TOWN OF CLARKSTOWN
DEPARTMENT OF ENVIRONMENTAL CONTROL

CLARKSTOWN SANITARY LANDFILL REMEDIATION AND LANDFILL CAPPING

CONTRACT NO. 34-1996

CONSTRUCTION CERTIFICATION REPORT

APPENDIX A: STRUCTURAL FILL DOCUMENTATION

April 14, 2000

Prepared for:
Town of Clarkstown
Department of Environmental Control
10 Maple Avenue
New City, NY 10956

Submitted to:
New York State Department of Environmental Conservation
Division of Environmental Remediation
50 Wolf Road
Albany, NY 12233

Prepared by:
Roy F. Weston of New York, Inc.
130 West 30th Street
New York, NY 10001

WESTON® MANAGERS DESIGNERS/CONSULTANTS

APPENDIX A: STRUCTURAL FILL DOCUMENTATION

Appendix A1:	Field Density And Moisture Locations And Test Results For Structural Fill
Appendix A2:	Geotechnical Laboratory Test Results
Appendix A3:	Chemical Analysis Laboratory Test Reports

APPENDIX A1:

Field Density And Moisture Locations And Test Results For Structural Fill

QUALITY ASSURANCE
NUCLEAR DENSITY TESTING
ON
STRUCTURAL FILL

JULY '98

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	7/20/98	NO	260' W x 215' S Scale House		PG	WX-200	118.9	120.6	113.8	6.0	95.7	P	LFP 8 & 9 RAIA REDESIGN AREA TOPSOIL AREA
2	**7/20/98**	**REQ'D**	**260' W x 265' S Scale House**		"	WX-200	**118.9**	**118.0**	**110.8**	**6.5**	**93.2**	**F**	**LFP 8 & 9 RAIA REDESIGN AREA TOPSOIL AREA**
3	**7/20/98**	**REQ'D**	**260' W x 315' S Scale House**		"	WX-200	**118.9**	**121.9**	**112.6**	**8.3**	**94.7**	**F**	**LFP 8 & 9 RAIA REDESIGN AREA TOPSOIL AREA**
4	7/20/98	NO	210' W x 215' S Scale House		"	WX-200	118.9	123.9	114.7	8.0	96.5	P	LFP 8 & 9 RAIA REDESIGN AREA TOPSOIL AREA
5	7/20/98	NO	170' W x 215' S Scale House		"	WX-200	118.9	125.1	114.9	8.9	96.6	P	LFP 8 & 9 RAIA REDESIGN AREA TOPSOIL AREA
6	7/20/98	NO	120' W x 215' S Scale House		"	WX-200	118.9	124.7	113.9	9.5	95.8	P	LFP 8 & 9 RAIA REDESIGN AREA TOPSOIL AREA
7	7/20/98	NO	70' W x 215' S Scale House		"	WX-200	118.9	122.2	113.4	7.7	95.4	P	LFP 8 & 9 RAIA REDESIGN AREA TOPSOIL AREA
8	7/20/98	NO	70' W x 275' S Scale House		"	WX-200	118.9	122.0	114.9	6.2	96.6	P	LFP 8 & 9 RAIA REDESIGN AREA TOPSOIL AREA
9	7/20/98	NO	140' W x 275' S Scale House		"	WX-200	118.9	126.2	116.5	8.3	98.0	P	LFP 8 & 9 RAIA REDESIGN AREA TOPSOIL AREA
10	7/20/98	NO	210' W x 275' S Scale House		"	WX-200	118.9	122.2	113.3	7.8	95.3	P	LFP 8 & 9 RAIA REDESIGN AREA TOPSOIL AREA
11	**7/20/98**	**REQ'D**	**210' W x 275' S Scale House**		"	WX-200	**118.9**	**120.3**	**112.0**	**7.4**	**94.2**	**F**	**LFP 8 & 9 RAIA REDESIGN AREA TOPSOIL AREA**
12	7/20/98	NO	260' W x 275' S Scale House		"	WX-200	118.9	124.7	116.0	7.5	97.6	P	LFP 8 & 9 RAIA REDESIGN AREA TOPSOIL AREA
13	**7/20/98**	**REQ'D**	**200' W x 350' S Scale House**		"	WX-200	**118.9**	**120.4**	**112.5**	**7.0**	**94.6**	**F**	**LFP 8 & 9 RAIA REDESIGN AREA TOPSOIL AREA**
14	**7/20/98**	**REQ'D**	**150'W x 350' S Scale House**		"	WX-200	**118.9**	**117.5**	**110.6**	**6.3**	**93.0**	**F**	**LFP 8 & 9 RAIA REDESIGN AREA TOPSOIL AREA**
2A	**7/20/98**	**NO**	**260' W x 265' S Scale House**		"	WX-200	**118.9**	**123.2**	**115.1**	**7.0**	**96.8**	**P**	**LFP 8 & 9 RAIA REDESIGN AREA TOPSOIL AREA**
3A	**7/20/98**	**NO**	**260' W x 315' S Scale House**		"	WX-200	**118.9**	**124.6**	**115.3**	**8.0**	**97.0**	**P**	**LFP 8 & 9 RAIA REDESIGN AREA TOPSOIL AREA**
11A	**7/20/98**	**NO**	**210' W x 275' S Scale House**		"	WX-200	**118.9**	**124.6**	**115.6**	**7.8**	**97.2**	**P**	**LFP 8 & 9 RAIA REDESIGN AREA TOPSOIL AREA**
13A	**7/20/98**	**NO**	**200' W x 350' S Scale House**		"	WX-200	**118.9**	**123.8**	**115.1**	**7.6**	**96.8**	**P**	**LFP 8 & 9 RAIA REDESIGN AREA TOPSOIL AREA**
14A	**7/20/98**	**NO**	**150'W x 350' S Scale House**		"	WX-200	**118.9**	**123.3**	**115.2**	**7.0**	**96.9**	**P**	**LFP 8 & 9 RAIA REDESIGN AREA TOPSOIL AREA**

TESTS NUMBERED 2A, 3A, 11A, 13A & 14A WERE RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND WERE RE-TESTED

	1	Of	1	Tests Performed By YEC Personnel							SIGNATURE:		

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 — Item 5B Structural Fill

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	7/15/98	REQ'D	320' S x 200' E GE-1		PG	WX-200	118.9	122.3	112.7	8.5	94.8	F	LFP 8 & 9 RAIA REDESIGN AREA TOPSOIL ARE/
2	7/15/98	REQ'D	320' S x 250' E GE-1		"	WX-200	118.9	117.9	108.2	9.0	91.0	F	LFP 8 & 9 RAIA REDESIGN AREA TOPSOIL ARE/
3	7/15/98	REQ'D	360' S x 250' E GE-1		"	WX-200	118.9	120.7	111.9	7.9	94.1	F	LFP 8 & 9 RAIA REDESIGN AREA TOPSOIL ARE/
4	7/15/98	REQ'D	360' S x 200' E GE-1		"	WX-200	118.9	120.3	112.1	7.3	94.3	F	LFP 8 & 9 RAIA REDESIGN AREA TOPSOIL ARE/
5	7/15/98	REQ'D	330' S x 250' E GE-1		"	WX-200	118.9	118.6	109.9	7.9	92.5	F	LFP 8 & 9 RAIA REDESIGN AREA TOPSOIL ARE/
6	7/15/98	NO	380' S x 250' E GE-1		"	WX-200	118.9	123.8	115.1	7.6	96.8	P	LFP 8 & 9 RAIA REDESIGN AREA TOPSOIL ARE/
1A	7/15/98	NO	320' S x 200' E GE-1		PG	WX-200	118.9	124.3	115.1	8.0	96.8	P	LFP 8 & 9 RAIA REDESIGN AREA TOPSOIL ARE/
2A	7/15/98	NO	320' S x 250' E GE-1		"	WX-200	118.9	126.3	116.5	8.4	98.0	P	LFP 8 & 9 RAIA REDESIGN AREA TOPSOIL ARE/
3A	7/15/98	NO	360' S x 250' E GE-1		"	WX-200	118.9	124.9	115.5	8.2	97.1	P	LFP 8 & 9 RAIA REDESIGN AREA TOPSOIL ARE/
4A	7/15/98	NO	360' S x 200' E GE-1		"	WX-200	118.9	122.6	113.9	7.6	95.8	P	LFP 8 & 9 RAIA REDESIGN AREA TOPSOIL ARE/
5A	7/15/98	NO	330' S x 250' E GE-1		"	WX-200	118.9	124.5	114.6	8.6	96.4	P	LFP 8 & 9 RAIA REDESIGN AREA TOPSOIL ARE/
TESTS NUMBERED 1A THRU 5A WERE RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND WERE RE-TESTED													

	1	Of	1	Tests Performed By YEC Personnel	SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	7/14/98	NO	150' S Due South Of Scale House		PG	WX-200	118.9	126.9	115.9	9.5	97.5	P	LFP 8 & 9 RAIA REDESIGN AREA
2	7/14/98	NO	150' S X 100' W Scale House		"	WX-200	118.9	121.4	113.7	6.8	95.6	P	LFP 8 & 9 RAIA REDESIGN AREA
3	**7/14/98**	**REQ'D**	**100' S X 100' W Scale House**		"	**WX-200**	**118.9**	**116.4**	**110.8**	**5.0**	**93.2**	**F**	**LFP 8 & 9 RAIA REDESIGN AREA**
4	**7/14/98**	**REQ'D**	**200' W X 50' S Scale House**		"	**WX-200**	**118.9**	**119.1**	**112.1**	**6.2**	**94.3**	**F**	**LFP 8 & 9 RAIA REDESIGN AREA**
5	7/14/98	NO	200' W X 100' S Scale House		"	WX-200	118.9	120.2	114.0	5.4	95.9	P	LFP 8 & 9 RAIA REDESIGN AREA
6	7/14/98	NO	200' W X 150' S Scale House		"	WX-200	118.9	121.9	113.7	7.2	95.6	P	LFP 8 & 9 RAIA REDESIGN AREA
7	7/14/98	NO	300' W X 150' S Scale House		"	WX-200	118.9	126.5	114.1	10.8	96.0	P	LFP 8 & 9 RAIA REDESIGN AREA
8	**7/14/98**	**REQ'D**	**300' W X 100' S Scale House**		"	**WX-200**	**118.9**	**121.8**	**112.2**	**8.5**	**94.4**	**F**	**LFP 8 & 9 RAIA REDESIGN AREA**
9	7/14/98	NO	300' W X 30' S Scale House		"	WX-200	118.9	126.7	116.6	8.6	98.1	P	LFP 8 & 9 RAIA REDESIGN AREA
10	**7/14/98**	**REQ'D**	**400' W X 30' S Scale House**		"	**WX-200**	**118.9**	**122.3**	**112.5**	**8.7**	**94.6**	**F**	**LFP 8 & 9 RAIA REDESIGN AREA**
11	7/14/98	NO	400' W X 100' S Scale House		"	WX-200	118.9	122.4	113.3	8.0	95.3	P	LFP 8 & 9 RAIA REDESIGN AREA
12	7/14/98	NO	400' W X 150' S Scale House		"	WX-200	118.9	121.0	113.9	6.2	95.8	P	LFP 8 & 9 RAIA REDESIGN AREA
3A	**7/14/98**	**NO**	**100' S X 100' W Scale House**		"	**WX-200**	**118.9**	**123.7**	**115.6**	**7.0**	**97.2**	**P**	**LFP 8 & 9 RAIA REDESIGN AREA**
4A	**7/14/98**	**NO**	**200' W X 50' S Scale House**		"	**WX-200**	**118.9**	**123.7**	**115.1**	**7.5**	**96.8**	**P**	**LFP 8 & 9 RAIA REDESIGN AREA**
8A	**7/14/98**	**NO**	**300' W X 100' S Scale House**		"	**WX-200**	**118.9**	**124.3**	**115.1**	**8.0**	**96.8**	**P**	**LFP 8 & 9 RAIA REDESIGN AREA**
10A	**7/14/98**	**NO**	**400' W X 30' S Scale House**		"	**WX-200**	**118.9**	**125.0**	**115.6**	**8.2**	**97.2**	**P**	**LFP 8 & 9 RAIA REDESIGN AREA**
TESTS NUMBERED 3A, 4A, 8A & 10A WERE RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND WERE RE-TESTED													

1 Of 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	7/8/98	NO	150' E x 30' N OF SCALE HOUSE		PG	WX-200	118.9	131.8	115.7	13.9	97.3	P	LFP 9 SCALE REHAB AREA
2	7/8/98	REQ'D	100' DUE EAST OF SCALE HOUSE		"	WX-200	118.9	126.3	112.2	12.5	94.4	F	LFP 9 SCALE REHAB AREA
2A	7/8/98	NO	100' DUE EAST OF SCALE HOUSE		"	WX-200	118.9	128.9	115.6	11.5	97.2	P	LFP 9 SCALE REHAB AREA
TEST NUMBER 2A WAS RE-TESTED USNIG INGERSOLL-RAND ROLLER IR-115 AND WAS RE-TESTED													

1 Of 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	7/7/98	NO	75' E x 125' S Of Flare Station		FG	SB-5	138.3	145.5	134.8	7.9	97.5	P	NORTH & SOUTH OF FLARE BTWN FENCE & RD
2	7/7/98	NO	75' E x 75' S Of Flare Station		"	SB-5	138.3	143.8	134.3	7.1	97.1	P	NORTH & SOUTH OF FLARE BTWN FENCE & RD
3	7/7/98	NO	50' Due East Of Flare Station		"	WX-200	118.9	124.8	113.4	10.0	95.4	P	NORTH & SOUTH OF FLARE BTWN FENCE & RD
4	7/7/98	NO	30' E x 50' N Flare Station		"	WX-200	118.9	125.9	116.4	8.2	97.9	P	NORTH & SOUTH OF FLARE BTWN FENCE & RD
5	7/7/98	NO	100' Due North Of Flare Station		"	WX-200	118.9	123.3	113.1	9.0	95.1	P	NORTH & SOUTH OF FLARE BTWN FENCE & RD
6	**7/7/98**	**REQ'D**	**150' Due North Of Flare Station**		"	WX-200	**118.9**	**123.5**	**112.7**	**9.6**	**94.8**	**F**	**NORTH & SOUTH OF FLARE BTWN FENCE & RD**
6A	**7/7/98**	**REQ'D**	**150' Due North Of Flare Station**		"	WX-200	**118.9**	**123.5**	**112.7**	**9.6**	**94.8**	**F**	**NORTH & SOUTH OF FLARE BTWN FENCE & RD**

TEST NUMBER 6A WAS RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND WAS RE-TESTED

	1	Of	1	Tests Performed By YEC Personnel	SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 — Item 5B Structural Fill

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	7/6/98	NO	60' E x 100' S FLARE STATION		3RD	SB-5	138.3	142.0	132.2	7.4	95.6	P	SOUTH OF FLARE STA. BTWN RD & FENCE LINE
2	7/6/98	REQ'D	60' E x 50' S FLARE STATION		"	SB-5	138.3	138.2	129.2	7.0	93.4	F	SOUTH OF FLARE STA. BTWN RD & FENCE LINE
3	7/6/98	REQ'D	15' E x 40' S FLARE STATION		"	TL-5	127.3	134.0	119.8	11.9	94.1	F	SOUTH OF FLARE STA. BTWN RD & FENCE LINE
2A	7/6/98	NO	60' E x 50' S FLARE STATION		"	SB-5	138.3	145.2	134.4	8.0	97.2	P	SOUTH OF FLARE STA. BTWN RD & FENCE LINE
3A	7/6/98	NO	15' E x 40' S FLARE STATION		"	TL-5	127.3	138.5	124.8	11.0	98.0	P	SOUTH OF FLARE STA. BTWN RD & FENCE LINE
TESTS NUMBERED 2A & 3A WERE RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND WERE RE-TESTED													

1 Of 1 Tests Performed By YEC Personnel

SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	7/2/98	NO	200' E x 330' S GE-1		6TH	WX-200	118.9	127.9	116.3	10.0	97.8	P	REVISED AREA FOR RAIA MATERIAL
2	7/2/98	NO	170' E x 360' S GE-1		"	WX-200	118.9	127.0	115.0	10.5	96.7	P	REVISED AREA FOR RAIA MATERIAL
3	7/2/98	NO	150' E x 320' S GE-1		"	WX-200	118.9	127.6	114.3	11.7	96.1	P	REVISED AREA FOR RAIA MATERIAL

1 Of 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 — Item 5B Structural Fill

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	7/1/98	REQ'D	350' S x 170' E GE-1		5TH	WX-200	118.9	121.1	108.3	11.8	91.1	F	REVISED AREA FOR RAIA MATERIAL
2	7/1/98	REQ'D	350' S x 120' E GE-1		"	WX-200	118.9	126.8	112.8	12.4	94.9	F	REVISED AREA FOR RAIA MATERIAL
3	7/1/98	NO	380' S x 150' E GE-1		"	WX-200	118.9	130.4	115.2	13.2	96.9	P	REVISED AREA FOR RAIA MATERIAL
1A	7/1/98	NO	350' S x 170' E GE-1		5TH	WX-200	118.9	128.2	115.5	11.0	97.1	P	REVISED AREA FOR RAIA MATERIAL
2A	7/1/98	NO	350' S x 120' E GE-1		"	WX-200	118.9	128.6	115.3	11.5	97.0	P	REVISED AREA FOR RAIA MATERIAL
TESTS NUMBERED 1A & 2A WERE RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND WERE RE-TESTED													

1 Of 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 69[illegible] MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

JUNE '98

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 — Item 5B Structural Fill

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	6/29/98	NO	350' S X 100' E GE-1		4TH	WX-200	118.9	128.8	115.2	11.8	96.9	P	LFP 8 REVISED AREA FOR RAIA MATERIAL
2	6/29/98	NO	350' S X 160' E GE-1		"	WX-200	118.9	129.5	115.2	12.4	96.9	P	LFP 8 REVISED AREA FOR RAIA MATERIAL
3	6/29/98	NO	380' S X 120' E GE-1		"	WX-200	118.9	130.7	115.5	13.2	97.1	P	LFP 8 REVISED AREA FOR RAIA MATERIAL
4	6/29/98	NO	350' S X 130' E GE-1		5TH	WX-200	118.9	128.9	115.2	11.9	96.9	P	LFP 8 REVISED AREA FOR RAIA MATERIAL
5	6/29/98	REQ'D	380' S X 170' E GE-1		"	WX-200	118.9	122.8	112.1	9.5	94.3	F	LFP 8 REVISED AREA FOR RAIA MATERIAL
6	6/29/98	REQ'D	380' S X 100' E GE-1		"	WX-200	118.9	122.6	111.1	10.4	93.4	F	LFP 8 REVISED AREA FOR RAIA MATERIAL
5A	6/29/98	NO	380' S X 170' E GE-1		"	WX-200	118.9	126.9	115.3	10.0	97.0	P	LFP 8 REVISED AREA FOR RAIA MATERIAL
6A	6/29/98	NO	380' S X 100' E GE-1		"	WX-200	118.9	125.9	113.9	10.5	95.8	P	LFP 8 REVISED AREA FOR RAIA MATERIAL
TEST NUMBERED 5A & 6A WERE RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND WERE RE-TESTED													

	1	Of	1	Tests Performed By YEC Personnel	SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	6/24/98	NO	380' S X 150' E GE-1		1ST	WX-195	117.9	131.3	117.0	12.3	99.2	P	LFP 8 REVISED AREA FOR RAIA MATERIAL
2	6/24/98	NO	330' S X 150' E GE-1		"	WX-195	117.9	129.8	115.9	12.0	98.3	P	LFP 8 REVISED AREA FOR RAIA MATERIAL
3	6/24/98	NO	390' S X 140' E GE-1		2ND	WX-195	117.9	129.2	115.4	11.9	97.9	P	LFP 8 REVISED AREA FOR RAIA MATERIAL
4	6/24/98	NO	300' S X 90' E GE-1		"	WX-195	117.9	131.4	116.7	12.6	99.0	P	LFP 8 REVISED AREA FOR RAIA MATERIAL
5	6/24/98	NO	380' S 90' E GE-1		1ST	WX-195	117.9	133.0	117.2	13.5	99.4	P	LFP 8 REVISED AREA FOR RAIA MATERIAL
6	6/24/98	NO	350' S X 110' E GE-1		"	WX-195	117.9	130.3	115.9	12.4	98.3	P	LFP 8 REVISED AREA FOR RAIA MATERIAL
7	6/24/98	NO	SOUTH HEAD WALL PC-9		PG	WX-195	117.9	130.0	115.1	13.0	97.6	P	LFP 8 REVISED AREA FOR RAIA MATERIAL
8	6/24/98	NO	SOUTH HEAD WALL PC-9		"	WX-195	117.9	125.7	114.1	10.1	96.8	P	LFP 8 REVISED AREA FOR RAIA MATERIAL
9	6/24/98	NO	NORTH HEAD WALL PC-9		"	WX-195	117.9	124.5	112.6	10.6	95.5	P	LFP 8 REVISED AREA FOR RAIA MATERIAL
10	6/24/98	NO	NORTH HEAD WALL PC-9		"	WX-195	117.9	126.8	114.7	10.5	97.3	P	LFP 8 REVISED AREA FOR RAIA MATERIAL

1 Of 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	6/11/98	REQ'D	250' S X 40' E GE-1		PG	WX-190	115.3	115.6	105.6	9.5	91.6	F	LFP 8 REVISED AREA FOR RAIA MATERIAL
2	6/11/98	REQ'D	250'S X 25' W GE-1		PG	WX-190	115.3	111.7	101.1	10.5	87.7	F	LFP 8 REVISED AREA FOR RAIA MATERIAL
3	6/11/98	NO	325' S X 75' W GE-1		PG	WX-190	115.3	120.0	109.7	9.4	95.1	P	LFP 8 REVISED AREA FOR RAIA MATERIAL
4	6/11/98	REQ'D	325' S X 10' E GE-1		PG	WX-190	115.3	117.9	108.8	8.3	94.4	F	LFP 8 REVISED AREA FOR RAIA MATERIAL
5	6/11/98	REQ'D	420' S X 40' E GE-1		PG	WX-190	115.3	118.4	108.7	8.9	94.3	F	LFP 8 REVISED AREA FOR RAIA MATERIAL
6	6/11/98	NO	420' S X 25' W GE-1		PG	WX-190	115.3	119.8	110.2	8.7	95.6	P	LFP 8 REVISED AREA FOR RAIA MATERIAL
7	6/11/98	NO	420' S X 75' W GE-1		PG	WX-190	115.3	119.4	110.1	8.4	95.5	P	LFP 8 REVISED AREA FOR RAIA MATERIAL
1A	6/11/98	NO	250' S X 40' E GE-1		PG	WX-190	115.3	121.0	111.0	9.0	96.3	P	LFP 8 REVISED AREA FOR RAIA MATERIAL
2A	6/11/98	NO	250'S X 25' W GE-1		PG	WX-190	115.3	123.3	112.6	9.5	97.7	P	LFP 8 REVISED AREA FOR RAIA MATERIAL
4A	6/11/98	NO	325' S X 10' E GE-1		PG	WX-190	115.3	120.9	110.9	9.0	96.2	P	LFP 8 REVISED AREA FOR RAIA MATERIAL
5A	6/11/98	NO	420' S X 40' E GE-1		PG	WX-190	115.3	120.8	110.7	9.1	96.0	P	LFP 8 REVISED AREA FOR RAIA MATERIAL
TESTS NUMBERED 1A, 2A, 4A & 5A WERE RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND WERE RE-TESTED													
	1	Of	1	Tests Performed By YEC Personnel								SIGNATURE:	

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 — Item 5B Structural Fill

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	6/10/98	REQ'D	40' W x 100' S GE-1		PG	TL-6	127.3	127.4	119.4	6.7	93.8	F	LFP 8 REVISED AREA FOR RAIA MATERIAL
2	6/10/98	NO	40' W x 150' S GE-1		PG	TL-5	127.3	133.2	124.1	7.3	97.5	P	LFP 8 REVISED AREA FOR RAIA MATERIAL
3	6/10/98	REQ'D	40' W x 200' S GE-1		PG	TL-6	127.3	124.2	114.4	8.5	89.9	F	LFP 8 REVISED AREA FOR RAIA MATERIAL
4	6/10/98	REQ'D	225' Due South GE-1		PG	TL-6	127.3	128.2	119.8	7.0	94.1	F	LFP 8 REVISED AREA FOR RAIA MATERIAL
5	6/10/98	REQ'D	175' S x 40' E GE-1		PG	TL-6	127.3	127.0	116.9	8.7	91.8	F	LFP 8 REVISED AREA FOR RAIA MATERIAL
6	6/10/98	NO	125' E x 200' S GE-1		PG	TL-5	127.3	135.7	124.1	9.3	97.5	P	LFP 8 REVISED AREA FOR RAIA MATERIAL
7	6/10/98	NO	100' E x 150' S GE-1		PG	TL-5	127.3	133.1	122.7	8.5	96.4	P	LFP 8 REVISED AREA FOR RAIA MATERIAL
8	6/10/98	NO	30' E x 50' S GE-1		PG	TL-5	127.3	134.0	121.6	10.2	95.5	P	LFP 8 REVISED AREA FOR RAIA MATERIAL
9	6/10/98	REQ'D	80' Due West GE-1		PG	SB-6	138.3	137.3	131.2	4.6	94.9	F	LFP 8 REVISED AREA FOR RAIA MATERIAL
10	6/10/98	REQ'D	100' Due West GE-1		PG	SB-6	138.3	139.8	130.4	7.2	94.3	F	LFP 8 REVISED AREA FOR RAIA MATERIAL
11	6/10/98	REQ'D	100' W x 100' S GE-1		PG	SB-6	138.3	137.1	129.3	6.0	93.5	F	LFP 8 REVISED AREA FOR RAIA MATERIAL
12	6/10/98	REQ'D	50'W x 100' S GE-1		PG	SB-6	138.3	138.4	130.4	6.1	94.3	F	LFP 8 REVISED AREA FOR RAIA MATERIAL
13	6/10/98	NO	75' W x 200' S GE-1		PG	SB-5	138.3	140.4	132.1	6.3	95.5	P	LFP 8 REVISED AREA FOR RAIA MATERIAL
14	6/10/98	REQ'D	100' W x 200' S GE-1		PG	SB-6	138.3	137.7	129.3	6.5	93.5	F	LFP 8 REVISED AREA FOR RAIA MATERIAL
1A	6/10/98	NO	40' W x 100' S GE-1		PG	TL-6	127.3	131.9	123.2	7.0	96.8	P	LFP 8 REVISED AREA FOR RAIA MATERIAL
3A	6/10/98	NO	40' W x 200' S GE-1		PG	TL-6	127.3	133.4	123.5	8.0	97.0	P	LFP 8 REVISED AREA FOR RAIA MATERIAL
4A	6/10/98	NO	225' Due South GE-1		PG	TL-6	127.3	132.5	123.6	7.2	97.1	P	LFP 8 REVISED AREA FOR RAIA MATERIAL
5A	6/10/98	NO	175' S x 40' E GE-1		PG	TL-6	127.3	134.6	123.5	9.0	97.0	P	LFP 8 REVISED AREA FOR RAIA MATERIAL
9A	6/10/98	NO	80' Due West GE-1		PG	SB-6	138.3	145.2	135.7	7.0	98.1	P	LFP 8 REVISED AREA FOR RAIA MATERIAL
10A	6/10/98	NO	100' Due West GE-1		PG	SB-6	138.3	146.6	136.2	7.6	98.5	P	LFP 8 REVISED AREA FOR RAIA MATERIAL
11A	6/10/98	NO	100' W x 100' S GE-1		PG	SB-6	138.3	146.4	135.5	8.0	98.0	P	LFP 8 REVISED AREA FOR RAIA MATERIAL
12A	6/10/98	NO	50'W x 100' S GE-1		PG	SB-6	138.3	145.6	135.4	7.5	97.9	P	LFP 8 REVISED AREA FOR RAIA MATERIAL
14A	6/10/98	NO	100' W x 200' S GE-1		PG	SB-6	138.3	145.7	135.4	7.6	97.9	P	LFP 8 REVISED AREA FOR RAIA MATERIAL

TESTS NUMBERED 1A, 3A, 4A, 5A, 9A, 10A, 11A, 12A & 14A WERE RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND WERE RE-TESTED

1 Of 1 Tests Performed By YEC Personnel

SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 69[illegible] MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 — Item 5B Structural Fill

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	6/4/98	REQ'D	20 ' Due East Of GE-1		PG	SB-5	138.3	131.2	122.1	7.4	88.3	F	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST.
2	6/4/98	REQ'D	20' E x 40' S GE-1		PG	SB-5	138.3	128.8	117.0	10.1	84.6	F	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST.
3	6/4/98	REQ'D	20' E x 80' S GE-1		PG	SB-5	138.3	135.1	127.1	6.3	91.9	F	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST.
4	6/4/98	NO	50' S x 120' W GE-1		PG	Wx-190	115.3	126.1	112.8	11.8	97.8	P	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST
5	6/4/98	NO	100'S x 120' W GE-1		PG	Wx-190	115.3	122.5	112.5	8.9	97.6	P	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST
6	6/4/98	NO	150'S x 120' W GE-1		PG	Wx-190	115.3	120.0	110.7	8.4	96.0	P	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST
7	6/4/98	NO	200' S x 120' W GE-1		PG	Wx-190	115.3	121.9	113.1	7.8	98.1	P	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST
1A	6/4/98	NO	20 ' Due East Of GE-1		PG	SB-5	138.3	145.2	133.2	9.0	96.3	P	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST
2A	6/4/98	NO	20' E x 40' S GE-1		PG	SB-5	138.3	148.0	134.4	10.1	97.2	P	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST
3A	6/4/98	NO	20' E x 80' S GE-1		PG	SB-5	138.3	145.6	134.2	8.5	97.0	P	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST

TEST NUMBER 1A, 2A & 3A WERE RE-COMPACTED USING INGERSOLL-RAND IR-115 AND WERE RE-TESTED

1 Of 1 — Tests Performed By YEC Personnel — SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

MAY '98

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 — Item 5B Structural Fill

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	5/20/98	NO	150' S x 135' E GE-1		PG	WX-185	124.9	131.3	119.2	10.2	95.4	P	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST
2	5/20/98	REQ'D	200' S x 135' E GE-1		PG	WX-185	124.9	131.2	116.9	12.2	93.6	F	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST
3	5/20/98	REQ'D	250' S x 135' E GE-1		PG	WX-185	124.9	127.1	116.2	9.4	93.0	F	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST
4	5/20/98	NO	250' S x 85' E GE-1		PG	WX-185	124.9	128.9	118.8	8.5	95.1	P	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST
5	5/20/98	REQ'D	200' S x 85' E GE-1		PG	WX-185	124.9	127.2	116.8	8.9	93.5	F	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST
6	5/20/98	REQ'D	150' S x 85' E GE-1		PG	WX-185	124.9	127.5	117.2	8.8	93.8	F	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST
7	5/20/98	REQ'D	150' Due South GE-1		PG	WX-185	124.9	127.3	118.5	7.4	94.9	F	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST
8	5/20/98	NO	200' Due South GE-1		PG	WX-185	124.9	131.7	122.0	7.9	97.7	P	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST
9	5/20/98	REQ'D	250' Due South GE-1		PG	WX-185	124.9	129.0	117.4	9.9	94.0	F	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST
10	5/20/98	NO	250' S x 50' W GE-1		PG	WX-185	124.9	134.9	122.8	9.9	98.3	P	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST
11	5/20/98	REQ'D	300' S x 50' W GE-1		PG	WX-185	124.9	127.9	118.3	8.1	94.7	F	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST
12	5/20/98	NO	300' Due South GE-1		PG	WX-185	124.9	131.3	119.8	9.6	95.9	P	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST
2A	5/20/98	NO	200' S x 135' E GE-1		PG	WX-185	124.9	132.3	120.3	10.0	96.3	P	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST
3A	5/20/98	NO	250' S x 135' E GE-1		PG	WX-185	124.9	133.3	121.2	10.0	97.0	P	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST
5A	5/20/98	NO	200' S x 85' E GE-1		PG	WX-185	124.9	132.8	120.5	10.2	96.5	P	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST
6A	5/20/98	NO	150' S x 85' E GE-1		PG	WX-185	124.9	132.9	121.4	9.5	97.2	P	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST
7A	5/20/98	NO	150' Due South GE-1		PG	WX-185	124.9	133.0	122.2	8.9	97.8	P	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST
9A	5/20/98	NO	250' Due South GE-1		PG	WX-185	124.9	132.7	121.2	9.5	97.0	P	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST
11A	5/20/98	NO	300' S x 50' W GE-1		PG	WX-185	124.9	133.8	121.4	10.2	97.2	P	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST

TESTS NUMBERED 2A, 3A, 5A, 6A, 7A, 9A & 11A WERE RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND WERE RE-TESTED

	1	Of	1	Tests Performed By YEC Personnel							SIGNATURE:		

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 — Item 5B Structural Fill

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	5/19/98	REQ'D	190' E X 120' GE-1		PG	WX-185	124.9	128.2	117.2	9.4	93.8	F	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST
2	5/19/98	REQ'D	190' E X 170' S GE-1		PG	WX-185	124.9	129.8	118.3	9.7	94.7	F	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST
3	5/19/98	REQ'D	190' E X 220' S GE-1		PG	WX-185	124.9	129.0	116.5	10.7	93.3	F	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST
4	5/19/98	NO	250' E X 250' S GE-1		PG	WX-185	124.9	132.4	121.0	9.4	96.9	P	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST
5	5/19/98	REQ'D	250' E X 200' S GE-1		PG	WX-185	124.9	130.8	118.4	10.5	94.8	F	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST
6	5/19/98	REQ'D	250' E X 150' S GE-1		PG	WX-185	124.9	130.0	118.2	10.0	94.6	F	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST
7	5/19/98	REQ'D	250' E X 70' S GE-1		PG	WX-185	124.9	130.1	118.2	10.1	94.6	F	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST
1A	5/19/98	NO	190' E X 120' GE-1		PG	WX-185	124.9	131.2	121.3	8.2	97.1	P	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST
2A	5/19/98	NO	190' E X 170' S GE-1		PG	WX-185	124.9	134.4	121.2	10.9	97.0	P	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST
3A	5/19/98	NO	190' E X 220' S GE-1		PG	WX-185	124.9	132.3	120.3	10.0	96.3	P	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST
5A	5/19/98	NO	250' E X 200' S GE-1		PG	WX-185	124.9	135.7	122.7	10.6	98.2	P	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST
6A	5/19/98	NO	250' E X 150' S GE-1		PG	WX-185	124.9	131.7	121.4	8.5	97.2	P	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST
7A	5/19/98	NO	250' E X 70' S GE-1		PG	WX-185	124.9	131.9	119.7	10.2	95.8	P	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST

TEST NUMBERED 1A, 2A, 3A, 5A, 6A & 7A WERE RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND WERE RE-TESTED

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 — Item 5B Structural Fill

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	5/18/98	NO	270' E x 70' S GE-1		PG	WX-180	121.5	128.6	118.8	8.2	97.8	P	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST
2	**5/18/98**	**REQ'D**	**270' E x 120' S GE-1**		**PG**	**WX-180**	**121.5**	**126.1**	**113.7**	**10.9**	**93.6**	**F**	**LFP 5 & 9 SOUTH SURFACE COLLECTION SYST**
3	5/18/98	NO	270' E x 200' S GE-1		PG	WX-180	121.5	127.1	115.5	10.0	95.1	P	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST
4	5/18/98	NO	220' E x 200' S GE-1		PG	WX-180	121.5	128.6	115.4	11.4	95.0	P	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST
5	**5/18/98**	**REQ'D**	**220' E x 150' S GE-1**		**PG**	**WX-180**	**121.5**	**127.0**	**114.8**	**10.6**	**94.5**	**F**	**LFP 5 & 9 SOUTH SURFACE COLLECTION SYST**
6	5/18/98	NO	220' E x 110' S GE-1		PG	WX-180	121.5	125.9	116.0	8.5	95.5	P	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST
7	5/18/98	NO	170' E x 110' S GE-1		PG	WX-180	121.5	128.1	116.3	10.2	95.7	P	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST
8	5/18/98	NO	170' E x 160' S GE-1		PG	WX-180	121.5	128.0	116.4	10.0	95.8	P	LFP 5 & 9 SOUTH SURFACE COLLECTION SYST
2A	**5/18/98**	**REQ'D**	**270' E x 120' S GE-1**		**PG**	**WX-180**	**121.5**	**126.1**	**113.7**	**10.9**	**93.6**	**F**	**LFP 5 & 9 SOUTH SURFACE COLLECTION SYST**
5A	**5/18/98**	**REQ'D**	**220' E x 150' S GE-1**		**PG**	**WX-180**	**121.5**	**127.0**	**114.8**	**10.6**	**94.5**	**F**	**LFP 5 & 9 SOUTH SURFACE COLLECTION SYST**
TESTS NUMBERED 2A & 5A WERE RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND WERE RE-TESTED													

	1	Of	1	Tests Performed By YEC Personnel	SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

APRIL '98

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 2633 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	4/8/98	NO	20' Due North Of LCC-7		PG	WX-180	121.5	126.6	115.9	9.2	95.4	P	LFP 5 & 4 ADJACENT TO SOUTH SLURRY WALL
2	4/8/98	NO	20' Due West Of LCC-7		PG	WX-180	121.5	130.3	117.0	11.4	96.3	P	LFP 5 & 4 ADJACENT TO SOUTH SLURRY WALL
3	4/8/98	NO	50' S x 30' W LCC-7		PG	WX-180	121.5	130.7	117.1	11.6	96.4	P	LFP 5 & 4 ADJACENT TO SOUTH SLURRY WALL
4	4/8/98	NO	100' S x 30' W LCC-7		PG	WX-180	121.5	128.6	115.5	11.3	95.1	P	LFP 5 & 4 ADJACENT TO SOUTH SLURRY WALL
5	**4/8/98**	**REQ'D**	**150' S x 30' W LCC-7**		**PG**	**WX-180**	**121.5**	**128.6**	**114.9**	**11.9**	**94.6**	**F**	**LFP 5 & 4 ADJACENT TO SOUTH SLURRY WALL**
6	4/8/98	NO	200' S x 30' W LCC-7		PG	WX-180	121.5	126.8	115.8	9.5	95.3	P	LFP 5 & 4 ADJACENT TO SOUTH SLURRY WALL
7	**4/8/98**	**REQ'D**	**250' S x 30' W LCC-7**		**PG**	**WX-180**	**121.5**	**124.2**	**113.1**	**9.8**	**93.1**	**F**	**LFP 5 & 4 ADJACENT TO SOUTH SLURRY WALL**
8	4/8/98	NO	300' S x 30' W LCC-7		PG	WX-180	121.5	126.6	116.0	9.1	95.5	P	LFP 5 & 4 ADJACENT TO SOUTH SLURRY WALL
9	4/8/98	NO	350' S x 30' W LCC-7		PG	WX-180	121.5	126.7	115.4	9.8	95.0	P	LFP 5 & 4 ADJACENT TO SOUTH SLURRY WALL
10	4/8/98	NO	400' S x 30' W LCC-7		PG	WX-180	121.5	126.6	115.8	9.3	95.3	P	LFP 5 & 4 ADJACENT TO SOUTH SLURRY WALL
11	4/8/98	NO	450' S x 30' W LCC-7		PG	WX-180	121.5	128.2	115.8	10.7	95.3	P	LFP 5 & 4 ADJACENT TO SOUTH SLURRY WALL
12	**4/8/98**	**REQ'D**	**500' Due South Of LCC-7**		**PG**	**WX-180**	**121.5**	**127.8**	**114.3**	**11.8**	**94.1**	**F**	**LFP 5 & 4 ADJACENT TO SOUTH SLURRY WALL**
13	**4/8/98**	**REQ'D**	**450' S x 15' E LCC-7**		**PG**	**WX-180**	**121.5**	**126.7**	**113.2**	**11.9**	**93.2**	**F**	**LFP 5 & 4 ADJACENT TO SOUTH SLURRY WALL**
14	4/8/98	NO	400' S x 15' E LCC-7		PG	WX-180	121.5	129.2	116.4	11.0	95.8	P	LFP 5 & 4 ADJACENT TO SOUTH SLURRY WALL
15	**4/8/98**	**REQ'D**	**350' S x 15' E LCC-7**		**PG**	**WX-180**	**121.5**	**125.6**	**114.5**	**9.7**	**94.2**	**F**	**LFP 5 & 4 ADJACENT TO SOUTH SLURRY WALL**
16	4/8/98	NO	300' S x 15' E LCC-7		PG	WX-180	121.5	127.3	115.4	10.3	95.0	P	LFP 5 & 4 ADJACENT TO SOUTH SLURRY WALL
17	4/8/98	NO	250' S x 15' E LCC-7		PG	WX-180	121.5	129.8	117.2	10.7	96.5	P	LFP 5 & 4 ADJACENT TO SOUTH SLURRY WALL
18	**4/8/98**	**REQ'D**	**200' S x 15' E LCC-7**		**PG**	**WX-180**	**121.5**	**126.1**	**114.3**	**10.3**	**94.1**	**F**	**LFP 5 & 4 ADJACENT TO SOUTH SLURRY WALL**
19	4/8/98	NO	150' S x 25' E LCC-7		PG	WX-180	121.5	128.6	115.7	11.2	95.2	P	LFP 5 & 4 ADJACENT TO SOUTH SLURRY WALL
20	4/8/98	NO	100' S x 25' E LCC-7		PG	WX-180	121.5	131.9	118.1	11.7	97.2	P	LFP 5 & 4 ADJACENT TO SOUTH SLURRY WALL
21	4/8/98	NO	50' S x 25' E LCC-7		PG	WX-180	121.5	128.6	116.3	10.6	95.7	P	LFP 5 & 4 ADJACENT TO SOUTH SLURRY WALL
22	**4/8/98**	**REQ'D**	**25' Due South Of LCC-7**		**PG**	**WX-180**	**121.5**	**128.8**	**115.2**	**11.8**	**94.8**	**F**	**LFP 5 & 4 ADJACENT TO SOUTH SLURRY WALL**
5A	**4/8/98**	**NO**	**150' S x 30' W LCC-7**		**PG**	**WX-180**	**121.5**	**129.5**	**116.6**	**11.0**	**96.0**	**P**	**LFP 5 & 9 S. SURFACE COLLECTION SYSTEM**
7A	**4/8/98**	**NO**	**250' S x 30' W LCC-7**		**PG**	**WX-180**	**121.5**	**128.4**	**116.8**	**10.0**	**96.1**	**P**	**LFP 5 & 9 S. SURFACE COLLECTION SYSTEM**
12A	**4/8/98**	**NO**	**500' Due South Of LCC-7**		**PG**	**WX-180**	**121.5**	**131.1**	**117.9**	**11.2**	**97.0**	**P**	**LFP 5 & 9 S. SURFACE COLLECTION SYSTEM**
13A	**4/8/98**	**NO**	**450' S x 15' E LCC-7**		**PG**	**WX-180**	**121.5**	**130.4**	**117.1**	**11.3**	**96.4**	**P**	**LFP 5 & 9 S. SURFACE COLLECTION SYSTEM**
15A	**4/8/98**	**NO**	**350' S x 15' E LCC-7**		**PG**	**WX-180**	**121.5**	**129.2**	**116.9**	**10.5**	**96.2**	**P**	**LFP 5 & 9 S. SURFACE COLLECTION SYSTEM**
18A	**4/8/98**	**NO**	**200' S x 15' E LCC-7**		**PG**	**WX-180**	**121.5**	**129.4**	**117.6**	**10.0**	**96.8**	**P**	**LFP 5 & 9 S. SURFACE COLLECTION SYSTEM**
22A	**4/8/98**	**NO**	**25' Due South Of LCC-7**		**PG**	**WX-180**	**121.5**	**131.1**	**118.1**	**11.0**	**97.2**	**P**	**LFP 5 & 9 S. SURFACE COLLECTION SYSTEM**

TEST NUMBER 5A, 7A, 12A, 13A, 15A, 18A & 22A WERE RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND WERE RE-TESTED

1 Of 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	4/7/98	NO	125' E x 100' N GE-49		PG	WX-175	122.9	132.1	118.5	11.5	96.4	P	LFP 1 AREA UNDER FUTURE ASPHALT RD.
2	4/7/98	NO	80' N x 155' E GE-49		PG	WX-175	122.9	133.2	120.7	10.4	98.2	P	LFP 1 AREA UNDER FUTURE ASPHALT RD.
3	4/7/98	REQ'D	100' E x 125' N GE-49		PG	WX-175	122.9	129.0	116.0	11.2	94.4	F	LFP 1 AREA UNDER FUTURE ASPHALT RD.
4	4/7/98	NO	70' N x 170' E GE-49		PG	WX-175	122.9	130.1	118.0	10.3	96.0	P	LFP 1 AREA UNDER FUTURE ASPHALT RD.
3A	4/7/98	REQ'D	100' E x 125' N GE-49		PG	WX-175	122.9	129.0	116.0	11.2	94.4	F	LFP 1 AREA UNDER FUTURE ASPHALT RD.
TEST NUMBER 3A WAS RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND WAS RE-TESTED													

1 OF 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% OF ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 2633 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	4/6/98	NO	100' S Of Scale House		PG	Wx-175	122.9	132.1	118.5	11.5	96.4	P	LFP 5 & 9 S. SURFACE COLLECTION SYSTEM
2	4/6/98	NO	150' S Of Scale House		PG	Wx-175	122.9	133.2	120.7	10.4	98.2	P	LFP 5 & 9 S. SURFACE COLLECTION SYSTEM
3	**4/6/98**	**REQ'D**	**200' S Of Scale House**		**PG**	**Wx-175**	**122.9**	**129.0**	**116.0**	**11.2**	**94.4**	**F**	**LFP 5 & 9 S. SURFACE COLLECTION SYSTEM**
4	4/6/98	NO	200' S x 50' E Of Scale House		PG	Wx-175	122.9	130.1	118.0	10.3	96.0	P	LFP 5 & 9 S. SURFACE COLLECTION SYSTEM
5	4/6/98	NO	150' S x 50' E Of Scale House		PG	Wx-175	122.9	132.3	122.7	7.9	99.8	P	LFP 5 & 9 S. SURFACE COLLECTION SYSTEM
6	**4/6/98**	**REQ'D**	**100' S x 50' E Of Scale House**		**PG**	**Wx-175**	**122.9**	**129.3**	**115.5**	**11.9**	**94.0**	**F**	**LFP 5 & 9 S. SURFACE COLLECTION SYSTEM**
7	4/6/98	NO	120' S x 80' E Of Scale House		PG	Wx-175	122.9	131.6	120.2	9.5	97.8	P	LFP 5 & 9 S. SURFACE COLLECTION SYSTEM
8	**4/6/98**	**REQ'D**	**110' S x 50' W Of Scale House**		**PG**	**Wx-175**	**122.9**	**127.7**	**114.5**	**11.5**	**93.2**	**F**	**LFP 5 & 9 S. SURFACE COLLECTION SYSTEM**
9	4/6/98	NO	150' S x 50' W Of Scale House		PG	Wx-175	122.9	132.9	119.2	11.5	97.0	P	LFP 5 & 9 S. SURFACE COLLECTION SYSTEM
10	**4/6/98**	**REQ'D**	**100' S x 100' W Of Scale House**		**PG**	**Wx-175**	**122.9**	**127.0**	**115.5**	**9.9**	**94.0**	**F**	**LFP 5 & 9 S. SURFACE COLLECTION SYSTEM**
11	4/6/98	NO	100' S x 150' W Of Scale House		PG	Wx-175	122.9	127.6	118.8	7.4	96.7	P	LFP 5 & 9 S. SURFACE COLLECTION SYSTEM
12	4/6/98	NO	130' S x 100' W Of Scale House		PG	Wx-175	122.9	129.4	117.1	10.5	95.3	P	LFP 5 & 9 S. SURFACE COLLECTION SYSTEM
13	4/6/98	NO	170' S x 100' W Of Scale House		PG	Wx-175	122.9	127.2	117.1	8.6	95.3	P	LFP 5 & 9 S. SURFACE COLLECTION SYSTEM
14	4/6/98	NO	225' S x 100' W Of Scale House		PG	Wx-175	122.9	128.7	116.8	10.2	95.0	P	LFP 5 & 9 S. SURFACE COLLECTION SYSTEM
3A	**4/6/98**	**NO**	**200' S Of Scale House**		**PG**	**Wx-175**	**122.9**	**131.4**	**118.4**	**11.0**	**96.3**	**P**	**LFP 5 & 9 S. SURFACE COLLECTION SYSTEM**
6A	**4/6/98**	**NO**	**100' S x 50' E Of Scale House**		**PG**	**Wx-175**	**122.9**	**132.6**	**119.5**	**11.0**	**97.2**	**P**	**LFP 5 & 9 S. SURFACE COLLECTION SYSTEM**
8A	**4/6/98**	**NO**	**110' S x 50' W Of Scale House**		**PG**	**Wx-175**	**122.9**	**132.6**	**119.2**	**11.2**	**97.0**	**P**	**LFP 5 & 9 S. SURFACE COLLECTION SYSTEM**
10A	**4/6/98**	**NO**	**100' S x 100' W Of Scale House**		**PG**	**Wx-175**	**122.9**	**130.3**	**117.5**	**10.9**	**95.6**	**P**	**LFP 5 & 9 S. SURFACE COLLECTION SYSTEM**

TEST NUMBERED 3A, 6A, 8A & 10A WERE RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND WERE RE-TESTED

	1	Of	1	Tests Performed By YEC Personnel							SIGNATURE:		

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	4/1/98	NO	200' E x 50' N GE-49		PG	WX-175	122.9	129.0	117.4	9.9	95.5	P	LFP 8 WEST OF FLARE STATION
2	4/1/98	NO	200' Due East GE-49		PG	WX-175	122.9	130.1	117.9	10.4	95.9	P	LFP 8 WEST OF FLARE STATION
3	4/1/98	REQ'D	150' E x 100' N GE-48		PG	WX-175	122.9	126.6	114.5	10.5	93.2	F	LFP 8 WEST OF FLARE STATION
4	4/1/98	NO	150' E x 50' N GE-48		PG	WX-175	122.9	130.4	119.2	9.4	97.0	P	LFP 8 WEST OF FLARE STATION
5	4/1/98	REQ'D	150' Due East GE-48		PG	WX-175	122.9	122.2	110.9	10.2	90.2	F	LFP 8 WEST OF FLARE STATION
6	4/1/98	NO	120' Due East GE-49		PG	WX-175	122.9	130.5	118.2	10.4	96.2	P	LFP 8 WEST OF FLARE STATION
7	4/1/98	REQ'D	100' Due East GE-1		PG	WX-175	122.9	127.7	115.5	10.5	94.0	F	LFP 8 WEST OF FLARE STATION
8	4/1/98	NO	100' E x 60' N GE-1		PG	WX-175	122.9	129.2	117.5	10.0	95.6	P	LFP 8 WEST OF FLARE STATION
9	4/1/98	NO	100' E x120' N GE-1		PG	WX-175	122.9	130.1	119.8	8.6	97.5	P	LFP 8 WEST OF FLARE STATION
10	4/1/98	NO	75' Due East GE-48		PG	WX-175	122.9	127.9	118.8	7.6	96.7	P	LFP 8 WEST OF FLARE STATION
11	4/1/98	NO	75' E x 75 N GE-48		PG	WX-175	122.9	131.3	119.8	9.6	97.5	P	LFP 8 WEST OF FLARE STATION
12	4/1/98	NO	100' Due North GE-48		PG	WX-175	122.9	126.3	118.8	6.3	96.7	P	LFP 8 WEST OF FLARE STATION
13	4/1/98	NO	25' Due South GE-48		PG	WX-175	122.9	127.3	117.9	8.0	95.9	P	LFP 8 WEST OF FLARE STATION
14	4/1/98	REQ'D	75' Due East GE-49		PG	WX-175	122.9	128.9	116.6	10.5	94.9	F	LFP 8 WEST OF FLARE STATION
15	4/1/98	NO	150' E x 50' S GE-49		PG	WX-175	122.9	130.9	122.0	7.3	99.3	P	LFP 8 WEST OF FLARE STATION
16	4/1/98	REQ'D	30' S x 15' W GE-1		PG	WX-175	122.9	126.2	114.9	9.8	93.5	F	LFP 8 WEST OF FLARE STATION
17	4/1/98	REQ'D	30' S X 100' W GE-1		PG	WX-175	122.9	124.9	115.6	8.0	94.1	F	LFP 8 WEST OF FLARE STATION
18	4/1/98	REQ'D	50' N x 150' W GE-1		PG	WX-175	122.9	123.7	115.4	7.2	93.9	F	LFP 8 WEST OF FLARE STATION
19	4/1/98	REQ'D	30' S x 150' W GE-1		PG	WX-175	122.9	121.0	113.2	6.9	92.1	F	LFP 8 WEST OF FLARE STATION
3A	4/1/98	NO	150' E x 100' N GE-48		PG	WX-175	122.9	132.2	118.2	11.8	96.2	P	LFP 8 WEST OF FLARE STATION
5A	4/1/98	NO	150' Due East GE-48		PG	WX-175	122.9	125.3	117.9	6.3	95.9	P	LFP 8 WEST OF FLARE STATION
7A	4/1/98	NO	100' Due East GE-1		PG	WX-175	122.9	129.7	117.1	10.7	95.3	P	LFP 8 WEST OF FLARE STATION
14A	4/1/98	NO	75' Due East GE-49		PG	WX-175	122.9	129.5	117.7	10.0	95.8	P	LFP 8 WEST OF FLARE STATION
16A	4/1/98	NO	30' S x 15' W GE-1		PG	WX-175	122.9	131.6	118.6	11.0	96.5	P	LFP 8 WEST OF FLARE STATION
17A	4/1/98	NO	30' S X 100' W GE-1		PG	WX-175	122.9	131.7	118.1	11.5	96.1	P	LFP 8 WEST OF FLARE STATION
18A	4/1/98	NO	50' N x 150' W GE-1		PG	WX-175	122.9	132.1	117.9	12.1	95.9	P	LFP 8 WEST OF FLARE STATION
19A	4/1/98	NO	30' S x 150' W GE-1		PG	WX-175	122.9	132.8	118.5	12.1	96.4	P	LFP 8 WEST OF FLARE STATION

TESTS NUMBERED 3A, 5A, 7A, 14A, 16A, 17A, 18A & 19A WERE RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND WERE RE-TESTED

1 OF 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% OF ASTM 698, MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

MARCH '98

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	3/31/98	REQ'D	175' Due East of GE-49		PG	WX-175	122.9	127.0	114.5	10.9	93.2	F	LFP 8 WEST OF FLARE STATION
2	3/31/98	REQ'D	175' E x 50' N GE-49		PG	WX-175	122.9	129.4	115.5	12.0	94.0	F	LFP 8 WEST OF FLARE STATION
3	3/31/98	REQ'D	175' E x 100' N GE-49		PG	WX-175	122.9	128.6	115.0	11.8	93.6	F	LFP 8 WEST OF FLARE STATION
4	3/31/98	REQ'D	125' E x 100' N GE-49		PG	WX-175	122.9	124.1	114.9	8.0	93.5	F	LFP 8 WEST OF FLARE STATION
5	3/31/98	NO	240' E x 75' S GE-49		PG	WX-175	122.9	126.2	118.7	6.3	96.6	P	LFP 8 WEST OF FLARE STATION
6	3/31/98	REQ'D	150' E x 50' N GE-48		PG	WX-175	122.9	127.9	116.3	10.0	94.6	F	LFP 8 WEST OF FLARE STATION
7	3/31/98	NO	150' Due East GE-48		PG	WX-175	122.9	131.4	118.7	10.7	96.6	P	LFP 8 WEST OF FLARE STATION
8	3/31/98	REQ'D	200' Due East GE-1		PG	WX-175	122.9	129.4	115.5	12.0	94.0	F	LFP 8 WEST OF FLARE STATION
9	3/31/98	REQ'D	200' E x 75'S GE-1		PG	WX-175	122.9	128.8	114.9	12.1	93.5	F	LFP 8 WEST OF FLARE STATION
1A	3/31/98	NO	175' Due East of GE-49		PG	WX-175	122.9	131.4	118.4	11.0	96.3	P	LFP 8 WEST OF FLARE STATION
2A	3/31/98	NO	175' E x 50' N GE-49		PG	WX-175	122.9	131.0	118.0	11.0	96.0	P	LFP 8 WEST OF FLARE STATION
3A	3/31/98	NO	175' E x 100' N GE-49		PG	WX-175	122.9	131.4	117.9	11.5	95.9	P	LFP 8 WEST OF FLARE STATION
4A	3/31/98	NO	125' E x 100' N GE-49		PG	WX-175	122.9	130.2	118.4	10.0	96.3	P	LFP 8 WEST OF FLARE STATION
6A	3/31/98	NO	150' E x 50' N GE-48		PG	WX-175	122.9	129.8	117.5	10.5	95.6	P	LFP 8 WEST OF FLARE STATION
8A	3/31/98	NO	200' Due East GE-1		PG	WX-175	122.9	131.1	118.1	11.0	96.1	P	LFP 8 WEST OF FLARE STATION
9A	3/31/98	NO	200' E x 75'S GE-1		PG	WX-175	122.9	132.9	119.2	11.5	97.0	P	LFP 8 WEST OF FLARE STATION

TESTS NUMBERED 1A, 2A, 3A, 4A, 6A, 8A & 9A WERE RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND WERE RE-TESTED

	1	OF	1	Tests Performed By YEC Personnel	SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% OF ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NOVEMBER '97

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	11/25/97	REQ'D	250' S x 160' W CC #2		PG	WMX-160	121.3	127.8	113.8	12.3	93.8	F	LFP 1 BTWN SURFACE COLLECTION PIPES
2	11/25/97	NO	250' S x 220' W CC #2		PG	WMX-160	121.3	129.5	115.8	11.8	95.5	P	LFP 1 BTWN SURFACE COLLECTION PIPES
3	11/25/97	NO	330' S x 190' W CC #2		PG	WMX-160	121.3	129.6	116.0	11.8	95.6	P	LFP 1 BTWN SURFACE COLLECTION PIPES
4	11/25/97	REQ'D	450' S x 170' W CC #2		PG	WMX-160	121.3	127.8	114.0	12.1	94.0	F	LFP 1 BTWN SURFACE COLLECTION PIPES
5	11/25/97	REQ'D	465' S x 220' W CC #2		PG	WMX-160	121.3	126.7	113.3	11.8	93.4	F	LFP 1 BTWN SURFACE COLLECTION PIPES
6	11/25/97	NO	460' S x 270' W CC #2		PG	WMX-160	121.3	130.5	117.7	10.9	97.0	P	LFP 1 BTWN SURFACE COLLECTION PIPES
7	11/25/97	NO	460' S x 320' W CC #2		PG	WMX-160	121.3	130.4	116.2	12.2	95.8	P	LFP 1 BTWN SURFACE COLLECTION PIPES
8	11/25/97	REQ'D	375' S x 300' W CC #2		PG	WMX-160	121.3	129.4	114.6	12.9	94.5	F	LFP 1 BTWN SURFACE COLLECTION PIPES
9	11/25/97	REQ'D	240' S x 330' W CC #2		PG	WMX-160	121.3	127.7	114.3	11.8	94.2	F	LFP 1 BTWN SURFACE COLLECTION PIPES
10	11/25/97	REQ'D	240' S x 270' W CC #2		PG	WMX-160	121.3	128.9	115.0	12.1	94.8	F	LFP 1 BTWN SURFACE COLLECTION PIPES
11	11/25/97	REQ'D	100' N x 180' E GE-49		PG	WMX-160	121.3	129.0	114.7	12.4	94.6	F	LFP 1 BTWN SURFACE COLLECTION PIPES
12	11/25/97	NO	150' N x 70' E GE-49		PG	WMX-160	121.3	130.9	119.4	9.7	98.4	P	LFP 1 BTWN SURFACE COLLECTION PIPES
13	11/25/97	REQ'D	250' N x 80' E GE-49		PG	WMX-160	121.3	127.9	114.4	11.8	94.3	F	LFP 1 BTWN SURFACE COLLECTION PIPES
14	11/25/97	NO	310' N x 50' E GE-49		PG	WMX-160	121.3	129.3	115.8	11.6	95.5	P	LFP 1 BTWN SURFACE COLLECTION PIPES
15	11/25/97	REQ'D	190' W x 500' E CC #2		PG	WMX-160	121.3	127.8	114.0	12.1	94.0	F	LFP 1 BTWN SURFACE COLLECTION PIPES
16	11/25/97	REQ'D	300' W x 510' E CC #2		PG	WMX-160	121.3	127.5	114.0	11.8	94.0	F	LFP 1 BTWN SURFACE COLLECTION PIPES
1A	11/25/97	NO	250' S x 160' W CC #2		PG	WMX-160	121.3	131.5	117.4	12.0	96.8	P	LFP 1 BTWN SURFACE COLLECTION PIPES
4A	11/25/97	NO	450' S x 170' W CC #2		PG	WMX-160	121.3	130.4	116.4	12.0	96.0	P	LFP 1 BTWN SURFACE COLLECTION PIPES
5A	11/25/97	NO	465' S x 220' W CC #2		PG	WMX-160	121.3	129.3	116.0	11.5	95.6	P	LFP 1 BTWN SURFACE COLLECTION PIPES
8A	11/25/97	NO	375' S x 300' W CC #2		PG	WMX-160	121.3	130.4	116.4	12.0	96.0	P	LFP 1 BTWN SURFACE COLLECTION PIPES
9A	11/25/97	NO	240' S x 330' W CC #2		PG	WMX-160	121.3	131.5	117.9	11.5	97.2	P	LFP 1 BTWN SURFACE COLLECTION PIPES
10A	11/25/97	NO	240' S x 270' W CC #2		PG	WMX-160	121.3	132.5	118.3	12.0	97.5	P	LFP 1 BTWN SURFACE COLLECTION PIPES
11A	11/25/97	NO	100' N x 180' E GE-49		PG	WMX-160	121.3	133.1	118.9	12.0	98.0	P	LFP 1 BTWN SURFACE COLLECTION PIPES
13A	11/25/97	NO	250' N x 80' E GE-49		PG	WMX-160	121.3	131.0	118.0	11.0	97.3	P	LFP 1 BTWN SURFACE COLLECTION PIPES
15A	11/25/97	NO	190' W x 500' E CC #2		PG	WMX-160	121.3	129.7	116.8	11.0	96.3	P	LFP 1 BTWN SURFACE COLLECTION PIPES
16A	11/25/97	NO	300' W x 510' E CC #2		PG	WMX-160	121.3	131.5	117.9	11.5	97.2	P	LFP 1 BTWN SURFACE COLLECTION PIPES
TESTS NUMBERED 1A, 4A, 5A, 8A, 9A, 10A, 11A, 13A, 15A & 16A WERE RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND WERE RE-TESTED													
	1	OF	1	Tests Performed By YEC Personnel							SIGNATURE:		

REQUIREMENTS ~~ DENSITY: 95% OF ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	11/21/97	NO	240' DUE SOUTH CC #2		PG	WMX-160	121.3	131.4	116.1	13.2	95.7	P	LFP 1 BTWN SURFACE COLLECTION PIPES
2	11/21/97	REQ'D	290' S x 40' E CC #2		PG	WMX-160	121.3	127.9	113.7	12.5	93.7	F	LFP 1 BTWN SURFACE COLLECTION PIPES
3	11/21/97	REQ'D	330' S x 40' W CC #2		PG	WMX-160	121.3	127.0	113.4	12.0	93.5	F	LFP 1 BTWN SURFACE COLLECTION PIPES
4	11/21/97	REQ'D	430' S x 100' W CC #2		PG	WMX-160	121.3	130.4	114.5	13.9	94.4	F	LFP 1 BTWN SURFACE COLLECTION PIPES
5	11/21/97	REQ'D	380' S x 120' W CC #2		PG	WMX-160	121.3	129.0	114.9	12.3	94.7	F	LFP 1 BTWN SURFACE COLLECTION PIPES
6	11/21/97	REQ'D	320' S x 60' W CC #2		PG	WMX-160	121.3	127.8	114.0	12.1	94.0	F	LFP 1 BTWN SURFACE COLLECTION PIPES
7	11/21/97	REQ'D	250' S x 100' W CC #2		PG	WMX-160	121.3	127.4	114.0	11.7	94.0	F	LFP 1 BTWN SURFACE COLLECTION PIPES
2A	11/21/97	NO	290' S x 40' E CC #2		PG	WMX-160	121.3	128.9	116.1	11.0	95.7	P	LFP 1 BTWN SURFACE COLLECTION PIPES
3A	11/21/97	NO	330' S x 40' W CC #2		PG	WMX-160	121.3	129.7	116.8	11.0	96.3	P	LFP 1 BTWN SURFACE COLLECTION PIPES
4A	11/21/97	NO	430' S x 100' W CC #2		PG	WMX-160	121.3	130.4	116.9	11.5	96.4	P	LFP 1 BTWN SURFACE COLLECTION PIPES
5A	11/21/97	NO	380' S x 120' W CC #2		PG	WMX-160	121.3	131.5	118.1	11.3	97.4	P	LFP 1 BTWN SURFACE COLLECTION PIPES
6A	11/21/97	NO	320' S x 60' W CC #2		PG	WMX-160	121.3	128.0	115.2	11.1	95.0	P	LFP 1 BTWN SURFACE COLLECTION PIPES
7A	11/21/97	NO	250' S x 100' W CC #2		PG	WMX-160	121.3	129.5	116.0	11.7	95.6	P	LFP 1 BTWN SURFACE COLLECTION PIPES

TESTS NUMBERED 2A, 3A, 4A, 5A, 6A & 7A WERE RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND WERE RE-TESTED

	1	OF	1	Tests Performed By YEC Personnel							SIGNATURE:		

REQUIREMENTS ~~ DENSITY: 95% OF ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	11/20/97	REQ'D	100' E x 25' N GE-1		PG	WMX-160	121.3	124.1	111.0	11.8	91.5	F	LFP 8 EAST END PLATEAU AREA
2	11/20/97	REQ'D	100' E x 75' N GE-1		PG	WMX-160	121.3	124.8	111.4	12.1	91.8	F	LFP 8 EAST END PLATEAU AREA
3	11/20/97	REQ'D	100' E x 125' N GE-1		PG	WMX-160	121.3	126.9	113.5	11.8	93.6	F	LFP 8 EAST END PLATEAU AREA
4	11/20/97	REQ'D	100' E x 175' N GE-1		PG	WMX-160	121.3	124.6	110.6	12.6	91.2	F	LFP 8 EAST END PLATEAU AREA
5	11/20/97	REQ'D	25' DUE SOUTH GE-48		PG	WMX-160	121.3	123.9	110.7	11.9	91.3	F	LFP 8 EAST END PLATEAU AREA
6	11/20/97	REQ'D	75' DUE SOUTH GE-48		PG	WMX-160	121.3	127.2	113.5	12.0	93.6	F	LFP 8 EAST END PLATEAU AREA
7	11/20/97	REQ'D	125' DUE SOUTH GE-48		PG	WMX-160	121.3	123.5	109.8	12.5	90.5	F	LFP 8 EAST END PLATEAU AREA
8	11/20/97	REQ'D	50' E x 210' S GE-48		PG	WMX-160	121.3	121.2	108.0	12.3	89.0	F	LFP 8 EAST END PLATEAU AREA
1A	11/20/97	NO	100' E x 25' N GE-1		PG	WMX-160	121.3	130.5	117.1	11.5	96.5	P	LFP 8 EAST END PLATEAU AREA
2A	11/20/97	NO	100' E x 75' N GE-1		PG	WMX-160	121.3	129.0	116.0	11.2	95.6	P	LFP 8 EAST END PLATEAU AREA
3A	11/20/97	NO	100' E x 125' N GE-1		PG	WMX-160	121.3	129.4	116.8	10.8	96.3	P	LFP 8 EAST END PLATEAU AREA
4A	11/20/97	NO	100' E x 175' N GE-1		PG	WMX-160	121.3	130.4	116.8	11.6	96.3	P	LFP 8 EAST END PLATEAU AREA
5A	11/20/97	NO	25' DUE SOUTH GE-48		PG	WMX-160	121.3	130.6	117.7	11.0	97.0	P	LFP 8 EAST END PLATEAU AREA
6A	11/20/97	NO	75' DUE SOUTH GE-48		PG	WMX-160	121.3	130.3	117.4	11.0	96.8	P	LFP 8 EAST END PLATEAU AREA
7A	11/20/97	NO	125' DUE SOUTH GE-48		PG	WMX-160	121.3	130.1	116.7	11.5	96.2	P	LFP 8 EAST END PLATEAU AREA
8A	11/20/97	NO	50' E x 210' S GE-48		PG	WMX-160	121.3	129.2	115.5	11.9	95.2	P	LFP 8 EAST END PLATEAU AREA
ALL TESTS PERFORMED FOR THE DAY HAD TO BE RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND WERE RE-TESTED													
	1	OF	1	Tests Performed By YEC Personnel							SIGNATURE:		

REQUIREMENTS ~~ DENSITY: 95% OF ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 — Item 5B Structural Fill

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	11/19/97	REQ'D	30' N PERF HEAD,50' W LINE C	H9	PREP GR	WMX160	121.3	121.5	105.5	15.1	87.0	F	BAY 2 LFP 1
2	11/19/97	REQ'D	100' N PERF HEAD,20' W LINE C	H9	PREP GR	WMX160	121.3	116.7	104.3	11.9	86.0	F	BAY 2 LFP 1
3	11/19/97	REQ'D	180' N HEAD,80' W LINE C	H10	PREP GR	WMX160	121.3	122.9	107.1	14.7	88.3	F	BAY 2 LFP 1
4	11/19/97	REQ'D	220' N PERF HEAD,30' W LINE C	H10	PREP GR	WMX160	121.3	125.6	112.7	11.5	92.9	F	BAY 2 LFP 1
5	11/19/97	REQ'D	30' N PERF HEAD,30' W LINE B	I9	PREP GR	WMX160	121.3	128.3	112.8	13.7	93.0	F	BAY 1 LFP 1
6	11/19/97	REQ'D	100' N PERF HEAD,80' W LINE B	I9	PREP GR	WMX160	121.3	126.6	111.8	13.2	92.2	F	BAY 1 LFP 1
7	11/19/97	NO	160' N PERF HEAD,30' W LINE B	I10	PREP GR	WMX160	121.3	129.2	115.6	11.8	95.3	P	BAY 1 LFP 1
8	11/19/97	REQ'D	220' N PERF HEAD,60' W LINE B	I10	PREP GR	WMX160	121.3	127.0	111.6	13.8	92.0	F	BAY 1 LFP 1
9	11/19/97	REQ'D	30' N PERF HEAD,70' W LINE A	J9	PREP GR	WMX160	121.3	127.2	112.2	13.4	92.5	F	BAY 3 LFP 1
10	11/19/97	NO	100' N PERF HEAD,30' W LINE A	J9	PREP GR	WMX160	121.3	131.4	117.4	11.9	96.8	P	BAY 3 LFP 1
11	11/19/97	NO	140' N PERF HEAD,80' W LINE A	J10	PREP GR	WMX160	121.3	132.7	125.2	6.0	103.2	P	BAY 3 LFP 1
12	11/19/97	REQ'D	180' N PERF HEAD,50' W LINE A	J10	PREP GR	WMX160	121.3	120.2	105.2	14.3	86.7	F	BAY 3 LFP 1
1A	11/20/97	NO	30' N PERF HEAD,50' W LINE C	H9	PREP GR	WMX160	121.3	129.4	116.6	11.0	96.1	P	BAY 2 LFP 1
2A	11/20/97	NO	100' N PERF HEAD,20' W LINE C	H9	PREP GR	WMX160	121.3	130.9	117.4	11.5	96.8	P	BAY 2 LFP 1
3A	11/20/97	NO	180' N HEAD,80' W LINE C	H10	PREP GR	WMX160	121.3	130.6	117.7	11.0	97.0	P	BAY 2 LFP 1
4A	11/20/97	NO	220' N PERF HEAD,30' W LINE C	H10	PREP GR	WMX160	121.3	130.1	117.5	10.7	96.9	P	BAY 2 LFP 1
5A	11/20/97	NO	30' N PERF HEAD,30' W LINE B	I9	PREP GR	WMX160	121.3	131.8	117.8	11.9	97.1	P	BAY 1 LFP 1
6A	11/20/97	NO	100' N PERF HEAD,80' W LINE B	I9	PREP GR	WMX160	121.3	130.9	118.3	10.7	97.5	P	BAY 1 LFP 1
8A	11/20/97	NO	220' N PERF HEAD,60' W LINE B	I10	PREP GR	WMX160	121.3	131.0	118.9	10.2	98.0	P	BAY 1 LFP 1
9A	11/20/97	NO	30' N PERF HEAD,70' W LINE A	J9	PREP GR	WMX160	121.3	129.3	117.5	10.0	96.9	P	BAY 3 LFP 1
12A	11/20/97	NO	180' N PERF HEAD,50' W LINE A	J10	PREP GR	WMX160	121.3	128.7	116.3	10.6	95.9	P	BAY 3 LFP 1
ALL TESTS LISTED ABOVE WERE EXCAVATED DUE TO EXCESSIVE MOISTURE AND RE-TESTED AFTER THE PLACEMENT OF DRIER MATERIAL													
	1	Of	1	Tests Performed By YEC Personnel							SIGNATURE:		

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	11/17/97	REQ'D	255' S x 110' W RFW-13		1ST LIFT	CRP-02	126.1	128.1	114.8	11.6	91.0	F	LFP 1 AREA OF FORMER HS&G STOCKPILE
2	11/17/97	REQ'D	255' S x 160' W RFW-13		1ST LIFT	CRP-02	126.1	126.3	112.2	12.5	89.0	F	LFP 1 AREA OF FORMER HS&G STOCKPILE
1A	11/17/97	NO	255' S x 110' W RFW-13		1ST LIFT	CRP-02	126.1	134.8	121.4	11.0	96.3	P	LFP 1 AREA OF FORMER HS&G STOCKPILE
2A	11/17/97	NO	255' S x 160' W RFW-13		1ST LIFT	CRP-02	126.1	137.0	122.3	12.0	97.0	P	LFP 1 AREA OF FORMER HS&G STOCKPILE
TEST NUMBERED 1A & 2A WERE RE-ROLLED USING INGERSOLL-RAND ROLLER IR-115 AND WERE RE-TESTED													

1 OF 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% OF ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	11/13/97	REQ'D	190' W x 75' N RFW-13		4TH LIFT	CRP-02	126.1	131.1	117.4	11.7	93.1	F	LFP 1 AREA OF FORMER HS&G STOCKPILE
2	11/13/97	REQ'D	150' W x 75' N RFW-13		4TH LIFT	CRP-02	126.1	126.5	112.4	12.6	89.1	F	LFP 1 AREA OF FORMER HS&G STOCKPILE
3	11/13/97	REQ'D	75' N x 150' W RFW-13		5TH LIFT	CRP-02	126.1	130.8	117.7	11.2	93.3	F	LFP 1 AREA OF FORMER HS&G STOCKPILE
4	11/13/97	NO	75' N x 200' W RFW-13		5TH LIFT	CRP-02	126.1	134.3	123.6	8.7	98.0	P	LFP 1 AREA OF FORMER HS&G STOCKPILE
5	11/13/97	REQ'D	170' W x 120' S RFW-13		5TH LIFT	CRP-02	126.1	127.4	115.1	10.7	91.3	F	LFP 1 AREA OF FORMER HS&G STOCKPILE
6	11/13/97	NO	50' S x 50' E CC #2		PG	WMX-160	121.3	131.1	116.1	12.9	95.7	P	LFP 1 FORMER HS&G BTWN SURF. COLL. HEADERS
7	11/13/97	REQ'D	100' S x 40' E CC #2		PG	WMX-160	121.3	126.6	113.2	11.9	93.3	F	LFP 1 FORMER HS&G BTWN SURF. COLL. HEADERS
8	11/13/97	NO	170' S x 20' E CC #2		PG	WMX-160	121.3	133.3	118.9	12.1	98.0	P	LFP 1 FORMER HS&G BTWN SURF. COLL. HEADERS
9	11/13/97	NO	100' W x 30' S CC #2		PG	WMX-160	121.3	130.1	115.7	12.4	95.4	P	LFP 1 FORMER HS&G BTWN SURF. COLL. HEADERS
10	11/13/97	NO	140' W x 100' S CC #2		PG	WMX-160	121.3	130.5	115.5	13.0	95.2	P	LFP 1 FORMER HS&G BTWN SURF. COLL. HEADERS
11	11/13/97	REQ'D	90' W x 140' S CC #2		PG	WMX-160	121.3	129.2	114.5	12.8	94.4	F	LFP 1 FORMER HS&G BTWN SURF. COLL. HEADERS
12	11/13/97	NO	90' W x 200' S CC #2		PG	WMX-160	121.3	129.1	115.2	12.0	95.0	P	LFP 1 FORMER HS&G BTWN SURF. COLL. HEADERS
13	11/13/97	REQ'D	170' W x 60' S CC #2		PG	WMX-160	121.3	127.2	114.4	11.2	94.3	F	LFP 1 FORMER HS&G BTWN SURF. COLL. HEADERS
14	11/13/97	REQ'D	170' W x 150' S CC #2		PG	WMX-160	121.3	129.1	113.4	13.8	93.5	F	LFP 1 FORMER HS&G BTWN SURF. COLL. HEADERS
15	11/13/97	REQ'D	170' W x 200' S CC #2		PG	WMX-160	121.3	128.0	113.4	12.9	93.5	F	LFP 1 FORMER HS&G BTWN SURF. COLL. HEADERS
16	11/13/97	REQ'D	250' W x 70' S CC #2		PG	WMX-160	121.3	126.9	113.8	11.5	93.8	F	LFP 1 FORMER HS&G BTWN SURF. COLL. HEADERS
17	11/13/97	NO	250' W x 150' S CC #2		PG	WMX-160	121.3	129.3	115.5	12.0	95.2	P	LFP 1 FORMER HS&G BTWN SURF. COLL. HEADERS
1A	11/13/97	NO	190' W x 75' N RFW-13		4TH LIFT	CRP-02	126.1	133.9	121.2	10.5	96.1	P	LFP 1 AREA OF FORMER HS&G STOCKPILE
2A	11/13/97	NO	150' W x 75' N RFW-13		4TH LIFT	CRP-02	126.1	134.7	121.3	11.0	96.2	P	LFP 1 AREA OF FORMER HS&G STOCKPILE
3A	11/13/97	NO	75' N x 150' W RFW-13		5TH LIFT	CRP-02	126.1	135.4	121.4	11.5	96.3	P	LFP 1 AREA OF FORMER HS&G STOCKPILE
5A	11/13/97	NO	170' W x 120' S RFW-13		5TH LIFT	CRP-02	126.1	134.4	121.1	11.0	96.0	P	LFP 1 AREA OF FORMER HS&G STOCKPILE
7A	11/13/97	NO	100' S x 40' E CC #2		PG	WMX-160	121.3	129.9	116.8	11.2	96.3	P	LFP 1 FORMER HS&G BTWN SURF. COLL. HEADERS
11A	11/13/97	NO	90' W x 140' S CC #2		PG	WMX-160	121.3	131.0	116.9	12.0	96.4	P	LFP 1 FORMER HS&G BTWN SURF. COLL. HEADERS
13A	11/13/97	NO	170' W x 60' S CC #2		PG	WMX-160	121.3	131.2	118.0	11.2	97.3	P	LFP 1 FORMER HS&G BTWN SURF. COLL. HEADERS
14A	11/13/97	NO	170' W x 150' S CC #2		PG	WMX-160	121.3	131.1	117.1	12.0	96.5	P	LFP 1 FORMER HS&G BTWN SURF. COLL. HEADERS
15A	11/13/97	NO	170' W x 200' S CC #2		PG	WMX-160	121.3	130.8	116.8	12.0	96.3	P	LFP 1 FORMER HS&G BTWN SURF. COLL. HEADERS
16A	11/13/97	NO	250' W x 70' S CC #2		PG	WMX-160	121.3	130.7	117.8	11.0	97.1	P	LFP 1 FORMER HS&G BTWN SURF. COLL. HEADERS

TEST NUMBERED 1A, 2A, 3A, 5A, 7A, 11A, 13A, 14A, 15A & 16A WERE RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND WERE RE-TESTED

1	OF	1	Test Performed By YEC Personnel	SIGNATURE:	

REQUIREMENTS ~~ DENSITY: 95% OF ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	11/6/97	NO	30' N x 80' E GE-49		1ST LIFT	WMX-155	120.2	131.1	117.0	12.1	97.3	P	LFP 1 AREA OF FORMER HS&G STOCKPILE
2	**11/6/97**	**REQ'D**	**30' N x 40' E GE-49**		**1ST LIFT**	**WMX-155**	**120.2**	**126.3**	**113.7**	**11.1**	**94.6**	**F**	**LFP 1 AREA OF FORMER HS&G STOCKPILE**
3	11/6/97	NO	30' N x 60' W GE-49		1ST LIFT	WMX-155	120.2	133.8	119.7	11.8	99.6	P	LFP 1 AREA OF FORMER HS&G STOCKPILE
4	**11/6/97**	**REQ'D**	**50' S X 60' W GE-49**		**1ST LIFT**	**WMX-155**	**120.2**	**126.4**	**113.2**	**11.6**	**94.2**	**F**	**LFP 1 AREA OF FORMER HS&G STOCKPILE**
5	**11/6/97**	**REQ'D**	**50' DUE SOUTH GE-49**		**2ND LIFT**	**WMX-155**	**120.2**	**125.2**	**113.2**	**10.6**	**94.2**	**F**	**LFP 1 AREA OF FORMER HS&G STOCKPILE**
6	11/6/97	NO	50' S x 50' E GE-49		2ND LIFT	WMX-155	120.2	127.0	115.2	10.3	95.8	P	LFP 1 AREA OF FORMER HS&G STOCKPILE
7	11/6/97	NO	100' S x 80' E GE-49		2ND LIFT	WMX-155	120.2	127.8	115.8	10.4	96.3	P	LFP 1 AREA OF FORMER HS&G STOCKPILE
8	**11/6/97**	**REQ'D**	**100' DUE SOUTH GE-49**		**2ND LIFT**	**WMX-155**	**120.2**	**125.8**	**113.7**	**10.6**	**94.6**	**F**	**LFP 1 AREA OF FORMER HS&G STOCKPILE**
9	11/6/97	NO	100' S x 80' W GE-49		3RD LIFT	WMX-155	120.2	129.4	116.6	11.0	97.0	P	LFP 1 AREA OF FORMER HS&G STOCKPILE
10	11/6/97	NO	150' S x 90' W GE-49		3RD LIFT	WMX-155	120.2	130.3	117.8	10.6	98.0	P	LFP 1 AREA OF FORMER HS&G STOCKPILE
11	**11/6/97**	**REQ'D**	**150' DUE SOUTH GE-49**		**3RD LIFT**	**WMX-155**	**120.2**	**122.7**	**112.5**	**9.1**	**93.6**	**F**	**LFP 1 AREA OF FORMER HS&G STOCKPILE**
12	**11/6/97**	**REQ'D**	**200' DUE SOUTH GE-49**		**3RD LIFT**	**WMX-155**	**120.2**	**126.5**	**112.7**	**12.2**	**93.8**	**F**	**LFP 1 AREA OF FORMER HS&G STOCKPILE**
13	11/6/97	NO	20' DUE EAST GE-2		PG	WMX-155	120.2	126.8	115.0	10.2	95.7	P	LFP 8 EAST SLOPE < 100' CONTOUR
14	**11/6/97**	**REQ'D**	**20' DUE WEST GE-2**		**PG**	**WMX-155**	**120.2**	**125.8**	**113.7**	**10.6**	**94.6**	**F**	**LFP 8 EAST SLOPE < 100' CONTOUR**
15	11/6/97	NO	20' W x 50' S GE-2		PG	WMX-155	120.2	128.0	114.7	11.6	95.4	P	LFP 8 EAST SLOPE < 100' CONTOUR
16	11/6/97	NO	30' E x 50' S GE-2		PG	WMX-155	120.2	128.9	117.1	10.1	97.4	P	LFP 8 EAST SLOPE < 100' CONTOUR
17	**11/6/97**	**REQ'D**	**80' E x 50'S GE-2**		**PG**	**WMX-155**	**120.2**	**124.0**	**112.1**	**10.6**	**93.3**	**F**	**LFP 8 EAST SLOPE < 100' CONTOUR**
18	11/6/97	NO	25' W x 50' S GE-48		PG	WMX-155	120.2	129.2	117.0	10.5	97.3	P	LFP 8 EAST SLOPE < 100' CONTOUR
19	11/6/97	NO	25' W x 100' S GE-48		PG	WMX-155	120.2	127.5	116.8	9.1	97.2	P	LFP 8 EAST SLOPE < 100' CONTOUR
20	**11/6/97**	**REQ'D**	**75' W x 100' S GE-48**		**PG**	**WMX-155**	**120.2**	**122.7**	**112.5**	**9.1**	**93.6**	**F**	**LFP 8 EAST SLOPE < 100' CONTOUR**
2A	**11/6/97**	**NO**	**30' N x 40' E GE-49**		**1ST LIFT**	**WMX-155**	**120.2**	**129.1**	**115.8**	**11.5**	**96.3**	**P**	**LFP 1 AREA OF FORMER HS&G STOCKPILE**
4A	**11/6/97**	**NO**	**50' S X 60' W GE-49**		**1ST LIFT**	**WMX-155**	**120.2**	**130.9**	**116.8**	**12.0**	**97.2**	**P**	**LFP 1 AREA OF FORMER HS&G STOCKPILE**
5A	**11/6/97**	**NO**	**50' DUE SOUTH GE-49**		**2ND LIFT**	**WMX-155**	**120.2**	**129.7**	**116.8**	**11.0**	**97.2**	**P**	**LFP 1 AREA OF FORMER HS&G STOCKPILE**
8A	**11/6/97**	**NO**	**100' DUE SOUTH GE-49**		**2ND LIFT**	**WMX-155**	**120.2**	**127.6**	**116.0**	**10.0**	**96.5**	**P**	**LFP 1 AREA OF FORMER HS&G STOCKPILE**
11A	**11/6/97**	**NO**	**150' DUE SOUTH GE-49**		**3RD LIFT**	**WMX-155**	**120.2**	**127.0**	**116.0**	**9.5**	**96.5**	**P**	**LFP 1 AREA OF FORMER HS&G STOCKPILE**
12A	**11/6/97**	**NO**	**200' DUE SOUTH GE-49**		**3RD LIFT**	**WMX-155**	**120.2**	**130.6**	**116.6**	**12.0**	**97.0**	**P**	**LFP 1 AREA OF FORMER HS&G STOCKPILE**
14A	**11/6/97**	**NO**	**20' DUE WEST GE-2**		**PG**	**WMX-155**	**120.2**	**127.9**	**116.2**	**10.0**	**96.7**	**P**	**LFP 8 EAST SLOPE < 100' CONTOUR**
17A	**11/6/97**	**NO**	**80' E x 50'S GE-2**		**PG**	**WMX-155**	**120.2**	**128.0**	**116.4**	**10.0**	**96.8**	**P**	**LFP 8 EAST SLOPE < 100' CONTOUR**
20A	**11/6/97**	**NO**	**75' W x 100' S GE-48**		**PG**	**WMX-155**	**120.2**	**126.2**	**115.8**	**9.0**	**96.3**	**P**	**LFP 8 EAST SLOPE < 100' CONTOUR**

TEST NUMBERED 2A, 4A, 5A, 8A, 11A, 12A, 14A, 17A & 20A WERE RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND WERE RE-TESTED.

	1	OF	1	Tests Performed By YEC Personnel	SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% OF ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

OCTOBER '97

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	10/31/97	NO	300' N x 200' E GE-49		2ND LIFT	CRP-02	126.1	136.0	121.4	12.0	96.3	P	LFP 1 AREA OF FORMER HS&G STOCKPILE
2	10/31/97	NO	350' N x 200' E GE-49		2ND LIFT	CRP-02	126.1	134.8	120.8	11.6	95.8	P	LFP 1 AREA OF FORMER HS&G STOCKPILE
3	10/31/97	NO	400' N x 200' E GE-49		2ND LIFT	CRP-02	126.1	123.9	121.9	1.6	96.7	P	LFP 1 AREA OF FORMER HS&G STOCKPILE
4	10/31/97	REQ'D	80' S x 144' W RFW-13		2ND LIFT	HS-165	120.2	126.5	109.0	16.0	90.7	F	LFP 1 AREA OF FORMER HS&G STOCKPILE
5	10/31/97	REQ'D	90' S x 155' W RFW-13		2ND LIFT	HS-165	120.2	128.7	111.3	15.6	92.6	F	LFP 1 AREA OF FORMER HS&G STOCKPILE
6	10/31/97	REQ'D	100' S x 60' W RFW-13		3RD LIFT	HS-165	120.2	123.6	107.6	14.9	89.5	F	LFP 1 AREA OF FORMER HS&G STOCKPILE
7	10/31/97	REQ'D	100' S x 150' W RFW-13		3RD LIFT	HS-165	120.2	126.1	108.5	16.2	90.3	F	LFP 1 AREA OF FORMER HS&G STOCKPILE
8	10/31/97	REQ'D	100' S x 200' W RFW-13		2ND LIFT	HS-165	120.2	127.6	110.2	15.8	91.7	F	LFP 1 AREA OF FORMER HS&G STOCKPILE
9	10/31/97	REQ'D	200' DUE WEST RFW-13		2ND LIFT	HS-165	120.2	127.3	110.7	15.0	92.1	F	LFP 1 AREA OF FORMER HS&G STOCKPILE
10	10/31/97	REQ'D	150' DUE WEST RFW-13		3RD LIFT	HS-165	120.2	125.0	108.9	14.8	90.6	F	LFP 1 AREA OF FORMER HS&G STOCKPILE
11	10/31/97	REQ'D	150' W 150' S RFW-13		3RD LIFT	HS-165	120.2	125.6	108.1	16.2	89.9	F	LFP 1 AREA OF FORMER HS&G STOCKPILE
			SEE ADDENDUM										
4A	10/31/97	NO	80' S x 144' W RFW-13		2ND LIFT	HS 165	120.2	130.1	115.2	13.0	95.8	P	LFP 1 AREA OF FORMER HS&G STOCKPILE
5A	10/31/97	NO	90' S x 155' WRFW-13		2ND LIFT	HS-165	120.2	131.4	115.6	13.6	96.2	P	LFP 1 AREA OF FORMER HS&G STOCKPILE
6A	10/31/97	NO	100' S x 60' W RFW-13		3RD LIFT	HS-165	120.2	130.3	115.4	12.9	96.0	P	LFP 1 AREA OF FORMER HS&G STOCKPILE
7A	10/31/97	NO	100' S x 150' W RFW-13		3RD LIFT	HS-165	120.2	132.2	115.8	14.2	96.3	P	LFP 1 AREA OF FORMER HS&G STOCKPILE
8A	10/31/97	NO	100' S x 200' W RFW-13		2ND LIFT	HS-165	120.2	132.5	117.4	12.8	97.7	P	LFP 1 AREA OF FORMER HS&G STOCKPILE
9A	10/31/97	NO	200' DUE WEST RFW-13		2ND LIFT	HS-165	120.2	130.0	115.0	13.0	95.7	P	LFP 1 AREA OF FORMER HS&G STOCKPILE
10A	10/31/97	NO	150' DUE WEST RFW-13		3RD LIFT	HS-165	120.2	129.6	114.9	12.8	95.6	P	LFP 1 AREA OF FORMER HS&G STOCKPILE
11A	10/31/97	NO	150' W 150' S RFW-13		3RD LIFT	HS-165	120.2	130.0	115.6	12.4	96.2	P	LFP 1 AREA OF FORMER HS&G STOCKPILE
TESTS NUMBERED 4A, 5A, 6A , 6A, 7A, 8A, 9A & 10A WERE RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND WERE RE-TESTED FOLLOWING DAY WHEN MATERIAL WAS DRIER													
	1	OF	1	Tests Performed By YEC Personnel							SIGNATURE:		

REQUIREMENTS ~~ DENSITY: 95% OF ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 **Gauge Type ~~Troxler 3440** **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	10/30/97	NO	20' E x 320' S OF CCC #2		1 ST LIFT	CRP-02	126.1	131.7	122.2	7.8	96.9	P	LFP 1 AREA OF FORMER HS&G STOCKPILE
2	10/30/97	NO	300' DUE SOUTH OF CC #2		1 ST LIFT	CRP-02	126.1	131.9	121.8	8.3	96.6	P	LFP 1 AREA OF FORMER HS&G STOCKPILE
3	10/30/97	NO	250' DUE SOUTH OF CC #2		1 ST LIFT	CRP-02	126.1	133.9	122.1	9.7	96.8	P	LFP 1 AREA OF FORMER HS&G STOCKPILE
4	10/30/97	REQ'D	260' S x 20' E OF CC #2		1 ST LIFT	CRP-02	126.1	130.2	118.5	9.8	94.0	F	LFP 1 AREA OF FORMER HS&G STOCKPILE
5	10/30/97	NO	175' S x 20' E CC #2		1 ST LIFT	CRP-02	126.1	133.3	121.2	10.0	96.1	P	LFP 1 AREA OF FORMER HS&G STOCKPILE
4	10/30/97	NO	250' S x 20' E OF CC #2		1 ST LIFT	CRP-02	126.1	133.5	121.9	9.5	96.7	P	LFP 1 AREA OF FORMER HS&G STOCKPILE

1 OF 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% OF ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 **Gauge Type ~~Troxler 3440** **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	10/28/97	NO	200' DUE SOUTH OF CC #2		PG	CR-02	126.1	136.2	121.1	12.5	96.0	P	LFP 1 AREA OF FORMER HS&G STOCKPILE
2	10/28/97	NO	150' DUE SOUTH OF CC #2		PG	CR-02	126.1	134.8	121.2	11.2	96.1	P	LFP 1 AREA OF FORMER HS&G STOCKPILE
3	10/28/97	NO	150' S 50' W OF CC #2		PG	CR-02	126.1	134.8	121.4	11.0	96.3	P	LFP 1 AREA OF FORMER HS&G STOCKPILE

1 OF 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% OF ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 Item 5B Structural Fill

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	10/24/97	REQ'D	50' Due West of Drip Leg #4		PG	WX150	120.0	122.0	112.3	8.6	93.6	F	LFP 8 EAST SLOPE < 120' CONTOUR
2	10/24/97	REQ'D	100' Due West ofDrip Leg #4		PG	WX150	120.0	122.4	112.8	8.5	94.0	F	LFP 8 EAST SLOPE < 120' CONTOUR
3	10/24/97	REQ'D	100' W x 50' S of Drip Leg #4		PG	WX150	120.0	121.0	111.0	9.0	92.5	F	LFP 8 EAST SLOPE < 120' CONTOUR
4	10/24/97	REQ'D	50' W x 50' S of Drip Leg #4		PG	WX150	120.0	123.6	113.6	8.8	94.7	F	LFP 8 EAST SLOPE < 120' CONTOUR
5	10/24/97	NO	50' W x 125' S of Drip Leg #4		PG	WX150	120.0	126.3	115.7	9.2	96.4	P	LFP 8 EAST SLOPE < 120' CONTOUR
6	10/24/97	REQ'D	50' W x 150' S of Drip Leg #4		PG	WX150	120.0	124.0	113.0	9.7	94.2	F	LFP 8 EAST SLOPE < 120' CONTOUR
7	10/24/97	NO	100' E x 50' N GE-10		PG	WX145	121.7	128.7	119.3	7.9	98.0	P	LFP 8 EAST SLOPE < 120' CONTOUR
8	10/24/97	NO	100' E x 50' S GE-10		PG	WX145	121.7	126.8	116.6	8.8	95.8	P	LFP 8 EAST SLOPE < 120' CONTOUR
9	10/24/97	REQ'D	100' E x 150' S GE-10		PG	WX145	121.7	119.7	113.5	5.4	93.3	F	LFP 8 EAST SLOPE < 120' CONTOUR
10	10/24/97	REQ'D	100' E x 200' S GE-10		PG	WX145	121.7	121.4	114.5	6.0	94.1	F	LFP 8 EAST SLOPE < 120' CONTOUR
11	10/24/97	NO	100' E x 250' S GE-10		PG	WX145	121.7	126.0	118.4	6.4	97.3	P	LFP 8 EAST SLOPE < 120' CONTOUR
12	10/24/97	NO	100' E x 75' S GE-12		PG	WX145	121.7	126.5	118.7	6.6	97.5	P	LFP 8 EAST SLOPE < 120' CONTOUR
13	10/24/97	NO	100' E x 150' S GE-12		PG	WX145	121.7	124.4	117.7	5.7	96.7	P	LFP 8 EAST SLOPE < 120' CONTOUR
14	10/24/97	NO	25' W x 200' S GE-11		PG	WX145	121.7	123.6	116.7	5.9	95.9	P	LFP 8 EAST SLOPE < 120' CONTOUR
15	10/24/97	NO	25' W x 150' S GE-11		PG	WX145	121.7	124.2	116.8	6.3	96.0	P	LFP 8 EAST SLOPE < 120' CONTOUR
16	10/24/97	NO	25' W x 100' S GE-11		PG	WX145	121.7	127.2	119.1	6.8	97.9	P	LFP 8 EAST SLOPE < 120' CONTOUR
17	10/24/97	NO	25' Due West GE-11		PG	WX145	121.7	125.9	117.7	7.0	96.7	P	LFP 8 EAST SLOPE < 120' CONTOUR
18	10/24/97	NO	25' W x 50' N GE-11		PG	WX145	121.7	124.3	116.8	6.4	96.0	P	LFP 8 EAST SLOPE < 120' CONTOUR
19	10/24/97	NO	25' W x 100' N GE-11		PG	WX145	121.7	127.9	119.0	7.5	97.8	P	LFP 8 EAST SLOPE < 120' CONTOUR
20	10/24/97	REQ'D	25' x 200' N GE-11		PG	WX145	121.7	121.8	115.0	5.9	94.5	F	LFP 8 EAST SLOPE < 120' CONTOUR
21	10/24/97	NO	50' E x 200' N GE-11		PG	WX145	121.7	126.1	117.0	7.8	96.1	P	LFP 8 EAST SLOPE < 120' CONTOUR
22	10/24/97	NO	50' E x 150' N GE-11		PG	WX145	121.7	124.3	117.0	6.3	96.1	P	LFP 8 EAST SLOPE < 120' CONTOUR
23	10/24/97	REQ'D	50' E x 100' N GE-11		PG	WX145	121.7	123.3	113.9	8.2	93.6	F	LFP 8 EAST SLOPE < 120' CONTOUR
24	10/24/97	NO	50' E x 50' N GE-11		PG	WX145	121.7	124.7	115.9	7.6	95.2	P	LFP 8 EAST SLOPE < 120' CONTOUR
25	10/24/97	NO	50' Due East GE-11		PG	WX145	121.7	121.5	115.7	5.0	95.1	P	LFP 8 EAST SLOPE < 120' CONTOUR
1A	10/24/97	NO	50' Due West of Drip Leg #4		PG	WX150	120.0	125.2	115.3	8.6	96.1	P	LFP 8 EAST SLOPE < 120' CONTOUR
2A	10/24/97	NO	100' Due West ofDrip Leg #4		PG	WX150	120.0	125.0	115.2	8.5	96.0	P	LFP 8 EAST SLOPE < 120' CONTOUR
3A	10/24/97	NO	100' W x 50' S of Drip Leg #4		PG	WX150	120.0	125.3	115.0	9.0	95.8	P	LFP 8 EAST SLOPE < 120' CONTOUR

TEST NUMBERED 1A, 2A &3A WERE RECOMPACTED USING INGERSOLL-RAND ROLLER AND WERE RE-TESTED

1 OF 2 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% OF ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
4A	10/24/97	NO	50' W x 50' S of Drip Leg #4		PG	WX150	120.0	126.9	116.6	8.8	97.8	P	LFP 8 EAST SLOPE < 120' CONTOUR
6A	10/24/97	NO	50' W x 150' S of Drip Leg #4		PG	WX150	120.0	127.7	116.4	9.7	97.0	P	LFP 8 EAST SLOPE < 120' CONTOUR
9A	10/24/97	NO	100' E x 150' S GE-10		PG	WX145	121.7	123.5	117.2	5.4	96.3	P	LFP 8 EAST SLOPE < 120' CONTOUR
10A	10/24/97	NO	100' E x 200' S GE-10		PG	WX145	121.7	124.0	117.0	6.0	96.1	P	LFP 8 EAST SLOPE < 120' CONTOUR
20A	10/24/97	NO	25' x 200' N GE-11		PG	WX145	121.7	124.4	117.4	5.9	96.5	P	LFP 8 EAST SLOPE < 120' CONTOUR
23A	10/24/97	NO	50' E x 100' N GE-11		PG	WX145	121.7	129.0	119.3	8.2	98.0	P	LFP 8 EAST SLOPE < 120' CONTOUR
TEST NUMBERED 4A, 6A 9A, 10A, 20A & 23A WERE RECOMPACTED USING INGERSOLL-RAND ROLLER AND WERE RE-TESTED													

	2	OF	2	Tests Performed By YEC Personnel	SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% OF ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	10/23/97	REQ'D	100' W x 100' N GE-2		PG	WX-150	120.0	121.4	112.4	8.0	93.7	F	LFP 8 EAST SLOPE < 120' CONTOUR
2	10/23/97	REQ'D	100' Due West GE-2		PG	WX-150	120.0	122.4	112.8	8.5	94.0	F	LFP 8 EAST SLOPE < 120' CONTOUR
3	10/23/97	REQ'D	100' W x 75' S GE-2		PG	WX-150	120.0	121.9	113.3	7.6	94.4	F	LFP 8 EAST SLOPE < 120' CONTOUR
1A	10/23/97	NO	100' W x 100' N GE-2		PG	WX-150	120.0	125.9	116.0	8.5	96.7	P	LFP 8 EAST SLOPE < 120' CONTOUR
2A	10/23/97	NO	100' Due West GE-2		PG	WX-150	120.0	125.6	115.2	9.0	96.0	P	LFP 8 EAST SLOPE < 120' CONTOUR
3A	10/23/97	NO	100' W x 75' S GE-2		PG	WX-150	120.0	126.1	116.5	8.2	97.1	P	LFP 8 EAST SLOPE < 120' CONTOUR
ALL TESTS WERE RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-1115 AND WERE RE-TESTED													

1 Of 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	10/22/97	NO	25' E x 50' N GE-51		PG	WX-140	124.1	127.4	119.4	6.7	96.2	P	LFP 8 EAST SLOPE < 120' CONTOUR
2	10/22/97	NO	25' e x 100' N GE-51		PG	WX-140	124.1	129.2	121.0	6.8	97.5	P	LFP 8 EAST SLOPE < 120' CONTOUR
3	10/22/97	NO	50' E x 150' N GE-51		PG	WX-140	124.1	126.3	118.9	6.2	95.8	P	LFP 8 EAST SLOPE < 120' CONTOUR
4	**10/22/97**	**REQ'D**	**100' N x 150' E GE-51**		**PG**	**WX-140**	**124.1**	**125.9**	**117.8**	**6.9**	**94.9**	**F**	**LFP 8 EAST SLOPE < 120' CONTOUR**
5	10/22/97	NO	50' N x 150' E GE-51		PG	WX-140	124.1	128.8	120.1	7.2	96.8	P	LFP 8 EAST SLOPE < 120' CONTOUR
6	10/22/97	NO	50' SW GE-51		PG	WX-140	124.1	128.2	119.3	7.5	96.1	P	LFP 8 EAST SLOPE < 120' CONTOUR
4A	**10/22/97**	**NO**	**100' N x 150' E GE-51**		**PG**	**WX-140**	**124.1**	**129.4**	**120.4**	**7.5**	**97.0**	**P**	**LFP 8 EAST SLOPE < 120' CONTOUR**
TEST NUMBERED 4A WAS RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND WAS RE-TESTED													

1 Of 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	10/21/97	REQ'D	50' W x 50' S GE-50		PG	WX-145	121.7	122.9	112.5	9.3	92.4	F	LFP 8 EAST SLOPE < 120' CONTOUR
3	10/21/97	REQ'D	100' W x 50' S GE-50		PG	WX-145	121.7	126.3	113.5	11.3	93.3	F	LFP 8 EAST SLOPE < 120' CONTOUR
4	10/21/97	REQ'D	75' W x 50' N GE-3		PG	WX-145	121.7	123.0	115.4	6.6	94.8	F	LFP 8 EAST SLOPE < 120' CONTOUR
5	10/21/97	NO	75' W x 100' N GE-3		PG	WX-145	121.7	127.5	117.7	8.3	96.7	P	LFP 8 EAST SLOPE < 120' CONTOUR
6	10/21/97	REQ'D	25' W x 100' N GE-3		PG	WX-145	121.7	125.9	115.2	9.2	94.7	F	LFP 8 EAST SLOPE < 120' CONTOUR
7	10/21/97	REQ'D	25' W x 50' N GE-3		PG	WX-145	121.7	123.7	113.8	8.7	93.5	F	LFP 8 EAST SLOPE < 120' CONTOUR
8	10/21/97	NO	25' E x 50' N GE-3		PG	WX-140	124.1	129.2	121.0	6.8	97.5	P	LFP 8 EAST SLOPE < 120' CONTOUR
9	10/21/97	NO	25' Due North Drip Leg 5		PG	WX-140	124.1	129.2	119.6	8.0	96.4	P	LFP 8 EAST SLOPE < 120' CONTOUR
10	10/21/97	NO	50' Due North Drip Leg 5		PG	WX-140	124.1	129.3	120.3	7.5	96.9	P	LFP 8 EAST SLOPE < 120' CONTOUR
11	10/21/97	NO	50' E x 75' S GE-51		PG	WX-140	124.1	128.9	119.9	7.5	96.6	P	LFP 8 EAST SLOPE < 120' CONTOUR
12	10/21/97	REQ'D	50' Due East GE-51		PG	WX-140	124.1	125.6	116.5	7.8	93.9	F	LFP 8 EAST SLOPE < 120' CONTOUR
13	10/21/97	REQ'D	50' E x 50' N GE-51		PG	WX-140	124.1	125.9	117.6	7.0	94.8	F	LFP 8 EAST SLOPE < 120' CONTOUR
14	10/21/97	REQ'D	100' E x 50' N GE-51		PG	WX-140	124.1	128.1	117.8	8.8	94.9	F	LFP 8 EAST SLOPE < 120' CONTOUR
15	10/21/97	REQ'D	100' Due East GE-51		PG	WX-140	124.1	127.2	117.2	8.6	94.4	F	LFP 8 EAST SLOPE < 120' CONTOUR
16	10/21/97	NO	100' E x 50' S GE-51		PG	WX-140	124.1	128.4	119.3	7.7	96.1	P	LFP 8 EAST SLOPE < 120' CONTOUR
17	10/21/97	NO	25' E x 50' N GE-51		PG	WX-140	124.1	127.4	119.4	6.7	96.2	P	LFP 8 EAST SLOPE < 120' CONTOUR
18	10/21/97	NO	25' E x 100' N GE-51		PG	WX-140	124.1	129.2	121.0	6.8	97.5	P	LFP 8 EAST SLOPE < 120' CONTOUR
19	10/21/97	NO	50' E x 150' N GE-51		PG	WX-140	124.1	126.3	118.9	6.2	95.8	P	LFP 8 EAST SLOPE < 120' CONTOUR
20	10/21/97	REQ'D	100' N x 150' E GE-51		PG	WX-140	124.1	125.9	117.8	6.9	94.9	F	LFP 8 EAST SLOPE < 120' CONTOUR
21	10/21/97	NO	50' N x 150' E GE-51		PG	WX-140	124.1	128.8	120.1	7.2	96.8	P	LFP 8 EAST SLOPE < 120' CONTOUR
22	10/21/97	NO	50' Due South GE-47		PG	WX-140	124.1	128.2	119.3	7.5	96.1	P	LFP 8 EAST SLOPE < 120' CONTOUR
1A	10/21/97	NO	50' W x 50' S GE-50		PG	WX-145	121.7	128.8	118.2	9.0	97.1	P	LFP 8 EAST SLOPE < 120' CONTOUR
3A	10/21/97	NO	100' W x 50' S GE-50		PG	WX-145	121.7	130.9	117.9	11.0	96.9	P	LFP 8 EAST SLOPE < 120' CONTOUR
4A	10/21/97	NO	75' W x 50' N GE-3		PG	WX-145	121.7	126.3	118.0	7.0	97.0	P	LFP 8 EAST SLOPE < 120' CONTOUR
6A	10/21/97	NO	25' W x 100' N GE-3		PG	WX-145	121.7	129.3	118.7	9.0	97.5	P	LFP 8 EAST SLOPE < 120' CONTOUR
7A	10/21/97	NO	25' W x 50' N GE-3		PG	WX-145	121.7	128.5	118.4	8.5	97.3	P	LFP 8 EAST SLOPE < 120' CONTOUR
12A	10/21/97	NO	50' Due East GE-51		PG	WX-140	124.1	131.3	121.6	8.0	98.0	P	LFP 8 EAST SLOPE < 120' CONTOUR
13A	10/21/97	NO	50' E x 50' N GE-51		PG	WX-140	124.1	130.1	120.3	8.2	96.9	P	LFP 8 EAST SLOPE < 120' CONTOUR
14A	10/21/97	NO	100' E x 50' N GE-51		PG	WX-140	124.1	130.8	121.0	8.1	97.5	P	LFP 8 EAST SLOPE < 120' CONTOUR
15A	10/21/97	NO	100' Due East GE-51		PG	WX-140	124.1	132.6	121.6	9.0	98.0	P	LFP 8 EAST SLOPE < 120' CONTOUR
20A	10/21/97	NO	100' N x 150' E GE-51		PG	WX-140	124.1	129.4	120.4	7.5	97.0	P	LFP 8 EAST SLOPE < 120' CONTOUR

ALL FAILED TESTS WERE RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND WERE RE-TESTED

1 Of 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	10/20/97	NO	50' N x 50' E GE-7		PG	WX-140	124.1	132.7	122.7	8.1	98.9	P	LFP 8 EAST SLOPE < 120' CONTOUR
2	**10/20/97**	**REQ'D**	**100' N x 50' E GE-7**		**PG**	**WX-140**	**124.1**	**126.7**	**116.8**	**8.5**	**94.1**	**F**	**LFP 8 EAST SLOPE < 120' CONTOUR**
3	10/20/97	NO	100' N x 100' E GE-7		PG	WX-140	124.1	129.5	119.5	8.4	96.3	P	LFP 8 EAST SLOPE < 120' CONTOUR
4	**10/20/97**	**REQ'D**	**100' Due East GE-7**		**PG**	**WX-140**	**124.1**	**127.6**	**117.5**	**8.6**	**94.7**	**F**	**LFP 8 EAST SLOPE < 120' CONTOUR**
5	10/20/97	NO	150' Due East GE-7		PG	WX-140	124.1	126.3	118.0	7.0	95.1	P	LFP 8 EAST SLOPE < 120' CONTOUR
6	10/20/97	NO	50' E x 150' N GE-7		PG	WX-140	124.1	132.3	121.4	9.0	97.8	P	LFP 8 EAST SLOPE < 120' CONTOUR
7	10/20/97	NO	25' Wx 50' S GE-3		PG	WX-140	124.1	128.2	118.1	8.5	95.2	P	LFP 8 EAST SLOPE < 120' CONTOUR
8	**10/20/97**	**REQ'D**	**50' E x 75' S GE-3**		**PG**	**WX-140**	**124.1**	**126.6**	**117.6**	**7.6**	**94.8**	**F**	**LFP 8 EAST SLOPE < 120' CONTOUR**
9	**10/20/97**	**REQ'D**	**75' Due South Drip Leg 5**		**PG**	**WX-140**	**124.1**	**127.5**	**117.6**	**8.4**	**94.8**	**F**	**LFP 8 EAST SLOPE < 120' CONTOUR**
2A	**10/20/97**	**NO**	**100' N x 50' E GE-7**		**PG**	**WX-140**	**124.1**	**130.3**	**119.5**	**9.0**	**96.3**	**P**	**LFP 8 EAST SLOPE < 120' CONTOUR**
4A	**10/20/97**	**NO**	**100' Due East GE-7**		**PG**	**WX-140**	**124.1**	**131.5**	**120.5**	**9.1**	**97.1**	**P**	**LFP 8 EAST SLOPE < 120' CONTOUR**
8A	**10/20/97**	**NO**	**50' E x 75' S GE-3**		**PG**	**WX-140**	**124.1**	**131.3**	**121.6**	**8.0**	**98.0**	**P**	**LFP 8 EAST SLOPE < 120' CONTOUR**
9A	**10/20/97**	**NO**	**75' Due South Drip Leg 5**		**PG**	**WX-140**	**124.1**	**131.4**	**121.0**	**8.6**	**97.5**	**P**	**LFP 8 EAST SLOPE < 120' CONTOUR**
TESTS NUMBERED 2A, 4A, 8A & 9A WERE RE-COMPACTED USING INGERSOLL-RAND ROLLER AND WERE RE-TESTED													

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	10/17/97	NO	25' N x 70' W GE-15		PG	WX-140	124.1	134.1	123.9	8.3	99.8	P	LFP 8 EAST SLOPE < 120' CONTOUR
2	10/17/97	NO	75' N x 70' W GE-15		PG	WX-140	124.1	129.7	118.5	9.4	95.5	P	LFP 8 EAST SLOPE < 120' CONTOUR
3	10/17/97	NO	150' N x 70' W GE-15		PG	WX-140	124.1	131.5	117.9	11.6	95.0	P	LFP 8 EAST SLOPE < 120' CONTOUR
4	**10/17/97**	**REQ'D**	**200' N x 70' W GE-15**		**PG**	**WX-140**	**124.1**	**124.5**	**112.7**	**10.5**	**90.8**	**F**	**LFP 8 EAST SLOPE < 120' CONTOUR**
5	**10/17/97**	**REQ'D**	**200' N x 30' W GE-15**		**PG**	**WX-140**	**124.1**	**129.4**	**117.6**	**10.0**	**94.8**	**F**	**LFP 8 EAST SLOPE < 120' CONTOUR**
6	**10/17/97**	**REQ'D**	**150' N x 30' W GE-15**		**PG**	**WX-140**	**124.1**	**124.7**	**113.3**	**10.1**	**91.3**	**F**	**LFP 8 EAST SLOPE < 120' CONTOUR**
7	**10/17/97**	**REQ'D**	**150' N x 30' W GE-15**		**PG**	**WX-140**	**124.1**	**124.7**	**113.3**	**10.1**	**91.3**	**F**	**LFP 8 EAST SLOPE < 120' CONTOUR**
8	**10/17/97**	**REQ'D**	**50' N x 30' W GE-15**		**PG**	**WX-140**	**124.1**	**125.8**	**115.4**	**9.0**	**93.0**	**F**	**LFP 8 EAST SLOPE < 120' CONTOUR**
9	10/17/97	NO	25' E x 50' N GE-15		PG	WX-140	124.1	132.9	121.0	9.8	97.5	P	LFP 8 EAST SLOPE < 120' CONTOUR
10	10/17/97	NO	25' E x 100' N GE-15		PG	WX-140	124.1	132.1	121.1	9.1	97.6	P	LFP 8 EAST SLOPE < 120' CONTOUR
11	10/17/97	NO	25' E x 150' N GE-15		PG	WX-140	124.1	129.7	118.6	9.3	95.6	P	LFP 8 EAST SLOPE < 120' CONTOUR
12	10/17/97	NO	125' Due East GE-15		PG	WX-145	121.7	129.1	118.7	8.8	97.5	P	LFP 8 EAST SLOPE < 120' CONTOUR
13	10/17/97	NO	125' E x 50' N GE-15		PG	WX-145	121.7	126.5	117.0	8.2	96.1	P	LFP 8 EAST SLOPE < 120' CONTOUR
14	10/17/97	NO	125' E x 100' N GE-15		PG	WX-145	121.7	124.6	116.6	6.9	95.8	P	LFP 8 EAST SLOPE < 120' CONTOUR
15	10/17/97	NO	125' Due East GE-12		PG	WX-145	121.7	134.8	122.3	10.2	100.5	P	LFP 8 EAST SLOPE < 120' CONTOUR
16	10/17/97	NO	25' E x 50' N GE-12		PG	WX-145	121.7	126.7	116.0	9.2	95.3	P	LFP 8 EAST SLOPE < 120' CONTOUR
17	10/17/97	NO	25' E x 100' N GE-12		PG	WX-145	121.7	127.0	116.2	9.3	95.5	P	LFP 8 EAST SLOPE < 120' CONTOUR
18	10/17/97	NO	25' E x 150' N GE-12		PG	WX-145	121.7	127.7	117.4	8.7	96.5	P	LFP 8 EAST SLOPE < 120' CONTOUR
19	10/17/97	NO	50' W x 150' N GE-12		PG	WX-145	121.7	129.7	117.9	10.0	96.9	P	LFP 8 EAST SLOPE < 120' CONTOUR
20	10/17/97	NO	50' W x 100' N GE-12		PG	WX-145	121.7	127.8	117.1	9.2	96.2	P	LFP 8 EAST SLOPE < 120' CONTOUR
21	10/17/97	NO	50' W x 50' N GE-12		PG	WX-145	121.7	129.5	119.5	8.4	98.2	P	LFP 8 EAST SLOPE < 120' CONTOUR
22	10/17/97	NO	100' W x 50' N GE-12		PG	WX-145	121.7	129.5	119.5	8.4	98.2	P	LFP 8 EAST SLOPE < 120' CONTOUR
23	10/17/97	NO	100' W x 100' N GE-12		PG	WX-145	121.7	130.2	119.0	9.4	97.8	P	LFP 8 EAST SLOPE < 120' CONTOUR
24	10/17/97	NO	100' W x 150' N GE-12		PG	WX-145	121.7	128.1	117.6	9.0	96.6	P	LFP 8 EAST SLOPE < 120' CONTOUR
4A	**10/17/97**	**NO**	**200' N x 70' W GE-15**		**PG**	**WX-140**	**124.1**	**132.7**	**120.6**	**10.0**	**97.2**	**P**	**LFP 8 EAST SLOPE < 120' CONTOUR**
5A	**10/17/97**	**NO**	**200' N x 30' W GE-15**		**PG**	**WX-140**	**124.1**	**132.5**	**120.3**	**10.2**	**96.9**	**P**	**LFP 8 EAST SLOPE < 120' CONTOUR**
6A	**10/17/97**	**NO**	**150' N x 30' W GE-15**		**PG**	**WX-140**	**124.1**	**132.5**	**120.4**	**10.1**	**97.0**	**P**	**LFP 8 EAST SLOPE < 120' CONTOUR**
7A	**10/17/97**	**NO**	**150' N x 30' W GE-15**		**PG**	**WX-140**	**124.1**	**131.0**	**119.0**	**10.1**	**95.9**	**P**	**LFP 8 EAST SLOPE < 120' CONTOUR**
8A	**10/17/97**	**NO**	**50' N x 30' W GE-15**		**PG**	**WX-140**	**124.1**	**132.5**	**120.7**	**9.7**	**97.3**	**P**	**LFP 8 EAST SLOPE < 120' CONTOUR**

TEST NUMBERS 4A THROUGH 8A WERE RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND WERE RE-TESTED

1 Of 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698, MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	10/16/97	NO	210' N x 220' E GE-49		PG	WX-135	122.2	133.5	120.9	10.5	98.9	P	LFP 1 Between Surface Collection Headers
2	10/16/97	NO	270' N x 220' E GE-49		PG	WX-135	122.2	130.9	118.5	10.4	97.0	P	LFP 1 Between Surface Collection Headers
3	10/16/97	REQ'D	370' N x 220' E GE-49		PG	WX-135	122.2	127.0	115.4	10.1	94.4	F	LFP 1 Between Surface Collection Headers
4	10/16/97	REQ'D	470' N x 220' E GE-49		PG	WX-135	122.2	126.4	114.3	10.6	93.5	F	LFP 1 Between Surface Collection Headers
5	10/16/97	NO	560' N x 220' E GE-49		PG	WX-135	122.2	130.4	116.9	11.5	95.7	P	LFP 1 Between Surface Collection Headers
6	10/16/97	NO	560' N x 170' E GE-49		PG	WX-135	122.2	129.0	116.5	10.8	95.3	P	LFP 1 Between Surface Collection Headers
7	10/16/97	NO	470' N x 170' E GE-49		PG	WX-135	122.2	130.2	117.1	11.2	95.8	P	LFP 1 Between Surface Collection Headers
8	10/16/97	REQ'D	370' N x 170' E GE-49		PG	WX-135	122.2	126.7	114.7	10.4	93.9	F	LFP 1 Between Surface Collection Headers
9	10/16/97	REQ'D	260' N x 170' E GE-49		PG	WX-135	122.2	127.3	115.2	10.5	94.3	F	LFP 1 Between Surface Collection Headers
10	10/16/97	REQ'D	250' N x 90' E GE-49		PG	WX-135	122.2	127.0	114.4	11.0	93.6	F	LFP 1 Between Surface Collection Headers
11	10/16/97	NO	350' N x 90' E GE-49		PG	WX-135	122.2	131.0	118.4	10.6	96.9	P	LFP 1 Between Surface Collection Headers
12	10/16/97	REQ'D	450' N x 90' E GE-49		PG	WX-135	122.2	127.0	114.9	10.6	94.0	F	LFP 1 Between Surface Collection Headers
13	10/16/97	REQ'D	560' N x 90' E GE-49		PG	WX-135	122.2	127.2	114.4	11.2	93.6	F	LFP 1 Between Surface Collection Headers
3A	10/16/97	NO	370' N x 220' E GE-49		PG	WX-135	122.2	130.5	118.7	10.0	97.1	P	LFP 1 Between Surface Collection Headers
4A	10/16/97	NO	470' N x 220' E GE-49		PG	WX-135	122.2	130.5	118.4	10.2	96.9	P	LFP 1 Between Surface Collection Headers
8A	10/16/97	NO	370' N x 170' E GE-49		PG	WX-135	122.2	131.2	119.3	10.0	97.6	P	LFP 1 Between Surface Collection Headers
9A	10/16/97	NO	260' N x 170' E GE-49		PG	WX-135	122.2	131.7	119.8	10.0	98.0	P	LFP 1 Between Surface Collection Headers
10A	10/16/97	NO	250' N x 90' E GE-49		PG	WX-135	122.2	131.3	118.8	10.5	97.2	P	LFP 1 Between Surface Collection Headers
12A	10/16/97	NO	450' N x 90' E GE-49		PG	WX-135	122.2	129.0	117.2	10.1	95.9	P	LFP 1 Between Surface Collection Headers
13A	10/16/97	NO	560' N x 90' E GE-49		PG	WX-135	122.2	129.4	117.4	10.2	96.1	P	LFP 1 Between Surface Collection Headers

TESTS NUMBERED 3A, 4A, 8A, 9A, 10A, 12A & 13A WERE RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND WERE RE-TESTED

	1	Of	1	Tests Performed By YEC Personnel	SIGNATURE:	

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	10/16/97	NO	140' S x 40' W GE-15		PG	WX-140	124.1	133.5	124.0	7.7	99.9	P	LFP 8 EAST SLOPE < 120' CONTOUR
2	10/16/97	NO	75' S x 60' W GE-15		PG	WX-140	124.1	133.9	120.0	11.6	96.7	P	LFP 8 EAST SLOPE < 120' CONTOUR
3	10/16/97	NO	40' S x 60' W GE-15		PG	WX-140	124.1	135.5	122.1	11.0	98.4	P	LFP 8 EAST SLOPE < 120' CONTOUR
4	10/16/97	NO	20' N X 60' W GE-15		PG	WX-140	124.1	133.6	118.9	12.4	95.8	P	LFP 8 EAST SLOPE < 120' CONTOUR
5	10/16/97	NO	20' Due North GE-15		PG	WX-140	124.1	132.3	119.4	10.8	96.2	P	LFP 8 EAST SLOPE < 120' CONTOUR
6	10/16/97	NO	20' Due South GE-15		PG	WX-140	124.1	133.0	118.6	12.1	95.6	P	LFP 8 EAST SLOPE < 120' CONTOUR
7	10/16/97	NO	75' Due South GE-15		PG	WX-140	124.1	131.6	119.4	10.2	96.2	P	LFP 8 EAST SLOPE < 120' CONTOUR
8	10/16/97	NO	130' S x 50' E GE-15		PG	WX-140	124.1	129.6	121.1	7.0	97.6	P	LFP 8 EAST SLOPE < 120' CONTOUR
9	10/16/97	NO	130' S x 100' E GE-15		PG	WX-140	124.1	129.9	118.3	9.8	95.3	P	LFP 8 EAST SLOPE < 120' CONTOUR
10	**10/16/97**	**REQ'D**	**50' S x 100' E GE-15**		**PG**	**WX-145**	**121.7**	**126.2**	**113.4**	**11.3**	**93.2**	**F**	**LFP 8 EAST SLOPE < 120' CONTOUR**
11	**10/16/97**	**REQ'D**	**50' S x 50' E GE-15**		**PG**	**WX-145**	**121.7**	**127.7**	**113.3**	**12.7**	**93.1**	**F**	**LFP 8 EAST SLOPE < 120' CONTOUR**
12	10/16/97	NO	50' Due East GE-15		PG	WX-145	121.7	127.5	116.3	9.6	95.6	P	LFP 8 EAST SLOPE < 120' CONTOUR
10A	**10/16/97**	**NO**	**50' S x 100' E GE-15**		**PG**	**WX-145**	**121.7**	**130.0**	**117.1**	**11.0**	**96.2**	**P**	**LFP 8 EAST SLOPE < 120' CONTOUR**
11A	**10/16/97**	**NO**	**50' S x 50' E GE-15**		**PG**	**WX-145**	**121.7**	**132.1**	**117.9**	**12.0**	**96.9**	**P**	**LFP 8 EAST SLOPE < 120' CONTOUR**
TESTS NUMBERED 10A & 11A WERE RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND WAS RE-TESTED													

	1	Of	1	Tests Performed By YEC Personnel	SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	10/15/97	REQ'D	100' N 230' E GE-49		PG	WX-135	122.2	123.7	112.2	10.3	91.8	F	LFP 1 Between Surface Collection Headers
2	10/15/97	REQ'D	150' N 230' E GE-49		PG	WX-135	122.2	126.5	114.6	10.4	93.8	F	LFP 1 Between Surface Collection Headers
3	10/15/97	REQ'D	200' N x 230' E GE-49		PG	WX-135	122.2	123.1	111.9	10.0	91.6	F	LFP 1 Between Surface Collection Headers
4	10/15/97	REQ'D	250' N x 230' E GE-49		PG	WX-135	122.2	127.4	115.6	10.2	94.6	F	LFP 1 Between Surface Collection Headers
1A	10/15/97	NO	100' N 230' E GE-49		PG	WX-135	122.2	130.3	118.4	10.0	96.9	P	LFP 1 Between Surface Collection Headers
2A	10/15/97	NO	150' N 230' E GE-49		PG	WX-135	122.2	130.3	118.5	9.9	97.0	P	LFP 1 Between Surface Collection Headers
3A	10/15/97	NO	200' N x 230' E GE-49		PG	WX-135	122.2	129.4	118.2	9.5	96.7	P	LFP 1 Between Surface Collection Headers
4A	10/15/97	NO	250' N x 230' E GE-49		PG	WX-135	122.2	129.0	117.2	10.1	95.9	P	LFP 1 Between Surface Collection Headers
ALL TESTS WERE RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND WERE RE-TESTED													

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	10/13/97	REQ'D	350' N x 130' E GE-49		PG	WX-JFK	108.2	104.5	101.2	3.3	93.5	F	LFP 1 Between Surface Collection Headers
2	10/13/97	REQ'D	375' N x 110' E GE-49		PG	WX-JFK	108.2	104.6	102.1	2.4	94.4	F	LFP 1 Between Surface Collection Headers
3	10/13/97	REQ'D	300' N x 150' E GE-49		PG	WX-JFK	108.2	104.5	101.7	2.7	94.0	F	LFP 1 Between Surface Collection Headers
4	10/13/97	REQ'D	150' N x 150' E GE-49		PG	WX-JFK	108.2	104.3	101.1	3.2	93.4	F	LFP 1 Between Surface Collection Headers
5	10/13/97	REQ'D	200' N x 125' E GE-49		PG	WX-JFK	108.2	107.1	102.2	4.7	94.5	F	LFP 1 Between Surface Collection Headers
6	10/13/97	REQ'D	350' N x 110' E GE-49		PG	WX-JFK	108.2	105.1	102.0	3.0	94.3	F	LFP 1 Between Surface Collection Headers
1A	10/13/97	NO	350' N x 130' E GE-49		PG	WX-JFK	108.2	108.4	103.8	4.5	95.9	P	LFP 1 Between Surface Collection Headers
2A	10/13/97	NO	375' N x 110' E GE-49		PG	WX-JFK	108.2	108.5	103.9	4.5	96.0	P	LFP 1 Between Surface Collection Headers
3A	10/13/97	NO	300' N x 150' E GE-49		PG	WX-JFK	108.2	108.8	103.7	5.0	95.8	P	LFP 1 Between Surface Collection Headers
4A	10/13/97	NO	150' N x 150' E GE-49		PG	WX-JFK	108.2	109.2	104.1	4.9	96.2	P	LFP 1 Between Surface Collection Headers
5A	10/13/97	NO	200' N x 125' E GE-49		PG	WX-JFK	108.2	107.8	103.0	4.7	95.2	P	LFP 1 Between Surface Collection Headers
6A	10/13/97	NO	350' N x 110' E GE-49		PG	WX-JFK	108.2	109.0	103.9	4.9	96.0	P	LFP 1 Between Surface Collection Headers
ALL TESTS WERE RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND WERE RE-TESTED													
	1	Of	1		Tests Performed By YEC Personnel								SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 — Item 5B Structural Fill

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	10/9/97	NO	150' Due North GE-49		PG	WX-135	122.2	127.1	117.6	8.1	96.2	P	LFP 1 Between Surface Collection Headers
2	10/9/97	NO	75' N x 30' E GE-49		PG	WX-135	122.2	128.3	117.3	9.4	96.0	P	LFP 1 Between Surface Collection Headers
3	10/9/97	REQ'D	75' N x 30' W GE-49		PG	WX-135	122.2	124.5	114.1	9.1	93.4	F	LFP 1 Between Surface Collection Headers
4	10/9/97	REQ'D	75' N x 100' W GE-49		PG	WX-135	122.2	124.5	114.1	9.1	93.4	F	LFP 1 Between Surface Collection Headers
5	10/9/97	REQ'D	25' N x 75' E GE-50		PG	TN-5.8	128.3	131.6	120.1	9.6	93.6	F	LFP 1 South East Corner
6	10/9/97	NO	25' Due North GE-50		PG	TN-5.8	128.3	138.6	128.4	7.9	100.1	P	LFP 1 South East Corner
7	10/9/97	REQ'D	25' N x 100' W GE-50		PG	TN-5.8	128.3	128.6	119.8	7.3	93.4	F	LFP 1 South East Corner
8	10/9/97	NO	10' x 100' W GE-50		PG	TN-5.8	128.3	134.4	124.5	8.0	97.0	P	LFP 1 South East Corner
9	10/9/97	NO	10' Due South GE-50		PG	TN-5.8	128.3	136.0	125.0	8.8	97.4	P	LFP 1 South East Corner
10	10/9/97	REQ'D	10' S x 75' E GE-50		PG	TN-5.8	128.3	130.5	119.3	9.4	93.0	F	LFP 1 South East Corner -
3A	10/9/97	NO	75' N x 30' W GE-49		PG	WX-135	122.2	130.0	119.0	9.2	97.4	P	LFP 1 Between Surface Collection Headers
4A	10/9/97	NO	75' N x 100' W GE-49		PG	WX-135	122.2	129.0	118.4	8.9	96.9	P	LFP 1 Between Surface Collection Headers
5A	10/9/97	NO	25' N x 75' E GE-50		PG	TN-5.8	128.3	135.9	124.7	9.0	97.2	P	LFP 1 South East Corner
7A	10/9/97	NO	25' N x 100' W GE-50		PG	TN-5.8	128.3	135.9	124.5	9.2	97.0	P	LFP 1 South East Corner
10A	10/9/97	NO	10' S x 75' E GE-50		PG	TN-5.8	128.3	134.3	123.8	8.5	96.5	P	LFP 1 South East Corner

TESTS NUMBERED 3A, 4A, 5A, 7A & 10A WERE RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND WERE RE-TESTED

1	Of	1	Tests Performed By YEC Personnel	SIGNATURE:	

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	10/2/97	NO	300' Due South of GM #6		PG	WX-130	123.8	130.4	119.1	9.5	96.2	P	LFP 1 Between Surface Collection Headers
2	10/2/97	NO	200' Due South of GM #6		PG	WX-130	123.8	132.3	120.0	10.3	96.9	P	LFP 1 Between Surface Collection Headers
3	10/2/97	NO	100' Due South of GM #6		PG	WX-130	123.8	133.2	123.9	7.5	100.1	P	LFP 1 Between Surface Collection Headers
4	**10/2/97**	**REQ'D**	**160' W x 300' S GM #6**		**PG**	**WX-130**	**123.8**	**123.1**	**111.9**	**10.0**	**90.4**	**F**	**LFP 1 Between Surface Collection Headers**
5	10/2/97	NO	160' W x 200' S GM #6		PG	WX-130	123.8	129.7	118.1	9.8	95.4	P	LFP 1 Between Surface Collection Headers
6	10/2/97	NO	160' W x 100' S GM #6		PG	WX-130	123.8	133.4	122.3	9.1	98.8	P	LFP 1 Between Surface Collection Headers
7	10/2/97	NO	25' W x 150' S GE-8		PG	WX-130	123.8	128.7	119.6	7.6	96.6	P	LFP 6 RIDGE LINE > 120' CONTOUR
8	**10/2/97**	**REQ'D**	**50' W x 100' S GE-8**		**PG**	**WX-130**	**123.8**	**126.6**	**116.6**	**8.6**	**94.2**	**F**	**LFP 6 RIDGE LINE > 120' CONTOUR**
9	**10/2/97**	**REQ'D**	**50' W x 50' S GE-8**		**PG**	**WX-130**	**123.8**	**127.0**	**117.4**	**8.2**	**94.8**	**F**	**LFP 6 RIDGE LINE > 120' CONTOUR**
10	**10/2/97**	**REQ'D**	**50' W x 50' N GE-8**		**PG**	**WX-130**	**123.8**	**126.3**	**116.1**	**8.8**	**93.8**	**F**	**LFP 6 RIDGE LINE > 120' CONTOUR**
4A	**10/2/97**	**NO**	**160' W x 300' S GM #6**		**PG**	**WX-130**	**123.8**	**133.6**	**119.8**	**11.5**	**96.8**	**P**	**LFP 1 Between Surface Collection Headers**
8A	**10/2/97**	**NO**	**50' W x 100' S GE-8**		**PG**	**WX-130**	**123.8**	**131.0**	**120.2**	**9.0**	**97.1**	**P**	**LFP 6 RIDGE LINE > 120' CONTOUR**
9A	**10/2/97**	**NO**	**50' W x 50' S GE-8**		**PG**	**WX-130**	**123.8**	**131.0**	**120.0**	**9.2**	**96.9**	**P**	**LFP 6 RIDGE LINE > 120' CONTOUR**
10A	**10/2/97**	**NO**	**50' W x 50' N GE-8**		**PG**	**WX-130**	**123.8**	**131.0**	**120.2**	**9.0**	**97.1**	**P**	**LFP 6 RIDGE LINE > 120' CONTOUR**

TEST NUMBERED 4A, 8A, 9A & 10A WERE RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND WERE RE-TESTED

1 Of 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	10/1/97	NO	75' E x 25' N GE-49		2ND	CF-01	120.3	129.3	115.8	11.6	96.3	P	LFP 1 Between Surface Collection Headers
2	10/1/97	NO	75' E x 100' N GE-49		2ND	CF-01	120.3	128.3	115.2	11.3	95.8	P	LFP 1 Between Surface Collection Headers
3	10/1/97	NO	50' W x 100' SW GE-49		2ND	CF-01	120.3	131.5	117.9	11.5	98.0	P	LFP 1 Between Surface Collection Headers
4	10/1/97	NO	50' E x 40' N GE-49		3RD	CF-01	120.3	134.4	120.3	11.7	100.0	P	LFP 1 Between Surface Collection Headers
5	10/1/97	NO	150' E x 50' N GE-49		1ST	CF-01	120.3	125.9	115.0	9.5	95.6	P	LFP 1 Between Surface Collection Headers
6	10/1/97	NO	25' E x 50' N GE-49		2ND	CF-01	120.3	131.6	121.4	8.4	100.9	P	LFP 1 Between Surface Collection Headers
7	10/1/97	NO	100' E x 50' N GE-49		2ND	CF-01	120.3	132.5	121.7	8.8	101.2	P	LFP 1 Between Surface Collection Headers

1 Of 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

SEPTEMBER '97

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	9/26/97	NO	25' W X 150' S GE-8		PG	WX-130	123.8	128.7	119.6	7.6	96.6	P	LFP 6 & 7 RIDGE LINE > 120' CONTOUR
2	9/26/97	REQ'D	50' W X 100' S GE-8		PG	WX-130	123.8	126.6	116.6	8.6	94.2	F	LFP 6 & 7 RIDGE LINE > 120' CONTOUR
3	9/26/97	REQ'D	50' W X 50' S GE-8		PG	WX-130	123.8	127.0	117.4	8.2	94.8	F	LFP 6 & 7 RIDGE LINE > 120' CONTOUR
4	9/26/97	REQ'D	50' W X 50' N GE-8		PG	WX-130	123.8	126.2	116.0	8.8	93.7	F	LFP 6 & 7 RIDGE LINE > 120' CONTOUR
2A	9/26/97	NO	50' W X 100' S GE-8		PG	WX-130	123.8	130.9	120.1	9.0	97.0	P	LFP 6 & 7 RIDGE LINE > 120' CONTOUR
3A	9/26/97	NO	50' W X 50' S GE-8		PG	WX-130	123.8	131.8	120.3	9.5	97.2	P	LFP 6 & 7 RIDGE LINE > 120' CONTOUR
4A	9/26/97	NO	50' W X 50' N GE-8		PG	WX-130	123.8	130.5	119.5	9.2	96.5	P	LFP 6 & 7 RIDGE LINE > 120' CONTOUR

ALL TESTS WERE RE-COMPACTED AFTER THE ADDITION OF WATER AND RE-ROLLED USING INGERSOLL-RAND ROLLER IR-115 AND WAS RE-TESTED

	1	Of	1	Tests Performed By YEC Personnel	SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	9/25/97	NO	50' N x 10' E GE-4		PG	LAKE	130.4	139.1	126.0	10.4	96.6	P	LFP 8 EAST SLOPE > 120' CONTOUR
2	9/25/97	NO	25' S x 25' E GE-4		PG	LAKE	130.4	140.0	126.2	10.9	96.8	P	LFP 8 EAST SLOPE > 120' CONTOUR
3	9/25/97	NO	25' N x 100' E GE-8		PG	WX-130	123.8	130.2	121.4	7.2	98.1	P	LFP 8 EAST SLOPE > 120' CONTOUR
4	9/25/97	NO	25' N x 50' E GE-8		PG	WX-130	123.8	128.7	119.8	7.4	96.8	P	LFP 8 EAST SLOPE > 120' CONTOUR
5	9/25/97	NO	50' E x 75' S GE-8		PG	WX-130	123.8	127.3	117.9	8.0	95.2	P	LFP 8 EAST SLOPE > 120' CONTOUR
6	9/25/97	NO	100' E x 75' S GE-8		PG	WX-130	123.8	134.0	121.4	10.3	98.1	P	LFP 8 EAST SLOPE > 120' CONTOUR
7	9/25/97	NO	100' W x 50' N GE-7		PG	WX-130	123.8	131.0	120.7	8.5	97.5	P	LFP 8 EAST SLOPE > 120' CONTOUR
8	**9/25/97**	**REQ'D**	**100' W x 100' N GE-7**		**PG**	**WX-130**	**123.8**	**124.9**	**115.8**	**7.9**	**93.5**	**F**	**LFP 8 EAST SLOPE > 120' CONTOUR**
9	**9/25/97**	**REQ'D**	**50' E x 150' S GE-7**		**PG**	**WX-130**	**123.8**	**125.4**	**115.1**	**8.9**	**93.0**	**F**	**LFP 6 & 7 RIDGE LINE > 120' CONTOUR**
10	**9/25/97**	**REQ'D**	**100 Due East GE-13**		**PG**	**WX-130**	**123.8**	**127.2**	**116.9**	**8.8**	**94.4**	**F**	**LFP 6 & 7 RIDGE LINE > 120' CONTOUR**
11	9/25/97	NO	100' E x 50' S GE-13		PG	WX-130	123.8	130.7	119.8	9.1	96.8	P	LFP 6 & 7 RIDGE LINE > 120' CONTOUR
12	**9/25/97**	**REQ'D**	**100' E x 100' S GE-13**		**PG**	**WX-130**	**123.8**	**126.0**	**116.2**	**8.4**	**93.9**	**F**	**LFP 6 & 7 RIDGE LINE > 120' CONTOUR**
13	**9/25/97**	**REQ'D**	**100' E x 150' S GE-13**		**PG**	**WX-130**	**123.8**	**125.6**	**115.1**	**9.1**	**93.0**	**F**	**LFP 6 & 7 RIDGE LINE > 120' CONTOUR**
8A	**9/25/97**	**NO**	**100' W x 100' N GE-7**		**PG**	**WX-130**	**123.8**	**129.8**	**120.0**	**8.2**	**96.9**	**P**	**LFP 8 EAST SLOPE > 120' CONTOUR**
9A	**9/25/97**	**NO**	**50' E x 150' S GE-7**		**PG**	**WX-130**	**123.8**	**131.3**	**120.2**	**9.2**	**97.1**	**P**	**LFP 6 & 7 RIDGE LINE > 120' CONTOUR**
10A	**9/25/97**	**NO**	**100 Due East GE-13**		**PG**	**WX-130**	**123.8**	**134.6**	**122.8**	**9.6**	**99.2**	**P**	**LFP 6 & 7 RIDGE LINE > 120' CONTOUR**
12A	**9/25/97**	**NO**	**100' E x 100' S GE-13**		**PG**	**WX-130**	**123.8**	**133.9**	**122.4**	**9.4**	**98.9**	**P**	**LFP 6 & 7 RIDGE LINE > 120' CONTOUR**
13A	**9/25/97**	**NO**	**100' E x 150' S GE-13**		**PG**	**WX-130**	**123.8**	**133.7**	**122.7**	**9.0**	**99.1**	**P**	**LFP 6 & 7 RIDGE LINE > 120' CONTOUR**

ALL TESTS WERE RE-COMPACTED AFTER THE ADDITION OF WATER AND RE-ROLLED USING INGERSOLL-RAND ROLLER IR-115 AND WAS RE-TESTED

	1	Of	1	Tests Performed By YEC Personnel							SIGNATURE:		

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	9/24/97	REQ'D	40' Due East GE-8		PG	WX-125	126.9	128.0	118.3	8.2	93.2	F	LFP 6 & 7 > 124' CONTOUR
2	9/24/97	REQ'D	40' E x 50' S GE-8		PG	WX-125	126.9	129.5	119.9	8.0	94.5	F	LFP 6 & 7 > 124' CONTOUR
3	9/24/97	REQ'D	40' E x 100' S GE-8		PG	WX-125	126.9	130.8	120.4	8.6	94.9	F	LFP 6 & 7 > 124' CONTOUR
4	9/24/97	REQ'D	40' E x 150' S GE-8		PG	WX-125	126.9	127.1	118.9	6.9	93.7	F	LFP 6 & 7 > 124' CONTOUR
5	9/24/97	REQ'D	100' W x 25' S GE-7		PG	WX-125	126.9	129.3	118.7	9.0	93.5	F	LFP 6 & 7 > 124' CONTOUR
6	9/24/97	NO	100' W x 100' S GE-7		PG	WX-125	126.9	133.6	123.1	8.5	97.0	P	LFP 6 & 7 > 124' CONTOUR
7	9/24/97	REQ'D	125' W x 50' S GE-7		PG	WX-125	126.9	124.5	115.5	7.8	91.0	F	LFP 6 & 7 > 124' CONTOUR
8	9/24/97	REQ'D	50' W x 20' S GE-13		PG	WX-125	126.9	127.7	118.1	8.1	93.1	F	LFP 6 & 7 > 124' CONTOUR
9	9/24/97	REQ'D	50' W x 100' S GE-13		PG	WX-125	126.9	128.7	118.5	8.6	93.4	F	LFP 6 & 7 > 124' CONTOUR
10	9/24/97	NO	50' Due North GE-16		PG	WX-125	126.9	129.3	123.9	4.4	97.6	P	LFP 6 & 7 > 124' CONTOUR
11	9/24/97	REQ'D	50' E x 50' N GE-16		PG	WX-125	126.9	127.0	119.3	6.5	94.0	F	LFP 6 & 7 > 124' CONTOUR
12	9/24/97	REQ'D	50' E x 100' N GE-16		PG	WX-125	126.9	128.3	119.5	7.3	94.2	F	LFP 6 & 7 > 124' CONTOUR
13	9/24/97	NO	25' E x 25' S GE-13		PG	WX-125	126.9	130.4	121.1	7.7	95.4	P	LFP 6 & 7 > 124' CONTOUR
1A	9/24/97	NO	40' Due East GE-8		PG	WX-125	126.9	134.8	123.1	9.5	97.0	P	LFP 6 & 7 > 124' CONTOUR
2A	9/24/97	NO	40' E x 50' S GE-8		PG	WX-125	126.9	135.1	123.0	9.9	96.9	F	LFP 6 & 7 > 124' CONTOUR
3A	9/24/97	NO	40' E x 100' S GE-8		PG	WX-125	126.9	137.2	124.5	10.2	98.1	P	LFP 6 & 7 > 124' CONTOUR
4A	9/24/97	NO	40' E x 150' S GE-8		PG	WX-125	126.9	136.2	124.4	9.5	98.0	P	LFP 6 & 7 > 124' CONTOUR
5A	9/24/97	NO	100' W x 25' S GE-7		PG	WX-125	126.9	136.9	125.0	9.5	98.5	P	LFP 6 & 7 > 124' CONTOUR
7A	9/24/97	NO	125' W x 50' S GE-7		PG	WX-125	126.9	136.2	124.2	9.6	97.9	P	LFP 6 & 7 > 124' CONTOUR
8A	9/24/97	NO	50' W x 20' S GE-13		PG	WX-125	126.9	136.0	124.6	9.1	98.2	P	LFP 6 & 7 > 124' CONTOUR
9A	9/24/97	NO	50' W x 100' S GE-13		PG	WX-125	126.9	135.4	124.4	8.9	98.0	P	LFP 6 & 7 > 124' CONTOUR
11A	9/24/97	NO	50' E x 50' N GE-16		PG	WX-125	126.9	137.0	125.8	8.9	99.1	P	LFP 6 & 7 > 124' CONTOUR
12A	9/24/97	NO	50' E x 100' N GE-16		PG	WX-125	126.9	136.2	124.2	9.6	97.9	P	LFP 6 & 7 > 124' CONTOUR

ALL TESTS WERE RE-COMPACTED AFTER THE ADDITION OF WATER AND RE-ROLLED USING INGERSOLL-RAND ROLLER IR-115 AND WAS RE-TESTED

1 Of 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS
1	9/23/97	REQ'D	130' Due East GE-14		PG	WX-125	126.9	128.8	118.4	8.8	93.3	F	LFP 6 & 7 > 124' CONTOUR
2	9/23/97	REQ'D	100' E x 75' S GE-14		PG	WX-125	126.9	125.1	115.9	8.0	91.3	F	LFP 6 & 7 > 124' CONTOUR
3	9/23/97	REQ'D	80' E x 150' S GE-14		PG	WX-125	126.9	128.4	118.0	8.8	93.0	F	LFP 6 & 7 > 124' CONTOUR
4	9/23/97	REQ'D	80' E x 200' S GE-14		PG	WX-125	126.9	128.4	119.9	7.1	94.5	F	LFP 6 & 7 > 124' CONTOUR
5	9/23/97	REQ'D	80' x 100' S GE-14		PG	WX-125	126.9	125.0	115.4	8.4	90.9	F	LFP 6 & 7 > 124' CONTOUR
6	9/23/97	REQ'D	150' E x 150' S GE-14		PG	WX-125	126.9	128.8	119.7	7.6	94.3	F	LFP 6 & 7 > 124' CONTOUR
7	9/23/97	REQ'D	100' E x 150' S GE-14		PG	WX-125	126.9	128.1	119.0	7.6	93.8	F	LFP 6 & 7 > 124' CONTOUR
8	9/23/97	REQ'D	100' E x 50' S GE-14		PG	WX-125	126.9	127.0	116.4	9.1	91.7	F	LFP 6 & 7 > 124' CONTOUR
9	9/23/97	REQ'D	100' Due East GE-14		PG	WX-125	126.9	130.1	120.2	8.3	94.7	F	LFP 6 & 7 > 124' CONTOUR
1A	9/23/97	NO	130' Due East GE-14		PG	WX-125	126.9	135.6	123.9	9.5	97.6	P	LFP 6 & 7 > 124' CONTOUR
2A	9/23/97	NO	100' E x 75' S GE-14		PG	WX-125	126.9	136.8	124.5	9.9	98.1	P	LFP 6 & 7 > 124' CONTOUR
3A	9/23/97	NO	80' E x 150' S GE-14		PG	WX-125	126.9	136.9	124.4	10.1	98.0	P	LFP 6 & 7 > 124' CONTOUR
4A	9/23/97	NO	80' E x 200' S GE-14		PG	WX-125	126.9	135.5	123.9	9.4	97.6	P	LFP 6 & 7 > 124' CONTOUR
5A	9/23/97	NO	80' x 100' S GE-14		PG	WX-125	126.9	134.4	123.2	9.1	97.1	P	LFP 6 & 7 > 124' CONTOUR
6A	9/23/97	NO	150' E x 150' S GE-14		PG	WX-125	126.9	133.9	123.0	8.9	96.9	P	LFP 6 & 7 > 124' CONTOUR
7A	9/23/97	NO	100' E x 150' S GE-14		PG	WX-125	126.9	135.0	123.2	9.6	97.1	P	LFP 6 & 7 > 124' CONTOUR
8A	9/23/97	NO	100' E x 50' S GE-14		PG	WX-125	126.9	135.0	122.7	10.0	96.7	P	LFP 6 & 7 > 124' CONTOUR
9A	9/23/97	NO	100' Due East GE-14		PG	WX-125	126.9	135.4	123.0	10.1	96.9	P	LFP 6 & 7 > 124' CONTOUR

ALL TESTS WERE RE-COMPACTED AFTER THE ADDITION OF WATER AND RE-ROLLED USING INGERSOLL-RAND ROLLER IR-115 AND WAS RE-TESTED

1 Of 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	9/18/97	NO	25' N x 25' E GE-30		PG	WX-120	122.1	131.3	119.2	10.2	97.6	P	LFP 6 NORTH EAST CORNER >120' CONTOUR
2	9/18/97	NO	100' E x 25' N GE-30		PG	WX-120	122.1	131.7	120.4	9.4	98.6	P	LFP 6 NORTH EAST CORNER >120' CONTOUR
3	***9/18/97***	***REQ'D***	***50' W x 25' N GE-16***		***PG***	***WX-120***	***122.1***	***124.1***	***114.4***	***8.5***	***93.7***	***F***	***LFP 6 NORTH EAST CORNER >120' CONTOUR***
4	9/18/97	NO	25' Due North GE-16		PG	WX-120	122.1	130.1	118.2	10.1	96.8	P	LFP 6 NORTH EAST CORNER >120' CONTOUR
5	9/18/97	NO	25' Due South GE-16		PG	WX-120	122.1	128.9	119.2	8.2	97.6	P	LFP 6 NORTH EAST CORNER >120' CONTOUR
6	***9/18/97***	***REQ'D***	***25' S x 50' W GE-16***		***PG***	***WX-120***	***122.1***	***123.5***	***114.2***	***8.2***	***93.5***	***F***	***LFP 6 NORTH EAST CORNER >120' CONTOUR***
7	9/18/97	NO	100' W x 25' S GE-16		PG	WX-120	122.1	126.8	116.4	9.0	95.3	P	LFP 6 NORTH EAST CORNER >120' CONTOUR
8	9/18/97	NO	75' E x 25' S GE-30		PG	WX-120	122.1	132.1	119.5	10.5	97.9	P	LFP 6 NORTH EAST CORNER >120' CONTOUR
9	9/18/97	NO	100' Due South GE-30		PG	WX-120	122.1	129.9	119.0	9.1	97.5	P	LFP 6 NORTH EAST CORNER >120' CONTOUR
10	9/18/97	NO	100' S x 50' E GE-30		PG	WX-120	122.1	129.3	117.2	10.3	96.0	P	LFP 6 NORTH EAST CORNER >120' CONTOUR
11	9/18/97	NO	100' S x 100' W GE-16		PG	WX-120	122.1	130 0	121.2	7.2	99.3	P	LFP 6 NORTH EAST CORNER >120' CONTOUR
12	***9/18/97***	***REQ'D***	***100' S x 50' W GE-16***		***PG***	***WX-120***	***122.1***	***125.8***	***115.1***	***9.3***	***94.3***	***F***	***LFP 6 NORTH EAST CORNER >120' CONTOUR***
13	9/18/97	NO	100' S x 25' W GE-16		PG	WX-120	122.1	128.8	118.3	8.9	96.9	P	LFP 6 NORTH EAST CORNER >120' CONTOUR
14	9/18/97	NO	125' E x 150' S GE-16		PG	WX-120	122.1	127.5	117.6	8.4	96.3	P	LFP 6 NORTH EAST CORNER >120' CONTOUR
15	9/18/97	NO	50' S x 150' N GE-16		PG	WX-120	122.1	128.1	120.0	6.7	98.3	P	LFP 6 NORTH EAST CORNER >120' CONTOUR
16	9/18/97	NO	125' E x 25' N GE-16		PG	WX-120	122.1	127.1	117.9	7.8	96.6	P	LFP 6 NORTH EAST CORNER >120' CONTOUR
3A	***9/18/97***	***NO***	***50' W x 25' N GE-16***		***PG***	***WX-120***	***122.1***	***130.2***	***119.4***	***9.0***	***97.8***	***P***	***LFP 6 NORTH EAST CORNER >120' CONTOUR***
6A	***9/18/97***	***NO***	***25' S x 50' W GE-16***		***PG***	***WX-120***	***122.1***	***130.2***	***118.4***	***9.9***	***97.0***	***P***	***LFP 6 NORTH EAST CORNER >120' CONTOUR***
12A	***9/18/97***	***NO***	***100' S x 50' W GE-16***		***PG***	***WX-120***	***122.1***	***129.3***	***118.3***	***9.3***	***96.9***	***P***	***LFP 6 NORTH EAST CORNER >120' CONTOUR***

ALL TESTS WERE RE-COMPACTED AFTER THE ADDITION OF WATER AND RE-ROLLED USING INGERSOLL-RAND ROLLER IR-115 AND WAS RE-TESTED

1 Of 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	9/17/97	NO	80' N x 170' W GE-50		PG	WX-120	122.1	127.6	117.5	8.6	96.2	P	LFP 8 NORTHEAST SLOPE < 120' CONTOUR
2	*9/17/97*	*REQ'D*	*80' N x 100' W GE-50*		*PG*	*WX-120*	*122.1*	*125.1*	*114.5*	*9.2*	*93.8*	*F*	*LFP 8 NORTHEAST SLOPE < 120' CONTOUR*
3	*9/17/97*	*REQ'D*	*80' Due North GE-50*		*PG*	*WX-120*	*122.1*	*123.7*	*113.6*	*8.9*	*93.0*	*F*	*LFP 8 NORTHEAST SLOPE < 120' CONTOUR*
4	*9/17/97*	*REQ'D*	*150' Due North GE-50*		*PG*	*WX-120*	*122.1*	*124.7*	*114.4*	*9.0*	*93.7*	*F*	*LFP 8 NORTHEAST SLOPE < 120' CONTOUR*
5	9/17/97	NO	100' N x 100' W GE-50		PG	WX-120	122.1	130.8	120.5	8.5	98.7	P	LFP 8 NORTHEAST SLOPE < 120' CONTOUR
6	9/17/97	NO	100' N x 150' W GE-50		PG	WX-120	122.1	128.1	118.2	8.4	96.8	P	LFP 8 NORTHEAST SLOPE < 120' CONTOUR
2A	*9/17/97*	*NO*	*80' N x 100' W GE-50*		*PG*	*WX-120*	*122.1*	*131.2*	*119.4*	*9.9*	*97.8*	*P*	*LFP 8 NORTHEAST SLOPE < 120' CONTOUR*
3A	*9/17/97*	*NO*	*80' Due North GE-50*		*PG*	*WX-120*	*122.1*	*130.0*	*118.7*	*9.5*	*97.2*	*P*	*LFP 8 NORTHEAST SLOPE < 120' CONTOUR*
4A	*9/17/97*	*NO*	*150' Due North GE-50*		*PG*	*WX-120*	*122.1*	*129.7*	*118.3*	*9.6*	*96.9*	*P*	*LFP 8 NORTHEAST SLOPE < 120' CONTOUR*

ALL TESTS WERE RE-COMPACTED AFTER THE ADDITION OF WATER AND RE-ROLLED USING INGERSOLL-RAND ROLLER IR-115 AND WAS RE-TESTED

1 Of 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	9/16/97	REQ'D	25' Due West GE-6		PG	WX-115	124.3	126.8	116.7	8.6	93.9	F	LFP 6 NORTHEAST CORNER > 120' CONTOUR
2	9/16/97	REQ'D	25' Due East GE-6		PG	WX-115	124.3	127.3	116.6	9.2	93.8	F	LFP 6 NORTHEAST CORNER > 120' CONTOUR
3	9/16/97	REQ'D	25' E x 50' N GE-6		PG	WX-115	124.3	127.0	116.6	8.9	93.8	F	LFP 6 NORTHEAST CORNER > 120' CONTOUR
4	9/16/97	REQ'D	100' Due NoRTH GE-6		PG	WX-115	124.3	121.7	111.6	9.0	89.8	F	LFP 6 NORTHEAST CORNER > 120' CONTOUR
5	9/16/97	REQ'D	25' W x 50' N GE-6		PG	WX-115	124.3	123.1	113.5	8.5	91.3	F	LFP 6 NORTHEAST CORNER > 120' CONTOUR
6	9/16/97	NO	50' Due South GE-6		PG	WX-115	124.3	129.4	119.3	8.4	96.0	P	LFP 6 NORTHEAST CORNER > 120' CONTOUR
7	9/16/97	REQ'D	50' Due West GE-52		PG	WX-115	124.3	125.7	116.0	8.4	93.3	F	LFP 6 NORTHEAST CORNER > 120' CONTOUR
8	9/16/97	NO	50' W x 25' S GE-52		PG	WX-115	124.3	129.9	119.8	8.4	96.4	P	LFP 6 NORTHEAST CORNER > 120' CONTOUR
9	9/16/97	REQ'D	25' Due South GE-52		PG	WX-115	124.3	125.6	115.8	8.4	93.2	F	LFP 6 NORTHEAST CORNER > 120' CONTOUR
10	9/16/97	NO	50' Due East GE-52		PG	WX-115	124.3	131.6	121.4	8.4	97.7	P	LFP 6 NORTHEAST CORNER > 120' CONTOUR
11	9/16/97	REQ'D	50' Due North GE-4		PG	WX-115	124.3	127.9	118.0	8.4	94.9	F	LFP 6 NORTHEAST CORNER > 120' CONTOUR
12	9/16/97	NO	100' Due South GE-51		PG	WX-115	124.3	128.0	118.1	8.4	95.0	P	LFP 6 NORTHEAST CORNER > 120' CONTOUR
13	9/16/97	REQ'D	100' E x 50' S GE-52		PG	WX-115	124.3	126.3	116.5	8.4	93.7	F	LFP 6 NORTHEAST CORNER > 120' CONTOUR
14	9/16/97	NO	50' W x 50' N GE-4		PG	WX-115	124.3	131.1	120.9	8.4	97.3	P	LFP 6 NORTHEAST CORNER > 120' CONTOUR
15	9/16/97	REQ'D	50' W x 25' MS GE-4		PG	WX-115	124.3	125.3	115.6	8.4	93.0	F	LFP 6 NORTHEAST CORNER > 120' CONTOUR
16	9/16/97	REQ'D	100' W x 100' S GE-4		PG	WX-115	124.3	126.8	117.0	8.4	94.1	F	LFP 6 NORTHEAST CORNER > 120' CONTOUR
1	9/16/97	NO	25' Due West GE-6		PG	WX-115	124.3	133.8	122.6	9.2	98.6	P	LFP 6 NORTHEAST CORNER > 120' CONTOUR
2	9/16/97	NO	25' Due East GE-6		PG	WX-115	124.3	133.7	122.1	9.5	98.2	P	LFP 6 NORTHEAST CORNER > 120' CONTOUR
3	9/16/97	NO	25' E x 50' N GE-6		PG	WX-115	124.3	132.5	121.7	8.9	97.9	P	LFP 6 NORTHEAST CORNER > 120' CONTOUR
4	9/16/97	NO	100' Due NoRTH GE-6		PG	WX-115	124.3	131.3	120.4	9.0	96.9	P	LFP 6 NORTHEAST CORNER > 120' CONTOUR
5	9/16/97	NO	25' W x 50' N GE-6		PG	WX-115	124.3	133.9	122.2	9.6	98.3	P	LFP 6 NORTHEAST CORNER > 120' CONTOUR
7	9/16/97	NO	50' Due West GE-52		PG	WX-115	124.3	134.8	123.2	9.4	99.1	P	LFP 6 NORTHEAST CORNER > 120' CONTOUR
9	9/16/97	NO	25' Due South GE-52		PG	WX-115	124.3	133.9	121.9	9.8	98.1	P	LFP 6 NORTHEAST CORNER > 120' CONTOUR
11	9/16/97	NO	50' Due North GE-4		PG	WX-115	124.3	134.4	122.2	10.0	98.3	P	LFP 6 NORTHEAST CORNER > 120' CONTOUR
13	9/16/97	NO	100' E x 50' S GE-52		PG	WX-115	124.3	135.6	123.1	10.2	99.0	P	LFP 6 NORTHEAST CORNER > 120' CONTOUR
15	9/16/97	NO	50' W x 25' MS GE-4		PG	WX-115	124.3	132.5	121.3	9.2	97.6	P	LFP 6 NORTHEAST CORNER > 120' CONTOUR
16	9/16/97	NO	100' W x 100' S GE-4		PG	WX-115	124.3	132.6	120.7	9.9	97.1	P	LFP 6 NORTHEAST CORNER > 120' CONTOUR

ALL TESTS WERE RE-COMPACTED AFTER THE ADDITION OF WATER AND RE-ROLLED USING INGERSOLL-RAND ROLLER IR-115 AND WAS RE-TESTED

1 Of 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	9/15/97	NO	100' W x 50' S GE-52		PG	WX-110	122.8	129.9	120.8	7.5	98.4	P	LFP 6 NORTHEAST CORNER > 120' CONTOUR
2	***9/15/97***	***REQ'D***	***50' W x 50' S GE-52***		***PG***	***WX-110***	***122.8***	***126.0***	***116.0***	***8.6***	***94.5***	***F***	***LFP 6 NORTHEAST CORNER > 120' CONTOUR***
3	9/15/97	NO	50' Due South GE-6		PG	WX-110	122.8	126.7	117.9	7.5	96.0	P	LFP 6 NORTHEAST CORNER > 120' CONTOUR
4	9/15/97	NO	100' S x 50' E GE-52		PG	WX-110	122.8	127.3	118.4	7.5	96.4	P	LFP 6 NORTHEAST CORNER > 120' CONTOUR
5	9/15/97	NO	25' E x 40' S GE-52		PG	WX-110	122.8	131.5	120.1	9.5	97.8	P	LFP 6 NORTHEAST CORNER > 120' CONTOUR
6	9/15/97	NO	100' E Xx 40' N GE-52		PG	WX-110	122.8	128.5	118.6	8.3	96.6	P	LFP 6 NORTHEAST CORNER > 120' CONTOUR
7	9/15/97	NO	50' Due West GE-5		PG	WX-110	122.8	126.6	116.9	8.3	95.2	P	LFP 6 NORTHEAST CORNER > 120' CONTOUR
8	***9/15/97***	***REQ'D***	***50' S x 50'W GE-5***		***PG***	***WX-110***	***122.8***	***126.2***	***115.9***	***8.9***	***94.4***	***F***	***LFP 6 NORTHEAST CORNER > 120' CONTOUR***
9	***9/15/97***	***REQ'D***	***50' Due West GE-6***		***PG***	***WX-110***	***122.8***	***126.3***	***115.6***	***9.3***	***94.1***	***F***	***LFP 6 NORTHEAST CORNER > 120' CONTOUR***
10	9/15/97	NO	100' Due West GE-6		PG	WX-110	122.8	131.3	119.6	9.8	97.4	P	LFP 6 NORTHEAST CORNER > 120' CONTOUR
11	9/15/97	NO	30' Due West GE-36		PG	WX-110	122.8	130.8	121.1	8.0	98.6	P	LFP 6 NORTHEAST CORNER > 120' CONTOUR
12	9/15/97	NO	30' W x 50' S GE-36		PG	WX-110	122.8	131.9	120.8	9.1	98.4	P	LFP 6 NORTHEAST CORNER > 120' CONTOUR
13	9/15/97	NO	30' W x 100' S GE-36		PG	WX-110	122.8	127.1	116.9	8.7	95.2	P	LFP 6 NORTHEAST CORNER > 120' CONTOUR
14	9/15/97	NO	30' W x 150' S GE-36		PG	WX-110	122.8	128.0	118.6	7.9	96.6	P	LFP 6 NORTHEAST CORNER > 120' CONTOUR
15	9/15/97	NO	50' E x 50' 50'S GE-36		PG	WX-110	122.8	127.4	119.6	6.5	97.4	P	LFP 6 NORTHEAST CORNER > 120' CONTOUR
16	***9/15/97***	***REQ'D***	***50' E x 100' S GE-36***		***PG***	***WX-110***	***122.8***	***124.5***	***115.8***	***7.5***	***94.3***	***F***	***LFP 6 NORTHEAST CORNER > 120' CONTOUR***
17	***9/15/97***	***REQ'D***	***100' E x 100' S GE-36***		***PG***	***WX-110***	***122.8***	***124.7***	***115.8***	***7.7***	***94.3***	***F***	***LFP 6 NORTHEAST CORNER > 120' CONTOUR***
18	9/15/97	NO	100' E x 50' S GE-36		PG	WX-110	122.8	127.6	117.2	8.9	95.4	P	LFP 6 NORTHEAST CORNER > 120' CONTOUR
2A	***9/15/97***	***NO***	***50' W x 50' S GE-52***		***PG***	***WX-110***	***122.8***	***130.2***	***119.2***	***9.2***	***97.1***	***P***	***LFP 6 NORTHEAST CORNER > 120' CONTOUR***
8A	***9/15/97***	***NO***	***50' S x 50'W GE-5***		***PG***	***WX-110***	***122.8***	***131.1***	***119.9***	***9.4***	***97.6***	***P***	***LFP 6 NORTHEAST CORNER > 120' CONTOUR***
9A	***9/15/97***	***NO***	***50' Due West GE-6***		***PG***	***WX-110***	***122.8***	***130.3***	***119.6***	***8.9***	***97.4***	***P***	***LFP 6 NORTHEAST CORNER > 120' CONTOUR***
16A	***9/15/97***	***NO***	***50' E x 100' S GE-36***		***PG***	***WX-110***	***122.8***	***130.9***	***120.3***	***8.8***	***98.0***	***P***	***LFP 6 NORTHEAST CORNER > 120' CONTOUR***
17A	***9/15/97***	***NO***	***100' E x 100' S GE-36***		***PG***	***WX-110***	***122.8***	***131.4***	***120.5***	***9.1***	***98.1***	***P***	***LFP 6 NORTHEAST CORNER > 120' CONTOUR***

ALL TESTS WERE RE-COMPACTED AFTER THE ADDITION OF WATER AND RE-ROLLED USING INGERSOLL-RAND ROLLER IR-115 AND WAS RE-TESTED

1 Of 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	9/9/97	NO	25' S x 25' W GE-6		PG	WX-105	122.9	133.3	124.0	7.5	100.9	P	LFP 6 & 7 CENTER AREA > 120' CONTOUR
2	*9/9/97*	*REQ'D*	*25' W x 100' S GE-6*		*PG*	*WX-105*	*122.9*	*124.7*	*114.8*	*8.6*	*93.4*	*F*	*LFP 6 & 7 CENTER AREA > 120' CONTOUR*
3	*9/9/97*	*REQ'D*	*60' Due North GE-18*		*PG*	*WX-105*	*122.9*	*123.4*	*114.8*	*7.5*	*93.4*	*F*	*LFP 6 & 7 CENTER AREA > 120' CONTOUR*
4	*9/9/97*	*REQ'D*	*60' N x 75' W E-18*		*PG*	*WX-105*	*122.9*	*125.0*	*116.3*	*7.5*	*94.6*	*F*	*LFP 6 & 7 CENTER AREA > 120' CONTOUR*
2A	*9/9/97*	*NO*	*25' W x 100' S GE-6*		*PG*	*WX-105*	*122.9*	*128.3*	*118.1*	*8.6*	*96.1*	*P*	*LFP 6 & 7 CENTER AREA > 120' CONTOUR*
3A	*9/9/97*	*NO*	*60' Due North GE-18*		*PG*	*WX-105*	*122.9*	*126.7*	*117.9*	*7.5*	*95.9*	*P*	*LFP 6 & 7 CENTER AREA > 120' CONTOUR*
4A	*9/9/97*	*NO*	*60' N x 75' W E-18*		*PG*	*WX-105*	*122.9*	*126.6*	*117.7*	*7.5*	*95.8*	*P*	*LFP 6 & 7 CENTER AREA > 120' CONTOUR*

ALL TESTS WERE RE-COMPACTED AFTER THE ADDITION OF WATER AND RE-ROLLED USING INGERSOLL-RAND ROLLER IR-115 AND WAS RE-TESTED

1 Of 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	*9/8/97*	*REQ'D*	*25' N x 100' W GE-18*		*PG*	*WX-105*	*122.9*	*122.9*	*114.3*	*7.5*	*93.0*	*F*	*LFP 7 SOUTHEAST CORNER > 120' CONTOUR*
2	9/8/97	NO	50' N x 100' W GE-18		PG	WX-105	122.9	130.7	120.3	8.6	97.9	P	LFP 7 SOUTHEAST CORNER > 120' CONTOUR
3	9/8/97	NO	150' N x 100' W GE-18		PG	WX-105	122.9	127.1	118.2	7.5	96.2	P	LFP 7 SOUTHEAST CORNER > 120' CONTOUR
4	*9/8/97*	*REQ'D*	*150' N x 50' W GE-18*		*PG*	*WX-105*	*122.9*	*119.2*	*110.9*	*7.5*	*90.2*	*F*	*LFP 7 SOUTHEAST CORNER > 120' CONTOUR*
5	9/8/97	NO	150' Due North GE-18		PG	WX-105	122.9	128.1	118.0	8.6	96.0	P	LFP 7 SOUTHEAST CORNER > 120' CONTOUR
6	9/8/97	NO	150' N x 100' E GE-18		PG	WX-105	122.9	128.3	119.3	7.5	97.1	P	LFP 7 SOUTHEAST CORNER > 120' CONTOUR
7	9/8/97	NO	100' N x 100' E GE-18		PG	WX-105	122.9	126.6	117.7	7.5	95.8	P	LFP 7 SOUTHEAST CORNER > 120' CONTOUR
8	9/8/97	NO	50' N x 50' E GE-18		PG	WX-105	122.9	127.5	117.4	8.6	95.5	P	LFP 7 SOUTHEAST CORNER > 120' CONTOUR
1A	*9/8/97*	*NO*	*25' N x 100' W GE-18*		*PG*	*WX-105*	*122.9*	*128.1*	*118.6*	*8.0*	*96.5*	*P*	*LFP 7 SOUTHEAST CORNER > 120' CONTOUR*
4A	*9/8/97*	*NO*	*150' N x 50' W GE-18*		*PG*	*WX-105*	*122.9*	*129.8*	*119.2*	*8.9*	*97.0*	*P*	*LFP 7 SOUTHEAST CORNER > 120' CONTOUR*

ALL TESTS WERE RE-COMPACTED AFTER THE ADDITION OF WATER AND RE-ROLLED USING INGERSOLL-RAND ROLLER IR-115 AND WAS RE-TESTED

1 Of 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	9/5/97	NO	150' E x 100' S GE-24		PG	WX-105	122.9	126.6	117.7	7.5	95.8	P	LFP 7 SOUTHEAST CORNER > 120' CONTOUR
2	9/5/97	NO	150' E x 25' S GE-24		PG	WX-105	122.9	130.0	119.7	8.6	97.4	P	LFP 7 SOUTHEAST CORNER > 120' CONTOUR
3	9/5/97	NO	150' E x 50' N GE-24		PG	WX-105	122.9	126.8	118.0	7.5	96.0	P	LFP 7 SOUTHEAST CORNER > 120' CONTOUR
4	9/5/97	NO	50' E x 100' N GE-18		PG	WX-105	122.9	127.4	118.5	7.5	96.4	P	LFP 7 SOUTHEAST CORNER > 120' CONTOUR
5	9/5/97	NO	50' Due East GE-18		PG	WX-105	122.9	129.9	119.6	8.6	97.3	P	LFP 7 SOUTHEAST CORNER > 120' CONTOUR
6	***9/5/97***	***REQ'D***	***100' Due East GE-18***		***PG***	***WX-105***	***122.9***	***124.3***	***115.6***	***7.5***	***94.1***	***F***	***LFP 7 SOUTHEAST CORNER > 120' CONTOUR***
7	***9/5/97***	***REQ'D***	***100' E x 50' S GE-18***		***PG***	***WX-105***	***122.9***	***123.9***	***115.3***	***7.5***	***93.8***	***F***	***LFP 7 SOUTHEAST CORNER > 120' CONTOUR***
8	9/5/97	NO	100' E x 150' S GE-18		PG	WX-105	122.9	127.2	117.1	8.6	95.3	P	LFP 7 SOUTHEAST CORNER > 120' CONTOUR
9	9/5/97	NO	200' Due East GE-24		PG	WX-105	122.9	127.4	118.0	8.0	96.0	P	LFP 7 SOUTHEAST CORNER > 120' CONTOUR
10	9/5/97	NO	200' E x 50' S GE-24		PG	WX-105	122.9	128.4	117.9	8.9	95.9	P	LFP 7 SOUTHEAST CORNER > 120' CONTOUR
11	9/5/97	NO	50' Due South GE-24		PG	WX-105	122.9	131.2	120.4	8.9	98.0	P	LFP 7 SOUTHEAST CORNER > 120' CONTOUR
12	9/5/97	NO	100' N x 50' W GE-24		PG	WX-105	122.9	129.6	119.0	8.9	96.8	P	LFP 7 SOUTHEAST CORNER > 120' CONTOUR
13	9/5/97	NO	100' N x 100 W GE-24		PG	WX-105	122.9	129.6	119.0	8.9	96.8	P	LFP 7 SOUTHEAST CORNER > 120' CONTOUR
14	9/5/97	NO	75' Due West GE-24		PG	WX-105	122.9	127.1	116.8	8.9	95.0	P	LFP 7 SOUTHEAST CORNER > 120' CONTOUR
15	9/5/97	NO	100' W x 50' S GE-24		PG	WX-105	122.9	128.9	118.4	8.9	96.3	P	LFP 7 SOUTHEAST CORNER > 120' CONTOUR
6A	***9/5/97***	***NO***	***100' Due East GE-18***		***PG***	***WX-105***	***122.9***	***130.1***	***119.3***	***9.0***	***97.1***	***P***	***LFP 7 SOUTHEAST CORNER > 120' CONTOUR***
7A	***9/5/97***	***NO***	***100' E x 50' S GE-18***		***PG***	***WX-105***	***122.9***	***131.3***	***120.4***	***9.0***	***98.0***	***P***	***LFP 7 SOUTHEAST CORNER > 120' CONTOUR***

ALL TESTS WERE RE-COMPACTED AFTER THE ADDITION OF WATER AND RE-ROLLED USING INGERSOLL-RAND ROLLER IR-115 AND WAS RE-TESTED

	1	Of	1	Tests Performed By YEC Personnel							SIGNATURE:		

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	9/4/97	NO	25' W x 25' S GE-24		PG	WX-100	123.8	133.9	122.1	9.7	98.6	P	LFP 7 SOUTHEAST CORNER > 120' CONTOUR
2	9/4/97	NO	25' Due West GE-24		PG	WX-100	123.8	133.0	119.7	11.1	96.7	P	LFP 7 SOUTHEAST CORNER > 120' CONTOUR
3	***9/4/97***	***REQ'D***	***25' W x 25' N GE-24***		***PG***	***WX-100***	***123.8***	***129.1***	***116.7***	***10.6***	***94.3***	***F***	***LFP 7 SOUTHEAST CORNER > 120' CONTOUR***
4	***9/4/97***	***REQ'D***	***30' Due West GE-32***		***PG***	***WX-100***	***123.8***	***127.8***	***116.6***	***9.6***	***94.2***	***F***	***LFP 7 SOUTHEAST CORNER > 120' CONTOUR***
5	***9/4/97***	***REQ'D***	***30' E x 50' N GE-32***		***PG***	***WX-100***	***123.8***	***129.6***	***117.0***	***10.8***	***94.5***	***F***	***LFP 7 SOUTHEAST CORNER > 120' CONTOUR***
6	9/4/97	NO	30' E x 1200' N GE-32		PG	WX-100	123.8	131.6	119.7	9.9	96.7	P	LFP 7 SOUTHEAST CORNER > 120' CONTOUR
7	9/4/97	NO	25' E x 50' N GE-24		PG	WX-100	123.8	132.6	120.2	10.3	97.1	P	LFP 7 SOUTHEAST CORNER > 120' CONTOUR
8	9/4/97	NO	25' E x 100' N GE-24		PG	WX-100	123.8	132.9	119.7	11.0	96.7	P	LFP 7 SOUTHEAST CORNER > 120' CONTOUR
9	9/4/97	NO	70' Due South GE-18		PG	WX-100	123.8	127.2	118.8	7.0	96.0	P	LFP 7 SOUTHEAST CORNER > 120' CONTOUR
10	9/4/97	NO	10' N x 10' E GE-18		PG	WX-100	123.8	132.1	121.1	9.1	97.8	P	LFP 7 SOUTHEAST CORNER > 120' CONTOUR
3A	***9/4/97***	***NO***	***25' W x 25' N GE-24***		***PG***	***WX-100***	***123.8***	***132.8***	***120.1***	***10.6***	***97.0***	***P***	***LFP 7 SOUTHEAST CORNER > 120' CONTOUR***
4A	***9/4/97***	***NO***	***30' Due West GE-32***		***PG***	***WX-100***	***123.8***	***131.4***	***119.5***	***10.0***	***96.5***	***P***	***LFP 7 SOUTHEAST CORNER > 120' CONTOUR***
5A	***9/4/97***	***NO***	***30' E x 50' N GE-32***		***PG***	***WX-100***	***123.8***	***132.9***	***120.0***	***10.8***	***96.9***	***P***	***LFP 7 SOUTHEAST CORNER > 120' CONTOUR***

ALL TESTS WERE RE-COMPACTED AFTER THE ADDITION OF WATER AND RE-ROLLED USING INGERSOLL-RAND ROLLER IR-115 AND WAS RE-TESTED

	1	Of	1	Tests Performed By YEC Personnel	SIGNATURE:	

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	9/3/97	REQ'D	20' W x 40' N GE-24		PG	WX-95	123.4	128.1	115.6	10.8	93.7	F	LFP 7 SOUTHWEST CORNER > 120' CONTOUR
2	9/3/97	REQ'D	100' NW GE-24		PG	WX-95	123.4	123.1	110.4	11.5	89.5	F	LFP 7 SOUTHWEST CORNER > 120' CONTOUR
3	9/3/97	NO	100' N x 25' W GE-24		PG	WX-95	123.4	132.1	118.3	11.6	95.9	P	LFP 7 SOUTHWEST CORNER > 120' CONTOUR
4	9/3/97	REQ'D	150' N x 50' W GE-24		PG	WX-95	123.4	123.6	111.3	11.0	90.2	F	LFP 7 SOUTHWEST CORNER > 120' CONTOUR
5	9/3/97	REQ'D	75' N x 50' W GE-24		PG	WX-95	123.4	124.4	112.5	10.5	91.2	F	LFP 7 SOUTHWEST CORNER > 120' CONTOUR
6	9/3/97	NO	10' W x 10' S GE-24		PG	WX-95	123.4	130.6	119.8	9.0	97.1	P	LFP 7 SOUTHWEST CORNER > 120' CONTOUR
7	9/3/97	REQ'D	125' Due North GE-24		PG	WX-95	123.4	125.4	115.0	9.0	93.2	F	LFP 7 SOUTHWEST CORNER > 120' CONTOUR
8	9/3/97	REQ'D	25' E x 25' S GE-24		PG	WX-95	123.4	126.6	116.6	8.6	94.5	F	LFP 7 SOUTHWEST CORNER > 120' CONTOUR
9	9/3/97	NO	50' Due East GE-24		PG	WX-95	123.4	128.3	118.7	8.1	96.2	P	LFP 7 SOUTHWEST CORNER > 120' CONTOUR
10	9/3/97	NO	20' E x 10' N GE-24		PG	WX-95	123.4	131.2	118.7	10.5	96.2	P	LFP 7 SOUTHWEST CORNER > 120' CONTOUR
11	9/3/97	REQ'D	40' Due West GE-24		PG	WX-95	123.4	125.1	112.7	11.0	91.3	F	LFP 7 SOUTHWEST CORNER > 120' CONTOUR
12	9/3/97	NO	50' E x 50' S GE-24		PG	WX-95	123.4	130.4	117.5	11.0	95.2	P	LFP 7 SOUTHWEST CORNER > 120' CONTOUR
13	9/3/97	REQ'D	50' E x 75' N GE-24		PG	WX-95	123.4	127.0	115.6	9.8	93.7	F	LFP 7 SOUTHWEST CORNER > 120' CONTOUR
14	9/3/97	NO	50' E x 150' N GE-24		PG	WX-95	123.4	127.8	117.4	8.9	95.1	P	LFP 7 SOUTHWEST CORNER > 120' CONTOUR
15	9/3/97	NO	100' E x 75' N GE-24		PG	WX-95	123.4	127.8	117.4	8.9	95.1	P	LFP 7 SOUTHWEST CORNER > 120' CONTOUR
16	9/3/97	REQ'D	100' Due East GE-24		PG	WX-95	123.4	124.5	116.1	7.2	94.1	F	LFP 7 SOUTHWEST CORNER > 120' CONTOUR
17	9/3/97	NO	25' N x 25' E GE-36		PG	WX-90	126.6	134.4	123.9	8.4	97.9	P	LFP 6 NORTHWEST CORNER > 120' CONTOUR
18	9/3/97	NO	40' N x 50' E GE-36		PG	WX-90	126.6	131.7	121.3	8.6	95.8	P	LFP 6 NORTHWEST CORNER > 120' CONTOUR
19	9/3/97	NO	60' N x 100' E GE-36		PG	WX-90	126.6	133.6	120.4	11.0	95.1	P	LFP 6 NORTHWEST CORNER > 120' CONTOUR
20	9/3/97	NO	10' N x 50' E GE-36		PG	WX-90	126.6	133.5	120.3	11.0	95.0	P	LFP 6 NORTHWEST CORNER > 120' CONTOUR
21	9/3/97	NO	25' N x 50' E GE-36		PG	WX-90	126.6	133.4	120.3	10.9	95.0	P	LFP 6 NORTHWEST CORNER > 120' CONTOUR
22	9/3/97	NO	25' N x 100' E GE-36		PG	WX-90	126.6	131.5	120.6	9.0	95.3	P	LFP 6 NORTHWEST CORNER > 120' CONTOUR
1A	9/3/97	NO	20' W x 40' N GE-24		PG	WX-95	123.4	132.1	119.6	10.5	96.9	P	LFP 7 SOUTHWEST CORNER > 120' CONTOUR
2A	9/3/97	NO	100' NW GE-24		PG	WX-95	123.4	133.0	119.8	11.0	97.1	P	LFP 7 SOUTHWEST CORNER > 120' CONTOUR
4A	9/3/97	NO	150' N x 50' W GE-24		PG	WX-95	123.4	133.6	120.9	10.5	98.0	P	LFP 7 SOUTHWEST CORNER > 120' CONTOUR
5A	9/3/97	NO	75' N x 50' W GE-24		PG	WX-95	123.4	134.0	121.2	10.6	98.2	P	LFP 7 SOUTHWEST CORNER > 120' CONTOUR
7A	9/3/97	NO	125' Due North GE-24		PG	WX-95	123.4	133.9	121.3	10.4	98.3	P	LFP 7 SOUTHWEST CORNER > 120' CONTOUR
8A	9/3/97	NO	25' E x 25' S GE-24		PG	WX-95	123.4	133.0	120.8	10.1	97.9	P	LFP 7 SOUTHWEST CORNER > 120' CONTOUR
11A	9/3/97	NO	40' Due West GE-24		PG	WX-95	123.4	132.4	120.4	9.9	97.6	P	LFP 7 SOUTHWEST CORNER > 120' CONTOUR
13A	9/3/97	NO	50' E x 75' N GE-24		PG	WX-95	123.4	134.0	120.8	10.9	97.9	P	LFP 7 SOUTHWEST CORNER > 120' CONTOUR
16A	9/3/97	NO	100' Due East GE-24		PG	WX-95	123.4	132.7	119.6	11.0	96.9	P	LFP 7 SOUTHWEST CORNER > 120' CONTOUR

ALL TESTS WERE RE-COMPACTED AFTER THE ADDITION OF WATER AND RE-ROLLED USING INGERSOLL-RAND ROLLER IR-115 AND WAS RE-TESTED

	1	Of	1	Tests Performed By YEC Personnel	SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	9/2/97	NO	100' Due South GE-39		PG	WX-90	126.6	132.0	121.4	8.7	95.9	P	LFP 6 NORTHWEST CORNER > 120' CONTOUR
2	9/2/97	NO	50' Due South GE-39		PG	WX-90	126.6	135.1	123.9	9.0	97.9	P	LFP 6 NORTHWEST CORNER > 120' CONTOUR
3	9/2/97	NO	50' Due North GE-39		PG	WX-90	126.6	135.5	125.2	8.2	98.9	P	LFP 6 NORTHWEST CORNER > 120' CONTOUR
4	9/2/97	NO	100' Due North GE-39		PG	WX-90	126.6	131.3	121.2	8.4	95.7	P	LFP 6 NORTHWEST CORNER > 120' CONTOUR
5	9/2/97	NO	50' Due South GE-43		PG	WX-90	126.6	131.4	121.7	8.0	96.1	P	LFP 6 NORTHWEST CORNER > 120' CONTOUR
6	9/2/97	NO	100' Due South GE-43		PG	WX-90	126.6	132.1	122.5	7.8	96.8	P	LFP 6 NORTHWEST CORNER > 120' CONTOUR
7	***9/2/97***	***REQ'D***	***75' Due West GE 43***		***PG***	***WX-90***	***126.6***	***127.3***	***119.0***	***7.0***	***94.0***	***F***	***LFP 6 NORTHWEST CORNER > 120' CONTOUR***
8	9/2/97	NO	75' W x 50' S GE-39		PG	WX-90	126.6	130.8	121.0	8.1	95.6	P	LFP 6 NORTHWEST CORNER > 120' CONTOUR
9	9/2/97	NO	75' W x 100' S GE-39		PG	WX-90	126.6	134.6	123.2	9.3	97.3	P	LFP 6 NORTHWEST CORNER > 120' CONTOUR
10	9/2/97	NO	150' W x 100' S GE-39		PG	WX-90	126.6	130.3	120.4	8.2	95.1	P	LFP 6 NORTHWEST CORNER > 120' CONTOUR
11	9/2/97	NO	150' Due West GE-39		PG	WX-90	126.6	129.2	120.4	7.3	95.1	P	LFP 6 NORTHWEST CORNER > 120' CONTOUR
12	9/2/97	NO	150' W x 50' N GE-39		PG	WX-90	126.6	131.4	120.5	9.0	95.2	P	LFP 6 NORTHWEST CORNER > 120' CONTOUR
13	***9/2/97***	***REQ'D***	***150' W x 100' N GE-39***		***PG***	***WX-90***	***126.6***	***128.0***	***118.4***	***8.1***	***93.5***	***F***	***LFP 6 NORTHWEST CORNER > 120' CONTOUR***
14	***9/2/97***	***REQ'D***	***50' Due East GE-40***		***PG***	***WX-90***	***126.6***	***129.8***	***119.5***	***8.6***	***94.4***	***F***	***LFP 6 NORTHWEST CORNER > 120' CONTOUR***
15	***9/2/97***	***REQ'D***	***100' Due East GE-40***		***PG***	***WX-90***	***126.6***	***130.9***	***120.0***	***9.1***	***94.8***	***F***	***LFP 6 NORTHWEST CORNER > 120' CONTOUR***
16	***9/2/97***	***REQ'D***	***50' S x 50' W GE-GE-43***		***PG***	***WX-90***	***126.6***	***128.9***	***118.6***	***8.7***	***93.7***	***F***	***LFP 6 NORTHWEST CORNER > 120' CONTOUR***
17	9/2/97	NO	50' S x 100' W GE-43		PG	WX-90	126.6	129.5	120.4	7.6	95.1	P	LFP 6 NORTHWEST CORNER > 120' CONTOUR
18	***9/2/97***	***REQ'D***	***25' S x 50' E GE-43***		***PG***	***WX-90***	***126.6***	***130.2***	***118.9***	***9.5***	***93.9***	***F***	***LFP 6 NORTHWEST CORNER > 120' CONTOUR***
19	9/2/97	NO	25' S x 100' E GE-43		PG	WX-90	126.6	131.2	121.4	8.1	95.9	P	LFP 6 NORTHWEST CORNER > 120' CONTOUR
20	***9/2/97***	***REQ'D***	***25' S x 150' E GE-43***		***PG***	***WX-90***	***126.6***	***127.4***	***118.9***	***7.2***	***93.9***	***F***	***LFP 6 NORTHWEST CORNER > 120' CONTOUR***
21	9/2/97	NO	25' S x 200' E GE-43		PG	WX-90	126.6	134.1	123.9	8.2	97.9	P	LFP 6 NORTHWEST CORNER > 120' CONTOUR
22	9/2/97	NO	70' S x 200' E GE-43		PG	WX-90	126.6	133.4	126.0	5.9	99.5	P	LFP 6 NORTHWEST CORNER > 120' CONTOUR
23	9/2/97	NO	70' S x 100' E GE-43		PG	WX-90	126.6	131.6	123.6	6.5	97.6	P	LFP 6 NORTHWEST CORNER > 120' CONTOUR
24	9/2/97	NO	100' S x 50' E GE-43		PG	WX-90	126.6	130.9	120.6	8.5	95.3	P	LFP 6 NORTHWEST CORNER > 120' CONTOUR
25	***9/2/97***	***REQ'D***	***25' E x 10' N GE-39***		***PG***	***WX-90***	***126.6***	***127.6***	***119.3***	***7.0***	***94.2***	***F***	***LFP 6 NORTHWEST CORNER > 120' CONTOUR***
26	***9/2/97***	***REQ'D***	***100' E x 10' N GE-39***		***PG***	***WX-90***	***126.6***	***128.8***	***119.1***	***8.1***	***94.1***	***F***	***LFP 6 NORTHWEST CORNER > 120' CONTOUR***
27	***9/2/97***	***REQ'D***	***100' E x 20' S GE-39***		***PG***	***WX-90***	***126.6***	***126.8***	***119.5***	***6.1***	***94.4***	***F***	***LFP 6 NORTHWEST CORNER > 120' CONTOUR***

1 Of 2 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698, MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
										8.7	95.9		
7A	9/2/97	NO	75' Due West GE 43		PG	WX-90	126.6	134.0	122.9	9.0	97.1	P	LFP 6 NORTHWEST CORNER > 120' CONTOUR
13A	9/2/97	NO	150' W x 100' N GE-39		PG	WX-90	126.6	135.3	123.6	9.5	97.6	P	LFP 6 NORTHWEST CORNER > 120' CONTOUR
14A	9/2/97	NO	50' Due East GE-40		PG	WX-90	126.6	135.5	124.1	9.2	98.0	P	LFP 6 NORTHWEST CORNER > 120' CONTOUR
15A	9/2/97	NO	100' Due East GE-40		PG	WX-90	126.6	135.0	123.9	8.9	97.9	P	LFP 6 NORTHWEST CORNER > 120' CONTOUR
16A	9/2/97	NO	50' S x 50' W GE-GE-43		PG	WX-90	126.6	133.3	122.7	8.7	96.9	P	LFP 6 NORTHWEST CORNER > 120' CONTOUR
18A	9/2/97	NO	25' S x 50' E GE-43		PG	WX-90	126.6	133.0	122.2	8.9	96.5	P	LFP 6 NORTHWEST CORNER > 120' CONTOUR
20A	9/2/97	NO	25' S x 150' E GE-43		PG	WX-90	126.6	134.1	122.9	9.1	97.1	P	LFP 6 NORTHWEST CORNER > 120' CONTOUR
25A	9/2/97	NO	25' E x 10' N GE-39		PG	WX-90	126.6	134.5	122.8	9.5	97.0	P	LFP 6 NORTHWEST CORNER > 120' CONTOUR
26A	9/2/97	NO	100' E x 10' N GE-39		PG	WX-90	126.6	135.3	123.4	9.6	97.5	P	LFP 6 NORTHWEST CORNER > 120' CONTOUR
27	9/2/97	NO	100' E x 20' S GE-39		PG	WX-90	126.6	134.1	121.9	10.0	96.3	P	LFP 6 NORTHWEST CORNER > 120' CONTOUR

ALL TESTS WERE RE-COMPACTED AFTER THE ADDITION OF WATER AND RE-ROLLED USING INGERSOLL-RAND ROLLER IR-115 AND WAS RE-TESTED

2	Of	2	Tests Performed By YEC Personnel		SIGNATURE:	

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

AUGUST '97

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 — Item 5B Structural Fill

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	8/28/97	NO	50' E x 50' N GE-40		PG	WX-85	125.0	133.5	123.1	8.4	98.5	P	LFP4 Btwn CC#7 & Sed Basin 2
2	8/28/97	NO	50' Due East GE-40		PG	WX-85	125.0	131.3	120.3	9.2	96.2	P	LFP4 Btwn CC#7 & Sed Basin 2
3	8/28/97	NO	50' E x 50' S GE-40		PG	WX-85	125.0	132.0	121.3	8.9	97.0	P	LFP4 Btwn CC#7 & Sed Basin 2
4	**8/28/97**	**REQ'D**	**50' E x 100' S GE-40**		**PG**	**WX-85**	**125.0**	**128.0**	**116.3**	**10.1**	**93.0**	**F**	**LFP4 Btwn CC#7 & Sed Basin 2**
5	8/28/97	NO	100' E x 100' S GE-40		PG	WX-85	125.0	131.7	120.1	9.6	96.1	P	LFP4 Btwn CC#7 & Sed Basin 2
6	8/28/97	NO	100' x 50' S GE-40		PG	WX-85	125.0	133.2	122.5	8.7	98.0	P	LFP4 Btwn CC#7 & Sed Basin 2
4A	**8/28/97**	**NO**	**50' E x 100' S GE-40**		**PG**	**WX-85**	**125.0**	**132.8**	**121.3**	**9.5**	**97.0**	**P**	**LFP4 Btwn CC#7 & Sed Basin 2**

TEST NUMBERED 4A WAS RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND WAS RE-TESTED

	1	Of	1	Tests Performed By YEC Personnel	SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 — Item 5B Structural Fill

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	8/26/97	REQ'D	30' E x 50' S GE-19		PG	WX-85	125.0	127.8	118.0	8.3	94.4	F	LFP4 Btwn CC#7 & Sed Basin 2
2	8/26/97	REQ'D	50' E x 50' S GE-19		PG	WX-85	125.0	127.5	117.0	9.0	93.6	F	LFP4 Btwn CC#7 & Sed Basin 2
3	8/26/97	REQ'D	100' Due South GE-19		PG	WX-85	125.0	128.1	117.0	9.5	93.6	F	LFP4 Btwn CC#7 & Sed Basin 2
4	8/26/97	REQ'D	75' Due North GE-19		PG	WX-85	125.0	125.5	116.6	7.6	93.3	F	LFP4 Btwn CC#7 & Sed Basin 2
5	8/26/97	NO	75' N x 50' W GE-19		PG	WX-85	125.0	128.5	119.5	7.5	95.6	P	LFP4 Btwn CC#7 & Sed Basin 2
6	8/26/97	NO	75' N x 100 ' W GE-19		PG	WX-85	125.0	130.3	120.6	8.0	96.5	P	LFP4 Btwn CC#7 & Sed Basin 2
7	8/26/97	REQ'D	75' N x 75' E GE-19		PG	WX-85	125.0	127.9	118.0	8.4	94.4	F	LFP4 Btwn CC#7 & Sed Basin 2
8	8/26/97	REQ'D	100' N x 75' E GE-19		PG	WX-85	125.0	126.7	118.0	7.4	94.4	F	LFP4 Btwn CC#7 & Sed Basin 2
9	8/26/97	REQ'D	100' Due North GE-19		PG	WX-85	125.0	126.1	116.9	7.9	93.5	F	LFP4 Btwn CC#7 & Sed Basin 2
1A	8/26/97	NO	30' E x 50' S GE-19		PG	WX-85	125.0	132.0	121.9	8.3	97.5	P	LFP4 Btwn CC#7 & Sed Basin 2
2A	8/26/97	NO	50' E x 50' S GE-19		PG	WX-85	125.0	133.0	122.0	9.0	97.6	P	LFP4 Btwn CC#7 & Sed Basin 2
3A	8/26/97	NO	100' Due South GE-19		PG	WX-85	125.0	132.8	121.3	9.5	97.0	P	LFP4 Btwn CC#7 & Sed Basin 2
4A	8/26/97	NO	75' Due North GE-19		PG	WX-85	125.0	130.3	121.1	7.6	96.9	P	LFP4 Btwn CC#7 & Sed Basin 2
7A	8/26/97	NO	75' N x 75' E GE-19		PG	WX-85	125.0	131.7	121.5	8.4	97.2	P	LFP4 Btwn CC#7 & Sed Basin 2
8A	8/26/97	NO	100' N x 75' E GE-19		PG	WX-85	125.0	131.3	122.3	7.4	97.8	P	LFP4 Btwn CC#7 & Sed Basin 2
9A	8/26/97	NO	100' Due North GE-19		PG	WX-85	125.0	132.2	122.5	7.9	98.0	P	LFP4 Btwn CC#7 & Sed Basin 2
ALL TESTS WERE RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND WERE RE-COMPACTED													
	1	Of	1	Tests Performed By YEC Personnel							SIGNATURE:		

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 69[illegible] MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	8/25/97	NO	25' Due North GE-21		PG	WX-80	124.0	133.5	123.8	7.9	99.8	P	LFP 4 WEST SLOPE BTWN LCC-7 AND TB #2
2	8/25/97	NO	50' Due North GE-21		PG	WX-80	124.0	128.4	122.1	5.1	98.5	P	LFP 4 WEST SLOPE BTWN LCC-7 AND TB #2
3	8/25/97	NO	150' Due North GE-21		PG	WX-80	124.0	130.1	118.8	9.5	95.8	P	LFP 4 WEST SLOPE BTWN LCC-7 AND TB #2
4	8/25/97	NO	150' N x 50' E GE-21		PG	WX-80	124.0	131.7	123.6	6.5	99.7	P	LFP 4 WEST SLOPE BTWN LCC-7 AND TB #2
5	8/25/97	NO	100' N x 50' E GE-21		PG	WX-80	124.0	126.6	121.5	4.2	98.0	P	LFP 4 WEST SLOPE BTWN LCC-7 AND TB #2
6	8/25/97	NO	25' N x 50' E GE-21		PG	WX-80	124.0	125.9	120.2	4.8	96.9	P	LFP 4 WEST SLOPE BTWN LCC-7 AND TB #2
7	8/25/97	NO	25' N x 100' E GE-21		PG	WX-80	124.0	129.8	123.4	5.2	99.5	P	LFP 4 WEST SLOPE BTWN LCC-7 AND TB #2
8	8/25/97	NO	75' N x 100' E GE-21		PG	WX-80	124.0	129.9	120.0	8.2	96.8	P	LFP 4 WEST SLOPE BTWN LCC-7 AND TB #2
9	8/25/97	NO	150' N x 100' E GE-21		PG	WX-80	124.0	127.6	121.5	5.0	98.0	P	LFP 4 WEST SLOPE BTWN LCC-7 AND TB #2
10	8/25/97	NO	50' Due East GE-21		PG	WX-80	124.0	127.5	118.0	8.0	95.2	P	LFP 4 WEST SLOPE BTWN LCC-7 AND TB #2
11	8/25/97	NO	100' Due East GE-20		PG	WX-80	124.0	131.9	121.0	9.0	97.6	P	LFP 4 WEST SLOPE BTWN LCC-7 AND TB #2
12	***8/25/97***	***REQ'D***	***125' E x 50' S GE-20***		***PG***	***WX-80***	***124.0***	***125.9***	***115.4***	***9.1***	***93.1***	***F***	***LFP 4 WEST SLOPE BTWN LCC-7 AND TB #2***
13	***8/25/97***	***REQ'D***	***125' E x 100' S GE-20***		***PG***	***WX-80***	***124.0***	***126.3***	***116.2***	***8.7***	***93.7***	***F***	***LFP 4 WEST SLOPE BTWN LCC-7 AND TB #2***
14	8/25/97	NO	125' E x 150' S GE-20		PG	WX-80	124.0	132.0	120.4	9.6	97.1	P	LFP 4 WEST SLOPE BTWN LCC-7 AND TB #2
15	***8/25/97***	***REQ'D***	***75' E x 150' S GE-20***		***PG***	***WX-80***	***124.0***	***125.1***	***115.4***	***8.4***	***93.1***	***F***	***LFP 4 WEST SLOPE BTWN LCC-7 AND TB #2***
16	***8/25/97***	***REQ'D***	***75' E x 100' S GE-20***		***PG***	***WX-80***	***124 0***	***127.2***	***117.4***	***8.3***	***94.7***	***F***	***LFP 4 WEST SLOPE BTWN LCC-7 AND TB #2***
17	8/25/97	NO	75' E x50' S GE-20		PG	WX-80	124.0	129.8	120.9	7.4	97.5	P	LFP 4 WEST SLOPE BTWN LCC-7 AND TB #2
18	8/25/97	NO	25' E x 25' S GE-19		PG	WX-80	124.0	128.0	118.9	7.6	95.9	P	LFP 4 WEST SLOPE BTWN LCC-7 AND TB #2
12A	***8/25/97***	***NO***	***125' E x 50' S GE-20***		***PG***	***WX-80***	***124.0***	***129.9***	***119.2***	***9.0***	***96.1***	***P***	***LFP 4 WEST SLOPE BTWN LCC-7 AND TB #2***
13A	***8/25/97***	***NO***	***125' E x 100' S GE-20***		***PG***	***WX-80***	***124.0***	***130.0***	***119.0***	***9.2***	***96.0***	***P***	***LFP 4 WEST SLOPE BTWN LCC-7 AND TB #2***
15A	***8/25/97***	***NO***	***75' E x 150' S GE-20***		***PG***	***WX-80***	***124.0***	***129.5***	***118.8***	***9.0***	***95.8***	***P***	***LFP 4 WEST SLOPE BTWN LCC-7 AND TB #2***
16A	***8/25/97***	***NO***	***75' E x 100' S GE-20***		***PG***	***WX-80***	***124.0***	***131.3***	***119.9***	***9.5***	***96.7***	***P***	***LFP 4 WEST SLOPE BTWN LCC-7 AND TB #2***
ALL TESTS WERE RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND WERE RE-TESTED													

1 Of 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	8/20/97	REQ'D	25' DUE SOUTH GE-21		PG	WX-75	125.2	126.6	116.4	8.7	93.0	F	LFP 4 SOUTH EAST CORNER OF LANDFILL ADJ TO TB#2
2	8/20/97	NO	25' S x 50' E GE-21		PG	WX-75	125.2	134.2	123.3	8.8	98.5	P	LFP 4 SOUTH EAST CORNER OF LANDFILL ADJ TO TB#2
3	8/20/97	NO	25' S x 100' E GE-21		PG	WX-75	125.2	132.2	122.3	8.1	97.7	P	LFP 4 SOUTH EAST CORNER OF LANDFILL ADJ TO TB#2
4	8/20/97	REQ'D	25' S x 200' E GE-21		PG	WX-75	125.2	130.9	118.3	10.6	94.5	F	LFP 4 SOUTH EAST CORNER OF LANDFILL ADJ TO TB#2
5	8/20/97	NO	250' DUE EAST GE-21		PG	WX-75	125.2	135.4	126.0	7.5	100.6	P	LFP 4 SOUTH EAST CORNER OF LANDFILL ADJ TO TB#2
6	8/20/97	NO	200' SE GE-21		PG	WX-75	125.2	134.4	122.1	10.1	97.5	P	LFP 4 SOUTH EAST CORNER OF LANDFILL ADJ TO TB#2
7	8/20/97	REQ'D	150' SE GE-21		PG	WX-75	125.2	127.0	118.3	7.3	94.5	F	LFP 4 SOUTH EAST CORNER OF LANDFILL ADJ TO TB#2
8	8/20/97	NO	100' SE GE-21		PG	WX-75	125.2	129.3	121.1	6.8	96.7	P	LFP 4 SOUTH EAST CORNER OF LANDFILL ADJ TO TB#2
9	8/20/97	NO	50' x 75' S GE-21		PG	WX-75	125.2	127.9	119.3	7.2	95.3	P	LFP 4 SOUTH EAST CORNER OF LANDFILL ADJ TO TB#2
1A	8/20/97	NO	25' DUE SOUTH GE-21		PG	WX-75	125.2	133.9	122.8	9.0	98.1	P	LFP 4 SOUTH EAST CORNER OF LANDFILL ADJ TO TB#2
4A	8/20/97	NO	25' S x 200' E GE-21		PG	WX-75	125.2	135.7	123.3	10.0	98.5	P	LFP 4 SOUTH EAST CORNER OF LANDFILL ADJ TO TB#2
7A	8/20/97	NO	150' SE GE-21		PG	WX-75	125.2	135.0	123.8	9.0	98.9	P	LFP 4 SOUTH EAST CORNER OF LANDFILL ADJ TO TB#2

ALL TESTS WERE RE-COMPACTED AND RE-ROLLED USING INGERSOLL-RAND ROLLER IR-115 AND WERE RE-TESTED

1 Of 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 — Item 5B Structural Fill

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	8/19/97	REQ'D	20' W X 20' S GE-22		PG	WX-70	128.4	128.3	118.5	8.3	92.3	F	LFP 4 SOUTH EAST CORNER OF LANDFILL ADJ TO TB#2
2	8/19/97	REQ'D	60' E X 20' S GE-22		PG	WX-70	128.4	129.3	118.6	9.0	92.4	F	LFP 4 SOUTH EAST CORNER OF LANDFILL ADJ TO TB#2
3	8/19/97	REQ'D	100' DUE EAST GE-22		PG	WX-70	128.4	132.2	121.6	8.7	94.7	F	LFP 4 SOUTH EAST CORNER OF LANDFILL ADJ TO TB#2
4	8/19/97	NO	100' SE GE-22		PG	WX-70	128.4	131.0	122.9	6.6	95.7	P	LFP 4 SOUTH EAST CORNER OF LANDFILL ADJ TO TB#2
5	8/19/97	NO	100' DUE SOUTH GE-22		PG	WX-70	128.4	131.7	122.8	7.3	95.6	P	LFP 4 SOUTH EAST CORNER OF LANDFILL ADJ TO TB#2
6	8/19/97	REQ'D	140' SE GE-22		PG	WX-70	128.4	129.1	120.4	7.2	93.8	F	LFP 4 SOUTH EAST CORNER OF LANDFILL ADJ TO TB#2
7	8/19/97	NO	160' DUE SOUTH GE-22		PG	WX-70	128.4	129.9	122.8	5.8	95.6	P	LFP 4 SOUTH EAST CORNER OF LANDFILL ADJ TO TB#2
8	8/19/97	NO	200' SE GE-22		PG	WX-70	128.4	131.8	122.9	7.3	95.7	P	LFP 4 SOUTH EAST CORNER OF LANDFILL ADJ TO TB#2
9	8/19/97	NO	200' DUE EAST GE-22		PG	WX-70	128.4	136.7	125.4	9.0	97.7	P	LFP 4 SOUTH EAST CORNER OF LANDFILL ADJ TO TB#2
1A	8/19/97	NO	20' W X 20' S GE-22		PG	WX-70	128.4	133.9	123.6	8.3	96.3	P	LFP 4 SOUTH EAST CORNER OF LANDFILL ADJ TO TB#2
2A	8/19/97	NO	60' E X 20' S GE-22		PG	WX-70	128.4	135.8	124.5	9.0	97.0	P	LFP 4 SOUTH EAST CORNER OF LANDFILL ADJ TO TB#2
3A	8/19/97	NO	100' DUE EAST GE-22		PG	WX-70	128.4	135.5	124.7	8.7	97.1	P	LFP 4 SOUTH EAST CORNER OF LANDFILL ADJ TO TB#2
6A	8/19/97	NO	140' SE GE-22		PG	WX-70	128.4	133.4	124.4	7.2	96.9	P	LFP 4 SOUTH EAST CORNER OF LANDFILL ADJ TO TB#2

ALL TESTS WERE RE-COMPACTED AND RE-ROLLED USING INGERSOLL-RAND ROLLER IR-115 AND WERE RE-TESTED

	1	Of	1	Tests Performed By YEC Personnel	SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 — Item 5B Structural Fill

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	8/15/97	REQ'D	20' E x 50' S GE-23		PG	WX-70	128.4	130.4	121.0	7.8	94.2	F	LFP 4 SOUTH EDGE OF LANDFILL
2	8/15/97	NO	70' E x 100' S GE-23		PG	WX-70	128.4	130.4	123.0	6.0	95.8	P	LFP 4 SOUTH EDGE OF LANDFILL
3	8/15/97	REQ'D	50' E x 100' S GE-23		PG	WX-70	128.4	125.0	119.4	4.7	93.0	F	LFP 4 SOUTH EDGE OF LANDFILL
4	8/15/97	REQ'D	50' E x 50' S GE-23		PG	WX-70	128.4	127.9	121.5	5.3	94.6	F	LFP 4 SOUTH EDGE OF LANDFILL
1A	8/15/97	NO	20' E x 50' S GE-23		PG	WX-70	128.4	134.6	124.5	8.1	97.0	P	LFP 4 SOUTH EDGE OF LANDFILL
3A	8/15/97	NO	50' E x 100' S GE-23		PG	WX-70	128.4	133.6	124.3	7.5	96.8	P	LFP 4 SOUTH EDGE OF LANDFILL
4A	8/15/97	NO	50' E x 50' S GE-23		PG	WX-70	128.4	134.8	124.8	8.0	97.2	P	LFP 4 SOUTH EDGE OF LANDFILL
ALL TESTS WERE RE-COMPACTED AFTER THE ADDITION OF WATER AND RE-ROLLED USING INGERSOLL-RAND ROLLER IR-115 AND WAS RE-TESTED													

1 Of 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 — Item 5B Structural Fill

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	8/14/97	REQ'D	20' E x 40' N GE-23		PG	WX-70	128.4	131.2	121.7	7.8	94.8	F	LFP 4 SOUTH EDGE OF LANDFILL
2	8/14/97	REQ'D	60' E x 60' N GE-23		PG	WX-70	128.4	128.2	121.0	6.0	94.2	F	LFP 4 SOUTH EDGE OF LANDFILL
3	8/14/97	NO	70' E x 40' N GE-23		PG	WX-70	128.4	132.4	126.5	4.7	98.5	P	LFP 4 SOUTH EDGE OF LANDFILL
4	8/14/97	NO	50' E x 20' N GE-23		PG	WX-70	128.4	133.0	126.3	5.3	98.4	P	LFP 4 SOUTH EDGE OF LANDFILL
1	8/14/97	NO	20' E x 40' N GE-23		PG	WX-70	128.4	133.9	124.5	7.5	97.0	P	LFP 4 SOUTH EDGE OF LANDFILL
2	8/14/97	NO	60' E x 60' N GE-23		PG	WX-70	128.4	133.6	124.4	7.4	96.9	P	LFP 4 SOUTH EDGE OF LANDFILL

ALL TESTS WERE RE-COMPACTED AFTER THE ADDITION OF WATER AND RE-ROLLED USING INGERSOLL-RAND ROLLER IR-115 AND WAS RE-TESTED

	1	Of	1	Tests Performed By YEC Personnel							SIGNATURE:		

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 — Item 5B Structural Fill

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	8/13/97	REQ'D	100' W x 50' N GE-23		PG	WX-70	128.4	128.9	121.7	5.9	94.8	F	LFP 4 SOUTH OF TB #3
2	8/13/97	REQ'D	50' W x 50' N GE-23		PG	WX-70	128.4	127.5	120.3	6.0	93.7	F	LFP 4 SOUTH OF TB #3
3	8/13/97	REQ'D	50' DUE NORTH GE-23		PG	WX-70	128.4	126.9	121.1	4.8	94.3	F	LFP 4 SOUTH OF TB #3
4	8/13/97	REQ'D	25' E x 50' S GE-23		PG	WX-70	128.4	128.9	120.6	6.9	93.9	F	LFP 4 SOUTH OF TB #3
5	8/13/97	NO	50' E 100' S GE-23		PG	WX-70	128.4	132.4	126.5	4.7	98.5	P	LFP 4 SOUTH OF TB #3
6	8/13/97	REQ'D	100' E x 125' S GE-23		PG	WX-70	128.4	126.7	120.7	5.0	94.0	F	LFP 4 SOUTH OF TB #3
7	8/13/97	NO	100' E x 75' S GE-23		PG	WX-70	128.4	136.1	126.5	7.6	98.5	P	LFP 4 SOUTH OF TB #3
1A	8/13/97	NO	100' W x 50' N GE-23		PG	WX-70	128.4	133.9	124.5	7.5	97.0	P	LFP 4 SOUTH OF TB #3
2A	8/13/97	NO	50' W x 50' N GE-23		PG	WX-70	128.4	133.9	124.4	7.6	96.9	P	LFP 4 SOUTH OF TB #3
3A	8/13/97	NO	50' DUE NORTH GE-23		PG	WX-70	128.4	134.8	124.8	8.0	97.2	P	LFP 4 SOUTH OF TB #3
4A	8/13/97	NO	25' E x 50' S GE-23		PG	WX-70	128.4	135.2	124.9	8.2	97.3	P	LFP 4 SOUTH OF TB #3
6A	8/13/97	NO	100' E x 125' S GE-23		PG	WX-70	128.4	133.8	124.5	7.4	97.0	P	LFP 4 SOUTH OF TB #3
ALL TESTS WERE RE-COMPACTED AFTER THE ADDITION OF WATER AND RE-ROLLED USING INGERSOLL-RAND ROLLER IR-115 AND WAS RE-TESTED													
	1	Of	1	Tests Performed By YEC Personnel							SIGNATURE:		

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	8/12/97	REQ'D	15' N x 70' E LCC-6		PG	WX-65	121.8	116.7	110.2	5.9	90.5	F	LFP 4 SOUTH OF TB #3
2	8/12/97	REQ'D	15' DUE SOUTH LCC-6		PG	WX-65	121.8	122.4	115.5	6.0	94.8	F	LFP 4 SOUTH OF TB #3
3	8/12/97	NO	15' N x 50' W LCC-6		PG	WX-65	121.8	124.7	119.0	4.8	97.7	P	LFP 4 SOUTH OF TB #3
4	8/12/97	REQ'D	70' N x 50' W LCC-6		PG	WX-65	121.8	123.3	115.3	6.9	94.7	F	LFP 4 SOUTH OF TB #3
5	8/12/97	NO	70' DUE SOUTH LCC-6		PG	WX-65	121.8	123.2	117.7	4.7	96.6	P	LFP 4 SOUTH OF TB #3
6	8/12/97	NO	70' N x 70' E LCC-6		PG	WX-65	121.8	121.6	115.8	5.0	95.1	P	LFP 4 SOUTH OF TB #3
7	8/12/97	REQ'D	150' N x 70' E LCC-6		PG	WX-65	121.8	122.5	113.9	7.6	93.5	F	LFP 4 SOUTH OF TB #3
8	8/12/97	REQ'D	150' DUE NORTH LCC-6		PG	WX-65	121.8	121.6	115.0	5.8	94.4	F	LFP 4 SOUTH OF TB #3
9	8/12/97	REQ'D	150' N x 50' W LCC-6		PG	WX-65	121.8	120.6	115.0	4.9	94.4	F	LFP 4 SOUTH OF TB #3
10	8/12/97	NO	10' DUE NORTH LCC-6		PG	WX-65	121.8	127.2	119.7	6.2	98.3	P	LFP 4 SOUTH OF TB #3
11	8/12/97	REQ'D	20' N x 50' E GE-25		PG	WX-70	128.4	127.7	121.5	5.1	94.6	F	LFP 4 SOUTH OF TB #3
12	8/12/97	REQ'D	20' W x 20' S GE-23		PG	WX-70	128.4	127.5	120.4	5.9	93.8	F	LFP 4 SOUTH OF TB #3
13	8/12/97	NO	100' W x 30' S LCC-6		PG	WX-70	128.4	128.2	122.8	4.4	95.6	P	LFP 4 SOUTH OF TB #3
14	8/12/97	REQ'D	50' W x 30' S LCC-6		PG	WX-70	128.4	124.5	119.4	4.3	93.0	F	LFP 4 SOUTH OF TB #3
15	8/12/97	NO	75' E x 30' S LCC-6		PG	WX-70	128.4	130.6	123.5	5.7	96.2	P	LFP 4 SOUTH OF TB #3
16	8/12/97	NO	50' E x 50' S LCC-6		PG	WX-70	128.4	129.6	122.8	5.6	95.6	P	LFP 4 SOUTH OF TB #3
1A	8/12/97	NO	15' N x 70' E LCC-6		PG	WX-65	121.8	126.9	118.0	7.5	96.9	P	LFP 4 SOUTH OF TB #3
2A	8/12/97	NO	15' DUE SOUTH LCC-6		PG	WX-65	121.8	127.1	118.1	7.6	97.0	P	LFP 4 SOUTH OF TB #3
4A	8/12/97	NO	70' N x 50' W LCC-6		PG	WX-65	121.8	127.3	117.9	8.0	96.8	P	LFP 4 SOUTH OF TB #3
7A	8/12/97	NO	150' N x 70' E LCC-6		PG	WX-65	121.8	127.7	118.4	7.9	97.2	P	LFP 4 SOUTH OF TB #3
8A	8/12/97	NO	150' DUE NORTH LCC-6		PG	WX-65	121.8	128.1	118.4	8.2	97.2	P	LFP 4 SOUTH OF TB #3
9A	8/12/97	NO	150' N x 50' W LCC-6		PG	WX-65	121.8	128.2	119.4	7.4	98.0	P	LFP 4 SOUTH OF TB #3
11A	8/12/97	NO	20' N x 50' E GE-25		PG	WX-70	128.4	134.4	124.4	8.0	96.9	P	LFP 4 SOUTH OF TB #3
12A	8/12/97	NO	20' W x 20' S GE-23		PG	WX-70	128.4	134.2	124.3	8.0	96.8	P	LFP 4 SOUTH OF TB #3
14A	8/12/97	NO	50' W x 30' S LCC-6		PG	WX-70	128.4	134.8	124.8	8.0	97.2	P	LFP 4 SOUTH OF TB #3

ALL TESTS WERE RE-COMPACTED AFTER THE ADDITION OF WATER AND RE-ROLLED USING INGERSOLL-RAND ROLLER IR-115 AND WAS RE-TESTED

1 Of 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	**8/7/97**	**REQ'D**	**175' DUE SOUTH GE-25**		**PG**	**WX-60**	**122.3**	**120.1**	**115.9**	**3.6**	**94.8**	**F**	**LFP 4 SOUTH OF TB #3**
2	8/7/97	NO	175' S X 75' W GE-25		PG	WX-60	122.3	129.9	122.3	6.2	100.0	P	LFP 4 SOUTH OF TB #3
3	8/7/97	NO	175' S X 150' W GE-25		PG	WX-60	122.3	127.3	121.1	5.1	99.0	P	LFP 4 SOUTH OF TB #3
4	8/7/97	NO	175' S X 200' W GE-25		PG	WX-60	122.3	126.0	118.6	6.2	97.0	P	LFP 4 SOUTH OF TB #3
5	8/7/97	NO	100' S X 200' W GE-25		PG	WX-60	122.3	124.0	117.4	5.6	96.0	P	LFP 4 SOUTH OF TB #3
6	**8/7/97**	**REQ'D**	**100' S X 150' W GE-25**		**PG**	**WX-60**	**122.3**	**121.2**	**115.6**	**4.9**	**94.5**	**F**	**LFP 4 SOUTH OF TB #3**
7	8/7/97	NO	100' S X 75' W GE-25		PG	WX-60	122.3	123.2	117.7	4.7	96.2	P	LFP 4 SOUTH OF TB #3
8	8/7/97	NO	100' DUE SOUTH GE-25		PG	WX-60	122.3	124.8	116.7	7.0	95.4	P	LFP 4 SOUTH OF TB #3
9	8/7/97	NO	25' DUE SOUTH GE- 25		PG	WX-60	122.3	129.2	120.0	7.7	98.1	P	LFP 4 SOUTH OF TB #3
10	8/7/97	NO	25' S X 50' W GE-25		PG	WX-60	122.3	127.8	118.6	7.7	97.0	P	LFP 4 SOUTH OF TB #3
11	8/7/97	NO	25' S X 100' W GE-25		PG	WX-60	122.3	128.2	120.2	6.6	98.3	P	LFP 4 SOUTH OF TB #3
12	8/7/97	NO	25' S X 150' W GE-25		PG	WX-60	122.3	122.9	117.4	4.7	96.0	P	LFP 4 SOUTH OF TB #3
13	8/7/97	NO	25' E X 10' S RFW 1S-1D		PG	WX-60	122.3	129.8	121.4	6.9	99.3	P	LFP 4 SOUTH OF TB #3
14	8/7/97	NO	25' W X 10' S RFW 1S-1D		PG	WX-60	122.3	127.3	119.1	6.9	97.4	P	LFP 4 SOUTH OF TB #3
15	8/7/97	NO	150' DUE WEST RFW 1S-1D		PG	WX-60	122.3	126.2	118.9	6.2	97.2	P	LFP 4 SOUTH OF TB #3
16	8/7/97	NO	200' W X 15' S RFW 1S-1D		PG	WX-60	122.3	128.7	121.0	6.4	98.9	P	LFP 4 SOUTH OF TB #3
1A	**8/7/97**	**NO**	**175' DUE SOUTH GE-25**		**PG**	**WX-60**	**122.3**	**126.9**	**118.6**	**7.0**	**97.0**	**P**	**LFP 4 SOUTH OF TB #3**
6A	**8/7/97**	**NO**	**100' S X 150' W GE-25**		**PG**	**WX-60**	**122.3**	**125.7**	**118.0**	**6.5**	**96.5**	**P**	**LFP 4 SOUTH OF TB #3**

ALL TESTS WERE RE-COMPACTED AFTER THE ADDITION OF WATER AND RE-ROLLED USING INGERSOLL-RAND ROLLER IR-115 AND WAS RE-TESTED

1 Of 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698, MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	8/6/97	REQ'D	25' W X 225 ' S GE-26		PG	WX-60	122.3	122.4	115.9	5.6	94.8	F	LFP 3 SOUTH EAST TB#3
2	8/6/97	NO	75' W X 225' S GE-26		PG	WX-60	122.3	126.0	117.8	7.0	96.3	P	LFP 3 SOUTH EAST TB#3
3	8/6/97	NO	125' W X 225' S GE-26		PG	WX-60	122.3	125.6	117.4	7.0	96.0	P	LFP 3 SOUTH EAST TB#3
4	8/6/97	NO	200' W X 125' S GE-26		PG	WX-60	122.3	127.2	117.8	8.0	96.3	P	LFP 3 SOUTH EAST TB#3
5	8/6/97	NO	150' S X 200' W GE-26		PG	WX-60	122.3	126.0	116.9	7.8	95.6	P	LFP 3 SOUTH EAST TB#3
6	8/6/97	NO	150' S X 150' W GE-26		PG	WX-60	122.3	127.0	118.1	7.5	96.6	P	LFP 3 SOUTH EAST TB#3
7	8/6/97	REQ'D	50' W X 175' S GE-26		PG	WX-60	122.3	124.2	116.1	7.0	94.9	F	LFP 3 SOUTH EAST TB#3
8	8/6/97	NO	175' DUE SOUTH GE-26		PG	WX-60	122.3	124.8	116.7	7.0	95.4	P	LFP 3 SOUTH EAST TB#3
9	8/6/97	NO	75' DUE SOUTH GE-26		PG	WX-60	122.3	126.5	118.0	7.2	96.5	P	LFP 3 SOUTH EAST TB#3
10	8/6/97	REQ'D	75' S X 50' W GE-26		PG	WX-60	122.3	123.7	114.8	7.7	93.9	F	LFP 3 SOUTH EAST TB#3
11	8/6/97	NO	75' S X 100' W GE-26		PG	WX-60	122.3	126.1	117.3	7.5	95.9	P	LFP 3 SOUTH EAST TB#3
12	8/6/97	NO	100' DUE WEST GE-26		PG	WX-60	122.3	128.5	119.0	8.0	97.3	P	LFP 3 SOUTH EAST TB#3
13	8/6/97	REQ'D	50' DUE WEST GE-26		PG	WX-60	122.3	124.8	115.6	8.0	94.5	F	LFP 3 SOUTH EAST TB#3
14	8/6/97	NO	50' W X 50' N GE-26		PG	WX-60	122.3	127.4	118.5	7.5	96.9	P	LFP 3 SOUTH EAST TB#3
1A	8/6/97	NO	25' W X 225 ' S GE-26		PG	WX-60	122.3	127.7	118.0	8.2	96.5	P	LFP 3 SOUTH EAST TB#3
7A	8/6/97	NO	50' W X 175' S GE-26		PG	WX-60	122.3	128.0	118.5	8.0	96.9	P	LFP 3 SOUTH EAST TB#3
10A	8/6/97	NO	75' S X 50' W GE-26		PG	WX-60	122.3	127.6	118.4	7.8	96.8	P	LFP 3 SOUTH EAST TB#3
13A	8/6/97	NO	50' DUE WEST GE-26		PG	WX-60	122.3	128.1	118.6	8.0	97.0	P	LFP 3 SOUTH EAST TB#3
ALL TESTS WERE RE-COMPACTED AFTER THE ADDITION OF WATER AND RE-ROLLED USING INGERSOLL-RAND ROLLER IR-115 AND WAS RE-TESTED													
	1	Of	1	Tests Performed By YEC Personnel							SIGNATURE:		

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 — Item 5B Structural Fill

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	8/5/97	NO	50' S X 125' E GE-28		PG	WX-60	122.3	130.8	118.6	10.3	97.0	P	LFP 3 SOUTH EAST TB#3
2	8/5/97	NO	100' S X 125' E GE-28		PG	WX-60	122.3	131.8	121.3	8.6	99.2	P	LFP 3 SOUTH EAST TB#3
3	**8/5/97**	**REQ'D**	**150' S X 125' E GE-28**		**PG**	**WX-60**	**122.3**	**123.2**	**115.2**	**6.9**	**94.2**	**F**	**LFP 3 SOUTH EAST TB#3**
4	8/5/97	NO	150' S X 50' E GE-28		PG	WX-60	122.3	127.8	117.8	8.5	96.3	P	LFP 3 SOUTH EAST TB#3
5	8/5/97	NO	100' S X 50' E GE-28		PG	WX-60	122.3	130.0	120.2	8.1	98.3	P	LFP 3 SOUTH EAST TB#3
6	8/5/97	NO	50' S X 50' E GE-28		PG	WX-60	122.3	128.9	118.5	8.8	96.9	P	LFP 3 SOUTH EAST TB#3
7	8/5/97	NO	50' DUE SOUTH GE-28		PG	WX-60	122.3	127.1	119.6	6.3	97.8	P	LFP 3 SOUTH EAST TB#3
8	8/5/97	NO	100' DUE SOUTH GE-28		PG	WX-60	122.3	130.6	119.9	9.0	98.0	P	LFP 3 SOUTH EAST TB#3
9	8/5/97	NO	150' DUE SOUTH GE-28		PG	WX-60	122.3	129.0	117.8	9.5	96.3	P	LFP 3 SOUTH EAST TB#3
10	8/5/97	NO	50' W X 150' S GE-28		PG	WX-60	122.3	127.0	117.8	7.8	96.3	P	LFP 3 SOUTH EAST TB#3
11	8/5/97	NO	50' W X 50' S GE-28		PG	WX-60	122.3	129.9	120.6	7.7	98.6	P	LFP 3 SOUTH EAST TB#3
12	8/5/97	NO	100' W X 50' S GE-28		PG	WX-60	122.3	126.9	118.6	7.0	97.0	P	LFP 3 SOUTH EAST TB#3
13	8/5/97	NO	100' W X 100' S GE-28		PG	WX-60	122.3	125.1	118.0	6.0	96.5	P	LFP 3 SOUTH EAST TB#3
14	8/5/97	NO	100' W X 50' S GE-28		PG	WX-60	122.3	127.8	118.9	7.5	97.2	P	LFP 3 SOUTH EAST TB#3
15	8/5/97	NO	100' W X 150' S GE-28		PG	WX-60	122.3	130.2	119.0	9.4	97.3	P	LFP 3 SOUTH EAST TB#3
3A	**8/5/97**	**REQ'D**	**150' S X 125' E GE-28**		**PG**	**WX-60**	**122.3**	**123.2**	**115.2**	**6.9**	**94.2**	**F**	**LFP 3 SOUTH EAST TB#3**

TEST NUMBERED 3A WAS RE-COMPACTED AFTER THE ADDITION OF WATER AND RE-ROLLED USING INGERSOLL-RAND ROLLER IR-115 AND WAS RE-TESTED

1 Of 1 Tests Performed By YEC Personnel

SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 — Item 5B Structural Fill

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	8/4/97	REQ'D	25' DUE WEST GE-29		PG	WX-60	122.3	121.1	114.7	5.6	93.8	F	LFP 3 ADJACENT TO TB#3 BTWN 90' & 120' CONTOUR
2	8/4/97	REQ'D	25' W x 50' N GE-29		PG	WX-60	122.3	120.5	114.4	5.4	93.5	F	LFP 3 ADJACENT TO TB#3 BTWN 90' & 120' CONTOUR
3	8/4/97	NO	25' W Xx 100' N GE-29		PG	WX-60	122.3	125.6	118.4	6.1	96.8	P	LFP 3 ADJACENT TO TB#3 BTWN 90' & 120' CONTOUR
4	8/4/97	NO	25' S x 70' W GE-32		PG	WX-60	122.3	126.9	117.9	7.6	96.4	P	LFP 3 ADJACENT TO TB#3 BTWN 90' & 120' CONTOUR
5	8/4/97	NO	70' S x 70' W GE-32		PG	WX-60	122.3	126.6	119.7	5.7	97.9	P	LFP 3 ADJACENT TO TB#3 BTWN 90' & 120' CONTOUR
6	8/4/97	REQ'D	125' S x 70' W GE-32		PG	WX-60	122.3	122.0	115.1	6.0	94.1	F	LFP 3 ADJACENT TO TB#3 BTWN 90' & 120' CONTOUR
7	8/4/97	NO	175' S x 70' W GE-32		PG	WX-60	122.3	124.3	116.7	6.5	95.4	P	LFP 3 ADJACENT TO TB#3 BTWN 90' & 120' CONTOUR
8	8/4/97	NO	10' S x 5' E GE-28		PG	WX-60	122.3	123.9	116.9	6.0	95.6	P	LFP 3 ADJACENT TO TB#3 BTWN 90' & 120' CONTOUR
9	8/4/97	REQ'D	50' N x 10' E GE-28		PG	WX-60	122.3	122.8	115.8	6.0	94.7	F	LFP 3 ADJACENT TO TB#3 BTWN 90' & 120' CONTOUR
10	8/4/97	REQ'D	100' N x 10' E GE-28		PG	WX-60	122.3	121.7	114.2	6.5	93.4	F	LFP 3 ADJACENT TO TB#3 BTWN 90' & 120' CONTOUR
11	8/4/97	REQ'D	25' S x 10' W GE-28		PG	WX-60	122.3	121.1	114.0	6.2	93.2	F	LFP 3 ADJACENT TO TB#3 BTWN 90' & 120' CONTOUR
12	8/4/97	NO	65' S x 10' W GE-28		PG	WX-60	122.3	129.5	122.3	5.9	100.0	P	LFP 3 ADJACENT TO TB#3 BTWN 90' & 120' CONTOUR
13	8/4/97	NO	50' S x 40' W GE-28		PG	WX-60	122.3	129.4	118.8	9.0	97.1	P	LFP 3 ADJACENT TO TB#3 BTWN 90' & 120' CONTOUR
14	8/4/97	NO	15' S x 75' W GE-28		PG	WX-60	122.3	129.5	119.4	8.5	97.6	P	LFP 3 ADJACENT TO TB#3 BTWN 90' & 120' CONTOUR
15	8/4/97	REQ'D	75' W x 50' N GE-28		PG	WX-60	122.3	125.7	115.9	8.4	94.8	F	LFP 3 ADJACENT TO TB#3 BTWN 90' & 120' CONTOUR
16	8/4/97	NO	75' W x 50' S GE-28		PG	WX-60	122.3	126.7	117.4	7.9	96.0	P	LFP 3 ADJACENT TO TB#3 BTWN 90' & 120' CONTOUR
1A	8/4/97	NO	25' DUE WEST GE-29		PG	WX-60	122.3	127.5	118.6	7.5	97.0	P	LFP 3 ADJACENT TO TB#3 BTWN 90' & 120' CONTOUR
2A	8/4/97	NO	25' W x 50' N GE-29		PG	WX-60	122.3	127.4	118.9	7.2	97.2	P	LFP 3 ADJACENT TO TB#3 BTWN 90' & 120' CONTOUR
6A	8/4/97	NO	125' S x 70' W GE-32		PG	WX-60	122.3	127.5	118.5	7.6	96.9	P	LFP 3 ADJACENT TO TB#3 BTWN 90' & 120' CONTOUR
9A	8/4/97	NO	50' N x 10' E GE-28		PG	WX-60	122.3	128.0	118.6	7.9	97.0	P	LFP 3 ADJACENT TO TB#3 BTWN 90' & 120' CONTOUR
10A	8/4/97	NO	100' N x 10' E GE-28		PG	WX-60	122.3	128.3	118.8	8.0	97.1	P	LFP 3 ADJACENT TO TB#3 BTWN 90' & 120' CONTOUR
11A	8/4/97	NO	25' S x 10' W GE-28		PG	WX-60	122.3	127.3	118.5	7.4	96.9	P	LFP 3 ADJACENT TO TB#3 BTWN 90' & 120' CONTOUR
15A	8/4/97	NO	75' W x 50' N GE-28		PG	WX-60	122.3	127.9	118.4	8.0	96.8	P	LFP 3 ADJACENT TO TB#3 BTWN 90' & 120' CONTOUR

ALL TESTS WERE RE-COMPACTED AFTER THE ADDITION OF WATER AND RE-ROLLED USING INGERSOLL-RAND ROLLER IR-115 AND WERE RE-TESTED.

	1	Of	1	Tests Performed By YEC Personnel							SIGNATURE:		

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

JULY '97

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 — Item 5B Structural Fill

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	7/30/97	NO	50' N x 145' E GE-31		PG	WX-50	125.5	132.0	123.7	6.7	98.6	P	LFP 3 WEST SLOPE BTWN 90 ' & 120' CONTOUR ABOVE TB #3
2	7/30/97	NO	50' N x 100' E GE-31		PG	WX-50	125.5	132.1	124.1	6.4	98.9	P	LFP 3 WEST SLOPE BTWN 90 ' & 120' CONTOUR ABOVE TB #3
3	7/30/97	REQ'D	50' N x 20' E GE-31		PG	WX-50	125.5	125.6	116.8	7.5	93.1	F	LFP 3 WEST SLOPE BTWN 90 ' & 120' CONTOUR ABOVE TB #3
4	7/30/97	NO	50' N x 20' W GE-31		PG	WX-50	125.5	129.6	122.2	6.0	97.4	P	LFP 3 WEST SLOPE BTWN 90 ' & 120' CONTOUR ABOVE TB #3
5	7/30/97	REQ'D	50' N x 50' W GE-31		PG	WX-50	125.5	126.8	118.5	7.0	94.4	F	LFP 3 WEST SLOPE BTWN 90 ' & 120' CONTOUR ABOVE TB #3
6	7/30/97	REQ'D	50' N x 100' W GE-31		PG	WX-50	125.5	127.9	118.2	8.2	94.2	F	LFP 3 WEST SLOPE BTWN 90 ' & 120' CONTOUR ABOVE TB #3
3A	7/30/97	NO	50' N x 20' E GE-31		PG	WX-50	125.5	131.7	122.0	8.0	97.2	P	LFP 3 WEST SLOPE BTWN 90 ' & 120' CONTOUR ABOVE TB #3
5A	7/30/97	NO	50' N x 50' W GE-31		PG	WX-50	125.5	131.5	122.4	7.5	97.5	P	LFP 3 WEST SLOPE BTWN 90 ' & 120' CONTOUR ABOVE TB #3
6A	7/30/97	NO	50' N x 100' W GE-31		PG	WX-50	125.5	133.1	123.0	8.2	98.0	P	LFP 3 WEST SLOPE BTWN 90 ' & 120' CONTOUR ABOVE TB #3

ALL TESTS WERE RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AFTER THE ADDITION OF WATER AND WERE RE-TESTED

1 Of 1 Tests Performed By YEC Personnel

SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	7/29/97	NO	100' N x 140' E GE-34		PG	WX-50	125.5	133.7	125.5	6.5	100.0	P	LFP 3 WEST SLOPE BTWN 90 ' & 120' CONTOUR ABOVE TB #3
2	**7/29/97**	**REQ'D**	**140' Due East GE-34**		**PG**	**WX-50**	**125.5**	**125.2**	**118.1**	**6.0**	**94.1**	**F**	LFP 3 WEST SLOPE BTWN 90 ' & 120' CONTOUR ABOVE TB #3
3	7/29/97	NO	75' S x 140' E GE-34		PG	WX-50	125.5	128.4	119.5	7.5	95.2	P	LFP 3 WEST SLOPE BTWN 90 ' & 120' CONTOUR ABOVE TB #3
4	7/29/97	NO	75' S x 90' E GE-34		PG	WX-50	125.5	131.8	122.7	7.4	97.8	P	LFP 3 WEST SLOPE BTWN 90 ' & 120' CONTOUR ABOVE TB #3
5	7/29/97	NO	90' Due East GE-34		PG	WX-50	125.5	128.9	120.0	7.4	95.6	P	LFP 3 WEST SLOPE BTWN 90 ' & 120' CONTOUR ABOVE TB #3
6	7/29/97	NO	100' N x 90' E GE-34		PG	WX-50	125.5	132.8	123.0	8.0	98.0	P	LFP 3 WEST SLOPE BTWN 90 ' & 120' CONTOUR ABOVE TB #3
7	**7/29/97**	**REQ'D**	**100' N x 50' E GE-34**		**PG**	**WX-50**	**125.5**	**128.9**	**117.2**	**10.0**	**93.4**	**F**	LFP 3 WEST SLOPE BTWN 90 ' & 120' CONTOUR ABOVE TB #3
8	**7/29/97**	**REQ'D**	**50' Due East GE-34**		**PG**	**WX-50**	**125.5**	**127.1**	**117.7**	**8.0**	**93.8**	**F**	LFP 3 WEST SLOPE BTWN 90 ' & 120' CONTOUR ABOVE TB #3
9	7/29/97	NO	20' Due West GE-34		PG	WX-50	125.5	130.6	119.9	9.0	95.5	P	LFP 3 WEST SLOPE BTWN 90 ' & 120' CONTOUR ABOVE TB #3
10	7/29/97	NO	65' S x 20' W GE-34		PG	WX-50	125.5	130.7	121.6	7.5	96.9	P	LFP 3 WEST SLOPE BTWN 90 ' & 120' CONTOUR ABOVE TB #3
11	**7/29/97**	**REQ'D**	**100' W x 65' S GE-34**		**PG**	**WX-50**	**125.5**	**126.4**	**118.3**	**6.8**	**94.3**	**F**	LFP 3 WEST SLOPE BTWN 90 ' & 120' CONTOUR ABOVE TB #3
12	7/29/97	NO	100' Due West GE-34		PG	WX-50	125.5	132.6	123.6	7.3	98.5	P	LFP 3 WEST SLOPE BTWN 90 ' & 120' CONTOUR ABOVE TB #3
2A	**7/29/97**	**NO**	**140' Due East GE-34**		**PG**	**WX-50**	**125.5**	**132.5**	**123.2**	**7.5**	**98.2**	**P**	LFP 3 WEST SLOPE BTWN 90 ' & 120' CONTOUR ABOVE TB #3
7A	**7/29/97**	**NO**	**100' N x 50' E GE-34**		**PG**	**WX-50**	**125.5**	**132.7**	**123.0**	**7.9**	**98.0**	**P**	LFP 3 WEST SLOPE BTWN 90 ' & 120' CONTOUR ABOVE TB #3
8A	**7/29/97**	**NO**	**50' Due East GE-34**		**PG**	**WX-50**	**125.5**	**132.3**	**122.5**	**8.0**	**97.6**	**P**	LFP 3 WEST SLOPE BTWN 90 ' & 120' CONTOUR ABOVE TB #3
11A	**7/29/97**	**NO**	**100' W x 65' S GE-34**		**PG**	**WX-50**	**125.5**	**132.8**	**122.7**	**8.2**	**97.8**	**P**	LFP 3 WEST SLOPE BTWN 90 ' & 120' CONTOUR ABOVE TB #3

ALL TESTS WEE RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND WERE RE-TESTED

	1	Of	1	Tests Performed By YEC Personnel	SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	7/17/97	REQ'D	STATION 1+0		GRADE	AVG.	130.0	113.4	103.8	9.2	79.8	F	SLURRY WALL LFP 4 SOUTH LEG
2	7/17/97	REQ'D	STATION 2+0		GRADE	AVG.	130.0	112.0	101.8	10.0	78.3	F	SLURRY WALL LFP 4 SOUTH LEG
3	7/17/97	REQ'D	STATION 3+0		GRADE	AVG.	130.0	110.1	102.4	7.6	78.8	F	SLURRY WALL LFP 4 SOUTH LEG
4	7/17/97	REQ'D	STATION 4+0		GRADE	AVG.	130.0	124.7	116.0	7.5	89.2	F	SLURRY WALL LFP 4 SOUTH LEG
5	7/17/97	REQ'D	STATION 5+0		GRADE	AVG.	130.0	132.8	120.6	10.1	92.8	F	SLURRY WALL LFP 4 SOUTH LEG
6	7/17/97	REQ'D	STATION 6+0		GRADE	AVG.	130.0	116.7	108.4	7.7	83.4	F	SLURRY WALL LFP 4 SOUTH LEG
7	7/17/97	REQ'D	STATION 7+0		GRADE	AVG.	130.0	131.0	121.4	8.0	93.4	F	SLURRY WALL LFP 4 EAST LEG
8	7/17/97	NO	STATION 8+0		GRADE	AVG.	120.0	123.0	114.2	7.7	95.2	P	SLURRY WALL LFP 4 EAST LEG
9	7/17/97	NO	STATION 9+0		GRADE	AVG.	120.0	123.7	114.3	8.3	95.3	P	SLURRY WALL LFP 4 EAST LEG
10	7/17/97	NO	STATION 12+0		GRADE	AVG.	120.0	123.7	114.3	8.3	95.3	P	SLURRY WALL LFP 4 EAST LEG
11	7/17/97	REQ'D	STATION 13+0		GRADE	AVG.	120.0	121.6	110.7	9.8	92.3	F	SLURRY WALL LFP 4 EAST LEG
12	7/17/97	REQ'D	STATION 14+0		GRADE	AVG.	120.0	120.7	109.5	10.2	91.3	F	SLURRY WALL LFP 4 EAST LEG

OF 2

Tests Performed By YEC Personnel

SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% OF ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

JUNE '97

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	6/12/97	NO	290' SE RFW 5S-5D		PG	WX-45	123.2	127.9	117.0	9.3	95.0	P	LFP 3 WEST SLOPE BTWN 90 & 60 CONTOUR
2	6/12/97	NO	225' SE RFW 5S-5D		PG	WX-45	123.2	127.5	118.1	7.9	95.9	P	LFP 3 WEST SLOPE BTWN 90 & 60 CONTOUR
3	6/12/97	NO	150' SE RFW 5S-5D		PG	WX-45	123.2	129.2	119.9	7.8	97.3	P	LFP 3 WEST SLOPE BTWN 90 & 60 CONTOUR
4	**6/12/97**	**REQ'D**	**50' SE RFW 5S-5D**		**PG**	**WX-45**	**123.2**	**127.7**	**116.3**	**9.8**	**94.4**	**F**	**LFP 3 WEST SLOPE BTWN 90 & 60 CONTOUR**
5	**6/12/97**	**REQ'D**	**55' S x 60' E RFW 5S-5D**		**PG**	**WX-45**	**123.2**	**124.5**	**115.8**	**7.5**	**94.0**	**F**	**LFP 3 WEST SLOPE BTWN 90 & 60 CONTOUR**
6	6/12/97	NO	100' S x 90' E RFW 5S-5D		PG	WX-45	123.2	127.0	117.3	8.3	95.2	P	LFP 3 WEST SLOPE BTWN 90 & 60 CONTOUR
7	**6/12/97**	**REQ'D**	**150' S x 90' E RFW 5S-5D**		**PG**	**WX-45**	**123.2**	**116.4**	**108.5**	**7.2**	**88.1**	**F**	**LFP 3 WEST SLOPE BTWN 90 & 60 CONTOUR**
8	**6/12/97**	**REQ'D**	**200' S x 95' E RFW 5S-5D**		**PG**	**WX-45**	**123.2**	**114.1**	**107.9**	**5.7**	**87.6**	**F**	**LFP 3 WEST SLOPE BTWN 90 & 60 CONTOUR**
9	6/12/97	NO	70' N x 80' W DL-10		PG	WX-45	123.2	128.9	118.5	8.8	96.2	P	LFP 3 WEST SLOPE BTWN 90 & 60 CONTOUR
10	**6/12/97**	**REQ'D**	**120' Due East RFW 5S-5D**		**PG**	**WX-45**	**123.2**	**122.7**	**115.6**	**6.2**	**93.8**	**F**	**LFP 3 WEST SLOPE BTWN 90 & 60 CONTOUR**
11	6/12/97	NO	130' E x 150' N RFW 5S-5D		PG	WX-45	123.2	130.5	120.5	8.3	97.8	P	LFP 3 WEST SLOPE BTWN 90 & 60 CONTOUR
12	6/12/97	NO	70' E x 200' S LCC-4		PG	WX-45	123.2	129.3	118.5	9.1	96.2	P	LFP 3 WEST SLOPE BTWN 90 & 60 CONTOUR
13	**6/12/97**	**REQ'D**	**70' E x 100' S LCC-4**		**PG**	**WX-45**	**123.2**	**127.2**	**116.9**	**8.8**	**94.9**	**F**	**LFP 3 WEST SLOPE BTWN 90 & 60 CONTOUR**
14	6/12/97	NO	70' Due East LCC-4		PG	WX-45	123.2	130.7	120.0	8.9	97.4	P	LFP 3 WEST SLOPE BTWN 90 & 60 CONTOUR
4A	**6/12/97**	**NO**	**50' SE RFW 5S-5D**		**PG**	**WX-45**	**123.2**	**131.0**	**119.6**	**9.5**	**97.1**	**P**	**LFP 3 WEST SLOPE BTWN 90 & 60 CONTOUR**
5A	**6/12/97**	**NO**	**55' S x 60' E RFW 5S-5D**		**PG**	**WX-45**	**123.2**	**128.1**	**119.5**	**7.2**	**97.0**	**P**	**LFP 3 WEST SLOPE BTWN 90 & 60 CONTOUR**
7A	**6/12/97**	**NO**	**150' S x 90' E RFW 5S-5D**		**PG**	**WX-45**	**123.2**	**127.6**	**119.3**	**7.0**	**96.8**	**P**	**LFP 3 WEST SLOPE BTWN 90 & 60 CONTOUR**
8A	**6/12/97**	**NO**	**200' S x 95' E RFW 5S-5D**		**PG**	**WX-45**	**123.2**	**127.3**	**120.1**	**6.0**	**97.5**	**P**	**LFP 3 WEST SLOPE BTWN 90 & 60 CONTOUR**
10A	**6/12/97**	**NO**	**120' Due East RFW 5S-5D**		**PG**	**WX-45**	**123.2**	**129.2**	**121.0**	**6.8**	**98.2**	**P**	**LFP 3 WEST SLOPE BTWN 90 & 60 CONTOUR**
13A	**6/12/97**	**NO**	**70' E x 100' S LCC-4**		**PG**	**WX-45**	**123.2**	**131.6**	**120.7**	**9.0**	**98.0**	**P**	**LFP 3 WEST SLOPE BTWN 90 & 60 CONTOUR**
ALL TESTS WEE RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND WERE RE-TESTED													
	1	Of	1	Tests Performed By YEC Personnel							SIGNATURE:		

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	6/11/97	NO	75' Due East GE-35		PG	WX-45	123.2	130.1	121.1	7.4	98.3	P	LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR
2	6/11/97	NO	50' N x 75' E GE-35		PG	WX-45	123.2	129.3	118.6	9.0	96.3	P	LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR
3	6/11/97	NO	100' N x 75' E GE-35		PG	WX-45	123.2	126.4	117.3	7.8	95.2	P	LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR
4	6/11/97	NO	150' N x 75' E GE-35		PG	WX-45	123.2	130.9	119.8	9.3	97.2	P	LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR
5	6/11/97	NO	50' E x 100' S GE-37		PG	WX-45	123.2	131.0	121.0	8.3	98.2	P	LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR
6	6/11/97	NO	50' E x 50' S GE-37		PG	WX-45	123.2	207.2	119.8	73.0	97.2	P	LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR
7	6/11/97	NO	50' Due East GE-37		PG	WX-45	123.2	129.8	118.6	9.4	96.3	P	LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR
8	6/11/97	NO	50' E x 50' N GE-37		PG	WX-45	123.2	127.5	119.0	7.1	96.6	P	LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR
9	6/11/97	NO	50' E x 100' N GE-37		PG	WX-45	123.2	127.0	118.0	7.6	95.8	P	LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR
10	6/11/97	NO	30' W x 100' N GE-37		PG	WX-45	123.2	129.1	117.3	10.1	95.2	P	LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR
11	**6/11/97**	**REQ'D**	**30' W x 50' N GE-37**		**PG**	**WX-45**	**123.2**	**125.1**	**115.8**	**8.0**	**94.0**	**F**	**LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR**
12	6/11/97	NO	30' Due West GE-37		PG	WX-45	123.2	125.1	120.2	4.0	97.6	P	LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR
13	**6/11/97**	**REQ'D**	**30' W x 50' S GE-37**		**PG**	**WX-45**	**123.2**	**125.5**	**116.2**	**8.0**	**94.3**	**F**	**LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR**
14	**6/11/97**	**REQ'D**	**30' W x 100' S GE-37**		**PG**	**WX-45**	**123.2**	**127.7**	**116.1**	**10.0**	**94.2**	**F**	**LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR**
15	**6/11/97**	**REQ'D**	**30' E x 100' N GE-35**		**PG**	**WX-45**	**123.2**	**127.4**	**115.8**	**10.0**	**94.0**	**F**	**LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR**
16	**6/11/97**	**REQ'D**	**20' E x 50' N GE-35**		**PG**	**WX-45**	**123.2**	**123.9**	**114.7**	**8.0**	**93.1**	**F**	**LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR**
17	6/11/97	NO	20' Due East GE-35		PG	WX-45	123.2	125.6	117.5	6.9	95.4	P	LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR
11A	**6/11/97**	**NO**	**30' W x 50' N GE-37**		**PG**	**WX-45**	**123.2**	**129.3**	**119.5**	**8.2**	**97.0**	**P**	**LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR**
13A	**6/11/97**	**NO**	**30' W x 50' S GE-37**		**PG**	**WX-45**	**123.2**	**129.5**	**119.4**	**8.5**	**96.9**	**P**	**LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR**
14A	**6/11/97**	**NO**	**30' W x 100' S GE-37**		**PG**	**WX-45**	**123.2**	**131.8**	**119.6**	**10.2**	**97.1**	**P**	**LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR**
15A	**6/11/97**	**NO**	**30' E x 100' N GE-35**		**PG**	**WX-45**	**123.2**	**129.5**	**118.3**	**9.5**	**96.0**	**P**	**LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR**
16A	**6/11/97**	**NO**	**20' E x 50' N GE-35**		**PG**	**WX-45**	**123.2**	**129.0**	**119.3**	**8.2**	**96.8**	**P**	**LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR**
ALL TESTS WEE RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND WERE RE-TESTED													
	1	Of	1	Tests Performed By YEC Personnel							SIGNATURE:		

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	6/9/97	NO	90' WEST 70' SOUTH GE - 40	B8	FINAL PG	WMX35	122.5	125.4	116.6	7.5	95.2	P	LFP3 BTWN 118 & 70 TB 5 & TB 4
2	6/9/97	NO	180' WEST 70' SOUTH GE - 40	B8	FINAL PG	WMX35	122.5	126.4	117.1	7.9	95.6	P	LFP3 BTWN 118 & 70 TB 5 & TB 4
3	6/9/97	NO	270' WEST 70' SOUTH GE - 40	B8	FINAL PG	WMX35	122.5	125.3	116.9	7.2	95.4	P	LFP3 BTWN 118 & 70 TB 5 & TB 4
4	6/9/97	NO	90' WEST 140' SOUTH GE - 40	B8	FINAL PG	WMX35	122.5	127.6	116.5	9.5	95.1	P	LFP3 BTWN 118 & 70 TB 5 & TB 4
5	6/9/97	NO	180' WEST 140' SOUTH GE - 40	C8	FINAL PG	WMX35	122.5	132.0	122.0	8.2	99.6	P	LFP3 BTWN 118 & 70 TB 5 & TB 4
6	6/9/97	NO	270' WEST 140' SOUTH GE - 40	C8	FINAL PG	WMX35	122.5	128.9	116.9	10.3	95.4	P	LFP3 BTWN 118 & 70 TB 5 & TB 4
7	6/9/97	NO	90' WEST 200' SOUTH GE - 40	C6	FINAL PG	WMX35	122.5	129.0	119.6	7.9	97.6	P	LFP3 BTWN 118 & 70 TB 5 & TB 4
8	6/9/97	NO	180' WEST 200' SOUTH GE - 40	C8	FINAL PG	WMX35	122.5	124.8	116.6	7.0	95.2	P	LFP3 BTWN 118 & 70 TB 5 & TB 4
9	6/9/97	NO	270' WEST 200' SOUTH GE - 40	B8	FINAL PG	WMX35	122.5	134.4	123.7	8.6	101.0	P	LFP3 BTWN 118 & 70 TB 5 & TB 4
10	6/9/97	NO	90' WEST 60' NORTH GE - 40	B4	FINAL PG	WMX35	122.5	126.8	117.8	7.6	96.2	P	LFP3 BTWN 118 & 70 TB 5 & TB 4
11	6/9/97	NO	180' WEST 80' NORTH GE - 40	B4	FINAL PG	WMX35	122.5	126.6	117.2	8.0	95.7	P	LFP3 BTWN 118 & 70 TB 5 & TB 4
12	6/9/97	NO	270' WEST 100' NORTH GE - 40	B4	FINAL PG	WMX35	122.5	126.1	116.9	7.9	95.4	P	LFP3 BTWN 118 & 70 TB 5 & TB 4
13	6/9/97	NO	90' WEST 100' NORTH GE - 40	B4	FINAL PG	WMX35	122.5	127.2	118.9	6.9	97.1	P	LFP3 BTWN 118 & 70 TB 5 & TB 4
14	6/9/97	NO	180' WEST 120' NORTH GE - 40	B4	FINAL PG	WMX35	122.5	126.6	117.7	7.5	96.1	P	LFP3 BTWN 118 & 70 TB 5 & TB 4
15	6/9/97	NO	270' WEST 140' NORTH GE - 40	B4	FINAL PG	WMX35	122.5	126.9	117.4	8.1	95.8	P	LFP3 BTWN 118 & 70 TB 5 & TB 4
16	6/9/97	NO	90' WEST 140' NORTH GE - 40	B4	FINAL PG	WMX35	122.5	126.8	117.5	7.9	95.9	P	LFP3 BTWN 118 & 70 TB 5 & TB 4
17	6/9/97	NO	180' WEST 160' NORTH GE - 40	B4	FINAL PG	WMX35	122.5	127.7	118.6	7.7	96.8	P	LFP3 BTWN 118 & 70 TB 5 & TB 4
18	6/9/97	NO	270' WEST 200' NORTH GE - 40	B4	FINAL PG	WMX35	122.5	127.5	117.8	8.2	96.2	P	LFP3 BTWN 118 & 70 TB 5 & TB 4
19	6/9/97	NO	50' S. 10' W. NE CORNER FLARE STATION	H6	2ND	WMX25	122.5	132.0	121.4	8.7	99.1	P	FLARE STATION FOUNDATION SUB BASE
20	6/9/97	NO	50' N. 10' E. SW CORNER FLARE STATION	I6	2ND	WMX25	122.5	132.3	122.3	8.2	99.8	P	FLARE STATION FOUNDATION SUB BASE
21	6/9/97	NO	225' N 65' WEST RFW 6D	A9	FINAL PG	WMX35	122.5	131.8	120.5	9.3	98.4	P	LFP3 BTWN 118 & 70 TB 5 &GE-38 ,TB 4
22	6/9/97	NO	225' NORTH 10' WEST RFW 6D	B9	FINAL PG	WMX35	122.5	130.2	119.4	9.0	97.5	P	LFP3 BTWN 118 & 70 TB 5 &GE-38 ,TB 4
23	6/9/97	NO	150' NORTH 65' WEST RFW 6D	A9	FINAL PG	WMX35	122.5	130.2	120.9	7.7	98.7	P	LFP3 BTWN 118 & 70 TB 5 &GE-38 ,TB 4
24	6/9/97	NO	150' NORTH 10' WEST RFW 6D	B9	FINAL PG	WMX35	122.5	128.9	120.7	6.8	98.5	P	LFP3 BTWN 118 & 70 TB 5 &GE-38 ,TB 4
25	6/9/97	NO	75' NORTH 70' WEST RFW 6D	A9	FINAL PG	WMX35	122.5	129.4	119.9	7.9	97.9	P	LFP3 BTWN 118 & 70 TB 5 &GE-38 ,TB 4
26	6/9/97	NO	75' NORTH 10' WEST RFW 6D	B9	FINAL PG	WMX35	122.5	129.3	120.1	7.7	98.0	P	LFP3 BTWN 118 & 70 TB 5 &GE-38 ,TB 4
27	6/9/97	NO	10' NORTH 25' WEST RFW 6D	A9	FINAL PG	WMX35	122.5	128.6	120.8	6.5	98.6	P	LFP3 BTWN 118 & 70 TB 5 &GE-38 ,TB 4
28	6/9/97	NO	25' DUE NORTH RFW 6D	B9	FINAL PG	WMX35	122.5	126.9	118.5	7.1	96.7	P	LFP3 BTWN 118 & 70 TB 5 &GE-38 ,TB 4
29	6/9/97	NO	75' SOUTH 25' WEST RFW 6D	AE	FINAL PG	WMX35	122.5	129.7	120.2	7.9	98.1	P	LFP3 BTWN 118 & 70 TB 5 &GE-38 ,TB 4
30	6/9/97	NO	75' SOUTH 10' EAST RFW 6D	BE	FINAL PG	WMX35	122.5	128.9	119.6	7.8	97.6	P	LFP3 BTWN 118 & 70 TB 5 &GE-38 ,TB 4
31	6/9/97	NO	150' SOUTH 30' WEST RFW 6D	AE	FINAL PG	WMX35	122.5	127.0	118.7	7.0	96.9	P	LFP3 BTWN 118 & 70 TB 5 &GE-38 ,TB 4
32	6/9/97	NO	150' SOUTH 10' WEST RFW 6D	BE	FINAL PG	WMX35	122.5	129.9	120.2	8.1	98.1	P	LFP3 BTWN 118 & 70 TB 5 &GE-38 ,TB 4

PAGE 1 OF 2 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% OF ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
33	6/9/97	NO	225' SOUTH 35' WEST RFW 6D	A 7	FINAL PG	WMX35	122.5	129.3	119.8	7.9	97.8	P	LFP3 BTWN 118 & 70 TB 5 &GE-38 ,TB 4
34	6/9/97	NO	225' SOUTH 10' WEST RFW 6D	B7	FINAL PG	WMX35	122.5	127.7	118.7	7.6	96.9	P	LFP3 BTWN 118 & 70 TB 5 &GE-38 ,TB 4
35	6/9/97	NO	300' SOUTH 45' WEST RFW 6D	A7	FINAL PG	WMX35	122.5	127.1	118.0	7.7	96.3	P	LFP3 BTWN 118 & 70 TB 5 &GE-38 ,TB 4
36	6/9/97	NO	300' SOUTH 10' WEST RFW 6D	B7	FINAL PG	WMX35	122.5	127.4	119.1	7.0	97.2	P	LFP3 BTWN 118 & 70 TB 5 &GE-38 ,TB 4

PAGE 2 OF 2 Tests Performed By YEC Personnel SIGNATURE: Jason Lowe

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	6/9/97	NO	25' S x 40' W GE-40		PG	WX-45	123.2	129.8	120.7	7.5	98.0	P	LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR
2	6/9/97	NO	25' S x 90' W GE-40		PG	WX-45	123.2	125.9	117.5	7.1	95.4	P	LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR
3	6/9/97	NO	25' S x 175' W GE-40		PG	WX-45	123.2	128.1	117.4	9.1	95.3	P	LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR
4	**6/9/97**	**REQ'D**	**50' N x 175' W GE-40**		**PG**	**WX-45**	**123.2**	**125.2**	**116.4**	**7.5**	**94.5**	**F**	**LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR**
5	**6/9/97**	**REQ'D**	**100' N x 175' W GE-40**		**PG**	**WX-45**	**123.2**	**124.8**	**116.5**	**7.1**	**94.6**	**F**	**LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR**
6	6/9/97	NO	150' N x 150' W GE-40		PG	WX-45	123.2	126.6	118.0	7.3	95.8	P	LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR
7	6/9/97	NO	200' N x 75' W GE-40		PG	WX-45	123.2	128.2	118.0	8.6	95.8	P	LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR
8	6/9/97	NO	50' S x 50' W GE-40		PG	WX-45	123.2	127.8	117.7	8.6	95.5	P	LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR
9	**6/9/97**	**REQ'D**	**100' S x 50' W GE-40**		**PG**	**WX-45**	**123.2**	**124.0**	**116.2**	**6.7**	**94.3**	**F**	**LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR**
10	**6/9/97**	**REQ'D**	**50' Due West GE-38**		**PG**	**WX-45**	**123.2**	**127.3**	**115.3**	**10.4**	**93.6**	**F**	**LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR**
11	**6/9/97**	**REQ'D**	**100' Due West GE-38**		**PG**	**WX-45**	**123.2**	**125.3**	**116.1**	**8.0**	**94.2**	**F**	**LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR**
12	**6/9/97**	**REQ'D**	**150' S x 100' W GE-40**		**PG**	**WX-45**	**123.2**	**125.2**	**116.2**	**7.8**	**94.3**	**F**	**LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR**
13	6/9/97	NO	100' S x 100' W GE-40		PG	WX-45	123.2	127.9	119.5	7.0	97.0	P	LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR
14	6/9/97	NO	50' S x 100' W GE-40		PG	WX-45	123.2	128.1	118.6	8.0	96.3	P	LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR
15	6/9/97	NO	50' S x 150' W GE-40		PG	WX-45	123.2	127.6	118.1	8.0	95.9	P	LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR
16	**6/9/97**	**REQ'D**	**100' S x 150' W GE-40**		**PG**	**WX-45**	**123.2**	**124.4**	**116.2**	**7.1**	**94.3**	**F**	**LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR**
17	**6/9/97**	**REQ'D**	**150' S x 150' W GE-40**		**PG**	**WX-45**	**123.2**	**124.0**	**115.6**	**7.3**	**93.8**	**F**	**LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR**
18	**6/9/97**	**REQ'D**	**150' Due West GE-38**		**PG**	**WX-45**	**123.2**	**123.7**	**114.9**	**7.6**	**93.3**	**F**	**LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR**
19	**6/9/97**	**REQ'D**	**200' Due West GE-38**		**PG**	**WX-45**	**123.2**	**126.3**	**116.9**	**8.0**	**94.9**	**F**	**LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR**
20	6/9/97	NO	150' S x 200' W GE-40		PG	WX-45	123.2	126.3	118.0	7.0	95.8	P	LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR
21	6/9/97	NO	100' S x 200' W GE-40		PG	WX-45	123.2	128.3	118.6	8.1	96.3	P	LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR
22	**6/9/97**	**REQ'D**	**50' S x 200' W GE-40**		**PG**	**WX-45**	**123.2**	**125.1**	**116.9**	**7.0**	**94.9**	**F**	**LFP 3 WEST LOWER SLOPE ABOVE TB #4**
23	6/9/97	NO	120' N x 25' W RFW 5S-5D		PG	WX-45	123.2	130.9	119.0	10.0	96.6	P	LFP 3 WEST LOWER SLOPE ABOVE TB #4
24	**6/9/97**	**REQ'D**	**50' N x 50' W RFW 5S-5D**		**PG**	**WX-45**	**123.2**	**126.0**	**115.6**	**9.0**	**93.8**	**F**	**LFP 3 WEST LOWER SLOPE ABOVE TB #4**
25	6/9/97	NO	30' Due West RFW 5S-5D		PG	WX-45	123.2	129.5	119.5	8.4	97.0	P	LFP 3 WEST LOWER SLOPE ABOVE TB #4
26	6/9/97	NO	25' Due South RFW 5S-5D		PG	WX-45	123.2	127.1	117.7	8.0	95.5	P	LFP 3 WEST LOWER SLOPE ABOVE TB #4
27	6/9/97	NO	50' Due North RFW 5S-5D		PG	WX-45	123.2	127.3	117.5	8.3	95.4	P	LFP 3 WEST LOWER SLOPE ABOVE TB #4
28	6/9/97	NO	100' Due East RFW 5S-5D		PG	WX-45	123.2	126.5	117.0	8.1	95.0	P	LFP 3 WEST LOWER SLOPE ABOVE TB #4
29	6/9/97	NO	100' E x 50' N RFW 5S-5D		PG	WX-45	123.2	128.0	118.5	8.0	96.2	P	LFP 3 WEST LOWER SLOPE ABOVE TB #4
30	**6/9/97**	**REQ'D**	**50' E x 120' N 5S-5D**		**PG**	**WX-45**	**123.2**	**125.7**	**116.9**	**7.5**	**94.9**	**F**	**LFP 3 WEST LOWER SLOPE ABOVE TB #4**
	1	Of	2	Tests Performed By YEC Personnel							SIGNATURE:		

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 — Item 5B Structural Fill

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
4A	6/9/97	NO	50' N x 175' W GE-40		PG	WX-45	123.2	128.5	119.5	7.5	97.0	P	LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR
5A	6/9/97	NO	100' N x 175' W GE-40		PG	WX-45	123.2	128.1	119.6	7.1	97.1	P	LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR
9A	6/9/97	NO	100' S x 50' W GE-40		PG	WX-45	123.2	128.5	119.9	7.2	97.3	P	LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR
10A	6/9/97	NO	50' Due West GE-38		PG	WX-45	123.2	128.2	118.9	7.8	96.5	P	LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR
11A	6/9/97	NO	100' Due West GE-38		PG	WX-45	123.2	128.9	119.4	8.0	96.9	P	LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR
12A	6/9/97	NO	150' S x 100' W GE-40		PG	WX-45	123.2	129.0	119.6	7.8	97.1	P	LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR
16A	6/9/97	NO	100' S x 150' W GE-40		PG	WX-45	123.2	127.1	118.6	7.1	96.3	P	LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR
17A	6/9/97	NO	150' S x 150' W GE-40		PG	WX-45	123.2	128.0	119.3	7.3	96.8	P	LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR
18A	6/9/97	NO	150' Due West GE-38		PG	WX-45	123.2	127.3	118.3	7.6	96.0	P	LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR
19A	6/9/97	NO	200' Due West GE-38		PG	WX-45	123.2	129.2	119.6	8.0	97.1	P	LFP 3 WEST SLOPE BTWN 90 & 120 CONTOUR
22A	6/9/97	NO	50' S x 200' W GE-40		PG	WX-45	123.2	126.9	118.6	7.0	96.3	P	LFP 3 WEST LOWER SLOPE ABOVE TB #4
24A	6/9/97	NO	50' N x 50' W RFW 5S-5D		PG	WX-45	123.2	130.9	120.1	9.0	97.5	P	LFP 3 WEST LOWER SLOPE ABOVE TB #4
30A	6/9/97	NO	50' E x 120' N 5S-5D		PG	WX-45	123.2	127.4	118.5	7.5	96.2	P	LFP 3 WEST LOWER SLOPE ABOVE TB #4

ALL FAILED LOCATIONS WERE RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND WERE RE-TESTED

2 Of 2 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	6/6/97	NO	300' Due North LCC-4		PG	WX-35	122.5	129.6	117.4	10.4	95.8	P	LFP 3 BTWN LOWER RD & PERIMETER BERM
2	**6/6/97**	**REQ'D**	**250' Due North LCC-4**		**PG**	**WX-35**	**122.5**	**123.8**	**115.4**	**7.3**	**94.2**	**F**	**LFP 3 BTWN LOWER RD & PERIMETER BERM**
3	6/6/97	NO	200' Due North LCC-4		PG	WX-35	122.5	129.9	119.8	8.4	97.8	P	LFP 3 BTWN LOWER RD & PERIMETER BERM
4	6/6/97	NO	150' Due North LCC-4		PG	WX-35	122.5	127.4	117.6	8.3	96.0	P	LFP 3 BTWN LOWER RD & PERIMETER BERM
5	**6/6/97**	**REQ'D**	**100' Due North LCC-4**		**PG**	**WX-35**	**122.5**	**124.8**	**115.0**	**8.5**	**93.9**	**F**	**LFP 3 BTWN LOWER RD & PERIMETER BERM**
6	**6/6/97**	**REQ'D**	**50' Due North LCC-4**		**PG**	**WX-35**	**122.5**	**124.0**	**114.8**	**8.0**	**93.7**	**F**	**LFP 3 BTWN LOWER RD & PERIMETER BERM**
7	6/6/97	NO	50' N x 25' W LCC-4		PG	WX-35	122.5	129.2	119.6	8.1	97.6	P	LFP 3 BTWN LOWER RD & PERIMETER BERM
8	6/6/97	NO	100' N x 50' W LCC-4		PG	WX-35	122.5	129.7	119.2	8.8	97.3	P	LFP 3 BTWN LOWER RD & PERIMETER BERM
9	6/6/97	NO	175' N x 50' W LCC-4		PG	WX-35	122.5	129.0	119.2	8.2	97.3	P	LFP 3 BTWN LOWER RD & PERIMETER BERM
10	6/6/97	NO	225' N x 75' W LCC-4		PG	WX-35	122.5	129.9	118.8	9.3	97.0	P	LFP 3 BTWN LOWER RD & PERIMETER BERM
11	6/6/97	NO	250' Due West RFW 7S-7D		PG	WX-35	122.5	127.9	116.7	9.6	95.3	P	LFP 3 @ TB #5
12	6/6/97	NO	250' W x 50' S RFW 7S-7D		PG	WX-35	122.5	128.5	117.5	9.4	95.9	P	LFP 3 @ TB #5
13	**6/6/97**	**REQ'D**	**300' W x 100' S RFW 7S-7D**		**PG**	**WX-35**	**122.5**	**125.6**	**115.5**	**8.7**	**94.3**	**F**	**LFP 3 @ TB #5**
14	6/6/97	NO	300' W x 50' S RFW 7S-7D		PG	WX-35	122.5	128.3	117.7	9.0	96.1	P	LFP 3 @ TB #5
15	**6/6/97**	**REQ'D**	**300' Due West RFW 7S-7D**		**PG**	**WX-35**	**122.5**	**126.2**	**114.3**	**10.4**	**93.3**	**F**	**LFP 3 @ TB #5**
16	6/6/97	NO	50' S x 20' W LCC-4		PG	WX-35	122.5	130.1	120.1	8.4	98.0	P	LFP 3 NORTH OF TB #4
17	**6/6/97**	**REQ'D**	**150' S x 40' W LCC-4**		**PG**	**WX-35**	**122.5**	**126.9**	**115.2**	**10.2**	**94.0**	**F**	**LFP 3 NORTH OF TB #4**
18	**6/6/97**	**REQ'D**	**250' S x 70' W LCC-4**		**PG**	**WX-35**	**122.5**	**128.9**	**116.1**	**11.0**	**94.8**	**F**	**LFP 3 NORTH OF TB #4**
19	6/6/97	NO	250' Due South LCC-4		PG	WX-40	119.8	125.5	116.3	7.9	97.1	P	LFP 3 NORTH OF TB #4
20	6/6/97	NO	150' Due South LCC-4		PG	WX-40	119.8	128.2	115.4	11.1	96.3	P	LFP 3 NORTH OF TB #4
21	6/6/97	NO	50' Due South LCC-4		PG	WX-40	119.8	126.2	114.5	10.2	95.6	P	LFP 3 NORTH OF TB #4
22	6/6/97	NO	25' Due North GE-40		PG	WX-45	123.2	127.0	117.0	8.5	95.0	P	LFP 3 UPPER SLOPE BTWN 110' & TEMP BERM
23	6/6/97	NO	50' Due South GE-40		PG	WX-45	123.2	130.7	119.0	9.8	96.6	P	LFP 3 UPPER SLOPE BTWN 110' & TEMP BERM
24	6/6/97	NO	100' Due South GE-40		PG	WX-45	123.2	129.7	119.8	8.3	97.2	P	LFP 3 UPPER SLOPE BTWN 110' & TEMP BERM
25	6/6/97	NO	50' Due North GE-38		PG	WX-45	123.2	130.8	118.8	10.1	96.4	P	LFP 3 UPPER SLOPE BTWN 110' & TEMP BERM
26	**6/6/97**	**REQ'D**	**50' N x 25' W GE-40**		**PG**	**WX-45**	**123.2**	**127.4**	**116.5**	**9.3**	**94.6**	**F**	**LFP 3 UPPER SLOPE BTWN 110' & TEMP BERM**
27	**6/6/97**	**REQ'D**	**50' N x 70' W GE-40**		**PG**	**WX-45**	**123.2**	**128.8**	**115.9**	**11.1**	**94.1**	**F**	**LFP 3 UPPER SLOPE BTWN 110' & TEMP BERM**
SEE NEXT PAGE			SEE NEXT PAGE		SEE NEXT PAGE				SEE NEXT PAGE				SEE NEXT PAGE
	1	Of	2	Tests Performed By YEC Personnel							SIGNATURE:		

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 — Item 5B Structural Fill

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
2A	6/6/97	NO	250' Due North LCC-4		PG	WX-35	122.5	129.1	118.9	8.5	97.1	P	LFP 3 BTWN LOWER RD & PERIMETER BERM
5A	6/6/97	NO	100' Due North LCC-4		PG	WX-35	122.5	128.9	118.2	9.0	96.5	P	LFP 3 BTWN LOWER RD & PERIMETER BERM
6A	6/6/97	NO	50' Due North LCC-4		PG	WX-35	122.5	128.8	119.1	8.2	97.2	P	LFP 3 BTWN LOWER RD & PERIMETER BERM
13A	6/6/97	NO	300' W x 100' S RFW 7S-7D		PG	WX-35	122.5	131.3	120.4	9.0	98.3	P	LFP 3 @ TB #5
15A	6/6/97	NO	300' Due West RFW 7S-7D		PG	WX-35	122.5	128.0	116.9	9.5	95.4	P	LFP 3 @ TB #5
17A	6/6/97	NO	150' S x 40' W LCC-4		PG	WX-35	122.5	130.2	118.8	9.6	97.0	P	LFP 3 NORTH OF TB #4
18A	6/6/97	NO	250' S x 70' W LCC-4		PG	WX-35	122.5	130.0	117.7	10.4	96.1	P	LFP 3 NORTH OF TB #4
26A	6/6/97	NO	50' N x 25' W GE-40		PG	WX-45	123.2	129.8	118.5	9.5	96.2	P	LFP 3 UPPER SLOPE BTWN 110' & TEMP BERM
27A	6/6/97	NO	50' N x 70' W GE-40		PG	WX-45	123.2	131.5	119.5	10.0	97.0	P	LFP 3 UPPER SLOPE BTWN 110' & TEMP BERM

ALL TEST LOCATIONS WERE RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND WERE RE-TESTED

2 Of 2 Tests Performed By YEC Personnel

SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	6/5/97	NO	Flare Station SW Corner		PG	WX-25	119.8	126.8	116.3	9.0	97.1	P	LFP 8/9 FLARE STATION COMPOUND
2	6/5/97	NO	Flare Station SE Corner		PG	WX-25	119.8	124.4	114.5	8.6	95.6	P	LFP 8/9 FLARE STATION COMPOUND
3	6/5/97	NO	Flare Station Center		PG	WX-25	119.8	129.1	119.7	7.9	99.9	P	LFP 8/9 FLARE STATION COMPOUND
4	6/5/97	NO	Flare Station NW Corner		PG	WX-25	119.8	128.6	117.9	9.1	98.4	P	LFP 8/9 FLARE STATION COMPOUND
5	6/5/97	NO	Flare Station NE Corner		PG	WX-25	119.8	126.8	115.1	10.1	96.1	P	LFP 8/9 FLARE STATION COMPOUND
6	6/5/97	NO	60' Due South RFW 7S-7D		PG	WX-40	119.8	126.6	115.8	9.3	96.7	P	LFP 3 BTWN LOWER RD & PERIMETER BERM
7	6/5/97	NO	60' S x 75' E RFW 7S-7D		PG	WX-40	119.8	128.5	117.9	9.0	98.4	P	LFP 3 BTWN LOWER RD & PERIMETER BERM
8	6/5/97	NO	30' S x 75' E RFW 7S-7D		PG	WX-40	119.8	125.2	114.2	9.7	95.3	P	LFP 3 BTWN LOWER RD & PERIMETER BERM
9	**6/5/97**	**REQ'D**	**30' Due South RFW 7S-7D**		**PG**	**WX-40**	**119.8**	**123.9**	**113.0**	**9.7**	**94.3**	**F**	**LFP 3 BTWN LOWER RD & PERIMETER BERM**
10	6/5/97	NO	30' x 75' W RFW 7S-7D		PG	WX-40	119.8	127.5	114.8	11.1	95.8	P	LFP 3 BTWN LOWER RD & PERIMETER BERM
11	6/5/97	NO	95' SW RFW 7S-7D		PG	WX-40	119.8	130.7	118.9	9.9	99.3	P	LFP 3 BTWN LOWER RD & PERIMETER BERM
12	6/5/97	NO	190' SW RFW 7S-7D		PG	WX-40	119.8	130.1	117.4	10.8	98.0	P	LFP 3 BTWN LOWER RD & PERIMETER BERM
13	6/5/97	NO	150' S x 50' W GE-41		PG	WX-40	119.8	128.5	116.2	10.6	97.0	P	LFP 3 UPPER SLOPE ABOVE ACCESS RD.
14	6/5/97	NO	100' S x 25' W GE-41		PG	WX-40	119.8	127.1	116.7	8.9	97.4	P	LFP 3 UPPER SLOPE ABOVE ACCESS RD.
15	6/5/97	NO	25' Due West GE-41		PG	WX-40	119.8	123.7	114.0	8.5	95.2	P	LFP 3 UPPER SLOPE ABOVE ACCESS RD.
16	6/5/97	NO	75' W x 50' N GE-41		PG	WX-40	119.8	125.7	116.6	7.8	97.3	P	LFP 3 UPPER SLOPE ABOVE ACCESS RD.
17	6/5/97	NO	50' W x 100' N GE-41		PG	WX-40	119.8	130.2	117.0	11.2	97.7	P	LFP 3 UPPER SLOPE ABOVE ACCESS RD
18	6/5/97	NO	100' W 150' N GE-41		PG	WX-40	119.8	126.5	114.9	10.1	95.9	P	LFP 3 UPPER SLOPE ABOVE ACCESS RD.
19	6/5/97	NO	75' W Xx 50' S GE-41		PG	WX-40	119.8	126.8	116.2	9.1	97.0	P	LFP 3 UPPER SLOPE ABOVE ACCESS RD.
20	6/5/97	NO	75'W x 100' S GE-41		PG	WX-40	119.8	124.9	115.7	7.9	96.6	P	LFP 3 UPPER SLOPE ABOVE ACCESS RD
21	6/5/97	NO	75' W x 200' S GE-41		PG	WX-40	119.8	126.4	114.4	10.5	95.5	P	LFP 3 UPPER SLOPE ABOVE ACCESS RD.
9A	**6/5/97**	**REQ'D**	**30' Due South RFW 7S-7D**		**PG**	**WX-40**	**119.8**	**123.9**	**113.0**	**9.7**	**94.3**	**F**	**LFP 3 BTWN LOWER RD & PERIMETER BERM**

TEST NUMBER 9A WAS RE-COMPACTED USING INGERSOLL -RAND ROLLER IR-115 AND WAS RE-TESTED

	1	Of	1	Tests Performed By YEC Personnel							SIGNATURE:		

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	6/4/97	NO	15' Due North GE-52		PG	WX-35	122.5	133.5	121.0	10.3	98.8	P	LFP 3 NORTH SLOPE BTWN ACCESS RD & TEMP BERM
2	6/4/97	NO	20' N x 100' W GE-52		PG	WX-35	122.5	131.8	118.8	10.9	97.0	P	LFP 3 NORTH SLOPE BTWN ACCESS RD & TEMP BERM
3	6/4/97	NO	20' N x 200' W GE-52		PG	WX-35	122.5	131.4	118.6	10.8	96.8	P	LFP 3 NORTH SLOPE BTWN ACCESS RD & TEMP BERM
4	6/4/97	NO	20' N x 300' W GE-52		PG	WX-35	122.5	130.1	118.3	9.9	96.6	P	LFP 3 NORTH SLOPE BTWN ACCESS RD & TEMP BERM
5	6/4/97	NO	30' N x 400' W GE-52		PG	WX-35	122.5	132.4	118.8	11.4	97.0	P	LFP 3 NORTH SLOPE BTWN ACCESS RD & TEMP BERM
6	6/4/97	NO	15' N x 15' W GE-43		PG	WX-35	122.5	131.2	119.2	10.1	97.3	P	LFP 3 NORTH SLOPE BTWN ACCESS RD & TEMP BERM
7	6/4/97	NO	100' Due West GE-43		PG	WX-35	122.5	132.4	117.7	12.5	96.1	P	LFP 3 NORTH SLOPE BTWN ACCESS RD & TEMP BERM

1 Of 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 69[illegible] MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

MAY '97

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	5/30/97	NO	50' Due North Drip Leg 10		2ND	SV-40	131.3	137.5	127.0	8.3	96.7	P	LFP 6 & 7 ALONG TEMP. ACCESS. RD ADJ. TO L.L.BERM
2	5/30/97	NO	50' N x 50' E DL-10		2ND	SV-40	131.3	137.2	126.6	8.4	96.4	P	LFP 6 & 7 ALONG TEMP. ACCESS. RD ADJ. TO L.L.BERM
3	5/30/97	NO	50' S x 50' E DL-10		2ND	SV-40	131.3	137.8	126.3	9.1	96.2	P	LFP 6 & 7 ALONG TEMP. ACCESS. RD ADJ TO L.L.BERM
4	5/30/97	NO	50' Due South RFW 7S-7D		PG	WX-35	122.5	131.5	117.2	12.2	95.7	P	LFP 3 BTWN PERIMETER EDGE AND 120' CONTOUR
5	5/30/97	NO	50' S x 150' E RFW 7S-7D		PG	WX-35	122.5	131.5	118.0	11.5	96.3	P	LFP 3 BTWN PERIMETER EDGE AND 120' CONTOUR
6	5/30/97	NO	50' S x 225' E RFW 7S-7D		PG	WX-35	122.5	129.2	117.2	10.2	95.7	P	LFP 3 BTWN PERIMETER EDGE AND 120' CONTOUR
7	**5/30/97**	**REQ'D**	**50' Due North LCC-3**		**PG**	**WX-35**	**122.5**	**129.6**	**115.5**	**12.2**	**94.3**	**F**	**LFP 3 BTWN PERIMETER EDGE AND 120' CONTOUR**
8	**5/30/97**	**REQ'D**	**100' E x 75' S LCC-3**		**PG**	**WX-35**	**122.5**	**129.8**	**115.0**	**12.8**	**93.9**	**F**	**LFP 3 BTWN PERIMETER EDGE AND 120' CONTOUR**
9	**5/30/97**	**REQ'D**	**100' Due South LCC-3**		**PG**	**WX-35**	**122.5**	**128.5**	**115.3**	**11.5**	**94.1**	**F**	**LFP 3 BTWN PERIMETER EDGE AND 120' CONTOUR**
10	5/30/97	NO	70' W x 75' S LCC-3		PG	WX-35	122.5	127.3	117.1	8.7	95.6	P	LFP 3 BTWN PERIMETER EDGE AND 120' CONTOUR
11	5/30/97	NO	150' W x 75' S LCC-3		PG	WX-35	122.5	128.6	118.3	8.7	96.6	P	LFP 3 BTWN PERIMETER EDGE AND 120' CONTOUR
12	5/30/97	NO	190' W x 75' S LCC-3		PG	WX-35	122.5	126.3	117.7	7.3	96.1	P	LFP 3 BTWN PERIMETER EDGE AND 120' CONTOUR
13	**5/30/97**	**REQ'D**	**225' W x 75' S LCC-3**		**PG**	**WX-35**	**122.5**	**123.5**	**114.2**	**8.2**	**93.2**	**F**	**LFP 3 BTWN PERIMETER EDGE AND 120' CONTOUR**
14	5/30/97	NO	50' W x 100' N GE-44		PG	WX-35	122.5	130.7	118.8	10.0	97.0	P	LFP 3 BTWN PERIMETER EDGE AND 120' CONTOUR
15	**5/30/97**	**REQ'D**	**50' Due West GE-44**		**PG**	**WX-35**	**122.5**	**124.3**	**114.5**	**8.5**	**93.5**	**F**	**LFP 3 BTWN PERIMETER EDGE AND 120' CONTOUR**
16	5/30/97	NO	100' Duw West GE-44		PG	WX-35	122.5	129.9	120.4	7.9	98.3	P	LFP 3 BTWN PERIMETER EDGE AND 120' CONTOUP
17	**5/30/97**	**REQ'D**	**100' W x 75' N GE_44**		**PG**	**WX-35**	**122.5**	**128.3**	**115.2**	**11.4**	**94.0**	**F**	**LFP 3 BTWN PERIMETER EDGE AND 120' CONTOUR**
18	5/30/97	NO	150' W x 75' N GE-44		PG	WX-35	122.5	131.3	118.8	10.5	97.0	P	LFP 3 BTWN PERIMETER EDGE AND 120' CONTOUR
19	5/30/97	NO	150' W x 40' S GE-44		PG	WX-35	122.5	129.6	119.7	8.3	97.7	P	LFP 3 BTWN PERIMETER EDGE AND 120' CONTOUR
20	5/30/97	NO	50' W x 50' N GE-43		PG	WX-35	122.5	128.5	117.1	9.7	95.6	P	LFP 3 BTWN PERIMETER EDGE AND 120' CONTOUR
21	5/30/97	NO	25' W x 50' N GE-42		PG	WX-35	122.5	125.8	116.5	8.0	95.1	P	LFP 3 BTWN PERIMETER EDGE AND 120' CONTOUR
22	**5/30/97**	**REQ'D**	**75' W x 50' N GE-42**		**PG**	**WX-35**	**122.5**	**127.5**	**114.8**	**11.1**	**93.7**	**F**	**LFP 3 BTWN PERIMETER EDGE AND 120' CONTOUR**
23	5/30/97	NO	125' Due West GE-42		PG	WX-35	122.5	132.1	117.6	12.3	96.0	P	LFP 3 BTWN PERIMETER EDGE AND 120' CONTOUR
24	**5/30/97**	**REQ'D**	**175' Due West GE-42**		**PG**	**WX-35**	**122.5**	**129.7**	**115.6**	**12.2**	**94.4**	**F**	**LFP 3 BTWN PERIMETER EDGE AND 120' CONTOUR**
25	5/30/97	NO	175' W x 100' S GE-42		PG	WX-35	122.5	126.6	117.8	7.4	96.2	P	LFP 3 BTWN PERIMETER EDGE AND 120' CONTOUR
26	**5/30/97**	**REQ'D**	**100' W x 100' S GE-42**		**PG**	**WX-35**	**122.5**	**125.6**	**114.7**	**9.5**	**93.6**	**F**	**LFP 3 BTWN PERIMETER EDGE AND 120' CONTOUR**
27	5/30/97	NO	50' N x 50' E GE-41		PG	WX-35	122.5	128.0	117.8	8.6	96.2	P	LFP 3 BTWN PERIMETER EDGE AND 120' CONTOUR
28	5/30/97	NO	25' N x 100' E GE-41		PG	WX-35	122.5	126.6	116.9	8.3	95.4	P	LFP 3 BTWN PERIMETER EDGE AND 120' CONTOUR
29	5/30/97	NO	60' Due North GE-37		2ND	SV-40	131.3	137.7	126.3	9.0	96.2	P	LFP 6 & 7 ALONG TEMP. ACCESS RD ADJ. TO L.L BERM
30	5/30/97	NO	50' W x 100' N GE-36		2ND	SV-40	131.3	138.6	126.8	9.3	96.6	P	LFP 6 & 7 ALONG TEMP. ACCESS. RD ADJ TO L.L.BERM
31	5/30/97	NO	50' Due West GE-36		2ND	SV-40	131.3	137.0	125.9	8.8	95.9	P	LFP 6 & 7 ALONG TEMP. ACCESS RD ADJ. TO L.L.BERM
32	3/24/97	NO	50' W x 100' S GE-36		2ND	SV-40	131.3	138.8	127.2	9.1	96.9	P	LFP 6 & 7 ALONG TEMP. ACCESS. RD ADJ TO L.L BERM
	1	Of	2	Tests Performed By YEC Personnel							SIGNATURE:		

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
7A	5/30/97	NO	50' Due North LCC-3		PG	WX-35	122.5	132.0	117.8	12.0	96.2	P	LFP 3 BTWN PERIMETER EDGE AND 120' CONTOUR
8A	5/30/97	NO	100' E x 75' S LCC-3		PG	WX-35	122.5	132.4	118.2	12.0	96.5	P	LFP 3 BTWN PERIMETER EDGE AND 120' CONTOUR
9A	5/30/97	NO	100' Due South LCC-3		PG	WX-35	122.5	131.9	118.8	11.0	97.0	P	LFP 3 BTWN PERIMETER EDGE AND 120' CONTOUR
13A	5/30/97	NO	225' W x 75' S LCC-3		PG	WX-35	122.5	132.2	119.1	11.0	97.2	P	LFP 3 BTWN PERIMETER EDGE AND 120' CONTOUR
15A	5/30/97	NO	50' Due West GE-44		PG	WX-35	122.5	130.9	120.2	8.9	98.1	P	LFP 3 BTWN PERIMETER EDGE AND 120' CONTOUR
17A	5/30/97	NO	100' W x 75' N GE_44		PG	WX-35	122.5	130.1	119.3	9.0	97.4	P	LFP 3 BTWN PERIMETER EDGE AND 120' CONTOUR
22A	5/30/97	NO	75' W x 50' N GE-42		PG	WX-35	122.5	130.0	118.7	9.5	96.9	P	LFP 3 BTWN PERIMETER EDGE AND 120' CONTOUR
24A	5/30/97	NO	175' Due West GE-42		PG	WX-35	122.5	131.4	117.4	12.0	95.8	P	LFP 3 BTWN PERIMETER EDGE AND 120' CONTOUR
26A	5/30/97	NO	100' W x 100' S GE-42		PG	WX-35	122.5	129.8	118.0	10.0	96.3	P	LFP 3 BTWN PERIMETER EDGE AND 120' CONTOUR

TESTS NUMBERED 7A, 8A, 9A, 13A, 15A, 17A, 22A, 24A & 26A WERE RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND WERE RE-TESTED

	2	Of	2	Tests Performed By YEC Personnel	SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	5/28/97	NO	20' NORTH 10' EAST GE-46	F8	FINAL PG	WMXG8	124.7	134.8	121.3	11.1	97.3	P	LFP3 NO. SLOPE BTWN 118 & 90 GE45 & GE46
2	5/28/97	NO	70' SOUTH 30' WEST GE-46	F8	FINAL PG	WMXG8	124.7	132.3	121.1	9.3	97.1	P	LFP3 NO. SLOPE BTWN 118 & 90 GE45 & GE46
3	5/28/97	NO	70' SOUTH 75' WEST GE-46	F8	FINAL PG	WMXG8	124.7	131.8	123.2	7.0	98.8	P	LFP3 NO. SLOPE BTWN 118 & 90 GE45 & GE46
4	5/28/97	NO	75' DUE WEST GE-46	F8	FINAL PG	WMXG8	124.7	132.8	119.8	10.8	96.1	P	LFP3 NO. SLOPE BTWN 118 & 90 GE45 & GE46
5	5/28/97	NO	20' NORTH 135' WEST GE-46	F8	FINAL PG	WMXG8	124.7	129.8	120.0	8.2	96.2	P	LFP3 NO. SLOPE BTWN 118 & 90 GE45 & GE46
6	5/28/97	NO	115' SOUTH 135' WEST GE-46	F8	FINAL PG	WMXG8	124.7	133.2	122.3	8.9	98.1	P	LFP3 NO. SLOPE BTWN 118 & 90 GE45 & GE46
7	5/28/97	NO	75' SOUTH 10' WEST GE-45	E8	FINAL PG	WMXG8	124.7	130.2	118.6	9.8	95.1	P	LFP3 NO. SLOPE BTWN 118 & 90 GE45 & GE46
8	5/28/97	NO	15' NORTH 10' WEST GE-45	E8	FINAL PG	WMXG8	124.7	133.1	122.2	8.9	98.0	P	LFP3 NO. SLOPE BTWN 118 & 90 GE45 & GE46
9	5/28/97	NO	75' WEST 130' NORTH GE-46	F8	FINAL PG	WMXG8	124.7	130.6	119.8	9.0	96.1	P	SLOPE BTWN 90 & RD STARTING 180' E. CC#3
10	5/28/97	NO	40' EAST 140' NORTH GE-46	E9	FINAL PG	WMXG8	124.7	130.1	119.2	9.1	95.6	P	SLOPE BTWN 90 & RD.STARTING 180' E. CC#3
11	5/28/97	NO	100' E. 20' S. COLLECTION CHAMBER #3	F9	FINAL PG	WMXG8	124.7	131.5	118.6	10.9	95.1	P	ACC RD @ RIV PROP. GOING WEST TO CC#3
12	5/28/97	NO	50' E. 10' S. COLLECTION CHAMBER #3	E9	FINAL PG	WMXG8	124.7	133.4	119.7	11.4	96.0	P	ACC RD @ RIV PROP. GOING WEST TO CC#3
13	5/28/97	NO	5' W. 15' S. COLLECTION CHAMBER #3	E9	FINAL PG	WMXG8	124.7	132.2	119.3	10.8	95.7	P	ACC. RD @ RIV. PROP GOING WEST TO CC#3
14	5/28/97	NO	150' DUE WEST RFW 9S	F9	FINAL PG	WMXG8	124.7	129.3	119.5	8.2	95.8	P	LFP3 BTWN ACC RD & L O W. RIV. PROP. & 8D
15	5/28/97	NO	130' WEST 25' SOUTH RFW 9S	F9	FINAL PG	WMXG8	124.7	129.5	119.3	8.5	95.7	P	LFP3 BTWN ACC RD. & L O W. RIV. PROP. & 8D
16	5/28/97	NO	80 WEST 25' SOUTH RFW 9S	F9	FINAL PG	WMXG8	124.7	130.3	119.8	8.7	96.1	P	LFP3 BTWN ACC RD. & L.O.W RIV. PROP. & 8D
17	5/28/97	NO	70' DUE WEST RFW 9S	F9	FINAL PG	WMXG8	124.7	131.0	119.2	9.9	95.6	P	LFP3 BTWN ACC RD. & L.O.W. RIV. PROP. & 8D
18	5/28/97	NO	30' SOUTH 50' WEST RFW 9S	F9	FINAL PG	WMXG8	124.7	130.7	118.8	10.0	95.3	P	LFP3 BTWN ACC RD & L.O.W. RIV. PROP. & 8D
19	5/28/97	NO	50' DUE SOUTH RFW 9S	G9	FINAL PG	WMXG8	124.7	132.7	121.8	8.9	97.7	P	LFP3 BTWN ACC RD. & L.O.W RIV. PROP. & 8D
20	5/28/97	NO	50' DUE EAST RFW 9S	G9	FINAL PG	WMXG8	124.7	133.5	122.3	9.1	98.1	P	LFP3 BTWN ACC RD. & L.O.W. RIV. PROP. & 8D

PAGE OF Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% OF ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	5/26/97	NO	20' NORTH 40' WEST RFW 8D	D10	PG	WMX35	122.5	129.7	117.6	10.3	96.0	P	LFP3 TB6 BASIN AREA
2	5/26/97	NO	20' NORTH 10' EAST RFW 8D	E9	PG	WMX35	122.5	131.6	118.9	10.6	97.1	P	LFP3 TB6 BASIN AREA
3	5/26/97	NO	120' WEST 30' NORTH GE-41	B10	PG	WMX 30	127.1	139.5	125.8	10.9	99.0	P	LFP 3 BTWN 70 & 90 NW CORNER ABOVE TB 5
4	5/26/97	NO	130' WEST 5' SOUTH GE-41	B10	PG	WMX 30	127.1	141.4	126.6	11.7	99.6	P	LFP 3 BTWN 70 & 90 NW CORNER ABOVE TB 5
5	5/26/97	NO	140' DUE WEST GE-41	B10	PG	WMX 30	127.1	142.0	127.2	11.6	100.1	P	LFP 3 BTWN 70 & 90 NW CORNER ABOVE TB 5
6	5/26/97	NO	100' WEST 40' NORTH GE-40	B8	PG	WMXG8	124.7	136.4	123.0	10.9	98.6	P	LFP 3 90 & 118 GE 40 & GE 41
7	5/26/97	NO	140' WEST 30' NORTH GE-40	B8	PG	WMXG8	124.7	133.4	120.1	11.1	96.3	P	LFP 3 90 & 118 GE 40 & GE 41
8	5/26/97	NO	100' WEST 80' NORTH GE-40	B8	PG	WMXG8	124.7	134.1	120.6	11.2	96.7	P	LFP 3 90 & 118 GE 40 & GE 41
9	5/26/97	NO	140' WEST 95' NORTH GE-40	B8	PG	WMXG8	124.7	135.4	122.5	10.6	98.2	P	LFP 3 90 & 118 GE 40 & GE 41
10	**5/26/97**	**REQ'D**	**70' SOUTH 10' WEST RFW 9S**	**F9/G9**	**PG**	**WMXG8**	**124.7**	**127.5**	**115.6**	**10.3**	**92.7**	**F**	LFP1 ADJACENT TO WEST SIDE RIVERSO PROP.
11	**5/26/97**	**REQ'D**	**60' SOUTH 35' EAST RFW 9S**	**F9/G9**	**PG**	**WMXG8**	**124.7**	**125.3**	**114.2**	**9.7**	**91.6**	**F**	LFP1 ADJACENT TO WEST SIDE RIVERSO PROP.
12	5/26/97	NO	15' SOUTH 60' EAST RFW 9S	F9/G9	PG	WMXG8	124.7	130.7	119.3	9.5	95.7	P	LFP1 ADJACENT TO WEST SIDE RIVERSO PROP.
13	**5/26/97**	**REQ'D**	**20' SOUTH 50' WEST RFW 9S**	**F9/G9**	**PG**	**WMXG8**	**124.7**	**124.2**	**114.2**	**8.7**	**91.6**	**F**	LFP1 ADJACENT TO WEST SIDE RIVERSO PROP.
14	**5/26/97**	**REQ'D**	**45' SOUTH 100' WEST RFW 9S**	**F9/G9**	**PG**	**WMXG8**	**124.7**	**127.9**	**114.1**	**12.1**	**91.5**	**F**	LOWER SLOPE BTWN. RD. & LIMIT OF WORK
15	**5/26/97**	**REQ'D**	**45' SOUTH 150' WEST RFW 9S**	**F9/G9**	**PG**	**WMXG8**	**124.7**	**126.3**	**113.9**	**10.9**	**91.3**	**F**	LOWER SLOPE BTWN. RD. & LIMIT OF WORK
16	5/26/97	NO	60' SOUTH 110' WEST RFW 9S	F9	PG	WMXG8	124.7	135.2	124.7	8.4	100.0	P	RD BTWN RFW 7 & RFW 8
17	5/26/97	NO	60' SOUTH 160' WEST RFW 9S	F9	PG	WMXG8	124.7	136.1	125.2	8.7	100.4	P	LFP 3 BTWN 90 & 118 , GE-38 & GE-40
18	5/26/97	NO	60' SOUTH 210' WEST RFW 9S	F9	PG	WMXG8	124.7	132.4	120.6	9.8	96.7	P	LFP 3 BTWN 90 & 118 ; GE-38 & GE-40
19	5/26/97	NO	60' SOUTH 260' WEST RFW 9S	F9	PG	WMXG8	124.7	134.4	124.2	8.2	99.6	P	LFP 3 BTWN 90 & 118 ; GE-38 & GE-40
10A	**5/26/97**	**NO**	**70' SOUTH 10' WEST RFW 9S**	**F9/G9**	**PG**	**WMXG8**	**124.7**	**133.2**	**120.6**	**10.5**	**96.7**	**P**	LFP1 ADJACENT TO WEST SIDE RIVERSO PROP.
11A	**5/26/97**	**NO**	**60' SOUTH 35' EAST RFW 9S**	**F9/G9**	**PG**	**WMXG8**	**124.7**	**134.4**	**122.2**	**10.0**	**98.0**	**P**	LFP1 ADJACENT TO WEST SIDE RIVERSO PROP.
13A	**5/26/97**	**NO**	**20' SOUTH 50' WEST RFW 9S**	**F9/G9**	**PG**	**WMXG8**	**124.7**	**132.0**	**121.1**	**9.0**	**97.1**	**P**	LFP1 ADJACENT TO WEST SIDE RIVERSO PROP.
14A	**5/26/97**	**NO**	**45' SOUTH 100' WEST RFW 9S**	**F9/G9**	**PG**	**WMXG8**	**124.7**	**133.3**	**120.1**	**11.0**	**96.3**	**P**	LOWER SLOPE BTWN. RD. & LIMIT OF WORK
15A	**5/26/97**	**NO**	**45' SOUTH 150' WEST RFW 9S**	**F9/G9**	**PG**	**WMXG8**	**124.7**	**134.8**	**121.2**	**11.2**	**97.2**	**P**	LOWER SLOPE BTWN. RD. & LIMIT OF WORK

TESTS NUMBERED 10A THRU 15 A WERE RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND WERE RE-TESTED

1 Of 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	*5/23/97*	*REQ'D*	*120' WEST 20' NORTH GE-38*	*B8*	*1ST SUBG*	*SV40*	*131.3*	*134.3*	*123.4*	*8.8*	*94.0*	*F*	*LFP 3 BTWN 90 & 118 ; GE-38 & GE-40*
2	5/23/97	NO	125' WEST 50' NORTH GE-38	B8	1ST SUBG	SV40	131.3	138.9	128.4	8.2	97.8	P	LFP 3 BTWN 90 & 118 ; GE-38 & GE-40
3	5/23/97	NO	120' WEST 100' NORTH GE 38	B8	1ST SUBG	SV40	131.3	139.4	130.6	6.7	99.5	P	LFP 3 BTWN 90 & 118 ; GE-38 & GE-40
4	5/23/97	NO	125' WEST 120' NORTH GE-38	B8	1ST SUBG	SV40	131.3	138.7	128.9	7.6	98.2	P	LFP 3 BTWN 90 & 118 ; GE-38 & GE-40
5	5/23/97	NO	140' WEST 20' NORTH GE-38	B8	1ST SUBG	SV40	131.3	137.4	128.1	7.2	97.6	P	LFP 3 BTWN 90 & 118 ; GE-38 & GE-40
6	5/23/97	NO	145' WEST 50' NORTH GE-38	B8	1ST SUBG	SV40	131.3	139.3	128.9	8.0	98.2	P	LFP 3 BTWN 90 & 118 ; GE-38 & GE-40
7	5/23/97	NO	140' WEST 100' NORTH GE-38	B8	1ST SUBG	SV40	131.3	139.5	130.2	7.1	99.2	P	LFP 3 BTWN 90 & 118 ; GE-38 & GE-40
8	5/23/97	NO	145' WEST 120' NORTH GE-38	B8	1ST SUBG	SV40	131.3	139.7	129.5	7.9	98.6	P	LFP 3 BTWN 90 & 118 ; GE-38 & GE-40
9	5/23/97	NO	135' WEST 70' NORTH GE-38	B8	1ST SUBG	SV40	131.3	140.7	130.1	8.1	99.1	P	LFP 3 BTWN 90 & 118 ; GE-38 & GE-40
10	*5/23/97*	*1*	*120' WEST 25' NORTH GE-38*	*B8*	*1ST SUBG*	*SV40*	*131.3*	*136.5*	*126.2*	*8.2*	*96.1*	*P*	*LFP 3 BTWN 90 & 118 ; GE-38 & GE-40*

PAGE OF Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% OF ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 **Gauge Type ~~Troxler 3440** **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	5/21/98	REQ'D	100' E x 110' S GE-45		PG	WX-G8	124.7	131.3	116.5	12.7	93.4	F	LFP 3 BTWN 90' CONT & 120' CONTOUR
2	5/21/98	REQ'D	100' W x100' S GE-46		PG	WX-G8	124.7	127.8	117.0	9.3	93.8	F	LFP 3 BTWN 90' CONT & 120' CONTOUR
3	5/21/98	NO	90' W x 60' S GE-46		PG	WX-G8	124.7	128.8	118.8	8.4	95.3	P	LFP 3 BTWN 90' CONT & 120' CONTOUR
4	5/21/98	REQ'D	50' W x 50' S GE-46		PG	WX-G8	124.7	128.4	118.2	8.6	94.8	F	LFP 3 BTWN 90' CONT & 120' CONTOUR
5	5/21/98	NO	50' Due West GE-46		PG	WX-G8	124.7	129.6	120.1	7.9	96.3	P	LFP 3 BTWN 90' CONT & 120' CONTOUR
6	5/21/98	REQ'D	75' W 25' N GE-46		PG	WX-G8	124.7	130.5	118.2	10.4	94.8	F	LFP 3 BTWN 90' CONT & 120' CONTOUR
7	5/21/98	REQ'D	25' W x 50' N GE-46		PG	WX-G8	124.7	129.2	118.3	9.2	94.9	F	LFP 3 BTWN 90' CONT & 120' CONTOUR
8	5/21/98	NO	25' Due West GE-47		PG	WX-G8	124.7	131.3	119.2	10.1	95.6	P	LFP 3 BTWN 90' CONT & 120' CONTOUR
9	5/21/98	NO	25' W x 50' S GE-47		PG	WX-G8	124.7	130.8	118.8	10.1	95.3	P	LFP 3 BTWN 90' CONT & 120' CONTOUR
10	5/21/98	REQ'D	75' W x 50' S GE-47		PG	WX-G8	124.7	126.3	116.3	8.6	93.3	F	LFP 3 BTWN 90' CONT & 120' CONTOUR
11	5/21/98	NO	100' E x 5' N GE-47		PG	WX-G8	124.7	130.4	119.2	9.4	95.6	P	LFP 3 BTWN 90' CONT & 120' CONTOUR
12	5/21/98	NO	50' E x 40' N GE-46		PG	WX-G8	124.7	131.4	120.2	9.3	96.4	P	LFP 3 BTWN 90' CONT & 120' CONTOUR
13	5/21/98	NO	100' E x 50' N GE-46		PG	WX-G8	124.7	130.3	119.3	9.2	95.7	P	LFP 3 BTWN 90' CONT & 120' CONTOUR
14	5/21/98	NO	150' S x 50' E GE-47		PG	WX-G8	124.7	130.7	118.8	10.0	95.3	P	LFP 3 BTWN 90' CONT & 120' CONTOUR
15	5/21/98	NO	100' Due North GE-50		PG	WX-G8	124.7	128.9	120.3	7.1	96.5	P	LFP 3 BTWN 90' CONT & 120' CONTOUR
16	5/21/98	NO	100' N x 50' W GE-50		PG	WX-G8	124.7	131.9	119.3	10.5	95.7	P	LFP 3 BTWN 90' CONT & 120' CONTOUR
17	5/21/98	NO	100' N x 50' E GE-50		PG	WX-G8	124.7	131.8	118.8	10.9	95.3	P	LFP 3 BTWN 90' CONT & 120' CONTOUR
18	5/21/98	NO	100' N x 100' E GE-50		PG	WX-G8	124.7	130.8	119.2	9.7	95.6	P	LFP 3 BTWN 90' CONT & 120' CONTOUR
19	5/21/98	NO	100' N x 20' E GE-47		PG	WX-G8	124.7	131.4	120.0	9.5	96.2	P	LFP 3 BTWN 90' CONT & 120' CONTOUR
1A	5/21/98	NO	100' E x 110' S GE-45		PG	WX-G8	124.7	133.6	118.7	12.5	95.2	P	LFP 3 BTWN 90' CONT & 120' CONTOUR
2A	5/21/98	NO	100' W x100' S GE-46		PG	WX-G8	124.7	131.4	119.5	10.0	95.8	P	LFP 3 BTWN 90' CONT & 120' CONTOUR
4A	5/21/98	NO	50' W x 50' S GE-46		PG	WX-G8	124.7	129.9	119.2	9.0	95.6	P	LFP 3 BTWN 90' CONT & 120' CONTOUR
6A	5/21/98	NO	75' W 25' N GE-46		PG	WX-G8	124.7	130.9	119.0	10.0	95.4	P	LFP 3 BTWN 90' CONT & 120' CONTOUR
7A	5/21/98	NO	25' W x 50' N GE-46		PG	WX-G8	124.7	129.8	118.5	9.6	95.0	P	LFP 3 BTWN 90' CONT & 120' CONTOUR
10A	5/21/98	NO	75' W x 50' S GE-47		PG	WX-G8	124.7	129.5	118.8	9.0	95.3	P	LFP 3 BTWN 90' CONT & 120' CONTOUR
ALL TESTS NEEDED TO BE RE-TESTED DUE TO RAINS													

PAGE 1 OF 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% OF ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 Item 5B Structural Fill

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	5/16/97	REQ'D	60' W x 30' N GE-46		PG	WX-G8	124.7	124.9	113.7	9.8	91.2	F	LFP 3 BTWN 90' CONT & 120' CONTOUR
2	5/16/97	REQ'D	25' W x 20' N GE-46		PG	WX-G8	124.7	126.9	116.1	9.3	93.1	F	LFP 3 BTWN 90' CONT & 120' CONTOUR
3	5/16/97	REQ'D	25' W x 25' S GE-46		PG	WX-G8	124.7	126.2	114.5	10.2	91.8	F	LFP 3 BTWN 90' CONT & 120' CONTOUR
4	5/16/97	REQ'D	25' W x 75' S GE-46		PG	WX-G8	124.7	126.2	114.7	10.0	92.0	F	LFP 3 BTWN 90' CONT & 120' CONTOUR
5	5/16/97	REQ'D	50' W x 100' S GE-46		PG	WX-G8	124.7	127.2	116.8	8.9	93.7	F	LFP 3 BTWN 90' CONT & 120' CONTOUR
6	5/16/97	REQ'D	50' W x 50' S GE-46		PG	WX-G8	124.7	124.8	114.5	9.0	91.8	F	LFP 3 BTWN 90' CONT & 120' CONTOUR
7	5/16/97	REQ'D	75' W X 40' S GE-46		PG	WX-G8	124.7	122.2	111.7	9.4	89.6	F	LFP 3 BTWN 90' CONT & 120' CONTOUR
8	5/16/97	REQ'D	75' W x 80' S GE-46		PG	WX-G8	124.7	127.8	117.2	9.0	94.0	F	LFP 3 BTWN 90' CONT & 120' CONTOUR
9	5/16/97	REQ'D	75' W x 20' N GE-46		PG	WX-G8	124.7	124.9	115.0	8.6	92.2	F	LFP 3 BTWN 90' CONT & 120' CONTOUR
1A	5/16/97	NO	60' W x 30' N GE-46		PG	WX-G8	124.7	129.9	119.2	9.0	95.6	P	LFP 3 BTWN 90' CONT & 120' CONTOUR
2A	5/16/97	NO	25' W x 20' N GE-46		PG	WX-G8	124.7	132.0	120.8	9.2	96.9	P	LFP 3 BTWN 90' CONT & 120' CONTOUR
3A	5/16/97	NO	25' W x 25' S GE-46		PG	WX-G8	124.7	132.6	121.1	9.5	97.1	P	LFP 3 BTWN 90' CONT & 120' CONTOUR
4A	5/16/97	NO	25' W x 75' S GE-46		PG	WX-G8	124.7	131.2	120.3	9.0	96.5	P	LFP 3 BTWN 90' CONT & 120' CONTOUR
5A	5/16/97	NO	50' W x 100' S GE-46		PG	WX-G8	124.7	131.4	120.1	9.4	96.3	P	LFP 3 BTWN 90' CONT & 120' CONTOUR
6A	5/16/97	NO	50' W x 50' S GE-46		PG	WX-G8	124.7	129.9	119.6	8.6	95.9	P	LFP 3 BTWN 90' CONT & 120' CONTOUR
7A	5/16/97	NO	75' W X 40' S GE-46		PG	WX-G8	124.7	129.9	119.0	9.2	95.4	P	LFP 3 BTWN 90' CONT & 120' CONTOUR
8A	5/16/97	NO	75' W x 80' S GE-46		PG	WX-G8	124.7	128.8	118.7	8.5	95.2	P	LFP 3 BTWN 90' CONT & 120' CONTOUR
9A	5/16/97	NO	75' W x 20' N GE-46		PG	WX-G8	124.7	130.1	119.8	8.6	96.1	P	LFP 3 BTWN 90' CONT & 120' CONTOUR

