Appendix A
Pre-Design Field Test Site Map and Plan

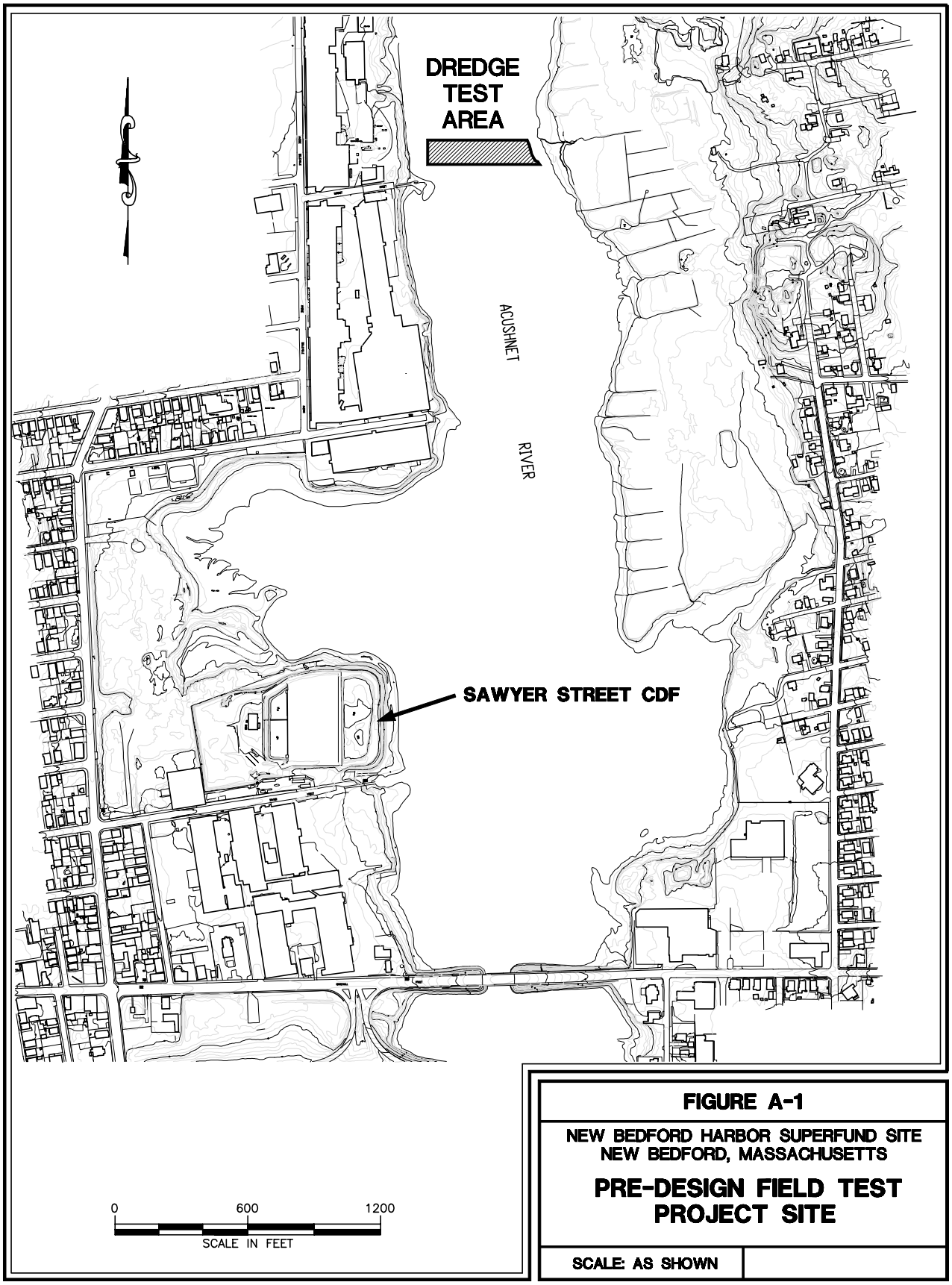


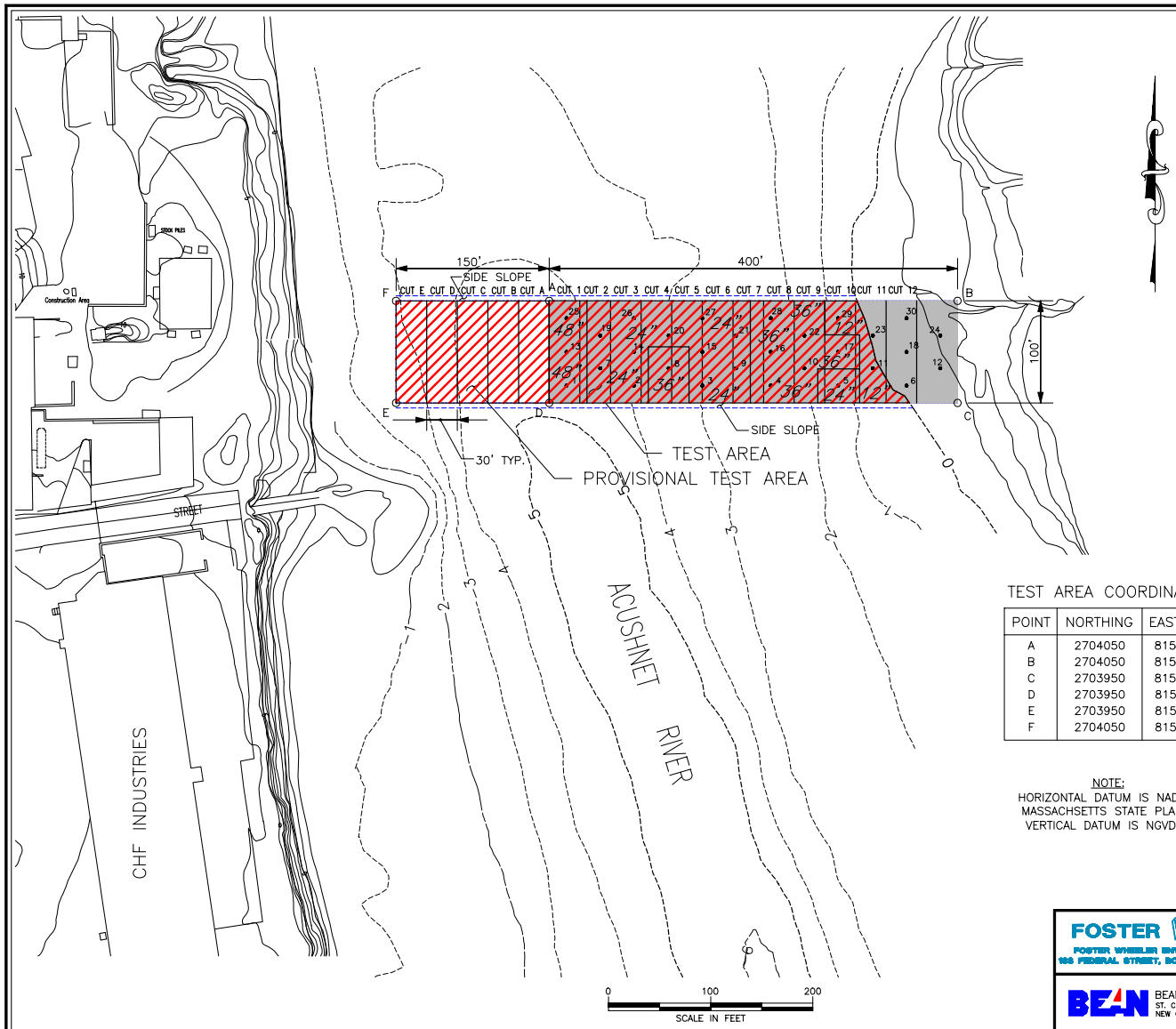
FIGURE A-1

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS

PRE-DESIGN FIELD TEST PROJECT SITE

SCALE: AS SHOWN

CADDFILE: NBH_017b.DWG



CORE LOG SAMPLING RESULTS

	Core Location		Pre-Dredge PCB Concentration (ppm)			
Core No.	Northing	Easting	0–1 ft.	1–2 ft.	2–3 ft.	3–4 ft.
1	2703967	815267	270	560	260	1.1
2	2703967	815333	200	6.0	0.17	
3	2703967	815400	810	6.2	0.36	
4	2703967	815467	2,700	23	0.13	
5	2703967	815533	210	0.63	0.12	
6	2703967	815600	11	0.0038		
7	2703984	815300	96	0.013		
8	2703984	815367	250	490	65	0.27
9	2703984	815433	2,500	2.2		
10	2703984	815500	2,300	27	0.11	
11	2703984	815567	29	0.084	0.0026	
12	2703984	815633	8.8	0.067	0	
13	2704000	815267	370	830	160	0.26
14	2704000	815333	320	0.79		
15	2704000	815400	830	3.0	0.16	
16	2704000	815467	2,500	94	0.41	
17	2704000	815533	460	24	0.0056	
18	2704000	815600	1.6	0.19		
19	2704016	815300	950	2.9		
20	2704016	815367	170	0.092		
21	2704016	815433	1,300	61	0.080	0.32
22	2704016	815500	1,100	64	7.4	7.2
23	2704016	815567	6.2	0.10	0.0030	
24	2704016	815633	4.5	0.032		
25	2704033	815267	460	420	1.2	
26	2704033	815333	330	4.4	0.33	
27	2704033	815400	480	0.82	0.059	
28	2704033	815467	1,000	300	0.062	
29	2704033	815533	67	0.66	0.15	
30	2704033	815600	5.5	0.042		

