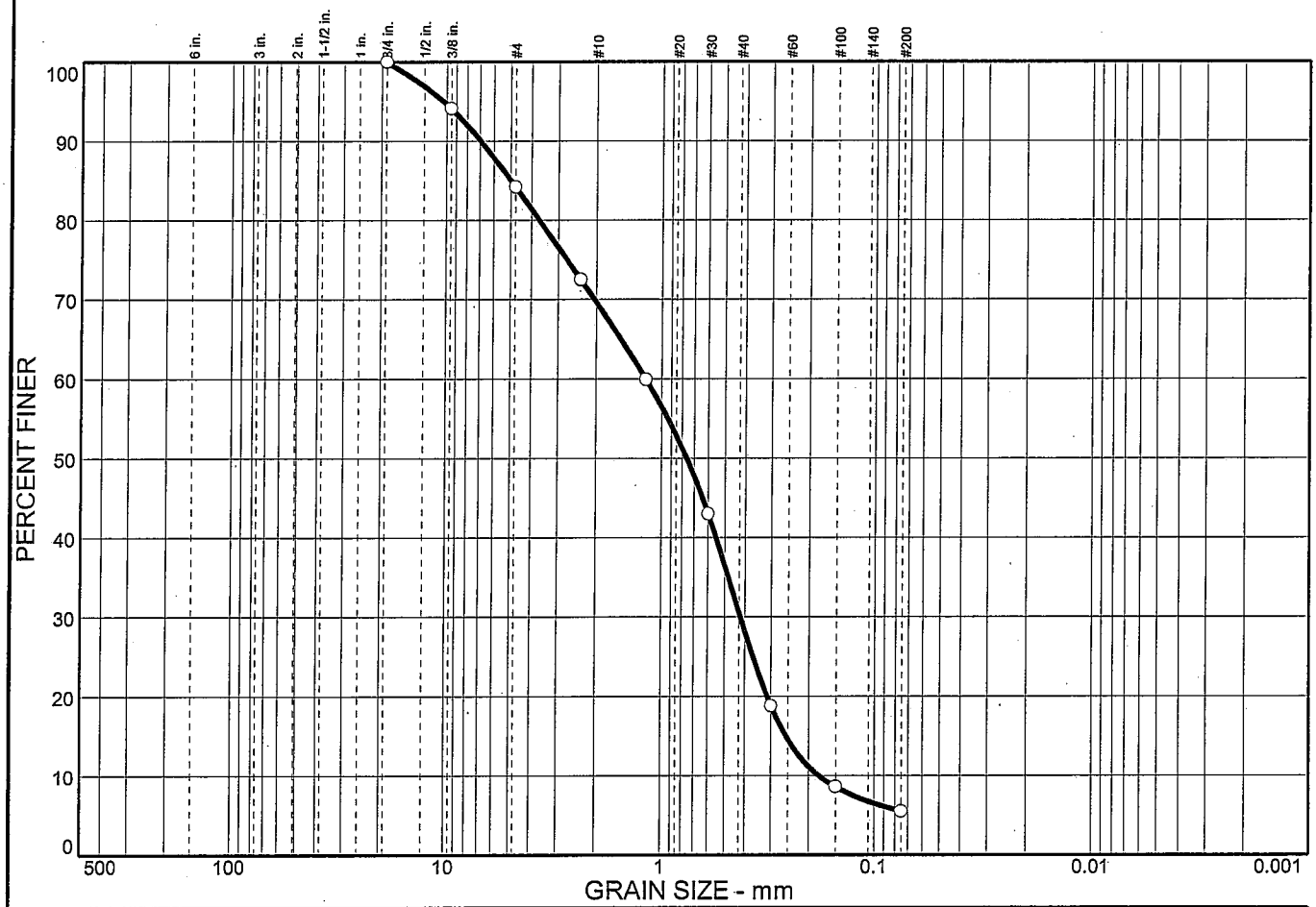
Remarks

Sample delivered by client on 07/28/08. Tested by M. Mbakwe on 10/08/08.

Sample No.: 7 SA **Source of Sample:** SB-02-2 (S-32) **Date:** 10/08/08
Location: **Elev./Depth:** 145' - 147'

TEST-CON INCORPORATED 16 East Franklin Street, PO BOX 3116 DANBURY, CT 06813-3116	**Client:** GeoDesign **Project:** New Britain-Hartford Busway #155-H025 **Project No:** **Plate**

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	15.8	78.7	5.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75 in.	100.0		
.375 in.	94.1		
#4	84.2		
#8	72.5		
#16	59.9		
#30	43.0		
#50	18.8		
#100	8.6		
#200	5.5		

* (no specification provided)

Soil Description

Reddish brown/gray-Poorly graded sand with silt and gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 4.99 D_{60}= 1.19 D_{50}= 0.760
D_{30}= 0.420 D_{15}= 0.255 D_{10}= 0.179
C_u= 6.62 C_c= 0.83

Classification

USCS= SP-SM AASHTO=

Remarks

Sample delivered by client on 07/28/08. Tested by M. Mbakwe on 10/08/08.

Sample No.: 9 SA **Source of Sample:** SB-02-3 (S-30) **Date:** 10/08/08
Location: **Elev./Depth:** 135' - 137'

TEST-CON INCORPORATED **16 East Franklin Street, PO BOX 3116** **DANBURY, CT 06813-3116**	**Client:** GeoDesign **Project:** New Britain-Hartford Busway #155-H025 **Project No:** **Plate**

Particle Size Distribution Report

% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
		48.9	32.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75 in.	92.2		
.375 in.	88.6		
#4	81.1		
#8	74.4		
#16	66.4		
#30	58.1		
#50	46.7		
#100	37.4		
#200	32.2		

* (no specification provided)

Soil Description

Brown/gray/black-Silty sand with gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 6.70 D_{60}= 0.688 D_{50}= 0.365
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= SM AASHTO=

Remarks

Sample delivered by client on 07/28/08. Tested by M. Mbakwe on 10/08/08.

Sample No.: 2 SA **Source of Sample:** SB-03-3 (S-3) **Date:** 10/08/08
Location: **Elev./Depth:** 5' - 7'

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No: **Plate**

2008 Minus No. 200 Gradation Tests

TEST-CON INCORPORATED

16 East Franklin Street
P. O. Box 3116
Danbury, CT 06813-3116
Telephone: (203) 748-3012 Fax: (203) 778-0633
E-Mail: Service@test-con.com Web-Site: www.test-con.com

LABORATORY TEST CERTIFICATE

Date: 08/19/08

Report #: 29 SA
Technician: R. DeCesare

Client: Geodesign Inc.
984 Southford Rd
Middlebury, CT 06762

Project: New Britain-Hartford Busway #155-H025
Hartford/West Hartford, CT

Description: Dark brown

Date Received: Sample delivered by client on 08/01/08

Identification #: R-100 (S-1) Elevation/Depth: 0'- 2'

Test Requirements: Material in soil finer than #200 sieve

Remarks: D1140 Method A – Dry mass calculated by oven drying. Specimen was soaked.

SUMMARY DATA

Initial Weight:	351.3 g
Weight After Wash:	328.4 g
Percentage of material finer than #200:	6.5 %

Reproduction or publication of this report only with our express permission. TEST-CON Inc. excludes all liability of work performed by others. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government. The above tests/results apply only to specific locations tested/inspected.
6/26/08

TEST-CON INCORPORATED

16 East Franklin Street
P. O. Box 3116
Danbury, CT 06813-3116
Telephone: (203) 748-3012 Fax: (203) 778-0633
E-Mail: Service@test-con.comWeb-Site: www.test-con.com

LABORATORY TEST CERTIFICATE

Date: 08/19/08

Report #: 30 SA
Technician: R. DeCesare

Client: Geodesign Inc.
984 Southford Rd
Middlebury, CT 06762

Project: New Britain-Hartford Busway #155-H025
Hartford/West Hartford, CT

Description: Dark reddish brown

Date Received: Sample delivered by client on 08/01/08

Identification #: R-102 (S-1) Elevation/Depth: 0.5'- 2.5'

Test Requirements: Material in soil finer than #200 sieve

Remarks: D1140 Method A – Dry mass calculated by oven drying. Specimen was soaked.

SUMMARY DATA

Initial Weight:	334.0 g
Weight After Wash:	297.5 g
Percentage of material finer than #200:	10.9 %

Reproduction or publication of this report only with our express permission. TEST-CON Inc. excludes all liability of work performed by others. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government. The above tests/results apply only to specific locations tested/inspected.
6/26/08

TEST-CON INCORPORATED

16 East Franklin Street
P. O. Box 3116
Danbury, CT 06813-3116
Telephone: (203) 748-3012 Fax: (203) 778-0633
E-Mail: Service@test-con.comWeb-Site: www.test-con.com

LABORATORY TEST CERTIFICATE

Date: 08/15/08

Report #: 3 SA
Technician: R. DeCesare

Client: Geodesign Inc.
984 Southford Rd
Middlebury, CT 06762

Project: New Britain-Hartford Busway #155-H025
Hartford/West Hartford, CT

Description: Light Tan

Date Received: Sample delivered by client on 07/28/08

Identification #: R-102 (S-3) Elevation/Depth: 5'-7'

Test Requirements: Material in soil finer than #200 sieve

Remarks: D1140 Method A – Dry mass calculated by oven drying. Specimen was soaked

SUMMARY DATA

Initial Weight:	195.6 g
Weight After Wash:	47.9 g
Percentage of material finer than #200:	75.5 %

Reproduction or publication of this report only with our express permission. TEST-CON Inc. excludes all liability of work performed by others. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government. The above tests/results apply only to specific locations tested/inspected.
6/26/08

TEST-CON INCORPORATED

16 East Franklin Street
P. O. Box 3116
Danbury, CT 06813-3116
Telephone: (203) 748-3012 Fax: (203) 778-0633
E-Mail: Service@test-con.com Web-Site: www.test-con.com

LABORATORY TEST CERTIFICATE

Date: 08/19/08

Report #: 31 SA
Technician: R. DeCesare

Client: Geodesign Inc.
984 Southford Rd
Middlebury, CT 06762

Project: New Britain-Hartford Busway #155-H025
Hartford/West Hartford, CT

Description: Light brown

Date Received: Sample delivered by client on 08/01/08

Identification #: R-103 (S-2) Elevation/Depth: 2'- 4'

Test Requirements: Material in soil finer than #200 sieve

Remarks: D1140 Method A – Dry mass calculated by oven drying. Specimen was soaked.

SUMMARY DATA

Initial Weight:	222.4 g
Weight After Wash:	90.5 g
Percentage of material finer than #200:	59.3 %

Reproduction or publication of this report only with our express permission. TEST-CON Inc. excludes all liability of work performed by others. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government. The above tests/results apply only to specific locations tested/inspected.
6/26/08

TEST-CON INCORPORATED

16 East Franklin Street
P. O. Box 3116
Danbury, CT 06813-3116
Telephone: (203) 748-3012 Fax: (203) 778-0633
E-Mail: Service@test-con.com Web-Site: www.test-con.com

LABORATORY TEST CERTIFICATE

Date: 08/19/08

Report #: 32 SA
Technician: R. DeCesare

Client: Geodesign Inc.
984 Southford Rd
Middlebury, CT 06762

Project: New Britain-Hartford Busway #155-H025
Hartford/West Hartford, CT

Description: Medium brown

Date Received: Sample delivered by client on 08/01/08

Identification #: R-104 (S-2) Elevation/Depth: 2'- 4'

Test Requirements: Material in soil finer than #200 sieve

Remarks: D1140 Method A – Dry mass calculated by oven drying. Specimen was soaked.

SUMMARY DATA

Initial Weight:	145.1 g
Weight After Wash:	32.9 g
Percentage of material finer than #200:	77.3 %

Reproduction or publication of this report only with our express permission. TEST-CON Inc. excludes all liability of work performed by others. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government. The above tests/results apply only to specific locations tested/inspected.
6/26/08

TEST-CON INCORPORATED

16 East Franklin Street
P. O. Box 3116
Danbury, CT 06813-3116
Telephone: (203) 748-3012 Fax: (203) 778-0633
E-Mail: Service@test-con.comWeb-Site: www.test-con.com

LABORATORY TEST CERTIFICATE

Date: 08/19/08

Report #: 33 SA
Technician: R. DeCesare

Client: Geodesign Inc.
984 Southford Rd
Middlebury, CT 06762

Project: New Britain-Hartford Busway #155-H025
Hartford/West Hartford, CT

Description: Dark brown

Date Received: Sample delivered by client on 08/01/08

Identification #: R-105 (S-1) Elevation/Depth: 1'- 3'

Test Requirements: Material in soil finer than #200 sieve

Remarks: D1140 Method A – Dry mass calculated by oven drying. Specimen was soaked.

SUMMARY DATA

Initial Weight:	130.8 g
Weight After Wash:	82.7 g
Percentage of material finer than #200:	36.7 %

Reproduction or publication of this report only with our express permission. TEST-CON Inc. excludes all liability of work performed by others. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government. The above tests/results apply only to specific locations tested/inspected.
6/26/08

TEST-CON INCORPORATED

16 East Franklin Street
P. O. Box 3116
Danbury, CT 06813-3116
Telephone: (203) 748-3012 Fax: (203) 778-0633
E-Mail: Service@test-con.com Web-Site: www.test-con.com

LABORATORY TEST CERTIFICATE

Date: 08/19/08

Report #: 28 SA
Technician: R. DeCesare

Client: Geodesign Inc.
984 Southford Rd
Middlebury, CT 06762

Project: New Britain-Hartford Busway #155-H025
Hartford/West Hartford, CT

Description: Light brown

Date Received: Sample delivered by client on 08/01/08

Identification #: R-106 (S-3) Elevation/Depth: 5'- 7'

Test Requirements: Material in soil finer than #200 sieve

Remarks: D1140 Method A – Dry mass calculated by oven drying. Specimen was soaked.

SUMMARY DATA

Initial Weight:	181.2 g
Weight After Wash:	52.2 g
Percentage of material finer than #200:	71.2 %

Reproduction or publication of this report only with our express permission. TEST-CON Inc. excludes all liability of work performed by others. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government. The above tests/results apply only to specific locations tested/inspected.
6/26/08

TEST-CON INCORPORATED

16 East Franklin Street
P. O. Box 3116
Danbury, CT 06813-3116
Telephone: (203) 748-3012 Fax: (203) 778-0633
E-Mail: Service@test-con.comWeb-Site: www.test-con.com

LABORATORY TEST CERTIFICATE

Date: 08/21/08

Report #: 23 SA
Technician: R. DeCesare

Client: Geodesign Inc.
984 Southford Rd
Middlebury, CT 06762

Project: New Britain-Hartford Busway #155-H025
Hartford/West Hartford, CT

Description: Light Brown

Date Received: Sample delivered by client on 08/01/08

Identification #: R-107 (S-1) Elevation/Depth: 0.5' – 2.5'

Test Requirements: Material in soil finer than #200 sieve

Remarks: D1140 Method A – Dry mass calculated by oven drying. Specimen was soaked.

SUMMARY DATA

Initial Weight:	215.6 g
Weight After Wash:	90.2 g
Percentage of material finer than #200:	58.1 %

Reproduction or publication of this report only with our express permission. TEST-CON Inc. excludes all liability of work performed by others. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government. The above tests/results apply only to specific locations tested/inspected.
6/26/08

TEST-CON INCORPORATED

16 East Franklin Street
P. O. Box 3116
Danbury, CT 06813-3116
Telephone: (203) 748-3012 Fax: (203) 778-0633
E-Mail: Service@test-con.comWeb-Site: www.test-con.com

LABORATORY TEST CERTIFICATE

Date: 08/21/08

Report #: 22 SA
Technician: R. DeCesare

Client: Geodesign Inc.
984 Southford Rd
Middlebury, CT 06762

Project: New Britain-Hartford Busway #155-H025
Hartford/West Hartford, CT

Description: Light Brown

Date Received: Sample delivered by client on 08/01/08

Identification #: R-108 (S-2) Elevation/Depth: 3'- 5'

Test Requirements: Material in soil finer than #200 sieve

Remarks: D1140 Method A – Dry mass calculated by oven drying. Specimen was soaked.

SUMMARY DATA

Initial Weight:	238.9 g
Weight After Wash:	119.4 g
Percentage of material finer than #200:	50.0 %

Reproduction or publication of this report only with our express permission. TEST-CON Inc. excludes all liability of work performed by others. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government. The above tests/results apply only to specific locations tested/inspected.
6/26/08

TEST-CON INCORPORATED

16 East Franklin Street
P. O. Box 3116
Danbury, CT 06813-3116
Telephone: (203) 748-3012 Fax: (203) 778-0633
E-Mail: Service@test-con.comWeb-Site: www.test-con.com

LABORATORY TEST CERTIFICATE

Date: 08/15/08

Report #: 4 SA
Technician: R. DeCesare

Client: Geodesign Inc.
984 Southford Rd
Middlebury, CT 06762

Project: New Britain-Hartford Busway #155-H025
Hartford/West Hartford, CT

Description: Light Tan

Date Received: Sample delivered by client on 07/28/08

Identification #: R-109 (S-1) Elevation/Depth: 0.5'- 2.5'

Test Requirements: Material in soil finer than #200 sieve

Remarks: D1140 Method A – Dry mass calculated by oven drying. Specimen was soaked

SUMMARY DATA

Initial Weight:	225.2 g
Weight After Wash:	61.8 g
Percentage of material finer than #200:	72.9 %

Reproduction or publication of this report only with our express permission. TEST-CON Inc. excludes all liability of work performed by others. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government. The above tests/results apply only to specific locations tested/inspected.
6/26/08

TEST-CON INCORPORATED

16 East Franklin Street
P. O. Box 3116
Danbury, CT 06813-3116
Telephone: (203) 748-3012 Fax: (203) 778-0633
E-Mail: Service@test-con.comWeb-Site: www.test-con.com

LABORATORY TEST CERTIFICATE

Date: 08/21/08

Report #: 21 SA
Technician: R. DeCesare

Client: Geodesign Inc.
984 Southford Rd
Middlebury, CT 06762

Project: New Britain-Hartford Busway #155-H025
Hartford/West Hartford, CT

Description: Reddish Brown Black

Date Received: Sample delivered by client on 08/01/08

Identification #: R-109 (S-2) Elevation/Depth: 2.5'- 4.5'

Test Requirements: Material in soil finer than #200 sieve

Remarks: D1140 Method A – Dry mass calculated by oven drying. Specimen was soaked.

SUMMARY DATA

Initial Weight:	242.3 g
Weight After Wash:	205.3 g
Percentage of material finer than #200:	15.2 %

Reproduction or publication of this report only with our express permission. TEST-CON Inc. excludes all liability of work performed by others. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government. The above tests/results apply only to specific locations tested/inspected.
6/26/08

TEST-CON INCORPORATED

16 East Franklin Street
P. O. Box 3116
Danbury, CT 06813-3116
Telephone: (203) 748-3012 Fax: (203) 778-0633
E-Mail: Service@test-con.comWeb-Site: www.test-con.com

LABORATORY TEST CERTIFICATE

Date: 08/21/08

Report #: 20 SA
Technician: R. DeCesare

Client: Geodesign Inc.
984 Southford Rd
Middlebury, CT 06762

Project: New Britain-Hartford Busway #155-H025
Hartford/West Hartford, CT

Description: Reddish Brown Gray

Date Received: Sample delivered by client on 08/01/08

Identification #: R-110 (S-1) Elevation/Depth: 0'- 2'

Test Requirements: Material in soil finer than #200 sieve

Remarks: D1140 Method A – Dry mass calculated by oven drying. Specimen was soaked.

SUMMARY DATA

Initial Weight:	269.7 g
Weight After Wash:	230.2 g
Percentage of material finer than #200:	14.6 %

Reproduction or publication of this report only with our express permission. TEST-CON Inc. excludes all liability of work performed by others. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government. The above tests/results apply only to specific locations tested/inspected.
6/26/08

TEST-CON INCORPORATED

16 East Franklin Street
P. O. Box 3116
Danbury, CT 06813-3116
Telephone: (203) 748-3012 Fax: (203) 778-0633
E-Mail: Service@test-con.com Web-Site: www.test-con.com

LABORATORY TEST CERTIFICATE

Date: 08/21/08

Report #: 19 SA
Technician: R. DeCesare

Client: Geodesign Inc.
984 Southford Rd
Middlebury, CT 06762

Project: New Britain-Hartford Busway #155-H025
Hartford/West Hartford, CT

Description: Reddish Brown

Date Received: Sample delivered by client on 08/01/08

Identification #: R-111 (S-2) Elevation/Depth: 2'- 4'

Test Requirements: Material in soil finer than #200 sieve

Remarks: D1140 Method A – Dry mass calculated by oven drying. Specimen was soaked.

SUMMARY DATA

Initial Weight:	285.9 g
Weight After Wash:	245.3 g
Percentage of material finer than #200:	14.2 %

Reproduction or publication of this report only with our express permission. TEST-CON Inc. excludes all liability of work performed by others. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government. The above tests/results apply only to specific locations tested/inspected.
6/26/08

TEST-CON INCORPORATED

16 East Franklin Street
P. O. Box 3116
Danbury, CT 06813-3116
Telephone: (203) 748-3012 Fax: (203) 778-0633
E-Mail: Service@test-con.com Web-Site: www.test-con.com

LABORATORY TEST CERTIFICATE

Date: 08/21/08

Report #: 18 SA
Technician: R. DeCesare

Client: Geodesign Inc.
984 Southford Rd
Middlebury, CT 06762

Project: New Britain-Hartford Busway #155-H025
Hartford/West Hartford, CT

Description: Reddish Brown and Gray

Date Received: Sample delivered by client on 08/01/08

Identification #: R-113 (S-1) Elevation/Depth: 0'- 2'

Test Requirements: Material in soil finer than #200 sieve

Remarks: D1140 Method A – Dry mass calculated by oven drying. Specimen was soaked.