ALL TESTS WERE RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND CAT ROLLER CS-563, ALL LOCATIONS WERE RE-TESTED

PAGE OF Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% OF ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	5/15/97	NO	200' N 80' E NWC TRANS. STA.	H8	FINAL PG	WMX35	122.2	133.4	118.8	12.3	97.2	P	LFP1 WD1 RETEST 5/14/97
2	5/15/97	NO	250' N NWC TRANS. STA.	H8	FINAL PG	WMX35	122.2	134.3	119.9	12.0	98.1	P	LFP1 WD1 RETEST 5/14/97
3	5/15/97	NO	10' E 290' N NWC TRANS STA.	H8	FINAL PG	WMX35	122.2	128.5	116.2	10.6	95.1	P	LFP1 WD1 RETEST 5/14/97
4	5/15/97	NO	80' 290' N NWC TRANS STA.	H8	FINAL PG	WMX35	122.2	131.1	117.7	11.4	96.3	P	LFP1 WD1 RETEST 5/14/97
5	5/15/97	NO	40' W DL-4	G8	3RD	SV30	126.9	140.3	125.1	12.1	98.6	P	LFP 1 BTWN DL-4, GE-50 & GE-47
6	5/15/97	NO	40' N DL-4	G8	3RD	SV30	126.9	139.4	124.6	11.9	98.2	P	LFP 1 BTWN DL-4, GE-50 & GE-47
7	5/15/97	NO	25' W 20' N GE - 46	F8	1ST	SV30	126.9	138.7	125.3	10.7	98.7	P	LFP 1 BTWN ELEV. 118&90, GE-45 & GE-46
8	5/15/97	NO	50' W 80' S GE - 46	F8	1ST	SV30	126.9	139.7	125.8	11.1	99.1	P	LFP 1 BTWN ELEV. 118&90, GE-45 & GE-46
9	5/15/97	NO	75' W 100' S GE - 46	F8	1ST	SV30	126.9	139.2	124.6	11.7	98.2	P	LFP 1 BTWN ELEV. 118&90, GE-45 & GE-46
10	5/15/97	NO	100' W 100' S GE - 46	F8	1ST	SV30	126.9	138.3	124.4	11.2	98.0	P	LFP 1 BTWN ELEV. 118&90, GE-45 & GE-46
11	5/15/97	NO	125' S 50' E LCC #4	A8	FINAL PG	WMX 15	127.1	137.5	128.4	7.1	101.0	P	LFP 3 BTWN TBASIN 5 & TBASIN 4 ELEV. 64 & 62
12	5/15/97	NO	200' S 25' E LCC #4	A8	FINAL PG	WMX 15	127.1	130.2	121.4	7.3	95.5	P	LFP 3 BTWN TBASIN 5 & TBASIN 4 ELEV. 84 & 62
13	5/15/97	NO	75' S 10' N LCC #4	A8	FINAL PG	WMX 15	127.1	133.0	124.0	7.2	97.6	P	LFP 3 BTWN TBASIN 5 & TBASIN 4 ELEV. 84 & 62
14	5/15/97	NO	20' E WELL RFW 6D	A9	FINAL PG	WMX 15	127.1	132.2	123.2	7.3	96.9	P	LFP 3 BTWN TBASIN 5 & TBASIN 4 ELEV. 84 & 62
15	5/15/97	NO	40' E 75' N WELL RFW 6D	A9	FINAL PG	WMX 15	127.1	131.0	121.9	7.5	95.9	P	LFP 3 BTWN TBASIN 5 & TBASIN 4 ELEV. 84 & 62
16	5/15/97	NO	100' E 25' S GE 42	F8	FINAL PG	WMXG8	124.7	136.5	123.1	10.9	98.7	P	RTEST FROM 5/14/97 LFP 1 ELEV 1 8 & 90
17	5/15/97	NO	130' E 25' S GE 42	F8	FINAL PG	WMXG8	124.7	133.0	119.7	11.1	96.0	P	RTEST FROM 5/14/97 LFP 1 ELEV 118 & 90
18	5/15/97	NO	160' E 25' S GE 42	F8	FINAL PG	WMXG8	124.7	132.8	118.6	12.0	95.1	P	RTEST FROM 5/14/97 LFP 1 ELEV 118 & 90
19	5/15/97	NO	75' W 25' S GE 44	E8	FINAL PG	WMXG8	124.7	134.7	120.6	11.7	96.7	P	RTEST FROM 5/14/97 LFP 1 ELEV 118 & 90
20	5/15/97	NO	50' W 25' N GE 44	E8	FINAL PG	WMXG8	124.7	134.9	122.1	10.5	97.9	P	RTEST FROM 5/14/97 LFP 1 ELEV 118 & 90
21	5/15/97	NO	25' W 25' N GE 44	E8	FINAL PG	WMXG8	124.7	134.7	122.5	10.0	98.2	P	RTEST FROM 5/14/97 LFP 1 ELEV 118 & 90
22	5/15/97	NO	100' S 20' W GE 45	E8	FINAL PG	WMXG8	124.7	134.7	121.7	10.7	97.6	P	RTEST FROM 5/14/97 LFP 1 ELEV 118 & 90

PAGE OF

Tests Performed By YEC Personnel

SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% OF ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	5/14/97	NO	130' Due East GE 42	D9	FINAL PG	WMXG8	124.7	136.3	121.7	12.0	97.6	P	LFP 1 NORTH SLOPE BTWN ELEV.118 & 90
2	5/14/97	REQ'D	100' E x 25' S GE 42	D9	FINAL PG	WMXG8	124.7	130.2	116.2	12.0	93.2	F	LFP 1 NORTH SLOPE BTWN ELEV.118 & 90
3	5/14/97	REQ'D	130' E x 25' S GE 42	D9	FINAL PG	WMXG8	124.7	130.1	116.0	12.2	93.0	F	LFP 1 NORTH SLOPE BTWN ELEV.118 & 90
4	5/14/97	REQ'D	160' E x 25' S GE 42	D9	FINAL PG	WMXG8	124.7	129.8	115.5	12.4	92.6	F	LFP 1 NORTH SLOPE BTWN ELEV.118 & 90
5	5/14/97	NO	25' W x 25' S GE 44	D8	FINAL PG	WMXG8	124.7	132.8	118.6	12.0	95.1	P	LFP 1 NORTH SLOPE BTWN ELEV.118 & 90
6	5/14/97	NO	50' W x 25' S GE 44	D8	FINAL PG	WMXG8	124.7	132.8	118.7	11.9	95.2	P	LFP 1 NORTH SLOPE BTWN ELEV.118 & 90
7	5/14/97	REQ'D	75' W x 25' S GE 44	D8	FINAL PG	WMXG8	124.7	133.1	117.0	13.8	93.8	F	LFP 1 NORTH SLOPE BTWN ELEV.118 & 90
8	5/14/97	NO	75' W x 25' N GE 44	D8	FINAL PG	WMXG8	124.7	134.6	118.7	13.4	95.2	P	LFP 1 NORTH SLOPE BTWN ELEV.118 & 90
9	5/14/97	REQ'D	50' W x 25' N GE 44	E8	FINAL PG	WMXG8	124.7	131.9	117.3	12.4	94.1	F	LFP 1 NORTH SLOPE BTWN ELEV.118 & 90
10	5/14/97	REQ'D	25' W x 25' N GE 44	E8	FINAL PG	WMXG8	124.7	130.3	116.2	12.1	93.2	F	LFP 1 NORTH SLOPE BTWN ELEV.118 & 90
11	5/14/97	NO	170' S x 10' W GE 45	E8	FINAL PG	WMXG8	124.7	130.9	118.7	10.3	95.2	P	LFP 1 NORTH SLOPE BTWN ELEV.118 & 90
12	5/14/97	REQ'D	100' S x 20' W GE 45	E8	FINAL PG	WMXG8	124.7	131.4	117.6	11.7	94.3	F	LFP 1 NORTH SLOPE BTWN ELEV.118 & 90
13	5/14/97	REQ'D	20' S x 60' W GE 45	D8	FINAL PG	WMXG8	124.7	130.1	116.5	11.7	93.4	F	LFP 1 NORTH SLOPE BTWN ELEV.118 & 90
14	5/14/97	2	75' W x 30' S GE 44	D8	FINAL PG	WMXG8	124.7	136.0	121.3	12.1	97.3	P	LFP 1 NORTH SLOPE BTWN ELEV.118 & 90
15	5/14/97	3	50' W x 20' N GE 44	D8	FINAL PG	WMXG8	124.7	134.2	120.2	11.6	96.4	P	LFP 1 NORTH SLOPE BTWN ELEV.118 & 90
16	5/14/97	4	20' Due North GE 44	D8	FINAL PG	WMXG8	124.7	135.1	120.6	12.0	96.7	P	LFP 1 NORTH SLOPE BTWN ELEV.118 & 90
17	***5/14/97***	***16(R)***	***30' EAST x 80' NORTH GE 45***	***E8***	***FINAL PG***	***WMX35***	***122.5***	***126.7***	***111.2***	***13.9***	***90.8***	***F***	***RETEST FROM 5/13/97***
18	***5/14/97***	***17(R)***	***50' EAST x 100' NORTH GE 45***	***E8***	***FINAL PG***	***WMX35***	***122.5***	***127.6***	***111.7***	***14.2***	***91.2***	***F***	***RETEST FROM 5/13/97***
19	5/14/97	REQ'D	200' N x 80' E NW CORNER TRANS. STA.	H8	FINAL PG	WMX35	122.5	127.4	113.6	12.2	92.7	F	LFP1 WD1 FINAL 6"
20	5/14/97	REQ'D	250' N NW CORNER TRANS. STA.	H8	FINAL PG	WMX35	122.5	126.9	112.2	13.1	91.6	F	LFP1 WD1 FINAL 6"
21	5/14/97	REQ'D	10' E x 290' N NW CORNER TRANS STA.	H8	FINAL PG	WMX35	122.5	126.9	111.4	14.0	90.9	F	LFP1 WD1 FINAL 6"
22	5/14/97	REQ'D	80' E x 290' N NW CORNER TRANS. STA.	H8	FINAL PG	WMX35	122.5	127.3	112.8	12.8	92.1	F	LFP1 WD1 FINAL 6"
23	5/14/97	REQ'D	50' E x 240' N NW CORNER TRANS. STA.	H8	FINAL PG	WMX35	122.5	126.6	111.8	13.2	91.3	F	LFP1 WD1 FINAL 6"

PAGE OF Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% OF ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	5/13/97	NO	50' WEST 25' SOUTH GE 47	F8	1ST	SV 30	126.9	138.0	127.4	8.3	100.4	P	LFP 3 BTWN ELEV 118 & 90 GE 46 & GE 47
2	5/13/97	NO	25' WEST 50' SOUTH GE 47	F8	1ST	SV 30	126.9	138.7	127.0	9.2	100.1	P	LFP 3 BTWN ELEV 118 & 90 GE 46 & GE 47
3	5/13/97	NO	50' WEST 100' SOUTH GE 47	F8	1ST	SV 30	126.9	134.4	120.6	11.5	95.0	P	LFP 3 BTWN ELEV 118 & 90 GE 46 & GE 47
4	5/13/97	NO	25' WEST 100' SOUTH GE 47	F8	1ST	SV 30	126.9	139.7	128.0	9.1	100.9	P	LFP 3 BTWN ELEV 118 & 90 GE 46 & GE 47
5	5/13/97	NO	50' SOUTH GE 47	F8	1ST	SV 30	126.9	139.4	127.7	9.2	100.6	P	LFP 3 BTWN ELEV 118 & 90 GE 46 & GE 47
6	5/13/97	NO	50' SOUTH DL4	G8	2ND	SV 30	126.9	138.5	126.4	9.6	99.6	P	LFP 1 BTWN ELEV 118 & 90 ADJACENT TO DL4
7	5/13/97	NO	50' WEST DL4	G8	2ND	SV30	126.9	139.3	126.8	9.9	99.9	P	LFP 1 BTWN ELEV 118 & 90 ADJACENT TO DL4
8	5/13/97	NO	50' SOUTH 20' WEST DL11	D9	1ST	SV30	126.9	133.0	122.0	9.1	96.1	P	LFP 3 BTWN ELEV 118 & 90 GE 41 & GE 42
9	5/13/97	NO	50' SOUTH 80' WEST DL11	D9	1ST	SV30	126.9	133.5	123.3	8.2	97.2	P	LFP 3 BTWN ELEV 118 & 90 GE 41 & GE 42
10	5/13/97	NO	100' SOUTH 40' WEST DL11	D9	1ST	SV30	126.9	134.3	123.2	9.0	97.1	P	LFP 3 BTWN ELEV 118 & 90 GE 41 & GE 42
11	5/13/97	NO	100' SOUTH 75' WEST DL11	D9	1ST	SV30	126.9	134.2	123.0	9.1	96.9	P	LFP 3 BTWN ELEV 118 & 90 GE 41 & GE 42
12	5/13/97	NO	75' SOUTH 40' WEST DL11	D9	1ST	SV30	126.9	133.4	123.2	8.3	97.1	P	LFP 3 BTWN ELEV 118 & 90 GE 41 & GE 42
13	5/13/97	NO	30' EAST 50' NORTH GE 45	E9	FINAL PG	WMX 35	122.2	132.9	117.1	13.5	95.8	P	LFP1 BTWN. ELEV. 118 & 90 GE 45 & GE 46
14	5/13/97	NO	25' EAST GE 45	E8	FINAL PG	WMX 35	122.2	133.2	117.7	13.2	96.3	P	LFP1 BTWN. ELEV. 118 & 90 GE 45 & GE 46
15	5/13/97	NO	15' EAST 40' NORTH GE 45	E8	FINAL PG	WMX 35	122.2	133.7	117.6	13.7	96.2	P	LFP1 BTWN. ELEV. 118 & 90 GE 45 & GE 46
16	***5/13/97***	***REQ'D***	***30' EAST 80' NORTH GE 45***	***E8***	***FINAL PG***	***WMX 35***	***122.2***	***130.1***	***112.5***	***15.6***	***92.1***	***F***	***LFP1 BTWN. ELEV. 118 & 90 GE 45 & GE 46***
17	***5/13/97***	***REQ'D***	***50' EAST 100' NORTH GE 45***	***E8***	***FINAL PG***	***WMX 35***	***122.2***	***130.3***	***112.3***	***16.0***	***91.9***	***F***	***LFP1 BTWN. ELEV. 118 & 90 GE 45 & GE 46***

PAGE OF Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% OF ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	5/12/97	NO	200' N 80' E - NW CORNER TRAN STATION	H8	2ND	SV25	130.5	135.5	125.0	8.4	95.8	P	LFP1 WD1 AREA
2	5/12/97	NO	250' N -NW CORNER TRAN STATION	H8	2ND	SV25	130.5	135.0	125.5	7.5	96.2	P	LFP1 WD1 AREA
3	5/12/97	NO	290' N 10' E NW CORNER TRAN STATION	H8	2ND	SV25	130.5	144.1	136.2	5.8	104.4	P	LFP1 WD1 AREA
4	5/12/97	NO	290' N 80' E - NW CORNER TRAN STATION	H8	2ND	SV25	130.5	136.4	128.2	6.4	98.2	P	LFP1 WD1 AREA
5	5/12/97	REQ'D	300' W 50' S WELL RFW 7D	B10	FINAL PG	WMX25	127.1	131.2	119.3	9.9	93.9	F	LFP 3 T.BASIN 5
6	5/12/97	REQ'D	300' W 100'S WELL RFW 7D	B10	FINAL PG	WMX25	127.1	129.7	117.8	10.1	92.7	F	LFP 3 T.BASIN 5
7	5/12/97	NO	150' WEST WELL RFW 8S	D10	FINAL PG	MIXLFP3	121.6	132.8	122.2	8.7	100.5	P	LFP 3 T. BASIN 6 WMX MIXED MATERIAL
8	5/12/97	NO	100' WEST WELL RFW 8S	D10	FINAL PG	MIXLFP3	121.6	135.7	124.3	9.2	102.2	P	LFP 3 T. BASIN 6 WMX MIXED MATERIAL
9	5/12/97	NO	75' WEST WELL RFW 8S	D10	FINAL PG	MIXLFP3	121.6	130.8	119.9	9.1	98.6	P	LFP 3 T. BASIN 6 WMX MIXED MATERIAL
10	5/12/97	5	300' W 50' S WELL RFW 7D	B10	FINAL PG	WMX25	127.1	132.4	121.8	8.7	95.8	P	LFP 3 T.BASIN 5
11	5/12/97	6	300' W 100'S WELL RFW 7D	B10	FINAL PG	WMX25	127.1	131.4	121.1	8.5	95.3	P	LFP 3 T.BASIN 5
12	5/12/97	NO	STA 4+00 80' NORTH	I4	2ND LIFT	SV25	130.5	139.7	126.8	10.1	97.2	P	LFP 5 AREA OVER EAST LEG LCC7N
13	5/12/97	NO	STA 3+50 50' NORTH	I4	2ND LIFT	SV25	130.5	140.6	128.3	9.6	98.3	P	LFP 5 AREA OVER EAST LEG LCC7N
14	5/12/97	NO	STA 3+00 30' NORTH	I4	2ND LIFT	SV25	130.5	143.0	129.3	10.6	99.1	P	LFP 5 AREA OVER EAST LEG LCC7N
15	5/12/97	NO	STA 2+50 CENTERLINE	H4	2ND LIFT	SV25	130.5	140.9	128.7	9.5	98.6	P	LFP 5 AREA OVER EAST LEG LCC7N
16	5/12/97	NO	STA 2+00 50' NORTH	H4	2ND LIFT	SV25	130.5	139.7	127.0	10.0	97.3	P	LFP 5 AREA OVER EAST LEG LCC7N
17	5/12/97	NO	STA 1+50 75' NORTH	G4	2ND LIFT	SV25	130.5	139.0	126.5	9.9	96.9	P	LFP 5 AREA OVER EAST LEG LCC7N
18	5/12/97	NO	STA 1+00 50' NORTH	G4	2ND LIFT	SV25	130.5	139.8	126.7	10.3	97.1	P	LFP 5 AREA OVER EAST LEG LCC7N
19	5/12/97	NO	STA 0+75 25' NORTH	G4	2ND LIFT	SV25	130.5	138.3	126.3	9.5	96.8	P	LFP 5 AREA OVER EAST LEG LCC7N
20	5/12/97	NO	150' N 75' E LCC7N	F5	1ST LIFT	SV25	130.5	138.6	127.8	8.5	97.9	P	LFP5 WD2
21	5/12/97	NO	150' N LCC 7N	G5	1ST LIFT	SV25	130.5	138.6	127.8	8.5	97.9	P	LFP5 WD2
22	5/12/97	NO	100' N 25' W LCC 7N	G5	1ST LIFT	SV25	130.5	138.6	127.8	8.5	97.9	P	LFP5 WD2
23	5/12/97	NO	50' NORTH GE 50	G7	1ST LIFT	SV30	126.9	140.1	128.4	9.1	101.2	P	LFP1 SLOPE AREA BTWN RD & LK LUCYBERM
24	5/12/97	NO	100' NORTH GE 50	G8	1ST LIFT	SV30	126.9	135.6	123.1	10.2	97.0	P	LFP1 SLOPE AREA BTWN RD & LK LUCYBERM
25	5/12/97	NO	40' EAST GE 51	F7	1ST LIFT	SV30	126.9	136.9	125.3	9.3	98.7	P	LFP1 SLOPE AREA BTWN RD & LK LUCYBERM
26	5/12/97	NO	40' SOUTH GE 47	F8	1ST LIFT	SV30	126.9	140.3	127.3	10.2	100.3	P	LFP1 SLOPE AREA BTWN RD & LK LUCYBERM
27	5/12/97	NO	30' NW DL4	G8	1ST LIFT	SV30	126.9	133.4	121.7	9.6	95.9	P	LFP1 SLOPE AREA BTWN RD & LK LUCYBERM

PAGE 1 OF 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% OF ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 2633 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	5/9/97	REQ'D	50' EAST OF GE 37	C7	1ST LIFT	SV25	130.5	135.1	121.5	11.2	93.1	F	BUFFER ZONE BTWN. ELEV.116 AND T BERM
2	5/9/97	NO	75' EAST OF GE 38	C7	1ST LIFT	SV25	130.5	135.8	125.1	8.5	95.9	P	BUFFER ZONE BTWN. ELEV.116 AND T BERM
1A	5/9/97	NO	50' EAST OF GE 37	C7	1ST LIFT	SV25	130.5	140.0	126.6	10.6	97.0	P	BUFFER ZONE BTWN. ELEV.116 AND T BERM
TEST NUMBER 1A WAS RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND WAS RE-TESTED													

1 Of 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 2633 Gauge Type ~~Troxler 3440 — Item 5B Structural Fill

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST (%)	COMP (%)	P/F	REMARKS:
1	5/8/97	REQ'D	STA 3+25 80' NORTH	G4	1ST LIFT	SV25	130.5	133.3	122.9	8.4	94.2	F	AREA NORTH OF LCC7 EAST LEG
2	5/8/97	NO	STA 2+00 100' NORTH	G4	1ST LIFT	SV25	130.5	134.6	124.5	8.1	95.4	P	BASIN 3 TEMP BERM
3	5/8/97	NO	STA 2+75 75' NORTH	H4	1ST LIFT	SV25	130.5	135.6	124.8	8.7	95.6	P	BASIN 3 PERMANENT BERM
4	5/8/97	REQ'D	APPROX 400' N NW FENCE CORNER MIELE	H8	1ST LIFT	SV25	130.5	134.1	123.8	8.3	94.9	F	RETEST FROM 5/5/97 TEST NO. 8
5	5/8/97	NO	STA 1+00 CENTERLINE	G3	2ND	SV25	130.5	138.4	128.4	7.8	98.4	P	AREA SOUTH OF LCC 7 SOUTH LEG
6	5/8/97	NO	STA 2+00 100' WEST CENTERLINE	G3	2ND	SV25	130.5	140.0	129.2	8.4	99.0	P	AREA SOUTH OF LCC 7 SOUTH LEG
7	5/8/97	NO	STA 3+00 50' WEST CENTERLINE	G3	2ND	SV25	130.5	138.5	128.0	8.2	98.1	P	AREA SOUTH OF LCC 7 SOUTH LEG
8	5/8/97	NO	STA 4+00 25' WEST CENTERLINE	G2	2ND	SV25	130.5	135.1	124.8	8.3	95.6	P	AREA SOUTH OF LCC 7 SOUTH LEG
9	5/8/97	NO	STA 5+00 30' WEST CENTERLINE	G2	2ND	SV25	130.5	135.7	125.5	8.1	96.2	P	AREA SOUTH OF LCC 7 SOUTH LEG
10	5/8/97	NO	STA 4+50 CENTERLINE	G2	2ND	SV25	130.5	137.5	126.5	8.7	96.9	P	AREA SOUTH OF LCC 7 SOUTH LEG
11	5/8/97	REQ'D	200' WEST 150' SOUTH WELL RFW 7D	B10	FINAL PG	SV25	130.5	134.1	122.0	9.9	93.5	F	RETEST OF AREA BASIN 5 AFTER REDESIGN
12	5/8/97	REQ'D	200' WEST 25' SOUTH WELL RFW 7D	B10	FINAL PG	SV25	130.5	134.6	123.8	8.7	94.9	F	RETEST OF AREA BASIN 5 AFTER REDESIGN
13	5/8/97	NO	236' WEST 50' SOUTH WELL RFW 7D	B10	FINAL PG	SV25	130.5	135.5	124.1	9.2	95.1	P	RETEST OF AREA BASIN 5 AFTER REDESIGN
14	5/8/97	REQ'D	240' WEST 100' SOUTH WELL RFW 7D	B10	FINAL PG	SV25	130.5	132.4	121.5	9.0	93.1	F	RETEST OF AREA BASIN 5 AFTER REDESIGN
15	5/8/97	REQ'D	150' NORTH 75' EAST LCC7N	G4	1ST LIFT	SV25	130.5	132.3	118.1	12.0	90.5	F	LFP SOUTH WD2
16	5/8/97	REQ'D	150' NORTH LCC 7N	G4	1ST LIFT	SV25	130.5	134.3	118.8	13.1	91.0	F	LFP SOUTH WD2
17	5/8/97	REQ'D	100' NORTH 25' WEST LCC 7N	G4	1ST LIFT	SV25	130.5	133.9	117.8	13.6	90.3	F	LFP SOUTH WD2
1A	5/8/97	NO	STA 3+25 80' NORTH	G4	1ST LIFT	SV25	130.5	137.0	126.8	8.0	97.2	P	AREA NORTH OF LCC7 EAST LEG
4A	5/8/97	NO	APPROX 400' N NW FENCE CORNER MIELE	H8	1ST LIFT	SV25	130.5	136.8	126.5	8.2	96.9	P	RETEST FROM 5/5/97 TEST NO. 8
11A	5/8/97	NO	200' WEST 150' SOUTH WELL RFW 7D	B10	FINAL PG	SV25	130.5	136.6	125.3	9.0	96.0	P	RETEST OF AREA BASIN 5 AFTER REDESIGN
12A	5/8/97	NO	200' WEST 25' SOUTH WELL RFW 7D	B10	FINAL PG	SV25	130.5	135.7	124.5	9.0	95.4	P	RETEST OF AREA BASIN 5 AFTER REDESIGN
14A	5/8/97	NO	240' WEST 100' SOUTH WELL RFW 7D	B10	FINAL PG	SV25	130.5	138.2	126.6	9.2	97.0	P	RETEST OF AREA BASIN 5 AFTER REDESIGN
15A	5/8/97	NO	150' NORTH 75' EAST LCC7N	G4	1ST LIFT	SV25	130.5	142.2	128.2	11.0	98.2	P	LFP SOUTH WD2
16A	5/8/97	NO	150' NORTH LCC 7N	G4	1ST LIFT	SV25	130.5	143.4	127.9	12.1	98.0	P	LFP SOUTH WD2
17A	5/8/97	NO	100' NORTH 25' WEST LCC 7N	G4	1ST LIFT	SV25	130.5	142.2	127.0	12.0	97.3	P	LFP SOUTH WD2

TESTS NUMBERED 1A, 4A, 11A, 12A, 14A, 15A, 16A & 17A WERE RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND WERE RE-TESTED

	1	Of	1	Tests Performed By YEC Personnel	SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	5/5/97	REQ'D	STA 3+00 150' NORTH	H4-G4	1ST	SV20A	132.1	132.8	124.0	7.1	93.9	F	LFP5, SOUTH STOCKPILE AREA ADJACENT LCT7 E
2	5/5/97	NO	STA 2+00 100' NORTH	H4-G4	1ST	SV20A	132.1	136.8	126.4	8.2	95.7	P	LFP5, SOUTH STOCKPILE AREA ADJACENT LCT7 E
3	5/5/97	REQ'D	STA 1+25 75' NORTH	H4-G4	1ST	SV20A	132.1	135.4	124.7	8.6	94.4	F	LFP5, SOUTH STOCKPILE AREA ADJACENT LCT7 E
4	5/5/97	REQ'D	STA 0+75 10' NORTH	H4-G4	1ST	SV20A	132.1	134.8	125.4	7.5	94.9	F	LFP5, SOUTH STOCKPILE AREA ADJACENT LCT7 E
5	5/5/97	NO	STA 3+50 120' NORTH	H4-G4	1ST	SV20A	132.1	136.1	125.9	8.1	95.3	P	LFP5, SOUTH STOCKPILE AREA ADJACENT LCT7 E
6	5/5/97	REQ'D	AREA TO BE DETERMINED	H8	FINAL PG	SV25	130.5	135.2	122.0	10.8	93.5	F	LFP 1, WD1 SOUTH EAST SECTION
7	5/5/97	REQ'D	AREA TO BE DETERMINED	H8	FINAL PG	SV25	130.5	136.2	123.7	10.1	94.8	F	LFP 1, WD1 SOUTH EAST SECTION
8	5/5/97	REQ'D	AREA TO BE DETERMINED	H8	FINAL PG	SV25	130.5	132.5	114.3	15.9	87.6	F	LFP 1, WD1 SOUTH EAST SECTION
9	5/5/97	NO	AREA TO BE DETERMINED	H8	FINAL PG	SV25	130.5	138.0	125.1	10.3	95.9	P	LFP 1, WD1 SOUTH EAST SECTION
1A	5/5/97	NO	STA 3+00 150' NORTH	H4-G4	1ST	SV20A	132.1	137.8	127.6	8.0	96.6	P	LFP5, SOUTH STOCKPILE AREA ADJACENT LCT7 E
3A	5/5/97	NO	STA 1+25 75' NORTH	H4-G4	1ST	SV20A	132.1	138.5	128.3	8.0	97.1	P	LFP5, SOUTH STOCKPILE AREA ADJACENT LCT7 E
4A	5/5/97	NO	STA 0+75 10' NORTH	H4-G4	1ST	SV20A	132.1	137.6	127.9	7.6	96.8	P	LFP5, SOUTH STOCKPILE AREA ADJACENT LCT7 E
6A	5/5/97	NO	AREA TO BE DETERMINED	H8	FINAL PG	SV25	130.5	139.8	127.1	10.0	97.4	P	LFP 1, WD1 SOUTH EAST SECTION
7A	5/5/97	NO	AREA TO BE DETERMINED	H8	FINAL PG	SV25	130.5	137.7	125.1	10.0	95.9	P	LFP 1, WD1 SOUTH EAST SECTION
8A	5/5/97	NO	AREA TO BE DETERMINED	H8	FINAL PG	SV25	130.5	140.0	125.0	12.0	95.8	P	LFP 1, WD1 SOUTH EAST SECTION
TESTS 1A, 3A, 4, 6A, 7A & 8A WERE RE-COMPACTED USING INGERSOLL-RAND IR-115 AND WERE RE-TESTED													
	1	Of	1	Tests Performed By YEC Personnel							SIGNATURE:		

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698, MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	5/1/97	NO	150' WEST RFW 1 CENTERLINE P BERM		FINAL PG	TN-01R	120.0	129.7	120.4	7.8	100.3	P	LFP 4, RETEST OF MUDDY BROOK P BERM
2	5/1/97	NO	200' WEST RFW 1 CENTERLINE P. BERM		FINAL PG	TN-01R	120.0	128.1	118.0	8.6	98.3	P	LFP 4, RETEST OF MUDDY BROOK P BERM
3	5/1/97	NO	250' WEST RFW 1 CENTERLINE P. BERM		FINAL PG	TN-01R	120.0	130.8	121.7	7.5	101.4	P	LFP 4, RETEST OF MUDDY BROOK P BERM
4	5/1/97	NO	100' EAST RFW 2 CENTERLINE P. BERM		FINAL PG	TN-01R	120.0	131.4	121.3	8.3	101.1	P	LFP 4, RETEST OF MUDDY BROOK P BERM
5	5/1/97	NO	50' EAST RFW 2 CENTERLINE P. BERM		FINAL PG	TN-01R	120.0	131.5	121.4	8.3	101.2	P	LFP 4, RETEST OF MUDDY BROOK P BERM
6	5/1/97	NO	50' NORTH RFW 2 CENTERLINE P. BERM		FINAL PG	TN-01R	120.0	129.5	119.2	8.7	99.3	P	LFP 4, RETEST OF MUDDY BROOK P BERM
7	5/1/97	NO	100' NORTH RFW 2 CENTERLINE P. BERM		FINAL PG	TN-01R	120.0	128.7	118.0	9.1	98.3	P	LFP 4, RETEST OF MUDDY BROOK P BERM
8	5/1/97	NO	200' NORTH RFW 2 CENTERLINE P. BERM		FINAL PG	TN-01R	120.0	127.6	118.0	8.2	98.3	P	LFP 4, RETEST OF MUDDY BROOK P BERM
9	5/1/97	NO	170 x 170 AREA ADJACENT TO RIVERSO & WD1		FINAL PG	WMX-R	119.8	130.5	120.2	8.6	100.3	P	170 x 170 AREA ADJACENT TO RIVERSO & WD1
10	5/1/97	NO	170 x 170 AREA ADJACENT TO RIVERSO & WD1		FINAL PG	WMX-R	119.8	129.8	119.1	9.0	99.4	P	170 x 170 AREA ADJACENT TO RIVERSO & WD1
11	5/1/97	NO	170 x 170 AREA ADJACENT TO RIVERSO & WD1		FINAL PG	WMX-R	119.8	129.8	119.9	8.2	100.1	P	170 x 170 AREA ADJACENT TO RIVERSO & WD1
12	5/1/97	NO	170 x 170 AREA ADJACENT TO RIVERSO & WD1		FINAL PG	WMX-R	119.8	130.0	119.2	9.1	99.5	P	170 x 170 AREA ADJACENT TO RIVERSO & WD1
13	5/1/97	NO	170 x 170 AREA ADJACENT TO RIVERSO & WD1		FINAL PG	WMX-R	119.8	127.5	116.7	9.3	97.4	P	170 x 170 AREA ADJACENT TO RIVERSO & WD1
14	5/1/97	NO	170 x 170 AREA ADJACENT TO RIVERSO & WD1		FINAL PG	WMX-R	119.8	131.1	120.8	8.6	100.8	P	170 x 170 AREA ADJACENT TO RIVERSO & WD1
15	5/1/97	NO	STA 0+0 10' NORTH S.WALL		FINAL PG	WMX-R	119.8	133.8	123.8	8.1	103.3	P	LFP 1,LCC 2N WEST LEG TO RIVERSO PROPERTY
16	5/1/97	NO	STA 0+50 20' SOUTH S. WALL		FINAL PG	WMX-R	119.8	135.6	124.7	8.7	104.1	P	LFP 1,LCC 2N WEST LEG TO RIVERSO PROPERTY
17	5/1/97	NO	STA 1+0 20' SOUTH S. WALL		FINAL PG	WMX-R	119.8	134.0	124.2	7.9	103.7	P	LFP 1,LCC 2N WEST LEG TO RIVERSO PROPERTY
18	5/1/97	NO	STA 1+50 3' SOUTH S. WALL		FINAL PG	WMX-R	119.8	134.4	124.5	8.0	103.9	P	LFP 1,LCC 2N WEST LEG TO RIVERSO PROPERTY
19	5/1/97	NO	STA 2+0 20' SOUTH S. WALL		FINAL PG	WMX-R	119.8	135.7	124.5	9.0	103.9	P	LFP 1,LCC 2N WEST LEG TO RIVERSO PROPERTY
20	5/1/97	NO	STA 2+50 CENTERLINE S. WALL		FINAL PG	WMX-R	119.8	137.1	126.7	8.2	105.8	P	LFP 1,LCC 2N WEST LEG TO RIVERSO PROPERTY
21	5/1/97	NO	STA 3+00 10' NORTH OF S. WALL		FINAL PG	WMX-R	119.8	135.0	125.4	7.6	104.7	P	LFP 1,LCC 2N WEST LEG TO RIVERSO PROPERTY
22	5/1/97	NO	STA 3+59 15' SOUTH OF S. WALL		FINAL PG	WMX-R	119.8	136.1	126.0	8.0	105.2	P	LFP 1,LCC 2N WEST LEG TO RIVERSO PROPERTY
23	5/1/97	NO	STA 0+0 25' E. OF EDGE PBERM BASIN 8		FINAL PG	WMX-R	119.8	135.2	122.8	10.1	102.5	P	LFP 1,LCC 2N SOUTH LEG
24	5/1/97	NO	STA 0+75 25' E. OF EDGE PBERM BASIN 8		FINAL PG	WMX-R	119.8	133.1	120.8	10.2	100.8	P	LFP 1,LCC 2N SOUTH LEG
25	5/1/97	NO	STA 1+25 25' E. OF EDGE PBERM BASIN 8		FINAL PG	WMX-R	119.8	143.4	129.6	10.6	108.2	P	LFP 1,LCC 2N SOUTH LEG
26	5/1/97	NO	STA 2+00 25' E. OF EDGE PBERM BASIN 8		FINAL PG	WMX-R	119.8	131.9	120.2	9.8	100.3	P	LFP 1,LCC 2N SOUTH LEG
27	5/1/97	NO	STA 2+75 25' E. OF EDGE PBERM BASIN 8		FINAL PG	WMX-R	119.8	132.5	120.3	10.2	100.4	P	LFP 1,LCC 2N SOUTH LEG
28	5/1/97	NO	STA 3+50 25' E. OF EDGE PBERM BASIN 8		FINAL PG	WMX-R	119.8	130.9	119.4	9.6	99.7	P	LFP 1,LCC 2N SOUTH LEG
29	5/1/97	NO	STA 4+25 25' E. OF EDGE PBERM BASIN 8		FINAL PG	WMX-R	119.8	131.3	120.8	8.7	100.8	P	LFP 1,LCC 2N SOUTH LEG
30	5/1/97	NO	STA 5+00 25' E. OF EDGE PBERM BASIN 8		FINAL PG	WMX-R	119.8	131.0	120.0	9.1	100.2	P	LFP 1,LCC 2N SOUTH LEG
31	5/1/97	NO	STA 0+0 50' E. OF EDGE PBERM BASIN 8		FINAL PG	WMX-R	119.8	138.7	127.2	9.0	106.2	P	LFP 1,LCC 2N SOUTH LEG
32	5/1/97	NO	STA 0+75 50' E. OF EDGE PBERM BASIN 8		FINAL PG	WMX-R	119.8	137.9	124.2	11.0	103.7	P	LFP 1,LCC 2N SOUTH LEG
33	5/1/97	NO	STA 1+25 50' E. OF EDGE PBERM BASIN 8		FINAL PG	WMX-R	119.8	138.3	125.0	10.7	104.3	P	LFP 1,LCC 2N SOUTH LEG
PAGE		OF	Tests Performed By YEC Personnel								SIGNATURE:		

REQUIREMENTS ~~ DENSITY: 95% OF ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
34	5/1/97	NO	STA 2+00 50' E. OF EDGE PBERM BASIN 8		FINAL PG	WMX-R	119.8	137.8	126.3	9.1	105.4	P	LFP 1,LCC 2N SOUTH LEG
35	5/1/97	NO	STA 2+75 50' E. OF EDGE PBERM BASIN 8		FINAL PG	WMX-R	119.8	136.9	125.7	8.9	104.9	P	LFP 1,LCC 2N SOUTH LEG
36	5/1/97	NO	STA 3+50 50' E. OF EDGE PBERM BASIN 8		FINAL PG	WMX-R	119.8	139.0	128.3	8.3	107.1	P	LFP 1,LCC 2N SOUTH LEG
37	5/1/97	NO	STA 4+25 50' E. OF EDGE PBERM BASIN 8		FINAL PG	WMX-R	119.8	138.2	128.3	7.7	107.1	P	LFP 1,LCC 2N SOUTH LEG
38	5/1/97	NO	STA 5+00 50' E. OF EDGE PBERM BASIN 8		FINAL PG	WMX-R	119.8	138.0	127.1	8.6	106.1	P	LFP 1,LCC 2N SOUTH LEG
39	5/1/97	NO	150' SOUTH OF LCC 7N		1ST	SV20A	132.1	140.8	129.9	8.4	98.3	P	LFP 4 LCC #7N SOUTH LEG
40	5/1/97	NO	80' SOUTH OF LCC 7N		1ST	SV20A	132.1	140.1	128.7	8.9	97.4	P	LFP 4 LCC #7N SOUTH LEG
41	5/1/97	NO	175' SOUTH OF LCC 7N		1ST	SV20A	132.1	139.1	127.6	9.0	96.6	P	LFP 4 LCC #7N SOUTH LEG
42	5/1/97	NO	50' SOUTH OF LCC 7N		1ST	SV20A	132.1	141.0	130.0	8.5	98.4	P	LFP 4 LCC #7N SOUTH LEG
34	5/1/97	NO	STA 2+00 50' E. OF EDGE PBERM BASIN 8		FINAL PG	WMX-R	119.8	137.8	126.3	9.1	105.4	P	LFP 1,LCC 2N SOUTH LEG
35	5/1/97	NO	STA 2+75 50' E. OF EDGE PBERM BASIN 8		FINAL PG	WMX-R	119.8	136.9	125.7	8.9	104.9	P	LFP 1,LCC 2N SOUTH LEG
36	5/1/97	NO	STA 3+50 50' E. OF EDGE PBERM BASIN 8		FINAL PG	WMX-R	119.8	139.0	128.3	8.3	107.1	P	LFP 1,LCC 2N SOUTH LEG
37	5/1/97	NO	STA 4+25 50' E. OF EDGE PBERM BASIN 8		FINAL PG	WMX-R	119.8	138.2	128.3	7.7	107.1	P	LFP 1,LCC 2N SOUTH LEG
38	5/1/97	NO	STA 5+00 50' E. OF EDGE PBERM BASIN 8		FINAL PG	WMX-R	119.8	138.0	127.1	8.6	106.1	P	LFP 1,LCC 2N SOUTH LEG
39	5/1/97	NO	150' SOUTH OF LCC 7N		1ST	SV20A	132.1	140.8	129.9	8.4	98.3	P	LFP 4 LCC #7N SOUTH LEG
40	5/1/97	NO	80' SOUTH OF LCC 7N		1ST	SV20A	132.1	140.1	128.7	8.9	97.4	P	LFP 4 LCC #7N SOUTH LEG
41	5/1/97	NO	175' SOUTH OF LCC 7N		1ST	SV20A	132.1	139.1	127.6	9.0	96.6	P	LFP 4 LCC #7N SOUTH LEG
42	5/1/97	NO	50' SOUTH OF LCC 7N		1ST	SV20A	132.1	141.0	130.0	8.5	98.4	P	LFP 4 LCC #7N SOUTH LEG

PAGE OF Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% OF ASTM 698, MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

APRIL '97

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 — Item 5B Structural Fill

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	4/23/97	NO	40' W. B 204 S&D		3RD	SV20A	132.1	138.2	126.6	9.2	95.8	P	BTWN B204 S&D & LC Cham. 6
2	4/23/97	NO	80' W. B 204 S&D		3RD	SV20A	132.1	139.7	127.3	9.7	96.4	P	BTWN B204 S&D & LC Cham. 6
3	4/23/97	REQ'D	75' S. 100' W. B 204 S&D		3RD	SV20A	132.1	135.3	122.9	10.1	93.0	F	BTWN B204 S&D & LC Cham. 6
4	4/23/97	REQ'D	75' S. 150' W. B 204 S&D		3RD	SV20A	132.1	137.8	125.2	10.0	94.8	F	BTWN B204 S&D & LC Cham. 6
5	4/23/97	REQ'D	300' E. LC Cham #6		3RD	SV20A	132.1	134.6	121.3	11.0	91.8	F	BTWN B204 S&D & LC Cham. 6
6	4/23/97	REQ'D	225' E. LC Cham #6		3RD	SV20A	132.1	133.0	119.3	11.5	90.3	F	BTWN B204 S&D & LC Cham. 6
7	4/23/97	REQ'D	175' E. LC Cham #6		3RD	SV20A	132.1	135.5	121.3	11.7	91.8	F	BTWN B204 S&D & LC Cham. 6
3A	4/23/97	NO	75' S. 100' W. B 204 S&D		3RD	SV20A	132.1	140.4	126.8	10.7	96.0	P	BTWN B204 S&D & LC Cham. 6
4A	4/23/97	NO	75' S. 150' W. B 204 S&D		3RD	SV20A	132.1	141.3	127.9	10.5	96.8	P	BTWN B204 S&D & LC Cham. 6
5A	4/23/97	NO	300' E. LC Cham #6		3RD	SV20A	132.1	139.7	128.1	9.0	97.0	P	BTWN B204 S&D & LC Cham. 6
6A	4/23/97	NO	225' E. LC Cham #6		3RD	SV20A	132.1	141.8	127.7	11.0	96.7	P	BTWN B204 S&D & LC Cham. 6
7A	4/23/97	NO	175' E. LC Cham #6		3RD	SV20A	132.1	142.0	128.4	10.6	97.2	P	BTWN B204 S&D & LC Cham. 6
TESTS NUMBERED 3A, 4A, 5A, 6A & 7A WERE RE-COMPACTED USING INGERSOLL-RAND ROLLER AND WERE RE-TESTED													

	1	Of	1	Tests Performed By YEC Personnel	SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	4/22/97	REQ'D	100' W. RFW 1 12" TEST		1ST	TN5.9	129.3	132.9	119.2	11.5	92.2	F	BTWN LC Cham 6 & RFW 1
2	4/22/97	REQ'D	100' W. RFW 1 6" TEST		1ST	TN5.9	129.3	130.8	116.8	12.0	90.3	F	BTWN LC Cham 6 & RFW 1
3	4/22/97	NO	150' W. RFW 1 12" TEST		1ST	TN5.9	129.3	139.8	123.6	13.1	95.6	P	BTWN LC Cham 6 & RFW 1
4	4/22/97	NO	150' W. RFW 1 6" TEST		1ST	TN5.9	129.3	141.4	123.5	14.5	95.5	P	BTWN LC Cham 6 & RFW 1
5	4/22/97	REQ'D	120' W. RFW 1 12" TEST		1ST	TN5.9	129.3	128.3	114.7	11.9	88.7	F	BTWN LC Cham 6 & RFW 1
6	4/22/97	REQ'D	120' W. RFW 1 6" TEST		1ST	TN5.9	129.3	128.5	113.8	12.9	88.0	F	BTWN LC Cham 6 & RFW 1
7	4/22/97	REQ'D	140'W RFW 2 12" TEST		1ST	TN5.9	129.3	131.3	117.5	11.7	90.9	F	BTWN LC Cham 6 & RFW 1
8	4/22/97	REQ'D	140' W. RFW 2 6" TEST		1ST	TN5.9	129.3	125.0	111.2	12.4	86.0	F	BTWN LC Cham 6 & RFW 1
9	4/22/97	REQ'D	70' W. RFW 2 12" TEST		1ST	TN5.9	129.3	133.4	120.5	10.7	93.2	F	BTWN LC Cham 6 & RFW 1
10	4/22/97	REQ'D	70' W. RFW 2 6" TEST		1ST	TN5.9	129.3	131.6	118.1	11.5	91.3	F	BTWN LC Cham 6 & RFW 1
11	4/22/97	NO	40' W. B 204 S&D		2ND	TN5.9	129.3	138.0	126.1	9.5	97.5	P	P BERM RFW 204 LC.Cham 6
12	4/22/97	NO	80' W. B 204 S&D		2ND	TN5.9	129.3	134.5	123.5	8.9	95.5	P	P BERM RFW 204 LC.Cham 6
13	4/22/97	NO	75' S. 100' W. B 204 S&D		2ND	TN5.9	129.3	136.8	126.5	8.2	97.8	P	P BERM RFW 204 LC.Cham 6
14	4/22/97	NO	75' S. 150' W. B 204 S&D		2ND	TN5.9	129.3	135.0	123.7	9.1	95.7	P	P BERM RFW 204 LC.Cham 6
15	4/22/97	NO	75' S. 175' W. B 204 S&D		2ND	TN5.9	129.3	136.9	124.9	9.6	96.6	P	P BERM RFW 204 LC.Cham. 6
16	4/22/97	NO	300' E. LC Cham #6		2ND	TN5.9	129.3	137.3	127.4	7.8	98.5	P	P BERM RFW 204 LC.Cham 6
17	4/22/97	NO	225' E. LC Cham #6		2ND	SV20A	132.1	139.5	127.1	9.8	96.2	P	P BERM RFW 204 LC.Cham 6
18	4/22/97	REQ'D	175' E. LC Cham #6		2ND	SV20A	132.1	137.1	123.5	11.0	93.5	F	P BERM RFW 204 LC.Cham 6
19	4/22/97	REQ'D	100' E. LC Cham #6		2ND	SV20A	132.1	135.3	124.2	9.0	94.0	F	P BERM RFW 204 LC.Cham 6
1A	4/22/97	NO	100' W. RFW 1 12" TEST		1ST	TN5.9	129.3	137.8	124.1	11.0	96.0	P	BTWN LC Cham 6 & RFW 1
2A	4/22/97	NO	100' W. RFW 1 6" TEST		1ST	TN5.9	129.3	140.6	126.1	11.5	97.5	P	BTWN LC Cham 6 & RFW 1
5A	4/22/97	NO	120' W. RFW 1 12" TEST		1ST	TN5.9	129.3	141.9	127.6	11.2	98.7	P	BTWN LC Cham 6 & RFW 1
6A	4/22/97	NO	120' W. RFW 1 6" TEST		1ST	TN5.9	129.3	137.9	123.6	11.6	95.6	P	BTWN LC Cham 6 & RFW 1
7A	4/22/97	NO	140'W RFW 2 12" TEST		1ST	TN5.9	129.3	138.3	124.1	11.4	96.0	P	BTWN LC Cham 6 & RFW 1
8A	4/22/97	NO	140' W. RFW 2 6" TEST		1ST	TN5.9	129.3	138.1	124.4	11.0	96.2	P	BTWN LC Cham 6 & RFW 1
9A	4/22/97	NO	70' W. RFW 2 12" TEST		1ST	TN5.9	129.3	137.8	125.0	10.2	96.7	P	BTWN LC Cham 6 & RFW 1
10A	4/22/97	NO	70' W. RFW 2 6" TEST		1ST	TN5.9	129.3	137.5	123.9	11.0	95.8	P	BTWN LC Cham 6 & RFW 1
18A	4/22/97	NO	175' E. LC Cham #6		2ND	SV20A	132.1	143.0	128.9	10.9	97.6	P	P BERM RFW 204 LC.Cham 6
19A	4/22/97	NO	100' E. LC Cham #6		2ND	SV20A	132.1	139.8	127.3	9.8	96.4	P	P BERM RFW 204 LC.Cham 6

TESTS NUMBERED 1A, 2A, 5A, 6A, 7A, 8A, 9A, 1A, 18A, & 19A WERE RE-COMPACTED USING INGERSOLL-RAND ROLLER IR-115 AND WERE RE-TESTED

	1	Of	1	Tests Performed By YEC Personnel	SIGNATURE: Jason Carson

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 69[illegible] MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 — Item 5B Structural Fill

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	4/21/97	REQ'D	STA 0+0 & STA 1+00	E9	FINAL PG	WMX 20	122.4	127.7	114.8	11.2	93.8	F	LFP 3,BTWN 70&90 CONTOUR BTWN TB6&TB5
2	4/21/97	NO	STA 1+0 & STA 2+00	E9	FINAL PG	WMX 20	122.4	129.1	116.6	10.7	95.3	P	LFP 3,BTWN 70&90 CONTOUR BTWN TB6&TB5
3	4/21/97	REQ'D	STA 2+00 & 3+00	D9	FINAL PG	WMX 20	122.4	126.9	114.2	11.1	93.3	F	LFP 3,BTWN 70&90 CONTOUR BTWN TB6&TB5
4	4/21/97	REQ'D	STA 3+00 & 4+00	D9	FINAL PG	WMX 20	122.4	128.0	115.4	10.9	94.3	F	LFP 3,BTWN 70&90 CONTOUR BTWN TB6&TB5
5	4/21/97	REQ'D	STA 4+00 & 5+00	C10	FINAL PG	WMX 20	122.4	127.1	114.9	10.6	93.9	F	LFP 3,BTWN 70&90 CONTOUR BTWN TB6&TB5
6	4/21/97	REQ'D	STA 5+00 & 6+00	C10	FINAL PG	WMX 20	122.4	126.9	115.3	10.1	94.2	F	LFP 3,BTWN 70&90 CONTOUR BTWN TB6&TB5
7	4/21/97	NO	STA 6+00 & 7+00	C10	FINAL PG	WMX 20	122.4	129.1	116.4	10.9	95.1	P	LFP 3,BTWN 70&90 CONTOUR BTWN TB6&TB5
8	4/21/97	REQ'D	300' E LC Cham. #6	G1	1st	TN5.9	129.3	132.1	122.4	7.9	94.7	F	P BERM RFW1S&D TO 300'EAST OF LC.Cham 6
9	4/21/97	REQ'D	225' E LC Cham. #6	G1	1st	TN5.9	129.3	132.0	120.5	9.5	93.2	F	P BERM RFW1S&D TO 300'EAST OF LC.Cham 6
10	4/21/97	REQ'D	175' E LC Cham. #6	F1	1st	TN5.9	129.3	132.3	122.1	8.4	94.4	F	P BERM RFW1S&D TO 300'EAST OF LC.Cham 6
11	4/21/97	REQ'D	100' E. LC Cham. #6	F1	1st	TN5.9	129.3	126.5	117.1	8.0	90.6	F	P BERM RFW1S&D TO 300'EAST OF LC.Cham 6
12	4/21/97	NO	25' E. LC Cham. #6	F1	1st	TN5.9	129.3	133.9	122.8	9.0	95.0	P	P BERM RFW1S&D TO 300'EAST OF LC.Cham 6
13	4/21/97	REQ'D	50' W. LC Cham. #6	E1	1st	TN5.9	129.3	126.7	114.9	10.2	88.9	F	BTWN LC Cham 6 & RFW 1
14	4/21/97	REQ'D	100' W. LC Cham. #6	E1	1st	TN5.9	129.3	131.0	116.9	12.1	90.4	F	BTWN LC Cham 6 & RFW 1
15	4/21/97	REQ'D	180' W. LC Cham. #6	E1	1st	TN5.9	129.3	130.8	116.8	12.0	90.3	F	BTWN LC Cham 6 & RFW 1
16	4/21/97	REQ'D	100' E. LC Cham. #6	E1	1st	TN5.9	129.3	133.2	121.4	9.7	93.9	F	P BERM RFW1S&D TO 300'EAST OF LC.Cham 6
1A	4/21/97	NO	STA 0+0 & STA 1+00	E9	FINAL PG	WMX 20	122.4	131.5	118.5	11.0	96.8	P	LFP 3,BTWN 70&90 CONTOUR BTWN TB6&TB5
3A	4/21/97	NO	STA 2+00 & 3+00	D9	FINAL PG	WMX 20	122.4	131.7	118.6	11.0	96.9	P	LFP 3,BTWN 70&90 CONTOUR BTWN TB6&TB5
4A	4/21/97	NO	STA 3+00 & 4+00	D9	FINAL PG	WMX 20	122.4	131.2	118.7	10.5	97.0	P	LFP 3,BTWN 70&90 CONTOUR BTWN TB6&TB5
5A	4/21/97	NO	STA 4+00 & 5+00	C10	FINAL PG	WMX 20	122.4	130.9	119.0	10.0	97.2	P	LFP 3,BTWN 70&90 CONTOUR BTWN TB6&TB5
6A	4/21/97	NO	STA 5+00 & 6+00	C10	FINAL PG	WMX 20	122.4	129.4	117.4	10.2	95.9	P	LFP 3,BTWN 70&90 CONTOUR BTWN TB6&TB5
8A	4/21/97	NO	300' E LC Cham. #6	G1	1st	TN5.9	129.3	137.1	127.0	8.0	98.2	P	P BERM RFW1S&D TO 300'EAST OF LC.Cham 6
9A	4/21/97	NO	225' E LC Cham. #6	G1	1st	TN5.9	129.3	137.6	126.2	9.0	97.6	P	P BERM RFW1S&D TO 300'EAST OF LC.Cham 6
10A	4/21/97	NO	175' E LC Cham. #6	F1	1st	TN5.9	129.3	136.8	125.9	8.6	97.4	P	P BERM RFW1S&D TO 300'EAST OF LC.Cham 6
11A	4/21/97	NO	100' E. LC Cham. #6	F1	1st	TN5.9	129.3	138.1	126.7	9.0	98.0	P	P BERM RFW1S&D TO 300'EAST OF LC.Cham 6
13A	4/21/97	NO	50' W. LC Cham. #6	E1	1st	TN5.9	129.3	138.0	125.4	10.0	97.0	P	BTWN LC Cham 6 & RFW 1
14A	4/21/97	NO	100' W. LC Cham. #6	E1	1st	TN5.9	129.3	139.5	125.7	11.0	97.2	P	BTWN LC Cham 6 & RFW 1
15A	4/21/97	NO	180' W. LC Cham. #6	E1	1st	TN5.9	129.3	138.4	124.6	11.0	96.4	P	BTWN LC Cham 6 & RFW 1
16A	4/21/97	NO	100' E. LC Cham. #6	E1	1st	TN5.9	129.3	137.0	125.4	9.2	97.0	P	P BERM RFW1S&D TO 300'EAST OF LC.Cham 6
TESTS NUMBERED 1A, 3A, 4A, 5A, 6A, 8A, 9A, 10A, 11A, 13A, 14A, 15A & 16A													
	1	Of	1	Tests Performed By YEC Personnel							SIGNATURE:		

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 — Item 5B Structural Fill

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	4/17/97	NO	STA 0+0 & STA 0+50	E9	FINAL PG	WMX 20	122.4	129.6	118.2	9.6	96.6	P	LFP 3,BTWN 70&90 CONTOUR BTWN TB6&TB5
2	4/17/97	REQ'D	STA 0+0 & STA 0+50	E9	FINAL PG	WMX 20	122.4	127.6	116.2	10.8	94.1	F	LFP 3,BTWN 70&90 CONTOUR BTWN TB6&TB5
3	4/17/97	REQ'D	STA 0+50 & 1+00	E9	FINAL PG	WMX 20	122.4	127.9	116.5	10.7	94.4	F	LFP 3,BTWN 70&90 CONTOUR BTWN TB6&TB5
4	4/17/97	REQ'D	STA 0+50 & 1+00	E9	FINAL PG	WMX 20	122.4	128.0	116.4	10.9	94.3	F	LFP 3,BTWN 70&90 CONTOUR BTWN TB6&TB5
5	4/17/97	REQ'D	STA 1+00 & 1+50	D9	FINAL PG	WMX 20	122.4	127.1	114.9	10.6	93.9	F	LFP 3,BTWN 70&90 CONTOUR BTWN TB6&TB5
6	4/17/97	REQ'D	STA 1+00 & 1+50	D9	FINAL PG	WMX 20	122.4	121.2	110.0	10.1	89.9	F	LFP 3,BTWN 70&90 CONTOUR BTWN TB6&TB5
7	4/17/97	REQ'D	STA 1+50 & 2+00	D9	FINAL PG	WMX 20	122.4	122.6	110.5	10.9	90.3	F	LFP 3,BTWN 70&90 CONTOUR BTWN TB6&TB5
8	4/17/97	REQ'D	STA 2+00 & 2+50	D9	FINAL PG	WMX 20	122.4	119.7	108.8	10.0	88.9	F	LFP 3,BTWN 70&90 CONTOUR BTWN TB6&TB5
9	4/17/97	REQ'D	STA 2+00 & 2+50	D9	FINAL PG	WMX 20	122.4	121.5	109.4	11.0	89.4	F	LFP 3,BTWN 70&90 CONTOUR BTWN TB6&TB5
10	4/17/97	REQ'D	STA 2+50 & STA 3+00	C10	FINAL PG	WMX 20	122.4	121.6	109.7	10.9	89.6	F	LFP 3,BTWN 70&90 CONTOUR BTWN TB6&TB5
11	4/17/97	NO	STA 2+50 & STA 3+00	C10	FINAL PG	WMX 20	122.4	128.9	117.7	9.5	96.2	P	LFP 3,BTWN 70&90 CONTOUR BTWN TB6&TB5
12	4/17/97	REQ'D	STA 3+00 & STA 3+50	C10	FINAL PG	WMX 20	122.4	124.5	112.1	11.0	91.6	F	LFP 3,BTWN 70&90 CONTOUR BTWN TB6&TB5
13	4/17/97	REQ'D	STA 3+00 & STA 3+50	C10	FINAL PG	WMX 20	122.4	122.0	110.9	10.0	90.6	F	LFP 3,BTWN 70&90 CONTOUR BTWN TB6&TB5
	STA 0+0 ORIGIN 180' E. OF LC Cham. #3 GOING WEST TOWARDS TB#5												
14	4/17/97	NO	NE QUADRANT OF PAD	I6	1ST	WMX25	119.3	130.3	115.0	13.3	96.4	P	FLARE STATION FOUNDATION PAD
15	4/17/97	NO	CENTER PAD	I6	1ST	WMX25	119.3	132.1	117.9	12.1	98.8	P	FLARE STATION FOUNDATION PAD
16	4/17/97	NO	SW QUADRANT OF PAD	H6	1ST	WMX25	119.3	130.5	116.0	12.5	97.2	P	FLARE STATION FOUNDATION PAD
17	4/17/97	REQ'D	NW QUADRANT OF PAD	H6	2ND	WMX25	119.3	122.9	107.4	14.5	90.0	F	FLARE STATION FOUNDATION PAD
18	4/17/97	REQ'D	SE QUADRANT OF PAD	I6	2ND	WMX25	119.3	121.6	105.6	15.2	88.5	F	FLARE STATION FOUNDATION PAD
2A	4/17/97	NO	STA 0+0 & STA 0+50	E9	FINAL PG	WMX 20	122.4	131.2	118.7	10.5	97.0	P	LFP 3,BTWN 70&90 CONTOUR BTWN TB6&TB5
3A	4/17/97	NO	STA 0+50 & 1+00	E9	FINAL PG	WMX 20	122.4	131.3	119.3	10.0	97.5	P	LFP 3,BTWN 70&90 CONTOUR BTWN TB6&TB5
4A	4/17/97	NO	STA 0+50 & 1+00	E9	FINAL PG	WMX 20	122.4	129.9	117.9	10.2	96.3	P	LFP 3,BTWN 70&90 CONTOUR BTWN TB6&TB5
5A	4/17/97	NO	STA 1+00 & 1+50	D9	FINAL PG	WMX 20	122.4	132.6	120.6	10.0	98.5	P	LFP 3,BTWN 70&90 CONTOUR BTWN TB6&TB5
6A	4/17/97	NO	STA 1+00 & 1+50	D9	FINAL PG	WMX 20	122.4	131.3	118.7	10.6	97.0	P	LFP 3,BTWN 70&90 CONTOUR BTWN TB6&TB5
7A	4/17/97	NO	STA 1+50 & 2+00	D9	FINAL PG	WMX 20	122.4	129.2	118.4	9.2	96.7	P	LFP 3,BTWN 70&90 CONTOUR BTWN TB6&TB5
8A	4/17/97	NO	STA 2+00 & 2+50	D9	FINAL PG	WMX 20	122.4	130.3	119.0	9.5	97.2	P	LFP 3,BTWN 70&90 CONTOUR BTWN TB6&TB5
9A	4/17/97	NO	STA 2+00 & 2+50	D9	FINAL PG	WMX 20	122.4	129.0	117.3	10.0	95.8	P	LFP 3,BTWN 70&90 CONTOUR BTWN TB6&TB5
10A	4/17/97	NO	STA 2+50 & STA 3+00	C10	FINAL PG	WMX 20	122.4	129.9	117.9	10.2	96.3	P	LFP 3,BTWN 70&90 CONTOUR BTWN TB6&TB5
12A	4/17/97	NO	STA 3+00 & STA 3+50	C10	FINAL PG	WMX 20	122.4	130.7	118.4	10.4	96.7	P	LFP 3,BTWN 70&90 CONTOUR BTWN TB6&TB5
13A	4/17/97	NO	STA 3+00 & STA 3+50	C10	FINAL PG	WMX 20	122.4	130.0	118.9	9.4	97.1	P	LFP 3,BTWN 70&90 CONTOUR BTWN TB6&TB5
17A	4/17/97	NO	NW QUADRANT OF PAD	H6	2ND	WMX25	119.3	128.1	115.0	11.4	96.4	P	FLARE STATION FOUNDATION PAD
18A	4/17/97	NO	SE QUADRANT OF PAD	I6	2ND	WMX25	119.3	129.1	115.6	11.7	96.9	P	FLARE STATION FOUNDATION PAD
ALL TESTS WERE RE-COMPACTED USING HAMM ROLLER HM-4011 AND WERE RE-TESTED													
	1	Of	1	Tests Performed By YEC Personnel							SIGNATURE:		

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 69 … OISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 — Item 5B Structural Fill

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	4/16/97	REQ'D	25' S. 20 E. GE-34	D5	FINAL PG	WMX 20	122.4	125.4	114.9	9.1	93.9	F	LFP 3 > 90' CONTOUR BTWN. GE34 & GE31
2	4/16/97	REQ'D	50'S. 20 W. GE-34	D5	FINAL PG	WMX 20	122.4	126.1	115.2	9.5	94.1	F	LFP 3 > 90' CONTOUR BTWN. GE34 & GE31
3	4/16/97	REQ'D	100' S. 40' W. GE-34	D5	FINAL PG	WMX 20	122.4	126.1	114.8	9.8	93.8	F	LFP 3 > 90' CONTOUR BTWN. GE34 & GE31
4	4/16/97	REQ'D	200' S. 50' E. GE-34	D5	FINAL PG	WMX 20	122.4	126.4	114.1	10.8	93.2	F	LFP 3 > 90' CONTOUR BTWN. GE34 & GE31
5	4/16/97	REQ'D	100' S. 40' E. GE-34	D5	FINAL PG	WMX 20	122.4	125.7	114.8	9.5	93.8	F	LFP 3 > 90' CONTOUR BTWN. GE34 & GE31
6	4/16/97	NO	200' S. 50' W. GE-34	D5	FINAL PG	WMX 20	122.4	128.3	116.4	10.2	95.1	P	LFP 3 > 90' CONTOUR BTWN. GE34 & GE31
7	4/16/97	REQ'D	250' S. 25' E. GE-34	D4	FINAL PG	WMX 20	122.4	128.1	115.4	11.0	94.3	F	LFP 3 > 90' CONTOUR BTWN. GE34 & GE31
8	4/16/97	NO	250' S. 25' W. GE-34	D4	FINAL PG	WMX 20	122.4	127.7	116.4	9.7	95.1	P	LFP 3 > 90' CONTOUR BTWN. GE34 & GE31
9	4/16/97	NO	325' S. 40' E' GE-34	D4	FINAL PG	WMX 20	122.4	127.1	116.4	9.2	95.1	P	LFP 3 > 90' CONTOUR BTWN. GE34 & GE31
10	4/16/97	REQ'D	325' S. 50' W. GE-34	D4	FINAL PG	WMX 20	122.4	123.5	113.8	8.5	93.0	F	LFP 3 > 90' CONTOUR BTWN. GE34 & GE31
1A	4/16/97	NO	25' S. 20 E. GE-34	D5	FINAL PG	WMX 20	122.4	130.3	119.0	9.5	97.2	P	LFP 3 > 90' CONTOUR BTWN. GE34 & GE31
2A	4/16/97	NO	50'S. 20 W. GE-34	D5	FINAL PG	WMX 20	122.4	129.1	118.5	9.0	96.8	P	LFP 3 > 90' CONTOUR BTWN. GE34 & GE31
3A	4/16/97	NO	100' S. 40' W. GE-34	D5	FINAL PG	WMX 20	122.4	130.5	119.5	9.2	97.6	P	LFP 3 > 90' CONTOUR BTWN. GE34 & GE31
4A	4/16/97	NO	200' S. 50' E. GE-34	D5	FINAL PG	WMX 20	122.4	131.4	119.5	10.0	97.6	P	LFP 3 > 90' CONTOUR BTWN. GE34 & GE31
5A	4/16/97	NO	100' S. 40' E. GE-34	D5	FINAL PG	WMX 20	122.4	132.5	120.2	10.2	98.2	P	LFP 3 > 90' CONTOUR BTWN. GE34 & GE31
7A	4/16/97	NO	250' S. 25' E. GE-34	D4	FINAL PG	WMX 20	122.4	131.1	119.2	10.0	97.4	P	LFP 3 > 90' CONTOUR BTWN. GE34 & GE31
10A	4/16/97	NO	325' S. 50' W. GE-34	D4	FINAL PG	WMX 20	122.4	130.0	118.7	9.5	97.0	P	LFP 3 > 90' CONTOUR BTWN. GE34 & GE31

TESTS NUMBERED 1A, 2A, 3A, 4A, 5A, 7A & 10A WERE RE-COMPACTED USING CAT ROLLER CS-563 AND WERE RE-TESTED

	1	Of	1	Tests Performed By YEC Personnel	SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	4/15/97	NO	85' E. 60' S. OF RFW 5S	B6	4TH	TN 5.8	129.3	134.6	124.3	8.3	96.1	P	LFP 3, < 90' CONTOUR BTWN TB4 & TB3
2	4/15/97	NO	85' E. 110' S. OF RFW 5S	B6	4TH	TN 5.8	129.3	136.1	125.9	8.1	97.4	P	LFP 3, < 90' CONTOUR BTWN TB4 & TB3
3	**4/15/97**	**REQ'D**	**85' E. 150' S. OF RFW 5S**	**B6**	**4TH**	**TN 5.8**	**129.3**	**131.0**	**122.1**	**7.3**	**94.4**	**F**	**LFP 3, < 90' CONTOUR BTWN TB4 & TB3**
4	**4/15/97**	**REQ'D**	**85' E. 200' S. OF RFW 5S**	**B6**	**4TH**	**TN 5.8**	**129.3**	**129.9**	**120.5**	**7.8**	**93.2**	**F**	**LFP 3, < 90' CONTOUR BTWN TB4 & TB3**
5	**4/15/97**	**REQ'D**	**85' E. 225' S. OF RFW 5S**	**B6**	**4TH**	**TN 5.8**	**129.3**	**131.1**	**121.3**	**8.1**	**93.8**	**F**	**LFP 3, < 90' CONTOUR BTWN TB4 & TB3**
6	4/15/97	NO	85' E. 275' S. OF RFW 5S	C6	4TH	TN 5.8	129.3	133.9	123.0	8.9	95.1	P	LFP 3, < 90' CONTOUR BTWN TB4 & TB3
7	**4/15/97**	**REQ'D**	**75' DUE WEST GE-34**	**D6**	**2ND**	**TN 5.8**	**129.3**	**133.9**	**121.9**	**9.8**	**94.3**	**F**	**LFP 3 > 90' CONTOUR BTWN. GE34 & GE31**
8	4/15/97	NO	75' W. 100' S. GE-34	D6	2ND	TN 5.8	129.3	134.9	123.0	9.7	95.1	P	LFP 3 > 90' CONTOUR BTWN. GE34 & GE31
9	4/15/97	NO	60' DUE WEST GE-31	D6	2ND	TN 5.8	129.3	134.7	123.4	9.2	95.4	P	LFP 3 > 90' CONTOUR BTWN. GE34 & GE31
10	**4/15/97**	**REQ'D**	**100 W. 100' S. GE-31**	**D6**	**2ND**	**TN 5.8**	**129.3**	**130.5**	**120.2**	**8.5**	**93.0**	**F**	**LFP 3 > 90' CONTOUR BTWN. GE34 & GE31**
3A	**4/15/97**	**NO**	**85' E. 150' S. OF RFW 5S**	**B6**	**4TH**	**TN 5.8**	**129.3**	**135.5**	**125.4**	**8.0**	**97.0**	**P**	**LFP 3, < 90' CONTOUR BTWN TB4 & TB3**
4A	**4/15/97**	**NO**	**85' E. 200' S. OF RFW 5S**	**B6**	**4TH**	**TN 5.8**	**129.3**	**136.0**	**125.7**	**8.2**	**97.2**	**P**	**LFP 3, < 90' CONTOUR BTWN TB4 & TB3**
5A	**4/15/97**	**NO**	**85' E. 225' S. OF RFW 5S**	**B6**	**4TH**	**TN 5.8**	**129.3**	**134.9**	**125.2**	**7.8**	**96.8**	**P**	**LFP 3, < 90' CONTOUR BTWN TB4 & TB3**
7A	**4/15/97**	**NO**	**75' DUE WEST GE-34**	**D6**	**2ND**	**TN 5.8**	**129.3**	**137.0**	**125.7**	**9.0**	**97.2**	**P**	**LFP 3 > 90' CONTOUR BTWN. GE34 & GE31**
10A	**4/15/97**	**NO**	**100 W. 100' S. GE-31**	**D6**	**2ND**	**TN 5.8**	**129.3**	**135.3**	**123.9**	**9.2**	**95.8**	**P**	**LFP 3 > 90' CONTOUR BTWN. GE34 & GE31**
TESTS NUMBERED 3A, 4A, 5A, 7A & 10A WERE RE-COMPACTED USING CAT ROLLER CS-563 AND WERE RE-TESTED													
	1	Of	1	Tests Performed By YEC Personnel							SIGNATURE:		

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	4/14/97	NO	55' E. 60' S. OF RFW 5S	B6	2ND	TN 5.8	129.3	134.5	123.7	8.7	95.7	P	LFP 3, < 90' CONTOUR BTWN TB4 & TB3
2	4/14/97	NO	55' E. 110' S. OF RFW 5S	B6	2ND	TN 5.8	129.3	137.1	124.9	9.8	96.6	P	LFP 3, < 90' CONTOUR BTWN TB4 & TB3
3	4/14/97	NO	55' E. 150' S. OF RFW 5S	B6	2ND	TN 5.8	129.3	132.6	124.6	6.4	96.4	P	LFP 3, < 90' CONTOUR BTWN TB4 & TB3
4	**4/14/97**	**REQ'D**	**55' E. 200' S. OF RFW 5S**	**B6**	**2ND**	**TN 5.8**	**129.3**	**131.7**	**122.3**	**7.7**	**94.6**	**F**	**LFP 3, < 90' CONTOUR BTWN TB4 & TB3**
5	4/14/97	NO	55' E. 225' S. OF RFW 5S	B6	2ND	TN 5.8	129.3	136.8	125.8	8.7	97.3	P	LFP 3, < 90' CONTOUR BTWN TB4 & TB3
6	**4/14/97**	**REQ'D**	**125' W. LC Cham. #3**	**D10**	**Final PG**	**WMX 15**	**127.1**	**126.7**	**114.8**	**10.4**	**90.3**	**F**	**LFP 3, TB6 EAST OF COMPOST BRIDGE**
7	**4/14/97**	**REQ'D**	**50' W. LC Cham. #3**	**D9**	**Final PG**	**WMX 15**	**127.1**	**123.9**	**112.6**	**10.0**	**88.6**	**F**	**LFP 3, TB6 EAST OF COMPOST BRIDGE**
8	**4/14/97**	**REQ'D**	**75' E. 175' S. RFW 5S**	**C5**	**3RD**	**TN 5.8**	**129.3**	**133.7**	**122.3**	**9.3**	**94.6**	**F**	**LFP 3, < 90' CONTOUR BTWN TB4 & TB3**
9	4/14/97	NO	75' E. 220' S. RFW 5S	C5	3RD	TN 5.8	129.3	136.9	123.5	10.9	95.5	P	LFP 3, < 90' CONTOUR BTWN TB4 & TB3
10	4/14/97	NO	60' W. GE-35	D6	1ST	TN 5.8	129.3	134.6	124.1	8.4	96.0	P	LFP 3, > 90' CONTOUR BTWN GE35 &GE34
11	4/14/97	NO	55' W. 50' S. GE-35	D6	1ST	TN 5.8	129.3	133.7	124.1	7.7	96.0	P	LFP 3, > 90' CONTOUR BTWN GE35 &GE34
12	**4/14/97**	**REQ'D**	**55' W. 80' S. GE-35**	**D6**	**1ST**	**TN 5.8**	**129.3**	**132.8**	**122.6**	**8.3**	**94.8**	**F**	**LFP 3, > 90' CONTOUR BTWN GE35 &GE34**
13	4/14/97	NO	50' W. 100' S. GE-35	D6	1ST	TN 5.8	129.3	134.8	124.1	8.6	96.0	P	LFP 3, > 90' CONTOUR BTWN GE35 &GE34
14	4/14/97	NO	75' E. 125' S. RFW 5S	B6	3RD	TN 5.8	129.3	133.0	123.5	7.7	95.5	P	LFP 3, < 90' CONTOUR BTWN TB4 & TB3
15	4/14/97	NO	75' E. 75' S. RFW 5S	B6	3RD	TN 5.8	129.3	138.3	124.4	11.2	96.2	P	LFP 3, < 90' CONTOUR BTWN TB4 & TB3
16	**4/14/97**	**REQ'D**	**75' E. 25'S. RFW 5S**	**B6**	**3RD**	**TN 5.8**	**129.3**	**136.7**	**122.7**	**11.4**	**94.9**	**F**	**LFP 3, < 90' CONTOUR BTWN TB4 & TB3**
4A	**4/14/97**	**NO**	**55' E. 200' S. OF RFW 5S**	**B6**	**2ND**	**TN 5.8**	**129.3**	**135.5**	**125.4**	**8.0**	**97.0**	**P**	**LFP 3, < 90' CONTOUR BTWN TB4 & TB3**
6A	**4/14/97**	**NO**	**125' W. LC Cham. #3**	**D10**	**Final PG**	**WMX 15**	**127.1**	**134.5**	**122.3**	**10.0**	**96.2**	**P**	**LFP 3, TB6 EAST OF COMPOST BRIDGE**
7A	**4/14/97**	**NO**	**50' W. LC Cham. #3**	**D9**	**Final PG**	**WMX 15**	**127.1**	**133.5**	**121.9**	**9.5**	**95.9**	**P**	**LFP 3, TB6 EAST OF COMPOST BRIDGE**
8A	**4/14/97**	**NO**	**75' E. 175' S. RFW 5S**	**C5**	**3RD**	**TN 5.8**	**129.3**	**136.4**	**125.2**	**9.0**	**96.8**	**P**	**LFP 3, < 90' CONTOUR BTWN TB4 & TB3**
12A	**4/14/97**	**NO**	**55' W. 80' S. GE-35**	**D6**	**1ST**	**TN 5.8**	**129.3**	**135.5**	**125.4**	**8.0**	**97.0**	**P**	**LFP 3, > 90' CONTOUR BTWN GE35 &GE34**
16A	**4/14/97**	**NO**	**75' E. 25'S. RFW 5S**	**B6**	**3RD**	**TN 5.8**	**129.3**	**138.4**	**124.6**	**11.0**	**96.4**	**P**	**LFP 3, < 90' CONTOUR BTWN TB4 & TB3**

TESTS NUMBERED 4A, 6A, 7A, 8A, 12A & 16A WERE RE-COMPACTED USNIG CAT ROLLER CS-563 AND WERE RE-TESTED

	1	Of	1	Tests Performed By YEC Personnel	SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	4/11/97	NO	45' E. 60' S. OF RFW 5S&5D	B6	1ST	TN 5.8	129.3	143.7	131.8	9.1	101.9	P	LFP 3, < 90' CONTOUR BTWN TB4 & TB3
2	4/11/97	NO	45' E. 120' S. OF RFW 5S&5D	B6	1ST	TN 5.8	129.3	143.1	132.8	7.8	102.7	P	LFP 3, < 90' CONTOUR BTWN TB4 & TB3
3	4/11/97	REQ'D	STATION 0+50 20' West	I10	Final PG	WMX 15	127.1	128.5	117.7	9.2	92.6	F	LFP 1, South Leg Slurry Wall Work Platform
4	4/11/97	NO	STATION 0+50 20' East	I10	Final PG	WMX 15	127.1	131.6	120.9	8.9	95.1	P	LFP 1, South Leg Slurry Wall Work Platform
5	4/11/97	REQ'D	STATION 1+50 25' West	J10	Final PG	WMX 15	127.1	127.0	115.2	10.3	90.6	F	LFP 1, South Leg Slurry Wall Work Platform
6	4/11/97	REQ'D	STATION 1+50 25' East	J10	Final PG	WMX 15	127.1	126.4	115.8	9.2	91.1	F	LFP 1, South Leg Slurry Wall Work Platform
7	4/11/97	REQ'D	STATION 2+50 20' East	J10	Final PG	WMX 15	127.1	125.3	114.6	9.3	90.2	F	LFP 1, South Leg Slurry Wall Work Platform
8	4/11/97	REQ'D	STATION 2+50 20' West	J9	Final PG	WMX 15	127.1	124.0	112.0	10.7	88.1	F	LFP 1, South Leg Slurry Wall Work Platform
9	4/11/97	REQ'D	150' W. 10' S. LC Cham. #2 6"Test	J9	Final PG	WMX 15	127.1	120.9	112.2	7.7	88.3	F	LFP 1, West Leg Slurry Wall Work Platform
10	4/11/97	REQ'D	150' W. 7' N. LC Cham. #2 12"Test	I10	Final PG	WMX 15	127.1	122.4	114.0	7.4	89.7	F	LFP 1, West Leg Slurry Wall Work Platform
11	4/11/97	REQ'D	100' W. 25' S.LC Cham. #2 6"Test	I10	Final PG	WMX 15	127.1	120.6	111.8	7.8	88.0	F	LFP 1, West Leg Slurry Wall Work Platform
12	4/11/97	REQ'D	100' W. 15' N. LC Cham. #2 12"Test	I10	Final PG	WMX 15	127.1	123.5	114.6	7.7	90.2	F	LFP 1, West Leg Slurry Wall Work Platform
13	4/11/97	REQ'D	200' W. 22' S. LC Cham. #2 6"Test	H10	Final PG	WMX 15	127.1	130.2	117.1	11.2	92.1	F	LFP 1, West Leg Slurry Wall Work Platform
14	4/11/97	REQ'D	200' W. 25' N. LC Cham. #2 12"Test	H10	Final PG	WMX 15	127.1	128.0	114.9	11.4	90.4	F	LFP 1, West Leg Slurry Wall Work Platform
15	4/11/97	REQ'D	250' W. 15' S. LC Cham. #2 6"Test	H10	Final PG	WMX 15	127.1	125.7	113.1	11.1	89.0	F	LFP 1, West Leg Slurry Wall Work Platform
16	4/11/97	REQ'D	250' W. 15' N. LC Cham. #2 12"Test	H10	Final PG	WMX 15	127.1	125.5	112.7	11.3	88.7	F	LFP 1, West Leg Slurry Wall Work Platform
17	4/11/97	REQ'D	280' W. 10' S. LC Cham. #2 12"Test	H10	Final PG	WMX 15	127.1	127.8	115.5	10.6	90.9	F	LFP 1, West Leg Slurry Wall Work Platform
18	4/11/97	REQ'D	280' W. 15' N. LC Cham. #2 12"Test	H10	Final PG	WMX 15	127.1	129.9	116.8	11.2	91.9	F	LFP 1, West Leg Slurry Wall Work Platform
19	4/11/97	REQ'D	359' W. 20' S. LC Cham. #2 4"Test	H10	Final PG	WMX 15	127.1	127.1	115.2	10.4	90.6	F	LFP 1, West Leg Slurry Wall Work Platform
20	4/11/97	REQ'D	359' W. 20' S. LC Cham. #2 10"Test	H10	Final PG	WMX 15	127.1	130.2	117.1	11.2	92.1	F	LFP 1, West Leg Slurry Wall Work Platform
21	4/11/97	REQ'D	359' W. 15' N. LC Cham. #2 4"Test	H10	Final PG	WMX 15	127.1	127.7	117.7	8.5	92.6	F	LFP 1, West Leg Slurry Wall Work Platform
22	4/11/97	REQ'D	359' W. 15' N. LC Cham. #2 12"Test	H10	Final PG	WMX 15	127.1	127.2	117.8	8.0	92.7	F	LFP 1, West Leg Slurry Wall Work Platform

1 Of 2 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 6[illegible] MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 — Item 5B Structural Fill

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
3A	4/11/97	NO	STATION 0+50 20' West	I10	Final PG	WMX 15	127.1	133.3	122.3	9.0	96.2	P	LFP 1, South Leg Slurry Wall Work Platform
5A	4/11/97	NO	STATION 1+50 25' West	J10	Final PG	WMX 15	127.1	134.2	122.0	10.0	96.0	P	LFP 1, South Leg Slurry Wall Work Platform
6A	4/11/97	NO	STATION 1+50 25' East	J10	Final PG	WMX 15	127.1	132.5	121.0	9.5	95.2	P	LFP 1, South Leg Slurry Wall Work Platform
7A	4/11/97	NO	STATION 2+50 20' East	J10	Final PG	WMX 15	127.1	133.4	122.4	9.0	96.3	P	LFP 1, South Leg Slurry Wall Work Platform
8A	4/11/97	NO	STATION 2+50 20' West	J9	Final PG	WMX 15	127.1	133.4	121.3	10.0	95.4	P	LFP 1, South Leg Slurry Wall Work Platform
9A	4/11/97	NO	150' W. 10' S. LC Cham. #2 6"Test	J9	Final PG	WMX 15	127.1	132.7	122.9	8.0	96.7	P	LFP 1, West Leg Slurry Wall Work Platform
10A	4/11/97	NO	150' W. 7' N. LC Cham. #2 12"Test	I10	Final PG	WMX 15	127.1	135.5	124.3	9.0	97.8	P	LFP 1, West Leg Slurry Wall Work Platform
11A	4/11/97	NO	100' W. 25' S.LC Cham. #2 6"Test	I10	Final PG	WMX 15	127.1	133.9	122.7	9.2	96.5	P	LFP 1, West Leg Slurry Wall Work Platform
12A	4/11/97	NO	100' W. 15' N. LC Cham. #2 12"Test	I10	Final PG	WMX 15	127.1	131.7	121.6	8.3	95.7	P	LFP 1, West Leg Slurry Wall Work Platform
13A	4/11/97	NO	200' W. 22' S. LC Cham. #2 6"Test	H10	Final PG	WMX 15	127.1	132.1	122.3	8.0	96.2	P	LFP 1, West Leg Slurry Wall Work Platform
14A	4/11/97	NO	200' W. 25' N. LC Cham. #2 12"Test	H10	Final PG	WMX 15	127.1	131.4	121.3	8.4	95.4	P	LFP 1, West Leg Slurry Wall Work Platform
15A	4/11/97	NO	250' W. 15' S. LC Cham. #2 6"Test	H10	Final PG	WMX 15	127.1	133.4	122.4	9.0	96.3	P	LFP 1, West Leg Slurry Wall Work Platform
16A	4/11/97	NO	250' W. 15' N. LC Cham. #2 12"Test	H10	Final PG	WMX 15	127.1	133.7	122.0	9.6	96.0	P	LFP 1, West Leg Slurry Wall Work Platform
17A	4/11/97	NO	280' W. 10' S. LC Cham. #2 12"Test	H10	Final PG	WMX 15	127.1	135.6	123.3	10.0	97.0	P	LFP 1, West Leg Slurry Wall Work Platform
18A	4/11/97	NO	280' W. 15' N. LC Cham. #2 12"Test	H10	Final PG	WMX 15	127.1	135.2	122.1	10.7	96.1	P	LFP 1, West Leg Slurry Wall Work Platform
19A	4/11/97	NO	359' W. 20' S. LC Cham. #2 4"Test	H10	Final PG	WMX 15	127.1	132.8	121.6	9.2	95.7	P	LFP 1, West Leg Slurry Wall Work Platform
20A	4/11/97	NO	359' W. 20' S. LC Cham. #2 10"Test	H10	Final PG	WMX 15	127.1	132.8	122.1	8.7	96.1	P	LFP 1, West Leg Slurry Wall Work Platform
21A	4/11/97	NO	359' W. 15' N. LC Cham. #2 4"Test	H10	Final PG	WMX 15	127.1	132.2	121.9	8.5	95.9	P	LFP 1, West Leg Slurry Wall Work Platform
22A	4/11/97	NO	359' W. 15' N. LC Cham. #2 12"Test	H10	Final PG	WMX 15	127.1	131.8	122.0	8.0	96.0	P	LFP 1, West Leg Slurry Wall Work Platform
ALL TEST LOCATIONS WERE RE-COMPACTED USING CAT ROLLER CS-563 AND WERE RE-TESTED													
	2	Of	2	Tests Performed By YEC Personnel								SIGNATURE:	

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

MARCH '97

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	3/27/97	NO	STA 2+00 15' N OF CENTERLINE		4TH	WMX15	127.1	141.2	122.4	15.4	96.3	P	LC Cham. 2N WEST LEG
2	3/27/97	NO	STA 1+25 25' N OF CENTERLINE		4TH	WMX15	127.1	139.9	121.8	14.9	95.8	P	LC Cham. 2N WEST LEG
3	3/27/97	NO	STA 0+75 25' N OF CENTERLINE		4TH	WMX15	127.1	141.2	123.7	14.2	97.3	P	LC Cham. 2N WEST LEG

1 Of 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	3/25/97	NO	STA 3+50 15' N OF CENTERLINE		2ND	WMX15	127.1	140.9	123.9	13.7	97.5	P	LC Cham. 2N WEST LEG
2	3/25/97	NO	STA 3+00 20' N OF CENTERLINE		2ND	WMX15	127.1	141.2	122.9	14.9	96.7	P	LC Cham. 2N WEST LEG
3	3/25/97	NO	STA 2+00 15' N OF CENTERLINE		2ND	WMX15	127.1	141.2	123.7	14.2	97.3	P	LC Cham. 2N WEST LEG
4	3/25/97	NO	STA 2+75 15' N OF CENTERLINE		2ND	WMX15	127.1	140.9	123.9	13.7	97.5	P	LC Cham. 2N WEST LEG
5	3/25/97	NO	STA 3+00 15' N OF CENTERLINE		3RD	WMX15	127.1	139.5	122.8	13.6	96.6	P	LC Cham. 2N WEST LEG
6	3/25/97	NO	STA 2+00 25' N OF CENTERLINE		3RD	WMX15	127.1	138.8	122.7	13.2	96.5	P	LC Cham. 2N WEST LEG

1 Of 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

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TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	3/24/97	NO	STA 3+50		1ST	WMX15	127.1	140.8	122.7	14.8	96.5	P	LC Cham. 2N WEST LEG
2	3/24/97	NO	STA 3+00		1ST	WMX15	127.1	141.2	122.9	14.9	96.7	P	LC Cham. 2N WEST LEG
3	3/24/97	NO	STA 2+00		1ST	WMX15	127.1	139.6	122.3	14.2	96.2	P	LC Cham. 2N WEST LEG

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Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	2/28/97	NO	STA 2+00 15' N OF CENTERLINE		FINAL PG	CS2.3	119.7	132.7	118.4	12.1	98.9	P	LAND FILL PARCEL 1
2	2/28/97	NO	STA 1+25 25' N OF CENTERLINE		FINAL PG	CS2.3	119.7	130.8	116.8	12.0	97.6	P	LAND FILL PARCEL 1
3	2/28/97	NO	STA 0+75 25' N OF CENTERLINE		FINAL PG	CS2.3	119.7	131.3	114.0	15.2	95.2	P	LAND FILL PARCEL 1
4	2/28/97	NO	STA 0+75 25' N OF CENTERLINE		FINAL PG	CS2.3	119.7	131.0	114.8	14.1	95.9	P	LAND FILL PARCEL 1
5	2/28/97	NO	STA 0+75 25' N OF CENTERLINE		FINAL PG	CS2.3	119.7	129.1	115.0	12.2	96.1	P	LAND FILL PARCEL 1
6	2/28/97	NO	STA 0+75 25' N OF CENTERLINE		FINAL PG	CS2.3	119.7	131.1	116.1	12.9	97.0	P	LAND FILL PARCEL 1
7	2/28/97	NO	STA 0+75 25' N OF CENTERLINE		FINAL PG	CS2.3	119.7	132.3	118.0	12.1	98.6	P	LAND FILL PARCEL 1
8	2/28/97	NO	STA 0+75 25' N OF CENTERLINE		FINAL PG	CS2.3	119.7	132.3	116.9	13.1	97.7	P	LAND FILL PARCEL 1

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PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	**2/26/97**	**REQ'D**	**30' W. 20' N. LC Cham. #2**		**FINAL PG**	**CS2.3**	**119.7**	**128.8**	**111.0**	**16.1**	**92.7**	**F**	**LAND FILL PARCEL 1; S. LC Cham. #2**
2	2/28/97	NO	50' W. 70' S. LC Cham. #2		FINAL PG	CS2.3	119.7	128.6	115.7	11.1	96.7	P	LAND FILL PARCEL 1; S. LC Cham. #2
3	2/28/97	NO	10' E. 70' S. LC Cham. #2		FINAL PG	CS2.3	119.7	131.8	117.1	12.6	97.8	P	LAND FILL PARCEL 1; S. LC Cham. #2
4	2/28/97	NO	100' E. 20' N. LC Cham. #2		FINAL PG	CS2.3	119.7	134.9	118.6	13.7	99.1	P	LAND FILL PARCEL 1; S. LC Cham. #2
5	2/28/97	NO	200' E. 10' N. LC Cham. #2		FINAL PG	CS2.3	119.7	133.1	116.1	14.6	97.0	P	LAND FILL PARCEL 1; S. LC Cham. #2
6	2/28/97	NO	150' N. 200' E. LC Cham. #2		FINAL PG	CS2.3	119.7	135.4	120.4	12.4	100.6	P	LAND FILL PARCEL 1; S. LC Cham. #2
7	**2/28/97**	**REQ'D**	**110' E. 25' N. LC Cham. #2**		**FINAL PG**	**CS2.3**	**119.7**	**127.6**	**112.2**	**13.8**	**93.7**	**F**	**LAND FILL PARCEL 1; S. LC Cham. #2**
8	2/28/97	NO	120' E. 100' N. LC Cham. #2		FINAL PG	CS2.3	119.7	130.0	118.4	9.8	98.9	P	LAND FILL PARCEL 1; S. LC Cham. #2
9	2/28/97	1	180' E. 80' S. LC Cham. #2		FINAL PG	CS2.3	119.7	130.0	118.4	9.8	98.9	P	LAND FILL PARCEL 1; S. LC Cham. #2
10	2/28/97	7	110' E. 25' N. LC Cham. #2		FINAL PG	CS2.3	119.7	130.0	118.4	9.8	98.9	P	LAND FILL PARCEL 1; S. LC Cham. #2

1 Of 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NOVEMBER '96

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	11/25/96	NO	22' EAST 15' SOUTH STAKE 5088	C3	4TH	CB9.1	123.6	137.5	125.6	9.5	101.6	P	BASIN 3 TEMP BERM
2	11/25/96	NO	30' WEST STAKE 4192	C3	4TH	CB9.1	123.6	139.7	126.4	10.5	102.3	P	BASIN 3 TEMP BERM
3	11/25/96	NO	35' EAST 15' SOUTH 5612	C5	4TH	CB9.1	123.6	140.5	128.7	9.2	104.1	P	BASIN 3 PERMANENT BERM
4	11/25/96	NO	60' EAST STAKE 5608	C5	4TH	CB9.1	123.6	137.3	125.1	9.8	101.2	P	BASIN 3 PERMANENT BERM
5	11/25/96	NO		C4	1ST	CB9.1	123.6	136.2	122.6	11.1	99.2	P	P.BERM BTWN T.BASIN 3 & T.BASIN 2
6	11/25/96	NO		B5	1ST	CB9.1	123.6	138.9	125.2	10.9	101.3	P	P.BERM BTWN T.BASIN 3 & T.BASIN 2
7	11/25/96	NO		B5	1ST	CB9.1	123.6	137.0	124.3	10.2	100.6	P	P.BERM BTWN T BASIN 3 & T.BASIN 2

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CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	11/21/96	REQ'D	25' EAST 25' SOUTH STAKE 9086	A3	FINAL PG	NS9.1	132.1	139.0	124.3	11.8	94.1	F	T.BASIN 5
2	11/21/96	NO	28' EAST 18' SOUTH STAKE 9086	A3	FINAL PG	NS9.1	132.1	141.7	125.8	12.7	95.2	P	T.BASIN 5
3	11/21/96	REQ'D	25' SOUTH 15' EAST STAKE 9085	A3	FINAL PG	NS9.1	132.1	137.6	121.1	13.6	91.7	F	T.BASIN 5
4	11/21/96	NO	20' SOUTH 20' EAST STAKE 9085	A5	FINAL PG	NS9.1	132.1	142.2	126.8	12.1	96.0	P	T.BASIN 5
5	11/21/96	NO	30' NORTH 4' EAST STAKE 5572	A5	3RD	NS9.1	132.1	142.0	130.1	9.1	98.5	P	P.BERM T.BASIN 4
6	11/21/96	NO	32' NORTH 20' WEST STAKE 4122	A5	3RD	NS9.1	132.1	137.6	127.2	8.2	96.3	P	T.BASIN 4
7	11/21/96	NO	25' EAST 2' SOUTH STAKE 4202	A5	3RD	NS9.1	132.1	137.7	125.6	9.6	95.1	P	T. BERM BASIN 3
8	11/21/96	REQ'D	20' EAST 25' SOUTH STAKE 5606		2ND	NS9.1	132.1	137.4	125.4	9.6	94.9	F	T. BERM BASIN 3
9	11/21/96	8	20' EAST 25' SOUTH STAKE 5606		2ND	NS9.1	132.1	138.6	126.4	9.6	95.7	P	T. BERM BASIN 3
10	11/21/96	REQ'D	120' WEST WELL 4D		2ND	NS9.1	132.1	134.8	123.0	9.6	93.1	F	T. BERM BASIN 3
11	11/21/96	10	120' WEST WELL 4D		2ND	NS9.1	132.1	139.1	126.9	9.6	96.1	P	T. BERM BASIN 3
12	11/21/96	REQ'D	120' WEST WELL 60 SOUTH WELL 4D		2ND	NS9.1	132.1	134.1	122.3	9.6	92.6	F	T. BERM BASIN 3
13	11/21/96	12	120' WEST WELL 60 SOUTH WELL 4D		2ND	NS9.1	132.1	138.7	126.6	9.6	95.8	P	T. BERM BASIN 3
14	11/21/96	NO	TRENCH FOR OUTFLOW PIPE		1' A PIPE	WMX	122.1	125.8	116.1	8.3	95.1	P	OUTFLOW PIPE T. BASIN 8
15	11/21/96	NO	TRENCH FOR OUTFLOW PIPE		3' A PIPE	WMX	122.1	134.3	119.7	12.2	98.0	P	OUTFLOW PIPE T. BASIN 8

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PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	11/19/96	NO	10' EAST 20' NORTH STAKE 5693	A3	1ST	NS9	132.1	141.3	127.2	11.1	96.3	P	PBERM BTWN T.BASIN 3 & 2
2	11/19/96	NO	10' SOUTH 25' EAST STAKE 5697	A3	1ST	NS9	132.1	141.4	129.6	9.1	98.1	P	PBERM BTWN T.BASIN 3 & 2
3	11/19/96	NO	30' EAST STAKE 5708	A3	1ST	NS9	132.1	141.7	129.3	9.6	97.9	P	PBERM BTWN T.BASIN 3 & 2
4	11/19/96	NO	20' EAST 20' NORTH STAKE 4161	A5	1ST	NS9	132.1	140.9	126.9	11.0	96.1	P	P.BERM BASIN 3
5	11/19/96	NO	10' WEST 5' SOUTH STAKE 4174	A5	1ST	NS9	132.1	140.1	128.4	9.1	97.2	P	P.BERM BASIN 3
6	11/19/96	NO	5' EAST 10' NORTH STAKE 5620	A5	1ST	NS9	132.1	137.4	126.9	8.2	96.1	P	T. BERM BASIN 3
7	11/19/96	NO	10' EAST 20' SOUTH STAKE 5624	A5	1ST	NS9	132.1	138.8	126.7	9.6	95.9	P	T. BERM BASIN 3

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Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

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1	11/18/96	NO	45' WEST 3' SOUTH STAKE 4132	A6	4TH	TN 5.5	132.1	141.4	129.6	9.1	98.1	P	P BERM BTWN TBASIN 5 & 4
2	11/18/96	NO	60' EAST 5' NORTH STAKE 5527	A6	4TH	TN 5.5	132.1	138.3	125.6	10.1	95.1	P	P BERM BTWN TBASIN 5 & 4
3	11/18/96	NO	10' WEST 20'SOUTH STAKE 5572	A5	4TH	TN 5.5	132.1	139.6	128.5	8.6	97.3	P	T.BASIN 4
4	11/18/96	NO	20' WEST 15' NORTH STAKE 4121		4TH	TN 5.5	132.1	139.6	128.5	8.6	97.3	P	T.BASIN 4
5	11/18/96	NO	20' WEST STAKE 4122		4TH	TN 5.5	132.1	139.6	128.5	8.6	97.3	P	T.BASIN 4

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1	11/15/96	NO	20' EAST 10' SOUTH STAKE 5522	A6	3RD	TN5.4	127.3	136.2	124.9	9.1	98.1	P	P BERM BTWN TBASIN 4 & 3
2	11/15/96	NO	40' EAST 20' NORTH STAKE 5514	A6	3RD	TN5.4	127.3	133.3	121.1	10.1	95.1	P	P BERM BTWN TBASIN 4 & 3
3	11/15/96	NO	15' EAST 10' NORTH STAKE 5534	A5	3RD	TN5.4	127.3	134.5	123.9	8.6	97.3	P	P BERM BTWN TBASIN 4 & 3

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1	11/14/96	NO	20' EAST STAKE 5508	A9	2ND	TN5.4	127.3	135.5	123.6	9.6	97.1	P	P BERM BTWN. TBASIN 5&4
2	11/14/96	NO	35' EAST STAKE 5516	A9	2ND	TN5.4	127.3	133.4	122.6	8.8	96.3	P	P BERM BTWN. TBASIN 5&4
3	11/14/96	NO	45' EAST 15' SOUTH STAKE 5524	A8	2ND	TN5.4	127.3	134.6	121.7	10.6	95.6	P	P BERM BTWN. TBASIN 5&4
4	11/14/96	NO	20' EAST 10' NORTH STAKE 5558	A8	2ND	TN5.4	127.3	133.6	122.3	9.2	96.1	P	P BERM BTWN. TBASIN 5&4
5	11/14/96	NO	10' EAST STAKE 5574	A7	2ND	TN5.4	127.3	134.4	121.2	10.9	95.2	P	P BERM BTWN. TBASIN 5&4
6	11/14/96	NO	20' WEST STAKE 4122	A7	2ND	TN5.4	127.3	135.6	125.6	7.9	98.7	P	PBERM @ T.BASIN 4
7	11/14/96	NO	25' WEST 5' SOUTH STAKE 4121	A7	2ND	TN5.4	127.3	135.6	122.1	11.1	95.9	P	T.BASIN 4
8	11/14/96	REQ'D	25' EAST STAKE 9086	B10	3RD	SV3.1	128.2	130.3	117.4	11.0	91.6	F	P BERM BTWN COMPOSSST BRIDGE & TB 5
9	11/14/96	8	25' EAST STAKE 9086	B10	3RD	SV3.1	128.2	139.2	125.5	10.9	97.9	P	P BERM BTWN COMPOSSST BRIDGE & TB 5
10	11/14/96	NO	35' NORTH STAKE 9087	B10	3RD	SV3.1	128.2	138.0	125.9	9.6	98.2	P	P BERM BTWN COMPOSSST BRIDGE & TB 5
11	11/14/96	NO	5' EAST 15' SOUTH STAKE 5459	A9	3RD	TN5.4	127.3	139.6	126.8	10.1	99.6	P	P BERM BTWN. TBASIN 5&4
12	11/14/96	NO	35' SOUTH STAKE 5503	A9	3RD	TN5.4	127.3	136.6	125.5	8.8	98.6	P	P BERM BTWN. TBASIN 5&4
13	11/14/96	NO	' WEST 25' NORTH STAKE 41	A8	3RD	TN5.4	127.3	134.7	122.3	10.1	96.1	P	P BERM BTWN. TBASIN 5&4
14	11/14/96	NO	40' WEST STAKE 4128	A8	3RD	TN5.4	127.3	135.6	122.1	11.1	95.9	P	P BERM BTWN. TBASIN 5&4

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Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	11/13/96	NO	30' EAST STAKE 5554	A9	1ST	TN5.4	127.3	136.3	125.9	8.3	98.9	P	P BERM BTWN. TBASIN 5&4
2	11/13/96	NO	20' NORTH 15' EAST STAKE 5546	A9	1ST	TN5.4	127.3	133.9	122.6	9.2	96.3	P	P BERM BTWN. TBASIN 5&4
3	11/13/96	NO	30' EAST STAKE 5508	A8	1ST	TN5.4	127.3	135.7	123.6	9.8	97.1	P	P BERM BTWN. TBASIN 5&4
4	11/13/96	NO	20' NORTH STAKE 5528	A8	1ST	TN5.4	127.3	138.2	125.5	10.1	98.6	P	P BERM BTWN. TBASIN 5&4
5	11/13/96	NO	110' EAST STAKE 5578	A7	1ST	TN5.4	127.3	133.5	122.3	9.1	96.1	P	P BERM BTWN. TBASIN 5&4
6	11/13/96	NO	30' WEST STAKE 4122	A7	1ST	TN5.4	127.3	134.4	122.1	10.1	95.9	P	PBERM @ T.BASIN 4
7	11/13/96	NO	20' EAST STAKE 5582	A7	1ST	TN5.4	127.3	135.8	123.6	9.9	97.1	P	T.BASIN 4
8	11/13/96	NO	40' EAST WELL 7D	C10	2ND	SV4	127.3	134.2	122.1	9.9	95.9	P	P BERM BTWN COMPOSSST BRIDGE & TB 5
9	11/13/96	NO	40' WEST WELL 7D	B10	2ND	SV4	127.3	136.6	126.0	8.4	99.0	P	P BERM BTWN COMPOSSST BRIDGE & TB 5
10	11/13/96	NO	10' NORTH STAKE 9086	B10	2ND	SV4	127.3	139.1	128.1	8.6	100.6	P	P BERM BTWN COMPOSSST BRIDGE & TB 5
11	11/13/96	NO	10' NORTH STAKE 9085	B10	2ND	SV4	127.3	136.3	125.0	9.0	98.2	P	P BERM BTWN COMPOSSST BRIDGE & TB 5

1 Of 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	11/12/96	NO	56' EAST WELL7D	C10	1st	SF03	133.2	141.4	128.7	9.9	96.6	P	P BERM BTWN. COMPOST BRIDGE & T BASIN 5
2	11/12/96	NO	56' WEST WELL7D	C10	1st	SF03	133.2	138.1	126.8	8.9	95.2	P	P BERM BTWN. COMPOST BRIDGE & T BASIN 5
3	**11/12/96**	**REQ'D**	**165' EAST WELL7D**	**C10**	**1st**	**SF03**	**133.2**	**139.0**	**126.0**	**10.3**	**94.6**	**F**	**P BERM BTWN. COMPOST BRIDGE & T BASIN 5**
4	**11/12/96**	**REQ'D**	**25' NORTH STAKE 9087**	**B10**	**1st**	**SF03**	**133.2**	**129.6**	**123.3**	**5.1**	**92.6**	**F**	**P BERM BTWN. COMPOST BRIDGE & T BASIN 5**
5	11/12/96	4	25' NORTH STAKE 9087	B10	1st	SF03	133.2	133.3	126.8	5.1	95.2	P	P BERM BTWN. COMPOST BRIDGE & T BASIN 5
6	11/12/96	NO	25' SOUTH STAKE 9086	A10	1st	SF03	133.2	139.5	129.1	8.1	96.9	P	P BERM BTWN. COMPOST BRIDGE & T BASIN 5
7	11/12/96	NO	25' SOUTH STAKE 5501	A9	1st	SF03	133.2	141.2	129.3	9.2	97.1	P	P BERM BTWN. COMPOST BRIDGE & T BASIN 5
8	**11/12/96**	**REQ'D**	**25 'EAST STAKE 5512 50' NORTH**	**C10**	**1st**	**SF03**	**133.2**	**138.0**	**125.3**	**10.1**	**94.1**	**F**	**P BERM BTWN. COMPOST BRIDGE & T BASIN 5**
3A	**11/12/96**	**NO**	**165' EAST WELL7D**	**C10**	**1st**	**SF03**	**133.2**	**142.4**	**129.5**	**10.0**	**97.2**	**P**	**P BERM BTWN. COMPOST BRIDGE & T BASIN 5**
4A	**11/12/96**	**NO**	**25' NORTH STAKE 9087**	**B10**	**1st**	**SF03**	**133.2**	**142.7**	**130.7**	**9.2**	**98.1**	**P**	**P BERM BTWN. COMPOST BRIDGE & T BASIN 5**
8A	**11/12/96**	**NO**	**25 'EAST STAKE 5512 50' NORTH**	**C10**	**1st**	**SF03**	**133.2**	**142.1**	**129.7**	**9.5**	**97.4**	**P**	**P BERM BTWN. COMPOST BRIDGE & T BASIN 5**

TESTS NUMBERED 3A, 4A & 8A WERE RE-TESTED USING CAT ROLLER CS-563 AND WERE RE-TESTED

1 Of 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	11/8/96	NO	150' East of well 202 S&D	C10	1st	SF03	133.2	142.8	132.0	8.2	99.1	P	P BERM BTWN. COMPOST BRIDGE & T BASIN 5
2	11/8/96	NO	110' East of well 202 S&D	C10	1st	SF03	133.2	139.5	129.2	8.0	97.0	P	P BERM BTWN. COMPOST BRIDGE & T BASIN 5

1 Of 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	11/7/96	NO	N 397760 E 603975	D10	6th	SF03	133.2	143.4	128.1	11.9	96.2	P	TEMP BAS 6, RIVERSO TO COMPOST BRIDGE
2	11/7/96	NO	N 397820 E 603830	D10	6th	SF03	133.2	142.3	126.7	12.3	95.1	P	TEMP BAS 6, RIVERSO TO COMPOST BRIDGE
3	**11/7/96**	**REQ'D**	**N 397660 E 604050**	**E10**	**6th**	**SF03**	**133.2**	**142.6**	**126.4**	**12.8**	**94.9**	**F**	**TEMP BAS 6, RIVERSO TO COMPOST BRIDGE**
4	11/7/96	NO	N 397660 E 604050	E10	7th	SF03	133.2	142.9	131.6	8.6	98.8	P	TEMP BAS 6, RIVERSO TO COMPOST BRIDGE
5	11/7/96	NO	N 397820 E 603830	D10	7th	SF03	133.2	139.2	127.2	9.4	95.5	P	TEMP BAS 6, RIVERSO TO COMPOST BRIDGE
6	11/7/96	NO	N 397760 E 603975	D10	8th	SF03	133.2	143.6	129.9	10.6	97.5	P	TEMP BAS 6, RIVERSO TO COMPOST BRIDGE
7	11/7/96	NO	N 397820 E 603830	D10	8th	SF03	133.2	140.2	128.1	9.4	96.2	P	TEMP BAS 6, RIVERSO TO COMPOST BRIDGE
3A	**11/7/96**	**NO**	**N 397660 E 604050**	**E10**	**6th**	**SF03**	**133.2**	**144.4**	**129.5**	**11.5**	**97.2**	**P**	**TEMP BAS 6, RIVERSO TO COMPOST BRIDGE**
TEST NUMBERED 3A WAS RE-COMPACTED USING CAT ROLLER CS-563 AND WAS RE-TESTED													

1 Of 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	11/6/96	REQ'D	N 397760 E 603975	D10	4th	SF03	133.2	136.5	125.1	9.1	93.9	F	TEMP BAS 6, RIVERSO TO COMPOST BRIDGE
2	11/6/96	NO	N 397820 E 603830	D10	4th	SF03	133.2	142.3	128.7	10.6	96.6	P	TEMP BAS 6, RIVERSO TO COMPOST BRIDGE
3	11/6/96	REQ'D	N 397660 E 604050	E10	4th	SF03	133.2	136.6	125.5	8.9	94.2	F	TEMP BAS 6, RIVERSO TO COMPOST BRIDGE
4	11/6/96	REQ'D	N 397660 E 604050	E10	5th	SF03	133.2	138.1	125.3	10.2	94.1	F	TEMP BAS 6, RIVERSO TO COMPOST BRIDGE
5	11/6/96	REQ'D	N 397820 E 603830	D10	5th	SF03	133.2	138.5	124.7	11.1	93.6	F	TEMP BAS 6, RIVERSO TO COMPOST BRIDGE
6	11/6/96	REQ'D	@ limit stake 5034 on centerline berm	I10	FINAL PG	SV01	132.5	134.2	125.7	6.7	94.9	F	TEMP BASIN 8, TEMP BERM & PERIM BERM
7	11/6/96	NO	40' south of toe stake 5196 temp berm	I10	FINAL PG	SV01	132.5	136.9	127.2	7.6	96.0	P	TEMP BASIN 8, TEMP BERM & PERIM BERM
8	11/6/96	NO	10' south of centerline stake 5032	J10	FINAL PG	SV01	132.5	138.3	130.1	6.3	98.2	P	TEMP BASIN 8, TEMP BERM & PERIM BERM
9	11/6/96	NO	10' north of centerline stake 5031	J10	FINAL PG	SV01	132.5	136.3	127.6	6.8	96.3	P	TEMP BASIN 8, TEMP BERM & PERIM BERM
10	11/6/96	NO	30' Stake 5034 centerline temp berm	J9	FINAL PG	SV01	132.5	136.5	129.7	5.2	97.9	P	TEMP BASIN 8, TEMP BERM & PERIM BERM
11	11/6/96	REQ'D	20' east stake 5196	J9	FINAL PG	SV01	132.5	132.1	124.4	6.2	93.9	F	TEMP BASIN 8, TEMP BERM & PERIM BERM
1A	11/6/96	NO	N 397760 E 603975	D10	4th	SF03	133.2	140.8	129.2	9.0	97.0	P	TEMP BAS 6, RIVERSO TO COMPOST BRIDGE
3A	11/6/96	NO	N 397660 E 604050	E10	4th	SF03	133.2	141.2	129.3	9.2	97.1	P	TEMP BAS 6, RIVERSO TO COMPOST BRIDGE
4A	11/6/96	NO	N 397660 E 604050	E10	5th	SF03	133.2	140.5	127.7	10.0	95.9	P	TEMP BAS 6, RIVERSO TO COMPOST BRIDGE
5A	11/6/96	NO	N 397820 E 603830	D10	5th	SF03	133.2	142.6	129.1	10.5	96.9	P	TEMP BAS 6, RIVERSO TO COMPOST BRIDGE
6A	11/6/96	NO	@ limit stake 5034 on centerline berm	I10	FINAL PG	SV01	132.5	138.2	129.2	7.0	97.5	P	TEMP BASIN 8, TEMP BERM & PERIM BERM
11A	11/6/96	NO	20' east stake 5196	J9	FINAL PG	SV01	132.5	137.7	128.1	7.5	96.7	P	TEMP BASIN 8, TEMP BERM & PERIM BERM
TESTS NUMBERED 1A, 3A, 4A, 5A, 6A & 11A WERE RE-COMPACTED USING CAT ROLLER CS-563 AND WERE RE-TESTED													
	1	Of	1	Tests Performed By YEC Personnel								SIGNATURE:	

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	11/5/96	REQ'D	N 397760 E 603975	D10	3rd	SF03	133.2	136.4	125.6	8.6	94.3	F	TEMP BAS 6, RIVERSO TO COMPOST BRIDGE
2	11/5/96	REQ'D	N 397820 E 603830	D10	3rd	SF03	133.2	135.6	124.1	9.2	93.2	F	TEMP BAS 6, RIVERSO TO COMPOST BRIDGE
3	11/5/96	REQ'D	N 397660 E 604050	D10	3rd	SF03	133.2	136.5	125.2	9.0	94.0	F	TEMP BAS 6, RIVERSO TO COMPOST BRIDGE
1A	11/5/96	NO	N 397760 E 603975	D10	3rd	SF03	133.2	140.8	129.2	9.0	97.0	P	TEMP BAS 6, RIVERSO TO COMPOST BRIDGE
2A	11/5/96	NO	N 397820 E 603830	D10	3rd	SF03	133.2	141.6	129.9	9.0	97.5	P	TEMP BAS 6, RIVERSO TO COMPOST BRIDGE
3A	11/5/96	NO	N 397660 E 604050	D10	3rd	SF03	133.2	140.7	129.5	8.7	97.2	P	TEMP BAS 6, RIVERSO TO COMPOST BRIDGE
TESTS NUMBERED 1A THRU 3A WERE RE-COMPACTED USING CAT ROLLER CS-563 AND WERE RE-TESTED													

1 Of 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 69 OISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 — Item 5B Structural Fill

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	11/4/96	NO	N 397760 E 603975	F9	2nd	SF03	133.2	136.3	127.3	7.0	95.6	P	TEMP BAS 6, RIVERSO TO COMPOST BRIDGE
2	11/4/96	REQ'D	N 397820 E 603830	F9	2nd	SF03	133.2	136.5	126.4	8.0	94.9	F	TEMP BAS 6, RIVERSO TO COMPOST BRIDGE
3	11/4/96	NO	N 397660 E 604050	E9	2nd	SF03	133.2	136.7	129.2	5.8	97.0	P	TEMP BAS 6, RIVERSO TO COMPOST BRIDGE
4	11/4/96	REQ'D	N 397700 E 604060	E9	2nd	SF03	133.2	133.0	125.2	6.2	94.0	F	TEMP BAS 6, RIVERSO TO COMPOST BRIDGE
2A	11/4/96	NO	N 397820 E 603830	F9	2nd	SF03	133.2	140.2	129.2	8.5	97.0	P	TEMP BAS 6, RIVERSO TO COMPOST BRIDGE
4A	11/4/96	NO	N 397700 E 604060	E9	2nd	SF03	133.2	139.3	128.9	8.0	96.8	P	TEMP BAS 6, RIVERSO TO COMPOST BRIDGE
TESTS NUMBERED 2A & 4A WERE RE-COMPACTED USING CAT ROLLER CS-563 AND WERE RE-TESTED													

	1	Of	1	Tests Performed By YEC Personnel	SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	11/1/96	NO	CENTERLINE BERM STAKE 5254	F9	1st	SFO3	133.2	137.5	130.0	5.8	97.6	P	TEMP BAS 6, RIVERSO TO COMPOST BRIDGE
2	11/1/96	NO	CENTERLINE BERM STAKE 5253	F9	1st	SFO3	133.2	136.8	128.8	6.2	96.7	P	TEMP BAS 6, RIVERSO TO COMPOST BRIDGE
3	11/1/96	REQ'D	CENTERLINE BERM STAKE 5306	E9	1st	SFO3	133.2	136.0	125.6	8.3	94.3	F	TEMP BAS 6, RIVERSO TO COMPOST BRIDGE
4	11/1/96	NO	CENTERLINE BERM STAKE 5308	E9	1st	SFO3	133.2	139.0	129.3	7.5	97.1	P	TEMP BAS 6, RIVERSO TO COMPOST BRIDGE
5	11/1/96	REQ'D	CENTERLINE BERM STAKE 5309	E9	1st	SFO3	133.2	136.9	125.6	9.0	94.3	F	TEMP BAS 6, RIVERSO TO COMPOST BRIDGE
3A	11/1/96	NO	CENTERLINE BERM STAKE 5306	E9	1st	SFO3	133.2	139.9	129.2	8.3	97.0	P	TEMP BAS 6, RIVERSO TO COMPOST BRIDGE
5A	11/1/96	NO	CENTERLINE BERM STAKE 5309	E9	1st	SFO3	133.2	142.4	130.7	9.0	98.1	P	TEMP BAS 6, RIVERSO TO COMPOST BRIDGE
TESTS NUMBERED 3A & 5A WERE RE-COMPACTED USING CAT ROLLER CS-563 AND WERE RE-TESTED													

1 Of 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698, MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

OCTOBER '96

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	10/25/96	NO	N 397929 E 605051	I10	1st	SV 1	132.5	138.3	129.6	6.7	97.8	P	LFP1; BTWN. T B 8 & RIVERSO PROP. BERM
2	**10/25/96**	**REQ'D**	**N 397900 E 605103**	**I10**	**1st**	**SV 1**	**132.5**	**133.4**	**123.5**	**8.0**	**93.2**	**F**	**LFP1; BTWN. T B 8 & RIVERSO PROP. BERM**
3	10/25/96	NO	N 397737 E 605297	H10	1st	SV 1	132.5	141.1	131.2	7.6	99.0	P	LFP1; BTWN. T B 8 & RIVERSO PROP. BERM
4	10/25/96	NO	N 397806 E 605244	H10	1st	SV 1	132.5	138.6	129.3	7.2	97.6	P	LFP1; BTWN. T B 8 & RIVERSO PROP. BERM
5	10/25/96	NO	N 397861 E 605170	H10	1st	SV 1	132.5	138.9	129.2	7.5	97.5	P	LFP1; BTWN. T B 8 & RIVERSO PROP. BERM
6	10/25/96	NO	N 397900 E 605103	H10	1st	SV 1	132.5	135.4	126.9	6.7	95.8	P	LFP1; BTWN. T B 8 & RIVERSO PROP. BERM
2A	**10/25/96**	**NO**	**N 397900 E 605103**	**I10**	**1st**	**SV 1**	**132.5**	**138.8**	**128.5**	**8.0**	**97.0**	**P**	**LFP1; BTWN. T B 8 & RIVERSO PROP. BERM**

T_ST NUMBER 2A WAS RE-COMPACTED USING CAT ROLLER CS-563 AND WAS RE-TESTED

	1	Of	1	Tests Performed By YEC Personnel							SIGNATURE:		

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	10/24/96	NO	100' EAST PROP STAKE 5157	I10	1st	SV 1	132.5	138.4	126.1	9.7	95.2	P	LF PARCEL 1; TEMP BASIN 8 PERIM. BERM
2	10/24/96	NO	50' WEST STAKE 5244	I10	1st	SV 1	132.5	139.8	128.3	9.0	96.8	P	LF PARCEL 1; TEMP BASIN 8 PERIM. BERM
3	10/24/96	NO	20' WEST 20' NORTH STAKE 5276	I10	1st	SV 1	132.5	138.9	128.3	8.3	96.8	P	LF PARCEL 1; TEMP BASIN 8 PERIM. BERM
4	10/24/96	NO	20' WEST STAKE 5277	I10	1st	SV 1	132.5	135.8	127.2	6.8	96.0	P	LF PARCEL 1; TEMP BASIN 8 PERIM. BERM
5	10/24/96	NO	20' NORTH BL STAKE 61	I10	1st	SV 1	132.5	139.5	129.9	7.4	98.0	P	LF PARCEL 1; TEMP BASIN 8 PERIM. BERM
6	10/24/96	NO	50' SE STAKE 5278	I10	1st	SV 1	132.5	138.5	127.3	8.8	96.1	P	LF PARCEL 1; TEMP BASIN 8 PERIM. BERM
7	10/24/96	NO	20' WEST 30' SOUTH STAKE 5028	I10	1st	SV 1	132.5	136.5	126.0	8.3	95.1	P	LF PARCEL 1; TEMP BASIN 8 PERIM. BERM
8	10/24/96	REQ'D	50' N B108 CENTERLINE PERIM BERM	I10	1st	SV 1	132.5	134.7	125.6	7.2	94.8	F	LF PARCEL 1; TEMP BASIN 8 PERIM. BERM
8A	10/24/96	NO	50' N B108 CENTERLINE PERIM BERM	I10	1st	SV 1	132.5	137.6	128.4	7.2	96.9	P	LF PARCEL 1; TEMP BASIN 8 PERIM. BERM
TEST NUMBERED 8A WAS RE-COMPACTED USING CAT ROLLER CS-563 AND WAS RE-TESTED													

1 Of 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 6 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	10/23/96	REQ'D	@ 6058 CENTERLINE PERIM. BERM	J10	1st	SV 1	132.5	134.7	124.2	8.5	93.7	F	LF PARCEL 1; TEMP BASIN 8 PERIM. BERM
2	10/23/96	NO	@ 6059 CENTERLINE PERIM. BERM	J10	1st	SV 1	132.5	141.9	132.0	7.5	99.6	P	LF PARCEL 1; TEMP BASIN 8 PERIM. BERM
3	10/23/96	NO	@ 6060 CENTERLINE PERIM. BERM	J10	1st	SV 1	132.5	136.8	126.9	7.8	95.8	P	LF PARCEL 1; TEMP BASIN 8 PERIM. BERM
4	10/23/96	NO	@ 6045 CENTERLINE PERIM. BERM	J10	1st	SV 1	132.5	140.5	128.5	9.3	97.0	P	LF PARCEL 1; TEMP BASIN 8 PERIM. BERM
1A	10/23/96	NO	@ 6058 CENTERLINE PERIM. BERM	J10	1st	SV 1	132.5	140.0	129.1	8.5	97.4	P	LF PARCEL 1; TEMP BASIN 8 PERIM. BERM
TEST NUMBER 1A WAS RE-COMPACTED USING CAT ROLLER CS563 AND WAS RE-TESTED													

1 Of 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	10/18/96	NO	10' north Of centerline stake 5196	J10	5th	SV 1	132.5	138.1	127.9	8.0	96.5	P	LF PARCEL 1; TEMP BASIN 8 TEMP. BERM
2	10/18/96	NO	15' west stake 5032 5' south centerline	J10	5th	SV 1	132.5	140.1	129.3	8.3	97.6	P	LF PARCEL 1; TEMP BASIN 8 TEMP. BERM
3	10/18/96	REQ'D	@ centerline stake 5031	J10	5th	SV 1	132.5	135.3	124.8	8.4	94.2	F	LF PARCEL 1; TEMP BASIN 8 TEMP. BERM
4	10/18/96	REQ'D	@ limit stake 5034 on centerline berm	J9	PG	SV 1	132.5	135.9	123.8	9.8	93.4	F	LF PARCEL 1; TEMP BASIN 8 TEMP. BERM
5	10/18/96	NO	40' south of toe stake 5196 temp berm	J10	PG	SV 1	132.5	136.8	127.6	7.2	96.3	P	LF PARCEL 1; TEMP BASIN 8 TEMP. BERM
6	10/18/96	NO	10' south of centerline stake 5032	J10	PG	SV 1	132.5	136.9	128.8	6.3	97.2	P	LF PARCEL 1; TEMP BASIN 8 TEMP. BERM
7	10/18/96	REQ'D	10' north of centerline stake 5031	J10	PG	SV 1	132.5	135.2	123.9	9.1	93.5	F	LF PARCEL 1; TEMP BASIN 8 TEMP. BERM
3A	10/18/96	NO	@ centerline stake 5031	J10	5th	SV 1	132.5	140.0	128.9	8.6	97.3	P	LF PARCEL 1; TEMP BASIN 8 TEMP. BERM
4A	10/18/96	NO	@ limit stake 5034 on centerline berm	J9	PG	SV 1	132.5	141.0	129.9	8.6	98.0	P	LF PARCEL 1; TEMP BASIN 8 TEMP. BERM
7A	10/18/96	NO	10' north of centerline stake 5031	J10	PG	SV 1	132.5	141.1	129.3	9.1	97.6	P	LF PARCEL 1; TEMP BASIN 8 TEMP. BERM

TESTS NUMBERED 3A, 4A & 7A WERE RE-COMPACTED USING CAT ROLLER CS-563 AND WERE RE-TESTED

1 Of 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% Of ASTM 6[illegible] MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 Gauge Type ~~Troxler 3440 **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	10/17/96	NO	30' Stake 5034 centerline temp berm	J9	3rd	SV 1	132.5	140.7	129.5	8.7	97.7	P	LF PARCEL 1; TEMP BASIN 8 TEMP. BERM
2	10/17/96	NO	20' east stake 5196	J10	3rd	SV 1	132.5	142.8	131.2	8.9	99.0	P	LF PARCEL 1; TEMP BASIN 8 TEMP. BERM
3	10/17/96	NO	20' east stake 5032 centerline berm	I10	3rd	SV 1	132.5	138.2	128.1	7.9	96.7	P	LF PARCEL 1, TEMP BASIN 8 TEMP. BERM
4	10/17/96	NO	15' west stake 5031	J10	3rd	SV 1	132.5	138.2	127.7	8.2	96.4	P	LF PARCEL 1; TEMP BASIN 8 TEMP. BERM
5	10/17/96	NO	@ stake 5196 centerline temp berm 15' north	I10	4th	SV 1	132.5	137.6	128.9	6.7	97.3	P	LF PARCEL 1, TEMP BASIN 8 TEMP. BERM
6	10/17/96	NO	20' north stake 5032 centerline temp berm	J10	4th	SV 1	132.5	141.4	129.9	8.9	98.0	P	LF PARCEL 1; TEMP BASIN 8 TEMP. BERM
7	10/17/96	NO	30' south 5031 centerline temp berm	J10	4th	SV 1	132.5	140.8	128.8	9.3	97.2	P	LF PARCEL 1; TEMP BASIN 8 TEMP. BERM
8	10/17/96	NO	30' south 5032 centerline temp berm	I10	4th	SV 1	132.5	140.5	128.5	9.3	97.0	P	LF PARCEL 1, TEMP BASIN 8 TEMP. BERM
9	10/17/96	REQ'D	@stake 5034 centerline temp berm	J9	4th	SV 1	132.5	134.3	122.8	9.3	92.7	F	LF PARCEL 1; TEMP BASIN 8 TEMP. BERM
10	10/17/96	9	@stake 5034 centerline temp berm	J9	4th	SV 1	132.5	134.8	123.4	9.3	93.1	F	LF PARCEL 1, TEMP BASIN 8 TEMP. BERM
11	10/17/96	10	@stake 5034 centerline temp berm	J9	4th	SV 1	132.5	135.7	124.2	9.3	93.7	F	LF PARCEL 1, TEMP BASIN 8 TEMP. BERM
12	10/17/96	11	@stake 5034 centerline temp berm	J9	4th	SV 1	132.5	139.5	127.6	9.3	96.3	P	LF PARCEL 1, TEMP BASIN 8 TEMP. BERM

PAGE 1 OF 1 Tests Performed By YEC Personnel SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% OF ASTM 698 MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY ASSURANCE DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018-001-0002-00

Gauge No. 26331 **Gauge Type ~~Troxler 3440** **Item 5B Structural Fill**

TEST NO.	DATE	RE-TEST	LOCATIONS	GRID LOCA.	LIFT No. ELV. (FT)	SOIL ID#	PROCT (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST	COMP (%)	P/F	REMARKS:
1	10/16/97	REQ'D	@ stake 5034 centerline temp berm	J9	1st	SV 1	132.5	132.6	122.0	8.7	92.1	F	LF PARCEL 1; TEMP BASIN 8 TEMP. BERM
2	10/16/97	1	@ stake 5034 centerline temp berm	J9	1st	SV 1	132.5	140.7	129.2	8.9	97.5	P	LF PARCEL 1; TEMP BASIN 8 TEMP. BERM
3	10/16/97	NO	@ stake 5196 10' east/ west edge	J10	1st	SV 1	132.5	138.2	128.1	7.9	96.7	P	LF PARCEL 1; TEMP BASIN 8 TEMP. BERM
4	10/16/97	NO	@ stake 5032 10' south / north edge	J10	1st	SV 1	132.5	137.1	126.7	8.2	95.6	P	LF PARCEL 1; TEMP BASIN 8 TEMP. BERM
5	10/16/97	NO	@ stake 5031 centerline temp berm	J10	2nd	SV 1	132.5	145.3	136.2	6.7	102.8	P	LF PARCEL 1; TEMP BASIN 8 TEMP. BERM
6	10/16/97	NO	@stake 5034 centerline temp berm	J10	2nd	SV 1	132.5	139.7	128.3	8.9	96.8	P	LF PARCEL 1; TEMP BASIN 8 TEMP. BERM
7	10/16/97	NO	@stake 5034 centerline temp berm	J10	2nd	SV 1	132.5	140.9	128.9	9.3	97.3	P	LF PARCEL 1; TEMP BASIN 8 TEMP. BERM
8	10/16/97	NO	@ stake 5196 25' west / east edge	I10	2nd	SV 1	132.5	138.1	128.8	7.2	97.2	P	LF PARCEL 1; TEMP BASIN 8 TEMP. BERM
9	10/16/97	NO	@ stake 5196 15' west / east edge	I10	2nd	SV 1	132.5	140.9	131.8	6.9	99.5	P	LF PARCEL 1; TEMP BASIN 8 TEMP. BERM
10	10/16/97	NO	@ stake 5032 15' south / north edge	I10	2nd	SV 1	132.5	140.8	131.6	7.0	99.3	P	LF PARCEL 1; TEMP BASIN 8 TEMP. BERM
11	10/16/97	NO	@ stake 5032 15' south / north edge	I10	2nd	SV 1	132.5	138.8	128.3	8.2	96.8	P	LF PARCEL 1; TEMP BASIN 8 TEMP. BERM
12	10/16/97	NO	@ stake 5031 centerline temp berm	J10	2nd	SV 1	132.5	142.9	133.6	7.0	100.8	P	LF PARCEL 1; TEMP BASIN 8 TEMP. BERM
13	10/16/97	NO	@stake 5031 10' west / east edge	J10	2nd	SV 1	132.5	142.0	131.8	7.7	99.5	P	LF PARCEL 1; TEMP BASIN 8 TEMP. BERM

PAGE 1 OF

Tests Performed By YEC Personnel

SIGNATURE:

REQUIREMENTS ~~ DENSITY: 95% OF ASTM 6[illegible] MOISTURE: +/- 2% OPTIMUM MOISTURE CONTENT

NUCLEAR DENSITY TESTING SUMMARY
QUALITY CONTROL DATA
CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION
PROJECT NO. 03228-018
TEMPORARY BASIN 8

TEST NO.	DATE	INSP.	COORDINATES		ELEV. (FT.)	SOIL TYPE (ITEM #)	PROCTOR (PCF)	W.D. (PCF)	D.D. (PCF)	MOIST (%)	COMP (%)	REMARKS:
			NORTH	SOUTH								
1B	10/16/96	Y.E.C.			-5	15 B	133.2	140.6	129.1	8.9	96.9	APPROX LENGTH 400' 4 TESTS EAST BERM
2B	10/16/96	Y.E.C.			-5	15 B	133.2	137.1	127.1	7.9	95.4	" "
3B	10/16/96	Y.E.C.			-5	15 B	133.2	139.7	128.3	8.9	96.3	" "
4B	10/16/96	Y.E.C.			-5	15 B	133.2	145.4	136.5	6.5	102.5	" "
5B	10/16/96	Y.E.C.			-4	15 B	133.2	139.7	131.8	7.5	98.9	" "
6B	10/16/96	Y.E.C.			-4	15 B	133.2	140.9	131.8	6.9	99.0	" "
7B	10/16/96	Y.E.C.			-4	15 B	133.2	138.7	128.2	8.2	96.2	" "
8B	10/16/96	Y.E.C.			-4	15 B	133.2	141.9	131.8	7.7	98.9	" "
9B	10/17/96	Y.E.C.			-3	15 B	133.2	139.2	128.2	8.6	96.2	" "
10B	10/17/96	Y.E.C.			-3	15 B	133.2	138.8	128.3	8.2	96.3	" "
11B	10/17/96	Y.E.C.			-3	15 B	133.2	138.3	127.9	8.1	96.0	" "
12B	10/17/96	Y.E.C.			-3	15 B	133.2	139.2	128.4	8.4	96.4	" "
13B	10/17/96	Y.E.C.			-2	15 B	133.2	137.5	128.6	6.9	96.6	APPROX LENGTH 300' 3 TESTS EAST BERM
14B	10/17/96	Y.E.C.			-2	15 B	133.2	142.5	132.6	7.5	99.5	" "
15B	10/17/96	Y.E.C.			-2	15 B	133.2	141.3	130.6	8.2	98.0	" "
16B	10/18/96	Y.E.C.			-1	15 B	133.2	141.5	130.2	8.7	97.7	" "
17B	10/18/96	Y.E.C.			-1	15 B	133.2	144.6	134.9	7.2	101.3	" "
18B	10/18/96	Y.E.C.			-1	15 B	133.2	140.7	129.1	9.0	96.9	" "
19B	10/18/96	Y.E.C.			GRADE	15 B	133.2	139.7	127.6	9.5	95.8	APPROX LENGTH 400' 4 TESTS EAST BERM
20B	10/18/96	Y.E.C.			GRADE	15 B	133.2	142.1	131.6	8.0	98.8	" "
21B	10/18/96	Y.E.C.			GRADE	15 B	133.2	139.6	131.3	6.3	98.6	" "
22B	10/18/96	Y.E.C.			GRADE	15 B	133.2	138.1	128.0	7.9	96.1	" "

Q/C

STRUCTURAL SOIL COMPACTION TESTS

1996-1998

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SOIL TEST REPORT

Client Ogden Remediation

Project Clarkstown Landfill

DATE 7-20-98
Arrived
Departed

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WW	DD	ELEV	WATER CONTENT %	PERCENT COMPACTION	COMMENT
7-20 1	C	260'w x 215's. OF SCALE HOUSE	123.3	116.3	PREP GRADE	6.0	97.7	A
7-20 2	C	260'w. x 265's. OF SCALE HOUSE	116.9	109.7	" "	6.5	92.2	B
7-20 3	C	RETEST NO. 2	121.0	113.6	" "	6.5	95.5	C
7-20 4	C	260'w x 315's. OF SCALE HOUSE	122.6	113.2	" "	8.3	95.2	A
7-20 5	C	210'w. x 215's OF SCALE HOUSE	124.2	115.0	" "	8.0	96.7	A
7-20 6	C	170'w. x 215's. OF SCALE HOUSE	127.6	117.2	" "	8.9	98.5	A
7-20 7	C	120'w x 215's. OF SCALE HOUSE	128.6	117.4	" "	9.5	98.6	A
7-20 8	C	70'w. x 215's. OF SCALE HOUSE	125.3	116.3	" "	7.7	97.8	A
7-20 9	C	70'w. x 275's OF SCALE HOUSE	121.3	115.8	" "	6.2	97.4	A
7-20 10	C	140'w. x 275's OF SCALE HOUSE	127.0	117.3	" "	8.3	98.6	A
7-20 11	C	210'w. x 275's OF SCALE HOUSE	128.2	118.9	" "	7.8	100.0	A
7-20 12	C	260'w. x 275's OF SCALE HOUSE	124.3	115.8	" "	7.4	97.3	A
7-20 13	C	260'w. x 350's OF SCALE HOUSE	123.0	114.4	" "	7.5	96.2	A
7-20 14	C	200'w. x 350's OF SCALE HOUSE	121.8	116.5	" "	7.0	99.6	A
7-20 15	C	150'w. x 350's OF SCALE HOUSE	121.1	113.9	" "	6.3	95.8	A
	C	SF-WX-200	118.4	@ 11.9				

continued

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2080 · FAX (914) 942-0965

SOIL TEST REPORT

Client Ogden Remediation

Project Clarkstown Landfill

DATE 7-15-98

Arrived 7 00 AM

Departed 330 PM

FIELD COMPACTION TESTS

		LOCATION	WD	DD	TO LEVEL	MOISTURE	COMPACTION	
7-15-1	A	320's x 200'E OF GE-1	125.1	115.2	PREP GRADE	8.5	96.8	A
7-15-2	A	320's x 250'E. OF GE-1	121.0	111.0	"	9.0	93.0	B
7-15-3	A	RETEST # 7-15-2	126.0	115.5	"	9.0	97.2	C
7-15-4	A	360's x 250'E. OF GE-1	123.5	114.3	"	7.9	96.1	A
7-15-5	A	360's x 200'E. OF GE-1	122.9	114.5	"	7.3	96.3	A
7-15-6	A	330's x 250'E. OF GE-1	121.2	112.3	"	7.9	94.4	B
7-15-7	A	RETEST # 7-15-6	124.9	115.7	"	7.9	97.3	C
7-15-8	A	380's x 250'E. OF GE-1	125.6	116.7	"	7.6	98.8	A

* A MAXIMUM DENSITY 118.9 P.C.F. OPTIMUM MOISTURE 11.9 %

B MAXIMUM DENSITY P.C.F. OPTIMUM MOISTURE %

COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD USED: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

material source SF-WMX-200 for test(s) numbers 7-15-1 / 7-15-8

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

On this date , a representative from this firm performed soil density testing at the project sit
Tests were taken for PREP GRADE LFP-B
with specific locations and results shown above.

FAIRWAY TESTING CO INC

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 570 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2080 · FAX (914) 942-0935

SOIL TEST REPORT

Client Ogden Remediation

Project Clarkstown Landfill

DATE 7-14-98

Arrived 7 00

Departed 3 30

FIELD COMPACTION TESTS

			DD					
7-14-1	A	150's. OF SCALE HOUSE	129.6	118.3	PREP GRADE	9.5	99.5	A
7-14-2	A	150'S X 100'W. OF SCALE HOUSE	124.0	116.1	"	6.8	97.6	A
7-14-3	A	100'S. X 100'W. OF SCALE HOUSE	118.9	113.2	"	5.0	95.2	A
7-14-4	A	200'W. X 50'S. OF SCALE HOUSE	121.7	114.6	"	6.2	96.3	A
7-14-5	A	200'W. X 100'S OF SCALE HOUSE	122.7	116.4	"	5.4	97.9	A
7-14-6	A	200'W. X 150'S. OF SCALE HOUSE	124.5	116.2	"	7.2	97.6	A
7-14-7	A	300'W. X 150'S. OF SCALE HOUSE	129.3	116.6	"	10.8	98.0	A
7-14-8	A	300'W. X 100'S. OF SCALE HOUSE	124.6	114.7	"	8.5	96.4	A
7-14-9	A	300'W. X 30'S. OF SCALE HOUSE	129.3	119.0	"	8.6	100.1	A
7-14-10	A	400'W. X 30'S. OF SCALE HOUSE	124.8	114.8	"	8.7	96.6	A
7-14-11	A	400'W. X 100'S OF SCALE HOUSE	125.0	115.7	"	8.0	97.3	A
7-14-12	A	400'W. X 150'S. OF SCALE HOUSE	123.6	116.3	"	6.2	97.8	A
7-14-								

MAXIMUM DENSITY 118.9 PCF. OPTIMUM MOISTURE 11.9 % ACCEPTED

A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

MAXIMUM DENSITY 130.3 PCF. OPTIMUM MOISTURE 10.9 %

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

material source SF-WMX-200 for test(s) numbers 7-14-1 / 7-14-12

material source CS-SB-254 IPP for test(s) numbers 7-14-1 / 7-14-3

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

On this date , a representative from this firm performed soil density testing at the project sit
Tests were taken for PREP GRADE, COVER SOIL
with specific locations and results shown above.

FAIRWAY TESTING CO., INC.

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SOIL TEST REPORT

Client Ogden Remediation

Project Clarkstown Landfill

DATE 7-8-98

Arrived 7^00

Departed 3^30

FIELD COMPACTION TESTS

TEST NO.	TYPE	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
7-8-1	A	150'E. x 30'N. OF SCALE HOUSE	134.1	118.1	PREP GRADE	13.9	99.3	A
7-8-2	A	100'E. OF SCALE HOUSE	129.0	114.6	" "	12.5	96.4	A

* A MAXIMUM DENSITY 118.9 #/CU.FT. OPTIMUM MOISTURE 11.9 %

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

material source SF-WMX-200 for test(s) numbers 7-8-1 THRU 7-8-2

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

On this date , a representative from this firm performed soil density testing at the project site. Tests were taken for PREP GRADE with specific locations and results shown above.

FAIRWAY TESTING CO., INC.

P.J. Aguanno, P.E.

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SOIL TEST REPORT

Client Ogden Remediation

Project Clarkstown Landfill

DATE 7-7-98

Arrived

Departed

FIELD COMPACTION TESTS

TEST NO.		LOCATION	WD	DD	KEY	WATER % CONTENT	% PERCENT COMPACTION	COMMENTS
7-7-1	A	75'E. X 125'S. OF FLARE STA.	148.5	137.6	SUBGRADE COVER SOIL	7.9	99.5	A
7-7-2	A	75'E. X 75'S OF FLARE STA	146.8	137.1	" "	7.1	99.1	A
7-7-3	B	50'E. OF FLARE STA.	127.5	115.9	" "	10.0	97.4	A
7-7-4	B	30'E. X 50'N. FLARE STA.	128.6	118.8	" "	8.2	99.9	A
7-7-5	B	100'N. OF FLARE STA.	125.9	115.5	" "	9.0	97.1	A
7-7-6	B	150'N. OF FLARE STA.	124.2	115.1	" "	9.6	96.8	A

* A MAXIMUM DENSITY 138.3 #/CU.FT. OPTIMUM MOISTURE 8.4 %

B MAXIMUM DENSITY 118.9 #/CU.FT. OPTIMUM MOISTURE 11.9 %

COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

material source SF-SB-5 for test(s) numbers 7-7-1 THRU 7-7-2

material source SF-WMX-200 for test(s) numbers 7-7-3 THRU 7-7-6

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

On this date , a representative from this firm performed soil density testing at the project site. Tests were taken for STRUCT. FILL COVER SOIL ABOVE 2' with specific locations and results shown above.

FAIRWAY TESTING CO., INC.

P.J. Aguanno, P.E.

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SOIL TEST REPORT

Client Ogden Remediation

Project Clarkstown Landfill

DATE 7-6-98

Arrived

Departed

FIELD COMPACTION TESTS

TEST NO.	SOIL	LOCATION	WD	DD	ELEV	WATER CONTENT %	PERCENT COMPACTION	COMMENTS
7-6-1	A	60'E. x 100'S. OF FLARE STA.	145.0	134.9	THIRD LIFT	7.4	97.6	A
7-6-2	A	60'E. x 50'S. OF FLARE STA	141.3	132.1	" "	7.0	95.4	A
7-6-3	B	15'E. x 40'S. OF FLARE STA.	137.0	122.4	" "	11.9	96.1	A

* A MAXIMUM DENSITY 138.3 #/CU.FT. OPTIMUM MOISTURE 8.4 %

B MAXIMUM DENSITY 127.3 #/CU.FT. OPTIMUM MOISTURE 10.5 %

COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

material source SF-SB-5 for test(s) numbers 7-6-1 THRU 7-6-2

material source SF-TIL-5 for test(s) numbers 7-6-3

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

On this date , a representative from this firm performed soil density testing at the project s
Tests were taken for STRUCTURAL FILL / COVER SOIL ABOVE 2'
with specific locations and results shown above.

FAIRWAY TESTING CO., INC.

P.J. Aguanno, P.E.

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation

Project Clarkstown Landfill

DATE 7-2-98

Arrived 700

Departed 1200

FIELD COMPACTION TESTS

TEST NO.		LOCATION	WD	DD	LIFT	WATER CONTENT %	EXCEED COMPACTION %	COMMENTS
7-2-1	A	200'E. x 330'S. OF GE-1	130.6	118.7	SEVENTH LIFT	10.0	99.8	A
7-2-2	A	170'E. x 360'S. OF GE-1	129.8	117.4	"	10.5	98.7	A
7-2-3	A	150'E. x 320'S. OF GE-1	130.4	116.7	"	11.7	98.1	A

* A MAXIMUM DENSITY 118.9 #/CU.FT. OPTIMUM MOISTURE 11.9 %

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

material source SF-WMX-200 for test(s) numbers 7-2-1 THRU 7-2-3
material source _____ for test(s) numbers _____
material source _____ for test(s) numbers _____
material source _____ for test(s) numbers _____
material source _____ for test(s) numbers _____
material source _____ for test(s) numbers _____

On this date , a representative from this firm performed soil density testing at the project site. Tests were taken for STRUCTURAL FILL LFP-5 AND LFP-9 with specific locations and results shown above.

FAIRWAY TESTING CO., INC.

P.J. Aguanno, P.E.

FAIRWAY TESTING

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SOIL TEST REPORT

Client Ogden Remediation

Project Clarkstown Landfill

DATE 7-1-98

Arrived 7⁰⁰

Departed 3³⁰

FIELD COMPACTION TESTS

TEST NO.		LOCATION	WD	DD	LIFT	WATER CONTENT %	REL. COMPACTION %	COMMENTS
7-1-1	A	350'S. x 170'E. OF GE-1	122.6	110.7	SIXTH LIFT	10.7	93.1	B
7-1-2	A	RETEST NO 1	129.0	116.5	"	10.7	98.0	C
7-1-3	A	350'S. x 120'E. OF GE-1	127.4	115.2	"	10.5	96.9	A
7-1-4	A	380'S. x 150'E. OF GE-1	130.4	117.6	"	10.8	98.9	A

* A MAXIMUM DENSITY 118.9 #/CU.FT. OPTIMUM MOISTURE 11.9 % COMMENTS

A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

material source SF-WMX-200 for test(s) numbers 7-1-1 THRU 7-1-4
material source _____ for test(s) numbers _____
material source _____ for test(s) numbers _____
material source _____ for test(s) numbers _____
material source _____ for test(s) numbers _____
material source _____ for test(s) numbers _____

On this date , a representative from this firm performed soil density testing at the project site. Tests were taken for STRUCTURAL FILL LFP-5 / LFP-9 with specific locations and results shown above.

FAIRWAY TESTING CO., INC.

P.J. Aguanno, P.E.

FAIRWAY TESTING

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SOIL TEST REPORT

Client Ogden Remediation

Project Clarkstown Landfill

DATE 6-29-98

Arrived 700

Departed 330

FIELD COMPACTION TESTS

TEST NO.		LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
6-24 1	A	350'S x 100'E. OF GE-1	131.6	117.7	FOURTH LIFT	11.8	98.9	A
6-24- 2	A	350'S x 160'E. OF GE-1	132.3	117.7	"	12.4	98.9	A
6-24- 3	A	380'S x 120'E. OF GE-1	133.5	117.9	"	13.2	99.1	A
6-24- 4	A	350'S. x 130'E. OF GE-1	131.6	117.6	FIFTH LIFT	11.9	98.9	A
6-29- 5	A	380'S x 170'E. OF GE-1	125.5	114.6	"	9.5	96.3	A
6-24- 6	A	380'S x 100'E. OF GE-1	125.4	113.4	"	10.4	95.4	A
6-29- 7	B	50'E. x 75'N OF FLARE STA.	140.4	13413	THIRD LIFT	4.5	97.6	A
6-24- 8	B	30'E. OF FLARE STA.	142.3	133.2	FOURTH LIFT	6.8	96.9	A
6-24- 9	B	30'E. x 50'N. OF FLARE STA.	141.6	132.0	FOURTH LIFT	7.2	96.0	A

A MAXIMUM DENSITY 118.9 #/CU.FT. OPTIMUM MOISTURE 11.9 %

B MAXIMUM DENSITY 137.5 #/CU.FT. OPTIMUM MOISTURE 6.3 %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

material source SF-WMX 200 for test(s) numbers 6-29-1 / 6-29-4

material source CS-SB-245 IPP for test(s) numbers 6-29-7 / 6-24-9

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

On this date , a representative from this firm performed soil density testing at the project site. Tests were taken for COVER SOIL LFP-8 with specific locations and results shown above.

FAIRWAY TESTING CO., INC.

P.J. Aquanno. P.E.

FAIRWAY TESTING

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SOIL TEST REPORT

Client Ogden Remediation

Project Clarkstown Landfill

DATE 6-26-98

Arrived 700 AM

Departed 330 PM

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV	WATER CONTENT %	PERCENT COMPACTION	COMMENT
6-26-1	A	100'W. OF SCALE HOUSE.	145.4	139.4	SUBGRADE	4.3	101.8	A
6-26-2	A	50'W. OF SCALE HOUSE	146.4	139.8	"	4.7	102.1	A
6-26-3	A	35'N. OF SCALE HOUSE	142.6	135.8	"	5.0	99.2	A
6-26-4	A	50'E. OF SCALE HOUSE	146.7	139.8	"	4.9	102.1	A
6-26-5	A	70'E. x 15'N. OF SCALE HOUSE	145.0	137.9	"	5.1	100.7	A
6-26-6	B	330's x 90'E. OF GE-1	132.6	118.1	THIRD LIFT	12.2	99.3	A
6-26-7	B	380's x 90'E OF GE-1	133.4	118.4	"	12.6	99.5	A
6-26-8	B	350's. x 140'E. OF GE-1	131.7	117.1	"	12.4	98.4	A

* A MAXIMUM DENSITY 136.9 #/CU.FT. OPTIMUM MOISTURE 6.3 %

B MAXIMUM DENSITY 118.9 #/CU.FT. OPTIMUM MOISTURE 11.9 %

COMMENTS:
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

material source CS-SB-245 IPP for test(s) numbers 6-26-1 THRU 6-26-5

material source SF-200-WMX for test(s) numbers 6-26-6 THRU 6-26-8

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

On this date , a representative from this firm performed soil density testing at the project site. Tests were taken for STRUCTURAL FILL AND COVER SOIL LFP-8 with specific locations and results shown above.

FAIRWAY TESTING CO., INC.

P.J. Aguanno, P.E.

FAIRWAY TESTING

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SOIL TEST REPORT

Client Ogden Remediation

Project Clarkstown Landfill

DATE 6-24-98

Arrived 7:00 am

Departed 3:30 PM

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WDS	DD	ELEV	WATER CONTENT %	PERCENT COMPACTION	COMMENT
6-24-1	A	380'S x 150'E. OF GE-1	134.0	119.4	FIRST LIFT	12.3	101.2	A
6-24-2	A	330'S. x 150'E. OF GE-1	132.5	118.3	"	12.0	100.3	A
6-24-3	A	390'S x 140'E OF GE-1	130.6	116.7	SECOND LIFT	11.9	98.9	A
6-24-4	A	RETEST OF NO.3	133.0	118.1	"	12.6	100.1	A
6-24-5	A	300'S x 90'E. OF GE-1	135.3	119.2	FIRST LIFT	13.5	101.0	A
6-24-6	A	350'S. x 90'E. OF GE-1	134.4	119.5	"	12.4	101.4	A
6-24-7	A	350'S. x 110'E. OF GE-1	133.7	118.3	SECOND LIFT	13.0	100.3	A
6-24-8	A	SOUTH HEAD WALL - PC-9	129.3	117.4	PREP GRADE	10.1	99.6	A
6-24-9	A	SOUTH HEAD WALL PC-9	129.6	117.7	" "	10.1	99.8	A
6-24-10	A	NORTH HEAD WALL PC-9	127.2	115.0	" "	10.6	97.5	A
6-24-11	A	NORTH HEAD WALL PC-9	130.6	117.1	" "	11.5	99.3	A
6-24-12	B	50'E-x 75'N. OF FLARE STA.	140.6	129.5	FIRST LIFT COVER SOIL	8.5	96.9	A

* A MAXIMUM DENSITY 117.9 #/CU.FT. OPTIMUM MOISTURE 11.4 %

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

material source SF-195 WMX for test(s) numbers 6-24-1 THRU 6-24-11

material source CS-SD-243-IPP for test(s) numbers 6-24-12

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

On this date , a representative from this firm performed soil density testing at the project site. Tests were taken for STRUCTURAL FILL LFP-5/LFP-8 AND LFP-1 with specific locations and results shown above.

FAIRWAY TESTING CO., INC.

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation

Project Clarkstown Landfill

DATE 6-11-98

Arrived

Departed

FIELD COMPACTION TESTS

TEST NO.	GRID	LOCATION	MAX DD	OPT DD	ELEVATION	WATER CONTENT %	% COMPACTION	COMMENTS
6-11-1	A	250'S. x 40'E. of GE-1	118.3	108.0	PREP GRADE	9.5	93.6	B
6-11-2	A	RETEST #1	120.4	110.2	" "	9.4	95.6	C
6-11-3	A	250'S. x 25'W. of GE-1	114.4	103.5	" "	10.5	89.7	B
6-11-4	A	RETEST #3	122.0	110.4	" "	10.5	95.7	C
6-11-5	A	325'S. x 45'W. of GE-1	122.6	112.1	" "	9.4	97.1	A
6-11-6	A	325'S. x 10'E. of GE-1	120.5	111.2	" "	8.3	96.4	A
6-11-7	A	420'S. x 40'E. of GE-1	121.0	111.1	" "	8.9	96.3	A
6-11-8	A	420'S. x 25'W. of GE-1	122.4	112.4	" "	8.7	97.6	A
6-11-9	A	420'S x 75'W. of GE-1	121.9	112.4	" "	8.4	97.5	A

* A MAXIMUM DENSITY 115.3 #/CU.FT OPTIMUM MOISTURE 12.8 %

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

SAND CONE ☒ NUCLEAR DENSOMETER

material source SF-190 IPP for test(s) numbers 6-11-1 / 6-11-9

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

On this date , a representative from this firm performed soil density testing at the project sit
Tests were taken for STRUCTURAL FILL PREP GRADE
with specific locations and results shown above.

FAIRWAY TESTING CO., INC.

P.J. Aguanno, P.E.

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation

Project Clarkstown Landfill

DATE 1-10-98

Arrived

Departed

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV	WATER CONTENT %	PERCENT COMPACTION	COMMENT
6-10-1	A	40'W. X 100'S. OF GE-1	130.2	122.0	PREP GRADE	6.7	95.8	A
6-10-2	A	40'W. X 150'S OF GE-1	136.0	124.7	"	7.3	99.5	A
6-10-3	A	40'W. X 200'S OF GE-1	125.9	116.0	"	8.5	94.1	B
6-10-4	A	225'S. OF GE-1	131.0	122.4	"	7.0	96.1	A
6-10-5	A	175'S. X 40'E. OF GE-1	129.8	119.4	"	8.7	93.8	B
6-10-6	A	RETEST OF #5	131.3	120.9	"	8.6	95.0	C
6-10-7	A	125'E. X 200'S. OF GE-1	138.5	126.7	"	9.3	99.5	A
6-10-8	A	100'E. X 150'S. OF GE-1	136.0	125.3	"	8.5	98.4	A
6-10-9	A	30'E. X 50'S. OF GE-1	136.9	124.2	"	10.2	97.5	A
6-10-10	A	RETEST OF #3	131.6	121.3	"	8.5	95.2	C
6-10-11	B	80'W. OF GE-1	140.3	134.1	"	4.6	96.9	A
6-10-12	B	100'W. OF GE-1	142.8	133.2	"	7.2	96.3	A
6-10-13	B	100'W. X 100'S. OF GE-1	140.1	132.1	"	6.0	95.5	A
6-10-14	B	50'W. X 100'S OF GE-1	141.4	133.2	"	6.1	96.3	A
6-10-15	B	75'W. X 200'S. OF GE-1	143.4	134.9	"	6.3	97.5	A
6-10-16	B	100'W. X 200'S. OF GE-1	140.7	132.1	"	6.5	95.5	

* A MAXIMUM DENSITY 127.3 #/CU.FT. OPTIMUM MOISTURE 10.5 %

B MAXIMUM DENSITY 138.3 #/CU.FT. OPTIMUM MOISTURE 9.0 %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

material source SF-TIL-5 for test(s) numbers 6-10-1 / 6-10-10

material source SF-SB-5 for test(s) numbers 6-10-11 / 6-10-16

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

On this date , a representative from this firm performed soil density testing at the project site. Tests were taken for PREP GRADE @ LFP-8 with specific locations and results shown above.

FAIRWAY TESTING CO., INC.

_____

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation

Project Clarkstown Landfill

DATE 6-5-98

Arrived

Departed

FIELD COMPACTION TESTS

TEST NO.	TYPE	LOCATION	WD#	DD	SOIL TYPE & ELEVATION	WATER % CONTENT	% PERCENT OF COMPACTION	COMMENTS
6-5-1	A	65' E. OF SCALE HOUSE	124.6	114.2	PREP GRADE	9.1	99.0	A
6-5-2	A	100' E. OF SCALE HOUSE	126.4	114.0	" "	10.8	98.9	A

* A MAXIMUM DENSITY 115.3 #/CU.FT OPTIMUM MOISTURE 12.8 % COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS; B. RECOMPACTION REQUIRED; C. TEST IS AFTER RECOMPACTION

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

☒ SAND CONE ☐ SAND CONE ☒ NUCLEAR DENSOMETER

material source SF-WMX-190 for test(s) numbers 6-5-1 / 6-5-2

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

On this date , a representative from this firm performed soil density testing at the project sit
Tests were taken for PREP GRADE LFP-4
with specific locations and results shown above.

FAIRWAY TESTING CO., INC.

P.J. Aguanno, P.E.

FAIRWAY TESTING

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SOIL TEST REPORT

Client Ogden Remediation

Project Clarkstown Landfill

DATE 6-4-98
Arrived 700
Departed 330

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WW	DD	ELEV.	WATER CONTENT	PERCENT COMPACTION	COMMENT
6-4-1	A	20'E. OF GE-1	134.2	124.9	PREP GRADE	7.4	90.3	B
6-4 2	A	20'E. x 40'S. OF GE-1	132.2	119.9	"	10.1	86.6	B
6-4 3	A	20'E. x 80'S. OF GE-1	138.8	129.9	"	6.3	93.9	B
6-4 4	B	50'S. X 120'W. OF GE-1	128.7	115.1	"	11.8	99.8	A
6-4 5	B	100'S. X 120'W. OF GE-1	124.6	114.9	"	8.9	99.6	A
6-4 6	B	150'S X 120'W. OF GE-1	122.6	113.0	"	8.4	98.0	A
6-4-7	B	200'S. x 120'W OF GE-1	124.5	115.4	"	7.8	100.1	A

continued

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation

Project Clarkstown Landfill

DATE 5-20-98

Arrived 800 AM

Departed 330 PM

FIELD COMPACTION TESTS

TEST NO.		LOCATION	WD	DD	ELEV.	WATER CONTENT %	% COMPACTION	COMMENTS
5-20 1	A	150's. x 135'E. OF GE-1	134.1	121.6	PREP GRADE	10.2	97.4	A
5-20 2	A	200's. x 135'E. OF GE-1	134.0	119.4	" "	12.2	95.6	A
5-20 3	A	250's. x 135'E. OF GE-1	129.9	118.7	" "	9.4	95.0	A
5-20 4	A	250's. x 85'E. OF GE-1	131.6	121.2	" "	8.5	97.1	A
5-20 5	A	200's. x 85'E. OF GE-1	130.0	119.3	" "	8.9	95.5	A
5-20 6	A	150's. x 85'E. OF GE-1	131.8	121.1	" "	8.8	95.8	A
5-20 7	A	150's. OF GE-1	128.6	119.7	" "	7.4	96.9	A
5-20 8	A	200's. OF GE-1	134.4	124.5	" "	7.9	99.7	A
5-20 9	A	250's. OF GE-1	131.8	119.9	" "	9.9	96.0	A
5-20 10	A	250's. x 50'W. OF GE-1	137.7	125.2	" "	9.9	100.3	A
5-20 11	A	300's. x 50'W. OF GE-1	130.6	120.8	" "	8.1	96.7	A
5-20 12	A	300's. OF GE-1	134.1	122.3	" "	9.6	97.9	A

* A MAXIMUM DENSITY 124.9 #/CU.FT OPTIMUM MOISTURE 11.3 %

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

material source SF-185 for test(s) numbers 5-20-1 / 5-20-12

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

On this date , a representative from this firm performed soil density testing at the project sit
Tests were taken for AREA LFP-5/LFP-8
with specific locations and results shown above.

FAIRWAY TESTING CO., INC.

P.J. Aguanno, P.E.

MS 482.4
DS 3556

FROM FAIRWAY TESTING CO 914 942 0995 8:48PM 5-28-1998

FAIRWAY TESTING
CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH
P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 5-19-98

700
430

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
5-19-1	A	190'E. x 120'S. OF GE-1	131.0	119.7	PREP GRADE	9.4	95.8	A
5-19-2	A	190'E. x 170'S. OF GE-1	132.6	120.8	" "	9.7	96.7	A
5-19 3	A	190'E. x 220'S. OF GE-1	131.8	119.1	" "	10.7	95.3	A
5-19 4	A	250'E. x 250'S. OF GE-1	135.3	123.6	" "	9.4	98.9	A
5-19 5	A	250'E. x 200'S. OF GE-1	133.7	120.9	" "	10.5	96.8	A
5-19 6	A	250'E. x 150'S. OF GE-1	132.8	120.7	" "	10.0	96.6	A
5-19 7	A	250'E. x 70'S. OF GE-1	133.0	120.7	" "	10.1	96.6	A

A MAXIMUM DENSITY 124.9 #/CU FT OPTIMUM MOISTURE 11.3 %

B MAXIMUM DENSITY #/CU FT OPTIMUM MOISTURE %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for PREP GRADE LFP- 5/9 with specific locations and results shown above.

material source SF-185' for test(s) numbers 5-19-1 / 5-19-7

material source _____ for test(s) numbers _____

MS 484.6

DS 3559

FAIRWAY TESTING
CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH
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SOIL TEST REPORT

Client Ogden Remediation Services
Project Clarkstown Landfill

DATE 5-18-98
7:00 AM
3:30 PM

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
5-18-1	A	270'E. X 70's. OF GE-1	131.3	121.3	PREP GRADE	8.2	99.8	A
5-18 2	A	270'E. X 120's. OF GE-1	129.2	116.5	"	10.9	95.6	A
5-18 3	A	270'E. X 200's. OF GE-1	129.9	118.0	"	10.0	97.1	A
5-18 4	A	220'E. X 200's. OF GE-1	131.5	118.0	"	11.4	97.1	A
5-18 5	A	220'E. X 150's. OF GE-1	129.8	117.3	"	10.6	96.5	A
5-18 6	A	220'E. X 110's. OF GE-1	128.6	118.5	"	8.5	97.5	A
5-18 7	A	170'E. X 110's. OF GE-1	130.8	118.6	"	10.2	97.7	A
5-18 8	A	170'E. X 160's. OF GE-1	130.7	118.8	"	10.0	97.8	A

* A MAXIMUM DENSITY 121.5 #/CU.FT. OPTIMUM MOISTURE 12.3% COMMENTS A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

METHOD OF TEST ☐ SAND CONE ☐ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for STRUCTURAL FILL FOR PREP GRADE LFP-5 / LFP-9 with specific locations and results shown above.

material source SF-WMX-180 for test(s) numbers 5-18-1 / 5-18-

material source _____ for test(s) numbers _____

MS 484.6

DS 3555

FAIRWAY TESTING
CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH
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SOIL TEST REPORT

Client Ogden Remediation Services
Project Clarkstown Landfill

DATE 4-15-98

7:00 ARRIVED
3:30 DEPARTED

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
4-15-1	A	DIVERSION DIKE 1. 100'E. x 100'N OF GE-13	130.3	116.4	[redacted]	11.9	95.8	A
4-15-2	B	40'E. x 75'N. OF GE-4	134.5	126.6		6.2	93.3	A

A MAXIMUM DENSITY 121.5 PCF (REMOLDED AT ___)
B MAXIMUM DENSITY ___ PCF (FIELD SPECIFICATION)

COMMENTS: A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST TAKEN AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for DIVERSION DIKE NO 1 AND FIRST LIFT COVER SOIL LFP-8 with specific locations and results shown above.

material source SF-WMX-180 for test(s) numbers 4-15-1

material source CS-SB-210 EPP for test(s) numbers 4-15-2

MS 4841

DS 3556

FAIRWAY TESTING
CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH
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SOIL TEST REPORT

ent Ogden Remediation Services

DATE 4-14-98

Project Clarkstown Landfill

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
4-14-1	A	DIVERISON DIKE #4 SOUTH	128.4	116.5	[illegible]	10.2	95.8	A
4-14-2	A	DIVERISON DIKE #4 NORTH	133.3	117.5		13.4	96.7	A

A MAXIMUM DENSITY 121.5 PCF OPTIMUM MOISTURE 12.3 % COMMENTS A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

B MAXIMUM DENSITY PCF OPTIMUM MOISTURE

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for DIVERISON DIKES NOS 4 NORTH AND SOUTH SIDE OF VALVE BOX. with specific locations and results shown above.

material source SF-WMX-180 for test(s) numbers 4-14-1 / 4-14-

material source for test(s) numbers

MS 482.2

DS 3555

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 4-8-98

7⁰⁰
3³⁰

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
4-8-1	A	20'N. OF CC-7	130.0	119.0	PREP GRADE	9.2	97.4	A
4-8-2	A	20'W OF CC-7	133.1	119.5		11.4	99.3	A
4-8-3	A	50'S x 30'W OF CC-7	134.2	120.2		11.6	98.4	A
4-8-4	A	100'S x 30'W OF CC-7	131.4	118.0		11.3	97.1	A
4-8-5	A	150'S x 30'W OF CC-7	131.4	117.4		11.9	96.6	A
4-8-6	A	200'S x 30'W OF CC-7	129.5	118.2		9.5	97.3	A
4-8-7	A	250'S x 30'W OF CC-7	127.0	115.6		9.8	95.1	A
4-8-8	A	300'S x 30'W OF CC-7	129.3	118.5		9.1	97.5	A
4-8-9	A	350'S x 30'W OF CC-7	129.5	117.9		9.8	97.0	A
4-8-10	A	400'S x 30'W OF CC-7	124.3	113.2		9.3	97.3	A
4-8-11	A	450'S x 30'W OF CC-7	131.4	118.7		10.7	97.6	A
4-8-12	A	500'S OF CC-7	130.5	116.7		11.8	96.1	A
4-8-13	A	75[illegible] x 15'E OF CC-7	129.5	115.7		11.9	[illegible]	A
4-8-14	A	400'S x 15'E OF CC-7	131.4	118.8		11.0	[illegible]	A
4-8-15	A	350'S x 15'E OF CC-7	128.3	116.9		9.7	96.2	A
4-8-16	A	300'S x 15'E OF CC-7	132.[illegible]	117.9		10.3	[illegible]	A

* A MAXIMUM DENSITY [illegible] / CU.FT OPTIMUM MOISTURE [illegible] % COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS; B. RECOMPACTION REQUIRED; C. TEST IS AFTER RECOMPACTION

B MAXIMUM DENSITY [illegible] / CU.FT OPTIMUM MOISTURE [illegible]

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for PREP GRADE LFP - EAST SECTION with specific locations and results shown above.

material source ST-WMX-1SC for test(s) numbers 4-8-1 thru 4-8-22

material source _____ for test(s) numbers _____

MS 492.4

DS 3555

HANWAY TESTING
CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH
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SOIL TEST REPORT

Client Ogden Remediation Services DATE 4-8-98

Project Clarkstown Landfill

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
4-8-17	A	250'S x 15'E. OF CC-7	132.5	119.7	PREP GRADE	10.7	98.5	A
4-8-18	A	200'S x 25'E OF CC-7	129.8	116.7		10.3	96.1	A
4-8-19	A	150'S x 25'E. OF CC-7	131.4	118.1		11.2	97.2	A
4-8-20	A	100'S x 25'E. OF CC-7	134.7	120.5		11.7	99.2	A
4-8-21	A	50'S x 25'E. OF CC-7	131.4	118.8		10.6	97.7	A
4-8-22	A	25'S OF CC-7	131.5	117.6		11.8	96.8	A

* A MAXIMUM DENSITY ; CU FT. OPTIMUM MOISTURE ; COMMENTS A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

B MAXIMUM DENSITY ; CU FT. OPTIMUM MOISTURE ;

METHOD OF TEST ☐ SAND CONE ☐ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for _____ with specific locations and results shown above.

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

MS _____

DS _____

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 4-7-98

700
300

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT, %	PERCENT COMPACTION	COMMENT
4-7-1	A	125'E. x 100'N. OF GE-44	132.2	114.0	PREP GRADE	11.1	96.8	C
4-7-2	A	80'N. x 155'E. OF GE-44	132.6	114.4	" "	11.0	96.2	C

* A MAXIMUM DENSITY 122.9 PCU FT OPTIMUM MOISTURE

B MAXIMUM DENSITY PCU FT OPTIMUM MOISTURE

COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST ID AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for RETESTED FROM 3-31-98 LFP-8 with specific locations and results shown above.

material source SF-WMX-175 for test(s) numbers 3-31-1 / 3-31-2

material source _____ for test(s) numbers _____

MS 482.6

DS 3556

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 4-6-98

8:00

3 00

FIELD COMPACTION TESTS

TEST NO.		LOCATION	WD	DD	ELEV. PREP GRADE		WATER CONTENT %	PERCENT COMPACTION	COMMENT
4-6-1	A	100'S OF SCALE HOUSE	134.9	121.0			11.5	98.4	A
4-6-2	A	150'S OF SCALE HOUSE	135.9	123.1			10.4	100.2	A
4-6-3	A	200'S OF SCALE HOUSE	131.7	118.4			11.2	96.4	A
4-6-4	A	200'S x 50'E. OF SCALE HOUSE	132.8	120.4			10.3	98.0	A
4-6-5	A	150'S x 50'E. OF SCALE HOUSE	134.9	125.0			7.9	101.8	A
4-6-6	A	100'S x 50'E. OF SCALE HOUSE	132.0	118.0			11.9	96.0	A
4-6-7	A	120'S x 50'E. OF SCALE HOUSE	134.3	122.6			9.5	99.8	A
4-6-8	A	110'S x 50'W OF SCALE HOUSE	130.5	117.0			11.5	95.2	A
4-6-9	A	150'S x 50'W OF SCALE HOUSE	135.7	121.7			11.5	99.0	A
4-6-10	A	100'S x 100'W OF SCALE HOUSE	135.5				9.9		A
4-6-11	A	100'S x 150'W OF SCALE HOUSE	130.6	121.2			7.4	98.7	A
4-6-12	A	130'S x 100'W OF SCALE HOUSE	132.2	119.6			10.5	97.3	A
4-6-13	A	170'S x 100'W OF SCALE HOUSE	129.9	119.6			8.6	97.3	A
4-6-14	A	225'S 100'W OF SCALE HOUSE	131.4	119.2			10.2	97.0	A

★ A MAXIMUM DENSITY 122.9 #/CU.FT. OPTIMUM MOISTURE 11.6 %

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

COMMENTS:
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for PREP GRADE FOR LFP-5 AND LFP-9 with specific locations and results shown above.

material source SF-WMX-175 for test(s) numbers 4-6-1 thru 4-6

material source _____ for test(s) numbers _____

MS 482.4

DS 3558

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 4-1-98

ARRIVED 9:00 AM

DEPART 3:30 PM

FIELD COMPACTION TESTS

TEST NO.		LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
4-1-1	A	200'E. x 50'N. OF GE-49	131.7	119.8	PREP GRADE	9.9	97.5	A
4-1-2	A	200'E. OF GE-49	132.8	120.3		10.4	97.9	A
4-1-3	A	150'E. x 100'N OF GE-48	129.3	117.0		10.5	95.2	A
4-1-4	A	150'E. x 50'N. OF GE-48	133.1	121.7		9.4	99.0	A
4-1-5	A	150'E. OF GE-48	124.3	113.3		10.2	92.2	B
4-1-6	A	RETEST OF NO 4-1-5	129.9	117.8		10.3	95.8	C
4-1-7	A	120'E. OF GE-49	133.3	120.7		10.4	98.2	A
4-1-8	A	100'E. OF GE-1	130.4	118.0		10.5	96.0	A
4-1-9	A	100'E. x 60'N. OF GE-1	131.9	119.9		10.0	97.6	A
4-1-10	A	100'E. x 120'N. OF GE-1	132.8	122.3		8.6	94.5	A
4-1-11	A	75'E. OF GE-48	130.5	121.3		7.6	98.7	A
4-1-12	A	75'E. x 75'N. OF GE-48	134.1	122.3		9.6	99.5	A
4-1-13	A	100'N. OF GE-48	129.6	121.3		6.3	98.7	A
4-1-14	A	25'S. OF GE-48	130.0	120.4		8.0	97.9	A
4-1-15	A	75'E. OF GE-49	131.6	119.1		10.5	96.9	A
4-1-16	A	150'E. x 50'S OF GE-49	133.6	124.5	✓	7.3	101.3	A

* A MAXIMUM DENSITY 122.9 PCF OPTIMUM MOISTURE 7.6

B MAXIMUM DENSITY PCF OPTIMUM MOISTURE

COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS; B. RECOMPACTION REQUIRED; C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for LFP-8 EAST SECTION PREP GRADE with specific locations and results shown above.

material source SF-WMX 175' for test(s) numbers 4-1-1 / 4-1-20

material source _____ for test(s) numbers _____

MS 481.6

DS 3557

FAIRWAY TESTING
CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH
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SOIL TEST REPORT

Client Ogden Remediation Services DATE 4-1-98

Project Clarkstown Landfill

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
4-1-17	A	30'S. X 15'W OF GE-1	125.4	117.4	PREP GRADE	9.8	95.5	A
4-1-18	A	30'S X 100'W OF GE-1	127.6	118.1		8.0	96.1	A
4-1-19	A	50'N X 150'W OF GE-1	126.3	117.8		7.2	95.4	A
4-1-20	A	30'S X 150'W OF GE-1	122.3	114.4		6.9	93.1	A

* A MAXIMUM DENSITY ___ PCF OPTIMUM MOISTURE ___

B MAXIMUM DENSITY ___ PCF OPTIMUM MOISTURE ___

COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☐ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for _____ with specific locations and results shown above.

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

MS _____

DS _____

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH
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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 3-31-98

ARRIVED 7:00
DEPARTED 4:00

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
3-31-1	A	175' E. OF GE-44	129.7	117.0	PREP GRADE	10.9	95.2	A
3-31-2	A	175' E. x 50'N. OF GE-44	132.3	119.0	"	12.0	96.0	A
3-31-3	A	175' E. x 100'N. OF GE-44	131.4	117.5	"	11.8	95.6	A
3-31-4	A	125' E. x 100'N. OF GE-44	126.8	117.4	"	8.0	95.5	A
3-31-5	A	250' E. x 75'S. OF GE-44	129.9	121.3	"	6.3	98.6	A
3-31-6	A	150'E. x 50'N. OF GE-48	130.0	118.2	"	10.0	96.2	A
3-31-7	A	150'E OF GE-48	134.1	121.1	"	10.7	98.6	A
3-31-8	A	200'E. OF GE-1	132.2	118.0	"	12.0	96.0	A
3-31-9	A	200'E. x 75'S. OF GE-1	131.6	117.4	"	12.1	95.5	A

A MAXIMUM DENSITY [illegible] PCF OPTIMUM MOISTURE [illegible] %

B MAXIMUM DENSITY PCF OPTIMUM MOISTURE %

COMMENTS: A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for EAST END OF LFP-2 with specific locations and results shown above.

material source SF-WMX-175 for test(s) numbers 3-31-1 thru 3-31-9

material source _____ for test(s) numbers _____

MS 484.6

DS 3556

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

DATE 11-25-97

Project Clarkstown Landfill

FIELD COMPACTION TESTS

TEST NO.	★	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
11-25 1	A	250's. x 160'w. of CC-2	130.5	116.2	PREP GRADE	12.3	95.8	A
11-25 2	A	250's. x 220'w. of CC-2	132.4	118.4	" "	11.8	97.5	A
11-25 3	A	330's. x 190'w. of CC-2	132.5	118.5	" "	11.8	97.6	A
11-25 4	A	450's. x 170'w of CC-2	131.2	116.9	" "	12.1	96.4	A
11-25 5	A	465's x 2 'w. of CC-2	129.4	115.7	" "	11.8	95.4	A
11-25 6	A	460's x 270'w of CC-2	133.2	120.1	" "	10.9	99.0	A
11-25 7	A	460's x 320'w of CC-2	133 2	118.7	" "	12.2	97.8	A
11-25 8	A	345's x 300'w of CC-2	132.2	117.0	" "	12.9	96.5	A
-25 9	A	240's x 330'w. of CC-2	130.4	116.7	" "	11.7	96.2	A
11-25 10	A	240's x 270'w of CC-2	131.7	117.4	" "	12.1	96.8	A
11-25 11	A	100'N. x 180'E. of GE-49	131.8	117.2	" "	12.4	96.6	A
11-25 12	A	150'N. x 70'E. of GE-49	133.7	121.8	" "	9.7	100.4	A
11-25 13	A	250'N. x 80'E. of GE-49	130.6	116.8	" "	11.8	96.3	A
11-25 14	A	310'N. x 50'E. of GE-49	132.0	118.2	" "	11.6	97.5	A
11-25 15	A	190'w. x 500'E. of CC-2	131 2	117.0		12.1	96.4	A
11-25 16	A	300'w. x 510'E. of CC-2	130.3	111.5		11.8	96.0	A

★ A MAXIMUM DENSITY 121.3 #/CU.FT. OPTIMUM MOISTURE 11.0 %

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for PREP GRADE, LFP-8 SOUTH END. with specific locations and results shown above.

material source SF-WMX-160 for test(s) numbers 11-25-1 / 11-25

material source _____ for test(s) numbers _____

MS 483.2

DS 3559

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

DATE 11-21-97

Project Clarkstown Landfill

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
11-21 1	A	240'S. OF CC-2	134.2	118.5	PREP GRADE	13.2	97.7	A
11-21 2	A	290'S. x 40'E. OF CC-2	130.6	116.0	" "	12.5	95.7	A
11-21 3	A	330'S. x 40'W. OF CC-2	129.8	115.8	" "	12.0	95.5	A
11-21 4	A	430'S. x 100'W. OF CC-2	133.3	117.0	" "	13.9	96.4	A
11-21 5	A	380'S. x 120'W. OF CC-2	131.8	117.3	" "	12.3	96.7	A
11-21 6	A	320'S. x 60'W. OF CC-2	130.7	116.5	" "	12.1	96.0	A
11-21 7	A	250'S. x 100'W. OF CC-2	130.2	116.5	" "	11.7	96.0	A

* A MAXIMUM DENSITY 121.3 #/CU.FT. OPTIMUM MOISTURE 11.0 % COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS; B. RECOMPACTION REQUIRED; C. TEST IS AFTER RECOMPACTION

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for PREP GRADE LFP-1 with specific locations and results shown above.

material source SF-WMX-160 for test(s) numbers 11-21-1 / 11-21-7

material source _____ for test(s) numbers _____

MS 3590

DS 484.2

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 11-20-97

ARRIVED 7:00
DEPARTED 3:30

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
11-20 1	A	100'E. x 25'N. OF GE-1	127.0	113.5	PREP GRADE	11.8	93.5	B
11-20 2	A	100'E. x 75'N. OF GE-1	127.6	113.8	" "	12.1	93.8	B
11-20 3	A	100'E. x 125'N. OF GE-1	129.9	116.0	" "	11.8	95.6	A
11-20 4	A	100'E. x 175'N. OF GE-1	127.4	113.1	" "	12.6	93.2	B
11-20 5	A	25'S. OF GE: 48	126.7	113.2	" "	11.9	93.3	B
11-20 6	A	75'S. OF GE - 48	129.9	115.9	" "	12.0	95.6	A
11-20 7	A	125'S. OF GE - 48	126.3	112.2	" "	12.5	92.5	B
11-20 8	A	50'E. x 210'S. OF GE-48	123 3	109.7	" "	12.3	90.5	B

* A MAXIMUM DENSITY 121.3 #/CU.FT. OPTIMUM MOISTURE 11.0 %

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for PREP GRADE LFP-8, EAST END with specific locations and results shown above.

material source SF-WMX - 160 for test(s) numbers 11-20-1/11-2

material source _____ for test(s) numbers _____

MS 3576

DS 482.3

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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Lee

SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 11-17-97

ARRIVED 7:00
DEPARTED 3:00

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
11-17 1	A	255'S. x 110'W. OF RFW-13	132.2	118.4	-6" PREP GRADE	11.6	93.9	B
11-17 2	A	255'S. x 160'W. OF RFW-13	131.8	117.0	"	12.5	92.8	B
11-17 3	A	RETESTED NO. 2	135.2	120.0	"	12.6	95.1	C
11-17 4	A	RETEST NO. 1	132.4	118.3	"	12.0	93.8	B

* A MAXIMUM DENSITY 126.1 #/CU.FT. OPTIMUM MOISTURE 11.2 %

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST ☐ SAND CONE ☑ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for STRUCTURAL FILL LFP-1 SOUTH END with specific locations and results shown above.

material source SF- RPC-02 for test(s) numbers 11-17-1 / 11-17-4

material source _____ for test(s) numbers _____

MS 483.3

DS 3576

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

DATE 11-13-97

Project Clarkstown Landfill

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
11-13 1	A	50's x 50'E. OF CC-2	133.9	118.6	PREP GRADE	12.9	97.7	A
11-13 2	A	100's x 40'E. OF CC-2	129.5	115.6	" "	11.9	95.3	A
11-13 3	A	170's x 20'E. OF CC-2	136.1	121.3	" "	12.1	100.0	A
11-13 4	A	100'W. x 30'S OF CC-2	132.8	118.1	" "	12.4	97.4	A
11-13 5	A	140'W. x 100'S. OF CC-2	133.3	117.9	" "	13.0	97.2	A
11-13 6	A	90'W. x 140'S. OF CC-2	132.0	117.0	" "	12.8	96.4	A
11-13 7	A	90'W x 200'S. OF CC-2	131.7	117.5	PREP GRADE	12.0	96.9	A
11-13 8	A	170'W x 60'S OF CC-2	129.9	116.8	" "	11.2	96.3	A
11-13 9	A	170'W x 150'S OF CC-2	131.9	115.9	" "	13.8	95.5	A
11-13 10	A	170'W x 200'S OF CC-2	130.8	115.8	" "	12.9	95.5	A
11-13 11	A	250'W x 70'S OF CC-2	129.7	116.3	" "	11.5	95.8	A
11-13 12	A	250'W x 150'S OF CC-2	131.6	117.5	" "	12.0	96.8	A
11-13 13	A	250'W x 200'S OF CC-2	130.0	115.8	" "	12.2	95.5	A

* A MAXIMUM DENSITY 121.3 #/CU.FT. OPTIMUM MOISTURE 11.0 %

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS; B. RECOMPACTION REQUIRED; C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☑ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for PREP GRADE, LFP-1 with specific locations and results shown above.

material source SF-WMX-160 for test(s) numbers 11-13-1 / 11-13-

material source _____ for test(s) numbers _____

MS 482.1

DS 3593

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 11-13-97

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
11-13 1	A	190'W. x 75'N. OF RFW-13	136.8	122.5	-18" PREP GRADE	11.7	97.1	A
11-13 2	A	150'W x 75'N OF RFW-13	129.5	115.0	"	12.6	91.1	B
11-13 3	A	RETESTED NO. 2	135.3	120.3	"	12.4	95.4	C
11-13 4	A	75'N x 150'W. OF RFW 13	133.7	120.2	-6" PREP GRADE	11.2	95.3	A
11-13 5	A	75'N. x 200'W. OF RFW 13	137.2	126.1	"	8.7	100.0	A
11-13 6	A	170'W. x 120'S. OF RFW-13	130.4	117.7	-6" PREP GRADE	10.7	93.3	B
11-13 7	A	RETESTED NO. 6	135.6	119.9	-6" PREP GRADE	12.3	95.0	C
11-13 8	A	205'W x 120'S. OF RFW-13	136.2	122.5	-6" PREP GRADE	11.2	97.5	A

* A MAXIMUM DENSITY 126.1 #/CU.FT. OPTIMUM MOISTURE 11.2 %

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☑ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for LFP-1 STRUCTURAL FILL with specific locations and results shown above.

material source SF-CRP-02 for test(s) numbers 11-13-1/11-13-8

material source _____ for test(s) numbers _____

MS 482.1

DS 3593

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 11-6-97

ARRIVED 7:00 AM

DEPARTED 3:30 PM

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	% PERCENT COMPACTION	COMMENT
11-6 1	A	30'N. x 80'E. OF GE-49	134.6	120.0	PREP GRADE	12.1	99.3	A
11-6 2	A	30'N x 40'E. OF GE-49	129.7	116.7	"	11.1	96.6	A
11-6 3	A	30'N. x 60'W. OF GE-49	137.3	122.8	"	11.8	101.6	A
11-6 4	A	50's. x 60'W. OF GE-49	1298	116.2	"	11.6	96.2	A
11-6 5	A	50'S. OF GE-49	128.6	116.2	"	10.6	96.2	A
11-6 6	A	50'S. x 50'E. OF GE-49	130.4	118.2	"	10.3	97.8	A
11-6 7	A	100's. x 80'E. OF GE-49	131.2	118.8	"	10.4	98.3	A
11-6 8	A	100's. OF GE-49	129.2	116.7	"	10.6	96.6	A
11-6 9	A	100's x 60'W. OF GE-49	132.8	119.7	"	11.0	99.0	A
10-6 10	A	150's. x 90'W. OF GE-49	134.2	121.3	"	10.6	100.4	A
10-6 11	A	150's. OF GE-49	126.1	115.5	"	9.1	95.6	A
10-6 12	A	200's. OF GE-49	129.9	115.8	"	12.2	95.8	A
10-6 13	A	20'E. OF GE-2	130.2	118.1	"	10.2	97.7	A
10-6 14	A	20'W. OF GE-2	129.2	116.7	"	10.6	96.6	A
10-6 15	A	20'W. x 50'S OF GE-2	131.4	117.7	"	11.6	97.4	A
10-6 16	A	30'E. x 50'S. OF GE-2	132.3	120.2	"	10.1	99.4	A

A MAXIMUM DENSITY 120.8 PCF OPTIMUM MOISTURE 11.1 % COMMENTS

B MAXIMUM DENSITY PCF OPTIMUM MOISTURE

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST TAKEN AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for PREP. GRADE LFP-1 AND LFP-8 with specific locations and results shown above.

material source SF-WMX-155 for test(s) numbers 11-6-1/11-

material source _____ for test(s) numbers _____

MS 481.2

DS 3595

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 11-6-97

FIELD COMPACTION TESTS

TEST NO.		LOCATION	WD	DD	ELEV	WATER CONTENT %	PERCENT COMPACTION	COMMENT
11-6 17	A	80'E. x 50's OF GE-2	127.3	115.1	PREP GRADE	10.6	95.3	A
11-6 18	A	25'W x 50's OF GE-48	132.7	120.0	" "	10.5	99.3	A
11-6 19	A	25'W. x 100's OF GE-48	130.9	119.9	" "	9.1	99.2	A
11-6 20	A	75'W. x 100's OF GE-48	126.1	115.5	" "	9.1	95.6	A

A MAX. MOIST. DENSITY ____ PCF OPTIMUM MOISTURE ____

B MAX. MOIST. DENSITY ____ PCF OPTIMUM MOISTURE ____

COMMENTS: A TEST RESULTS COMPLY WITH SPECIFICATIONS; B RETEST ON FEQUIRED; C TEST AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☐ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for _____ with specific locations and results shown above.

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

MS _____

DS _____

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SOIL TEST REPORT

Client Ogden Remediation Services
Project Clarkstown Landfill

DATE 10-31-97

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
10-31 1	A	80's. x 144'w. of RFW-13	130.4	114.7	SECOND LIFT	13.6	95.4	A
10-31 2	A	90's. x 155'w. of RFW-13	132.0	114.8	SECOND LIFT	14.9	95.5	A
10-31 3	A	100's. x 60'w of RFW-13	134.1	118.6	THIRD LIFT	13.0	98.7	A
10-31 4	A	100's. x 150'w. of RFW-13	133.0	116.1	THIRD LIFT	14.5	96.6	A
10-31 5	A	100's. x 200'w. of RFW-13	130.1	114.1	SECOND LIFT	14.0	95.0	A
10-31 6	A	200'w. of RFW-13	132.5	114.5	SECOND LIFT	15.7	95.2	A
10-31 7	A	150'w. of RFW-13	130.8	114.5	THIRD LIFT	14.2	95.2	A
10-31 8	A	150'w. X 150's. of RFW-13	132.3	116.2	THIRD LIFT	13.8	96.7	A

* A MAXIMUM DENSITY 120.2 P.C.F. OPTIMUM MOISTURE 11.3 % COMMENTS A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RETEST AS NECESSARY
C TEST LIFT RECOMPACTION

E MAXIMUM DENSITY P.C.F. OPTIMUM MOISTURE

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed st density testing at th project site. Tests were taken for STRUCTURAL FILL AT LFP-1 with specific locations and results shown above.

material source SF- HS-165 for test(s) numbers 10-31-1 / 10-

material source for test(s) numbers

MS 484.2

DS 3596

FAIRWAY TESTING
CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH
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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 10-31-97

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
10-31 1	A	300'N. x 200'E. OF GE-44	139.4	124.0	SECOND LIFT	12.4	98.3	A
10-31 2	A	350'N. x 200'E. OF GE-44	137.3	123.3	"	11.3	97.8	A
10-31 3	A	400'N. x 200'E. OF GE-44	138.2	124.5	"	11.0	98.7	A

* A MAXIMUM DENSITY 126.1 PCF OPTIMUM MOISTURE 11.2 % COMMENTS A TEST RESULTS COMPLY WITH SPECIFICATIONS B RETEST AS NOTED REQUIRED C TEST TAKEN AFTER RECOMPACTION

B MAXIMUM DENSITY PCF OPTIMUM MOISTURE

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for STRUCTURAL FILL LFP-1 with specific locations and results shown above.

material source SF-CRP-02 for test(s) numbers 10-31-1 / 10-31-3

material source _____ for test(s) numbers _____

MS 484.2

DS 3596

FAIRWAY TESTING
CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH
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SOIL TEST REPORT

Client Ogden Remediation Services
Project Clarkstown Landfill

DATE 10-30-94
ARRIVED 9:00
DEPARTED 3:30

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	% COMPACTION	COMMENT
10-30 1	A	20'E. x 320'S. OF CC-2	134.7	124.8	FIRST LIFT	7.8	98.9	A
10-30 2	A	300'S. OF CC-2	134.8	124.4	"	8.3	98.6	A
10-30 3	A	250'S. OF CC-2	136.7	124.6	"	9.7	98.8	A
10-30 4	A	250'S. x 20'E. OF CC-2	133.0	121.1	"	9.8	96.0	A
10-30 5	A	175'S. x 20'E. OF CC-2	136.1	123.7	"	10.0	98.1	A

* A MAXIMUM DENSITY 126.1 PCF OPTIMUM MOISTURE 11.2% COMMENTS A TEST RESULTS COMPLY WITH SPECIFICATIONS B TEST RESULTS UNSATISFACTORY RECOMPACTION REQUIRED C TEST LOCATION NOT ACCESSIBLE RECOMPACTION

B MAXIMUM DENSITY PCF OPTIMUM MOISTURE

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for STRUCTURAL FILL AT LFP-1 with specific locations and results shown above.

material source SF-CRP-02 for test(s) numbers 10-30-1 / 10-30-

material source for test(s) numbers

MS 482.3

DS 3598

TRAVIS TESTING
CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH
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SOIL TEST REPORT

Client Ogden Remediation Services
Project Clarkstown Landfill

DATE 10-28-97
ARRIVED 7:00
DEPARTED 3:30

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
10-28 1	A	200's. OF CC-2	139.3	123.6	FIRST LIFT	12.7	98.0	A
10-28 2	A	150's. OF CC-2	138.1	123.7	"	11.6	98.1	A
10-28 3		150's x 50'w. OF CC-2	137.9	124.0	"	11.2	98.3	A

A MAXIMUM DENSITY 126.1 PCF OPTIMUM MOISTURE 11.2 % COMMENTS: A TEST RESULTS COMPLY WITH SPECIFICATIONS; B RETEST AS NECESSARY; C TEST AFTER RECOMPACTION

B MAXIMUM DENSITY PCF OPTIMUM MOISTURE %

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for FIRST LIFT STRUCTURAL FILL LFP-1 with specific locations and results shown above.

material source SF-CRP-02 for test(s) numbers 10-28-1 / 10-28-3

material source _____ for test(s) numbers _____

MS 484.2

DS 3608

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 10-24-97

ARRIVED 7:00

DEPARTED 4:00

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
10-24 1	A	50'W. OF DL-4	124.7	114.8	PREP GRADE	8.6	95.6	A
10-24 2	A	100'W OF DL-4	125.0	115.2	" "	8.5	96.0	A
10-24 3	A	100'W x 50'S. OF DL-4	123.7	113.4	" "	9.0	94.5	B
10-24 4	A	RETEST No. 3	125.6	115.2	" "	9.0	96.0	C
10-24 5	A	50'W x 50'S. OF DL-4	126.3	116.1	" "	8.8	96.7	A
10-24 6	A	50'W x 125'S. OF DL-4	129.0	118.1	" "	9.2	98.4	A
10-24 7	A	50'W x 150'S OF DL-4	125.6	115.5	" "	8.7	96.2	A
10-24 8	B	100'E. x 50'N. OF GE-10	131.4	121.7	" "	7.9	100.0	A
10-24 9	B	100'E. x 50'S. OF GE-10	129.5	119.0	" "	8.8	97.8	A
10-24 10	B	100'E. x 150'S OF GE-10	122.3	116.0	" "	5.4	95.3	A
10-24 11	B	100'E. x 200'S OF GE-10	124.2	117.1	" "	6.0	96.2	A
10-24 12	B	100'E. x 250'S. OF GE-10	128.6	120.8	" "	6.4	99.3	A
10-24 13	B	100'E. x 75'S. OF GE-12	129.1	121.1	" "	6.6	99.5	A
10-24 14	B	100'E. x 150'S OF GE-12	127.0	120.1	" "	5.7	98.7	A
10-24 15	B	25'W. x 200'S. OF GE-11	126.3	119.2	" "	5.9	97.9	A
10-24 16	B	25'W. x 150'S. OF GE-11	126.9	119.3	" "	6.3	98.0	A

* A MAXIMUM DENSITY 120.0 PCF OPTIMUM MOISTURE 12.3 % COMMENTS: A TEST RESULTS COMPLY WITH SPECIFICATIONS; B RETEST PROCTOR REQUIRED; C TEST AFTER RECOMPACTION

B MAXIMUM DENSITY 121.7 PCF OPTIMUM MOISTURE 13.3

METHOD OF TEST: ☐ SAND CONE ☐ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for PREP GRADE LFP-8 EAST SIDE with specific locations and results shown above.

material source SF-WMX-150 for test(s) numbers 10-24-1 / 10-24-

material source SF-WMX-145 for test(s) numbers 10-24-8 / 10-24-2

MS 484.2

DS 3596

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 10-24-97

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	% PERCENT COMPACTION	COMMENT
10-24 17	B	25'W. X 100'S. OF GE-11	129.7	121.4	PREP GRADE	6.8	99.7	A
10-24 18	B	25'W. OF GE-11	128.6	120.1	"	7.0	98.7	A
10-24 19	B	25'W. X 50'N. OF GE-11	127.0	119.3	"	6.4	98.0	A
10-24 20	B	25'W. X 100'N. OF GE-11	130.6	121.4	"	7.5	99.8	A
10-24 21	B	25'W. X 200'N. OF GE-11	124.4	117.4	"	5.9	96.5	A
10-24 22	B	50'E. X 200'N. OF GE-11	128.7	119.3	"	7.8	98.1	A
10-24 23	B	50'E. X 150'N. OF GE-11	126.9	119.3	"	6.3	98.1	A
10-24 24	B	50'E. X 100'N. OF GE-11	126.0	116.4	"	8.2	95.6	A
10-24 25	B	50'E. X 50'N. OF GE-11	127.3	118.3	"	7.6	97.2	A
10-24 26	B	50'E. OF GE-11	124.2	118.2	"	5.0	97.1	A

* A MAXIMUM DENSITY / CU FT OPTIMUM MOISTURE

B MAXIMUM DENSITY / CU FT OPTIMUM MOISTURE

COMMENTS: A TEST RESULTS COMPLY WITH SPECIFICATIONS; B RETEST ON REQUIRED; C RETEST RECOMMENDATION

METHOD OF TEST: ☐ SAND CONE ☐ NUCLEAR DENSOMETER

On this date a representative from this firm performed s: density testing at th project site. Tests were taken for _____ with specific locations and results shown above.

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

MS _____

DS _____

FAIRWAY TESTING
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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 10-23-97

(d)

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV	WATER CONTENT %	PERCENT COMPACTION	COMMENT
10-23 1	A	100'W x 100'N. OF GE-2	124.1	114.9	PREP GRADE	8.0	95.7	A
10-23 2	A	100'W. OF GE-2	125.0	115.2	"	8.5	96.0	A
10-23 3	A	100'W x 75'S. OF GE-2	124.6	115.8	"	7.6	96.4	A

* A MAXIMUM DENSITY 120.0 PCF OPTIMUM MOISTURE 12.3 %

B MAXIMUM DENSITY PCF OPTIMUM MOISTURE %

COMMENTS A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST AFTER RECOMPACTION

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for PREP GRADE with specific locations and results shown above.

material source SF-WMX-150 IPP for test(s) numbers 10-23-1/10

material source for test(s) numbers

MS 486.2

DS 3595

FAIRWAY TESTING
CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH
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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 10-22-97

ARRIVED 7:00

DEPARTED 3:30

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
10-22 1	A	25'E. x 50'N. OF GE-51	130.1	121.9	PREP GRADE	6.7	98.2	A
10-22 2	A	25'E. x 100'N. OF GE-51	132.0	123.5		6.8	94.5	A
10-22 3	A	50'E. x 150'N. OF GE-51	129.0	121.4		6.2	97.8	A
10-22 4	A	100'N. x 150'E. OF GE-51	128.6	120.2		6.9	96.9	A
10-22 5	A	50'N. x 150'E. OF GE-51	131.6	122.7		7.2	98.8	A
10-22 6	A	50'SW. OF GE-47	130.9	121.7		7.5	98.1	A

* A MAXIMUM DENSITY 129.1 P.C.F. OPTIMUM MOISTURE 11.8 % COMMENTS A TEST RESULTS COMPLY WITH SPECIFICATIONS B RECOMPACTION REQUIRED C TEST AFTER RECOMPACTION

B MAXIMUM DENSITY P.C.F. OPTIMUM MOISTURE

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for NORTHEAST SLOPE LFP-8, PREP GRADE, with specific locations and results shown above.

material source SF-WMX-140 for test(s) numbers 10-22-1 / 10-22-

material source _____ for test(s) numbers _____

MS 484.2

DS 36.16

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 10-21-97

7⁰⁰ ARRIVED

4⁰⁰ DEPARTED

(4)

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
10-21 1	A	50'W. x 50'S. OF GE-50	125.6	114.9	-1 PREP GRADE	9.3	94.4	B
10-21 2	A	RETEST NO. 1	126.9	116.1	"	9.3	95.4	C
10-21 3	A	100'W x 50'S OF GE-50	129.1	116.0	"	11.2	95.3	A
10-21 4	A	75'W. x 50'N. OF GE-3	125.7	117.9	PREP GRADE	6.6	96.8	A
10-21 5	A	75'W. x 100'N. OF GE-3	130.2	120.2	"	8.3	98.7	A
10-21 6	A	25'W. x 100'N. OF GE-3	128.6	117.7	"	9.2	96.7	A
10-21 7	A	25'W. x 50'N. OF GE-3	126.4	116.2	"	8.7	95.5	A
10-21 8	B	25'E. x 50'N. OF GE-3	132.0	123.5	"	6.8	99.5	A
10-21 9	B	25'N. OF DL-5	131.9	122.1	"	8.0	98.4	A
10-21 10	B	50'N. OF DL-5	132.0	122.7	"	7.5	98.9	A
10-21 11	B	50'E. x 75'S. OF GE-51	131.6	122.4	"	7.5	98.6	A
10-21 12	B	50'E. OF GE-51	128.3	119.0	"	7.8	95.9	A
10-21 13	B	50'E. x 50'N. OF GE-51	128.6	120.1	"	7.0	96.8	A
10-21 14	B	100'E. x 50'N. OF GE-51	128.1	117.7	"	8.8	96.9	A
10-21 15	B	100'E. OF GE-51	127.2	117.1	"	8.6	96.4	A
10-21 16	B	100'E. x 50'S. OF GE-51	128.3	119.1	"	7.7	98.1	A

* A MAXIMUM DENSITY 121.7 PCF OPTIMUM MOISTURE 13.3 %

B MAXIMUM DENSITY 124.1 PCF OPTIMUM MOISTURE 11.1 %

COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS; B. RECOMPACTION REQUIRED; C. TEST D AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for PREP GRADE LF-8, EAST SLOPE with specific locations and results shown above.

material source SF-WMX-145 for test(s) numbers 10-21-1/1

material source SF-WMX 140. for test(s) numbers 10-21-8/10-21

MS 481.2

DS 3596

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

DATE 10-21-97

Project Clarkstown Landfill

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
10-21 17	B	150'E. x 50's. of GE-51	127.0	117.2	PREP GRADE	8.3	96.5	A
					"			

* A MAXIMUM DENSITY ___ / CU FT OPTIMUM MOISTURE ___ %

B MAXIMUM DENSITY ___ / CU FT OPTIMUM MOISTURE ___ %

COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST AFTER RECOMPACTION

METHOD OF TEST ☐ SAND CONE ☐ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for _____ with specific locations and results shown above.

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

MS _____

DS _____

STRAWAY TESTING
CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH
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SOIL TEST REPORT

Client Ogden Remediation Services
Project Clarkstown Landfill

DATE 10-20-97

FIELD COMPACTION TESTS

TEST NO.		LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
10-20 1	A	50'N. X 50'E OF GE-7	135.5	125.3	PREP GRADE	8.1	100 9	A
10-20 2	A	100'N. X 50'E. OF GE-7	129.5	119.2		8.5	96.1	A
10-20 3	A	100'N. X 100'E. OF GE-7	132.3	122.0		8.4	98.3	A
10-20 4	A	100'E. OF GE-7	130.4	120.0		8.6	96.7	A
10-20 5	A	150'E. OF GE-7	129.0	120.5		7.0	97.1	A
10-20 6	A	50'E. X 150'N. OF GE-7	135.0	1238		9.0	998	A
10-20 7	A	25'W. X 50'S OF GE-3	130.9	120.6		8.5	97.2	A
10-20 8	A	50'E. X 75'S. OF GE-3	124.3	120.1		7.6	96.8	A
10-20 9	A	75'S. OF DL-5	130.2	120.1		8.4	96.8	A

A MAXIMUM DENSITY 129.1 PCF OPTIMUM MOISTURE 11.1 %

B MAXIMUM DENSITY PCF OPTIMUM MOISTURE

COMMENTS A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST AFTER RECOMPACTION

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for PREP GRADE, EAST SLOPE, LFP-8 with specific locations and results shown above.

material source SF-WMX-140. for test(s) numbers 10-20-1/10-20

material source for test(s) numbers

MS 486.0

DS 3612

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 10 17 97

7:00 ARRIVED

5:00 DEPARTED

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
10-17 1	A	25'N x 70'W OF GE-15	135.4	125.0	PREP GRADE	8.3	100 %	A
10-17 2	A	75'N. x 70'W OF GE-15	132.4	121.0		9.4	97.5	A
10-17 3	A	150'N. x 70'W OF GE-15	134.2	120.4		11.4	97.0	A
10-17 4	A	200'N. x 70'W. OF GE-15	127.3	115.2		10.5	92.8	B
10-17 5	A	RETEST NO. 4	133.0	120.7		10.1	97.2	C
10-17 6	A	200'N. x 30'W OF GE-15	132.3	120.2		10.0	96.8	A
10-17 7	A	150'N. x 30'W OF GE-15	127.6	115.8		10.1	93.3	B
10-17 8	A	RETEST NO. 7	132.4	120.4		9.9	97.0	C
10-17 9	A	50'N. x 30'W. OF GE-15	128.6	117.9		9.0	95.0	A
10-17 10	A	25'E. x 50'N. OF GE-15	135.7	123.5		9.8	99.5	A
10-17 11	A	25'E. x 100'N. OF GE-15	134.7	123.4		9.1	99.4	A
10-17 12	A	25'E. x 150'N. OF GE-15	132.4	121.1		9.3	97.6	A
10-17 13	B	125'E. OF OF GE-15	131.9	121.2		8.8	99.5	A
10-17 14	B	125'E. x 50'N. OF GE-15	129.4	119.5		8.2	98.1	A
10-17 15	B	125'E. x 100'N. OF GE-15	127.3	119.1		6.9	97.8	A
10-17 16	B	125'E. OF GE-12	137.6	124.8		10.2	102.5	A

A MAXIMUM DENSITY 124.1 PCF OPTIMUM MOISTURE 11.9 %

B MAXIMUM DENSITY 121.7 PCF OPTIMUM MOISTURE 13.5 %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST ☐ SAND CONE ☐ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for PREP GRADE EAST SLOPE LFP-8 with specific locations and results shown above.

material source SF-WMX-140 IPP for test(s) numbers 10-17-1 TO 10-17-

material source SF-WMX-145-IPP for test(s) numbers 10-17-13 - 10-17-2

MS 482.1

DS 3595

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

DATE 10-17-97

Project Clarkstown Landfill

FIELD COMPACTION TESTS

TEST NO.		LOCATION	WD	DD	ELEV.		WATER CONTENT %	PERCENT COMPACTION	COMMENT
10-17 12	B	25'E. X 50'N. OF GE-12	129.4	118.4	PREP GRADE		9.2	97.3	A
10-17 15	B	25'E. X 100'N. OF GE-12	129.7	118.6	"	"	9.3	97.5	A
10-17 19	B	25'E. X 150'N. OF GE-12	130.4	119.9			8.7	98.5	A
10-17 20	B	50'W X 150'N. OF GE-12	132.5	120.4			10.0	98.9	A
10-17 21	B	50'W X 100'N. OF GE-12	130.6	119.6			9.2	98.2	A
10-17 22	B	50'W. X 50'N. OF GE-12	132.3	122.2			8.4	100.2	A
10-17 23	B	100'W. X 50'N. OF GE-12	132.2	121.9			8.4	100.2	A
10-17 24	B	100'W. X 100'N. OF GE-12	132.9	121.4			9.4	99.8	A
10-17 25	B	100'W. X 150'N. OF GE-12	130.8	120.0	↓		9.0	98.6	A

A MAXIMUM DENSITY ___ / CU FT OPTIMUM MOISTURE ___

B MAXIMUM DENSITY ___ / CU FT OPTIMUM MOISTURE ___

COMMENTS

A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST ☐ SAND CONE ☐ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for _____ with specific locations and results shown above.

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

MS _____

DS

FAIRWAY TESTING
CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH
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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 10-16 97

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
10-16 1	A	140'S. X 40'W. OF GE-15	136.3	126.5	PREP GRADE	7.7	101.9	A
10-16 2	A	75'S. X 60'W. OF GE-15	136.7	122.5	"	11.6	98.4	A
10-16 3	A	40'S. X 60'W OF GE-15	138.3	124.6	"	11.0	100.4	A
10-16 4	A	20'N. X 60'W. OF GE-15	136.4	121.4	"	12.4	97.8	A
10-16 5	A	20'N OF GE-15	135.1	121.9	"	10.8	98.2	A
10-16 6	A	20'S. OF GE-15	135.9	121.2	"	12.1	97.6	A
10-16 7	A	75'S. OF GE-15	134.4	121.9	"	10.2	98.2	A
10-16 8	A	130'S. X 50'E. OF GE-15	132.3	123.6	"	7.0	99.6	A
10-16 9	B	130'S. X 100'E. OF GE-15	130.1	118.4	"	9.8	97.3	A
10-16 10	B	50'S. X 100'E. OF GE-15	129.0	115.9	"	11.3	95.2	A
10-16 11	B	50'S. X 50'E. OF GE-15	130.5	115.7	"	12.7	95.1	A
10-16 12	B	50'E. OF GE-15	130.2	118.7	"	9.6	97.6	A

* A MAXIMUM DENSITY 124.1 #/CU FT OPTIMUM MOISTURE 11.9 %

B MAXIMUM DENSITY 121.7 #/CU FT OPTIMUM MOISTURE 13.3 %

COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for PREP GRADE. EAST SLOPE, LFP-8 with specific locations and results shown above.

material source SF-wmx-140- for test(s) numbers 10-16-1 - 10-16-8

material source SF-wmx-145- for test(s) numbers 10-16-9 - 10-16-12

MS 484.9

DS 3597

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 10-16 97

700 ARRIVED
430 DEPARTED

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
10-16 1	A	210'N. x 220'E. OF GE-44	136.4	123.4	PREP GRADE	10.5	100.9	A
10-16 2	A	270'N. x 220'E. OF GE-44	133.6	121.0	"	10.4	99.0	"
10-16 3	A	310'N x 220'E. OF GE-44	129.7	117.8	"	10.1	96.4	"
10-16 4	A	470'N x 220'E. OF GE-44	129.1	116.7	"	10.6	95.5	"
10-16 5	A	560'N. x 220'E. OF GE-44	133.2	119.4	"	11.5	97.7	"
10-16 6	A	560'N. x 170'E. OF GE-44	131.6	118.7	"	10.8	97.1	"
10-16 7	A	470'N. x 170'E. OF GE-44	133.1	119.6	"	11.2	97.8	"
10-16 8	A	370'N. x 170'E. OF GE-44	129.6	117.3	"	10.4	95.9	"
10-16 9	A	260'N. x 170'E. OF GE-44	130.1	117.7	"	10.5	96.3	"
10-16 10	A	250'N. x 90'E. OF GE-44	129.7	116.8	"	11.0	95.6	"
10-16 11	A	350'N. x 90'E. OF GE-44	133.7	120.8	"	10.6	98.9	"
10-16 12	A	450'N. x 90'E. OF GE-44	130.1	117.3	"	10.4	96.0	"
10-16 13	A	560'N. x 90'E. OF GE-44	130.0	116.9	"	11.2	95.6	"

* A MAXIMUM DENSITY 122.2 #/CU FT OPTIMUM MOISTURE 9.7 %

B MAXIMUM DENSITY #/CU FT OPTIMUM MOISTURE %

COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for PREP GRADE LFP-1 with specific locations and results shown above.

material source SF-WMX-135 for test(s) numbers 10-16-1 10-16

material source _____ for test(s) numbers _____

MS 384.9

DS 3597

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 10-15-97

ARRIVED 7:00

DEPARTED 3:30

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
10-15 1	A	150'N. x 230'E OF GE-49	126.4	114.7	-6" PREP GRADE	10.2	93.8	C
10-15 2	A	RETEST NO. 1	129.3	117.1	" "	10.4	95.8	B
10-15 3	A	200'N. x 230'E. OF GE-49	125.9	114.4	" "	10.0	93.6	E
10-15 4	A	RETEST NO. 3	130.1	118.0	" "	10.2	96.6	B

* A MAXIMUM DENSITY 122.2 #/CU.FT OPTIMUM MOISTURE 9.7 % COMMENTS A. TEST RESULTS COMPLY WITH SPECIFICATIONS B. RECOMPACTION REQUIRED C. TEST IS AFTER RECOMPACTION

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for STRUCTURAL FILL LFP-1 with specific locations and results shown above.

material source SF-WMX-135 for test(s) numbers 10-15-1 10-15-4

material source _____ for test(s) numbers _____

MS 484.3

DS 3595

FAIRWAY TESTING
CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH
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SOIL TEST REPORT

Client Ogden Remediation Services

DATE 10-13-97

Project Clarkstown Landfill

ARRIVED 7:00
DEPARTED 4:00

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
10-13 1	A	350'N. x 130'E. OF GE-44	106.8	103.3	FIRST LIFT	3.3	95.5	A
10-13 2	A	375'N. 110'E. OF GE-44	107.5	104.4	" "	2.4	96.4	
10-13 3	A	300'N. x 150'E. OF GE-44	106.8	103.9	" "	2.7	96.0	
10-13 4	A	150'N. x 150'E. OF GE-44	106.6	103.2	" "	3.2	95.4	
10-13 5	A	200'N. x 125'E. OF GE-44	104.4	104.4	" "	4.7	96.5	
10-13 6	A	350'N. x 110'E. OF GE-44	107.4	104.3	SECOND LIFT	3.0	96.3	

* A MAXIMUM DENSITY 108.2 LBS/CU FT OPTIMUM MOISTURE 9.5 %

B MAXIMUM DENSITY LBS/CU FT OPTIMUM MOISTURE %

COMMENTS: A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TESTS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for STRUCTURAL FILL WP-1 with specific locations and results shown above.

material source SF-WMX-JFK for test(s) numbers 10-13-1 10-13

material source for test(s) numbers

MS 486.3

DS 3598

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH
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SOIL TEST REPORT

Client Ogden Remediation Services

DATE 10-9-97

Project Clarkstown Landfill

FIELD COMPACTION TESTS

TEST NO.		LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
					FIRST LIFT			
10-9 1	A	25'N X 75'E. OF GE-50	134.5	122.7		9.6	95.6	A
10-9 2	A	25'N. OF GE-50	141.3	131.0		7.9	102.1	
10-9 3	A	25'N. X 100'W. OF GE-50	131.4	122.4		7.3	95.4	
10-9 4	A	10'S X 100'W OF GE-50	137.2	127.0		8.0	99.0	
10-9 5	A	10'S. OF GE. 50-	138.8	127.6		8.8	99.4	
10-9 6	A	10'S. X 75'E. OF GE-50	133.4	121.9		9.4	95.0	

A MAXIMUM DENSITY 128.3 #/CU FT OPTIMUM MOISTURE 11.7 % COMMENTS A. TEST RESULTS COMPLY WITH SPECIFICATIONS B. RECOMPACTION REQUIRED C. TEST IS AFTER RECOMPACTION

B MAXIMUM DENSITY #/CU FT OPTIMUM MOISTURE %

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for STRUCTURAL FILL LFP-1 NORTH EAST SLOPE. with specific locations and results shown above.

material source SF-TN.5.8 for test(s) numbers 10-9-1 / 10-9-6

material source _____ for test(s) numbers _____

MS 482.1

DS 3606

PARKWAY TESTING
CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH
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SOIL TEST REPORT

Client Ogden Remediation Services
Project Clarkstown Landfill

DATE 10-2-97
7:00 ARRIVED
4:00 DEPARTED

FIELD COMPACTION TESTS

TEST NO.		LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
10-2 1	A	300'S. OF GM-6	130.5	119.1	PREP GRADE	9.5	96.2	A
10-2 2	A	200'S. OF GM-6	132.5	120.1	" "	10.3	96.9	A
10-2 3	A	100'S. OF GM-6	133.3	123.9	" "	7.5	100.1	A
10-2 4	A	160'W. X 300'S. OF GM-6	123.3	111.9	" "	10.0	90.4	A
10-2 5	A	RETEST NO.4	129.8	118.2	" "	9.8	95.4	A
10-2 6	A	160'W X 200'S. OF GM-6	133.6	122.4	" "	9.1	98 8	A
10-2 7	A	160'W. X 100'S. OF GM-6	138.2	124.7	" "	10.8	100.	A

A. MAXIMUM DENSITY 123.8 LBS/CU FT OPTIMUM MOISTURE 11.7 %

B. MAXIMUM DENSITY ____ LBS/CU FT. OPTIMUM MOISTURE ____

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for PREP GRADE LFP-1 with specific locations and results shown above.

material source SF-WMX-130- for test(s) numbers 10-2-1 TO 10-2-7

material source _____ for test(s) numbers _____

MS 481.4

DS 3606

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH
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SOIL TEST REPORT

Client Ogden Remediation Services

DATE 10-2-97

Project Clarkstown Landfill

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
10-2 1	A	25'W x 150'S OF GE-8	131.5	122.1	PREP GRADE	7.6	98.6	A
10-2 2	A	50'W x 100'S OF GE-8	129.5	119.2	" "	8.6	96.2	A
10-2 3	A	50'W x 50'S OF GE-8	129.8	119.9	" "	8.2	96.8	A
10-2 4	A	50'W x 50'N OF GE-8	129.2	118.6	" "	8.8	95.8	A

* A MAXIMUM DENSITY 123.8 #/CU FT OPTIMUM MOISTURE 11.7 %

B MAXIMUM DENSITY #/CU FT OPTIMUM MOISTURE

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for PREP GRADE RIDGE LINE LFP-6 with specific locations and results shown above.

material source SF-WMX-130 for test(s) numbers 10-2-1 / 10-2-4

material source _____ for test(s) numbers _____

MS 481.4

DS 3606

FAIRWAY TESTING
CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH
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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 10-1-97

9:00 ARRIVED
4:00 DEPARTED

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
10-1 1	A	75'E. X 25'N. OF GE-49	132.1	118.4	SECOND LIFT	11.6	98.3	A
10-1 2	A	75'E. X 100'N. OF GE-49	131.0	117.7	"	11.3	94.8	A
10-1 3	A	50'W. X 100'SW. OF GE-49	134.2	120.3	"	11.5	100.0	A
10-1 4	A	50'E. X 40'N. OF GE-49	141.5	126.6	THIRD LIFT	11.7	105.2	A
10-1 5	A	150'E. X 50'N. OF GE-49	128.8	117.5	FIRST LIFT	9.5	97.6	A
10-1 6	A	25'E. X 50'N. OF GE-49	140.8	129.8	SECOND LIFT	8.4	107.9	A
10-1 7	A	100'E. X 50'N. OF GE. 49	134.6	123.7	"	8.8	107.8	A

* A MAXIMUM DENSITY 120.3 #/CU FT OPTIMUM MOISTURE 12.3 % COMMENTS A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

B MAXIMUM DENSITY #/CU FT OPTIMUM MOISTURE %

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for STRUCTURAL FILL FOR LFP-1 AND LFP-8 with specific locations and results shown above.

material source SF-CF-01 for test(s) numbers 10-1-1 To 10-1-7

material source _____ for test(s) numbers _____

MS 481.2

DS 3596

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 9-30-97

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
9-30 1	A	50'NW. X 100'E. OF DL-4	135.8	121.9	FIRST LIFT	11.4	101.3	A
9-30 2	A	25'NE. X 30'S. OF DL-4	135.9	121.7	" "	11.6	101.1	A
9-30 3	A	50'W. X 50'S. OF GE-49	136.1	122.1	" "	11.4	101.4	A
9-30 4	A	50'W. X 100'S. OF GE-49	134.2	120.7	" "	11.1	100.3	A
9-30 5	A	40'N. X 60'E. OF GE-49	134.7	121.3	" "	11.0	100.8	A
9-30 6	A	50'E. OF DL-4	129.9	121.1	SECOND LIFT	7.2	100.6	A

* A MAXIMUM DENSITY 120.3 #/CU FT OPTIMUM MOISTURE 12.3 %

B MAXIMUM DENSITY #/CU FT OPTIMUM MOISTURE %

COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for STRUCTURAL FILL LFP-8 with specific locations and results shown above.

material source SF-CF-01 for test(s) numbers 9-30-1 / 9-30

material source _____ for test(s) numbers _____

MS 482.1

DS 3604

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

DATE 9-26-97

Project Clarkstown Landfill

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
9-26 1	A	300's OF GM-6	128.7	117.9	-6" SG	9.1	96.9	A
9-26 2	A	250's OF GM-6	129.3	120.5	"	7.3	99.0	"
9-26 3	A	200's OF GM-6	130.2	119.8	"	8.6	98.5	"

* A MAXIMUM DENSITY 121.6 #/CU FT OPTIMUM MOISTURE 10.4 % COMMENTS A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

B MAXIMUM DENSITY #/CU FT OPTIMUM MOISTURE %

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for STRUCTURAL FILL AT WD-1 with specific locations and results shown above.

material source COVER SOIL AVERAGE for test(s) numbers 9-26-1 9-26

material source _____ for test(s) numbers _____

MS 48.4

DS 3596

FAIRWAY TESTING
CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH
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SOIL TEST REPORT

Client Ogden Remediation Services
Project Clarkstown Landfill

DATE 9-25-97
7:00 ARRIVED
4:00 DEPARTED

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
9-25 1	A	50'N. x 10'E. OF GE-4	142.1	128.7	SECOND LIFT	10.4	98.6	A
9-25 2	A	25'S. 25'E. OF GE-4	143.0	128.9	"	10.9	98.8	A
9-25 3	B	25'N. x 100'E. OF GE-8	133.0	124.0	PREP GRADE	7.2	100.1	A
9-25 4	B	25'N x 50'E. OF GE-8	132.1	122.4	" "	7.4	98.8	A
9-25 5	B	50'E. x 75'S. OF GE-8	130.0	120.3	" "	8.0	97.2	A
9-25 6	B	100'E. x 75'S OF GE-8	136.7	123.9	" "	10.3	100.1	A
9-25 7	B	100'W. x 50'N. OF GE-7	133.7	123.2	" "	8.5	99.5	A
9-25 8	B	100'W. x 100'N. OF GE-7	127.6	118.2	" "	7.9	95.5	A
9-25 9	C	50'E. x 150'S. OF GE-7	131.3	120.5	" "	8.9	95.0	A
9-25 10	C	100'E. OF GE-13	133.2	122.4	" "	8.8	96.4	A
9-25 11	C	100'E. x 50'S. OF GE-13	136.8	125.3	" "	9.1	98.8	A
9-25 12	C	100'E. x 100'S. OF GE. 13	132.0	121.7	" "	8.4	95.9	A
9-25 13	C	100'E. x 150'S. OF GE-13	131.3	120.6	" "	8.9	95.0	A

* A MAXIMUM DENSITY 130.4 #/CU FT OPTIMUM MOISTURE 10.5 %

B MAXIMUM DENSITY 123.8 #/CU FT OPTIMUM MOISTURE 11.7 %
126.4 10.3

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST AFTER RECOMPACTION

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for STRUCTURAL FILL LFP-6-7 with specific locations and results shown above.

material source Lake Lucille for test(s) numbers 9-25-1 / 9-25-2

material source SF-WMX-130 / SF-WMX-125 for test(s) numbers 9-25-3 / 9-25-8 / 9-25-9 / 9-25-13

MS 481.6

DS 3608

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 9-24-97

700 ARRIVED
430 DEPARTED

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
9-24 1	A	RETEST 9-23 2 100'E. X 75'S. OF GE-14	133.2	122.8	-6" PREP GRADE	8.4	96.8	C
9-24 2	A	RETEST 9-23-5 80'E X 100'S. OF GE-14	132.6	122.5	"	8.2	96.5	C
9-24 3	A	RETEST 9-23-8 100'E. X 50'S. OF GE-14	131.4	122.2	"	7.4	96.3	C
9-24 4	A	40'E. OF GE-8	130.8	120.8	"	8.2	95.2	A
9-24 5	A	40'E. X 50'S. OF GE-8	132.3	122.5	"	8.0	96.5	A
9-24 6	A	40'E. X 100'S. OF GE-8	133.4	123.0	"	8.6	96.9	A
9-24 7	A	40'E. X 150'S. OF GE-8	129.9	121.5		6.9	95.7	A

* A MAXIMUM DENSITY 126.9 #/CU FT OPTIMUM MOISTURE 10.5 %

B MAXIMUM DENSITY #/CU FT OPTIMUM MOISTURE %

COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST B AFTER RECOMPACTION

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for STRUCTURAL FILL LFP-6 with specific locations and results shown above.

material source SF-WMX-125 for test(s) numbers 9-24-1 / 9-2

material source _____ for test(s) numbers _____

MS 485.4

DS 3620

FAIRWAY TESTING
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SOIL TEST REPORT

Client Ogden Remediation Services

DATE 9-24-97

Project Clarkstown Landfill

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
9-24 1	A	100'W. x 25'S OF GE-7	132.1	121.2	PREP GRADE	9.0	95.5	A
9-24 2	A	100'W. x 100'S. OF GE-7	136.3	125.6	" "	8.5	99.0	A
9-24 3	A	125'W x 150'S. OF GE-7	127.3	118.0	" "	7.8	93.0	B
9-24 4	A	RETEST NO 3	129.9	120.7	" "	7.6	95.1	C
9-24 5	A	50'W x 20'S OF GE 13	130.9	121.1	" "	8.1	95.4	A
9-24 6	A	50'W. x 100'S OF GE-13	131.3	120.9	" "	8.6	95.2	A
9-24 7	A	50'N. OF GE-16	132.0	126.4	" "	4.4	99.6	A
9-24 8	A	50'E. x 50'N. OF GE-16	129.8	121.8	" "	6.5	96.0	A
9-24 9	A	50'E. x 100'N. OF GE-16	131.0	122.0	" "	7.3	96.2	A
9-24 10	A	25'E. x 25'S OF GE-13	133.1	123.5	" "	7.7	97.4	A

* A MAXIMUM DENSITY 126.9 PCF OPTIMUM MOISTURE 10.3 % COMMENTS A. TEST RESULTS COMPLY WITH SPECIFICATIONS B. RECOMPACTION REQUIRED C. TEST S AFTER RECOMPACTION

B MAXIMUM DENSITY PCF OPTIMUM MOISTURE %

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for STRUCTURAL FILL, PREP GRADE LFP-7 with specific locations and results shown above.

material source ST-WMX-125' for test(s) numbers 9-24-1 / 9-24-7

material source _____ for test(s) numbers _____

MS 485.4

DS 3620

FAIRWAY TESTING
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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 9-23-97

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	%PERCENT COMPACTION	COMMENT
9-23 1	A	130'E. OF GE-14	131.7	121.0	-6" PREP GRADE	8.8	95.3	A
9-23 2	A	100'E. x 75'S. OF GE-14	127.9	118.4	" "	8.0	93.3	B
9-23 3	A	80'E. x 150'S. OF GE-14	131.2	120.6	" "	8.8	95.0	A
9-23 4	A	80'E. x 200'S. OF GE-14	131.3	122.5	" "	7.1	96.5	A
9-23 5	A	80'E. x 100'S. OF GE-14	128.0	117.4	" "	8.4	92.9	B
9-23 6	A	150'E. x 150'S. OF GE-14	131.7	122.3	PREP. GRADE	7.6	96.3	A
9-23 7	A	100'E. x 150'S. OF GE-14	131.0	121.7	" "	7.6	95.8	A
9-23 8	A	100'E. x 50'S. OF GE-14	130.1	119.0	" "	9.2	93.7	B
9-23 9	A	100'E. OF GE-14	133.0	122.8	" "	8.3	96.7	A

* A MAXIMUM DENSITY 124.9 #/CU FT OPTIMUM MOISTURE 10.5 % COMMENTS A. TEST RESULTS COMPLY WITH SPECIFICATIONS B. RECOMPACTION REQUIRED C. TEST AFTER RECOMPACTION

B MAXIMUM DENSITY #/CU FT OPTIMUM MOISTURE

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for PREP GRADE LFP-7 with specific locations and results shown above.

material source SF-WMX-125 for test(s) numbers 9-23-1 / 9-23-

material source _____ for test(s) numbers _____

MS 484.2

DS 3616

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 9-18-97

7:00 ARRIVED
4:00 DEPARTED

FIELD COMPACTION TESTS

TEST NO.		LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
9-18 1	A	25'N. x 25'E. OF GE 30	133.6	121.1	PREP GRADE	10.2	99.6	A
9-18 2	A	100'E. x 25'N. OF GE 30	139.7	122.8	" "	9.4	100.6	A
9-18 3	A	50'W x 25'N. OF GE 16	126.4	116.5	" "	8.5	95.7	A
9-18 4	A	25'N. OF GE 16	133.9	120.7	" "	10.1	98.8	A
9-18 5	A	25'S OF GE 16	131.6	121.6	" "	8.2	99.6	A
9-18 6	A	25'S. x 50'W. OF GE-16	125.3	115.8	" "	8.2	95.2	A
9-18 7	A	100'W. x 25'S. OF GE-16	129.1	118.4	" "	9.0	97.3	A
9-18 8	A	75'E. x 25'S. OF GE 30	134.9	122.0	" "	10.5	99.9	A
9-18 9	A	100'S. OF GE 30	132.6	121.5	" "	9.1	99.5	A
9-18 10	A	100'S x 50'E. OF GE 30	131.7	119.3	" "	10.3	98.0	A
9-18 11	A	100'S. x 100'W. OF GE 16	132.1	123.1	" "	7.2	101.3	A
9-18 12	A	100'S. X 50W. OF GE-16	128.1	117.2	" "	9.3	96.3	A
9-18 13	A	100'S. x 25'E. OF GE 16	131.6	120.8	" "	8.9	98.9	A
9-18 14	A	125'E. X 150'S OF GE 16	130.2	120.1	" "	8.4	98.3	A
9-18 15	A	50'S. X 125'E. OF GE 16	130.1	121.9	" "	6.7	100.3	A
9-18 16	A	125'E. X 25'N OF GE 16	129.8	120.4	" "	7.8	98.6	A

* A MAXIMUM DENSITY 122.1 P/CU.FT OPTIMUM MOISTURE 11.3 % COMMENTS

A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

B MAXIMUM DENSITY P/CU.FT OPTIMUM MOISTURE %

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for STRUCTURAL FILL LFP-6 with specific locations and results shown above.

material source SF-WMX-120 for test(s) numbers 9-18-1 \ 9-18-14

material source _____ for test(s) numbers _____

MS 484.1

DS 3602

FAIRWAY TESTING
CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH
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SOIL TEST REPORT

Client Ogden Remediation Services

DATE 9-17-97

Project Clarkstown Landfill

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	% WATER CONTENT	% PERCENT COMPACTION	COMMENT
9-17 1	A	80'N. x 170'W. OF GE 50	130.3	120.0	PREP GRADE	8.6	98.2	A
9-17 2	A	80'N. x 100'W OF GE 50	127.8	117.0	" "	9.2	95.8	A
9-17 3	A	80'N. OF GE 50	126.4	111.0	" "	8.9	95.0	A
9-17 4	A	150'N. OF GE 50	127.4	116.8	" "	9.0	95.7	A
9-17 5	A	100'N. x 100'W. OF GE 50.	133.4	122.4	" "	8.5	100.7	A
9-17 6	A	100'N. x 150'W OF GE 50	131.0	120.7		8.4	98.8	A

* A MAXIMUM DENSITY 122.1 #/CU.FT. OPTIMUM MOISTURE 11.3 % COMMENTS A. TEST RESULTS COMPLY WITH SPECIFICATIONS B. RECOMPACTION REQUIRED C. TEST IS AFTER RECOMPACTION

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for NORTHEAST SLOPE with specific locations and results shown above.

material source SF-WMX-120 for test(s) numbers 9-17-1 / 9-17-

materiai source _____ for test(s) numbers _____

MS 481.4

DS 3614

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

DATE 9-16-97

Project Clarkstown Landfill

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
9-16 1	A	25'W OF GE-6	129.4	119.3	PREP GRADE	8.4	95.9	A
9-16 2	A	25'E. OF GE-6	129.8	119.2	" "	8.8	95.8	A
9-16 3	A	25'E. X 50'N. OF GE-6	131.1	119.2	" "	9.9	95.8	A
9-16 4	A	100'N. OF GE-6	126.8	114.2	" "	11.0	91.8	B
9-16 5	A	RETEST NO.4	130.4	119.0	" "	9.5	95.7	C
9-16 6	A	25'W. X 50'N. OF GE-6	126.3	116.1	" "	8.8	93.3	B
9-16 7	A	RETEST NO. 6	131.4	120.7	" "	8.8	97.1	C
9-16 8	A	50'S. OF GE-6	131.5	121.8	" "	7.9	98.0	A
9-16 9	A	50'W. OF GE-52	129.3	118.5	" "	8.1	95.3	A
9-16 10	A	50'W. X 25'S. OF GE-52	134.9	122.4	" "	10.1	98.4	A
9-16 11	A	25'S OF GE-52	129.9	118.4	" "	9.6	95.2	A
9-16 12	A	50'E. OF GE-52	135.2	124.0	" "	9.0	99.7	A
9-16 13	A	50'N. OF GE 4	132.2	120.5	-1'S.G.	9.7	96.9	A
9-16 14	A	100'S OF GE 51	131.9	120.6	"	9.3	97.0	A
9-16 15	A	100'E. X 50'S. OF GE 52	129.2	119.1	PREP GRADE	8.5	95.7	A
9-16 16	A	50'W. X 50N. OF GE-4	132.6	123.5	" "	7.3	99.3	A

* A MAXIMUM DENSITY 124.3 #/CU.FT. OPTIMUM MOISTURE 9.0 %

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for STRUCTURAL FILL LFP-6 with specific locations and results shown above.

material source ST-WMX-115 for test(s) numbers 9-16-1 / 9-16-15

material source _____ for test(s) numbers _____

MS 482.4

DS 3612

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 9-16-97

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
9-16 17	A	50'W X 25'S. OF GE-4	127.4	118.0	PREP GRADE	7.9	95.0	A
9-16 18	A	100'W X 100'S. OF GE-4	131.0	119.5	" "	9.6	96.1	A

* A MAXIMUM DENSITY ____ #/CU.FT OPTIMUM MOISTURE ____ %

B MAXIMUM DENSITY ____ #/CU.FT. OPTIMUM MOISTURE ____ %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST ☐ SAND CONE ☐ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for _____ with specific locations and results shown above.

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

MS _____

DS _____

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services DATE 9-15-97

Project Clarkstown Landfill

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
9-15 1	A	100'W x 50'S. OF GE 52	133.7	123.9	-12" PREP GRADE	7.5	100.4	A
9-15 2	A	50'W x 50'S OF GE 52	129.4	119.1	"	8.6	96.5	A
9-15 3	A	50'S OF GE 52	130.5	121.3	"	7.5	98.0	A
9-15 4	A	100'S x 50'E. OF GE 52	129.9	120.8	"	7.5	98.4	A
9-15 5	A	25'E. x 40'N. OF GE 52	134.2	122.5	"	9.5	99.8	A
9-15 6	A	100'E. x 40'N. OF GE 52	131.9	121.7	"	8.3	98.6	A
9-15 7	A	50'W. OF GE 5	130.4	120.0	PREP GRADE	8.6	97.2	A
9-15 8	A	50'S. x 50'W OF GE 5	127.8	118.4	" "	7.9	96.4	A
9-15 9	A	60'W. OF GE 6	129.1	118.1	" "	9.3	96.1	A
9-15 10	A	100'W. OF GE-6	134.2	122.1	" "	9.8	99.4	A
9-15 11	A	30'W OF GE-36	133.5	123.6	" "	8.0	100.6	A
9-15 12	A	30'W x 50'S. OF GE-36	134.6	123.3	" "	9.1	100.4	A
9-15 13	A	30'W. x 100'S OF GE 36	129.9	119.4	" "	8.7	97.2	A
9-15 14	A	30'W X 150'S. OF GE 36	130.7	121.1	" "	7.9	98.6	A
9-15 15	A	50'E. x 50'S OF GE-36	130.1	122.1	" "	6.5	99.4	A
9-15 16	A	50'E. x 100'S. OF GE-36	127.6	118.7	" "	7.5	96.6	

★ A MAXIMUM DENSITY 122.8 #/CU.FT. OPTIMUM MOISTURE 11.4 % COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS; B. RECOMPACTION REQUIRED; C. TEST IS AFTER RECOMPACTION

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for STRUCTURAL FILL LFP-6 with specific locations and results shown above.

material source SF-WMX-110 for test(s) numbers 9-15-1 / 9-15-1

material source _____ for test(s) numbers _____

MS 482.2

DS 3614

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services DATE 9-15-97

Project Clarkstown Landfill

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
9-15 17	A	100'E. X 100'S. OF GE 36	127.4	118 3	PREP GRADE	7.7	96.3	A
9-15 18.	A	100'E. X 50'S. OF GE 36	130.3	119.6	" "	8 9	97.4	A

* A MAXIMUM DENSITY ____ #/CU.FT OPTIMUM MOISTURE ____ % COMMENTS

B MAXIMUM DENSITY ____ #/CU.FT. OPTIMUM MOISTURE ____ %

A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST ☐ SAND CONE ☐ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for _____ with specific locations and results shown above.

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

MS _____

DS _____

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 9-9-97

900 ARRIVED
330 DEPARTED

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
9-9 1	A	DIVERSION DIKE #10 10'N. OF DL-8	130.4	118.7	SUBGRADE	9.9	96.5	A
9-9 2	A	DIVERSION DIKE #10 70'S OF GE 26	131.6	120.5	" "	9.2	98.0	A

* A MAXIMUM DENSITY 122.9 #/CU.FT. OPTIMUM MOISTURE 11.4 % COMMENTS A TEST RESULTS COMPLY WITH SPECIFICATIONS B RECOMPACTION REQUIRED C TEST AFTER RECOMPACTION

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for DIVERSION DIKE TO LFP-4 with specific locations and results shown above.

material source SF-WMX-105 for test(s) numbers 9-9-1 \ 9-9-

material source _____ for test(s) numbers _____

MS 3614

DS 483.2

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 9-9-97

M 00

3 30

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
9-9-1	A	25'S. X 25'W. OF GE-6	137.3	126.5	PREP GRADE	8.5	102.9	A
9-9 2	A	25'W X 100'S. OF GE-6	128.1	117.2	"	9.2	95.4	A
9-9 3	A	60'N. OF GE-18	125.7	117.2	"	7.2	95.4	A
9-9 4	A	60'N. X 75'W. OF GE-18	128.2	118.8	"	7.9	96.6	A

* A MAXIMUM DENSITY 122.9 #/CU.FT. OPTIMUM MOISTURE 11.4 %

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST AFTER RECOMPACTION

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for PREP GRADE AT LFP-6 & LFP-7 with specific locations and results shown above.

material source SF-WMX-105 for test(s) numbers 9-9-1 / 9-9-

material source _____ for test(s) numbers _____

MS 3614

DS 483.2

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 9-9-94

900 ARRIVED
330 DEPARTED

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
9-9 1	A	DIVERSION DIKE #10 10'N. OF DL-8	130.4	118.7	SUBGRADE	9.9	96.5	A
9-9 2	A	DIVERSION DIKE #10 70'S OF GE 26	131.6	120.5	" "	9.2	98.0	A

* A MAXIMUM DENSITY 122.9 #/CU.FT. OPTIMUM MOISTURE 11.4 %

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for DIVERSION DIKE 10 LFP-4 with specific locations and results shown above.

material source SF-WMX-105 for test(s) numbers 9-9-1 / 9-9-2

material source _____ for test(s) numbers _____

MS 3614

DS 483.2

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 9-8-97

7:00 W.T.L
3:30

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
9-8-1	A	25'N. X 100'W OF GE 18	125.1	116.7	PREP GRADE	7.9	95.0	A
9-8-2	A	50'N. X 100'W. OF GE 18	132.6	122.7	" "	8.0	99.9	A
9-8 3	A	150'N. X 100'W. OF GE 18	129.2	120.8	" "	7.0	98.2	A
9-8 4	A	150'N. X 50'W OF GE 18	122.9	113.3	" "	8.3	92.2	A
9-8 5	A	RETEST NO. 4	131.1	121.1	" "	8.2	98.5	A
9-8 6	A	150'N OF GE-18	129.7	120.5	" "	7.6	98.0	A
9-8 7	A	150'N. X 100'E. OF GE-18	131.3	121.9	" "	7.7	99.1	A
9-8 8	A	100'N. X 100'E OF GE-18	130.0	120.2	" "	8.1	97.8	A
9-8 9	A	50'N. X 50'E OF GE-18	129.4	119.9	" "	7.9	97.5	A

* A MAXIMUM DENSITY 122.9 #/CU.FT. OPTIMUM MOISTURE 11.0% COMMENTS A. TEST RESULTS COMPLY WITH SPECIFICATIONS B. RECOMPACTION REQUIRED C. TEST # AFTER RECOMPACTION

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for PREP GRADE LFP-7 SOUTH SECTION with specific locations and results shown above.

material source SF-WMX 105 for test(s) numbers 9-8-1)9-9

material source _____ for test(s) numbers _____

MS 482.4

DS 3612

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 9-5-97

7 00
3 30

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
9-5 1	A	150'E. X 100's OF GE 24	129.4	120.2	PREP GRADE	7.6	97.8	A
9-5 2	A	150'E. X 25'S. OF GE 24	130.9	122.9	"	7.0	99.4	A
9-5 3	A	150'E. X 50'N. OF GE 24	128.7	120.5	"	6.8	98.0	A
9-5 4	A	50'E. X 100's OF GE 18	132.8	121.5	"	9.3	98.9	A
9-5 5	A	50'E. OF GE 18	133.4	122.0	"	9.3	99.3	A
9-5 6	A	100'E. OF GE 18	128.8	118.1	"	9.0	96.1	A
9-5 7	A	100'E. X 50'S OF GE 18	128.0	117.8	"	8.7	95.8	A
9-5 8	A	100'E. X 150'S. OF GE 18	128.4	119.6	"	7.3	97.3	A
9-5 9	A	200'E. OF GE 24	128.7	120.5	"	6.8	98.0	A
9-5 10	A	200'E. X 50's. OF GE 24	129.4	120.2	"	7.6	97.8	A
9-5 11	A	50'S. OF GE 24	132.7	122.4	"	7.4	100.0	A
9-5 12	A	100'N. X 50'W OF GE 24	132.6	121.5	"	9.1	98.8	A
9-5 13	A	100'N. X 100'W. OF GE 24	132.9	121.5	"	9.3	98.8	A
9-5 14	A	75'W. OF GE 24	129.4	119.2	"	8.5	97.0	A
9-5 15	A	100'W. X 50'S OF GE 24	129.8	120.9	"	7.4	98.3	A

* A MAXIMUM DENSITY 122.9 #/CU.FT. OPTIMUM MOISTURE 11.0 % COMMENTS A. TEST RESULTS COMPLY WITH SPECIFICATIONS B. RECOMPACTION REQUIRED C. TEST IS AFTER RECOMPACTION

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for PREP GRADE LFP-7 SOUTH SECTION with specific locations and results shown above.

material source SF-WMX-105 for test(s) numbers 9-5-1 \ 9-5-15

material source _____ for test(s) numbers _____

MS 481.3

DS 3602

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 9-4-97

7:00

3:30

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
9-4-1	A	25'W. X 25'S. OF GE 24	136.8	124.6	PREP GRADE	9.7	100.6	
9-4 2	A	25'W OF GE 24	135.3	121.8	" "	11.1	98.4	
9-4 3	A	25'W X 25'N. OF GE 24	131.6	119.3	" "	10.6	96.3	
9-4 4	A	30'E. OF GE 32	131.6	119.1	" "	9.6	96.2	
9-4 5	A	30'E. X 50'N. OF GE 32	132.7	119.7	" "	10.8	96.7	
9-4 6	A	30'E. X 100'N. OF GE 32	134.4	122.3	" "	9.9	98.7	
9-4 7	A	25'E. X 50'N. OF GE 24	133.9	121.4	-6"	10.3	98.1	
9-4 8	A	25'E. X 100'N. OF GE 24	135.7	122.2	-6"	11.0	98.7	
9-4 9	A	70'S OF GE 18	129.9	121.4	-6"	7.0	98.0	
9-4 10	A	10'N. X 10'E. OF GE 18	134.9	123.6	-6"	9.1	99.8	

* A MAXIMUM DENSITY 123 # / CU FT OPTIMUM MOISTURE 9.4 % COMMENTS A TEST RESULTS COMPLY WITH SPECIFICATIONS B RECOMPACTION REQUIRED C TEST IS AFTER RECOMPACTION

B MAXIMUM DENSITY # / CU.FT. OPTIMUM MOISTURE %

* METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for PREP GRADE LFP-7 SOUTH EAST SECTION with specific locations and results shown above.

material source SF-WMX-100 for test(s) numbers 9-4-1 [illegible]

material source _____ for test(s) numbers _____

MS 460.8

DS 3600

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 9-4-97

7:00
3:30

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV	WATER CONTENT %	PERCENT COMPACTION	COMMENT
9-4 1	A	10'W X 10'S OF RFW 55 5D	135.4	123.1	1ST LIFT	10.3	99.6	A
9-4 2	A	20'W X 70'N. OF RFW 55 5D	133.3	120.5	" "	10.6	97.5	A
9-4 3	A	13'W. OF RFW 55-5D	134.7	123.2	2ND LIFT	9.3	99.7	A
9-4 4	A	40'W X 100'N. OF RFW 55 5D	135.4	120.4	2ND LIFT	11.9	97.9	A
9-4 5	A	10'W X 20'N. OF RFW 55 5D	133.2	122.1	3RD LIFT	9.1	99.8	A
9-4 6	A	40'W X 100'N. OF RFW 55 5D	135.1	123.4	3RD LIFT	10.4	99.1	A

* A MAXIMUM DENSITY 123.8 LBS/CU FT. OPTIMUM MOISTURE 9.4 %

B MAXIMUM DENSITY ____ LBS/CU FT. OPTIMUM MOISTURE ____ %

COMMENTS
A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

METHOD OF TEST ☐ SAND CONE ☐ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for Temp. Berm @ Sediment Basin 4 West Side LFP-3 with specific locations and results shown above.

material source SF-WMX-100 for test(s) numbers 9-4-1 \ 9-4-6

material source _____ for test(s) numbers _____

MS 480.8

DS 3600

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 9-3-97

7[OC] APPROVED

6[OC] DEPARTE

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
9-3 1	A	25'N. x 25'E. OF GE 36	137.3	126.5	PREP GRADE	8.4	99.4	A
9-3 2	A	40'N. x 50'E. OF GE 36	131.8	121.4	-6" "	8.6	95.8	A
9-3 3	A	60'N. x 100'E. OF GE 36	130.6	117.2	-6" "	11.5	92.5	B
9-3 4	A	RETEST NO. 3	134.2	120.6	-6" " "	11.3	95.2	C
9-3 5	A	10'N. x 50'E. OF GE 36	134.5	120.2	-6" " "	11.9	95.0	A
9-3 6	A	25'N. x 50'E. OF GE 36	131.5	120.3	PREP GRADE	9.3	95.0	A
9-3 7	A	25'N. 100'E OF GE 36	134.1	123.1	"	8.9	97.2	A

* A MAXIMUM DENSITY 126.6 LB/CU.FT. OPTIMUM MOISTURE 11.7 %

B MAXIMUM DENSITY LB/CU.FT. OPTIMUM MOISTURE %

COMMENTS: A TEST RESULTS COMPLY WITH SPECIFICATION
B RECOMPACTION REQUIRED
C TEST AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for PREP GRADE NORTH SECTION LFP-C with specific locations and results shown above.

material source ST-WMX-90 for test(s) numbers 9-3 1 5

material source _____ for test(s) numbers _____

MS 482.C

DS 3609

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 9-3-94

ARRIVED 700

DEPARTED 6°

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
9-3 1	A	20'W. X 40'N. OF GE 24	131.8	118.9	-1' PREP GRADE	10.8	95.7	A
9-3 2	A	100'NW OF GE 24	126.8	113.7	" "	11.5	91.5	B
9-3 3	A	RETEST NO. 2	132.4	118.8	" "	11.4	95.6	C
9-2 4	A	100'N X 25'W OF GE 24	136.0	121.8	-6" PREP GRADE	11.6	97.9	A
9-2 5	A	150'N. X 50'W OF GE 24	127.3	114.7	PREP GRADE	11.0	92.2	B
9-2 6	A	RETEST NO. 5	131.1	119.7	" "	10.2	96.3	C
9-2 7	A	75'N. X 50'W. OF GE24	128.1	115.9	-1' PREP GRADE	10.5	93.2	B
9-2 8	A	RETEST NO 7.	131.7	120.2	" "	9.5	96.7	C
9-2 9	A	10'W. X 10'S. OF GE 24	134.4	123.2	" "	9.0	99.1	A
9-2 10	A	125'N. OF GE 24	129.9	119.1	-6" PREP GRADE	9.0	95.2	A
9-2 11	A	25'E. X 25'S OF GE 24	130.4	120.1	-12" PREP GRADE	8.6	96.5	A
9-2 12	A	50'E. OF GE 24	132.7	122.1	-12" PREP GRADE	8.7	98.2	A
9-2 13	A	20'E X 10'N. OF GE 24	135.0	122.2	-12" PREP GRADE	10.5	98.2	A
9-2 14	A	40'W. OF GE 24	125.8	116.0	-6" PREP GRADE	11.0	93.3	B
9-2 15	A	RETEST NO. 14	134.6	120.9	" " "	11.3	97.2	C
9-2 16	A	50'E. X 50'S. OF GE 24	132.7	120.8		9.8	97.2	A

* A MAXIMUM DENSITY 123.4 #/CU.FT. OPTIMUM MOISTURE 9.2% COMMENTS

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST 'B' AFTER RECOMPACTION

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for STRUCTURAL FILL LFP-7 SOUTH SECTION with specific locations and results shown above.

material source SF-WMX-95 for test(s) numbers 9-3-1 & 9-3-2

material source _____ for test(s) numbers _____

MS 482.6

DS 3609

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 9-2-97

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV	WATER CONTENT %	PERCENT COMPACTION	COMM
9-2 1	A	100'S. OF GE 39	134.9	124.0	PREP GRADE	8.7	97.9	A
9-2 2	A	50'S. OF GE 39	137.9	126.5	" "	9.0	99.9	A
9-2 3	A	50'N. OF GE 39	138.3	127.8	" "	8.2	100.9	A
9-2 4	A	100'N. OF GE 39	134.2	123.7	" "	8.4	97.7	A
9-2 5	A	50'S. OF GE 43	134.2	124.2	" "	8.0	98.1	A
9-2 6	A	100'S. OF GE 43	134.9	125.1	" "	7.8	98.8	A
9-2 7	A	75'W. OF GE	130.1	121.5	-6" PREP GRADE	7.0	96.0	A
9-2 8	A	75'W. x 50'S. OF GE 39	133.6	123.6	-6" "	8.1	97.6	A
9-2 9	A	75'W. x 100'S. OF GE 39	137.4	125.7	-6" "	9.3	99.3	A
9-2 10	A	150'W. x 100'S. OF GE 39	133.0	122.9	-6" "	8.2	97.1	A
9-2 11	A	150'W. OF GE 39	131.9	122.9	PREP GRADE	7.3	97.1	A
9-2 12	A	150'W. x 50'N. OF GE 39	134.1	123.0	" "	9.0	97.2	A
9-2 13	A	150'W x 100'N. OF GE 39	130.8	120.9	" "	8.1	95.5	A
9-2 14	A	50'E. OF GE 40	132.6	122.0	" "	8.6	96.4	A
9-2 15	A	100'E. OF GE 40	133.7	122.5	" "	9.1	96.8	A
9-2 16	A	50'S. x 50'W OF GE 43	131.8	121.2	" "	8.7	95.7	A

* A MAXIMUM DENSITY 126.5 PCF OPTIMUM MOISTURE 11.7 % COMMENTS A TEST RESULTS COMPLY WITH SPECIFICATIONS B RECOMPACTION REQUIRED C TEST IS AFTER RECOMPACTION

B MAXIMUM DENSITY ____ PCF OPTIMUM MOISTURE ____ %

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for STRUCTURAL FILL LFP-6 NORTH WEST SECTION with specific locations and results shown above.

material source A1 WMX-90 for test(s) numbers 9-2-1 thru 16

material source ____ for test(s) numbers ____

MS 483.4

DS 3620

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 9-2-97

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENTS
9-2-17	A	50'S. x 100'W. OF GE 43	132.4	123.0	PREP GRADE	7.6	97.1	A
9-2 18	A	25'S x 50'E. OF GE 43	132.6	121.4	" "	9.2	95.9	A
9-2 19	A	25'S. x 100'E. OF GE 43	134.0	123.9	" "	8.1	97.9	A
9-2 20	A	25'S. x 150'E. OF GE 43	130.2	121.7	" "	7.2	95.9	A
9-2 21	A	25'S. x 200'E. OF GE 43	136.4	126.1	" "	8.2	99.6	A
9-2 22	A	70'S. x 200'E. OF GE 43	136.2	128.6	" "	5.9	101.5	A
9-2 23	A	70'S. x 100'E. OF GE 43	134.5	126.1	" "	6.5	99.6	A
9-2 24	A	100'S. x 50'E. OF GE 43	133.7	123.2	" "	8.5	97.3	A
9-2 25	A	25'E. x 10'N. OF GE 39	130.4	121.8	PREP GRADE	7.0	96.2	A
9-2 26	A	100'E. x 10'N. OF GE 39	131.6	121.7	"	8.1	96.1	A
9-2 27	A	100'E. x 20'S. OF GE 39	129.7	122.1	"	6.2	96.4	A

* A MAXIMUM DENSITY ___ PCF OPTIMUM MOISTURE ___

B MAXIMUM DENSITY ___ PCF OPTIMUM MOISTURE ___

COMMENTS: A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TESTS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☐ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for _____ with specific locations and results shown above.

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

MS _____

DS _____

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 8-28-97

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV	WATER CONTENT %	PERCENT COMPACTION	COMMENT
8-29 1	A	50'E. x 50'N. OF GE 40	136.2	125.6	PREP GRADE	8.4	100.5	A
8-29 2	A	50'E. OF GE 40	134.1	122.8	"	9.2	98.2	A
8-29 3	A	50'E. x 50'S. OF GE 40	134.8	123.7	"	8.9	99.0	A
8-29 4	A	50'E. x 100'S. OF GE 40	130.6	118.6	"	10.1	95.0	A
8-29 5	A	E. x 100'S. OF GE 40	134.4	122.6	"	9.6	98.1	A
8-29 6	A	100'E x 50'S. OF GE 40	136.3	125.3	"	8.7	100.3	A

* A MAXIMUM DENSITY 125.0 #/CU FT. OPTIMUM MOISTURE 11.2 %

B MAXIMUM DENSITY #/CU FT OPTIMUM MOISTURE %

COMMENTS: A TEST RESULTS COMPLY WITH SPECIFICATIONS; B RECOMPACTION REQUIRED; C TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for STRUCTURAL FILL NW SECTION LFP-4 with specific locations and results shown above.

material source A: SF-WMX-B5 for test(s) numbers 8-29-1 \ 8

material source _____ for test(s) numbers _____

MS 481.6

DS 3613

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 8-26-97

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV	WATER CONTENT %	PERCENT COMPACTION	COMMENT
8-26 1	A	30'E. x 50'S. OF GE 19	130.7	120.6	PREP GRADE	8.3	96.4	A
8-26 2	A	50'E. x 50'S. OF GE 19	129.2	119.5	" "	8.0	95.6	A
8-26 3	A	100'S. OF GE 19	130.9	119.5	" "	9.5	95.6	A
8-26 4	A	75'N. OF GE 19	128.2	119.1	" "	7.6	95.3	A
8-26 5	A	75'N. x 50'W. OF GE 19	131.2	122.0	" "	7.5	97.6	A
8-26 6	A	75'N. x 100'W. OF GE 19	133.1	123.2		8.0	98.5	A
8-26 7	A	75'N. x 75'E OF GE 19	130.3	120.5		8.1	96.4	A
8-26 8	A	100'N. x 75'E OF GE 19	129.3	120.5		7.3	96.4	A
8-26 9	A	100'N OF GE 19	128.9	119.4		7.9	95.5	A

* A MAXIMUM DENSITY 125.0 #/CU.FT. OPTIMUM MOISTURE 11.2 %

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for PREP GRADE EAST SLOPE LFP-NO.4 with specific locations and results shown above.

material source SF-WMX-85 for test(s) numbers 8-26-1 / 8-26-

material source _____ for test(s) numbers _____

MS 482.3

DS 3609

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 8-26-97

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
8-26 1	A	DIVERSION DIKE # 11 100'W. OF GE 29	132.6	121.7	PREP GRADE	8.9	97.2	A
2	B	DIVERSION DIKE #12 100'N. X 50'W OF GE 28	130.0	120.3	" "	8.0	97.0	A

* A MAXIMUM DENSITY 125.2 #/CU.FT. OPTIMUM MOISTURE 11.7 %

B MAXIMUM DENSITY 124.0 #/CU.FT. OPTIMUM MOISTURE 11.1 %

COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for DIVERSION DIKES, WEST SLOPES, LFP-4 with specific locations and results shown above.

material source SF-ωmx-75 for test(s) numbers 8-26-1

material source SF-ωmx 80 for test(s) numbers 8-26-2

MS 482.3

DS 3609

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 8-25-97

ARRIVED 7^00

DEPARTED 3^30

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV	WATER CONTENT %	PERCENT COMPACTION	COMMENT
8-25 1	A	25'N. OF GE 21	136.3	126.3	PREP GRADE	7.9	101.8	A
8-25 2	A	50'N. OF GE 21	131.0	124.6	" "	5.1	100.5	"
8-25 3	A	150'N. OF GE 21	132.9	121.3	" "	9.5	97.8	"
8-25 4	A	150'N. X 50'E. OF GE 21	134.4	126.1	" "	6.5	101.7	"
8-25 5	A	100'N. X 50'E. OF GE 21	129.3	124.0	" "	4.2	100.0	"
8-25 6	A	25'N. X 50'E. OF GE 21	128.6	122.7	" "	4.8	98.7	"
8-25 7	A	25'N. X 100'E. OF GE 21	132.5	125.9	" "	5.2	101.5	"
8-25 8	A	75'N. X 100'E. OF GE 21	132.6	122.5	" "	8.2	98.8	"
8-25 9	A	150'N. X 100'E. OF GE 21	130.3	124.0	" "	5.0	100.0	"
8-25 10	A	50'E. OF GE 20	130.2	120.5	" "	8.0	97.2	"
8-25 11	A	100'E. OF GE 20	134.7	123.5	" "	9.0	99.6	"
8-25 12	A	125'E. X 50'S. OF GE 20	128.7	117.9	" "	9.1	95.1	"
8-25 13	A	125'E. X 100'S. OF GE 20	129.0	118.6	" "	8.7	95.7	"
8-25 14	A	125'E. X 150'S. OF GE 20	134.7	122.9	" "	9.6	99.1	"
8-25 15	A	75'E. X 150'S. OF GE 20	127.9	117.9	" "	8.4	95.1	"
8-25 16	A	75'E. X 100'S. OF GE 20	129.9	119.9	" "	8.3	96.7	"

* A MAXIMUM DENSITY 124.0 #/CU.FT. OPTIMUM MOISTURE 11.1 %

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for PREP GRADE FOR EAST SLOPES LFP-4 with specific locations and results shown above.

material source SF-WMX-80 for test(s) numbers 8-25-1 \ 8-25

material source _____ for test(s) numbers _____

MS 479.4

DS 3605

FAIRWAY TESTING

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 8-25-97

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
8-25 17	A	75'E. X 50'S. OF GE 20	132.6	123.5	PREP GRADE	7.4	99.5	A
8-25 18	A	'E. X 25'S. OF GE 19	130.7	121.4	" "	7.6	97.9	A
					" "			

* A MAXIMUM DENSITY 124.0 #/CU.FT. OPTIMUM MOISTURE 11.1 % COMMENTS

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST ☐ SAND CONE ☐ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for _____ with specific locations and results shown above.

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

MS _____

DS _____

FAIRWAY TESTING
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SOIL TEST REPORT

Client Ogden Remediation Services

DATE 8-20-97

Project Clarkstown Landfill

FIELD COMPACTION TESTS

TEST NO.	SOIL TYPE	LOCATION	WD	DD	ELEV	WATER CONTENT %	PERCENT COMPACTION	COMMENT
8-20 1	A	25'S. OF GE 21	129.3	119.0	PREP GRADE	8.7	95.0	A
8-20 2	A	25'S. X 50'E OF GE 21	137.0	125.9	" "	8.8	100.5	A
8-20 3	A	25'S. X 100'E. OF GE 21	135.1	124.9	" "	8.1	99.7	A
8-20 4	A	25'S. X 200'E. OF GE 21	133.7	120.9	" "	10.6	96.5	A
8-20 5	A	250'E. OF GE 21	138.2	128.5	" "	7.5	102.6	A
8-20 6	A	200'SE. OF GE 21	137.3	124.7	" "	10.1	99.5	A
8-20 7	A	150'SE. OF GE 21	129.7	120.9	" "	7.3	96.5	A
8-20 8	A	100'SE. OF GE 21	132.1	123.7	" "	6.8	98.7	A
8-20 9	A	50'E. x 75'S. OF GE 21	130.6	121.8	" "	7.2	97.3	

* A MAXIMUM DENSITY 125.2 #/CU.FT. OPTIMUM MOISTURE 11.7 %

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for PREP GRADE SOUTH EAST SLOPE LFP-4 with specific locations and results shown above.

material source SF-WMX-75 for test(s) numbers 8-20-1 \ 8-20-9

material source _____ for test(s) numbers _____

MS 482.6

DS 3621

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 8-20-97

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
8-20 1	A	DIVERSION DIKE #20 140'W. X 50'N. OF GE 35	135.6	126.2	SUBGRADE	7.4	100.8	A
8-20 2	A	DIVERSION DIKE #15 100'E. X 60'S. OF GE 37	132.1	123.1	" "	7.3	98.2	A
8-20 3	A	DIVERSION DIKE #14 300'W. X 65'S. OF GE 35	132.3	120.6	" "	9.6	96.3	A

* A MAXIMUM DENSITY 125.2 #/CU.FT. OPTIMUM MOISTURE 11.7 % COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS; B. RECOMPACTION REQUIRED; C. TEST IS AFTER RECOMPACTION

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for DIVERSION DIKES WEST SLOPE LFP-4 with specific locations and results shown above.

material source SF-WMX-75 for test(s) numbers 8-20-1 & 8-

material source _____ for test(s) numbers _____

MS 482.6

DS 3621

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 8-19-97

700 ARRIV
330 DEPART

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
1	A	20'W X 20'S. OF GE 22	131.2	121.1	PREP GRADE	8.3	94.3	B
1A	A	RETEST NO. 1	133.3	123.1	" "	8.2	95.4	C
2	A	50'E. X 20'S. OF GE 22	132.2	121.2	" "	9.0	94.4	B
2A	A	RETEST NO. 2	135.0	124.1	" "	8.7	96.7	C
3	A	100'E. OF GE 22	133.8	125.5	" "	6.6	97.7	A
4	A	100'SE. OF GE 22	134.6	125.4	" "	7.3	97.6	A
5	A	100'S OF GE 22	132.0	123.1	" "	7.2	95.8	A
6	A	140'SE. OF GE 22	136.0	128.8	" "	5.8	100.3	A
7	A	160'S. OF GE 22	134.6	125.4	" "	7.3	97.6	A
8	A	200'SE. OF GE 22	137.1	125.5	" "	9.2	97.7	A
9	A	200'E. OF GE 22	135.8	128.1	" "	5.9	99.7	A

* A MAXIMUM DENSITY 128.4 #/CU FT OPTIMUM MOISTURE 9.4% COMMENTS: A TEST RESULTS COMPLY WITH SPECIFICATIONS; B RECOMPACTION REQUIRED; C TEST IS AFTER RECOMPACTION

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for PREP GRADE SOUTH SLOPE LF1-4 with specific locations and results shown above.

material source A: SF-WMX-70 for test(s) numbers 8-14-1 8-14-9

material source _____ for test(s) numbers _____

MS 480.9

DS 3612

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 8-15-97

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
8-15 1	A	20'E.X 50'S OF GE 23	133.1	123.6	PREP GRADE	7.6	96.2	A
8-15 2	A	70'E X 100'S. OF GE 23	135.6	125.6	" "	7.9	97.8	A
8-15 3	A	50'E. X100'S. OF GE 23	131.4	121.5	" "	8.1	95.0	A
8-15 4	A	50'E. X50'S. OF GE 23	133.0	124.0	" "	7.2	96.6	A

* A MAXIMUM DENSITY 128.4 #/CU FT. OPTIMUM MOISTURE 9.4% COMMENTS

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST B AFTER RECOMPACTION

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for PREP GRADE SOUTH SLOPE, LFP-4 with specific locations and results shown above.

material source SF-WMX-70 for test(s) numbers 8-15-1 to 8

material source _____ for test(s) numbers _____

MS 481.3

DS 3601

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 8-14-97

6:30

3:30

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
8-14 1	A	20'E. X 40'N. OF GE 23	133.4	124.3	PREP GRADE	7.8	96.8	A
8-14 2	A	60'E. X 50'N. OF GE 23	131.1	123.6	" "	6.0	96.2	A
8-14 3	A	70'E. X 40'N. OF GE 23	135.2	129.0	" "	4.7	100.5	A
8-14 4	A	50'E. X 20'N. OF GE 23	135.8	128.9	" "	5.3	100.4	A

* A MAXIMUM DENSITY 128.4 #/CU.FT. OPTIMUM MOISTURE 9.4 % COMMENTS A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for PREP GRADE LFP-4 with specific locations and results shown above.

material source SF-WMX-70 for test(s) numbers 8-14-1 / 8-14

material source _____ for test(s) numbers _____

MS 480.1

DS 3607

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH
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SOIL TEST REPORT

Client Ogden Remediation Services
Project Clarkstown Landfill

DATE 8-14-97
6:30 ARRIVE
3:30 DEPARTE

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENTS
8-14 1	A	DIVERSION DIKE NO. 22 EAST END	121.4	113.7	SUBGRADE	6.7	88.6	B
8-14 2	A	TEMP BERM @ BASIN #6 80'N. X40'W. OF CC-3	132.7	124.6	SUBGRADE	6.5	97.0	A

* A MAXIMUM DENSITY 128.4 #/CU FT OPTIMUM MOISTURE 4.4 %

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

COMMENTS: A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for _____ with specific locations and results shown above.

material source A: SF-WMX-70 for test(s) numbers _____

material source _____ for test(s) numbers _____

MS 480.1

DS 3607

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH
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SOIL TEST REPORT

Client Ogden Remediation Services
Project Clarkstown Landfill

DATE 8-13-97
700 ARRIVED
400 DEPARTED

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENTS
8-13 1	A	100'W. X 50'N. OF GE 23	130.9	124.3	PREP GRADE	5.3	96.8	A
8-13 2	A	50'W. X 50'N. OF GE 23	127.7	122.9	" "	3.9	95.7	A
8-13 3	A	50'N. OF GE 23	129.8	123.7	" "	4.9	96.3	A
8-13 4	A	25'E. X 50'S. OF GE 23	127.3	117.3	" "	8.5	91.3	B
8-13 4A	A	RETEST 8-13-4	135.8	125.3	" "	8.3	97.6	C
8-13 5	A	50'E. X 100'S. OF GE 23	131.4	123.1	" "	6.7	95.9	A
8-13 6	A	100'E. X 125'S OF GE 23	136.2	129.0	" "	5.5	100.5	A
8-13 7	A	100'E. X 75'S. OF GE 23	129.3	123.3	" "	4.8	96.0	A

* A MAXIMUM DENSITY 128.4 #/CU FT. OPTIMUM MOISTURE 9.4 %

B MAXIMUM DENSITY #/CU FT. OPTIMUM MOISTURE

COMMENTS: A TEST RESULTS COMPLY WITH SPECIFICATIONS; B RECOMPACTION REQUIRED; C TEST AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for PREP GRADE LFP-4 SOUTH SIDE with specific locations and results shown above.

material source SF-WMX-70 for test(s) numbers 8-13-1/8-13

material source _____ for test(s) numbers _____

MS 482.6

DS 3628

FAIRWAY TESTING
CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH
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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 8-12-97

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENTS
8-12 1	A	15'N. x 70'E. OF CC-6	119.9	113.2	PREP GRADE	5.9	92.5	B
8-12 1A	A	RE-TEST OF 8-12-1	125.1	118.0	" "	6.0	96.8	C
8-12 2	A	15'N. OF CC-6	127.3	121.4	" "	4.8	99.7	A
8-12 3	A	15'N. x 50'W. OF CC-6	126.1	117.9	" "	6.9	96.7	A
8-12 4	A	70'N x 50'W. OF CC-6	125.8	120.1	" "	4.7	98.6	A
8-12 5	A	70'N. OF CC-6	124.2	118.2	" "	5.0	97.1	A
8-12 6	A	70'N. x 70'E. OF CC-6	125.2	116.3	" "	7.6	95.5	A
8-12 7	A	150'N. x 70'E. OF CC-6	124.3	117.4	" "	5.8	96.4	A
8-12 8	A	150'N. OF CC-6	123.1	117.3	" "	4.9	96.3	A
8-12 9	A	150'N. x 50'W. OF CC-6	129.8	122.2	" "	6.2	100.3	A
8-12 10	B	10'N. OF GE 25	130.4	124.0	" "	5.1	96.6	A
8-12 11	B	20'N. x 50'E. OF GE 25	130.4	123.1	" "	5.9	95.8	A
8-12 12	B	20'W. x 20'S. OF GE 23	130.9	125.3	" "	4.4	97.6	A
8-12 13	B	100'W. 30'S. OF CC-6	127.3	122.0	" "	4.3	95.0	A
8-12 14	B	50'W. x 30'S. OF CC-6	133.3	126.1	" "	5.7	98.2	A
8-12 15	B	75'E. x 30'S. OF CC-6	132.4	125.3	" "	5.6	97.6	A

* A MAXIMUM DENSITY 121.8 #/CU.FT. OPTIMUM MOISTURE

B MAXIMUM DENSITY 128.4 #/CU.FT. OPTIMUM MOISTURE 9.4 %

COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☐ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for PREP GRADE LFP-4 with specific locations and results shown above.

material source SF-WMX-65 for test(s) numbers 8-12-1 / 9

material source SF-WMX-70 for test(s) numbers 8-12-16

MS 483.7

DS 3613

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

lient Ogden Remediation Services

DATE 8-8-97

roject Clarkstown Landfill

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
8-8 1	A	DIVERSION DIKE #17	133.2	128.4	SUBGRADE	3.7	100.0	A
		100'N. x 50'S. OF CC-3						
8-8 2	A	DIVERSION DIKE #17	126.2	122.0	"	3.4	95.0	A
		50'S. x 250'W. OF CC-3						
8-8 3	A	TEMP BERM @ BASIN	132.8	128.4	"	3.2	100.2	A
		#6 10'E. OF SPILLWAY						
8-8 4	A	TEMP BERM @ BASIN	136.9	131.5	"	4.1	102.4	A
		#6 100'E. OF SPILLWAY						

* A MAXIMUM DENSITY 128.4 LBS/CU FT OPTIMUM MOISTURE 4.4 %

B MAXIMUM DENSITY ____ LBS/CU FT. OPTIMUM MOISTURE ____ %

COMMENTS: A TEST RESULTS COMPLY WITH SPECIFICATIONS; B RECOMPACTION REQUIRED; C TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for DIVERSION DIKE #17, TEMP BERM @ BASIN #6 with specific locations and results shown above.

material source SF-WMX-70 for test(s) numbers 8-8-1 / 8 8 4

material source ____ for test(s) numbers ____

MS 3607

DS 483.4

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 8-7-97

M00
330

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMEN
8-7 1	A	175'S. OF GE 25'	130.4	125.8	PREP GRADE	3.6	102.9	A
8-7 2	A	175'S. X 75'W. OF GE 25'	132.9	125.1	" "	6.2	102.2	A
8-7 3	A	175'S. X 150'W. OF GE 25'	129.9	123.6	" "	5.1	101.0	A
8-7 4	A	175'S. X 200'W. OF GE 25'	128.6	121.0	" "	6.2	99.0	A
8-7 5	A	100'S. X 200'W. OF GE 25'	126.6	119.8	" "	5.6	98.0	A
8-7 6	A	100'S. X 150'W. OF GE 25'	123.9	118.1	" "	4.9	96.5	A
8-7 7	A	100'S. X 75'S. OF GE 25'	125.8	120.1	" "	4.7	98.2	A
8-7 8	A	100'S. OF GE 25'	127.5	119.1	" "	7.0	97.4	A
8-7 9	A	25'S. OF GE 25'	131.9	122.4	" "	7.7	100.1	
8-7 10	A	25'S. X 50'W. OF GE 25'	129.2	119.9	" "	7.7	98.0	A
8-7 11	A	25'S. X 100'W. OF GE 25'	130.8	122.7	" "	6.6	100.3	A
8-7 12	A	25'S. X 150'W. OF GE 25'	125.6	119.9	" "	4.7	98.0	A
8-7 13	A	25'E. X 10'S. OF RFW 1D	132.5	123.9	" "	6.9	101.3	A
8-7 14	A	25'W. X 10'S. OF RFW 1S-1D	130.0	121.6	" "	6.9	99.4	A
8-7 15	A	150'W. OF RFW 1S-1D	128.4	121.3	" "	6.2	99.2	A
16	A	200'W. X 15'S. RFW 1S-1D	131.4	123.4		6.4	100.9	A

* A MAXIMUM DENSITY 122.3 #/CU FT. OPTIMUM MOISTURE 12.1% COMMENTS

A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

B MAXIMUM DENSITY #/CU FT. OPTIMUM MOISTURE %

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for PREP GRADE LFP-4 with specific locations and results shown above.

material source SF-WMX-60 for test(s) numbers 8-7-15 9

material source _____ for test(s) numbers _____

MS 481.6

DS 3611

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 8-6-97

4:00 ARRIVED

4:00 DEPARTED

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
8-6 1	A	25'W. x 225'S. OF GE 26	128.3	121.4	PREP GRADE	5.6	96.8	A
8-6 2	A	75'W x 225'S. OF GE 26	131.8	123.4	" "	6.8	98.3	A
8-6 3	A	125'W. x 225'S. OF GE 26	131.0	123.0	" "	6.5	98.0	A
8-6 4	A	200'W. x 125'S. OF GE 26	134.3	123.4	" "	8.8	98.3	A
8-6 5	A	150'S. x 200'W. OF GE 26	132.1	122.5	" "	7.8	97.6	A
8-6 6	A	150'S. x 150'W. OF GE 26	133.3	123.7	" "	7.7	98.6	A
8-6 7	A	50'W. x 175'S. OF GE 26	129.9	121.6	" "	6.8	96.9	A
8-6 8	A	175'S. OF GE 26	131.2	122.2	" "	7.3	97.4	A
8-6 9	A	75'S. OF GE 26	132.6	123.1	" "	7.7	98.5	A
8-6 10	A	75'S. x 50'W. OF GE 26	129.6	120.4	" "	7.6	95.9	A
8-6 11	A	75'S. x 100'W. OF GE 26	133.0	122.9	" "	8.2	97.9	A
8-6 12	A	100'W OF GE 26	134.7	124.7	" "	8.0	99.3	A
8-6 13	A	50'W. OF GE 26	130.2	121.2	" "	7.4	96.5	A
8-6 14	A	50'W. x 50'N. OF GE 26	132.6	124.1	" "	6.8	98.9	A

* A MAXIMUM DENSITY 125.5 #/CU FT. OPTIMUM MOISTURE 12.2 % COMMENTS

A TEST RESULTS COMPLY WITH SPECIFICATIONS
B RECOMPACTION REQUIRED
C TEST IS AFTER RECOMPACTION

B MAXIMUM DENSITY #/CU FT. OPTIMUM MOISTURE %

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for PREP GRADE LFP-4 with specific locations and results shown above.

material source SF-WMX-50 WMX 60000 for test(s) numbers 8-6-1 thru 8-6-14

material source _____ for test(s) numbers _____

MS 482.9

DS 3602

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 8-5-97

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV	WATER CONTENT %	PERCENT COMPACTION	COMMENT
8-5 1	A	50'S. X 125'E. OF GE 28	134.6	122.0	PREP GRADE	10.3	99.0	A
8-5 2	A	100'S. X 125'E. OF GE 28	134.1	123.4	" "	8.6	100.2	A
8-5 3	A	150'S. X 125'E. OF GE 28	126.7	118.5	" "	6.9	96.2	A
8-5 4	A	150'S. X 50'E. OF GE 28	131.4	121.1	" "	8.5	98.3	A
8-5 5	A	100'S. X 50'E. OF GE 28	133.7	123.6	" "	8.1	100.3	A
8-5 6	A	50'S. X 50'E OF GE 28	132.6	121.8	" "	8.8	98.9	A
8-5 7	A	50'S. OF GE 28	130.8	123.0	" "	6.3	99.8	A
8-5 8	A	100'S. OF GE 28	134.8	123.6	" "	9.0	100.3	A
8-5 9	A	150'S. OF GE 28	132.7	121.2	" "	9.5	98.3	A
8-5 10	A	50'W. X 150'S OF GE 28	130.6	121.1	" "	7.8	98.3	A
8-5 11	A	50'W. X 100'S. OF GE 28	133.6	124.0	" "	7.7	100.6	A
8-5 12	A	50'W. X 50'S. OF GE 28	130.6	122.0	" "	7.0	99.0	A
8-5 13	A	100'W. X 50'S OF GE 28	130.6	121.3	" "	7.6	98.5	A
8-5 14	A	100'W X 100'S OF GE 28	131.4	122.2	" "	7.5	99.2	A
8-5 15	A	100'W. X 150'S OF GE 28	133.9	122.3	" "	9.4	99.3	A

* A MAXIMUM DENSITY 123.2 #/CU.FT. OPTIMUM MOISTURE 11.2 % COMMENTS

A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for PREP GRADE LFP-4 with specific locations and results shown above.

material source SF-WMX-45' WMX 60.00 for test(s) numbers 8-5-1 5 8-5

material source _____ for test(s) numbers _____

MS 483.0

DS 3612

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 8-4-97

FIELD COMPACTION TESTS

TEST NO.		LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
8-4 1	A	25'W. OF GE 29	125.4	118.8	PREP GRADE	5.6	95.8	A
8-4 2	A	25'W x 50'N. OF GE 29	124.0	117.6	" "	5.4	95.5	A
8-4 3	A	25'W. x 100'N. OF GE 29	129.2	121.8	" "	6.1	98.8	A
8-4 4	A	25'S. x 70'W. OF GE 32	130.1	120.9	" "	7.6	98.1	A
8-4 5	A	70'S. x 70'W. OF GE 32	130.2	123.2	" "	5.7	99.9	A
8-4 6	A	125'S. x 70'W. OF GE 32	125.5	118.3	" "	6.0	96.1	A
8-4 7	A	175'S. x 70'W. OF GE 32	128.2	120.0	" "	6.8	97.4	A
8-4 8	A	10'S. x 5'E OF GE 28	124.5	120.3	" "	3.5	97.6	A
8-4 9	A	50'N. x 10'E. OF GE 28	123.2	119.1	" "	3.4	96.7	A
8-4 10	A	100'N. x 10'E OF GE 28	122.9	117.6	" "	4.5	95.4	A
8-4 11	A	25'S. x 10'W. OF GE 33	124.3	117.4	" "	5.9	95.2	A
8-4 12	A	65'S. x 10'W. OF GE 33	132.4	125.7	" "	5.3	102.0	A
8-4 13	A	50'S. x 40'W. OF GE 28	127.9	122.1	" "	4.7	99.1	A
8-4 14	A	15S x 75'W OF GE 28	129.8	122.6	" "	5.8	99.6	A
8-4 15	A	75'W. x 50'N. OF GE 28	124.5	119.1	" "	4.5	96.7	A
8-4 16	A	75'W. x 50'S. OF GE 28	129.2	120.7	" "	7.0	98.0	A

* A MAXIMUM DENSITY 123.2 LB/CU.FT. OPTIMUM MOISTURE 11.2 % COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS; B. RECOMPACTION REQUIRED; C. TEST IS AFTER RECOMPACTION

B MAXIMUM DENSITY ____ LB/CU.FT. OPTIMUM MOISTURE ____ %

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for PREP GRADE @ LFP-4 WEST SLOPE. with specific locations and results shown above.

material source WMX-45 for test(s) numbers 8-4-1 / 8-4-16

material source ____ for test(s) numbers ____

MS 481.7

DS 3607

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SOIL TEST REPORT

Client Ogden Remediation

Project Clarkstown Landfill

DATE 7-31-97

Arrived 7:00AM
Departed 3:30PM

FIELD COMPACTION TESTS

TEST NO.		LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
7-30 1	A	50' n. x 145' e. of GE 31	134.8	126.3	prep grade	6.7	100.6	A
7-30 2	A	50' n. x 100' e. of GE 31	137.4	129.1	prep grade	6.4	102.9	A
7-30 3	A	50' n. x 20' e. of GE 31	128.5	119.3	prep grade	7.7	95.1	A
7-30 4	A	50' n. x 20' w. of GE 31	131.9	124.8	prep grade	5.7	99.4	A
7-30 5	A	50' n. x 50' w. of GE 31	129.9	121.2	prep grade	7.1	96.6	A
7-30 6	A	50' n. x 100' w. of GE 31	131.2	120.8	prep grade	8.6	96.2	A

A MAXIMUM DENSITY 125.5 ℓ / CU.FT. OPTIMUM MOISTURE 12.2 %

B MAXIMUM DENSITY ℓ / CU.FT. OPTIMUM MOISTURE %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

MS 481.3
DS 3616

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

material source SF-WMX-50 for test(s) numbers 7-30-1/7-30-6
material source _____ for test(s) numbers _____
material source _____ for test(s) numbers _____
material source _____ for test(s) numbers _____
material source _____ for test(s) numbers _____
material source _____ for test(s) numbers _____

On this date , a representative from this firm performed soil density testing at the project site
Tests were taken for
with specific locations and results shown above.

FAIRWAY TESTING CO., INC.

P.J. Aguanno, P.E.

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation

Project Clarkstown Landfill

DATE 7-29-97

Arrived 7:00AM

Departed 3:30PM

FIELD COMPACTION TESTS

TEST NO.		LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
7-29 1	A	100' n. x 140' e. of GE 34	136.5	128.2	prep.grade	6.5	102.2	A
7-29 2	A	140' e. of GE 34	129.0	120.7	prep.grade	6.8	96.1	A
7-29 3	A	75' s. x 140' e. of GE 34	132.4	122.7	prep.grade	7.9	97.2	A
7-29 4	A	75' s. x 90' e. of GE 34	134.6	125.3	prep.grade	7.4	99.8	A
7-29 5	A	90' e. of GE 34	131.6	122.5	prep.grade	7.4	97.6	A
7-29 6	A	100' n. x 90' e. of GE 34	136.5	125.6	prep.grade	8.6	100.1	A
7-29 7	A	100' n. x 50' e. of GE 34	131.9	119.7	prep.grade	10.2	95.4	A
7-29 8	A	50' e. of GE 34	130.4	120.2	prep.grade	8.4	95.8	A
7-29 9	A	20' w. of GE 34	133.6	122.4	prep.grade	9.2	97.5	A
7-29 10	A	65' s. x 20' w. of GE 34	133.3	124.2	prep.grade	7.2	98.9	A
7-29 11	A	100' w. x 65' s. of GE 34	128.4	120.9	prep.grade	6.2	96.3	A
7-29 12	A	100' w. of GE 34	135.2	126.1	prep.grade	7.2	100.5	A

* A MAXIMUM DENSITY 125.5 ℓ/CU.FT. OPTIMUM MOISTURE 12.2 %

B MAXIMUM DENSITY ℓ/CU.FT. OPTIMUM MOISTURE %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

MS 477.7
DS 3609

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

material source SF-WMX-50 for test(s) numbers 7-29-1/7-29-12
material source _____ for test(s) numbers _____
material source _____ for test(s) numbers _____
material source _____ for test(s) numbers _____
material source _____ for test(s) numbers _____
material source _____ for test(s) numbers _____

On this date , a representative from this firm performed soil density testing at the project site. Tests were taken for prep grade LFP-3 west side with specific locations and results shown above.

FAIRWAY TESTING CO., INC.

P.J. Aguanno, P.E.

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation

Project Clarkstown Landfill

DATE 7-29-97

Arrived

Departed

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
7-29 1	A	45' n. x 25' e. of 8s-8d	138.2	121.4	1' below FG	13.8	99.6	A

* A MAXIMUM DENSITY 121.8 #/CU.FT. OPTIMUM MOISTURE % COMMENTS A. TEST RESULTS COMPLY WITH SPECIFICATIONS B. RECOMPACTION REQUIRED C. TEST IS AFTER RECOMPACTION

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

MS 477.7

DS 3609

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

material source SF-WMX-65 for test(s) numbers 7-29-1

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

On this date , a representative from this firm performed soil density testing at the project site. Tests were taken for temp. berm @ sediment basin #6 with specific locations and results shown above.

FAIRWAY TESTING CO., INC.

P.J. Aguanno, P.E.

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation

Project Clarkstown Landfill

DATE 7-30-97

Arrived 7:00AM

Departed 3:30PM

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
7-30 1	A	55' n. x 175' w. of 8s-8d	130.6	120.7	1' below FG	8.2	99.1	A

* A MAXIMUM DENSITY 121.8 # / CU.FT. OPTIMUM MOISTURE % COMMENTS

A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

B MAXIMUM DENSITY # / CU.FT. OPTIMUM MOISTURE %

MS 481.3

DS 3616

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

material source SF-WMX-65 for test(s) numbers 7-30-1

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

On this date , a representative from this firm performed soil density testing at the project site. Tests were taken for temp. berm @ sediment basin #6 LFP-3 with specific locations and results shown above.

FAIRWAY TESTING CO., INC.

P.J. Aguanno, P.E.

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 7-14-97

ARRIVED 700

DEPARTED 500

FIELD COMPACTION TESTS

TEST NO.		LOCATION	WD	DD	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
7-14 1	A	15'W. X 25'N. OF GE-6	124.9	115.8		7.8	94.2	
7-14 2	A	5'W. X 10'S. OF GE-6	128.5	117.4		6.8	95.6	

* A MAXIMUM DENSITY 122.8 #/CU.FT. OPTIMUM MOISTURE 12.1 %

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for LAKE LUCIELL TEST PAD WITH 12" OF WMX MATERIAL with specific locations and results shown above.

material source SF-WMX-60 for test(s) numbers 7-14-1 5

material source _____ for test(s) numbers _____

MS 477.8

DS 3628

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services
Project Clarkstown Landfill

DATE 6-12-97
ARRIVED 7°
DEPARTED 4°

FIELD COMPACTION TESTS

TEST NO.		LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
6-12 1	A	ANCHOR BERM 290'SE. OF RFW 5S-5D	PREP GRADE	9.3	94.0	A
6-12 2	A	" " 225'SE. OF RFW 5S-5D	" "	7.9	94.9	A
6-12 3	A	" " 150'SE. OF RFW 5S-5D	" "	7.8	99.3	A
6-12 4	A	" " 50'SE. OF RFW 5S-5D	" "	9.8	96.4	A
6-12 5	A	LOWER SLOPE 55'S. X 60'E OF RFW 5S-5D	" "	7.5	96.0	A
6-12 6	A	" " 100'S. X 90'E. OF RFW 5S-5D	" "	8.3	97.2	A
6-12 7	A	" " 150'S. X 90'E. OF RFW 5S-5D	" "	7.2	90.1	B
6-12 8	A	" " 200'S. X 95'E. OF RFW 5S-5D	" "	5.7	89.6	B
6-12 9	A	70'N. X 80'W. OF DL-10	" "	8.8	98.2	A
6-12 10	A	120'E OF RFW 5S-5D	" "	6.2	95.8	A
6-12 11	A	130'E. X 150'N. OF RFW 5S-5D	" "	8.3	99.8	A
6-12 12	A	70'E. X 200'S. OF CC-4	" "	9.1	98.2	A
6-12 13	A	70'E. X 100'S. OF CC-4	" "	8.8	96.9	A
6-12 14	A	70'E. OF CC-4	" "	8.9	99.4	

* A MAXIMUM DENSITY 123.2 #/CU.FT. OPTIMUM MOISTURE 11.2 %

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for LFP-3 ANCHOR BERM AND LOWER SLOPE. with specific locations and results shown above.

material source SF-WMX-45 for test(s) numbers 6-12-1 / 6-12-14

material source _____ for test(s) numbers _____

MS 481.6

DS 3613

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 6-11-97

ARRIVED (E) 7:00 ;

DEPARTED 3:30 ;

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	ELEV.	WATER CONTENT-%	PERCENT COMPACTION	COMMENT
6-11 1	A	75'E. OF GE WELL 35	PREP GRADE	7.4	100.3	A
6-11 2	A	50'N. X 75'E. OF GE WELL 35	" "	9.0	98.3	A
6-11 3	A	100'N. X 75'E. OF GE WELL 35	" "	7.8	97.2	A
6-11 4	A	150'N. X 75'E. OF GE WELL 35	" "	9.3	99.2	A
6-11 5	A	50'E. X 100'S. OF GE WELL 37	" "	8.3	100.2	A
6-11 6	A	50'E. X 50'S. OF GE WELL 37	" "	7.3	99.2	A
6-11 7	A	50'E. OF GE WELL 37	" "	9.4	98.3	A
6-11 8	A	50'E. X 50'N. OF GE WELL 37	" "	7.1	98.3	A
6-11 9	A	50'E. X 100'N. OF GE WELL 37	" "	7.6	97.8	A
6-11 10	A	30'W. X 100'N OF GE WELL 37	" "	10.1	97.2	A
6-11 11	A	30'W. X 50'N. OF GE WELL 37	" "	8.7	96.0	A
6-11 12	A	30'W. OF GE WELL 37	" "	7.5	99.6	A
6-11 13	A	30'W. X 50'S. OF GE WELL 37	" "	8.0	96.6	A
6-11 14	A	30'W. X 100'S. OF GE WELL 37	" "	10.3	96.4	A
6-11 15	A	30'E. X 100'N. OF GE WELL 35	" "	10.1	96.0	A
6-11 16	A	20'E. X 50'N. OF GE WELL 35	" "	8.0	95.1	A

* A MAXIMUM DENSITY 123.2 #/CU.FT. OPTIMUM MOISTURE 11.2 %

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for LFP-3, UPPER SLOPE WEST SIDE with specific locations and results shown above.

material source SF-WMX-45 for test(s) numbers 6-11-1 / 6-11-

material source _____ for test(s) numbers _____

MS 481.2

DS 3621

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

DATE 6-11-97

Project Clarkstown Landfill

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
6-11 17	A	20'E. OF GE WELL 35	PREP-GRADE	6.7	97.4	A

* A MAXIMUM DENSITY ____ #/ CU.FT. OPTIMUM MOISTURE ____ %

B MAXIMUM DENSITY ____ #/ CU.FT. OPTIMUM MOISTURE ____ %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST ☐ SAND CONE ☐ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for _____ with specific locations and results shown above.

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

MS _____

DS _____

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

DATE 6-9-97

Project Clarkstown Landfill

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	ELEV.	WATER CONTENT, %	PERCENT COMPACTION	COMMENT
6-9 1	A	UPPER SLOPE 25'S. x 40'W. GE 40	PREP GRADE	7.5	100.0	A
6-9 2	A	" " 25'S. x 90'W. GE 40	" "	7.1	97.4	A
6-9 3	A	" " 25'S. x 175'W. GE 40	" "	9.1	97.3	A
6-9 4	A	" " 50'N. x 175'W. GE 40	" "	7.5	96.5	A
6-9 5	A	" " 100'N. x 175'W. GE 40	" "	7.1	96.6	A
6-9 6	A	" " 150'N. x 150'W. GE 40	" "	7.3	97.8	A
6-9 7	A	" " 200'N. x 75'W. GE 40	" "	8.6	97.8	A
6-9 8	A	" " 50'S. x 50'W. GE 40	" "	8.6	97.5	A
6-9 9	A	" " 100'S. x 50'W. GE 40	" "	6.7	96.3	A
6-9 10	A	" " 50'W. OF GE 38	" "	10.4	95.6	A
6-9 11	A	" " 100'W. OF GE 38	" "	8.0	96.2	A
6-9 12	A	" " 150'S. x 100'W. GE 40	" "	7.8	96.3	A
6-9 13	A	" " 100'S. x 100'W. GE 40	" "	7.0	99.0	A
6-9 14	A	" " 50'S. x 100'W. GE 40	" "	8.0	98.3	A
6-9 15	A	" " 50'S. x 150'W. GE 40	" "	8.4	97.9	A
6-9 16	A	" " 100'S. x 150'W.	" "	7.1	96.3	A

★ A MAXIMUM DENSITY 123.2 #/CU.FT. OPTIMUM MOISTURE 11.2% COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS B. RECOMPACTION REQUIRED C. TEST IS AFTER RECOMPACTION

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

METHOD OF TEST ☐ SAND CONE ☐ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for LFP-3, UPPER SLOPE, LOWER SLOPE AND SEDIMENT BASIN NO.4 LOWER SLOPE with specific locations and results shown above.

material source SF-WMX-45 for test(s) numbers _____

material source _____ for test(s) numbers _____

MS 480.4

DS 3626

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 6-9-97

FIELD COMPACTION TESTS

TEST NO.	TYPE	LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
6-9 17	A	UPPER SLOPE 150'S. x 150'W OF GE 40	PREP GRADE	7.3	95.8	A
6-9 18	A	" " 150'W. OF GE 38	" "	7.6	95.3	A
6-9 19	A	" " 200'W. OF GE 38	" "	8.0	96.9	A
6-9 20	A	" " 150'S. x 200'W. GE 40	" "	7.7	97.8	A
6-9 21	A	" " 100'S. x 200'W. GE 40	" "	8.1	98.3	A
6-9 22	A	" " 50'S. x 200'W. GE 40	" "	7.7	96.9	A
6-9 23	A	SED. BASIN-4 120'N x 25'W. RFW 5S-5D	" "	10.6	98.6	A
6-9 24	A	" " " 50'N. 50'W. RFW 5S-5D	" "	9.0	95.8	A
6-9 25	A	" " " 30'W. OF RFW-5S-5D	" "	8.4	99.0	A
6-9 26	A	" " " 25'S. OF RFW 5S-5D	" "	8.8	97.5	A
6-9 27	A	" " " 50'N. OF RFW 5S-5D	" "	8.3	97.4	A
6-9 28	A	LOWER SLOPE 100'E. OF RFW 5S-5D	" "	8.1	97.0	A
6-9 29	A	" " 100'E. x 50'N. RFW 5S-5D	" "	8.0	98.2	A
6-9 30	A	" " 50'E. x 120'N. RFW 5S-5D		7.5	96.9	A

* A MAXIMUM DENSITY 123.2 #/CU.FT. OPTIMUM MOISTURE 12.2 % COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS; B. RECOMPACTION REQUIRED; C. TEST IS AFTER RECOMPACTION

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

METHOD OF TEST ☐ SAND CONE ☐ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for _____ with specific locations and results shown above.

material source SF-WMX-45 for test(s) numbers _____

material source _____ for test(s) numbers _____

MS 480.4

DS 3626

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 6-6-97

M00 - 400

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
6-6 1	A	300'N. OF CC-4 LOWER SLOPE	PREP GRADE	10.4	94.8	A
6-6 2	A	250'N. OF CC-4 " "	" "	7.3	96.2	A
6-6 3	A	200'N. OF CC-4 " "	" "	8.4	99.8	A
6-6 4	A	150'N. OF CC-4 " "	" "	8.3	98.0	A
6-6 5	A	100'N. OF CC-4 " "	" "	8.5	95.9	A
6-6 6	A	50'N. OF CC-4 " "	" "	8.0	95.7	A
6-6 7	A	50'N. X 25'W OF CC-4 ANCHOR BERM	" "	8.1	99.6	A
6-6 8	A	100'N. X 50'W. OF CC-4 " "	" "	8.8	99.3	A
6-6 9	A	175'N. X 50'W OF CC-4 " "	" "	8.2	99.3	A
6-6 10	A	225'N. X 75'W. OF CC-4 " "	" "	9.3	99.0	A
6-6 11	A	250'W. OF RFW 7S-7D SED. BASIN 5	" "	9.6	97.3	A
6-6 12	A	250'W. X 50'S OF RFW 7S-7D SED. BASIN 5	" "	9.4	97.9	A
6-6 13	A	300'W. X 100'S OF RFW 7S-7D " " 5	" "	8.7	96.3	A
6-6 14	A	300'W X 50'S. OF RFW 7S-7D " " 5	" "	9.0	98.1	A
6-6 15	A	300'W. OF RFW 7S-7D SED. BASIN # 5	" "	10.4	95.3	A
6-6 16	A	50'S. X 20'W. OF CC-4 ANCHOR BERM	" "	8.4	100.0	A

* A MAXIMUM DENSITY 122.5 #/CU.FT. OPTIMUM MOISTURE 11.0 %

B MAXIMUM DENSITY 119.8 #/CU.FT. OPTIMUM MOISTURE 12.2%

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for LFP-3 LOWER SLOPE, ANCHOR BERM, AND SEDIMENT BASIN 5 with specific locations and results shown above.

material source SF-WMX-35 for test(s) numbers 6-6-1/6-6

material source SF-WMX-40 for test(s) numbers 6-6-17/6-6-21

MS 481.2

DS 3613

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SOIL TEST REPORT

Client Ogden Remediation Services

DATE 6-6-97

Project Clarkstown Landfill

FIELD COMPACTION TESTS

TEST NO.	SOIL TYPE	LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
6-6 17	A	150'S. x 40'W. OF CC-4 ANCHOR BERM	PREP GRADE	10.2	96.0	A
6-6 18	A	250'S. x 70'W OF CC-4 ANCHOR BERM	" "	11.0	96.8	A
6-6 19	B	250'S. OF CC-4 LOWER SLOPE	" "	7.9	99.1	A
6-6 20	B	150'S. OF CC-4 LOWER SLOPE	" "	11.1	98.3	A
6-6 21	B	50'S OF CC-4 LOWER SLOPE	" "	10.2	97.6	A
6-6 22	C	25'N. OF GE WELL 40 UPPER SLOPE	" "	8.5	97.0	A
6-6 23	C	50'S. OF GE WELL 40 " "	" "	9.8	98.6	A
6-6 24	C	100'S. OF GE WELL 40 " "	" "	8.3	99.2	A
6-6 25	C	50'N. OF GE WELL 38 " "	" "	10.1	98.4	A
6-6 26	C	50'N. x 25'W OF GE 40 " "	" "	9.3	96.6	A
6-6 27	C	50'N. x 70'W. OF GE 40 " "	" "	11.1	96.1	A

* A MAXIMUM DENSITY 122.5 #/CU.FT. OPTIMUM MOISTURE 11.0%

B MAXIMUM DENSITY 119.8 #/CU.FT. OPTIMUM MOISTURE 11.2%

C 123.2

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for _____ with specific locations and results shown above.

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

MS _____

DS _____

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 6-5-94

M: 00 AM

3:30 PM

FIELD COMPACTION TESTS

TEST NO.	TYPE	LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
6-5 1	A	FIRE STATION SW. CORNER	2ND LIFT	9.0	99.1	A
6-5 2	A	FIRE STATION SE. CORNER	" "	8.6	97.6	A
6-5 3	A	FIRE STATION CENTER SECTION	" "	9.9	101.9	A
6-5 4	A	FIRE STATION NW. CORNER	" "	9.1	100.4	A
6-5 5	A	FIRE STATION NE. CORNER	" "	10.1	98.1	A
6-5 6	B	LOWER ROADWAY 60'S OF RFW-7S-7D	" "	9.3	98.4	A
6-5 7	B	" " 60'S. x 75'E. OF RFW-7D	" "	9.0	100.4	A
6-5 8	B	LOWER SLOPE 30'S x 75'E. OF RFW-7D	" "	9.4	94.3	A
6-5 9	B	" " 30'S OF RFW-7S-7D	" "	9.7	96.3	A
6-5 10	B	" " 30'S. x 75'W. OF RFW-7S	" "	11.1	97.8	A
6-5 11	B	LOWER ROADWAY 95'SW OF RFW-7S-7D	" "	9.9	101.2	A
6-5 12	B	190'SW. OF RFW-7S-7D	" "	10.8	100.1	A
6-5 13	B	UPPER SLOPE 150'S x 50'W. OF GE 41	" "	10.6	99.0	A
6-5 14	B	" " " 100'S x 25'W OF GE 41	" "	8.9	99.4	A
6-5 15	B	" " " 25'W. OF GE 41	" "	8.5	94.2	A
6-5 16	B	" " " 45'W. x 50'N. GE 41	" "	9.8	99.3	A

* A MAXIMUM DENSITY 119.8 # / CU.FT. OPTIMUM MOISTURE 11.8 %

B MAXIMUM DENSITY 119.8 # / CU.FT. OPTIMUM MOISTURE 12.2

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for FIRE STATION, NORTH AND NORTH WEST SLOPES LFP-3 AND UPPER SLOPE with specific locations and results shown above.

material source SF WMX 25 for test(s) numbers 6-5-1 / 6-5-5

material source SF-WMX-40 for test(s) numbers 6-5-6 / 6-5-21

MS 480

DS 3619

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 6-5-94

FIELD COMPACTION TESTS

TEST NO.	TYP	LOCATION	ELEV	WATER CONTENT %	PERCENT COMPACTION	COMMENT
6-5 17	B	LOWER SLOPE 50'W. X 100'N. OF GE 41	PREP GRADE	11.2	99.4	A
6-5 18	B	" " 100'W. X 150'N. OF GE 41	" "	10.1	97.9	A
6-5 19	B	" " 75'W X 50'S. OF GE 41	" "	9.1	99.0	A
6-5 20	B	" " 75'W. X 100'S. OF GE 41	" "	9.9	98.3	A
6-5 21	B	" " 75'W. X 200'S. OF GE 41	" "	10.5	94.5	A

* A MAXIMUM DENSITY ___ #/CU.FT. OPTIMUM MOISTURE ___ %

B MAXIMUM DENSITY 119.8 #/CU.FT. OPTIMUM MOISTURE 12.2%

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST ☐ SAND CONE ☐ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for _____ with specific locations and results shown above.