TEST AREA COORDINATES

POINT	NORTHING	EASTING
A	2704050	815250
B	2704050	815650
C	2703950	815650
D	2703950	815250
E	2703950	815100
F	2704050	815100

NOTE:
HORIZONTAL DATUM IS NAD83, MASSACHSETTS STATE PLANE, VERTICAL DATUM IS NGVD29

LEGEND

- •2 PRE-DREDGE CORE SAMPLE LOCATION
- 36" DREDGE CUT DEPTH
- TEST AREA
- AREA WITH CORE LOGS
- ----0----- MEAN LOWER LOW WATER (MLLW) IN FEET

FOSTER WHEELER
FOSTER WHEELER ENVIRONMENTAL CORPORATION
133 FEDERAL STREET, BOSTON, MASSACHUSETTS 02110

BEAN ENVIRONMENTAL, L.L.C.
ST. CHARLES AVE., SUITE 500
NEW ORLEANS, LA 70130

FIGURE A-2

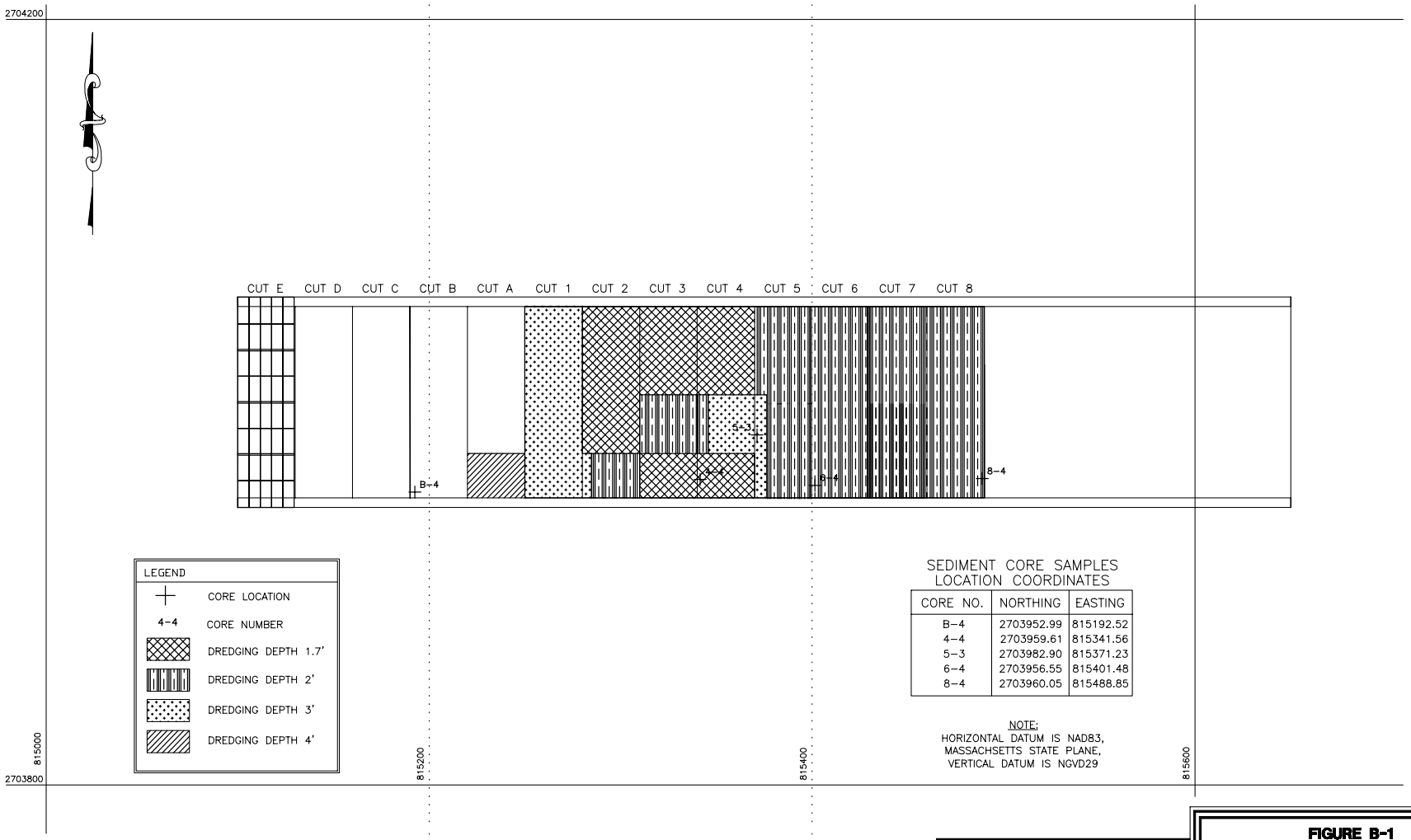
NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS

PRE-DESIGN FIELD TEST DREDGE TEST AREA

SCALE: AS SHOWN

CAD FILE: DREDGE_TEST01.DWG

Appendix B
Dredge Test Area Geotechnical Data



LEGEND

+	CORE LOCATION
4-4	CORE NUMBER
	DREDGING DEPTH 1.7'
	DREDGING DEPTH 2'
	DREDGING DEPTH 3'
	DREDGING DEPTH 4'

SEDIMENT CORE SAMPLES
LOCATION COORDINATES

CORE NO.	NORTHING	EASTING
B-4	2703952.99	815192.52
4-4	2703959.61	815341.56
5-3	2703982.90	815371.23
6-4	2703956.55	815401.48
8-4	2703960.05	815488.85

NOTE:
HORIZONTAL DATUM IS NAD83,
MASSACHSETTS STATE PLANE,
VERTICAL DATUM IS NGVD29

0 50 100
SCALE IN FEET

FOSTER WHEELER
FOSTER WHEELER ENVIRONMENTAL CORPORATION
133 FEDERAL STREET, BOSTON, MASSACHUSETTS 02110

BEAN ENVIRONMENTAL, L.L.C.
ST. CHARLES AVE., SUITE 500
NEW ORLEANS, LA 70130

FIGURE B-1

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS

SEDIMENT CORES TAKEN DURING TEST DREDGING

SCALE: AS SHOWN

CAD FILE: 29088db003A-1.DWG

New Bedford Harbor Superfund Site, Pre-Design Field Test
BEAN Environmental L.L.C., Test Dredge
Summary of Test Results on Mid June samples by GZA GeoEnvironmental Inc.