SUMMARY DATA

Initial Weight:	331.3 g
Weight After Wash:	283.6 g
Percentage of material finer than #200:	14.3 %

Reproduction or publication of this report only with our express permission. TEST-CON Inc. excludes all liability of work performed by others. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government. The above tests/results apply only to specific locations tested/inspected.
6/26/08

TEST-CON INCORPORATED

16 East Franklin Street
P. O. Box 3116
Danbury, CT 06813-3116
Telephone: (203) 748-3012 Fax: (203) 778-0633
E-Mail: Service@test-con.com Web-Site: www.test-con.com

LABORATORY TEST CERTIFICATE

Date: 08/27/08

Report #: 34 SA
Technician: R. DeCesare

Client: Geodesign Inc.
984 Southford Rd
Middlebury, CT 06762

Project: New Britain-Hartford Busway #155-H025
Hartford/West Hartford, CT

Description: Reddish gray brown

Date Received: Sample delivered by client on 08/01/08

Identification #: R-114 (S-1) Elevation/Depth: 0'- 2'

Test Requirements: Material in soil finer than #200 sieve

Remarks: D1140 Method A – Dry mass calculated by oven drying. Specimen was soaked.

SUMMARY DATA

Initial Weight:	261.1 g
Weight After Wash:	237.2 g
Percentage of material finer than #200:	9.1 %

Reproduction or publication of this report only with our express permission. TEST-CON Inc. excludes all liability of work performed by others. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government. The above tests/results apply only to specific locations tested/inspected.
6/26/08

TEST-CON INCORPORATED

16 East Franklin Street
P. O. Box 3116
Danbury, CT 06813-3116
Telephone: (203) 748-3012 Fax: (203) 778-0633
E-Mail: Service@test-con.com Web-Site: www.test-con.com

LABORATORY TEST CERTIFICATE

Date: 08/27/08

Report #: 35 SA
Technician: R. DeCesare

Client: Geodesign Inc.
984 Southford Rd
Middlebury, CT 06762

Project: New Britain-Hartford Busway #155-H025
Hartford/West Hartford, CT

Description: Brownish gray

Date Received: Sample delivered by client on 08/01/08

Identification #: R-116 (S-1) Elevation/Depth: 0'- 2'

Test Requirements: Material in soil finer than #200 sieve

Remarks: D1140 Method A – Dry mass calculated by oven drying. Specimen was soaked.

SUMMARY DATA

Initial Weight:	156.2 g
Weight After Wash:	147.5 g
Percentage of material finer than #200:	5.5 %

Reproduction or publication of this report only with our express permission. TEST-CON Inc. excludes all liability of work performed by others. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government. The above tests/results apply only to specific locations tested/inspected.
6/26/08

TEST-CON INCORPORATED

16 East Franklin Street
P. O. Box 3116
Danbury, CT 06813-3116
Telephone: (203) 748-3012 Fax: (203) 778-0633
E-Mail: Service@test-con.com Web-Site: www.test-con.com

LABORATORY TEST CERTIFICATE

Date: 08/27/08

Report #: 36 SA
Technician: R. DeCesare

Client: Geodesign Inc.
984 Southford Rd
Middlebury, CT 06762

Project: New Britain-Hartford Busway #155-H025
Hartford/West Hartford, CT

Description: Grayish brown organic material in sample (wood)

Date Received: Sample delivered by client on 08/01/08

Identification #: R-117 (S-2) Elevation/Depth: 2'- 4'

Test Requirements: Material in soil finer than #200 sieve

Remarks: D1140 Method A – Dry mass calculated by oven drying. Specimen was soaked.

SUMMARY DATA

Initial Weight:	157.4 g
Weight After Wash:	128.4 g
Percentage of material finer than #200:	18.4 %

Reproduction or publication of this report only with our express permission. TEST-CON Inc. excludes all liability of work performed by others. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government. The above tests/results apply only to specific locations tested/inspected.
6/26/08

TEST-CON INCORPORATED

16 East Franklin Street
P. O. Box 3116
Danbury, CT 06813-3116
Telephone: (203) 748-3012 Fax: (203) 778-0633
E-Mail: Service@test-con.comWeb-Site: www.test-con.com

LABORATORY TEST CERTIFICATE

Date: 08/27/08

Report #: 37 SA
Technician: R. DeCesare

Client: Geodesign Inc.
984 Southford Rd
Middlebury, CT 06762

Project: New Britain-Hartford Busway #155-H025
Hartford/West Hartford, CT

Description: Brownish gray

Date Received: Sample delivered by client on 08/01/08

Identification #: R-118 (S-2) Elevation/Depth: 0'- 2'

Test Requirements: Material in soil finer than #200 sieve

Remarks: D1140 Method A – Dry mass calculated by oven drying. Specimen was soaked.

SUMMARY DATA

Initial Weight:	275.9 g
Weight After Wash:	237.9 g
Percentage of material finer than #200:	13.7 %

Reproduction or publication of this report only with our express permission. TEST-CON Inc. excludes all liability of work performed by others. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government. The above tests/results apply only to specific locations tested/inspected.
6/26/08

TEST-CON INCORPORATED

16 East Franklin Street
P. O. Box 3116
Danbury, CT 06813-3116
Telephone: (203) 748-3012 Fax: (203) 778-0633
E-Mail: Service@test-con.comWeb-Site: www.test-con.com

LABORATORY TEST CERTIFICATE

Date: 08/27/08

Report #: 38 SA
Technician: R. DeCesare

Client: Geodesign Inc.
984 Southford Rd
Middlebury, CT 06762

Project: New Britain-Hartford Busway #155-H025
Hartford/West Hartford, CT

Description: Grayish brown

Date Received: Sample delivered by client on 08/01/08

Identification #: R-119 (S-3) Elevation/Depth: 5'- 7'

Test Requirements: Material in soil finer than #200 sieve

Remarks: D1140 Method A – Dry mass calculated by oven drying. Specimen was soaked.

SUMMARY DATA

Initial Weight:	178.7 g
Weight After Wash:	146.7 g
Percentage of material finer than #200:	17.9 %

Reproduction or publication of this report only with our express permission. TEST-CON Inc. excludes all liability of work performed by others. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government. The above tests/results apply only to specific locations tested/inspected.
6/26/08

TEST-CON INCORPORATED

16 East Franklin Street
P. O. Box 3116
Danbury, CT 06813-3116
Telephone: (203) 748-3012 Fax: (203) 778-0633
E-Mail: Service@test-con.com Web-Site: www.test-con.com

LABORATORY TEST CERTIFICATE

Date: 08/27/08

Report #: 39 SA
Technician: R. DeCesare

Client: Geodesign Inc.
984 Southford Rd
Middlebury, CT 06762

Project: New Britain-Hartford Busway #155-H025
Hartford/West Hartford, CT

Description: Light brown

Date Received: Sample delivered by client on 08/01/08

Identification #: R-120 (S-1) Elevation/Depth: 0'- 2'

Test Requirements: Material in soil finer than #200 sieve

Remarks: D1140 Method A – Dry mass calculated by oven drying. Specimen was soaked.

SUMMARY DATA

Initial Weight:	245.7 g
Weight After Wash:	152.9 g
Percentage of material finer than #200:	37.7 %

Reproduction or publication of this report only with our express permission. TEST-CON Inc. excludes all liability of work performed by others. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government. The above tests/results apply only to specific locations tested/inspected.
6/26/08

TEST-CON INCORPORATED

16 East Franklin Street
P. O. Box 3116
Danbury, CT 06813-3116
Telephone: (203) 748-3012 Fax: (203) 778-0633
E-Mail: Service@test-con.com Web-Site: www.test-con.com

LABORATORY TEST CERTIFICATE

Date: 08/22/08

Report #: 24 SA
Technician: R. DeCesare

Client: Geodesign Inc.
984 Southford Rd
Middlebury, CT 06762

Project: New Britain-Hartford Busway #155-H025
Hartford/West Hartford, CT

Description: Dark brown

Date Received: Sample delivered by client on 08/01/08

Identification #: R-122 (S-2) Elevation/Depth: 2'- 4'

Test Requirements: Material in soil finer than #200 sieve

Remarks: D1140 Method A – Dry mass calculated by oven drying. Specimen was soaked.

SUMMARY DATA

Initial Weight:	274.8 g
Weight After Wash:	249.5 g
Percentage of material finer than #200:	9.2 %

Reproduction or publication of this report only with our express permission. TEST-CON Inc. excludes all liability of work performed by others. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government. The above tests/results apply only to specific locations tested/inspected.
6/26/08

TEST-CON INCORPORATED

16 East Franklin Street
P. O. Box 3116
Danbury, CT 06813-3116
Telephone: (203) 748-3012 Fax: (203) 778-0633
E-Mail: Service@test-con.comWeb-Site: www.test-con.com

LABORATORY TEST CERTIFICATE

Date: 08/22/08

Report #: 25 SA
Technician: R. DeCesare

Client: Geodesign Inc.
984 Southford Rd
Middlebury, CT 06762

Project: New Britain-Hartford Busway #155-H025
Hartford/West Hartford, CT

Description: Brown R123

Date Received: Sample delivered by client on 08/01/08

Identification #: R-123 (S-2) Elevation/Depth: 2'- 4'

Test Requirements: Material in soil finer than #200 sieve

Remarks: D1140 Method A – Dry mass calculated by oven drying. Specimen was soaked.

SUMMARY DATA

Initial Weight:	198.5 g
Weight After Wash:	139.3 g
Percentage of material finer than #200:	29.8 %

Reproduction or publication of this report only with our express permission. TEST-CON Inc. excludes all liability of work performed by others. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government. The above tests/results apply only to specific locations tested/inspected.
6/26/08

TEST-CON INCORPORATED

16 East Franklin Street
P. O. Box 3116
Danbury, CT 06813-3116
Telephone: (203) 748-3012 Fax: (203) 778-0633
E-Mail: Service@test-con.comWeb-Site: www.test-con.com

LABORATORY TEST CERTIFICATE

Date: 08/22/08

Report #: 26 SA
Technician: R. DeCesare

Client: Geodesign Inc.
984 Southford Rd
Middlebury, CT 06762

Project: New Britain-Hartford Busway #155-H025
Hartford/West Hartford, CT

Description: Reddish brown

Date Received: Sample delivered by client on 08/01/08

Identification #: R-124 (S-1) Elevation/Depth: 0'- 2'

Test Requirements: Material in soil finer than #200 sieve

Remarks: D1140 Method A – Dry mass calculated by oven drying. Specimen was soaked.

SUMMARY DATA

Initial Weight:	319.2 g
Weight After Wash:	261.7 g
Percentage of material finer than #200:	21.9 %

Reproduction or publication of this report only with our express permission. TEST-CON Inc. excludes all liability of work performed by others. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government. The above tests/results apply only to specific locations tested/inspected.
6/26/08

TEST-CON INCORPORATED

16 East Franklin Street
P. O. Box 3116
Danbury, CT 06813-3116
Telephone: (203) 748-3012 Fax: (203) 778-0633
E-Mail: Service@test-con.comWeb-Site: www.test-con.com

LABORATORY TEST CERTIFICATE

Date: 08/22/08

Report #: 27 SA
Technician: R. DeCesare

Client: Geodesign Inc.
984 Southford Rd
Middlebury, CT 06762

Project: New Britain-Hartford Busway #155-H025
Hartford/West Hartford, CT

Description: Light brown, gray and red

Date Received: Sample delivered by client on 08/01/08

Identification #: R-125 (S-2) Elevation/Depth: 3'- 5'

Test Requirements: Material in soil finer than #200 sieve

Remarks: D1140 Method A – Dry mass calculated by oven drying. Specimen was soaked.

SUMMARY DATA

Initial Weight:	316.3 g
Weight After Wash:	260.6 g
Percentage of material finer than #200:	21.3 %

Reproduction or publication of this report only with our express permission. TEST-CON Inc. excludes all liability of work performed by others. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government. The above tests/results apply only to specific locations tested/inspected.
6/26/08

TEST-CON INCORPORATED

16 East Franklin Street
P. O. Box 3116
Danbury, CT 06813-3116
Telephone: (203) 748-3012 Fax: (203) 778-0633
E-Mail: Service@test-con.comWeb-Site: www.test-con.com

LABORATORY TEST CERTIFICATE

Date: 08/19/08

Report #: 10 SA
Technician: R. DeCesare

Client: Geodesign Inc.
984 Southford Rd
Middlebury, CT 06762

Project: New Britain-Hartford Busway #155-H025
Hartford/West Hartford, CT

Description: Light Brown-Gray

Date Received: Sample delivered by client on 08/01/08

Identification #: R-126 (S-1) Elevation/Depth: 0'- 2'

Test Requirements: Material in soil finer than #200 sieve

Remarks: D1140 Method A – Dry mass calculated by oven drying. Specimen was soaked.

SUMMARY DATA

Initial Weight:	173.8 g
Weight After Wash:	159.4 g
Percentage of material finer than #200:	8.3 %

Reproduction or publication of this report only with our express permission. TEST-CON Inc. excludes all liability of work performed by others. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government. The above tests/results apply only to specific locations tested/inspected.
6/26/08

TEST-CON INCORPORATED

16 East Franklin Street
P. O. Box 3116
Danbury, CT 06813-3116
Telephone: (203) 748-3012 Fax: (203) 778-0633
E-Mail: Service@test-con.com Web-Site: www.test-con.com

LABORATORY TEST CERTIFICATE

Date: 08/19/08

Report #: 28 SA
Technician: R. DeCesare

Client: Geodesign Inc.
984 Southford Rd
Middlebury, CT 06762

Project: New Britain-Hartford Busway #155-H025
Hartford/West Hartford, CT

Description: Light brown

Date Received: Sample delivered by client on 08/01/08

Identification #: R-106 (S-3) Elevation/Depth: 5'- 7'

Test Requirements: Material in soil finer than #200 sieve

Remarks: D1140 Method A – Dry mass calculated by oven drying. Specimen was soaked.

SUMMARY DATA

Initial Weight:	181.2 g
Weight After Wash:	52.2 g
Percentage of material finer than #200:	71.2 %

Reproduction or publication of this report only with our express permission. TEST-CON Inc. excludes all liability of work performed by others. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government. The above tests/results apply only to specific locations tested/inspected.
6/26/08

TEST-CON INCORPORATED

16 East Franklin Street
P. O. Box 3116
Danbury, CT 06813-3116
Telephone: (203) 748-3012 Fax: (203) 778-0633
E-Mail: Service@test-con.comWeb-Site: www.test-con.com

LABORATORY TEST CERTIFICATE

Date: 08/19/08

Report #: 11 SA
Technician: R. DeCesare

Client: Geodesign Inc.
984 Southford Rd
Middlebury, CT 06762

Project: New Britain-Hartford Busway #155-H025
Hartford/West Hartford, CT

Description: Brown/Gray

Date Received: 08/19/08

Identification #: R-127 (S-1) Elevation/Depth: 2'- 4'

Test Requirements: Material in soil finer than #200 sieve

Remarks: D1140 Method A – Dry mass calculated by oven drying. Specimen was soaked.

SUMMARY DATA

Initial Weight:	232.9 g
Weight After Wash:	211.6 g
Percentage of material finer than #200:	9.1 %

Reproduction or publication of this report only with our express permission. TEST-CON Inc. excludes all liability of work performed by others. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government. The above tests/results apply only to specific locations tested/inspected.
6/26/08

TEST-CON INCORPORATED

16 East Franklin Street
P. O. Box 3116
Danbury, CT 06813-3116
Telephone: (203) 748-3012 Fax: (203) 778-0633
E-Mail: Service@test-con.com Web-Site: www.test-con.com

LABORATORY TEST CERTIFICATE

Date: 08/19/08

Report #: 12 SA
Technician: R. DeCesare

Client: Geodesign Inc.
984 Southford Rd
Middlebury, CT 06762

Project: New Britain-Hartford Busway #155-H025
Hartford/West Hartford, CT

Description: Dark Brown, black

Date Received: Sample delivered by client on 08/01/08

Identification #: R-128 (S-1) Elevation/Depth: 0'- 2'

Test Requirements: Material in soil finer than #200 sieve

Remarks: D1140 Method A – Dry mass calculated by oven drying. Specimen was soaked.

SUMMARY DATA

Initial Weight:	188.2 g
Weight After Wash:	172.4 g
Percentage of material finer than #200:	8.4 %

Reproduction or publication of this report only with our express permission. TEST-CON Inc. excludes all liability of work performed by others. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government. The above tests/results apply only to specific locations tested/inspected.
6/26/08

TEST-CON INCORPORATED

16 East Franklin Street
P. O. Box 3116
Danbury, CT 06813-3116
Telephone: (203) 748-3012 Fax: (203) 778-0633
E-Mail: Service@test-con.comWeb-Site: www.test-con.com

LABORATORY TEST CERTIFICATE

Date: 08/19/08

Report #: 13 SA
Technician: R. DeCesare

Client: Geodesign Inc.
984 Southford Rd
Middlebury, CT 06762

Project: New Britain-Hartford Busway #155-H025
Hartford/West Hartford, CT

Description: Dark Brown, blackish

Date Received: Sample delivered by client on 08/01/08

Identification #: R-129 (S-1) Elevation/Depth: 0'- 2'

Test Requirements: Material in soil finer than #200 sieve

Remarks: D1140 Method A – Dry mass calculated by oven drying. Specimen was soaked.

SUMMARY DATA

Initial Weight:	92.2 g
Weight After Wash:	84.4 g
Percentage of material finer than #200:	8.4 %

Reproduction or publication of this report only with our express permission. TEST-CON Inc. excludes all liability of work performed by others. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government. The above tests/results apply only to specific locations tested/inspected.
6/26/08

TEST-CON INCORPORATED

16 East Franklin Street
P. O. Box 3116
Danbury, CT 06813-3116
Telephone: (203) 748-3012 Fax: (203) 778-0633
E-Mail: Service@test-con.comWeb-Site: www.test-con.com

LABORATORY TEST CERTIFICATE

Date: 08/19/08

Report #: 16 SA
Technician: R. DeCesare

Client: Geodesign Inc.
984 Southford Rd
Middlebury, CT 06762

Project: New Britain-Hartford Busway #155-H025
Hartford/West Hartford, CT

Description: Light Brown/Goldish Color

Date Received: Sample delivered by client on 08/01/08

Identification #: RW-6 (S-1) Elevation/Depth: 1'- 3'

Test Requirements: Material in soil finer than #200 sieve

Remarks: D1140 Method A – Dry mass calculated by oven drying. Specimen was soaked.

SUMMARY DATA

Initial Weight:	121.7 g
Weight After Wash:	31.3 g
Percentage of material finer than #200:	74.3 %

Reproduction or publication of this report only with our express permission. TEST-CON Inc. excludes all liability of work performed by others. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government. The above tests/results apply only to specific locations tested/inspected.
6/26/08

TEST-CON INCORPORATED

16 East Franklin Street
P. O. Box 3116
Danbury, CT 06813-3116
Telephone: (203) 748-3012 Fax: (203) 778-0633
E-Mail: Service@test-con.comWeb-Site: www.test-con.com

LABORATORY TEST CERTIFICATE

Date: 08/19/08

Report #: 14 SA
Technician: R. DeCesare

Client: Geodesign Inc.
984 Southford Rd
Middlebury, CT 06762

Project: New Britain-Hartford Busway #155-H025
Hartford/West Hartford, CT

Description: Light Brown, goldish color

Date Received: Sampled delivered by client on 08/01/08

Identification #: RW-7 (S-2) Elevation/Depth: 3'- 5'

Test Requirements: Material in soil finer than #200 sieve

Remarks: D1140 Method A – Dry mass calculated by oven drying. Specimen was soaked.

SUMMARY DATA

Initial Weight:	138.6 g
Weight After Wash:	37.9 g
Percentage of material finer than #200:	72.6 %

Reproduction or publication of this report only with our express permission. TEST-CON Inc. excludes all liability of work performed by others. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government. The above tests/results apply only to specific locations tested/inspected.
6/26/08

TEST-CON INCORPORATED

16 East Franklin Street
P. O. Box 3116
Danbury, CT 06813-3116
Telephone: (203) 748-3012 Fax: (203) 778-0633
E-Mail: Service@test-con.comWeb-Site: www.test-con.com

LABORATORY TEST CERTIFICATE

Date: 08/19/08

Report #: 17 SA
Technician: R. DeCesare

Client: Geodesign Inc.
984 Southford Rd
Middlebury, CT 06762

Project: New Britain-Hartford Busway #155-H025
Hartford/West Hartford, CT

Description: Light Brown/Goldish Color

Date Received: Sample delivered by client on 08/01/08

Identification #: RW-8 (S-2) Elevation/Depth: 2.5'- 4.5'

Test Requirements: Material in soil finer than #200 sieve

Remarks: D1140 Method A – Dry mass calculated by oven drying. Specimen was soaked.

SUMMARY DATA

Initial Weight:	129.4 g
Weight After Wash:	32.2 g
Percentage of material finer than #200:	75.1 %

Reproduction or publication of this report only with our express permission. TEST-CON Inc. excludes all liability of work performed by others. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government. The above tests/results apply only to specific locations tested/inspected.
6/26/08

TEST-CON INCORPORATED

16 East Franklin Street
P. O. Box 3116
Danbury, CT 06813-3116
Telephone: (203) 748-3012 Fax: (203) 778-0633
E-Mail: Service@test-con.comWeb-Site: www.test-con.com

LABORATORY TEST CERTIFICATE

Date: 08/19/08

Report #: 15 SA
Technician: R. DeCesare

Client: Geodesign Inc.
984 Southford Rd
Middlebury, CT 06762

Project: New Britain-Hartford Busway #155-H025
Hartford/West Hartford, CT

Description: Light Brown, Goldish Color

Date Received: Sample delivered by client on 08/01/08

Identification #: RW-9 (S-3) Elevation/Depth: 5'- 7'

Test Requirements: Material in soil finer than #200 sieve

Remarks: D1140 Method A – Dry mass calculated by oven drying. Specimen was soaked.