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

MS 481.2

DS 3613

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 6-4-97

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
6-4 1	A	15'N. OF GE WELL 52	PREP GRADE	10.3	100.8	A
6-4 2	A	20'N. x 100'W. OF GE WELL 52	"	10.9	99.0	A
6-4 3	A	25'N x 200'W OF GE WELL 52	"	10.8	98.8	A
6-4 4	A	20'N. X 300'W. OF GE WELL 52	"	9.9	98.6	A
6-4 5	A	30'N. X 400'W. OF GE WELL 52	"	11.4	99.0	A
6-4 6	A	15'N. X 15'W. OF GE WELL 43	"	10.1	99.3	A
6-4 7	A	100'W. OF GE WELL 43	"	12.5	98.1	A

* A MAXIMUM DENSITY 122.5 #/CU.FT. OPTIMUM MOISTURE % COMMENTS A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE 11.0 %

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for NORTH UPPER SLOPE CONTOURS 120-118 with specific locations and results shown above.

material source SF-WMX-35 for test(s) numbers 6-4-1 / 6-4-

material source _____ for test(s) numbers _____

MS 484.1

DS 3620

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 5-30-97

(B)

FIELD COMPACTION TESTS

TEST NO.		LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION %	COMMENT
5-30 1	A	UPPER SLOPE 50'N. OF DL-10	2ND LIFT	8.3	98.7	A
5-30 2	A	" " 50'N. X 50'E. OF DL-10	2ND LIFT	8.4	98.4	A
5-30 3	A	" " 50'S. X 50'E. OF DL-10	2ND LIFT	9.1	98.2	A
5-30 4	B	LOWER ROADWAY 50'S. OF RFW 7S-7D	PREP. GRADE	12.2	97.7	A
5-30 5	B	" " 50'S. X 150'E. OF RFW 7S-7D	"	11.5	98.3	A
5-30 6	B	" " 50'S. X 225'E. OF RFW 7S-7D	"	10.2	97.7	A
5-30 7	B	SEDIMENT BASIN #6 50'N. OF CC-3	"	12.2	96.3	A
5-30 8	B	LOWER SLOPE. 100'E. X 75'S. OF CC-3	"	12.8	95.9	A
5-30 9	B	" " 100'S. OF CC-3	"	11.5	96.1	A
5-30 10	B	" " 70'W. X 75'S OF CC-3	"	8.7	97.6	A
5-30 11	B	" " 150'W. X 75'S OF CC-3	"	8.7	98.6	A
5-30 12	B	" " 190'W. X 75'S. OF CC-3	"	7.3	98.1	A
5-30 13	B	" " 225'W X 75'S. OF CC-3	"	8.2	95.2	A
5-30 14	B	" " 50'W. X 100'N. OF GE 44	"	10.0	99.0	A
5-30 15	B	UPPER SLOPE 50'W. OF GE WELL 44	"	8.5	95.5	A
5-30 16	B	" " 100'W. OF GE WELL 44	"	7.9	100.3	A

* A MAXIMUM DENSITY 131.3 #/CU.FT. OPTIMUM MOISTURE 8.7 %

B MAXIMUM DENSITY 122.5 #/CU.FT. OPTIMUM MOISTURE 11.0 %

COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for LFP-3, UPPER AND LOWER SLOPES with specific locations and results shown above.

material source SF-SV-40 for test(s) numbers 5-30-1 / 5-30-3

material source SF-WMX-35 for test(s) numbers 5-30-4 / 5-30-16

MS 481.3

DS 3618

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

DATE 5-30-97

Project Clarkstown Landfill

FIELD COMPACTION TESTS

TEST NO.		LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
5-30 17	B	UPPER SLOPE 100'W x 75'N. OF GE WELL 44	PREP GRADE	11.4	96.0	A
5-30 18	B	" " 150'W. x 75'N. OF GE WELL 44	" "	10.5	99.0	A
5-30 19	B	" " 150'W. x 40'S. OF GE WELL 44	" "	8.3	99.7	A
5-30 20	B	" " 50'W. x 50'N. OF GE WELL 43	" "	9.7	97.6	A
5-30 21	B	" " 25'W. x 50'N. OF GE WELL 42	" "	8.0	97.1	A
5-30 22	B	" " 75'W. x 50'N. OF GE WELL 42	" "	11.1	95.7	A
5-30 23	B	" " 125'W. OF GE WELL 42	" "	12.3	98.0	A
5-30 24	B	" " 175'W. OF GE WELL 42	" "	12.2	96.4	A
5-30 25	B	" " 175'W. x 100'S. OF GE WELL 42	" "	7.4	98.2	A
5-30 26	B	" " 100'W. x 100'S. OF GE WELL 42	" "	9.5	95.6	A
5-30 27	B	" " 50'N. x 50'E. OF GE WELL 41	" "	8.6	98.2	A
5-30 28	B	" " 25'N. x 100'E OF GE WELL 41	" "	8.3	97.4	A
5-30 29	A	" " 60'N. OF GE WELL 37	2ND LIFT	9.0	98.2	A
5-30 30	A	" " 50'W. x 100'N. OF GE WELL 36	" "	9.3	98.6	A
5-30 31	A	" " 50'W. OF GE WELL 36	" "	8.8	97.9	A
5-30 32	A	" " 50'W. x 100'S OF GE WELL 36	" "	9.1	98.9	A

* A MAXIMUM DENSITY 131.3 #/CU.FT. OPTIMUM MOISTURE 8.7 % COMMENTS

B MAXIMUM DENSITY 122.5 #/CU.FT. OPTIMUM MOISTURE 11.0%

A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST ☐ SAND CONE ☐ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for LFP-3 UPPER SLOPE NORTH AND WEST SIDES with specific locations and results shown above.

material source SF-WMX-35 for test(s) numbers 5-30-17/5-3

material source SF-SV-40 for test(s) numbers 5-30-29/5-30-32

MS 481.3

DS 3618

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 5-29-97

FIELD COMPACTION TESTS

TEST NO.		LOCATION	ELEV	WATER CONTENT %	PERCENT COMPACTION	COMMENT
5-29 1	A	LOWER SLOPE 325'E. OF CC-3	PREP GRADE	8.0	96.6	A
5-29 2	A	" " 225'E OF CC-3	"	8.2	98.0	A
5-29 3	A	" " 150'E. OF CC-3	"	8.9	96.6	A
5-29 4	A	ANCHOR BERM 150'E. X 75'N. OF CC-3	"	10.9	99.3	A
5-29 5	A	" " 225'E. X 85'N. OF CC-3	"	11.0	96.9	A
5-29 6	A	" " 325'E. X 100'N. OF CC-3	"	9.6	96.5	A
5-29 7	B	SEDIMENT BASIN 6 100'W. OF RFW 8S-8D	"	11.3	98.5	A
5-29 8	B	" " 6 225'W. OF RFW 8S-8D	"	10.6	97.2	A
5-29 9	B	LOWER ROADWAY 250'W. X 35'S OF CC-3	"	10.3	99.6	A
5-29 10	B	" " 150'W. X 35'S OF CC-3	"	10.9	99.8	A
5-29 11	B	" " 50'W. X 30'S. OF CC-3	"	10.6	100.1	A
5-29 12	A	UPPER ROADWAY 100'N. OF GE WELL 46	"	11.1	96.6	A
5-29 13	A	" " 100'N. X 100'W. OF GE WELL 46	"	7.7	99.9	A
5-29 14	A	" " 100'N. X 200'W. OF GE WELL 46	"	10.3	99.6	A
5-29 15	A	" " 100'N. X 100'W. OF GE WELL 45	"	10.1	96.9	A
5-29 16	A	UPPER SLOPE 150'W. X 40'N. OF GE WELL 45	"	9.6	97.2	A

* A MAXIMUM DENSITY 124.7 #/CU.FT. OPTIMUM MOISTURE 9.7 %

B MAXIMUM DENSITY 122.5 #/CU.FT. OPTIMUM MOISTURE 11.0 %

COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS; B. RECOMPACTION REQUIRED; C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for LFP-3, LOWER AND UPPER SLOPES, ANCHOR BERM, ROADWAYS AND SEDIMENT BASINS with specific locations and results shown above.

material source SF-WMX-G8 for test(s) numbers _____

material source SF-WMX-35 for test(s) numbers _____

MS 480.9

DS 3616

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

DATE 5-29-97

Project Clarkstown Landfill

FIELD COMPACTION TESTS

TEST NO.		LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
5-29 17	A	UPPER SLOPE 150'W. x 75'S OF GE WELL 45	PREP GRADE	9.3	94.7	A
5-29 18	C	" " 60'W. OF DL-10	1ST LIFT	8.0	100.7	A
5-29 19	C	" " 60'W. x 75'N. OF DL-10	1ST LIFT	8.6	98.0	A
5-29 20	C	" " 100'N. OF DL-10	1ST LIFT	9.8	98.3	A
5-29 21	C	" " 100'E. x 50'N. OF DL-10	1ST LIFT	9.8	98.6	A

* A MAXIMUM DENSITY 124.7 #/CU.FT. OPTIMUM MOISTURE 9.7 %

C MAXIMUM DENSITY 131.3 #/CU.FT. OPTIMUM MOISTURE 8.7 %

COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for LFP-3 UPPER SLOPE BETWEEN CONTOURS 90-118 with specific locations and results shown above.

material source SF-WMX-G8 for test(s) numbers 5-29-1 / 5-29-6 / 5-29-12 / 5-29-

material source SF-SV-40 for test(s) numbers 5-29-18 / 5-29-21

MS 480.9

DS 3616

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 5-28-97 (A)

FIELD COMPACTION TESTS

TEST NO.		LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
5-28 1	A	UPPER SLOPE 40'N X 30'E. OF GE WELL 46	PREP GRADE	8.4	94.4	A
5-28 2	A	" " 40'S. X 45'E. OF GE WELL 46	"	9.5	98.7	A
5-28 3	A	" " 120'S. X 20'E. OF GE WELL 46	"	8.1	99.4	A
5-28 4	A	" " 110'S. X 30'W. OF GE WELL 46	"	8.7	99.0	A
5-28 5	A	" " 50'S X 10'W. OF GE WELL 46	"	11.0	96.8	A
5-28 6	A	" " 20'S X 25'W. OF GE WELL 46	"	10.5	98.1	A
5-28 7	A	" " 20'S. X 100'W. OF GE WELL 46	"	9.9	98.3	A
5-28 8	A	" " 80'S. X 100'W. OF GE WELL 46	"	8.6	97.2	A
5-28 9	A	" " 120'S. X 50'E. OF GE WELL 45	"	9.1	100.9	A
5-28 10	A	" " 50' E. OF GE WELL 45	"	10.3	99.8	A
5-28 11	A	" " 20'S. X 25'W. OF GE WELL 45	"	9.6	96.6	A
5-28 12	A	" " 75'S. X 25'W OF GE WELL 45	"	10.4	97.8	A
5-28 13	A	" " 75'W. X 25'N. OF GE WELL 45	"	9.7	99.2	A
5-28 14	A	" " 75'W. X 100'S. OF GE WELL 45	"	8.4	96.2	A

★ A MAXIMUM DENSITY 124.7 #/CU.FT. OPTIMUM MOISTURE 9.7 %

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for LFP-3 UPPER SLOPE with specific locations and results shown above.

material source SF-WMX-G8 for test(s) numbers _____

material source _____ for test(s) numbers _____

MS 479.2

DS 3615

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 5-27-97

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
5-27 1	A	SEDIMENT BASIN 6. 15'N. OF RFW 8S-8D		10.2	98.3	A
5-27 2	A	" " 6. 15'N. X 50'E. OF 8S-8D		11.2	99.0	A
5-27 3	A	UPPER SLOPE 110'W X 55'N. OF GE WELL 41	-1' PREP GRADE	9.3	97.8	A
5-27 4	A	" " 155'W. X 60'N. OF GE WELL 41	-1' PREP GRADE	9.1	98.1	A
5-27 5	A	" " 70'N. X 100'W. OF GE WELL 40	PREP GRADE	8.2	99.3	A
5-27 6	B	" " 70'N X 160'W. OF GE WELL 40	"	9.0	99.6	A
5-27 7	B	" " 120'N. X 160'W OF GE WELL 40	"	11.9	92.0	B
5-27 8	B	" " 120'N. X 100'W. OF GE WELL 40	"	9.5	96.8	A
5-27 9	B	ROADWAY 65'S. X 90'W. OF RFW 7S-7D	"	9.6	98.3	A
5-27 10	B	ROADWAY 65'S X 150'SW. OF RFW. 7S-7D	"	10.0	97.6	A
5-27 11	B	ROADWAY 65'S X 200'SW. OF RFW. 7S-7D	"	9.1	98.7	A
5-27 12	A	SEDIMENT BASIN 5. 180'W. X 50'S. OF RFW 7S-7D	"	8.6	99.3	A
5-27 13	A	" " 5. 240'W. X 55'S. OF RFW 7S-7D	"	11.2	95.7	A
5-27 14	A	" " 5. 235'W. X 190'S OF RFW. 7S-7D	"	9.5	99.7	A
5-27 15	A	" " 5. 250'W. X 180'S. OF RFW 7S-7D	"	9.1	98.2	A
5-27 16	A	" " 5 235'W. X 200'S OF RFW 7S-7D	"	8.9	97.5	A

* A MAXIMUM DENSITY 122.5 #/CU.FT. OPTIMUM MOISTURE 11.0 %

B MAXIMUM DENSITY 124.7 #/CU.FT. OPTIMUM MOISTURE 9.7 %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for LFP-3 ROADWAY NORTH OF UPPER SLOPE, UPPER SLOPE, SEDIMENT BASINS 5 AND 6 with specific locations and results shown above.

material source SF-SV-WMX-35 for test(s) numbers 5-27-1 / 5-27-3 / 5-27-12 / 5-27-

material source SF-SV-WMX G8 for test(s) numbers 5-27-6 / 5-27-11

MS 480.3

DS 3617

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 5-23-94

(B)

FIELD COMPACTION TESTS

TEST NO.		LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
5-23 1	A	115'W. X 25'N. OF GE WELL 38		7.9	96.9	A
5-23 2	A	130'W. X 25'N. OF GE WELL 38		6.3	99.8	A
5-23 3	A	145'W. X 25'N. OF GE WELL 38		9.0	94.0	A
5-23 4	A	160'W. X 80'N. OF GE WELL 38		8.6	97.2	A
5-23 5	A	145'W. X 80'N. OF GE WELL 38		7.8	98.4	A
5-23 6	A	115'W. X 80'N. OF GE WELL 38		8.9	94.9	A
5-23 7	A	115'W. X 130'N. OF GE WELL 38		8.0	97.6	A
5-23 8	A	130'W. X 130'N. OF GE WELL 38		4.0	98.1	A
5-23 9	A	145'W. X 130'N. OF GE WELL 38		6.6	97.2	A

* A MAXIMUM DENSITY 131.3 #/CU.FT. OPTIMUM MOISTURE 8.7 %

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for LFP-3 WEST SLOPE CONTOURS with specific locations and results shown above.

material source SF-SV-40 for test(s) numbers 5-23-1/5-23-9

material source _____ for test(s) numbers _____

MS 483.2

DS 36.20

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 5-21-97

7:00 ARRIVED

4:00 DEPARTED

FIELD COMPACTION TESTS

TEST NO.		LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
5-21 1	A	LFP-3 100'E. x 110'S OF GE WELL 45	PREP GRADE	12.7	95.4	A
5-21 2	A	LFP-3 100'W x 100'S OF GE WELL 46	"	9.3	95.8	A
5-21 3	A	LFP-3 90'W x 60'S. OF GE WELL 46	"	8.4	97.3	A
5-21 4	A	LFP-3 50'W. x 50'S. OF GE WELL 46	"	8.6	96.8	A
5-21 5	A	LFP-3 50'W. OF GE WELL 46	"	7.9	98.3	A
5-21 6	A	LFP-3 75'W. X 25'N OF GE WELL 46	"	10.4	96.8	A
5-21 7	A	LFP-3 25'W. x 50'N. OF GE WELL 46	"	9.2	96.9	A
5-21 8	A	LFP-3 25'W. OF GE WELL 47	"	10.1	97.6	A
5-22 9	A	LFP-3 25'W. x 50'S. OF GE WELL 47	"	10.1	97.3	A
5-21 10	A	LFP-3 75'W. X 50'S OF GE WELL 47	"	8.5	95.3	A
5-21 11	A	LFP-3 100'E. X 5'N. OF GE WELL 46	"	9.4	97.6	A
5-21 12	A	LFP-3 50'E X 40'N. OF GE WELL 46	"	9.3	98.4	A
5-21 13	A	LFP-3 100'E. X 50'N. OF GE WELL 46	"	9.2	97.7	A
5-21 14	A	LFP-3 150'S X 50'E OF GE WELL 47	"	10.0	97.3	A
5-21 15	A	LFP-3 100'N. OF GE WELL - 50	"	7.1	98.5	A
5-21 16	A	LFP-3 100'N. X 50'W. OF GE WELL 50	"	10.5	97.6	A

* A MAXIMUM DENSITY 124.7 #/CU.FT. OPTIMUM MOISTURE 9.7 %

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for NORTH UPPER SLOPE LFP-3/1 with specific locations and results shown above.

material source SF-WMX-G8 STOCKPILE WD 1 for test(s) numbers 5-21-1 / 5-21-

material source _____ for test(s) numbers _____

MS 476.5

DS 3619

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SOIL TEST REPORT

Client Ogden Remediation Services

DATE 5-21-97

Project Clarkstown Landfill

FIELD COMPACTION TESTS

NO.		LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
5-21 17	A	LFP-3 100'N. X 50'E. OF GE WELL 50	PREP GRADE	10.9	96.3	A
5-21 18	A	LFP-3 100'N. X 100'E. OF GE WELL 50	"	9.7	97.6	A
5-21 19	A	LFP-3 100'S X 20'E. OF GE WELL 47				

* A MAXIMUM DENSITY 124.7 #/CU.FT. OPTIMUM MOISTURE 9.7 % COMMENTS

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for NORTH UPPER SLOPE LFP-3 with specific locations and results shown above.

material source SF-WMX-G8 for test(s) numbers 5-21-17/5-21-19

material source _____ for test(s) numbers _____

MS 476.5

DS 3619

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 5-22-97

FIELD COMPACTION TESTS

TEST NO.		LOCATION	ELEV	WATER CONTENT %	PERCENT COMPACTION	COMMENT
5-22 1	A	50'E. X 20'N. OF GE WELL 46	PREP GRADE	9.4	99.2	HUMBOLT A
			"	9.1	99.4	TROXLER A
5-22 2	A	150'E. OF GE WELL 46	PREP GRADE	9.4	99.6	HUMBOLT A
			"	9.0	100.1	TROXLER A
5-22 3	A	50'W. OF GE WELL 47	PREP GRADE	10.5	98.6	HUMBOLT A
			"	9.9	99.2	TROXLER A
5-22 4	A	100'S OF GE WELL 47	PREP GRADE	10.2	96.3	HUMBOLT A
			"	10.0	98.1	TROXLER A
5-22 5	A	50'S. X 20'E OF RFW-9	PREP GRADE	97.0	10.2	HUMBOLT A
			"	97.4	10.4	TROXLER A
5-22 6	A	20'S. X 10'E. OF RFW-9	PREP GRADE	95.7	11.6	HUMBOLT A
			"	96.1	11.5	TROXLER A

* A MAXIMUM DENSITY 124.7 #/CU.FT. OPTIMUM MOISTURE 9.7 %

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for NORTH SLOPE, UPPER & LOWER with specific locations and results shown above.

material source SF-WMX-G8 for test(s) numbers 5-22-1 / 5-7

material source _____ for test(s) numbers _____

MS _____

DS _____

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SOIL TEST REPORT

Client Ogden Remediation Services

DATE 5-22-97

Project Clarkstown Landfill

FIELD COMPACTION TESTS

TEST NO.	TYPE	LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
5-22 1	A	50'S. OF ~~MW-1~~ RFW-9	PREP GRADE	10.2	95.9	A
5-22 2	A	50'S. X 50'E. OF ~~MW-1~~ RFW-9	" "	11.1	95.3	A
5-22 3	A	30'S. X 20'W. OF ~~MW-1~~ RFW-9	" "	10.6	95.7	A
5-22 4	A	100'E. OF GE WELL 42	" "	10.9	97.0	A
5-22 5	A	50'E. OF GE WELL 42	" "	9.9	95.4	A
5-22 6	A	15'S. OF GE WELL 42	" "	10.5	97.3	A
5-22 7	A	50'S. X 50'E. OF GE WELL 42	" "	10.4	95.3	A
5-22 8	A	50'S. X 100'E OF GE WELL 42	" "	10.2	95.8	A
5-22 9	A	100'S X 100'E. OF GE WELL 42	" "	11.0	96.6	A
5-22 10	A	100'S X 50'E OF GE WELL 42	" "	8.9	96.3	A
5-22 11	A	125'S X 50'W. OF GE WELL 42	" "	8.8	94.5	B
5-22 12	A	30'N. X 75'W. OF GE WELL 42	" "	9.9	93.0	B
5-22 13	A	50'N. X 50'E OF GE WELL 43	" "	9.2	92.0	B
5-22 14	A	100'N. X 25'E OF GE WELL 43	" "	10.1	98.4	A
5-22 15	A	100'S. X 100'W. OF GE WELL 42	" "	9.6	98.7	A
5-22 16	A	100'W OF GE WELL 42	" "	10.3	98.4	A

* A MAXIMUM DENSITY 124.7 #/CU.FT. OPTIMUM MOISTURE 9.7 %

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for LFP-3, NORTH UPPER SLOPE with specific locations and results shown above.

material source SF-WMX-G8 for test(s) numbers 5-22-1 / 5-22-16

material source _____ for test(s) numbers _____

MS 483.1

DS 3615

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

DATE 5-22-97

Project Clarkstown Landfill

FIELD COMPACTION TESTS

TEST NO.	SOIL TYPE	LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
5-22 17	A	50'W. X 25'N. OF GE WELL 41	PREP GRADE	11.7	95.6	A
5-22 18	A	100'W. X 25'S. OF GE WELL 41	"	11.3	95.3	A
5-22 19	A	100'W. X 75'S. OF GE WELL 41	"	10.1	96.5	A
5-22 20	A	50'W. X 100'S. OF GE WELL 41	"	8.9	96.9	A
5-22 21	A	110'S. OF GE. WELL 41	"	8.9	96.6	A
5-22 22	A	150'W. OF GE WELL 42	"	11.2	94.4	B
5-22 23	A	25'W. X 25'N. OF GE WELL 41	"	9.5	96.8	A

* A MAXIMUM DENSITY 124.7 #/CU.FT. OPTIMUM MOISTURE 9.7 %

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for LFP-3 NORTH UPPER SLOPE with specific locations and results shown above.

material source SF-WMX - G8 for test(s) numbers 5-22-17/5-22

material source for test(s) numbers

MS 483.1

DS 3615

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 5-16-97

FIELD COMPACTION TESTS

TEST NO.		LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
5-16 1	A	60'W. x 30'N. OF GE 46	PREP GRADE	9.8	93.2	B
5-16 2	A	25'W. x 20'N. OF GE 46	"	9.3	95.1	A
5-16 3	A	25'W x 25'S. OF GE 46	"	10.2	93.8	B
5-16 4	A	25'W. x 75'S. OF GE 46	"	10.0	94.0	B
5-16 5	A	50'W. x 100'S. OF GE 46	"	8.9	95.7	A
5-16	A	50'W. x 50'S. OF GE 46	"	9.0	93.8	B
5-16	A	75'W. x 40'S. OF GE 46	"	9.4	91.6	B
5-16	A	75'W. x 80'S OF GE 46	"	9.0	96.0	A
5-16	A	75'W. x 20'N.	"	8.6	94.2	B

* A MAXIMUM DENSITY 124.7 #/CU.FT. OPTIMUM MOISTURE 9.7 %

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for UPPER SLOPE LANDFILL PARCEL NO.3 CONTOURS 88 - 118. with specific locations and results shown above.

material source WMX G8 for test(s) numbers 5-16-1 / 5-16-9

material source _____ for test(s) numbers _____

MS 481.6

DS 3619

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 5-15-97

ARRIVED 11:00

DEPARTED 3:30

FIELD COMPACTION TESTS

TEST NO.		LOCATION	ELEV. CONTOURS	WATER CONTENT %	PERCENT COMPACTION	COMMENT
5-15 1	A	LFP-1 25'W. OF DL4	80-88	10.9	99.2	A
5-15 2	A	LFP-1 50'S X 40'W OF DL4	80-88	11.1	99.0	A
5-15 3	A	LFP-1 40'N. X 10'W OF GE 46	88-90	8.3	100.2	A
5-15 4	A	LFP-1 60'W OF GE 46	90-100	10.3	95.6	A
5-15 5	A	LFP-1 15'S X 10'W. OF GE 46	88-90	8.5	96.1	A
5-15 6	A	LFP-1 100'W. X 50'N. OF GE 46	88-90	9.3	100.1	A
		LFP-3 LOWER SLOPE				
5-15 7	B	200'S. X 40'E OF CC4 LFP-3	60-84	6.1	99.3	A
5-15 8	B	100'S. OF CC4 LFP-3	60-84	10.4	96.1	A
5-15 9	B	50'S. X 30'E. OF CC4 LFP-3	60-84	7.7	96.7	A

* A MAXIMUM DENSITY 126.9 #/CU.FT. OPTIMUM MOISTURE 8.4 %

B MAXIMUM DENSITY 127.1 #/CU.FT. OPTIMUM MOISTURE 9.5%

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for LFP-1 upper Slope contour 80-100 LFP-3 Lower Slope contour 60-84 with specific locations and results shown above.

material source SF-SV-30 for test(s) numbers 5-15-1/5-15-

material source SF-WMX-15 for test(s) numbers 5-15-7/5-15-

MS 483.0

DS 3616

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 5-14-97

FIELD COMPACTION TESTS

TEST NO.		LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
5-14 1	A	LFP-3 15'E. x 25'S OF GE 44	PREP. GRADE	12.5	96.1	A
5-14 2	A	LFP-3 25'W x 25'S OF GE 44	"	13.1	95.8	A
5-14 3	A	LFP-3 50'W x 25'S OF GE 44	"	11.4	95.6	A
5-14 4	A	LFP-3 25'W. OF GE 44	"	13.0	96.0	A
5-14 5	A	LFP-3 25'N. OF GE 44	"	11.9	96.8	A
5-14 6	A	LFP-3 20'E. x 50'N. GE 44	"	12.2	96.3	A
5-14 7	A	LFP-3 20'W x 75'N. GE 44	"	12.2	95.2	A
5-14 8	A	LFP-3 90'W. x 90'N. GE 44	"	11.9	96.4	A
5-14 9	A	LFP-3 110'W x 50'N. GE 44	"	12.0	96.3	A
5-14 10	A	LFP-3 110'W x 25'N GE 44	"	12.0	95.9	A
5-14 11	A	LFP-3 100'W. x 25'S. GE 44	"	12.1	95.5	A
5-14 12	A	LFP-3 100'W x 50'S GE 44	"	11.2	96.7	A
5-14 13	A	LFP-3 10'W x 20'N. GE 45	"	11.1	95.0	A
5-14 14	A	LFP-3 10'E. x 20'S. GE 45	"	10.2	95.6	A
5-14 15	A	LFP-3 20'W. x 60'S. GE 45	"	11.8	95.8	A
5-14 16	A	LFP-3 100'S OF GE 45	"	11.2	95.7	A

* A MAXIMUM DENSITY 124.7 #/CU.FT. OPTIMUM MOISTURE 9.7 %

B MAXIMUM DENSITY 122.5 #/CU.FT. OPTIMUM MOISTURE 11.0 %

COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for UPPER SLOPE, CONTOURS 90-118 LFP-3 with specific locations and results shown above.

material source SF-WMX-G8 for test(s) numbers 5-14-1 / 5-14-

material source SF-WMX-35 for test(s) numbers _____

MS 483.2

DS 3614

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SOIL TEST REPORT

Client Ogden Remediation Services

DATE 4-14-97

Project Clarkstown Landfill

FIELD COMPACTION TESTS

TEST NO.		LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
5-14 17	A	LFP-3 50'W. OF GE 45	PREP GRADE	10.4	97.3	A
5-14 18	A	LFP-3 75'W. x 80'S OF GE 45	"	11.7	96.4	A
5-14 19	A	LFP-3 75'W. x 25'S OF GE 45	"	11.7	95.4	A
5-14 20	A	LFP-3 35'W x 5'S OF GE 45	"	10.2	96.7	A
5-14 21	A	LFP-3 25'W x 40'N. OF GE 45	"	10.7	96.0	A
5-14 22	A	LFP-3 100'W. x 50'N. OF GE 45	"	10.4	96.9	A
5-14 23	A	LFP-3 100'E. x 70'N. OF GE 44	"	11.1	96.8	A
5-14 24	A	LFP-3 100'E x 30'N. OF GE 44	"	11.0	96.4	A
5-14 25	B	LFP-3 RETEST OF 5-13-14 25'E. x 110'S	"			
		OF GE 45	"	14.0	94.4	B
5-14 26	B	LFP-3 RETEST OF 5-13-15 70'E. x 110'S OF GE 45	"	13.9	94.2	B
5-14 27	B	WD1 220'N. x 15'W. OF CHAIN LINK FENCE CORNER	"	11.2	96.3	A
5-14 28	B	WD1 270'N. x 15'W. OF CHAIN LINK FENCE CORNER	"	11.8	97.3	A
5-14 29	B	WD1 280'N. x 20'E. OF CHAIN LINK FENCE CORNER	"	12.0	95.6	A
5-14 30	B	WD1 225'N. x 20'E. OF CHAIN LINK FENCE CORNER	"	12.3	96.2	A

* A MAXIMUM DENSITY 124.7 #/CU.FT. OPTIMUM MOISTURE 9.7 %

B MAXIMUM DENSITY 122.5 #/CU.FT. OPTIMUM MOISTURE 11.0 %

COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS; B. RECOMPACTION REQUIRED; C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for UPPER SLOPE, CONTOURS 90-118 LFP-3 ALSO WD-1 AREA. with specific locations and results shown above.

material source SF-WMX G8 for test(s) numbers 5-14-17/5-14

material source SF-WMX-35 for test(s) numbers 5-14-25/5-14-30

MS 483.2

DS 3614

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 5-13-97

(B)

FIELD COMPACTION TESTS

TEST NO.	SOIL	LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
5-13 1	A	LFP-3, 50'W. OF GE 42	CONTOURS 90-100	7.9	98.3	A
5-13 2	A	LFP-3, 40'S OF GE 42	90-100	7.8	97.7	A
5-13 3	A	LFP-3 100'S x 50'W OF GE 42	100-110	9.8	97.2	A
5-13 4	A	LFP-3, 100'S x 100'W OF GE 42	100-110	10.3	93.2	B
5-13 5	A	LFP-3, 50'S x 100'W OF GE 42	100-110	9.2	94.0	B
5-13 6	A	LFP-3 RETEST OF TEST NO. 5-13-4	100-110	10.1	96.3	C
5-13 7	A	LFP-3, RETEST OF TEST NO. 5-13-5	100-110	9.0	96.0	C
5-13 8	B	WD-1, 160'N. X 16'E. FROM CORNER OF CHAIN LINK FENCE	PREP-GRADE	15.1	93.6	B
5-13 9	B	WD-1, 200'N. X 10'E. FROM CORNER OF CHAIN LINK FENCE	PREP-GRADE	14.5	94.0	B
5-13 10	B	LFP-3 50'E. x 25'N OF GE 45	PREP-GRADE	13.1	96.1	A
5-13 11	B	LFP-3 10'E. x 20'S. OF GE. 45	PREP-GRADE	13.6	96.8	A
5-13 12	B	LFP-3 25'E x 5'N. OF GE. 45	PREP-GRADE	11.8	98.2	A
5-13 13	B	LFP-3 10'E. x 50'S. OF GE. 45	PREP-GRADE	13.2	96.3	A
5-13 14	B	LFP-3 25'E x 110'S OF GE 45	PREP-GRADE	14.8	93.5	B
5-13 15	B	LFP-3 70'E. x 110'S. OF GE 45	PREP-GRADE	14.2	94.3	B

* A MAXIMUM DENSITY 126.9 #/CU.FT. OPTIMUM MOISTURE 8.4 %

B MAXIMUM DENSITY 122.5 #/CU.FT. OPTIMUM MOISTURE 11.0 %

COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS; B. RECOMPACTION REQUIRED; C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for LFP-3 UPPER SLOPE, AND WD-1 with specific locations and results shown above.

material source SF-SV-30 for test(s) numbers 5-13-1 / 5-13-7

material source SF-WMX-35 for test(s) numbers 5-13-8 / 5-13-15

MS 477.6

DS 3612

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 5-12-97

FIELD COMPACTION TESTS

TEST NO.	★	LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
5-12 1	A	W.D. NO1. 170'N. X40'E CHAIN LINK FENCE CORNER	2ND LIFT	8.5	98.0	A
5-12 2	A	W.D. NO 1 220'N x 0'W " " " "	"	7.1	98.7	A
5-12 3	A	W.D NO 1 250'N x 15'E " " " "	"	8.1	99.3	A
5-12 4	A	W.D. NO.1 260'N. x 20'W " " "	"	8.5	98.7	A
5-12 5	A	WD NO.1 300'N x 5'W. " " " "	"	8.1	99.4	A
5-12 6	B	150'W. X 50'N. OF CC-NO.3	LINES GRADE	9.0	99.9	A
5-12 7	B	4' 'W x 30'N. OF CC-NO.3	"	9.8	99.8	A
5-12 8	C	300'W. X 50'S. OF RFW MD	PREP GRADE	10.2	95.9	A
		RETESTED FROM 5-8-97				
5-12 9	D	75'N. X 50'E. OF GE-50	CONTOURS 88-100	9.9	98.5	A
5-12 10	D	80'N X 5'E OF GE-50	88-100	11.0	99.2	A
5-12 11	D	50'E X 5'N. OF GE-51	110-118	8.2	100.5	A
5-12 12	D	75'N. X 40'W OF GE-50	100-110	9.0	98.3	A
5-12 13	D	45'N X 10'E. OF GE 50	88-100	10.4	96.1	A
5-12 14	D	35'N. X 70'E. OF GE-50	88-100	9.1	98.1	A
5-12 15	D	50'N. X 90'E. OF GE-50	80-88	7.9	97.6	A

★ A MAXIMUM DENSITY 130.5 #/CU FT. OPTIMUM MOISTURE 10.0 %

B MAXIMUM DENSITY 121.6 #/CU.FT. OPTIMUM MOISTURE 12.0%

" " " 127.1 " " 9.5%

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST ☐ SAND CONE ☐ NUCLEAR DENSOMETER

D MAX DENSITY 126.9 @ 8.4

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for LFP NO.1, LFP NO 3, SEDIMENT BASIN 5 AND SEDIMENT BASIN NO.6 with specific locations and results shown above.

material source SF-SV-25 for test(s) numbers 5-12-1/5-5

material source SF-MIX LFP NO 3 for test(s) numbers 5-12-6/-

MS 4807 SF-WMX-15 " " " 5-12-8

DS 3613

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SOIL TEST REPORT

Client Ogden Remediation Services

DATE 5-12-97

Project Clarkstown Landfill

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
5-12 16	D	75'W. x 30'S OF GE-46	CONTOURS 80-88	8.8	99.3	A
5-12 17	D	60'E x 10'S OF GE-46	88-100	9.5	97.3	A
5-12 18	D	60'E x 50'S OF GE-46	100-110	8.2	97.6	A
5-12 19	D	100'E x 70'S OF GE-46	110-118	9.5	97.0	A
5-12 20	D	110'E. x 30'S OF GE-46	100-110	9.5	96.2	A
5-12 21	D	110'E. x 20'S OF GE-47	88-100	10.2	96.3	A
5-12 22	D	45'W x 50'S. OF GE-47	80-88	11.4	95.1	A
5-12 23	D	45'W. OF GE-47	80-88	9.1	97.3	A
5-12 24	D	10'W. x 25'S. OF GE 47	80-88	8.4	96.2	A
5-12 25	D	55'S OF GE 47	88-100	9.9	96.0	A

* D MAXIMUM DENSITY 126.9 ℓ/ CU FT OPTIMUM MOISTURE 8.4 %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

MAXIMUM DENSITY ℓ/ CU FT OPTIMUM MOISTURE %

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for LFP No.1, UPPER SLOPE with specific locations and results shown above.

material source SF-SV-30 for test(s) numbers 5-12-9/5-12-

material source _____ for test(s) numbers _____

MS 4807

DS 3613

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 5-9-97

FIELD COMPACTION TESTS

TEST NO.		LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
5-9 1	A	75'S. OF 1+50 LFP. NO.5	3RD LIFT	10.4	97.4	A
5-9 2	A	30'S. OF 1+95 LFP. NO. 5	"	9.7	100.4	A
5-9 3	A	30'S OF 2+50 LFP. NO. 5	"	10.9	99.3	A
5-9 4	A	40'S OF 3+25 LFP. NO. 5	"	8.8	95.1	A
5-9 5	A	120'S OF 3+25 LFP. NO. 5	"	9.0	97.6	A
5-9 6	A	110'S OF 2+85 LFP. NO. 5	"	12.2	95.7	A
5-9 7	A*	50'E. OF GE #37	CONTOURS 118-122	10.7	97.6	A
5-9 8	A	50'N. X 50'W OF GE #36	"	10.7	96.9	A

* A MAXIMUM DENSITY 130.5 #/CU.FT. OPTIMUM MOISTURE 10.0 %

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for LFP-NO.5, LFP-3, with specific locations and results shown above.

material source SF-SV-25 for test(s) numbers 5-9-1 / 5-9

material source for test(s) numbers 5-9-7 / 5-9-8

MS 481.7

DS 3596

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 5-8-97 (A)

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
5-8 1	A	LFP-NO.5 125'N. OF 2+50	2ND LIFT	11.3	92.3	B
5-8 2	A	LFP-NO.5 125'N. OF 2+50	"	10.9	97.0	C
5-8 3	A	LFP-NO.5 75'N. OF 2+50	"	9.7	97.2	A
5-8 4	A	LFP-NO.5 40'N. OF 2+50	"	9.7	97.0	A
5-8 5	A	LFP-NO.5 40'N. OF 3+00	"	7.6	97.4	A
5-8 6	A	LFP-NO.5 70'N. OF 3+00	"	9.5	95.9	A
5-8 7	A	LFP-NO-5 110'N. OF 3+00	"	7.6	97.3	A
5-8 8	A	LFP-NO.4 25'S x 40'E OF CC.7N	"	9.2	97.0	A
5-8 9	A	LFP-NO.4 80'S x 30'E. OF CC.7N	"	9.0	97.3	A
5-8 10	A	LFP-NO.4 180'S x 5'E OF CC.7N	"	8.9	99.8	A
5-8 11	A	LFP-NO.4 300'S.x 60'E OF CC.7N	"	8.3	99.2	A
5-8 12	A	LFP-NO.4 410'S x 20'E OF CC.7N	"	8.0	97.3	A
5-8 13	A	LFP-NO.5 50'N.x 50'S OF CC 7N	"	9.2	98.1	A
5-8 14	A	LFP-NO.5 100'N x 20'W. OF CC 7N	1ST LIFT	9.8	99.8	A
5-8 15	A	LFP-NO.5 150'N x 30'W. OF CC 7N	"	10.0	97.9	A
5-8 16	A	LFP-NO.5 170'N.x 30'E. OF CC 7N	"	10.3	98.9	A

★ A MAXIMUM DENSITY 132.1 #/CU.FT. OPTIMUM MOISTURE @ 9.0 %

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for LFP-NO.4, LFP-NO.5 with specific locations and results shown above.

material source SF-SV-20A for test(s) numbers 5-8-1 / 5-8-16

material source _____ for test(s) numbers _____

MS 485.2

DS 3620

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

DATE 5-8-97

Project Clarkstown Landfill

FIELD COMPACTION TESTS

TEST NO.	MAT.	LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
5-8 17	A	LFP-NO.1 360'N. x 30'W. OF CORNER CHAIN FENCE	1ST LIFT	8.0	96.5	C
		RETEST OF NO. 15 ON 5-5-97				
5-8 18	B	LFP-NO.3 270'W. x 30'S OF RFW MD	PREP GRADE	8.6	97.7	A
5-8 19	B	LFP-NO.3 295'W. x 40'S OF RFW MD	"	9.7	96.7	A
5-8 20	B	LFP-NO.3 295'W x 100'S OF RFW MD	"	10.2	92.4	(B)
5-8 21	B	LFP-NO.3 250'W. x 150'S OF RFW MD	"	9.5	95.7	A
5-8 22	B	LFP-NO.3 250'W. x 190'S OF RFW MD	"	9.5	96.3	A
5-8 23	B	LFP-NO.3 20'E. OF CC.NO4	CONTOURS 70-80	6.9	101.4	A
5-8 24	B	LFP-NO.3 30'E. x 50'S OF CC.NO.4 (12")	"	7.5	98.6	A
5-8 25	B	LFP-NO.3 40'E x 100'S OF CC.NO.4 (6")	"	8.9	91.8	(B)
5-8 26	B	LFP-NO.3 50'E x 170'S OF CC.NO.4 (6")	"	8.6	89.6	(B)
5-8 27	B	LFP-NO.3 50'E x 170'S OF CC.NO.4 (10")		8.7	90.4	(B)

* A MAXIMUM DENSITY // CU.FT. OPTIMUM MOISTURE % COMMENTS

A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

B MAXIMUM DENSITY 127.1 // CU.FT. OPTIMUM MOISTURE 9.5 %

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for LFP-NO 1, LFP-NO. 3 with specific locations and results shown above.

material source SF-MOX-15 for test(s) numbers 5-8-18 / 5-8

material source _____ for test(s) numbers _____

MS 485.2

DS 3620

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 5-5-97

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
5-5 1	A	90'N. OF 2+85	1ST LIFT	7.1	95.8	A
5-5 2	A	75'N OF 3+30	"	7.7	98.0	A
5-5 3	A	60'N. OF 2+75	"	8.4	97.3	A
5-5 4	A	40'N OF 2+50	"	9.1	98.6	A
5-5 5	A	45'N. OF 1+80	"	8.4	98.0	A
5-5 6	A	50'E. X 40'N. OF CC-7N	"	6.7	97.4	A
5-5 7	A	50'E. X 100N. OF CC-7N	"	8.5	97.6	A
5-5 8	A	125'N. OF 1+50	"	7.8	97.2	A
5-5 9	A	125'N. OF 2+20	"	8.5	97.8	A
5-5 10	A	120'N. OF 2+75	"	8.7	97.4	A
5-5 11	A	125'N. OF 3+25	"	8.9	97.8	A
5-5 12	B	220'N. X 60'E. OF NW. COR. CHAIN FENCE	"	9.9	96.7	A
5-5 13	B	350'N. X 65'E. OF NW. COR. CHAIN FENCE	"	9.6	98.0	A
5-5 14	B	215'N. X 15'W. OF NW. COR. CHAIN FENCE	"	10.2	97.3	A
5-5 15	B	300'N X 15'W. OF NW. COR. CHAIN FENCE	"	11.3	93.1	B

* A MAXIMUM DENSITY 132.1 #/CU.FT. OPTIMUM MOISTURE 9.0 %

B MAXIMUM DENSITY 130.5 #/CU.FT. OPTIMUM MOISTURE 10.0 %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST ☐ SAND CONE ☐ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for LFP-NO. 7 AND LFP-NO1 with specific locations and results shown above.

material source SF-SV-20A for test(s) numbers 5-5-1 / 5-5-11

material source SF-SV 25 BACKSIDE STOCK-PILE for test(s) numbers 5-5-12 / 5-5-15

MS 484.7

DS 3621

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

DATE 5-5-97

Project Clarkstown Landfill

FIELD COMPACTION TESTS

TEST NO.	TYPE	LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
5-5 16	A	315'S OF CC. NO. 7N	1ST LIFT	7.6	98.6	A
5-5 17	A	340'S OF CC. NO 7N	"	7.8	98.4	A

* A MAXIMUM DENSITY 132.1 LB/CU.FT. OPTIMUM MOISTURE 9.0 %

B MAXIMUM DENSITY LB/CU.FT. OPTIMUM MOISTURE %

COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for LFP-NO. 4 with specific locations and results shown above.

material source SF-SV-20A for test(s) numbers 5-5-16/5-

material source for test(s) numbers

MS 484.7

DS 3621

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 5-1-97

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
5-1 30	B	75'W. OF RFW-1S-1D	1ST LIFT	10.4	100.4	A
5-1 31	B	170'W. OF RFW-1S-1D	"	9.8	99.3	A
5-1 32	B	250'W. OF RFW-1S-1D	"	10.8	98.0	A
5-1 33	B	150'E. OF RFW-2	"	10.0	99.0	A
5-1 34	B	25'E. OF RFW-2	"	8.2	102.0	A
5-1 35	C	340'E. OF CC-6	3RD LIFT	9.7	97.7	A
5-1 36	C	375'E. OF CC-6	3RD LIFT	7.2	97.0	A
5-1 37	C	25'S x 20'E. OF CC-7N	1ST LIFT	9.9	97.9	A
5-1 38	C	75'S x 20'E. OF CC-7N	"	9.3	99.0	A
5-1 39	C	120'S x 30'E OF CC-7N	"	11.1	95.7	A
5-1 40	C	200'S x 20'E. OF CC-7N	"	9.1	97.3	A

* C MAXIMUM DENSITY 132.1 #/CU.FT. OPTIMUM MOISTURE 9.0 % COMMENTS

D MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST ☐ SAND CONE ☐ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for PERIMETER BERM LFP-4; "RETEST" with specific locations and results shown above.

material source SF-SV-20A for test(s) numbers 5-1-35 / 5-1-40

material source _____ for test(s) numbers _____

MS 476.5

DS 3616

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 STONY POINT, NY 10980 TELEPHONE (914) 942-2088 FAX (914) 942-0995

SOIL TEST REPORT

Client Ogden Remediation Services DATE 5-1-97

Project Clarkstown Landfill

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
5-1 17	A	300'S x 40'E. OF CC-2	PREP GRADE	11.9	102.4	A
5-1 18	A	250'S x 40'E. OF CC-2	"	10.5	95.0	A
5-1 19	A	250'S x 80'E. OF CC-2	"	9.2	101.0	A
5-1 20	A	200'S x 60'E. OF CC-2	"	9.5	101.6	A
5-1 21	A	200'S x 20'E. OF CC-2	"	8.2	103.3	A
5-1 22	A	200'S x 20'W. OF CC-2	"	9.6	100.4	A
5-1 23	A	150'S x 50'W. OF CC-2	"	7.5	98.0	A
5-1 24	A	150'S OF CC-2	"	11.7	97.1	A
5-1 25	A	150'S x 30'E. OF CC-2	"	7.3	103.2	A
5-1 26	A	100'S x 20'E. OF CC-2	"	8.6	104.1	A
5-1 27	A	100'S x 30'W. OF CC-2	"	10.5	97.5	A
5-1 28	A	100'S x 70'W. OF CC-2	"	7.9	101.8	A
5-1 29	A	50'S x 70'W. OF CC-2	"	11.1	101.3	A
5-1 30	A	50'S x 20'W. OF CC-2	"	11.4	101.6	A

* A MAXIMUM DENSITY 119.8 #/CU FT. OPTIMUM MOISTURE 12.2 % COMMENTS A. TEST RESULTS COMPLY WITH SPECIFICATIONS B. RECOMPACTION REQUIRED C. TEST IS AFTER RECOMPACTION

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for NO. SLURRY PLATFORM "RETEST" with specific locations and results shown above.

material source SF-WMX-LFP-1 for test(s) numbers _____

material source _____ for test(s) numbers _____

MS 476.5

DS 3616

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 5-1-94

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
5-1 1	A	50'S. x 30'W. OF CC-2	PREP GRADE	9.2	98.0	A
5-1 2	A	40'S x 75'W. OF CC-2	"	9.0	98.9	A
5-1 3	A	20'S x 170'W OF CC-2	"	10.6	97.3	A
5-1 4	A	20'S x 250'W. OF CC-2	"	8.6	99.1	A
5-1 5	A	40'S x 340'W. OF CC-2	"	9.2	101.6	A
5-1 6	A	65'E. x 100'S OF 3+59	"	9.4	101.6	A
5-1 7	A	65'E. x 175'S OF 3+59	"	7.8	104.7	A
5-9 8	A	30'E x 180'S OF 3+59	"	9.6	100.2	A
1 1	A	30'W. x 185'S OF 3+59	"	10.4	98.6	A
5-1 10	A	30'W x 120'S OF 3+59	"	9.7	95.5	A
5-1 11	A	40'E. x 130'S OF 3+59	"	9.0	97.1	A
5-1 12	A	40'E. x 80'S OF 3+59	"	8.7	101.7	A
5-1 13	A	10'W. x 80'S OF 3+59	"	9.4	97.1	A
5-1 14	A	2'E x 25'S OF 3+59	"	8.5	104.2	A
5-1 15	A	35'W. x 15'S. OF 3+59	"	9.8	97.4	A
5-1 16	A	300'S. x 85'E OF CC-2	"	8.5	102.5	A

* A MAXIMUM DENSITY 119.8 #/CU.FT. OPTIMUM MOISTURE 12.2 %

B MAXIMUM DENSITY 120.0 #/CU.FT. OPTIMUM MOISTURE 13.3 %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for NO. SLURRY PLATFORM, "RETEST," PERIMETER BERM LFP-4 with specific locations and results shown above.

material source SF-WMX-LFP-1 for test(s) numbers 5-1-1 / 5-1-30

material source SF-TN-010-LFP-4 for test(s) numbers 5-1-30 / 5-1-33

MS 476.5

DS 3616

SOIL TEST REPORT

Client Ogden Remediation Services

DATE 4-23-94

Project Clarkstown Landfill

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
4-23 1	A	50'W X 30'N. OF RFW-204	3RD LIFT	9.9	99.3	A
4-23 2	A	50'W X 50'S. OF RFW-204	"	10.2	99.9	A
4-23 3	A	100'SW. X 75'W. OF RFW-204	"	9.8	100.7	A
4-23 4	A	385'E. OF CC NO. 6	"	11.4	95.7	A
4-23 5	A	150'SW. X 100'W. OF RFW-204	"	10.9	96.9	A
4-23 6	B	50'W. X 15'N. OF CC. No. 3	CONTOURS 64-68	8.8	95.3	A
4-23 7	B	125'W. X 20'N. OF CC. NO. 3	"	8.4	95.6	A
4-23 8	B	175'W X 20'N OF CC. NO. 3	"	8.7	97.8	A
4-23 9	B	225'W. X 20'N. OF CC. NO. 3	"	7.4	98.0	A
4-23 10	B	100'E x 25'S OF RFW-7 S+D	"	9.6	96.3	A
4-23 11	B	50'E x 25'S OF RFW-7 S+D	"	10.3	98.2	A
4-23 12	B	25'S OF RFW-7 S+D	"	8.1	98.6	A
4-23 13	B	50'W. X 25'S OF RFW-7 S+D	"	7.6	98.0	A

* A MAXIMUM DENSITY 132.1 #/CU.FT. OPTIMUM MOISTURE 9.0 % %

B MAXIMUM DENSITY 121.6 #/CU.FT. OPTIMUM MOISTURE 12.0 % %

COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for LFP-4 PERIMETER BERM AND LOWER SLOPE LFP-3 BETWEEN COLLECTION CHAMBER NO.3 TO 50'W OF RFW-7 with specific locations and results shown above.

material source SF-SV-20A for test(s) numbers 4-23-1 / 4-23-5

material source SF-MIX-LFP-3 for test(s) numbers 4-26-6 / 4-23-13

MS 3603

DS 479.6

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 4-22-97

FIELD COMPACTION TESTS

TEST NO.		LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
4-22 1	A	25'W. OF CC. NO. 6	1ST LIFT	9.5	96.9	A
4-22 2	A	20'W OF RFW NO.1	"	12.2	93.0	B
4-22 3	A	40'W. OF RFW NO.1	"	10.5	94.3	B
4-22 4	A	120'W. OF RFW NO.1	"	11.0	92.6	B
4-22 5	A	150'W. OF RFW NO.1	"	13.1	89.3	B
4-22 6	A	155'E OF RFW NO.2	"	12.3	92.7	B
4-22 7	A	50'E OF RFW NO.2	"	13.4	92.5	B
4-22 8	A	20'E. OF RFW NO.2	"	12.1	93.8	B
4-22 9	A	100'E OF RFW NO.2	"	12.3	93.2	B
4-22 10	A	150'W OF RFW NO.1	"	11.1	90.7	B
4-22 11	A	140'E. OF RFW NO.2	"	12.4	92.9	B
4-22 12	A	70'E. OF RFW NO.2	"	16.3	94.0	B
4-22 13	A	PERIMETER BERM 50'N x 50'W OF RFW 204	2ND LIFT	10.0	97.6	A
4-22 14	A	" " 100'S x 50'W. OF RFW 204	"	9.1	98.5	A
4-22 15	A	375'E OF CC. NO.6	"	8.1	101.0	A
4-22 16	A	100'S x 25'W. OF RFW 204	"	9.3	100.1	A

★ A MAXIMUM DENSITY 129.3 #/CU.FT. OPTIMUM MOISTURE 9.8 %

B MAXIMUM DENSITY 132.1 #/CU.FT. OPTIMUM MOISTURE 9.0 %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for PERIMETER BERM LFP-NO.4 FIRST LIFT BETWEEN RFW-1 TO RFW-2. SECOND LIFT FROM CC.NO.6 TO RFW 204 with specific locations and results shown above.

material source SF-TN -5.9 -45 for test(s) numbers 4-22-1 / 4-22-1

material source SF-SV - 20A for test(s) numbers 4-22-14 / 4-22-2

MS 486.1

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 4-22-97

FIELD COMPACTION TESTS

TEST NO.		LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
4-22 17	A	25'S x 25'W OF RFW 204	2ND LIFT	7.9	101.1	A
4-22 18	A	300'E. OF CC. NO.6	"	9.2	100.0	A
4-22 19	B	230'E. OF CC. NO.6	"	9.1	98.0	A
4-22 20	B	150'E. OF CC. NO.6	"	10.9	95.5	A
4-22 21	B	50'E. OF CC. NO.6	"	11.3	96.2	A
4-22 22	B	15'S. OF CC. NO.6	"	10.9	97.0	A

* A MAXIMUM DENSITY ____ #/CU.FT. OPTIMUM MOISTURE ____ %

B MAXIMUM DENSITY ____ #/CU.FT. OPTIMUM MOISTURE ____ %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST ☐ SAND CONE ☐ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for _____ with specific locations and results shown above.

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

MS _____

DS _____

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 4-21-97

FIELD COMPACTION TESTS

		LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
4-21 1	A	LFP No. 3 North Slope Between 0+00 - 0+50	CONTOURS 70 - 90	11.7	95.7	A
4-21 2	A	" " " " " 1+00 - 1+50	70 - 90	10.9	97.8	A
4-21 3	A	" " " " " 2+00 - 2+50	70 - 90	10.3	98.3	A
4-21 4	A	" " " " " 2+50 - 3+00	70 - 90	10.8	97.4	A
4-21 5	A	" " " " " 3+50 - 4+00	70 - 90	10.7	97.8	A
4-21 6	A	" " " " " 4+50 - 5+00	70 - 90	11.1	96.6	A
4-21 7	A	" " " " " 6+00 - 6+50	70 - 90	10.8	96.5	A
4-21 8	A	" " " " " 6+50 - 7+00	70 - 90	10.9	96.8	A
4-21 9	B	Perimeter Berm 300' E. of CC No. 6	1ST LIFT	9.2	93.0	B
4-21 10	B	" " 210' E. of CC No. 6	1ST LIFT	8.6	96.2	A
4-21 11	B	" " 120' E. of CC No. 6	1ST LIFT	9.6	93.6	B
4-21 12	B	" " 50' E. of CC No. 6	1ST LIFT	9.0	94.0	B
4-21 13	B	" " 50' W. of CC No. 6	1ST LIFT	10.2	93.8	B
4-21 14	B	" " 30' E. of RFW 1-S 1-D	1ST LIFT	10.2	94.7	B
4-21 15	B	" " 75' W. of RFW 1-S 1-D	1ST LIFT	10.6	93.6	B
4-21 16	B	" " 150' W. of RFW 1-S 1-D	1ST LIFT	11.7	92.3	B

* A MAXIMUM DENSITY 122.4 #/CU.FT. OPTIMUM MOISTURE 11.4 %

B MAXIMUM DENSITY 129.3 #/CU.FT. OPTIMUM MOISTURE 9.8 %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for North Slope 171' E. of CC #3 0+00. LFP #3 LFP #4 Perimeter Berm From CC #16, East To Sediment Basin #2 with specific locations and results shown above.

material source SF-WMX-20 for test(s) numbers 4-21-1 / 4-21-8

material source SF-TN-5.9-45 for test(s) numbers 4-21-9 / 4-21-21

MS 481.1

DS 21.77

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SOIL TEST REPORT

ent Ogden Remediation Services

oject Clarkstown Landfill

DATE 4-21-94

FIELD COMPACTION TESTS

ST O.		LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
21 1	B	PERIMETER BERM 75'E. OF CC NO. 6	1ST LIFT	9.5	95.8	C
21 8	B	" " 125'E. OF CC NO. 6	1ST LIFT	9.2	96.3	C
21 9	B	" " 200'E. OF CC NO. 6	1ST LIFT	9.2	95.8	C
21 0	B	" " 280'E. OF CC NO. 6	1ST LIFT	9.6	95.5	C
21 21	B	" " 55'W. OF CC NO. 6	1ST LIFT	9.9	95.7	A

A MAXIMUM DENSITY ____ / CU.FT. OPTIMUM MOISTURE ____ %

B MAXIMUM DENSITY ____ / CU.FT. OPTIMUM MOISTURE ____ %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST ☐ SAND CONE ☐ NUCLEAR DENSOMETER

On this date a representative from this firm performed soil density testing at the project site. Tests were taken for _____ with specific locations and results shown above.

material source _____ for test(s) numbers _____

material source _____ for test(s) numbers _____

MS _____

DS _____

FAIRWAY

Soils
Test Report

DATE 4-17-97

ARRIVED AT JOBSITE 4:30

DEPARTED JOBSITE 6:00

Client OGDEN REMEDIATION

Project CLARKSTOWN L.F.

FIELD COMPACTION TESTS

TEST NO.		LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENTS
4-17 1	A	LANDFILL PARCEL NO. 3 BETWEEN 0+00 - 0+50	CONTOURS 70 TO 80	10.2	95.3	A
4-17 2	A	" " " 0+00 - 0+50	80 TO 90	11.1	93.0	B
4-17 3	A	" " " 0+00 - 0+50	90 TO 90	13.5	94.2	C
4-17 4	A	RETEST NO. 4-16-2 " 0+00 - 0+50	80 TO 90	10.3	96.3	C
4-17 5	A	RETEST NO. 4-16-3 " 0+00 - 0+50	80 TO 90	13.0	96.8	C
4-17 6	A	LANDFILL PARCEL NO. 3 " 0+50 - 1+00	80 TO 90	12.1	95.4	A
4-17 7	A	" " " " 0+50 - 1+00	80 TO 90	11.3	94.5	A
4-17 8	A	" " " " 0+50 - 1+00	70 TO 80	12.2	96.0	A
4-17 9	A	" " " " 0+50 - 1+00	70 TO 80	11.2	95.7	A
4-17 10	A	" " " " 1+00 - 1+50	80 TO 90	12.7	95.8	A
4-17 11	A	" " " " 1+00 - 1+50	70 TO 80	11.9	96.4	A
4-17 12	A	" " " " 1+00 - 1+50	70 TO 80	12.3	96.9	A
4-17 13	A	" " " " 1+50 - 2+00	70 TO 80	11.2	96.4	A
4-17 14	A	" " " " 1+50 - 2+00	80 TO 90	13.2	97.6	A
4-17 15	A	" " " " 1+50 - 2+00	80 TO 90	11.2	97.9	A
4-17 16	A	" " " " 2+00 + 2+50	80 TO 90	13.2	96.6	A

* A MAXIMUM DENSITY 122.4 #/CU.FT. OPTIMUM MOISTURE 11.4 %

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

MS- 481.4
DS- 3618

On this date, a representative from this firm performed soil density testing at/for LANDFILL PARCEL NO. 3. BEGINNING AT GE 34.0+00 the jobsite. Test locations and readings SOUTH TO 3+25.
sults are shown above.

SOURCE: SF-WMX-20.

RWAY

Soils
Test Report

DATE 4-17-97

ARRIVED AT JOBSITE

DEPARTED JOBSITE

lient OGDEN REMEDIATION

roject CLARKSTOWN L.F.

FIELD COMPACTION TESTS

TEST NO.	PROCTOR	LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENTS
-17 17	A	LANDFILL PARCEL NO.3 BETWEEN 2+00 - 2+50	CONTOURS 80 TO 90	11.5	97.5	B
-17 18	A	" " " " 2+00 - 2+50	70 TO 80	12.3	95.3	A
-17 19	A	" " " " 2+00 - 2+50	70 TO 80	13.6	95.7	A
-17 20	A	" " " " 2+00 - 2+50	80 TO 90	12.2	97.0	C
-17 21	B	FLARE HOUSE NW CORNER	1ST LIFT	13.2	95.3	-
-17 22	B	" " WEST CENTER	"	13.3	98.4	A
-17 23	B	" " SW. CORNER	"	12.6	96.4	A
-17 24	B	" " NE. CORNER	"	13.2	96.1	A
-17 25	B	" " EAST CENTER	"	13.6	96.9	A
-17 26	B	" " SE. CORNER	"	12.9	98.6	A

* A MAXIMUM DENSITY # / CU.FT. OPTIMUM MOISTURE %

B MAXIMUM DENSITY 119.8 # / CU.FT. OPTIMUM MOISTURE 11.9 %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☐ NUCLEAR DENSOMETER

On this date, a representative from this firm performed soil density testing at/for TEST NOS. 21 THRU 26 PAD FOR the jobsite. Test locations and results are shown above. FLARE HOUSE

SOURCE SF WMX-25
BACK END OF ON-SITE STOCK-PILE

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SOIL TEST REPORT

Client Ogden Remediation Services DATE 4-17-97

Project Clarkstown Landfill

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
4-17 1	A	landfill parcel no. 3 betw 0+00 to 0+50	contours 70-80	10.2	95.3	A
4-17 2	A	landfill parcel no. 3 betw 0+00 to 0+50	contours 80-90	11.1	93.0	B
4-17 3	A	landfill parcel no. 3 betw 0+00 to 0+50	contours 80-90	13.5	94.2	B
4-17 4	A	Re-test no. 4-16-2	contours 80-90	10.8	96.0	C
4-17 5	A	Re-test no. 4-16-3	contours 80-90	13.0	96.8	C
4-17 6	A	landfill parcel no. 3 betw 0+50 to 1+00	contours 80-90	12.1	95.4	A
4-17 7	A	landfill parcel no. 3 betw 0+50 to 1+00	contours 80-90	11.3	97.5	A
4-17 8	A	landfill parcel no. 3 betw 0+50 to 1+00	contours 70-80	12.2	96.0	A
4-17 9	A	landfill parcel no. 3 betw 0+50 to 1+00	contours 70-80	11.2	96.7	A
4-17 10	A	landfill parcel no. 3 betw 1+00 to 1+50	contours 80-90	12.7	95.8	A
4-17 11	A	landfill parcel no. 3 betw 1+00 to 1+50	contours 70-80	11.9	96.4	A
4-17 12	A	landfill parcel no. 3 betw 1+00 to 1+50	contours 70-80	12.3	96.9	A
4-17 13	A	landfill parcel no. 3 betw 1+50 to 2+00	contours 70-80	11.2	96.4	A
4-17 14	A	landfill parcel no. 3 betw 1+50 to 2+00	contours 80-90	12.2	97.6	A
4-17 15	A	landfill parcel no. 3 betw 1+50 to 2+00	contours 80-90	11.2	97.9	A
4-17 16	A	landfill parcel no. 3 betw 2+00 to 2+50	contours 80-90	13.2	96.6	A
4-17 17	A	landfill parcel no. 3 betw 2+00 to 2+50	contours 80-90	11.5	97.5	A
4-17 18	A	landfill parcel no. 3 betw 2+00 to 2+50	contours 70-80	12.3	95.3	A
4-17 19	A	landfill parcel no. 3 betw 2+00 to 2+50	contours 70-80	13.6	95.7	A
4-17 20	A	landfill parcel no. 3 betw 2+00 to 2+50	contours 80-90	12.2	97.0	A
4-17 21	B	Flare House n.w. corner	1st lift	13.2	98.3	A
4-17 22	B	Flare House west corner	1st lift	13.3	98.4	A
4-17 23	B	Flare House s.w. corner	1st lift	12.6	96.4	A

continued

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOIL TEST REPORT

Client Ogden Remediation Services

Project Clarkstown Landfill

DATE 4-17-97

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
4-17 24	B	Flare House n.e. corner	1st lift	13.2	96.1	A
4-17 25	B	Flare House east center	1st lift	13.6	96.9	A
4-17 26	B	Flare House s.e. corner	1st lift	12.9	98.6	A

* A MAXIMUM DENSITY 119.8 #/CU.FT. OPTIMUM MOISTURE 11.9 %

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

MS 481.4
DS 3618

On this date, a representative from this firm performed soil density testing at landfill parcel no. 3 beginning at GE 34.0+00 heading south to 3+25. Tests 21 thru 26 taken for Flare House pad (source SF-WMX-25). Source: SF-WMX-20 used for parcel #3.

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

Arrived 7:30AM
Departed 6:00PM

FAIRWAY

Soils
Test Report

Client OGDEN REMEDIATION
Project CLARKSTOWN LANDFILL

DATE 4-16-97

ARRIVED AT JOBSITE 7:00

DEPARTED JOBSITE 4:30

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENTS
4-16 1	A	LANDFILL PARCEL NO. 3 BET. ~~STA~~. 0+00 - 0+50	BET. CONTOUR LINES 70 to 90	11.7	95.4	A
4-16 2	A	" " " " ~~STA~~. 0+00 - 0+50	"	12.4	96.9	A
4-16 3	A	" " " " ~~STA~~. 0+00 - 0+50	"	10.1	98.4	A
4-16 4	A	" " " " ~~STA~~ 0+50 - 1+00	"	11.2	97.3	A
4-16 5	A	" " " " ~~STA~~. 0+50 - 1+00	"	9.8	97.4	A
4-16 6	A	" " " " ~~STA~~. 0+50 - 1+00	"	9.6	97.9	A
4-16 7	A	" " " " ~~STA~~. 1+00 - 1+50	"	11.0	97.2	A
4-16 8	A	" " " " ~~STA~~ 1+00 - 1+50	"	12.3	96.9	A
4-16 9	A	" " " " ~~STA~~ 1+00 - 1+50	"	10.9	95.8	A
4-16 10	A	" " " " ~~STA~~ 1+50 - 2+00	"	10.0	96.8	A
4-16 11	A	" " " " ~~STA~~ 1+50 - 2+00	"	9.9	92.9	B
4-16 12	A	" " " " ~~STA~~ 1+50 - 2+00	"	10.1	93.8	B
4-16 13	A	RETEST OF TEST NO. 11. ~~STA~~ 1+50 - 2+00	"	10.8	95.6	C
4-16 14	A	RETEST OF TEST NO. 12 ~~STA~~ 1+50 - 2+00	"	11.0	95.3	C
4-16 15	A	LANDFILL PARCEL NO. 3 BET. ~~STA~~ 2+00 - 2+50	"	8.4	98.6	A
4-16 16	A	" " " " ~~STA~~ 2+00 - 2+50		10.3	96.7	A

* A MAXIMUM DENSITY 122.4 #/CU.FT. OPTIMUM MOISTURE 11.4 %

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

MS 482.4
DS 3621

On this date, a representative from this firm performed soil density testing at/~~for~~ LANDFILL PARCEL NO.3 STA. 0+00 TO STA 7+50 the jobsite. Test locations and results are shown above.

STA 0+00 STARTS 171' EAST OF COLLECTION CHAMBER NO. 3 HEADING WEST TO STA 7+50 BETWEEN CONTOUR LINES 70 - 90

SOURCE SF-WMX-20 EAST END ON-SITE STOCKPILE

FAIRWAY

Soils
Test Report

lient

Project

DATE 4-16-97

ARRIVED AT JOBSITE _____

DEPARTED JOBSITE _____

FIELD COMPACTION TESTS

TEST NO.	MAT'L	LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION *	COMMENTS
4-16 17	A	LANDFILL PARCEL NO. 3 BET. ~~STA~~ 2+00 - 2+50	BET CONTOUR LINES 70 - 90	10.8	97.4	A
4-16 18	A	" " " ~~STA~~ 2+00 - 2+50	"	11.2	95.4	A
4-16 19	A	" " " ~~STA~~ 2+50 - 3+00	"	11.7	95.2	A
4-16 20	A	" " " ~~STA~~ 2+50 - 3+00	"	10.3	97.2	A
4-16 21	A	" " " ~~STA~~ 2+50 - 3+00	"	11.5	96.4	A
4-16 22	A	" " " ~~STA~~ 2+50 - 3+00	"	9.8	97.6	A
4-16 23	A	" " " ~~STA~~ 3+00 - 3+50	"	9.3	98.1	A
4-16 24	A	" " " ~~STA~~ 3+00 - 3+50	"	11.8	96.6	A
4-16 25	A	" " " ~~STA~~ 3+00 - 3+50	"	9.9	96.7	A
4-16 26	A	" " " ~~STA~~ 3+00 - 3+50	"	8.9	97.9	A
4-16 27	A	" " " ~~STA~~ 3+50 - 4+00	"	11.3	98.8	A
4-16 28	A	" " " ~~STA~~ 3+50 - 4+00	"	10.3	98.3	A
4-16 29	A	" " " ~~STA~~ 3+50 - 4+00	"	10.5	96.4	A
4-16 30	A	" " " ~~STA~~ 3+50 - 4+00	"	11.6	96.3	A
4-16 31	A	" " " ~~STA~~ 4+00 - 4+50	"	11.0	97.1	A
4-16 32	A	" " " ~~STA~~ 4+00 - 4+50	"	11.1	96.0	

* A MAXIMUM DENSITY ___ / CU.FT. OPTIMUM MOISTURE ___ %

B MAXIMUM DENSITY ___ / CU.FT. OPTIMUM MOISTURE ___ %

COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☐ NUCLEAR DENSOMETER

On this date, a representative from this firm performed soil density testing at/for _____ the jobsite. Test locations and results are shown above.

FAIRWAY

Soils
Test Report

Client

Project

DATE 4-16-97

ARRIVED AT JOBSITE

DEPARTED JOBSITE

FIELD COMPACTION TESTS

TEST NO.	SOIL TYPE	LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENTS
4-16 33	A	LANDFILL PARCEL NO. 3 BET. ~~STA.~~ 4+00-4+50	BET CONTOUR LINES 70-90	12.2	95.0	A
4-16 34	"	" " " " " 4+00 4+50	"	9.3	95.9	A
4-16 35	"	" " " " " 4+50 - 5+00	"	11.3	96.4	A
4-16 36	"	" " " " " 4+50 - 5+00	"	10.6	96.7	A
4-16 37	"	" " " " " 4+50 - 5+00	"	11.1	95.8	A
4-16 38	"	" " " " " 4+50 - 5+00	"	10.2	95.7	A
4-16 39	"	" " " " " 5+00 - 5+50	"	9.9	95.9	A
4-16 40	"	" " " " " 5+00 - 5+50	"	11.1	97.2	A
4-16 41	"	" " " " " 5+00 - 5+50	"	11.0	95.0	A
4-16 42	"	" " " " " 5+00 - 5+50	"	11.2	97.0	A
4-16 43	"	" " " " " 5+50 - 6+00	"	11.9	96.4	A
4-16 44	"	" " " " " 5+50 - 6+00	"	11.8	95.0	A
4-16 45	"	" " " " " 5+50 - 6+00	"	11.2	97.5	A
4-16 46	"	" " " " " 5+50 - 6+00	"	10.8	96.0	A
4-16 47	"	" " " " " 6+00 - 6+50	"	11.2	96.6	A
4-16 48	"	" " " " " 6+00 - 6+50	"	11.0	96.3	A

* A MAXIMUM DENSITY ___ #/CU.FT. OPTIMUM MOISTURE ___ %

B MAXIMUM DENSITY ___ #/CU.FT. OPTIMUM MOISTURE ___ %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☐ NUCLEAR DENSOMETER

On this date, a representative from this firm performed soil density testing at/for _____ the jobsite. Test locations and results are shown above.

FAIRWAY

Soils
Test Report

lient

Project

DATE 4-16-97

ARRIVED AT JOBSITE

DEPARTED JOBSITE

FIELD COMPACTION TESTS

TEST NO.	★	LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENTS
4-16 49	A	LANDFILL PARCEL NO. 3 BET ~~STA~~ 6+00 - 6+50	BET. CONTOUR LINE 70-90	10.8	96.7	A
4-16 50	"	" " " " " 6+00-6+50	"	10.9	95.2	A
4-16 51	"	" " " " " 6+50-7+00	"	11.2	95.4	A
4-16 52	"	" " " " " 6+50-7+00	"	11.0	95.6	A
4-16 53	"	" " " " " 6+50-7+00	"	11.4	95.0	A
4-16 54	"	" " " " 6+50-7+00	"	10.2	95.3	A
4-16 55	"	" " " " 7+00-7+50	"	11.3	96.0	A
4-16 56	"	" " " " 7+00-7+50	"	11.0	95.5	A
4-16 57	"	" " " " 7+00-7+50	"	11.1	95.6	A
4-16 58	"	" " " " 7+00-7+50	"	11.8	96.1	A

★ A MAXIMUM DENSITY ____ #/ CU.FT. OPTIMUM MOISTURE ____ %

B MAXIMUM DENSITY ____ #/ CU.FT. OPTIMUM MOISTURE ____ %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST ☐ SAND CONE ☐ NUCLEAR DENSOMETER

On this date, a representative from this firm performed soil density testing at/for _____ the jobsite. Test locations and results are shown above.

FAIRWAY

Soils
Test Report

DATE 4-14-97

ARRIVED AT JOBSITE 7:30

DEPARTED JOBSITE 4:00

Client OGDEN

Project CLARKSTOWN L.F.

FIELD COMPACTION TESTS

TEST NO.	TEST TYPE	LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENTS
4-14 1	B	LFP #3 218' W. OF COLLECTION CHAMBER #3		10.9	95.8	A
4-14 2	B	" " 525' W. OF COLLECTION CHAMBER #3		12.2	95.3	A
4-14 3	B	" " 820' W. OF COLLECTION CHAMBER #3		11.1	91.6	B
4-14 4	A	50' E. OF MW #5	2ND LIFT	10.1	101.6	C
4-14 5	A	50' E. X 50'S OF MW #5	"	8.1	100.5	A
4-14 6	A	50' E. X 100'S OF MW #5	"	9.8	98.6	A
4-14 7	A	50' E. X 160'S OF MW #5	"	7.7	101.0	A
4-14 8	A	50' E. X 210'S OF MW #5	"	6.4	98.4	A
4-14 9	A	50' E. X 270'S OF MW #5	"	8.5	98.9	A
-14 10	A	50' E. X 320'S OF MW #5	"	9.5	99.9	A
4-14 11	A	65' E. X 350'S OF MW #5	3RD LIFT	9.1	101.7	A
4-14 12	A	65' E. X 300'S OF MW #5	"	9.4	101.2	A
4-14 13	A	65' E. X 250'S OF MW #5	"	9.7	100.0	A
4-14 14	A	65' E X 200'S OF MW #5	"	9.0	100.3	A
4-14 15	A	65' E X 150'S OF MW #5	"	9.0	101.4	A
4-14 16	A	65' E X 100'S OF MW #5	"	8.7	102.0	A

* A MAXIMUM DENSITY 129.3 #/CU.FT. OPTIMUM MOISTURE 9.8 %

B MAXIMUM DENSITY 127.1 #/CU.FT. OPTIMUM MOISTURE 9.5 %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date, a representative from this firm performed soil density testing at/on LANDFILL PARCEL #3 the jobsite. Test locations and results are shown above.

THRUWAY

DATE 4-14-97

Soils Test Report

ARRIVED AT JOBSITE _____

DEPARTED JOBSITE _____

Client OGDEN

Project CLARKSTOWN L.F.

FIELD COMPACTION TESTS

TEST NO.		LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENTS
4-14 17	A	65'W. OF MW #5	3RD LIFT	8.3	100.1	A
		UPPER SLOPE ADJACENT TO EXTRACTION WELLS				
4-14 18	A	60'S x 80'W. OF GE #35	1ST LIFT	8.3	101.7	A
4-14 19	A	60'S x 15'W. OF GE #35	"	7.3	101.7	A
4-14 20	A	60'S x 25'W OF GE #35	"	8.7	97.4	A

L.K.

* A MAXIMUM DENSITY 129.3 #/CU.FT. OPTIMUM MOISTURE 9.8 %

B MAXIMUM DENSITY 127.1 #/CU.FT. OPTIMUM MOISTURE 9.5 %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date, a representative from this firm performed soil density testing at/for _____ the jobsite. Test locations and results are shown above.

[redacted]

DATE 3-24-97

Soils
Test Report

ARRIVED AT JOBSITE 12:00

Client OGDEN REMEDIATION

DEPARTED JOBSITE 4:30

Project CHARLESTOWN L.F.

FIELD COMPACTION TESTS

TEST NO.	TEST TYPE	LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENTS
1	A	NORTH LEACHATE WEST LEG 1+50	1ST LIFT ABOVE STONE	14.7	96.1	A
2	A	" " " " 2+56	"	12.1	98.9	A
3	A	" " " " 1+30	"	12.4	100.0	A
4	A	" " " " 0+50	"	12.4	99.3	A

RECEIVED MAR 25 1997

★ A MAXIMUM DENSITY 119.7 #/CU.FT. OPTIMUM MOISTURE 10.8 %

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date, a representative from this firm performed soil density testing at/~~for~~ NORTH LEACHATE WEST LEG the jobsite. Test locations and results are shown above.

Smith Street • Stony Point, N.Y. 10980 • 914-942-2088

FAIRWAY

Soils
Test Report

DATE 2-25-97

ARRIVED AT JOBSITE 7:00

DEPARTED JOBSITE

Client OGDEN

Project CLARKSTOWN L.F.

FIELD COMPACTION TESTS

TEST NO.	AREA	LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENTS
1	A	LF. P1. SOUTHEAST SECTION	EXIST. GRADE	7.5	104.4	A
2	A	" " " "	"	8.4	102.9	A
3	A	" " " "	"	7.7	99.8	A
4	A	" " " "	"	8.0	101.8	A
5	A	" " " "	"	7.8	97.6	A
6	A	" " " "	"	7.4	98.0	A
7	A	" " " "	"	10.1	100.0	A
8	A	" " " "	"	11.1	98.0	A
9	A	" " " "	"	9.1	98.9	A
10	A	" " " "	"	10.7	98.3	A
11	A	" " " "	"	9.6	103.0	A
12	A	" " " "	"	7.0	101.4	A
13	A	" " " "	"	8.3	101.7	A
14	A	" " " "	"	8.2	107.1	A
15	A	" " " "	"	11.1	98.9	A
16	A	" " " "	"	9.7	101.1	A

* A MAXIMUM DENSITY 119.7 #/CU.FT. OPTIMUM MOISTURE 10.5 %

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date, a representative from this firm performed soil density testing at/ LF - P1 SOUTHEAST SECTION the jobsite. Test locations and results are shown above.

[redacted]

DATE 2-25-97

Soils Test Report

ARRIVED AT JOBSITE

Client OGDEN

DEPARTED JOBSITE

Project CHARKSTOWN L.F.

FIELD COMPACTION TESTS

TEST NO.		LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENTS
17	A	L.F. P1 SOUTHEAST SECTION	EXSIT. GRADE	11.5	96.3	A
18	A	" " "	"	13.8	95.2	A
19	A	" " "	"	12.9	97.3	A
20	A	" " "	"	12.0	99.7	A
21	A	" " "	"	12.8	95.5	A
22	A	" " "	"	13.0	96.6	A
			"			
TP-1	A	TEST # 10	-20" EXSIT. GRADE	9.3	95.5	A
TP-2	A	TEST # 11	-18" EXSIT. GRADE	9.3	102.1	A
TP-3	A	TEST # 12	-18" EXSIT. GRADE	9.9	104.6	A
TP-4	A	TEST # 14	-20" EXSIT GRADE	8.8	103.0	A
TP-5	A	TEST # 16	-20" EXSIT. GRADE	9.0	100.0	A
TP-6	A	TEST # 17	-20' EXSIT. GRADE	9.5	102.0	A
TP-7	A	TEST # 18	-24" EXSIT GRADE	13.0	96.6	A
TP-8	A	TEST # 19	-20" EXSIT. GRADE	12.8	98.2	A
TP-9	A	TEST # 20	-22" EXSIT. GRADE	100.6	10.2	A

★ A MAXIMUM DENSITY 119.7 #/CU.FT. OPTIMUM MOISTURE 10.8 %

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date, a representative from this firm performed soil density testing at/ L.F. - P1 SOUTHEAST SECTION the jobsite. Test locations and results are shown above.

TAMWAY

DATE 2-25-97

Soils
Test Report

ARRIVED AT JOBSITE

ient OGDEN

DEPARTED JOBSITE

Project CLARKSTOWN L.F.

FIELD COMPACTION TESTS

TEST NO.	TYPE	LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENTS
TP10	A	TEST #21	EXSIT GRADE	8.8	102.6	A
TP11	A	TEST #22	"	10.2	101.3	A
TP-12	A	TEST # 8 FROM 2-20-97	"	11.1	95.1	A

* A MAXIMUM DENSITY 119.7 #/CU.FT. OPTIMUM MOISTURE 10.8 %

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date, a representative from this firm performed soil density testing at/for L.F. - P1 - SOUTHEAST SECTION the jobsite. Test locations and results are shown above.

FAIRWAY

Soils Test Report

DATE 11-25-96 CLEAR

ARRIVED AT JOBSITE 7^00

DEPARTED JOBSITE 3^30

Client ORSC

Project CLARKSTOWN L.F.

FIELD COMPACTION TESTS

TEST NO.		LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
PB4-3-15	A	15'W. x 5'S. OF 4119	62.13	10.6	97.8	A
PB4-3-16	A	35'E. OF 5508	62.13	10.5	98.6	A
PB3-2-28	A	40'W. x 2'N OF 4102	60 49	10 3	101.0	A
PB3 29	A	40'W. OF 4204	60.27	9.5	100.7	A
PB3 30	A	45'W. x 20'S 4205	60 27	9 2	103.2	A
PB3 31	A	30'E. 40'S OF 4177	60 27	9.3	101.8	A
PB3 32	A	45'E x 30'S OF 4181	60.27	10 4	97.5	A
PB3-33	B	35'E x 20'N OF 5508	62.50	9.2	95.0	A
PB4-3-34	B	35'W X 10'N OF 4102	61 08	9.2	96.8	A
	B	15'W X 10'S OF 4193	61.00	9.1	99.9	A
PB3-35	B	30'W X 15'S OF 4205	61 00	7 3	100.7	A
PB3-36	B	20'W x 30'S OF 4198	61 00	9.4	99.5	A
PB3-37	B	40'E OF 4181	61.00	7.7	98.6	A
PB3-38	A	RETEST OF PB3-26 (11-22-96)	59 00	14.5	96.4	C
PB3-2-1	A	20'E x 25'S OF 5710	5983	9 4	102.3	A
PB3-2-2	A	15'E x 35'S OF 5714	59 83	10 1	99 7	A

A MAXIMUM DENSITY 126 5 #/CU.FT. OPTIMUM MOISTURE 10 5 %

B MAXIMUM DENSITY 131 2 #/CU.FT. OPTIMUM MOISTURE 9.1 %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. R. COMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date, a representative from this firm performed soil density testing at/for PREM BERMS 4-3 3-2 AND STORM SEDIMENT BASIN #3, the jobsite. Test locations and results are shown above.

FAIRWAY

Soils Test Report

DATE 11-25-96

ARRIVED AT JOBSITE 7⁰⁰

DEPARTED JOBSITE 3³⁰

(at ORSC

Project CLARKSTOWN L.F.

FIELD COMPACTION TESTS

TEST NO.		LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
FB3-2 3	A	12'E X 20'N. 5719	59.83	12.0	100.4	A
FB3-2 4	A	22'E X 17'N. 5726	59.83	10.7	100.9	A
FB-3 5	A	20'E X 15'N 5734	59.83	12.1	95.4	A

A MAXIMUM DENSITY 126.3 #/CU.FT. OPTIMUM MOISTURE 11.5 %

B MAXIMUM DENSITY 131.2 #/CU.FT. OPTIMUM MOISTURE %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date, a representative from this firm performed soil density testing at/for _____ the jobsite. Test locations and results are shown above.

FAIRWAY

Soils Test Report

DATE 11-21-96

ARRIVED AT JOBSITE 7:00

DEPARTED JOBSITE 4:00

Client ORSC

Project CLARKSTOWN L.F.

FIELD COMPACTION TESTS

TEST NO.		LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION %	COMMENT
PB4-5-12	A	4'E. x 3'S. OF 5606	58.50	12.2	96.1	A
PB3-6	A	10'W. OF 4187	58.00	12.9	98.3	
PB3-7	A	10'NE. OF 5620	58.00	12.7	97.8	
PB3-8	A	17'N. OF 4201	58.00	11.3	96.6	A
PB3-9	A	22'NE OF 5620	58.00	11.6	95.4	A
PB5-4-1 50	A	20'N x 17'W. OF 4126	58.44	11.1	100.1	A
PB5-4-51	A	22'S x 10'W. OF 5387	58.44	12.2	99.6	A
OF8-1	C	24" CMP TRENCH @ SEDIMENT BASIN #8	6" ABOVE PIPE	8.1	84.7	B
OF8-2	C	RETEST OF #OF8-1	" "	8.6	95.1	C
OF8-3	B	24" CMP TRENCH @ SEDIMENT BASIN #8	1' ABOVE PIPE	12.1	98.9	A
OF8-4	B	24" CMP TRENCH @ SEDIMENT BASIN #8	18" ABOVE PIPE	11.5	96.5	A
OF8-5	B	24" CMP TRENCH @ SEDIMENT BASIN #8	2' ABOVE PIPE	11.5	97.0	A
PB3-10	A	17'E. OF 4188	58.00	12.2	96.7	A
PB3-11	A	25'E x 33'N. 5628	58.00	12.2	95.7	A
PB3-12	A	10'N x 5'E. 4200	58.00	9.0	97.9	A
PB3-13	A	55'W x 20'S 9076	58.00	7.5	98.1	A

* A MAXIMUM DENSITY 127.0 #/CU.FT. OPTIMUM MOISTURE 11.6 %

B MAXIMUM DENSITY 122.2 #/CU.FT. OPTIMUM MOISTURE 11.1 %

C 132.5 7.0

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

On this date, a representative from this firm performed soil density testing at/~~for~~ PERM BERMS 3, 4 TO 5 AND 4, TO 3 ALSO 24" EMP TRENCH @ BASIN #8 the jobsite. Test locations and results are shown above.

FAIRWAY

Soils Test Report

DATE 11-22-96

ARRIVED AT JOBSITE 7:00 Clear 34°

DEPARTED JOBSITE

C it ORSC

Project CLARKSTOWN L.F.

FIELD COMPACTION TESTS

TEST NO.		LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
PB3-13	A	25'W. X 6'N OF 4119	60.00	12.2	101.3	A
PB4-3 14	A	15'E X 5'S OF 5604	60.00	12.6	100.7	A
PB3-17	A	18'E X 10'N OF 4160	60.00	13.2	99.6	A
PB3-18	A	20'E X 2'S OF 4164	59.00	12.8	97.4	A
PB3-19	A	60'W X 10'N. OF 4193	59.00	11.6	99.9	A
PB3-20	A	15'E X 10'S OF 4169	59.00	12.0	101.2	A
PB3-21	A	20'E OF 4176	59.00	12.8	101.6	A
PB3-22	A	30'W. X 10'S 4179	59.00	12.6	99.0	A
PB3-23	A	7'NE. X 5'S OF 5616	60.00	12.7	97.4	A
	A	15'E OF 5620	60.00	11.9	98.7	A
PB3-25	A	30'S OF 5622	59.00	12.0	97.3	A
PB3-26	A	20'E. OF 4198	59.00	14.2	92.3	B
PB3-27	A	RETEST OF ~~#~~ PB3-26				

A MAXIMUM DENSITY 123.6 #/CU.FT. OPTIMUM MOISTURE 10.5 %

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST ☐ SAND CONE ■ NUCLEAR DENSOMETER

On this date, a representative from this firm performed soil density testing at/~~on~~ PERM BERM #3. the jobsite. Test locations and results are shown above.

FAIRWAY

Soils
Test Report

Client

Project

DATE 11-21-96

ARRIVED AT JOBSITE 7:00

DEPARTED JOBSITE 4:00

FIELD COMPACTION TESTS

TEST NO.		LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
PB3-14	A	40'W x 35'S OF 4198	58.00	11.5	99.2	A
PB3-15	A	40'W OF 4205	58.00	12.6	95.9	A
PB3-16	A	45'W x 25'N OF 4204	58.00	12.0	95.4	A

* A MAXIMUM DENSITY ____ / CU.FT. OPTIMUM MOISTURE ____ %

B MAXIMUM DENSITY ____ / CU.FT. OPTIMUM MOISTURE ____ %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☐ NUCLEAR DENSOMETER

On this date, a representative from this firm performed soil density testing at/for _____ the jobsite. Test locations and results are shown above.

FAIRWAY

Soils Test Report

DATE 11-20-96

ARRIVED AT JOBSITE 7:00

DEPARTED JOBSITE 3:30

Client BRSC

Project CLARKSTOWN L.F.

FIELD COMPACTION TESTS

TEST NO.		LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
PB 6-5-10	A	8'S. OF 5442	61.00	11.6	95.5	A
PB 6-5-11	A	12'E x 2'S OF 5450	61.00	10.6	97.3	A
TB5 3	A	6'S x 8'W OF 9085	61.00	12.1	96.9	A
PB 5-4-45	A	13'E OF 5454	59.00	11.9	97.0	A
PB 5-4-46	A	20'N. x 17'W. 4126	60.00	12.2	100.1	A
PB 5-4-47	A	20'S x 20'W. 4127	60.00	13.4	98.3	A
PB 5-4-48	A	33'W OF 4124	59.00	11.3	98.1	A
PB 5-4-49	A	4'W. OF 5572	58.50	12.2	97.9	A
TB4-1	A	12'E OF 5576	58.00	12.2	99.5	A
TB4-2	A	20'W. x 15'S OF 4123	58.50	10.3	101.0	A
TB3-3	A	10'S x 3'E OF 9081	61.00	11.9	96.0	A
TB-5 4	A	30'W. x 22'S OF 9086	61.00	12.9	95.1	A
PB 7-3-10	A	7'E. OF 5580	58.00	12.6	95.2	A
PB 7-3-11	A	10'E OF 5584	58.50	12.2	96.4	A

A MAXIMUM DENSITY 123.0 #/CU.FT. OPTIMUM MOISTURE 11.6 %

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date, a representative from this firm performed soil density testing at/for TB5, TB4, PB6-5, PB5-4 the jobsite. Test locations and results are shown above.

AIRWAY

Soils Test Report

DATE 11-19-96

ARRIVED AT JOBSITE 7:00 DRIZZEL 41°

DEPARTED JOBSITE 3:30 PT CLOUDY

Client ORSC

Project CLARKSTOWN L.F.

FIELD COMPACTION TESTS

TEST NO.		LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
3-1	A	12'W OF 4137	57.50	7.0	100.5	A
3-2	A	20' E OF 5628	57.50	6.5	100.2	A
3-3	A	6'S X 3'W OF 4134	57.50	10.2	95.3	A
3-4	A	15'E X OF 4189	57.50	7.5	99.2	A
3-5	A	25'NE OF 5620	57.50	9.2	96.2	A
3-6	A	20'N. OF 4202	57.50	11.3	95.1	A
3-7	A	10'N X 17'W. OF 5612	57.50	10.2	97.6	A
3-8	A	20'E X 15'N. OF 4164	57.50	11.1	95.7	A
	A	20'W X 5'N. OF 4205	57.50	9.2	97.8	A
3-10	A	12'W. X 2'N. OF 4193	57.50	8.7	97.5	A
3-2-11	B	25'W X 10'S. OF 4198	57.00	13.1	101.0	A
3-2-12	B	30'E OF 4177	57.00	12.2	99.1	A
3-2-13	B	20'E OF 5682	57.00	11.3	103.2	A
3-2-14	B	30'W X 15'N OF 9076	57.00	10.2	103.0	A
3-2-15	B	15'E X 3'S OF 4200	57.50	9.5	104.1	A

A MAXIMUM DENSITY 132.1 #/CU.FT. OPTIMUM MOISTURE 8.4 %

B MAXIMUM DENSITY 117.2 #/CU.FT. OPTIMUM MOISTURE 9.7 %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date, a representative from this firm performed soil density testing at/~~for~~ SEDIMENT BASIN #3 BERM the jobsite. Test locations and results are shown above.

FAIRWAY

Soils Test Report

nt ORSC

Project CLARKSTOWN L.F.

DATE 11-18-96

ARRIVED AT JOBSITE 7:00

DEPARTED JOBSITE 3:30

FIELD COMPACTION TESTS

TEST NO.		LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
35-4-96	A	27'W x 20'S. OF 5552	60.00	8.4	100.8	A
35-5-41	A	29'W. x 18'S OF 5556	59.00	9.5	95.3	A
35-4-42	A	20'W OF 5564	59.00	7.4	99.5	A
35-4-43	A	12'E. x 10'N. OF 5096	59.00	8.6	97.8	A
35-4-44	A	15'E x 30'N. OF 5576	59.00	8.6	98.8	A
34-3-3	A	7'E x 20'N OF 5580	59.00	7.5	97.1	A
34-3-4	A	14'W x 25'S OF 4123	59.00	7.4	97.2	A
34-3-5	A	5'W. x 23'S OF 4121	59.00	7.1	97.8	A
34-3-6	A	10'E x 5'S OF 5588	58.50	8.3	96.5	A
7	A	5'NE OF 5592	58.50	9.4	97.1	A
34-3-8	A	6'E. OF 5502	58.50	9.3	97.8	A

A MAXIMUM DENSITY 132.1 LBS/CU.FT. OPTIMUM MOISTURE 8.4 % — COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS; B. RECOMPACTION REQUIRED; C. TEST IS AFTER RECOMPACTION

B MAXIMUM DENSITY LBS/CU.FT. OPTIMUM MOISTURE %

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date, a representative from this firm performed soil density testing at/for FROM BERM 5 TO 4, ROW 4 TO 3. the jobsite. Test locations and results are shown above.

AIRWAY

Soils Test Report

DATE 11-15-96 clear 26°

ARRIVED AT JOBSITE 7:00

DEPARTED JOBSITE 3:30

It ORSC

Project CLARKSTOWN L.F.

FIELD COMPACTION TESTS

TEST NO.	TEST	LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
B4-3-1	B	14'SE. x 2'W OF 5592	57.50	10.6	93.2	B
B4-3-2	B	RETEST OF TEST NO. B4-3-1	57.50	10.9	95.4	C
54-27	A	15'W x 5'S OF 4127	58.00	8.9	96.8	A
54-28	A	27'W x 2'S OF 4126	58.00	8.4	97.3	A
54-29	A	30'W x 30'S OF 4125	58.00	8.6	97.2	A
54-30	A	35'W x 30'S OF 4124	58.00	9.3	96.9	A
54-31	A	10'NE x 15'N. OF 5576	58.00	8.4	98.4	A
54-32	A	20'SW. x 15'S. OF 4122	58.00	7.3	98.4	A
54-33	A	15'W x 15'S OF 5580	58.00	9.3	98.2	A
54	C	14'W x 20'S OF 4131	62.00	9.2	99.3	A
54-35	C	42'N. x 2'E OF 5509	62.00	10.2	98.6	A
54-36	C	12'E OF 5459	62.00	8.9	101.0	A
54-37	C	15'N x 3'E. OF 5522	62.00	9.3	99.9	A
54-38	C	12'S x 7'W. OF 4129	62.00	10.2	100.3	C
54-39	C	9'E OF 5530	62.00	9.9	99.0	A

A MAXIMUM DENSITY 133.6 #/CU.FT. OPTIMUM MOISTURE 9.6 %

B MAXIMUM DENSITY 127.6 #/CU.FT. OPTIMUM MOISTURE 9.3 %

COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS. B. RECOMPACTION REQUIRED. C. TEST OK'S AFTER RECOMPACTION.

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER 127.3 10.0

On this date, a representative from this firm performed soil density testing at/on BERMS 5 THRU 4 AND 4 TO 3. the jobsite. Test locations and results are shown above.

FAIRWAY

Soils Test Report

DATE 11-14-96 Cloudy 36° 38°

ARRIVED AT JOBSITE 7:00 AM

DEPARTED JOBSITE 3 30 PM

Client ORSC

Project CLARKSTOWN L.F.

FIELD COMPACTION TESTS

TEST NO.	SOIL TYPE	LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION*	COMMENT
B5-4-18	A	25'E. OF STAKE 5574	59.00	12.2	97.0	A
B5-4-19	A	45'W x 20'S OF STAKE 4122	59.00	7.2	98.6	A
TB5-1	C	20'S. OF STAKE 9082	60.00	11.8	95.9	A
TB5-2	C	30'W. OF STAKE 9083	60.00	9.3	102.1	A
B5-4-20	B	7'W. X 10'N. OF STAKE 9087	60.00	9.5	95.8	A
B5-4-21	B	20'E x 25'N. OF STAKE 5503	60.00	10.5	96.2	A
B5-4-22	B	15'E x 2'N. OF STAKE 5506	60.00	7.5	100.0	A
B5-4-23	B	5'E x 15'S. OF STAKE 5509	60.00	8.4	99.6	A
B5-4-24	B	22'W. x 2'S OF STAKE 4130	61.00	7.5	97.6	A
4-25	B	10'E. x 3'N OF STAKE 5522	60.00	10.1	89.5	B
B5-4-26	B	RETEST OF TEST # B5-4-25	60.00	11.2	96.7	C

* A MAXIMUM DENSITY 127.3 #/CU.FT. OPTIMUM MOISTURE 10.2 % %

B MAXIMUM DENSITY 133.6 #/CU.FT. OPTIMUM MOISTURE 9.6 % %

C MAXIMUM DEN. 128.2 10.2 %

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

On this date, a representative from this firm performed soil density testing at/for TEMP. BASIN #5 & PERM BERM 5 THRU 4 the jobsite. Test locations and results are shown above.

FAIRWAY

Soils Test Report

DATE 11-13-96 clear 27° - 39°

ARRIVED AT JOBSITE 9:00

DEPARTED JOBSITE 3:30

Client ORSC

Project CLARKSTOWN L.F.

FIELD COMPACTION TESTS

NO.		LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENTS
B5-4-1	A	48'W. x 12'S. OF STAKE 4129	58.50	7.4	93.2	B
B5-4-2	A	50'W. x 25'S. OF STAKE 4129	58.50	8.0	92.7	B
B5-4-3	A	RETEST OF TEST NO. B5-4-1	58 50	7.5	95.5	C
B5-4-4	A	RETEST OF TEST NO. B5-4-2	58 50	8.2	97.6	C
B5-4-5	A	15'E. OF STAKE NO. 5550	58 00	6.5	98.4	A
B5-4-6	A	19'E. x 68'S. OF STAKE 5550	58.00	7.4	98.0	A
B5-4-7	A	35'W. x 4'N. OF STAKE 4124	58.00	8.7	95.1	A
B5-4-8	A	47'W. x 55'N OF STAKE 4122	58.00	6.6	100.2	A
L 1-9	A	50'W. x 25'S. OF STAKE 4122	58.00	7.0	97.4	A
B5-4-10	A	50'W. x 4'N. OF STAKE 4129	58.50	9.3	96.9	A
B5-4-11	A	4'W. x 3'N OF STAKE 9087	60.00	9.6	100.5	A
B5-4-12	A	11'W x 15'N. OF STAKE 9086	60.00	9.3	100.9	A
B5-5-10	A	4'N x 6'E. OF STAKE 9085	60 00	99.7	99.7	A
B5-4-13	A	30'E. OF STAKE 5512	5900	8.8	98.9	A
B5-4-14	A	45'W x 20'N. OF 4129	59.00	10.0	95.7	A
B5-4-15	A	20'W. OF STAKE 4128	59.00	9.0	98.7	A

* A MAXIMUM DENSITY 127.3 #/CU.FT. OPTIMUM MOISTURE 10.0 %

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

COMMENTS:
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date, a representative from this firm performed soil density testing at/for Perm Berm 5 to 4 the jobsite. Test locations and results are shown above.

FAIRWAY

Soils
Test Report

DATE 11-13-96

ARRIVED AT JOBSITE 7:00

DEPARTED JOBSITE 3:30

Client ORSC

Project CLARKSTOWN L.F.

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
B5-4-16	A	15'W. x 25'N. OF STAKE 4126	59.00	11.7	97.2	A
B5-4-17	A	15'W x 10'S OF STAKE 4125	59.00	8.9	99.0	A

* A MAXIMUM DENSITY 127.6 #/CU.FT. OPTIMUM MOISTURE 10.0 %

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RE COMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date, a representative from this firm performed soil density testing at/for PERM BERM BET. SEDIMENT 5+4 the jobsite. Test locations and results are shown above.

FAIRWAY

Soils Test Report

DATE 11-12-96

ARRIVED AT JOBSITE 7:00

DEPARTED JOBSITE 4:00

Client ORSC

Project CLARKSTOWN L.F.

FIELD COMPACTION TESTS

TEST NO.		LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENTS
B56-1	A	60'E. OF WELL MD	61.00	9.3	96.8	A
B56-2	A	160'E. OF WELL MD	61.00	12.2	93.4	B
B56-3	A	RETEST OF TEST NO B56-2	61.00	12.4	95.6	C
B56-4	B	50'W. OF WELL MS	62.00	9.6	95.6	A
B56-5	B	140'W. OF WELL MS	62.00	10.0	94.4	B
B56-6	B	RETEST OF TEST NO. B56-5	62.00	10.2	96.9	C
B54-1	C	4'W. OF STAKE 9087	59.00	7.9	98.7	A
B54-2	C	17'W x 33'S. STAKE 9081	59.00	7.0	99.7	A
B54-3	C	27'E. x 32'S OF STAKE 5508	59.00	7.1	98.6	A
B54-4	C	35'E x 20'S OF OFFSET 5512	59.00	8.7	99.5	A
B54-5	C	20'W x 35'S OF OFF-SET 4130	58.50	7.3	101.3	A
B56-7	A	45'N. OF STAKE 5535	62.50	8.3	102.6	A
B56-8	A	50'N. x 5'W STAKE 5663	63.00	7.3	100.4	A
B56-9	A	47'N x 30'W. STAKE 5543	63.00	7.2	95.6	A

A MAXIMUM DENSITY 132.7 #/CU.FT. OPTIMUM MOISTURE 10.2 %

B MAXIMUM DENSITY 131.9 #/CU.FT. OPTIMUM MOISTURE 9.4 %

C MAXIMUM 130.8

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER 10.1

COMMENTS:
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

On this date, a representative from this firm performed soil density testing at/~~on~~ the jobsite. Test locations and results are shown above.

PERM BERM BETWEEN 5-6, BASIN 5 AND BERM 5 TO 4.

FAIRWAY

Soils
Test Report

DATE 11-11-96

ARRIVED AT JOBSITE 700

DEPARTED JOBSITE 330

Client ORSC

Project CLARKSTOWN L.F.

FIELD COMPACTION TESTS

TEST NO.	SOIL TYPE	LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
PS-1	B	10'S. x 4'W. OF OFF SET STAKE 5424	61.00	12.4	96.8	A
PS-2	B	10'S. x 3'W. OF OFF SET STAKE 5428	61.00	10.3	97.0	A
BS-1	B	20'S x 50'W OF OFF-SET STAKE 5441	59.00	8.3	100.1	A
BS-2	B	25'S x 30'E OF OFF SET STAKE 5448	59.00	8.5	97.5	A
P4-1	B	PREP COVER 20'W. OF STAKE 4131, PERM BERM #4	60.00	8.5	95.9	A

★ A MAXIMUM DENSITY 127.6 #/CU.FT. OPTIMUM MOISTURE 9.3 %

B MAXIMUM DENSITY 131.9 #/CU.FT. OPTIMUM MOISTURE 9.4 %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date, a representative from this firm performed soil density testing at/~~for~~ SEDIMENT BASIN #5, PREPWORK + PREP COVER @ PERM BERM #4 the jobsite. Test locations and results are shown above.

FAIRWAY

Soils Test Report

DATE 11-7-96

ARRIVED AT JOBSITE 7:00

DEPARTED JOBSITE 3:30

Client ORSC

Project CLARKSTOWN L.F.

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
T6-26	A	55'S x 10'W. OF OFF-SET STAKE 5316	64.00	9.9	98.0	A
T6-27	A	65'S x 15'E OF OFF-SET STAKE 5319	64.00	10.3	95.3	A
T6-28	B	60'S x 5'W OF OFF-SET STAKE 5327	64.00	12.4	91.7	B
T6-29	B	60'S x 15'E OF OFF SET STAKE 5323	64.00	12.1	92.3	B
T6-30	B	55'S x 5'W. OF OFF-SET STAKE 5335	64.00	11.8	94.9	B
T6-31	B	50'S x 10'E OF OFF-SET STAKE 5327	64.00	12.2	95.1	C
T6-32	B	60'S x 2'W. OF OFF-SET STAKE 5335	64.00	12.4	95.4	C
T6-33	B	58'S OF OFF-SET STAKE 5316	65.00	11.2	96.7	A
T6-34	B	65'S x 10'W. OFF SET STAKE 5319	65.00	10.1	97.0	A
T6-35	B	60'S x 15'W. OFF SET STAKE 5327	65.00	8.3	98.6	A
T6-36	B	45'S x 7'W. OFF SET STAKE 5335	65.00	10.1	95.3	A
T6-37	B	40'S x 10'E. OF OFF SET STAKE 5316	66.00	8.4	97.9	A
T6-38	B	50'S x 5'W OF OFF SET STAKE 5319	66.00	9.4	98.6	A
T6-39	B	53'S OF OFF-SET STAKE 5327	66.00	8.8	97.6	A
T6-40	B	55'S OF OFF SET STAKE 5335	66.00	9.1	98.2	A
T6-41	B	45'S OF OFF SET STAKE 5316	67.00	9.8	100.7	A

* A MAXIMUM DENSITY 131.9 #/CU.FT. OPTIMUM MOISTURE 9.4 %

B MAXIMUM DENSITY 127.6 #/CU.FT. OPTIMUM MOISTURE 9.3 %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

☒ MET: 100 OF TESTS ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date, a representative from this firm performed soil density testing at/~~or~~ TEMPORARY BERM @ SEDIMENT BASIN #6 the jobsite. Test locations and results are shown above.

FAIRWAY

Soils
Test Report

DATE 11-6-96

ARRIVED AT JOBSITE 7:00 AM

DEPARTED JOBSITE 3:30 PM

Client ORSC

Project CLARKSTOWN L.F

FIELD COMPACTION TESTS

TEST NO.	MATERIAL TYPE	LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
PB-1	A	PERM. BERM @ BASIN #8, N397780 - E605291	66.00	6.7	97.5	C
PB-2	A	PERM. BERM @ BASIN #8, N397900 - E 605103	66.00	4.9	96.8	C
PB-3	A	PERM. BERM @ BASIN #8, N397737 - E 605297	66.00	4.3	96.3	C
PB-4	A	PERM. BERM @ BASIN #8, N397806 - E 605254	66.00	5.9	99.7	C
TL-19	B	TEMP. BERM @ BASIN #6, N397755 - E663975	62.00	8.4	96.0	A
TL-20	B	TEMP. BERM @ BASIN #6, N397815 - E663850	62.00	8.4	98.7	A
TL-21	B	TEMP BERM @ BASIN #6, N397655 - E604050	62.00	8.7	95.9	A
TL-22	B	BASIN #6 PREP BASE, N397695 - 604065	62.00	6.6	99.8	A
P-16	B	PERM BERM BET. BASINS 6-7, N397626 - E604325	63.00	11.2	95.2	A
P-17	B	PERM BERM BET. BASINS 6-7, N397645 - E604242	63.00	9.2	100.6	A
P-18	B	PERM BERM BET BASINS 6-7, N397630 - E 604375	63.00	11.0	95.1	A
P-19	B	PERM BERM BET BASINS 6-7, N397660 E 604510	63.00	8.0	98.3	A
TL-23	B	TEMP BERM @ BASIN #6 N397760 - E663975	63.00	10.4	95.0	A
TL-24	B	TEMP BERM @ BASIN #6 N397820 - E663850	63.00	9.7	97.0	A
TL-25	B	TEMP BERM @ BASIN #6 N397700 - E 604060	63.00	8.6	95.8	A

* A MAXIMUM DENSITY 132.5 #/CU.FT. OPTIMUM MOISTURE 7.0 %

B MAXIMUM DENSITY 131.9 #/CU.FT. OPTIMUM MOISTURE 9.4 %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date, a representative from this firm performed soil density testing at/for PERM BERM #8, TEMP BERM #6 & PERM BERM BETWEEN 6 & 7 the jobsite. Test locations and results are shown above.

FAIRWAY

Soils Test Report

DATE 11-5-96

ARRIVED AT JOBSITE 7:00

DEPARTED JOBSITE 3:30

Client OGDEN

Project CLARKSTOWN L.F.

FIELD COMPACTION TESTS

TEST NO.		LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENTS
6-16	A	OFF-SET 5316 BASIN BASE #6	62.00	8.8	100.2	A
6-17	A	OFF-SET 5319 BASIN BASE #6	62.00	9.1	96.6	A

* A MAXIMUM DENSITY 132.5 #/CU.FT. OPTIMUM MOISTURE 7.0 %. COMMENTS: A. TEST RESULTS COMPLY WITH SPECIFICATIONS B. RECOMPACTION REQUIRED C. TEST IS AFTER RECOMPACTION

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date, a representative from this firm performed soil density testing at/for _____ the jobsite. Test locations and results are shown above.

FAIRWAY

Soils Test Report

DATE 11-4-96

ARRIVED AT JOBSITE 8:00

DEPARTED JOBSITE 3:30

Client ODGEN

Project CLARKSTOWN L.F.

FIELD COMPACTION TESTS

TEST NO.	TYPE	LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
6-1	A	OFF-SET STAKE 5316, TEMP. BASIN #6	59.00	7.2	94.0	A
6-2	A	" " " 5319, TEMP. BASIN #6	59.00	6.6	99.5	A
6-3	A	" " " 5327, TEMP BASIN #6	59.00	7.0	96.1	A
6-4	A	" " " 5338, TEMP BASIN #6	59.00	7.4	100.3	A
6-5	A	" " " 5335, TEMP BASIN #6	59.00	8.3	95.2	A
6	A	OFF-SET STAKE 5253, PERM. BERM BASIN 6+7	63.00	8.2	92.3	B
7	A	" " " 5306, PERM. BERM. BASIN 6+7	62.00	8.9	99.0	A
8	A	" " " 5308, PERM BERM BASIN 6+7	60.00	7.6	99.2	A
9	A	" " " 5309, PERM BERM, BASIN 6+7	60.00	8.8	96.0	A
6-6	A	OFF-SET STAKE 5316, TEMP BASIN #6	60.00	5.6	95.4	A
6-7	A	" " " 5323, TEMP BASIN #6	60.00	5.8	96.8	A
6-8	A	" " " 5327 " " #6	60.00	5.3	100.7	A
6-9	A	" " " 5331 " " #6	60.00	6.3	100.5	A
6-10	A	" " " 5335 " " #6	60.00	7.6	97.9	A

★ A MAXIMUM DENSITY 132.5 #/CU.FT. OPTIMUM MOISTURE 7.0 %

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

COMMENTS
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

On this date, a representative from this firm performed soil density testing at/for TEMPORARY BASIN #6 AND PERIMETER BERM B.T. BASINS the jobsite. Test locations and results are shown above. #6 AND 7.

FAIRWAY

Soils
Test Report

Date 10-25-76

Time Arrived 9:30

Time Departed 3:00

Client OGDEN

Project CLARKSTOWN LAND FILL

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENTS
		PERM. BERM BETWEEN TEMPORARY				
		BASIN-8 AND RIVERSO PROPERTY.				
1	A	CORRID. N397900 E605103	65.00	6.6	99.6	A
2	A	" N397929 E605051	64.00	8.0	95.2	A
3	A	" N397739 E605297	65.00	7.6	101.0	A
4	A	" N397806 E605254	65.00	7.2	99.6	A
5	A	" N397861 E605170	65.00	7.5	99.5	A
6	A	" N397900 E605103	65.00	6.7	97.8	A

* A MAXIMUM DENSITY 1/CU.FT. 132.5 OPTIMUM MOISTURE % 7.0

B MAXIMUM DENSITY 1/CU.FT. OPTIMUM MOISTURE %

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

COMMENTS:
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

ON THIS DATE, A REPRESENTATIVE FROM THIS FIRM WITNESSED THE CONTRACTORS FILL PLACEMENT AND COMPACTION OPERATIONS. SOIL DENSITY TESTS WERE TAKEN WITH LOCATIONS AND RESULTS SHOWN ABOVE.

Smith Street • Stony Point, N.Y. 10980 • 914-942-2088

FAIRWAY

Soils
Test Report

DATE 10-24-96

Time Arrived 7:30

Time Departed 3:15

ent OGDEN

Project CLARKSTOWN LANDFILL

FIELD COMPACTION TESTS

TEST NO.	*	LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENTS
1	A	100'E. OF PROPERTY STAKE 5157	63.00	9.7	97.2	A
2	A	50'W. OF OFF-SET STAKE 5244	64.00	9.0	98.8	A
3	A	20'W. OF OFF-SET STAKE 5276	64.50	6.8	98.2	A
4	A	20'W. OF OFF-SET STAKE 5277	64.50	8.3	98.8	A
5	A	20'NE. OF BASELINE STAKE 61	64.50	7.4	100.0	A
6	A	50'S. OF OFF-SET STAKE 5278	64.50	8.8	98.1	A
7	A	20'W. OF LIMIT STAKE 5028	64.00	8.3	97.0	A
8	A	50'N. OF B-108 ℄	64.00	7.2	96.8	A

* A MAXIMUM DENSITY #/CU.FT. 132.5 OPTIMUM MOISTURE % 7.0

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

COMMENTS:
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

METHOD OF TEST: ☐ SAND CONE ☒ NUCLEAR DENSOMETER

ON THIS DATE, A REPRESENTATIVE FROM THIS FIRM WITNESSED THE CONTRACTORS FILL PLACEMENT AND COMPACTION OPERATIONS. SOIL DENSITY TESTS WERE TAKEN WITH LOCATIONS AND RESULTS SHOWN ABOVE.

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FAIRWAY

Soils
Test Report

Date 10-23-96

Time Arrived 10:00

Time Departed 3:00

Client OGDEN

Project CLARKSTOWN

FIELD COMPACTION TESTS

TEST NO.	▲	LOCATION	ELEV.	WATER CONTENT %	PERCENT COMPACTION	COMMENT
1	A	20' NORTH OF LIMIT STAKE 5276	64.00	8.5	95.7	A
2	A	10' NORTH OF LIMIT STAKE 5277 &	64.00	7.5	101.6	A
3	A	℄ OF LIMIT STAKE 5278	64.00	6.5	97.8	A
4	A	20' NORTH OF LIMIT STAKE 5265	63.00	9.3	99.0	A

▲ A MAXIMUM DENSITY #/CU.FT. 132.5 OPTIMUM MOISTURE % 7.0 %

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

METHOD OF TEST ☐ SAND CONE ☑ NUCLEAR DENSOMETER

COMMENTS:
A. TEST RESULTS COMPLY WITH SPECIFICATIONS
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

ON THIS DATE, A REPRESENTATIVE FROM THIS FIRM WITNESSED THE CONTRACTORS FILL PLACEMENT AND COMPACTION OPERATIONS. SOIL DENSITY TESTS WERE TAKEN WITH LOCATIONS AND RESULTS SHOWN ABOVE.

Smith Street • Stony Point, N.Y. 10980 • 914-942-2088

FAIRWAY

Soils Test Report

DATE 10-10-96

TIME ARRIVED 4:30

TIME DEPARTED 3:30

Client OGDEN

Project CLARKSTOWN L.F.

FIELD COMPACTION TESTS

"TEMPORARY SEDIMENT BASIN #8"

TEST NO	*	LOCATION	ELEV	WATER CONTENT %	PERCENT COMPACTION	COMMENT
1	A	TOE STAKE 5196 ℄, 10'NW.	65.00	8.7	98.5	A
2	A	10'W. OF LIMIT STAKE 5032	65.00	8.3	99.6	A
3	A	LIMIT STAKE 5031 5'OFF ℄	65.00	8.4	96.2	A
4	A	LIMIT STAKE 5034 ℄	66.00	9.8	95.4	A
5	A	40'E. OF TOE STAKE 5196	66.00	7.2	98.3	A
6	A	10'S. OF LIMIT STAKE 5032	65.50	6.3	99.2	A
7	A	LIMIT STAKE 5031 ℄	66.00	9.1	95.3	A

★ A MAXIMUM DENSITY #/CU.FT. 132.5 OPTIMUM MOISTURE % 7.0

B MAXIMUM DENSITY #/CU.FT. OPTIMUM MOISTURE %

METHOD OF TEST ☐ SAND CONE ☒ NUCLEAR DENSOMETER

COMMENTS:
A. TEST RESULTS COMPLY WITH SPECIFICATION
B. RECOMPACTION REQUIRED
C. TEST IS AFTER RECOMPACTION

ON THIS DATE, A REPRESENTATIVE FROM THIS FIRM PERFORMED SOIL DENSITY TESTING AT THE PROJECT SITE. TEST LOCATIONS AND RESULTS ARE SHOWN ABOVE.

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APPENDIX A2:

Geotechnical Laboratory Test Results

STRUCTURAL FILL
PRE-CONSTRUCTION TESTING PROGRAM

		Sample No.	Particle Size Analysis	Standard Proctor Compaction	Moisture Content	Soil Class	Visual ID	Atterberg Limits	Triaxial Compression	Submittal Number	Note	Status Pass/Fail
ASTM Method			D421/D422	D698	D2216	D2487	D2488	D4318	D4767			
Passing Standard			See Specs	See Specs	See Specs	SC or SM	See Specs	PI <10 LL <40	Waived			
Test Frequency	QA		1/Borrow Source	1/Borrow Source	1/Borrow Source	1/Borrow Source	1/Borrow Source	1/Borrow Source	N/A			
	QC		2/Borrow Source	2/Borrow Source	2/Borrow Source	1/Borrow Source	N/A	2/Borrow Source	N/A			
Sample Location & Borrow Source												
WMX/Star	QA	SF-01	P	99.0 @ 19.3	24.3	SM	P	25.2/NP/0	N/A	N/A	Rejected	F
	QC	AGM-4	P	101.1 @ 19.6	11.8	SM	N/A	NP	N/A	62		P
F - AGM	QC	AGM-4.1	P	100.1 @ 18.0	11.8	SM	N/A	NP	N/A	62		P
WMX /Star	QA	SF-02	F	-	23.7	SM, contaminated	F	-	N/A	N/A	Rejected	F
F - AGM	QC											
TOWN	QA	SF-03	P	133.2 @ 9.1	8.6	SM	P	16/NP/0	N/A	N/A	Already on site	P
C - Stockpiled	QC	SV-1	F	132.5 @ 7.0	5.7	GC-GM	N/A	19/15/4	N/A	62B		P
WDA 1	QA	SF-04	F	113.6 @ 10.4	13.3	SM, contaminated	F	16.5/NP/0	N/A	N/A	Rejected	F
C - Insitu	QC	NS-2	F	114.9 @14.0	-	-	N/A	-	N/A	64.02		F
WDA 1	QA	SF-05	F	117.0 @15.2	9.0	GP-GM	F	25/17.5/7.5	N/A	N/A	Rejected	F
C - Insitu	QC	NS-3	-	-	-	-	-	-	-	-	No results submitted	-
PKG LOT	QA	SF-06	F	127.1 @10.0	6.2	SM	F	16.5/NP/0	N/A	N/A	Rejected	F
C - Insitu	QC	NS-1	F	128.2 @ 10.5	-	-	N/A	-	N/A	64.02		F
WMX/Star	QA	SF-07	P	120.4 @ 9.5	9.9	SM	P	13.5/NP/0	N/A	N/A		P
	QC	CS-2	P	119.0 @ 11.0	11.12	SM	N/A	24/23/1	37 °	62C/62.08B		P
	QC	CS-2.1	P	121.5 @ 10.5	11.12	SM	N/A	23/22.6/0.4	31 °	62C/62.08B		P
	QC	CS-2.2	-	-	-	-	N/A	-	34.7 °	62.08B		P
F - WOODSIDE	QC	CS-2.3	P	119.7 @ 10.8	11.4	SM	N/A	NP	-	-		P
WMX/Star	QA	SF-08	F	92.0 @ 23.4	21.5	SM, contaminated	F	29.7/25.1/4.6	N/A	N/A	Rejected	F
F - AGM	QC	Note: SF-08 is re-screened material from the source of tests SF-01, AGM-4 and AGM-4.1, No QC test performed										
SERVIDONE	QA	SF-09	P	131.4 @ 9.8	8.0	SM	P	15/NP/0	N/A	N/A		P
F - Rt 303/287	QC	SV-3	P	133.6 @ 9.6	8.6	SM	N/A	NP	N/A	62.11		P
SERVIDONE	QA	SF-10	P	133.4 @ 8.7	7.2	SM	P	12.8/NP/0	N/A	N/A		P
F - Rt 59/287	QC	SV-4	P	132.7 @ 10.2	9.7	SM	N/A	NP	N/A	62.11		P
TOWN	QA	SF-12	P	123.0 @10.7	26.5	SM	P	22.4/NP/0	N/A	N/A		P
C - East of Stockpile	QC	NS-9	P	117.2 @ 9.7	19.2	SM	N/A	NP	N/A	62.10		P
BALLFIELD	QA	SF-16	P	114.5 @ 12.9	15.8	SM	P	-	N/A	N/A		P
	QC	SFCB-BLF-1	P	111.8 @ 14.0	15.9	SM	N/A	NP	N/A	62.23		P
C - Insitu	QC	SFCB-BLF-2	P	114.8 @ 14.3	13.2	SM	N/A	NP	N/A	62.23		P

STRUCTURAL FILL
PRE-CONSTRUCTION TESTING PROGRAM

		Sample No.	Particle Size Analysis	Standard Proctor Compaction	Moisture Content	Soil Class	Visual ID	Atterberg Limits	Triaxial Compression	Submittal Number	Note	Status Pass/Fail
ASTM Method			D421/D422	D698	D2216	D2487	D2488	D4318	D4767			
Passing Standard			See Specs	See Specs	See Specs	SC or SM	See Specs	PI <10 LL <40	Waived			
Test Frequency	QA		1/Borrow Source	1/Borrow Source	1/Borrow Source	1/Borrow Source	1/Borrow Source	1/Borrow Source	N/A			
	QC		2/Borrow Source	2/Borrow Source	2/Borrow Source	1/Borrow Source	N/A	2/Borrow Source	N/A			
Sample Location & Borrow Source								LL/PL/PI				
MORGAN EXCEL	QA	SF-17	P	124.9 @ 10.1	10.4	SM	P	16.2/NP/0	38.7 °	N/A		P
	QC	SFME-1	P	125.8 @ 13	4.7	SM	N/A	NP	N/A	62.25	Resubmitted as 62.25A	-
F - 149th St	QC	MESF-149-1	P	123.2 @ 10.8	14.7	SM	N/A	NP	N/A	62.25A		P
LAMANNA	QA	SF-18	P	118.5 @ 13.1	11.6	SM	P	12.2/NP/0	N/A	N/A		P
	QC	LTSF-QN-1	P	118.4 @ 11.4	11.3	SM	N/A	NP	N/A	62.28		P
F - Queens, NY	QC	LTSF-QN-2	P	116.8 @ 11.0	6.4	SM	N/A	NP	N/A	62.28		P
COVE	QA	SF-19	P	128.6 @ 9.4	8.3	SM	P	20.5/NP/0	N/A	N/A		P
	QC	CVSF-AMT-1	P	128.0 @ 9.2	4.6	SM	N/A	NP	N/A	62.29		P
F - Airmont, NY	QC	CVSF-AMT-2	P	125.9 @ 9.3	5.9	SM	N/A	NP	N/A	62.29		P
COVE	QA											
	QC	CVSF-TUX-2	P	118.2 @ 7.2	9.7	SP	N/A	NP	N/A	62.36		F
F - Tuxedo, NY	QC	CVSF-TUX-3	P	117.6 @ 11.3	10.6	SM	N/A	NP	N/A	62.36		P
Not	QA	SF-25	P	120.3 @ 11.9	15.9	SM	P	17/NP/0	N/A	N/A		P
	QC	SF-TOHO-1	P	120.3 @ 12.8	11.5	SM	N/A	21/19/2	N/A	62.125		P
Specified	QC	SF-TOHO-2	P	120.8 @ 11.7	15.8	SM	N/A	21/19/2	N/A	62.125		P
TOWN	QA	SF-27	F	-	-	GP	F	-	N/A	N/A	Crushed concrete	F
C-Stockpile	QC											
Center Rock	QA	SF-32	P	123.0 @ 11.4	8.9	GM	F	16.1/15.4/0.7	N/A	N/A	Note 1	-
	QC	SF-CRP-01	P	125.2 @ 11.0	13.1	SM	N/A	21/18/3	N/A	62.163		P
F - Plaza HWY 59	QC	SF-CRP-02	P	126.1 @ 11.2	13.5	SM	N/A	21/18/3	N/A	62.163		P
Van Orden	QA											
	QC	SF-SB-01	P	133.1 @ 7.8	8.5	SM	N/A	NP	31.5 °	62.187/195		P
F - Ringwood, NJ	QC	SF-SB-02	P	136.0 @ 7.8	9.1	SM	N/A	NP	N/A	62.187		P

Notes:

1 - Laboratory description (GM) not consistent with visual field observations and other testing results. As a precaution material used in deep till areas, away from contact with liner system.

STRUCTURAL FILL
DURING CONSTRUCTION TESTING PROGRAM

		Sample No.	Particle Size Analysis	Standard Proctor Compaction	Moisture Content	Soil Class	Visual ID	Atterberg Limits	Submittal Number	Note	Status Pass/Fail
ASTM Method			D421/D422	D698	D2216	D2487	D2488	D4318			
Passing Standard			See Specs	See Specs	See Specs	SC or SM	See Specs	PI <10 LL <40			
Test Frequency	QA		1/25,000 CY	OPTIONAL	OPTIONAL	OPTIONAL	1/25,000 CY	1/25,000 CY			
	QC		1/5,000 CY	1/5,000 CY	1/5,000 CY	1/5,000 CY	N/A	1/5,000 CY			
Sample Location & Borrow Source											
WMX C - Stockpiled	QA										
	QC	SF-WMX-110	P	122.8 @ 10.4	7.4	SM	N/A	NP	62.135	110,000 CY	P
WMX C-Stockpiled	QA										
	QC	SF-WMX-115	P	124.3 @ 11.5	8.1	SM	N/A	NP	62.135	115,000 CY	P
WMX C - Stockpiled	QA										
	QC	SF-WMX-120	P	122.1 @ 11.3	10.6	SM	N/A	NP	62.140	120,000 CY	P
WMX	QA	SF-30	-	-	-	-	-	17/NP/0	N/A	125,000 CY	-
C-Stockpiled	QC	SF-WMX-125	P	126.9 @ 10.3	9.7	SM	N/A	NP	62.140	125,000 CY	P
TOWN C-Stockpiled	QA										
	QC	SF-CF-01	P	120.3 @ 12.3	8.5	SM	N/A	NP	62.143		P
WMX C - Stockpiled	QA										
	QC	SF-WMX-130	P	123.8 @ 11.7	7.5	SM	N/A	NP	62.144	130,000 CY	P
WMX C-Stockpiled	QA										
	QC	SF-WMX-135	P	122.2 @ 9.7	8.6	SM	N/A	NP	62.151	135,000 CY	P
WMX C - Stockpiled	QA										
	QC	SF-WMX-JFK	P	108.2 @ 9.5	3.8	SP	N/A	NP	62.154		F
WMX C-Direct Placed GE-15	QA										
	QC	SF-WMX-140	P	124.1 @ 11.9	8.7	SM	N/A	NP	62.162	140,000 CY	P
WMX C-D. Placed near GE-15	QA										
	QC	SF-WMX-145	P	121.7 @ 13.3	9.7	SM	N/A	NP	62.159	145,000 CY	P
WMX C - Stockpiled	QA	SF-31	P	120.0 @ 9.6	6.7	GW	P	16.9/NP/0	N/A	150,000 CY, Note C	P
	QC	SF-WMX-150	P	120.0 @ 12.3	8.7	SM	N/A	NP	62.172	150,000 CY	P
WMX C-Stockpiled	QA										
	QC	SF-WMX-155	P	120.8 @ 11.1	10.6	SM	N/A	NP	62.172	155,000 CY	P
HIGHLAND C-Stockpiled	QA	SF-33	P	121.2 @ 11.2	16.9	ML	P	17.8/17.31/0.49	N/A	5,000 CY, Note D	P
	QC	SF-HS-160	P	117.8 @ 10.9	6.9	SM	N/A	NP	62.172	5,000 CY	P
HIGHLAND C-Stockpiled	QA										
	QC	SF-HS-165	P	120.2 @ 11.3	8.1	SM	N/A	NP	62.172	10,000 CY	P
WMX C-Direct Placed LFP8	QA										
	QC	SF-WMX-160	P	121.3 @ 11.0	12.2	SM	N/A	NP	62.177	160,000 CY	P
WMX C-Direct Placed LFP8	QA										
	QC	SF-WMX-165	P	113.8 @ 13.5	13.5	SM	N/A	NP	62.179	165,000 CY	P
WMX C-Stockpiled	QA										
	QC	SF-WMX-170	P	118.7 @ 11.8	12.2	SM	N/A	NP	62.185	170,000 CY	P
WMX C-Stockpiled	QA	SF-34	P	120.4 @ 11.0	11.9	SM	P	-	N/A	175,000 CY	P
	QC	WMX-175	P	122.9 @ 11.6	10.6	SM	N/A	NP	62.188	175,000 CY	P
WMX C-Stockpiled	QA										
	QC	SF-WMX-180	P	121.5 @ 12.3	11.7	SM	N/A	NP	62.217	180,000 CY	P
C-Direct Placed LFP9	QA										
	QC	SF-185	P	124.9 @ 11.3	10.9	SM	N/A	NP	62.220	185,000 CY	P
WMX C - Stockpiled	QA										
	QC	SF-WMX-190	P	115.3 @ 12.8	13.1	SM	N/A	NP	62.224-62.226	190,000 CY	P
Sam Braen C-Stockpiled	QA										
	QC	SF-SB-5	P	138.3 @ 9.0	7.0	SM	N/A	NP	62.224-62.226	5,000 CY	P
Tilcon C-Stockpiled	QA										
	QC	SF-TIL-5	P	127.5 @ 10.9	9.0	SC	N/A	22/9/13	62.224-62.226	5,000 CY, Note E	F

STRUCTURAL FILL
DURING CONSTRUCTION TESTING PROGRAM

		Sample No.	Particle Size Analysis	Standard Proctor Compaction	Moisture Content	Soil Class	Visual ID	Atterberg Limits	Submittal Number	Note	Status Pass/Fail
ASTM Method			D421/D422	D698	D2216	D2487	D2488	D4318			
Passing Standard			See Specs	See Specs	See Specs	SC or SM	See Specs	PI <10 LL <40			
Test Frequency	QA		1/25,000 CY	OPTIONAL	OPTIONAL	OPTIONAL	1/25,000 CY	1/25,000 CY			
	QC		1/5,000 CY	1/5,000 CY	1/5,000 CY	1/5,000 CY	N/A	1/5,000 CY			
Sample Location & Borrow Source											
SERVIDONE C-Stockpiled	QA										
	QC	SF-SV-35	P	128.4 @ 9.3	12.6	SM	N/A	NP	62.61	35,000 CY	P
WMX C - Stockpiled	QA										
	QC	SF-WMX-30	P	122.2 @ 11.5	11.0	SM	N/A	NP	62.63	30,000 CY	P
WMX C-Stockpiled	QA										
	QC	SF-WMX-35	P	122.5 @ 11.0	6.8	SM	N/A	NP	62.64	35,000 CY	P
WMX C-Stockpiled	QA										
	QC	SF-WMX-G8	P	124.7 @ 9.7	9.0	SM	N/A	NP	62.62		P
WMX C-Stockpiled	QA										
	QC	SF-WMX-C5	P	124.0 @ 10.8	8.8	SM	N/A	NP	62.66		P
SERVIDONE C-Stockpiled	QA										
	QC	SF-SV-40	P	131.3 @ 8.7	~~9.7~~	SM	N/A	NP	62.67	40,000 CY	P
WMX C - Stockpiled	QA										
	QC	SF-WMX-40	P	119.8 @ 12.9	12.0	SM	N/A	NP	62.76	40,000 CY	P
SERVIDONE C-Stockpiled	QA	SF-22	P	129.4 @ 8.9	34.01	SM	P	20/NP/0	N/A	50,000 CY	P
	QC	SF-SV-45	P	130.6 @ 10.0	5.2	SM	N/A	NP	62.77	45,000 CY	P
WMX C-Stockpiled	QA										
	QC	SF-WMX-45	P	123.2 @ 11.2	10.0	SM	N/A	NP	62.84	45,000 CY	P
WMX	QA	SF-21	P	124.1 @ 11.0	9.15	SM	P	17.6/NP/0	N/A	50,000 CY	P
	QA	SF-23	P	125.0 @ 11.2	10.13	SP-SM	F	17.2/NP/0	N/A	50,000 CY	F
C - Stockpiled	QC	SF-WMX-50	P	125.5 @12.2	11.0	SM	N/A	NP	62.85	50,000 CY	P
WMX C-Stockpiled	QA										
	QC	SF-WMX-55	P	127.8 @ 9.2	9.4	SM	N/A	NP	62.92	55,000 CY	P
WMX C - Stockpiled	QA										
	QC	SF-WMX-60	P	122.8 @ 12.1	9.5	SM	N/A	NP	62.111	60,000 CY	P
WMX C-Stockpiled	QA										
	QC	SF-WMX-65	P	121.7 @ 11.7	8.0	SM	N/A	NP	62.106	65,000 CY	P
WMX C - Stockpiled	QA										
	QC	SF-WMX-70	P	128.4 @ 9.8	8.9	SM	N/A	NP	62.111	70,000 CY	P
WMX	QA	SF-24	P	124.7 @ 10.9	10.26	SP-SM	P	16.7/NP/0	N/A	75,000 CY, Note B	P
C-Stockpiled	QC	SF-WMX-75	P	125.2 @ 11.7	8.2	SM	N/A	NP	62.115	75,000 CY	P
WMX C - Stockpiled	QA										
	QC	SF-WMX-80	P	124.0 @ 11.1	9.9	SM	N/A	NP	62.124	80,000 CY	P
WMX C-Stockpiled	QA										
	QC	SF-WMX-85	P	125.0 @ 11.2	10.3	SM	N/A	NP	62.124	85,000 CY	P
WMX C - Stockpiled	QA										
	QC	SF-WMX-90	P	126.6 @ 11.7	11.3	SM	N/A	NP	62.135	90,000 CY	P
WMX C-Stockpiled	QA										
	QC	SF-WMX-95	P	124.3 @ 9.2	9.2	SM	N/A	NP	62.135	95,000 CY	P
WMX	QA	SF-26	P	122.8 @ 10.4	-	SP-SM	P	17.6/NP/0	N/A	100,000 CY, Note B	P
C - Stockpiled	QC	SF-WMX-100	P	123.8 @ 9.4	8.8	SM	N/A	NP	62.135	100,000 CY	P
WMX C-Stockpiled	QA										
	QC	SF-WMX-105	P	122.9 @ 11.0	10.4	SM	N/A	NP	62.135	105,000 CY	P

STRUCTURAL FILL
DURING CONSTRUCTION TESTING PROGRAM

		Sample No.	Particle Size Analysis	Standard Proctor Compaction	Moisture Content	Soil Class	Visual ID	Atterberg Limits			
ASTM Method			D421/D422	D698	D2216	D2487	D2488	D4318			
Passing Standard			See Specs	See Specs	See Specs	SC or SM	See Specs	PI <10 LL <40			
Test Frequency	QA		1/25,000 CY	OPTIONAL	OPTIONAL	OPTIONAL	1/25,000 CY	1/25,000 CY			
	QC		1/5,000 CY	1/5,000 CY	1/5,000 CY	1/5,000 CY	N/A	1/5,000 CY			
Sample Location & Borrow Source									Submittal Number	Note	Status Pass/Fail
TOWN C - Stockpiled	QA	SF-11	P	127.6 @ 9.9	9.1	SM	P	18.5/NP/0	N/A	5,000 CY	P
	QC	SV-5	P	131.9 @ 9.4	9.9	SM	N/A	NP	62.12	5,000 CY	P
TOWN C - Stockpiled	QA										
	QC	SV-5.1	P	127.6 @ 9.3	11.6	SM	N/A	NP	62.13	10,000 CY	P
TOWN C - Stockpiled	QA										
	QC	SV-5.2	P	130.8 @ 10.1	9.4	SM	N/A	NP	62.14	15,000 CY	P
TOWN C - Stockpiled	QA										
	QC	TN-5.4	P	127.3 @ 10.0	20.2	SM	N/A	NP	62.15	20,000 CY	P
TOWN C - Stockpiled	QA	SF-13	P	133.2 @ 8.7	10.7	SM	P	-	N/A	25,000 CY	P
	QC	TN-5.5	P	132.1 @ 8.4	14.8	SM	N/A	NP	62.16	25,000 CY	P
MIX	QA										
	QC	NS-9.1	P	123.0 @ 11.6	12.6	SM	N/A	NP	62.18	Additional test	P
TOWN C - Stockpiled	QA										
	QC	TN-5.6	P	131.2 @ 9.1	8.8	SM	N/A	NP	62.20	30,000 CY	P
TOWN C - Stockpiled	QA										
	QC	TN-5.7	P	124.6 @ 9.1	11.7	SM	N/A	NP	62.20	35,000 CY	P
WMX C - Stockpiled	QA										
	QC	CS-2.3	P	119.7 @ 10.8	11.4	SM	N/A	NP	62.21	5,000 CY	P
WMX C - Stockpiled	QA										
	QC	SF-WMX-15	P	127.1 @ 9.5	9.5	SM	N/A	NP	62.32/62.34	15,000 CY	P
WMX C - Stockpiled	QA										
	QC	SF-WMX-20	P	122.4 @ 11.4	11.2	SM	N/A	NP	62.32/62.34	20,000 CY	P
SERVIDONE C-Stockpiled	QA										
	QC	SF-SV-15	P	128.0 @ 11.1	10.4	SM	N/A	NP	62.33	15,000 CY	P
SERVIDONE C-Stockpiled	QA										
	QC	SF-SV-20	P	126.0 @ 8.3	11.2	SM	N/A	NP	62.33	20,000 CY	P
SERVIDONE C-Stockpiled	QA										
	QC	SF-SV-20A	P	132.1 @ 9.0	8.0	SM	N/A	NP	62.35	20,000 CY	P
WMX C-Stockpiled	QA	SF-20	P	124.0 @ 9.4	11.6	SM	P	16/NP/0	N/A	25,000 CY	P
	QC	SF-WMX-25	P	119.3 @ 11.9	11.0	SM	N/A	NP	62.37	25,000 CY	P
WMX C-Stockpiled	QA										
	QC	SF-WMX-LFP1	P	119.8 @ 12.2	9.1	SM	N/A	NP	62.38	Additional test	P
SERVIDONE C-Stockpiled	QA										
	QC	SF-SV-25	P	130.5 @ 10.2	11.6	SM	N/A	NP	62.39	25,000 CY	P
TOWN C-Stockpiled	QA										
	QC	SF TN-5.8-40	P	129.3 @ 9.8	-	-	N/A	-	62.40	40,000 CY	P
TOWN C-Stockpiled	QA										
	QC	SF TN-5.9-45	P	128.3 @ 10.7	9.1	SM	N/A	NP	62.41	45,000 CY	P
MIX F - Direct Placed	QA										
	QC	SF-MIX-LFP3	P	121.6 @ 12.0	-	-	N/A	-	62.42	Note A	-
SERVIDONE C-Stockpiled	QA										
	QC	SF-SV-30	P	126.9 @ 8.4	8.4	SM	N/A	NP	62.55	30,000 CY	P
TOWN C-Placed LFP4	QA										
	QC	SF-TN-010	P	120.0 @ 13.3	12.2	SM	N/A	23/21/2	62.51	35,000 CY	P

STRUCTURAL FILL
DURING CONSTRUCTION TESTING PROGRAM

		Sample No.	Particle Size Analysis	Standard Proctor Compaction	Moisture Content	Soil Class	Visual ID	Atterberg Limits			
ASTM Method			D421/D422	D698	D2216	D2487	D2488	D4318			
Passing Standard			See Specs	See Specs	See Specs	SC or SM	See Specs	PI <10 LL <40			
Test Frequency	QA		1/25,000 CY	OPTIONAL	OPTIONAL	OPTIONAL	1/25,000 CY	1/25,000 CY			
	QC		1/5,000 CY	1/5,000 CY	1/5,000 CY	1/5,000 CY	N/A	1/5,000 CY			
Sample Location & Borrow Source									Submittal Number	Note	Status Pass/Fail
	QA										
C-Stockpiled	QC	SF-195	P	117.9 @ 11.4	10.8	SM	N/A	NP	62.233	195,000 CY	P
WMX	QA	SF-36	P	118.4 @ 11.0	9.1	SP-SM	P	15/NP/0	N/A	200,000 CY, Note B	P
C-Stockpiled	QC	SF-WMX-200	P	118.9 @ 11.9	12.4	SM	N/A	NP	62.233	200,000 CY	P

Notes:

A - Proctor performed due to mixing of two acceptable source materials to confirm maximum density and moisture.

B - Based on noted variations in acceptable soil analysis (See SF-21 and SF-23 results) and visual observations of materials placed in the field analyzed soil was accepted as structural fill.

C - Laboratory description not consistent with visual field observations and other testing results. As a precaution material used in deep till areas, away from contact with liner system.

D - Laboratory description not consistent with visual field observations. Due to low plasticity index and limited volume of material contractor permitted to use the soil.

E - Rejected for use as structural fill, questionable material mixed with organics to produce topsoil. Material limited to less than 100 yd^3.

Clarkstown Landfill Remediation
Laboratory Services Request
#LL-2339-K3

For:
Mr. Reddy Kancharla
M & T/Namow/TCL
47 Hudson Street
Ossining, N.Y. 10562
PH (914)762-9000
FX (914)762-9638

From:
Roy F. Weston of New York
Clarkstown Field Office
166 Rte. 303
West Nyack, N.Y. 10994
PH (914)353-5221
FX (914)353-5491

Sample I.D.	Source	Misc	ASTM D422	D698	D2488	D2216	D4318		EPA 8020						Remarks
SF-01 AGM-4	WMX/Star	1 bkt	X	X	X	X	X		X						rcvd at office
SFA-01 SD	Tilcon	1 bkt	X												stockpiled

Received By: M L Lude

Date/Time: 10-9-96 / 9:50

Delivered By: John C Woodley

Results Required, Date/Time: 10-15-96 / 10:00

TESTWELL CRAIG
LABORATORIES INCORPORATED

CORPORATE HEADQUARTERS: 47 HUDSON STREET, OSSINING, N.Y. 10562 (914) 762-9000 FAX (914) 762-9638

V. REDDY KANCHARLA, P.E., DIRECTO
(NYS LIC. NO. 068162)

GRADATION AND STANDARD PROCTOR COMPACTION TESTING OF SOIL

CLIENT: Roy F. Weston, Inc., Sutton Park
PROJECT: Clarkstown Landfill
SAMPLE ID: SF-01 (Source-STAR)
SAMPLED BY: Client
PICKUP/DEL BY: Client

LAB#: FOB-001
REPORT#: MC-02
DATE SAMPLED: 10/9/96
DATE PICKUP/DEL: 10/9/96
DATE TESTED: 10/16/96

(A) GRADATION TEST RESULTS (ASTM D422 & ASTM D1140)

Sieve Size	Percent Passing (%)	Specifications	Sieve Size	Percent Passing (%)	Specifications
2-1/2"			#10	94.4	
2"			#16	82.6	
1-1/2"			#20	74.4	
1"			#30	61.9	
3/4"			#40	48.8	
1/2"	100		#50	39.2	
3/8"	98.7		#60	34.6	
1/4"	99.6		#80	29.2	
#4	99.1		#100	26.8	
#8	96.3		#200	21.6	

(B) STANDARD PROCTOR COMPACTING TEST RESULTS (ASTM D698, Procedure C, 4" diameter mold)
Optimum Water Content: 19.3%
Max. Unit Weight, Dry: 99.0 pcf
See attached figure for the compaction curve.

(C) MOISTURE CONTENT (ASTM 02216): 24.3%
(D) SOIL CLASIFICATION (ASTM D2487): SM Silty Sand
(E) SOIL DESCRIPTION: m-f SAND, trace Silt
COLOR: Brown; **ODOR:** None; **CONTAMINATION** None

TESTWELL CRAIG LABORATORIES, INC.

Kaspal R. Thumma, Eng.Sc.D.
Laboratory Manager
KRT/mp

Roy F. Weston, Inc., Sutton Park

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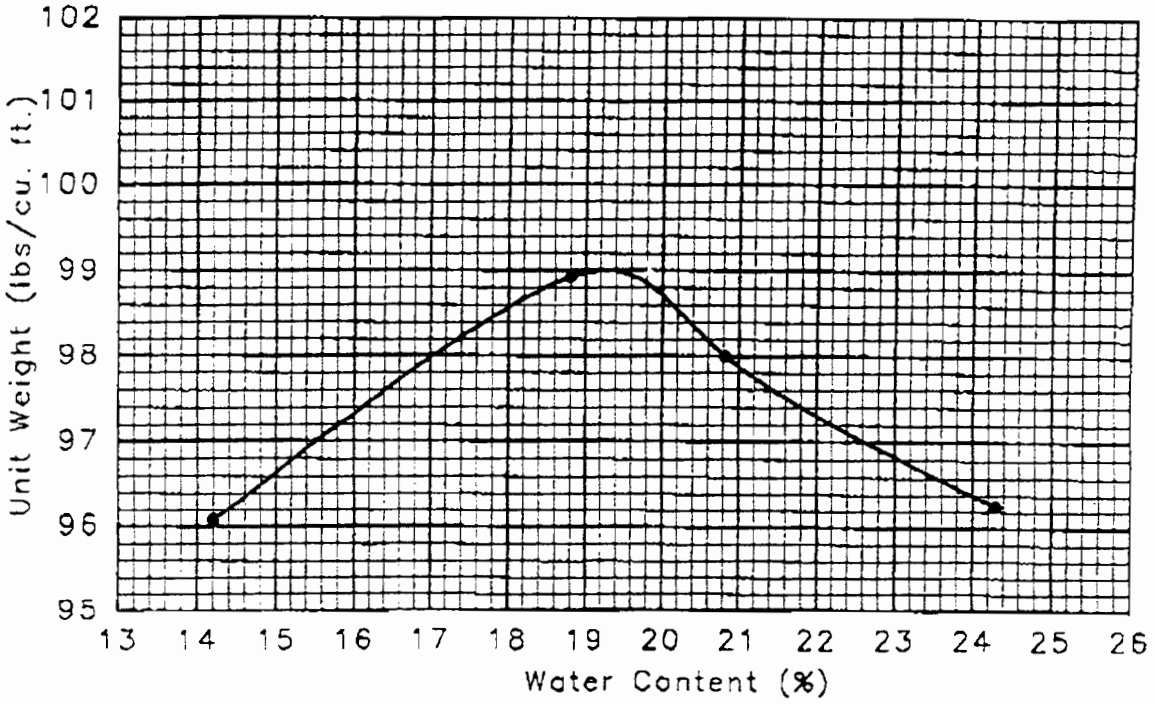
Roy F. Weston, Inc., Sutton Park
Lab #: FOB-001 Rpt #: MC-02

MODIFIED PROCTOR COMPACTION TEST RESULTS

TEST METHOD: (ASTM D1557 Procedure C, 6" Diameter Mold)

Specimen No.	1	2	3	4
Water Content (%)	14.70	18.81	20.82	24.29
Unit Weight, Dry (lbs/cu.ft.)	96.07	98.93	98.0	96.27



Optimum Water Content: 19.3 % Max. Unit Weight, Dry:99.0 pcf

Optimum Water Content: 19.3% Max. Unit Weight, Dry: 99.0 pcf

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TESTWELL CRAIG
LABORATORIES INCORPORATED

CORPORATE HEADQUARTERS: 47 HUDSON STREET, OSSINING, N.Y. 10562 (914) 762-9000 FAX (914) 762-9638

V. REDDY KANCHARLA, P.E., DIRECTOR
(NYS LIC. NO. 068162)

LIQUID LIMIT, PLASTIC LIMIT, AND ORGANIC CONTENT TESTING OF SOILS

CLIENT: Roy F. Weston
PROJECT: Clarkstown Landfill
SAMPLE ID: Indicated Below
SAMPLED BY: Client
PICK UP/DEL BY: Client

LAB #: FOB-001
REPORT#: MC-11
DATE PICK UP/DEL: 10/9/96
10/11/96,10/17/96
DATE TESTED: 10/25/96

(A) LIQUID LIMIT & PLASTIC LIMIT TEST RESULTS (ASTM D4318)

Soil Sample No.	Liquid Limit % Weight	Plastic Limit % Weight	Plastic Index
SF - 01	25.2	NP	0
SF - 03	16.0	NP	0
SF - 04	16.5	NP	0
SF - 05	25.0	17.5	7.5
SF - 06	16.5	NP	0
SF - 07	13.5	NP	0
SF - 08	29.7	25.1	4.6

NOTE: NP indicates that the soil is non-plastic since 1/8" diameter thread could not be rolled at any moisture content.

(B) ORGANIC CONTENT TEST RESULTS (ASTM D 2974)

Soil Sample No.	Organic Content % of Ovenride Sample
SF - 07	1.8
SF - 08	9.8

TESTWELL CRAIG LABORATORIES

Kaspal R. Thumma, Eng.Sc.D.
Laboratory Manager
KRT/mp

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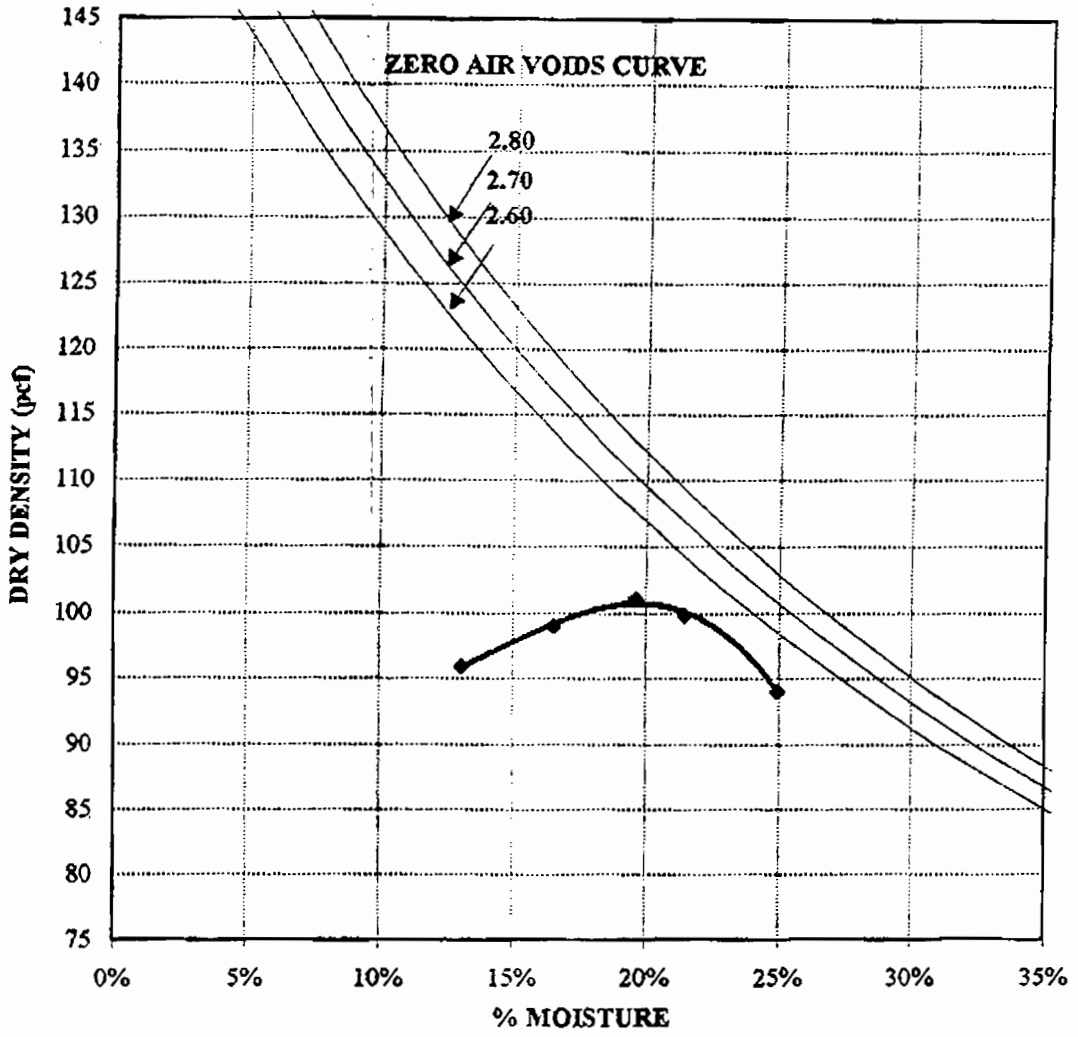
MOISTURE-DENSITY CURVE
ASTM D 698



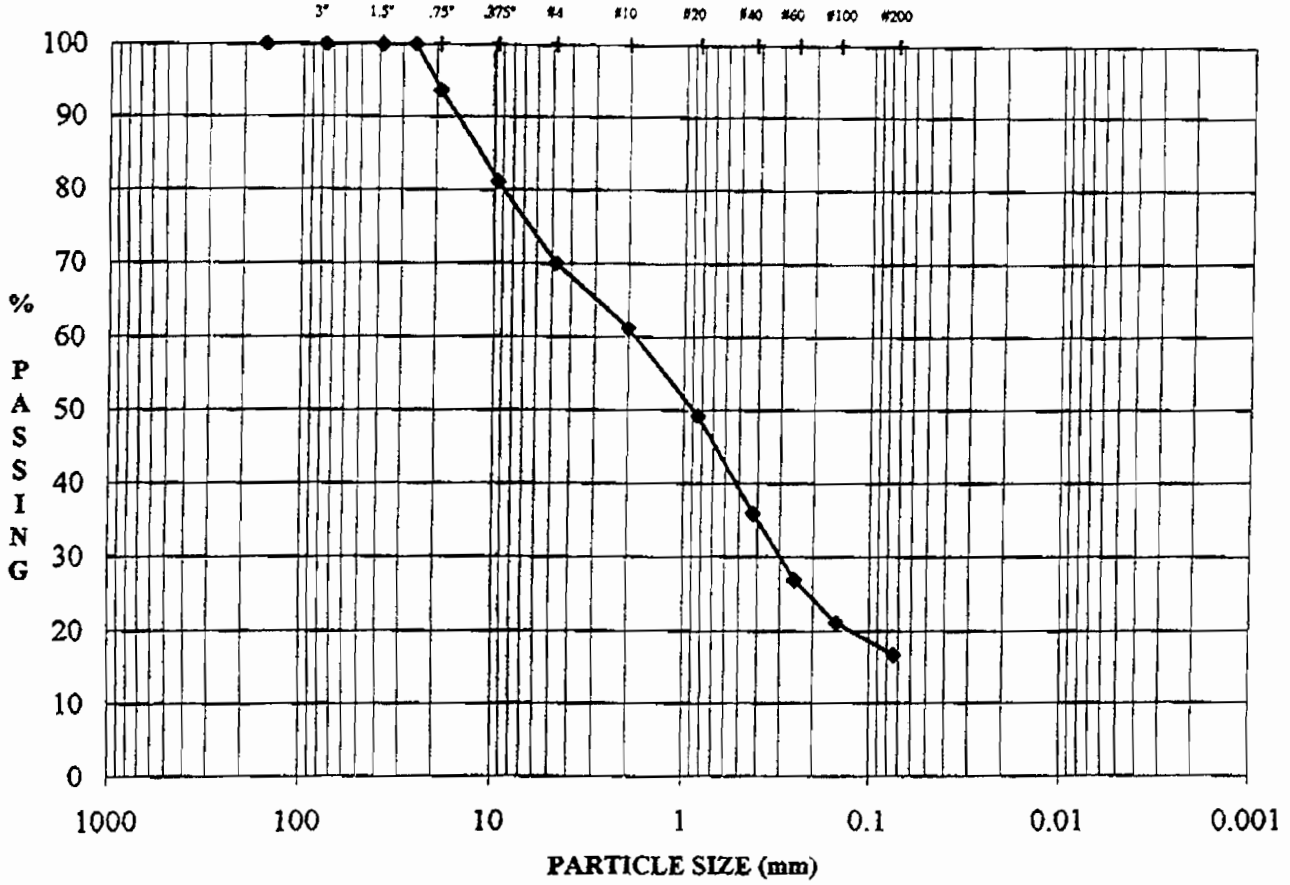
SAMPLE #:	AGM-4 SF-01	MAXIMUM DRY DENSITY (pcf)	101.10
		OPTIMUM MOISTURE (%)	19.60
DESCRIPTION:	Dark brown Silty sand with gravel (SM)	DELIVERED MOISTURE (%)	11.80
		LL: NP	NP = NON-PLASTIC
		PL: NP	
		PI: NP	
		DATE:	08/24/96
		TECH:	RDD/RMW
		REVIEW:	RMW

OGDEN/CLARKSTOWN LF/NY

GOLDER ASSOCIATES INC.
MT. LAUREL, NEW JERSEY

PV

PARTICLE-SIZE DISTRIBUTION ASTM D 421 AND D 422
US STANDARD SIEVE OPENING SIZES



COBBLES	Coarse	Fine	Cor	Med	Fine	Silt or Clay Size
	GRAVEL		SAND			FINES

SAMPLE #:	AGM4
DESCRIPTION:	Dark brown Silty sand with gravel (SM)

Mc:	11.80%
LL:	NP
PL:	NP
PI:	NP
Gs:	-

NP = NON-PLASTIC

OGDEN/CLARKSTOWN LF/NY

DATE	08/21/96
TECH	RDD
REVIEW	RMW

GOLDER ASSOCIATES INC.
MT. LAUREL, NEW JERSEY

PARTICLE-SIZE ANALYSIS OF SOILS

ASTM D 421, D 422, D 2216, D 4318

OGDEN/CLARKSTOWN LF/NY	SAMPLE #:	AGM4

MOISTURE CONTENT (Delivered Moisture)

tare #	RW8
wt soil&tare,moist (g)	2063.31
wt soil&tare,dry (g)	1861.99
wt tare (g)	156.34
wt moisture (g)	201.32
wt dry soil (g)	1705.65
% moisture	**11.80%**

200 WASH (Percent Fines)

tare #	RW8
wt soil&tare,before wash (g)	1861.99
wt soil&tare,after wash (g)	1576.94
wt tare (g)	156.34
wt fines lost (g)	285.05
wt dry soil (g)	1705.65
% fines lost	**16.71%**

	SIEVE	wt ret	% ret	% pass	SIEVE	
coarse gravel	3.000		0.00%	**100.00%**	3.000	coarse gravel
	1.500		0.00%	**100.00%**	1.500	
	1.000		0.00%	**100.00%**	1.000	
fine gravel	0.750	109.03	6.39%	**93.61%**	0.750	fine gravel
	0.375	323.40	18.96%	**81.04%**	0.375	
coarse sand	#4	510.89	29.95%	**70.05%**	#4	coarse sand
medium sand	#10	662.24	38.83%	**61.17%**	#10	medium sand

SPLITTING INFORMATION

Wt in pan, from coarse sieve stack	758.36
Wt split for fine sieve stack	79.52
Percent of original wt in pan	10.49%

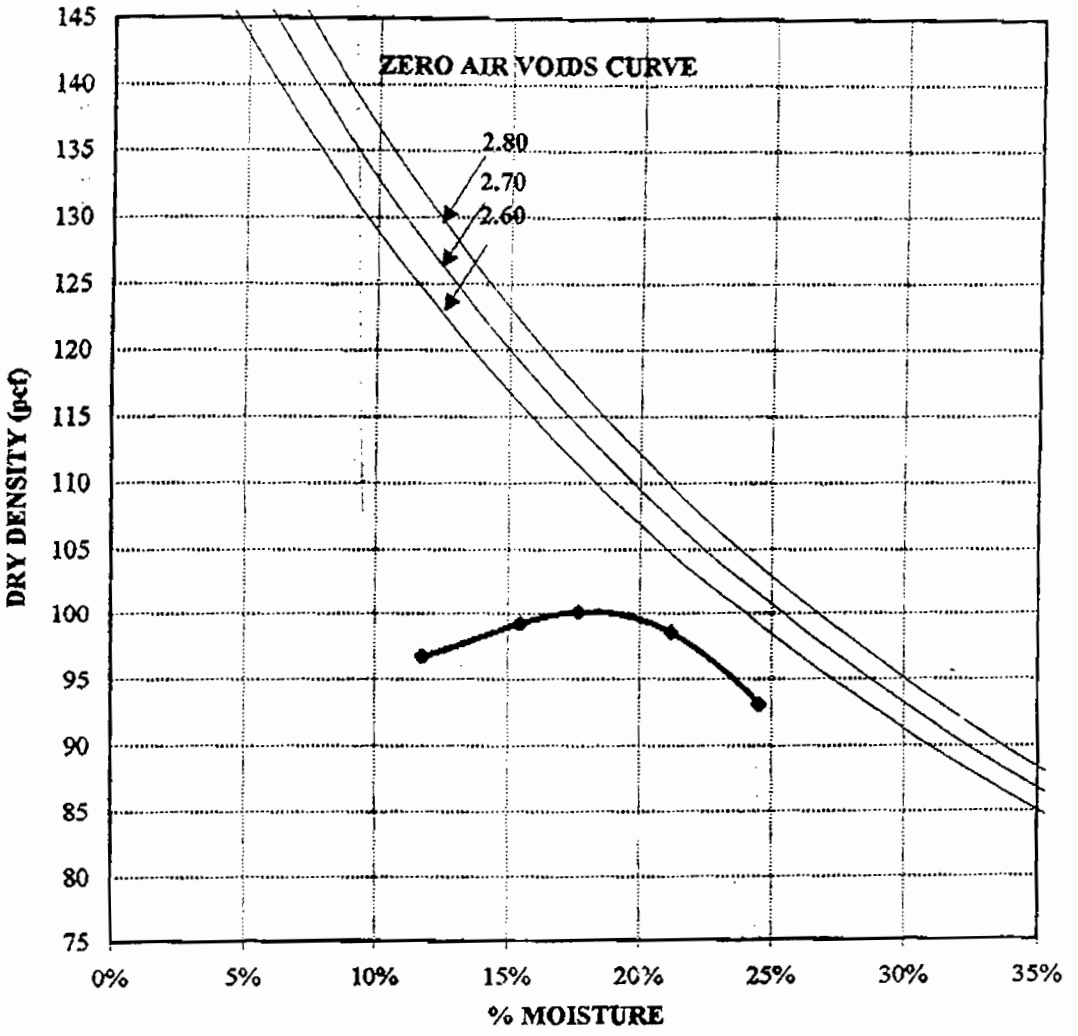
	#20	21.44	50.81%	**49.19%**	#20	
fine sand	#40	45.32	64.17%	**35.83%**	#40	fine sand
	#60	61.30	73.10%	**26.90%**	#60	
	#100	71.46	78.78%	**21.22%**	#100	
	#200	79.52	83.29%	**16.71%**	#200	
fines	PAN	79.52	83.29%	**16.71%**	PAN	fines

% C GRVL:	6.39%	Wet Color:	**Dark brown**		
% F GRVL:	23.56%	Description:	**Silty sand**		
% C SAND:	8.87%		**with gravel (SM)**		
% M SAND:	25.34%	LL:	NP		
% F SAND:	19.12%	PL:	NP	**NP = NON-PLASTIC**	DATE 08/21/96
% FINES:	16.71%	PI :	NP		TECH RDD
% TOTAL:	100.00%	Gs:	-		REVIEW RMW

GOLDER ASSOCIATES INC.

MT.LAUREL, NEW JERSEY

MOISTURE-DENSITY CURVE
ASTM D 698



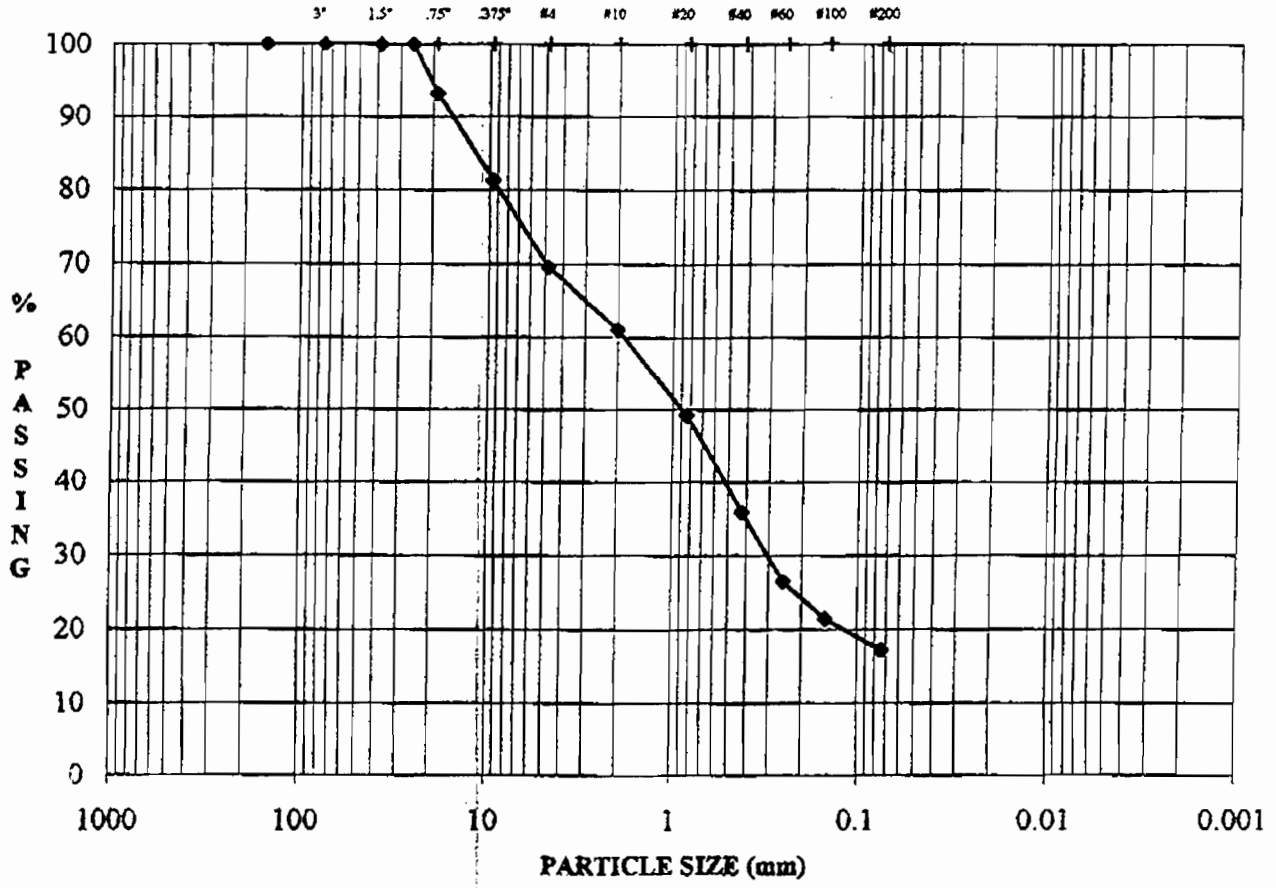
SAMPLE #:	AGM-4.1 SF-01	MAXIMUM DRY DENSITY (pcf)	100.10
		OPTIMUM MOISTURE (%)	18.00
DESCRIPTION:	Dark brown Silty sand with gravel (SM)	DELIVERED MOISTURE (%)	11.80
		LL: NP	NP = NON-PLASTIC
		PL: NP	
		PI: NP	
		DATE:	09/07/96
		TECH:	RDD
		REVIEW:	RMW

OGDEN/CLARKSTOWN LF/NY

GOLDER ASSOCIATES INC.
MT. LAUREL, NEW JERSEY

RU

PARTICLE-SIZE DISTRIBUTION ASTM D 421 AND D 422
US STANDARD SIEVE OPENING SIZES



COBBLES	Coarse	Fine	Cor	Med	Fine	Silt or Clay Size
	GRAVEL		SAND			FINES

SAMPLE #:	AGM4.1
DESCRIPTION:	Dark brown Silty sand with gravel (SM)

Mc:	11.80%
LL:	NP
PL:	NP
PI:	NP
Gs:	-

NP = NON-PLASTIC

OGDEN/CLARKSTOWN LF/NY

DATE	09/09/96
TECH	RDD
REVIEW	RMW

GOLDER ASSOCIATES INC.
MT. LAUREL, NEW JERSEY

PARTICLE-SIZE ANALYSIS OF SOILS

ASTM D 421, D 422, D 2216, D 4318

OGDEN/CLARKSTOWN LF/NY	SAMPLE #:	AGM4.1

MOISTURE CONTENT (Delivered Moisture)

tare #	RW8
wt soil&tare,moist (g)	2063.31
wt soil&tare,dry (g)	1861.99
wt tare (g)	156.34
wt moisture (g)	201.32
wt dry soil (g)	1705.65
% moisture	**11.80%**

200 WASH (Percent Fines)

tare #	GH2
wt soil&tare,before wash (g)	1753.87
wt soil&tare,after wash (g)	1480.22
wt tare (g)	151.27
wt fines lost (g)	273.65
wt dry soil (g)	1602.60
% fines lost	**17.08%**

	SIEVE	wt ret	% ret	% pass	SIEVE	
coarse gravel	3.000		0.00%	**100.00%**	3.000	coarse gravel
	1.500		0.00%	**100.00%**	1.500	
	1.000		0.00%	**100.00%**	1.000	
fine gravel	0.750	108.52	6.77%	**93.23%**	0.750	fine gravel
	0.375	300.44	18.75%	**81.25%**	0.375	
coarse sand	#4	488.56	30.49%	**69.51%**	#4	coarse sand
medium sand	#10	623.25	38.89%	**61.11%**	#10	medium sand

SPLITTING INFORMATION

Wt in pan, from coarse sieve stack	979.35
Wt split for fine sieve stack	82.57
Percent of original wt in pan	8.43%

	#20	16.03	50.75%	**49.25%**	#20	
fine sand	#40	34.21	64.21%	**35.79%**	#40	fine sand
	#60	46.80	73.53%	**26.47%**	#60	
	#100	53.66	78.60%	**21.40%**	#100	
	#200	59.49	82.92%	**17.08%**	#200	
fines	PAN	59.49	82.92%	**17.08%**	PAN	fines

% C GRVL:	6.77%	Wet Color:	**Dark brown**		
% F GRVL:	23.71%	Description:	**Silty sand**		
% C SAND:	8.40%		**with gravel (SM)**		
% M SAND:	25.32%	LL:	NP		
% F SAND:	18.71%	PL:	NP	**NP = NON=PLASTIC**	DATE 09/09/96
% FINES:	17.08%	PI:	NP		TECH RDD
% TOTAL:	100.00%	Gs:	-		REVIEW RMW

GOLDER ASSOCIATES INC.
MT.LAUREL, NEW JERSEY

PI = 0

Clarkstown Landfill Remediation
Laboratory Services Request
#LL-2339-K3

For:
Mr. Reddy Kancharla
M & T/Namow/TCL
47 Hudson Street
Ossining, N.Y. 10562
PH (914)762-9000
FX (914)762-9638

From:
Roy F. Weston of New York
Clarkstown Field Office
166 Rte. 303
West Nyack, N.Y. 10994
PH (914)353-5221
FX (914)353-5491

Sample I.D.	Source	Misc	ASTM D422												Remarks
SF-02	WMX/Star	1 bkt	X												FB Stockpiled no transmittal *
—															

TESTWELL CRAIG
LABORATORIES INCORPORATED

CORPORATE HEADQUARTERS: 47 HUDSON STREET, OSSINING, N.Y. 10562 (914) 762-9000 FAX (914) 762-9638

V. REDDY KANCHARLA, P.E., DIRECTOR
(NYS LIC. NO. 068162)

GRADATION TESTING OF SOIL

CLIENT: Roy F. Weston, Inc., Sutton Park
PROJECT: Clarkstown Landfill
SAMPLE ID: SF-02 (Source: STAR)
SAMPLED BY: Client
PICKUP/DEL BY: Client

LAB#: FOB-001
REPORT#: MC-03
DATE SAMPLED: 10/10/96
DATE PICKUP/DEL: 10/10/96
DATE TESTED: 10/16/96

(A) GRADATION TEST RESULTS (ASTM D422 & ASTM D1140)

Sieve Size	Percent Passing (%)	Specifications	Sieve Size	Percent Passing (%)	Specifications
2-1/2"			#10	49.4	
2"			#16	43.4	
1-1/2"	100		#20	39.8	
1"	97.5		#30	34.9	
3/4"	86.7		#40	29.3	
1/2"	75.2		#50	24.6	
3/8"	70.9		#60	22.0	
1/4"	62.4		#80	18.7	
#4	58.1		#100	17.3	
#8	51.1		#200	14.2	

(B) MOISTURE CONTENT (ASTM D2216): 23.7%

(C) SOIL CLASSIFICATION (ASTM D2487): SM Silty Sand, with Gravel

(D) SOIL DESCRIPTION: m-f SAND, and c-m-f Gravel, little Silt
COLOR: Gray; **ODOR:** Organic; **CONTAMINATION:** Wood, paper, brick, and glass

TESTWELL CRAIG LABORATORIES, INC.

Kaspal R. Thumma, Eng.Sc.D.
Laboratory Manager
KRT/mp

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Clarkstown Landfill Remediation
Laboratory Services Request
#LL-2339-K3

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Sample I.D.	Source	Misc	ASTM D422	D698	D2216	D2487	D4318								Remarks
SF-03 SV-1	Servidone	1 bkt	X	X	X	X	X								CB Stockpile

Received By: S. Lenkin

Date/Time: 10-11-96 / 4:15

Delivered By: John C Woodley

Results Required, Date/Time: 10-17-96 / 10:00

TESTWELL CRAIG
LABORATORIES INCORPORATED

CORPORATE HEADQUARTERS: 47 HUDSON STREET, OSSINING, N.Y. 10562 (914) 762-9000 FAX (914) 762-9638

V. REDDY KANCHARLA, P.E., DIRECTOR
(NYS LIC. NO. 068162)

GRADATION AND STANDARD PROCTOR COMPACTION TESTING OF SOIL

CLIENT: Roy F. Weston, Inc., Sutton Park
PROJECT: ClarKstown Landfill
SAMPLE ID: SF-03 (Source : Servidone)
SAMPLED BY: Client
PICKUP/DEL BY: Client

LAB#: FOB-001
REPORT#: MC-04
DATE SAMPLED: 10/11/96
DATE PICKUP/DEL: 10/11/96
DATE TESTED: 10/16/96

(A) GRADATION TEST RESULTS (ASTM D422 & ASTM D1140)

Sieve Size	Percent Passing (%)	Specifications	Sieve Size	Percent Passing (%)	Specifications
2-1/2"			#10	56.9	
2"	100		#16	52.3	
1-1/2"	93.0		#20	49.8	
1"	90.7		#30	46.5	
3/4"	84.5		#40	42.6	
1/2"	76.5		#50	38.8	
3/8"	72.8		#60	36.3	
1/4"	66.5		#80	32.3	
#4	64.1		#100	30.1	
#8	58.4		#200	23.1	

(B) **STANDARD PROCTOR COMPACTING TEST RESULTS (ASTM D698, Procedure C, 4" diameter mold)**
Optimum Water Content: 9.1%
Max. Unit Weight, Dry: 133.2 pcf
See attached figure for the compaction curve.

(C) **MOISTURE (ASTM D2216):** 8.6%

(D) **SOIL CLASSIFICATION (ASTM D2487):** SM Silty Sand, with Gravel

(E) **SOIL DESCRIPTION:** m-f SAND, and c-m-f Gravel, some Silt
COLOR: Brown; **ODOR:** None; **CONTAMINATION:** None

TESTWELL CRAIG LABORATORIES, INC.

Kaspal R. Thumma, Eng.Sc.D.
Laboratory Manager
KRT/mp

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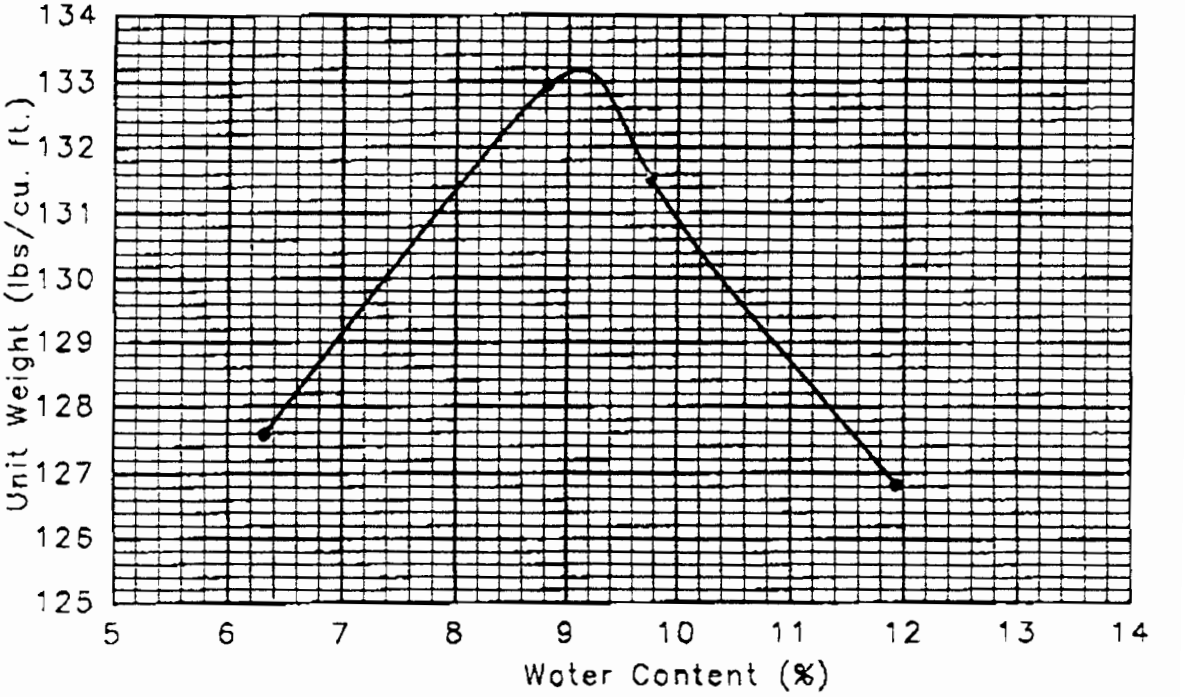
Roy F. Weston, Inc., Sutton Park
Lab #: FOB-001 Rpt #: MC-04

MODIFIED PROCTOR COMPACTION TEST RESULTS

TEST METHOD: (ASTM D1557 Procedure C, 6" Diameter Mold)

Specimen No.	1	2	3	4
Water Content (%)	6.32	8.82	9.76	11.94
Unit Weight, Dry (lbs/cu.ft.)	127.57	132.94	131.53	126.82



Optimum Water Content: 9.1 % Max. Unit Weight, Dry:133.2 pcf

Optimum Water Content: 9.1% Max. Unit Weight, Dry: 133.2 pcf

TESTWELL CRAIG
LABORATORIES INCORPORATED

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V. REDDY KANCHARLA, P.E., DIRECTOR
(NYS LIC. NO. 068162)

LIQUID LIMIT, PLASTIC LIMIT, AND ORGANIC CONTENT TESTING OF SOILS

CLIENT: Roy F. Weston
PROJECT: Clarkstown Landfill
SAMPLE ID: Indicated Below
SAMPLED BY: Client
PICK UP/DEL BY: Client

LAB #: FOB-001
REPORT#: MC-11
DATE PICK UP/DEL: 10/9/96
10/11/96,10/17/96
DATE TESTED: 10/25/96

(A) LIQUID LIMIT & PLASTIC LIMIT TEST RESULTS (ASTM D4318)

Soil Sample No.	Liquid Limit % Weight	Plastic Limit % Weight	Plastic Index
SF - 01	25.2	NP	0
SF - 03	16.0	NP	0
SF - 04	16.5	NP	0
SF - 05	26.0	17.5	7.5
SF - 06	16.5	NP	0
SF - 07	13.6	NP	0
SF - 08	29.7	25.1	4.6

NOTE: NP indicates that the soil is non-plastic since 1/8" diameter thread could not be rolled at any moisture content.

(B) ORGANIC CONTENT TEST RESULTS (ASTM D 2974)

Soil Sample No.	Organic Content % of Ovenride Sample
SF - 07	1.8
SF - 08	9.8

TESTWELL CRAIG LABORATORIES

Kaspal R. Thumma, Eng.Sc.D.
Laboratory Manager
KRT/mp

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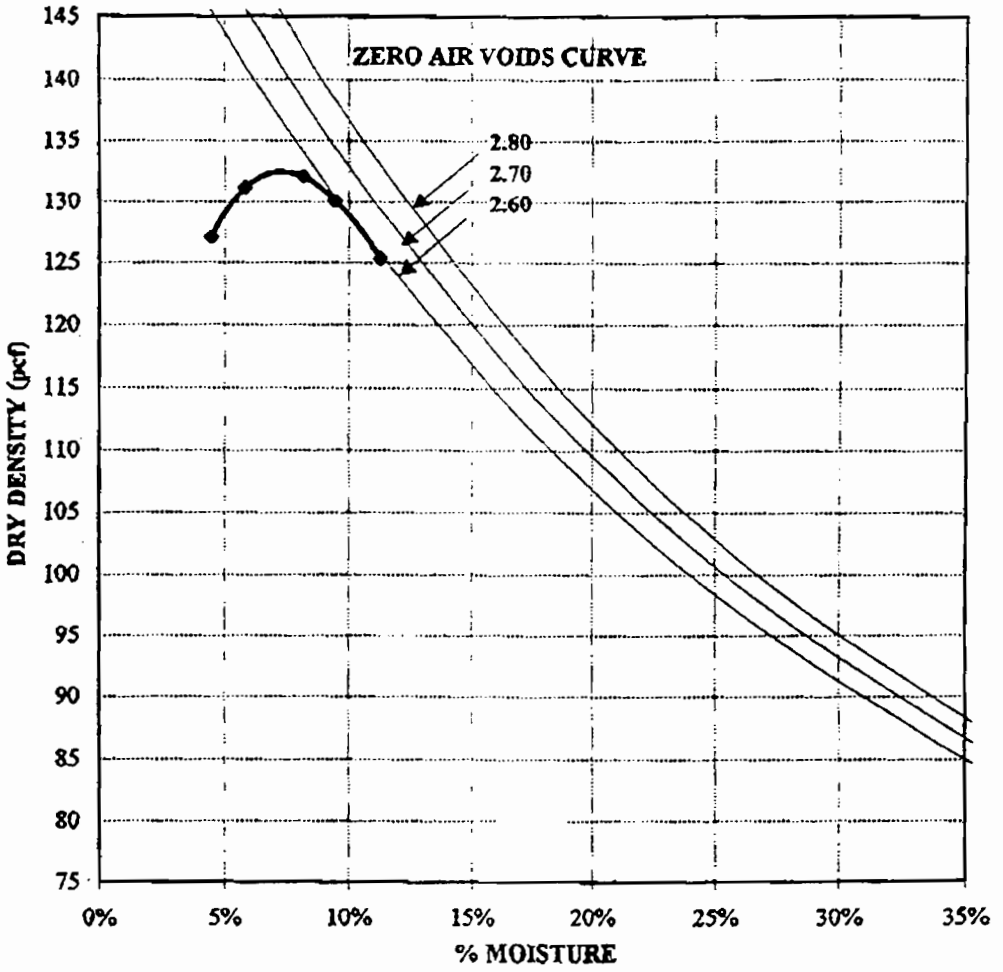
MOISTURE-DENSITY CURVE
ASTM D 698



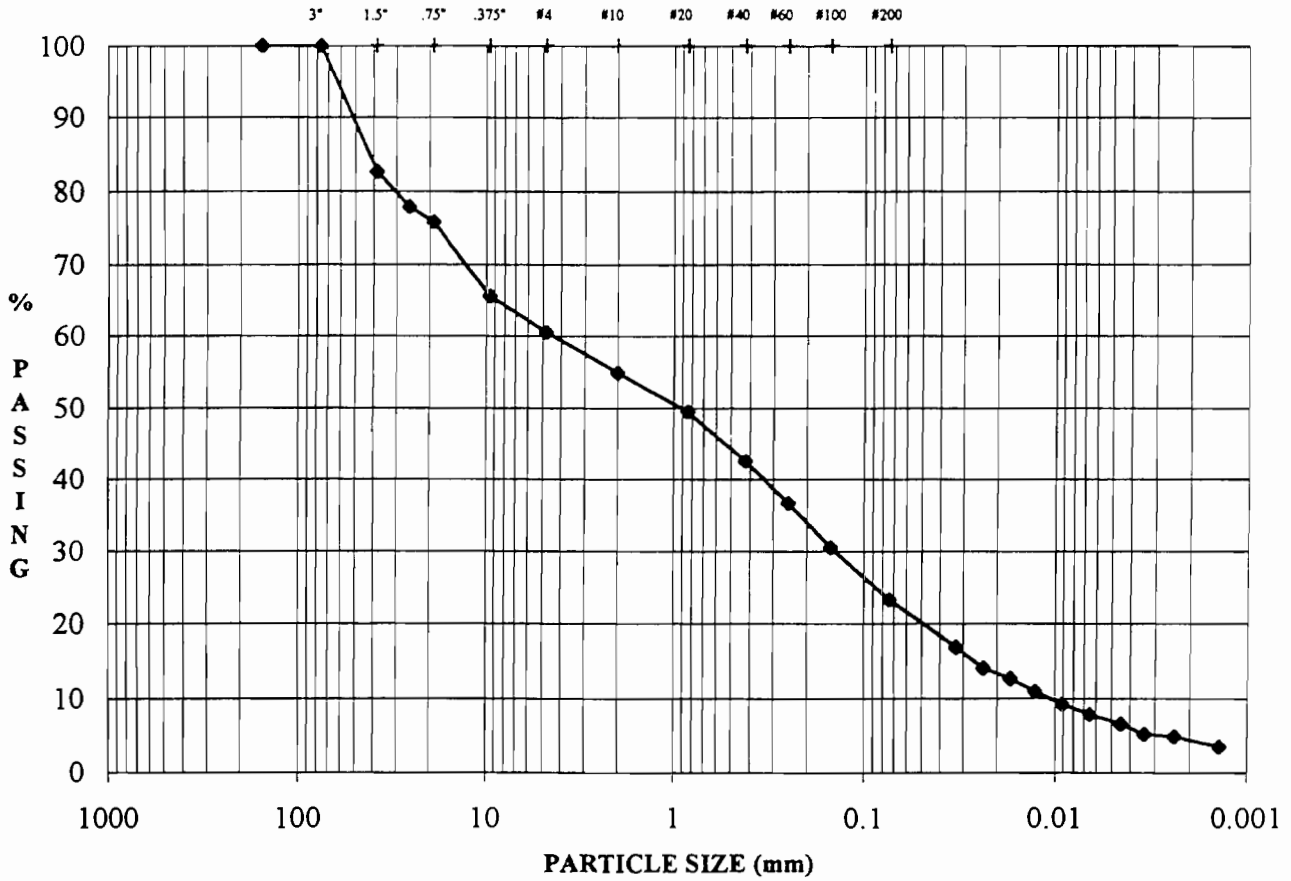
SAMPLE #:	SV-1 SF-03	MAXIMUM DRY DENSITY (pcf)	132.50
		OPTIMUM MOISTURE (%)	7.00
DESCRIPTION:	Dark yellowish brown Silty, clayey gravel with sand (GC-GM)	DELIVERED MOISTURE (%)	5.70
		LL: 19	
		PL: 15	
		PI: 4	
		DATE:	10/07/96
		TECH:	RDD
		REVIEW:	RMW

OGDEN/CLARKSTOWN LF/NY

GOLDER ASSOCIATES INC.
MT. LAUREL, NEW JERSEY

PC

PARTICLE-SIZE DISTRIBUTION ASTM D 421 AND D 422
US STANDARD SIEVE OPENING SIZES



	Coarse	Fine	Cor	Med	Fine	Silt or Clay Size
COBBLES	GRAVEL		SAND			FINES

SAMPLE #:	SV1
WET COLOR:	Dark yellowish brown
DESCRIPTION:	Clayey gravel with sand (GC)

Mc:	5.70%
LL:	-
PL:	-
PI :	-
Gs:	-

OGDEN/CLARKSTOWN LF/NY

DATE	8/30/96
TECH	TK/RDD
REVIEW	RMW

GOLDER ASSOCIATES INC.
MT. LAUREL, NEW JERSEY

PARTICLE-SIZE ANALYSIS OF SOILS

ASTM D 421, D 422, D 1140, D 2216, D 2217

OGDEN/CLARKSTOWN LF/NY		SAMPLE #:	SV1

MOISTURE CONTENT (Delivered Moisture)

tare #	400
wt soil&tare,moist (g)	6881.00
wt soil&tare,dry (g)	6526.00
wt tare (g)	293.30
wt moisture (g)	355.00
wt dry soil (g)	6232.70
% moisture	5.70%

% PASSING #10 SIEVE

Total Wt (g)	6232.70
Wt Split #10 (g)	3419.83
% passing #10	54.87%

	SIEVE	wt ret (g)	% ret	% pass	SIEVE	
coarse gravel	3.000		0.00%	**100.00%**	3.000	coarse gravel
	1.500	1084.65	17.40%	**82.60%**	1.500	
	1.000	1374.29	22.05%	**77.95%**	1.000	
fine gravel	0.750	1504.08	24.13%	**75.87%**	0.750	fine gravel
	0.375	2142.02	34.37%	**65.63%**	0.375	
coarse sand	#4	2456.87	39.42%	**60.58%**	#4	coarse sand
medium sand	#10	2812.87	45.13%	**54.87%**	#10	medium sand

SAMPLE PREPARATION FOR HYDROMETER ANALYSIS

% Passing #10 Sieve		54.87	Initial Moist Weight	80.23
Specific Gravity	(ASSUMED)	2.65	Calculated Dry Weight	80.10
ml Dispersing Agent Used (40 ml Na(PO4)n per 1000 ml H2O)		125		

MOISTURE CONTENT (Hygroscopic - #10)

tare #	T30	tare #	RW1	LL:	-
wt soil&tare,moist (g)	57.88	wt soil&tare,dry (g)	239.75	PL:	-
wt soil&tare,dry (g)	57.82	wt soil&tare,wash (g)	205.10	PI:	-
wt tare (g)	20.07	wt tare (g)	159.65		
wt moisture (g)	0.06	wt fines lost (g)	34.65		
wt dry soil (g)	37.75	wt dry soil (g)	80.10		
% moisture	0.16%	% fines lost	43.26%		

PERCENT BETWEEN #10 AND #200 SIEVE CALCULATION

SIEVE	CUMUL WT RETAINED	CUMUL WT RET. CORR.	PERCENT PASSING		
#10	0.00	65.89	**54.87%**	#10	medium sand
#20	7.93	73.82	**49.44%**	#20	
#40	17.93	83.82	**42.59%**	#40	fine sand
#60	26.69	92.58	**36.59%**	#60	
#100	35.60	101.49	**30.48%**	#100	
#200	46.09	111.98	**23.30%**	#200	fines

DATE	TIME	TIME,CUM (min)	READING R	TEMP T	HYD RDG H	PARTICLE DIAMETER	% FINER
8/29/96	8:31	2.0	28.0	25.0	3.5	0.033	**16.78%**
	8:33	4.0	24.0	25.0	3.5	0.024	**14.04%**
	8:37	8.0	22.0	24.5	3.5	0.017	**12.67%**
	8:44	15.0	19.5	24.5	3.5	0.013	**10.96%**
	8:59	30.0	17.0	24.5	3.5	0.009	**9.25%**
	9:29	60.0	15.0	24.0	3.5	0.006	**7.88%**
	10:39	130.0	13.0	24.0	3.5	0.004	**6.51%**
	12:29	240.0	11.0	23.5	3.5	0.003	**5.14%**
	16:29	480.0	10.0	23.0	3.0	0.002	**4.79%**
8/30/96	8:29	1440.0	8.0	23.5	3.0	0.001	**3.42%**

%C GRVL:	**24.13%**
%F GRVL:	**15.29%**
%C SAND:	**5.71%**
%M SAND:	**12.28%**
%F SAND:	**19.29%**
%FINES:	**23.30%**
%TOTAL:	**100.00%**

Wet Color: **Dark yellowish brown**

Description: **Clayey gravel with sand (GC)**

DATE	8/30/96
TECH	TK/RDD
REVIEW	RMW

GOLDER ASSOCIATES INC.
MT. LAUREL, NEW JERSEY

Clarkstown Landfill Remediation
Laboratory Services Request
#LL-2339-K3

For:
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M & T/Namow/TCL
47 Hudson Street
Ossining, N.Y. 10562
PH (914)762-9000
FX (914)762-9638

Add is D2974
Organic content

From:
Roy F. Weston of New York
Clarkstown Field Office
166 Rte. 303
West Nyack, N.Y. 10994
PH (914)353-5221
FX (914)353-5491

Sample I.D.	Source	Misc	ASTM D422	D698	D2216	D2487	D4318	D2974		EPA 8020					Remarks
SF-04 / NS-2	CB-WDAI	1 bkt	X	X	X	X	X								brn soil
SF-05 / NS-3	CB-WDAI	"	X	X	X	X	X								red soil
SF-06 / NS-1	CB-LFPI	"	X	X	X	X	X								pkg lot
SF-07 / CS-2.1	WMX/Star	"	X	X	X	X	X	X		X					possible CS delivered sample
SF-08 / —	WMX/Star re-screened	"	X	X	X	X	X	X		X					no transmittal # 2nd batch
SFA-02 / 5D	Tilcon	"	X												re-test stockpiled

Received By: Grasped

Date/Time: 10-16-96 / 1:50

Delivered By: John C Woodley

Results Required, Date/Time: 10-21-96 / 10:00

TESTWELL CRAIG
LABORATORIES INCORPORATED

CORPORATE HEADQUARTERS: 47 HUDSON STREET, OSSINING, N.Y. 10562 (914) 762-9000 FAX (914) 762-9638

V. REDDY KANCHARLA, P.E., DIRECTOR
(NYS LIC. NO. 068162)

GRADATION AND STANDARD PROCTOR COMPACTION TESTING OF SOIL

CLIENT: Roy F. Weston, Inc., Sutton Park
PROJECT: Clarkstown Landfill
SAMPLE ID: SF-04 (Source Common LFP 1)
SAMPLED BY: Client
PICKUP/DEL BY: Client

LAB#: FOB-001
REPORT#: MC-05
DATE SAMPLED: 10/1796
DATE PICKUP/DEL: 10/17/96
DATE TESTED: 10/21/96

(A) **GRADATION TEST RESULTS (ASTM D422 & ASTM D1140)**

Sieve Size	Percent Passing (%)	Specifications	Sieve Size	Percent Passing (%)	Specifications
2-1/2"			#10	79.8	
2"	100		#16	76.5	
1-1/2"	93.2		#20	74.2	
1"	88.7		#30	70.6	
3/4"	88.7		#40	64.9	
1/2"	87.8		#50	58.6	
3/8"	87.1		#60	54.5	
1/4"	85.0		#80	48.1	
#4	83.9		#100	44.7	
#8	80.8		#200	31.8	

(B) **STANDARD PROCTOR COMPACTING TEST RESULTS (ASTM D698, Procedure B, 4" diameter mold)**
Optimum Water Content: 10.4%
Max. Unit Weight, Dry: 113.6 pcf
See attached figure for the compaction curve.

(C) **MOISTURE (ASTM D2216):** 13.3%

(D) **SOIL CLASSIFICATION (ASTM D2487):** SM Silty Sand with Gravel

(E) **SOIL DESCRIPTION: m-f SAND, some Silt, little m-Gravel**
COLOR: Brown; **ODOR:** None; **CONTAMINATION:** Wood

TESTWELL CRAIG LABORATORIES, INC.

Kaspal R. Thumma, Eng.Sc.D.
Laboratory Manager
KRT/mp

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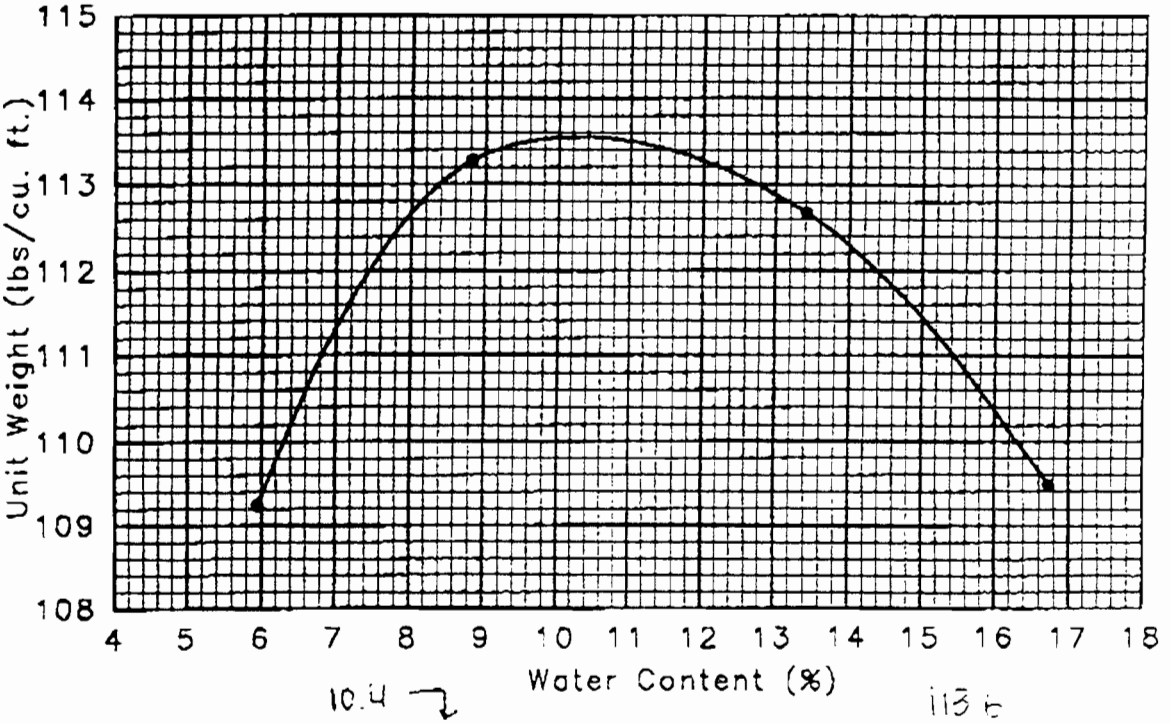
TESTWELL CRAIG LABORATORIES, INC.

Roy F. Weston, Inc., Sutton Park
Lab #: FOB-001 Rpt #: MC-05

TEST METHOD: (ASTM D698 Procedure B, 4" Diameter Mold)

Specimen No.	1	2	3	4
Water Content (%)	5.95	8.82	13.42	16.74
Unit Weight, Dry (lbs/cu.ft.)	109.24	113.28	112.67	109.47



Optimum Water Content: 10.4 % Max. Unit Weight, Dry: 113.6 pcf

Optimum Water Content: 10.4% Max. Unit Weight, Dry: 113.6 pcf

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LABORATORIES INCORPORATED

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V. REDDY KANCHARLA, P.E., DIRECTOR
(NYS LIC. NO. 063162)

LIQUID LIMIT, PLASTIC LIMIT, AND ORGANIC CONTENT TESTING OF SOILS

CLIENT: Roy F. Weston
PROJECT: Clarkstown Landfill
SAMPLE ID: Indicated Below
SAMPLED BY: Client
PICK UP/DEL BY: Client

LAB #: FOB-001
REPORT#: MC-11
DATE PICK UP/DEL: 10/9/96
10/11/96,10/17/96
DATE TESTED: 10/25/96

(A) LIQUID LIMIT & PLASTIC LIMIT TEST RESULTS (ASTM D4318)

Soil Sample No.	Liquid Limit % Weight	Plastic Limit % Weight	Plastic Index
SF - 01	25.2	NP	0
SF - 03	16.0	NP	0
SF - 04	16.5	NP	0
SF - 05	26.0	17.5	7.5
SF - 06	16.5	NP	0
SF - 07	13.6	NP	0
SF - 08	29.7	25.1	4.6

NOTE: NP indicates that the soil is non-plastic since 1/8" diameter thread could not be rolled at any moisture content.

(B) ORGANIC CONTENT TEST RESULTS (ASTM D 2974)

Soil Sample No.	Organic Content % of Ovenride Sample
SF - 07	1.8
SF - 08	9.8

TESTWELL CRAIG LABORATORIES

Kaspal R. Thumma, Eng.Sc.D.
Laboratory Manager
KRT/mp

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FAIRWAY

Soils Test Report

October 15, 1996

client Ogden Remediation Services

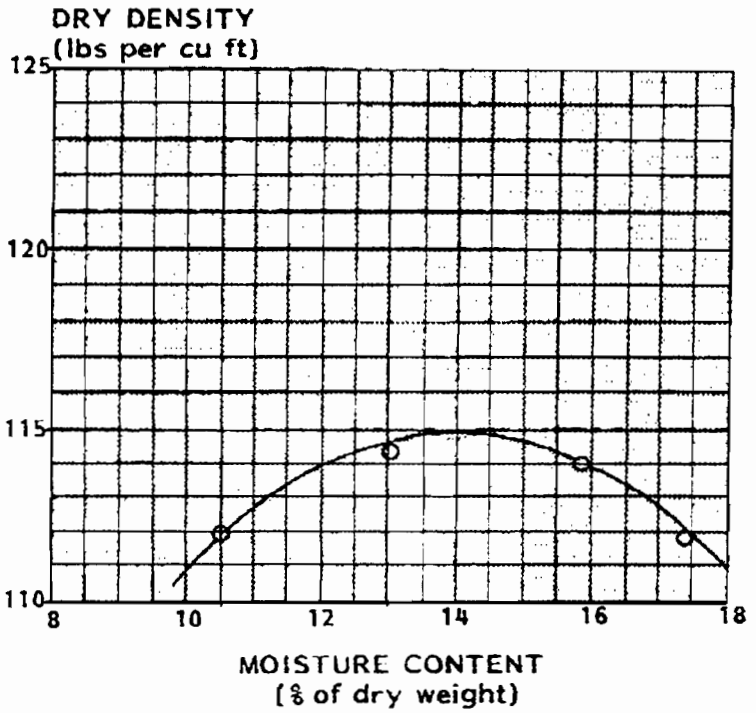
project Clarkstown Landfill

Compaction Method ASTM D698

subject Moisture-Density Curve Analysis and Gradation Analysis

Maximum Dry Density 114.9 pcf
Optimum Moisture Content 14.0 %

On this date, a soil sample labeled "NS2-WDA-1/LFP1" was delivered to this laboratory by the client. Test results are shown below.



Sieve Size	Percent Passing by Weight 1-1/2"	1"	3/4"	3/8"	No.4	No.10	No.40	No.200
Actual	100	96	95	92	89	85	71	35.7

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

Smith Street • Stony Point, N.Y. 10980 • 914-942-2088

Clarkstown Landfill Remediation
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From:
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Clarkstown Field Office
166 Rte. 303
West Nyack, N.Y. 10994
PH (914)353-5221
FX (914)353-5491

Sample I.D.	Source	Misc	ASTM D422	D698	D2216	D2487	D4318	D2974		EPA 8020					Remarks
SF-04 NS-2	CB WDAI	1 bkt	X	X	X	X	X								brn soil
SF-05 NS-3	CB-WDAI	"	X	X	X	X	X								red soil
SF-06 NS-1	CB - LFP1	"	X	X	X	X	X								pkg lot
SF-07 CS-2.1	WMX/Star	"	X	X	X	X	X	X		X					possible CS delivered sample
SF-08 —	WMX/Star re-screened	"	X	X	X	X	X	X		X					no transmittal# 2nd batch
SFA-02 5D	Tilcon	"	X												re-test stockpiled

Received By: Grasped

Date/Time: 10-16-96 / 1:50

Delivered By: John C Woodley

Results Required, Date/Time: 10-21-96 / 10:00

TESTWELL CRAIG
LABORATORIES INCORPORATED

CORPORATE HEADQUARTERS: 47 HUDSON STREET, OSSINING, N.Y. 10562 (914) 762-9000 FAX (914) 762-9638

V. REDDY KANCHARLA, P.E., DIRECTOR
(NYS LIC. NO. 068162)

GRADATION AND STANDARD PROCTOR COMPACTION TESTING OF SOIL

CLIENT: Roy F. Weston, Inc., Sutton Park
PROJECT: Clarkstown Landfill
SAMPLE ID: SF-05 (Source: Common LFP 1)
SAMPLED BY: Client
PICKUP/DEL BY: Client

LAB#: FOB-001
REPORT#: MC-06
DATE SAMPLED: 10/1796
DATE PICKUP/DEL: 10/17/96
DATE TESTED: 10/21/96

(A) **GRADATION TEST RESULTS (ASTM D422 & ASTM D1140)**

Sieve Size	Percent Passing (%)	Specifications	Sieve Size	Percent Passing (%)	Specifications
3"	100.0				
2-1/2"	77.5		#10	33.8	
2"	77.5		#16	30 6	
1-1/2"	64		#20	28.7	
1"	54.1		#30	26.2	
3/4"	51.4		#40	23.3	
1/2"	47.8		#50	20.6	
3/8"	44.1		#60	19.0	
1/4"	40.8		#80	16.5	
#4	39.0		#100	15.2	
#8	34.8		#200	11.3	

(B) **STANDARD PROCTOR COMPACTING TEST RESULTS (ASTM D698, Procedure B, 4" diameter mold)**
Optimum Water Content: 15.2%
Max. Unit Weight, Dry: 117.0 pcf
See attached figure for the compaction curve.

(C) **MOISTURE (ASTM D2216):** 9.0%

(D) **SOIL CLASSIFICATION (ASTM D2487):** GP-GM Poorly graded gravel with silt and sand

(E) **SOIL DESCRIPTION: c-m GRAVEL, some m-f Sand, little Silt**
COLOR: Gray; **ODOR:** Slightly organic, **CONTAMINATION:** Wood, asphalt

TESTWELL CRAIG LABORATORIES, INC.

Kaspal R. Thumma, Eng.Sc.D.
Laboratory Manager
KRT/mp

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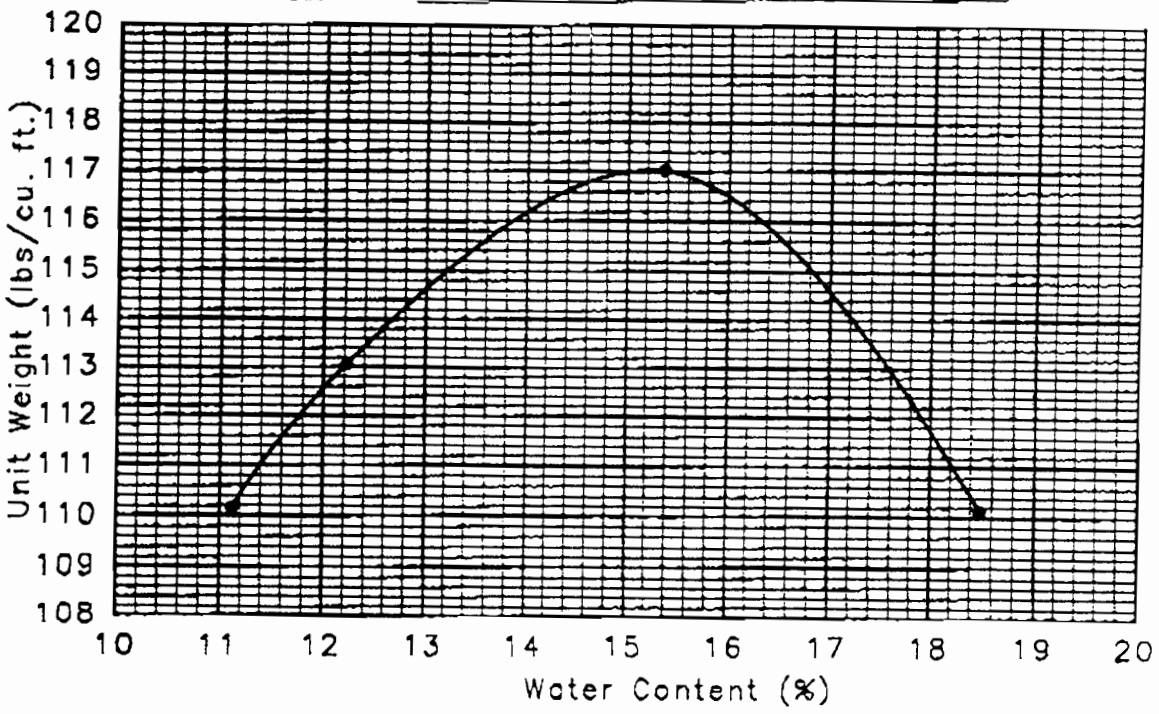
Roy F. Weston, Inc., Sutton Park
Lab #: FOB-001 Rpt #: MC-06

TEST METHOD: (ASTM D698 Procedure B, 4" Diameter Mold)

Specimen No.	1	2	3	4
Water Content (%)	11.12	12.23	15.38	18.49
Unit Weight, Dry (lbs/cu.ft.)	110.15	113.06	117.02	110.14



Optimum Water Content: 15.2 % Max. Unit Weight, Dry: 117.0 pcf

Optimum Water Content: 15.2% Max. Unit Weight, Dry 117.0 pcf

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TESTWELL CRAIG
LABORATORIES INCORPORATED

CORPORATE HEADQUARTERS: 47 HUDSON STREET, OSSINING, N.Y. 10562 (914) 762-9000 FAX (914) 762-9638

V. REDDY KANCHARLA, P.E., DIRECTOR
(NYS LIC. NO. 068162)

LIQUID LIMIT, PLASTIC LIMIT, AND ORGANIC CONTENT TESTING OF SOILS

CLIENT: Roy F. Weston
PROJECT: Clarkstown Landfill
SAMPLE ID: Indicated Below
SAMPLED BY: Client
PICK UP/DEL BY: Client

LAB #: FOB-001
REPORT#: MC-11
DATE PICK UP/DEL: 10/9/96
10/11/96,10/17/96
DATE TESTED: 10/25/96

(A) LIQUID LIMIT & PLASTIC LIMIT TEST RESULTS (ASTM D4318)

Soil Sample No.	Liquid Limit % Weight	Plastic Limit % Weight	Plastic Index
SF - 01	25.2	NP	0
SF - 03	16.0	NP	0
SF - 04	16.5	NP	0
SF - 05	25.0	17.5	7.5
SF - 06	16.5	NP	0
SF - 07	13.5	NP	0
SF - 08	29.7	25.1	4.6

NOTE: NP indicates that the soil is non-plastic since 1/8" diameter thread could not be rolled at any moisture content.

(B) ORGANIC CONTENT TEST RESULTS (ASTM D 2974)

Soil Sample No.	Organic Content % of Ovenride Sample
SF - 07	1.8
SF - 08	9.8

TESTWELL CRAIG LABORATORIES

Kaspal R. Thumma, Eng.Sc.D.
Laboratory Manager
KRT/mp

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Clarkstown Landfill Remediation
Laboratory Services Request
#LL-2339-K3

For:
Mr. Reddy Kancharla
M & T/Namow/TCL
47 Hudson Street
Ossining, N.Y. 10562
PH (914)762-9000
FX (914)762-9638

From:
Roy F. Weston of New York
Clarkstown Field Office
166 Rte. 303
West Nyack, N.Y. 10994
PH (914)353-5221
FX (914)353-5491

Sample I.D.	Source	Misc	ASTM D422	D698	D2216	D2487	D4318	D2974		EPA 8020					Remarks
SF-04 NS-2	CB-WDAI	1 bkt	X	X	X	X	X								brn soil
SF-05 NS-3	CB-WDAI	"	X	X	X	X	X								red soil
SF-06 NS-1	CB-LFP1	"	X	X	X	X	X								pkg lot
SF-07 CS-2.1	WMX/Star	"	X	X	X	X	X	X		X					possible CS delivered sample
SF-08 —	WMX/Star re-screened	"	X	X	X	X	X	X		X					no transmittal # 2nd batch
SFA-02 5D	Tilcon	"	X												re-test stockpiled

Received By: Rec'spd

Date/Time: 10-16-96 / 1:50

Delivered By: John C Woodley

Results Required, Date/Time: 10-21-96 / 10:00

TESTWELL CRAIG
LABORATORIES INCORPORATED

CORPORATE HEADQUARTERS: 47 HUDSON STREET, OSSINING, N.Y. 10562 (914) 762-9000 FAX (914) 762-9638

V. REDDY KANCHARLA, P.E., DIRECTOR
(NYS LIC. NO. 068162)

GRADATION AND STANDARD PROCTOR COMPACTION TESTING OF SOIL

CLIENT: Roy F. Weston, Inc., Sutton Park
PROJECT: Clarkstown Landfill
SAMPLE ID: SF-06 (Source: Common LFP 1)
SAMPLED BY: Client
PICKUP/DEL BY: Client

LAB#: FOB-001
REPORT#: MC-07
DATE SAMPLED: 10/1796
DATE PICKUP/DEL: 10/17/96
DATE TESTED: 10/21/96

(A) GRADATION TEST RESULTS (ASTM D422 & ASTM D1140)

Sieve Size	Percent Passing (%)	Specifications	Sieve Size	Percent Passing (%)	Specifications
2-1/2"			#10	59.1	
2"	100.0		#16	54.6	
1-1/2"	95.4		#20	51.6	
1"	90.7		#30	48.0	
3/4"	84.2		#40	43.2	
1/2"	77.5		#50	38.5	
3/8"	74.0		#60	35.5	
1/4"	69.3		#80	31	
#4	66.5		#100	28.5	
#8	60.6		#200	20.9	

(B) **STANDARD PROCTOR COMPACTING TEST RESULTS (ASTM D698, Procedure B, 4" diameter mold)**
Optimum Water Content: 10.0%
Max. Unit Weight, Dry: 127.1 pcf
See attached figure for the compaction curve.

(C) **MOISTURE (ASTM D2216):** 6.2%

(D) **SOIL CLASSIFICATION (ASTM D2487):** SM Silty sand with gravel

(E) **SOIL DESCRIPTION: m-f SAND, some c-m Gravel, Some Silt**
COLOR: Brown; **ODOR:** None; **CONTAMINATION:** None

TESTWELL CRAIG LABORATORIES, INC.

Kaspal R. Thumma, Eng.Sc.D.
Laboratory Manager
KRT/mp

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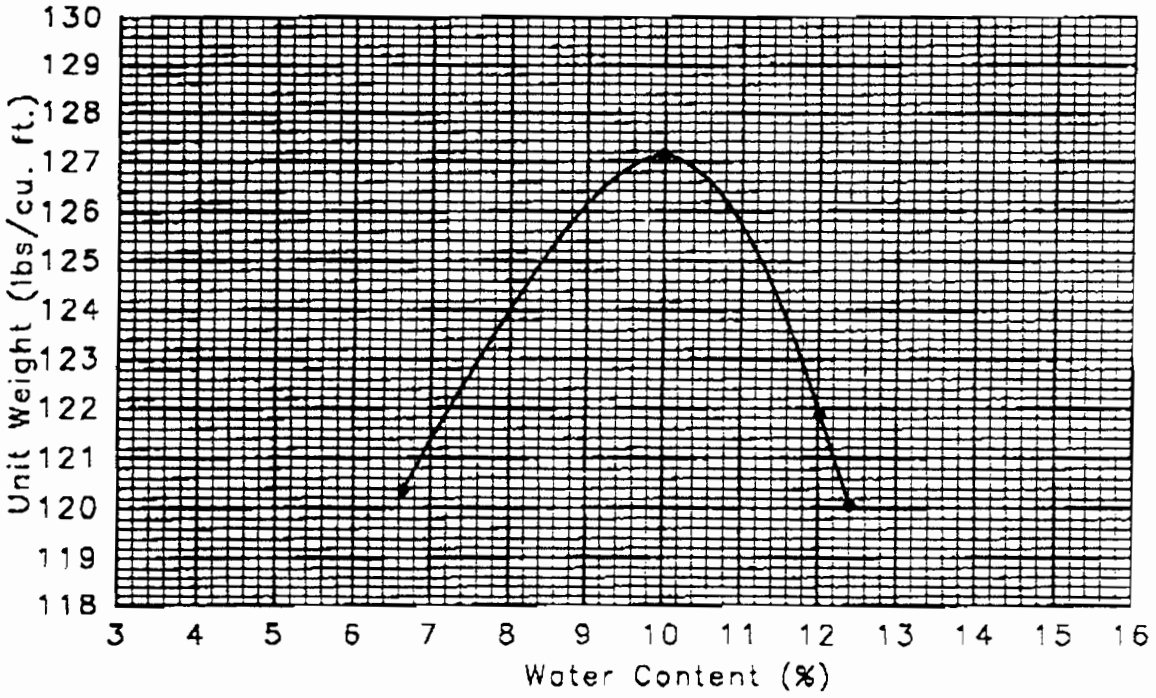
Roy F. Weston, Inc., Sutton Park
Lab #: FOB-001 Rpt #: MC-07

TEST METHOD: (ASTM D698 Procedure B, 4" Diameter Mold)

Specimen No.	1	2	3	4
Water Content (%)	6.66	9.99	12.03	12.41
Unit Weight, Dry (lbs/cu.ft.)	120.37	127.14	121.87	120.06



Optimum Water Content: 10.0 % Max. Unit Weight, Dry:127.1 pcf

Optimum Water Content: 10.0% Max. Unit Weight, Dry 127.1 pcf

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TESTWELL CRAIG
LABORATORIES INCORPORATED

CORPORATE HEADQUARTERS: 47 HUDSON STREET, OSSINING, N.Y. 10562 (914) 762-9000 FAX (914) 762-9638

V. REDDY KANCHARLA, P.E., DIRECTOR
(NYS LIC. NO. 068162)

LIQUID LIMIT, PLASTIC LIMIT, AND ORGANIC CONTENT TESTING OF SOILS

CLIENT: Roy F. Weston
PROJECT: Clarkstown Landfill
SAMPLE ID: Indicated Below
SAMPLED BY: Client
PICK UP/DEL BY: Client

LAB #: FOB-001
REPORT#: MC-11
DATE PICK UP/DEL: 10/9/96
10/11/96,10/17/96
DATE TESTED: 10/25/96

(A) LIQUID LIMIT & PLASTIC LIMIT TEST RESULTS (ASTM D4318)

Soil Sample No.	Liquid Limit % Weight	Plastic Limit % Weight	Plastic Index
SF - 01	25.2	NP	0
SF - 03	16.0	NP	0
SF - 04	16.5	NP	0
SF - 05	25.0	17.5	7.5
SF - 06	16.5	NP	0
SF - 07	13.5	NP	0
SF - 08	29.7	25.1	4.6

NOTE: NP indicates that the soil is non-plastic since 1/8" diameter thread could not be rolled at any moisture content.

(B) ORGANIC CONTENT TEST RESULTS (ASTM D 2974)

Soil Sample No.	Organic Content % of Ovenride Sample
SF - 07	1.8
SF - 08	9.8

TESTWELL CRAIG LABORATORIES

Kaspal R. Thumma, Eng.Sc.D.
Laboratory Manager
KRT/mp

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FAIRWAY

Soils Test Report

October 15, 1996

client Ogden Remediation Services

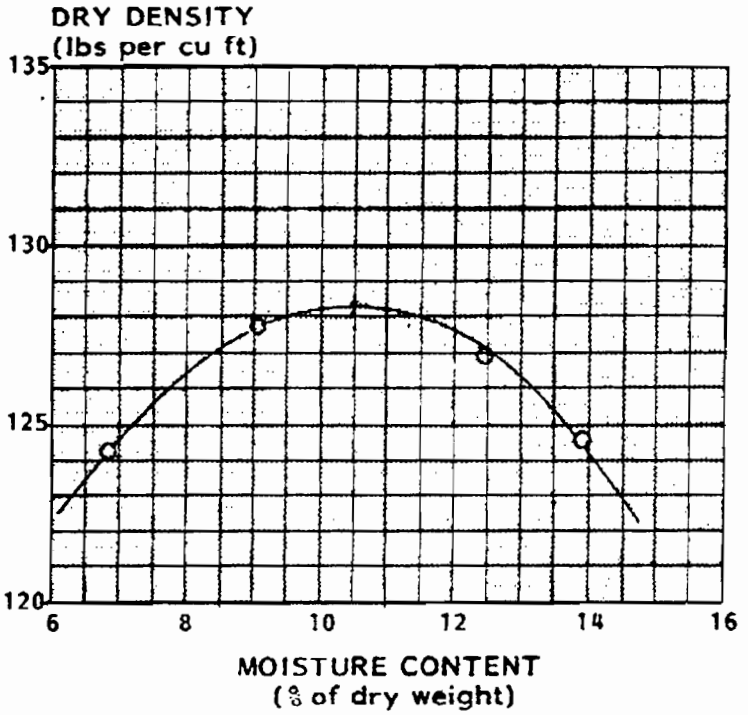
project Clarkstown Landfill

Compaction Method ASTM D698

Maximum Dry Density 128.2 pcf
Optimum Moisture Content 10.5 %

subject Moisture-Density Curve Analysis and Gradation Analysis

On October 14, 1996 a soil sample labeled "EPLot/LFP1,NS1" was delivered to this laboratory by the client. Test results are shown below.



Sieve Size	Percent Passing by Weight 1-1/2"	1"	3/4"	3/8"	No.4	No.10	No.40	No.200
Actual	100	96	95	87	79	71	53	25.5

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

Smith Street • Stony Point, N.Y. 10980 • 914-942-2088

Clarkstown Landfill Remediation
Laboratory Services Request
#LL-2339-K3

For:
Mr. Reddy Kancharla
M & T/Namow/TCL
47 Hudson Street
Ossining, N.Y. 10562
PH (914)762-9000
FX (914)762-9638

From:
Roy F. Weston of New York
Clarkstown Field Office
166 Rte. 303
West Nyack, N.Y. 10994
PH (914)353-5221
FX (914)353-5491

Sample I.D.	Source	Misc	ASTM D422	D698	D2216	D2487	D4318	D2974		EPA 8020					Remarks
SF-04 NS-2	CB-WDAI	1 bkt	X	X	X	X	X								brn soil
SF-05 NS-3	CB-WDAI	"	X	X	X	X	X								red soil
SF-06 NS-1	CB-LFP1	"	X	X	X	X	X								pkg lot
SF-07 CS-2.1	WMX/Star	"	X	X	X	X	X	X		X					possible CS delivered sample
SF-08 —	WMX/Star re-screened	"	X	X	X	X	X	X		X					no transmittal # 2nd batch
SFA-02 5D	Tilcon	"	X												re-test stockpiled

Received By: Grasped

Date/Time: 10-16-96 / 1:50

Delivered By: John C Woodley

Results Required, Date/Time: 10-21-96 / 10:00

TESTWELL CRAIG
LABORATORIES INCORPORATED

CORPORATE HEADQUARTERS: 47 HUDSON STREET, OSSINING, N.Y. 10562 (914) 762-9000 FAX (914) 762-9638

V. REDDY KANCHARLA, P.E., DIRECTOR
(NYS LIC. NO. 068162)

GRADATION AND STANDARD PROCTOR COMPACTION TESTING OF SOIL

CLIENT: Roy F. Weston, Inc., Sutton Park
PROJECT: Clarkstown Landfill
SAMPLE ID: SF-07 (Source: STAR Rec) CS-2
SAMPLED BY: Client
PICKUP/DEL BY: Client

LAB#: FOB-001
REPORT#: MC-08
DATE SAMPLED: 10/1796
DATE PICKUP/DEL: 10/17/96
DATE TESTED: 10/21/96

(A) **GRADATION TEST RESULTS (ASTM D422 & ASTM D1140)**

Sieve Size	Percent Passing (%)	Specifications	Sieve Size	Percent Passing (%)	Specifications
2-1/2"			#10	79.3	
2"	100.0		#16	73.4	
1-1/2"	95.5		#20	68.1	
1"	95.5		#30	59.2	
3/4"	92.5		#40	47.7	
1/2"	89.8		#50	38.3	
3/8"	88.8		#60	33.3	
1/4"	86.4		#80	27.4	
#4	84.8		#100	24.8	
#8	80.6		#200	18.4	

(B) **STANDARD PROCTOR COMPACTING TEST RESULTS (ASTM D698, Procedure B, 4" diameter mold)**
Optimum Water Content: 9.5%
Max. Unit Weight, Dry: 120.4 pcf
See attached figure for the compaction curve.

(C) **MOISTURE (ASTM D2216):** 9.9%

(D) **SOIL CLASSIFICATION (ASTM D2487):** SM Silty sand with gravel

(E) **SOIL DESCRIPTION:** m-f SAND, little Silt
COLOR: Light Gray; **ODOR:** None; **CONTAMINATION:** None

TESTWELL CRAIG LABORATORIES, INC.

Kaspal R. Thumma, Eng.Sc.D.
Laboratory Manager
KRT/mp

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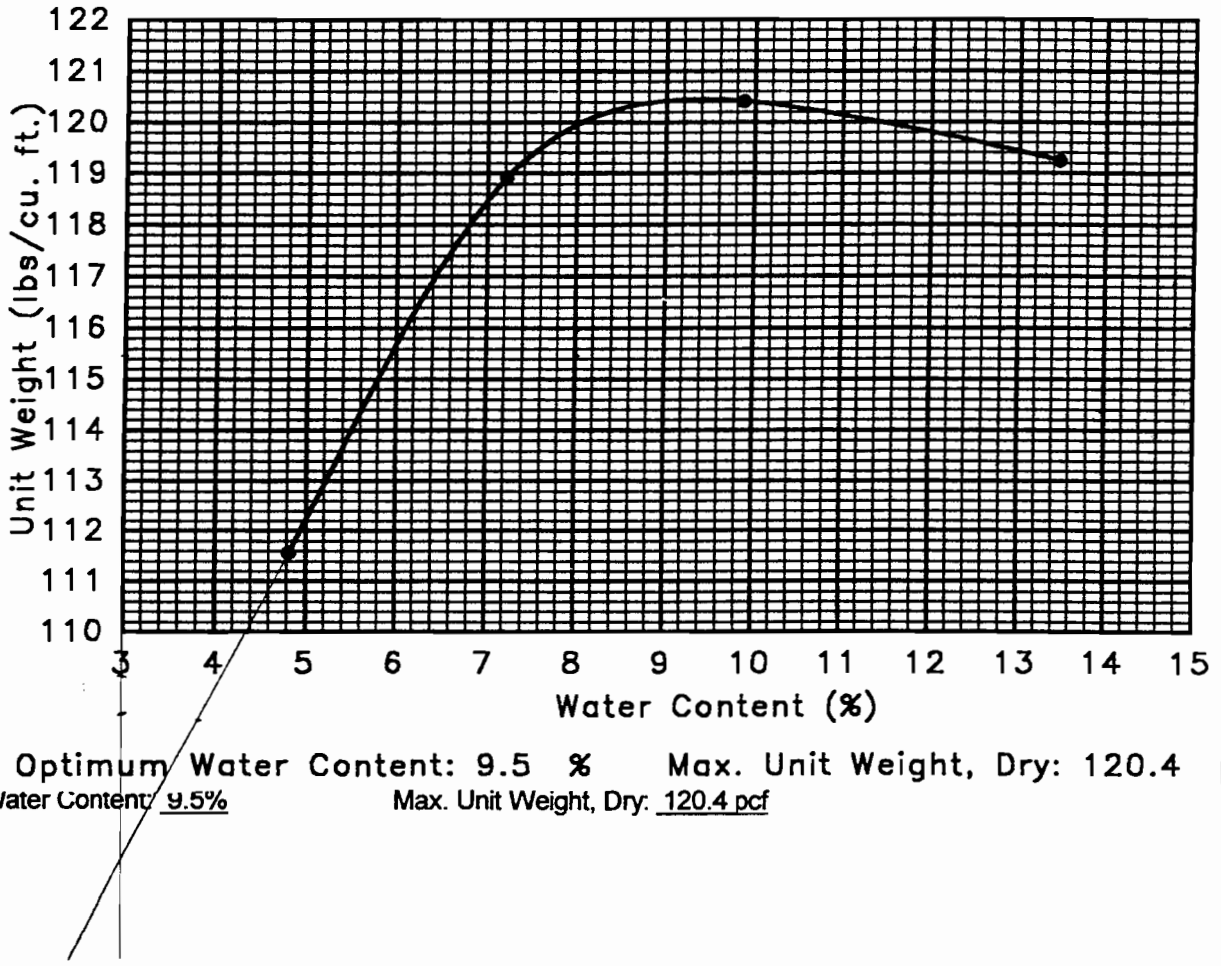
Roy F. Weston, Inc., Sutton Park
Lab #: FOB-001 Rpt #: MC-08

TEST METHOD: (ASTM D698 Procedure B, 4" Diameter Mold)

Specimen No.	1	2	3	4
Water Content (%)	4.82	7.21	9.88	13.48
Unit Weight, Dry (lbs/cu.ft.)	111.58	118.92	120.41	119.24



Optimum Water Content: 9.5 % Max. Unit Weight, Dry: 120.4 pcf

Optimum Water Content: 9.5% Max. Unit Weight, Dry: 120.4 pcf

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LABORATORIES INCORPORATED

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V. REDDY KANCHARLA, P.E., DIRECTOR
(NYS LIC. NO. 068162)

LIQUID LIMIT, PLASTIC LIMIT, AND ORGANIC CONTENT TESTING OF SOILS

CLIENT: Roy F. Weston
PROJECT: Clarkstown Landfill
SAMPLE ID: Indicated Below
SAMPLED BY: Client
PICK UP/DEL BY: Client

LAB #: FOB-001
REPORT#: MC-11
DATE PICK UP/DEL: 10/9/96
10/11/96,10/17/96
DATE TESTED: 10/25/96

(A) LIQUID LIMIT & PLASTIC LIMIT TEST RESULTS (ASTM D4318)

Soil Sample No.	Liquid Limit % Weight	Plastic Limit % Weight	Plastic Index
SF - 01	25.2	NP	0
SF - 03	16.0	NP	0
SF - 04	16.5	NP	0
SF - 05	25.0	17.5	7.5
SF - 06	16.5	NP	0
SF - 07	13.5	NP	0
SF - 08	29.7	25.1	4.6

NOTE: NP indicates that the soil is non-plastic since 1/8" diameter thread could not be rolled at any moisture content.

(B) ORGANIC CONTENT TEST RESULTS (ASTM D 2974)

Soil Sample No.	Organic Content % of Ovenride Sample
SF - 07	1.8
SF - 08	9.8

TESTWELL CRAIG LABORATORIES

Kaspal R. Thumma, Eng.Sc.D.
Laboratory Manager
KRT/mp

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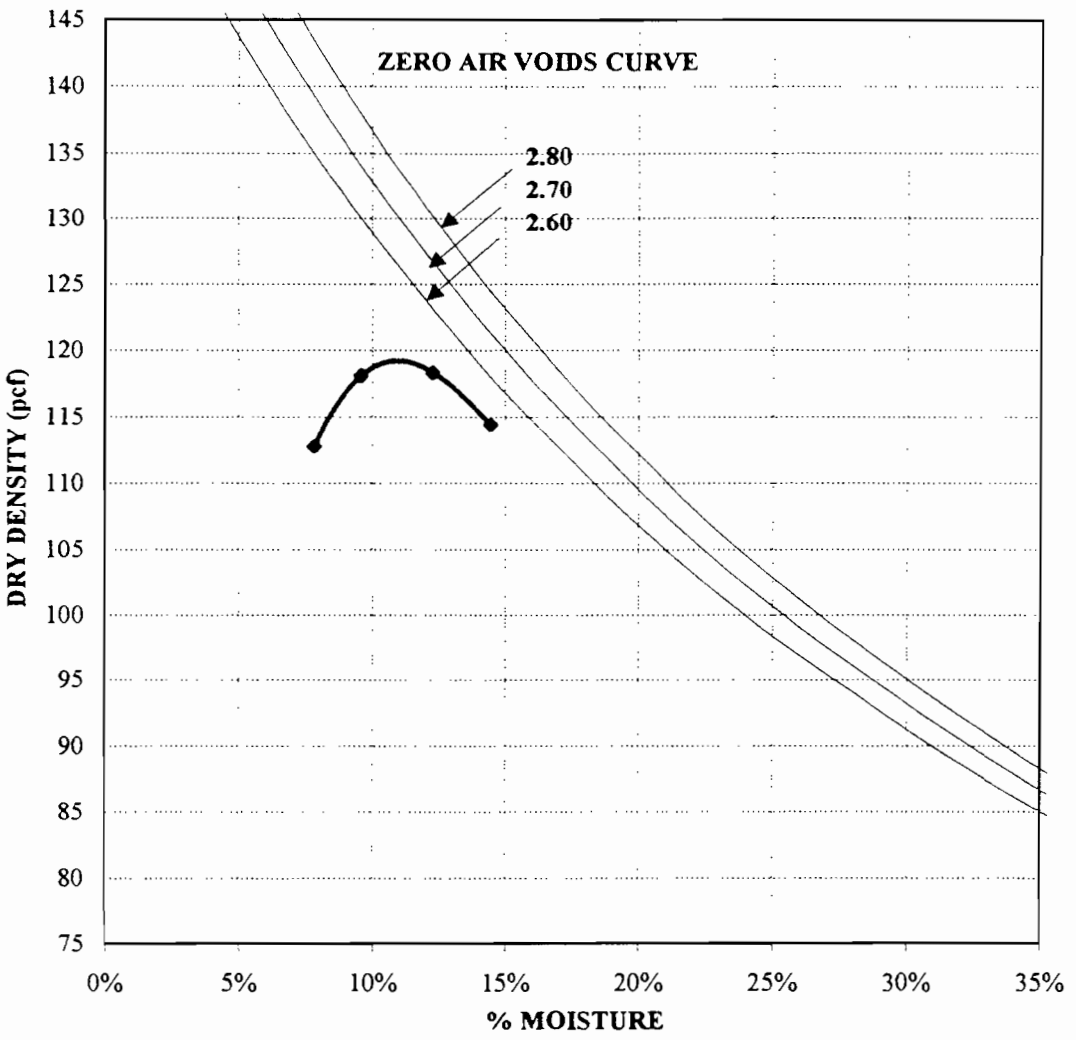
MOISTURE-DENSITY CURVE
ASTM D 698

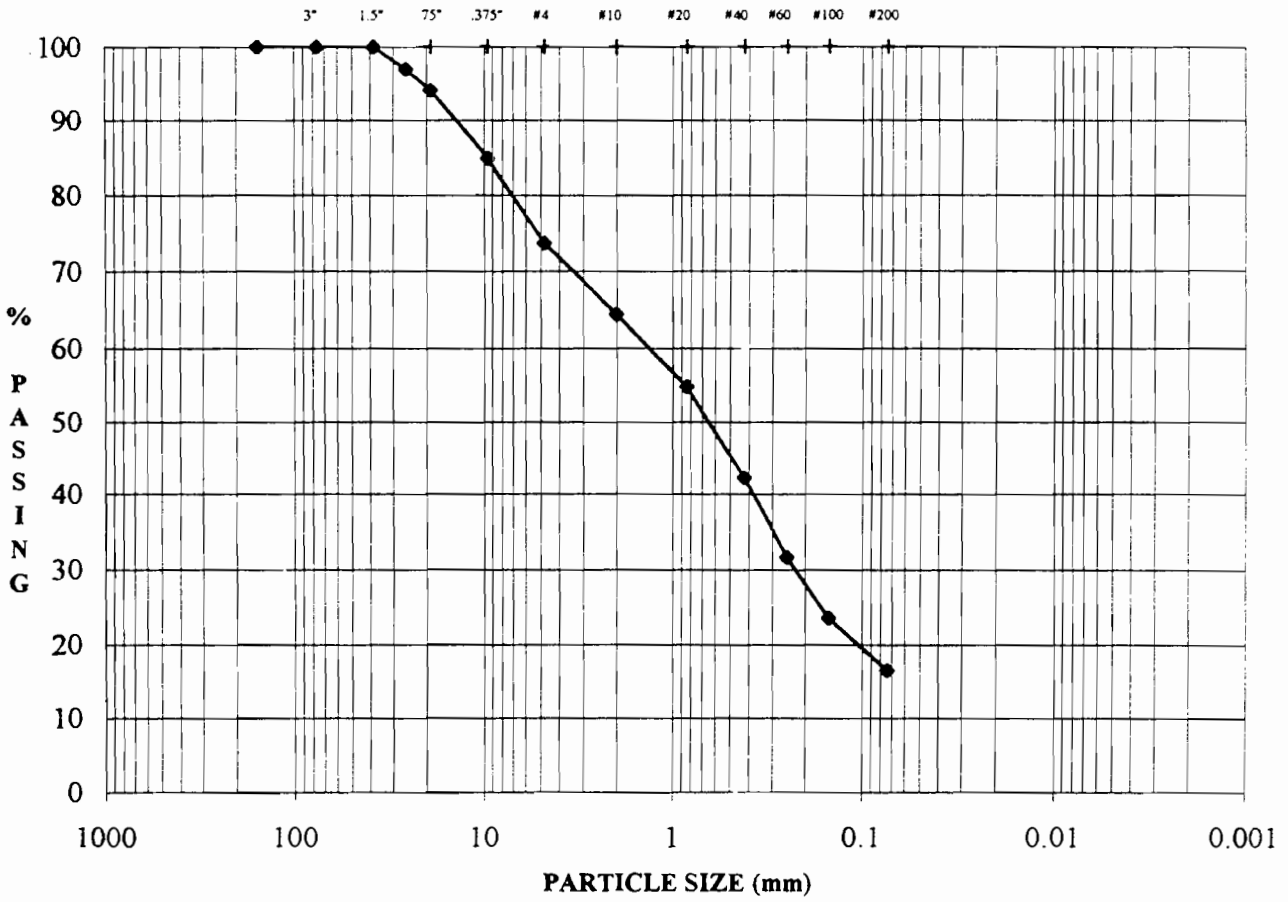


SAMPLE #:	CS-2	MAXIMUM DRY DENSITY (pcf)	119.00
		OPTIMUM MOISTURE (%)	11.00
DESCRIPTION:	Dark brown Silty sand with gravel (SM)	DELIVERED MOISTURE (%)	11.12
		LL:	24
		PL:	23
		PI:	1
		DATE:	08/26/96
		TECH:	RDD
		REVIEW:	RMW

OGDEN/CLSRKSTOWN LF/NY

GOLDER ASSOCIATES INC.
MT. LAUREL, NEW JERSEY

PARTICLE-SIZE DISTRIBUTION ASTM D 421 AND D 422
US STANDARD SIEVE OPENING SIZES



COBBLES	Coarse	Fine	Cor	Med	Fine	Silt or Clay Size
	GRAVEL		SAND			FINES

SAMPLE #:	CS-2
DESCRIPTION:	Dark brown Silty sand with gravel (SM)

Mc:	11.12%
LL:	24
PL:	23
PI :	1
Gs:	2.66

OGDEN/CLARKSTOWN LF/NY

DATE	08/21/96
TECH	RDD
REVIEW	RMW

GOLDER ASSOCIATES INC.
MT. LAUREL, NEW JERSEY

PARTICLE-SIZE ANALYSIS OF SOILS

ASTM C 117, C 136, D 421, D 422, D 1140, D 2216, D 2217

OGDEN/CLARKSTOWN LF/NY	SAMPLE #:	CS-2

MOISTURE CONTENT (Delivered Moisture)		200 WASH (Percent Fines)	
tare #	RW16	tare #	RW16
wt soil&tare,moist (g)	1743.20	wt soil&tare,before wash (g)	1584.37
wt soil&tare,dry (g)	1584.37	wt soil&tare,after wash (g)	1347.71
wt tare (g)	155.94	wt tare (g)	155.94
wt moisture (g)	158.83	wt fines lost (g)	236.66
wt dry soil (g)	1428.43	wt dry soil (g)	1428.43
% moisture	**11.12%**	% fines lost	**16.57%**

	SIEVE	wt ret	% ret	% pass	SIEVE	
coarse gravel	3.000		0.00%	**100.00%**	3.000	coarse gravel
	1.500		0.00%	**100.00%**	1.500	
	1.000	42.70	2.99%	**97.01%**	1.000	
fine gravel	0.750	84.36	5.91%	**94.09%**	0.750	fine gravel
	0.375	215.90	15.11%	**84.89%**	0.375	
coarse sand	#4	375.34	26.28%	**73.72%**	#4	coarse sand
medium sand	#10	507.44	35.52%	**64.48%**	#10	medium sand

SPLITTING INFORMATION

Wt in pan, from coarse sieve stack	684.33
Wt split for fine sieve stack	150.14
Percent of original wt in pan	21.94%

	#20	30.28	45.19%	**54.81%**	#20	
fine sand	#40	69.68	57.76%	**42.24%**	#40	fine sand
	#60	102.71	68.30%	**31.70%**	#60	
	#100	128.22	76.44%	**23.56%**	#100	
	#200	150.14	83.43%	**16.57%**	#200	
fines	PAN	150.14	83.43%	**16.57%**	PAN	fines

% C GRVL:	**5.91%**	Wet Color:	**Dark brown**		
% F GRVL:	**20.37%**	Description:	**Silty sand**		
% C SAND:	**9.25%**		**with gravel (SM)**		
% M SAND:	**22.23%**	LL:	**24**		
% F SAND:	**25.67%**	PL:	**23**	DATE	08/21/96
% FINES:	**16.57%**	PI :	**1**	TECH	RDD
% TOTAL:	**100.00%**	Gs:	**2.66**	REVIEW	RMW

GOLDER ASSOCIATES INC.

MT.LAUREL, NEW JERSEY

CONSOLIDATED UNDRAINED W[illegible]H PORE PRESSURE MEASUREMENT

ASTM D 4767

OGDEN/CLARKSTOWN LF/NY	SAMPLE #:	CS-2	DESCRIPTION:	Dark brown Silty sand with gravel (SM)

SAMPLE DATA

height (in)	5.951	confining pressure (psi)	2	**MOISTURE CONTENT**	
diameter (in)	2.855	machine speed (in/min)	0.12	tare #	6
area (in^2)	6.402	strain rate (%/min)	2.02	wt soil&tare,moist	1647.33
height/diameter ratio	2.08	final "B" value	0.98	wt soil&tare,dry	1452.89
volume (in^3)	38.10	t50 (min)	0.2	wt tare	350.48
% moisture,initial	13.00%	volume,solids	20.40	wt moisture	194.44
weight (g)	1046.25	volume,voids	17.69	wt dry soil	1102.41
specific gravity	2.66	void ratio	0.867	% moisture,final	17.64%
moist density (pcf)	104.57	% saturation,initial	54.10%		
dry density (pcf)	92.54	% saturation,final	67.06%		

SAMPLE DATA

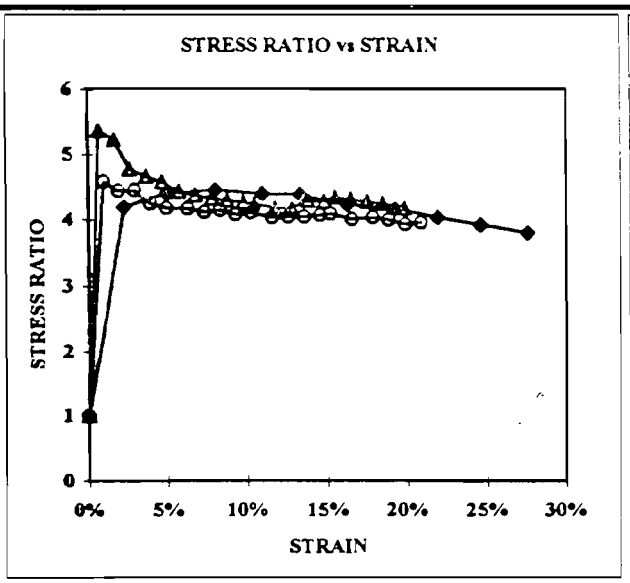
height (in)	6.037	confining pressure (psi)	4	**MOISTURE CONTENT**	
diameter (in)	2.852	machine speed (in/min)	0.13	tare #	RW13
area (in^2)	6.388	strain rate (%/min)	2.15	wt soil&tare,moist	1470.04
height/diameter ratio	2.12	final "B" value	0.99	wt soil&tare,dry	1258.22
volume (in^3)	38.57	t50 (min)	0.4	wt tare	153.10
% moisture,initial	13.00%	volume,solids	24.03	wt moisture	211.82
weight (g)	1248.38	volume,voids	14.53	wt dry soil	1105.12
specific gravity	2.66	void ratio	0.605	% moisture,final	19.17%
moist density (pcf)	123.26	% saturation,initial	84.31%		
dry density (pcf)	109.08	% saturation,final	88.94%		

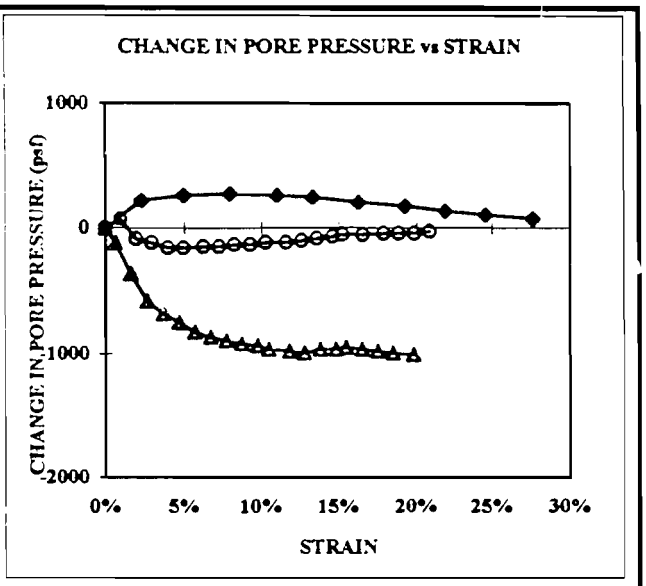
SAMPLE DATA

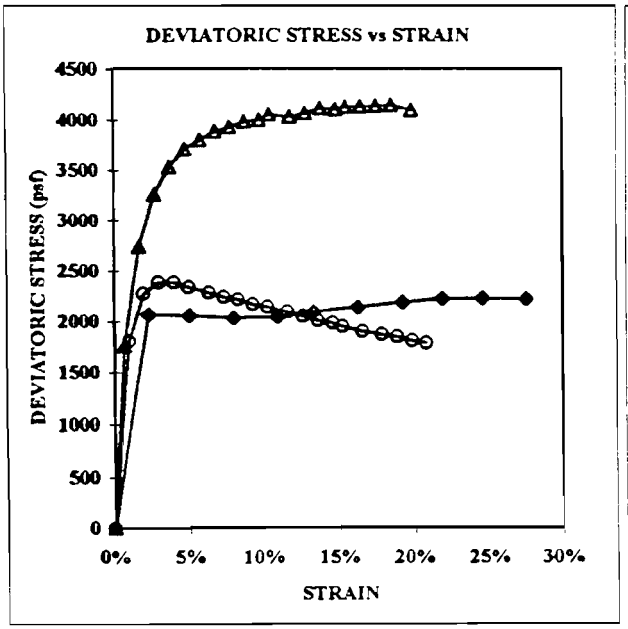
height (in)	6.019	confining pressure (psi)	6	**MOISTURE CONTENT**	
diameter (in)	2.852	machine speed (in/min)	0.07	tare #	RW6
area (in^2)	6.388	strain rate (%/min)	1.16	wt soil&tare,moist	1453.98
height/diameter ratio	2.11	final "B" value	0.97	wt soil&tare,dry	1257.70
volume (in^3)	38.45	t50 (min)	0.2	wt tare	151.99
% moisture,initial	13.00%	volume,solids	24.32	wt moisture	196.28
weight (g)	1248.10	volume,voids	14.14	wt dry soil	1105.71
specific gravity	2.66	void ratio	0.581	% moisture,final	17.75%
moist density (pcf)	123.60	% saturation,initial	81.23%		
dry density (pcf)	109.38	% saturation,final	84.74%		

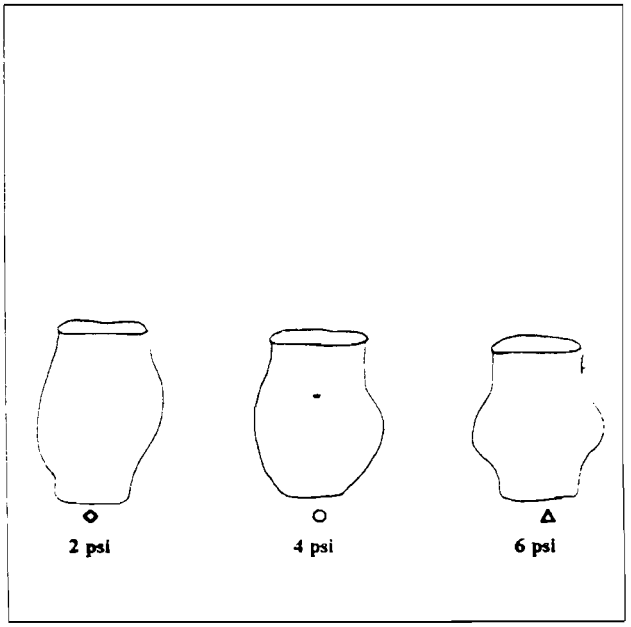
GOLDER ASSOCIATES INC.
MT. LAUREL, NEW JERSEY

CONSOLIDATED UNDRAINED WITH PORE PRESSURE MEASUREMENT
ASTM D 4767









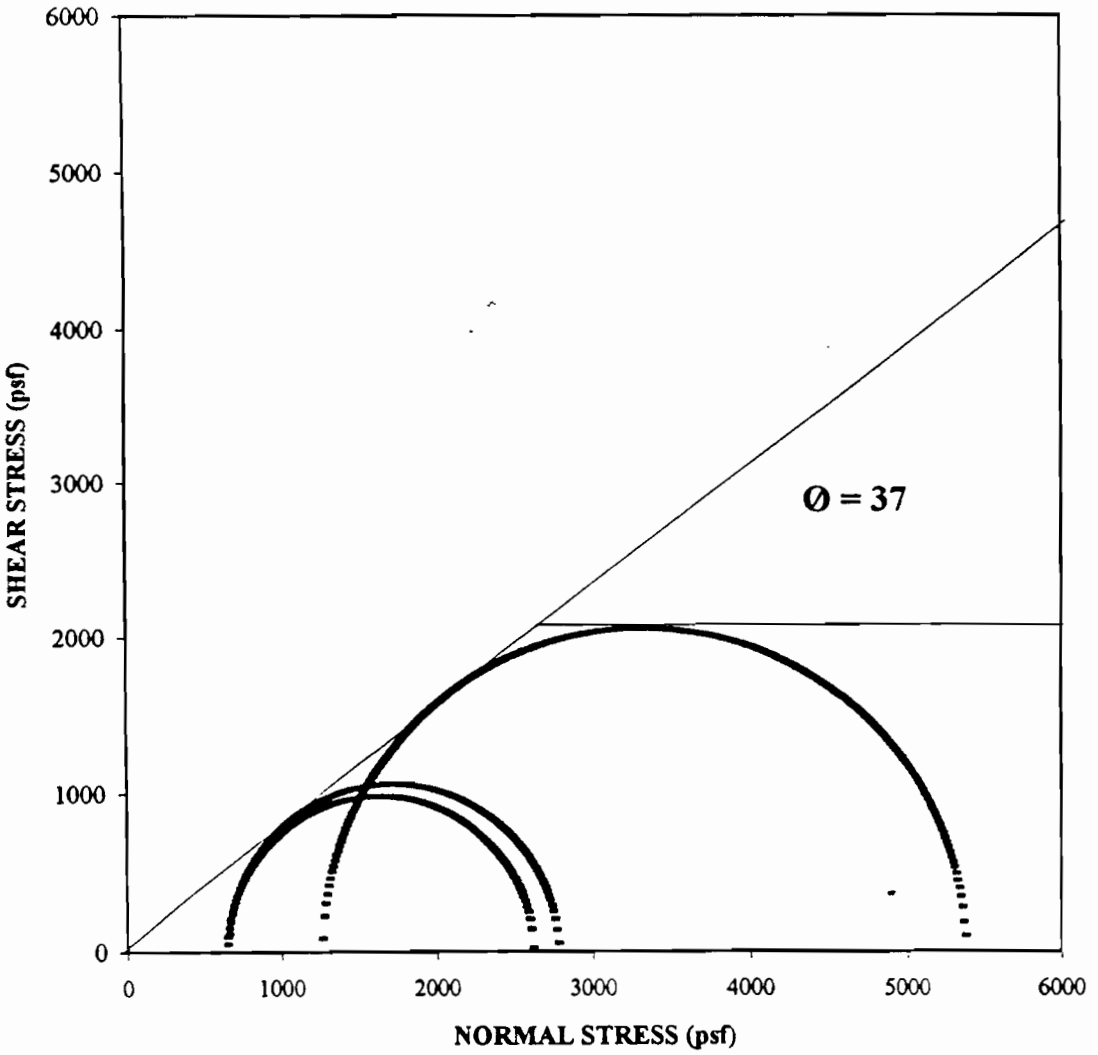
SAMPLE #:	CS-2	CONFINING PRES(psi)	2	4	6
		MOIST DENSITY(pcf)	104.57	123.26	123.60
DESCRIPTION:	Dark brown	% MOISTURE	17.64%	19.17%	17.75%
	Silty sand	STRAIN RATE(%/min)	2.02	2.15	1.16
	with gravel (SM)	FAILURE BASED UPON 15% STRAIN			

DATE	9/9/96
TECH	JMP/RMW
REVIEW	RMW

OGDEN/CLARKSTOWN LF/NY

GOLDER ASSOCIATES INC.
MT. LAUREL, NEW JERSEY

CONSOLIDATED UNDRAINED WITH PORE PRESSURE MEASUREMENT
ASTM D 4767



			2	4	6
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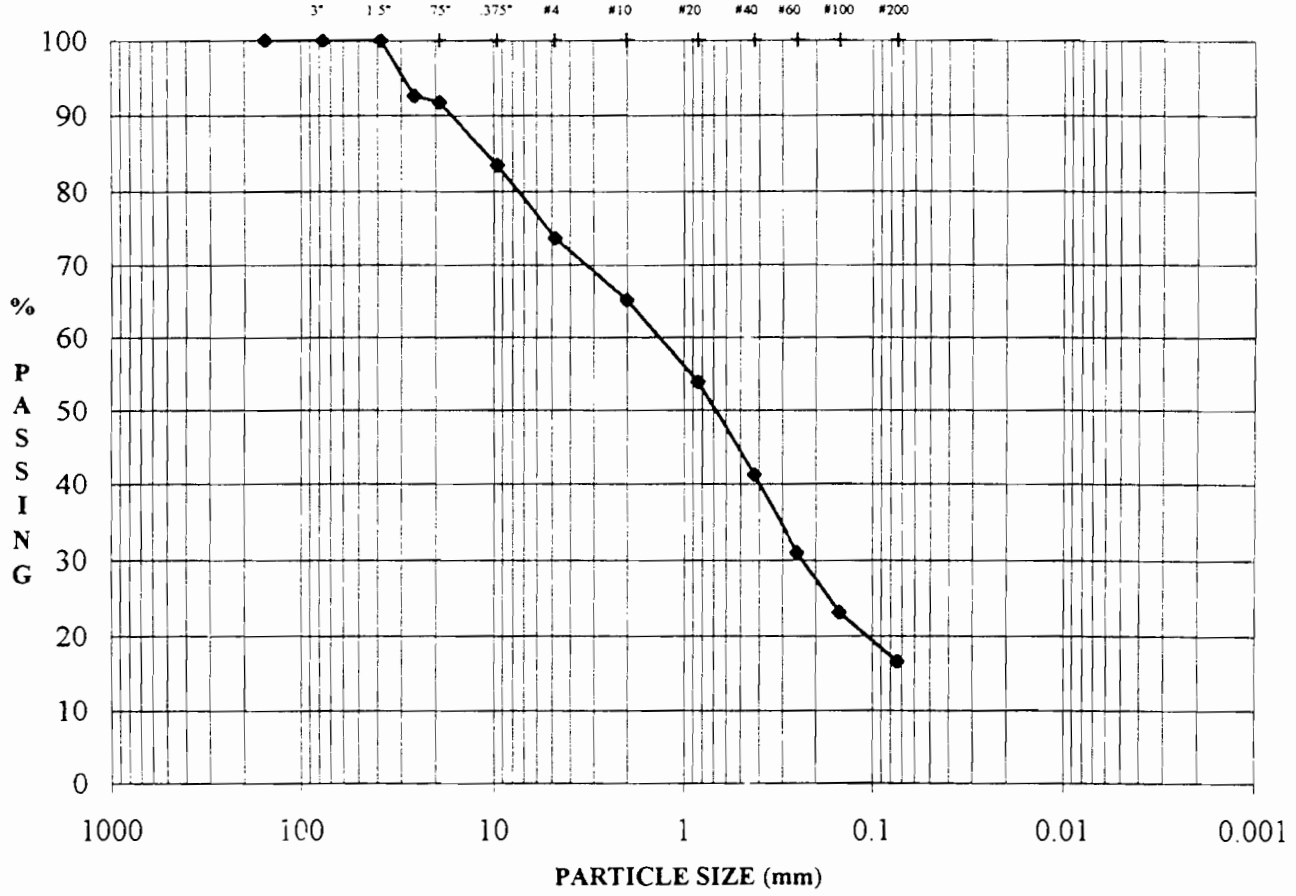
DATE	9/9/96
TECH	JMP/RMW
REVIEW	RMW

OGDEN/CLARKSTOWN LF/NY

GOLDER ASSOCIATES INC.
MT. LAUREL, NEW JERSEY

PARTICLE-SIZE DISTRIBUTION ASTM D 421 AND D 422
US STANDARD SIEVE OPENING SIZES



	Coarse	Fine	Cor	Med	Fine	Silt or Clay Size
COBBLES	GRAVEL		SAND			FINES

SAMPLE #:	CS-2.1
DESCRIPTION:	Dark brown Silty sand with gravel (SM)

Mc:	11.12%
LL:	23
PL:	22.6
PI :	0.4
Gs:	2.66

OGDEN/CLARKSTOWN LF/NY

DATE	09/10/96
TECH	RDD
REVIEW	RMW

GOLDER ASSOCIATES INC.
MT. LAUREL, NEW JERSEY

PARTICLE-SIZE ANALYSIS OF SOILS

ASTM C 117, C 136, D 421, D 422, D 1140, D 2216, D 2217

OGDEN/CLARKSTOWN LF/NY	SAMPLE #:	CS-2.1

MOISTURE CONTENT (Delivered Moisture)		200 WASH (Percent Fines)	
tare #	RW16	tare #	88
wt soil&tare,moist (g)	1743.20	wt soil&tare,before wash (g)	1446.87
wt soil&tare,dry (g)	1584.37	wt soil&tare,after wash (g)	1260.85
wt tare (g)	155.94	wt tare (g)	325.04
wt moisture (g)	158.83	wt fines lost (g)	186.02
wt dry soil (g)	1428.43	wt dry soil (g)	1121.83
% moisture	**11.12%**	% fines lost	**16.58%**

	SIEVE	wt ret	% ret	% pass	SIEVE	
coarse gravel	3.000		0.00%	**100.00%**	3.000	coarse gravel
	1.500		0.00%	**100.00%**	1.500	
	1.000	82.32	7.34%	**92.66%**	1.000	
fine gravel	0.750	92.07	8.21%	**91.79%**	0.750	fine gravel
	0.375	185.46	16.53%	**83.47%**	0.375	
coarse sand	#4	294.43	26.25%	**73.75%**	#4	coarse sand
medium sand	#10	391.17	34.87%	**65.13%**	#10	medium sand

SPLITTING INFORMATION

Wt in pan, from coarse sieve stack	544.64
Wt split for fine sieve stack	69.77
Percent of original wt in pan	12.81%

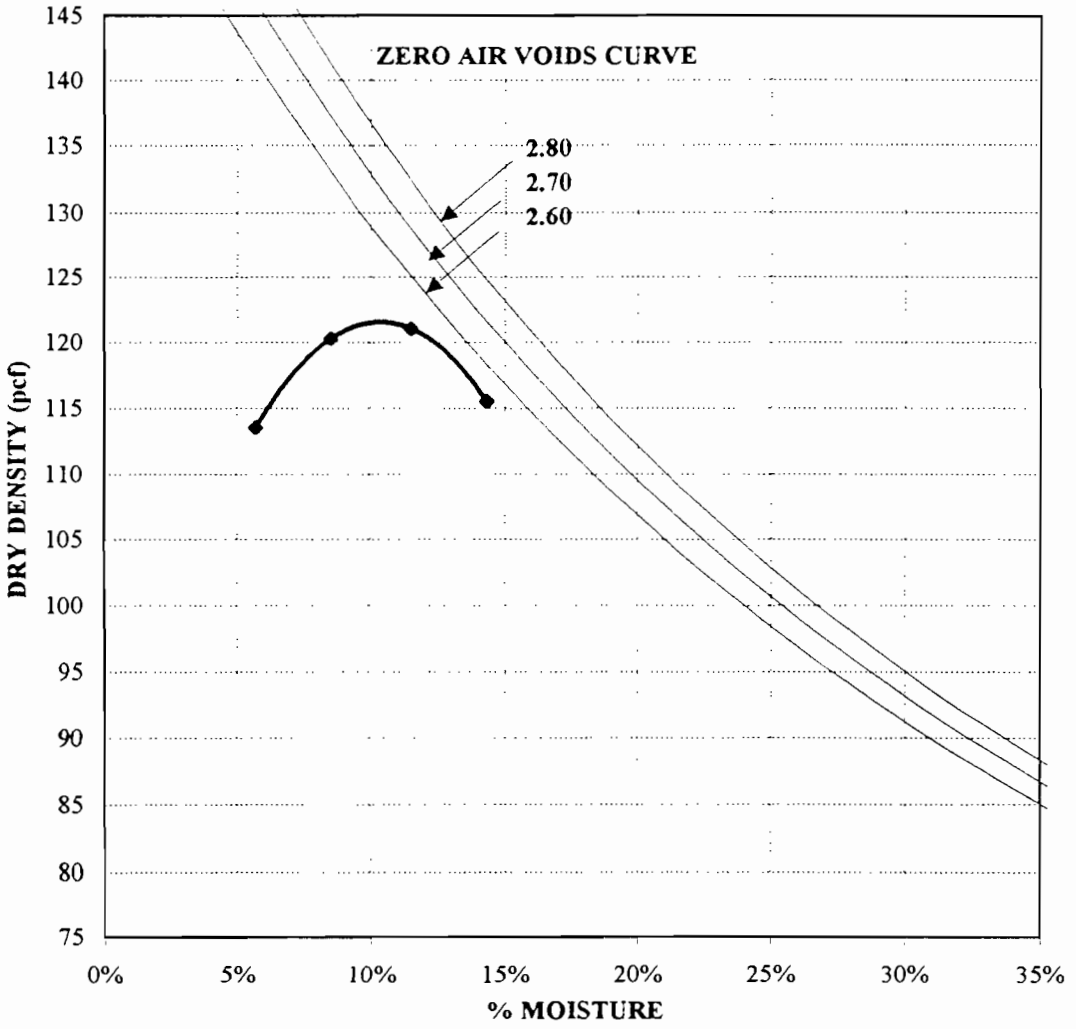
	#20	16.10	46.07%	**53.93%**	#20	
fine sand	#40	34.36	58.78%	**41.22%**	#40	fine sand
	#60	49.06	69.01%	**30.99%**	#60	
	#100	60.26	76.80%	**23.20%**	#100	
	#200	69.77	83.42%	**16.58%**	#200	
fines	PAN	69.77	83.42%	**16.58%**	PAN	fines

% C GRVL:	**8.21%**	Wet Color:	**Dark brown**		
% F GRVL:	**18.04%**	Description:	**Silty sand**		
% C SAND:	**8.62%**		**with gravel (SM)**		
% M SAND:	**23.91%**	LL:	**23**		
% F SAND:	**24.64%**	PL:	**22.6**	DATE	09/10/96
% FINES:	**16.58%**	PI :	**0.4**	TECH	RDD
% TOTAL:	**100.00%**	Gs:	**2.66**	REVIEW	RMW

GOLDER ASSOCIATES INC.

MT.LAUREL, NEW JERSEY

MOISTURE-DENSITY CURVE
ASTM D 698



SAMPLE #:	CS-2X I	**MAXIMUM DRY DENSITY (pcf)**	121.50
		OPTIMUM MOISTURE (%)	10.50
DESCRIPTION:	Dark brown Silty sand with gravel (SM)	**DELIVERED MOISTURE (%)**	11.12
		LL:	23
		PL:	22.6
		PI:	0.4
		DATE:	09/11/96
		TECH:	RDD
		REVIEW:	RMW

OGDEN/CLSRKSTOWN LF/NY

GOLDER ASSOCIATES INC.
MT. LAUREL, NEW JERSEY

CONSOLIDATED UNDRAINED TH PORE PRESSURE MEASUREMENT

ASTM D 4767

OGDEN/CLARKSTOWN LF/NY	SAMPLE #: CS-2.1	DESCRIPTION: Dark brown Silty sand with gravel (SM)

SAMPLE DATA

height (in)	5.989
diameter (in)	2.842
area (in^2)	6.344
height/diameter ratio	2.11
volume (in^3)	37.99
% moisture,initial	12.70%
weight (g)	1260.63
specific gravity	2.66
moist density (pcf)	126.35
dry density (pcf)	112.11

confining pressure (psi)	2
machine speed (in/min)	0.12
strain rate (%/min)	2.00
final "B" value	0.95
t50 (min)	0.2
volume,solids	24.92
volume,voids	13.07
void ratio	0.525
% saturation,initial	81.44%
% saturation,final	83.87%

MOISTURE CONTENT

tare #	GH12
wt soil&tare,moist	2060.79
wt soil&tare,dry	1881.10
wt tare	762.58
wt moisture	179.69
wt dry soil	1118.52
% moisture,final	16.06%

SAMPLE DATA

height (in)	5.983
diameter (in)	2.853
area (in^2)	6.393
height/diameter ratio	2.10
volume (in^3)	38.25
% moisture,initial	12.70%
weight (g)	1255.49
specific gravity	2.66
moist density (pcf)	124.99
dry density (pcf)	110.91

confining pressure (psi)	4
machine speed (in/min)	0.13
strain rate (%/min)	2.17
final "B" value	0.95
t50 (min)	0.4
volume,solids	24.71
volume,voids	13.54
void ratio	0.548
% saturation,initial	80.42%
% saturation,final	83.18%

MOISTURE CONTENT

tare #	MD3
wt soil&tare,moist	2256.31
wt soil&tare,dry	2071.76
wt tare	957.71
wt moisture	184.55
wt dry soil	1114.05
% moisture,final	16.57%

SAMPLE DATA

height (in)	5.952
diameter (in)	2.854
area (in^2)	6.397
height/diameter ratio	2.09
volume (in^3)	38.08
% moisture,initial	12.70%
weight (g)	1254.95
specific gravity	2.66
moist density (pcf)	125.50
dry density (pcf)	111.36

confining pressure (psi)	6
machine speed (in/min)	0.07
strain rate (%/min)	1.18
final "B" value	0.91
t50 (min)	0.2
volume,solids	24.78
volume,voids	13.29
void ratio	0.536
% saturation,initial	80.17%
% saturation,final	82.64%

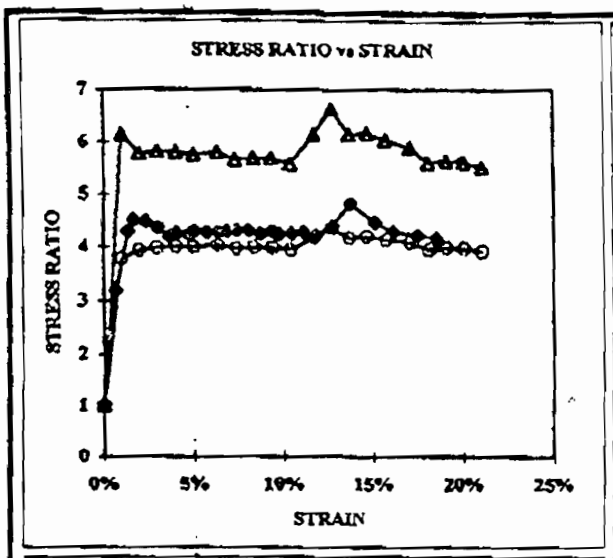
MOISTURE CONTENT

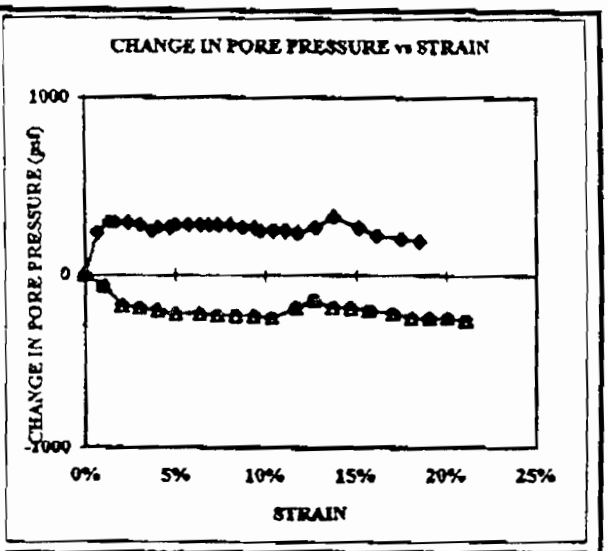
tare #	MD4
wt soil&tare,moist	2312.02
wt soil&tare,dry	2132.00
wt tare	1018.43
wt moisture	180.02
wt dry soil	1113.57
% moisture,final	16.17%

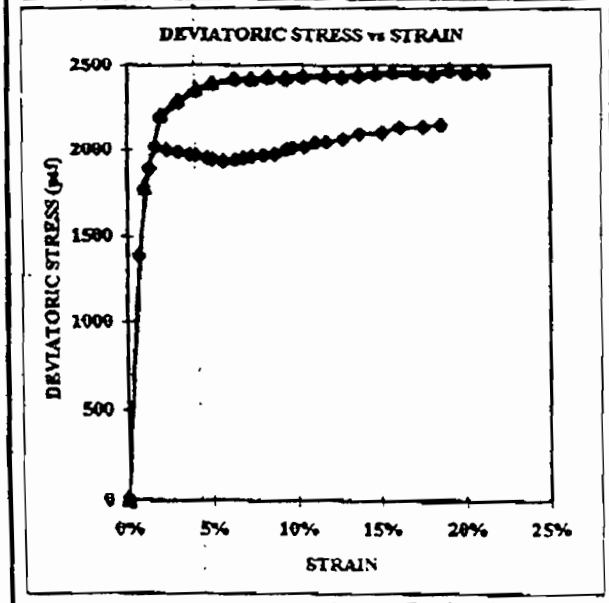
GOLDER ASSOCIATES INC.
MT. LAUREL, NEW JERSEY

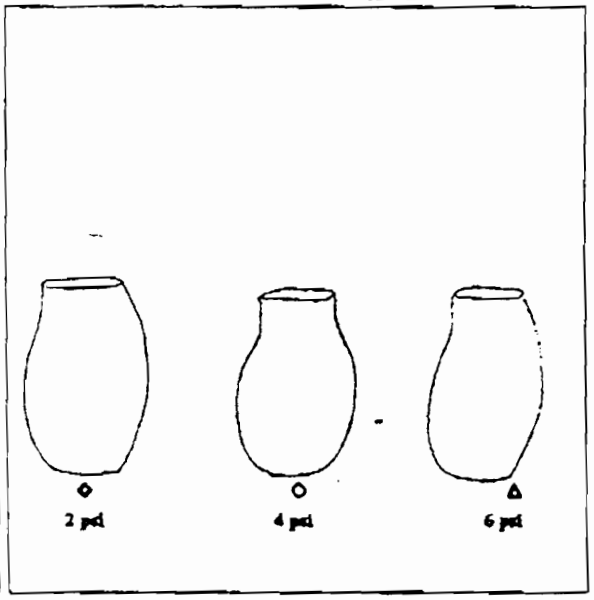
CONSOLIDATED UNDRAINED WITH PORE PRESSURE MEASUREMENT

ASTM D 4767









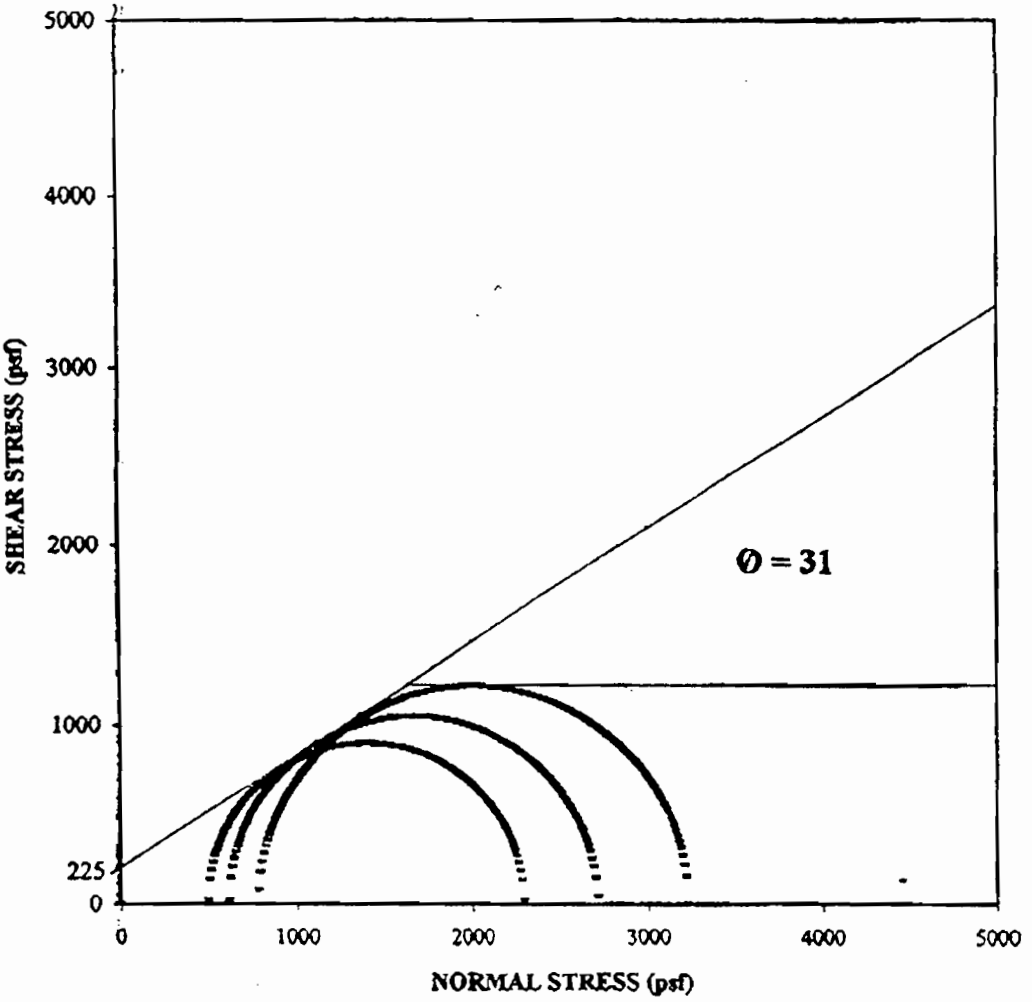
SAMPLE #:	CS-2.1	CONFINING PRES(psi)	2	4	6
		MOIST DENSITY(pcf)	126.35	124.99	125.50
DESCRIPTION:	Dark brown	% MOISTURE	16.06%	16.57%	16.17%
	Silty sand	STRAIN RATE(%/min)	2.00	2.17	1.18
	with gravel (SM)	FAILURE BASED UPON 15% STRAIN			

DATE	9/19/96
TECH	JMP/RMW
REVIEW	RMW

OGDEN/CLARKSTOWN LF/NY

GOLDER ASSOCIATES INC.
MT. LAUREL, NEW JERSEY

CONSOLIDATED UNDRAINED WITH PORE PRESSURE MEASUREMENT
ASTM D 4767



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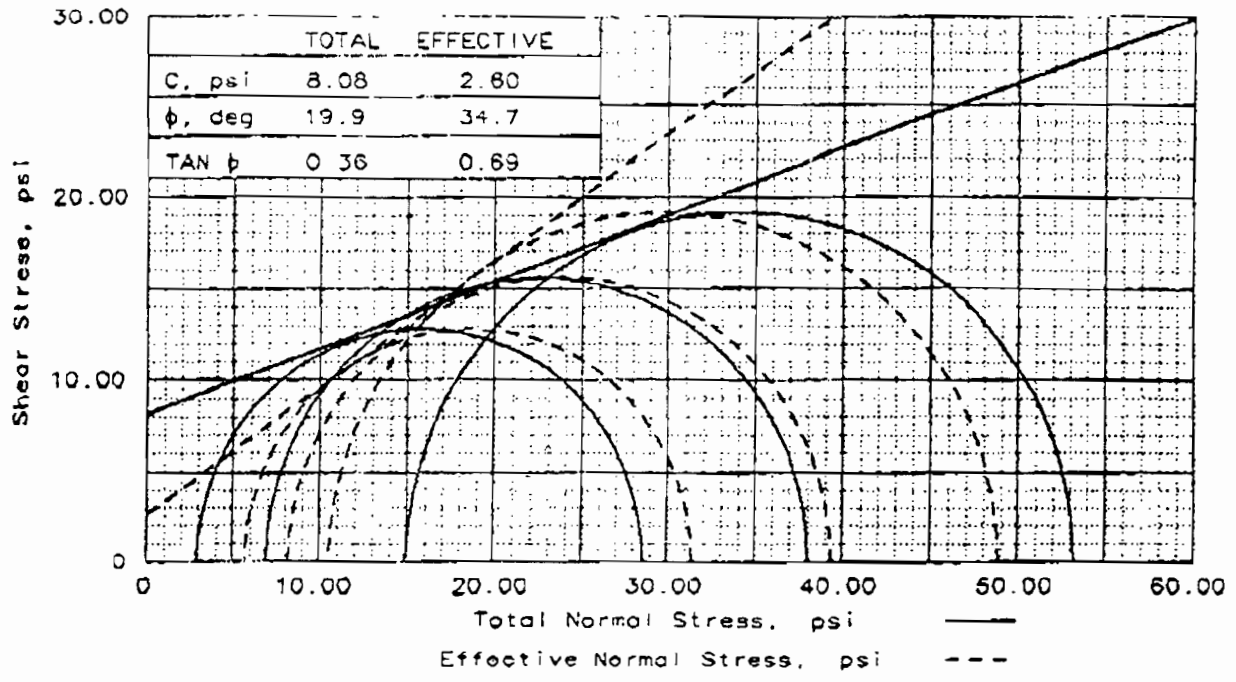
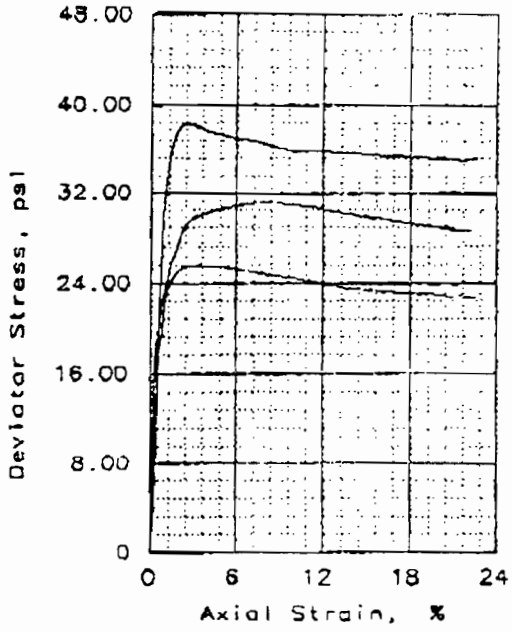
DATE	9/19/96
TECH	JMP/RMW
REVIEW	RMW

OGDEN/CLARKSTOWN LF/NY

GOLDER ASSOCIATES INC.
MT. LAUREL, NEW JERSEY





SAMPLE NO.		1	2	3
INITIAL	WATER CONTENT, %	11.0	11.0	11.0
	DRY DENSITY, pcf	107.2	107.2	107.2
	SATURATION, %	53.8	53.7	53.8
	VOID RATIO	0.544	0.543	0.543
	DIAMETER, in	2.80	2.80	2.80
	HEIGHT, in	6.00	6.00	6.00
AT TEST	WATER CONTENT, %	12.7	12.2	14.2
	DRY DENSITY, pcf	123.7	125.0	120.2
	SATURATION, %	100.0	100.0	100.0
	VOID RATIO	0.337	0.324	0.377
	DIAMETER, in	2.61	2.60	2.65
	HEIGHT, in	6.00	5.99	5.98
Strain rate, in/min		0.050	0.050	0.050
BACK PRESSURE, psi		55.00	55.00	55.00
CELL PRESSURE, psi		58.00	62.00	70.00
FAILURE STRESS, psi		25.64	31.13	38.29
PORE PRESSURE, psi		52.20	53.70	59.40
ULTIMATE STRESS, psi				
PORE PRESSURE, psi				
$\bar{\sigma}_1$ FAILURE, psi		31.44	39.43	48.89
$\bar{\sigma}_3$ FAILURE, psi		5.8	8.3	10.6

TYPE OF TEST:
CU with pore pressures
SAMPLE TYPE: REMOLDED
DESCRIPTION: WMX COVER SOIL
SCREENING TEST
LL= PL= PI=
SPECIFIC GRAVITY= 2.65
REMARKS: SAMPLE COMPACTED TO 90 PERCENT OF SPMOD AT OPTIMUM MOISTURE CONTENT

FIG. NO. CS2.2

CLIENT: OGDEN REMEDIATION

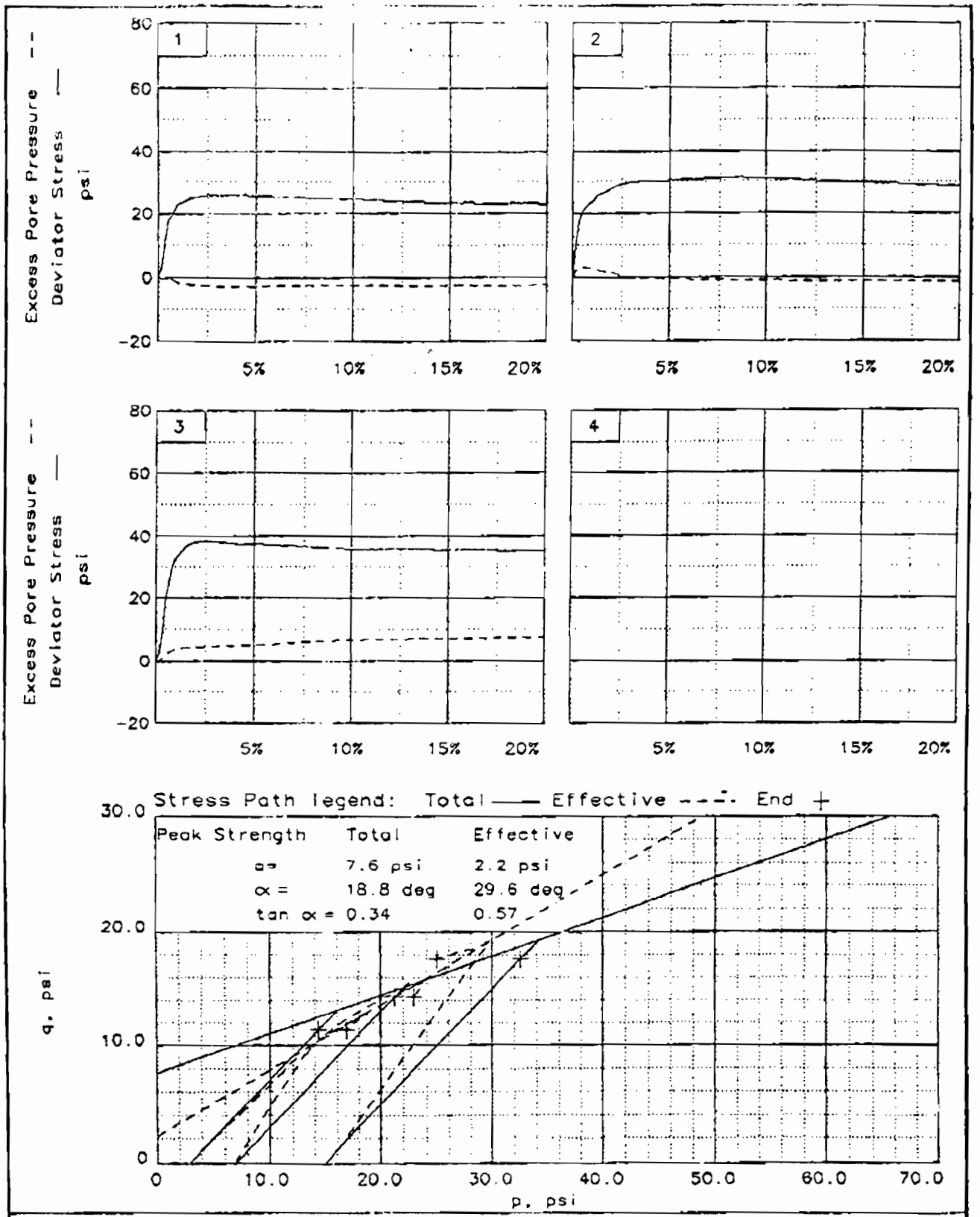
PROJECT: CLARKSTOWN

SAMPLE LOCATION: WEST NYACK

PROJ. NO.: 96S2111-01 DATE: 10-31-96

TRIAXIAL SHEAR TEST REPORT

J & L TESTING CO., INC.



Client: OGDEN REMEDIATION
Project: CLARKSTOWN
Location: WEST NYACK
File: OGD-CS22 Project No.: 96S2111-01 Page 2/2 Fig. No. CS2.2

FAIRWAY

Soils Test Report

November 25, 1996

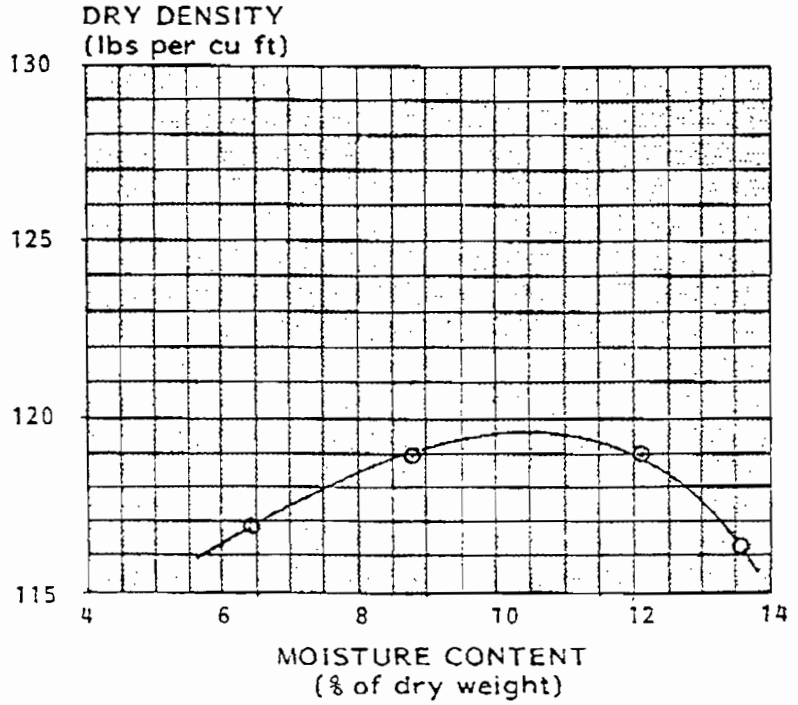
client Ogden Remediation Services

project Clarkstown Landfill

Compaction Method	ASTM D698
Maximum Dry Density	119.7 pcf
Optimum Moisture Content	10.8%

subject Moisture-Density Curve Analysis

On November 22, 1996, a representative from this firm visited the jobsite and picked-up soil sample CS-2.3. Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

Smith Street • Stony Point, N Y 10980 • 914-942-2088

2-13-1996 10:29AM FROM FAIRWAY TESTING CO 914 942 0985 P.3

FAIRWAY TESTING
CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH
P.O. BOX 578 · STONY POINT, NY 10980 TELEPHONE (914) 942-2088 FAX (914) 942-0595
SINCE 1949

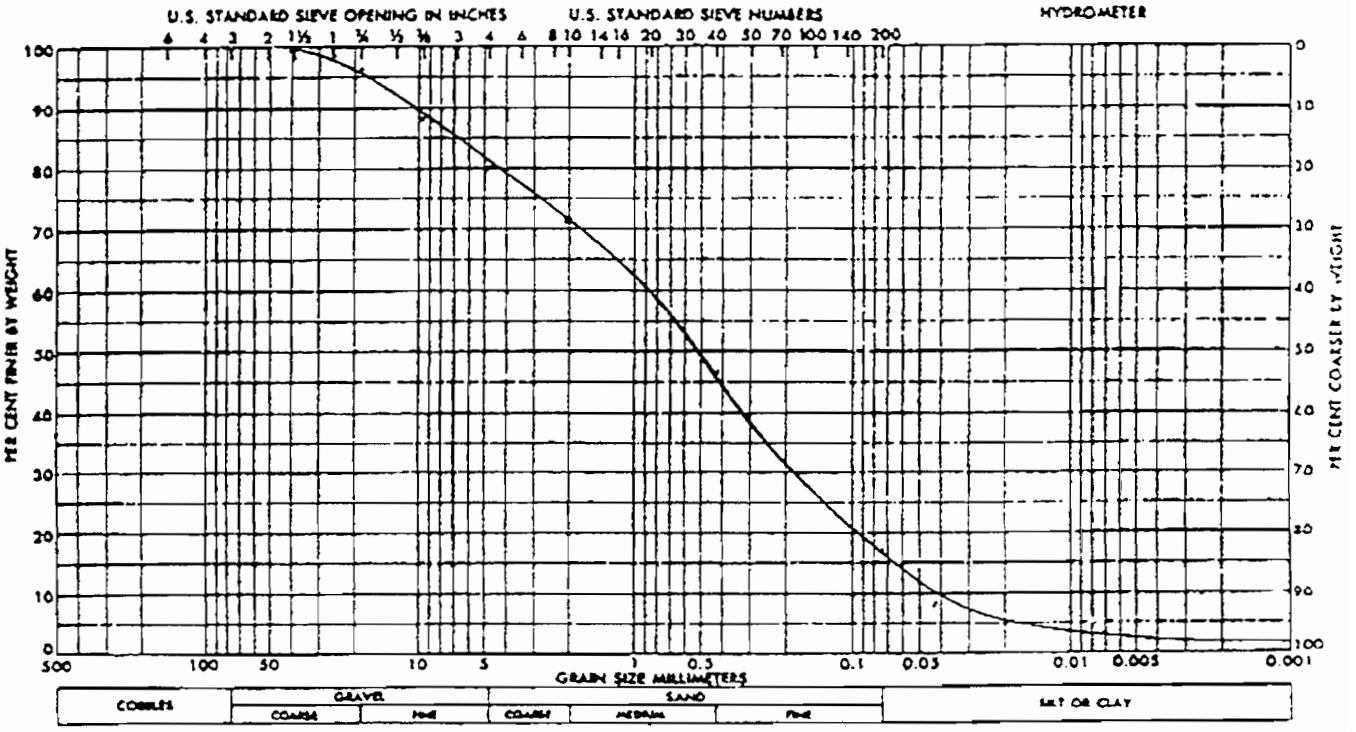
November 25, 1996

Grain Size Curve Analysis

client Ogden Remediation Services

project Clarkstown Landfill

On November 22, 1996, a representative from this firm visited the jobsite and picked-up soil sample CS-2.3. Test results are shown below.



Soil Classification (D2487): SM, silty sand w/gravel

Atterberg Limits (D4318): NP

Moisture Content (D2216): 11.4%

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

Clarkstown Landfill Remediation
Laboratory Services Request
#LL-2339-K3

For:
Mr. Reddy Kancharla
M & T/Namow/TCL
47 Hudson Street
Ossining, N.Y. 10562
PH (914)762-9000
FX (914)762-9638

From:
Roy F. Weston of New York
Clarkstown Field Office
166 Rte. 303
West Nyack, N.Y. 10994
PH (914)353-5221
FX (914)353-5491

Sample I.D.	Source	Misc	ASTM D422	D698	D2216	D2487	D4318	D2974		EPA 8020					Remarks
SF-04 / NS-2	CB-WDA1	1 bkt	X	X	X	X	X								brn soil
SF-05 / NS-3	CB-WDA1	"	X	X	X	X	X								red soil
SF-06 / NS-1	CB-LFP1	"	X	X	X	X	X								pkg lot
SF-07 / CS-2.1	WMX/Star	"	X	X	X	X	X	X		X					possible CS delivered sample
SF-08 / —	WMX/Star re-screened	"	X	X	X	X	X	X		X					no Transmittal# 2nd batch
SFA-02 / 5D	Tilcon	"	X												re-test stockpiled

Received By: Grasped

Date/Time: 10-16-96 / 1:50

Delivered By: John C Woodley

Results Required, Date/Time: 10-21-96 / 10:00

TESTWELL CRAIG
ORATORIES INCORPORATED

CORPORATE HEADQUARTERS: 47 HUDSON STREET, OSSINING, N.Y. 10562 (914) 762-9000 FAX (914) 762-9638

V. REDDY KANCHARLA, P.E., DIRECTOR
(NYS LIC. NO. 068162)

GRADATION AND STANDARD PROCTOR COMPACTION TESTING OF SOIL

CLIENT: Roy F. Weston, Inc., Sutton Park
PROJECT: ClarKstown Landfill
SAMPLE ID: SF-08 (Source: ~~STAR Rec~~) AGM-
SAMPLED BY: Client FAILED
PICKUP/DEL BY: Client

LAB#: FOB-001
REPORT#: MC-09
DATE SAMPLED: 10/1796
DATE PICKUP/DEL: 10/17/96
DATE TESTED: 10/21/96

(A) GRADATION TEST RESULTS (ASTM D422 & ASTM D1140)

Sieve Size	Percent Passing (%)	Specifications	Sieve Size	Percent Passing (%)	Specifications
2-1/2"			#10	65.3	
2"			#16	57.5	
1-1/2"			#20	52.7	
1"	100.0		#30	46.0	
3/4"	94.7		#40	38.5	
1/2"	89.2		#50	32.2	
3/8"	85.7		#60	28.8	
1/4"	79.6		#80	24.4	
#4	75.8		#100	22.5	
#8	67.4		#200	18.1	

(B) **STANDARD PROCTOR COMPACTING TEST RESULTS (ASTM D698, Procedure B, 4" diameter mold)**
Optimum Water Content: 23.4%
Max. Unit Weight, Dry: 92.0 pcf
See attached figure for the compaction curve.

(C) **MOISTURE (ASTM D2216):** 21.5 %

(D) **SOIL CLASSIFICATION (ASTM D2487):** SM Silty sand with gravel

(E) **SOIL DESCRIPTION: c-m-f SAND, some m-f Gravel, little Silt**
COLOR: Gray; **ODOR:** Organic; **CONTAMINATION:** Wood and other organic materials

TESTWELL CRAIG LABORATORIES, INC.

Kaspal R. Thumma, Eng.Sc.D.
Laboratory Manager
KRT/mp

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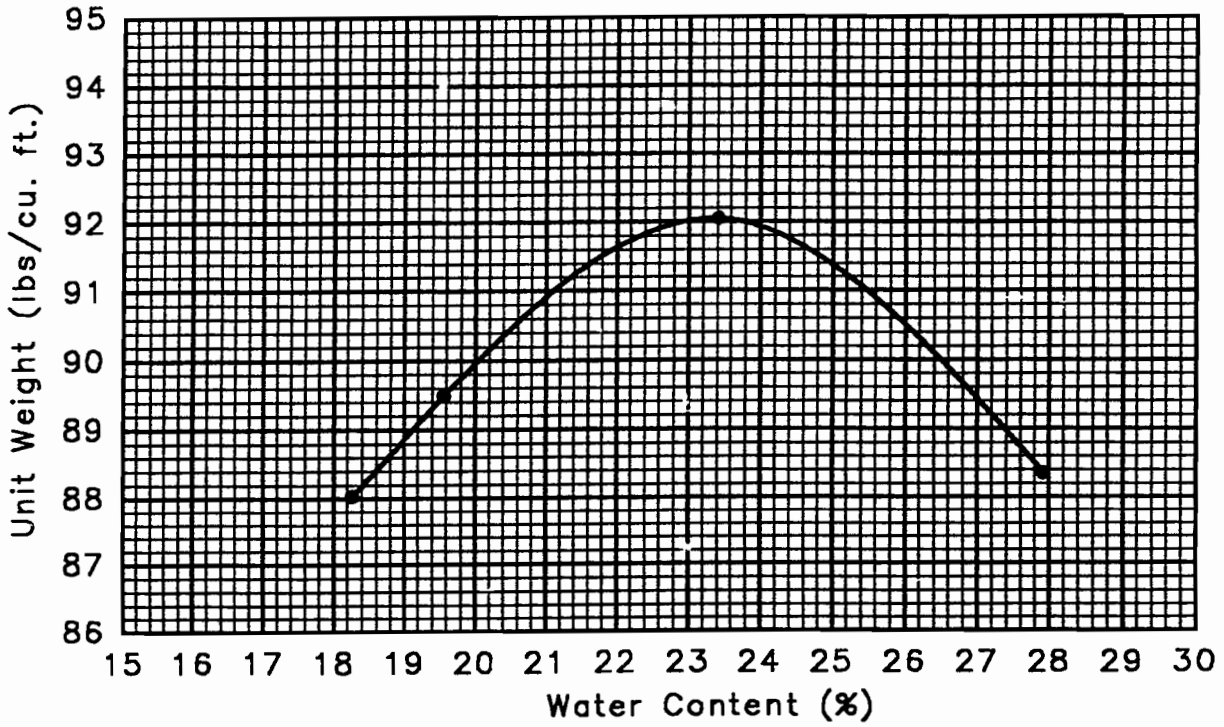
Roy F. Weston, Inc., Sutton Park
Lab #: FOB-001 Rpt #: MC-09

TEST METHOD: (ASTM D698 Procedure B, 4" Diameter Mold)

Specimen No.	1	2	3	4
Water Content (%)	18.27	19.56	23.42	27.92
Unit Weight, Dry (lbs/cu.ft.)	88.04	89.49	92.06	88.35



Optimum Water Content: 23.4 % Max. Unit Weight, Dry: 92.0 pcf

Optimum Water Content: 23.4% Max. Unit Weight, Dry: 92.0 pcf

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TESTWELL CRAIG
LABORATORIES INCORPORATED

CORPORATE HEADQUARTERS: 47 HUDSON STREET, OSSINING, N.Y. 10562 (914) 762-9000 FAX (914) 762-9638

V. REDDY KANCHARLA, P.E., DIRECTOR
(NYS LIC. NO. 068162)

LIQUID LIMIT, PLASTIC LIMIT, AND ORGANIC CONTENT TESTING OF SOILS

CLIENT: Roy F. Weston
PROJECT: Clarkstown Landfill
SAMPLE ID: Indicated Below
SAMPLED BY: Client
PICK UP/DEL BY: Client

LAB #: FOB-001
REPORT#: MC-11
DATE PICK UP/DEL: 10/9/96
10/11/96,10/17/96
DATE TESTED: 10/25/96

(A) LIQUID LIMIT & PLASTIC LIMIT TEST RESULTS (ASTM D4318)

Soil Sample No.	Liquid Limit % Weight	Plastic Limit % Weight	Plastic Index
SF - 01	25.2	NP	0
SF - 03	16.0	NP	0
SF - 04	16.5	NP	0
SF - 05	25.0	17.5	7.5
SF - 06	16.5	NP	0
SF - 07	13.5	NP	0
SF - 08	29.7	25.1	4.6

NOTE: NP indicates that the soil is non-plastic since 1/8" diameter thread could not be rolled at any moisture content.

(B) ORGANIC CONTENT TEST RESULTS (ASTM D 2974)

Soil Sample No.	Organic Content % of Ovenride Sample
SF - 07	1.8
SF - 08	9.8

TESTWELL CRAIG LABORATORIES

Kaspal R. Thumma, Eng.Sc.D.
Laboratory Manager
KRT/mp

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Clarkstown Landfill Remediation
Laboratory Services Request
#LL-2339-K3

For:
Mr. Reddy Kancharla
M & T/Namow/TCL
47 Hudson Street
Ossining, N.Y. 10562
PH (914)762-9000
FX (914)762-9638

From:
Roy F. Weston of New York
Clarkstown Field Office
166 Rte. 303
West Nyack, N.Y. 10994
PH (914)353-5221
FX (914)353-5491

Sample I.D.	Source	Misc	ASTM D422	D698	D2216	D2487	D4318	D4767	D4972	EPA 8020					Remarks
SF-09	Servidone														
SV-3	FB	1 bkt	X	X	X	X	X								Rt 303 & Rt 287 Constr Exc
SF-10	servidone														
SV-4	FB	1 bkt	X	X	X	X	X								Rt 59 & Rt 287 Constr Exc
SF-11	servidone														
SV-5	CB	1 bkt	X	X	X	X	X								Stockpile 5,000 CY Test
SF-12	Serv East														
NS-9	CB	1 bkt	X	X	X	X	X								Stockpiles (2) East of Serv
CS-01	Morgan Excel														
CS-1	FB	1 bkt	X	X	X	X	X	X	X	X					Con Agg
CS-02	WMX														
CS-2	FB	1 bkt	X	X	X	X	X	X	X	X					Woodside

Received By: S. Leykin

Date/Time: 11-5-96 / 8:45

Delivered By: John C Woodley

Results Required, Date/Time: 11-8-96 / 9:00

TESTWELL CRAIG
LABORATORIES INCORPORATED

CORPORATE HEADQUARTERS: 47 HUDSON STREET, OSSINING, N.Y. 10562 (914) 762-9000 FAX (914) 762-9638

V. REDDY KANCHARLA, P.E., DIRECTOR
(NYS LIC. NO. 068162)

GRADATION AND STANDARD PROCTOR COMPACTION TESTING OF SOIL

CLIENT: Roy F. Weston, Inc., Sutton Park
PROJECT: Clarkstown Landfill
SAMPLE ID: SF-09 (Source : Servidone FB) SV-3
SAMPLED BY: Client
PICKUP/DEL BY: Client

LAB#: FOB-001
REPORT#: MC-12
DATE SAMPLED: 11/05/96
DATE PICKUP/DEL: 11/05/96
DATE TESTED: 11/07/96

(A) GRADATION TEST RESULTS (ASTM D422 & ASTM D1140)

Sieve Size	Percent Passing (%)	Specifications	Sieve Size	Percent Passing (%)	Specifications
2-1/2"			#10	65.2	
2"			#16	59.2	
1-1/2"	100		#20	56.3	
1"	94.2		#30	52.7	
3/4"	90.7		#40	48.6	
1/2"	83.9		#50	44.6	
3/8"	78.1		#60	42.0	
1/4"	74.5		#80	37.4	
#4	72.7		#100	34.5	
#8	67.2		#200	26.6	

The gradation curve is shown in Figure -1

(B) **STANDARD PROCTOR COMPACTING TEST RESULTS (ASTM D698, Procedure C, 6" diameter mold)**
Optimum Water Content: 9.8%
Max. Unit Weight, Dry: 131.4 pcf
The compaction curve is shown in Figure-2.

(C) **MOISTURE (ASTM D2216): 8.0 %**

(D) **SOIL CLASSIFICATION (ASTM D2487):** SM Silty sand with gravel

(E) **SOIL DESCRIPTION: m-f SAND, some m Gravel, some Silt**
COLOR: Black; **ODOR:** None; **CONTAMINATION:** None

TESTWELL CRAIG LABORATORIES, INC.

Kaspal R. Thumma, Eng.Sc.D.
Laboratory Manager
KRT/mp

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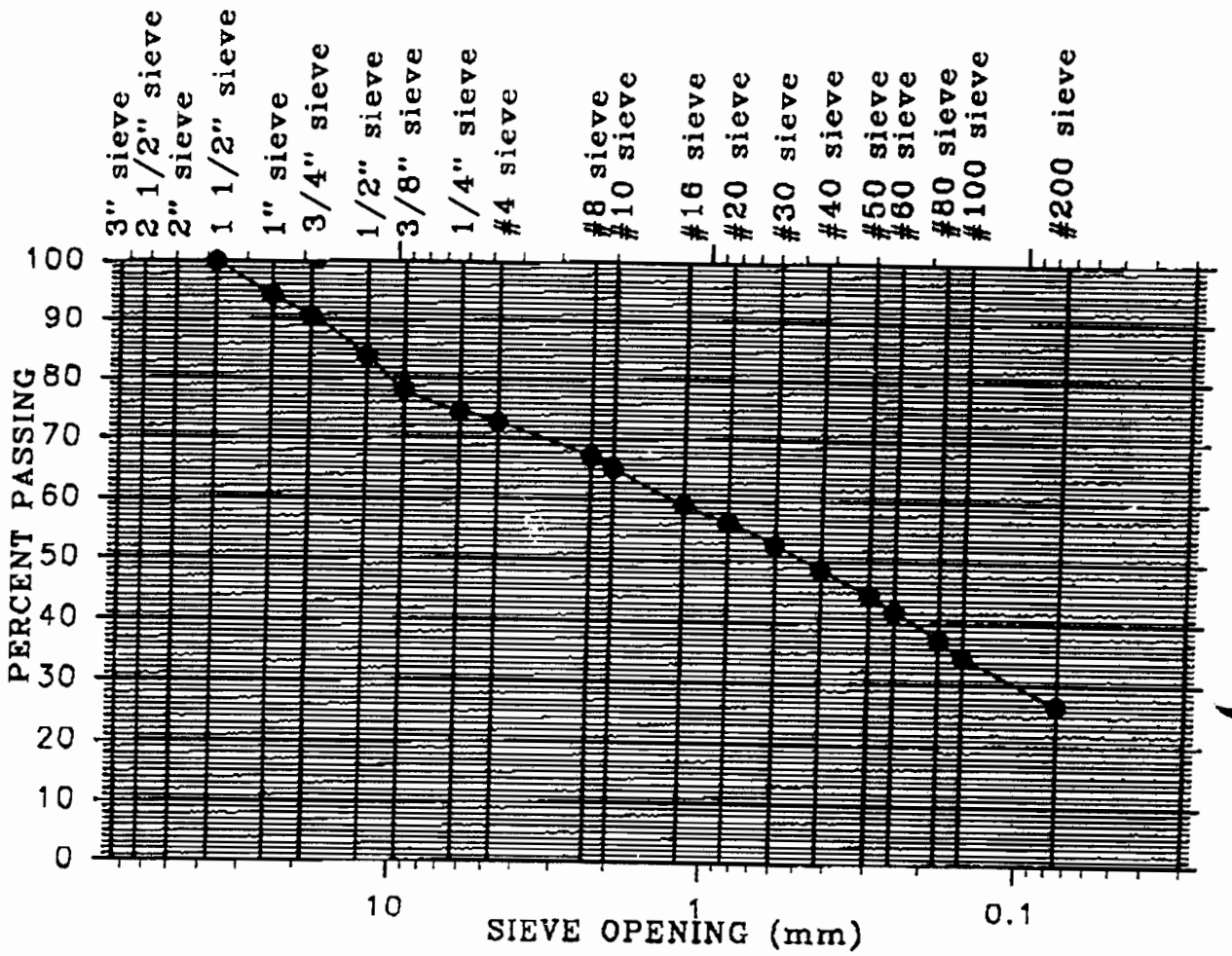
Roy F. Weston, Inc., Sutton Park
Lab #: FOB-001 Report #: MC-12



Particle Size Gradation Curve of Soil No. SF-09

Figure 1

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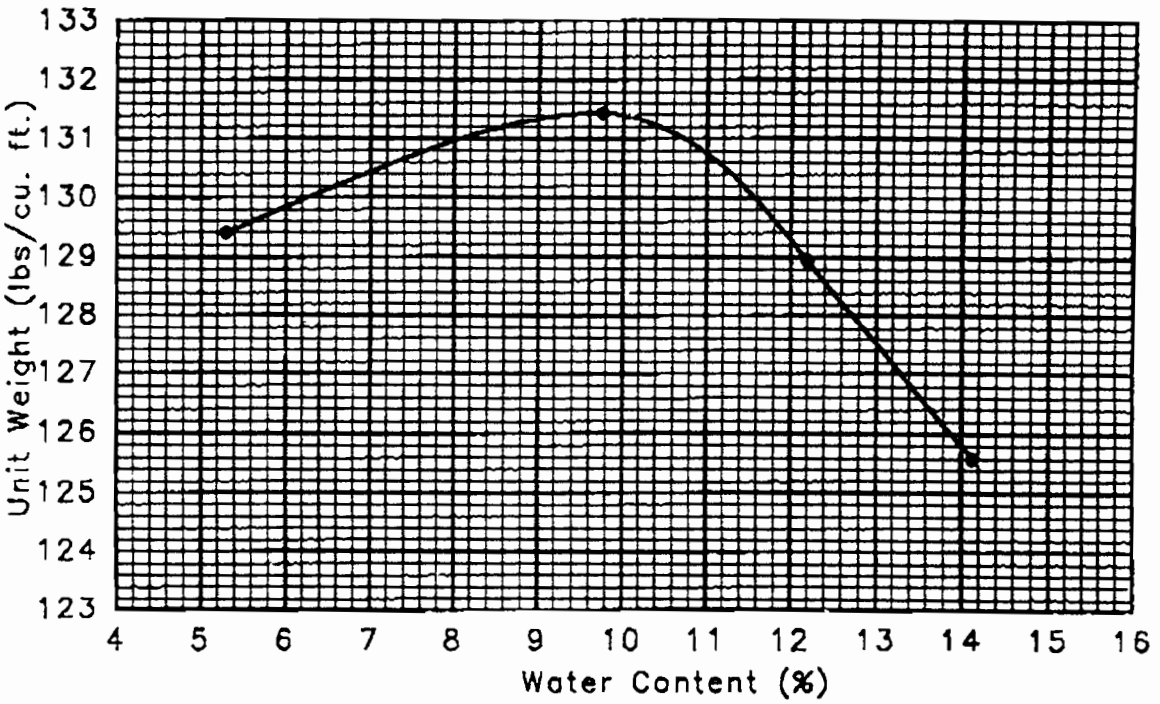
STANSARD PROCTOR COMPATION TEST RESULTS OF SOIL NO. SF-09

TEST METHOD: (ASTM D698 Procedure C, 6" Diameter Mold)

Specimen No.	1	2	3	4
Water Content (%)	5.3	9.76	12.20	14.13
Unit Weight, Dry (lbs/cu.ft.)	129.40	131.43	128.93	125.58



Optimum Water Content: 9.8 % Max. Unit Weight, Dry: 131.4 pcf

Figure 2

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TESTWELL CRAIG
ORATORIES INCORPORATED

CORPORATE HEADQUARTERS: 47 HUDSON STREET, OSSINING, N.Y. 10562 (914) 762-9000 FAX (914) 762-9638

V. REDDY KANCHARLA, P.E., DIRECTOR
(NYS LIC. NO. 0681

LIQUID LIMIT, PLASTIC LIMIT, AND PH TESTING OF SOILS

Client: Roy F. Weston
Project: Clarkstown Landfill
Sample ID: Indicated Below
Sampled By: Client

Lab #: FOB-001
Report #: MC-18
Date Pick up/del: 11/5/96
Date Tested: 11/8/96

(A) LIQUID LIMIT & PLASTIC LIMIT TEST RESULTS (ASTM D4318)

Soil Sample No.	Liquid Limit % Weight	Plastic Limit % Weight	Plastic Index
SF - 09	15.0	NP	0
SF - 10	12.8	NP	0
SF - 11	18.5	NP	0
SF - 12	22.4	NP	0
CS - 01	21.0	NP	0
CS - 02	15.0	NP	0

NOTE: NP indicates that the soil is non-plastic since 1/8" diameter thread could not be rolled at any moisture content.

(B) DERMINATION OF PH (ASTM D4972)

Soil Sample No.	PH
CS - 01	10.4
CS - 02	8.6

TESTWELL CRAIG LABORATORIES

Kaspal R. Thumma, Eng.Sc.D.
Laboratory Manager
KRT\mp

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OGDEN REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: Clarkstown Landfill
Project Location: Clarkstown, NY
Sampled By: (Signature) Brian Bassil

Project No.: 600,00000
Purchase Order No.: _____
Lab Contact: BRIAN

Date Sent: 11/1/96
Shipped Via: OURSELVES
Date Received: 11/1/96

Sample No	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
		ANALYSIS REQUIRED												
SV-3	Serviceberry Rd RT 303 + 287	X		X	X		X	X						
SV-4	Serviceberry Rd RT 59 + 287	X		X	X		X	X						

Comments/Special Instructions: Both are to be tested for Structural Fill Requirements. Please turn-around ASAP!

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Rev. 4/93

FZ/WCRS

P.2

FAIRWAY

Soils
Test Report

November 4, 1996

client Ogden Remediation

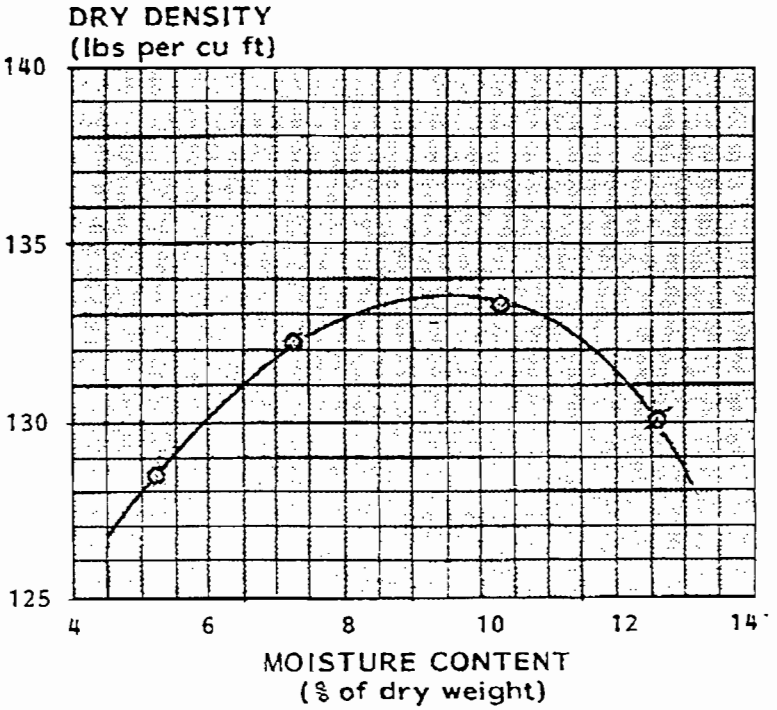
project Clarkstown Landfill

Compaction Method ASTM D698

Maximum Dry Density 133.6 pcf
Optimum Moisture Content 9.6%

subject Moisture-Density Curve Analysis

On November 1, 1996, a soil sample labeled "SV-3" was delivered to this laboratory by the client. Test results are shown below.
SF-09



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

Smith Street • Stony Point, N.Y. 10980 • 914-942-2088

11-04-1996 12:31PM FROM FAIRWAY TESTING CO 914 942 0985 P.6

FAIRWAY

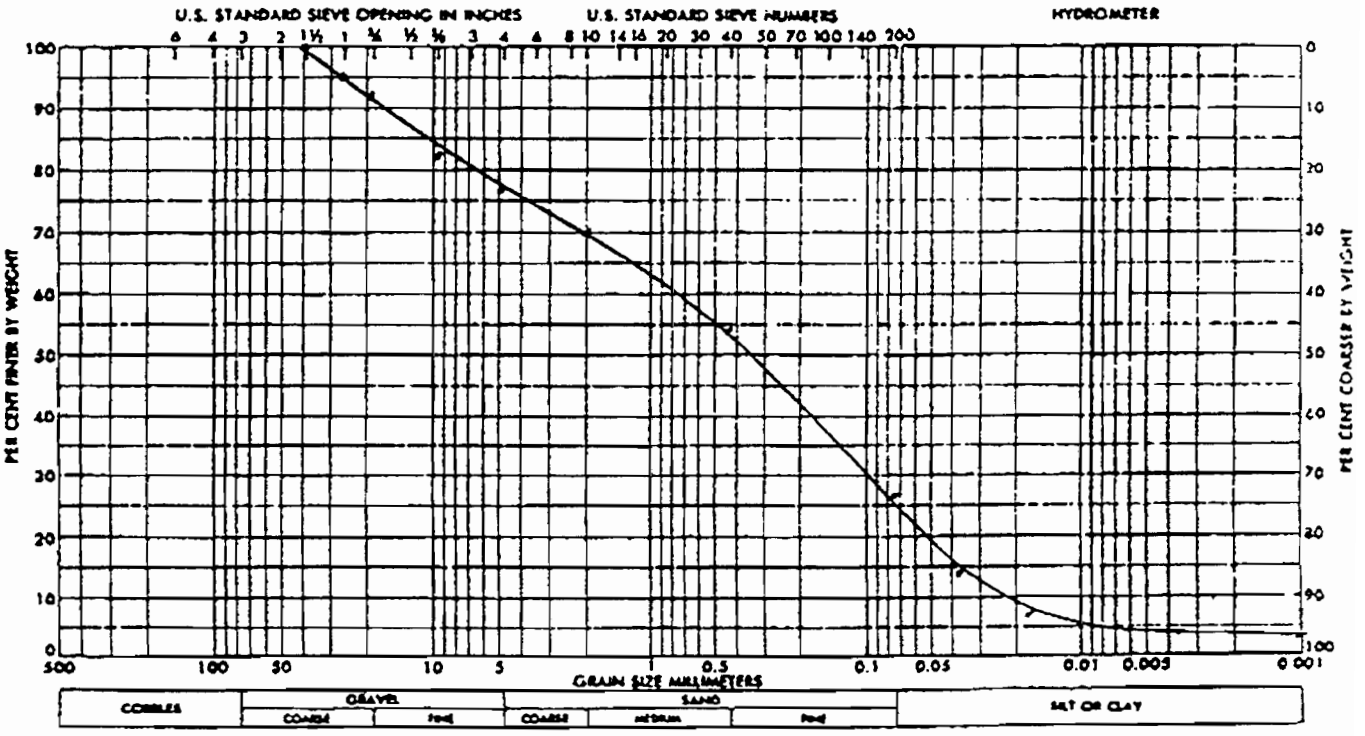
Grain Size
Curve Analysis

November 4, 1996

client Ogden Remediation

project Clarkstown Landfill

On November 1, 1996, a soil sample labeled "SV-3" was delivered to this laboratory by the client. Test results are shown below.



Classification (ASTM D2487): SM, silty sand w/gravel
Atterberg Limits (ASTM D4318): NP
Moisture Content (ASTM D2216): 8.6%

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

Clarkstown Landfill Remediation
Laboratory Services Request
#LL-2339-K3

For:
Mr. Reddy Kancharla
M & T/Namow/TCL
47 Hudson Street
Ossining, N.Y. 10562
PH (914)762-9000
FX (914)762-9638

From:
Roy F. Weston of New York
Clarkstown Field Office
166 Rte. 303
West Nyack, N.Y. 10994
PH (914)353-5221
FX (914)353-5491

Sample I.D.	Source	Misc	ASTM D422	D698	D2216	D2487	D4318	D4767	D4972	EPA 8020					Remarks
SF-09	Servidone														
SV-3	FB	1 bkt	X	X	X	X	X								Rt 303 & Rt 287 Constr Exc
SF-10	servidone														
SV-4	FB	1 bkt	X	X	X	X	X								Rt 59 & Rt 287 Constr Exc
SF-11	Servidone														
SV-5	CB	1 bkt	X	X	X	X	X								Stockpile 5,000 CY Test.
SF-12	Serv East														
NS-9	CB	1 bkt	X	X	X	X	X								Stockpiles (2) East of Serv
CS-01	Morgan Excel														
CS-1	FB	1 bkt	X	X	X	X	X	X	X	X					Con Agg
CS-02	WMX														
CS-2	FB	1 bkt	X	X	X	X	X	X	X	X					Woodside

Received By: S. Leykin

Date/Time: 11-5-96 / 8:45

Delivered By: John C Woodley

Results Required, Date/Time: 11-8-96 / 9:00

TESTWELL CRAIG
LABORATORIES INCORPORATED

CORPORATE HEADQUARTERS: 47 HUDSON STREET, OSSINING, N.Y. 10562 (914) 762-9000 FAX (914) 762-9638

V. REDDY KANCHARLA, P.E., DIRECTOR
(NYS LIC. NO. 068162)

GRADATION AND STANDARD PROCTOR COMPACTION TESTING OF SOIL

CLIENT: Roy F. Weston, Inc., Sutton Park
PROJECT: Clarkstown Landfill
SAMPLE ID: SF-10 (Source: Servidone FB) SV-4
SAMPLED BY: Client
PICKUP/DEL BY: Client

LAB#: FOB-001
REPORT#: MC-13
DATE SAMPLED: 11/05/96
DATE PICKUP/DEL: 11/05/96
DATE TESTED: 11/07/96

(A) GRADATION TEST RESULTS (ASTM D422 & ASTM D1140)

Sieve Size	Percent Passing (%)	Specifications	Sieve Size	Percent Passing (%)	Specifications
2-1/2"			#10	60.5	
2"	100.0		#16	55.4	
1-1/2"	92.8		#20	52.5	
1"	89.8		#30	48.7	
3/4"	84.9		#40	44.0	
1/2"	79.7		#50	39.4	
3/8"	76.6		#60	36.4	
1/4"	72.3		#80	31.8	
#4	68.9		#100	29.2	
#8	62.3		#200	21.6	

The gradation curve is shown in Figure-1

(B) **STANDARD PROCTOR COMPACTING TEST RESULTS (ASTM D698, Procedure C, 6" diameter mold)**
Optimum Water Content: 8.7%
Max. Unit Weight, Dry: 133.4 pcf
The compaction curveis shown in Figure-2.

(C) MOISTURE (ASTM D2216): 7.2%

(D) SOIL CLASSIFICATION (ASTM D2487): SM - Silty sand with gravel

(E) SOIL DESCRIPTION: m-f SAND, some c-m Gravel, some Silt
COLOR: Dark Gray; **ODOR:** None; **CONTAMINATION:** None

TESTWELL CRAIG LABORATORIES, INC.

Kaspal R. Thumma, Eng.Sc.D.
Laboratory Manager
KRT/mp

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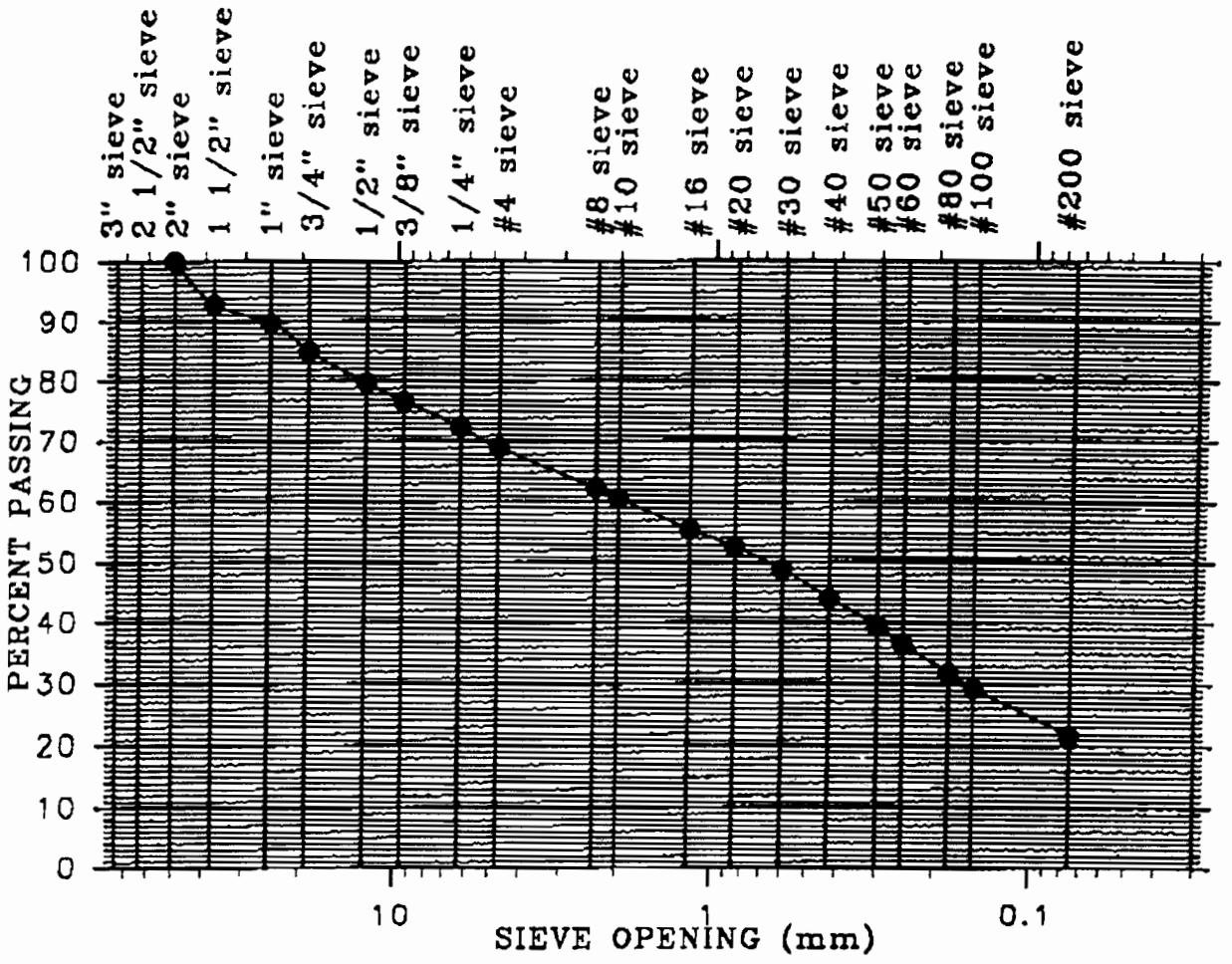
Roy F. Weston, Inc., Sutton Park
Lab #: FOB-001 Report #: MC-13



Particle Size Gradation Curve of Soil No. SF-10

Figure 1

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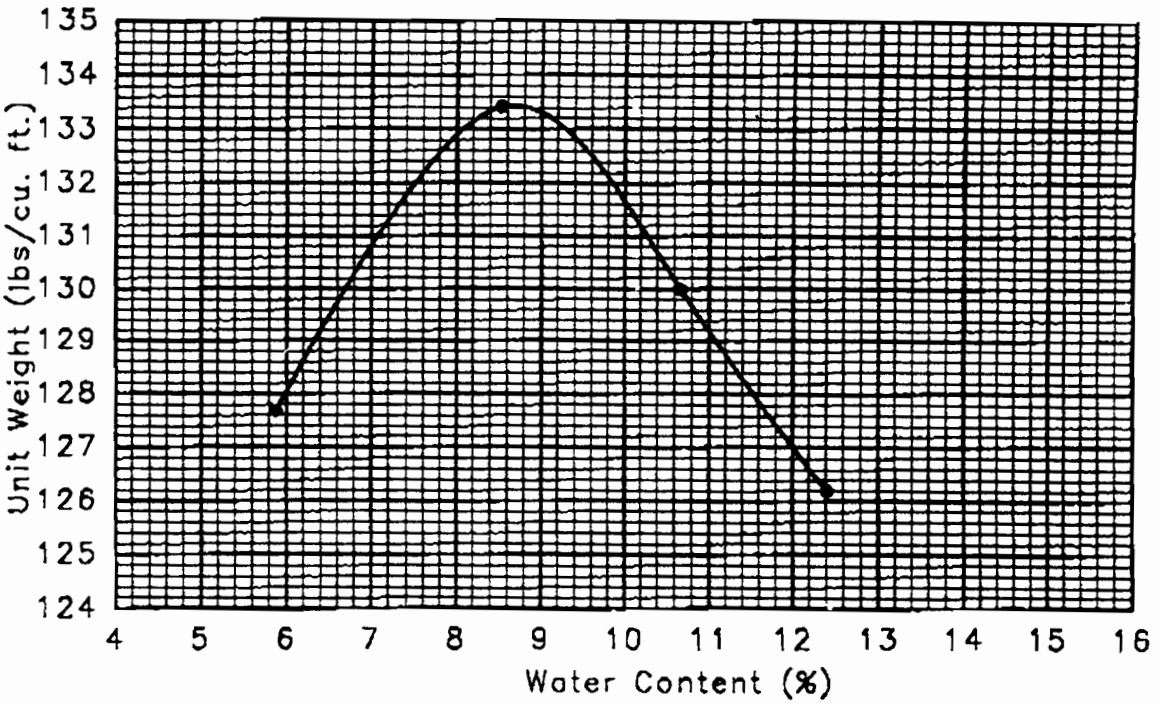
STANDARD PROCTOR COMPACTION TEST RESULTS OF SOIL NO. SF-10

TEST METHOD: (ASTM D698 Procedure C, 6" Diameter Mold)

Specimen No.	1	2	3	4
Water Content (%)	5.88	8.53	10.67	12.41
Unit Weight, Dry (lbs/cu.ft.)	127.69	133.42	129.99	126.20



Optimum Water Content: 8.7 % Max. Unit Weight, Dry: 133.4 pcf

Figure 2

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RATORIES INCORPORATED

CORPORATE HEADQUARTERS: 47 HUDSON STREET, OSSINING, N.Y. 10562 (914) 762-9000 FAX (914) 762-9638

V. REDDY KANCHARLA, P.E., DIRECTOR
(NYS LIC. NO. 06816

LIQUID LIMIT, PLASTIC LIMIT, AND PH TESTING OF SOILS

Client: Roy F. Weston
Project: Clarkstown Landfill
Sample ID: Indicated Below
Sampled By: Client

Lab #: FOB-001
Report #: MC-18
Date Pick up/del: 11/5/96
Date Tested: 11/8/96

(A) LIQUID LIMIT & PLASTIC LIMIT TEST RESULTS (ASTM D4318)

Soil Sample No.	Liquid Limit % Weight	Plastic Limit % Weight	Plastic Index
SF - 09	15.0	NP	0
SF - 10	12.8	NP	0
SF - 11	18.5	NP	0
SF - 12	22.4	NP	0
CS - 01	21.0	NP	0
CS - 02	15.0	NP	0

NOTE: NP indicates that the soil is non-plastic since 1/8" diameter thread could not be rolled at any moisture content.