BEAN ENVIRONMENTAL L.L.C.
Date: 28 September, 2000

Boring /Test no	Sample No.	depth [inch]	lab no.	specific gravity [ton]	water content [%]	dry unit weight lbs/cubic ft [pcf]	wet unit weight lbs/cubic ft [pcf]	dry unit weight [kg/m3]	wet unit weight [kg/m3]	calc check of dry weight [kg/m3]	stirred Torvane RSS [tsf]	stirred Torvane RSS [kPa]	LL %	PL %	PI %	Sieve no. 200 %	Hyd 2 mu %	Org %	D50 mu	dmf mu	>2000 mu %
A1	A1_1	0_12																			
	A1_2	12_19			185	24	68.4	384	1096	384	0.03	0.0015									
	A1_3	19_23			181	26.4	74.2	423	1189	423	0.06	0.0029									
	A1_4	23_34			71.8	56.2	96.6	900	1547	901	0.04	0.0020									
	A1_5	34_60			68.5	61.4	103.5	984	1658	984	0.05	0.0024									
C1	C1_1	0_13			99.6	40.3	80.5	646	1290	646	0.02	0.0010									
	C1_2	13_23			155	35.1	89.6	562	1435	563	0.04	0.0020									
	C1_3	23_34			75.9	52.3	92	838	1474	838	0.03	0.0015									
B2	B2_1	0_7			99.3	44.1	87.9	706	1408	706	0.02	0.0010									
	B2_2	7_23			117	43.8	95	702	1522	701	0.04	0.0020									
	B2_3	23_32			90.8	46.7	89.1	748	1427	748	0.04	0.0020									
	B2_4	32_46			55.7	57.2	89	916	1426	916	0.05	0.0024									
A3	A3_1	0_8			148	32.4	80.4	519	1288	519	0.03	0.0015									
	A3_2	8_34			120	39.6	87.2	634	1397	635	0.04	0.0020									
	A3_3	34_54									0.06	0.0029									
C3	C3_1	0_13			129	37.7	86.3	604	1382	604	0.02	0.0010									
	C3_2	13_24	no test																		
	C3_3	24_41			103	43.7	88.8	700	1422	701	0.04	0.0020									
	C3_4	41_52			112	42.6	90.4	682	1448	683	0.04	0.0020									
	C3_5		no test																		
B4	B4_1	0_13			56.8	63.9	100.2	1024	1605	1024	0.03	0.0015									
	B4_2	13_30			97.2	46.1	91	738	1458	739	0.03	0.0015									
	B4_3	30_41			91.7	47.9	91.9	767	1472	768	0.04	0.0020									
	B4_4		no test																		
A5	A5_1	0_6		2.62	21.7	98.6	120	1579	1922	1579						8		2.1	260		14
	A5_2	6_23			20.5	103	124.1	1650	1988	1650											
C5	C5_1	0_11		2.62	36.2	83.3	113.4	1334	1817	1334						11		1.4	300		14
	C5_2		no test																		
	A1_2, C1_1, B2_1, A3_1			2.32	-			0	0				102	54	48	77	14	12.7	15		7
	A1_4, C1_2			2.54	-			0	0				54	25	29	49	12	3.7	87		6
	A1_5, C1_3			2.63	-			0	0				56	26	30	60	15	4.8	28		2
	B2_2, A3_2, C3_3, B4_2			2.48	-			0	0				82	38	44	80	20	5.1	10		3
	B2_3, C3_4, B4_3			2.54	-			0	0				75	36	39	73	17	4.6	18		1
	C3_1, B4_1			2.49	-			0	0				66	35	33	56	8	7.5	60		8
	A1_3, B2_4, A3_3, C3_4			2.4	-			0	0				79	44	35	49	8	5.5	60		1
	A5_2, C5_2				-			0	0							12	2		280		9

1 pound =	0.4536	kg	= 1 lbs
1 cubic ft =	0.028316847	m3	
1 short ton =	907.2	kg	= 2000 lbs
1 long ton =	1016.046	kg	= 2240 lbs
1 square ft =	0.09290304	m2	

FIGURE B-2

GZA Laboratory Results

APPENDIX B
GZA –1

LABORATORY TESTING DATA SHEET

Project Name: SOIL TESTING, NEW BEDFORD HARBOR SUPERFUND SITE
Project No.: L16389
Project Engineer: D. SCHULZE
Assigned By: REMCO
Date: Jul-00
Reviewed By:
Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth (in)	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Wet unit wt. Pcf	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
A1	A1-2	12-19	1.1	185							24.0	68.4		Tvr =0.03 tsf							From 12-19", Grey Brown Organic SILT
	A-1-3	19-23	1.2	181							26.4	74.2		Tvr=0.06 tsf							From 19-23" Dk.Grey-Brown Organic SILT, little fibers
	A-1-4	22-34	1.3	71.8							56.2	96.6		Tvr=0.04 tsf							From 22-25" Grey Organic Silt , little shell, From 25-28", Grey Organic Silt, From 28-34", Grey Organic SILT some fine Sand
	A-1-5	34-60.0	1.4	68.5							61.4	103.5		Tvr=0.05 tsf							From 34-60", Dk.Grey Organic SILT
C1	C-1-1	0-13	2.1	99.6							40.3	80.5		Tvr=0.02 tsf							From 0-13", Dk.Grey/Black Organic SILT
	C-1-2	13-23	2.2	155							35.1	89.6		Tvr=0.04 tsf							From 13-23", Dk.Grey Organic SILT, trace Shell
	C-1-3	23-34	2.3	75.9							52.3	92.0		Tvr=0.03 tsf							From 23-34", Dk.Grey-Brown Organic SILT, little Shell
B2	B-2-1	0-7	3.1	99.3							44.1	87.9		Tvr=0.02 tsf							From 0-7", Dk.Grey/Black Organic SILT, some Shell (Note: 2" Shell from 1-3"),
	B-2-2	7-23	3.2	117							43.8	95.0		Tvr=0.04 tsf							From 7-23", Dk.Grey-Brown Organic SILT
	B-2-3	23-32	3.3	90.8							46.7	89.1		Tvr=0.04 tsf							From 23-32", Dk.Grey-Brown Organic SILT, trace fibers, (Note: 1" pocket of fibers from 31-32")
	B-2-4	32-46	3.4	55.7							57.2	89.0		Tvr= 0.05 tsf							From 32-36", Brown Organic SILT, some fibers, From 36-46", Brown f-m SAND and Organic SILT,

LABORATORY TESTING DATA SHEET

Project Name: SOIL TESTING, NEW BEDFORD HARBOR SUPERFUND SITE
Project No.: L16389
Project Engineer: D. SCHULZE
Assigned By: REMCO
Date: Jul-00
Reviewed By:
Date Reviewed:

Boring/ Test Pit No.	Sample No.	Depth (in)	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Wet unit wt. Pcf	Permeability cm/sec	Strength Tests: Torvane or Type Test	$\bar{\sigma}_o$ psf	Failure Criteria	$\sigma_1 - \sigma_3$ or t psf	Strain %		Consol. $\frac{C_c}{1+e_o}$	Laboratory Log and Soil Description
A-3	A-3-1	0-8	4.1	148							32.4	80.4		Tvr=0.03 tsf							From 0-8", Dk.Grey-Black Organic SILT
	A-3-2	8-34	4.2	120							39.6	87.2		Tvr=0.04 tsf							From 8-39", Grey-Brown Organic SILT
	A-3-3	34-54	4.3	600							8.4	* 59.1		Tvr=0.06 tsf	(* $\gamma t < \gamma w$, suggests voids)						From 34-54", Brown fibrous PEAT
C-3	C-3-1	0-13	5.1	129							37.7	86.3		Tvr=0.02 tsf							From 2-4", Dk.Grey-Black Organic SILT, some Shell, From 4-11" Dk.Grey-Black Organic SILT
	C-3-3	24-41	5.2	103							43.7	88.8		Tvr= 0.04 tsf							From 24-48", Grey-Brown Organic SILT, From 48-52" Dk.Brown fibrous PEAT, little Sand
	C-3-4	41-52	5.3	112							42.6	90.4		Tvr= 0.04 tsf							
B-4	B-4-1	0-13	6.1	56.8							63.9	100.2		Tvr=0.03 tsf							From 0-13", Dk.Grey Organic SILT, some Sand, trace Shell
	B-4-2	13-30	6.2	97.2							46.1	91.0		Tvr= 0.03 tsf							From 13-15" Dk.Grey-Black Organic SILT, some Sand, From 15-30" Grey-Brown Organic SILT
	B-4-3	30-41	6.3	91.7							47.9	91.9		Tvr= 0.04 tsf							From 30-41" Grey-Brown Organic SILT
A-5	A-5-1	0-6	7.1	21.7			8		2.1	2.62	98.6	120.0									From 0-6", Grey-Brown f-m SAND, little Gravel, trace Org. Silt trace Shells
	A-5-2	6-23	7.2	20.5							103.0	124.1									From 6-10" Grey-Brown f-m SAND, some Silt, trace Gravel
																					From 10-16", Grey-Brown f-m SAND, little Silt,
																					From 16-33", Grey f-m Sand, trace Silt,
C-5	C-5-1	0-11	8.1	36.2			11		1.4	2.62	83.3	113.4									Dk.Grey f-m SAND, little Organic Silt, trace Gravel, trace Shells