SUMMARY DATA

Initial Weight:	161.2 g
Weight After Wash:	44.9 g
Percentage of material finer than #200:	72.1 %

Reproduction or publication of this report only with our express permission. TEST-CON Inc. excludes all liability of work performed by others. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government. The above tests/results apply only to specific locations tested/inspected.
6/26/08

TEST-CON INCORPORATED

16 East Franklin Street
P. O. Box 3116
Danbury, CT 06813-3116
Telephone: (203) 748-3012 Fax: (203) 778-0633
E-Mail: Service@test-con.com Web-Site: www.test-con.com

LABORATORY TEST CERTIFICATE

Date: 09/10/08

Report #: 40 SA
Technician: R. DeCesare

Client: Geodesign Inc.
984 Southford Rd
Middlebury, CT 06762

Project: New Britain-Hartford Busway #155-H025
Hartford/West Hartford, CT

Description: Light brown

Date Received: Sample delivered by client on 08/01/08

Identification #: SB-01-1 (S-3) Elevation/Depth: 5'- 7'

Test Requirements: Material in soil finer than #200 sieve

Remarks: D1140 Method A – Dry mass calculated by oven drying. Specimen was soaked.

SUMMARY DATA

Initial Weight:	217.4 g
Weight After Wash:	123.6 g
Percentage of material finer than #200:	43.1 %

Reproduction or publication of this report only with our express permission. TEST-CON Inc. excludes all liability of work performed by others. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government. The above tests/results apply only to specific locations tested/inspected.
6/26/08

TEST-CON INCORPORATED

16 East Franklin Street
P. O. Box 3116
Danbury, CT 06813-3116
Telephone: (203) 748-3012 Fax: (203) 778-0633
E-Mail: Service@test-con.com Web-Site: www.test-con.com

LABORATORY TEST CERTIFICATE

Date: 09/10/08

Report #: 43 SA
Technician: R. DeCesare

Client: Geodesign Inc.
984 Southford Rd
Middlebury, CT 06762

Project: New Britain-Hartford Busway #155-H025
Hartford/West Hartford, CT

Description: Gray

Date Received: Sample delivered by client on 08/01/08

Identification #: SB-01-3 (S-3) **Elevation/Depth:** 5' – 7'

Test Requirements: Material in soil finer than #200 sieve

Remarks: D1140 Method A – Dry mass calculated by oven drying. Specimen was soaked.

SUMMARY DATA

Initial Weight:	162.4 g
Weight After Wash:	0.9 g
Percentage of material finer than #200:	99.4 %

Reproduction or publication of this report only with our express permission. TEST-CON Inc. excludes all liability of work performed by others. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government. The above tests/results apply only to specific locations tested/inspected.
6/26/08

TEST-CON INCORPORATED

16 East Franklin Street
P. O. Box 3116
Danbury, CT 06813-3116
Telephone: (203) 748-3012 Fax: (203) 778-0633
E-Mail: Service@test-con.com Web-Site: www.test-con.com

LABORATORY TEST CERTIFICATE

Date: 09/10/08

Report #: 42 SA
Technician: R. DeCesare

Client: Geodesign Inc.
984 Southford Rd
Middlebury, CT 06762

Project: New Britain-Hartford Busway #155-H025
Hartford/West Hartford, CT

Description: Reddish brown

Date Received: Sample delivered by client on 08/01/08

Identification #: SB-01-4 (S-1) **Elevation/Depth:** 0' – 2'

Test Requirements: Material in soil finer than #200 sieve

Remarks: D1140 Method A – Dry mass calculated by oven drying. Specimen was soaked.

SUMMARY DATA

Initial Weight:	194.4 g
Weight After Wash:	160.4 g
Percentage of material finer than #200:	17.5 %

Reproduction or publication of this report only with our express permission. TEST-CON Inc. excludes all liability of work performed by others. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government. The above tests/results apply only to specific locations tested/inspected.
6/26/08

TEST-CON INCORPORATED

16 East Franklin Street
P. O. Box 3116
Danbury, CT 06813-3116
Telephone: (203) 748-3012 Fax: (203) 778-0633
E-Mail: Service@test-con.comWeb-Site: www.test-con.com

LABORATORY TEST CERTIFICATE

Date: 08/15/08

Report #: 1 SA
Technician: R. DeCesare

Client: Geodesign Inc.
984 Southford Rd
Middlebury, CT 06762

Project: New Britain-Hartford Busway #155-H025
Hartford/West Hartford, CT

Description: Reddish Brown

Date Received: Sample delivered by client on 07/28/08

Identification #: SB-02-1 (S-29) Elevation/Depth: 140-142'

Test Requirements: Material in soil finer than #200 sieve

Remarks: D1140 Method A – Dry mass calculated by oven drying. Specimen was soaked

SUMMARY DATA

Initial Weight:	247.5 g
Weight After Wash:	177.9g
Percentage of material finer than #200:	28.1 %

Reproduction or publication of this report only with our express permission. TEST-CON Inc. excludes all liability of work performed by others. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government. The above tests/results apply only to specific locations tested/inspected.
6/26/08

TEST-CON INCORPORATED

16 East Franklin Street
P. O. Box 3116
Danbury, CT 06813-3116
Telephone: (203) 748-3012 Fax: (203) 778-0633
E-Mail: Service@test-con.comWeb-Site: www.test-con.com

LABORATORY TEST CERTIFICATE

Date: 09/10/08

Report #: 41 SA
Technician: R. DeCesare

Client: Geodesign Inc.
984 Southford Rd
Middlebury, CT 06762

Project: New Britain-Hartford Busway #155-H025
Hartford/West Hartford, CT

Description: Dark brown

Date Received: Sample delivered by client on 08/01/08

Identification #: SB-02-2 (S-1) Elevation/Depth: 0' – 2'

Test Requirements: Material in soil finer than #200 sieve

Remarks: D1140 Method A – Dry mass calculated by oven drying. Specimen was soaked.

SUMMARY DATA

Initial Weight:	253.6 g
Weight After Wash:	242.9 g
Percentage of material finer than #200:	4.2 %

Reproduction or publication of this report only with our express permission. TEST-CON Inc. excludes all liability of work performed by others. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government. The above tests/results apply only to specific locations tested/inspected.
6/26/08

TEST-CON INCORPORATED

16 East Franklin Street
P. O. Box 3116
Danbury, CT 06813-3116
Telephone: (203) 748-3012 Fax: (203) 778-0633
E-Mail: Service@test-con.comWeb-Site: www.test-con.com

LABORATORY TEST CERTIFICATE

Date: 08/18/08

Report #: 7 SA
Technician: R. DeCesare

Client: Geodesign Inc.
984 Southford Rd
Middlebury, CT 06762

Project: New Britain-Hartford Busway #155-H025
Hartford/West Hartford, CT

Description: Reddish Brown & Gray White

Date Received: Sample delivered by client on 07/28/08

Identification #: SB-02-2 (S-32) Elevation/Depth: 145'- 147'

Test Requirements: Material in soil finer than #200 sieve

Remarks: D1140 Method A – Dry mass calculated by oven drying. Specimen was soaked.

SUMMARY DATA

Initial Weight:	341.7 g
Weight After Wash:	298.3 g
Percentage of material finer than #200:	12.7 %

Reproduction or publication of this report only with our express permission. TEST-CON Inc. excludes all liability of work performed by others. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government. The above tests/results apply only to specific locations tested/inspected.
6/26/08

TEST-CON INCORPORATED

16 East Franklin Street
P. O. Box 3116
Danbury, CT 06813-3116
Telephone: (203) 748-3012 Fax: (203) 778-0633
E-Mail: Service@test-con.comWeb-Site: www.test-con.com

LABORATORY TEST CERTIFICATE

Date: 08/18/08

Report #: 5 SA
Technician: R. DeCesare

Client: Geodesign Inc.
984 Southford Rd
Middlebury, CT 06762

Project: New Britain-Hartford Busway #155-H025
Hartford/West Hartford, CT

Description: Light Brown – Gray

Date Received: Sample delivered by client on 07/28/08

Identification #: SB-02-3 (S-5) Elevation/Depth: 10'- 12'

Test Requirements: Material in soil finer than #200 sieve

Remarks: D1140 Method A – Dry mass calculated by oven drying. Specimen was soaked

SUMMARY DATA

Initial Weight:	191.08 g
Weight After Wash:	56.8 g
Percentage of material finer than #200:	70.2 %

Reproduction or publication of this report only with our express permission. TEST-CON Inc. excludes all liability of work performed by others. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government. The above tests/results apply only to specific locations tested/inspected.
6/26/08

TEST-CON INCORPORATED

16 East Franklin Street
P. O. Box 3116
Danbury, CT 06813-3116
Telephone: (203) 748-3012 Fax: (203) 778-0633
E-Mail: Service@test-con.comWeb-Site: www.test-con.com

LABORATORY TEST CERTIFICATE

Date: 08/18/08

Report #: 9 SA
Technician: R. DeCesare

Client: Geodesign Inc.
984 Southford Rd
Middlebury, CT 06762

Project: New Britain-Hartford Busway #155-H025
Hartford/West Hartford, CT

Description: Reddish Brown – Gray

Date Received: Sample delivered by client on 07/28/08

Identification #: SB-02-3 (S-30) Elevation/Depth: 135'- 137'

Test Requirements: Material in soil finer than #200 sieve

Remarks: D1140 Method A – Dry mass calculated by oven drying. Specimen was soaked.

SUMMARY DATA

Initial Weight:	221.4 g
Weight After Wash:	208.6 g
Percentage of material finer than #200:	5.7 %

Reproduction or publication of this report only with our express permission. TEST-CON Inc. excludes all liability of work performed by others. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government. The above tests/results apply only to specific locations tested/inspected.
6/26/08

TEST-CON INCORPORATED

16 East Franklin Street
P. O. Box 3116
Danbury, CT 06813-3116
Telephone: (203) 748-3012 Fax: (203) 778-0633
E-Mail: Service@test-con.comWeb-Site: www.test-con.com

LABORATORY TEST CERTIFICATE

Date: 08/18/08

Report #: 8 SA
Technician: R. DeCesare

Client: Geodesign Inc.
984 Southford Rd
Middlebury, CT 06762

Project: New Britain-Hartford Busway #155-H025
Hartford/West Hartford, CT

Description: Black, tan, gray and white

Date Received: Sample delivered by client on 07/28/08

Identification #: SB-03-2 (S-3) Elevation/Depth: 5'- 7'

Test Requirements: Material in soil finer than #200 sieve

Remarks: D1140 Method A – Dry mass calculated by oven drying. Specimen was soaked.

SUMMARY DATA

Initial Weight:	100.1 g
Weight After Wash:	78.7 g
Percentage of material finer than #200:	21.3 %

Reproduction or publication of this report only with our express permission. TEST-CON Inc. excludes all liability of work performed by others. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government. The above tests/results apply only to specific locations tested/inspected.
6/26/08

TEST-CON INCORPORATED

16 East Franklin Street
P. O. Box 3116
Danbury, CT 06813-3116
Telephone: (203) 748-3012 Fax: (203) 778-0633
E-Mail: Service@test-con.comWeb-Site: www.test-con.com

LABORATORY TEST CERTIFICATE

Date: 08/15/08

Report #: 2 SA
Technician: R. DeCesare

Client: Geodesign Inc.
984 Southford Rd
Middlebury, CT 06762

Project: New Britain-Hartford Busway #155-H025
Hartford/West Hartford, CT

Description: Brown/gray/black

Date Received: Sample delivered by client on 07/28/08

Identification #: SB-03-3 (S-3) Elevation/Depth: 5'-7'

Test Requirements: Material in soil finer than #200 sieve

Remarks: D1140 Method A – Dry mass calculated by oven drying. Specimen was soaked

SUMMARY DATA

Initial Weight:	154.9 g
Weight After Wash:	106.2 g
Percentage of material finer than #200:	31.4 %

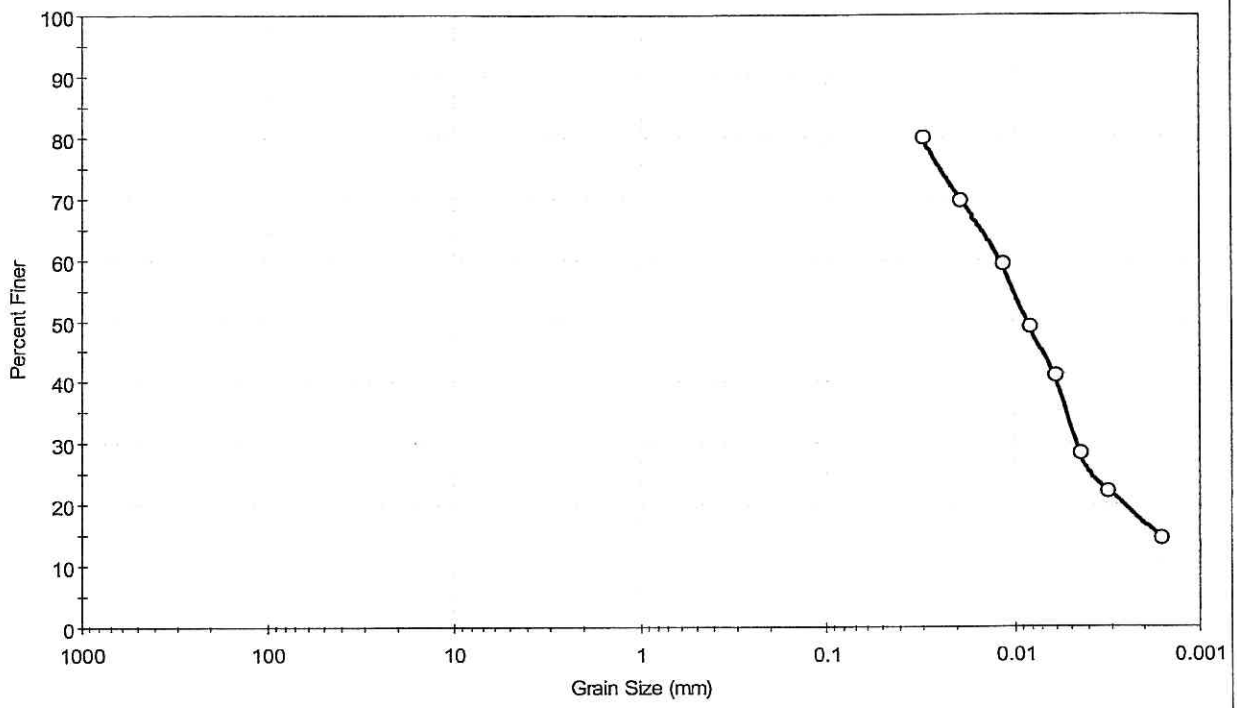
Reproduction or publication of this report only with our express permission. TEST-CON Inc. excludes all liability of work performed by others. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government. The above tests/results apply only to specific locations tested/inspected.
6/26/08

2008 Hydrometer Tests

GeoTesting express
a subsidiary of Geocomp Corporation

Client:	GeoDesign, Inc.		
Project:	Amtrak Access Road		
Location:	Newington, West Hartford, & Hartford	Project No:	GTX-8565
Boring ID: AARB-17	Sample Type: jar	Tested By:	ap
Sample ID:S-4	Test Date: 10/17/08	Checked By:	mpd
Depth : 10-12 ft	Test Id: 139650		
Test Comment:	---		
Sample Description:	Moist, olive gray clay		
Sample Comment:	---		

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
–	–	–	–

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
---	Particle Size (mm)	Percent Finer	Spec. Percent	Complies
---	0.0312	80		
---	0.0195	70		
---	0.0118	60		
---	0.0084	49		
---	0.0062	41		
---	0.0045	28		
---	0.0032	23		
---	0.0017	15		

Coefficients

D_{85} =N/A D_{30} =0.0047 mm
D_{60} =0.0121 mm D_{15} =0.0017 mm
D_{50} =0.0086 mm D_{10} =0.0011 mm
C_u =11.000 C_c =1.660

Classification

ASTM N/A

AASHTO ()

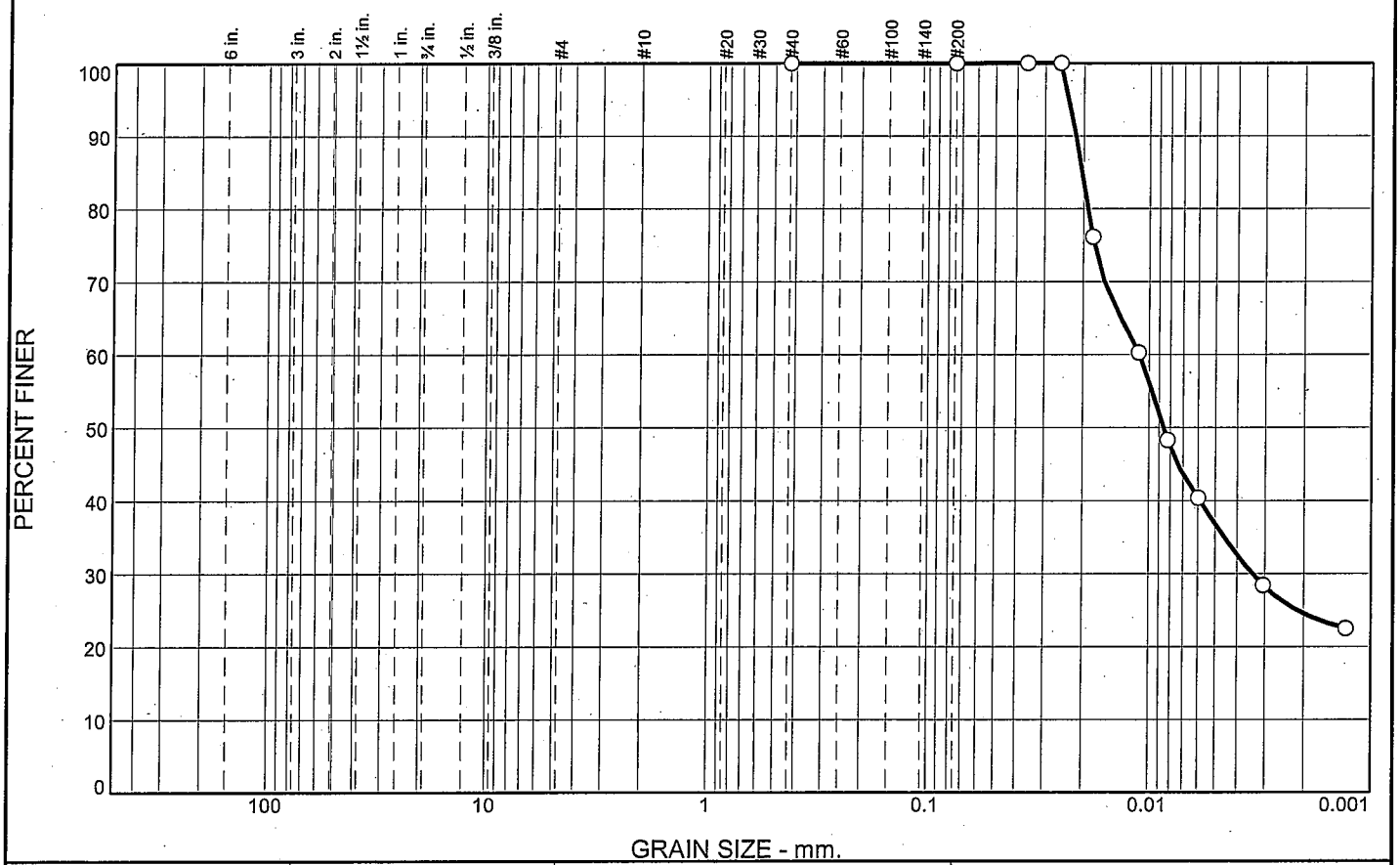
Sample/Test Description

Sand/Gravel Particle Shape :

Sand/Gravel Hardness :

printed 10/17/2008 4:07:12 PM

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
					0.0	63.2	36.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
# 40	100.0		
# 200	100.0		
0.0359 mm.	100.0		
0.0254 mm.	100.0		
0.0181 mm.	76.2		
0.0111 mm.	60.3		
0.0082 mm.	48.3		
0.0060 mm.	40.4		
0.0030 mm.	28.4		
0.0013 mm.	22.5		

* (no specification provided)

Soil Description

Tan color

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.0204 D_{60}= 0.0111 D_{50}= 0.0086
D_{30}= 0.0034 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Sample collected by client. Dropped for test analysis on 8/01/08.