(B) DERMINATION OF PH (ASTM D4972)

Soil Sample No.	PH
CS - 01	10.4
CS - 02	8.6

TESTWELL CRAIG LABORATORIES

Kaspal R. Thumma, Eng.Sc.D.
Laboratory Manager
KRT\mp

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OGDEN REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: Clarkstown Landfill
Project Location: Clarkstown, NY
Sampled By: (Signature) Bryan Bassil
Project No.: 600,00000
Purchase Order No.:
Lab Contact: BRIAN
Date Sent: 11/1/96
Shipped Via: courier M.S.
Date Received: 11/1/96

Sample No	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
SV-3	Serviceberry Rd Rt 303 + 287	X		X	X		X	X						
SV-4	Serviceberry Rd Rt 59 + 287	X		X	X		X	X						

Comments/Special Instructions: Both are to be tested for Structural Fill Requirements. Please turn-around ASAP!

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Rev. 4/93 FZ10/CRS

FAIRWAY

Soils Test Report

November 4, 1996

client Ogden Remediation

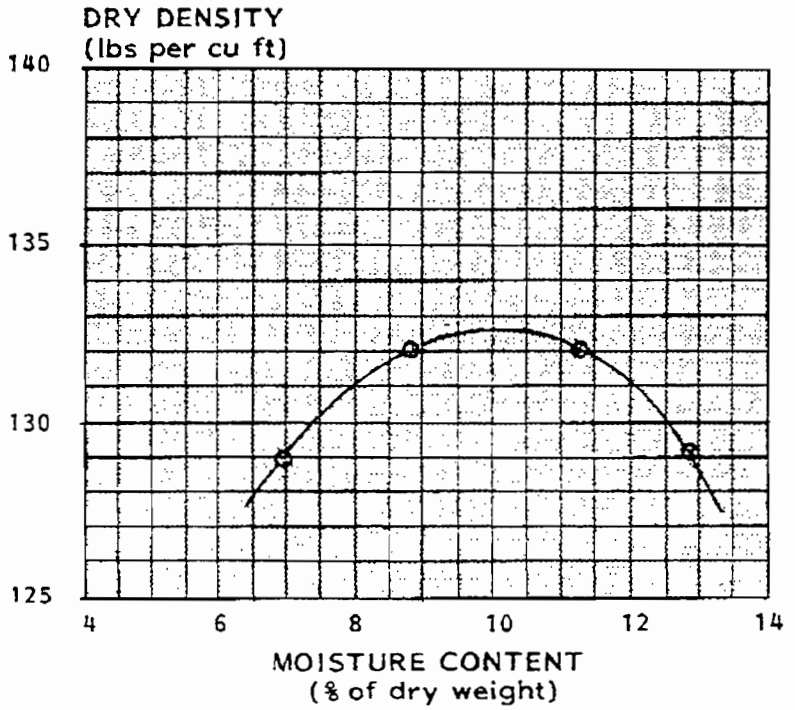
project Clarkstown Landfill

Compaction Method	ASTM D698
Maximum Dry Density	132.7 pcf
Optimum Moisture Content	10.2%

subject Moisture-Density Curve Analysis

On November 1, 1996, a soil sample labeled "SV-4" was delivered to this laboratory by the client. Test results are shown below.

SF-10



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

PC

Smith Street • Stony Point, N.Y 10980 • 914-942-2088

11-04-1996 12:32PM FROM FAIRWAY TESTING CO 914 942 0995 P.8

FAIRWAY

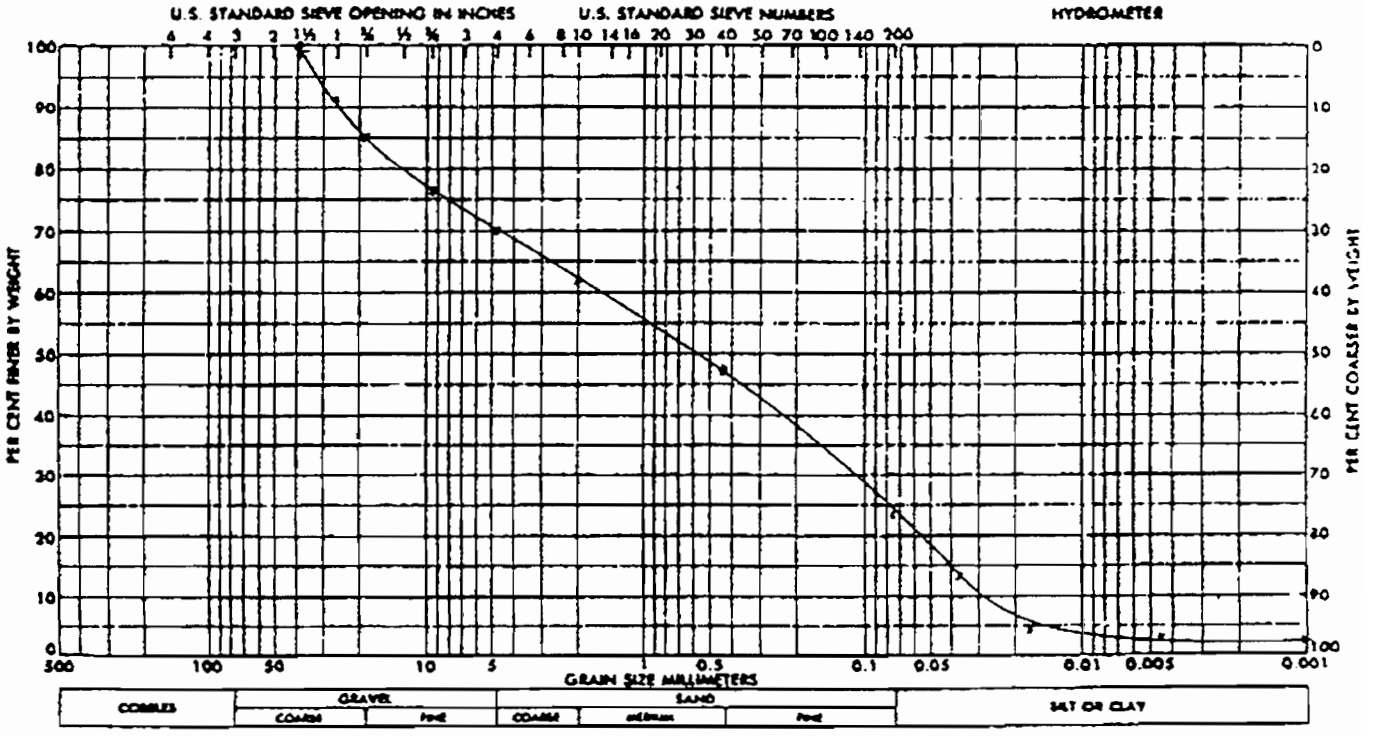
Grain Size
Curve Analysis

November 4, 1996

client Ogden Remediation

project Clarkstown Landfill

On November 1, 1996, a soil sample labeled "SV-4" was delivered to this laboratory by the client. Test results are shown below.



Classification (ASTM D2487): SM, silty sand w/gravel
Atterberg Limits (ASTM D4318): NP
Moisture Content (ASTM D2216): 9.7

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

11-04-1996 12:33PM FROM FAIRWAY TESTING CO 914 942 0995 P.9

Clarkstown Landfill Remediation
Laboratory Services Request
#LL-2339-K3

For:
Mr. Reddy Kancharla
M & T/Namow/TCL
47 Hudson Street
Ossining, N.Y. 10562
PH (914)762-9000
FX (914)762-9638

From:
Roy F. Weston of New York
Clarkstown Field Office
166 Rte. 303
West Nyack, N.Y. 10994
PH (914)353-5221
FX (914)353-5491

Sample I.D.	Source	Misc	ASTM D422	D698	D2216	D2487	D4318	D4767	D4972	EPA 8020					Remarks
SF-09	Servidone														
SV-3	FB	1 bkt	X	X	X	X	X								Rt 303 & Rt 287 Constr Exc
SF-10	Servidone														
SV-4	FB	1 bkt	X	X	X	X	X								Rt 59 & Rt 287 Constr Exc
SF-11	Servidone														
SV-5	CB	1 bkt	X	X	X	X	X								Stockpile 5,000 cy Test
SF-12	Serv East														
NS-9	CB	1 bkt	X	X	X	X	X								Stockpiles (2) East of Serv
CS-01	Morgan Excel														
CS-1	FB	1 bkt	X	X	X	X	X	X	X	X					Con Ago
CS-02	WMX														
CS-2	FB	1 bkt	X	X	X	X	X	X	X	X					Woodside

Received By: S. Leykin

Date/Time: 11-5-96 / 8:45

Delivered By: John C Woodley

Results Required, Date/Time: 11-8-96 / 9:00

TESTWELL CRAIG
LABORATORIES INCORPORATED

CORPORATE HEADQUARTERS: 47 HUDSON STREET, OSSINING, N.Y. 10562 (914) 762-9000 FAX (914) 762-9638

V. REDDY KANCHARLA, P.E., DIRECTOR
(NYS LIC. NO. 068162)

GRADATION AND STANDARD PROCTOR COMPACTION TESTING OF SOIL

CLIENT: Roy F. Weston, Inc., Sutton Park
PROJECT: Clarkstown Landfill
SAMPLE ID: SF-12 (Source: Serv East CB) NS-9
SAMPLED BY: Client
PICKUP/DEL BY: Client

LAB#: FOB-001
REPORT#: MC-15
DATE SAMPLED: 11/05/96
DATE PICKUP/DEL: 11/05/96
DATE TESTED: 11/07/96

(A) GRADATION TEST RESULTS (ASTM D422 & ASTM D1140)

Sieve Size	Percent Passing (%)	Specifications	Sieve Size	Percent Passing (%)	Specifications
2-1/2"			#10	75.0	
2"			#16	68.1	
1-1/2"			#20	64.0	
1"	100.0		#30	57.9	
3/4"	97.7		#40	50.6	
1/2"	95.2		#50	44.0	
3/8"	92.1		#60	39.9	
1/4"	87.6		#80	34.0	
#4	84.8		#100	30.9	
#8	77.2		#200	23.2	

The gradation curve is shown in Figure-1

(B) STANDARD PROCTOR COMPACTING TEST RESULTS (ASTM D698, Procedure C, 6" diameter mold)
Optimum Water Content: 10.7%
Max. Unit Weight, Dry: 123.0 pcf
The compaction curve is shown in Figure-2.

(C) MOISTURE (ASTM D2216): 26.5%

(D) SOIL CLASSIFICATION (ASTM D2487): SM - Silty sand with gravel

(E) SOIL DESCRIPTION: c- m-f SAND, some Silt, little Gravel
COLOR: Gray; **ODOR:** None; **CONTAMINATION:** None

TESTWELL CRAIG LABORATORIES, INC.

Kaspal R. Thumma, Eng Sc.D.
Laboratory Manager
KRT/mp

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Roy F. Weston, Inc., Sutton Park
Lab #: FOB-001 Report #: MC-15

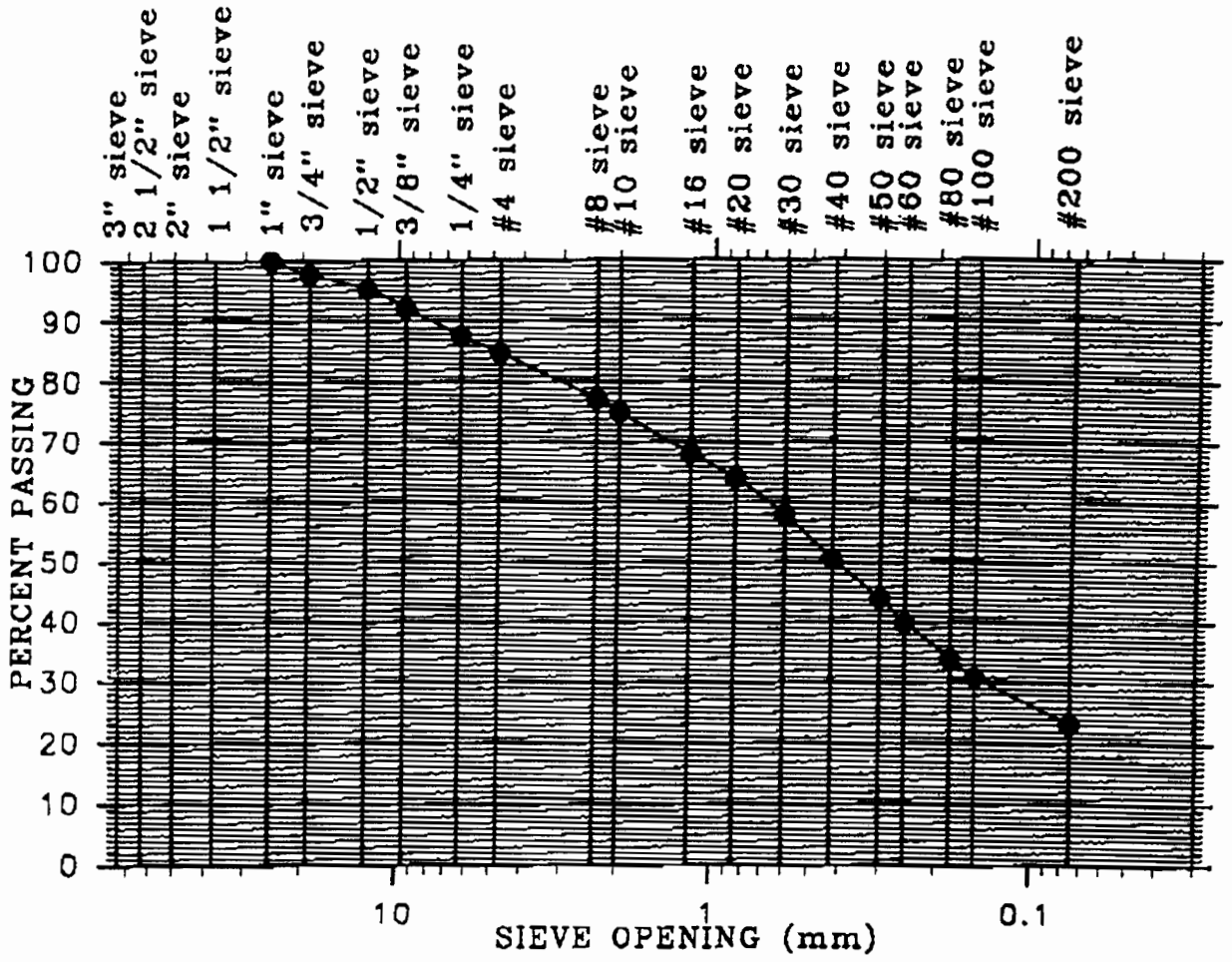

Figure 1: Particle Size Gradation Curve of Soil No. SF-12

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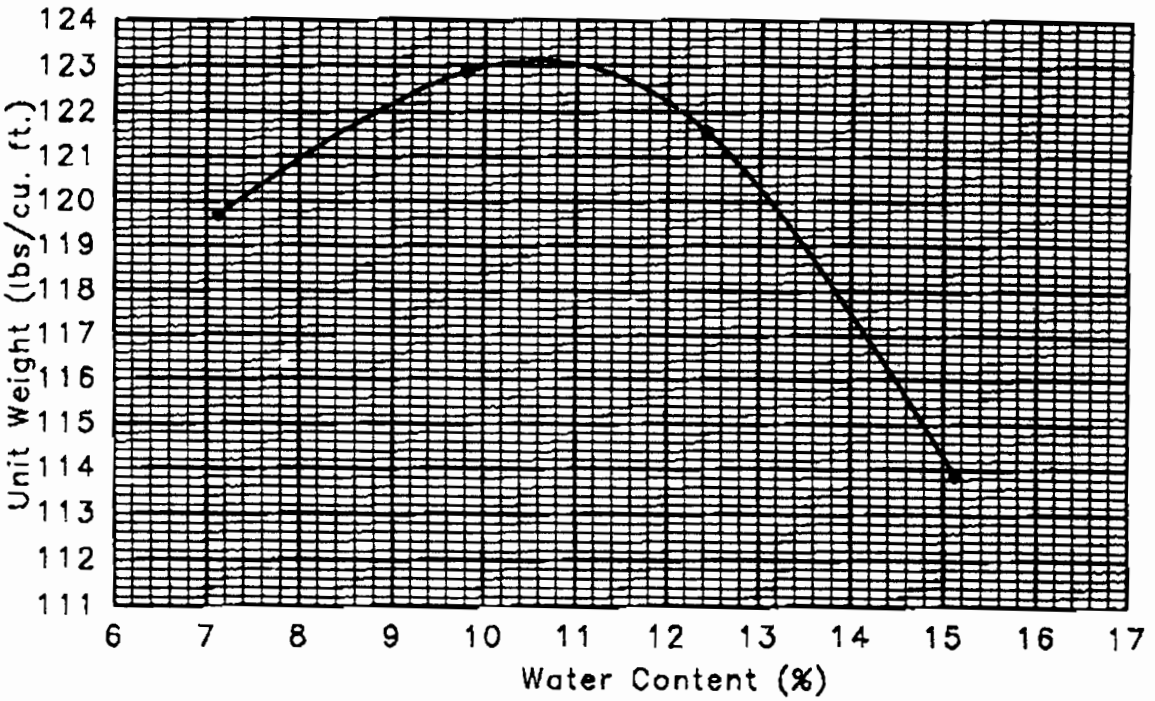
STANDARD PROCTOR COMPACTION TEST RESULTS OF SOIL NO. SF-12

TEST METHOD: (ASTM D698 Procedure C, 6" Diameter Mold)

Specimen No.	1	2	3	4
Water Content (%)	7.13	9.80	12.43	15.13
Unit Weight, Dry (lbs/cu.ft.)	119.32	122.89	121.55	113.87



Optimum Water Content: 10.7% Max. Unit Weight, Dry: 123.0 pcf

Figure 2: Standard Proctor Curve of Soil No. SF-12

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TESTWELL CRAIG
ORATORIES INCORPORATED

CORPORATE HEADQUARTERS: 47 HUDSON STREET, OSSINING, N.Y. 10562 (914) 762-9000 FAX (914) 762-9638

V. REDDY KANCHARLA, P.E., DIRECTOR
(NYS LIC. NO. 06816

LIQUID LIMIT, PLASTIC LIMIT, AND PH TESTING OF SOILS

Client: Roy F. Weston
Project: Clarkstown Landfill
Sample ID: Indicated Below
Sampled By: Client

Lab #: FOB-001
Report #: MC-18
Date Pick up/del: 11/5/96
Date Tested: 11/8/96

(A) LIQUID LIMIT & PLASTIC LIMIT TEST RESULTS (ASTM D4318)

Soil Sample No.	Liquid Limit % Weight	Plastic Limit % Weight	Plastic Index
SF - 09	15.0	NP	0
SF - 10	12.8	NP	0
SF - 11	18.5	NP	0
SF - 12	22.4	NP	0
CS - 01	21.0	NP	0
CS - 02	15.0	NP	0

NOTE: NP indicates that the soil is non-plastic since 1/8" diameter thread could not be rolled at any moisture content.

(B) DERMINATION OF PH (ASTM D4972)

Soil Sample No.	PH
CS - 01	10.4
CS - 02	8.6

TESTWELL CRAIG LABORATORIES

Kaspal R. Thumma, Eng.Sc.D.
Laboratory Manager
KRT\mp

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OGDEN REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: Clarkstown LF + LF Capping
Project No.: G001000000
Date Sent: 10/25/96

Project Location: W. Nyack, NY
Purchase Order No.:
Shipped Via: Larry K

Sampled By: (Signature) BB/DB
Lab Contact: Brian Hugick
Date Received: 10/25/96

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterburg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
		ANALYSIS REQUIRED												
NS-9	Pile, East of Servidone	X		X	X		X	X						

Comments/Special Instructions: Possible structural Fill, Representative samples from two piles.

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Rev. 4/93

FZ10/CR3

05/18/1996 11:05 8659/8659593 PAGE 02

RUSH: E AND I

FAIRWAY

Soils
Test Report

October 28, 1996

client Ogden Remediation Services

project Clarkstown Landfill

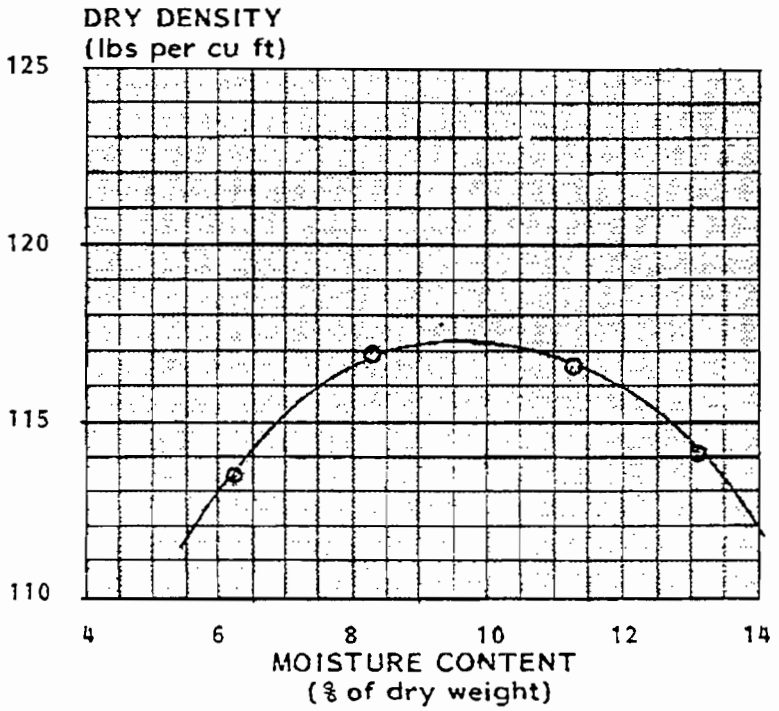
Compaction Method ASTM D698

subject Moisture-Density Curve Analysis

Maximum Dry Density 117.2 pcf
Optimum Moisture Content 9.7%

On October 25, 1996, a representative from this firm visited the jobsite and picked-up soil sample NS-9. Test results are shown below.

SF-12



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

PV

11-04-1996 12:29PM FROM FAIRWAY TESTING CO 914 942 0995 P.3

FAIRWAY

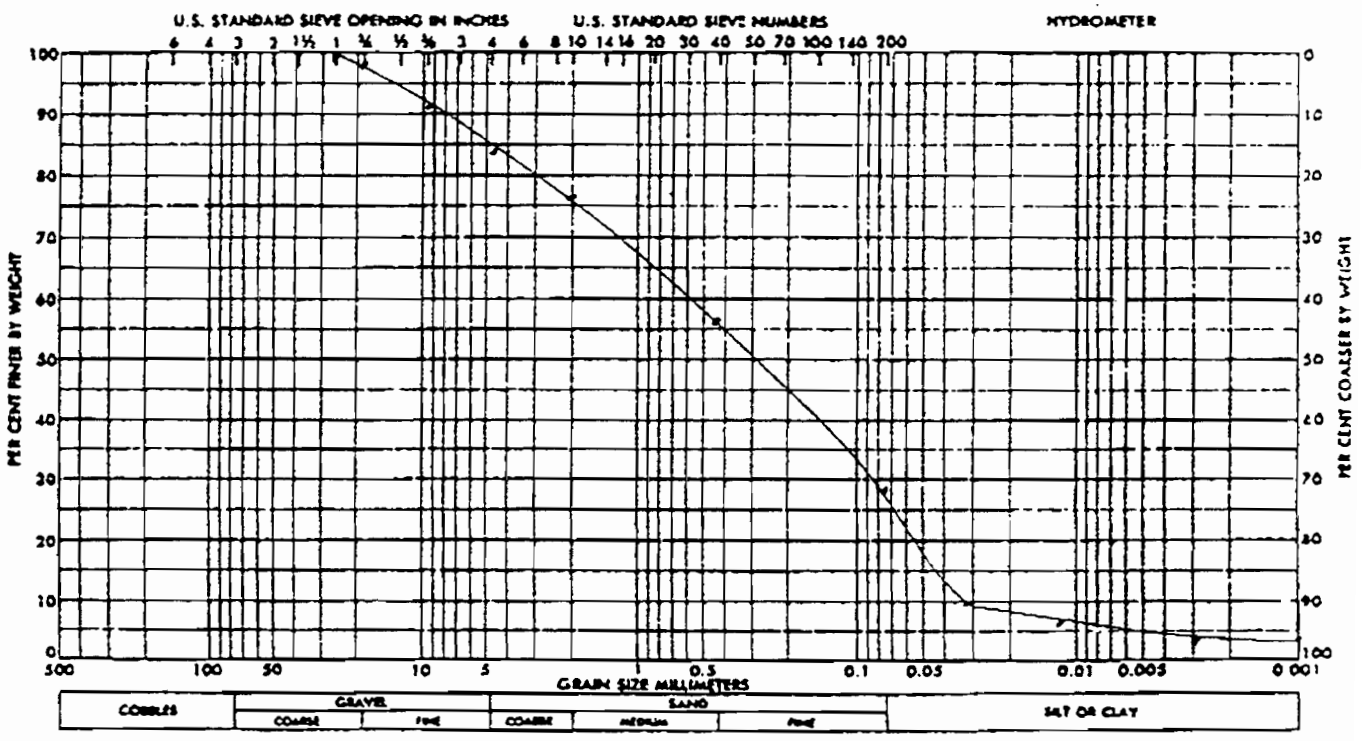
Grain Size
Curve Analysis

October 28, 1996

client Ogden Remediation Services

project Clarkstown Landfill

On October 25, 1996 a representative from this firm visited the jobsite and picked-up soil sample NS-9. Test results are shown below.



Classification (ASTM D2487): SM, silty sand with gravel
Atterberg Limits (ASTM D4318): NP
Moistur Content (ASTM D2216): 19.2

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

11-04-1996 12:30PM FROM FAIRWAY TESTING CO 914 942 0995 P.4

Clarkstown Landfill Remediation
Laboratory Services Request
#LL-2339-K3

For:
Mr. Reddy Kancharla
M & T/Namow/TCL
47 Hudson Street
Ossining, N.Y. 10562
PH (914)762-9000
FX (914)762-9638

From:
Roy F. Weston of New York
Clarkstown Field Office
166 Rte. 303
West Nyack, N.Y. 10994
PH (914)353-5221
FX (914)353-5491

Sample I.D.	Source	Misc	ASTM D422	D698	D2216	D2487	D4318	D4767	D4972	EPA 8020					Remarks
SF-09	Servidone														
SV-3	FB	1 bkt	X	X	X	X	X								Rt 303 & Rt 287 Constr Exc
SF-10	Servidone														
SV-4	FB	1 bkt	X	X	X	X	X								Rt 59 & Rt 287 Constr Exc
SF-11	Servidone														
SV-5	CB	1 bkt	X	X	X	X	X								Stockpile 5,000 CY Test
SF-12	Serv East														
NS-9	CB	1 bkt	X	X	X	X	X								Stockpiles (2) East of Serv
CS-01	Morgan Excel														
CS-1	FB	1 bkt	X	X	X	X	X	X	X	X					Con Agg
CS-02	WMX														
CS-2	FB	1 bkt	X	X	X	X	X	X	X	X					Woodside

Received By: S. Leykin

Date/Time: 11-5-96 / 8:45

Delivered By: John C Woodley

Results Required, Date/Time: 11-8-96 / 9:00

TESTWELL CRAIG
LABORATORIES INCORPORATED

CORPORATE HEADQUARTERS: 47 HUDSON STREET, OSSINING, N.Y. 10562 (914) 762-9000 FAX (914) 762-9638

V. REDDY KANCHARLA, P.E., DIRECTOR
(NYS LIC. NO. 068162)

GRADATION AND STANDARD PROCTOR COMPACTION TESTING OF SOIL

CLIENT: Roy F. Weston, Inc., Sutton Park
PROJECT: Clarkstown Landfill
SAMPLE ID: SF-11 (Source: Servidone CB) SV-5 (5,000 CY)
SAMPLED BY: Client
PICKUP/DEL BY: Client

LAB#: FOB-001
REPORT#: MC-14
DATE SAMPLED: 11/05/96
DATE PICKUP/DEL: 11/05/96
DATE TESTED: 11/07/96

(A) GRADATION TEST RESULTS (ASTM D422 & ASTM D1140)

Sieve Size	Percent Passing (%)	Specifications	Sieve Size	Percent Passing (%)	Specifications
2-1/2"			#10	62.2	
2"			#16	57.0	
1-1/2"	100.0		#20	53.8	
1"	89.9		#30	48.8	
3/4"	85.8		#40	42.5	
1/2"	80.5		#50	36.8	
3/8"	77.2		#60	33.4	
1/4"	72.9		#80	29.7	
#4	69.9		#100	26.3	
#8	63.7		#200	21.1	

The gradation curve is shown in Figure-1

(B) STANDARD PROCTOR COMPACTING TEST RESULTS (ASTM D698, Procedure C, 6" diameter mold)
Optimum Water Content: 9.9%
Max. Unit Weight, Dry: 127.6 pcf
The compaction curve is shown in Figure-2.

(C) MOISTURE (ASTM D2216): 9.1%

(D) SOIL CLASSIFICATION (ASTM D2487): SM - Silty sand with gravel

(E) SOIL DESCRIPTION: m-f SAND, some c-m Gravel, some Silt
COLOR: Dark Brown; **ODOR:** None; **CONTAMINATION:** None

TESTWELL CRAIG LABORATORIES, INC.

Kaspal R. Thumma, Eng Sc D.
Laboratory Manager
KRT/mp

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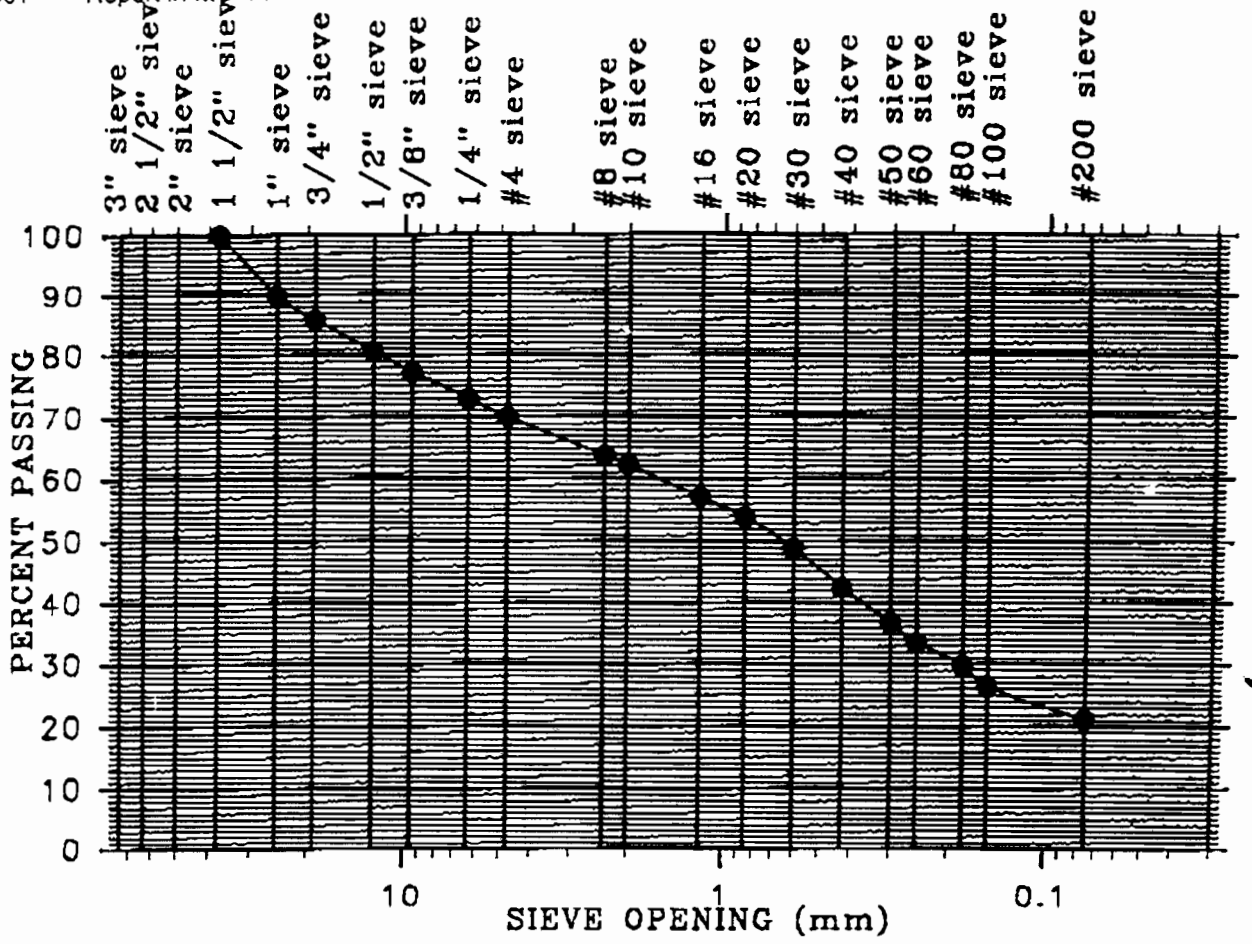
Roy F. Weston, Inc., Sutton Park
Lab #: FOB-001 Report #: MG-14
Page 2 of 3



Particle Size Gradation Curve of Soil No. SF-11

Figure 1

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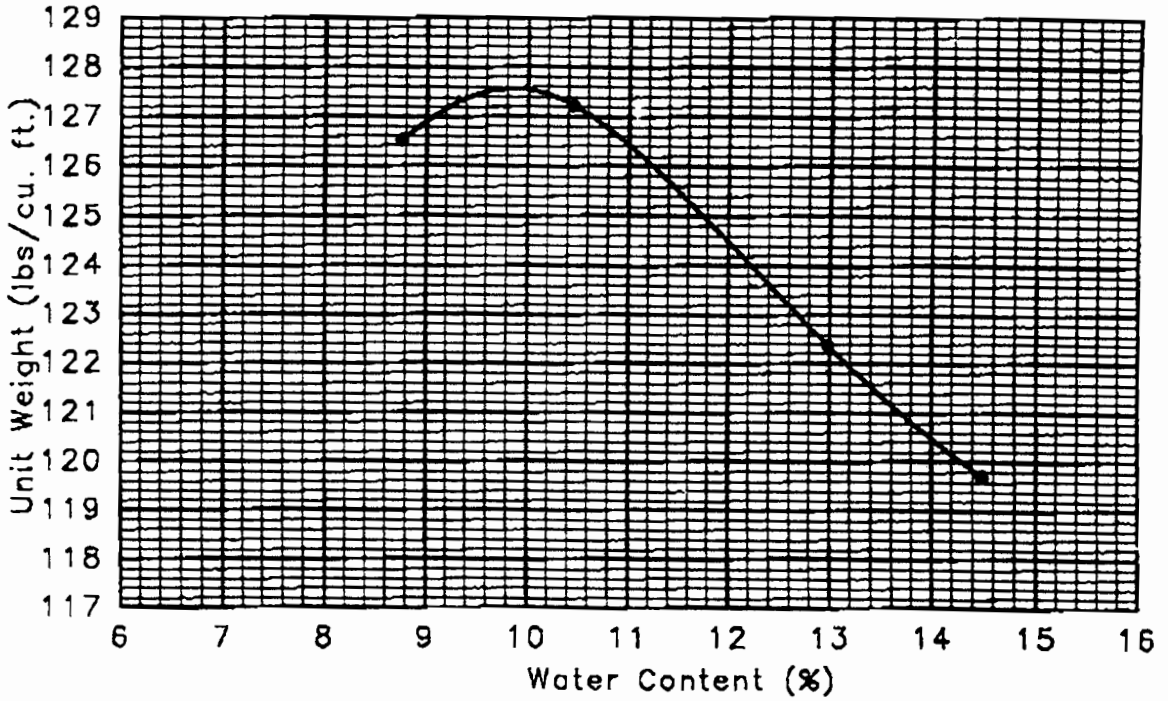
Roy F. Weston, Inc., Sutton Park
Lab #: FOB-001 Rpt #: MC-14

STANDARD PROCTOR COMPACTION TEST RESULTS OF SOIL NO. SF-11

TEST METHOD: (ASTM D698 Procedure C, 6" Diameter Mold)

Specimen No.	1	2	3	4
Water Content (%)	8.76	10.45	12.98	14.49
Unit Weight, Dry (lbs/cu.ft.)	126.52	127.23	122.38	119.71



Optimum Water Content: 9.9% Max. Unit Weight, Dry: 127.6 pcf

Figure 2: Standard Proctor Curve of Soil No. SF-11

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TESTWELL CRAIG
ORATORIES INCORPORATED

CORPORATE HEADQUARTERS: 47 HUDSON STREET, OSSINING, N.Y. 10562 (914) 762-9000 FAX (914) 762-9638

V. REDDY KANCHARLA, P.E., DIRECTOR
(NYS LIC. NO. 06816)

LIQUID LIMIT, PLASTIC LIMIT, AND PH TESTING OF SOILS

Client: Roy F. Weston
Project: Clarkstown Landfill
Sample ID: Indicated Below
Sampled By: Client

Lab #: FOB-001
Report #: MC-18
Date Pick up/del: 11/5/96
Date Tested: 11/8/96

(A) LIQUID LIMIT & PLASTIC LIMIT TEST RESULTS (ASTM D4318)

Soil Sample No.	Liquid Limit % Weight	Plastic Limit % Weight	Plastic Index
SF - 09	15.0	NP	0
SF - 10	12.8	NP	0
SF - 11	18.5	NP	0
SF - 12	22.4	NP	0
CS - 01	21.0	NP	0
CS - 02	15.0	NP	0

NOTE: NP indicates that the soil is non-plastic since 1/8" diameter thread could not be rolled at any moisture content.

(B) DERMINATION OF PH (ASTM D4972)

Soil Sample No.	PH
CS - 01	10.4
CS - 02	8.6

TESTWELL CRAIG LABORATORIES

Kaspal R. Thumma, Eng.Sc.D.
Laboratory Manager
KRT\mp

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OGDEN REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: Charlestown Landfill
Project No.: 600100000
Date Sent: 11/1/96
Project Location: Charlestown
Purchase Order No.:
Shipped Via: Ogden
Sampled By: (Signature) Bryan Bassett
Lab Contact: BRIAN
Date Received: 11/2/96

Sample No	Description	ANALYSIS REQUIRED: Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall Perm.			
SV-5	on site servicing @ 5000 cy use	X		X	X		X	X						

Comments/Special Instructions:
- Previously Sampled
- Construction Testing @ 5,000 cy use

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Rev. 4/93

F220/CRS

FAIRWAY

Soils Test Report

November 4, 1996

client Ogden Remediation

project Clarkstown Landfill

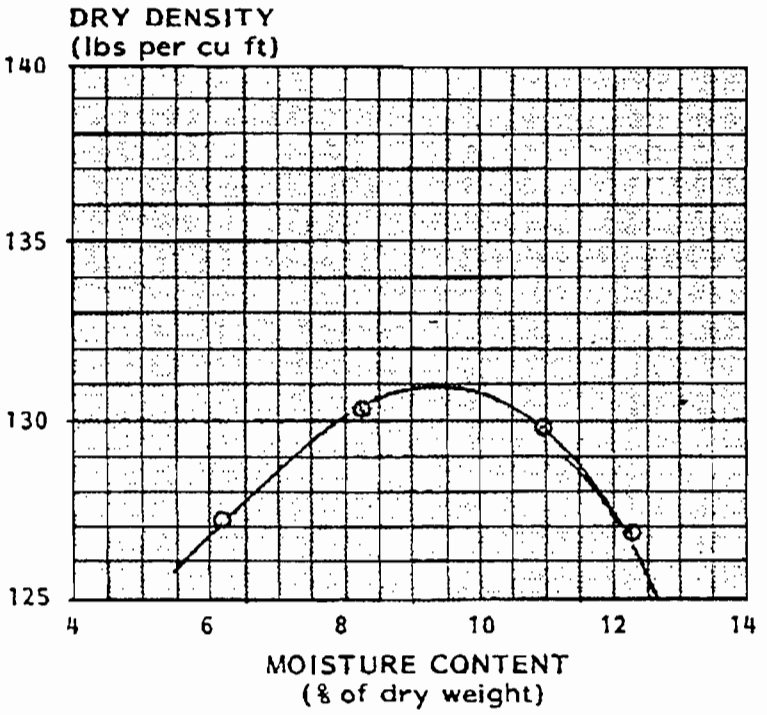
Compaction Method	ASTM D698
Maximum Dry Density	131.9 pcf
Optimum Moisture Content	9.4%

subject Moisture-Density Curve Analysis

5,500 CY

On November 2, 1996, a soil sample labeled "SV-5" was delivered to this laboratory by the client. Test results are shown below.

SF-11



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

Smith Street • Stony Point, N.Y 10980 • 914-942-2088

11-04-1996 12:34PM FROM FAIRWAY TESTING CO 914 942 0995 P.11

FAIRWAY

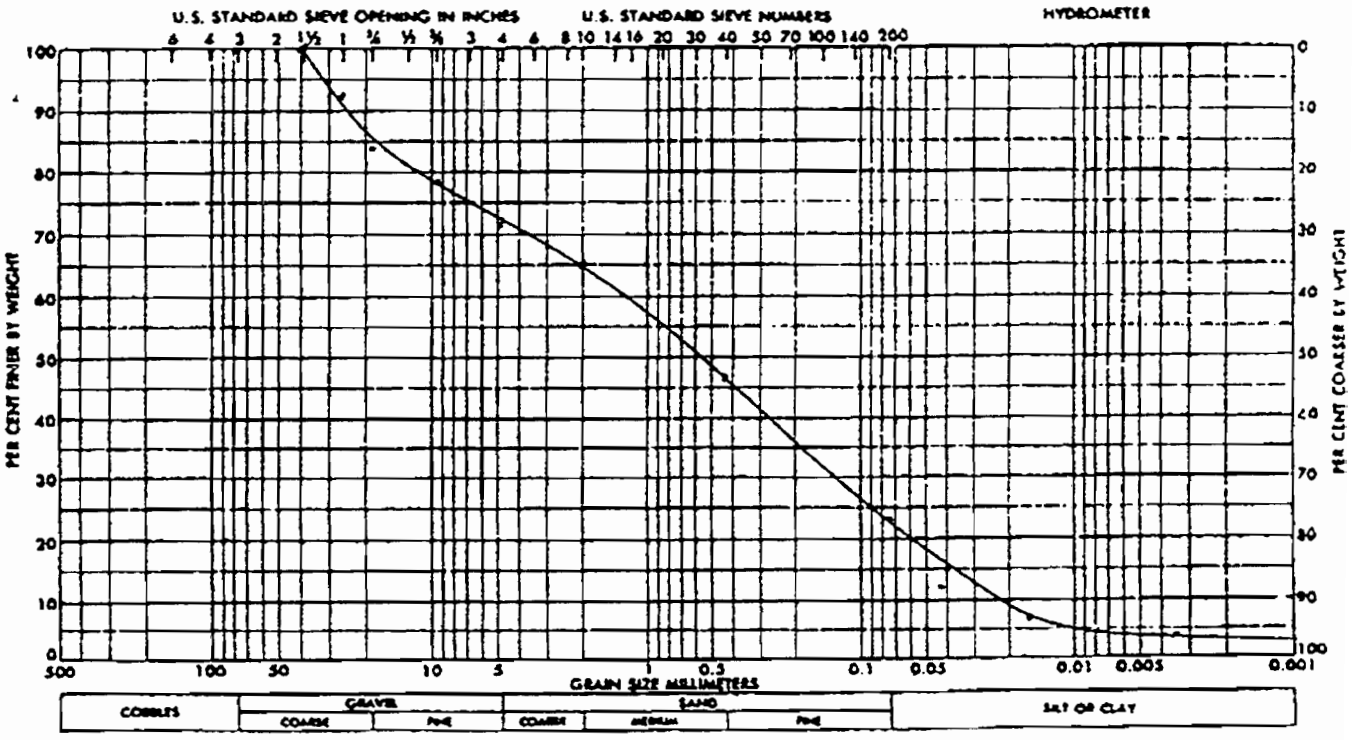
Grain Size Curve Analysis

November 4, 1996

client Ogden Remediation

project Clarkstown Landfill

On November 2, 1996, a soil sample labeled "SV-5" was delivered to this laboratory by the client. Test results are shown below.



Classification (ASTM D2487): SM, silty sand w/gravel
Atterberg Limits (ASTM D4318): NP
Moisture Content (ASTM D2216): 9.9

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

11-04-1996 12:35PM FROM FAIRWAY TESTING CO 914 942 0995 P.12

FAIRWAY

Soils Test Report

November 7, 1996

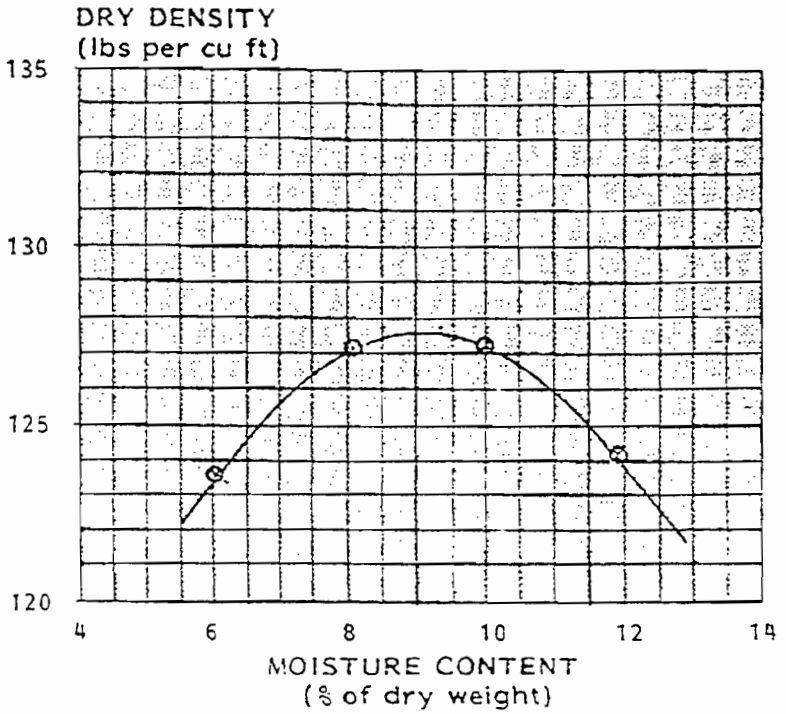
client Ogden Remediation Services

project Clarkstown Landfill

Compaction Method	ASTM D698
Maximum Dry Density	127.6 pcf
Optimum Moisture Content	9.3%

subject Moisture-Density Curve Analysis

On November 5, 1996, a representative from this firm visited the jobsite and picked-up a soil sample "SV-5.1 Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

Smith Street • Stony Point, N.Y. 10980 • 914-942-2088

11-07-1996 10:07AM FROM FAIRWAY TESTING CO 914 942 0995 P.2

FAIRWAY

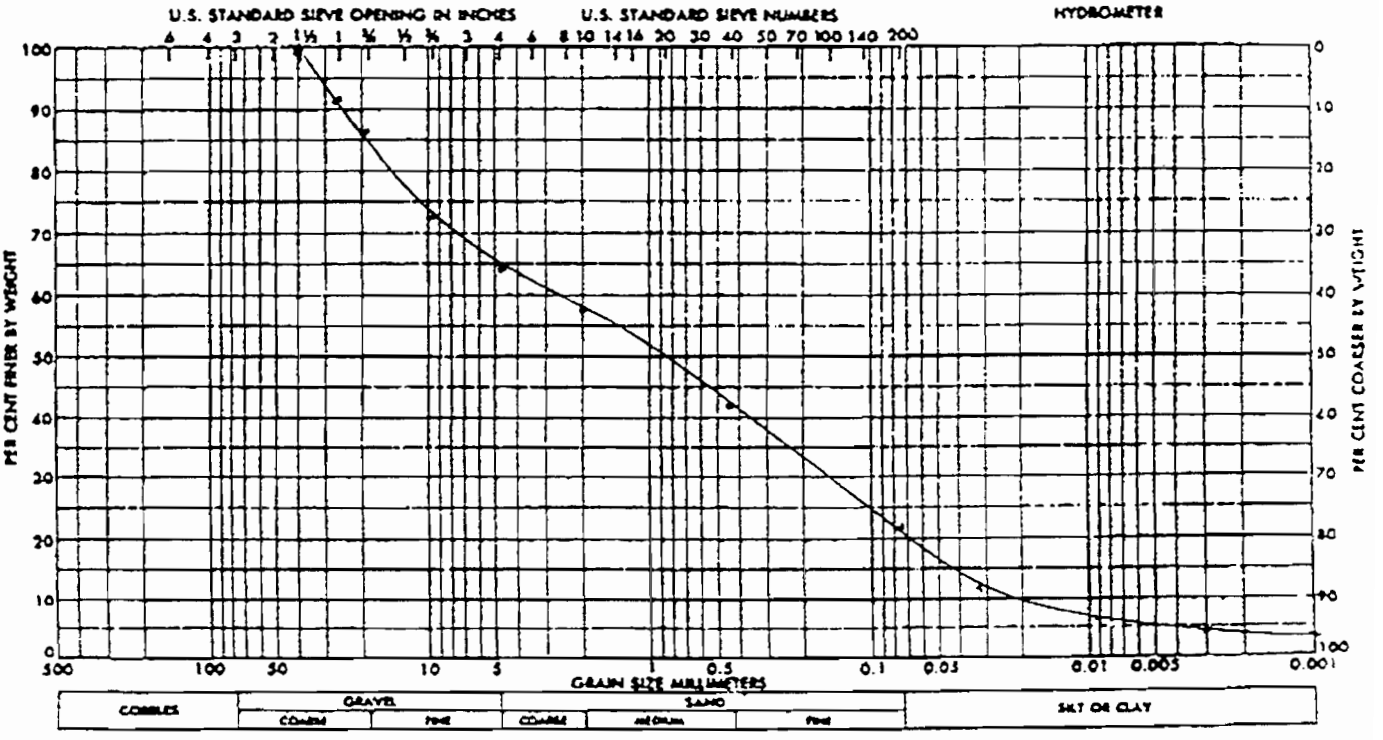
Grain Size Curve Analysis

November 7, 1996

client Ogden Remediation Services

project Clarkstown Landfill

On November 5, 1996, a representative from this firm visited the jobsite and picked-up soil sample "SV-5.1." Test results are shown below.



Classification (ASTM D2487): SM, silty sand w/gravel
Atterberg Limits (ASTM D4318): NP
Moisture Content (ASTM D2216): 11.6%

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

RECEIVED NOV 1 2 1996

FAIRWAY

Soils Test Report

November 11, 1996

client Ogden Remediation

project Clarkstown Landfill

Compaction Method ASTM D698

Maximum Dry Density 130.8 pcf

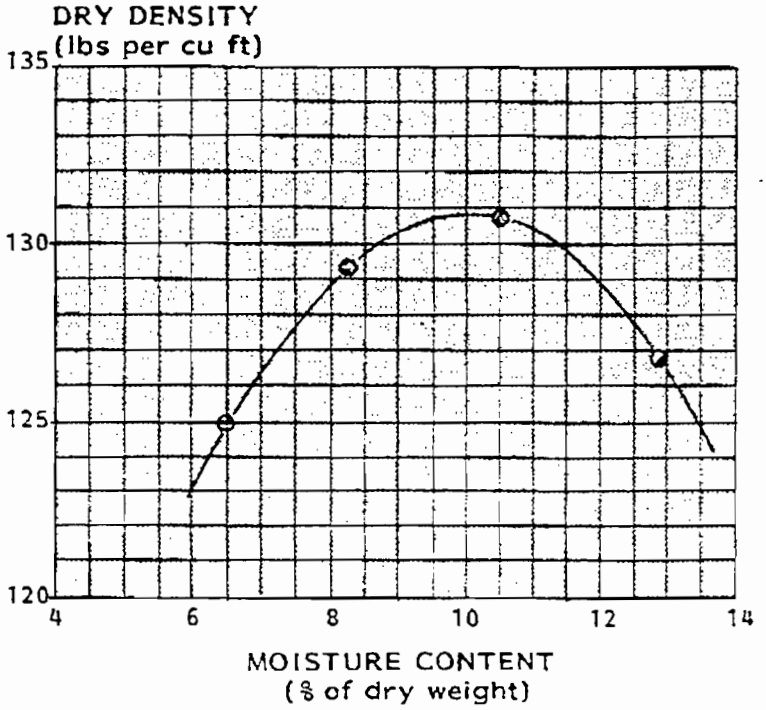
Optimum Moisture Content 10.1 %

subject Moisture-Density Curve Analysis

15,000 CY

On November 7, 1996 a representative from this firm visited the jobsite and picked-up a soil sample labeled SV-5.2. Test results are shown below.

NA



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

cc: Corr. Log

Smith Street • Stony Point, N.Y. 10980 • 914-942-2088

11-12-1996 5:05PM FROM FAIRWAY TESTING CO 914 942 0985 P.1

FAIRWAY

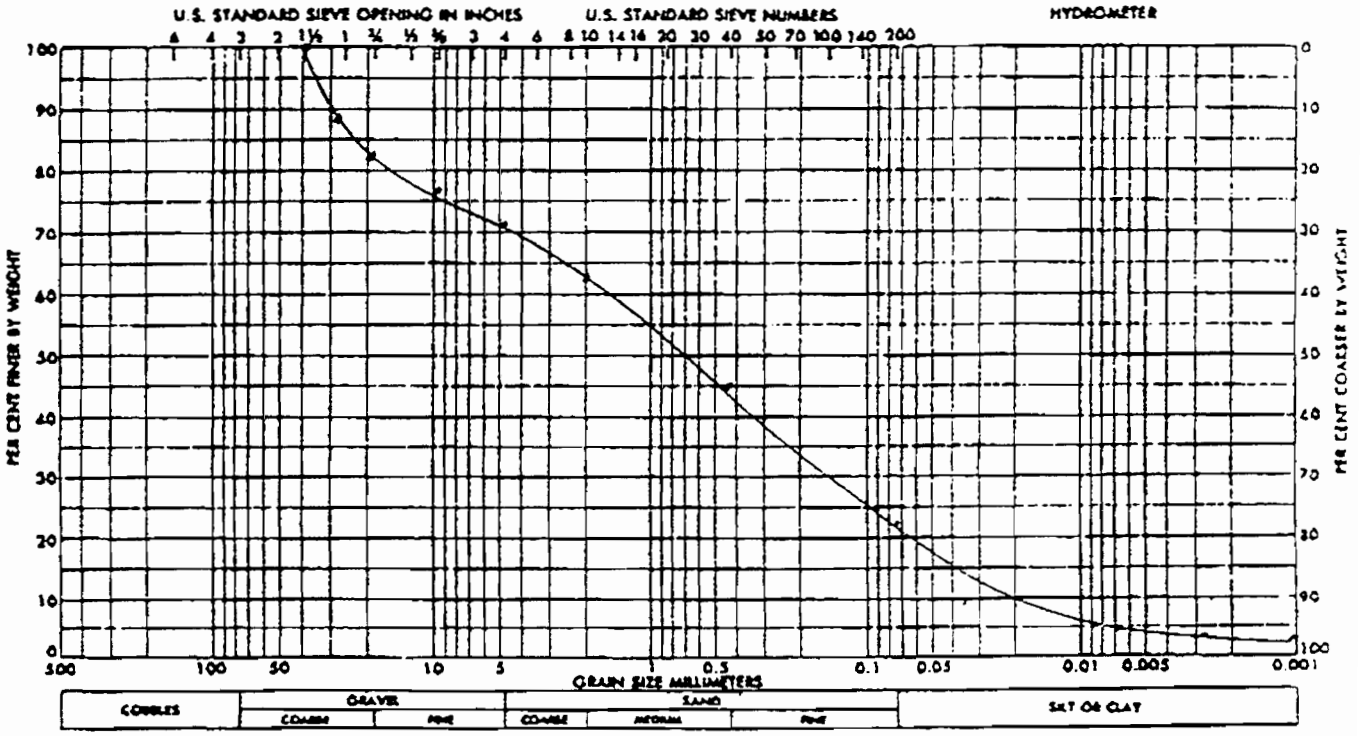
Grain Size Curve Analysis

November 11, 1996

client Ogden Remediation Services

project Clarkstown Landfill

On November 7, 1996 a representative from this firm viisted the jobsite and picked-up a soil sample labeled SV-5.2.



Classification (ASTM D2487): SM, silty sand w/gravel
Atterberg Limits (ASTM D4318): NP
Moisture Content (ASTM D2216: 9.4

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

11-12-1996 5:06PM FROM FAIRWAY TESTING CO 914 942 0995 P.2

OBG REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: Clarkstown LF + Coppias — Project No.: 60010000 — Date Sent: 11/11

Project Location: W. Nyack — Purchase Order No.: — Shipped Via: —

Sampled By: (Signature) Dan Betancourt 11/8/96 — Lab Contact: Br — Date Received: —

ANALYSIS REQUIRED

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterburg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.	[redacted]		
TN5.4	Clarkstown Common Borrow 20,000 cy Structural Fill	X		X	X		X	X						

Comments/Special Instructions: ① The Common Borrow SV structural fill will be called TN-__ as of today
② This sample will replace sample SV-5.3 as the 20,000 cy sample

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Rev. 4/93

FZ20/CR3

FAIRWAY

Soils
Test Report

November 11, 1996

client Ogden Remediation

project Clarkstown Landfill

Compaction Method ASTM D698

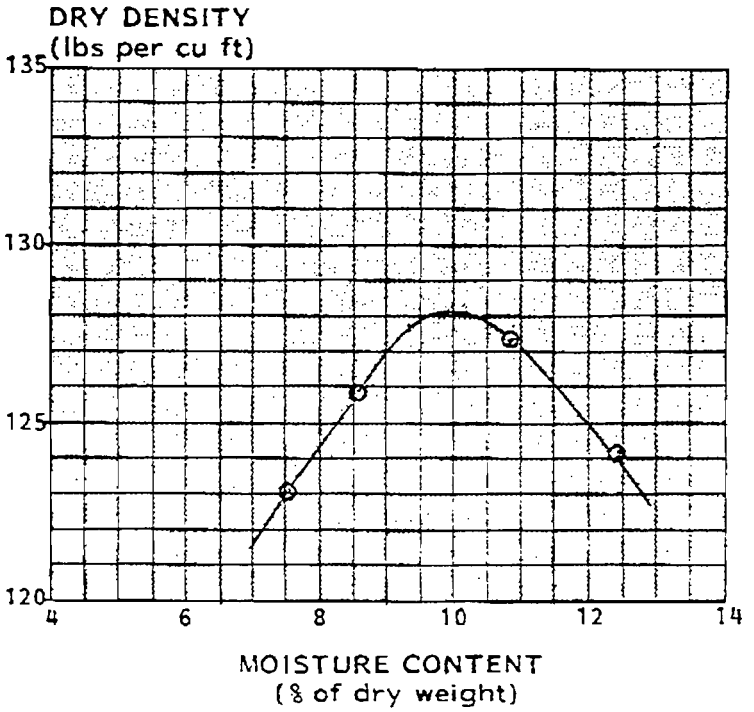
Maximum Dry Density 127.3 pcf
Optimum Moisture Content 10.0 %

subject Moisture-Density Curve Analysis

20,000 CY

On November 9, 1996 a soil sample labeled "TN 5.4" was delivered to this laboratory by the client. Test results are shown below.

NA



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

Smith Street • Stony Point, N.Y. 10980 • 914-942-2088

FAIRWAY

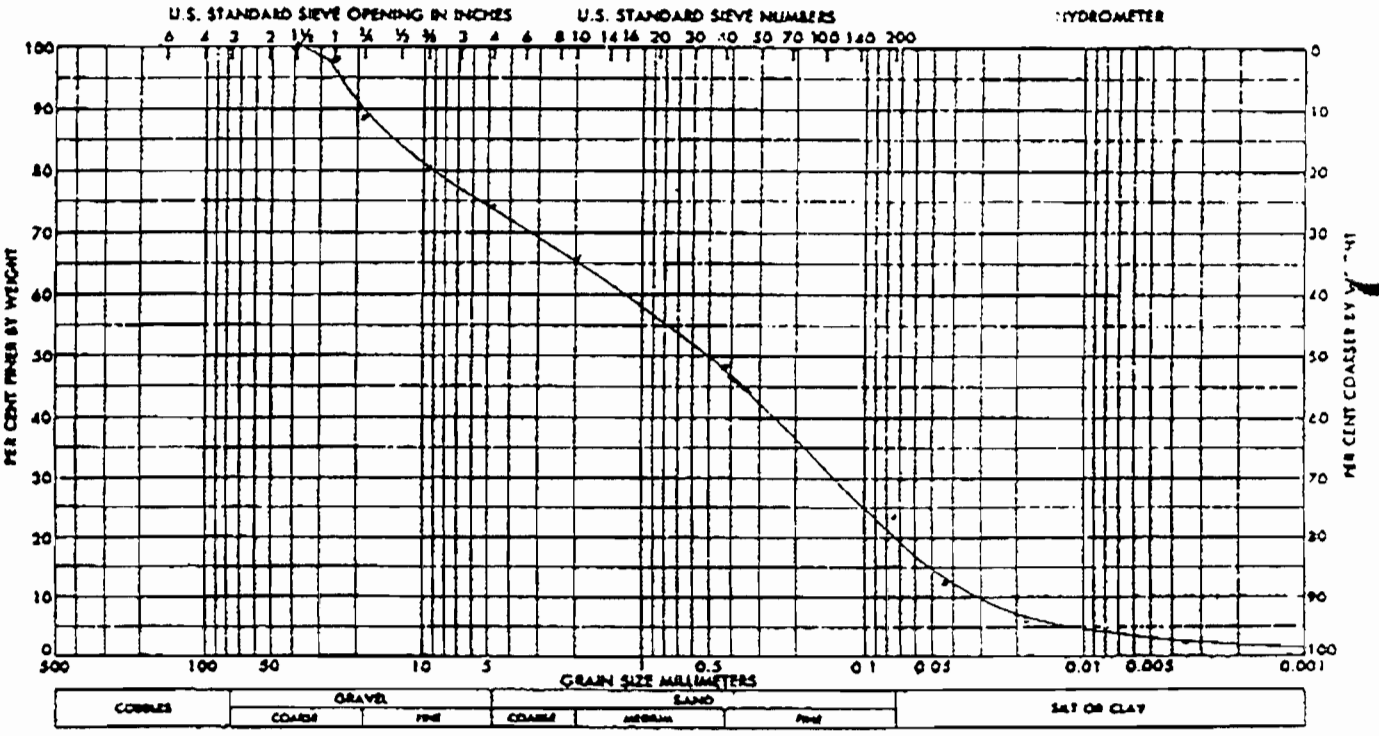
Grain Size Curve Analysis

November 11, 1996

client Ogden Remediation

project Clarkstown Landfill

On November 9, 1996, a soil sample labeled "TN 5.4" was delivered to this laboratory by the client. Test results are shown below.



Classification (ASTM D2487): SM, silty sand w/gravel

Atterberg Limits (ASTM D4318): NP

Moisture Content (ASTM D2216): 20.2%

*Trace of asphalt was observed in the soil sample.

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

Clarkstown Landfill Remediation
Laboratory Services Request
#LL-2339-K3

For:
Mr. Reddy Kancharla
M & T/Namow/TCL
47 Hudson Street
Ossining, N.Y. 10562
PH (914)762-9000
FX (914)762-9638

From:
Roy F. Weston of New York
Clarkstown Field Office
166 Rte. 303
West Nyack, N.Y. 10994
PH (914)353-5221
FX (914)353-5491

Sample I.D.	Source	Misc	ASTM D422	D698	D2216	D2487									Remarks
SF-13 TN5.5	Clarkstown CB	1 bag	X	X	X	X									Stockpile 25,000 CY Test

Received By: A. PADILONIA

Date/Time: 11-14-96 / 4:15

Delivered By: John C Woodley

Results Required, Date/Time: 11-18-96 / 10:00

ESTWELL CRAIG
LABORATORIES INCORPORATED

CORPORATE HEADQUARTERS: 47 HUDSON STREET, OSSINING, N.Y. 10562 (914) 762-9000 FAX (914) 762-9638

V. REDDY KANCHARLA, P.E., DIRECTOR
(NYS LIC. NO. 068162)

GRADATION AND STANDARD PROCTOR COMPACTION TESTING OF SOIL

CLIENT: Roy F. Weston, Inc., Sutton Park
PROJECT: Clarkstown Landfill
SAMPLE ID: SF-13 (Source: Clarkstown CB) TN5.5
SAMPLED BY: Client
PICKUP/DEL BY: Client

LAB#: FOB-001
REPORT#: MC-19
DATE SAMPLED: 11/1496
DATE PICKUP/DEL: 11/14/96
DATE TESTED: 11/15/96

(A) **GRADATION TEST RESULTS (ASTM D422 & ASTM D1140)**

Sieve Size	Percent Passing (%)	Specifications	Sieve Size	Percent Passing (%)	Specifications
2-1/2"	100.0		#10	59.9	
2"	88.6		#16	54.9	
1-1/2"	88.6		#20	51.6	
1"	83.7		#30	46.9	
3/4"	79.7		#40	41.1	
1/2"	73.4		#50	35.5	
3/8"	71.6		#60	31.8	
1/4"	68.5		#80	27.8	
#4	66.5		#100	24.9	
#8	61.4		#200	22.2	

The gradation curve is shown on Figure-1

(B) **STANDARD PROCTOR COMPACTING TEST RESULTS (ASTM D698, Procedure C, 6" diameter mold)**
Optimum Water Content: 8.7%
Max. Unit Weight, Dry: 133.2 pcf
The proctor compaction curve is shown in Figure-2

(C) **MOISTURE (ASTM D2216):** 10.7%

(D) **SOIL CLASSIFICATION (ASTM D2487):** SM-Silty sand with gravel

(E) **SOIL DESCRIPTION:** m-f SAND, some c-m Gravel, some Silt
COLOR: Redish Brown; **ODOR:** None; **CONTAMINATION:** None

TESTWELL CRAIG LABORATORIES, INC.

Kaspal R. Thumma, Eng.Sc.D.
Laboratory Manager
KRT/mp

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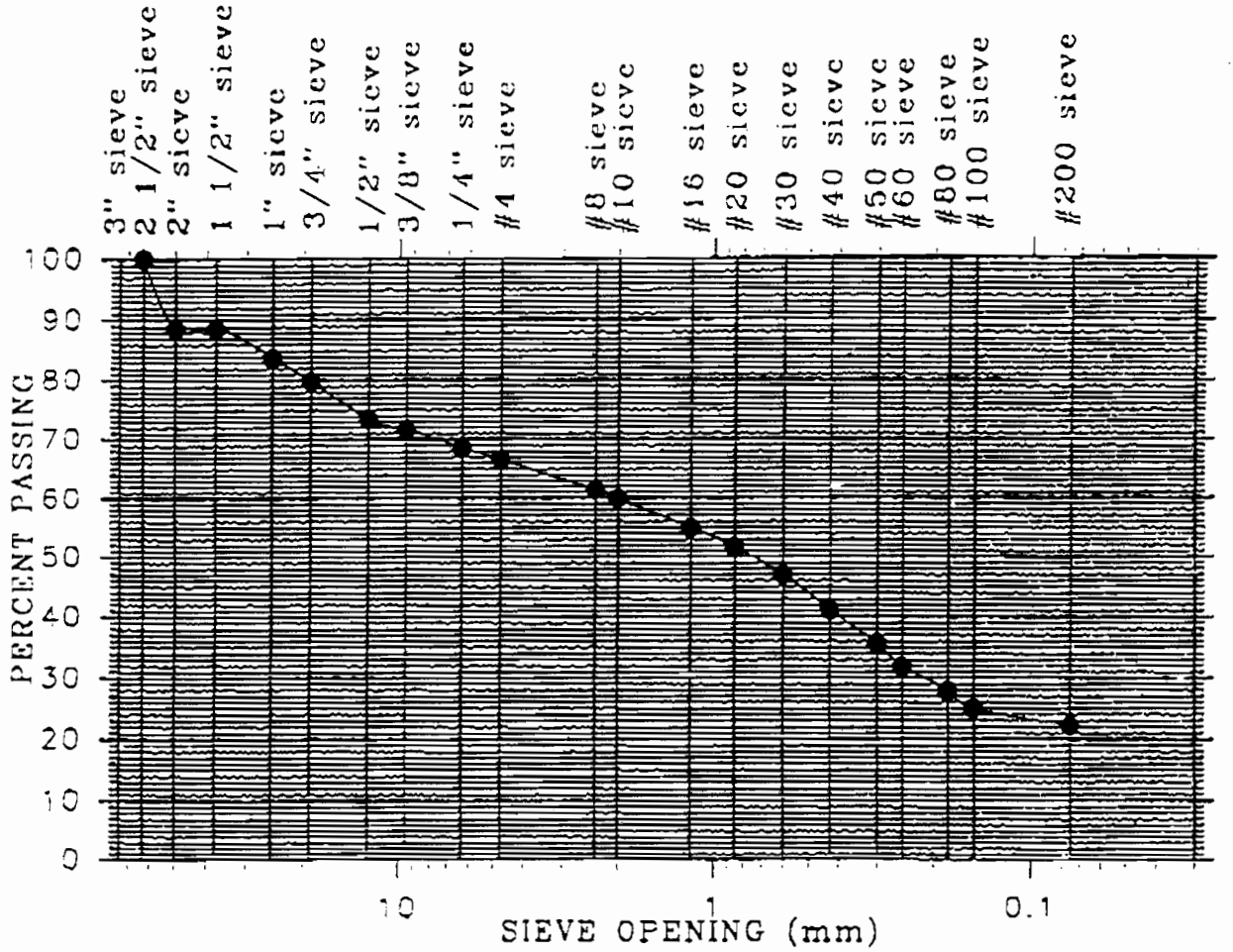

Figure 1: Particle Size Gradation Curve of Soil No. SF-13

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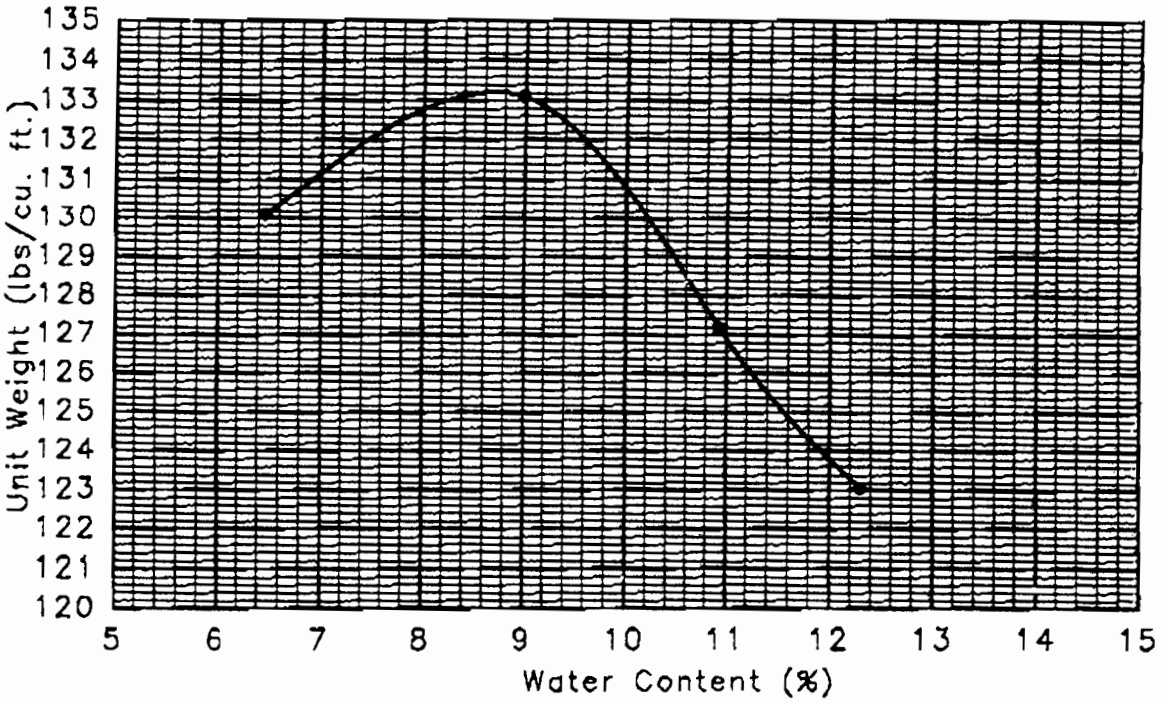
Roy F. Weston, Inc., Sutton Park
Lab #: FOB-001 Rpt #: MC-19

TEST METHOD: (ASTM D698 Procedure C, 6" Diameter Mold)

Specimen No.	1	2	3	4
Water Content (%)	6.47	8.99	10.93	12.30
Unit Weight, Dry (lbs/cu.ft.)	130.11	133.10	127.16	123.05



Optimum Water Content: 8.7% Max. Unit Weight, Dry: 133.2 pcf

Figure 2: Standard Proctor Curve of Soil No. SF-13

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Soil Sample Test Request Record

Project Name/Client: Clarkstown LF + Capping
Project No.: 600100000
Date Sent: 11/12/96

Project Location: W. Nyack
Purchase Order No.:
Shipped Via: Larry

Sampled By: (Signature) Daniel A. Belanceau
Lab Contact: Brian
Date Received:

Sample No	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterburg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall Perm.			
		ANALYSIS REQUIRED												
TN 5.5	Clarkstown Common Borrow	X		X	X		X	X						
	Structural Fill 25,000 cy													
	Construction Test													

Comments/Special Instructions: (1) EPA 6020 No longer required for TN material on site
2. 25,000 cy - Sample (Duplicate) waiting Fairway results.

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Rev. 4/93

FZX/CRS

05/18/1996 11:05 8457655 PAGE 02

FAIRWAY

Soils
Test Report

November 14, 1996

client Ogden Remediation Services

project Clarkstown Landfill

Compaction Method ASTM D698

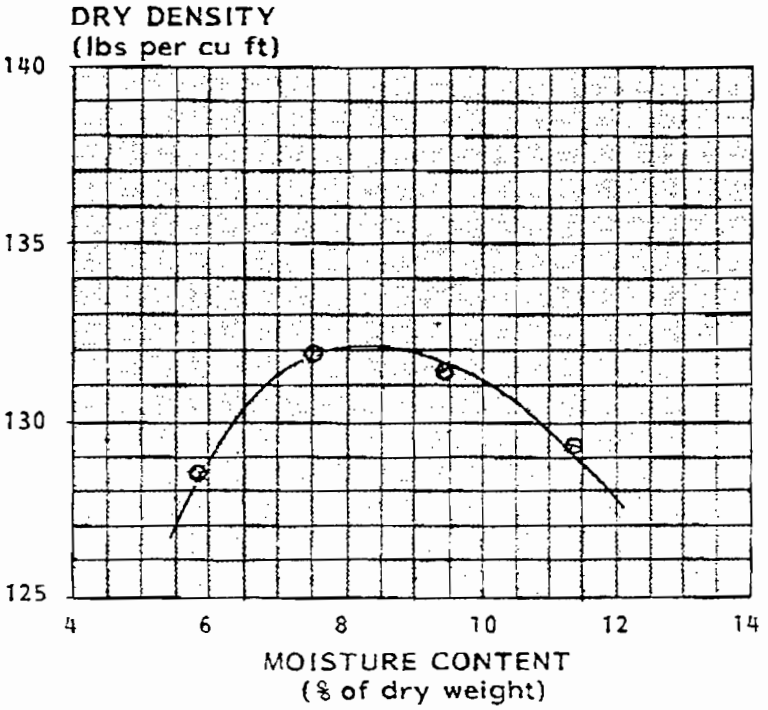
Maximum Dry Density 132.1 pcf
Optimum Moisture Content 8.4%

subject Moisture-Density Curve Analysis

25,000 CY

On November 12, 1996, a representative from this firm visited the jobsite and picked-up soil sample "TN 5.5". Test results are shown below.

SF-13



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

C

Smith Street • Stony Point, N.Y. 10980 • 914-942-2088

11-14-1996 12:50PM FROM FAIRWAY TESTING CO 914 942 0995 P.5

FAIRWAY

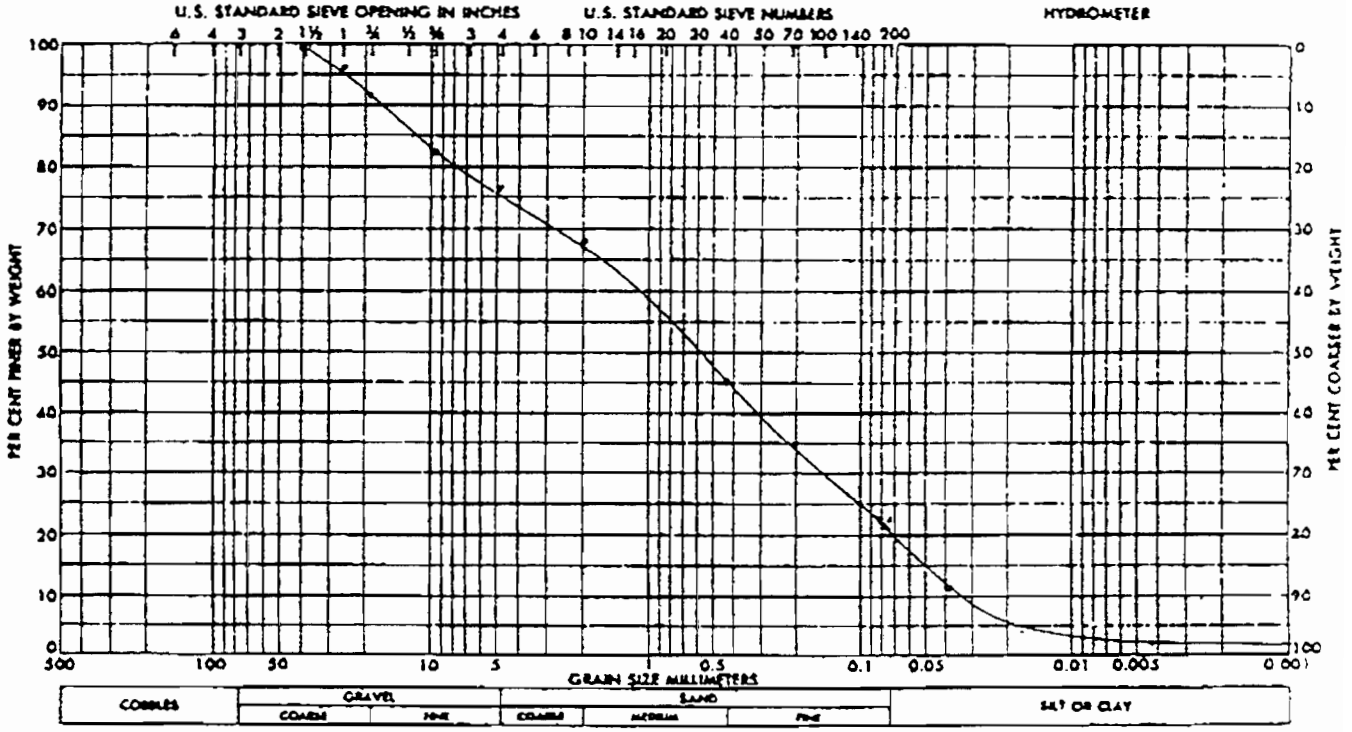
Grain Size
Curve Analysis

November 14, 1996

client Ogden Remediation Services

project Clarkstown Landfill

On November 12, 1996 a representative from this firm visited the jobsite and picked-up soil sample "TN 5.5". Test results are shown below.



Classification (ASTM D2487): SM, silty sand w/gravel

Atterberg Limits (ASTM D4318): NP

Moisture Content (ASTM D2217): 14.8%

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

11-14-1996 12:51PM FROM FAIRWAY TESTING CO 914 942 0995 P.7

FAIRWAY

RECEIVED NOV 2 1 1996

Soils Test Report

November 20, 1996

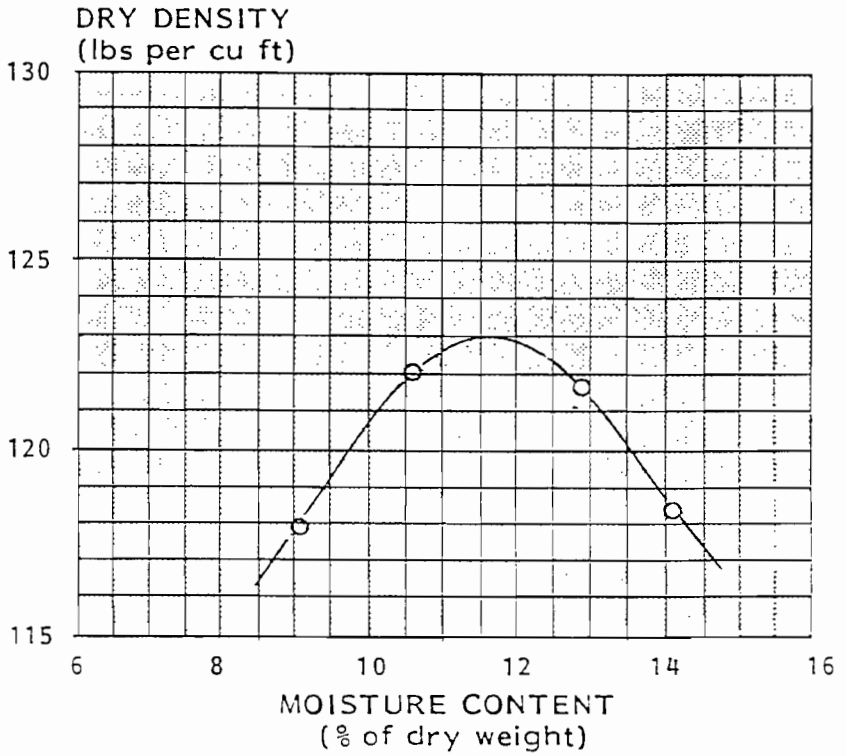
client Ogden Remediation Services

project Clarkstown Landfill

subject Moisture-Density Curve Analysis

Compaction Method	ASTM D698
Maximum Dry Density	123.0 pcf
Optimum Moisture Content	11.6%

On November 18, 1996, a representative MIXED from this firm visited the jobsite and picked-up soil sample NS-9.1. Test results are shown below. NA



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

COPIES TO: [illegible]
CL
DL

FAIRWAY

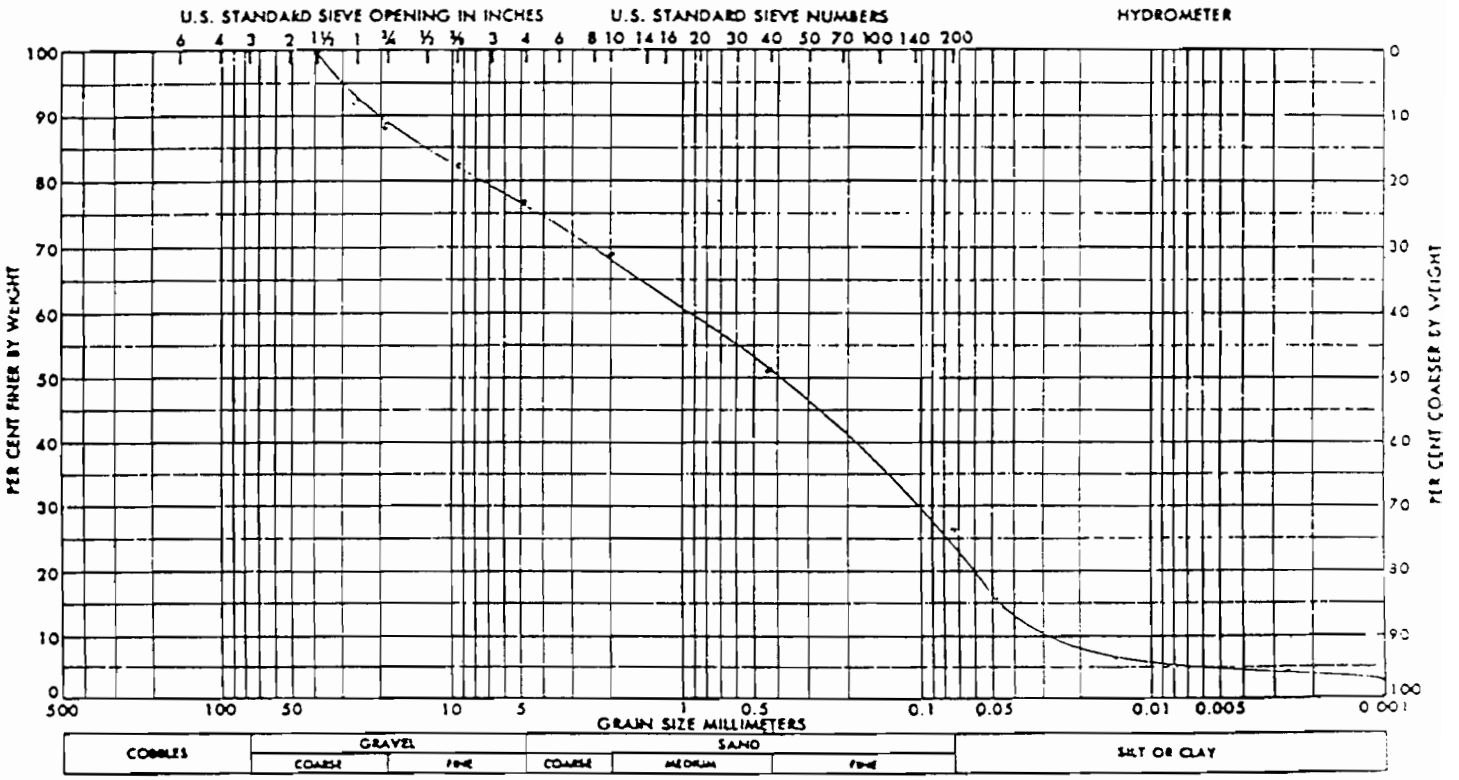
Grain Size Curve Analysis

November 20, 1996

client Ogden Remediation Services

project Clarkstown Landfill

On November 18, 1996, a representative from this firm visited the jobsite and picked-up soil sample NS-9.1. Test results are shown below.



Soil Classification (D2487): SM, silty sand w/gravel

Atterberg Limits (D4318): NP

Moisture Content (D2216): 12.6%

*Visually observed some organics in the soil sample.

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

FAIRWAY

Soils Test Report

November 16, 1996

client Ogden Remediation

project Clarkstown Landfill

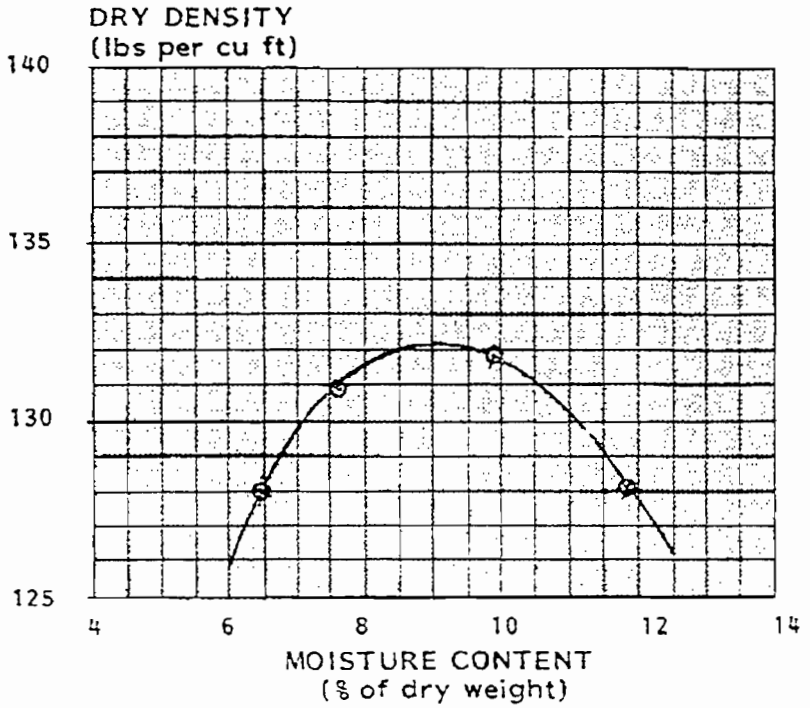
Compaction Method	ASTM D698
Maximum Dry Density	131.2 pcf
Optimum Moisture Content	9.1%

30,000 cy

subject Moisture-Density Curve Analysis

On November 14, 1996, a representative from this firm visited the jobsite and picked-up soil sampel "TN-5.6". Test results are shown below.

NA



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

Smith Street • Stony Point, N.Y. 10980 • 914-942-2088

FAIRWAY

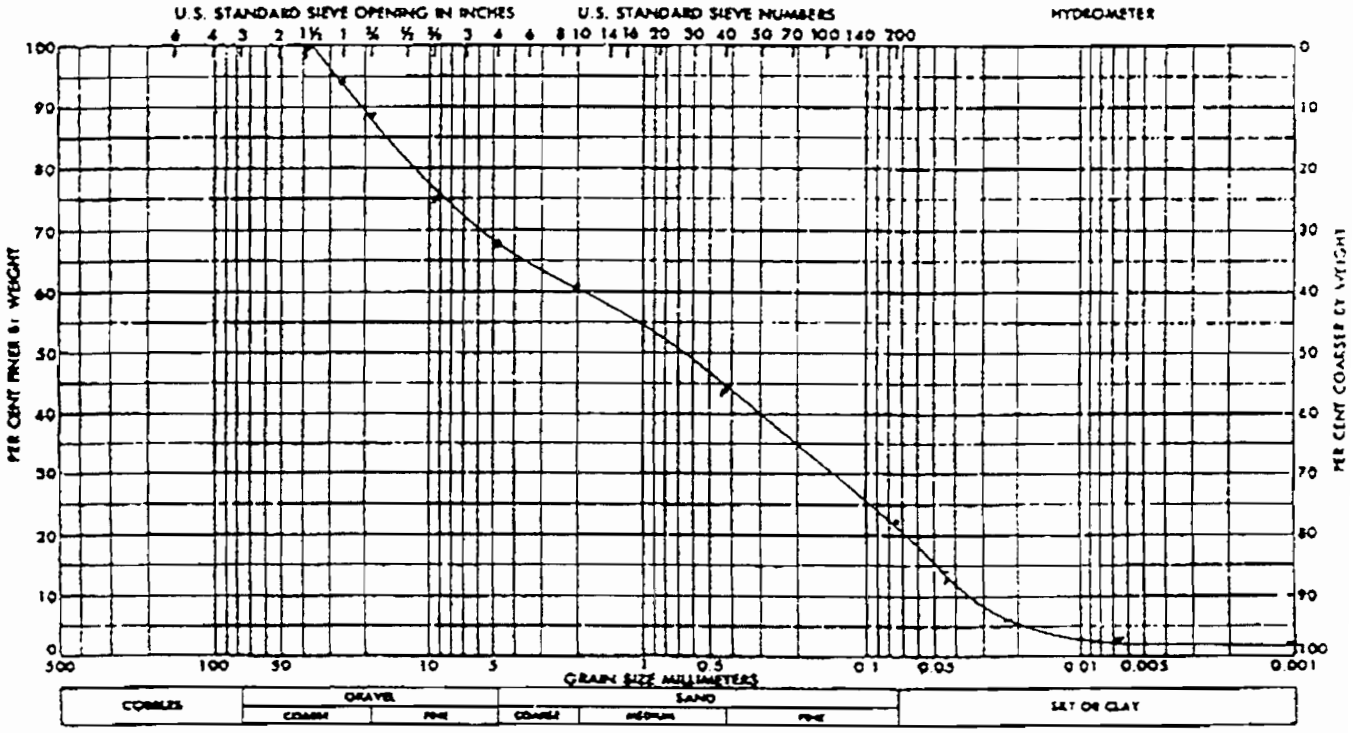
Grain Size Curve Analysis

November 16, 1996

client Ogden Remediation Services

project Clarkstown Landfill

On November 14, 1996, a representative from this firm visited the jobsite and picked-up soil sample "TN-5.6." Test results are shown below.



Classification (ASTM D2487): SM, silty sand w/gravel

Atterberg Limits (ASTM D4318): NP

Moisture Content (ASTM D2216): 8.8

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

FAIRWAY

Soils Test Report

November 20, 1996

client Ogden Remediation Services

project Clarkstown Landfill

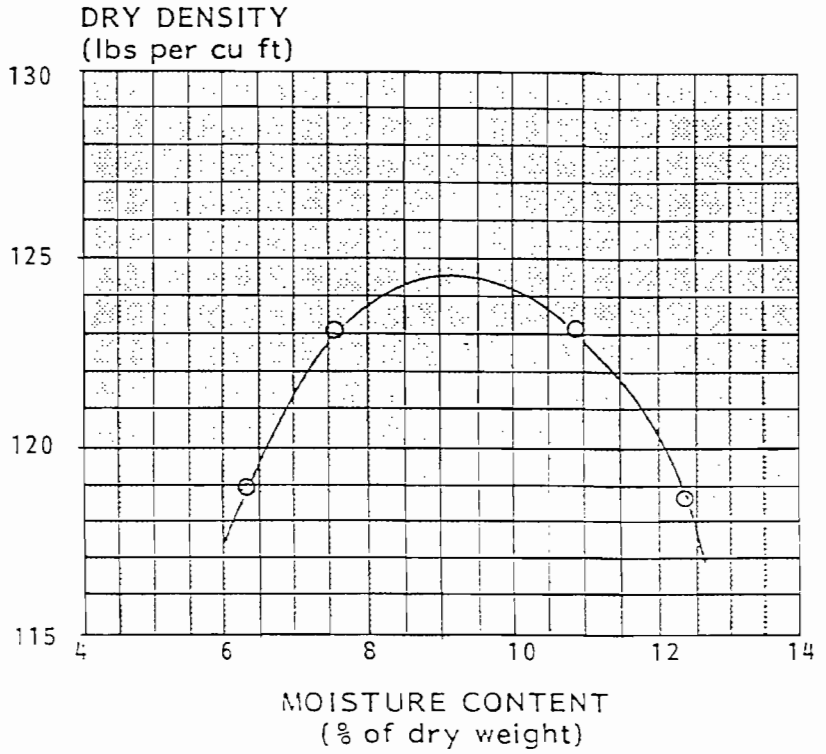
subject Moisture-Density Curve Analysis

Compaction Method	ASTM D698
Maximum Dry Density	124.6 pcf
Optimum Moisture Content	9.1%

35,000 cy

On November 18, 1996, a representative from this firm visited the jobsite and picked-up soil sample TN 5.7. Test results are shown below.

NA



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P. J. Aguanno, P.E.

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FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

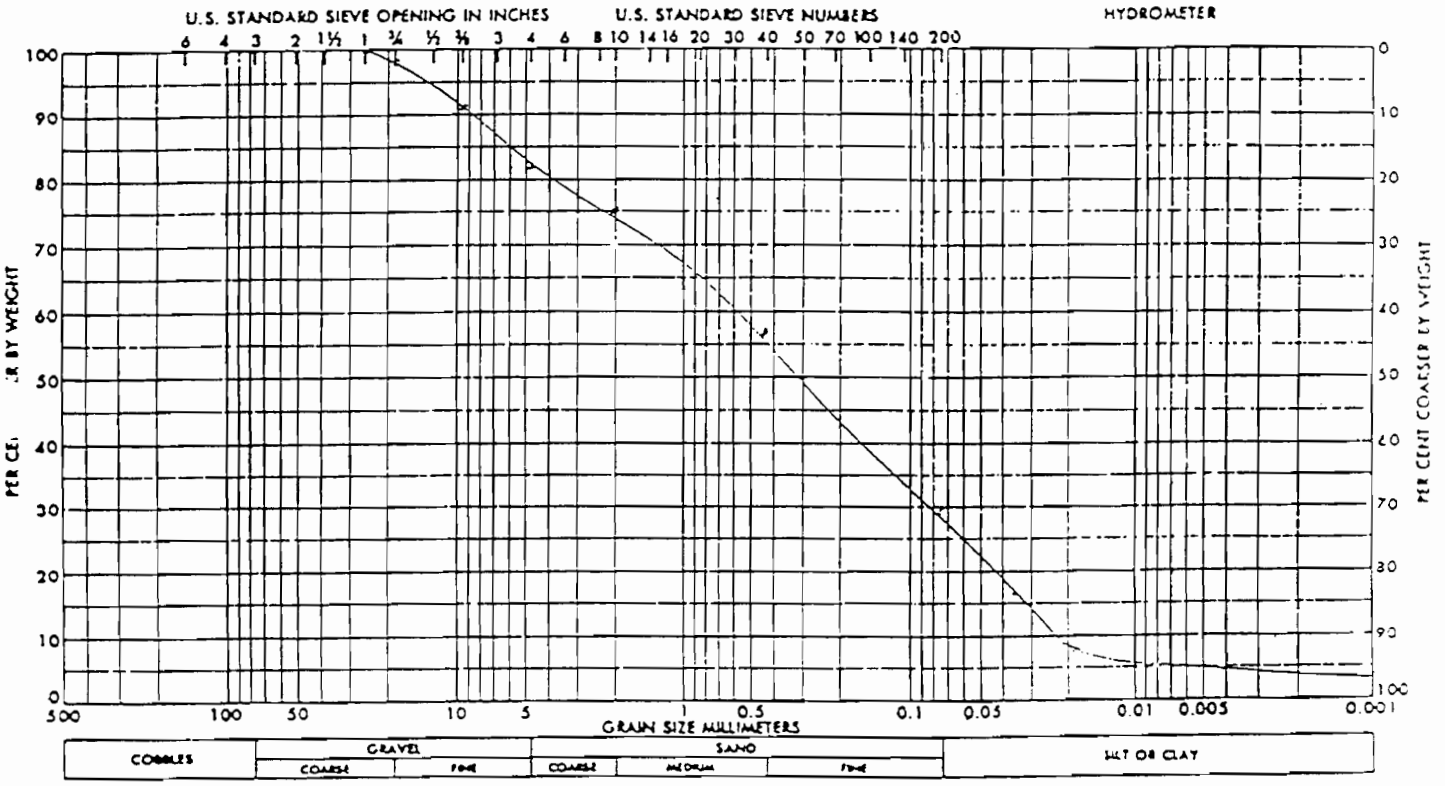
November 20, 1996

Grain Size Curve Analysis

client Ogden Remediation

project Clarkstown Landfill

On November 18, 1996, a representative from this firm visited the jobsite and picked-up soil sample TN 5.7. Test results are shown below.



Soil Classification (D2487): SM, silty sand

Atterberg Limits (D4318): NP

Moisture Content (D2216): 11.7%

*Visually observed some organics.

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: Clarkstown LF & Compost — Project No.: 600100000 — Date Sent: 11/22/96

Project Location: W. Nyack — Purchase Order No.: _____ — Shipped Via: Lorry

Sampled By: (Signature) D. LA Bl — Lab Contact: Brian — Date Received: _____

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterburg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydro-meter ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex Wall Perm.			
		ANALYSIS REQUIRED												
CS-2.3	WM x Structural Fill 5,000 cy test	X		X	X		X	X						

Comments/Special Instructions: CS-2.3 has been tested in the past. RFW approved for Structural Fill only

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

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FAIRWAY

Soils
Test Report

November 25, 1996

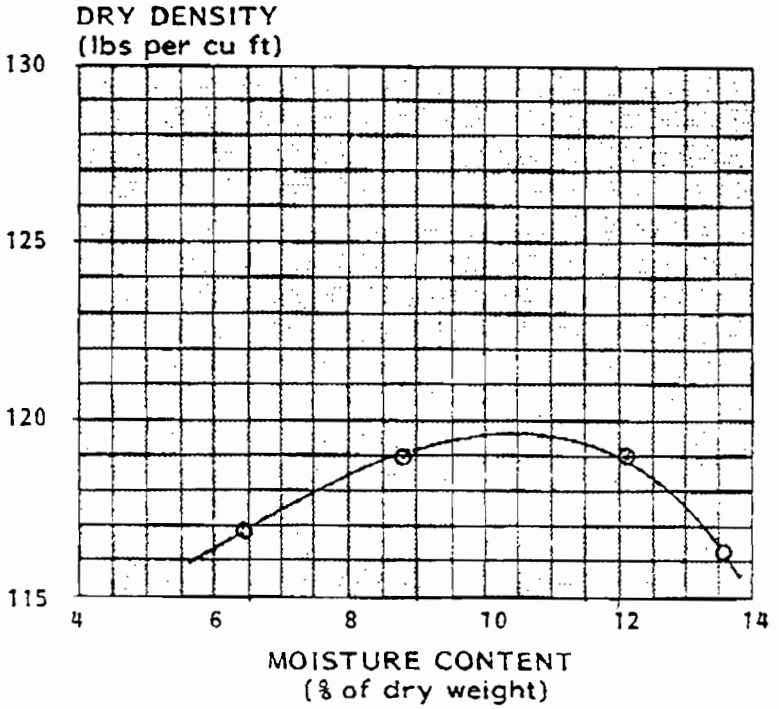
client Ogden Remediation Services

project Clarkstown Landfill

Compaction Method	ASTM D698
Maximum Dry Density	119.7 pcf
Optimum Moisture Content	10.8%

subject Moisture-Density Curve Analysis

On November 22, 1996, a representative from this firm visited the jobsite and picked-up soil sample CS-2.3. Test results are shown below.



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P. S. Aguanno, P.E.

Smith Street • Stony Point, N.Y. 10980 • 914-942-2088

SINCE 1949

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 TELEPHONE (914) 942-2088 FAX (914) 942-0995

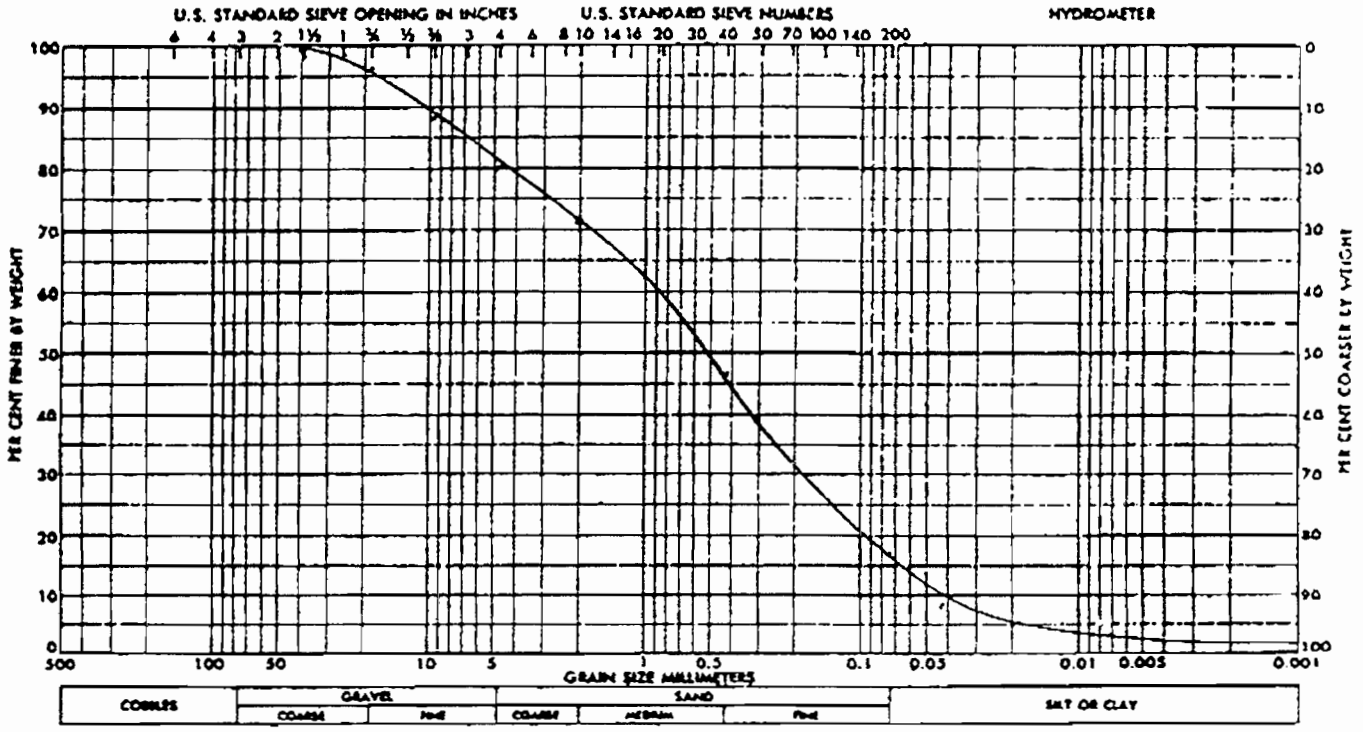
November 25, 1996

Grain Size Curve Analysis

client Ogden Remediation Services

project Clarkstown Landfill

On November 22, 1996, a representative from this firm visited the jobsite and picked-up soil sample CS-2.3. Test results are shown below.



Soil Classification (D2487): SM, silty sand w/gravel

Atterberg Limits (D4318): NP

Moisture Content (D2216): 11.4%

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

Clarkstown Landfill Remediation
Laboratory Services Request
#LL-2339-K3

For:
Mr. Reddy Kancharla
M & T/Namow/TCL
47 Hudson Street
Ossining, N.Y. 10562
PH (914)762-9000
FX (914)762-9638

From:
Roy F. Weston of New York
Clarkstown Field Office
166 Rte. 303
West Nyack, N.Y. 10994
PH (914)353-5221
FX (914)353-5491

Sample I.D.	Source	Misc	ASTM D422	ASTM D698	ASTM D2216	ASTM D2487									Remarks
SF-16	Ballfield CB	1 bkt	X	X	X	X									

Received By: Kaspal Thummma

Date/Time: 1-17-97 / 2:50

Delivered By: John C Woodley

Results Required, Date/Time: 1-22-97 / 11:00

M&T/NAMOW/TCL□J.V.

GRADATION AND STANDARD PROCTOR COMPACTION TESTING OF SOIL

CLIENT: Roy F. Weston, Inc., Sutton Park
PROJECT: Clarkstown Landfill
SAMPLE ID: SF-16 (Source: Ball Field CB)
SAMPLED BY: Client
PICKUP/DEL BY: Client

LAB#: FOB-001
REPORT#: MC-32
DATE SAMPLED: 1/17/97
DATE TESTED: 1/20/97

(A) GRADATION TEST RESULTS (ASTM D422 & ASTM D1140)

Sieve Size	Percent Passing (%)	Specifications	Sieve Size	Percent Passing (%)	Specifications
2-1/2"			#10	91.9	
2"			#16	88.8	
1-1/2"			#20	86.5	
1"			#30	82.6	
3/4"	100.0		#40	76.5	
1/2"	97.9		#50	67.5	
3/8"	96.9		#60	47.6	
1/4"	95.9		#80	40.1	
#4	95.1		#100	37.3	
#8	92.7		#200	30.9	

The gradation curve is shown on Figure-1

(B) STANDARD PROCTOR COMPACTING TEST RESULTS (ASTM D698, Procedure B, 4" diameter mold)
Optimum Water Content: 12.9%
Max. Unit Weight, Dry: 114.5 pcf
The proctor compaction curve is shown in Figure-2

(C) MOISTURE (ASTM D2216): 15.8%

(D) SOIL CLASSIFICATION (ASTM D2487): SM Silty sand

(E) SOIL DESCRIPTION: m-f SAND, some Silt, trace Gravel
COLOR: Brown; **ODOR:** None; **CONTAMINATION:** None

TESTWELL CRAIG LABORATORIES, INC.

Kaspal R. Thumma, Eng.Sc.D.
Laboratory Manager
KRT/mp

Received: 01/21/97 11:05:20 From: 9147629638

M&T/NAMOW/TCL□J.V.

Roy F. Weston, Inc., Sutton Park
Lab #: FCB-001 Report #: MC-32
Page 2 of 3

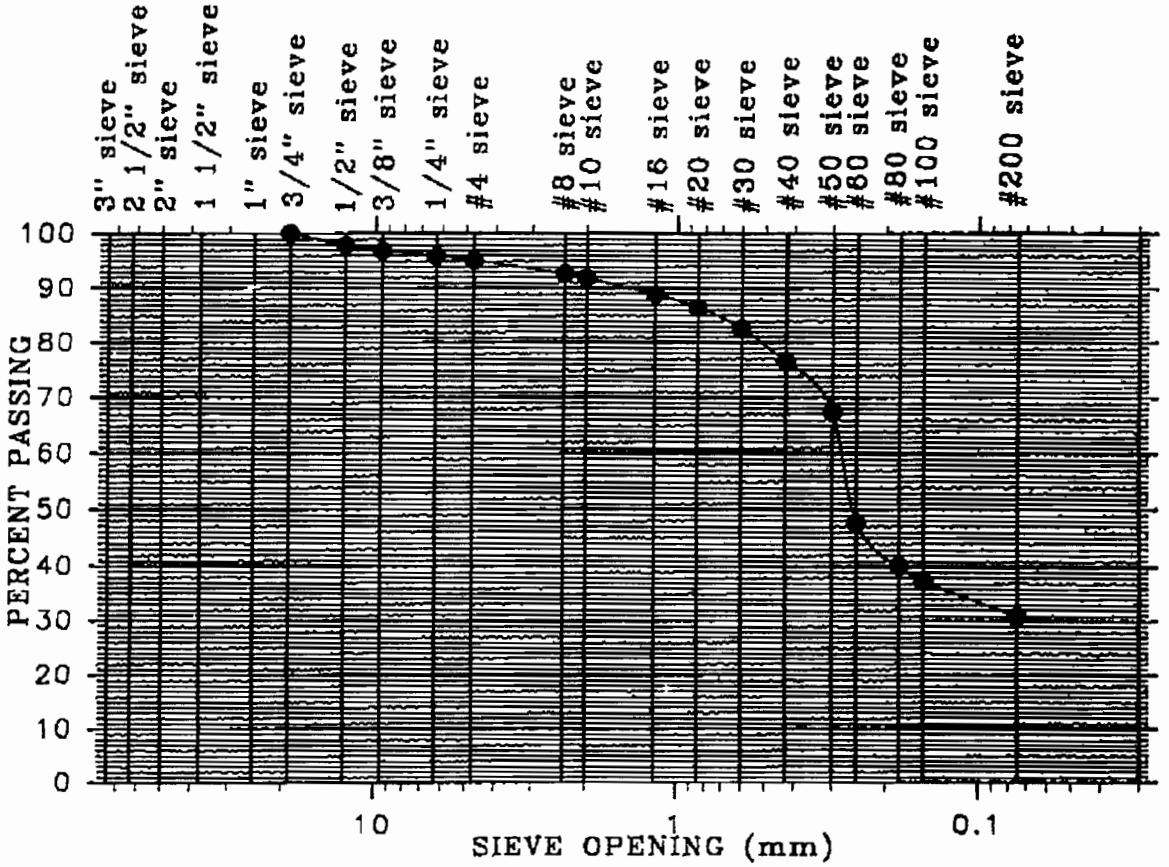


Figure 1: Particle Size Gradation Curve of Soil No. SF-16

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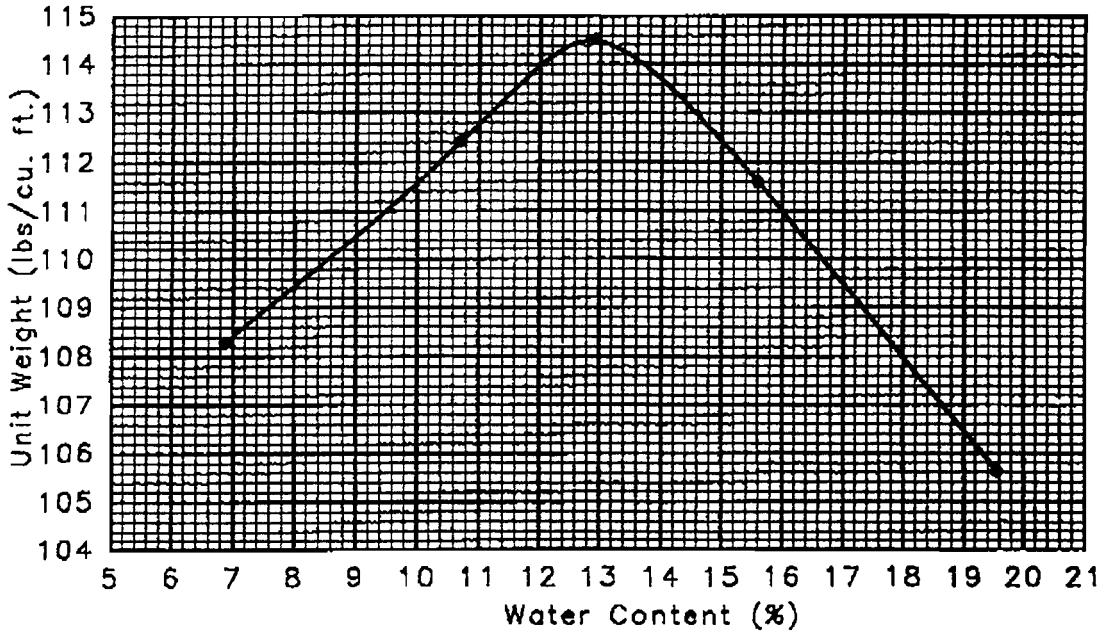
M&T/NAMOW/TCL□J.V.

Roy F. Weston, Inc., Sutton Park
Lab #: FOB-001 Rpt #: MC-32
Page 3 of 3

STANDARD PROCTOR COMPACTION TEST RESULTS OF SOIL NO. SF-16

TEST METHOD: (ASTM D698 Procedure B, 4" Diameter Mold)

Specimen No.	1	2	3	4	5
Water Content (%)	6.87	10.72	12.92	15.60	19.55
Unit Weight, Dry (lbs/cu.ft.)	108.29	112.43	114.51	111.59	105.63



Optimum Water Content: 12.9% Max. Unit Weight, Dry: 114.5 pcf

Figure 2: Standard Proctor Curve of Soil No. SF-16

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REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: CLARKSTOWN LANDFILL / CAPPING
Project No.: 60000000 Date Sent: 1/9/97
Project Location: WEST NYACK, N.Y.
Purchase Order No.: 6-52-P2-110730 Shipped Via:
Sampled By: (Signature) J. BEATTY JBeatty
Lab Contact: BRIAN HUGICK Date Received: 1/9/97

Sample No.	Description	ANALYSIS REQUIRED: Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterburg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
SFCB-BLF-1	EXCAVATION FROM BALLFIELD ON SITE	X		X	X		X	X						
SFCB-BLF-2	"	X		X	X		X	X						

Comments/Special Instructions: POSSIBLE STRUCTURAL FILL, ON SITE BALLFIELD.

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Rev. 4/93

FZMCRS

09/18/1996 11:05 - 6094999393 MOI E AND I PAGE 02

FAIRWAY

Soils
Test Report

January 13, 1997

client Ogden Remediation Services

project Clarkstown Landfill

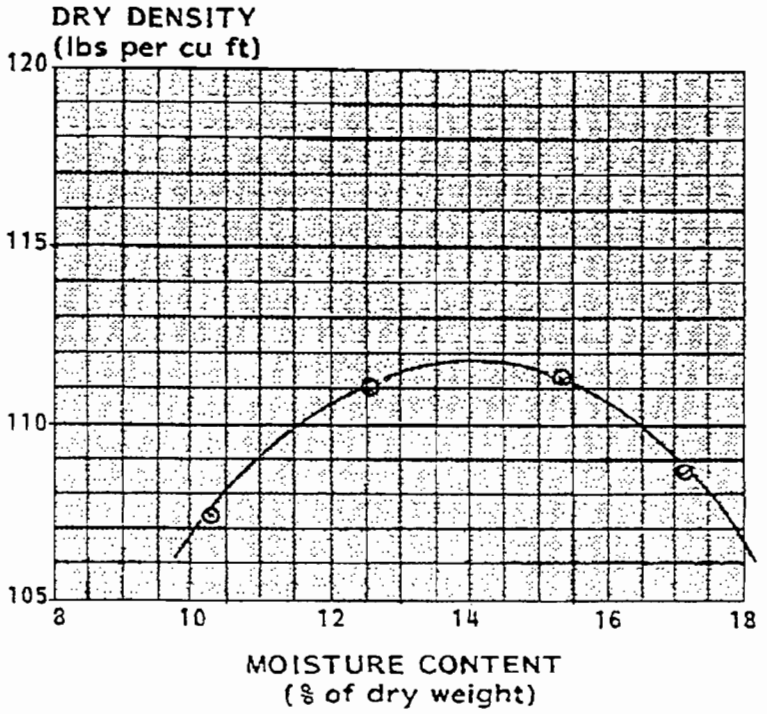
Compaction ASTM Method D698

subject Moisture-Density Curve Analysis

Maximum Dry Density 111.8 pcf
Optimum Moisture Content 14.0 %

SF-16

On January 9, 1997 a soil sample labeled SFCB-BLF-1 was delivered to this laboratory by the client. Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

PU

Smith Street • Stony Point, N.Y. 10980 • 914-942-2088

1-13-1997 2:18PM FROM FAIRWAY TESTING CO 914 942 0995 P.3

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SINCE 1969

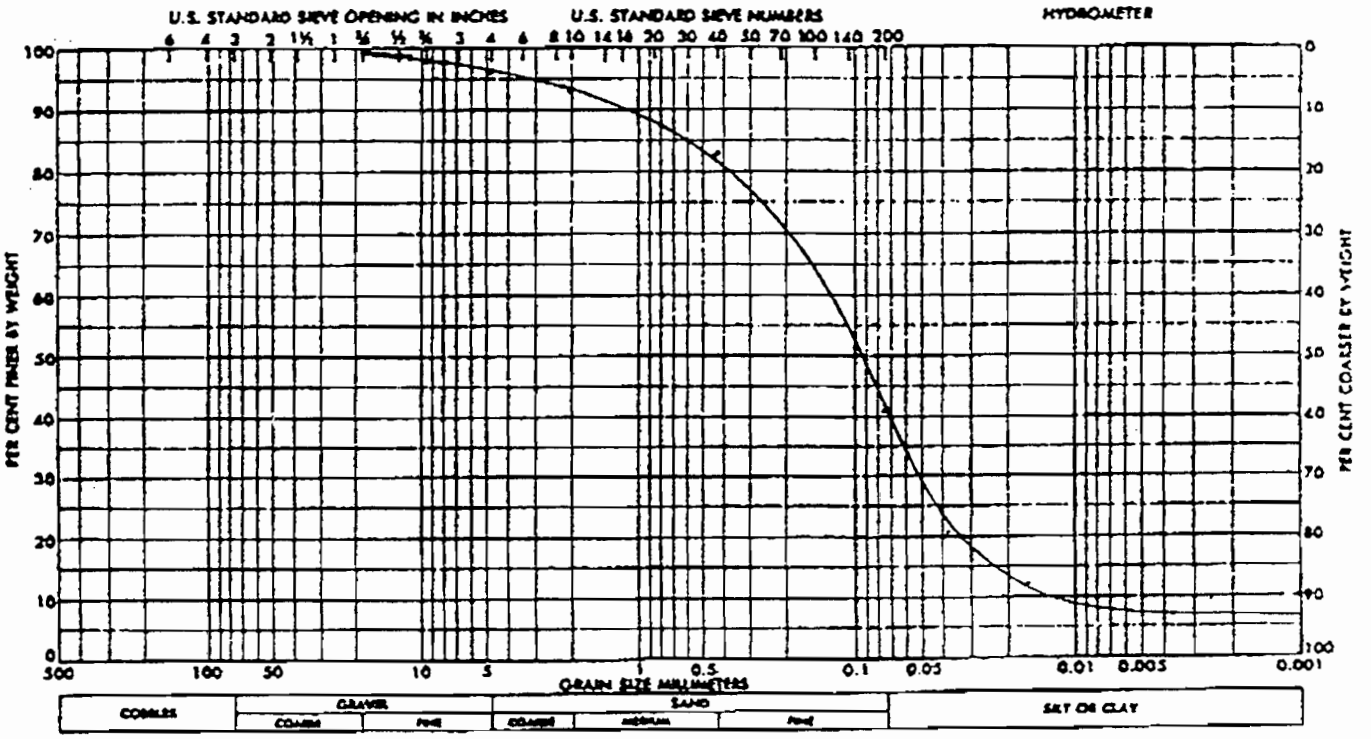
January 13, 1997

Grain Size Curve Analysis

client Ogden Remediation Services

project Clarkstown Landfill

On January 9, 1997 a soil sample labeled SFCB-BLF-1 was delivered to this laboratory by the client. Test results are shown below.



Classification (ASTM D2487): SM, silty sand

Atterberg Limits (ASTM D4318): NP

Moisture Content (ASTM 2216): 15.9

*Traces of broken glass were observed in the soil sample.

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

FAIRWAY

Soils Test Report

January 13, 1997

client Ogden Remediation Services

project Clarkstown Landfill

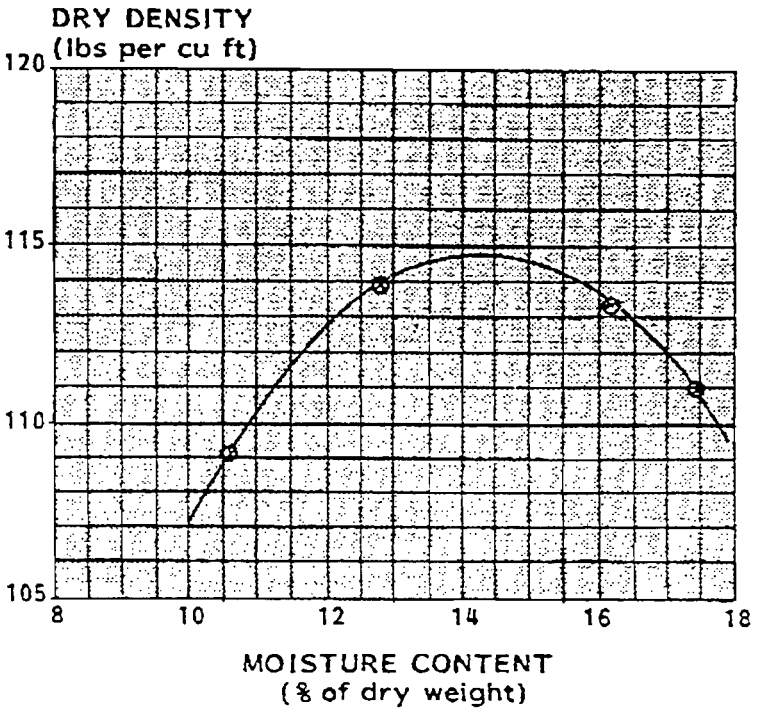
Compaction ASTM Method D698

subject Moisture-Density Curve Analysis

Maximum Dry Density 114.8 pcf
Optimum Moisture Content 14.3 %

SF-16

On January 9,1997 a soil sample labeled SFCB-BLF-2 was delivered to this laboratory by the client. Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

Smith Street • Stony Point, N.Y. 10980 • 914-942-2088

1-13-1997 2:19PM FROM FAIRWAY TESTING CO 914 942 0995 P.4

FAIRWAY TESTING

CONSTRUCTION MATERIALS · TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SINCE 1969

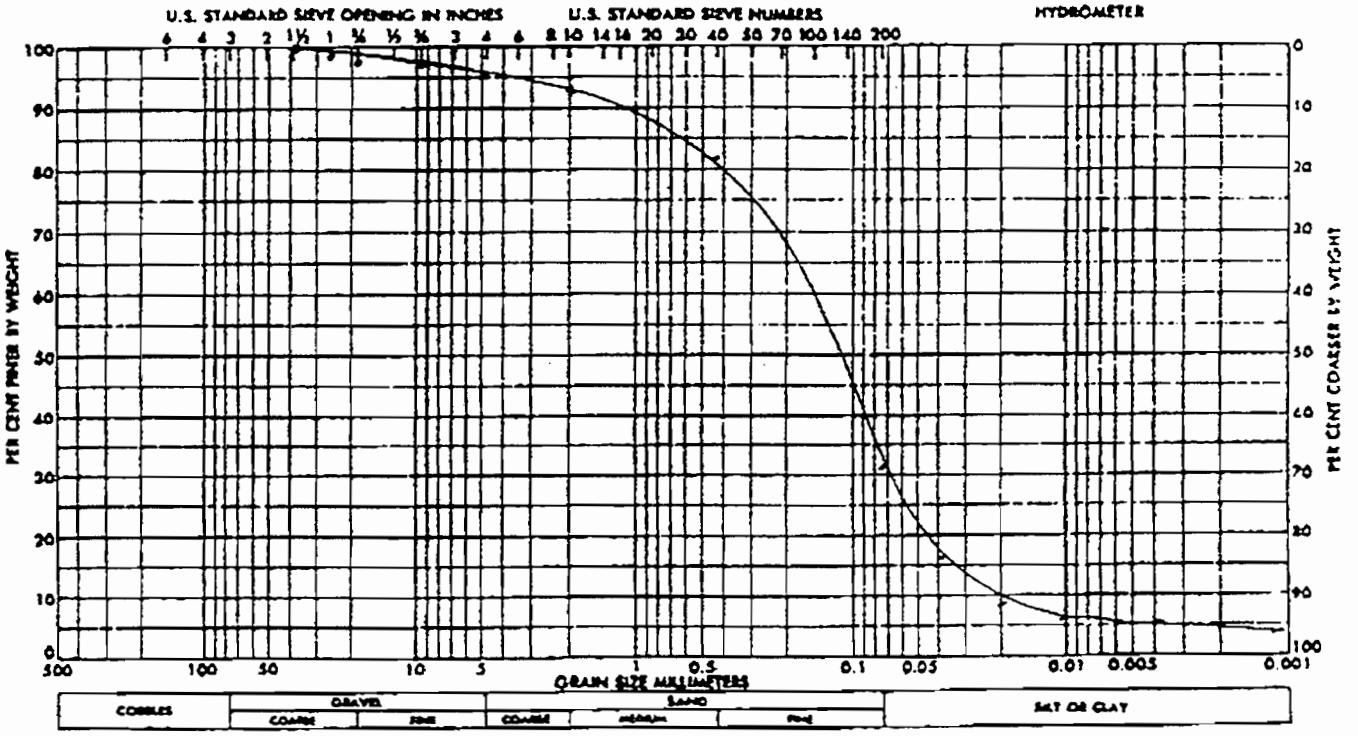
January 13, 1997

Grain Size Curve Analysis

client Ogden Remediation Services

project Clarkstown Landfill

January 9, 1997 a soil sample labeled SFCB-BLF-2 was delivered to this laboratory by the client. Test results are shown below.



Classification (ASTM D2487): SM, silty sand

Atterberg Limits (ASTM D4318): NP

Moisture Content (ASTM D2216): 13.2

*Traces of broken glass were observed in the soil sample.

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

1-13-1997 2:17PM FROM FAIRWAY TESTING CO 914 942 0995 P.2

Clarkstown Landfill Remediation
Laboratory Services Request

#LL-2339-K3

For:
Mr. Reddy Kancharla
M & T/Namow/TCL
47 Hudson Street
Ossining, N.Y. 10562
PH (914)762-9000
FX (914)762-9638

From:
Roy F. Weston of New York
Clarkstown Field Office
166 Rte. 303
West Nyack, N.Y. 10994
PH (914)353-5221
FX (914)353-5491

OMIT

Sample I.D.	Source	Misc	ASTM D422	ASTM D698	ASTM D2216	ASTM D2487	ASTM D2974	ASTM D4318	~~ASTM D4761~~	ASTM D4767					Remarks
CS-04 CS-HS-1	FB	1 bag	X	X	X	X	X	X	X	X					Hyland
SF-17 MESF-149.1	FB	1 bkt	X	X	X	X		X		X					Morgan Excel 149th

M&T/NAMOW/TCL□J.V.

GRADATION AND STANDARD PROCTOR COMPACTION TESTING OF SOIL

CLIENT: Roy F. Weston, Inc., Sutton Park
PROJECT: Clarkstown Landfill
SAMPLE ID: Soil Sample SF-17 (Source FB)
SAMPLED BY: Client
PICKUP/DEL BY: Client

LAB#: FOB-001
REPORT#: MC-38
DATE SAMPLED: 2/25/97
DATE TESTED: 2/27/97

(A) GRADATION TEST RESULTS (ASTM D422 & ASTM D1140)

Sieve Size	Percent Passing (%)	Specifications	Sieve Size	Percent Passing (%)	Specifications
2-1/2"			#10	71.6	
2"	100.0		#16	65.7	
1-1/2"	98.3		#20	62.1	
1"	97.6		#30	56.6	
3/4"	92.3		#40	49.7	
1/2"	88.7		#50	42.6	
3/8"	86.0		#60	38.2	
1/4"	82.4		#80	31.3	
#4	79.9		#100	27.6	
#8	73.5		#200	17.1	

The gradation curve is shown on Figure-1

(B) STANDARD PROCTOR COMPACTION TEST RESULTS (ASTM D698, Procedure C, 6" diameter mold)
Optimum Water Content: 10.1%
Max. Unit Weight, Dry: 124.9 pcf
The proctor compaction curve is shown in Figure-2

(C) MOISTURE (ASTM D2216): 10.4%

(D) SOIL CLASSIFICATION (ASTM D2487): SM Silty sand, with gravel

(E) SOIL DESCRIPTION: m-f SAND, some m Gravel, little Silt
COLOR: Dark Brown; **ODOR:** None; **CONTAMINATION:** None

TESTWELL CRAIG LABORATORIES, INC.

Kaspal R. Thumma, Eng.Sc.D., P.E.
Laboratory Manager
KRT/mp

Received: 03/04/97 12:45:28 From: 9147629638

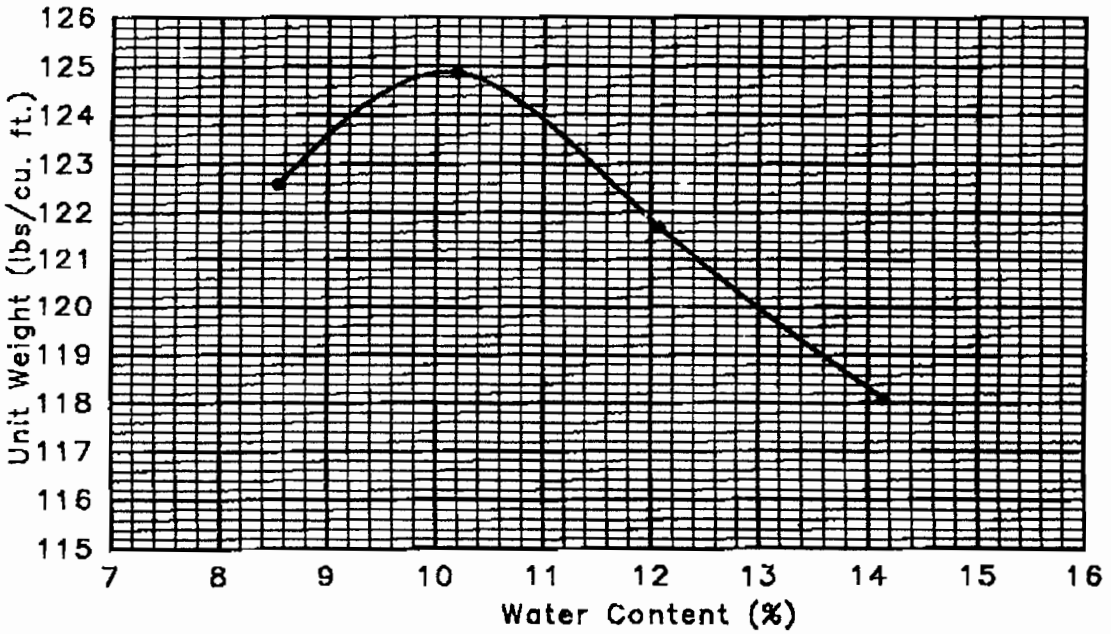
M&T/NAMOW/TCL□J.V.

Roy F. Weston, Inc., Sutton Park
Lab #: FOB-001 Rpt #: MC-38
Page 3 of 3

STANDARD PROCTOR COMPACTION TEST RESULTS OF SOIL NO.

TEST METHOD: (ASTM D698 Procedure C, 6" Diameter Mold)

Specimen No.	1	2	3	4
Water Content (%)	8.54	10.19	12.08	14.15
Unit Weight, Dry (lbs/cu.ft.)	122.59	124.88	121.70	118.09



Optimum Water Content: 10.1% Max. Unit Weight, Dry: 124.9 pcf

Figure 2: Standard Proctor Curve of Soil No. SF-17

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Roy F. Weston, Inc., Sutton Park
Lab #: FOB-001 Report #: MC-38
Page 2 of 3

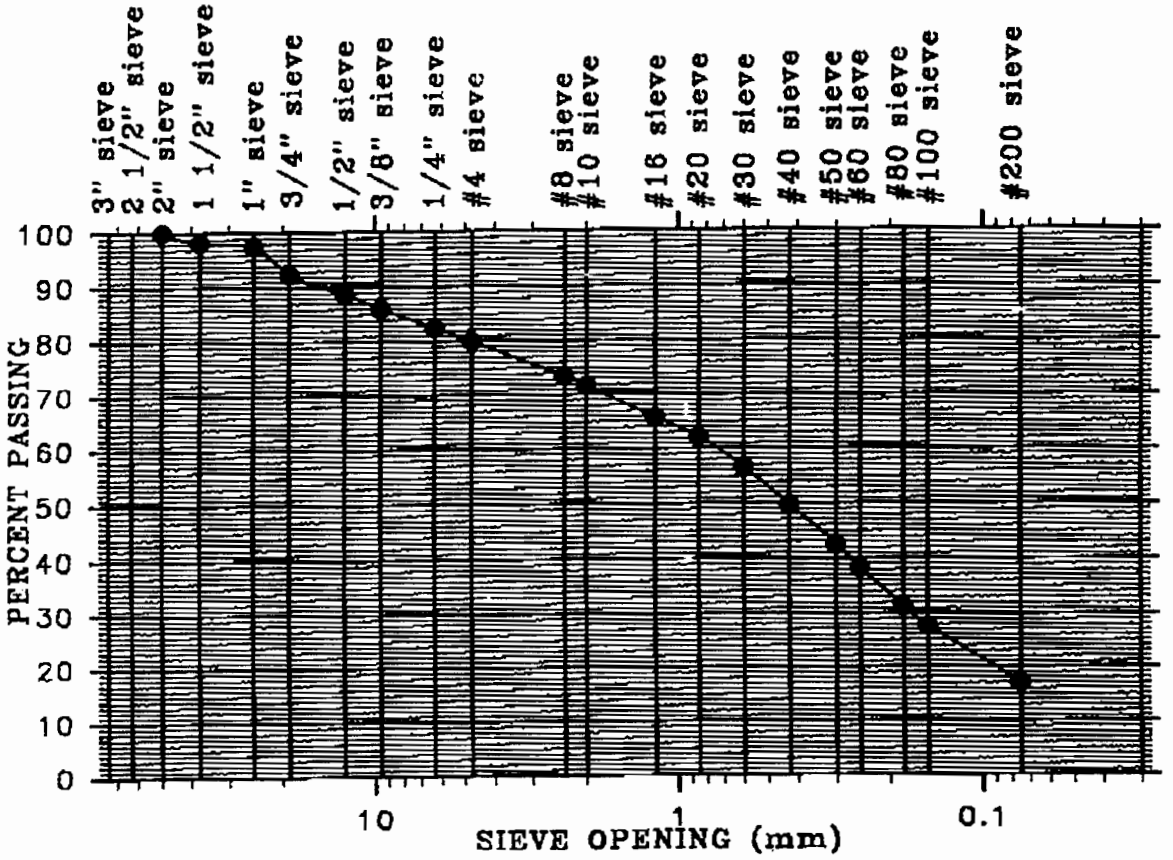

Figure 1: Particle Size Gradation Curve of Soil No. SF-17

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M&T/NAMOW/TCL□J.V.

LIQUID LIMIT, PLASTIC LIMIT, AND ORGANIC CONTENT OF SOILS

Client: Roy F. Weston
Project: Clarkstown Landfill
Sample ID: Indicated Below
Sampled By: Client

Lab #: FOB-001
Report #:MC-39
Date Pick up/del: 2/25/97
Date Tested: 2/26/97 & 2/27/97

(A) LIQUID LIMIT & PLASTIC LIMIT TEST RESULTS (ASTM D4318)

Soil Sample No.	Liquid Limit % Weight	Plastic Limit % Weight	Plastic Index
SF - 17	16.2	NP	0
CS - 04	18.8	NP	0

NOTE: NP indicates that the soil is non-plastic since 1/8" diameter thread could not be rolled at any moisture content.

(B) ORGANIC CONTENT (ASTM D2974)

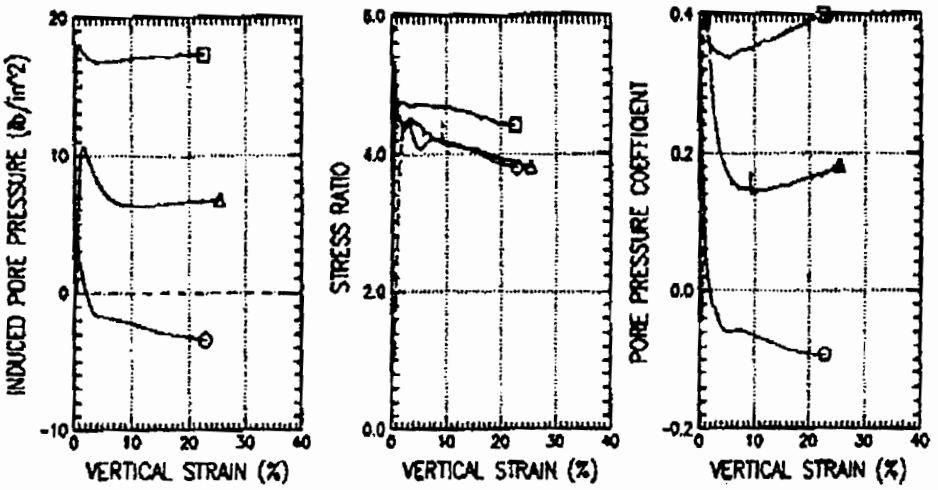
Soil Sample No.	Organic Content
CS - 04	0.34%

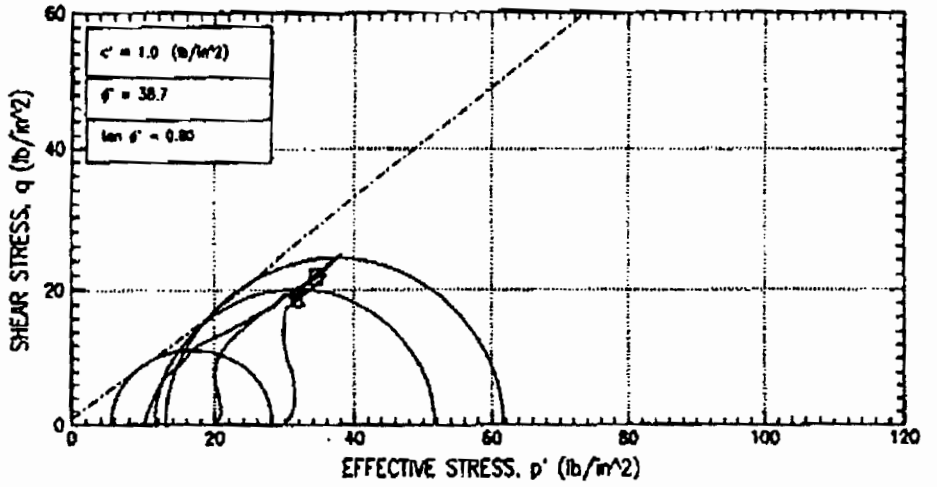
TESTWELL CRAIG LABORATORIES

Kaspal R. Thumma, Eng.Sc.D., P.E.
Laboratory Manager
KRT\mp

M&T/NAMOW/TCL□J.V.

SF 17 Page 1 of 2





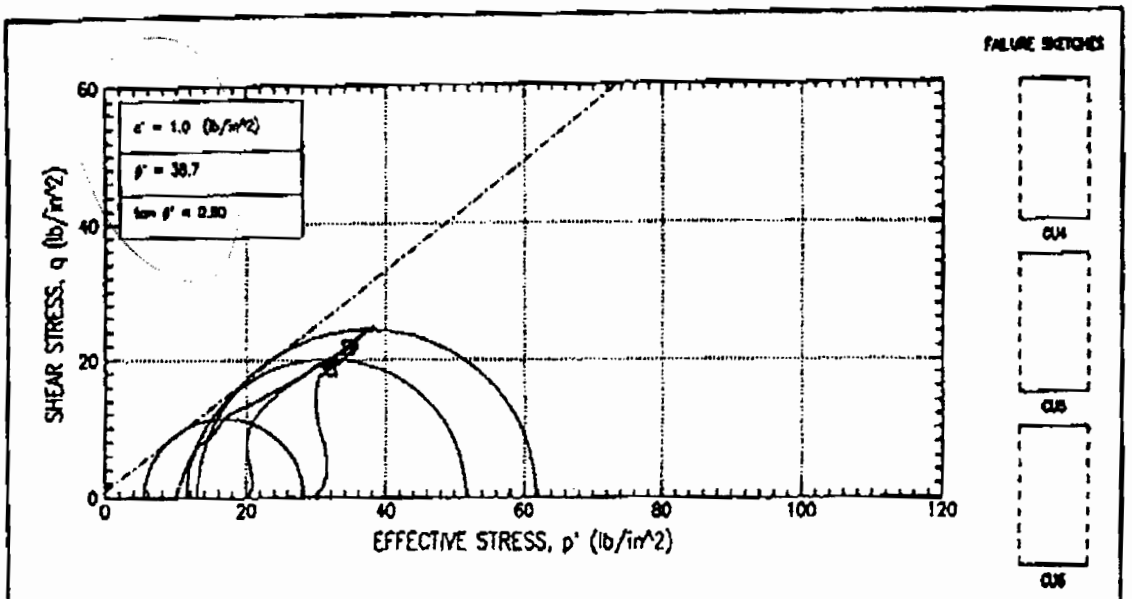
Project Name : Clarkstown LF Remediation

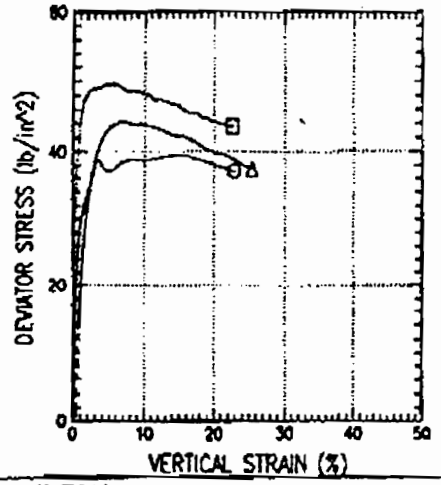
Boring No:	Sample No	Depth	Test No	Filename	Symbol
---	SF-17	---	CU4	1335-cu4.asc	O
---	SF-17	---	CU5	1335-cu5.asc	Δ
---	SF-17	---	CU6	1335-cu6.asc	□

Received: 03/20/97 03:46:20 From: 9147629638

M&T/NAMOW/TCL□J.V.

SF-17, page 2 of 2





SYMBOL		□	△	○	
TEST NO.		CU4	CU5	CU6	
INITIAL	WATER CONTENT (%)				
	DRY DENSITY (lb/ft^3)				
	SATURATION (%)				
	VOID RATIO				
BEFORE SHEAR	WATER CONTENT (%)				
	DRY DENSITY (lb/ft^3)				
	SATURATION (%)				
	VOID RATIO				
	BACK PRESS. (lb/in^2)	67.86	71.98	88.07	
MINOR PRIN. STRESS (lb/in^2)		9.85	20.04	28.87	
MAX. DEV. STRESS (lb/in^2)		38.44	44.33	48.86	
TIME TO FAILURE (min)		180.34	285.14	407.09	
RATE OF STRAIN RATE (%/min)		0.01	0.01	0.01	
INITIAL DIAMETER (in)		2.84	2.84	2.84	
INITIAL HEIGHT (in)		6.00	6.01	6.00	
B-VALUE		0.95	0.95	0.95	

STRAIN CONTROLLED

DESCRIPTION OF SPECIMENS:

1) Dark yellowish brown medium to coarse sand 2) Dark yellowish brown medium to coarse sand 3) Dark yellowish brown medium to coarse sand

LL	PL	PI	GS 2.70

REMARKS:

1) Compacted @ 90 Ydry max and WC= Opt.

2) Compacted @ 90 Ydry max and WC= Opt.

3) Compacted @ 90 Ydry max and WC= Opt.

TYPE OF SPECIMEN Bucket TYPE OF TEST CU (R)

PROJECT Clarkstown LF Remediation

PROJECT NO.GTX-1335

BORING NO. ---	SAMPLE NO.	SF-17	SF-17	SF-17
TECH. rb	DEPTH/ELEV	---	---	---
LABORATORY	DATE	03/18/97	03/18/97	03/18/97

TRIAXIAL COMPRESSION TEST REPORT

REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Reco...

Project Name/Client: CLARKSTOWN LANDFILL / LF CORP. Project No.: 600100000 Date Sent: 1/15/97

Project Location: WEST NYACK, N.Y. Purchase Order No.: 652-PA-110730 Shipped Via: _____

Sampled By: (Signature) GARY SMITH Lab Contact: BARN/Hugick Date Received: 1/15/97

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Auerburg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydro-meter ASTM D1140	Moisture Content ASTM D2216	Classifi-cation ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
		ANALYSIS REQUIRED												
+ SF ME-1		X		X	X		X	X						

Comments/Special Instructions:
+ ME = (MORGAN EXCEL) POSSIBLE STRUCTURAL FILL, FROM MORGAN EXCEL @ FROM 149TH ST N.Y. CITY

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Rev. 4/93

FZ20/CRS

09/18/1996 11:05 9085998585 RSC-1 E AND I PAGE 02

Morgan Excel

FAIRWAY

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Soils
Test Report

January 16, 1997

client Ogden Remediation Services

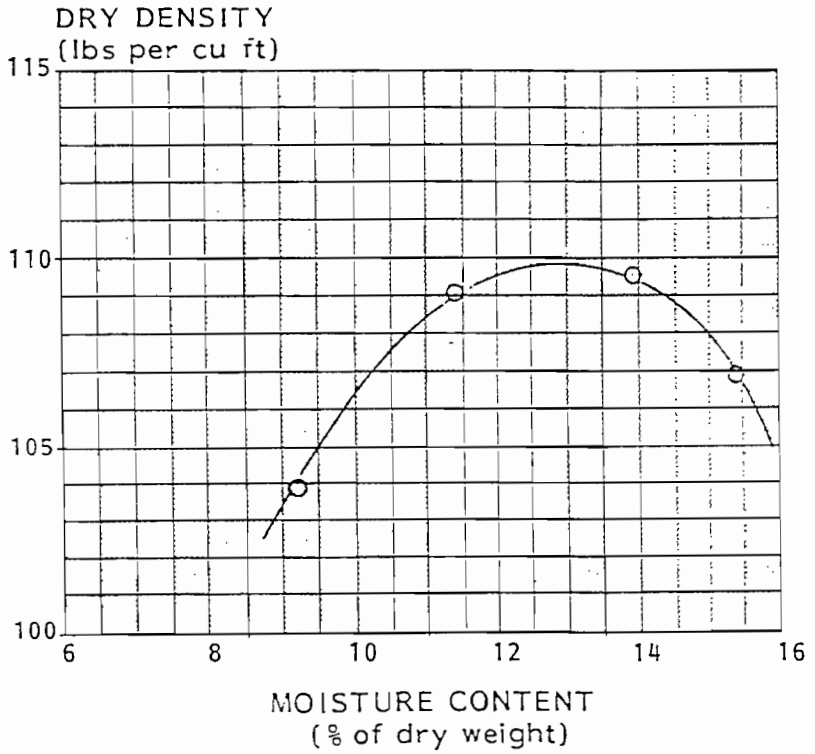
project Clarkstown Landfill

Compaction ASTM
Method D698

subject Moisture-Density Curve Analysis

Maximum Dry Density
Optimum Moisture Content

On January 15, 1997 a soil sample labeled SFME-1 was delivered to this laboratory by the client. Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

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CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 STONY POINT, NY 10980 TELEPHONE (914) 942-2088 · FAX (914) 942-0995

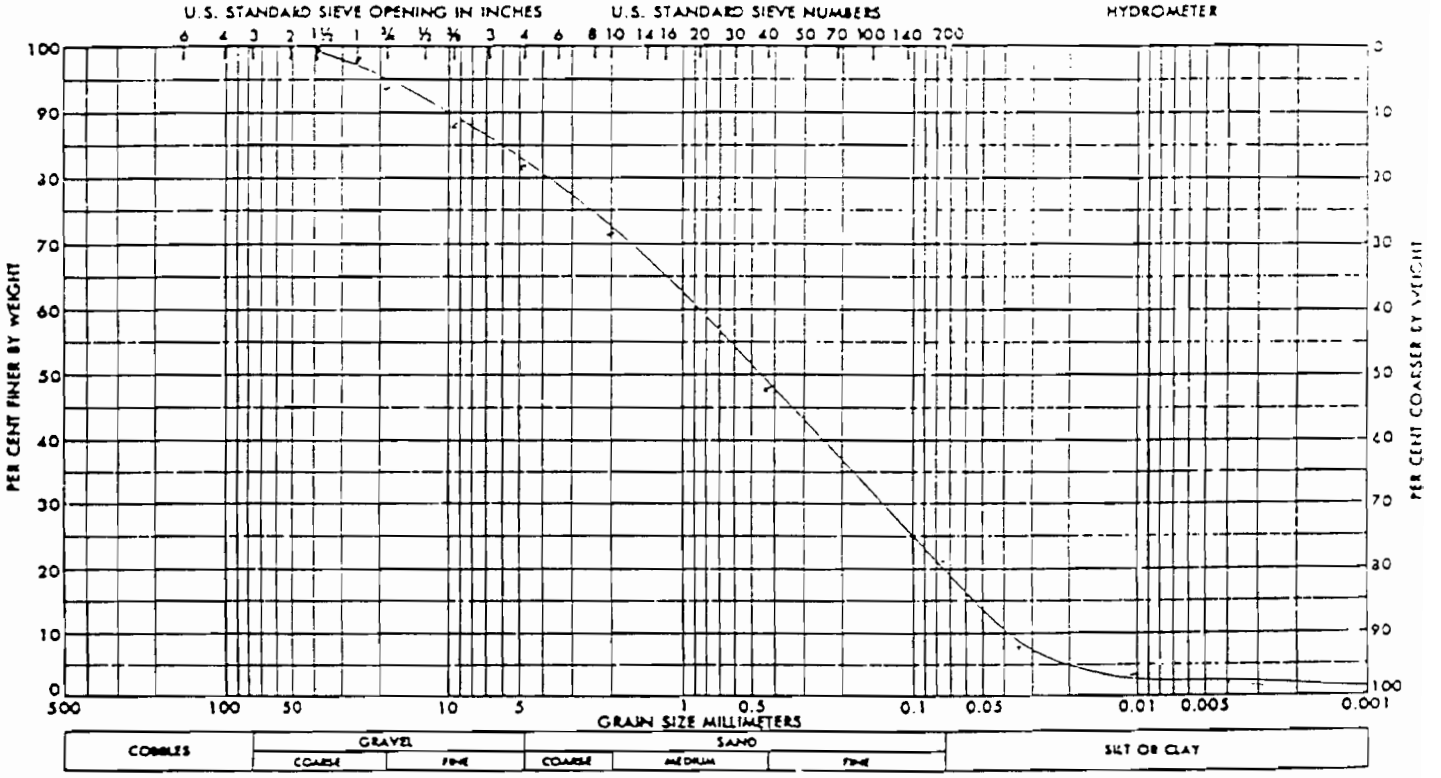
January 16, 1997

Grain Size Curve Analysis

client Ogden Remediation

project Clarkstown Landfill

On January 15, 1997 a soil sample labeled SFME-1 was delivered to this laboratory by the client. Test results are shown below.



Classification (ASTM D2487): SM, silty sand w/gravel

Atterberg Limits (ASTM D4318): NP

Moisture Content (ASTM D2216): 4.7

*Traces of concrete, brick, asphalt, glass, wood and insulation were observed in the soil sample.

FAIRWAY TESTING CO., INC.

P. J. Agdanno, P. E.

REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: CLARKSTOWN LANDFILL & LE CAPPING
Project No.: 6000/6000
Date Sent: 2/7/97

Project Location: WEST NYACK, N.Y.
Purchase Order No.: 6-57-M-1103
Shipped Via:

Sampled By: (Signature) J. BEATTY JBeatty
Lab Contact: BRIAN HUGUCK
Date Received: 2/7/97

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterburg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
		ANALYSIS REQUIRED												
MRSF-149-1		X		X	X		X	X						

Comments/Special Instructions: POSSIBLE STRUCTURAL FILL, MORGAN EXCL 1997 ST.

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

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SOILS TEST REPORT February 10, 1997

client Ogden Remediation Services

project Clarkstown Landfill

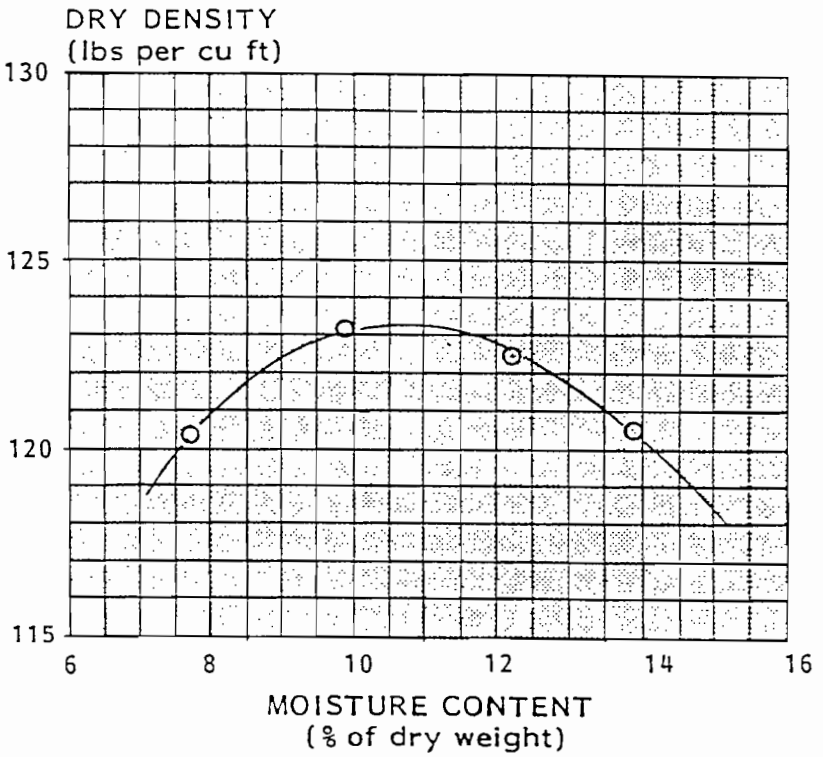
Compaction Method ASTM D698

subject Moisture-Density Curve Analysis

Maximum Dry Density 123.2 pcf
Optimum Moisture Content 10.8%

On February 7, 1997, a soil sample was delivered to this laboratory by the client. This sample was labeled "MESF-149-1". Test results are shown below.

SF-17



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

FB
PM
FAX
C: ID

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P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SINCE 1969

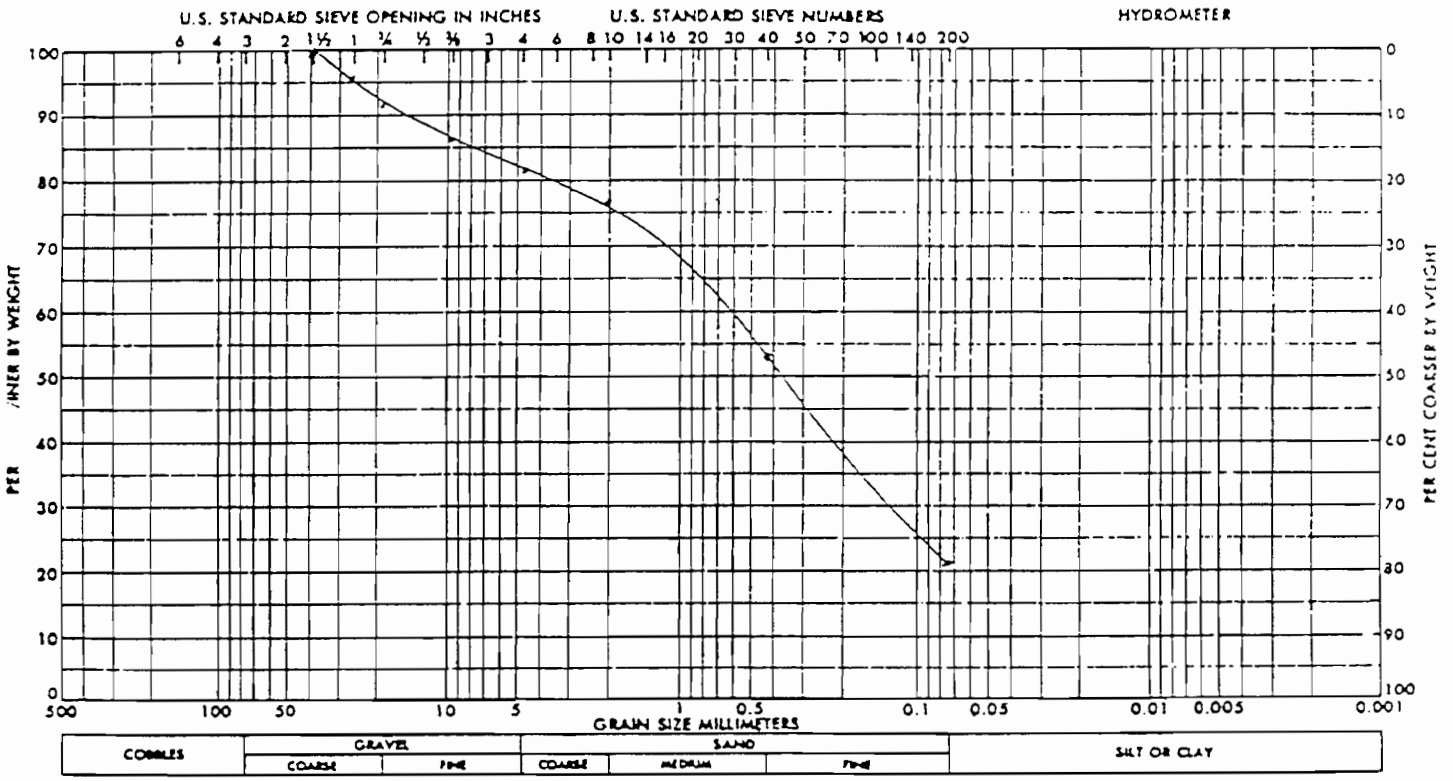
February 10, 1997

client Ogden Remediation Services

project Clarkstown Landfill

Grain Size Curve Analysis

On February 7, 1997, a soil sample was delivered to this laboratory by the client. The sample was labeled "MESF-149-1". Test results are shown below.



Atterberg Limits (D4318): NP
Moisture Content (D2216): 14.7%
Classification (D2487): SM, silty sand w/gravel

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

Clarkstown Landfill Remediation
Laboratory Services Request
#LL-2339-K3

For:
Mr. Reddy Kancharla
M & T/Namow/TCL
47 Hudson Street
Ossining, N.Y. 10562
PH (914)762-9000
FX (914)762-9638

From:
Roy F. Weston of New York
Clarkstown Field Office
166 Rte. 303
West Nyack, N.Y. 10994
PH (914)353-5221
FX (914)353-5491

Sample I.D.	Source	Misc	ASTM D422	ASTM D698	ASTM D2216	ASTM D4318									Remarks
SF-18 LTSF-QN	LAMONNA QUEENS, NY	1 bkt	X	X	X	X									
SF-19 CVSF-AMT	COVE AIRMONT, NY	1 bkt	X	X	X	X									

Received By: Simon Leykin 3/27/97

Date/Time: 3-27-98 / 11:00

Delivered By: John C Woodley

Results Required, Date/Time: 4-2-97

M&T/NAMOW/TCL□J.V.

GRADATION AND STANDARD PROCTOR COMPACTION TESTING OF SOIL

CLIENT: Roy F. Weston, Inc., Sutton Park
PROJECT: Clarkstown Landfill
SAMPLE ID: SF-18 (Source: LTSF-QN)
SAMPLED BY: Client
PICKUP/DEL BY: Client

LAB#: FOB-001
REPORT#: MC-40
DATE DELIVERED: 3/28/97
DATE TESTED: 3/31/97

(A) GRADATION TEST RESULTS (ASTM D422 & ASTM D1140)

Sieve Size	Percent Passing (%)	Specifications	Sieve Size	Percent Passing (%)	Specifications
2-1/2"			#10	73.7	
2"			#16	65.2	
1-1/2"			#20	59.2	
1"	100.0		#30	51.0	
3/4"	98.4		#40	41.7	
1/2"	98.4		#50	34.0	
3/8"	97.3		#60	29.9	
1/4"	91.6		#80	24.6	
#4	87.1		#100	22.2	
#8	76.2		#200	16.1	

The gradation curve is shown on Figure-1

(B) STANDARD PROCTOR COMPACTING TEST RESULTS (ASTM D698, Procedure B, 4" diameter mold)
Optimum Water Content:: 13.1%
Max. Unit Weight, Dry: 118.5 pcf
The proctor compaction curve is shown in Figure-2

(C) MOISTURE (ASTM D2216): 11.6%

(D) SOIL CLASSIFICATION (ASTM D2487): SM Silty sand

(E) SOIL DESCRIPTION: m-f SAND, little Silt, little f Gravel
COLOR: Gray; **ODOR:** None; **CONTAMINATION:** None

TESTWELL CRAIG LABORATORIES, INC.

Kaspal R. Thumma, Eng.Sc.D., P.E.
Laboratory Manager
KRT/mp

Received: 04/03/97 09:04:08 From: 9147629638

TESTWELL CRAIG LABORATORIES, INC.

Roy F. Weston, Inc., Sutton Park
Lab #: FOB-001 Report #: MC-40

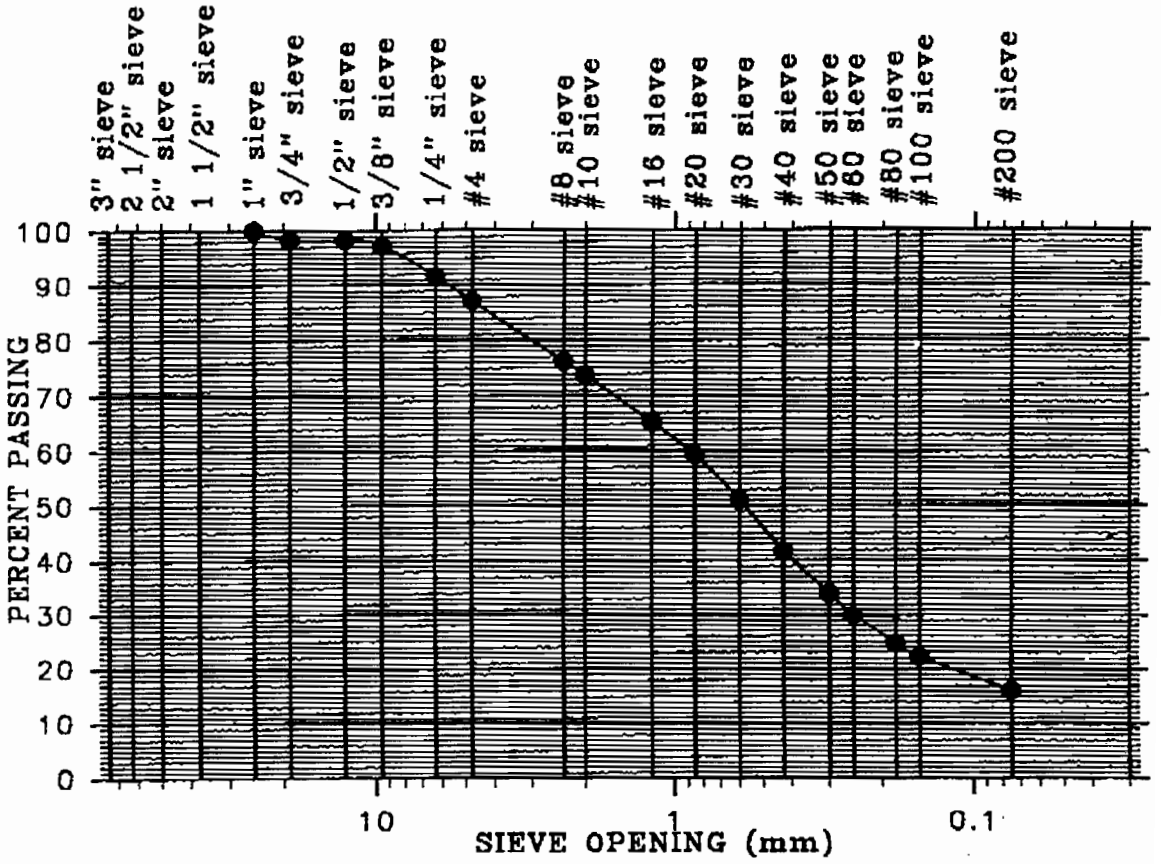


Figure 1: Particle Size Gradation Curve of Soil No. SF-18

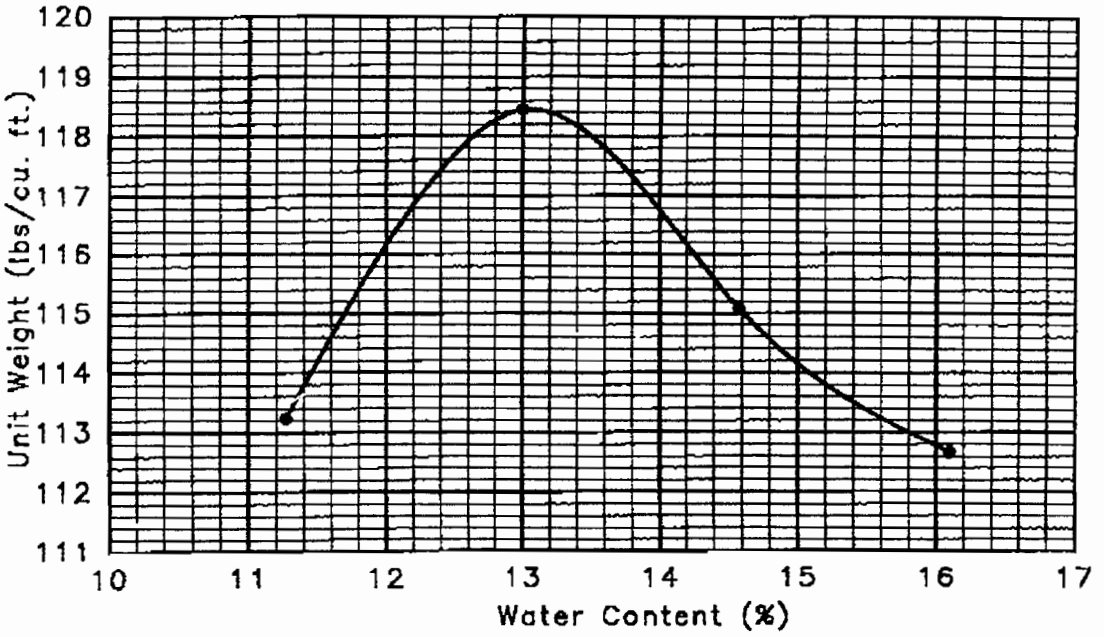
TESTWELL CRAIG LABORATORIES, INC.

Roy F. Weston, Inc., Sutton Park
Lab #: FOB-001 Rpt #: MC-40
Page 3 of 3

STANDARD PROCTOR COMPACTION TEST RESULTS OF SOIL NO. SF-18

TEST METHOD: (ASTM D698 Procedure B, 4" Diameter Mold)

Specimen No.	1	2	3	4
Water Content (%)	11.27	13.00	14.58	16.10
Unit Weight, Dry (lbs/cu.ft.)	113.24	118.46	115.08	112.66



Optimum Water Content: 13.1% Max. Unit Weight, Dry: 118.5 pcf

Figure 2: Standard Proctor Curve of Soil No. SF-18

M&T/NAMOW/TCL □ J.V.

LIQUID LIMIT AND PLASTIC LIMIT OF SOILS

Client: Roy F. Weston
Project: Clarkstown Landfill
Sample ID: Indicated Below
Sampled By: Client

Lab #: FOB-001
Report #:MC-42
Date Pick up/del: 3/28/97
Date Tested: 4/04/97

(A) LIQUID LIMIT & PLASTIC LIMIT TEST RESULTS (ASTM D4318)

Soil Sample No.	Liquid Limit % Weight	Plastic Limit % Weight	Plastic Index
SF-18	12.2	NP	0
SF-19	20.5	NP	0

NOTE: NP indicates that the soil is non-plastic since 1/8" diameter thread could not be rolled at any moisture content.

TESTWELL CRAIG LABORATORIES, INC.

Kaspal R. Thumma, Eng.Sc.D., P.E.
Laboratory Manager
KRT\mp

REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

(2)

Project Name/Client: CLARKSTOWN LANDFILL / LF CARTING
Project No.: 6000/0000
Date Sent: 3/7/97

Project Location: WEST NYACK, N.Y.
Purchase Order No.: 6-52-22-11023
Shipped Via:

Sampled By: (Signature) JIM BATES
Lab Contact: BRIAN HUSSICK
Date Received: 3/7/97

Sample No.	Description	ANALYSIS REQUIRED: Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
LTSF-QN-1		X		X	X		X	X						

Comments/Special Instructions: POSSIBLE SOURCE OF STRUCTURAL FILL
LAMONICA TRUCKING, QUEENS N.Y.

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

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03/18/1996 11:03 8455/8582 FROM E AND I PAGE 02

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P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2083 · FAX (914) 942-0995

SOILS TEST REPORT

client Ogden Remediation Services

March 10, 1997

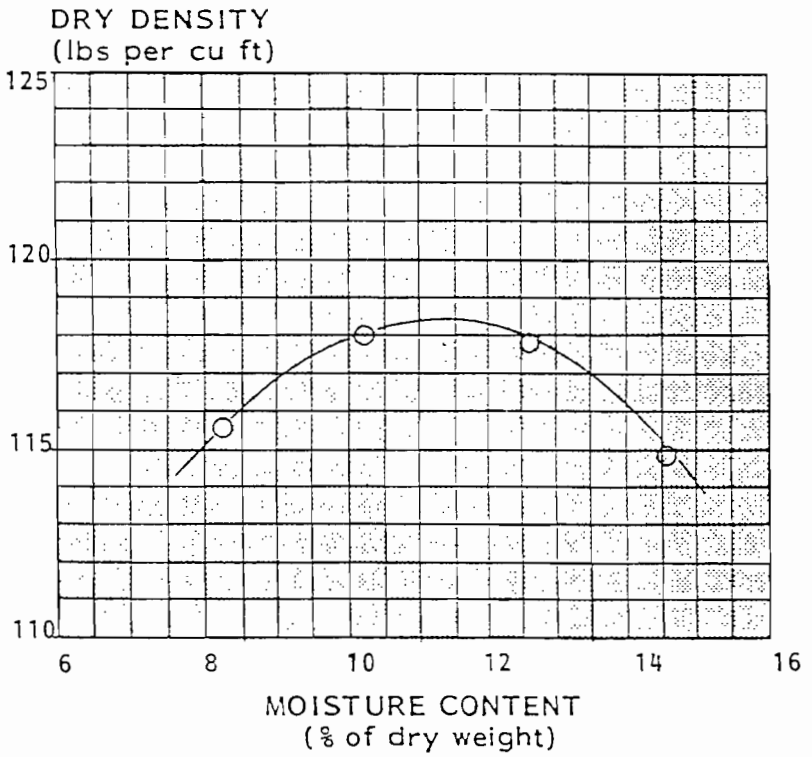
project Clarkstown Landfill

Compaction Method ASTM D698

subject Moisture-Density Curve Analysis

Maximum Dry Density 118.4pcf
Optimum Moisture Content 11.4%

On March 7, 1997, a recycled soil sample was delivered to this laboratory by the client. This sample was labeled "LTSF-QN-1." Test results are shown below.



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P. J. Aguanno, P. E.

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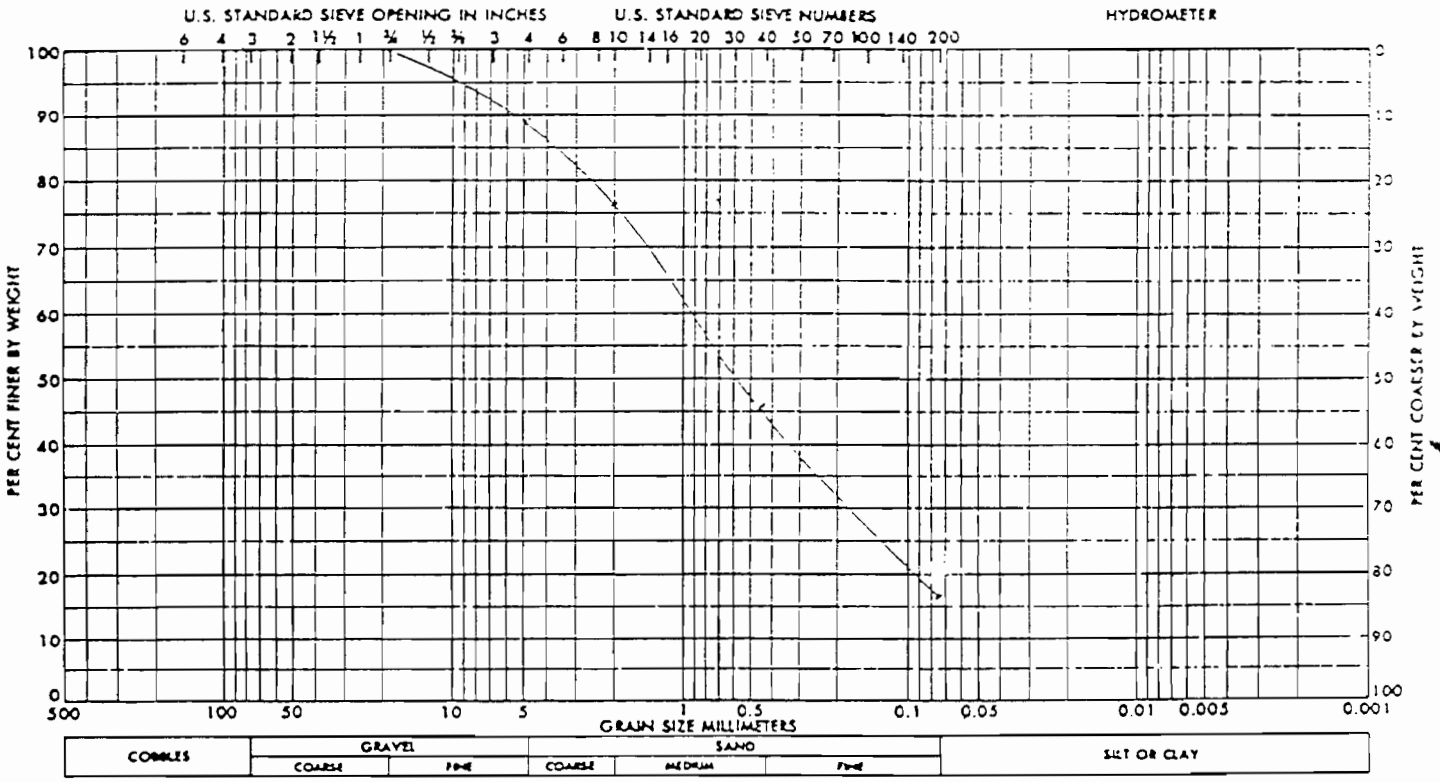
SINCE 1969

Client Ogden Remediation Services March 10, 1997

Project Clarkstown Landfill

Grain Size Curve Analysis

On March 7, 1997, a recycled soil sample was delivered to this laboratory by the client. This sample was labeled "LTSF-QN-1." Test results are shown below.



Atterberg Limits (D4318): NP

Moisture Content (D2216): 11.3

Classification: SM, silty sand (contained traces of brick and asphalt)

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

UES REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Re

Project Name/Client: CLARKSTOWN LANDFILL - LF CAPPING
Project No.: 6000/0000
Date Sent: 3/13/97

Project Location: WEST NYACK, N.Y.
Purchase Order No.: 6-52-P2-11073
Shipped Via:

Sampled By: (Signature) TIM BATES
Lab Contact: BRIAN Hoggick
Date Received: 3/13/97

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterburg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydro-meter ASTM D1140	Moisture Content ASTM D2216	Classifi-cation ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
		ANALYSIS REQUIRED												
LTSF-QN-2	TEST #2	X		X	X		X	X						

Comments/Special Instructions: POSSIBLE SOURCE OF STRUCTURAL FILL
LAMONNA TRUCKING, QUEENS N.Y.

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Rev. 4/93

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FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SOILS TEST REPORT

client Ogden Remediation Services

DATE 3-17-97

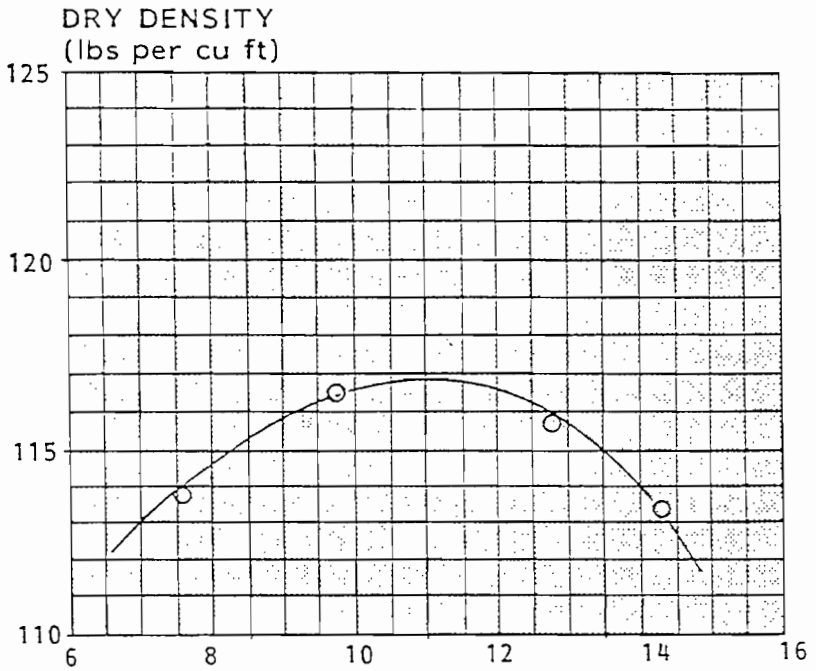
project Clarkstown Landfill

Compaction Method ASTM D698

subject Moisture-Density Curve Analysis

Maximum Dry Density 116.8 pcf
Optimum Moisture Content 11.0 pcf

On March 13, 1997, a recycled soil sample was delivered to this laboratory by the client. This sample was labeled "LTSF-QN-2." Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

JEB
PM
FFX
CLIDL

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969

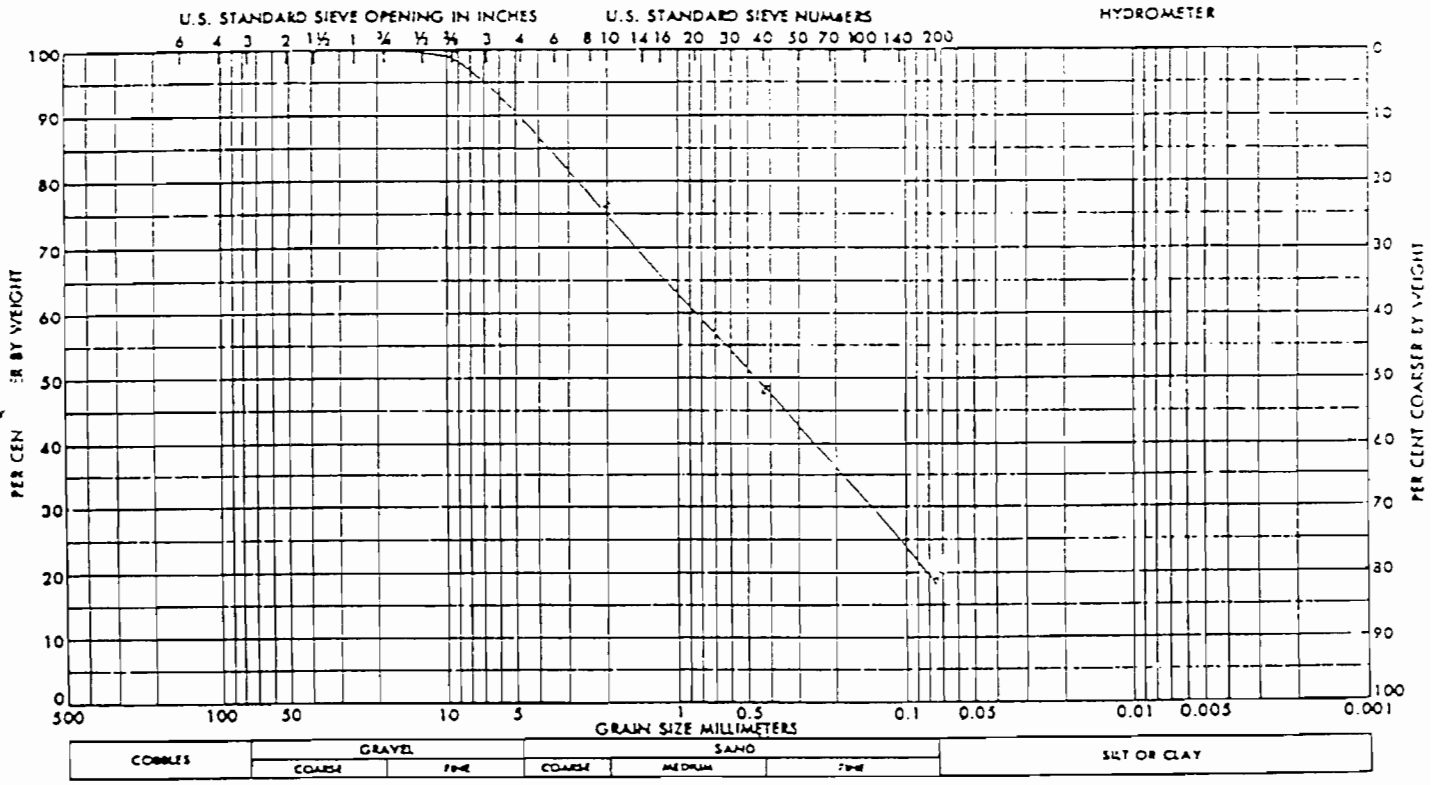
March 17, 1997

Client Ogden Remediation Services

Project Clarkstwon Landfill

Grain Size Curve Analysis

On March 13, 1997, a recycled soil sample was delivered to this laboratory by the client. This sample was labeled "LTSF-QN-2." Test results are shown below.



Atterberg Limits (D4318): NP

Moisture Content (D2216): 6.4

Classification (D2487): SM, Silty Sand

*Trace of brick, concrete and asphalt were observed in the soil sample.

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

Clarkstown Landfill Remediation
Laboratory Services Request
#LL-2339-K3

For:
Mr. Reddy Kancharla
M & T/Namow/TCL
47 Hudson Street
Ossining, N.Y. 10562
PH (914)762-9000
FX (914)762-9638

From:
Roy F. Weston of New York
Clarkstown Field Office
166 Rte. 303
West Nyack, N.Y. 10994
PH (914)353-5221
FX (914)353-5491

Sample I.D.	Source	Misc	ASTM D422	ASTM D698	ASTM D2216	ASTM D4318									Remarks
SF-18 LTSF-QN	LAMONNA QUEENS, NY	1 bkt	X	X	X	X									
SF-19 CVSF-AMT	COVE AIRMONT, NY	1 bkt	X	X	X	X									

Received By: SIMON LEYKIN 3/27/97

Date/Time: 3-27-98 / 11:00

Delivered By: John C Woodley

Results Required, Date/Time: 4-2-97

M&T/NAMOW/TCL□J.V.

GRADATION AND STANDARD PROCTOR COMPACTION TESTING OF SOIL

CLIENT: Roy F. Weston, Inc., Sutton Park
PROJECT: Clarkstown Landfill
SAMPLE ID: SF-19 (Source: CVSF-ATM)
SAMPLED BY: Client
PICKUP/DEL BY: Client

LAB#: FOB-001
REPORT#: MC-41
DATE DELIVERED: 3/28/97
DATE TESTED: 3/28/97

(A) GRADATION TEST RESULTS (ASTM D422 & ASTM D1140)

Sieve Size	Percent Passing (%)	Specifications	Sieve Size	Percent Passing (%)	Specifications
2-1/2"			#10	82.1	
2"			#16	78.9	
1-1/2"	100.0		#20	76.6	
1"	96.7		#30	72.9	
3/4"	94.4		#40	66.7	
1/2"	92.9		#50	59.4	
3/8"	91.1		#60	54.7	
1/4"	87.8		#80	46.9	
#4	86.4		#100	42.6	
#8	83.2		#200	29.4	

The gradation curve is shown on Figure-1

(B) STANDARD PROCTOR COMPACTING TEST RESULTS (ASTM D698, Procedure B, 4" diameter mold)
Optimum Water Content: 9.4%
Max. Unit Weight, Dry: 128.6 pcf
The proctor compaction curve is shown in Figure-2

(C) MOISTURE (ASTM D2216): 8.3%

(D) SOIL CLASSIFICATION (ASTM D2487): SM Silty sand

(E) SOIL DESCRIPTION: m-f SAND, some Silt, little Gravel
COLOR: Redish; **ODOR:** None; **CONTAMINATION:** None

TESTWELL CRAIG LABORATORIES, INC.

Kaspal R. Thumma, Eng.Sc.D., P.E.
Laboratory Manager
KRT/mp

Received: 04/03/97 09:04:08 From: 9147629638

TESTWELL CRAIG LABORATORIES, INC.

Roy F. Weston, Inc., Sutton Park
Lab #: FOB-001 Rpt #: MC-41
Page 3 of 3

STANDARD PROCTOR COMPACTION TEST RESULTS OF SOIL NO. SF-19

TEST METHOD: (ASTM D698 Procedure B, 4" Diameter Mold)

Specimen No.	1	2	3	4
Water Content (%)	7.94	9.61	11.06	12.82
Unit Weight, Dry (lbs/cu.ft.)	127.23	128.57	125.57	122.32

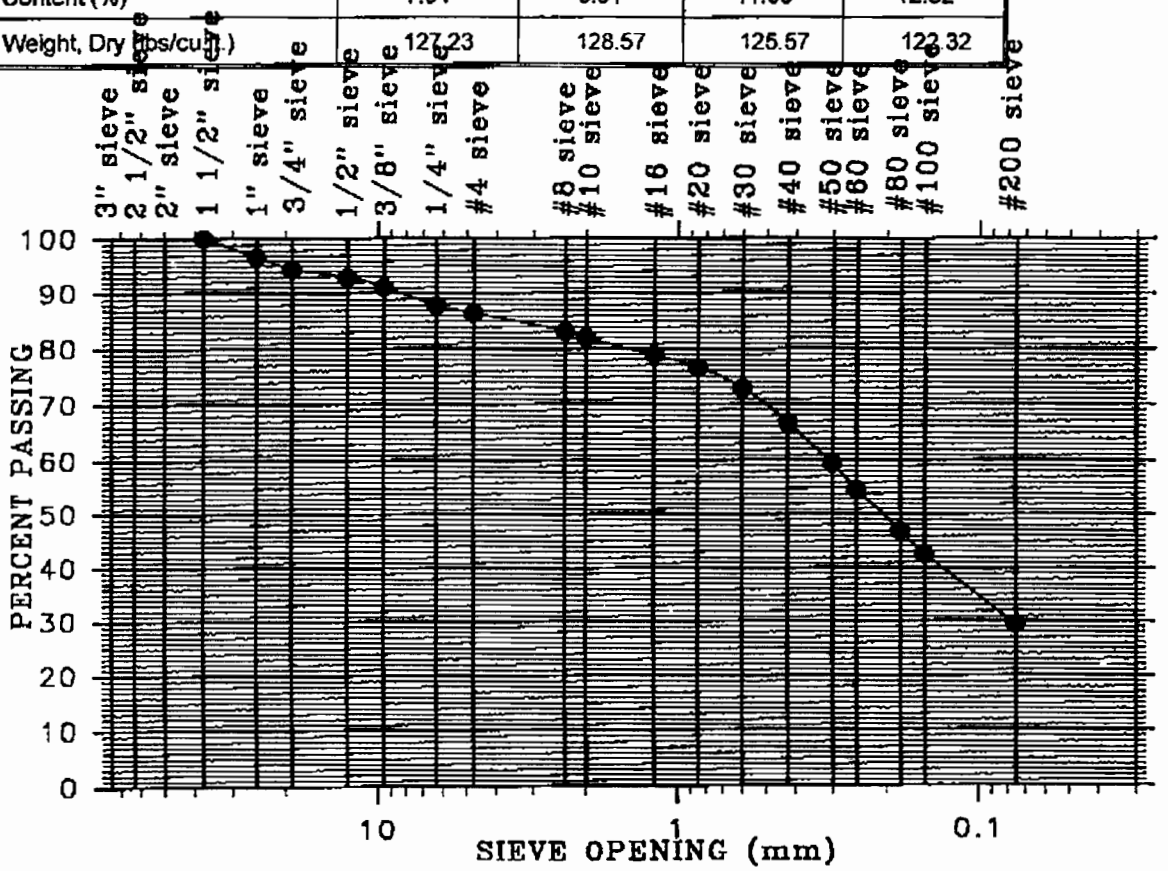
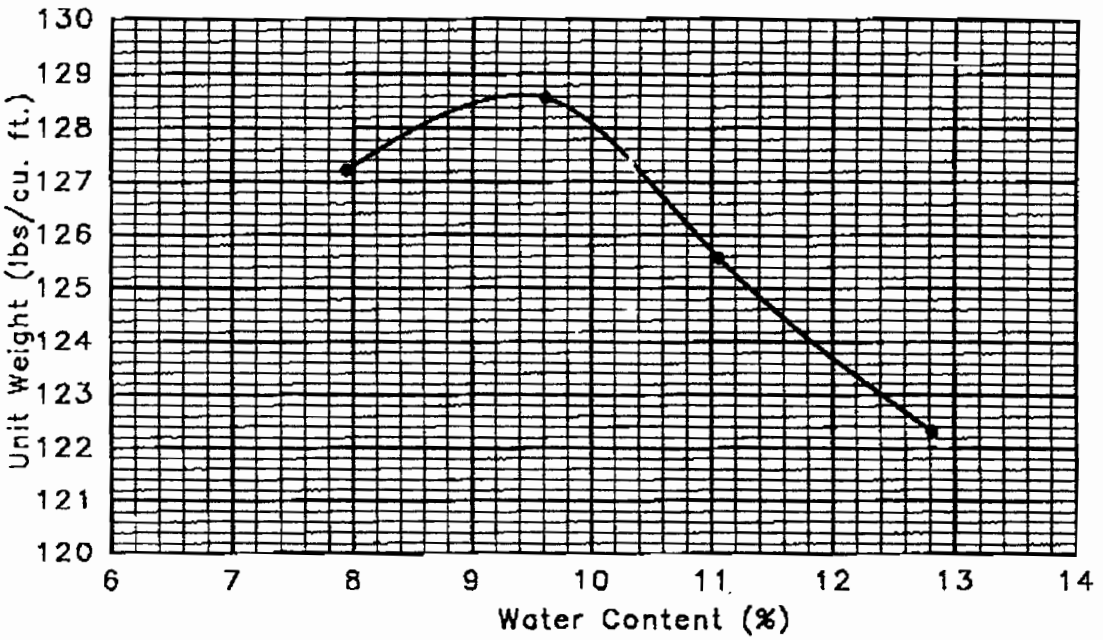


Figure 1: Particle Size Gradation Curve of Soil No. SF-19

TESTWELL CRAIG LABORATORIES, INC.

Roy F. Weston, Inc., Sutton Park
Lab #: FOB-001 Report #: MC-41
Page 2 of 3



Optimum Water Content: 9.4% Max. Unit Weight, Dry: 128.6 pcf

Figure 2: Standard Proctor Curve of Soil No. SF-19

M&T/NAMOW/TCL □ J.V.

LIQUID LIMIT AND PLASTIC LIMIT OF SOILS

Client: Roy F. Weston
Project: Clarkstown Landfill
Sample ID: Indicated Below
Sampled By: Client

Lab #: FOB-001
Report #:MC-42
Date Pick up/del: 3/28/97
Date Tested: 4/04/97

(A) LIQUID LIMIT & PLASTIC LIMIT TEST RESULTS (ASTM D4318)

Soil Sample No.	Liquid Limit % Weight	Plastic Limit % Weight	Plastic Index
SF-18	12.2	NP	0
SF-19	20.5	NP	0

NOTE: NP indicates that the soil is non-plastic since 1/8" diameter thread could not be rolled at any moisture content.

TESTWELL CRAIG LABORATORIES, INC.

Kaspal R. Thumma, Eng.Sc.D., P.E.
Laboratory Manager
KRT\mp

USEL REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Rec

Project Name/Client: CLARKSTOWN LANDFILL / LEE CURRING
Project No.: 6000/0000
Date Sent: 3/7/97

Project Location: WEST NYACK, N.Y.
Purchase Order No.: 6-52-P2-11075
Shipped Via:

Sampled By: (Signature) JIM BATES
Lab Contact: BRIAN HUSSICK
Date Received: 3/7/97

Sample No.	Description	ANALYSIS REQUIRED: Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
CUSF-AMT-1		X		X	X		X	X						

Comment/Special Instructions: POSSIBLE SOURCE OF STRUCTURAL FILL
COME EXCAVATING AIRMONT NY

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PAGE 1 OF 1 PAGE 22

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SINCE 1969

SOILS TEST REPORT

March 10, 1997

client Ogden Remediation Services

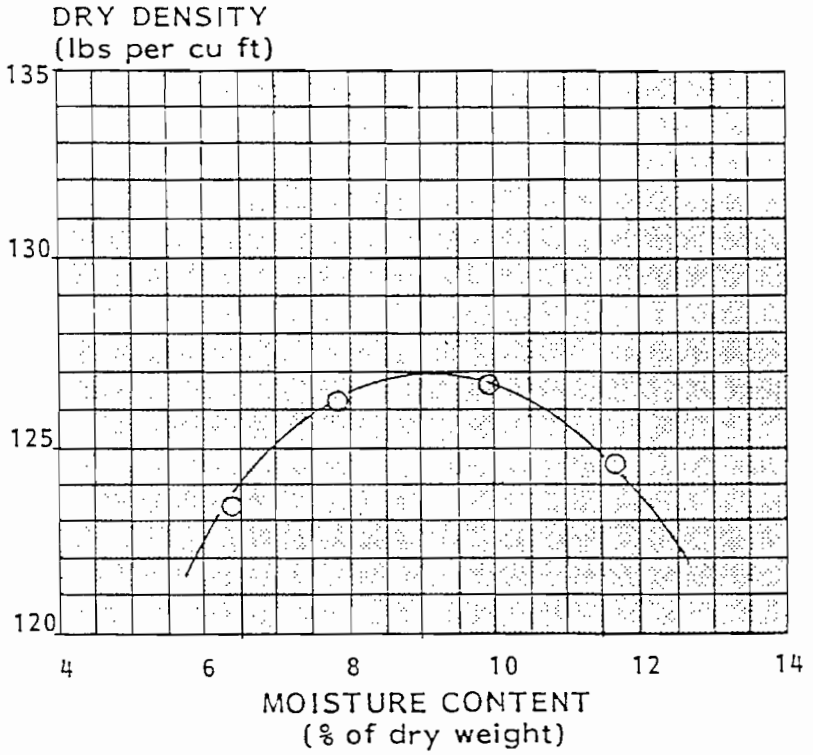
project Clarkstown Landfill

Compaction ASTM Method D698

subject Moisture-Density Curve Analysis

Maximum Dry Density 128.0pcf
Optimum Moisture Content 9.2%

On March 7, 1997, a soil sample was delivered to this laboratory by the client. This sample was labeled "CVSF-AMT-1." Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

PU

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CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SINCE 1963

RECEIVED MAR 12 1997

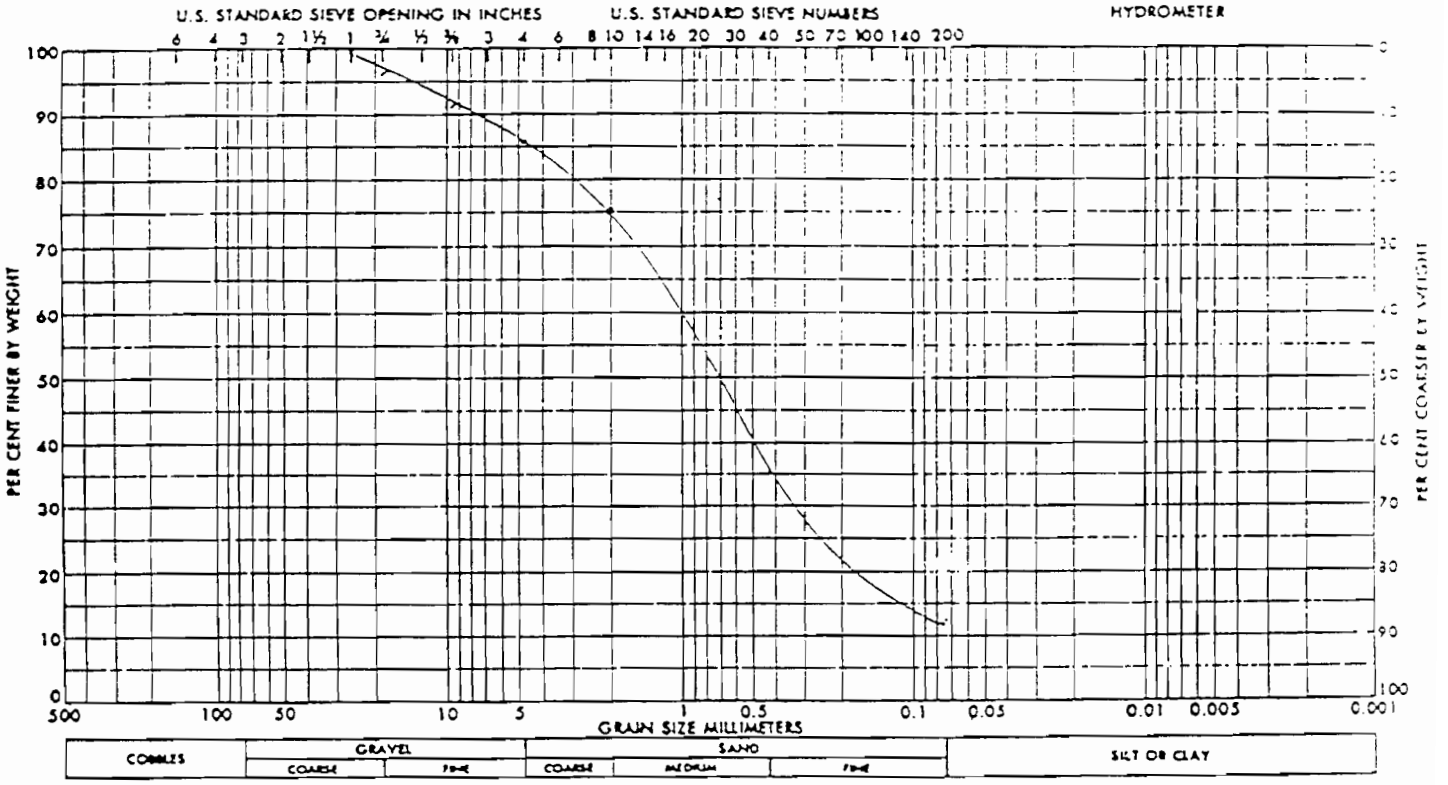
Client Ogden Remediation Services

March 10, 1997

Project Clarkstown Landfill

Grain Size Curve Analysis

On March 7, 1997, a soil sample was delivered to this laboratory by the client. This sample was labeled "CVSF-AMT-1." Test results are shown below.



Atterberg Limts (D4318): NP

Moisture Content (D2216): 4.6

Classification (D2487): SM, silty sand

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

EB
PM
FFx
CHDC

USF REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Rec

Project Name/Client: CLARKSTOWN LANDFILL / LF CARPLOT Project No.: Loop/0000 Date Sent: 3/13/97

Project Location: WEST NYACK N.Y. Purchase Order No.: 6-52-P2-11073 Shipped Via: _____

Sampled By: (Signature) JIM BATES Lab Contact: BRIAN HUGGLER Date Received: 3/13/97

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
		ANALYSIS REQUIRED												
CUSF-AMT-2	TEST #2	X		X	X		X	X						

Comments/Special Instructions: POSSIBLE SOURCE OF STRUCTURAL FILL COME EXCAVATING, AIRMONT N.Y.

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FAIRWAY TESTING

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SINCE 1969

SOILS TEST REPORT

client Ogden Remediation Services

DATE 3-17-97

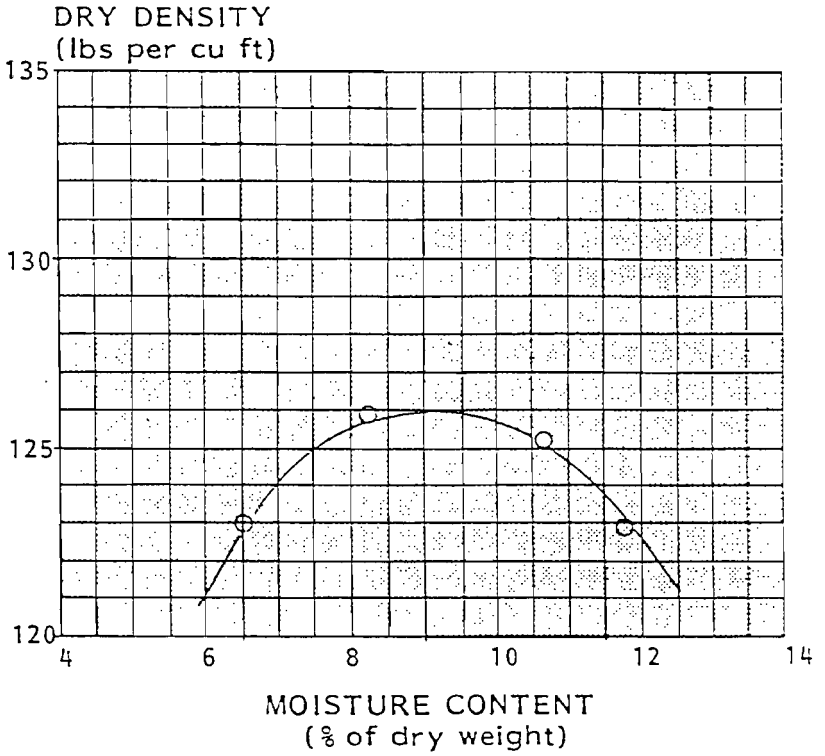
project Clarkstown Landfill

Compaction Method ASTM D698

subject Moisture-Density Curve Analysis

Maximum Dry Density 125.9 pcf
Optimum Moisture Content 9.3%

On March 13, 1997, a soil sample was delivered to this laboratory by the client. This sample was labeled "CVSF-AMT-2." Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

FAIRWAY TESTING

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69

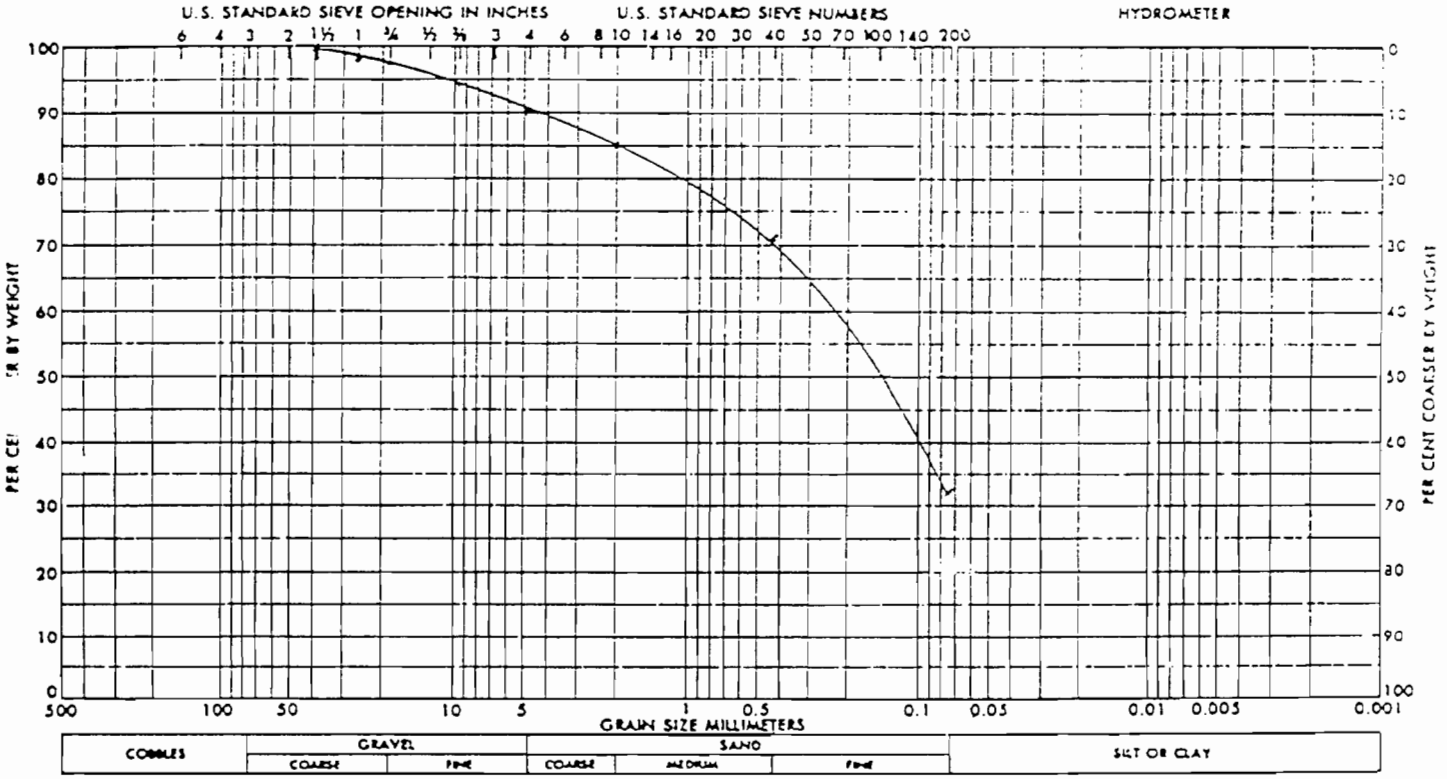
March 17, 1997

Client Ogden Remediation Services

Project Clarkstown Landfill

Grain Size Curve Analysis

On March 13, 1997 a soil sample was delivered to this laboratory by the client. This sample was labeled "CVSF-AMT-2." Test results are shown below.



Atterberg Limits (D4318): NP

Moisture Content (D2216): 5.9

Classification (D2487): SM, Silty Sand

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

KUHN REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: CLARKSTOWN LANDFILL / LECHMARK
Project No.: 60001000
Date Sent: 3/25/97

Project Location: WEST NYACK N.Y.
Purchase Order No.: 6-52-P2-11073
Shipped Via: _____

Sampled By: (Signature) J. BEATTY
Lab Contact: BRIAN Asplk
Date Received: 3/25/97

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterburg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydro-meter ASTM D1140	Moisture Content ASTM D2216	Classifi-cation ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
		ANALYSIS REQUIRED												
CWSF-TUX-2		X		X	X		X	X						

Comments/Special Instructions: POSSIBLE SOURCE OF (STRUCTURAL FILL) FROM COVE EXCAVATION @ TUXEDO N.Y.

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FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING INSPECTION · RESEARCH

P.O. BOX 578 STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 FAX (914) 942-0995

SINCE 1969

SOILS TEST REPORT

client Ogden Remediation Services

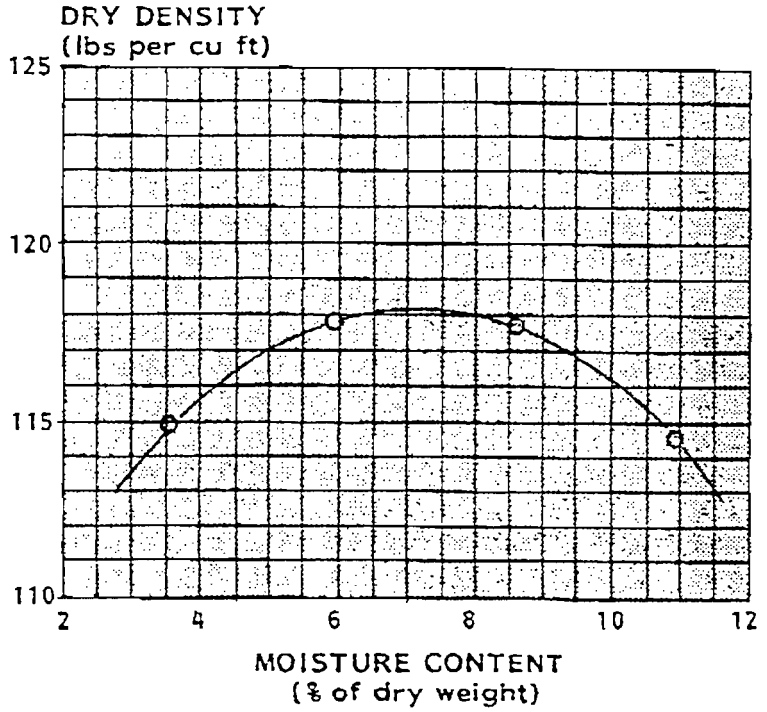
March 27, 1997

project Clarkstown Landfill

Compaction Method	ASTM D698
Maximum Dry Density	118.2 pcf
Optimum Moisture Content	7.2 %

subject Moisture-Density Curve Analysis

On March 25, 1997 a representative from this firm visited the jobsite and picked up a soil sample labeled "CVSF-TUX-2." Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

PM
JB
TP
CL/DL

PU

FAIRWAY TESTING

CONSTRUCTION MATERIALS. TESTING · INSPECTION · RESEARCH

P.O. BOX 573 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 FAX (914) 942-0995

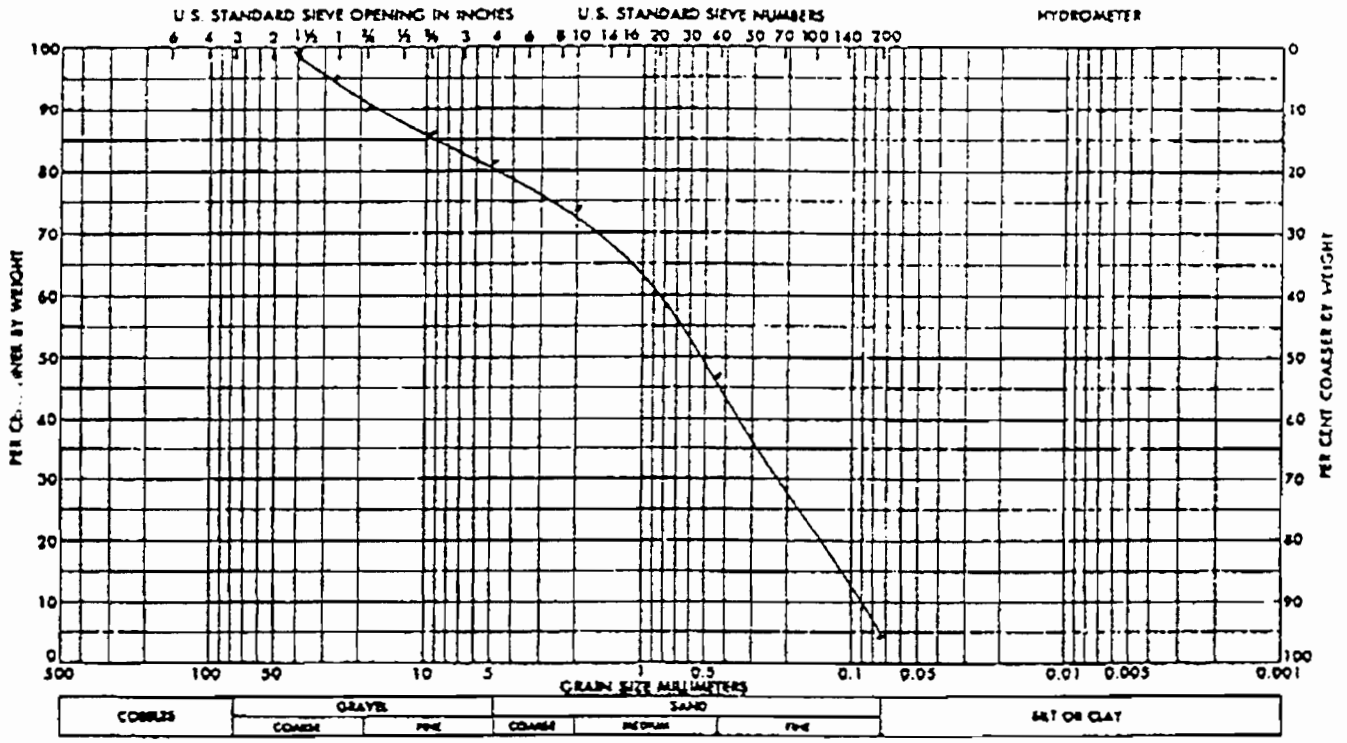
March 26, 1997

client Ogden Remediation Services

project Clarkstown Landfill

Grain Size Curve Analysis

On March 25, 1997 a representative from this firm visited the jobsite and picked up a soil sample labeled "CVSF-TUX-2." Test results are shown below.



Atterberg Limits (D4318): NP

Moisture Content (D2216): 9.7

Classification (D2487): SP, Poorly graded sand

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

USEC REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: CLARKSTOWN LANDFILL / LF CAPPING Project No.: 60000.10000 Date Sent: 3/25/97

Project Location: WEST NYACK N.Y. Purchase Order No.: G-52-P2-11078 Shipped Via: _____

Sampled By: (Signature) T. BEATTY Lab Contact: BRIAN RUSSICK Date Received: 3/25/97

Sample No.	Description	ANALYSIS REQUIRED: Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
CV8F-TUX-3		X		X	X		X	X						

Comments/Special Instructions: POSSIBLE SOURCE OF (STRUCTURAL FILL) FROM CUT EXCAVATION @ TUXEDO N.Y.

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FAIRWAY TESTING

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SINCE 1959

SOILS TEST REPORT

client Ogden Remediation Services

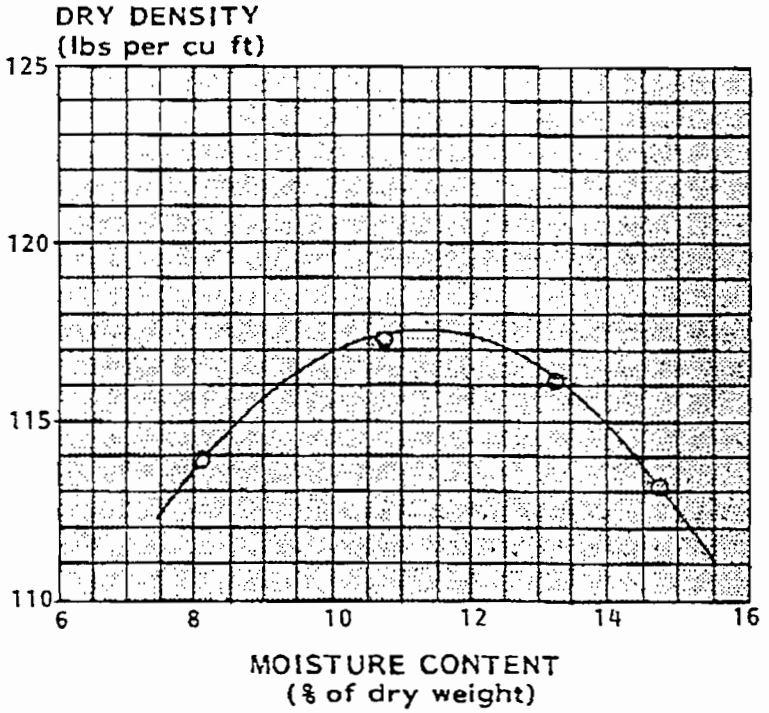
March 27, 1997

project Clarkstown Landfill

Compaction Method	ASTM D698
Maximum Dry Density	117.6 pcf
Optimum Moisture Content	11.3 %

subject Moisture-Density Curve Analysis

On March 25, 1997 a representative from this firm visited the jobsite and picked up a soil sample labeled "CVSF-TUX-3." Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

PV

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2083 FAX (914) 942-0995

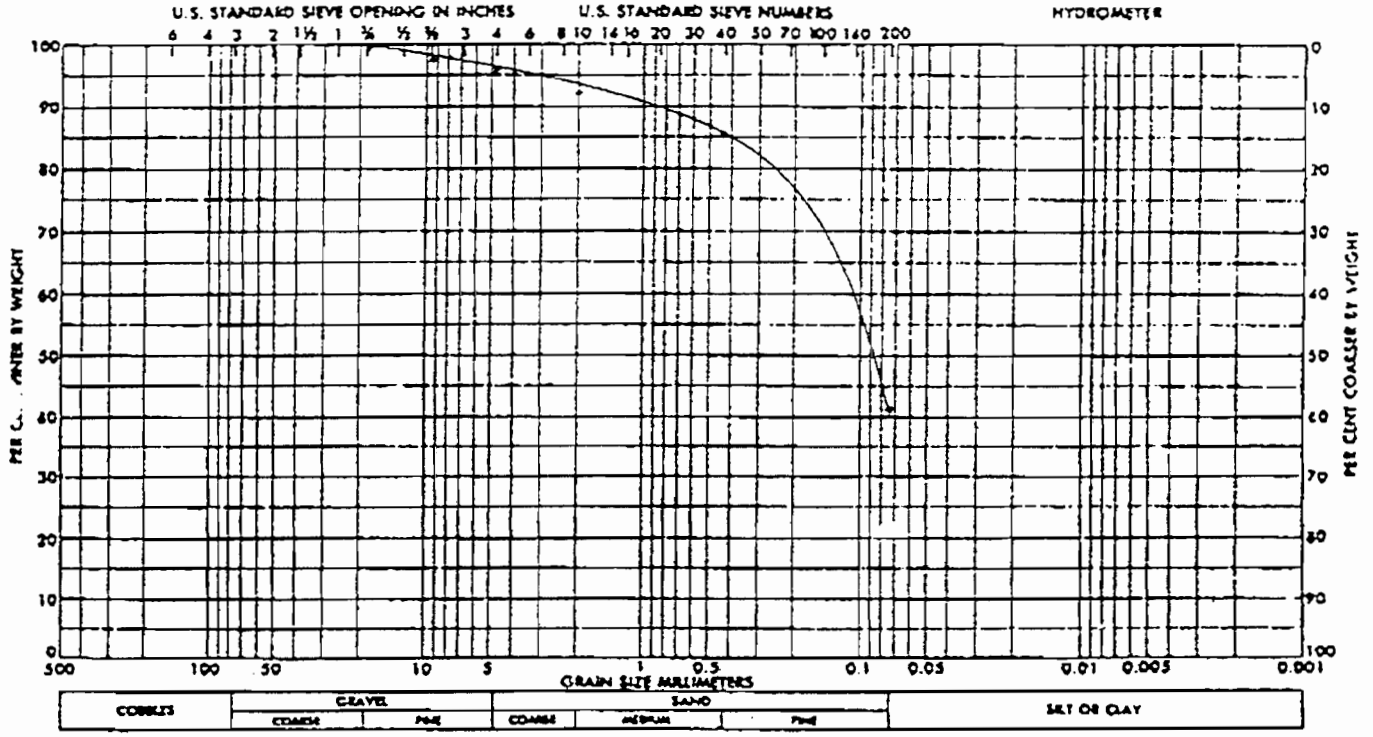
March 26, 1997

client Ogden Remediation Services

project Clarkstown Landfill

Grain Size Curve Analysis

On March 25, 1997 a representative from this firm visited the jobsite and picked up a soil sample labeled "CVSF-TUX-3." Test results are shown below.



Atterberg Limits (D4318): NP

Moisture Content (D2216): 10.6

Classification (D2487): SM, Silty sand

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

USEC REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: CLARKSTOWN LANDFILL / LF CARRING
Project No.: 6000 10000
Date Sent: 3/26/97

Project Location: WEST NYACK N.Y.
Purchase Order No.: 6-62-P21073
Shipped Via: _____

Sampled By: (Signature) _____
Lab Contact: BRIAN HUSSICK
Date Received: 3/26/97

Sample No.	Description	ANALYSIS REQUIRED: Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.	CBR Test		
SF-WMX-15	STRUCTURAL FILL	X		X	X		X	X				X		

Comments/Special Instructions: WMX STOCK PILE ON SITE 15,000 cy TEST

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FAIRWAY TESTING

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P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SINCE 1969

SOILS TEST REPORT

March 28, 1997

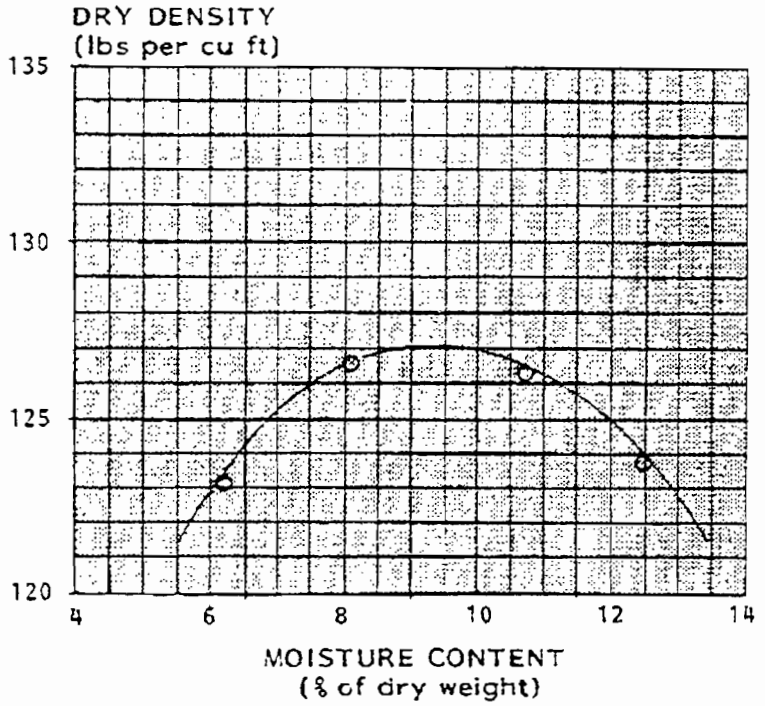
client Ogden Remediation Services

project Clarkstown Landfill

Compaction Method	ASTM D698
Maximum Dry Density	127.1 pcf
Optimum Moisture Content	9.5 %

subject Moisture-Density Curve Analysis

On March 26, 1997 a soil sample was delivered to this laboratory by the client. Test results of sample "SF-WMX-15" are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

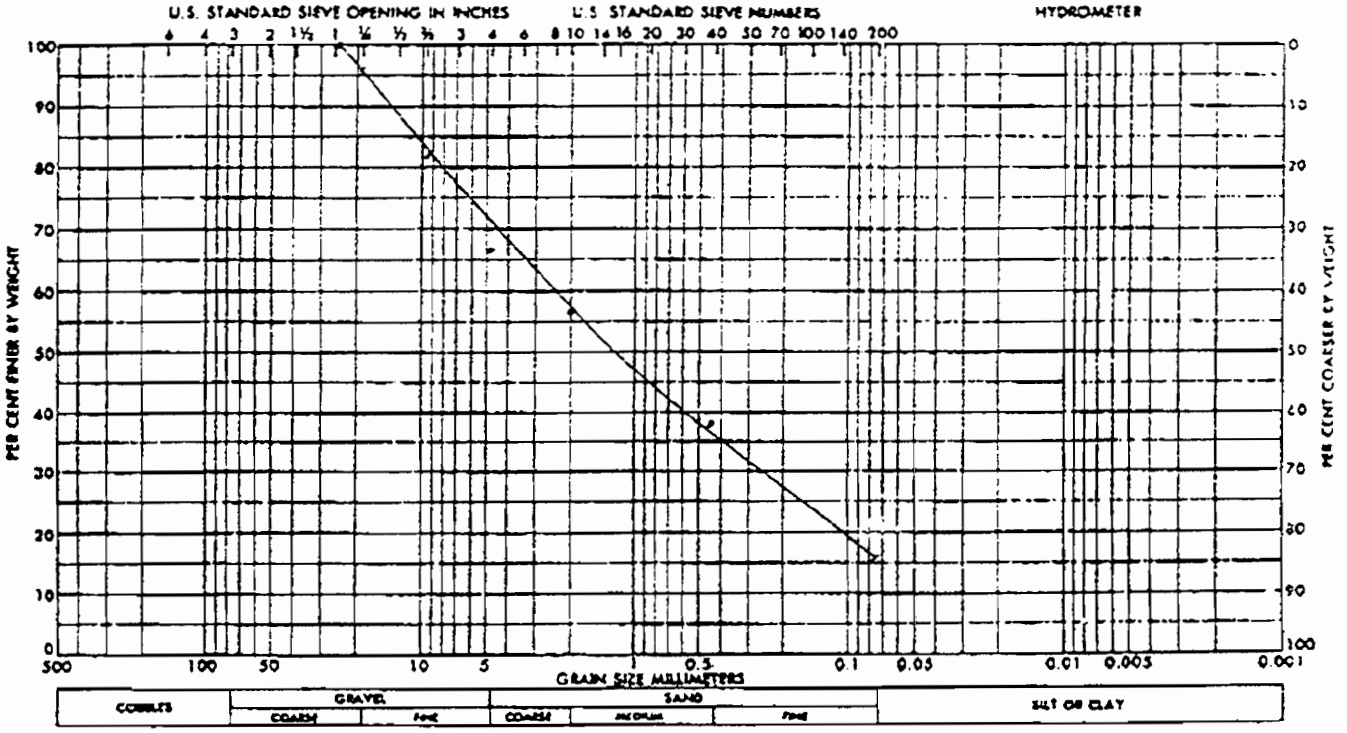
FAIRWAY TESTING
CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH
P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0993
SINCE 1969

March 28, 1997

client Ogden Remediation Services
project Clarkstown Landfill

Grain Size Curve Analysis

On March 26, 1997 a soil sample was delivered to this laboratory by the client. Test results of sample "SF-WMX-15" are shown below.



Atterberg Limits (D4318): NP

Moisture Content (D2216): 9.5

Classifications (D2487): SM, Silty sand with gravel

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

USUI REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: CLARKSTOWN LANDFILL / LF CARLIN'S Project No.: 6000110000 Date Sent: 3/26/97

Project Location: WEST NYACK N.Y. Purchase Order No.: 6-52-22-11073 Shipped Via: _____

Sampled By: (Signature) TIM BEATTY Lab Contact: BRIAN HUGGIN Date Received: 3/26/97

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.	EPA 8020		
		ANALYSIS REQUIRED												
SF-WMX-20	STRUCTURAL FILL	X		X	X		X	X				X		

Comments/Special Instructions: WMX STOCK PILE ON SITE 20,000 CY TEST

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03/18/1996 11:05 6052/005 USUI E AND I PAGE 02

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 STONY POINT, NY 10980 TELEPHONE (914) 942-2086 FAX (914) 942-0995

SINCE 1969

SOILS TEST REPORT

client Ogden Remediation Services — March 28, 1997

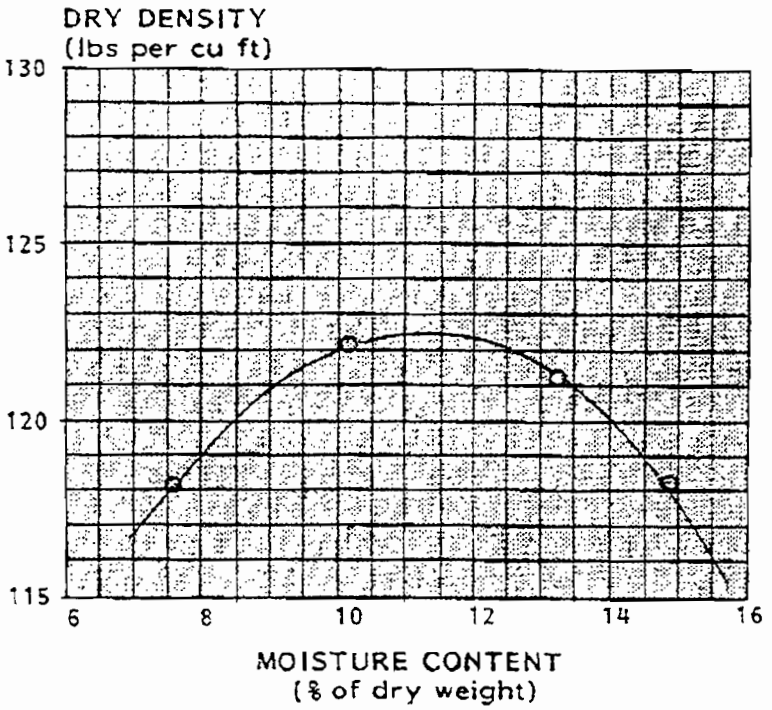
project Clarkstown Landfill — Compaction Method ASTM D698

subject Moisture-Density Curve Analysis

Maximum Dry Density 122.4 pcf

Optimum Moisture Content 11.4 %

On March 26, 1997 a soil sample was delivered to this laboratory by the client. Test results of sample "SF-WMX-20" are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 579 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0396

INCE 1969

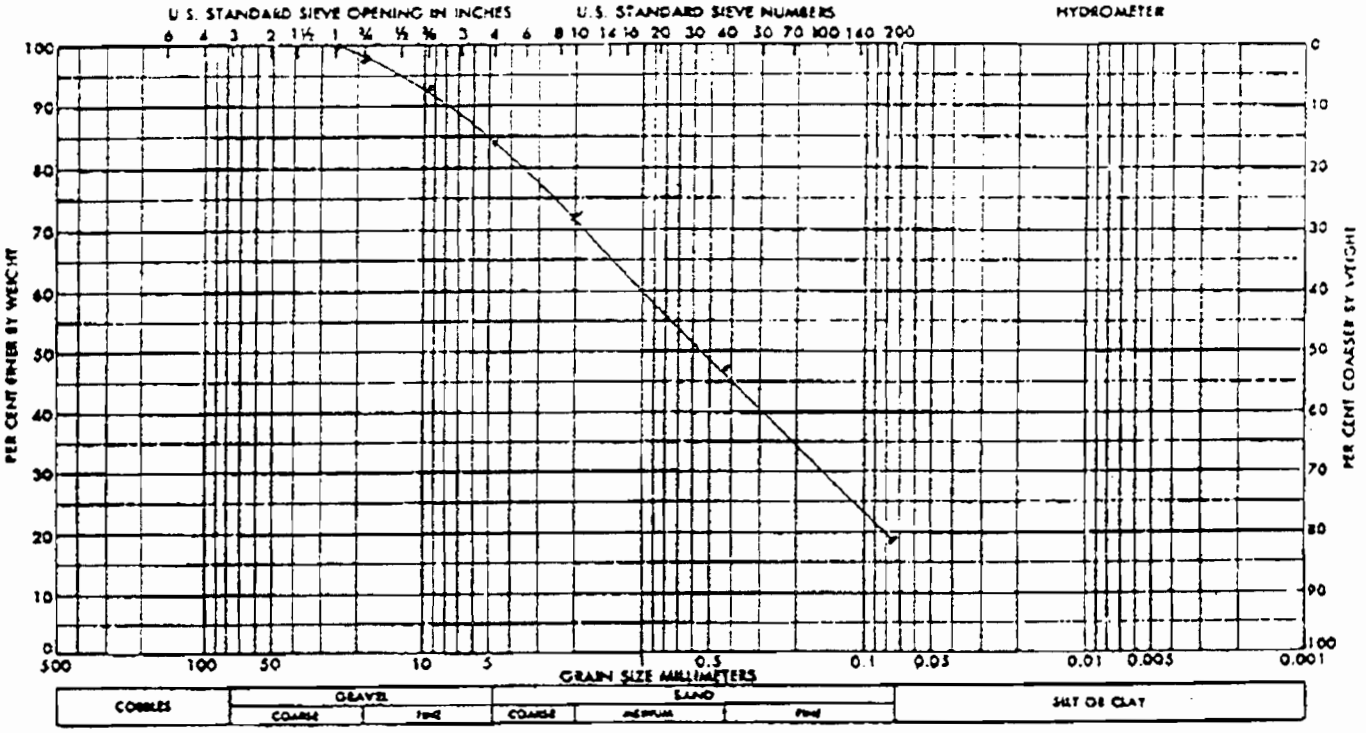
March 28, 1997

client Ogden Remediation Services

project Clarkstown Landfill

Grain Size Curve Analysis

On March 26, 1997 a soil sample was delivered to this laboratory by the client. Test results of sample "SF-WMX-20" are shown below.



Atterberg Limits (D4318): NP

Moisture Content (D2216): 11.2

Classification (D2487): SM, Silty sand with gravel

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: CLARKSTOWN LANDFILL / LF CAPPING
Project No.: 6620100000
Date Sent: 3/27/97

Project Location: WEST NYACK N.Y.
Purchase Order No.: 6521211023
Shipped Via:

Sampled By: (Signature) Jim BARRY
Lab Contact: Brian Hizzuk
Date Received: 3/27/97

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D3140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.	Other 6020		
SP-SU-15	STRUCTURAL FILL	X		X	X		X	X				X		

ANALYSIS REQUIRED

Comments/Special Instructions: STOCKPILE ON SITE 15,000 CY TEST

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Rev. 4/93

FZ20/CRS

03/18/1998 11:09 607/566993 RUST E AND I PAGE 02

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION RESEARCH

P.O. BOX 578 STONY POINT, NY 10980 TELEPHONE (914) 942-2088 FAX (914) 942-0995

SINCE 1969

SOILS TEST REPORT

March 31, 1997

client Ogden Remediation Services

project Clarkstown Landfill

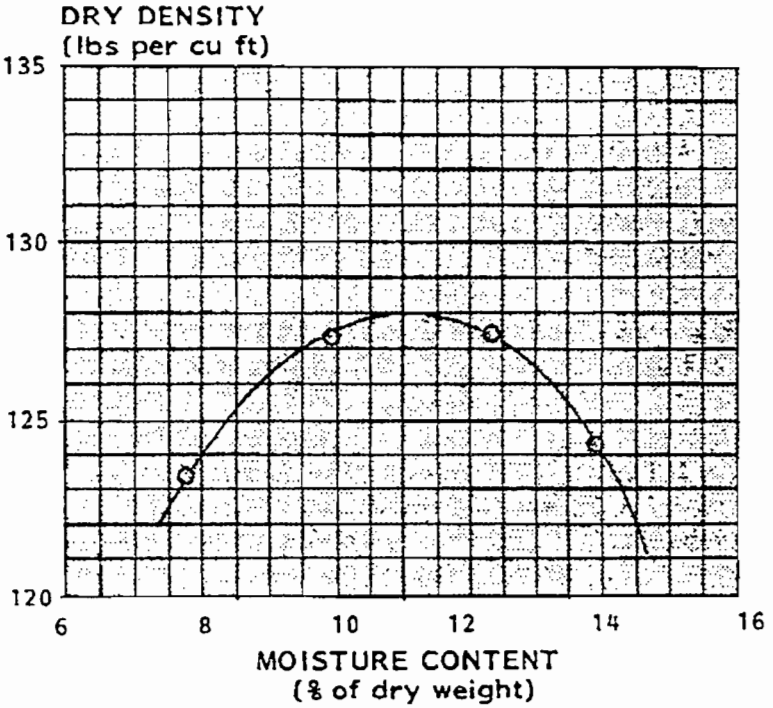
Compaction Method: ASTM D698

Maximum Dry Density: 128.0 pcf

Optimum Moisture Content: 11.1%

subject Moisture-Density Curve Analysis

On March 27, 1997, a soil sample was delivered to this laboratory by the client. Test results of sample "SF-SV-15" are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

FAIRWAY TESTING
CONSTRUCTION MATERIALS: TESTING INSPECTION RESEARCH
P.O. BOX 578 STONY POINT, NY 10980 TELEPHONE (914) 942-2088 · FAX (914) 942-0935
SINCE 1969

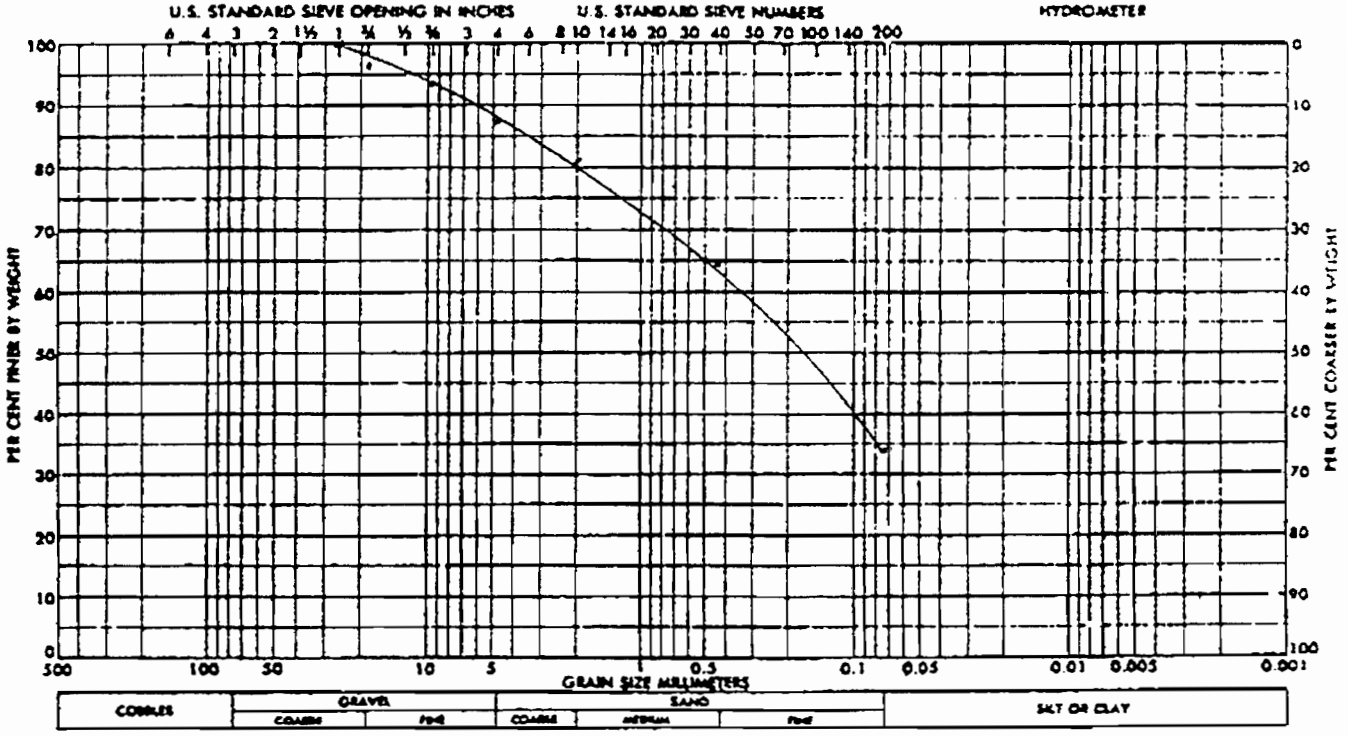
client Ogden Remediation Services

project Clarkstown Landfill

March 31, 1997

Grain Size Curve Analysis

On March 27, 1997, a soil sample was delivered to this laboratory by the client. Test results of sample SF-SV-15 are shown below.



Atterberg Limits (D4318): NP

Moisture Content (D2216): 10.4

Classification (D2487): SM, silty sand w/gravel

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

2-02-1997 2:20PM FROM FAIRWAY TESTING CO 914 942 0935 P.2

USSEC REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: GRANDSTOWN LANDFILL / LE CARRIERE Project No.: 6000 [illegible] Date Sent: 8/27/97

Project Location: WEST NYACK NY Purchase Order No.: 6-8272-1025 Shipped Via:

Sampled By: (Signature) Tim BEATTY Lab Contact: Brian Hyzak Date Received: 8/27/97

Sample No.	Description	ANALYSIS REQUIRED: Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
SP-SV-20	STRUCTURAL FILL	X		X	X		X	X						

Comment/Special Instructions: SOURCE = STOCKPILE ON SITE 20,000 cy TEST

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Rev. 4/93 F220/CR3

08/28/1998 11:03 6092466595 NUS E AND I PAGE 02

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION RESEARCH

P.O. BOX 578 STONY POINT NY 10980 TELEPHONE (914) 942-2088 FAX (914) 942-0995

SINCE 1969

SOILS TEST REPORT

March 31, 1997

client Ogden Remediation Services

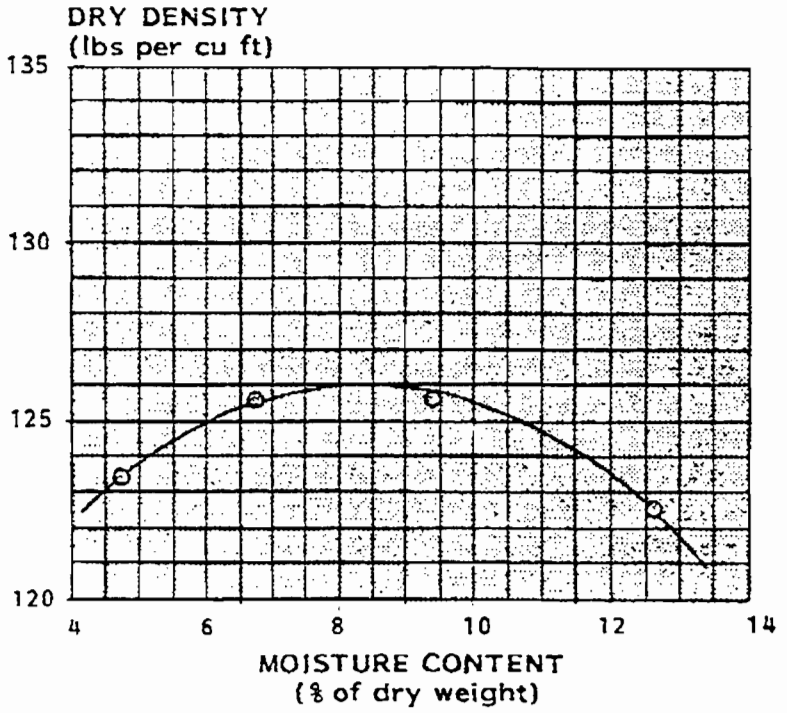
project Clarkstown Landfill

Compaction Method ASTM D698

subject Moisture-Density Curve Analysis

Maximum Dry Density 126.0 pcf
Optimum Moisture Content 8.3%

On March 27, 1997, a soil sample was delivered to this laboratory by the client. Test results of sample "SF-SV-20" are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

4-02-1997 2:21PM FROM FAIRWAY TESTING CO 914 942 0995 P.4

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 575 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SINCE 1960

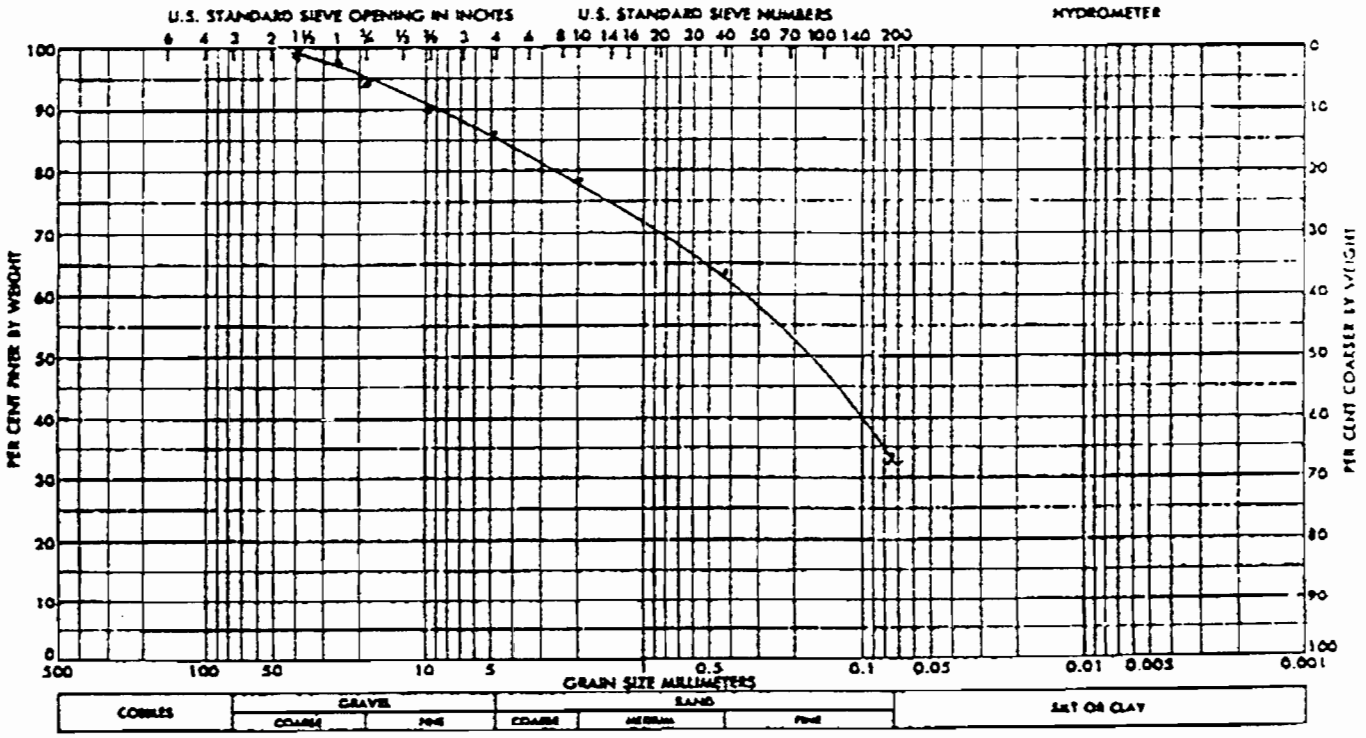
March 31, 1997

client Ogden Remediation Services

project Clarkstown Landfill

Grain Size Curve Analysis

On March 27, 1997, a soil sample was delivered to this laboratory by the client. Test results of sample "SF-SV-20" are shown below.



Atterberg Limits (D4318): NP

Moisture Content (D2216): 11.2

Classification (D2487): SM, silty sand

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

4-22-1997 2:22PM FROM FAIRWAY TESTING CO 914 942 0995 P.5

USEC REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: CLARKSTOWN LANDFILL & BF GOODRICH Project No.: 6000/0000 Date Sent: 1/9/97

Project Location: WEST NYACK N.Y. Purchase Order No.: 652-92-11073 Shipped Via: _____

Sampled By: (Signature) _____ Lab Contact: BRIAN Huggett Date Received: 1/9/97

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
SF-SV-20A		X		X	X		X	X						

Comments/Special Instructions: SAMPLE FROM ONSITE STOCK PILE (EAST END)

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Rev. 4/93

FZ0CR3

09/18/1995 11:05 6092655393 PAGE 02

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING INSPECTION · RESEARCH

P O BOX 578 · STONY POINT, NY 10980 TELEPHONE (914) 942-2088 FAX (914) 942-0995

SINCE 1969

SOILS TEST REPORT

April 7, 1997

client Ogden Remediation Services

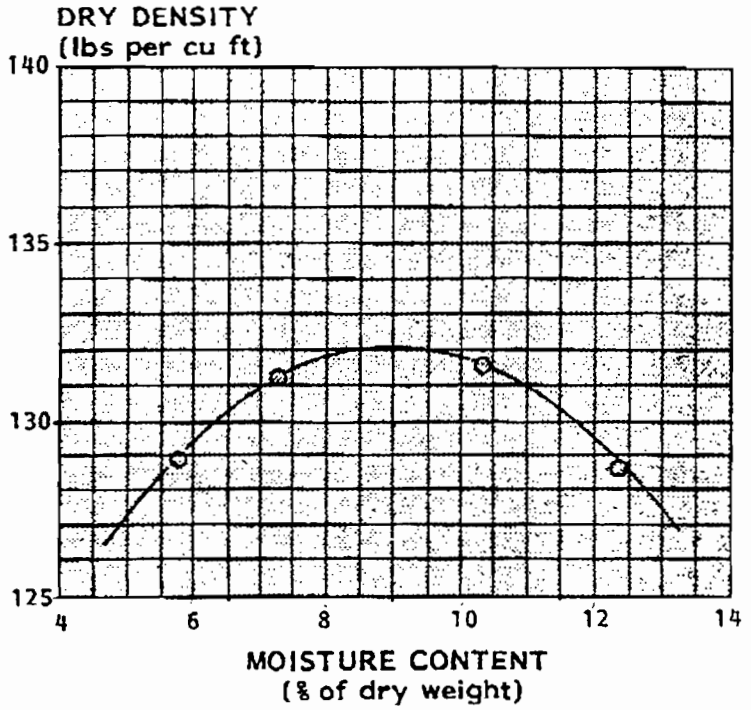
project Clarkstown Landfill

Compaction Method ASTM D698

subject Moisture-Density Curve Analysis

Maximum Dry Density 132.1 pcf
Optimum Moisture Content 9.0%

On April 4, 1997, a soil sample was delivered to this laboratory by the client. Test results of sample "SF_SV-20A" are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

4-15-1997 10:32AM FROM FAIRWAY TESTING CO 914 942 0995 P.2

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION RESEARCH

P.O. BOX 578 STONY POINT, NY 10980 TELEPHONE (914) 942-2088 FAX (914) 942-0995

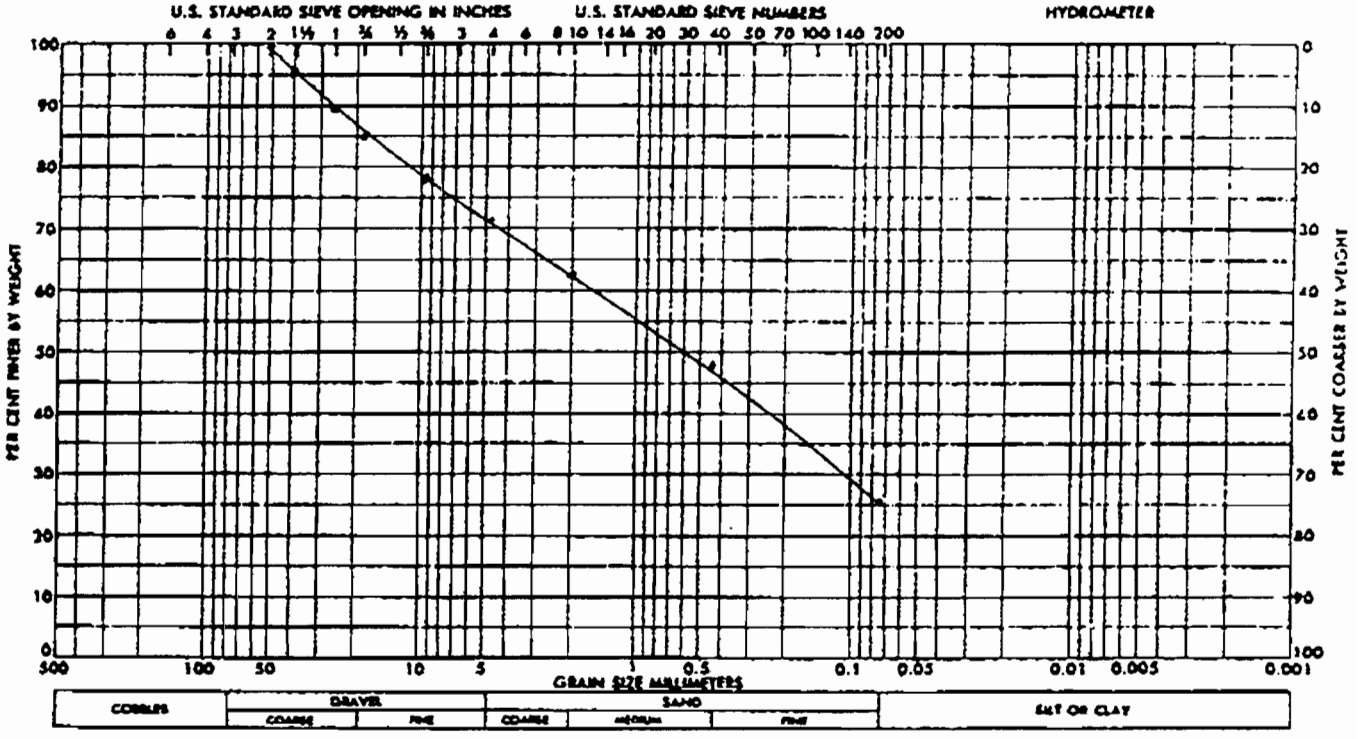
SINCE 1989

April 7, 1997

client Ogden Remediation Services

project Clarkstown Landfill **Grain Size Curve Analysis**

On April 4, 1997, a soil sample was delivered to this laboratory by the client. Test results of sample "SF-SV-20A" are shown below.



Atterberg Limits (D4318): NP

Moisture Content (D2216): 8.0

Classification: SM, silty sand with gravel

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

P.1 FROM FAIRWAY TESTING CO 914 942 0995 4-15-1997 10:33AM

Clarkstown Landfill Remediation
Laboratory Services Request
#LL-2339-K3

For:
Mr. Reddy Kancharla
M & T/Namow/TCL
47 Hudson Street
Ossining, N.Y. 10562
PH (914)762-9000
FX (914)762-9638

From:
Roy F. Weston of New York
Clarkstown Field Office
166 Rte. 303
West Nyack, N.Y. 10994
PH (914)353-5221
FX (914)353-5491

Sample I.D.	Source	Misc	D422	D698	D4318										Remarks
SF-20	WMX	1 bkt	X	X	X										25,000 CY
SF WMX 25	Woodside														

M&T/NAMOW/TCL□J.V.

GRADATION AND STANDARD PROCTOR COMPACTION TESTING OF SOIL

CLIENT: Roy F. Weston, Inc., Sutton Park
PROJECT: Clarkstown Landfill
SAMPLE ID: ~~SF-07-25~~ (Source: WMX Woodside) SF-20
SAMPLED BY: Client
PICKUP/DEL BY: Client

LAB#: FOB-001
REPORT#: MC-43
DATE DELIVERED: 4/21/97
DATE TESTED: 4/21/97

(A) GRADATION TEST RESULTS (ASTM D422 & ASTM D1140)

Sieve Size	Percent Passing (%)	Specifications	Sieve Size	Percent Passing (%)	Specifications
2-1/2"			#10	55.2	
2"			#16	50.3	
1-1/2"	100.0		#20	47.0	
1"	92.0		#30	41.7	
3/4"	85.7		#40	34.9	
1/2"	78.9		#50	28.9	
3/8"	72.3		#60	25.4	
1/4"	65.9		#80	20.0	
#4	62.8		#100	18.6	
#8	56.7		#200	12.9	

The gradation curve is shown on Figure-1

(B) STANDARD PROCTOR COMPACTING TEST RESULTS (ASTM D698, Procedure B, 4" diameter mold)
Optimum Water Content: 9.4%
Max. Unit Weight, Dry: 124.0 pcf
The proctor compaction curve is shown in Figure-2

(C) MOISTURE (ASTM D2216): 11.6%

(D) SOIL CLASSIFICATION (ASTM D2487): SM Silty sand with gravel.

(E) SOIL DESCRIPTION: m-f SAND, and m-f Gravel, little silt.
COLOR: Gray; **ODOR:** None; **CONTAMINATION:** None

TESTWELL CRAIG LABORATORIES, INC.

Kaspal R. Thumma, Eng.Sc.D., P.E.
Laboratory Manager
KRT/mp

Received: 04/24/97 09:41:22 From: 9147629638

M&T/NAMOW/TCL□J.V.

Roy F. Weston, Inc., Sutton Park
Lab #: FOB-001 Report #: MC-43

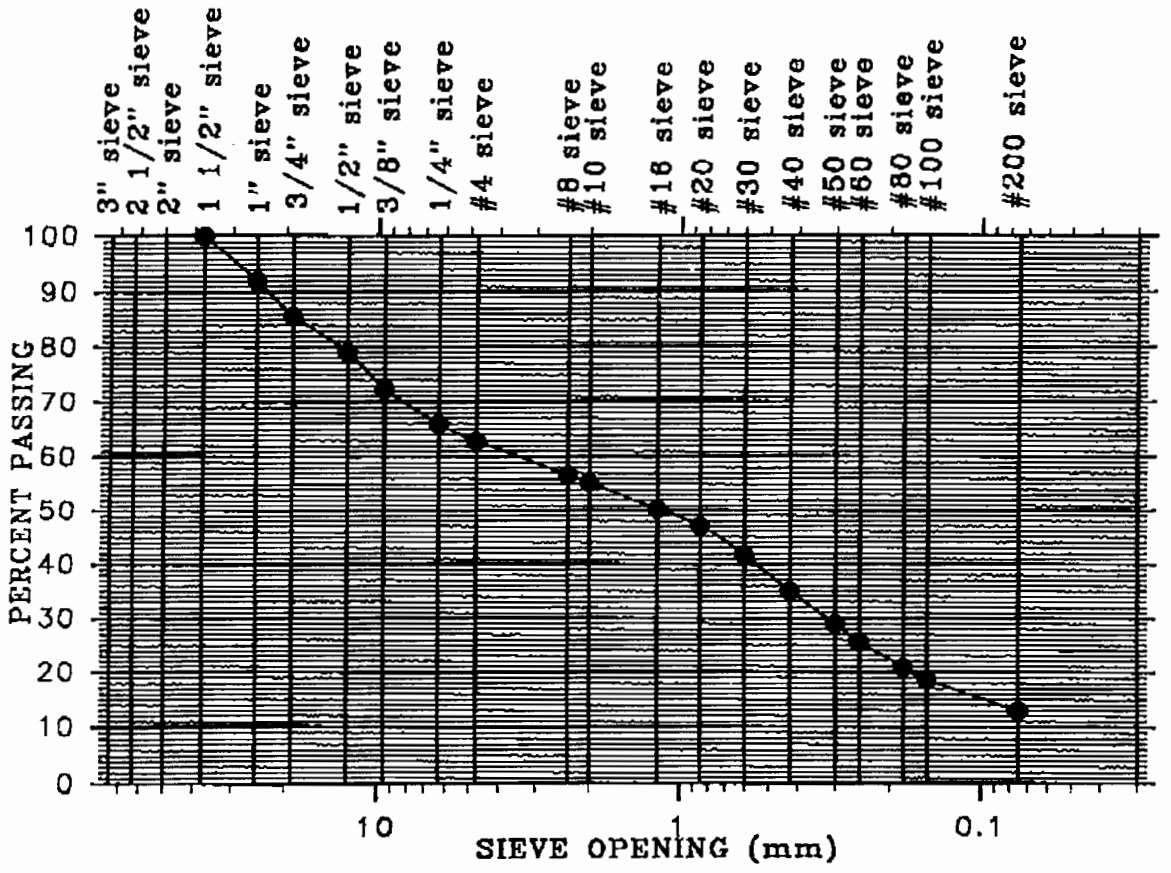


Figure 1: Particle Size Gradation Curve of Soil No. ~~SF-07-25~~ SF-20

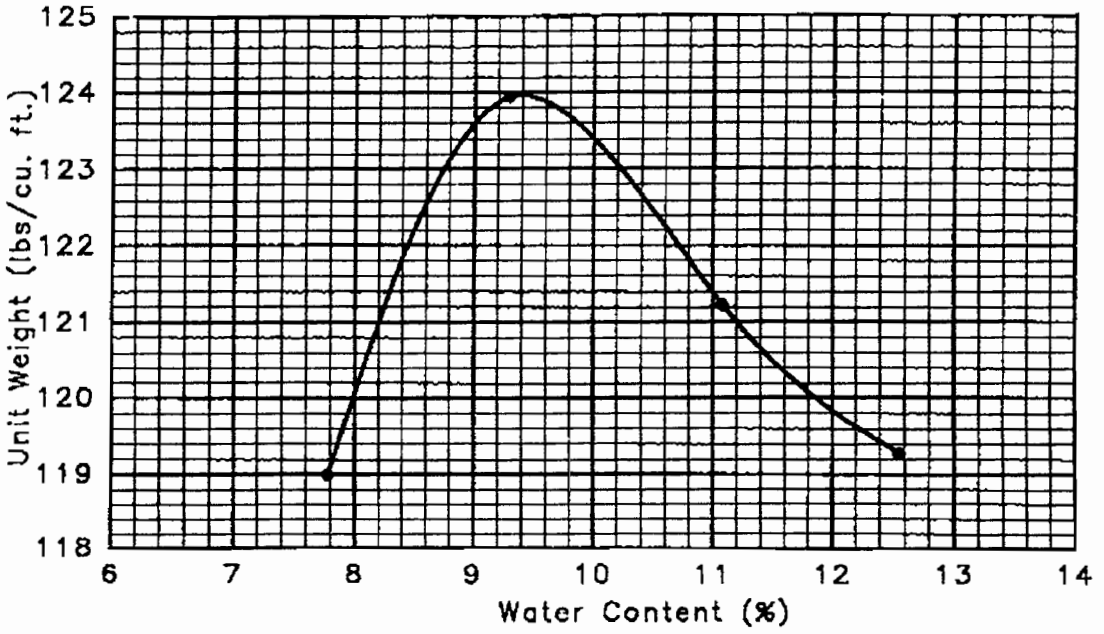
M&T/NAMOW/TCL□J.V.

Roy F. Weston, Inc., Sutton Park
Lab #: FOB-001 Rpt #: MC-43

STANDARD PROCTOR COMPACTION TEST RESULTS OF SOIL NO. ~~SF-07-25~~ SF-20

TEST METHOD: (ASTM D698 Procedure B, 4" Diameter Mold)

Specimen No.	1	2	3	4
Water Content (%)	7.78	9.29	11.08	12.56
Unit Weight, Dry (lbs/cu.ft.)	119.0	123.95	121.23	119.28



Optimum Water Content: 9.4% Max. Unit Weight, Dry: 124.0 pcf

Figure 2: Standard Proctor Curve of Soil No. ~~SF-07-25~~
SF-20

M&T/NAMOW/TCL□J.V.

LIQUID LIMIT AND PLASTIC LIMIT OF SOILS

Client: Roy F. Weston
Project: Clarkstown Landfill
Sample ID: Indicated Below
Sampled By: Client

Lab #: FOB-001
Report #:MC-44
Date Pick up/del: 4/21/97
Date Tested: 4/22/97

(A) LIQUID LIMIT & PLASTIC LIMIT TEST RESULTS (ASTM D4318)

Soil Sample No.	Liquid Limit % Weight	Plastic Limit % Weight	Plastic Index
~~CF-07-25~~ SF-20	16.0	NP	0

NOTE: NP indicates that the soil is non-plastic since 1/8" diameter thread could not be rolled at any moisture content.

TESTWELL CRAIG LABORATORIES, INC.

Kaspal R. Thumma, Eng.Sc.D., P.E.
Laboratory Manager
KRT\mp

Received: 04/24/97 09:41:22 From: 9147629638

RUST REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: CLARKSTOWN LANDFILL / LF CAPPING
Project No.: 60002/0000
Date Sent: 4-11-97

Project Location: WEST NYACK N.Y.
Purchase Order No.: 6-52-A2-11023
Shipped Via:

Sampled By: (Signature) JIM BATES
Lab Contact: BRIAN Huggick
Date Received: 4-11-97

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterburg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
		ANALYSIS REQUIRED												
SF-WMX-25		X		X	X		X	X						

Comments/Special Instructions: STRUCTURAL FILL WMX STOCKPILE WEST END

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

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SINCE 1969

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SOILS TEST REPORT

client Ogden Remediation Services

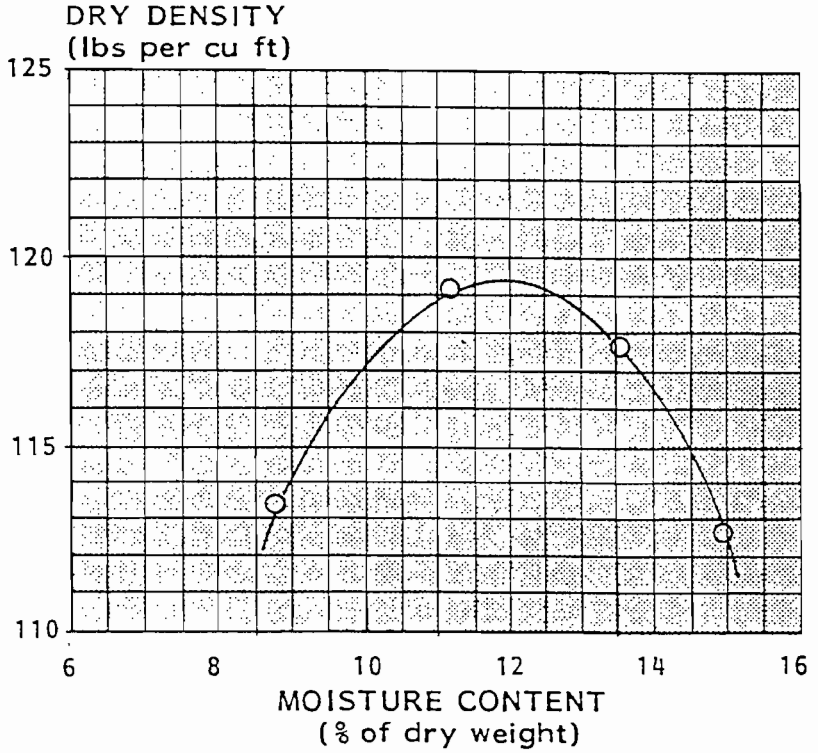
project Clarkstown Landfill

Compaction Method ASTM D698

subject Moisture-Density Curve Analysis

Maximum Dry Density 119.3 pcf
Optimum Moisture Content 11.9 %

On April 11, 1997 a soil sample was delivered to this laboratory by the client. Test results of sample "SFWMX-25" are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

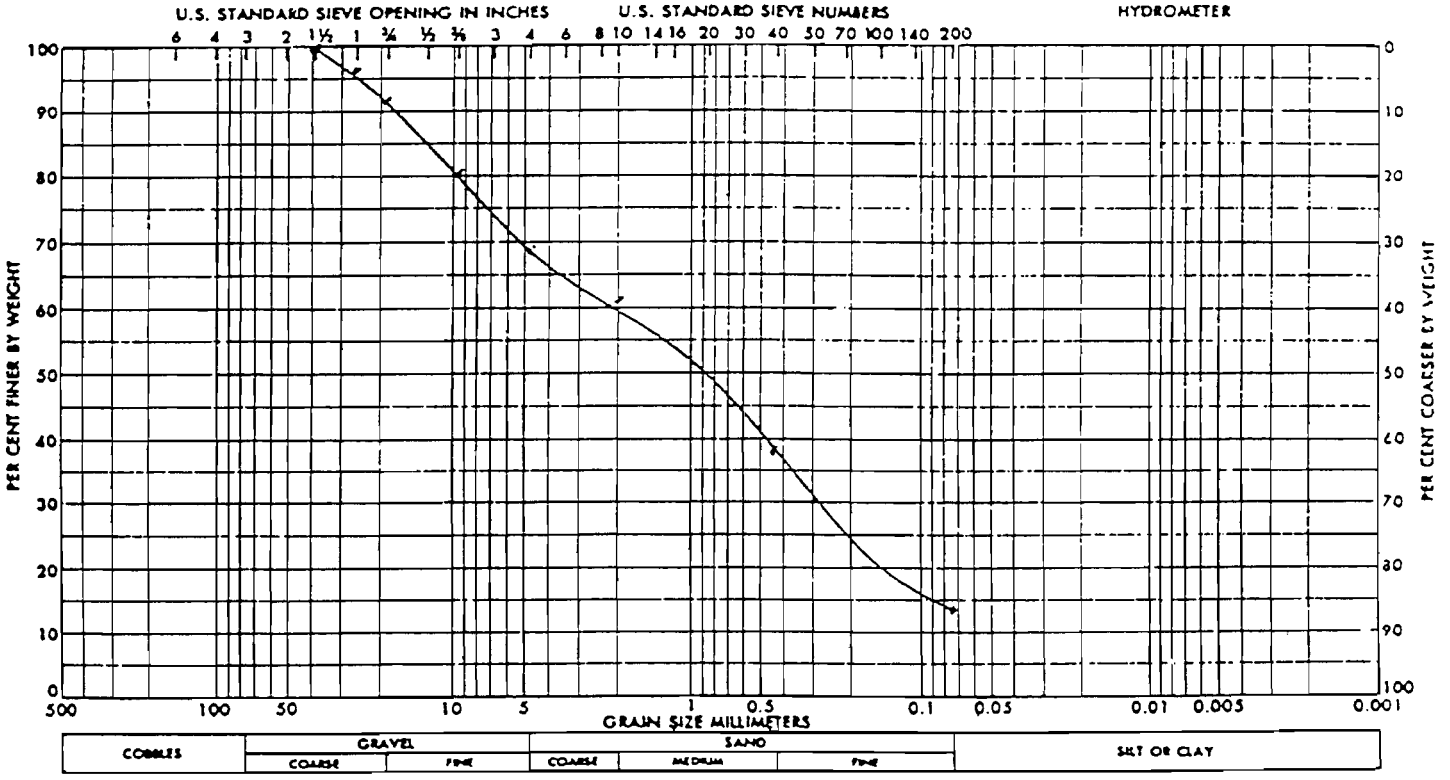
CE 1969

April 14, 1997

client Ogden Remediation Services
project Clarkstown Landfill

Grain Size Curve Analysis

On April 11, 1997 a soil sample was delivered to this laboratory by the client. Test results of sample "SFWMX-25" are shown below.



Atterberg Limits (D4318): NP

Moisture Content (D2216): 11.0

Classification: SM, Silty sand with gravel

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

USEC REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Rec

Project Name/Client: CLARKSTOWN LANDFILL - LF CAPPING
Project No.: 6000 10000
Date Sent: 4-11-97

Project Location: WEST NYACK N.Y.
Purchase Order No.: 6-52-92-1107B
Shipped Via:

Sampled By: (Signature) JIM BEATTY
Lab Contact: BRIAN HOGGARD
Date Received: 4-11-97

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterburg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydro-meter ASTM D1140	Moisture Content ASTM D2216	Classifi-cation ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
		ANALYSIS REQUIRED												
SF-WMX-LFP1		✓		✓	X		✓	✓						

Comments/Special Instructions:

SAMPLES TAKEN FROM LFP1 SLURRY WALL PLATFORM

* client called 4-14-97 requested additional Testing, as per JIM

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Rev. 4/93

F220/CRS

08/18/1998 11:09 6057655555 PAGE 02

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SINCE 1969

SOILS TEST REPORT April 14, 1997

client Ogden Remediation Services

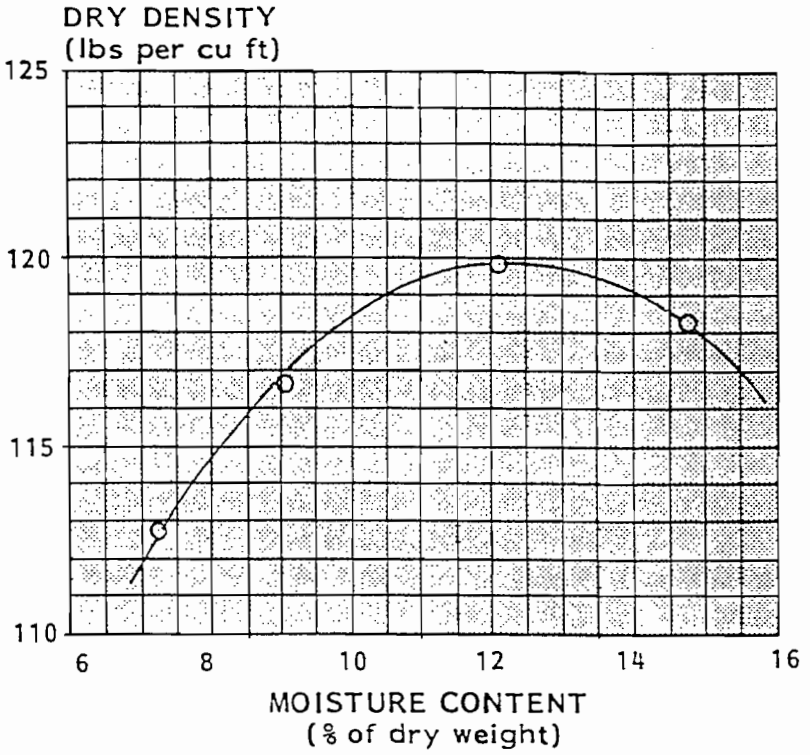
project Clarkstown Landfill

Compaction Method ASTM D698

subject Moisture-Density Curve Analysis

Maximum Dry Density 119.8 pcf
Optimum Moisture Content 12.2 %

On April 11, 1997 a recycled soil sample was delivered to this laboratory by the client. Test results of sample "SF-WMX-LFPI" are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SE 1969

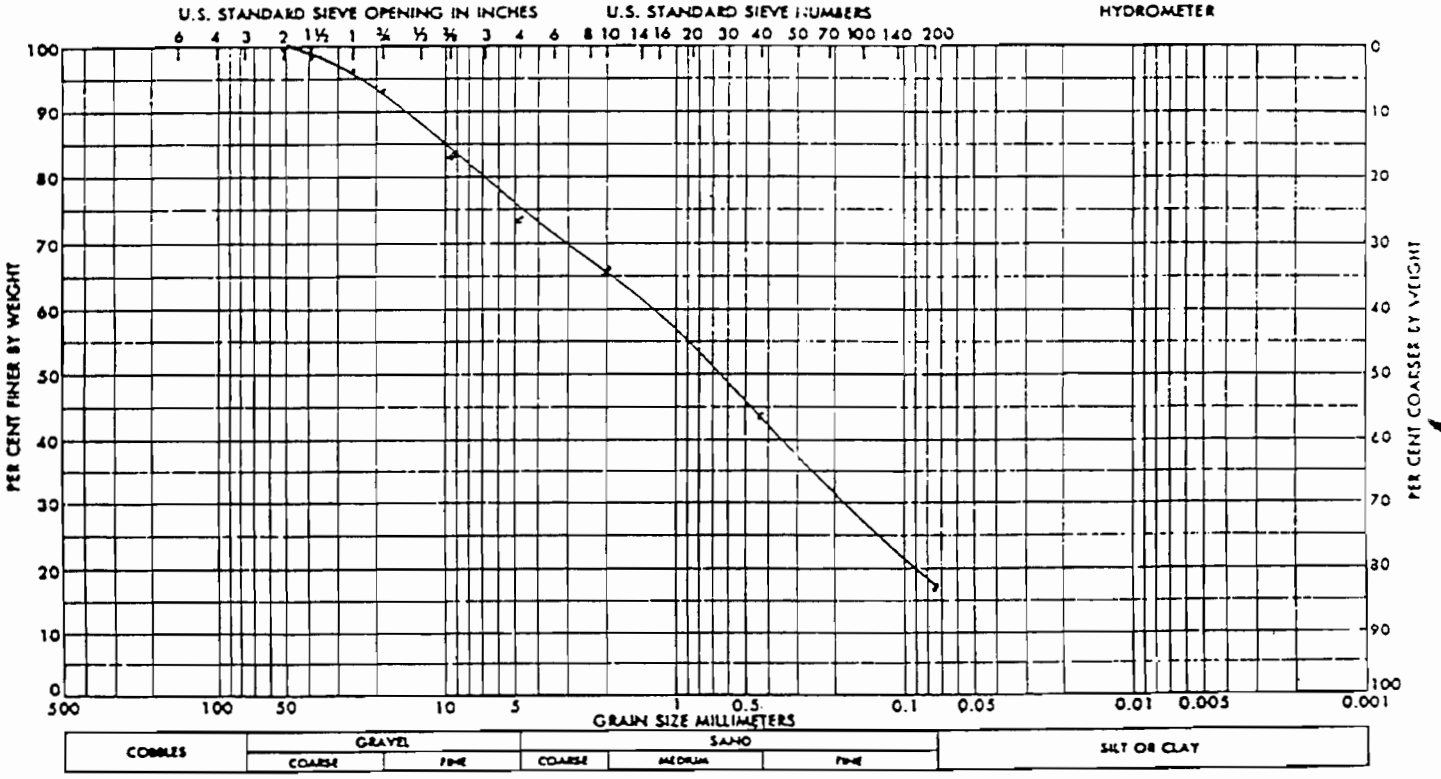
client: Ogden Remediation Services

project: Clarkstown Landfill

April 14, 1997

Grain Size Curve Analysis

On April 11, 1997 a recyled soil sample was delivered to this laboratory by the client. Test results of sample "SF-WMX-LFPI" are shown below.



Atterberg Limites (D4318): NP

Moisture Content (D2216): 9.1

Classification (D2487): SM, Silty sand with gravel

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

USUSCI REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

(3)

Project Name/Client: CLARKSTOWN LANDFILL - LF CAPPING
Project No.: 6000/0000
Date Sent: 4-11-97

Project Location: WEST NYACK N.Y.
Purchase Order No.: 6-62-M-11073
Shipped Via:

Sampled By: (Signature) JIM BATES
Lab Contact: BRIAN HUSSICK
Date Received: 4-11-97

Sample No.	Description	ANALYSIS REQUIRED: Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
SF-SV-25		X		X	X		X	X						

Comments/Special Instructions: STRUCTURAL FILL SERVIDONE STOCK PILE WEST END

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Rev. 4/93

FZ20/CRS

09/18/1996 11:05 6092/6093 PAGE 02

RUN E AND I

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SINCE 1969

SOILS TEST REPORT April 14, 1997

client Ogden Remediation Services

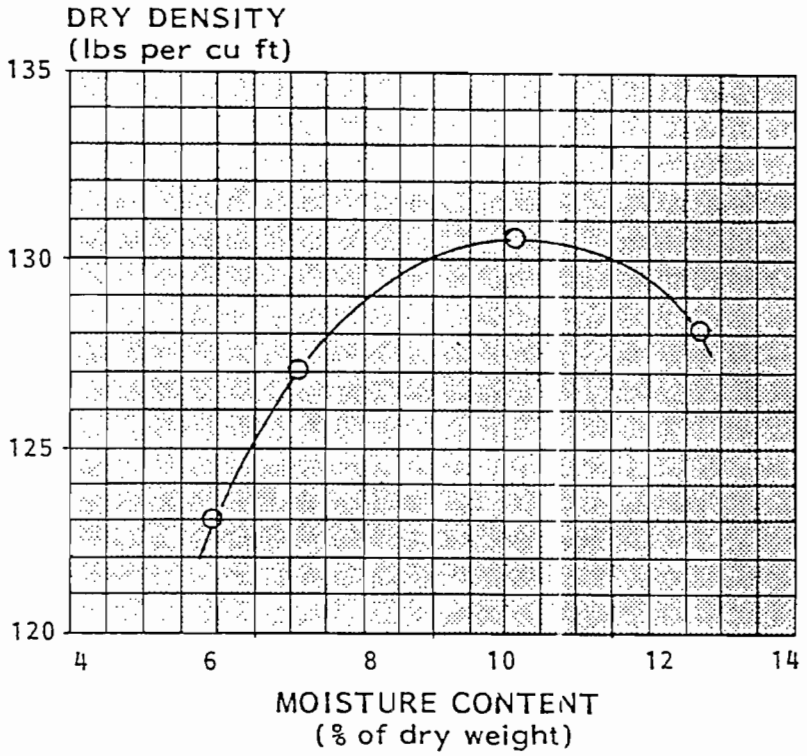
project Clarkstown Landfill

Compaction Method ASTM D698

subject Moisture-Density Curve Analysis

Maximum Dry Density 130.5 pcf
Optimum Moisture Content 10.2 %

On April 11, 1997 a soil sample was deliered to this laboratory by the client. Test results of sample "SF-SV-25" are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

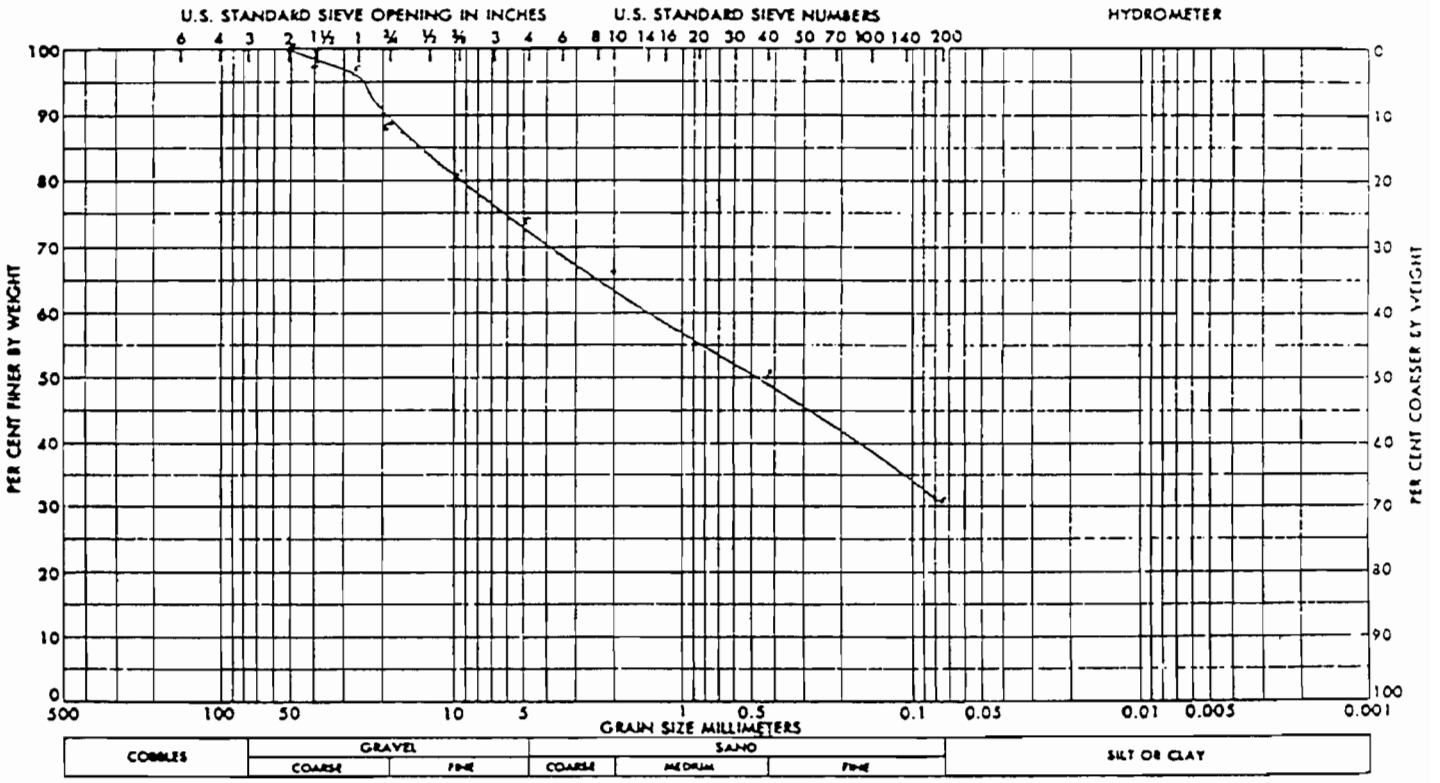
SINCE 1969

April 14, 1997

client Ogden Remediation Services
project Clarkstwon Landfill

Grain Size Curve Analysis

On April 11, 1997 a soil sample was delivered to this laboratory by the client. Test results of sample "SF-SV-25" are shown below.



Atterberg Limits (D4318): NP

Moisture Content (D2216): 11.6

Classification: SM, Silty Sand with gravel

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

PM
JEB
TP
CL/DL

RECEIVED APR 16 1997

USEC REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

4

Project Name/Client: CLARKSTOWN LANDFILL - LF CAPPING
Project No.: 6000/0000
Date Sent: 9/11/97

Project Location: WEST NYACK N.Y.
Purchase Order No.: 6-52-12-11023
Shipped Via:

Sampled By: (Signature) JIM BATES
Lab Contact: RAMN Hyzek
Date Received: 9/11/97

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
		ANALYSIS REQUIRED												
SF-TNS.B-10	CLARKSTOWN MAT'L PLACED	X		X	X		X	X						

Comment/Special Instructions: CLARKSTOWN MAT'L SAMPLED FROM WEST SLOPE PLACEMENT
40,000 cy TEST

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Rev. 4/93

FZX/CRS

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FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SINCE 1969

4-14-97

SOILS TEST REPORT

client Ogden Remediation Services

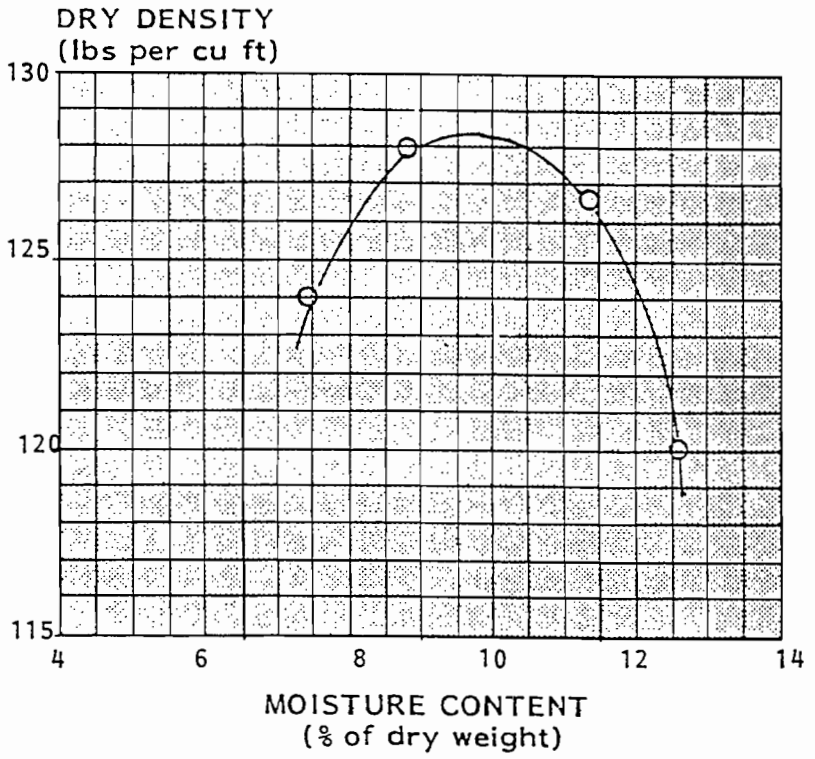
project Clarkstown Landfill

Compaction Method ASTM D698

subject Moisture-Density Curve Analysis

Maximum Dry Density 129.3 pch
Optimum Moisture Content 9.8%

On April 11, 1997, a soil sample was delivered to this laboratory by the client. Test results of sample "SF-TN5.8-40" are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Re

Project Name/Client: CLARKSTOWN LANDFILL / LF GRIFFIN'S
Project No.: 6005000
Date Sent: 9/4/97

Project Location: WEST NYACK N.Y.
Purchase Order No.: 6-52-22-11073
Shipped Via:

Sampled By: (Signature) JIM BATES
Lab Contact: BRIAN Haggick
Date Received: 9/11/97

Sample No.	Description	ANALYSIS REQUIRED: Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Auerburg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydro-meter ASTM D1140	Moisture Content ASTM D2216	Classifi-cation ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
SF-TN5.9-95	CLARKSTOWN STOCKPILE	X		X	X		X	X						

Comments/Special Instructions:
CLARKSTOWN STOCKPILE SAMPLE
15,000 CY TEST

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FZX/CR3

FAIRWAY TESTING

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SINCE 1969

SOILS TEST REPORT

client Ogden Remediation Services

project Clarkstown Landfill

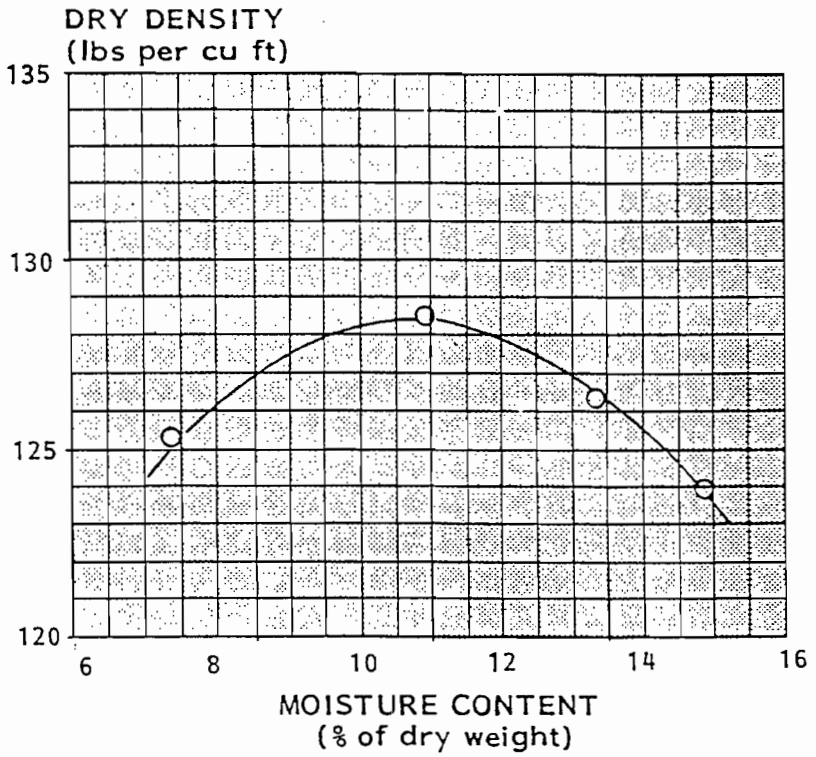
Compaction Method ASTM D698

subject Moisture-Density Curve Analysis

Maximum Dry Density 128.3 pcf

Optimum Moisture Content 10.7

On April 11, 1997 a soil sample was delivered to this laboratory by the client. Test results of sample "SF-TN5.9-45" are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

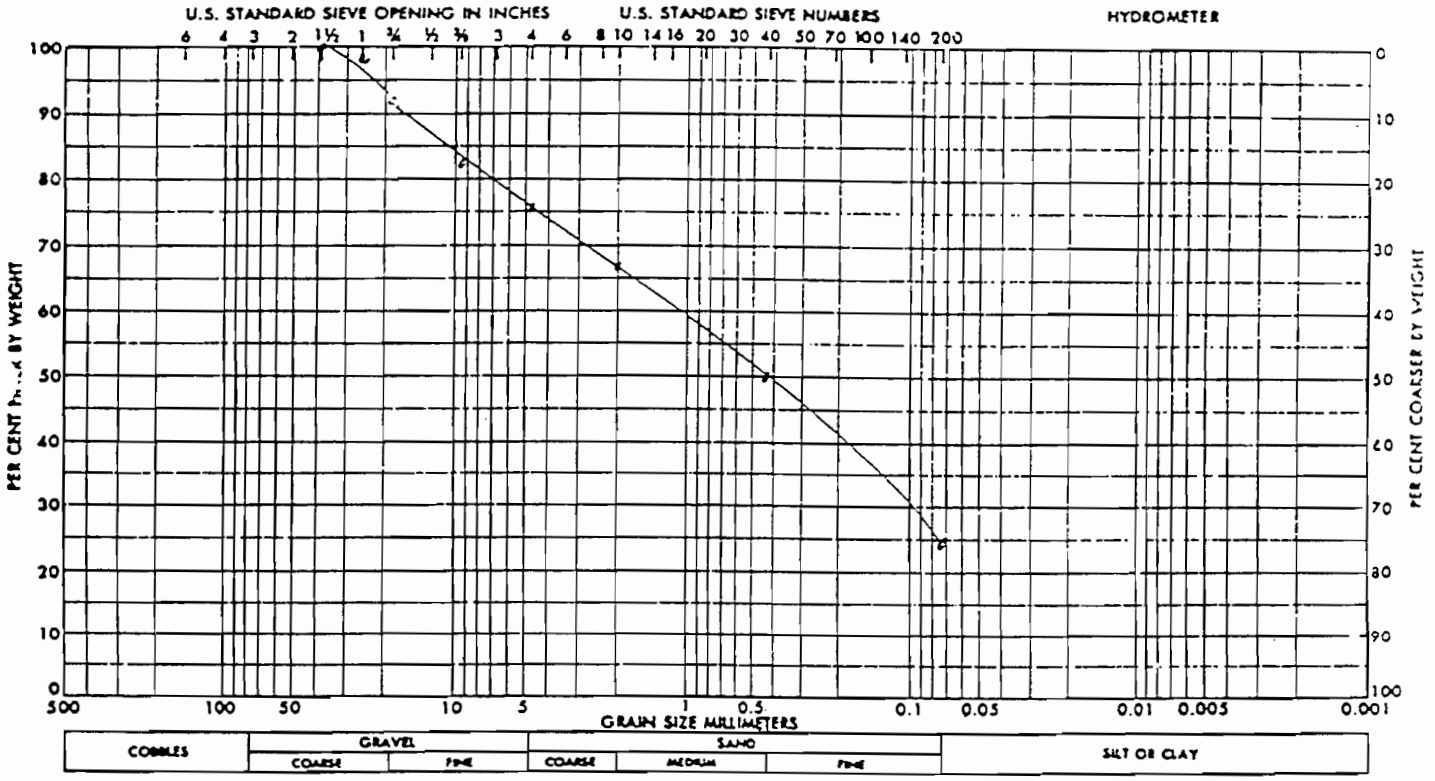
. 1969

April 14, 1997

client Ogden Remediation Services
project Clarkstown Landfill

Grain Size Curve Analysis

On April 11, 1997 a soil sample was delivered to this laboratory by the client. Test results of sample "SF-TN5.9-45" are shown below.



Atterberg Limits (D4318): NP

Moisture Content (D2216): 9.1

Classification: SM, Silty sand with gravel

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

USUSI REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: CLARKSTOWN LANDFILL LF CAPPING
Project No.: 6000100a
Date Sent: 4-16-97

Project Location: WEST NYACK N.Y.
Purchase Order No.: 6-52-R2-11023
Shipped Via:

Sampled By: (Signature) JIM BEATTY
Lab Contact: BRIAN MUGGLICK
Date Received: 4-16-97

Sample No.	Description	ANALYSIS REQUIRED: Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Auerburg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
SF-MIX-LFP3		X		X	X		X	X						

Comments/Special Instructions: SAMPLE TAKEN FROM LFP3 NORTH BOTTOM MIX

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Rev. 4/93

F220CR3

04/18/1996 11:05 6077855353 RUSI E AND I PAGE 02

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SINCE 1969

April 18, 1997

SOILS TEST REPORT

client Ogden Remediation Services

project Clarkstown Landfill

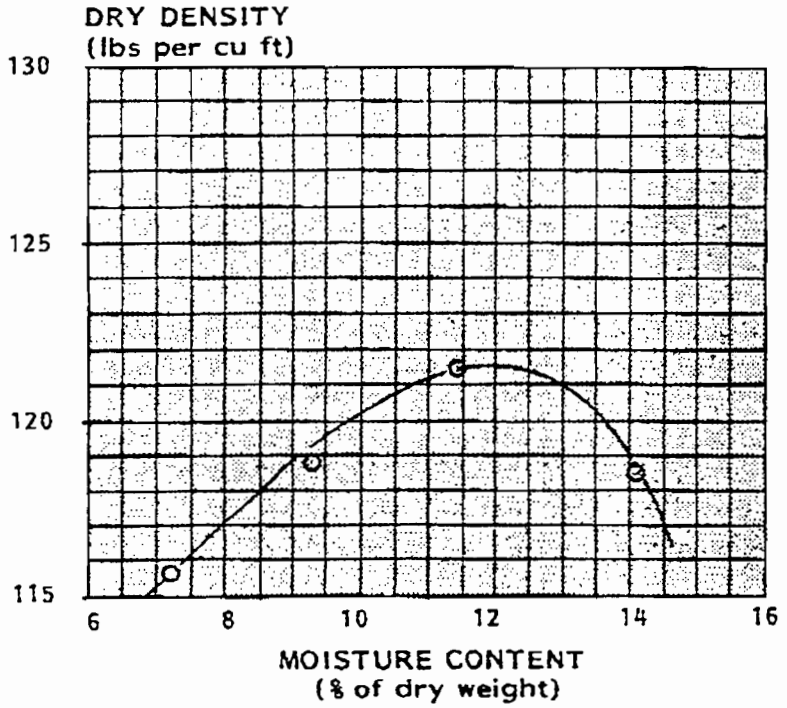
Compaction Method: ASTM D698

Maximum Dry Density: 121.6 pcf

Optimum Moisture Content: 12.0 %

subject Moisture-Density Curve Analysis

On April 16, 1997 a soil sample was delivered to this laboratory by the client. Test results of sample "SF-MIX-LFP3" are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

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PHm
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UE REMEDIATION SERVICES CO., INC.

Soil Sample Test Request R

Project Name/Client: CLARKSTOWN LANDFILL - LF CAPPING
Project No.: 60001000
Date Sent: 5/9/97

Project Location: WEST NYACK N.Y.
Purchase Order No.: 6-52-M2-1003
Shipped Via:

Sampled By: (Signature) LARRY KAVANAGH
Lab Contact: BRIAN HEALD
Date Received: 5/9/97

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
SF-SV-30	SOUTHSIDE STOCK PILE ~~EASTEND~~ WEST END	X		X	X		X	X						
						1								

Comments/Special Instructions:

PLEASE EXPEDITE

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FAIRWAY TESTING

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SINCE 1969

May 9, 1997

SOILS TEST REPORT

client Ogden Remediation Services

project Clarkstown Landfill

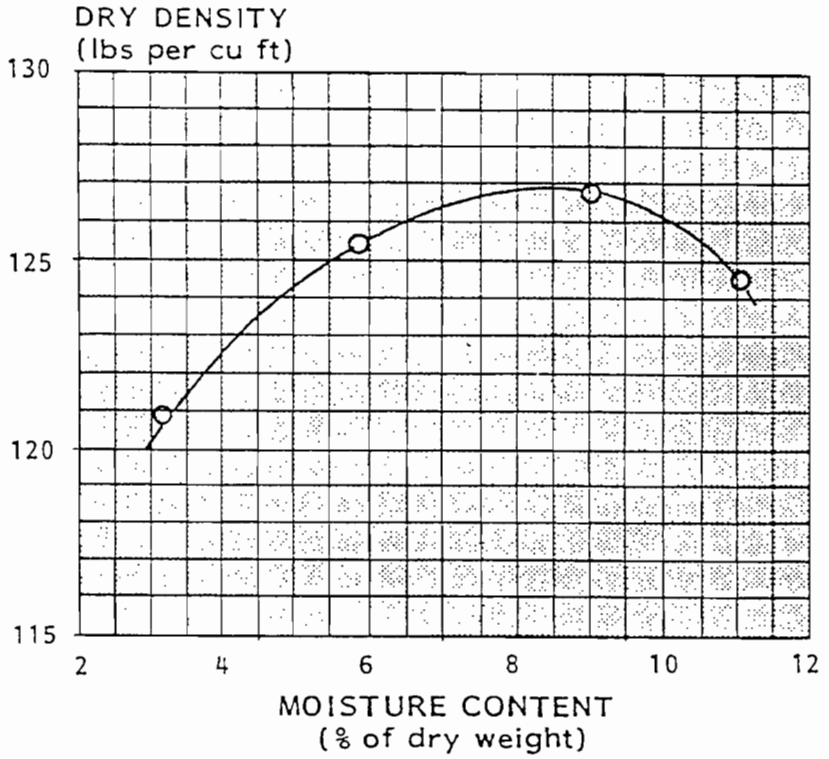
Compaction Method: ASTM D698

subject Moisture-Density Curve Analysis

Maximum Dry Density: 126.9 pcf

Optimum Moisture Content: 8.4 %

On this date, a sample of material labeled "SF-SV-30" Servidone stockpile west end, was taken at the project site. Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

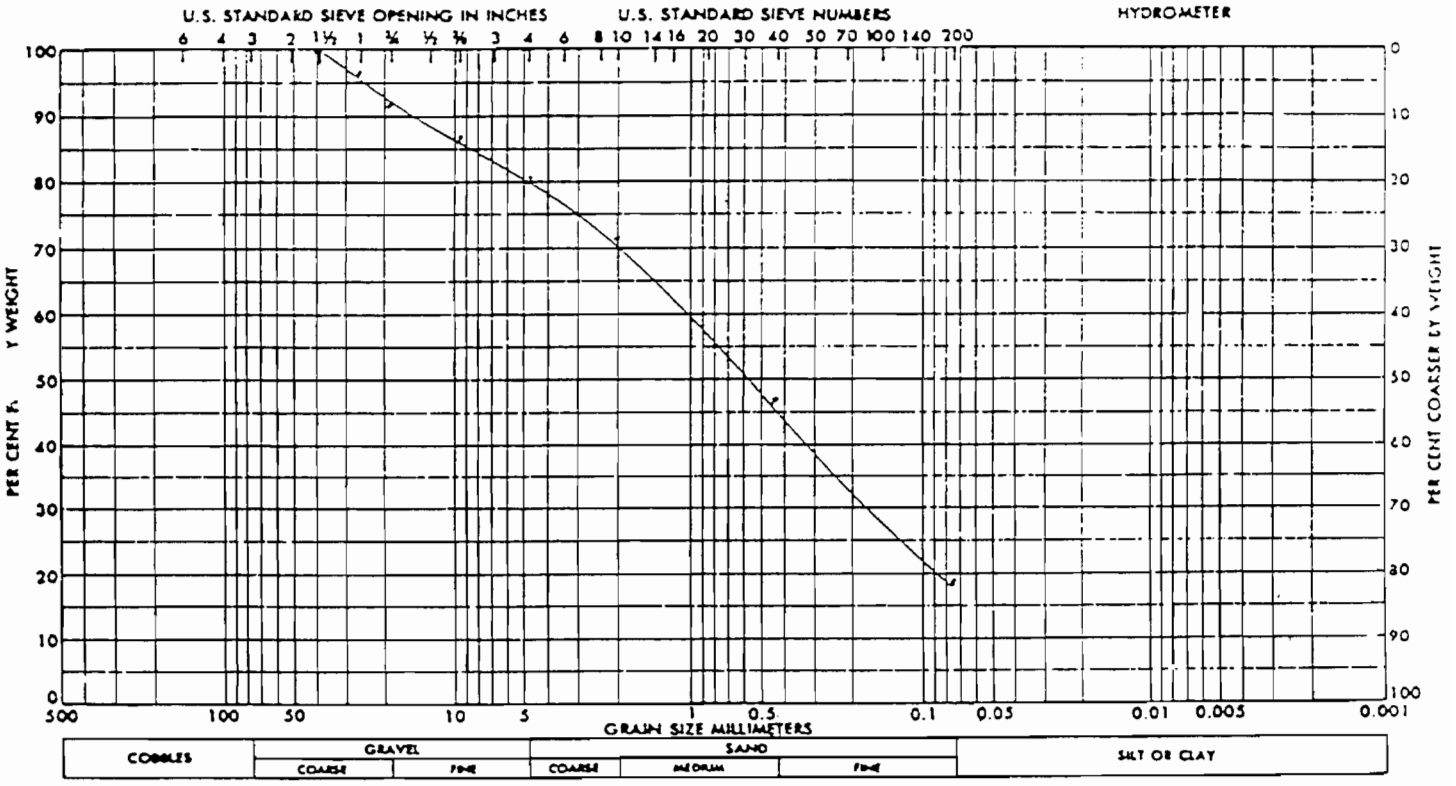
1969

May 12, 1997

client Ogden Remediation Services
project Clarkstown Landfill

Grain Size Curve Analysis

On May 9, 1997 a representative from this firm visited the jobsite and took a soil sample identified as sample no. SF-SV-30. Test results are shown below.



Classification (D2487): SM, Silty sand with gravel.

Atterberg Limits (D4318): NP

Moisture Content (D2216): 8.4%

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

USSI REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: CLARKSTOWN LANDFILL / LF CAPPING
Project No.: 6000[illegible]
Date Sent: 4-22-97

Project Location: WEST NYACK N.Y.
Purchase Order No.: 6-52-P2-11073
Shipped Via:

Sampled By: (Signature) JIM BARTLEY
Lab Contact: BRIAN Hydrock
Date Received: 4-22-97

Sample No.	Description	ANALYSIS REQUIRED: Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
SF-TN.010-LFP4		X		X	X		X	X						

Comment/Special Instructions:
SAMPLE TAKEN FROM LFP 4 BETWEEN AFW1 & AFW2
LOWEST ELEVATION

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Rev. 4/93

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05/18/1998 11:09 6057686993 KUSI E AND T PAGE 02

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 STONY POINT, NY 10980 TELEPHONE (914) 942-2058 FAX (914) 942-0995

SINCE 1969

SOILS TEST REPORT

April 22, 1997

client Ogden Remediation Services

project Clarkstown Landfill

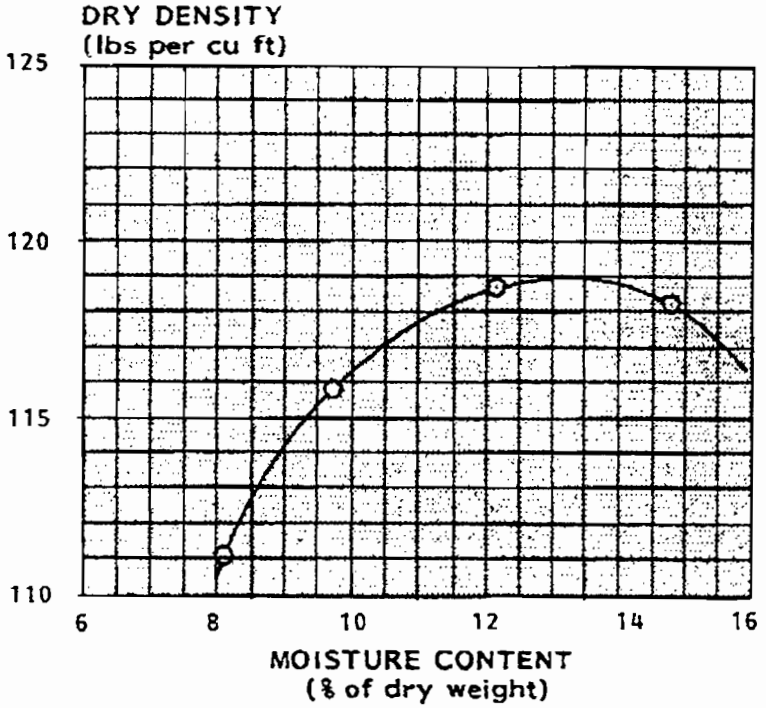
Compaction Method: ASTM D698

subject Moisture-Density Curve Analysis

Maximum Dry Density: 120.0 pcf

Optimum Moisture Content: 13.3%

On this date, a sample of on-site soil (SF TN-010 LFP4) was taken at the project site. Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

FAIRWAY TESTING

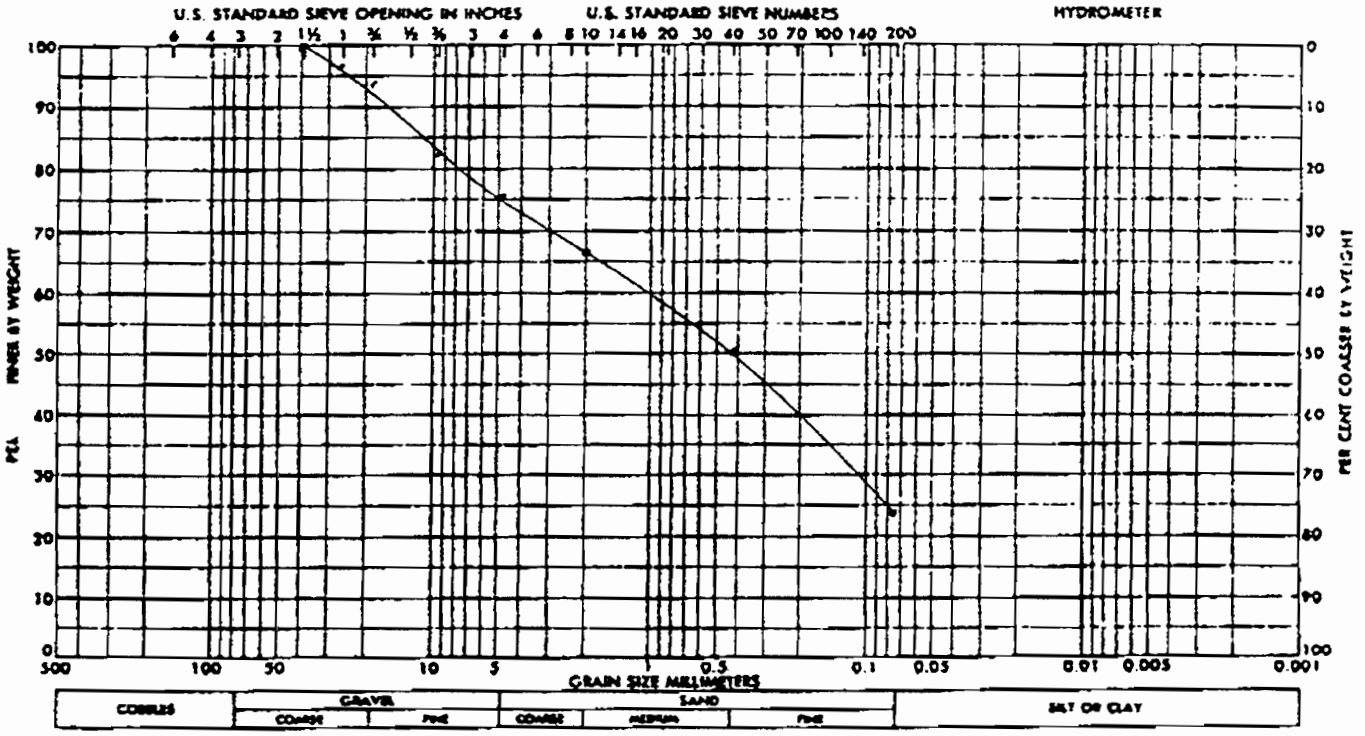
CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, N.Y. 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

client Ogden Remediation Services April 24, 1997

project Clarkstown Landfill **Grain Size Curve Analysis**

On April 22, 1997, a soil sample was delivered to this laboratory by the client. Test results of sample SF-TN.010-LFPA are shown below.



Atterberg Limits (D4318): 23-21=2

Moisture Content (D2216): 12.2

Classification: SM, silty sand w/gravel

*The above sample contained traces of wood, asphalt, concrete and coal.

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

USE REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Re

Project Name/Client: CLARKSTOWN LANDFILL LF CAPPING
Project No.: 60001000
Date Sent: 5/9/97

Project Location: WEST NYACK N.Y.
Purchase Order No.: 632-RE-11073
Shipped Via:

Sampled By: (Signature) LARRY KAVANAGH
Lab Contact: BRIAN Nuzzaco
Date Received: 5/9/97

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterburg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
		ANALYSIS REQUIRED												
SFSW-35	SERVIDONE STOCKPILE EAST END	X		X	X		X	X						

Comments/Special Instructions:

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Rev. 4/93

F220/CRS

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FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SINCE 1969

May 9, 1997

SOILS TEST REPORT

client Ogden Remediation Services

project Clarkstown Landfill

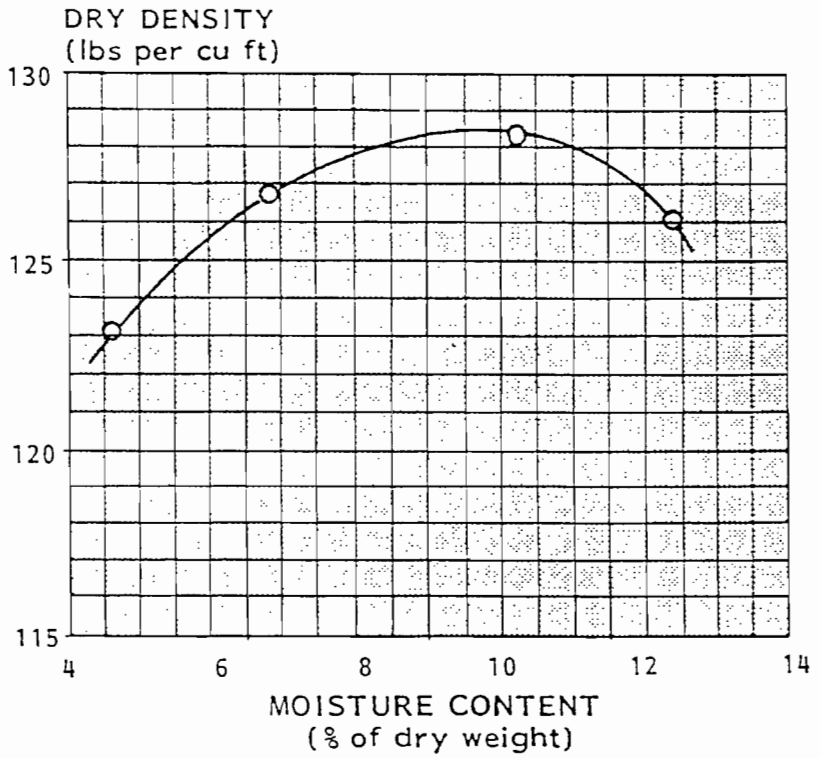
Compaction Method: ASTM D698

subject Moisture-Density Curve Analysis

Maximum Dry Density: 128.4 pcf

Optimum Moisture Content: 9.3 %

On this date, a sample of material labeled "SF-SV-35" Servidone stockpile east, was taken at the project site. Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

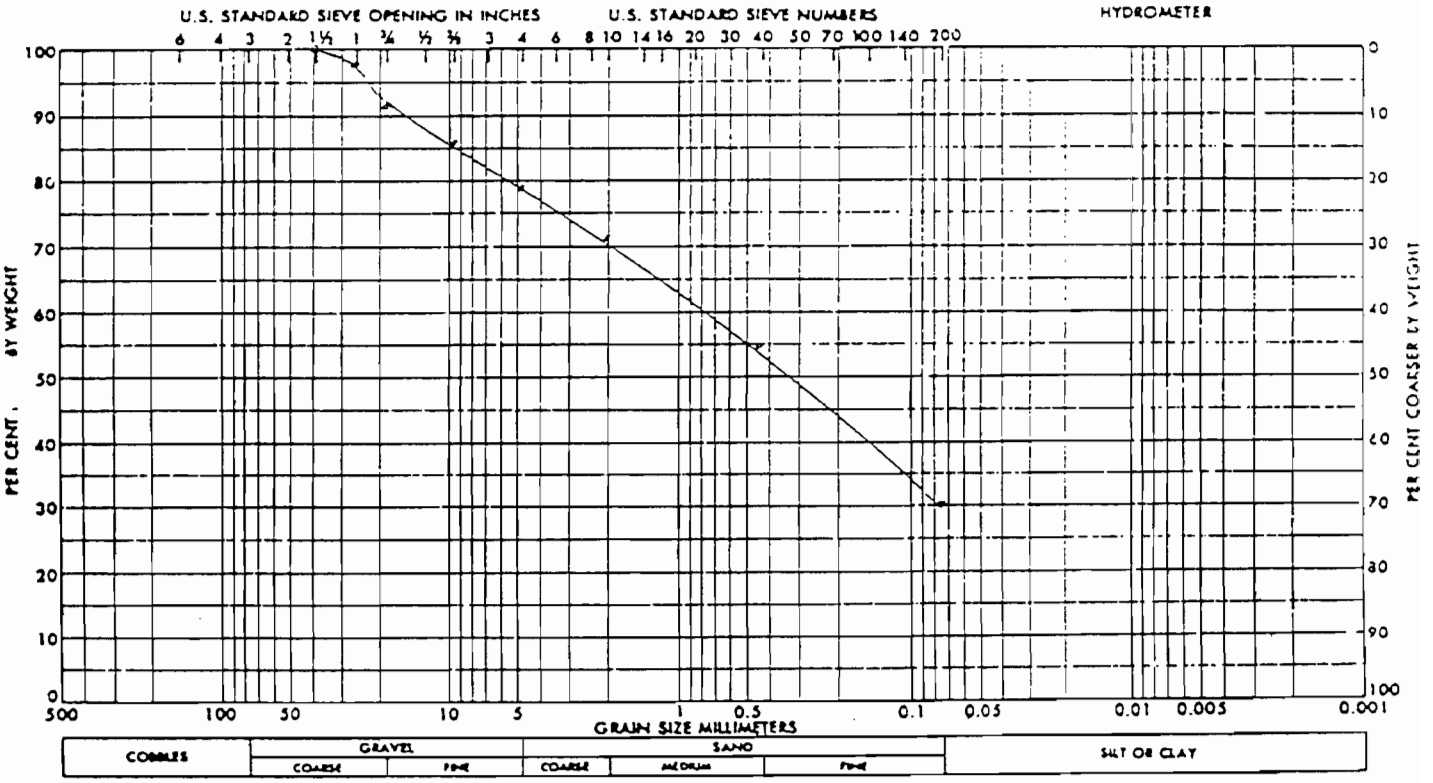
1969

May 12, 1997

client Ogden Remediation Services
project Clarkstown Landfill

Grain Size Curve Analysis

On May 9, 1997 a representative from this firm visited the jobsite and took a soil sample identified as sample no. SF-SV-35. Test results are shown below.