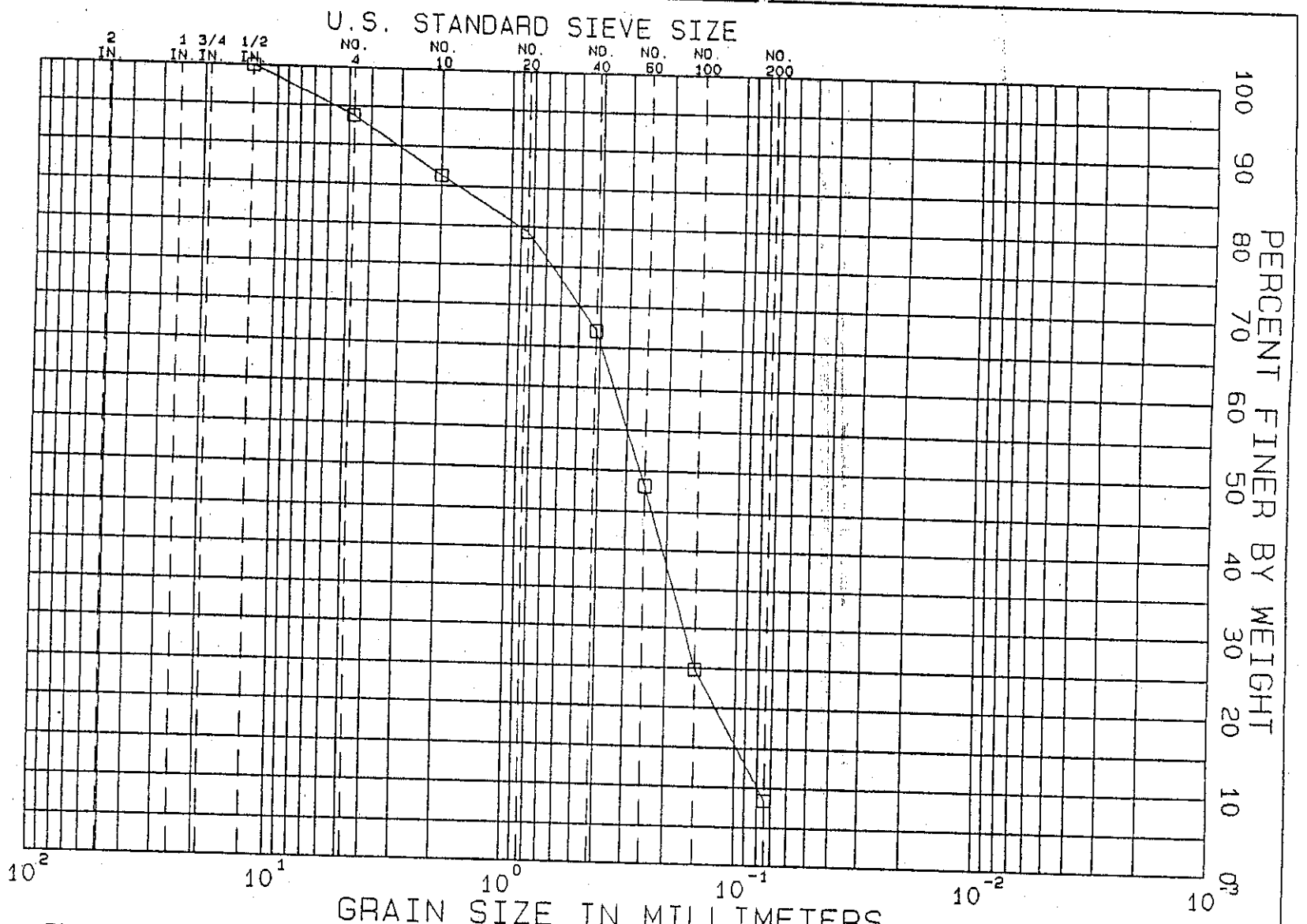
GZA GeoEnvironmental, Inc.
Q:\NEWTON\LAB\LABFORM7.XLS

LABORATORY TESTING DATA SHEET

Project Name: SOIL TESTING, NEW BEDFORD HARBOR SUPERFUND SITE
Project No.: L16389
Project Engineer: D. SCHULZE
Assigned By: REMCO
Date: Jul-00
Reviewed By:
Date Reviewed:

Boring/ Test Pit No.		Sample No.	Lab No.	Identification Tests: Water Content %	LL %	PL %	Sieve -200 %	Hyd -2μ %	ORG %	G_s	Dry unit wt. pcf	Wet unit wt. Pcf	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
		A-1-2,C-1-1 B-2-1,A-3-1	9.1		102	54	77	14	12.7	2.32											Dk.Brown/Black Organic SILT, little fine Sand, trace Gravel, trace Shells
		A-1-4 C-1-2	10.1		54	25	49	12	3.7	2.54											Grey-Brown Organic SILT and f-m SAND, trace Shells
		A-1-5 C-1-3	11.1		56	26	60	15	4.8	2.63											Grey-Brown Organic SILT and f-m SAND, trace Shells
		B-2-2,A-3-2 C-3-3,B-4-2	12.1		82	38	80	20	5.1	2.48											Grey-Brown Organic SILT, little (+) fine Sand, trace Shells
		B-2-3,C-3-4 B-4-3	13.1		75	36	73	17	4.6	2.54											Grey-Brown Organic SILT, some fine Sand, trace Shells
		C-3-1 B-4-1	14.1		68	35	56	8	7.5	2.49											Dk.Brown/Black Organic SILT and f-m SAND, trace Shells
		A-1-3,B-2-4 A-3-3,C-3-4	15.12		79	44	49	8	5.5	2.40											Brown f-m SAND and Organic SILT, trace Shells
		A-5-2 C-5-2	16.1				12	2													Brown f-m SAND, little (-) Silt, trace Gravel, trace Shells

* In Progress



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

TEST NO.	MATERIAL SOURCE	REMARKS
S7.1	A-5-1	Grey-Brown f-m SAND, trace (+) Silt, trace Gravel, trace Shells

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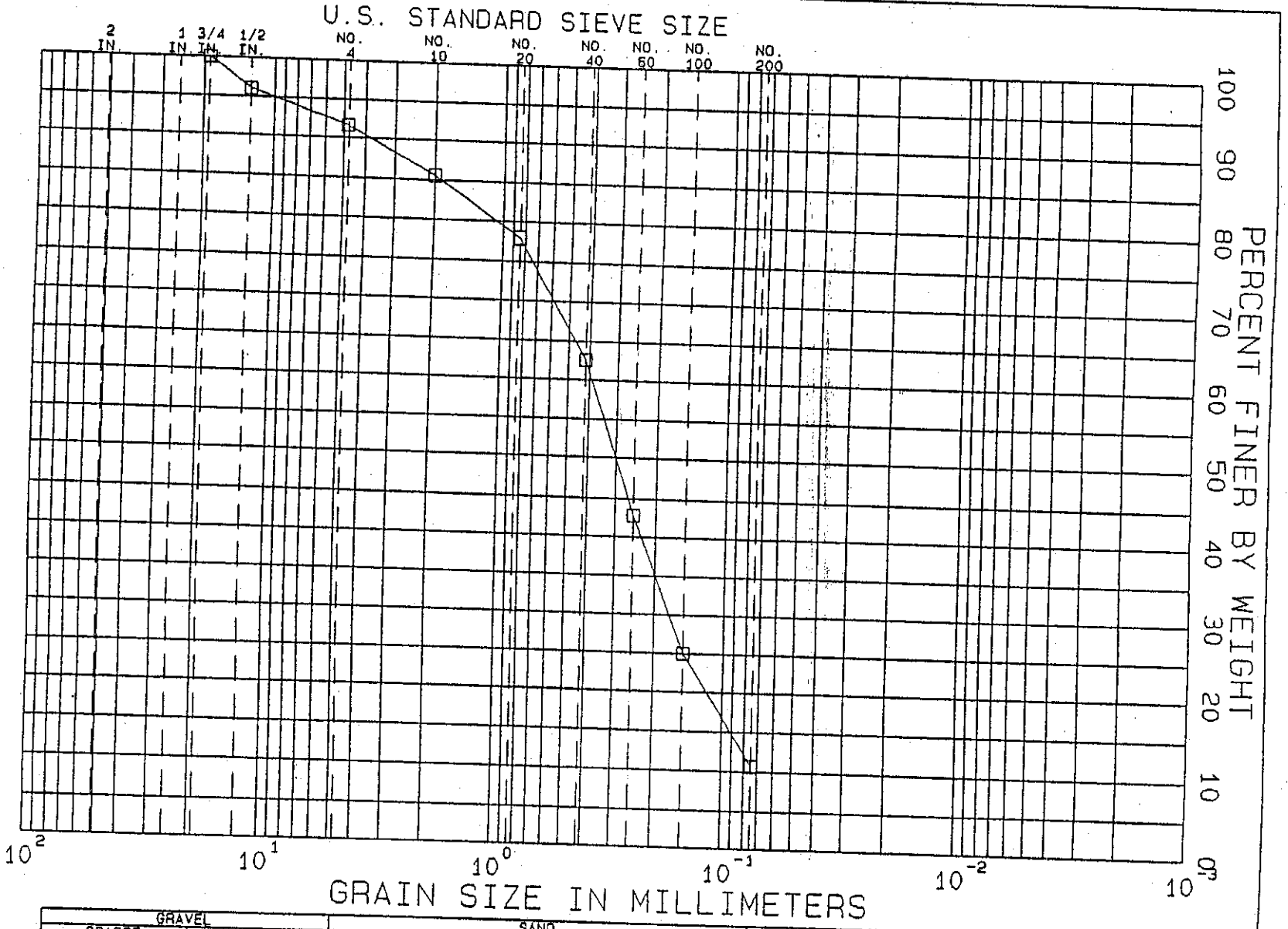
ENGINEERS AND SCIENTISTS

