DRAFT FINAL

Phase III RFI/RI Report

Rocky Flats Plant
881 Hillside Area
(Operable Unit No. 1)

Volume VI

Appendix A4 (continued)
Geologic Data

U.S. Department of Energy
Rocky Flats Plant
Golden, Colorado

REVIEWED FOR CLASSIFICATION/UCNI
By
Date 11/4/92

October 1992

ADMIN RECORD

A-OU01-000444

Appendix A4
Attachments
(Continued)

French Drain
Geologic Data

Phase III
RFI/RI Report

U1 OU1 OU
881 Hillside
OU1 OU1 O
Hillside 881
1 OU1 OU1
side 881 Hill
U1 OU1 OU
881 Hillside
OU1 OU1 O
Hillside 881

REVIEWED FOR CLASSIFICATION/UCNI
By [signature]
Date 11/4/92 [initials]

ADMIN RECORD

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	9+50	SAMPLED	Rocky Flats
DEPTH	5'	DATE TESTED	03-16-92 SR
SAMPLE NO.	#11	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	36.66
Wt. Dry Soil & Pan	(g)	35.72
Wt. Lost Moisture	(g)	0.94
Wt. of Pan Only	(g)	3.76
Wt. of Dry Soil	(g)	31.96
Moisture Content	%	2.9

Wt. Hydrom. Sample Wet (g)	55.04
Wt. Hydrom. Sample Dry (g)	53.47

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	449.28
Weight of + #10 Before Washing (g)	2.08
Weight of + #10 After Washing (g)	1.84
Weight of - #10 Wet (g)	447.20
Weight of - #10 Dry (g)	434.66
Wt. Total Sample Dry (g)	436.50
Calc. Wt. "W" (g)	53.70
Calc. Mass + #10	0.23

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	1.19	1.19	1.19	0.3	99.7
#10	0.00	0.65	0.65	1.84	0.4	99.6
#20	1.56	2.71	1.15	1.15	2.6	97.4
#40	1.55	2.62	1.07	2.22	4.6	95.4
#60	1.55	3.05	1.50	3.72	7.3	92.7
#100	1.58	3.90	2.32	6.04	11.7	88.3
#230	1.56	6.66	5.10	11.14	21.2	78.8

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	9+50	SAMPLED	Rocky Flats
DEPTH	5'	DATE TESTED	03-16-92 SR
SAMPLE NO.	#11	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

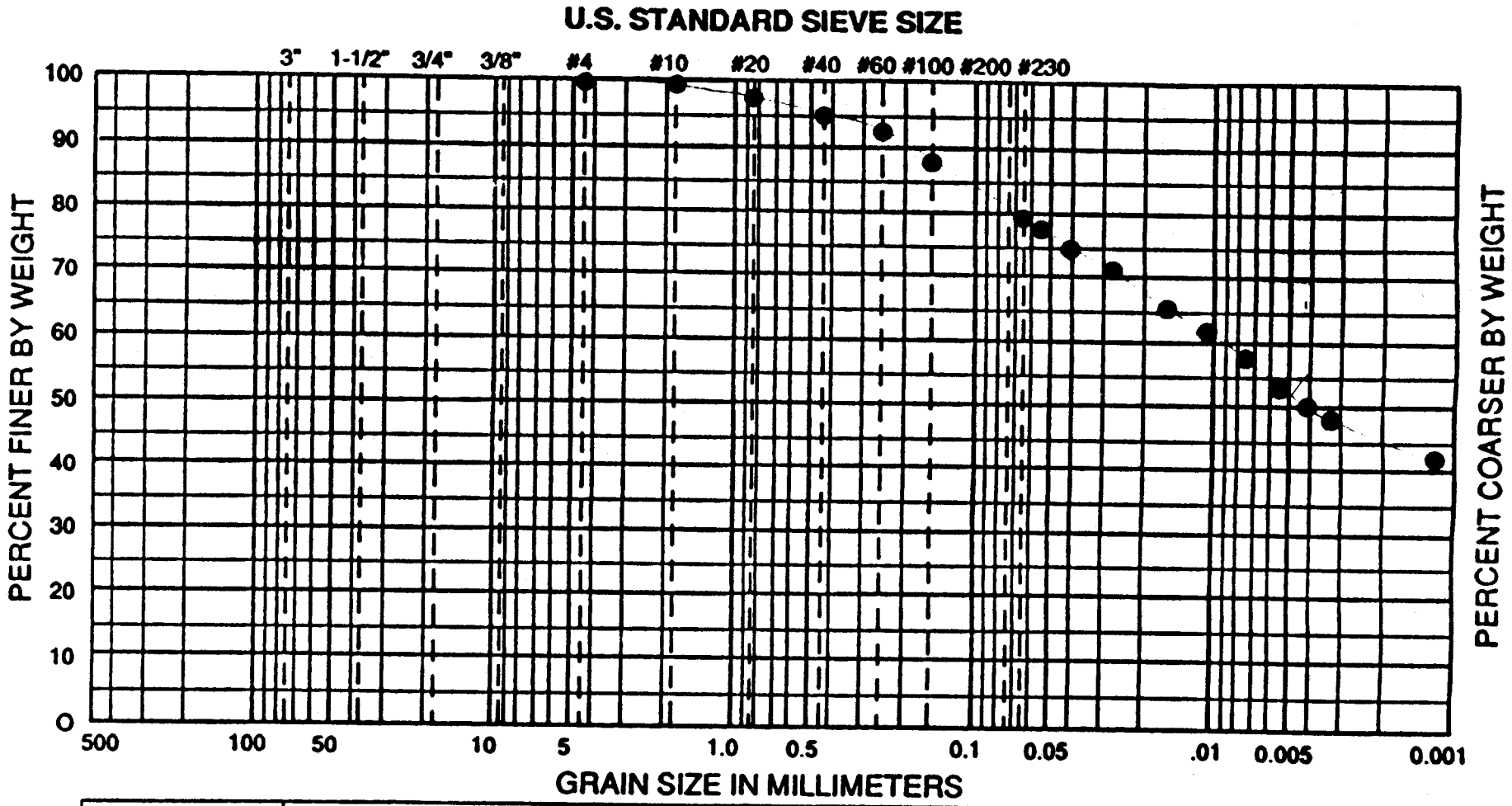
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.67	Temp. Coef. K	0.01324
Value of "a"	1.00	Wt. Dry Sample "W"	53.697
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	47.00	42.00	77.9	77.9	8.58	0.0549
1.0	45.00	40.00	74.2	74.2	8.91	0.0395
2.0	44.00	39.00	72.3	72.3	9.07	0.0282
5.0	40.75	35.75	66.3	66.3	9.61	0.0184
15.0	38.25	33.25	61.7	61.7	10.02	0.0108
30.0	36.00	31.00	57.5	57.5	10.39	0.0078
60.0	33.75	28.75	53.3	53.3	10.76	0.0056
120.0	32.25	27.25	50.5	50.5	11.00	0.0040
190.0	31.00	26.00	48.2	48.2	11.21	0.0032
1440.0	28.00	23.00	42.7	42.7	11.70	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 9+50 SAMPLE NO.: 11 DATE: 3/20/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	5'	Silty CLAY w/some sand + gravel
		.3% C gravel / .1% C sand, 4.2% med sand, 14.4% fine sand / 28% SILT, 53% clay

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER Weston

LOCATION Rocky Flats / EC&G

BORING GT50 SAMPLE #11 DEPTH 5.0'

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

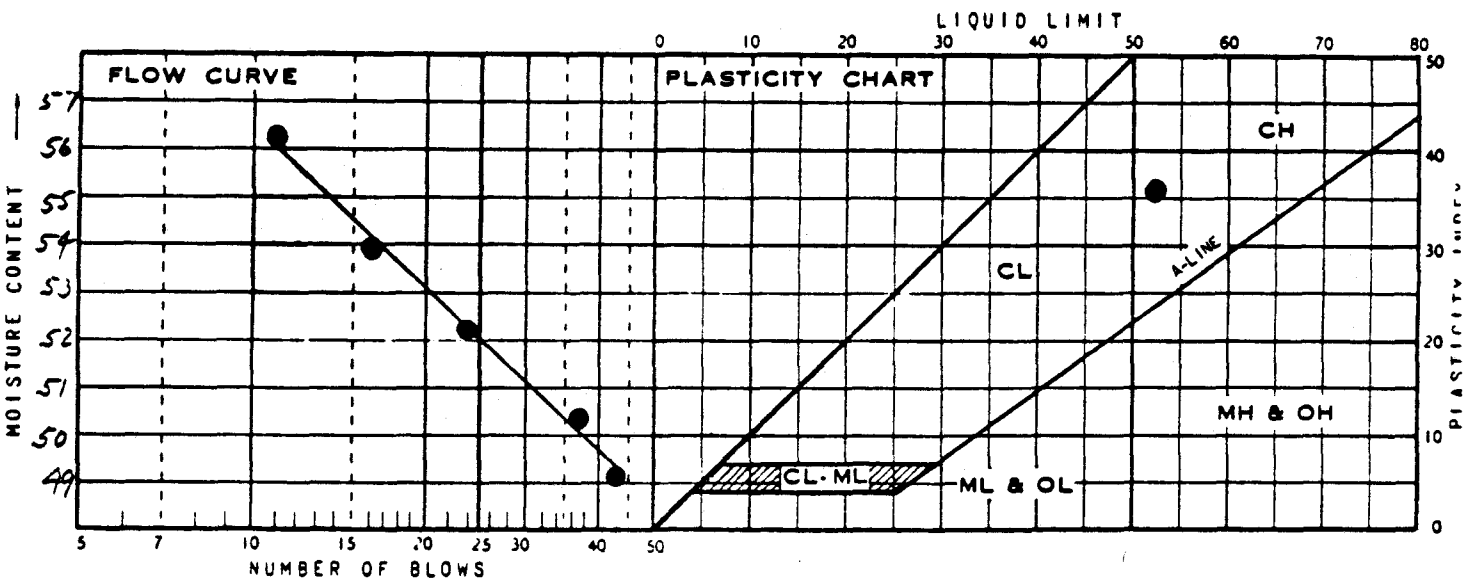
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY [illegible] 3/1992

DETERMINATION	1	2	3	4	5	6
DISH	66C	43C	30C			
WT OF DISH + WET SOIL g	6.33	6.23	6.59			
WT OF DISH + DRY SOIL	5.58	5.46	5.81	—	—	—
WT OF MOISTURE	0.75	0.77	0.78			
WT OF DISH	1.05	1.04	1.06	—	—	—
WT OF DRY SOIL	4.53	4.42	4.75			
MOISTURE CONTENT %	16.6	17.4	16.4	50.4/3 = 16.8		

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	48C	1C	2054	2074	2015	
NUMBER OF BLOWS	43	37+	24	16+	11	
WT OF DISH + WET SOIL g	9.18	10.44	12.67	11.47	9.98	
WT OF DISH + DRY SOIL	6.50	7.30	8.68	7.82	6.77	—
WT OF MOISTURE	2.68	3.14	3.99	3.65	3.21	
WT OF DISH	1.04	1.06	1.04	1.05	1.06	—
WT OF DRY SOIL	5.46	6.24	7.64	6.77	5.71	
MOISTURE CONTENT %	49.1	50.3	52.2	53.9	56.2	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		52.1	16.8	35.3	CH	

ADVANCED TERRA TESTING inc

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	9+50	SAMPLED	Rocky Flats
DEPTH	11.5'	DATE TESTED	03-05-92 TNU
SAMPLE NO.	#10	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	40.28
Wt. Dry Soil & Pan	(g)	39.00
Wt. Lost Moisture	(g)	1.28
Wt. of Pan Only	(g)	3.72
Wt. of Dry Soil	(g)	35.28
Moisture Content	%	3.6

Wt. Hydrom. Sample Wet (g)	55.02
Wt. Hydrom. Sample Dry (g)	53.10

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	490.93
Weight of + #10 Before Washing (g)	16.99
Weight of + #10 After Washing (g)	16.35
Weight of - #10 Wet (g)	473.94
Weight of - #10 Dry (g)	457.96
Wt. Total Sample Dry (g)	474.31
Calc. Wt. "W" (g)	54.99
Calc. Mass + #10	1.90

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	11.59	11.59	11.59	2.4	97.6
#4	0.00	2.05	2.05	13.64	2.9	97.1
#10	0.00	2.71	2.71	16.35	3.4	96.6
#20	1.56	1.74	0.18	0.18	3.8	96.2
#40	1.31	1.92	0.61	0.79	4.9	95.1
#60	1.57	2.76	1.19	1.98	7.0	93.0
#100	1.56	3.93	2.37	4.35	11.4	88.6
#230	1.57	7.19	5.62	9.97	21.6	78.4

Silty Clay (CL)

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	9+50	SAMPLED	Rocky Flats
DEPTH	11.5'	DATE TESTED	03-05-92 TNU
SAMPLE NO.	#10	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

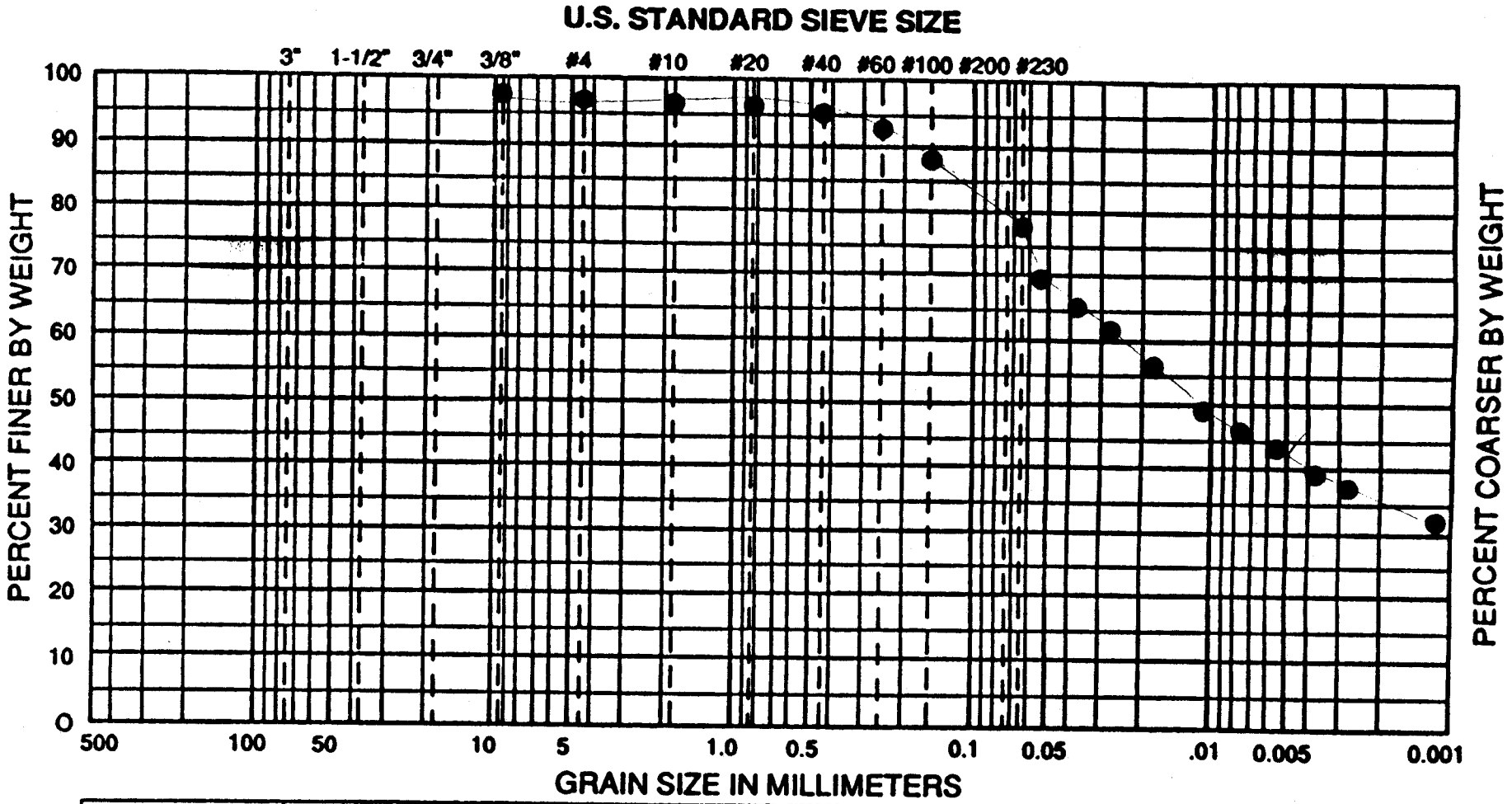
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.80	Temp. Coef. K	0.01276
Value of "a"	0.97	Wt. Dry Sample "W"	54.993
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	6.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	46.50	39.50	69.7	69.7	8.66	0.0531
1.0	44.00	37.00	65.3	65.3	9.07	0.0384
2.0	42.00	35.00	61.7	61.7	9.40	0.0277
5.0	39.00	32.00	56.4	56.4	9.89	0.0180
15.0	35.00	28.00	49.4	49.4	10.55	0.0107
30.0	33.00	26.00	45.9	45.9	10.88	0.0077
60.0	32.00	25.00	44.1	44.1	11.04	0.0055
120.0	29.50	22.50	39.7	39.7	11.45	0.0039
250.0	28.00	21.00	37.0	37.0	11.70	0.0028
1440.0	25.00	18.00	31.7	31.7	12.19	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 9+50 SAMPLE NO.: CH # 10 DATE: 3-19-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	11.5'	Silty Clay w/ some sand tr gravel [illegible] % f. gravel / .5% c sand, 1.5% med sand, 15.1% f. sand / 37.5% silt, 42.5% clay

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER Weston

LOCATION Rocky Flats / EG&G

BORING 9+50 SAMPLE #10 DEPTH @11.5'

FIELD DENSITY BY ___/___/___

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD [redacted]

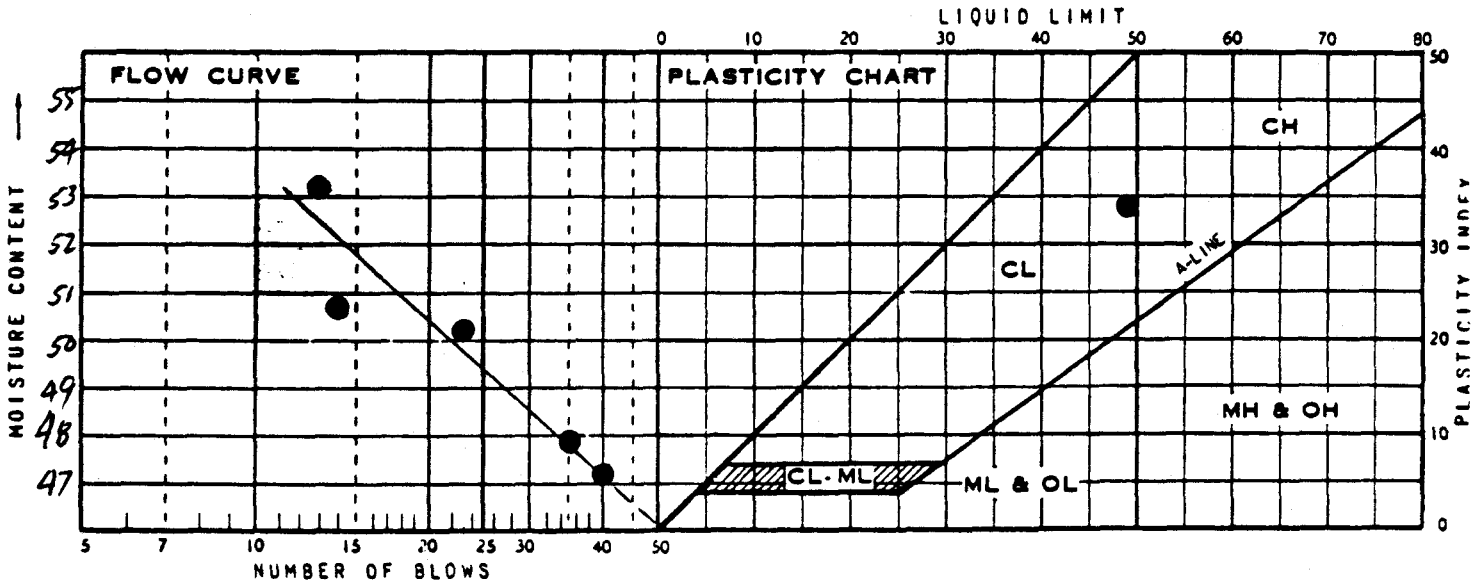
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY AD 3/16/92

DETERMINATION	1	2	3	4	5	6
DISH	10C	0C	2071			
WT OF DISH + WET SOIL g	?	4.47	6.50			
WT OF DISH + DRY SOIL g	4.32	4.02	5.71	—	—	—
WT OF MOISTURE g		0.45	0.79			
WT OF DISH g	1.06	1.05	1.05	—	—	—
WT OF DRY SOIL g		2.97	4.66			
MOISTURE CONTENT %		15.15	16.95	32.1/2 =	16.0	

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	9C	37C	41C	25C	22	
NUMBER OF BLOWS	40	34	23	14	13	
WT OF DISH + WET SOIL g	7.71	10.68	7.67	6.54	8.30	
WT OF DISH + DRY SOIL g	5.58	7.57	5.45	4.69	5.78	—
WT OF MOISTURE g	2.13	3.11	2.22	1.85	2.52	
WT OF DISH g	1.06	1.07	1.03	1.04	1.04	—
WT OF DRY SOIL g	4.52	6.50	4.42	3.65	4.74	
MOISTURE CONTENT %	47.1	47.8	50.2	50.7	53.2	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		49.4	16.0	33.4	CL	

ADVANCED TERRA TESTING inc

RDC

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	9+50	SAMPLED	Rocky Flats
DEPTH	30'	DATE TESTED	03-21-92 DC
SAMPLE NO.	#10	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	52.41
Wt. Dry Soil & Pan	(g)	50.78
Wt. Lost Moisture	(g)	1.63
Wt. of Pan Only	(g)	3.79
Wt. of Dry Soil	(g)	46.99
Moisture Content	%	3.5

Wt. Hydrom. Sample Wet (g)	55.04
Wt. Hydrom. Sample Dry (g)	53.19

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	203.36
Weight of + #10 Before Washing (g)	99.70
Weight of + #10 After Washing (g)	66.80
Weight of - #10 Wet (g)	103.66
Weight of - #10 Dry (g)	131.98
Wt. Total Sample Dry (g)	198.78
Calc. Wt. "W" (g)	80.11
Calc. Mass + #10	26.92

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	41.81	41.81	41.81	21.0	79.0
#4	0.00	9.89	9.89	51.70	26.0	74.0
#10	0.00	15.10	15.10	66.80	33.6	66.4
#20	1.55	7.65	6.10	6.10	41.2	58.8
#40	1.55	7.92	6.37	12.47	49.2	50.8
#60	1.56	4.52	2.96	15.43	52.9	47.1
#100	1.56	4.13	2.57	18.00	56.1	43.9
#230	1.55	5.91	4.36	22.36	61.5	38.5

Gravelly Sand (SC)

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston** -

JOB NO. 2066-03

BORING NO.	9+50	SAMPLED	Rocky Flats
DEPTH	30'	DATE TESTED	03-21-92 DU
SAMPLE NO.	#10	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

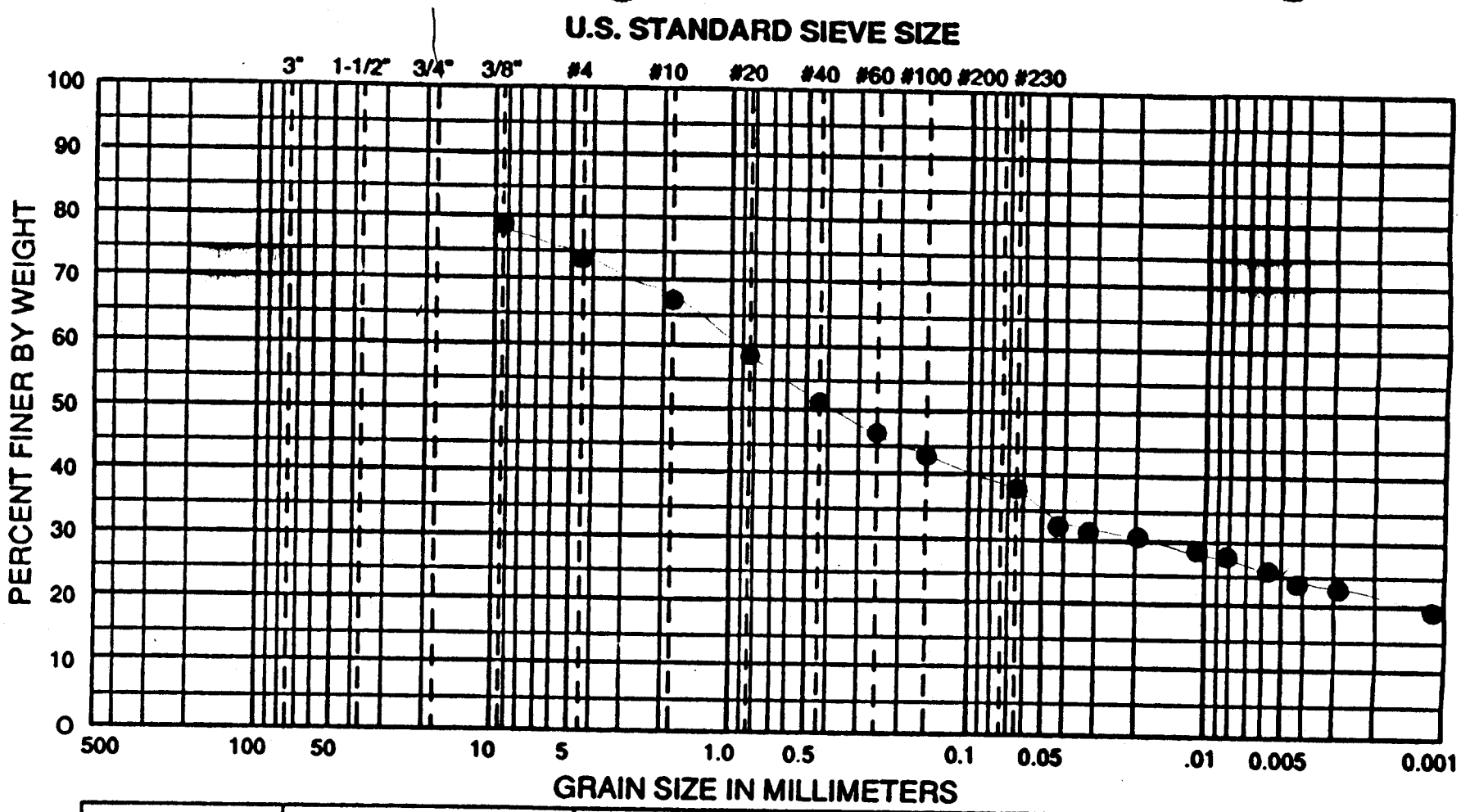
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.72	Temp. Coef. K	0.01305
Value of "a"	0.99	Wt. Dry Sample "W"	80.111
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.5		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	34.00	28.50	35.1	35.1	10.71	0.0604
1.0	32.00	26.50	32.6	32.6	11.04	0.0434
2.0	31.00	25.50	31.4	31.4	11.21	0.0309
5.0	30.00	24.50	30.2	30.2	11.37	0.0197
15.0	29.00	23.50	28.9	28.9	11.53	0.0114
30.0	28.00	22.50	27.7	27.7	11.70	0.0081
60.0	26.25	20.75	25.5	25.5	11.99	0.0058
120.0	25.00	19.50	24.0	24.0	12.19	0.0042
250.0	23.75	18.25	22.5	22.5	12.40	0.0029
1440.0	21.50	16.00	19.7	19.7	12.76	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING INC



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 9+50 SAMPLE NO.: CH # 10 DATE: 3/22/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	30.0'	Gravelly Sand w/ some silt & Clay / almost a Clayey Gravelly Sand 26% f. gravel / 7.6% c sand, 15.6 med sand, 12.3% f sd / 13.5% silt, 25% Clay

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER WESTON

LOCATION ROCKY FLATS, EG+G

BORING 9+50 SAMPLE CH 10 DEPTH 30.0

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD [redacted]

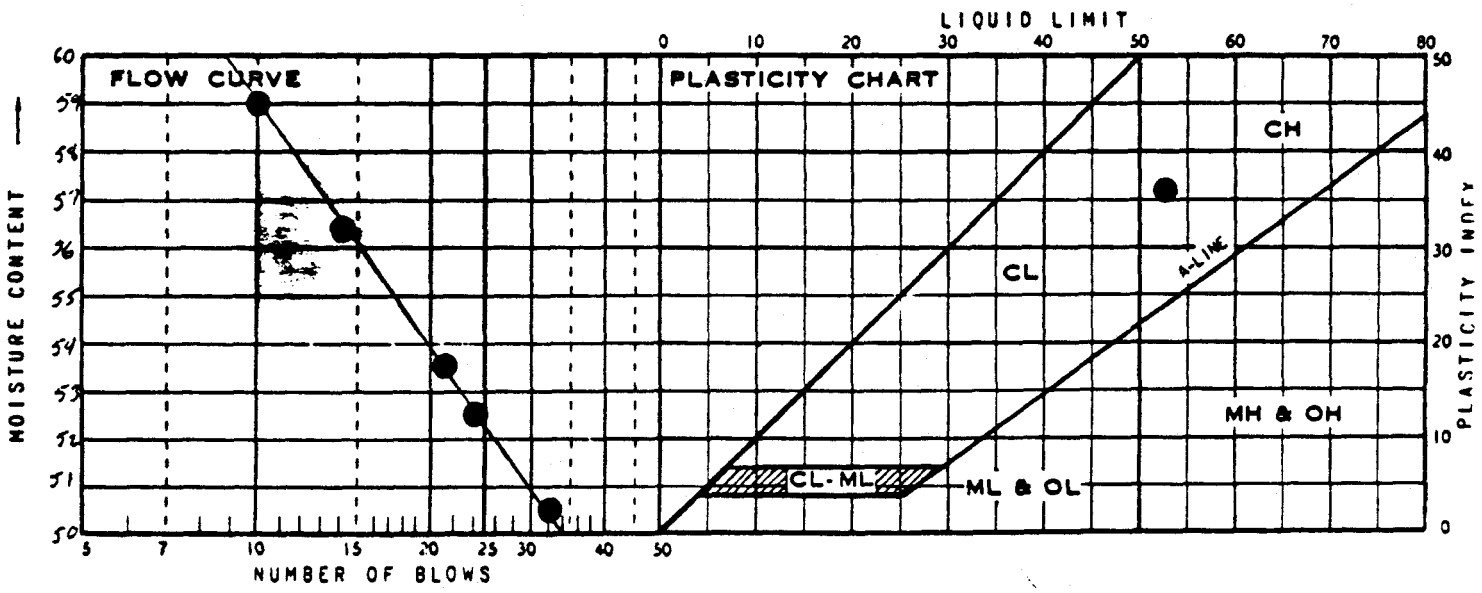
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY GW 3/12/92

DETERMINATION	1	2	3	4	5	6
DISH	44C	3	2006			
WT OF DISH + WET SOIL g	8.12g	7.29g	6.78g			
WT OF DISH + DRY SOIL g	7.09	6.41	5.97	—	—	—
WT OF MOISTURE g	1.03	.88	.81			
WT OF DISH g	1.03g	1.07g	1.05g	—	—	—
WT OF DRY SOIL g	6.06	5.34	4.92			
MOISTURE CONTENT %	17.0	16.5	16.5			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2005	2069	2C	20C	2042	
NUMBER OF BLOWS	32	24	21	14	10	
WT OF DISH + WET SOIL g	13.70g	18.51g	13.82g	16.39g	16.56g	
WT OF DISH + DRY SOIL g	9.46	12.49	9.36	10.87	10.81	—
WT OF MOISTURE g	4.24	6.02	4.46	5.52	5.75	
WT OF DISH g	1.06g	1.05g	1.04g	1.08g	1.07g	—
WT OF DRY SOIL g	8.40	11.44	8.32	9.79	9.74	
MOISTURE CONTENT %	50.5	52.6	53.6	56.4	59.0	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		52.3	16.5	35.8	CH	

ADVANCED TERRA TESTING inc

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	9+50	SAMPLED	Rocky Flats
DEPTH	36.5'	DATE TESTED	03-05-92 TNU
SAMPLE NO.	#10	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	35.51
Wt. Dry Soil & Pan	(g)	34.64
Wt. Lost Moisture	(g)	0.87
Wt. of Pan Only	(g)	3.75
Wt. of Dry Soil	(g)	30.89
Moisture Content	%	2.8

Wt. Hydrom. Sample Wet (g)	55.03
Wt. Hydrom. Sample Dry (g)	53.52

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	373.91
Weight of + #10 Before Washing (g)	238.20
Weight of + #10 After Washing (g)	230.30
Weight of - #10 Wet (g)	135.71
Weight of - #10 Dry (g)	139.68
Wt. Total Sample Dry (g)	369.98
Calc. Wt. "W" (g)	141.78
Calc. Mass + #10	88.25

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	64.05	64.05	64.05	17.3	82.7
3/8"	0.00	78.59	78.59	142.64	38.6	61.4
#4	0.00	52.59	52.59	195.23	52.8	47.2
#10	0.00	35.07	35.07	230.30	62.2	37.8
#20	1.55	7.46	5.91	5.91	66.4	33.6
#40	1.55	10.38	8.83	14.74	72.6	27.4
#60	1.56	8.31	6.75	21.49	77.4	22.6
#100	1.55	6.79	5.24	26.73	81.1	18.9
#230	1.57	7.15	5.58	32.31	85.0	15.0

Sandy Gravel (GP)

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT	Weston	JOB NO.	2066-03
BORING NO.	9+50	SAMPLED	Rocky Flats
DEPTH	36.5'	DATE TESTED	03-05-92 TNU
SAMPLE NO.	#10	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

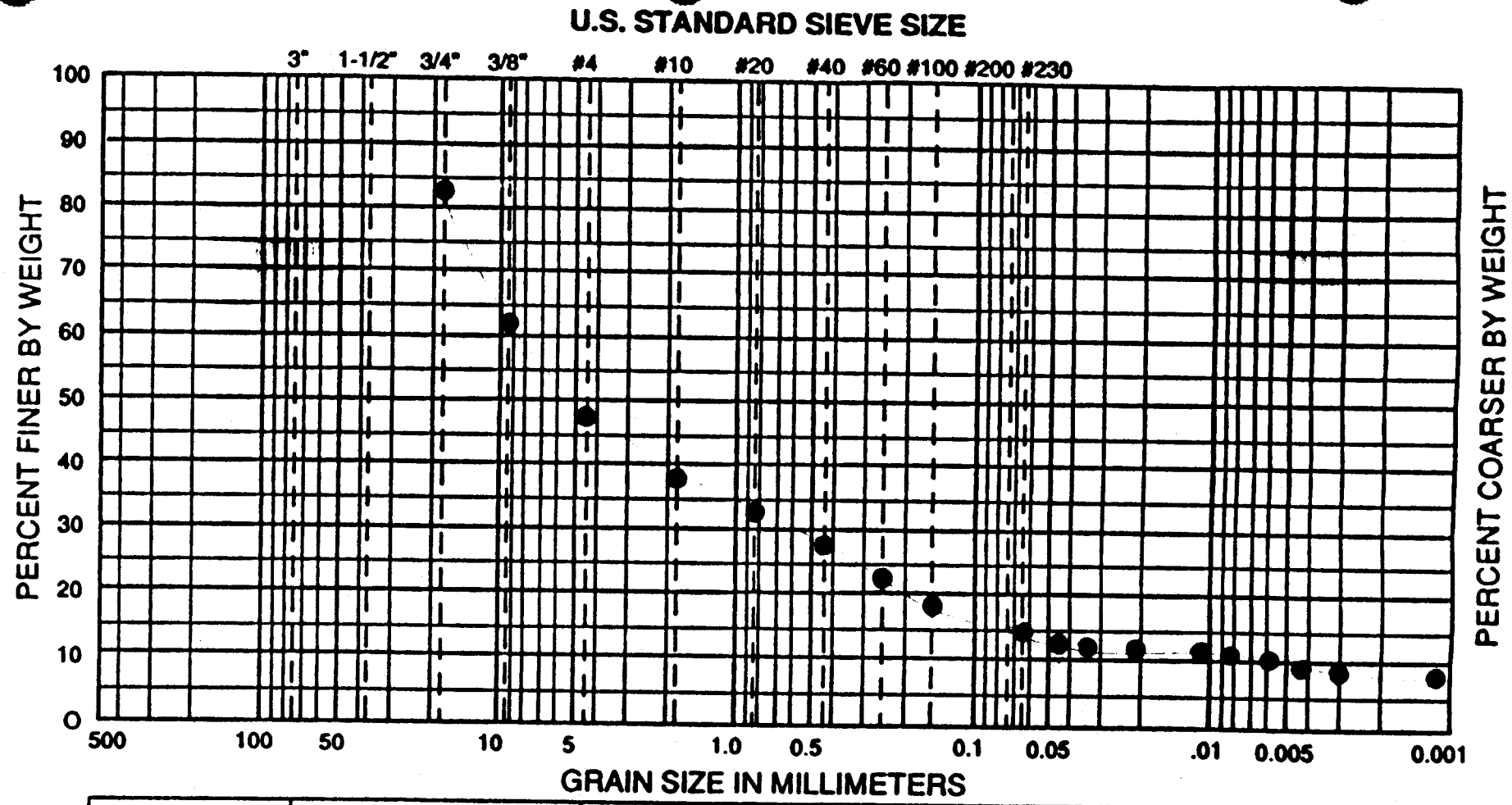
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.75	Temp. Coef. K	0.01294
Value of "a"	0.98	Wt. Dry Sample "W"	141.777
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	6.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	27.50	20.50	14.2	14.2	11.78	0.0628
1.0	25.00	18.00	12.4	12.4	12.19	0.0452
2.0	24.50	17.50	12.1	12.1	12.27	0.0321
5.0	23.75	16.75	11.6	11.6	12.40	0.0204
15.0	23.50	16.50	11.4	11.4	12.44	0.0118
30.0	23.00	16.00	11.1	11.1	12.52	0.0084
60.0	22.00	15.00	10.4	10.4	12.68	0.0059
120.0	21.00	14.00	9.7	9.7	12.85	0.0042
250.0	20.00	13.00	9.0	9.0	13.01	0.0030
1440.0	19.00	12.00	8.3	8.3	13.17	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING INC



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 9+50 SAMPLE NO.: CH #10 DATE: 3-19-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	36.5'	Sandy Gravel, tr silt & clay 17.5% C. gvl, 35.5 F gravel / 9.4% C. sand, 10.1% Med sd, 12.4% F sd / 5% silt, 10% Clay

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER Weston

LOCATION Rocky Flats EG&G

BORING 9+50 SAMPLE #10 DEPTH @36.5

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD [redacted]

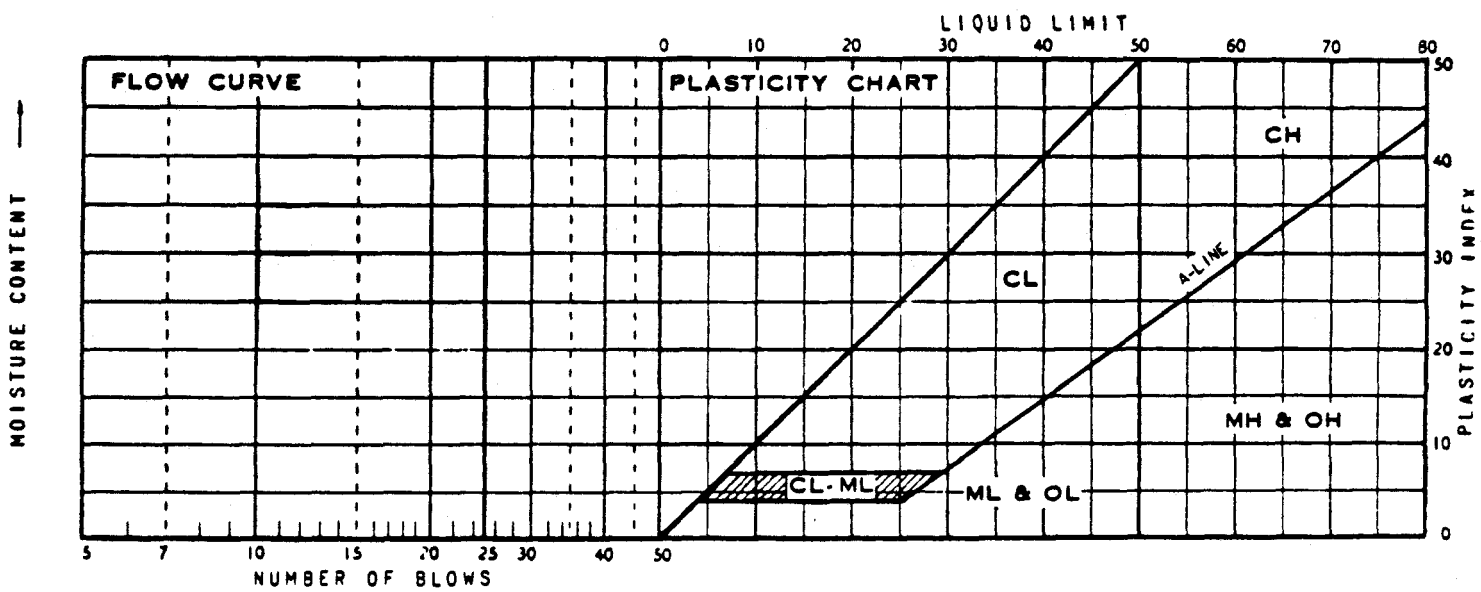
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY ___/__/__

DETERMINATION	1	2	3	4	5	6
DISH						
WT OF DISH + WET SOIL						
WT OF DISH + DRY SOIL	—	—	—	—	—	—
WT OF MOISTURE						
WT OF DISH	—	—	—	—	—	—
WT OF DRY SOIL						
MOISTURE CONTENT						

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH						
NUMBER OF BLOWS						
WT OF DISH + WET SOIL						
WT OF DISH + DRY SOIL	—	—	—	—	—	—
WT OF MOISTURE						
WT OF DISH	—	—	—	—	—	—
WT OF DRY SOIL						
MOISTURE CONTENT						



SUMMARY MATERIAL NOT TESTED → TOO SANDY No CLAYS

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		None		NP		

ADVANCED TERRA TESTING inc

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	9+50	SAMPLED	Rocky Flats
DEPTH	46'	DATE TESTED	03-05-92 TNU
SAMPLE NO.	#10	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	29.56
Wt. Dry Soil & Pan	(g)	28.61
Wt. Lost Moisture	(g)	0.95
Wt. of Pan Only	(g)	3.79
Wt. of Dry Soil	(g)	24.82
Moisture Content	%	3.8

Wt. Hydrom. Sample Wet (g)	60.48
Wt. Hydrom. Sample Dry (g)	58.25

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	284.43
Weight of + #10 Before Washing (g)	26.33
Weight of + #10 After Washing (g)	19.34
Weight of - #10 Wet (g)	258.10
Weight of - #10 Dry (g)	255.32
Wt. Total Sample Dry (g)	274.66
Calc. Wt. "W" (g)	62.66
Calc. Mass + #10	4.41

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	14.49	14.49	14.49	5.3	94.7
#4	0.00	2.46	2.46	16.95	6.2	93.8
#10	0.00	2.39	2.39	19.34	7.0	93.0
#20	1.57	2.22	0.65	0.65	8.1	91.9
#40	1.56	2.22	0.66	1.31	9.1	90.9
#60	1.56	2.07	0.51	1.82	9.9	90.1
#100	1.57	2.43	0.86	2.68	11.3	88.7
#230	1.55	5.08	3.53	6.21	17.0	83.0

Silty Clay (CH)

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	9+50	SAMPLED	Rocky Flats
DEPTH	46'	DATE TESTED	03-05-92 TNU
SAMPLE NO.	#10	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.73	Temp. Coef. K	0.01301
Value of "a"	0.98	Wt. Dry Sample "W"	62.661
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	6.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	55.00	48.00	75.4	75.4	7.27	0.0496
1.0	53.00	46.00	72.2	72.2	7.60	0.0359
2.0	51.00	44.00	69.1	69.1	7.93	0.0259
5.0	48.00	41.00	64.4	64.4	8.42	0.0169
15.0	45.00	38.00	59.7	59.7	8.91	0.0100
30.0	42.50	35.50	55.7	55.7	9.32	0.0073
60.0	40.00	33.00	51.8	51.8	9.73	0.0052
120.0	37.50	30.50	47.9	47.9	10.14	0.0038
250.0	34.50	27.50	43.2	43.2	10.63	0.0027
1440.0	30.00	23.00	36.1	36.1	11.37	0.0012

Grain Diameter = K*(SQRT(L/T))

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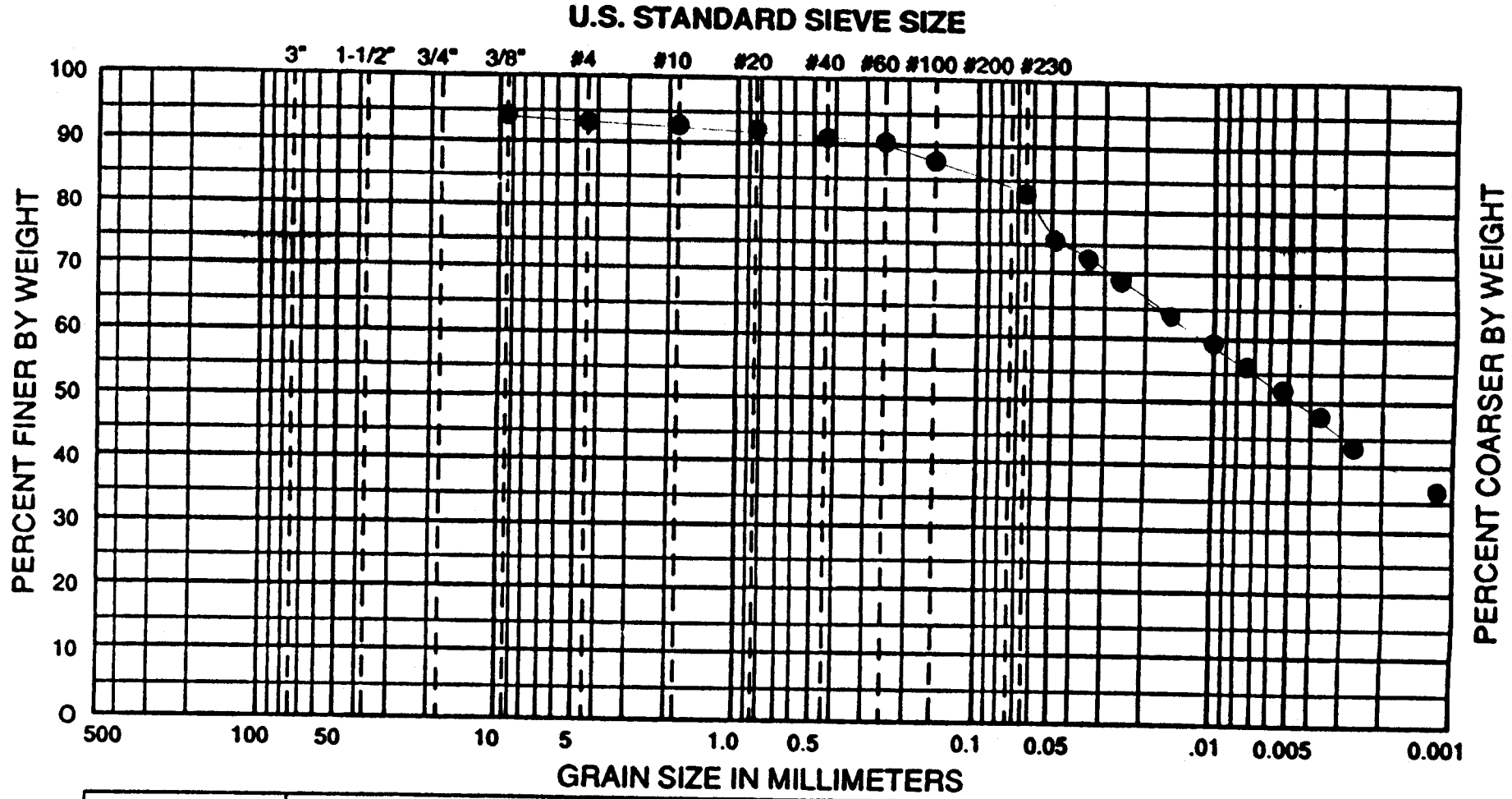


USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 9+50 SAMPLE NO.: CH # 10 DATE: 3-19-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	46'	Silty Clay w/ tr sd & gvl 6.2% f. gravel / .8% C sand, 2.1% m. sand, 6.9% f. sand / 34% silt, 50% clay

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION - - - - - - - - - - - - - - -

LABORATORY CLASSIFICATION - - - - - - - - - - - - -

JOB NO. 5066 03

CLIENT/OWNER Weston

LOCATION Rocky Flats EG-G

BORING 9-50 SAMPLE CH 10 DEPTH 46'

FIELD DENSITY BY ..../..../....