Classification (D2487): SM, Silty sand with gravel.

Atterberg Limits (D4318): NP

Moisture Content (D2216): 12.6

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

USS REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: CLARKSTOWN LANDFILL / LF CAPPING Project No.: 60001000 Date Sent: 4-16-97

Project Location: WEST NYACK N.Y. Purchase Order No.: 6-52-00-1023 Shipped Via: _____

Sampled By: (Signature) JIM BETTY Lab Contact: BRIAN HEGGICK Date Received: 4-16-97

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Auerburg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydro-meter ASTM D1140	Moisture Content ASTM D2216	Classifi-cation ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
		ANALYSIS REQUIRED												
SF-WMX-30	STOCKPILE ~~WMX~~-WEST SIDE	X		X	X		X	X						

Comments/Special Instructions: 30,000 CY STOCKPILE WMX ~~WMX~~ WEST SIDE

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Rev. 4/93 FZZ0/CRS

PAGE 02

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SINCE 1969

April 18, 1997

SOILS TEST REPORT

client Ogden Remediation Services

project Clarkstown Landfill

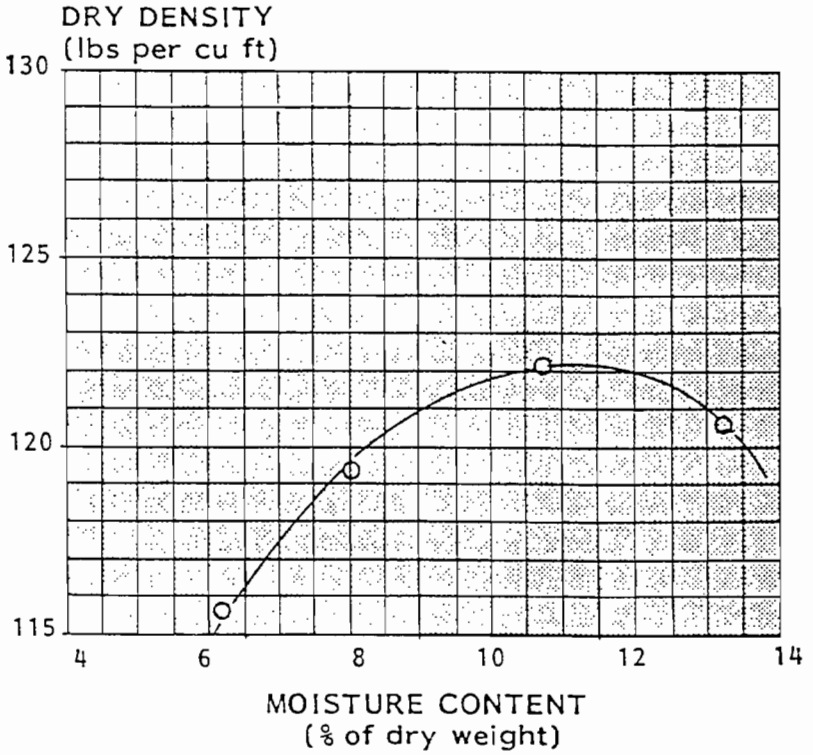
Compaction Method ASTM D698

subject Moisture-Density Curve Analysis

Maximum Dry Density 122.2 pcf

Optimum Moisture Content 11.5 %

On April 16, 1997 a soil sample was delivered to this laboratory by the client. Test results of sample "SF-WMX-30" are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

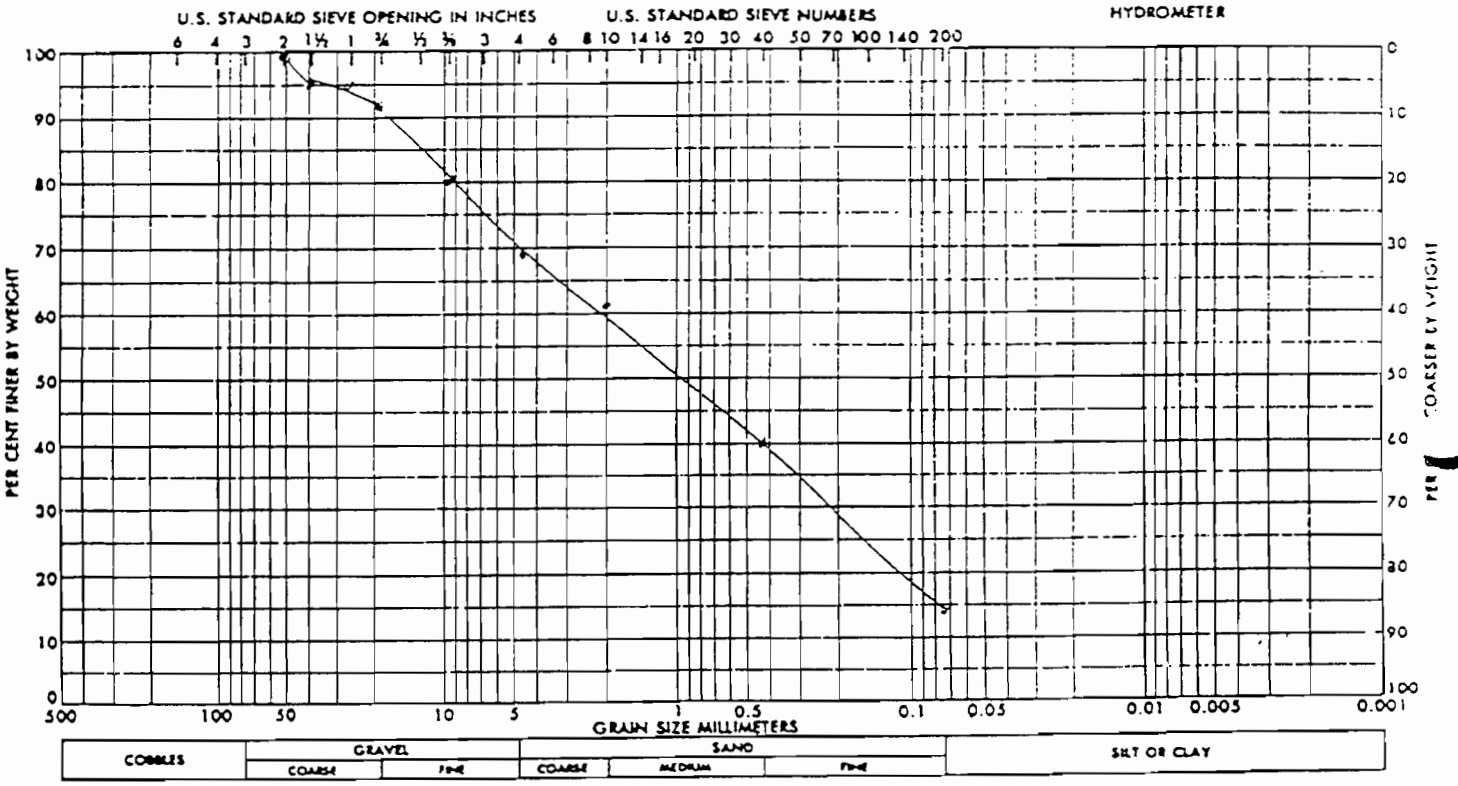
SINCE 1969

April 21, 1997

client Ogden Remediation Services
project Clarkstown Landfill

Grain Size Curve Analysis

On April 16, 1997 a soil sample was delivered to this laboratory by the client. Test results of sample "SF-WMX-30" are shown below.



Atterberg Limits (D4318): NP

Moisture Content (D2216: 11.0

Classification: SM, Silty sand with gravel

*The above sample contained concrete, asphalt and brick.

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

UGI REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Rec

Project Name/Client: CLARKSTOWN LANDFILL & LF CAPPING
Project No.: 6000/0000
Date Sent: 5/4/97

Project Location: WEST NYACK N.Y.
Purchase Order No.: 6-52-221023
Shipped Via:

Sampled By: (Signature) LARRY KNAVISH
Lab Contact: BRIAN
Date Received: 5/9/97

Sample No.	Description	ANALYSIS REQUIRED: Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydro-meter ASTM D1140	Moisture Content ASTM D2216	Classifi-cation ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
SF-WMX-35	WMX SOUTHSIDE EAST END	X		X	X		X	X						

Comment/Special Instructions:

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Rev. 4/93

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FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P O BOX 578 STONY POINT NY 10980 TELEPHONE (914) 942-2088 FAX (914) 942-0995

SINCE 1969

May 9, 1997

SOILS TEST REPORT

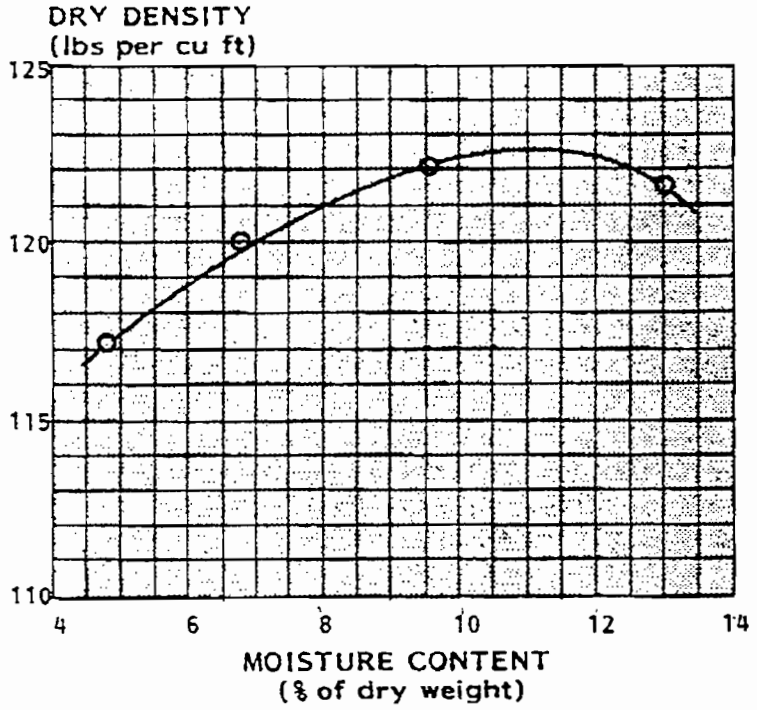
client Ogden Remediation Services

project Clarkstown Landfill

Compaction Method	ASTM D698
Maximum Dry Density	122.5 pcf
Optimum Moisture Content	11.0 %

subject Moisture-Density Curve Analysis

On this date a sample of material labeled "SF-WMX-35" WMX stockpile eastend, was taken at the project site. Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

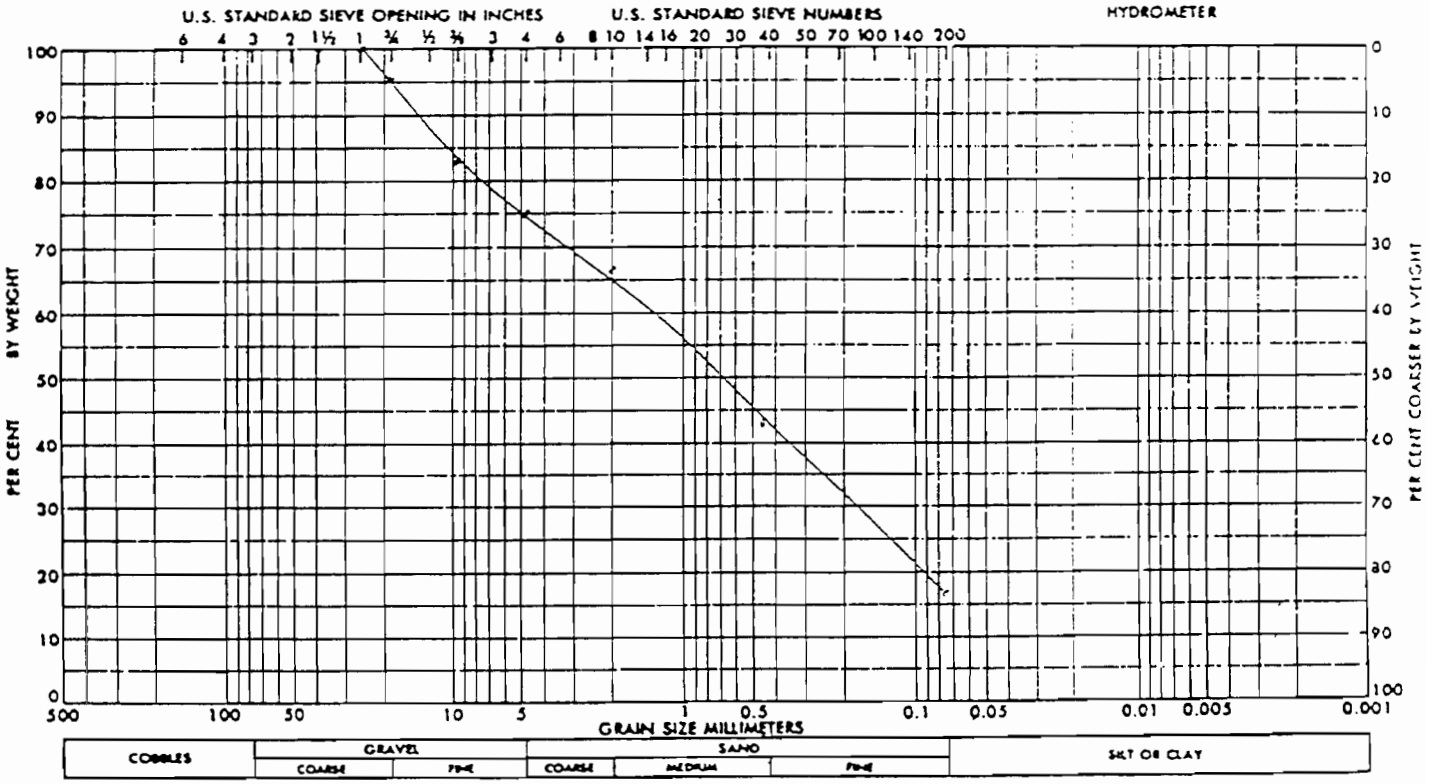
P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

May 12, 1997

client Ogden Remediation Services
project Clarkstown Landfill

Grain Size Curve Analysis

On May 9, 1997 a representative from this firm visited the jobsite and took a soil sample identified as sample no. SF-WMX-35. Test results are shown below.



Classification (D2487): SM, Silty sand with gravel.

Atterberg Limits (D4318): NP

Moisture Content (D2216): 6.8%

*Traces of glass, concrete and brick were observed.

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

USEPA REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: CLARKSTOWN LANDFILL - LEACHING Project No.: 6000010000 Date Sent: 5/8/97

Project Location: WEST NYACK N.Y Purchase Order No.: 6-52-RA-11023 Shipped Via: _____

Sampled By: (Signature) LARRY KAVANAGH Lab Contact: BRIAN Hoggick Date Received: 5/8/97

Sample No.	Description	ANALYSIS REQUIRED: Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
SF-WMX-G8	STOCKPILE G WD1	X		X	X		X	X						

Comment/Special Instructions:

SAMPLE TAKEN FROM THE WMX STOCKPILE G WD1

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Rev. 4/93

FZXCRS

05/18/1996 11:09 6059695993 KUSH E AND I PAGE 02

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SINCE 1969

May 9, 1997

SOILS TEST REPORT

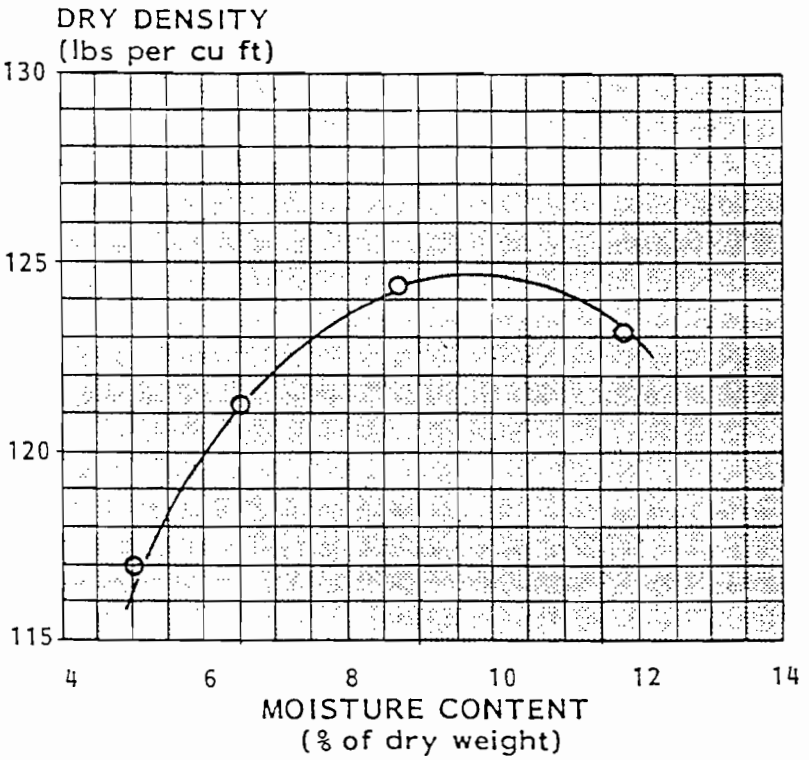
client Ogden Remediation Services

project Clarkstown Landfill

Compaction Method	ASTM D698
Maximum Dry Density	124.7 pcf
Optimum Moisture Content	9.7 %

subject Moisture-Density Curve Analysis

On this date, a sample of material, labeled "SF-WMX-~~68~~ G8" stockpile WD1, was taken at the project site. Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

C

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

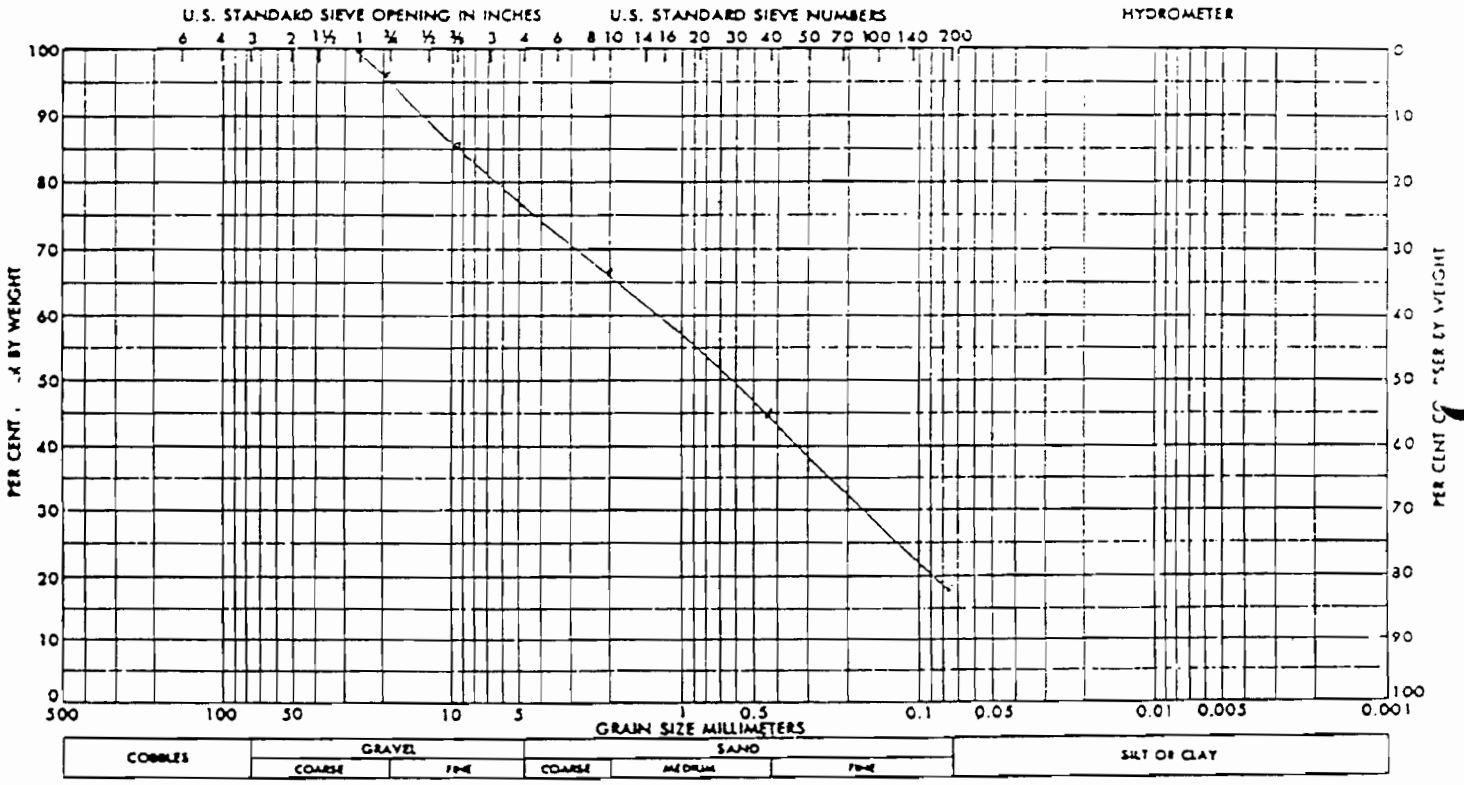
1969

May 12, 1997

client Ogden Remediation Services
project Clarkstown Landfill

Grain Size Curve Analysis

On May 8, 1997 a representative from this firm visited the jobsite and took a soil sample identified as sample no. SF-WMX-G8. Test results are shown below.



Classification (D2487): SM, Silty sand with gravel.

Atterberg Limits (D4318): NP

Moisture Content (D2216): 9.0%

*Traces of glass, brick and concrete were observed.

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

UST REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: CLARKSTOWN LANDFILL / LF CORNING
Project No.: 60010000
Date Sent: 5/8/97

Project Location: WEST NYACK N.Y.
Purchase Order No.: 6-52-22-11023
Shipped Via:

Sampled By: (Signature) JIM BATES
Lab Contact: BRIAN Hoggick
Date Received: 5/12/97

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
		ANALYSIS REQUIRED												
SF-WMX-C5	STOCKPILE G LFP3 WEST	X		X	X		X	X						

Comments/Special Instructions: SAMPLE TAKEN FROM WMX STOCK PILE G LFP 3 WEST

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Rev. 4/93

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SINCE 1969

May 9, 1997

SOILS TEST REPORT

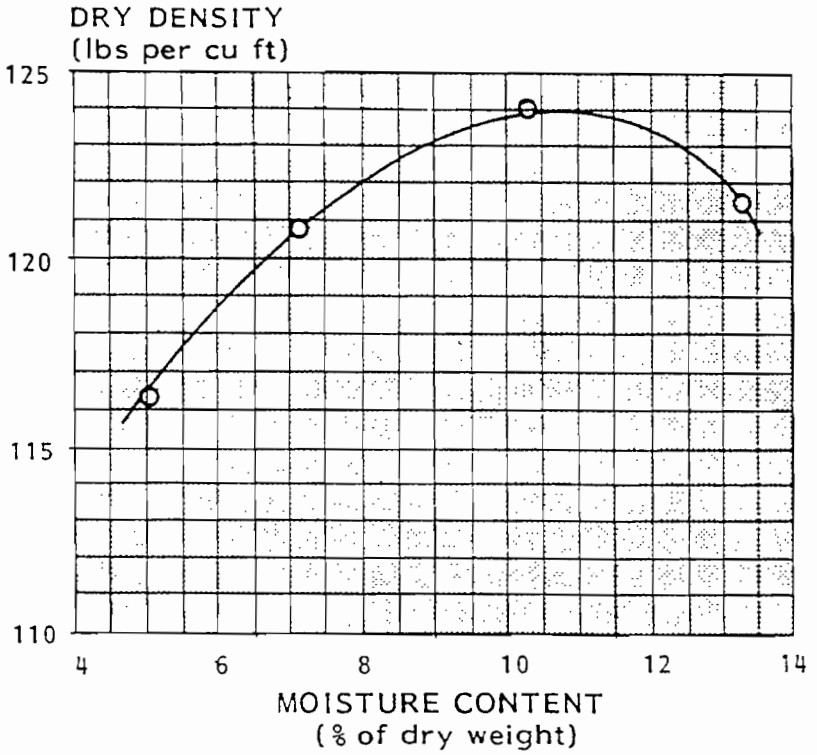
client Ogden Remediation Services

project Clarkstown Landfill

Compaction Method	ASTM D698
Maximum Dry Density	124.0 pcf
Optimum Moisture Content	10.8 %

subject Moisture-Density Curve Analysis

On this date a sample of material labeled "SF-WMX" stockpile at LFP 3 west, was taken at the project site. Test results are shown below.



FAIRWAY TESTING CO., INC.

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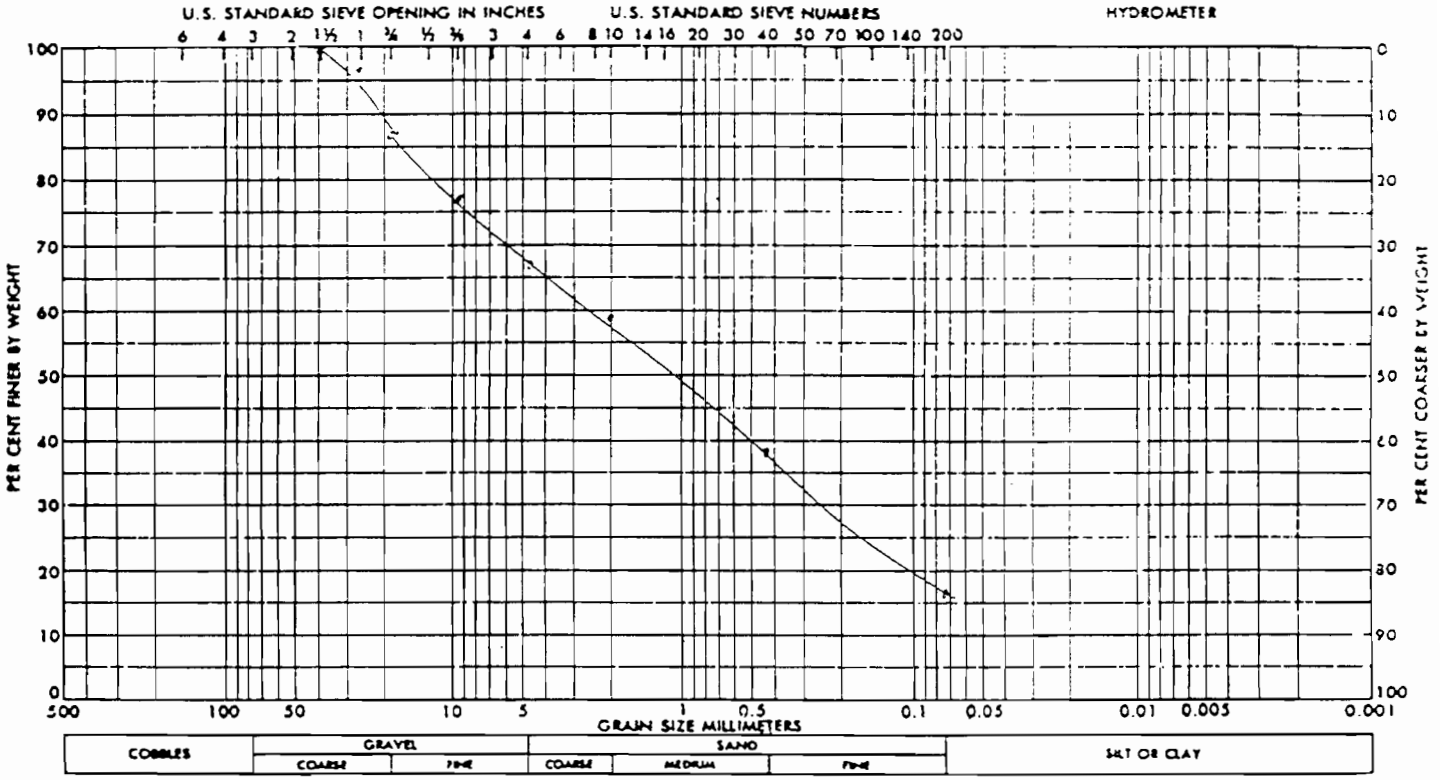
INCE 1969

May 12, 1997

client Ogden Remediation Services
project Clarkstown Landfill

Grain Size Curve Analysis

On May 8, 1997 a representative from this firm visited the jobsite and took a soil sample identified as sample no. SF-WMX-C5. Test results are shown below.



Classification (D2487): SM, Silty sand with gravel.

Atterberg Limits (D4318): NP

Moisture Content (D2216): 8.8%

*Traces of glass, brick and concrete were observed.

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

U[illegible] REMEDIATION SERVICES CO., INC.

Soil Sample Test Request [illegible]ord

Project Name/Client: CLARKSTOWN LANDFILL / LF GRAVING Project No.: 6ccc100000 Date Sent: 5/16/97

Project Location: WEST NYACK, N.Y. Purchase Order No.: _____ Shipped Via: _____

Sampled By: (Signature) LARRY KNIGHT Lab Contact: _____ Date Received: 5/16/97

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.	EPA 8010		
SF-SV-40		X		X	X		X	X				X		

ANALYSIS REQUIRED

Comments/Special Instructions: SAMPLE TAKEN FROM THE WEST END OF SERVADONE STOCKPILE

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Rev. 4/93

F220CRS

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SINCE 1969

May 19, 1997

SOILS TEST REPORT

client Ogden Remediation Services

project Clarkstown Landfill

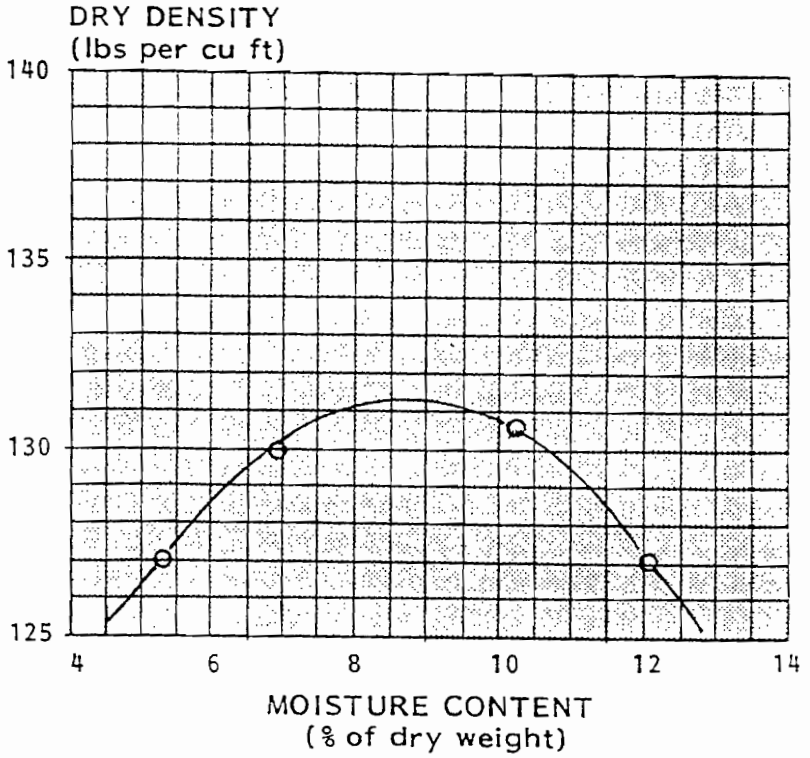
Compaction Method: ASTM D698

subject Moisture-Density Curve Analysis

Maximum Dry Density: 131.3 pcf

Optimum Moisture Content: 8.7 %

On May 16, 1997 a representative from this firm visited the jobsite and took a soil sample from a Servidone stockpile. Test results of sample "SF-SV-40" are shown below.



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P. J. Aguanno, P. E.

FAIRWAY TESTING

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P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

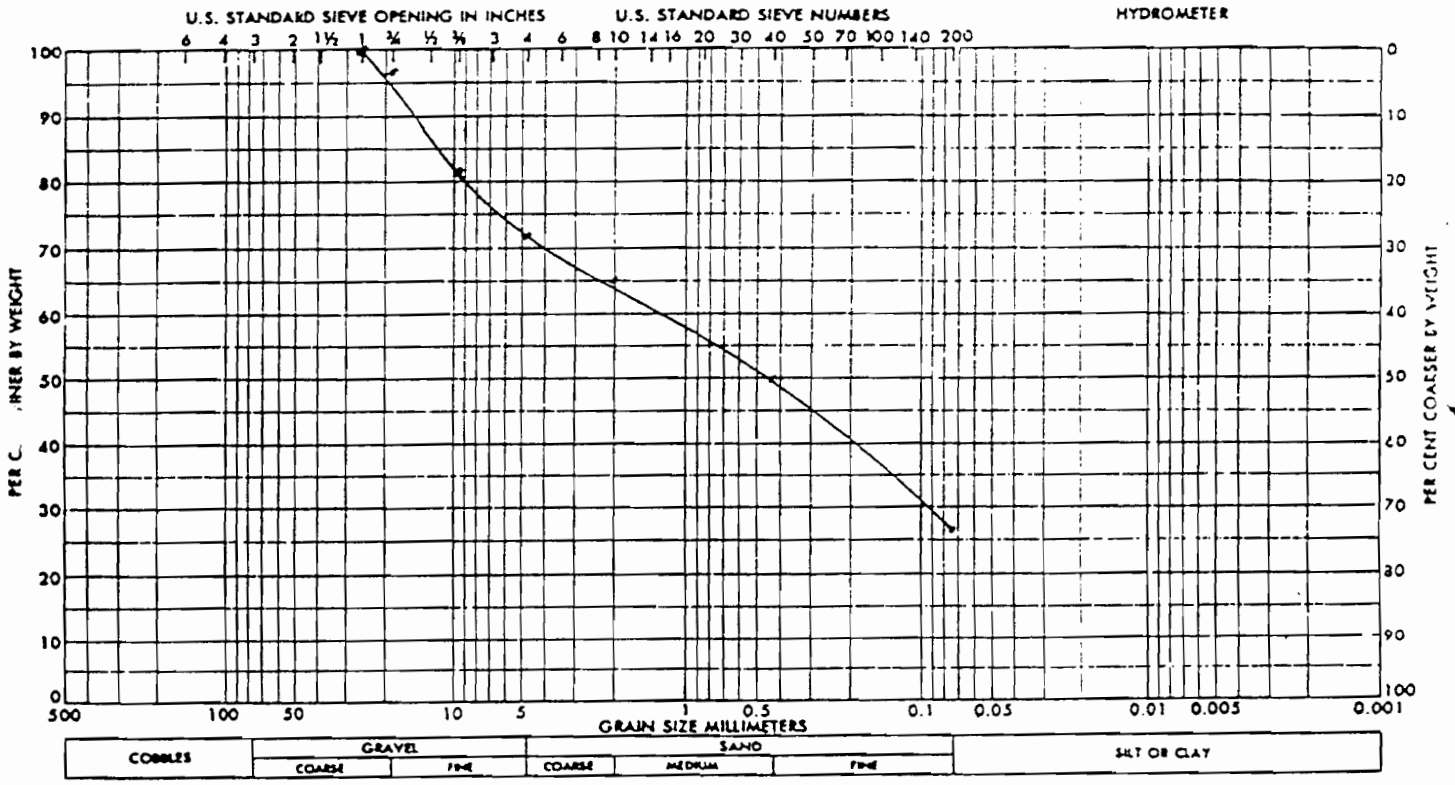
SINCE 1969

May 19, 1997

client Ogden Remediation Services
project Clarkstown Landfill

Grain Size Curve Analysis

On May 16, 1997 a representative from this firm visited the jobsite and took a soil sample from a Servidone stockpile. Test results of sample "SF-SV-40" are shown below.



Classification (D2487):
Atterberg Limit (D4318): NP
Moisture Content (D2216): 9.7

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

OGDEN REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: CLARKSTOWN LANDFILL / LF CORP'N Project No.: 60000/00000 Date Sent: 5/23/97

Project Location: WEST NYACK NY Purchase Order No.: _____ Shipped Via: _____

Sampled By: (Signature) LARRY KAVENAUGH Lab Contact: _____ Date Received: 5/28/97

Sample No.	Description	ANALYSIS REQUIRED: Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterburg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
SF-WMX-10	WEST END OF MAIN STOCKPILE	X		X	X		X	X						

Comments/Special Instructions: SAMPLE TAKEN FROM THE WEST END OF THE MAIN WMX STOCKPILE

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

FAIRWAY TESTING

CONSTRUCTION MATERIALS TESTING · INSPECTION · RESEARCH

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SINCE 1969

SOILS TEST REPORT

May 30, 1997

client Ogden Remediation Services

project Clarkstown Landfill

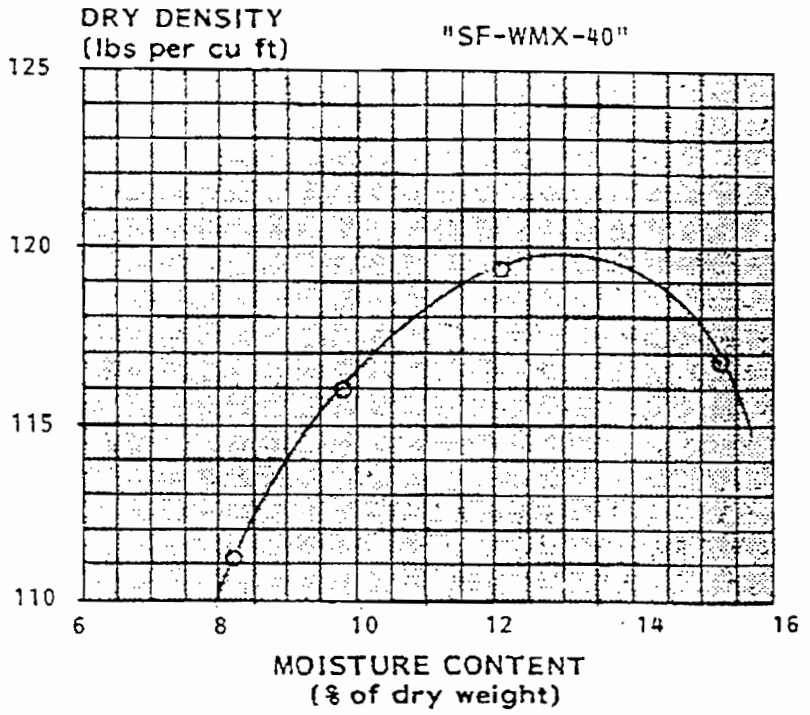
Compaction Method: ASTM D698

subject Moisture-Density Curve Analysis

Maximum Dry Density: 119.8 pcf

Optimum Moisture Content: 12.9%

On May 28, 1997, a representative from this firm visited the jobsite and took a soil sample from the westend of the main stockpile. Test results of sample "SF-WMX-40" are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

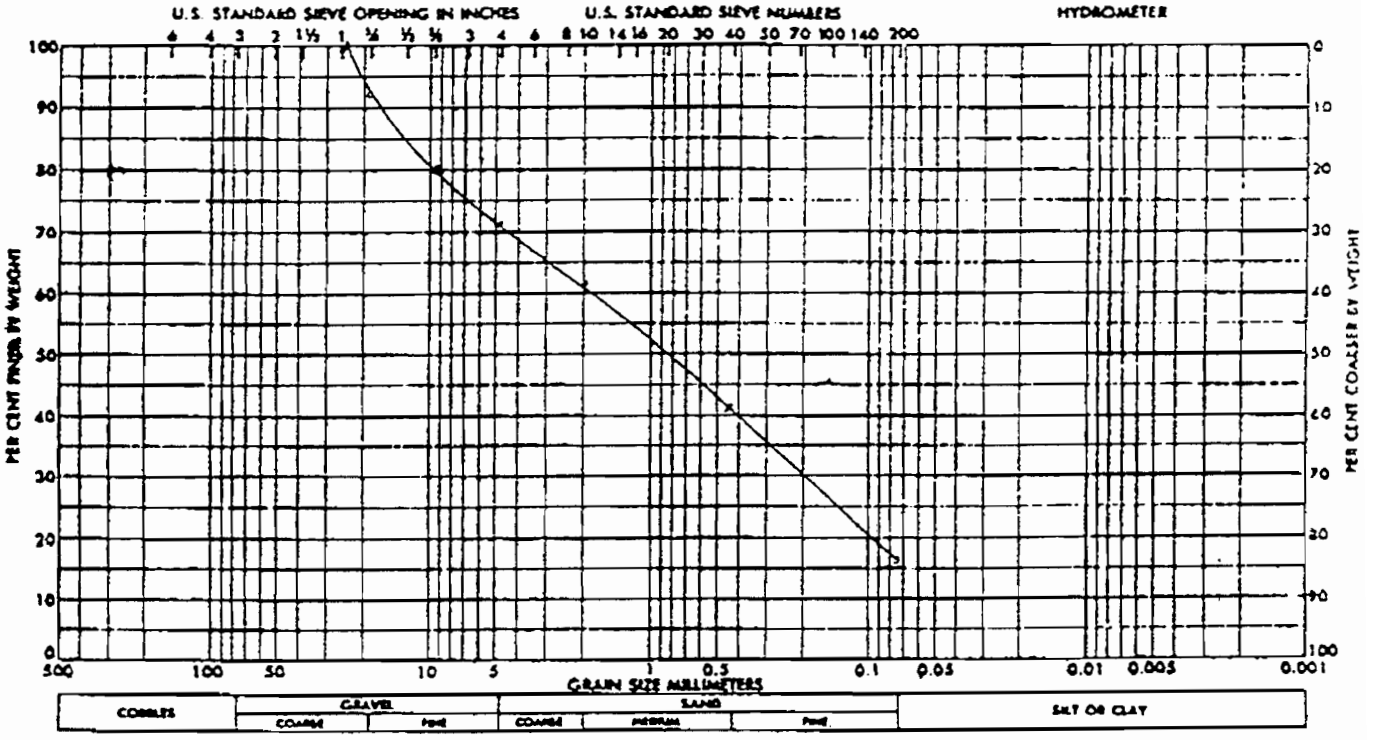
SINCE 1960

client Ogden Remediation Services

May 30, 1997

project Clarkstown Landfill **Grain Size Curve Analysis**

On May 28, 1997, a representative from this firm visited the jobsite and took a soil sample from the westend of the main stockpile. Test results of sample "SF-WMX-40" are shown below.



Classification (D2487): SM, silty sand w/gravel

Atterberg Limits (D4318): NP

Moisture Content (D2216): 12.0%

*Traces of asphalt, brick and concrete were observed in the soil sample.

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

Clarkstown Landfill Remediation
Laboratory Services Request
#LL-2339-K3

For:
Mr. Reddy Kancharla
M & T/Namow/TCL
47 Hudson Street
Ossining, N.Y. 10562
PH (914)762-9000
FX (914)762-9638

From:
Roy F. Weston of New York
Clarkstown Field Office
166 Rte. 303
West Nyack, N.Y. 10994
PH (914)353-5221
FX (914)353-5491

Sample I.D.	Source	Misc	ASTM D422	ASTM D698	ASTM D4318										Remarks
SF-21 SFWMX50	WMX Woodside	1 bag	X	X	X										STOCKPILED 50,000 CY
SF-22 SFSV50	SERV	1 bkt	X	X	X										STOCKPILED 50,000 CY

Received By: [signature]

Date/Time: 6-9-97 / 11:00

Delivered By: John C Woodley

Results Required, Date/Time: 6-12-97 / 11:00

M&T/NAMOW/TCL□J.V.

GRADATION AND STANDARD PROCTOR COMPACTION TESTING OF SOIL

CLIENT: Roy F. Weston, Inc., Sutton Park
PROJECT: Clarkstown Landfill
SAMPLE ID: SF-22 50,000 CY SV
SAMPLED BY: Client
PICKUP/DEL BY: Client

LAB#: FOB-001
REPORT#: MC-48
DATE SAMPLED: 6/09/97
DATE TESTED: 6/10/97

(A) **GRADATION TEST RESULTS (ASTM D422 & ASTM D1140)**

Sieve Size	Percent Passing (%)	Specifications	Sieve Size	Percent Passing (%)	Specifications
2-1/2"			#10	59.8	
2"	100.0		#16	55.4	
1-1/2"	84.2		#20	52.7	
1"	81.6		#30	49.1	
3/4"	79.0		#40	45.0	
1/2"	74.6		#50	41.0	
3/8"	72.0		#60	38.5	
1/4"	68.8		#80	34.4	
#4	66.5		#100	32.2	
#8	61.2		#200	25.1	

The gradation curve is shown on Figure-1

(B) **STANDARD PROCTOR COMPACTING TEST RESULTS (ASTM D698, Procedure C, 6" diameter mold)**
Optimum Water Content: 8.9%
Max. Unit Weight, Dry: 129.4 pcf
The proctor compaction curve is shown in Figure-2

(C) **MOISTURE (ASTM D2216):** 34.01%

(D) **SOIL CLASSIFICATION (ASTM D2487):** SM - Silty sand with gravel

(E) **SOIL DESCRIPTION:** m-f SAND, some c-m Gravel, some Silt
COLOR: Brown; **ODOR:** None; **CONTAMINATION:** None

TESTWELL CRAIG LABORATORIES, INC.

Kaspar R. Thumma, Eng.Sc.D., P.E.
Laboratory Manager
KRT/mp

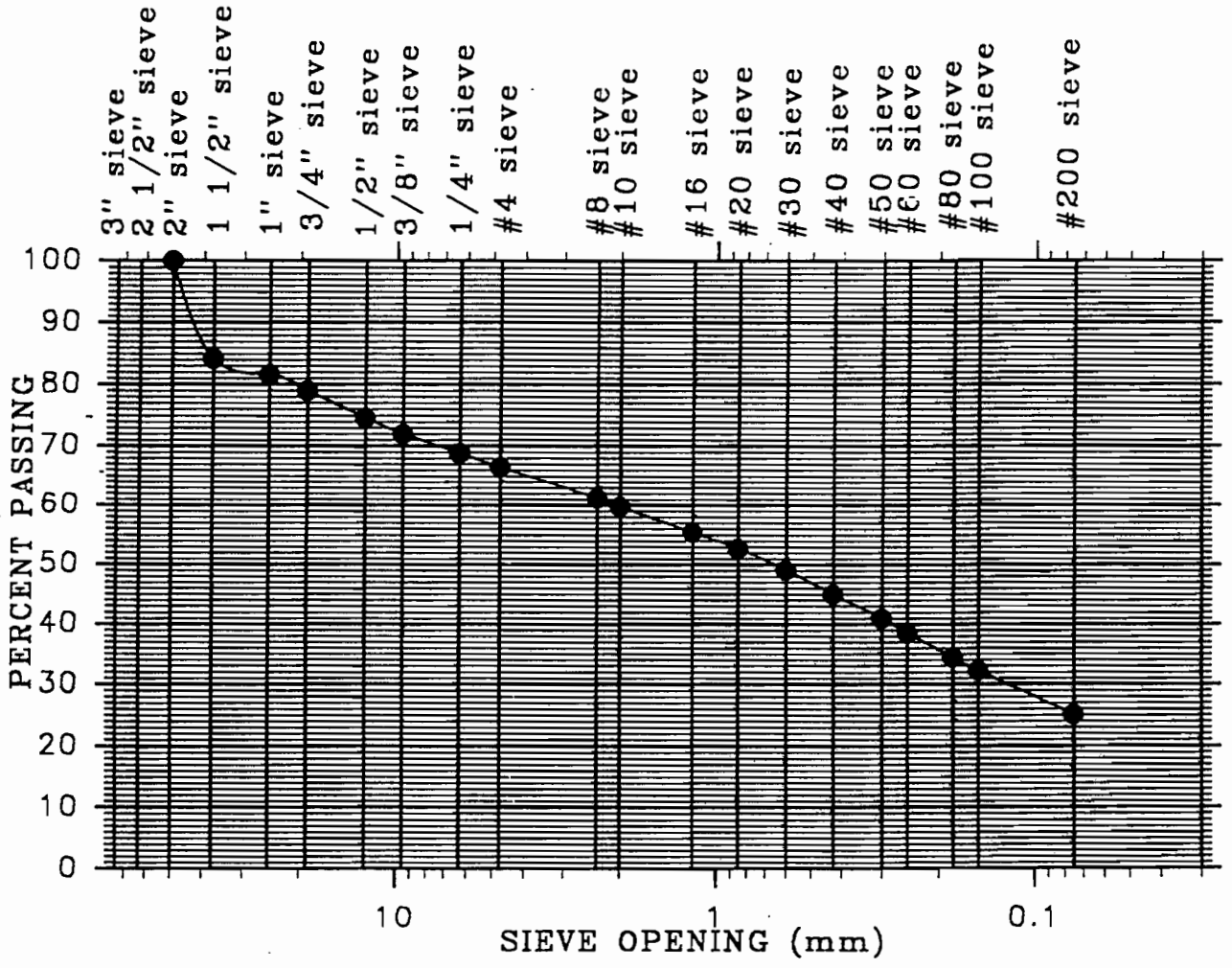


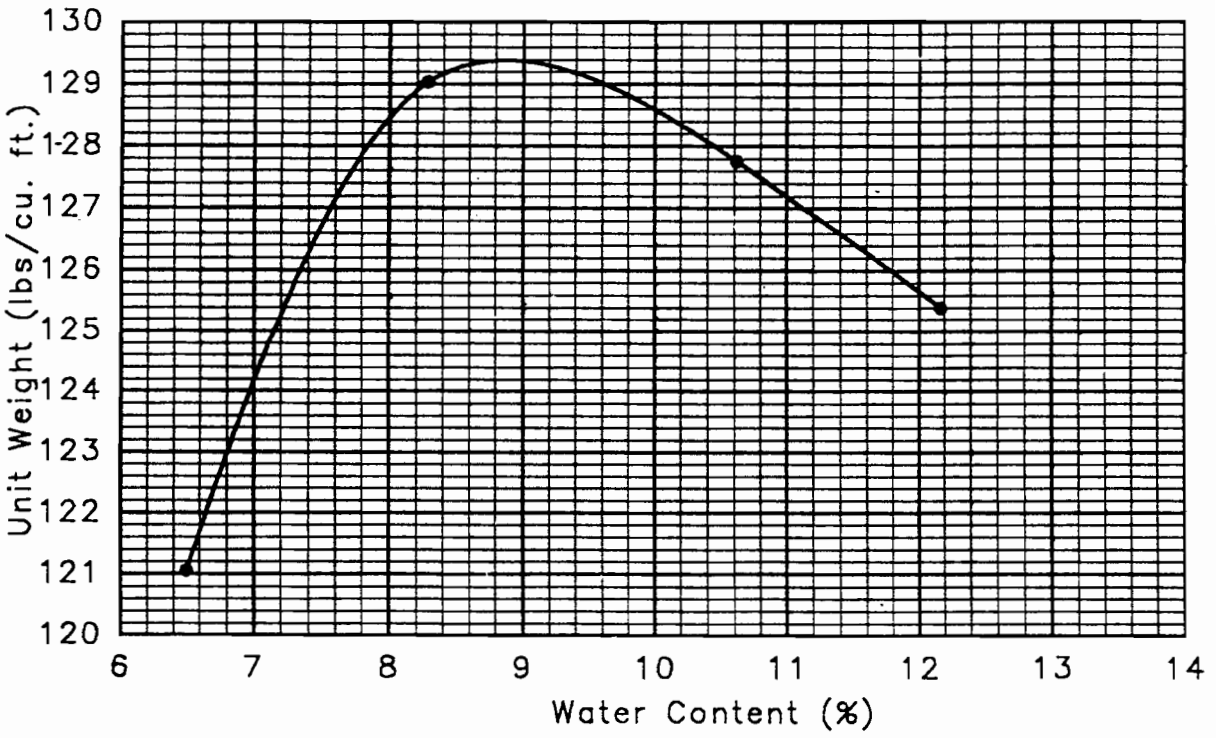
Figure 1: Particle Size Gradation Curve of Soil No. SF-22

Roy F. Weston, Inc., Sutton Park
Lab #: FOB-001 Rpt #: MC-48

STANDARD PROCTOR COMPACTION TEST RESULTS OF SOIL NO. SF-22

TEST METHOD: (ASTM D698 Procedure C, 6" Diameter Mold)

Specimen No.	1	2	3	4
Water Content (%)	6.50	8.28	10.62	12.17
Unit Weight, Dry (lbs/cu.ft.)	121.06	129.04	127.76	125.40



Optimum Water Content: 8.9% Max. Unit Weight, Dry: 129.4 pcf

Figure 2: Standard Proctor Curve of Soil No. SF-22

M&T/NAMOW/TCL□J.V.

LIQUID LIMIT AND PLASTIC LIMIT OF SOILS

Client: Roy F. Weston
Project: Clarkstown Landfill
Sample ID: Indicated Below
Sampled By: Client

Lab #: FOB-001
Report #:MC-49
Date Pick up/del: 6/09/97
Date Tested: 6/10/97

(A) LIQUID LIMIT & PLASTIC LIMIT TEST RESULTS (ASTM D4318)

Soil Sample No.	Liquid Limit % Weight	Plastic Limit % Weight	Plastic Index
SF-21	17.6	NP	0
SF-22	20.0	NP	0

NOTE: NP indicates that the soil is non-plastic since 1/8" diameter thread could not be rolled at any moisture content.

TESTWELL CRAIG LABORATORIES, INC.

Kaspal R. Thumma, Eng.Sc.D., P.E.
Laboratory Manager
KRT\mp

JOHNSON REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: CLARKSTOWN LANDFILL LF CAPPING Project No.: 600/00000 Date Sent: 5-23-97

Project Location: WEST NYACK NY Purchase Order No.: _____ Shipped Via: _____

Sampled By: (Signature) LARRY KAUFMANN Lab Contact: _____ Date Received: 5-23-97

Sample No.	Description	ANALYSIS REQUIRED: Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterburg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
SF SV-45		X		X	X		X	X						

Comments/Special Instructions:

SAMPLE TAKEN FROM WEST END OF SERVIDUM STOCK

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

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FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SINCE 1969

SOILS TEST REPORT

May 27, 1997

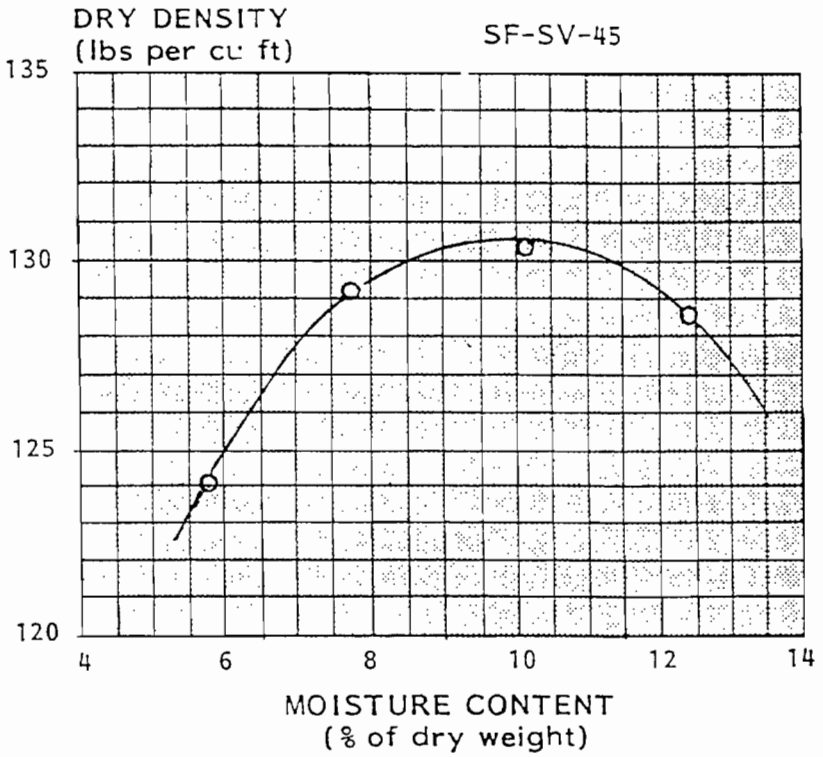
client Ogden Remediation Services

project Clarkstown Landfill

	Compaction Method	ASTM D698
Maximum Dry Density		130.6 pcf
Optimum Moisture Content		10.0%

subject Moisture-Density Curve Analysis

On May 23, 1997, a representative from this firm visited the jobsite and took a soil sample from a Servidone stockpile. Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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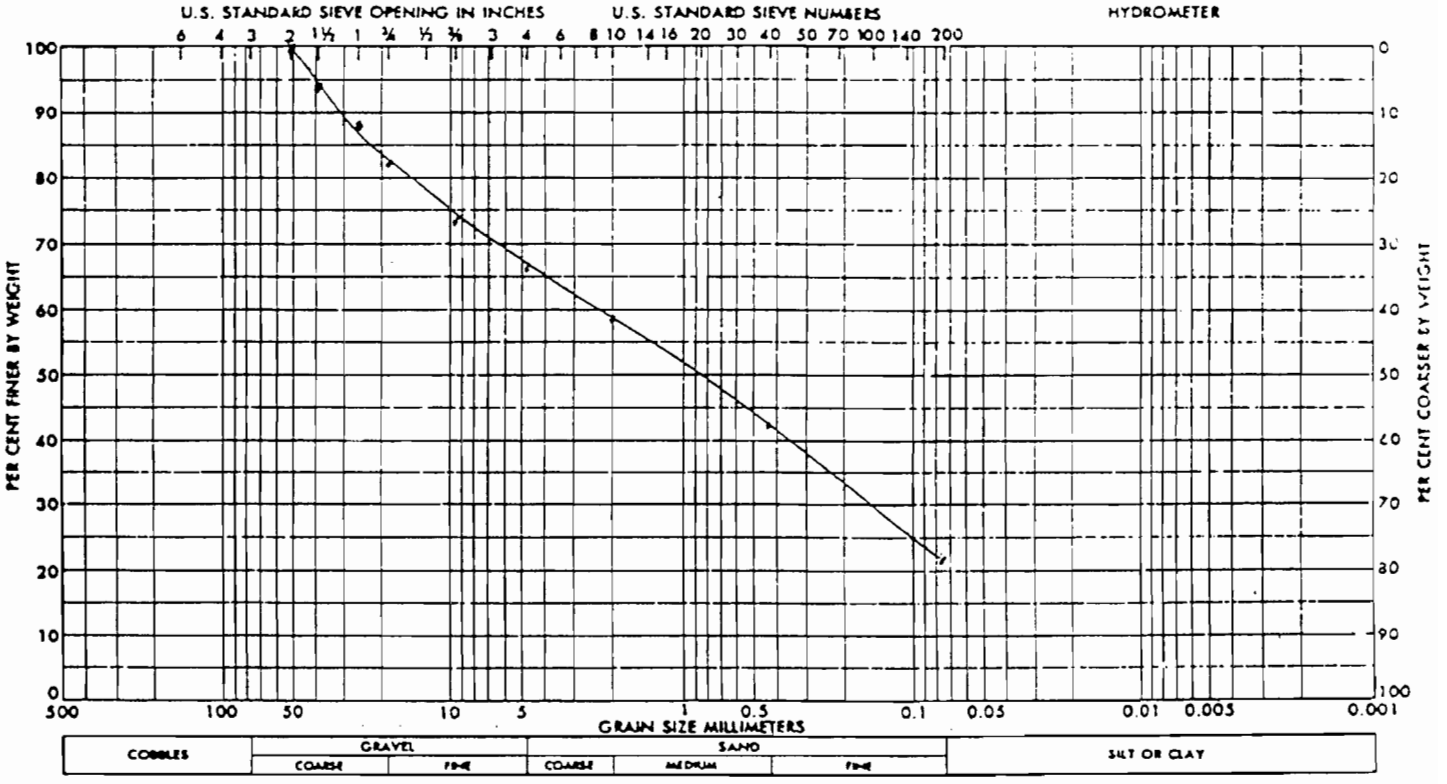
SINCE 1969

client Ogden Remediation Services

May 27, 1997

project Clarkstown Landfill Grain Size Curve Analysis

On May 23, 1997, a representative from this firm visited the jobsite and took a soil sample from a Servidone stockpile. Test results of sample "SF-SV-45" are shown below.



Classification (D2487): SM, silty sand w/gravel
Atterberg Limits (D4318): NP
Moisture Content (D2216): 5.2

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

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USEST REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: CLARKSTOWN LANDFILL / LFC APPROVAL Project No.: 6001000 Date Sent: 6/3/97

Project Location: WEST NYACK NY Purchase Order No.: Shipped Via:

Sampled By: (Signature) J. BENTLY Lab Contact: Date Received: 6/3/97

Sample No.	Description	ANALYSIS REQUIRED: Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
SF-WMX-A5	EAST END OF WMX STOCKPILE	X		X	X		X	X						

Comments/Special Instructions: SAMPLE TAKEN FROM THE EAST SIDE OF THE MAIN WMX STOCKPILE

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

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US/18/1996 11:05 - 6052855283 KUSI E AND I PAGE 02

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION RESEARCH

P.O. BOX 578 STONY POINT NY 10980 TELEPHONE (914) 942-2088 FAX (914) 942-0995

SINCE 1969

June 5, 1997

SOILS TEST REPORT

client Ogden Remediation Services

project Clarkstown Landfill

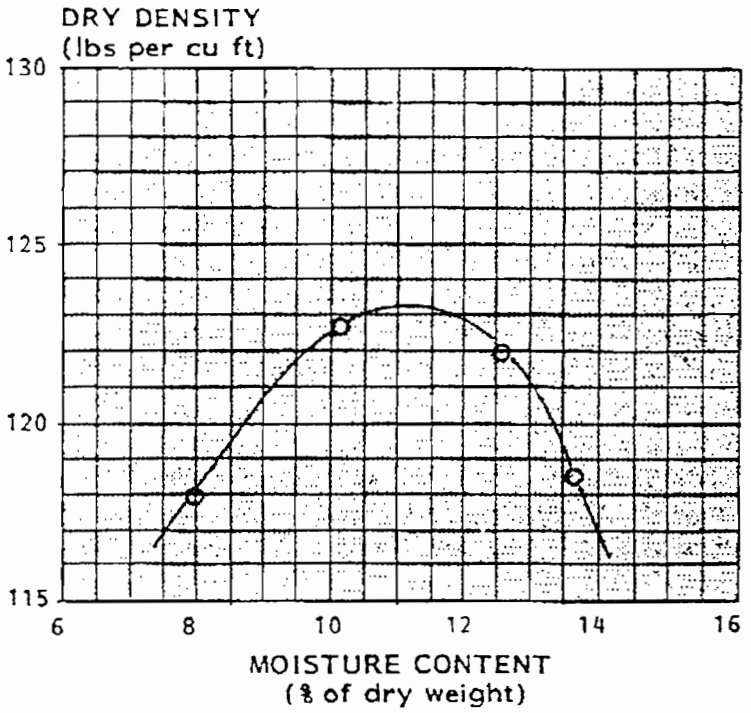
Compaction Method ASTM D698

subject Moisture-Density Curve Analysis

Maximum Dry Density 123.2 pcf

Optimum Moisture Content 11.2 %

On June 3, 1997 a soil sample labeled "SF-WMX-45" was delivered to this laboratory by the client. Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

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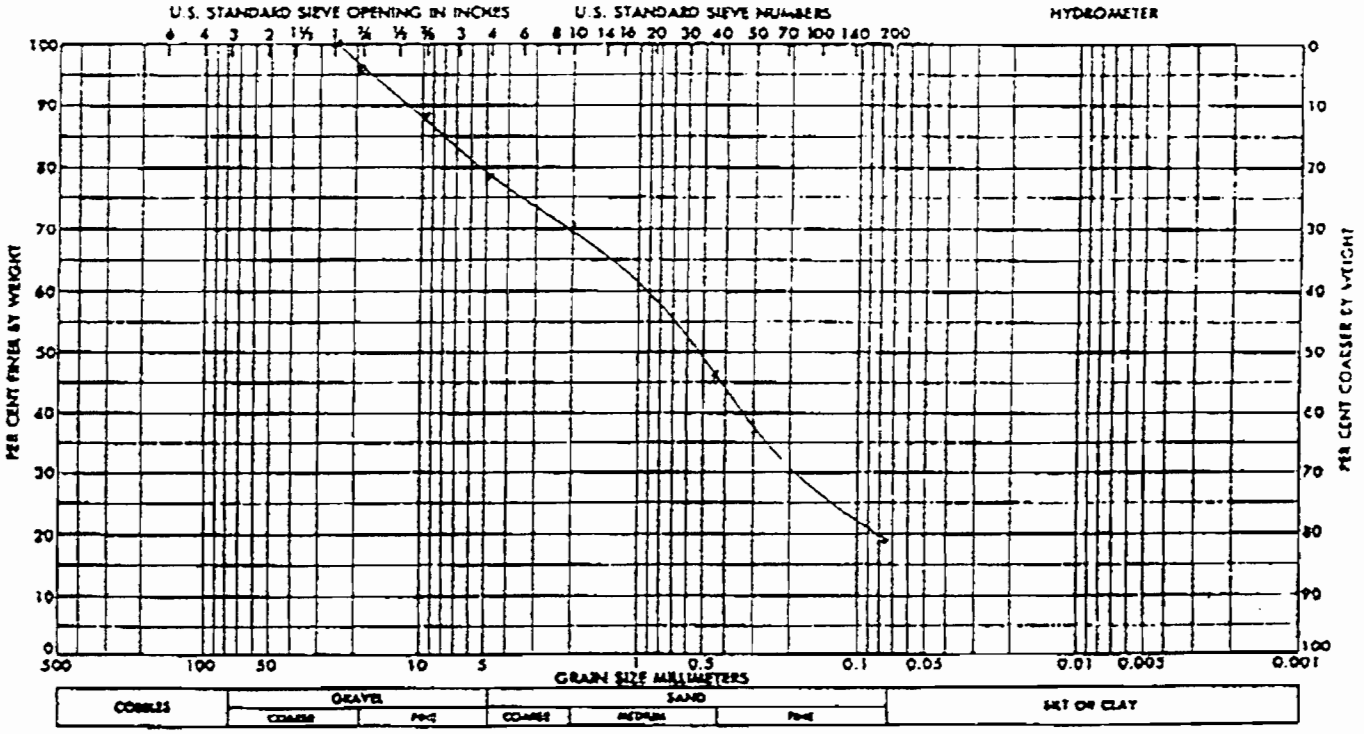
P.O. BOX 578 · STONY POINT, NY 10980 TELEPHONE (914) 942-2088 · FAX (914) 942-0995

June 5, 1997

client Ogden Remediation Services
project Clarkstown Landfill

Grain Size Curve Analysis

On June 3, 1997 a soil sample labeled "SF-WMX-45" was delivered to this laboratory by the client. Test results are shown below.



Classification (D2487): SM, Silty sand with gravel
Atterberg Limits (D4318): NP
Moisture Content (D2216): 10.0

*Traces of asphalt and concrete were observed in the above sample.

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

Clarkstown Landfill Remediation
Laboratory Services Request
#LL-2339-K3

For:
Mr. Reddy Kancharla
M & T/Namow/TCL
47 Hudson Street
Ossining, N.Y. 10562
PH (914)762-9000
FX (914)762-9638

From:
Roy F. Weston of New York
Clarkstown Field Office
166 Rte. 303
West Nyack, N.Y. 10994
PH (914)353-5221
FX (914)353-5491

Sample I.D.	Source	Misc	ASTM D422	ASTM D698	ASTM D4318										Remarks
SF-21 SFWMX50	WMX Woodside	1 bag	X	X	X										STOCKPILED 50,000 CY
SF-22 SFSV50	SERV	1 bkt	X	X	X										STOCKPILED 50,000 CY

Received By: [signature]

Date/Time: 6-9-97 / 11:00

Delivered By: John C Woodley

Results Required, Date/Time: 6-12-97 / 11:00

M&T/NAMOW/TCL □ J.V.

GRADATION AND STANDARD PROCTOR COMPACTION TESTING OF SOIL

CLIENT: Roy F. Weston, Inc., Sutton Park
PROJECT: Clarkstown Landfill
SAMPLE ID: SF-21(WMX Wood Street) 50,000 CY WMX
SAMPLED BY: Client
PICKUP/DEL BY: Client

LAB#: FOB-001
REPORT#: MC-47
DATE SAMPLED: 6/09/97
DATE TESTED: 6/10/97

(A) **GRADATION TEST RESULTS (ASTM D422 & ASTM D1140)**

Sieve Size	Percent Passing (%)	Specifications	Sieve Size	Percent Passing (%)	Specifications
2-1/2"			#10	62.4	
2"			#16	57.1	
1-1/2"	100.0		#20	53.2	
1"	95.3		#30	47.4	
3/4"	91.1		#40	39.9	
1/2"	84.5		#50	33.5	
3/8"	79.4		#60	29.9	
1/4"	74.0		#80	24.8	
#4	70.9		#100	22.6	
#8	64.2		#200	16.6	

The gradation curve is shown on Figure-1

(B) **STANDARD PROCTOR COMPACTING TEST RESULTS (ASTM D698, Procedure C, 6" diameter mold)**
Optimum Water Content:: 11.0%
Max. Unit Weight, Dry: 124.1 pcf
The proctor compaction curve is shown in Figure-2

(C) **MOISTURE (ASTM D2216):** 9.15%

(D) **SOIL CLASSIFICATION (ASTM D2487):** SM - Silty sand with gravel

(E) **SOIL DESCRIPTION:** m-f SAND, some m Gravel, little Silt
COLOR: Brown; **ODOR:** None; **CONTAMINATION:** None

TESTWELL CRAIG LABORATORIES, INC.

Kaspal R. Thumma, Eng.Sc.D., P.E.
Laboratory Manager
KRT/mp

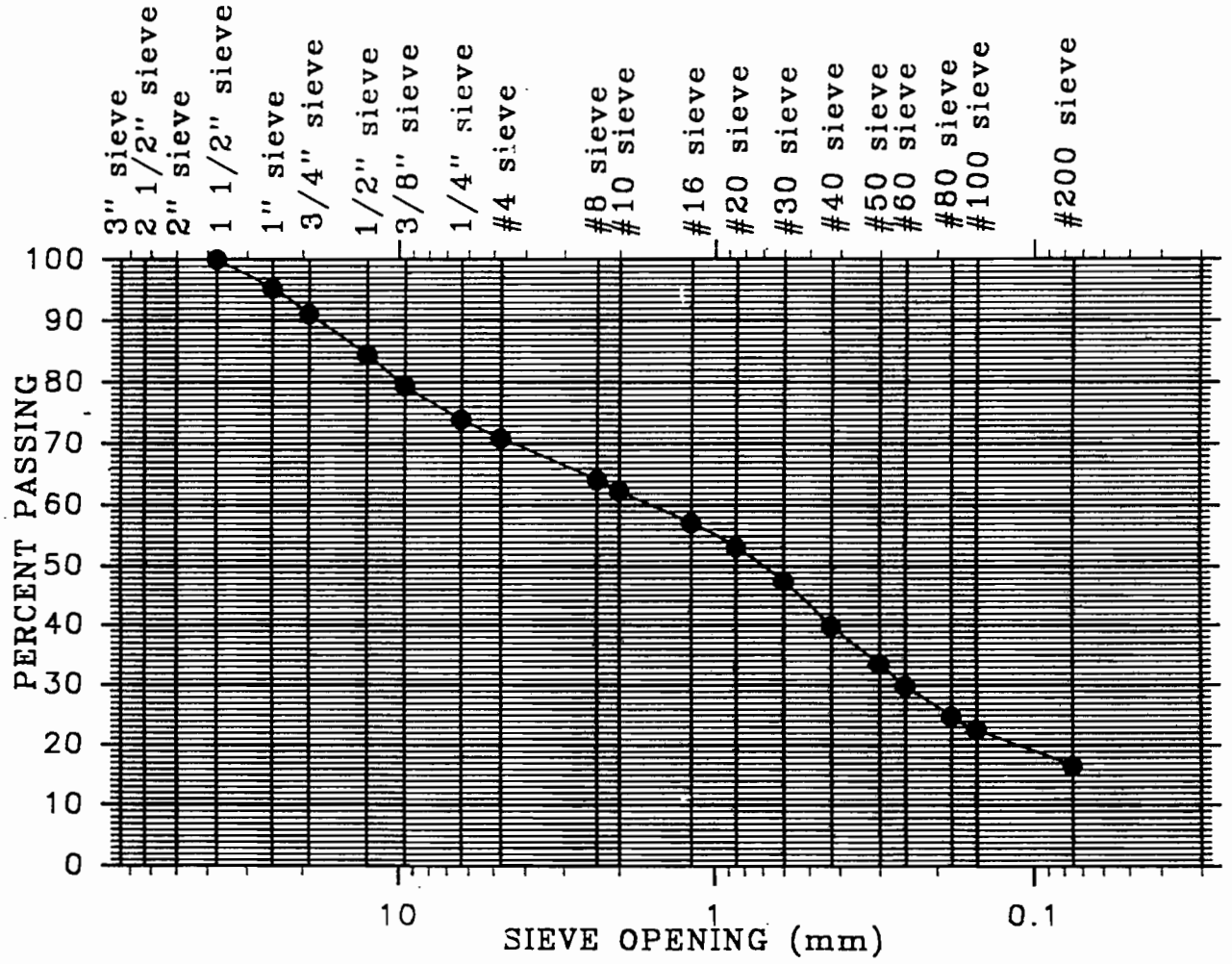


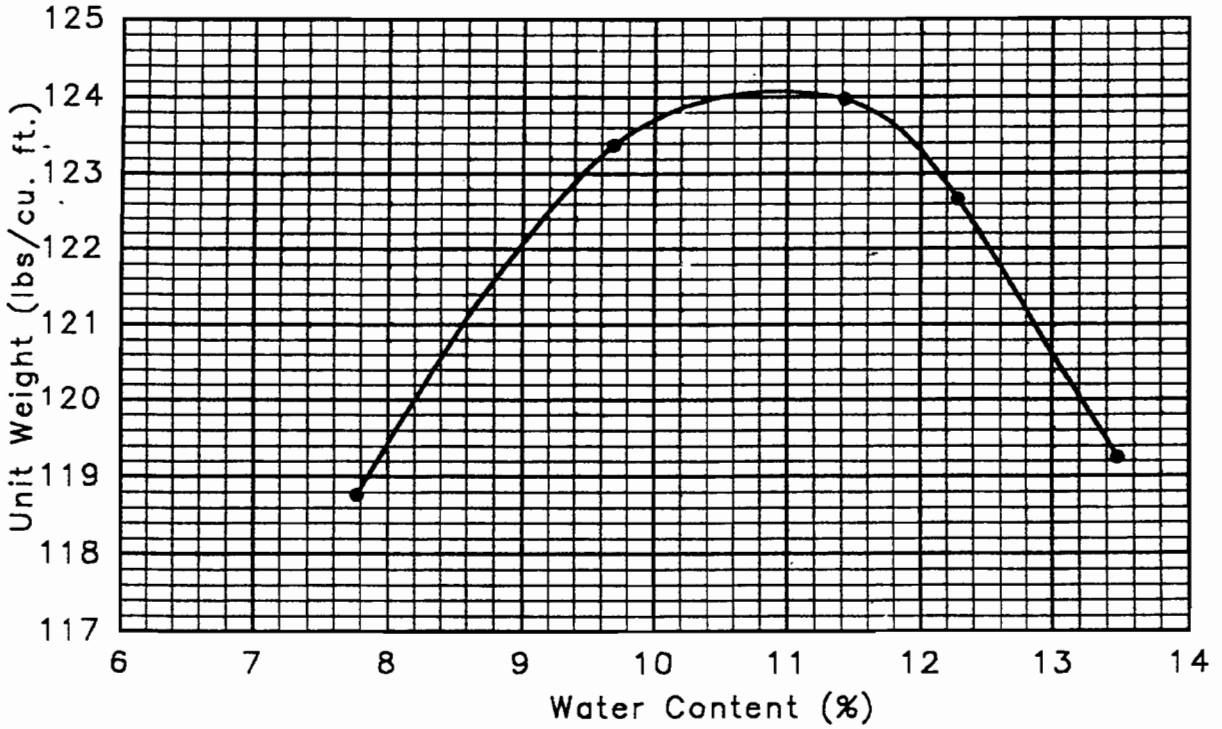
Figure 1: Particle Size Gradation Curve of Soil No. SF-21

Roy F. Weston, Inc., Sutton Park
Lab #: FOB-001 Rpt #: MC-47

STANDARD PROCTOR COMPACTION TEST RESULTS OF SOIL NO. SF-21

TEST METHOD: (ASTM D698 Procedure C, 6" Diameter Mold)

Specimen No.	1	2	3	4	5
Water Content (%)	7.77	9.69	11.42	12.28	13.48
Unit Weight, Dry (lbs/cu.ft.)	118.77	123.38	123.97	122.67	119.25



Optimum Water Content: 11.0% Max. Unit Weight, Dry: 124.1 pcf

Figure 2: Standard Proctor Curve of Soil No. SF-21

M&T/NAMOW/TCL□J.V.

LIQUID LIMIT AND PLASTIC LIMIT OF SOILS

Client: Roy F. Weston
Project: Clarkstown Landfill
Sample ID: Indicated Below
Sampled By: Client

Lab #: FOB-001
Report #:MC-49
Date Pick up/del: 6/09/97
Date Tested: 6/10/97

(A) LIQUID LIMIT & PLASTIC LIMIT TEST RESULTS (ASTM D4318)

Soil Sample No.	Liquid Limit % Weight	Plastic Limit % Weight	Plastic Index
SF-21	17.6	NP	0
SF-22	20.0	NP	0

NOTE: NP indicates that the soil is non-plastic since 1/8" diameter thread could not be rolled at any moisture content.

TESTWELL CRAIG LABORATORIES, INC.

Kaspal R. Thumma, Eng.Sc.D., P.E.
Laboratory Manager
KRT\mp

Clarkstown Landfill Remediation
Laboratory Services Request
#LL-2339-K3

For:
Mr. Reddy Kancharla
M & T/Namow/TCL
47 Hudson Street
Ossining, N.Y. 10562
PH (914)762-9000
FX (914)762-9638

From:
Roy F. Weston of New York
Clarkstown Field Office
166 Rte. 303
West Nyack, N.Y. 10994
PH (914)353-5221
FX (914)353-5491

Sample I.D.	Source	Misc	ASTM D422	ASTM D698	ASTM D2216	ASTM D4318	ASTM D2974	ASTM D4767	EPA 8020						Remarks
SF-23	WMX Woodside	1 bkt	X	X	X	X									50,000 CY
SF-24	WMX Woodside	1 bkt	X	X	X	X									75,000 CY
CS-06	Hyland in Situ	1 bkt	X	X	X	X	X	X	X						25,000 CY

Received By: Richard Tuttle

Date/Time: 8-15-97 / 12:45

Delivered By: John C Woodley

Results Required, Date/Time: 8-20-97 / 2:00

M&T/NAMOW/TCL□J.V.

GRADATION AND STANDARD PROCTOR COMPACTION TESTING OF SOIL

CLIENT: Roy F. Weston, Inc., Sutton Park
PROJECT: Clarkstown Landfill
SAMPLE ID: SF-23 (WMX Woodside)
SAMPLED BY: Client
PICKUP/DEL BY: Client

LAB#: FOB-001
REPORT#: MC-65
DATE SAMPLED: 8/15/97
DATE TESTED: 8/19/97

(A) GRADATION TEST RESULTS (ASTM D422 & ASTM D1140)

Sieve Size	Percent Passing (%)	Specifications	Sieve Size	Percent Passing (%)	Specifications
2-1/2"			#10	57.4	
2"			#16	51.9	
1-1/2"	100.0		#20	47.5	
1"	97.6		#30	40.7	
3/4"	87.4		#40	32.5	
1/2"	75.7		#50	25.8	
3/8"	71.9		#60	22.1	
1/4"	66.3		#80	17.5	
#4	63.7		#100	15.5	
#8	58.5		#200	10.6	

The gradation curve is shown on Figure-1

(B) **STANDARD PROCTOR COMPACTING TEST RESULTS (ASTM D698, Procedure C, 6" diameter mold)**
Optimum Water Content:: 11.2%
Max. Unit Weight, Dry: 125.0 pcf
The proctor compaction curve is shown in Figure-2

(C) MOISTURE (ASTM D2216): 10.13%

(D) SOIL CLASSIFICATION (ASTM D2487): SP-SM – Poorly graded sand with silt

(E) SOIL DESCRIPTION: m-f SAND, and m Gravel, little Silt
COLOR: Gray; **ODOR:** None; **CONTAMINATION:** None

TESTWELL CRAIG LABORATORIES, INC.

Kaspal R. Thumma, Eng.Sc.D., P.E.
Laboratory Manager
KRT/mp

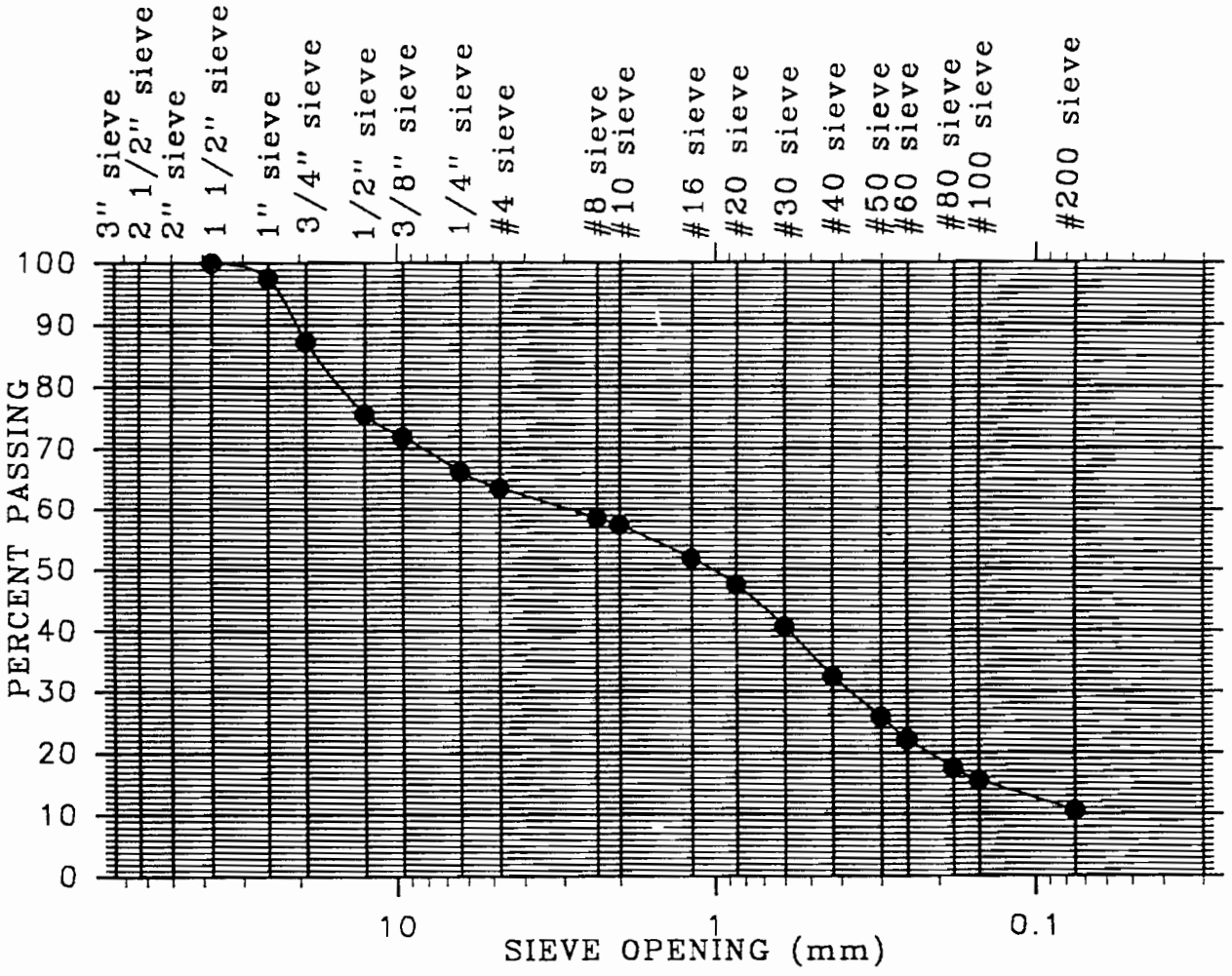


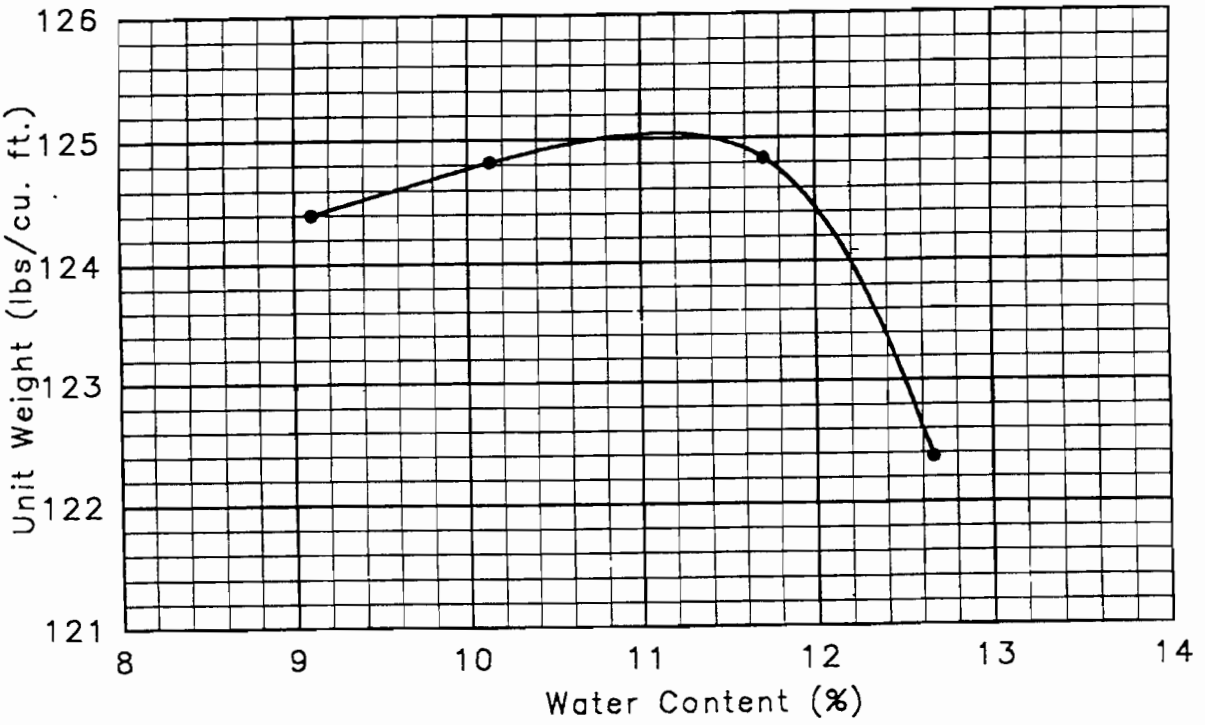
Figure 1: Particle Size Gradation Curve of Soil No. SF-23

Roy F. Weston, Inc., Sutton Park
Lab #: FOB-001 Rpt #: MC-65

STANDARD PROCTOR COMPACTION TEST RESULTS OF SOIL NO. SF-23

TEST METHOD: (ASTM D698 Procedure C, 6" Diameter Mold)

Specimen No.	1	2	3	4
Water Content (%)	9.11	10.13	11.71	12.66
Unit Weight, Dry (lbs/cu.ft.)	124.02	124.82	124.84	122.37



Optimum Water Content: 11.2% Max. Unit Weight, Dry: 125.0 pcf

Figure 2: Standard Proctor Curve of Soil No. SF-23

M&T/NAMOW/TCL□J.V.

LIQUID LIMIT, PLASTIC LIMIT, AND ORGANIC CONTENT OF SOILS

Client: Roy F. Weston
Project: Clarkstown Landfill
Sample ID: Indicated Below
Sampled By: Client
Picked up/Delivered by: Client

Lab #: FOB-001
Report #:MC-66
Date Pick up/del: 8/15/97
Date Tested: 8/20/97

(A) LIQUID LIMIT & PLASTIC LIMIT TEST RESULTS (ASTM D4318)

Soil Sample No.	Liquid Limit % Weight	Plastic Limit % Weight	Plastic Index
SF-23 (WMX Woodside)	17.2	NP	0
SF-24 (WMX Woodside)	16.7	NP	0
CS-06 (Hyland Insitu)	14.5	NP	0

NOTE: NP indicates that the soil is non-plastic since 1/8" diameter thread could not be rolled at any moisture content.

(B) ORGANIC CONENT(ASTM D 2974)

Soil Sample No.	Organic Content (wt.%)
CS-06 (Hyland Insitu)	0.90%

TESTWELL CRAIG LABORATORIES

Kaspal R. Thumma, Eng.Sc.D., P.E.
Laboratory Manager
KRT\mp

Received: 08/21/97 11:11:26 From: 9147629638

USUSCI REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: CLARKSTOWN LANDFILL / LE CARBONE Project No.: 6000[illegible] Date Sent: 6/4/97

Project Location: WEST NYACK NY Purchase Order No.: _____ Shipped Via: _____

Sampled By: (Signature) LARRY KAVENAUGH Lab Contact: _____ Date Received: 6/4/97

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
		ANALYSIS REQUIRED												
SF-WMX-50	WEST END OF WMX STOCKPILE	X		X	X		X	X						

Comment/Special Instructions:

SAMPLE TAKEN FROM THE WEST SIDE OF THE MAIN WMX STOCKPILE

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

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FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 TELEPHONE (914) 942-2085 · FAX (914) 942-0995

SINCE 1969

SOILS TEST REPORT

June 5, 1997

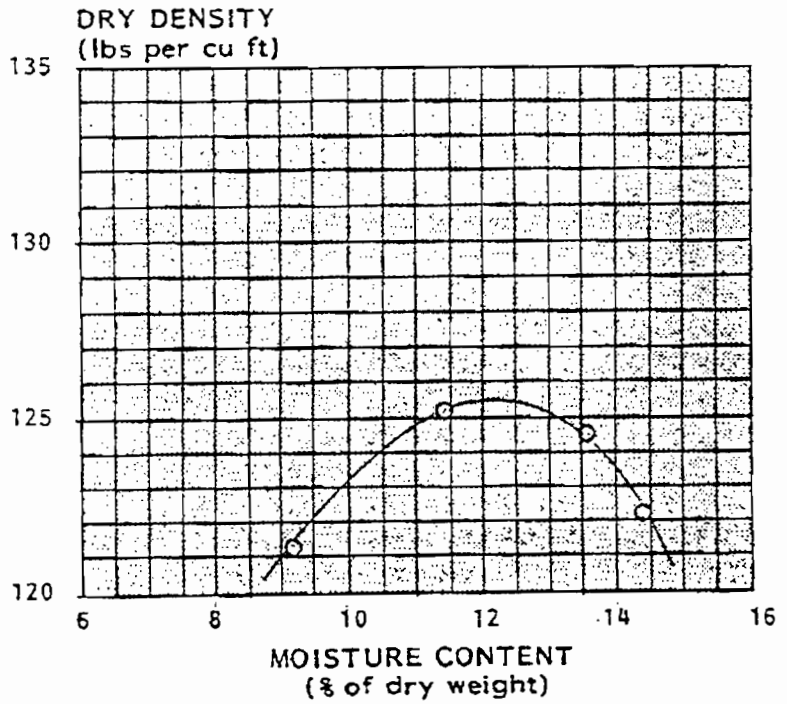
client Ogden Remediation Services

project Clarkstown Landfill

Compaction Method	ASTM D698
Maximum Dry Density	125.5 pcf
Optimum Moisture Content	12.2%

subject Moisture-Density Curve Analysis

On June 4, 1997, a representative from this firm visited the jobsite and took soil sample "SF-WMX-50" from the west end of the WMX stockpile. Test results are shown above.



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P. J. Aguanno, P.E.

FAIRWAY TF TING

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CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

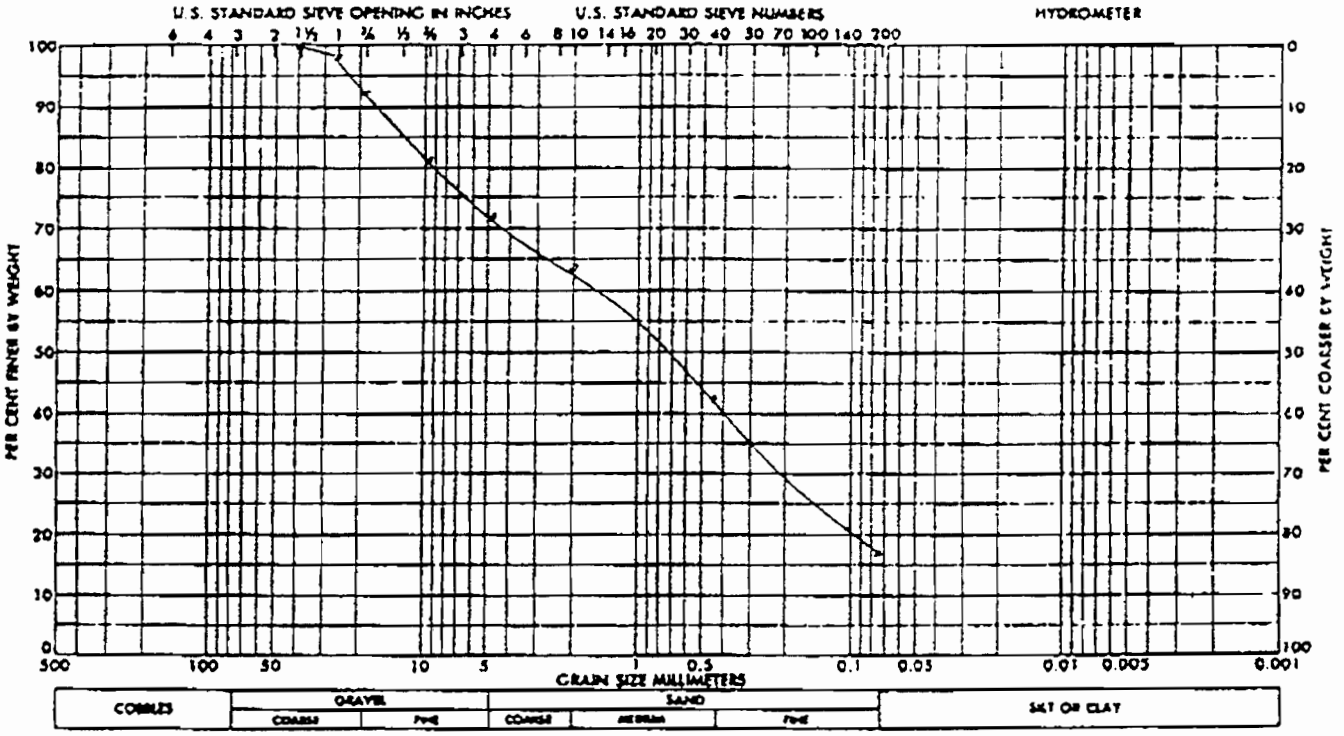
P.O. BOX 578 · STONY POINT, NY 10980 TELEPHONE (914) 942-2068 · FAX (914) 942-0995

June 5, 1997

client Ogden Remediation
project Clarkstown Landfill

Grain Size Curve Analysis

On June 4, 1997 a representative from this firm visited the jobsite and took soil sample "SF-WMX-50", from the west end of the WMX stockpile. Test results are shown below.



classification (D2487): SM, Silty send with gravel
Atterberg Limits (D4318): NP
Moisture Content (D2216): 11.0%

*Traces of asphalt, brick and concrete were observed in the soil sample.

FAIRWAY TESTING CO., INC.

D. J. Aguanno, P.E.

Soil Sample Test Request Record

Project Name/Client: CLARKSTOWN LANDFILL - LF CAPPING
Project No.: 60010000
Date Sent: 6/19/97

Project Location: WEST NYACK N.Y.
Purchase Order No.:
Shipped Via:

Sampled By: (Signature) James Beatty
Lab Contact:
Date Received: 6/19/97

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
SF-WMX-55		X		X	X		X	X						

ANALYSIS REQUIRED

Comment/Special Instructions:

SAMPLE TAKEN FROM WMX STOCKPILE WEST SIDE

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

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FACTS

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SINCE 1969

SOILS TEST REPORT

June 23, 1997

client Ogden Remediation Services

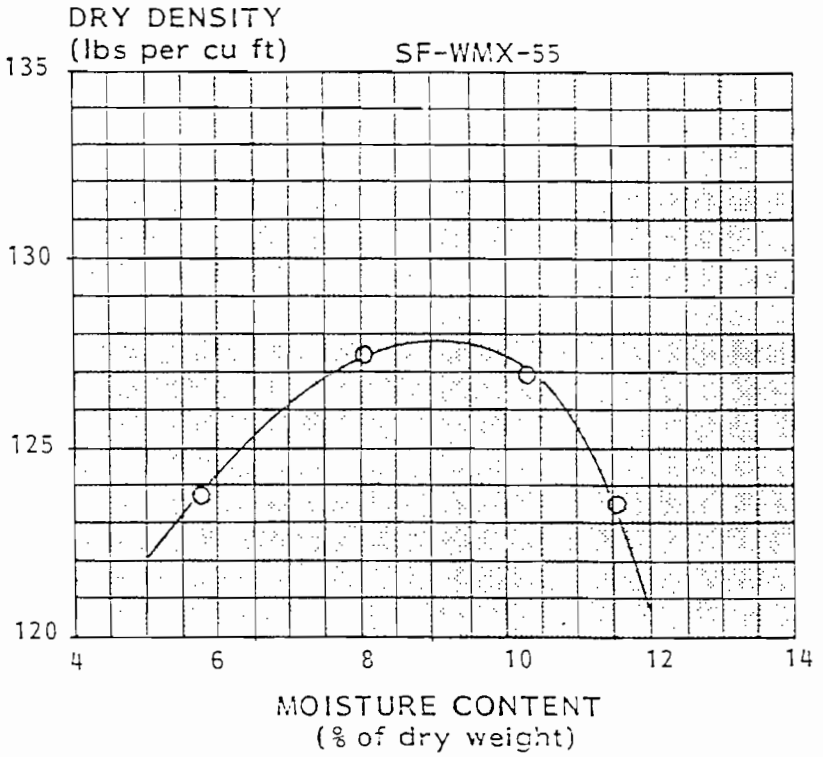
project Clarkstown Landfill

Compaction Method ASTM D698

subject Moisture-Density Curve Analysis

Maximum Dry Density 127.8 pcf
Optimum Moisture Content 9.2%

On June 19, 1997, twenty soil samples were delivered to this laboratory by the client. Test results of sample SF-WMX-55 are shown below.



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P. J. Aguanno, P.E.

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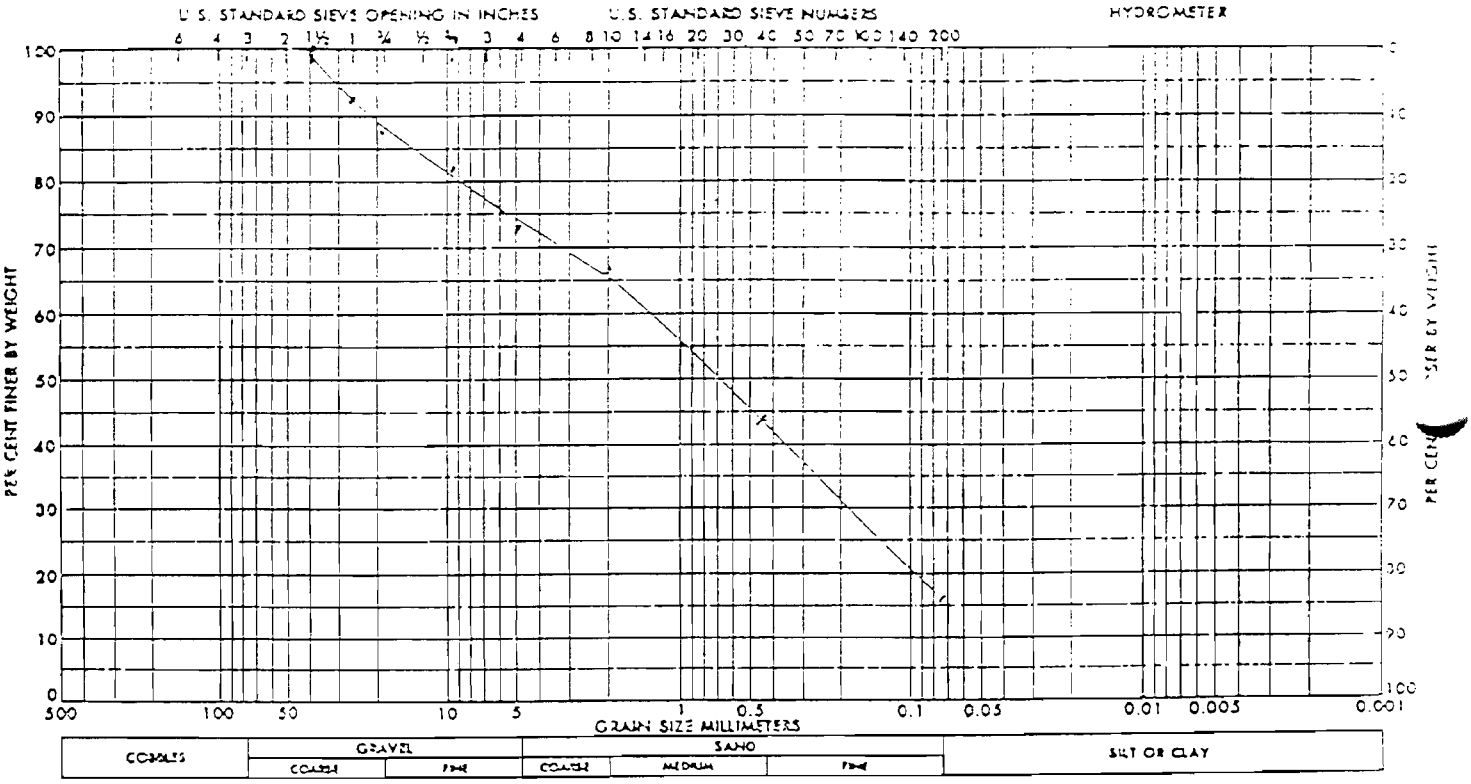
P O BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0935

SINCE 1959

client Ogden Remediation Services June 23, 1997

project Clarkstown Landfill Grain Size Curve Analysis

On June 19, 1997, twenty soil samples were delivered to this laboratory by the client. Test results of sample SF-WMX-55 are shown below.



Classification (D2487): SM, silty sand w/gravel

Atterberg Limits (D4318): NP

Moisture Content (D2216): 9.4%

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

[redacted] REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: CLARKSTOWN LANDFILL LF CAPPING
Project No.: 600100-00
Date Sent: 6/26/97

Project Location: WEST NYACK N.Y.
Purchase Order No.:
Shipped Via:

Sampled By: (Signature)
Lab Contact:
Date Received: 6/26/97

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
		ANALYSIS REQUIRED												
SF-WMX-60		X		X	X		X	X						

Comments/Special Instructions: SAMPLE TAKEN FROM THE WEST END OF THE WMX STOCKPILE

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

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FLOWERS

FAIRWAY TESTING

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P.O. BOX 578 STONY POINT, NY 10980 TELEPHONE (914) 942-2098 FAX (914) 942-0995

SINCE 1969

SOILS TEST REPORT

client Ogden Remediation Services

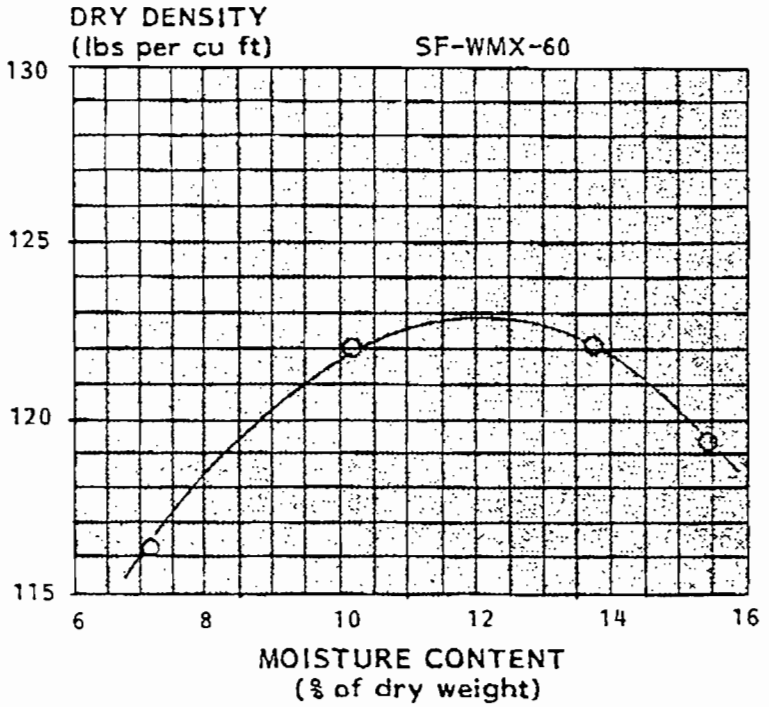
project Clarkstown Landfill

subject Moisture-Density Curve Analysis

June 30, 1997

Compaction Method	ASTM D698
Maximum Dry Density	122.8 pcf
Optimum Moisture Content	12.1%

On June 26, 1997, a representative from this firm visited the jobsite and picked-up soil sample "SF-WMX-60". Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

FAIRWAY TESTING

CONSTRUCTION MATERIALS · TESTING · INSPECTION · RESEARCH

P O BOX 576 · STONY POINT NY 10980 TELEPHONE (914) 942-2088 · FAX (914) 942-0995

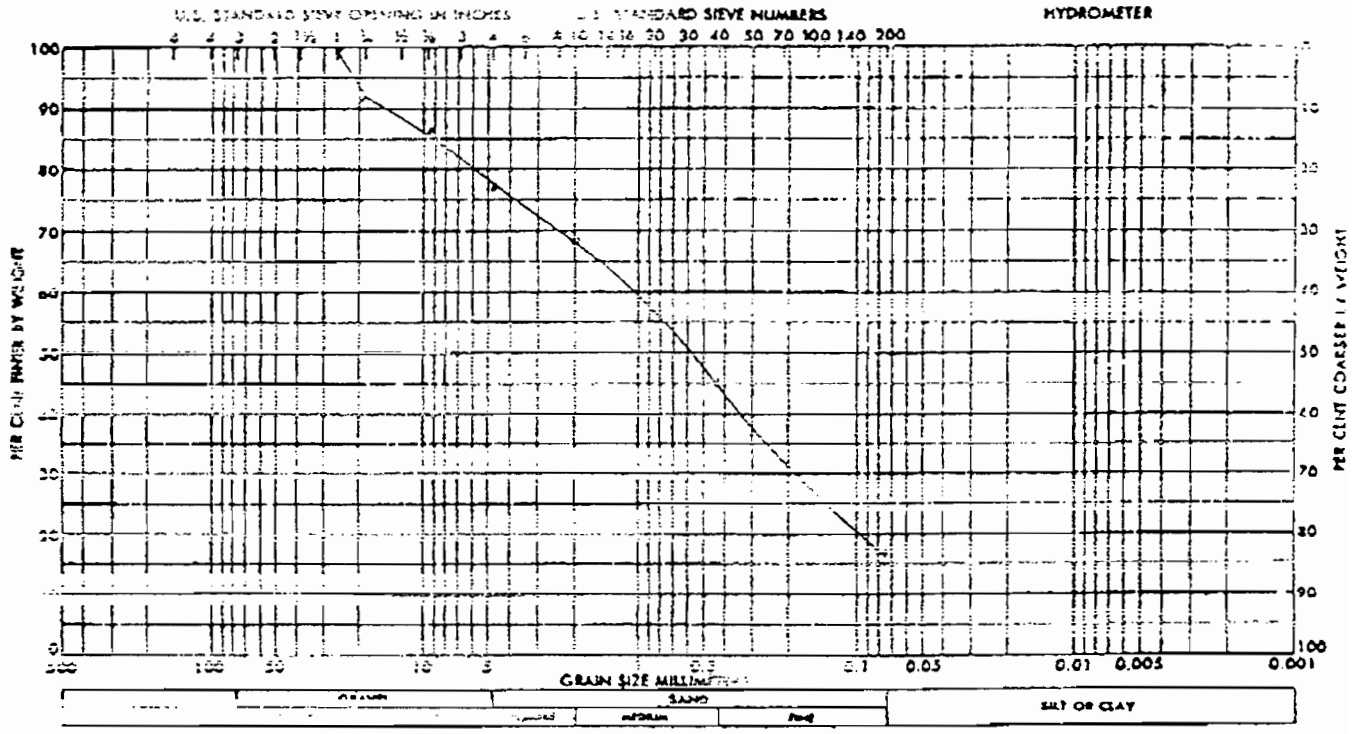
SINCE 1969

client Ogden Remediation Services

June 30, 1997

project Clarkstown Landfill Grain Size Curve Analysis

On June 26, 1997, a representative from this firm visited the jobiste and picked-up a soil sample labeled "SF-WMX-60". Test results are shown below.



Classification (D2487): *SM, silty sand w/gravel

Atterberg Limits (D4318): NP

Moisture Content (D2216): 9.5%

*Traces of concrete, brick, glass and asphalt were observed in the soil sample.

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

MEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: CLARKSTOWN L.F. + LIF. CAPPING
Project No.: 600100000
Date Sent: 7-17-97

Project Location: WEST NYACK N.Y.
Purchase Order No.:
Shipped Via:

Sampled By: (Signature) HARRY KAVANAGH
Lab Contact:
Date Received: 7-17-97

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
SF-WMX 65'	DIVERSION DIKE STRUCT. FILL #18	X		X	X		X	X						

ANALYSIS REQUIRED

RECEIVED JUL 23 1997

Comments/Special Instructions:

WEST END OF WMX STOCKPILE

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

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JUL/23/1997 11:05 -- 6025459593 PAGE 02

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SINCE 1969

SOILS TEST REPORT

July 22, 1997

client Ogden Remediation Services

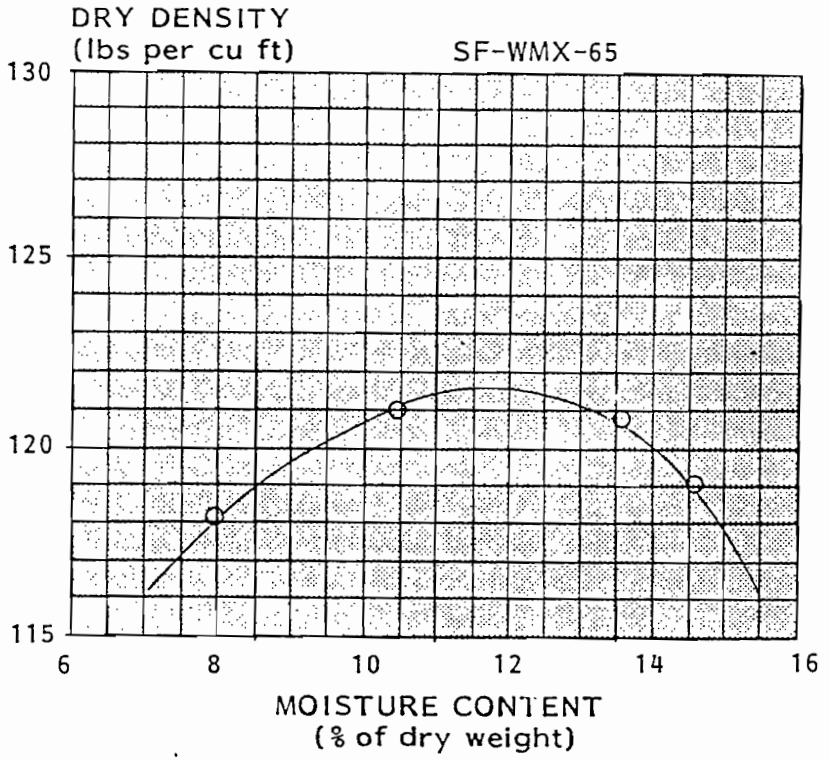
project Clarkstown Landfill

Compaction Method ASTM D698

subject Moisture-Density Curve Analysis

Maximum Dry Density 121.7 pcf
Optimum Moisture Content 11.7%

On July 17, 1997, a representative from this firm visited the jobsite and took a sample of soil labeled SF-WMX-65. Test results are shown below.



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P. J. Aguanno, P.E.

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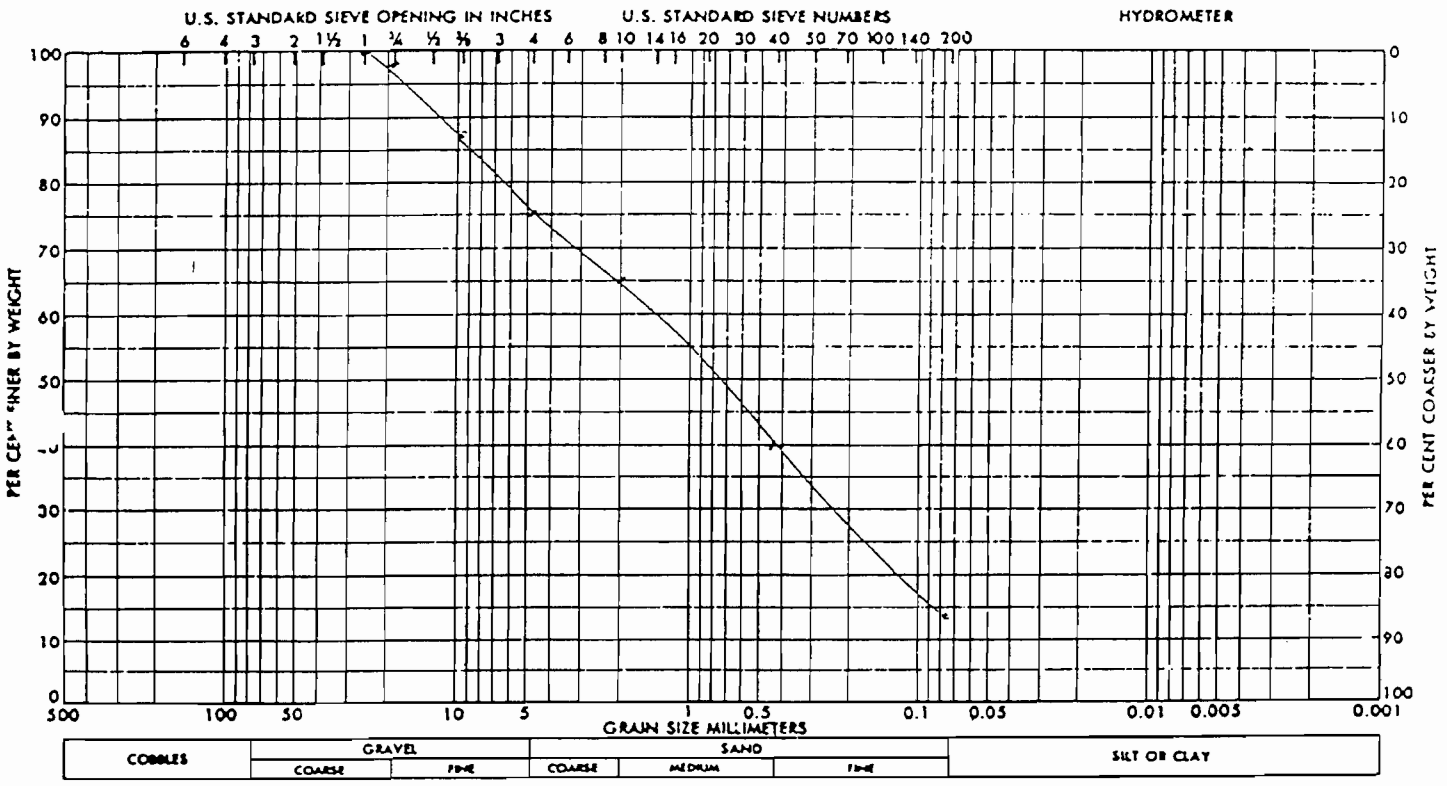
client Ogden Remediation Services July 22, 1997

project Clarkstown Landfill Grain Size Curve Analysis

On July 17, 1997, a representative from this firm visited the jobsite and took a sample of soil labeled SF-WMX-65. Test results are shown below.



Classification (D2487): SM, silty sand w/gravel

Atterberg Limit (D4318): NP

Moisture Content (D2216): 8.0%

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

RECEIVED JUL 2 ? 1997

KUEI REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Rec

Project Name/Client: CLARKSTOWN LANDFILL + LF CAPPING
Project No.: 600100000
Date Sent: 8/1/97

Project Location: WEST NYACK N.Y
Purchase Order No.:
Shipped Via:

Sampled By: (Signature)
Lab Contact:
Date Received: 8/1/97

Sample No.	Description	ANALYSIS REQUIRED: Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall Perm.			
SF-WM01-TO		X		X	X		X	X						

Comments/Special Instructions:

SAMPLE TAKEN FROM THE WEST END OF THE MAIN STOCKPILE

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

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FLYERS

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SINCE 1969

SOILS TEST REPORT

August 4, 1997

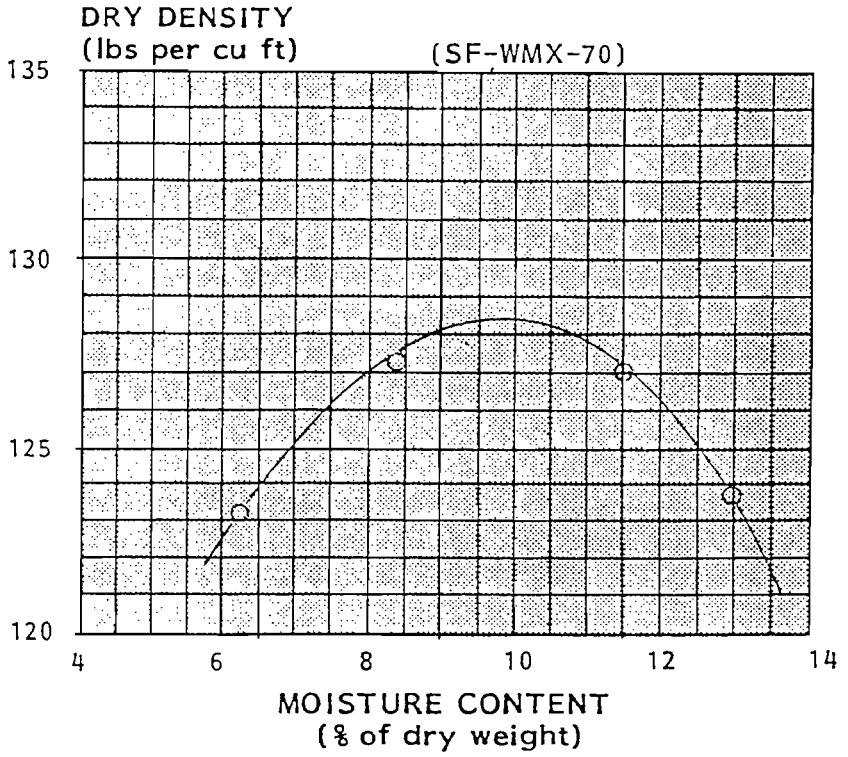
client Ogden Remediation Services

project Clarkstown Landfill

Compaction Method	ASTM D698
Maximum Dry Density	128.4 pcf
Optimum Moisture Content	9.8%

subject Moisture-Density Curve Analysis

On August 1, 1997, a representative from this firm visited the jobsite and took a sample of soil labeled SF-WMX-70. Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

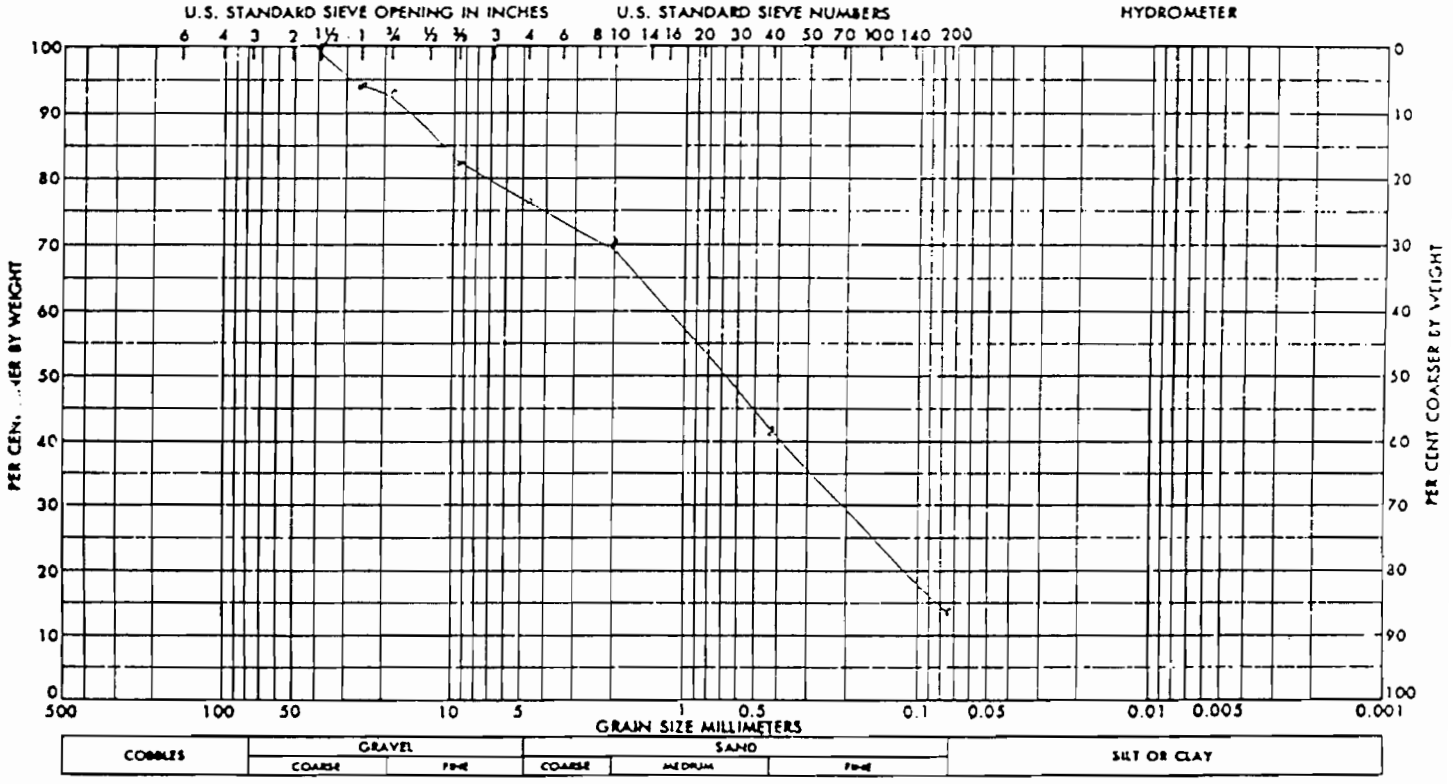
client Ogden Remediation Services

August 4, 1997

project Clarkstown Landfill

Grain Size Curve Analysis

On August 1, 1997, a representative from this firm visited the jobsite and took a sample of soil labeled SF-WMX-70. Test results are shown below.



Classification (D2487): SM, silty sand w/gravel

Atterberg Limits (D4318): NP

Moisture Content (D2216): 8.9%

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

Clarkstown Landfill Remediation
Laboratory Services Request
#LL-2339-K3

For:
Mr. Reddy Kancharla
M & T/Namow/TCL
47 Hudson Street
Ossining, N.Y. 10562
PH (914)762-9000
FX (914)762-9638

From:
Roy F. Weston of New York
Clarkstown Field Office
166 Rte. 303
West Nyack, N.Y. 10994
PH (914)353-5221
FX (914)353-5491

Sample I.D.	Source	Misc	ASTM D422	ASTM D698	ASTM D2216	ASTM D4318	ASTM D2974	ASTM D4767	EPA 8020						Remarks
SF-23	WMX Woodside	1 bkt	X	X	X	X									50,000 CY
SF-24	WMX Woodside	1 bkt	X	X	X	X									75,000 CY
CS-06	Hyland In Situ	1 bkt	X	X	X	X	X	X	X						25,000 CY

Received By: Richard Tuttle

Date/Time: 8-15-97 / 12:45

Delivered By: John C Woodley

Results Required, Date/Time: 8-20-97 / 2:00

M&T/NAMOW/TCL □ J.V.

GRADATION AND STANDARD PROCTOR COMPACTION TESTING OF SOIL

CLIENT: Roy F. Weston, Inc., Sutton Park
PROJECT: Clarkstown Landfill
SAMPLE ID: SF-24(WMX Woodside)
SAMPLED BY: Client
PICKUP/DEL BY: Client

LAB#: FOB-001
REPORT#: MC-63
DATE SAMPLED: 8/15/97
DATE TESTED: 8/19/97

(A) **GRADATION TEST RESULTS (ASTM D422 & ASTM D1140)**

Sieve Size	Percent Passing (%)	Specifications	Sieve Size	Percent Passing (%)	Specifications
2-1/2"			#10	51.1	
2"			#16	45.9	
1-1/2"	100.0		#20	42.7	
1"	92.8		#30	36.9	
3/4"	88.2		#40	30.2	
1/2"	79.9		#50	24.2	
3/8"	73.9		#60	20.7	
1/4"	65.4		#80	15.7	
#4	60.9		#100	13.6	
#8	47.1		#200	9.4	

The gradation curve is shown on Figure-1

(B) **STANDARD PROCTOR COMPACTING TEST RESULTS (ASTM D698, Procedure C, 6" diameter mold)**
Optimum Water Content:: 10.9%
Max. Unit Weight, Dry: 124.7 pcf
The proctor compaction curve is shown in Figure-2

(C) MOISTURE (ASTM D2216): 10.26%

(D) SOIL CLASSIFICATION (ASTM D2487): SP-SM – Poorly graded sand with silt and gravel

(E) SOIL DESCRIPTION: c-m-f SAND, and m-f Gravel, trace Silt
COLOR: Gray; **ODOR:** None; **CONTAMINATION:** None

TESTWELL CRAIG LABORATORIES, INC.

Kaspal R. Thumma, Eng.Sc.D., P.E.
Laboratory Manager
KRT/mp

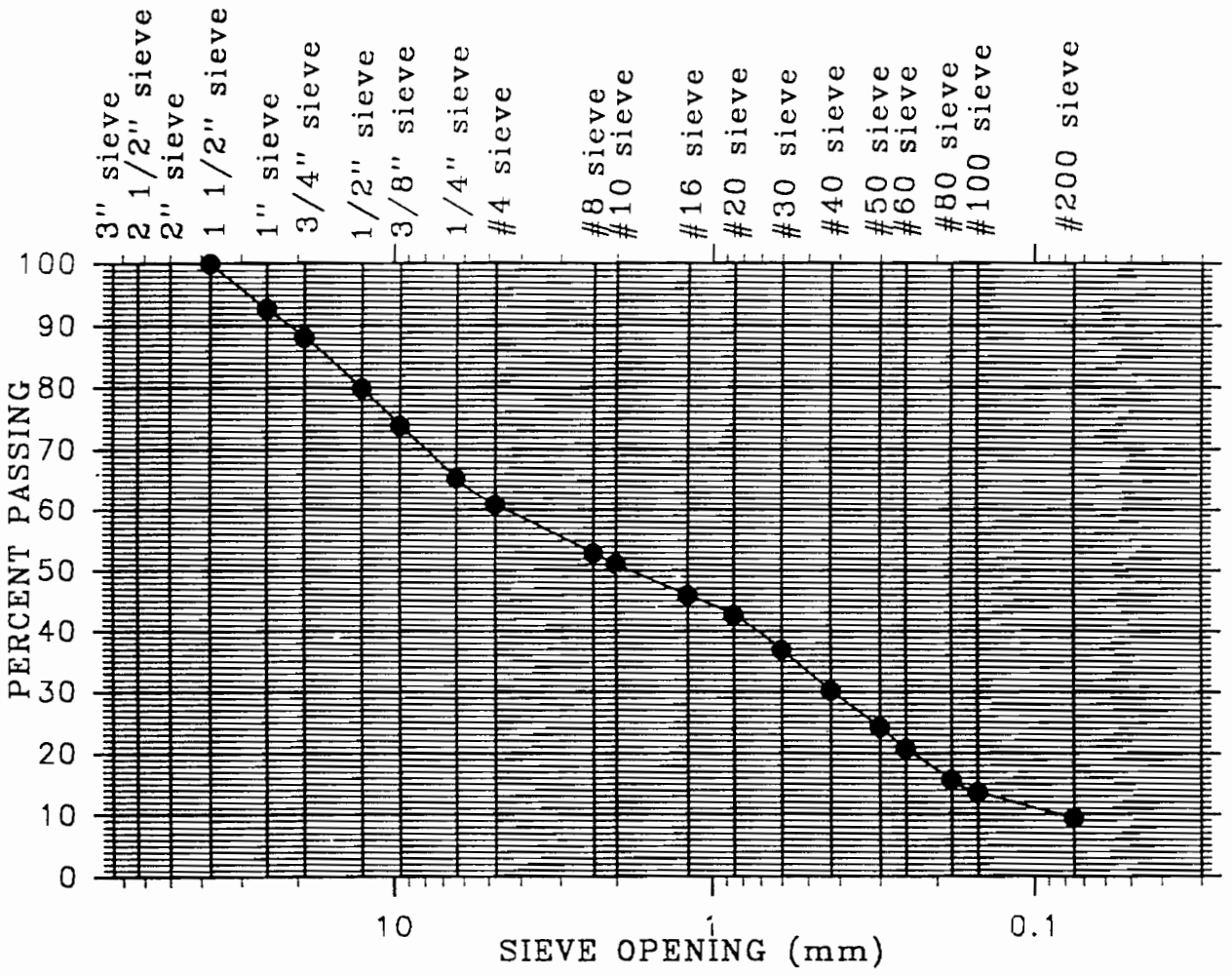


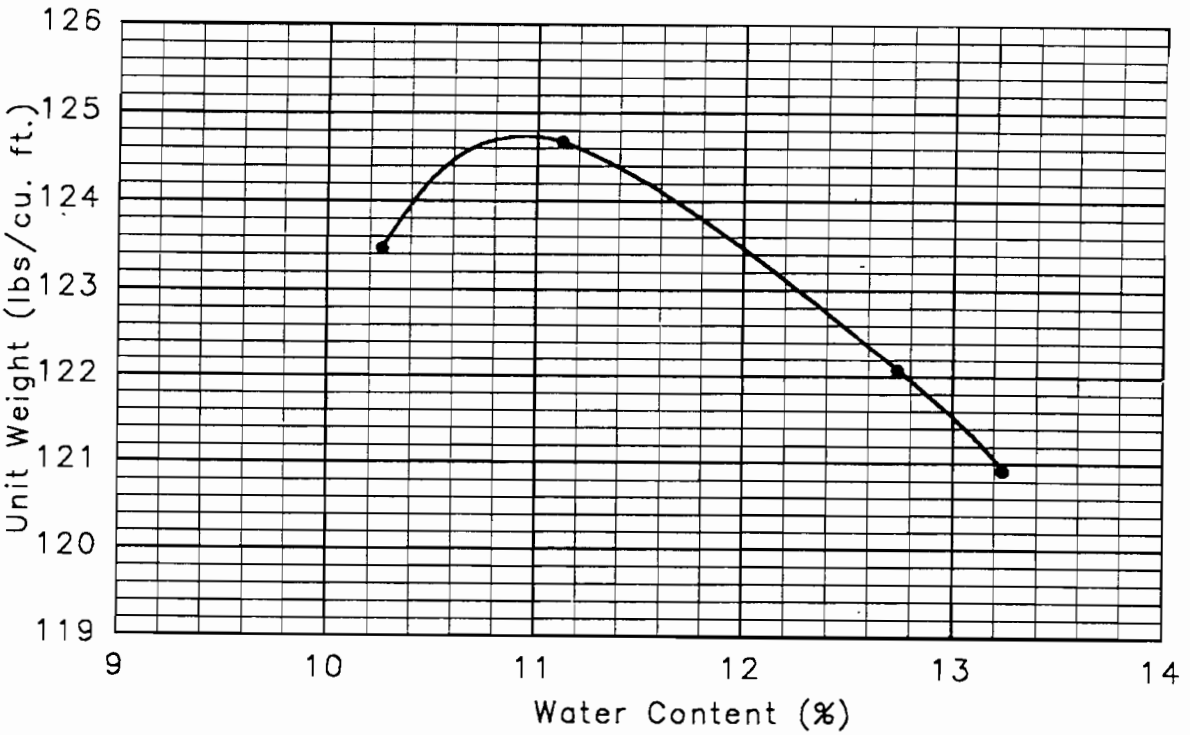
Figure 1: Particle Size Gradation Curve of Soil No. SF-24

Roy F. Weston, Inc., Sutton Park
Lab #: FOB-001 Rpt #: MC-63

STANDARD PROCTOR COMPACTION TEST RESULTS OF SOIL NO. SF-24

TEST METHOD: (ASTM D698 Procedure C, 6" Diameter Mold)

Specimen No.	1	2	3	4
Water Content (%)	10.26	11.12	12.74	13.24
Unit Weight, Dry (lbs/cu.ft.)	123.46	124.67	122.08	120.92



Optimum Water Content: 10.9% Max. Unit Weight, Dry: 124.7 pcf

Figure 2: Standard Proctor Curve of Soil No. SF-24

M&T/NAMOW/TCL□J.V.

LIQUID LIMIT, PLASTIC LIMIT, AND ORGANIC CONTENT OF SOILS

Client: Roy F. Weston
Project: Clarkstown Landfill
Sample ID: Indicated Below
Sampled By: Client
Picked up/Delivered by: Client

Lab #: FOB-001
Report #:MC-66
Date Pick up/del: 8/15/97
Date Tested: 8/20/97

(A) LIQUID LIMIT & PLASTIC LIMIT TEST RESULTS (ASTM D4318)

Soil Sample No.	Liquid Limit % Weight	Plastic Limit % Weight	Plastic Index
SF-23 (WMX Woodside)	17.2	NP	0
SF-24 (WMX Woodside)	16.7	NP	0
CS-06 (Hyland Insitu)	14.5	NP	0

NOTE: NP indicates that the soil is non-plastic since 1/8" diameter thread could not be rolled at any moisture content.

(B) ORGANIC CONENT(ASTM D 2974)

Soil Sample No.	Organic Content (wt.%)
CS-06 (Hyland Insitu)	0.90%

TESTWELL CRAIG LABORATORIES

Kaspal R. Thumma, Eng.Sc.D., P.E.
Laboratory Manager
KRT\mp

Received: 08/21/97 11:11:26 From: 9147629638

UNISYS REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: CLARKSTOWN LANDFILL / LANDFILL CAPPING Project No.: 600100000 Date Sent: 8/12/97

Project Location: WEST NYACK, NEW YORK Purchase Order No.: _____ Shipped Via: _____

Sampled By: (Signature) J Beatty Lab Contact: _____ Date Received: 8/12/97

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Dec. Wall. Perm.			
		ANALYSIS REQUIRED												
SF-WMX-75		X		X	X		X	X						

Comments/Special Instructions:

SAMPLE TAKEN FROM THE WEST END OF MAIN STOCKPILE

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Rev. 1/93

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9/12/1997 11:03 6083599955 KUEI E AMU 1 PAGE 02

FAIRWAY TESTING

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SINCE 1969

SOILS TEST REPORT

August 13, 1997

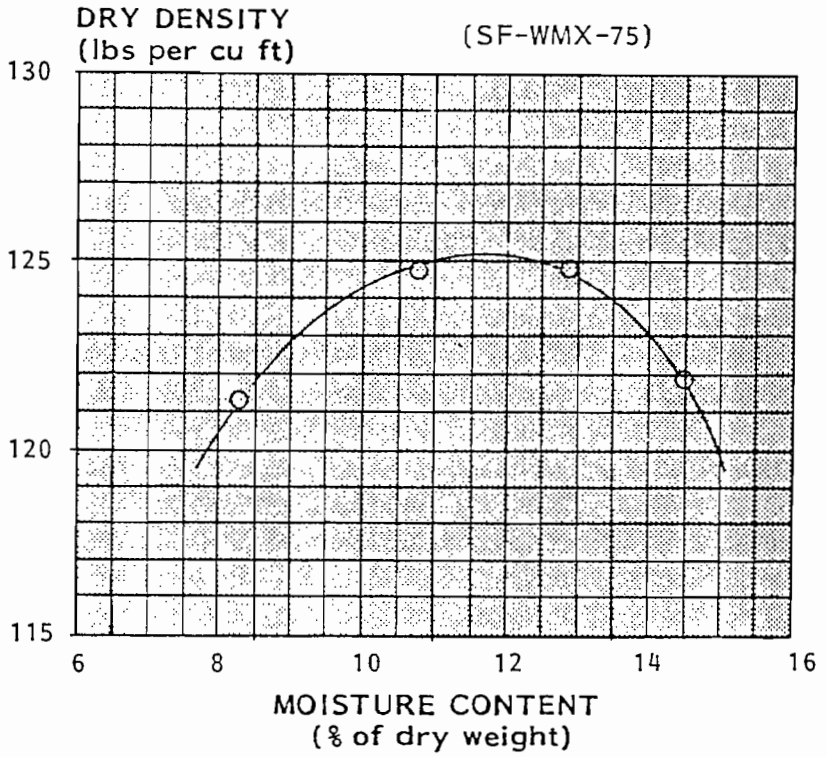
client Ogden Remediation Services

project Clarkstown Landfill

subject Moisture-Density Curve Analysis

Compaction Method	ASTM D698
Maximum Dry Density	125.2 pcf
Optimum Moisture Content	11.7%

On August 12, 1997, a representative from this firm visited the jobsite and picked-up a sample of soil labeled SF-WMX-75. Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

FAIRWAY TESTING

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SINCE 1969

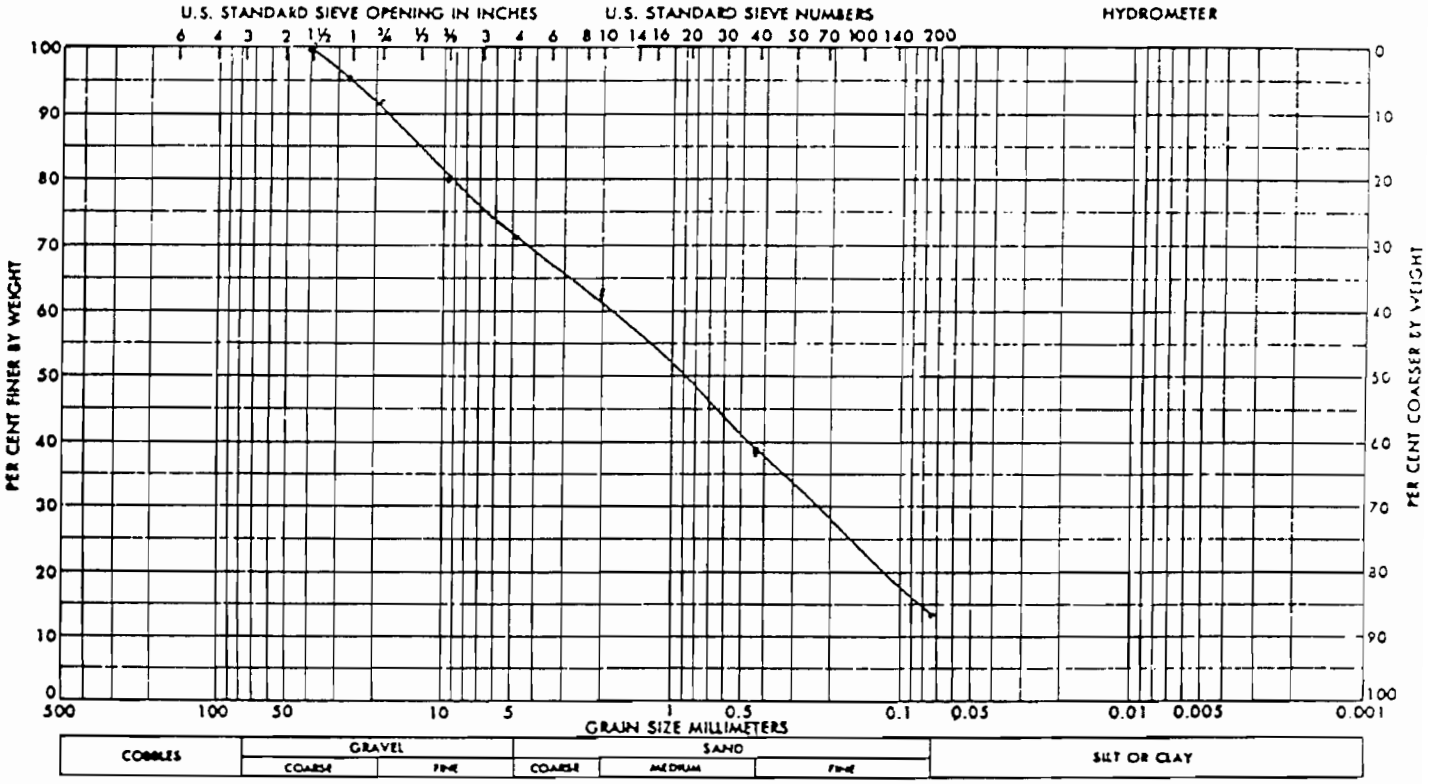
client Ogden Remediation Services

August 13, 1997

project Clarkstown Landfill

Grain Size Curve Analysis

On August 12, 1997, a representative from this firm visited the jobsite and picked-up a sample of soil labeled SF-WMX-75. Test results are shown below.



Soil Classification (D2487): SM, silty sand w/gravel

Atterberg Limits (D4318): NP

Moisture Content (D2216): 8.2%

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

Clarkstown Landfill Remediation
Laboratory Services Request
#LL-2339-K3

For:
Mr. Reddy Kancharla
M & T/Namow/TCL
47 Hudson Street
Ossining, N.Y. 10562
PH (914)762-9000
FX (914)762-9638

From:
Roy F. Weston of New York
Clarkstown Field Office
166 Rte. 303
West Nyack, N.Y. 10994
PH (914)353-5221
FX (914)353-5491

Sample I.D.	Source	Misc	ASTM D422	ASTM D698	ASTM D2216	ASTM D2487	ASTM D4318								Remarks
SF-25	TOHO FB	1 bkt	X	X	X	X	X								INITIAL SAMPLE
SF-TOHO-1,2															

Received By: Richard Tuttle

Date/Time: 9-18-97 / 2:00

Delivered By: John C Woodley

Results Required, Date/Time: 9-24-97 / 1:00

M&T/NAMOW/TCL□J.V.

GRADATION AND STANDARD PROCTOR COMPACTION TESTING OF SOIL

CLIENT: Roy F. Weston, Inc., Sutton Park
PROJECT: Clarkstown Landfill
SAMPLE ID: SF-25
SOURCE: TOHO FB
SAMPLED BY: Client
PICKUP/DEL BY: Client

LAB#: FOB-001
REPORT#: MC-88
DATE DELIVERED: 9/18/97
DATE TESTED: 9/23/97

(A) **GRADATION TEST RESULTS (ASTM D422 & ASTM D1140)**

Sieve Size	Percent Passing (%)	Specifications	Sieve Size	Percent Passing (%)	Specifications
2-1/2"			#10	73.2	
2"			#16	66.6	
1-1/2"	100.0		#20	63.3	
1"	96.5		#30	58.9	
3/4"	93.8		#40	54.4	
1/2"	87.9		#50	50.3	
3/8"	85.7		#60	47.6	
1/4"	82.7		#80	43.3	
#4	80.8		#100	40.6	
#8	75.3		#200	29.9	

The gradation curve is shown on Figure-1

(B) **STANDARD PROCTOR COMPACTING TEST RESULTS (ASTM D698, Procedure C, 6" diameter mold)**
Optimum Water Content:: 11.8%
Max. Unit Weight, Dry: 120.3 pcf
The proctor compaction curve is shown in Figure-2

(C) **MOISTURE (ASTM D2216):** 15.8%

(D) **SOIL CLASSIFICATION (ASTM D2487):** SM – Silty sand, with gravel

(E) **SOIL DESCRIPTION:** m-f SAND, some Silt, little m Gravel
COLOR: Brown; **ODOR:** None; **CONTAMINATION:** None

TESTWELL CRAIG LABORATORIES, INC.

Kaspal R. Thumma, Eng.Sc.D., P.E.
Laboratory Manager
KRT/mp
cc: fwopy 1, file 1, bill 1/mp

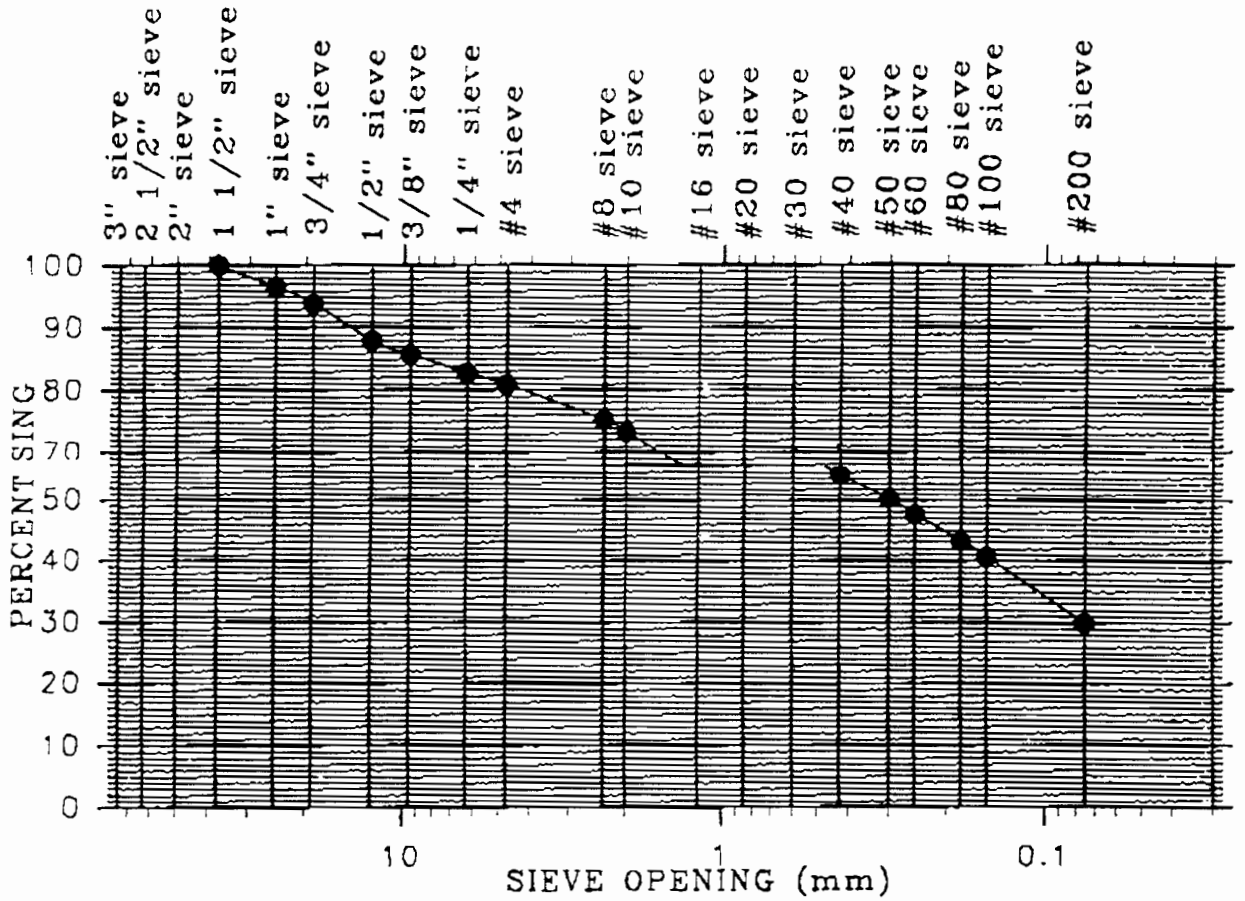
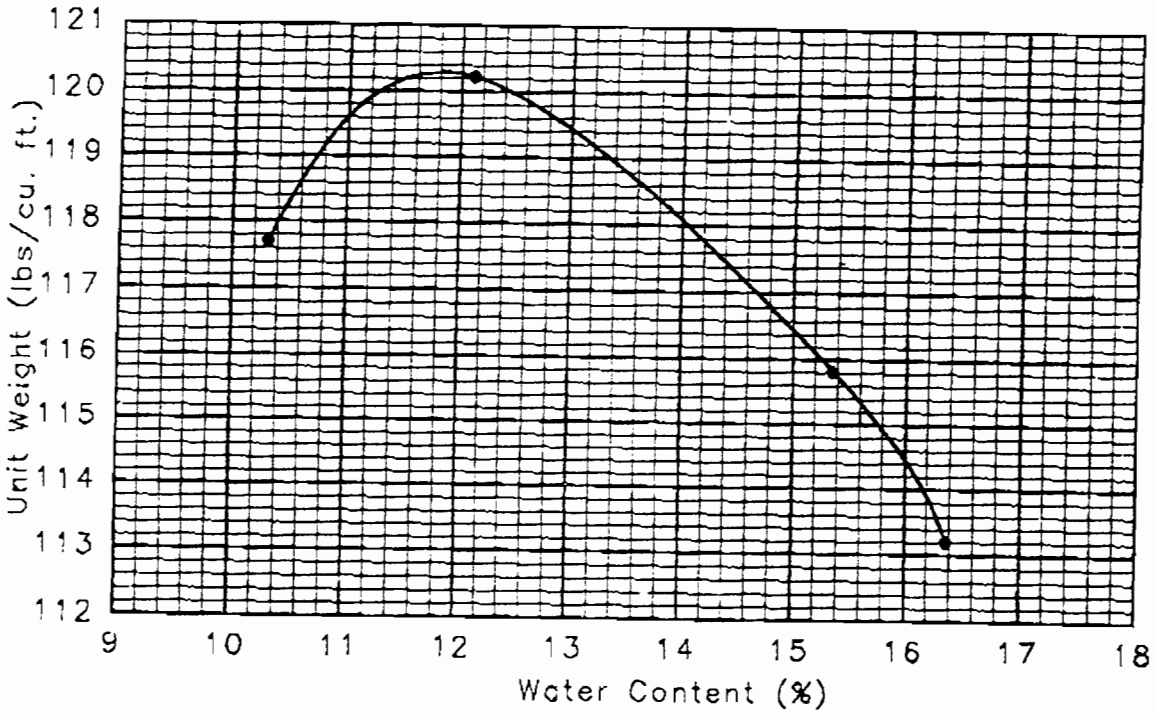


Figure 1: Particle Size Gradation Curve of Soil No. SF-25

STANDARD PROCTOR COMPACTION TEST RESULTS OF SOIL NO. SF-25

TEST METHOD: (ASTM D698 Procedure C, 6" Diameter Mold)

Specimen No.	1	2	3	4
Water Content (%)	10.32	12.12	15.36	16.37
Unit Weight, Dry (lbs/cu.ft.)	117.71	120.23	116.81	113.20



Optimum Water Content: 11.9% Max. Unit Weight, Dry: 120.3 pcf

Figure 2: Standard Proctor Curve of Soil No. SF-25

M&T/NAMOW/TCL□J.V.

LIQUID LIMITAND PLASTIC LIMIT OF SOIL

Client: Roy F. Weston
Project: Clarkstown Landfill
Sample ID: Indicated Below
Sampled By: Client
Picked up/Delivered by: Client

Lab #: FOB-001
Report #:MC-87
Date Pick up/del: 9/18/97
Date Tested: 9/23/97

LIQUID LIMIT & PLASTIC LIMIT TEST RESULTS (ASTM D4318)

Soil Sample No.	Liquid Limit (wt %)	Plastic Limit, (wt %)	Plastic Index
SF-25 Source: TOHO FB	17.0	NP	0

NOTE: NP indicates that the soil is non-plastic since 1/8" diameter thread could not be rolled at any moisture content.

TESTWELL CRAIG LABORATORIES, INC.

Kaspal R. Thumma, Eng.Sc.D., P.E.
Laboratory Manager
KRT\mp
cc: rfwony 1, file 1, bill 1/mp

OGDEN REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: CLARKSTOWN LANDFILL & LF CARTING
Project No.: [illegible]
Date Sent: 2/19/97

Project Location: WEST NYACK N.Y.
Purchase Order No.:
Shipped Via:

Sampled By: (Signature)
Lab Contact:
Date Received: 2/20/97

Sample No.	Description	ANALYSIS REQUIRED: Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
SF-TC#10-1		X		X	X		X	X						
SF-TC#10-2		X		X	X		X	X						

Comments/Special Instructions:

POSSIBLE STRUCTURAL FILL

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Rev. 4/93

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SOILS TEST REPORT

August 22, 1997

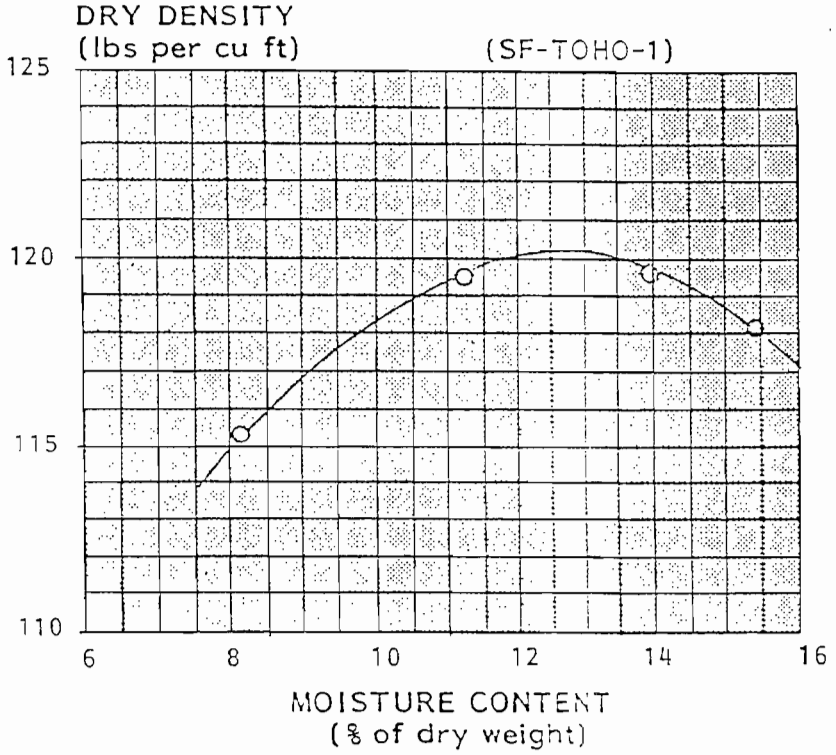
client Ogden Remediation Services

project Clarkstown Landfill

subject Moisture-Density Curve Analysis

Compaction Method	ASTM D698
Maximum Dry Density	120.3 pcf
Optimum Moisture Content	12.8%

On August 20, 1997, a representative from this firm visited the jobsite and picked-up soil sample SF-TOHO-1. Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

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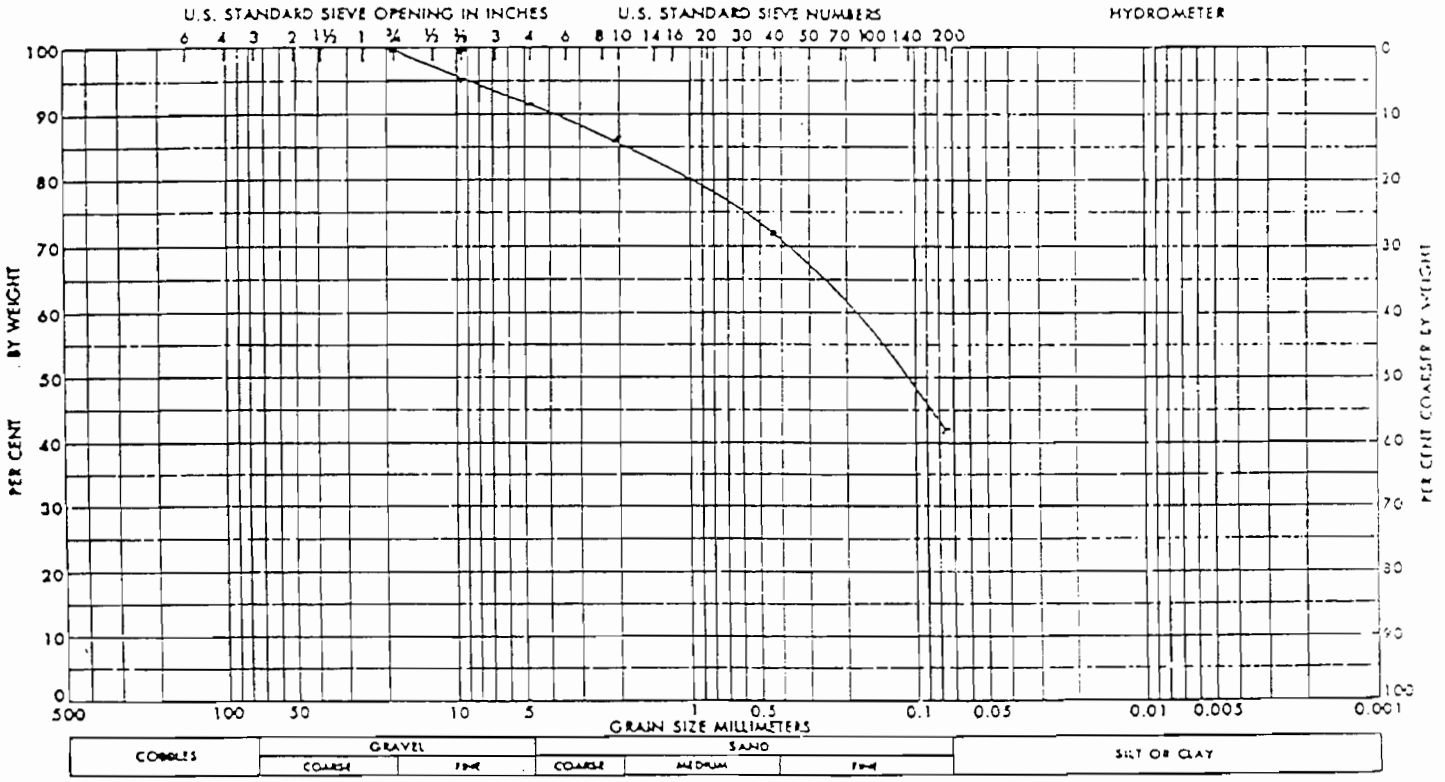
client Ogden Remediation Services August 22, 1997

project Clarkstown Landfill Grain Size Curve Analysis

On August 20, 1997, a representative from this firm visited the jobsite and picked-up soil sample SF-TOHO-1. Test results are shown below.



Soil Classification (D2487): SM, silty sand

Atterberg Limits (D4318): 21-19 = 2

Moisture Content (D2216): 11.5%

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

FAIRWAY TESTING

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SOILS TEST REPORT

August 22, 1997

client Ogden Remediation Services

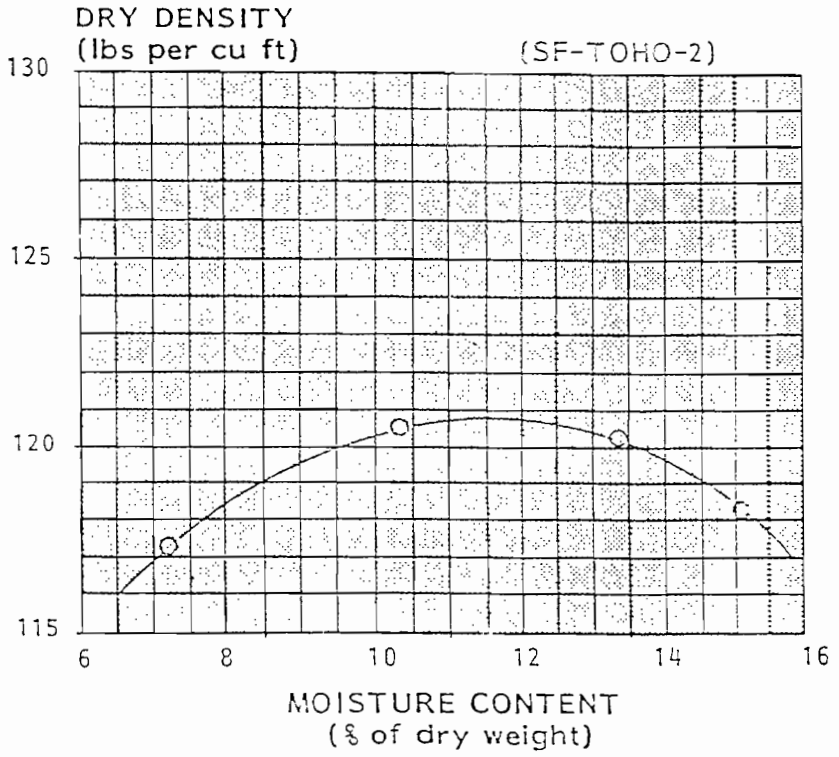
project Clarkstown Landfill

Compaction Method ASTM D698

subject Moisture-Density Curve Analysis

Maximum Dry Density 120.8 pcf
Optimum Moisture Content 11.7%

On August 20, 1997, a representative from this firm visited the jobsite and picked-up soil sample SF-TOHO-2. Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

FAIRWAY TESTING

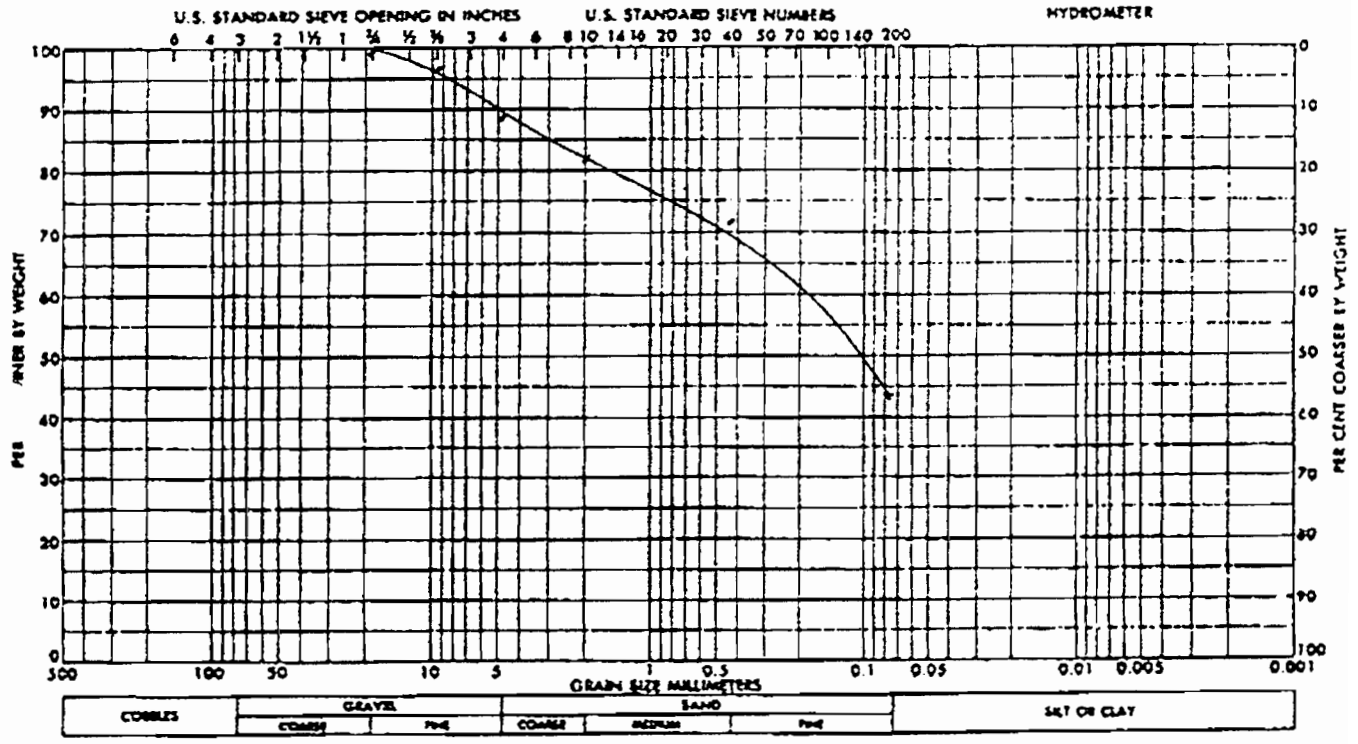
CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2055 FAX (914) 942-0995

client Ogden Remediation Services August 22, 1997

project Clarkstown Landfill **Grain Size Curve Analysis**

On August 20, 1997, a representative from this firm visited the jobsite and picked-up soil sample SF-TOHO-2. Test results are shown below.



Soil Classification (D2487): SM, silty sand

Atterberg Limits (D4318): 21-19=2

Moisture Content (D2216): 15.8%

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

Clarkstown Landfill Remediation
Laboratory Services Request
#LL-2339-K3

For:
Mr. Reddy Kancharla
M & T/Namow/TCL
47 Hudson Street
Ossining, N.Y. 10562
PH (914)762-9000
FX (914)762-9638

From:
Roy F. Weston of New York
Clarkstown Field Office
166 Rte. 303
West Nyack, N.Y. 10994
PH (914)353-5221
FX (914)353-5491

Sample I.D.	Source	Misc	ASTM D422	D698	D2216	D2974	D4318	D4767	8020						Remarks
CS-09	Hyland	1 bkt	X	X	X	X	X	X	X						100,000 CY IN-SITU
SF-26 WMX-100	WMX	1 bkt	X	X			X								100,000 CY IN-SITU
SF-27	TOWN STOCKPILE	1 bkt	X												crushed concrete

Received By: Richard Tuttle

Date/Time: 9-26-97 / 12:30

Delivered By: John C Woodley

Results Required, Date/Time: 10-2-97 / 2:00

M&T/NAMOW/TCL□J.V.

GRADATION TESTING OF SOIL

CLIENT: Roy F. Weston, Inc., Sutton Park
PROJECT: Clarkstown Landfill
SAMPLE ID: SF-27
SOURCE: Town Stockpile
SAMPLED BY: Client
PICKUP/DEL. BY: Client

LAB#: FOB-001
REPORT#: MC-91
DATE DELIVERED: 9/26/97
DATE TESTED: 10/01/97

(A) GRADATION TEST RESULTS (ASTM D422 & ASTM D1140)

Sieve Size	Percent Passing (%)	Specifications	Sieve Size	Percent Passing (%)	Specifications
2-1/2"			#10	9.7	
2"	100.0		#16	7.7	
1-1/2"	93.3		#20	6.8	
1"	78.3		#30	5.7	
3/4"	58.4		#40	4.6	
1/2"	37.0		#50	3.6	
3/8"	28.2		#60	3.1	
1/4"	19.5		#80	2.4	
#4	15.9		#100	2.0	
#8	10.7		#200	1.1	

The gradation curve is shown in Figure 1

(B) SOIL DESCRIPTION: c-m-f GRAVEL, little Sand, trace Silt
COLOR: White; **ODOR:** None; **CONTAMINATION:** None

TESTWELL CRAIG LABORATORIES, INC.

Kaspal R. Thumma, Eng.Sc.D.
Laboratory Manager
KRT/mp
cc: rfwony 1, file 1, bill 1/mp

Received: 10/02/97 11:59:02 From: 9147629638

M&T/NAMOW/TCL□J.V.

Roy F. Weston, Inc., Sutton Park
Lab #: FOB-001 Rpt #: MC-91
Page 2 of 2

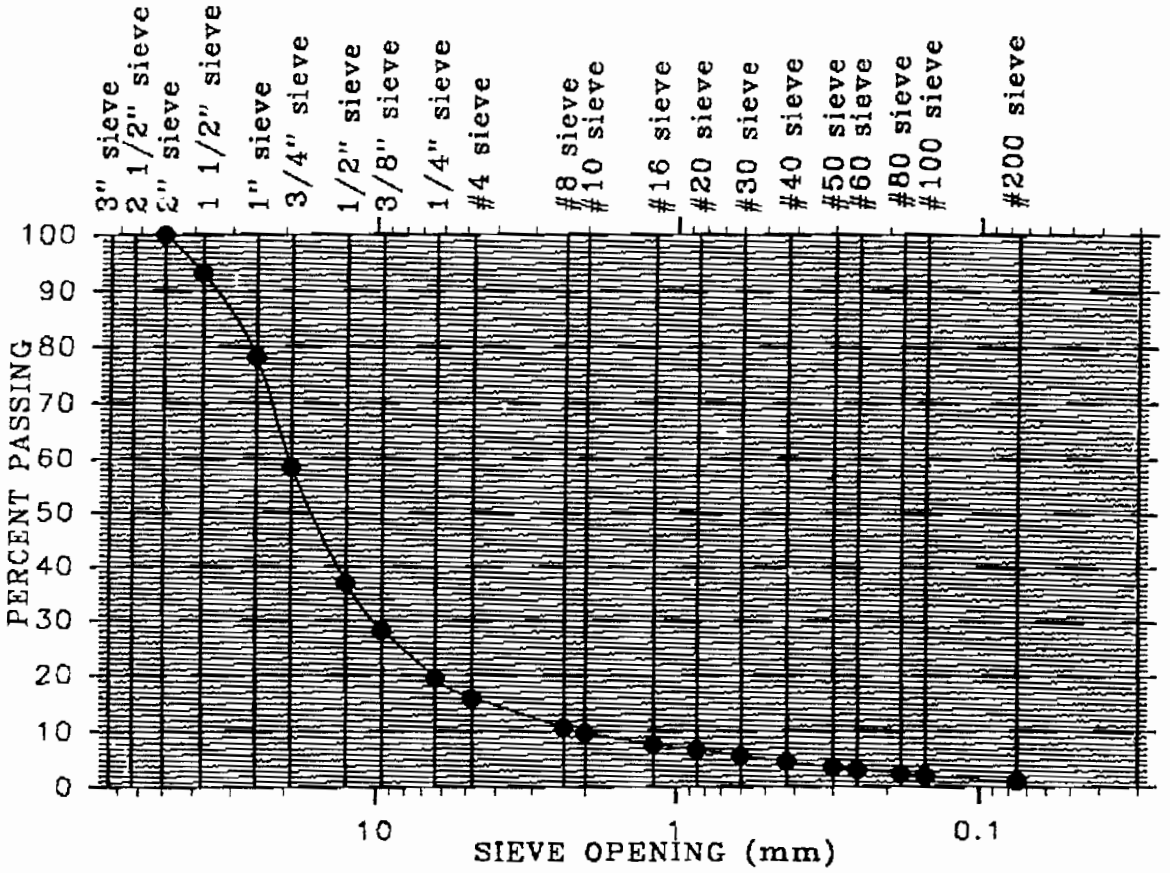


Figure 1: Particle Size Gradation Curve of Soil No. SF-27

Project Name/Client: CLARKSTOWN L.F. & L.F. CAPPING | Project No.: --1600100000 | Date Sent: 8-25-97

Project Location: WEST NYACK N.Y. | Purchase Order No.: | Shipped Via:

Sampled By: (Signature) | Lab Contact: | Date Received: 8-25-97

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
SF-WMX 80	1" MINUS	✓		✓	✓		✓	✓						

ANALYSIS REQUIRED

Comments/Special Instructions:

WESTERN END OF STOCKPILE

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SINCE 1969

SOILS TEST REPORT

August 26, 1997

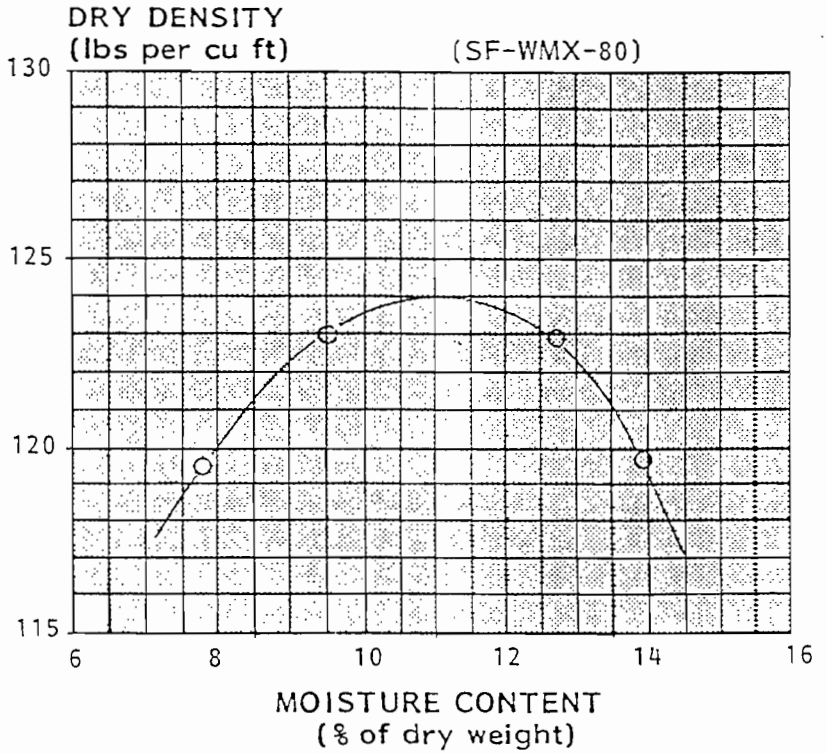
client Ogden Remediation Services

project Clarkstown Landfill

subject Moisture-Density Curve Analysis

Compaction Method	ASTM D698
Maximum Dry Density	124.0 pcf
Optimum Moisture Content	11.1%

On August 25, 1997, a representative from this firm visited the jobsite and picked-up soil sample SF-WMX-80. Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

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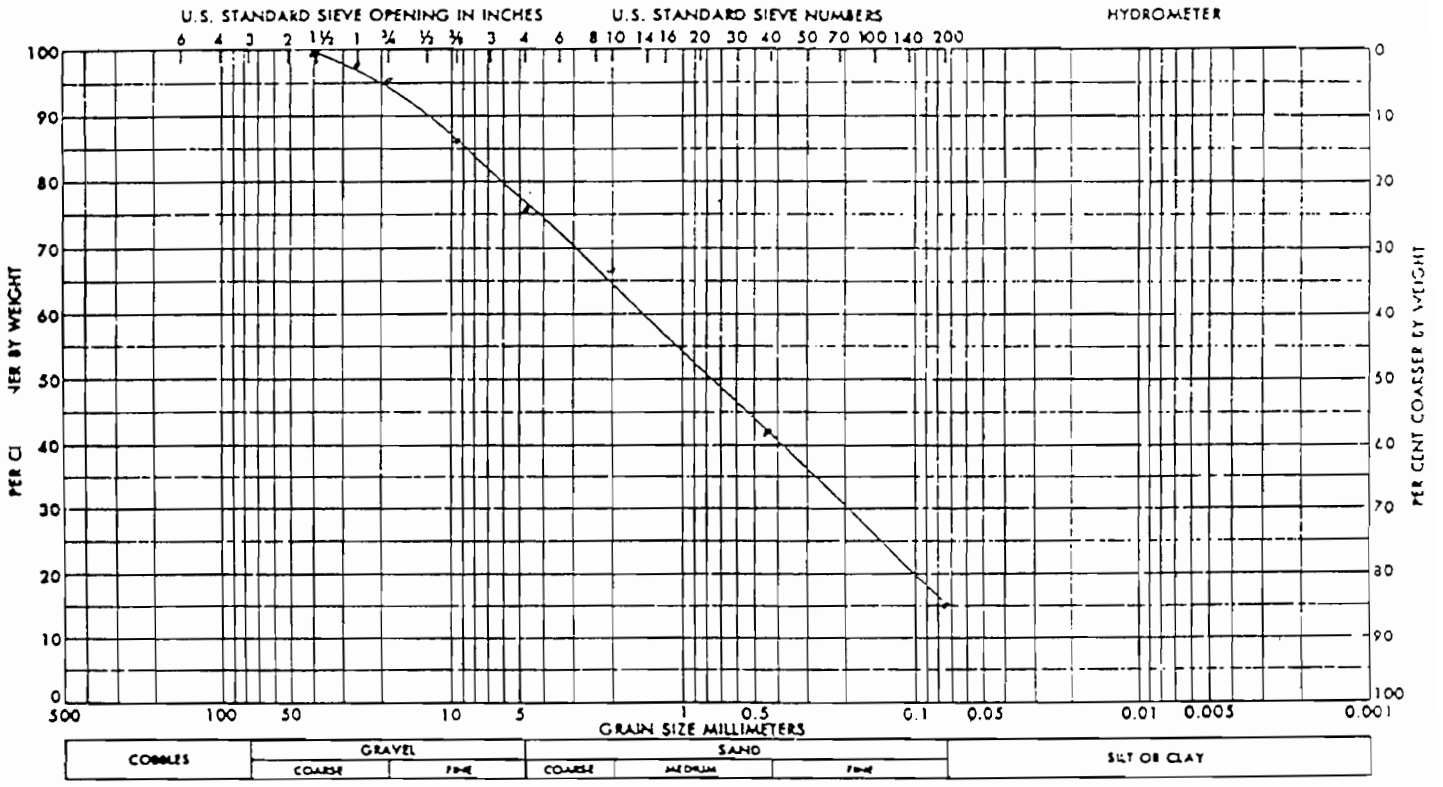
INCE 1969

client Ogden Remediation Services August 26, 1997

project Clarkstown Landfill Grain Size Curve Analysis

On August 25, 1997, a representative from this firm visited the jobsite and picked-up soil sample SF-WMX-80. Test results are shown below.



Soil Classification (D2487): SM, silty sand w/gravel

Atterberg Limits (D4318): NP

Moisture Content (D2216): 9.9%

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FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

Project Name/Client: CLARKSTOWN L.F. & L.F. CAPPING | Project No.: 600100000 | Date Sent: 8-25-97

Project Location: WEST NYACK N.Y. | Purchase Order No.: | Shipped Via:

Sampled By: (Signature) LARRY KAVANAGH | Lab Contact: | Date Received: 8-25-97

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Dec. Wall. Perm.			
SF-WMX 85	1" MINUS	✓		✓	✓		✓	✓						

ANALYSIS REQUIRED

Comments/Special Instructions:

SOUTH SIDE WESTREN END

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CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SINCE 1969

SOILS TEST REPORT

August 26, 1997

client Ogden Remediation Services

project Clarkstown Landfill

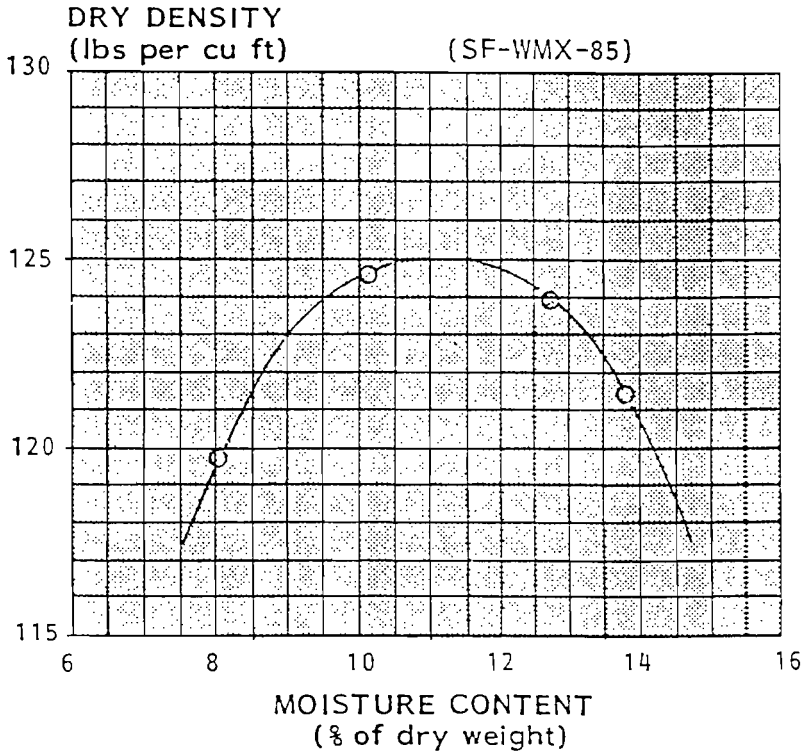
subject Moisture-Density Curve Analysis

Compaction Method: ASTM D698

Maximum Dry Density: 125.0 pcf

Optimum Moisture Content: 11.2%

On August 25, 1997, a representative from this firm visited the jobsite and picked-up soil sample SF-WMX-85. Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

RECEIVED AUG 28 1997

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

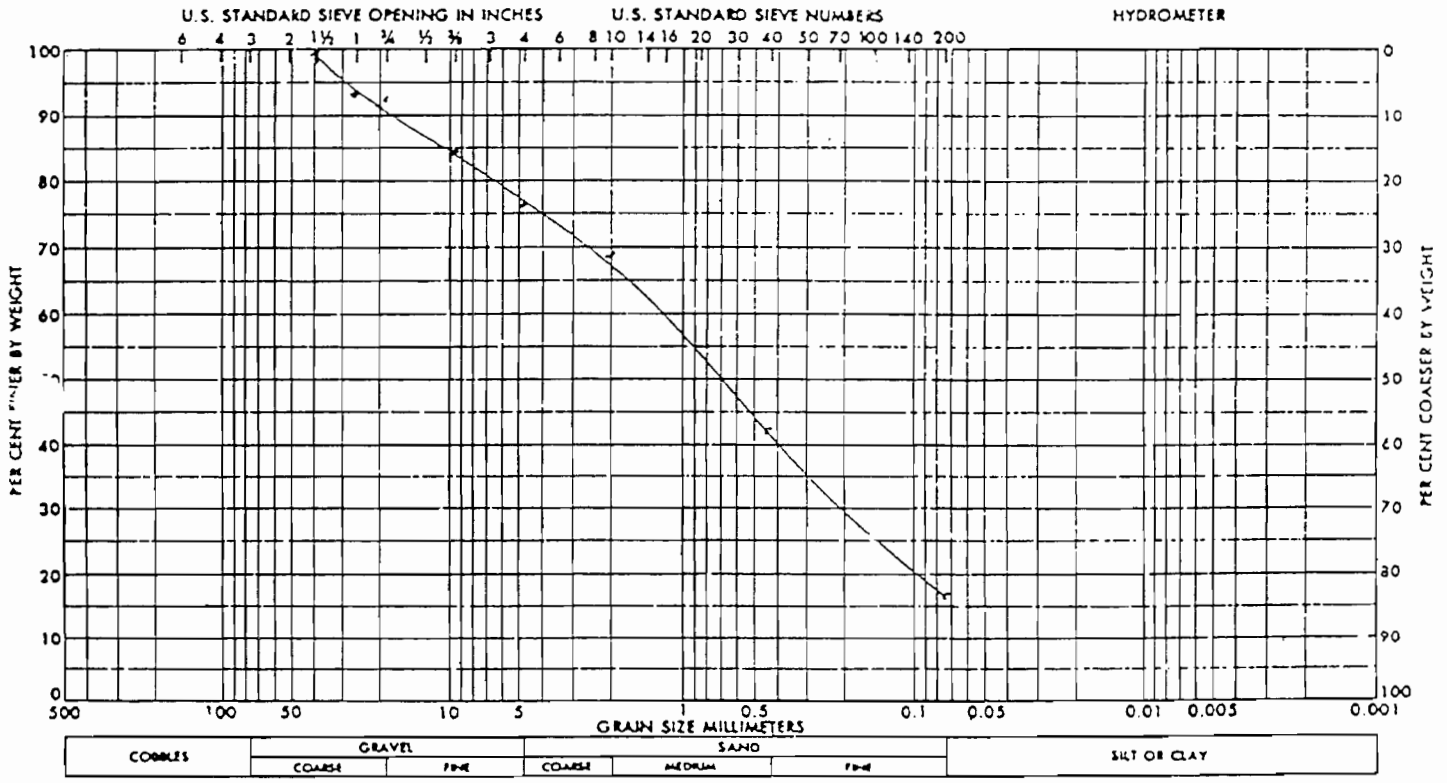
P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

client Ogden Remediation Services

August 26, 1997

project Clarkstown Landfill Grain Size Curve Analysis

On August 25, 1997, a representative from this firm visited the jobsite and picked-up soil sample SF-WMX-85. Test results are shown below.



Soil Classification (D2487): SM, silty sand w/gravel

Atterberg Limits (D4318): NP

Moisture Content (D2216): 10.3%

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

RECEIVED AUG 28 1997

OBDE REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Rec.

Project Name/Client: CLARKSTOWN LANDFILL / L.F. CARTING Project No.: [illegible] Date Sent: 9/3/97

Project Location: WEST NYACK N.Y. Purchase Order No.: _____ Shipped Via: _____

Sampled By: (Signature) LARRY KIELTYKA Lab Contact: _____ Date Received: 9/3/97

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterburg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydro-meter ASTM D1140	Moisture Content ASTM D2216	Classifi-cation ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
		ANALYSIS REQUIRED												
SF-WMX-9C		X		X	X		X	X						

Comments/Special Instructions:

SAMPLE TAKEN FROM WEST SIDE OF MAIN STOCKPILE

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Rev. 4/93

FZ20/CR3

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SINCE 1969

SOILS TEST REPORT

September 4, 1997

client Ogden Remediation Services

project Clarkstown Landfill

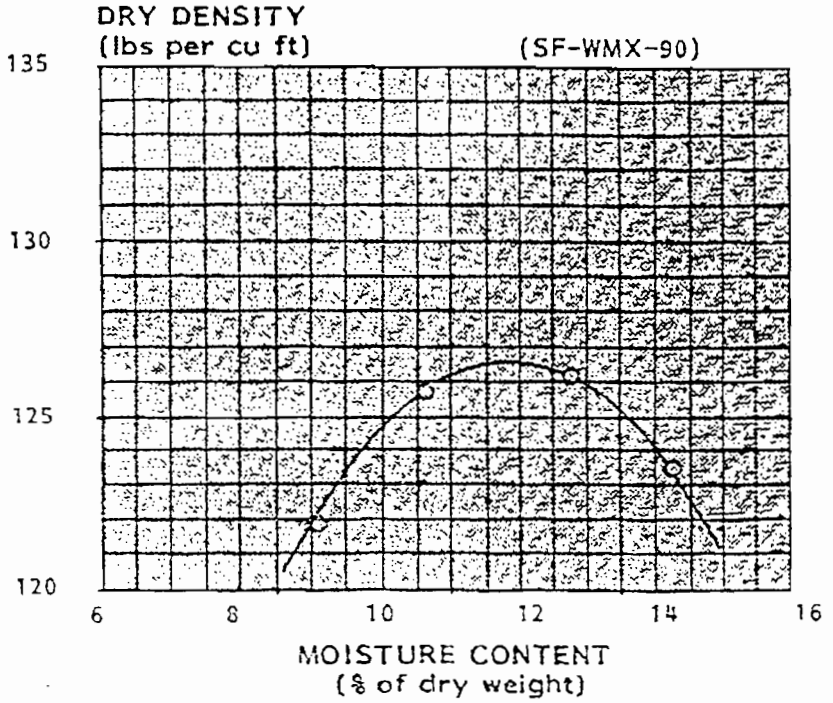
Compaction Method: ASTM D698

subject Moisture-Density Curve Analysis

Maximum Dry Density: 126.6 pcf

Optimum Moisture Content: 11.7%

On September 3, 1997, a representative from this firm visited the jobsite and took a sample of soil labeled SF-WMX-90. Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

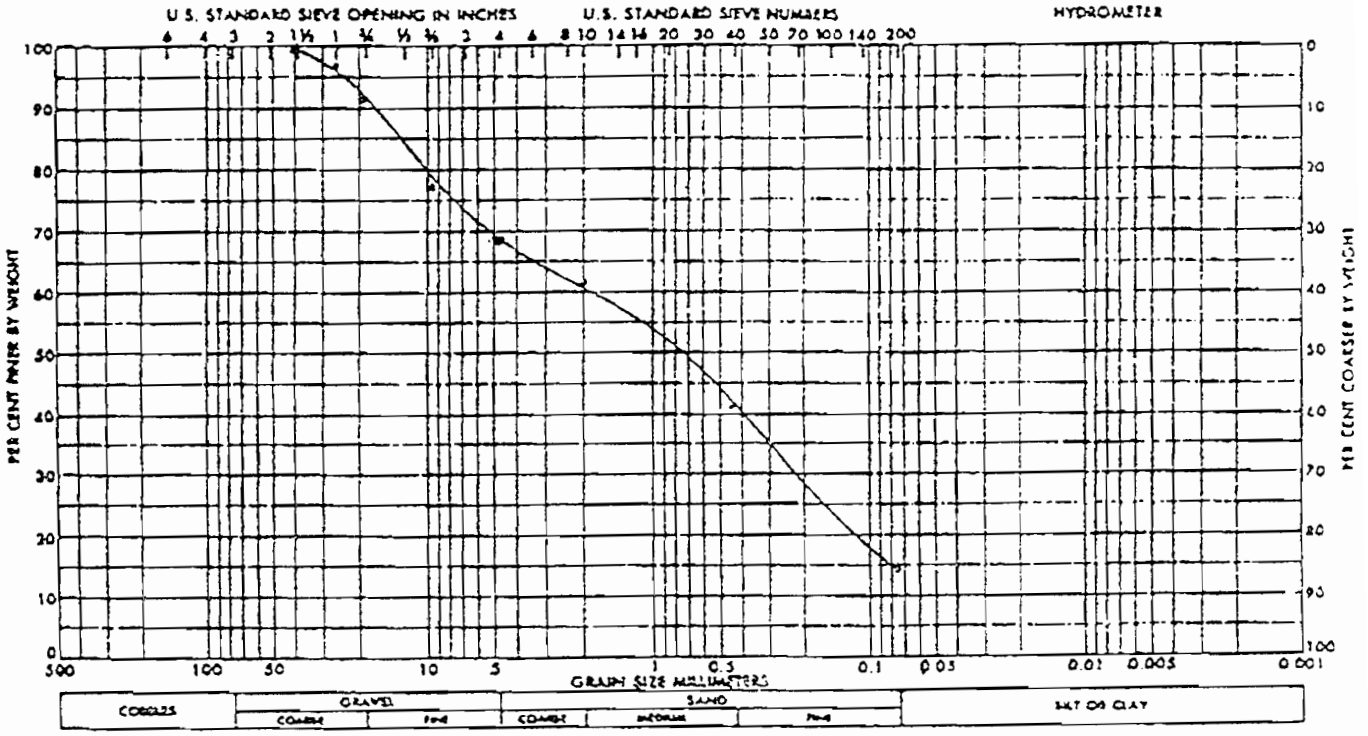
SINCE 1969

client Ogden Remediation Services

September 4, 1997

project Clarkstown Landfill Grain Size Curve Analysis

On September 3, 1997, a representative from this firm visited the jobsite and took soil sample SF-WMX-90. Test results are shown below.



Soil Classification (D2487): SM, silty sand with gravel

Atterberg Limits (D4318): NP

Moisture Content (D2216): 11.3%

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

OBDE REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Rec...

Project Name/Client: BANKSTOWN LANDFILL / LF EXPANSION Project No.: [illegible] Date Sent: 9/3/97

Project Location: WEST ATTICA N.Y. Purchase Order No.: _____ Shipped Via: _____

Sampled By: (Signature) J Beatty Lab Contact: _____ Date Received: 9/3/97

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterburg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
		ANALYSIS REQUIRED												
SF-WMX-95		X		X	X		X	X						

Comments/Special Instructions:

SAMPLE TAKEN ~~FROM~~ 100' FROM WEST END

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

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FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SINCE 1969

SOILS TEST REPORT

September 5, 1997

client Ogden Remediation Services

project Clarkstown Landfill

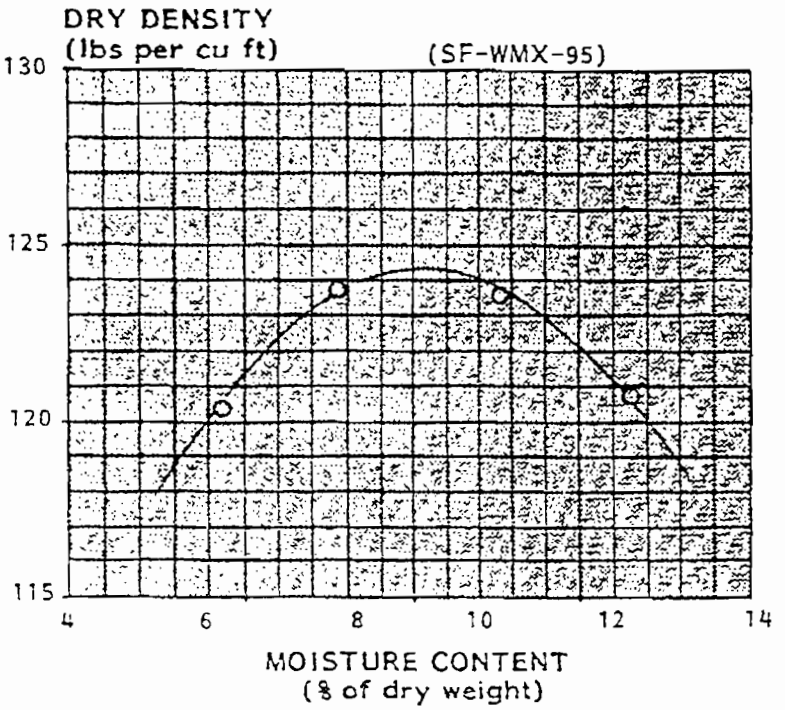
Compaction Method: ASTM D698

subject Moisture-Density Curve Analysis

Maximum Dry Density: 124.3 pcf

Optimum Moisture Content: 9.2%

On September 3, 1997, a representative from this firm visited the jobsite and picked-up sample SF-WMX-95. Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 STONY POINT, NY 10980 TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SINCE 1963

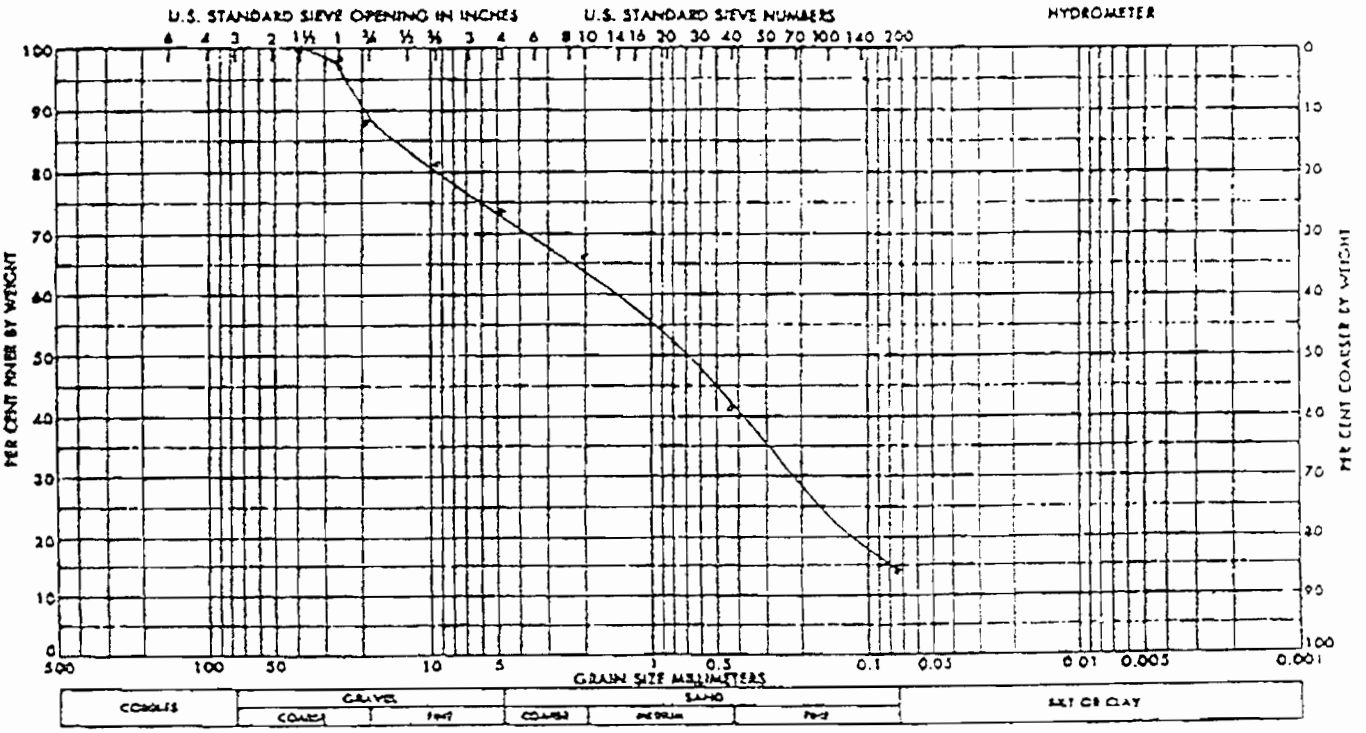
client Ogden Remediation Services

September 5, 1997

project Clarkstown Landfill

Grain Size Curve Analysis

On September 3, 1997, a representative from this firm visited the jobsite and picked-up sample SF-WMX-95. Test results are shown below.



Soil Classification (D2487): SM, silty sand w/gravel

Atterberg Limits (D4318): NP

Moisture Content (D2216): 9.2%

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

Clarkstown Landfill Remediation
Laboratory Services Request
#LL-2339-K3

For:
Mr. Reddy Kancharla
M & T/Namow/TCL
47 Hudson Street
Ossining, N.Y. 10562
PH (914)762-9000
FX (914)762-9638

From:
Roy F. Weston of New York
Clarkstown Field Office
166 Rte. 303
West Nyack, N.Y. 10994
PH (914)353-5221
FX (914)353-5491

Sample I.D.	Source	Misc	ASTM D422	D698	D2216	D2974	D4318	D4767	8020						Remarks
CS-09	Hyland	1 bkt	X	X	X	X	X	X	X						100,000 CY IN-SITU
SF-26 WMX-100	WMX	1 bkt	X	X			X								100,000 CY IN-SITU
SF-27	TOWN STOCKPILE	1 bkt	X												crushed concrete

Received By: Richard Tuttle

Date/Time: 9-26-97/12:30

Delivered By: John C Woodley

Results Required, Date/Time: 10-2-97 / 2:00

M&T/NAMOW/TCL□J.V.

GRADATION AND STANDARD PROCTOR COMPACTION TESTING OF SOIL

CLIENT: Roy F. Weston, Inc., Sutton Park
PROJECT: Clarkstown Landfill
SAMPLE ID: SF-26 (WMX – 100)
SOURCE: WMX
SAMPLED BY: Client
PICKUP/DEL BY: Client

LAB#: FOB-001
REPORT#: MC-93
DATE DELIVERED: 9/26/97
DATE TESTED: 9/30/97

Pages 1 of 3

(A) GRADATION TEST RESULTS (ASTM D422 & ASTM D1140)

Sieve Size	Percent Passing (%)	Specifications	Sieve Size	Percent Passing (%)	Specifications
2-1/2"			#10	62.9	
2"			#16	55.2	
1-1/2"	100.0		#20	50.1	
1"	98.0		#30	41.6	
3/4"	89.7		#40	32.1	
1/2"	84.2		#50	24.2	
3/8"	79.8		#60	20.0	
1/4"	75.4		#80	14.9	
#4	72.3		#100	12.5	
#8	64.8		#200	7.2	

The gradation curve is shown on Figure-1

(B) STANDARD PROCTOR COMPACTING TEST RESULTS (ASTM D698, Procedure C, 6" diameter mold)

Optimum Water Content:: 10.4%
Max. Unit Weight, Dry: 122.8 pcf
The proctor compaction curve is shown in Figure-2

(C) SOIL DESCRIPTION: m-f SAND, some m Gravel, trace Silt.
COLOR: Gray; **ODOR:** None; **CONTAMINATION:** None

TESTWELL CRAIG LABORATORIES, INC.

Kaspal R. Thumma, Eng.Sc.D.
Laboratory Manager
KRT/mp
cc: Tiwony 1, file 1, bill 1/mp

M&T/NAMOW/TCL□J.V.

Roy F. Weston, Inc., Sutton Park
Lab #: FOB-001 Report #: MC-93

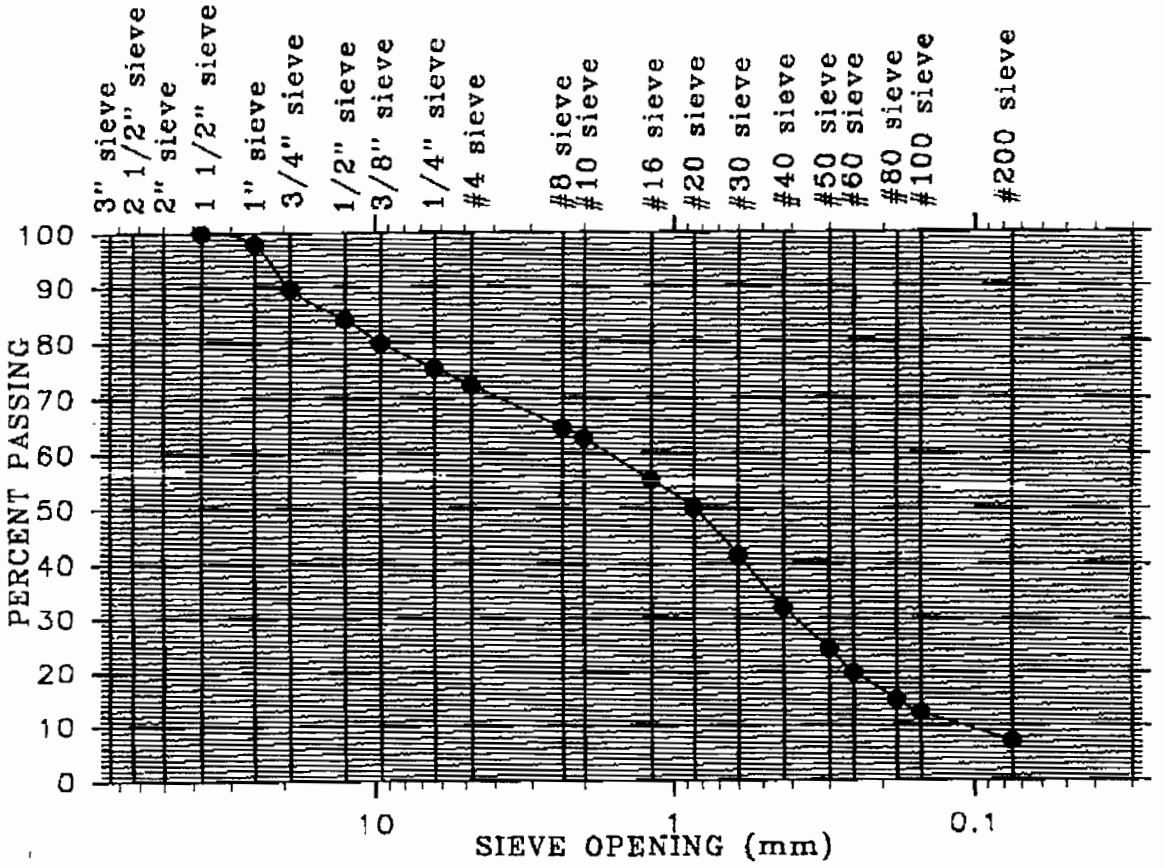


Figure 1: Particle Size Gradation Curve of Soil No. SF-26

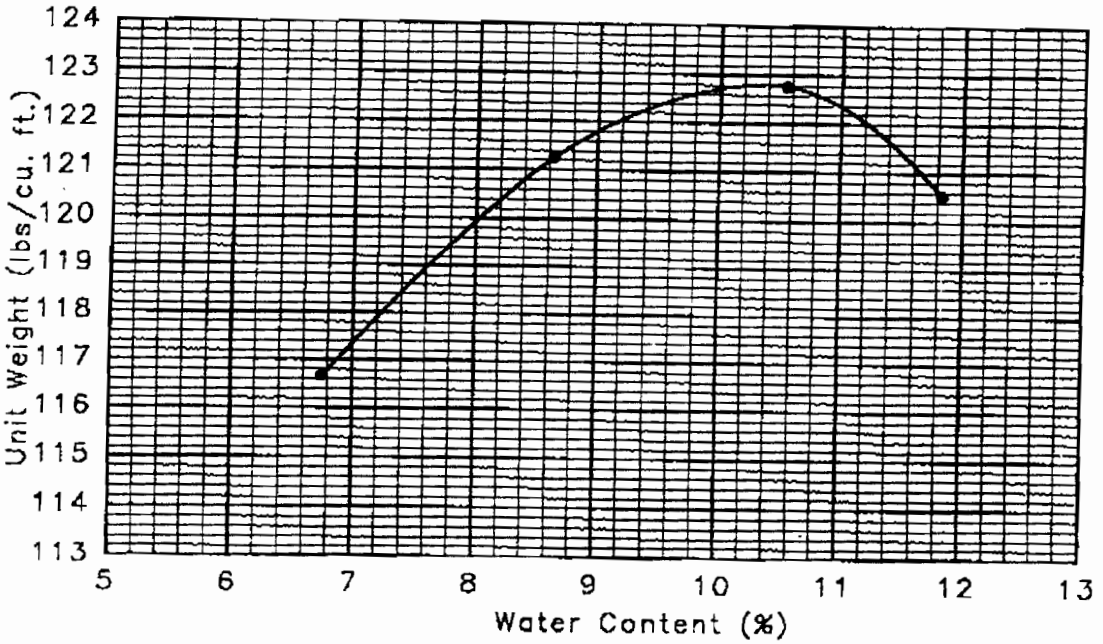
M&T/NAMOW/TCL□J.V.

Roy F. Weston, Inc., Sutton Park
Lab #: FOB-001 Rpt #: MC-93

STANDARD PROCTOR COMPACTION TEST RESULTS OF SOIL NO. SF-26

TEST METHOD: (ASTM D698 Procedure C, 6" Diameter Mold)

Specimen No.	1	2	3	4
Water Content (%)	6.75	8.64	10.55	11.84
Unit Weight, Dry (lbs/cu.ft.)	116.66	121.25	122.78	120.53



Optimum Water Content: 10.4% Max. Unit Weight, Dry:122.8 pcf

Figure 2: Standard Proctor Curve of Soil No. SF-26

M&T/NAMOW/TCL□J.V.

LIQUID LIMITAND PLASTIC LIMIT AND ORGANIC CONTENT OF SOILS

Client: Roy F. Weston
Project: Clarkstown Landfill
Sample ID: Indicated Below
Sampled By: Client
Picked up/Delivered by: Client

Lab #: FOB-001
Report #:MC-94
Date Pick up/del: 9/26/97
Date Tested: 10/01/97

A) LIQUID LIMIT & PLASTIC LIMIT TEST RESULTS (ASTM D4318)

Soil Sample No.	Liquid Limit (wt %)	Plastic Limit, (wt %)	Plastic Index
CS-09 Source: Hyland	16.8	NP	0
SF-26 Source: WMX-100	17.6	NP	0

NOTE: NP indicates that the soil is non-plastic since 1/8" diameter thread could not be rolled at any moisture content.

OBOE REMEDIATION SERVICES CO., INC.

PLEASE PRINT

Soil Sample Test Request Rec

Project Name/Client: CLARKSTOWN LANDFILL / LF CLOSING Project No.: 6001000 Date Sent: 9/3/97

Project Location: WEST NYACK N.Y. Purchase Order No.: _____ Shipped Via: _____

Sampled By: (Signature) J Beatty Lab Contact: _____ Date Received: 9/3/97

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterburg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydro-meter ASTM D1140	Moisture Content ASTM D2216	Classifi-cation ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
		ANALYSIS REQUIRED												
SF-WINX-100		X		X	X		X	X						

Comments/Special Instructions:

SAMPLE TAKEN FROM 100' FROM EAST END

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Rev. 4/93

FZQ/CR3

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT NY 10980 TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SINCE 1965

SOILS TEST REPORT

September 5, 1997

client Ogden Remediation Services

project Clarkstown Landfill

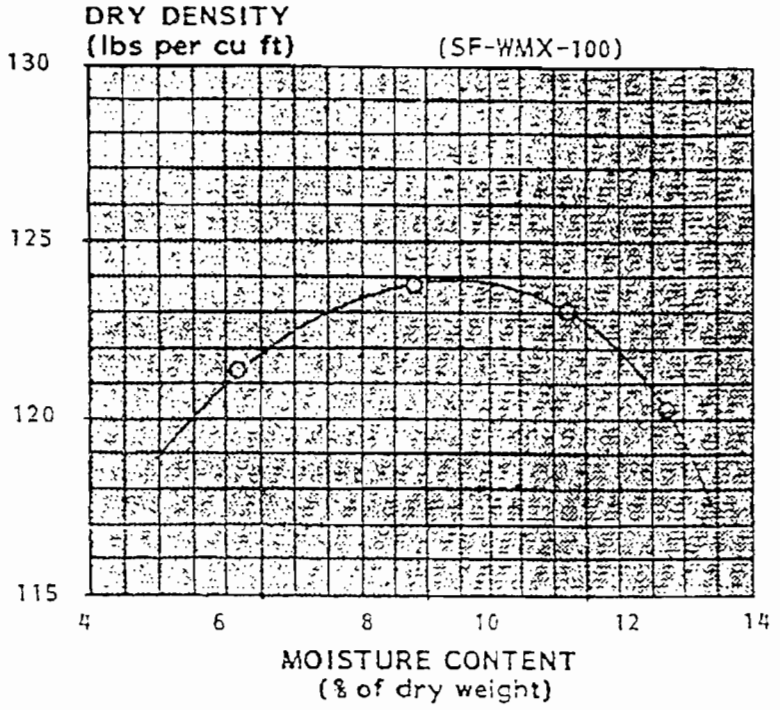
Compaction Method ASTM D698

subject Moisture-Density Curve Analysis

Maximum Dry Density 123.8 pcf

Optimum Moisture Content 9.4%

On September 3, 1997, a representative from this firm visited the jobsite and picked-up sample SF-WMX-100. Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Agnanno, P.E.

9-17-1997 3:48PM FROM FAIRWAY TESTING CO 914 942 0995 P.8

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SINCE 1960

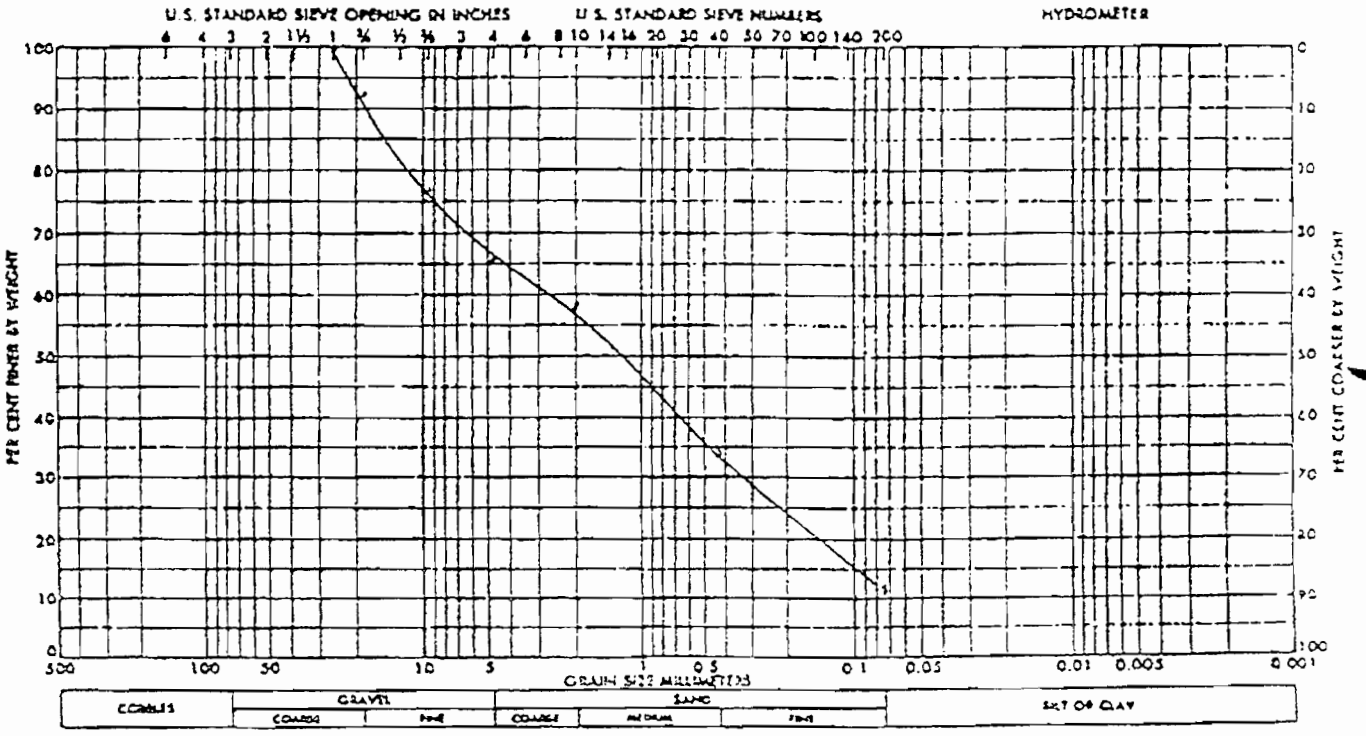
client Ogden Remediation Services

September 5, 1997

project Clarkstown Landfill

Grain Size Curve Analysis

On September 3, 1997, a representative from this firm visited the jobsite and picked-up sample SF-WMX-100. Test results are shown below.



Soil Classification (D2487): SM, silty sand w/gravel

Atterberg Limits (D4318): NP

Moisture Content (D2216): 8.8%

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

9-17-1997 3:48PM FROM FAIRWAY TESTING CO 914 942 0995

OBG REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Rec...

Project Name/Client: CHARLESTOWN LANDFILL SF CLOSING Project No.: 660-1000 Date Sent: 9/3/97

Project Location: WEST NYACK N.Y. Purchase Order No.: _____ Shipped Via: _____

Sampled By: (Signature) JBeatty Lab Contact: _____ Date Received: 9/3/97

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterburg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydro-meter ASTM D1140	Moisture Content ASTM D2216	Classifi-cation ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
		ANALYSIS REQUIRED												
SF-WMX-105		X		X	X		X	X						

Comments/Special Instructions:

SAMPLE TAKEN FROM NORTH SIDE OF STOCKPILE

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Rev. 4/93

F220CRS

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SINCE 1969

SOILS TEST REPORT

September 5, 1997

client Ogden Remediation Services

project Clarkstown Landfill

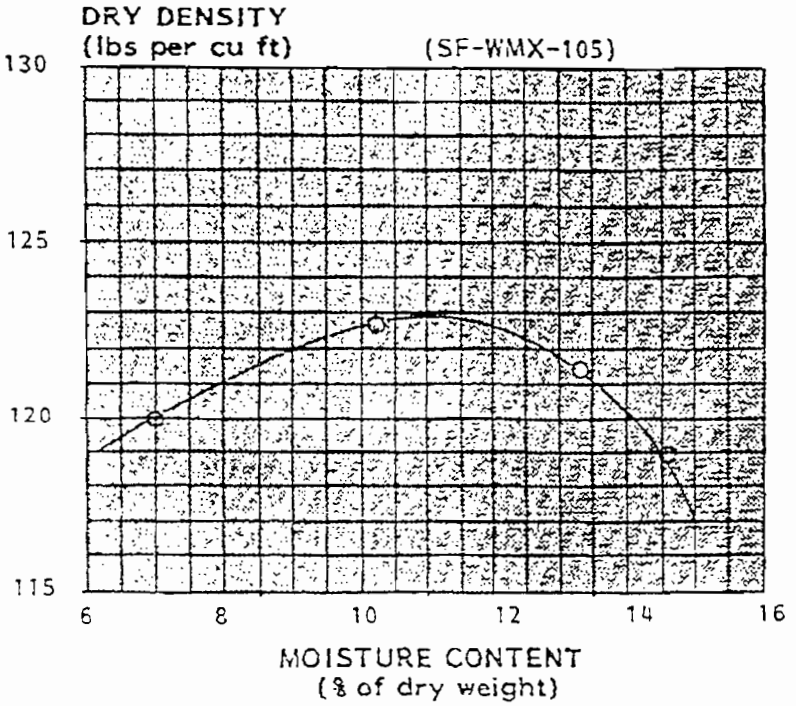
Compaction Method ASTM D698

subject Moisture-Density Curve Analysis

Maximum Dry Density 122.9 pcf

Optimum Moisture Content 11.0%

On September 3, 1997, a representative from this firm visited the jobsite and picked-up sample SF-WMX-105. Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

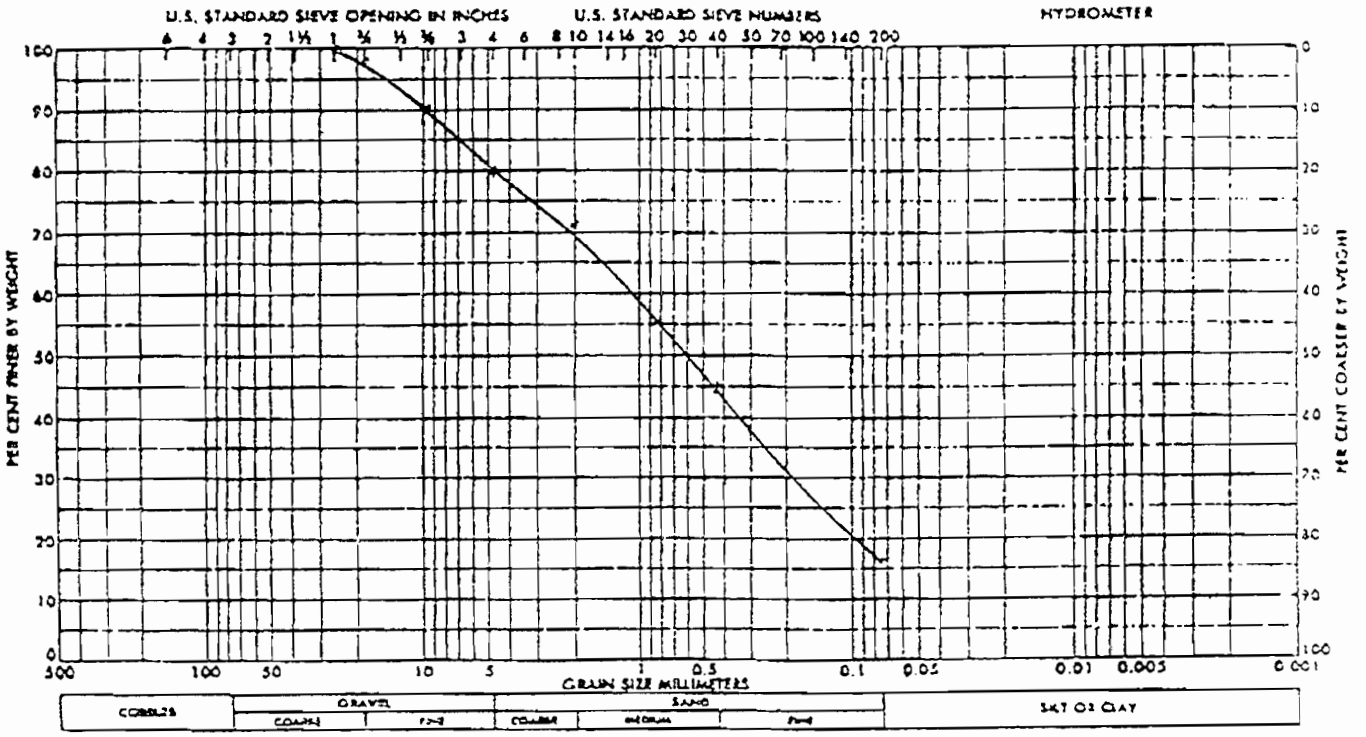
SINCE 1969

client Ogden Remediation Services

September 5, 1997

project Clarkstown Landfill Grain Size Curve Analysis

On September 3, 1997, a representative from this firm visited the jobsite and picked-up sample SF-WMX-105. Test results are shown below.



Soil Classification (D2487): SM, silty sand w/gravel

Atterberg Limits (D4318): NP

Moisture Content (D2216): 10.4%

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

OGDEN REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Rec

Project Name/Client: CLARKSTOWN LANDFILL SLF CLOSING Project No.: 6001000.0 Date Sent: 9/3/97

Project Location: WEST NYACK NY Purchase Order No.: _____ Shipped Via: _____

Sampled By: (Signature) JBeatty Lab Contact: _____ Date Received: 9/3/97

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterburg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
		ANALYSIS REQUIRED												
SF-WMX-110		X		X	X		X	X						

Comments/Special Instructions:

SAMPLE TAKEN FROM EXTREME EAST END

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Rev. 4/93

FZQCRS

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SINCE 1969

SOILS TEST REPORT

September 5, 1997

client Ogden Remediation Services

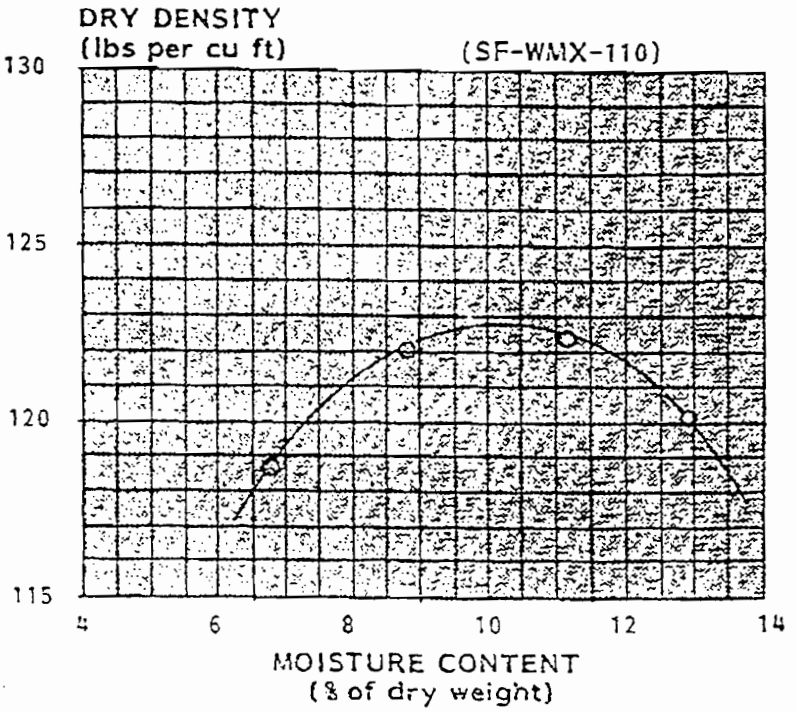
project Clarkstown Landfill

Compaction Method ASTM D698

subject Moisture-Density Curve Analysis

Maximum Dry Density 122.8 pcf
Optimum Moisture Content 10.4%

On September 3, 1997, a representative from this firm visited the jobsite and picked-up sample SF-WMX-110. Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

9-17-1997 3:45PM FROM FAIRWAY TESTING CO 914 942 0995 P.4

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 FAX (914) 942-0995

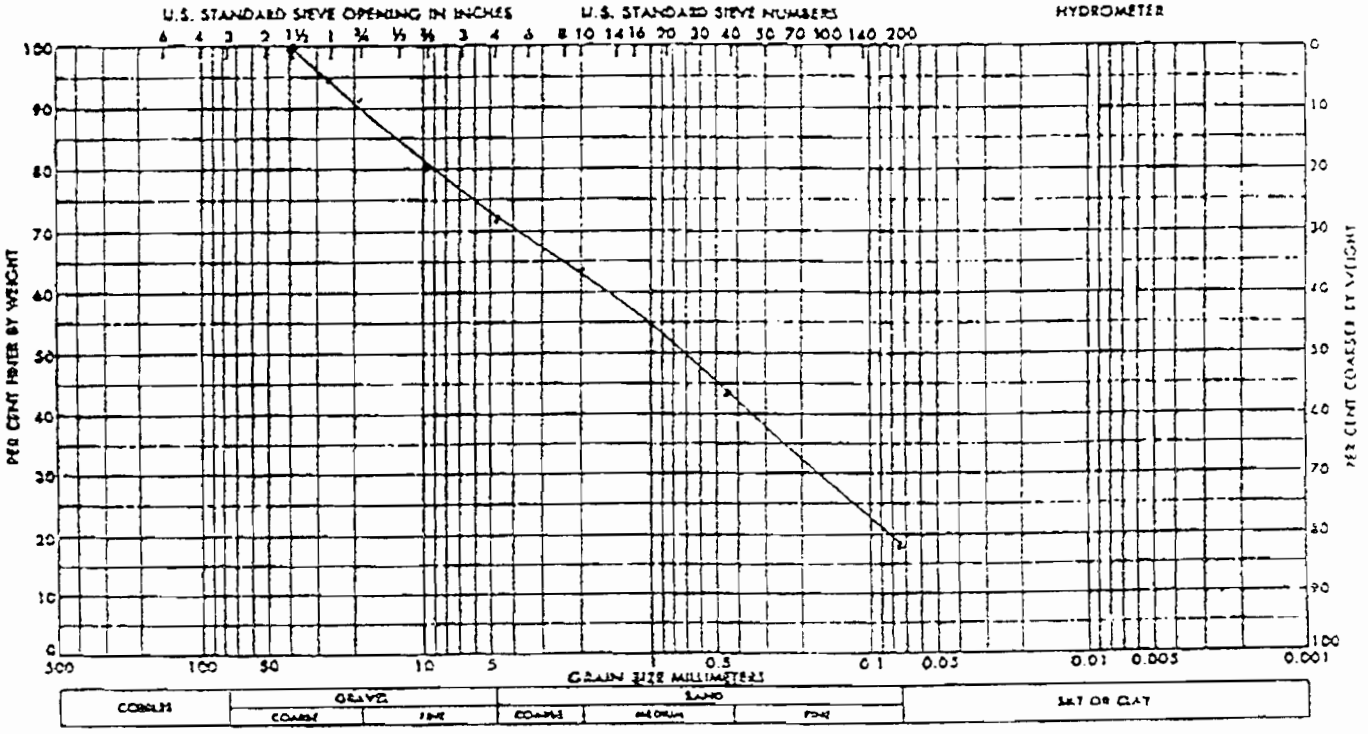
SINCE 1969

September 5, 1997

client Ogden Remediation Services

project Clarkstown Landfill Grain Size Curve Analysis

On September 3, 1997, a representative from this firm visited the jobsite and picked-up sample SF-WMX-110. Test results are shown below.



Soil Classification (D2487): SM, silty sand w/gravel

Atterberg Limits (D4318): NP

Moisture Content (D2216): 7.4%

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

OCDE REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: CHARLESTOWN LANDFILL / SF CORNING Project No.: 6CC01CCC Date Sent: 9/3/97

Project Location: WEST NYACK N.Y. Purchase Order No.: _____ Shipped Via: _____

Sampled By: (Signature) JBeatty Lab Contact: _____ Date Received: 9/3/97

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterburg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydro-meter ASTM D1140	Moisture Content ASTM D2216	Classifi-cation ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
		ANALYSIS REQUIRED												
SF-WNX-115		X		X	X		X	X						

Comments/Special Instructions:

SAMPLE TAKEN FROM EXTREME WEST END

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Rev. 4/93

FZ2C/CRS

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 STONY POINT, NY 10980 TELEPHONE (914) 942-2088 FAX (914) 942-0995

SINCE 1969

SOILS TEST REPORT

September 5, 1997

client Ogden Remediation Services

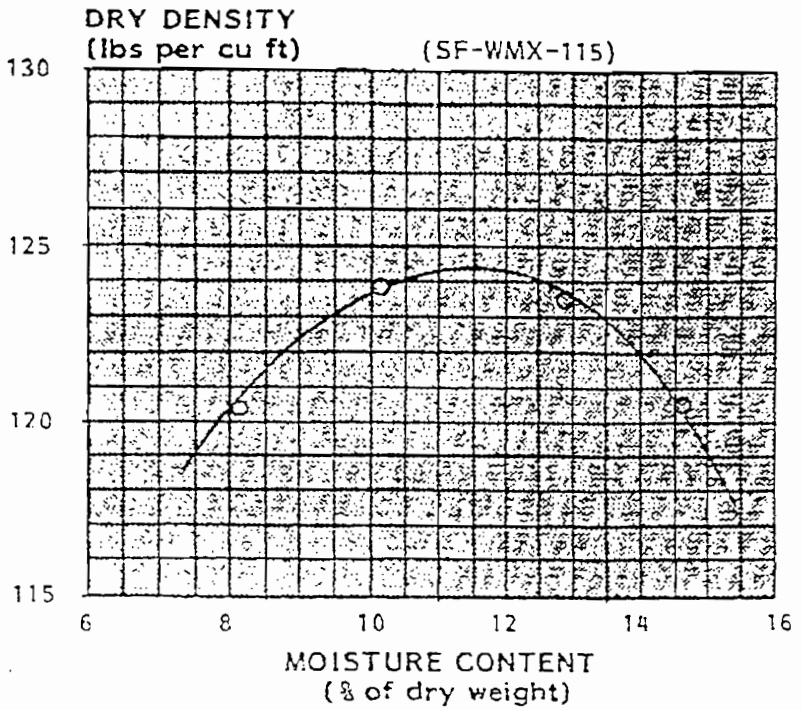
project Clarkstown Landfill

Compaction Method: ASTM D698

subject Moisture-Density Curve Analysis

Maximum Dry Density: 124.3 pcf
Optimum Moisture Content: 11.5%

On September 3, 1997, a representative from this firm visited the jobsite and picked-up sample SF-WMX-115. Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

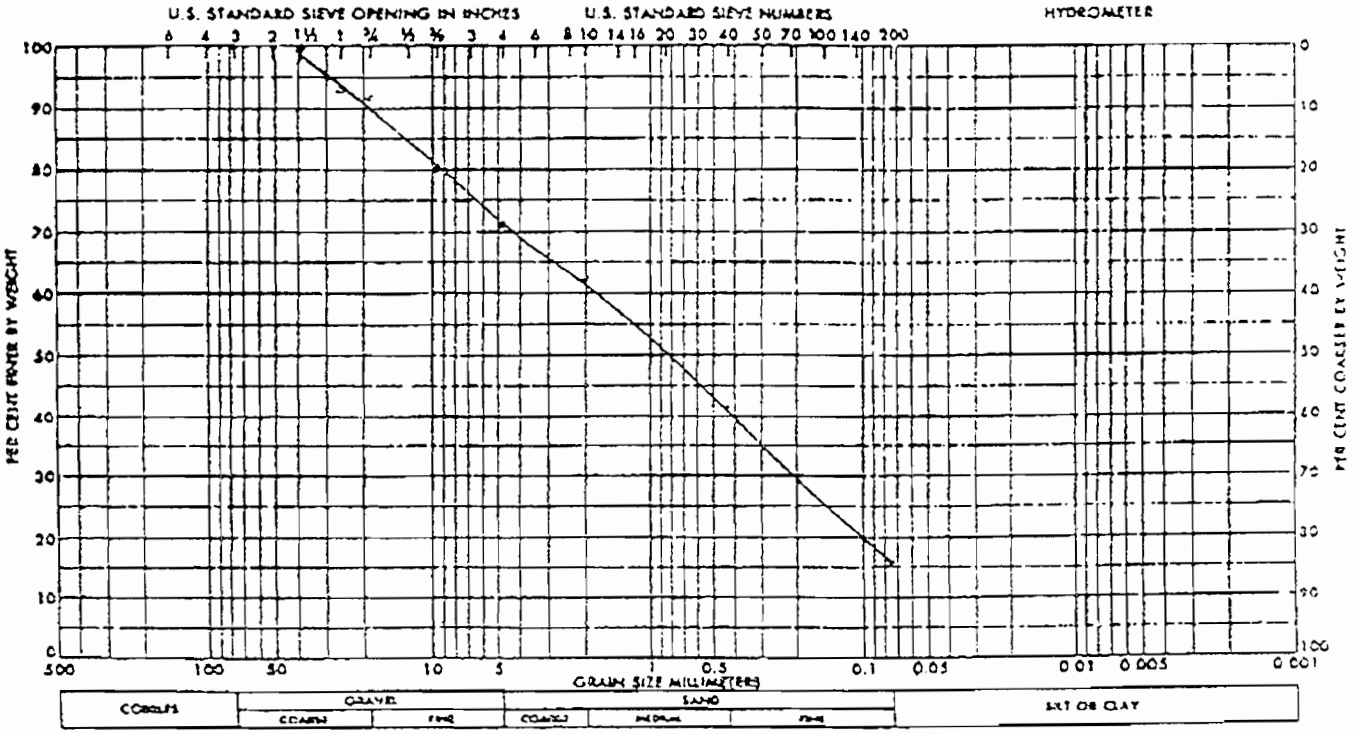
P.O. BOX 578 · STONY POINT, N.Y. 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SINCE 1949

client Ogden Remediation Services September 5, 1997

project Clarkstown Landfill Grain Size Curve Analysis

On September 3, 1997, a representative from this firm visited the jobsite and picked-up sample SF-WMX-115. Test results are shown below.



Soil Classification (D2487): SM, silty sand w/gravel

Atterberg Limits (D4318): NP

Moisture Content (D2216): 8.1%

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

PM
JEB
TP
CL

OCD. REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: CHEEKTOWAGA L.F. & L.F. CAPPING
Project No.: [illegible]
Date Sent: 9-15-97

Project Location: WEST NYACK N.Y.
Purchase Order No.:
Shipped Via:

Sampled By: (Signature) L. KAVANAGH
Lab Contact:
Date Received: 9-15-97

Sample No.	Description	ANALYSIS REQUIRED: Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
SF-WPR-120	STRUCTURAL FILL	X		X	X		X							

Comments/Special Instructions:

WEST SIDE OF STOCKPILE

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

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FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SINCE 1969

SOILS TEST REPORT

September 16, 1997

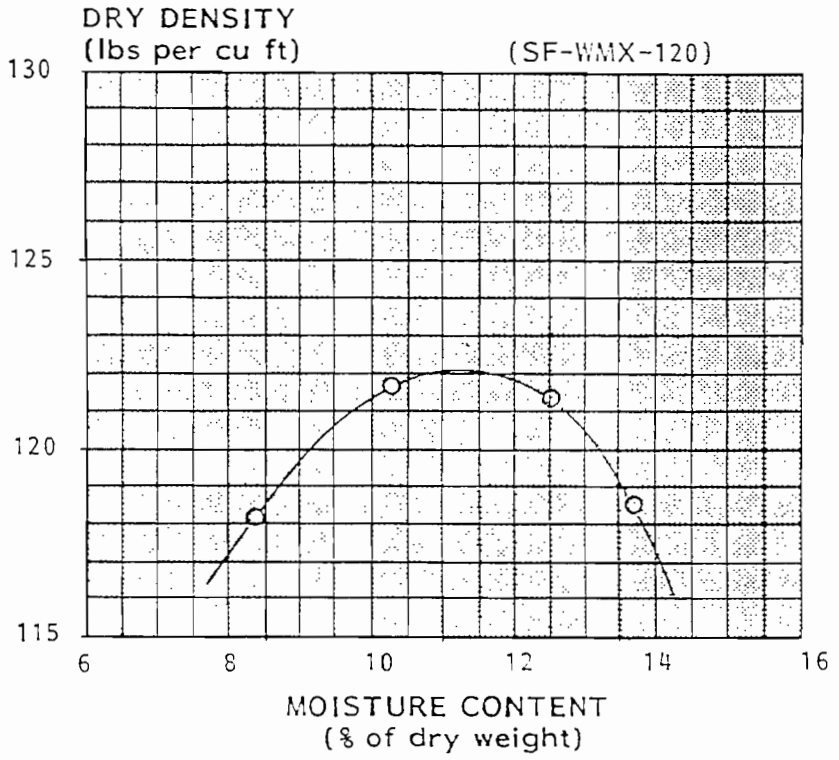
client Ogden Remediation Services

project Clarkstown Landfill

subject Moisture-Density Curve Analysis

Compaction Method	ASTM D698
Maximum Dry Density	122.1 pcf
Optimum Moisture Content	11.3%

On September 15, 1997, a representative from this firm visited the jobsite and took a sample of soil labeled SF-WMX-120. Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

FAIRWAY TESTING

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1969

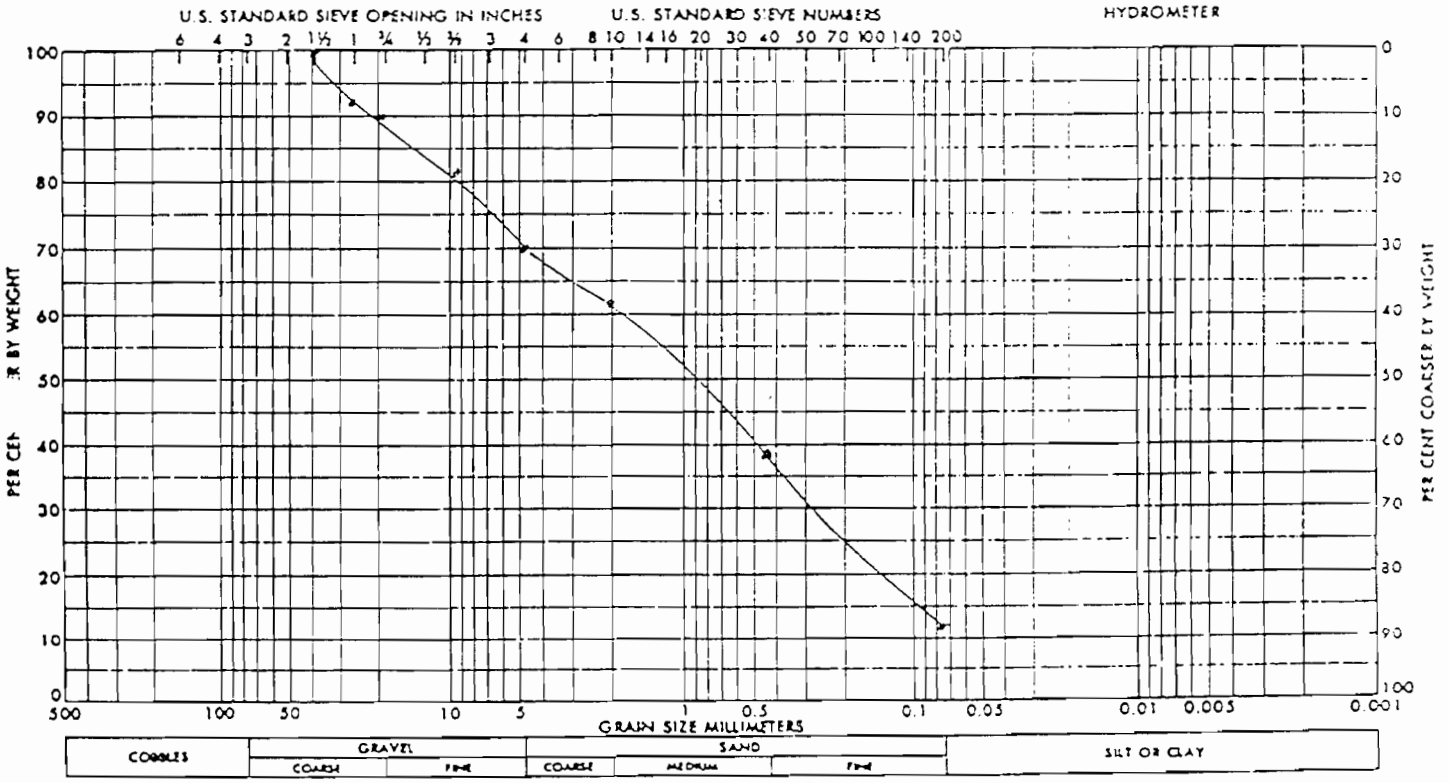
September 16, 1997

client Ogden Remediation Services

project Clarkstown Landfill

Grain Size Curve Analysis

On September 15, 1997, a representative from this firm visited the jobsite and took a sample of soil labeled SF-WMX-120. Test results are shown below.



Atterberg Limits (D4318): NP
Moisture Content (D2216): 10.6%

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

Clarkstown Landfill Remediation
Laboratory Services Request
#LL-2339-K3

For:
Mr. Reddy Kancharla
M & T/Namow/TCL
47 Hudson Street
Ossining, N.Y. 10562
PH (914)762-9000
FX (914)762-9638

From:
Roy F. Weston of New York
Clarkstown Field Office
166 Rte. 303
West Nyack, N.Y. 10994
PH (914)353-5221
FX (914)353-5491

Sample I.D.	Source	Misc	ASTM D422	ASTM D698	ASTM D2216	ASTM D4318									Remarks
SF-30	FB Stockpile	1 bkt	X	X	X	X									125,000 CY
SF-WMX-125	WMX														
SCA-1	FB Stockpile	1 bkt	X												
—	Tilcon														

M&T/NAMOW/TCL□J.V.

LIQUID LIMITAND PLASTIC LIMIT OF SOIL

Client: Roy F. Weston
Project: Clarkstown Landfill
Sample ID: Indicated Below
Sampled By: Client
Picked up/Delivered by: Client

Lab #: FOB-001
Report #:MC-104
Date Pick up/del: 10/08/97
Date Tested: 10/14/97

LIQUID LIMIT & PLASTIC LIMIT TEST RESULTS (ASTM D4318)

Soil Sample No.	Liquid Limit (wt %)	Plastic Limit, (wt %)	Plastic Index
SF-30 Source: FB Stockpile WMX	17.0	NP	0

NOTE: NP indicates that the soil is non-plastic since 1/8" diameter thread could not be rolled at any moisture content.

TESTWELL CRAIG LABORATORIES, INC.

Kaspal R. Thumma, Eng.Sc.D., P.E.
Laboratory Manager
KRT\mp
cc: rfwony 1, file 1, bill 1/mp

Project Name/Client: CONKLIN LANDFILL CLOSING
Project No.: 6001000005
Date Sent: 9-16-97

Project Location: WEST NYACK N.Y.
Purchase Order No.:
Shipped Via:

Sampled By: (Signature) James Beatty
Lab Contact:
Date Received: 9-16-97

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
		ANALYSIS REQUIRED												
SF-WNIX-125		X		X	X		X	X						

Comments/Special Instructions:
SAMPLE TAKEN FROM THE WEST END OF THE MAIN STOCKPILE

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

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SINCE 1969

SOILS TEST REPORT

September 18, 1997

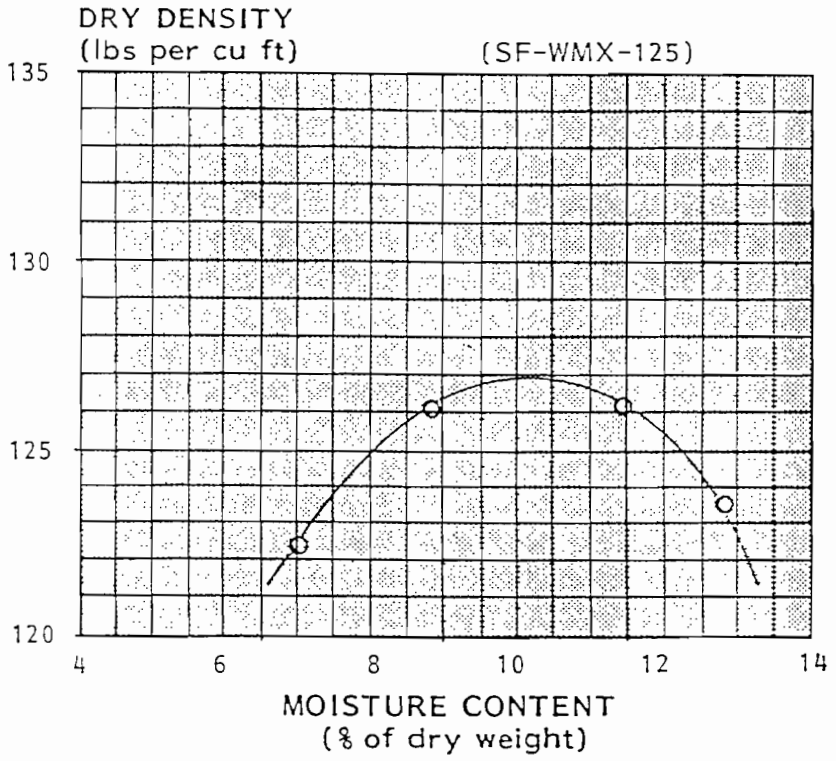
client Ogden Remediation Services

project Clarkstown Landfill

subject Moisture-Density Curve Analysis

Compaction Method	ASTM D698
Maximum Dry Density	126.9 pcf
Optimum Moisture Content	10.3%

On September 16, 1997, a representative from this firm visited the jobsite and picked-up soil sample SF-WMX-125. Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

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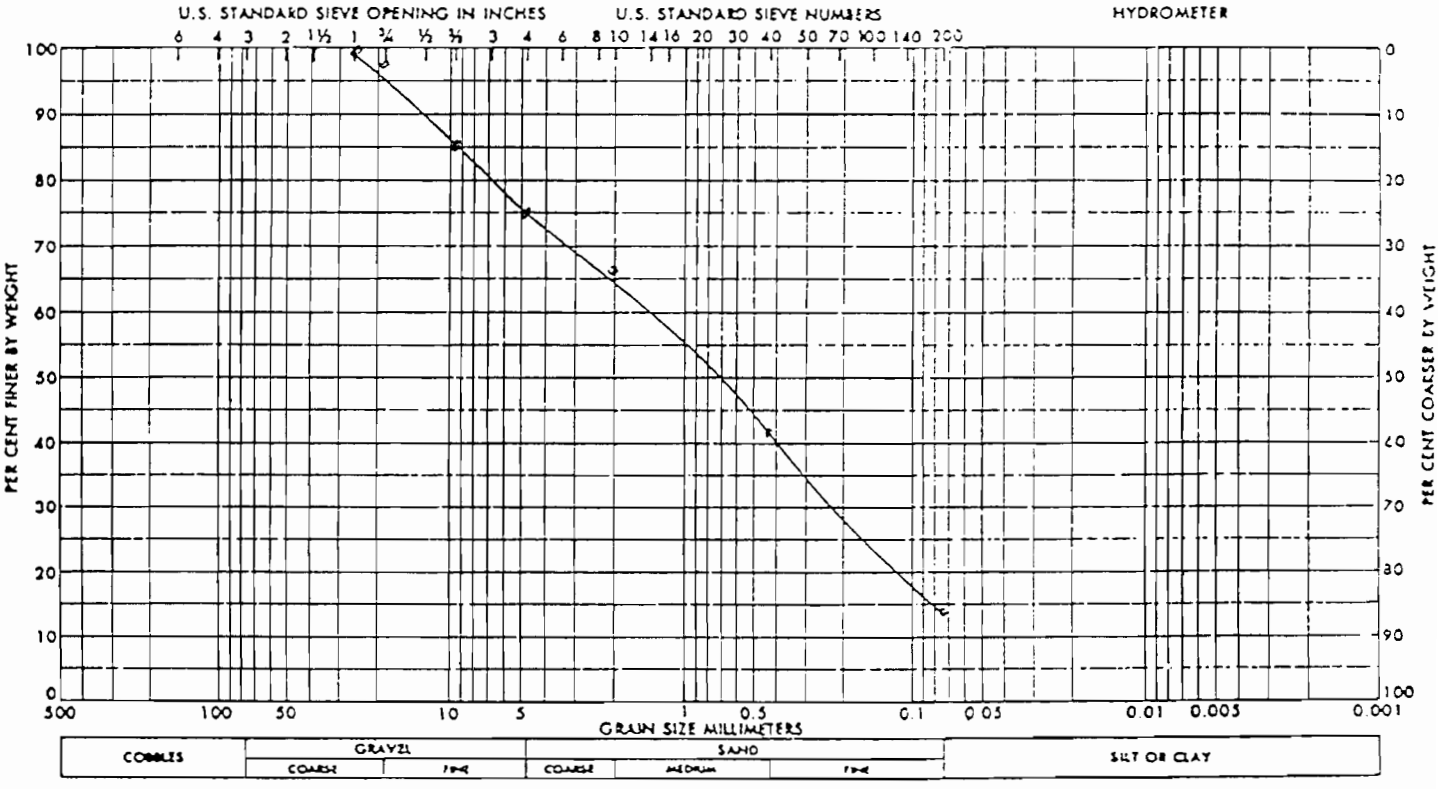
SINCE 1969

client Ogden Remediation Services September 19, 1997

project Clarkstown Landfill **Grain Size Curve Analysis**

On September 16, 1997, a representative from this firm visited the jobsite and picked up soil sample SF-WMX-125. Test results are shown below.



Soil Classification (D2487): SM, silty sand w/gravel

Atterberg Limits (D4318): NP

Moisture Content (D2216): 9.7%

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

UUSI REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: Cumberland Industrial Park Authority Project No.: 6001.0000 Date Sent: 9-16-97

Project Location: West Point, N.Y. Purchase Order No.: Shipped Via:

Sampled By: (Signature) James Bradley Lab Contact: Date Received: 9-16-97

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
		ANALYSIS REQUIRED												
SF-CF-01		X		X	X		X	X						

Comments/Special Instructions:

CUMBERLAND COMPOST FACILITY STOCKPILE

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

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09/18/1996 11:09 6057899383 RUSI E AND I PAGE 02

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SOILS TEST REPORT

September 18, 1997

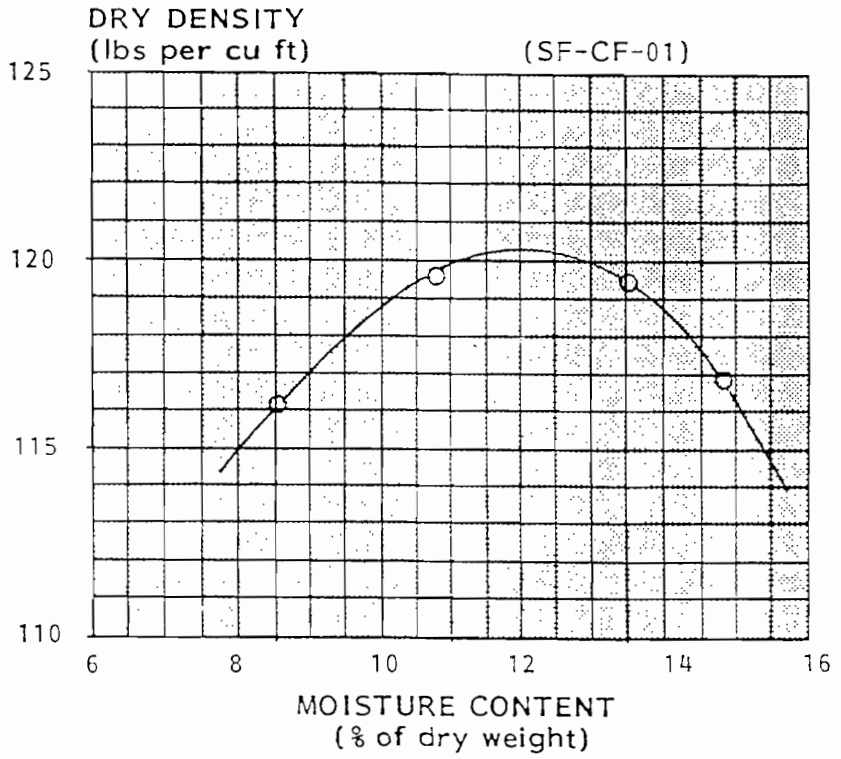
client Ogden Remediation Services

project Clarkstown Landfill

subject Moisture-Density Curve Analysis

Compaction Method	ASTM D698
Maximum Dry Density	120.3 pcf
Optimum Moisture Content	12.3%

On September 16, 1997, a representative from this firm visited the jobsite and picked-up soil sample SF-CF-01. Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

FAIRWAY TESTING

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SINCE 1969

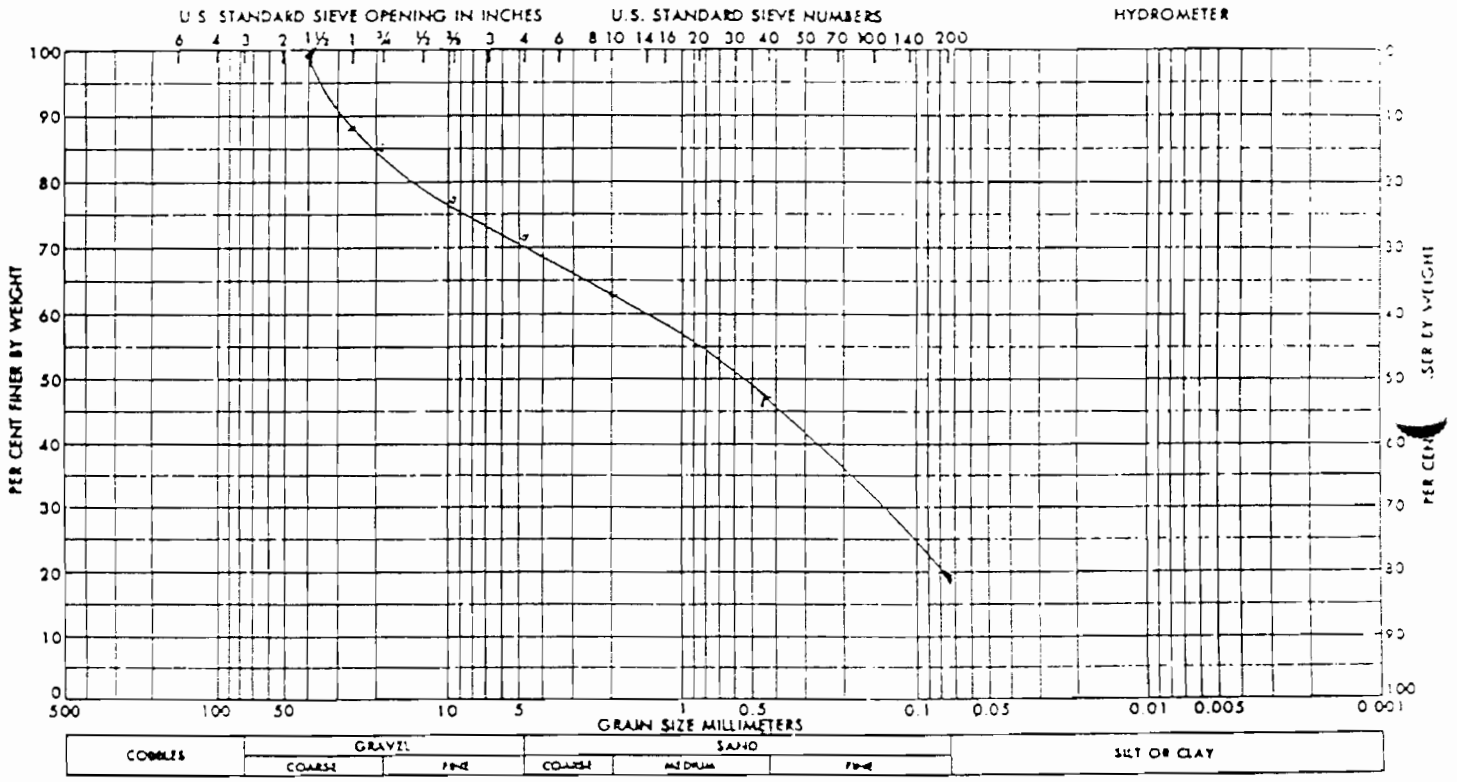
client Ogden Remediation Services

September 18, 1997

project Clarkstown Landfill

Grain Size Curve Analysis

On September 16, 1997, a representative from this firm visited the jobsite and picked up soil sample SF-CF-01. Test results are shown below.



*Soil Classification (D2487): SM, silty sand w/gravel

Atterberg Limits (D4318): NP

Moisture Content (D2216): 8.5%

*Traces of organics found in the above sample.

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

UUS · V REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Re

Project Name/Client: CHARLESTOWN GATEWAY Project No.: [illegible] Date Sent: 9/22/97

Project Location: WEST NYACK N.Y. Purchase Order No.: _____ Shipped Via: _____

Sampled By: (Signature) JAMES BEATTY Lab Contact: _____ Date Received: 9/22/97

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex Wall Perm.			
		ANALYSIS REQUIRED												
SF-WA1X-130		X		X	X		X	X						

Comments/Special Instructions:

SAMPLE TAKEN FROM THE WEST END OF THE MAIN STOCKPILE

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

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SOILS TEST REPORT

September 23, 1997

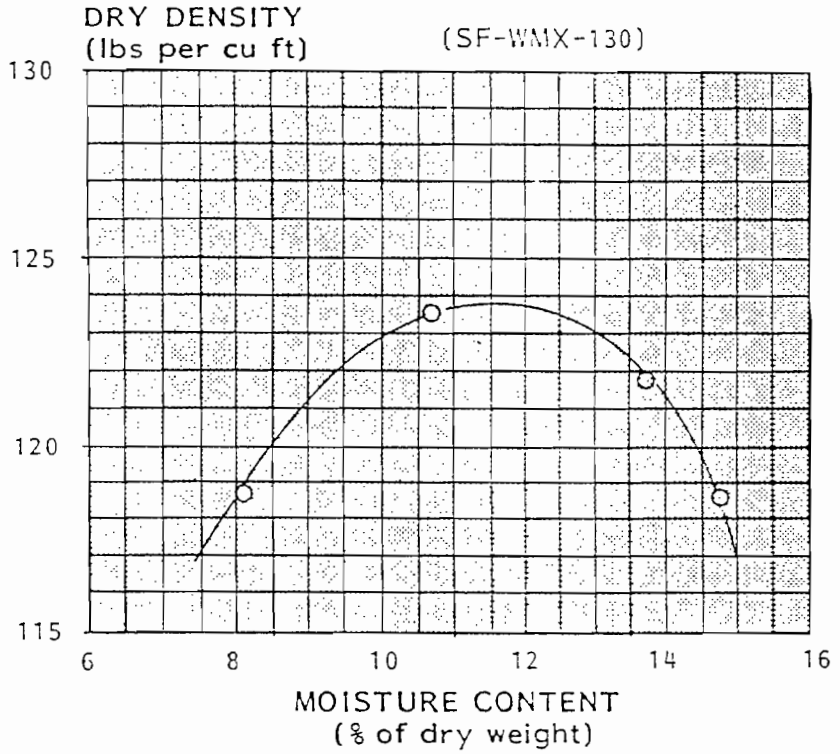
client Ogden Remediation Services

project Clarkstown Landfill

subject Moisture-Density Curve Analysis

Compaction Method	ASTM D698
Maximum Dry Density	123.8 pcf
Optimum Moisture Content	11.7%

On September 22, 1997, soil sample SF-WMX-130 was delivered to this laboratory by the client. Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

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1969

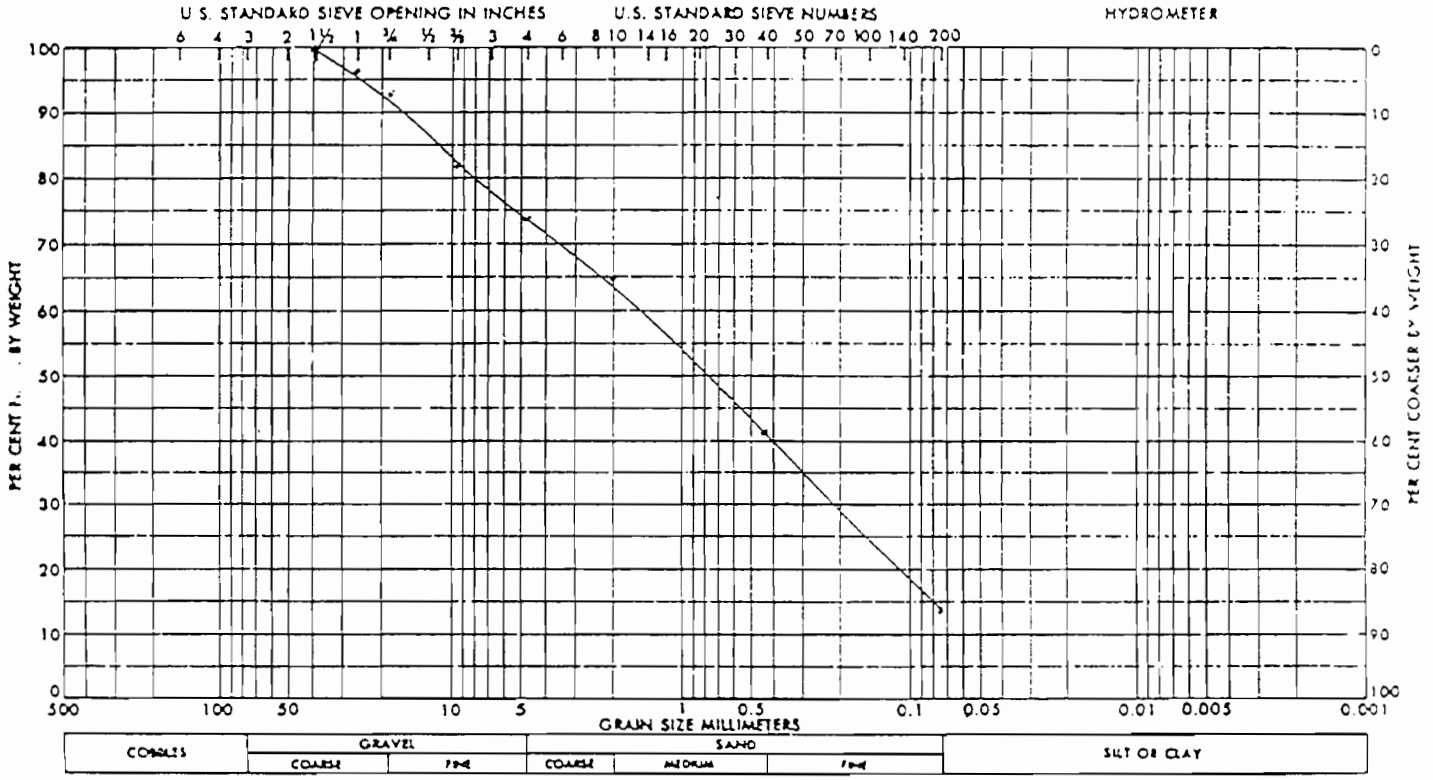
client Ogden Remediation Services

September 23, 1997

project Clarkstown Landfill

Grain Size Curve Analysis

On September 22, 1997, soil sample SF-WMX-130 was delivered to this laboratory by the client. Test results are shown below.



Soil Classification (D2487): SM, silty sand with gravel

Atterberg Limits (D4318): NP

Moisture Content (D2216): 7.5%

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

OCDEI EMEDIATION SERVICES CO., INC.

Soil Sample Test Request Rec

Project Name/Client: Gamaskenon Landfill / L.F. Cullen's Project No.: [illegible] Date Sent: 10/1/97

Project Location: West Nyack N.Y. Purchase Order No.: _____ Shipped Via: _____

Sampled By: (Signature) J Beatty Lab Contact: _____ Date Received: 10/1/97

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterburg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydro-meter ASTM D1140	Moisture Content ASTM D2216	Classifi-cation ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
		ANALYSIS REQUIRED												
SF-WMX-135		X		X	X		X	X						

Comments/Special Instructions:

SAMPLE TAKEN FROM THE WEST END OF THE MAIN STOCKPILE

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

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SINCE 1959

SOILS TEST REPORT

October 2, 1997

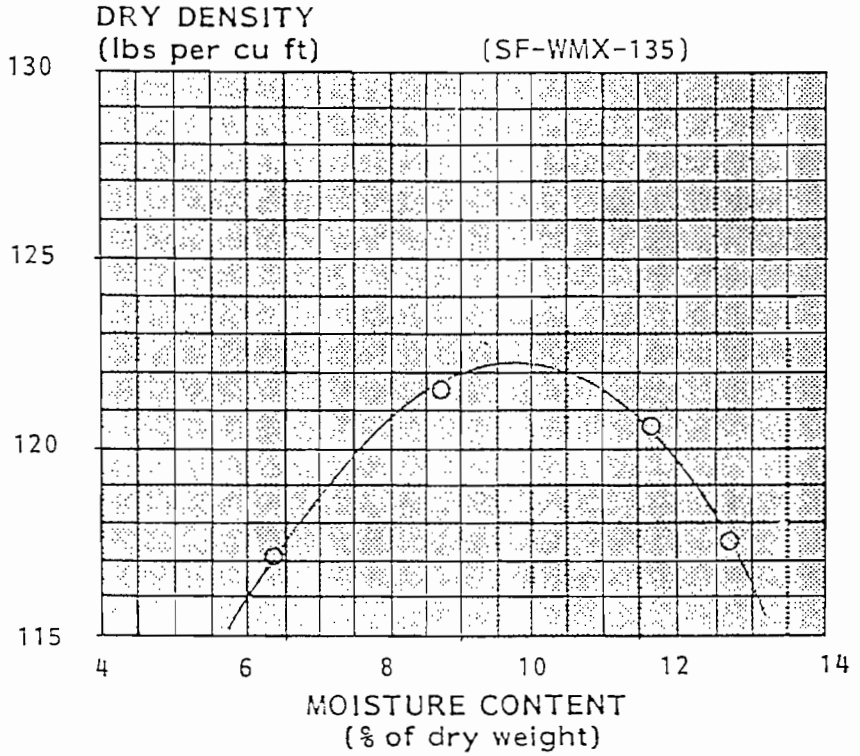
client Ogden Remediation Services

project Clarkstown Landfill

subject Moisture-Density Curve Analysis

Compaction Method	ASTM D698
Maximum Dry Density	122.2 pcf
Optimum Moisture Content	9.7%

On October 1, 1997, a representative from this firm visited the jobsite and picked-up soil sample SF-WMX-135. Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

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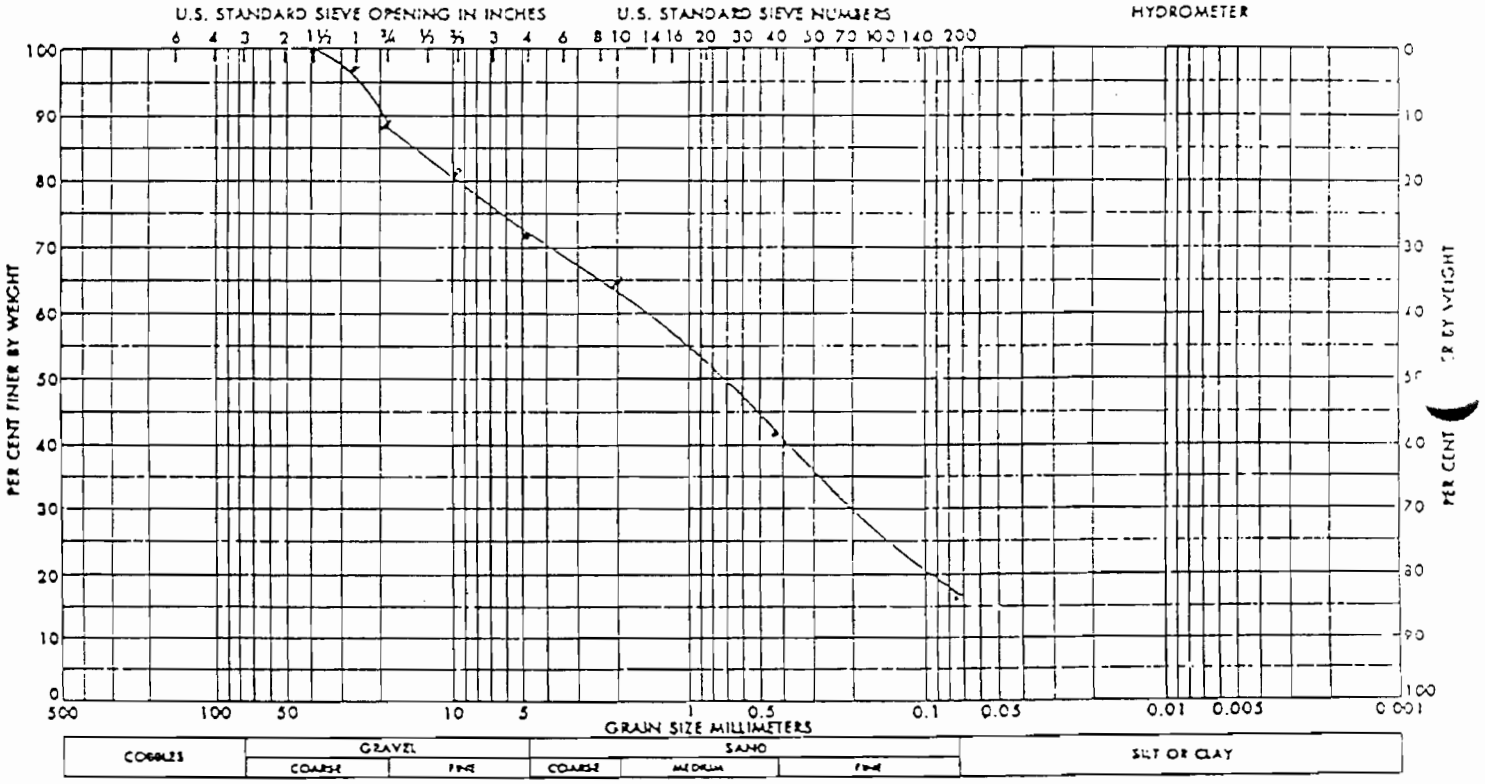
CE 1969

client Ogden Remediation Services October 2, 1997

project Clarkstown Landfill Grain Size Curve Analysis

On October 1, 1997, a representative from this firm visited the jobsite and picked-up soil sample SF-WMX-135. Test results are shown below.



Soil Classification (D2487): SM, silty sand w/gravel

Atterberg Limits (D4318): NP

Moisture Content (D2216): 8.6%

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

ZDEN REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: CLARKSTOWN L.F. & L.F CAPPING
Project No.: 600100000
Date Sent: 10-6-97

Project Location: CNEST NYACK N.Y.
Purchase Order No.:
Shipped Via:

Sampled By: (Signature) L. KAVANAGH
Lab Contact:
Date Received: 10-6-97

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall Perm.			
SFWMX - JFK	STRUCTURAL FILL	X		X	X		X							

ANALYSIS REQUIRED

Comments/Special Instructions:

EAST SIDE OF STOCKPILE ON SITE

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

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12-13-1997 10:50AM FROM FAIRWAY TESTING CO 914 942 0995 P.4

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SINCE 1969

SOILS TEST REPORT

October 9, 1997

client Ogden Remediation Services

project Clarkstown Landfill

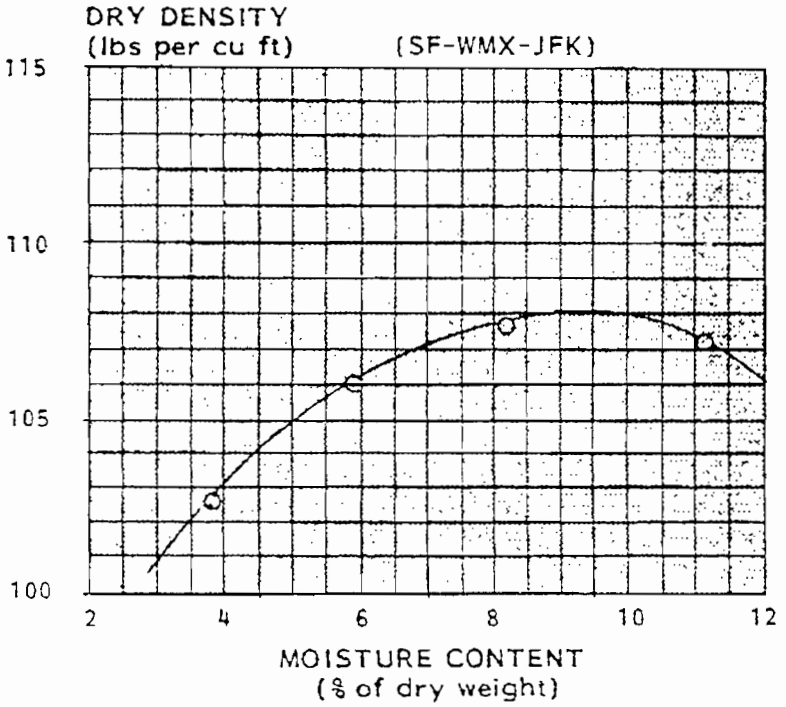
Compaction Method ASTM D698

subject Moisture-Density Curve Analysis

Maximum Dry Density 108.2 pcf

Optimum Moisture Content 9.5%

On October 7, 1997, soil sample SF-WMX-JFK was delivered to this laboratory by the client. Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

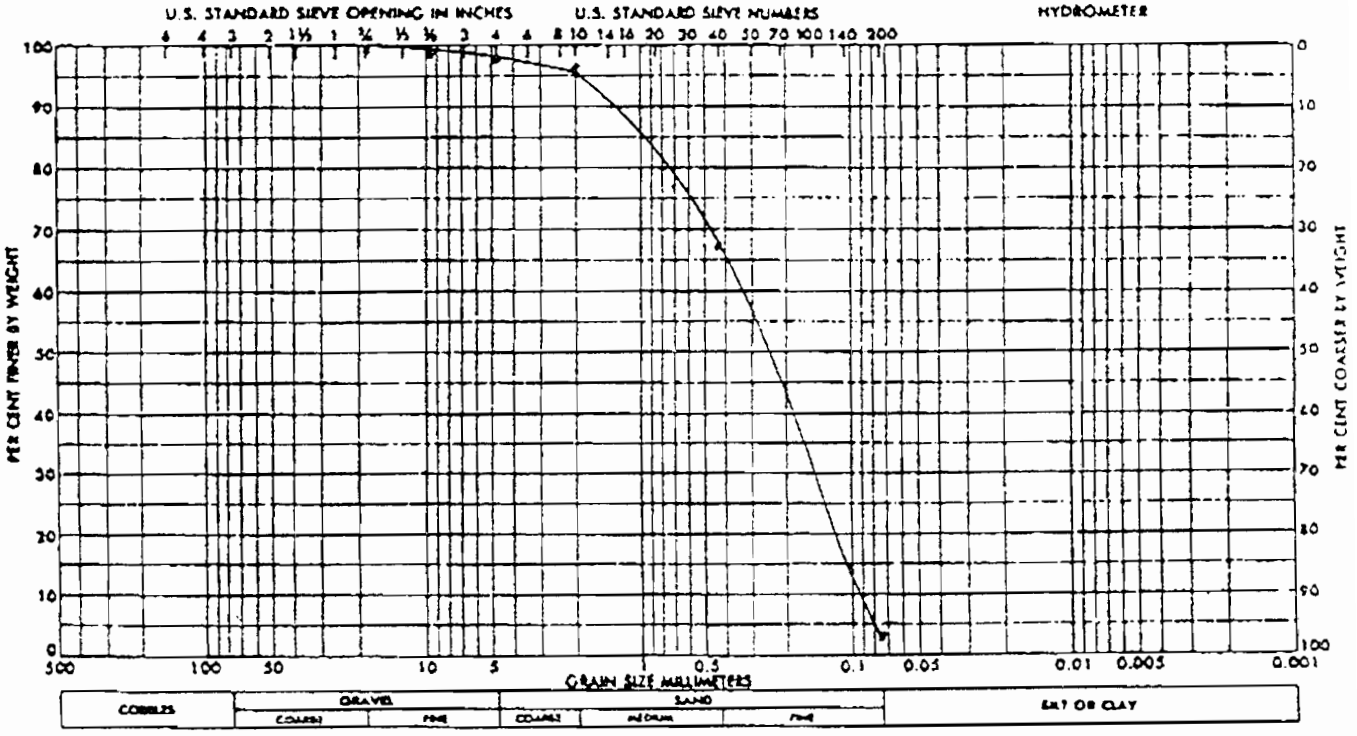
P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SINCE 1969

client Ogden Remediation Services October 9, 1997

project Clarkstown Landfill Grain Size Curve Analysis

On October 7, 1997, soil sample SF-WMX-JFK was delivered to this laboratory by the client. Test results are shown below.



Atterberg Limits (D4318): NP

Moisture Content (D2216): 3.8%

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

OCDEN REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: CLINTON LANDFILL - LF CAPPING
Project No.: 60010000
Date Sent: 10/16/97

Project Location: WEST NYACK N.Y.
Purchase Order No.:
Shipped Via:

Sampled By: (Signature) J Beatty
Lab Contact:
Date Received: 10/16/97

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
		ANALYSIS REQUIRED												
SF-WX-140		X		X	X		X	X						

Comments/Special Instructions:

SAMPLE TAKEN FROM GE-15

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

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SINCE 1969

SOILS TEST REPORT

October 16, 1997

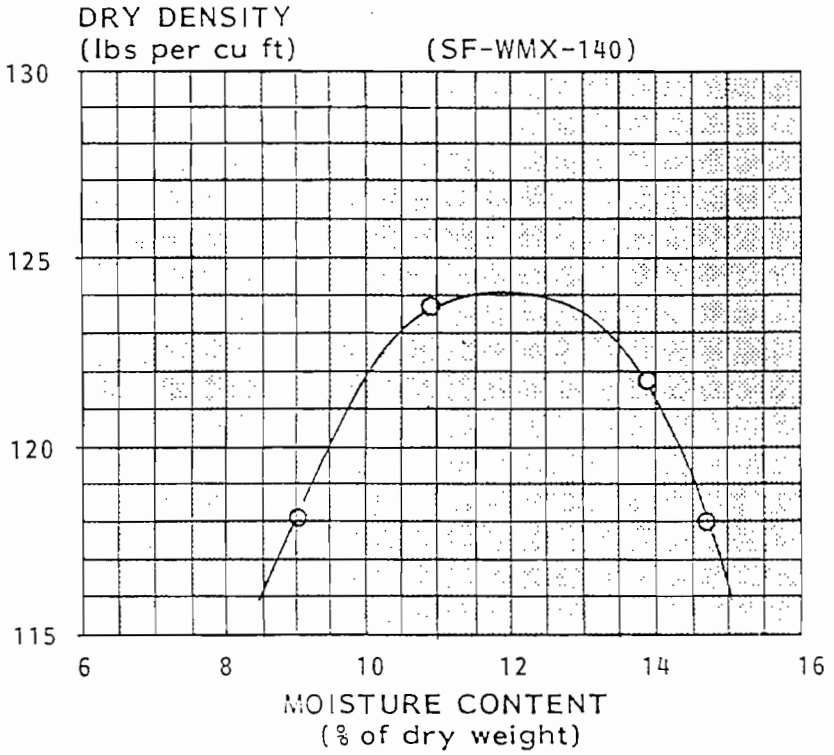
client Ogden Remediation Services

project Clarkstown Landfill

Compaction Method	ASTM D698
Maximum Dry Density	124.1 pcf
Optimum Moisture Content	11.9%

subject Moisture-Density Curve Analysis

On October 16, 1997, a representative from this firm visited the jobsite and picked-up sample SF-WMX-140. Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

JEB
PHM
FFX
CL

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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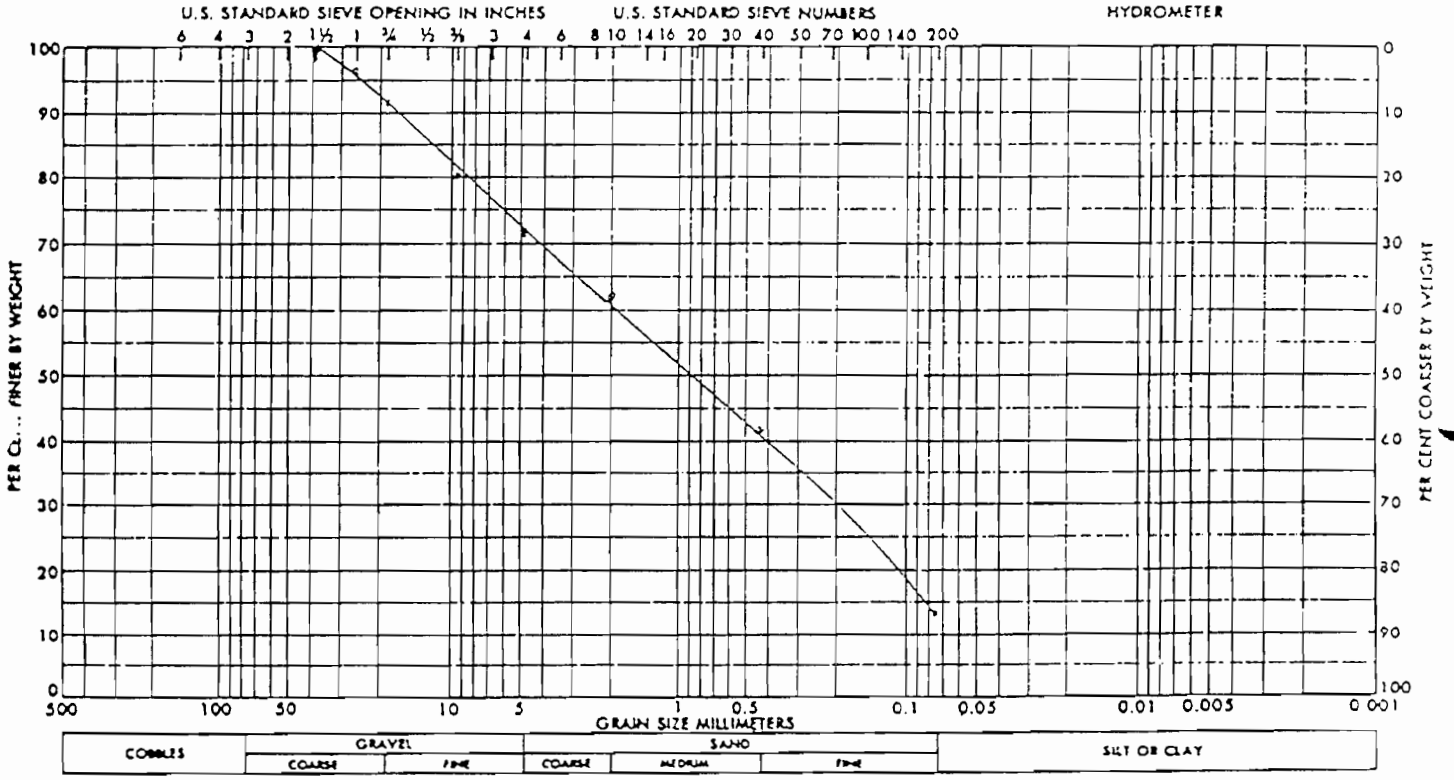
SINCE 1969

client Ogden Remediation Services October 17, 1997

project Clarkstown Landfill Grain Size Curve Analysis

On October 16, 1997, a representative from this firm visited the jobsite and picked-up sample SF-WMX-140. Test results are shown below.



Soil Classification (D2487): SM, silty sand w/gravel

Atterberg Limits (D4318): NP

Moisture Content (D2216): 8.7%

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

OGDEN REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: CLARKSTOWN LANDFILL - LF CAPPING
Project No.: 6020100000
Date Sent: 10/16/97

Project Location: WEST NYACK N.Y.
Purchase Order No.: _____
Shipped Via: _____

Sampled By: (Signature) JReally
Lab Contact: _____
Date Received: 10/16/97

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
		ANALYSIS REQUIRED												
SF-COMX-145		X		X	X		X	X						

Comments/Special Instructions:
SAMPLE TAKEN FROM 50'S x 125'E of GE 15

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

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FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SINCE 1969

SOILS TEST REPORT

October 17, 1997

client Ogden Remediation Services

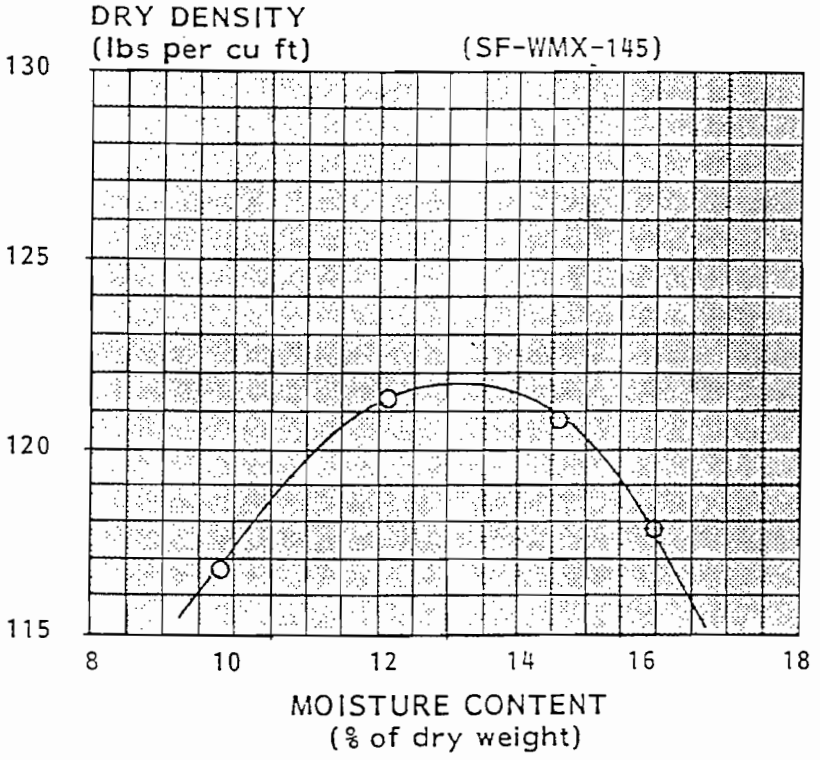
project Clarkstown Landfill

Compaction Method ASTM D698

subject Moisture-Density Curve Analysis

Maximum Dry Density 121.7 pcf
Optimum Moisture Content 13.3%

On October 16, 1997, a representative from this firm visited the jobsite and picked-up sample SF-WMX-145. Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

CE 1969

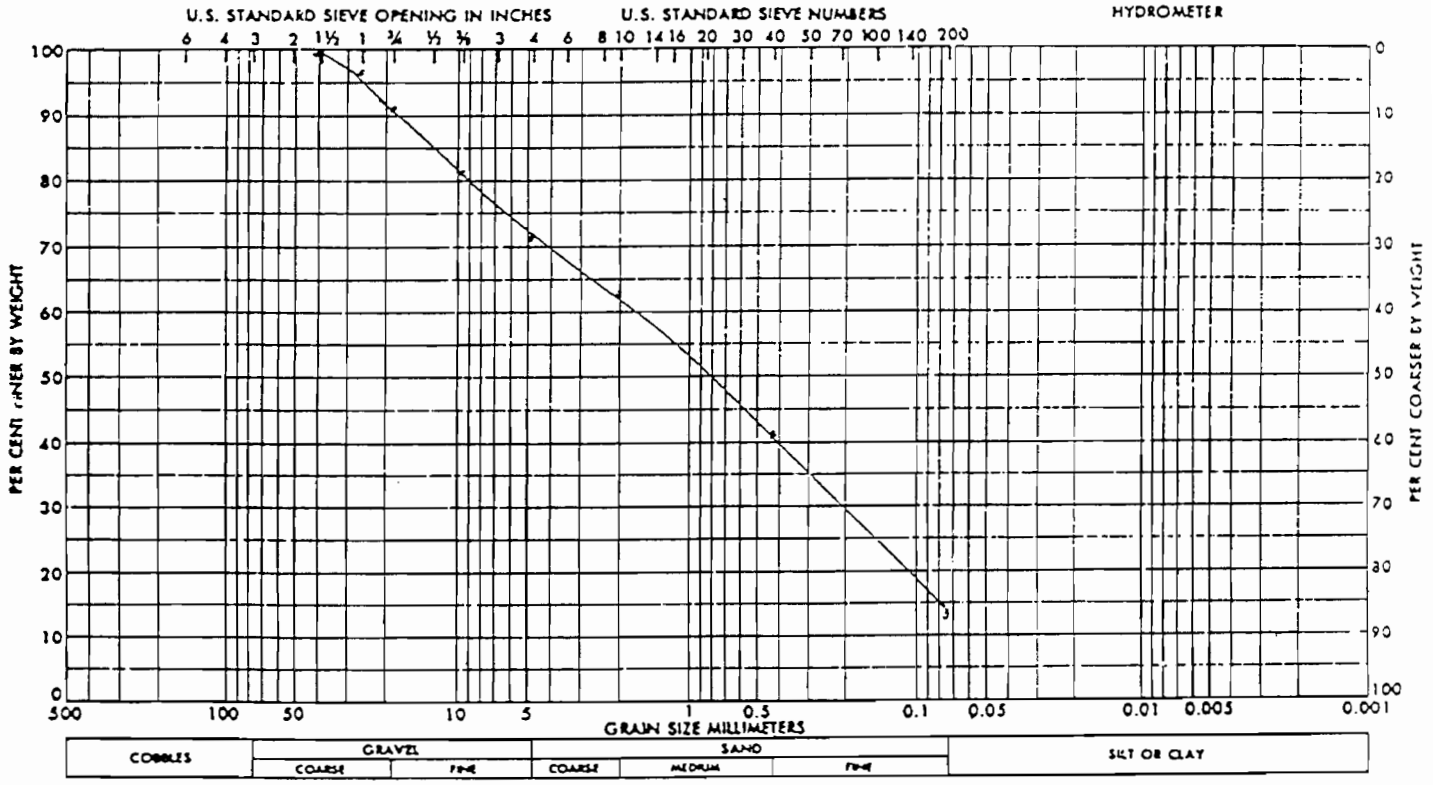
client Ogden Remediation Services

October 17, 1997

project Clarkstown Landfill

Grain Size Curve Analysis

On October 16, 1997, a representative from this firm visited the jobsite and picked-up sample SF-WMX-145. Test results are shown below.



Soil Classification (D2487): SM, silty sand w/gravel

Atterberg Limits (D4318): NP

Moisture Content (D2216): 9.7%

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

ENTERED OCT 20 1997

Clarkstown Landfill Remediation
Laboratory Services Request
#LL-2339-K3

For:
Mr. Reddy Kancharla
M & T/Namow/TCL
47 Hudson Street
Ossining, N.Y. 10562
PH (914)762-9000
FX (914)762-9638

From:
Roy F. Weston of New York
Clarkstown Field Office
166 Rte. 303
West Nyack, N.Y. 10994
PH (914)353-5221
FX (914)353-5491

Sample I.D.	Source	Misc	ASTM D422	D698	D2216	D4318	EPA 8020								Remarks
SF-31	WMX	1 bkt	X	X	X	X									150,000
SF-32	Center Rock	1 bag	X	X	X	X	X								NEW SOURCE

Received By: Richard Tuttle

Date/Time: 10-30-97 / 11:45

Delivered By: John C Woodley

Results Required, Date/Time: 11-7-97 / 11:30

M&T/NAMOW/TCL□J.V.

GRADATION AND STANDARD PROCTOR COMPACTION TESTING OF SOIL

CLIENT: Roy F. Weston, Inc., Sutton Park
PROJECT: Clarkstown Landfill
SAMPLE ID: SF-31
SOURCE: WMX
SAMPLED BY: Client
PICKUP/DEL BY: Client

LAB#: FOB-001
REPORT#: MC-115
DATE DELIVERED: 10/30/97
DATE TESTED: 11/05/97

(A) GRADATION TEST RESULTS (ASTM D422 & ASTM D1140)

Sieve Size	Percent Passing (%)	Specifications	Sieve Size	Percent Passing (%)	Specifications
2-1/2"			#10	27.3	
2"			#16	24.1	
1-1/2"	100.0		#20	21.0	
1"	80.2		#30	19.4	
3/4"	64.4		#40	15.8	
1/2"	51.3		#50	12.5	
3/8"	45.9		#60	10.6	
1/4"	37.6		#80	8.3	
#4	34.1		#100	7.2	
#8	28.6		#200	4.7	

The gradation curve is shown on Figure-1

(B) **STANDARD PROCTOR COMPACTING TEST RESULTS (ASTM D698, Procedure C, 6" diameter mold)**
Optimum Water Content:: 9.6%
Max. Unit Weight, Dry: 120.0 pcf
The proctor compaction curve is shown in Figure-2

(C) **MOISTURE (ASTM D2216):** 6.7%

(D) **SOIL DESCRIPTION:** c-m-f GRAVEL, and m-f Sand, trace Silt
COLOR: Gray; **ODOR:** None; **CONTAMINATION:** None

TYPE OF MATERIAL: Mixture of recycled asphalt and soil material

TESTWELL CRAIG LABORATORIES, INC.

Kaspal R. Thumma, Eng.Sc.D., P.E.
Laboratory Manager
KRT/mp
cc: rfwony 1, file 1, bill 1/mp

Received: 11/10/97 09:25:18 From: 9147629638

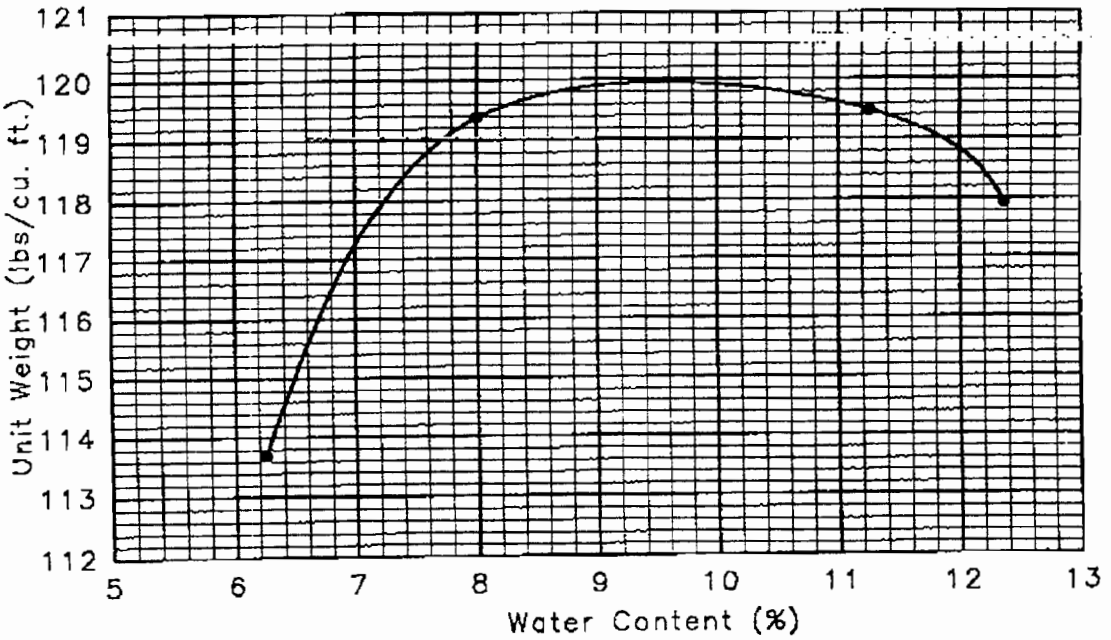
M&T/NAMOW/TCL□J.V.

Roy F. Weston, Inc., Sutton Park
Lab #: FOB-001 Rpt #: MC-115

STANDARD PROCTOR COMPACTION TEST RESULTS OF SOIL NO. SF-31

TEST METHOD: (ASTM D698 Procedure C, 6" Diameter Mold)

Specimen No.	1	2	3	4	5
Water Content (%)	6.25	8.06	9.35	11.26	12.37
Unit Weight, Dry (lbs/cu.ft.)	113.69	119.38	119.62	119.48	117.94



Optimum Water Content: 9.6% Max. Unit Weight, Dry:120.0 pcf

Figure 2: Standard Proctor Curve of Soil No. SF 31

M&T/NAMOW/TCL□J.V.

Roy F. Weston, Inc., Sutton Park
Lab #: FOB-001 Report #: MC-115

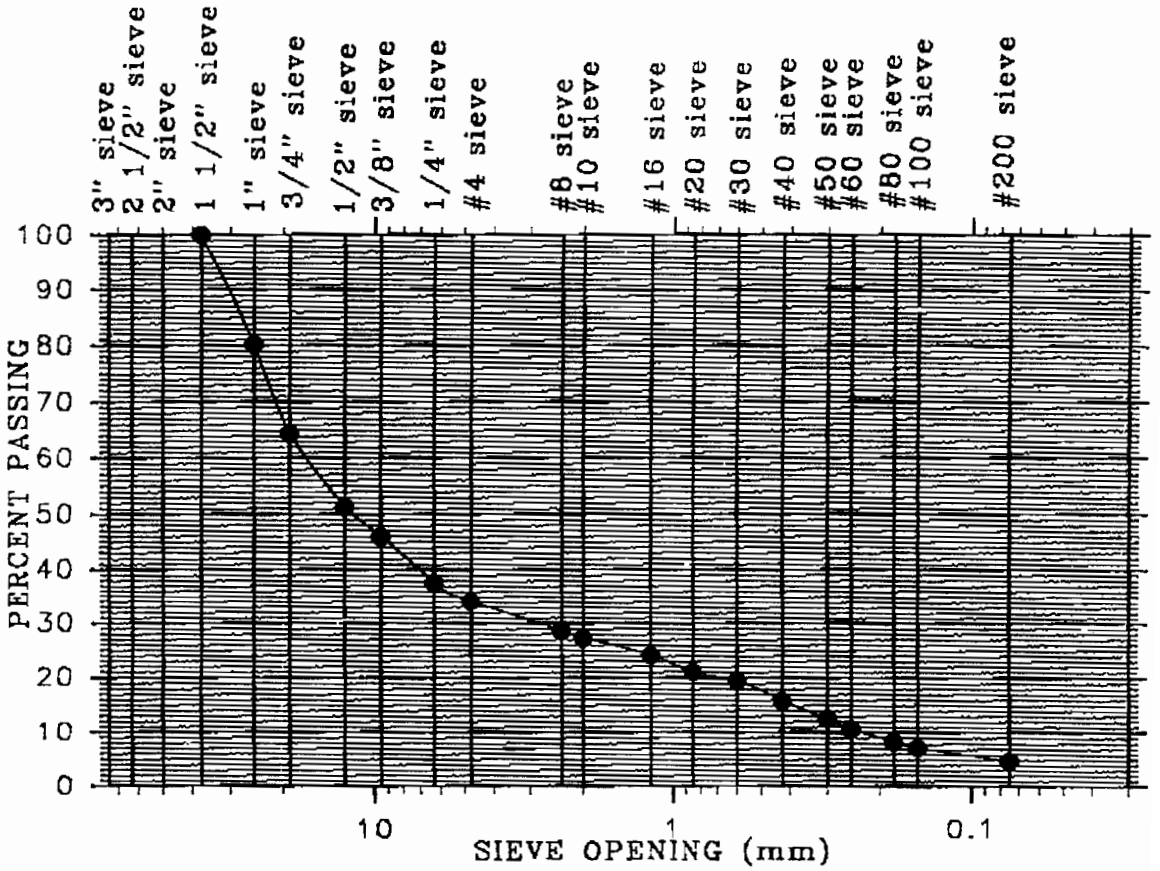


Figure 1: Particle Size Gradation Curve of Soil No. SF-31

M&T/NAMOW/TCL□J.V.

LIQUID LIMITAND PLASTIC LIMIT OF SOIL

Client: Roy F. Weston
Project: Clarkstown Landfill
Sample ID: Indicated Below
Sampled By: Client
Picked up/Delivered by: Client

Lab #: FOB-001
Report#:MC-117
Date Pick up/del: 10/30/97
Date Tested: 11/06/97

LIQUID LIMIT & PLASTIC LIMIT TEST RESULTS (ASTM D4318)

Soil Sample No.	Liquid Limit (wt %)	Plastic Limit, (wt %)	Plastic Index
SF-31 Source: WMX	16.9	NP	0
SF-32 Source: Center Rock	16.1	15.4	0.7

NOTE: NP indicates that the soil is non-plastic since 1/8" diameter thread could not be rolled at any moisture content.

TESTWELL CRAIG LABORATORIES, INC.

Kaspal R. Thumma, Eng.Sc.D., P.E.
Laboratory Manager
KRT\mp
cc: rfwony 1, file 1, bill 1/mp

Received: 11/10/97 09:25:18 From: 9147629638

OBDEN MEDIATION SERVICES CO., INC.

Soil Sample Test Request Reco

Project Name/Client: CHARLESTOWN LANDFILL / LF CORP. Project No.: 6001000 Date Sent: 10/17/97

Project Location: WEST NYACK N.Y. Purchase Order No.: _____ Shipped Via: _____

Sampled By: (Signature) JBeatty Lab Contact: _____ Date Received: _____

Sample No.	Description	ANALYSIS REQUIRED: Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
SF-COMX-150		X		X	X		X	X						

Comment/Special Instructions:

SAMPLES TAKEN FROM THE WEST END OF MAIN STOCKPILE ON SITE

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Rev. 4/93 F220/CRS

FAIRWAY TESTING

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SINCE 1969

SOILS TEST REPORT

October 22, 1997

client Ogden Remediaton Services

project Clarkstown Landfill

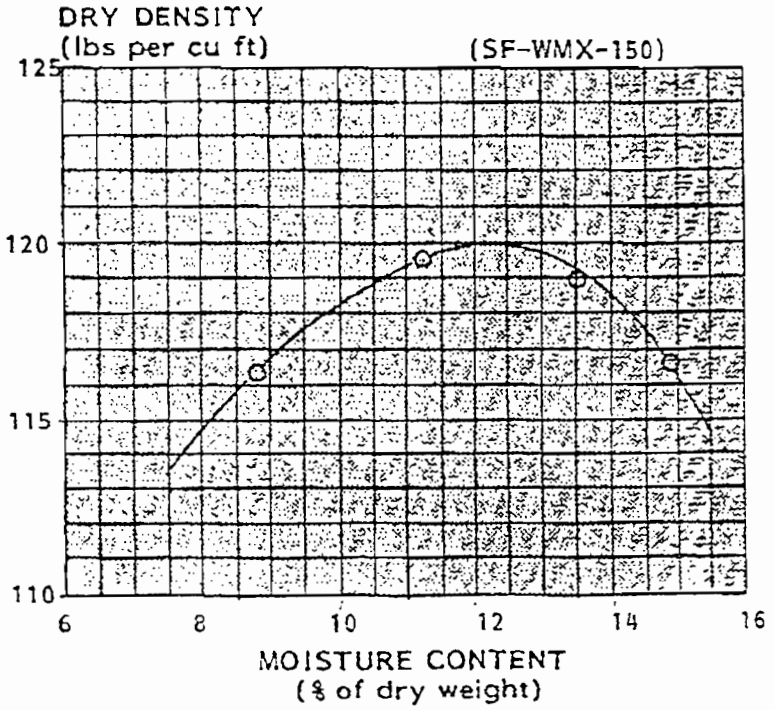
Compaction Method ASTM D698

subject Moisture-Density Curve Analysis

Maximum Dry Density 120.0

Optimum Moisture Content 12.3%

On October 20, 1997, a soil sample SF-WMX-150 was delivered to this laboratory by the client. Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Agdanno, P. E.

FAIRWAY TE. .ING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SINCE 1969

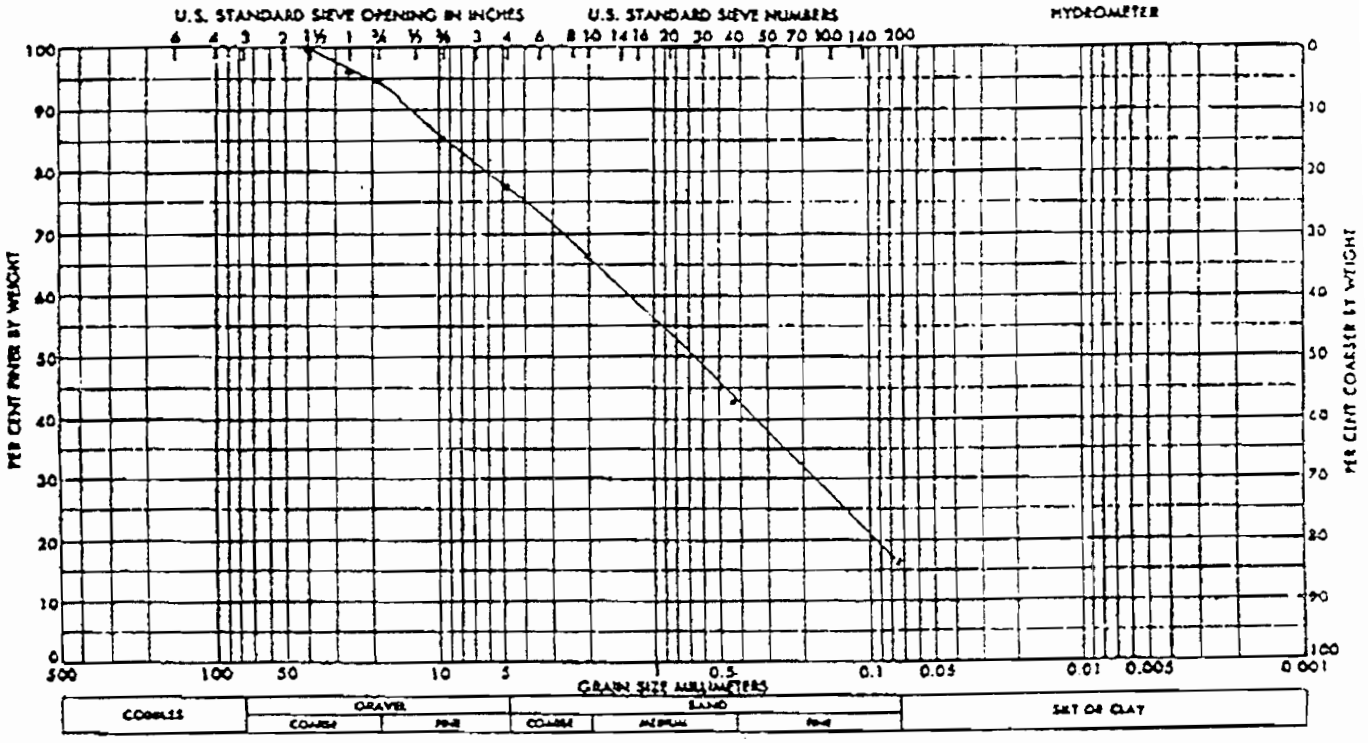
October 22, 1997

client: Ogden Remediation Services

project: Clarkstown Landfill

Grain Size Curve Analysis

On October 20, 1997, soils sample SF-WMX-150 was delivered to this laboratory by the client. Test results are shown below.



Soil Classification (D2487): SM, Silty sand with gravel
Atterberg Limits (D4318): NP
Moisture Content (D2216): 8.7%

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

Clarkstown Landfill Remediation
Laboratory Services Request
#LL-2339-K3

For:
Mr. Reddy Kancharla
M & T/Namow/TCL
47 Hudson Street
Ossining, N.Y. 10562
PH (914)762-9000
FX (914)762-9638

From:
Roy F. Weston of New York
Clarkstown Field Office
166 Rte. 303
West Nyack, N.Y. 10994
PH (914)353-5221
FX (914)353-5491

Sample I.D.	Source	Misc	ASTM D422	D698	D2216	D4318	EPA 8020								Remarks
SF-31	WMX	1 bkt	X	X	X	X									150,000
SF-32	Center Rock	1 bag	X	X	X	X	X								NEW SOURCE

Received By: Richard Tuttle

Date/Time: 10-30-97 / 11:45

Delivered By: John C Woodley

Results Required, Date/Time: 11-7-97 / 11:30

M&T/NAMOW/TCL□J.V.

GRADATION AND STANDARD PROCTOR COMPACTION TESTING OF SOIL

CLIENT: Roy F. Weston, Inc., Sutton Park
PROJECT: Clarkstown Landfill
SAMPLE ID: SF-32
SOURCE: Center Rock
SAMPLED BY: Client
PICKUP/DEL BY: Client

LAB#: FOB-001
REPORT#: MC-116
DATE DELIVERED: 10/30/97
DATE TESTED: 11/05/97

(A) GRADATION TEST RESULTS (ASTM D422 & ASTM D1140)

Sieve Size	Percent Passing (%)	Specifications	Sieve Size	Percent Passing (%)	Specifications
2-1/2"			#10	56.5	
2"	100.0		#16	54.4	
1-1/2"	73.9		#20	53.1	
1"	68.8		#30	51.2	
3/4"	66.9		#40	48.4	
1/2"	63.6		#50	45.3	
3/8"	62.0		#60	43.0	
1/4"	60.4		#80	39.4	
#4	59.4		#100	37.1	
#8	57.1		#200	28.4	

The gradation curve is shown on Figure-1

(B) STANDARD PROCTOR COMPACTING TEST RESULTS (ASTM D698, Procedure C, 6" diameter mold)
Optimum Water Content:: 11.4%
Max. Unit Weight, Dry: 123.0 pcf
The proctor compaction curve is shown in Figure-2

(C) MOISTURE (ASTM D2216): 8.9%
(D) SOIL DESCRIPTION: f SAND, end Gravel, some Silt
COLOR: Red; **ODOR:** None; **CONTAMINATION:** None

TESTWELL CRAIG LABORATORIES, INC.

Kaspal R. Thumma, Eng.Sc.D., P.E.
Laboratory Manager
KRT/mp
cc: rfwony 1, file 1, bill 1/mp

Received: 11/10/97 09:25:18 From: 9147629638

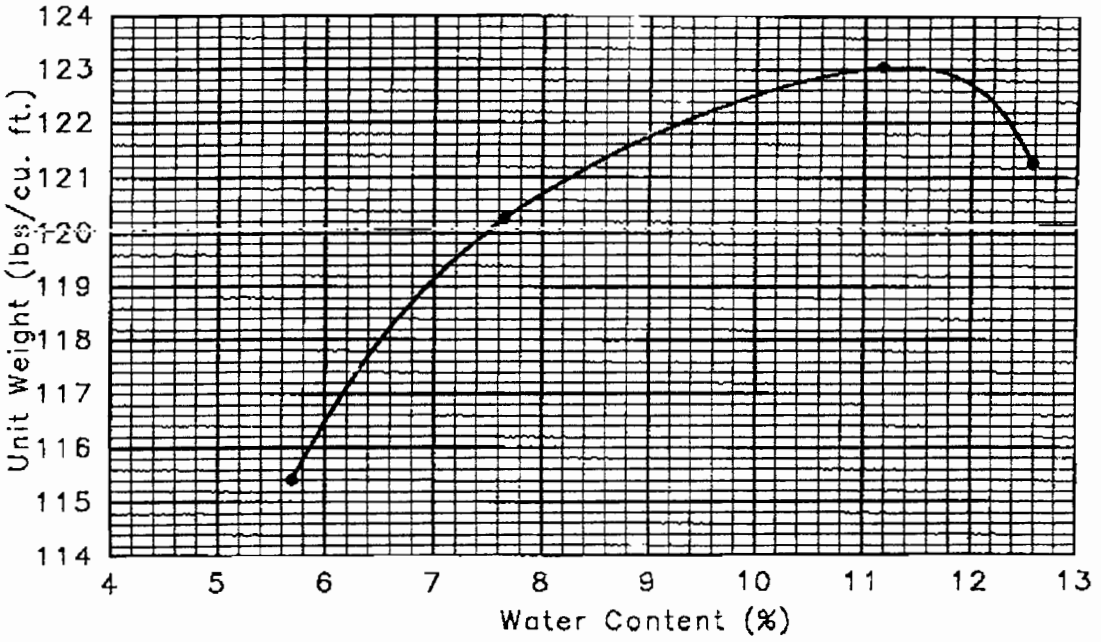
M&T/NAMOW/TCL□J.V.

Roy F. Weston, Inc., Sutton Park
Lab #: FOB-001 Rpt #: MC-116

STANDARD PROCTOR COMPACTION TEST RESULTS OF SOIL NO. SF-32

TEST METHOD: (ASTM D698 Procedure C, 6" Diameter Mold)

Specimen No.	1	2	3	4
Water Content (%)	5.70	7.65	11.17	12.58
Unit Weight, Dry (lbs/cu.ft.)	115.42	120.26	123.05	121.27



Optimum Water Content: 11.4% Max. Unit Weight, Dry:123.0 pcf

Figure 2: Standard Proctor Curve of Soil No. SF-32

M&T/NAMOW/TCL□J.V.
Roy F. Weston, Inc., Sutton Park
Lab #: FOB-001 Report #: MC-116

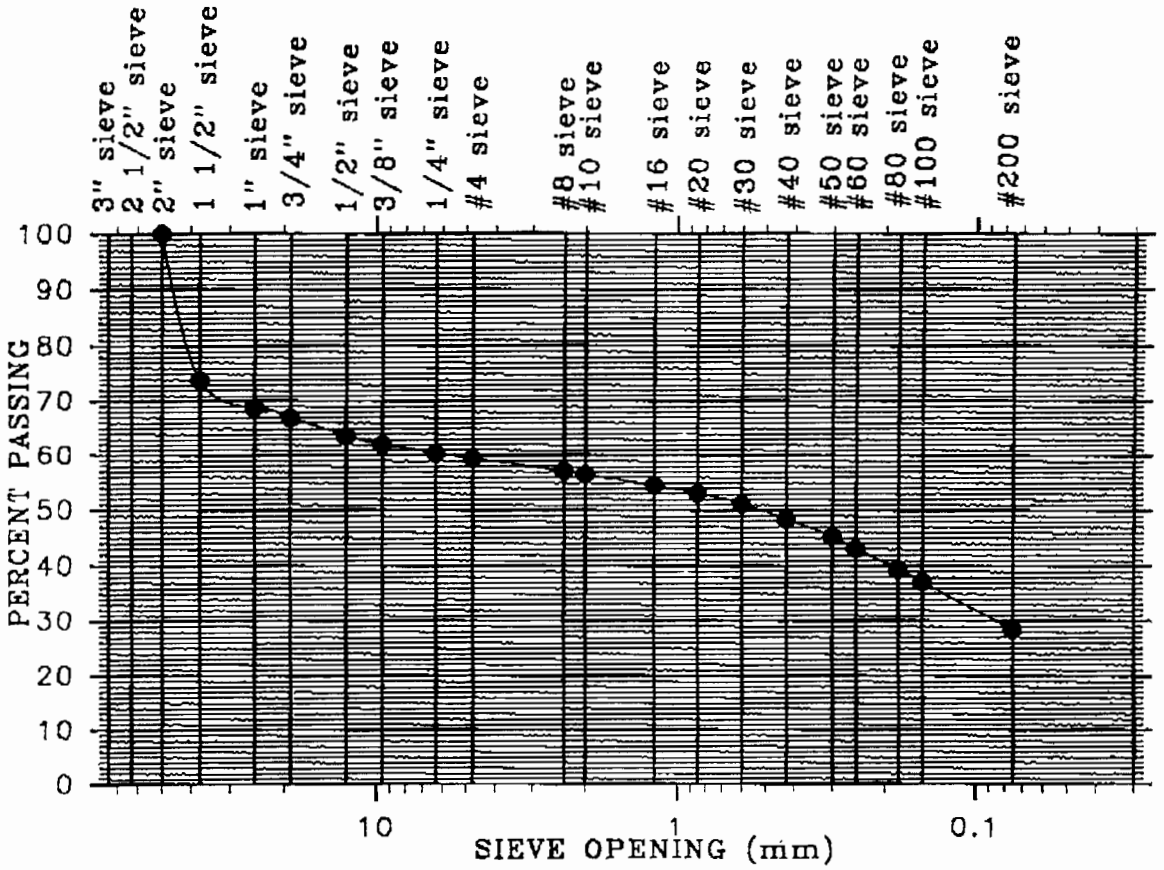


Figure 1: Particle Size Gradation Curve of Soil No. SF-32

M&T/NAMOW/TCL□J.V.