SOIL TESTING NEW BEDFORD
HARBOR SUPERFUND SITE
GRADATION TESTS

BORING NO.
SAMPLE
DEPTH
TECH. PEC
REVIEWER DAS

TEST SERIES NO. 7
DATE July 00
FILE L16389

APPENDIX F-9



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

TEST NO.	MATERIAL SOURCE	REMARKS
S8.1	C-5-1	Dk.Grey f-m SAND, little Organic Silt, trace Gravel, tr. Shell

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

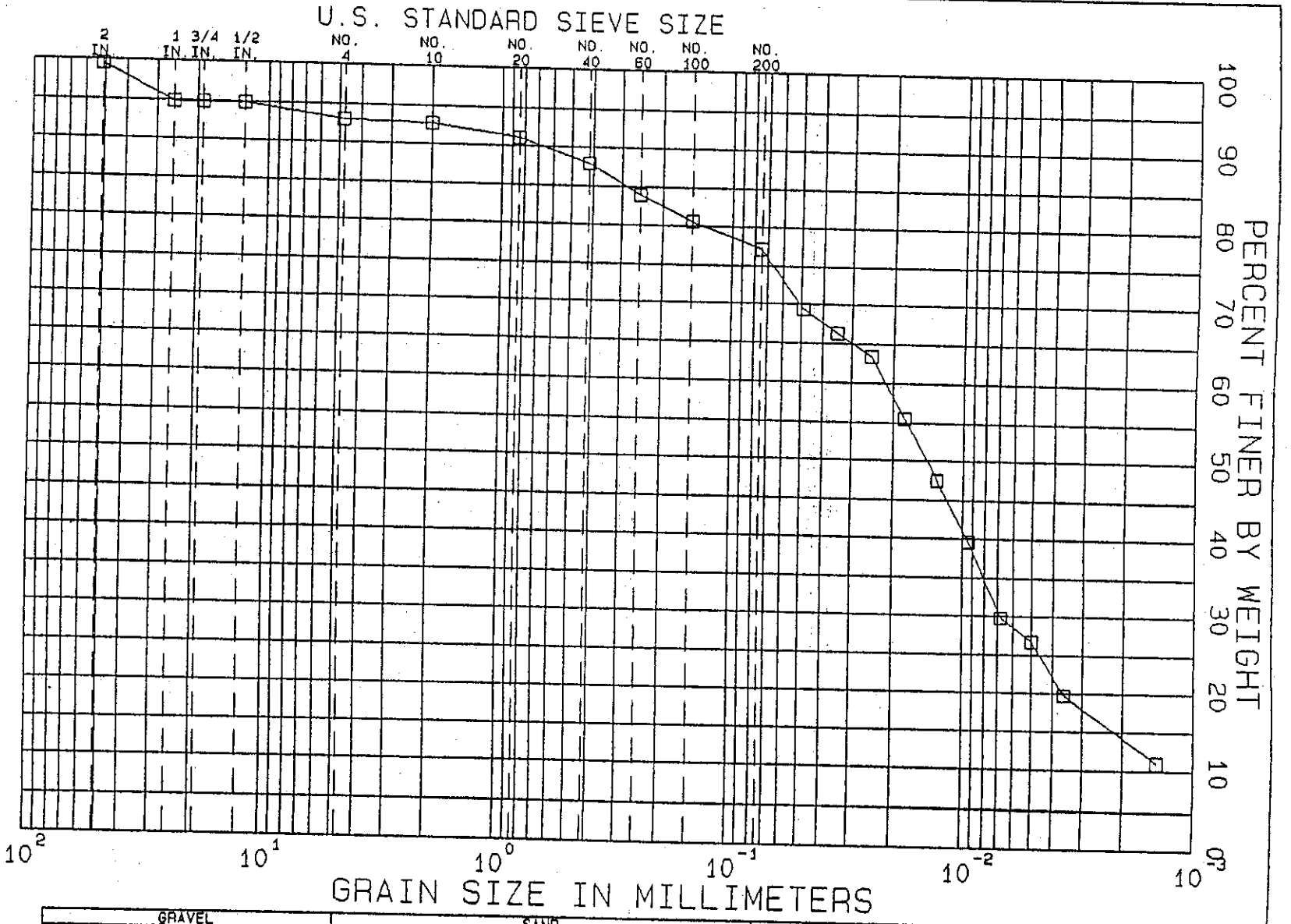
SOIL TESTING NEW BEDFORD
HARBOR SUPERFUND SITE
GRADATION TESTS

BORING NO.
SAMPLE
DEPTH
TECH. PEC
REVIEWER DAS

TEST SERIES NO. 8
DATE July 00
FILE L16389

APPENDIX E-9

APPENDIX B
GZA –6



TEST NO.	MATERIAL SOURCE	REMARKS
S9.1	A-1-2, C-1-1 B-2-1, A-3-1	Dk.Brown/Black Organic SILT, little fine Sand, trace Gravel, tr.Shells

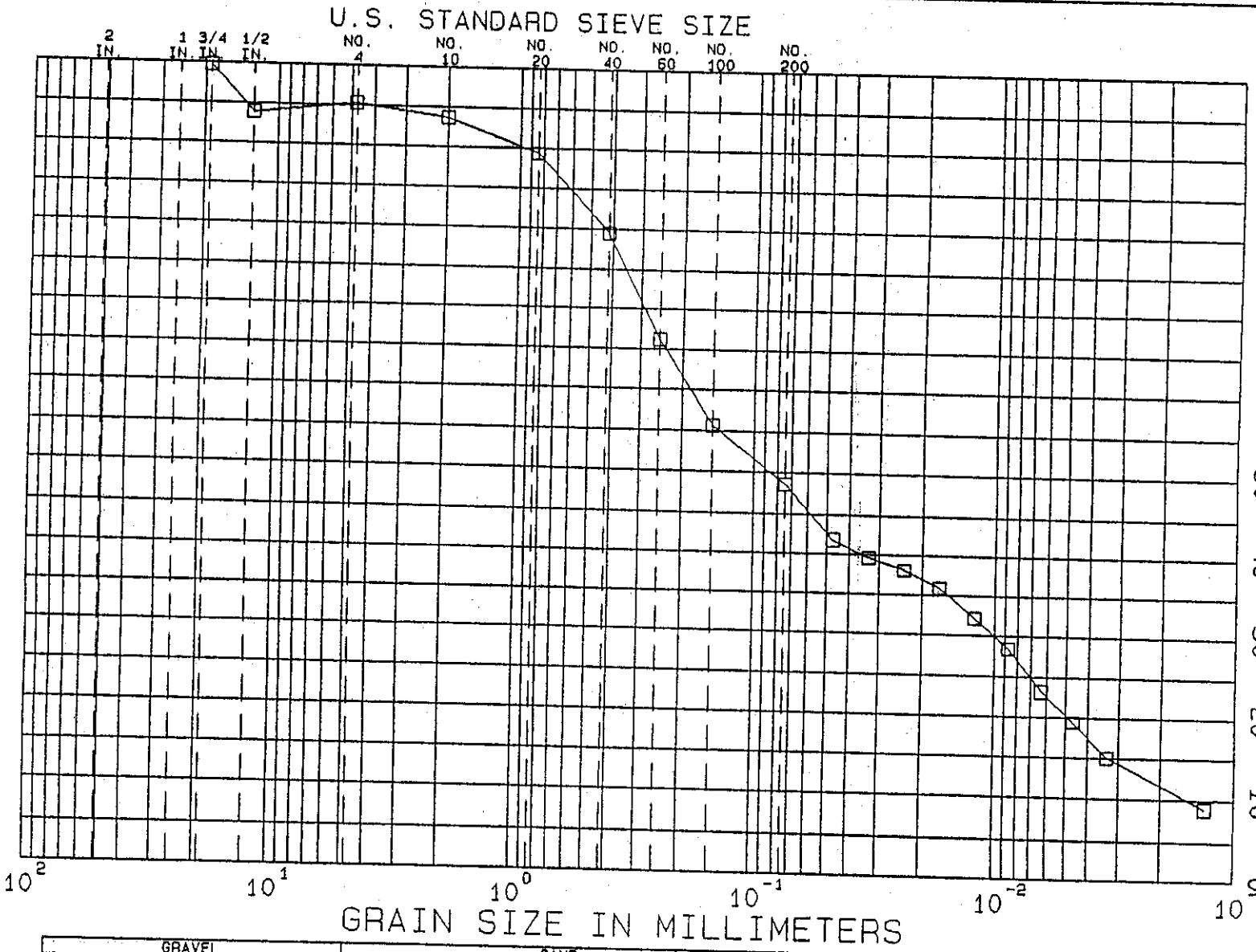
SOIL TESTING NEW BEDFORD
HARBOR SUPERFUND SITE
GRADATION TESTS

BORING NO.
SAMPLE
DEPTH
TECH. PEC
REVIEWER DAS

TEST SERIES NO. 9
DATE July 00
FILE L16389

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

APPENDIX E-9



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

TEST NO.	MATERIAL SOURCE	REMARKS
S10.1	A-1-4 C-1-2	Grey-Brown Organic SILT and f-m SAND, trace Shell