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

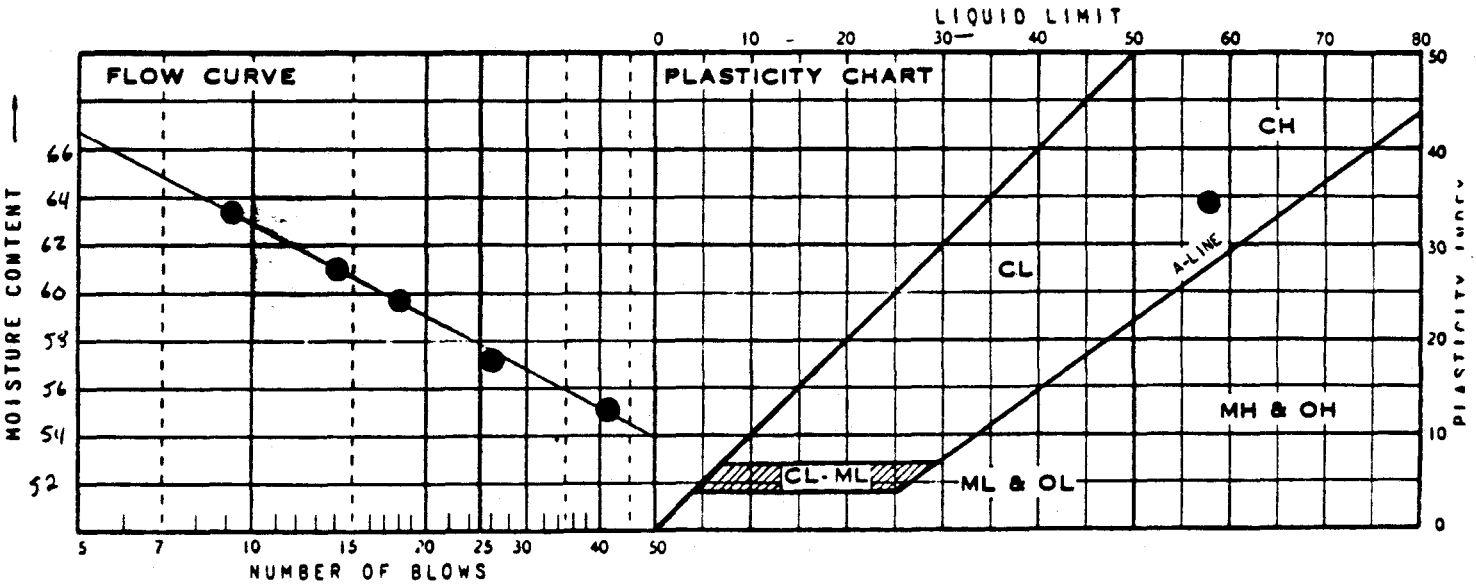
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY PA 3/12/92

DETERMINATION	1	2	3	4	5	6
DISH	2067	15g	28C			
WT OF DISH + WET SOIL g	5.89	5.98	6.02			
WT OF DISH + DRY SOIL g	4.99	5.04	5.08	—	—	—
WT OF MOISTURE g	.90	.94	.94			
WT OF DISH g	1.04	1.05	1.06	—	—	—
WT OF DRY SOIL g	3.45	3.99	4.02			
MOISTURE CONTENT %	22.8	23.6	23.4			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2004	10C	2011	32C	5C	2036
NUMBER OF BLOWS	34	41	26	18	14	9
WT OF DISH + WET SOIL g	11.50	11.24	10.86	10.02	10.61	10.60
WT OF DISH + DRY SOIL g	7.84	7.62	7.29	6.67	6.99	6.89
WT OF MOISTURE g	3.66	3.62	3.57	3.35	3.62	3.71
WT OF DISH g	1.05	1.05	1.06	1.06	1.07	1.05
WT OF DRY SOIL g	6.79	6.57	6.23	5.61	5.92	5.84
MOISTURE CONTENT %	53.9	55.1	57.3	59.7	61.1	63.5



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		57.8	23.3	34.5	CH	

ADVANCED TERRA TESTING

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MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	9+50	SAMPLED	Rocky Flats
DEPTH	54'	DATE TESTED	03-11-92 SR
SAMPLE NO.	#10	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	28.32
Wt. Dry Soil & Pan	(g)	27.24
Wt. Lost Moisture	(g)	1.08
Wt. of Pan Only	(g)	3.82
Wt. of Dry Soil	(g)	23.42
Moisture Content	%	4.6

Wt. Hydrom. Sample Wet (g)	54.09
Wt. Hydrom. Sample Dry (g)	51.70

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	243.06
Weight of + #10 Before Washing (g)	4.46
Weight of + #10 After Washing (g)	2.53
Weight of - #10 Wet (g)	238.60
Weight of - #10 Dry (g)	229.93
Wt. Total Sample Dry (g)	232.46
Calc. Wt. "W" (g)	52.27
Calc. Mass + #10	0.57

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	2.29	2.29	2.29	1.0	99.0
#10	0.00	0.24	0.24	2.53	1.1	98.9
#20	1.56	1.62	0.06	0.06	1.2	98.8
#40	1.56	1.69	0.13	0.19	1.5	98.5
#60	1.57	1.74	0.17	0.36	1.8	98.2
#100	1.57	1.69	0.12	0.48	2.0	98.0
#230	1.32	1.55	0.23	0.71	2.4	97.6

clay (CH)

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	9+50	SAMPLED	Rocky Flats
DEPTH	54'	DATE TESTED	03-11-92 SR
SAMPLE NO.	#10	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

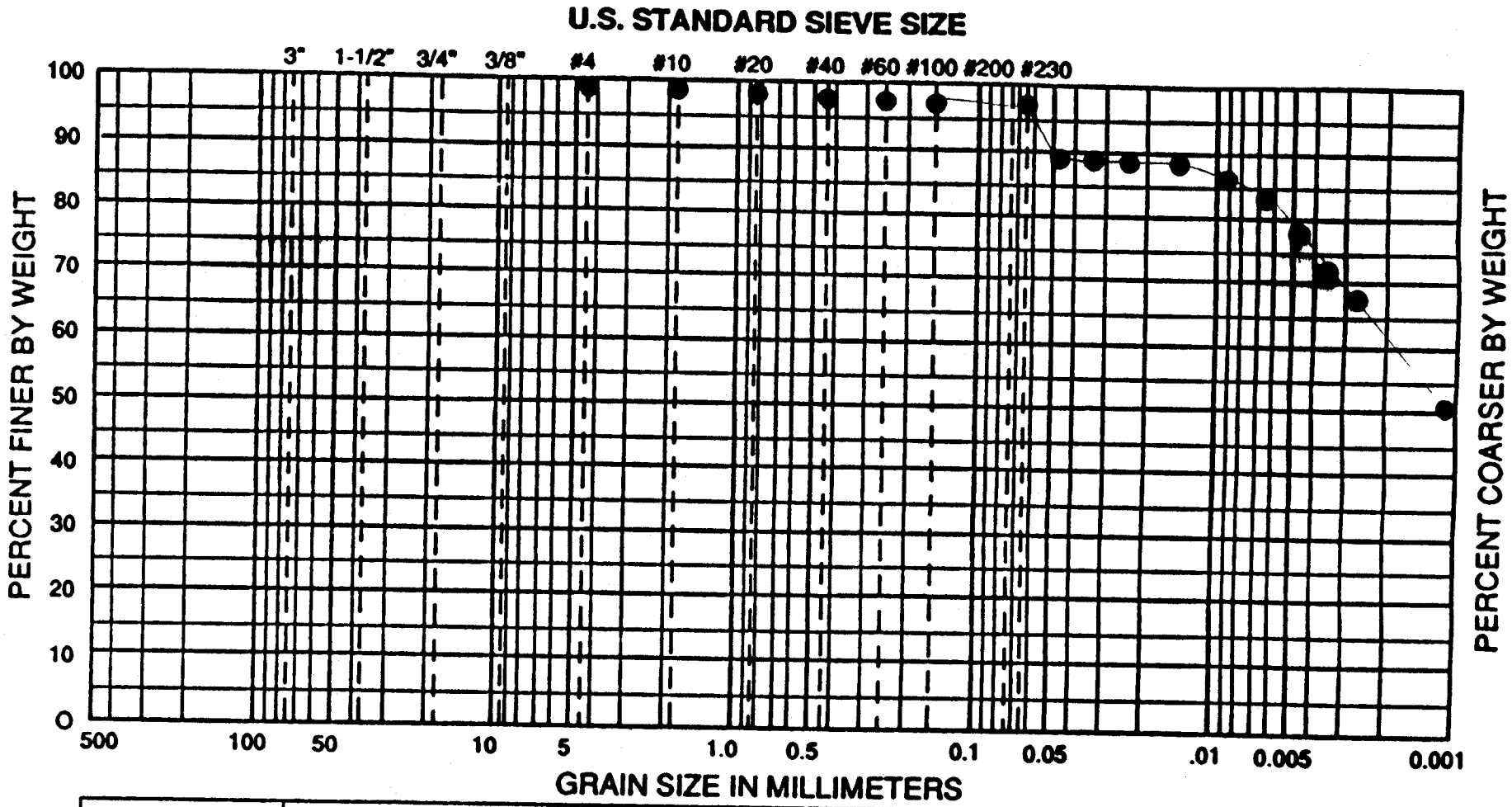
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.79	Temp. Coef. K	0.01280
Value of "a"	0.97	Wt. Dry Sample "W"	52.270
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	6.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	55.25	48.25	89.7	89.7	7.23	0.0487
1.0	55.00	48.00	89.3	89.3	7.27	0.0345
2.0	54.75	47.75	88.8	88.8	7.31	0.0245
5.0	54.75	47.75	88.8	88.8	7.31	0.0155
15.0	53.25	46.25	86.0	86.0	7.56	0.0091
30.0	51.75	44.75	83.2	83.2	7.80	0.0065
60.0	48.75	41.75	77.6	77.6	8.30	0.0048
120.0	45.50	38.50	71.6	71.6	8.83	0.0035
190.0	43.50	36.50	67.9	67.9	9.16	0.0028
1440.0	34.00	27.00	50.2	50.2	10.71	0.0011

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 9+50 SAMPLE NO.: CH #10 DATE: 3-19-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	54'	Clay w/ some silt, tr sd & gvl 1% f gravel, 1% c. sand, 4% med sand, 9% fine sand, 18.1% silt, 79.5% clay

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER Weston

LOCATION Rocky Flats EB&G

BORING 9+50 SAMPLE #10 DEPTH @ 54'

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD [redacted]

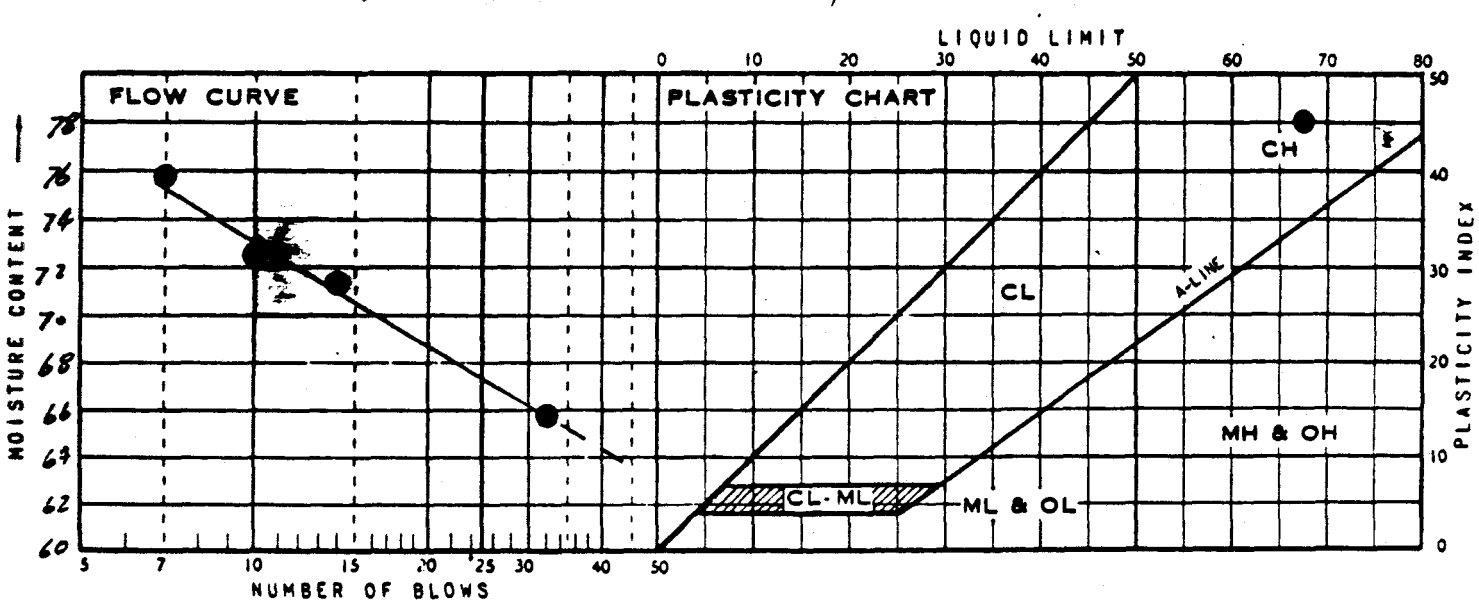
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY RBL 3/15/[illegible]

DETERMINATION	1	2	3	4	5	6
DISH		44C	2046	2011		
WT OF DISH + WET SOIL g		4.81	4.21	4.48		
WT OF DISH + DRY SOIL g	—	4.10	3.63	3.89	—	—
WT OF MOISTURE g		0.71	0.58	0.59		
WT OF DISH g	—	1.03	1.06	1.05	—	—
WT OF DRY SOIL g		3.07	2.57	2.84		
MOISTURE CONTENT %		23.1	22.6	20.8		

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	23C	36C	44CX	2008	3	
NUMBER OF BLOWS	32	24	14	10	7+	
WT OF DISH + WET SOIL g	8.94	7.53	8.24	7.63	8.65	
WT OF DISH + DRY SOIL g	5.81	5.10	5.25	4.87	5.38	—
WT OF MOISTURE g	3.13	2.43	2.99	2.76	3.27	
WT OF DISH g	1.06	1.03	1.06	1.06	1.07	—
WT OF DRY SOIL g	4.75	4.07	4.19	3.81	4.31	
MOISTURE CONTENT %	65.9	59.7	71.4	72.4	75.9	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		67.4	22.2	45.2	CH	

ADVANCED TERRA TESTING inc

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MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	9+50	SAMPLED	Rocky Flats
DEPTH	55'	DATE TESTED	03-11-92 SR
SAMPLE NO.	#10	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	33.89
Wt. Dry Soil & Pan	(g)	32.42
Wt. Lost Moisture	(g)	1.47
Wt. of Pan Only	(g)	3.68
Wt. of Dry Soil	(g)	28.74
Moisture Content	%	5.1

Wt. Hydrom. Sample Wet (g)	55.02
Wt. Hydrom. Sample Dry (g)	52.34

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	55.02
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	55.02
Weight of - #10 Dry (g)	52.34
Wt. Total Sample Dry (g)	52.34
Calc. Wt. "W" (g)	52.34
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	1.56	1.57	0.01	0.01	0.0	100.0
#40	1.56	1.60	0.04	0.05	0.1	99.9
#60	1.56	1.59	0.03	0.08	0.2	99.8
#100	1.55	1.63	0.08	0.16	0.3	99.7
#230	1.56	4.27	2.71	2.87	5.5	94.5

Silty Claystone

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT	Weston	JOB NO.	2066-03
BORING NO.	9+50	SAMPLED	Rocky Flats
DEPTH	55'	DATE TESTED	03-11-92 SR
SAMPLE NO.	#10	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.74	Temp. Coef. K	0.01298
Value of "a"	0.98	Wt. Dry Sample "W"	52.345
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	6.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	53.00	46.00	86.3	86.3	7.60	0.0506
1.0	51.00	44.00	82.5	82.5	7.93	0.0365
2.0	49.75	42.75	80.2	80.2	8.13	0.0262
5.0	49.25	42.25	79.3	79.3	8.21	0.0166
15.0	48.25	41.25	77.4	77.4	8.38	0.0097
30.0	46.50	39.50	74.1	74.1	8.66	0.0070
70.0	44.00	37.00	69.4	69.4	9.07	0.0047
120.0	42.00	35.00	65.7	65.7	9.40	0.0036
190.0	40.50	33.50	62.8	62.8	9.65	0.0029
1440.0	31.50	24.50	46.0	46.0	11.12	0.0011

Grain Diameter = K*(SQRT(L/T))

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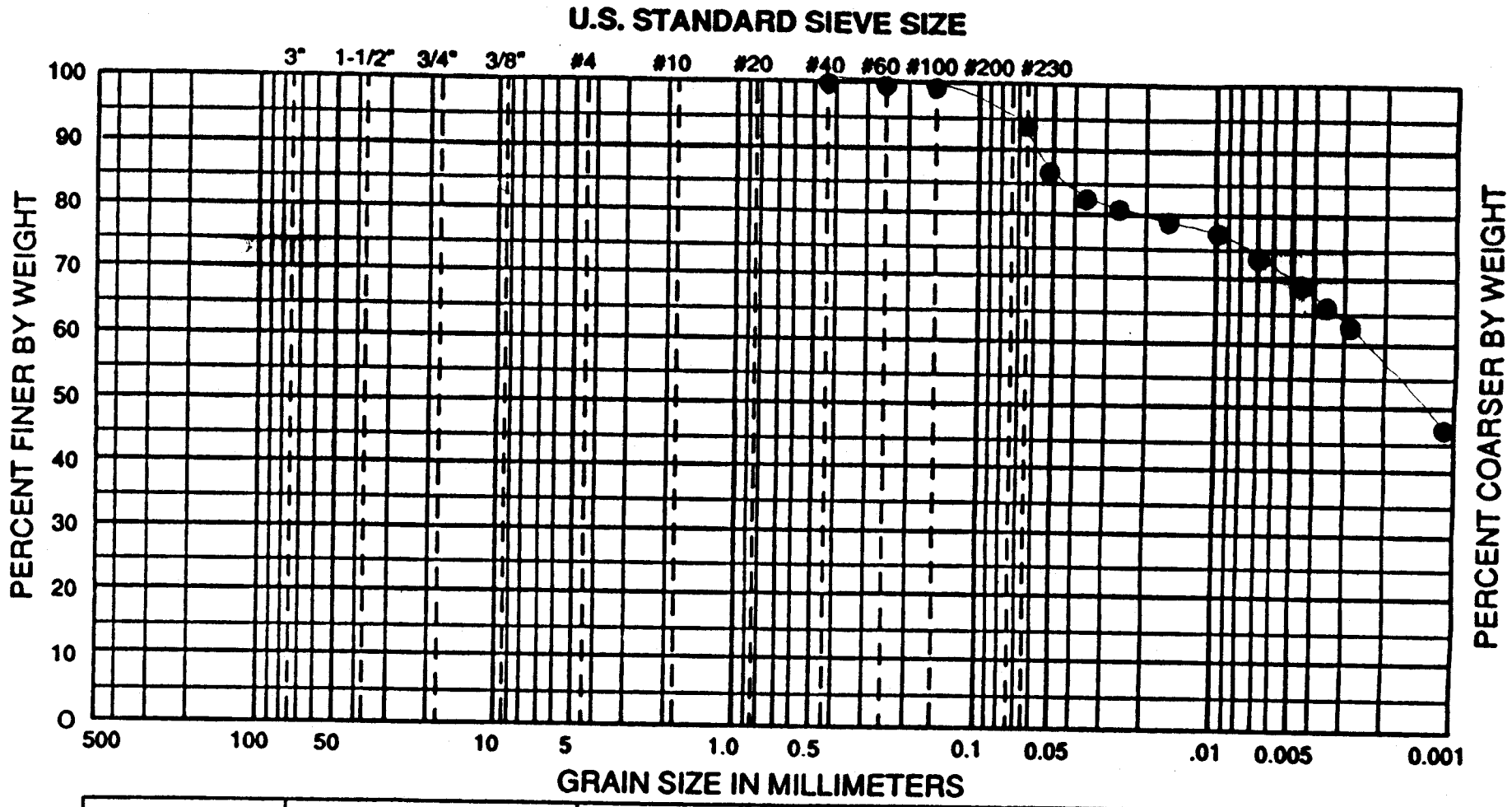
ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 9+50 SAMPLE NO.: CH #10 DATE: 3-18-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	55.0'	Silty Claystone w/ trace sand .1% Med sand, 4.9% f sand, 25% Silt, 70% Clay

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2065-03

CLIENT/OWNER Weston

LOCATION Rocky Flats/EG&G

BORING 9+50 SAMPLE #10 DEPTH @55.0

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

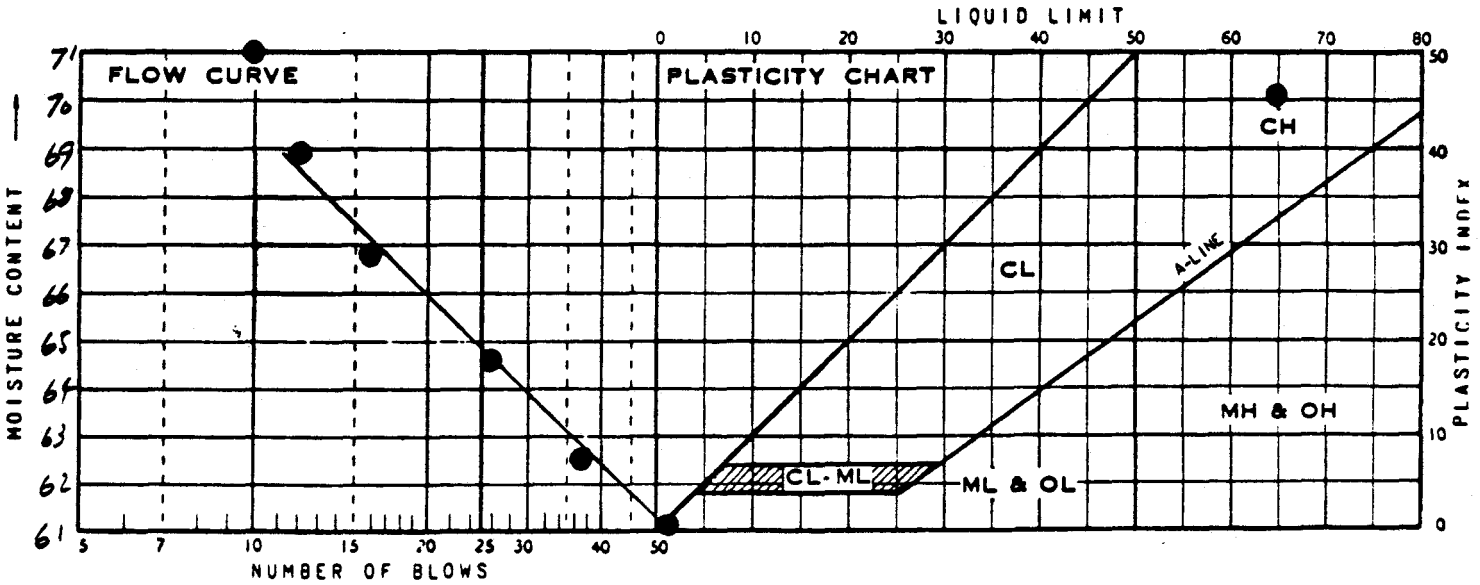
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY [illegible] 3.116192

DETERMINATION	1	2	3	4	5	6
DISH	2069	32C	28C			
WT OF DISH + WET SOIL g	6.38	6.04	5.43			
WT OF DISH + DRY SOIL g	5.47	5.24	4.76	—	—	—
WT OF MOISTURE g	0.91	0.80	0.67			
WT OF DISH g	1.05	1.05	1.05	—	—	—
WT OF DRY SOIL g	4.42	4.19	3.71			
MOISTURE CONTENT %	20.6	19.1	18.1	= 57.8/3 =	19.3	

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2050	11C	2032	2067	6C	2039
NUMBER OF BLOWS	52	37	26	16	12	10
WT OF DISH + WET SOIL g	7.87	7.01	7.57	7.67	6.79	7.77
WT OF DISH + DRY SOIL g	5.28	4.71	5.01 ✓	5.01 ✓	4.44	4.98
WT OF MOISTURE g	2.59	2.30	2.56	2.66	2.35	2.79
WT OF DISH g	1.04	1.03	1.05	1.03	1.03	1.05
WT OF DRY SOIL g	4.24	3.68	3.96	3.98	3.41 ✓	3.93
MOISTURE CONTENT %	61.1	62.5	64.6	66.8	68.9 ✓	71.0 ✓



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		64.8	19.3	45.5	CH	

ADVANCED TERRA TESTING inc

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MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	9+50	SAMPLED	Rocky Flats
DEPTH	58.1'	DATE TESTED	03-11-92 SR
SAMPLE NO.	#10	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	39.11
Wt. Dry Soil & Pan	(g)	38.25
Wt. Lost Moisture	(g)	0.86
Wt. of Pan Only	(g)	3.80
Wt. of Dry Soil	(g)	34.45
Moisture Content	%	2.5

Wt. Hydrom. Sample Wet (g)	55.38
Wt. Hydrom. Sample Dry (g)	54.03

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	55.38
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	55.38
Weight of - #10 Dry (g)	54.03
Wt. Total Sample Dry (g)	54.03
Calc. Wt. "W" (g)	54.03
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	1.55	1.56	0.01	0.01	0.0	100.0
#40	1.55	1.58	0.03	0.04	0.1	99.9
#60	1.55	1.56	0.01	0.05	0.1	99.9
#100	1.57	1.60	0.03	0.08	0.1	99.9
#230	1.32	13.26	11.94	12.02	22.2	77.8

Clayey Siltstone

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	9+50	SAMPLED	Rocky Flats
DEPTH	58.1'	DATE TESTED	03-11-92 SR
SAMPLE NO.	#10	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.73	Temp. Coef. K	0.01301
Value of "a"	0.98	Wt. Dry Sample "W"	54.027
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	6.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	42.50	35.50	64.7	64.7	9.32	0.0562
1.0	38.75	31.75	57.8	57.8	9.94	0.0410
2.0	33.50	26.50	48.3	48.3	10.80	0.0302
5.0	29.25	22.25	40.5	40.5	11.49	0.0197
15.0	27.25	20.25	36.9	36.9	11.82	0.0115
30.0	26.25	19.25	35.1	35.1	11.99	0.0082
60.0	24.75	17.75	32.3	32.3	12.23	0.0059
120.0	23.00	16.00	29.1	29.1	12.52	0.0042
201.0	23.00	16.00	29.1	29.1	12.52	0.0032
1440.0	18.50	11.50	20.9	20.9	13.26	0.0012

Grain Diameter = K*(SQRT(L/T))

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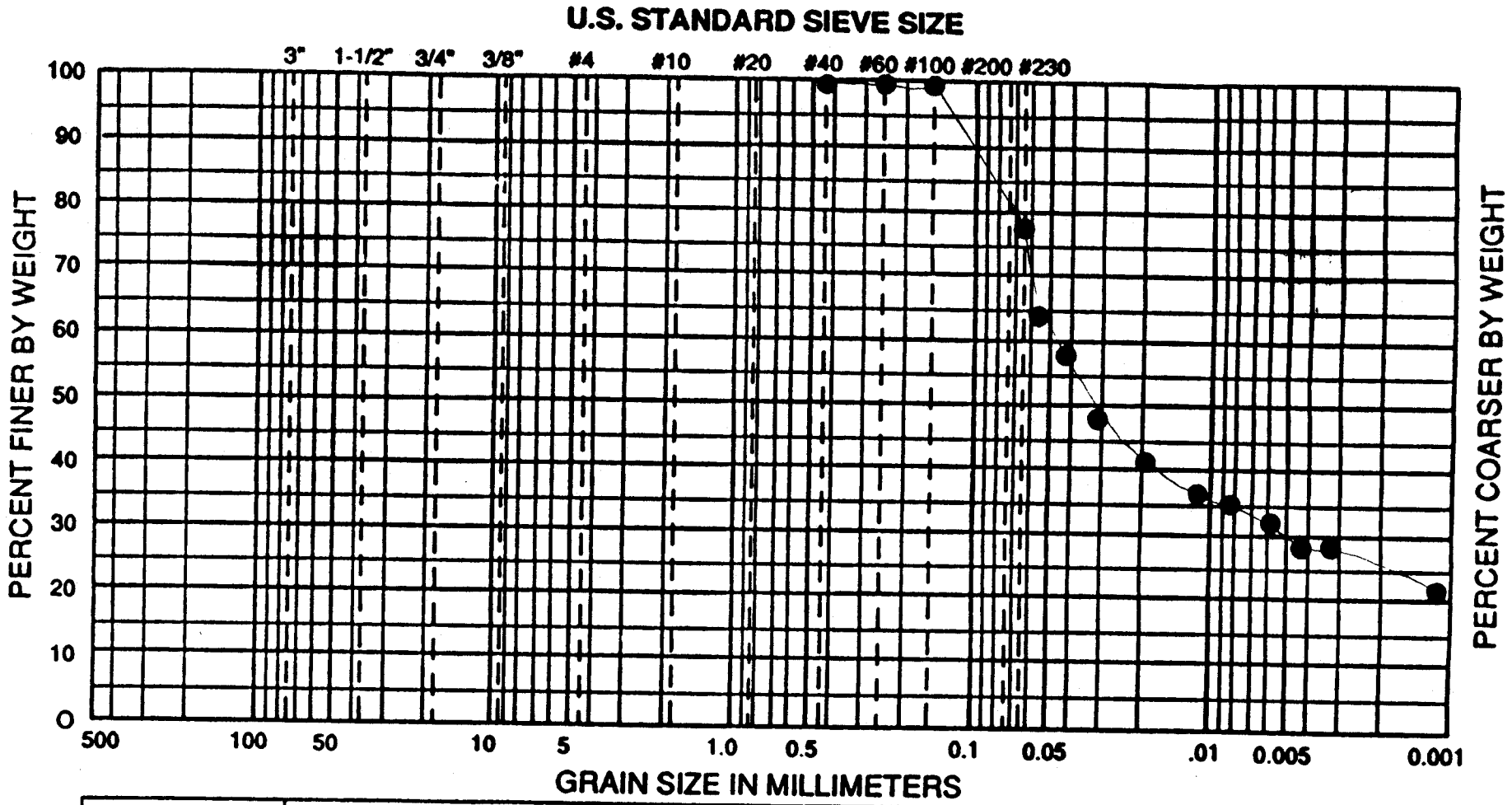


USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 9+50 SAMPLE NO.: CH # 10 DATE: 3-14-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	58.1	Clayey Silt, some w/ some sand 1% med sand, 18.9% fine sand, 51% silt, 30% clay

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER Weston

LOCATION Rocky Flats EG-6

BORING 9-50 SAMPLE CK #10 DEPTH 58.1

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD [redacted]

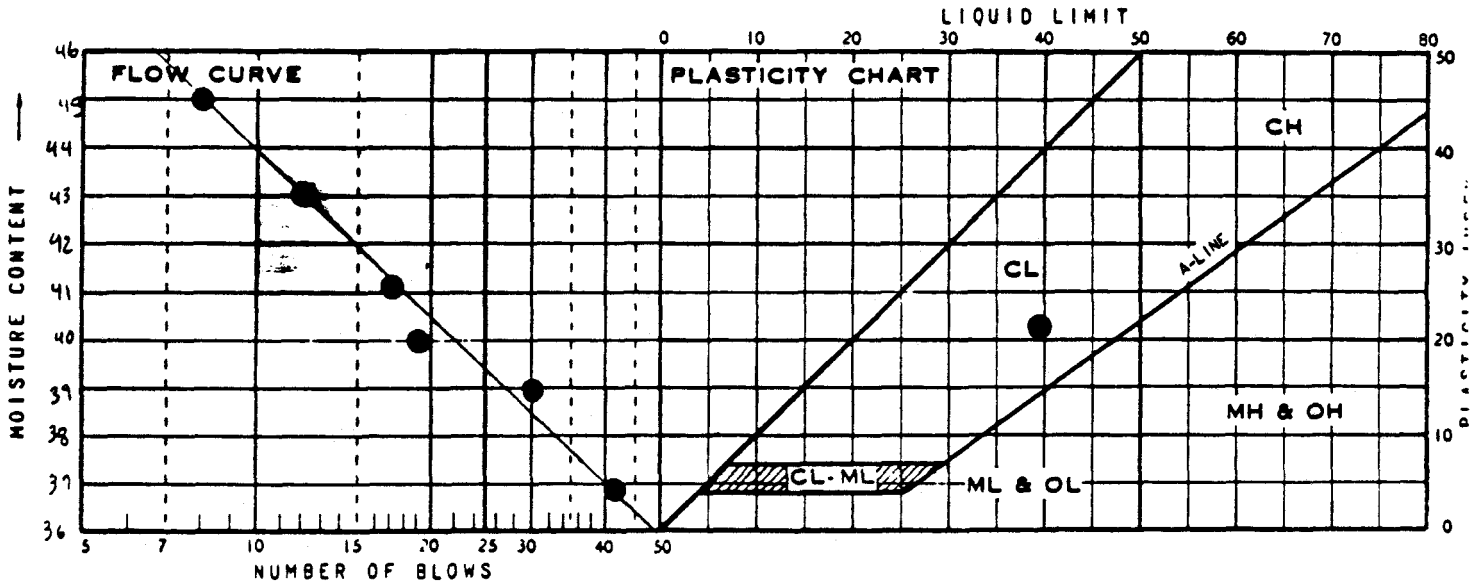
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY AL 3/12/92

DETERMINATION	1	2	3 (77)	4	5	6
DISH	2060	17C	2013			
WT OF DISH + WET SOIL g	7.00	7.40	6.53			
WT OF DISH + DRY SOIL g	6.08	6.43	5.65	—	—	—
WT OF MOISTURE g	.92	.97	.88			
WT OF DISH g	1.03	1.04	1.05	—	—	—
WT OF DRY SOIL g	5.05	5.39	4.60			
MOISTURE CONTENT %	18.2	18.0	19.1			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	48C	2015	6C	2032	11C	4
NUMBER OF BLOWS	41	30±	19	17	12	8
WT OF DISH + WET SOIL g	12.53	11.61	13.44	13.18	12.68	11.03
WT OF DISH + DRY SOIL g	9.43	8.65	9.89	9.64	9.17	7.94
WT OF MOISTURE g	3.10	2.96	3.55	3.54	3.51	3.09
WT OF DISH g	1.04	1.06	1.03	1.05	1.03	1.07
WT OF DRY SOIL g	8.39	7.59	8.86	8.59	8.14	6.87
MOISTURE CONTENT %	36.9	39.0	40.1	41.2	43.1	45.0



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		39.4	18.1	21.3	CL	

ADVANCED TERRA TESTING inc

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	9+75	SAMPLED	Rocky Flats
DEPTH	3'	DATE TESTED	03-16-92 SR
SAMPLE NO.	#11	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	44.98
Wt. Dry Soil & Pan	(g)	43.56
Wt. Lost Moisture	(g)	1.42
Wt. of Pan Only	(g)	3.67
Wt. of Dry Soil	(g)	39.89
Moisture Content	%	3.6

Wt. Hydrom. Sample Wet (g)	55.01
Wt. Hydrom. Sample Dry (g)	53.12

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	55.01
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	55.01
Weight of - #10 Dry (g)	53.12
Wt. Total Sample Dry (g)	53.12
Calc. Wt. "W" (g)	53.12
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	1.55	3.03	1.48	1.48	2.8	97.2
#40	1.55	2.77	1.22	2.70	5.1	94.9
#60	1.55	2.67	1.12	3.82	7.2	92.8
#100	1.55	3.56	2.01	5.83	11.0	89.0
#230	1.54	5.93	4.39	10.22	19.2	80.8

SILTY CLAY (CH)

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT	Weston	JOB NO.	2066-03
BORING NO.	9+75	SAMPLED	Rocky Flats
DEPTH	3'	DATE TESTED	03-16-92 SR
SAMPLE NO.	#11	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

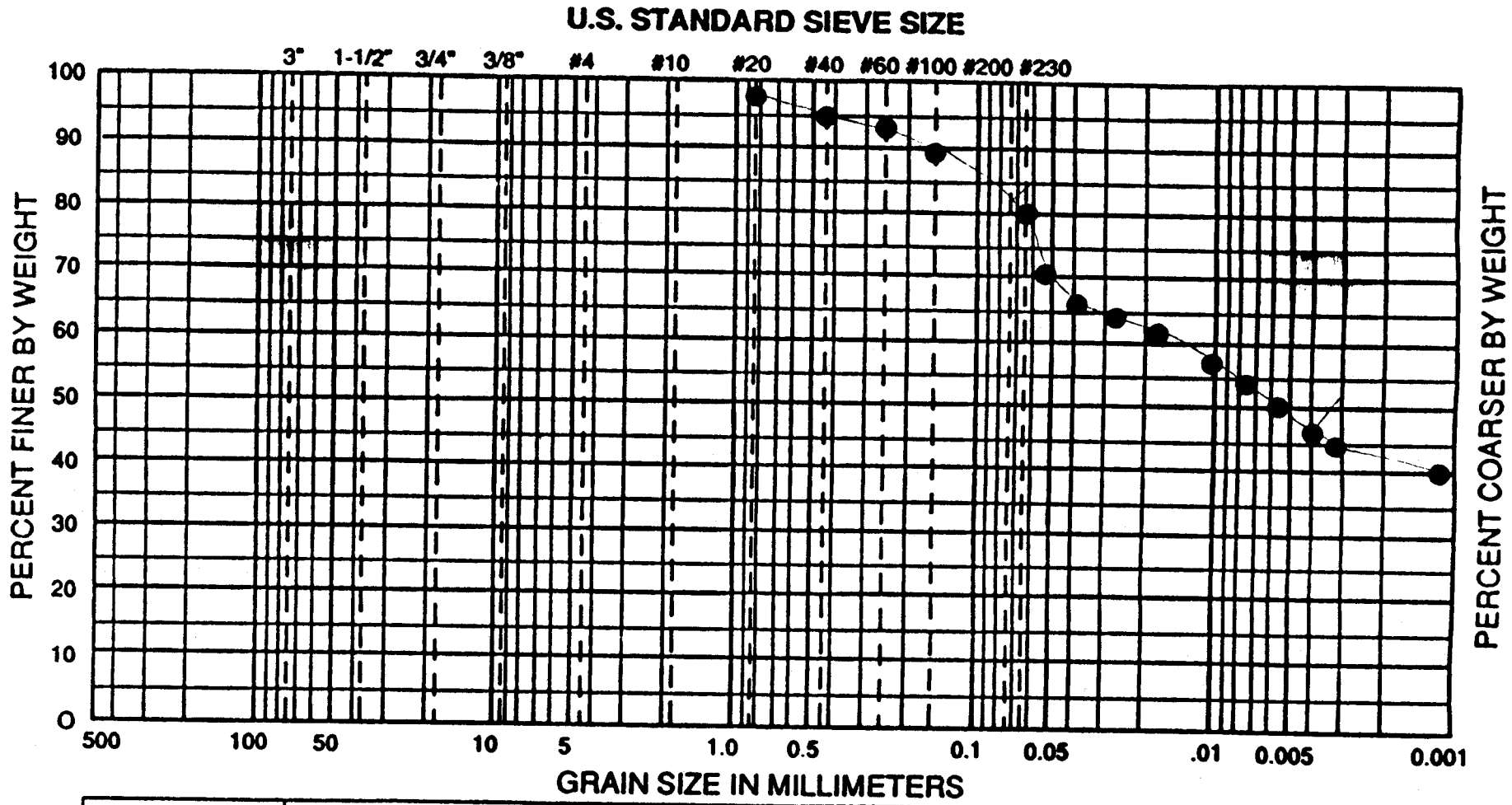
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.75	Temp. Coef. K	0.01294
Value of "a"	0.98	Wt. Dry Sample "W"	53.120
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.5		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	43.50	38.00	70.1	70.1	9.16	0.0554
1.0	41.25	35.75	66.0	66.0	9.53	0.0399
2.0	40.50	35.00	64.6	64.6	9.65	0.0284
5.0	39.00	33.50	61.8	61.8	9.89	0.0182
15.0	36.25	30.75	56.7	56.7	10.35	0.0107
30.0	35.00	29.50	54.4	54.4	10.55	0.0077
60.0	33.00	27.50	50.7	50.7	10.88	0.0055
120.0	31.00	25.50	47.0	47.0	11.21	0.0040
190.0	30.00	24.50	45.2	45.2	11.37	0.0032
1440.0	27.00	21.50	39.7	39.7	11.86	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL			SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 9+75 SAMPLE NO.: 11 DATE: 3/25/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION SILTY CLAY w/ some sand
Rocky Flats	3'	5.1% med sand, 11.9% f. sand / 36% silt, 47% CLAY

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER Weston

LOCATION Rocky Flats / E&G

BORING 9+75 SAMPLE 11 DEPTH @ 3'

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

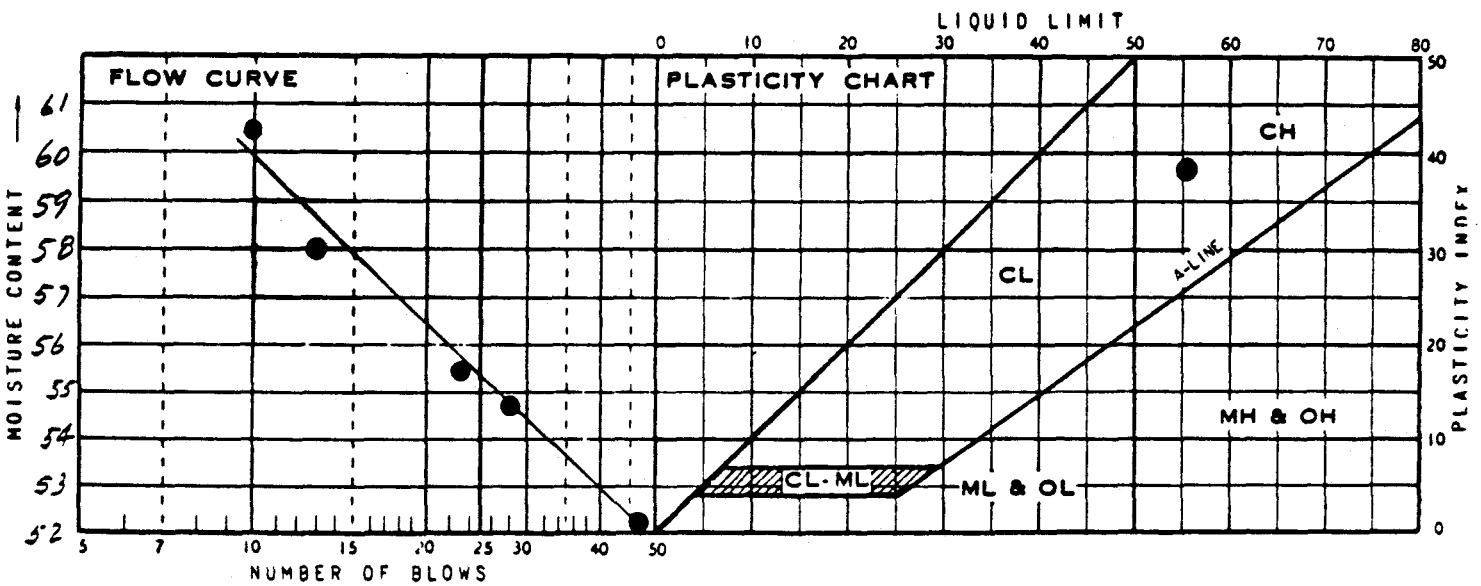
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY RB 3/17/92

DETERMINATION	1	2	3	4	5	6
DISH	2017	2072	2005			
WT OF DISH + WET SOIL g	5.43	5.92	6.53			
WT OF DISH + DRY SOIL	4.81	5.19	5.71	—	—	—
WT OF MOISTURE	0.62	0.73	0.82			
WT OF DISH	1.03	1.04	1.06	—	—	—
WT OF DRY SOIL	3.78	4.15	4.65			
MOISTURE CONTENT %	16.4	17.6	17.6	= 51.6/3	17.2	

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2007	58C	46C	37C	20C	2041
NUMBER OF BLOWS	47-	38++	28-	23	13	10
WT OF DISH + WET SOIL g	10.20	7.44	9.09	10.88	8.46	8.68
WT OF DISH + DRY SOIL	7.06	5.24	6.25	7.37	5.73	5.81
WT OF MOISTURE	3.14	2.20	2.84	3.51	2.73	2.87
WT OF DISH	1.05	1.06	1.06	1.03	1.02	1.06
WT OF DRY SOIL	6.01	4.18	5.19	6.34	4.71	4.75
MOISTURE CONTENT %	52.2	52.6	54.7	55.4	58.0	60.4