LIQUID LIMITAND PLASTIC LIMIT OF SOIL

Client: Roy F. Weston
Project: Clarkstown Landfill
Sample ID: Indicated Below
Sampled By: Client
Picked up/Delivered by: Client

Lab #: FOB-001
Report#:MC-117
Date Pick up/del: 10/30/97
Date Tested: 11/06/97

LIQUID LIMIT & PLASTIC LIMIT TEST RESULTS (ASTM D4318)

Soil Sample No.	Liquid Limit (wt %)	Plastic Limit, (wt %)	Plastic Index
SF-31 Source: WMX	16.9	NP	0
SF-32 Source: Center Rock	16.1	15.4	0.7

NOTE: NP indicates that the soil is non-plastic since 1/8" diameter thread could not be rolled at any moisture content.

TESTWELL CRAIG LABORATORIES, INC.

Kaspal R. Thumma, Eng.Sc.D., P.E.
Laboratory Manager
KRT\mp
cc: rfwony 1, file 1, bill 1/mp

Received: 11/10/97 09:25:18 From: 9147629638

OBEN REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: CLARKSTOWN LANDFILL / LF CAMPOS Project No: [illegible] Date Sent: 10/20/97

Project Location: WEST NYACK N.Y. Purchase Order No.: Shipped Via:

Sampled By: (Signature) L. Rabbaglia Lab Contact: Date Received: 10/20/97

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall Perm.			
SF-C	R.A-01	X		X	X		X	X						

ANALYSIS REQUIRED

Comment/Special Instructions:

SAMPLES TAKEN FROM CAUTION ROCK PLAZA Hwy 59

POSSIBLE STRUCTURAL FILL

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

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FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION RESEARCH

P.O. BOX 578 STONY POINT NY 10980 TELEPHONE (914) 942-2088 FAX (914) 942-0995

SINCE 1969

SOILS TEST REPORT

October 23, 1997

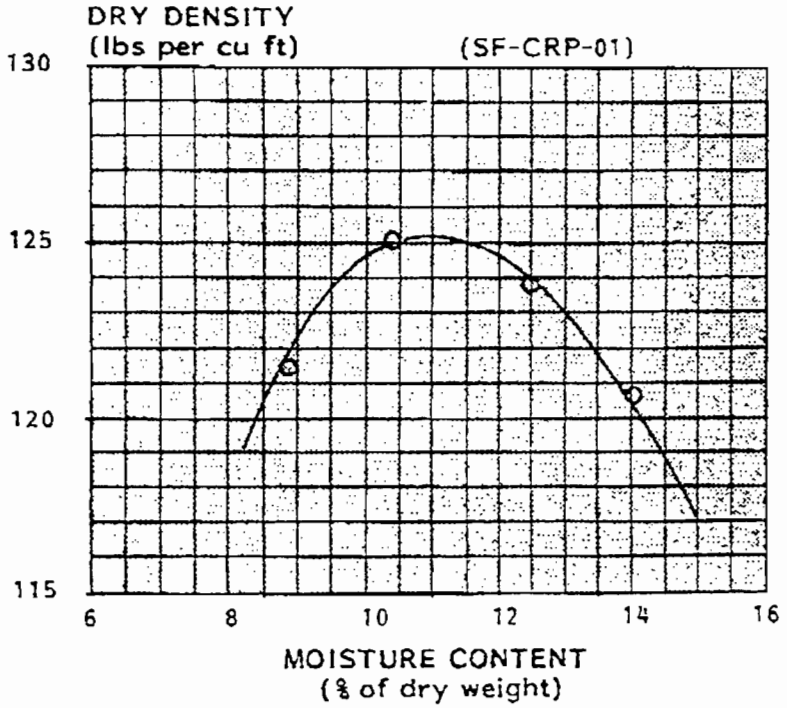
client Ogden Remediation Services

project Clarkstown Landfill

Compaction Method	ASTM D698
Maximum Dry Density	125.2 pcf
Optimum Moisture Content	11.0%

subject Moisture-Density Curve Analysis

On October 20, 1997, soil sample SF-CRP-01 was delivered to this laboratory by the client. Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

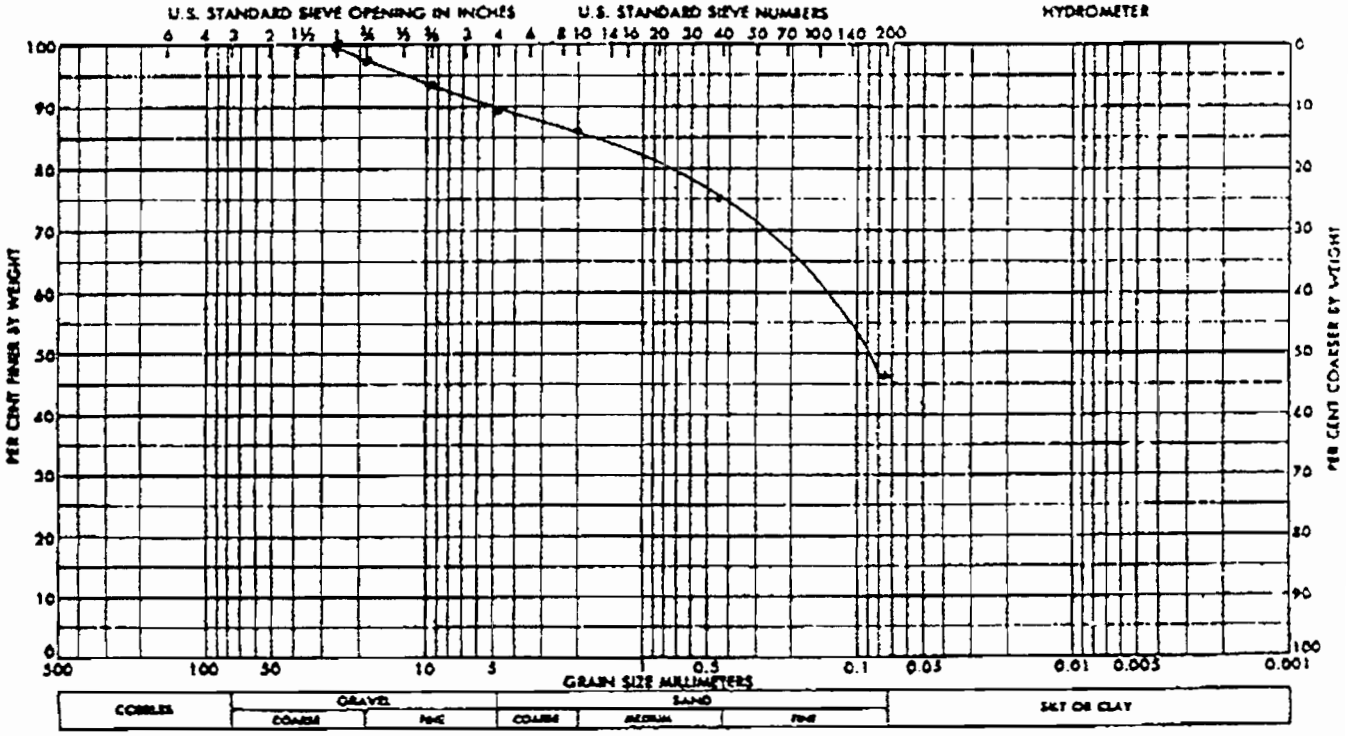
P.O. BOX 578 STONY POINT, NY 10980 TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SINCE 1969

client Ogden Remediation Services October 23, 1997

project Clarkstown Landfill **Grain Size Curve Analysis**

On October 20, 1997, soil sample SF-CRP-01 was delivered to this laboratory by the client. Test results are shown below.



Soil Classification (D2487): SM, silty sand

Atterberg Limits (D4318): 21-18=3

Moisture Content (D2216): 13.1%

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

USEN REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: CLARKSTOWN LANDFILL & LECHATE Project No.: 6001000000 Date Sent: 10/20/97

Project Location: WEST NYACK N.Y. Purchase Order No.: _____ Shipped Via: _____

Sampled By: (Signature) L. KAUFMAN Lab Contact: _____ Date Received: 10/20/97

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex Wall Perm.			
	ANALYSIS REQUIRED													
SF-	C.R.P. 02	X		X	X		X	X						

Comments/Special Instructions:

SAMPLES TAKEN FROM CANTON ROCK PLAZA HWY 59 (POSSIBLE STRUCTURAL FILL)

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Rev. 4/91 F2XXCR3

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SINCE 1969

SOILS TEST REPORT

October 23, 1997

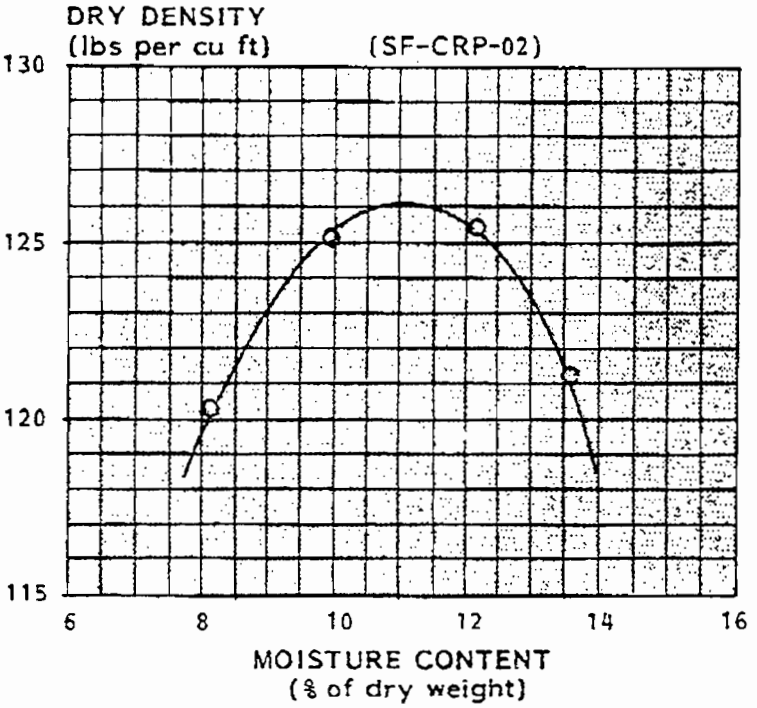
client Ogden Remediation Services

project Clarkstown Landfill

subject Moisture-Density Curve Analysis

Compaction Method	ASTM D698
Maximum Dry Density	126.1 pcf
Optimum Moisture Content	11.2%

On October 20, 1997, soil sample SF-CRP-02 was delivered to this laboratory by the client. Test results are shown below.



FAIRWAY TESTING CO., INC.

P.J. Aguanno, P.E.

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING INSPECTION RESEARCH

P.O. BOX 578 STONY POINT, NY 10980 TELEPHONE (914) 942-2088 FAX (914) 942-0995

SINCE 1969

SOILS TEST REPORT

October 23, 1997

client Ogden Remediation Services

Compaction ASTM

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING INSPECTION RESEARCH

P.O. BOX 578 STONY POINT, NY 10980 TELEPHONE (914) 942-2088 FAX (914) 942-0995

SINCE 1969

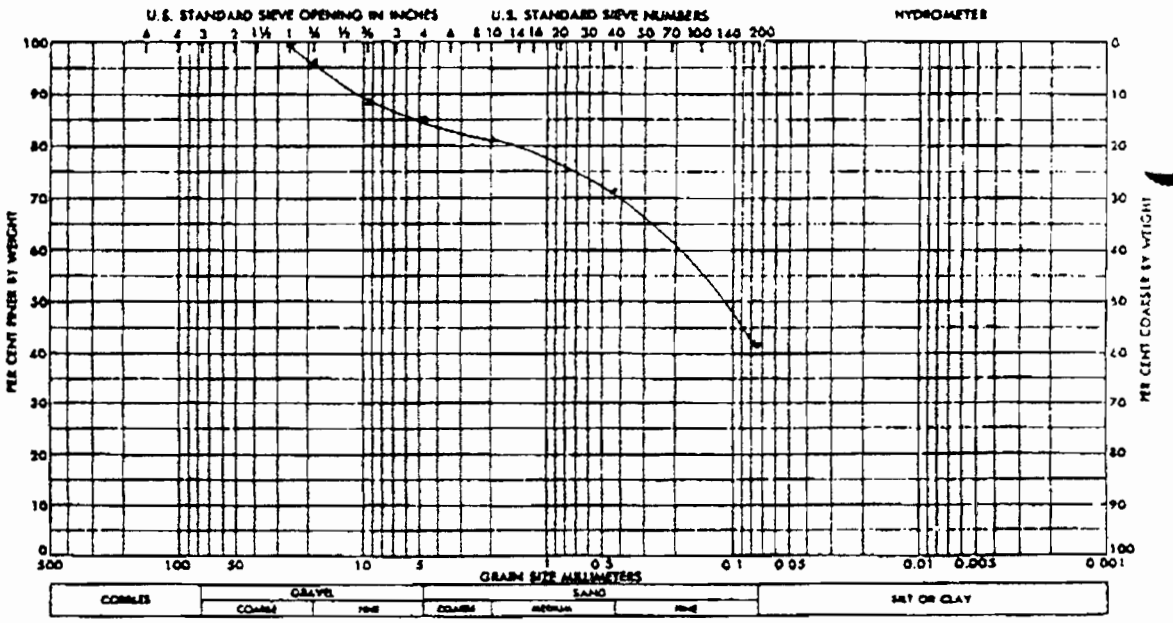
client Ogden Remediation Services

October 23, 1997

project Clarkstown Landfill

Grain Size Curve Analysis

On October 20, 1997, soil sample SF-CRP-02 was delivered to this laboratory by the client. Test results are shown below.



Soil Classification (D2487): SM, silty sand

Atterberg Limits (D4318): 21-18=3

Moisture Content (D2216): 13.5%

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

USEC REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: CLARKSTOWN LF. Project No.: 600100000 Date Sent: 10-23-97

Project Location: WEST NYACK N.Y. Purchase Order No.: _____ Shipped Via: _____

Sampled By: (Signature) L. KAUFMAN Lab Contact: _____ Date Received: 10-23-97

Sample No.	Description	ANALYSIS REQUIRED: Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterburg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydro-meter ASTM D1140	Moisture Content ASTM D2216	Classifi-cation ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
SF-WMY 155	STRUCTURAL FILL	X		X	X		X							

Comments/Special Instructions:

WEST END OF STOCKPILE

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Rev. 4/93

F220/CRS

05/18/1998 11:09 6462693393 HUSLER AND 1 PAGE 02

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SINCE 1962

SOILS TEST REPORT

October 27, 1997

client Ogden Remediation Services

project Clarkstown Landfill

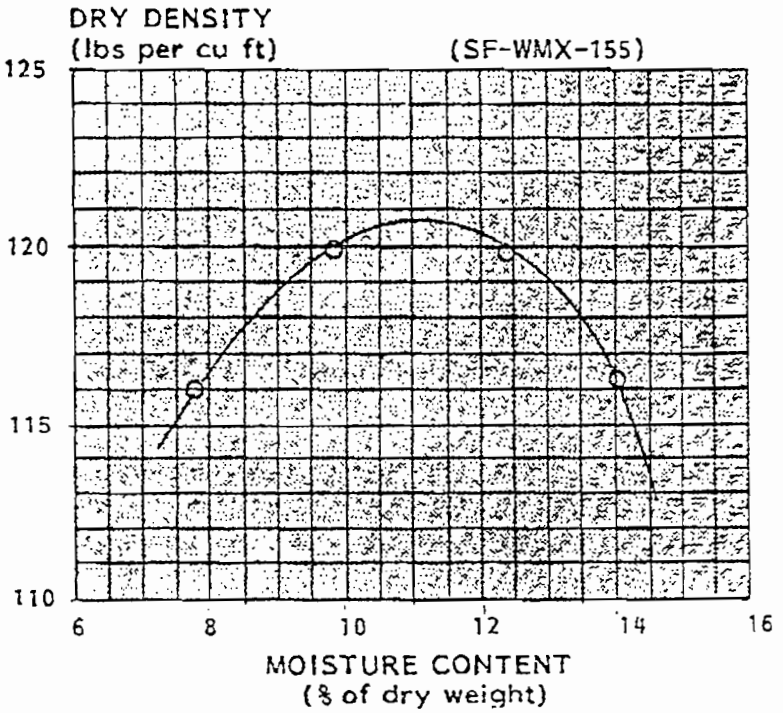
Compaction Method ASTM D698

subject Moisture-Density Curve Analysis

Maximum Dry Density 120.8 pcf

Optimum Moisture Content 11.1%

On October 23, 1997, a representative from this firm visited the jobsite and took sample SF-WMX-155. Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

FAIRWAY TE TING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

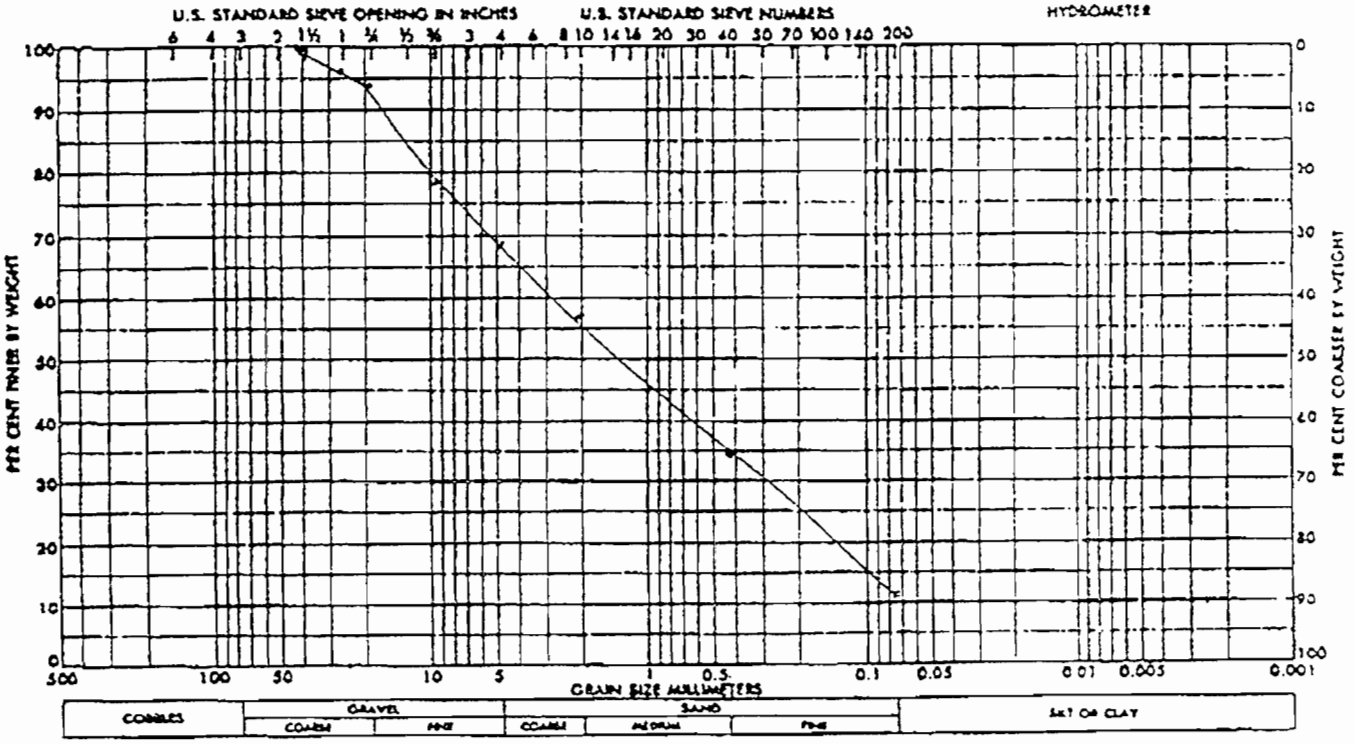
P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SINCE 1969

client Ogden Remediation Services October 27, 1997

project Clarkstown Landfill **Grain Size Curve Analysis**

On October 23, 1997, a representative from this firm visited the jobsite and took sample SF-WMX-155. Test results are shown below.



Atterberg Limits (D4318): NP

Moisture Content (D2216): 10.6%

FAIRWAY TESTING CO., INC.

P. J. Aquanno, P.E.

Clarkstown Landfill Remediation
Laboratory Services Request
#LL-2339-K3

For:
Mr. Reddy Kancharla
M & T/Namow/TCL
47 Hudson Street
Ossining, N.Y. 10562
PH (914)762-9000
FX (914)762-9638

From:
Roy F. Weston of New York
Clarkstown Field Office
166 Rte. 303
West Nyack, N.Y. 10994
PH (914)353-5221
FX (914)353-5491

Sample I.D.	Source	Misc	ASTM D422	ASTM D698	ASTM D2216	ASTM D2974	ASTM 4318	ASTM 4972	EPA 8020						Remarks
SF-33	HS&G in-situ	1 bag	X	X	X		X								LFP 1
TS-06	CH 7 area in-situ	1 bkt	X			X		X	X						CH 7

M&T/NAMOW/TCL=J.V.

GRADATION AND STANDARD PROCTOR COMPACTION TESTING OF SOIL

CLIENT: Roy F. Weston of New York
PROJECT: Clarkstown Landfill Cap Site
SAMPLE ID: SF-33
LOCATIONS: HS & G Insitu
SAMPLED BY: Client
PICKUP/DEL BY: TCL

LAB#: FOB-001
REPORT#: MC-121
DATE PICKUP/DEL: 11/07/97
DATE TESTED: 11/12/97

(A) GRADATION TEST RESULTS (ASTM D422 & ASTM D1140)

Sieve Size	Percent Passing	Specifications*	Sieve Size	Percent Passing	Specifications*	Sieve Size	Percent Passing	Specifications*
3"			3/8"	94.2		#30	86.1	
2 ½"			¼"	92.6		#40	84.8	
2"			#4	91.7		#50	83.4	
1 ½"	100.0		#8	90.2		#60	81.9	
1"	97.4		#10	89.6		#80	78.4	
¾"	97.4		#16	88.1		#100	75.0	
½"	95.2		#20	87.2		#200	58.1	

The gradation curve is shown in Figure 1

(B) STANDARD PROCTOR COMPACTION TEST RESULTS (ASTM D698, Procedure C, 6" diameter mold)
Optimum Water Content : 11.2%
Max. Unit Weight, Dry: 121.2 pcf
The proctor compaction curve is shown in Figure 2.

(C) MOISTURE CONTENT IN AS RECIEVED SAMPLE (ASTM D2216): 16.9%

(D) SOIL DESCRIPTION: SILT, some f Sand, trace Gravel
COLOR: Brown; ODOR: None; CONTAMINATION: None

TESTWELL CRAIG LABORATORIES, INC.

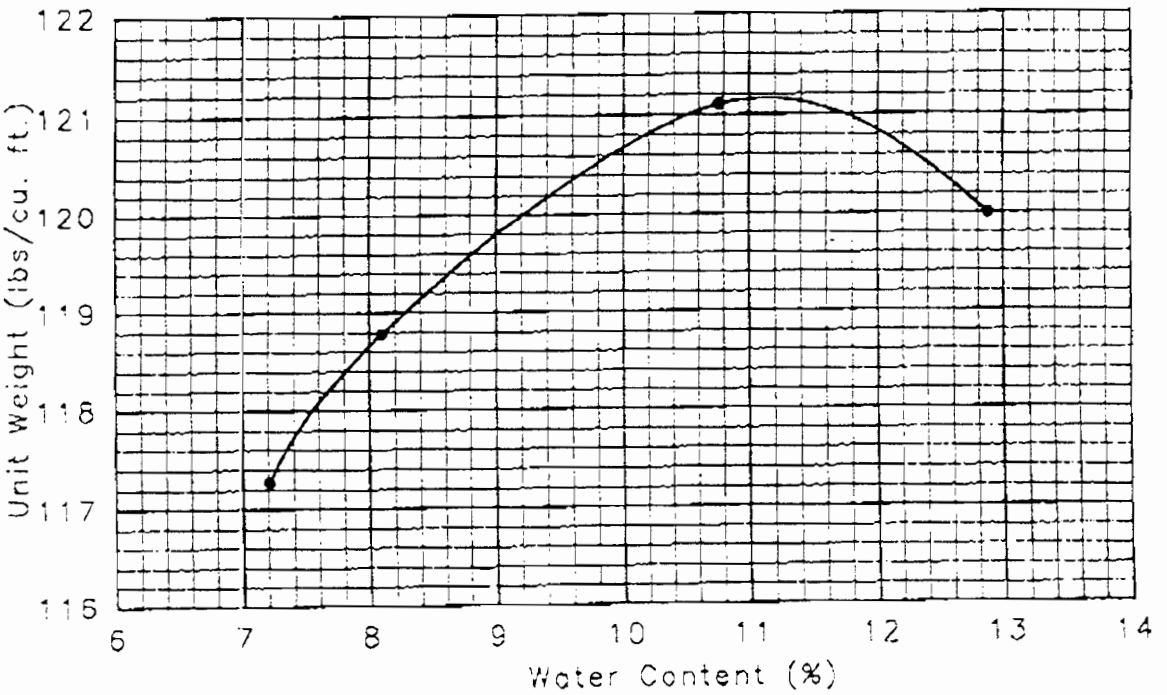
Kaspal R. Thumma, Eng Sc.D., P.E
Laboratory Manager
KRT/mp

Roy F. Weston of New York
Lab #: FOB-001 Rpt #: MC-121

STANDARD PROCTOR COMPACTION TEST RESULTS

TEST METHOD: (ASTM D698 Procedure C, 6" Diameter Mold)

Specimen No	1	2	3	4
Water Content (%)	7.21	8.10	10.76	12.88
Unit Weight, Dry (lbs/cu.ft.)	117.27	118.78	121.10	120.00



Optimum Water Content. 11.2% Max. Unit Weight, Dry:121.2 pcf

Figure 2: Standard Proctor Curve of Soil No. SF--33

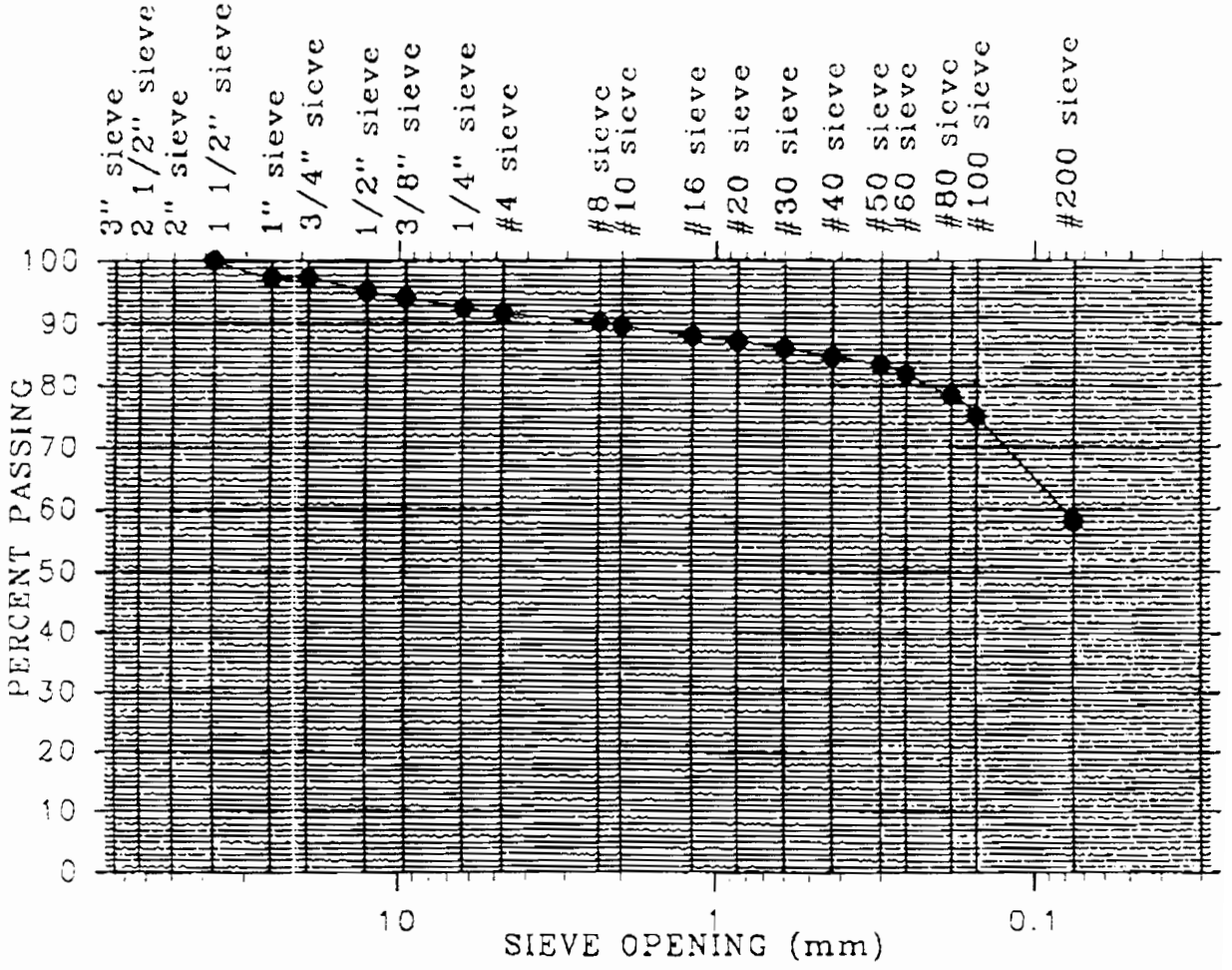


Figure 1: Particle Size Gradation Curve of Soil No. SF-33

Soil Sample Test Request Record

Project Name/Client: CLARKSTOWN L.F. & L.F. CAPPING
Project No.: 60010000
Date Sent: 10-30-97

Project Location: WEST NYACK
Purchase Order No.:
Shipped Via:

Sampled By: (Signature) L. KAUFMACH
Lab Contact:
Date Received: 10-30-97

Sample No.	Description	ANALYSIS REQUIRED: Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
~~CS-HS~~	~~UNSCHEDULED~~ CONTACT SOIL	X		X	X		X	X						
SF-HS 160														

Comment/Special Instructions:

ON-SITE STOCKPILE EAST END

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

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FZ20/CR3

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SINCE 1969

October 30, 1997

SOILS TEST REPORT

client Ogden Remediation Services

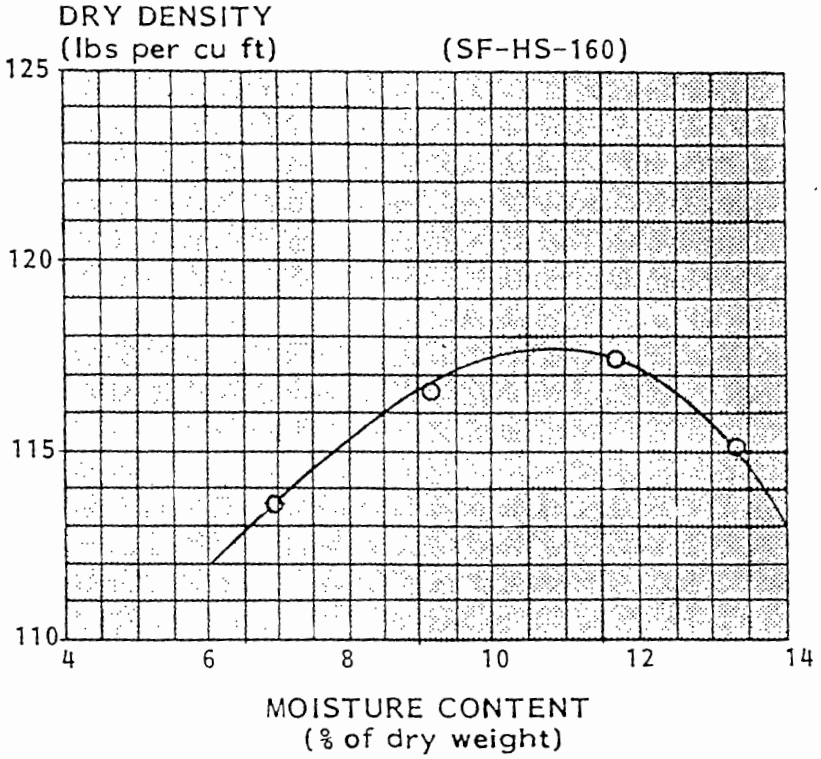
project Clarkstown Landfill

Compaction ASTM Method D698

subject Moisture-Density Curve Analysis

Maximum Dry Density 117.8 pcf
Optimum Moisture Content 10.9%

On this date, a representative from this firm visited the jobsite and took sample SF-HS-160. Test results are shown below.



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P. J. Aguanno, P. E.

SINCE 1969

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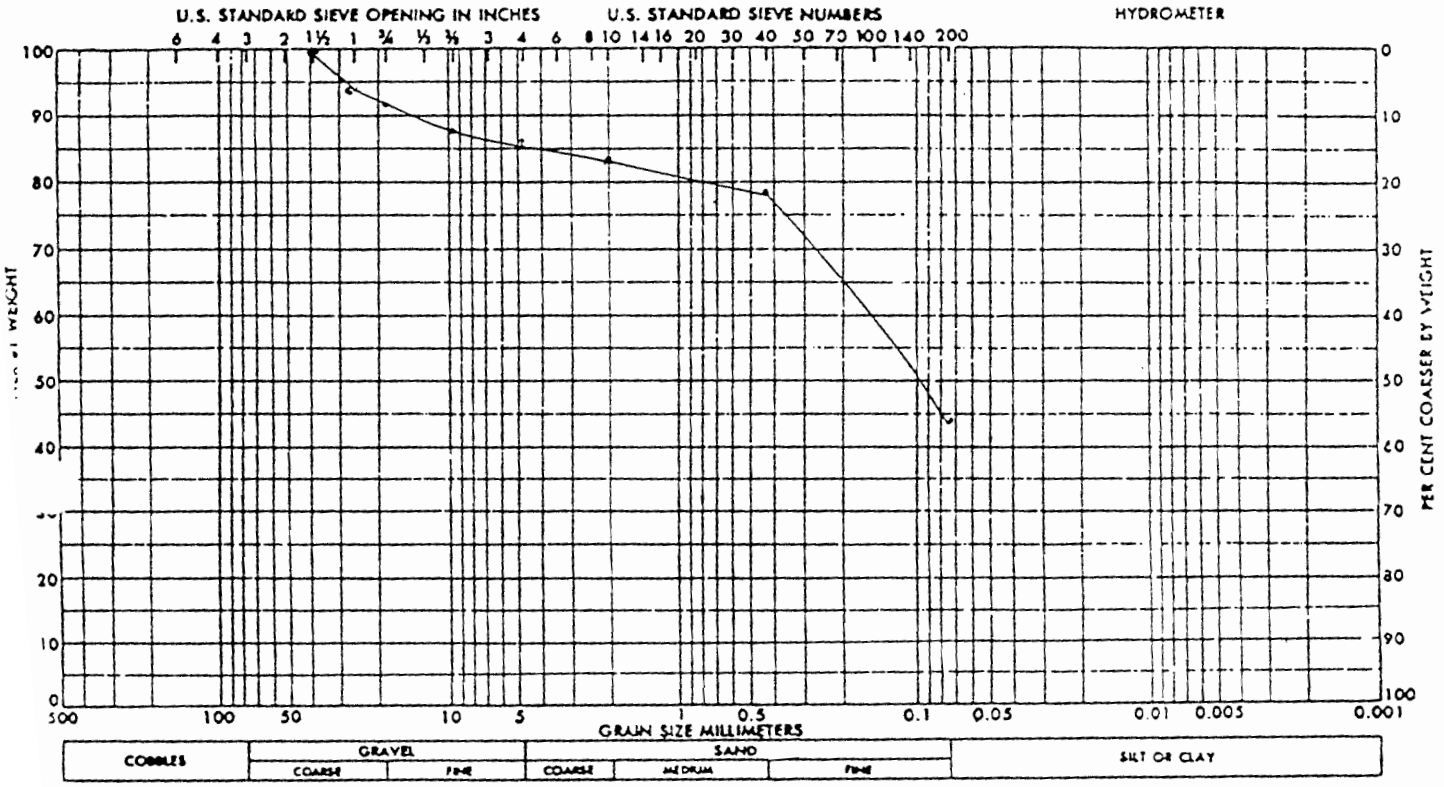
October 30, 1997

client: Ogden Remediation Services

project: Clarkstown Landfill

Grain Size Curve Analysis

On this date, a representative from this firm visited the jobsite and took sample SF-HS-160. Test results are shown below.



Soil Classification (D2487): SM, silty sand
Atterberg Limits (D4318): NP
Moisture Content (D2216): 6.9%

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

Project Name/Client: CLARKSTOWN L.F. & L.F. CAPPING
Project No.: L0010000
Date Sent: 10-30-97

Project Location: WEST NYACK N.Y.
Purchase Order No.:
Shipped Via:

Sampled By: L. KAVANAGH
(Signature)
Lab Contact:
Date Received: 10-30-97

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
~~CS-HS~~	~~UNDISTURBED~~ ~~Cohesive Soil~~	X		X	X		X	X						
SF-HS 165														

Comments/Special Instructions:

ON-SITE WEST END STOCKPILE

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

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CE 1969

SOILS TEST REPORT October 30, 1997

client Ogden Remediation Services

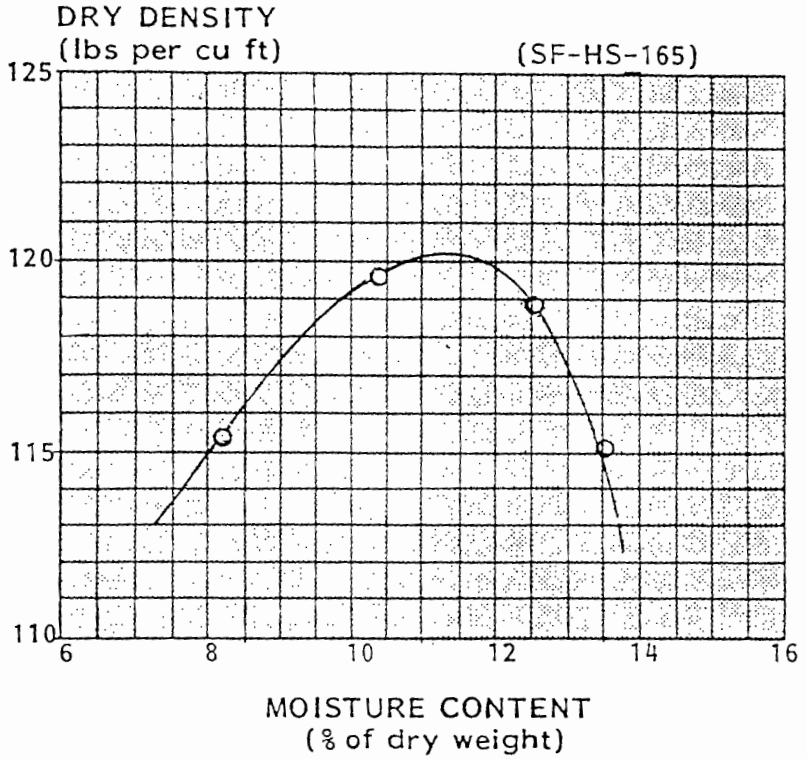
project Clarkstown Landfill

Compaction Method ASTM D698

subject Moisture-Density Curve Analysis

Maximum Dry Density 120.2 pcf
Optimum Moisture Content 11.3%

On this date, a representative from this firm visited the jobsite and took sample SF-HS-165. Test results are shown below.



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NCE 1969

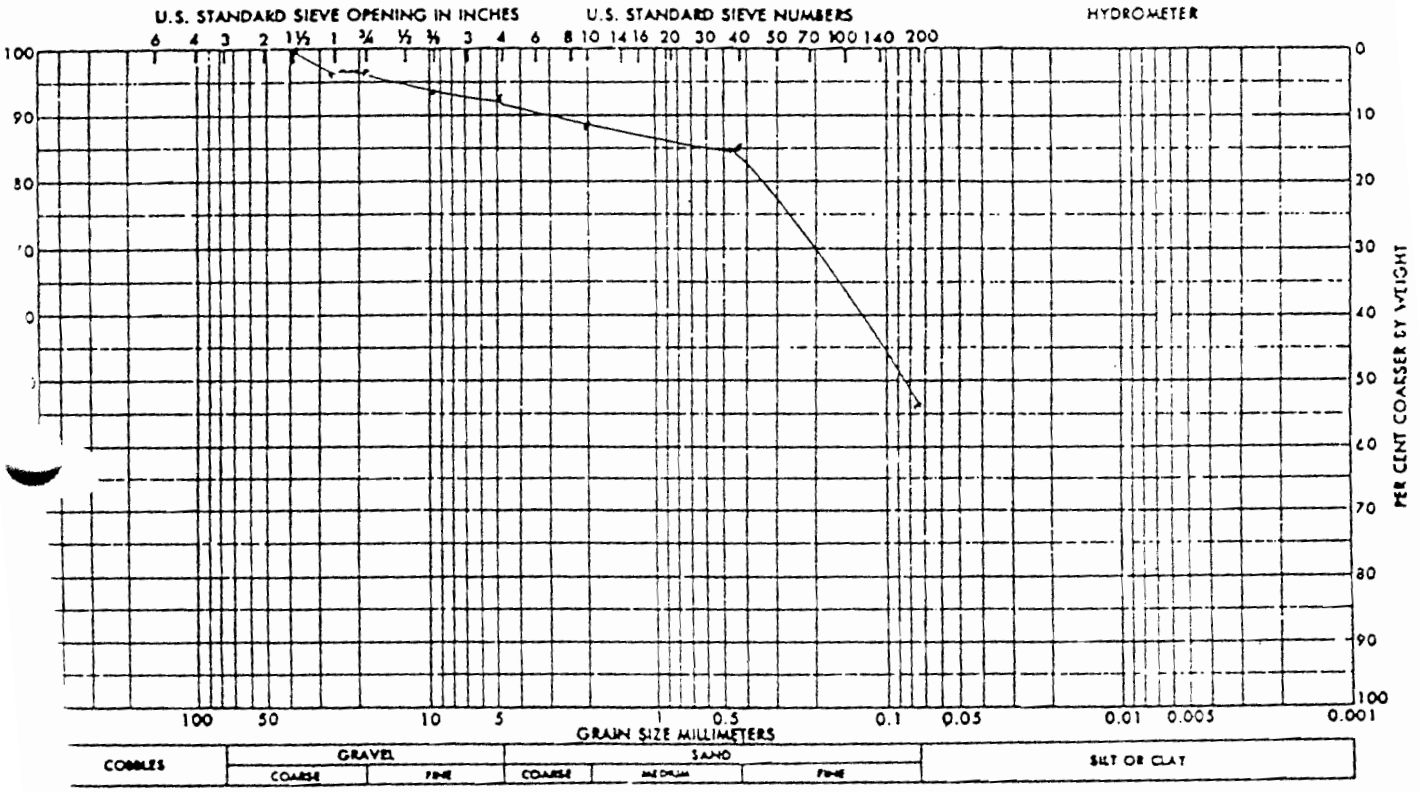
October 30, 1997

client: Ogden Remediation Services

project: Clarkstown Landfill

Grain Size Curve Analysis

On this date, a representative from this firm visited the jobsite and took sample SF-HS-165. Test results are shown below.



oil Classificaiton (D2487): SM, silty sand
tterberg Limits (D4318): NP
oisture Content (S2216): 8.1%

IRWAY TESTING CO., INC.

J. Aguanno, P. E.

OBD REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Rec

Project Name/Client: CLARKSTOWN L.F. & L.F. CAPPING
Project No.: 600100000
Date Sent: 11-5-97

Project Location: WEST NYACK N.Y.
Purchase Order No.:
Shipped Via:

Sampled By: (Signature) L. KAVANAGH
Lab Contact:
Date Received: 11-5-97

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
		ANALYSIS REQUIRED												
SF-WMX 160	STRUCTURAL FILL DIRECT-PLACE.	X		X	X		X	X						

Comments/Special Instructions:

DIRECT PLACE. LFP-8 SOUTH END.

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

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SINCE 1969

November 12, 1997

SOILS TEST REPORT

client Ogden Remediation Services

project Clarkstown Landfill

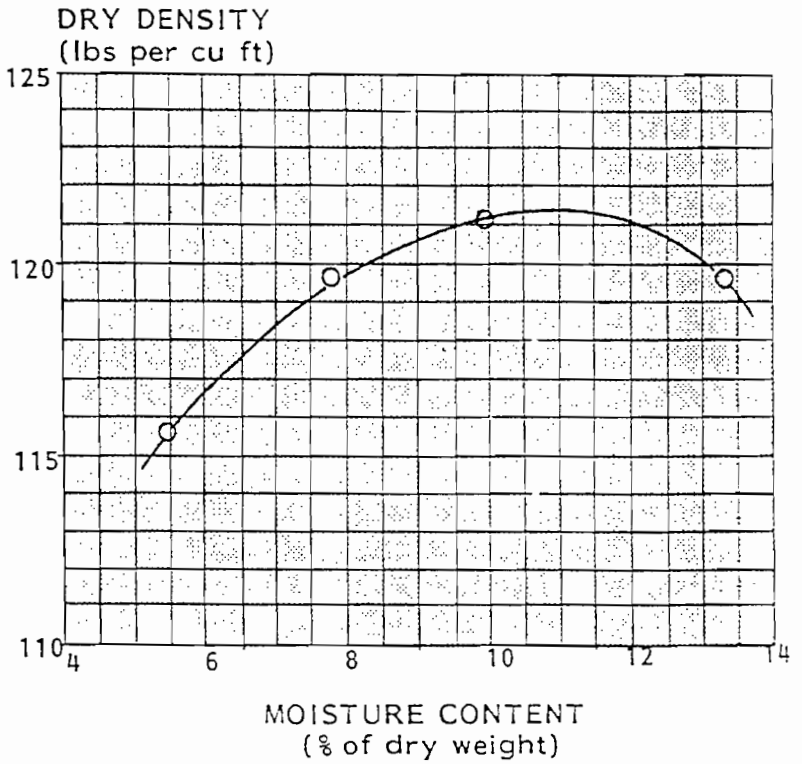
Compaction Method ASTM D698

subject Moisture-Density Curve Analysis

Maximum Dry Density 121.3 pcf

Optimum Moisture Content 11.0%

On November 6, 1997, soil sample SF-WMX-160 was deliverd to this laboratory by the client. Test results are shown below.



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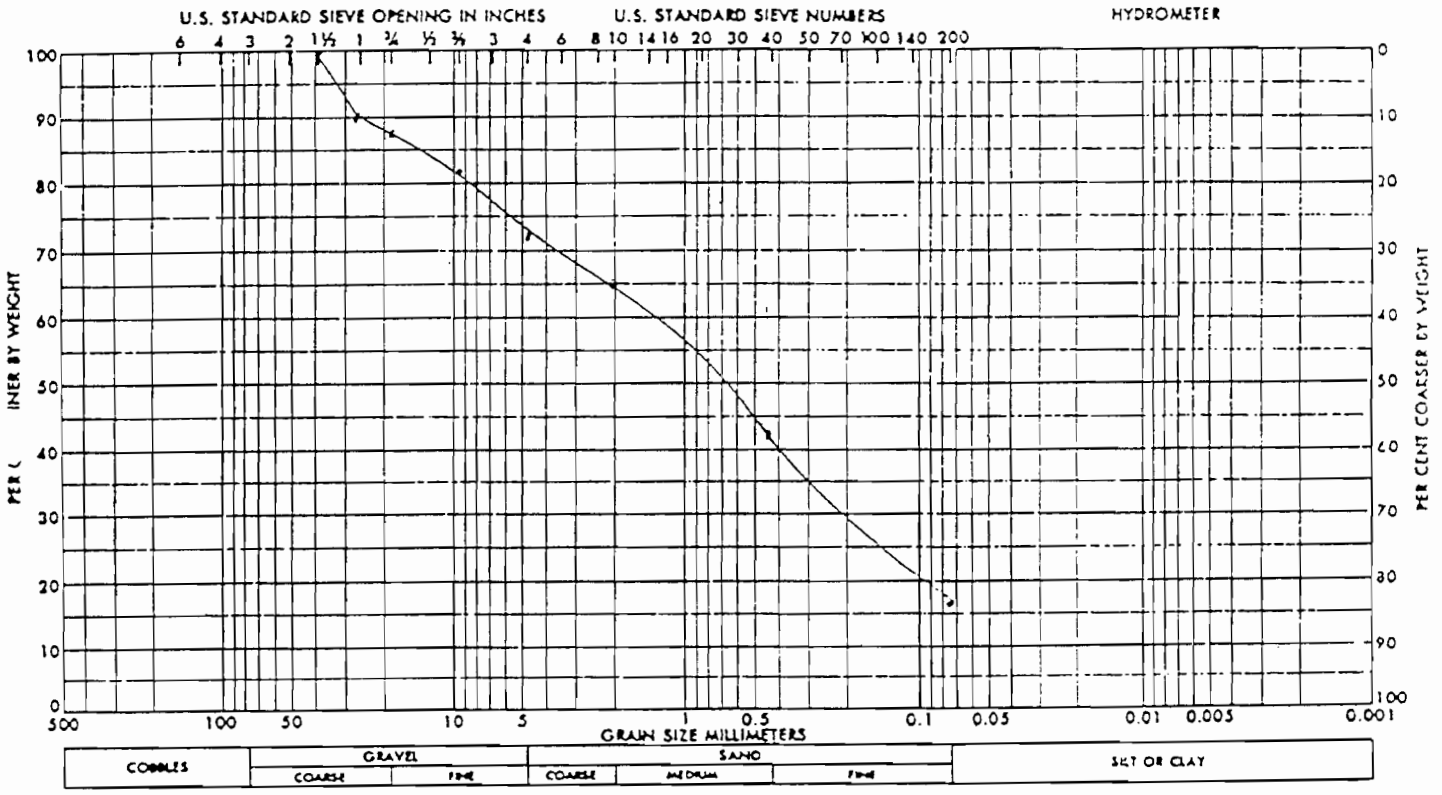
SINCE 1959

November 12, 1997

client Ogden Remediation Services

project Clarkstown Landfill Grain Size Curve Analysis

On November 6, 1197, soil sample SF-WMX-160 was delivered to this laboratory by the client. Test results are shown below.



Soil Classification (D2487): SM, silty and with gravel

Atterberg Limits (D4318): NP

Moisture Content (D2216): 12.2%

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

OBDEN REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: CLARKSTOWN L.F. & L.F CAPPING
Project No.: 600100000
Date Sent: 11-15-97

Project Location: WEST NYACK
Purchase Order No.:
Shipped Via:

Sampled By: (Signature) SOURCE
Lab Contact:
Date Received: 11-13-97

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Met. Wall. Perm.			
		ANALYSIS REQUIRED												
SF-SB 01	STRUCTURAL	X		X	X		X	X						

Comments/Special Instructions: Sample taken from Van Orden Sand and Gravel stockpile Ringwood NJ.

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SINCE 1969

SOILS TEST REPORT November 13, 1997

client Ogden Remediation Services

project Clarkstown Landfill

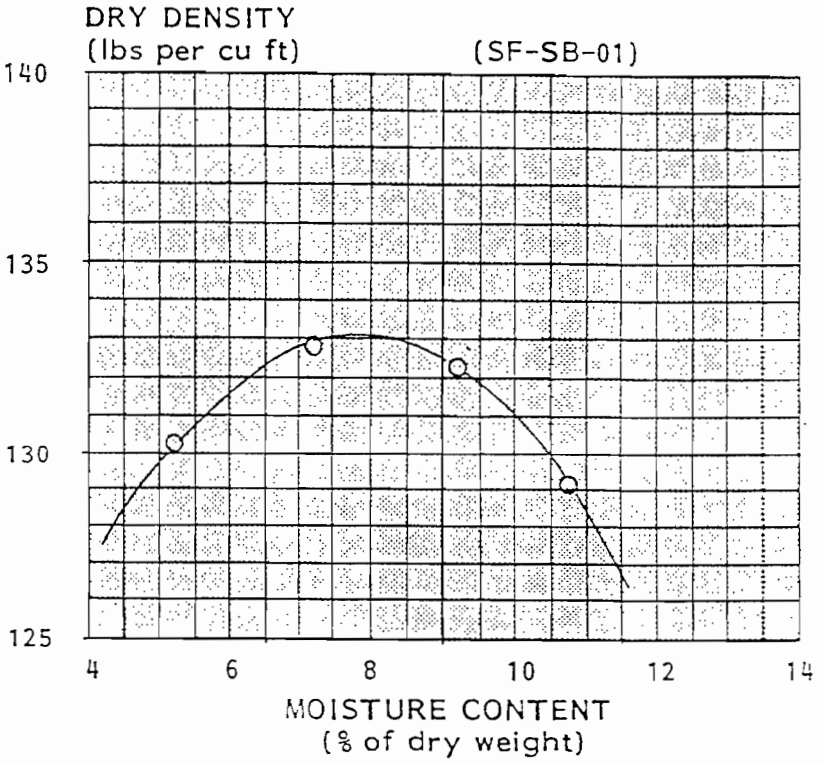
Compaction Method: ASTM D698

Maximum Dry Density: 133.1 pcf

subject Moisture-Density Curve Analysis

Optimum Moisture Content: 7.8%

On this date, a representative from this firm visited the jobsite and picked-up a sample lableed SF-SB-01. Test results are shown below.



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P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

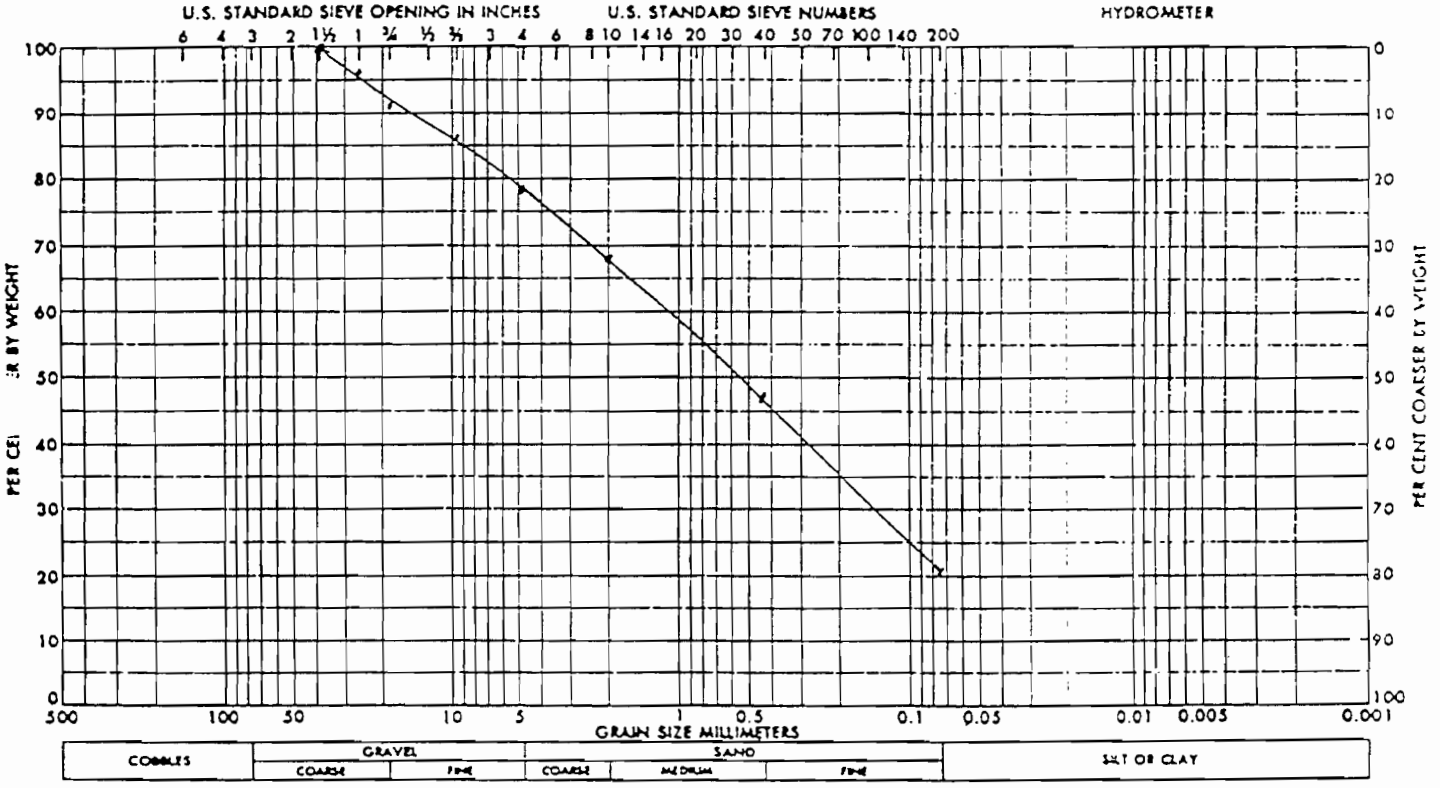
: 1969

November 13, 1997

client Ogden Remediation Services

project Clarkstown Landfill **Grain Size Curve Analysis**

On this date, a representative from this firm visited the jobsite and picked-up a sample labeled SF-SB-01. Test results are shown below.



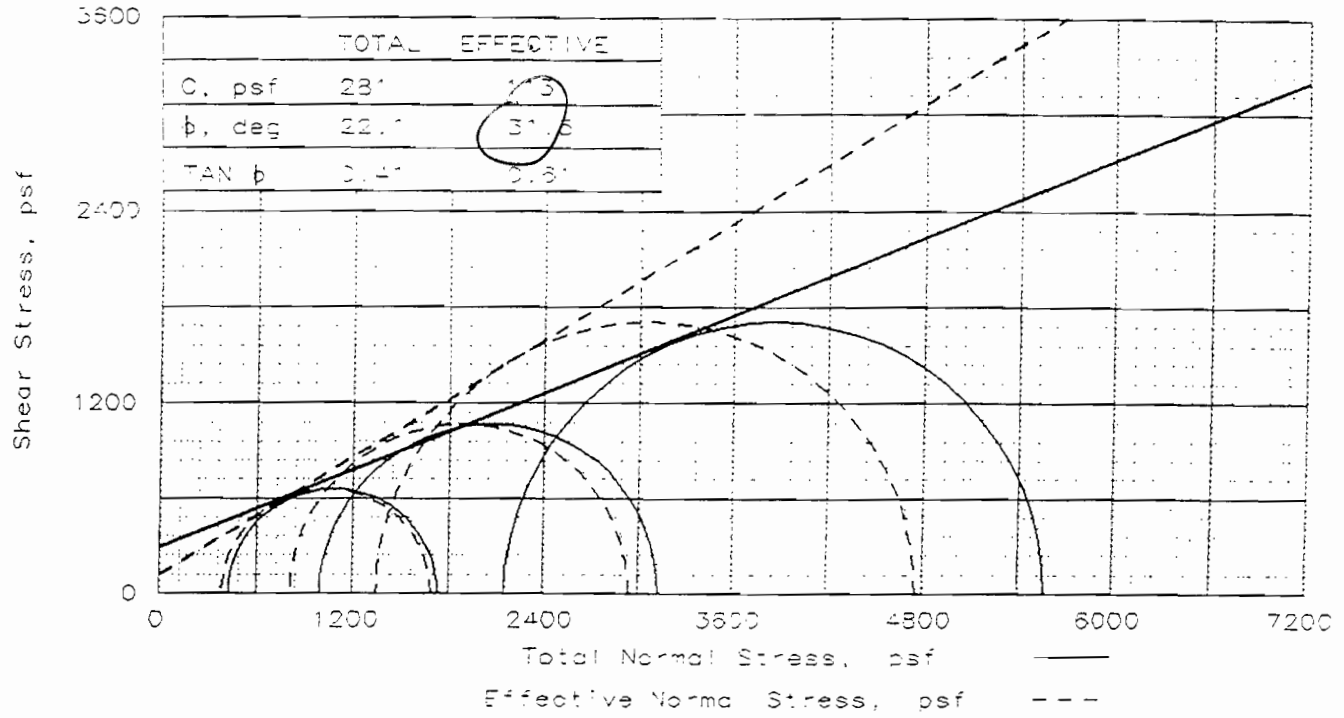
Soil Classification (D2487): SM, silty sand w/gravel

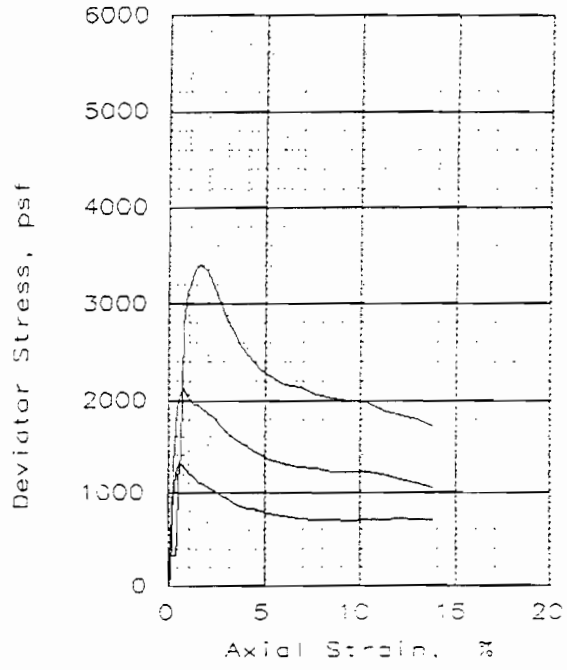
Atterberg Limits (D4318): NP

Moisture Content (D2216): 8.5%

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.





SAMPLE NO.		1	2	3
INITIAL	WATER CONTENT, %	7.8	7.8	7.8
	DRY DENSITY, pcf	119.8	119.8	119.8
	SATURATION, %	54.3	54.3	54.3
	VOID RATIO	0.381	0.381	0.381
	DIAMETER, in	2.80	2.80	2.80
	HEIGHT, in	5.80	5.80	5.80
AT TEST	WATER CONTENT, %	14.0	13.8	13.3
	DRY DENSITY, pcf	120.3	121.1	122.4
	SATURATION, %	99.0	99.8	100.0
	VOID RATIO	0.375	0.366	0.351
	DIAMETER, in	2.80	2.79	2.78
	HEIGHT, in	5.79	5.78	5.76
Strain rate, in/min		0.050	0.050	0.050
BACK PRESSURE, psf		6480	6480	6480
CELL PRESSURE, psf		6912	7488	8640
FAILURE STRESS, psf		1303	2126	3406
PORE PRESSURE, psf		5523	6667	7286
ULTIMATE STRESS, psf				1717
PORE PRESSURE, psf				8179
σ_1 FAILURE, psf		1692	2947	4759
σ_3 FAILURE, psf		389	821	1354

TYPE OF TEST:
CU with pore pressures
SAMPLE TYPE: COMPACTED SAMPLE
DESCRIPTION: COV' SOIL SF-SB-01
B

LL= PL= PI=
SPECIFIC GRAVITY= 2.65
REMARKS: SAMPLE COMPACTED TO 90 PERCENT SPMDD AT OPTIMUM MOISTURE CONTENT

F.G. NO. VODEN

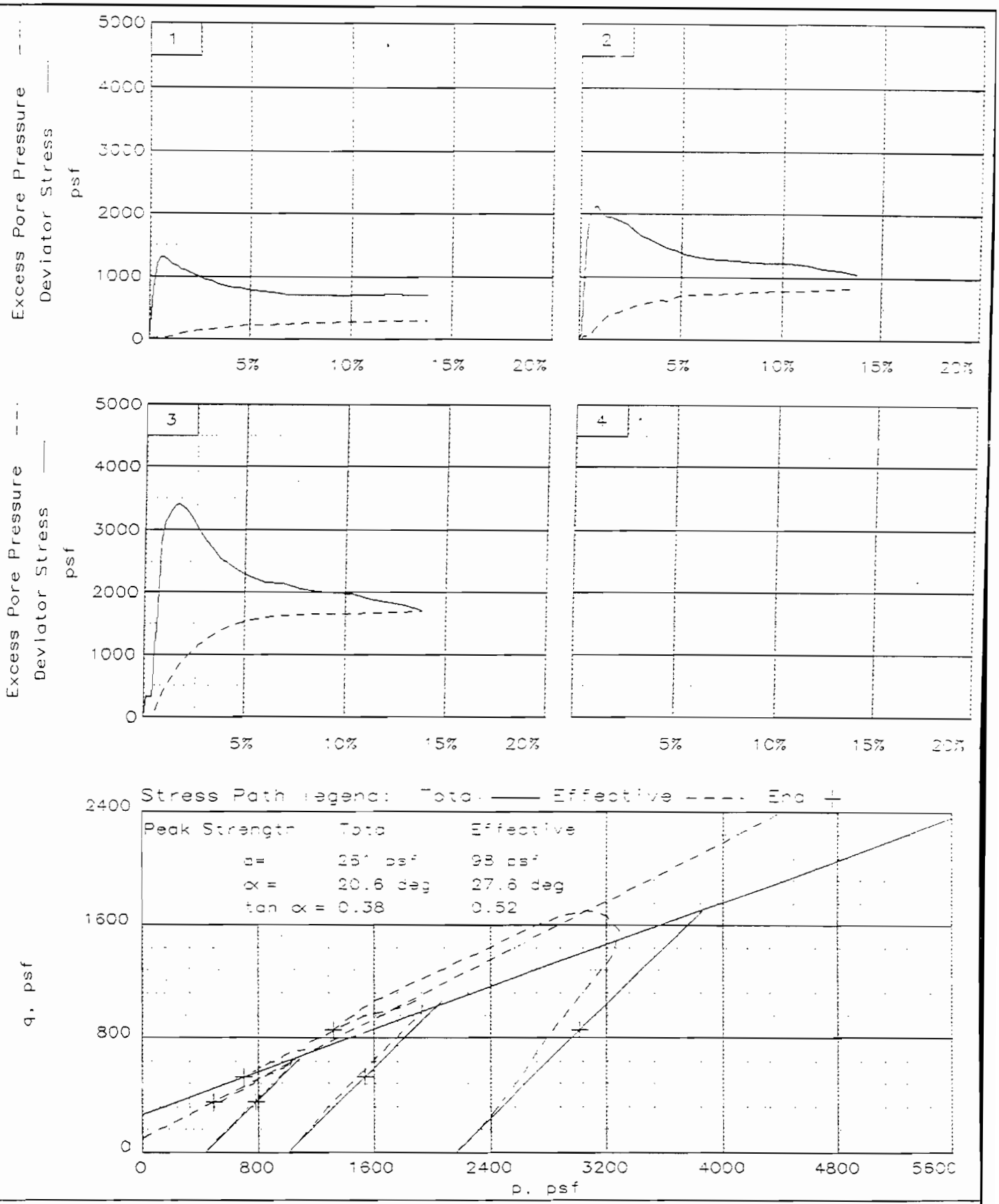
CLIENT: OGDEN REMEDIATION SERVICES, INC.

PROJECT: CLARDED SAND AND GRAVEL QUARRY STOCKPILE, RINGWOOD NJ
SAMPLE LOCATION: CLARKSTOWN LANDFILL VAN ORDEN SAND & GRAVEL QUARRY, RINGWOOD

PROJ. NO.: 96S2111 DATE: 1-12-98

TRIAXIAL SHEAR TEST REPORT

J & L TESTING CO., INC.



Client: OGDEN REMEDIATION SERVICES, INC.

Project: cLA ORDED SAND AND GRAVEL QUARRY STOCKPILE, RINGWOOD NJ

Location: CLARKSTOWN LANDFILL VAN ORDEN SAND & GRAVEL QUARRY, RINGWOOD

File: VANORDEN Project No.: 96S2111 Page 2/2 Fig. No. VODEN

OGDEN ENVIRONMENTAL AND ENERGY SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: Clarkstown L.F. & L.F. Capping
Project No.: 6001000000
Date Sent: 11-13-97

Project Location: West Nyack
Purchase Order No.:
Shipped Via:

Sampled By: (Signature) Source
Lab Contact:
Date Received: 11-13-97

Sample No.	Description	ANALYSIS REQUIRED: Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
SF-SB 02	STRUCTURAL	X		X	X		X	X						

Comments/Special Instructions: Sample taken from Van Orden Sand and Gravel stockpile Ringwood NJ

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

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CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SINCE 1969

SOILS TEST REPORT

November 13, 1997

client Ogden Remediation Services

project Clarkstown Landfill

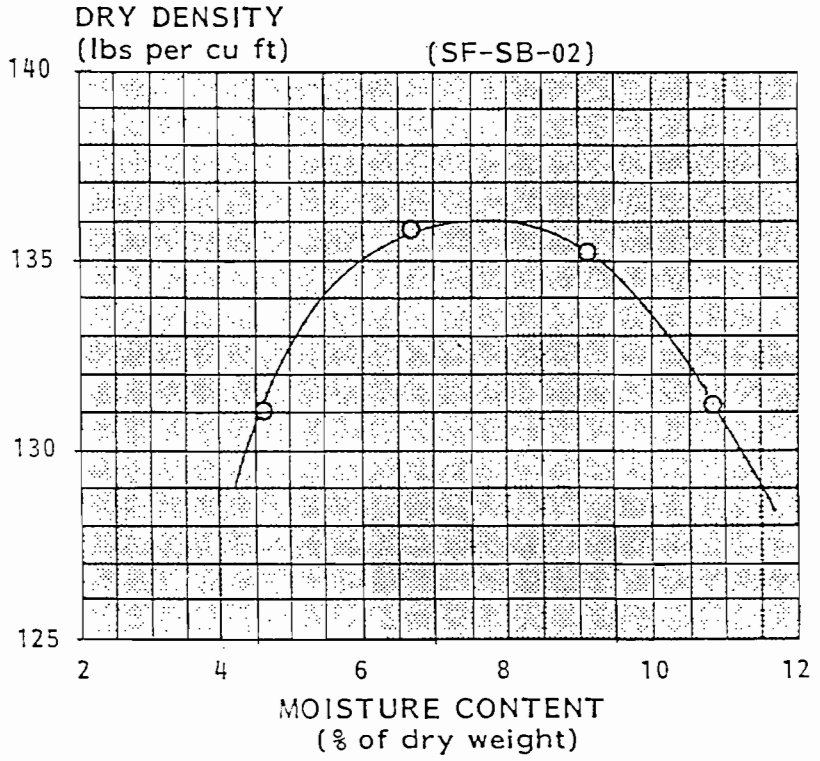
Compaction Method ASTM D698

subject Moisture-Density Curve Analysis

Maximum Dry Density 136.0 pcf

Optimum Moisture Content 7.8%

On this date, a representative from this firm visited the jobsite and picked-up a sample labeled SF-SB-02. Test results are shown below.



FAIRWAY TESTING CO., INC.

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FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

1969

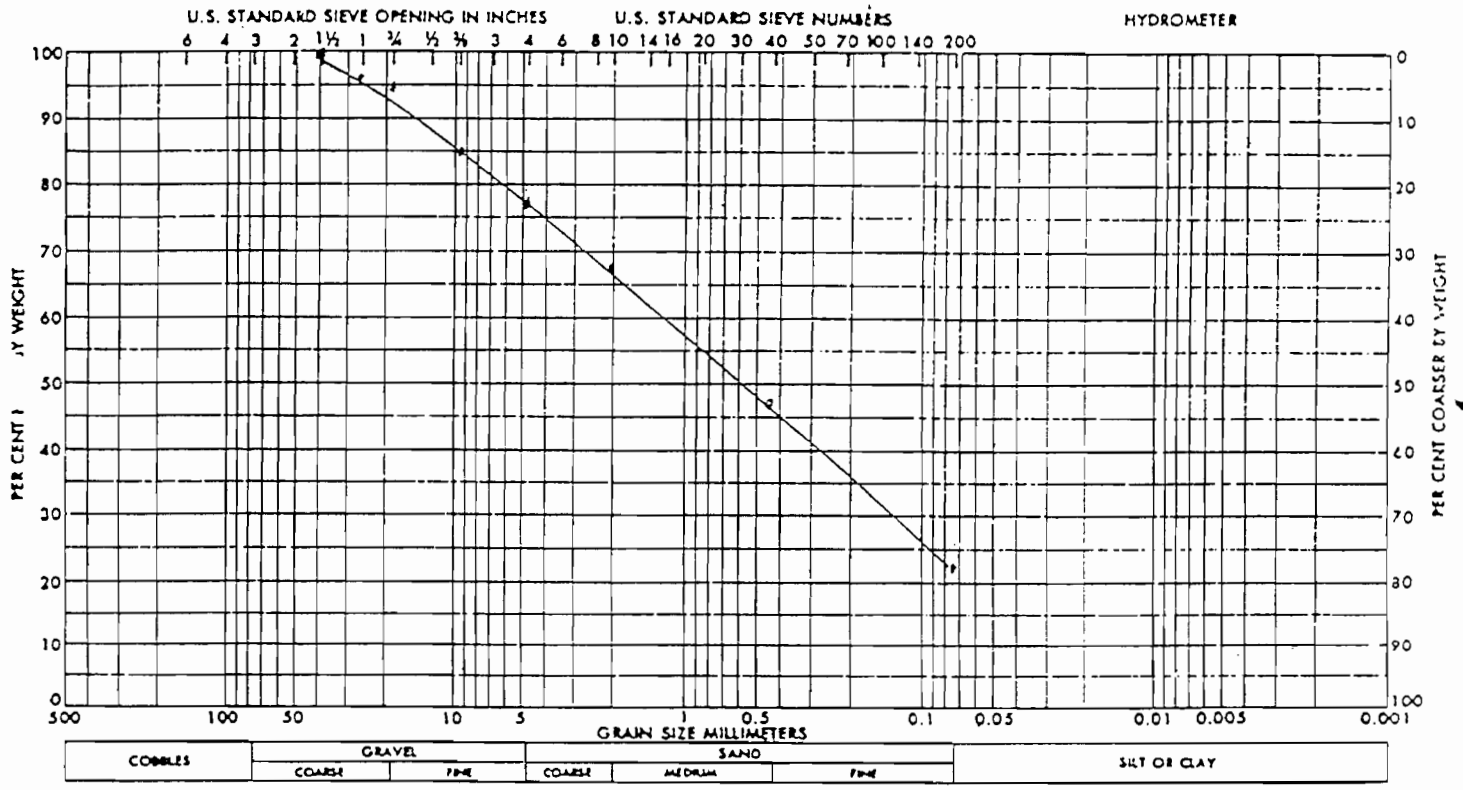
client Ogden Remediation Services

November 13, 1997

project Clarkstown Landfill

Grain Size Curve Analysis

On this date, a representative from this firm visited the jobsite and picked-up a sample labeled SF-SB-02. Test results are shown below.



Soil Classification (D2487): SM, silty sand w/gravel

Atterberg Limits (D4318): NP

Moisture Content (D2216): 9.1%

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

OGDEN REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Reco...

Project Name/Client: CLARKSTOWN L.F. & L.F. CAPPING
Project No.: 600100000
Date Sent: 11-12-97

Project Location: WEST NYACK N.Y.
Purchase Order No.:
Shipped Via:

Sampled By: (Signature) L. KAVANAGH
Lab Contact:
Date Received: 11-12-97

Sample No.	Description	ANALYSIS REQUIRED: Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
SF-WMX 165	STRUCTURAL FILL	X		X	X		X	X						

Comments/Special Instructions:

DIRECT PLACE SAMPLE, LFP-8 SOUTH OF GE-1

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Rev. 1/93

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CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

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SOILS TEST REPORT

November 14, 1997

client Ogden Remediation Services

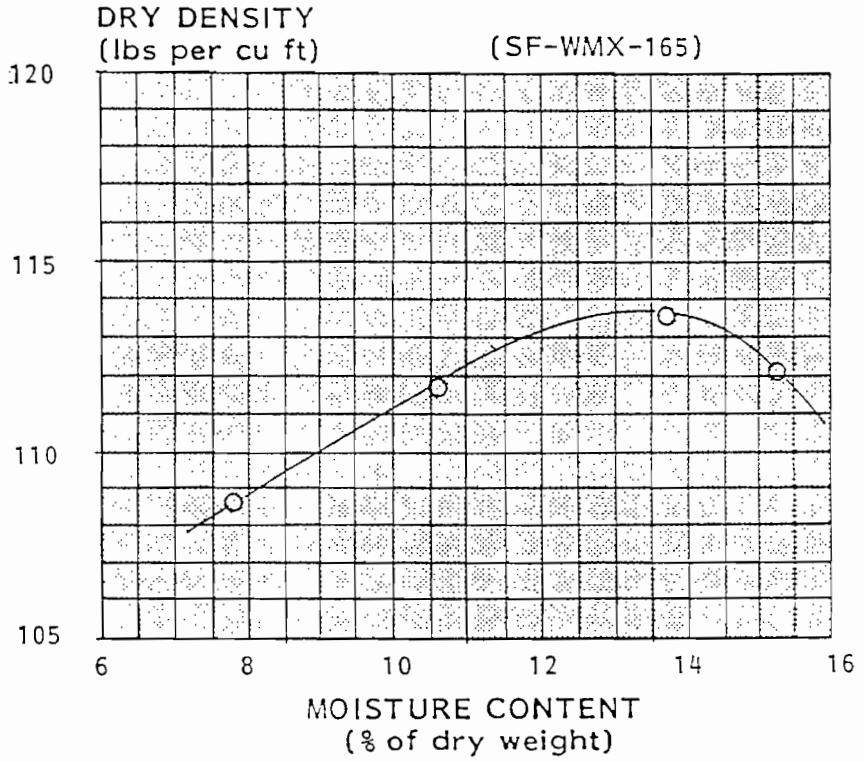
project Clarkstown Landfill

Compaction Method: ASTM D698

subject Moisture-Density Curve Analysis

Maximum Dry Density: 113.8 pcf
Optimum Moisture Content: 13.5%

On November 12, 1997, a representative from this firm visited the jobsite and took a sample of soil labeled SF-WMX-165. Test results are shown below.



RECEIVED NOV 2 0 1997

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

TP.C1.seb

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

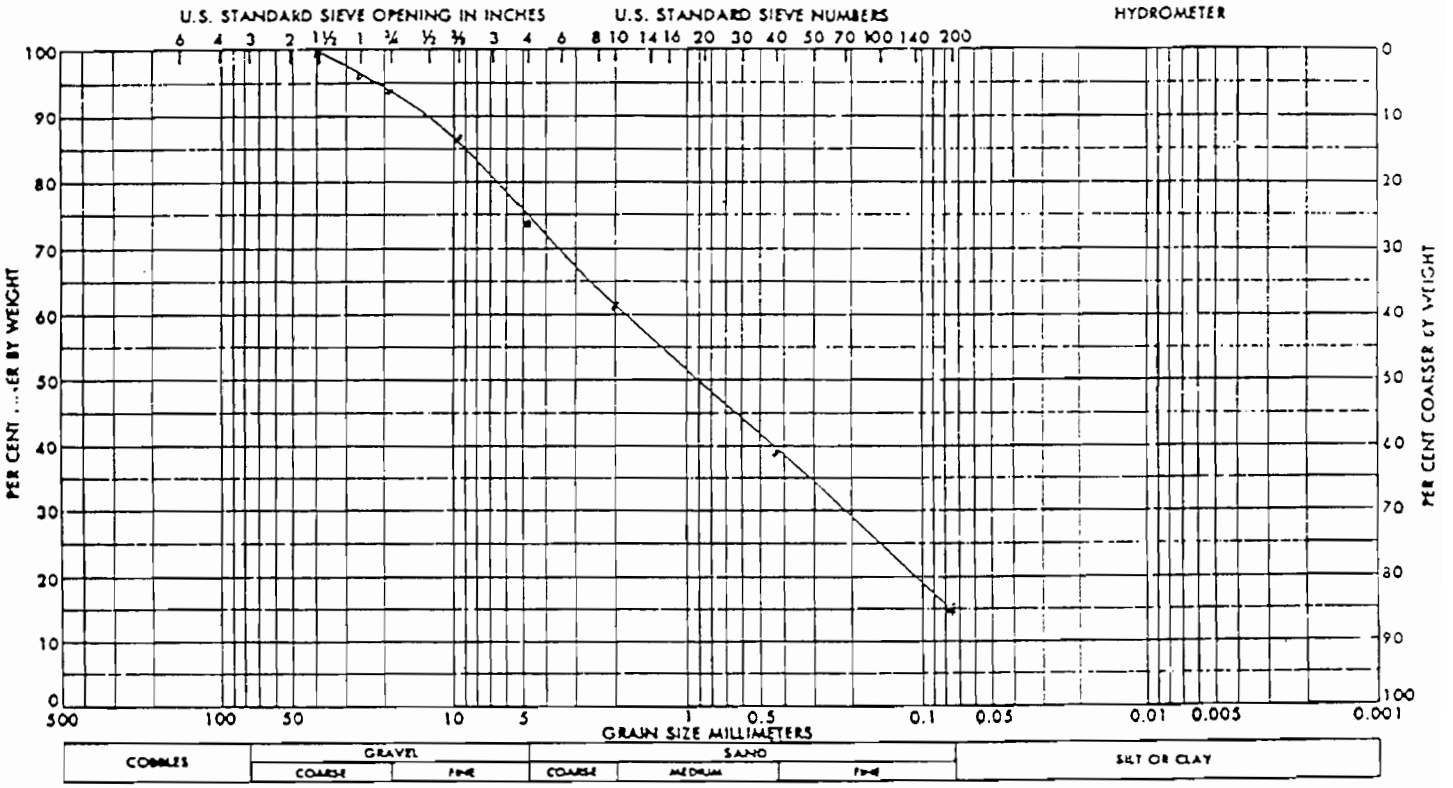
SE 1969

November 14, 1997

client Ogden Remediation Services

project Clarkstown Landfill **Grain Size Curve Analysis**

On November 12, 1997, a representative from this firm visited the jobsite and took a sample of soil labeled SF-WMX-165. Test results are shown below.



Soil Classification (D2487): SM, silty sand w/gravel

Atterberg Limits (D4318): NP

Moisture Content (D2216): 13.5%

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

OBDF&S REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Rec'd

Project Name/Client: CLARKSTOWN L.F. & L.F. CAPPING
Project No.: 600100000
Date Sent: 12-2-97

Project Location: WEST NYACK N.Y.
Purchase Order No.:
Shipped Via:

Sampled By: (Signature) L. KAVANAGH
Lab Contact:
Date Received: 12-2-97

Sample No.	Description	ANALYSIS REQUIRED: Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.			
SF-WMX 120		X		X	X		X	X						

Comments/Special Instructions:

MISC. DEBRIS WAS VISUALLY OBSERVED IN STOCKPILE

ON-SITE STOCKPILE EAST END

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Rev. 4/93

FZ4CRS

RECEIVED DEC 0 8 1997

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SINCE 1969

December 2, 1997

SOILS TEST REPORT

client Ogden Remediation Services

project Clarkstown Landfill

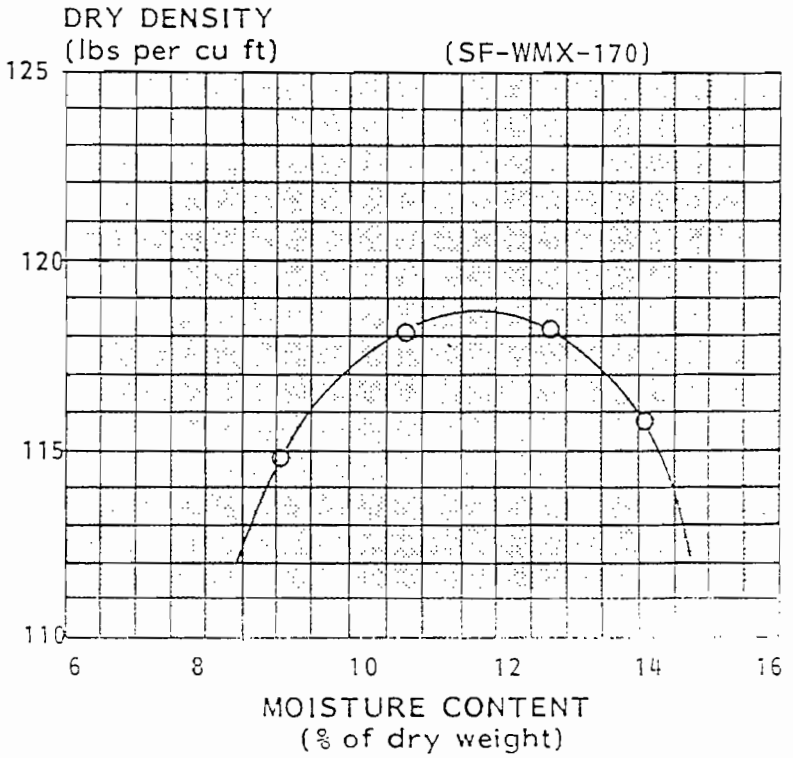
Compaction Method ASTM D698

Maximum Dry Density 118.7 pcf

subject Moisture-Density Curve Analysis

Optimum Moisture Content 11.8%

On this date a representative from this firm visited the jobsite and took sample SF-WMX-170. Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

JCD
~~AMT~~
TP
CJ

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

E 1969

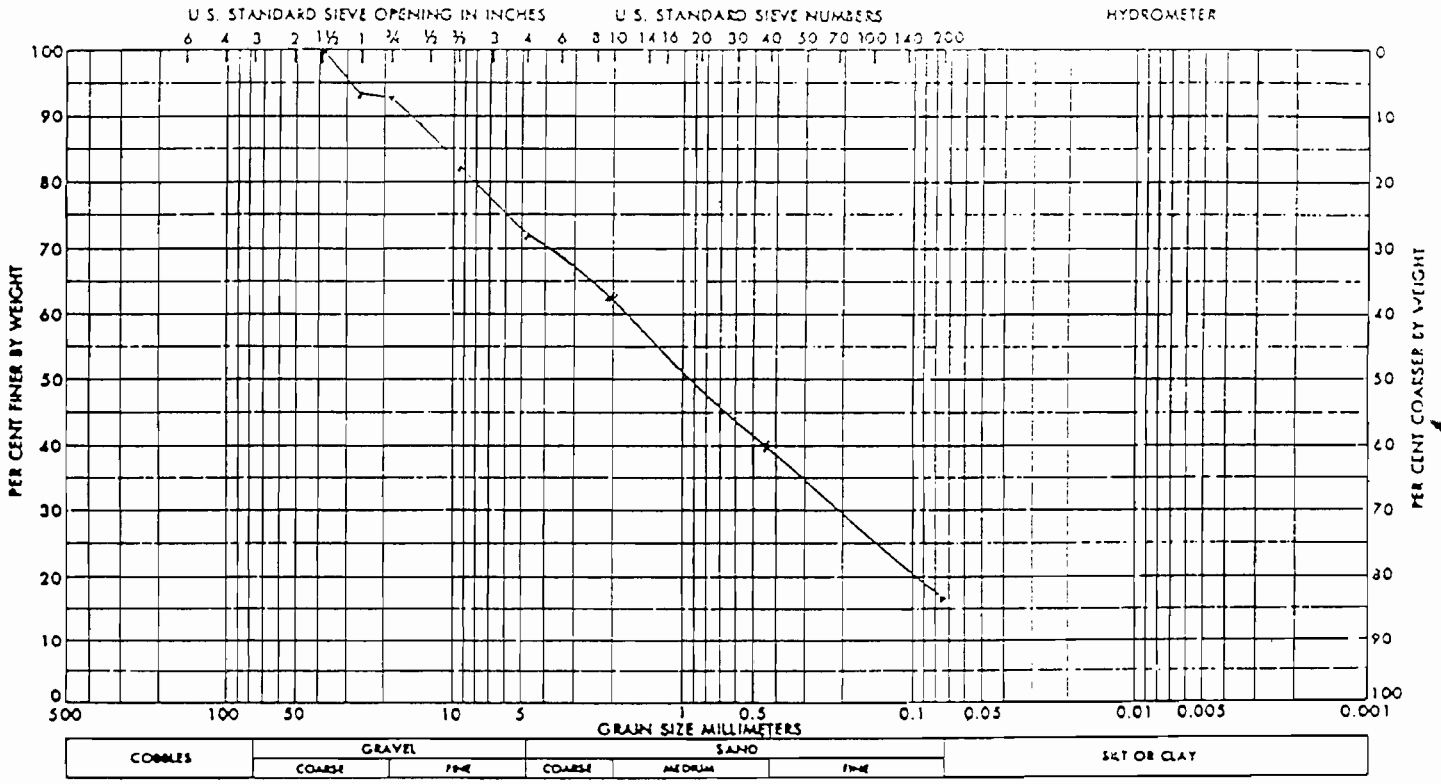
December 2, 1997

client Ogden Remediation Services

project Clarkstown Landfill

Grain Size Curve Analysis

On this date, a representative from this firm visited the jobsite and took sample SF-WMX-170. Test results are shown below.



Soil Classification (ASTM D2487): * SM, silty sand with gravel
Atterberg Limits (D4318): NP
Moisture Content (D2216): 12.2%

*Traces of glass, brick and metal were observed in the above sample.

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

Clarkstown Landfill Remediation
Laboratory Services Request
#LL-2339-K3

For:
Mr. Reddy Kancharla
M & T/Namow/TCL
47 Hudson Street
Ossining, N.Y. 10562
PH (914)762-9000
FX (914)762-9638

From:
Roy F. Weston of New York
Clarkstown Field Office
166 Rte. 303
West Nyack, N.Y. 10994
PH (914)353-5221
FX (914)353-5491

Sample I.D.	Source	Misc	D422	D698	D2216	D2487	D4318	D4767							Remarks
SF-34	WMX FB Stockpile	1 bag	X	X	X	X									175,000 CY
CS-10	Van Orden FB	1 bkt	X	X	X	X	X	X							NEW SOURCE
CS-11	WMX FB Stockpile	1 bag	X	X	X	X	X	X							SCREENED WMX 2nd lift

Received By: [signature]

Date/Time: 12-19-97 / 11:45

Delivered By: John C Woodley

Results Required, Date/Time: 12-23-97 / 2:00

M&T/NAMOW/TCL□J.V.

GRADATION AND STANDARD PROCTOR COMPACTION TESTING OF SOIL

CLIENT: Roy F. Weston of New York
PROJECT: Clarkstown Landfill Cap Site
SAMPLE ID: SF-~~33~~ 34
SOURCE: WMX FB Stockpile
SAMPLED BY: Client
PICKUP/DEL BY: Client

LAB#: FOB-001
REPORT#: MC-128
DATE PICKUP/DEL: 12/19/97
DATE TESTED: 12/23/97

(A) GRADATION TEST RESULTS (ASTM D422 & ASTM D1140)

Sieve Size	Percent Passing	Specifications*	Sieve Size	Percent Passing	Specifications*	Sieve Size	Percent Passing	Specifications*
3"			3/8"	78.7		#30	41.6	
2 ½"			¼"	72.9		#40	33.8	
2"			#4	69.3		#50	27.5	
1 ½"	100.0		#8	61.9		#60	23.7	
1"	93.6		#10	59.9		#80	19.2	
¾"	89.3		#16	53.8		#100	17.1	
½"	83.5		#20	48.9		#200	12.3	

The gradation curve is shown in Figure 1

(B) STANDARD PROCTOR COMPACTION TEST RESULTS (ASTM D698, Procedure C, 6" diameter mold)
Optimum Water Content:: 11.0%
Max. Unit Weight, Dry: 120.4 pcf
The proctor compaction curve is shown in Figure 2.

(C) MOISTURE CONTENT IN AS RECIEVED SAMPLE (ASTM D2216): 11.9%
(D) SOIL CALSSIFICATION (ASTM D2487): SM – Silty sand with gravel
(D) SOIL DESCRIPTION: c-m-f SAND, some m Gravel, little Silt
COLOR: Gray; **ODOR:** None; **CONTAMINATION:** None

TESTWELL CRAIG LABORATORIES, INC.

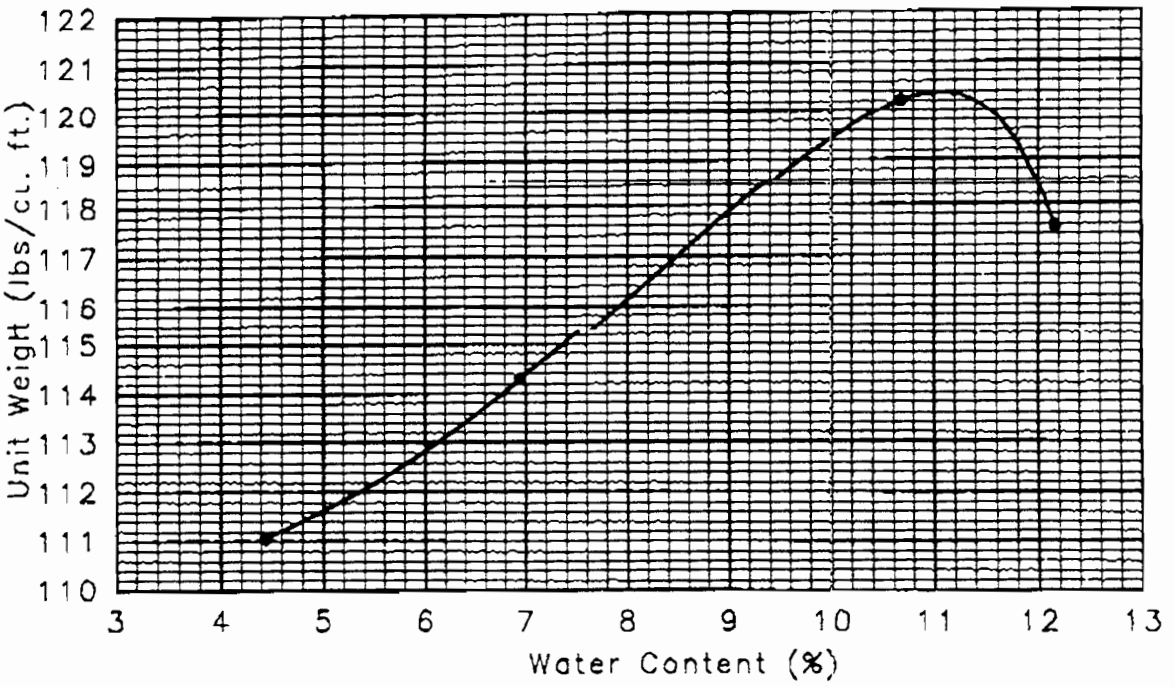
Kaspal R. Thumma, Eng.Sc.D., P.E.
Laboratory Manager
KRT/mp

Roy F. Weston of New York
Lab #: FOB-001 Rpt #: MC-128

STANDARD PROCTOR COMPACTION TEST RESULTS

TEST METHOD: (ASTM D698 Procedure C, 6" Diameter Mold)

Specimen No.	1	2	3	4
Water Content (%)	4.44	6.95	10.67	12.16
Unit Weight, Dry (lbs/cu.ft.)	111.07	114.30	120.23	117.56



Optimum Water Content: 11.0% Max. Unit Weight, Dry: 120.4 pcf

Figure 2: Standard Proctor Curve of Soil No. SF-~~33~~ 34

Roy F. Weston of NY
Lab #: FOB-001 Rpt #: MC-128

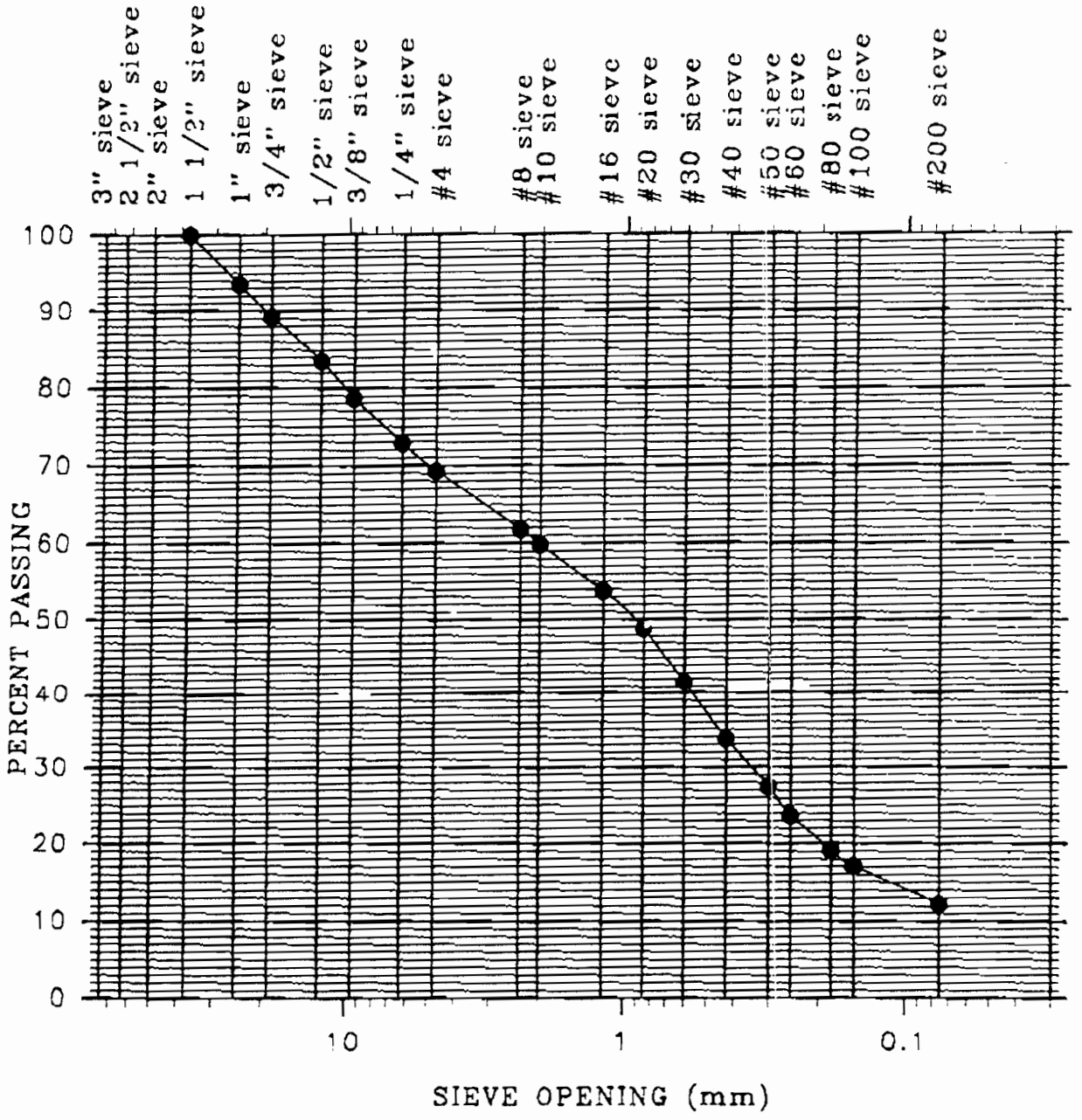


Figure 1: Particle Size Gradation Curve of Soil No. SF-~~33~~ 34

OBDEN MEDIATION SERVICES CO., INC.

Soil Sample Test Request Rec

Project Name/Client: CLARKSTOWN L.F. & L.F CAPPING Project No.: 600100000 Date Sent: 12-15-97

Project Location: WEST NYACK Purchase Order No.: _____ Shipped Via: _____

Sampled By: (Signature) L. KAVANAGH Lab Contact: _____ Date Received: 12-15-97

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Dec. Wall. Perm.			
WMX 175	STRUCTURAL FILL	✓		✓	✓		✓	✓						

ANALYSIS REQUIRED

Comments/Special Instructions:

ON-SITE STOCKPILE WEST END

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

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FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SINCE 1969

December 19, 1997

SOILS TEST REPORT

client Ogden Remediation Services

project Clarkstown Landfill

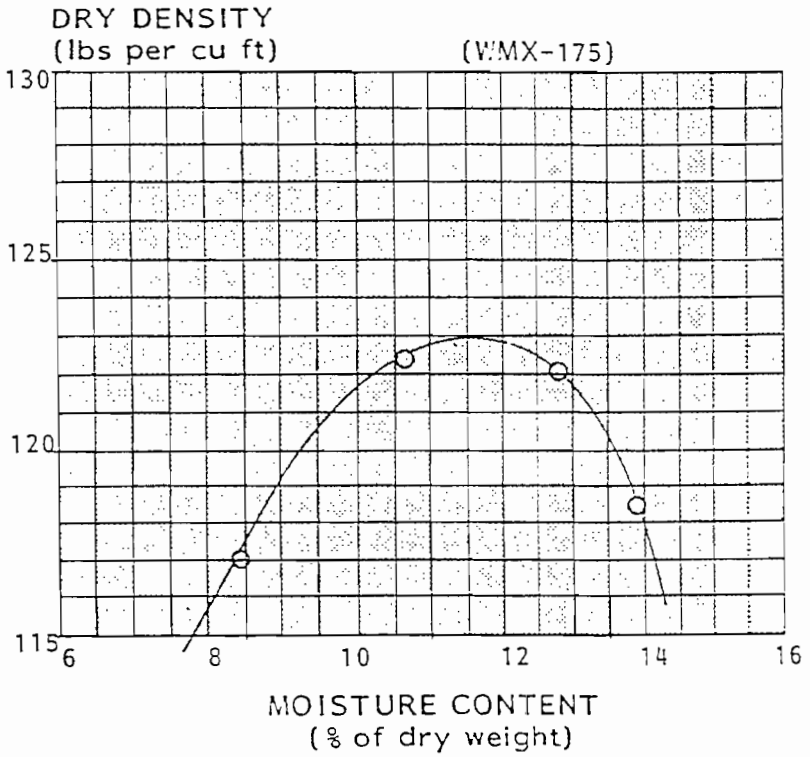
Compaction Method: ASTM D698

Maximum Dry Density: 122.9 pcf

Optimum Moisture Content: 11.6%

subject Moisture-Density Curve Analysis

On Decembet 18, 1997, a represenatative from this firm visited the jobsite and took sample WMX-175. Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

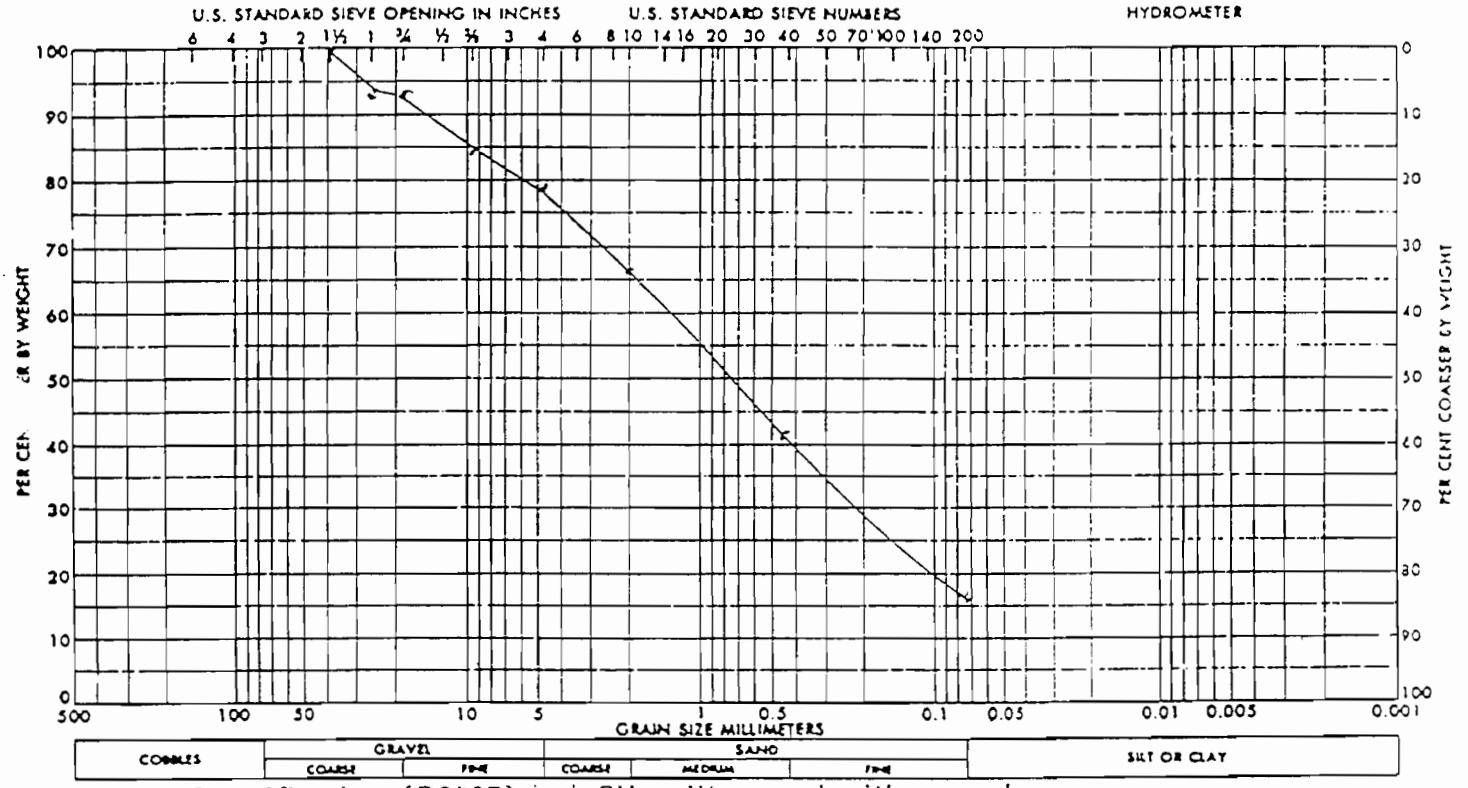
1969

December 19, 1997

client Ogden Remediation Services

project Clarkstown Landfill Grain Size Curve Analysis

On Decmeber 18, 1997, a representative from this firm visited the jobsite and took sample WMX-175. Test results are shown below.



Soil Classification (D2487): * SM, silty sand with gravel
Atterberg Limits (D4318): NP
Moisture Content: (D2216): 10.6%

* Traces of asphalt, glass, concrete and brick were observed in the soil sample.

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

TP, mo, CL

OGDEN

Soil Sample Test Request Rec.

Project Name: CONFIRMATORY LF FILL CAPPING — Project No: 6.00100000 — Date Sent: 4-6-98

Project Location: [illegible] — Purchase Order No: — Shipped Via:

Sampled By: (Signature) [illegible] — Lab Contact: — Date Received: 4-6-98

ANALYSIS REQUIRED

Sample No	Description	Moisture Content ASTM D2216	Classification ASTM D2487	Remarks
SF-WMA 180	STRUCTURAL FILL	✓	✓	

Comments/Special Instructions:

NORTHEAST SECTION OF STOCKPILE

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

FM-CRS

FAIRWAY TESTING

CONSTRUCTION MATERIALS · TESTING · INSPECTION · RESEARCH

[illegible] FAX (914) 341-0935

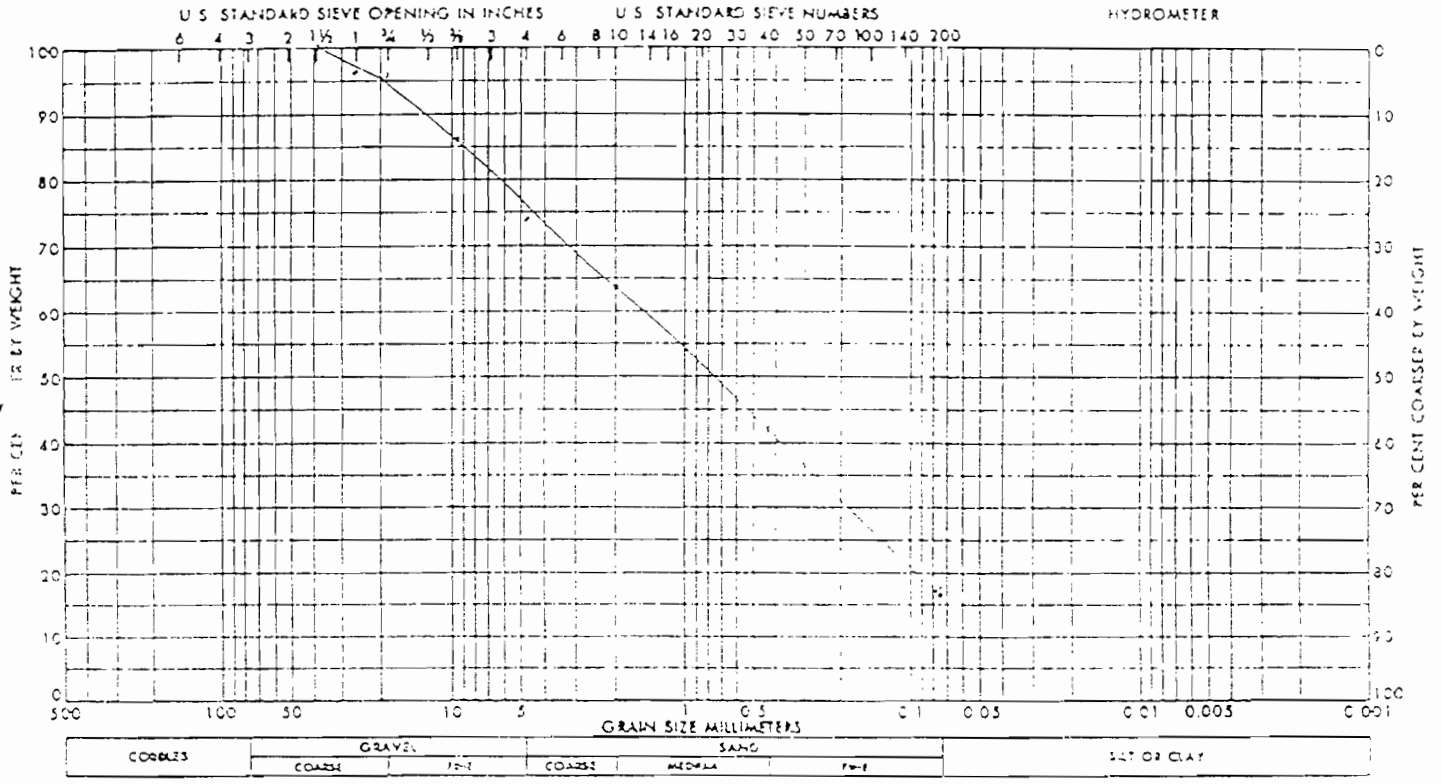
April 6, 1998

client Ogden Remediation Services

project Clarkstown Landfill

Grain Size Curve Analysis

On this date, a sample of structural fill labeled SF-WMX-180 was picked-up at the project site. Test results are shown below.



Soil Classification (D2487): SM, Silty sand with gravel

Atterberg Limits (D4318): NP

Moisture Content (D2216): [illegible]

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING INSPECTION RESEARCH

P.O. BOX 578 STONY POINT NY 10980 TELEPHONE (914) 942-2086 FAX (914) 942-0305

SINCE 1969

April 6, 1998

SOILS TEST REPORT

client Ogden Remediation Service's

project Clarkstown Landfill

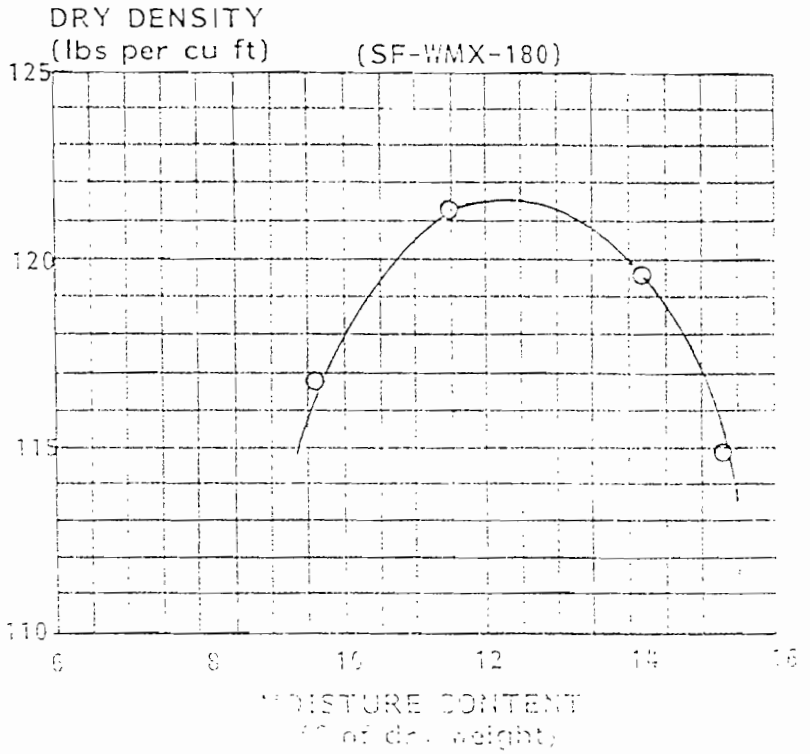
Compaction Method ASTM D698

subject Moisture-Density Curve Analysis

Maximum Dry Density 121.5 pcf

Optimum Moisture Content 12.3%

On this date, a sample of structural fill labeled SF-WMX-180 was picked-up at the project site. Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

OGDEN MEDIATION SERVICES CO., INC.

Soil Sample Test Request Reco.

Project Name/Client: OGDEN | Project No.: 600100000 | Date Sent: 5-19-98

Project Location: WEST NYACK N.Y. | Purchase Order No.: | Shipped Via:

Sampled By: (Signature) L. KAUFMAGH | Lab Contact: | Date Received: 5-19-98

Sample No.	Description	ANALYSIS REQUIRED: Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall Perm.			
SF-155	STRUCTURAL FILL	X		X	X		X	X						

Comments/Special Instructions:

DIRECT PLACED LFP - 9 5-19-1 / 5-19-8

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Rev. 8/93

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FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 STONY POINT, NY 10980 TELEPHONE (914) 942-2098 FAX (914) 942-0995

SINCE 1969

SOILS TEST REPORT

May 27, 1998

client Ogden Remediation Services

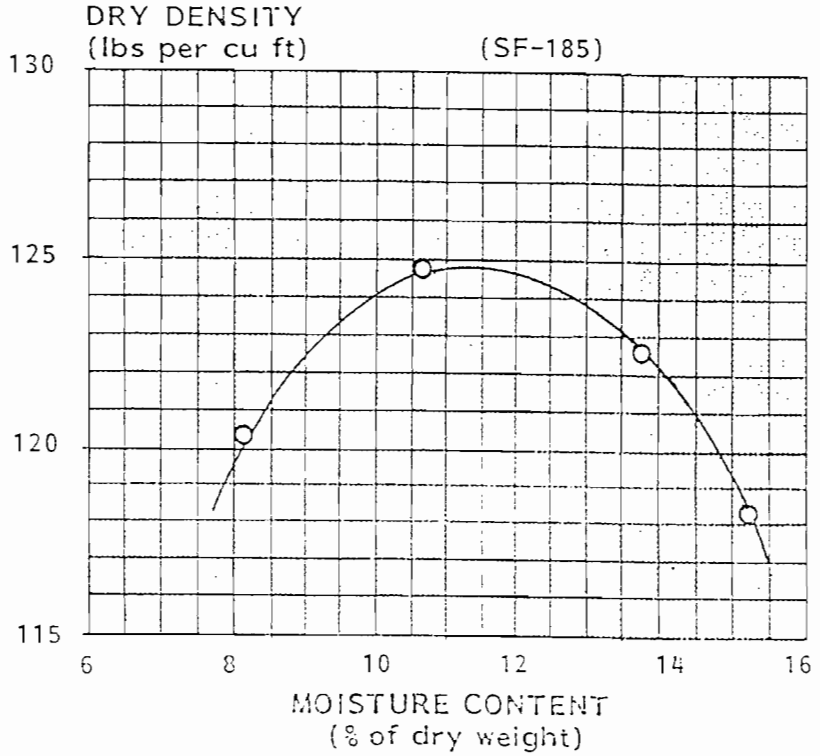
project Clarkstown Landfill

Compaction Method ASTM D698

subject Moisture-Density Curve Analysis

Maximum Dry Density 124.9 pcf
Optimum Moisture Content 11.3%

On May 19, 1998, a representative from this firm visited the jobsite and took a sample of soil labeled SF-185. Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

FAIRWAY TESTING

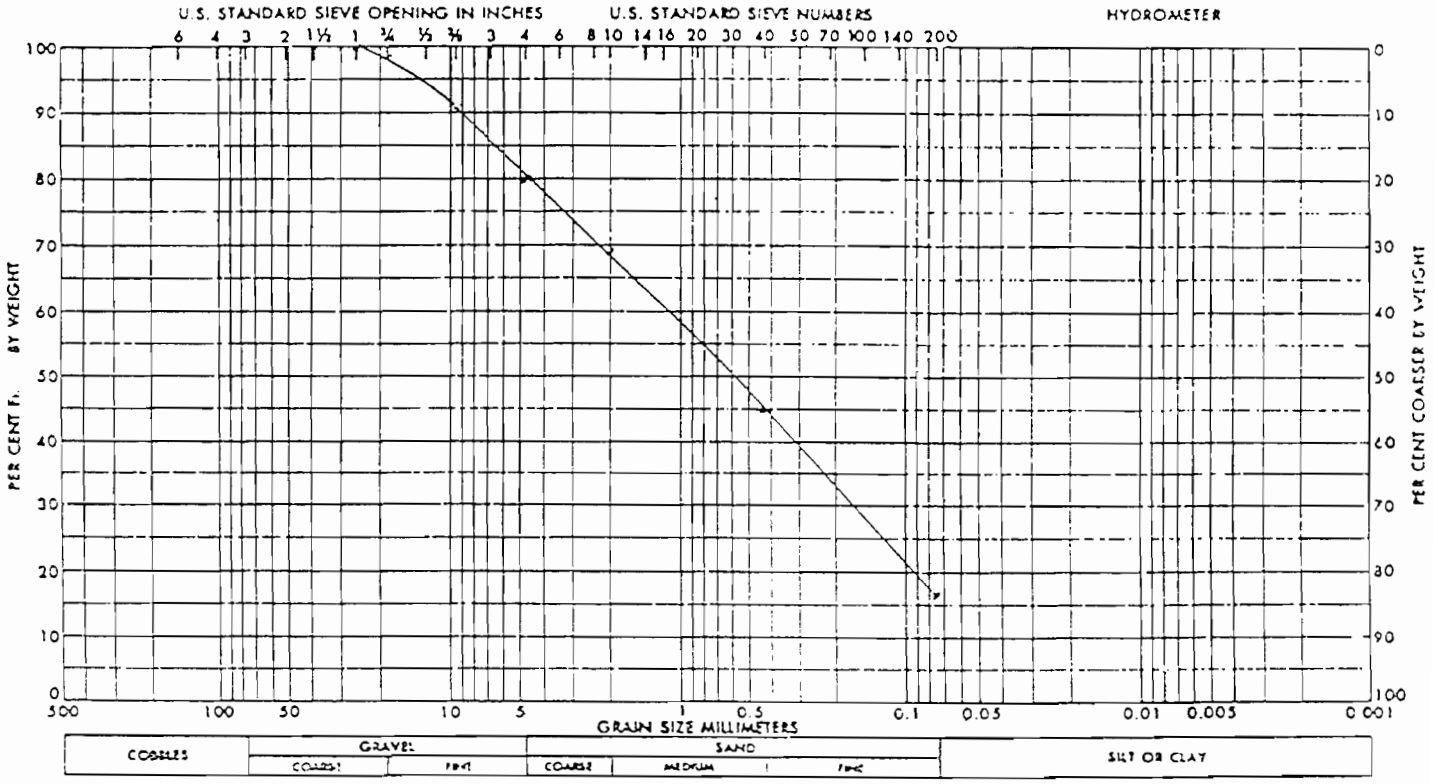
CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-7088 · FAX (914) 942-0935

client Ogden Remediation Services May 27, 1998

project Clarkstown Landfill Grain Size Curve Analysis

On May 19, 1998, a representative from this firm visited the jobsite and took a sample of soil labeled SF-185. Test results are shown below.



Atterberg Limits (D4318): NP

Moisture Content (D2216): 10.9%

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

OLLEN REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: CLARKSTOWN L.F. & L.F. CAPPING
Project No.: 600100000
Date Sent: 6-2-98

Project Location: WEST NYACK N.Y.
Purchase Order No.:
Shipped Via:

Sampled By: (Signature) L. KAVANAGH
Lab Contact:
Date Received: 6-2-98

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall Perm.			
SF-WMX 190-	STRUCTURAL FILL	X		X	X		X	X						

ANALYSIS REQUIRED

Comments/Special Instructions:

SAMPLE @ STOCKPILE @ LFP-8

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Rev. 4/93

FOUCRS

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SOILS TEST REPORT June 2, 1998

'en Remediation Services

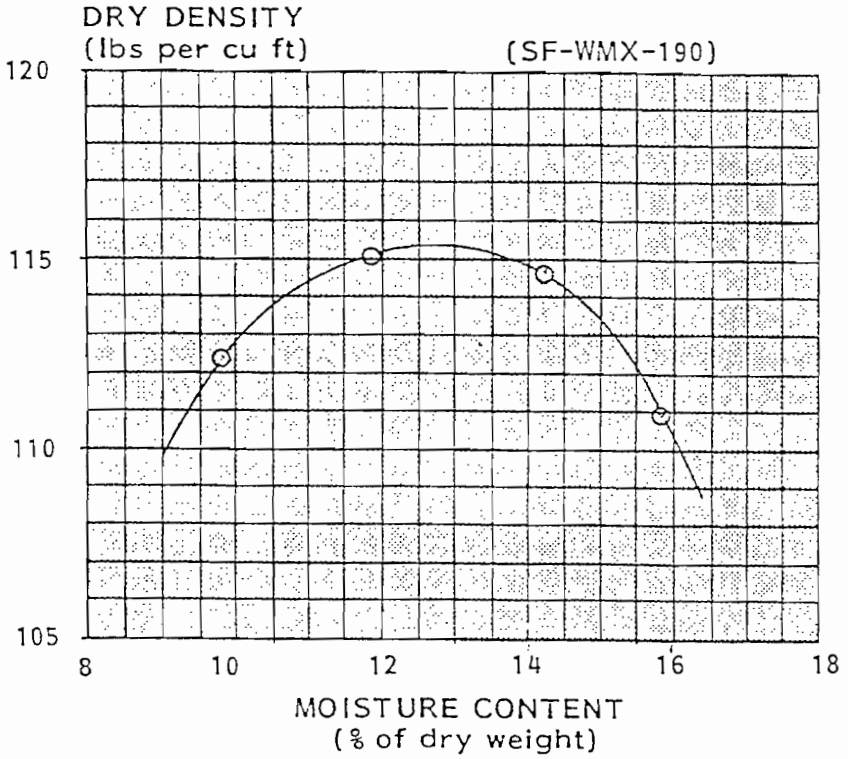
'kstown Landfill

Compaction Method ASTM D698

isture-Density Curve Analysis

Maximum Dry Density 115.3 pcf
Optimum Moisture Content 12.8%

this date, a representative from this firm visited the jobsite and k a sample of soil labeled SF-WMX-190. Test results are shown ow.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

RECEIVED JUN 2 2 1998

MD, FFX, C

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

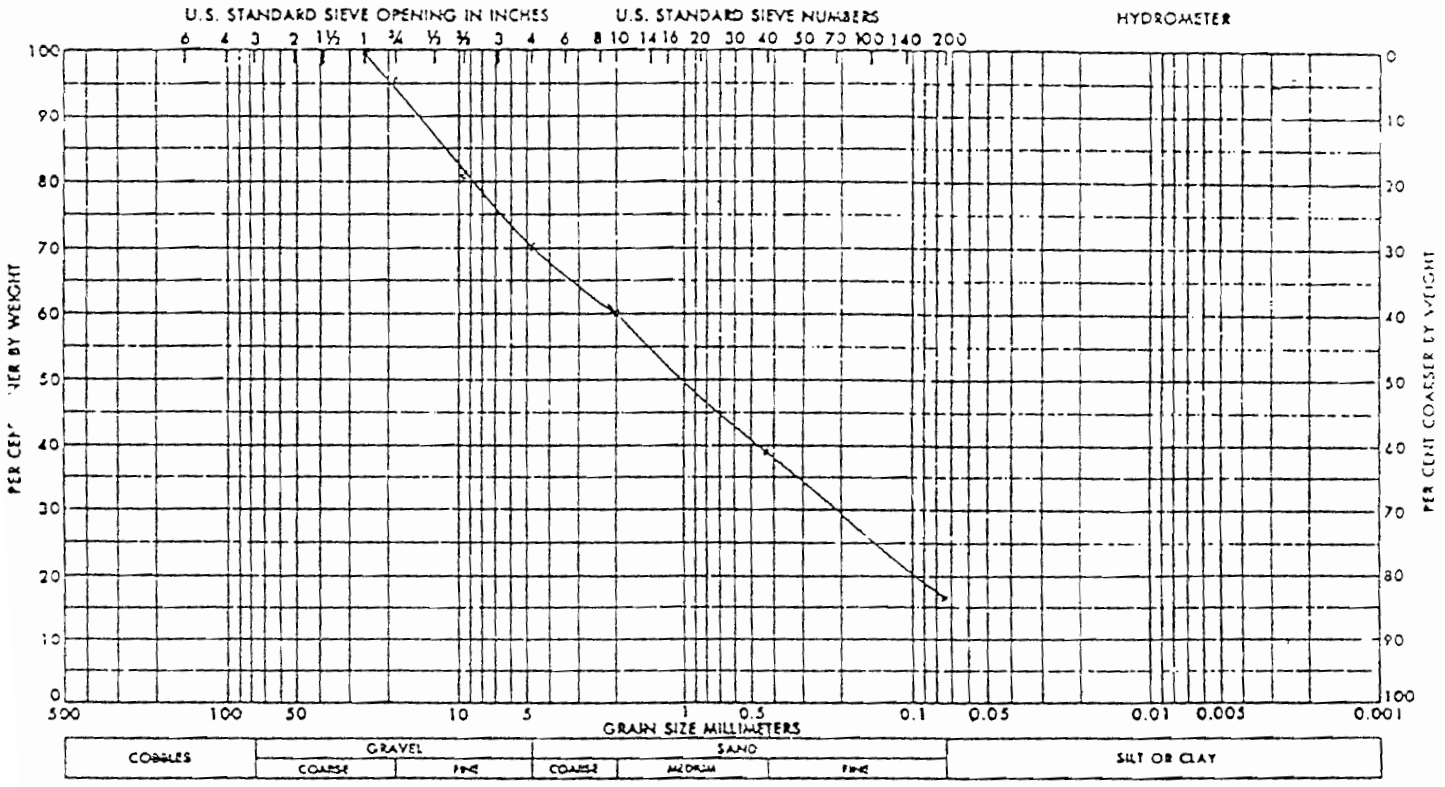
P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0935

client Ogden Remediation Services June 2, 1998

project Clarkstown Landfill

Grain Size Curve Analysis

On this date, a representative from this firm visited the jobsite and took a sample of soil labeled SF-WMX-190. Test results are shown below..



Atterberg Limit (D4318): NP

Moisture Content (D2216): 13.1%

Soil Classification (D2487): SM-silty sand w/gravel

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

OBDE — REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Rec

Project Name/Client: CLARKSTOWN L.F. & L.F. CAPPING
Project Location: WEST NYACK N.Y.
Sampled By: (Signature) L. KAVANAGH
Project No.: 600100000
Purchase Order No.:
Lab Contact:
Date Sent: 6-2-98
Shipped Via:
Date Received: 6-2-98

ANALYSIS REQUIRED

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex Wall Perm.			
SF-SB-5	STRUCTURAL FILL	X		X	X		X	X						

Comments/Special Instructions:

SAMPLE @ STOCKPILE LFP-8

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

FLOYERS

Rev. 4/97

SINCE 1969

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SOILS TEST REPORT

June 2, 1998

client Ogden Remediation Services

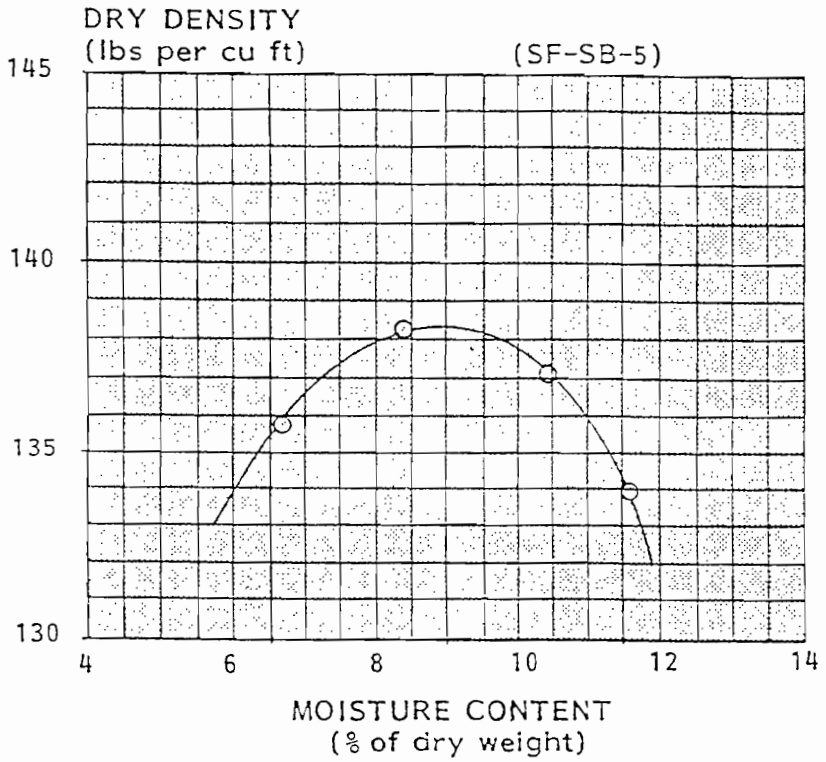
project Clarkstown Landfill

Compaction Method ASTM D698

subject Moisture-Density Curve Analysis

Maximum Dry Density 138.3 pcf
Optimum Moisture Content 9.0%

On this date, a representative from this firm visited the jobsite and took a sample of soil labeled SF-SB-5. Test results are shown below.



FAIRWAY TESTING CO., INC.

P.J. Aguanno, P.E.

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0095

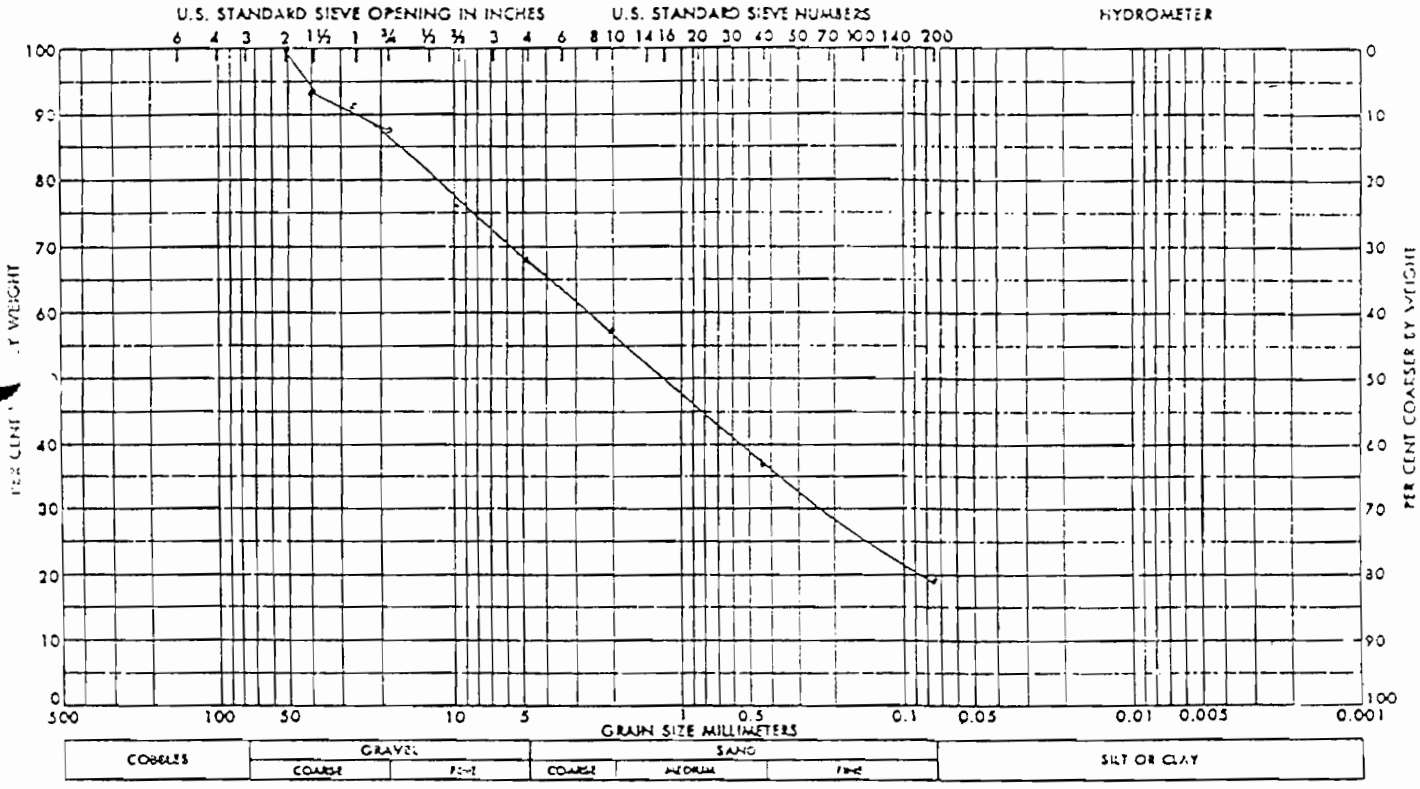
1969

June 2, 1998

client Ogden Remediation Services

project Clarkstown Landfill Grain Size Curve Analysis

On this date, a representative from this firm visited the jobsite and took a sample of soil labeled SF-SB-5. Test results are shown below.



Atterberg Limits (D4318): NP

Moisture Content (D2216): 7.0%

Soil Classification (D2487): SM-silty sand w/gravel

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

OGDEN MEDIATION SERVICES CO., INC.

Soil Sample Test Request Rec

Project Name/Client: CLARKSTOWN L.F. & L.F. CAPPING
Project No.: 600100000
Date Sent: 6-2-98
Project Location: WEST NYACK N.Y.
Purchase Order No.:
Shipped Via:
Sampled By: (Signature) L. KAVANAGH
Lab Contact:
Date Received: 6-2-98

ANALYSIS REQUIRED

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Dev. Wall Perm.			
SF-TIL 5	STRUCTURAL FILL	X		X	X		X	X						

Comments/Special Instructions:

SAMPLE @ STOCKPILE LFP-8

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Rev. 4/93

FORM 3

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SINCE 1969

SOILS TEST REPORT

June 2, 1998

client Ogden Remediation Services

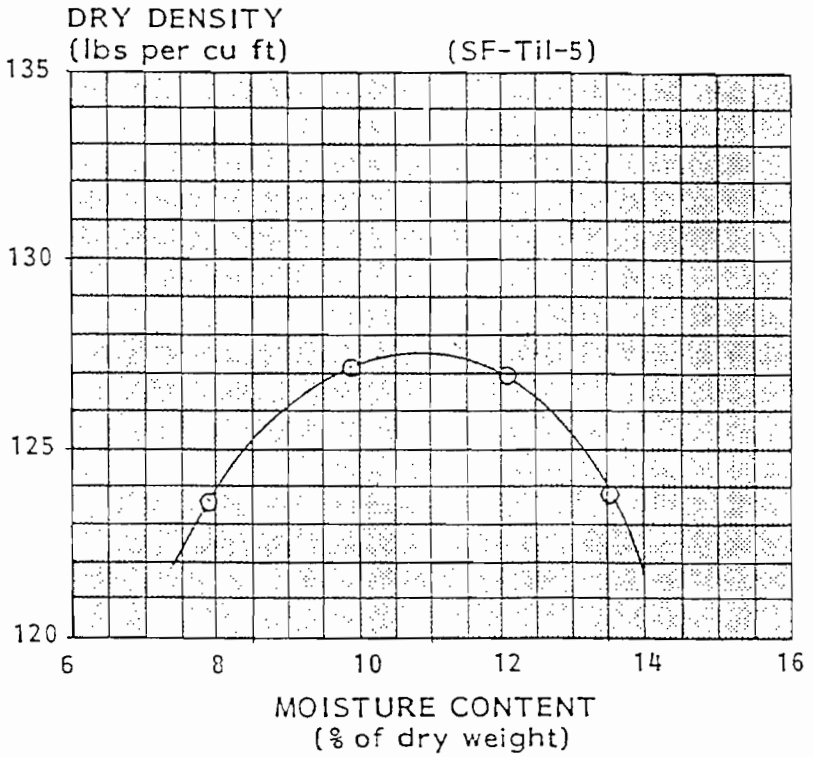
project Clarkstown Landfill

Compaction ASTM Method D698

subject Moisture-Density Curve Analysis

Maximum Dry Density 127.5 pcf
Optimum Moisture Content 10.9%

On this date, a representative from this firm visited the jobsite and took a sample of soil labeled SF-Til-5. Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2038 · FAX (914) 942-0935

1989

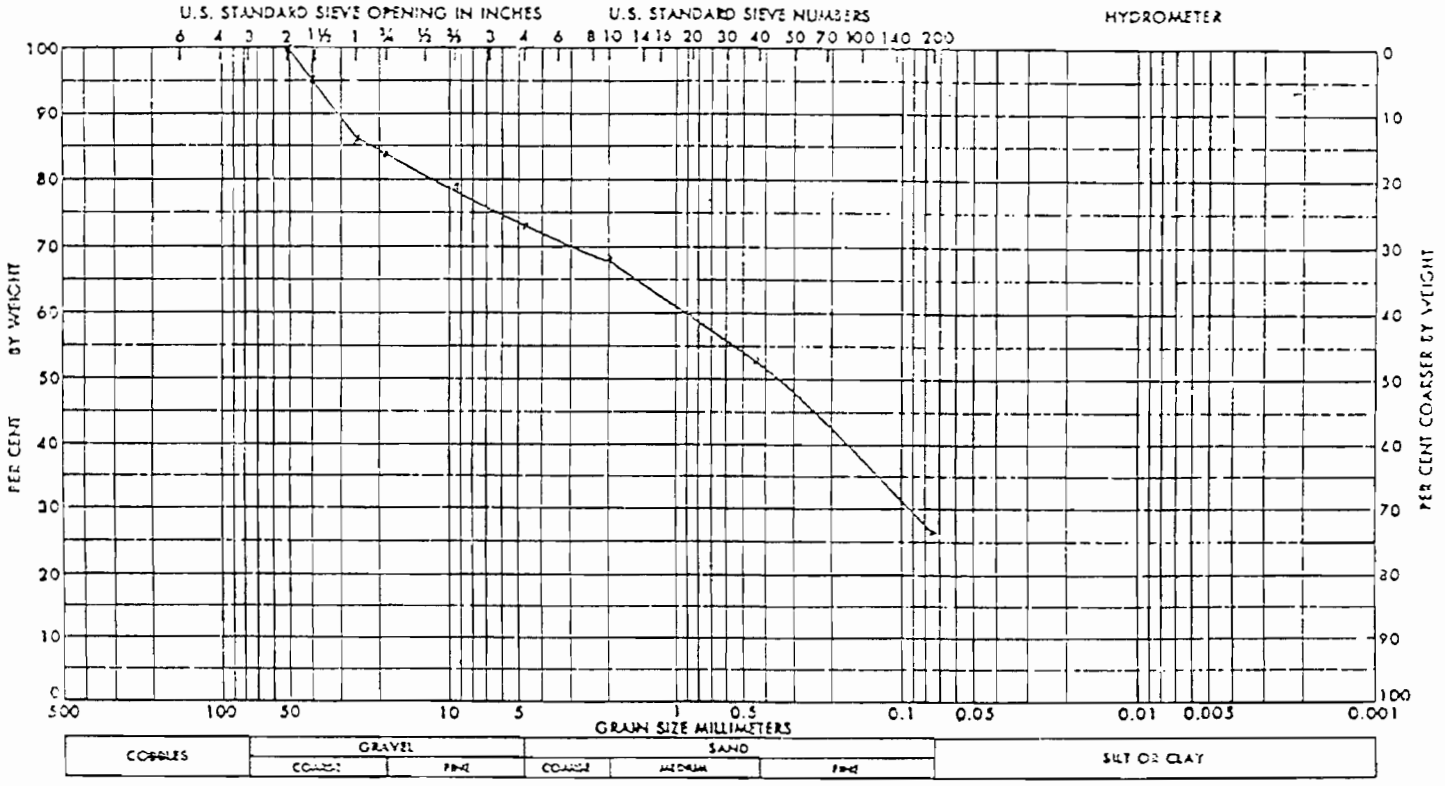
client Ogden Remediation Services

June 2, 1998

project Clarkstown Landfill

Grain Size Curve Analysis

On this date, a representative from this firm visited the jobsite and took a sample of soil labeled SF-Til-5. Test results are shown below.



Atterberg Limits (D4318): 22-9=3

Moisture Content (D2216): 9.0%

Soil Classification (D2487): SC-clayey sand w/gravel

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

Project Name/Client: CLARKSTOWN L.F. & L.F. CAPPING — Project No: 6000000 — Date Sent: 6-24-98

Project Location: WEST NYACK, N.Y. — Purchase Order No: — Shipped Via:

Sampled By: (Signature) LARRY KAUNNICH — Lab Contact: — Date Received: 6-24-98

Sample No.	Description	ANALYSIS REQUIRED: Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Dev. Wall Perm.			
SF-195	STRUCT. FILL	X		X	X		X	X						

Comments/Special Instructions:

TAKE FROM STOCKPILE EAST SIDE

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Revised

FEB 03

FAIRWAY TESTING
CONSTRUCTION MATERIALS TESTING · INSPECTION · RESEARCH
P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2055 · FAX (914) 942-0993
SINCE 1963

SOILS TEST REPORT June 26,1998

client Ogden Remediation Services

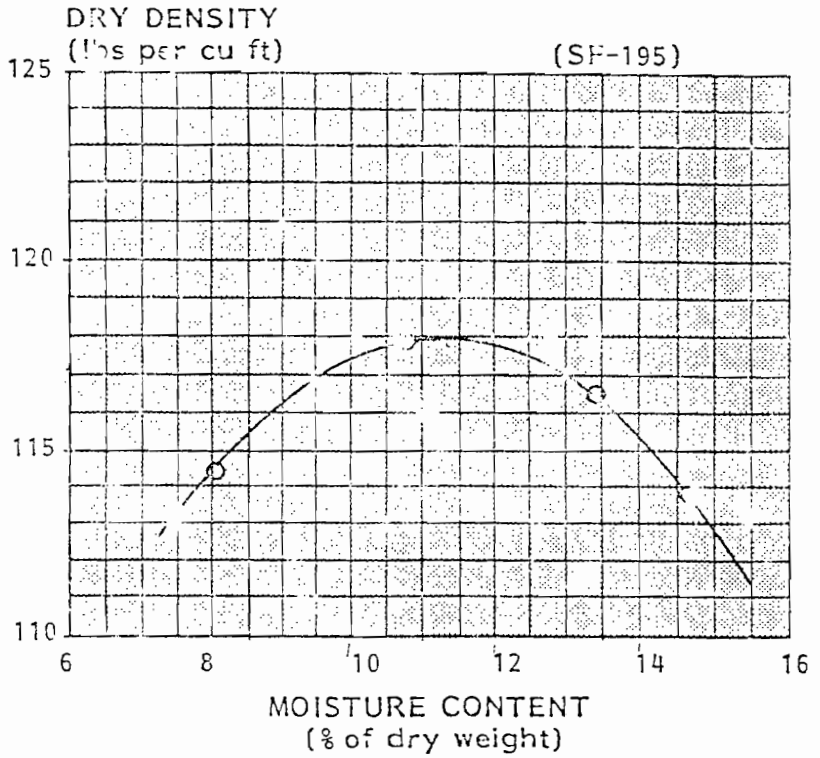
project Clarkstown Landfill

Compaction Method ASTM D698

subject Moisture-Density Curve Analysis

Maximum Dry Density 117.9 pcf
Optimum Moisture Content 11.4%

On June 23, 1998, a representative from this firm visited the jobsite and took soil sample SF-195. Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

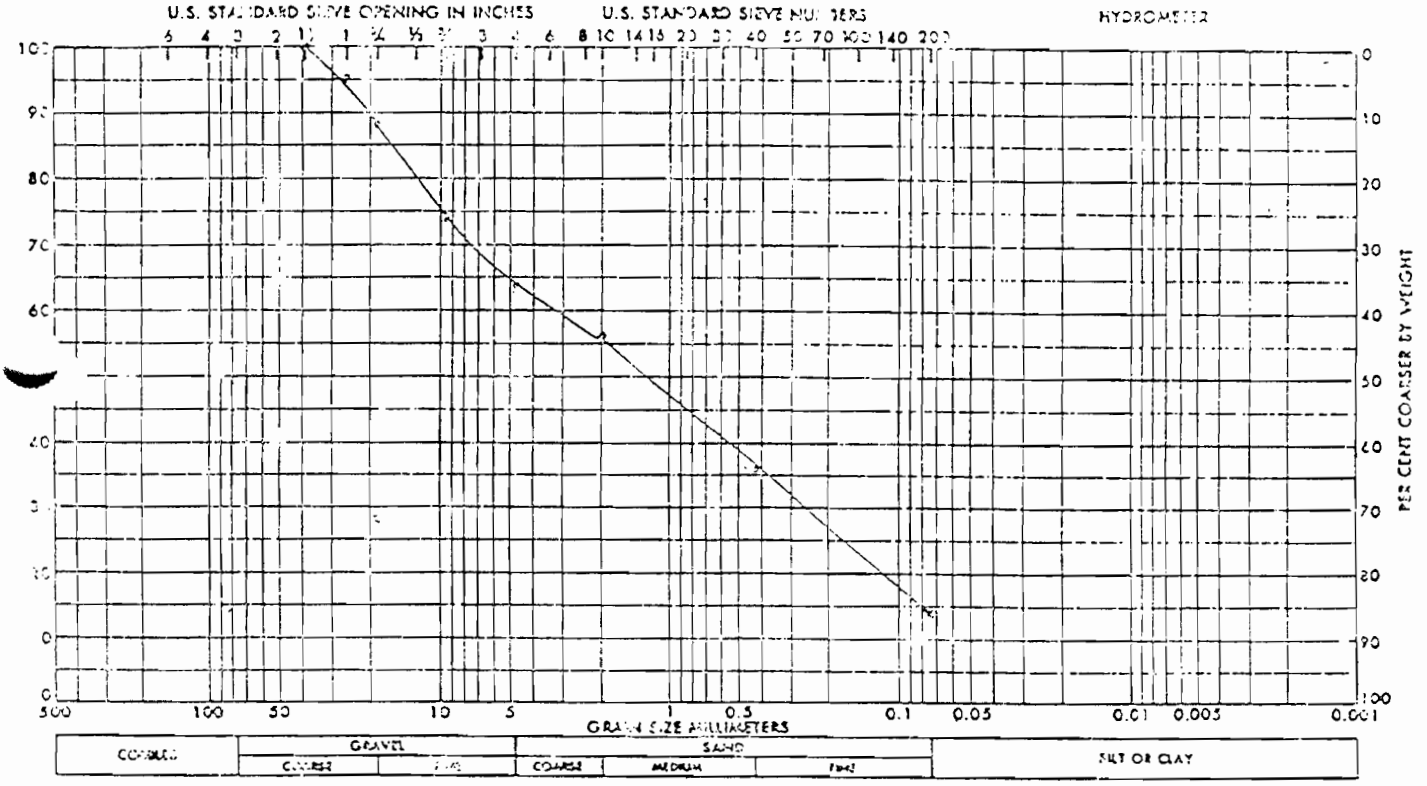
P.O. BOX 576 · ST NY POINT, NY 10960 · TELEPHONE (914) 942-2083 · FAX (914) 942-0995

lient Ogd n Remedi tion Services June 26, 1998

roject Clarkstown Landfill

Grain Size Curve Analysis

On June 23, 1998, a representative from t is firm visited the jobsit and took soil sample SF-105. Test results are shown b low.



Soil classification (D2487): SM, silty sand with gravel

Atterberg Limits (D4318): NP

Moisture Content (D2216): 10.8%

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

Clarkstown Landfill Remediation
Laboratory Services Request

#LL-2339-K3

For:
Mr. Reddy Kancharla
M & T/Namow/TCL
47 Hudson Street
Ossining, N.Y. 10562
PH (914)762-9000
FX (914)762-9638

From:
Roy F. Weston of New York
Clarkstown Field Office
166 Rte. 303
West Nyack, N.Y. 10994
PH (914)353-5221
FX (914)353-5491

Sample I.D.	Source	Misc	ASTM D422	ASTM D698	ASTM D2216	ASTM D4318									Remarks
SF-36 SF-WMX-200	WMX	1 bag	X	X	X	X									200,000 cy
DS-164	Liner sample														

M&T/NAMOW/TCL□J.V.

LIQUID LIMIT AMD PLASTIC LIMIT OF SOIL

CLIENT: Roy F. Weston of New York
PROJECT: Clarkstown Landfill cap Site
SAMPLE ID: Indicated Below
SAMPLED BY: Client
PICKUP/DEL BY: Client

LAB#: FOB-001
REPORT#: MC-163
DATE PICKUP/DEL: 06/29/98
DATE TESTED: 07/10/98

LIQUID LIMIT & PLASTIC LIMIT TEST RESULTS (ASTM D4318)

Soil Sample ID	Liquid Limit (% Weight)	Plastic Limit (% weight)	Plastic Index
SF-36	15.0	NP	N P

NP: Indicates that the soil is non-plastic since 1/8 in diameter thread could not be rolled at any moisture content.

M & T / NAMOW / TCL□J.V.

Kaspal R. Thumma, Eng.Sc.D., P.E.
Laboratory Manager
KRT/ajf

M&T/NAMOW/TCL□J.V.

GRADATION AND STANDARD PROCTOR COMPACTION TESTING OF SOIL

CLIENT: Roy F. Weston of New York
PROJECT: Clarkstown Landfill Cap Site
SAMPLE ID: SF-36
SAMPLED BY: Client
PICKUP/DEL BY: Client

LAB#: FOB-001
REPORT#: MC-162
DATE PICKUP/DEL: 06/29/98
DATE TESTED: 06/30/98

(A) GRADATION TEST RESULTS (ASTM D422 & ASTM D1140)

Sieve Size	Percent Passing	Specifications	Sieve Size	Percent Passing	Specifications	Sieve Size	Percent Passing	Specifications
3"			3/8"	70.8		#30	35.7	
2-1/2"			1/4"	64.3		#40	28.6	
2"	100.0		#4	60.2		#50	21.8	
1-1/2"	94.7		#8	54.0		#60	17.7	
1"	92.0		#10	52.3		#80	12.8	
3/4"	89.6		#16	46.9		#100	10.7	
1/2"	77.9		#20	42.4		#200	6.2	

The gradation curve is shown in Figure 1.

(B) STANDARD PROCTOR COMPACTION TEST RESULTS (ASTM D698, Procedure C, 6" diameter mold)
Optimum Water Content: 11.0%
Max. Unit Weight, Dry: 118.4 pcf
The Proctor compaction curve is shown in Figure 2.

(C) MOISTURE CONTENTIN AS IN RECEIVED SAMPLE (ASTM D2216): 9.1%
(D) SOIL CLASSIFICATION (ASTM D2487): SP-SM –Poorly graded sand with silt and gravel
(E) SOIL DESCRIPTION: m-f SAND, and m-f Gravel, trace Silt
COLOR: Brown; **ODOR:** None; **CONTAMINATION:** None

TESTWELL CRAIG LABORATORIES, INC.

Kaspal R. Thumma, Eng.Sc.D., P.E.
Laboratory Manager
KRT/ajf

Roy F. Weston of New York
Lab #: FOB-001 Rpt #: MC-162

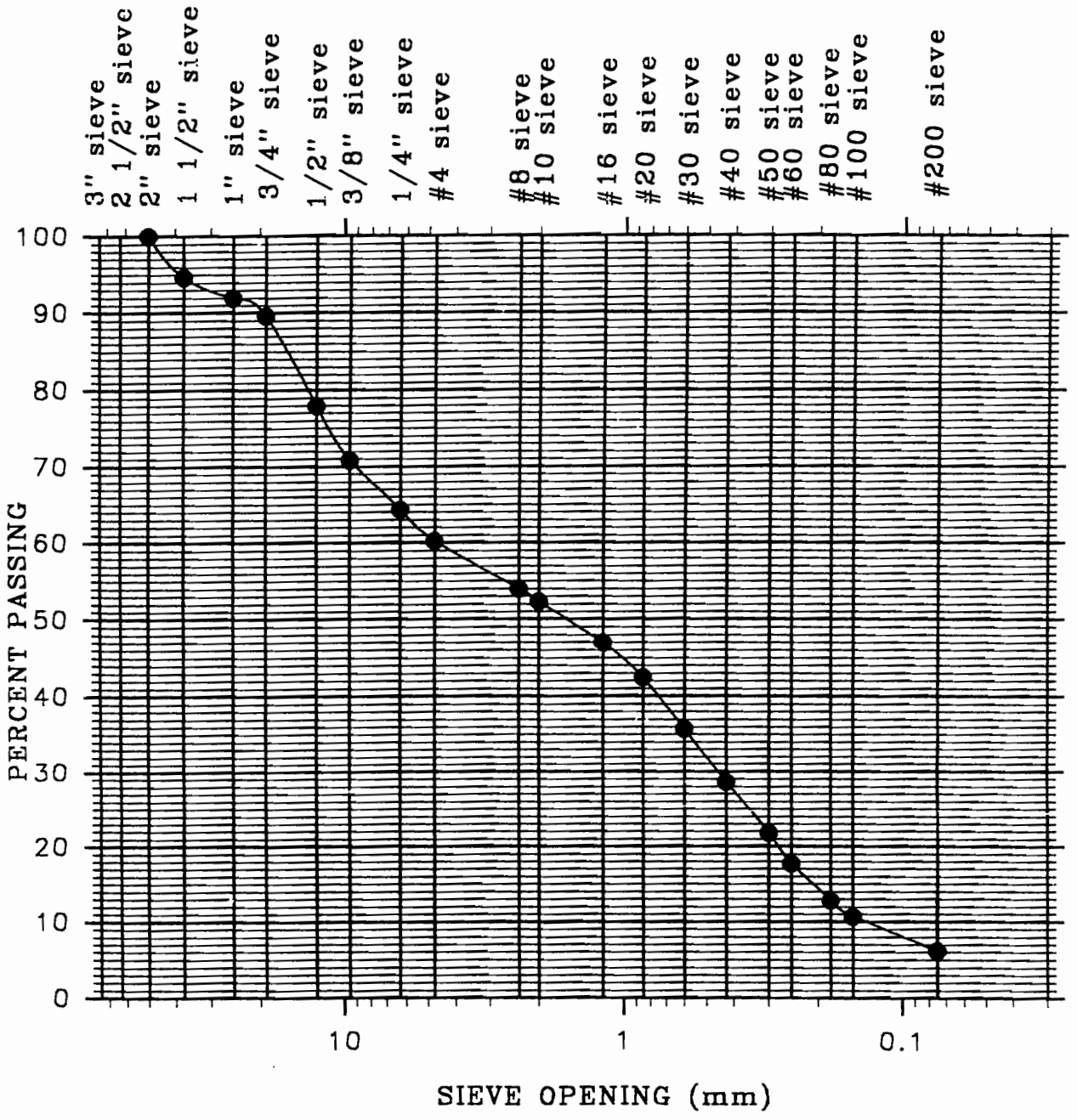


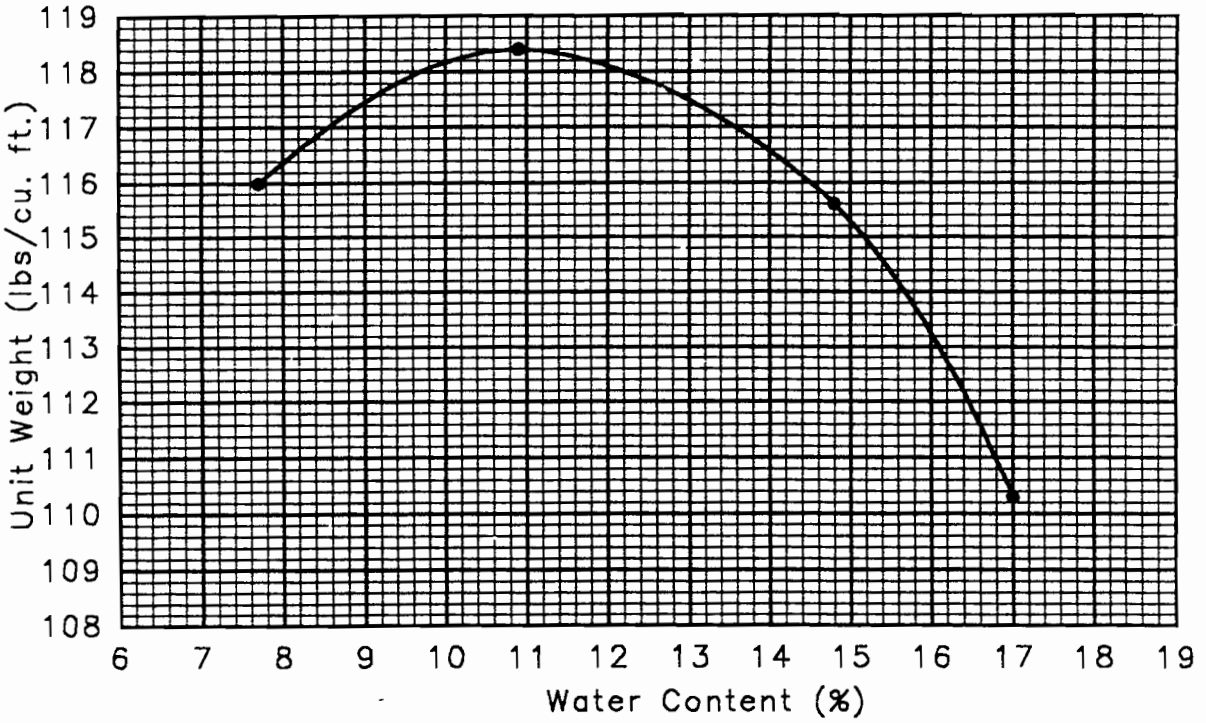
Figure 1: Particle Size Gradation Curve of Soil No. SF-36

Roy F. Weston of New York
Lab #: FOB-001 Rpt #: MC-162

STANDARD PROCTOR COMPACTION TEST RESULTS

TEST METHOD: (ASTM D698 Procedure C, 6" Diameter Mold)

Specimen No.	1	2	3	4
Water Content (%)	7.7	10.9	14.8	17.0
Unit Weight, Dry (lbs./cu.ft.)	116.0	118.4	115.6	110.3



Optimum Water Content: 11.0% Max. Unit Weight, Dry: 118.4 pcf

Figure 2: Standard Proctor Curve of Soil No. SF-36

Project Name/Client: CLARKSTOWN L.F & L.F CAPPING
Project Location: WEST NYACK N.Y.
Sampled By: (Signature) L. KAVANAGH

Project No.: 600100000
Purchase Order No.:
Lab Contact:

Date Sent: 6-26-98
Shipped Via:
Date Received: 6-26-98

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Det Wall Perm			
		ANALYSIS REQUIRED												
SF-WMX 200	STRUCT. FILL	X		X	X		X	X						

Comments/Special Instructions:

TAKEN FROM STOCKPILE SOUTH SIDE

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

FOSTERS

Rev. 4/93

RECEIVED JUN 3 0 1998

FAIRWAY TESTING

CONSTRUCTION MATERIALS. TESTING · INSPECTION · RESEARCH

P.O. BOX 578 STONY POINT, NY 10980 TELEPHONE (914) 942-2088 FAX (914) 942-0995

SINCE 1969

SOILS TEST REPORT

June 26, 1998

client Ogden Remediation Services

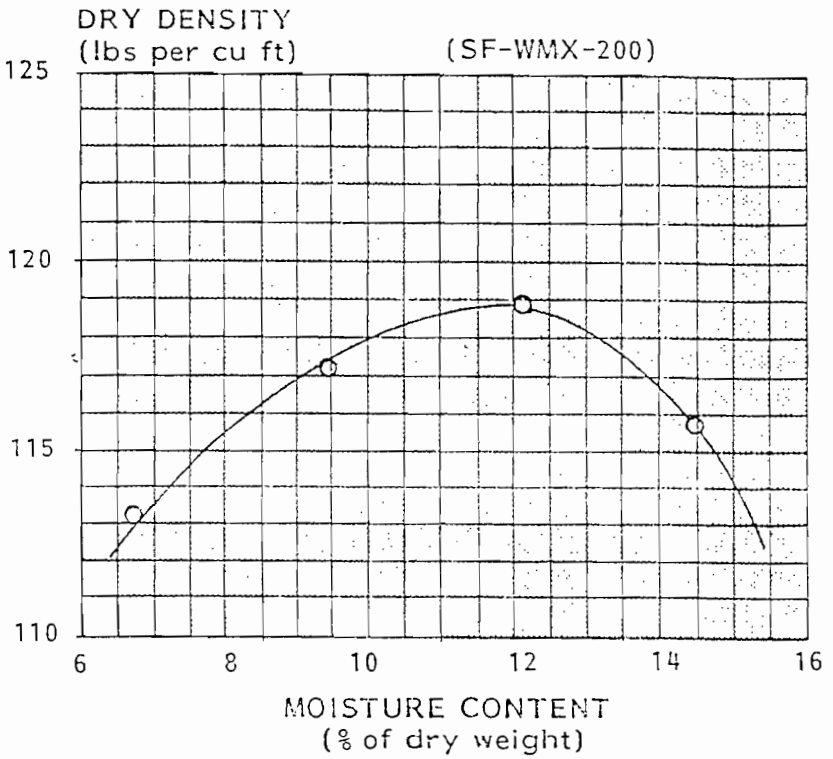
project Clarkstown Landfill

Compaction Method ASTM D698

subject Moisture-Density Curve Analysis

Maximum Dry Density 118.9 pcf
Optimum Moisture Content 11.9%

On this date, a representative from this firm visited the jobsite and took soil sample SF-WMX-200. Test results are shown below.



FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

FAIRWAY TESTING

CONSTRUCTION MATERIALS · TESTING · INSPECTION · RESEARCH

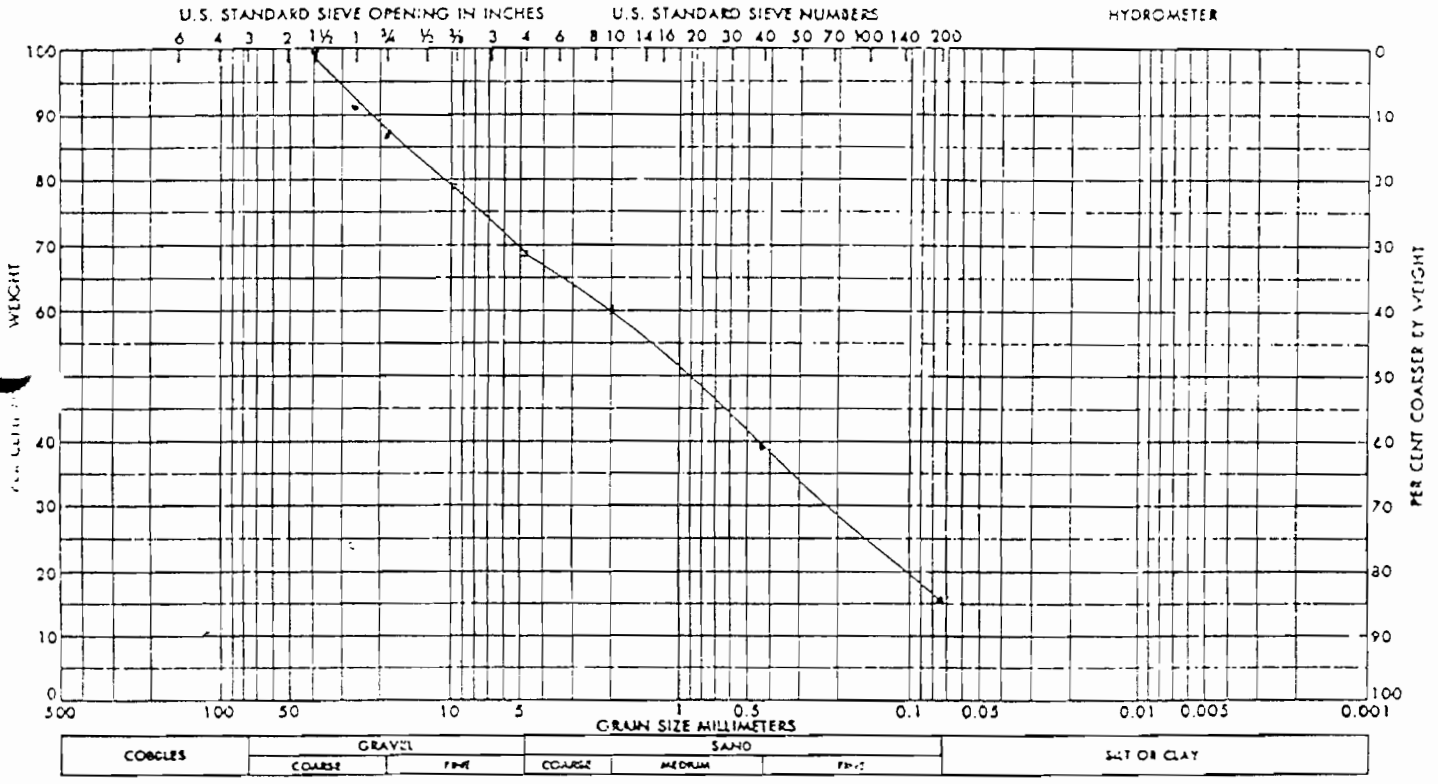
PO BOX 278 [illegible] TELEPHONE (914) 942-2091 FAX (914) 942-0335

client Ogden Remediation Services

June 26, 1998

project Clarkstown Landfill Grain Size Curve Analysis

On this date, a representative from this firm visited the jobsite and took soil sample SF-WMX-200. Test results are shown below.



Soil Classification (D2487): SM, silty sand w/gravel

Atterberg Limits (D4318): NP

Moisture Content (D2216): 12.4%

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

Table 02200-1

Quality Control
Field and Laboratory Minimum Testing Requirements

Property	Test Method	Structural Fill Frequency	Cover Soil Frequency
Particle Size Analysis w/ Hydrometer	ASTM D421/422	5,000 yd^3	2,500 yd^3
Atterberg Limits	ASTM D4318	5,000 yd^3	1,000 yd^3
Moisture Content (Laboratory)	ASTM D2216	5,000 yd^3	1,000 yd^3
Standard Proctor Compaction	ASTM D698	5,000 yd^3	1,000 yd^3
Consolidated - Undrained Triaxial Compression Test	ASTM D4767	—	10,000 yd^3
Field Density	ASTM D2922	10,000 ft^2	10,000 ft^2
Moisture Content (Field)	ASTM D3017	10,000 ft^2	10,000 ft^2
Lift Thickness	-		10,000 ft^2
Environmental - Cleanliness	EPA 8020	10,000 yd^3	10,000 yd^3

C. As approved earthwork materials are placed, the loose lift thickness shall be measured in accordance with Table 02200-1. These tests shall be performed, before subsequent lifts are placed, at least once per lift, and at a maximum of 100-ft intervals along narrow fills, channels, and trenches.

D. Any tests resulting in penetration of any geosynthetics shall be repaired at no expense to the Owner or Engineer.

1.03.3 Material Testing Requirements

A. The Contractor shall arrange for an inspection by the Engineer of each proposed foreign borrow source prior to the commencement of earthwork operations. During said inspection, the Contractor shall provide any equipment necessary to excavate test pits throughout the limits of the proposed source so as to provide the Engineer with a thorough inspection of the type(s) and uniformity of material(s) throughout the proposed source. Upon the Engineer's visual inspection and preliminary

PL/

CS-01 - sample CS-01 ??

CS-02

~~SF-17~~

specific gravity

CS 2.1 - 2.6C

2.0 2.6C

2.2 2.65

EPA 8020
SEC1 ✓

CS 01
CS 02

SF07 ✓
SF08 ✓

SF-15 wmx ✓
SF-17 wmx
SF-20 wmx ✓
SF-SV-15
SF-SV-40 ✓
CS-06
CS-09
SF-32 ✓
TS-06

Data included for samples not on chart

SF SV - 35	5/97
SF wmx - 30	4/97
SF wmx - 35	5/97
SF wmx C-8	5/97
SF wmx CS	5/97
SF SV 40	5/97

These archive runs 8260_8270 for SF01, 07, 08

original + additional spectra

SF wmx -30 EPA
SF wmx EPA -40
SF wmx EPA -50
SF wmx 150 " " " 60
" " " 70
" " " 80
" " " 90
" " " 100
" " " 110
" " " 120
" " " 130 duplicate + dilution
" " " 130 + dilution
" " " 140
" EPA 3510
" " " 150

CS-01 has a LL/PL test too

should be more on chart not checked are missing

D 422 - Particle Size Analysis

(D 1140)(D421)
D 698 - Proctor Compaction

D 2216 Moisture Content

D 2487 Soil Class

D 2488 Visual ID

D 4318 Atterberg

D 4767 Triaxial Compression

EPA 8020 (chemical - BTEX)
volatile aromatic compounds BTEX

D2974 organic content

4572
?

~~Sand~~

sample TS-06 ?
CS-10
CS-11

APPENDIX A3:

Chemical Analysis Laboratory Test Reports

Clarkstown Landfill Remediation
Laboratory Services Request
#LL-2339-K3

For:
Mr. Reddy Kancharla
M & T/Namow/TCL
47 Hudson Street
Ossining, N.Y. 10562
PH (914)762-9000
FX (914)762-9638

From:
Roy F. Weston of New York
Clarkstown Field Office
166 Rte. 303
West Nyack, N.Y. 10994
PH (914)353-5221
FX (914)353-5491

Sample I.D.	Source	Misc	ASTM D422	D698	D2488	D2216	D4318		EPA 8020						Remarks
SF-01 AGM-4	WMX/Star	1 bkt	x	x	x	x	x		x						rcvd at office
SFA-01 SD	Tilcon	1 bkt	x												stockpiled

Received By: M L Wade

Date/Time: 10-9-96 / 9:50

Delivered By: John C Woodley

Results Required, Date/Time: 10-15-96 / 10:00

Clarkstown Landfill Remediation
Laboratory Services Request
#LL-2339-K3

For:
Mr. Reddy Kancharla
M & T/Namow/TCL
47 Hudson Street
Ossining, N.Y. 10562
PH (914)762-9000
FX (914)762-9638

From:
Roy F. Weston of New York
Clarkstown Field Office
166 Rte. 303
West Nyack, N.Y. 10994
PH (914)353-5221
FX (914)353-5491

Sample I.D.	Source	Misc	ASTM D422	D698	D2216	D2487	D4318	D2974		EPA 8020					Remarks
SF-04 / NS-2	CB-WDAI	1 bkt	X	X	X	X	X								brn soil
SF-05 / NS-3	CB-WDAI	"	X	X	X	X	X								red soil
SF-06 / NS-1	CB-LFPI	"	X	X	X	X	X								pkg lot
SF-07 / CS-2.1	WMX/Star	"	X	X	X	X	X	X		X					possible CS delivered sample
SF-08 / —	WMX/Star re-screened	"	X	X	X	X	X	X		X					no transmittal # 2nd batch
SFA-02 / 5D	Tilcon	"	X												re-test stockpiled

Received By: Grasped

Date/Time: 10-16-96 / 1:50

Delivered By: John C Woodley

Results Required, Date/Time: 10-21-96 / 10:00

TESTWELL CRAIG LABORATORIES, INC.

ENVIRONMENTAL LABORATORY

47 Hudson Street, Building B
Ossining, NY 10562

Client: ROY F. WESTON OF NEW YORK
CLARKSTOWN FIELD OFFICE
WEST NYACK, NEW YORK 10994

Site: CLARKSTOWN LANDFILL REMEDIATION

VOLATILE ANALYSIS DATA SHEET

	Lab Identification:	VBLK	49343	49344	49345		
	Client Identification:	NA	SF-01	SF-07	SF-08		
	File Identification:	B12011	B12012	B12013	B12014		
	Percent moisture:	8.71	8.71	8.72	15.22		
	Dilution Factor:	1	1	1	1		
	Date Sample Received:	NA	10/18/96	10/18/96	10/18/96		
	Date Sample Prepared:	10/21/96	10/21/96	10/21/96	10/21/96		
	Date Sample Analyzed:	10/21/96	10/21/96	10/21/96	10/21/96		
CAS NO.	ANALYTE	ug/kg	ug/kg	ug/kg	ug/kg		MDL ug/kg
71432	Bezene	U	U	U	U		2
108883	Toluene	U	U	U	U		2
100414	Ethylbenzene	U	U	U	U		2
108678	1,3,5-Trimethylbenzene	U	U	U	U		1
108383	m-Xylene	U	U	U	U		2
99876	p-Isopropyltolune	U	U	U	U		1
98828	Isopropylbenzene	U	U	U	U		1
	o&p-Xylene	U	U	U	6.23		2
	Mixed Xylene	U	U	U	U		2
98066	t-Butylbenzene	U	U	U	U		1
103651	Propylbenzene	U	U	U	U		1
135988	s-Butylbenzene	U	U	U	U		1
95636	1,2,4-Trimethylbenzene	U	U	U	U		1
104518	Butylbenzene	U	U	U	U		1

U = UNDETECTED (FALLING BELOW THE METHOD DETECTION LIMIT).

Analysis run according to EPA Method 8260.

NOTE: ANALYSIS WAS RUN ACCORDING TO EPA METHOD 8260. ONLY COMPOUNDS REQUIRED BY NYSDEC STARS MEMO#1(EPA METHODS 8021/8020 HAVE BEEN REPORTED.

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TESTWELL CRAIG LABORATORIES, INC.

ENVIRONMENTAL LABORATORY

47 Hudson Street, Building B
Ossining, NY 10562

Client: ROY F. WESTON OF NEW YORK
CLARKSTOWN FIELD OFFICE
WEST NYACK, NEW YORK 10994

Site: CLARKSTOWN LANDFILL REMEDIATION

0 = contaminated

SEMI-VOLATILE ANALYSIS DATA SHEET

	Lab Identification:	MB2484		49343		49344		49345	
	Client Identification:	NA		SF-01		SF-07		SF-08	
	File Identification:	D1226		D1227		D1228		D1237	
	Date Sample Received:	NA		10/18/96		10/18/96		10/18/96	
	Date Sample Prepared:	10/18/96		10/18/96		10/18/96		10/18/96	
	Date Sample Analyzed:	10/21/96	MDL	10/21/96	MDL	10/21/96	MDL	10.22/96	MDL
CAS NO.	ANALYTE	ug/L	ug/L	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
91203	Naphthalene	U	2	430	220	U	220	3600	240
120127	Anthracene	U	2	4100	220	240	220	8600	240
86737	Fluorene	U	2	1900	220	U	220	5500	240
85018	Phenanthrene	U	2	11000	220	860	220	24000	240
129000	Pyrene	U	2	12000	220	1400	220	27000	240
83329	Acenaphthene	U	2	1300	220	U	220	4700	240
56553	Benzo(a)anthracene	U	2	7100	220	710	220	16000	240
206440	Fluoranthene	U	2	14000	220	1900	220	26000	240
205992	Benzo(b)fluoranthene	U	2	7800	220	1500	220	17000	240
207089	Benzo(k)fluoranthene	U	2	4000	220	U	220	7700	240
218019	Chrysene	U	2	6300	220	740	220	14000	240
50328	Benzo(a)pyrene	U	2	5400	220	550	220	11000	240
191242	Benzo(g,h,i)perylene	U	2	2800	220	250	220	7000	240
193395	Indeno(1,2,3-cd)pyrene	U	2	3800	220	330	220	7200	240
53703	Dibenz(a,h,)anthracene	U	2	1500	220	U	220	3800	240

U = UNDETECTED

Analysis run according to EPA Method 8270.

NOTE: ANALYSIS WAS RUN ACCORDING TO EPA METHOD 8270. ONLY COMPOUNDS REQUIRED BY NYSDEC STARS MEMO#1 HAVE BEEN REPORTED.

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DRAFT

TEST CODE 8020 NAME PURGEABLE AROMATICS

EPA Method: 8020. Volatile Aromatic Compounds.

Reference: Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846 (Third Edition) 1986. Office of Solid Waste, USEPA.

USEC REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: CLARKSTOWN LANDFILL / LF CAPPING
Project No.: 60001000
Date Sent: 3/26/97

Project Location: WEST NYACK N.Y.
Purchase Order No.: 6-52-21073
Shipped Via:

Sampled By: (Signature)
Lab Contact: BRIAN HOGUE
Date Received: 3/26/97

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.	EPA 8020		
		ANALYSIS REQUIRED												
SF-WMX-15	STRUCTURAL FILL	X		X	X		X	X				X		

Comments/Special Instructions: WMX STOCK PILE ONSITE 15,000 cy TEST

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Rev. 4/93

F220CRS

09/18/1996 11:03 6073486933 AUDIE AND 1 PAGE 02

SAMPLE ID SF-WMX-15 FRACTION 01A TEST CODE 8020 NAME PURGEABLE AROMATICS
Date & Time Collected not specified Category SOIL

EPA 8020

	RESULT	LIMIT
BENZENE	ND	2.0
TOLUENE	ND	2.0
ETHYLBENZENE	ND	2.0
XYLENES (TOTAL)	2.6	2.0

Notes and Definitions for this Report:

DATE RUN: 04/05/97
ANALYST: AK
INSTRUMENT: V4
DIL. FACTOR: 1
UNITS: ug/Kg

ND = not detected at detection limit

USEST REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: CLARKSTOWN LANDFILL / LE CABRIN'S
Project No.: 60001000 Date Sent: 3/26/97

Project Location: WEST NYACK N.Y.
Purchase Order No.: 6-52-22-11073 Shipped Via: _____

Sampled By: (Signature) TIM BEATTY
Lab Contact: BRIAN HUGGER Date Received: 3/26/97

Sample No.	Description	ANALYSIS REQUIRED: Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterburg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.	EPA 8020		
SF-WMX-20	STRUCTURAL FILL	X		X	X		X	X				X		

Comments/Special Instructions: WMX STOCKPILE ON SITE 20,000 CY TEST

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Rev. 4/93

FORMS

03/18/1996 11:09 8455555 AUG 1 E AND I PAGE 02

Received: 03/28/97 Results by Sample

SAMPLE ID SF-WMX-20 FRACTION 01A TEST CODE 8020 NAME PURGEABLE AROMATICS
Date & Time Collected not specified Category SOIL

EPA 8020

	RESULT	LIMIT
BENZENE	ND	2.0
TOLUENE	ND	2.0
ETHYLBENZENE	ND	2.0
XYLENES (TOTAL)	ND	2.0

Notes and Definitions for this Report:

DATE RUN: 04/05/97
ANALYST: AK
INSTRUMENT: V4
DIL. FACTOR: 1
UNITS: ug/Kg

ND = not detected at detection limit

USESCI REMEDIATION SERVICES CO., INC

WORK ORDER: 7.06.548

DUE DATE: 7.3.97

5 of 1

Soil Sample Test Request Record

Project Name/Client: CLARKSTOWN LANDFILL / LF CAPPING

Project No.: 6001.0000

Date Sent: 6/17/97

Project Location: WEST NYACK N.Y.

Purchase Order No.: Allowed

Shipped Via:

Sampled By: (Signature) JIM BEATTY

Lab Contact: TOXICON

Date Received: 6/19/97 1300 MMcNeill

ANALYSIS REQUIRED

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.	EPA 8020		
3 SP-WALK	EPA-30											X		

Comment/Special Instructions:

SAMPLE TAKEN FROM NORTH SLOPE RFW# 14

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Rev. 4/93

FTMCRS

Received: 06/19/97 Results by Sample

SAMPLE ID SF-WMXEPA-30 FRACTION 05A TEST CODE 8020 NAME PURGEABLE AROMATICS
Date & Time Collected 06/17/97 Category SOIL

EPA 8020

	RESULT	LIMIT
BENZENE	ND	1.0
TOLUENE	ND	2.0
ETHYLBENZENE	ND	2.0
XYLENES (TOTAL)	ND	2.0

Notes and Definitions for this Report:

DATE RUN: 06/29/97
ANALYST: PL
INSTRUMENT: V4
DIL. FACTOR: 1
UNITS: ug/Kg

ND = not detected at detection limit

Soil Sample Test Request Record

Project Name/Client: CLARKSTOWN LANDFILL / LF CAPPING
Project No.: 6000/00000
Date Sent: 5/16/97

Project Location: WEST NYACK, N.Y.
Purchase Order No.:
Shipped Via:

Sampled By: (Signature) LARRY KILCOURSE
Lab Contact:
Date Received: 5/16/97

WORK ORDER #: 97.05.323
DUE DATE : 6.3.97

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.	EPA 8080		
TOX # (1) SF-SV-10		X		X	X		X	X				X		

ANALYSIS REQUIRED

Comments/Special Instructions:

SAMPLE TAKEN FROM THE WEST END OF SEDIMENT STOCKPILE

REC'D: MaliCourse 5/20/97 0900

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Rev. 4/93

F220CRS

6000/00000 5/16/97 11:05 AM
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PAGE 32

Received: 05/20/97 Results by Sample

SAMPLE ID SF-SV-40 FRACTION 01A TEST CODE 8020 NAME PURGEABLE AROMATICS
Date & Time Collected not specified Category SOIL

EPA 8020

	RESULT	LIMIT
BENZENE	ND	1.0
TOLUENE	ND	2.0
ETHYLBENZENE	ND	2.0
XYLENES (TOTAL)	ND	2.0

Notes and Definitions for this Report:

DATE RUN: 05/24/97
ANALYST: AK
INSTRUMENT: V5
DIL. FACTOR: 1
UNITS: ug/Kg

ND = not detected at detection limit

REMEDIATION SERVICES CO., INC

WORK ORDER #: 21.06.348

DUE DATE : 7.3.97

Soil Sample Test Request Record

Project Name/Client: CLARKSTOWN LANDFILL / L.F. CARPING

Project No.: 60010000

Date Sent: 6/17/97

Project Location: WEST NYACK N.Y.

Purchase Order No.:

Shipped Via:

Sampled By: (Signature) JIM BARRETT

Lab Contact: Alwan Toxicon

Date Received: 6/19/97 1360 Minutes

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.	EPA 8020		
4	SF-WMX EPA-80											X		

ANALYSIS REQUIRED

Comments/Special Instructions:

SAMPLE TAKEN FROM WEST SLOPE GE #37

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Rev. 4/91

FENICIS

06/18/1996 11:09 8455/8455 KUSIE AND ASSOC PAGE 02

SAMPLE ID SF-UPOXEPA-40 FRACTION 04A TEST CODE 8020 NAME PURGEABLE AROMATICS
Date & Time Collected 06/17/97 Category SOIL

EPA 8020

	RESULT	LIMIT
BENZENE	ND	1.0
TOLUENE	ND	2.0
ETHYLBENZENE	ND	2.0
XYLENES (TOTAL)	ND	2.0

Notes and Definitions for this Report:

DATE RUN: 06/29/97
ANALYST: PL
INSTRUMENT: V4
DIL. FACTOR: 1
UNITS: ug/Kg
ND = not detected at detection limit

USESI REMEDIATION SERVICES CO., INC.

WORK ORDER #: 9-06-348

DUE DATE : 7-3-97

5 of 1

Soil Sample Test Request Record

Project Name/Client: CLARKSTOWN LANDFILL / LF CAPPING

Project No.: 6001.0002

Date Sent: 6/17/97

Project Location: WEST NYACK N.Y.

Purchase Order No.:

Shipped Via:

Sampled By: (Signature) JIM BRADY

Lab Contact: RHONDA TAYLOR

Date Received: 6/19/97 Rob Simonelli

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limit ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.	EPA 8020		
5	SF-WMX EPA-50											X		

ANALYSIS REQUIRED

Comment/Special Instruction:

SAMPLE TAKEN FROM S.W. SLOPE GE #32

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Rev. 4/93

FAXERS

6017/RT/GD 11:05 - 8074825555 RUSH E AND I PAGE 02

Received: 06/19/97 Results by Sample

SAMPLE ID SF-WBOXEPA-50 FRACTION 05A TEST CODE 8020 NAME PURGEABLE AROMATICS
Date & Time Collected 06/17/97 Category SOIL

EPA 8020

	RESULT	LIMIT
BENZENE	ND	1.0
TOLUENE	ND	2.0
ETHYLBENZENE	ND	2.0
XYLENES (TOTAL)	ND	2.0

Notes and Definitions for this Report:

DATE RUN: 06/29/97
ANALYST: PL
INSTRUMENT: V4
DIL. FACTOR: 1
UNITS: ug/Kg
ND = not detected at detection limit

6 of 1

UNISYS REMEDIATION SERVICES CO., INC.

WORK ORDER #: 97-06-348

DUE DATE : 7:3-97

Soil Sample Test Request Record

Project Name/Client: CLARKSTOWN LANDFILL 3 L.F. CAPPING

Project No.: 6001000

Date Sent: 6/17/97

Project Location: WEST NYACK N.Y.

Purchase Order No.: RHONDA

Shipped Via:

Sampled By: (Signature) JIM BEATTY

Lab Contact: TOXICON

Date Received: 6/19/97 1300 Lmcdonell

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.	EPA 8020		
6 SF-WMX	EPA-60											X		

ANALYSIS REQUIRED

Comment/Special Instructions: SAMPLE TAKEN FROM WEST SIDE OF WMX STOCK PILE

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

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Rev. 4/93

06/18/1996 11:05 - 0053455553 PAGE 02

SAMPLE ID SF-WDEPA-60 FRACTION 06A TEST CODE 8020 NAME PURGEABLE AROMATICS
Date & Time Collected 06/17/97 Category SOIL

EPA 8020

	RESULT	LIMIT
BENZENE	ND	1.0
TOLUENE	ND	2.0
ETHYLBENZENE	ND	2.0
XYLENES (TOTAL)	ND	2.0

Notes and Definitions for this Report:

DATE RUN: 06/29/97
ANALYST: PL
INSTRUMENT: V4
DIL. FACTOR: 1
UNITS: ug/Kg

ND = not detected at detection limit

USEPA REMEDIATION SERVICES CO., INC.

WORK ORDER #: 4 . 06 . 348

DUE DATE : 7 . 3 . 97

1 of 1

Soil Sample Test Request Record

Project Name/Client: CLARKSTOWN LANDFILL / L.F. CAPPING

Project No.: 60010000

Date Sent: 6/17/97

Project Location: WEST NYACK N.Y.

Purchase Order No.:

Shipped Via:

Sampled By: (Signature) JIM BEATTY

Lab Contact: RHONDA TOXICON

Date Received: 6/19/97 1300 MILLSTONE

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.	EPA 8020		
1	SF-WMX EPA-70											X		

ANALYSIS REQUIRED

Comments/Special Instructions: SAMPLE TAKEN FROM THE EAST SIDE OF WMX STOCKPILE

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Rev. 4/93

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PAGE 02

SAMPLE ID SF-WKXEPA-70 FRACTION 07A TEST CODE 8020 NAME PURGEABLE AROMATICS
Date & Time Collected 06/17/97 Category SOIL

EPA 8020

	RESULT	LIMIT
BENZENE	ND	1.0
TOLUENE	ND	2.0
ETHYLBENZENE	ND	2.0
XYLENES (TOTAL)	ND	2.0

Notes and Definitions for this Report:

DATE RUN: 06/29/97
ANALYST: PL
INSTRUMENT: V4
DIL. FACTOR: 1
UNITS: ug/Kg

ND = not detected at detection limit

OGDEN REMEDIATION SERVICES CO., INC.

WORK ORDER #: 97.10.266

DUE DATE : 10.27.97

Soil Sample Test Request Record

Project Name/Client: CLARKSTOWN LANDFILL / LF CAMP Project No.: 6001000 Date Sent: 8/26/97

Project Location: WEST NYACK N.Y. Purchase Order No.: _____ Shipped Via: _____

Sampled By: (Signature) James Beatty Lab Contact: _____ Date Received: _____

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.	EPA-8020		
		ANALYSIS REQUIRED												
1	SF-EPA-80											X		

Comments/Special Instructions:

Samples Taken From GE 29

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Rev. 4/93

10-15-97
1115
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FLEXCRS

Page 2 TOXIKON CORP. REPORT Work Order # 97-10-266
Received: 10/15/97 Results by Sample

SAMPLE ID SF-EPA-80 FRACTION 01A TEST CODE 8020 NAME PURGEABLE AROMATICS
Date & Time Collected 08/26/97 Category SOIL

EPA 8020

	RESULT	LIMIT
BENZENE	ND	1.0
TOLUENE	ND	2.0
ETHYLBENZENE	ND	2.0
XYLENES (TOTAL)	ND	2.0

Notes and Definitions for this Report:

DATE RUN: 10/17/97
ANALYST: NLC
INSTRUMENT: V4
DIL. FACTOR: 1
UNITS: ug/Kg
ND = not detected at detection limit

OBG REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: CRANSTON LANDFILL / LF CANNING Project No.: 60010002.01 Date Sent: 9-2-97

Project Location: WEST BRANCH D.4 Purchase Order No.: Shipped Via:

Sampled By: (Signature) James Beatty Lab Contact: Date Received:

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterburg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.	EPA-8020		
4	SF-EPA-90											X		

ANALYSIS REQUIRED

Comments/Special Instructions:

SAMPLES TAKEN 50'E OF GE-39

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

FZX/CRS

Rev. 4/93

FROM : TOXIKON PHONE NO. : 6172711135 Oct. 21 1997 09:18AM P15

Page 5 TOXIKON CORP. REPORT Work Order # 97-10-266
Received: 10/15/97 Results by Sample

SAMPLE ID SF-EPA-90 FRACTION 04A TEST CODE 8020 NAME PURGEABLE AROMATICS
Date & Time Collected 09/02/97 Category SOIL

EPA 8020

	RESULT	LIMIT
BENZENE	ND	1.0
TOLUENE	ND	2.0
ETHYLBENZENE	ND	2.0
XYLENES (TOTAL)	ND	2.0

Notes and Definitions for this Report:

DATE RUN: 10/17/97
ANALYST: NLC
INSTRUMENT: V4
DIL. FACTOR: 1
UNITS: ug/Kg

ND = not detected at detection limit

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REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: CLARKSTOWN LANDFILL / LF GROUP Project No.: 600100000 Date Sent: 9/9/97

Project Location: WEST NYACK N.Y. Purchase Order No.: _____ Shipped Via: _____

Sampled By: (Signature) James Beatty Lab Contact: _____ Date Received: _____

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.	EPA-8020		
5	SF-EPA-100											X		

ANALYSIS REQUIRED

Comment/Special Instructions:

SAMPLE TAKEN 50' NORTH OF GE-32

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Rev. 4/91

FZ20/CRS

FROM : TOXIKON PHONE NO. : 6172711135 Oct. 21 1997 09:18AM P16

Page 6 TOXIKON CORP. REPORT Work Order # 97-10-266
Received: 10/15/97 Results by Sample

SAMPLE ID SF-EPA-100 FRACTION 05A TEST CODE 8020 NAME PURGEABLE AROMATICS
Date & Time Collected 09/04/97 Category SOIL

EPA 8020

	RESULT	LIMIT
BENZENE	ND	1.0
TOLUENE	ND	2.0
ETHYLBENZENE	ND	2.0
XYLENES (TOTAL)	ND	2.0

Notes and Definitions for this Report:

DATE RUN: 10/17/97
ANALYST: NLC
INSTRUMENT: V4
DIL. FACTOR: 1
UNITS: ug/Kg

ND = not detected at detection limit

OBL. REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: CHARLESTOWN LANDFILL / LFC MRF Project No.: 600100026 Date Sent: 9/15/97

Project Location: WEST WYACK N.Y. Purchase Order No.: _____ Shipped Via: _____

Sampled By: (Signature) James Beatty Lab Contact: _____ Date Received: _____

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.	EPA-8020		
SF-EPA-110										\		X		

ANALYSIS REQUIRED

Comments/Special Instructions:

SAMPLE TAKEN 50' NORTH OF GE 52

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Rev. 4/91

FZ0/CRS

FROM : TOXIKON PHONE NO. : 6172711135 Oct. 21 1997 09:19AM P17

Page 7 TOXIKON CORP. REPORT Work Order # 97-10-266
Received: 10/15/97 Results by Sample

SAMPLE ID SF-EPA-110 FRACTION D6A TEST CODE 8020 NAME PURGEABLE AROMATICS
Date & Time Collected 09/15/97 Category SOIL

EPA 8020

	RESULT	LIMIT
BENZENE	ND	1.0
TOLUENE	ND	2.0
ETHYLBENZENE	ND	2.0
XYLENES (TOTAL)	ND	2.0

Notes and Definitions for this Report:

DATE RUN: 10/17/97
ANALYST: NLC
INSTRUMENT: V4
DIL. FACTOR: 1
UNITS: ug/Kg

ND = not detected at detection limit

OGDEN REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: CLARKSTOWN LANDFILL / LF CAPPING Project No.: 6001000001 Date Sent: 9/18/97

Project Location: WEST NYACK N.Y. Purchase Order No.: _____ Shipped Via: _____

Sampled By: (Signature) James Beatty Lab Contact: _____ Date Received: _____

Sample No	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Auerberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall Perm.	EPA-8020		
7	SF-EPA-120											X		

ANALYSIS REQUIRED

Comments/Special Instructions:

SAMPLE TAKEN 100' WEST OF GE-15

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Rev. 4/97

FZX/CRS

FROM : TOXIKON
PHONE NO. : 6172711135
Oct. 21 1997 09:19AM P18

Page 8 TOXIKON CORP. REPORT Work Order # 97-10-266
Received: 10/15/97 Results by Sample

SAMPLE ID SF-EPA-120 FRACTION 07A TEST CODE 8020 NAME PURGEABLE AROMATICS
Date & Time Collected 09/18/97 Category SOIL

EPA 8020

	RESULT	LIMIT
BENZENE	ND	1.0
TOLUENE	ND	2.0
ETHYLBENZENE	ND	2.0
XYLENES (TOTAL)	ND	2.0

Notes and Definitions for this Report:

DATE RUN: 10/17/97
ANALYST: NLC
INSTRUMENT: V4
DIL. FACTOR: 1
UNITS: ug/Kg

ND = not detected at detection limit

OGDEN MEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: CLARKSTOWN LANDFILL / LFC MGMT Project No.: 600100000 Date Sent: 9/30/97

Project Location: WEST NYACK N.Y. Purchase Order No.: _____ Shipped Via: _____

Sampled By: (Signature) James Beatty Lab Contact: _____ Date Received: _____

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall Perm.	EPA-8020		
		ANALYSIS REQUIRED												
SF-EPA-130												X		

Comments/Special Instructions:

SAMPLE TAKEN 200' SOUTH OF GM-6

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Rev. 4/93

F220/CRS

Page 9 TOXIKON CORP. REPORT Work Order # 97-10-266
Received: 10/15/97 Results by Sample

SAMPLE ID SF-EPA-130 FRACTION 08A TEST CODE 8020 NAME PURGEABLE AROMATICS
Date & Time Collected 09/30/97 Category SOIL

EPA 8020

	RESULT	LIMIT
BENZENE	ND	1.0
TOLUENE	ND	2.0
ETHYLBENZENE	ND	2.0
XYLENES (TOTAL)	ND	2.0

Notes and Definitions for this Report:

DATE RUN: 10/17/97
ANALYST: NLC
INSTRUMENT: V4
DIL. FACTOR: 1
UNITS: ug/Kg

ND = not detected at detection limit

USEC REMEDIATION SERVICES CO., INC.

WORK ORDER #: 97-10-L

DUE DATE : 11-5-97

Project Name/Client: CLARKSTOWN LANDFILL / LF CAPPING Project No.: 6001000000 Date Sent: 10/22/97

Project Location: WEST NYACK N.Y. Purchase Order No.: _____ Shipped Via: _____

Sampled By: (Signature) JAMES BEATTY Lab Contact: _____ Date Received: 10/22/97

	Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterburg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydro-meter ASTM D1140	Moisture Content ASTM D2216	Classifi-cation ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.	EPA 8040		
			ANALYSIS REQUIRED												
1	SF-EPH-130												X		
2	SF-EPA-140												X		

Comments/Special Instructions:

SF-EPH-130 SAMPLE TAKEN 100' SOUTH OF GM 6

SF-EPA-140 SAMPLE TAKEN NEAR GE-12

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

Rev. 4/93

10/23/97

11

FZ20CR3

1996 11:09 8087659955 PAGE 02

Received: 10/23/97 Results by Sample

SAMPLE ID SF-EPA-130 FRACTION 01A TEST CODE 8020 NAME PURGEABLE AROMATICS
Date & Time Collected 10/22/97 Category SOIL

EPA 8020

	RESULT	LIMIT
BENZENE	ND	1.0
TOLUENE	4.3	2.0
ETHYLBENZENE	ND	2.0
XYLENES (TOTAL)	20.2	2.0

Notes and Definitions for this Report:

DATE RUN: 10/28/97
ANALYST: NLC
INSTRUMENT: V5
DIL. FACTOR: 1
UNITS: ug/kg

ND = not detected at detection limit

SAMPLE ID SF-EPA-140 FRACTION 02A TEST CODE 8020 NAME PURGEABLE AROMATICS
Date & Time Collected 10/22/97 Category SOIL

EPA 8020

	RESULT	LIMIT
BENZENE	ND	1.0
TOLUENE	ND	2.0
ETHYLBENZENE	ND	2.0
XYLENES (TOTAL)	ND	2.0

Notes and Definitions for this Report:

DATE RUN: 10/28/97
ANALYST: NLC
INSTRUMENT: V5
DIL. FACTOR: 1
UNITS: ug/kg

ND = not detected at detection limit

OBL REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: CLARKSTOWN LANDFILL-JFK CARTING Project No.: 6001000.0 Date Sent: 10/13/97

Project Location: WEST NYACK N.Y. Purchase Order No.: _____ Shipped Via: _____

Sampled By: (Signature) James Beatty Lab Contact: _____ Date Received: 10/14/97

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex. Wall. Perm.	# EPA 8020		
2	JF-EPA-JFK											X		

Comment/Special Instruction: SOIL SAMPLE TAKEN FROM JFK STOCKPILE ON SITE.

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

FZ0CR3

Rev. 4/93

Page 3 TOXIKON CORP. REPORT Work Order # 97-10-266
Received: 10/15/97 Results by Sample

SAMPLE ID SF-EPA-JFK FRACTION 02A TEST CODE 8020 NAME PURGEABLE AROMATICS
Date & Time Collected 10/14/97 Category SOIL

EPA 8020

	RESULT	LIMIT
BENZENE	ND	1.0
TOLUENE	ND	2.0
ETHYLBENZENE	ND	2.0
XYLENES (TOTAL)	ND	2.0

Notes and Definitions for this Report:

DATE RUN: 10/17/97
ANALYST: NLC
INSTRUMENT: V4
DIL. FACTOR: 1
UNITS: ug/Kg

ND = not detected at detection limit

Clarkstown Landfill Remediation
Laboratory Services Request
#LL-2339-K3

For:
Mr. Reddy Kancharla
M & T/Namow/TCL
47 Hudson Street
Ossining, N.Y. 10562
PH (914)762-9000
FX (914)762-9638

From:
Roy F. Weston of New York
Clarkstown Field Office
166 Rte. 303
West Nyack, N.Y. 10994
PH (914)353-5221
FX (914)353-5491

Sample I.D.	Source	Misc	ASTM D422	D698	D2216	D4318	EPA 8020								Remarks
SF-31	WMX	1 bkt	X	X	X	X									150,000
SF-32	Center Rock	1 bag	X	X	X	X	X								NEW SOURCE

Received By: Richard Tuttle

Date/Time: 10-30-97 / 11:45

Delivered By: John C Woodley

Results Required, Date/Time: 11-7-97 / 11:30

M&T/NAMOW/TCL□J.V.

CLIENT: ROY F. WESTON OF NEW YORK
CLARKSTOWN FIELD OFFICE
166 ROUTE 303
WEST NYACK, NY 10994

LAB #: F0B-001
REPORT #: MC-119

PROJECT: CLARKSTOWN LANDFILL REMEDIATION
SOURCE: CENTER ROCK
SAMPLED BY: CLIENT

VOLATILE STARS MEMO ANALYSIS DATA SHEET (SOIL)

	Lab Identification:	53675	
	Client Identification:	SF-32	
	File Identification:	E0970	
	Percent Moisture:	7.35	
	Dilution Factor:	NA	
	Date Sample Received:	11/04/97	
	Date Sample Prepared:	11/04/97	
	Date Sample Analyzed:	11/04/97	MDL
CAS NO.	ANALYTE	ug/Kg	ug/Kg
71-43-2	Bezene	U	2
100-41-4	Ethylbenzene	U	2
108-88-3	Toluene	U	2
1724	o-Xylene	U	2
108-38-3	m-Xylene	U	2
	m & p-Xylene	U	2
	Mixed Xylene	U	2
98-82-8	Isopropylbenzene	U	2
103-65-1	n-Propylbenzene	U	2
99-87-6	p-Isopropyltolune	U	2
95-63-6	1,2,4-Trimethylbenzene	U	2
108-67-8	1,3,5-Trimethylbenzene	U	2
104-51-8	n-Butylbenzene	U	2
135-98-8	sec-Butylbenzene	U	2
98-06-6	t-Butylbenzene	U	2

CD97

U = UNDETECTED (FALLING BELOW THE METHOD DETECTION LIMIT)
MDL = METHOD DETECTION LIMIT
Analysis run according to EPA Method 8260.

John Chen, Ph. D.
Laboratory Director

NOTE: ANALYSIS WAS RUN ACCORDING TO EPA 8260. ONLY COMPOUNDS REQUIRED BY NYSDEC STARS MEMO#1 (EPA METHOD 8020/8021 HAVE BEEN REPORTED)

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M&T/NAMOW/TCL□J.V.

CLIENT: ROY F. WESTON OF NEW YORK
CLARKSTOWN FIELD OFFICE
166 ROUTE 303
WEST NYACK, NY 10994

LAB #: FOB-001
REPORT #: MC-120

PROJECT: CLARKSTOWN LANDFILL REMEDIATION
SOURCE: CENTER ROCK
SAMPLED BY: CLIENT

SEMI-VOLATILE STARS MEMO ANALYSIS DATA SHEET (SOIL)

	Lab Identification:	53675	
	Client Identification:	SF-32	
	File Identification:	D2482	
	Percent Moisture:	7.35	
	Dilution Factor:	1	
	Date Sample Received:	11/04/97	
	Date Sample Prepared:	11/05/97	
	Date Sample Analyzed:	11/05/97	MDL
CAS NO.	ANALYTE	µg/Kg	µg/Kg
91-20-3	Naphthalene	U	220
120-12-7	Anthracene	U	220
86-73-7	Fluorene	U	220
85-01-8	Phenanthrene	U	220
129-00-0	Pyrene	U	220
83-32-9	Acenaphthene	U	220
56-55-3	Benzo(a)anthracene	U	220
206-44-0	Fluoranthene	U	220
205-99-2	Benzo(b)fluoranthene	U	220
207-08-9	Benzo(k)fluoranthene	U	220
218-01-9	Chrysene	U	220
50-32-8	Benzo(a)pyrene	U	220
191-24-2	Benzo(g,h,i)perylene	U	220
193-39-5	Indenol(1,2,3-cd)pyrene	U	220
53-70-3	Dibenz(a,h,)anthracene	U	220

CDN:

U = UNDETECTED
MDL = METHOD DETECTION LIMIT
Analysis run according to EPA Method 8270.

John Chen, Ph. D.
Laboratory Director

NOTE: ANALYSIS WAS RUN ACCORDING TO EPA 8270. ONLY COMPOUNDS REQUIRED BY NYSDEC STARS MEMO=I HAVE BEEN REPORTED

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TOXIKON

15 Wiggins Ave Bedford, MA 01730
Telephone (781) 275-3340
Fax (781) 275-3478

CHAIN OF CUSTODY RECORD

WORK ORDER #: [illegible]

DUE DATE : 4 - 15 - 99

COMPANY: [illegible]
ADDRESS: [illegible]
PHONE #: [illegible] FAX # [illegible]
P.O. #:
PROJECT MANAGER: [illegible]
PROJECT ID/LOCATION: [illegible]

SAMPLE TYPE	CONTAINER TYPE
1 WASTEWATER	P - PLASTIC
2 SOIL	G - GLASS
3 SLUDGE	V VOA
4 OIL	
5 DRINKING WATER	
6 WATER (GW/MW/SW)	
7 OTHER (SPECIFY	

TOXIKON #	SAMPLE IDENTIFICATION	SAMPLE TYPE	CONTAINER SIZE	CONTAINER TYPE	CONTAINER #	SAMPLING DATE	SAMPLING TIME	PRESERVATIVE	ANALYSES	SPECIAL INSTRUCTIONS/COMMENTS
1	[illegible]	[illegible]		[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	
2	[illegible]	[illegible]		[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	
3	[illegible]	[illegible]		[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	
4	[illegible]	[illegible]		[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	
5	[illegible]	[illegible]		[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	
6	[illegible]	[illegible]		[illegible]	1	[illegible]	[illegible]	[illegible]	[illegible]	

SAMPLED BY: [illegible] DATE [illegible] TIME [illegible]

RELINQUISHED BY: [illegible] DATE [illegible] TIME [illegible]

RELINQUISHED BY: DATE TIME

METHOD OF SHIPMENT

QUOTATION #:

RECEIVED BY: [illegible] DATE 7 - 2 - 98 TIME 17 : 15

RECEIVED FOR LAB BY: DATE TIME

COOLER TEMPERATURE: °C

☐ RUSH ..... BUSINESS DAY TURN AROUND
☐ ROUTINE

Sample disposal information

Are there any other known or suspected contaminants in these samples other than those listed above?

SAMPLE ID SF-EPA-WHX-150 FRACTION 06A TEST CODE 8020 NAME PURGEABLE AROMATICS
Date & Time Collected 04/01/98 14:00:00 Category SOIL

EPA 8020

	RESULT	LIMIT
BENZENE	ND	1.0
TOLUENE	ND	2.0
ETHYLBENZENE	ND	2.0
XYLENES (TOTAL)	4.8	2.0

Notes and Definitions for this Report:

DATE RUN: 04/08/98
ANALYST: NLC
INSTRUMENT: V5
DIL. FACTOR: 1
UNITS: ug/Kg

ND = not detected at detection limit

OCEAN REMEDIATION SERVICES CO., INC.

Soil Sample Test Request Record

Project Name/Client: CLARKSTOWN L.F. + L.E. CAPPING
Project Location: WEST NYACK
Sampled By: (Signature) Michael Diana
Project No.: 600100000
Purchase Order No.:
Lab Contact:
Date Sent: 9/16/98
Shipped Via: Fedex
Date Received:

ANALYSIS REQUESTED

Sample No.	Description	Standard Proctor ASTM D698	Modified Proctor ASTM D1557	Atterberg Limits ASTM D4318	Sieve Analysis ASTM D422	Hydrometer ASTM D1140	Moisture Content ASTM D2216	Classification ASTM D2487	Remolded Perm.	Falling Head Perm.	Flex Wall Perm.			EPA 8020
EPA 8020 SF-WMX 190	Waste Mgt.													X

Comments/Special Instructions:

130' N X 100' S of CC-1 (CS-WMX-256)

White Copy - Lab Yellow Copy - File Pink Copy - Attach to Daily Report

REQUIRED

Rev. 4/93

Received: 09/17/98 Results by Sample

SAMPLE ID SF-WMX-190 FRACTION 06A TEST CODE 8020 NAME PURGEABLE AROMATICS
Date & Time Collected 09/16/98 11:00:00 Category SOIL

EPA 8020

	RESULT	LIMIT
BENZENE	ND	1.0
TOLUENE	ND	2.0
ETHYLBENZENE	ND	2.0
XYLENES (TOTAL)	ND	2.0

Notes and Definitions for this Report:

DATE RUN: 09/22/98
ANALYST: NLC
INSTRUMENT: V5
DIL. FACTOR: 1
UNITS: ug/Kg
ND = not detected at detection limit

TOWN OF CLARKSTOWN
DEPARTMENT OF ENVIRONMENTAL CONTROL

CLARKSTOWN SANITARY LANDFILL REMEDIATION AND LANDFILL CAPPING

CONTRACT NO. 34-1996

CONSTRUCTION CERTIFICATION REPORT

APPENDIX B: LANDFILL GAS STRUCTURES MATERIAL DOCUMENTATION

April 14, 2000

Prepared for:
Town of Clarkstown
Department of Environmental Control
10 Maple Avenue
New City, NY 10956

Submitted to:
New York State Department of Environmental Conservation
Division of Environmental Remediation
50 Wolf Road
Albany, NY 12233

Prepared by:
Roy F. Weston of New York, Inc.
130 West 30th Street
New York, NY 10001

WESTON® MANAGERS DESIGNERS/CONSULTANTS

APPENDIX B: LANDFILL GAS STRUCTURES MATERIAL DOCUMENTATION

Appendix B1:	LFG Extraction Wells and LFG Migration Monitoring Probes - Piping, Crushed Stone and Boring Logs
Appendix B2:	LFG Collection System Piping Data
Appendix B3:	Wellheads, Vaults and Valves

APPENDIX B1:

LFG Extraction Wells and LFG Migration Monitoring Probes - Piping, Crushed Stone and Boring Logs

CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION CLARKSTOWN, NEW YORK

Well Abandonment and Well Extension
Installation of Landfill Gas Extraction Wells
Installation of Landfill Gas Migration Monitor Probes

Prepared by
Moretrench American Corporation
100 Stickle Ave.
Rockaway, New Jeresy 07866

Contacts — (201) 627-2100 → Mike McHugh - [illegible]
Jay Bayerlesdörfer [illegible]
Dan Dimler - Field [illegible]

Clarkstown Municipal Sanitary Landfill Remediation

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Section 02970 - Well Abandonment and Well Extension
- Scope of Work
- Methods of Construction
- Materials of Construction
- Well Schedule
- Material Specifications

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- Scope of Work
- Methods of Construction
- Materials of Construction
- Well Details
- Material Specifications
- Sample Well Installation Log

Section 13020 - Landfill Gas Migration Monitor Probes
- Scope of Work
- Methods of Construction
- Materials of Construction
- Well Details
- Material Specifications
- Sample Well Installation Log

CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION

SECTION 02970: WELL ABANDONMENT AND WELL EXTENSION

Scope:
Moretrench American Corporation will abandon the existing 21 monitoring/piezometer wells and extend the existing 22 monitoring/piezometer wells constructed as shown on the contract drawings. The abandonment of groundwater monitor wells shall include (slotted and solid, low carbon steel, stainless steel or PVC well pipe and fittings, steel surface protective casing, bentonite, and concrete) and extending monitoring wells (stainless steel or PVC pipe inner casing, low carbon steel outer casing) as shown on the contract drawings or as directed by the Engineer.

The materials furnished by Moretrench's scope of work is detailed herein.

Methods of Construction:
Abandonment of the groundwater monitoring wells screened in the refuse will be abandoned by pumping in a bentonite slurry to 5 foot below the preparatory grade as indicated on the contract drawings and then removing the upper 5 feet of casing. The abandonment of the groundwater monitoring wells screened in natural soils will be abandoned by tremie grouting a cement bentonite grout the entire length of the boring to within 5 feet below the ground surface, or the proposed excavation elevation. The remainder of the casing will be grouted to 5 feet below grade after confirming the screened zone is sealed. The remaining 5 feet will be cut off and the borehole backfilled with native material and compacted.

The wells and well casing shall be extended to the elevations indicated on the contract drawings or as directed by the Engineer. The well size and protective casing including materials shall be based on available as-built information and field inspection.

All work will be done under level "D" protection.

All as-built dimensions and details will be recorded on Moretrench data sheets and provided to the Engineer.

Materials of Construction:

All materials for the extension of the wells will be determined by field inspection. These materials shall include but not limited to PVC SCH 40, stainless steel, (ASTM 304-316), and low carbon steel.

The cement used for abandoning wells will be Portland Type I/II. The bentonite will be Benseal as produced by NL Baroid.

Table 02970-1

Well or Piezometer Number (1)	Action Required	Elevation of Ground Surface (2)	Elevation of Top of Casing (2)	Diameter of Well Casing (in.)	Diameter of Protective Casing	Well Casing Material Construction	Screened or Open Interval: Feet Below Grade	Screened or Open Interval: Referred to MSL (2)	Formation Screened
RFW-1S	EXTEND	70.0	72.11	2.00	6.50	SST+	20-25	50.11-45.11	Sandy Till
RFW-1D	EXTEND	69.5	71.70	2.00	6.50	SST	55-60	-25.71-30.71	Rock
RFW-2	EXTEND	63.5	66.20	2.00	6.50	SST+	24-29	42.2-37.2	Sandy Till
RFW-3S	EXTEND	63.2	65.29	2.00	6.50	SST+	29-34	36.29-31.29	Sandy Till
RFW-3D	EXTEND	63.3	64.89	2.00	6.50	SST+	45.5-60.5	19.39-4.39	Rock
RFW-4S	EXTEND	60.5	62.51	2.00	6.50	SST+	15-20	47.51-42.51	Peat
RFW-4D	EXTEND	60.5	62.83	2.00	6.50	SST+	35-45	27.83-17.83	Outwash
RFW-5S	EXTEND	58.4	60.44	2.00	6.50	SST+	33-43	27.44-17.44	Outwash
RFW-5D	EXTEND	58.3	60.06	2.00	10.25	SST@	84-94	23.94-33.94	Rock
RFW-6S	EXTEND	66.7	69.39	2.00	6.50	SST+	22.5-27.5	46.89-41.89	Peat/Silt
RFW-6D	EXTEND	67.4	69.86	2.00	6.50	SST+	37-42	32.86-27.86	Outwash
RFW-7S	EXTEND	63.0	65.59	2.00	6.50	SST+	53-58	12.69-7.69	Outwash
RFW-7D	EXTEND	63.0	65.99	2.00	6.50	SST+	77-87	-11.01-21.01	Outwash
RFW-8S	EXTEND	62.7	64.77	2.00	6.50	SST+	25-30	39.77-34.77	Peaty Sand
RFW-8D	EXTEND	62.5	63.90	2.00	6.50	SST+	108-118	-44.1-54.1	Outwash
RFW-9S	ABANDON	64.9	66.86	2.00	6.50	SST	7-17	59.86-49.86	Fill
RFW-9D	EXTEND	65.1	66.58	2.00	6.50	SST+	48-58	18.58-8.58	Outwash
RFW-10S	NONE	59.1	60.67	2.00		SST	30-35	30.67-25.67	Outwash
RFW-10D(B)	NONE	59.1	61.09	4.00		SST	90-125	-33.91-63.91	Rock
RFW-11(B)	NONE	68.2	70.57	2.00		SST	31-36	39.57-34.57	Rock
RFW-11 PZ1 (4)	NONE	68.1	70.30	2.00		PVC	17-27	53.3-43.3	Sandy Till
RFW-11 PZ2 (4)	NONE	68.1	70.27	2.00		PVC	5-10	65.27-60.27	Fill
RFW-12	EXTEND	61.1	63.10	2.00	6.50	SST+	20-25	43.1-38.1	Outwash
RFW-13 (B) (4)	EXTEND	68.6	70.84	2.00	6.50	SST+	19.5-24.5	51.34-46.34	Outwash
RFW-13 PZ (4)	EXTEND	68.6	70.85	2.00	6.50	PVC	6-11	64.85-59.85	Fill
RFW-14	EXTEND	118.9	121.80	4.00		SST+	77-87	44.8-34.8	Refuse
RFW-15	ABANDON	133.4	136.20	4.00		SST	87-97	49.2-39.2	Refuse
RFW-16	ABANDON	137.4	140.01	4.00		SST	77-87	63.01-53.01	Refuse
RFW-17 PZ	EXTEND	136.3	138.3 (3)	4.00	8.00	*	78.5-98.5	57.8-37.8	Refuse
RFW-18 PZ	EXTEND	134.0	136.0 (3)	4.00	6.50	*	84.0-84.0	52.0-50.0	Refuse
B-201S	ABANDON	67.5	69.27	3.75		PVC	25.0-35.0	42.5-32.5	Organic Silt
B-201D	ABANDON	68.9	67.63	3.75		PVC	58.0-65.0	9.87-2.87	Reddish-brown coarse to fine sand
B-202S	ABANDON	61.2	62.94	3.75		PVC	20.0-35.0	41.24-26.24	Peat and Organic Silt
B-202D	ABANDON	61.4	62.90	3.75		PVC	62.5-72.5	-1.1-9.9	Reddish-brown coarse to fine sand and glacial till
B-203S	ABANDON	66.5	67.36	3.75		PVC	33.0-43.0	33.36-23.36	Organic silt, reddish brown coarse to fine sand
B-203D	ABANDON	66.7	67.13	3.75		PVC	50.0-58.0	16.13-8.13	Reddish brown coarse to fine sand
B-204S	ABANDON	68.9	61.94	3.75		PVC	15.0-25.0	46.94-36.94	Brown coarse to fine sand
B-204D	ABANDON	60.9	61.97	3.75		PVC	32.0-42.0	28.97-18.97	Brown coarse to fine sand
B-205S	ABANDON	61.9	63.71	3.75		PVC	12.0-17.0	49.71-44.71	Peat
B-205D	ABANDON	61.9	62.79	3.75		PVC	22.5-27.5	40.29-35.29	Brown coarse to fine sand and glacial till
B-207S	ABANDON	132.3	136.63	3.75		PVC	70.0-80.0	66.63-56.63	Refuse
B-207D	ABANDON	132.3	136.44	3.75		PVC	91.5-96.5	44.94-39.94	Glacial till
B-208D	**ABANDON**	**59.5**	**62.50**	**4.00**		**PVC**	**48.0-53.0**	**14.5-9.5**	**Varved clay and silt**
MW-1	ABANDON	73.6	76.13	2.00	8.00	PVC	59.0-63.0	17.13-13.13	Outwash
MW-2	ABANDON	69.3	71.79	2.00	8.00	PVC	34.0-39.0	37.79-32.79	Outwash
B-106 PZ	ABANDON	65.9							Refuse
B-108 PZ	ABANDON	67.4							Refuse
B-111 PZ	ABANDON	67.1							Refuse

(1) Monitoring wells are constructed of stainless steel; piezometers are PVC except RFW-17PZ and RFW-18PZ which are constructed of PVC screen and carbon steel riser casing.
(2) MSL = Mean Sea Level Datum; Parentheses indicate data below MSL.
(3) Casing elevations are approximate; not surveyed.
(4) Constructed in the same bore hole; special procedure required.
(5) Wells not located in field; believed to be buried by refuse.
(B) = Background wells
PZ = Piezometers
* = PVC Screen/Carbon Steel Riser Casing
+ = Threaded Existing Top of Casing
@ = Lagged Existing Top of Casing

LABORATORY MILL TEST REPORT

HERCULES CEMENT COMPANY

Consignee More Trench Company
P. O. Box 316
Rockaway, New Jersey 07866

Attention: Alex Streichenwein

CEMENT TYPE T-I/II **TRUCK** **BIN NO**

RESULTS OF TESTS

CHEMICAL

SiO2	19.8
Al2O3	5.0
Fe2O3	3.3
CaO	61.1
MgO	4.3
SO3	3.5
Ignition Loss	0.6
Insoluble Residue	0.21
Potential Compounds:	
C3S	49.5
C2S	19.5
C3A	7.7
C4AF	10.0
Alkalies Na2O equiv	0.98

PHYSICAL

Fineness	
325 Mesh	92.3
Blaine	3949
Autoclave Exp.	0.19
Vicat	
Initial	110
Final	4:38
Air Content	7.4
Compressive Strength, psi	
1-Day	2910
3-Day	3947
7-Day	4772
28-Day	
ASTM C563	
OPT SO3	3.8
ASTM C1038	0.008

We certify that the cement shipped by HERCULES CEMENT COMPANY meets the chemical and physical requirements of ASTM C150 and AASHTO M-85 specifications

DATE 1-Apr-98 Manager of Quality Control D. J. T. [illegible]

NL Baroid

Product Information

BENSEAL™

Sealing and Plugging Agent

BENSEAL™ is a specially processed coarse ground, non-drilling mud grade bentonite or use in sealing and grouting well casings and earthen structures.

Recommended Uses

BENSEAL™ provides superior sealing qualities to:

Seal and grout plastic or steel casings.

Seal engineering test study holes.

Plug and abandon minerals exploration holes and eismic shot holes.

Seal conductor pipe in and around mud tanks.

Seal ponds, dams and ditches.

Major Advantages

Convenient, single sack product. BENSEAL™ is afe and easy to use.

able in storage.

rields slowly for maximum solids without excessive thickening.

Pumps easily with minimum pump pressure.

Eliminates problems caused by premature setting up.

Forms a permanent, flexible seal. BENSEAL is not subject to permanent drying, shrinking or cracking.

Reduces formation fracturing which could cause sealing loss because BENSEAL is lighter than cement.

Does not generate heat upon setting up.

Prevents commingling of aquifers and contamination from surface sources.

Protects casing from corrosive waters.

Allows hole reentry without mud contamination.

Compatible with BAROID®. Density may be increased to control artesian conditions or other subsurface overpressures.

Recommended Treatment

BENSEAL™ forms an excellent seal when properly applied. For effective sealing the maximum number of swelling particles is required; this is contrary to what is desired in a drilling fluid. BENSEAL performs most efficiently in fresh water.

Sealing Casings

Use a jet or propeller mixer to prepare the BENSEAL™ slurry as thick as the pump can handle (about 150 to 175 pounds per 100 gallons of water). Pump the slurry immediately into the annulus between the casing and the drilled hole. Fill the annulus uniformly from the bottom upwards to the surface. After the BENSEAL is in place, make sure that a "casing shoe shut-off" is (or has been) established between the bottom of the casing and the hole so that the seal remains in the annulus.

BENSEAL may be applied in dry form around the upper part of the borehole to improve the surface seal. Pour the BENSEAL slowly down the annulus and use a long pole to break up any "bridges".

Plugging and Abandoning Holes

Prepare the slurry as noted above, using a maximum amount of BENSEAL™. Pump the slurry directly into the hole through open-ended drill pipe. Pull the drill pipe from the hole at the same rate as the hole is filled. Fill the hole to the surface. Pour one or more sacks of dry BENSEAL into the upper part of the hole and then place a cement surface plug.

NOTE: For maximum plugging and grouting effects, high concentrations of BENSEAL (150-195 lb/100 gal) can be achieved by pretreating the mix water with one quart of EZ-MUD anionic polymer emulsion per 100 gallons.

Sealing Earthen Structure

Work BENSEAL™ into the soil, covering completely the area which will be under water. Normal treatment is between 1 and 2 pounds per square foot depending on the condition of the soil. To treat a water filled structure, broadcast BENSEAL evenly over the entire area.

MORRIS industries, inc.

Pompton Plains, NJ (201) 835-6600 (800) 835-0777 Fax #: (201) 835-7414 •
Mechanicville, NY (518) 664-7775 (800) 535-6591 Fax #: (518) 664-2006 •
Durham, Conn. (203) 349-1777 (800) 232-2777 Fax #: (203) 349-9363 •
Dillsburg, Penn. (717) 432-9651 (800) 637-7724 Fax #: (717) 432-1150

Environmental Information

NSEAL™ contains no contaminants. It is non-toxic oes not spoil or ferment. BENSEAL is suitable for sealing water well casings.

Packaging

NSEAL™ is packaged in multi-walled, water resistant bags containing 50 pounds (22.7 kg).

Availability

BENSEAL™ may be purchased through NL Baroid Service Centers or from QUIK-GEL® retailers.

CLARKSTOWN MUNICIPAL SANITARY LANDFILL REMEDIATION

SECTION 13020: LANDFILL GAS EXTRACTION WELLS

Scope:
Moretrench American Corporation will furnish and install 52 Gas Extraction wells as laid out in the contract drawings. Each well will extend to the elevations shown on the contract drawings or as specified by the Engineer. The wells will be constructed at the locations provided by the owner. The work shall included (slotted and solid PVC pipe and fittings, crushed stone, and bentonite seals) as shown on the Landfill Gas Collection Systems drawings, or as directed by the Engineer.

The materials furnished by Moretrench's scope of work is detailed herein.

Methods of Construction:
Minimum 24" diameter holes will be drilled to the elevations shown on the contract drawings at each location using a track mounted Watson Model 2500 CM drilling rig, utilizing dry drilling equipment only. The driller will keep boring logs, for submittal to the Engineer as the drilling progresses. No borehole will remain open at the end of the work day. Boreholes will not be left uncovered and / or unattended at any time. All spoils from the drilled holes will be left at the side of the hole for others to pick up.

Upon completion of the drilling, the gas extraction wells will be constructed with 6 inch diameter SCH 80 PVC. Wellscreen will be vertically slotted SCH 80 PVC. The gas extraction wells will be constructed with socket coupling joints. The joints will be fused by applying solvent cement, a coating of CPS primer as recommended by the supplier will be applied to the entire interior of the fitting socket and to an equivalent area of the pipe exterior. Primer shall be applied in strict accordance with the manufacturer's recommendations. Below grade solvent-jointed couplings will include lag screws at each pipe end. Lag screw length shall equal the combined wall thickness of the pipe and coupling. Caps will be properly fused to the bottom of the perforated length, and temporarily affixed at the top to prevent backfill material from entering the pipe. Moretrench will take all necessary precautions to maintain the pipe vertically plumbed during the installation.

In the event that the borhole collapses during installation of the wells, the hole will be redrilled to the prior depth. Boreholes and pipe will be measured to the nearest whole foot. The excavated material will be temporarily stockpiled in the immediate well area.

If during the drilling process an obstruction is reached, the driller must use all reasonable, means to advance the drilling. If the drilling rate falls to less than 2 feet per hour and the well cannot be completed as shown on the Contract Drawings, The Engineer will determine as to whether the borehole has advanced to a sufficient depth. If the hole is abandoned, the new location of the well boring will be determined by the Engineer.

The annular space around the screened interval of the casing will be backfilled with a gravel material. The well gravel will be placed by a means to ensure there are no unnecessary voids or bridging. The gravel will extend 6 inches to 1 foot below the bottom of the wells and 1 foot above the top of the screen. A 1 foot thick bentonite pellet layer will be placed above the gravel. A 2 foot bentonite slurry seal will be placed on top of the bentonite pellet seal. Compacted fill will then be placed to the preparatory grade. Compacted fill will be placed by others.

All drilling work will be done under level "D" protection. An explosimeter will be used to monitor gas levels at the mouth of the borehole. A blower may be used to dissipate gases.

All as-built dimensions will be taped and recorded on the Moretrench well installation sheet.

Materials of Construction:

All casing shall be 6 inch diameter SCH 80 PVC pipe and the well screen will be 6 inch vertically slotted SCH 80 PVC as stated in the contract specifications. All joints will be socket and coupling, and in strict accordance with the manufacturers recommendations.

A #1 NYSDOT stone will be used to backfill around the well screen. A bentonite pellet seal will be placed above the stone. A bentonite slurry seal will be placed above the pellets. The remaining annulus of the borehole will be backfilled with a common fill provided by others.

SECTION 13020: LANDFILL GAS MIGRATION MONITOR PROBES

Scope:
Moretrench American Corporation will furnish and install 200 VF of Gas Migration Monitor Probes as laid out in the contract drawings. Each probe will extend to the elevations shown on the contract drawings or as specified by the Engineer. The probes will be constructed at the locations provided by the owner. The work shall included (slotted and solid PVC pipe and fittings, crushed stone, and bentonite seals) as shown on the Landfill Gas Collection Systems drawings, or as directed by the Engineer.

The materials furnished by Moretrench's scope of work is detailed herein.

Methods of Construction:
Minimum 18" diameter holes will be drilled to the elevations shown on the contract drawings at each location using a track mounted Watson Model 2500 CM drilling rig, utilizing dry drilling equipment only. The driller will keep boring logs, for submittal to the Engineer as the drilling progresses. No borehole will remain open at the end of the work day. Boreholes will not be left uncovered and / or unattended at any time. All spoils from the drilled holes will be left at the side of the hole for others to pick up.

Upon completion of the drilling, the gas monitoring probes will be constructed with 2 inch diameter SCH 80 PVC. Wellscreen will be horizontally slotted SCH 80 PVC. The gas monitoring probes will be constructed with flush threaded joints. Caps will be properly threaded to the bottom of the perforated length, and threaded to the top. The 2 inch monitoring probe sreened interval will be encased with 6 inch SCH 80 PVC vertically slotted pipe. The remaining 2 inch riser will be encased in a 6 inch SCH 40 steel casing with a lockable cover. Moretrench will take all necessary precautions to maintain the pipe vertically plumbed during the installation.

In the event that the borhole collapses during installation of the probes, the hole will be redrilled to the prior depth. Boreholes and pipe will be measured to the nearest whole foot. The excavated material will be temporarily stockpiled in the immediate well area.

If during the drilling process an obstruction is reached, the driller must use all reasonable, means to advance the drilling. If the drilling rate falls to less than 2 feet per hour and the well cannot be completed as shown on the Contract Drawings, The Engineer will determine as to whether the borehole has advanced to a sufficient depth. If the hole is abandoned, the new location of the well boring will be determined by the Engineer.

The annular space around the screened interval of the casing will be backfilled with a gravel material. The well gravel will be placed by a means to ensure there are no unnecessary voids or bridging. The gravel will extend 6 inches to 1 foot below the bottom of the probes to the top of the screen. A 6 inch thick bentonite pellet layer will

be placed above the gravel. A 6 inch bentonite slurry seal will be placed on top of the bentonite pellet seal to the finished grade.

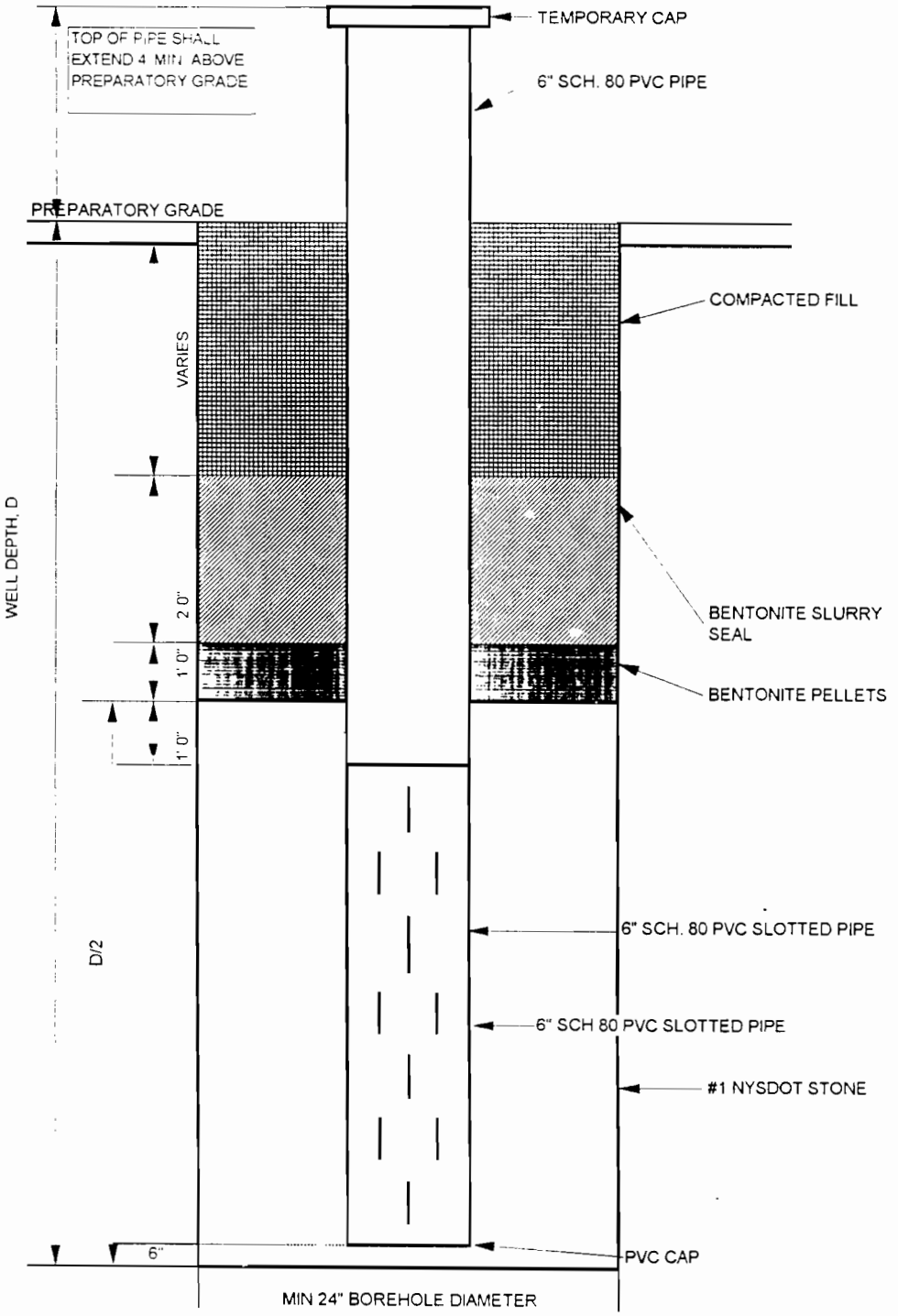
All drilling work will be done under level "D" protection. An explosimeter will be used to monitor gas levels at the mouth of the borehole. A blower may be used to dissipate gases.

All as-built dimensions will be taped and recorded on the Moretrench well installation sheet.

Materials of Construction:
All casing shall be 2 inch diameter SCH 80 flush joint PVC pipe and the well screen will be 2 inch horizontally slotted SCH 80 flush joint PVC as stated in the contract specifications.
All casing surrounding the 2 inch probes shall be 6 inch diameter SCH 40 steel pipe and the screen will be 6 inch vertically slotted SCH 80 PVC as stated in the contract specifications. The joints will be flanged on the 6 inch, and in strict accordance with the manufacturers recommendations.

A #1 NYSDOT stone will be used to backfill around the well screen. A bentonite pellet seal will be placed above the stone. A bentonite slurry seal will be placed above the pellets to finished grade.

Moretrench Environmental Services, Inc.
Ground Water Control for the Environment
PO Box 316 Rockaway, NJ 07866



GAS EXTRACTION WELL

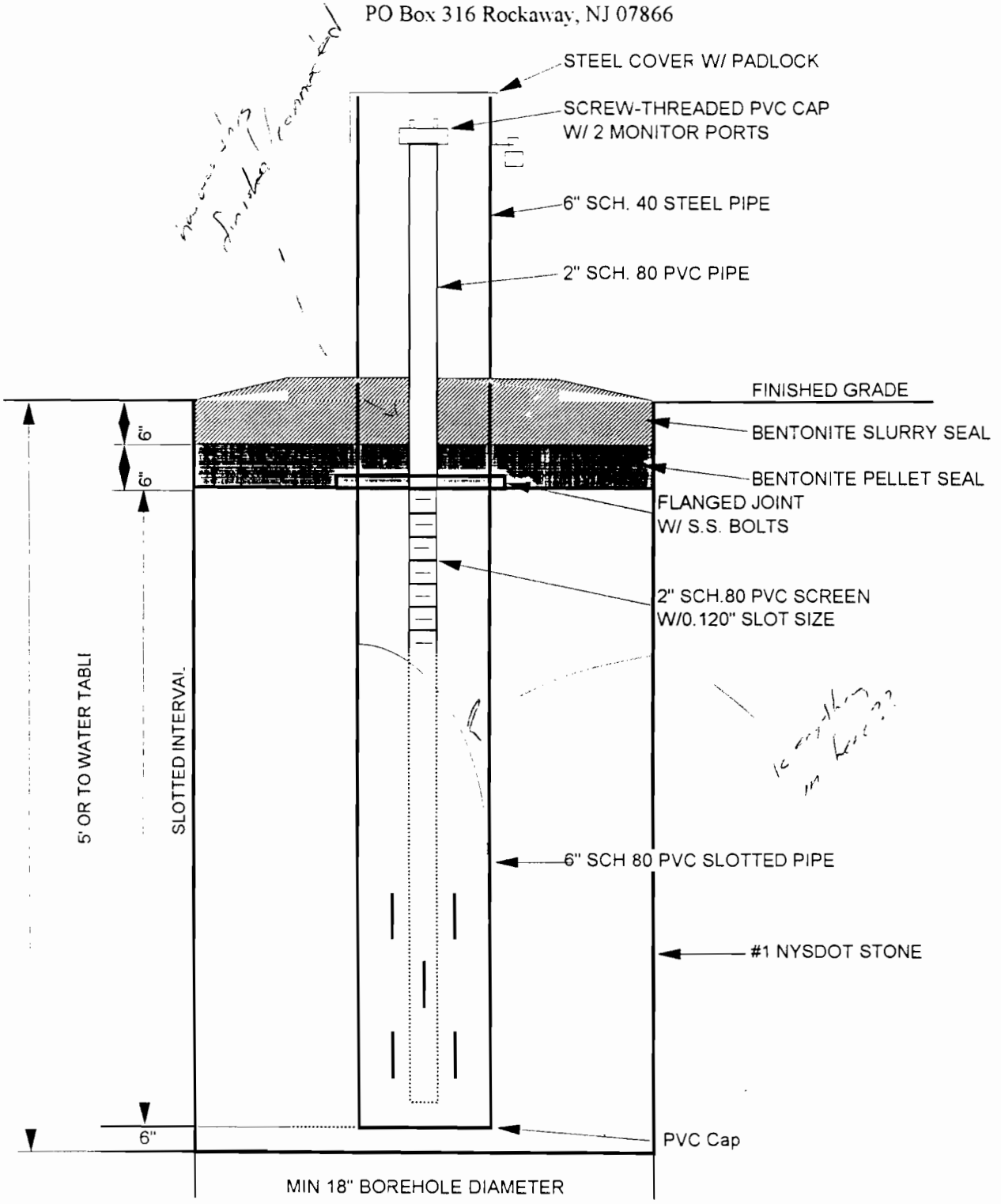
Not to Scale

CLARKSTOWN LANDFILL
OGDEN REMEDIATION SERVICES CO., INC.

Moretrench Environmental Services, Inc.

Ground Water Control for the Environment

PO Box 316 Rockaway, NJ 07866



GAS MIGRATION MONITOR PROBE

Not to Scale

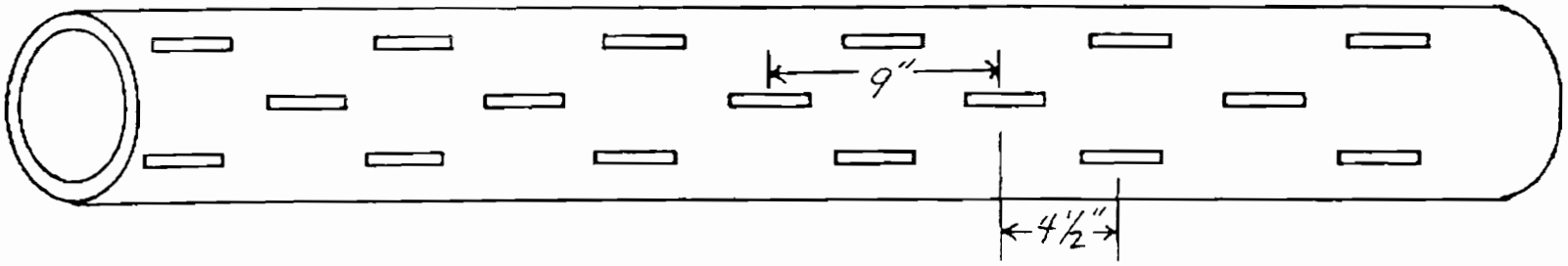
CLARKSTOWN LANDFILL

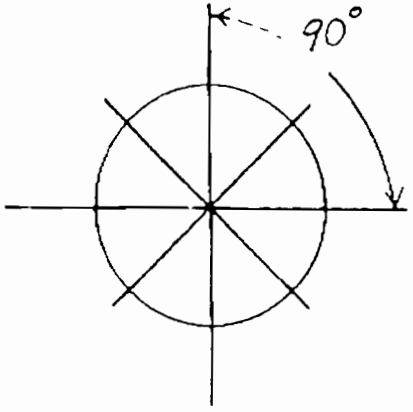
OGDEN REMEDIATION SERVICES CO., INC.

GAS EXTRACTION WELL SCHEDULE

GAS WELL NUMBER	INITIAL (PREPARATORY) GRADE (EL.)	BOTTOM OF BOREHOLE (EL.)	DEPTH OF WELL, D
GE-1	79	70	9
GE-2	87	70	17
GE-3	99	70	29
GE-4	115	73	42
GE-5	132	73	59
GE-6	124	73	51
GE-7	111	73	38
GE-8	121	73	48
GE-9	77	70	7
GE-10	91	70	21
GE-11	80	65	15
GE-12	89	70	19
GE-13	122	70	52
GE-14	126	70	56
GE-15	94	70	24
GE-16	125	70	55
GE-17	116	70	46
GE-18	126	70	56
GE-19	86	65	21
GE-20	86	65	21
GE-21	116	65	51
GE-22	91	65	26
GE-23	100	65	35
GE-24	122	65	57
GE-25	102	65	37
GE-26	98	65	33
GE-27	83	65	18
GE-28	89	65	24
GE-29	115	65	50
GE-30	126	70	56
GE-31	85	65	20
GE-32	121	65	56
GE-33	83	55	18
GE-34	80	65	15
GE-35	102	70	32
GE-36	123	70	53
GE-37	110	70	40
GE-38	119	70	49
GE-39	128	70	58
GE-40	122	70	52
GE-41	100	65	35
GE-42	94	65	29
GE-43	124	70	54
GE-44	108	70	38
GE-45	95	70	25
GE-46	93	70	23
GE-47	82	70	12
GE-48	86	70	16
GE-49	89	70	19
GE-50	95	70	25
GE-51	123	73	50
GE-52	131	73	58

NOTE: ELEVATIONS AND WELL DEPTHS IN FEET; VALUES APPROXIMATE.





PIPE DIA. 6" SCH. 80

O.D. 6.625 I.D. 5.709

MIN. WALL .432 LENGTH 20'

END PxP SLOT WIDTH .250 LENGTH 3"

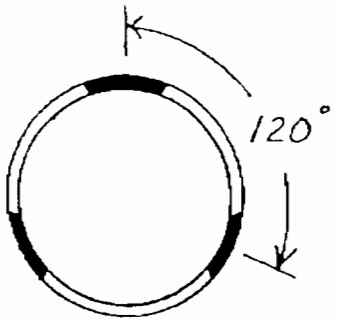
SPACING 9" CENTERS # ROWS 8

PATTERN Staggered

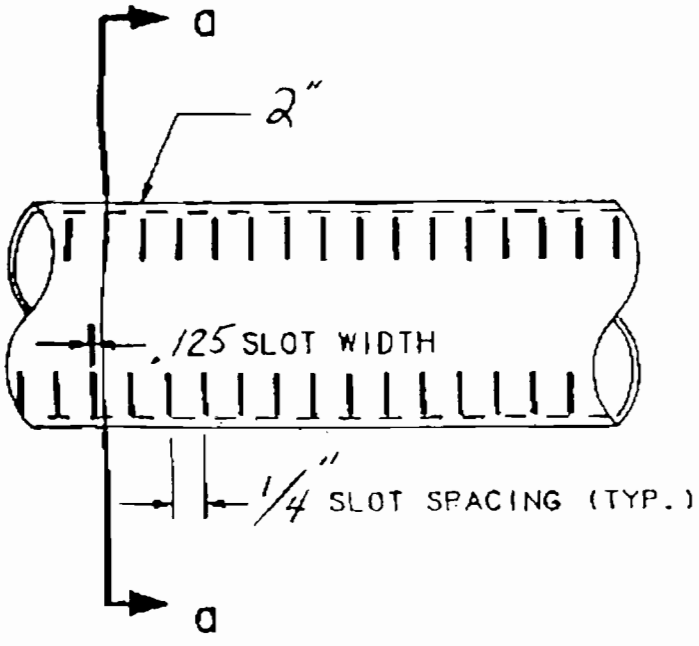
CONFIGURATION 45° Apart

BEDROCK ENTERPRISES, INC.
P.O. BOX 747
FORKED RIVER, NEW JERSEY 08731
(609) 693-9434
FAX# 609-971-8708

Date 9-30-96	Drawing # 1	Quote # 1	Drawn by J.V.
Scale N/A			Approved by
Customer Moretrench			Revised
			Revised
			Revised



SECTION a-a



SLOTTED PIPE DETAIL

PIPE DIA.	2"	SCH.	80
O.D.	2.375"	I.D.	1.913"
MIN. WALL	.218"	PIPE LENGTH	10'
END	FJT	SLOT	.125
SPACING	1/4"	# ROWS	3

BEDROCK ENTERPRISES, INC.
P.O. BOX 747
FORKED RIVER, NEW JERSEY 08731
(609) 693-9434

Date 10-1-96	Drawing # 1	Quote # 1	Drawn by J.V.
Scale N/A			Approved by
Customer Moretrench			Revised

HARVEL PLASTICS, INC.

Condensed Catalog
PVC & CPVC Products

Effective 4/1
Revised 8/1

Phone: 610-252-7355 Fax: 610-253-4436

PVC PIPE – TYPE I

SDR 13.5 – W.P. 315 PSI (Water @ 73.4°F.)

Nominal Pipe Size (in.)	O.D.	Average I.D.	Min. Wall	Nominal Wt./ft.
1/2	.840	.696	.062	.104

SDR 21 – W.P. 200 PSI (Water @ 73.4°F.)

Nominal Pipe Size (in.)	O.D.	Average I.D.	Min. Wall	Nominal Wt./ft.
3/4	1.050	.910	.060	.129
1	1.315	1.169	.063	.170
1-1/4	1.660	1.482	.079	.263
1-1/2	1.900	1.700	.090	.339
2	2.375	2.129	.113	.521
2-1/2	2.875	2.581	.137	.754
3	3.500	3.146	.167	1.106
3-1/2	4.000	3.596	.190	1.443
4	4.500	4.046	.214	1.825
5	5.563	5.001	.265	2.792
6	6.625	5.955	.316	3.964
8	8.625	7.755	.410	6.679

SDR 26 – W.P. 160 PSI (Water @ 73.4°F.)

Nominal Pipe Size (in.)	O.D.	Average I.D.	Min. Wall	Nominal Wt./ft.
1	1.315	1.175	.060	.164
1-1/4	1.660	1.512	.064	.221
1-1/2	1.900	1.734	.073	.284
2	2.375	2.173	.091	.432
2-1/2	2.875	2.635	.110	.622
3	3.500	3.210	.135	.915
3-1/2	4.000	3.672	.154	1.183
4	4.500	4.134	.173	1.494
5	5.563	5.109	.214	2.288
6	6.625	6.085	.255	3.228
8	8.625	7.921	.332	5.468
10	10.750	9.874	.413	8.492
12	12.750	11.710	.490	11.956
14	14.000	12.860	.538	14.430
16	16.000	14.696	.615	18.810
18	18.000	16.534	.692	23.860
20	20.000	18.370	.769	29.470
24	24.000	22.043	.923	42.520

SDR 41 – W.P. 100 PSI (Water @ 73.4°F.)

Nominal Pipe Size (in.)	O.D.	Average I.D	Min. Wall	Nominal Wt./ft.
18	18.000	17.070	.439	15.370
20	20.000	18.970	.488	18.920
24	24.000	22.748	.585	27.320

CLEAR PVC Schedule 40

Nominal Pipe Size (in.)	O.D.	Average I.D.	Min. Wall	Nominal Wt./ft.	Max. W.P. PSI†
1/4	.540	.354	.080	.081	390
3/8	.675	.483	.091	.109	310
1/2	.840	.608	.100	.161	300
3/4	1.050	.810	.113	.214	240
1	1.315	1.033	.133	.315	220
1-1/4	1.660	1.364	.140	.426	180
1 1/2	1.900	1.592	.145	.509	170
2	2.375	2.049	.154	.682	140
2-1/2	2.875	2.445	.203	1.076	150
3	3.500	3.042	.216	1.409	130
3 1/2	4.000	3.520	.226	1.697	120
4	4.500	3.998	.237	2.006	110
6	6.625	6.031	.280	3.535	90
6x1/8	6.625	6.355	.125	1.647	45
8	8.625	7.943	.322	5.305	80

PVC Schedule 40

Nominal Pipe Size (in.)	O.D.	Average I.D.	Min. Wall	Nominal Wt./ft.	Max. W.P. PSI†
1/8	.405	.261	.068	.045	810
1/4	.540	.354	.088	.081	780
3/8	.675	.483	.091	.109	620
1/2	.840	.608	.109	.161	600
3/4	1.050	.810	.113	.214	480
1	1.315	1.033	.133	.315	450
1-1/4	1.660	1.304	.140	.428	370
1-1/2	1.900	1.592	.145	.509	330
2	2.375	2.049	.154	.682	280
2-1/2	2.875	2.445	.203	1.076	300
3	3.500	3.042	.216	1.400	260
3-1/2	4.000	3.520	.228	1.697	240
4	4.500	3.998	.237	2.008	220
5	5.563	5.017	.258	2.726	190
6	6.625	6.031	.280	3.535	180
8	8.625	7.943	.322	5.305	160
10	10.750	9.976	.365	7.532	140
12	12.750	11.890	.406	9.949	130
14	14.000	13.072	.437	11.810	130
16	16.000	14.940	.500	15.416	130

PVC Schedule 80

Nominal Pipe Size (in.)	O.D.	Average I.D.	Min. Wall	Nominal Wt./ft.	Max. W.P. PSI†
1/8	.405	.203	.095	.058	1230
1/4	.540	.288	.119	.100	1130
3/8	.675	.407	.126	.138	920
1/2	.840	.528	.147	.202	850
3/4	1.050	.724	.154	.273	690
1	1.315	.935	.179	.402	630
1-1/4	1.660	1.256	.191	.554	520
1-1/2	1.900	1.476	.200	.673	470
2	2.375	1.913	.218	.932	400
2-1/2	2.875	2.289	.276	1.419	420
3	3.500	2.864	.300	1.903	370
3-1/2	4.000	3.326	.318	2.322	350
4	4.500	3.786	.337	2.782	320
5	5.563	4.767	.375	3.867	290
6	6.625	5.709	.432	5.313	280
8	8.625	7.565	.500	8.058	250
10	10.750	9.492	.593	11.956	230
12	12.750	11.294	.687	16.437	230
14	14.000	12.410	.750	19.790	220
16	16.000	14.214	.843	25.430	220
18	18.000	16.014	.937	31.830	220

PVC Schedule 120

Nominal Pipe Size (in.)	O.D.	Average I.D.	Min. Wall	Nominal Wt./ft.	Max. W.P. PSI†
1/2	.840	.480	.170	.223	1010
3/4	1.050	.890	.170	.295	770
1	1.315	.891	.200	.440	720
1-1/4	1.660	1.204	.215	.614	600
1-1/2	1.900	1.423	.225	.744	540
2	2.375	1.845	.250	1.052	470
2-1/2	2.875	2.239	.300	1.529	470
3	3.500	2.758	.350	2.184	440
4	4.500	3.572	.437	3.518	430
6	6.625	5.434	.562	6.759	370

† For water at 73.4° with solvent cemented joints.
Threading recommended for Schedules 80 and 120 only
Threaded pipe requires a 50% pressure de-rating

NOTES: Complete range of available PVC fittings in Schedules 40 and 80 as well as valves are stocked
Standard color is gray unless otherwise noted
Bell and Gasket Pipe is available in Schedules 40, 80, 120 and SDR's 21, 26, 41
Compounds used in the manufacture of PVC and CPVC meet ASTM Standard D 1784
Schedules 40, 80, and 120 PVC pipe meet ASTM Standard D-1785
Schedules 40, and 80 CPVC pipe meet ASTM Standard F441.
Pressure Rated (SDR) pipe meets ASTM Standard D-2241.

ASTM Standard D 1784 classification equivalents
PVC Normal Impact – Type I Grade I – 1120 – cell classification 12454 B
PVC Normal Impact – Type I Grade II – 1220 – cell classification 12454 C
PVC High Impact – Type II Grade I – 2110 – cell classification 15343-D

BEDROCK ENTERPRISES, INC.

P. O. BOX 747
FORKED RIVER, NJ 08731

Telephone 609-693-9434
Fax 609-971-8708

July 2, 1996

To Whom It May Concern :

The Schedule 80 PVC pipe we use to manufacture our well screens and casing meets or exceeds the following standards:

(a) Compounds used in the manufacture of the PVC pipe meet ASTM standard D-1784.
(b) Schedule 80 pipe meets ASTM standard D-1785.
(c) PVC-DWV pipe meets ASTM standard D-2665.
(d) ASTM standard 1784 classification equivalents: PVC Normal Impact - Type I Grade I - 1120 - cell classification 12454-B.

The ASTM F-480-88A and the standard Bedrock 4 TPI design are made to precise specifications to ensure the user trouble-free assembly. Each piece, without exception, is hand tested for thread diameter, length and engagement before being placed into stock.

The pipe used for Bedrock's PVC Well Screen and Casing conforms to ASTM D1785, is NSF approved and, most importantly, Bedrock requires its pipe manufacturer to produce the pipe at a slower rate during the extrusion process to ensure a much stronger, higher sheen, defect-free PVC product.

Our products are used extensively in the Northeast by well drillers, test boring contractors, construction firms and government agencies. Most of our materials are used under the direct supervision of geologists, soils engineers and government representatives.

I hope this answers all your questions. If you need any further information feel free to contact me.

Sincerely,

Michael E. Shalton
Vice President

PRODUCT SPECIFICATION

SPECIFICATION FOR LARGE DIAMETER POLYVINYL CHLORIDE (PVC) FABRICATED PIPE FITTINGS

1.0 SCOPE

This specification covers requirements for Polyvinyl Chloride (PVC) fabricated fittings intended for use in systems where resistance to corrosion, weather resistance, light weight, ease of assembly, long life or economy are of prime importance and where maximum fluid temperatures do not exceed 140° Fahrenheit.

2.0 MATERIALS

2.1

PVC fittings should be manufactured from pipe material that meets or exceeds the requirements for Class 12454-B (Type I, Grade I), ASTM-D-1784 and ASTM-D-1785, while CPVC conforms to ASTM-D-1784 and F441.

2.2

Compound from which the pipe is manufactured shall have a design stress of 2,000 PSI at 73° Fahrenheit and 500 PSI at 180° Fahrenheit for water service as listed by PLASTIC PIPE INSTITUTE as well as requirements of ASTM-D-1784 and U.S. Dept. of Commerce Standard PS-21-70 as manufactured by HARVEL PLASTICS, INC. or equal.

2.3

Fabricated drainage fittings must be manufactured from virgin materials as previously outlined. Drainage elbows, 10", 12", 14", 16" and 18" are thermo-fused in accordance with the standards and techniques as manufactured by PLASTINETICS®, Inc. or equal. All other drainage fittings are fabricated using the state-of-the-art cutting, chamfering and welding techniques as set forth and manufactured by PLASTINETICS®, Inc. or equal. All drainage fittings are manufactured from schedule 40 PVC material, except 18", 20" and 24" which are SDR-41. All Schedule 40 PVC Pipe conforms to ASTM-D-1784 and ASTM-D-1785 while SDR 41 conforms to ASTM-D-1784 and ASTM-D-2241. All sockets are tapered for interference fit.

2.4

Fabricated pressure fittings are to be manufactured in one of two ways. All elbows (10", 12", 14", 16" & 18" 90 deg. & 45 deg.) and 10", 12" & 14" tees are to be thermo-fused from Sonedule 80 POLYVINYL CHLORIDE materials and pressure tested. (See recommended working pressure in our catalog). Other pressure fittings are of fabricated nature (see 2.3) and are overwrapped with fiberglass reinforced polyester (F.R.P.) material in order to achieve the required pressure. To overwrap the PVC fitting, it should be cleaned of all foreign matter by use of a solvent compatible with the resin system used in the bonding step.

A custom blend of polyester resin for utmost bonding must be used. Layers of chopped strand mat and woven roving are applied to the outside of the fitting. This material is saturated with resin and all entrapped air pockets removed. Gel-time and cure time must be monitored to specific time to avoid delamination.

After cure, all parts are deburred and an overcoating containing an ultra violet inhibitor is applied

2.5

All straight couplings are manufactured from either Schedule 40, Schedule 80, SDR-41 or SDR-26 material based on the schedule of pipe to be utilized. Reducer couplings (single step-example 10" x 8") are to be formed from Schedule 80 PVC pipe in a single piece construction. No welding or cementing is to be allowed in the manufacturing process as manufactured by PLASTINETICS®, Inc. or equal.

2.6

Flanges to 16" diameter are of molded construction, 18", 20" and 24" are of formed construction. The hub is manufactured by PLASTINETICS® from durable PVC pipe in a single-piece construction, containing no cementing or hand welding. All flanges are Van Stone Style. 18" through 24" include a ductile iron backup ring with a baked polyester resin coating (see page 19).

2.7

Expansion joints are to be manufactured from Polyvinyl Chloride material with the expansion joint consisting of two tubes, one telescoping inside the other and has two VITON "O" Ring seals and features a third EPDM "O" Ring that serves as wiper to remove dust and dirt. Materials and design to be as manufactured by PLASTINETICS®, Inc. (see pages 24 & 25)

Consult factory for specifications on CPVC Fittings through 16"

SEP-30-96 MON 04:36 PM PLASTINETICS FAX NO. 2013160300 P.02

HARVEL

P.O. BOX 757 KUEBLER ROAD EASTON, PA. 18044-0757

PHONE: 610-252-7388 FAX: 610-253-4430

March 3, 1995

Mr. Jim Valliere
BEDROCK ENTERPRISES
P.O. Box 747
Forked River, NJ 08731

RE: Blanket Certification

Dear Mr. Valliere:

This is to certify that the succeeding products meet or exceed the following ASTM Standards:

PVC Type I Schedules 40, 80, and 120 pipe is produced in accordance with ASTM D1785 from materials meeting the requirements of ASTM D1784. The finished product and the material are approved by NSF for potable water applications.

The SDR 13.5, SDR 21, SDR 26, and SDR 41 Pipes are produced in accordance with ASTM D2241 from materials meeting the requirements of ASTM D1784. The finished product and materials are NSF approved.

The Schedules 40 and 80 CPVC Pipe are produced in accordance with ASTM Standard F441 using raw materials meeting the requirements of ASTM D1784. The finished product and the materials are NSF approved.

Our PVC and CPVC Duct is manufactured from NSF approved compounds that conform to Material Standard ASTM D1784.

The PVC Type I Round, Hex, Square, Rectangular, and Hollow Bar and PVC Angle are produced from NSF approved materials meeting the requirements of ASTM D1784.

All fittings are purchased, NSF approved, and meet the following ASTM Standards:

Schedule 80 PVC Socket Fittings meet ASTM D2467. Schedule 80 PVC Threaded Fittings meet ASTM D2464. Schedule 40 PVC Fittings meet ASTM D2466. Threaded CPVC Fittings meet ASTM F-437; Socket Fittings meet ASTM F-439. In addition, the material for all the fittings meet ASTM D1784.

Harvel administers an internal quality program which assures our customer of a quality end product.

Very truly yours,

HARVEL PLASTICS, INC.

John R. Mattavi
Vice President

JRM/pv

MATERIAL SAFETY DATA SHEET — SECTION 1

Product Name:

PVC PRIMER

DATE PREPARED 06/18/86 DATE ISSUED 11/03/88

SUED TO:

BROAD INDUSTRIAL PIPE
26 BROAD ST
PO BOX 66
DENVILLE NJ 07834-0066

HERCULES®

MATERIAL SAFETY INFORMATION SERVICE

Hercules Chemical Company, Inc.
29 West 38 Street • New York, NY 10018-5595
Information Phone: 212-869-4330 – Ext. 226

SECTION 2 — HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

HAZARDOUS COMPONENTS (Specific Chemical Identity; Common Name(s))	OSHA PEL	ACGIH TLV	OTHER LIMITS RECOMMENDED	% (OPTIONAL)
Tetrahydrofuran (CAS 109-99-9)	200PPM	200PPM		
Methyl Ethyl Ketone (CAS 78-93-3)	200PPM	200PPM		
Cyclohexanone (CAS 108-94-1)	50PPM	25PPM		

SECTION 3 — PHYSICAL/CHEMICAL CHARACTERISTICS

BOILING POINT	SPECIFIC GRAVITY (H2O = 1)	VAPOR DENSITY (AIR = 1)
151	.827	3

VAPOR PRESSURE (mm Hg.)	MELTING POINT	EVAPORATION RATE (Butyl Acetate = 1)
70	N/A	5

SOLUBILITY IN WATER: 35%

APPEARANCE AND COLOR: Clear Liquid Ethereal & Acetone like odor

SECTION 4 — FIRE AND EXPLOSION HAZARD DATA

FLASH POINT	FLAMMABLE LIMITS	LEL	UEL
6.0 deg.F (TCC)	N/A	2%	11.8%

EXTINGUISHING MEDIA: Foam/Dry Chemical/Carbon Dioxide

SPECIAL FIRE FIGHTING PROCEDURES: Handle as flammable liquid. Wear self-contained breathing apparatus & chemical goggles. Water may be ineffective, but should be used to keep fire-exposed containers cool.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Vapor is heavier than air and travels considerable distance to source of ignition and flashback. On long standing may form peroxides which may cause violent reaction especially upon evaporation to dryness.

SECTION 5 — REACTIVITY DATA

STABILITY	CONDITIONS TO AVOID
STABLE	Keep in closed containers away from sparks & open flame.

INCOMPATIBILITY (MATERIALS TO AVOID): Strong oxidizing materials, Lithium Aluminum Hydride, Sodium Aluminum Hydroxide, & Sodium & Potassium Hydroxides.

HAZARDOUS DECOMPOSITION OR BYPRODUCTS: Carbon Dioxide & Carbon Monoxide are formed. Irritating Peroxide fumes form when hated to decomposition.

HAZARDOUS POLYMERIZATION: Avoid excessive exposure to air and catonic initiators like Lewis Acids

SECTION 6 — HEALTH HAZARD DATA

ROUTE(S) OF ENTRY	INHALATION?	SKIN?	INGESTION?
	YES/Primary	YES/Primary	YES/Secondary

HEALTH HAZARDS (ACUTE AND CHRONIC): Corrosive to eyes & skin irritant. Severe over exposure can cause headache, dizziness & (CONTINUED IN SECTION "A" AT BOTTOM OF PG 2)

CARCINOGENICITY:	NTP?	IARC MONOGRAPHS?	OSHA REGULATED?
	NO	NO	NO

Product Name:

PVC CEMENT CLEAR HEAVY DUTY

DATE PREPARED 06/18/86 DATE ISSUED 11/03/88

ISSUED TO:

BROAD INDUSTRIAL PIPE
25 BROAD ST
PO BOX 66
DENVILLE NJ 07834-0066

HERCULES®

MATERIAL SAFETY INFORMATION SERVICE

Hercules Chemical Company, Inc.
29 West 38 Street • New York, NY 10018-5595
Information Phone: 212-869-4330 – Ext. 226

SECTION 2 — HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

HAZARDOUS COMPONENTS (Specific Chemical Identity; Common Name(s))	OSHA PEL	ACGIH TLV	OTHER LIMITS RECOMMENDED	% (OPT
Tetrahydrofuran (CAS 109-99-9)	200PPM	200PPM		
Methyl Ethyl Ketone (CAS 78-93-3)	200PPM	200PPM		
Cyclohexanone (CAS 108-94-1)	50PPM	25PPM		

SECTION 3 — PHYSICAL/CHEMICAL CHARACTERISTICS

BOILING POINT	SPECIFIC GRAVITY (H2O = 1)	VAPOR DENSITY (AIR = 1)
151	.935	3.5

VAPOR PRESSURE (mm Hg.)	MELTING POINT	EVAPORATION RATE (Butyl Acetate
20	N/A	7

SOLUBILITY IN WATER: 7%

APPEARANCE AND COLOR: Clear Viscous Liquid, Ethereal & Acetone like odor.

SECTION 4 — FIRE AND EXPLOSION HAZARD DATA

FLASH POINT	FLAMMABLE LIMITS	LEL 2% UEL 11.8%
6.0 deg.F (TCC)	N/A	

EXTINGUISHING MEDIA: Foam/Dry Chemical/Carbon Dioxide

SPECIAL FIRE FIGHTING PROCEDURES: Handle as flammable liquid. Wear self-contained breathing apparatus & chemical goggles. Water may be ineffective, but should be used to keep fire exposed containers cool.

UNUSUAL FIRE AND EXPLOSION HAZARDS

Vapor is heavier than air and travels considerable distance to source of ignition and flashback. On long standing may form peroxides which may cause violent reaction especially upon evaporation to dryness.

SECTION 5 — REACTIVITY DATA

STABILITY	CONDITIONS TO AVOID
STABLE	Keep in closed containers away from sparks & open flame.

INCOMPATIBILITY (MATERIALS TO AVOID): Strong oxidizing materials, Lithium Aluminum Hydride, Sodium Aluminum Hydroxide & Sodium & Potassium Hydroxides.

HAZARDOUS DECOMPOSITION OR BYPRODUCTS: Carbon Dioxide & Carbon Monoxide are formed. Irritating Peroxide fumes formed when heated to Decomposition.

HAZARDOUS POLYMERIZATION: Avoid excessive exposure to air and catonic initiators like Lewis Acids

SECTION 6 — HEALTH HAZARD DATA

ROUTE(S) OF ENTRY	INHALATION?	SKIN?	INGESTION?
	YES/Primary	YES/Primary	YES/Secondary

HEALTH HAZARDS (ACUTE AND CHRONIC)

Corrosive to eyes & skin irritant. Severe over exposure can cause headache, dizziness (CONTINUED IN SECTION "A" AT BOTTOM OF PG 2)

CARCINOGENICITY:	NTP?	IARC MONOGRAPHS?	OSHA REGULATED?
	NO	NO	NO

MORRIS

ABOVE GROUND

PROTECTIVE CASINGS

HEAVY DUTY MODEL

HINGED MODEL

- MADE FROM WELDED STEEL CONSTRUCTION
- TAMPER PROOF
- ALL 4", 6", 8" AND 10" MODELS IN STOCK
- CUSTOM SIZES AVAILABLE ON SPECIAL ORDER

AVAILABLE THRU **MORRIS industries, inc.**

777 Route 23
Pompton Plains, NJ 07444
(800) 835-0777

44 Route 146
Mechanicville, NY 12118
(800) 835-6591

21 Commerce Drive
Durham, Conn. 06422
(800) 232-0777

975 West Siddonsburg Road At US 15
Dillsburg, Penna. 17019
(800) 637-7724

Fax # (717) 432-1150

PELTONITE® BENTONITE PELLETS

SEALING AGENT

DESCRIPTION:

PELTONITE is a sealing agent manufactured by ROCTEST offering great possibilities in the treatment of water problems in civil engineering works.

PELTONITE is the commercial name given to pre-formed bentonite balls, the bentonite used being of the high sodium mineral type.

APPLICATIONS:

PELTONITE can certainly find a wide range of applications and its usage is only limited by the ingenuity of those involved with water problems.

Typical applications are:

— sealing of all types of piezometer holes.

— sealing of large size dewatering wells and of wellpoints,

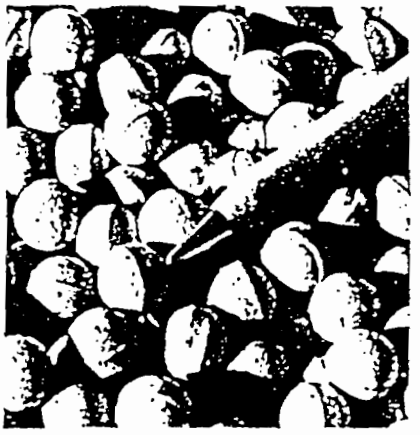
— sealing the bottom of open end caissons,

— sealing of detrimental infiltration through rock discontinuities.

WHY SHOULD YOU USE PELTONITE?

PELTONITE has many advantages:

- scientific proof has been made of the high quality seals obtained with bentonite pellets and this without the need of any special tamping tool.
- the probability of obtaining a satisfactory seal over the old method of using hand-rolled bentonite balls is highly increased,
- the bentonite balls are of uniform size and shape,
- their small size, spherical shape and high density improve their settling characteristics in water.
- jamming problems as they settle are almost eliminated,
- they are easy to handle,
- they considerably cut down the time usually needed to perform a good quality seal and consequently, reduce equipment and labor costs involved in an installation,
- they come in conveniently packed rigid 50 lb. drums which are re-sealable, thus minimizing waste.
- storage of **PELTONITE** is independant of temperature conditions.



PELTONITE balls are small spheres 3/8" in diameter.

Useful Information:

The following table gives the weight of PELTONITE needed to perform a 1 foot seal for different borehole diameters.

HOLE DIA. (in.)	2	3	4	5	6	7	8
WEIGHT OF PELTONITE (lb)	2	4	7	11	15	20	27

Specifications:

SIZE:	3/8" dia. (10 mm.)
DENSITY:	1.8
DRY BULK DENSITY:	75 lb/ft³ (1260 kg/m³)
SWELL FACTOR:	greater than 10 when unconfined and fully saturated.
STANDARD PACKAGE:	50 lb (22,7 kg) per barrel

MORRIS industries, inc.

Pompton Plains, NJ
(201) 835-6600
(800) 835-0777
Fax #: (201) 835-7414

Mechanicville, NY
(518) 664-7775
(800) 635-6591
Fax #: (518) 664-2006

Durham, Conn
(203) 349-1777
(800) 232-2777
Fax #: (203) 349-9363

Dillsburg, Penn.
(717) 432-9651
(800) 637-7724
Fax #: (717) 432-1150

NL Baroid

Product Information

BENSEAL™

Sealing and Plugging Agent

BENSEAL™ is a specially processed coarse ground, non-drilling mud grade bentonite for use in sealing and grouting well casings and earthen structures.

Recommended Uses

BENSEAL™ provides superior sealing qualities to:

Seal and grout plastic or steel casings.

Seal engineering test study holes.

Plug and abandon minerals exploration holes and seismic shot holes.

Seal conductor pipe in and around mud tanks.

Seal ponds, dams and ditches.

Major Advantages

Convenient, single sack product. BENSEAL™ is safe and easy to use.

Pumpable in slurry.

Yields slowly for maximum solids without excessive thickening.

Pumps easily with minimum pump pressure.

Eliminates problems caused by premature setting up.

Forms a permanent, flexible seal. BENSEAL is not subject to permanent drying, shrinking or cracking.

Reduces formation fracturing which could cause sealing loss because BENSEAL is lighter than cement.

Does not generate heat upon setting up.

Prevents commingling of aquifers and contamination from surface sources.

Protects casing from corrosive waters.

Allows hole reentry without mud contamination.

Compatible with BAROID®. Density may be increased to control artesian conditions or other subsurface overpressures.

Recommended Treatment

BENSEAL™ forms an excellent seal when properly applied. For effective sealing the maximum number of swelling particles is required; this is contrary to what is desired in a drilling fluid. BENSEAL performs most efficiently in fresh water.

Sealing Casings

Use a jet or propeller mixer to prepare the BENSEAL™ slurry as thick as the pump can handle (about 150 to 175 pounds per 100 gallons of water). Pump the slurry immediately into the annulus between the casing and the drilled hole. Fill the annulus uniformly from the bottom upwards to the surface. After the BENSEAL is in place, make sure that a "casing shoe shut-off" is (or has been) established between the bottom of the casing and the hole so that the seal remains in the annulus.

BENSEAL may be applied in dry form around the upper part of the borehole to improve the surface seal. Pour the BENSEAL slowly down the annulus and use a long pole to break up any "bridges".

Plugging and Abandoning Holes

Prepare the slurry as noted above, using a maximum amount of BENSEAL™. Pump the slurry directly into the hole through open-ended drill pipe. Pull the drill pipe from the hole at the same rate as the hole is filled. Fill the hole to the surface. Pour one or more sacks of dry BENSEAL into the upper part of the hole and then place a cement surface plug.

NOTE: For maximum plugging and grouting effects, high concentrations of BENSEAL (150-195 lb/100 gal) can be achieved by pretreating the mix water with one quart of EZ-MUD anionic polymer emulsion per 100 gallons.

Sealing Earthen Structure

Work BENSEAL™ into the soil, covering completely the area which will be under water. Normal treatment is between 1 and 2 pounds per square foot depending on the condition of the soil. To treat a water filled structure, broadcast BENSEAL evenly over the entire area.

MORRIS industries, inc.

Pompton Plains, NJ
(201) 835-6600
(800) 835-0777
Fax #: (201) 835-7414

Mechanicville, NY
(518) 664-7775
(800) 535-6591
Fax #: (518) 664-2006

Durham, Conn.
(203) 349-1777
(800) 232-2777
Fax #: (203) 349-9363

Dillsburg, Penn.
(717) 432-9651
(800) 637-7724
Fax #: (717) 432-1150

Environmental Information

ENSEAL™ contains no contaminants. It is non-toxic ' oes not spoil or ferment. BENSEAL is suitable for sealing water well casings.

Packaging

ENSEAL™ is packaged in multi-walled, water resistant - bags containing 50 pounds (22.7 kg).

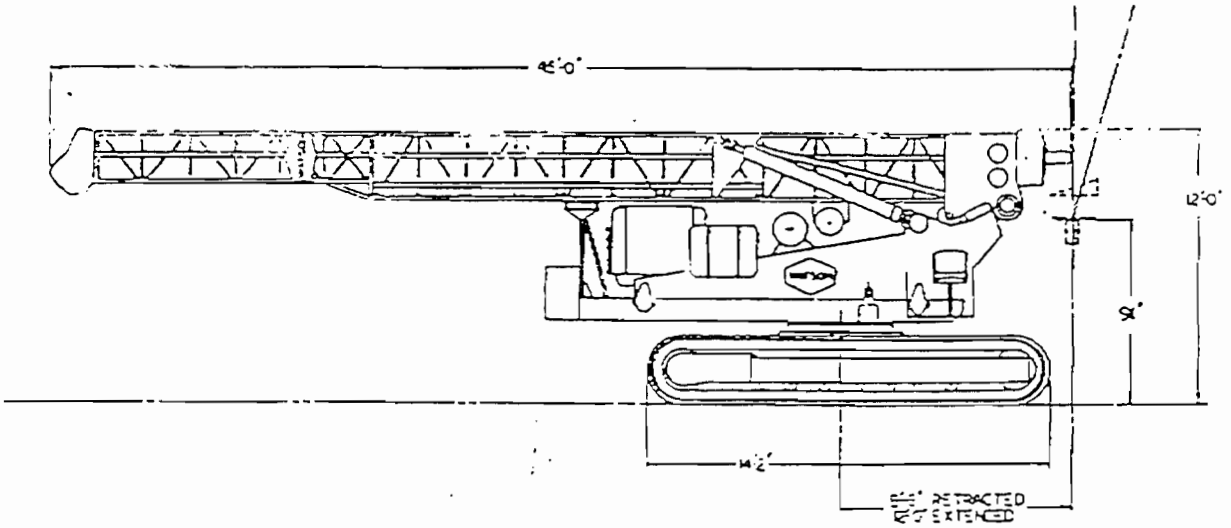
Availability

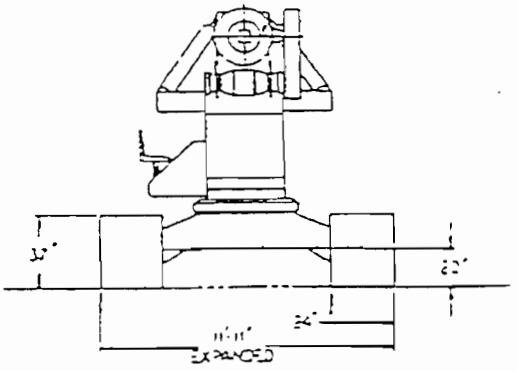
BENSEAL™ may be purchased through NL Baroid Service Centers or from QUIK-GEL® retailers.

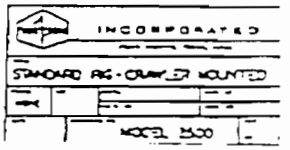
WATSON MODEL 2500

Specifications

GENERAL:	The model 2500 is a self contained drill unit mounted on a hydraulically driven crawler undercarriage. Maximum drill depth is 90 feet.
POWER UNIT:	CAT 3208 - 160HP @ 2100 RPM
ROTARY:	Rotary output torque to 81,000 LB-FT
MAST:	Mast can be positioned 10 degrees past vertical and 10 degrees each side.
KELLY:	Telescoping three-element, 8" outer, 6" middle, 4-1/4" solid inner bar. Crowd force to 38,000#. Line pull to 22,000#. Line speed to 145ft/min.
SLIDING FRAME:	Slide travel is 42". Extended drill radius is 144".





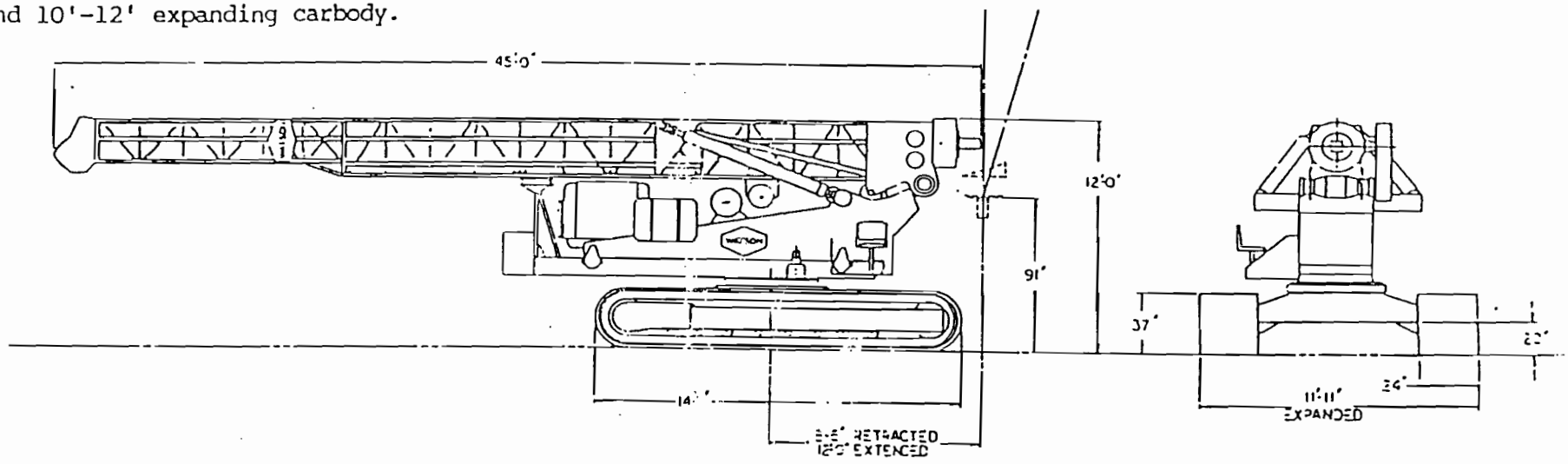


MODEL 2500CM

Notes:

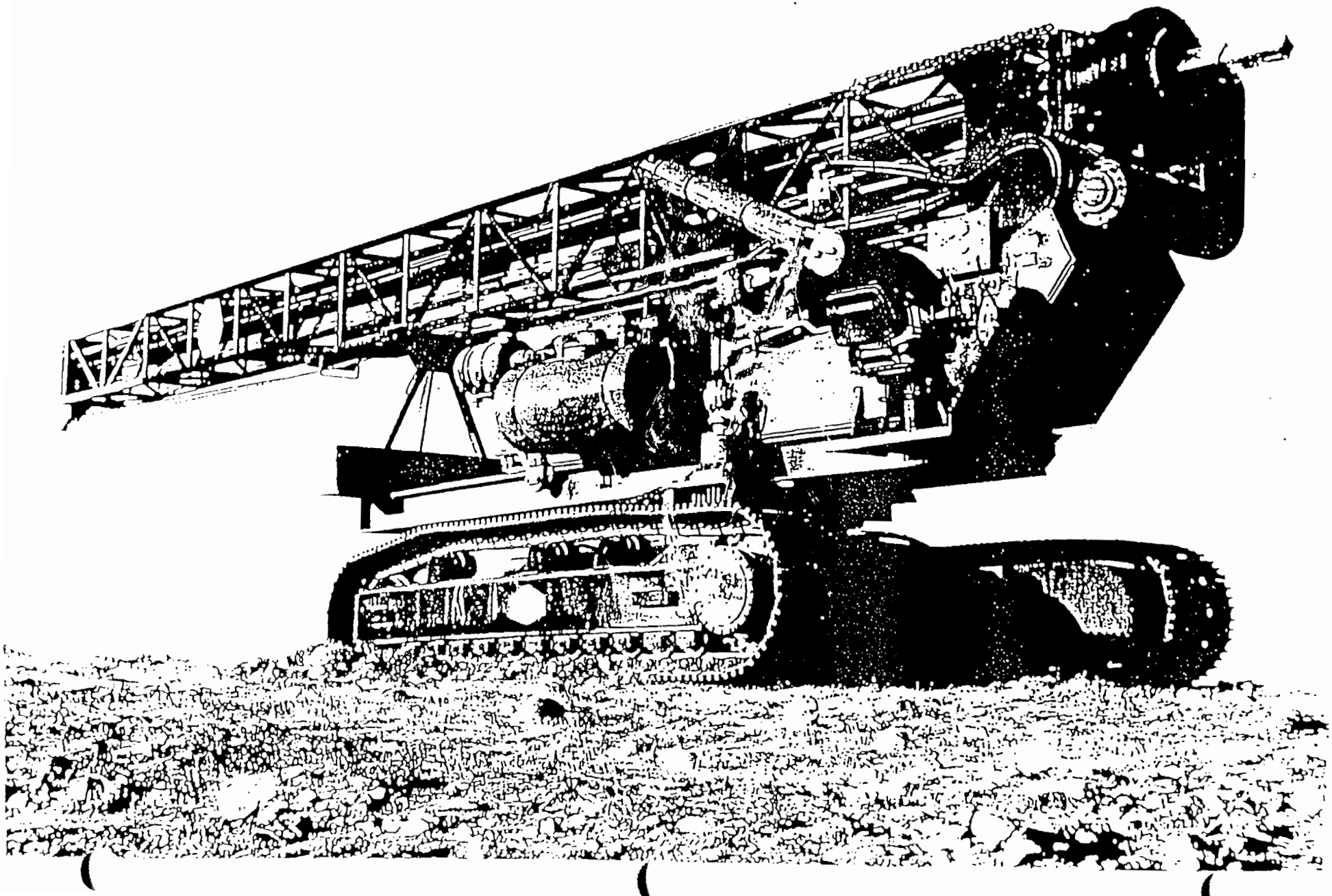
1. Dimensions for standard 60' drill depth unit.
   Approximate unit weight - 64,000#

2. Standard crawler unit has dual swing motors
   and 10'-12' expanding carbody.



INCORPORAT
STANDARD RIG - CRAWLER MOU
MODEL 2500

WATSON MODEL 2500CM



TILCON NEW YORK INC. P.O. Box 362 Haverstraw, NY 10927 914 638 1300

October 2, 1996

Ogden Remediation Services Co. Inc.
285 Davidson Avenue
Somerset, NJ 08873

Attn: Jim

Re: Clarkstown Landfill

Dear Sir:

Pursuant to your request, the following are a list of products needed for the above referenced project and the corresponding Tilcon product names.

NY State DOT Items	Tilcon Haverstraw product name
NYS #3"s	1 1/2"
NYS #2'S	3/4"
NYS #1'S	NYS #1's Blended product
Light Rip Rap	Light Stone Fill
Fine Rip Rap	Fine Stone Fill
NYS Item 4 304.05	Item 4

ASTM Items:	
ASTM #57	5/8"
ASTM # 8	ASTM #8 Blended product

If you have any questions, please call me.

Sincerely,

TILCON NEW YORK INC.

Morsia Thomas
Morsia Thomas
Director, Quality Control

Post-it™ brand fax transmittal memo 7671 | # of pages ▸ 1

To JIM	From MORSIA THOMAS
Co. OGDEN REMEDIATION	Co. TILCON NY INC
Dept.	Phone # (914) 638-1300
358-2790	Fax # (914) 638-2841

CC: John Woodley, RFW
Tim Leonard, RFW
P. McQuiston, ORSC
G. Smith, ORSC

MORETRENCH WELL REPORTS

DATE: 2/18/97
PAGE No. 1 OF 1
JOB No. 01 5288
RIG No. 0479

CONTRACTOR: Ogden
SITE: Clarkstown
WELL ID No. # 2
TYPE OF WELL 6" s ext
WELL PERMIT No. _____

Well Construction

Total Depth Drilled 17 Ft
Well finished to 16.5 Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+1'	9'	6"	PVC 80
Screen (Note slot size) 1/4"	9 1/2'	16.5'	6"	PVC 80
~~Tail Piece~~ Backfill	Gravel	5'		Top soil
Gravel Pack	8'	17'	3/4	stone
Annular Seal/~~Grout~~	7'	5'	3/8	pellets
Method of Grouting	5'	7'	Slurry	Bentonite

If finished above grade, casing height (stick up) above land surface 4' Ft

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

NOTES, DELAYS (explain):

WELL LOG

DEPTH	FORMATION
0-2	Air
2-7	Dirt Gray Silt
7-17	wet Gray Silt

DRILLER/HELPER

VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

DATE: 2/12/97
PAGE No. 1 OF 1

CONTRACTOR: Ogden
SITE: Clarkstown
WELL ID NO. # 3
JOB NO. 01 5288
RIG NO. 0479
TYPE OF WELL Gas ext
WELL PERMIT NO.

Well Construction

Total Depth Drilled 29' Ft
Well finished to 28.5' Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 4' Ft

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	15.5	6"	PVC 80
Screen (Note slot size) 1/4"	15.5'	28.5'	6"	PVC 80
~~Tail Piece~~ Back fill	Grade	11'		Top soil
Gravel Pack	14'	29'	3/4	stone
Annular Seal/Grout	13'	14'	3/8	pellets
Method of Grouting	11'	13'	slurry	Benseal

WELL LOG

DEPTH	FORMATION
0-3	air
3-8	Dry Garbage
8-29	wet Garbage

NOTES, DELAYS (explain):

David Tomlee
DRILLER/HELPER

Monty
VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

DATE: 2/11/97
PAGE No. 1 OF 1

CONTRACTOR: Ogden
SITE: Clarkstown
JOB NO. 01-5288
RIG NO. 0479
WELL ID NO. # 4
TYPE OF WELL Gas ext
WELL PERMIT NO.

Well Construction

Total Depth Drilled 42' Ft
Well finished to 41.5' Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 4' Ft

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	22'	6"	PVC 80
Screen (Note slot size) 1/4"	22'	41.5'	6"	PVC 80
~~Tail Piece~~ Backfill	Grade	17'		Top soil
Gravel Pack	20'	42'	3/4	Stone
Annular Seal/~~Grout~~	19'	20'	3/8	Pellets
Method of Grouting	17'	19'	Slurry	Bensal

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

NOTES, DELAYS (explain):

WELL LOG

DEPTH	FORMATION
0-1	Air
1-16	Dry Garbage
16-42	Wet Garbage

David Jones
DRILLER/HELPER

VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

DATE: 2/5/97
PAGE No. 1 OF 1

CONTRACTOR: Ogden
SITE: Clarkstown
JOB NO. 01-5288
RIG NO. 0479
WELL ID NO. #5
TYPE OF WELL Gas ext
WELL PERMIT NO.

Well Construction

Total Depth Drilled 56' Ft
Well finished to 55.5' Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 4' Ft

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	27.5'	6"	PVC 80
Screen (Note slot size) 1/4	27.5'	55.5'	6"	PVC 80
~~Tail Piece~~ Backfill	Grade	23'		Top soil
Gravel Pack	26'	56'	3/4	Stone
Annular Seal/~~Grout~~	25'	26'	3/8	Pellets
Method of Grouting	23'	25'	Slurry	Benseal

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

WELL LOG

DEPTH	FORMATION
0-5'	Air
5-9'	cover
9-22'	Dry garbage
22-56'	Damp garbage

NOTES, DELAYS (explain):

Drill Hole to 59' as per specs
Loose 3' while setting well, set
as is as per Weston Eng.

DRILLER/HELPER

J. Beattie
VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

DATE: 2/10 - 2/11/97
PAGE No. 1 OF 1

CONTRACTOR: Ogden
SITE: Clarkstown
JOB NO. 01 5288
RIG NO. 0479
WELL ID NO. #6
TYPE OF WELL GAS EXT
WELL PERMIT NO.

Well Construction

Total Depth Drilled 51' Ft
Well finished to 50.5' Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 4' Ft

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	26.5'	6"	PVC SCH 80
Screen (Note slot size) 1/4"	26.5	50.5'	6"	PVC SCH 80
~~Tail Piece~~ Back Fill	Grade	22'		Top soil
Gravel Pack	25'	51'	3/4	Stone
Annular Seal/~~Grout~~	24'	25'	3/8	pellets
Method of Grouting	22'	24'	Slurry	Bentonite

WELL LOG

DEPTH	FORMATION
0-6	Air
6-23	Dry Gravel
23-51	wet Gravel

NOTES, DELAYS (explain):

DRILLER/HELPER

VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

DATE: 2/12/97
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CONTRACTOR: Ogden
SITE: Clarks town
WELL ID NO. #7
JOB NO. 01-5288
RIG NO. 0479
TYPE OF WELL GAS ext
WELL PERMIT NO.

Well Construction

Total Depth Drilled 38' Ft
Well finished to 37.5' Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 4' Ft

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	20'	6"	PVC SCH 80
Screen (Note slot size) 1/4"	~~20~~	37.5'	6"	PVC SCH 80
~~Tail Piece~~ Backfill	Grade	16'		Top soil
Gravel Pack	19'	35'	3/4"	stone
Annular Seal/~~Grout~~	18'	19'	3/8"	pellets
Method of Grouting	16'	18'	slurry	Bentseal

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

NOTES, DELAYS (explain):

WELL LOG

DEPTH	FORMATION
0-2	air
2-12	Dry Garbage
12-38	wet Garbage

DRILLER/HELPER

VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

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CONTRACTOR: Ogden
SITE: Clarkstown
JOB NO. 01 5288
RIG NO. 0479
WELL ID NO. # 8
TYPE OF WELL Gas ext
WELL PERMIT NO.

Well Construction

Total Depth Drilled 48' Ft
Well finished to 47.5' Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 4' Ft

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	25'	6"	PVC 80
Screen (Note slot size) 1/4"	25'	47.5'	6"	PVC 80
~~Tail Piece~~ Backfill	Grade	21'		Topsoil
Gravel Pack	24'	48'	3/4	stone
Annular Seal/~~Grout~~	23'	24'	3/8	pellets
Method of Grouting	21'	23'	Slurry	Bucket

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

NOTES, DELAYS (explain):

WELL LOG

DEPTH	FORMATION
0-5'	Air
5'-27'	Dry bar bags
27'-48'	wet bar bags

DRILLER/HELPER

VERIFIED CONTRACTOR

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MORETRENCH WELL ... GAS ...

DATE: 2/26/97
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CONTRACTOR: Ogden
SITE: Clarkstown
JOB NO. 01-5286
RIG NO. 0479
WELL ID NO. # 10
TYPE OF WELL Gas ext
WELL PERMIT NO.

Well Construction

Total Depth Drilled 21' Ft
Well finished to 20.5' Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[*] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 4' Ft

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	11.5'	6"	PVC 80
Screen (Note slot size) 1/4"	11.5'	20.5'	6"	PVC 80
~~Tail Piece~~ Backfill	Grade	7'		Topsoil
Gravel Pack	10'	21'	3/4	stone
Annular Seal/~~Grout~~	9'	10'	3/8	pellets
Method of Grouting	7'	9'		

Was steel protective casing installed? [ ] Yes [*] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

NOTES, DELAYS (explain):

WELL LOG

DEPTH	FORMATION
0-21	Dry Garbage

David C Fowler
DRILLER/HELPER

VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

DATE: 12/26/97
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CONTRACTOR: Ogden
SITE: Parkstown
JOB NO. 01-5288
RIG NO. 0479
WELL ID NO. # 12
TYPE OF WELL Gas ext
WELL PERMIT NO.

Well Construction

Total Depth Drilled 19 ' Ft
Well finished to 18.5 ' Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	10.5'	6"	PVC 80
Screen (Note slot size) 1/4"	10.5'	18.5'	6"	PVC 80
~~Tail Piece~~ Backfill	Grade	6'		Top soil
Gravel Pack	9'	19'	3/4	stone
Annular Seal/~~Grout~~	8'	9'	3/8	pellets
Method of Grouting	6'	8'	Slurry	Benseal

If finished above grade, casing height (stick up) above land surface 4' Ft

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

WELL LOG

DEPTH	FORMATION
0-2	air
2-11	Dry (all bags)
11-19	wet (all bags)

NOTES, DELAYS (explain):

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David C Sadler
DRILLER/HELPER

J Beatty
VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

DATE: 2/7/97
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CONTRACTOR: Ogden
SITE: Clarkstown
WELL ID No. #13
JOB No. 01 5288
RIG No. 0479
TYPE OF WELL Gas ext
WELL PERMIT No.

Well Construction

Total Depth Drilled 44' Ft
Well finished to 43.5' Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 4' Ft

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	19'	6"	PVC 80
Screen (Note slot size) 1/4"	19'	43.5'	6"	PVC 80
~~Tail Piece~~ BackFill	Grade	15'		Top soil
Gravel Pack	18'	44'	3/4	stone
Annular Seal/~~Grout~~	17'	18'	3/8	pellets
Method of Grouting	15'	17'	Slurry	Bonseal

WELL LOG

DEPTH	FORMATION
0-3	Air
3-18	Dry Garbage
18-44	wet Garbage

NOTES, DELAYS (explain):

Hit obstruction at 44' try 1 1/4 Hr to get past, set well there as per Weston.

DRILLER/HELPER

VERIFIED CONTRACTOR

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CONTRACTOR: Ogden
SITE: Clarkstown
JOB NO. 01 5286
RIG NO. 0479
WELL ID NO. # 14
TYPE OF WELL 6HS ext.
WELL PERMIT NO.

Well Construction

Total Depth Drilled 56' Ft
Well finished to 55.5' Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	28'	6"	PVC SCH 80
Screen (Note slot size) 1/4"	~~28'~~	55.5'	6"	PVC SCH 80
~~Tail Piece~~ Backfill	Grade	24'		Topsoil
Gravel Pack	27'	56'	3/4	stone
Annular Seal/~~Grout~~	26'	27'	3/8	pellets
Method of Grouting	24'	26'	slurry	Benseal

If finished above grade, casing height (stick up) above land surface 4' Ft

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

NOTES, DELAYS (explain):

WELL LOG

DEPTH	FORMATION
0-4	Air
4-21	Dry Garbage
21-56	wet Garbage

David C Taylor
DRILLER/HELPER

Scott
VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

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CONTRACTOR: Ogden
SITE: Clarks Town
JOB NO. 01-5288
RIG NO. 0479
WELL ID NO. # 15
TYPE OF WELL GAS ext
WELL PERMIT NO.

Well Construction

Total Depth Drilled 24 Ft
Well finished to 23.5 Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 4 Ft

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	12'	6"	PVC SCH 80
Screen (Note slot size) 1/4"	12'	23.5'	6"	PVC SCH 80
~~Tail Piece~~ Backfill	Grade	8'		Topsoil
Gravel Pack	11'	24'	3/4	stone
Annular Seal/~~Grout~~	10'	11'	3/8	pellets
Method of Grouting	8'	10'	Slurry	Bentonite

WELL LOG

DEPTH	FORMATION
0-1	air
1-24	Dry Garbage

NOTES, DELAYS (explain):

DRILLER/HELPER

VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

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CONTRACTOR: Ogden
SITE: Clarkstown
JOB NO. 01-5288
RIG NO. 0479
WELL ID NO. # 16
TYPE OF WELL GAS EXT
WELL PERMIT NO.

Well Construction

Total Depth Drilled 55' Ft
Well finished to 54.5' Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 4' Ft

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft) (From land surface)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	28.5'	6"	PVC SD
Screen (Note slot size) 1/4"	28.5'	54.5'	6"	PVC SD
~~Tail Piece~~ Back Fill	Grade	24'		Top Soil
Gravel Pack	27'	55'	3/4	stone
Annular Seal/~~Grout~~	26'	27'	3/8	pellets
Method of Grouting	24'	26'	Slurry	Bentonite

WELL LOG

DEPTH	FORMATION
0-2	Air
3-34	Dry Gravel
34-55	wet Gravel

NOTES, DELAYS (explain):

DRILLER/HELPER

VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

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CONTRACTOR: Ogden
SITE: Clarkstown
JOB No. 01 5288
RIG No. 0479
WELL ID No. # 17
TYPE OF WELL Gas ext
WELL PERMIT No.

Well Construction

Total Depth Drilled 46 Ft
Well finished to 45.5 Ft

Borehole diameter:
Top 24 In.
Bottom 24 In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 4' Ft

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	24'	6"	PVC 80
Screen (Note slot size) 1/4"	~~24~~	45.5'	6"	PVC 80
~~Tail Piece~~ Backfill	Grade	20'		Topsoil
Gravel Pack	23'	46'	3/4	Ston
Annular Seal/Grout	22'	23'	3/8	pellets
Method of Grouting	20'	22'	Slurry	Bensea

WELL LOG

DEPTH	FORMATION
0-1	Air
1-46	Dry Cuttings

NOTES, DELAYS (explain):

DRILLER/HELPER

VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

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CONTRACTOR: Ogden
SITE: Clarkstown
WELL ID No. # 18
JOB No. 01-5288
RIG No. 0479
TYPE OF WELL Gas ext
WELL PERMIT No.

Well Construction

Total Depth Drilled 56' Ft
Well finished to 55.5' Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 4' Ft

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'		6"	PVC 80
Screen (Note slot size) 1/4"	29'	55.5'	6"	PVC 80
~~Tail Piece~~ Backfill	Grade	25'		Topsoil
Gravel Pack	28'	56'	3/4	Stone
Annular Seal/~~Grout~~	27'	28'	3/8	Pellets
Method of Grouting	25'	27'	Slurry	Benseal

WELL LOG

DEPTH	FORMATION
0 - 4	Air
4 - 21	Dry Garbage
21 - 56	Wet Garbage

NOTES, DELAYS (explain):

Daniel C. Jr. Co
DRILLER/HELPER

VERIFIED CONTRACTOR

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CONTRACTOR: Ogden
SITE: Clarkstown
WELL ID NO. #19
JOB NO. 01-5288
RIG NO. 0479
TYPE OF WELL Gas ext
WELL PERMIT NO.

Well Construction

Total Depth Drilled 21' Ft
Well finished to 20.5' Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 4' Ft

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	11.5'	6"	PVC 80
Screen (Note slot size) 11" 14	11.5'	20.5	6"	PVC 80
~~Tail Piece~~ Backfill	Grade	7'		Top soil
Gravel Pack	10'	21'	3/4	stone
Annular Seal/~~Grout~~	9'	10'	3/8	pellets
Method of Grouting	7'	9'	Slurry	Benseal

WELL LOG

DEPTH	FORMATION
0-2	AIR
2-21	Dry Garbage

NOTES, DELAYS (explain):

DRILLER/HELPER

VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

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CONTRACTOR: Ogden
SITE: Clarkstown
WELL ID No. # 20
JOB No. 01-5288
RIG No. 0479
TYPE OF WELL Gas ext
WELL PERMIT No.

Well Construction

Total Depth Drilled 21 Ft
Well finished to 20.5' Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 4' Ft

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	11.5'	6"	PVC 80
Screen (Note slot size) 1/4"	11.5'	20.5'	6"	PVC 80
~~Tail Piece~~ Backfill	Grade	7'		Topsoil
Gravel Pack	10'	21'	3/4	stone
Annular Seal/~~Grout~~	9'	10'	3/8	pellets
Method of Grouting	7'	9'	slurry	Bentseal

WELL LOG

DEPTH	FORMATION
0-1	Air
1-21	Dry Garbage

NOTES, DELAYS (explain):

Richard C. Fowler
DRILLER/HELPER

L. S. T.
VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

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CONTRACTOR: Ogden
SITE: Clarks Town
JOB NO. 01-5288
RIG NO. 0479
WELL ID NO. #21
TYPE OF WELL Gas ext
WELL PERMIT NO.

Well Construction

Total Depth Drilled 51 Ft
Well finished to 50.5 Ft

Borehole diameter:
Top 24 In.
Bottom 24 In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 4' Ft

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft) (From land surface)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	26.5'	6"	PVC SCH 40
Screen (Note slot size) 1/4"	26.5'	50.5'	6"	PVC SCH 40
~~Tail Piece~~ Backfill	Grade	22'		Topsoil
Gravel Pack	25	51	3/4	stone
Annular Seal/Grout	24'	25'	3/8	pellets
Method of Grouting	22'	24'	Slurry	Benseal

WELL LOG

DEPTH	FORMATION
0-3	air
3-51	Dry Garbage

NOTES, DELAYS (explain):

David O Jones
DRILLER/HELPER

VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

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JOB No. 015288
RIG No. 0479

CONTRACTOR: Ogden
SITE: Clarkstown
WELL ID No. # 22
TYPE OF WELL GAS ext
WELL PERMIT No.

Well Construction

Total Depth Drilled 26 Ft
Well finished to 25.5 Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 4' Ft

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	14'	6"	PVC 80
Screen (Note slot size) 1/4"	14'	25.5'	6"	PVC 80
~~Tail Piece~~ Backfill	Grade	10'		Top soil
Gravel Pack	13'	26'	3/4	Stone
Annular Seal/~~Grout~~	12'	13'	3/8	pellet
Method of Grouting	10'	12'	Slurry	Bentonite

WELL LOG

DEPTH	FORMATION
0-26	Dry Garbage

NOTES, DELAYS (explain):

DRILLER/HELPER

VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

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CONTRACTOR: Ogden
SITE: Clarkstown
JOB NO. 01-5288
RIG NO. 0479
WELL ID NO. #23
TYPE OF WELL Gas ext.
WELL PERMIT NO.

Well Construction

Total Depth Drilled 35' Ft
Well finished to 34.5' Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 4' Ft

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	18.5'	6"	PVC 80
Screen (Note slot size) 1/4	18.5'	34.5'	6"	PVC 80
~~Tail Piece~~ Backfill	Grade	14'		Topsoil
Gravel Pack	17'	35'	3/4	Stone
Annular Seal/~~Grout~~	16'	17'	3/8	Pellets
Method of Grouting	14'	16'	Slurry	Bentonite

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

NOTES, DELAYS (explain):

WELL LOG

DEPTH	FORMATION
0-2	Air
2-35	Dry Garbage

DRILLER/HELPER

VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

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CONTRACTOR: Ogden
SITE: Clarkstown
JOB NO. 01-5286
RIG NO. 0479
WELL ID NO. #24
TYPE OF WELL 6+s ext.
WELL PERMIT NO.

Well Construction

Total Depth Drilled 57 Ft
Well finished to 56.5 Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 4' Ft

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	29.5'	6"	PVC 80
Screen (Note slot size) 1/4"	29.5'	56.5'	6"	PVC 80
~~Tail Piece~~ Backfill	Gravel			Top soil
Gravel Pack	28'	57'	3/4	stone
Annular Seal/~~Grout~~	27'	28'	3/8	pellets
Method of Grouting	25'	27'	slurry	Benseal

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

NOTES, DELAYS (explain):

WELL LOG

DEPTH	FORMATION
0-6	Air
6-23	Dry Garbage
23-57	wet Garbage

DRILLER/HELPER

VERIFIED CONTRACTOR

COPIES TO: WHITE & CANARY - ROCKAWAY PINK - CONTRACTOR GOLDENROD-DRILLER

MORETRENCH WELL REPORTS

DATE: 2/24/97
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CONTRACTOR: Ogden
SITE: Clarkstown
WELL ID No. #25
JOB No. 01-5288
RIG No. 0479
TYPE OF WELL Gas ext
WELL PERMIT No.

Well Construction

Total Depth Drilled 37' Ft
Well finished to 36.5' Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 4' Ft

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	19.5'	6"	pvc 80
Screen (Note slot size) 1/4"	19.5'	36.5'	6"	pvc 80
~~Tail Piece~~ Backfill	Grade	15'		Topsoil
Gravel Pack	18'	37'	3/4	stone
Annular Seal/~~Grout~~	17'	18'	3/8	pellets
Method of Grouting	15'	17'	Slurry	Bensea l

WELL LOG

DEPTH	FORMATION
0 - 1	air
1 - 37	Dry Gasbags

NOTES, DELAYS (explain):

DRILLER/HELPER

VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

DATE: 2/20/97
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CONTRACTOR: Ogden
SITE: - Clarkstown
JOB NO. 01-5288
RIG NO. 0479
WELL ID NO. # 26
TYPE OF WELL Gas ext
WELL PERMIT NO.

Well Construction

Total Depth Drilled 33' Ft
Well finished to 32.5' Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	17.5'	6"	PVC 80
Screen (Note slot size) 1/4"	17.5'	32.5'	6"	PVC 80
~~Tail Piece~~ Backfill	Grade	13'		Topsoil
Gravel Pack	16'	33'	3/4	Stone
Annular Seal/~~Grout~~	15'	16'	3/8	Pellets
Method of Grouting	13'	15'	Slurry	Benseal

If finished above grade, casing height (stick up) above land surface 4' Ft

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

NOTES, DELAYS (explain):

WELL LOG

DEPTH	FORMATION
0-1	Air
1-17	Dry Garbage
17-33	Damp Garbage

DRILLER/HELPER

VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

DATE: 2/20/97
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CONTRACTOR: Ogden
SITE: Clarkstown
JOB NO. 01-5288
RIG NO. 0479
WELL ID NO. # 27
TYPE OF WELL Gas ext
WELL PERMIT NO.

Well Construction

Total Depth Drilled 18' Ft
Well finished to 17.5' Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 4' Ft

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	10'	6"	PVC 80
Screen (Note slot size) 1/4"	10'	17.5'	6"	PVC 80
~~Tail Piece~~ Back Fill	Grade	6'		Top soil
Gravel Pack	9'	18'	3/4	Stone
Annular Seal/~~Grout~~	8'	9'	3/8	pellets
Method of Grouting	6'	8'	Slurry	Bensеal

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

NOTES, DELAYS (explain):

WELL LOG

DEPTH	FORMATION
0-1	Air
1-18	Dry Gravel

David Tomlee
DRILLER/HELPER

VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

DATE: 2/20/97
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CONTRACTOR: Ogden
SITE: Clarkstown
WELL ID No. ~~MW~~ 28
JOB No. 01-5288
RIG No. 0479
TYPE OF WELL Gas ext
WELL PERMIT No.

Well Construction

Total Depth Drilled 24 Ft
Well finished to 23.5' Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 4' Ft

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	13'	6"	PVC 80
Screen (Note slot size) 1/4"	13'	23.5'	6"	PVC 80
~~Tail Piece~~ Backfill	Grade	9'		Top soil
Gravel Pack	12'	24'	3/4	stone
Annular Seal/~~Grout~~	11'	12'	3/8	Pellets
Method of Grouting	9'	11'	Slurry	Bentonite

WELL LOG

DEPTH	FORMATION
0-9'	Air
1-24	Dry Gravel

NOTES, DELAYS (explain):

DRILLER/HELPER

VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

DATE: 2/21/97
PAGE No. 1 OF 1

CONTRACTOR: Ogden
SITE: Clarkstown
JOB NO. 01-5288
RIG NO. 0479
WELL ID NO. # 29
TYPE OF WELL Gas ext
WELL PERMIT NO.

Well Construction

Total Depth Drilled 50' Ft
Well finished to 49.5' Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 4' Ft

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	26'	6"	PVC SCH 80
Screen (Note slot size) 1/4"	26'	49.5'	6"	PVC SCH 80
~~Tail Piece~~ Backfill	Grade	22'		Top soil
Gravel Pack	25'	50'	3/4	stone
Annular Seal/~~Grout~~	24'	25'	3/8	pellets
Method of Grouting	22'	24'	Slurry	Bensea l

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

NOTES, DELAYS (explain):

WELL LOG

DEPTH	FORMATION
0-3	Air
3-22	Dry garbage
22-50	Wet garbage

DRILLER/HELPER

VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

DATE: 2/18 - 2/19
PAGE No. 1 OF 1

CONTRACTOR: Cascade
SITE: Clarkstown
WELL ID No. # 30
JOB No. 05288
RIG No. 0479
TYPE OF WELL Gas ext
WELL PERMIT No.

Well Construction

Total Depth Drilled 56 Ft
Well finished to 55.5 Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 4' Ft

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	29'	6"	PVC SCO
Screen (Note slot size) 1/4"	29'	55.5'	6"	PVC SCO
~~Tail Piece~~ Backfill	Gravel	25'		Topsoil
Gravel Pack	28'	56'	3/4	Stone
Annular Seal/Grout	27'	28'	3/8	pellets
Method of Grouting	25'	27'	Slurry	Bentical

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

NOTES, DELAYS (explain):

WELL LOG

DEPTH	FORMATION
0-2	Air
2-12	Dry Garbage
12-56	wet Garbage

DRILLER/HELPER

VERIFIED CONTRACTOR

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MORE TRENCH WELL REPORTS

DATE: 2/20/17
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CONTRACTOR: Ogden
SITE: Clarkstown
JOB No. 015288
RIG No. 0479
WELL ID No. # 31
TYPE OF WELL Gas ext
WELL PERMIT No.

Well Construction

Total Depth Drilled 20 Ft
Well finished to 19.5 Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 4 Ft

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	11'	6"	PVC SCH 80
Screen (Note slot size) 1/4"	11'	19.5'	6"	PVC SCH 80
~~Tail Piece~~ Backfill	Grade	10'		Topsoil
Gravel Pack	10'	20'	3/4	stone
Annular Seal/~~Grout~~	9'	10'	3/8	pellets
Method of Grouting	7'	9'	Slurry	Bentonite

WELL LOG

DEPTH	FORMATION
0-1	Air
1-11	Dry Garbage
11-20	wet Garbage

NOTES, DELAYS (explain):

DRILLER/HELPER

VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

DATE: 2/21/97
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CONTRACTOR: Ogden
SITE: Clarkstown
WELL ID NO. #32
JOB NO. 01 5288
RIG NO. 0479
TYPE OF WELL Gas ext
WELL PERMIT NO.

Well Construction

Total Depth Drilled 56' Ft
Well finished to 55.5 Ft

Borehole diameter:
Top 24" In.
Bottom 24 In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 4' Ft

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	29'	6"	PVC SCO
Screen (Note slot size) 1/4"	29'	55.5'	6"	PVC SCO
~~Tail Piece~~ Backfill	Inside	25'		Top soil
Gravel Pack	28'	56'	3/4	Stone
Annular Seal/~~Grout~~	27'	28'	3/8	pellets
Method of Grouting	25'	27'	Slurry	Benseal

NOTES, DELAYS (explain):

WELL LOG

DEPTH	FORMATION
0-2	Air
2-31	Dry Garbage
31-56	Damp Garbage

Richard Taylor
DRILLER/HELPER

J Beatty
VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

DATE: 2/20/97
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CONTRACTOR: Ogden
SITE: Clarkstown
WELL ID NO. ~~#~~ 33
JOB NO. 01-5288
RIG NO. 0479
TYPE OF WELL Gas ext
WELL PERMIT NO.

Well Construction

Total Depth Drilled 18 Ft
Well finished to 17.5 Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 4' Ft

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	10'	6"	PVC SCH 80
Screen (Note slot size) 1/4"	10'	17.5'	6"	PVC SCH 80
~~Tail Piece~~ Backfill	Grade	6'		Top soil
Gravel Pack	9'	20'	3/4	stone
Annular Seal/~~Grout~~	8'	9'	3/8	pellets
Method of Grouting	6'	8'	Slurry	Benseal

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

NOTES, DELAYS (explain):

WELL LOG

DEPTH	FORMATION
0-1	Air
1-18	Dry Gravel

David Tonkin
DRILLER/HELPER

VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

DATE: 2/19/97
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CONTRACTOR: Ogden
SITE: Clarkstown
JOB NO. 01-5288
RIG NO. 0479
WELL ID NO. #39
TYPE OF WELL GAS ext
WELL PERMIT NO.

Well Construction

Total Depth Drilled 15' Ft
Well finished to 14.5' Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 4' Ft

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	8.5'	6"	PVC 80
Screen (Note slot size) 1/4"	8.5'	14.5'	6"	PVC 80
~~Tail Piece~~ Backfill	Grade	4'		Top soil
Gravel Pack	7'	15'	3/4	stone
Annular Seal/~~Grout~~	6'	7'	3/8	Pellets
Method of Grouting	4'	6'	Slurry	Bentonite

WELL LOG

DEPTH	FORMATION
0-2	Air
2-8	Dry Garbage
8-15	wet Garbage

NOTES, DELAYS (explain):

DRILLER/HELPER

VERIFIED CONTRACTOR

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MORLINE-NORTH WELL REPORTS

DATE: 2/19/97
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CONTRACTOR: Ogden
JOB No. 01 5288
SITE: Claverstown
RIG No. 0479
WELL ID No. # 35
TYPE OF WELL Gas ext
WELL PERMIT No.

Well Construction

Total Depth Drilled 32 Ft
Well finished to 31.5' Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 4' Ft

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	17'	6"	PVC SO
Screen (Note slot size) 1/4"	17'	31.5'	6"	PVC SO
~~Tail Piece~~ Backfill	Grade	13'		Top soil
Gravel Pack	16'	32'	3/4	Stone
Annular Seal/~~Grout~~	15'	16'	3/8	Pellets
Method of Grouting	13'	15'	slurry	Benseal

WELL LOG

DEPTH	FORMATION
0-4	Air
4-32	Dry Gravel

NOTES, DELAYS (explain):

David Tomlinson
DRILLER/HELPER

VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

DATE: 2/7 – 2/10/97
PAGE No. 1 OF 1

CONTRACTOR: Ogden
SITE: Clarkstown
JOB No. 01-5288
RIG No. 0479
WELL ID No. # 36
TYPE OF WELL Gas ext
WELL PERMIT No.

Well Construction

Total Depth Drilled 53' Ft
Well finished to 52.5' Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 4' Ft

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	27.5'	6"	PVC #80
Screen (Note slot size) 1/4"	27.5'	52.5'	6"	PVC #80
~~Tail Piece~~ Back Fill	Grade	23'		Top soil
Gravel Pack	26'	53'	3/4	stone
Annular Seal/~~Grout~~	25'	26'	3/8	Pellets
Method of Grouting	23'	25'	Slurry	Benseal

WELL LOG

DEPTH	FORMATION
0-48	~~Boy~~ air
48-49	Dry Garbage
49-53	wet Garbage

NOTES, DELAYS (explain):

DRILLER/HELPER

VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

DATE: 2/4/97
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CONTRACTOR: Ogden
SITE: Clarkstown
WELL ID No. # 37
JOB No. 01-5288
RIG No. 0479
TYPE OF WELL GAS ext
WELL PERMIT No.

Well Construction

Total Depth Drilled 40' Ft
Well finished to 39.5' Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 4' Ft

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	21'	6"	PVC SCH 80
Screen (Note slot size) 1/4"	21'	39.5'	6"	PVC SCH 80
~~Tail Piece~~ Backfill	Grade	17'		topsoil
Gravel Pack	20'	40'	3/4	stone
Annular Seal/~~Grout~~	19'	20'	3/8	pellets
Method of Grouting	17'	19'	slurry	Bentonite

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

NOTES, DELAYS (explain):

WELL LOG

DEPTH	FORMATION
0-3	Air
3-40	Dry Garbage

DRILLER/HELPER

VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

DATE: 2/4/97
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CONTRACTOR: Ogden
SITE: Clarkstown
WELL ID No. # 38
JOB No. 01-5288
RIG No. 0479
TYPE OF WELL Gas ext
WELL PERMIT No.