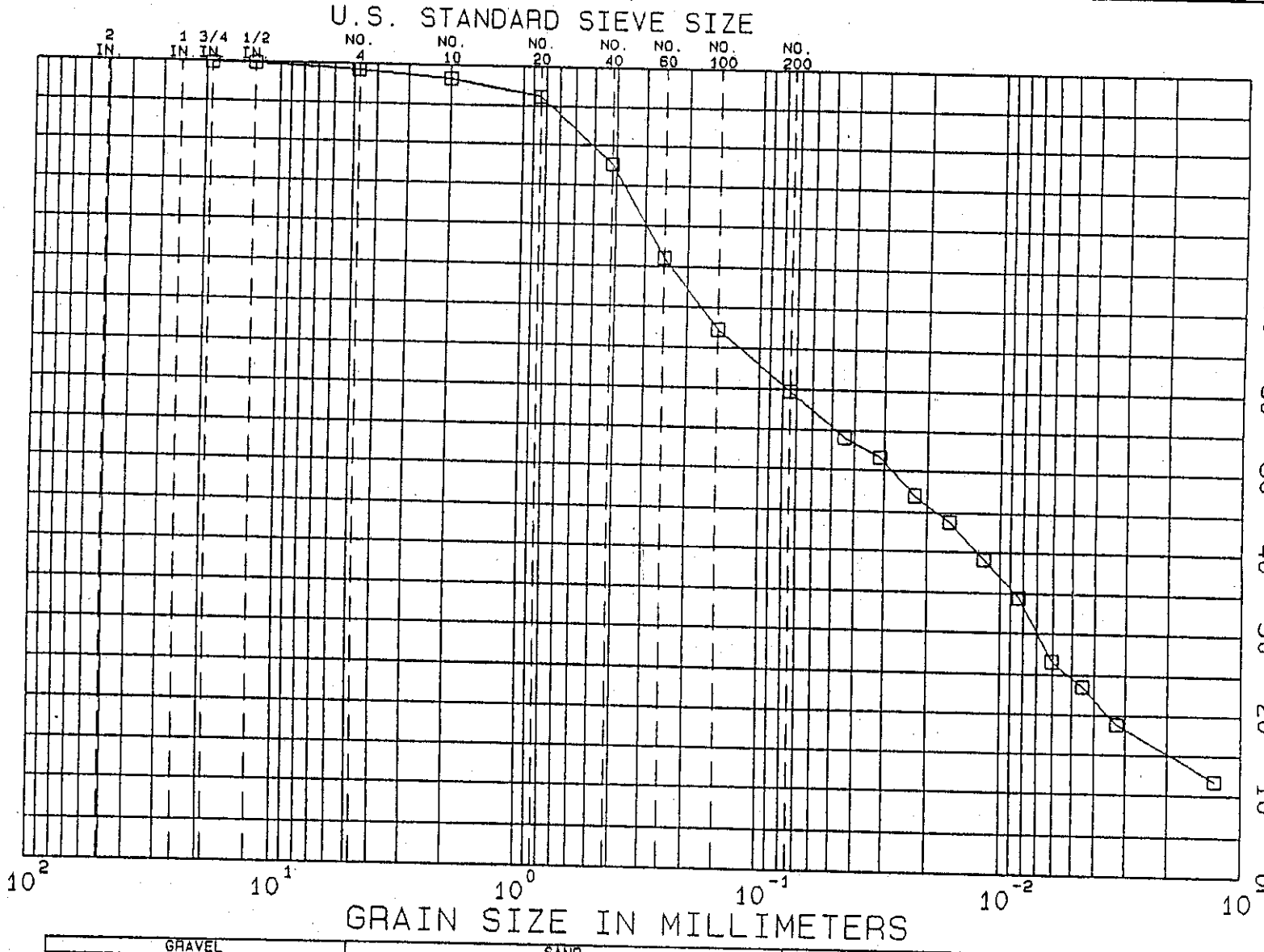
GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

SOIL TESTING NEW BEDFORD
HARBOR SUPERFUND SITE
GRADATION TESTS

BORING NO.
SAMPLE
DEPTH
TECH. PEC
REVIEWER DAS

TEST SERIES NO. 10
DATE July 00
FILE L16389

APPENDIX E-9



TEST NO.	MATERIAL SOURCE	REMARKS
S11.1	A-1-5 C-1-3	Grey-Brown Organic SILT and f-m SAND, trace Shells

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS

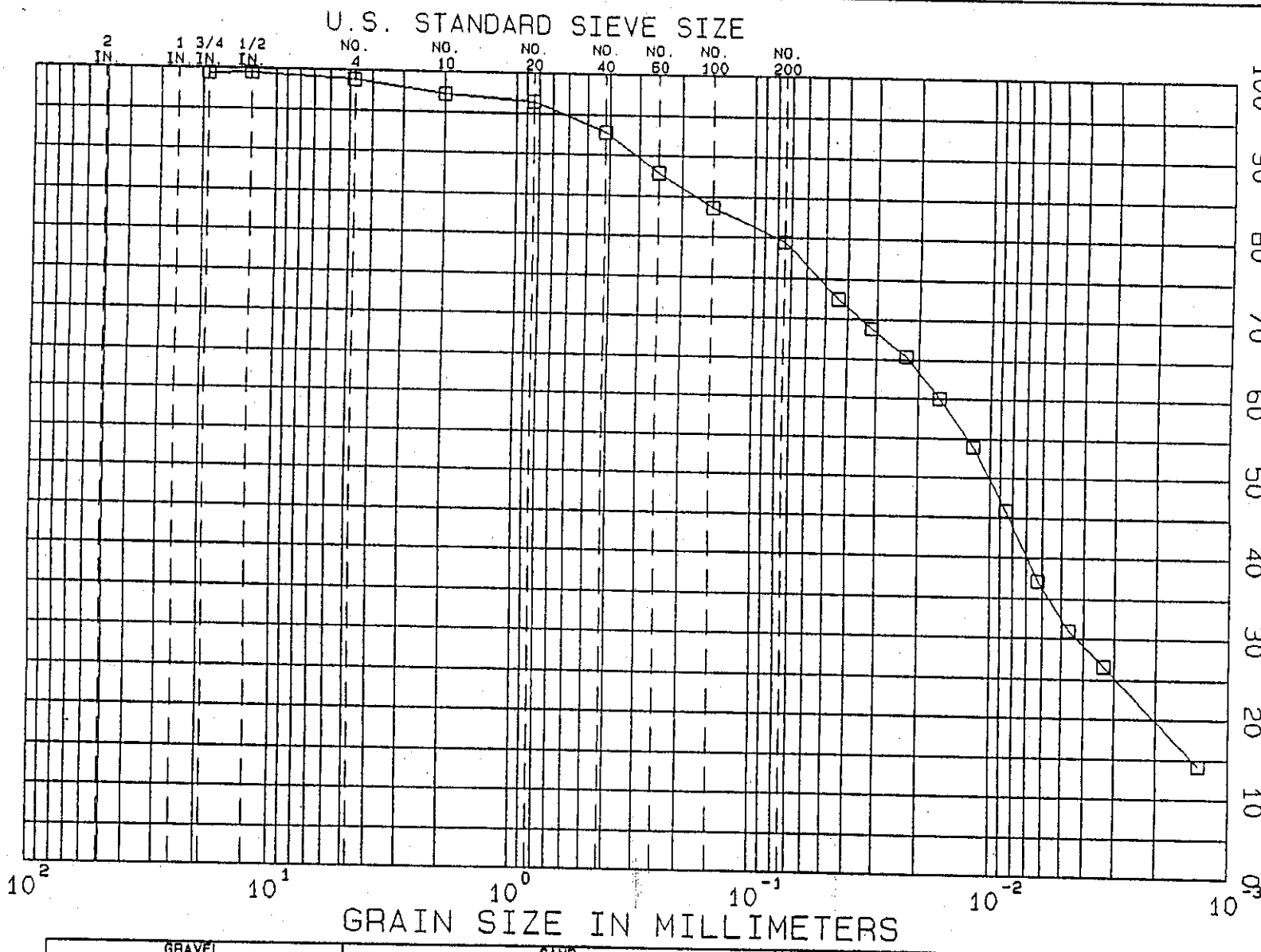
SOIL TESTING NEW BEDFORD
HARBOR SUPERFUND SITE
GRADATION TESTS

BORING NO.
SAMPLE
DEPTH
TECH. PEC
REVIEWER DAS

TEST SERIES NO. 11
DATE July 00
FILE L16389

APPENDIX E-9

GZA GEOENVIRONMENTAL, INC.
ENGINEERS AND SCIENTISTS



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

TEST NO.	MATERIAL SOURCE	REMARKS
S12.1	B-2-2, A-3-2 C-3-3, B-4-2	Grey-Brown Organic SILT little (+) fine Sand, trace Shells