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		55.4	17.2	38.2	CH	

ADVANCED TERRA TESTING inc

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	9+75	SAMPLED	Rocky Flats
DEPTH	12.5'	DATE TESTED	03-16-92 SR
SAMPLE NO.	#11	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	39.64
Wt. Dry Soil & Pan	(g)	38.60
Wt. Lost Moisture	(g)	1.04
Wt. of Pan Only	(g)	3.77
Wt. of Dry Soil	(g)	34.83
Moisture Content	%	3.0

Wt. Hydrom. Sample Wet (g)	55.02
Wt. Hydrom. Sample Dry (g)	53.42

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	582.90
Weight of + #10 Before Washing (g)	15.68
Weight of + #10 After Washing (g)	15.12
Weight of - #10 Wet (g)	567.22
Weight of - #10 Dry (g)	551.32
Wt. Total Sample Dry (g)	566.44
Calc. Wt. "W" (g)	54.89
Calc. Mass + #10	1.47

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	10.66	10.66	10.66	1.9	98.1
#4	0.00	3.11	3.11	13.77	2.4	97.6
#10	0.00	1.35	1.35	15.12	2.7	97.3
#20	1.56	1.80	0.24	0.24	3.1	96.9
#40	1.56	2.83	1.27	1.51	5.4	94.6
#60	1.57	3.67	2.10	3.61	9.2	90.8
#100	1.31	4.86	3.55	7.16	15.7	84.3
#230	1.56	8.62	7.06	14.22	28.6	71.4

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	9+75	SAMPLED	Rocky Flats
DEPTH	12.5'	DATE TESTED	03-16-92 SR
SAMPLE NO.	#11	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

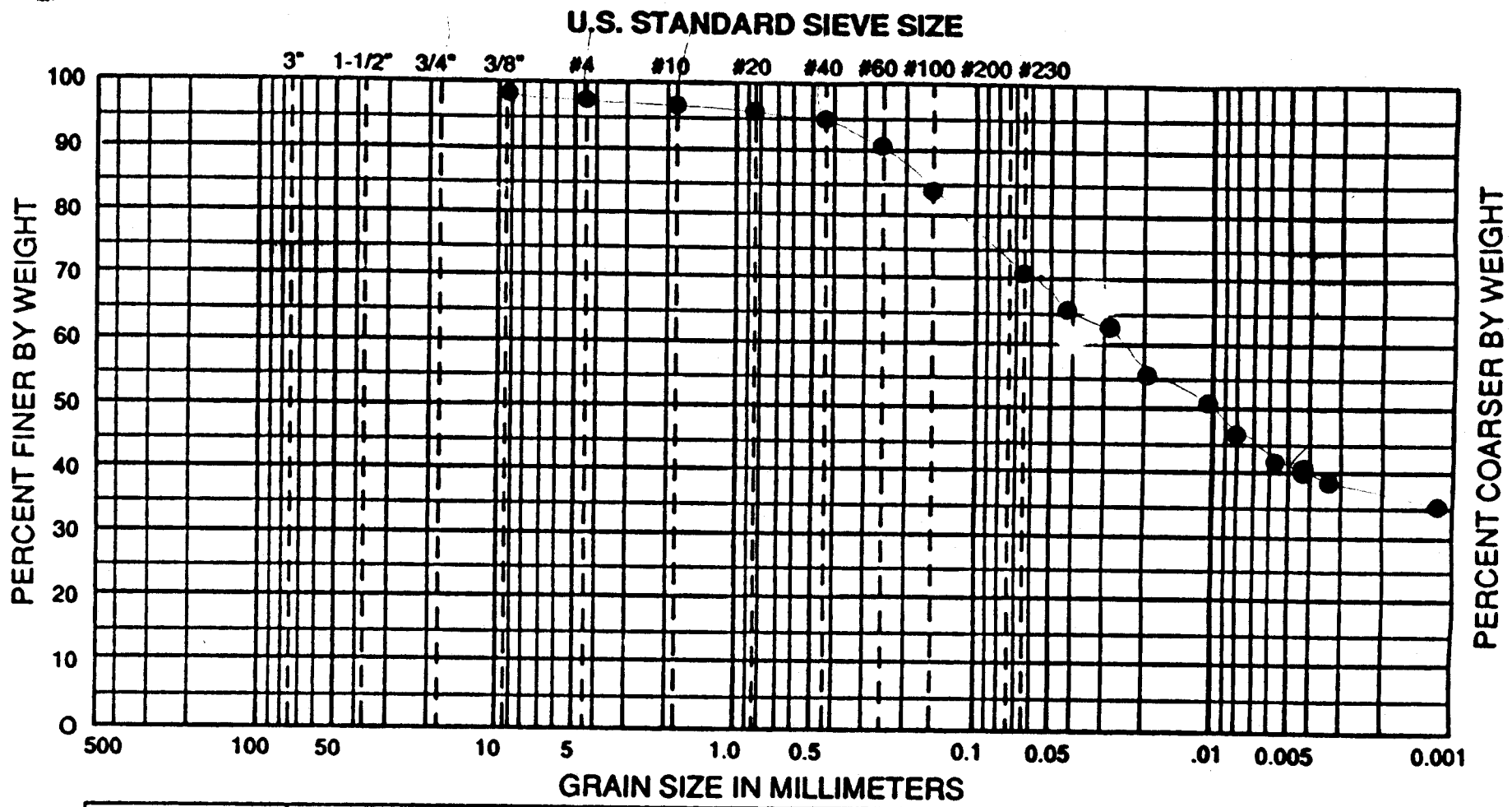
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.65	Temp. Coef. K	0.01332
Value of "a"	1.00	Wt. Dry Sample "W"	54.890
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	44.25	39.25	71.5	71.5	9.03	0.0566
1.0	41.25	36.25	66.0	66.0	9.53	0.0411
2.0	40.00	35.00	63.8	63.8	9.73	0.0294
5.0	35.75	30.75	56.0	56.0	10.43	0.0192
15.0	32.75	27.75	50.6	50.6	10.92	0.0114
30.0	30.75	25.75	46.9	46.9	11.25	0.0082
60.0	28.00	23.00	41.9	41.9	11.70	0.0059
120.0	27.75	22.75	41.4	41.4	11.74	0.0042
190.0	26.00	21.00	38.3	38.3	12.03	0.0034
1440.0	24.50	19.50	35.5	35.5	12.27	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 9+75 SAMPLE NO.: 11 DATE: 3/20/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	12.5'	CL Silty-Clay w/ some sand +r gravel 2.4% f gvl, .3% LSd, 2.7% m sand, 21.6% f sand, 32% silt, 41% clay

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER Weston

LOCATION Rocky Flats / EG&G

BORING 9+75 SAMPLE #11 DEPTH @12.5

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD [redacted]

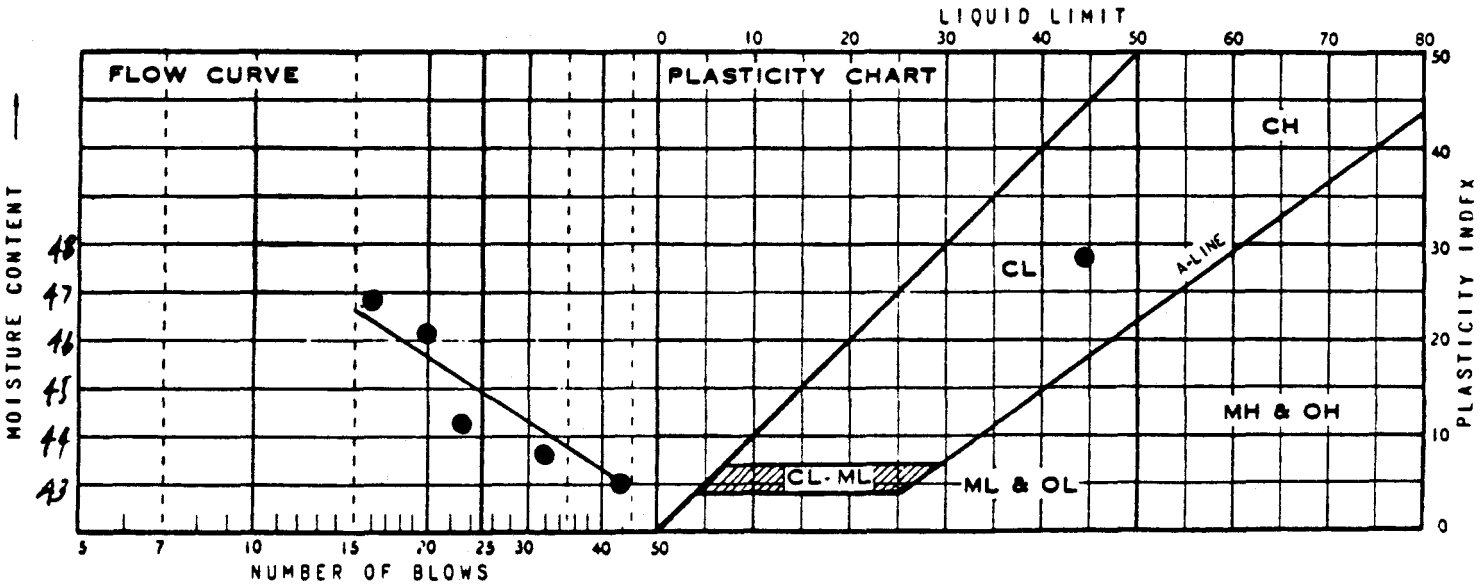
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY [illegible] 3.11.7.92

DETERMINATION	1	2	3	4	5	6
DISH	2042	2040	2063			
WT OF DISH + WET SOIL g	6.16	5.96	6.65			
WT OF DISH + DRY SOIL	5.43	5.25	5.87	—	—	—
WT OF MOISTURE	0.73	0.71	0.78			
WT OF DISH	1.06	1.05	1.06	—	—	—
WT OF DRY SOIL	4.37	4.20	4.81			
MOISTURE CONTENT %	16.7	16.9	16.2	= 49.8/3	16.6	

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2003	20C	2061	2001	2006	159
NUMBER OF BLOWS	43	32	23	20	16	10
WT OF DISH + WET SOIL g	8.21	10.88	11.67	10.07	9.65	8.35
WT OF DISH + DRY SOIL	6.05	7.90	8.41	7.23	6.91	5.79?
WT OF MOISTURE	2.16	2.98	3.26	2.84	2.74	2.56
WT OF DISH	1.03	1.07	1.03	1.06	1.05	1.05
WT OF DRY SOIL	5.02	6.83	7.83	6.17	5.86	4.74
MOISTURE CONTENT %	43.0	43.6	44.2	46.1	46.8	54.0



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		44.9	16.6	28.3	CL	

ADVANCED TERRA TESTING inc

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	9+75	SAMPLED	Rocky Flats
DEPTH	20'	DATE TESTED	03-16-92 SR
SAMPLE NO.	#11	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes
NATURAL	No

Wt. Wet Soil & Pan	(g)	40.21
Wt. Dry Soil & Pan	(g)	39.43
Wt. Lost Moisture	(g)	0.78
Wt. of Pan Only	(g)	3.60
Wt. of Dry Soil	(g)	35.83
Moisture Content	%	2.2

Wt. Hydrom. Sample Wet (g)	55.02
Wt. Hydrom. Sample Dry (g)	53.85

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	622.28
Weight of + #10 Before Washing (g)	246.93
Weight of + #10 After Washing (g)	192.70
Weight of - #10 Wet (g)	375.35
Weight of - #10 Dry (g)	420.43
Wt. Total Sample Dry (g)	613.13
Calc. Wt. "W" (g)	78.53
Calc. Mass + #10	24.68

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	157.71	157.71	157.71	25.7	74.3
3/8"	0.00	4.57	4.57	162.28	26.5	73.5
#4	0.00	14.18	14.18	176.46	28.8	71.2
#10	0.00	16.24	16.24	192.70	31.4	68.6
#20	1.56	3.87	2.31	2.31	34.4	65.6
#40	1.55	4.56	3.01	5.32	38.2	61.8
#60	1.57	4.64	3.07	8.39	42.1	57.9
#100	1.31	5.49	4.18	12.57	47.4	52.6
#230	1.56	8.64	7.08	19.65	56.5	43.5

SANDY CLAYEY (CH)

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	9+75	SAMPLED	Rocky Flats
DEPTH	20'	DATE TESTED	03-16-92 SR
SAMPLE NO.	#11	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

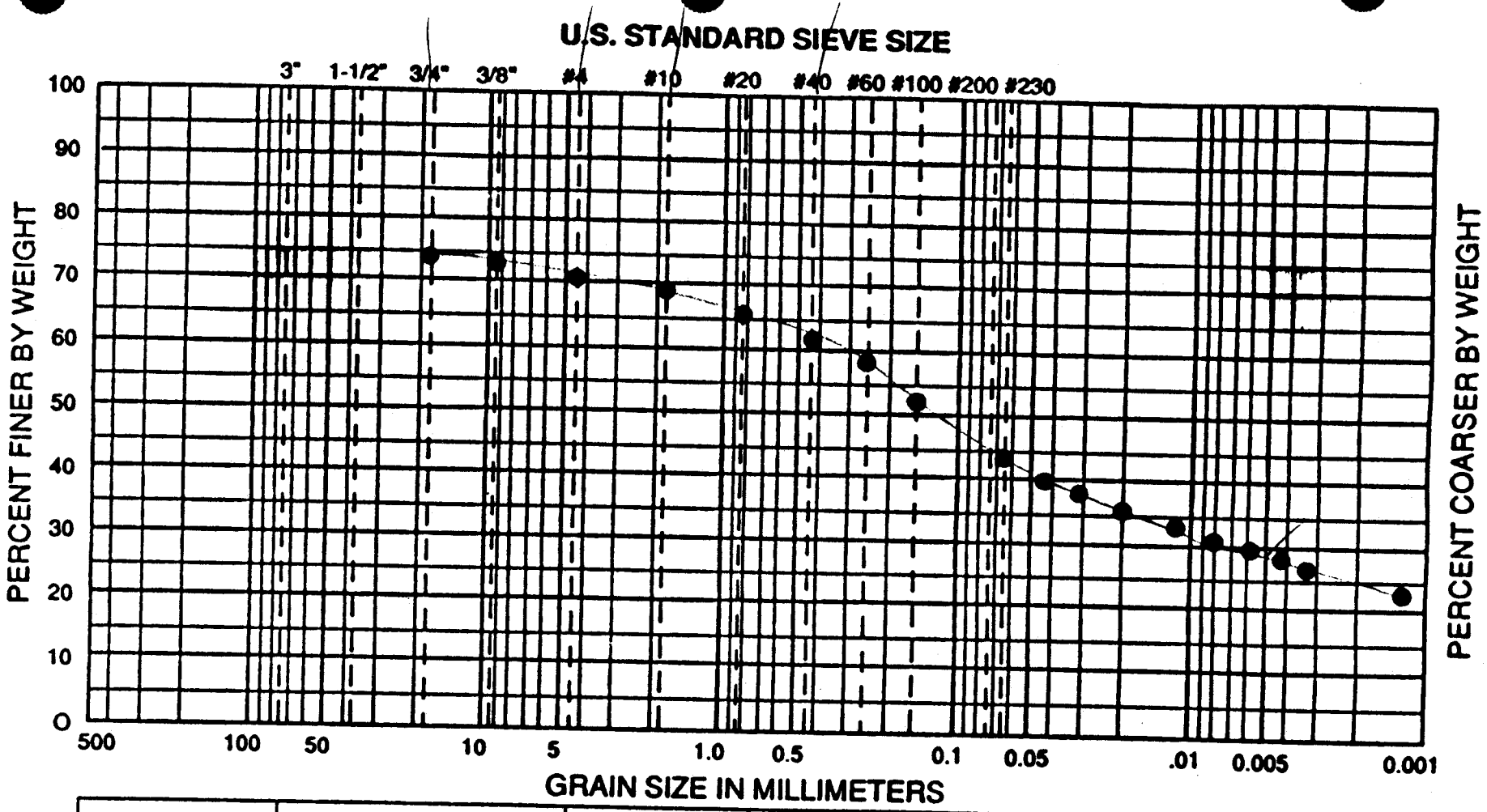
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.61	Temp. Coef. K	0.01348
Value of "a"	1.01	Wt. Dry Sample "W"	78.526
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	39.50	34.50	44.3	44.3	9.81	0.0597
1.0	36.50	31.50	40.4	40.4	10.30	0.0433
2.0	34.25	29.25	37.5	37.5	10.67	0.0311
5.0	33.00	28.00	35.9	35.9	10.88	0.0199
15.0	31.25	26.25	33.7	33.7	11.17	0.0116
30.0	29.50	24.50	31.4	31.4	11.45	0.0083
60.0	28.25	23.25	29.8	29.8	11.66	0.0059
120.0	26.75	21.75	27.9	27.9	11.90	0.0042
190.0	25.75	20.75	26.6	26.6	12.07	0.0034
1440.0	22.50	17.50	22.5	22.5	12.60	0.0013

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 9+75 SAMPLE NO.: 11 DATE: 3/20/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	20'	SANDY CLAYEY Gravel w/ some Silt 25.7% c gul, 3.1% f gul / 2.6% c sd, 6.8% m sd, 16.8% f sd / 17% silt, 28% [illegible]

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER WESTON

LOCATION ROCKY FLATS ECAC

BORING 9+75 SAMPLE CH #11 DEPTH 20'

FIELD DENSITY BY ___/___/___

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

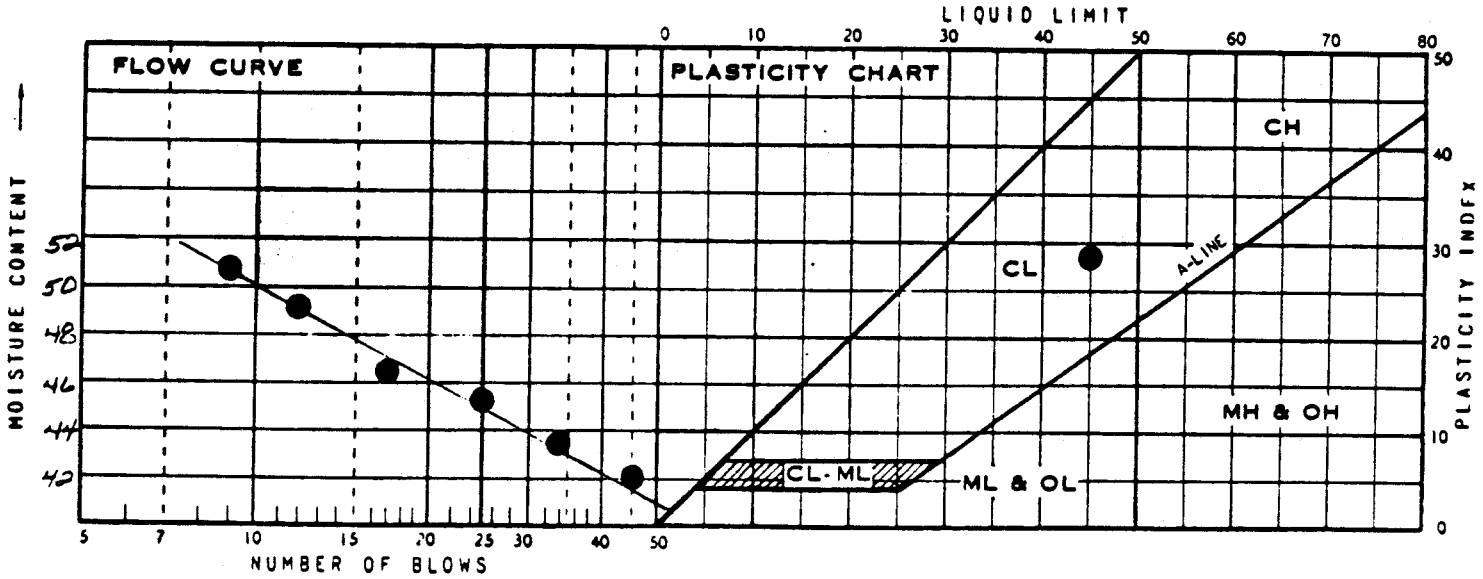
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY SR. 3/16/92

DETERMINATION	1	2	3	4	5	6
DISH	4	17 C	2060			
WT OF DISH + WET SOIL g	6.39	6.56	7.32			
WT OF DISH + DRY SOIL g	5.61	5.76	6.42	—	—	—
WT OF MOISTURE g	.78	.80	.90			
WT OF DISH g	1.07	1.04	1.03	—	—	—
WT OF DRY SOIL g	4.54	4.72	5.39			
MOISTURE CONTENT %	17.2	17.0	16.7			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	48C	2015	2054	1C	2074	2037
NUMBER OF BLOWS	46	34±	25	17	12	9±
WT OF DISH + WET SOIL g	15.35	16.63	18.72	18.65	15.87	16.27
WT OF DISH + DRY SOIL g	11.10	11.89	13.18	13.07	10.98	11.15
WT OF MOISTURE g	4.25	4.74	5.54	5.58	4.89	5.12
WT OF DISH g	1.04	1.06	1.05	1.07	1.05	1.05
WT OF DRY SOIL g	10.06	10.83	12.13	12.00	9.93	10.10
MOISTURE CONTENT %	42.2	43.8	45.7	46.5	49.3	50.7



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		45.0	17.0	28.0	CL	

ADVANCED TERRA TESTING INC

RAM

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	9+75	SAMPLED	Rocky Flats
DEPTH	26'	DATE TESTED	03-16-92 SR
SAMPLE NO.	#11	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes	
NATURAL	No	
Wt. Wet Soil & Pan	(g)	41.18
Wt. Dry Soil & Pan	(g)	40.18
Wt. Lost Moisture	(g)	1.00
Wt. of Pan Only	(g)	3.68
Wt. of Dry Soil	(g)	36.50
Moisture Content	%	2.7
Wt. Hydrom. Sample Wet	(g)	55.02
Wt. Hydrom. Sample Dry	(g)	53.55

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	574.41
Weight of + #10 Before Washing (g)	111.96
Weight of + #10 After Washing (g)	103.23
Weight of - #10 Wet (g)	462.45
Weight of - #10 Dry (g)	458.62
Wt. Total Sample Dry (g)	561.85
Calc. Wt. "W" (g)	65.61
Calc. Mass + #10	12.05

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	21.39	21.39	21.39	3.8	96.2
3/8"	0.00	26.43	26.43	47.82	8.5	91.5
#4	0.00	30.40	30.40	78.22	13.9	86.1
#10	0.00	25.01	25.01	103.23	18.4	81.6
#20	1.57	3.77	2.20	2.20	21.7	78.3
#40	1.56	7.03	5.47	7.67	30.1	69.9
#60	1.56	5.86	4.30	11.97	36.6	63.4
#100	1.57	5.57	4.00	15.97	42.7	57.3
#230	1.56	7.40	5.84	21.81	51.6	48.4

CLAYEY SAND (SC)

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston** JOB NO. 2066-03

BORING NO.	9+75	SAMPLED	Rocky Flats
DEPTH	26'	DATE TESTED	03-16-92 SR
SAMPLE NO.	#11	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

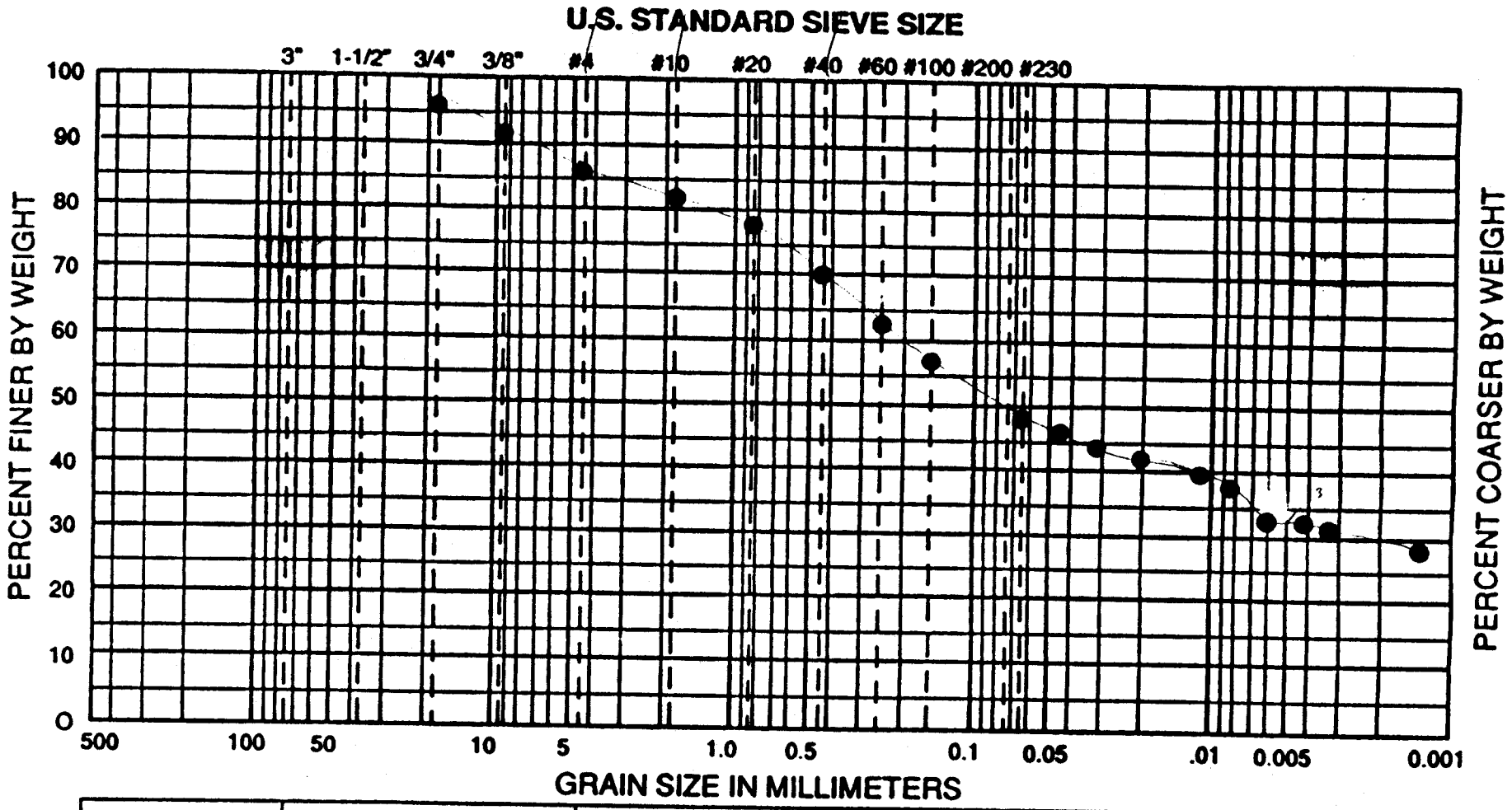
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.62	Temp. Coef. K	0.01345
Value of "a"	1.01	Wt. Dry Sample "W"	65.606
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	38.00	33.00	50.6	50.6	10.06	0.0603
1.0	35.50	30.50	46.8	46.8	10.47	0.0435
2.0	33.50	28.50	43.7	43.7	10.80	0.0313
5.0	32.25	27.25	41.8	41.8	11.00	0.0200
15.0	30.75	25.75	39.5	39.5	11.25	0.0116
30.0	29.50	24.50	37.6	37.6	11.45	0.0083
60.0	26.75	21.75	33.4	33.4	11.90	0.0060
120.0	26.75	21.75	33.4	33.4	11.90	0.0042
190.0	25.75	20.75	31.8	31.8	12.07	0.0034
1440.0	23.00	18.00	27.6	27.6	12.52	0.0013

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 9+75 SAMPLE NO.: 11 DATE: 3/20/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	26'	CLAYEY SAND w/some silt & gravel (SC) 3.6% C gvl, 10.1% f gvl, 4.5% c sd, 11.7% m sd, 20.9% f sd, 16% Silt, 33% Clay

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION - - - - - - - - - - - - - - -

LABORATORY CLASSIFICATION - - - - - - - - - - - - -

JOB NO. 2066-03

CLIENT/OWNER Weston

LOCATION Rocky Flats

BORING 2+75 SAMPLE #11 DEPTH @ 26'

FIELD DENSITY BY ...../...../.....

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

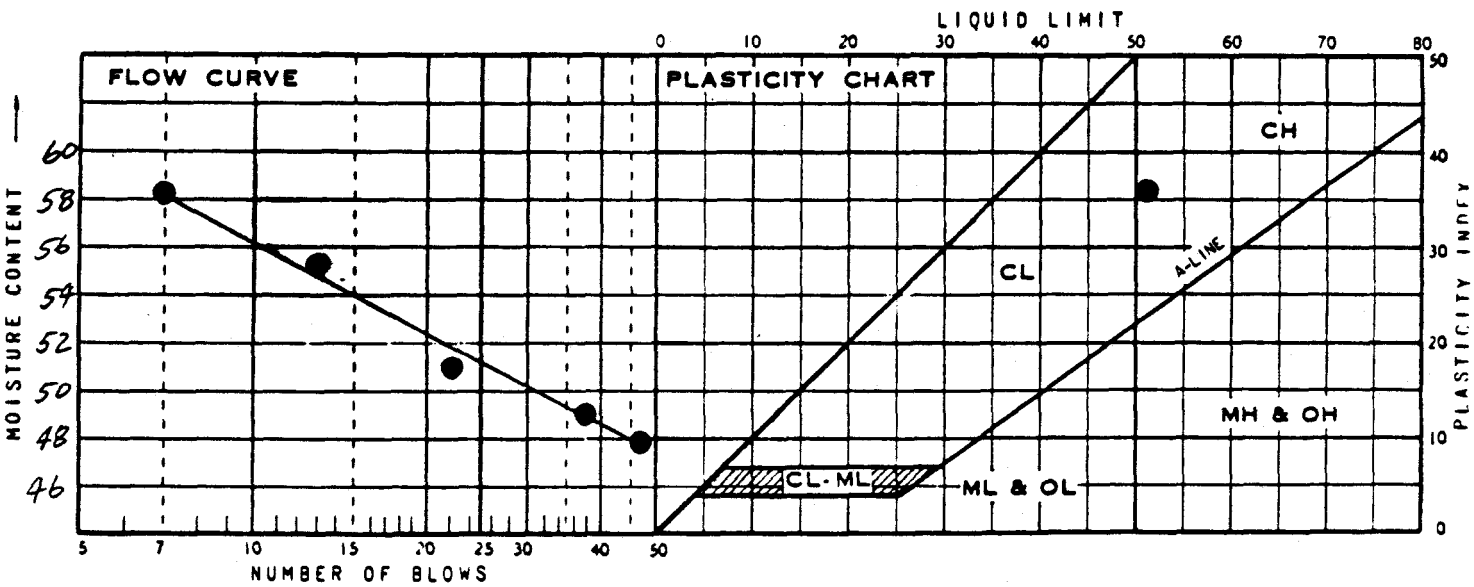
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY ...../...../.....

DETERMINATION	1	2	3	4	5	6
DISH	2036	2004	2013			
WT OF DISH + WET SOIL g	6.97	7.14	7.02			
WT OF DISH + DRY SOIL	6.16	6.34	6.21	—	—	—
WT OF MOISTURE	0.81	0.80	0.81			
WT OF DISH	1.05	1.04	1.05	—	—	—
WT OF DRY SOIL	5.11	5.30	5.16			
MOISTURE CONTENT %	15.8	15.9	15.7	= 47.4/3 =	15.8	

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	5C	6C	39C	42C	2020	2038
NUMBER OF BLOWS	47	38	22	13	10	7
WT OF DISH + WET SOIL g	10.49	11.35	10.21	11.22	9.08	9.75
WT OF DISH + DRY SOIL	7.44	7.97	7.11	7.59	6.18	6.55
WT OF MOISTURE	3.05	3.38	3.10	3.63	2.90	3.20
WT OF DISH	1.06	1.07	1.03	1.04	1.05	1.05
WT OF DRY SOIL	6.38	6.90	6.08	6.55	5.13	5.50
MOISTURE CONTENT %	47.8	49.0	51.0	55.4	56.5	58.2



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		51.3	15.8	35.5	CH	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	9+75	SAMPLED	Rocky Flats
DEPTH	31'	DATE TESTED	03-16-92 SR
SAMPLE NO.	#11	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	43.55
Wt. Dry Soil & Pan	(g)	42.62
Wt. Lost Moisture	(g)	0.93
Wt. of Pan Only	(g)	3.67
Wt. of Dry Soil	(g)	38.95
Moisture Content	%	2.4
Wt. Hydrom. Sample Wet	(g)	50.02
Wt. Hydrom. Sample Dry	(g)	48.85

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	629.87
Weight of + #10 Before Washing (g)	28.83
Weight of + #10 After Washing (g)	22.62
Weight of - #10 Wet (g)	601.04
Weight of - #10 Dry (g)	593.09
Wt. Total Sample Dry (g)	615.71
Calc. Wt. "W" (g)	50.72
Calc. Mass + #10	1.86

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	14.90	14.90	14.90	2.4	97.6
#4	0.00	2.95	2.95	17.85	2.9	97.1
#10	0.00	4.77	4.77	22.62	3.7	96.3
#20	1.57	1.99	0.42	0.42	4.5	95.5
#40	1.57	2.11	0.54	0.96	5.6	94.4
#60	1.55	2.00	0.45	1.41	6.5	93.5
#100	1.55	3.25	1.70	3.11	9.8	90.2
#230	1.57	9.86	8.29	11.40	26.2	73.8

CLAY (2

(C

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	9+75	SAMPLED	Rocky Flats
DEPTH	31'	DATE TESTED	03-16-92 SR
SAMPLE NO.	#11	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.66	Temp. Coef. K	0.01328
Value of "a"	1.00	Wt. Dry Sample "W"	50.718
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	46.25	41.25	81.2	81.2	8.71	0.0554
1.0	43.00	38.00	74.8	74.8	9.24	0.0404
2.0	41.25	36.25	71.3	71.3	9.53	0.0290
5.0	37.75	32.75	64.4	64.4	10.10	0.0189
15.0	35.50	30.50	60.0	60.0	10.47	0.0111
30.0	33.25	28.25	55.6	55.6	10.84	0.0080
60.0	31.75	26.75	52.6	52.6	11.08	0.0057
120.0	30.75	25.75	50.7	50.7	11.25	0.0041
190.0	29.00	24.00	47.2	47.2	11.53	0.0033
1440.0	25.00	20.00	39.4	39.4	12.19	0.0012

Grain Diameter = K*(SQRT(L/T))

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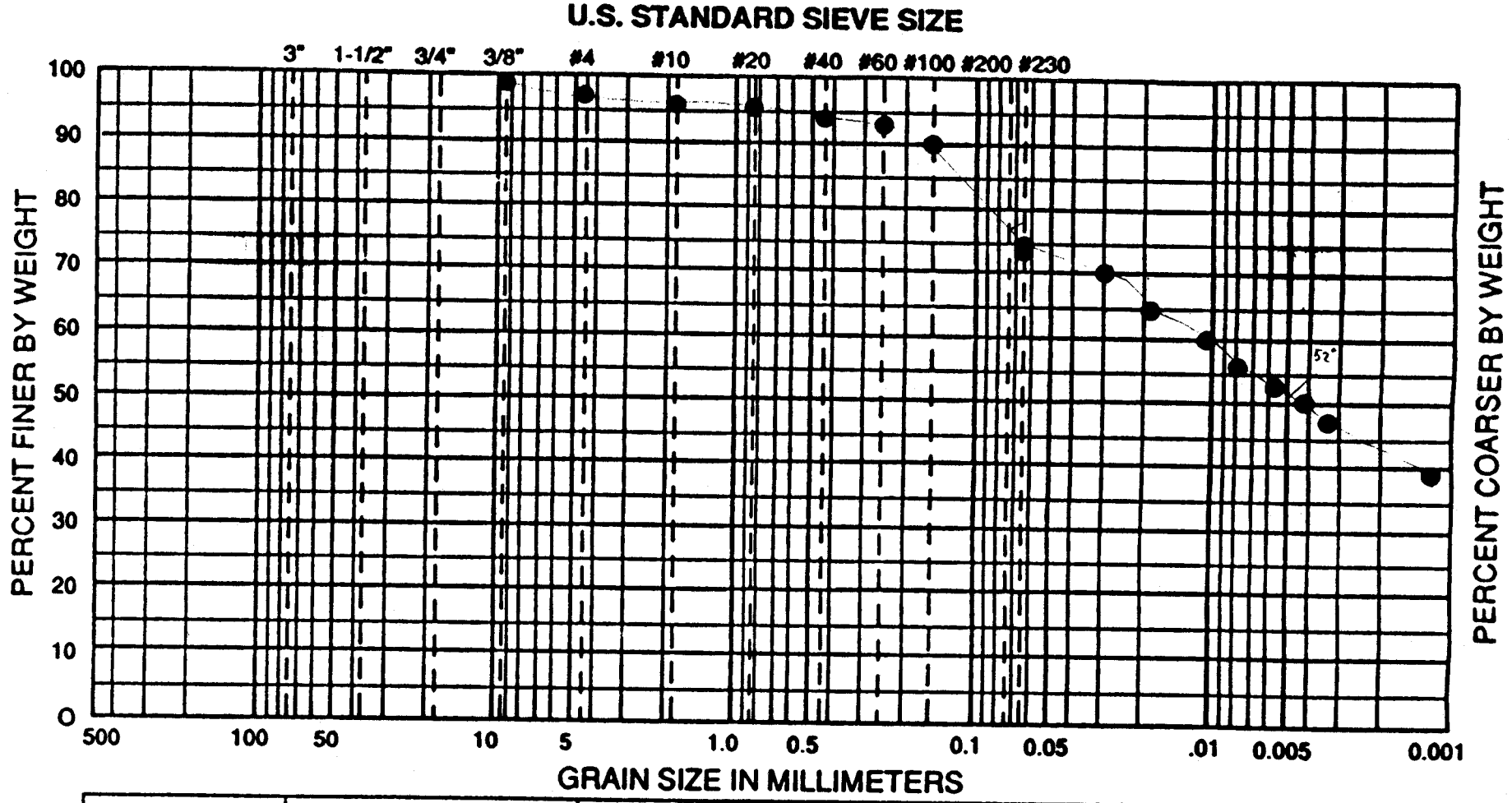


USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 9175 SAMPLE NO.: 11 DATE: 3/20/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	31'	CLAY w/ some silt and sand + gravel 2.9% f gvl, .8% c sd, 1.9% m sd, 16.9% f sd, 25.5% silt, 52% CLAY

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION - - - - - - - - - - - - - - - -

LABORATORY CLASSIFICATION - - - - - - - - - - - - -

JOB NO. 2066-03
CLIENT/OWNER Weston
LOCATION Rocky Flats / EG&G
BORING 2+75 SAMPLE #11 DEPTH @31'

FIELD DENSITY BY ___/___/___

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

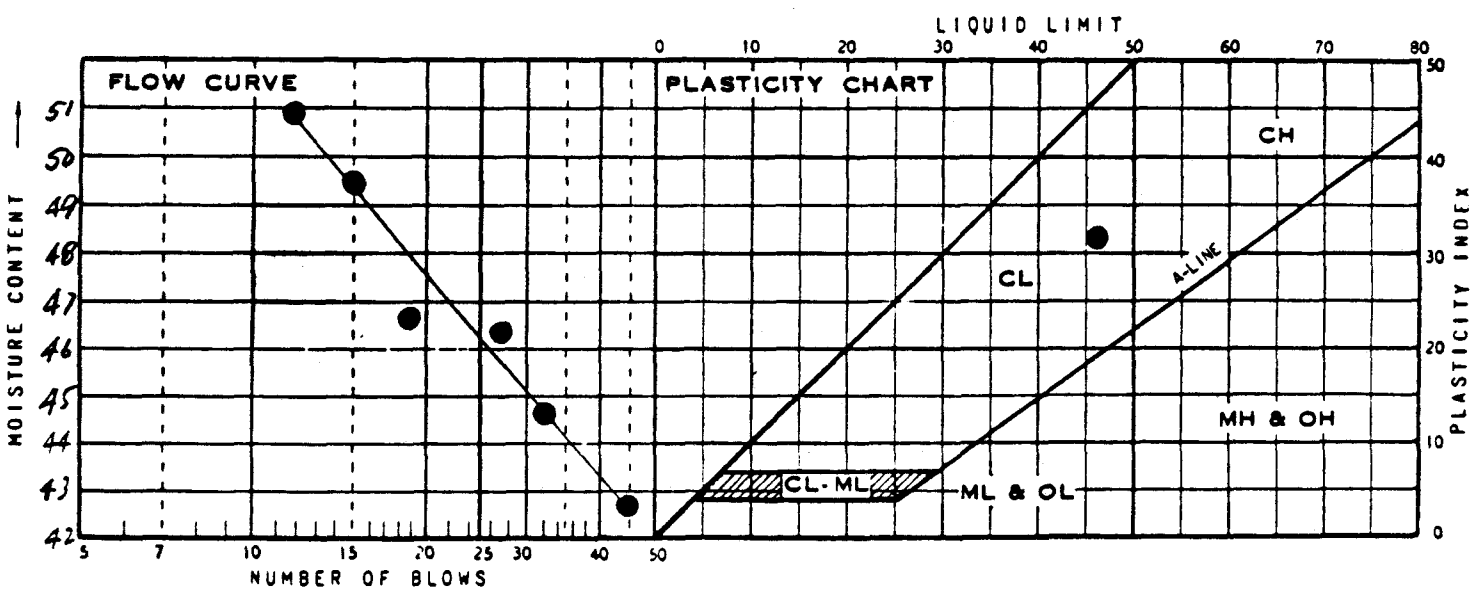
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY [illegible] 3/16/92

DETERMINATION	1	2	3	4	5	6
DISH	12C	22C	24			
WT OF DISH + WET SOIL g	5.09	5.41	5.80			
WT OF DISH + DRY SOIL g	4.54	4.82	5.16	—	—	—
WT OF MOISTURE g	0.55	0.59	0.64			
WT OF DISH g	1.05	1.04	1.04	—	—	—
WT OF DRY SOIL g	3.49	3.78	4.12			
MOISTURE CONTENT %	15.8	15.6	15.5	= 46.9/3 =	15.6	

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2028	2019	24C	2021	38C	2051
NUMBER OF BLOWS	45	32	27	19	15	12
WT OF DISH + WET SOIL g	10.07	9.65	10.24	9.31	9.90	8.92
WT OF DISH + DRY SOIL g	7.38	7.00	7.33	6.68	6.97	6.26
WT OF MOISTURE g	2.69	2.65	2.91	2.63	2.93	2.66
WT OF DISH g	1.08	1.06	1.04	1.05	1.04	1.03
WT OF DRY SOIL g	6.30	5.94	6.29	5.63	5.93	5.23
MOISTURE CONTENT %	42.7	44.6	46.3	46.7	49.4	50.9



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		46.3	15.6	30.7	CL	

ADVANCED TERRA TESTING inc

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	9+75	SAMPLED	Rocky Flats
DEPTH	34.5'	DATE TESTED	03-16-92 SR
SAMPLE NO.	#11	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	42.69
Wt. Dry Soil & Pan	(g)	42.15
Wt. Lost Moisture	(g)	0.54
Wt. of Pan Only	(g)	3.74
Wt. of Dry Soil	(g)	38.41
Moisture Content	%	1.4

Wt. Hydrom. Sample Wet (g)	55.01
Wt. Hydrom. Sample Dry (g)	54.25

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	55.01
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	55.01
Weight of - #10 Dry (g)	54.25
Wt. Total Sample Dry (g)	54.25
Calc. Wt. "W" (g)	54.25
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	1.58	1.59	0.01	0.01	0.0	100.0
#40	1.55	1.58	0.03	0.04	0.1	99.9
#60	1.57	1.62	0.05	0.09	0.2	99.8
#100	1.57	4.14	2.57	2.66	4.9	95.1
#230	1.57	17.33	15.76	18.42	34.0	66.0

SANDY CLAYEY SILT (CL)

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT	Weston	JOB NO.	2066-03
BORING NO.	9+75	SAMPLED	Rocky Flats
DEPTH	34.5'	DATE TESTED	03-16-92 SR
SAMPLE NO.	#11	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

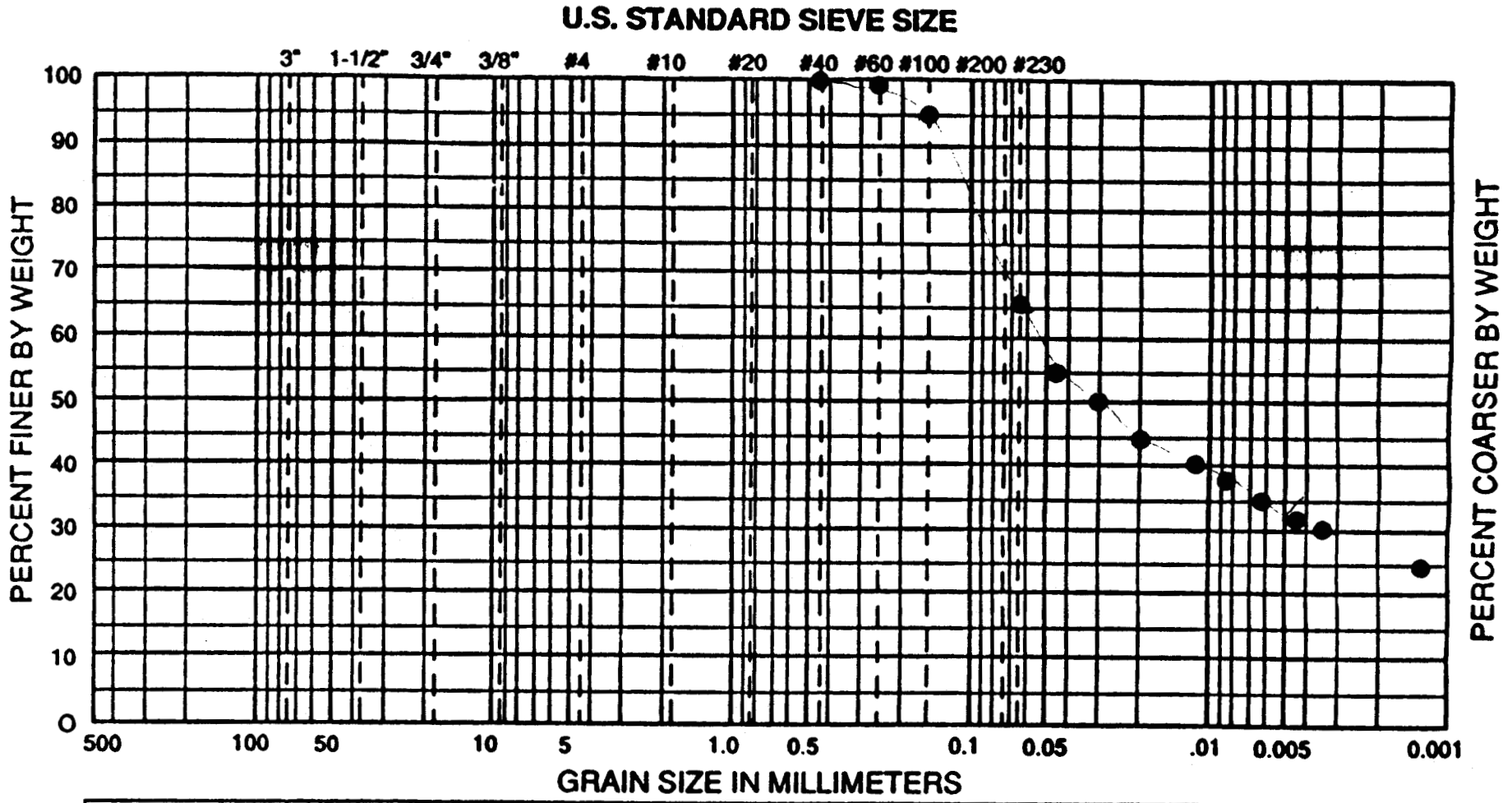
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.64	Temp. Coef. K	0.01336
Value of "a"	1.00	Wt. Dry Sample "W"	54.247
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	40.50	35.50	65.6	65.6	9.65	0.0587
1.0	34.75	29.75	55.0	55.0	10.59	0.0435
2.0	32.00	27.00	49.9	49.9	11.04	0.0314
5.0	28.75	23.75	43.9	43.9	11.58	0.0203
15.0	27.00	22.00	40.6	40.6	11.86	0.0119
30.0	25.50	20.50	37.9	37.9	12.11	0.0085
60.0	24.00	19.00	35.1	35.1	12.35	0.0061
120.0	22.50	17.50	32.3	32.3	12.60	0.0043
190.0	21.75	16.75	30.9	30.9	12.72	0.0035
1440.0	18.00	13.00	24.0	24.0	13.34	0.0013

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 9+75 SAMPLE NO.: 11 DATE: 3/20/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	34.5'	Sandy Clayey Silt

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION - - - - - - - - - - - - - - -

LABORATORY CLASSIFICATION - - - - - - - - - - - -

JOB NO. 2066-03

CLIENT/OWNER Wilson

LOCATION Rocky Flats EG&G

BORING 9 & 75 SAMPLE #1L DEPTH @34.5

FIELD DENSITY BY ..../..../....