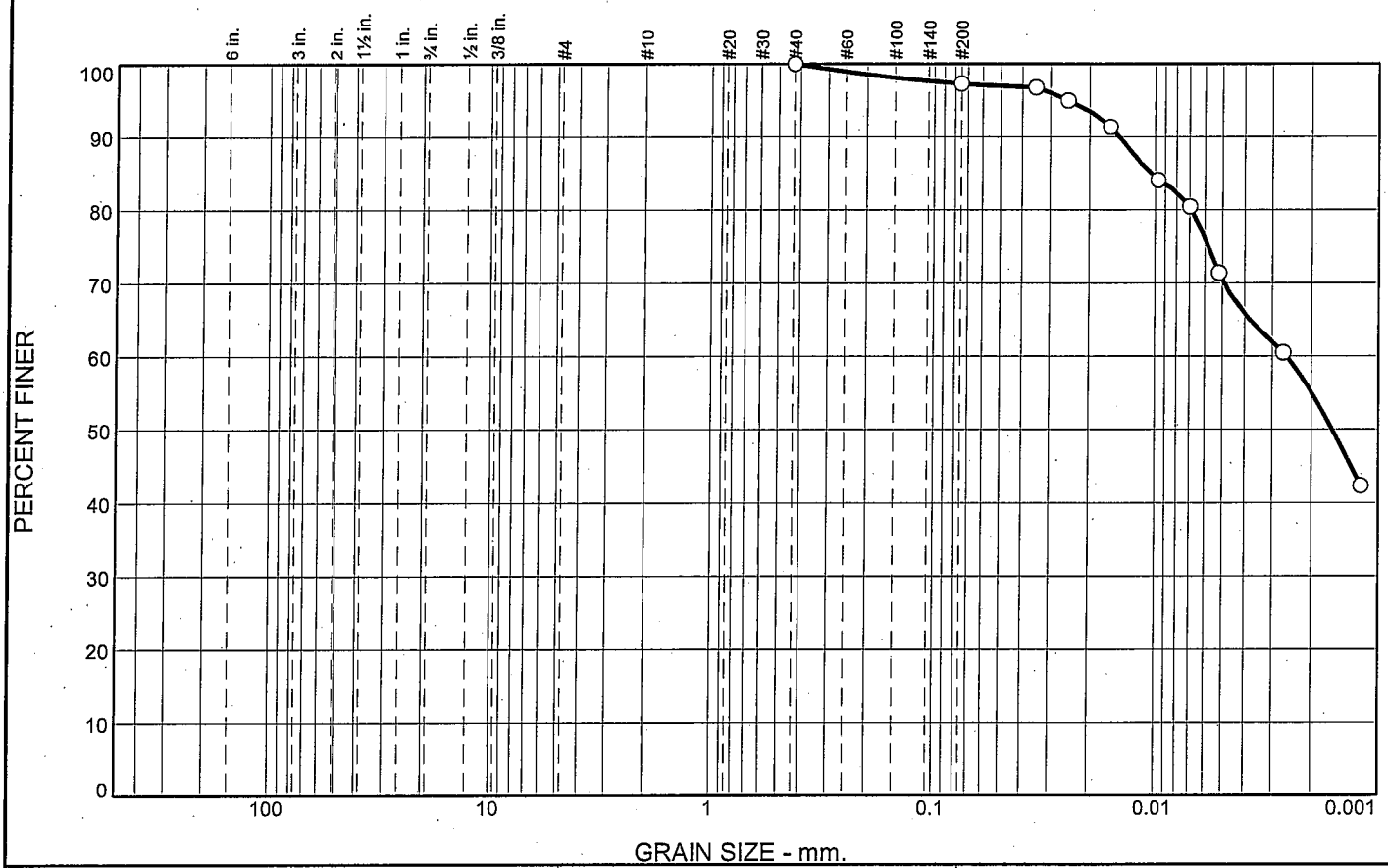
Sample No.: S-3 **Source of Sample:** R-101 **Date:**
Location: Boring R-101 (Roadway and Retaining walls) **Elev./Depth:** 4' - 6'

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No: **Figure**

Tested By: R. DeCesare

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.0	2.7	26.9	70.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
# 40	100.0		
# 200	97.3		
0.0347 mm.	96.8		
0.0249 mm.	95.0		
0.0161 mm.	91.3		
0.0097 mm.	84.1		
0.0070 mm.	80.4		
0.0052 mm.	71.4		
0.0027 mm.	60.5		
0.0012 mm.	42.3		

* (no specification provided)

Soil Description

Grey color

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.0105 D_{60}= 0.0026 D_{50}= 0.0016
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Sample collected by client. Dropped off for test analysis on 8/01/08.

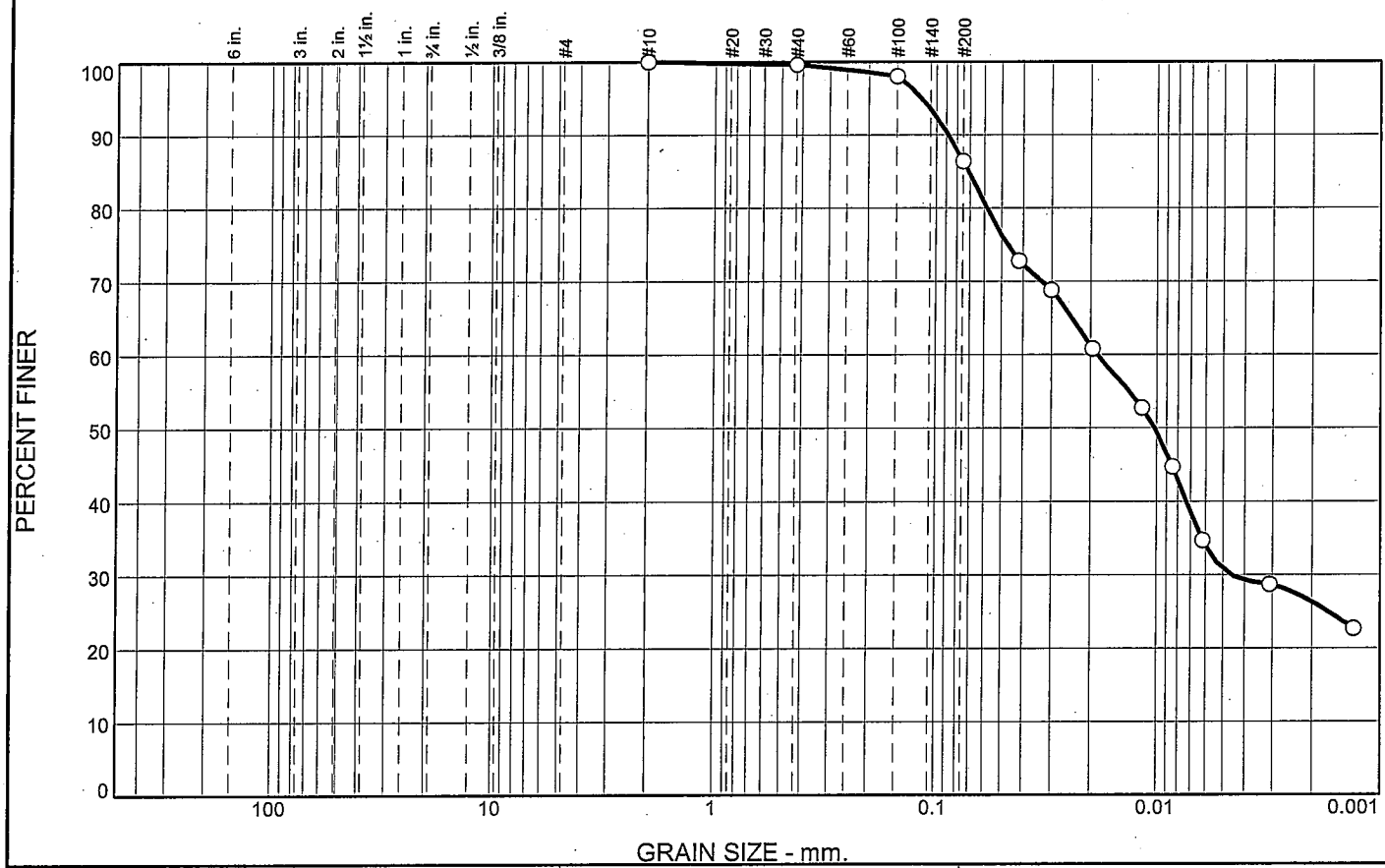
Sample No.: S-5 **Source of Sample:** R-112 **Date:**
Location: Boring R-112 (Roadway and Retaining walls) **Elev./Depth:** 10' - 12'

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No: **Figure**

Tested By: R. DeCesare

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.4	13.2	55.5	30.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
# 10	100.0		
# 40	99.6		
# 100	98.0		
# 200	86.4		
0.0416 mm.	72.8		
0.0299 mm.	68.8		
0.0195 mm.	60.8		
0.0116 mm.	52.8		
0.0085 mm.	44.7		
0.0062 mm.	34.7		
0.0031 mm.	28.7		
0.0013 mm.	22.7		

* (no specification provided)

Soil Description

Tan color

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.0708 D_{60}= 0.0187 D_{50}= 0.0102
D_{30}= 0.0046 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Sample collected by client. Dropped off for test analysis on 8/01/08.

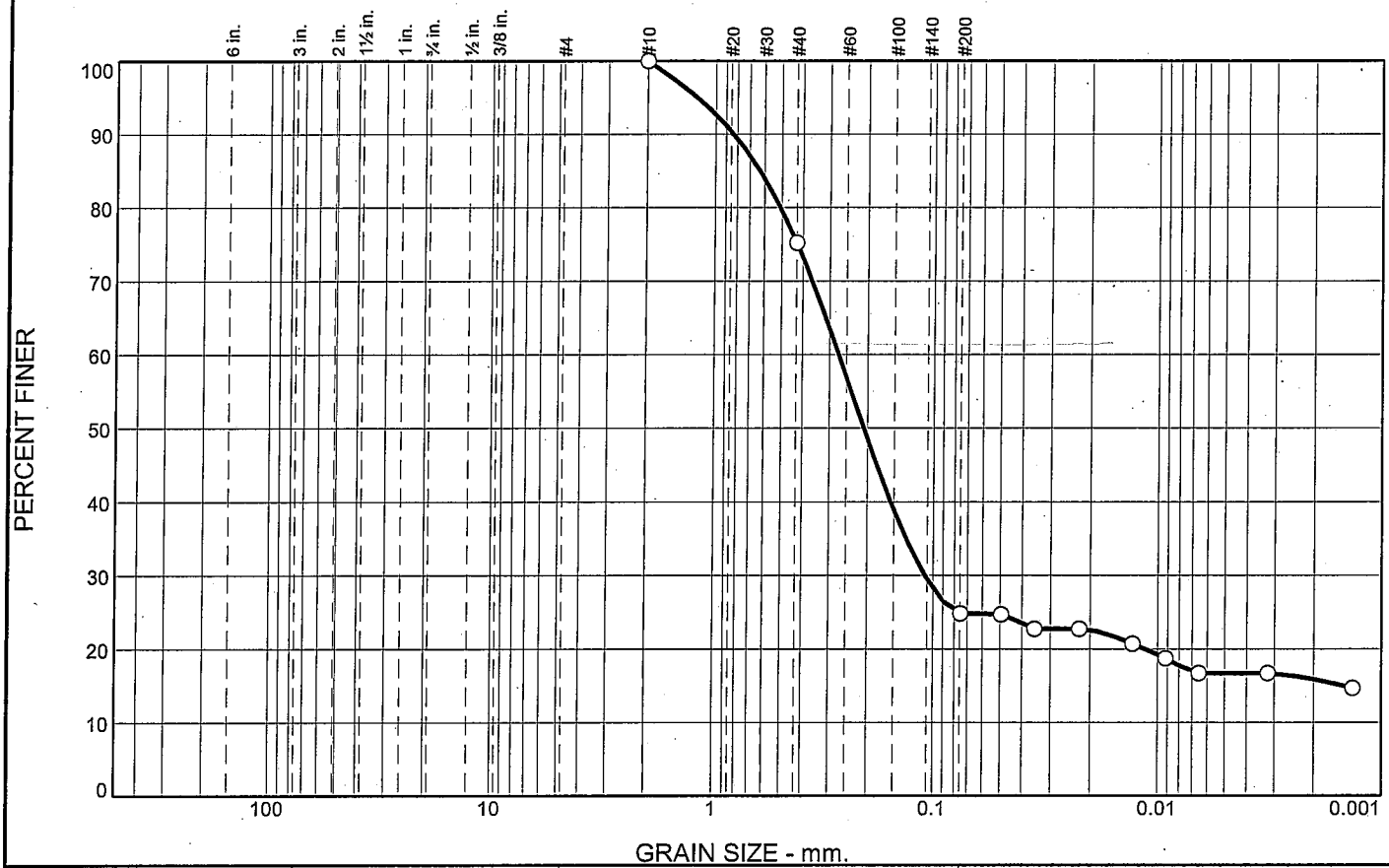
Sample No.: S-2 **Source of Sample:** R-115 **Date:**
Location: Boring R-115 (Roadway and Retaining walls) **Elev./Depth:** 2' - 4'

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No: **Figure**

Tested By: R. DeCesare

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	24.8	50.4	8.1	16.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
# 10	100.0		
# 40	75.2		
# 200	24.8		
0.0494 mm.	24.7		
0.0351 mm.	22.7		
0.0222 mm.	22.7		
0.0129 mm.	20.7		
0.0092 mm.	18.7		
0.0065 mm.	16.7		
0.0032 mm.	16.7		
0.0013 mm.	14.7		

* (no specification provided)

Soil Description

Light Brown color

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.6296 D_{60}= 0.2720 D_{50}= 0.2076
D_{30}= 0.1088 D_{15}= 0.0015 D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Sample collected by client. Dropped off for test analysis on 8/01/08.

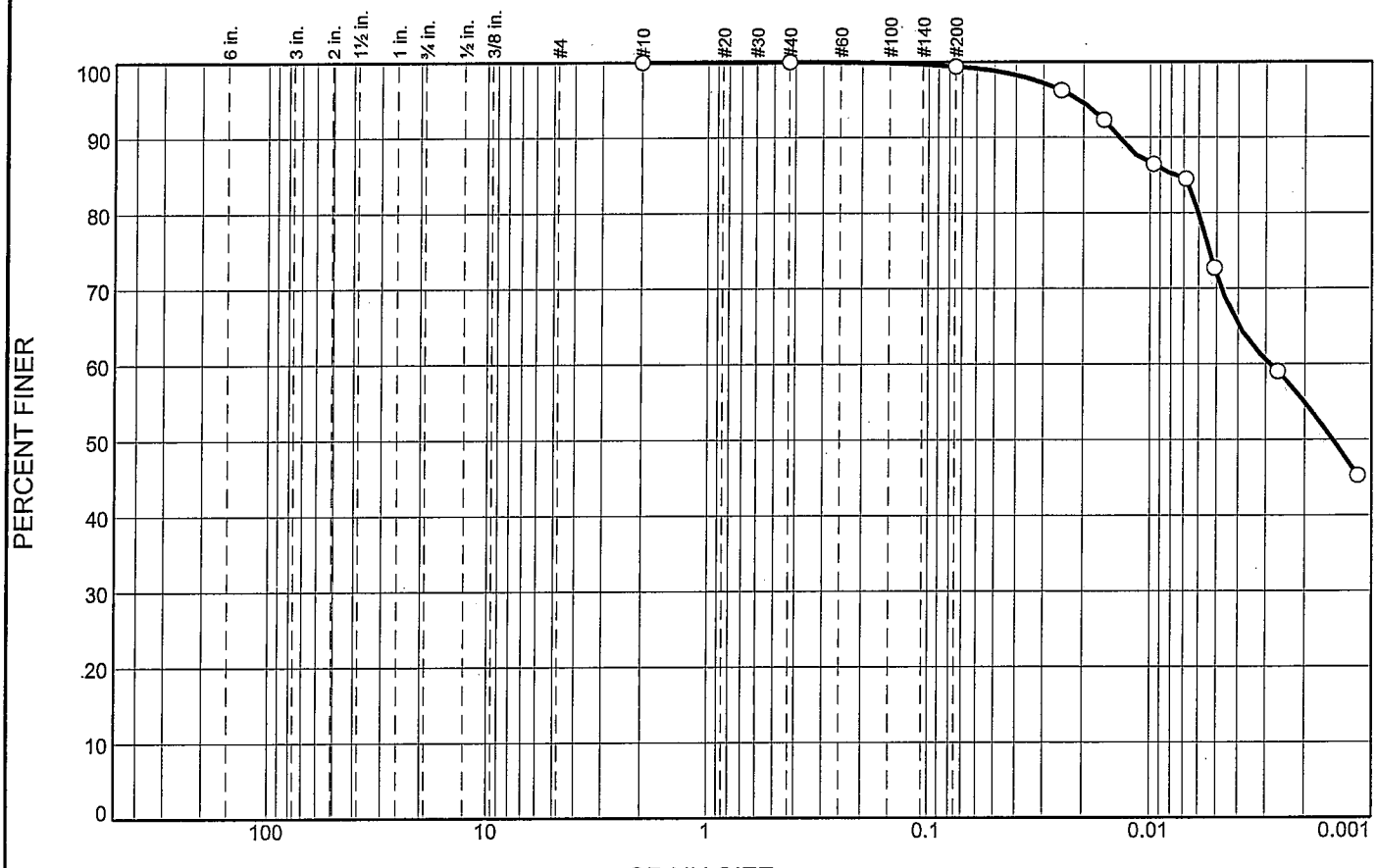
Sample No.: S-3 **Source of Sample:** R-121 **Date:**
Location: Boring R-121 (Roadway and Retaining walls) **Elev./Depth:** 5' - 7'

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No: **Figure**

Tested By: R. DeCesare

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.0	0.6	27.5	71.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	100.0		
#200	99.4		

* (no specification provided)

Material Description

Olive color, lean clay

Atterberg Limits

PL= 23 LL= 49 PI= 26

Coefficients

D_{85}= 0.0077 D_{60}= 0.0029 D_{50}= 0.0015
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(29)

Remarks

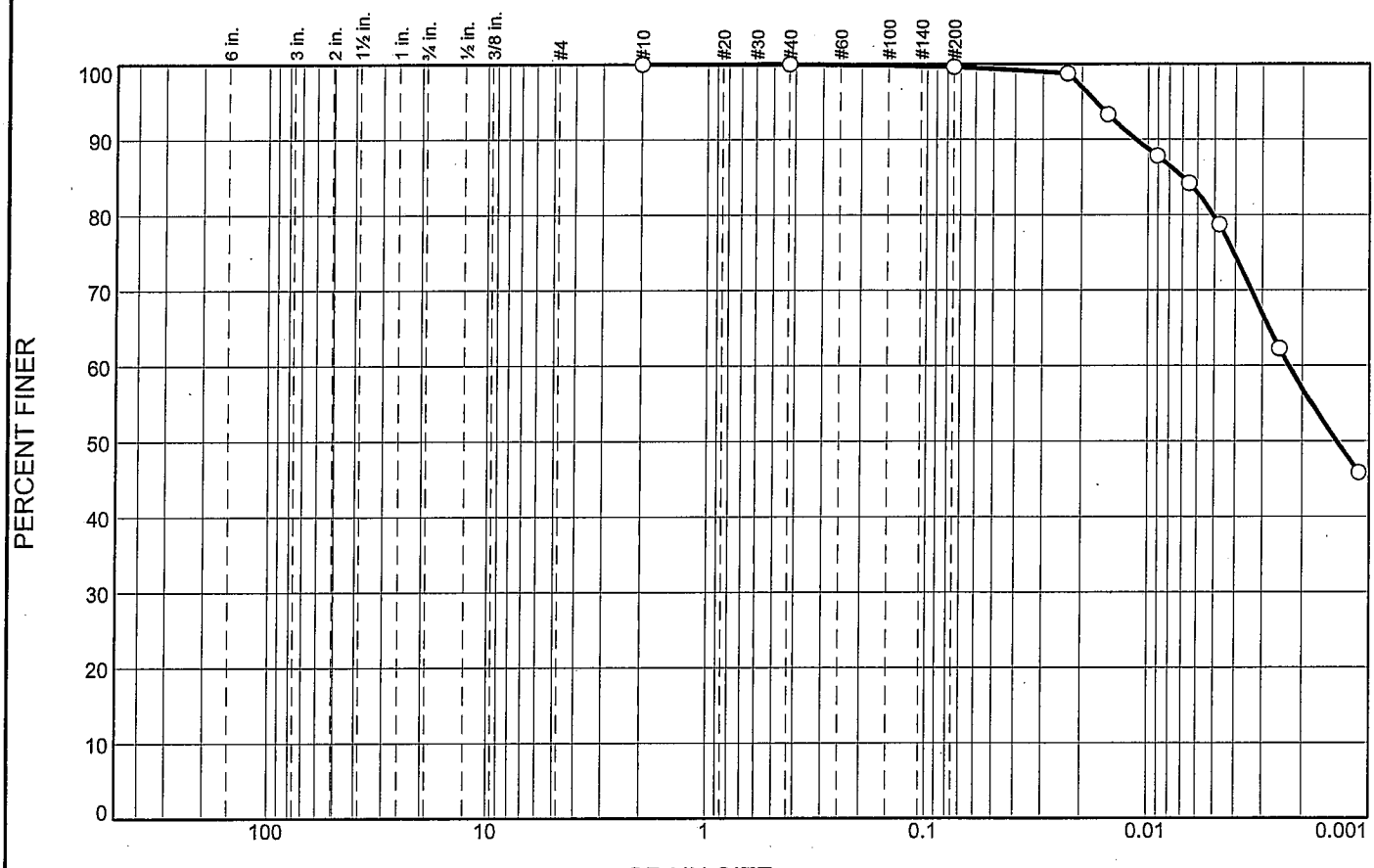
Samples collected 6/5/08-6/18/08.
Sampled and Dropped off by client.