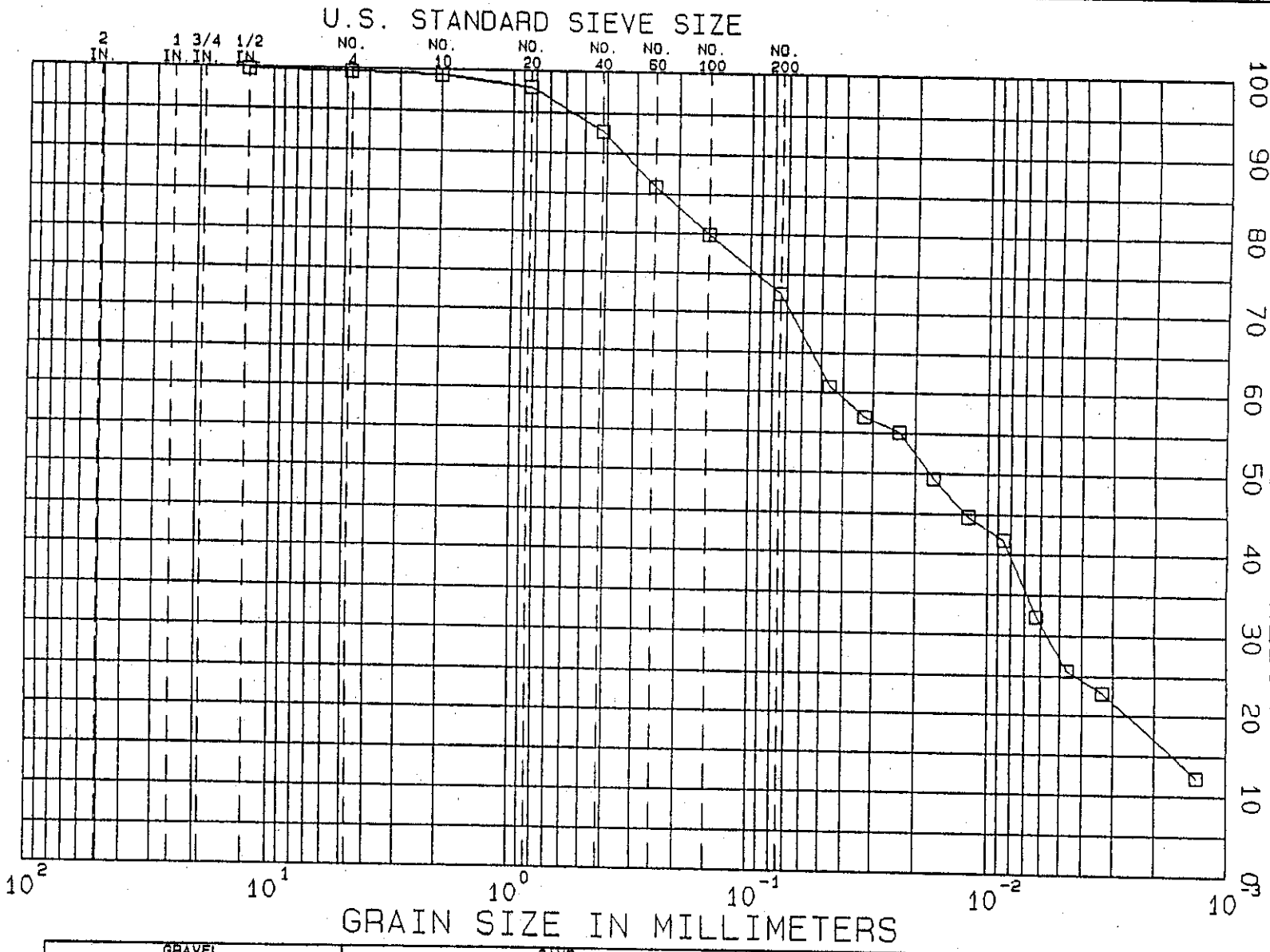
SOIL TESTING NEW BEDFORD
HARBOR SUPERFUND SITE
GRADATION TESTS

BORING NO.
SAMPLE
DEPTH
TECH. PEC
REVIEWER DAS

TEST SERIES NO. 12
DATE July 00
FILE L16389

APPENDIX E-9

PENDIX B
GZA –10



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

TEST NO.	MATERIAL SOURCE	REMARKS
S13.1	B-2-3, C-3-4 B-4-3	Grey-Brown Organic SILT some fine Sand, trace Shells

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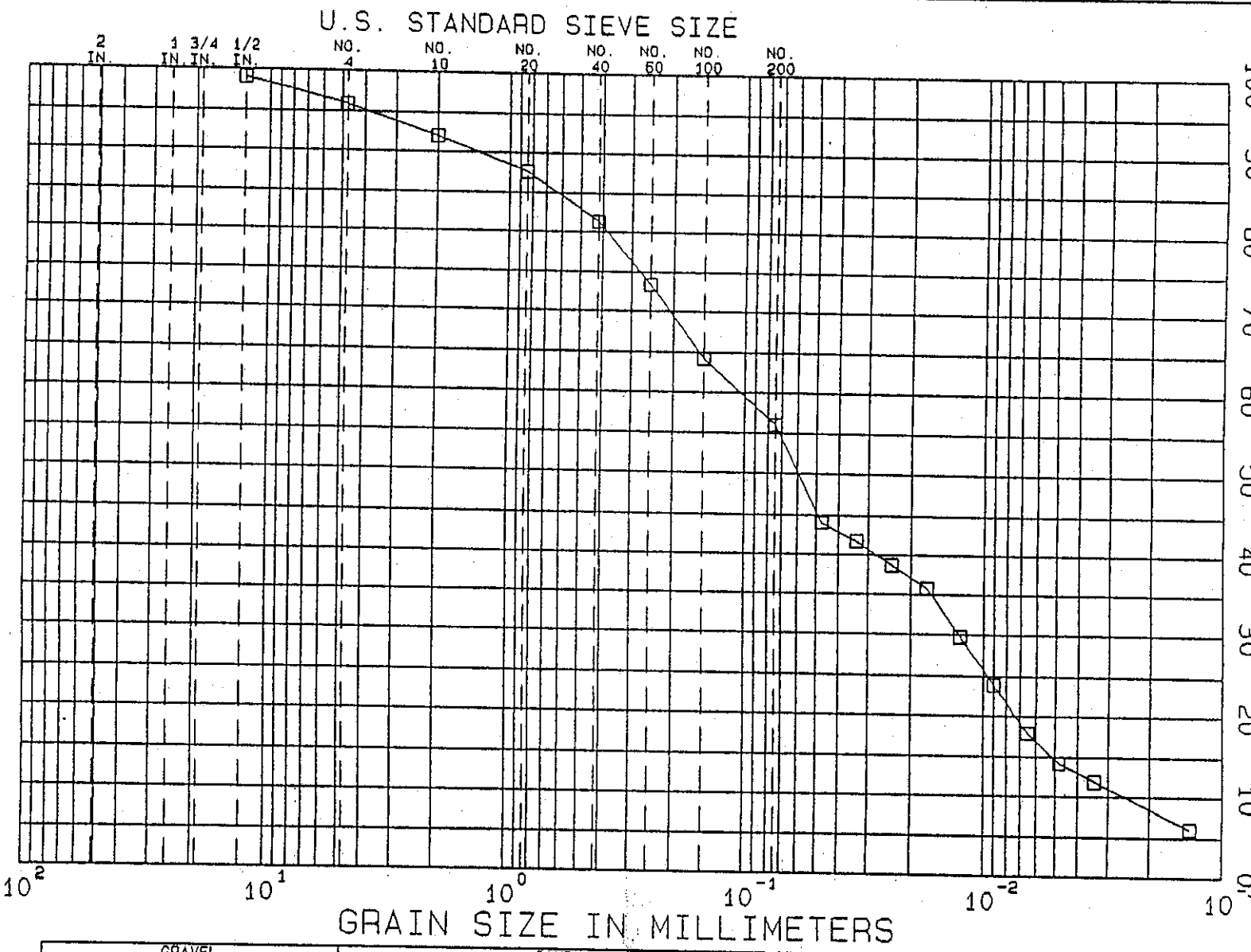
SOIL TESTING NEW BEDFORD
HARBOR SUPERFUND SITE
GRADATION TESTS

BORING NO.
SAMPLE
DEPTH
TECH. PEC
REVIEWER DAS

TEST SERIES NO. 13
DATE July 00
FILE L16389

APPENDIX E-9



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

TEST NO.	MATERIAL SOURCE	REMARKS
814.1	C-3-1 B-4-1	Dk.Brown/Black Organic SILT and f-m SAND, trace Shells