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD [redacted]

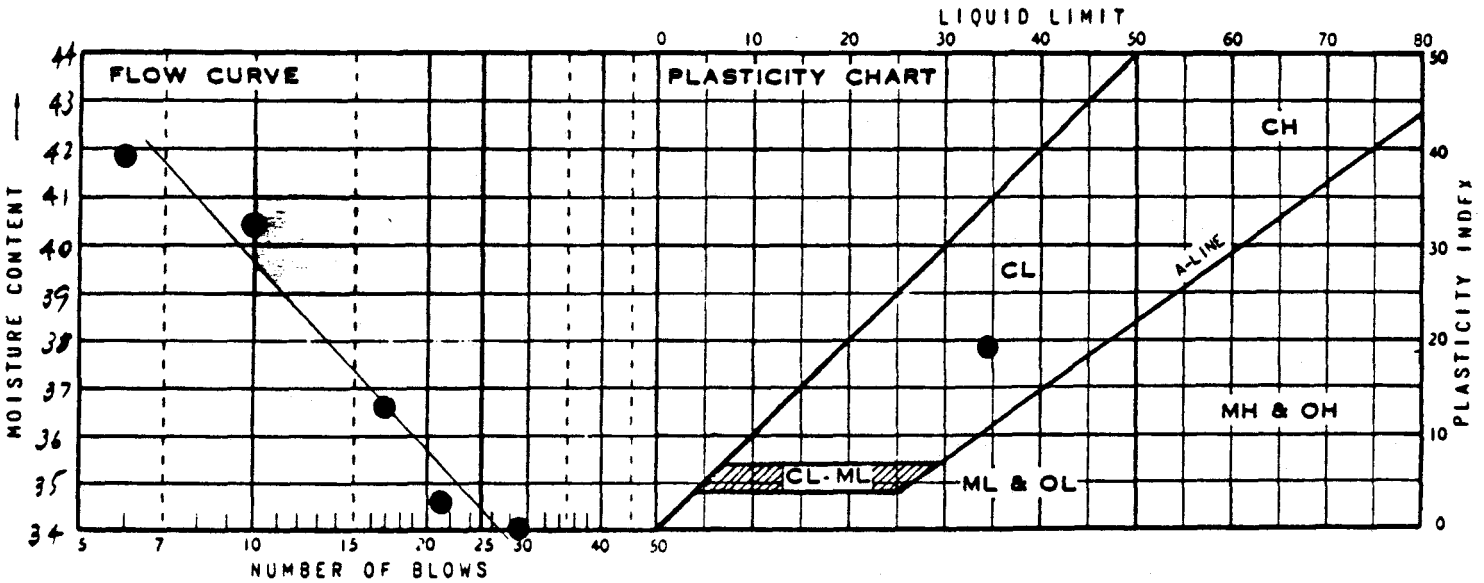
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY RBL 3/16/92

DETERMINATION	1	2	3	4	5	6
DISH	2034	31C	2029			
WT OF DISH + WET SOIL g	7.34	7.72	8.61			
WT OF DISH + DRY SOIL g	6.45	6.82	7.61	—	—	—
WT OF MOISTURE g	0.89	0.90	1.00			
WT OF DISH g	1.03	1.05	1.05	—	—	—
WT OF DRY SOIL g	5.42	5.77	6.56			
MOISTURE CONTENT %	16.4	15.6	15.2	= 47.2/3 =	15.7	

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2030	2027	2026	26C	2065	
NUMBER OF BLOWS	29	21	17	10	6	
WT OF DISH + WET SOIL g	12.90	12.99	11.87	11.52	12.70	
WT OF DISH + DRY SOIL g	9.89	9.92	8.97	8.51	9.26	—
WT OF MOISTURE g	3.01	3.07	2.90	3.01	3.44	
WT OF DISH g	1.05	1.05	1.04	1.05	1.04	—
WT OF DRY SOIL g	8.84	8.87	7.93	7.46	8.22	
MOISTURE CONTENT %	34.0	34.6	36.6	40.4	41.8	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		34.5	15.7	18.8	CL	

ADVANCED TERRA TESTING INC

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	9+75	SAMPLED	Rocky Flats
DEPTH	39'	DATE TESTED	03-16-92 SR
SAMPLE NO.	#11	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	47.86
Wt. Dry Soil & Pan	(g)	46.77
Wt. Lost Moisture	(g)	1.09
Wt. of Pan Only	(g)	3.81
Wt. of Dry Soil	(g)	42.96
Moisture Content	%	2.5

Wt. Hydrom. Sample Wet (g)	55.00
Wt. Hydrom. Sample Dry (g)	53.64

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	529.21
Weight of + #10 Before Washing (g)	1.92
Weight of + #10 After Washing (g)	1.51
Weight of - #10 Wet (g)	527.29
Weight of - #10 Dry (g)	514.64
Wt. Total Sample Dry (g)	516.15
Calc. Wt. "W" (g)	53.80
Calc. Mass + #10	0.16

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	1.51	1.51	1.51	0.3	99.7
#20	1.57	1.58	0.01	0.01	0.3	99.7
#40	1.56	1.62	0.06	0.07	0.4	99.6
#60	1.46	1.53	0.07	0.14	0.6	99.4
#100	1.58	1.93	0.35	0.49	1.2	98.8
#230	1.55	3.27	1.72	2.21	4.4	95.6

SILTY CLAY (CH)

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT	Weston	JOB NO.	2066-03
BORING NO.	9+75	SAMPLED	Rocky Flats
DEPTH	39'	DATE TESTED	03-16-92 SR
SAMPLE NO.	#11	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

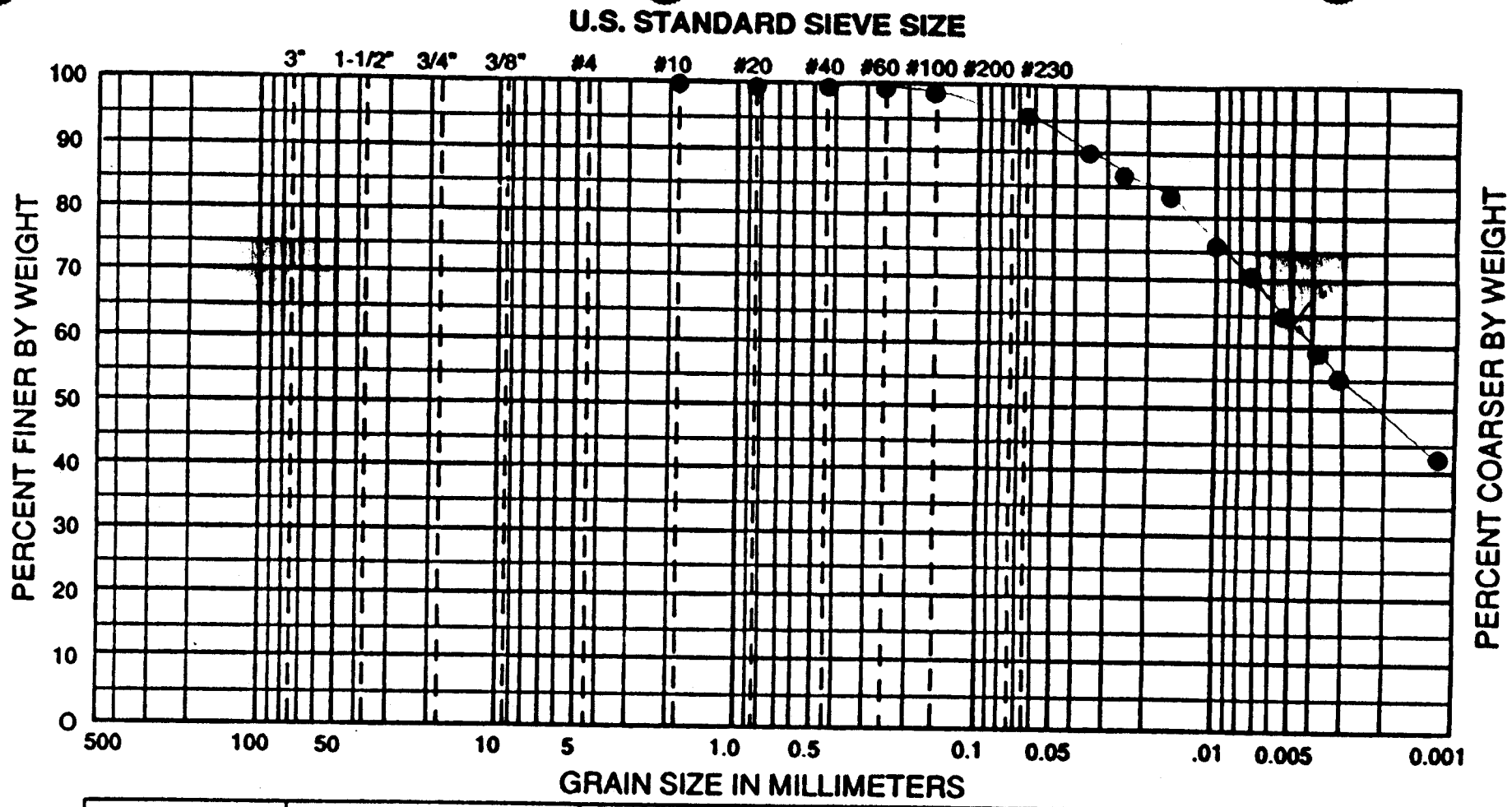
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.66	Temp. Coef. K	0.01328
Value of "a"	1.00	Wt. Dry Sample "W"	53.798
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	56.75	51.75	96.0	96.0	6.98	0.0496
1.0	53.75	48.75	90.4	90.4	7.48	0.0363
2.0	52.00	47.00	87.2	87.2	7.76	0.0262
5.0	50.50	45.50	84.4	84.4	8.01	0.0168
15.0	46.00	41.00	76.1	76.1	8.75	0.0101
30.0	43.00	38.00	70.5	70.5	9.24	0.0074
60.0	39.75	34.75	64.5	64.5	9.77	0.0054
120.0	36.75	31.75	58.9	58.9	10.26	0.0039
190.0	34.50	29.50	54.7	54.7	10.63	0.0031
1440.0	28.25	23.25	43.1	43.1	11.66	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 9+75 SAMPLE NO.: 11 DATE: 3/20/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	39.0'	SILTY CLAY w/ tr sand

.3% C sand, .1% M sand, 4.0% F sand, 31.6% SILT, 64% Clay
4.[illegible]

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION - - - - - - - - - - - - - - - -

LABORATORY CLASSIFICATION - - - - - - - - - - - - -

JOB NO. 2066-03

CLIENT/OWNER WESTON

LOCATION Rocky Flats EG&G

BORING 9+75 SAMPLE CH#11 DEPTH 39'

FIELD DENSITY BY ...../../..

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

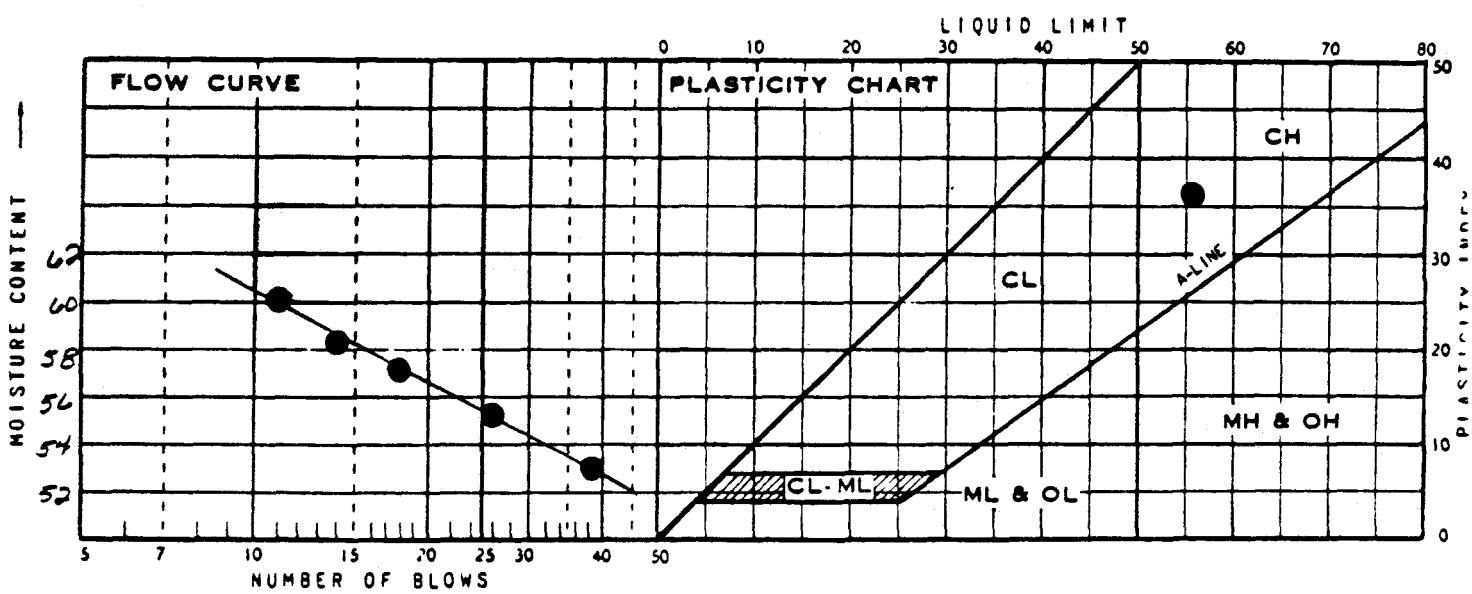
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY SR.3.116192

DETERMINATION	1	2	3	4	5	6
DISH	42 C	39 C	2038			
WT OF DISH + WET SOIL g	5.16	5.66	6.28			
WT OF DISH + DRY SOIL g	4.50	4.91	5.46	—	—	—
WT OF MOISTURE g	.66	.75	.82			
WT OF DISH g	1.05	1.03	1.05	—	—	—
WT OF DRY SOIL g	3.45	3.88	4.41			
MOISTURE CONTENT %	19.1	19.3	18.6			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	5 C	2013	2004	2036	6C	
NUMBER OF BLOWS	39	26	18±	14±	11±	
WT OF DISH + WET SOIL g	16.92	16.86	16.75	13.86	18.92	
WT OF DISH + DRY SOIL g	11.42	11.23	11.04	9.14	12.21	—
WT OF MOISTURE g	5.50	5.63	5.71	4.72	6.71	
WT OF DISH g	1.06	1.05	1.05	1.06	1.08	—
WT OF DRY SOIL g	10.36	10.18	9.99	8.08	11.13	
MOISTURE CONTENT %	53.1	55.3	57.2	58.4	60.3	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		55.4	19.0	36.4	CH	

ADVANCED TERRA TESTING inc

LDN
BR

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	9+75	SAMPLED	Rocky Flats
DEPTH	55'	DATE TESTED	03-16-92 SR
SAMPLE NO.	#11	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	56.10
Wt. Dry Soil & Pan	(g)	54.30
Wt. Lost Moisture	(g)	1.80
Wt. of Pan Only	(g)	3.72
Wt. of Dry Soil	(g)	50.58
Moisture Content	%	3.6

Wt. Hydrom. Sample Wet (g)	54.66
Wt. Hydrom. Sample Dry (g)	52.78

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	426.42
Weight of + #10 Before Washing (g)	2.06
Weight of + #10 After Washing (g)	0.09
Weight of - #10 Wet (g)	424.36
Weight of - #10 Dry (g)	411.68
Wt. Total Sample Dry (g)	411.77
Calc. Wt. "W" (g)	52.80
Calc. Mass + #10	0.01

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.09	0.09	0.09	0.0	100.0
#20	1.58	1.65	0.07	0.07	0.2	99.8
#40	1.57	1.64	0.07	0.14	0.3	99.7
#60	1.31	1.38	0.07	0.21	0.4	99.6
#100	1.58	1.65	0.07	0.28	0.6	99.4
#230	1.57	3.33	1.76	2.04	3.9	96.1

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT	Weston	JOB NO.	2066-03
BORING NO.	9+75	SAMPLED	Rocky Flats
DEPTH	55'	DATE TESTED	03-16-92 SR
SAMPLE NO.	#11	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.61	Temp. Coef. K	0.01349
Value of "a"	1.01	Wt. Dry Sample "W"	52.796
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	55.50	50.50	96.4	96.4	7.19	0.0512
1.0	54.75	49.75	95.0	95.0	7.31	0.0365
2.0	53.50	48.50	92.6	92.6	7.52	0.0262
5.0	52.25	47.25	90.2	90.2	7.72	0.0168
15.0	51.00	46.00	87.8	87.8	7.93	0.0098
30.0	49.25	44.25	84.5	84.5	8.21	0.0071
60.0	47.00	42.00	80.2	80.2	8.58	0.0051
120.0	44.25	39.25	74.9	74.9	9.03	0.0037
190.0	42.75	37.75	72.1	72.1	9.28	0.0030
1440.0	35.00	30.00	57.3	57.3	10.55	0.0012

Grain Diameter = K*(SQRT(L/T))

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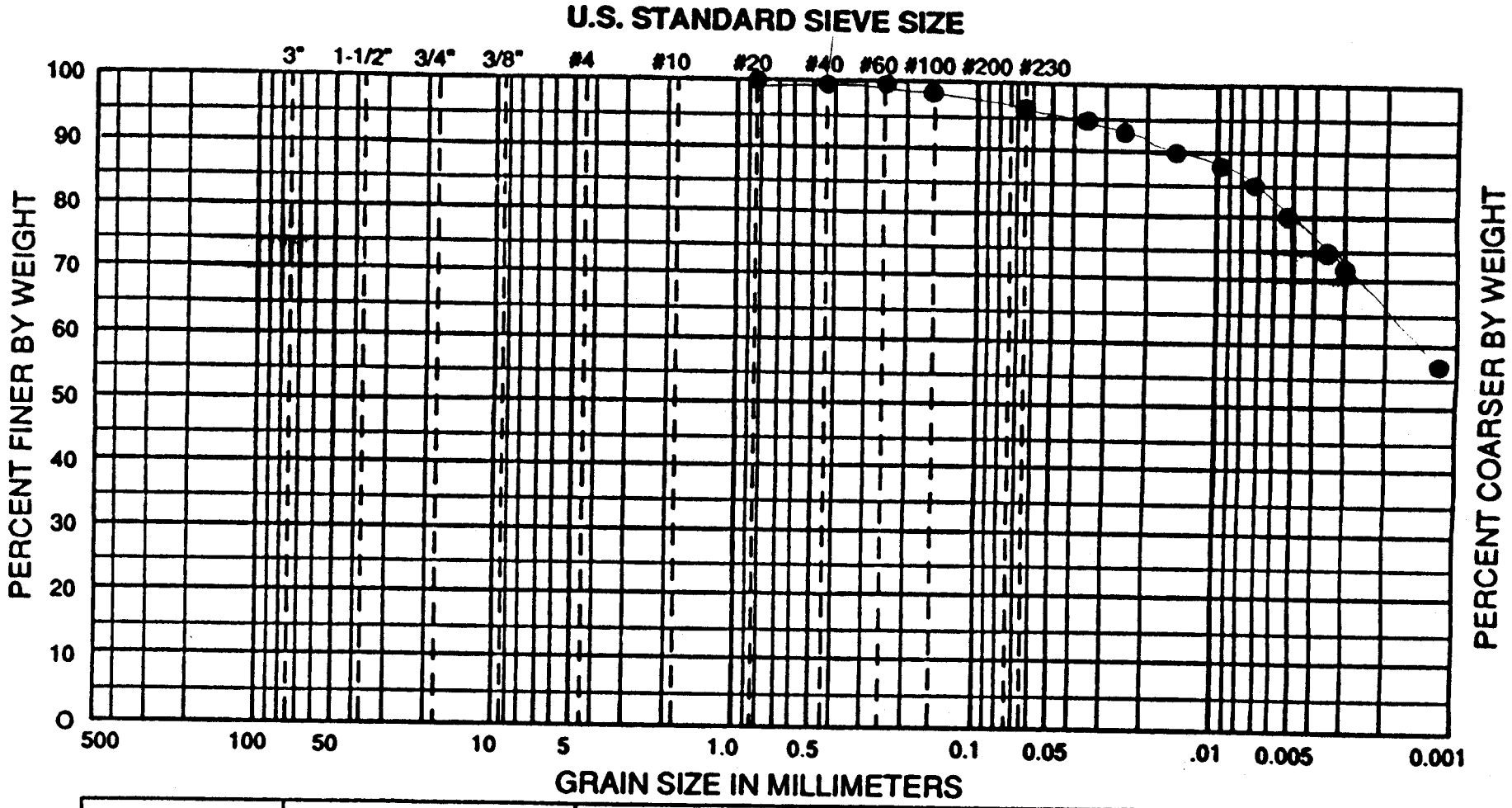


USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 9+75 SAMPLE NO.: 11 DATE: 3/20/92 PROJECT NO.:

AREA	DEPTH	CLAYSAND CLASSIFICATION
Rocky Flats	55'	.3% med sand, 3.6% fine sd, 16.1% silt, 80% clay

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03
CLIENT/OWNER Weston
LOCATION Roxy Flats
BORING 9+75 SAMPLE #4 DEPTH @55'

FIELD DENSITY BY ___/___/___

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

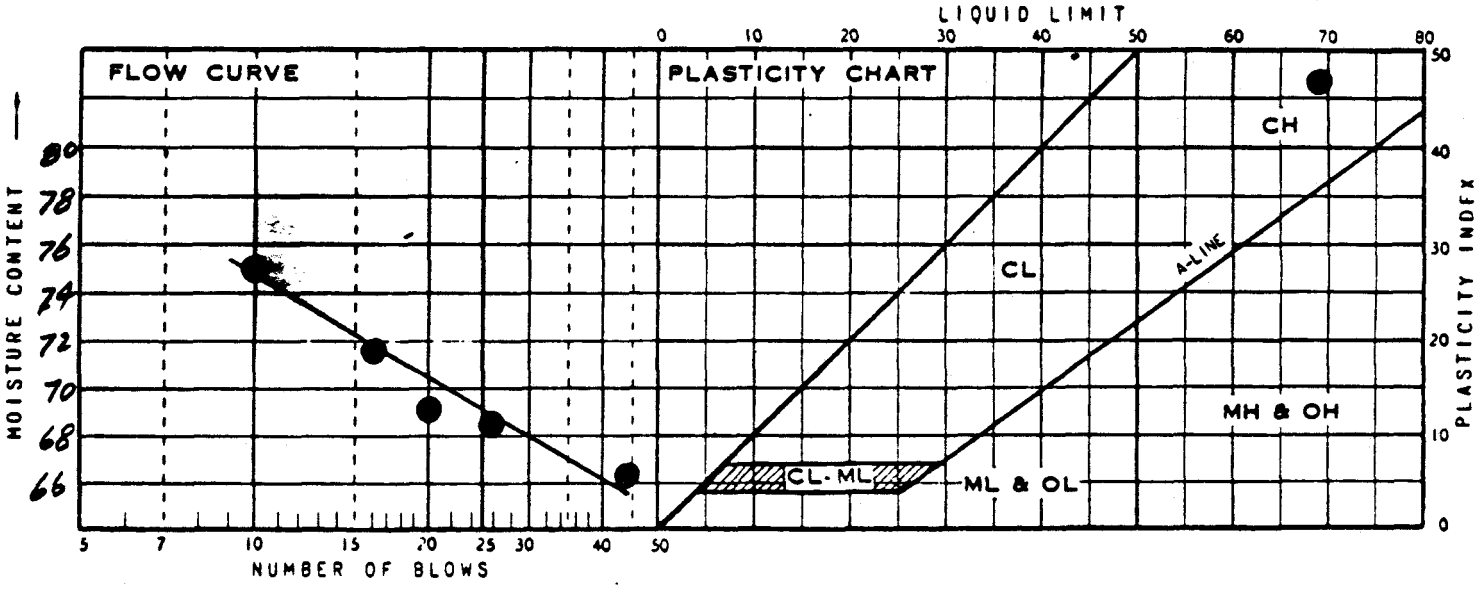
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY ~~RDX~~ 3/19/92

DETERMINATION	1	2	3	4	5	6
DISH	25C	OC	10C			
WT OF DISH + WET SOIL	8.11	6.94	6.05			
WT OF DISH + DRY SOIL	6.75	5.88	5.18	—	—	—
WT OF MOISTURE	1.36	1.06	0.87			
WT OF DISH	1.05	1.05	1.06	—	—	—
WT OF DRY SOIL	5.70	4.83	4.12			
MOISTURE CONTENT	23.9	21.9	21.1	= 66.9/3	= 22.3	

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	9C	37C	41C	2073	2021	22
NUMBER OF BLOWS	44	26	20	16	10	7
WT OF DISH + WET SOIL	9.04	7.52	9.69	9.10	8.36	8.26
WT OF DISH + DRY SOIL	5.86	4.90	6.15	5.74	5.23	5.06
WT OF MOISTURE	3.18	2.62	3.54	3.36	3.13	3.20
WT OF DISH	1.06	1.07	1.03	1.05	1.05	1.05
WT OF DRY SOIL	4.80	3.83	5.12	4.69	4.18	4.01
MOISTURE CONTENT	66.2	68.4	69.1	71.6	74.9	79.8



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		69.2	22.3	46.9	CH	

ADVANCED TERRA TESTING inc

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	10+00	SAMPLED	Rocky Flats
DEPTH	1'	DATE TESTED	02-24-92 TNU/
SAMPLE NO.	#4	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes	
NATURAL	No	
Wt. Wet Soil & Pan	(g)	58.67
Wt. Dry Soil & Pan	(g)	55.96
Wt. Lost Moisture	(g)	2.71
Wt. of Pan Only	(g)	3.78
Wt. of Dry Soil	(g)	52.18
Moisture Content	%	5.2
Wt. Hydrom. Sample Wet	(g)	60.00
Wt. Hydrom. Sample Dry	(g)	57.04

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	580.19
Weight of + #10 Before Washing (g)	18.48
Weight of + #10 After Washing (g)	14.21
Weight of - #10 Wet (g)	561.71
Weight of - #10 Dry (g)	538.04
Wt. Total Sample Dry (g)	552.25
Calc. Wt. "W" (g)	58.54
Calc. Mass + #10	1.51

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	1.11	1.11	1.11	0.2	99.8
#4	0.00	2.94	2.94	4.05	0.7	99.3
#10	0.00	10.16	10.16	14.21	2.6	97.4
#20	1.56	2.42	0.86	0.86	4.0	96.0
#40	1.56	2.76	1.20	2.06	6.1	93.9
#60	1.57	3.06	1.49	3.55	8.6	91.4
#100	1.57	4.15	2.58	6.13	13.0	87.0
#230	1.59	6.86	5.27	11.40	22.0	78.0

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	10+00	SAMPLED	Rocky Flats
DEPTH	1'	DATE TESTED	02-24-92 TNU/
SAMPLE NO.	#4	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

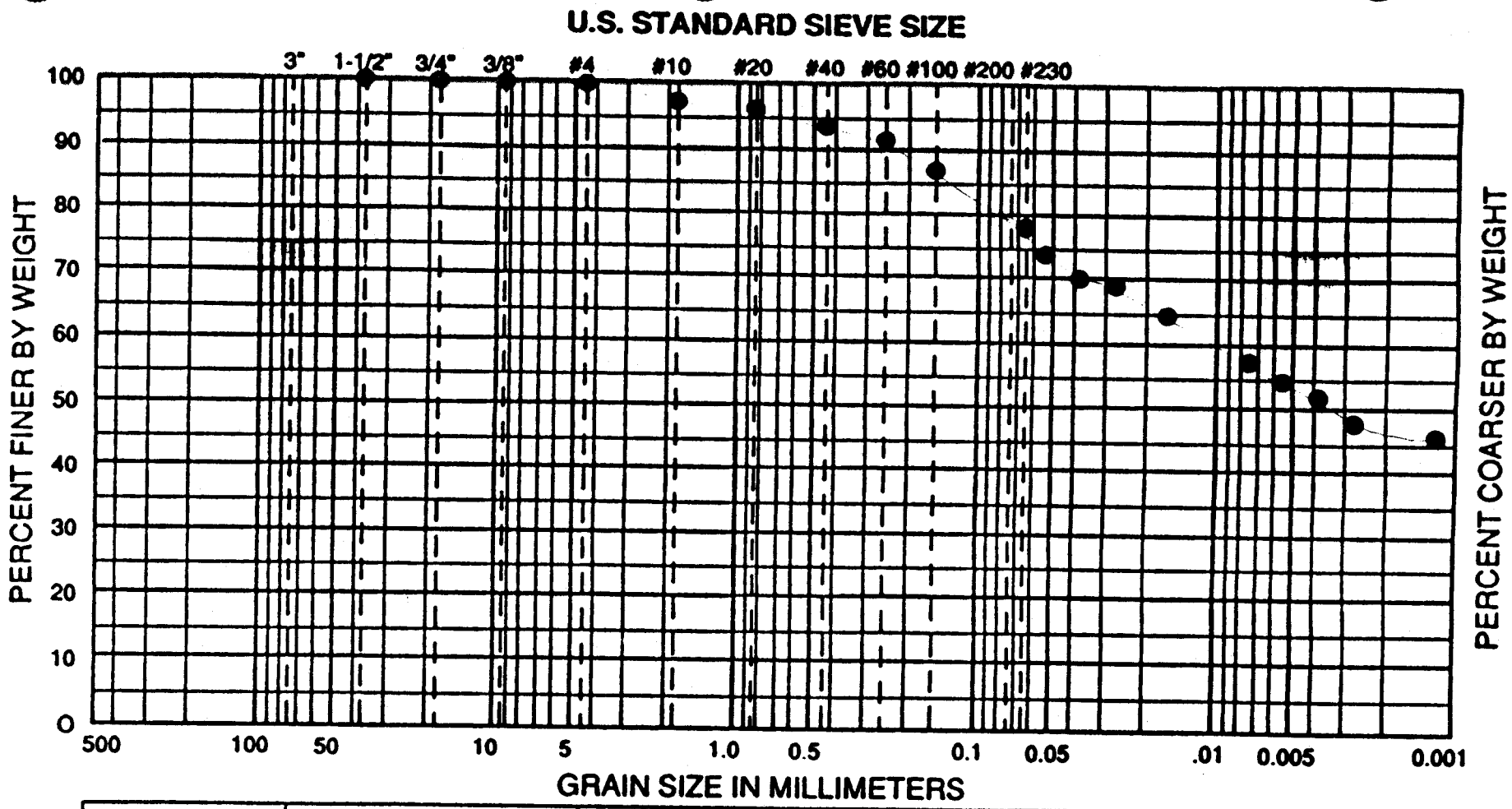
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.72	Temp. Coef. K	0.01305
Value of "a"	0.99	Wt. Dry Sample "W"	58.544
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	3.5		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	48.50	44.00	74.1	74.1	8.34	0.0533
1.0	46.00	41.50	69.9	69.9	8.75	0.0386
2.0	45.50	41.00	69.1	69.1	8.83	0.0274
5.0	43.00	38.50	64.8	64.8	9.24	0.0177
15.0	40.50	36.00	60.6	60.6	9.65	0.0105
30.0	38.50	34.00	57.3	57.3	9.98	0.0075
60.0	37.00	32.50	54.7	54.7	10.22	0.0054
120.0	35.00	30.50	51.4	51.4	10.55	0.0039
250.0	33.00	28.50	48.0	48.0	10.88	0.0027
1440.0	31.50	27.00	45.5	45.5	11.12	0.0011

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 10 + 00 SAMPLE NO.: 4 DATE: 3 MAR 92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	@ 1 ft	

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03
CLIENT/OWNER Weston
LOCATION Rocky Flats EG+G
BORING 10-00 SAMPLE CH #4 DEPTH 1'

FIELD DENSITY BY ___/___/___

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

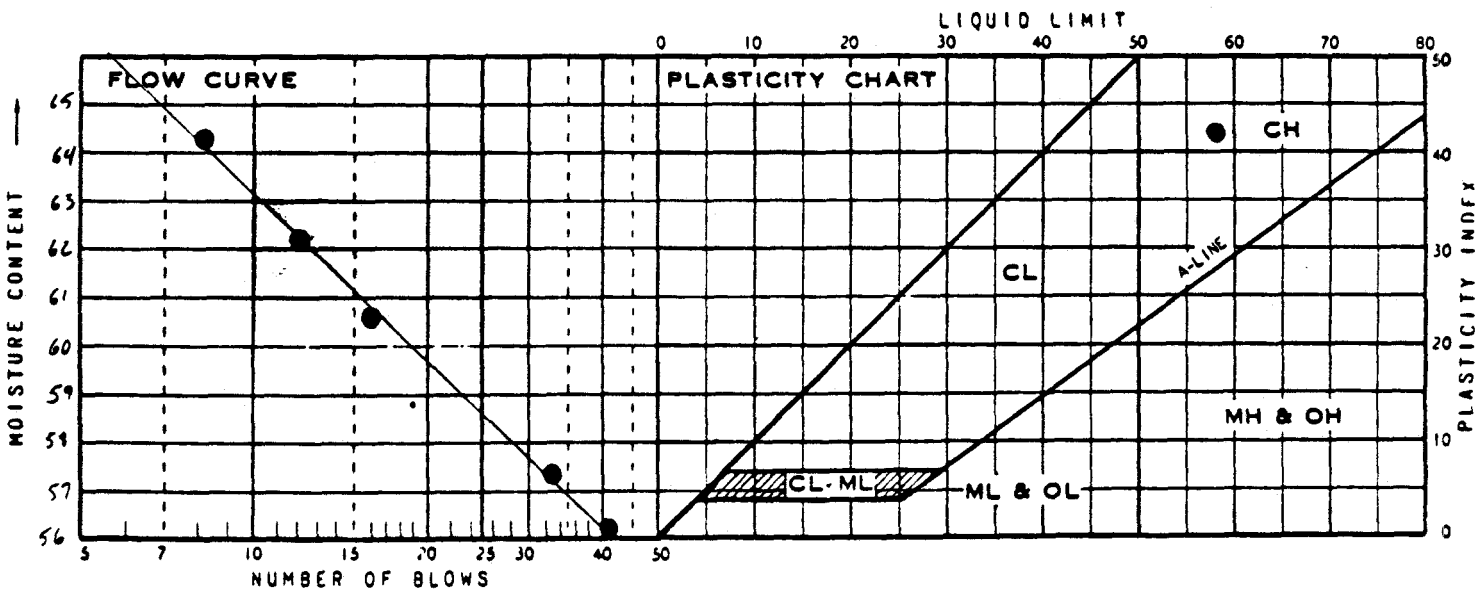
PLASTIC LIMIT BY [illegible] 2/26/92

DETERMINATION	? 1 ?	2	3	4	5	6
DISH	2C	8C	39C			
WT OF DISH + WET SOIL g	8.96g	6.30g	6.24g			
WT OF DISH + DRY SOIL g	7.73	5.56	5.49	—	—	—
WT OF MOISTURE g	1.23	.74	.75			
WT OF DISH g	1.04	1.05	1.03	—	—	—
WT OF DRY SOIL g	6.69	4.51	4.46			
MOISTURE CONTENT %	18.4	16.4	16.8			

LIQUID LIMIT

??

DETERMINATION	1	2	3	4	5	6
DISH	6C	11C	44C	48C	2021	2051
NUMBER OF BLOWS	41	33	19	16	18	8
WT OF DISH + WET SOIL g	11.92	13.29	11.59	12.06	11.72	14.47
WT OF DISH + DRY SOIL g	8.00	8.82	7.68	7.90	7.63	9.21
WT OF MOISTURE g	3.42	4.47	3.91	4.16	4.09	5.26
WT OF DISH g	1.03	1.03	1.03	1.05	1.05	1.03
WT OF DRY SOIL g	6.97	7.79	6.65	6.85	6.58	8.18
MOISTURE CONTENT %	56.2	57.4	58.8	60.7	62.2	64.3



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		58.6	16.6	42.0	CH	

ADVANCED TERRA TESTING INC

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	10+00	SAMPLED	Rocky Flats
DEPTH	5'	DATE TESTED	02-24-92 TNU/
SAMPLE NO.	#4	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	61.61
Wt. Dry Soil & Pan	(g)	59.18
Wt. Lost Moisture	(g)	2.43
Wt. of Pan Only	(g)	3.77
Wt. of Dry Soil	(g)	55.41
Moisture Content	%	4.4

Wt. Hydrom. Sample Wet (g)	60.00
Wt. Hydrom. Sample Dry (g)	57.48

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	643.19
Weight of + #10 Before Washing (g)	3.85
Weight of + #10 After Washing (g)	3.36
Weight of - #10 Wet (g)	639.34
Weight of - #10 Dry (g)	612.95
Wt. Total Sample Dry (g)	616.31
Calc. Wt. "W" (g)	57.79
Calc. Mass + #10	0.32

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	2.14	2.14	2.14	0.3	99.7
#10	0.00	1.22	1.22	3.36	0.5	99.5
#20	1.56	2.02	0.46	0.46	1.3	98.7
#40	1.56	3.07	1.51	1.97	4.0	96.0
#60	1.57	3.94	2.37	4.34	8.1	91.9
#100	1.56	6.00	4.44	8.78	15.7	84.3
#230	1.56	9.26	7.70	16.48	29.1	70.9

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	10+00	SAMPLED	Rocky Flats
DEPTH	5'	DATE TESTED	02-24-92 TNU/
SAMPLE NO.	#4	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

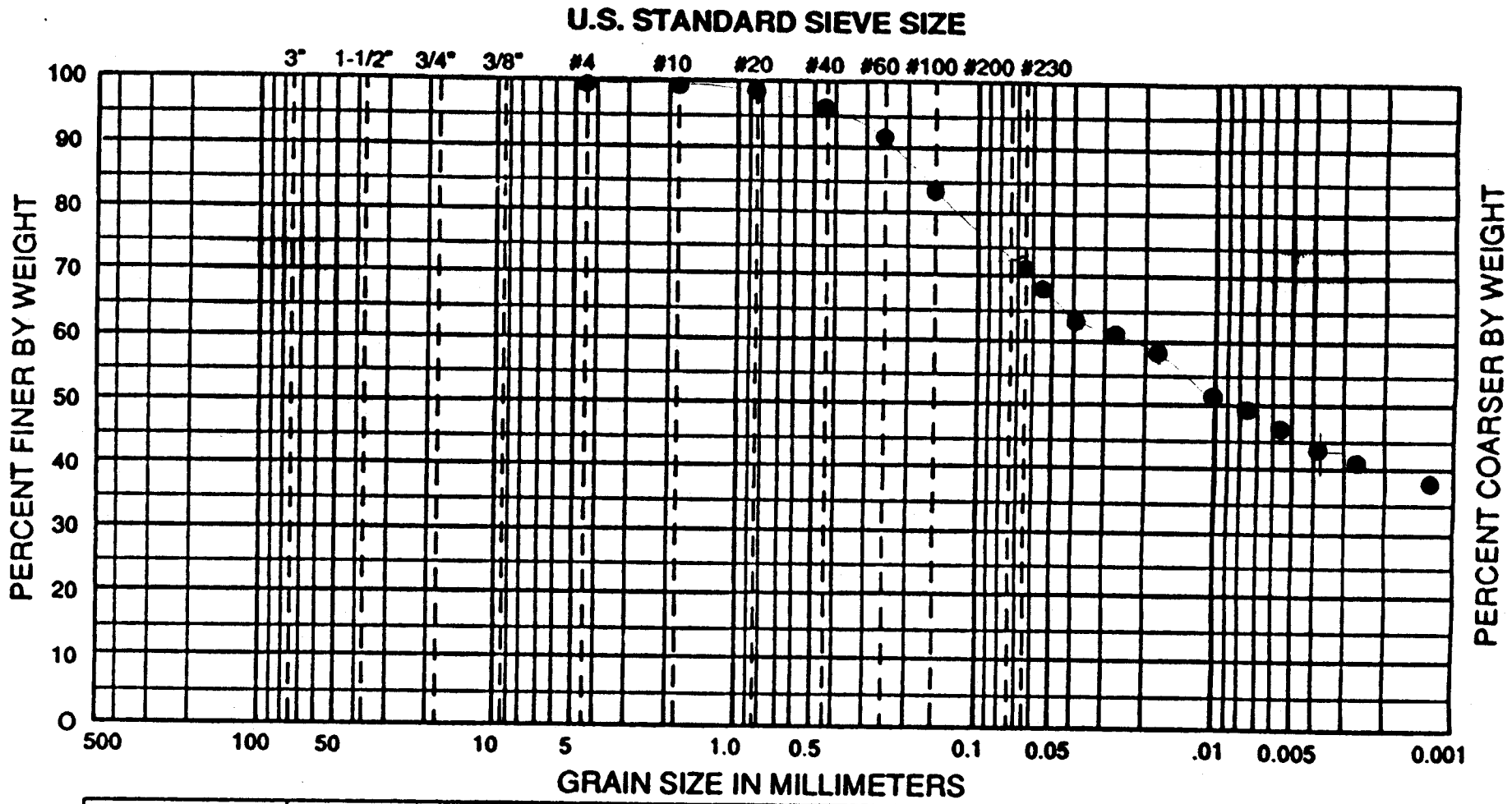
Hydrometer #	ASTM 152 H	Temp., Deg. C	23.0
Sp. Gr. of Soil	2.75	Temp. Coef. K	0.01279
Value of "a"	0.98	Wt. Dry Sample "W"	57.794
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	3.5		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	45.00	40.50	68.7	68.7	8.91	0.0540
1.0	42.50	38.00	64.4	64.4	9.32	0.0390
2.0	41.00	36.50	61.9	61.9	9.57	0.0280
5.0	39.00	34.50	58.5	58.5	9.89	0.0180
15.0	35.00	30.50	51.7	51.7	10.55	0.0107
30.0	33.50	29.00	49.2	49.2	10.80	0.0077
60.0	32.50	28.00	47.5	47.5	10.96	0.0055
120.0	30.50	26.00	44.1	44.1	11.29	0.0039
250.0	29.00	24.50	41.5	41.5	11.53	0.0027
1440.0	27.00	22.50	38.2	38.2	11.86	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 10+00 SAMPLE NO.: #4 DATE: 3-2-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	50'	Clay (CL) 39 [illegible] 47% [illegible]

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER WESTON

LOCATION _____

BORING 10+00 SAMPLE ____ DEPTH 05'

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD [redacted]

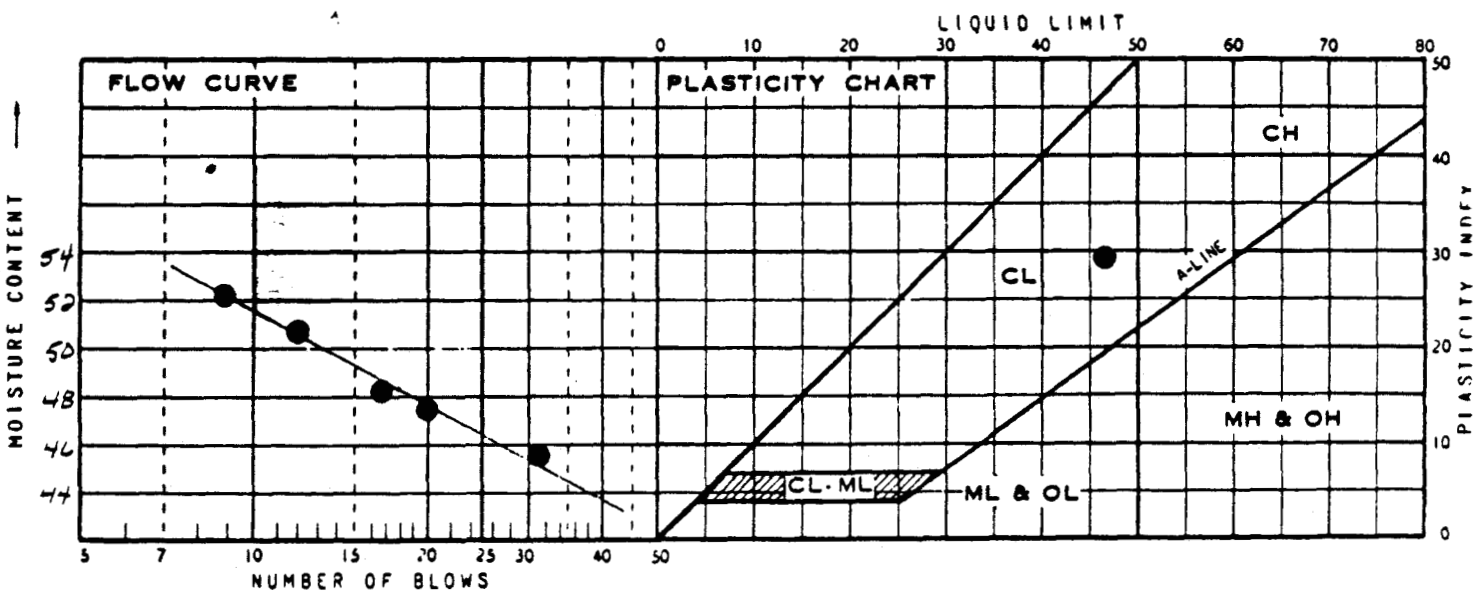
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY SB_.2.125792.