Sample Number: UP1 **Depth:** 35' to 37'
Location: Boring RW-4(Flatbush Ave., Over Busway) **Date:** 8/5/08

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No: **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.0	0.4	19.9	79.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	100.0		
#200	99.6		

* (no specification provided)

Atterberg Limits

PL= 24 LL= 49 PI= 25

Coefficients

D_{85}= 0.0070 D_{60}= 0.0023 D_{50}= 0.0014
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(29)

Remarks

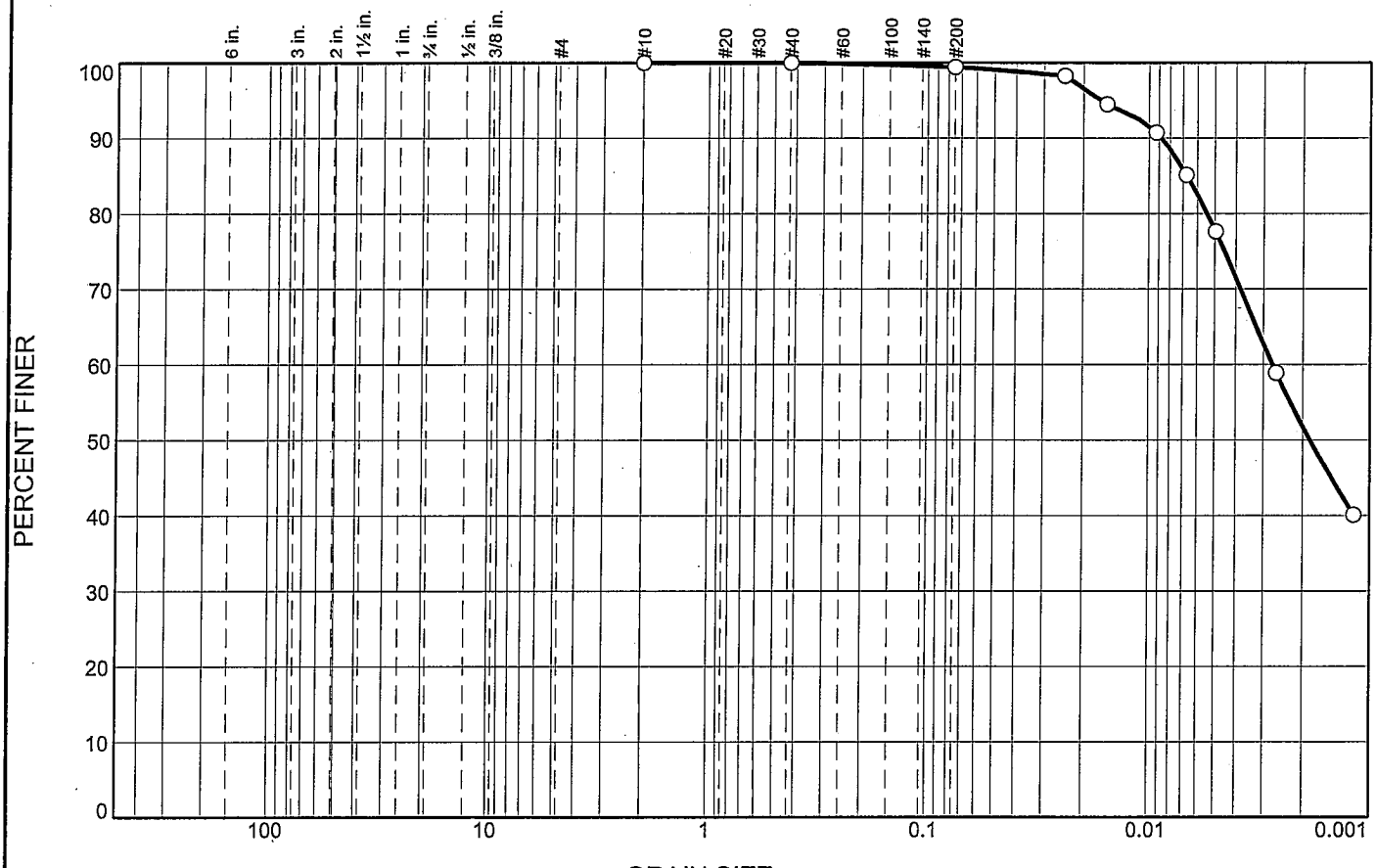
Samples collected 6/5/08 - 6/18/08.
Sampled and dropped off by the client.

Sample Number: UP2 **Depth:** 30' to 32'
Location: Boring RW-8 (Flatbush Ave., over Busway **Date:** 8/5/08

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No: **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.0	0.6	21.5	77.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
# 10	100.0		
# 40	100.0		
# 200	99.4		

* (no specification provided)

Material Description

Olive color, fat clay

Atterberg Limits

PL= 23 LL= 50 PI= 27

Coefficients

D_{85}= 0.0067 D_{60}= 0.0027 D_{50}= 0.0019
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(30)

Remarks

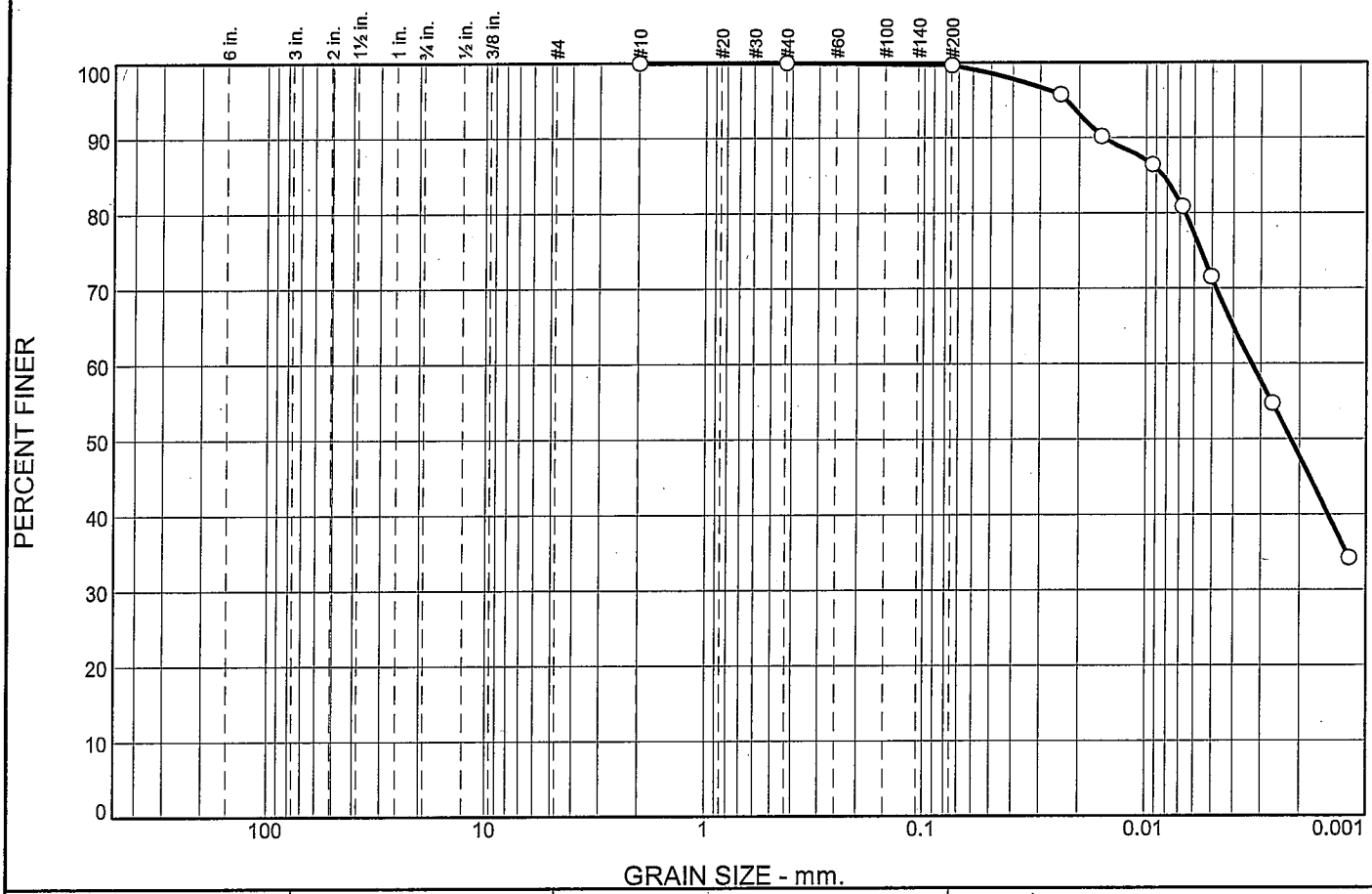
Sample collected from 5/12/08 to 6/3/08

Sample Number: UP1 **Depth:** 25' to 27'
Location: Boring RW-23 (Flatbush Ave. over Busway) - UP1 **Date:**

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No: **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.0	0.3	28.4	71.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
# 10	100.0		
# 40	100.0		
# 200	99.7		

* (no specification provided)

Material Description

Olive color, lean clay

Atterberg Limits

PL= 23 LL= 44 PI= 21

Coefficients

D_{85}= 0.0083 D_{60}= 0.0033 D_{50}= 0.0022
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(24)

Remarks

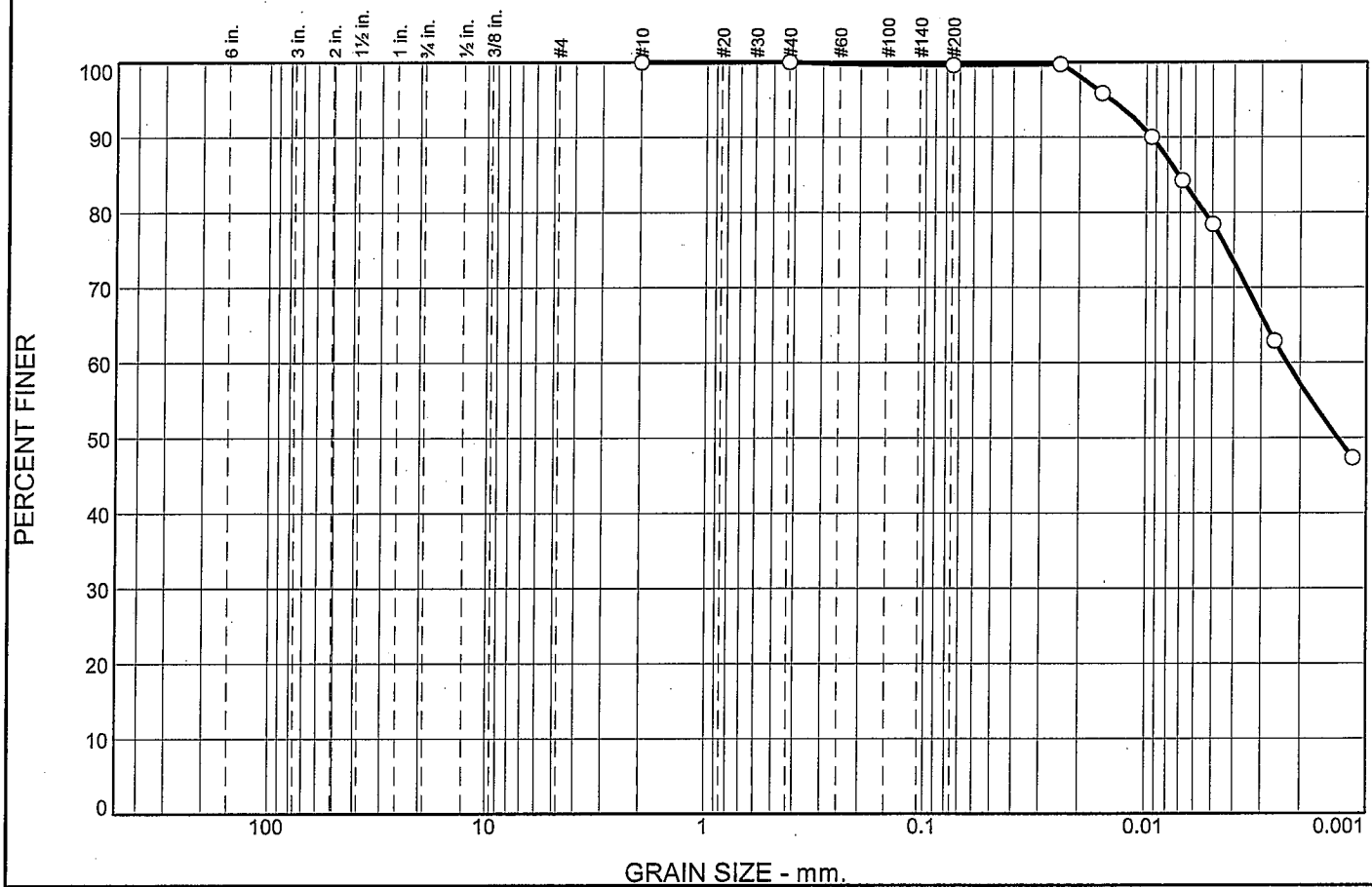
Sample collected from 5/12/08 to 6/3/08.
Sample dropped off by Client.

Sample Number: UP2 **Depth:** 40' to 42'
Location: Boring RW-23 (Flatbush Ave. over Busway) - UP2 **Date:**

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No: **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.0	0.4	21.1	78.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
# 10	100.0		
# 40	100.0		
# 200	99.6		

* (no specification provided)

Material Description

Olive color, lean clay

Atterberg Limits

PL= 24 LL= 48 PI= 24

Coefficients

D_{85}= 0.0071 D_{60}= 0.0023 D_{50}= 0.0013
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(28)

Remarks

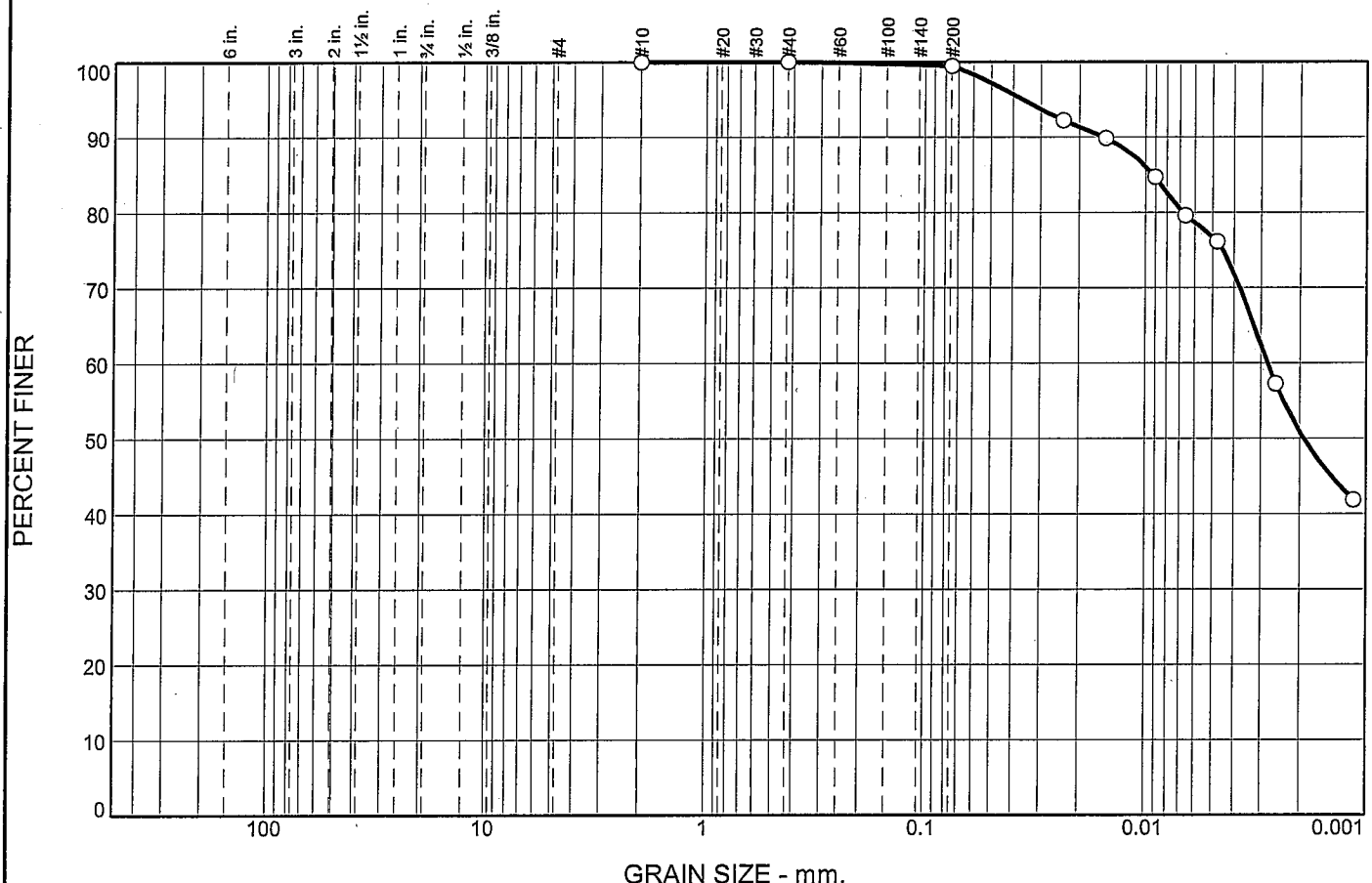
Sample collected from 5/20/08 to 6/12/08.
Sample dropped off by Client.

Sample Number: UP2 **Depth:** 25' to 27'
Location: Boring RW-28 (Flatbush Ave. over Busway) UP2 **Date:**

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No: **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.0	0.5	22.6	76.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
# 10	100.0		
# 40	100.0		
# 200	99.5		

* (no specification provided)

Material Description

Olive color, Lean clay

Atterberg Limits

PL= 23 LL= 49 PI= 26

Coefficients

D_{85}= 0.0092 D_{60}= 0.0028 D_{50}= 0.0019
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(30)

Remarks

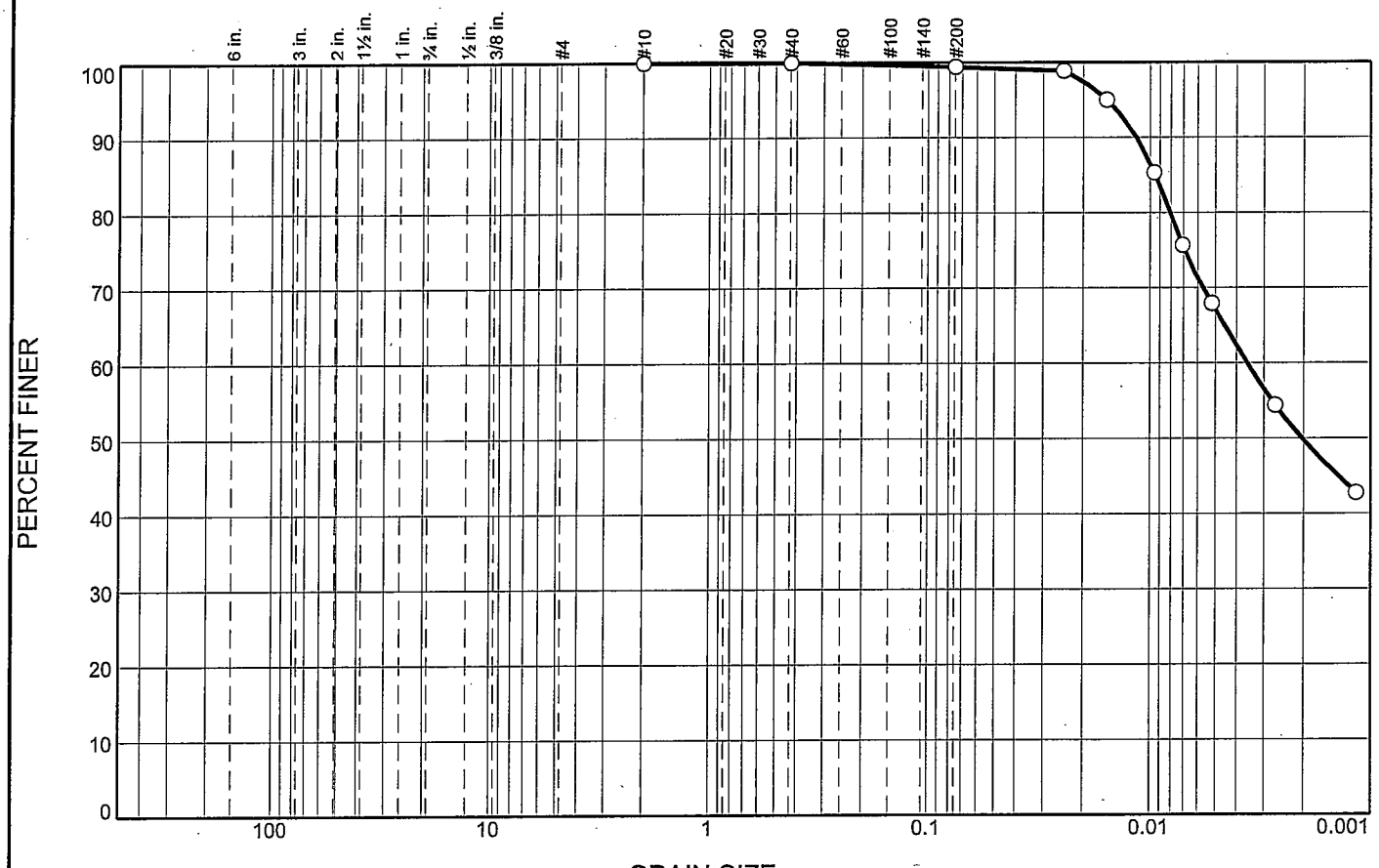
Samples collected from 5/20/08 - 6/12/08.
Samples dropped by Client.