Well Construction

Total Depth Drilled 49 Ft
Well finished to 48.5 Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 4' Ft

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+ 4'	24'	6"	PVC 80
Screen (Note slot size) 1/4"	24.5'	48.5'	6"	PVC 80
~~Tail Piece~~ Backfill	Grade	20'		Top soil
Gravel Pack	23'	49'	3/4	Stone
Annular Seal/~~Grout~~	22'	23'	3/8	pellets
Method of Grouting	20'	22'	Slurry	Bensenl

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

WELL LOG

DEPTH	FORMATION
0-1	Air
1-34	Dry Garbage
34-49	~~Clay~~ Garbage Damp

NOTES, DELAYS (explain):

Riser length a little too short pull well up a little as per Jason/Weston

DRILLER/HELPER

VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

DATE: 2/3/97
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CONTRACTOR: Ogden
SITE: Clarkstown
JOB No. 01-5288
RIG No. 0479
WELL ID No. #34
TYPE OF WELL GAS ext
WELL PERMIT No.

Well Construction

Total Depth Drilled 58' Ft
Well finished to 57.5' Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 4' Ft

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	30'	6"	PVC 80
Screen (Note slot size) 1/4"	30'	57.5'	6"	PVC 80
~~Tail Piece~~ Backfill	Grade	26'		Top soil
Gravel Pack	~~0~~ 29'	58'	3/4	stone
Annular Seal/Grout	28'	29'	3/8	pellets
Method of Grouting	26'	28'	slurry	Bensal

WELL LOG

DEPTH	FORMATION
0-4	Air
4-31	Dry Garbage
31-58	wet Garbage

NOTES, DELAYS (explain):

DRILLER/HELPER

VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

DATE: 2/4-25/97
PAGE No. 1 OF 1

CONTRACTOR: Ogden
SITE: Clarkstown
WELL ID No. # 40
JOB No. 01-[redacted]5288
RIG No. 0479
TYPE OF WELL Gas ext
WELL PERMIT No.

Well Construction

Total Depth Drilled 52' Ft
Well finished to 51.5' Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 4' Ft

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	26'	6"	PVC S
Screen (Note slot size) 1/4"	26'	51.5'	6"	PVC 80
~~Tail Piece~~ Backfill	Grade	22'		Topsoil
Gravel Pack	25'	52'	3/4	Stone
Annular Seal/~~Grout~~	24'	25'	3/8	pellets
Method of Grouting	22'	24'	slurry	Bensea L

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

NOTES, DELAYS (explain):

WELL LOG

DEPTH	FORMATION
0-1'	Air
1'--5'	Cover
5'-37'	Dry Garbage
37-52'	Wet Garbage

Robert O Tomlee
DRILLER/HELPER

A Bailey
VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

DATE: 1/24 - 1/31/97
PAGE No. 1 OF 1

CONTRACTOR: Ogden
SITE: Clarkstown
WELL ID No. #41
JOB No. 01 5288
RIG No. 0479
TYPE OF WELL GAS ext
WELL PERMIT No.

Well Construction

Total Depth Drilled 35' Ft
Well finished to 34.5' Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 4' Ft

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	18.5'	6"	6" PVC 80
Screen (Note slot size) 1/4"	18.5'	34.5'	6"	PVC 80
~~Tail Piece~~ Back Fill	Grade	14'		Top soil
Gravel Pack	17'	35'	3/4	stone
Annular Seal/~~Grout~~	16'	17'	3/8	pellets
Method of Grouting	14'	16'	slurry	Benseal

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours 4 Hrs

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

NOTES, DELAYS (explain):

1/24 11:00 AM shut Down By Weston engineers for problem with screen, Down for the rest of the Day 4 Hrs

WELL LOG

DEPTH	FORMATION
0-3	Air
3-11	Dry Garbage
11-35	Damp Garbage

David C Jones
DRILLER/HELPER

VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

DATE: 1/31/97
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CONTRACTOR: Ogden
SITE: Clarkstown
JOB NO. 01-5288
RIG NO. 0479
WELL ID NO. # 42
TYPE OF WELL Gas ext
WELL PERMIT NO.

Well Construction

Total Depth Drilled 29' Ft
Well finished to 28.5' Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 4' Ft

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	4'	15.5'	6"	PVC 80
Screen (Note slot size) 1/4"	15.5'	28.5'	6"	PVC 80
~~Tail Piece~~ Backfill	Grade	11'		Top soil
Gravel Pack	14'	29'	3/4	stone
Annular Seal/~~Grout~~	13'	14'	3/8	pellets
Method of Grouting	11'	13'	slurry	Bensea C

WELL LOG

DEPTH	FORMATION
0-4'	air
4-29	wet Garbage

NOTES, DELAYS (explain):

DRILLER/HELPER

VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

DATE: 2/3/97
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CONTRACTOR: Ogden
SITE: Clarkstown
WELL ID No. # 43
JOB No. 01-5288
RIG No. 0479
TYPE OF WELL Gas ext
WELL PERMIT No.

Well Construction

Total Depth Drilled 54' Ft
Well finished to 535' Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	28'	6"	PVC 80
Screen (Note slot size) 1/4"	28'	53.5'	6"	PVC 80
~~Tail Piece~~/BACKFILL	Grade	24'		Top Soil
Gravel Pack	27'	54'	3/4	Stone
Annular Seal/~~Grout~~	26'	27'	3/8	pellets
Method of Grouting	24'	26'	Slurry	Bentonite

If finished above grade, casing height (stick up) above land surface 4' Ft

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

NOTES, DELAYS (explain):

WELL LOG

DEPTH	FORMATION
0-3'	Air
3-8'	Cover
8'-19'	Dry Garbage
19'-54'	Wet Garbage

DRILLER/HELPER

VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

DATE: 2/6/97
PAGE No. 1 OF 1

CONTRACTOR: Ogden
SITE: Clarkstown
WELL ID No. # 44
JOB No. 01-5285
RIG No. 0479
TYPE OF WELL Gas ext.
WELL PERMIT No.

Well Construction

Total Depth Drilled 38' Ft
Well finished to 37.5' Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 4' Ft

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	17.5'	6"	PVC SCH 80
Screen (Note slot size) 1/4"	17.5'	37.5'	6"	PVC SCH 80
~~Tail Piece~~ Backfill	Grade	13'		Top Soil
Gravel Pack	16'	38'	3/4"	Stone
Annular Seal/~~Grout~~	15'	16'	3/8"	pellets
Method of Grouting	13'	15'	Slurry	Bentonite

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

NOTES, DELAYS (explain):

WELL LOG

DEPTH	FORMATION
0-2	Air
2-17	Dry Gravel
17-35	Damp Gravel

Daniel Taylor
DRILLER/HELPER

J Beatty
VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

DATE: 13 Feb 97
PAGE No. 1 OF 4
JOB NO. 5288
RIG NO. 0479

CONTRACTOR: Ogden Remediation
SITE: Clarkstown Landfill
WELL ID NO. MW 45
TYPE OF WELL methane
WELL PERMIT NO.

Well Construction

Total Depth Drilled 22' Ft
Well finished to _____ Ft

Borehole diameter:
Top 24 In.
Bottom 24 In.

Well was finished:
[ ] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface _____ Ft

Was steel protective casing installed? [ ] Yes [ ] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	well will be finished			
Screen (Note slot size)	on 18 Feb 97			
Tail Piece				
Gravel Pack				
Annular Seal/Grout				
Method of Grouting				

WELL LOG

DEPTH	FORMATION
0-12	little moisture OK Decayed garbage
12-22	very wet leachate little garbage

NOTES, DELAYS (explain):

4/
1 of
Pg
Set

Bill Hess / Dave M.
DRILLER/HELPER

VERIFIED CONTRACTOR

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02-25-1997 15:00 12016276078 MORETRENCH AMERICAN CORP. P.05

MORETRENCH WELL REPORTS

DATE: 2/13 – 2/18/97
PAGE No. 1 OF 1
JOB No. 01-5288
RIG No. 0479

CONTRACTOR: Ogden
SITE: Clarkstown
WELL ID No. # 45
TYPE OF WELL Gas ext
WELL PERMIT No.

Well Construction

Total Depth Drilled 25 Ft
Well finished to 24.5 Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 4' Ft

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	13.5'	6"	PVC 80
Screen (Note slot size) 1/4"	13.5	24.5'	6"	PVC 80
~~Tail Piece~~ Backfill	Grade	9'		Topsoil
Gravel Pack	12'	25'	3/4	stone
Annular Seal/Grout	11'	12'	3/8	Pellets
Method of Grouting	9'	11'	Slurry	Bentonite

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

NOTES, DELAYS (explain):

WELL LOG

DEPTH	FORMATION
0-2	Air
2-14	Dry Cuttings
14-25	Wet Cuttings

David Franks
DRILLER/HELPER

VERIFIED CONTRACTOR

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rg 2.

MORETRENCH WEL REPORTS

DATE: 13 feb 97
PAGE No. 1 OF 4
JOB NO. 5288
RIG NO. 0479

CONTRACTOR: Ogden Remediation
SITE: Clarks town Landfill
WELL ID NO. MW II 46
TYPE OF WELL meth vent
WELL PERMIT NO.

Well Construction

Total Depth Drilled 22.5 Ft
Well finished to 22 Ft

Borehole diameter:
Top 24 In.
Bottom 24 In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing	+5.5	-12		SCH 80 PVC
Outer Casing (Non Protective Casing)			6"	
Screen (Note slot size)	-12	-22	6"	sch 80 PVC
~~Tail Piece~~ Backfill	0	-8		Fill material
Gravel Pack	-11	-22.5	3/4	Gravel
Annular Seal/Grout	-10	-11	3/8	Bent Pellets
Method of Grouting	-8	-10		Bent Slurry

If finished above grade, casing height (stick up) above land surface 5.5 Ft

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

NOTES, DELAYS (explain):

1 of 4

pg 2 of 4

WELL LOG	
DEPTH	FORMATION
0-18	Semi Decayed Garbage
18-22	wet garbage. OK decayed.

BILL HESS / DAVE M.
DRILLER/HELPER

VERIFIED CONTRACTOR

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02-25-1997 15:00 12016276078 MORETRENCH AMERICAN CORP. P.04

MORETRENCH WELL REPORTS

DATE: 13 Feb 97.
PAGE No. 1 OF 4
JOB No. 5288
RIG No. 0429

CONTRACTOR: Ogden Remediation
SITE: Clarks town landfill
WELL ID No. MW 47 TYPE OF WELL Meth vent
WELL PERMIT No.

Well Construction

Total Depth Drilled 12.5 Ft
Well finished to 12. Ft

Borehole diameter:
Top 24 In.
Bottom 24 In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing	+7.5	-7.5		sch 80 PVC
Outer Casing (Non Protective Casing)				
Screen (Note slot size)	-7.5	-12		Sch 80 PVC
~~Tail Piece~~ Back Fill	0	-3.5		fill material
Gravel Pack	-6.5	-12.5		
Annular Seal/Grout	-5.5	-6.5	3/8	Bent Pellets
Method of Grouting Seal	-3.5	-5.5		Bent Slurry

If finished above grade, casing height (stick up) above land surface 2.5 Ft

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

NOTES, DELAYS (explain):

1 of 3.
RA 0
SL 2

WELL LOG

DEPTH	FORMATION
0-12.5	Semi-Decayed
	Garbage little
	moisture..

Bill Hess / Dave M.
DRILLER/HELPER

VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

DATE: 2/18/97
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CONTRACTOR: Ogden
SITE: Clarkstown
WELL ID No. # 48
JOB No. 01 5285
RIG No. 0479
TYPE OF WELL GAS ext
WELL PERMIT No.

Well Construction

Total Depth Drilled 16' Ft
Well finished to 15.5' Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 4' Ft

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	9'	6"	PVC SCH 80
Screen (Note slot size) 1/4"	9'	15.5'	6"	PVC SCH 80
~~Tail Piece~~ Backfill	Grade	5'		Topsoil
Gravel Pack	8'	16'	3/4	stone
Annular Seal/~~Grout~~	7'	8'	3/8	Pellets
Method of Grouting	5'	7'	Surface	Bentseal

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

NOTES, DELAYS (explain):

WELL LOG

DEPTH	FORMATION
0-4	Air
4-16	Dry Gravel

DRILLER/HELPER

VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

DATE: 13 Feb 97
PAGE No. 1 OF 4
JOB No. 5288
RIG No. 0479

CONTRACTOR: Ogden Remediation
SITE: Clarkstown Landfill
WELL ID No. MW # 49.
TYPE OF WELL Meth vent.
WELL PERMIT No.

Well Construction

Total Depth Drilled 0 Ft
Well finished to 13 Ft

Borehole diameter:
Top _____ In.
Bottom _____ In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 15 Ft

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing	+15	-5		Sch 80 PVC
Outer Casing (Non Protective Casing)	Drilled	ON		12 Feb
Screen (Note slot size)	-5	-13		Sch 80 PVC.
~~Tail Piece~~ Back Fill	0	-1		Fill Material.
Gravel Pack	-4	-13.5		
Annular Seal/~~Grout~~	-3	-4		3/8 Pellets.
Method of ~~Grouting~~ Seal	-1	-3		Bent Slurry

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg 6

Man Hours OT _____ Rig Hours OT _____

NOTES, DELAYS (explain): arrived site 0900 had safety meeting fueled up loader & rig, got well material set well # 49 at 0930 moved rig to loc # 47, sunk rig thru marsh had to get pulled out drill & set at 1050 moved rig to loc # 46 drilled & set 1245 moved & Drilled Loc # 45 didnt set well. went back & finished slurry & fill on other wells.

WELL LOG

DEPTH	FORMATION
	Drilled on 12
	feb By Dave F.

Bill Hess / Dave Mac.
DRILLER/HELPER

VERIFIED CONTRACTOR

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02-25-1997 14:59 12015276078 MORETRENCH AMERICAN CORP. P.02

MORETRENCH WELL REPORTS

DATE: 2/18/97
PAGE No. 1 OF 1

CONTRACTOR: OG Den
SITE: Cartstown
WELL ID No. # 50
JOB No. 01-5288
RIG No. 04179
TYPE OF WELL Gas ext
WELL PERMIT No.

Well Construction

Total Depth Drilled 25' Ft
Well finished to 24.5' Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 4' Ft

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	13.5'	6"	PVC SCH 80
Screen (Note slot size) 1/4"	13.5'	24.5'	6"	PVC SCH 80
~~Tail Piece~~ Backfill	Grade	9'		Top soil
Gravel Pack	12'	25'	3/4	stone
Annular Seal/~~Grout~~	11'	12'	3/8	pellets
Method of Grouting	9'	11'	Slurry	Bucket

WELL LOG

DEPTH	FORMATION
0-2	Silt
2-25	Dry Gravel

NOTES, DELAYS (explain):

Rod & Tool Inc
DRILLER/HELPER

VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

DATE: 2/12/97
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CONTRACTOR: Ogden
SITE: Clarkstown
JOB No. 01-5288
RIG No. 0479
WELL ID No. #51
TYPE OF WELL Gas ext
WELL PERMIT No.

Well Construction

Total Depth Drilled 50 Ft
Well finished to 49.5 Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finisned above grade, casing height (stick up) above land surface 4' Ft

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	26'	6"	PVC 80
Screen (Note slot size) 1/4"	26'	49.5'	6"	PVC 80
~~Tail Piece~~ Backfill	Grade	22'	~~~~	Top soil
Gravel Pack	25'	50'	3/4	stone
Annular Seal/~~Grout~~	24'	25'	3/8	pellets
Method of Grouting	22'	24'	Slurry	Bentonite

WELL LOG

DEPTH	FORMATION
0-3	Air
3-18	Dry Garbage
18-50	wet Garbage

NOTES, DELAYS (explain):

DRILLER/HELPER

VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

DATE: 2/11/97
PAGE No. 1 OF 1

CONTRACTOR: Ogden
SITE: Clarkstown
WELL ID No. ~~#~~ 52
JOB No. 01-5288
RIG No. 0479
TYPE OF WELL Gas ext
WELL PERMIT No.

Well Construction

Total Depth Drilled 58' Ft
Well finished to 57.5' Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 4' Ft

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	30'	6"	PVC 80
Screen (Note slot size) 1/4"	30'	57.5	6"	PVC 80
~~Tail Piece~~ Backfill	Grade	26'		Top soil
Gravel Pack	29'	30'	3/4	stone
Annular Seal/~~Grout~~	28'	29'	3/8	pellets
Method of Grouting	26'	28'	Slurry	Benseal

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

NOTES, DELAYS (explain):

WELL LOG

DEPTH	FORMATION
0-3	Air
3-58	Dry Garbage

Ronald C Tonelli
DRILLER/HELPER

[signature]
VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

DATE: 6/13/97
PAGE No. 1 OF 1
JOB No. 01-5288
RIG No. 0473

CONTRACTOR: Ogden
SITE: Clarkstown
WELL ID No. # 1
TYPE OF WELL Gas Monitor
WELL PERMIT No. _____

Well Construction

Total Depth Drilled 11½ Ft
Well finished to 11½ Ft

Borehole diameter: "
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	1'	6"	steel
Screen (Note slot size) 1/4	1'	11'	6"	PVC Sch
Tail Piece				
Gravel Pack	1'	11.5'	#1	Stone
Annular Seal/~~Grout~~	.5'	1'	3/8	Pellets
~~Method~~ of Grouting	Grade	3'	Slurry	Benseal

If finished above grade, casing height (stick up) above land surface 4' Ft

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____Ft

Well was developed for _____hours at _____gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

NOTES, DELAYS (explain):

WELL LOG

DEPTH	FORMATION
0-11½	M-C Brsand

Richard Gordon
DRILLER/HELPER

James Beadle
VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

DATE: 6/13/97
PAGE No. 1 OF ___
JOB NO. 01-5288
RIG NO. 0473

CONTRACTOR: Ogden
SITE: Clarkstown
WELL ID NO. # 2
TYPE OF WELL Gas Monitor
WELL PERMIT NO. ___

Well Construction

Total Depth Drilled 6' Ft
Well finished to 6 Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 4' Ft

Was steel protective casing installed? [X] Yes [ ] No

Static water level after drilling ___ Ft

Well was developed for ___ hours at ___ gpm

Method of development ___

Travel Hours ___ Standby Hours ___

Man Hours Regular ___ Drill Hours Reg ___

Man Hours OT ___ Rig Hours OT ___

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	1'	6"	~~Steel~~ Steel
Screen (Note slot size) 1/4"	1'	5.5'	6"	PVC
Tail Piece				
Gravel Pack	1'	6'	#1	Stone
Annular Seal ~~/Grout~~	-5'	1'	3/8	pellets
~~Method of~~ Grouting	Grade	-5'	Slurry	Bentonite

WELL LOG

DEPTH	FORMATION
0-3'	Fill
3-6'	MF fine sand to gravel

NOTES, DELAYS (explain):

David Torres
DRILLER/HELPER

James Beattie
VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

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CONTRACTOR: Ogden
SITE: Clarkstown
WELL ID No. #3
JOB No. 01-5288
RIG No. 0423
TYPE OF WELL Gas Monitor
WELL PERMIT No.

Well Construction

Total Depth Drilled 9 1/2' Ft
Well finished to 9 1/2' Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 4' Ft

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	1'	6"	PVC SCH
Screen (Note slot size) 1/4"	1'	9'	6"	PVC SCH
Tail Piece				
Gravel Pack	1'	9.5	#1	Stone
Annular Seal/~~Grout~~	.5'	1'	3/4	pellets
~~Method of~~ Grouting	Grade	.5'	Slurry	Bentonite

Was steel protective casing installed? [X] Yes [ ] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

WELL LOG

DEPTH	FORMATION
0-9½	fine to coarse sand & gravel

NOTES, DELAYS (explain):

David Taylor
DRILLER/HELPER

James Beatty
VERIFIED CONTRACTOR

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CONTRACTOR: Ogden
SITE: Clarkstown
WELL ID No. # 4
JOB No. 01-5258
RIG No. 0473
TYPE OF WELL Gas Monitor
WELL PERMIT No.

Well Construction

Total Depth Drilled 5 Ft
Well finished to 5 Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 4' Ft

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	1'	6"	steel
Screen (Note slot size) 1/4"	1'	4.5'	6'	PVC SCH
Tail Piece				
Gravel Pack	1'	5'	#1	stone
Annular Seal/~~Grout~~	.5'	1'	3/8	Pellets
~~Method of~~ Grouting	Grade	.5'	Slurry	Bensea

Was steel protective casing installed? [ ] Yes [X] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

NOTES, DELAYS (explain):

WELL LOG

DEPTH	FORMATION
0-5'	MF Br SAND
5'	bedrock

DRILLER/HELPER

VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

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CONTRACTOR: Oglon
SITE: Clarkstown
JOB NO 01-5288
RIG NO. 0473
WELL ID NO. #5
TYPE OF WELL Gas Monitor
WELL PERMIT NO. _____

Well Construction

Total Depth Drilled 12½ Ft
Well finished to 12½ Ft

Borehole diameter:
Top 24" In.
Bottom 24" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 4 Ft

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	1'	6"	Steel
Screen (Note slot size) 1/4"	1'	12'	6"	PVC SCH
Tail Piece				
Gravel Pack	1'	12.5'	#1	Stone
Annular Seal/~~Grout~~	.5'	1'	3/8	Pellets
~~Method of~~ Grouting	Grade	.5'	Slurry	Cement

Was steel protective casing installed? [X] Yes [ ] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

NOTES, DELAYS (explain):

WELL LOG

DEPTH	FORMATION
0-12'	Br-Red sand & [illegible]

DRILLER/HELPER

VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

DATE: 6/12/97
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JOB NO. 01-5288
RIG NO. 0473

CONTRACTOR: Cadew
SITE: Carstow
WELL ID NO. # 6
TYPE OF WELL Gas Monitor
WELL PERMIT NO.

Well Construction

Total Depth Drilled 9 Ft
Well finished to 9 Ft

Borehole diameter:
Top 24 In.
Bottom 24 In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing ~~(Non-Protective Casing)~~	+4'	1'	6"	steel
Screen (Note slot size) 1/4"	1'	8.5'	6"	pvc sc
Tail Piece				
Gravel Pack	1'	9'	#1	stone
Annular Seal ~~/Grout~~	.5'	1'	3/8	pellets
~~Method of~~ Grouting	Grade	.5'	Slurry	Bentonite

If finished above grade, casing height (stick up) above land surface 4' Ft

Was steel protective casing installed? [X] Yes [ ] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

NOTES, DELAYS (explain):

WELL LOG

DEPTH	FORMATION
0-2½	silt
2½-9	silty Brown sand

DRILLER/HELPER

James Beatty
VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

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JOB No. C1-5288
RIG No. 0473

CONTRACTOR: Ogden
SITE: Clarks town
WELL ID No. #8
TYPE OF WELL Gas Monitor
WELL PERMIT No.

Well Construction

Total Depth Drilled 6 Ft
Well finished to 6 Ft

Borehole diameter:
Top 20 In.
Bottom 20 In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (~~Non-Protective Casing~~)	+4'	1'	6"	Steel
Screen (Note slot size) 1/4"	1'	5 1/2'	6"	PVC 50
Tail Piece				
Gravel Pack	1'	6'	#1	Stone
Annular Seal ~~/Grout~~	.5'	1'	3/8	pellets
~~Method~~ of Grouting	Grade	.5'	Slurry	Bentseal

If finished above grade, casing height (stick up) above land surface 4' Ft

Was steel protective casing installed? [X] Yes [ ] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours 1/2

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

NOTES, DELAYS (explain):

Stone left on site by MTA used by others, got #8 Drilled & wait 1/2 Hr for replacement Delivery

WELL LOG

DEPTH	FORMATION
0-~~B~~ 1/2	Air
2 1/2-6	MT for [illegible]
	Set at 6'

DRILLER/HELPER

VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

DATE: 6/11/97
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JOB NO. 01 5285
RIG NO. 0473

CONTRACTOR: Ogden
SITE: Clarkstown
WELL ID NO. # GM 9
TYPE OF WELL Gas Monitor
WELL PERMIT NO.

Well Construction

Total Depth Drilled 11 Ft
Well finished to 11 Ft

Borehole diameter:
Top 20 In.
Bottom 20 In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

If finished above grade, casing height (stick up) above land surface 4' Ft

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing ~~(Non Protective Casing)~~	+4'	1'	6"	steel
Screen (Note slot size) 1/4"	1'	10.5'	6"	pvc 80
Tail Piece				
Gravel Pack	1'	11'	#1	stone
Annular Seal ~~Grout~~	.5'	1'	3/8	pellets
~~Method of~~ Grouting	Grade	.5'	Slurry	Penseal

Was steel protective casing installed? [X] Yes [ ] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

NOTES, DELAYS (explain):

WELL LOG

DEPTH	FORMATION
0-2½	fill
2½-11	fill for sand + gravel
	wet at 11'

DRILLER/HELPER

VERIFIED CONTRACTOR

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MORETRENCH WELL REPORTS

DATE: 6/11/97
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JOB No. 01-5288
RIG No. 0473

CONTRACTOR: Ogden
SITE: Clarkstown
WELL ID No. # GM10
TYPE OF WELL GAS Monitor
WELL PERMIT No. _____

Well Construction

Total Depth Drilled 12 1/2 Ft
Well finished to 12 1/2 Ft

Borehole diameter:
Top 20" In.
Bottom 20" In.

Well was finished:
[X] Above Grade
[ ] Flush Mounted

	Depth to top (Ft) (From land surface)	Depth to bottom (Ft)	Diameter (In)	Type and Material
Inner Casing				
Outer Casing (Non Protective Casing)	+4'	1'	6"	std.
Screen (Note slot size) 1/4"	1'	12'	6"	PVC SCH
Tail Piece				
Gravel Pack	1'	12 1/2'	#1	stone
Annular Seal ~~Grout~~	.5'	1'	3/8	pellets
~~Method of~~ Grouting	Grade	5'	Slurry	Bentseal

If finished above grade, casing height (stick up) above land surface 4' Ft

Was steel protective casing installed? [X] Yes [ ] No

Static water level after drilling _____ Ft

Well was developed for _____ hours at _____ gpm

Method of development _____

Travel Hours _____ Standby Hours _____

Man Hours Regular _____ Drill Hours Reg _____

Man Hours OT _____ Rig Hours OT _____

NOTES, DELAYS (explain):

WELL LOG

DEPTH	FORMATION
0-2 1/2	Air
2 1/2 - 5	M-f Br sand & gravel
5-12 1/2	Garbage
	wet at 12 1/2'

David Price
DRILLER/HELPER

VERIFIED CONTRACTOR

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APPENDIX B2:

LFG Collection System Piping Data

DRISCOPIPE®

Driscopipe 1000

HDPE Pipe & Fittings for Water Transmission Mains & Sewer Force Mains

Manufactured to AWWA C 906 Requirements

DRISCOPIPE

Driscopipe® 1000 Polyethylene Piping Systems

Introduction

Phillips Driscopipe® 1000 polyethylene piping system is lightweight, flexible and chemical and abrasion resistant. The system is designed to approximate ductile iron pipe inside diameters, with appropriate fittings to make it compatible. Derating of Driscopipe 1000 piping systems for water hammer is not required. Driscopipe 1000 meets the requirements of American Water Works Association Standard C 906.

Specifications

Driscopipe 1000 pipe is a PE 3408 high density, extra-high molecular weight polyethylene piping system. It may be specified by ASTM D3350 as having a cell classification of PE 345434C. Dimensions and workmanship are specified by ASTM F714.

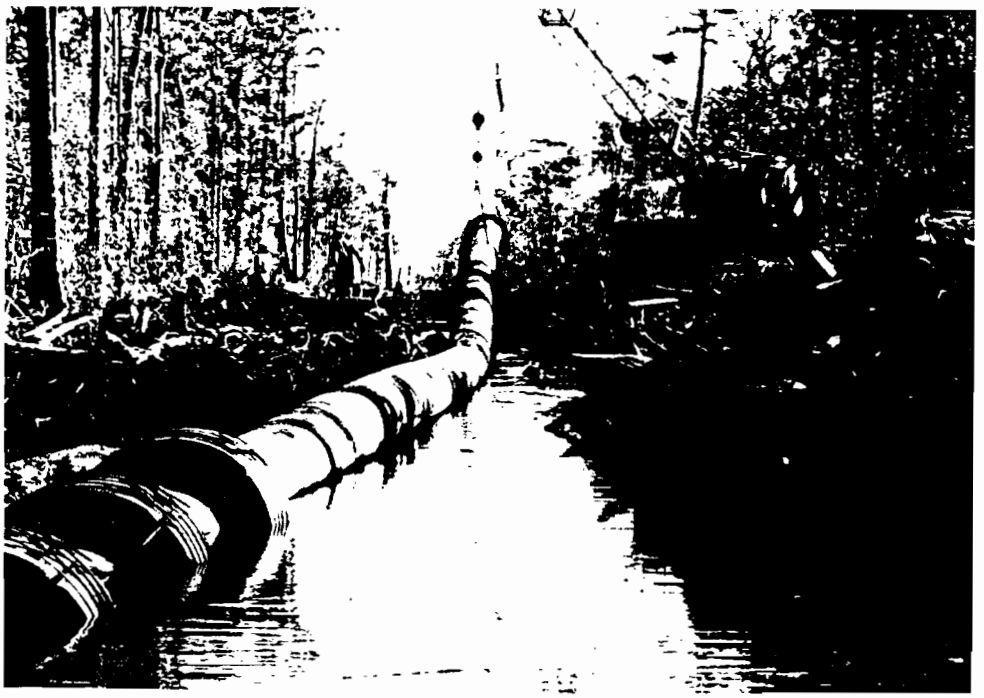
A copy of typical physical properties for Driscopipe 1000 piping systems is available from your Phillips Driscopipe representative.

Chemical Resistance

Driscopipe 1000 pipe has outstanding chemical resistance. Most chemicals, acids, salts and soils will not attack it or cause it to degrade. It does not rust, rot or corrode. It does not promote or support algae or bacterial growth.

Flow Factors

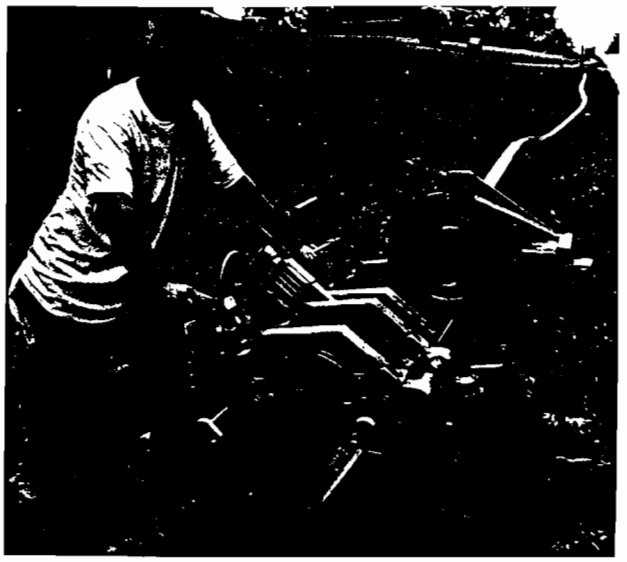
Driscopipe polyethylene pipe has an extremely smooth inside surface. It maintains its excellent flow properties throughout its service life due to its excellent chemical and abrasion resistance. Because of its smooth walls and non-wetting characteristics, a higher flow capacity and a reduced friction loss is possible with Driscopipe pipe resulting in operating cost savings. A "C" factor of 155 is used with the Hazen-Williams equation for pressurized fluid flow and an "n" factor of 0.009 is used with the Manning formula for gravity flow. Flow charts and additional systems design information are available through your Driscopipe representative.



Direct Burial and Sliplining

Driscopipe 1000 piping systems are buried utilizing flexible pipe: soil system design practices. The pipe actually gains strength from the surrounding soil, allowing it to support additional loads. Through proper pipe and backfill selection, Driscopipe may be buried at depths in excess of 100 feet. At normal burial depths, a backfill of 85% of Standard Proctor density (AASHTO-99) can limit the ring deflection of Driscopipe pipe to 2% of the original diameter.

Since Driscopipe pipe can be butt fused above ground in long lengths, narrow trench widths can be used to save on installation costs. Due to the ease of handling Driscopipe, it may be readily placed in the trench, thus necessitating a minimum amount of open trench. Trench and trench bottom, embedment materials, and bedding and installation practices are specified in ASTM D 2321.



Primary Properties – Cell Classification – ASTM D 3350 – 84
345434C

Property	Test Method	0	1	2	3	4	5	6
1 - Density, g/cm	D 1505	—	0.910 – 0.925	0.926 – 0.940	**0.941 – 0.955**	> 0.955		
2 - Melt index-condition E (gms/10 min.)	D 1238	—	>1.0	1.0 to 0.4	< 0.4 to 0.15			
3 - Flexural modulus, MPa (psi)	D 790	—	< 138 (< 20 000)	138 – < 276 (20 000 to < 40 000)	276 – < 552 (40 000 to < 80 000)	552 – < 758 (80 000 to < 110 000	**758 – < 1103 (110 000 to 160 000)**	< 1103 (< 160 000)
4 - Tensile strength at yield, MPa (psi)	D 638	—	< 15 (< 2200)	15 – < 18 (2200 – < 2600)	18 – < 21 (2600 – < 3000)	**21 – < 24 (3000 – < 3500)**	24 – < 28 (3500 – < 4000)	< 28 (> 4000)
5 - Environmental stress crack resistance: a. Test condition b. Test duration, h c. Failure, max %	D 1693	—	 A 48 50	 B 24 50	 **C** **192** **20**			
6 - Hydrostatic design basis, MPa (psi), (23° C)	D 2837	NPR[a]	5.52 (800)	6.89 (1000)	8.62 (1250)	**11.03 (1600)**		

Color and UV Stabilizer

A - Natural
B - Colored
C - Black with 2% minimum carbon black
D - Natural with UV stabilizer
E - Colored with UV

[a]NPR = Not Pressure Rated

Driscopipe pipe may be cold-bent to a minimum radius of 25-40 times to pipe diameter as it is installed, thus eliminating the need for elbows at slight bends. The minimum bending radius that can be applied to the pipe without kinking varies with the diameter and wall thickness ratio of the pipe. If adequate space is not available for the required radius, a fitting of the desired angle may be fused into the piping system to obtain the necessary change in direction.

Technical design brochures and detailed installation brochures are available on request from a Phillips Driscopipe representative.

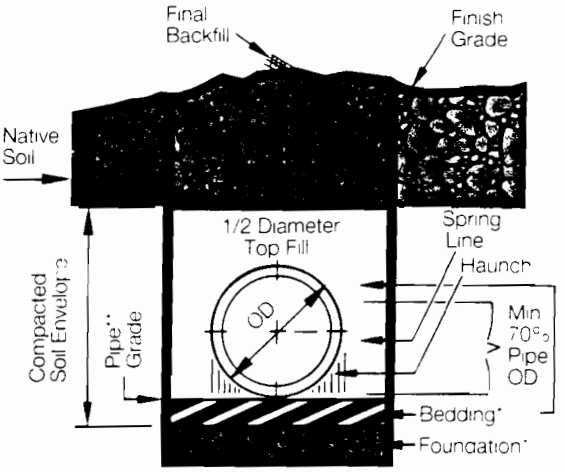
Insert Renewal Installations

Insert renewal, or sliplining, is an effective and economical trenchless technology for rehabilitating a deteriorated pipeline. Installation is simple and fast with a minimum of interruption to the pipeline operation.

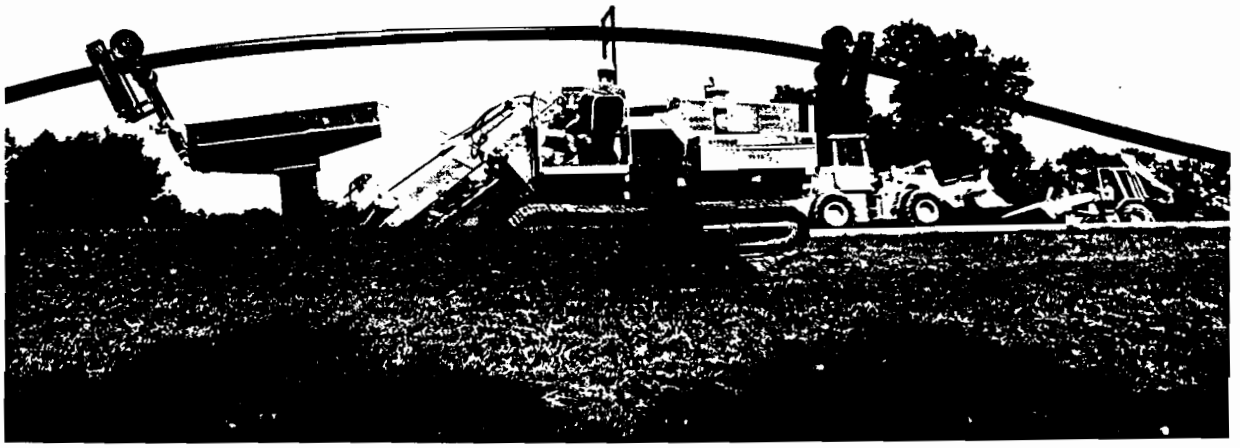
The pipeline to be relined is cleaned of obstructions and debris. A closed circuit TV survey of the clean pipeline is recommended to locate connections and reveal existing defects. After a test run with the pulling head, the liner may be attached, pulled into place and secured. The pulling head may be either a flexible, field fabricated type or a rigid type made of steel that is bolted to the end of the pipe (Ref: Tech Note #19).

Installation procedures for insert renewal are found in ASTM F585 "Insertion of Flexible Polyethylene Pipe into Existing Sewers" and PPI bulletin "Pipeline Rehabilitation with Polyethylene Pipe". Refer to the Driscopipe Systems Design brochure for proper insert renewal design. Ensure that the sliplined pipe is in thermal equilibrium with the ground and sewer before cutting the PE pipe to length in the manhole.

Trench Construction and Terminology



*In suitable soils, the construction of a bedding and or a foundation may not be required.
**Gravity flow Driscopipe sewers may be accurately laid to grade using laser beam scoping



DRISCOPIPE

Ductile PE Pipe

The overall "toughness" of Driscopipe pipe is an important characteristic of the pipe which is derived from many of the chemical and physical properties of the material as well as the extrusion method. The pipe is ductile. It flexes, bends and absorbs impact loads over wide temperature range of -180°F up to +180°F. This inherent resiliency and flexibility allow the pipe to absorb surge pressures, vibration and stresses caused by soil movement. Driscopipe piping systems can be deformed without permanent damage and with no adverse effect on long term service life. It is flexible for contouring to installation conditions. The toughness of Driscopipe pipe is one of its outstanding engineering characteristics leading to innovative piping design.

The expansive force of water freezing inside Driscopipe pipe will not damage it.

Driscopipe 1000 piping systems offer good fatigue service life. No water hammer or fatigue derating factor need be applied to pipe made by Driscopipe.

Tests conducted on pipe systems with pressure in excess of 65 psi have shown that Driscopipe HDPE pipe can be hot tapped.

Driscopipe Systems include:

- A complete range of pipe and fittings sizes and design pressure ratings.
- Trained, qualified distributors.
- Technical service assistance for systems design, installation and on-the-job consultation.
- Readily available installation equipment.
- Continual product research, development and testing.
- Economical product availability through strategically located plants throughout the U.S.
- Quality Assurance.
- Custom design and fabrication of non-standard and special components.

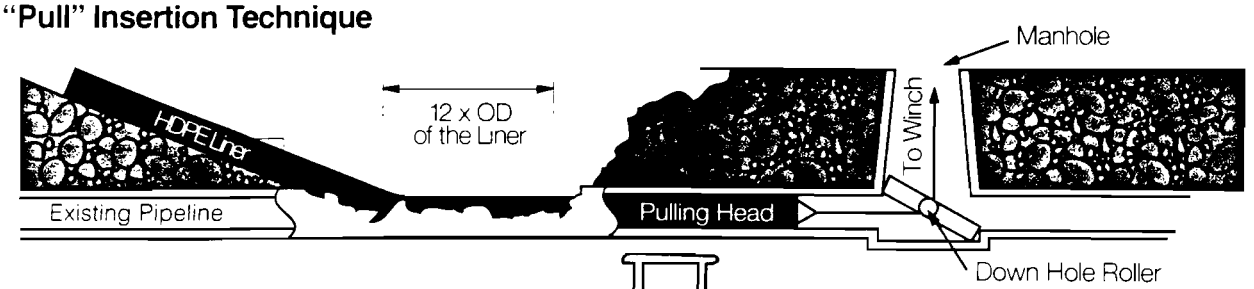
Physical Characteristics

Long Life: According to conservative estimates, Driscopipe pipe will operate in continuous pressure service from 50 to well past 100 years. Samples of long life installations are available upon request.

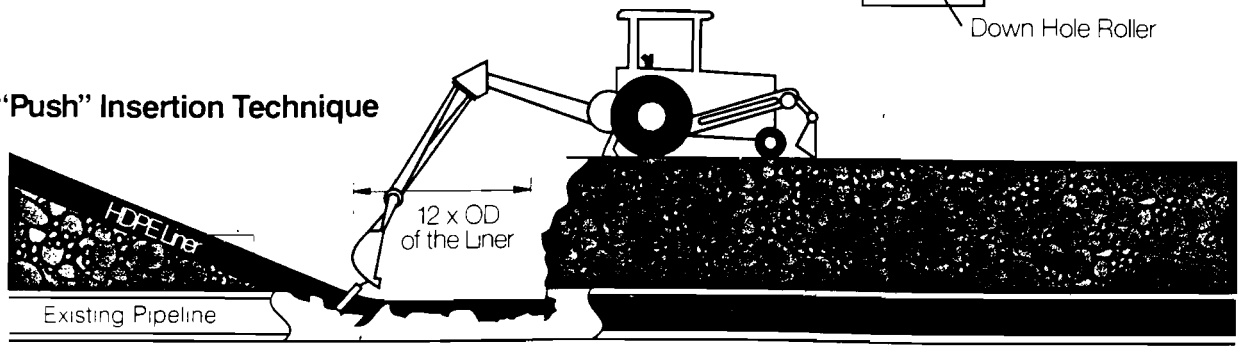
Fatigue Endurance: Driscopipe piping systems provide exceptional endurance with the ability to sustain hydraulic transients and water hammer pressure surges.

High Chemical Resistance: Driscopipe pipe is immune to sewer gasses and virtually all industrial and municipal chemicals and sewage. Hot active

"Pull" Insertion Technique



"Push" Insertion Technique



A Driscopipe representative can advise you on sizing your liner for external water head and other factors. Design brochures and reprints of ASTM F 585-78 "Insertion of Flexible Polyethylene Pipe into Existing Sewers" are available on request.

soils will not affect Driscopipe. It will not rust, rot, pit, corrode, degrade or age.

Joint Integrity: Driscopipe pipe can be hydrostatically tested to 1 1/2 times its designed pressure rating. All joints of butt-fused Driscopipe are welded together to provide a continuous, non-gasketed pipeline which eliminates infiltration and exfiltration. Restrained joints are not required. Driscopipe also accommodates earth shifts and live loads from surface traffic without separation. Today, millions of butt-fused joints connect Driscopipe sections used in the transport of hazardous, explosive natural gas.

Toughness/Durability: Driscopipe pipe will not break in heat or cold. Its impact resistance (ESCR), slow crack growth resistance and service life prove it is the toughest pipe available for the toughest applications.

Lightweight/Flexible: With Driscopipe pipe, fewer fittings are required and equipment handling requirements are significantly reduced.

Abrasion Resistant: During its lifetime, a force main will acquire a great amount of grit, sand and other debris. Driscopipe has outperformed conventional piping materials by ratios of more than four to one in sliding abrasion applications.

Low Maintenance: A Driscopipe piping system force main pays for itself quickly because of lower energy costs, pipe longevity and overall reduced maintenance. In the gas industry, Driscopipe HDPE pipe continues to show the lowest level of service interruption.

Reliability: Whether for gas distribution, water distribution or sewers, Driscopipe pipe is recognized worldwide as the preferred material for maximum reliability and years of efficient service.

Ease of Installation: Driscopipe pipe offers the following advantages as part of the installation process...lighter equipment needed, smaller crews, ordinary "bedding" requirements, faster hydro test certification, standard IPS valves and flanges. These benefits result in lower installation costs and a reduced number of fittings, with no restrained joints.

Temperature Range

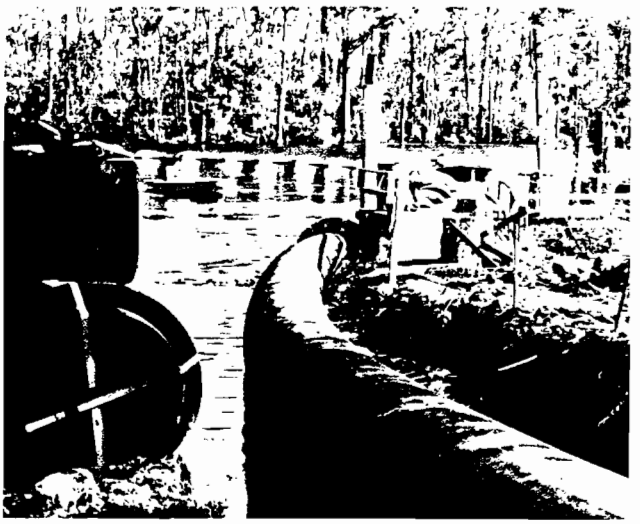
Driscopipe 1000 piping systems may be used in pressure applications up to an operating temperature of 140°F. Short term and gravity flow applications operating at high temperatures are considered. At lower temperatures, tests have been conducted on Driscopipe 1000 pipe showing that it gains strength at sub-zero temperatures. Driscopipe 1000 maintains its flexibility and integrity to lower than -180°F.

The pressure capabilities of polyethylene materials are rerated for operating temperatures other than 73.4°F. Driscopipe 1000 has been tested for thousands of hours at elevated temperatures without thermal degradation. These tests are used to obtain the pressure rerating factors.

Temperature, Degrees F	Pressure Rerating Factor
50	1.14
73.4	1.00
100	0.79
140	0.50

Joining System

Driscopipe pipe is joined by the butt fusion technique. This simple, visual procedure utilizes controlled temperatures and pressure to produce a fused, leak-free joint that is stronger than the pipe itself in both tension and hydrostatic loading. Pioneered and developed by Phillips, the butt fusion joint is recognized in the industry as a joining system of high integrity and reliability. Driscopipe pipe may also be joined to itself, and transitioned to other materials with flanges, compression couplings and other mechanical means.



DRISCOPIPE.

Phillips Driscopipe, Inc.
A Subsidiary of Phillips Petroleum Company

To request additional product literature only:

Phone:
214-783-2690

To place an order, verify the status of an order or request contact by a sales representative:

Mail:
Attn: Customer Service Department
P.O. Box 83-3866
2929 North Central Expressway
Suite 300
Richardson, Texas 75083-3866 USA

Phone:
U.S. Domestic Toll Free 800-527-0662

Fax:
214-783-2689

Plant Locations:
Watsonville, CA; Pryor, OK; Williamstown, KY; Brownwood, TX; Slartex, SC, Carrollton, TX

[illegible] Phillips Petroleum Company, and its [illegible]

FIFE PIPE
P.O. Box 760
19 Bonazzoli Ave. • Suite 3
Hudson, MA 01749
Phone: (508) 568-0207
Fax: (508) 568-1266

APPLICATION SPECIFIC PIPE SYSTEMS

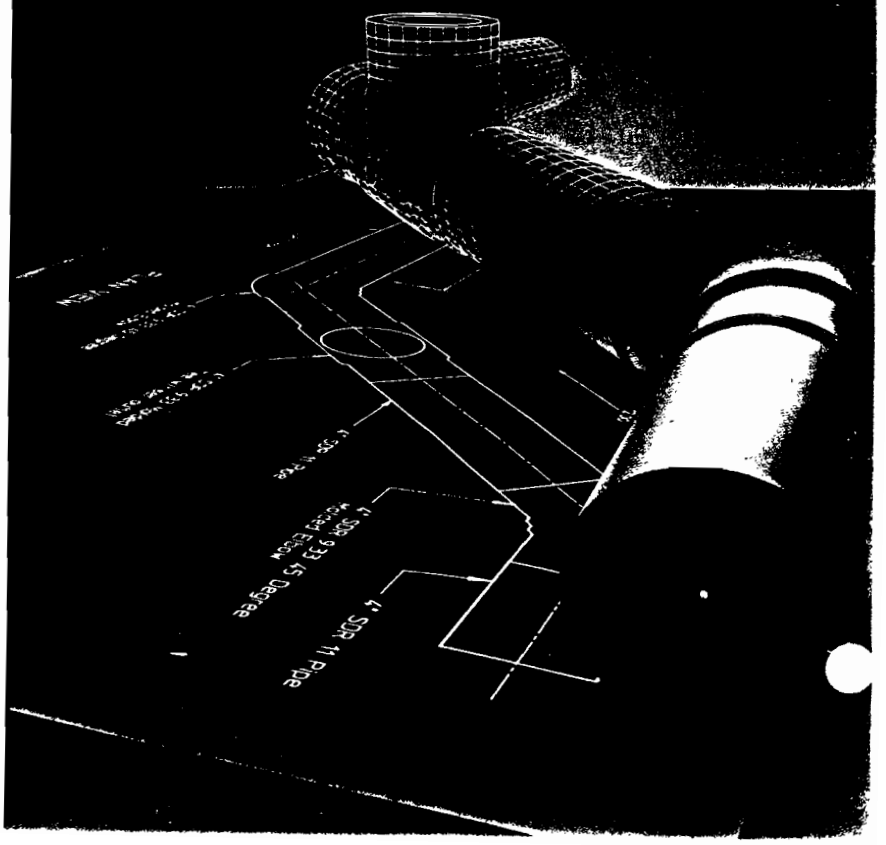
LASTING SOLUTIONS FOR YOUR DESIGNS

When long-lasting, cost-effective solutions to pipe and fitting needs are crucial, rely on the premium pipe and fittings supplier – Phillips Driscopipe, Inc. Driscopipe® systems combine high quality Marlex® Polyethylene resin and innovative technology to provide you with a system that offers:

- *Chemical and environmental stress resistance.*
- *Excellent strength.*
- *A unique joining system.*
- *Flexibility.*

Phillips Driscopipe offers other Application Specific Pipe Systems for your pipe and fitting solutions including: Driscopipe® Permacore®.
For more information, call toll free ***1-800-527-0662.***

DRISCOPIPE®
APPLICATION SPECIFIC PIPE SYSTEMS



Chemical Corrosion Resistance

The outstanding resistance of Driscopipe to attack by most chemicals makes it suitable to transport these chemicals or to be installed in an environment where these chemicals are present. Factors which determine the suitability and service life of each particular application include the specific chemical and its concentration, pressure, temperature, period of contact and service conditions which may introduce stress concentrations in the pipe or fittings

Driscopipe is, for all practical purposes, chemically inert within its temperature use range. This advantageous engineering characteristic is one of the primary reasons for the wide use of Driscopipe in industrial applications. It does not rot, rust, pit, corrode or lose wall thickness through chemical or electrical reaction with the surrounding soil, whether acid, alkaline, wet or dry. It neither supports the growth of, nor is affected by, algae, bacteria or fungi and is resistant to marine biological attack. It contains no ingredients which make it attractive to rodents, gophers, etc.

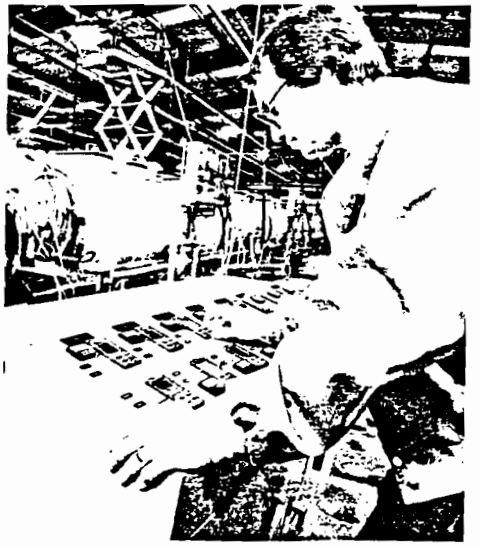
Information relative to the resistance of Driscopipe to a wide range of chemicals is shown in the following tables. This information is based on results of immersion tests (usually 3 months) at various temperatures. Changes in tensile strength and elongation are evaluated at a rapid strain rate to emphasize any strength decay in the material.

Most acids, bases and other chemicals can be transported by Driscopipe using the same design parameters as would apply to water, natural or manufactured gas and water solutions of inorganic salts. Strong oxidizing agents such as fuming sulfuric acid may adversely affect the pipe, depending upon concentration, temperature and period of contact. In many cases, such as gravity flow waste lines, these chemicals can be handled because of dilution and intermittent flow.

Some chemicals, such as all types of liquid hydrocarbons, will mechanically absorb into the wall of the pipe and cause a reduction in hoop stress but this does not degrade the material. This effect is temporary if exposure is intermittent. Where exposure is continuous, it is necessary to derate the pressure capability of the pipe for long term service. This includes such products as gasoline, ethyl alcohol, benzene, carbon tetrachloride, crude and refined oils, etc. Where 5-100% hydrocarbon liquids are continuously present in a pressure system, a service design factor of .25 should be used to calculate design pressures instead of the service design factor of .5 used with water

$$P = \frac{2S}{SDR - 1} \times F \quad \text{or} \quad P = 2S\frac{t}{D - t} \times F$$

Where:
- D = Outside Diameter, Inches
- P = Design Pressure, psi
- S = Long Term Hydrostatic Strength, psi, at the design temperature
- t = Minimum Wall Thickness, Inches
- F = Service Design Factor
- SDR = Standard Dimension Ratio of D ÷ t



CHEMICAL RESISTANCE OF DRISCOPIPE

S – Satisfactory
U – Unsatisfactory
M – Marginal
N – Not known

All concentrations are 100% unless noted otherwise.

On reagents marked marginal, chemical attack will be recognized by a loss of physical properties of the pipe which may require a change in design factors.

Reagent	70°F (21°C)	140°F (60°C)
Acetic Acid 1-10%	S	S
Acetic Acid 10-60%	S	M
Acetic Acid 80-100%	S	M
Acetone	M	U
Acrylic Emulsions	S	S
Aluminum Chloride-Dilute	S	S
Aluminum Chloride Conc.	S	S
Aluminum Fluoride Conc.	S	S
Aluminum Sulfate Conc.	S	S
Alums (All Types) Conc.	S	S
Ammonia 100% Dry Gas	S	S
Ammonium Carbonate	S	S
Ammonium Chloride Sat'd	S	S
Ammonium Fluoride 20%	S	S
Ammonium Hydroxide 0.88 S.G.	S	S
Ammonium Metaphosphate Sat'd	S	S
Ammonium Nitrate Sat'd	S	S
Ammonium Persulfate Sat'd	S	S
Ammonium Sulfate Sat'd	S	S
Ammonium Sulfide Sat'd	S	S
Ammonium Thiocyanate Sat'd	S	S
Amyl Acetate	M	U
Amyl Alcohol 100%	S	S
Amyl Chloride 100%	N	U
Aniline 100%	S	N
Antimony Chloride	S	S
Aqua Regia	U	U
Barium Carbonate Sat'd	S	S
Barium Chloride	S	S
Barium Hydroxide	S	S
Barium Sulfate Sat'd	S	S
Barium Sulfide Sat'd	S	S
Beer	S	S
Benzene	M	U
Benzene Sulfonic Acid	S	S
Bismuth Carbonate Sat'd	S	S
Bleach Lye 10%	S	S
Black Liquor	S	S
Borax Cold Sat'd	S	S
Boric Acid Dilute	S	S
Boric Acid Conc.	S	S
Bromic Acid 10%	S	S
Bromine Liquid 100%	M	U
Butanediol 10%	S	S
Butanediol 60%	S	S
Butanediol 100%	S	S
Butyl Alcohol 100%	S	S
Calcium Bisulfide	S	S
Calcium Carbonate Sat'd	S	S
Calcium Chlorate Sat'd	S	S
Calcium Chloride Sat'd	S	S
Calcium Hydroxide	S	S
Calcium Hypochlorite BL'GH Sol.	S	S
Calcium Nitrate 50%	S	S
Calcium Sulfate	S	S
Camphor Oil	N	U
Carbon Dioxide 100% Dry	S	S
Carbon Dioxide 100% Wet	S	S
Carbon Dioxide Cold Sat'd	S	S
Carbon Disulfide	N	U
Carbon Monoxide	S	S
Carbon Tetrachloride	M	U
Carbonic Acid	S	S
Castor Oil Conc.	S	S
Chlorine Dry Gas 100%	S	M
Chlorine Moist Gas	M	U
Chlorine Liquid	M	U
Chlorobenzene	M	U
Chloroform	M	U
Chlorosulfonic Acid 100%	M	U
Chrome Alum Sat'd	S	S
Chromic Acid 20%	S	S
Chromic Acid Up to 50%	S	S
Chromic Acid and Sulfuric Acid	S	M
Cider	S	S
Citric Acid Sat'd	S	S
Coconut Oil Alcohols	S	S
Cola Concentrates	S	S
Copper Chloride Sat'd	S	S
Copper Cyanide Sat'd	S	S
Copper Fluoride 2%	S	S
Copper Nitrate Sat'd	S	S
Copper Sulfate Dilute	S	S
Copper Sulfate Sat'd	S	S
Cottonseed Oil	S	S
Crude Oil*	S	M
Cuprous Chloride Sat'd	S	S
Cychohexanol	S	S
Cyclohexanone	M	U
Detergents Synthetic	S	S
Developers, Photographic	S	S
Dextrin Sat'd	S	S
Dextrose Sat'd	S	S
Dibutylphthalate	S	M
Disodium Phosphate	S	S
Diazo Salts	S	S
Diethylene Glycol	S	S
Diglycolic Acid	S	S
Dimethylamine	M	U
Emulsions, Photographic	S	S
Ethyl Acetate 100%	M	U
Ethyl Alcohol 100%	S	S
Ethyl Alcohol 35%	S	S
Ethyl Butyrate	M	U
Ethyl Chloride	M	U
Ethyl Ether	U	U
Ethylene Chloride	U	U
Ethylene Chlorohydrin	U	U
Ethylene Dichloride	M	U
Ethylene Glycol	S	S
Ferric Chloride Sat'd	S	S
Ferric Nitrate Sat'd	S	S
Ferrous Chloride Sat'd	S	S
Ferrous Sulfate	S	S
Fish Solubles	S	S
Fluoboric Acid	S	S
Fluorine	S	U
Fluosilicic Acid 32%	S	S
Fluosilicic Acid Conc.	S	S
Formaldehyde 40%	S	N
Formic Acid 0-20%	S	S
Formic Acid 20-50%	S	S
Formic Acid 100%	S	S
Fructose Sat'd	S	S
Fruit Pulp	S	S
Fuel Oil	S	U
Furfural 100%	M	U
Furfuryl Alcohol	M	U
Gallic Acid Sat'd	S	S
Gas Liquids*	S	M
Gasoline*	M	U
Gin	S	U
Glucose	S	S
Glycerine	S	S
Glycol	S	S
Glycolic Acid 30%	S	S
Grape Sugar Sat'd Aq.	S	S
Hexanol, Tert.	S	S
Hydrobromic Acid 50%	S	S
Hydrocyanic Acid Sat'd	S	S
Hydrochloric Acid 10%	S	S
Hydrochloric Acid 30%	S	S
Hydrochloric Acid 35%	S	S
Hydrochloric Acid Conc.	S	S
Hydrofluoric Acid 40%	S	S
Hydrofluoric Acid 60%	S	S
Hydrofluoric Acid 75%	S	S
Hydrogen 100%	S	S
Hydrogen Bromide 10%	S	S
Hydrogen Chloride Gas Dry	S	S

*HDPE Resin Service Design Factor for hydrocarbons per the formula on page 3 and 8 is F = 0.25

continued from page 9

CHEMICAL RESISTANCE OF DRISCOPIPE

Reagent	70°F (21°C)	140°F (60°C)
Hydrogen Peroxide 30%	S	S
Hydrogen Peroxide 90%	S	M
Hydrogen Phosphide 100%	S	S
Hydroquinone	S	S
Hydrogen Sulfide	S	S
Hypochlorus Acid Conc.	S	S
Inks	S	S
Iodine (Alc. Sol.) Conc.	S	U
Lactic Acid 10%	S	S
Lactic Acid 90%	S	S
Latex	S	S
Lead Acetate Sat'd	S	S
Lube Oil*	S	M
Magnesium Carbonate Sat'd	S	S
Magnesium Chloride Sat'd	S	S
Magnesium Hydroxide Sat'd	S	S
Magnesium Nitrate Sat'd	S	S
Magnesium Sulfate Sat'd	S	S
Mercuric Chloride Sat'd	S	S
Mercuric Cyanide Sat'd	S	S
Mercurous Nitrate Sat'd	S	S
Mercury	S	S
Methyl Alcohol 100%	S	S
Methyl Bromide	M	U
Methyl Chloride	M	U
Methyl Ethyl Ketone 100%	M	U
Methylsulfuric Acid	S	S
Methylene Chloride 100%	M	U
Milk	S	S
Mineral Oils	S	U
Molasses Comm.	S	S
Nickel Chloride Sat'd	S	S
Nickel Nitrate Conc.	S	S
Nickel Sulfate Sat'd	S	S
Nicotine Dilute	S	S
Nicotinic Acid	S	S
Nitric Acid 0-30%	S	S
Nitric Acid 30-50%	S	M
Nitric Acid 70%	S	M
Nitric Acid 95-98%	U	U
Nitrobenzene 100%	U	U
Octyl Cresol	S	U
Oils and Fats*	S	M
Oleic Acid Conc.	S	U
Oleum Conc.	U	U
Orange Extract	S	S
Oxalic Acid Dilute	S	S
Oxalic Acid Sat'd	S	S
Ozone 100%	S	U
Perchloric Acid 10%	S	S
Petroleum Ether	U	U
Phenol 90%	U	U
Phosphoric Acid Up to 30%	S	S
Phosphoric Acid Over 30%	S	S
Phosphoric Acid 90%	S	S
Phosphorous (Yellow) 100%	S	N
Phosphorus Pentoxide 100%	S	N
Photographic Solutions	S	S
Pickling Baths		
Sulfuric Acid	S	S
Hydrochloric Acid	S	S
Sulfuric-Nitric	S	U
Plating Solutions		
Brass	S	S
Cadmium	S	S
Chromium	N	N
Copper	S	S
Gold	S	S
Indium	S	S
Lead	S	S
Nickel	S	S
Rhodium	S	S
Silver	S	S
Tin	S	S
Zinc	S	S
Potassium Bicarbonate Sat'd	S	S
Potassium Borate 1%	S	S
Potassium Bromate 10%	S	S
Potassium Bromide Sat'd	S	S
Potassium Carbonate	S	S
Potassium Chlorate Sat'd	S	S
Potassium Chloride Sat'd	S	S
Potassium Chromate 40%	S	S
Potassium Cyanide Sat'd	S	S
Potassium Dichromate 40%	S	S
Potassium Ferri/ Ferro Cyanide Sat'd	S	S
Potassium Fluoride	S	S
Potassium Hydroxide 20%	S	S
Potassium Hydroxide Conc.	S	S
Potassium Nitrate Sat'd	S	S
Potassium Perborate Sat'd	S	S
Potassium Perchlorate 10%	S	S
Potassium Sulfate Conc.	S	S
Potassium Sulfide Conc.	S	S
Potassium Sulfite Conc.	S	S
Potassium Persulfate Sat'd	S	S
Propargyl Alcohol	S	S
Propyl Alcohol	S	S
Propylene Dichloride 100%	U	U
Propylene Glycol	S	S
Rayon Coagulating Bath	S	S
Sea Water	S	S
Selenic Acid	S	S
Shortening	S	S
Silicic Acid	S	S
Silver Nitrate Sol.	S	S
Soap Solution Any Conc'n	S	S
Sodium Acetate Sat'd	S	S
Sodium Benzoate 35%	S	S
Sodium Bicarbonate Sat'd	S	S
Sodium Bisulfate Sat'd	S	S
Sodium Bisulfite Sat'd	S	S
Sodium Borate	S	S
Sodium Bromide Dilute Sol.	S	S
Sodium Carbonate Con.	S	S
Sodium Carbonate	S	S
Sodium Chlorate Sat'd.	S	S
Sodium Chloride Sat'd	S	S
Sodium Cyanide	S	S
Sodium Dichromate Sat'd	S	S
Sodium Ferricyanide	S	S
Sodium Ferrocyanide Sat'd	S	S
Sodium Fluoride Sat'd	S	S
Sodium Hydroxide Conc.	S	S
Sodium Hypochlorite	S	S
Sodium Nitrate	S	S
Sodium Sulfate	S	S
Sodium Sulfide 25%	S	S
Sodium Sulfide Sat'd Sol.	S	S
Sodium Sulfite Sat'd	S	S
Stannous Chloride Sat'd	S	S
Stannic Chloride Sat'd	S	S
Starch Solution Sat'd	S	S
Stearic Acid 100%	S	S
Sulfuric Acid 0-50%	S	S
Sulfuric Acid 70%	S	M
Sulfuric Acid 80%	S	U
Sulfuric Acid 96%	M	U
Sulfuric Acid 98%	M	U
Sulfuric Acid, Fuming	U	U
Sulfurous Acid	S	S
Tallow*	S	M
Tannic Acid 10%	S	S
Tanning Extracts Comm.	S	S
Tartaric Acid Sat'd	N	N
Tetrahydrofurane	N	U
Titanium Tetrachloride Sat'd	N	U
Toluene	M	U
Transformer Oil	S	M
Trisodium Phosphate Sat'd	S	S
Trichloroethylene	U	U
Urea Up to 30%	S	S
Urine	S	S
Vinegar Comm	S	S
Vanilla Extract	S	S
Wetting Agents	S	S
Whiskey	S	N
Wines	S	S
Xylene	M	U
Yeast	S	S
Zinc Chloride Sat'd	S	S
Zinc Sulfate Sat'd	S	S

For additional chemical resistance listings, consult the P.P.I. technical report #TR 19/10-84, Table I and the ISO technical report #ISO/Data 8-1979, Tables I, II, III.

DRISCOPIPE

Driscopipe® 1000 series

Data Sheet

Customer Benefits

High quality Driscopipe® 1000 is manufactured from extra high molecular weight, high density PE3408 polyethylene pipe grade resin.

This black, weather-resistant pipe exhibits . . . .

- Outstanding Chemical & Corrosion Resistance
- High Environmental Stress Cracking Resistance
- Improved Flow Characteristics
- Toughness & Ductility
- Flexibility with lightweight
- Non-Toxic
- Abrasion Endurance
- Fatigue Endurance
- Long-term Hydrostatic Strength / Physical strength
- Reliability

Suggested Industries & Applications

- Industrial Water Distribution
- Agriculture
- Landfills
- Marine
- Pollution Control
- Pulp / paper / wood
- Power Plants
- Petrochemical
- Mining / Mineral Processing
- Dredging / sand / gravel
- Organic Chemicals
- Inorganic Chemicals
- Aquaculture
- Hazardous Waste
- Local / State / Federal Gov'ts.
- Cement Plants
- Irrigation
- Municipal
- Gravity sewers
- Forced main sewers
- Water distribution
- Sewer treatment
- Sludge handling
- Leachate collection
- Dual Containment
- Brine
- Fertilizer
- Acid / Caustic lines
- Utility / Process piping
- Slurry
- SX acid mining
- Tailings disposal
- Marinas
- Snow melting / making
- Hard rock mining
- Coal Slurry / Processing
- Dredging
- Water intakes
- Water outfalls
- Fire-water
- De-Watering
- Fly-Ash disposal
- Temporary pipelines
- Cable Stayed Bridges
- Golf course irrigation
- Farmland irrigation
- Swimming pools
- Ice rinks
- . . . . and many others

Available in sizes
1" thru 54"

Specification Data

The resin, pipe & fittings comply with these accepted (and other) industry standards . . . .

ASTM F-714 - Pipe Standard

ASTM D3261 - Fittings Standard

Cell Classification - ASTM D3350 - PE345434C

ASTM D1248 - Type III, Class C Category 5, Grade P34

EPA 9090 ISO #161

PPI Designation - PE3408

NSF - Listed, Standard #14 (by size,per order) NSF

Factory Mutual (by size, per order) ◀ FM ▶

CGSB41 - GP-25M-Pipe Standard

AWWA C906 – 4"–63" Potable Water Trans. & Distr. HDPE Pipe

AWWA C901 - Potable Water Pipe & Tubing

American Water Works Association

Printed: 9-93

DRISCOPIPE **1000 series**

Typical Physical Properties⊕

Property		Specification	Unit	Nominal Value
Material Designation		PPI / ASTM		PE 3408
Material Classification		ASTM D-1248		III C 5 P34
Cell Classification		ASTM D-3350		3 4 5 4 3 4 C
Density	(3)	ASTM D-1505	gm/cm^3	0.955
Melt Index	(4)	ASTM D-1238 (216 kg/190°C)	gm/10 min.	0.11 ♦
Flex Modus	(5)	ASTM D-790	psi	135,000
Tensile Strength	(4)	ASTM D-638	psi	3,200
ESCR	(3)	ASTM D-1693	F_o, Hours	> 5,000**
HDB @73° F	(4)	ASTM D-2837	psi	1,600
U-V Stabilizer	(C)	ASTM D-1603	% C	2.5
Hardness		ASTM D-2240	Shore "D"	65
Compressive Strength (yield)		ASTM D-695	psi	1,600
Tensile Strength @ Yield (Type IV Spec.)		ASTM D-638 (2" / min.)	psi	3,200
Elongation @ Yield		ASTM D-638	%, minimum	8
Tensile Strength @ Break (Type IV Spec.)		ASTM D-638	psi	5,000
Elongation @ Break		ASTM D-638	%, minimum	750
Modulus of Elasticity		ASTM D-638	psi	130,000
ESCR				
(Cond. A,B,C: Mold. Slab)		ASTM D-1693	F_o, Hours	> 5,000
(Compressed Ring - pipe)		ASTM F-1248	F_o, Hours	> 3,500
Slow Crack Growth		Battelle Method	Days to Failure	> 64
Impact Strength (IZOD) (.125" Thick)		ASTM D-256 (Method A)	In-lb / in notch	42
Linear Thermal Expansion Coef.		ASTM D-696	in / in /°F	1.2×10^{-4}
Thermal Conductivity		ASTM D-177	$BTU\text{-}in/ft^2/hrs/°F$	2.7
Brittleness Temp.		ASTM D-746	° F	< -180
Vicat Soft. Temp.		ASTM D-1525	° F	257
Heat Fusion Cond.			psi @ ° F	75 @ 400

⊕ This list of typical physical properties is intended for basic characterization of the material and does not represent specfic determinations of specifications. The physical properties values reported herein were determined on compression molded specimens prepared in accordance with Procedure C of ASTM D 1928 and may differ from specimens taken from pipe.

** Tests were discontinued because no failures and no indication of stress crack initiation.

♦ Average Melt Index value with a standard deviation of 0.01

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Phone: 1-800-527-0662
Phone: 1-214-783-2666
Fax: 1-214-783-2689

DRISCOPIPE
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Effective: 9-93

DRISCOPIPE

Technical Considerations

Pressure Rating

All molded fittings and reducers, flange adapters, stub ends, branch saddles, branch saddle reducing tees, and transition fittings are fully pressure rated to match the pipe SDR pressure rating to which they are made. The shape of fabricated fittings are substantially different than the shape of straight pipe. As a result, stresses imposed on fabricated fittings are higher than those imposed on pipe. Therefore, it is recommended that the pressure rating of fabricated **ells**, **wyes** and **tees** be re-rated to approximately 75% of the pressure rating of the pipe used to fabricate the fitting. If the full pressure rating of the pipe is required, *Phillips Driscopipe* recommends using a heavier wall fitting (25%) where available. As an alternate measure, when properly designed concrete encasement or other external reinforcement is used on **ells**, **wyes** and **tees**, the pressure rating can be increased to the working pressure of the pipe from which it is fabricated. Specific recommendations for concrete encasement are shown in the *Driscopipe® Systems Installation* brochure.

Installation Precautions

Driscopipe® fabricated tees, elbows and wyes are made by butt fusing or sidewall fusing together special cut segments of Driscopipe® pipe to obtain the desired fitting. The configuration of these fittingss, and the fact that they are fabricated rather than molded, requires that certain precautions be taken when installing them into a piping system.

The installation procedures should provide the least possible amount of lifting and moving of the assembled pipe and fabricated fittings. If it becomes necessary to pull the assembly along side the ditch to properly position it, the fabricated fitting should never be used as the point of attachment for the pulling.

The fusion joining of a fabricated tee and wye into a system becomes complicated because of the third side. It is not too difficult to keep strain off the fitting when fusing pipe to the running side of the tee and lifting and lowering this much of the assembly into position in a ditch. It is when sufficient pipe is added to the third (branch) side to permit the laying of pipe in this direction, that the assembly becomes very difficult to handle. Final handling and positioning of these assemblies requires extra handling equipment and additional precautions to prevent damage to the fabricated fitting.

Recommended Alternate Method: The need for extra equipment and much of the possibility of damage can be eliminated by altering the method of installing the fabricated tee and wye to include the use of a flanged connection on the branch side. This will allow final positioning to take place before the branch side is connected. There will be some instances where it will prove very advantageous from an installation viewpoint to use flanged connections on two sides of a tee or wye and also one side of the elbow. This allows the pipe to be laid from either direction, pushed or pulled into tight locations, rolled into the ditch, and generally handled much easier and faster...before the final connection is made at the tee,wye, or elbow. From the standpoint of economy, speed and ease of installation, and eliminate the occurrence of excessive installation stresses of fabricated fittings, it is recommended that flanged connections always be used on the branch side of tees and wyes and on one end of elbows for larger diameter pipes.

- Driscopipe® 1000/6400 Molded fittings are made from the same resin as the Driscopipe® 1000 & 6400 series pipe.

Molded fittings do not form exact true angles. Due to stresses in the material during the molding and cooling cycles, and the post machining operations required on some of these fittings, angles can deviate approximately 2-3 degrees from true.

- Driscopipe® Fabricated fittings are manufactured from Driscopipe® 1000 & 6400 piping systems. Fabricated ells, wyes and tees are made by butt fusing together mitre cut segments of pipe to obtain the desired shape.

Fabricated elbows: Due to the nature of polyethylene and the mitered fusion process, the tolerance is generally plus or minus one degree per segment. The broad tolerance typically causes no installation problems due to the flexibility of polyethylene.

- Driscopipe® special fittings are custom designed for your specific application through your Phillips Driscopipe, Inc. representative.

PHILLIPS
66
DRISCOPIPE
The
Polyethylene
Pipe
People

3/4" (1.050 OD)				
SDR 11	160 psi	0.12 lbs./ft.	0.860 ID	.095 wall

1" (1.315 OD)				
SDR 11	160 psi	0.19 lbs./ft.	1.075 ID	.120 wall

1-1/4" (1.660 OD)				
SDR 11	160 psi	0.31 lbs./ft.	1.358 ID	.151 wall

1-1/2" (1.900 OD)				
SDR 11	160 psi	0.41 lbs./ft.	1.554 ID	.173 wall

2" (2.375 OD)				
SDR 7	267 psi	0.94 lbs/ft	1.697 ID	.339 wall
SDR 9	200 psi	0.76	1.847	.264
SDR 11 ●	**160 psi**	**0.64**	**1.943**	**.216**
SDR 13.5	128 psi	0.53	2.023	.176
SDR 15.5	110 psi	0.47	2.069	.153
SDR 17	100 psi	0.43	2.095	.140

3" (3.500 OD)				
SDR 7	267 psi	2.05 lbs/ft.	2.500 ID	.500 wall
SDR 9	200 psi	1.66	2.722	.389
SDR 11 ●	**160 psi**	**1.39**	**2.864**	**.318**
SDR 13.5	128 psi	1.15	2.982	.259
SDR 15.5	110 psi	1.02	3.048	.226
SDR 17 ●	**100 psi**	**0.93**	**3.088**	**.206**
SDR 19	89 psi	0.84	3.132	.184
SDR 21	80 psi	0.77	3.166	.167
SDR 26	64 psi	0.62	3.230	.135
SDR 32.5	51 psi	0.50	3.284	.108

4" (4.500 OD)				
SDR 7	267 psi	3.39 lbs/ft.	3.214 ID	.643 wall
SDR 9	200 psi	2.74	3.500	.500
SDR 11 ●	**160 psi**	**2.29**	**3.682**	**.409**
SDR 13.3	128 psi	1.90	3.834	.333
SDR 15.5 ●	**110 psi**	**1.68**	**3.020**	**.290**
SDR 17 ●	**100 psi**	**1.54**	**3.970**	**.265**
SDR 19	89 psi	1.39	4.026	.237
SDR 21	80 psi	1.26	4.072	.214
SDR 26 ●	**64 psi**	**1.03**	**4.154**	**.173**
SDR 32.5	51 psi	0.83	4.224	.138

5-3/8" (5.375 OD)				
SDR 17	100 psi	2.20 lbs./ft.	4.743 ID	.316 wall
SDR 21	80 psi	1.80	4.863	.256
SDR 26	64 psi	1.47	4.961	.207
SDR 32.5	51 psi	1.18	5.045	.165

5" (5.563 OD)				
SDR 7	267 psi	5.17 lbs/ft.	3.973 ID	.795 wall
SDR 9	200 psi	4.18	4.327	.618
SDR 11	160 psi	3.51	4.551	.506
SDR 13.5	128 psi	2.91	4.739	.412
SDR 15.5	110 psi	2.57	4.845	.359
SDR 17	100 psi	2.35	4.909	.327
SDR 19	89 psi	2.12	4.977	.293
SDR 21	80 psi	1.93	5.033	.265
SDR 26	64 psi	1.57	5.135	.214
SDR 32.5	51 psi	1.27	5.221	.171

6" (6.625 OD)				
SDR 7	267 psi	7.33 lbs./ft.	4.733 ID	.946 wall
SDR 9	200 psi	5.93	5.153	.736
SDR 11 ●	**160 psi**	**4.97**	**5.421**	**.602**
SDR 13.5	128 psi	4.13	5.643	.491
SDR 15.5	110 psi	3.63	5.771	.427
SDR 17 ●	**100 psi**	**3.34**	**5.845**	**.390**
SDR 19	89 psi	3.01	5.927	.349
SDR 21 ●	**80 psi**	**2.73**	**5.995**	**.315**
SDR 26 ●	**64 psi**	**2.23**	**6.115**	**.255**
SDR 32.5 ●	**51 psi**	**1.80**	**6.217**	**.204**

7" (7.125 OD)				
SDR 7	267 psi	8.49 lbs./ft.	5.089 ID	1.018 wall
SDR 9	200 psi	6.86	5.541	.792
SDR 11	160 psi	5.75	5.829	.648
SDR 13.5	128 psi	4.78	6.069	.528
SDR 15.5	110 psi	4.21	6.205	.460
SDR 17	100 psi	3.86	6.287	.419
SDR 19	89 psi	3.48	6.375	.375
SDR 21	80 psi	3.16	6.445	.340
SDR 26 ●	**64 psi**	**2.58**	**6.577**	**.274**
SDR 32.5	51 psi	2.08	6.685	.220

8" (8.625 OD)				
SDR 7	267 psi	12.43 lbs./ft.	6.161 ID	1.232 wall
SDR 9	200 psi	10.05	6.709	.958
SDR 11 ●	**160 psi**	**8.42**	**7.057**	**.764**
SDR 13.5	128 psi	7.00	7.347	.639
SDR 15.5	110 psi	6.16	7.513	.556
SDR 17 ●	**100 psi**	**5.65**	**7.611**	**.507**
SDR 19	89 psi	5.10	7.717	.454
SDR 21 ●	**80 psi**	**4.64**	**7.803**	**.411**
SDR 26 ●	**64 psi**	**3.79**	**7.961**	**.332**
SDR 32.5 ●	**51 psi**	**3.05**	**8.095**	**.265**

● denotes standard sizes

10" (10.750 OD)

SDR 7	267 psi	19.32 lbs./ft.	7.678 ID	1.536 wall
SDR 9	200 psi	15.61	8.362	1.194
SDR 11 ●	**160 psi**	**13.09**	**8.796**	**.977**
SDR 13.5	128 psi	10.87	9.158	.796
SDR 15.5	110 psi	9.58	9.362	.694
SDR 17 ●	**100 psi**	**8.78**	**9.486**	**.632**
SDR 19	89 psi	7.92	9.618	.566
SDR 21 ●	**80 psi**	**7.21**	**9.726**	**.512**
SDR 26 ●	**64 psi**	**5.87**	**9.924**	**.413**
SDR 32.5 ●	**51 psi**	**4.75**	**10.088**	**.331**

12" (12.750 OD)

SDR 7	267 psi	27.16 lbs./ft.	9.108 ID	1.821 wall
SDR 9	200 psi	21.97	9.916	1.417
SDR 11 ●	**160 psi**	**18.41**	**10.432**	**1.159**
SDR 13.5	128 psi	15.29	10.862	.944
SDR 15.5 ●	**110 psi**	**13.48**	**11.104**	**.823**
SDR 17 ●	**100 psi**	**12.36**	**11.250**	**.750**
SDR 19	89 psi	11.14	11.408	.671
SDR 21 ●	**80 psi**	**10.13**	**11.536**	**.607**
SDR 26 ●	**64 psi**	**8.26**	**11.770**	**.490**
SDR 32.5 ●	**51 psi**	**6.67**	**11.966**	**.392**

13" (13.386 OD)

SDR 7	267 psi	29.24 lbs./ft.	9.562 ID	1.912 wall
SDR 9	200 psi	23.62	10.412	1.487
SDR 11	160 psi	20.30	10.952	1.217
SDR 13.5	128 psi	16.87	11.402	.992
SDR 15.5	110 psi	14.85	11.658	.864
SDR 17	100 psi	13.62	11.812	.787
SDR 19	89 psi	12.28	11.976	.705
SDR 21	80 psi	11.16	12.112	.637
SDR 26	64 psi	9.12	12.356	.515
SDR 32.5	51 psi	7.36	12.562	.412

14.000 OD

SDR 7	267 psi	32.76 lbs./ft.	10.00 ID	2.000 wall
SDR 9	200 psi	26.50	10.888	1.556
SDR 11 ●	**160 psi**	**22.20**	**11.454**	**1.273**
SDR 13.5	128 psi	18.44	11.926	1.037
SDR 15.5	110 psi	16.24	12.194	.903
SDR 17 ●	**100 psi**	**14.91**	**12.352**	**.824**
SDR 19	89 psi	13.43	12.526	.737
SDR 21	80 psi	12.22	12.666	.667
SDR 26 ●	**64 psi**	**9.96**	**12.924**	**.538**
SDR 32.5	51 psi	8.05	13.138	.431

16.000 OD

SDR 9	200 psi	34.60 lbs./ft.	12.444 ID	1.778 wall
SDR 11 ●	**160 psi**	**29.00**	**13.090**	**1.455**
SDR 13.5	129 psi	24.09	13.630	1.185
SDR 15.5	110 psi	21.21	13.936	1.032
SDR 17 ●	**100 psi**	**19.46**	**14.118**	**.941**
SDR 19	89 psi	17.54	14.316	.842
SDR 21 ●	**80 psi**	**15.96**	**14.476**	**.762**
SDR 26 ●	**64 psi**	**13.01**	**14.770**	**.615**
SDR 32.5	51 psi	10.50	15.016	.492

18.000 OD

SDR 9	200 psi	43.79 lbs./ft.	14.000 ID	2.000 wall
SDR 11 ●	**160 psi**	**36.69**	**14.728**	**1.636**
SDR 13.5	128 psi	30.48	15.334	1.333
SDR 15.5 ●	**110 psi**	**26.84**	**15.678**	**1.161**
SDR 17 ●	**100 psi**	**24.64**	**15.882**	**1.059**
SDR 19	89 psi	22.19	16.106	.947
SDR 21	80 psi	20.19	16.286	.857
SDR 26 ●	**64 psi**	**16.47**	**16.616**	**.692**
SDR 32.5	51 psi	13.30	16.892	.554

20.000 OD

SDR 9	200 psi	54.05 lbs./ft.	15.556 ID	2.222 wall
SDR 11 ●	**160 psi**	**45.30**	**16.364**	**1.818**
SDR 13.5	128 psi	37.63	17.038	1.481
SDR 15.5	110 psi	33.14	17.420	1.290
SDR 17 ●	**100 psi**	**30.41**	**17.648**	**1.176**
SDR 19	89 psi	27.42	17.894	1.053
SDR 21	80 psi	24.93	18.096	.952
SDR 26 ●	**64 psi**	**20.34**	**18.462**	**.769**
SDR 32.5 ●	**51 psi**	**16.41**	**18.770**	**.615**

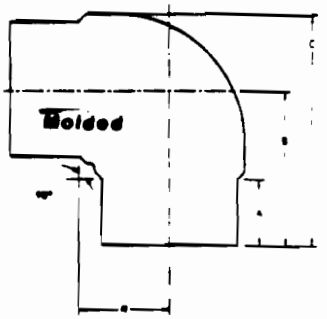
21.500 OD

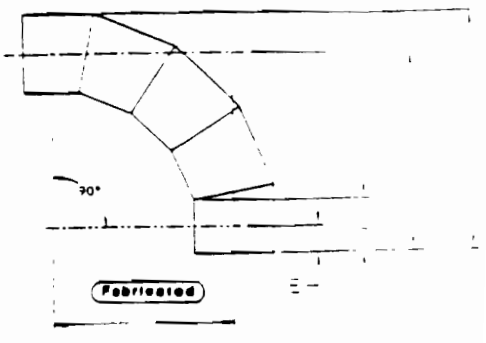
SDR 9	200 psi	62.47 lbs./ft.	16.722 ID	2.389 wall
SDR 11	160 psi	52.37	17.590	1.955
SDR 13.5	128 psi	43.51	18.314	1.593
SDR 15.5	110 psi	38.30	18.726	1.387
SDR 17	100 psi	35.16	18.970	1.265
SDR 19	89 psi	31.68	19.236	1.132
SDR 21	80 psi	28.82	19.452	1.024
SDR 26	64 psi	23.51	19.846	.827
SDR 32.5	51 psi	18.98	20.176	.662

● denotes standard sizes

90 Degree Elbows

NOMINAL SIZE		Type **	psi +	Dimensions, inches A	B	C	E	R	WT. LBS
2"	SDR 9.3 11	Molded	190 160	2.9	4.5	5.7	---	2.0	1
	SDR 7 11	fab'd	200 120	3.0	10.2	11.4	1.5	8.7	1 1
3"	SDR 9.3 11 17	Molded	190 160 100	3.0	5.1	6.9	---	2.5	2
	SDR 7 11 17	fab'd	200 120 75	3.0	10.8	12.5	1.5	9.3	3 2 2
4"	SDR 9.3 11 17	Molded	190 160 100	3.0	5.8	8.0	---	3.0	3
	SDR 7 11 17	fab'd	200 120 75	5.0	16.8	19.1	2.5	14.2	8 6 5
5"	SDR 11	fab'd	120	5.0	17.9	20.7	2.5	16.0	8
6"	SDR 9.3 11 17	Molded	190 160 100	3.0	7.0	10.8	---	4.4	9
	SDR 7 11 17	fab'd	200 120 75	6.0	21.4	24.7	3.0	18.3	21 14 10
8"	SDR 11	Molded	160	6.0	12.0	16.5	---	6.0	25
	SDR 7 11 17 26	fab'd	200 120 75 48	6.0	22.4	26.7	3.0	19.4	37 23 17 12
10"	SDR 11	Molded	160	6.0	13.3	18.6	---	7.3	41
	SDR 7 11 17 26	fab'd	200 120 75 48	6.0	23.5	28.8	3.0	20.4	61 41 28 19
12"	SDR 11	Molded	160	7.5	15.8	22.3	---	8.3	70
	SDR 7 11 17 26	fab'd	200 120 75 48	8.0	30.5	36.8	4.0	26.5	111 75 51 34
14"	SDR 7 11 17 26	fab'd	200 120 75 48	8.0	31.0	38.0	4.0	27.1	137 93 62 42
16"	SDR 7 11 17 26	fab'd	200 120 75 48	10.0	38.1	46.1	5.0	33.1	219 148 99 66
18"	SDR 11 17 26	fab'd	120 75 48	10.0	39.1	48.1	5.0	34.1	192 129 86
20"	SDR 11 17 26	fab'd	120 75 48	11.0	43.2	53.2	5.5	37.7	261 175 117
21.5	SDR 11 17 26	fab'd	120 75 48	11.0	44.0	54.7	5.5	38.4	307 206 138
22"	SDR 11 17 26	fab'd	120 75 48	11.0	44.2	55.2	5.5	38.7	323 216 145
24"	SDR 11 17 26	fab'd	120 75 48	11.0	45.2	57.2	5.5	39.7	393 263 176
26.000	SDR 11	fab'd	120	10.0	43.1	56.1	5.0	38.1	440
28.000	SDR 11 17 26	fab'd	120 75 48	10.0	44.1	58.1	5.0	39.0	521 350 234
30.000	SDR 17 26	fab'd	75 48	10.0	45.1	60.1	5.0	40.1	410 274
800mm (31.496)	SDR 17 26	fab'd	75 48	10.0	45.9	61.6	5.0	40.9	460 307
32.000	SDR 17 26	fab'd	75 48	10.0	46.1	62.1	5.0	41.1	477 319
36.000	SDR 17 26	fab'd	75 48	10.0	48.1	66.1	5.0	43.1	629 421
1000mm (39.370)	SDR 26 32.5	fab'd	48 38	10.0	49.9	69.7	5.0	44.9	527 420
42.000	SDR 17 26	fab'd	75 48	10.0	51.1	72.1	5.0	46.1	908 607
1200mm (47.244)	SDR 26	fab'd	48	10.0	54.1	78.1	5.0	49.1	803





Contact your Driscopipe representative for delivery and availability of sizes not listed.

** Fabbed Ells are not fully pressure rated, see "Technical Considerations".

+ PSI @ 73.4 degrees F.

60 DEGREE ELBOWS

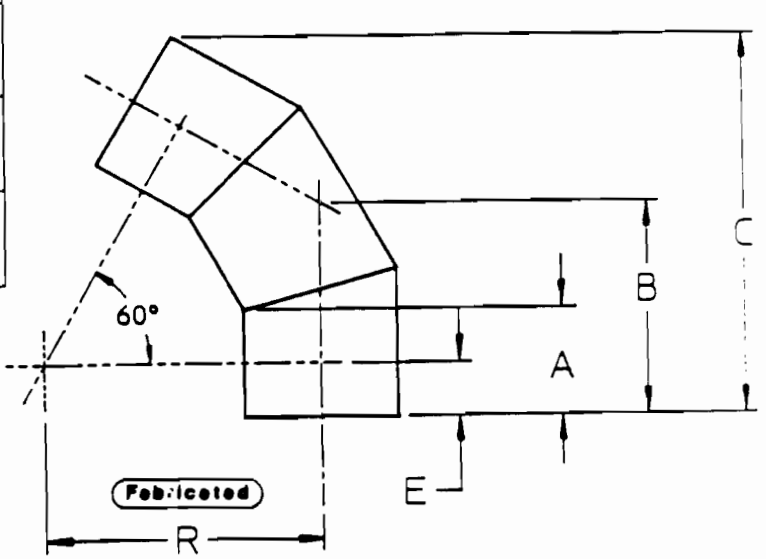
NOMINAL SIZE			Type **	psi ⏚	Dimensions, inches A	B	C	E	R	WT. LBS
2"	SDR	7	fab'd	200	3.0	5.4	9.2	1.5	6.8	1
		11		120						.5
3"	SDR	7	fab'd	200	3.0	5.7	10.1	1.5	7.4	2
		11		120						1
		17		75						1
4"	SDR	7	fab'd	200	5.0	9.2	15.7	2.5	11.6	5
		11		120						3
		17		75						2
5"	SDR	11	fab'd	120	5.0	9.5	16.7	2.5	12.1	5
6"	SDR	7	fab'd	200	6.0	7.8	19.9	3.0	14.5	13
		11		120						9
		17		75						6
8"	SDR	7	fab'd	200	6.0	12.0	21.7	3.0	15.5	23
		11		120						16
		17		75						11
		26		48						7
10"	SDR	7	fab'd	200	6.0	12.6	23.5	3.0	16.6	38
		11		120						26
		17		75						17
		26		48						12
12"	SDR	7	fab'd	200	8.0	16.3	30.0	4.0	21.3	68
		11		120						46
		17		75						31
		26		48						21
14"	SDR	7	fab'd	200	8.0	16.7	31.1	4.0	22.0	84
		11		120						57
		17		75						38
		26		48						26
16"	SDR	7	fab'd	200	10.0	20.4	37.5	5.0	26.9	135
		11		120						91
		17		75						61
		26		48						41
18"	SDR	11	fab'd	120	10.0	21.0	39.3	5.0	27.7	118
		17		75						80
		26		48						53
20"	SDR	11	fab'd	120	11.0	23.1	43.4	5.5	30.5	161
		17		75						108
		26		48						73
21.5	SDR	11	fab'd	120	11.0	23.6	44.7	5.5	31.3	190
		17		75						127
		26		48						85

NOMINAL SIZE			Type **	psi ⏚	Dimensions, inches A	B	C	E	R	WT. LBS
22"	SDR	11	fab'd	120	11.0	23.7	45.1	5.5	31.5	200
		17		75						134
		26		48						90
24"	SDR	11	fab'd	120	11.0	24.3	46.8	5.5	32.5	243
		17		75						163
		26		48						109
26.000	SDR	11	fab'd	120	10.0	23.3	46.2	5.0	31.7	274
28.000	SDR	11	fab'd	120	10.0	23.9	47.9	5.0	32.7	325
		17		75						218
		26		48						146
30.000	SDR	17	fab'd	75	10.0	24.4	49.6	5.0	33.7	256
		26		48						171
800mm (31.496)	SDR	17	fab'd	75	10.0	24.9	50.9	5.0	34.4	287
		26		48						192
32.000	SDR	17	fab'd	75	10.0	25.0	51.4	5.0	34.7	298
		26		48						199
36.000	SDR	17	fab'd	75	10.0	26.2	54.8	5.0	36.7	394
		26		48						264
1000mm (39.370)	SDR	26	fab'd	48	10.0	27.2	57.9	5.0	38.4	328
		32.5		38						264
42.000	SDR	17	fab'd	75	10.0	27.9	60.0	5.0	39.7	572
		26		48						382
1200mm (47.244)	SDR	26	fab'd	48	10.0	29.5	64.8	5.0	42.4	511

Contact your DRISCOPIPE representative for delivery and availability of sizes not listed.

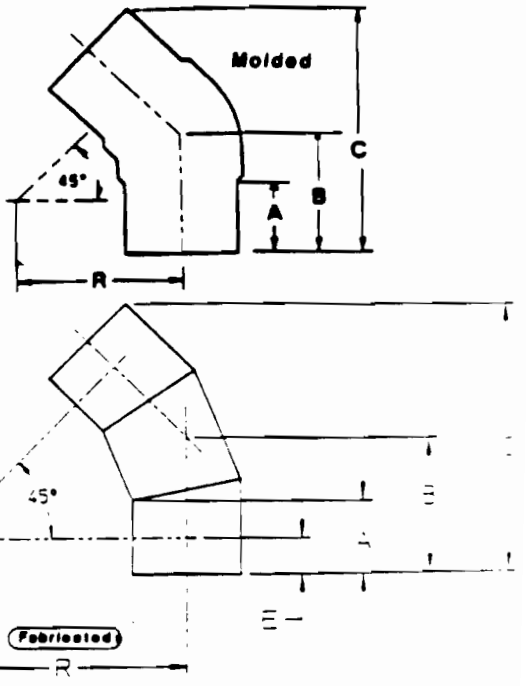
** FAB'D Ells are not fully pressure rated, see "TECHNICAL CONSIDERATIONS".

⏚ PSI @ 73.4 degrees F.



45 DEGREE ELBOWS

NOMINAL SIZE		Type **	psi †	Dimensions, inches A	B	C	E	R	WT. LBS
2"	SDR 7	fab'd	200	3.0	5.1	9.6	1.5	8.7	1
	SDR 11	fab'd	120						.5
3"	SDR 9.3	Molded	190	3.0	5.0	9.8	----	3.6	2
	SDR 11	Molded	160						
	SDR 7	fab'd	200	3.0	5.4	10.4	1.5	9.3	2
	SDR 11	fab'd	120						1
	SDR 17	fab'd	100						1
4"	SDR 9.3	Molded	190	3.0	5.0	10.1	----	3.8	3
	SDR 11	Molded	160						
	SDR 17	Molded	100						
	SDR 7	fab'd	200	5.0	8.5	16.1	2.5	14.2	5
	SDR 11	fab'd	120						3
	SDR 17	fab'd	100						2
5"	SDR 11	fab'd	120	5.0	8.9	17.1	2.5	15.4	5
6"	SDR 9.3	Molded	190	3.0	6.0	12.6	----	9.6	9
	SDR 11	Molded	160						
	SDR 17	Molded	100						
	SDR 7	fab'd	200	6.0	10.6	20.5	3.0	18.4	13
	SDR 11	fab'd	120						9
	SDR 17	fab'd	100						8
8"	SDR 11	Molded	160	6.0	10.0	17.3	----	9.6	16
	SDR 7	fab'd	200	6.0	11.0	21.9	3.0	19.4	22
	SDR 11	fab'd	120						15
	SDR 17	fab'd	75						10
	SDR 26	fab'd	48						7
10"	SDR 11	Molded	160	6.0	13.3	22.8	----	17.5	40
	SDR 7	fab'd	200	6.0	11.5	23.4	3.0	20.4	35
	SDR 11	fab'd	120						24
	SDR 17	fab'd	75						16
	SDR 26	fab'd	48						11
12"	SDR 11	Molded	160	7.5	15.8	27.0	----	20.0	70
	SDR 7	fab'd	200	8.0	15.0	30.0	4.0	26.5	65
	SDR 11	fab'd	120						44
	SDR 17	fab'd	75						29
	SDR 26	fab'd	48						20
14"	SDR 7	fab'd	200	8.0	15.3	30.9	4.0	27.1	79
	SDR 11	fab'd	120						54
	SDR 17	fab'd	75						36
	SDR 26	fab'd	48						24
16"	SDR 7	fab'd	200	10.0	18.7	37.6	5.0	33.1	127
	SDR 11	fab'd	120						86
	SDR 17	fab'd	75						58
	SDR 26	fab'd	48						39
18"	SDR 11	fab'd	120	10.0	19.1	39.0	5.0	34.1	111
	SDR 17	fab'd	75						75
	SDR 26	fab'd	48						50
20"	SDR 11	fab'd	120	11.0	21.1	43.1	5.5	37.7	151
	SDR 17	fab'd	75						101
	SDR 26	fab'd	48						68
21.5	SDR 11	fab'd	120	11.0	21.4	44.1	5.5	38.4	177
	SDR 17	fab'd	75						119
	SDR 26	fab'd	48						50
22"	SDR 11	fab'd	120	11.0	21.5	44.5	5.5	38.7	186
	SDR 17	fab'd	75						125
	SDR 26	fab'd	48						84
24"	SDR 11	fab'd	120	11.0	21.9	45.9	5.5	39.7	226
	SDR 17	fab'd	75						152
	SDR 26	fab'd	48						101
26.000	SDR 11	fab'd	120	10.0	20.8	44.7	5.0	38.1	251
28.000	SDR 11	fab'd	120	10.0	21.2	46.1	5.0	39.0	297
	SDR 17	fab'd	75						200
	SDR 26	fab'd	48						133
30.000	SDR 17	fab'd	75	10.0	21.6	47.9	5.0	40.1	233
	SDR 26	fab'd	48						156
800mm (31.496)	SDR 17	fab'd	75	10.0	21.9	48.6	5.0	40.9	261
	SDR 26	fab'd	48						174
32.000	SDR 17	fab'd	75	10.0	22.1	48.9	5.0	41.1	270
	SDR 26	fab'd	48						181
36.000	SDR 17	fab'd	75	10.0	22.9	51.8	5.0	43.1	354
	SDR 26	fab'd	48						237
1000mm (39.370)	SDR 26	fab'd	48	10.0	23.6	54.3	5.0	44.9	243
	SDR 32.5	fab'd	38						226
42.000	SDR 17	fab'd	75	10.0	24.1	56.0	5.0	46.1	509
	SDR 26	fab'd	48						240
1200mm (47.244)	SDR 26	fab'd	48	10.0	25.4	60.2	5.0	49.1	450



Contact your DRISCOPIPE representative for delivery and availability of sizes not listed.

** FAB'D Ells are not fully pressure rated, see "TECHNICAL CONSIDERATIONS".

† PSI @ 73.4 degrees F.

30 DEGREE ELBOWS

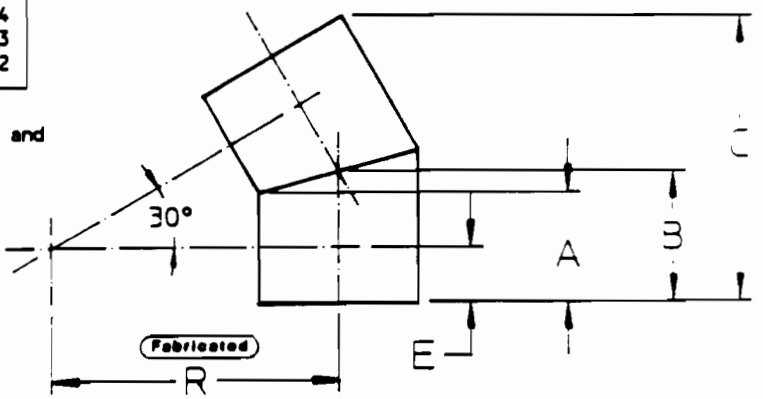
NOMINAL SIZE			Type **	psi †	Dimensions, inches A	B	C	E	R	WT. LBS
2"	SDR	7	fab'd	200	3.0	3.3	6.8	1.5	6.8	.5
		11		120						.5
3"	SDR	7	fab'd	200	3.0	3.5	7.4	1.5	7.4	1
		11		120						1
		17		75						.5
4"	SDR	7	fab'd	200	5.0	5.6	11.6	2.5	11.6	3
		11		120						2
		17		75						2
5"	SDR	11	fab'd	120	5.0	5.8	12.1	2.5	12.1	3
6"	SDR	7	fab'd	200	6.0	6.9	14.5	3.0	14.5	8
		11		120						5
		17		75						4
8"	SDR	7	fab'd	200	6.0	7.1	15.5	3.0	15.5	13
		11		120						9
		17		75						6
		26		48						4
10"	SDR	7	fab'd	200	6.0	7.4	16.6	3.0	16.6	19
		11		120						13
		17		75						9
		26		48						6
12"	SDR	7	fab'd	200	8.0	9.7	21.3	4.0	21.3	36
		11		120						24
		17		75						16
		26		48						11
14"	SDR	7	fab'd	200	8.0	9.9	22.0	4.0	22.0	43
		11		120						29
		17		75						20
		26		48						13
16"	SDR	7	fab'd	200	10.0	12.1	26.7	5.0	26.7	70
		11		120						48
		17		75						32
		26		48						22
18"	SDR	11	fab'd	120	10.0	12.4	27.7	5.0	27.7	60
		17		75						40
		26		48						27
20"	SDR	11	fab'd	120	11.0	13.7	30.5	5.5	30.5	81
		17		75						55
		26		48						37
21.5	SDR	11	fab'd	120	11.0	13.9	31.3	5.5	31.3	94
		17		75						63
		26		48						42

NOMINAL SIZE			Type **	psi †	Dimensions, inches A	B	C	E	R	WT. LBS
22"	SDR	11	fab'd	120	11.0	14.0	31.5	5.5	31.5	98
		17		75						66
		26		48						44
24"	SDR	11	fab'd	120	11.0	14.2	32.5	5.5	32.5	117
		17		75						79
		26		48						53
26.000	SDR	11	fab'd	120	10.0	13.5	31.7	5.0	31.7	125
28.000	SDR	11	fab'd	120	10.0	13.8	32.7	5.0	32.7	145
		17		75						97
		26		48						65
30.000	SDR	17	fab'd	75	10.0	14.0	33.7	5.0	33.7	111
		26		48						75
800mm (31.496)	SDR	17	fab'd	75	10.0	14.2	34.4	5.0	34.4	123
		26		48						82
32.000	SDR	17	fab'd	75	10.0	14.3	34.7	5.0	34.7	127
		26		48						85
36.000	SDR	17	fab'd	75	10.0	14.8	36.7	5.0	36.7	160
		26		48						107
1000mm (39.370)	SDR	26	fab'd	48	10.0	15.3	38.4	5.0	38.4	128
		32.5		38						103
42.000	SDR	17	fab'd	75	10.0	15.6	39.7	5.0	39.7	218
		26		48						146
1200mm (47.244)	SDR	26	fab'd	48	10.0	16.4	42.4	5.0	42.1	184

Contact your DRISCOPIPE representative for delivery and availability of sizes not listed.

** FAB'D Ells are not fully pressure rated, see "TECHNICAL CONSIDERATIONS".

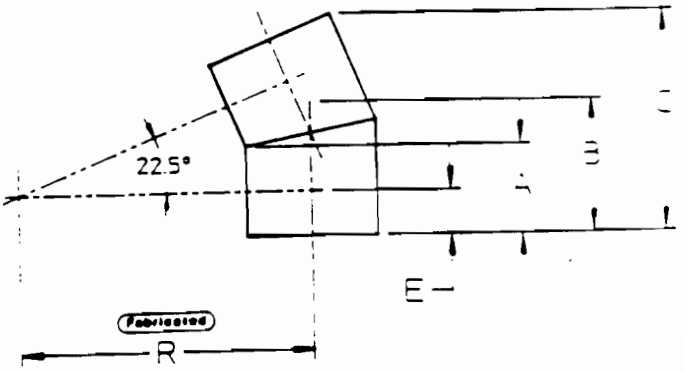
† PSI @ 73.4 degrees F.



22 1/2 DECREE ELBOWS

NOMINAL SIZE			Type **	psi †	Dimensions, inches A	B	C	E	R	WT. LBS
2"	SDR	7	fab'd	200	3.0	3.3	6.8	1.5	6.8	.5
		11		120						.5
3"	SDR	7	fab'd	200	3.0	3.5	7.4	1.5	7.4	1
		11		120						1
		17		75						.5
4"	SDR	7	fab'd	200	5.0	5.6	11.6	2.5	11.6	3
		11		120						2
		17		75						2
5"	SDR	11	fab'd	120	5.0	5.8	12.1	2.5	12.1	3
6"	SDR	7	fab'd	200	6.0	6.9	14.5	3.0	14.5	8
		11		120						5
		17		75						4
8"	SDR	7	fab'd	200	6.0	7.1	15.5	3.0	15.5	13
		11		120						9
		17		75						6
		26		48						4
10"	SDR	7	fab'd	200	6.0	7.4	16.6	3.0	16.6	19
		11		120						13
		17		75						9
		26		48						6
12"	SDR	7	fab'd	200	8.0	9.7	21.3	4.0	21.3	36
		11		120						24
		17		75						16
		26		48						11
14"	SDR	7	fab'd	200	8.0	9.9	22.0	4.0	22.0	43
		11		120						29
		17		75						20
		26		48						13
16"	SDR	7	fab'd	200	10.0	12.1	26.7	5.0	26.7	70
		11		120						48
		17		75						32
		26		48						22
18"	SDR	11	fab'd	120	10.0	12.4	27.7	5.0	27.7	60
		17		75						40
		26		48						27
20"	SDR	11	fab'd	120	11.0	13.7	30.5	5.5	30.5	81
		17		75						55
		26		48						37
21.5	SDR	11	fab'd	120	11.0	13.9	31.3	5.5	31.3	94
		17		75						63
		26		48						42

NOMINAL SIZE			Type **	psi †	Dimensions, inches A	B	C	E	R	WT. LBS
22"	SDR	11	fab'd	120	11.0	14.0	31.5	5.5	31.5	98
		17		75						66
		26		48						44
24"	SDR	11	fab'd	120	11.0	14.2	32.5	5.5	32.5	117
		17		75						79
		26		48						53
26.000	SDR	11	fab'd	120	10.0	13.5	31.7	5.0	31.7	125
28.000	SDR	11	fab'd	120	10.0	13.8	32.7	5.0	32.7	145
		17		75						97
		26		48						65
30.000	SDR	17	fab'd	75	10.0	14.0	33.7	5.0	33.7	111
		26		48						75
800mm (31.496)	SDR	17	fab'd	75	10.0	14.2	34.4	5.0	34.4	123
		26		48						82
32.000	SDR	17	fab'd	75	10.0	14.3	34,7	5.0	34.7	127
		26		48						85
36.000	SDR	17	fab'd	75	10.0	14.8	36.7	5.0	36.7	160
		26		48						107
1000mm (39.370)	SDR	26	fab'd	48	10.0	15.3	38.4	5.0	38.4	128
		32.5		38						103
42.000	SDR	17	fab'd	75	10.0	15.6	39.7	5.0	39.7	218
		26		48						146
1200mm (47.244)	SDR	26	fab'd	48	10.0	16.4	42.4	5.0	42.1	184



Contact your DRISCOPIPE representative for delivery and availability of sizes not listed.

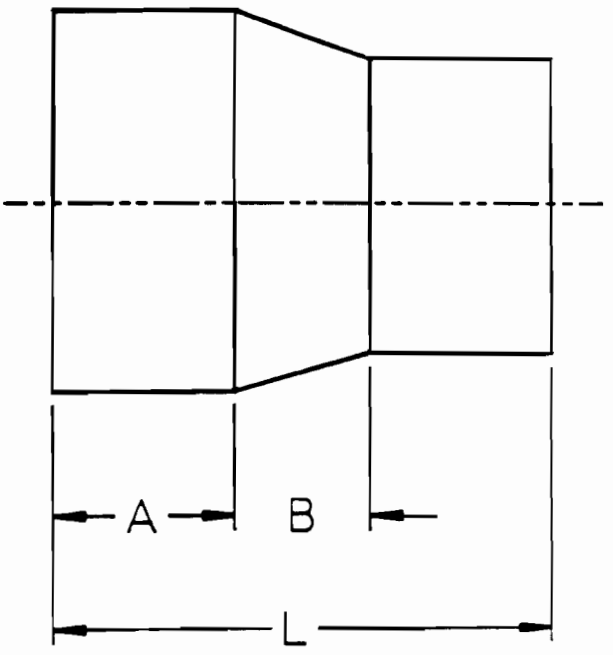
** FAB'D Ells are not fully pressure rated, see "TECHNICAL CONSIDERATIONS".

† PSI @ 73.4 degrees F.

REDUCERS

NOMINAL SIZE			Type **	psi +	Dimensions, inches A	B	L	WT. LBS
3x2	SDR	9.3 11	Molded	190 160	3.0	2.9	8.9	.5
4x2	SDR	9.3 11	Molded	190 160	3.0	5.5	11.5	1
4x3	SDR	9.3 11 17	Molded	190 160 100	3.0	2.6	8.6	1
6x4	SDR	7	fab'd	267	3.5	4.0	11.0	7
	SDR	9.3 11 17	Molded	190 160 100	3.5	2.3	7.5	3
6x5	SDR	11	fab'd	160	3.5	4.0	11.0	5
8x6	SDR	7 11 17 26	fab'd Molded fab'd	267 160 100 64	4.0 4.0 4.0	4.0 3.0 4.0	12.0 12.0 13.0	15 9 7 6
10x8	SDR	7 11 17 26	fab'd	267 160 100 64	6.0	4.0	16.0	22 15 10 7
12x8	SDR	11 17	fab'd	160 100	6.0	4.0	16.0	25 17
12x10	SDR	7 11 17 26	fab'd	267 160 100 64	6.0	4.0	16.0	32 22 15 10
14x12	SDR	7 11 17 26	fab'd	267 160 100 64	7.0	4.0	18.0	40 27 19 13
16x14	SDR	7 11 17 26	fab'd	267 160 100 64	7.0	4.0	18.0	57 39 29 18
18x16	SDR	7.3 11 17 26	fab'd	254 160 100 64	7.0	4.0	18.0	93 50 33 22
20x18	SDR	11 17 26	fab'd	160 100 64	7.0	4.0	18.0	62 42 28
21.5 x 20	SDR	11 17 26	fab'd	160 100 64	8.0	4.0	20.0	81 54 36
22x20	SDR	11 17 26	fab'd	160 100 64	8.0	4.0	20.0	83 56 38

NOMINAL SIZE			Type **	psi +	Dimensions, inches A	B	L	WT. LBS
24x21.5	SDR	11 17 26	fab'd	160 100 64	9.0	4.0	22.0	108 72 48
24x22	SDR	11 17 26	fab'd	160 100 64	9.0	4.0	22.0	109 73 49
26x24	SDR	11 15.5 32.5	fab'd	160 110 51	9.0	4.0	22.0	129 94 47
28x24	SDR	11 17 26	fab'd	160 100 64	9.0	4.0	22.0	142 95 64
800mm x28 (31.496)	SDR	17 26	fab'd	100 64	9.0	4.0	22.0	124 83
800mm x30 (31.496)	SDR	17 26	fab'd	100 64	9.0	4.0	22.0	130 87
32x28	SDR	17 26	fab'd	100 64	9.0	4.0	22.0	126 84
32x30	SDR	17 26	fab'd	100 64	9.0	4.0	22.0	132 89
36x800mm (31.496)	SDR	17 26	fab'd	100 64	9.0	4.0	22.0	159 107
36x32	SDR	17 26	fab'd	100 64	9.0	4.0	22.0	161 108

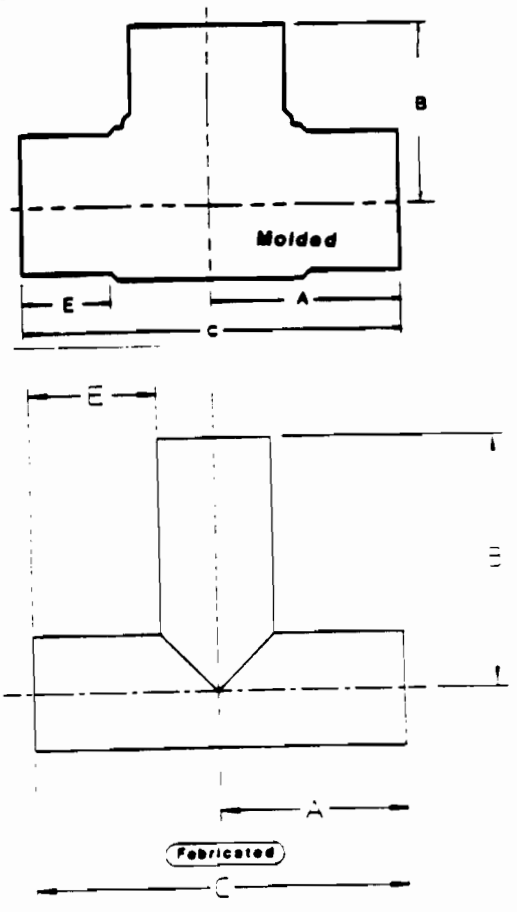


Contact your DRISCOPIPE representative for delivery or availability of other sizes.

+ PSI @ 73.4 degrees F.

TEES

NOMINAL SIZE		Type **	psi ♦	Dimensions, inches A	B	C	E	WT. LBS
2"	SDR 9.3 11	Molded	190 160	4.8	4.8	9.5	3.0	1
	SDR 7 11	fab'd	200 120	8.0	15.0	16.0	6.8	3 2
3"	SDR 9.3 11 17	Molded	190 160 100	5.1	5.1	10.3	3.0	2
	SDR 7 11	fab'd	200 120	8.0	15.0	16.0	6.3	5 4
4"	SDR 9.3 11 17	Molded	190 160 100	5.6	5.6	11.2	3.0	3 3 3
	SDR 7 11	fab'd	200 120	8.0	15.0	16.0	5.8	8 6
5"	SDR 11	fab'd	120	8.5	14.0	17.0	5.7	8
6"	SDR 9.3 11 17	Molded	190 160 100	7.4	7.4	14.9	3.0	10 10 9
	SDR 7 11	fab'd	200 120	8.5	14.0	17.0	5.2	17 12
8"	SDR 11	Molded	160	12.0	12.0	24.0	6.0	30
	SDR 7 11 17	fab'd	200 120 75	14.0	19.5	28.0	9.7	44 30 20
10"	SDR 11	Molded	160	13.3	13.3	26.5	6.0	51
	SDR 7 11 17	fab'd	200 120 75	14.0	19.5	28.0	8.6	67 45 30
12"	SDR 11	Molded	160	15.5	15.5	31.0	7.5	90
	SDR 7 11 17	fab'd	200 120 75	15.0	19.5	30.0	8.6	96 65 44
14"	SDR 7 11 17	fab'd	200 120 75	16.0	19.5	32.0	9.0	116 79 53
16"	SDR 7 11 17	fab'd	200 120 75	16.0	19.5	32.0	8.0	152 103 69
18"	SDR 11 17	fab'd	120 75	19.0	25.0	38.0	10.0	141 94
20"	SDR 11 17 26	fab'd	120 75 48	19.0	25.0	38.0	9.0	173 116 78
21.5	SDR 11 17 26	fab'd	120 75 48	19.0	25.0	38.0	8.3	223 149 100
22"	SDR 11 17 26	fab'd	120 75 48	19.0	25.0	38.0	8.0	232 156 104
24"	SDR 11 17 26	fab'd	120 75 48	23.8	25.0	47.5	11.8	321 215 144
√ 26.000	SDR 11	fab'd	120	25.0	52.0	50.0	12.0	557
√ 28.000	SDR 11 17	fab'd	120 75	25.0	52.0	50.0	11.0	624 426
√ 30.000	SDR 17 26	fab'd	75 48	30.0	52.0	60.0	15.0	539 360
√ 800mm (31.496)	SDR 17 26	fab'd	75 48	51.0	52.0	102.0	35.3	847 566
√ 32.000	SDR 17 26	fab'd	75 48	51.0	52.0	102.0	35.0	872 583
√ 36.000	SDR 17 26	fab'd	75 48	51.0	52.0	102.0	33.0	1088 727
√ 1000mm (39.370)	SDR 26	fab'd	48	51.0	52.0	102.0	31.3	859
√ 42.000	SDR 26	fab'd	48	51.0	52.0	102.0	30.0	968
√ 1200mm (47.244)	SDR 26	fab'd	48	51.0	52.0	102.0	27.4	1200



Contact your DRISCOPIPE representative for delivery and availability of sizes not listed.

** FAB'D tees are not fully pressure rated, see "TECHNICAL CONSIDERATIONS".

♦ PSI @ 73.4 degrees F.

T E E S with Flanges

NOMINAL SIZE	Type **	psi †	Dimensions, inches A	B	C	E	WT. LBS
Flanged Outlets 26.000 SDR 11	fab'd	120	74.0	48.0	148.0	56.9	1226
28.000 SDR 11 17	fab'd	120 75	74.0	48.0	148.0	55.8	1424 1001
30.000 SDR 17 26	fab'd	75 48	74.0	48.0	148.0	54.6	1147 809
800mm SDR 17 (31.496) 26	fab'd	75 48	74.0	48.0	148.0	53.1	1270 893
32.000 SDR 17 26	fab'd	75 48	74.0	48.0	148.0	53.1	1450 917
36.000 SDR 17 26	fab'd	75 48	78.0	48.0	156.0	55.0	1634 1186
1000mm (39.370) SDR 26	fab'd	48	65.0	48.0	130.0	39.6	1437
42.000 SDR 26	fab'd	48	65.0	48.0	130.0	38.5	1396
1200mm SDR 26 (47.244)	fab'd	48	65.0	48.0	130.0	35.3	1731

† PSI @ 73.4 degrees F.

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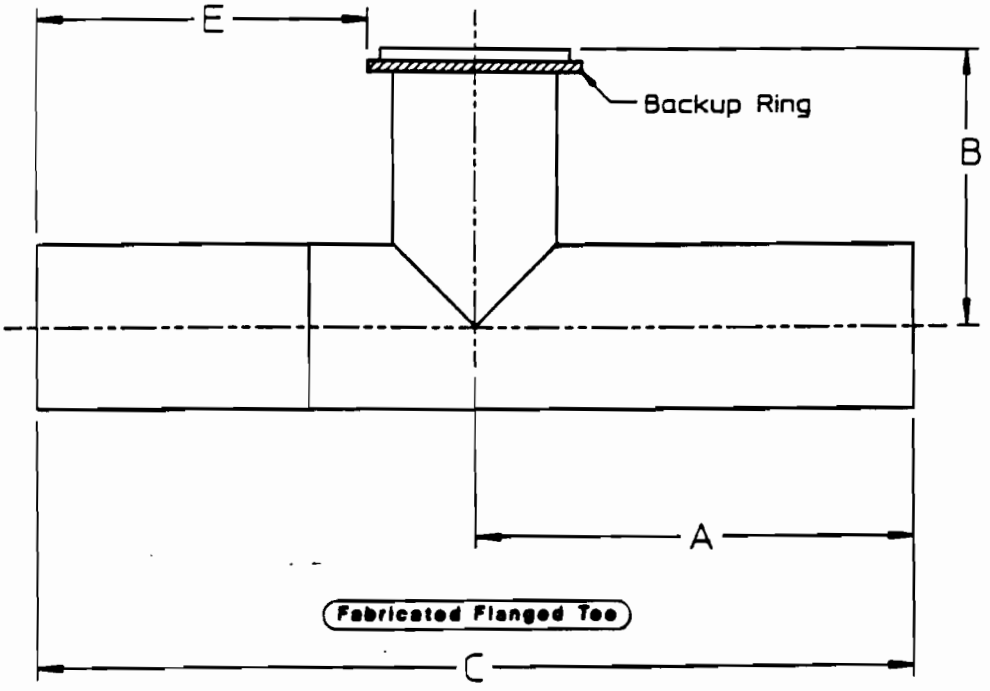
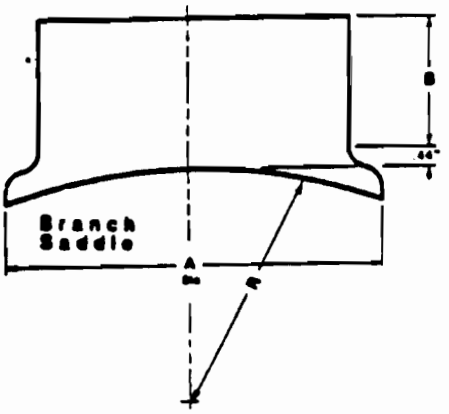
** FAB'D Tees not fully pressure rated, see "TECHNICAL CONSIDERATIONS".



Fabricated Flanged Tee

BRANCH SADDLES

Nominal Size base x outlet		TYPE	psi †	Dimensions, in A	Dimensions, in B	WT. LBS
3x2	SDR 9.3 / 11	Mach'd	190 / 160	2.6	3.0	0.4
4x2	SDR 9.3 / 11	Mach'd	190 / 160			
6x2	SDR 9.3 / 11	Mach'd	190 / 160			
8x2	SDR 9.3 / 11	Mach'd	190 / 160			
10x2	SDR 9.3 / 11	Mach'd	190 / 160			
12x2	SDR 9.3	Mach'd	190			
4x3	SDR 9.3 / 11	Mach'd	190 / 160	3.9	3.0	0.7
6x3	SDR 9.3 / 11	Mach'd	190 / 160			
8x3	SDR 9.3 / 11	Mach'd	190 / 160			
10x3	SDR 9.3 / 11	Mach'd	190 / 160			
12x3	SDR 9.3 / 110	Mach'd	190 / 160			
6x4	SDR 9.3 / 11	Mach'd	190 / 160	4.8	3.0	1.0
8x4	SDR 9.3 / 11	Mach'd	190 / 160			
10x4	SDR 9.3 / 11	Mach'd	190 / 160			
12x4	SDR 9.3 / 11	Mach'd	190 / 160			
8x6	SDR 9.3 / 11	Mach'd	190 / 160	7.3	3.0	4.0
10x6	SDR 9.3 / 11	Mach'd	190 / 160			
12x6	SDR 9.3 / 11	Mach'd	190 / 160			
10x8	SDR 11	Mach'd	160	9.4	6.0	10.0
12x8	SDR 11	Mach'd	160			



Contact your DRISCOPIPE representative for delivery or availability of other sizes.

† PSI @ 73.4 degrees F.

45 DEGREE WYES

NOMINAL SIZE		psi +	Type	Dimensions, inches A	B	C	E	F	WT. LBS
2"	SDR 11	120	TrueLat	18.5	na	25.0	14.6	17.5	2
3"	SDR 11	120	TrueLat	17.3	na	25.0	14.5	18.7	5
	SDR 7	200	Phillips	11.0	8.0	18.0	11.8	25.5	7
	SDR 11	120							5
4"	SDR 11	120	TrueLat	19.5	na	26.5	14.1	19.5	9
	SDR 7	200	Phillips	14.0	7.7	22.0	12.3	30.1	12
	SDR 11	120							8
6"	SDR 11	120	TrueLat	27.6	na	35.5	19.9	27.9	26
	SDR 7	200	Phillips	6.0	7.9	24.8	12.8	28.8	28
	SDR 11	120		1					19
8"	SDR 11	120	TrueLat	30.4	na	40.2	20.0	30.4	49
	SDR 7	200	Phillips	18.0	15.2	31.0	15.8	41.7	63
	SDR 11	120							43
	SDR 17	75							29
10"	SDR 11	120	TrueLat	33.0	na	43.2	20.0	35.0	81
	SDR 7	200	Phillips	21 0	17.1	35.0	15.3	44.7	105
	SDR 11	120							71
	SDR 17	75							48
12"	SDR 11	120	TrueLat	35.4	na	46.0	20.0	35.4	122
	SDR 7	200	Phillips	22.0	20.2	36.8	17.5	52.3	163
	SDR 11	120							111
	SDR 17	75							74
14"	SDR 11	120	TrueLat	39.1	na	50.0	22.0	38.9	161
	SDR 7	200	Phillips	23.0	19.4	41.0	24.5	57.8	222
	SDR 11	120							150
	SDR 17	75							101
16"	SDR 7	200	Phillips	24.0	19.4	43.0	24.3	58.5	295
	SDR 11	120							200
	SDR 17	75							134
18"	SDR 11	160	Phillips	25.0	31.1	46.0	23.8	76.9	298
	SDR 17	75							200
20"	SDR 11	160	Phillips	26.0	35.1	47.0	23.5	83.2	385
	SDR 17	75							258
	SDR 26	48							173

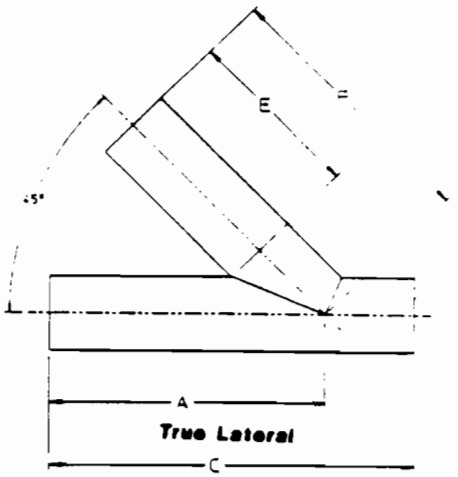
Contact your DRISCOPIPE representative for delivery or availability of other items. Wyes are de-rated, see TECHNICAL CONSIDERATIONS.

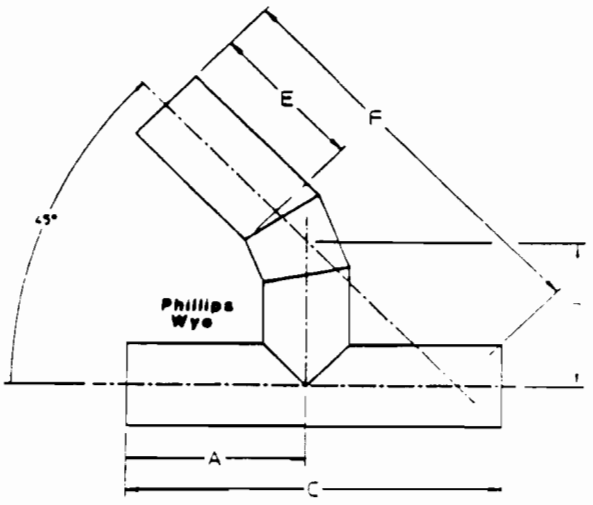
+ PSI @ 73.4 degrees F.

Reducing wyes may be available on special quotes.

Flanged

NOMINAL SIZE		psi +	Type	Dimensions, inches A	B	C	E	F	WT. LBS
21.5	SDR 11	120	Phillips	27.0	35.4	49.0	23.3	83.8	452
	SDR 17	75							303
	SDR 26	48							203
22"	SDR 11	120	Phillips	27.0	35.5	49.0	23.3	84.0	473
	SDR 17	75							317
	SDR 26	48							212
24"	SDR 11	120	Phillips	28.0	35.1	51.0	22.8	83.0	564
	SDR 17	75							378
	SDR 26	48							253
26"	SDR 11	120	Phillips	74.0	47.8	148.0	na	92.4	1372
28"	SDR 11	120	Phillips	74.0	50.2	148.0	na	96.2	1598
	SDR 17	75							1109
30"	SDR 17	75	Phillips	74.0	50.6	148.0	na	97.2	1275
	SDR 26	48							894
800mm (31.496)	SDR 17	75	Phillips	74.0	51.7	148.0	na	98.9	1418
	SDR 26	48							993
32"	SDR 17	75	Phillips	74.0	52.1	148.0	na	100.0	1460
	SDR 26	48							1021
36"	SDR 17	75	Phillips	78.0	55.4	156.0	na	105.3	1914
	SDR 26	48							1338

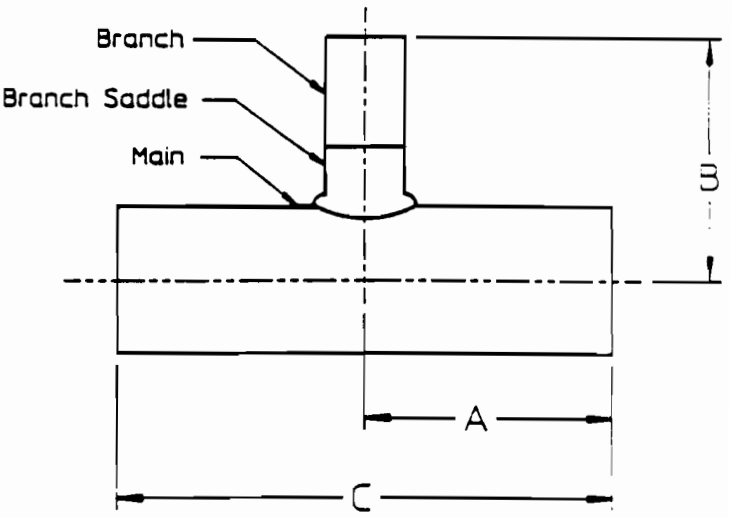




BRANCH SADDLE REDUCING TEES

	NOMINAL SIZE		psi ǂ	Dimensions, in. A	B	C	WT. LBS
2 " outlet	3x2	SDR 11	160	12	12	24	4
	4x2	SDR 11	160	12	12	24	6
	6x2	SDR 11	160	13	13	26	12
	8x2	SDR 11 17	160 100	14	14	28	20 14
	10x2	SDR 11 17	160 100	14	14	28	31 21
	12x2	SDR 11 17	160 100	14	14	28	43 29
3 " outlet	4x3	SDR 11	160	12	12	24	7
	6x3	SDR 11	160	13	13	26	13
	8x3	SDR 11 17	160 100	14	14	28	19 15
	10x3	SDR 11 17	160 100	14	14	28	32 22
	12x3	SDR 11 17	160 100	14	14	28	44 30
4 " outlet	6x4	SDR 11	160	13	13	26	13
	8x4	SDR 11 17	160 100	14	14	28	22 15
	10x4	SDR 11 17	160 100	14	14	28	32 23
	12x4	SDR 11 17	160 100	14	14	28	44 31
	18x4	SDR 11 17 26	160 100 64	19	19	38	115 79 53

	NOMINAL SIZE		psi ǂ	Dimensions, in. A	B	C	WT. LBS
6 " outlet	8 x 6	SDR 11 17	160 100	14	14	28	26 20
	10 x 6	SDR 11 17	160 100	14	14	28	37 27
	12 x 6	SDR 11 17	160 100	14	14	28	49 35
	14 x 6	SDR 11 17	160 100	15	15	30	61 43
	16 x 6	SDR 11 17 26	160 100 68	16	16	32	82 57 41
	18 x 6	SDR 11 17 26	160 100 68	19	19	38	120 83 58
	20 x 6	SDR 11 17 26	160 100 68	19	19	38	147 101 70
	21.5 x 6	SDR 11 17 26	160 100 68	19	19	38	169 115 79
	24 x 6	SDR 11 17 26	160 100 68	25	25	50	272 185 126
	36 x 6	SDR 17 26	100 68	25	30	50	410 277



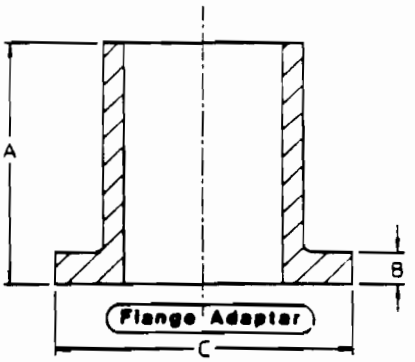
Contact your Driscopipe representative for delivery or availability of sizes not listed.

ǂ PSI @ 73.4 degrees F.

Molded Flange Connectors

NOMINAL SIZE		Type	psi †	Dimensions, inches A	B	C	WT. LBS
1"	SDR 9.3 11	Molded	190 160	4.0	0.2	2.4	.5
1-1/4	SDR 9.3 11	Molded	190 160	4.0	0.3 0.2	2.8	.5
1-1/2	SDR 9.3 11	Molded	190 160	4.0	0.3 0.2	3.1	.5
2"	SDR 7 11	Molded	267 160	6.0	0.4	4.0	1
3"	SDR 7 11 17	Molded	267 160 100	6.0	0.6	5.0	2
4"	SDR 7 11 17	Molded	267 160 100	6.0	0.8	6.6	3
6"	SDR 7 11 17 26	Molded	267 160 100 64	8.0	1.2 0.8	8.5	8 7
8"	SDR 7 11 17 26	Molded	267 160 100 64	9.0	1.6 0.8	10.6	11 10
10"	SDR 7 11 17 26	Molded	267 160 100 64	9.0	1.9 1.3 0.9 0.8	12.8	19 18 17 17
12"	SDR 7 11 17 26	Molded	267 160 100 64	10.8	2.3 1.5 1.0 0.8	15.0	25 24 23 22
14"	SDR 7 11 17	Molded	267 160 100	11.0	2.6 1.7 1.1	17.5	55 40 38
16"	SDR 7 11 17 26	Molded	267 160 100 64	12.0	3.0 1.9 1.2 0.8	20.0	80 60 45 43

NOMINAL SIZE		TYPE	PSI †	Dimensions, inches A	B	C	WT. LBS
18"	SDR 7 11 17 26	Molded	267 160 100 64	12.0	3.3 2.1 1.4 1.0	21.1	95 68 55 50
20"	SDR 11 17 26	Molded	160 100 64	12.0	2.3 1.5 1.0	23.5	66 64 62
21.5	SDR 11 17 26	Molded	160 100 64	12.0	2.4 1.6 1.0	25.6	68 66 64
22"	SDR 11 17 26	Molded	160 100 64	12.0	2.5 1.6 1.1	25.6	67 65 63
24"	SDR 9 17 32.5	Molded	200 100 51	14.0	3.5 1.8 1.0	27.9	190 140 95



† PSI @ 73.4° F.

If used with butterfly valves check with other mfg. for space/clearance requirements.

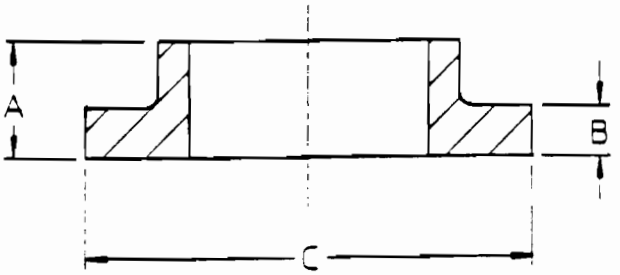
STUB END CONNECTORS

NOMINAL SIZE			TYPE **	PSI ϕ	Dimensions, inches A	B	C	WT. LBS
26.000	SDR	11	SsSe	160	4.0	2.5	30.8	45
		26		64		1.4		22
		32.5		51		1.1		15
28.000	SDR	11	SsSe	160	4.0	2.7	32.3	48
		17		100		2.2		34
		26		64		1.5		23
		32.5		51		1.2		17
30.000	SDR	11	SsSe	160	5.0	3.6	34.6	81
		17		100	4.0	2.3		41
		26		64		1.6		27
		32.5		51		1.3		22
800mm (31.496)	SDR	17	SsSe	100	4.0	2.4	36.7	45
		26		64		1.6		33
		32.5		51		1.3		26
32.000	SDR	17	SsSe	100	4.0	2.5	36.7	49
		26		64		1.7		35
		32.5		51		1.4		28
36.000	SDR	17	MmSe	100	4.0	2.4	40.8	53
		26		64		1.9		41
		32.5		51		1.5		33
1000mm (39.370)	SDR	26	SsSe	64	4.0	2.0	47.4	65
		32.5		51		1.6		51
42.000	SDR	17	SsSe	100	4.0	2.6	47.4	82
		26		64		2.1		59
		32.5		51		1.7		46
1200mm (47.244)	SDR	21	MmSe	64	4.0	2.8	54.0	92
		26		51		2.4		84
		32.5				1.9		67
54.000	SDR	26	SsSe	64	4.0	2.4	47.4	156
		32.5		51		2.2		80

Type **	SsSe = sheet stock stub end MmSe = molded machined stub end

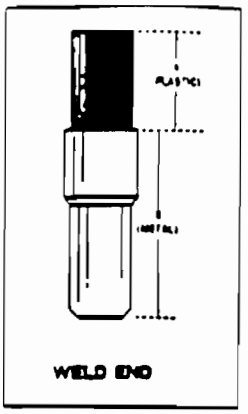
If used with butterfly valves, check with other mfg. for space/clearance requirements.

ϕ PSI @ 73.4° F.



Weld-End Transition Fittings

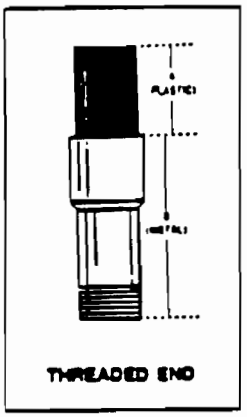
NOMINAL SIZE		psi ǂ	TYPE	Dimen., inch A	Dimen., inch B	WT. lbs.
2"	SDR 7	267	Weld-end	12	14.3	7
	SDR 11	160				6
3"	SDR 7	267	Weld-end	12	15.5	15
	SDR 11	160				14
4"	SDR 7	267	Weld-end	12	16.4	23
	SDR 11	160				23
6"	SDR 11	160	Weld-end	18	18.2	52



w/external epoxy coating

Transition Fittings

NOMINAL SIZE		psi ǂ	TYPE	Dimen., inch A	Dimen., inch B	WT. lbs.
1-1/4	SDR 11	160		12	6.0	3
2"	SDR 7	267		12	6.2	5
	SDR 11	160				4
3"	SDR 7	267		12	7.0	11
	SDR 11	160				10
4"	SDR 7	267		12	7.8	18
	SDR 11	160				17
6"	SDR 11	160		18	12.1	42



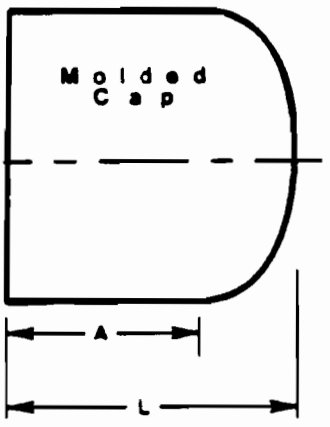
w/internal coating

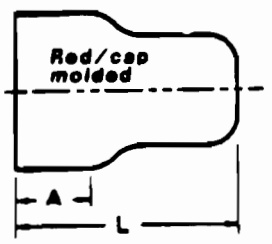
Contact your DRISCOPIPE Representative for delivery or availability of other sizes.

ǂ PSI @ 73.4 degrees F.

C A P S

NOMINAL SIZE		Type	psi ǂ	Dimensions, inches A	Dimensions, inches L	WEIGHT LBS.
2"	SDR 9.3	molded	190	1.8	2.4	.2
3"	SDR 9.3	molded	190	2.3	3.7	.5
	SDR 11		160			
4"	SDR 9.3	molded	190	2.3	3.8	.8
	SDR 11		160			
6"	SDR 9.3	red/cap	190	3.0	9.2	3
	SDR 11		160			
8"	SDR 11	molded	160	3.6	7.9	10





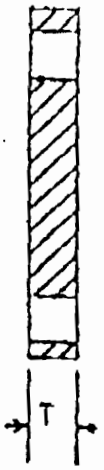
Contact your DRISCOPIPE representative for delivery or availability of other sizes.

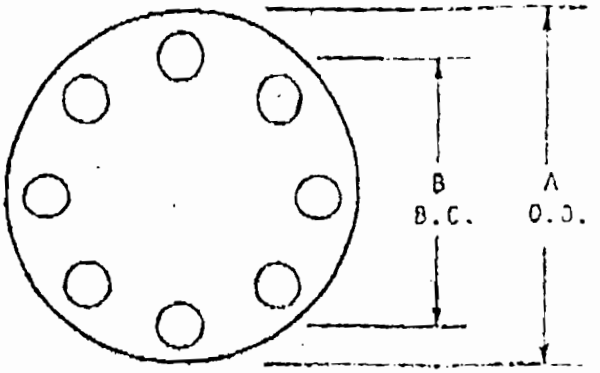
ǂ PSI @ 73.4 degrees F.

FIFEPIPE

July 12, 1988

DRISCO - BLIND FLANGE - HDPE PE3408 MATERIAL





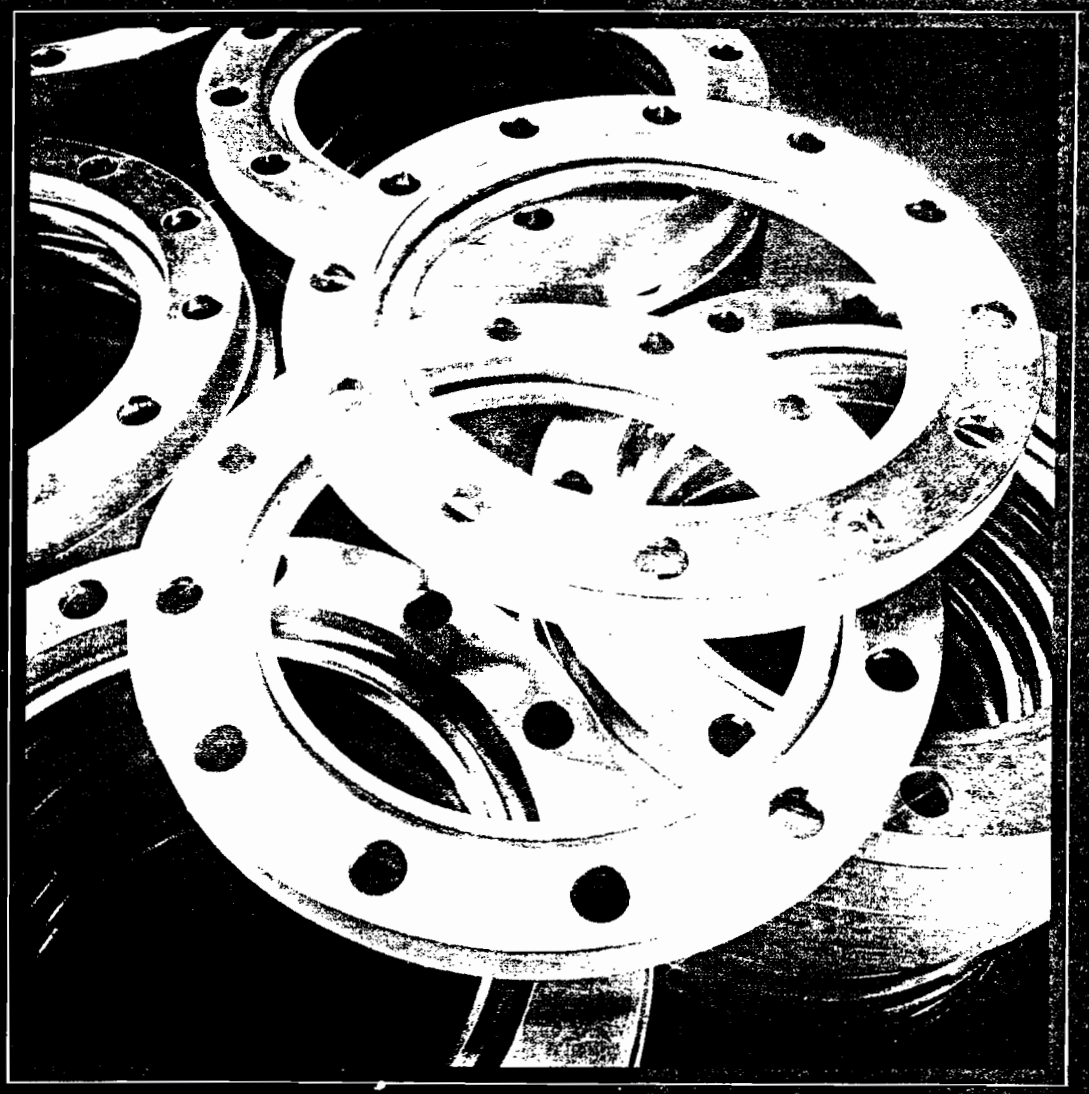
NOM. O.D.	A OUTSIDE DIA.	NO. OF HOLES	DIA. OF HOLE	BOLT CIRCLE	SQ. FT. MATERIAL	T MIN.
1"	4-1/4"	4	5/8"	3-1/4"	.174	1/4"
1-1/4"	4-5/8"	4	5/8"	3-1/2"	.210	3/8"
1-1/2"	5"	4	5/8"	3-7/8"	.250	3/4"
2"	6"	4	3/4"	4-3/4"	.340	3/4"
3"	7-1/2"	4	3/4"	6"	.390	3/4"
4"	9"	8	3/4"	7-1/2"	.694	3/4"
5"	10"	8	7/8"	8-1/2"	.840	3/4"
6"	11"	8	7/8"	9-1/2"	1.0	1"
8"	13-1/2"	8	7/8"	11-3/4"	1.460	1"
10"	16"	12	1"	14-1/4"	2.010	1"
12"	19"	12	1"	17"	2.778	1-1/4"
14"	21"	12	1-1/8"	18-3/4"	3.361	1-1/4"
16"	23-1/2"	16	1-1/8"	21-1/4"	4.340	1-1/4"
18"	25"	16	1-1/4"	22-3/4"	4.877	1-1/4"
20"	27-1/2"	20	1-1/4"	25"	5.840	1-1/4"
22"(21.5	29-1/2"	20	1-3/8"	27-1/4"	6.674	1-1/4"
24"	32"	20	1-3/8"	29-1/2"	7.793	1-1/4"
28"	36-1/2"	28	1-3/8"	34"	10.030	1-1/2"
32"	41-3/4"	28	1-1/2"	38-1/2"	12.840	1-1/2"
36"	46"	32	1-5/8"	42-3/4"	15.669	1-1/2"
42" *	53"	36	1-5/8"	49-1/2"	21.070	
48" *	59"	44	1-5/8"	56"	25.840	

* Non-Standard Special Fabrication

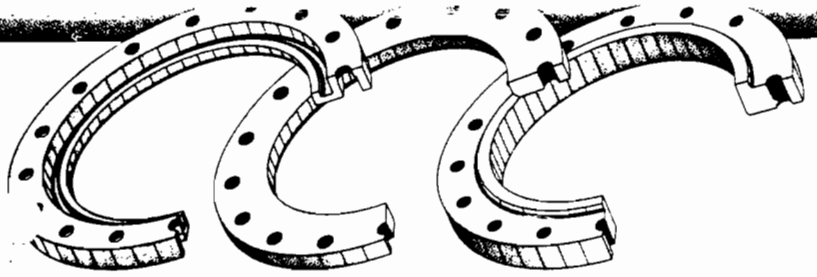
DELTAFLEX

BUPP-HP ■ BUPP ■ BUPP-SS ■ LJ-SS

The uniquely designed... high performance back-up flange



IMPROVED PIPING PRODUCTS, INC.



DELTAFLEX BUPP

Ductile Iron Back-up Flanges

Deltaflex **BUPP** is IPP's premium, but cost effective ductile iron back-up flange. There are two **BUPP** versions: **a)** The **BUPP-HP** has excellent resistance to deflection (a higher section modulus) and a higher pressure capability over the range of sizes: **b)** The **BUPP** is slightly lighter in weight and is recommended for lower pressure applications in sizes over 12". See the FLANGESELECTOR GUIDE (page 6) for pressure/size recommendations. **When you know the SDR or operating pressure of your pipe, you can easily select the proper back-up flange.**

Available in sizes 1" – 54", both **BUPP** versions incorporate the *special convoluted design* configuration for minimum weight and maximum performance. Some sizes have B and C inside diameter choices. This is to accommodate fusion bead clearances for fit-up with pipe of metric/special dimensions.

Investment cast from ASTM A536 grade 65/45/12. Deltaflex **BUPP** has excellent corrosion resistance and conforms to a 150 psi drilling template. It is designed to be retained by a thermoplastic injection molded or fabricated flange adaptor fastened to the pipe by thermal fusion bonding. The **BUPP** can also be used on metal pipe with Class A, B or C adaptors (see Fig 1).

ABOUT IPP...

We have specialized in flange design since 1979 and furnish our products to a broad cross-section of industrial and municipal users. IPP flanges are made to exacting specifications and conform to high standards of quality assurance

The Deltaflex family of back-up flanges represent the most innovative and cost-effective group of flanges available for use on High Density Polyethylene (HDPE) and metal pipe/flange adaptors. Deltaflex is available only from IPP.

Manufactured in sizes 1" – 54". Deltaflex back-up flanges are computer-designed with a configuration engineered for minimum weight and maximum performance. Investment cast from ductile iron or stainless steel. Deltaflex has excellent corrosion-resistance properties and conforms to a 150 psi drilling template. They are designed to be retained by a thermoplastic injection molded or fabricated flange adaptor fastened to an HDPE pipe by thermal fusion bonding or by butt-welding a class A, B or C flange adaptor to a metal pipe.

Deltaflex back-up flanges eliminate the need for bolt retightening because of their capability to store elastic energy like a "belleville washer" the flange preloads the bolts as they are tightened

Easy Fit-up

Deltaflex eliminates the labor costs and hassle of the two-holing process required during fabrication and, because the flange is free-floating, it is easy to fit-up to mating flanges during assembly and installation. No more *twisting or forcing* the pipe trying to match the bolt holes. Slip the flange over the end of the pipe, bond the flange adaptor to the pipe and simply turn the flange until the bolt holes are aligned. Install the bolts, nuts and washers... one man can install most sizes without a helper or bulky lifting equipment.

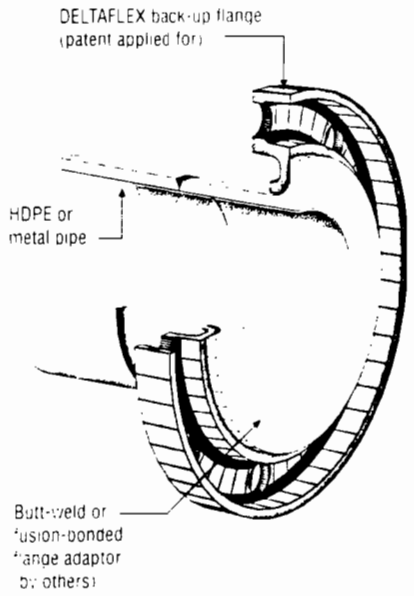
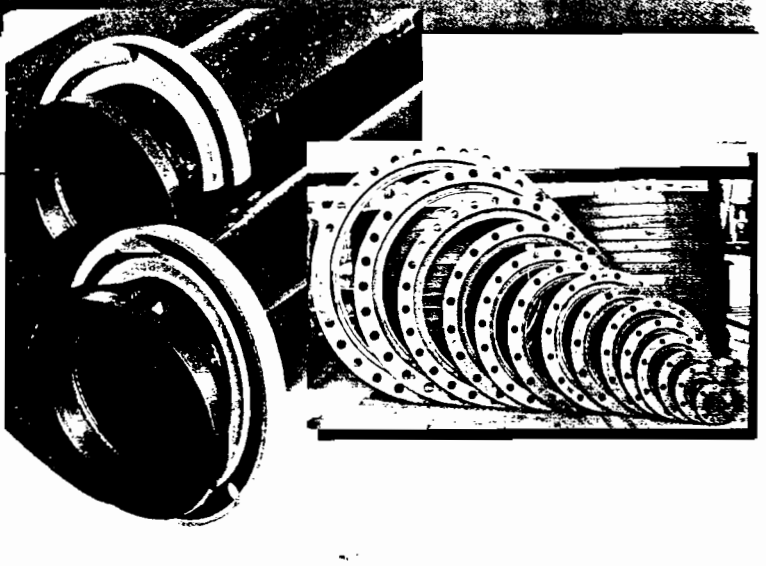


FIGURE 1

DELTAFLEX FEATURES & BENEFITS

- Patent applied for (convoluted design)
- Ductile iron and stainless steel choices
- Designed for use with HDPE flange adaptors and steel stub-ends
- Approximately 40% material savings
- 150 lb drilling... ANSI vital dimensions
- Flange is reusable... not attached to the pipe
- Superior under vibration and thermal stresses
- Higher pressure capability than AWWA 1-D plate steel flanges



BUPP FEATURES & BENEFITS

- No two-holing required
- Ductile iron flange conforms to A536 material specs
- Designed for use with fusion-bonded, thermoplastic and field-flared stub-ends
- Approximately 40% material savings
- Flexible flange structure is superior under vibration and thermal stress conditions
- Interchangeable with conventional alloy steel flanges
- Raised face for efficient ring gasket seals
- No special equipment required for field installation
- Excellent corrosion-resistance
- Large transition radius at the bore minimizes stress concentrations

MATERIAL PROPERTIES

ASTM A536; GRADE 65/45/12

Tensile Strength	65,000 psi
Yield Strength	45,000 psi
Elongation in 2"	12%

Finish: As Cast with flash removed from all edges and bolt holes drilled.

RED OXIDE (STD)
HOT-DIPPED GALV. (OPT)
EPOXY COATING (OPT)

Others available upon inquiry

Marking: Mfrs. Trademark, size, bolt hole template, material and type of flange.

DELTAFLEX BUPP AND BUPP-HP DIMENSIONS, WEIGHTS AND PRESSURE

PIPE DIA	O	Q	W	Y	N	C	D	R	WEIGHT	OPER. PRESS
0075 C	3.88	.50	1.11	22	4	63	2.75	13	1	275
0125 C	4.63	.63	1.72	.22	4	63	3.50	.19	1	275
01 C	4.25	0.56	1.38	0.22	4	0.63	3.13	0.13	2	267
1.5" C	5.00	0.69	1.97	0.25	4	0.63	3.88	0.21	2	267
02" B	6.00	0.75	2.63	0.23	4	0.75	4.75	0.13	3	267
02" C	6.00	0.75	2.46	0.37	4	0.75	4.75	0.31 / 0.21	3	267
03" B	7.50	0.94	3.75	0.25	4	0.75	6.00	0.13	4	267
03" C	7.50	0.94	3.60	0.50	4	0.75	6.00	0.38	4	267
04" B	9.00	0.94	4.75	0.25	8	0.75	7.50	0.13	6	267
04" C	9.00	0.94	4.60	0.50	8	0.75	7.50	0.44 / 0.38	6	267
05" B	10.00	0.94	5.81	0.27	8	0.88	8.50	0.13	7	267
05" C	10.00	0.94	5.69	0.50	8	0.88	8.50	0.44	7	267
06" B	11.00	1.00	6.88	0.28	8	0.88	9.50	0.13	8	267
06" C	11.00	1.00	6.75	0.56	8	0.88	9.50	0.50 / 0.44	8	267
08" B	13.50	1.12	8.88	0.30	8	0.88	11.75	0.13	12	267
08" C	13.50	1.12	8.75	0.56	8	0.88	11.75	0.50 / 0.44	12	267
10" B	16.00	1.19	11.00	0.60	12	1.00	14.25	0.38	17	267
10" C	16.00	1.19	10.92	0.60	12	1.00	14.25	0.50 / 0.42	17	267
12" B	19.00	1.25	13.13	0.63	12	1.00	17.00	0.31	23	192
12" C	19.00	1.25 / 1.50	12.92	0.63 / 0.63	12	1.00	17.00	0.50 / 0.42	23 / 25	192 267
14" B	21.00	1.38	14.38	0.70	12	1.13	18.75	0.40	28	172
14" C	21.00	1.38 / 1.63	14.18	0.70 / 0.45	12	1.13	18.75	0.50 / 0.41	29 / 37	172 267
16" B	23.50	1.44	16.38	0.70	16	1.13	21.25	0.40	37	145
16" C	23.50	1.44 / 1.88	16.19	0.70 / 0.77	16	1.13	21.25	0.50 / 0.41	37 / 49	146 267
18" B	25.00	1.56	18.38	0.88	16	1.25	22.75	0.38	41	137
18" C	25.00	1.56 / 1.75	18.20	0.88 / 0.48	16	1.25	22.75	0.50 / 0.40	41 / 49	137 267
20" B	27.50	1.69 2.06	27.25	0.88 0.48	20	1.25	25.00	0.31	54 61	145 267
22" B	29.50	2.13	22.38	0.55	20	1.38	27.25	0.31	63 / 72	128 267
22" C	29.50	2.13	22.22	0.55	20	1.38	27.25	0.50	91	203
24" B	32.00	2.13	24.38	0.60	20	1.38	29.50	0.31	74 / 91	144 267
24" C	32.00	1.88 2.13	24.25	0.90 0.60	20	1.38	29.50	0.50	76 91	203
26" B	34.25	2.00 / 2.38	26.38	1.00 / 0.60	24	1.38	31.75	0.25 / 0.31	86 / 104	103 116
28" B	36.50	2.06 2.50	28.38	1.00 0.60	28	1.38	34.00	0.31	103 116	88 101
30" B	38.75	2.06 / 2.50	30.38	1.00 / 0.70	28	1.38	36.00	0.25 0.31	102 / 143	73 123
32" B	41.75	2.06 2.63	32.38	1.00 0.70	28	1.63	38.50	0.31	118 168	88 138
34" B	43.75	2.14 / 2.69	34.38	0.60 / 0.70	32	1.63	40.50	0.31 0.31	137 181	60 102
36" B	46.00	2.06 / 2.75	36.38	1.00 0.70	32	1.63	42.75	0.31	142 196	49 102
42" B	53.00	2.00 / 3.00	42.38	1.10 / 0.80	36	1.63	49.50	0.50	191 / 277	76 80
48" B	59.50	2.00 3.50	48.50	1.35 0.80	44	1.63	56.00	0.25	251 332	53 74
54" B	66.25	3.75	54.62	0.90	44	1.38	62.75	0.19	401 / 495	25 64

Notes: 1. A" "B" and "C" shown adjacent to pipe diameter refers to flanges of different diameters to accommodate [illegible] clearance metric or oversize pipe. **2.** In columns O Q W Y WEIGHT and OPERATING PRESSURE the second number represents model *BUPP-HP only*. All other values are common to BUPP and BUPP-HP. HP does and will produce BUPP-HP high cut,) convoluted ductile iron flanges. Please enquire.

How to use the Flangeselector Guide

1. The FLANGESELECTOR chart consists of three variables: **a)** SDR/ operating pressure (PSI); **b)** Pipe Diameter, and **c)** IPP flange product curve.
2. SDR (standard dimensional ratio) is the relationship between HDPE outside diameter and wall thickness. An SDR of 32.5 equals a pressure rating of 51 psi (see chart). An SDR of 7.3 indicates the pipe will be suitable for 254 psi. The lower the SDR... the higher the pressure rating.
3. The operating pressure in psi is listed for reference at the left hand side of the chart. Reference temperature is 73.4° F.
4. The Pipe Diameter is nominal pipe diameter shown on the base line.
5. Each of the seven IPP flange products are shown in a different color and/or line type as they relate to their respective pressure capability when they are installed with HDPE flange adaptors, e.g. the **BUPP-SS** (solid red line) is shown to have it's highest rating at 182 psi on the 2" flange.

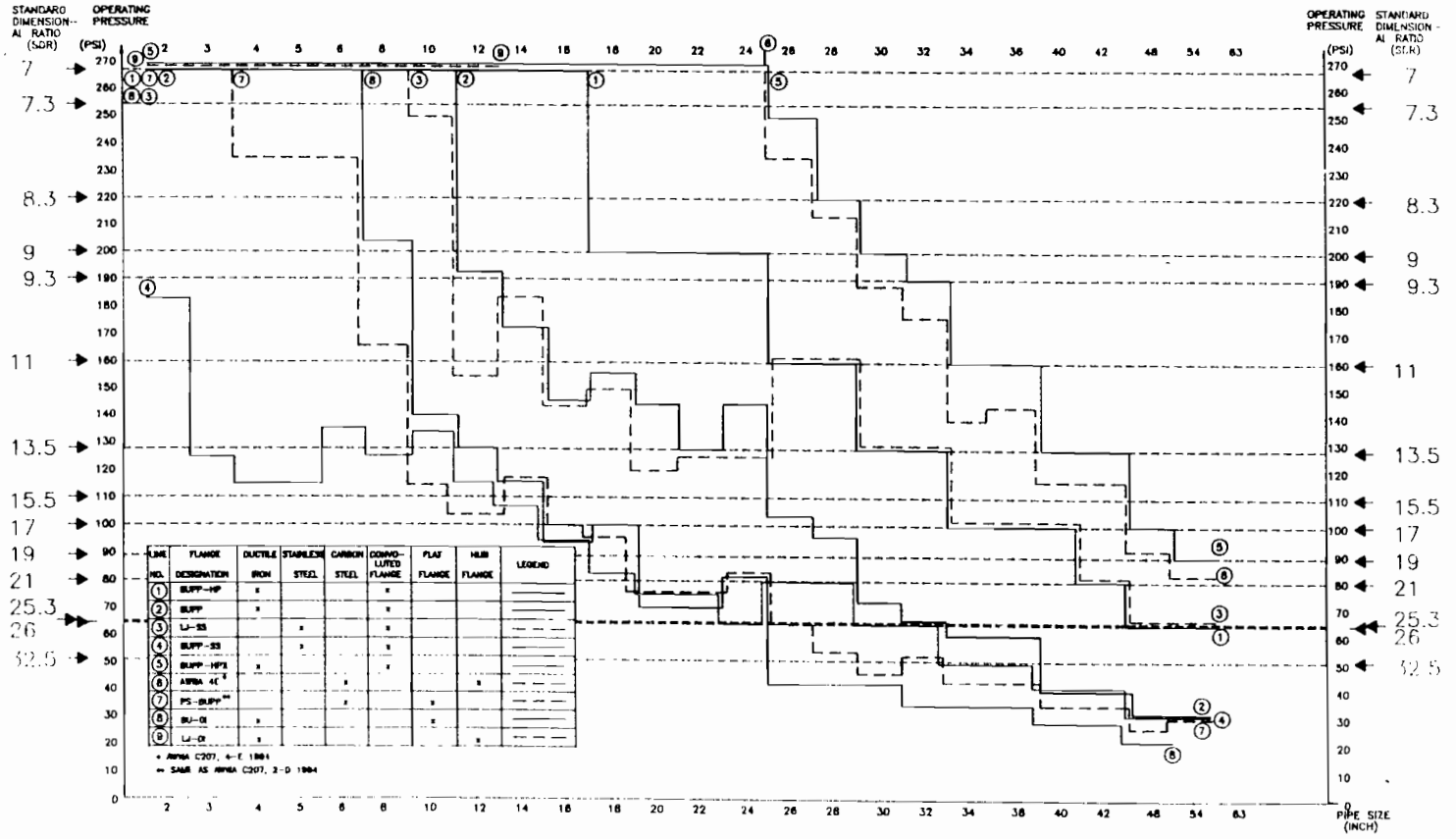
   As you read toward the right of the chart (increasing diameter) on some flanges the pressure capability rises and falls. This occurs because IPP flanges are designed to conform to dimensions established by existing industry standards. In some sizes, the structure of larger flanges actually tolerate higher pressure than smaller flanges.
6. Example: You have a 24" HDPE pipe with an SDR of 15.5 (110 psi). Which IPP flange is the best choice?

   Assume material is ductile iron.

   Locate the SDR 15.5 on the left. Read to the right until you intersect the line representing the 24" diameter. Select the green line just above. This represents IPP's **BUPP**. You'll notice that the **BUPP** actually has a pressure capability of 145 psi. This exceeds the SDR equivalent of the pipe. Always select the flange equal to, or greater than the pressure rating dictated by the SDR of the pipe. Select the flange on the line just above the point you have located on the chart.

IPP FLANGESELECTOR® GUIDE — pressure capability of IPP and AWWA Flanges for HDPE pipe

For backup rings / flanges for high density polyethylene pipe stub-ends (HDPE) only. For steel pipe pressure ratings consult IPP.
IPP flanges shown on the chart are designed with a safety factor of two.



IMPROVED PIPING (IPP) PRODUCTS, INC.

50 Vashell Way, Suite 400
Orinda, CA 94563-3020

Toll Free 800/969-0962
Telephone 510/254-0962
Fax 510/254-7263

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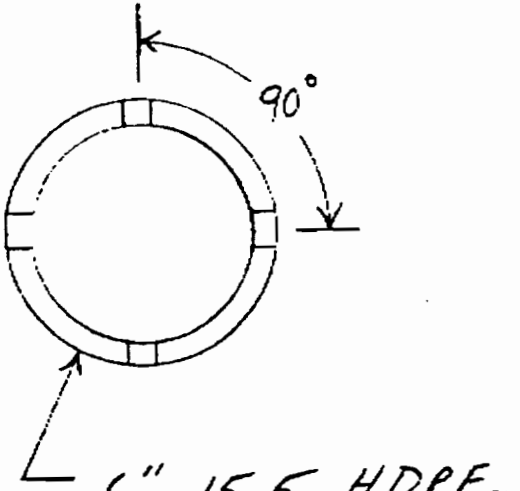

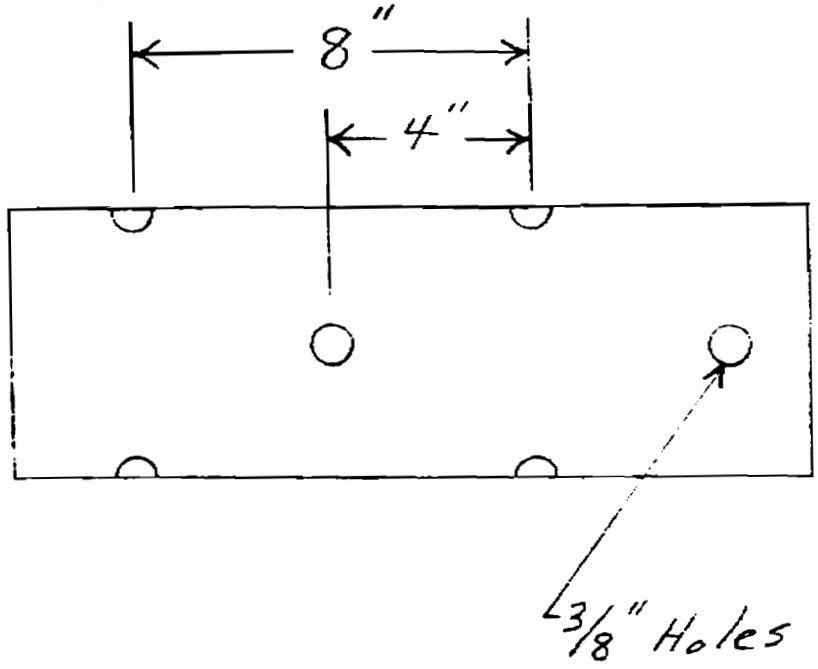

LEACHATE COLLECTION

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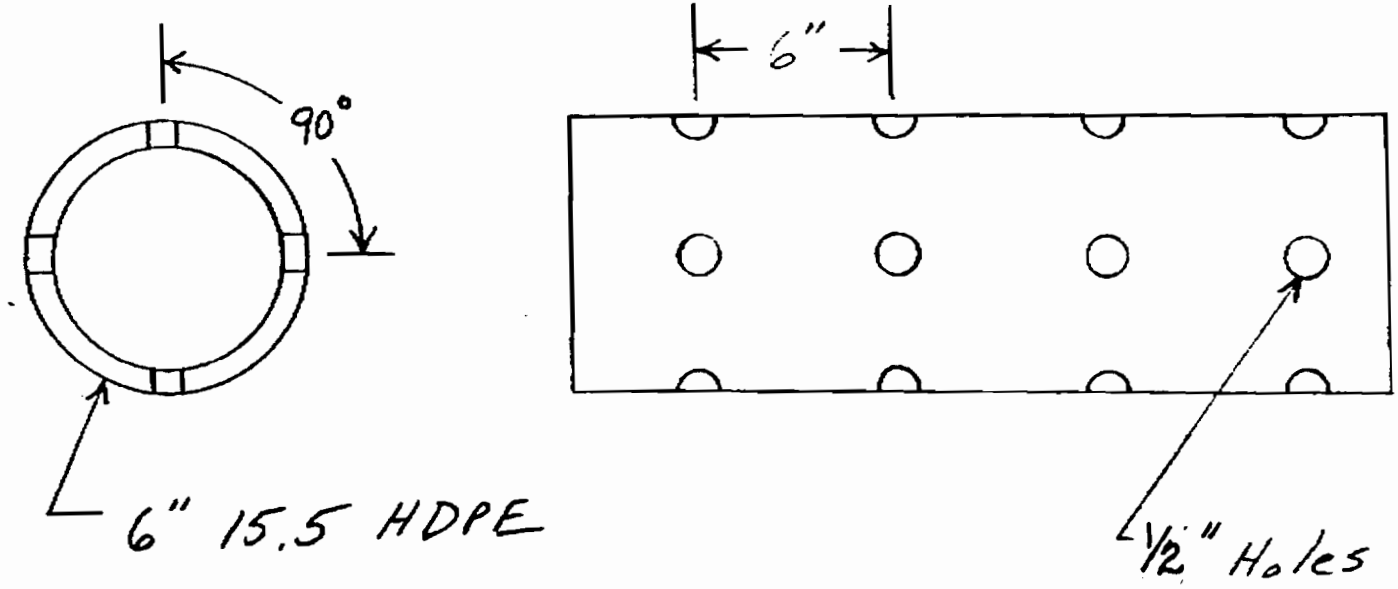
P.O. BOX 747
FORKED RIVER, NJ 08731
Ph. 609-693-9434 Fax: 609-971-8708

Date: 9-24-96	Drawing No. 1	Drawn by: J.V.
Scale: N/A		Approved by:
Subject: Perforation Detail		Revised:
		Revised:



GAS COLLECTION

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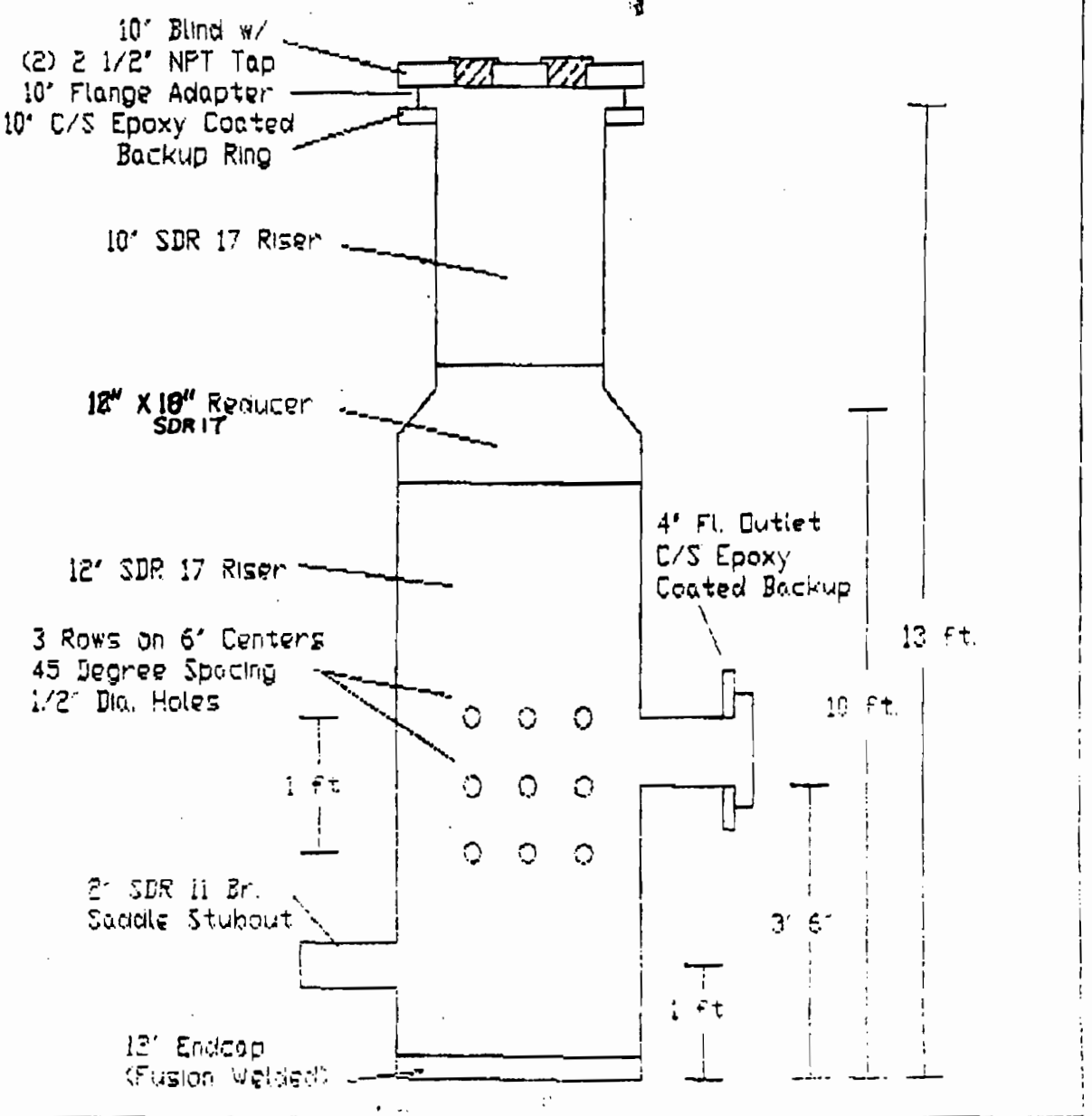
Scale: N/A		Approved by:
Subject: Perforation Detail		Revised:

Condensate Trap/Drip Leg

9/25/96 NTS Draw # 1

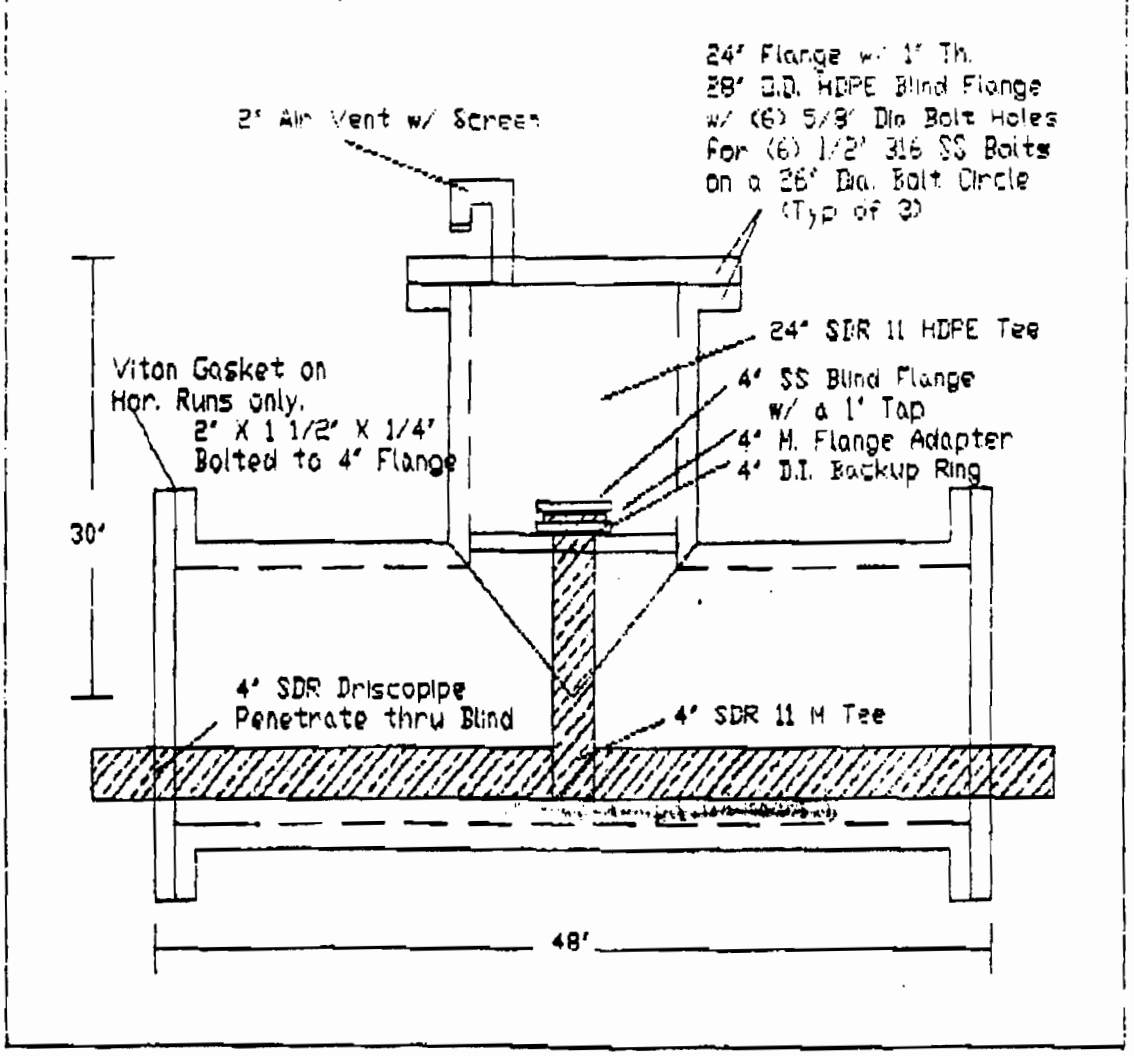
Fife Industrial Pipe Co.



24" Tee - High Point Vent

9/25/96 NTS Draw # 1

Fife Industrial Pipe Co.



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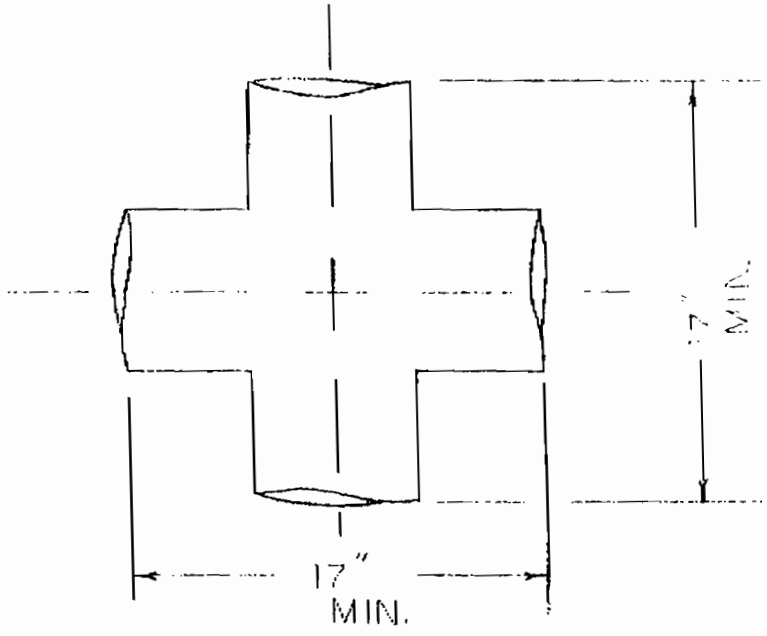
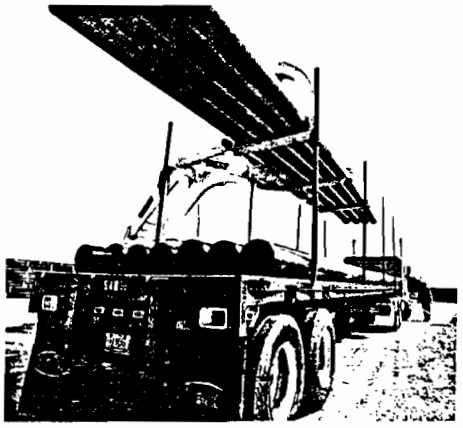
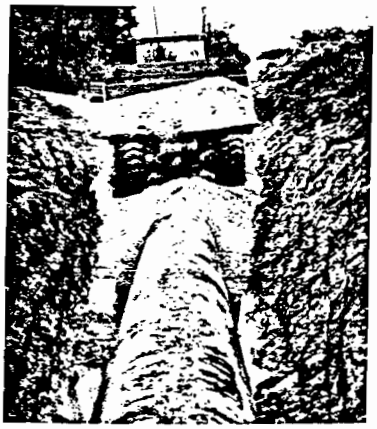
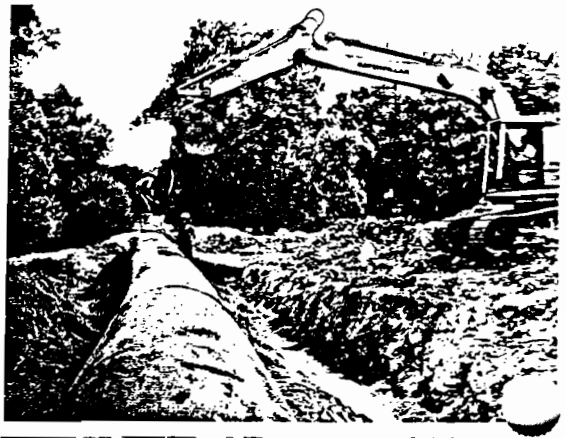


6" SDR 11 CROSS

SCALE: NTS	APPROVED BY:	DRAWN BY: KRB
DATE: 7 29 91		REVISED
FIFE PIPE		DRAWING NUMBER

DRISCOPIPE®

Systems Installation

PHILLIPS 66

DRISCOPIPE

Driscopipe Systems Installation

SHIPPING

Driscopipe is easy to ship, handle and store due to its lightweight, yet rugged, characteristics. The normal method of shipment is by truck. Standard packaging for Driscopipe is shown in Chart 1. When hauling Driscopipe, care should be taken that it is not damaged nor surface cut by sharp projections from other equipment or from the truckbed itself.

Chart 1.

Standard Packaging for Driscopipe Industrial Pipe

Pipe Description		Bundle		Truck Load Bundled		40 Ft. Float Truckload – Loose	
Nominal Size	O.D. (Inches)	Number of Joints	Linear Feet	Number of Bundles	Linear Feet	Number of Joints	Linear Feet
2"	2.375	88	3,520	14	49,280	–	–
3"	3.500	46	1,840	14	25,760	–	–
4"	4.500	29	1,160	14	16,240	–	–
5"	5.563	15	600	14	8,400	–	–
6"	6.625	13	520	14	7,280	–	–
7"	7.125	11	440	12	5,280	–	–
8"	8.625	8	320	12	3,840	–	–
10"	10.750	–	–	–	–	80	3,200
12"	12.750	–	–	–	–	52	2,080
14"	14.000	–	–	–	–	48	1,920
16"	16.000	–	–	–	–	35	1,400
18"	18.000	–	–	–	–	28	1,120
20"	20.000	–	–	–	–	20	800
22"	21.500	–	–	–	–	18	720
24"	24.000	–	–	–	–	16	640
28"	27.953	–	–	–	–	10	400
32"	31.496	–	–	–	–	9	360
36"	36.000	–	–	–	–	6	240
42"	42.000	–	–	–	–	4	160
48"	47.244	–	–	–	–	4	160
54"	54.000	–	–	–	–	1	40 to 50**

Note: Obtain truckload weight by multiplying linear feet times pipe weight per foot.

**Truck shipment is the standard mode of transport and shipment for all Driscopipe pipe. However, rail shipment may be considered under special circumstances for pipe sizes 40" and larger on an order by order basis.

HANDLING

Driscopipe can be easily handled with fork lifts or cherrypickers. The joints should be handled *near the middle with wide web slings and spreader bars*. Rope slings also work well with straight lengths. Coils can be handled in a similar manner. The use of chains, end hooks or cable slings that may scar the pipe are not recommended. The following procedures should be observed when handling Driscopipe:

- Always stack the heaviest series of pipe at the bottom.
- Protect the pipe from sharp edges when overhanging the bed of a truck or trailer by placing a smooth, rounded protecting strip on the edge of the bed
- Driscopipe has a very smooth inner and outer surface. The load should be anchored securely to prevent slippage

Lengths of small-diameter, lightweight pipe can be unloaded manually

Driscopipe applications are normally handled by:

- Unloading the pipe from the truck in a row along the side of the installation area and moving the fusion unit along the row of joints.
- Stacking the pipe beside the fusion unit and trailing the pipe out after fusion, then dragging the long length of pipe into place for installation. It is suggested that as the pipe is fused and moved through the fusion machine, additional joints of pipe should be placed in the moveable jaw side of the machine for each subsequent fusion. This prevents the hydraulic system of the machine from having to pull the previously fused long length

Dragging the pipe into place can be an economical method of installation, provided the pipe isn't damaged from sharp rocks or excessive abrasion created by pulling the pipe great distances.

STORAGE

If the pipe must be stacked for storage, avoid excessive stacking heights. Out-of-roundness can be created in the lower rows of pipe, due to excessive stacking heights. The limitation on storage height is based on the weight on the bottom layer of pipe and will vary depending on the storage facilities, size and wall thickness of the pipe and the temperature. General recommendations for stacking heights developed by the Plastic Pipe Institute for polyolefin pipe are shown in Chart 2.

Care should be taken to ensure that the pipe is stacked in straight rows. It is satisfactory to store black Driscopipe either inside or outside in direct sunlight as it will not be damaged in any way by long exposure to direct sunlight. However, the expansion and contraction caused by uneven heating by the sunlight may cause the pipe to bow if not restrained by racks. This does not damage the pipe but does reduce convenience of handling the pipe when taken out of storage for installation

When the pipe is laid directly on the ground, care should be taken to place the pipe on an area free of loose stones or sharp objects. This will avoid scarring or gouging the pipe

Chart 2.

Allowable Stacking Heights for Storage of Polyolefin Pipe

Nominal Pipe Size (in.)	Number of Rows High for SDRs* 18 and under	for SDRs* over 18, up to 26	for SDRs* over 26, up to 32.5
4	45	26	14
6	31	17	10
8	24	13	8
10	17	10	6
12	13	8	5
14	12	7	4
16	11	6	4
18	10	6	4
20	9	6	3
22	8	5	3
24	7	4	3
28	6	4	3
32	4	3	2
36	3	3	2
40	2	2	2
48		2	2
54	—	—	1

*NOTE SDR = Standard Dimension Ratio = $\frac{\text{Pipe Diameter}}{\text{Min. Wall Thickness}}$

JOINING PROCEDURE

The heat fusion method is a highly efficient, economical method of joining Driscopipe. The heat fusion method of joining high density polyethylene pipe began shortly after the first commercial production of high density polyethylene in the mid-1950s by Phillips Petroleum Company.

The modern day heat fusion joint is the same as the joint which was made on the first crude heat fusion equipment in 1956 . . . only the fusion equipment has evolved to gain efficiency, reliability, and convenience. The many principles learned on that early equipment for making a successful joint are still in use today. Phillips Petroleum Company designed, developed and built many new models of heat fusion equipment from 1956 until the early 1970s. Since that time, Driscopipe personnel have guided this development by others. The extensive line of fusion equipment offered by McElroy Manufacturing, Inc., Tulsa, Oklahoma is one of the results of this long history of development. Phillips pioneered the idea and development of the heat fusion joining system . . . and has used it exclusively in every high density polyethylene piping system sold by Phillips since 1956 . . . there are millions of these joints in service today.

The heat fusion method is an uncomplicated, visual procedure with straight-forward instructions. No "timing cycles" are necessary. The visual procedure allows the operator to concentrate on his work, rather than a clock . . . visually, he knows when the butt ends have melted to the degree required to fuse them together. Visually, he observes and controls fusion pressure by observing the amount and configuration of the fusion bead as it is formed.

The principle of heat fusion is to heat two surfaces to a fusion temperature, then make contact between the two surfaces and allow the two surfaces to fuse together by application of pressure. The pressure causes flow of the melted materials which effects mixing and, thus, fusion. On cooling, the original interfaces are gone and the two parts are united. Nothing is added to or changed chemically between the two pieces being joined. The picture below shows a cross section of heat fused Driscopipe.

Molten high density, high molecular weight Driscopipe 8600 is very viscous and tough. During heat fusion of this material, the operator can apply relatively high pressure to form the heat fusion joint (approximately 150 pounds of pressure per square inch of pipe material) . . . with no danger of forcing the molten material from between the two ends of the pipe. Lower fusion pressures are necessary with the softer, less viscous, high and medium density materials. When high pressure is applied to the higher melt flow material most of the molten material can be forced from the fusion joint. This produces a "cold joint" or poor fusion. Pressure control can be difficult, unless the fusion equipment is designed to compensate for the melt strength of the pipe being fused. The equipment discussed in this section can be regulated for the different melt strength materials. Compatibility fusion techniques should be used when polyethylenes of different melt indexes are fused together.

Heat fusion joints may easily be cut out and re-done. This fact has a bearing on the quantity and quality of training necessary and favorably affects operator attitude toward quality in the field. These joints can be easily cut out and destructively tested in the field to check joining proficiency and equipment condition, and at very little cost, since there is no coupling to destroy and throw away.

In the course of heat fusion joining, the fusion operator is faced with a wide variety of job conditions. Changes in air temperature, material temperature, wind velocity, sun exposure, humidity, as well as condition of the terrain and the equipment . . . all influence the joining requirements. Estimating pre-heat timing cycles under different conditions, can become extremely confusing. Quality work under field conditions is more consistent with the straight-forward, visual procedure offered by Driscopipe. Thus, the operator can consistently produce high quality joints.

Heat fusion has successfully been accomplished in the rain with a canopy covering the fusion machine and operator as well as in below freezing conditions.

Fusion equipment is available for piping systems that range from 1/2 inch diameter tubing through 54-inch diameter pipe. Although the size range is great, the procedure and principle remain the same. You just heat Driscopipe, pressure it together, let it cool and forget it.

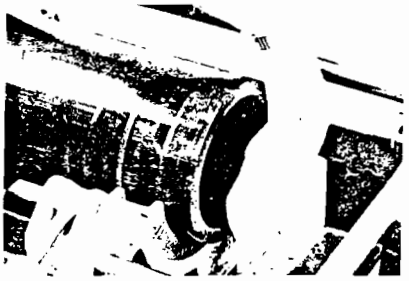
Heat Fusion

Heat fusion for Driscopipe Systems was pioneered and developed by Phillips Petroleum Company. Heat fusion techniques are recognized in the industry as cost effective joining systems of very high integrity and reliability. They do not require couplings and joints are stronger than the pipe itself – in both tension and pressure conditions. There are seven joining steps – simple, visual procedures with straight-forward, uncomplicated instructions.

Note: It is most important to maintain the proper temperature of the heater plate. Check it with a tempilstik or pyrometer for correct surface temperature.

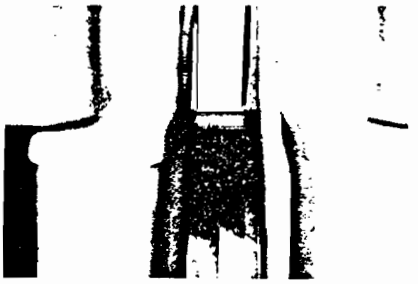
	Thermometer Readings	
Driscopipe	Coated Plates	Uncoated Plates
8600	500°F-525°F	475°F-500°F
1000	400°F-425°F	375°F-400°F

	Surface Temperature	
Driscopipe	Coated Plates	Uncoated Plates
8600	475°F-500°F	475°F-500°F
1000	375°F-400°F	375°F-400°F



1. Clean pipe ends inside and outside with a clean cotton cloth to remove dirt, water, grease and other foreign materials.

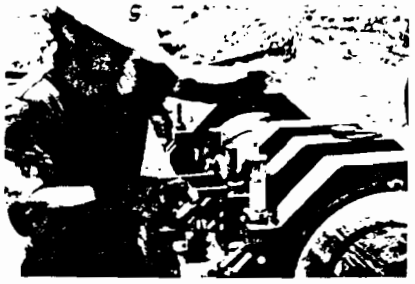
2. Square (face) the pipe ends using facing tool of the fusion machine.



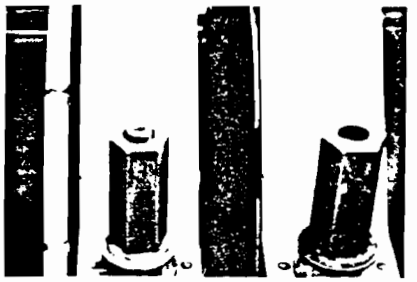
3. Check line-up of pipe ends in fusion machine to see that pipe ends meet squarely and completely over the entire surface to be fused. This is commonly referred to as "adjusting high or low". It is advisable at this point to make sure the clamps are tight so that the pipe does not slip during the fusion process.

4. Insert clean heater plate between aligned ends and bring ends firmly in contact with plate but *DO NOT APPLY PRESSURE* while achieving melt pattern. Allow pipe ends to heat and soften. Approximate softening depths are as follows:

Pipe Size	Approximate Melt Bead
2" and below	1/16"
3" - 5"	1/8"
6" - 12"	3/16"
12" - 22"	1/4" - 5/16"
24" - 54"	5/16" - 7/16"



5. Carefully move the pipe ends away from the heater plate and remove the plate (If the softened material sticks to the heater plate discontinue the joint. Clean heater plate resquare pipe ends and start over.)
Note: One pipe end usually moves away from the heater plate first. It is good practice to "bump" the plate away from the other side and then lift it out. Never drag or slide it over the melted pipe end.



6. Bring melted ends together rapidly. DO NOT *SLAM*. Apply enough pressure to form a double roll-back bead to the body of the pipe around the entire circumference of the pipe about 1/8" to 3/16" wide. Pressure is necessary to cause the heated material to flow together.

7. Allow the joint to cool and solidify properly. This occurs when the bead feels hard and your finger can remain comfortably on the bead. Remove the joint from the clamps and inspect the joint as pictured.

Sidewall Fusion

Side fusion procedure for Driscopipe can be accomplished in the field using 2" through 12" McElroy fusion units and proper heater plate adapters. Where branch outlets are larger than 12" outside diameter, sidewall fusions must be accomplished in a fitting fabrication shop. Size, availability and pricing can be obtained through Phillips Driscopipe representatives.

The following nine steps should be observed during the sidewall fusion procedure

1. Install fusion machine on the pipe (main).
2. Clean the pipe with a clean cotton cloth. Prepare surface of pipe (main) by roughing with 60 grit or coarser utility cloth.
3. Prepare the base of the branch by roughing with 60 grit or coarser utility cloth.
4. Align branch on the main and tighten clamp.
5. Check branch for square alignment on main.
6. Retract moveable clamp, roll in and center heater plate with adapter between base of branch and main
7. For all sizes, apply a strong, firm, continuous pressure until complete melt bead can be seen on main. Release pressure to light pressure. Continue heat soak cycle on branch and main. Watch base of branch for:

Main Sizes	Heat Soak Cycle Fitting Base Bead
1¼"	1/16" Melt Bead
2"	1/8" Melt Bead
3" and larger	1/8" – 3/16" Melt Bead

8. Retract moveable clamp and cleanly remove heater plate.
9. Bring melted surfaces together rapidly. *DO NOT SLAM*. Apply continuous progressive pressure until proper fusion bead is formed. Maintain pressure until joint has cooled (Until finger can remain comfortably on bead.).

Note. Contact Phillips Driscopipe Inc. for additional details on sidewall parameters and procedures.

Compatibility Fusion

Driscopipe 8600 and Driscopipe 1000 materials can be compatibly fused together and still maintain fusion joint integrity. Although the two materials have different melt characteristics, they can be properly fused using the procedure outlined below. Phillips Driscopipe sales and technical personnel are available to instruct and demonstrate the fusion procedure for joining Driscopipe.

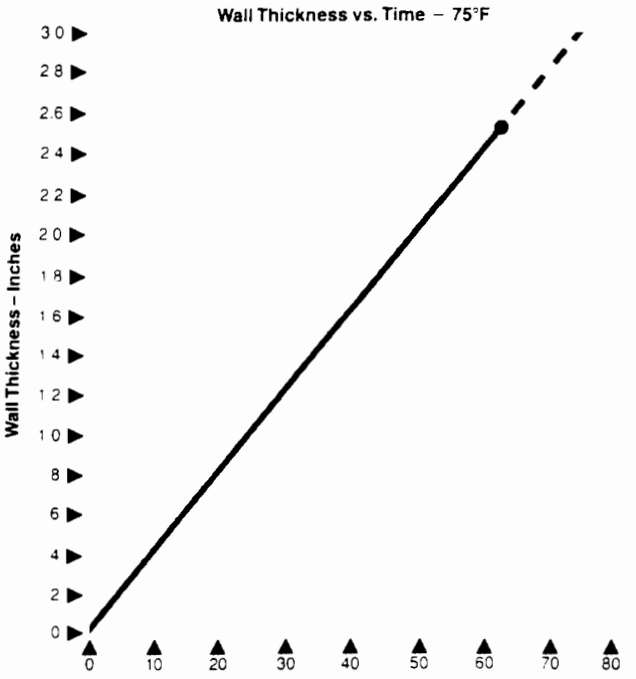
Compatibility heat fusion and sidewall fusion should be accomplished in the same manner as described before with the following exceptions.

- To achieve proper melt pattern, insert the heater plate and place a compatibility insulator between the heater plate and the Driscopipe 1000 material. After the Driscopipe 8600 achieves proper melt, then remove the insulator and bring the heater plate in contact with the Driscopipe 1000 material for proper melt. Continue heating both surfaces until proper melt develops. For manually operated fusion equipment, form a double roll-back bead as previously described in the fusion procedures.
- The fusion pressures for compatibility fusion of Driscopipe 1000 and 8600 on hydraulically operated equipment should be set at approximately 50% of the 8600 fusion pressures (ie: @ 75 psi). The fusion pressure will depend on the fusion conditions involved to achieve the proper roll-back bead
- The fusion temperature for compatibility fusion should be the one normally used to fuse Driscopipe 8600, 475°F-500°F surface temperature.

Note: The fabricated fittings furnished by Phillips Driscopipe are made (with few exceptions) from the same material as the pipe

Chart 3.

Fusion Joint Cooling Time



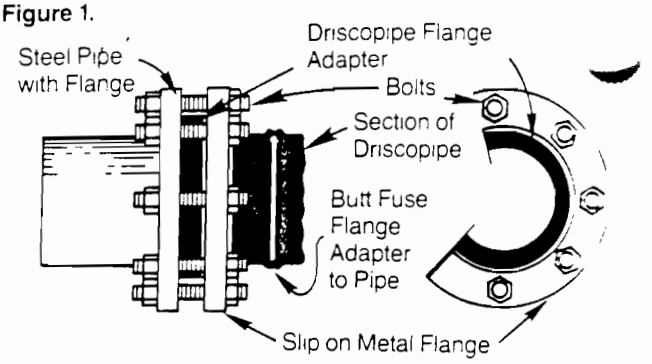
Mechanical Joining

Mechanical joining to other piping materials – fittings valves, tanks, pumps, etc. – may be accomplished with Driscopipe flange adapters and metal back-up flanges. Flanges are also used to connect lengths of Driscopipe together when heat fusion is impractical.

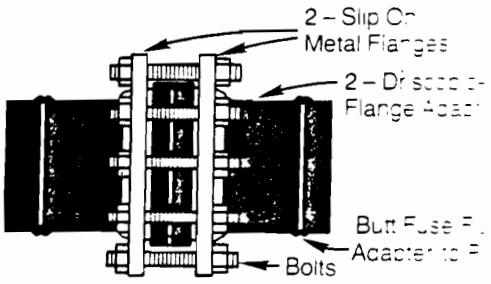
Flange Adapters are pressure rated the same as the pipe. Flange adapters can be heat fused to the pipe as outlined in the heat fusion section.

Figure 1 illustrates the flanged method for joining polyethylene pipe to itself or to steel pipe. Although ductile iron is now used for the slip-on flanges, other materials are available from your local supplier. Gaskets may be used between the polyethylene flange adapters but it is not generally necessary. Sufficient torque should be applied evenly to the bolts to prevent leaks. After initial installation and tightening of flanged connections, it is a good practice to allow the connections to set for a period of time (usually a few hours). Then conduct a final tightening of the bolts. Mechanical joining of 2" – 8" pipe may also be accomplished using the low cost, quick assembly, smaller O.D. profile Driscopipe threaded union. The union can be joined in about a minute or less. Contact your Driscopipe distributor for product information.

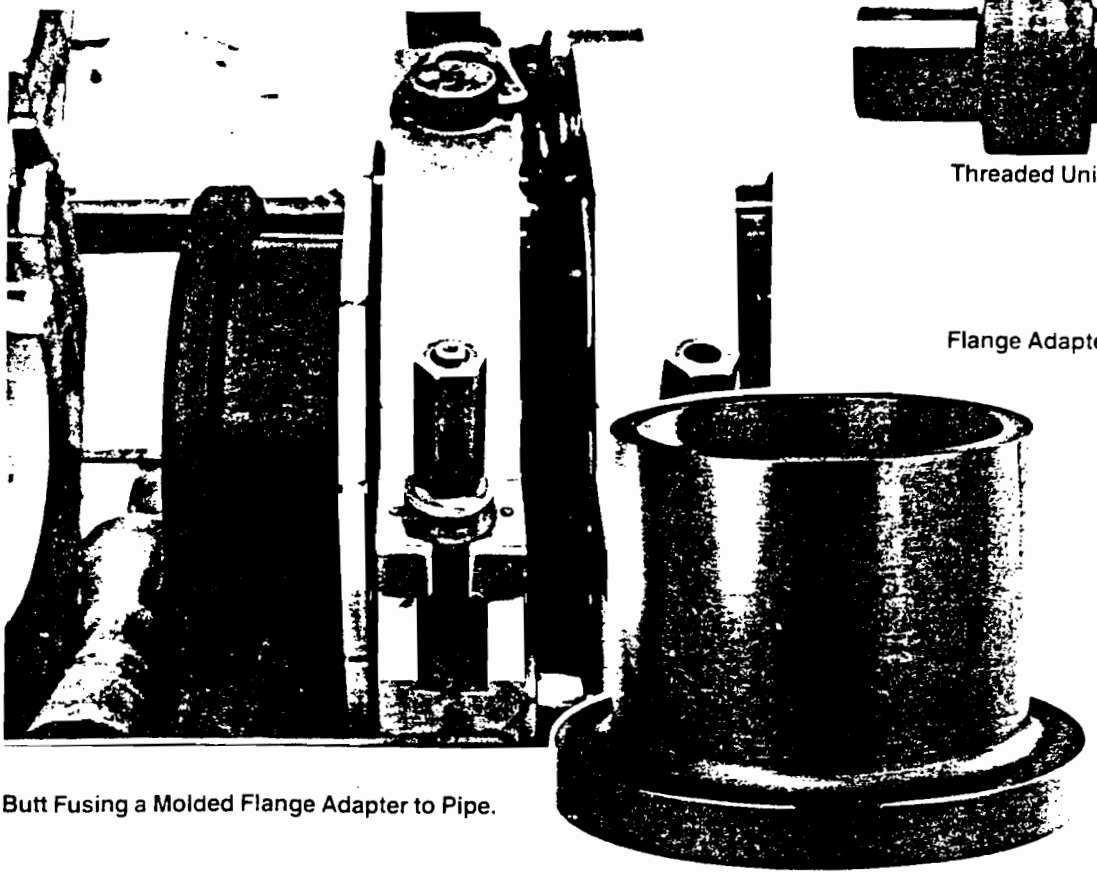
Figure 1.



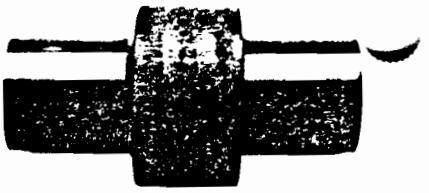
Joining Steel to HDPE



Joining HDPE to HDPE Without Permanent Fusion



Butt Fusing a Molded Flange Adapter to Pipe.



Threaded Union

Flange Adapter

Other Joining Methods

Extrusion gun welding using PE rod has been used with limited success with Driscopipe 1000 material for special low pressure fabrications, non-pressure applications and for very low pressure repairs. It is not recommended for general use in joining Driscopipe 1000 nor for any use with Driscopipe 8600. No welder qualification nor joint qualification standards or tests exist.

Standard tapered pipe threading is not recommended for polyethylene materials. Solvent or epoxy cementing are unsatisfactory methods of joining Driscopipe. There is no known solvent cement available for proper joining of HDPE.

Mechanical joining with bolt-on wrap-around clamps is generally not recommended as a permanent, long-term method of joining polyethylene unless the connection is stabilized in some manner. Due to the magnitude of thermal expansion and contraction of polyethylene materials and its creep characteristics under load, it can be difficult to maintain a permanent leak-proof seal with certain mechanical wrap-around clamps. However, in certain low pressure or non-pressure, non-critical applications they have been used when it is not feasible to flange or fuse the sections together. Even in these low pressure or gravity flow uses, the wraparound clamp length should be at least 1½ – 2 pipe diameters long.

Compression type couplings with internal stiffeners are available in some sizes and are generally satisfactory where temperature changes within the system are small.

Heat shrinkable polyethylene sleeves may be used for non-pressure applications to achieve effective seals but are also subject to tension pull-out with thermal contraction of the pipe.

Electro-Fusion couplings and wrap-around electro-fusion tapes are being used with some success in low-pressure applications for joining. While Driscopipe does not offer these joining systems, it is recommended they be studied, analyzed and reviewed for applicability, suitability and compatibility with either Driscopipe 1000 or Driscopipe 8600 before using. For pressure applications, long-term pressure performance and stress-life curves should be provided.

Consideration must be given to pull-out forces caused by circumferential as well as longitudinal thermal contraction when certain mechanical joints are used. If necessary, provisions must be made for sealing as well as restraining to compensate for the axial loading due to expansion or contraction and/or pipe settlement.

Bending Driscopipe

Driscopipe may be cold-bent to a minimum radius of 20-40 times the pipe diameter as it is installed, thus eliminating the need for elbows for slight bends. The minimum bending radius that can be applied to the pipe without kinking it varies with the diameter and wall thickness of the pipe. If adequate space is not available for the required radius, a fitting of the desired angle may be fused into the piping system to obtain the necessary change in direction.

INSTALLATION BELOW GROUND

This section sets out the general installation considerations and recommendations for below ground pipe. Although the requirements for installing plastic pipe are similar to that for rigid piping, there are some important differences. These differences arise due to the difference in basic physical properties, differences in joining techniques, differences in the effect of environmental conditions during installation and differences in experience of installation. Recognition of these differences in piping design and installation procedures is essential to obtain the desired objective of a piping system that will provide long-term service.

Information contained in this section, along with the recommendations of the Plastics Pipe Institute (PPI), American Society for Testing and Materials (ASTM), and other Standards organizations, provide pertinent facts relating to the installation of Driscopipe. We want to provide the engineer, purchaser, and contractor with essential information about the properties, advantages and cost saving benefits of polyethylene pipe.

Trenching and Bed Preparation

Since Driscopipe can be butt fused above ground in long lengths, narrow trench widths can be used to save on installation costs. Due to the ease of handling Driscopipe, it may be readily placed in the trench, thus necessitating a minimum amount of open trench. The length of open trench required should be such that bending and lowering of the pipe into the ditch does not exceed the minimum recommended bend radius, and result in kinking.

The trench width will vary depending on its depth and type of soil. The bed width should be great enough to allow for adequate compaction around the pipe. Generally, a bed width one foot wider than the nominal pipe diameter is adequate. However, to reduce trenching costs, narrow trench and/or bed widths is possible for small diameter pipe. Normally, the excavated material, if it is rock free and well broken up by the ditcher, will provide a suitable bedding material.

The trench bottom should be relatively smooth and free of rock. When rocks, boulders, or large stones are encountered which may cause point loading on the pipe, they should be removed and the trench bottom padded using 4-6 inches of tamped bedding material below and on all sides of the pipe and fittings. The bedding should consist of a free flowing material such as gravel, sand, silty sand or clay-like sand that is free of stones or hard particles larger than 1 inch. For most pressurized systems, accurate levelling of trench bottoms is not necessary unless specified. For gravity flow systems the slope should be graded evenly, as is done for other piping materials.

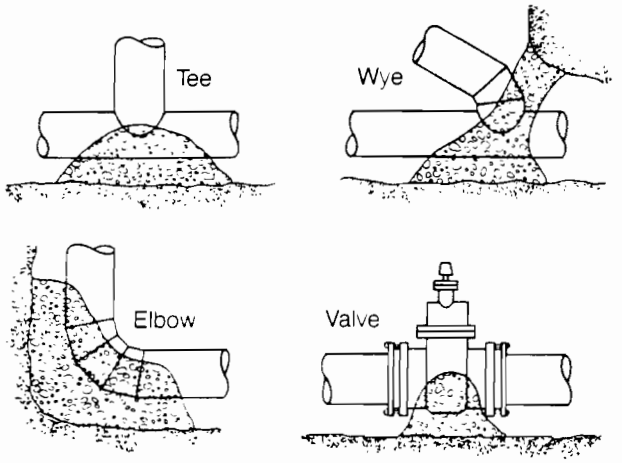
If an unstable soil condition exists, such as mucky or sandy soils with poor bearing strength, the trench bottom should be undercut and filled to proper trench depth with a selected material of gravel or small crushed stone.

Consider all precautions necessary to prevent trench cave-ins. No part of the country is immune to cave-ins. Trench failure is influenced by the presence of construction equipment near the edge of an excavation or adverse climatic conditions. OSHA and other regulatory agencies specify the maximum vertical height of unbraced trench which is permitted (usually 4 to 5 ft.) and the suggested angle of repose for the soil type involved.

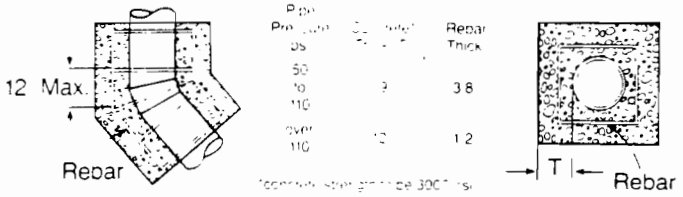
To protect the pipe from traffic loading and/or frost penetration, consideration should be given to establishing minimum earth cover requirements. Refer to the Driscopipe *Systems Design* brochure for load bearing capabilities.

Generally slight changes in direction of the pipe can be accommodated by field sweeping of the pipe in the ditch. If proper compaction is obtained, field sweeps do not require thrust blocks. Good soil compaction around fittings such as elbows or tees is usually sufficient. If thrust blocks are required in poor soils, concrete encasement or concrete bearing surfaces set in undisturbed soil will provide adequate protection. The encasement or thrust block should be constructed of reinforced concrete and act as an anchor between pipe or fitting and the solid trench wall. Figure 2 illustrates various types of concrete blocking and encasement of fittings.

Figure 2.



Thrust Blocks and Bearing Surfaces



Fitting Encasement

Pipe Laying

Driscopipe can be joined at ground level and lowered into the ditch. Care should be taken not to drop the pipe. Avoid excess stress or strain conditions during installation. Flanged connections should be used as necessary to facilitate handling pipe and fittings in and out of the fusion machine and installation in the ditch. This is particularly important at fabricated fitting junctures.

The length of Driscopipe which can be pulled into position alongside the trench depends on the pipe size and field conditions. Generally, the maximum pulling length for smaller sizes is approximately 1,000 feet; for larger pipe about 500 feet.

The maximum pulling force that can be applied to a pipe on level ground can be estimated using the following formula:

$F = SA$

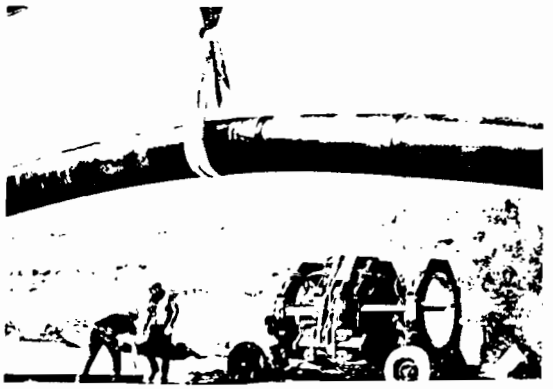
Where: F = maximum pulling force (lbs)
S = maximum allowable stress (1000-1500 psi)
A = cross-sectional area of pipe wall (square inches)

Cross-sectional area of pipe wall is:

$A = \pi(D - t)t$

Where: D = outside diameter (inches)
t = minimum wall thickness (inches)

When pulling pipe, either a pulling head or a suitable wraparound sleeve with rubber protective cover should be used to prevent the pulling cables from damaging the pipe. Never pull the pipe by the flanged end.



Thermal Expansion and Contraction

It is important that the expansion and contraction characteristics of Driscopipe be considered in the design and installation of most systems. Driscopipe expands and contracts at a rate higher than that for rigid metal piping. The rate and resulting amount of stress is discussed in detail in the Driscopipe *Systems Design* brochure. Although the coefficient of thermal expansion and contraction for polyethylene is approximately 10 times greater than for steel or concrete, this material has the advantage of viscoelastic properties which make it quite adaptable to relaxing or adjusting with time to stresses imposed by thermal changes.

Direct buried Driscopipe applications will generally have ample soil friction and interference to restrain movement of the pipe caused by the normal application temperature changes. Stresses induced by temperature change and resisted by soil containment do not damage the pipe. It is a good idea to make final tie-ins on a system at a temperature that is as close to operating temperature as possible. This is particularly true for insert renewal liner systems where there is no soil restraint.

For summer time installations with two fixed connection points, a slightly longer length of Driscopipe may be required to compensate for contraction of the pipe in the cooler trench bottom. The snaking in the trench which naturally occurs with pipe diameters 4" and below is normally sufficient to compensate for any anticipated thermal contraction. This snaking is desirable but not absolutely necessary. Pipe above 4" generally has sufficient soil friction to resist movement. During a winter installation the exact length of pipe should be used. Pipe which is too short or not aligned must not be drawn up by the bolts of a flanged connection because of overstressing the flange adapter and ultimately, the valve, tank, etc. to which it is connected.

When the backfill is soft or becomes fluid, as in marshes or river bottoms, the pipe may not be restrained by the backfill from movement caused by thermal expansion and contraction. Also, the stress induced in the pipe is transmitted to the end terminations. This can damage weak connections. If this possibility exists, adequate anchors should be installed just ahead of the termination to isolate and protect these connections.

The calculated force induced by thermal change is the product of the stress in the pipe wall and the cross sectional area of the pipe wall. The length of pipe required to anchor the pipeline against this calculated force depends on the circumference of the pipe, the average contact pressure between the soil and the pipe and the coefficient of friction between the soil backfill and the pipe.

The stress and the corresponding force developed by temperature change in a restrained pipeline are independent of the length and the burial conditions of the pipe. If pipe movement at the end sections cannot be tolerated, the pipe must be anchored mechanically to resist the thermal forces. Concrete blocks or other special anchors designed to fit the situation are usually used to transfer the thermal force into the soil adjacent to the pipe lay trench. Adequate frictional resistance must also be provided to transfer the force from the pipe into the concrete block.

If the pipe is not anchored at the ends to resist movement, the end sections will expand or contract as the temperature changes. This change in length will extend into the burial trench to a point at which the frictional resistance of the backfill is equal to the thermal force. These movements must be considered in the design of such physical features as connections to pumps, catch basins, sewer manholes, etc.

Once a line is installed and in service, the temperature variation is usually small, occurring over an extended period of time and is not likely to induce any significant stress into the pipe.

Fitting Installation

Driscopipe polyethylene flanged connections with metal back up flanges should be used to connect Driscopipe to metal fittings, valves, pumps or other piping materials. Where pipe or fittings are connected to rigid structures, movement or bending at that point should be prevented. Either well compacted fill should provide full support or a support pad should be constructed beneath the pipe and fitting. This pad, usually of reinforced concrete, should be fixed to a rigid structure and extend one pipe diameter or a minimum of 12" from the flanged joint. See Figure 3 for suggested methods.

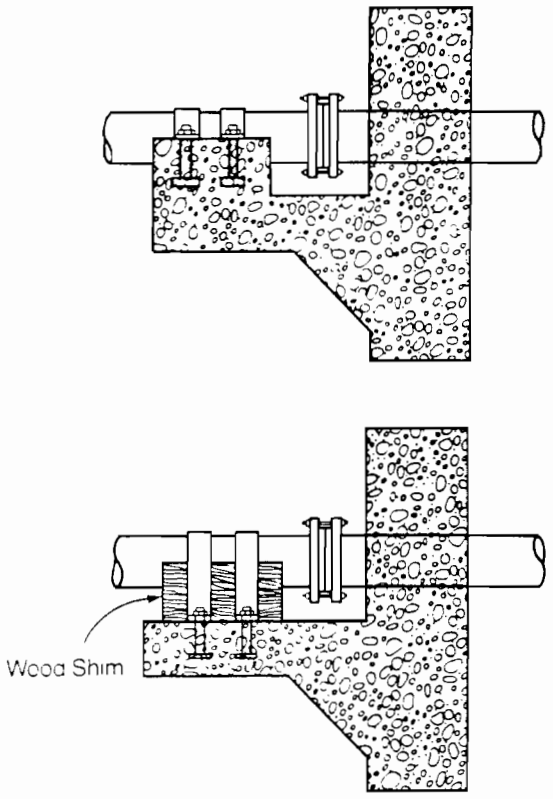
It is recommended that the bolts in the flanged connection as well as the clamps in a support pad undergo one final retightening. This should be done after initial installation just before final backfill if it is a buried application. Surface connections can be observed while in operation. Particular attention should be given to the compaction achieved around the fittings and extending several pipe diameters beyond the ends of the fitting. Compaction of 90% Proctor density or greater in these areas is recommended.

Polyethylene pipe or fittings may be totally enclosed in concrete if required in the design. Reinforced concrete encasement can be used to raise pressure rating of fittings, stabilize heavy valves or fittings, and control thermal expansion or contraction.

Grouting (Continuous or at Manholes)

Pipe running through a manhole wall can be anchored by attaching a collar or side fused branch saddles to the pipe and encasing them in the wall of the manhole. Expandable rubber seals and grouting have proven successful in sealing an annulus between a casing pipe and polyethylene pipe when it enters a manhole. (Refer to manhole terminations on last page of this book.)

Figure 3.



Grouting the annulus between the inner Driscopipe and an outer pipe is not required, but sometimes may be done for several reasons. Continuous grouting with few voids can provide structural strength to the liner pipe both in the form of increased resistance to external hydrostatic collapse pressure as well as increased internal pressure capability. However, please realize that only a few small single voids in the grouted annulus are allowed for the higher pressure capability of the piping system is lost. In actual grouting procedures, it is extremely difficult to achieve a void free annulus. Professional grouting companies should be used.

The table below illustrates the increase in hydrostatic collapse resistance for non-grouted and grouted PE pipe:

SDR	Unsupported* Condition		Grouted-or-** Buried Pipe	
	1 Month	50 Yrs	1 Month	50 Yrs
32.5	6 ft	4 ft	24 ft	16 ft
26.0	10 ft	9 ft	40 ft	36 ft
21.0	22 ft	17 ft	88 ft	68 ft
19.0	28 ft	22 ft	112 ft	88 ft
17.0	34 ft	29 ft	136 ft	116 ft
15.5	54 ft	44 ft	216 ft	176 ft
11.0	147 ft	97 ft	588 ft	388 ft
9.0	195 ft	160 ft	780 ft	640 ft
7.0	249 ft	204 ft	996 ft	816 ft

*External hydrostatic pressure differential shown in feet of water head 73.4 F per ASTM D-585

**Burial in solid soils or grouting increases the buckling or hydrostatic collapse resistance by a factor nominally 4 times the unsupported condition. Exact critical buckling pressures can be calculated using shallow burial design formulae from the Driscopipe Systems Design Manual.

If continuous grouting is specified, consider weighting the pipe to hold line and grade while the grout sets. If the length of pipe to be grouted is long, consider construction techniques to limit the grout pressure to less than the short-term unsupported hydrostatic collapse resistance, or consider plugging and filling the slipliined pipe with water to weight the pipe and avoid localized buckling under high grout pressures.

Localized grouting can also be used at connections to manholes and to stabilize movement of the liner pipe where break outs for laterals exist. Caution must be exercised during the grouting process not to exceed the collapse pressure of the polyethylene pipe.

Careful consideration should be given to these two key points, especially in slip lining installations: (a) anchoring the polyethylene pipe within the casing pipe to eliminate expansion and contraction if this constitutes a problem and (b) sealing the annulus to prevent infiltration and/or contamination.

Backfilling and Tamping

The purpose of backfilling the trench is to provide firm, continuous support around the pipe. Achieving this proper soil backfill around the pipe is probably the most important aspect of a successful buried application.

As stated in the bedding section, the material excavated from the trench can usually be used as the initial backfill if it is smooth, free of rocks, crumbles and breaks up easily. Economics usually dictate maximum reuse of the excavated material. Where trenches are located within roadways and are subject to vehicular traffic, cohesionless, granular soils are generally specified. The best initial backfill material is sand. When loading conditions are severe, such as road crossings, sand should be used where the pipe is laid in low quality soils such as heavy gumbo or muck. Coarse sand will usually reach the required density during placement without compaction. Initial backfill should be placed in two phases. The first is up to or slightly above the spring line of the pipe. Then compact or flush with water to assure that the lower part of the pipe (haunches) is supported.

Compaction of the soil around the pipe is accomplished by applying an external force to the individual layers of backfill as they are placed in the trench. Compacting brings the soil particles closer together and thus increases their density and shear strength. Compaction depends upon soil properties, moisture content, layer thickness, compactive effort and other factors. Compaction is usually accomplished by a mechanical tamper, vibrating plate or water flushing.

Care should be used while flushing to prevent the pipe from floating out of position in the trench. To keep the pipeline from floating or shifting, it can be filled with water prior to flushing until initial backfilling procedures are complete. This also assures that the horizontal diameter does not shorten excessively during compaction to the springline. The water flushing method of achieving compaction should only be used with "free draining" granular materials and a positive drainage outlet provided.

In the second phase of initial backfill, additional fill in 8"-10" layers should be added and well compacted until about 6"-12" above the top of the pipe. Larger diameter pipe requires the higher initial backfill point, the on-site material excavated from the trench can be used for final backfill to ground level. In a free traffic area, this excavated backfill of granular material should be compacted to a minimum of 90% to 95% density.

Standard tests are available to determine the density of the compacted soil such as Standard Proctor Laboratory Test Procedure, ASTM D 698. Compaction is measured in terms of the dry density achieved in the field compared to the laboratory dry density determined on a sample of the same soil type when compacted under a given effort.

The optimum moisture content (usually about 20% at which maximum density is obtained can be estimated in the field by squeezing it in your hand. If it just holds together, it is near optimum moisture. Similarly, a barely heel impression while walking probably indicates a soil density of 90%. A full heel print may indicate a density of 80%. And a full footprint may indicate a density of 70%.

Tests conducted on Driscopipe at Utah State University by Dr. Reynold K. Watkins show that Driscopipe will not buckle under ordinary conditions if the backfill is compacted and if it is in full contact with the pipe. A virtual failsafe installation can be assured if soil density is generally over 85% of Standard Proctor (AASHTO T-99) density. Additional information on Underground Installation is given in ASTM D 2321, Standard Recommended Practice for Underground Installation of Flexible Thermoplastic Sewer Pipe, ASTM D 2774, Underground Installation of Thermoplastic Pressure Piping, Plastic Pipe Institute Technical Report TR-31/9-79 and the Driscopipe *Systems Design* brochure.

In order to locate the underground polyethylene pipe in the future, a copper or galvanized tracer wire should be laid next to the pipe during installation to later permit use of locating devices. The metal wire should not touch the pipe in case of lightning.

Inspection and Testing

After installation or a portion thereof is complete, the pipeline should be pressure tested in accordance with recommended practice. Refer to the "Testing Polyethylene Pipelines" section of this brochure for detailed testing recommendations.

FIFE PIPE

May 14, 1997

Barbella Environmental Technology, Inc.
24 Tannery Rd.
Somerville, NJ 08876

Attention: Mr. Jeff Ratliff

RE: McElroy/Driscopipe Fusion Training

Dear Jeff:

This letter is to certify that the following personnel of Barbella Environmental Technology, Inc. attended a training session for the proper McElroy fusion techniques for Butt-fusion of Phillips Driscopipe Series 1000 at the jobsite of the Clarkstown Landfill project in West Nyack, NY:

Warren Yo[illegible]
Jim Now[illegible]
Bill Breeze
Steve Reich
Rick Reich
John Schnider

Sincerely,

F. Jay Grieder, Jr.
FIFE Pipe - Northeast
34 Hollow Rd.
Glen Gardner, NJ 08826
Distributors for Phillips Driscopipe and McElroy Fusion Equipment

FORCE MAINS AND VENTS

RECOMMENDED PRODUCT SPECIFICATION

PVC Schedule 40 and Schedule 80 Pipe

SCOPE:

This specification covers the manufacturing requirements for PVC Schedule 40 and 80 Iron Pipe Size (IPS) pipe intended for use in industrial pressure-rated systems where the fluid being conveyed does not exceed 140°F. This pipe meets or exceeds the requirements set forth by the American Society for Testing and Materials (ASTM) and NSF.

PVC MATERIALS:

Rigid PVC (polyvinyl chloride) compound used in the manufacture of Schedule 40 and 80 pipe shall be Type 1, Grade 1 as identified in ASTM D-1784. The compound shall contain the specified amounts of pigment, stabilizers, and other additives approved by NSF for the conveyance of potable water.

DIMENSIONS:

PVC Schedule 40 and 80 pipe shall meet the requirements of ASTM standard D-1785 for physical dimensions and tolerances.

MARKING:

The marking on PVC Schedule 40 and 80 pipe shall meet the requirements of ASTM D-1785 and state manufacturing company and Foundry's name or trademark, the material designation code, the nominal pipe size, the schedule of the pipe, the pressure rating in PSI for water at 73°F, the ASTM designation number D-1785, and the NSF seal for potable water.

BET
REVIEWED FOR ACCORDANCE
WITH CONTRACT DOCUMENTS
Jeff Rutliff
NAME DATE

NSF

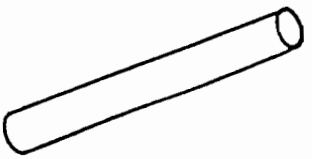
MEMBER OF
ASTM

SCHEDULE 80 PVC & CPVC

DIMENSIONAL AND WEIGHT DATA
(For CPVC weights multiply by 1.1)

BET
REVIEWED FOR ACCORDANCE WITH CONTRACT DOCUMENTS
J. Ratliff
NAME DATE

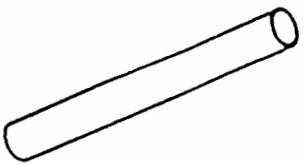
SCHEDULE 80 PIPE DIMENSIONS



Nominal Pipe Size In.	Outside Diameter, In.	Inside Diameter, In.	Min. Wall Thickness, In.	O.D. Tolerance In.	Wall Thickness Tolerance, In.	Weight Lb./Ft.
½	0.840	0.526	0.147	±0.004	+0.020	0.205
¾	1.050	0.722	0.154	±0.004	+0.020	0.278
1	1.315	0.936	0.179	±0.005	+0.021	0.409
1¼	1.660	1.255	0.191	±0.005	+0.023	0.567
1½	1.900	1.476	0.200	±0.006	+0.024	0.686
2	2.375	1.913	0.218	±0.006	+0.026	0.949
2½	2.875	2.290	0.276	±0.007	+0.033	1.449
3	3.500	2.864	0.300	±0.008	+0.036	1.938
4	4.500	3.786	0.337	±0.009	+0.040	2.833
6	6.625	5.709	0.432	±0.011	+0.052	5.411
8	8.625	7.565	0.500	±0.015	+0.060	8.219
10	10.750	9.564	0.593	±0.015	+0.071	12.277
12	12.750	11.376	0.687	±0.015	+0.082	17.104

Valve Box Drain →
2
Force Main → Pump Discharge
3

SCHEDULE 40 PIPE DIMENSIONS



ASTM D-1785

Nominal Pipe Size In.	Outside Diameter In.	Min. Wall Thickness In.	O.D. Tolerance In.	Wall Thickness Tolerance In.
½	0.840	0.109	±0.004	+0.020
¾	1.050	0.113	±0.004	+0.020
1	1.315	0.133	±0.005	+0.020
1¼	1.660	0.140	±0.005	+0.020
1½	1.900	0.145	±0.006	+0.020
2	2.375	0.154	±0.006	+0.020
2½	2.875	0.203	±0.007	+0.024
3	3.500	0.216	±0.008	+0.026
4	4.500	0.237	±0.009	+0.028
5	5.563	0.258	±0.010	+0.031
6	6.625	0.280	±0.011	+0.034
8	8.625	0.322	±0.015	+0.039
10	10.750	0.365	±0.015	+0.044
12	12.750	0.406	±0.015	+0.049

BET
REVIEWED FOR ACCORDANCE WITH CONTRACT DOCUMENTS
J. Ratliff
NAME DATE

4 → Pump Station Vents
6 →

LFG Collection System and Condensate Force Main Pressure Test Summary

VALVE I.D.	WELLS INCLUDED	DATE	DURATION OF TEST	PSI START	PSI FINISH	P/F	SIGN OFF
A	S Surface Collector	NA					
B	1,2,3,4,5,6,7,8,DL5	7/27/98	60 min	10	10	P	
C	9,10	7/27/98	60 M	10	10	P	
D	11,12,13	7/29/98	60 M	10	10	P	
E	15,16,17,18	7/29/98	60 M	10	10	P	
F	19,20,21,22,23,DL6,DL7	11/26/97	75 min	10" Hg vac	10" Hg vac	P	
G	24,25,26,27,28,29,DL8	11/26/97	60 min	10" Hg vac	10" Hg vac	P	
H	30,31,32,33,34,35,DL9	7/30/98	60 M	10	10	P	
I	36,37,38,39,40,41,42,DL10,DL11	11/26/97	60 min	10" Hg vac	10" Hg vac	P	
J	43,44,45,46,47,DL12	7/30/98	60 MIN	10" H	10" H	P	
K	N Surface Collectors	NA					
L	48,49,50,51,52	11/27/98	60 min	10"	10"	P	
I	DL1,DL2	[illegible]					
II	14,DL3	[illegible]					
III	DL4						
IV	NA						
CFM[2]	MW9 to CH4					P	
CFM[2]	CH5 to CH6					P	
CFM[2]	Cond Tank to MW9					P	
CFM[2]	3" condensate force main	7/28	30 min	15	15	P	
Valve Pit #2	2" & 10"	7/29	60 MIN	10"	10"	P	

NOTE.
1. TEST PROCEDURES CONFORM TO SECTION 13010 3.03A-N (75" W.C. =2.7PSI)
2. DUE TO PERFORATED PIPING IN THESE AREAS TESTING IS N/A
3. C.F.M.- CONDENSATE FORCE MAIN
3 KO TANK to C STORAGE TANK

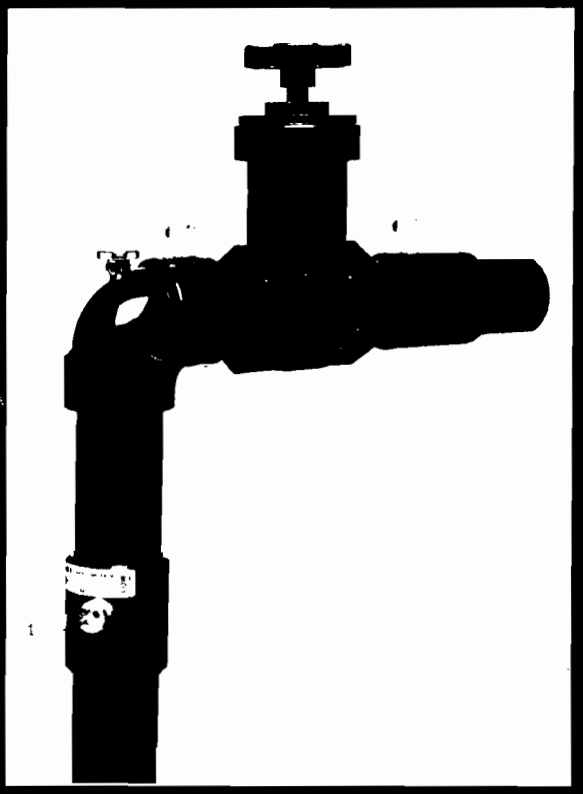
APPENDIX B3:

Wellheads, Vaults and Valves

WELL HEAD COMPONENTS

LFG&E PC 1000FX Wellhead

Precise Control Wellhead



Features

- ▲ PCFX Orifice Plate Flow Meter
  - Design prevents plugging
  - Wide flow range capability
  - Accurate even at low flow rates
- ▲ High Impact PVC flow control valve
- ▲ Rugged SCH 80 PVC construction
- ▲ Built-in stainless steel temperature probe
- ▲ Quick disconnect fittings on all ports
- ▲ Sliding compression fitting allows for wellhead elevation adjustment (optional)

Benefits

- ▲ Reduces life cycle cost of ownership
- ▲ Provides superior flow meter accuracy and reliability
- ▲ Uses durable materials to guard against harsh landfill conditions
- ▲ Maximizes system efficiency
- ▲ Maintenance free

Landfill Gas and Environmental Products' (LFG&E) **PC 1000FX** Precise Control Wellhead is a key element in modern landfill gas (LFG) collection systems. Created to assist in the control of landfill gas for regulatory and energy production requirements, the **PC 1000FX** is a quality intensive, cost effective alternative to field fabricated wellheads. The primary function of the **PC 1000FX** is to control landfill gas that is extracted or vented from landfill gas wells. The **PC 1000FX** also aids in the required data collection for well control and monitoring. Numerous sizes and models are available for vertical well connections, horizontal well connections, and retrofit applications for both above and below ground systems. With the **PC 1000FX** we've combined accuracy and reliability with low life-cycle costs to produce the perfect choice for any landfill.

Superior Design & Performance

The **PC 1000FX** provides uninterrupted, maintenance free operation. It incorporates the **PCFX** Orifice Plate Flow Meter, a unitized flow meter with no moving parts, which was designed specifically for LFG metering. The **PC 1000FX** is constructed of rugged SCH 80 PVC and uses a High Impact PVC flow control valve to throttle the LFG flow, as well as quick disconnect fittings on all monitoring ports. In addition, the **PC 1000FX** uses a unique sliding compression fitting between the wellhead and the well casing, producing a leak-proof seal while allowing easy adjustment of the wellhead elevation. The **PC 1000FX** is available for all flow ranges, and will provide the most accurate and reliable flow control and metering for your LFG application.

PCFX® Model 4150-P

At the heart of the **PC 1000FX** is the **PCFX** Orifice Plate Flow Meter. Specifically designed for the landfill gas industry, it provides accurate flow metering with no maintenance. The **PCFX** offers unitized PVC construction incorporating the orifice plate with a unique carrier coupling containing the metering taps, as configured it also incorporates the recommended upstream and downstream pipe runs. This one-piece construction eliminates any moving parts and prevents plugging by placing the metering taps outside the inside diameter of the pipe where particulates and moisture migration are minimized. Additionally, the orifice bore is configured to prevent damming of fluid within the unit and to minimize headloss. Due to its design and its reliable (±2%) accuracy at full scale, the **PCFX** provides the **PC 1000FX** with the best accuracy, the best flow range, and the most reliable flow meter available for landfill gas applications.

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619/596-9083

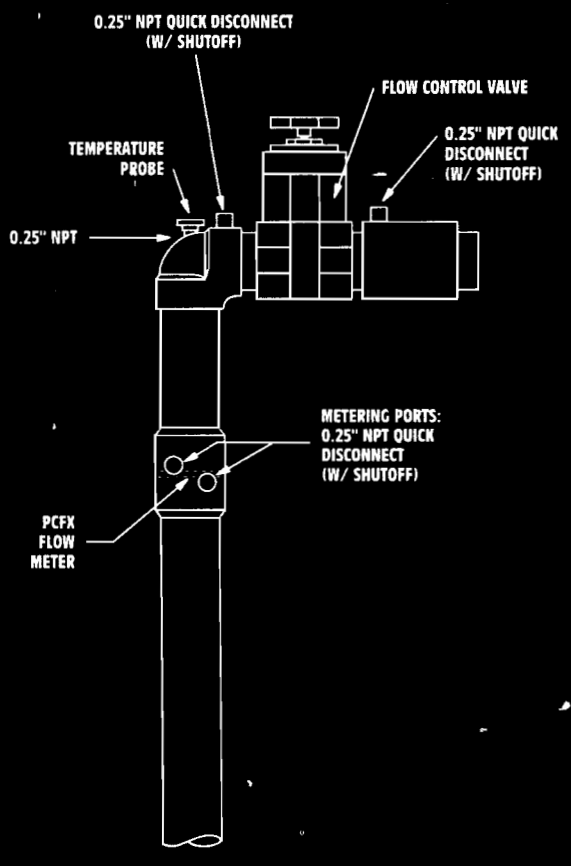
LFG&E PC 1000FX
Precise Control Wellhead

Options

- Available sizes: 1.5", 2", 3" standard, and custom sizes
- Remote sensing port locations
- Built-in flow instrumentation
- Custom configurations

Optional Equipment

- Sliding compression adapter fitting
- Remote sensing port kits
- **Ultra Flex**™ flexible connectors and hoses
- FRP (fiberglass reinforced plastic) vaults with RPM (reinforced plastic mortar) meter reading lids rated for 20,000 lbs. loading capacity
- Computerized data collection and logging equipment



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Performance Guarantee

Landfill Gas and Environmental Products, Inc. provides a full line of landfill specific equipment designed to be accurate, rugged, reliable, and cost-effective. In fact, we're so confident that you'll be completely satisfied with the quality and performance of our equipment that we back all our products with a unique **100% PERFORMANCE GUARANTEE**. Call one of our Landfill Product Specialists for details.

At LFG&E, we are dedicated to customer service. Our friendly staff of experienced Product Specialists are always available to support your needs through all phases of equipment specification, installation and operation. You can depend on LFG&E to deliver quality intensive products with attractive pricing and responsive ongoing support.

Specifications

FLOW METER:

PCFX flow meter custom calibrated and configured for the specific application. Including corner tap configuration, eccentric bore, and 0.25 NPT quick disconnect fittings on each pressure port

PCFX mounted in-line using a threaded adapter for easy removal

Wellhead and flow meter constructed with recommended upstream and downstream pipe runs, 10 times diameter and 3 times diameter respectively

FLOW CONTROL VALVE:

The flow control valve is manufactured of SCH 80 PVC; 1.5" and 2" are Type II, High Impact PVC gate valves; 3" and larger are wafer style butterfly valves or gate valves

TEMPERATURE PROBE:

Range 0°-200°F stainless steel construction, 0.25" NPT connection

SAMPLING PORTS:

0.25" NPT quick disconnect fittings

PIPE & FITTINGS:

Schedule 80 PVC

OPTIONAL SLIDING COMPRESSION FITTING

Sliding compression adapter rated for 150 psi at 70° F with flange or coupling for connection to well casing

DOCUMENTATION

Calculation data for each custom calibrated PCFX; d/p vs. flow graph; conversion formula; accuracy statement

Custom configurations and applications available.

LFG&E
Landfill Gas & Environmental Products, Inc.

9855 Prospect Ave., Ste. G
Santee, CA 92071
TEL 619/596-9083
FAX 619/596-9088
TOLL FREE 888/533-LFGE (5343)

LFG&E Ultra Flex™ Flexible Connectors and Hoses

Nominal Pipe Diameter (inches)	Connector I.D. (inches)	Length (inches)	Vacuum (Inches of Water Column)
1.5	1.900	12, 18, 24, 36	380
2	2.375	12, 18, 24, 36	375
3	3.500	12, 18, 24, 36	360
4	4.500	12, 18, 24, 36	340
6	6.625	12, 18, 24, 36	190
8	8.625	12, 18, 24, 36	137
10	10.750	12, 18, 24, 36	80
12	12.750	12, 18, 24, 36	80
14	14.000	12, 18, 24, 36	80
16	16.000	12, 18, 24, 36	80
18	18.000	12, 18, 24, 36	80

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Specifications

CONSTRUCTION:

ULTRA FLEX is constructed from a high quality Polyurethane film, manufactured in a unique fusion bond process. An ASTM-227 hard drawn spring steel wire is encapsulated between three continuous spiral wound plies of Polyurethane material. A soft cuff is added to each end and is sealed on the inside by a high quality Urethane sealer. Cuffs are permanently attached

CHARACTERISTICS:

UV and ozone resistant. Very high abrasion, tear, and puncture resistance. Sealed nonporous material. Superior aging resistance

TEMPERATURE RANGE:

-60°F to +200°F; 240°F Intermittent.
Remains flexible over full temperature range

BEND RADIUS:

Approximately 1.25 times diameter

EXPANSION/CONTRACTION:

Polyurethane maintains over 400% elongation percentage with excellent memory retention. **ULTRA FLEX** maintains 60% contraction with 40+% expansion and remains flexible over entire range

CONNECTION:

304 Stainless steel band clamp

OPTIONAL: PVC Collar.
The collar is glued to the pipe, then the Ultra Flex Connector slides over the collar and is clamped to the pipe

Custom configurations and applications available.

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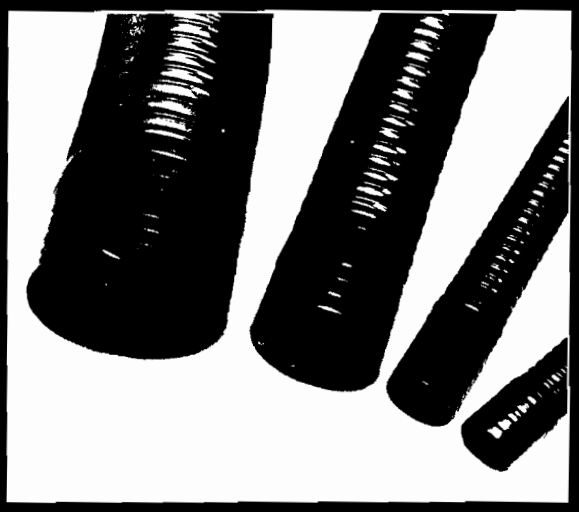
Santee, CA 92071
TEL 619/596-9083
FAX 619/596-9088

LFG&E Ultra Flex™
Flexible Connectors and Hoses



Features

- ▲ Extreme flexibility in all conditions
- ▲ Factory tested to rigorous standards
- ▲ Field proven under harsh landfill conditions
- ▲ Unequaled abrasion, tear, and puncture resistance
- ▲ UV (ultraviolet) and ozone resistant
- ▲ Sealed, nonporous material
- ▲ Superior expansion and contraction properties

Benefits

- ▲ Lowers life cycle costs
- ▲ Conforms to landfill expansion and contraction requirements
- ▲ Highly resistant to abrasion, puncturing, or tearing
- ▲ Withstands temperature extremes
- ▲ Works in numerous applications
- ▲ Long life in above or below ground systems
- ▲ Flexibility prevents costly line shears, cracks or breaks

Landfill Gas and Environmental Products' (LFG&E) **ULTRA FLEX™** flexible connectors and hoses **add cost-effective flexibility** to your landfill piping system. They are designed to provide a joint or connection point where flexibility is critical to protect the integrity of the landfill gas, condensate, or leachate piping systems. **ULTRA FLEX** insures against unnecessary costs due to cracking or shearing of rigid piping caused by expansion, contraction, or landfill settlement. These costs may include leak location, replacement, flare or energy production shut down, and regulatory fines. **ULTRA FLEX** can be used at wellheads, header and lateral pipes, condensate sumps or knockouts, mainline connections and other connection points where flexibility is crucial. Numerous sizes are available to fit any of your landfill piping requirements. **ULTRA FLEX** combines extreme durability, flexibility, and cost-effectiveness to produce the perfect choice for your landfill connector requirements.

Superior Design & Performance

ULTRA FLEX is ideally suited to withstand the harsh landfill environment. Constructed from high quality Polyurethane film using a unique fusion bond process, it is built to withstand the high vacuum requirements of landfill gas systems. An ASTM-227 hard drawn steel wire is encapsulated between three continuous spiral wound plies of Polyurethane. Soft cuffs are then permanently attached to each end to provide a positive seal over the pipes being connected. **ULTRA FLEX** is connected by using 304 stainless steel band clamps at each end, with an optional PVC collar to provide additional slip resistance.

ULTRA FLEX outlasts conventional landfill flexible connectors. **ULTRA FLEX** maintains a bend radius of approximately 1.25 times its diameter and provides unequaled abrasion, tear, and puncture resistance. Its UV (ultraviolet), ozone, and chemical resistance will extend the life of your landfill connectors in both above and below ground piping systems. The Polyurethane film far exceeds the expansion and contraction capabilities of other flexible connector materials, with an elongation percentage of over 400%. Excellent memory characteristics also allow **ULTRA FLEX** to maintain its original shape. The temperature range of **ULTRA FLEX** is -60° F to 200° F. It remains flexible across the entire temperature range and through complete expansion or contraction. In addition, **ULTRA FLEX**'s Polyurethane film is a sealed, nonporous material that will not absorb vapors or moisture, thus extending the life of the flexible connector. Feature for feature, **ULTRA FLEX** is the most cost-effective alternative for landfill flexible connectors and hoses.

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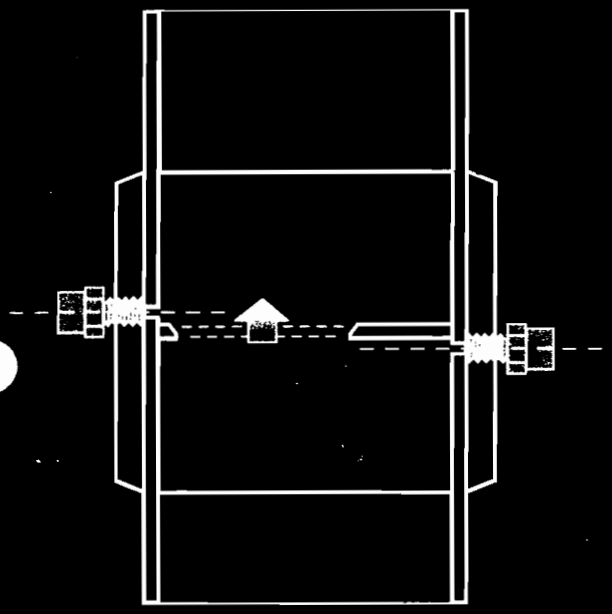
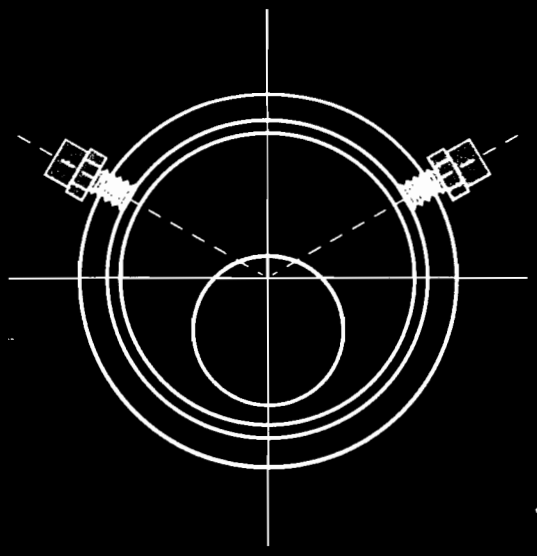
LFG&E PCFX FLOW METER

Orifice Plate Flow Meter

Options

- ▲ Built-in flow instrumentation
- ▲ Concentric or eccentric bore available
- ▲ Special sizes
- ▲ Sliding Compression Adapter for easy installation





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PCFX is a trademark of LFG&E, PCFX Flow Meter is Patent Pending, Sliding compression adapter is Patent Pending.
All

Performance Guarantee

Landfill Gas and Environmental Products, Inc. provides a full line of landfill specific equipment designed to be accurate, rugged, reliable, and cost-effective. In fact, we're so confident that you'll be completely satisfied with the quality and performance of our equipment that we back all our products with a unique **100% PERFORMANCE GUARANTEE**. Call one of our Landfill Product Specialists for details.

At LFG&E, we are dedicated to customer service. Our friendly staff of experienced Product Specialists are always available to support your needs through all phases of equipment specification, installation and operation. You can depend on LFG&E to deliver quality intensive products with attractive pricing and responsive ongoing support.

Specifications

MATERIAL:
PVC or HDPE

PRESSURE/TEMPERATURE/WEIGHT:
Varies with material and line size

HEAD LOSS:
Similar to standard orifice plates (refer to reference sheet TM-100)

FLUIDS:
Most liquids and gases, including steam
(consult LFG&E for specific applications)

LINE SIZES:
Standard pipe sizes

ACCURACY:
±2% of flow at full scale (refer to reference sheet TM-110)

METERING TAPS:
0.25" NPT Female, taps straddle horizontal axis

BORE:
Eccentric standard, Concentric available, eccentric available, sharp bevel for single direction flow applications

INSTALLATION:
Installed with standard couplings or threaded adapters. Drilling and tapping of pipe or use of orifice flanges eliminated. Orifice precision bored by Landfill Gas & Environmental Products, Inc. and calculated to ISO 5167.

Custom configurations and applications available.

LFG&E
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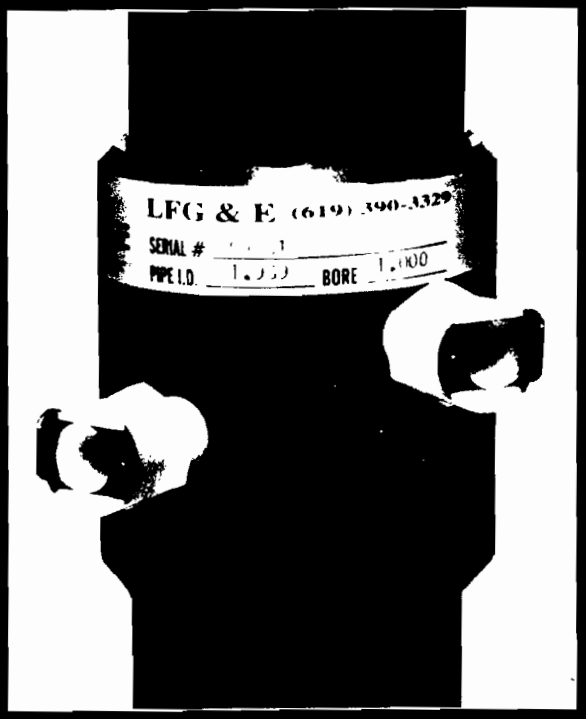
9855 Prospect Ave., Ste. G
Santee, CA 92071
TEL 619/596-9083
FAX 619/596-9088
TOLL FREE 888/533-LFGE (5343)

LFG&E PCFX FLOW METER

Orifice Plate Flow Meter



Features

- ▲ Unitized construction
- ▲ No moving parts
- ▲ Built-in metering taps (0.25" Female NPT)
- ▲ Corner tap configuration
- ▲ Custom calibration
- ▲ Wide flow range capability

Benefits

- ▲ Simplifies installation by ensuring concentricity in the flow pipe
- ▲ Eliminates costly flanges and bolts, installs with a standard coupling or threaded adapter
- ▲ Precludes potential alignment difficulties
- ▲ Ensures superior accuracy and long term reliability
- ▲ Prevents damming of fluids
- ▲ Prevents plugging
- ▲ Uses corrosion resistant materials
- ▲ Accurate even at low flow rates

Landfill Gas and Environmental Products' (LFG&E) **PCFX** Orifice Plate Flow Meter is a complete, one-piece flow metering package with **no moving parts, combining accuracy of measurement with easy installation.** Specifically designed for the landfill gas (LFG) industry, it provides accurate flow metering with no maintenance. It offers unitized PVC construction incorporating the orifice plate with a unique coupling that also contains the metering taps. This design places the metering taps outside the inside diameter of the pipe where particulates and moisture migration are minimized, thus eliminating potential plugging. The orifice bore configuration prevents damming of fluid within the system and minimizes headloss. Due to its design, the **PCFX** provides the best accuracy, the widest flow range, and the most reliable flow metering available for landfill gas applications.

Superior Design & Performance

Combining efficient accuracy with uninterrupted, maintenance free operation, the **PCFX** is the most reliable flow meter available for LFG flow metering. Designed and developed by LFG Specialists, it can be used wherever a conventional orifice plate is required, or to replace other primary d/p producers, such as pitot tubes. The **PCFX** requires no alignment and is installed simply by gluing, threading or fusing in a landfill gas collection line or wellhead. It comes configured with recommended upstream and downstream runs included thus eliminating the possibility of improper installation. Manufactured using corrosion resistant materials, it also provides an installed and sustained accuracy beyond that of the normal flange or radius tap orifice plate installation. The **PCFX** is available for most line sizes and meets or exceeds ASME and ISO standards.

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Landfill Gas & Environmental Products, Inc.

LFG&E Ultra Flex

Flexible Connectors and Hoses

REVISION TO DATA SHEET

LFG&E now utilizes a new style clamp with the Ultra Flex that provides a higher pressure rated seal, easier installation, and better availability of odd length and larger diameter hoses. This new clamp allows the Ultra Flex to be manufactured without cuffs where the I.D. of the Ultra Flex fits over the O.D. of the pipe. The new clamp is manufactured of 304 stainless steel and provides a bridge over Ultra Flex's spiral wire. The clamp increases the pressure rating while at the same time improving the slip resistance of the Ultra Flex. Improvement of slip resistance eliminates the need for purchase and installation of a sealing collar, thus saving money upon purchase and installation. In addition, manufacturing of the Ultra Flex without collars substantially increases the availability of odd length connectors and increases the availability of larger diameter hoses. We can now stock up to 24" diameter and any length up to 25', larger diameters are available by special order.

LFG&E is continually searching for improvements to supply our customers with the best available equipment at the best price with the best service. If you have any questions please call one of our Landfill Specialists on our toll free number (888) 533-LFGE.

Landfill Gas & Environmental Products Inc. Tel: (619) 596-9083 Fax: (619) 596-9088

ORIPAC CALCULATIONS

ATE	11/15/96
USTOMER	Barbella Environmental
USTOMER ID	0
ROJECT NAME	Clarkstown Landfill
ROJECT ID	1104
AG NUMBER	0
ALCULATED RATE (SCFM)	28 78

LINE TEMPERATURE	(DEG F)	110
BASE TEMPERATURE	(DEG. F)	60
LINE PRESSURE	(PSIA)	14.335
BASE PRESSURE	(PSIA)	14.696
BASE SPECIFIC GRAVITY		0.997
LINE SPECIFIC GRAVITY		0.997
SPECIFIC HEAT		1.3
DIFFERENTIAL	(IN. H2O)	5
LINE DIAMETER	(IN.)	1 939
VISCOSITY IN CP		0 011

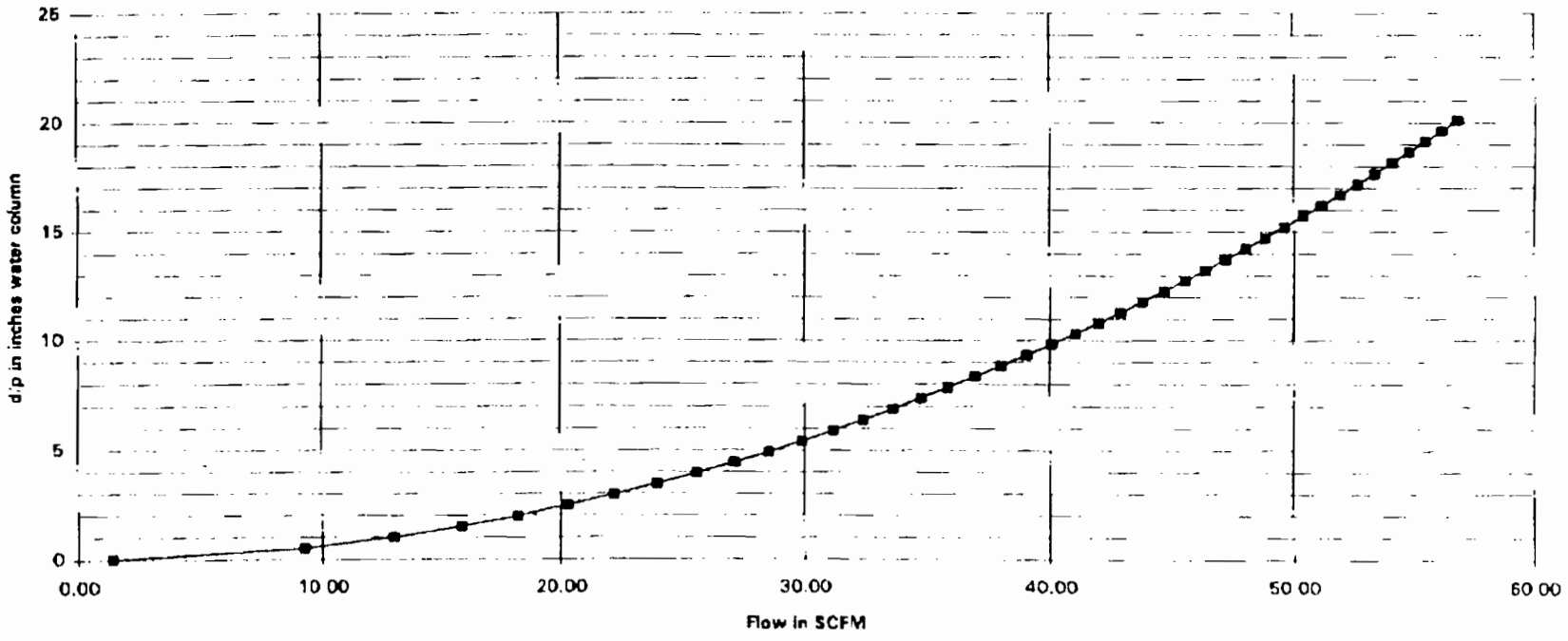
FINAL BETA USED	0.51573
K VALUE USED	0 63188
Y VALUE USED	0.99609
REYNOLDS NUMBER USED	38493 3
CALCULATED ORIFICE DIAMETER	1

HEADLOSS $1 - \beta^2$

73 40% of differential at calculated rate

3 67 " w/c

Differential Pressure v Flow



ORIPAC CALCULATIONS

ATE:	11/15/96
USTOMER:	Barbella Environmental
USTOMER ID	0
ROJECT NAME	Clarkstown Landfill
ROJECT ID	1104
AG NUMBER	0
ALCULATED RATE (SCFM)	15.68

LINE TEMPERATURE	(DEG. F)	110
BASE TEMPERATURE	(DEG. F)	60
LINE PRESSURE	(PSIA)	14.335
BASE PRESSURE	(PSIA)	14.696
BASE SPECIFIC GRAVITY		0.997
LINE SPECIFIC GRAVITY		0.997
SPECIFIC HEAT		1.3
DIFFERENTIAL	(IN. H2O)	5
LINE DIAMETER	(IN)	1.939
VISCOSITY IN CP		0.011

FINAL BETA USED	0.3868
K VALUE USED	0.61183
Y VALUE USED	0.99624
REYNOLDS NUMBER USED	21019
CALCULATED ORIFICE DIAMETER	0.75

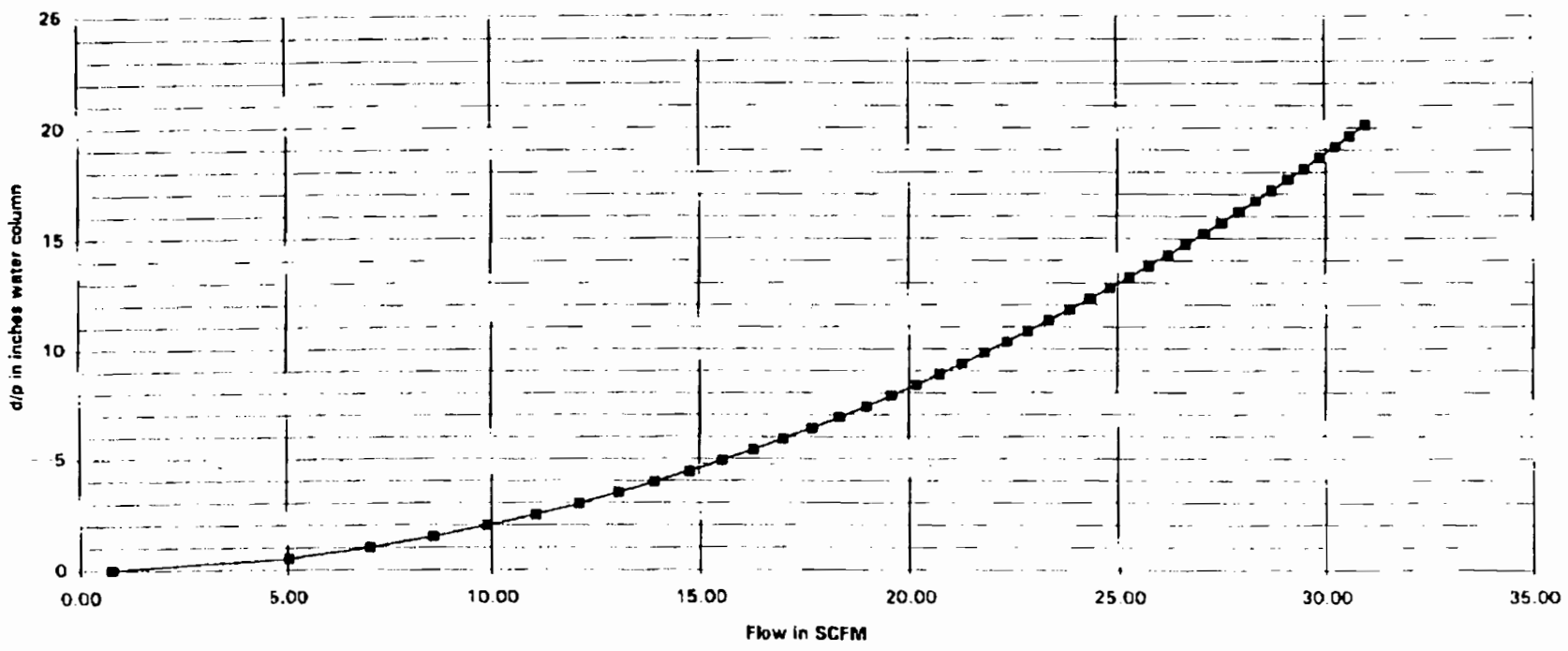
HEADLOSS $1 - \beta^2$

85.04% of differential at calculated rate

4.25 " w/c

TOTAL P.04

Differential Pressure v. Flow



ORIPAC CALCULATIONS

ATE:	11/15/96
USTOMER:	Barbella Environmental
USTOMER ID	0
ROJECT NAME	Clarkstown Landfill
ROJECT ID	1104
AG NUMBER	0
:ALCULATED RATE (SCFM)	10.78

LINE TEMPERATURE	(DEG. F)	110
BASE TEMPERATURE	(DEG F)	60
LINE PRESSURE	(PSIA)	14.335
BASE PRESSURE	(PSIA)	14.696
BASE SPECIFIC GRAVITY		0.997
LINE SPECIFIC GRAVITY		0.997
SPECIFIC HEAT		1.3
DIFFERENTIAL	(IN. H2O)	5
LINE DIAMETER	(IN.)	1.939
VISCOSITY IN CP		0.011

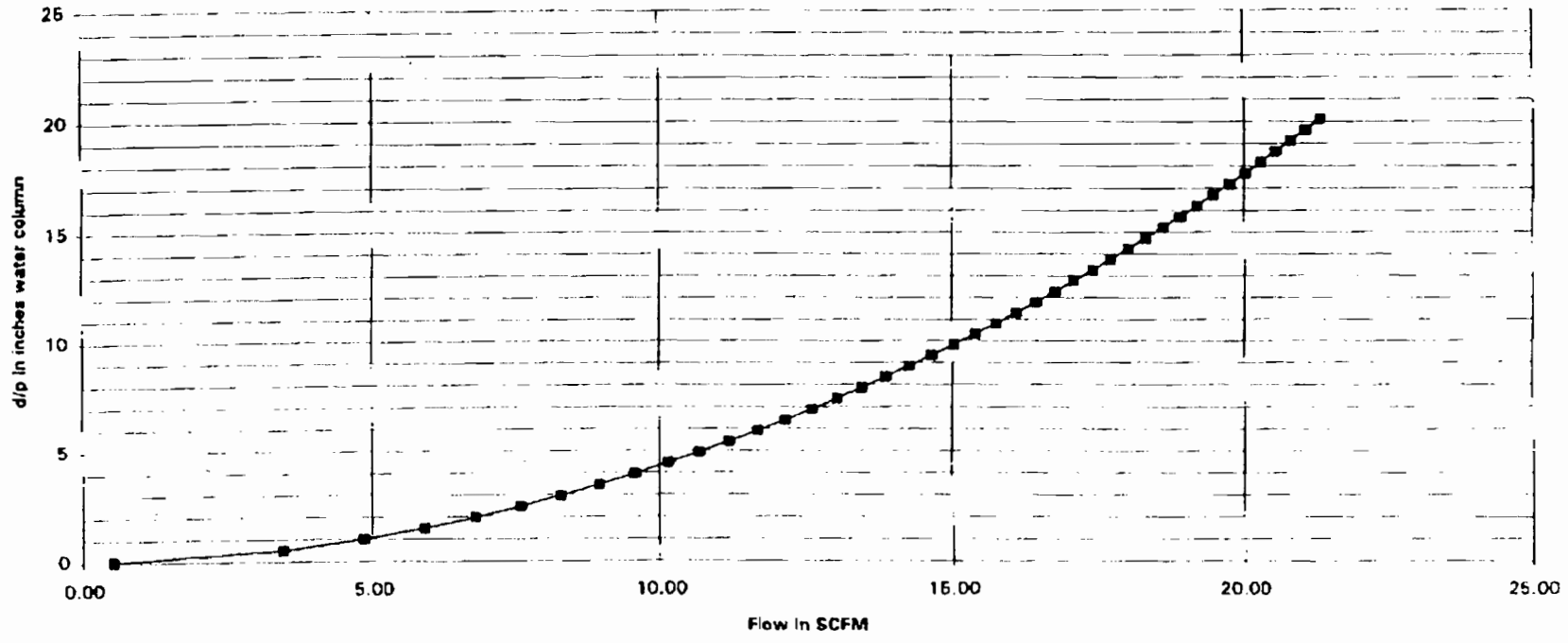
FINAL BETA USED	0.32233
K VALUE USED	0.60615
Y VALUE USED	0.99628
REYNOLDS NUMBER USED	14480.4
CALCULATED ORIFICE DIAMETER	0.625

HEADLOSS $1 - \beta^2$

89.61% of differential at calculated rate

4.48 " w/c

Differential Pressure v. Flow



LANDFILL GAS & ENVIRON.
Nov-15-1996 12:03

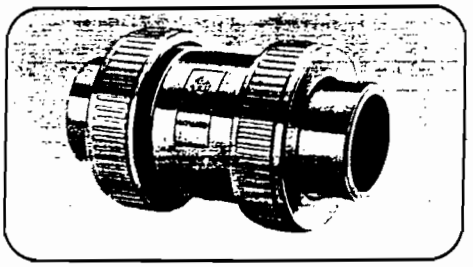
VALVES

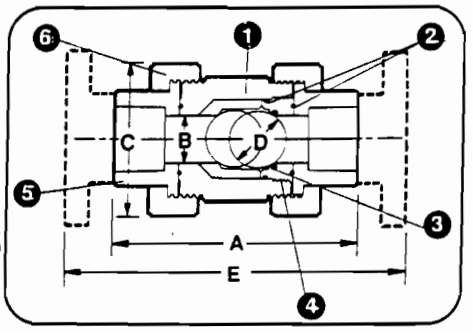
Ball Check Valves (V-40)

Hayward Plastic "True Check" Ball Check Valves prevent reversal of flow in piping systems. They are ideal where backflow could potentially cause damage to pumps, filters, or process equipment. Line pressure unseats the solid plastic ball to open the valve. When inlet flow ceases, the back pressure seats the ball on a special square cut elastomer seat, thus stopping back flow.

Hayward True Checks up to 4" feature a full port, safe block design, and can be installed either horizontally or vertically. Our unique 1/4" and 3/8" "Trim Checks", because of their compact design, are not True Union. They are, however, fully repairable and retain all of the other features of our True Check Valves. Hayward True Checks are available in PVC, CPVC, PPL, with Viton or EPDM seals in sizes from 1/4" - 6", and are manufactured from NSF approved materials.

***Note:** Check Valves should be installed a minimum of 10 pipe diameters away from the pump.*



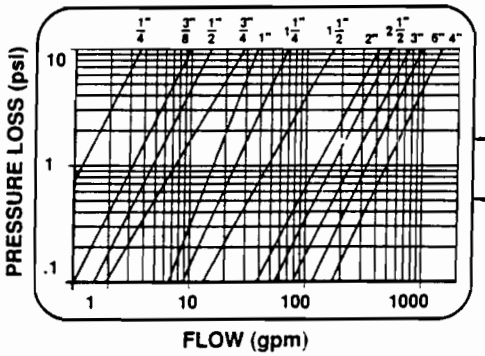


Features

- 1/2" - 6" Safe Block design
- Square cut seating ring
- Ideal for horizontal or vertical installation
- Seats with minimum back pressure
- Free floating ball never seats in same position twice
- Full port 4" Check Valve for greater flow with minimum pressure loss

Ball Check Valves Parts List

1 Body
2 O-Ring Seals
3 Square Cut Seal
4 Seal Retainer
5 End Connector
6 Union Nuts



Dimensions

Size	A	B	C	D	E	F	G	Weight in lbs. ~~Soc/Thd~~	Weight in lbs. Flanged
1/4"	3.06	0.31	1.38	0.50	N/A	N/A		0.13	N/A
3/8"	3.06	0.31	1.38	0.50	N/A	N/A		0.13	N/A
1/2"	4.63	0.50	2.25	0.75	6.75	4.88	2.32	0.75	1.00
3/4"	4.75	0.75	2.63	1.00	7.13	5.00	2.60	0.75	1.38
1"	5.25	1.00	3.00	1.25	7.75	5.88	2.88	1.25	2.13
1-1/4"	6.44	1.25	3.56	1.50	9.44	6.94	3.25	1.75	2.75
1-1/2"	6.75	1.50	4.00	1.75	9.75	7.06	3.75	2.00	3.75
2"	8.00	1.94	4.75	2.25	11.25	8.56	4.50	3.75	5.75
2-1/2"	10.56	2.88	6.56	3.25	14.38	11.25	2.50	11.00	15.00
3"	10.56	2.88	6.56	3.25	14.44	11.25	2.50	10.00	14.00
4"	12.94	4.00	8.56	4.25	17.00	14.63	4.25	17.00	25.00
6"**	N/A	4.00	8.56	4.25	19.19	N/A		N/A	30.20

*3" valve bushed down to 2½" Dimensions are in inches. For reference only.

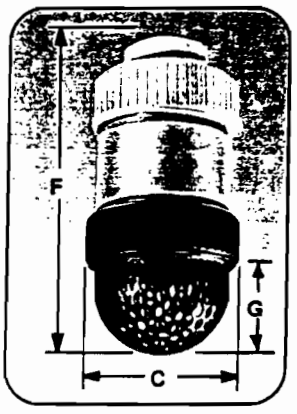
Selection Chart

Trim Check	Material	End Conn.	Seal	Pressure Rating
~~1/4" - 3/8"*~~	~~PVC~~	~~Socket, Threaded~~	~~Viton~~	150 psi @ 70° F non shock
1/2" - 4"	~~PVC~~	~~Socket, Threaded~~	~~EPDM~~	
	PVC or ~~CPVC~~	~~Socket, Threaded~~ or Flanged	Viton	
1/2" - 2"	~~PPL~~	~~Threaded, Flanged~~		
6"**	~~PVC~~	~~Flanged~~		

* Trim Checks ** 4" Valve Venturied to 6"

Engineering Specifications

All Ball Check Valves to be (PVC, ~~CPVC or PPL~~), with (~~Socket, Threaded~~, or Flanged) end connections. Seals and seats shall be (Viton ~~or EPDM~~). Valves 1/2" - 4" shall be of True Union design and be easily retrofittable as Foot Valves if required. Valves 1/4" and 3/8" shall be of Trim check design. Seat O- ring to be square cut for positive sealing with minimal back pressure. 1/2" - 4" valves to be of full port design. As manufactured by Hayward Industrial Products, Inc.



Foot Valve

Foot Valves are typically installed on the suction side of a pump, submerged in a tank or sump. They prevent solids from entering the pipeline which could prevent the valve from seating or cause damage to the pump or other process equipment. A Hayward True Check Ball Check Valve is easily converted to a foot valve by replacing one end connection with a foot valve screen.

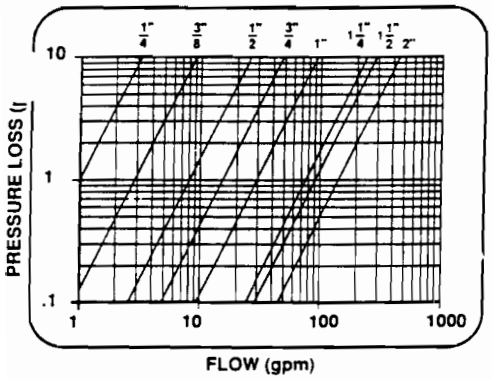
HAYWARD 900 Fairmount Avenue, Elizabeth, New Jersey 0720
908/351-5400 Fax: 908/351-7706

1/4"-2" Safe Block™ True Union Ball Valves (V-33)

Hayward Safe Block True Union Ball Valves provide quick quarter turn shut off and eliminate the need for unions. Their design allows for easy valve body removal from a piping system without disturbing pipe connections. Simply, unscrew the two assembly nuts and lift the valve body out of line.

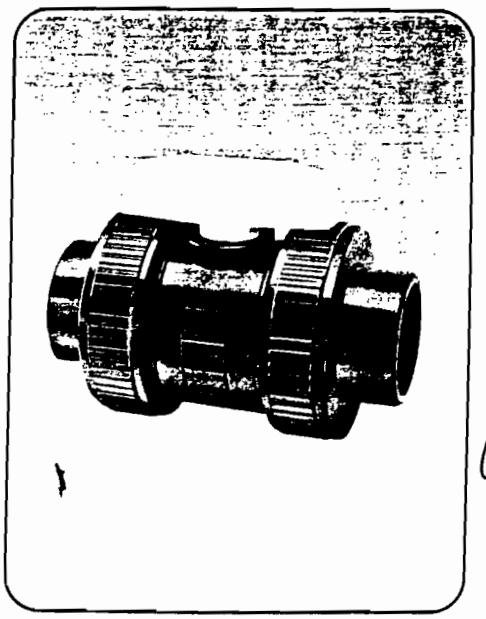
All Hayward True Union Valves are safe blocked and rated to 225 psi. The valve's seal retainer incorporates a fine pitch thread for accurate seat adjustment. Safe Block valves feature reversible Teflon seats. Should they become worn or scored, they simply have to be removed, turned over, and reinstalled to put the valve back in service. Hayward Safe Block Ball Valves, 1/4" through 2", are a Full Port design. The orifice in the ball is equivalent to pipe ID with no flow restrictions.

Hayward Safe Block Valves are made from NSF approved material and are available in PVC, CPVC, PPL, sizes 1/4" - 2", with Viton or EPDM o-rings.



Engineering Specifications

All True Union Ball Valves, 1/4" through 2", to be (PVC, ~~CPVC, or PPL~~) with (Socket, Threaded, or ~~Flanged~~) end connections. Seals to be (Viton or ~~EPDM~~) with Teflon seats. Valves to be Full Port design for low pressure loss and have a fine pitched threaded seal retainer for precise seat adjustments. Valve seats to be reversible and self lubricating for bubble tight seal. All valves to be of Safe Block design and rated to 225 psi. As manufactured by Hayward Industrial Products, Inc.

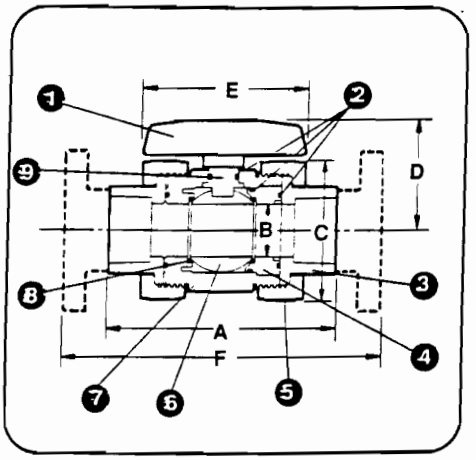


Features

- Safe Block design
- Fully serviceable. Internals can be inspected and serviced
- Fine pitch threaded seal retainer to adjust for seat wear
- Reversible Teflon seats. Doubles the life of the seating materia'
- Full Port design for greater Cv values

Options

- 2" Square operating nut
- Valve Safe Lockout
- Spring return handle
- Pneumatic & Electric Actuators



1/4" - 2" Safe Block True Union Ball Valve Parts List

1 Handle
2 O-Ring Seals
3 End Connector
4 Seal Retainer
5 Union Nut
6 Ball
7 Body
8 Teflon Seat
9 Stem

Dimensions

Size	A	B	C	D	E	F	Weight in lbs. Soc/Thd	~~Flanged~~
1/4"	4.63	.50	2.25	1.88	3.00	–	.75	–
3/8"	4.63	.50	2.25	1.88	3.00	–	.75	–
1/2"	4.63	.50	2.25	1.88	3.00	6.75	.75	1.00
3/4"	4.75	.75	2.63	2.13	3.00	7.13	.75	1.00
1"	5.25	1.00	3.00	2.63	4.00	8.00	1.13	2.13
1-1/4"	6.44	1.25	3.56	2.88	4.00	9.44	1.75	2.75
1-1/2"	6.75	1.50	4.00	3.00	4.00	9.88	2.13	3.63
2"	8.00	2.00	4.75	3.63	5.00	11.38	3.75	6.25

Dimensions are in inches. For reference only.

Selection Chart

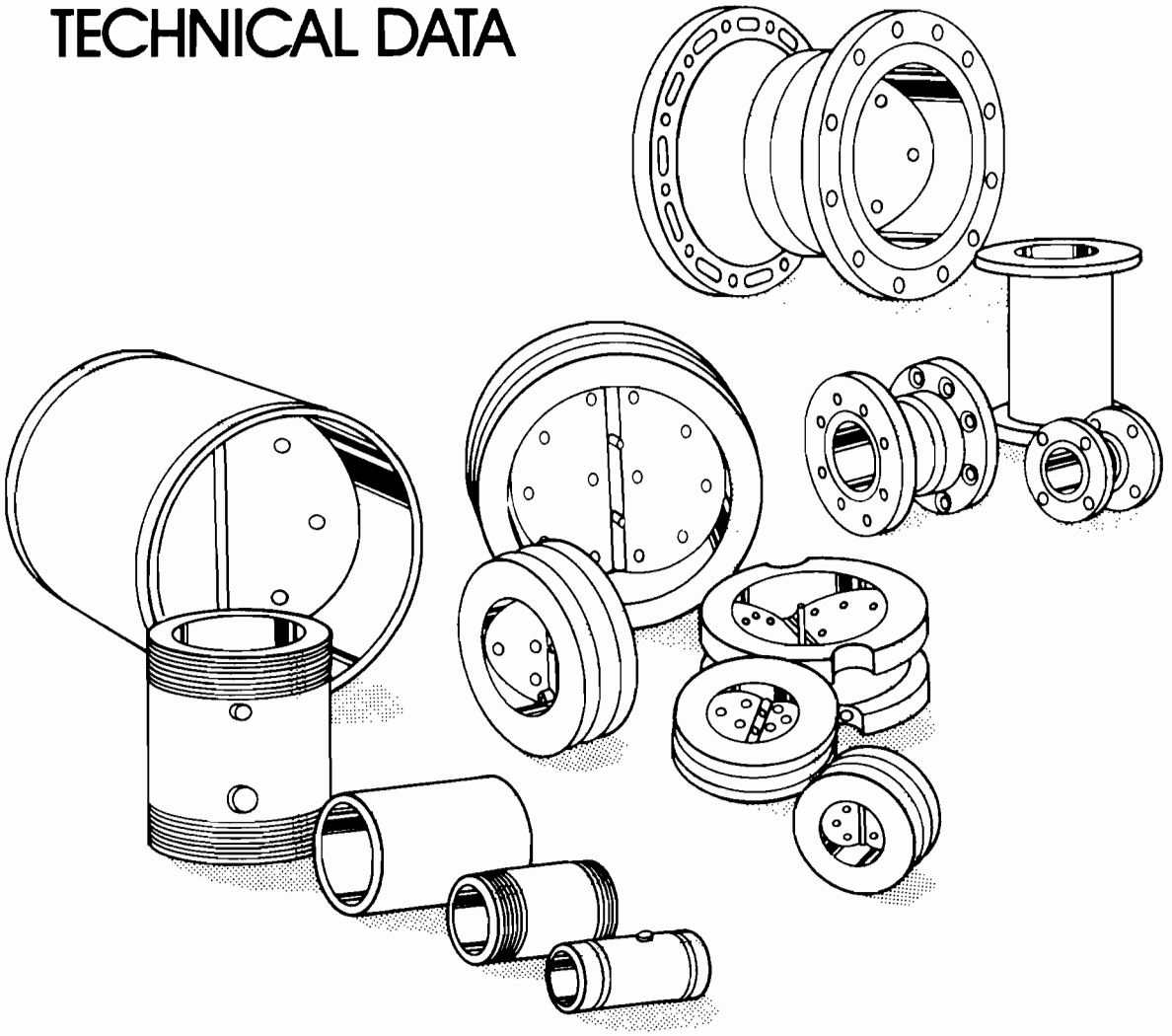
Size	Material	End Connection	Seals	Pressure Rating
1/4" - 3/8"	~~PVC~~	Socket or Threaded	Viton	225 psi @ 70° F non shock
1/2" - 2"	PVC ~~or CPVC~~	Socket, Threaded ~~or Flanged~~	Viton/~~EPDM~~	
1/2" - 2"	~~PPL~~	~~Threaded or Flanged~~	~~Viton~~	

TECHNOCHECK

THERMOPLASTIC CHECK VALVES

STYLE
5000
5001
5005
5103
5104

TECHNICAL DATA



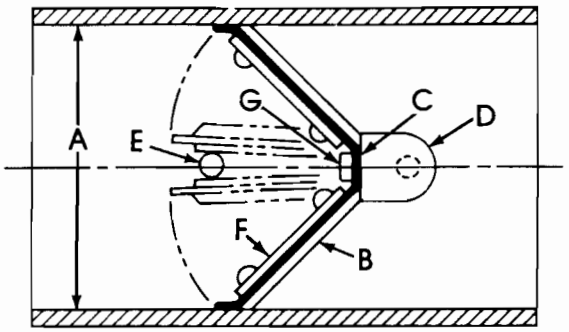
—**PVC** – Polyvinyl Chloride

—**CPVC** – Chlorinated Polyvinyl Chloride

—**PP** – Polypropylene

—**PVDF** – Polyvinylidene Fluoride

TECHNOLOGICALLY ADVANCED INTERNAL DESIGN



A. **FULL PORT** — Provides maximum flow with minimum pressure loss.
B. **VALVE PLATES** — Offer additional sealing support and minimum travel.
C. **SEALING MEMBER** — Provides tight shutoff and prolonged cycle life.
D. **HINGE POST** — Precision air foil design offers streamlined flow.
E. **TRAVEL STOP** — Prevents over travel of plates.
F. **CLAMP PLATE** — Provides added support.
G. **HINGE CLAMP** — Remains stationary and prevents wearing of rotation parts.

Engineered elastomers, developed for durability beyond the range of ordinary rubbers, provide the hinge and the seal in the unique patented Techno design. These tough, flexible, reinforced elastomers are resistant to liquid, gases, steam, chemicals, oil and fuel. The strength and durability of these elastomers insure prolonged cycle life, outwearing traditional metal seated valves. Techno's unique resilient seal provides an air tight shut off.

Inherent features include: large free area with resulting low pressure loss; high sealing integrity from the continuous seal design; reduced noise and wear by the elimination of traditional rotating parts; and stable operation under a wide range of flow rates.

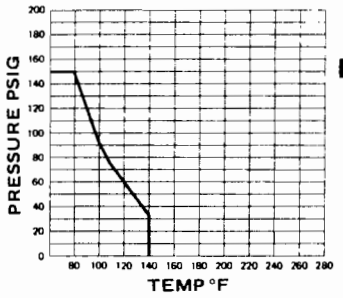
MATERIALS OF CONSTRUCTION

Technocheck Thermoplastic Valves are available in (PVC) ~~CPVC, PP and PVDF~~ in various sizes and end configurations. Consult factory for availability of materials and sizes not shown.

All 1", 1¼" and 1½" available valves are standard with nylon fasteners. If not acceptable consult factory for optional fasteners.

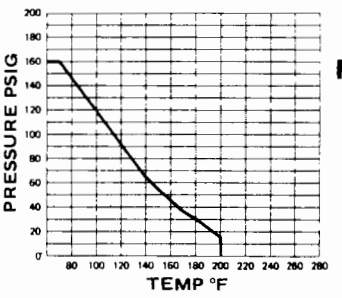
PRESSURE-TEMPERATURE GUIDELINES

PVC –



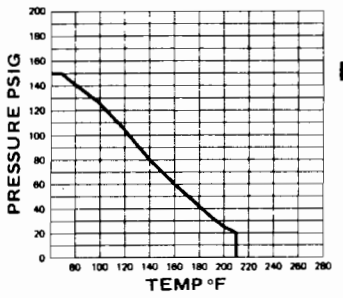
MAX. TEMP. RATING 140°F

PP –



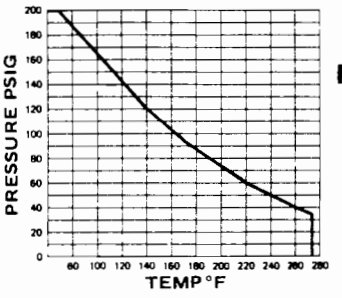
MAX. TEMP. RATING 200°F

CPVC –



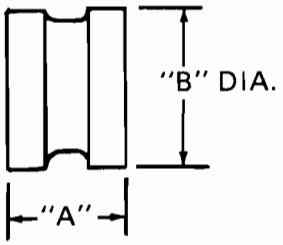
MAX. TEMP. RATING 210°F

PVDF –



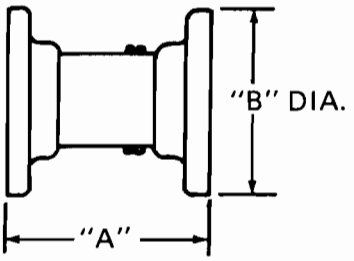
MAX. TEMP. RATING 275°F

STYLE 5005 – Wafer



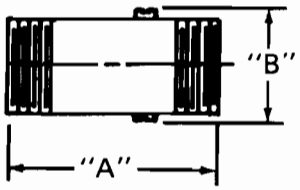
VALVE SIZE	2"	3"	4"	6"	8"
"A"	1¾	2¼	2¾	3¾	5
"B"	4	5¼	6¾	8⅝	10¾

STYLE 5001 – Flanged Ends



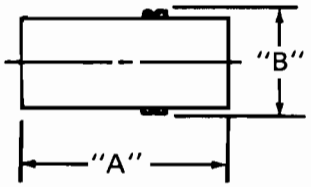
"A"	3½	4	4	5	5½	6	7	11½	13½	14	16	18	20
"B"	4¼	4⅝	5	6	7	7½	9	11	13½	16	19	21	23½

STYLE 5000 – Male Threaded Ends



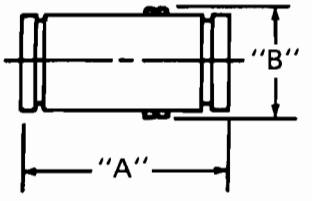
"A"	3½	3½	4	4	5	5½	6	7	8	10
"B"	1¾	2⅛	2½	3	3¾	4⅜	5⅜	6¾	7⅞	10¼

STYLE 5104 – Plain Ends (For Socket Fittings)



"A"	5¾	5¾	5¾	5¾	5¾	5¾	6¾	7¾	11	15
"B"	1¾	2⅛	2½	3	3¾	4⅜	5⅜	6¾	7⅞	10¼

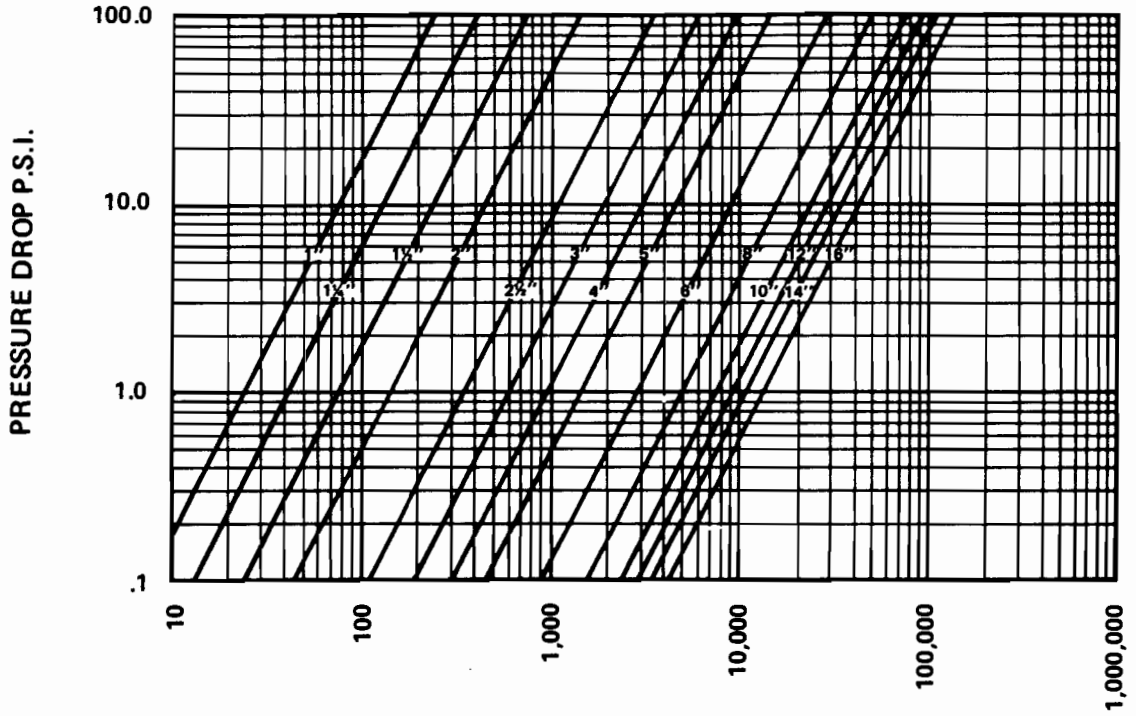
STYLE 5103 – Grooved Ends (For Special Couplings)



"A"	5¾	5¾	5¾	5¾	5¾	5¾	6¾	7¾	8¾	10¾	12¾	14¾
"B"	1¾	2⅛	2½	3	3¾	4⅜	5⅜	6¾	7⅞	10¼	12⅜	14⅜

NOTE: ALL DIMENSIONS IN INCHES. CONSULT FACTORY FOR 18"-24" SIZES.

PRESSURE DROP CHART
FOR WATER SERVICE



NOTE: MAXIMUM PRESSURE RATING OF 10" AND 12" VALVES ARE 100 PSI @ 70°F; 75 PSI @ 120°F; 50 PSI @ 140°F. CONSULT FACTORY FOR PRESSURE RATING OF 14"- 24" VALVE SIZES.

TECHNO REPRESENTATIVE:

© Techno Corp.

TECHNO CORPORATION
2709 WEST 10TH ST.
P.O. BOX 1416
ERIE, PA 16512
PHONE: 814-838-4561
FAX: 814-838-6963

1/96 (5M)

HAYWARD INDUSTRIAL PRODUCTS

PLASTICS DIVISION
900 FAIRMOUNT AVENUE
ELIZABETH, N.J. 07207

To: Mark Friedel

Fax: 9,5345287

Subject: PVC Valves

From: FRANK CAMPANELLI

Voice: 908-351-5400 X2257
Fax. 908-351-7706

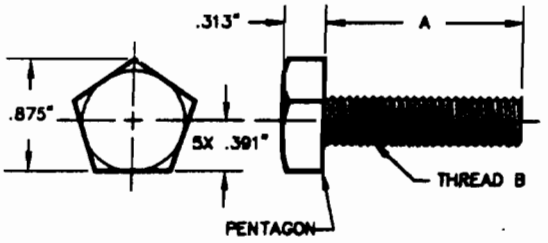
Mar 14 1997, 02:29 PM

Per your fax request this afternoon, Hayward Safe Block true union ball valves and ball check valves are rated at 225 PSI at 70 degree F non-shock and will handle 70 PSI at 130 degree F.

All pressure ratings in our catalog are in PSIG

Hayward ball vaves are all quarter turn shut off

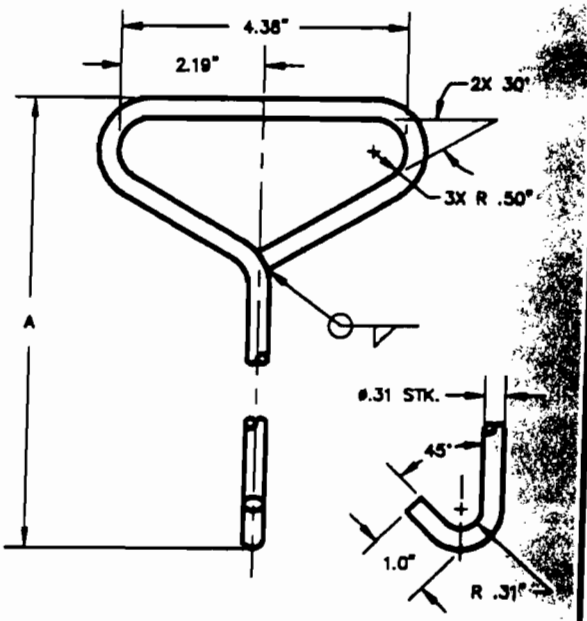
TAMPER RESISTANT STANDARD PENTA-HEAD BOLT
STAINLESS STEEL



PART NO.	A	B	APPLICATION
80021	1.25"	3/8-16 UNC	PC1324, PC1730, PX1324, PX1730
80022	1.75"	3/8-16 UNC	PR2700
80025	2.25"	3/8-16 UNC	PG1118, PV_____, PR3900
80027	2.75"	3/8-16 UNC	PG1324 & PG1730
80030	3.50"	3/8-16 UNC	PG2436 & PG3048
80124	2.25"	1/2-13 UNC	LG3660, PE1324, PE1730
80129	3.50"	1/2-13 UNC	LG3059, LG3060, LG3672, PG4848

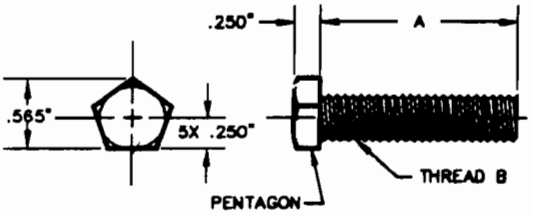
For use with penta_head socket # 82920

COVER HOOK
ELECTROPLATED STEEL



DESCRIPTION	PART NO.	A
SHORT COVER HOOK	82905	7.0"
LONG COVER HOOK	82908	27.0"

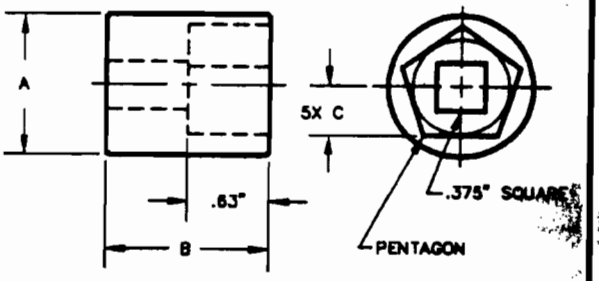
TAMPER RESISTANT SMALL PENTA-HEAD BOLT
STAINLESS STEEL



PART NO.	A	B	APPLICATION
80020	1.25"	3/8-16 UNC	PC0608, PC1212, PC0818, PC1118

For use with penta_head socket # 82922

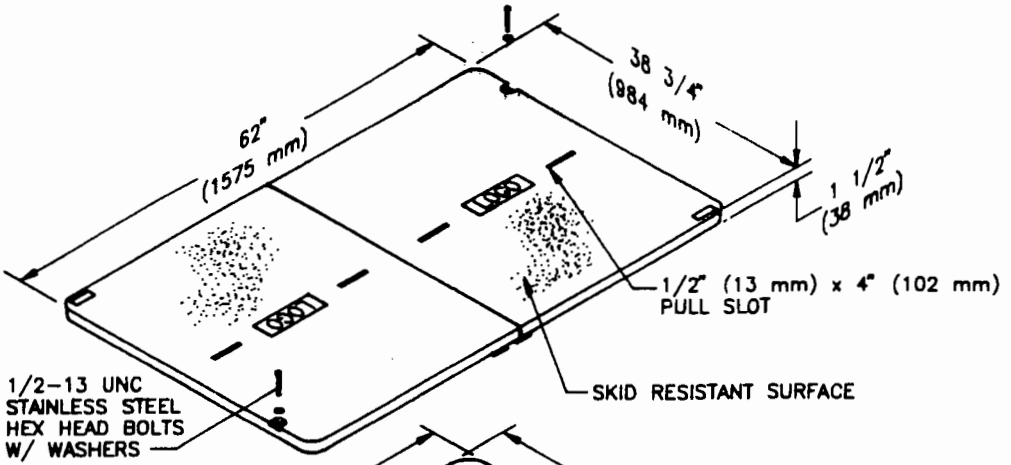
TAMPER RESISTANT STANDARD PENTA-HEAD SOCKET
ALLOY STEEL

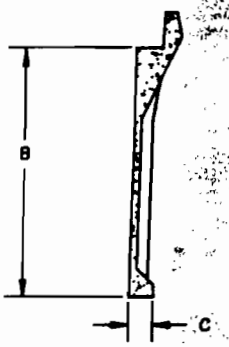


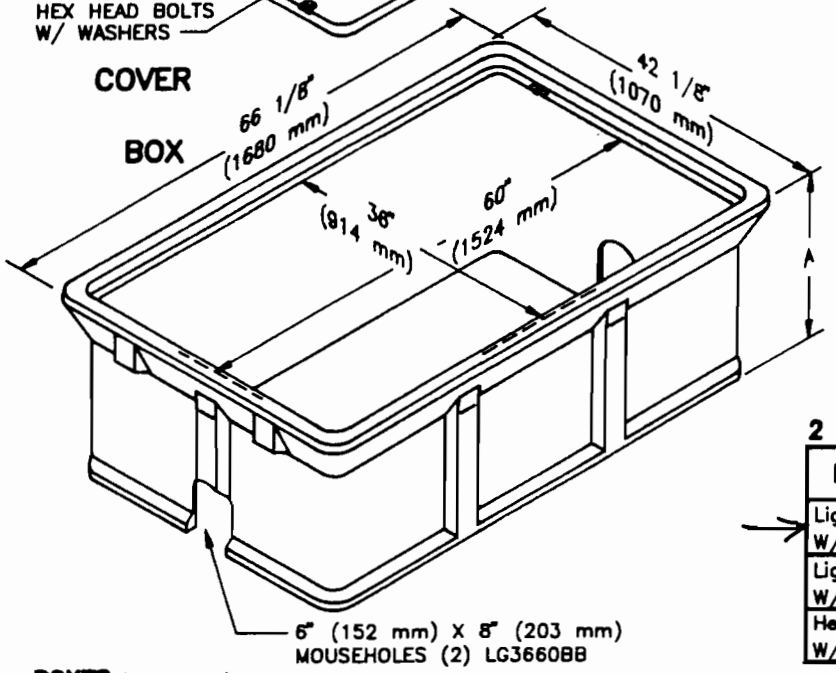
PART NO.	A	B	C
82920	1.13"	2.00"	.391"
82922	.88"	1.50"	.250"
82924	.50"F TO .375"M ADAPTOR		

SPECIFICATIONS/DATA

36" x 60" Large Style (Stackable) Assembly







OPTIONS:

1. Specific cover logo
2. Green or other colors
3. 1" (25 mm) X 4" (102 mm) Bell pull slots.
4. See Options, Hardware & Meter Lid pages.

2 PIECE COVERS (Blank unless logo is specified)

DESCRIPTION	PART NO.	WEIGHT
Lightweight W/ 2 Bolts	LG3660CA00	220# (99.8 kg)
Lightweight W/ No Bolts	LG3660WA00	220# (99.8 kg)
Heavy Duty W/ 2 Bolts	PG3660HA00	304# (137.9 kg)

BOXES (Stackable)

DESCRIPTION	PART NO.	WEIGHT	DIMENSIONS		
			A	B	C
W/ No Base	LG3660BA19	178# (81 kg)	19 1/2" (495 mm)	18" (457 mm)	1 1/2" (38 mm)
	LG3660BA24	218# (99 kg)	24" (610 mm)	22 1/2" (572 mm)	1 1/2" (38 mm)
	LG3660BA31	270# (122 kg)	31 1/2" (800 mm)	30" (762 mm)	1 1/2" (38 mm)
	LG3660BA36	304# (138 kg)	36" (914 mm)	34 1/2" (876 mm)	1 1/2" (38 mm)
W/ No Base, (2) Mauseholes	LG3660BB19	170# (77 kg)	19 1/2" (495 mm)	18" (457 mm)	1 1/2" (38 mm)
	LG3660BB24	210# (95 kg)	24" (610 mm)	22 1/2" (572 mm)	1 1/2" (38 mm)
	LG3660BB31	262# (119 kg)	31 1/2" (800 mm)	30" (762 mm)	1 1/2" (38 mm)
	LG3660BB36	296# (134 kg)	36" (914 mm)	34 1/2" (876 mm)	1 1/2" (38 mm)
W/ Base	LG3660DA19	238# (108 kg)	20" (508 mm)	18" (457 mm)	N/A
	LG3660DA24	278# (126 kg)	24 1/2" (622 mm)	22 1/2" (572 mm)	N/A
	LG3660DA31	330# (150 kg)	32" (812 mm)	30" (762 mm)	N/A
	LG3660DA36	357# (162 kg)	36 1/2" (927 mm)	34 1/2" (876 mm)	N/A

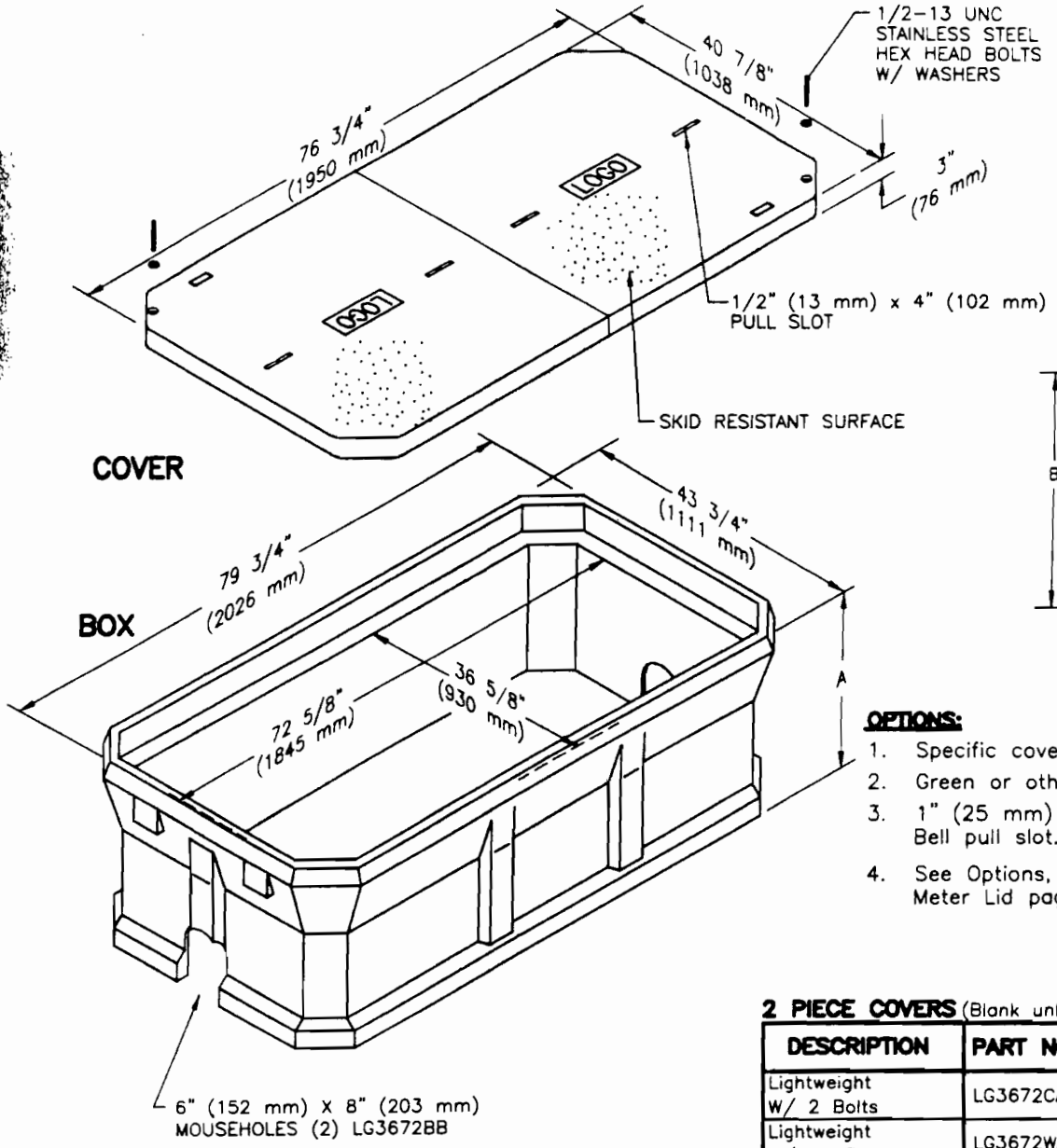
Dimensions in parentheeis are metric equivalent.

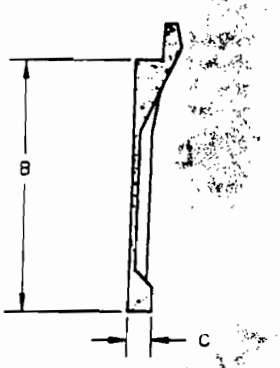
VALVE VAULT

Quazite®
A Division of MMFG
3621 Industrial Park Drive • Lenoir City, Tennessee 37771 800/346-3062 • 423/986-9726 • FAX 423/986-0585

SPECIFICATIONS/DATA

36" x 72" Large Style (Stackable) Assembly





OPTIONS:

1. Specific cover logo
2. Green or other colors
3. 1" (25 mm) x 4" (102 mm) Bell pull slot.
4. See Options, Hardware & Meter Lid pages.

2 PIECE COVERS (Blank unless logo is specified)

DESCRIPTION	PART NO.	WEIGHT
Lightweight W/ 2 Bolts	LG3672CA00	220# (99.8 kg)
Lightweight W/ No Bolts	LG3672WA00	220# (99.8 kg)
Heavy Duty W/ 2 Bolts	PG3672HA00	465# (210.9 kg)

BOXES (Stackable)

DESCRIPTION	PART NO.	WEIGHT	DIMENSIONS		
			A	B	C
W/ No Base	LG3672BA21	256# (116.1 kg)	21" (533 mm)	18" (457 mm)	2 1/4" (57 mm)
	LG3672BA36	423# (191.9 kg)	36" (914 mm)	33" (838 mm)	2 1/4" (57 mm)
W/ No Base, (2) Mouseholes	LG3672BB21	246# (111.6 kg)	21" (533 mm)	18" (457 mm)	2 1/4" (57 mm)
	LG3672BB36	413# (187.3 kg)	36" (914 mm)	33" (838 mm)	2 1/4" (57 mm)
W/ Base	LG3672DA21	316# (143.3 kg)	21 1/2" (546 mm)	18" (457 mm)	N/A
	LG3672DA36	483# (219.1 kg)	36 1/2" (927 mm)	33" (838 mm)	N/A

Dimensions in parenthesis are metric equivalent.

Well Head Vault

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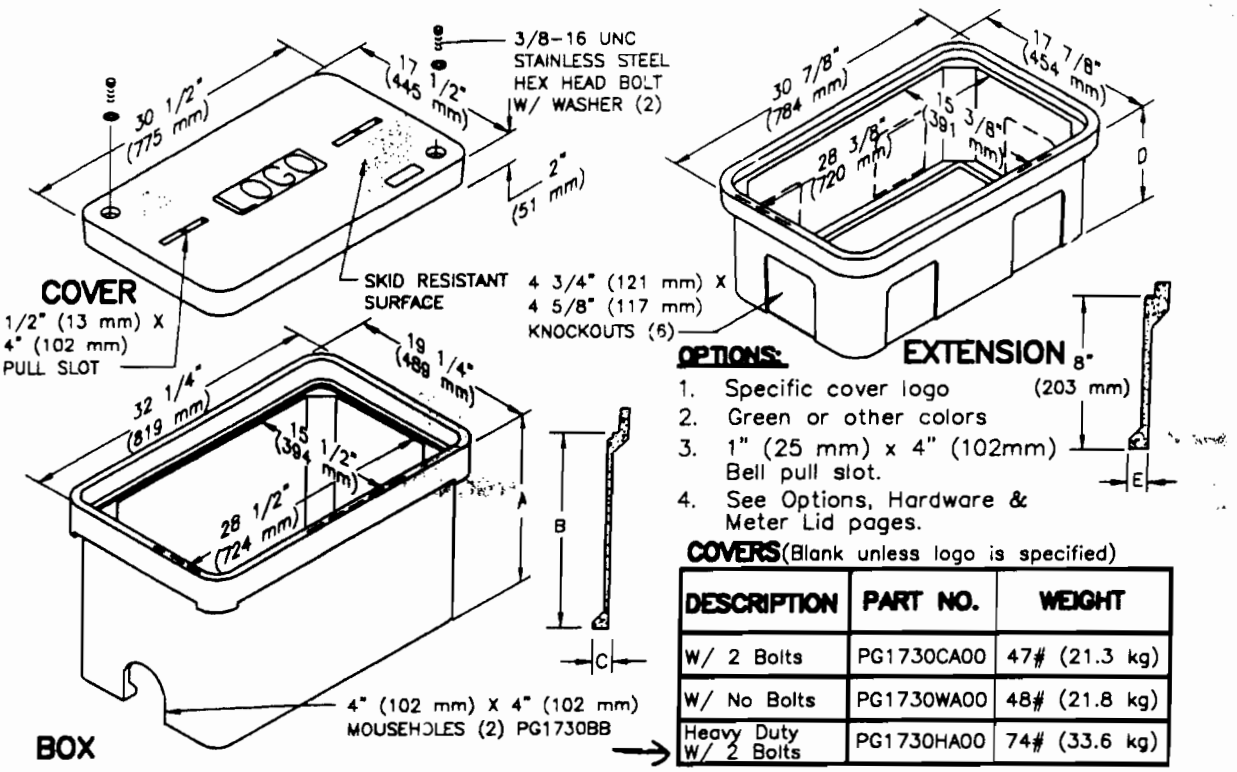


OPTIONS:

1. Specific cover logo
2. Green or other colors
3. 1" (25 mm) x 4" (102mm) Bell pull slot.
4. See Options, Hardware & Meter Lid pages.

COVERS (Blank unless logo is specified)

DESCRIPTION	PART NO.	WEIGHT
W/ 2 Bolts	PG1730CA00	47# (21.3 kg)
W/ No Bolts	PG1730WA00	48# (21.8 kg)
Heavy Duty W/ 2 Bolts	PG1730HA00	74# (33.6 kg)

BOXES (Stackable) * 22", 24" & 30" Deep boxes must be used as bottom of any stack

DESCRIPTION	PART NO.	WEIGHT	DIMENSIONS		
			A	B	C
W/ No Bose	PG1730BA12	82# (37.2 kg)	12" (305 mm)	10" (254 mm)	1 1/4" (32 mm)
	PG1730BA18	94# (42.6 kg)	18" (457 mm)	16" (406 mm)	1 1/4" (32 mm)
*	PG1730BA22	106# (48.1 kg)	22" (559 mm)	20" (508 mm)	1 1/4" (32 mm)
*	PG1730BA24	111# (50.3 kg)	24" (610 mm)	22" (559 mm)	1 1/4" (32 mm)
*	PG1730BA30	129# (58.5 kg)	30" (762 mm)	28" (711 mm)	1/2" (13 mm)
W/ No Base (2) Mouseholes	PG1730BB12	80# (36.3 kg)	12" (305 mm)	10" (254 mm)	1 1/4" (32 mm)
	PG1730BB18	92# (41.7 kg)	18" (547 mm)	16" (406 mm)	1 1/4" (32 mm)
*	PG1730BB22	104# (47.2 kg)	22" (559 mm)	20" (508 mm)	1 1/4" (32 mm)
*	PG1730BB24	109# (49.4 kg)	24" (610 mm)	22" (559 mm)	1 1/4" (32 mm)
*	PG1730BB30	129# (58.5 kg)	30" (762 mm)	28" (711 mm)	1/2" (13 mm)
W/ Base	PG1730DA12	92# (41.7 kg)	12 1/2" (318 mm)	10" (254 mm)	N/A
	PG1730DA18	115# (52.2 kg)	18 1/2" (470 mm)	16" (406 mm)	N/A
*	PG1730DA22	128# (58.1 kg)	22 1/2" (572 mm)	20" (508 mm)	N/A
→ *	PG1730DA24	135# (61.2 kg)	24 1/2" (622 mm)	22" (559 mm)	N/A
*	PG1730DA30	153# (69.4 kg)	30 1/2" (775 mm)	28" (711 mm)	N/A

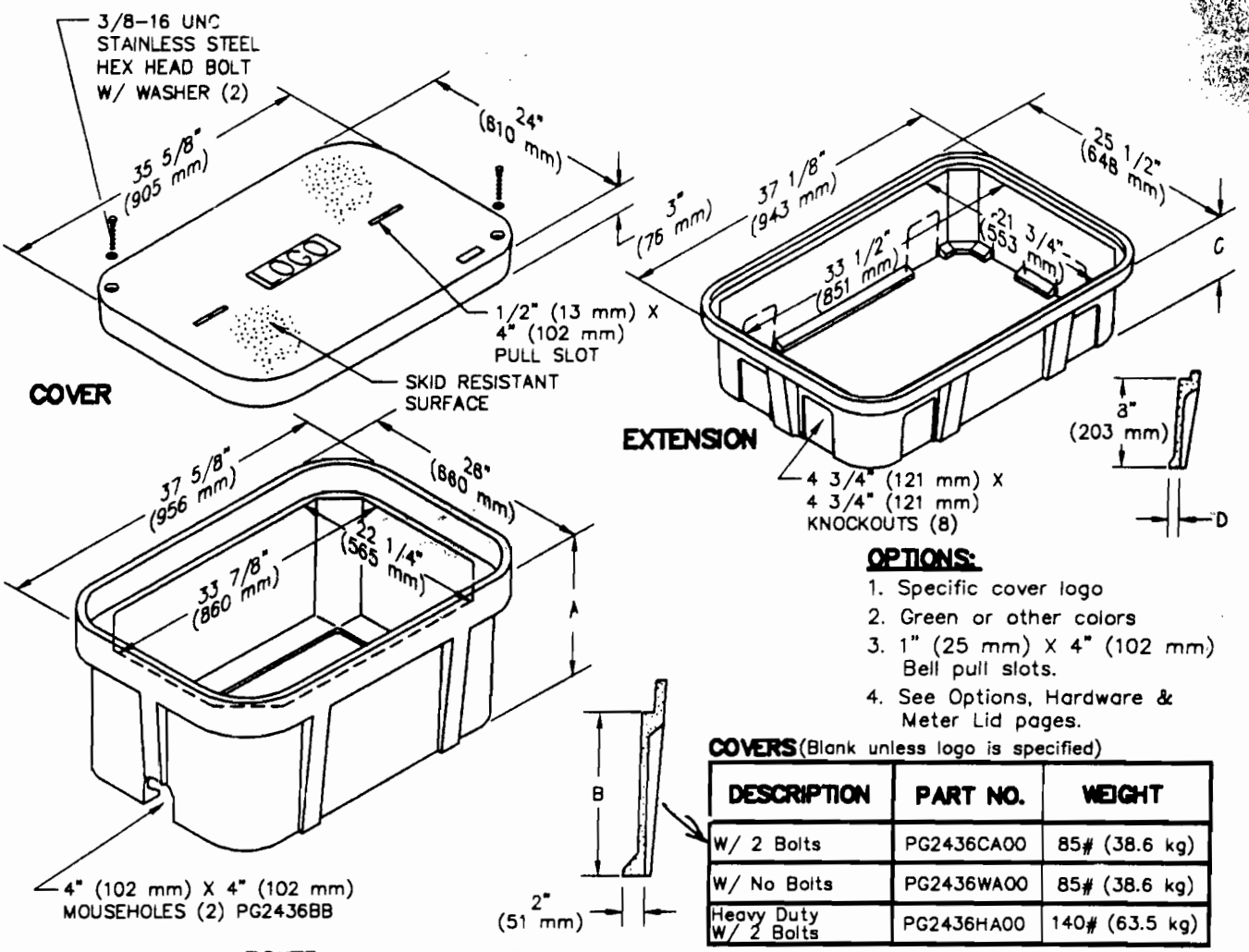
EXTENSIONS (For use under 12" & 18" deep boxes only, one per box)

DESCRIPTION	PART NO.	WEIGHT	DIMENSIONS	
			D	E
W/ No Base	PG1730EA08	82# (37.2 kg)	8 3/4" (222 mm)	1" (25 mm)
W/ Base	PG1730RA08	94# (42.6 kg)	9 1/4" (235 mm)	N/A

Dimensions in parenthesis are metric equivalent.