DETERMINATION	1	2	3	4	5	6
DISH	2012	18C	2037			
WT OF DISH + WET SOIL g	8.85	8.38	6.64			
WT OF DISH + DRY SOIL g	7.75	7.28	5.82	—	—	—
WT OF MOISTURE g	1.10	1.10	.82			
WT OF DISH g	1.04	1.03	1.04	—	—	—
WT OF DRY SOIL g	6.71	6.25	4.78			
MOISTURE CONTENT %	16.4	17.6	17.2			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2043	2026	2011	2044	2057	
NUMBER OF BLOWS	31	20	18 ±	12	9	
WT OF DISH + WET SOIL g	18.13	19.84	16.99	16.13	18.10	
WT OF DISH + DRY SOIL g	12.78	13.77	11.79	11.06	12.25	—
WT OF MOISTURE g	5.35	6.07	5.20	5.07	5.85	
WT OF DISH g	1.06	1.04	1.05	1.06	1.04	—
WT OF DRY SOIL g	11.72	12.73	10.74	10.00	11.21	
MOISTURE CONTENT %	45.7	47.7	48.4	50.7	52.2	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		46.5	17.0	29.5	CL	

ADVANCED TERRA TESTING inc

Ka'

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	10+00	SAMPLED	Rocky Flats
DEPTH	13.0'	DATE TESTED	02-28-92 TNU
SAMPLE NO.	#8	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	88.40
Wt. Dry Soil & Pan	(g)	86.59
Wt. Lost Moisture	(g)	1.81
Wt. of Pan Only	(g)	3.77
Wt. of Dry Soil	(g)	82.82
Moisture Content	%	2.2

Wt. Hydrom. Sample Wet (g)	60.01
Wt. Hydrom. Sample Dry (g)	58.72

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	602.11
Weight of + #10 Before Washing (g)	4.83
Weight of + #10 After Washing (g)	2.29
Weight of - #10 Wet (g)	597.28
Weight of - #10 Dry (g)	586.99
Wt. Total Sample Dry (g)	589.28
Calc. Wt. "W" (g)	58.95
Calc. Mass + #10	0.23

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	2.29	2.29	2.29	0.4	99.6
#20	1.56	1.95	0.39	0.39	1.1	98.9
#40	1.30	2.57	1.27	1.66	3.2	96.8
#60	1.32	3.49	2.17	3.83	6.9	93.1
#100	1.31	5.81	4.50	8.33	14.5	85.5
#230	1.56	10.98	9.42	17.75	30.5	69.5

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT	Weston	JOB NO.	2066-03
BORING NO.	10+00	SAMPLED	Rocky Flats
DEPTH	13.0'	DATE TESTED	02-28-92 TNU
SAMPLE NO.	#8	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.76	Temp. Coef. K	0.01290
Value of "a"	0.98	Wt. Dry Sample "W"	58.954
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	44.75	39.75	65.9	65.9	8.95	0.0546
1.0	41.00	36.00	59.7	59.7	9.57	0.0399
2.0	38.25	33.25	55.2	55.2	10.02	0.0289
5.0	36.25	31.25	51.8	51.8	10.35	0.0186
15.0	33.50	28.50	47.3	47.3	10.80	0.0109
30.0	32.00	27.00	44.8	44.8	11.04	0.0078
60.0	29.25	24.25	40.2	40.2	11.49	0.0056
120.0	27.75	22.75	37.7	37.7	11.74	0.0040
250.0	26.00	21.00	34.8	34.8	12.03	0.0028
1440.0	23.75	18.75	31.1	31.1	12.40	0.0012

Grain Diameter = K*(SQRT(L/T))

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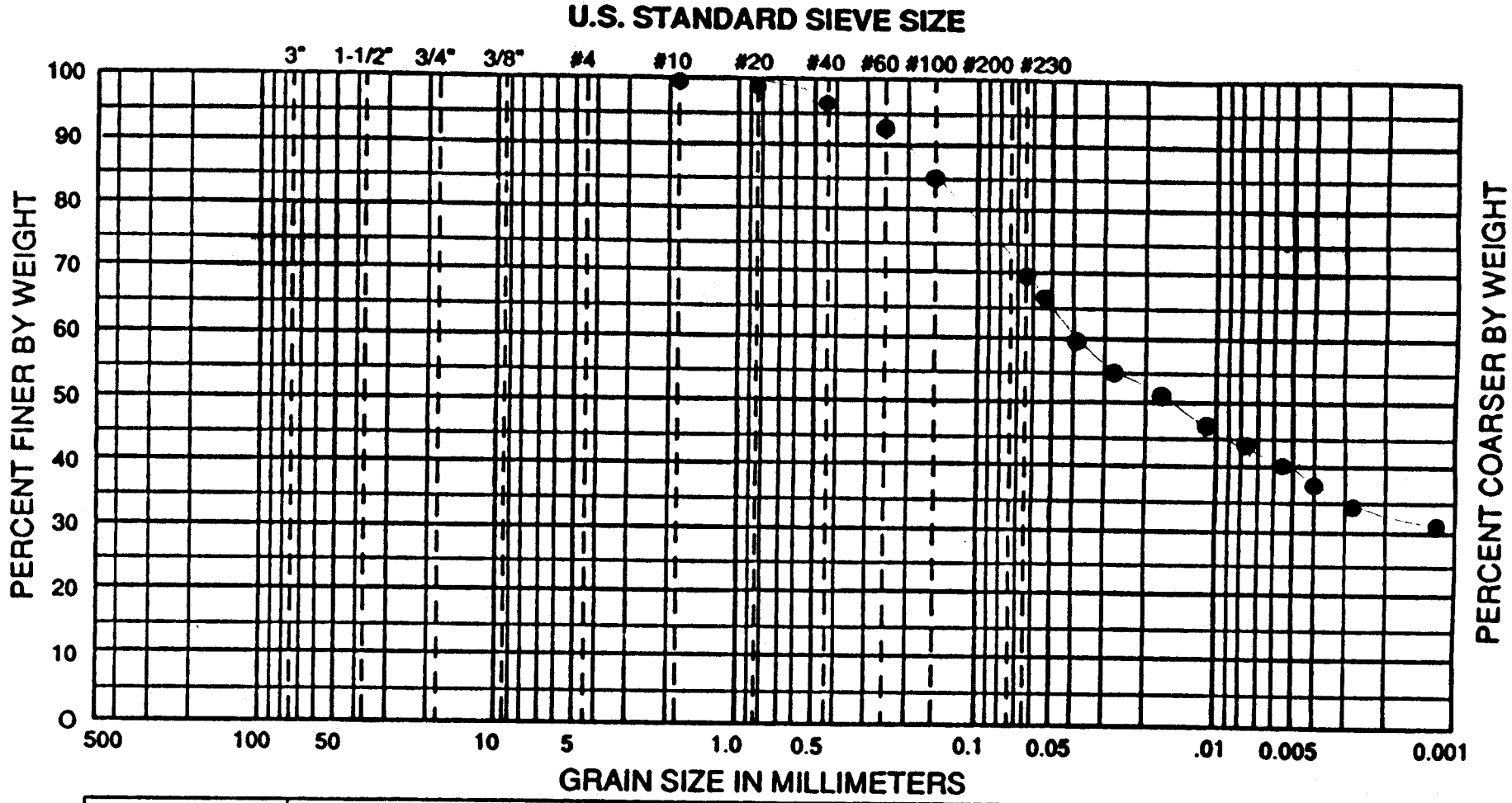
ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 10+00 SAMPLE NO.: CH#8 DATE: 3/9/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	13.0'	SANDY SILTY CLAY (CL) 4% C sd, 2.8% M. sd, 24.8% f sd, 32% Silt, 40% Clay

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03
CLIENT/OWNER Weston
LOCATION Rocky Flats EG-G
BORING 10+00 SAMPLE CH #8 DEPTH 13'

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD [redacted]

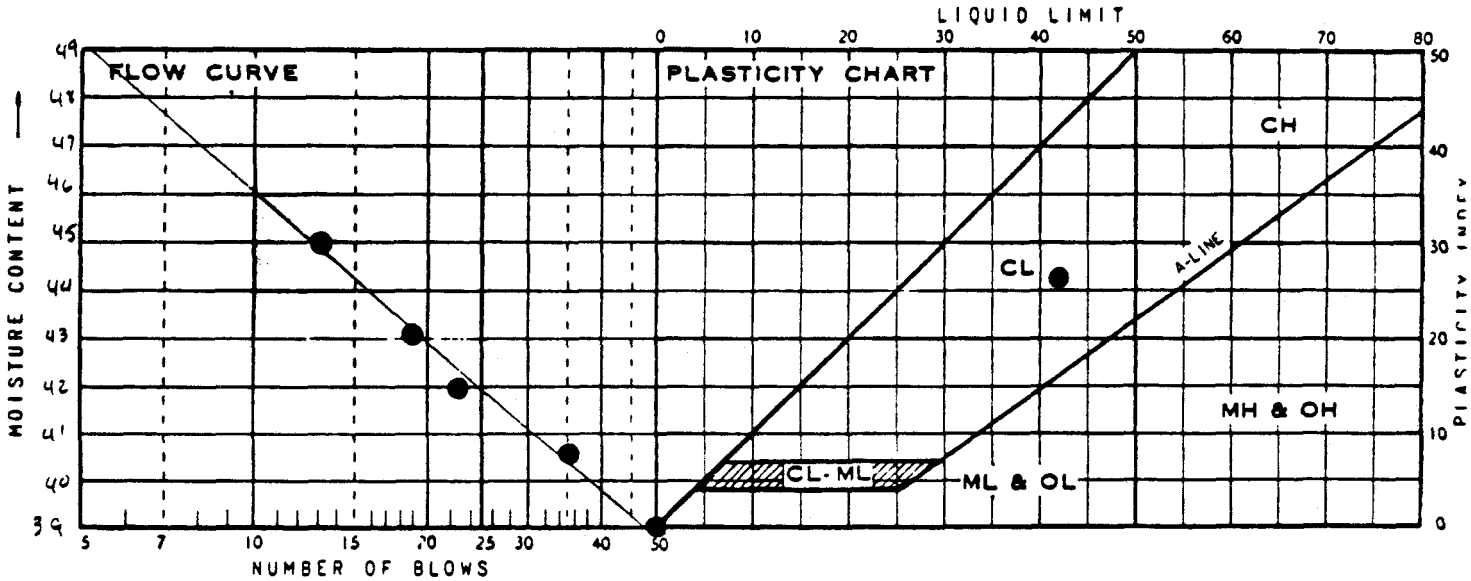
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY DH 3/3/92

DETERMINATION	1	2	3	4	5	6
DISH	2004	2002	2017			
WT OF DISH + WET SOIL g	6.50	7.08	6.85			
WT OF DISH + DRY SOIL g	5.82	6.29	6.05	—	—	—
WT OF MOISTURE g	.68	.79	.80			
WT OF DISH g	1.04	1.05	1.03	—	—	—
WT OF DRY SOIL g	4.78	5.24	4.98			
MOISTURE CONTENT %	14.2	15.1	16.1			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6 ?
DISH	30C	2033	2074	66C	2014	2041
NUMBER OF BLOWS	50	35	22	19	13	9
WT OF DISH + WET SOIL g	12.05	12.07	11.96	11.75	12.02	13.25
WT OF DISH + DRY SOIL g	8.96	8.89	8.73	8.53	8.62	9.29
WT OF MOISTURE g	3.09	3.18	3.23	3.22	3.40	3.96
WT OF DISH g	1.04	1.06	1.04	1.06	1.06	1.05
WT OF DRY SOIL g	7.92	7.83	7.69	7.47	7.56	8.24
MOISTURE CONTENT %	39.0	40.6	42.0	43.1	45.0	48.1



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		41.9	15.1	26.8	CL	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	10+00	SAMPLED	Rocky Flats
DEPTH	31.0'	DATE TESTED	02-28-92 TNU
SAMPLE NO.	#8	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	46.21
Wt. Dry Soil & Pan	(g)	45.34
Wt. Lost Moisture	(g)	0.87
Wt. of Pan Only	(g)	3.68
Wt. of Dry Soil	(g)	41.66
Moisture Content	%	2.1

Wt. Hydrom. Sample Wet (g)	60.00
Wt. Hydrom. Sample Dry (g)	58.77

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	742.30
Weight of + #10 Before Washing (g)	100.25
Weight of + #10 After Washing (g)	95.32
Weight of - #10 Wet (g)	642.05
Weight of - #10 Dry (g)	633.75
Wt. Total Sample Dry (g)	729.07
Calc. Wt. "W" (g)	67.61
Calc. Mass + #10	8.84

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	38.63	38.63	38.63	5.3	94.7
3/8"	0.00	12.46	12.46	51.09	7.0	93.0
#4	0.00	23.16	23.16	74.25	10.2	89.8
#10	0.00	21.07	21.07	95.32	13.1	86.9
#20	1.56	4.75	3.19	3.19	17.8	82.2
#40	1.56	5.20	3.64	6.83	23.2	76.8
#60	1.31	4.70	3.39	10.22	28.2	71.8
#100	1.55	6.06	4.51	14.73	34.9	65.1
#230	1.55	9.01	7.46	22.19	45.9	54.1

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	10+00	SAMPLED	Rocky Flats
DEPTH	31.0'	DATE TESTED	02-28-92 TNU
SAMPLE NO.	#8	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

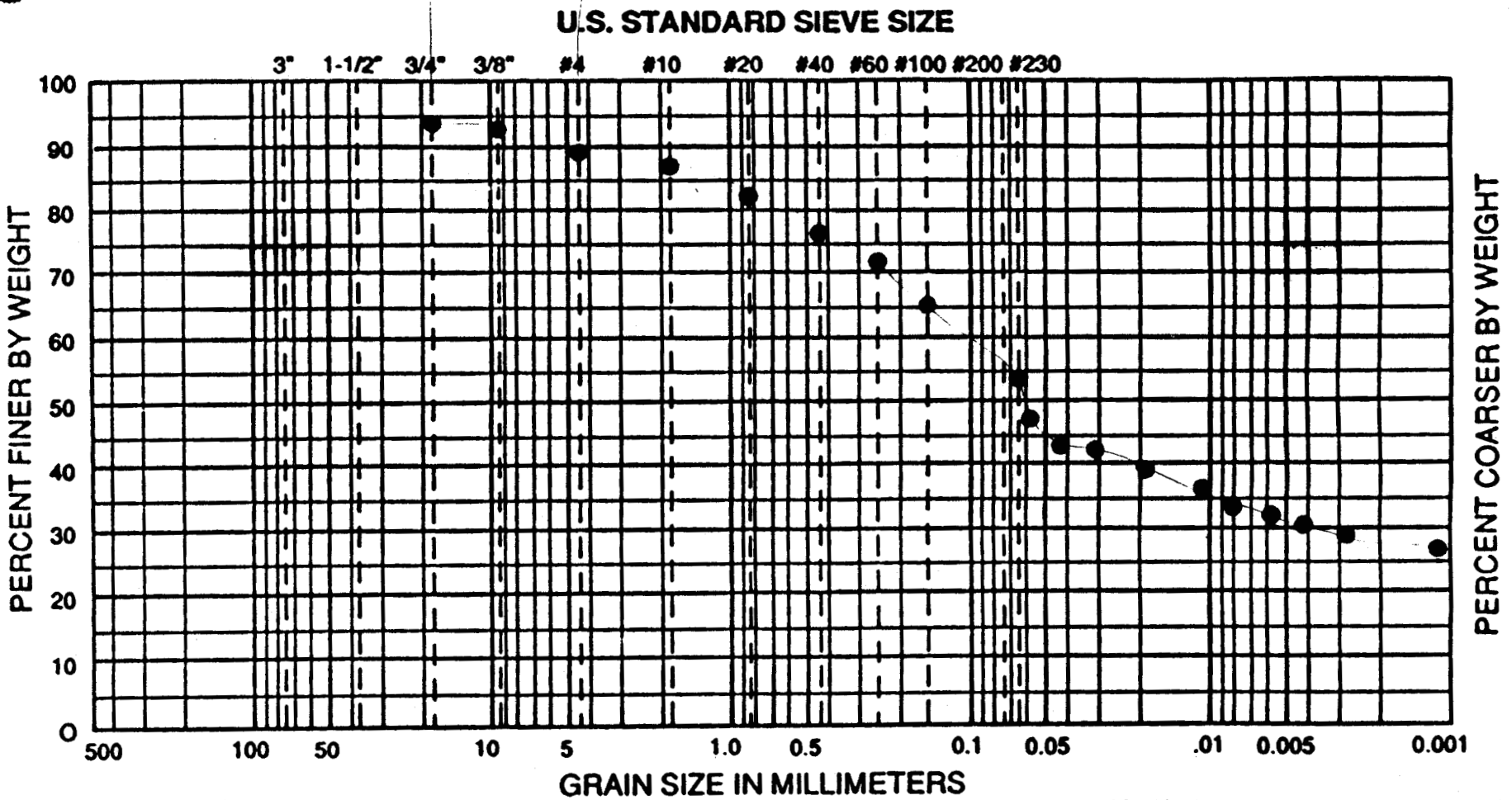
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.71	Temp. Coef. K	0.01308
Value of "a"	0.99	Wt. Dry Sample "W"	67.612
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	37.50	32.50	47.5	47.5	10.14	0.0589
1.0	34.50	29.50	43.1	43.1	10.63	0.0427
2.0	34.00	29.00	42.4	42.4	10.71	0.0303
5.0	32.00	27.00	39.5	39.5	11.04	0.0194
15.0	30.00	25.00	36.5	36.5	11.37	0.0114
30.0	28.50	23.50	34.3	34.3	11.62	0.0081
60.0	27.00	22.00	32.1	32.1	11.86	0.0058
120.0	26.00	21.00	30.7	30.7	12.03	0.0041
250.0	25.00	20.00	29.2	29.2	12.19	0.0029
1440.0	23.00	18.00	26.3	26.3	12.52	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 10 +00 SAMPLE NO.: CH # 8 DATE: 3/9/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
		Silty clayey SAND with some gravel
Rocky Flats	31.0'	5.3% c. gravel, 4.9% f. gvl, 2.9% c. sd, 10.1% m. sd, 20.0% f sd, 26% SILT, 30% CLAY

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER WESTON

LOCATION Rocky Flats EG&G

BORING 10+00 SAMPLE #8 DEPTH @31'

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD [redacted]

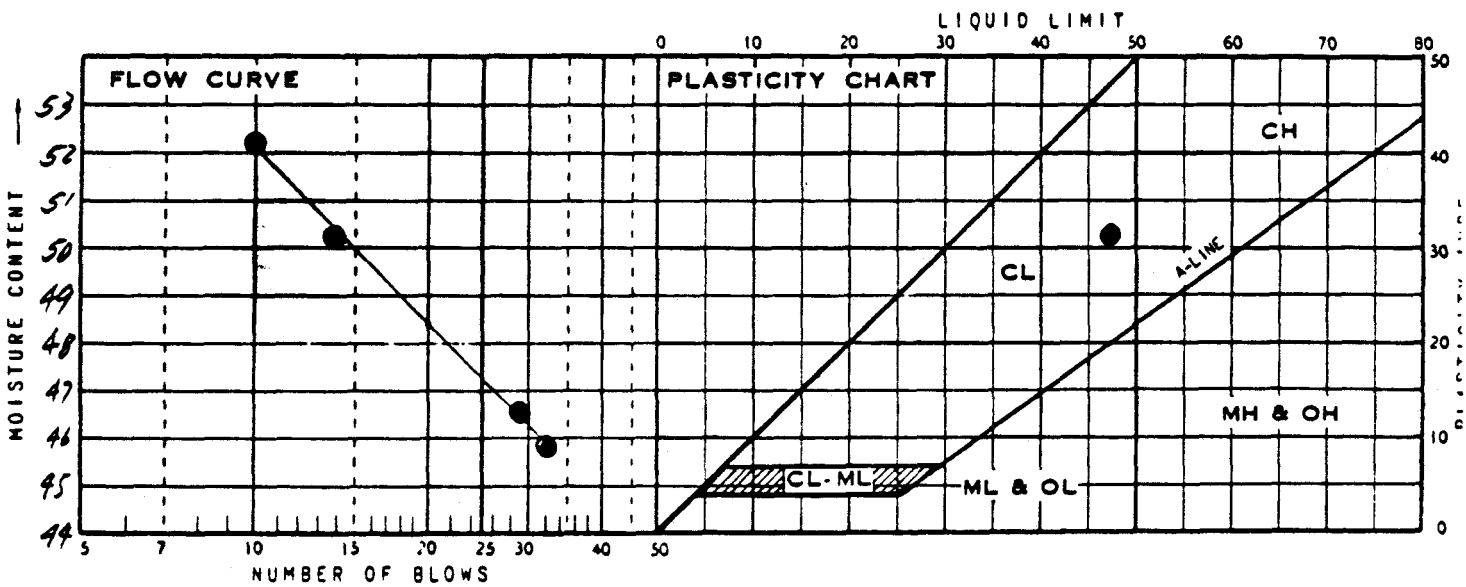
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY [illegible] 3/2/92

DETERMINATION	1	2	3	4	5	6
DISH	2055	2026	20C			
WT OF DISH + WET SOIL g	5.71	6.02	5.77			
WT OF DISH + DRY SOIL g	5.10	5.41	5.21	—	—	—
WT OF MOISTURE g	0.61	.61	.56			
WT OF DISH g	1.05	1.03	1.02	—	—	—
WT OF DRY SOIL g	4.05	4.38	4.19			
MOISTURE CONTENT %	15.1	13.9	13.4			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2025	2012	2044	35C	37C	2073
NUMBER OF BLOWS	29	32	37	20+	14-	10-
WT OF DISH + WET SOIL g	12.98	10.78	11.23	10.76	10.49	11.27
WT OF DISH + DRY SOIL g	9.19	7.72	8.01	7.59	7.33	7.76
WT OF MOISTURE g	3.79	3.06	3.22	3.17	3.16	3.51
WT OF DISH g	1.05	1.04	1.05	1.04	1.03	1.04
WT OF DRY SOIL g	8.14	6.68	6.96	6.55	6.30	6.72
MOISTURE CONTENT %	46.6	45.8	46.3	48.4	50.2	52.2



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		47.3	14.1	33.2	CL	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	10+00	SAMPLED	Rocky Flats
DEPTH	43'	DATE TESTED	03-16-92 SR
SAMPLE NO.	#11	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes
NATURAL	No

Wt. Wet Soil & Pan	(g)	47.84
Wt. Dry Soil & Pan	(g)	46.63
Wt. Lost Moisture	(g)	1.21
Wt. of Pan Only	(g)	3.62
Wt. of Dry Soil	(g)	43.01
Moisture Content	%	2.8

Wt. Hydrom. Sample Wet (g)	55.02
Wt. Hydrom. Sample Dry (g)	53.52

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	55.02
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	55.02
Weight of - #10 Dry (g)	53.52
Wt. Total Sample Dry (g)	53.52
Calc. Wt. "W" (g)	53.52
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
- #10	0.00	0.00	0.00	0.00	0.0	100.0
#20	1.58	1.63	0.05	0.05	0.1	99.9
- #40	1.55	1.63	0.08	0.13	0.2	99.8
#60	1.57	1.64	0.07	0.20	0.4	99.6
#100	1.56	1.67	0.11	0.31	0.6	99.4
#230	1.55	1.74	0.19	0.50	0.9	99.1

99.2

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	10+00	SAMPLED	Rocky Flats
DEPTH	43'	DATE TESTED	03-16-92 SR
SAMPLE NO.	#11	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.65	Temp. Coef. K	0.01332
Value of "a"	1.00	Wt. Dry Sample "W"	53.515
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	58.00	53.00	99.0	99.0	6.78	0.0490
1.0	57.75	52.75	98.6	98.6	6.82	0.0348
2.0	57.50	52.50	98.1	98.1	6.86	0.0247
5.0	57.25	52.25	97.6	97.6	6.90	0.0156
15.0	56.75	51.75	96.7	96.7	6.98	0.0091
30.0	55.00	50.00	93.4	93.4	7.27	0.0066
60.0	52.75	47.75	89.2	89.2	7.64	0.0048
120.0	50.00	45.00	84.1	84.1	8.09	0.0035
190.0	48.00	43.00	80.4	80.4	8.42	0.0028
1440.0	38.25	33.25	62.1	62.1	10.02	0.0011

Grain Diameter = K*(SQRT(L/T))

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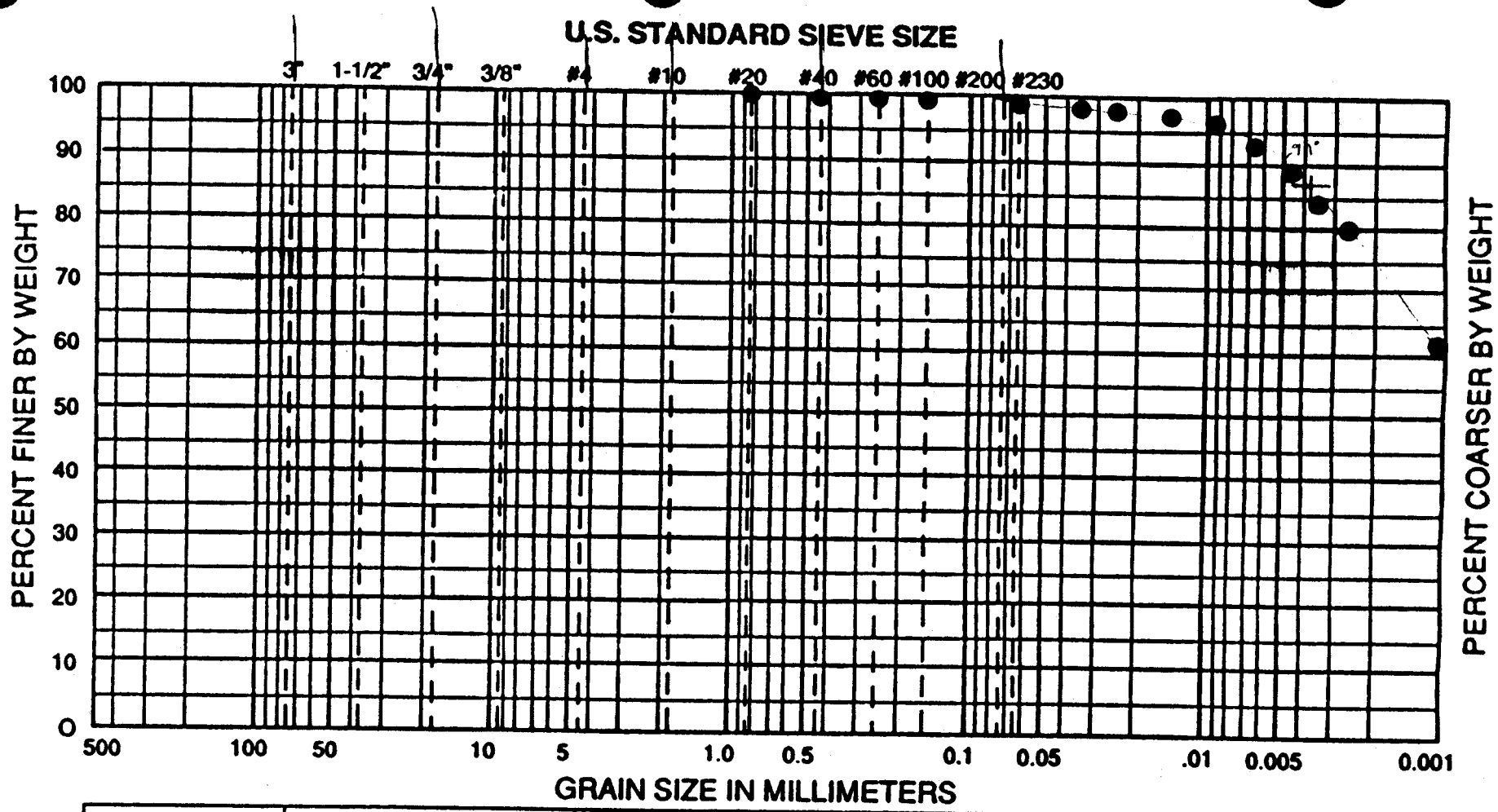


USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 10+00 SAMPLE NO.: 11 DATE: 5/20/92 PROJECT NO.: (CH)

AREA	DEPTH	CLASSIFICATION CLAY w/ trace Silt and Sand
Rocky Flats	43'	.8% Sand, 8.1% Silt, 91% Clay

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION - - - - - - - - - - - - - - -

LABORATORY CLASSIFICATION - - - - - - - - - - - - -

JOB NO. 4066-03
CLIENT/OWNER Weston
LOCATION Racing Fuels BG&G
BORING 10 thru SAMPLE #11 DEPTH @ 43'

FIELD DENSITY BY - - - - / / / -

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

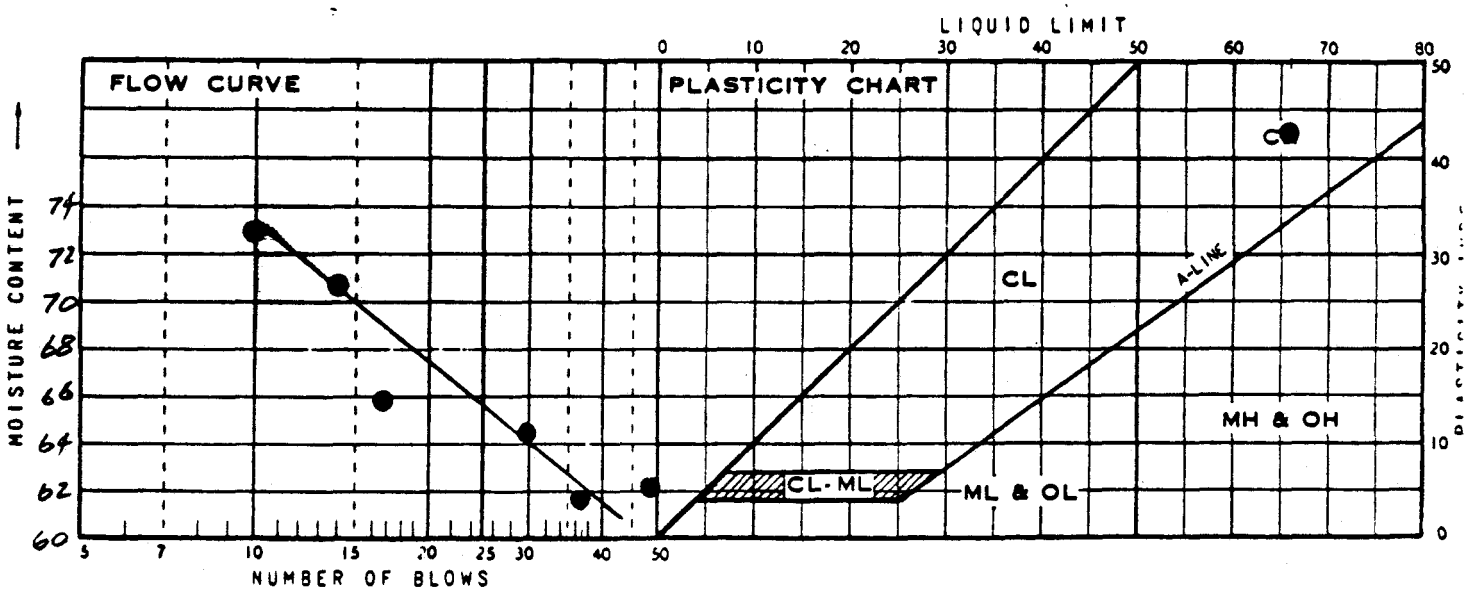
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY RAY 3/17/92

DETERMINATION	1	2	3	4	5	6
DISH	2095	10C	4			
WT OF DISH + WET SOIL g	5.13	4.95	5.61			
WT OF DISH + DRY SOIL	4.37	4.20	4.76	—	—	—
WT OF MOISTURE	0.76	0.75	0.85			
WT OF DISH	1.06	1.04	1.06	—	—	—
WT OF DRY SOIL	3.31	3.16	3.70			
MOISTURE CONTENT %	23.0	23.7	23.0	= 69.7/3 = 23.2		

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2057	2037	14C	2014	2053	17C
NUMBER OF BLOWS	37	49	30	17	14	10
WT OF DISH + WET SOIL g	11.60	9.81	10.06	9.58	11.68	10.15
WT OF DISH + DRY SOIL	7.58	6.45	6.53	6.20	7.28	6.31
WT OF MOISTURE	4.02	3.36	3.53	3.38	4.40	3.84
WT OF DISH	1.05	1.04	1.04	1.06	1.05	1.04
WT OF DRY SOIL	6.53	5.41	5.49	5.14	6.23	5.27
MOISTURE CONTENT %	61.6	62.1	64.3	65.8	70.6	72.9



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		65.7	23.2	42.5	CH	

ADVANCED TERRA TESTING inc

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MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	10+00	SAMPLED	Rocky Flats
DEPTH	53.4'	DATE TESTED	03-16-92 SR
SAMPLE NO.	#11	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes	
NATURAL	No	
Wt. Wet Soil & Pan	(g)	51.22
Wt. Dry Soil & Pan	(g)	49.23
Wt. Lost Moisture	(g)	1.99
Wt. of Pan Only	(g)	3.65
Wt. of Dry Soil	(g)	45.58
Moisture Content	%	4.4
Wt. Hydrom. Sample Wet	(g)	55.02
Wt. Hydrom. Sample Dry	(g)	52.71

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	55.02
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	55.02
Weight of - #10 Dry (g)	52.71
Wt. Total Sample Dry (g)	52.71
Calc. Wt. "W" (g)	52.71
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	1.55	1.56	0.01	0.01	0.0	100.0
#40	1.57	1.58	0.01	0.02	0.0	100.0
#60	1.55	1.57	0.02	0.04	0.1	99.9
#100	1.56	1.58	0.02	0.06	0.1	99.9
#230	1.55	2.14	0.59	0.65	1.2	98.8

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	10+00	SAMPLED	Rocky Flats
DEPTH	53.4'	DATE TESTED	03-16-92 SR
SAMPLE NO.	#11	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

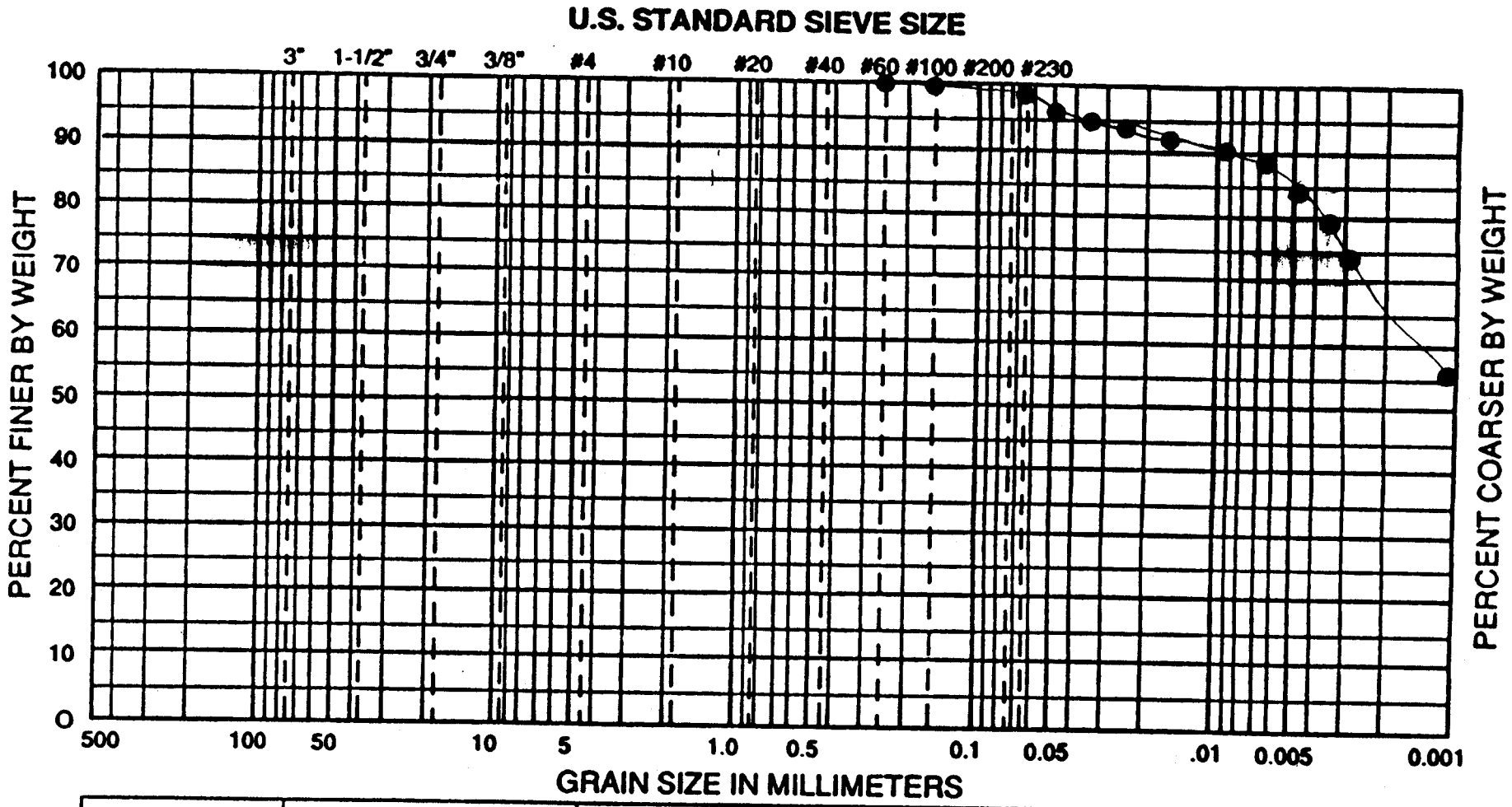
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.69	Temp. Coef. K	0.01316
Value of "a"	0.99	Wt. Dry Sample "W"	52.715
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	56.00	51.00	96.0	96.0	7.11	0.0496
1.0	55.50	50.50	95.0	95.0	7.19	0.0353
2.0	55.00	50.00	94.1	94.1	7.27	0.0251
5.0	54.00	49.00	92.2	92.2	7.43	0.0160
15.0	53.50	48.50	91.3	91.3	7.52	0.0093
30.0	51.50	46.50	87.5	87.5	7.84	0.0067
60.0	49.75	44.75	84.2	84.2	8.13	0.0048
120.0	46.75	41.75	78.6	78.6	8.62	0.0035
190.0	44.25	39.25	73.9	73.9	9.03	0.0029
1440.0	34.75	29.75	56.0	56.0	10.59	0.0011

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 10+00 SAMPLE NO.: 11 DATE: 3/20/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	53.4'	Claystone w/ some silt + f sand 1% f sand, 13% silt, 86% Clay

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-07

CLIENT/OWNER WESTON

LOCATION ROCKY FLATS EG&G

BORING 10+00 SAMPLE CH#11 DEPTH 53.4'

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD → [redacted]

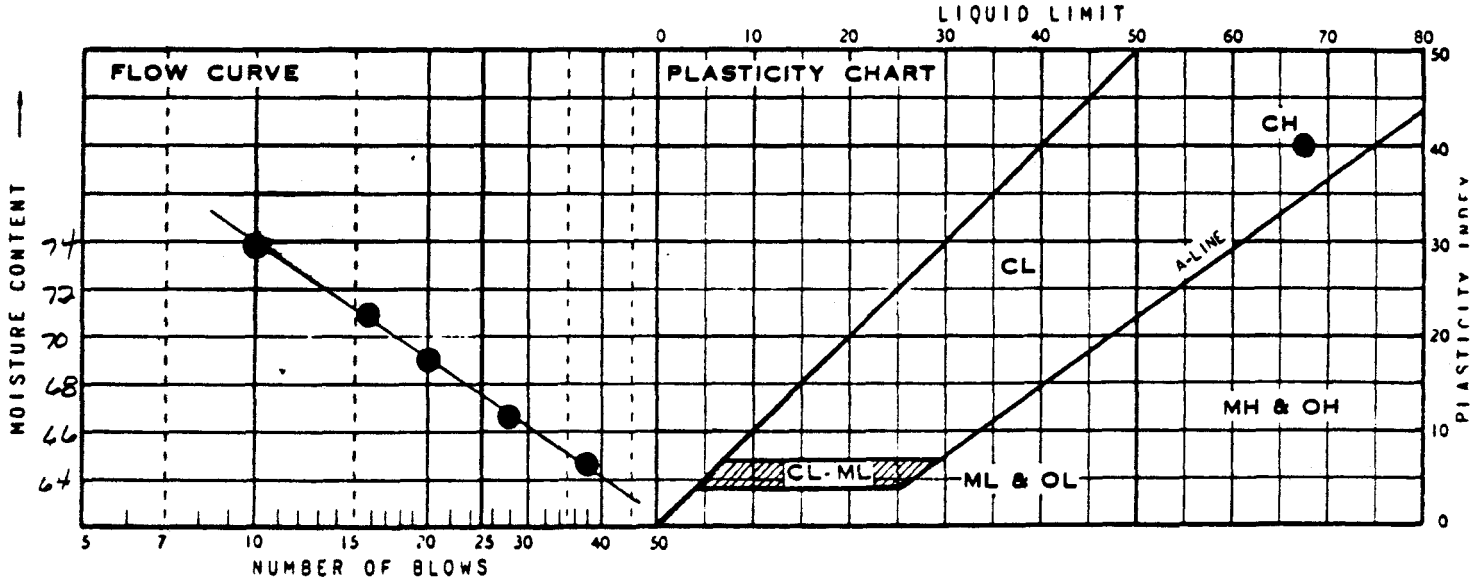
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY SB, 3/16/92

DETERMINATION	1	2	3	4	5	6
DISH	14C	2020	2095			
WT. OF DISH + WET SOIL g	5.99	4.85	5.52			
WT OF DISH + DRY SOIL g	4.94	4.04	4.57	—	—	—
WT OF MOISTURE g	1.05	.81	.95			
WT OF DISH g	1.04	1.06	1.06	—	—	—
WT OF DRY SOIL g	3.90	2.98	3.51			
MOISTURE CONTENT %	26.9	27.2	27.1			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2057	66C	43C	10C	30C	
NUMBER OF BLOWS	38	28	20	16	10±	
WT OF DISH + WET SOIL g	14.78	17.70	15.75	15.82	17.33	
WT OF DISH + DRY SOIL g	9.39	11.03	9.75	9.69	10.41	—
WT OF MOISTURE g	5.39	6.64	6.00	6.13	6.92	
WT OF DISH g	1.05	1.06	1.05	1.06	1.05	—
WT OF DRY SOIL g	8.34	9.97	8.70	8.63	9.36	
MOISTURE CONTENT %	64.6	66.6	69.0	71.0	73.9	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		67.6	27.1	40.5	CH	

ADVANCED TERRA TESTING inc

BR

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	10+00	SAMPLED	Rocky Flats
DEPTH	55.5'	DATE TESTED	03-16-92 SR
SAMPLE NO.	#11	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	49.27
Wt. Dry Soil & Pan	(g)	48.44
Wt. Lost Moisture	(g)	0.83
Wt. of Pan Only	(g)	3.18
Wt. of Dry Soil	(g)	45.26
Moisture Content	%	1.8

Wt. Hydrom. Sample Wet (g)	55.01
Wt. Hydrom. Sample Dry (g)	54.02

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	55.01
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	55.01
Weight of - #10 Dry (g)	54.02
Wt. Total Sample Dry (g)	54.02
Calc. Wt. "W" (g)	54.02
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	1.56	1.60	0.04	0.04	0.1	99.9
#40	1.56	1.59	0.03	0.07	0.1	99.9
#60	1.56	1.60	0.04	0.11	0.2	99.8
#100	1.56	1.71	0.15	0.26	0.5	99.5
#230	1.57	11.04	9.47	9.73	18.0	82.0

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	10+00	SAMPLED	Rocky Flats
DEPTH	55.5'	DATE TESTED	03-16-92 SR
SAMPLE NO.	#11	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.64	Temp. Coef. K	0.01336
Value of "a"	1.00	Wt. Dry Sample "W"	54.023
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	47.00	42.00	77.9	77.9	8.58	0.0554
1.0	41.25	36.25	67.2	67.2	9.53	0.0412
2.0	36.00	31.00	57.5	57.5	10.39	0.0304
5.0	31.00	26.00	48.2	48.2	11.21	0.0200
15.0	29.00	24.00	44.5	44.5	11.53	0.0117
30.0	27.75	22.75	42.2	42.2	11.74	0.0084
60.0	26.25	21.25	39.4	39.4	11.99	0.0060
120.0	24.75	19.75	36.6	36.6	12.23	0.0043
190.0	23.25	18.25	33.8	33.8	12.48	0.0034
1440.0	19.00	14.00	26.0	26.0	13.17	0.0013

Grain Diameter = K*(SQRT(L/T))

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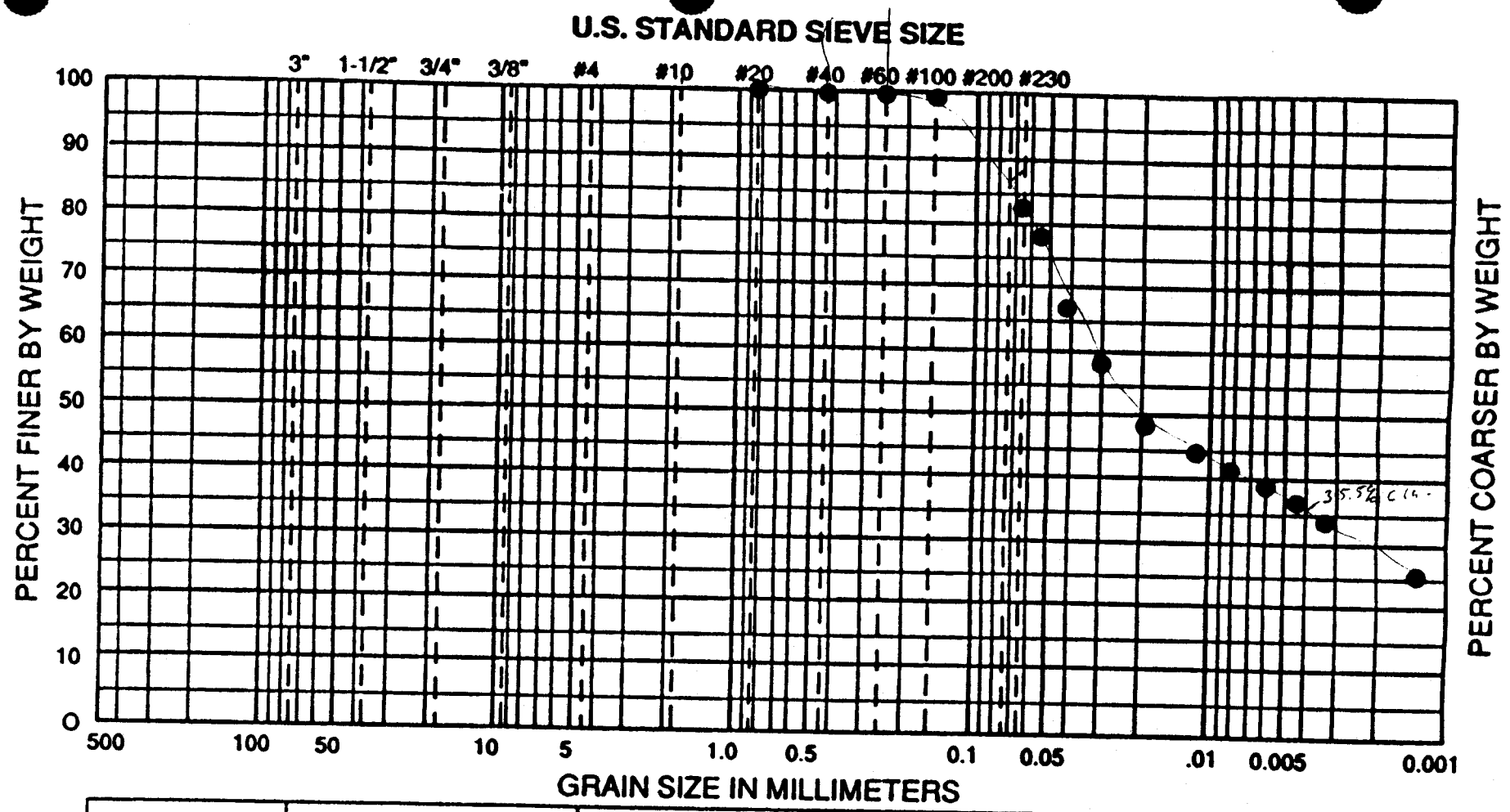


USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 10 +00 SAMPLE NO.: 11 DATE: 3/20/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION CLAYEY SILTSTONE w/ some sand
Rocky Flats	55.5'	.1% c sd, .1% m sd, 13.8% f sand, 50.5% silt, 35.5% Clay

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER Weston

LOCATION Rocky Flat SG&G

BORING 10+00 SAMPLE #11 DEPTH 55.5

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

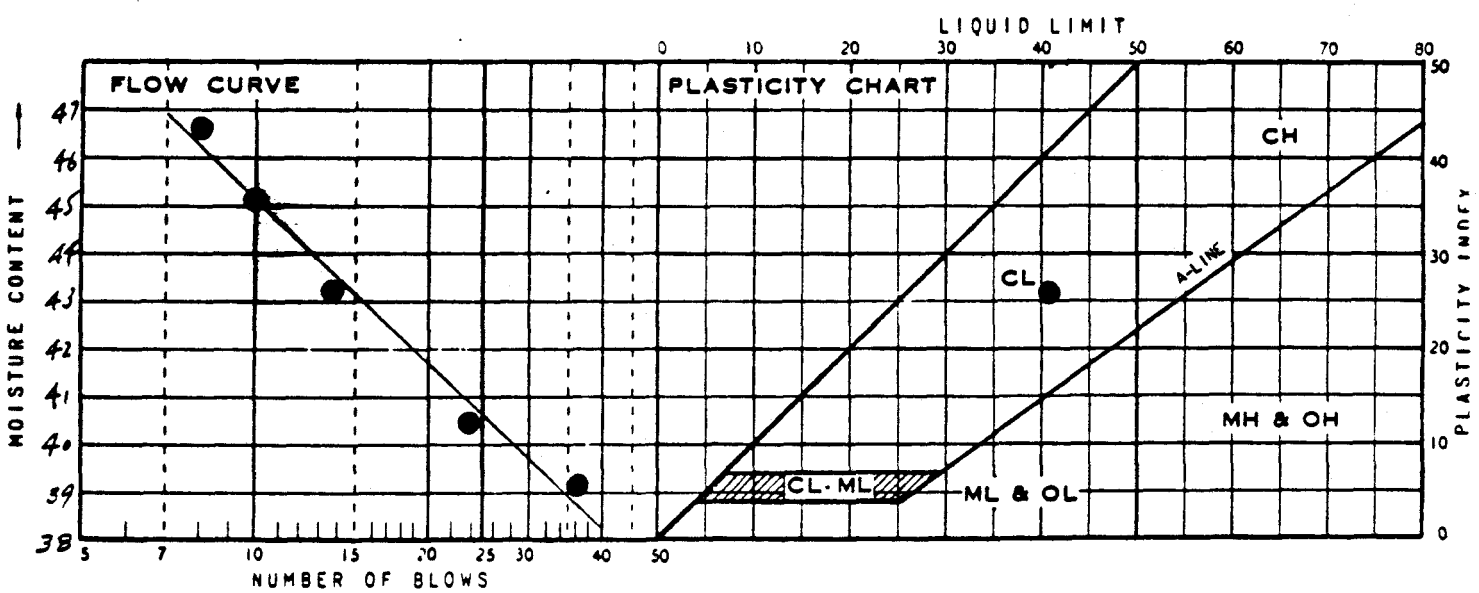
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY [illegible] 3/16/92

DETERMINATION	1	2	3	4	5	6
DISH	2033	2010	2059			
WT OF DISH + WET SOIL g	7.44	6.98	6.63			
WT OF DISH + DRY SOIL g	6.59	6.22	5.87	—	—	—
WT OF MOISTURE g	0.85	0.76	0.76			
WT OF DISH g	1.04	1.06	1.05	—	—	—
WT OF DRY SOIL g	5.55	5.16	4.82			
MOISTURE CONTENT %	15.3	14.7	15.8	= 45.8/3 =	15.3	

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2075	7C	2052	2066	21C	18C
NUMBER OF BLOWS	27	24	36	14	10	8
WT OF DISH + WET SOIL g	9.90	9.77	10.27	10.19	11.30	11.00
WT OF DISH + DRY SOIL g	7.43	7.26	7.67	7.43	8.11	7.83
WT OF MOISTURE g	2.47	2.51	2.60	2.76	3.19	3.17
WT OF DISH g	1.04	1.04	1.02	1.04	1.04	1.04
WT OF DRY SOIL g	6.39	6.22	6.65	6.39	7.07	6.79
MOISTURE CONTENT %	38.6	40.4	39.1	43.2	45.1	46.7



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		40.7	15.3	25.4	CL	

ADVANCED TERRA TESTING inc

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	10+25	SAMPLED	Rocky Flats
DEPTH	15.0'	DATE TESTED	02-18-92 TNU
SAMPLE NO.	#6	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	45.01
Wt. Dry Soil & Pan	(g)	43.60
Wt. Lost Moisture	(g)	1.41
Wt. of Pan Only	(g)	3.61
Wt. of Dry Soil	(g)	39.99
Moisture Content	%	3.5

Wt. Hydrom. Sample Wet (g)	60.64
Wt. Hydrom. Sample Dry (g)	58.58

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	468.52
Weight of + #10 Before Washing (g)	12.22
Weight of + #10 After Washing (g)	8.68
Weight of - #10 Wet (g)	456.30
Weight of - #10 Dry (g)	444.18
Wt. Total Sample Dry (g)	452.86
Calc. Wt. "W" (g)	59.72
Calc. Mass + #10	1.14

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	4.92	4.92	4.92	1.1	98.9
#10	0.00	3.76	3.76	8.68	1.9	98.1
#20	1.57	3.03	1.46	1.46	4.4	95.6
#40	1.55	3.22	1.67	3.13	7.2	92.8
#60	1.57	3.51	1.94	5.07	10.4	89.6
#100	1.57	4.56	2.99	8.06	15.4	84.6
#230	1.56	7.30	5.74	13.80	25.0	75.0

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	10+25	SAMPLED	Rocky Flats
DEPTH	15.0'	DATE TESTED	02-18-92 TNU
SAMPLE NO.	#6	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

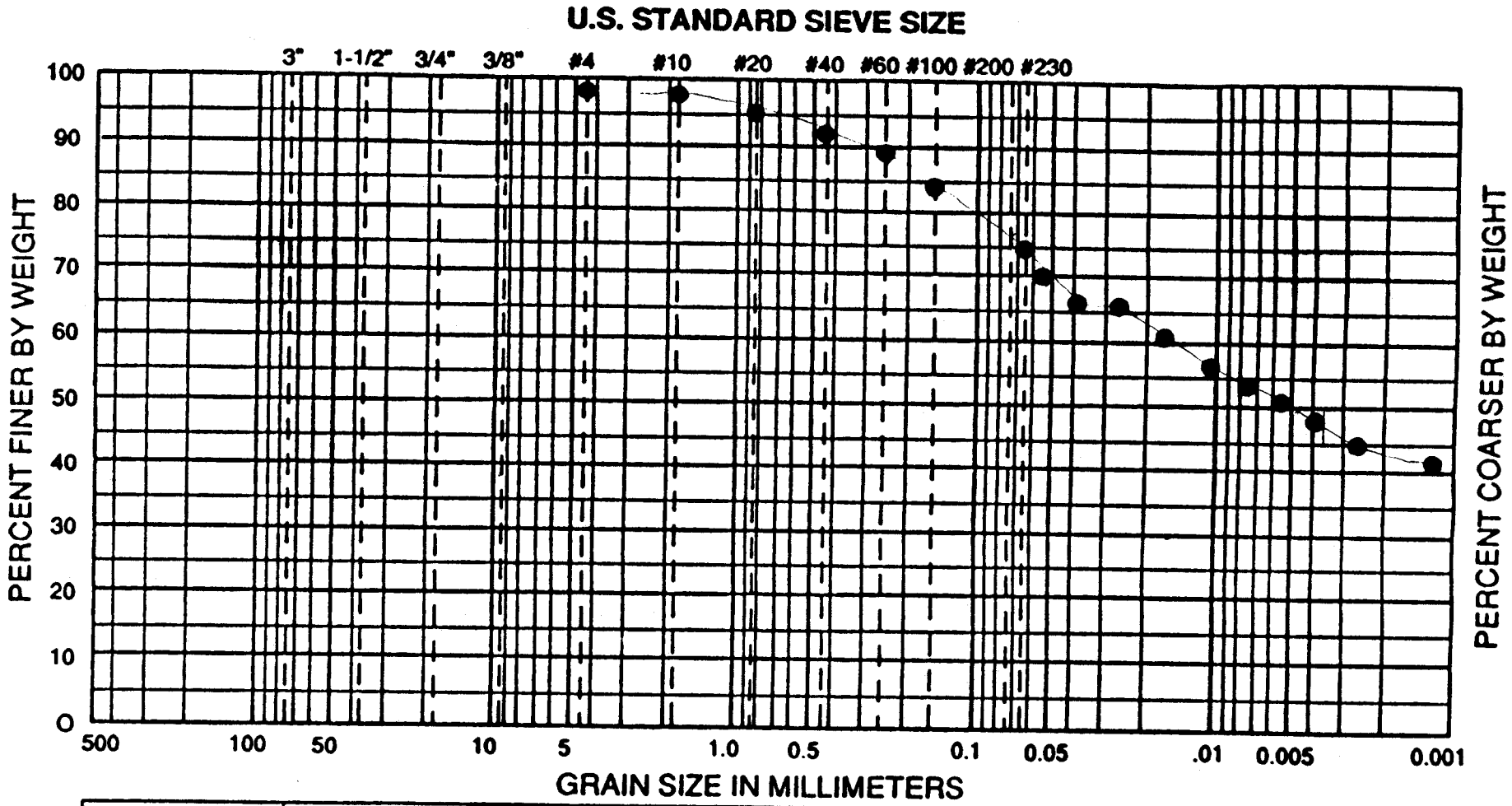
Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.73	Temp. Coef. K	0.01327
Value of "a"	0.98	Wt. Dry Sample "W"	59.721
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	5.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	49.00	43.00	70.8	70.8	8.25	0.0539
1.0	46.50	40.50	66.7	66.7	8.66	0.0391
2.0	46.00	40.00	65.9	65.9	8.75	0.0278
5.0	43.50	37.50	61.8	61.8	9.16	0.0180
15.0	41.00	35.00	57.7	57.7	9.57	0.0106
30.0	39.00	33.00	54.4	54.4	9.89	0.0076
60.0	37.00	31.00	51.1	51.1	10.22	0.0055
120.0	35.50	29.50	48.6	48.6	10.47	0.0039
250.0	33.50	27.50	45.3	45.3	10.80	0.0028
1440.0	32.00	26.00	42.8	42.8	11.04	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 10+25 SAMPLE NO.: #6 DATE: 2-24-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
		SILTY CLAY w/ some SAND trace gravel. (CH)
	15.0'	ROCKY FLAT 1.1% f gvl, 6.8% c sd, 5.3% m sd, 16.8% f sd, 26% silt, 50'

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-05

CLIENT/OWNER WESTON

LOCATION EG&G

BORING 10+25 SAMPLE ____ DEPTH 15'

(6)

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

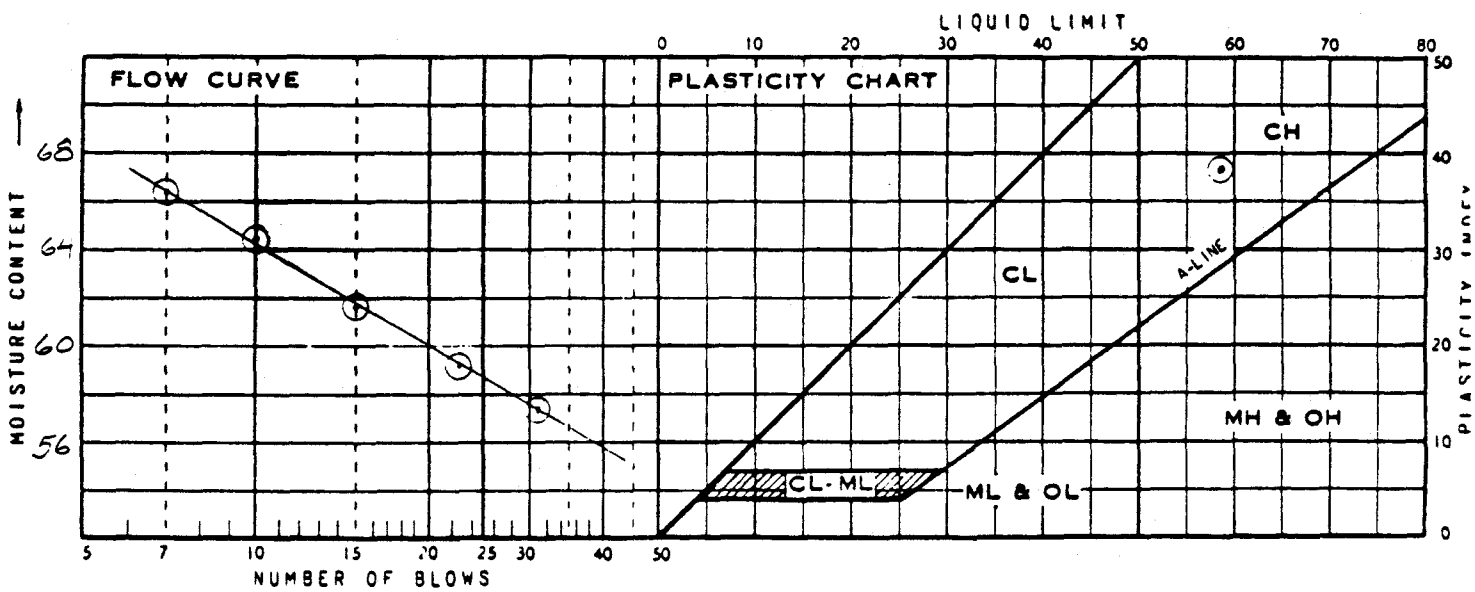
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY DW. 2/23/92

DETERMINATION	1	2	3	4	5	6
DISH	2058	2064	2072			
WT OF DISH + WET SOIL	7.26g	8.06g	7.87g			
WT OF DISH + DRY SOIL	6.21g	6.85g	6.70g	—	—	—
WT OF MOISTURE	1.05g	1.21g	1.17g			
WT OF DISH	1.03g	1.03g	1.04g	—	—	—
WT OF DRY SOIL	5.18g	5.82g	5.66g			
MOISTURE CONTENT	20.3	20.8	20.7			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	48C	2035	2015	43C	44C	2054
NUMBER OF BLOWS	36	31	23	15	10	7
WT OF DISH + WET SOIL	18.05g	17.29g	18.65g	17.93g	17.45g	19.00g
WT OF DISH + DRY SOIL	11.98g	11.37g	12.09g	11.48g	11.02g	11.83g
WT OF MOISTURE	6.07g	5.92g	6.54g	6.45g	6.43g	7.17g
WT OF DISH	1.04g	1.04g	1.05g	1.03g	1.03g	1.03g
WT OF DRY SOIL	10.94g	10.33g	11.04g	10.45g	9.99g	10.80g
MOISTURE CONTENT	55.5	57.3	59.2	61.7	64.4	66.4



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		58.7	20.6	38.1	CH	

ADVANCED TERRA TESTING INC

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	10+25	SAMPLED	Rocky Flats
DEPTH	22'	DATE TESTED	02-24-92 TNU/
SAMPLE NO.	#5	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	48.90
Wt. Dry Soil & Pan	(g)	46.80
Wt. Lost Moisture	(g)	2.10
Wt. of Pan Only	(g)	3.74
Wt. of Dry Soil	(g)	43.06
Moisture Content	%	4.9

Wt. Hydrom. Sample Wet (g)	60.00
Wt. Hydrom. Sample Dry (g)	57.21

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	577.94
Weight of + #10 Before Washing (g)	10.30
Weight of + #10 After Washing (g)	7.79
Weight of - #10 Wet (g)	567.64
Weight of - #10 Dry (g)	543.64
Wt. Total Sample Dry (g)	551.43
Calc. Wt. "W" (g)	58.03
Calc. Mass + #10	0.82

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	5.76	5.76	5.76	1.0	99.0
#10	0.00	2.03	2.03	7.79	1.4	98.6
#20	1.56	2.89	1.33	1.33	3.7	96.3
#40	1.55	2.89	1.34	2.67	6.0	94.0
#60	1.55	3.04	1.49	4.16	8.6	91.4
#100	1.55	4.48	2.93	7.09	13.6	86.4
#230	1.56	7.88	6.32	13.41	24.5	75.5

Silty Clay (CL)

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	10+25	SAMPLED	Rocky Flats
DEPTH	22'	DATE TESTED	02-24-92 TNU/
SAMPLE NO.	#5	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

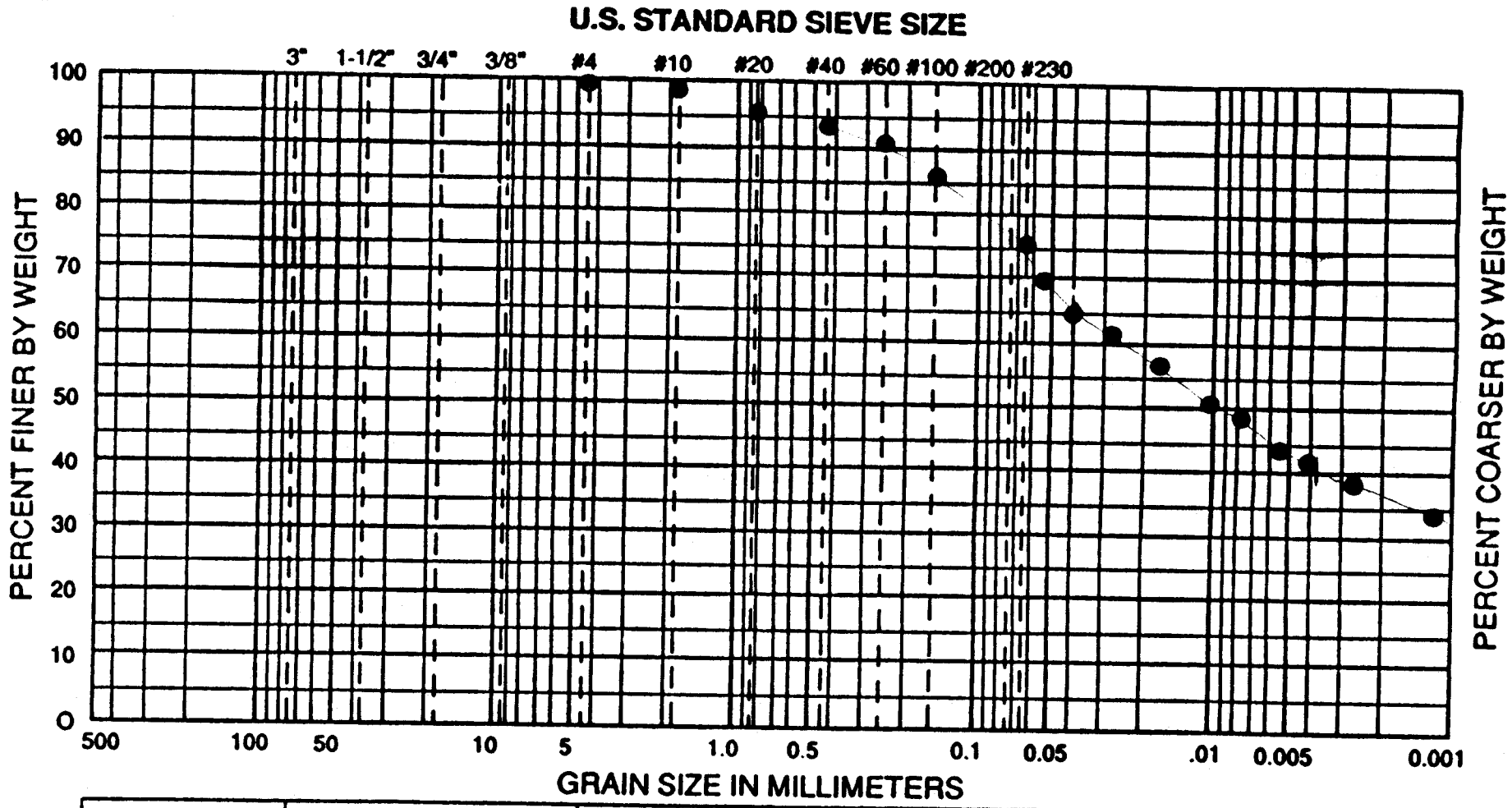
Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.71	Temp. Coef. K	0.01324
Value of "a"	0.99	Wt. Dry Sample "W"	58.030
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	6.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	47.50	40.50	69.0	69.0	8.50	0.0546
1.0	45.00	38.00	64.7	64.7	8.91	0.0395
2.0	43.50	36.50	62.1	62.1	9.16	0.0283
5.0	40.50	33.50	57.0	57.0	9.65	0.0184
15.0	37.00	30.00	51.1	51.1	10.22	0.0109
30.0	35.00	28.00	47.7	47.7	10.55	0.0079
60.0	33.00	26.00	44.3	44.3	10.88	0.0056
120.0	32.00	25.00	42.6	42.6	11.04	0.0040
250.0	29.00	22.00	37.5	37.5	11.53	0.0028
1440.0	27.00	20.00	34.1	34.1	11.86	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 10+25 SAMPLE NO.: 5 DATE: 5/4/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	22'	[illegible]

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2060 C3

CLIENT/OWNER WESTON

LOCATION Rocky Flats / EGG

BORING 10125 SAMPLE C#5 DEPTH 22'

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

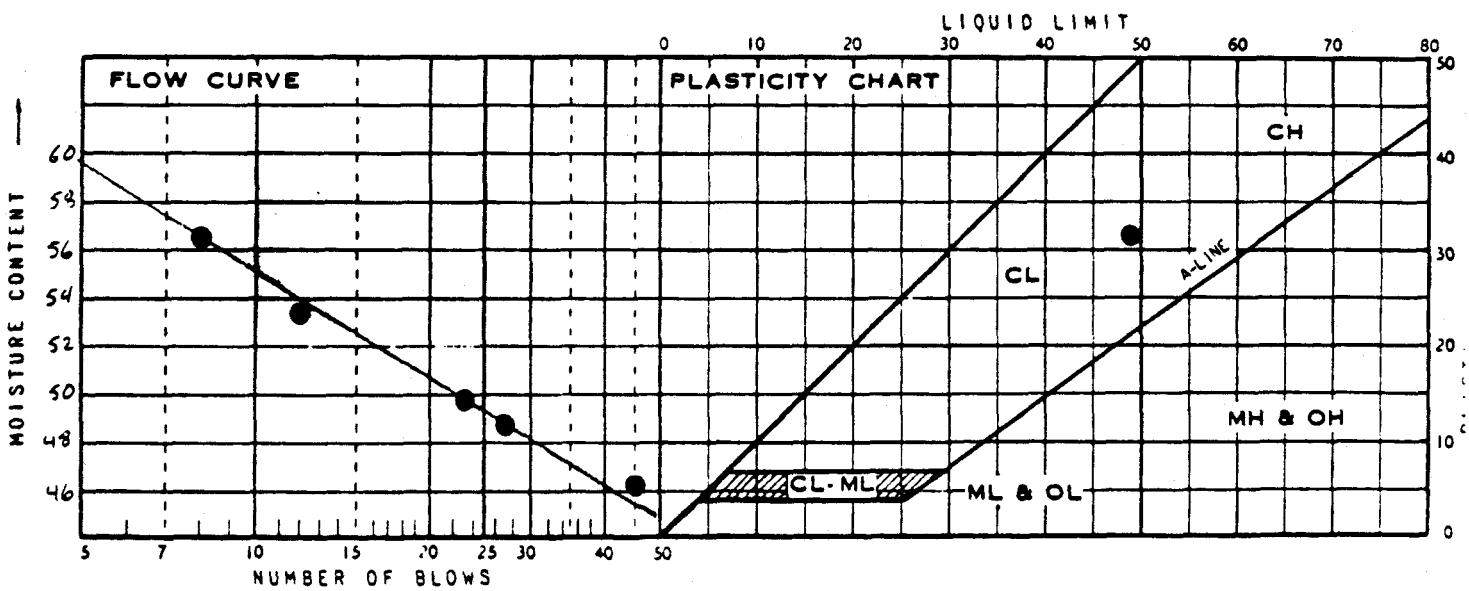
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY [illegible] 2/28/92.

DETERMINATION	? 1 ?	2	3	4	5	6
DISH	2022	37C	28C			
WT OF DISH + WET SOIL g	8.90g	8.87g	9.65g			
WT OF DISH + DRY SOIL g	7.83	7.71	8.39	—	—	—
WT OF MOISTURE g	1.07	1.16	1.26			
WT OF DISH g	1.05g	1.07g	1.05g	—	—	—
WT OF DRY SOIL g	6.78	6.64	7.34			
MOISTURE CONTENT %	15.8	17.5	17.2			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2020	29C	26C	2024	5C	2009
NUMBER OF BLOWS	46	27	23-	12	8	
WT OF DISH + WET SOIL g	16.99g	14.75g	14.70g	16.26g	15.13g	
WT OF DISH + DRY SOIL g	11.94	10.25	10.15	10.96	10.05	—
WT OF MOISTURE g	5.05	4.50	4.55	5.30	5.08	
WT OF DISH g	1.05g	1.04g	1.04g	1.06g	1.07g	1.05g
WT OF DRY SOIL g	10.89	9.21	9.11	9.90	9.98	
MOISTURE CONTENT %	46.4	48.9	49.9	53.5	56.6	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		49.4	17.4	32.0	CL	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	10+25	SAMPLED	Rocky Flats
DEPTH	30'	DATE TESTED	3-5-92 SR
SAMPLE NO.	#8	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	78.66
Wt. Dry Soil & Pan	(g)	76.89
Wt. Lost Moisture	(g)	1.77
Wt. of Pan Only	(g)	3.69
Wt. of Dry Soil	(g)	73.20
Moisture Content	%	2.4

Wt. Hydrom. Sample Wet (g)	60.01
Wt. Hydrom. Sample Dry (g)	58.60

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	620.88
Weight of + #10 Before Washing (g)	29.82
Weight of + #10 After Washing (g)	4.32
Weight of - #10 Wet (g)	591.06
Weight of - #10 Dry (g)	602.00
Wt. Total Sample Dry (g)	606.32
Calc. Wt. "W" (g)	59.02
Calc. Mass + #10	0.42

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.80	0.80	0.80	0.1	99.9
#10	0.00	3.52	3.52	4.32	0.7	99.3
#20	1.56	1.84	0.28	0.28	1.2	98.8
#40	1.55	2.43	0.88	1.16	2.7	97.3
#60	1.55	3.38	1.83	2.99	5.8	94.2
#100	1.55	5.69	4.14	7.13	12.8	87.2
#230	1.56	9.50	7.94	15.07	26.2	73.8

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	10+25	SAMPLED	Rocky Flats
DEPTH	30'	DATE TESTED	3-5-92 SR
SAMPLE NO.	#8	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

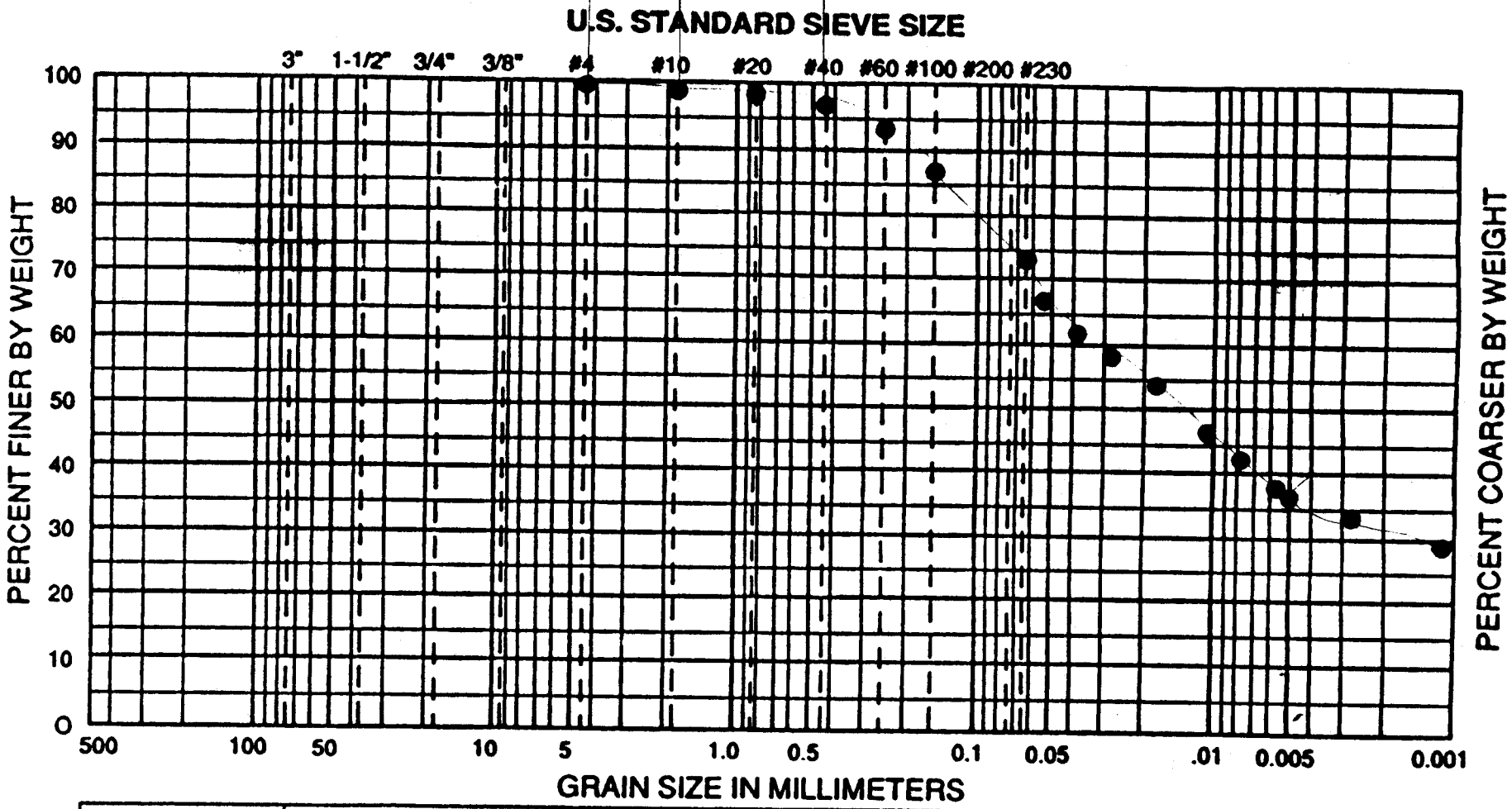
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.76	Temp. Coef. K	0.01290
Value of "a"	0.98	Wt. Dry Sample "W"	59.017
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	5.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	46.00	40.00	66.3	66.3	8.75	0.0540
1.0	43.00	37.00	61.3	61.3	9.24	0.0392
2.0	41.25	35.25	58.4	58.4	9.53	0.0282
5.0	39.00	33.00	54.7	54.7	9.89	0.0181
15.0	34.25	28.25	46.8	46.8	10.67	0.0109
30.0	31.50	25.50	42.3	42.3	11.12	0.0079
60.0	29.00	23.00	38.1	38.1	11.53	0.0057
120.0	28.00	22.00	36.5	36.5	11.70	0.0040
250.0	26.50	20.50	34.0	34.0	11.94	0.0028
1440.0	23.75	17.75	29.4	29.4	12.40	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL			SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 10 + 25 SAMPLE NO.: CH # 8 DATE: 3/11/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	30'	CLAYEY SILT w/ some SAND, tr gravel. .1% f. gravel, .6% c sd, 2% m sd, 22.3% f sd, 38% SILT, 37% CLAY

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03
CLIENT/OWNER Weston
LOCATION Rocky Flats EG+G
BORING B-25 SAMPLE CH #8 DEPTH 30'

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

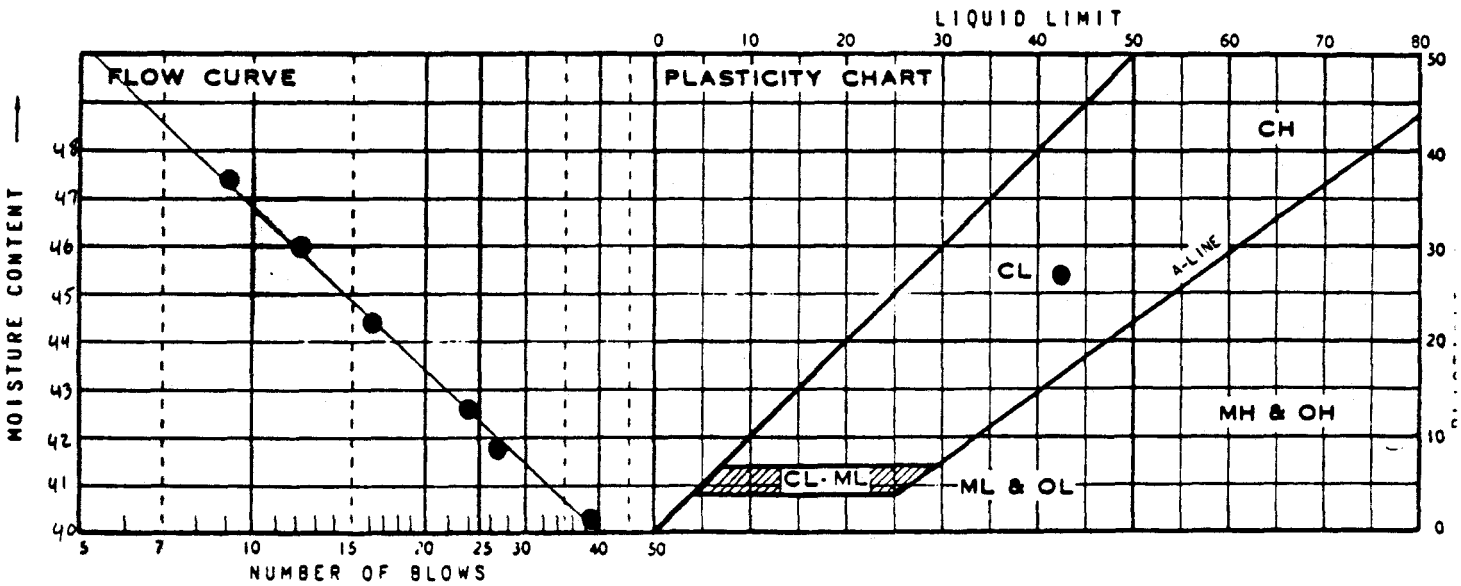
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY RW 3/3/92

DETERMINATION	1	2	3	4	5	6
DISH	28C	43C	2036			
WT OF DISH + WET SOIL g	7.53	6.84	7.19			
WT OF DISH + DRY SOIL g	6.70	6.09	6.37	—	—	—
WT OF MOISTURE g	.83	.75	.82			
WT OF DISH g	1.05	1.04	1.05	—	—	—
WT OF DRY SOIL g	5.65	5.05	5.32			
MOISTURE CONTENT %	14.7	14.9	15.4			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2020	5C	10C	26C	2067	2069
NUMBER OF BLOWS	39	27	24	16	12	9
WT OF DISH + WET SOIL g	13.20	12.56	11.17	12.48	12.76	11.71
WT OF DISH + DRY SOIL g	9.71	9.17	8.14	8.97	9.07	8.28
WT OF MOISTURE g	3.49	3.39	3.03	3.51	3.69	3.43
WT OF DISH g	1.05	1.06	1.05	1.06	1.04	1.05
WT OF DRY SOIL g	8.66	8.11	7.09	7.91	8.03	7.23
MOISTURE CONTENT %	40.3	41.8	42.7	44.4	46.0	47.4



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		43.4	15.0	27.4	CL	

ADVANCED TERRA TESTING INC

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MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	10+25	SAMPLED	Rocky Flats
DEPTH	40'	DATE TESTED	3-5-92 SR
SAMPLE NO.	#8	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	50.50
Wt. Dry Soil & Pan	(g)	49.17
Wt. Lost Moisture	(g)	1.33
Wt. of Pan Only	(g)	3.66
Wt. of Dry Soil	(g)	45.51
Moisture Content	%	2.9

Wt. Hydrom. Sample Wet (g)	60.00
Wt. Hydrom. Sample Dry (g)	58.30

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	579.28
Weight of + #10 Before Washing (g)	21.76
Weight of + #10 After Washing (g)	13.53
Weight of - #10 Wet (g)	557.52
Weight of - #10 Dry (g)	549.69
Wt. Total Sample Dry (g)	563.22
Calc. Wt. "W" (g)	59.73
Calc. Mass + #10	1.43

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	7.65	7.65	7.65	1.4	98.6
#4	0.00	2.89	2.89	10.54	1.9	98.1
#10	0.00	2.99	2.99	13.53	2.4	97.6
#20	1.56	2.10	0.54	0.54	3.3	96.7
#40	1.56	2.26	0.70	1.24	4.5	95.5
#60	1.56	2.20	0.64	1.88	5.5	94.5
#100	1.32	2.18	0.86	2.74	7.0	93.0
#230	1.57	4.00	2.43	5.17	11.1	88.9

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	10+25	SAMPLED	Rocky Flats
DEPTH	40'	DATE TESTED	3-5-92 SR
SAMPLE NO.	#8	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

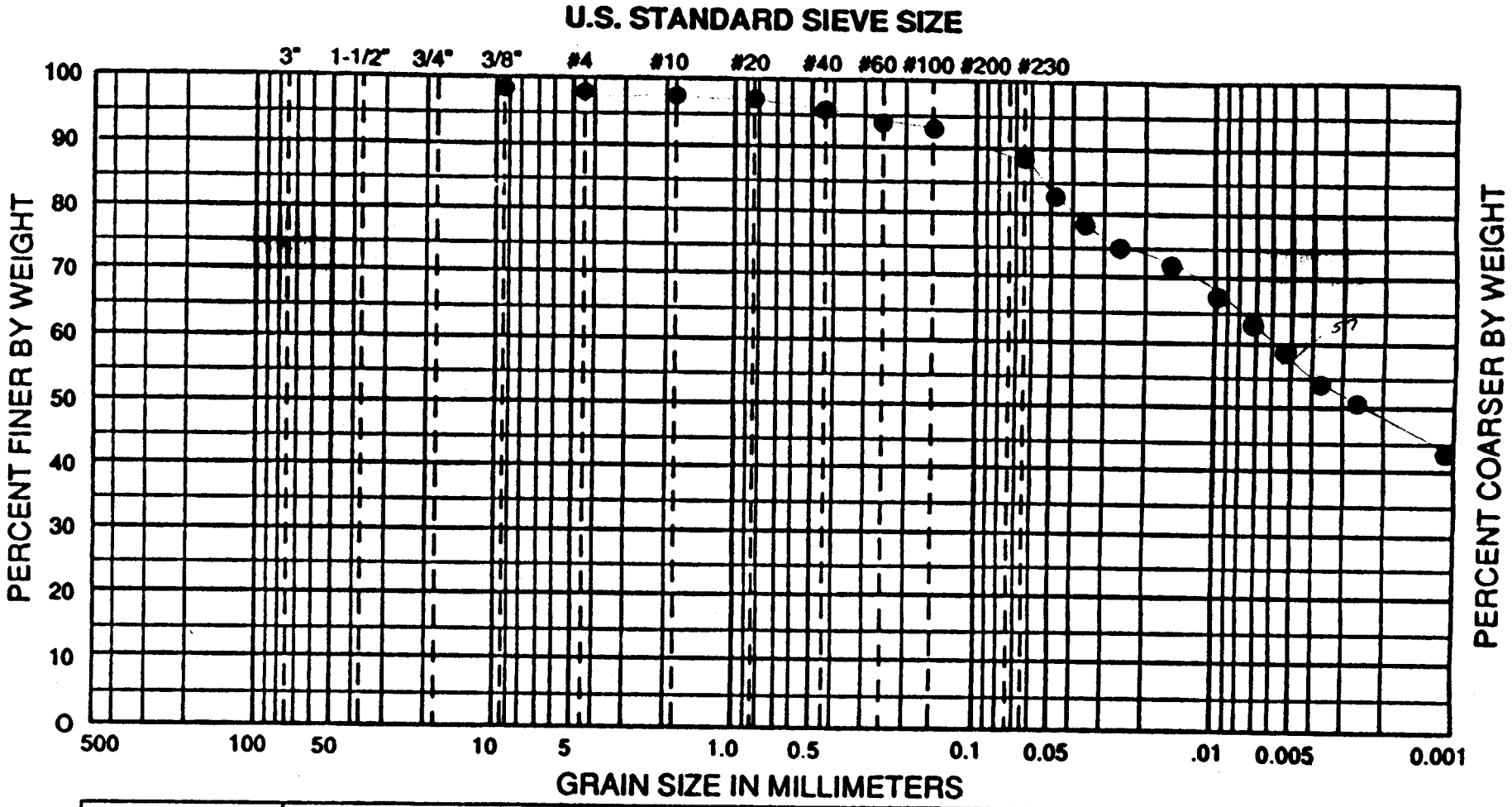
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.72	Temp. Coef. K	0.01305
Value of "a"	0.99	Wt. Dry Sample "W"	59.731
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	5.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	56.00	50.00	82.5	82.5	7.11	0.0492
1.0	53.75	47.75	78.8	78.8	7.48	0.0357
2.0	51.75	45.75	75.5	75.5	7.80	0.0258
5.0	49.75	43.75	72.2	72.2	8.13	0.0166
15.0	46.75	40.75	67.3	67.3	8.62	0.0099
30.0	44.50	38.50	63.6	63.6	8.99	0.0071
60.0	41.75	35.75	59.0	59.0	9.44	0.0052
120.0	39.00	33.00	54.5	54.5	9.89	0.0037
250.0	36.75	30.75	50.8	50.8	10.26	0.0026
1440.0	32.25	26.25	43.3	43.3	11.00	0.0011

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 10+25 SAMPLE NO.: CH # 8 DATE: 3/11/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	40'	SILTY CLAY w/ Trace SAND and GRAVEL. 1.9% Gravel, 5% C. SAND, 2.1% M. SAND, 6.5% Fine SAND, 32% SILT, 52% CLAY

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION - - - - - - - - - - - - - - -

LABORATORY CLASSIFICATION - - - - - - - - - - - -

JOB NO. 2066-03

CLIENT/OWNER Weston

LOCATION Rocky Flats EG+G

BORING 10-25 SAMPLE CH #8 DEPTH 40'

FIELD DENSITY BY ___/___/___

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

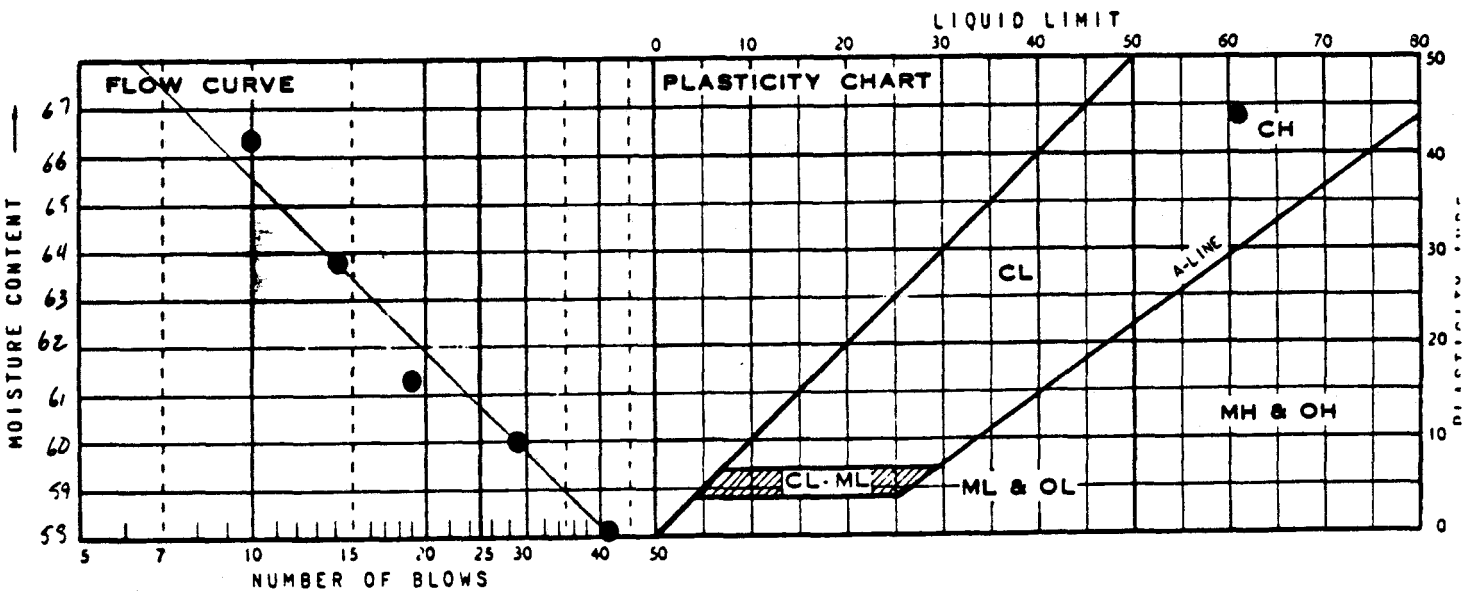
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY DU 3/3/92