Sample Number: UP3 **Depth:** 45' to 47'
Location: Boring RW-29 (Flatbush Ave. over Busway) - UP3 **Date:**

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No: **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.0	0.6	32.2	67.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	100.0		
#200	99.4		

* (no specification provided)

Material Description

Olive color, lean clay

Atterberg Limits

PL= 24 LL= 49 PI= 25

Coefficients

D_{85}= 0.0094 D_{60}= 0.0036 D_{50}= 0.0020
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(28)

Remarks

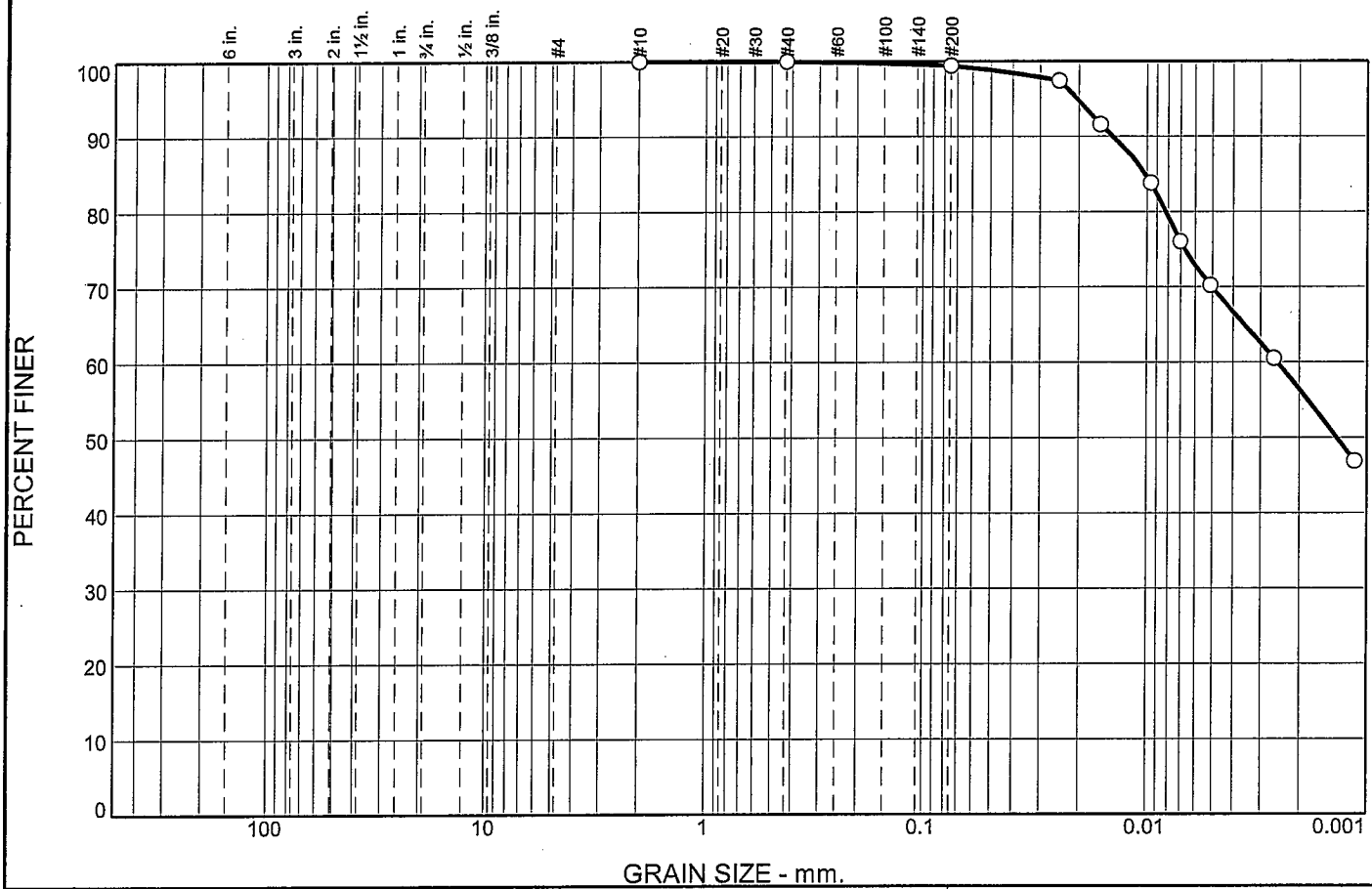
Samples collected 6/5/08-6/18/08.
Sampled and Dropped off by Client.

Sample Number: UP1 **Depth:** 20' to 22'
Location: Boring SB-01-1 (Flatbush Ave., over Busway) **Date:** 8/8/08

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No: **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.0	0.6	29.5	69.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	100.0		
#200	99.4		

* (no specification provided)

Material Description

Olive color, lean clay.

Atterberg Limits

PL= 25 LL= 49 PI= 24

Coefficients

D_{85}= 0.0102 D_{60}= 0.0025 D_{50}= 0.0014
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(27)

Remarks

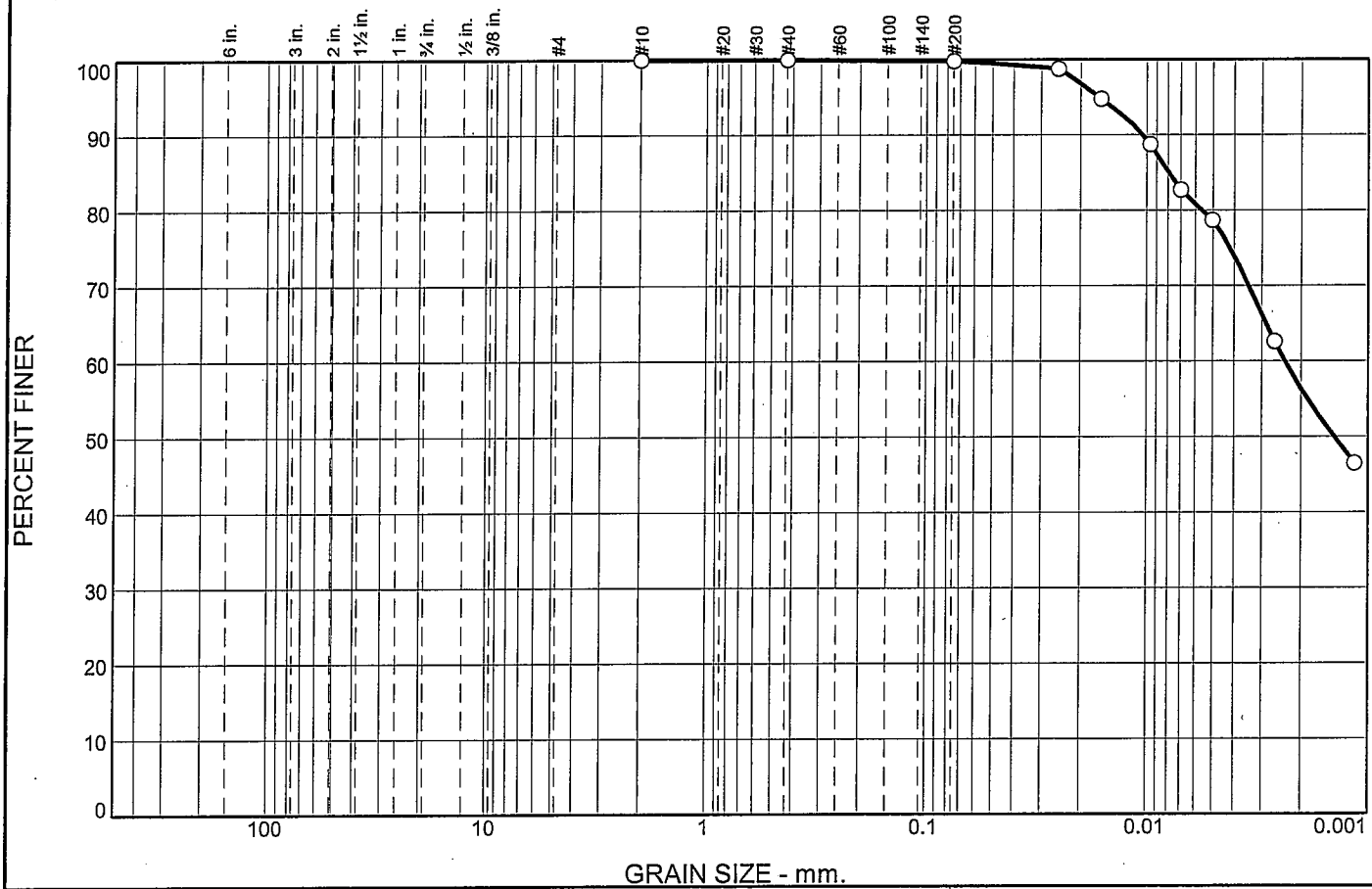
Samples Collected 6/5/08-6/18/08.
Sampled and dropped off by the Client.

Sample Number: UP1 **Depth:** 25' to 27'
Location: Boring SB-01-2 (Flatbush Ave., Over Busway) **Date:** 8/8/08

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No: **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.0	0.2	21.2	78.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#40	100.0		
#200	99.8		

* (no specification provided)

Material Description

Olive Color, fat clay.

Atterberg Limits

PL= 24 LL= 50 PI= 26

Coefficients

D_{85}= 0.0079 D_{60}= 0.0024 D_{50}= 0.0014
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(30)

Remarks

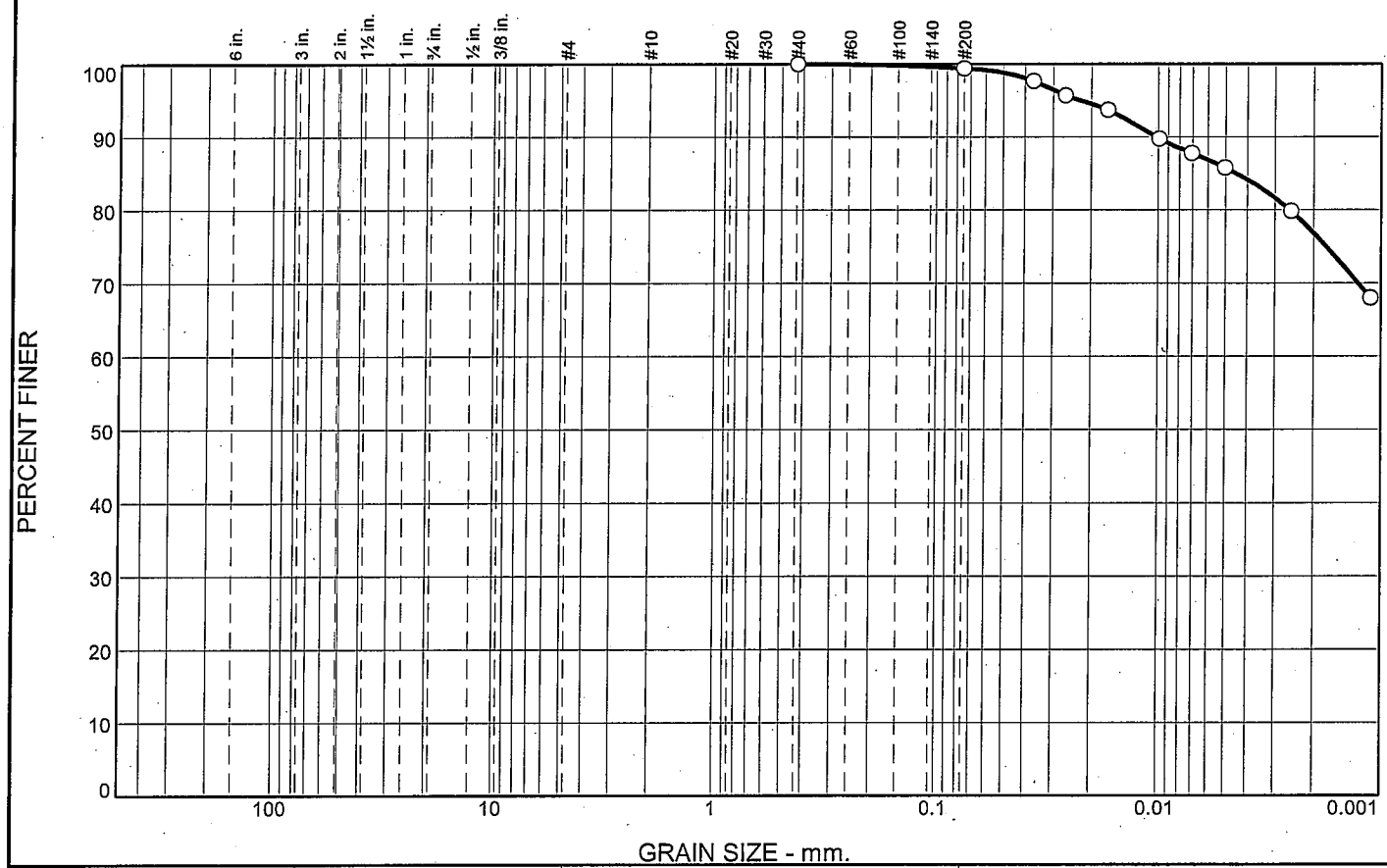
Samples collected 6/5/08-6/18/08.
Sampled and Dropped off by the client.

Sample Number: UP1 **Depth:** 30' to 32'
Location: Boring SB-01-4(Flatbush Ave., Over Busway) **Date:** 8/5/08

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No: **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.0	0.6	13.7	85.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
# 40	100.0		
# 200	99.4		
0.0367 mm.	97.7		
0.0262 mm.	95.7		
0.0167 mm.	93.7		
0.0099 mm.	89.7		
0.0070 mm.	87.8		
0.0050 mm.	85.8		
0.0025 mm.	79.8		
0.0011 mm.	68.0		

* (no specification provided)

Soil Description

Grey color

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.0045 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Sample collected by clien from 5/12/08 to 6/3/08. Dropped off for test analysis on 7/28/08.

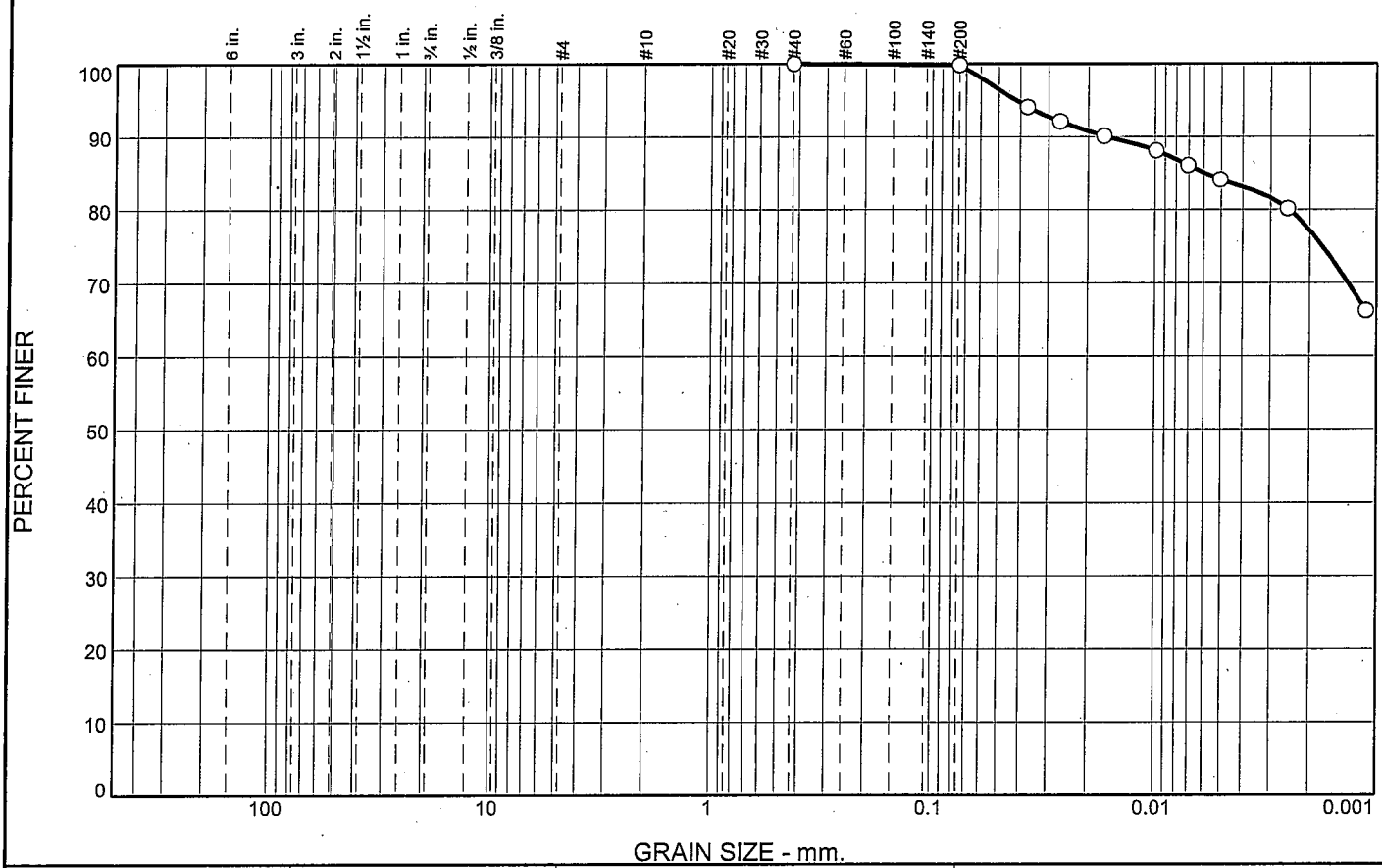
Sample No.: S-9 **Source of Sample:** SB-02-1 **Date:**
Location: Boring SB-02-1 (Busway over Park St.) **Elev./Depth:** 42' - 44'

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No: **Figure**

Tested By: R. DeCesare

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.0	0.2	15.7	84.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
# 40	100.0		
# 200	99.8		
0.0371 mm.	94.1		
0.0265 mm.	92.1		
0.0169 mm.	90.1		
0.0099 mm.	88.1		
0.0071 mm.	86.1		
0.0050 mm.	84.1		
0.0025 mm.	80.1		
0.0011 mm.	66.2		

* (no specification provided)

Soil Description

Grey color

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.0059 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Samples collected by client from 5/12/08 to 6/3/08. Dropped off for test analysis on 7/28/08.

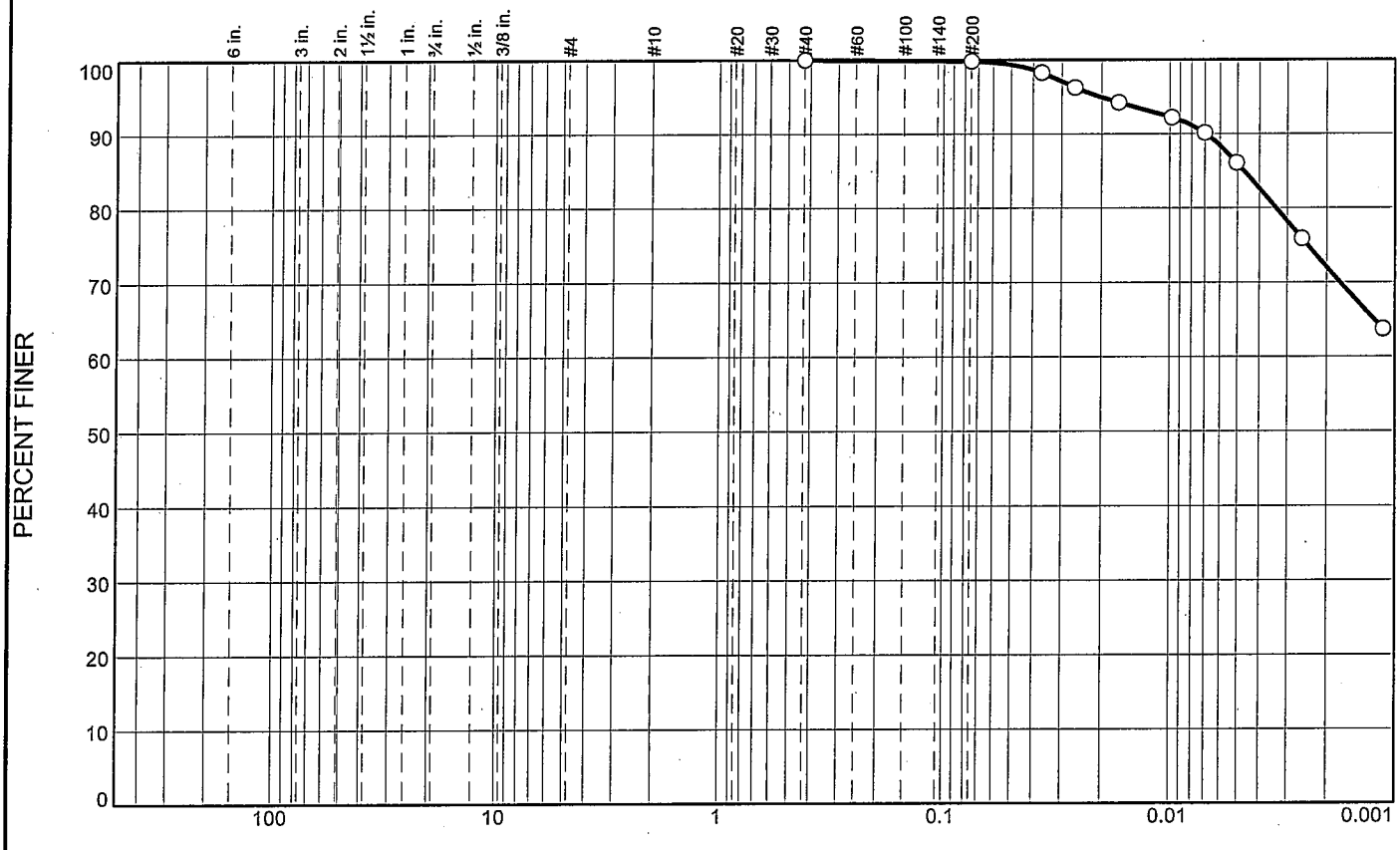
Sample No.: S-11 **Source of Sample:** SB-02-1 **Date:**
Location: Boring SB-02-1 (Busway over Park St.) **Elev./Depth:** 52' - 54'

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No: **Figure**

Tested By: R. DeCesare

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.0	0.2	13.8	86.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
# 40	100.0		
# 200	99.8		
0.0367 mm.	98.3		
0.0262 mm.	96.2		
0.0168 mm.	94.2		
0.0098 mm.	92.2		
0.0070 mm.	90.1		
0.0050 mm.	86.1		
0.0026 mm.	75.9		
0.0011 mm.	63.7		

* (no specification provided)

Soil Description

Grey color

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.0047 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Sample collected by client from 5/12/08 to 6 3/08. dropped off for test analysis on 7/28/08.