SOIL TESTING NEW BEDFORD
HARBOR SUPERFUND SITE
GRADATION TESTS

BORING NO.
SAMPLE
DEPTH
TECH. PEC
REVIEWER DAS

TEST SERIES NO. 14
DATE July 00
FILE L16389

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APPENDIX E-9

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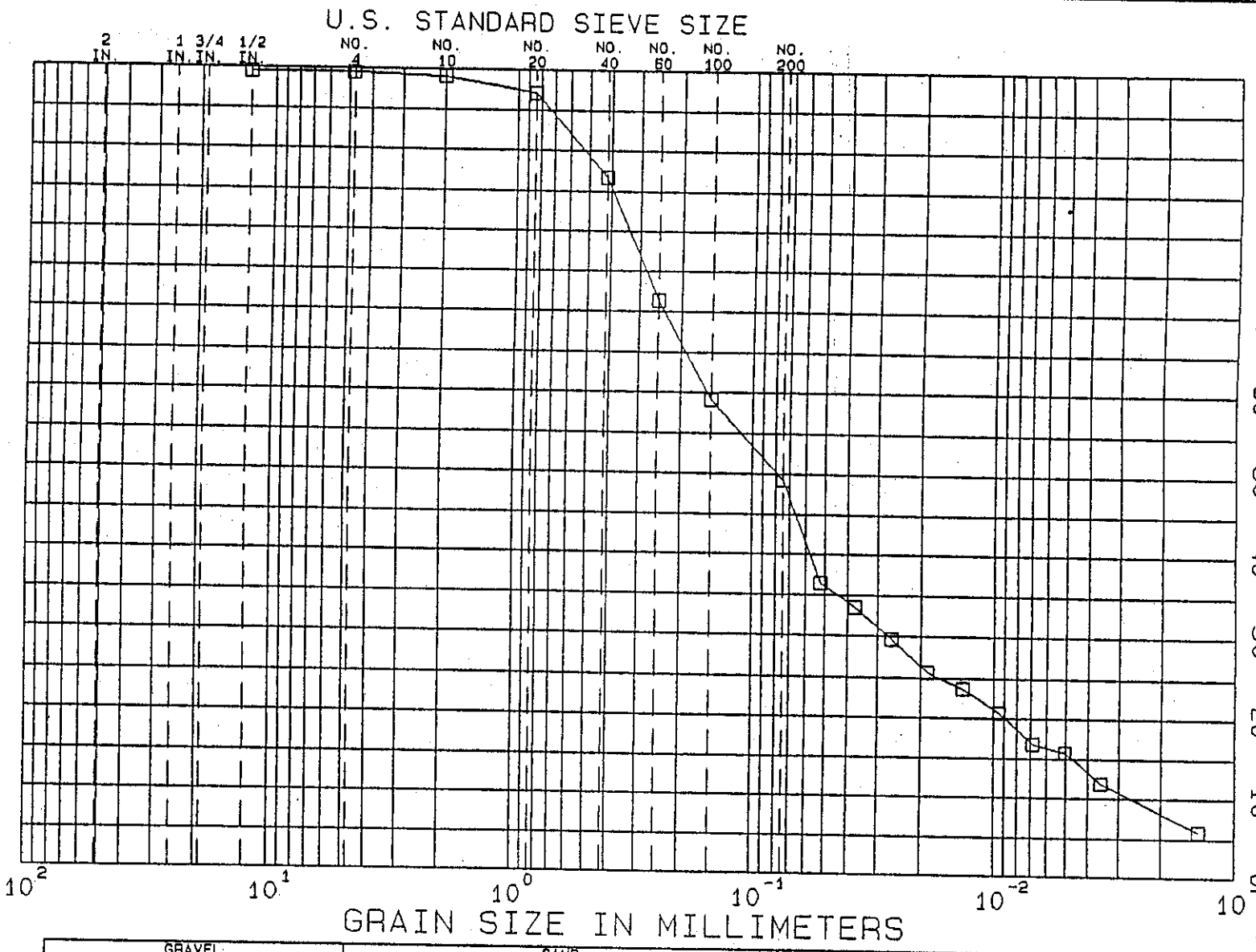


GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

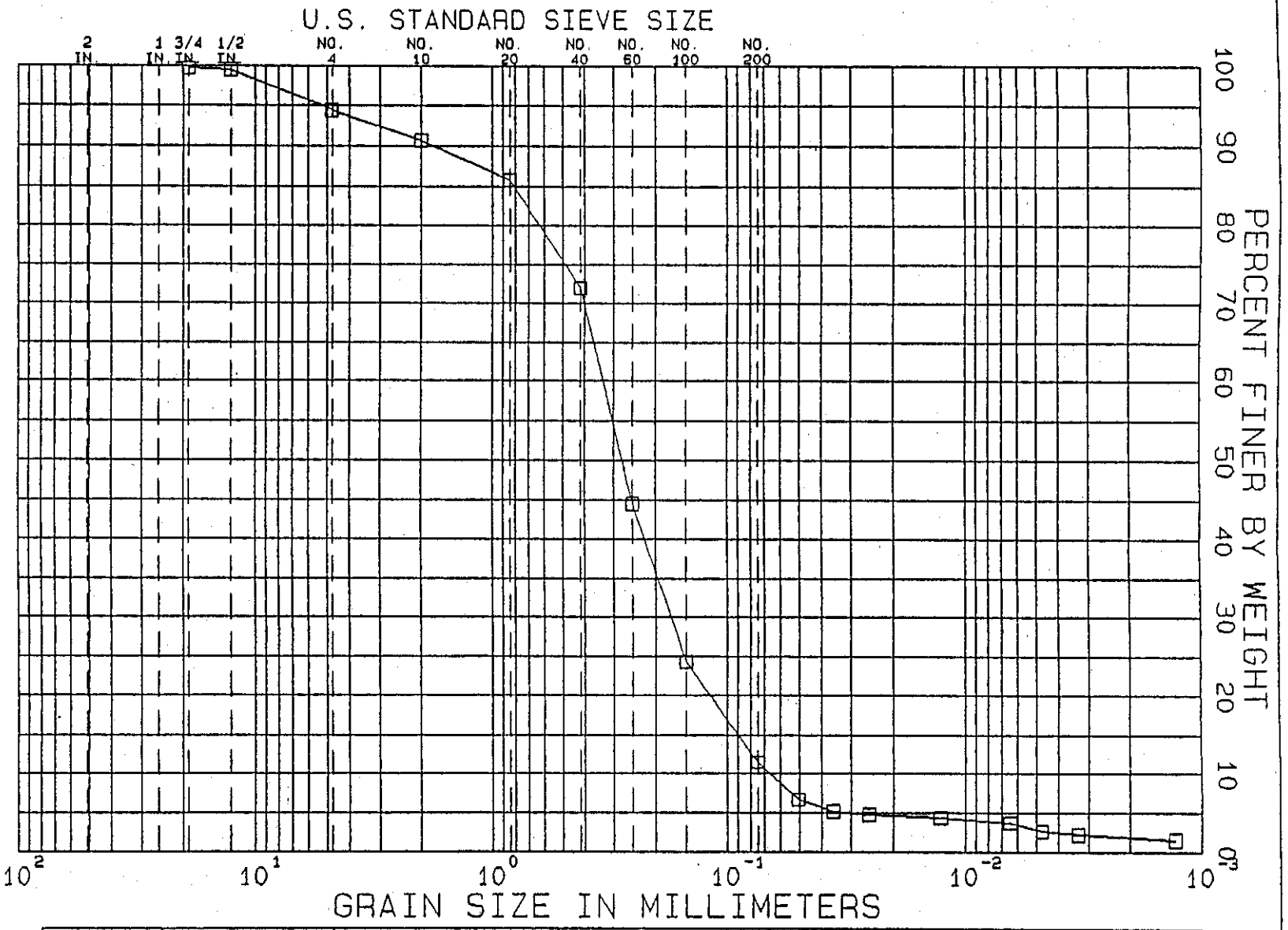
TEST NO.	MATERIAL SOURCE	REMARKS
S15.1	A-1-3, B-2-4 A-3-3, C-3-4	Brown f-m SAND and Organic SILT, trace Shells

SOIL TESTING NEW BEDFORD
HARBOR SUPERFUND SITE
GRADATION TESTS

BORING NO.
SAMPLE
DEPTH
TECH. PEC
REVIEWER DAS

TEST SERIES NO. 15
DATE July 00
FILE L16389

APPENDIX E-9



GRAVEL		SAND			SILT	CLAY
COARSE	FINE	COARSE	MEDIUM	FINE		

TEST NO.	MATERIAL SOURCE	REMARKS
S16.1	A-5-2 C-5-2	Brown f-m SAND, little (-) Silt, trace Gravel, trace Shells

SOIL TESTING NEW BEDFORD
HARBOR SUPERFUND SITE
GRADATION TESTS

BORING NO.
SAMPLE
DEPTH
TECH. PEC
REVIEWER DAS

TEST SERIES NO. 16
DATE July 00
FILE L16389

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APPENDIX E-9

S.3

Click here to go to Appendix C