DETERMINATION	1	2	3	4	5	6
DISH	2055	2026	159			
WT OF DISH + WET SOIL g	4.93	5.21	5.24			
WT OF DISH + DRY SOIL g	4.37	4.62	4.64	—	—	—
WT OF MOISTURE g	.56	.59	.60			
WT OF DISH g	1.04	1.03	1.05	—	—	—
WT OF DRY SOIL g	3.33	3.59	3.59			
MOISTURE CONTENT %	16.8	16.4	16.7			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2008	2025	15C	2012	35C	54C
NUMBER OF BLOWS	41	29	19	14	10	
WT OF DISH + WET SOIL g	11.15	11.96	11.35	9.72	11.87	
WT OF DISH + DRY SOIL g	7.44	7.87	7.43	6.34	7.55	—
WT OF MOISTURE g	3.71	4.09	3.92	3.38	4.32	
WT OF DISH g	1.05	1.05	1.04	1.04	1.04	1.06
WT OF DRY SOIL g	6.39	6.82	6.39	5.30	6.51	
MOISTURE CONTENT %	58.1	60.0	61.3	63.8	66.4	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		60.8	16.6	44.2	CH	

ADVANCED TERRA TESTING INC

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT [redacted]

JOB NO. 2066-03

BORING NO.	10+25	SAMPLED	Rocky Flats
DEPTH	46.0'	DATE TESTED	02-28-92 TNU
SAMPLE NO.	#8	WASH SIEVE	Yes
SOIL DESC.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes	
NATURAL	No	
Wt. Wet Soil & Pan	(g)	34.84
Wt. Dry Soil & Pan	(g)	34.12
Wt. Lost Moisture	(g)	0.72
Wt. of Pan Only	(g)	3.72
Wt. of Dry Soil	(g)	30.40
Moisture Content	%	2.4
Wt. Hydrom. Sample Wet	(g)	60.06
Wt. Hydrom. Sample Dry	(g)	58.67

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	60.06
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	60.06
Weight of - #10 Dry (g)	58.67
Wt. Total Sample Dry (g)	58.67
Calc. Wt. "W" (g)	58.67
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	1.56	1.78	0.22	0.22	0.4	99.6
#40	1.30	1.44	0.14	0.36	0.6	99.4
#60	1.57	1.67	0.10	0.46	0.8	99.2
#100	1.56	1.66	0.10	0.56	1.0	99.0
#230	1.57	2.19	0.62	1.18	2.0	98.0

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT	Weston	JOB NO.	2066-03
BORING NO.	10+25	SAMPLED	Rocky Flats
DEPTH	46.0'	DATE TESTED	02-28-92 TNU
SAMPLE NO.	#8	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

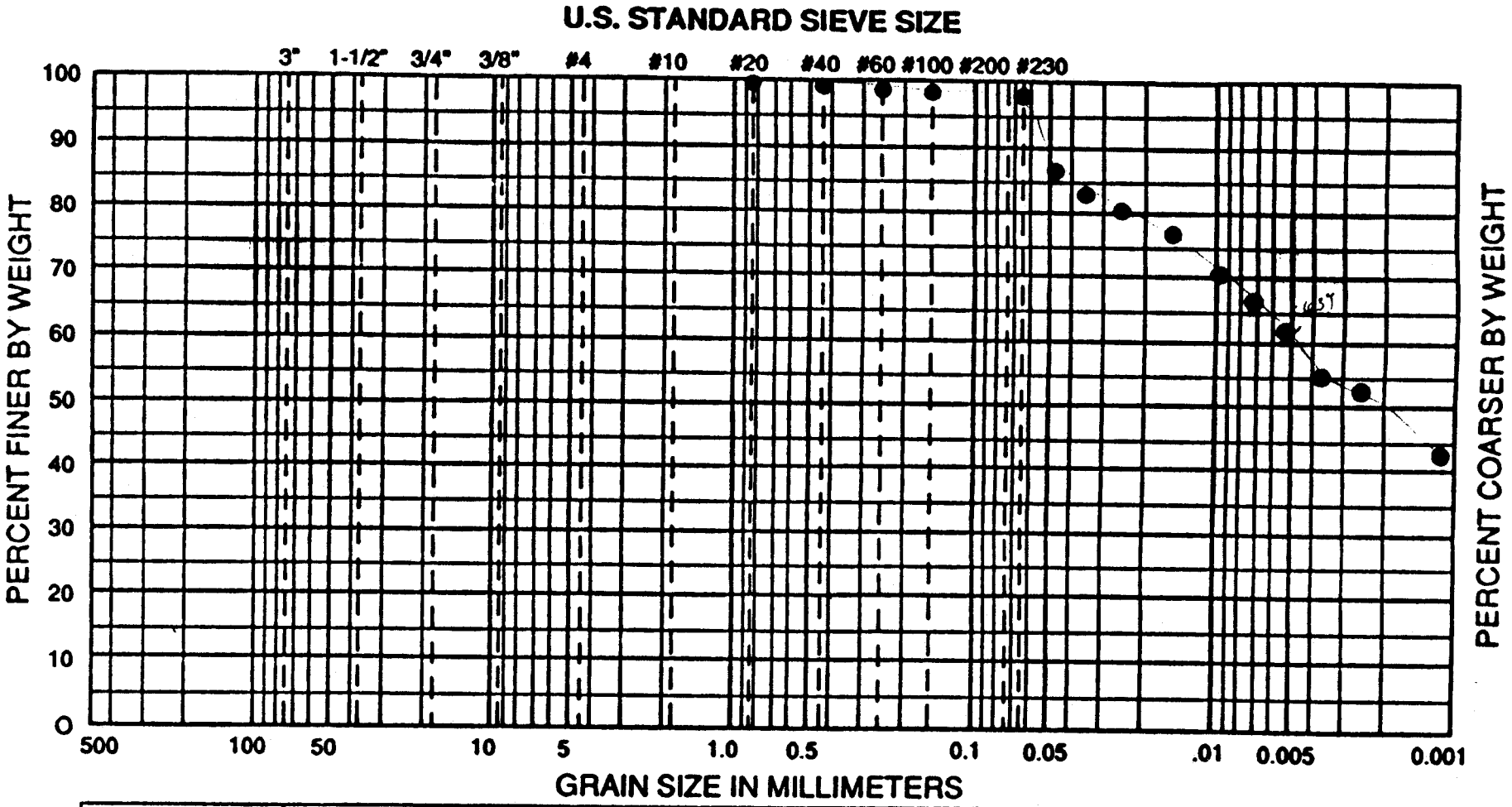
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.73	Temp. Coef. K	0.01301
Value of "a"	0.98	Wt. Dry Sample "W"	58.668
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	56.50	51.50	86.4	86.4	7.02	0.0488
1.0	55.00	50.00	83.9	83.9	7.27	0.0351
2.0	53.00	48.00	80.5	80.5	7.60	0.0254
5.0	51.00	46.00	77.2	77.2	7.93	0.0164
15.0	47.00	42.00	70.4	70.4	8.58	0.0098
30.0	44.50	39.50	66.3	66.3	8.99	0.0071
60.0	42.00	37.00	62.1	62.1	9.40	0.0052
120.0	38.00	33.00	55.3	55.3	10.06	0.0038
250.0	36.50	31.50	52.8	52.8	10.30	0.0026
1440.0	30.50	25.50	42.8	42.8	11.29	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 10 + 25 SAMPLE NO.: CH # 8 DATE: 3/4/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	46.0'	SILT / CLAY / (CH) w/ trace SAND .5 .4% m sd, .5 1.4% f sd, 35% SILT, 63% CLAY

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION - - - - - - - - - - - - - - -

LABORATORY CLASSIFICATION - - - - - - - - - - - - -

JOB NO. 2066-03

CLIENT/OWNER Weston

LOCATION Rocky Flats EG+G

BORING 10+25 SAMPLE CH #8 DEPTH 46'

FIELD DENSITY BY ___/___/___

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

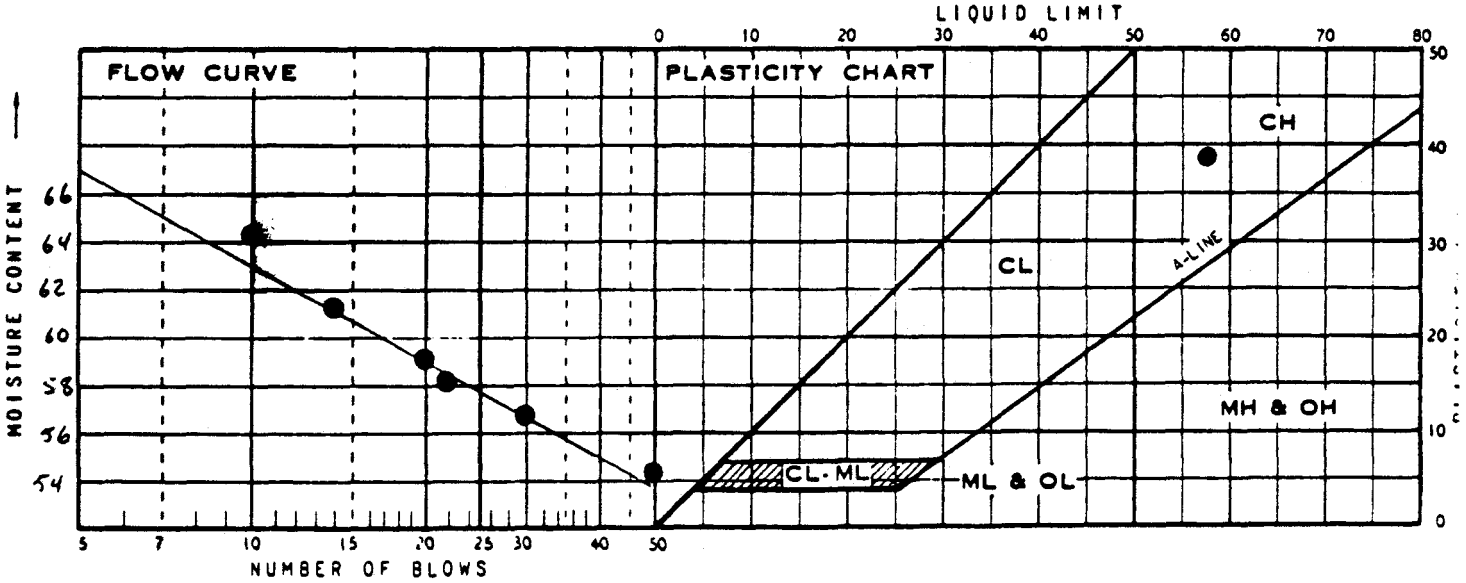
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY DW 3/12/92

DETERMINATION	1	2	3 ?	4	5	6
DISH	2067	2056	2062			
WT OF DISH + WET SOIL g	4.59	6.28	4.49			
WT OF DISH + DRY SOIL g	4.02	5.46	4.02	—	—	—
WT OF MOISTURE g	.57	.82	.47			
WT OF DISH g	1.04	1.03	1.03	—	—	—
WT OF DRY SOIL g	2.98	4.43	2.99			
MOISTURE CONTENT %	19.1	18.5	15.8			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2068	33C	10C	34C	41C	2069
NUMBER OF BLOWS	50	30	22	20	14	10
WT OF DISH + WET SOIL g	12.93	13.08	13.21	12.28	11.97	11.67
WT OF DISH + DRY SOIL g	8.74	8.72	8.74	8.09	7.81	7.51
WT OF MOISTURE g	4.19	4.36	4.47	4.19	4.16	4.16
WT OF DISH g	1.04	1.05	1.04	1.03	1.02	1.05
WT OF DRY SOIL g	7.70	7.67	7.70	7.06	6.79	6.46
MOISTURE CONTENT %	54.4	56.8	58.1	59.3	61.3	64.4



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		57.7	18.8	38.9	CH	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

BR

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	10+25	SAMPLED	Rocky Flats
DEPTH	69.0'	DATE TESTED	02-28-92 TNU
SAMPLE NO.	#8	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	43.22
Wt. Dry Soil & Pan	(g)	41.90
Wt. Lost Moisture	(g)	1.32
Wt. of Pan Only	(g)	3.85
Wt. of Dry Soil	(g)	38.05
Moisture Content	%	3.5

Wt. Hydrom. Sample Wet (g)	60.01
Wt. Hydrom. Sample Dry (g)	58.00

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	60.01
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	60.01
Weight of - #10 Dry (g)	58.00
Wt. Total Sample Dry (g)	58.00
Calc. Wt. "W" (g)	58.00
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	1.31	3.28	1.97	1.97	3.4	96.6
#40	1.57	4.29	2.72	4.69	8.1	91.9
#60	1.37	4.81	3.44	8.13	14.0	86.0
#100	1.56	6.93	5.37	13.50	23.3	76.7
#230	1.56	9.49	7.93	21.43	36.9	63.1

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT	Weston	JOB NO.	2066-03
BORING NO.	10+25	SAMPLED	Rocky Flats
DEPTH	69.0'	DATE TESTED	02-28-92 TNU
SAMPLE NO.	#8	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

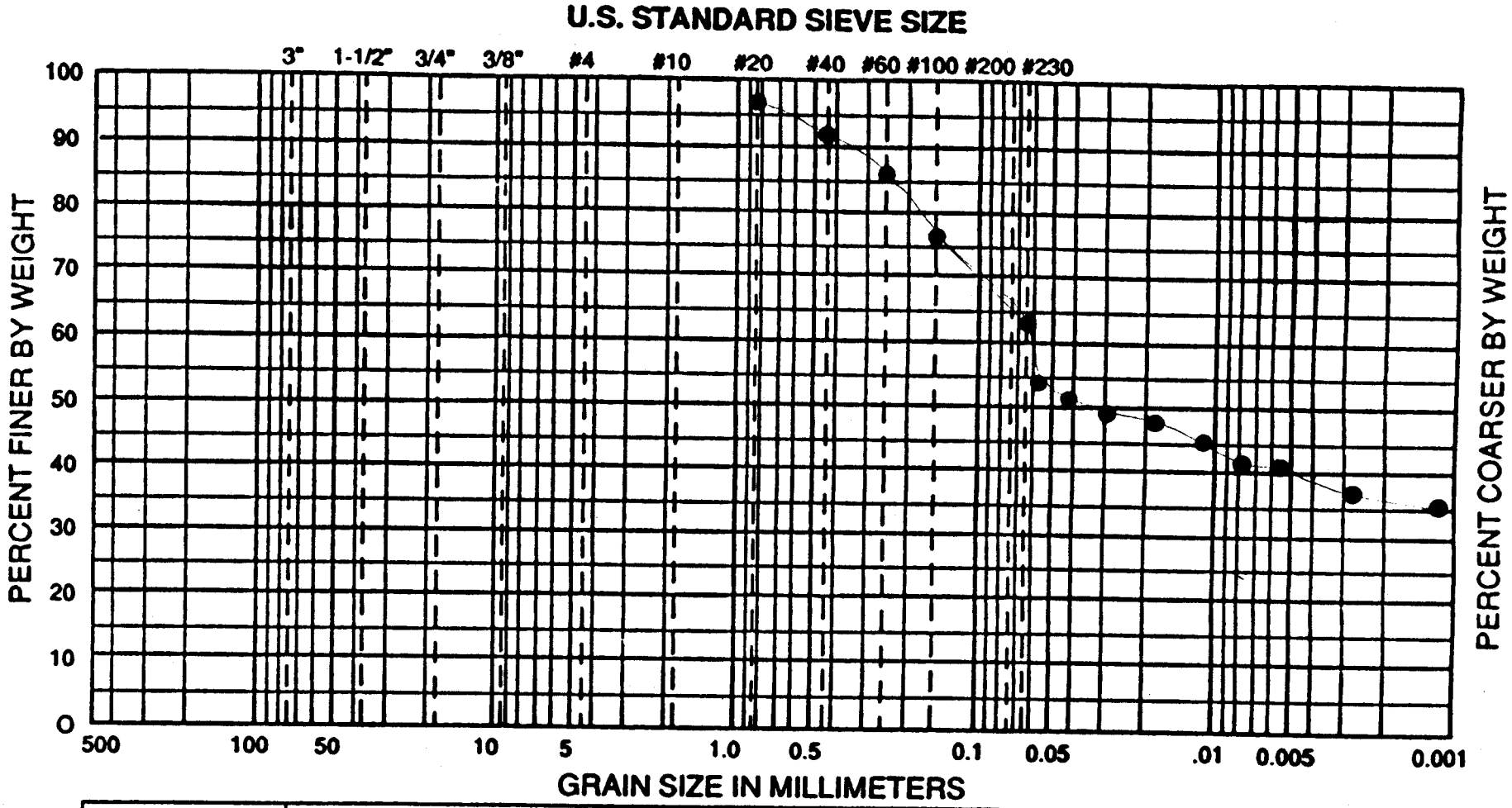
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.77	Temp. Coef. K	0.01287
Value of "a"	0.98	Wt. Dry Sample "W"	57.998
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	37.50	32.50	54.7	54.7	10.14	0.0580
1.0	35.50	30.50	51.3	51.3	10.47	0.0416
2.0	34.50	29.50	49.6	49.6	10.63	0.0297
5.0	33.50	28.50	48.0	48.0	10.80	0.0189
15.0	32.00	27.00	45.4	45.4	11.04	0.0110
30.0	30.00	25.00	42.1	42.1	11.37	0.0079
60.0	29.75	24.75	41.6	41.6	11.41	0.0056
120.0	28.50	23.50	39.5	39.5	11.62	0.0040
250.0	27.00	22.00	37.0	37.0	11.86	0.0028
1440.0	26.00	21.00	35.3	35.3	12.03	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL			SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 10 + 25 SAMPLE NO.: CH # 8 DATE: 3/4/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	69.0'	SANDY SILTY CLAYSTONE 8.1% GRAVEL 26.9% SAND 25% SILT 40% CLAY

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER Weston

LOCATION Rocky Flats EG-G

BORING 10-25 SAMPLE CH# 8 DEPTH 69'

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

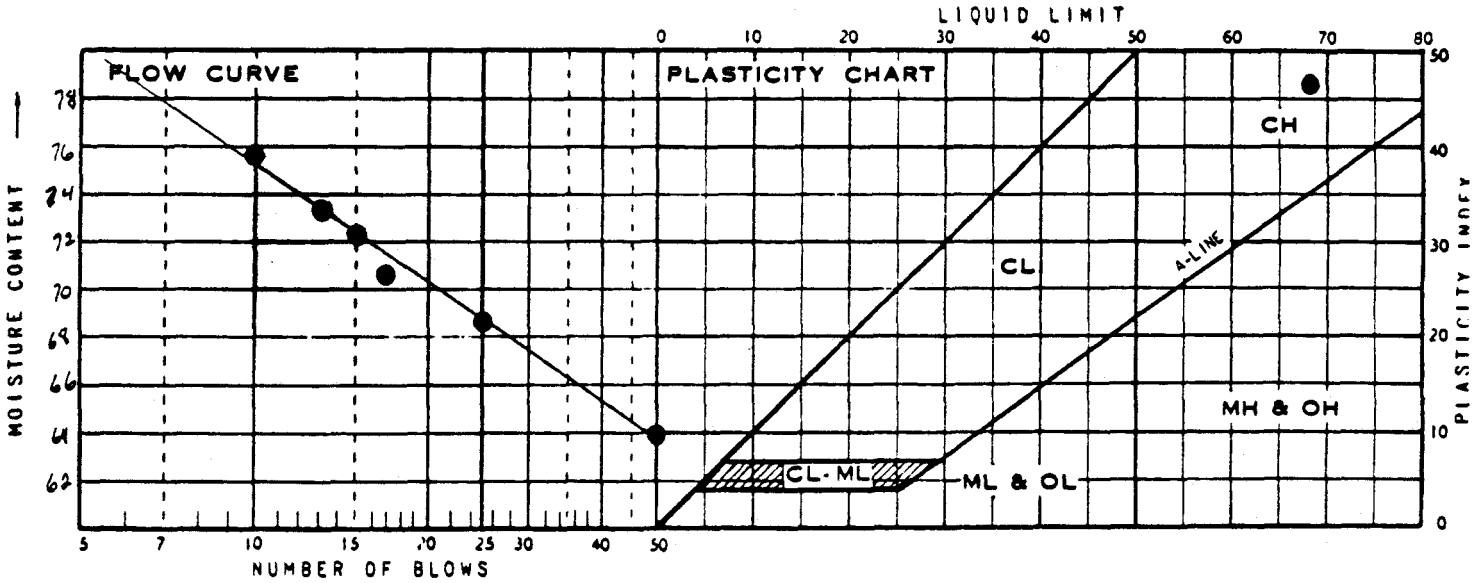
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY DM 3/2/92

DETERMINATION	1	2	3	4	5	6
DISH	43C	2071	2022			
WT OF DISH + WET SOIL g	4.40	5.35	5.22			
WT OF DISH + DRY SOIL g	3.79	4.55	4.46	—	—	—
WT OF MOISTURE g	.61	.80	.76			
WT OF DISH g	1.04	1.05	1.05	—	—	—
WT OF DRY SOIL g	2.75	3.50	3.41			
MOISTURE CONTENT %	22.2	22.9	22.3			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2070	5C	28C	26C	2036	37C
NUMBER OF BLOWS	50	25	17	15	13	10
WT OF DISH + WET SOIL g	10.37	12.76	12.01	11.57	12.40	12.24
WT OF DISH + DRY SOIL g	6.74	7.49	7.47	7.16	7.59	7.43
WT OF MOISTURE g	3.63	4.77	4.54	4.41	4.81	4.81
WT OF DISH g	1.06	1.05	1.04	1.05	1.05	1.07
WT OF DRY SOIL g	5.68	6.94	6.43	6.11	6.54	6.36
MOISTURE CONTENT %	63.9	68.7	70.7	72.2	73.5	75.6



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		68.7	22.5	46.2	CH	

ADVANCED TERRA TESTING inc

HYDROMETER ANALYSIS - SEDIMENTATION DATA

BK

CLIENT **Weston** JOB NO. 2066-03

BORING NO.	10+25	SAMPLED	Rocky Flats
DEPTH	74'	DATE TESTED	02-24-92 TNU
SAMPLE NO.	#4	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

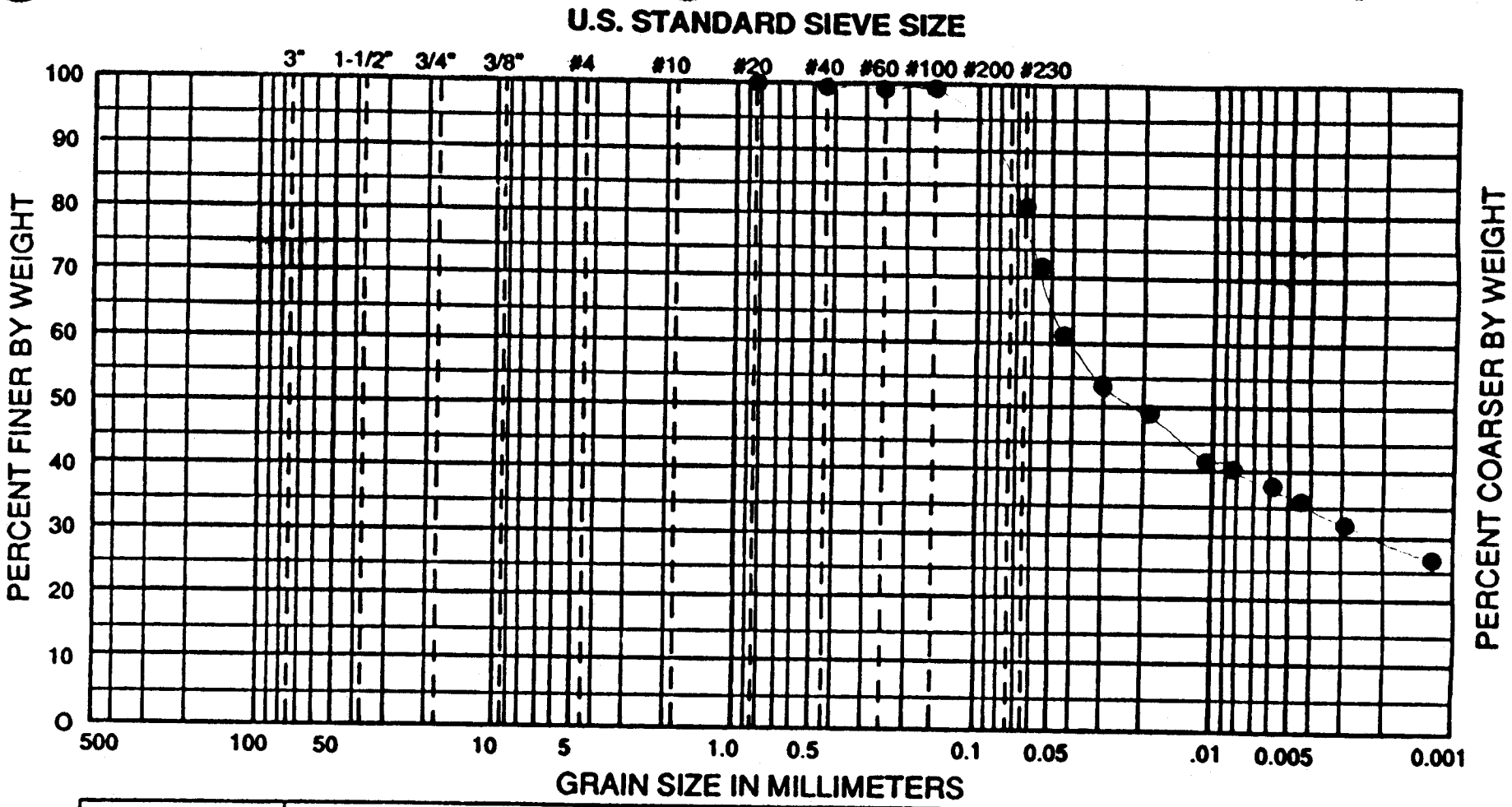
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.67	Temp. Coef. K	0.01324
Value of "a"	1.00	Wt. Dry Sample "W"	57.597
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	3.5		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	46.50	42.00	72.6	72.6	8.66	0.0551
1.0	40.50	36.00	62.3	62.3	9.65	0.0411
2.0	36.00	31.50	54.5	54.5	10.39	0.0302
5.0	32.50	28.00	48.4	48.4	10.96	0.0196
15.0	29.00	24.50	42.4	42.4	11.53	0.0116
30.0	28.50	24.00	41.5	41.5	11.62	0.0082
60.0	27.00	22.50	38.9	38.9	11.86	0.0059
120.0	25.50	21.00	36.3	36.3	12.11	0.0042
250.0	24.00	19.50	33.7	33.7	12.35	0.0029
1440.0	20.50	16.00	27.7	27.7	12.93	0.0013

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 10+25 SAMPLE NO.: #4 DATE: 3-2-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	74'	

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. [illegible]

CLIENT/OWNER Weston

LOCATION Rocky Flats EG+G

BORING 10-25 SAMPLE CH#4 DEPTH 74'

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

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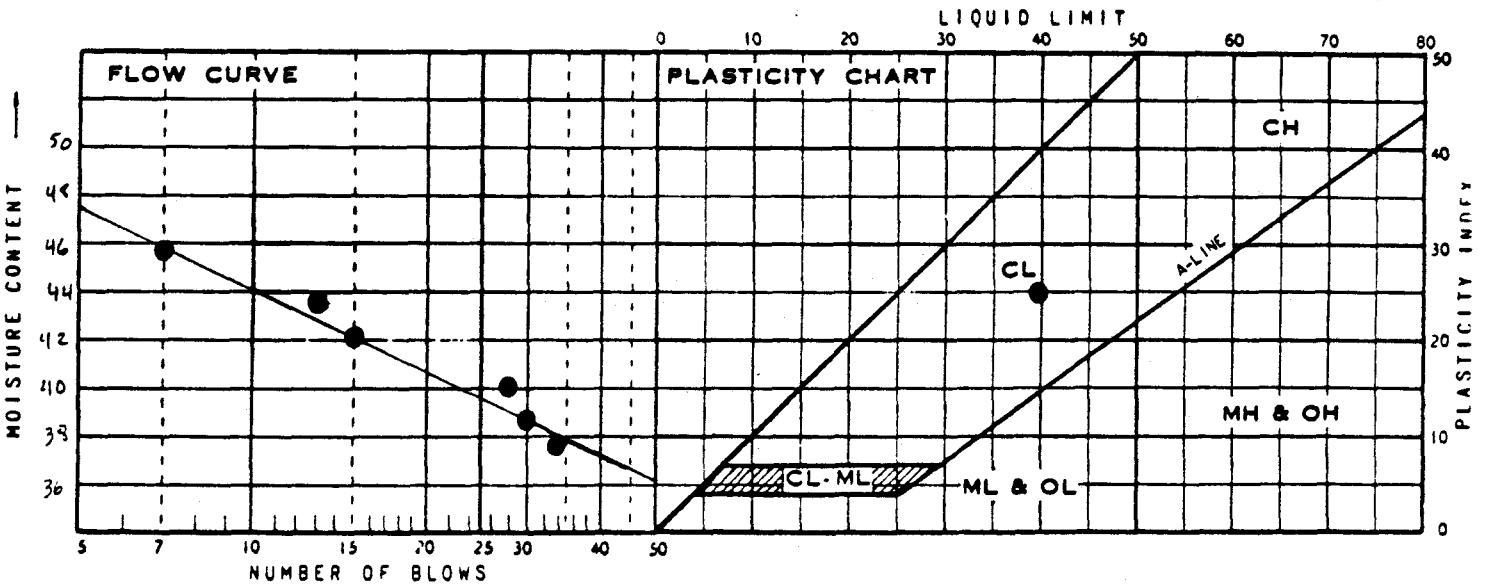
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY DU 2/26/92

DETERMINATION	1	2	3	4	5	6
DISH	2075	22C	21C			
WT OF DISH + WET SOIL g	7.93	6.75	7.03			
WT OF DISH + DRY SOIL g	7.03	6.05	6.26	—	—	—
WT OF MOISTURE g	.90	.70	.77			
WT OF DISH g	1.04	1.05	1.05	—	—	—
WT OF DRY SOIL g	5.99	5.00	5.21			
MOISTURE CONTENT %	15.0	14.0	14.8			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6	
DISH	23C	2038	0C	2046	2074	38C	18
NUMBER OF BLOWS	34	24	30	28	15	13	7
WT OF DISH + WET SOIL g	13.69	12.62	11.99	13.10	11.70	13.14	12.5
WT OF DISH + DRY SOIL g	10.23	9.45	8.93	9.66	8.54	9.46	8.9
WT OF MOISTURE g	3.46	3.17	3.06	3.44	3.16	3.68	3.6
WT OF DISH g	1.06	1.06	1.06	1.08	1.05	1.04	1.0
WT OF DRY SOIL g	9.17	8.39	7.87	8.58	7.49	8.42	7.5
MOISTURE CONTENT %	37.7	37.8	38.9	40.1	42.2	43.7	45



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		39.6	14.6	25.0	CL	

ADVANCED TERRA TESTING inc

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	10+50	SAMPLED	Rocky Flats
DEPTH	1.0-1.4'	DATE TESTED	2-28-92 TNU
SAMPLE NO.	#3	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	52.67
Wt. Dry Soil & Pan	(g)	50.39
Wt. Lost Moisture	(g)	2.28
Wt. of Pan Only	(g)	3.64
Wt. of Dry Soil	(g)	46.75
Moisture Content	%	4.9

Wt. Hydrom. Sample Wet	(g)	60.01
Wt. Hydrom. Sample Dry	(g)	57.22

WASH SIEVE ANALYSIS

Wt. Total Sample Wet	(g)	1489.17
Weight of + #10 Before Washing	(g)	324.26
Weight of + #10 After Washing	(g)	271.64
Weight of - #10 Wet	(g)	1164.91
Weight of - #10 Dry	(g)	1160.91
Wt. Total Sample Dry	(g)	1432.55
Calc. Wt. "W"	(g)	70.61
Calc. Mass + #10		13.39

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	115.25	115.25	115.25	8.0	92.0
3/4"	0.00	104.63	104.63	219.88	15.3	84.7
3/8"	0.00	3.58	3.58	223.46	15.6	84.4
#4	0.00	20.25	20.25	243.71	17.0	83.0
#10	0.00	27.93	27.93	271.64	19.0	81.0
#20	1.58	4.99	3.41	3.41	23.8	76.2
#40	1.56	4.90	3.34	6.75	28.5	71.5
#60	1.55	4.48	2.93	9.68	32.7	67.3
#100	1.57	5.41	3.84	13.52	38.1	61.9
#230	1.57	8.45	6.88	20.40	47.9	52.1

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	10+50	SAMPLED	Rocky Flats
DEPTH	1.0-1.4'	DATE TESTED	2-28-92 TNU
SAMPLE NO.	#3	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

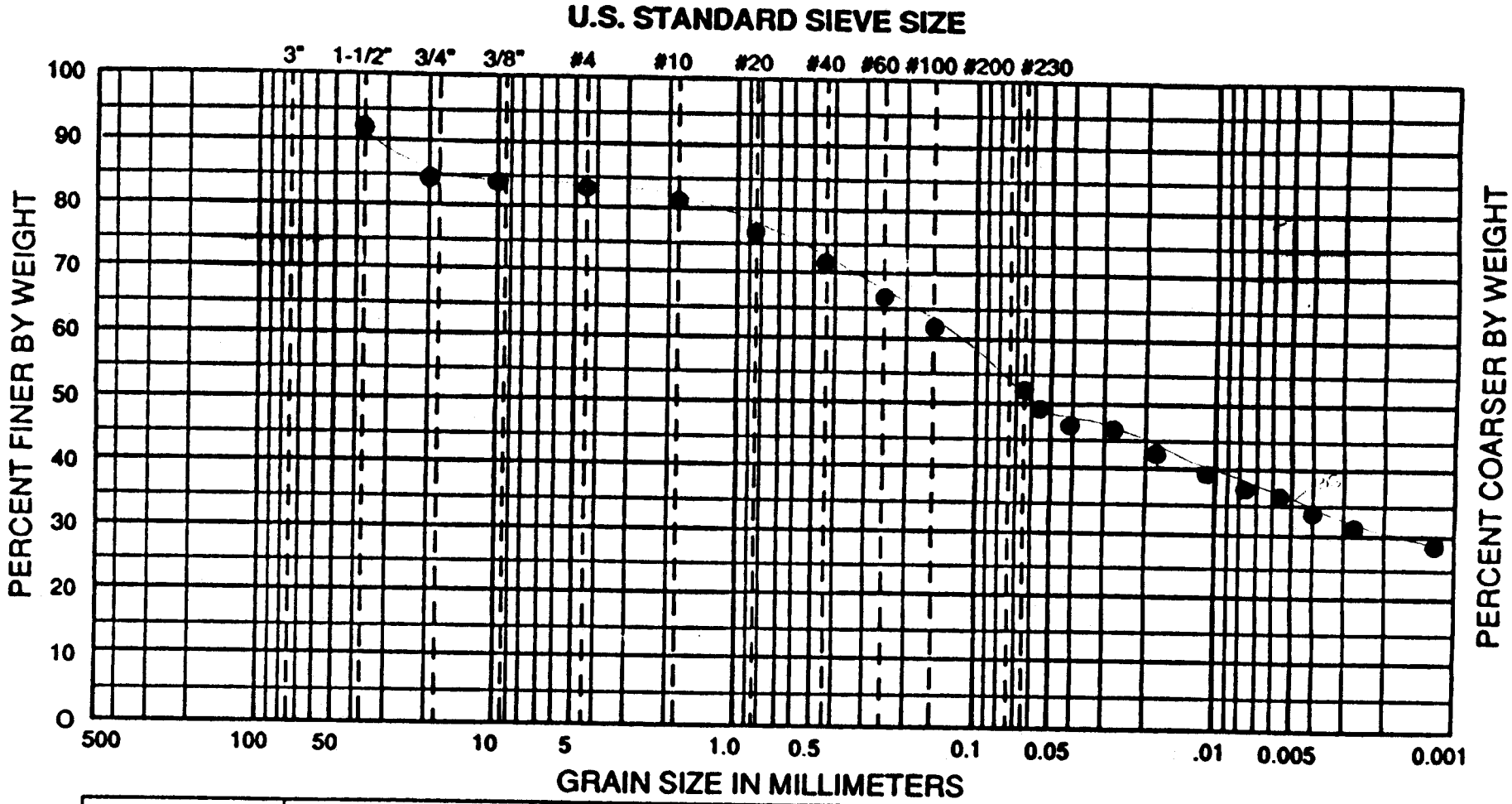
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.77	Temp. Coef. K	0.01287
Value of "a"	0.98	Wt. Dry Sample "W"	70.609
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	41.00	36.00	49.8	49.8	9.57	0.0563
1.0	39.00	34.00	47.0	47.0	9.89	0.0405
2.0	38.50	33.50	46.3	46.3	9.98	0.0287
5.0	36.00	31.00	42.8	42.8	10.39	0.0185
15.0	33.50	28.50	39.4	39.4	10.80	0.0109
30.0	32.00	27.00	37.3	37.3	11.04	0.0078
60.0	31.00	26.00	35.9	35.9	11.21	0.0056
120.0	30.00	25.00	34.6	34.6	11.37	0.0040
250.0	28.00	23.00	31.8	31.8	11.70	0.0028
1440.0	26.00	21.00	29.0	29.0	12.03	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 10 + 50 SAMPLE NO.: CH #3 DATE: 3/11/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
		SANDY CLAY w/ some silt & gravel
Rocky Flats	1.0 - 1.4'	15.35% c gvl, 1.7% f gvl, 2% c sd, 9.5% m sd, 14.5% f sd, 21.5% silt, 35.5% clay

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER Weston

LOCATION Rocky Flats EG+G

BORING 10+50 SAMPLE CH# 3 DEPTH 1.0-1.4'

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

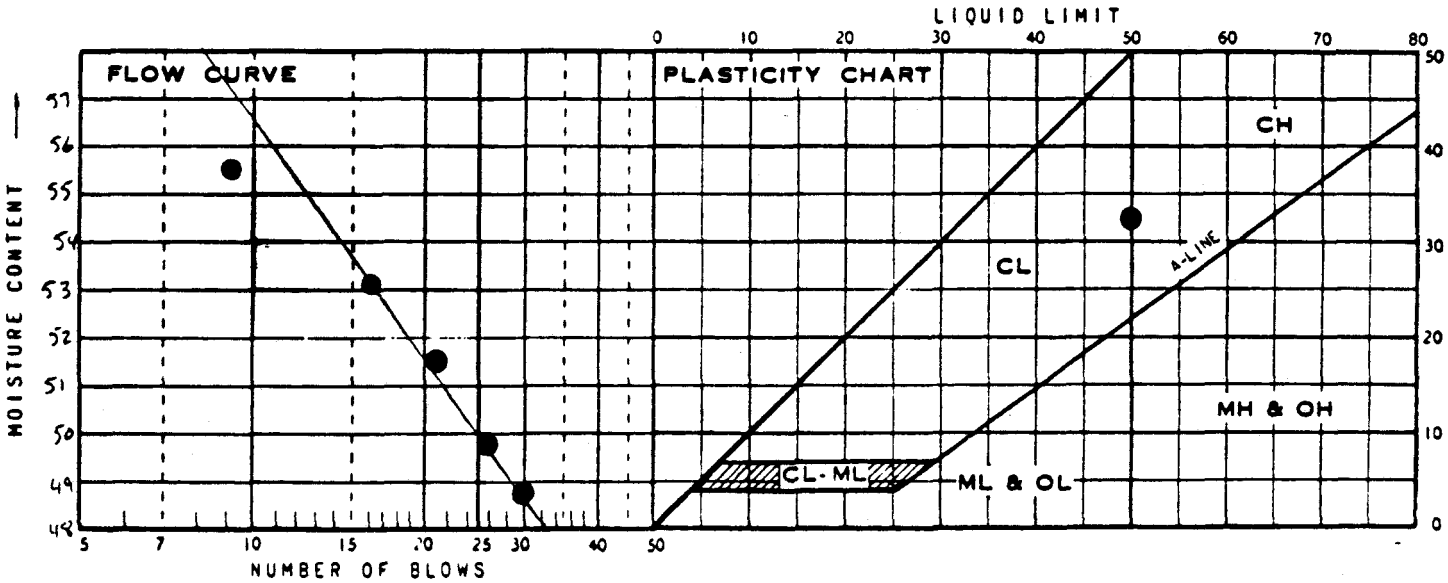
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY DM 3/3/92

DETERMINATION	1	2	3	4	5	6
DISH	2027	2071	2040			
WT OF DISH + WET SOIL g	5.93	7.44	5.97			
WT OF DISH + DRY SOIL g	5.18	6.50	5.26	—	—	—
WT OF MOISTURE g	.75	.74	.71			
WT OF DISH g	1.06	1.05	1.05	—	—	—
WT OF DRY SOIL g	4.12	5.45	4.21			
MOISTURE CONTENT %	18.2	17.2	16.9			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	0C	2063	31C	12C	2038	2024
NUMBER OF BLOWS	30	26	21	16	9	
WT OF DISH + WET SOIL g	11.82	11.83	10.72	11.71	12.30	
WT OF DISH + DRY SOIL g	8.29	8.25	7.43	8.01	8.28	—
WT OF MOISTURE g	3.53	3.58	3.29	3.70	4.02	
WT OF DISH g	1.05	1.06	1.06	1.05	1.05	1.07
WT OF DRY SOIL g	7.24	7.19	6.37	6.96	7.23	
MOISTURE CONTENT %	48.8	49.8	51.6	53.2	55.6	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		50.0	17.4	32.6	CH	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	10+50	SAMPLED	Rocky Flats
DEPTH	4.5'	DATE TESTED	03-05-92 SR
SAMPLE NO.	#3	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	67.18
Wt. Dry Soil & Pan	(g)	66.24
Wt. Lost Moisture	(g)	0.94
Wt. of Pan Only	(g)	3.35
Wt. of Dry Soil	(g)	62.89
Moisture Content	%	1.5

Wt. Hydrom. Sample Wet (g)	60.00
Wt. Hydrom. Sample Dry (g)	59.12

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	627.17
Weight of + #10 Before Washing (g)	70.48
Weight of + #10 After Washing (g)	44.87
Weight of - #10 Wet (g)	556.69
Weight of - #10 Dry (g)	573.72
Wt. Total Sample Dry (g)	618.59
Calc. Wt. "W" (g)	63.74
Calc. Mass + #10	4.62

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	16.43	16.43	16.43	2.7	97.3
#4	0.00	20.87	20.87	37.30	6.0	94.0
#10	0.00	7.57	7.57	44.87	7.3	92.7
#20	1.56	2.03	0.47	0.47	8.0	92.0
#40	1.56	2.34	0.78	1.25	9.2	90.8
#60	1.55	2.26	0.71	1.96	10.3	89.7
#100	1.57	2.44	0.87	2.83	11.7	88.3
#230	1.55	3.22	1.67	4.50	14.3	85.7

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT	Weston	JOB NO.	2066-03
BORING NO.	10+50	SAMPLED	Rocky Flats
DEPTH	4.5'	DATE TESTED	03-05-92 SR
SAMPLE NO.	#3	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

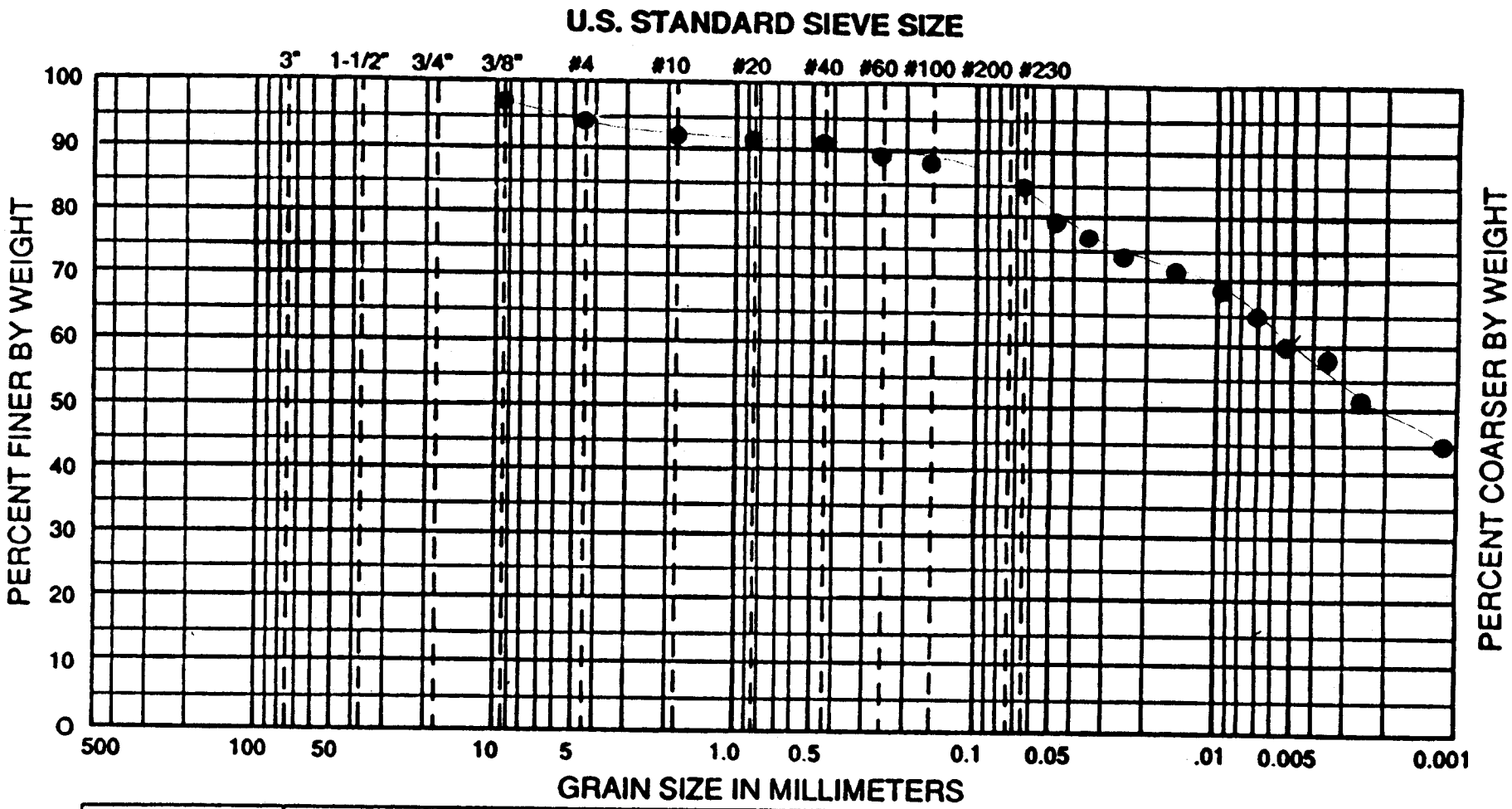
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.70	Temp. Coef. K	0.01312
Value of "a"	0.99	Wt. Dry Sample "W"	63.741
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	5.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	57.00	51.00	79.2	79.2	6.94	0.0489
1.0	55.75	49.75	77.3	77.3	7.15	0.0351
2.0	54.00	48.00	74.6	74.6	7.43	0.0253
5.0	52.75	46.75	72.6	72.6	7.64	0.0162
15.0	50.00	44.00	68.3	68.3	8.09	0.0096
30.0	48.00	42.00	65.2	65.2	8.42	0.0070
60.0	45.00	39.00	60.6	60.6	8.91	0.0051
120.0	43.75	37.75	58.6	58.6	9.12	0.0036
250.0	39.25	33.25	51.6	51.6	9.85	0.0026
1440.0	35.00	29.00	45.0	45.0	10.55	0.0011

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 10+50 SAMPLE NO.: CH # 3 DATE: 3-7-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	4.5'	SILTY CLAY: + gravel and sand. 6% f gravel, 1.3% c.sd, 1.9% med, 5.1% f sand, 25.7% silt, 60% clay

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03
CLIENT/OWNER Weston
LOCATION Rocky Flats EG-G
BORING 10+50 SAMPLE CH #3 DEPTH 4.5'

FIELD DENSITY BY ____/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD [redacted]

DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

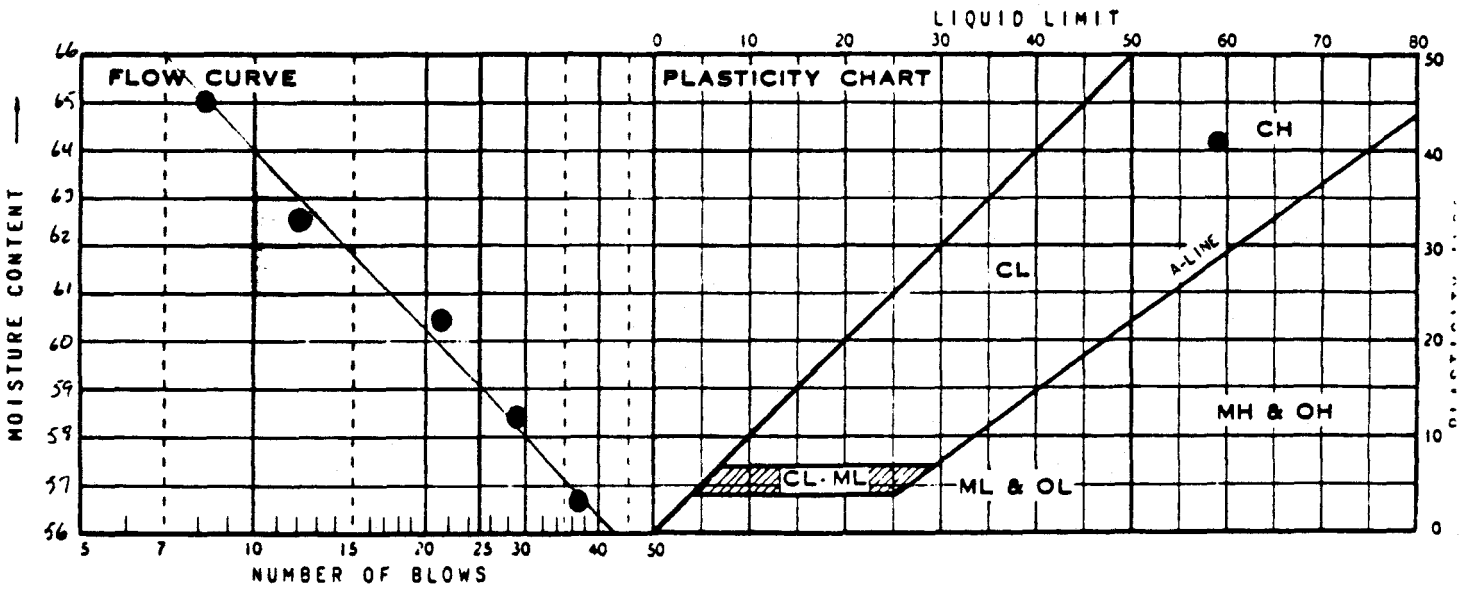
PLASTIC LIMIT BY ____ 3/4/93

?