SPECIFICATIONS/DATA

24" x 36" "PG" Style (Stackable) Assembly



OPTIONS:

1. Specific cover logo
2. Green or other colors
3. 1" (25 mm) X 4" (102 mm) Bell pull slots.
4. See Options, Hardware & Meter Lid pages.

COVERS (Blank unless logo is specified)

DESCRIPTION	PART NO.	WEIGHT
W/ 2 Bolts	PG2436CA00	85# (38.6 kg)
W/ No Bolts	PG2436WA00	85# (38.6 kg)
Heavy Duty W/ 2 Bolts	PG2436HA00	140# (63.5 kg)

BOX

BOXES (Stackable) • 24" & 30" deep boxes must be used as bottom of any stack

DESCRIPTION		PART NO.	WEIGHT	DIMENSIONS A	DIMENSIONS B
W/ No Base		PG2436BA18	130# (59.0 kg)	18" (457 mm)	15" (381 mm)
	•	PG2436BA24	174# (78.9 kg)	24" (610 mm)	21" (533 mm)
	•	PG2436BA30	212# (96.2 kg)	30" (762 mm)	27" (686 mm)
W/ No Base (2) Mouseholes		PG2436BB18	128# (58.1 kg)	18" (457 mm)	15" (381 mm)
	•	PG2436BB24	172# (78.0 kg)	24" (610 mm)	21" (533 mm)
	•	PG2436BB30	210# (95.3 kg)	30" (762 mm)	27" (686 mm)
W/ Base		PG2436DA18	162# (73.5 kg)	18 1/2" (470 mm)	15" (381 mm)
	•	PG2436DA24	204# (92.5 kg)	24 1/2" (622 mm)	21" (533 mm)
	•	PG2436DA30	241# (109.3 kg)	30 1/2" (775 mm)	27" (686 mm)

EXTENSIONS (For use under 18" deep box only, one per box)

DESCRIPTION	PART NO.	WEIGHT	DIMENSIONS C	DIMENSIONS D
W/ No Base	PG2436EA08	70# (31.8 kg)	8 3/4" (222 mm)	1" (25 mm)
W/ Base	PG2436RA08	99# (44.9 kg)	9 1/4" (235 mm)	N/A

Dimensions in parenthesis are metric equivalent.

Drip Leg

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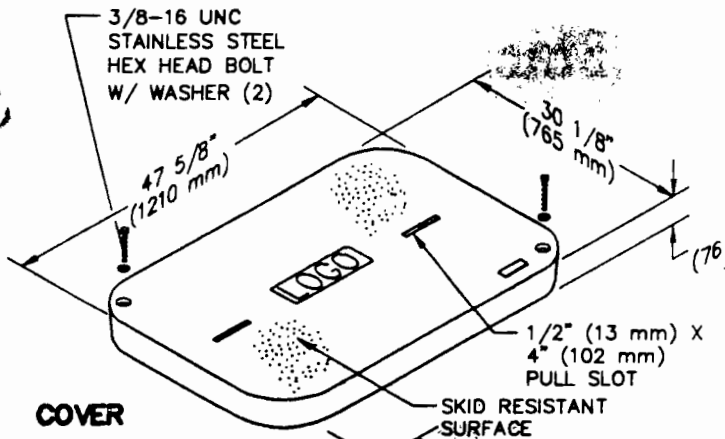
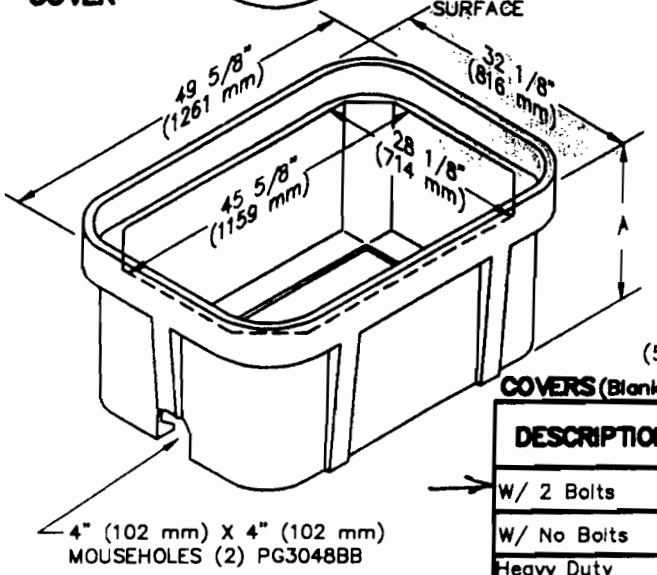
SPECIFICATIONS/DATA

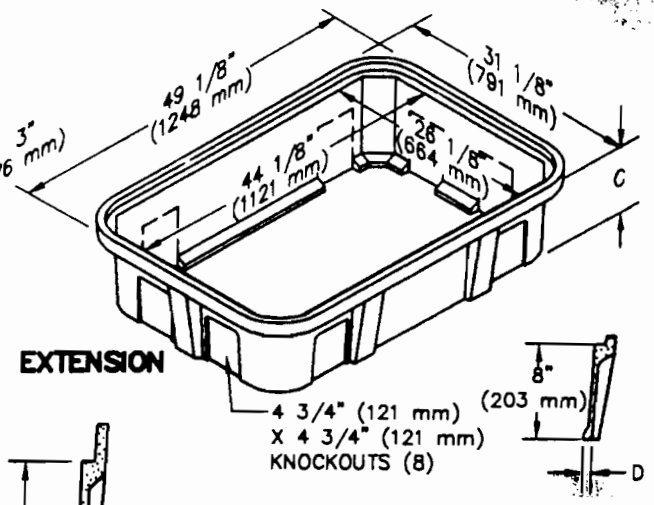
30" x 48" "PG" Style (Stackable) Assembly



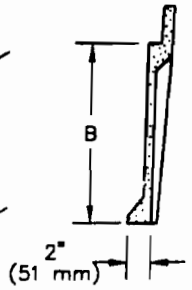
COVER



BOX



EXTENSION



OPTIONS:

1. Specific cover logo
2. Green or other colors
3. 1" (25 mm) X 4" (102 mm) Bell pull slots.
4. See Options, Hardware & Meter Lid pages.

COVERS (Blank unless logo is specified)

DESCRIPTION	PART NO.	WEIGHT	LT. WT. PART NO.	WEIGHT
W/ 2 Bolts	PG3048CA00	160# (72.6 kg)	LG3048CA00	90# (40.8 kg)
W/ No Bolts	PG3048WA00	161# (73.0 kg)	LG3048WA00	91# (41.3 kg)
Heavy Duty W/ 2 Bolts	PG3048HA00	167# (75.7 kg)	N/A	N/A
2 Piece W/ 2 Bolts	PG3048CS00	186# (84.4 kg)	LG3048CS00	117# (53.1 kg)

BOXES (Stackable) * 24" & 36" deep boxes must be used as bottom of any stack

DESCRIPTION		PART NO.	WEIGHT	LT. WT. PART NO.	WEIGHT	DIMENSIONS A	DIMENSIONS B
W/ No Base		PG3048BA18	185# (83.9 kg)	LG3048BA18	116# (52.6 kg)	18" (457 mm)	15" (381 mm)
		PG3048BA24	224# (101.6 kg)	LG3048BA24	141# (64.0 kg)	24" (609 mm)	21" (533 mm)
	*	PG3048BA36	296# (134.3 kg)	LG3048BA36	186# (84.4 kg)	36" (914 mm)	33" (838 mm)
W/ No Base, (2) Mouseholes		PG3048BB18	183# (83.0 kg)	LG3048BB18	115# (52.2 kg)	18" (457 mm)	15" (381 mm)
	*	PG3048BB24	222# (100.7 kg)	LG3048BB24	139# (63.0 kg)	24" (610 mm)	21" (533 mm)
	*	PG3048BB36	294# (133.3 kg)	LG3048BB36	184# (83.5 kg)	36" (914 mm)	33" (838 mm)
W/ Base		PG3048DA18	237# (107.5 kg)	LG3048DA18	149# (67.6 kg)	18 1/2" (470 mm)	15" (381 mm)
	*	PG3048DA24	276# (125.2 kg)	LG3048DA24	174# (78.9 kg)	24 1/2" (622 mm)	21" (533 mm)
	*	PG3048DA36	348# (157.9 kg)	LG3048DA36	219# (99.3 kg)	36 1/2" (927 mm)	33" (838 mm)

EXTENSIONS (For use under 18" deep box only, one per box)

DESCRIPTION	PART NO.	WEIGHT	LT. WT. PART NO.	WEIGHT	DIMENSIONS C	DIMENSIONS D
W/ No Base	PG3048EA08	100# (45.3 kg)	LG3048EA08	63# (28.6 kg)	8 3/4" (222 mm)	1" (25 mm)
W/ Base	PG3048RA08	154# (69.9 kg)	LG3048RA08	97# (44.0 kg)	9 1/4" (235 mm)	N/A

Dimensions in parenthesis are metric equivalent.

3196

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A Division of MMFG

Gas Vent Vault

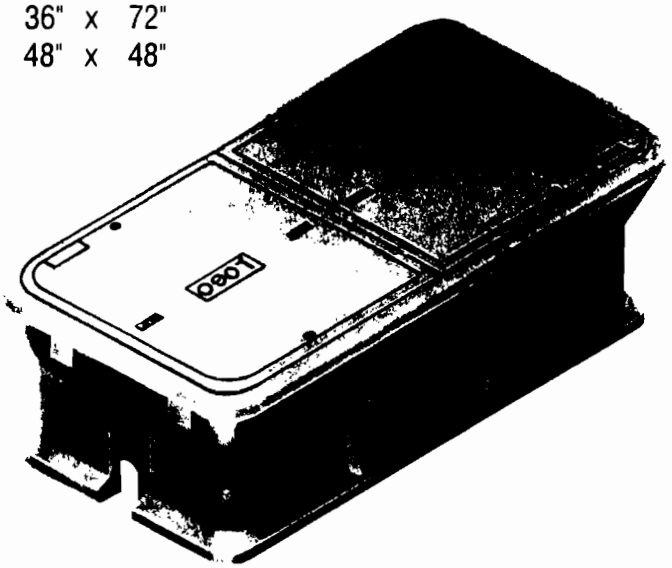
3621 Industrial Park Drive • Lenoir City, Tennessee 37771 800/346-3062 • 423/986-9726 • FAX 423/986-0585

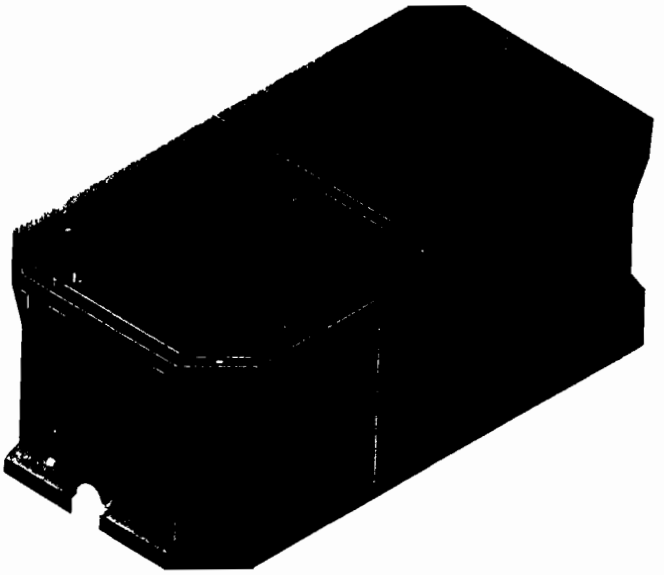
Quazite® COMPOSOLITE

Large Service Box (Stackable) Assemblies

30" x 59"
30" x 60"
36" x 60"
36" x 72"
48" x 48"

For use as a **Splice Box, Pull Box, Equipment Enclosure, Meter Box, Valve Box,** or any application requiring easy access to an underground service.





BOX WITH COVER

Standard color is gray-other colors available

- Lightweight, easy to handle for lower installed cost
- High strength
- Light and heavy duty designs available
- Exceptional resistance to sunlight exposure, weathering and chemicals-unaffected by freeze/thaw cycles
- Straight sides permit easy adjustment of box to grade
- Fits flush with sidewalk or grass area
- No grounding required
- Stainless steel inserts and bolts
- Skid resistant covers
- Available in decorative colors

Applications

Standard Cover

Design Load: **5000#** over a 10" square with a minimum test load of **7,500#**.

Design is for sidewalk applications with a safety factor for occasional non-deliberate light vehicular traffic.

Heavy Duty Covers

Design Load: **15,000#** over a 10" square with a minimum test load of **22,568#**.

Design is for driveways, parking lots and off roadway applications where subject to occasional non-deliberate heavy vehicles. (See Quazite® Instruction Sheet 102.)

Due to the variation in installations, and applications, this information should be used as a basis for recommendation and not a guarantee of performance.

**These ratings are not applicable to covers with Reader Lids.*

Standard Cover Logos

09	Blank	26	High Voltage
10	C.A.T.V.	1Q	Irrigation
12	Communications	29	Lighting
14	Controls	32	Non-potable water
17	Electric	41	Street Lighting
21	Fiber Optics	43	Telephone
23	Gas	44	Traffic
24	Ground	46	Traffic Signal
		50	Water

TOWN OF CLARKSTOWN
DEPARTMENT OF ENVIRONMENTAL CONTROL

CLARKSTOWN SANITARY LANDFILL REMEDIATION AND LANDFILL CAPPING

CONTRACT NO. 34-1996

CONSTRUCTION CERTIFICATION REPORT

APPENDIX C: LCC AND LCT CONSTRUCTION DOCUMENTATION

April 14, 2000

Prepared for:
Town of Clarkstown
Department of Environmental Control
10 Maple Avenue
New City, NY 10956

Submitted to:
New York State Department of Environmental Conservation
Division of Environmental Remediation
50 Wolf Road
Albany, NY 12233

Prepared by:
Roy F. Weston of New York, Inc.
130 West 30th Street
New York, NY 10001

MANAGERS DESIGNERS/CONSULTANTS

APPENDIX C: LCC AND LCT CONSTRUCTION DOCUMENTATION

LEACHATE COLLECTION TRENCH AGGREGATE SOURCE

As per specification section 02729, page 2, section 1.03: Quality Control, paragraph C: The proposed borrow source for the aggregate material (No. 57 stone) is Tilcon N.Y. The quarry location is in Haverstraw, N.Y. See attached N.Y.D.O.T. certification. During the week of October 1 to October 4, 1996, (2) samples will be transported to Fairway Testing for completion of the laboratory testing program for the above referenced aggregate borrow source, as stated in paragraph C, section 1.03.

908-55
1697

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
4 BURNETT BOULEVARD
POUGHKEEPSIE, N.Y. 12603

ALBERT J. BAUMAN
REGIONAL DIRECTOR

JOHN B. DALY
COMMISSIONER

July 20, 1995

Tilcon New York, Inc.
P. O. Box 362
Haverstraw, NY 10927

RE: TEST # 95AR9
SOURCE # 8-10 R
TOWN OF Haverstraw
COUNTY OF Rockland
USGS LOCATION 214-1-M-28

Gentlemen:

Material as represented by this sample described above was accepted on 95/06/08 for item 703-02 (coarse aggregate)..

TEST DATA:

Specific Gravity	2.86
Absorption	0.9
Finess Modulus	-

Very truly yours,

M. P. ANDERSON
Regional Construction Engineer

By L. M. Ackerman
L. M. Ackerman
Regional Materials Engineer

LMA:EMC:SMD

FAIRWAY TESTING

CONSTRUCTION MATERIALS: TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SINCE 1969

October 3, 1996

client Barbella Environmental Technology

project Clarkstown Landfill

On October 2, 1996, a representative from this firm visited the Tilcon of New York, Haverstraw facility and picked-up two aggregate samples. Test results are shown below.

	Percent Passing by Weight (ASTM D422) Sieve Size	A	B	ASTM C33 Type 57 Spec
	1½"	100	100	100
	1"	100	100	90 to 100
	1/2"	52	55	25 to 60
	No. 4	1	1	0 to 10
	No. 8	1	1	0 to 5
(ASTM D2216)	Moisture Content,%	1.1	1.1	
(D4253)	Maximum Dry Density, pcf	102.4	103.5	
(D4254)	Minimum Dry Density, pcf	87.7	87.9	
(D2434)	*Permeability,range, cm/sec	3 to 5	3 to 5	

*Based upon particle sizes, test results exceeded testing apparatus maximum valve of 1 cm/sec.

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P.E.

BARBELLA ENVIRONMENTAL TECHNOLOGY
24 TANNERY ROAD
SOMERVILLE, NEW JERSEY 08876
(908) 534-1664 FAX (908) 534-1697

LETTER OF TRANSMITTAL

DATE: 04/29/97 Trans. No.
ATTN: Phil Mcquiston

TO: Ogden Remediation
166 Route 303
West Nyack, NY 10994

RE: Leachate Stone Tests
Clarkstown Landfill Project

WE ARE SENDING YOU : [x] ATTACHED:

[ ] Shop Drawings [ ] Change Order [ ] Samples
[ ] Copy of Letter [ ] Plans [ ] Estimates
[ ] Prints [ ] Specifications [X] Other:

RECEIVED APR 2 9 1997

COPIES	SPEC. SECT.	PAGE	DATE	DESCRIPTION
9	2729	3		Test Results for leachate Stone

[ ] For Approval [ ] Approved as Submitted
[X] For your use [ ] Approved as Noted
[X] As Requested [ ] Returned with Corrections
[ ] For Review & Com.

REMARKS: Attached are the test results for approximately 6,000cy of #57 stone installed for the leacatc collection trench

Copy To: BET, Somerville

Signed:
Jeff Ratliff

Copies: PHm JEB FFX

FAIRWAY TESTING

CONSTRUCTION MATERIALS · TESTING · INSPECTION · RESEARCH

P.O. BOX 578 · STONY POINT, NY 10980 · TELEPHONE (914) 942-2088 · FAX (914) 942-0995

SINCE 1969

April 24, 1997

client Barbella Environmental Technology
24 Tannery Road
Somerville, NJ 08876

project Clarkstown Landfill

On April 17, 1997, fourteen coarse aggregate samples were delivered to this laboratory by the client. Test results are shown below.

LABORATORY ANALYSIS

(ASTM D422) Percent Passing by Weight

Sieve Size	7	8	9	10	11	12	AASHTO Type 57 Spec
1½"	100	100	100	100	100	100	100
1"	100	100	100	100	100	100	95 to 100
1/2"	49	46	56	56	46	45	25 to 60
No. 4	2	2	2	2	2	2	0 to 10
No. 8	2	1	1	2	2	2	0 to 5

	3	4	5	6
Moisture Content, % (D2216)	0.4	0.4	0.4	0.4
			13	14
Maximum Dry Density (D4253), pcf			107.5	107.6
Maximum Dry Density (D4254), pcf			87.9	88.5
			1	2
*Permeability range, cm/sec			greater than 1 cm/sec	greater than 1 cm/sec

*Based upon particle sizes, test results exceed testing apparatus maximum value of 1 cm/sec.

FAIRWAY TESTING CO., INC.

P. J. Aguanno, P. E.

LEACHATE COLLECTION HDPE PIPING

DRISCOPIPE

Driscopipe® 1000 series

Data Sheet

Customer Benefits

High quality Driscopipe® 1000 is manufactured from extra high molecular weight, high density PE3408 polyethylene pipe grade resin.

This black, weather-resistant pipe exhibits . . . .

- Outstanding Chemical & Corrosion Resistance
- High Environmental Stress Cracking Resistance
- Improved Flow Characteristics
- Toughness & Ductility
- Flexibility with lightweight
- Non-Toxic
- Abrasion Endurance
- Fatigue Endurance
- Long-term Hydrostatic Strength / Physical strength
- Reliability

Suggested Industries & Applications

- Industrial Water Distribution
- Agriculture
- Landfills
- Marine
- Pollution Control
- Pulp / paper / wood
- Power Plants
- Petrochemical
- Mining / Mineral Processing
- Dredging / sand / gravel
- Organic Chemicals
- Inorganic Chemicals
- Aquaculture
- Hazardous Waste
- Local / State / Federal Gov'ts.
- Cement Plants
- Irrigation
- Municipal
- Gravity sewers
- Forced main sewers
- Water distribution
- Sewer treatment
- Sludge handling
- Leachate collection
- Dual Containment
- Brine
- Fertilizer
- Acid / Caustic lines
- Utility / Process piping
- Slurry
- SX acid mining
- Tailings disposal
- Marinas
- Snow melting / making
- Hard rock mining
- Coal Slurry / Processing
- Dredging
- Water intakes
- Water outfalls
- Fire-water
- De-Watering
- Fly-Ash disposal
- Temporary pipelines
- Cable Stayed Bridges
- Golf course irrigation
- Farmland irrigation
- Swimming pools
- Ice rinks
- . . . . and many others

Available in sizes
1" thru 54"

Specification Data

The resin, pipe & fittings comply with these accepted (and other) industry standards . . . .

ASTM F-714 - Pipe Standard

ASTM D3261 - Fittings Standard

Cell Classification - ASTM D3350 - PE345434C

ASTM D1248 - Type III, Class C Category 5, Grade P34

EPA 9090 ISO #161

PPI Designation - PE3408

NSF - Listed, Standard #14 (by size, per order) NSF

Factory Mutual (by size, per order) ◀ FM ▶

CGSB41 - GP-25M-Pipe Standard

AWWA C906 – 4"–63" Potable Water Trans. & Distr. HDPE Pip

AWWA C901 - Potable Water Pipe & Tubing

American Water Works Association

Printed: 9-93

DRISCOPIPE **1000 series**

Typical Physical Properties⊖

Property	Specification	Unit	Nominal Value
Material Designation	PPI / ASTM		PE 3408
Material Classification	ASTM D-1248		III C 5 P34
Cell Classification	ASTM D-3350		3 4 5 4 3 4 C
Density (3)	ASTM D-1505	gm/cm^3	0.955
Melt Index (4)	ASTM D-1238 (216 kg/190°C)	gm/10 min.	0.11 ◆
Flex Modus (5)	ASTM D-790	psi	135,000
Tensile Strength (4)	ASTM D-638	psi	3,200
ESCR (3)	ASTM D-1693	F_o, Hours	> 5,000**
HDB @73° F (4)	ASTM D-2837	psi	1,600
U-V Stabilizer (C)	ASTM D-1603	% C	2.5
Hardness	ASTM D-2240	Shore "D"	65
Compressive Strength (yield)	ASTM D-695	psi	1,600
Tensile Strength @ Yield (Type IV Spec.)	ASTM D-638 (2" / min.)	psi	3,200
Elongation @ Yield	ASTM D-638	%, minimum	8
Tensile Strength @ Break (Type IV Spec.)	ASTM D-638	psi	5,000
Elongation @ Break	ASTM D-638	%, minimum	750
Modulus of Elasticity	ASTM D-638	psi	130,000
ESCR			
(Cond. A,B,C: Mold. Slab)	ASTM D-1693	F_o, Hours	> 5,000
(Compressed Ring - pipe)	ASTM F-1248	F_o, Hours	> 3,500
Slow Crack Growth	Battelle Method	Days to Failure	> 64
Impact Strength (IZOD) (.125" Thick)	ASTM D-256 (Method A)	In-lb / in notch	42
Linear Thermal Expansion Coef.	ASTM D-696	in / in /°F	1.2×10^{-4}
Thermal Conductivity	ASTM D-177	$BTU\text{-}in/ft^2/hrs/°F$	2.7
Brittleness Temp.	ASTM D-746	° F	< -180
Vicat Soft. Temp.	ASTM D-1525	° F	257
Heat Fusion Cond.		psi @ ° F	75 @ 400

⊖ This list of typical physical properties is intended for basic characterization of the material and does not represent specfic determinations of specifications. The physical properties values reported herein were determined on compression molded specimens prepared in accordance with Procedure C of ASTM D 1928 and may differ from specimens taken from pipe.

** Tests were discontinued because no failures and no indication of stress crack initiation.

◆ Average Melt Index value with a standard deviation of 0.01

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Phone: 1-800-527-0662
Phone: 1-214-783-2666
Fax: 1-214-783-2689

DRISCOPIPE

A subsidiary of Phillips Petroleum Co.
Effective: 9-93

DRISCOPIPE

Technical Considerati

Pressure Rating

All molded fittings and reducers, flange adapters, stub ends, branch saddles, branch saddle reducing tees, and transition fittings are fully pressure rated to match the pipe SDR pressure rating to which they are made. The shape of fabricated fittings are substantially different than the shape of straight pipe. As a result, stresses imposed on fabricated fittings are higher than those imposed on pipe. Therefore, it is recommended that the pressure rating of fabricated ells, wyes and tees be re-rated to approximately 75% of the pressure rating of the pipe used to fabricate the fitting. If the full pressure rating of the pipe is required, *Phillips Driscopipe* recommends using a heavier wall fitting (25%) where available. As an alternate measure, when properly designed concrete encasement or other external reinforcement is used on ells, wyes and tees, the pressure rating can be increased to the working pressure of the pipe from which it is fabricated. Specific recommendations for concrete encasement are shown in the *Driscopipe® Systems Installation* brochure.

Installation Precautions

Driscopipe® fabricated tees, elbows and wyes are made by butt fusing or sidewall fusing together special cut segments of Driscopipe® pipe to obtain the desired fitting. The configuration of these fittingss, and the fact that they are fabricated rather than molded, requires that certain precautions be taken when installing them into a piping system.

The installation procedures should provide the least possible amount of lifting and moving of the assembled pipe and fabricated fittings. If it becomes necessary to pull the assembly along side the ditch to properly position it, the fabricated fitting should never be used as the point of attachment for the pulling.

The fusion joining of a fabricated tee and wye into a system becomes complicated because of the third side. It is not too difficult to keep strain off the fitting when fusing pipe to the running side of the tee and lifting and lowering this much of the assembly into position in a ditch. It is when sufficient pipe is added to the third (branch) side to permit the laying of pipe in this direction, that the assembly becomes very difficult to handle. Final handling and positioning of these assemblies requires extra handling equipment and additional precautions to prevent damage to the fabricated fitting.

Recommended Alternate Method: The need for extra equipment and much of the possibility of damage can be eliminated by altering the method of installing the fabricated tee and wye to include the use of a flanged connection on the branch side. This will allow final positioning to take place before the branch side is connected. There will be some instances where it will prove very advantageous from an installation viewpoint to use flanged connections on two sides of a tee or wye and also one side of the elbow. This allows the pipe to be laid from either direction, pushed or pulled into tight locations, rolled into the ditch, and generally handled much easier and faster...before the final connection is made at the tee,wye, or elbow. From the standpoint of economy, speed and ease of installation, and eliminate the occurrence of excessive installation stresses of fabricated fittings, it is recommended that flanged connections always be used on the branch side of tees and wyes and on one end of elbows for larger diameter pipes.

- Driscopipe® 1000/6400 Molded fittings are made from the same resin as the Driscopipe® 1000 & 6400 series pipe.

Molded fittings do not form exact true angles. Due to stresses in the material during the molding and cooling cycles, and the post machining operations required on some of these fittings, angles can deviate approximately 2-3 degrees from true.

- Driscopipe® Fabricated fittings are manufactured from Driscopipe® 1000 & 6400 piping systems. Fabricated ells, wyes and tees are made by butt fusing together mitre cut segments of pipe to obtain the desired shape.

Fabricated elbows: Due to the nature of polyethylene and the mitered fusion process, the tolerance is generally plus or minus one degree per segment. The broad tolerance typically causes no installation problems due to the flexibility of polyethylene

- Driscopipe® special fittings are custom designed for your specific application through your Phillips Driscopipe, Inc. representative.

DRISCOPIPE 1000 Series

3/4" (1.050 OD)

SDR 11	160 psi	0.12 lbs./ft.	0.860 ID	.095 wall

1" (1.315 OD)

SDR 11	160 psi	0.19 lbs./ft.	1.075 ID	.120 wall

1-1/4" (1.660 OD)

SDR 11	160 psi	0.31 lbs./ft.	1.358 ID	.151 wall

1-1/2" (1.900 OD)

SDR 11	160 psi	0.41 lbs./ft.	1.554 ID	.173 wall

2" (2.375 OD)

SDR 7	267 psi	0.94 lbs/ft	1.697 ID	.339 wall
SDR 9	200 psi	0.76	1.847	.264
SDR 11 ●	**160 psi**	**0.64**	**1.943**	**.216**
SDR 13.5	128 psi	0.53	2.023	.176
SDR 15.5	110 psi	0.47	2.069	.153
SDR 17	100 psi	0.43	2.095	.140

3" (3.500 OD)

SDR 7	267 psi	2.05 lbs./ft.	2.500 ID	.500 wall
SDR 9	200 psi	1.66	2.722	.389
SDR 11 ●	**160 psi**	**1.39**	**2.864**	**.318**
SDR 13.5	128 psi	1.15	2.982	.259
SDR 15.5	110 psi	1.02	3.048	.226
SDR 17 ●	**100 psi**	**0.93**	**3.088**	**.206**
SDR 19	89 psi	0.84	3.132	.184
SDR 21	80 psi	0.77	3.166	.167
SDR 26	64 psi	0.62	3.230	.135
SDR 32.5	51 psi	0.50	3.284	.108

4" (4.500 OD)

SDR 7	267 psi	3.39 lbs./ft.	3.214 ID	.643 wall
SDR 9	200 psi	2.74	3.500	.500
SDR 11 ●	**160 psi**	**2.29**	**3.682**	**.409**
SDR 13.3	128 psi	1.90	3.834	.333
SDR 15.5 ●	**110 psi**	**1.68**	**3.920**	**.290**
SDR 17 ●	**100 psi**	**1.54**	**3.970**	**.265**
SDR 19	89 psi	1.39	4.026	.237
SDR 21	80 psi	1.26	4.072	.214
SDR 26 ●	**64 psi**	**1.03**	**4.154**	**.173**
SDR 32.5	51 psi	0.83	4.224	.138

5-3/8" (5.375 OD)

SDR 17	100 psi	2.20 lbs./ft.	4.743 ID	.316 wall
SDR 21	80 psi	1.80	4.863	.256
SDR 26	64 psi	1.47	4.961	.207
SDR 32.5	51 psi	1.18	5.045	.165

5" (5.563 OD)

SDR 7	267 psi	5.17 lbs./ft.		
SDR 9	200 psi	4.18	4.5[illegible]	
SDR 11	160 psi	3.51	4.551	
SDR 13.5	128 psi	2.91	4.739	
SDR 15.5	110 psi	2.57	4.845	
SDR 17	100 psi	2.35	4.909	.32[illegible]
SDR 19	89 psi	2.12	4.977	.293
SDR 21	80 psi	1.93	5.033	.265
SDR 26	64 psi	1.57	5.135	.214
SDR 32.5	51 psi	1.27	5.221	.171

6" (6.625 OD)

SDR 7	267 psi	7.33 lbs./ft.	4.733 ID	.946 wall
SDR 9	200 psi	5.93	5.153	.736
SDR 11 ●	**160 psi**	**4.97**	**5.421**	**.602**
SDR 13.5	128 psi	4.13	5.643	.491
SDR 15.5	110 psi	3.63	5.771	.427
SDR 17 ●	**100 psi**	**3.34**	**5.845**	**.390**
SDR 19	89 psi	3.01	5.927	.349
SDR 21 ●	**80 psi**	**2.73**	**5.995**	**.315**
SDR 26 ●	**64 psi**	**2.23**	**6.115**	**.255**
SDR 32.5 ●	**51 psi**	**1.80**	**6.217**	**.204**

7" (7.125 OD)

SDR 7	267 psi	8.49 lbs./ft.	5.089 ID	1.018 wall
SDR 9	200 psi	6.86	5.541	.792
SDR 11	160 psi	5.75	5.829	.648
SDR 13.5	128 psi	4.78	6.069	.528
SDR 15.5	110 psi	4.21	6.205	.460
SDR 17	100 psi	3.86	6.287	.419
SDR 19	89 psi	3.48	6.375	.375
SDR 21	80 psi	3.16	6.445	.340
SDR 26 ●	**64 psi**	**2.58**	**6.577**	**.274**
SDR 32.5	51 psi	2.08	6.685	.220

8" (8.625 OD)

SDR 7	267 psi	12.43 lbs./ft.	6.161 ID	1.232 wall
SDR 9	200 psi	10.05	6.709	.958
SDR 11 ●	**160 psi**	**8.42**	**7.057**	**.784**
SDR 13.5	128 psi	7.00	7.347	.639
SDR 15.5	110 psi	6.16	7.513	.556
SDR 17 ●	**100 psi**	**5.65**	**7.611**	**.507**
SDR 19	89 psi	5.10	7.717	.454
SDR 21 ●	**80 psi**	**4.64**	**7.803**	**.411**
SDR 26 ●	**64 psi**	**3.79**	**7.961**	**.332**
SDR 32.5 ●	**51 psi**	**3.05**	**8.095**	**.265**

	57 psi	19.32 lbs./ft.	7.678 ID	1.536 wall
	200 psi	15.61	8.362	1.194
R 11 ●	160 psi	13.09	8.796	.977
DR 13.5	128 psi	10.87	9.158	.796
SDR 15.5	110 psi	9.58	9.362	.694
SDR 17 ●	**100 psi**	**8.78**	**9.486**	**.632**
SDR 19	89 psi	7.92	9.618	.566
SDR 21 ●	**80 psi**	**7.21**	**9.726**	**.512**
SDR 26 ●	**64 psi**	**5.87**	**9.924**	**.413**
SDR 32.5 ●	**51 psi**	**4.75**	**10.088**	**.331**

12" (12.750 OD)

SDR 7	267 psi	27.16 lbs./ft.	9.108 ID	1.821 wall
SDR 9	200 psi	21.97	9.916	1.417
SDR 11 ●	**160 psi**	**18.41**	**10.432**	**1.159**
SDR 13.5	128 psi	15.29	10.862	.944
SDR 15.5 ●	**110 psi**	**13.48**	**11.104**	**.823**
SDR 17 ●	**100 psi**	**12.36**	**11.250**	**.750**
SDR 19	89 psi	11.14	11.408	.671
SDR 21 ●	**80 psi**	**10.13**	**11.536**	**.607**
SDR 26 ●	**64 psi**	**8.26**	**11.770**	**.490**
SDR 32.5 ●	**51 psi**	**6.67**	**11.966**	**.392**

13" (13.386 OD)

SDR 7	267 psi	29.24 lbs./ft.	9.562 ID	1.912 wall
SDR 9	200 psi	23.62	10.412	1.487
SDR 11	160 psi	20.30	10.952	1.217
SDR 13.5	128 psi	16.87	11.402	.992
SDR 15.5	110 psi	14.85	11.658	.864
SDR 17	100 psi	13.62	11.812	.787
SDR 19	89 psi	12.28	11.976	.705
SDR 21	80 psi	11.16	12.112	.637
SDR 26	64 psi	9.12	12.356	.515
SDR 32.5	51 psi	7.36	12.562	.412

14.000 OD

SDR 7	267 psi	32.76 lbs./ft.	10.00 ID	2.000 wall
SDR 9	200 psi	26.50	10.888	1.556
SDR 11 ●	**160 psi**	**22.20**	**11.454**	**1.273**
SDR 13.5	128 psi	18.44	11.926	1.037
SDR 15.5	110 psi	16.24	12.194	.903
SDR 17 ●	**100 psi**	**14.91**	**12.352**	**.824**
SDR 19	89 psi	13.43	12.526	.737
SDR 21	80 psi	12.22	12.666	.667
SDR 26 ●	**64 psi**	**9.96**	**12.924**	**.538**
SDR 32.5	51 psi	8.05	13.138	.431

16.000 OD

SDR 9	200 psi	34.60 lbs./ft.	12.444 ID	1.778 wall
SDR 11 ●	**160 psi**	**29.00**	**13.090**	**1.455**
SDR 13.5	129 psi	24.09	13.630	1.185
SDR 15.5	110 psi	21.21	13.936	1.032
SDR 17 ●	**100 psi**	**19.46**	**14.118**	**.941**
SDR 19	89 psi	17.54	14.316	.842
SDR 21 ●	**80 psi**	**15.96**	**14.476**	**.762**
SDR 26 ●	**64 psi**	**13.01**	**14.770**	**.615**
SDR 32.5	51 psi	10.50	15.016	.492

18.000 OD

SDR 9	200 psi	43.79 lbs./ft.	14.000 ID	2.000 wall
SDR 11 ●	**160 psi**	**36.69**	**14.728**	**1.636**
SDR 13.5	128 psi	30.48	15.334	1.333
SDR 15.5 ●	**110 psi**	**26.84**	**15.678**	**1.161**
SDR 17 ●	**100 psi**	**24.64**	**15.882**	**1.059**
SDR 19	89 psi	22.19	16.106	.947
SDR 21	80 psi	20.19	16.286	.857
SDR 26 ●	**64 psi**	**16.47**	**16.616**	**.692**
SDR 32.5	51 psi	13.30	16.892	.554

20.000 OD

SDR 9	200 psi	54.05 lbs./ft.	15.556 ID	2.222 wall
SDR 11 ●	**160 psi**	**45.30**	**16.364**	**1.818**
SDR 13.5	128 psi	37.63	17.038	1.481
SDR 15.5	110 psi	33.14	17.420	1.290
SDR 17 ●	**100 psi**	**30.41**	**17.648**	**1.176**
SDR 19	89 psi	27.42	17.894	1.053
SDR 21	80 psi	24.93	18.096	.952
SDR 26 ●	**64 psi**	**20.34**	**18.462**	**.769**
SDR 32.5 ●	**51 psi**	**16.41**	**18.770**	**.615**

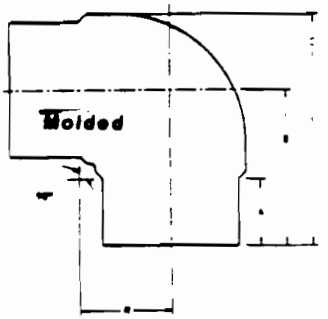
21.500 OD

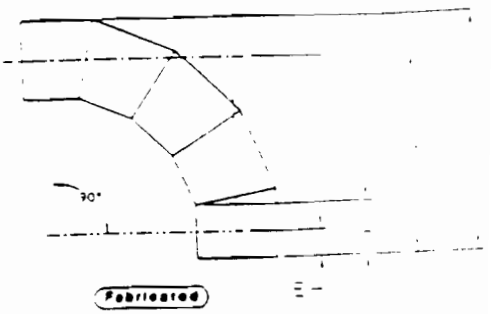
SDR 9	200 psi	62.47 lbs./ft.	16.722 ID	2.389 wall
SDR 11	160 psi	52.37	17.590	1.955
SDR 13.5	128 psi	43.51	18.314	1.593
SDR 15.5	110 psi	38.30	18.726	1.387
SDR 17	100 psi	35.16	18.970	1.265
SDR 19	89 psi	31.68	19.236	1.132
SDR 21	80 psi	28.82	19.452	1.024
SDR 26	64 psi	23.51	19.846	.827
SDR 32.5	51 psi	18.98	20.176	.662

● denotes standard sizes

90 Degree Elbows

NOMINAL SIZE		Type **	psi *	Dimensions, inches A	B	C	E	R	WT. LBS
2"	SDR 9.3 11	Molded	190 160	2.9	4.5	5.7	---	2.0	1
	SDR 7 11	fab'd	200 120	3.0	10.2	11.4	1.5	8.7	1 1
3"	SDR 9.3 11 17	Molded	190 160 100	3.0	5.1	6.9	---	2.5	2
	SDR 7 11 17	fab'd	200 120 75	3.0	10.8	12.5	1.5	9.3	3 2 2
4"	SDR 9.3 11 17	Molded	190 160 100	3.0	5.8	8.0	---	3.0	3
	SDR 7 11 17	fab'd	200 120 75	5.0	16.8	19.1	2.5	14.2	8 6 5
5"	SDR 11	fab'd	120	5.0	17.9	20.7	2.5	16.0	8
6"	SDR 9.3 11 17	Molded	190 160 100	3.0	7.0	10.8	---	4.4	9
	SDR 7 11 17	fab'd	200 120 75	6.0	21.4	24.7	3.0	18.3	21 14 10
8"	SDR 11	Molded	160	6.0	12.0	16.5	---	6.0	25
	SDR 7 11 17 26	fab'd	200 120 75 48	6.0	22.4	26.7	3.0	19.4	37 23 17 12
10"	SDR 11	Molded	160	6.0	13.3	18.6	---	7.3	41
	SDR 7 11 17 26	fab'd	200 120 75 48	6.0	23.5	28.8	3.0	20.4	61 41 28 19
12"	SDR 11	Molded	160	7.5	15.8	22.3	---	8.3	70
	SDR 7 11 17 26	fab'd	200 120 75 48	8.0	30.5	36.8	4.0	26.5	111 75 51 34
14"	SDR 7 11 17 26	fab'd	200 120 75 48	8.0	31.0	38.0	4.0	27.1	137 93 62 42
16"	SDR 7 11 17 26	fab'd	200 120 75 48	10.0	38.1	46.1	5.0	33.1	219 148 99 66
18"	SDR 11 17 26	fab'd	120 75 48	10.0	39.1	48.1	5.0	34.1	192 129 86
20"	SDR 11 17 26	fab'd	120 75 48	11.0	43.2	53.2	5.5	37.7	261 175 117
21.5	SDR 11 17 26	fab'd	120 75 48	11.0	44.0	54.7	5.5	38.4	307 206 138
22"	SDR 11 17 26	fab'd	120 75 48	11.0	44.2	55.2	5.5	38.7	323 216 145
24"	SDR 11 17 26	fab'd	120 75 48	11.0	45.2	57.2	5.5	39.7	393 263 176
26.000	SDR 11	fab'd	120	10.0	43.1	56.1	5.0	38.1	440
28.000	SDR 11 17 26	fab'd	120 75 48	10.0	44.1	58.1	5.0	39.0	52[illegible] 350 234
30.000	SDR 17 26	fab'd	75 48	10.0	45.1	60.1	5.0	40.1	410 274
800mm (31.496)	SDR 17 26	fab'd	75 48	10.0	45.9	61.6	5.0	40.9	460 307
32.000	SDR 17 26	fab'd	75 48	10.0	46.1	62.1	5.0	41.1	477 31[illegible]
36.000	SDR 17 26	fab'd	75 48	10.0	48.1	66.1	5.0	43.1	629 421
1000mm (39.370)	SDR 26 32.5	fab'd	48 38	10.0	49.9	69.7	5.0	44.9	52[illegible] 42[illegible]
42.000	SDR 17 26	fab'd	75 48	10.0	51.1	72.1	5.0	46.1	908 607
1200mm (47.244)	SDR 26	fab'd	48	10.0	54.1	78.1	5.0	49.1	803





Contact your Driscopipe representative for delivery and availability of sizes not listed.

** Fabbed Ells are not fully pressure rated, see "Technical Considerations".

* PSI @ 73.4 degrees F.

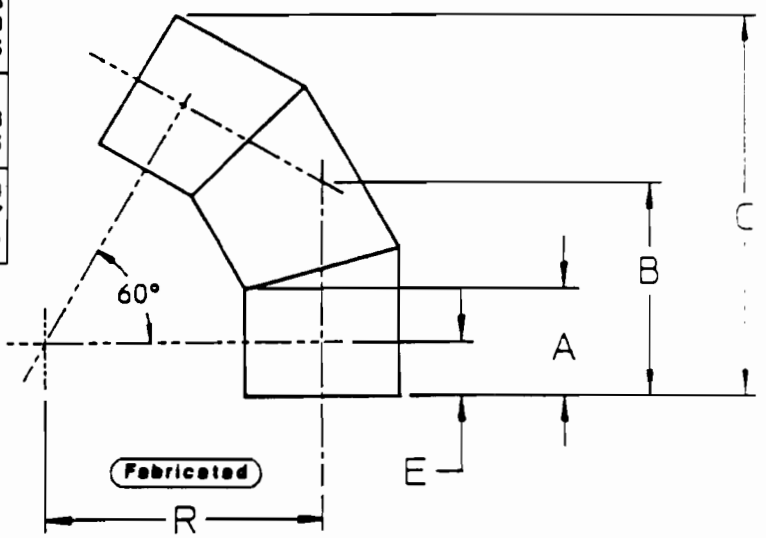
60 DEGREE ELBOWS

NOMINAL SIZE			Type **	psi ⏚	Dimensions, inches A	B	C	E	R	WT. LBS
2"	SDR	7	fab'd	200	3.0	5.4	9.2	1.5	6.8	1
		11		120						.5
3"	SDR	7	fab'd	200	3.0	5.7	10.1	1.5	7.4	2
		11		120						1
		17		75						1
4"	SDR	7	fab'd	200	5.0	9.2	15.7	2.5	11.6	5
		11		120						3
		17		75						2
5"	SDR	11	fab'd	120	5.0	9.5	16.7	2.5	12.1	5
6"	SDR	7	fab'd	200	6.0	7.8	19.9	3.0	14.5	13
		11		120						9
		17		75						6
8"	SDR	7	fab'd	200	6.0	12.0	21.7	3.0	15.5	23
		11		120						16
		17		75						11
		26		48						7
10"	SDR	7	fab'd	200	6.0	12.6	23.5	3.0	16.6	38
		11		120						26
		17		75						17
		26		48						12
12"	SDR	7	fab'd	200	8.0	16.3	30.0	4.0	21.3	68
		11		120						46
		17		75						31
		26		48						21
14"	SDR	7	fab'd	200	8.0	16.7	31.1	4.0	22.0	84
		11		120						57
		17		75						38
		26		48						26
16"	SDR	7	fab'd	200	10.0	20.4	37.5	5.0	26.9	135
		11		120						91
		17		75						61
		26		48						41
18"	SDR	11	fab'd	120	10.0	21.0	39.3	5.0	27.7	118
		17		75						80
		26		48						53
20"	SDR	11	fab'd	120	11.0	23.1	43.4	5.5	30.5	161
		17		75						108
		26		48						73
21.5	SDR	11	fab'd	120	11.0	23.6	44.7	5.5	31.3	190
		17		75						127
		26		48						85
22"	SDR	11	fab'd	120	11.0	23.7	45.1	5.5	31.5	200
		17		75						134
		26		48						90
24"	SDR	11	fab'd	120	11.0	24.3	46.8	5.5	32.5	243
		17		75						163
		26		48						109
26.000	SDR	11	fab'd	120	10.0	23.3	46.2	5.0	31.7	274
28.000	SDR	11	fab'd	120	10.0	23.9	47.9	5.0	32.7	325
		17		75						218
		26		48						146
30.000	SDR	17	fab'd	75	10.0	24.4	49.6	5.0	33.7	256
		26		48						171
800mm (31.496)	SDR	17	fab'd	75	10.0	24.9	50.9	5.0	34.4	287
		26		48						192
32.000	SDR	17	fab'd	75	10.0	25.0	51.4	5.0	34.7	298
		26		48						199
36.000	SDR	17	fab'd	75	10.0	26.2	54.8	5.0	36.7	394
		26		48						264
1000mm (39.370)	SDR	26	fab'd	48	10.0	27.2	57.9	5.0	38.4	328
		32.5		38						264
42.000	SDR	17	fab'd	75	10.0	27.9	60.0	5.0	39.7	572
		26		48						382
1200mm (47.244)	SDR	26	fab'd	48	10.0	29.5	64.8	5.0	42.4	511

Contact your DRISCOPIPE representative for delivery and availability of sizes not listed.

** FAB'D Ells are not fully pressure rated, see "TECHNICAL CONSIDERATIONS".

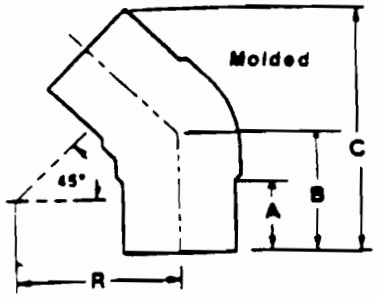
⏚ PSI @ 73.4 degrees F.

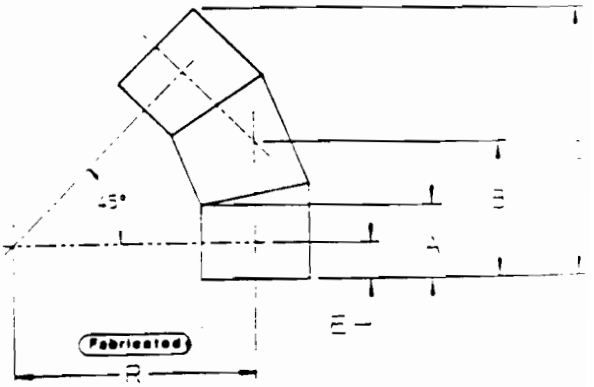


45 DEGREE ELBOWS

NOMINAL SIZE			Type **	psi ÷	Dimensions, inches A	B	C	E	R	WT. LBS
2"	SDR	7	fab'd	200	3.0	5.1	9.6	1.5	8.7	1
		11		120						.5
3"	SDR	9.3	Molded	190	3.0	5.0	9.8	----	3.6	2
		11		160						
	SDR	7	fab'd	200	3.0	5.4	10.4	1.5	9.3	2
		11		120						1
		17		100						1
4"	SDR	9.3	Molded	190	3.0	5.0	10.1	----	3.8	3
		11		160						
		17		100						
	SDR	7	fab'd	200	5.0	8.5	16.1	2.5	14.2	5
		11		120						3
		17		100						2
5"	SDR	11	fab'd	120	5.0	8.9	17.1	2.5	15.4	5
6"	SDR	9.3	Molded	190	3.0	6.0	12.6	----	9.6	9
		11		160						
		17		100						
	SDR	7	fab'd	200	6.0	10.6	20.5	3.0	18.4	13
		11		120						9
		17		100						8
8"	SDR	11	Molded	160	6.0	10.0	17.3	----	9.6	16
	SDR	7	fab'd	200	6.0	11.0	21.9	3.0	19.4	22
		11		120						15
		17		75						10
		26		48						7
10"	SDR	11	Molded	160	6.0	13.3	22.8	----	17.5	40
	SDR	7	fab'd	200	6.0	11.5	23.4	3.0	20.4	35
		11		120						24
		17		75						16
		26		48						11
12"	SDR	11	Molded	160	7.5	15.8	27.0	----	20.0	70
	SDR	7	fab'd	200	8.0	15.0	30.0	4.0	26.5	65
		11		120						44
		17		75						29
		26		48						20
14"	SDR	7	fab'd	200	8.0	15.3	30.9	4.0	27.1	79
		11		120						54
		17		75						36
		26		48						24
16"	SDR	7	fab'd	200	10.0	18.7	37.6	5.0	33.1	127
		11		120						86
		17		75						58
		26		48						39
18"	SDR	11	fab'd	120	10.0	19.1	39.0	5.0	34.1	111
		17		75						75
		26		48						50

NOMINAL SIZE			Type **	psi ÷	Dimensions, inches A	B	C	E	R	WT. LBS
20"	SDR	11	fab'd	120	11.0	21.1	43.1	5.5	37.7	151
		17		75						101
		26		48						68
21.5	SDR	11	fab'd	120	11.0	21.4	44.1	5.5	38.4	177
		17		75						119
		26		48						50
22"	SDR	11	fab'd	120	11.0	21.5	44.5	5.5	38.7	186
		17		75						125
		26		48						84
24"	SDR	11	fab'd	120	11.0	21.9	45.9	5.5	39.7	226
		17		75						152
		26		48						101
26.000	SDR	11	fab'd	120	10.0	20.8	44.7	5.0	38.1	251
28.000	SDR	11	fab'd	120	10.0	21.2	46.1	5.0	39.0	297
		17		75						200
		26		48						133
30.000	SDR	17	fab'd	75	10.0	21.6	47.9	5.0	40.1	233
		26		48						156
800mm (31.496)	SDR	17	fab'd	75	10.0	21.9	48.6	5.0	40.9	261
		26		48						174
32.000	SDR	17	fab'd	75	10.0	22.1	48.9	5.0	41.1	270
		26		48						181
36.000	SDR	17	fab'd	75	10.0	22.9	51.8	5.0	43.1	354
		26		48						237
1000mm (39.370)	SDR	26	fab'd	48	10.0	23.6	54.3	5.0	44.9	243
		32.5		38						226
42.000	SDR	17	fab'd	75	10.0	24.1	56.0	5.0	46.1	509
		26		48						240
1200mm (47.244)	SDR	26	fab'd	48	10.0	25.4	60.2	5.0	49.1	450





Contact your DRISCOPIPE representative for delivery and availability of sizes not listed.

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÷ PSI @ 73.4 degrees F.

30 DEGREE ELBOWS

NOMINAL SIZE			Type **	psi +	Dimensions, inches A	B	C	E	R	WT. LBS
2"	SDR	7	fab'd	200	3.0	3.3	6.8	1.5	6.8	.5
		11		120						.5
3"	SDR	7	fab'd	200	3.0	3.5	7.4	1.5	7.4	1
		11		120						1
		17		75						.5
4"	SDR	7	fab'd	200	5.0	5.6	11.6	2.5	11.6	3
		11		120						2
		17		75						2
5"	SDR	11	fab'd	120	5.0	5.8	12.1	2.5	12.1	3
6"	SDR	7	fab'd	200	6.0	6.9	14.5	3.0	14.5	8
		11		120						5
		17		75						4
8"	SDR	7	fab'd	200	6.0	7.1	15.5	3.0	15.5	13
		11		120						9
		17		75						6
		26		48						4
10"	SDR	7	fab'd	200	6.0	7.4	16.6	3.0	16.6	19
		11		120						13
		17		75						9
		26		48						6
12"	SDR	7	fab'd	200	8.0	9.7	21.3	4.0	21.3	36
		11		120						24
		17		75						16
		26		48						11
14"	SDR	7	fab'd	200	8.0	9.9	22.0	4.0	22.0	43
		11		120						29
		17		75						20
		26		48						13
16"	SDR	7	fab'd	200	10.0	12.1	26.7	5.0	26.7	70
		11		120						48
		17		75						32
		26		48						22
18"	SDR	11	fab'd	120	10.0	12.4	27.7	5.0	27.7	60
		17		75						40
		26		48						27
20"	SDR	11	fab'd	120	11.0	13.7	30.5	5.5	30.5	81
		17		75						55
		26		48						37
21.5	SDR	11	fab'd	120	11.0	13.9	31.3	5.5	31.3	94
		17		75						63
		26		48						42

NOMINAL SIZE			Type **	psi +	Dimensions, inches A	B	C	E	R	WT. LBS
22"	SDR	11	fab'd	120	11.0	14.0	31.5	5.5	31.5	98
		17		75						66
		26		48						44
24"	SDR	11	fab'd	120	11.0	14.2	32.5	5.5	32.5	117
		17		75						79
		26		48						53
26.000	SDR	11	fab'd	120	10.0	13.5	31.7	5.0	31.7	125
28.000	SDR	11	fab'd	120	10.0	13.8	32.7	5.0	32.7	145
		17		75						97
		26		48						65
30.000	SDR	17	fab'd	75	10.0	14.0	33.7	5.0	33.7	111
		26		48						75
800mm (31.496)	SDR	17	fab'd	75	10.0	14.2	34.4	5.0	34.4	123
		26		48						82
32.000	SDR	17	fab'd	75	10.0	14.3	34.7	5.0	34.7	127
		26		48						85
36.000	SDR	17	fab'd	75	10.0	14.8	36.7	5.0	36.7	160
		26		48						107
1000mm (39.370)	SDR	26	fab'd	48	10.0	15.3	38.4	5.0	38.4	128
		32.5		38						103
42.000	SDR	17	fab'd	75	10.0	15.6	39.7	5.0	39.7	218
		26		48						146
1200mm (47.244)	SDR	26	fab'd	48	10.0	16.4	42.4	5.0	42.1	184

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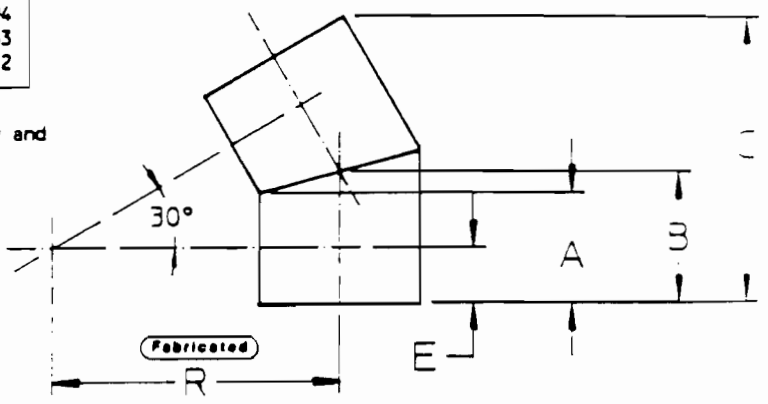
** FAB'D Ells are not fully pressure rated, see "TECHNICAL CONSIDERATIONS".

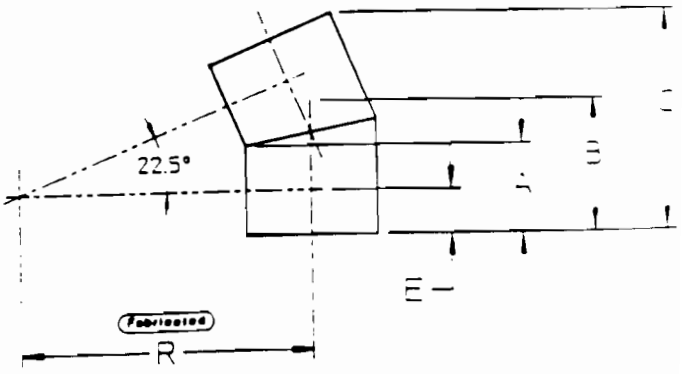
\+ PSI @ 73.4 degrees F.



22 1/2 DEGREE ELBOWS

NOMINAL SIZE			Type **	psi ⏚	Dimensions, inches A	B	C	E	R	WT. LBS
2"	SDR	7	fab'd	200	3.0	3.3	6.8	1.5	6.8	.5
		11		120						.5
3"	SDR	7	fab'd	200	3.0	3.5	7.4	1.5	7.4	1
		11		120						1
		17		75						.5
4"	SDR	7	fab'd	200	5.0	5.6	11.6	2.5	11.6	3
		11		120						2
		17		75						2
5"	SDR	11	fab'd	120	5.0	5.8	12.1	2.5	12.1	3
6"	SDR	7	fab'd	200	6.0	6.9	14.5	3.0	14.5	8
		11		120						5
		17		75						4
8"	SDR	7	fab'd	200	6.0	7.1	15.5	3.0	15.5	13
		11		120						9
		17		75						6
		26		48						4
10"	SDR	7	fab'd	200	6.0	7.4	16.6	3.0	16.6	19
		11		120						13
		17		75						9
		26		48						6
12"	SDR	7	fab'd	200	8.0	9.7	21.3	4.0	21.3	36
		11		120						24
		17		75						16
		26		48						11
14"	SDR	7	fab'd	200	8.0	9.9	22.0	4.0	22.0	43
		11		120						29
		17		75						20
		26		48						13
16"	SDR	7	fab'd	200	10.0	12.1	26.7	5.0	26.7	70
		11		120						48
		17		75						32
		26		48						22
18"	SDR	11	fab'd	120	10.0	12.4	27.7	5.0	27.7	60
		17		75						40
		26		48						27
20"	SDR	11	fab'd	120	11.0	13.7	30.5	5.5	30.5	81
		17		75						55
		26		48						37
21.5	SDR	11	fab'd	120	11.0	13.9	31.3	5.5	31.3	94
		17		75						63
		26		48						42

NOMINAL SIZE			Type **	psi ⏚	Dimensions, inches A	B	C	E	R	WT. LBS
22"	SDR	11	fab'd	120	11.0	14.0	31.5	5.5	31.5	98
		17		75						66
		26		48						44
24"	SDR	11	fab'd	120	11.0	14.2	32.5	5.5	32.5	117
		17		75						79
		26		48						53
26.000	SDR	11	fab'd	120	10.0	13.5	31.7	5.0	31.7	125
28.000	SDR	11	fab'd	120	10.0	13.8	32.7	5.0	32.7	145
		17		75						97
		26		48						65
30.000	SDR	17	fab'd	75	10.0	14.0	33.7	5.0	33.7	111
		26		48						75
800mm (31.496)	SDR	17	fab'd	75	10.0	14.2	34.4	5.0	34.4	123
		26		48						82
32.000	SDR	17	fab'd	75	10.0	14.3	34,7	5.0	34.7	127
		26		48						85
36.000	SDR	17	fab'd	75	10.0	14.8	36.7	5.0	36.7	160
		26		48						107
1000mm (39.370)	SDR	26	fab'd	48	10.0	15.3	38.4	5.0	38.4	128
		32.5		38						103
42.000	SDR	17	fab'd	75	10.0	15.6	39.7	5.0	39.7	218
		26		48						146
1200mm (47.244)	SDR	26	fab'd	48	10.0	16.4	42.4	5.0	42.1	184



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⏚ PSI @ 73.4 degrees F.

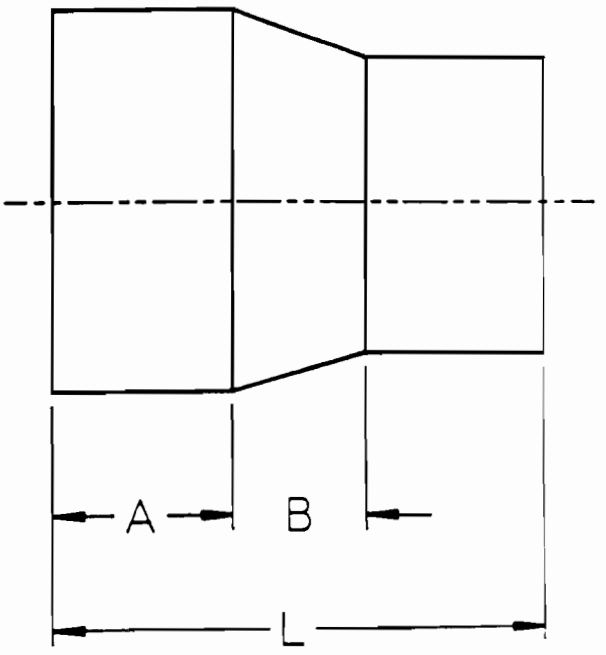
REDUCERS

NOMINAL SIZE			Type **	psi †	Dimensions, inches A	B	L	WT. LBS
3x2	SDR	9.3 11	Molded	190 160	3.0	2.9	8.9	.5
4x2	SDR	9.3 11	Molded	190 160	3.0	5.5	11.5	1
4x3	SDR	9.3 11 17	Molded	190 160 100	3.0	2.6	8.6	1
6x4	SDR	7	fab'd	267	3.5	4.0	11.0	7
	SDR	9.3 11 17	Molded	190 160 100	3.5	2.3	7.5	3
6x5	SDR	11	fab'd	160	3.5	4.0	11.0	5
8x6	SDR	7 11 17 26	fab'd Molded fab'd	267 160 100 64	4.0 4.0 4.0	4.0 3.0 4.0	12.0 12.0 13.0	15 9 7 6
10x8	SDR	7 11 17 26	fab'd	267 160 100 64	6.0	4.0	16.0	22 15 10 7
12x8	SDR	11 17	fab'd	160 100	6.0	4.0	16.0	25 17
12x10	SDR	7 11 17 26	fab'd	267 160 100 64	6.0	4.0	16.0	32 22 15 10
14x12	SDR	7 11 17 26	fab'd	267 160 100 64	7.0	4.0	18.0	40 27 19 13
16x14	SDR	7 11 17 26	fab'd	267 160 100 64	7.0	4.0	18.0	57 39 29 18
18x16	SDR	7.3 11 17 26	fab'd	254 160 100 64	7.0	4.0	18.0	93 50 33 22
20x18	SDR	11 17 26	fab'd	160 100 64	7.0	4.0	18.0	62 42 28
21.5 x 20	SDR	11 17 26	fab'd	160 100 64	8.0	4.0	20.0	81 54 36
22x20	SDR	11 17 26	fab'd	160 100 64	8.0	4.0	20.0	83 56 38

Contact your DRISCOPIPE representative for delivery or availability of other sizes.

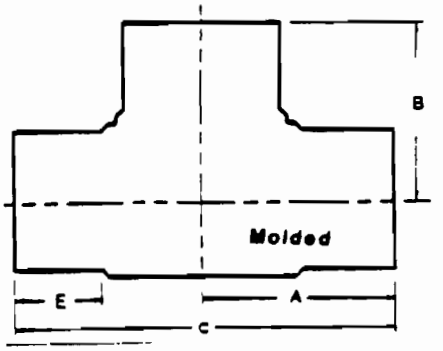
† PSI @ 73.4 degrees F.

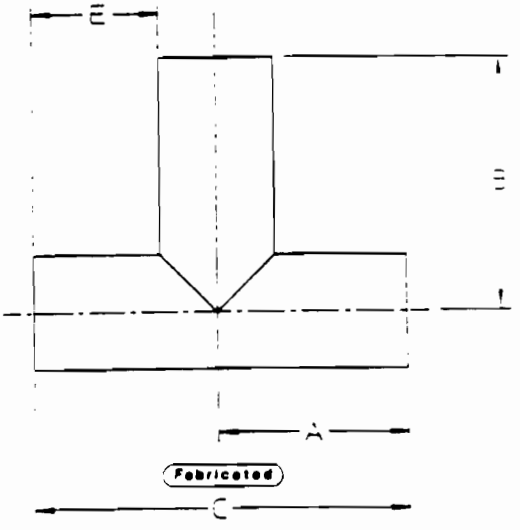
NOMINAL SIZE			Type **	psi †	Dimensions, inches A	B	L	WT. LBS
24x21.5	SDR	11 17 26	fab'd	160 100 64	9.0	4.0	22.0	108 72 48
24x22	SDR	11 17 26	fab'd	160 100 64	9.0	4.0	22.0	109 73 49
26x24	SDR	11 15.5 32.5	fab'd	160 110 51	9.0	4.0	22.0	129 94 47
28x24	SDR	11 17 26	fab'd	160 100 64	9.0	4.0	22.0	142 95 64
800mm x28 (31.496)	SDR	17 26	fab'd	100 64	9.0	4.0	22.0	124 83
800mm x30 (31.496)	SDR	17 26	fab'd	100 64	9.0	4.0	22.0	130 87
32x28	SDR	17 26	fab'd	100 64	9.0	4.0	22.0	126 84
32x30	SDR	17 26	fab'd	100 64	9.0	4.0	22.0	132 89
36x800mm (31.496)	SDR	17 26	fab'd	100 64	9.0	4.0	22.0	159 107
36x32	SDR	17 26	fab'd	100 64	9.0	4.0	22.0	161 108



TEES

NOMINAL SIZE		Type **	psi +	Dimensions, inches A	B	C	E	WT. LBS
2"	SDR 9.3 11	Molded	190 160	4.8	4.8	9.5	3.0	1
	SDR 7 11	fab'd	200 120	8.0	15.0	16.0	6.8	3 2
3"	SDR 9.3 11 17	Molded	190 160 100	5.1	5.1	10.3	3.0	2
	SDR 7 11	fab'd	200 120	8.0	15.0	16.0	6.3	5 4
4"	SDR 9.3 11 17	Molded	190 160 100	5.6	5.6	11.2	3.0	3 3 3
	SDR 7 11	fab'd	200 120	8.0	15.0	16.0	5.8	8 6
5"	SDR 11	fab'd	120	8.5	14.0	17.0	5.7	8
6"	SDR 9.3 11 17	Molded	190 160 100	7.4	7.4	14.9	3.0	10 10 9
	SDR 7 11	fab'd	200 120	8.5	14.0	17.0	5.2	17 12
8"	SDR 11	Molded	160	12.0	12.0	24.0	6.0	30
	SDR 7 11 17	fab'd	200 120 75	14.0	19.5	28.0	9.7	44 30 20
10"	SDR 11	Molded	160	13.3	13.3	26.5	6.0	51
	SDR 7 11 17	fab'd	200 120 75	14.0	19.5	28.0	8.6	67 45 30
12"	SDR 11	Molded	160	15.5	15.5	31.0	7.5	90
	SDR 7 11 17	fab'd	200 120 75	15.0	19.5	30.0	8.6	96 65 44
14"	SDR 7 11 17	fab'd	200 120 75	16.0	19.5	32.0	9.0	116 79 53
16"	SDR 7 11 17	fab'd	200 120 75	16.0	19.5	32.0	8.0	152 103 69
18"	SDR 11 17	fab'd	120 75	19.0	25.0	38.0	10.0	141 94
20"	SDR 11 17 26	fab'd	120 75 48	19.0	25.0	38.0	9.0	173 116 78
21.5	SDR 11 17 26	fab'd	120 75 48	19.0	25.0	38.0	8.3	223 149 100
22"	SDR 11 17 26	fab'd	120 75 48	19.0	25.0	38.0	8.0	232 156 104
24"	SDR 11 17 26	fab'd	120 75 48	23.8	25.0	47.5	11.8	321 215 144
√ 26.000	SDR 11	fab'd	120	25.0	52.0	50.0	12.0	557
√ 28.000	SDR 11 17	fab'd	120 75	25.0	52.0	50.0	11.0	624 426
√ 30.000	SDR 17 26	fab'd	75 48	30.0	52.0	60.0	15.0	539 360
√ 800mm (31.496)	SDR 17 26	fab'd	75 48	51.0	52.0	102.0	35.3	847 566
√ 32.000	SDR 17 26	fab'd	75 48	51.0	52.0	102.0	35.0	872 583
√ 36.000	SDR 17 26	fab'd	75 48	51.0	52.0	102.0	33.0	1088 727
√ 1000mm (39.370)	SDR 26	fab'd	48	51.0	52.0	102.0	31.3	859
√ 42.000	SDR 26	fab'd	48	51.0	52.0	102.0	30.0	968
√ 1200mm (47.244)	SDR 26	fab'd	48	51.0	52.0	102.0	27.4	1200





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** FAB'D tees are not fully pressure rated, see "TECHNICAL CONSIDERATIONS".

+ PSI @ 73.4 degrees F.

T E E S with Flanges

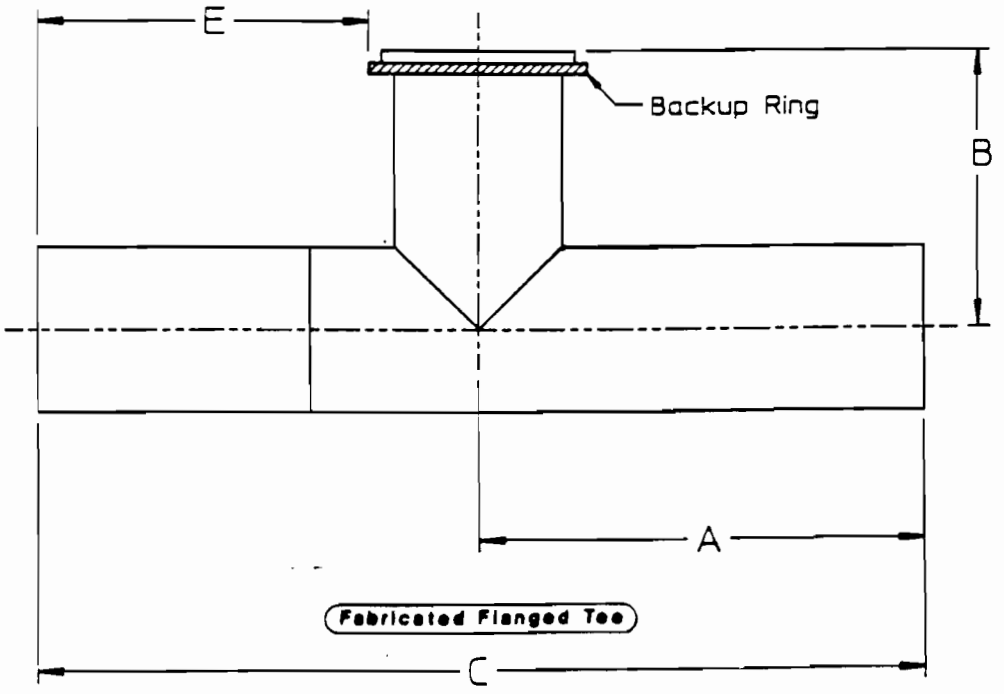
Flanged Outlets

NOMINAL SIZE	Type **	psi †	Dimensions, inches A	B	C	E	WT. LBS
26.000 SDR 11	fab'd	120	74.0	48.0	148.0	56.9	1226
28.000 SDR 11 17	fab'd	120 75	74.0	48.0	148.0	55.8	1424 1001
30.000 SDR 17 26	fab'd	75 48	74.0	48.0	148.0	54.6	1147 809
800mm SDR 17 (31.496) 26	fab'd	75 48	74.0	48.0	148.0	53.1	1270 893
32.000 SDR 17 26	fab'd	75 48	74.0	48.0	148.0	53.1	1450 917
36.000 SDR 17 26	fab'd	75 48	78.0	48.0	156.0	55.0	1634 1186
1000mm SDR 26 (39.370)	fab'd	48	65.0	48.0	130.0	39.6	1437
42.000 SDR 26	fab'd	48	65.0	48.0	130.0	38.5	1396
1200mm SDR 26 (47.244)	fab'd	48	65.0	48.0	130.0	35.3	1731

† PSI @ 73.4 degrees F.

Contact your Driscopipe representative for delivery and availability of sizes not listed.

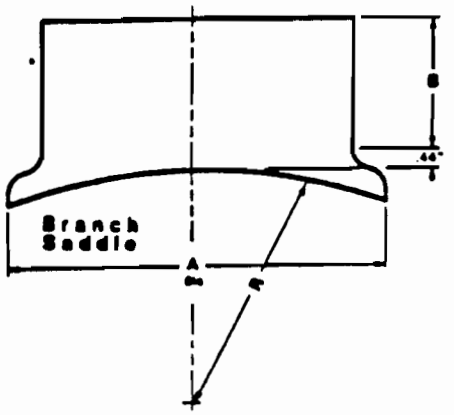
** FAB'D Tees not fully pressure rated, see "TECHNICAL CONSIDERATIONS".



Fabricated Flanged Tee

BRANCH SADDLES

Nominal Size base x outlet		TYPE	psi †	Dimensions, in A	Dimensions, in B	WT. LBS
3x2	SDR 9.3 11	Mach'd	190 160	2.6	3.0	0.4
4x2	SDR 9.3 11	Mach'd	190 160			
6x2	SDR 9.3 11	Mach'd	190 160			
8x2	SDR 9.3 11	Mach'd	190 160			
10x2	SDR 9.3 11	Mach'd	190 160			
12x2	SDR 9.3	Mach'd	190			
4x3	SDR 9.3 11	Mach'd	190 160	3.9	3.0	0.7
6x3	SDR 9.3 11	Mach'd	190 160			
8x3	SDR 9.3 11	Mach'd	190 160			
10x3	SDR 9.3 11	Mach'd	190 160			
12x3	SDR 9.3 110	Mach'd	190 160			
6x4	SDR 9.3 11	Mach'd	190 160	4.8	3.0	1.0
8x4	SDR 9.3 11	Mach'd	190 160			
10x4	SDR 9.3 11	Mach'd	190 160			
12x4	SDR 9.3 11	Mach'd	190 160			
8x6	SDR 9.3 11	Mach'd	190 160	7.3	3.0	4.0
10x6	SDR 9.3 11	Mach'd	190 160			
12x6	SDR 9.3 11	Mach'd	190 160			
10x8	SDR 11	Mach'd	160	9.4	6.0	10.0
12x8	SDR 11	Mach'd	160			



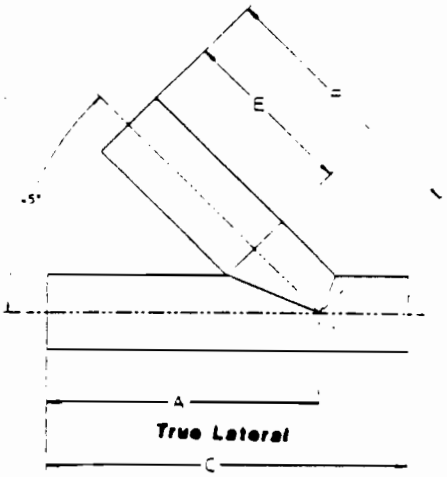
Contact your DRISCOPIPE representative for delivery or availability of other sizes.

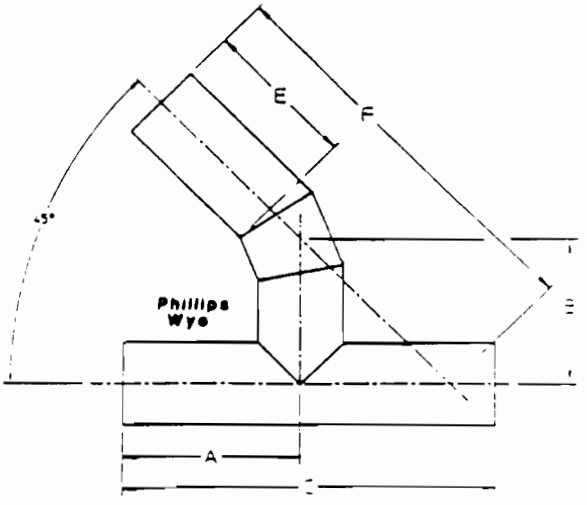
† PSI @ 73.4 degrees F.

45 DEGREE WYES

NOMINAL SIZE		psi +	Type	Dimensions, inches A	B	C	E	F	WT. LBS
2"	SDR 11	120	TrueLat	18.5	na	25.0	14.6	17.5	2
3"	SDR 11	120	TrueLat	17.3	na	25.0	14.5	18.7	5
	SDR 7	200	Phillips	11.0	8.0	18.0	11.8	25.5	7
	SDR 11	120							5
4"	SDR 11	120	TrueLat	19.5	na	26.5	14.1	19.5	9
	SDR 7	200	Phillips	14.0	7.7	22.0	12.3	30.1	12
	SDR 11	120							8
6"	SDR 11	120	TrueLat	27.6	na	35.5	19.9	27.9	26
	SDR 7	200	Phillips	6.0	7.9	24.8	12.8	28.8	28
	SDR 11	120		1					19
8"	SDR 11	120	TrueLat	30.4	na	40.2	20.0	30.4	49
	SDR 7	200	Phillips	18.0	15.2	31.0	15.8	41.7	63
	SDR 11	120							43
	SDR 17	75							29
10"	SDR 11	120	TrueLat	33.0	na	43.2	20.0	35.0	81
	SDR 7	200	Phillips	21 0	17.1	35.0	15.3	44.7	105
	SDR 11	120							71
	SDR 17	75							48
12"	SDR 11	120	TrueLat	35.4	na	46.0	20.0	35.4	122
	SDR 7	200	Phillips	22.0	20.2	36.8	17.5	52.3	163
	SDR 11	120							111
	SDR 17	75							74
14"	SDR 11	120	TrueLat	39.1	na	50.0	22.0	38.9	161
	SDR 7	200	Phillips	23.0	19.4	41.0	24.5	57.8	222
	SDR 11	120							150
	SDR 17	75							101
16"	SDR 7	200	Phillips	24.0	19.4	43.0	24.3	58.5	295
	SDR 11	120							200
	SDR 17	75							134
18"	SDR 11	160	Phillips	25.0	31.1	46.0	23.8	76.9	298
	SDR 17	75							200
20"	SDR 11	160	Phillips	26.0	35.1	47.0	23.5	83.2	385
	SDR 17	75							258
	SDR 26	48							173

NOMINAL SIZE		psi +	Type	Dimensions, inches A	B	C	E	F	WT. LBS
21.5	SDR 11	120	Phillips	27.0	35.4	49.0	23.3	83.8	452
	SDR 17	75							303
	SDR 26	48							203
22"	SDR 11	120	Phillips	27.0	35.5	49.0	23.3	84.0	473
	SDR 17	75							317
	SDR 26	48							212
24"	SDR 11	120	Phillips	28.0	35.1	51.0	22.8	83.0	564
	SDR 17	75							378
	SDR 26	48							253
Flanged 26"	SDR 11	120	Phillips	74.0	47.8	148.0	na	92.4	1372
28"	SDR 11	120	Phillips	74.0	50.2	148.0	na	96.2	1598
	SDR 17	75							1109
30"	SDR 17	75	Phillips	74.0	50.6	148.0	na	97.2	1275
	SDR 26	48							894
800mm (31.496)	SDR 17	75	Phillips	74.0	51.7	148.0	na	98.9	1418
	SDR 26	48							993
32"	SDR 17	75	Phillips	74.0	52.1	148.0	na	100.0	1460
	SDR 26	48							1021
36"	SDR 17	75	Phillips	78.0	55.4	156.0	na	105.3	1914
	SDR 26	48							1338





Contact your DRISCOPIPE representative for delivery or availability of other items. Wyes are de-rated, see TECHNICAL CONSIDERATIONS.

+ PSI @ 73.4 degrees F.

Reducing wyes may be available on special quotes.

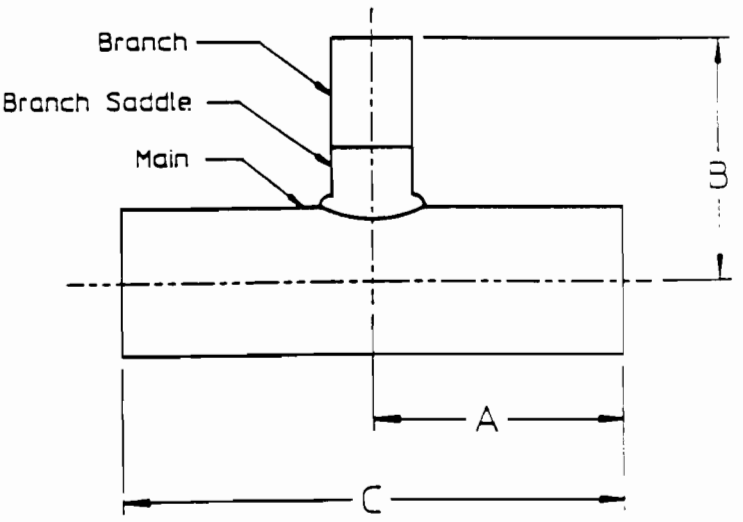
BRANCH SADDLE REDUCING TEES

	NOMINAL SIZE		psi †	Dimensions, in. A	B	C	WT. LBS
2" outlet	3x2	SDR 11	160	12	12	24	4
	4x2	SDR 11	160	12	12	24	6
	6x2	SDR 11	160	13	13	26	12
	8x2	SDR 11 17	160 100	14	14	28	20 14
	10x2	SDR 11 17	160 100	14	14	28	31 21
	12x2	SDR 11 17	160 100	14	14	28	43 29
3" outlet	4x3	SDR 11	160	12	12	24	7
	6x3	SDR 11	160	13	13	26	13
	8x3	SDR 11 17	160 100	14	14	28	19 15
	10x3	SDR 11 17	160 100	14	14	28	32 22
	12x3	SDR 11 17	160 100	14	14	28	44 30
4" outlet	6x4	SDR 11	160	13	13	26	13
	8x4	SDR 11 17	160 100	14	14	28	22 15
	10x4	SDR 11 17	160 100	14	14	28	32 23
	12x4	SDR 11 17	160 100	14	14	28	44 31
	18x4	SDR 11 17 26	160 100 64	19	19	38	115 79 53

	NOMINAL SIZE		psi †	Dimensions, in. A	B	C	WT. LBS
6" outlet	8 x 6	SDR 11 17	160 100	14	14	28	26 20
	10 x 6	SDR 11 17	160 100	14	14	28	37 27
	12 x 6	SDR 11 17	160 100	14	14	28	49 35
	14 x 6	SDR 11 17	160 100	15	15	30	61 43
	16 x 6	SDR 11 17 26	160 100 68	16	16	32	82 57 41
	18 x 6	SDR 11 17 26	160 100 68	19	19	38	120 83 58
	20 x 6	SDR 11 17 26	160 100 68	19	19	38	147 101 70
	21.5 x 6	SDR 11 17 26	160 100 68	19	19	38	169 115 79
	24 x 6	SDR 11 17 26	160 100 68	25	25	50	272 185 126
	36 x 6	SDR 17 26	100 68	25	30	50	410 277

Contact your Driscopipe representative for delivery or availability of sizes not listed.

† PSI @ 73.4 degrees F.



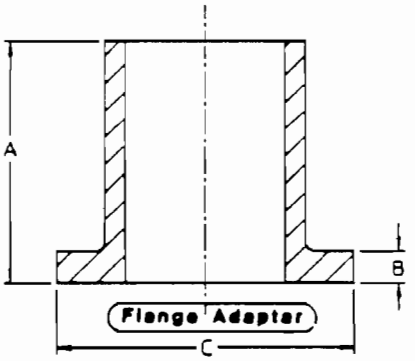
Molded Flange Connectors

NOMINAL SIZE		Type	psi †	Dimensions, inches A	B	C	WT. LBS
1"	SDR 9.3 11	Molded	190 160	4.0	0.2	2.4	.5
1-1/4	SDR 9.3 11	Molded	190 160	4.0	0.3 0.2	2.8	.5
1-1/2	SDR 9.3 11	Molded	190 160	4.0	0.3 0.2	3.1	.5
2"	SDR 7 11	Molded	267 160	6.0	0.4	4.0	1
3"	SDR 7 11 17	Molded	267 160 100	6.0	0.6	5.0	2
4"	SDR 7 11 17	Molded	267 160 100	6.0	0.8	6.6	3
6"	SDR 7 11 17 26	Molded	267 160 100 64	8.0	1.2 0.8	8.5	8 7
8"	SDR 7 11 17 26	Molded	267 160 100 64	9.0	1.6 0.8	10.6	11 10
10"	SDR 7 11 17 26	Molded	267 160 100 64	9.0	1.9 1.3 0.9 0.8	12.8	19 18 17 17
12"	SDR 7 11 17 26	Molded	267 160 100 64	10.8	2.3 1.5 1.0 0.8	15.0	25 24 23 22
14"	SDR 7 11 17	Molded	267 160 100	11.0	2.6 1.7 1.1	17.5	55 40 38
16"	SDR 7 11 17 26	Molded	267 160 100 64	12.0	3.0 1.9 1.2 0.8	20.0	80 60 45 43

† PSI @ 73.4° F.

If used with butterfly valves check with other mfg. for space/clearance requirements.

NOMINAL SIZE		TYPE	PSI †	Dimensions, inches A	B	C	WT. LBS
18"	SDR 7 11 17 26	Molded	267 160 100 64	12.0	3.3 2.1 1.4 1.0	21.1	95 68 55 50
20"	SDR 11 17 26	Molded	160 100 64	12.0	2.3 1.5 1.0	23.5	66 64 62
21.5	SDR 11 17 26	Molded	160 100 64	12.0	2.4 1.6 1.0	25.6	68 66 64
22"	SDR 11 17 26	Molded	160 100 64	12.0	2.5 1.6 1.1	25.6	67 65 63
24"	SDR 9 17 32.5	Molded	200 100 51	14.0	3.5 1.8 1.0	27.9	190 140 95



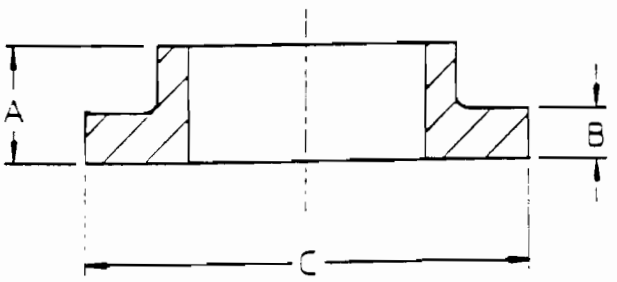
STUB END CONNECTORS

NOMINAL SIZE			TYPE **	PSI †	Dimensions, inches A	B	C	WT. LBS
26.000	SDR	11	SsSe	160	4.0	2.5	30.8	45
		26		64		1.4		22
		32.5		51		1.1		15
28.000	SDR	11	SsSe	160	4.0	2.7	32.3	48
		17		100		2.2		34
		26		64		1.5		23
		32.5		51		1.2		17
30.000	SDR	11	SsSe	160	5.0	3.6	34.6	81
		17		100	4.0	2.3		41
		26		64		1.6		27
		32.5		51		1.3		22
800mm (31.496)	SDR	17	SsSe	100	4.0	2.4	36.7	45
		26		64		1.6		33
		32.5		51		1.3		26
32.000	SDR	17	SsSe	100	4.0	2.5	36.7	49
		26		64		1.7		35
		32.5		51		1.4		28
36.000	SDR	17	MmSe	100	4.0	2.4	40.8	53
		26		64		1.9		41
		32.5		51		1.5		33
1000mm (39.370)	SDR	26	SsSe	64	4.0	2.0	47.4	65
		32.5		51		1.6		51
42.000	SDR	17	SsSe	100	4.0	2.6	47.4	82
		26		64		2.1		59
		32.5		51		1.7		46
1200mm (47.244)	SDR	21	MmSe	64	4.0	2.8	54.0	92
		26		64		2.4		84
		32.5		51		1.9		67
54.000	SDR	26	SsSe	64	4.0	2.4	47.4	156
		32.5		51		2.2		80

Type **	SsSe = sheet stock stub end MmSe = molded machined stub end

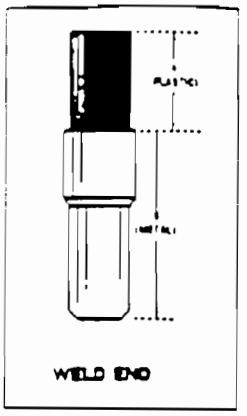
If used with butterfly valves, check with other mfg. for space/clearance requirements.

† PSI @ 73.4° F.



Weld-End Transition Fittings

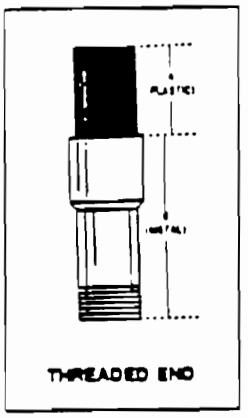
NOMINAL SIZE		psi ◆	TYPE	Dimen., inch A	B	WT. lbs.
2"	SDR 7	267	Weld-end	12	14.3	7
	SDR 11	160				6
3"	SDR 7	267	Weld-end	12	15.5	15
	SDR 11	160				14
4"	SDR 7	267	Weld-end	12	16.4	23
	SDR 11	160				23
6"	SDR 11	160	Weld-end	18	18.2	52



w/external epoxy coating

Transition Fittings

NOMINAL SIZE		psi ◆	TYPE	Dimen., inch A	B	WT. lbs.
1-1/4"	SDR 11	160		12	6.0	3
2"	SDR 7	267		12	6.2	5
	SDR 11	160				4
3"	SDR 7	267		12	7.0	11
	SDR 11	160				10
4"	SDR 7	267		12	7.8	18
	SDR 11	160				17
6"	SDR 11	160		18	12.1	42



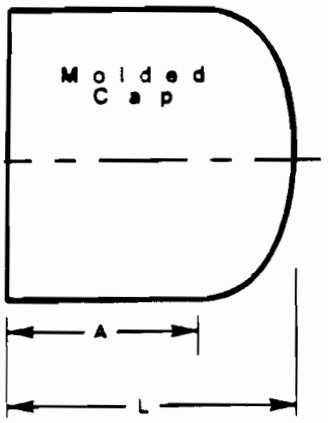
w/internal coating

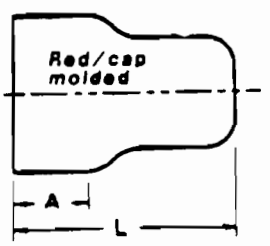
Contact your DRISCOPIPE Representative for delivery or availability of other sizes.

◆ PSI @ 73.4 degrees F.

C A P S

NOMINAL SIZE		Type	psi ◆	Dimensions, inches A	L	WEIGHT LBS.
2"	SDR 9.3	molded	190	1.8	2.4	.2
3"	SDR 9.3	molded	190	2.3	3.7	.5
	SDR 11		160			
4"	SDR 9.3	molded	190	2.3	3.8	.8
	SDR 11		160			
6"	SDR 9.3	red/cap	190	3.0	9.2	3
	SDR 11		160			
8"	SDR 11	molded	160	3.6	7.9	10





Contact your DRISCOPIPE representative for delivery or availability of other sizes.

◆ PSI @ 73.4 degrees F.

Chemical Corrosion Resistance

The outstanding resistance of Driscopipe to attack by most chemicals makes it suitable to transport these chemicals or to be installed in an environment where these chemicals are present. Factors which determine the suitability and service life of each particular application include the specific chemical and its concentration, pressure, temperature, period of contact and service conditions which may introduce stress concentrations in the pipe or fittings.

Driscopipe is, for all practical purposes, chemically inert within its temperature use range. This advantageous engineering characteristic is one of the primary reasons for the wide use of Driscopipe in industrial applications. It does not rot, rust, pit, corrode or lose wall thickness through chemical or electrical reaction with the surrounding soil, whether acid, alkaline, wet or dry. It neither supports the growth of, nor is affected by, algae, bacteria or fungi and is resistant to marine biological attack. It contains no ingredients which make it attractive to rodents, gophers, etc.

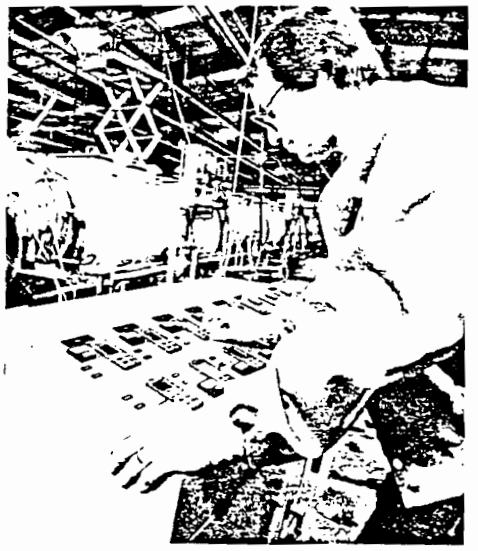
Information relative to the resistance of Driscopipe to a wide range of chemicals is shown in the following tables. This information is based on results of immersion tests (usually 3 months) at various temperatures. Changes in tensile strength and elongation are evaluated at a rapid strain rate to emphasize any strength decay in the material.

Most acids, bases and other chemicals can be transported by Driscopipe using the same design parameters as would apply to water, natural or manufactured gas and water solutions of inorganic salts. Strong oxidizing agents such as fuming sulfuric acid may adversely affect the pipe, depending upon concentration, temperature and period of contact. In many cases, such as gravity flow waste lines, these chemicals can be handled because of dilution and intermittent flow.

Some chemicals, such as all types of liquid hydrocarbons, will mechanically absorb into the wall of the pipe and cause a reduction in hoop stress but this does not degrade the material. This effect is temporary if exposure is intermittent. Where exposure is continuous, it is necessary to derate the pressure capability of the pipe for long term service. This includes such products as gasoline, ethyl alcohol, benzene, carbon tetrachloride, crude and refined oils, etc. Where 5-100% hydrocarbon liquids are continuously present in a pressure system, a service design factor of .25 should be used to calculate design pressures instead of the service design factor of .5 used with water.

$$P = \frac{2S}{SDR - 1} \times F \quad \text{or} \quad P = 2S\frac{t}{D - t} \times F$$

Where, D = Outside Diameter, Inches
P = Design Pressure, psi
S = Long Term Hydrostatic Strength, psi, at the design temperature
t = Minimum Wall Thickness, Inches
F = Service Design Factor
SDR = Standard Dimension Ratio of D/t



CHEMICAL RESISTANCE OF DRISCOPIPE

S – Satisfactory
U – Unsatisfactory
M – Marginal
N – Not known

All concentrations are 100% unless noted otherwise

On reagents marked marginal, chemical attack will be recognized by a loss of physical properties of the pipe which may require a change in design factors.

Reagent	70°F (21°C)	140°F (60°C)
Acetic Acid 1-10%	S	S
Acetic Acid 10-60%	S	M
Acetic Acid 80-100%	S	M
Acetone	M	U
Acrylic Emulsions	S	S
Aluminum Chloride-Dilute	S	S
Aluminum Chloride Conc.	S	S
Aluminum Fluoride Conc.	S	S
Aluminum Sulfate Conc.	S	S
Alums (All Types) Conc.	S	S
Ammonia 100% Dry Gas	S	S
Ammonium Carbonate	S	S
Ammonium Chloride Sat'd	S	S
Ammonium Fluoride 20%	S	S
Ammonium Hydroxide 0.88 S.G.	S	S
Ammonium Metaphosphate Sat'd	S	S
Ammonium Nitrate Sat'd	S	S
Ammonium Persulfate Sat'd	S	S
Ammonium Sulfate Sat'd	S	S
Ammonium Sulfide Sat'd	S	S
Ammonium Thiocyanate Sat'd	S	S
Amyl Acetate	M	U
Amyl Alcohol 100%	S	S
Amyl Chloride 100%	N	U
Aniline 100%	S	N
Antimony Chloride	S	S
Aqua Regia	U	U
Barium Carbonate Sat'd	S	S
Barium Chloride	S	S
Barium Hydroxide	S	S
Barium Sulfate Sat'd	S	S
Barium Sulfide Sat'd	S	S
Beer	S	S
Benzene	M	U
Benzene Sulfonic Acid	S	S
Bismuth Carbonate Sat'd	S	S
Bleach Lye 10%	S	S
Black Liquor	S	S
Borax Cold Sat'd	S	S
Boric Acid Dilute	S	S
Boric Acid Conc.	S	S
Bromic Acid 10%	S	S
Bromine Liquid 100%	M	U
Butanediol 10%	S	S
Butanediol 60%	S	S
Butanediol 100%	S	S
Butyl Alcohol 100%	S	S
Calcium Bisulfide	S	S
Calcium Carbonate Sat'd	S	S
Calcium Chlorate Sat'd	S	S
Calcium Chloride Sat'd	S	S
Calcium Hydroxide	S	S
Calcium Hypochlorite BL'GH Sol.	S	S
Calcium Nitrate 50%	S	S
Calcium Sulfate	S	S
Camphor Oil	N	U
Carbon Dioxide 100% Dry	S	S
Carbon Dioxide 100% Wet	S	S
Carbon Dioxide Cold Sat'd	S	S
Carbon Disulfide	N	U
Carbon Monoxide	S	S
Carbon Tetrachloride	M	U
Carbonic Acid	S	S
Castor Oil Conc.	S	S
Chlorine Dry Gas 100%	S	M
Chlorine Moist Gas	M	U
Chlorine Liquid	M	U
Chlorobenzene	M	U
Chloroform	M	U
Chlorosulfonic Acid 100%	M	U
Chrome Alum Sat'd	S	S
Chromic Acid 20%	S	S
Chromic Acid Up to 50%	S	S
Chromic Acid and Sulfuric Acid	S	M
Cider	S	S
Citric Acid Sat'd	S	S
Coconut Oil Alcohols	S	S
Cola Concentrates	S	S
Copper Chloride Sat'd	S	S
Copper Cyanide Sat'd	S	S
Copper Fluoride 2%	S	S
Copper Nitrate Sat'd	S	S
Copper Sulfate Dilute	S	S
Copper Sulfate Sat'd	S	S
Cottonseed Oil	S	S
Crude Oil*	S	M
Cuprous Chloride Sat'd	S	S
Cychohexanol	S	S
Cyclohexanone	M	U
Detergents Synthetic	S	S
Developers, Photographic	S	S
Dextrin Sat'd	S	S
Dextrose Sat'd	S	S
Dibutylphthalate	S	M
Disodium Phosphate	S	S
Diazo Salts	S	S
Diethylene Glycol	S	S
Diglycolic Acid	S	S
Dimethylamine	M	U
Emulsions, Photographic	S	S
Ethyl Acetate 100%	M	U
Ethyl Alcohol 100%	S	S
Ethyl Alcohol 35%	S	S
Ethyl Butyrate	M	U
Ethyl Chloride	M	U
Ethyl Ether	U	U
Ethylene Chloride	U	U
Ethylene Chlorohydrin	U	U
Ethylene Dichloride	M	U
Ethylene Glycol	S	S
Ferric Chloride Sat'd	S	S
Ferric Nitrate Sat'd	S	S
Ferrous Chloride Sat'd	S	S
Ferrous Sulfate	S	S
Fish Solubles	S	S
Fluoboric Acid	S	S
Fluorine	S	U
Fluosilicic Acid 32%	S	S
Fluosilicic Acid Conc.	S	S
Formaldehyde 40%	S	N
Formic Acid 0-20%	S	S
Formic Acid 20-50%	S	S
Formic Acid 100%	S	S
Fructose Sat'd	S	S
Fruit Pulp	S	S
Fuel Oil	S	U
Furfural 100%	M	U
Furfuryl Alcohol	M	U
Gallic Acid Sat'd	S	S
Gas Liquids*	S	M
Gasoline*	M	U
Gin	S	U
Glucose	S	S
Glycerine	S	S
Glycol	S	S
Glycolic Acid 30%	S	S
Grape Sugar Sat'd Aq.	S	S
Hexanol, Tert.	S	S
Hydrobromic Acid 50%	S	S
Hydrocyanic Acid Sat'd	S	S
Hydrochloric Acid 10%	S	S
Hydrochloric Acid 30%	S	S
Hydrochloric Acid 35%	S	S
Hydrochloric Acid Conc.	S	S
Hydrofluoric Acid 40%	S	S
Hydrofluoric Acid 60%	S	S
Hydrofluoric Acid 75%	S	S
Hydrogen 100%	S	S
Hydrogen Bromide 10%	S	S
Hydrogen Chloride Gas Dry	S	S

*HDPE Resin Service Design Factor for hydrocarbons per the formula on page 3 and 8 is F = 0.25

continued from page 9

CHEMICAL RESISTANCE OF DRISCOPIPE

Reagent	70°F (21°C)	140°F (60°C)
Hydrogen Peroxide 30%	S	S
Hydrogen Peroxide 90%	S	M
Hydrogen Phosphide 100%	S	S
Hydroquinone	S	S
Hydrogen Sulfide	S	S
Hypochlorus Acid Conc	S	S
Inks	S	S
Iodine (Alc. Sol.) Conc.	S	U
Lactic Acid 10%	S	S
Lactic Acid 90%	S	S
Latex	S	S
Lead Acetate Sat'd	S	S
Lube Oil*	S	M
Magnesium Carbonate Sat'd	S	S
Magnesium Chloride Sat'd	S	S
Magnesium Hydroxide Sat'd	S	S
Magnesium Nitrate Sat'd	S	S
Magnesium Sulfate Sat'd	S	S
Mercuric Chloride Sat'd	S	S
Mercuric Cyanide Sat'd	S	S
Mercurous Nitrate Sat'd	S	S
Mercury	S	S
Methyl Alcohol 100%	S	S
Methyl Bromide	M	U
Methyl Chloride	M	U
Methyl Ethyl Ketone 100%	M	U
Methylsulfuric Acid	S	S
Methylene Chloride 100%	M	U
Milk	S	S
Mineral Oils	S	U
Molasses Comm.	S	S
Nickel Chloride Sat'd	S	S
Nickel Nitrate Conc.	S	S
Nickel Sulfate Sat'd	S	S
Nicotine Dilute	S	S
Nicotinic Acid	S	S
Nitric Acid 0-30%	S	S
Nitric Acid 30-50%	S	M
Nitric Acid 70%	S	M
Nitric Acid 95-98%	U	U
Nitrobenzene 100%	U	U
Octyl Cresol	S	U
Oils and Fats*	S	M
Oleic Acid Conc.	S	U
Oleum Conc.	U	U
Orange Extract	S	S
Oxalic Acid Dilute	S	S
Oxalic Acid Sat'd	S	S
Ozone 100%	S	U
Perchloric Acid 10%	S	S
Petroleum Ether	U	U
Phenol 90%	U	U
Phosphoric Acid Up to 30%	S	S
Phosphoric Acid Over 30%	S	S
Phosphoric Acid 90%	S	S
Phosphorous (Yellow) 100%	S	N
Phosphorus Pentoxide 100%	S	N
Photographic Solutions	S	S
Pickling Baths		
Sulfuric Acid	S	S
Hydrochloric Acid	S	S
Sulfuric-Nitric	S	U
Plating Solutions		
Brass	S	S
Cadmium	S	S
Chromium	N	N
Copper	S	S
Gold	S	S
Indium	S	S
Lead	S	S
Nickel	S	S
Rhodium	S	S
Silver	S	S
Tin	S	S
Zinc	S	S
Potassium Bicarbonate Sat'd	S	S
Potassium Borate 1%	S	S
Potassium Bromate 10%	S	S
Potassium Bromide Sat'd	S	S
Potassium Carbonate	S	S
Potassium Chlorate Sat'd	S	S
Potassium Chloride Sat'd	S	S
Potassium Chromate 40%	S	S
Potassium Cyanide Sat'd	S	S
Potassium Dichromate 40%	S	S
Potassium Ferri/ Ferro Cyanide Sat'd	S	S
Potassium Fluoride	S	S
Potassium Hydroxide 20%	S	S
Potassium Hydroxide Conc.	S	S
Potassium Nitrate Sat'd	S	S
Potassium Perborate Sat'd	S	S
Potassium Perchlorate 10%	S	S
Potassium Sulfate Conc.	S	S
Potassium Sulfide Conc.	S	S
Potassium Sulfite Conc.	S	S
Potassium Persulfate Sat'd	S	S
Propargyl Alcohol	S	S
Propyl Alcohol	S	S
Propylene Dichloride 100%	U	U
Propylene Glycol	S	S
Rayon Coagulating Bath	S	S
Sea Water	S	S
Selenic Acid	S	S
Shortening	S	S
Silicic Acid	S	S
Silver Nitrate Sol.	S	S
Soap Solution Any Conc'n	S	S
Sodium Acetate Sat'd	S	S
Sodium Benzoate 35%	S	S
Sodium Bicarbonate Sat'd	S	S
Sodium Bisulfate Sat'd	S	S
Sodium Bisulfite Sat'd	S	S
Sodium Borate	S	S
Sodium Bromide Dilute Sol	S	S
Sodium Carbonate Con.	S	S
Sodium Carbonate	S	S
Sodium Chlorate Sat'd.	S	S
Sodium Chloride Sat'd	S	S
Sodium Cyanide	S	S
Sodium Dichromate Sat'd	S	S
Sodium Ferricyanide	S	S
Sodium Ferrocyanide Sat'd	S	S
Sodium Fluoride Sat'd	S	S
Sodium Hydroxide Conc	S	S
Sodium Hypochlorite	S	S
Sodium Nitrate	S	S
Sodium Sulfate	S	S
Sodium Sulfide 25%	S	S
Sodium Sulfide Sat'd Sol.	S	S
Sodium Sulfite Sat'd	S	S
Stannous Chloride Sat'd	S	S
Stannic Chloride Sat'd	S	S
Starch Solution Sat'd	S	S
Stearic Acid 100%	S	S
Sulfuric Acid 0-50%	S	S
Sulfuric Acid 70%	S	M
Sulfuric Acid 80%	S	U
Sulfuric Acid 96%	M	U
Sulfuric Acid 98%	M	U
Sulfuric Acid, Fuming	U	U
Sulfurous Acid	S	S
Tallow*	S	M
Tannic Acid 10%	S	S
Tanning Extracts Comm.	S	S
Tartaric Acid Sat'd	N	N
Tetrahydrofurane	N	U
Titanium Tetrachloride Sat'd	N	U
Toluene	M	U
Transformer Oil	S	M
Trisodium Phosphate Sat'd	S	S
Trichloroethylene	U	U
Urea Up to 30%	S	S
Urine	S	S
Vinegar Comm.	S	S
Vanilla Extract	S	S
Wetting Agents	S	S
Whiskey	S	N
Wines	S	S
Xylene	M	U
Yeast	S	S
Zinc Chloride Sat'd	S	S
Zinc Sulfate Sat'd	S	S

For additional chemical resistance listings, consult the P.P.I. technical report #TR 19/10-84, Table I and the ISO technical report #ISO/Data 8-1979, Tables I, II, III

DRISCOPIPE®

Driscopipe 1000

HDPE Pipe & Fittings for Water Transmission Mains & Sewer Force Mains

Manufactured to AWWA C 906 Requirements

DRISCOPIPE

Driscopipe® 1000 Polyethylene Piping Systems

Introduction

Phillips Driscopipe® 1000 polyethylene piping system is lightweight, flexible and chemical and abrasion resistant. The system is designed to approximate ductile iron pipe inside diameters, with appropriate fittings to make it compatible. Derating of Driscopipe 1000 piping systems for water hammer is not required. Driscopipe 1000 meets the requirements of American Water Works Association Standard C 906.

Specifications

Driscopipe 1000 pipe is a PE 3408 high density, extra-high molecular weight polyethylene piping system. It may be specified by ASTM D3350 as having a cell classification of PE 345434C. Dimensions and workmanship are specified by ASTM F714.

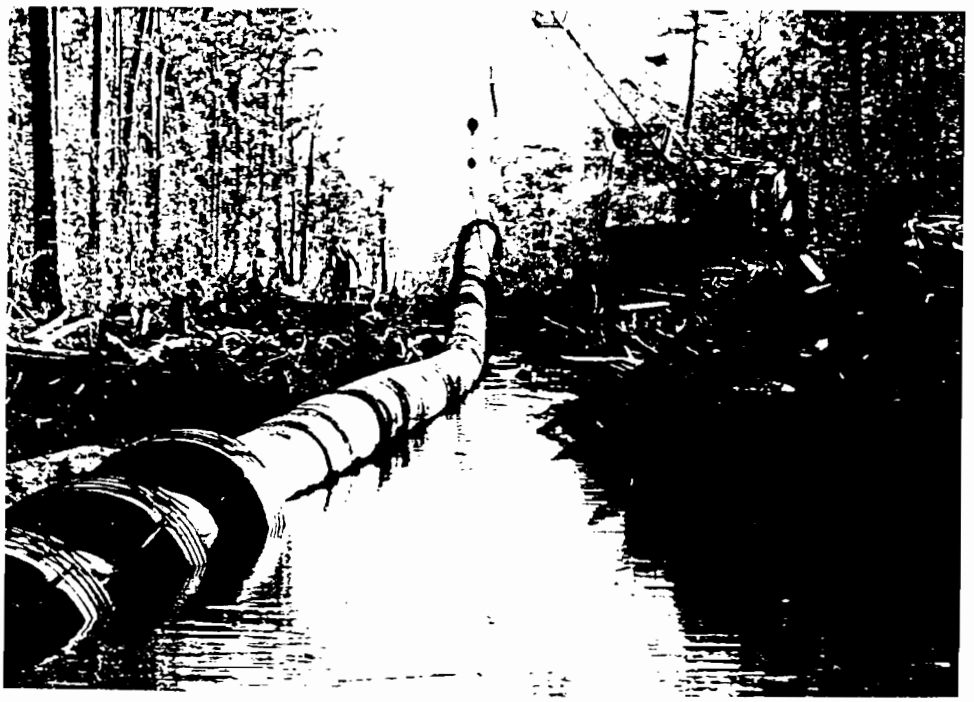
A copy of typical physical properties for Driscopipe 1000 piping systems is available from your Phillips Driscopipe representative.

Chemical Resistance

Driscopipe 1000 pipe has outstanding chemical resistance. Most chemicals, acids, salts and soils will not attack it or cause it to degrade. It does not rust, rot or corrode. It does not promote or support algae or bacterial growth.

Flow Factors

Driscopipe polyethylene pipe has an extremely smooth inside surface. It maintains its excellent flow properties throughout its service life due to its excellent chemical and abrasion resistance. Because of its smooth walls and non-wetting characteristics, a higher flow capacity and a reduced friction loss is possible with Driscopipe pipe resulting in operating cost savings. A "C" factor of 155 is used with the Hazen-Williams equation for pressurized fluid flow and an "n" factor of 0.009 is used with the Manning formula for gravity flow. Flow charts and additional systems design information are available through your Driscopipe representative.



DRISCOPIPE.

Direct Burial and Sliplining

Driscopipe 1000 piping systems are buried utilizing flexible pipe: soil system design practices. The pipe actually gains strength from the surrounding soil, allowing it to support additional loads. Through proper pipe and backfill selection, Driscopipe may be buried at depths in excess of 100 feet. At normal burial depths, a backfill of 85% of Standard Proctor density (AASHTO-99) can limit the ring deflection of Driscopipe pipe to 2% of the original diameter.

Since Driscopipe pipe can be butt fused above ground in long lengths, narrow trench widths can be used to save on installation costs. Due to the ease of handling Driscopipe, it may be readily placed in the trench, thus necessitating a minimum amount of open trench. Trench and trench bottom, embedment materials, and bedding and installation practices are specified in ASTM D 2321.

Primary Properties – Cell Classification – ASTM D 3350 – 84
345434C

Property	Test Method	0	1	2	3	4	5	6
1 - Density, g/cm	D 1505	—	0.910 – 0.925	0.926 – 0.940	**0.941 – 0.955**	> 0.955		
2 - Melt index-condition E (gms. 10 min.)	D 1238	—	>1.0	1.0 to 0.4	< 0.4 to 0.15			
3 - Flexural modulus MPa (psi)	D 790	—	< 138 (< 20 000)	138 – < 276 (20 000 to < 40 000)	276 – < 552 (40 000 to 80 000)	552 – < 758 (80 000 to < 110 000	**758 – < 1103 (110 000 to 160 000)**	< 1103 (< 160 000)
4 - Tensile strength at yield MPa (psi)	D 638	—	< 15 (< 2200)	15 – < 19 (2200 – < 2800	19 – < 21 (2800 – < 3000)	**21 – < 24 (3000 – < 3500)**	24 – < 28 (3500 – < 4000)	< 28 (< 4000)
5 - Environmental stress crack resistance: a. Test condition b. Test duration, h c. Failure, max %	D 1693	—	A 48 50	B 24 50	**C 192 20**			
6 - Hydrostatic design basis, MPa (psi), (23° C)	D 2837	NPR*	5.52 (800)	6.89 (1000)	8.62 (1250)	**11.03 (1600)**		

Color and UV Stabilizer

A - Natural
B - Colored
C - Black with 2% minimum carbon black
D - Natural with UV stabilizer
E - Colored with UV

*NPR = Not Pressure Rated

Driscopipe pipe may be cold-bent to a minimum radius of 25-40 times to pipe diameter as it is installed, thus eliminating the need for elbows at slight bends. The minimum bending radius that can be applied to the pipe without kinking varies with the diameter and wall thickness ratio of the pipe. If adequate space is not available for the required radius, a fitting of the desired angle may be fused into the piping system to obtain the necessary change in direction.

Technical design brochures and detailed installation brochures are available on request from a Phillips Driscopipe representative.

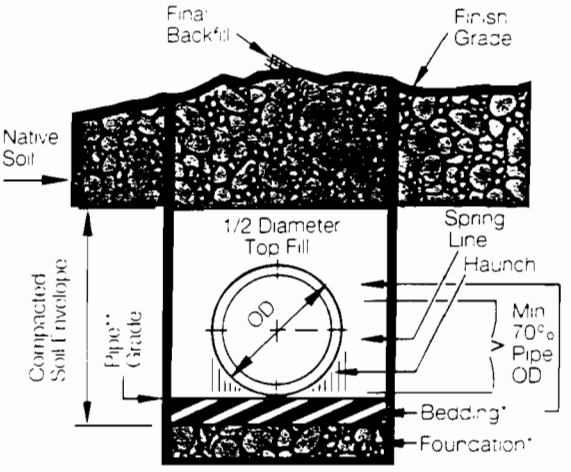
Insert Renewal Installations

Insert renewal, or sliplining, is an effective and economical trenchless technology for rehabilitating a deteriorated pipeline. Installation is simple and fast with a minimum of interruption to the pipeline operation.

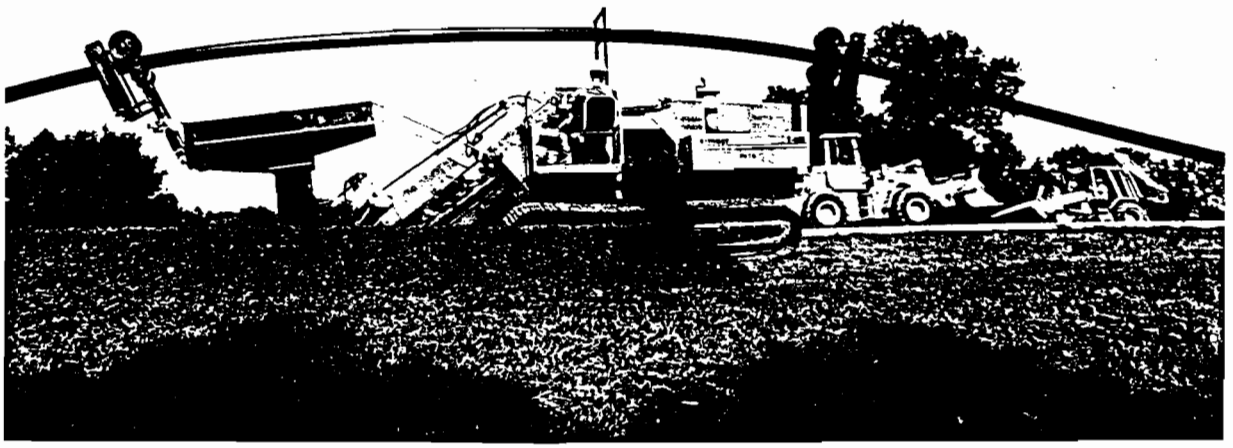
The pipeline to be relined is cleaned of obstructions and debris. A closed circuit TV survey of the clean pipeline is recommended to locate connections and reveal existing defects. After a test run with the pulling head, the liner may be attached, pulled into place and secured. The pulling head may be either a flexible, field fabricated type or a rigid type made of steel that is bolted to the end of the pipe (Ref: Tech Note #19).

Installation procedures for insert renewal are found in ASTM F585 "Insertion of Flexible Polyethylene Pipe into Existing Sewers" and PPI bulletin "Pipeline Rehabilitation with Polyethylene Pipe". Refer to the Driscopipe Systems Design brochure for proper insert renewal design. Ensure that the sliplined pipe is in thermal equilibrium with the ground and sewer before cutting the PE pipe to length in the manhole.

Trench Construction and Terminology



*In suitable soils, the construction of a bedding and/or a foundation may not be required.
**Gravity flow Driscopipe sewers may be accurately laid to grade using laser beam scoping.



DRISCOPIPE.

Ductile PE Pipe

The overall "toughness" of Driscopipe pipe is an important characteristic of the pipe which is derived from many of the chemical and physical properties of the material as well as the extrusion method. The pipe is ductile. It flexes, bends and absorbs impact loads over wide temperature range of -180°F up to +180°F. This inherent resiliency and flexibility allow the pipe to absorb surge pressures, vibration and stresses caused by soil movement. Driscopipe piping systems can be deformed without permanent damage and with no adverse effect on long term service life. It is flexible for contouring to installation conditions. The toughness of Driscopipe pipe is one of its outstanding engineering characteristics leading to innovative piping design.

The expansive force of water freezing inside Driscopipe pipe will not damage it.

Driscopipe 1000 piping systems offer good fatigue service life. No water hammer or fatigue derating factor need be applied to pipe made by Driscopipe.

Tests conducted on pipe systems with pressure in excess of 65 psi have shown that Driscopipe HDPE pipe can be hot tapped.

Driscopipe Systems include:

- A complete range of pipe and fittings sizes and design pressure ratings.
- Trained, qualified distributors.
- Technical service assistance for systems design, installation and on-the-job consultation.
- Readily available installation equipment.
- Continual product research, development and testing.
- Economical product availability through strategically located plants throughout the U.S.
- Quality Assurance.
- Custom design and fabrication of non-standard and special components.

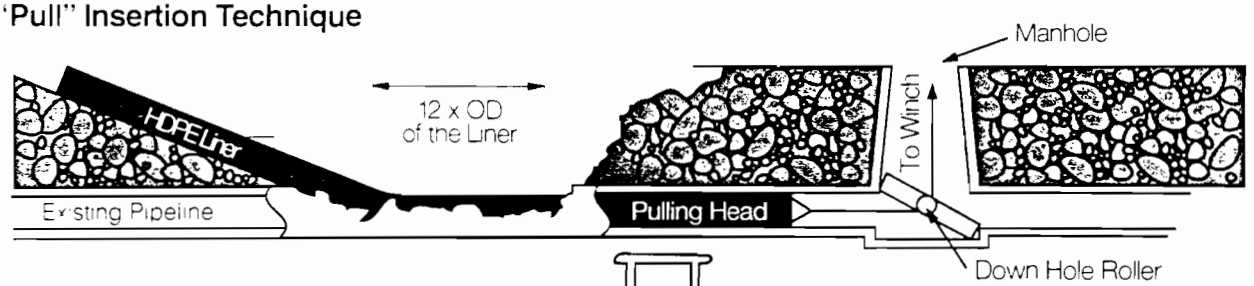
Physical Characteristics

Long Life: According to conservative estimates, Driscopipe pipe will operate in continuous pressure service from 50 to well past 100 years. Samples of long life installations are available upon request.

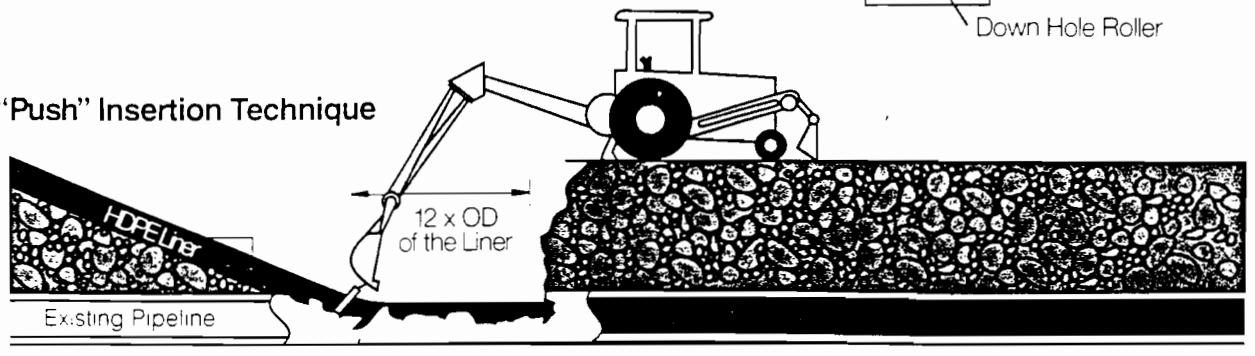
Fatigue Endurance: Driscopipe piping systems provide exceptional endurance with the ability to sustain hydraulic transients and water hammer pressure surges.

High Chemical Resistance: Driscopipe pipe is immune to sewer gasses and virtually all industrial and municipal chemicals and sewage. Hot active

"Pull" Insertion Technique



"Push" Insertion Technique



A Driscopipe representative can advise you on sizing your liner for external water head and other factors. Design brochures and reprints of ASTM F 585-78 "Insertion of Flexible Polyethylene Pipe into Existing Sewers" are available on request.

soils will not affect Driscopipe. It will not rust, rot, pit, corrode, degrade or age.

Joint Integrity: Driscopipe pipe can be hydrostatically tested to 1 1/2 times its designed pressure rating. All joints of butt-fused Driscopipe are welded together to provide a continuous, non-gasketed pipeline which eliminates infiltration and exfiltration. Restrained joints are not required. Driscopipe also accommodates earth shifts and live loads from surface traffic without separation. Today, millions of butt-fused joints connect Driscopipe sections used in the transport of hazardous, explosive natural gas.

Toughness/Durability: Driscopipe pipe will not break in heat or cold. Its impact resistance (ESCR), slow crack growth resistance and service life prove it is the toughest pipe available for the toughest applications.

Lightweight/Flexible: With Driscopipe pipe, fewer fittings are required and equipment handling requirements are significantly reduced.

Abrasion Resistant: During its lifetime, a force main will acquire a great amount of grit, sand and other debris. Driscopipe has outperformed conventional piping materials by ratios of more than four to one in sliding abrasion applications.

Low Maintenance: A Driscopipe piping system force main pays for itself quickly because of lower energy costs, pipe longevity and overall reduced maintenance. In the gas industry, Driscopipe HDPE pipe continues to show the lowest level of service interruption.

Reliability: Whether for gas distribution, water distribution or sewers, Driscopipe pipe is recognized worldwide as the preferred material for maximum reliability and years of efficient service.

Ease of Installation: Driscopipe pipe offers the following advantages as part of the installation process...lighter equipment needed, smaller crews, ordinary "bedding" requirements, faster hydro test certification, standard IPS valves and flanges. These benefits result in lower installation costs and a reduced number of fittings, with no restrained joints.

Temperature Range

Driscopipe 1000 piping systems may be used in pressure applications up to an operating temperature of 140°F. Short term and gravity flow applications operating at high temperatures are considered. At lower temperatures, tests have been conducted on Driscopipe 1000 pipe showing that it gains strength at sub-zero temperatures. Driscopipe 1000 maintains its flexibility and integrity to lower than -180°F.

The pressure capabilities of polyethylene materials are rerated for operating temperatures other than 73.4°F. Driscopipe 1000 has been tested for thousands of hours at elevated temperatures without thermal degradation. These tests are used to obtain the pressure rerating factors.

Temperature, Degrees F	Pressure Rerating Factor
50	1.14
73.4	1.00
100	0.79
140	0.50

Joining System

Driscopipe pipe is joined by the butt fusion technique. This simple, visual procedure utilizes controlled temperatures and pressure to produce a fused, leak-free joint that is stronger than the pipe itself in both tension and hydrostatic loading. Pioneered and developed by Phillips, the butt fusion joint is recognized in the industry as a joining system of high integrity and reliability. Driscopipe pipe may also be joined to itself, and transitioned to other materials with flanges, compression couplings and other mechanical means.

DRISCOPIPE.

Phillips Driscopipe, Inc.
A Subsidiary of Phillips Petroleum Company

To request additional product literature only:

Phone:
214-783-2690

To place an order, verify the status of an order or request contact by a sales representative:

Mail:
Attn: Customer Service Department
P.O. Box 83-3866
2929 North Central Expressway
Suite 300
Richardson, Texas 75083-3866 USA

Phone:
U.S. Domestic Toll Free 800-527-0662

Fax:
214-783-2689

Plant Locations:
Watsonville, CA; Pryor, OK; Williamstown, KY; Brownwood, TX; Startex, SC; Carrollton, TX

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APPLICATION SPECIFIC PIPE SYSTEMS

LASTING SOLUTIONS FOR YOUR DESIGNS

When long-lasting, cost-effective solutions to pipe and fitting needs are crucial, rely on the premium pipe and fittings supplier – Phillips Driscopipe, Inc. Driscopipe® systems combine high quality Marlex® Polyethylene resin and innovative technology to provide you with a system that offers:

- *Chemical and environmental stress resistance.*
- *Excellent strength.*
- *A unique joining system.*
- *Flexibility.*

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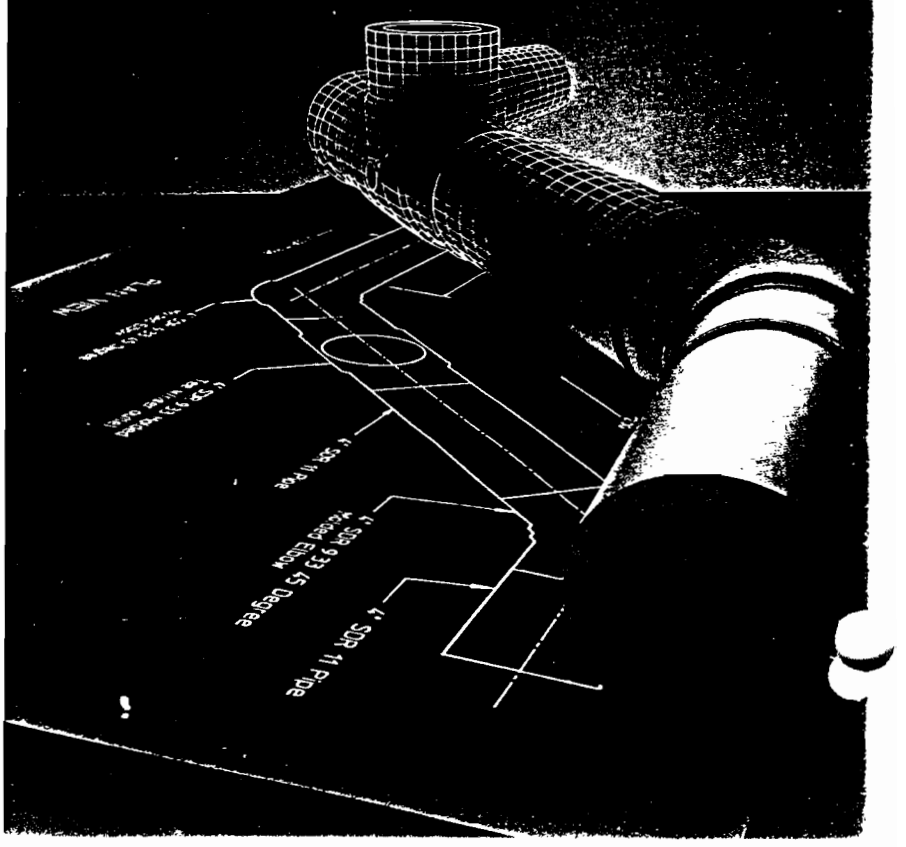
APPLICATION SPECIFIC PIPE SYSTEMS PHILLIPS 66



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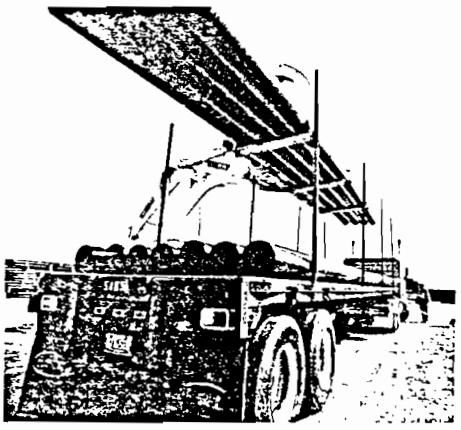
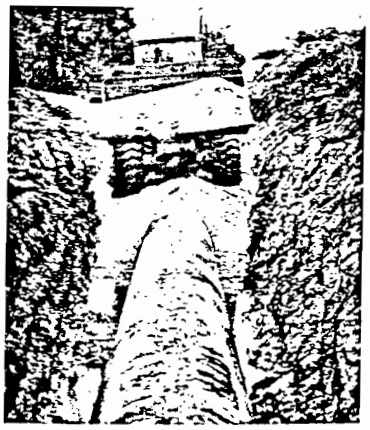
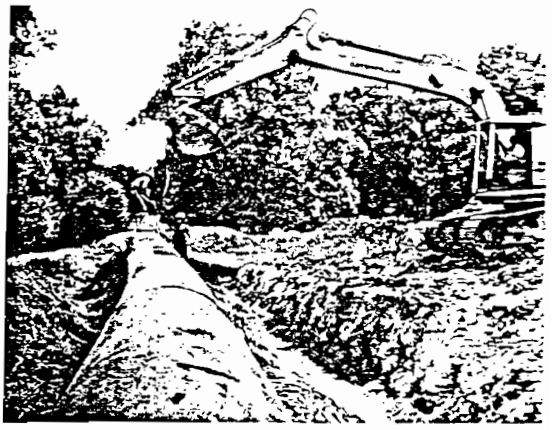
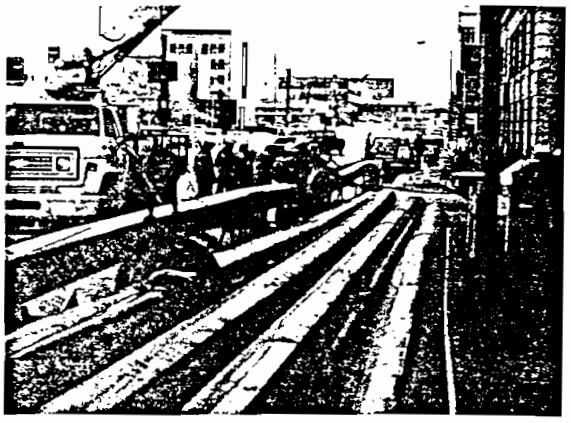
Systems Installation

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DRISCOPIPE

Driscopipe Systems Installation

SHIPPING

Driscopipe is easy to ship, handle and store due to its lightweight, yet rugged characteristics. The normal method of shipment is by truck. Standard packaging for Driscopipe is shown in Chart 1. When hauling Driscopipe, care should be taken that it is not damaged nor surface cut by sharp projections from other equipment or from the truck bed itself.

Chart 1.

Standard Packaging for Driscopipe Industrial Pipe

Pipe Description		Bundle		Truck Load Bundled		40 Ft. Float Truckload – Loose	
Nominal Size	O.D. (Inches)	Number of Joints	Linear Feet	Number of Bundles	Linear Feet	Number of Joints	Linear Feet
2"	2.375	88	3,520	14	49,280	–	–
3"	3.500	46	1,840	14	25,760	–	–
4"	4.500	29	1,160	14	16,240	–	–
5"	5.563	15	600	14	8,400	–	–
6"	6.625	13	520	14	7,280	–	–
7"	7.125	11	440	12	5,280	–	–
8"	8.625	8	320	12	3,840	–	–
10"	10.750	–	–	–	–	80	3,200
12"	12.750	–	–	–	–	52	2,080
14"	14.000	–	–	–	–	48	1,920
16"	16.000	–	–	–	–	35	1,400
18"	18.000	–	–	–	–	28	1,120
20"	20.000	–	–	–	–	20	800
22"	21.500	–	–	–	–	18	720
24"	24.000	–	–	–	–	16	640
26"	27.953	–	–	–	–	10	400
32"	31.496	–	–	–	–	9	360
36"	36.000	–	–	–	–	6	240
42"	42.000	–	–	–	–	4	160
48"	47.244	–	–	–	–	4	160
54"	54.000	–	–	–	–	1	40 to 50**

Note: Obtain truckload weight by multiplying linear feet times pipe weight per foot.

**Truck shipment is the standard mode of transport and shipment for all Driscopipe pipe. However, rail shipment may be considered under special circumstances for pipe sizes 40" and larger on an order by order basis.

HANDLING

Driscopipe can be easily handled with fork lifts or cherrypickers. The joints should be handled near the *middle with wide web slings and spreader bars.* Rope slings also work well with straight lengths. Coils can be handled in a similar manner. The use of chains and hooks or cable slings that may scar the pipe are not recommended. The following procedures should be observed when handling Driscopipe.

- Always stack the heaviest series of pipe at the bottom.
- Protect the pipe from sharp edges when overhanging the bed of a truck or trailer by placing a smooth, rounded protecting strip on the edge of the bed.
- Driscopipe has a very smooth inner and outer surface. The load should be anchored securely to prevent slippage.

Lengths of small-diameter, lightweight pipe can be unloaded manually.

Driscopipe applications are normally handled by,

- Unloading the pipe from the truck in a row along the side of the installation area and moving the fusion unit along the row of joints.
- Stacking the pipe beside the fusion unit and trailing the pipe out after fusion, then dragging the long length of pipe into place for installation. It is suggested that as the pipe is fused and moved through the fusion machine, additional joints of pipe should be placed in the moveable jaw side of the machine for each subsequent fusion. This prevents the hydraulic system of the machine from having to pull the previously fused long length.

Dragging the pipe into place can be an economical method of installation, provided the pipe is not damaged from sharp rocks or excessive abrasion created by pulling the pipe great distances.

STORAGE

If the pipe must be stacked for storage, avoid excessive stacking heights. Out-of-roundness can be created in the lower rows of pipe due to excessive stacking heights. The limitation on storage height is based on the weight on the bottom layer of pipe and will vary depending on the storage facilities, size and wall thickness of the pipe and the temperature. General recommendations for stacking heights developed by the Plastic Pipe Institute for polyolefin pipe are shown in Chart 2.

Care should be taken to ensure that the pipe is stacked in straight rows. It is satisfactory to store black Driscopipe either inside or outside in direct sunlight as it will not be damaged in any way by long exposure to direct sunlight. However, the expansion and contraction caused by uneven heating by the sunlight may cause the pipe to bow if not restrained by racks. This does not damage the pipe but does reduce convenience of handling the pipe when taken out of storage for installation.

When the pipe is laid directly on the ground, care should be taken to place the pipe on an area free of loose stones or sharp objects. This will avoid scarring or gouging the pipe.

Chart 2.

Allowable Stacking Heights for Storage of Polyolefin Pipe

Nominal Pipe Size (in.)	Number of Rows High: for SDRs* 18 and under	for SDRs* over 18, up to 26	for SDRs* over 26, up to 32.5
4	45	26	14
6	31	17	10
8	24	13	8
10	17	10	6
12	13	8	5
14	12	7	4
16	11	6	4
18	10	6	4
20	9	6	3
22	8	5	3
24	7	4	3
28	6	4	3
32	4	3	2
36	3	3	2
40	2	2	1
48		2	2
54	—	—	*

*NOTE: SDR = Standard Dimension Ratio = $\frac{\text{Pipe Diameter}}{\text{Min. Wall Thickness}}$

JOINING PROCEDURE

The heat fusion method is a highly efficient, economical method of joining Driscopipe. The heat fusion method of joining high density polyethylene pipe began shortly after the first commercial production of high density polyethylene in the mid-1950s by Phillips Petroleum Company.

The modern day heat fusion joint is the same as the joint which was made on the first crude heat fusion equipment in 1956 . . . only the fusion equipment has evolved to gain efficiency, reliability, and convenience. The many principles learned on that early equipment for making a successful joint are still in use today. Phillips Petroleum Company designed, developed and built many new models of heat fusion equipment from 1956 until the early 1970s. Since that time, Driscopipe personnel have guided this development by others. The extensive line of fusion equipment offered by McElroy Manufacturing, Inc., Tulsa, Oklahoma is one of the results of this long history of development. Phillips pioneered the idea and development of the heat fusion joining system . . . and has used it exclusively in every high density polyethylene piping system sold by Phillips since 1956 . . . there are millions of these joints in service today.

The heat fusion method is an uncomplicated, visual procedure with straight-forward instructions. No "timing cycles" are necessary. The visual procedure allows the operator to concentrate on his work, rather than a clock . . . visually, he knows when the butt ends have melted to the degree required to fuse them together. Visually, he observes and controls fusion pressure by observing the amount and configuration of the fusion bead as it is formed.

The principle of heat fusion is to heat two surfaces to a fusion temperature, then make contact between the two surfaces and allow the two surfaces to fuse together by application of pressure. The pressure causes flow of the melted materials which effects mixing and, thus, fusion. On cooling, the original interfaces are gone and the two parts are united. Nothing is added to or changed chemically between the two pieces being joined. The picture below shows a cross section of heat fused Driscopipe.

Molten high density, high molecular weight Driscopipe 8600 is very viscous and tough. During heat fusion of this material, the operator can apply relatively high pressure to form the heat fusion joint (approximately 150 pounds of pressure per square inch of pipe material) . . . with no danger of forcing the molten material from between the two ends of the pipe. Lower fusion pressures are necessary with the softer, less viscous, high and medium density materials. When high pressure is applied to the higher melt flow material most of the molten material can be forced from the fusion joint. This produces a "cold joint" or poor fusion. Pressure control can be difficult, unless the fusion equipment is designed to compensate for the melt strength of the pipe being fused. The equipment discussed in this section can be regulated for the different melt strength materials. Compatibility fusion techniques should be used when polyethylenes of different melt indexes are fused together.

Heat fusion joints may easily be cut out and re-done. This fact has a bearing on the quantity and quality of training necessary and favorably affects operator attitude toward quality in the field. These joints can be easily cut out and destructively tested in the field to check joining proficiency and equipment condition . . . and at very little cost, since there is no coupling to destroy and throw away.

In the course of heat fusion joining, the fusion operator is faced with a wide variety of job conditions. Changes in air temperature, material temperature, wind velocity, sun exposure, humidity, as well as condition of the terrain and the equipment . . . all influence the joining requirements. Estimating pre-heat timing cycles under different conditions, can become extremely confusing. Quality work under field conditions is more consistent with the straight-forward, visual procedure offered by Driscopipe. Thus, the operator can consistently produce high quality joints.

Heat fusion has successfully been accomplished in the rain with a canopy covering the fusion machine and operator as well as in below freezing conditions.

Fusion equipment is available for piping systems that range from 1/2 inch diameter tubing through 54-inch diameter pipe. Although the size range is great, the procedure and principle remain the same. You just heat Driscopipe, pressure it together, let it cool and forget it.

DRISCOPIPE

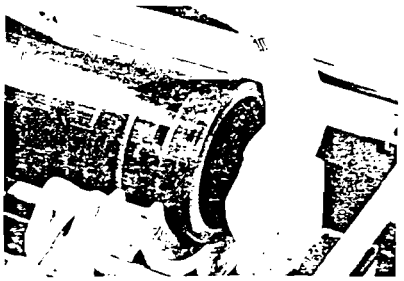
Heat Fusion

Heat fusion for Driscopipe Systems was pioneered and developed by Phillips Petroleum Company. Heat fusion techniques are recognized in the industry as cost effective joining systems of very high integrity and reliability. They do not require couplings and joints are stronger than the pipe itself – in both tension and pressure conditions. There are seven joining steps – simple, visual procedures with straight-forward uncomplicated instructions.

Note: It is most important to maintain the proper temperature of the heater plate. Check it with a tempilstik or pyrometer for correct surface temperature.

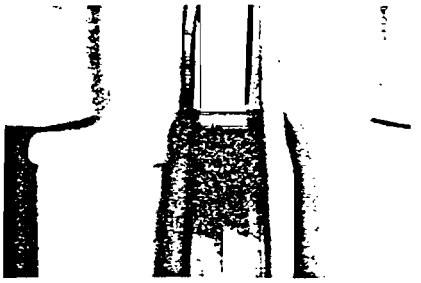
Driscopipe	Thermometer Readings Coated Plates	Uncoated Plates
8600	500°F-525°F	475°F-500°F
1000	400°F-425°F	375°F-400°F

Driscopipe	Surface Temperature Coated Plates	Uncoated Plates
8600	475°F-500°F	475°F-500°F
1000	375°F-400°F	375°F-400°F



1. Clean pipe ends inside and outside with a clean cotton cloth to remove dirt, water, grease and other foreign materials.

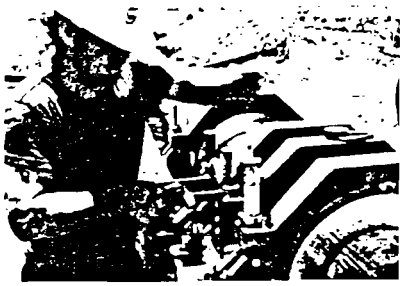
2. Square, taper the pipe ends using facing tool on the fusion machine.



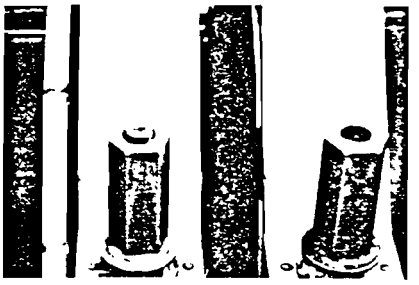
3. Check manufacturer's instructions to see that pipe ends meet square and completely cover the entire surface of the heater plate. This is commonly referred to as "adjusting for low." When adjustable clamps are used, make sure the clamps are tight so that the pipe does not slip during the fusion process.

4. Insert clean heater plate between aligned ends and bring ends firmly into contact with plate but DO NOT APPLY PRESSURE while achieving melt pattern. Allow pipe ends to heat and soften. Approximate softening depths are as follows:

Pipe Size	Approximate Melt Bead
2" and pipe DR	1/16"
3" – 6"	1/8"
8" – 12"	3/16"
14" – 22"	1/4" – 5/16"
24" – 54"	5/16" – 3/8"



5. Carefully move the pipe ends away from the heater plate and remove the plate. (If the softened material sticks to the heater plate, discontinue the joint. Clean heater plate, resquare pipe ends and start over.)
Note: One pipe end usually moves away from the heater plate first. It is good practice to bump the plate away from the other side and then without delay, bring the melted pipe ends together.



6. Bring melted ends together rapidly. DO NOT SLAM. Apply enough pressure to form a double rolled bead to the pipe. Time the pipe around the entire circumference of the pipe about the joint. Pressure is necessary to allow the heated material to flow together.

7. Allow the joint to cool undisturbed. The pipe is under the least stress and can no longer pull away from the bead. Remove the pipe from the clamps and inspect the joint according to

Sidewall Fusion

Side fusion procedure for Driscopipe can be accomplished in the field using 2" through 12" McElroy fusion units and proper heater plate adapters. Where branch outlets are larger than 12" outside diameter, sidewall fusions must be accomplished in a fitting fabrication shop. Size availability and pricing can be obtained through Phillips Driscopipe representatives.

The following nine steps should be observed during the sidewall fusion procedure:

1. Install fusion machine on the pipe (main).
2. Clean the pipe with a clean cotton cloth. Prepare surface of pipe (main) by roughing with 60 grit or coarser utility cloth.
3. Prepare the base of the branch by roughing with 60 grit or coarser utility cloth.
4. Align branch on the main and tighten clamp.
5. Check branch for square alignment on main.
6. Retract moveable clamp, roll in and center heater plate with adapter between base of branch and main.
7. For all sizes, apply a strong, firm, continuous pressure until complete melt bead can be seen on main. Release pressure to light pressure. Continue heat soak cycle on branch and main. Watch base of branch for:

Main Sizes	Heat Soak Cycle Fitting Base Bead
1" - 1½"	⅛" Melt Bead
2"	¼" Melt Bead
3" and larger	¼" - ⅜" Melt Bead

8. Retract moveable clamp and cleanly remove heater plate.
9. Bring melted surfaces together rapidly. *DO NOT SLAM*. Apply continuous progressive pressure until proper fusion bead is formed. Maintain pressure until joint has cooled. (Until finger can remain comfortably on bead.)

Note: Contact Phillips Driscopipe, Inc. for additional details on sidewall parameters and procedures.

Compatibility Fusion

Driscopipe 8600 and Driscopipe 1000 materials can be compatibly fused together and still maintain fusion joint integrity. Although the two materials have different melt characteristics, they can be properly fused using the procedure outlined below. Phillips Driscopipe sales and technical personnel are available to instruct and demonstrate the fusion procedure for joining Driscopipe.

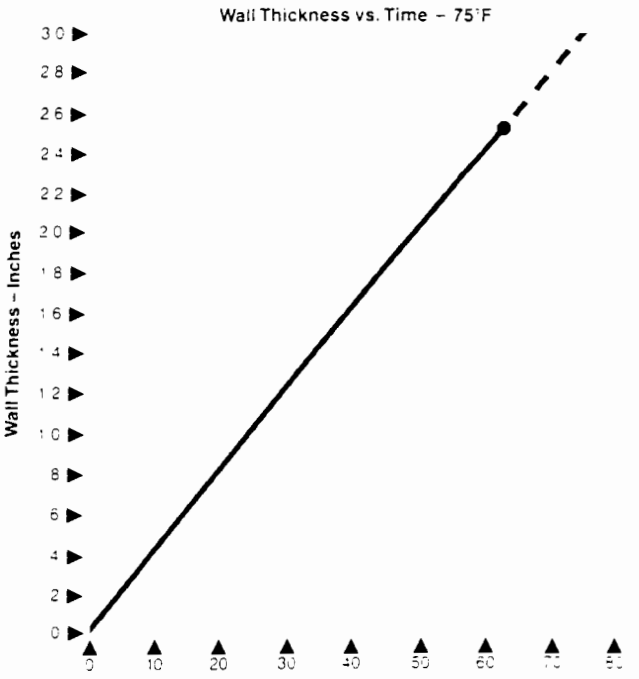
Compatibility heat fusion and sidewall fusion should be accomplished in the same manner as described before with the following exceptions:

- To achieve proper melt pattern, insert the heater plate and place a compatibility insulator between the heater plate and the Driscopipe 1000 material. After the Driscopipe 8600 achieves proper melt, then remove the insulator and bring the heater plate in contact with the Driscopipe 1000 material for proper melt. Continue heating both surfaces until proper melt develops. For manually operated fusion equipment, form a double roll-back bead as previously described in the fusion procedures.
- The fusion pressures for compatibility fusion of Driscopipe 1000 and 8600 on hydraulically operated equipment should be set at approximately 50% of the 8600 fusion pressures (ref. @ 75 psi). The fusion pressure will depend on the fusion conditions involved to achieve the proper roll-back bead.
- The fusion temperature for compatibility fusion should be the one normally used to fuse Driscopipe 8600, 475°F-500°F surface temperature.

Note: The fabricated fittings furnished by Phillips Driscopipe are made (with few exceptions) from the same material as the pipe.

Chart 3.

Fusion Joint Cooling Time



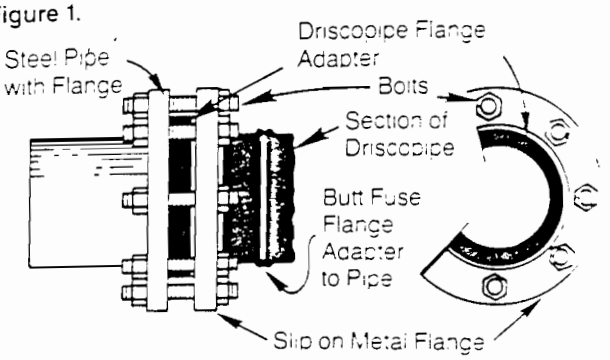
Mechanical Joining

Mechanical joining to other piping materials – fittings valves, tanks, pumps, etc. – may be accomplished with Driscopipe flange adapters and metal back-up flanges. Flanges are also used to connect lengths of Driscopipe together when heat fusion is impractical.

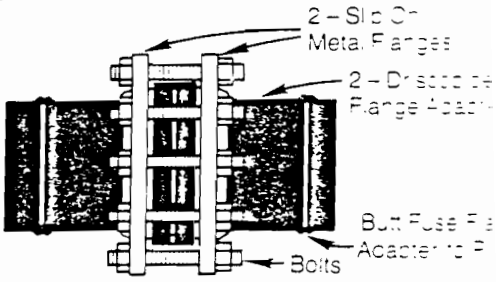
Flange Adapters are pressure rated the same as the pipe. Flange adapters can be heat fused to the pipe as outlined in the heat fusion section.

Figure 1 illustrates the flanged method for joining polyethylene pipe to itself or to steel pipe. Although ductile iron is now used for the slip-on flanges, other materials are available from your local supplier. Gaskets may be used between the polyethylene flange adapters but it is not generally necessary. Sufficient torque should be applied evenly to the bolts to prevent leaks. After initial installation and tightening of flanged connections, it is a good practice to allow the connections to set for a period of time (usually a few hours). Then conduct a final tightening of the bolts. Mechanical joining of 2" – 8" pipe may also be accomplished using the low cost, quick assembly, smaller O.D. profile Driscopipe threaded union. The union can be joined in about a minute or less. Contact your Driscopipe distributor for product information.

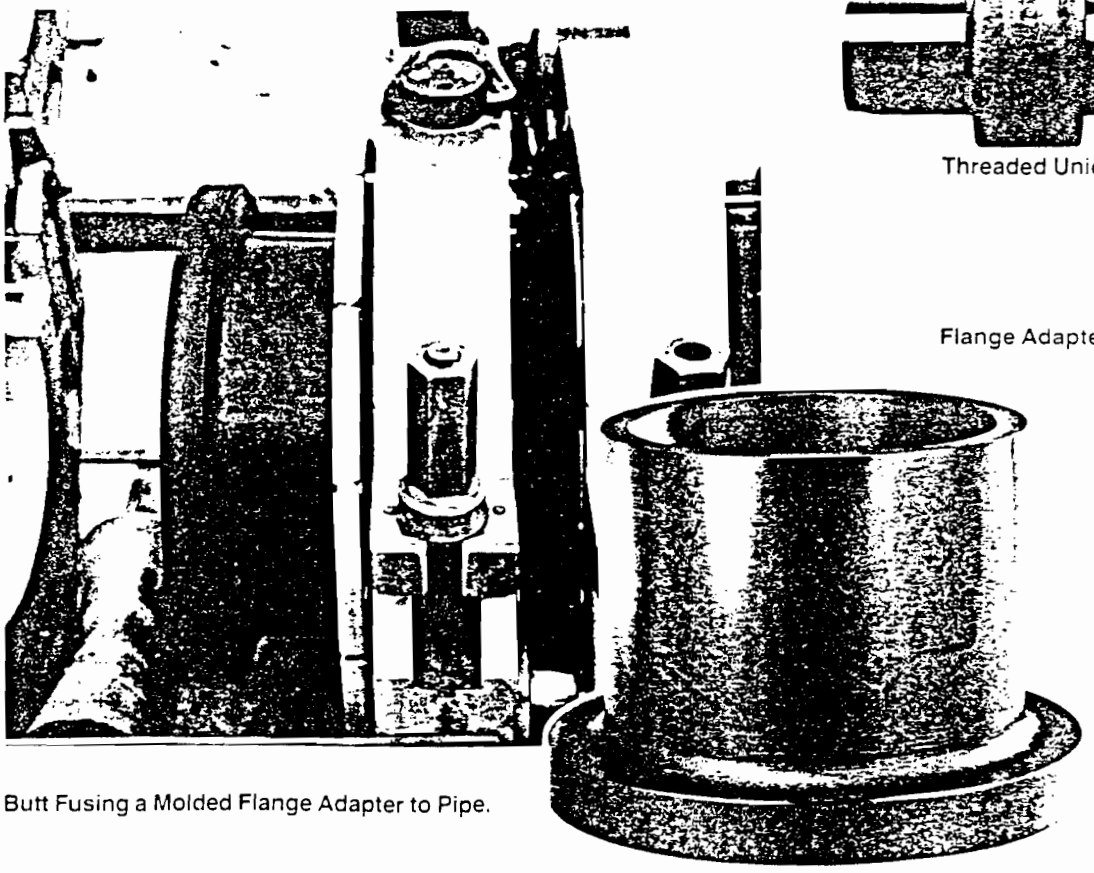
Figure 1.



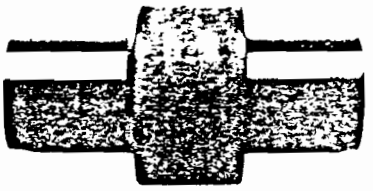
Joining Steel to HDPE



Joining HDPE to HDPE Without Permanent Fusion



Butt Fusing a Molded Flange Adapter to Pipe.



Threaded Union

Flange Adapter

Other Joining Methods

Extrusion gun welding using PE rod has been used with limited success with Driscopipe 1000 material for special low pressure fabrications, non-pressure applications and for very low pressure repairs. It is not recommended for general use in joining Driscopipe 1000 nor for any use with Driscopipe 8600. No welder qualification nor joint qualification standards or tests exist.

Standard tapered pipe threading is not recommended for polyethylene materials. Solvent or epoxy cementing are unsatisfactory methods of joining Driscopipe. There is no known solvent cement available for proper joining of HDPE.

Mechanical joining with bolt-on wrap-around clamps is generally not recommended as a permanent, long-term method of joining polyethylene unless the connection is stabilized in some manner. Due to the magnitude of thermal expansion and contraction of polyethylene materials and its creep characteristics under load, it can be difficult to maintain a permanent, leak-proof seal with certain mechanical wrap-around clamps. However, in certain low pressure or non-pressure, non-critical applications they have been used when it is not feasible to flange or fuse the sections together. Even in these low pressure or gravity flow uses, the wraparound clamp length should be at least 1 – 2 pipe diameters long.

Compression type couplings with internal stiffeners are available in some sizes and are generally satisfactory where temperature changes within the system are small.

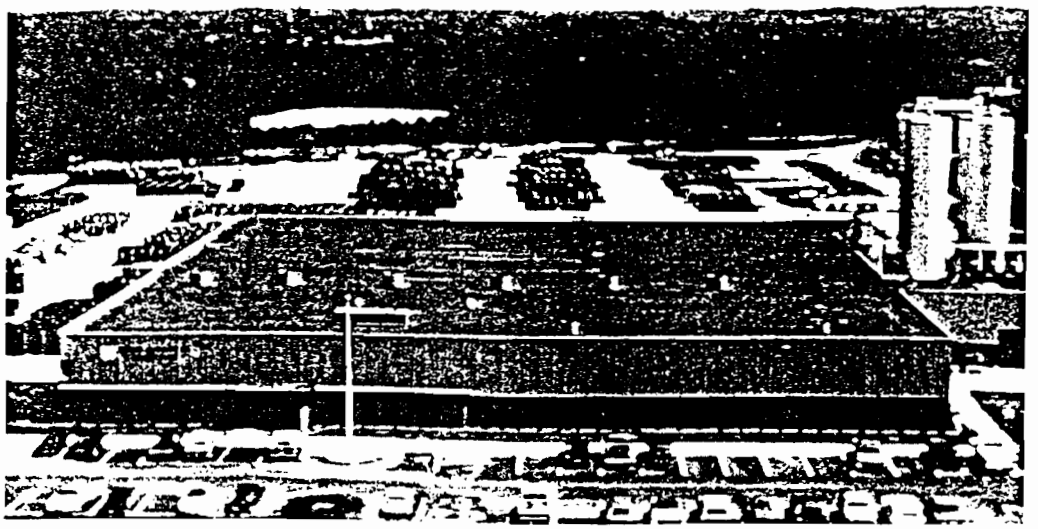
Heat shrinkable polyethylene sleeves may be used for non-pressure applications to achieve effective seals but are also subject to tensile pull-out with thermal contraction of the pipe.

Electro-Fusion couplings and wrap-around electro-fusion tapes are being used with some success in low-pressure applications for joining. While Driscopipe does not offer these joining systems, it is recommended they be studied, analyzed and reviewed for applicability, suitability and compatibility with either Driscopipe 1000 or Driscopipe 8600 before using. For pressure applications, long-term pressure performance and stress-rupture curves should be provided.

Consideration must be given to pull-out forces caused by circumferential as well as longitudinal thermal contraction when certain mechanical joints are used. If necessary, provisions must be made for sealing as well as restraining to compensate for the axial loading due to expansion or contraction and/or pipe settlement.

Bending Driscopipe

Driscopipe may be cold-bent to a minimum radius of 20-40 times the pipe diameter as it is installed, thus eliminating the need for elbows for slight bends. The minimum bending radius that can be applied to the pipe without kinking it varies with the diameter and wall thickness of the pipe. If adequate space is not available for the required radius, a fitting of the desired angle may be fused into the piping system to obtain the necessary change in direction.



INSTALLATION BELOW GROUND

This section sets out the general installation considerations and recommendations for below ground pipe. Although the requirements for installing plastic pipe are similar to that for rigid piping, there are some important differences. These differences arise due to the difference in basic physical properties, differences in joining techniques, differences in the effect of environmental conditions during installation and differences in experience of installation. Recognition of these differences in piping design and installation procedures is essential to obtain the desired objective of a piping system that will provide long-term service.

Information contained in this section, along with the recommendations of the Plastics Pipe Institute (PPI), American Society for Testing and Materials (ASTM), and other Standards organizations, provide pertinent facts relating to the installation of Driscopipe. We want to provide the engineer, purchaser, and contractor with essential information about the properties, advantages and cost saving benefits of polyethylene pipe.

Trenching and Bed Preparation

Since Driscopipe can be butt fused above ground in long lengths, narrow trench widths can be used to save on installation costs. Due to the ease of handling Driscopipe, it may be readily placed in the trench, thus necessitating a minimum amount of open trench. The length of open trench required should be such that bending and lowering of the pipe into the ditch does not exceed the minimum recommended bend radius and result in kinking.

The trench width will vary depending on its depth and type of soil. The bed width should be great enough to allow for adequate compaction around the pipe. Generally, a bed width one foot wider than the nominal pipe diameter is adequate. However, to reduce trenching costs, narrow trench and ordered ditches are possible for small diameter pipe. Normally, the excavated material, if it is rock free and the trencher used by the ditcher, will provide a suitable bedding material.

The trench bottom should be relatively smooth and free of rocks. When rocks, boulders, or large stones are encountered which may cause point loading on the pipe, they should be removed and the trench bottom padded using 4-6 inches of tamped bedding material below and on all sides of the pipe and fittings. The bedding should consist of a free flowing material such as gravel, sand, silty sand or clay-like sand that is free of stones or hard particles larger than 1 inch. For most pressurized systems, accurate leveling of trench bottoms is not necessary unless specified. For gravity flow systems the slope should be graded evenly, as is done for other piping materials.

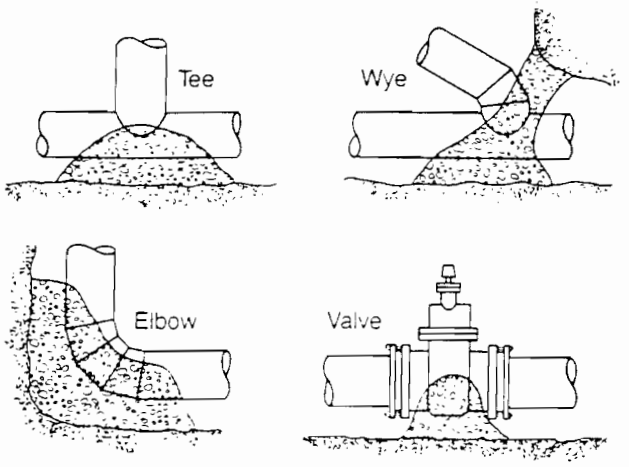
If an unstable soil condition exists, such as muck or sandy soils with poor bearing strength, the trench bottom should be undercut and filled to proper trench depth with a selected material of gravel or small crushed stone.

Consider all precautions necessary to prevent trench cave-ins. No part of the country is immune to cave-ins. Trench failure is influenced by the presence of construction equipment near the edge of an excavation or adverse climatic conditions. OSHA and other regulatory agencies specify the maximum vertical height of unbraced trench which is permitted (usually 4 to 5 ft.) and the suggested angle of repose for the soil type involved.

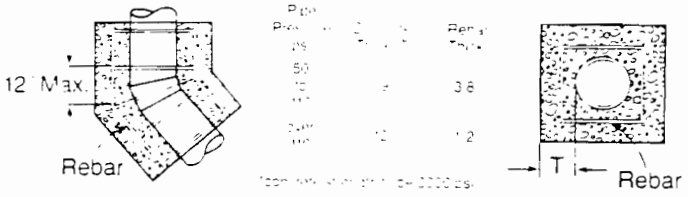
To protect the pipe from traffic loading and/or frost penetration, consideration should be given to establishing minimum earth cover requirements. Refer to the Driscopipe Systems Design brochure for soil bearing capabilities.

Generally slight changes in direction of the pipe can be accommodated by field sweeping of the pipe in the ditch. If proper compaction is obtained, field sweeps do not require thrust blocks. Good soil compaction around fittings such as elbows or tees is usually sufficient. If thrust blocks are required in poor soils, concrete encasement or concrete bearing surfaces set in undisturbed soil will provide adequate protection. The encasement or thrust block should be constructed of reinforced concrete and act as an anchor between pipe or fitting and the solid trench wall. Figure 2 illustrates various types of concrete blocking and encasement of fittings.

Figure 2.



Thrust Blocks and Bearing Surfaces



Fitting Encasement

Pipe Laying

Driscopipe can be joined at ground level and lowered into the ditch. Care should be taken not to drop the pipe. Avoid excess stress or strain conditions during installation. Flanged connections should be used as necessary to facilitate handling pipe and fittings in and out of the fusion machine and installation in the ditch. This is particularly important at fabricated fitting junctures.

The length of Driscopipe which can be pulled into position alongside the trench depends on the pipe size and field conditions. Generally, the maximum pulling length for smaller sizes is approximately 1,000 feet; for larger pipe about 500 feet.

The maximum pulling force that can be applied to a pipe on level ground can be estimated using the following formula:

$$F = SA$$

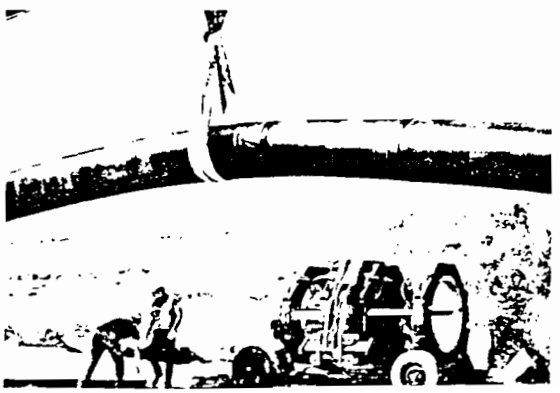
Where F = maximum pulling force (lbs)
S = maximum allowable stress (1000-1500 psi)
A = cross-sectional area of pipe wall (square inches)

Cross-sectional area of pipe wall is:

$$A = \pi(D - t)t$$

Where D = outside diameter (inches)
t = minimum wall thickness (inches)

When pulling pipe, either a pulling head or a suitable wraparound sleeve with rubber protective cover should be used to prevent the pulling cables from damaging the pipe. Never pull the pipe by the flanged end.

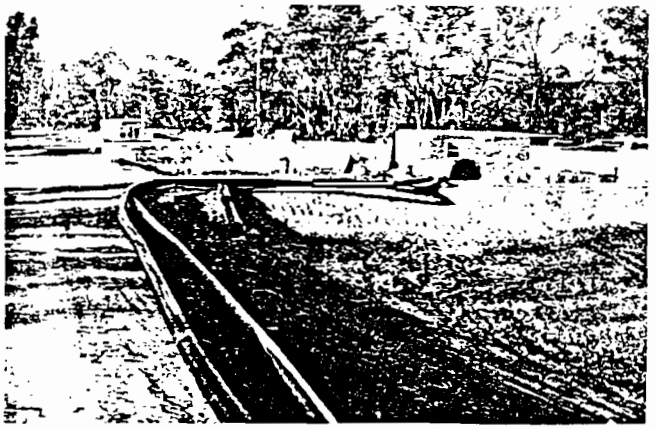


Thermal Expansion and Contraction

It is important that the expansion and contraction characteristics of Driscopipe be considered in the design and installation of most systems. Driscopipe expands and contracts at a rate higher than that for rigid metal piping. The rate and resulting amount of stress is discussed in detail in the Driscopipe *Systems Design* brochure. Although the coefficient of thermal expansion and contraction for polyethylene is approximately 10 times greater than for steel or concrete, this material has the advantage of viscoelastic properties which make it quite adaptable to relaxing or adjusting with time to stresses imposed by thermal changes.

Direct buried Driscopipe applications will generally have ample soil friction and interference to restrain movement of the pipe caused by the normal application temperature changes. Stresses induced by temperature change and resisted by soil containment do not damage the pipe. It is a good idea to make final tie-ins on a system at a temperature that is as close to operating temperature as possible. This is particularly true for insert renewal liner systems where there is no soil restraint.

For summer time installations with two fixed connection points, a slightly longer length of Driscopipe may be required to compensate for contraction of the pipe in the cooler trench bottom. The snaking in the trench which naturally occurs with pipe diameters 4" and below is normally sufficient to compensate for any anticipated thermal contraction. This snaking is desirable but not absolutely necessary. Pipe above 4" generally has sufficient soil friction to resist movement. During a winter installation the exact length of pipe should be used. Pipe which is too short or not aligned must not be drawn up by the bolts of a flanged connection because of overstressing the flange, adapter and ultimately the valve, tank, etc. to which it is connected.



When the backfill is soft or becomes fluid, as in marshes or river bottoms, the pipe may not be restrained by the backfill from movement caused by thermal expansion and contraction. Also, the stress induced in the pipe is transmitted to the end terminations. This can damage weak connections. If this possibility exists, adequate anchors should be installed just ahead of the termination to isolate and protect these connections.

The calculated force induced by thermal change is the product of the stress in the pipe wall and the cross sectional area of the pipe wall. The length of pipe required to anchor the pipeline against this calculated force depends on the circumference of the pipe, the average contact pressure between the soil and the pipe and the coefficient of friction between the soil backfill and the pipe.

The stress and the corresponding force developed by temperature change in a restrained pipeline are independent of the length and the burial conditions of the pipe. If pipe movement at the end sections cannot be tolerated, the pipe must be anchored mechanically to resist the thermal forces. Concrete blocks or other special anchors designed to fit the situation are usually used to transfer the thermal force into the soil adjacent to the pipe/ay trench. Adequate frictional resistance must also be provided to transfer the force from the pipe into the concrete block.

If the pipe is not anchored at the ends to resist movement, the end sections will expand or contract as the temperature changes. This change in length will extend into the burial trench to a point at which the frictional resistance of the backfill is equal to the thermal force. These movements must be considered in the design of such physical features as connections to pumps, catch basins, sewer manholes, etc.

Once a line is installed and in service, the temperature variation is usually small, occurring over an extended period of time and is not likely to induce any significant stress into the pipe.

Fitting Installation

Driscopipe polyethylene flanged connections with metal back up flanges should be used to connect Driscopipe to metal fittings, valves, pumps or other piping materials. Where pipe or fittings are connected to rigid structures, movement or bending at that point should be prevented. Either well compacted fill should provide full support or a support pad should be constructed beneath the pipe and fitting. This pad, usually of reinforced concrete, should be fixed to a rigid structure and extend one pipe diameter or a minimum of 12" from the flanged joint. See Figure 1 for suggested methods.

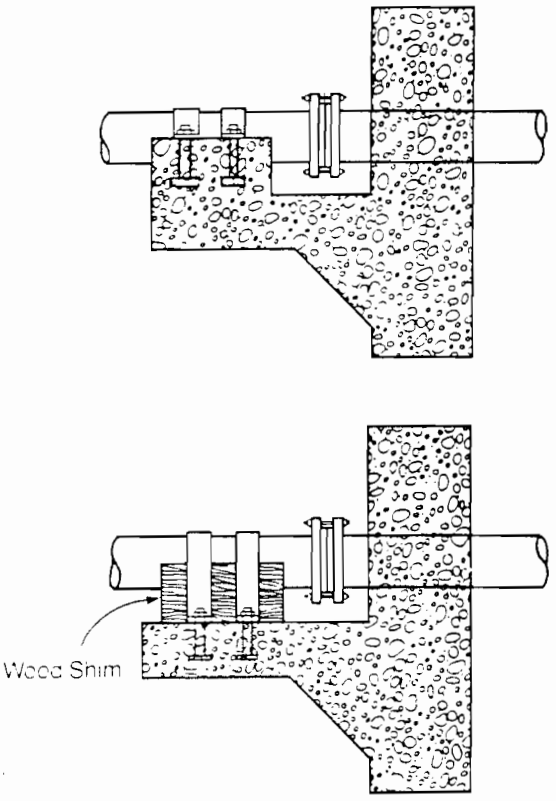
It is recommended that the bolts in the flanged connection as well as the clamps in a support pad undergo one final retightening. This should be done after initial installation, just before final backfill if it is a buried application. Surface connections can be observed while in operation. Particular attention should be given to the compaction achieved around the fittings and extending several pipe diameters beyond the ends of the fitting. Compaction of 90% Proctor density or greater in these areas is recommended.

Polyethylene pipe or fittings may be totally enclosed in concrete if required in the design. Reinforced concrete encasement can be used to raise pressure rating of fittings, stabilize heavy valves or fittings, and control thermal expansion or contraction.

Grouting (Continuous or at Manholes)

Pipe running through a manhole wall can be anchored by attaching a collar or side fused branch saddles to the pipe and encasing them in the wall of the manhole. Expandable rubber seals and grouting have proven successful in sealing an annulus between a casing pipe and polyethylene pipe when it enters a manhole. (Refer to manhole terminations on last page of this book.)

Figure 3.



Grouting the annulus between the inner Driscopipe and an outer pipe is not required, but sometimes may be done for several reasons. Continuous grouting, with few voids, can provide structural strength to the liner pipe both in the form of increased resistance to external hydrostatic collapse pressure as well as increased internal pressure capability. However, please realize that only a few small single voids in the grouted annulus are allowed, or the higher pressure capability of the piping system is lost. In actual grouting procedures, it is extremely difficult to achieve a void free annulus. Professional grouting companies should be used.

The table below illustrates the increase in hydrostatic collapse resistance for non-grouted and grouted PE pipe.

SDR	Unsupported* Condition		Grouted-or-** Buried Pipe	
	1 Month	50 Yrs	1 Month	50 Yrs
32.5	6 ft	4 ft	24 ft	16 ft
26.0	10 ft	9 ft	40 ft	36 ft
21.0	22 ft	17 ft	88 ft	68 ft
19.0	28 ft	22 ft	112 ft	88 ft
17.0	34 ft	29 ft	136 ft	116 ft
15.5	54 ft	44 ft	216 ft	176 ft
11.0	147 ft	97 ft	588 ft	388 ft
9.0	195 ft	160 ft	780 ft	640 ft
7.0	249 ft	204 ft	996 ft	816 ft

*External hydrostatic pressure differential shown in feet of water head 73.4 F per ASTM D-585

**Burial in solid soils or grouting increases the buckling or hydrostatic collapse resistance by a factor nominally 4 times the unsupported condition. Exact critical buckling pressures can be calculated using shallow burial design formulae from the Driscopipe "Systems Design" Manual.

If continuous grouting is specified, consider weighting the pipe to hold line and grade while the grout sets. If the length of pipe to be grouted is long, consider construction techniques to limit the grout pressure to less than the short-term unsupported hydrostatic collapse resistance, or consider plugging and filling the slip-lined pipe with water to weight the pipe and avoid localized buckling under high grout pressures.

Localized grouting can also be used at connections to manholes and to stabilize movement of the liner pipe where break outs for laterals exist. Caution must be exercised during the grouting process not to exceed the collapse pressure of the polyethylene pipe.

Careful consideration should be given to these two key points, especially in slip lining installations: (a) anchoring the polyethylene pipe within the casing pipe to eliminate expansion and contraction if this constitutes a problem and (b) sealing the annulus to prevent infiltration and/or contamination.

Backfilling and Tamping

The purpose of backfilling the trench is to provide firm continuous support around the pipe. Achieving this proper soil backfill around the pipe is probably the most important aspect of a successful buried application.

As stated in the bedding section, the material excavated from the trench can usually be used as the initial backfill if it is smooth, free of rocks, crumbles and breaks up easily. Economics usually dictate maximum reuse of the excavated material. Where trenches are located within roadways and are subject to vehicular traffic, cohesionless, granular soils are generally specified. The best initial backfill material is sand. When loading conditions are severe, such as road crossings, sand should be used where the pipe is laid in low quality soils such as heavy gumbo or muck. Coarse sand will usually reach the required density during placement without compaction. Initial backfill should be placed in two phases. The first is up to or slightly above the spring line of the pipe. Then compact or flush with water to assure that the lower part of the pipe (haunches) is supported.

Compaction of the soil around the pipe is accomplished by applying an external force to the individual layers of backfill as they are placed in the trench. Compacting brings the soil particles closer together and thus increases their density and shear strength. Compaction depends upon soil properties, moisture content, layer thickness, compactive effort and other factors. Compaction is usually accomplished by a mechanical tamper, vibrating plate or water flushing.

Care should be used while flushing to prevent the pipe from floating out of position in the trench. To keep the pipeline from floating or shifting, it can be filled with water prior to flushing until initial backfilling procedures are complete. This also assures that the horizontal diameter does not shorten excessively during compaction to the springline. The water flushing method of achieving compaction should only be used with "free draining" granular materials and a positive drainage outlet provided.

In the second phase of initial backfill, additional fill in 8"-10" layers should be added and well compacted until about 6"-12" above the top of the pipe. Larger diameter pipe requires the higher initial backfill. At this point, the on-site material excavated from the trench can be used for final backfill to ground level. In a heavy traffic area, this excavated backfill of granular material should be compacted to a minimum of 90% to 95% density.

Standard tests are available to determine the density of the compacted soil such as Standard Proctor Laboratory Test Procedure, ASTM D 698. Compaction is measured in terms of the dry density achieved in the field compared to the laboratory dry density determined on a sample of the same soil type when compacted under a given effort.

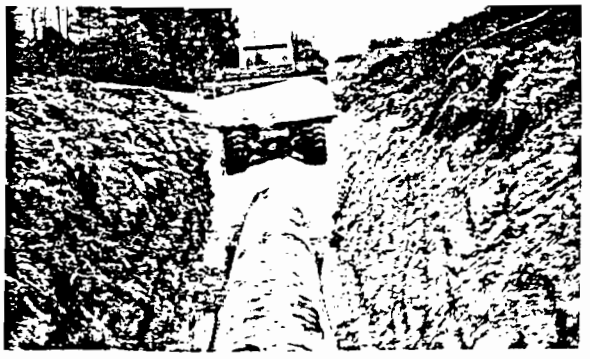
The optimum moisture content (usually about 20%) at which maximum density is obtained can be estimated in the field by squeezing it in your hand. If it just holds together it is near optimum moisture. Similarly, a corner heel impression while walking probably indicates a soil density of 90%. A full heel print may indicate a density of 80%. And a full footprint may indicate a density of 70%.

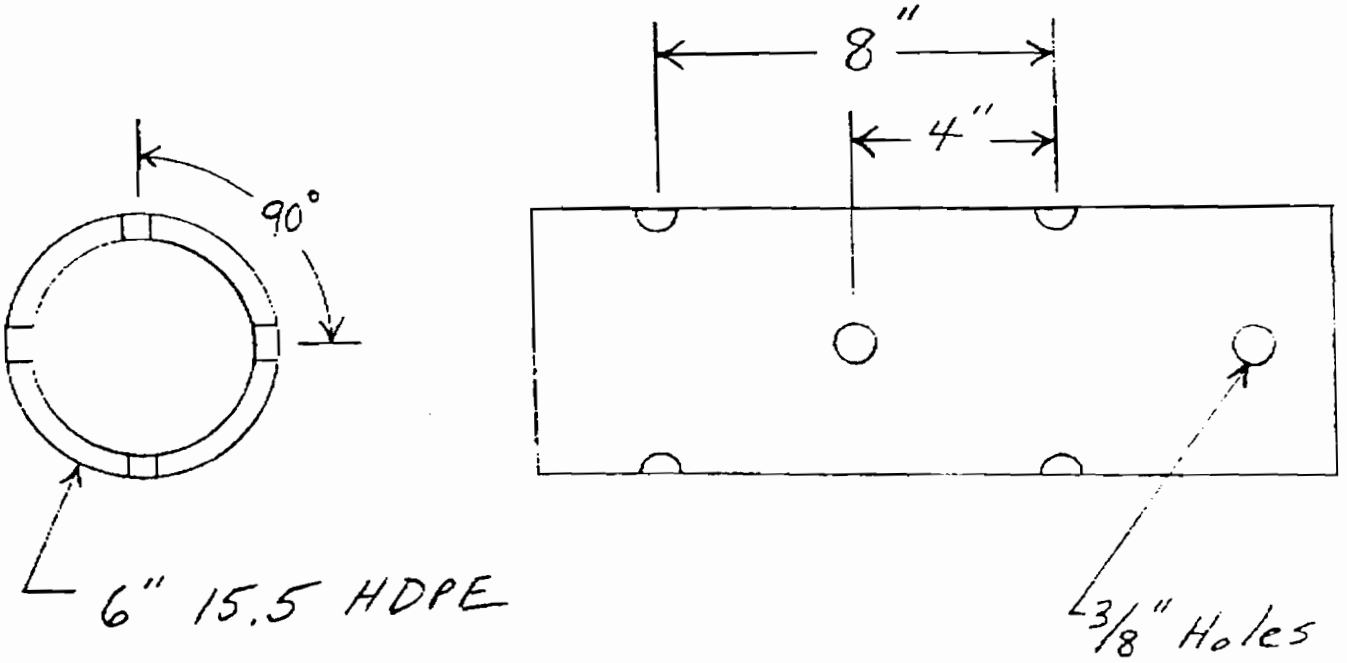
Tests conducted on Driscopipe at Utah State University by Dr. Reynold K. Watkins show that Driscopipe will not buckle under ordinary conditions if the backfill is compacted and if it is in full contact with the pipe. A virtual failsafe installation can be assured if soil density is generally over 85% of Standard Proctor (AASHTO T-99) density. Additional information on Underground Installation is given in ASTM D 2321 Standard Recommended Practice for Underground Installation of Flexible Thermoplastic Sewer Pipe, ASTM D 2774 Underground Installation of Thermoplastic Pressure Piping, Plastic Pipe Institute Technical Report TR-31.9-79 and the Driscopipe *Systems Design* brochure.

In order to locate the underground polyethylene pipe in the future, a copper or galvanized tracer wire should be laid next to the pipe during installation to later permit use of locating devices. The metal wire should not touch the pipe in case of lightning.

Inspection and Testing

After installation or a portion thereof is complete, the pipeline should be pressure tested in accordance with recommended practice. Refer to the "Testing Polyethylene Pipelines" section of this brochure for detailed testing recommendations.

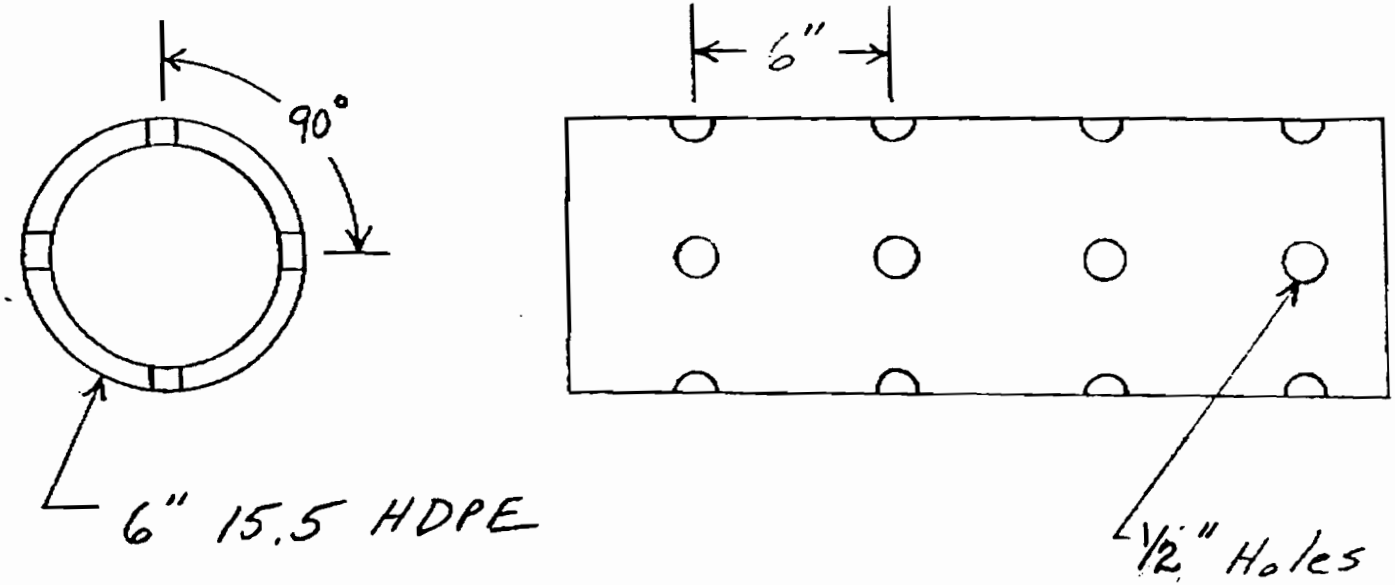




LEACHATE COLLECTION

BEDROCK ENTERPRISES, INC.
P.O. BOX 747
FORKED RIVER, NJ 08731
Ph. 609-693-9434 Fax: 609-971-8708

Date: 9-24-96	Drawing No. 1	Drawn by: J
Scale: N/A		Approved by:
Subject: Perforation Detail		Revised:
		Revised:



GAS COLLECTION

FABRICATED FOR FIPE PIPE - NORTHEAST

BEDROCK ENTERPRISES, INC.
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FORKED RIVER, NJ 08731
Ph. 609-693-9434 Fax: 609-971-8708

Date: 9-24-96	Drawing No. 1	Drawn by: J.V.
Scale: N/A		Approved by:
Subject: Reduction Detail		

METALLIC DETECTION TAPE FOR BURIED PIPELINE

Polyethylene Tape

Heavy gauge 4 mil tape for long term safeguarding

Warn excavators of a buried utility line in time to prevent damage and service interruptions. When shallow buried, the bright color of the underground warning tape immediately alerts the excavators, safeguarding the utility line below. Tape is highly resistant to acids, alkalies and other soil components.

TO ORDER POLYETHYLENE TAPE: Specify Style No. and Quantity
PRICE: Per Roll
TO ORDER CUSTOM WORDED POLYETHYLENE TAPE: Specify **Style No. 37241**, Wording and Quantity
Minimum 12 identical rolls
3" Rolls @ $40.25/Roll, 6" Rolls @ $78.25/Roll
All custom orders have a $49.50 set-up charge
†Tape colors above are to latest APWA, and AASHTO Specs.

Wording	Color	Style No. 3" x 1000'	Style No. 6" x 1000'
Buried Sewer Line Below	Green	47584	37240
Buried Water Line Below	Blue	47585	37244
Buried Electric Line Below	Red	47586	37236
Buried Gas Line Below	Yellow	47587	37237
Buried Fiber Optic Cable Below	Orange	47589	45384
Buried Pipeline Below	Yellow	47588	37239

Size	1-9	10-19	20 & Up
3" x 1000'	$40.25	$38.20	$32.80
6" x 1000'	77.50	69.70	62.70

Metallic Detection Tape

Use to detect non-metallic underground installations

Use Seton Metallic Detection Tape for easy detection and location of non-metallic underground installations such as plastic or cement pipes, property lines, etc. Use any Non-Ferric Metal Detector to locate the .035" detection tape. We recommend burying the 2" wide tape 4"-6" below the surface. If deeper burial is required, use the 6" wide tape. If a metal detector has not been used prior to digging, the brightly colored tape will visually alert the excavator to the line below ... provides double protection.

Wording	Color	Style No. 2" x 1000'	Style No. 6" x 1000'
Buried Sewer Line Below	Green	37230	37234
Buried Water Line Below	Blue	37222	37238
Buried Electric Line Below	Red	37215	37235
Buried Gas Line Below	Yellow	37216	37233
Buried Fiber Optic Cable Below	Orange	45385	45386
Buried Pipeline Below	Yellow	37219	37232

Size	1-9	10-19	20 & Up
2" x 1000'	$106.95 ea	$96.40 ea	$86.75 ea
6" x 1000'	296.00 ea	266.40 ea	239.80 ea

TO ORDER METALLIC DETECTION TAPE: Specify Style No. and Quantity
TO ORDER CUSTOM WORDED METALLIC DETECTION TAPE: Specify **Style No. 37214**, Wording and Quantity, Minimum 12 identical rolls
2" Rolls @ $106.95/Roll, 6" Rolls @ $296.00/Roll. All custom orders have a $49.50 set-up charge

Marking Flags

Available blank, stock worded, or custom worded

Highly visible marking flags are ideal for ground marking. Flags are 5" x 4" and attached to a 30" 15.5 gauge steel rod.

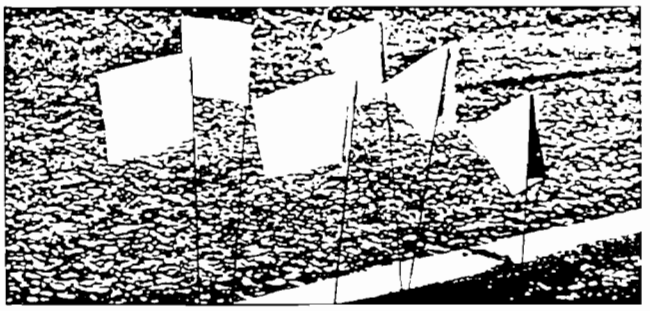
TO ORDER PLAIN COLORED MARKING FLAGS: Specify **Style No. M3942**, Flag Color (Orange, Red, Yellow, Blue, White, Green or Fluorescent Red), and Quantity
PRICE: Per 100 (C) Flags

50	100	500	1000
$7.05.50	$12.75/C	$11.70/C	$10.45/C

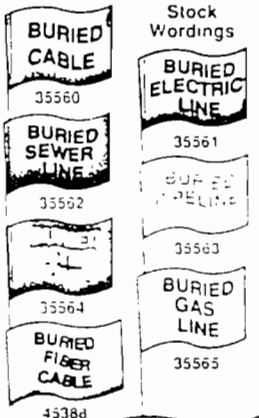
TO ORDER STOCK WORDED MARKING FLAGS: Specify Style No. and Quantity
PRICE: Per 100 (C) Flags

50	100	500	1000
C 65.50	$16.25/C	$14.70/C	$13.95/C

Blank or Stock Flags Only



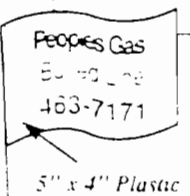
Choose these vibrant economical marking flags for all your marking needs.



TO ORDER CUSTOM PRINTED MARKING FLAGS: Specify **Style No. 21879**, Flag Color (Orange, Red, Yellow, Blue, White or Fluorescent Red), Quantity (minimum 1,000 identical custom printed flags per color), Ink (Black, White, Blue, Yellow, Red, Green) and Wording * If a logo is desired, send black and white artwork and a sketch showing design.
PRICE: Per hundred (C) 1000 minimum

Style No.	1000-4999	5000 & Up
21879	$19.80/C	$18.60/C

*Printing [illegible]
Printing [illegible]



5" x 4" Plastic Flags on 30" Steel Shafts

TOWN OF CLARKSTOWN
DEPARTMENT OF ENVIRONMENTAL CONTROL

CLARKSTOWN SANITARY LANDFILL REMEDIATION AND LANDFILL CAPPING

CONTRACT NO. 34-1996

CONSTRUCTION CERTIFICATION REPORT

APPENDIX D: SLURRY WALL CONSTRUCTION DOCUMENTATION

April 14, 2000

Prepared for:
Town of Clarkstown
Department of Environmental Control
10 Maple Avenue
New City, NY 10956

Submitted to:
New York State Department of Environmental Conservation
Division of Environmental Remediation
50 Wolf Road
Albany, NY 12233

Prepared by:
Roy F. Weston of New York, Inc.
130 West 30th Street
New York, NY 10001

MANAGERS DESIGNERS/CONSULTANTS

APPENDIX D: SLURRY WALL CONSTRUCTION DOCUMENTATION

SLURRY WALL MIX DESIGN AND LEACHATE COMPATIBILITY TEST RESULTS

INQUIP ASSOCIATES, INC.

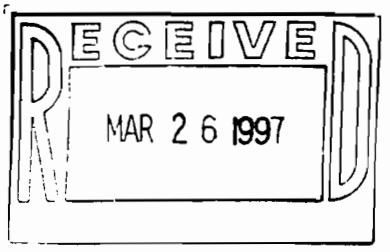
SLURRY WALLS
SEEPAGE BARRIERS
FLEXIBLE LINERS
GROUTING

GEOTECHNICAL CONTRACTOR

Je.ea/97055

March 24, 1997
McLean Office

Barbella Environmental Technology, Inc.
24 Tannery Road
Somerville, NJ 08876



Attn: Mr. Anthony Barbella

RE: Clarkstown Landfill
Slurry Trench

Dear Mr. Barbella

You will find attached the results of the laboratory testing program for the bentonite slurry compatibility testing. The bentonite selected is Bara Kade 90 from the Bentonite Corp. (A typical specification sheet is attached) These tests demonstrate that the selected bentonite is not affected by the leachate.

Mueser Rutledge's report includes also the results of the initial backfill permeability test. The borrow material, when mixed with bentonite slurry alone, is approximately 3 times less previous than that specified, $K = 3 \times 10^{-8}$ cm/sec. Therefore, as allowed in the specifications, we request that the long term compatibility testing of four samples be amended to the sample presently tested (i.e. borrow soil and bentonite slurry). Since the slurry was not affected by the leachate, we do not foresee any changes in the long term values. I received verbal confirmation from Mueser Rutledge that approximately 2/3 of a pore volume has passed the sample with no increase in permeability.

Do not hesitate to call if you have any questions.

Best regards,

James C. Edwards
Operations Manager
Eastern Region

Enclosure

BENTONITE Corporation

BARA-KADE® 90
Slurry Trench and Soil Sealing Grade - 200 Mesh

A high quality, powdered sodium bentonite used in slurry wall construction, soil sealing and other hydraulic barriers. This product conforms to API Specification 13A, Section 4. Due to its fine particle size, it is primarily used with pugmill mixing operations in soil/bentonite liner construction.

*Typical Physical Properties**

SCREEN ANALYSIS	*TYPICAL*	*SPECIFICATION*
Dry Screen, percent minus 200 mesh	77	70 min
Wet Screen, percent plus 200 mesh	3.0	4 max
SLURRY PROPERTIES (6% Suspension)		
Viscosity, FANN® 600 rpm	37	30 min
Yield - 42 gal bbl of 15 cps slurry/ton	97	
Marsh Funnel, seconds/quart	36	
Apparent Viscosity, cps	18.5	
Plastic Viscosity (PV)	12	
Yield Point, lb/100 ft^2	13	3 x PV max
Filtrate, 30 minutes @ 100 psi, ml	12	15 cm^3 max
Filter cake, in.	3/32	
INDUSTRIAL PROPERTIES		
Moisture, percent	9	10% max
Swell Index (ml)	28	
Plate Water Absorption, wt % @ 20°C/18 hr	800-1000	
Specific Gravity	2.7	
pH, 6% suspension	9.5	
Bulk Density (lbs/ft^3) compacted	72	
Bulk Density (lbs/ft^3) uncompacted	53	

* The typical physical values listed are not to be construed as rigid specifications.

BARA-KADE® meets or exceeds API Specification, 13A, Section 4.

®FANN is a registered trademark of Baroid Technology, Inc.
®BARA-KADE is a registered trademark of Bentonite Corporation.

5/20/96.bk90200.tpp

1999 Broadway, Suite 4300 • Denver, Colorado 80202 • Phone (303) 291-2940 • Fax (303) 291-2950

LABORATORY TESTING REPORT
ON SLURRY COMPATIBILITY
CLARKSTOWN LANDFILL

Inquip
P. O. Box 6227
McLean, VA 22106

Mueser Rutledge Consulting Engineers
708 Third Avenue
New York, NY 10017

March 17, 1997

MUESER RUTLEDGE CONSULTING ENGINEERS

ELMER A. RICHARDS
GEORGE J. TAMARO
PETER H. EDINGER
ALFRED H. BRAND
HUGH S. LACY
TONY FENNIMORE
Partners

JAMES P. GOULD
EDMUND M. BURKE
WARREN H. ANDERSON
DOMINIC A. ZARRELLA
JOHN W. FOWLER
J. PATRICK POWERS
WALTER WALCHUK
Consultants

708 THIRD AVENUE
NEW YORK, N.Y. 10017-4144
212-490-7110
FAX: 212-490-6654
FAX: 212-953-5626
DANAROMIEL, NEW YORK

WILLIAM G. SPARACIN
SERGIO L. TELLO
JAMES L. KAUFMAN
JOEL MOSKOWITZ
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RAYMOND J. POLETTO
PETER W. DEMING
DAVID M. CACOILO
Senior Associates

RODERIC A. ELLMAN, JR.
THOMAS R. WENDEL
THEODORE POPOFF
DAVID R. GOOD
FRANCIS J. ARLAND
DOMENIC D'ARGENZIO
Associates

JOSEPH N. COURTADE
Controller

March 17, 1997

Inquip
P.O. Box 6227
Mclean Va 22106

Attention: Mr. Jim Edwards
Re: Clarkstown Landfill
Laboratory Testing Report on Slurry Compatibility
MRCE File 8657

Gentlemen:

We have completed the slurry compatibility portion of the laboratory work for the Clarkstown Landfill project. Slurry compatibility tests were performed in order to select a type of bentonite that will not be adversely affected by the landfill leachate. This letter report transmits our findings for that phase of the work. This report also discusses a short duration permeability test we performed to gauge the baseline permeability of the project soil mix with the bentonite type likely to be selected.

We investigated three brands of commercially available bentonite products for use on this project. They were: Bara-Kade 90, Federal Jel 90, and Hydrogel 90. None of the bentonites tested as hydrated slurry exhibited a reaction which when diluted with leachate would affect performance.

Attachments

Table No.1 - Summary of Slurry Tests
Table No.2 - Summary of Permeability Tests
Plate No.1 - Slurry Test Results, Bara-Kade 90
Plate No.2 - Slurry Test Results, Federal Jel 90
Plate No.3 - Slurry Test Results, Hydrogel 90
Plate No.4 - Gradation Curve, Base Soil Mix
Appendix A - Chemical Tests on Mix and Leachate Waters

Chemical Testing

The slurry mix water and the landfill leachate water you provided were sent out to Nytest Environmental, Inc., a testing laboratory, to perform the specified chemical tests. We understand the mix water is the site tap water. Properties tested by Nytest were: Conductivity, pH, Total Dissolved Solids (TDS), and Hardness. The Nytest report is attached as Appendix A. Results of Conductivity, pH and TDS were similar for both waters. The report gives a Hardness of 644 mg/L for the leachate, which is very "hard" water. Bentonite slurry properties however are most affected by the properties of the mix water during hydration. The mix water has a reported Hardness of 107 mg/L.

Slurry Compatibility Testing

We performed the specified tests for determining compatibility of the three trial bentonite slurries with leachate water. Those tests are:

- Filtration
- Marsh Funnel
- Mud Balance (density)
- Viscometer
- Filtercake compatibility

For the viscometer tests we determined the Plastic Viscosity, Yield Point and the 10 second and 10 minute Gel Strengths, using a fann Rheometer Model 280. The tests were conducted in accordance with API standards, except the filtercake compatibility test which has no API standard. Filtercake compatibility is a visual test, requiring observation of differences in appearance of the filtration test filtercake exposed to leachate.

For each of the three brands of bentonite, a 5% bentonite slurry was blended using the site mix water and allowed to hydrate overnight. These "base" slurries were each subdivided into two equal sized samples. One sample was incrementally diluted with mix water and the other with leachate. The percentage of dilution was 5%,10%,15% and 25%. The specified slurry index tests were performed at each percentage of dilution. The slurry was allowed to react with the leachate for about 18 hours before testing. Actual reaction time was considerably longer because of the use of successive dilution (i.e., obtaining 15% dilution by adding additional water to the 10% dilution sample). Slurry dilution with mix water was for the control tests, as per specification.

The results of the compatibility tests are summarized on Table No.1 and on Plate Nos. 1 to 3, one plate for each bentonite brand tested. The plots show selected test values obtained at the various dilution percentages. The results of comparable dilution from both leachate and mix water are provided. Observations of filtercake compatibility showed no change attributable to the leachate, except a color change noted in the Federal Jel filtercake at the 25% dilution with leachate.

No significant effect due to dilution with leachate water is observed on the plots. Based on the unexplained color change in the Federal Jel slurry and your reported field experience with both Hydrogel 90 and Bara-Kade 90, it appears that Bara-Kade 90 is an appropriate bentonite for use on this project.

Gradation and Permeability Tests

We performed a grain size analysis on the base project soil mix to be used to make the S-B (Soil-Bentonite) backfill for the project. The analysis determined the soil description to be a well graded, brown gravelly fine to coarse sand, some silt. The fines content, percent of soil passing the #200 sieve, is 25%. The gradation plot is attached as Plate No. 4.

We blended the base soil mix with sufficient Bara-Kade 90 slurry to achieve an estimated slump of five to six inches. The calculated bentonite content of the S-B mix was 0.7%, by dry weight. Using this S-B blend, we set up a permeability test using the site tap water as the permeant. The permeability specimen was allowed to consolidate to an effective stress of 5 psi prior to testing. After about 24 hours of testing, a permeability of 3.5×10^{-8} cm/sec was measured.

Conclusions

The leachate water does not appear to be chemically aggressive to bentonite slurry. The project soil, though not particularly clayey, is sufficiently well graded that when mixed with bentonite should produce the required permeability.

We are now beginning the long term compatibility tests of the S-B mix with leachate permeant, in accordance with EPA Method 9100.

Very truly yours,

MUESER RUTLEDGE CONSULTING ENGINEERS

By: David R. Good
David R. Good

DRG\GJT\WEK

ATTACHMENTS

TABLE NO. 1
SLURRY TEST RESULTS

SLURRY PROPERTY	BARA-KADE 90									FED JEL 90									HYDROGEL 90								
	BASE SLURRY	% DILUTION W/ MIX WATER				% DILUTION W/ LEACHATE				BASE SLURRY	% DILUTION W/ MIX WATER				% DILUTION W/ LEACHATE				BASE SLURRY	% DILUTION W/ MIX WATER				% DILUTION W/ LEACHATE			
		5	10	15	25	5	10	15	25		5	10	15	25	5	10	15	25		5	10	15	25	5	10	15	25
Density by Mud Balance (pcf)	64.0	64.0	64.0	63.8	63.7	64.0	64.0	63.8	63.7	64.0	64.0	64.0	63.8	63.7	64.0	64.0	63.8	63.7	64.0	63.8	64.0	63.9	63.7	63.8	64.0	63.9	63.7
Marsh Funnel Viscosity (sec)	38.0	36.5	35.0	35.5	33.0	36.5	35.0	35.5	33.0	41.0	35.0	36.0		33.0	35.5	35.5		33.0	38.0	36.5	35.0	35.0	33.5	36.5	35.0	35.0	33.0
Filtrate Volume (cc)	21.0	20.0	19.0	20.0	19.5	20.5	21.5	21.5	23.0	17.0	16.0	16.0	15.0	16.0	17.0	18.0	17.0	17.0	19.5	19.5	19.0	19.0	20.0	20.0	19.5	19.0	21.0
Filtercake Thickness (in)	3/32	2/32	2/32	2/32	2/32	2/32	2/32	2/32	2/32	2/32	2/32	2/32	2/32	2/32	2/32	2/32	2/32	2/32	3/32	2/32	2/32	2/32	2/32	2/32	2/32	2/32	2/32
FANN 600 RPM	26	26	24	22	16	26	24	22	15	25	25	24	25	15	25	23	24	16	26	28	25	23	18	28	25	23	19
FANN 300 RPM	20	16	14	13	9	16	14	13	9	19	15	14	15	8	15	14	14	9	20	18	15	14	10	17	15	14	10
Plastic Viscosity (cp)	6	10	10	9	7	10	10	9	6	6	10	10	10	7	10	9	10	7	6	10	10	9	8	11	10	9	9
Yield Point (lbs/100 ft^2)	14	6	4	4	2	6	4	4	3	13	5	4	5	1	5	5	4	2	14	8	5	5	2	6	5	5	1
10 sec Gel Strength (lbs/100 ft^2)	10	7	6	6	5	9	7	6	5	6	6	5	5	4	6	6	6	5	6	7	7	6	4	7	7	6	5
10 min Gel Strength (lbs/100 ft^2)	16	16	12	12	10	17	13	12	11	11	13	11	12	9	13	12	13	10	9	11	10	10	7	12	10	10	9
Room Temp (°C)	25.1	25.3	24.0	23.5	24.2	25.3	24.0	23.5	24.2	25.1	25.8	23.8	23.7	24.4	25.8	23.8	23.7	24.4	25.1	25.3	24.2	23.1	24.4	25.3	24.2	23.4	24.4

NOTES:

1. Base slurry made using mix water and 5% bentonite by weight.

CLARKSTOWN LANDFILL

CLARKSTOWN **NEW YORK**

MUESER RUTLEDGE CONSULTING ENGINEERS
708 THIRD AVENUE, NEW YORK, N.Y. 10017

MADE BY: MC	DATE: 3-6-97	FILE NO.
CH'KD BY: WEK	DATE: 3-6-97	8657

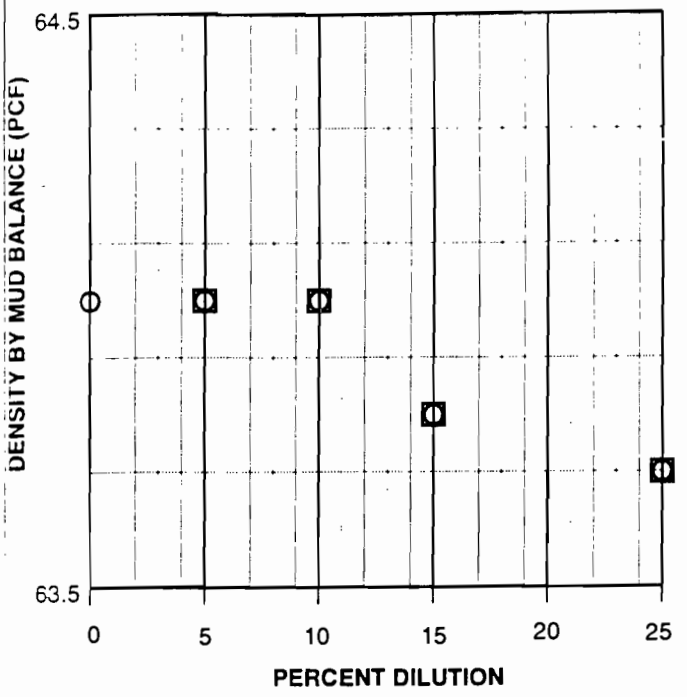
TABLE NO. 2
SUMMARY OF PERMEABILITY TEST RESULTS

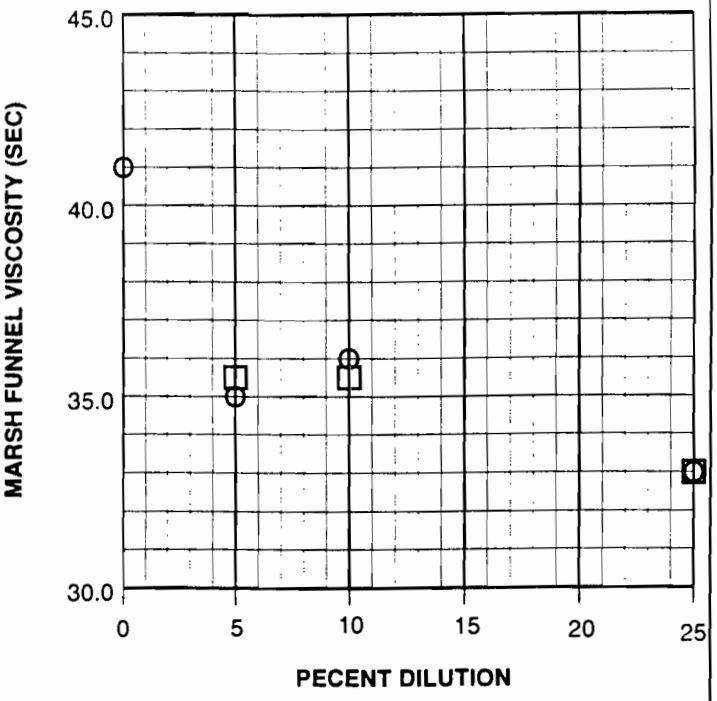
DRAFT

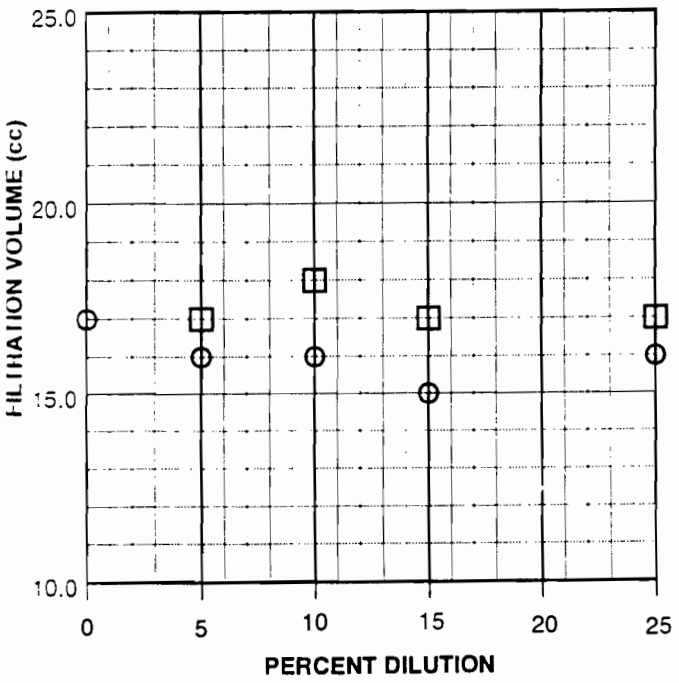
SAMPLE NO.	INITIAL SPECIMEN PROPERTIES				FINAL SPECIMEN PROPERTIES					TOTAL BACK PRESSURE [2]	EFFECTIVE CONSOLIDATION STRESS [3]		HYDRAULIC GRADIENT		PERMEABILITY
	DIMENSIONS		WATER CONTENT	DRY UNIT WT.	DIMENSIONS		WATER CONTENT	DRY UNIT WT.	SATU-RATION		MAX	MIN.	MAX	MIN	
	DIA.	LENGTH			DIA.	LENGTH									
	in.	in.	%	pcf.	in.	in.	%	pcf.	%	psi.	psi.	psi.			cm/sec
S/B MIX NO. 1	2.662	1.910	23.8	99.8						50.0	5.0	3.1	27.8		3.5×10^{-8}

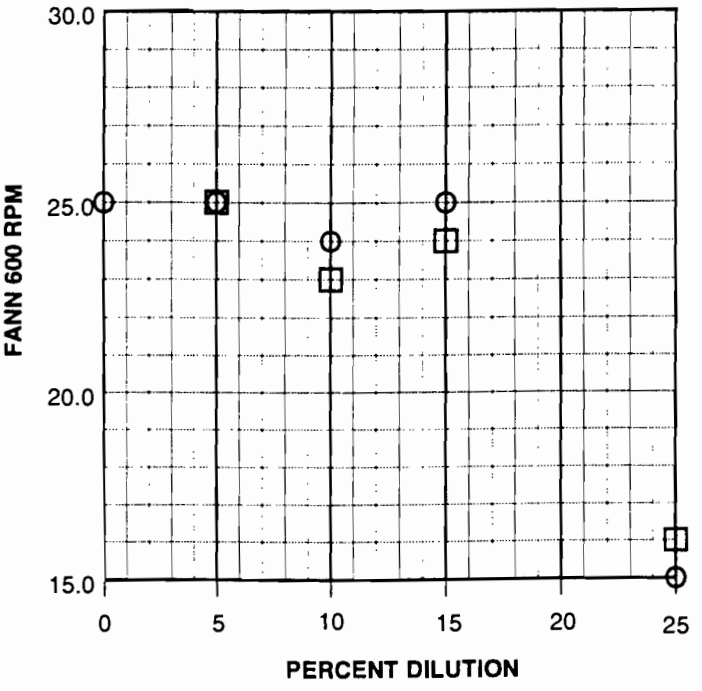
NOTES :

1. Permeability tests were performed in accordance with ASTM D 5084, " Standard Test Method for Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter".
2. Total back pressure is the maximum pressure applied during back pressure saturation of the test specimen.
3. The maximum effective consolidation stress exists at the effluent end of the test specimen. The minimum effective consolidation stress exists at the inluent end of the test specimen.
4. All tests used New York City tap water as the permeant liquid.
5. Final degree of saturation was calculated from the final dimensions and soil properties of the test specimen.





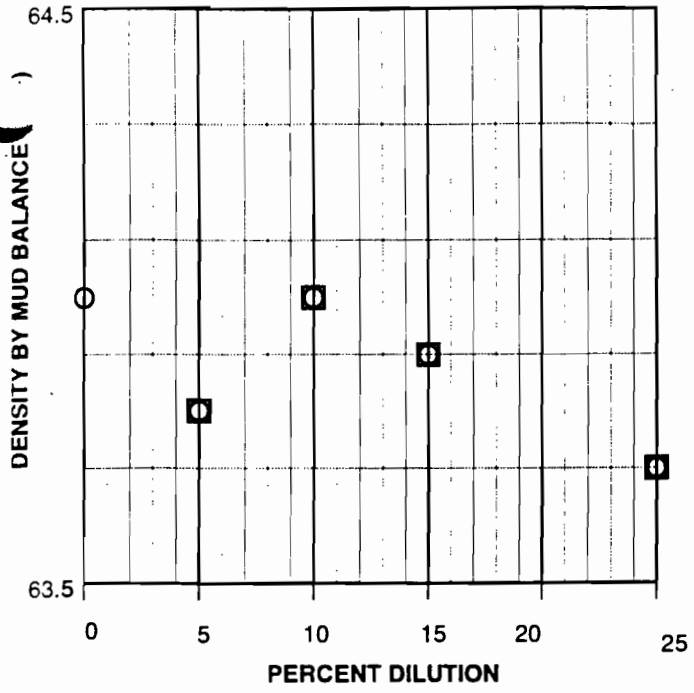


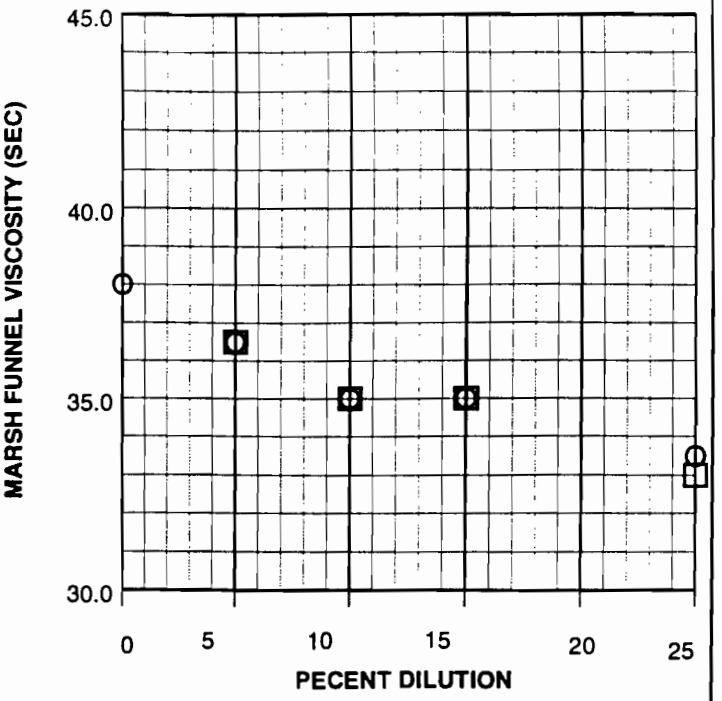


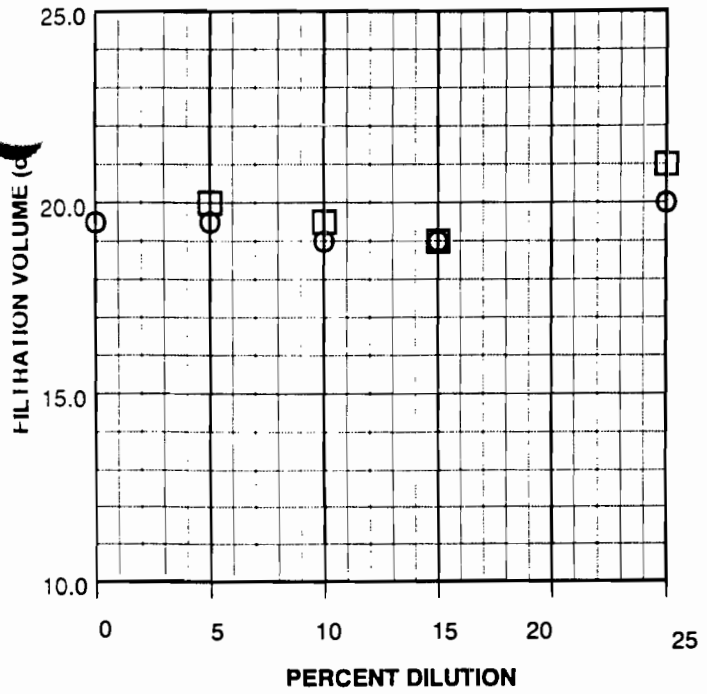
LEGEND

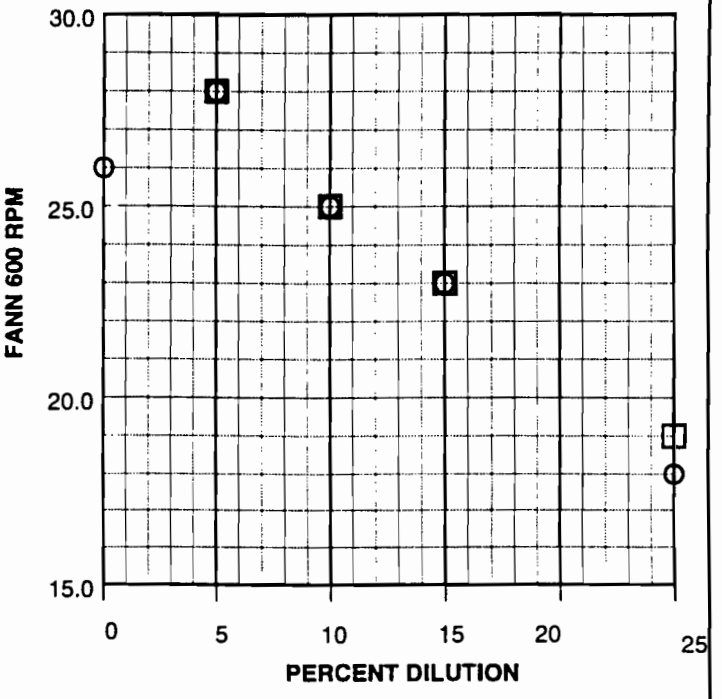
- ● - DILUTION WITH MIX WATER
- ▣ - DILUTION WITH LEACHATE

CLARKSTOWN LANDFILL **CLARKSTOWN NEW YORK**		
MUESER RUTLEDGE CONSULTING ENGINEERS 708 THIRD AVENUE, NEW YORK, N.Y. 10017		
MADE BY: MC CH'KD BY: WEK	DATE: 3-6-97 DATE: 3-6-97	FILE NO. 8657
SLURRY TEST RESULTS FED JEL 90		PLATE NO. 2





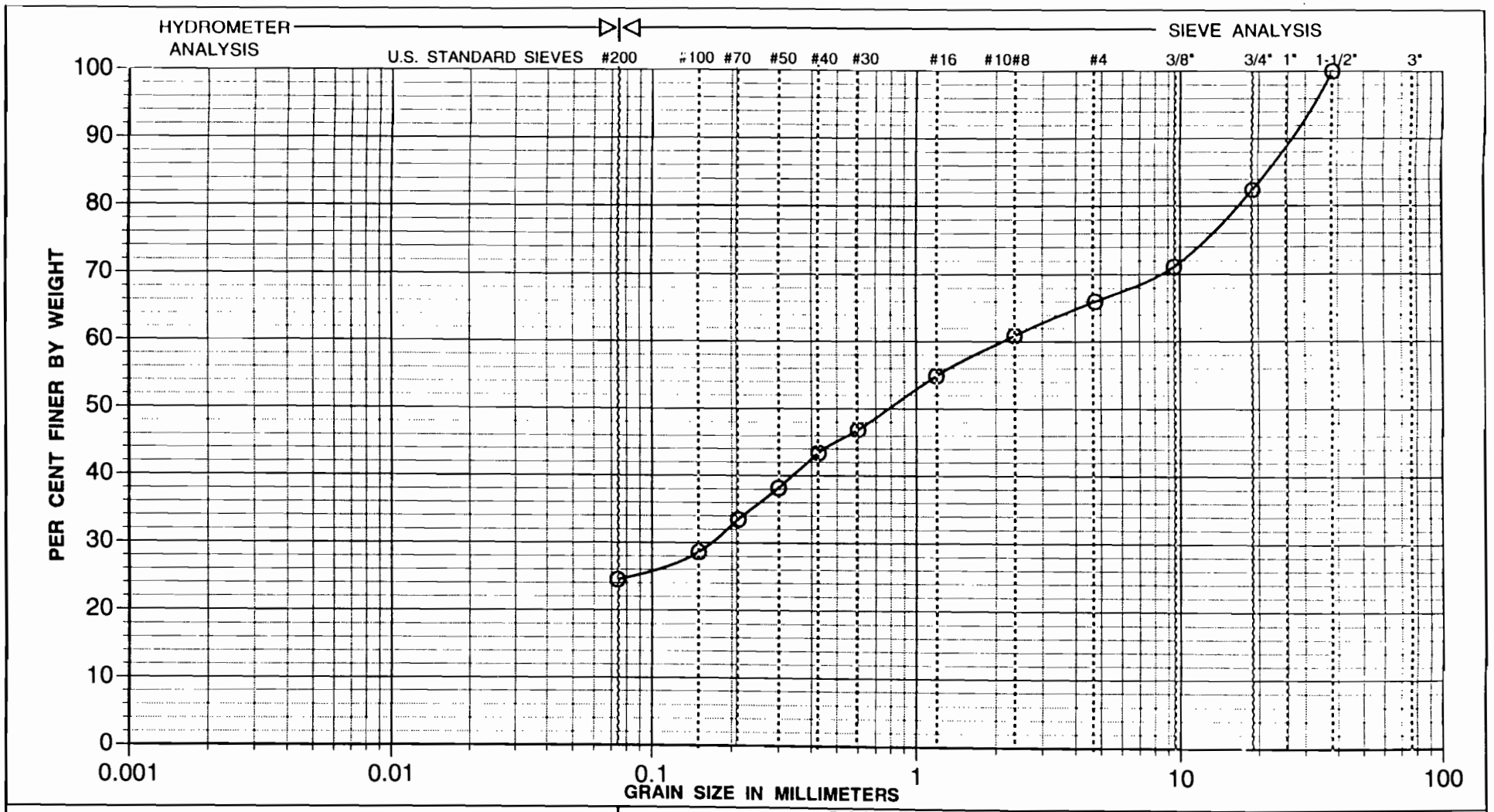




LEGEND

- ○ - DILUTION WITH MIX WATER
- □ - DILUTION WITH LEACHATE

CLARKSTOWN LANDFILL **CLARKSTOWN NEW YORK**		
MUESER RUTLEDGE CONSULTING ENGINEERS 708 THIRD AVENUE, NEW YORK, N.Y. 10017		
MADE BY: MC CH'KD BY: WEK	DATE: 3-6-97 DATE: 3-6-97	FILE NO. 8657
SLURRY TEST RESULTS HYDROGEL 90		PLATE NO. 3



UNIFIED SOILS CLASSIFICATION	CLAY OR SILT	SAND			GRAVEL		COBBLES
		FINE	MEDIUM	COARSE	FINE	COARSE	

SYMBOL	SAMPLE	WATER CONTENT, %	LIQUID LIMIT, %	PLASTICITY INDEX	DESCRIPTION OF SAMPLE
O	BASE SOIL MIX	12.3	24	5	Brown gravelly fine to coarse sand, some silt (SM)

PLATE NO. 4

CLARKSTOWN LANDFILL
CLARKSTOWN NEW YORK

MUESER RUTLEDGE CONSULTING ENGINEERS

708 THIRD AVENUE, NEW YORK, N.Y. 10017

MADE BY: MC DATE: 2-27-97
CH'KD BY: WEK DATE: 2-27-97

FILE NO. 8657

GRADATION CURVES
BASE SOIL MIX

PLATE NO 4

APPENDIX A

CHEMICAL TESTS ON MIX AND LEACHATE WATERS

nytest environmental inc.

February 26, 1997

Mueser Rutledge Consulting Engineers
708 3rd Avenue
New York, NY 10017

Attn : Walter Kaeck
Ref : Clarkstown Landfill
P.O. #: 8657

File No.
RECEIVED
FEB 2 8 1997
M R C E

TO	NAME	R
	EAR	
	GJT	
	PHE	
	AHB	
	HSL	
	TF	
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	EMB	
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TO	NAME	R
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	GLT	
	JLK	
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	DMH	
	RJP	
	PWD	
	DMC	
	RAB	
	TRW	
	TP	
	DRG	
	FJA	
	DD	
	JNC	
	PAG	

Nytest Environmental, Inc., is pleased to submit our Project Number 9723050 for Login Number 30592 , on your sample(s) received 02/18/97.

We certify that this report is a true report of results obtained from our tests of this material.

Test sample(s) associated with this project will be retained for a period of thirty (30) days, unless otherwise instructed.

My staff is available to answer any questions concerning our report and we look forward to serving your future analytical needs.

Respectfully submitted,

Lori Beyer
Laboratory Director
Nytest Environmental, Inc.

Encl:
Shipped Via:

NYS Lab ID#10195
NJ Cert.#73469

Report on sample(s) furnished by client applies to sample(s). Report on sample(s) obtained by us applies to lot sampled. Information contained herein is not to be used for reproduction except by special permission. In the event that there are portions or parts of sample(s) remaining after Nytest has completed the required tests, Nytest shall have the option of returning such sample(s) to the client at the client's expense.

NYTEST ENVIRONMENTAL Inc.

SDG:

LABORATORY NUMBER	SAMPLE IDENTIFICATION	TYPE OF SAMPLE
3059201	MIXH2O	Water
3059202	LEACH	Water

NEI REPORT OF ANALYSIS
GENERAL CHEMISTRY

CLIENT : MUESER RUTLEDGE
PARAMETER: CONDUCTIVITY
LAB ID: SEE BELOW

DATE COLLECTED: 02/14/97
DATE RECD.: 02/18/97
MATRIX: WATER
CONC I WET WEIGHT

CLIENT ID:	LAB ID:	UNITS	REPORTING LIMIT	FLAG	SAMPLE RESULT	DILUTION FACTOR	DATE PREPPED:	DATE ANALYZED:	ANALYST INITIAL
MIXH2O	3059201	MICROMHOS/CM	NA		0.03	1	02/26/97	02/26/97	RF
LEACH	3059202	MICROMHOS/CM	NA		0.039	1	02/26/97	02/26/97	RF

NEI REPORT OF ANALYSIS
GENERAL CHEMISTRY

CLIENT : MUESER RUTLEDG
PARAMETER: pH
LAB ID: SEE BELOW

DATE COLLECTED: 02/14/97
DATE RECD.: 02/18/97
MATRIX: WATER
CONC I WET WEIGHT

CLIENT ID:	LAB ID:	UNITS	REPORTING LIMIT	FLAG	SAMPLE RESULT	DILUTION FACTOR	DATE PREPPED:	DATE ANALYZED:	ANALYST INITIAL
MIXH2O	3059201		NA		7.24	1	02/18/97	02/18/97	MG
LEACH	3059202		NA		6.98	1	02/18/97	02/18/97	MG

top and bottom on any similar

NEI REPORT OF ANALYSIS
GENERAL CHEMISTRY

CLIENT : MUESER RUTLEDGE
PARAMETER: TDS
LAB ID: SEE BELOW

DATE COLLECTED: 02/14/97
DATE RECD.: 02/18/97
MATRIX: WATER
CONC I WET WEIGHT

CLIENT ID:	LAB ID:	UNITS	REPORTING LIMIT	FLAG	SAMPLE RESULT	DILUTION FACTOR	DATE PREPPED:	DATE ANALYZED:	ANALYST INITIAL
MIXH2O	3059201	mg/L	10		147	1	02/20/97	02/20/97	RF
LEACH	3059202	mg/L	10		106	1	02/20/97	02/20/97	RF

REPORT OF ANALYSIS

Log In No.: 30592

We find as follows:

Results Inmg/L

Parameter(s)	Sample Identification		
	MIXH20 3059201	LEACH 3059202	Method Blank
Hardness	107	644	1.0

Results by calculation 200.7

INQUIP ASSOCIATES, INC.
GEOTECHNICAL CONTRACTOR

SLURRY WALLS
SEEPAGE BARRIERS
FLEXIBLE LINERS
GROUTING

je.cw/97176

August 26, 1997
McLean Office

Barbella Environmental Technology
24 Tannery Road
Somerville, NJ 08876
Attn: Anthony Barbella

Re: Clarkstown Landfill

Dear Mr. Barbella:

Reference is made to Weston's letter dated August 13 1997, you will find attached a letter from the bentonite supplier explaining that Barakade® 90 and Barakade® 30 have the same mineral constituents and are from the same ore. The Barakade® 30 is a granular product ("30" designate the #30 sieve) and Barakade® 90, ("90" designates the yield in barrels), is a powered bentonite.

We added 1% dry bentonite as a factor of safety even though the compatibility testing showed it would not be required. We chose the granular bentonite to eliminate the dust associated with spreading powdered bentonite, which is a practice we follow on many projects.

In the field the dry bentonite was added to the backfill material. Then the mixture was sluiced with bentonite slurry (Barakade® 90). During the compatibility testing the backfill material alone was sluiced with bentonite slurry (Barakade® 90). The field samples have approximately 1% more bentonite by dry weight than the laboratory samples, therefore the field backfill contains even more bentonite than the approved mix design.

If I can provide additional information please contact me at (703) 442.0143.

Best regards,

James C. Edwards
Operations Manager
Eastern Region

Attachment

BENTONITE Corporation

410 Seventeenth Street, Suite 800
Denver, CO 80202

(303) 571-8240
Fax (303) 571-8280
E-Mail: bentcorp@eazy.net

August 25, 1997

Mr. James Edwards
Inquip Associates
P.O. Box 6277
McLean, VA 22106

Dear Mr. Edwards:

This letter summarizes the similarities between Bentonite Corporation's products, **BARAKADE® 30** and **BARAKADE® 90**. Both bentonite products are produced from the same ore blend and differ only in particle sizing. This is our best sealant grade ore blend which displays excellent sealant and permeability control properties as illustrated by API Fluid Loss, Swell Index and Plate Water Absorption values. The major difference between these two products is the particle sizing: **BARAKADE® 30** is a granular product that is designed to be low dusting for blending with soils backfill while **BARAKADE® 90** is a finely ground 200 mesh product designed for mixing with soils in a pug mill for sealant applications or with water for slurry wall construction. **BARAKADE® 90** also has a trace of viscosifying polymer added to meet API 13A Section 4 Bentonite specifications since it must have suspension and viscosifying characteristics for slurry wall construction applications. This polymer additive does not influence the sealant properties of the bentonite product.

The enclosed Typical Physical Property data sheets for each of these products illustrates the similarity of functional properties for soil sealant applications.

Sincerely yours,

W J Miles

William J. Miles, Ph.D.
Director of Technical services

cc: S. Gray
M. Steinmeyer
C. McAughan

BENTONITE Corporation

BARA-KADE® 30 Granular Bentonite
Soil Sealing Grade - 30 Mesh

A high quality, untreated granular sodium bentonite used primarily for the construction of liners, caps and other hydraulic barrier facilities.

*Typical Physical Properties**

SCREEN ANALYSIS	*TYPICAL*	*SPECIFICATION*
Dry Screen, percent plus 20 mesh	1	5 max
Dry Screen, percent minus 200 mesh	4	12 max
SLURRY PROPERTIES (6% Suspension)		
Viscosity, FANN® 600 rpm	20	
Yield - 42 gal bbl of 15 cps slurry/ton	80	
Filtrate, 30 minutes @ 100 psi/ml	14	
Filter Cake, in.	3/32	
INDUSTRIAL PROPERTIES		
Moisture, percent	9	12 max
Swell Index (ml)	28	
Plate Water Absorption, wt % @ 20°C/18 hr	800-1000	
Specific Gravity	2.7	
pH, 6% Suspension	9.5	
Bulk Density (lbs/ft^3) compacted	76	
Bulk Density (lb/ft^3) uncompacted	69	

* The typical physical values listed are not to be construed as rigid specifications.

®FANN is a registered trademark of Baroid Technology, Inc.
®BARA-KADE is a registered trademark of Bentonite Corporation.

08/19/97.bk3030.bpp

BENTONITE Corporation

RECEIVED
AUG 25 1997

BARA-KADE® 90
Slurry Trench and Soil Sealing Grade - 200 Mesh

A high quality, powdered sodium bentonite used in slurry wall construction, soil sealing and other hydraulic barriers. This product conforms to API Specification 13A, Section 4. Due to its fine particle size, it is primarily used with pugmill mixing operations in soil/bentonite liner construction.

*Typical Physical Properties**

SCREEN ANALYSIS	*TYPICAL*	*SPECIFICATION*
Dry Screen, percent minus 200 mesh	77	70 min
Wet Screen, percent plus 200 mesh	3.0	4 max
SLURRY PROPERTIES (6% Suspension)		
Viscosity, FANN® 600 rpm	37	30 min
Yield - 42 gal bbl of 15 cps slurry/ton	97	
Marsh Funnel, seconds/quart	36	
Apparent Viscosity, cps	18.5	
Plastic Viscosity (PV)	12	
Yield Point, lb/100 ft^2	13	3 x PV max
Filtrate, 30 minutes @ 100 psi, ml	14	15 cm^3 max
Filter cake, in.	3/32	
INDUSTRIAL PROPERTIES		
Moisture, percent	9	10% max
Swell Index (ml)	28	
Plate Water Absorption, wt % @ 20°C/18 hr	800 - 1000	
Specific Gravity	2.7	
pH, 6% suspension	9.5	
Bulk Density (lbs/ft^3) compacted	73	
Bulk Density (lbs/ft^3) uncompacted	53	

* The typical physical values listed are not to be construed as rigid specifications.

®FANN is a registered trademark of Baroid Technology, Inc.
®BARA-KADE is a registered trademark of Bentonite Corporation.

8/25/97 bk90200.bpp

410 17th Street, Suite 800 • Denver, Colorado 80202 • Phone (303) 571-8240 • Fax (303) 571-8280

Facsimile Information Sheet

MUESER RUTLEDGE CONSULTING ENGINEERS
708 THIRD AVENUE
NEW YORK, NEW YORK 10017

Phone: (212) 490-7110 FAX: (212) 953-5626

Date: June 10, 1997 MRCE File: 8657

For: Mr. Jim Edwards

Company: Inquip Associates, Inc.

City, State: McLean, Va

Fax: 703-442-0188

From: Walter E. Kaeck

Project: Clarkstown Landfill

Original will be sent: Yes [X] Via Mail **No [ ]**

Call if you have not received 7 **pages including this page.**

MESSAGE: Provided is our final report summarizing the results of the compatability test of the trial S-B mix.

SIGNED: Walter E. Kaeck

Sent by: _____ Date: _____ Time: _____

Mueser Rutledge Consulting Engineers

708 Third Avenue • New York, NY 10017-4144
Tel: (212) 490-7110 • Fax: (212) 490-6654

June 10, 1997

Elmer A. Richards
George J. Tamaro
Peter D. Ehinger
Alfred H. Brand
Hugh S. Lacy
Tony Lemmmore
David M. Cacoilo
Partners

James P. Gould
Edmund M. Burke
Warren H. Anderson
John W. Fowler
J. Patrick Powers
Sergio L. Iello
Consultants

William G. Sparacio
James L. Kaufman
Joel Moskowitz
Daniel M. Hahn
Raymond J. Paletta
Peter W. Deming
Roderic A. Ulman, Jr.
Senior Associates

Thomas R. Wendel
Theodore Popoff
David R. Good
Frances J. Acland
Domenic D'Argenzio
Associates

Joseph N. Courtade
Controller

INQUIP Associates, Inc.
P.O. Box 6277
McLean, Virginia 22106

Attention: Mr. Jim Edwards

Re: Compatibility Test of Trial S-B Mix
Clarkstown Landfill
Clarkstown, New York
MRCE File No. 8657

Gentlemen:

We have completed the compatibility permeability test of the trial soil bentonite (S-B) mix. More than six pore volumes of flow were passed into the S-B test specimen. Over the six pore volumes tested, there has been no reduction in the impermeability of the backfill as a result of permeation by the landfill leachate. The calculated steady state permeability of the S-B sample is about 4×10^{-8} cm/sec.

This report supersedes our interim reports of April 14 and May 13, 1997. Permeability and pore volumes of flow reported herein are based on the final measured dimensions and water content of the test specimen. Our earlier reports used the initial sample dimensions and water content of the test specimen in the calculation of permeability and pore volumes of flow.

Trial S-B Blend

The trial S-B mix was made by mixing the project base soil with a bentonite slurry (5% bentonite by weight of water) to achieve a mix with an estimated slump of between five and six inches. The project base soil was provided by Barbella Environmental Technology (BET). Bara-Kade 90 was selected as the bentonite based on the results of the slurry compatibility testing program. A gradation curve for the project base soil and the results of the slurry compatibility testing program are provided in our letter report, dated March 17, 1997. The bentonite content of the trial S-B mix was calculated to be about 0.7% by dry weight.

Permeability Test

A falling head permeability test was performed to determine the baseline permeability of the trial S-B mix. The permeability test was performed in accordance with ASTM D 5084, "Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter." A summary of the general test procedures and apparatus used in the MRCE laboratory is provided in the Appendix.

The permeability test specimen was prepared by rodding equally three lifts of the S-B mix into a 2.8 inch diameter cylindrical triaxial membrane form. The specimen was backpressure saturated and then isotropically consolidated to an effective stress of 5 psi. After completion of primary consolidation, the specimen was permeated with NYC tap water. A hydraulic gradient of 30 was applied. The permeability of the trial S-B mix was 3.7×10^{-8} cm/sec.

Compatibility Test

A compatibility permeability test was performed to assess the compatibility of the trial S-B mix with the landfill leachate. The sample of landfill leachate provided to us by BET on February 6, 1997 was used as the permeant in the compatibility test. The leachate was filtered prior to its use in our laboratory through Whatman No. 1 filter paper to remove any large clumps or solid particles which might otherwise clog flow.

The compatibility test was performed in accordance with the provisions of EPA Method 9100. Method 9100 guidelines include adding 2000 ppm formaldehyde to the influent reservoir to prevent the growth of microorganisms which could clog flow. The same test specimen used to determine the baseline permeability of the trial S-B mix was used in the compatibility test. Landfill leachate was substituted into the influent reservoir and flushed to the effluent reservoir through the top and bottom end caps, replacing the NYC tap water as the permeant. Permeation of the test specimen with leachate water was initiated on March 12, 1997. Formaldehyde was added to the influent reservoir on March 27, after about 0.5 pore volumes had passed into the test specimen, to ensure that the addition of formaldehyde did not change the permeability. The influent reservoir was periodically (about once every month) emptied and refreshed with additional leachate from the storage container. The additional leachate was treated with formaldehyde. The compatibility test was concluded on June 3 after a total of 255 cubic centimeters (cc) of flow had passed into the test specimen. The test apparatus was disassembled and the final sample dimensions and water content were determined. Permeability and pore volumes of flow were recalculated based on the final measured dimensions of the test specimen.

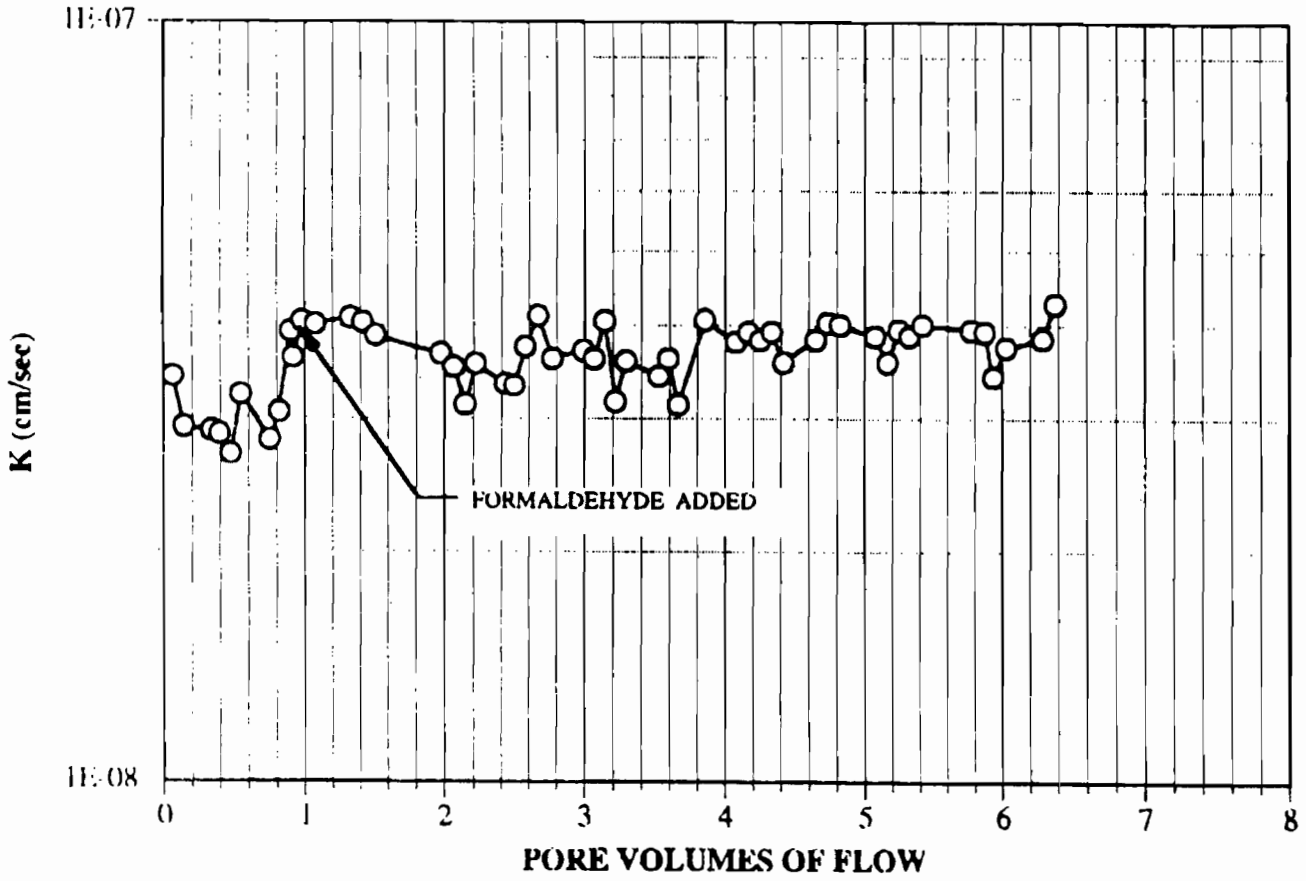
A plot of permeability versus pore volumes of flow is shown on Plate No. 1. Detailed results of the compatibility test, including a plot of permeability versus time, are provided on the test data sheets attached at the end of this report. In conclusion, it appears that the landfill leachate has had no deleterious effects on the permeability or character of the S-B backfill mix.

Very truly yours,

MUESER RUTLEDGE CONSULTING ENGINEERS

By: Walter E. Kaeck
Walter E. Kaeck

WEK:ds\LTR1



CLARKSTOWN LANDFILL		
CLARKSTOWN		NEW YORK
MUESER RUTLEDGE CONSULTING ENGINEERS 708 THIRD AVENUE. NEW YORK, NY 10017		
MADE BY: WK CHKD BY:	DATE: 5-14-97 DATE:	FILE NO 8657
K VS. PORE VOLUMES OF FLOW		PLATE NO. 1

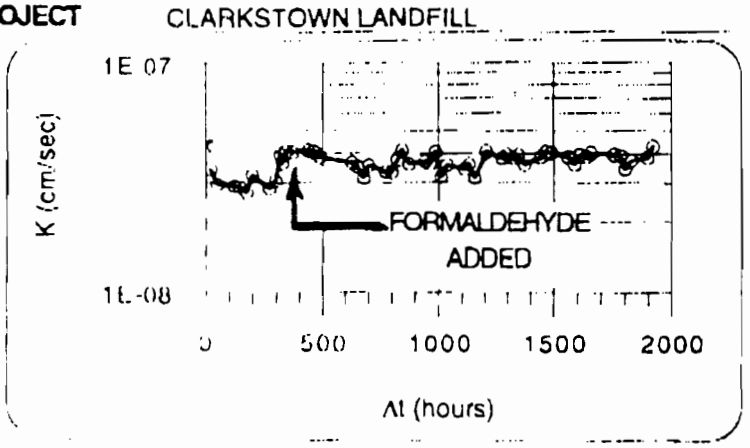
MUESER RUTLEDGE CONSULTING ENGINEERS

File No. 8657
Boring No.
Sample No. S/SLURRY

CONSTANT HEAD PERMEABILITY TEST
with superimposed air pressure

Setup by: FW Date: 03-10-97
Calc by: MC Date: 06-05-97
Ch'kd by: WK Date: 6/5/97

PROJECT CLARKSTOWN LANDFILL



Cell Pres= 55.0 psi
Back Pres= 50.0 psi
Eff Stress= 5.0 psi

$K = \frac{\Delta Q L}{A \Delta h \Delta t} - Ct$

Burette Areas
In = 0.60 sq cm
Out = 0.60 sq cm

Sample Length, L = 4.29 cm
Sample Diameter, D = 6.44 cm
Sample Area, A = 32.57 sq cm
Sample Volume, V = 139.74 cub cm

DATE	CLOCK TIME	ELAP. TIME Δt (hours)	TEMP (deg C)	VOL in READ (cc)	VOL out READ (cc)	ΔQ in (cc)	ΔQ out (cc)	Super-imposed Pressure P_{air} (cm)	Average Liquid Head (cm)	TOTAL HEAD Δh (cm)	Σ ΔQ out (cc)	PER-MEABILITY 'K' (cm/sec)	NOTES
03-12-97	11:55		24.5	47.8	0.1			116.8	116.80				
03-13-97	08:54	20.98	24.6	44.6	2.7	3.2	2.6	116.8	17.23	134.0	2.6	3.47E-08	
03-14-97	12:25	48.5	25.2	41.2	5.8	3.4	3.1	116.8	14.87	131.7	5.7	2.92E-08	
03-17-97	09:55	118	24.7	33.4	13.5	7.8	7.7	116.8	10.63	127.4	13.4	2.89E-08	
03-18-97	08:30	140.58	22.6	31.1	15.8	2.3	2.3	116.8	6.77	123.6	15.7	2.86E-08	
03-19-97	16:35	172.66	24.4	28.1	19.1	3.0	3.3	116.8	4.67	121.5	19.0	2.69E-08	
03-20-97	08:55		24.4	27.6	4.4			116.8					
03-21-97	09:43	197.46	22.9	24.6	7.2	3.0	2.8	116.8	7.81	124.6	21.8	3.30E-08	
03-21-97	09:54		23.1	48.8	2.6			116.8					
03-24-97	10:10	269.73	24.7	40.8	10.8	8.0	8.2	116.8	14.65	131.5	30.0	2.81E-08	
03-25-97	10:27	294.01	23.0	37.9	13.4	2.9	2.6	116.8	10.48	127.3	32.6	3.06E-08	
03-26-97	10:00	317.56	22.9	34.4	16.6	3.5	3.2	116.8	8.13	124.9	35.8	3.92E-08	
03-26-97	16:12	323.76	22.7	33.6	17.4	0.8	0.8	116.8	6.54	123.3	36.6	3.62E-08	
03-26-97	16:22		22.8	49.4	1.2			116.8					
03-27-97	09:29	340.88	22.0	46.6	3.7	2.8	2.5	116.8	17.52	134.3	39.1	4.05E-08	
03-28-97	10:30	365.9	23.0	42.7	7.5	3.9	3.8	116.8	15.02	131.8	42.9	4.01E-08	
03-31-97	08:46	436.17	21.6	32.4	17.7	10.3	10.2	116.8	9.60	126.4	53.1	4.09E-08	
04-01-97	08:57	460.35	24.4	28.8	21.2	3.6	3.5	116.8	4.29	121.1	56.6	4.03E-08	
04-01-97	09:02		24.5	49.4	1.2			116.8					
04-02-97	10:04	485.38	22.7	45.6	4.9	3.8	3.7	116.8	17.10	133.9	60.3	3.87E-08	
04-08-97	09:00	628.31	22.4	26.5	23.4	19.1	18.5	116.8	8.42	125.2	78.8	3.66E-08	
04-08-97	09:05		23.4	49.0	0.8			116.8					
04-09-97	09:28	652.69	24.8	45.6	4.4	3.4	3.6	116.8	17.19	134.0	82.4	3.52E-08	
04-10-97	11:04	678.29	25.4	42.4	7.7	3.2	3.3	116.8	14.60	131.4	85.7	3.13E-08	
04-11-97	08:59	700.21	22.7	39.4	10.5	3.0	2.8	116.8	12.23	129.0	88.5	3.55E-08	
04-14-97	09:36	772.83	21.8	30.8	19.0	8.6	8.5	116.8	7.83	124.6	97.0	3.34E-08	
04-15-97	09:57	797.18	21.7	28.0	21.7	2.8	2.7	116.8	3.48	120.3	99.7	3.32E-08	
04-16-97	10:59	822.21	22.8	24.8	24.9	3.2	3.2	116.8	1.19	118.0	102.9	3.74E-08	

04-16-97	11:07		22.8	49.2	0.8			116.8				
04-17-97	09:43	861.1	22.7	45.7	4.5	3.5	3.7	116.8	17.23	134.0	106.6	4.11E-08
04-18-97	14:27	889.9	24.0	41.7	8.6	4.0	4.1	116.8	14.29	131.1	110.7	3.61E-08
04-21-97	10:05	957.5	21.4	32.8	17.4	8.9	8.8	116.8	9.33	126.1	119.5	3.70E-08
04-22-97	10:12	981.6	22.6	29.8	20.5	3.0	3.1	116.8	4.75	121.6	122.6	3.61E-08
04-23-97	09:17	1005	22.4	26.5	23.6	3.3	3.1	116.8	2.35	119.1	125.7	4.05E-08
04-23-97	09:40		22.5	47.3	2.7			116.8				
04-24-97	10:08	1029	23.1	44.3	5.7	3.0	3.0	116.8	16.00	132.8	128.7	3.16E-08
04-25-97	08:53	1052	21.7	41.2	8.6	3.1	2.9	116.8	13.69	130.5	131.6	3.58E-08
04-28-97	12:17	1127.	22.4	31.9	17.9	9.3	9.3	116.8	8.96	125.8	140.9	3.12E-08
04-29-97	10:08	1149.	21.7	29.2	20.6	2.7	2.7	116.8	4.35	121.1	143.6	3.61E-08
04-29-97	10:23		21.7	44.9	7.1			116.8				
04-30-97	10:10	172	23.4	42.0	9.9	2.9	2.8	116.8	13.44	130.2	146.4	3.13E-08
05-02-97	12:15	223.	24.0	34.4	17.6	7.6	7.7	116.8	9.40	126.2	154.1	4.06E-08
05-05-97	09:01	291	21.4	25.6	26.4	8.8	8.8	116.8	3.08	119.9	162.9	3.80E-08
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05-07-97	09:15	1339.	21.2	42.2	7.9	3.4	3.4	116.8	14.50	131.3	169.9	3.82E-08
05-08-97	09:40	1364.	21.3	38.7	11.3	3.5	3.4	116.8	11.87	128.7	173.3	3.92E-08
05-09-97	10:28	1389.	23.0	35.5	14.6	3.2	3.3	116.8	9.29	126.1	176.6	3.57E-08
05-12-97	08:37	1459.	22.6	25.9	23.8	9.6	9.2	116.8	4.42	121.2	185.8	3.83E-08
05-13-97	08:49	1483.	24.8	22.5	27.3	3.4	3.5	116.8	-0.52	116.3	189.3	4.03E-08
05-15-97	11:17		24.7	49.7	1.2			116.8				
05-16-97	08:53	1505.	24.4	46.2	4.7	3.5	3.5	116.8	17.31	134.1	192.8	4.01E-08
05-19-97	08:52	1577.	22.6	35.6	14.8	10.6	10.1	116.8	11.98	128.8	202.9	3.87E-08
05-20-97	11:05	1603.	25.2	32.1	18.4	3.5	3.6	116.8	6.63	123.4	206.5	3.57E-08
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05-22-97	09:35	1649.	23.6	25.6	24.8	3.3	3.2	116.8	1.56	118.4	212.9	3.87E-08
05-22-97	09:56		23.7	49.7	0.7			116.8				
05-23-97	09:42	1673	23.3	45.9	4.4	3.8	3.7	116.8	17.40	134.2	216.6	4.01E-08
05-27-97	09:53	1769	23.5	31.7	18.6	14.2	14.2	116.8	10.50	127.3	230.8	3.94E-08
05-28-97	13:29	1797.	24.7	27.8	22.6	3.9	4.0	116.8	3.52	120.3	234.8	3.92E-08
05-29-97	09:34	1817.	24.6	26.3	25.0	2.5	2.4	116.8	1.06	117.9	237.2	3.42E-08
05-29-97	09:40		24.6	48.8	1.5			116.8				
05-30-97	10:49	1842.	24.6	45.0	5.3	3.8	3.8	116.8	16.73	133.5	241.0	3.74E-08
06-02-97	09:20	1913.	25.0	34.3	15.8	10.7	10.5	116.8	11.19	128.0	251.5	3.84E-08
06-03-97	08:48	1936.	23.3	30.7	19.4	3.6	3.6	116.8	5.73	122.5	255.1	4.27E-08

MUESER RUTLEDGE CONSULTING ENGINEERS
SOIL MECHANICS LABORATORY

Test Procedure For

MEASUREMENT OF PERMEABILITY USING A FLEXIBLE WALL PERMEAMETER

Permeability of fine grained soils and other porous media is measured using a flexible wall permeameter in accordance with the procedures and methods outlined in ASTM D 5084, "Standard Test Method for Measurement of Hydraulic Conductivity of Saturated Porous Materials using a Flexible Wall Permeameter." Chemical compatibility tests are performed in accordance with EPA Test Method 9100.

General Test Procedure

1. Test specimens are typically 2.5 to 2.8 inch in diameter with a min. height of one inch.

2. Specimens are back pressure saturated. Back pressure is added in increments. A minimum of 50 psi back pressure is applied at the time of permeability testing. Saturation is verified by measuring the B coefficient at each application step.

3. Specimens are then isotopically consolidated to the desired effective stress. The test specimens are typically allowed to consolidate for a minimum of 24 hours. Volume change is monitored with time to verify consolidation is complete before permeability testing.

4. After consolidation the specimens are permeated. Unless otherwise specified, de-aired NYC tap water is used as the permeant. Permeability is determined using the falling head test method with constant tail water level. Permeation is continued until volume in and volume out readings stabilize over several increments of time.

5. Compatibility tests are performed by permeating the specimens with select permeant fluids. Specimen pore volume is computed, and volume change is measured with time. Permeability test data is recorded during permeation, and permeability determined. The change in permeability with time and pore volume exchange is plotted.

Apparatus

The MRCE Soil Mechanics Laboratory uses the following equipment to perform permeability and compatibility tests. The equipment is arranged to allow up to six permeability tests to be performed simultaneously.

1. Cell Pressure System - A Brainard Kilman Pressure Control Panel is used for pressurizing the permeameters.

2. Permeameter cells are Brainard Kilman, Model S-480.

3. Flow Measurement System - Flow volumes are measured using graduated pipettes or graduated pressure accumulators.

4. Pore pressure measurements are made using a Validyne pressure transducer and digital indicator, Model CD 223.

5. Hydraulic system - A falling head system is utilized. Head loss is measured using

OGDEN REMEDIATION SERVICES CO., INC.

Clarkstown Project Office
166 Route 303
West Nyack, NY 10994
914 358 2720
Fax 914 358 2790

September 24, 1997

Mr. Duane Seaman, P. E.
Roy F. Weston, Inc.
166 Route 303
West Nyack, NY 10994

Subject: Slurry Wall Failure

Reference: Remediation of Clarkstown Sanitary Landfill and Landfill Capping
Town of Clarkstown, New York
Contract No. 34-1996

Dear Mr. Seaman:

Pursuant to your personal request of Mueser Rutledge, they have provided additional information regarding the slurry wall failure. This information is provided as an independent opinion for Weston's use in determining a solution to the unforeseen difficulty that occurred at the slurry wall construction, as the trench failed a second time despite complete accordance with Weston's direction dated September 4, 1997. Also attached is additional test information for the new source of slurry wall backfill material required by the changed condition and a letter from BET stating additional concern with the time frame of Weston's response.

Please be reminded that this differing site condition originally occurred on June 30, 1997 and continues to accumulate costs at an estimate rate of $15,000.00 per day in addition to impact costs, disruption and consequential damages resulting from this unforeseen difficulty.

Please contact me with any questions or concerns regarding this issue at (914) 358-2720 as soon as possible to mitigate the resulting damages.

Sincerely,

Philip H. McQuiston, P.E.
Project Manager

cc: J. Beatty (ORSC)
T. Pugh (ORSC)
F. Barbella (BET)
L. Kalarickal (Clarkstown)
J. Ryan (Weston)
M. Lee (Weston)

BET

BARBELLA ENVIRONMENTAL TECHNOLOGY, INC.
24 Tannery Road
Somerville, NJ 08876
TEL 908-534-1664
FAX 908-534-1697

RECEIVED SEP 2 4 1997

September 24, 1997

Mr. Phil McQuiston, P.E.
Ogden Remediation Services
166 Route 303
West Nyack, NY 10994

Re: South Slurry Wall
Clarkstown Landfill

Dear Phil:

It has been one week from the stop work notification and there has not been an indication of a resolution to the south slurry wall change condition. BET has provided information on the failure area and a recommendation for completion of the south slurry wall. We are now awaiting direction.

Inquip's representative, Dave Kelley, has been relocated to another site and will need advance notification to be available for the continuation of the soil bentonite wall. BET was anticipating a rapid resolution and regret that any delay will be costly.

BET is anxiously awaiting your direction on the completion of the slurry wall. If you need any information please contact me at 914-358-2848.

Yours truly,

Jeff Ratliff
Project Engineer

Anthony R. Barbella, P.E.
Senior Project Engineer

cc: Frank Barbella , BET

CUPUS · PHM
JEB
CAP

BARBELLA ENVIRONMENTAL TECHNOLOGY
24 TANNERY ROAD
SOMERVILLE, NEW JERSEY 08876
(908) 534-1664 FAX (908) 534-1697

LETTER OF TRANSMITTAL

DATE:	09/23/97	Trans. No.
ATTN:	Phil McQuistion	
RE:	South Slurry Wall	
	Clarkstown Landfill Project	
	Additional calcs and testing	

TO: Ogden Remediation
166 Route 303
West Nyack, NY 10994

WE ARE SENDING YOU : [X] ATTACHED:

- [ ] Shop Drawings
- [ ] Change Order
- [ ] Samples
- [X] Copy of Letter
- [ ] Plans
- [ ] Estimates
- [ ] Prints
- [ ] Specifications
- [X] Other: test results

COPIES	SPEC. SECT.	PAGE	DATE	DESCRIPTION
10	2360			South Slurry wall additional testing and calculations

- [ ] For Approval
- [X] For your use
- [X] As Requested
- [ ] For Review & Com.
- [ ] Approved as Submitted
- [ ] Approved as Noted
- [ ] Returned with Corrections

REMARKS: 1. Mueser Rutledge's report dated September 23, 1997.

2. Laboratory test results for the screened borrow material that is located onsite.

Copy To: BET, Somerville

Signed: Jeff Ratliff

PM
JEB
TO

RECEIVED SEP 2 3 1997

MUESER RUTLEDGE CONSULTING ENGINEERS
708 Third Avenue
New York, New York 10017

MRCE Phone (212) 490-7110
MRCE FAX (212) 953-5626

FACSIMILE TRANSMITTAL

Date: September 23, 1997

For: Mr. Tony Barbella / Jeff Rutliff, Project Engineer
Project: Slurry Trench Collapse Investigation
Clarkstown Landfill Remediation
Company: Barbella Environmental Technology, Inc.
City, State: West Nyack, NY
Fax: (914) 353-6144 <——— 908 - 534-1697 FAX

Original Will Be Sent: Yes [X] Via USMail. No [ ]

MRCE File B739

MESSAGE:

We attach:

A letter providing our Fig 1 as calcualtion for Duane Seaman, Weston.

A summary of the laboratory testing for the new borrow for S-B preparation.

cc: Dominique Namy, Inquip (703) 442-0188 FAX

Sent by: ____

Date ____
time ____

From: [signature]

Please call if you have not received
6 pages including this one

Mueser Rutledge
Consulting Engineers
708 Third Avenue • New York, NY 10017-4111
Tel: (212) 490-3110 • Fax: (212) 490-6654

Elmer A. Richard
George J. Tarricone
Peter H. Hidinger
Alfred H. Heard
Hugh V. Lacy
Jerry D. Johnston
David M. Cavalier
Partners

James P. Gould
Edmund M. Beck
Warren H. Anderson
John A. Fowler
J. Patrick Powers
Seagrave Tobin
Consultants

William G. Spencer
Peter C. Kandiano
Joel Mockowitz
David M. Haley
Raymond J. Pekelsky
Peter W. Deming
Rudolph A. Blaney, Jr.
Senior Associates

Duane K. Weaver
Offshore Project
David K. Gould
Terence J. Murphy
Donovan D. Nyquist
Associates

Joseph N. Constantakis
Controller

September 23, 1997

Barbella Environmental Technology, Inc.
166 Rt. 303
West Nyack, New York, 10994

Attention: Mr. Anthony Barbella

Re. Horizontal Stress Increase On Soft Peat
Slurry Trench Stability Review
Landfill Remediation, Clarkstown, NY
MRCE File 8739

Gentlemen:

At the request of Duane Seaman of Weston, we provide the attached Fig. 1, which is our calculation of the horizontal earth pressure increase applied to the peat when backfill is placed.

Our calculation assumed that the soil overburden weight ranges from 70 pcf to 120 pcf, and used an earth pressure coefficient of K=0.4 to estimate horizontal earth pressure. The backfill is a 120 pcf liquid, having an earth coefficient of K=1.0 at the depth of the peat. With this calculation we find the horizontal stress applied by the backfill is 3 to 6 times the in situ horizontal stress in the peat.

Our suggestion that a shallow trench should be stable if the special weighted slurry is used, is given with the following observations:

- The overburden stress now acting on the peat is not too different from the overburden stress which the backfill will apply (Fig. 1 and Fig. 2). Therefore, vertical compression of the peat under the backfill weight is less likely to occur than the horizontal compression observed.

- In the shallow cutoff, the peat is confined by the fill overburden on the sides of the trench. Settlement may occur, but it can be made up with addition of backfill. However, in the deep trench the peat is confined in the horizontal direction only by the peat and the wetlands deposit outboard. These outboard materials are compressible and relatively light in weight.

We are not able to calculate a factor of safety for the compression of the peat. We cannot guarantee that the peat deposit will remain stable under the backfill.

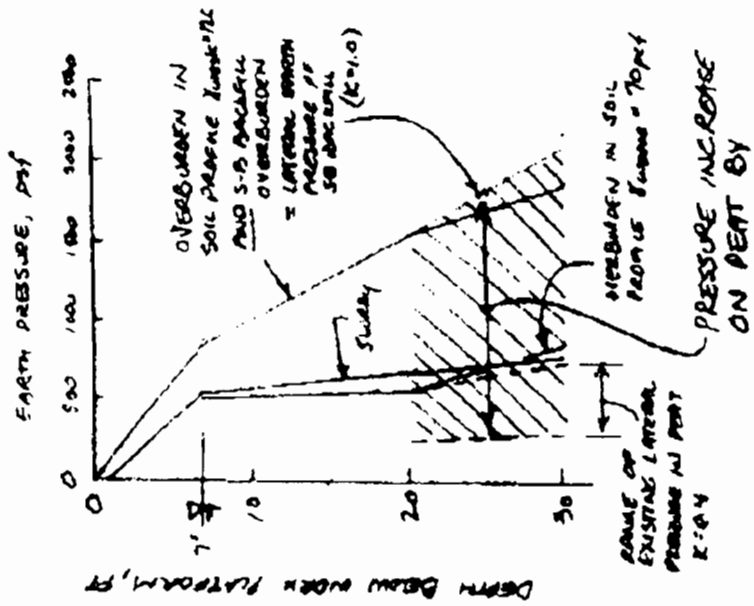
Very truly yours,

MUESER RUTLEDGE CONSULTING ENGINEERS

By: _____
Peter W. Deming

PWD:TCW722XL-3

cc: D. Namy, INQUIP Associates, Inc.



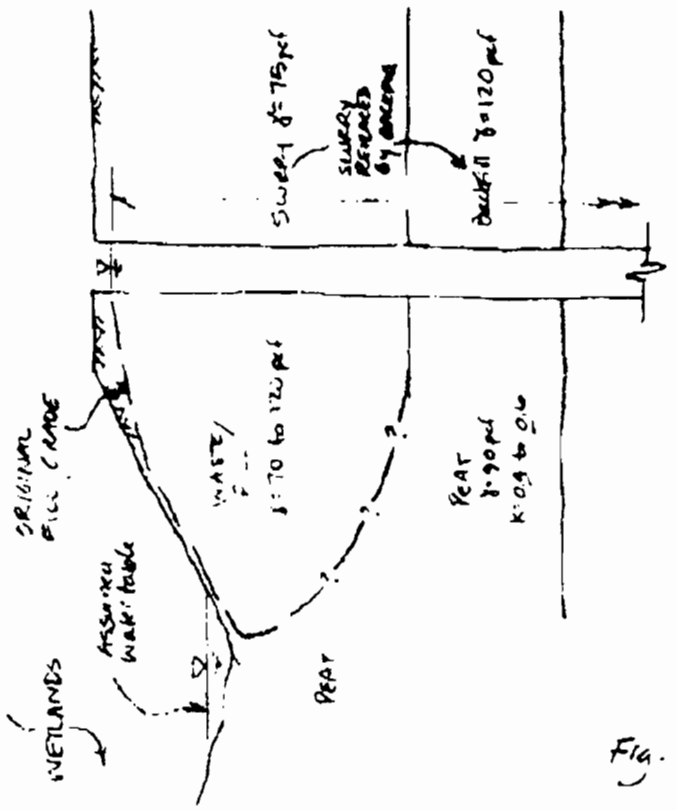


Fig. 1

Fig 1 LATERAL EARTH PRESSURE AT SIDE WALL OF DEEP EXCAVATION

BENTONITE CERTIFICATION REPORTS

RECEIVED
JUN 2 1997

13075466340

INQUIP ASSOCIATES

CERTIFICATE OF ANALYSIS

Product : BARA-KADE 90

ATTN : Mr. Jim Edwards
FAX : (703) 442-0188

Shipped From : ***BENTONITE CORP.***
789 Hwy. 14-A East
Lovell , Wy. 82431

Car/Trk	No.	Order No.	Ship Date	Lot No.	MESH %-200 70.0 Min.	% MOIST. 10% Max	FANN 600 Aged 30 Min.	YP/PV RATIO (3.0 Max.)	+200 M W.S. 4.0 Max.	P.H	FLUID LOSS 15.0 Max.	FREE SWELL ML
M/Lark	68/398	609471	05/30/97	3052971	82.8	6.94	37	1.36	2.4	9.4	13.8	33
Sammons	1675/1060	609563	05/30/97	3052972	81.3	6.75	41	1.72	3.5	9.4	14.8	33
Nor. Hills	10695	609474	05/30/97	3052971	82.8	6.94	37	1.36	2.4	9.4	13.8	33
LL Smith	90/180	609475	05/30/97	3052971	82.8	6.94	37	1.36	2.4	9.4	13.8	33
M/Lark	55/24	609472	05/30/97	3052972	81.3	6.75	41	1.72	3.5	9.4	14.6	33
Sammons	135/53	609564	05/30/97	3052972	81.3	6.75	41	1.72	3.5	9.4	14.8	33
Sammons	7/8	609476	05/30/97	3052971	82.8	6.94	37	1.36	2.4	9.4	13.8	33

Sold To : INQUIP ASSOCIATES
P.O. Box 6277
McLean, Va. 22106

Shipped To: INQUIP ASSOCIATES
Clarkstown, New York

Q.A. Supervisor
Allen Harvey 05/31/97

cc : Mary Steinmeyer
File

NOTE : These Shippments Meet API 13A Sec 4 Specifications.

JUN. 2 '97 1:02PM BENTONITE CORP LOVELL

Bentonite Corp

Friday, June 06, 1997 03:04:48 AM

INQUIP ASSOCIATES

CERTIFICATE OF ANALYSIS 1997

PRODUCT: BARA-KADE 30

ATTN: JIM EDWARDS

SHIPPED FROM: **BENTONITE CORPORTATION**
COLONY, WY. PLANT
HCR 69, BOX 112
BELLE FOURCHE, SD 57717

TRUCK NO.	LOAD DATE	LOT No.(S)	% MOIST 12 MAX	MESH % 30 98 MIN	MESH %-200 12 MAX	SWELL INDEX
N HILLS 10156	**06-02-97**	**1060172**	**7.3**	**99.8**	**4.2**	**28.0**
	06-02-97	**1060173**	**7.3**	**99.8**	**4.2**	**28.0**
N HILLS 34-325	**06-02-97**	**1060172**	**7.3**	**99.8**	**4.2**	**28.0**
	06-02-97	**1060173**	**7.3**	**99.8**	**4.2**	**28.0**
AM. TRANS 10169	**06-04-97**	**1060272**	**7.2**	**99.5**	**7.2**	**28.0**
SCHWEIGER 8-9	**06-04-97**	**1060173**	**7.3**	**99.8**	**4.2**	**28.0**
	06-04-97	**1060272**	**7.2**	**99.5**	**7.2**	**28.0**

YTD NUMBER of TRUCKS		% MOIST 12 MAX	MESH % 30 98 MIN	MESH %-200 12 MAX	SWELL INDEX
4	**M AVG**	**7.26**	**99.69**	**5.03**	**28.00**
	STD DEV	**0.04**	**0.11**	**1.36**	**0.00**

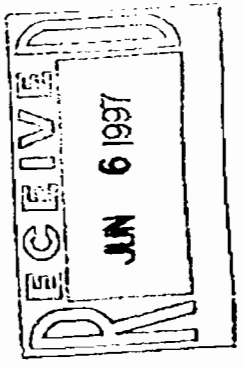
SOLD TO: *INQUIP ASSOCIATES*
PO BOX 6277
McLEAN, VA 22106

SHIPPED TO: *INQUIP ASSOCIATES*
CLARKSTOWN, NEW YORK
ATTN: JIM EDWARDS
FAX: (703)442-0188

Q. A. SUPERVISOR
CARL J HEINERT
06/06/97

CC: M. STEINMEYER
FILE

Prepared by: BR



13275486342

JUN. 6 '97 7:42AM BENTONITE CORP LOVELL

INQUIP ASSOCIATES

CERTIFICATE OF ANALYSIS

Product : 30 Mesh

Shipped From : *BENTONITE CORP.*
789 Hwy. 14-A East
Lovell , Wy. 82431

ATTN : Mr. Jim Edwards
FAX : (703) 442-0188

Car/Trk	No.	Order No.	Ship Date	Lot No.	% MOIST. 10% Max	-30 Mesh (90% Min)	- 200 Mesh (10 Max)	Free Swell ML	Fluid Loss (15.0 Max)
Nor. Hills	**10127**	**609478**	**06/04/97**	**3060272**	**8.11**	**91.3**	**8.45**	**29**	**14.2**
Nor. Hills	**10166**	**609479**	**06/04/97**	**3060272**	**8.11**	**91.3**	**8.45**	**29**	**14.2**

Q.A. Supervisor
Allen Harvey
06/06/97

cc Mary Steinmeyer
File

RECEIVED JUN 6 1997

Sold To : INQUIP ASSOCIATES
P.O. Box 6277
McLean, VA 22106

Shipped To: INQUIP ASSOCIATES
Clarkstown, New York

INQUIP ASSOCIATES

CERTIFICATE OF ANALYSIS

Product : BARA-KADE 90

Shipped From : ***BENTONITE CORP.***
789 Hwy. 14-A East
Lovell , Wy. 82431

ATTN : Mr Jim Edwards
FAX : (703) 442-0188

CarTrk	No.	Order No.	Ship Date	Lot No.	MESH %-200 70.0 Min.	% MOIST. 10% Max	FANN 600 Aged 30 Min.	YP/PV RATIO (3.0 Max.)	+200 M W.S. 4.0 Max.	P H	FLUID LOSS 15.0 Max.	FREE SWELL ML
Davis	437/156	609983	06/19/97	3061771	82.6	8.21	41	1.73	4.0	9.3	13.2	31
				3061772	81.7	7.13	35	1.18	2.3	9.3	14.8	32

RECEIVED JUN 20 1997

Q.A. Supervisor
Allen Harvey 06/20/97

cc : Mary Steinmeyer
File

NOTE : **These Shippments Meet API 13A Sec 4 Specifications.**

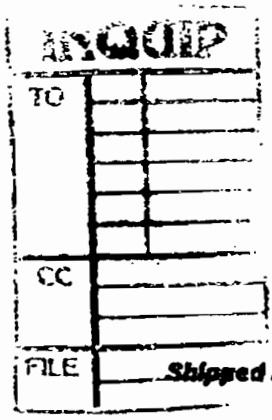
Sold To : INQUIP ASSOCIATES
P.O. Box 6277
McLean, Va. 22106

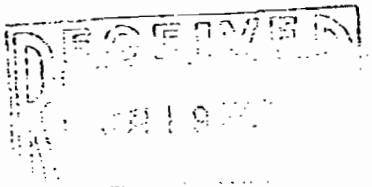
Shipped To: INQUIP ASSOCIATES
Clarkstown, New York

13075486340
JUN.20 '97 8:20HM BENTONITE CORP LOVELL

JUN 30 '97 08:04AM INQUIP ASSOC. INC

INQUIP ASSOCIATES





CERTIFICATE OF ANALYSIS

Product : SARA-KADE 90

ATTN : Mr. Jim Edwards
FAX : (703) 442-0188

Shipped From : BENTONITE CORP.
789 Hwy. 14-A East
Lovell , Wy. 82431

Car/Trk	No.	Order No.	Ship Date	Lot No.	MESH %-200 70.0 Min.	% MOIST. 10% Max	FANN 600 Aged 30 Min.	YP/PV RATIO (3.0 Max.)	+200 M W.S. 4.0 Max.	P H	FLUID LOSS 15.0 Max.	FREE SWELL ML
Sammons	1811/1812	609981	06/17/97	3061771	82.6	8.21	41	1.73	4.8	9.3	13.2	31
Sammons	1591/4114	609982	06/17/97	3061772	81.7	7.13	35	1.18	2.3	9.3	14.8	32
Davis	421/166	609984	06/18/97	3061772	81.7	7.13	35	1.18	2.3	9.3	14.8	32
Wildcat	206/8268	609985	06/18/97	3061772	81.7	7.13	35	1.18	2.3	9.3	14.8	32

Sold To : INQUIP ASSOCIATES
P.O. Box 6277
McLean, Va. 22106

Shipped To: INQUIP ASSOCIATES
Clarkstown, New York

Q.A. Supervisor
Allen Harvey 06/19/97

cc : Mary Steinmeyer
File

NOTE : These Shipments Meet API 13A Sec 4 Specifications.

JUN.19 '97 8:26AM BENTONITE CORP LOVELL 7548634O

PERMEABILITY TEST RESULTS

Mueser Rutledge
Consulting Engineers
708 Third Avenue • New York, NY 10017-4103
Tel: (212) 490-7410 • Fax: (212) 490-6654

Henry A. Richards
Gaetano J. Lamanna
Peter D. Taluy
Alfred D. Ward
Hugh S. Ivey
Jerry Grossman
David M. Cascalo
Partners

James L. Gould
Edmund M. Burke
Warren H. Anderson
John W. Fowler
J. Patrick Powers
Gregory L. Kelly
Consultants

William G. Spencer
James L. Kaufman
Joel Moskowitz
Daniel M. Halev
Raymond J. Pepetto
Peter W. Deming
Rodney A. Dreon
Senior Associates

Theodore E. Wilcox
Theodore Popp
David R. Gould
Lawrence Schaad
Domenic D'Ascenzo
Associates

Joseph N. Constabile
Controller

September 23, 1997

Barbella Environmental Technology, Inc.
166 Rt. 303
West Nyack, New York, 10994

Attention: Mr. Anthony Barbella

Re: Permeability Test On New S-B Backfill Borrow Material
Slurry Trench Stability Review
Landfill Remediation, Clarkstown, NY
MRCE File 8739

Gentlemen:

With this letter we provide results of a gradation test and mix design permeability test for a new S-B backfill borrow material. The borrow material gradation is shown on the attached Plate No. 1. It is a tan silty fine to medium sand, containing a trace of coarse sand and gravel. It was sampled by MRCE and Ogden from stockpiles just north of the Barbella Environmental Technology office trailer at the site.

A source of bentonite from the site stockpile was provided for use in laboratory preparation of a trial backfill mixture. We made a 6% solids content slurry using the dry bentonite and NYC tap water. The slurry was allowed to hydrate overnight. We added 2% dry bentonite by dry weight of borrow sand to the sand, and blended this mixture with sufficient slurry to create a slump of approximately 4 inches to prepare a laboratory trial mix to evaluate the permeability of the soil/bentonite blend. The permeability test was performed in accordance with ASTM 5084, using a flexible wall permeameter. The permeability test data sheet is attached. The measured permeability is 6×10^{-8} cm/sec.

Please advise us if you need further support for the new borrow testing.

Very truly yours,
MUESER RUTLEDGE CONSULTING ENGINEERS

By: _____
Peter W. Deming

PWD:tt8722L-4
cc: D. Namy, INQUIP Associates, Inc.

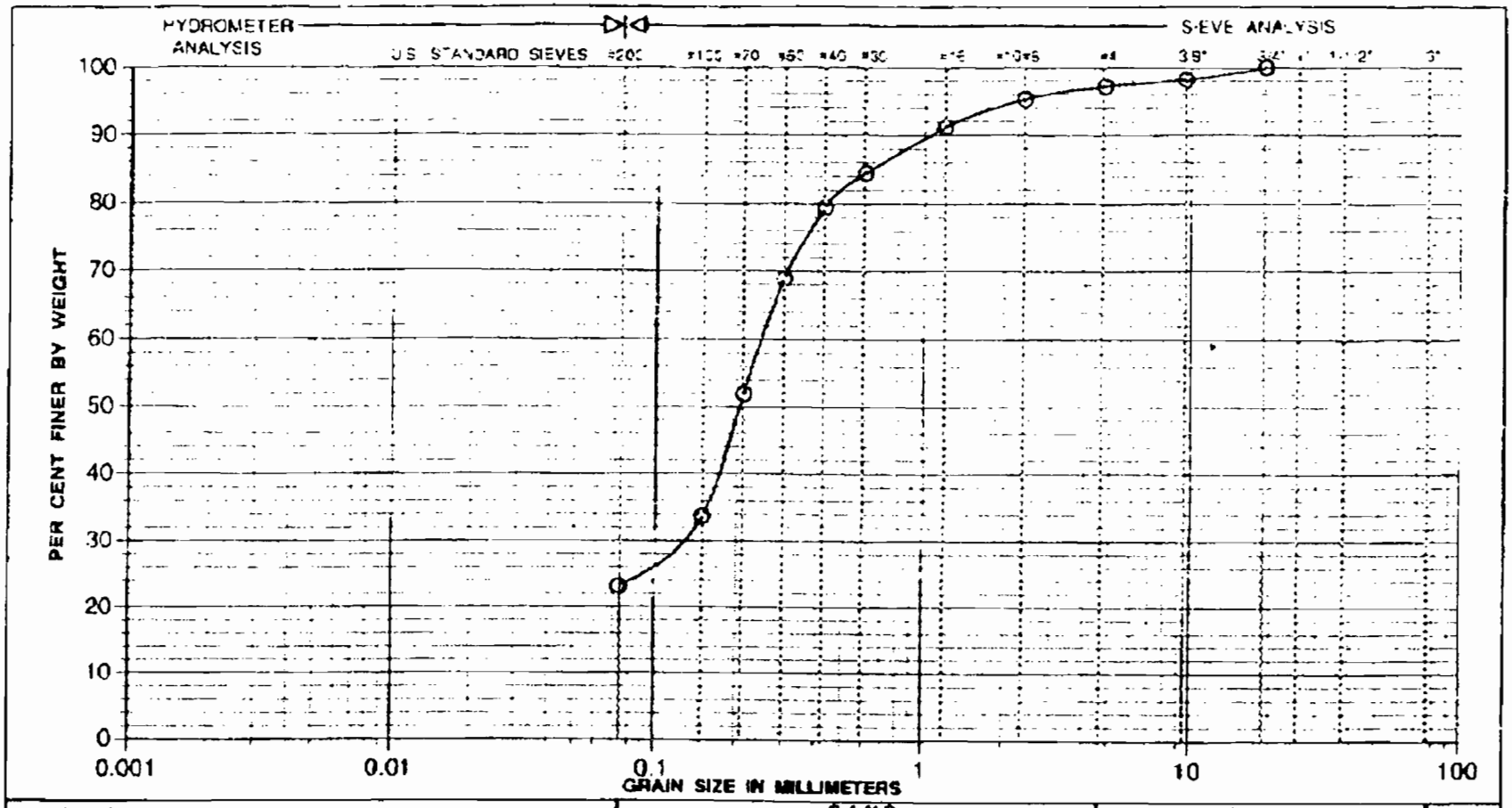


PLATE NO. 1

SYMBOL	SAMPLE	DESCRIPTION OF SAMPLE
O	STOCKPILED ON SITE	TAN SILTY FINE TO MEDIUM SAND, TRACE COARSE SAND, GRAVEL
		SAMPLED 9/15/97 BY MRCE

CLARKSTOWN LANDFILL
CLARKSTOWN NEW YORK
MUESER RUTLEDGE CONSULTING ENGINEERS
708 THIRD AVENUE, NEW YORK, N.Y. 10017

MADE BY: MC	DATE: 9-19-97	FILE NO. 8739
CH'KD BY: PWD	DATE: 9-19-97	

GRADATION CURVES
IMPORTED FILL FOR S-8 PREPARATION
PLATE NO. 1

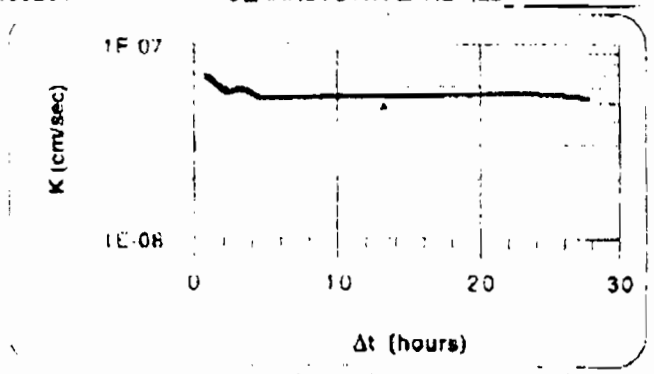
MUESER RUTLEDGE CONSULTING ENGINEERS

File No. 8739
Boring No.
Sample No. S-8 MX

FALLING HEAD PERMEABILITY TEST
with superimposed air pressure

Setup by: FW Date: 9/18/97
Calc by: MC Date: 9/18/97
Ch'kd by: Date:

PROJECT CLARKSTOWN LANDFILL



Cell Pres= [redacted] psi
Back Pres= [redacted] psi
Eff Stress= 5.0 psi

Initial Gradient 27 28

SAMPLE DIMENSIONS
INITIAL [redacted]
FINAL

$$K = \frac{a.L.\ln(H_o/H_t)}{A.\Delta t_{sec}} \quad Ct$$

Avg. Sample Length, L = [redacted] cm
Avg. Sample Dia., D = [redacted] cm
Sample Area, A = 40.63 sq cm
Standpipe Area, a = [redacted] sq cm

READING DATE	READING TIME	ELAP TIME Δt (hours)	TEMP (deg C)	VOL (cc)	RESET VOL (cc)	WATER HEAD h (cm)	RESET h (cm)	Super-imposed Pressure P_{air} (cm)	FALLING HEAD H= h + P_{air} (cm)	ΔVOL in (cc)	ΔVOL out (cc)	PERMEABILITY K (cm/sec)	RATIO ΔVOL out / ΔVOL in
[redacted]									181.70				
		0.9							179.80	0.3	0.2	6.78E-08	0.73
		2.3							177.40	0.3	0.3	5.57E-08	0.87
		3.25							175.70	0.2	0.2	5.89E-08	0.82
		4.52							173.70	0.3	0.2	5.25E-08	0.70
		23.29							145.20	4.1	4.0	5.55E-08	0.98
		25.27							142.50	0.4	0.3	5.50E-08	0.77
		27.7							139.40	0.4	0.4	5.26E-08	0.90

Facsimile Information Sheet

MUESER RUTLEDGE CONSULTING ENGINEERS
708 THIRD AVENUE
NEW YORK, NEW YORK 10017

Phone: (212) 490-7170 FAX: (212) 953-5626

Date: June 25, 1997 MRCE File: 8657

For: Mr. Dave Kelly

Company: Inquip Associates, Inc.

City, State: Clarkstown, NY

Fax: 914-353-6144

From: Walter E. Kaeck

Project: Clarkstown Landfill

Original will be sent: Yes [ ] Via _____ No [x]

Call if you have not received 4 pages including this page.

MESSAGE: We have completed permeability testing of samples from Station 0+30 and 2+30. The results are attached. Permeability testing of samples from Stations 5+60 and 7+70 are underway. The preliminary results for the sample at Station 5+60 are attached. We hope to forward preliminary results for the sample at Station 7+70 by the end of the day.

SIGNED: W. Kaeck

Sent by: _____ Date: _____ Time: _____

JUN-25-97 13:32 FROM: MUESER RUTLEDGE ID: 2129535626 PAGE 1

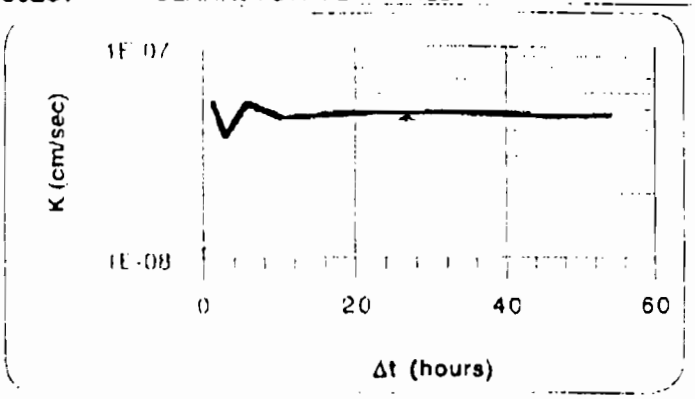
MUESER RUTLEDGE CONSULTING ENGINEERS

File No. 8657
Boring No. STA 0+30
Sample No. STA 0+30

FALLING HEAD PERMEABILITY TEST
with superimposed air pressure

Setup by: FW Date:
Calc by: MC Date: 6/25/97
Ch'kd by: Date:

PROJECT CLARKSTOWN LANDFILL



Cell Pres= [illegible] psi
Back Pres= [illegible] psi
Eff Stress= 5.0 psi

Initial Gradient 30.45

SAMPLE DIMENSIONS
INITIAL [illegible]
FINAL [illegible]

$$K = \frac{a \cdot L \cdot \ln(H_0/H_1)}{A \cdot \Delta t_{sec}} \cdot Ct$$

Avg. Sample Length, L = [illegible] cm
Avg. Sample Dia.,D = [illegible] cm
Sample Area, A = 35.68 sq cm
Standpipe Area, a = [illegible] sq cm

HEADING DATE	CLOCK TIME	ELAP. TIME Δt (hours)	TEMP (deg C)	VOL. (cc)	RESET VOL (cc)	WATER HEAD h (cm)	WATER HEAD RESET h (cm)	Super-imposed Pressure P_{air} (cm)	FALLING HEAD H= h + P_{air} (cm)	ΔVOL in (cc)	ΔVOL out (cc)	PERMEABILITY K (cm/sec)	RATIO ΔVOL out / ΔVOL in
6/18/97	10:32		[illegible]						211.80				
6/18/97	11:44	1.2							209.80	0.3	0.3	5.45E-08	1.04
6/18/97	13:24	2.87							207.90	0.3	0.3	3.76E-08	1.10
6/18/97	18:13	5.69							203.30	0.7	0.6	5.45E-08	0.91
6/18/97	20:43	10.19							197.10	0.9	0.8	4.61E-08	0.90
6/19/97	8:40	22.14							181.10	2.3	2.2	4.86E-08	0.96
6/19/97	17:56	31.41							169.60	1.7	1.4	4.87E-08	0.85
6/19/97	17:56								210.30				
6/20/97	8:56	46.38							189.90	2.9	2.9	4.69E-08	0.99
6/20/97	16:32	53.98							180.30	1.4	1.2	4.67E-08	0.87

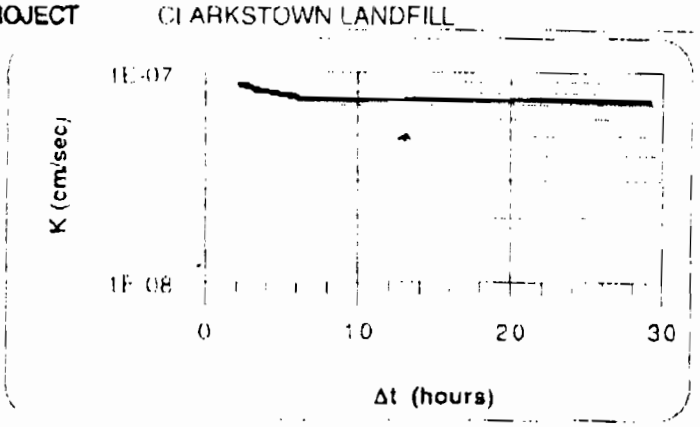
MUESER RUTLEDGE CONSULTING ENGINEERS

File No. 8657
Boring No
Sample No STA 2+30

FALLING HEAD PERMEABILITY TEST
with superimposed air pressure

Setup by: FW — Date: 6/19/97
Calc by: MC — Date: 6/25/97
Ch'kd by — Date

PROJECT CLARKSTOWN LANDFILL



Cell Pres= [illegible] psi
Back Pres= [illegible] psi
Eff Stress= 5.0 psi

Initial Gradient 29.83

SAMPLE DIMENSIONS
INITIAL
FINAL

$K = \frac{a\,L\ln(H_o/H_t)}{A\,\Delta t_{sec}}$ Cr

Avg. Sample Length, L = [illegible] cm
Avg. Sample Dia., D = [illegible] cm
Sample Area, A = 36.21 sq cm
Standpipe Area, a = [illegible] sq cm

READING DATE	CLOCK TIME	ELAP TIME Δt (hours)	TEMP (deg C)	VOL (cc)	RESET VOL (cc)	WATER h (cm)	HEAD RESET h (cm)	Super-imposed Pressure P_{air} (cm)	FALLING HEAD H= h + P_{air} (cm)	ΔVOL in (cc)	ΔVOL out (cc)	PERMEABILITY K (cm/sec)	RATIO ΔVOL out / ΔVOL in
6/19/97	11:23		[illegible]						210.70				
6/19/97	13:39	2.27	25.1	4.2					204.60	0.9	0.7	8.75E-08	0.80
6/19/97	14:39	3.27	25.1	[illegible]					202.10	0.4	0.3	8.30E-08	0.84
6/19/97	17:54	6.52	26	[illegible]					195.00	1.0	1.0	7.43E-08	0.98
6/20/97	8:54	21.52	25.0	[illegible]					165.60	4.2	4.1	7.37E-08	0.97
6/20/97	16:32	29.15	25.4	[illegible]					152.40	1.9	1.8	7.29E-08	0.95

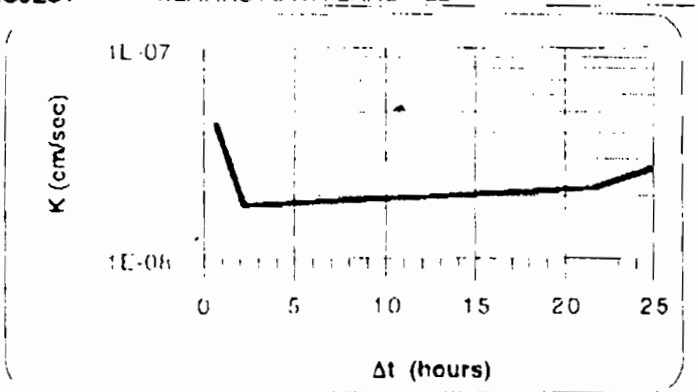
MUESER RUTLEDGE CONSULTING ENGINEERS

File No 8657
Boring No
Sample No. STA 5+60

FALLING HEAD PERMEABILITY TEST
with superimposed air pressure

Setup by: FW Date
Calc by: MC Date: 6/25/97
Ch'kd by: Date:

PROJECT CLARKSTOWN LANDFILL



Cell Pres.= [redacted] psi
Back Pres.= [redacted] psi
Eff Stress.= 5.0 psi

Initial Gradient 26.10

SAMPLE DIMENSIONS
INITIAL [redacted]
FINAL [redacted]

$$K = \frac{a\,L\,\ln(H_o/H_t)}{A\,\Delta t_{sec}}\,.\,Ct$$

Avg. Sample Length, L = [redacted] cm
Avg. Sample Dia.,D = [redacted] cm
Sample Area, A = 40.60 sq cm
Standpipe Area a = [redacted] sq cm

READING DATE	CLOCK TIME	ELAP. TIME Δt (hours)	TEMP (deg C)	VOL (cc)	RESET VOL (cc)	WATER HEAD h (cm)	WATER HEAD RESET h (cm)	Super-imposed Pressure P_{air} (cm)	FALLING HEAD H= h + P_{air} (cm)	ΔVOL in (cc)	ΔVOL out (cc)	PERMEABILITY K (cm/sec)	RATIO ΔVOL out / ΔVOL in
6/24/97	11:18		[redacted]						234.20				
6/24/97	11:59	0.68	[redacted]						233.20	0.1	0.2	4.42E-08	1.99
6/24/97	13:30	2.2	[redacted]						232.30	0.1	0.2	1.80E-08	1.55
6/24/97	16:00	4.7	[redacted]						230.80	0.2	0.4	1.84E-08	1.86
6/25/97	8:57	21.65	[redacted]						218.90	1.7	2.4	2.18E-08	1.40
6/25/97	12:06	24.8	[redacted]						216.30	0.4	0.3	2.67E-08	0.80

Facsimile Information Sheet

MUESER RUTLEDGE CONSULTING ENGINEERS
708 THIRD AVENUE
NEW YORK, NEW YORK 10017

Phone: (212) 490-7110 FAX: (212) 953-5626

Date: July 3, 1997 MRCE File: 8657

For: Mr. Dave Kelly

Company: Inquip Associates, Inc.

City, State: Clarkstown, NY

Fax: 914-353-6144

From: Walter E. Kaeck

Project: Clarkstown Landfill

Original will be sent: Yes [ ] Via _____ No [x]

Call if you have not received 4 pages including this page.

MESSAGE: Attached are:

1. Final permeability results for samples from Stations 5+60 and 7+70.
2. Status permeability results for sample from Station 0+5. Sample was taken down today. Final results will be available on Monday.

SIGNED: W. Kaeck

Sent by: _____ Date: _____ Time: _____

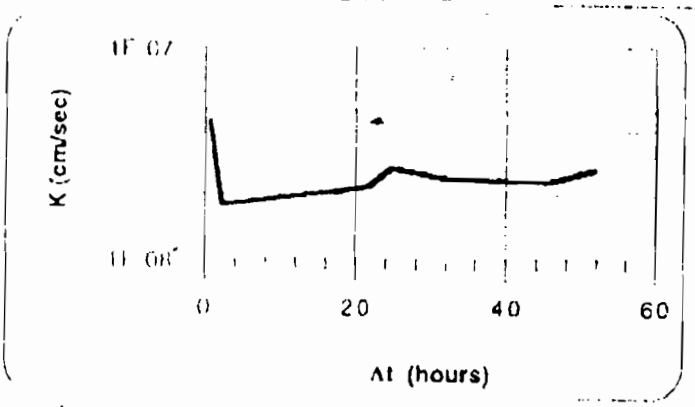
MUESER RUTLEDGE CONSULTING ENGINEERS

File No. 9657
Boring No.
Sample No. STA. 5+80

FALLING HEAD PERMEABILITY TEST
with superimposed air pressure

Setup by: FW Date:
Calc by: MC Date: 6/27/97
Ch'kd by: [illegible] Date: 7/1/97

PROJECT CLARKSTOWN LANDFILL



Cell Pres= 55 psi
Back Pres= 50 psi
Eff Stress= 5.0 psi

SAMPLE DIMENSIONS
INITIAL
FINAL X

Initial Gradient 31.30

$$K = \left(\frac{a \cdot L \cdot \ln(H_o/H_t)}{A \cdot \Delta t_{sec}} \right) Cl$$

Avg. Sample Length, L = 7.45 cm
Avg. Sample Dia., D = 6.84 cm
Sample Area, A = 36.75 sq cm
Standpipe Area, a = 0.1437 sq cm

READING DATE	CLOCK TIME	ELAP TIME Δt (hours)	TEMP (deg C)	VOL (cc)	RESET VOL (cc)	WATER h (cm)	HEAD RESET h (cm)	Super-imposed Pressure P_{air} (cm)	FALLING HEAD H= h + P_{air} (cm)	ΔVOL in (cc)	ΔVOL out (cc)	PERMEABILITY K (cm/sec)	RATIO ΔVOL out / ΔVOL in
6/24/97	11:16		26.5	2.0		71.8		162.40	234.20				
6/24/97	11:59	0.68	26.4	2.2		70.8		162.40	233.20	0.1	0.2	4.38E-08	1.39
6/24/97	13:30	2.2	26.3	2.4		69.9		162.40	232.30	0.1	0.2	1.79E-08	1.55
6/24/97	16:00	4.7	26.2	2.8		68.4		162.40	230.80	0.2	0.4	1.82E-08	1.86
6/25/97	8:57	21.65	26.8	5.2		56.5		162.40	218.90	1.7	2.4	2.16E-08	1.40
6/25/97	12:06	24.8	26.4	5.5		53.9		162.40	216.30	0.4	0.3	2.65E-08 *	0.80
6/26/97	19:27	32.15	27.5	6.2		48.4		162.40	210.80	0.8	0.7	2.38E-08 *	0.89
6/26/97	8:53	45.58	27.4	7.6		39.0		162.40	201.40	1.4	1.4	2.31E-08 *	1.04
6/26/97	15:01	51.71	26.6	8.2		34.4		162.40	196.80	0.7	0.6	2.62E-08 *	0.91

* [illegible]

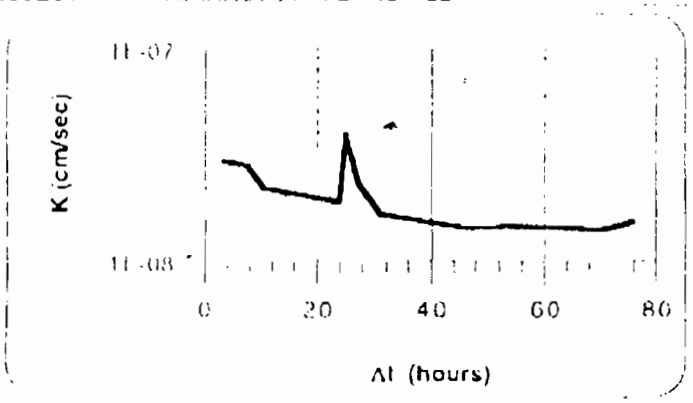
MUESER RUTLEDGE CONSULTING ENGINEERS

File No. 8657
Boring No.
Sample No. TA 7+70

FALLING HEAD PERMEABILITY TEST
with superimposed air pressure

Setup by: FW Date: 6/25/97
Calc by: MC Date: 7/3/97
Ch'kd by: WE Date: 7/3/97

PROJECT CLARKSTOWN LANDFILL



Cell Pres= 55 psi
Back Pres= 50 psi
Eff Stress= 5.0 psi

Initial Gradient 26.59

SAMPLE DIMENSIONS
INITIAL
FINAL X

$$K = \frac{a\,L\,\ln(H_0/H_1)}{A\,\Delta t_{sec}}\,C_t$$

Avg. Sample Length, L = 6.44 cm
Avg. Sample Dia ,D = 6.69 cm
Sample Area, A = 35.15 sq cm
Standpipe Area, a = 0.1437 sq cm

READING DATE	CLOCK TIME	ELAP TIME Δt (hours)	TEMP (deg C)	VOL (cc)	RESET VOL (cc)	WATER h (cm)	HEAD RESET h (cm)	Super-imposed Pressure P_{air} (cm)	FALLING HEAD H= h + P_{air} (cm)	ΔVOL in (cc)	ΔVOL out (cc)	PERMEABILITY K (cm/sec)	RATIO ΔVOL out/ ΔVOL in
6/25/97	8:58	16.97	26.8	6.5		81.8		162.40	244.00				
6/25/97	12:07	3.15	26.4	6.9		78.9		162.40	241.30	0.4	0.4	2.93E-08	1.03
6/25/97	16:37	7.65	26.3	7.1		75.3		162.40	237.70	0.5	0.2	2.77E-08	0.39
6/25/97	19:26	10.47	27.5	7.4		73.5		162.40	235.90	0.3	0.3	2.17E-08	1.16
6/26/97	8:57	23.99	27.4	8.6		66.2		162.40	228.60	1.0	1.2	1.88E-08	1.14
6/30/97	10:27		27.2	2.6		66.0		162.40	228.40				
6/30/97	11:27	24.99	27.1	2.7		64.9		162.40	227.30	0.2	0.1	3.93E-08	0.63
6/30/97	13:38	27.17	26.9	2.8		63.5		162.40	225.90	0.2	0.1	2.31E-08	0.50
6/30/97	17:25	30.95	26.6	3.1		61.8		162.40	224.20	0.2	0.3	1.65E-08	1.23
7/1/97	9:11	46.72	27.1	4.0		55.7		162.40	218.10	0.9	0.9	1.42E-08 *	1.03
7/1/97	16:31	54.05	26.8	4.3		52.8		162.40	215.30	0.4	0.3	1.44E-08 *	0.75
7/2/97	8:46	70.3	27.2	5.2		47.0		162.40	209.40	0.8	0.9	1.39E-08 *	1.06
7/2/97	14:27	75.98	26.9	5.5		44.8		162.40	207.20	0.3	0.3	1.52E-08 *	0.95

* Reduced by [illegible] 1530 [illegible] of K_{avg}

$K_{avg} = 1.4 \times 10^{-8}$ cm/sec

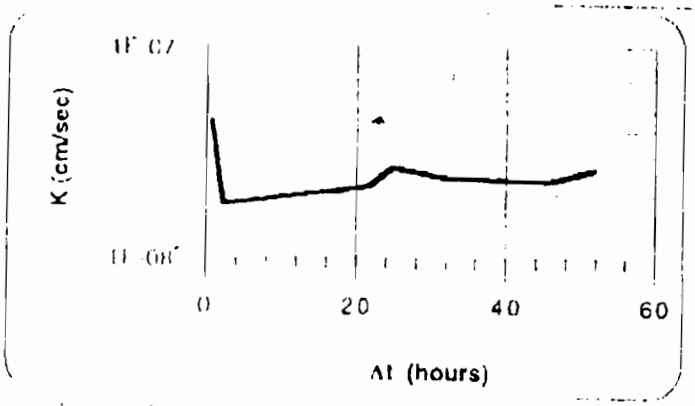
MUESER RUTLEDGE CONSULTING ENGINEERS

File No. 0657
Boring No.
Sample No. STA 5+60

FALLING HEAD PERMEABILITY TEST
with superimposed air pressure

Setup by: FW Date:
Calc by: MC Date: 6/27/97
Ch'kd by: [illegible] Date: 7/1/97

PROJECT CLARKSTOWN LANDFILL



Cell Pres= 55 psi
Back Pres= 50 psi
Eff Stress= 5.0 psi

Initial Gradient 31.50

SAMPLE DIMENSIONS
INITIAL
FINAL X

$$K = \left(\frac{a.L.\ln(H_o/H_t)}{A.\Delta t_{sec}} \right) Cl$$

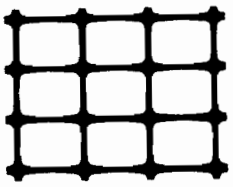
Avg. Sample Length, L = 7.45 cm
Avg. Sample Dia., D = 6.84 cm
Sample Area, A = 36.75 sq cm
Standpipe Area, a = 0.1437 sq cm

READING DATE	CLOCK TIME	ELAPSED TIME Δt (hours)	TEMP (deg C)	VOL (cc)	RESET VOL (cc)	WATER h (cm)	HEAD RESET h (cm)	Super-imposed Pressure P_{air} (cm)	FALLING HEAD H_o = h + P_{air} (cm)	ΔVOL in (cc)	ΔVOL out (cc)	PERMEABILITY K (cm/sec)	RATIO ΔVOL out / ΔVOL in
6/24/97	11:18		26.5	2.0		71.8		162.40	234.20				
6/24/97	11:59	0.68	26.4	2.2		70.8		162.40	233.20	0.1	0.2	4.38E-08	1.39
6/24/97	13:30	2.2	26.3	2.4		69.9		162.40	232.30	0.1	0.2	1.79E-08	1.55
6/24/97	16:00	4.7	26.2	2.8		68.4		162.40	230.80	0.2	0.4	1.82E-08	1.86
6/25/97	8:57	21.65	26.8	5.2		56.5		162.40	218.90	1.7	2.4	2.16E-08	1.40
6/25/97	12:06	24.8	26.4	5.5		53.9		162.40	216.30	0.4	0.3	2.65E-08 *	0.80
6/25/97	19:27	32.15	27.5	6.2		48.4		162.40	210.80	0.8	0.7	2.38E-08 *	0.89
6/26/97	8:53	45.58	27.4	7.6		39.0		162.40	201.40	1.4	1.4	2.31E-08 *	1.04
6/26/97	15:01	51.71	26.6	8.2		34.4		162.40	196.80	0.7	0.6	2.62E-08 *	0.91

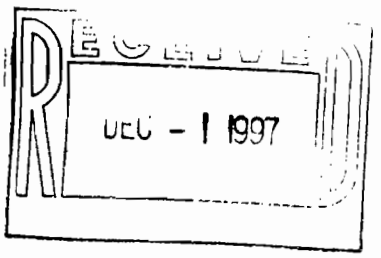
* Permeability versus Station was used in calculations to Kavg

Kavg = [illegible]

BIAXIAL GEOGRID USED FOR SLURRY WALL STABILIZATION



Tensar



The Tensar Corporation

1210 Citizens Parkway
Morrow, Georgia 30260
Tel 770 • 968 • 3255
Fax 770 • 961 • 8239

November 20, 1997

Barbella Env. Tech.
24 Tannery Road
Sommerville, Nj 08876

Reference:	TENSAR ORDER NUMBER:	TET 2763
	PURCHASE ORDER NUMBER:	2260
	BILL OF LADING NUMBER:	TMP 17842

SOLD TO:
Barbella Env. Tech.
24 Tannery Road
Sommerville, Nj 08876

SHIP TO:
Barbella Env. Tech.
Bet - Clarkstown LF
166 Route 303
West Nyack, Ny 10994

This is to certify that BX120060 geogrid as manufactured by The Tensar Corporation for the project referenced above meets the characteristics and properties per the enclosed specification sheet dated March 5, 1997. The referenced product has been manufactured and tested in accordance with The Tensar Corporation Quality Assurance Program. Quality control test data is enclosed.

Further, The Tensar Corporation BX120060 geogrid does not exceed 2% by weight of reclaimed polymer added to the resin during manufacturing.

Sincerely,

David Hall
Quality Assurance Laboratory Supervisor

BIAXIAL GEOGRID BX1200

The geogrid shall be a regular grid structure formed by biaxially drawing a continuous sheet of select polypropylene material and shall have aperture geometry and rib and junction cross-sections sufficient to permit significant mechanical interlock with the material being reinforced. The geogrid shall have high flexural rigidity and high tensile modulus in relation to the material being reinforced and shall also have high continuity of tensile strength through all ribs and junctions of the grid structure. The geogrid shall maintain its reinforcement and interlock capabilities under repeated dynamic loads while in service and shall also be resistant to ultraviolet degradation, to damage under normal construction practices and to all forms of biological or chemical degradation normally encountered in the material being reinforced.

The geogrid shall also conform in all respects to the property requirements listed below.

PROPERTY	TEST METHOD	UNITS	VALUE
Interlock			
· aperture size[1]	I.D. Calipered[2]		
- MD		cm	2.5 (nom)
- CMD		cm	3.3 (nom)
· open area	COE Method[3]	%	70 (min)
· thickness	ASTM D 1777-64		
- ribs		mm	1.27 (nom)
- junctions		mm	4.06 (nom)
Reinforcement			
· flexural rigidity	ASTM D1388-64[4]		
· ultimate strength	GRI GG1-87[5]		
- MD		kN/m	17.50 (min)
- CMD		kN/m	30.64 (min)
· tensile modulus	GRI GG1-87[6]		
- MD		kN/m	270 (min)
· junction strength	GRI GG2-87[7]		
- MD		kN/m	15.77 (min)
· junction efficiency	GRI GG2-87[7]	%	90 (min)
Material			
· polypropylene	ASTM D 4101	%	98 (min)
		Group 1/Class 1/Grade 2	
· carbon black	ASTM 4218	%	0.5 (min)
Dimensions			
· roll length		m	50
· roll width		m	3 & 4
· roll weight		kg	46.3 & 61.3

Notes:

1. MD dimension is along roll length. CMD dimension is across roll width.
2. Maximum inside dimension in each principal direction measured by calipers.
3. Percent open area measured without magnification by Corps of Engineers method as specified in CW 02215 Civil Works Construction Guide, November 1977.
4. ASTM D 1388-64 modified to account for wide specimen testing as described in Tensar test method TTM-5.0 "Stiffness of Geosynthetics".
5. Ultimate strength measured by GeoSynthetic Research Institute test method GG1-87 at 10% of gauge length (G.L.) per min at 8 inch minimum G.L.
6. Secant modulus at 2% elongation measured by Geosynthetic Research Institute test method GG1-87 "Geogrid Tensile Strength" at 10% of gauge length per min., at 8 inch min. G.L. No offset allowances are made in calculating secant modulus.
7. Geogrid junction strength and junction efficiency measured by Geosynthetic Research Institute test method GG2-87 "Geogrid Junction Strength" at 10% of gauge length per min., at 8 inch min. G.L.

Tensar Earth Technologies
1210 CITIZENS PARKWAY
MORROW, GA 30260
(770)968-3255x233

Date: 10-NOV-97

------ Packing List ------

20354-HQ
Bill BARBELLA ENV. TECH.
To: 24 TANNERY ROAD

SOMMERVILLE,NJ 08876
United States

20354-BET
Ship BARBELLA ENV. TECH.
To: BET
166 ROUTE 303
CLARKSTOWN LF
WEST NYACK,NY 10994
United States

Customer PO: 2260
Customer contact:

Shipment Number: TMP-17842 T1
Sales Order Number: TET-2763

Line	Item Code	Description	
1	BX120060	13.1FTx164FT (4Mx50M) SS2-4M BIAXIAL POLYPROPYLENE GRID BLACK	
	96665		2 RL
	98279		1 RL
	99127		1 RL
			4
2	OP350000	5-1/2 INCH LONG WHITE NYLON CABLE TIES DRAINAGE NET CONNECTORS	
	DEFAULT LOT		1,000 EA
			1,000

DCN: QA-BXQC-CERT
Rev.No.2
Rev.Date: 08/07/96

The Tensar Corporation Quality Control Test Data
Product Type: Biaxial Grid

Date Prepared: 1997 Nov 20 10:33am

Product Code BX120060
Customer Name BARBELLA ENV. TECH.
Project Name CLARKSTOWN LF

Bill of Lading TMP 17842
Sales Order Number TET 2763
Purchase Order Number 2260

Finished Product QC Testing

QC Sample ID	Production Lot Number	Number of Rolls Shipped	Resin Lot Number	Ultimate Tensile Strength (kN/m) GRI GG1	Tensile @ 2% Strain (kN/m) GRI GG1	Tensile @ 5% Strain (kN/m) GRI GG1	Peak Extension (%) GRI GG1	2% Tensile Modulus (kN/m) GRI GG1	Carbon Black (%) ASTM D4218	Junction Strength (kN/m) GRI GG2
96665009	96665	2	B08556K	20.0	7.5	13.8	28.8	372.2	1.12	
98279007	98279	1	B08568K	19.6	7.3	11.1	25.5	362.8	1.34	
99127003	99127	1	B07499K	20.1	7.1	13.3	31.5	356.7	1.13	

David Hall
Quality Assurance Laboratory Supervisor

11-20-97
Date

1 kN/m = 68.54 lbs/ft

ELLA ENVIRONMENTAL TECHNOLOGY, INC.
24 TANNERY ROAD
SOMERVILLE, NEW JERSEY 08876
(908) 534-1664 FAX (908) 534-1697

LETTER OF TRANSMITTAL

DATE: 4/21/97	Trans. No. :
ATTN: Phil McAliston	
RE: CLARKSTOWN LANDFILL	

TO: ORSC Remediation
166 Route 303
West Nyack, NY 10994

WE ARE SENDING YOU : [X] ATTACHED:

- [ ] Shop Drawings
- [ ] Change Order
- [ ] Samples
- [ ] Copy of Letter
- [ ] Plans
- [ ] Estimates
- [ ] Prints
- [ ] Specifications
- [ ] Other: _____

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Signed: _____

RECEIVED APR 2 1 1997

MUESER RUTLEDGE CONSULTING ENGINEERS
SOIL MECHANICS LABORATORY
INCOMING SOIL & ROCK SHIPMENTS

DATE 2/28/97
PAGE ___ OF ___

JOB DESCRIPTION		PARTNER / ASSOCIATE	QUANTITY				ARRV'L DATE	REC'D BY	TYPE OF TRANSPORT
FILE NO.	NAME AND LOCATION		TUBE	BOX JARS	BOX ROCK	BAGS			
8657	CLARKSTOWN LANDFILL					15 gal.	2.28.97	TZ	TZ CAR
							BARBELLA ENVIRON.		

MUESER RUTLEDGE CONSULTING ENGINEERS
SOIL MECHANICS LABORATORY
INCOMING SOIL & ROCK SHIPMENTS

DATE 1-31-97
PAGE ___ OF ___

JOB DESCRIPTION		PARTNER / ASSOCIATE	QUANTITY				ARRV'L DATE	REC'D BY	TYPE OF TRANSPORT
FILE NO.	NAME AND LOCATION		TUBE	BOX JARS	BOX ROCK	BAGS			
		3	BUCKET			WATER			J A EQUIP
8657	CLARKSTOWN LANDFILL	2	BAGS			SOIL	2-4-97	TM	A & E / BARBELLA ENVIRON.