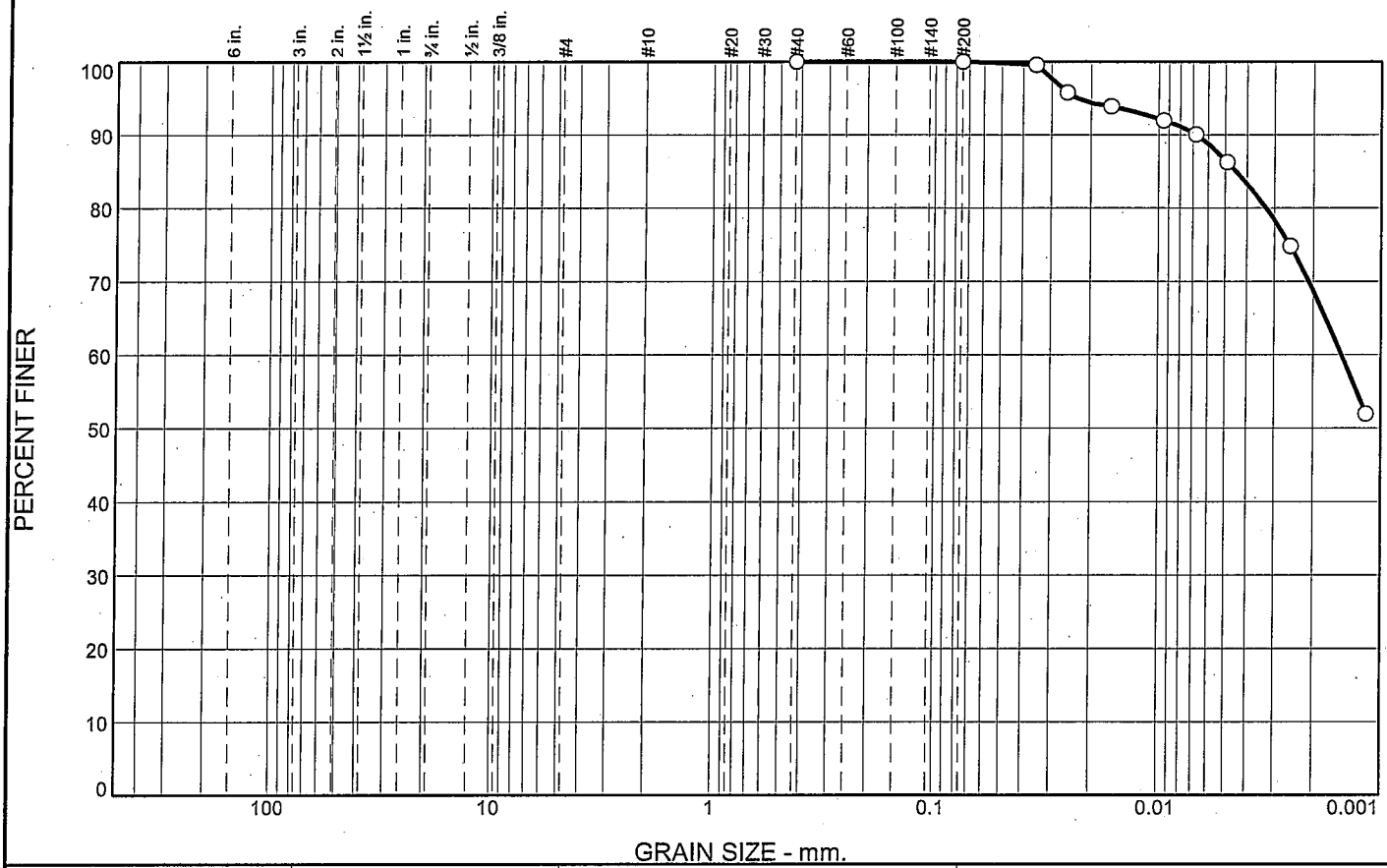
Sample No.: S-9 **Source of Sample:** SB-02-2 **Date:**
Location: Boring SB-02-2 (Busway over Park St.) **Elev./Depth:** 32' - 34'

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No: **Figure**

Tested By: R. DeCesare

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.0	0.0	13.4	86.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
# 40	100.0		
# 200	100.0		
0.0351 mm.	99.6		
0.0254 mm.	95.8		
0.0163 mm.	93.9		
0.0095 mm.	92.0		
0.0068 mm.	90.1		
0.0049 mm.	86.3		
0.0025 mm.	74.8		
0.0012 mm.	52.0		

* (no specification provided)

Soil Description

Grey color

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.0045 D_{60}= 0.0015 D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Sample collected by client from 5/12/08 to 6 3/08. Dropped off for test analysis on 7/28/08.

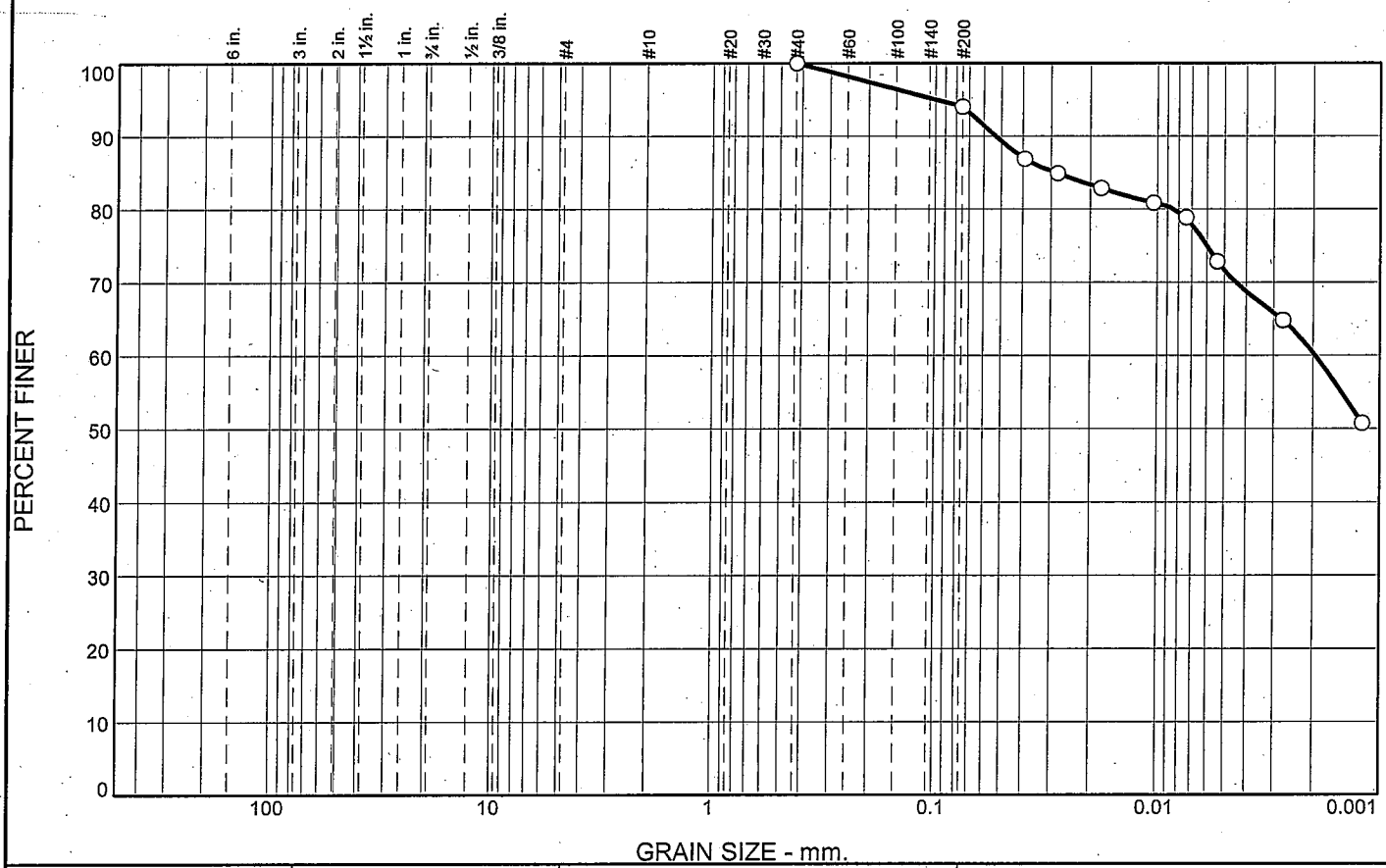
Sample No.: S-13 **Source of Sample:** SB-02-2 **Date:**
Location: Boring SB-02-2 (Busway over Park St.) **Elev./Depth:** 50' - 52'

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No: **Figure**

Tested By: R. DeCesare

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.0	6.0	22.4	71.6

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
# 40	100.0		
# 200	94.0		
0.0391 mm.	86.9		
0.0279 mm.	84.9		
0.0178 mm.	82.9		
0.0104 mm.	80.9		
0.0074 mm.	78.8		
0.0054 mm.	72.8		
0.0027 mm.	64.8		
0.0012 mm.	50.8		

* (no specification provided)

Soil Description

Grey/Brown color

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.0287 D_{60}= 0.0020 D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Sample collected by client from 5/12/08 to 6/ 03/08. Dropped off for test analysis on 7/28/ 08.

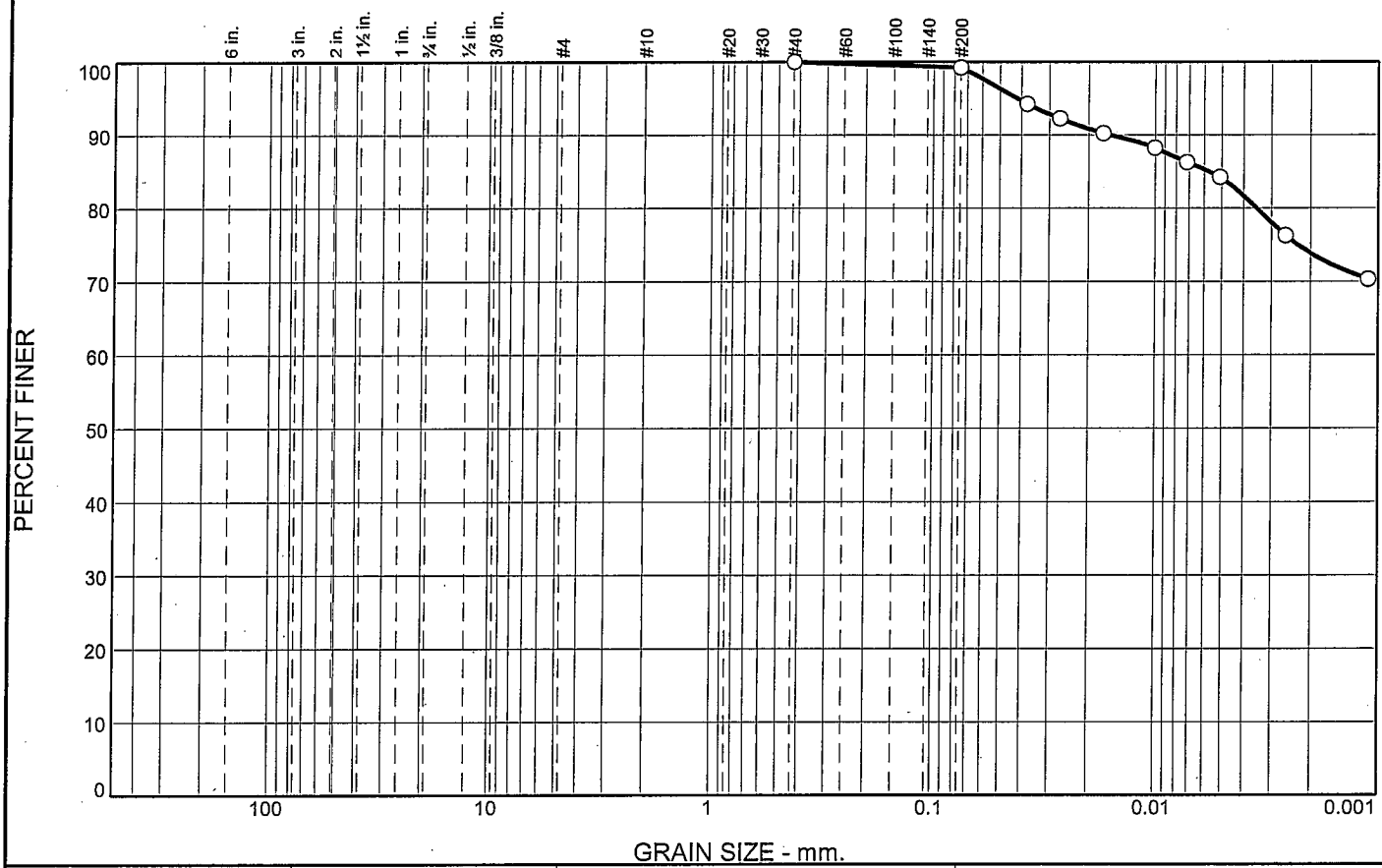
Sample No.: S-9 **Source of Sample:** SB-02-3 **Date:**
Location: Boring SB-02-3 (Busway over Park St.) **Elev./Depth:** 30' - 32'

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No: **Figure**

Tested By: R. DeCesare

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.0	0.8	15.1	84.1

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
# 40	100.0		
# 200	99.2		
0.0376 mm.	94.2		
0.0268 mm.	92.2		
0.0172 mm.	90.2		
0.0100 mm.	88.2		
0.0071 mm.	86.2		
0.0051 mm.	84.3		
0.0026 mm.	76.3		
0.0011 mm.	70.3		

* (no specification provided)

Soil Description

Brown color

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.0057 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Sample collected by client from 5/12/08 to 6 3/08. dropped off for test analysis on 7/28/08.

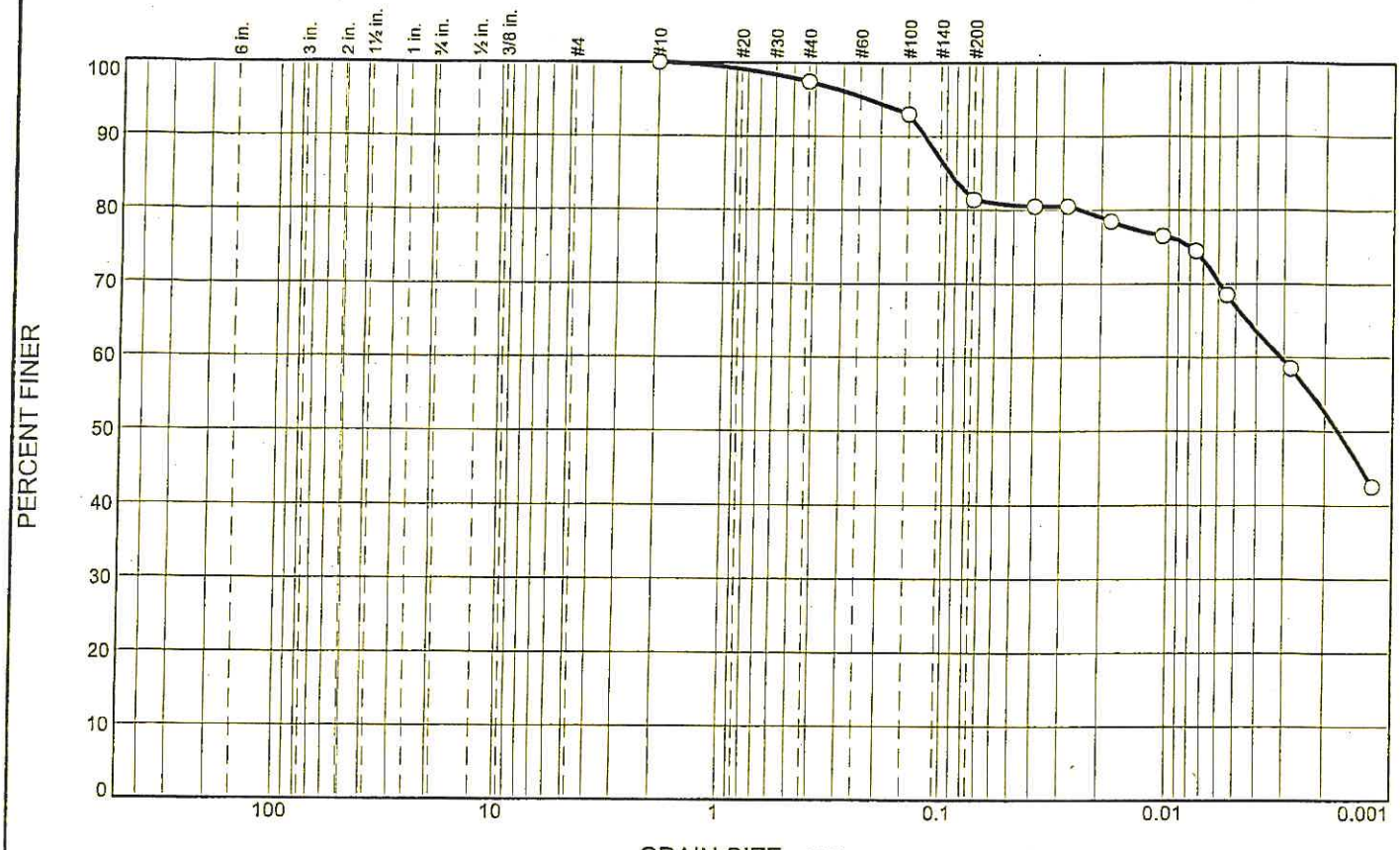
Sample No.: S-12 **Source of Sample:** SB-02-3 **Date:**
Location: Boring SB-02-3 (Flatbush Ave., Over Busway) **Elev./Depth:**

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No: **Figure**

Tested By: R. DeCesare

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	2.6	16.0	14.5	66.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
# 10	100.0		
# 40	97.4		
# 100	93.0		
# 200	81.4		
0.0402 mm.	80.5		
0.0284 mm.	80.5		
0.0181 mm.	78.5		
0.0106 mm.	76.5		
0.0075 mm.	74.5		
0.0055 mm.	68.5		
0.0028 mm.	58.5		
0.0012 mm.	42.5		

* (no specification provided)

Soil Description

Brown/Grey color

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.0962 D_{60}= 0.0031 D_{50}= 0.0017
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Sample collected by client from 5/20/08 to 6 03/08. Dropped off for test analysis on 7/28 08.

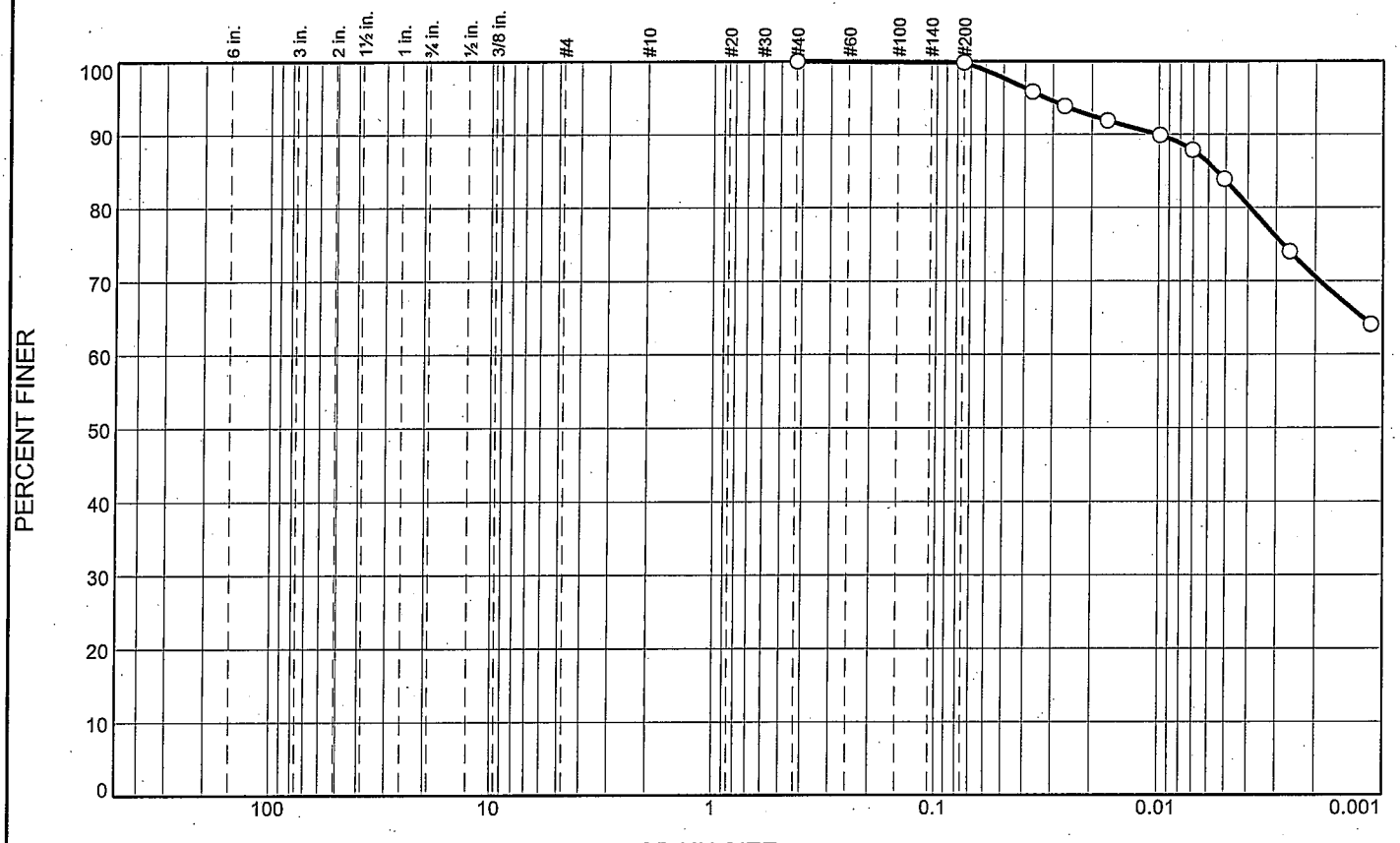
Sample No.: S-9 **Source of Sample:** SB-03-1 **Date:**
Location: Boring SB-03-1 (Busway over Capitol Ave.) **Elev./Depth:** 37' - 39'

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No: **Figure**

Tested By: R. DeCesare

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.0	0.2	16.1	83.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
# 40	100.0		
# 200	99.8		
0.0371 mm.	95.8		
0.0265 mm.	93.8		
0.0169 mm.	91.8		
0.0099 mm.	89.9		
0.0070 mm.	87.9		
0.0051 mm.	83.9		
0.0026 mm.	74.0		
0.0011 mm.	64.1		

* (no specification provided)

Soil Description

Grey/Brown color

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.0055 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Samples collected by client from 5/20/08 to 6/3/08. Dropped off for test analysis on 7/28/08.

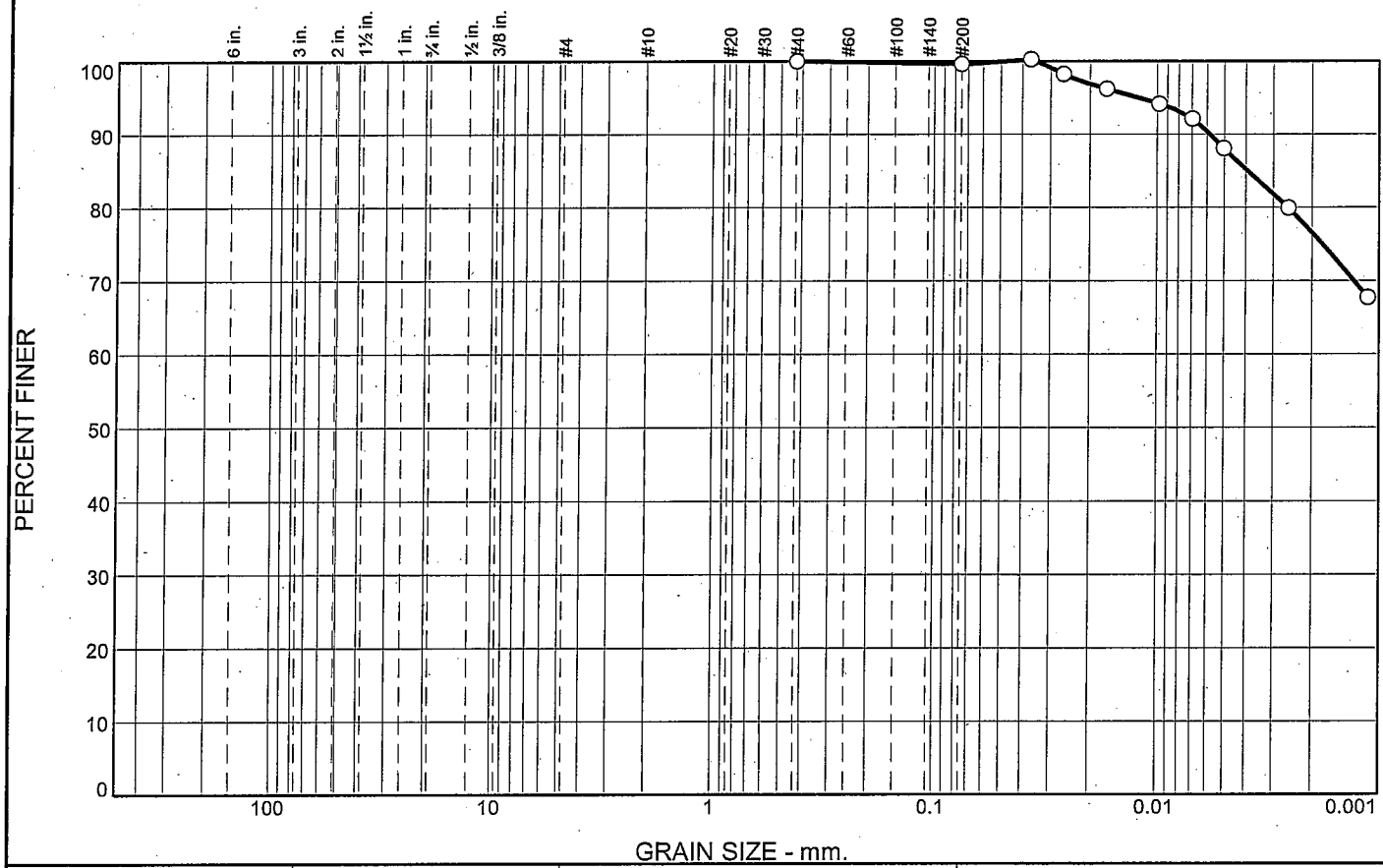
Sample No.: S-9 **Source of Sample:** SB-03-2 **Date:**
Location: Boring SB-03-2 (Busway over Capitol Ave.) **Elev./Depth:** 32' - 34'

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No: **Figure**

Tested By: R. DeCesare

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
					0.4	11.6	88.0

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
# 40	100.0		
# 200	99.6		
0.0366 mm.	100.2		
0.0262 mm.	98.2		
0.0167 mm.	96.2		
0.0098 mm.	94.1		
0.0070 mm.	92.1		
0.0050 mm.	88.0		
0.0026 mm.	79.9		
0.0011 mm.	67.7		

* (no specification provided)

Soil Description

Grey/Brown

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.0039 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Sample collected by client from 5/20/08 to 6 3/08. Dropped off for test analysis on 7/28/08.

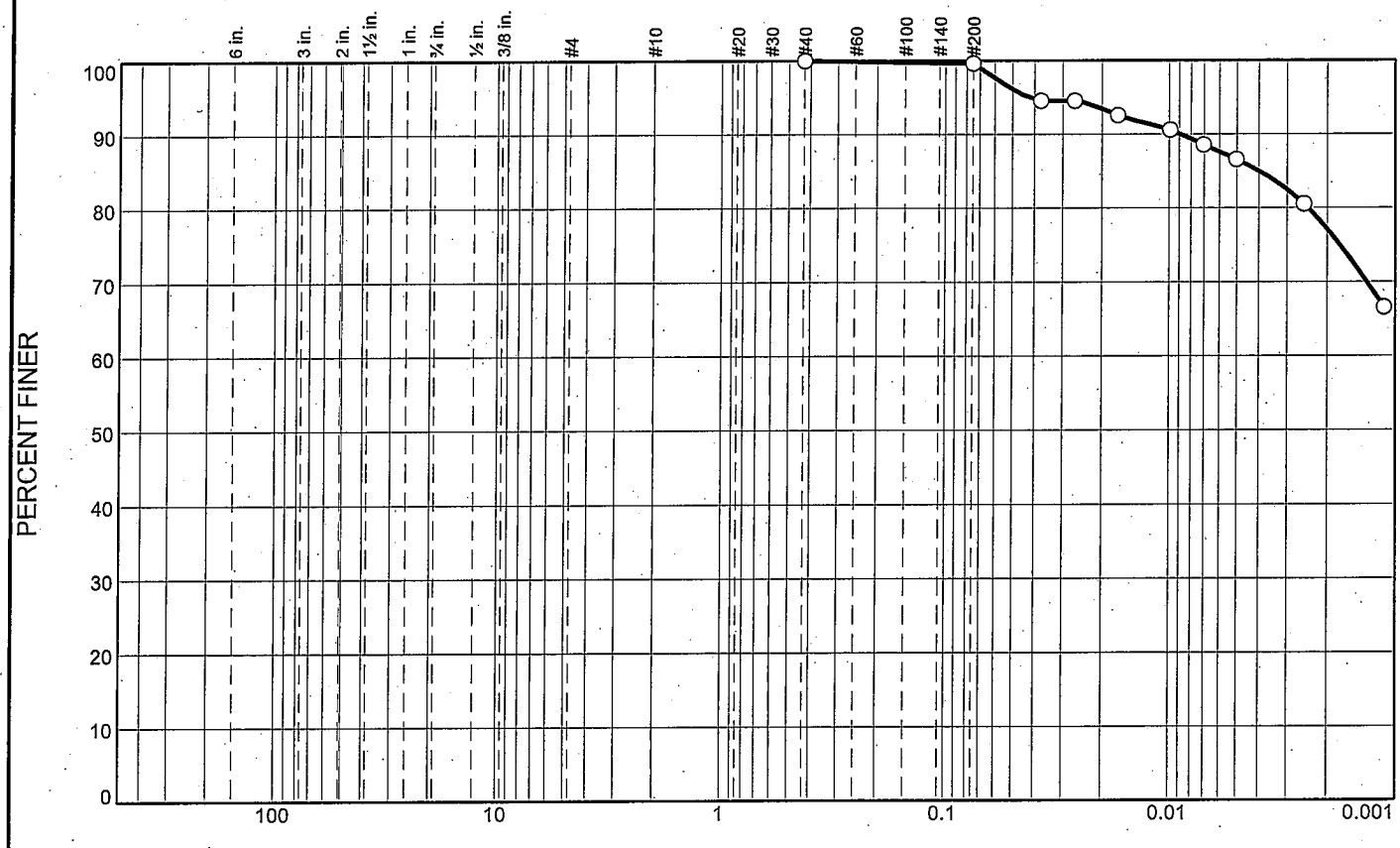
Sample No.: S-11 **Source of Sample:** SB-03-2 **Date:**
Location: Boring SB-03-2 (Busway over Capitol Ave.) **Elev./Depth:** 42' - 44'

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No: **Figure**

Tested By: R. DeCesare

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.0	0.4	13.1	86.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
# 40	100.0		
# 200	99.6		
0.0374 mm.	94.5		
0.0265 mm.	94.5		
0.0169 mm.	92.5		
0.0099 mm.	90.5		
0.0070 mm.	88.5		
0.0050 mm.	86.5		
0.0025 mm.	80.6		
0.0011 mm.	66.6		

* (no specification provided)

Soil Description

Red/Brown color

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.0040 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Sample collected by client from 5/20/08 to 6 03/08. Dropped off for test analysis on 7/28 08.

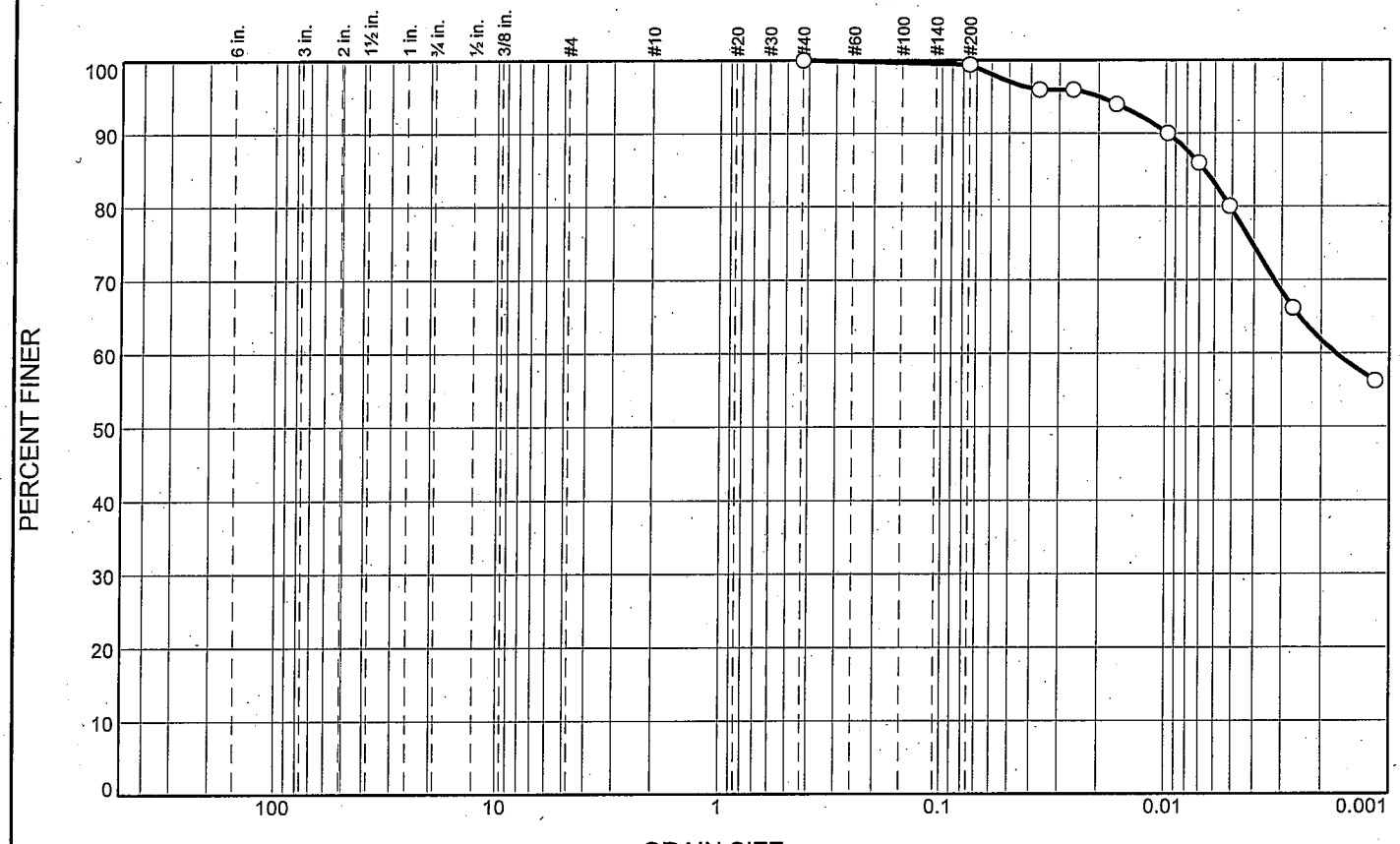
Sample No.: S-13 **Source of Sample:** SB-03-3 **Date:**
Location: Boring SB-03-3 (Busway over Capitol Ave.) **Elev./Depth:** 45' - 47'

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No: **Figure**

Tested By: R. DeCesare

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.0	0.6	19.9	79.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
# 40	100.0		
# 200	99.4		
0.0367 mm.	96.0		
0.0260 mm.	96.0		
0.0166 mm.	94.0		
0.0098 mm.	90.0		
0.0071 mm.	86.0		
0.0051 mm.	80.1		
0.0027 mm.	66.2		
0.0012 mm.	56.2		

* (no specification provided)

Soil Description

Brown/Grey

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.0066 D_{60}= 0.0017 D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Sample collected by client from 5/20/08 to 6 3/08. Dropped off for test analysis on 7/28/08.

Sample No.: S-21 **Source of Sample:** SB-03-3 **Date:**
Location: Boring SB-03-3 (Busway over Capitol Ave.) **Elev./Depth:** 85' - 57'

TEST-CON INCORPORATED
16 East Franklin Street, PO BOX 3116
DANBURY, CT 06813-3116

Client: GeoDesign
Project: New Britain-Hartford Busway #155-H025
Project No: **Figure**

Tested By: R. DeCesare

Appendix 5

Corrosivity Tests

2003 Corrosivity Tests

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

GZA GeoEnvironmental Labs
Date Received: 02/04/2004
Work Order #: 0402-01543

Approved by: R.I. Analytical

Sample # 005
SAMPLE DESCRIPTION: LAB #415 COMPOSITE SB-59
SAMPLE TYPE: COMPOSITE **SAMPLE DATE/TIME:** ---

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
pH	7.0		SU	SW-846 9045C	02/04/2004	LKS
RESISTIVITY	0.014		MEGOHM-CM	SM2510 B	02/05/2004	CCP
SULFATE	<4200	4200	mg/kg dry	SM4500-SO4 E	02/10/2004	EC
SULFIDE	<2.5	2.5	mg/kg dry	EPA 276.2	02/09/2004	EC
CHLORIDE	<4200	4200	mg/kg dry	SM4500-CL B	02/10/2004	EC

Chloride, Sulfate, and Sulfide - Analysis performed on water soluble portion of sample.

Sulfate and Chloride - Increased detection limit due highly colored sample which interfered with test methodology.

Resistivity - Analyzed 5 grams of sample per 50 mls of Type II DI water.

Sample # 006
SAMPLE DESCRIPTION: LAB #417 SB-10 S-1 (1.5-3.0)
SAMPLE TYPE: COMPOSITE **SAMPLE DATE/TIME:** ---

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
pH	6.8		SU	SW-846 9045C	02/04/2004	LKS
RESISTIVITY	0.054		MEGOHM-CM	SM2510 B	02/05/2004	CCP
SULFATE	<420	420	mg/kg dry	SM4500-SO4 E	02/10/2004	EC
SULFIDE	<2.5	2.5	mg/kg dry	EPA 276.2	02/09/2004	EC
CHLORIDE	<340	340	mg/kg dry	SM4500-CL B	02/10/2004	EC

Chloride, Sulfate, and Sulfide - Analysis performed on water soluble portion of sample.

Sulfate and Chloride - Increased detection limit due highly colored sample which interfered with test methodology.

Resistivity - Analyzed 5 grams of sample per 50 mls of Type II DI water.

R.I. Analytical Laboratories, Inc.

CERTIFICATE OF ANALYSIS

GZA GeoEnvironmental Labs
Date Received: 02/04/2004
Work Order #: 0402-01543

Approved by: R.I. Analytical

Sample # 010
SAMPLE DESCRIPTION: LAB #414 SB-54 S-8 (22.5-24.5)
SAMPLE TYPE: COMPOSITE **SAMPLE DATE/TIME:** ---

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
pH	7.4		SU	SW-846 9045C	02/04/2004	LKS
RESISTIVITY	0.026		MEGOHM-CM	SM2510 B	02/05/2004	CCP

Resistivity - Analyzed 5 grams of sample per 50 mls of Type II DI water.

Sample # 011
SAMPLE DESCRIPTION: LAB #416 SB-59 S-7 (19.5-21.0)
SAMPLE TYPE: COMPOSITE **SAMPLE DATE/TIME:** ---

PARAMETER	SAMPLE RESULTS	DET. LIMIT	UNITS	METHOD	DATE ANALYZED	ANALYST
pH	7.7		SU	SW-846 9045C	02/04/2004	LKS
RESISTIVITY	0.013		MEGOHM-CM	SM2510 B	02/05/2004	CCP

Resistivity - Analyzed 5 grams of sample per 50 mls of Type II DI water.

2008 Corrosivity Tests

TEST-CON INCORPORATED

16 East Franklin Street
P. O. Box 3116
Danbury, CT 06813-3116
Phone: (203) 748-3012 Fax: (203) 778-0633
E-Mail: Service@test-con.com Web-Site: www.test-con.com

Construction Material Testing & Inspection - Geotechnical Services

SULFIDE TEST REPORT

Client:	GeoDesign Incorporated 984 Southford Rd. Middlebury, CT 06762	**Date:** **Tested by:** **Collected Date:**	9/30/08 York (CT # PH-0723) 7/28/08
Project:	New Britain-Hartford Busway # 155-H025 Hartford/West Hartford, CT	**Matrix:** **Report No.:**	Soil 1 – 10 Sulfide (08090862)

Progress of Work:
The analyses were conducted utilizing appropriate EPA, Standard Methods, and ASTM methods as detailed in the summary tables.

The results of the analysis, which are all reported on an as-received basis unless otheriwise noted, are summarized in the following table(s).

Analysis Results

Boring/Test Pit No.	Sample No.	Depth (ft)	Parameter	Method	Units	Results	MDL
SB-01-2	S-2	2' – 4'	Sulfide	EPA376.1	mg/kg	Not detected	20.0
SB-01-3	S-2	2' – 4'	Sulfide	EPA376.1	mg/kg	Not detected	20.0
SB-01-4	S-2	2' – 4'	Sulfide	EPA376.1	mg/kg	Not detected	20.0
SB-01-3	S-3	5' – 7'	Sulfide	EPA376.1	mg/kg	Not detected	20.0
SB-02-1	S-1	0' – 0.7'	Sulfide	EPA376.1	mg/kg	Not detected	20.0
SB-02-3	S-1	0' – 2'	Sulfide	EPA376.1	mg/kg	Not detected	20.0
SB-02-2	S-2	2' – 4'	Sulfide	EPA376.1	mg/kg	Not detected	20.0
SB-03-2	S-4	7' – 9'	Sulfide	EPA376.1	mg/kg	Not detected	20.0
SB-03-3	S-1	0' – 2'	Sulfide	EPA376.1	mg/kg	Not detected	20.0
SB-03-3	S-4	7' – 9'	Sulfide	EPA376.1	mg/kg	Not detected	20.0

Units Key: For Waters/Liquids: mg/L = ppm ; ug/L – ppb For Soils/Solids: mg/hg = ppm ; ug/kg = ppb

Notes:

1. The MDL (Minimum Detectable Limit) reported is adjusted for any dilution necessary due to the levels of target and/or non-target analytes and matrix interference. This MDL is the REPORTING LIMIT and is based upon the lowest standard utilized for calibration where applicable.
2. Samples are retained for a period of thirty days after submittal of report, unless other arrangements are made.
3. Test-Con's liability for the above data is limited to the dollar value paid to Test-Con for the reference project.
4. All samples were received in proper condition for analysis with proper documentation.

Reproduction or publication of this report only with our express permission.
TEST-CON Inc. excludes all liability of work performed by others.
The above tests/results apply only to specific locations tested/inspected.

TEST-CON INCORPORATED

16 East Franklin Street
P. O. Box 3116
Danbury, CT 06813-3116
Telephone: (203) 748-3012 Fax: (203) 778-0633
E-Mail: Service@test-con.com Web-Site: www.test-con.com

PH OF SOIL MATERIAL REPORT

Date: September 26, 2008

Report #: 1 - 10pH
Technician: R. DeCesare

Client: GeoDesign Incorporated
984 Southford Rd.
Middlebury, CT 06762

Project: New Britain-Harford Busway
155-H025

Date Received: Delivered by Client on 7/28/08

Test Requirements: pH

Summary Data

Boring/Test Pit No.	Sample No.	Depth (ft)	pH Test Results
SB-01-2	S-2	From 2' to 4'	6.7
SB-01-3	S-2	From 2' to 4'	7.4
SB-01-4	S-2	From 2' to 4'	7.4
SB-01-3	S-3	From 5' to 7'	7.5
SB-02-1	S-1	From 0' to 0.7'	5.9
SB-02-3	S-1	From 0' to 2'	3.6
SB-02-2	S-2	From 2' to 4'	5.9
SB-03-2	S-3	From 5' to 7'	7.4
SB-03-3	S-2	From 2' to 4'	3.7
SB-03-3	S4	From 7' to 9'	4.0

Reproduction or publication of this report only with our express permission. TEST-CON Inc. excludes all liability of work performed by others. This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government. The above tests/results apply only to specific locations tested/inspected.
5/15/07