DETERMINATION	1	2	3	4	5	6
DISH	2017	2014	2074			
WT OF DISH + WET SOIL g	5.12	4.76	5.59			
WT OF DISH + DRY SOIL g	4.49	4.19	4.93	—	—	—
WT OF MOISTURE g	.63	.57	.66			
WT OF DISH g	1.03	1.07	1.04	—	—	—
WT OF DRY SOIL g	3.46	3.12	3.72			
MOISTURE CONTENT %	18.2	18.3	16.8			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	30C	2033	66C	2004	2041	2002
NUMBER OF BLOWS	37	29	21	12	8	
WT OF DISH + WET SOIL g	11.44	10.09	9.79	12.10	10.11	
WT OF DISH + DRY SOIL g	7.68	6.76	6.50	7.84	6.54	—
WT OF MOISTURE g	3.76	3.33	3.29	4.26	3.57	
WT OF DISH g	1.05	1.06	1.06	1.04	1.06	1.05
WT OF DRY SOIL g	6.63	5.70	5.44	6.80	5.48	
MOISTURE CONTENT %	56.7	58.4	60.5	62.6	65.1	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		59.0	18.3	40.7	CH	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	10+50	SAMPLED	Rocky Flats
DEPTH	20.5	DATE TESTED	03-05-92 SR
SAMPLE NO.	#3	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	56.51
Wt. Dry Soil & Pan	(g)	55.63
Wt. Lost Moisture	(g)	0.88
Wt. of Pan Only	(g)	3.70
Wt. of Dry Soil	(g)	51.93
Moisture Content	%	1.7

Wt. Hydrom. Sample Wet (g)	60.01
Wt. Hydrom. Sample Dry (g)	59.01

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	60.01
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	60.01
Weight of - #10 Dry (g)	59.01
Wt. Total Sample Dry (g)	59.01
Calc. Wt. "W" (g)	59.01
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	1.57	1.64	0.07	0.07	0.1	99.9
#40	1.56	1.63	0.07	0.14	0.2	99.8
#60	1.56	1.60	0.04	0.18	0.3	99.7
#100	1.56	1.61	0.05	0.23	0.4	99.6
#230	1.57	1.69	0.12	0.35	0.6	99.4

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT	Weston	JOB NO.	2066-03
BORING NO.	10+50	SAMPLED	Rocky Flats
DEPTH	20.5	DATE TESTED	03-05-92 SR
SAMPLE NO.	#3	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

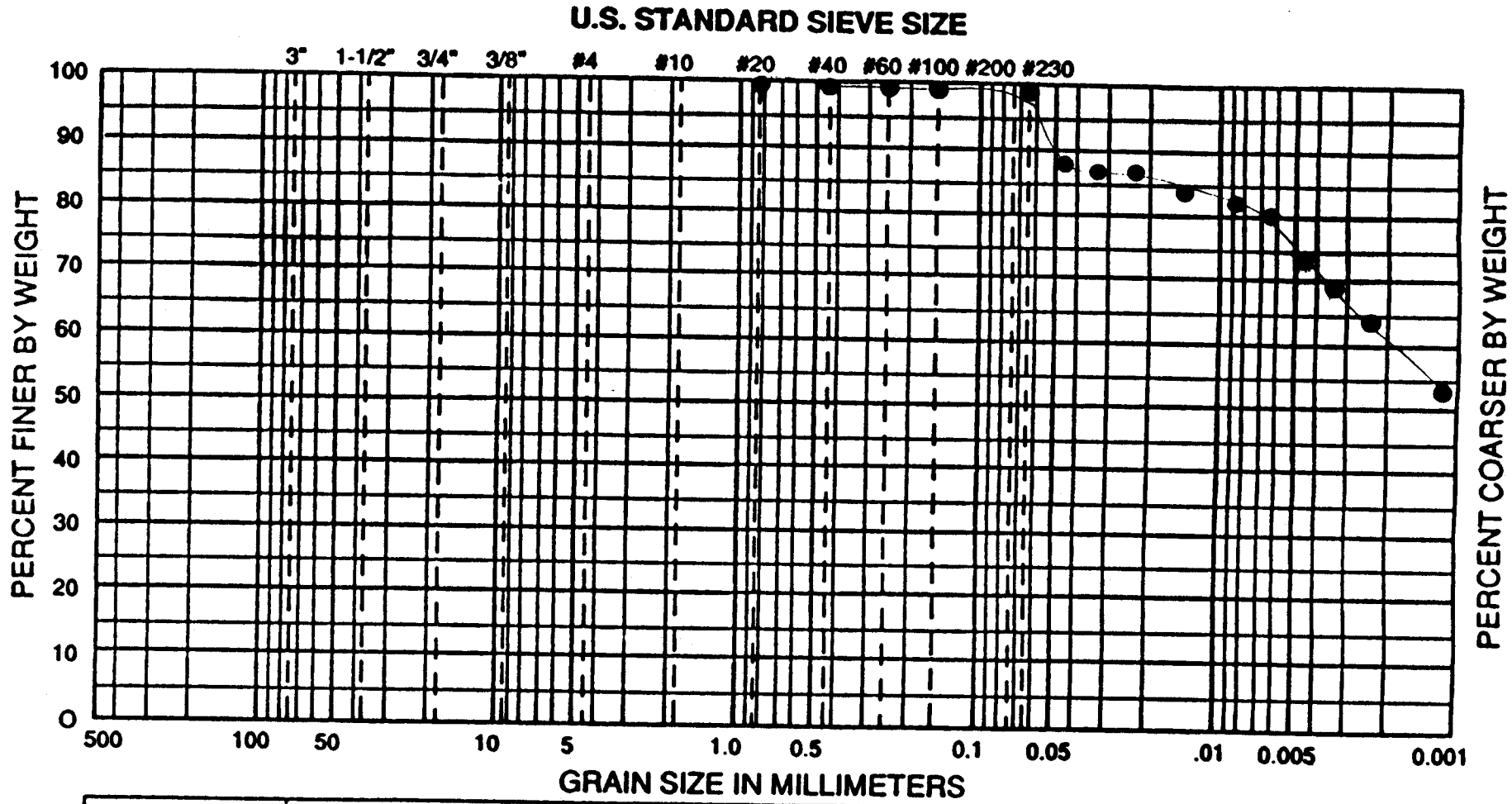
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.79	Temp. Coef. K	0.01280
Value of "a"	0.97	Wt. Dry Sample "W"	59.013
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	5.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	59.50	53.50	88.1	88.1	6.53	0.0463
1.0	59.00	53.00	87.3	87.3	6.61	0.0329
2.0	59.00	53.00	87.3	87.3	6.61	0.0233
5.0	57.25	51.25	84.4	84.4	6.90	0.0150
15.0	56.00	50.00	82.4	82.4	7.11	0.0088
30.0	54.75	48.75	80.3	80.3	7.31	0.0063
60.0	51.00	45.00	74.1	74.1	7.93	0.0047
120.0	48.25	42.25	69.6	69.6	8.38	0.0034
250.0	45.25	39.25	64.6	64.6	8.87	0.0024
1440.0	38.25	32.25	53.1	53.1	10.02	0.0011

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 10+50 SAMPLE NO.: CH # 3 DATE: 3/9/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	20.5'	CLAY w/ some (CH) Silt, tr sd. .2% Med sd, .4% f sd, 24.4% silt, 75% CLAY

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER Weston

LOCATION Rocky Flats EG&G

BORING 10-50 SAMPLE CM #3 DEPTH 20.5'

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

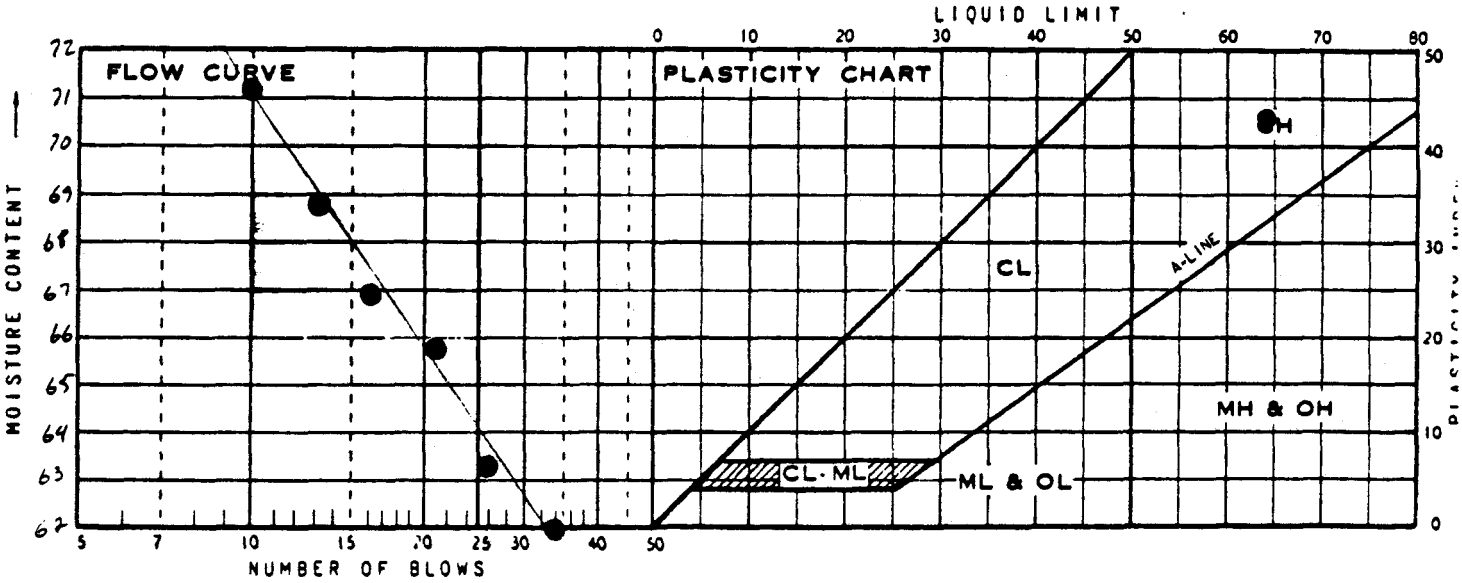
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY DM 3/4/92

DETERMINATION	1	2	3	4	5	6
DISH	37C	15C	2012			
WT OF DISH + WET SOIL g	4.94	5.26	6.36			
WT OF DISH + DRY SOIL g	4.26	4.51	5.44	—	—	—
WT OF MOISTURE g	.68	.75	.92			
WT OF DISH g	1.03	1.06	1.05	—	—	—
WT OF DRY SOIL g	3.23	3.45	4.39			
MOISTURE CONTENT %	21.1	21.7	21.0			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2008	35C	2025	2002	2024	54C
NUMBER OF BLOWS	34	26	21	16	13	10
WT OF DISH + WET SOIL g	10.48	10.45	10.78	10.45	10.43	7.91
WT OF DISH + DRY SOIL g	6.87	6.81	6.94	5.44	6.68	6.23
WT OF MOISTURE g	3.61	3.64	3.84	3.77	3.82	3.68
WT OF DISH g	1.05	1.06	1.06	1.05	1.06	1.06
WT OF DRY SOIL g	5.82	5.75	5.88	5.63	5.55	5.17
MOISTURE CONTENT %	62.0	63.3	65.3	67.0	68.9	71.2



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		64.0	21.3	42.7	CH	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	10+50
DEPTH	42.5'
SAMPLE NO.	#6
SOIL DESCR.	Bulk (Jar)

SAMPLED	Rocky Flats
DATE TESTED	02-12-92 TNU
WASH SIEVE	Yes
DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes
NATURAL	No

Wt. Wet Soil & Pan	(g)	59.84
Wt. Dry Soil & Pan	(g)	57.85
Wt. Lost Moisture	(g)	1.99
Wt. of Pan Only	(g)	3.17
Wt. of Dry Soil	(g)	54.68
Moisture Content	%	3.6

Wt. Hydrom. Sample Wet (g)	60.09
Wt. Hydrom. Sample Dry (g)	57.98

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	487.74
Weight of + #10 Before Washing (g)	1.34
Weight of + #10 After Washing (g)	1.25
Weight of - #10 Wet (g)	486.40
Weight of - #10 Dry (g)	469.41
Wt. Total Sample Dry (g)	470.66
Calc. Wt. "W" (g)	58.13
Calc. Mass + #10	0.15

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	1.17	1.17	1.17	0.2	99.8
#10	0.00	0.08	0.08	1.25	0.3	99.7
#20	1.57	1.59	0.02	0.02	0.3	99.7
#40	1.30	1.33	0.03	0.05	0.4	99.6
#60	1.57	1.60	0.03	0.08	0.4	99.6
#100	1.56	1.61	0.05	0.13	0.5	99.5
#230	1.57	1.82	0.25	0.38	0.9	99.1

Silty Clay -

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	10+50	SAMPLED	Rocky Flats
DEPTH	42.5'	DATE TESTED	02-12-92 TNU
SAMPLE NO.	#6	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.72	Temp. Coef. K	0.01324
Value of "a"	0.99	Wt. Dry Sample "W"	58.133
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	5.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	62.00	56.00	95.0	95.0	6.12	0.0463
1.0	61.00	55.00	93.3	93.3	6.29	0.0332
2.0	60.00	54.00	91.6	91.6	6.45	0.0238
5.0	58.50	52.50	89.0	89.0	6.70	0.0153
15.0	55.50	49.50	84.0	84.0	7.19	0.0092
30.0	53.50	47.50	80.6	80.6	7.52	0.0066
60.0	51.00	45.00	76.3	76.3	7.93	0.0048
120.0	47.50	41.50	70.4	70.4	8.50	0.0035
250.0	45.00	39.00	66.1	66.1	8.91	0.0025
1440.0	38.50	32.50	55.1	55.1	9.98	0.0011

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

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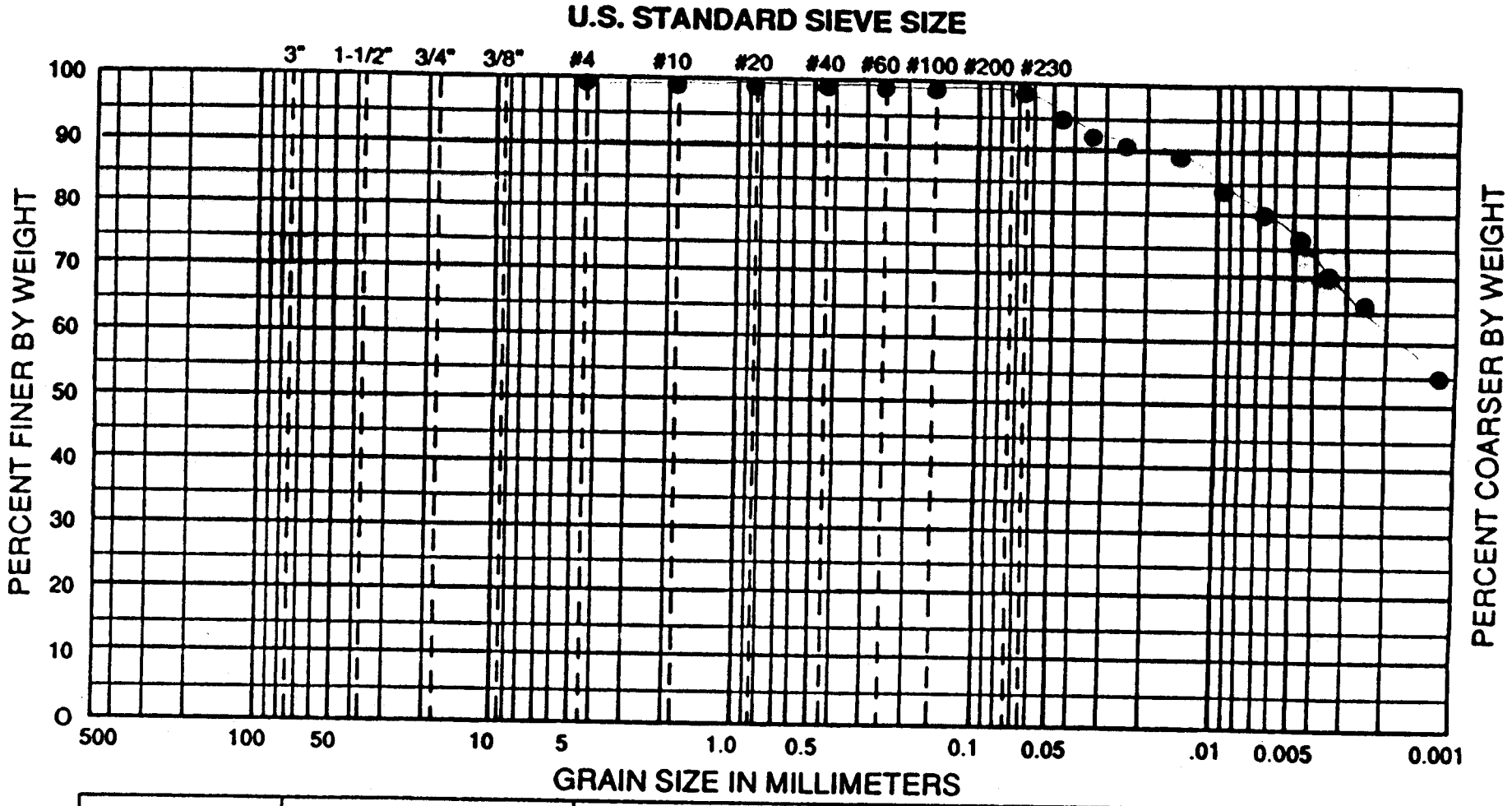


USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 10+50 SAMPLE NO.: #6 DATE: 2-23-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
	42.5'	29% fines SILTY CLAY (CH) w/ trace sand and gravels Rocky Flats [illegible]

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

CLIENT/OWNER WESTON

LOCATION EG&G

BORING 10+50 SAMPLE ____ DEPTH 42.5

(6)

FIELD DENSITY BY ____/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

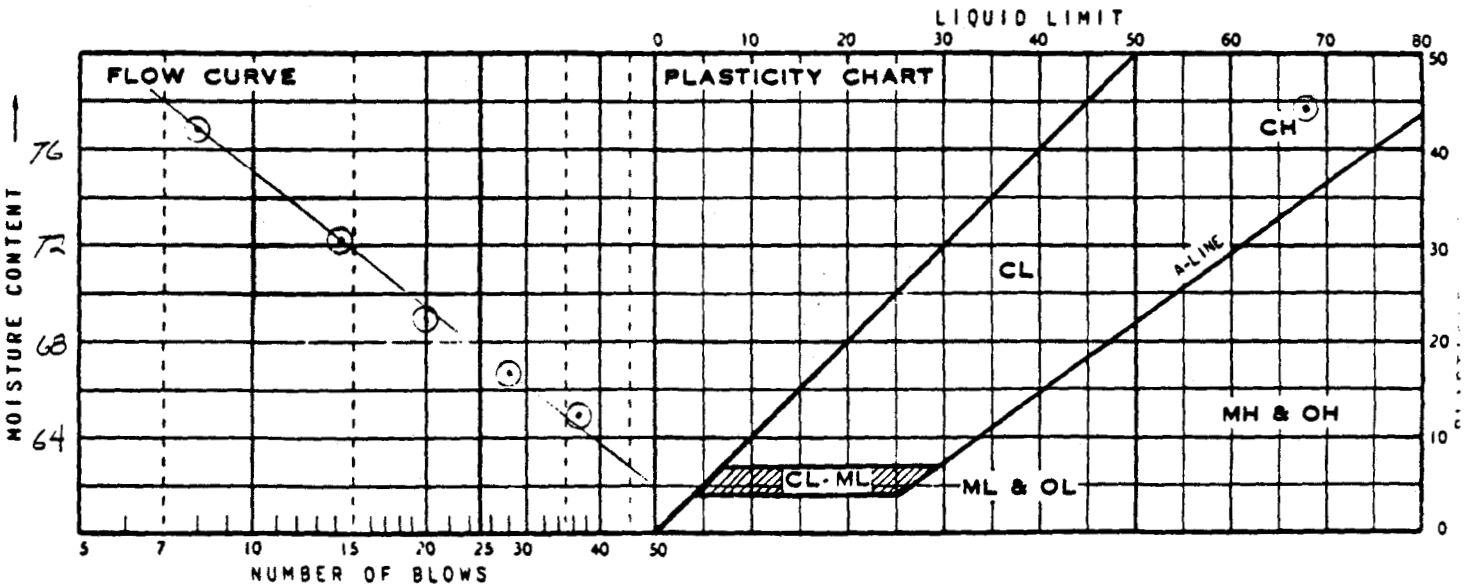
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY DW 2/23/92

DETERMINATION	1	2	3	4	5	6
DISH	2031	1902	2055			
WT OF DISH + WET SOIL	6.12g	8.18g	7.39g			
WT OF DISH + DRY SOIL	5.16g	6.81g	6.18g	—	—	—
WT OF MOISTURE	0.96g	1.37g	1.21g			
WT OF DISH	1.04g	1.01g	1.03g	—	—	—
WT OF DRY SOIL	4.12g	5.80g	5.15g			
MOISTURE CONTENT	23.3	23.6	23.5			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2018	12C	2069	2070	2053	
NUMBER OF BLOWS	37	28	20	14	8	
WT OF DISH + WET SOIL	15.68g	16.91g	17.41g	17.08g	17.88g	
WT OF DISH + DRY SOIL	9.91g	10.56g	10.72g	10.35g	10.56g	—
WT OF MOISTURE	5.77g	6.35g	6.69g	6.73g	7.32g	
WT OF DISH	1.04g	1.04g	1.03g	1.05g	1.04g	—
WT OF DRY SOIL	8.87g	7.52g	9.69g	9.32g	9.52g	
MOISTURE CONTENT	65.1	66.7	69.0	72.2	76.9	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		67.7	23.5	44.2	CH	

ADVANCED TERRA TESTING INC

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	10+50	SAMPLED	Rocky Flats
DEPTH	46'	DATE TESTED	02-12-92
SAMPLE NO.	#6	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	59.38
Wt. Dry Soil & Pan	(g)	58.34
Wt. Lost Moisture	(g)	1.04
Wt. of Pan Only	(g)	3.75
Wt. of Dry Soil	(g)	54.59
Moisture Content	%	1.9

Wt. Hydrom. Sample Wet (g)	60.00
Wt. Hydrom. Sample Dry (g)	58.88

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	60.00
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	60.00
Weight of - #10 Dry (g)	58.88
Wt. Total Sample Dry (g)	58.88
Calc. Wt. "W" (g)	58.88
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	1.55	1.57	0.02	0.02	0.0	100.0
#40	1.55	1.57	0.02	0.04	0.1	99.9
#60	1.55	1.56	0.01	0.05	0.1	99.9
#100	1.55	1.57	0.02	0.07	0.1	99.9
#230	1.55	1.68	0.13	0.20	0.3	99.7

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT	Weston	JOB NO.	2066-03
BORING NO.	10+50	SAMPLED	Rocky Flats/E
DEPTH	46'	DATE TESTED	02-12-92
SAMPLE NO.	#6	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

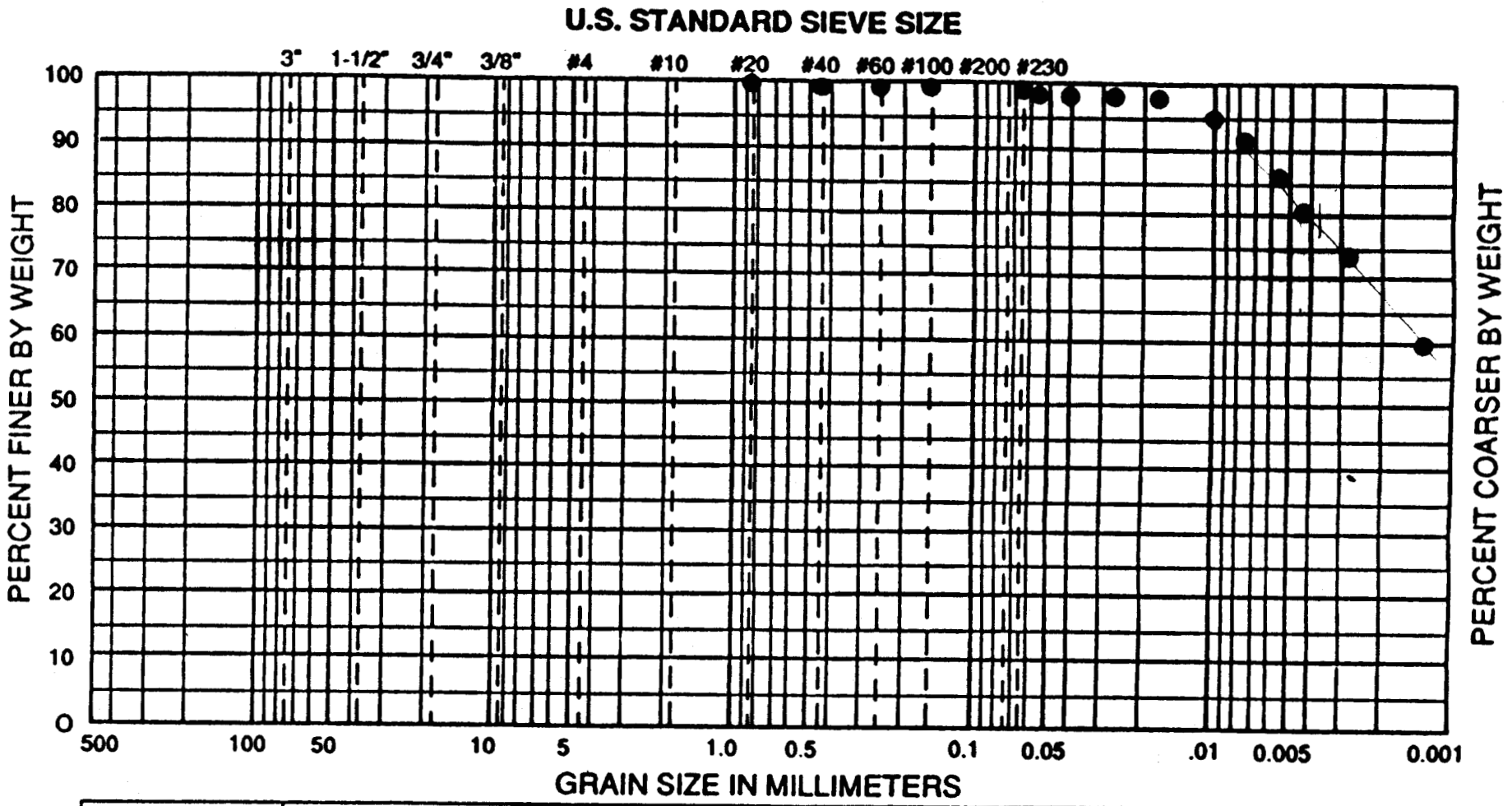
Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.18	Temp. Coef. K	0.01567
Value of "a"	1.09	Wt. Dry Sample "W"	58.878
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	5.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	59.00	53.00	98.3	98.3	6.61	0.0570
1.0	59.00	53.00	98.3	98.3	6.61	0.0403
2.0	59.00	53.00	98.3	98.3	6.61	0.0285
5.0	59.00	53.00	98.3	98.3	6.61	0.0180
15.0	57.50	51.50	95.5	95.5	6.86	0.0106
30.0	56.00	50.00	92.7	92.7	7.11	0.0076
60.0	52.50	46.50	86.2	86.2	7.68	0.0056
120.0	50.00	44.00	81.6	81.6	8.09	0.0041
250.0	46.00	40.00	74.2	74.2	8.75	0.0029
1440.0	38.50	32.50	60.3	60.3	9.98	0.0013

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL			SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 10+50 SAMPLE NO.: #6 DATE: 2-21-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
	46'	CLAY (CH) w/ some silt trace sand ROCKY FLATS

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2C06-03

CLIENT/OWNER WESTON

LOCATION _____

BORING 04-50 SAMPLE ____ DEPTH 46'

FIELD DENSITY BY _____

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

(6)

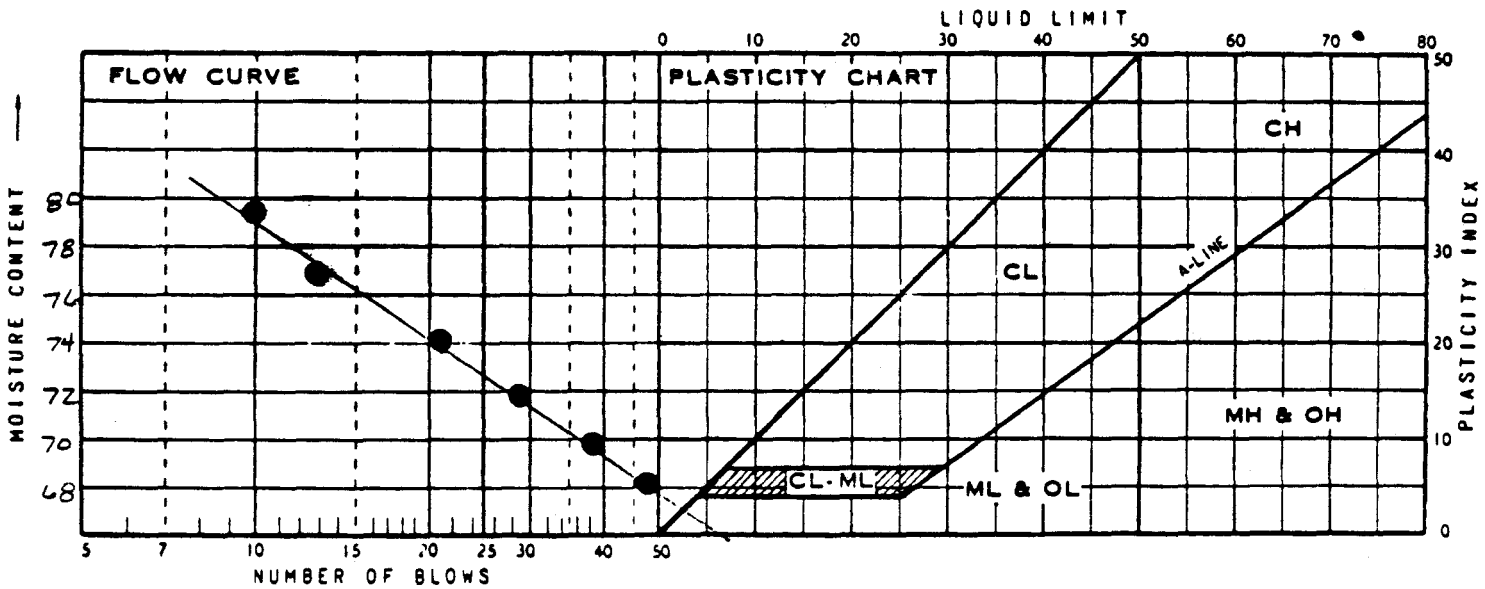
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY CW 2/22/92

DETERMINATION	1	2	3	4	5	6
DISH	2019	42C	2009			
WT OF DISH + WET SOIL	5.28 g	6.27 g	5.99 g			
WT OF DISH + DRY SOIL g	4.52	5.33 g	5.12 g	—	—	—
WT OF MOISTURE g	.76	.94	.87			
WT OF DISH g	1.06 g	1.03 g	1.05 g	—	—	—
WT OF DRY SOIL g	3.46	4.30	4.07 g			
MOISTURE CONTENT %	22.0	21.9	21.4			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2024	26C	27C	28C	29C	30C
NUMBER OF BLOWS	49	39	29	21	13	10
WT OF DISH + WET SOIL	18.52 g	16.45 g	16.23 g	19.23 g	19.54 g	18.76 g
WT OF DISH + DRY SOIL g	11.44	10.11 g	10.22	11.49 g	11.50 g	10.91 g
WT OF MOISTURE g	7.08	6.34	6.01	7.74	8.04	7.85
WT OF DISH g	1.04 g	1.04 g	1.03 g	1.04 g	1.04 g	1.05 g
WT OF DRY SOIL g	10.40	9.07 g	9.19 g	10.45 g	10.46 g	9.86
MOISTURE CONTENT %	68.1	69.9	71.9	74.1	76.9	79.6



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		72.8	21.8	51.0	CH	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

BR

CLIENT Western

JOB NO. 2066-03

BORING NO.	10+50	SAMPLED	Rocky Flats
DEPTH	55.0'	DATE TESTED	02-18-92 TNU
SAMPLE NO.	#6	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	45.05
Wt. Dry Soil & Pan	(g)	43.46
Wt. Lost Moisture	(g)	1.59
Wt. of Pan Only	(g)	3.73
Wt. of Dry Soil	(g)	39.73
Moisture Content	%	4.0

Wt. Hydrom. Sample Wet (g)	56.03
Wt. Hydrom. Sample Dry (g)	53.87

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	56.03
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	56.03
Weight of - #10 Dry (g)	53.87
Wt. Total Sample Dry (g)	53.87
Calc. Wt. "W" (g)	53.87
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	1.56	1.64	0.08	0.08	0.1	99.9
#40	1.56	1.59	0.03	0.11	0.2	99.8
#60	1.57	1.60	0.03	0.14	0.3	99.7
#100	1.56	1.59	0.03	0.17	0.3	99.7
#230	1.56	1.66	0.10	0.27	0.5	99.5

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT	Weston	JOB NO.	2066-03
BORING NO.	10+50	SAMPLED	Rocky Flats
DEPTH	55.0'	DATE TESTED	02-18-92 TNU
SAMPLE NO.	#6	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

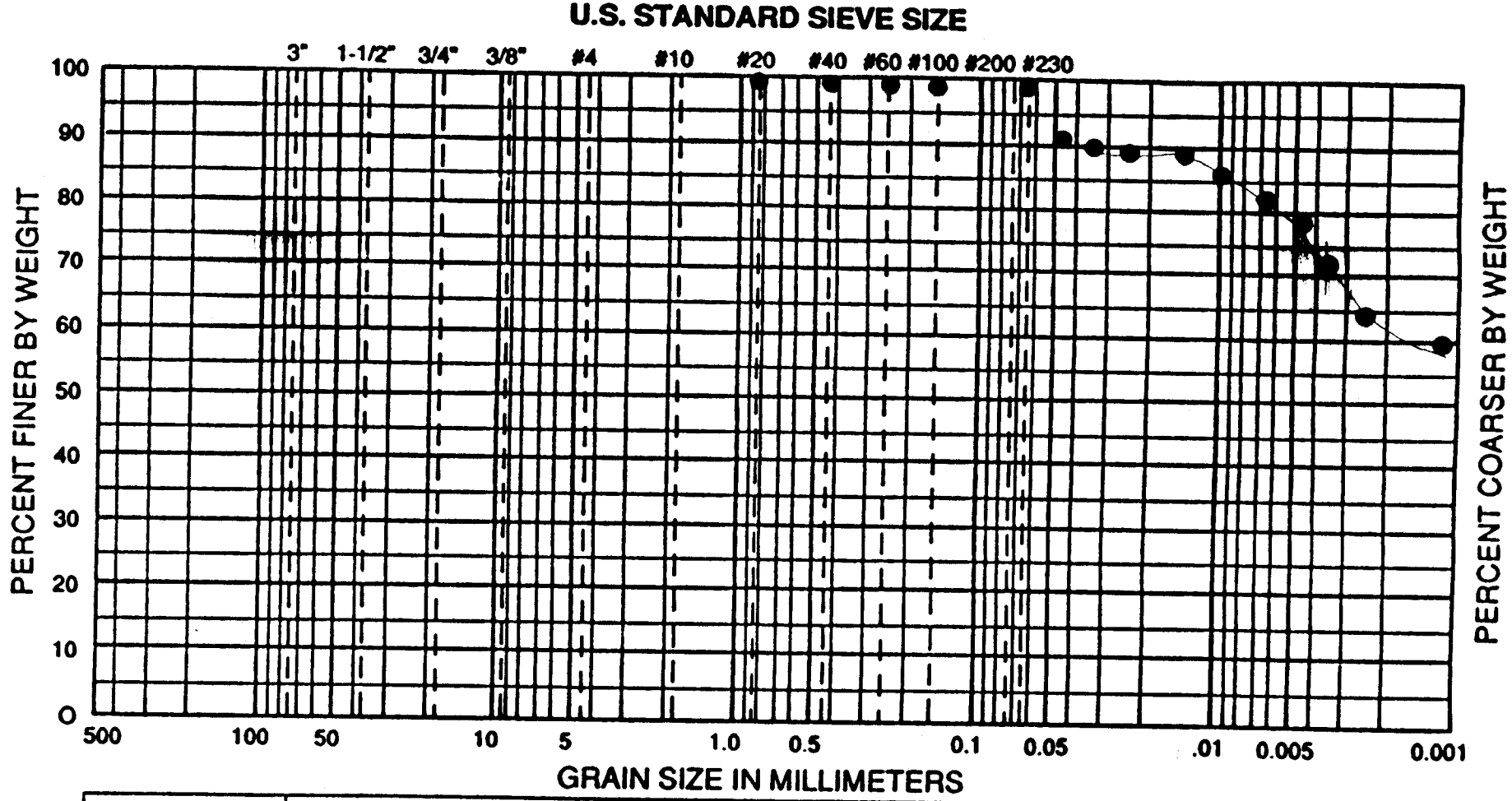
Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.83	Temp. Coef. K	0.01289
Value of "a"	0.96	Wt. Dry Sample "W"	53.869
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	5.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	57.00	51.00	91.3	91.3	6.94	0.0480
1.0	56.50	50.50	90.4	90.4	7.02	0.0342
2.0	56.00	50.00	89.5	89.5	7.11	0.0243
5.0	55.75	49.75	89.0	89.0	7.15	0.0154
15.0	54.00	48.00	85.9	85.9	7.43	0.0091
30.0	52.50	46.50	83.2	83.2	7.68	0.0065
60.0	50.00	44.00	78.7	78.7	8.09	0.0047
120.0	46.50	40.50	72.5	72.5	8.66	0.0035
250.0	42.00	36.00	64.4	64.4	9.40	0.0025
1440.0	34.00	28.00	50.1	50.1	10.71	0.0011

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 10+50 SAMPLE NO.: #6 DATE: 2-24-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
	550'	SILTY CLAYSTONE w/ trace [illegible] Rocky Flats [illegible]

JOB NO. [illegible]

CLIENT/OWNER WESTON

LOCATION

FIELD CLASSIFICATION

LABORATORY CLASSIFICATION

BORING 10+50 SAMPLE ____ DEPTH 55'

(6)

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

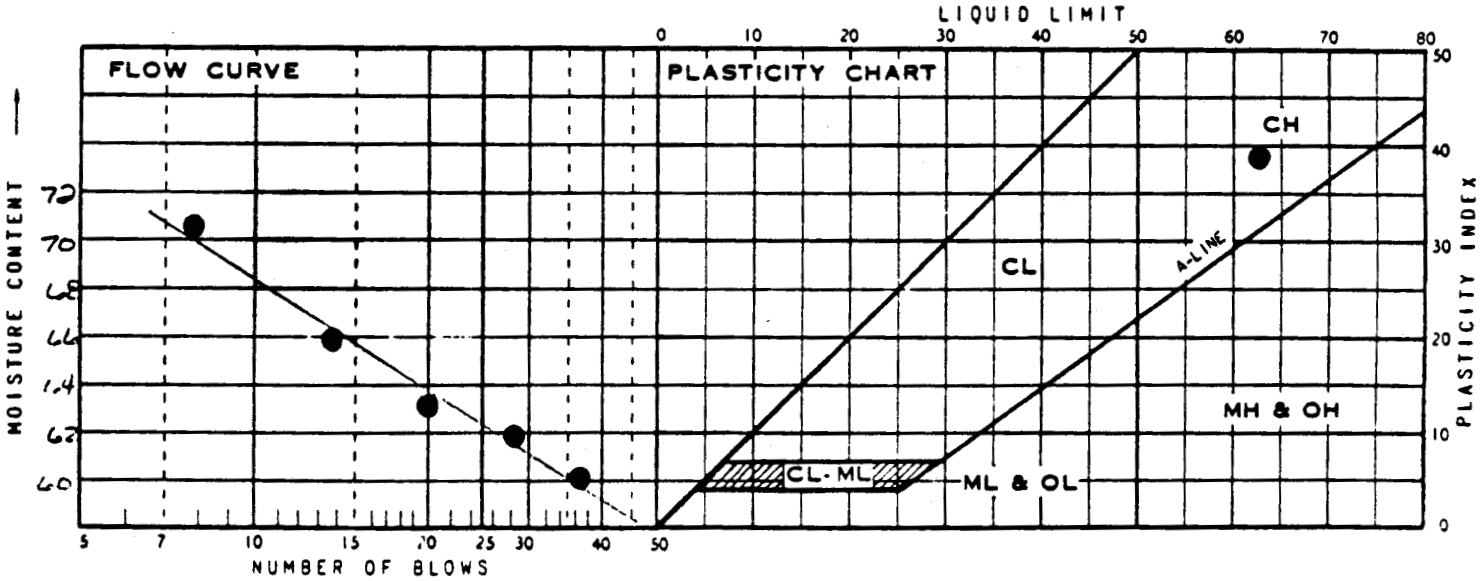
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY SR. 2/2992

DETERMINATION	1	2	3	4	5	6
DISH	18C	19C	20C			
WT OF DISH + WET SOIL g	6.83	6.85	7.00			
WT OF DISH + DRY SOIL g	5.71	5.76	5.85	—	—	—
WT OF MOISTURE g	1.12	1.09	1.15			
WT OF DISH g	1.03	1.02	1.02	—	—	—
WT OF DRY SOIL g	4.68	4.74	4.83			
MOISTURE CONTENT %	23.9	23.0	23.8			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	21C	22C	23C	24C	25C	
NUMBER OF BLOWS	37	29	20	14	9±	
WT OF DISH + WET SOIL g	19.61	16.33	14.78	15.11	15.27	
WT OF DISH + DRY SOIL g	12.61	10.48	9.47	9.51	9.38	—
WT OF MOISTURE g	7.00	5.85	5.31	5.60	5.89	
WT OF DISH g	1.03	1.03	1.05	1.03	1.04	—
WT OF DRY SOIL g	11.58	9.45	8.42	8.48	8.34	
MOISTURE CONTENT %	60.5	61.9	63.1	66.0	70.6	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		62.3	23.6	38.7	CH	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	10+50
DEPTH	72'
SAMPLE NO.	#6
SOIL DESCR.	Bulk (Jar)

SAMPLED	Rocky Flats
DATE TESTED	02-12-92 TNU
WASH SIEVE	Yes
DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	56.02
Wt. Dry Soil & Pan	(g)	53.95
Wt. Lost Moisture	(g)	2.07
Wt. of Pan Only	(g)	3.72
Wt. of Dry Soil	(g)	50.23
Moisture Content	%	4.1

Wt. Hydrom. Sample Wet (g)	60.00
Wt. Hydrom. Sample Dry (g)	57.63

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	60.00
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	60.00
Weight of - #10 Dry (g)	57.63
Wt. Total Sample Dry (g)	57.63
Calc. Wt. "W" (g)	57.63
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	0.00	0.00	0.00	0.00	0.0	100.0
#40	1.56	1.57	0.01	0.01	0.0	100.0
#60	1.57	1.60	0.03	0.04	0.1	99.9
#100	1.56	1.88	0.32	0.36	0.6	99.4
#230	1.56	33.17	31.61	31.97	55.5	44.5

Silty Sandstone

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT	Weston	JOB NO.	2066-03
BORING NO.	10+50	SAMPLED	Rocky Flats/E
DEPTH	72'	DATE TESTED	02-12-92 TNU
SAMPLE NO.	#6	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

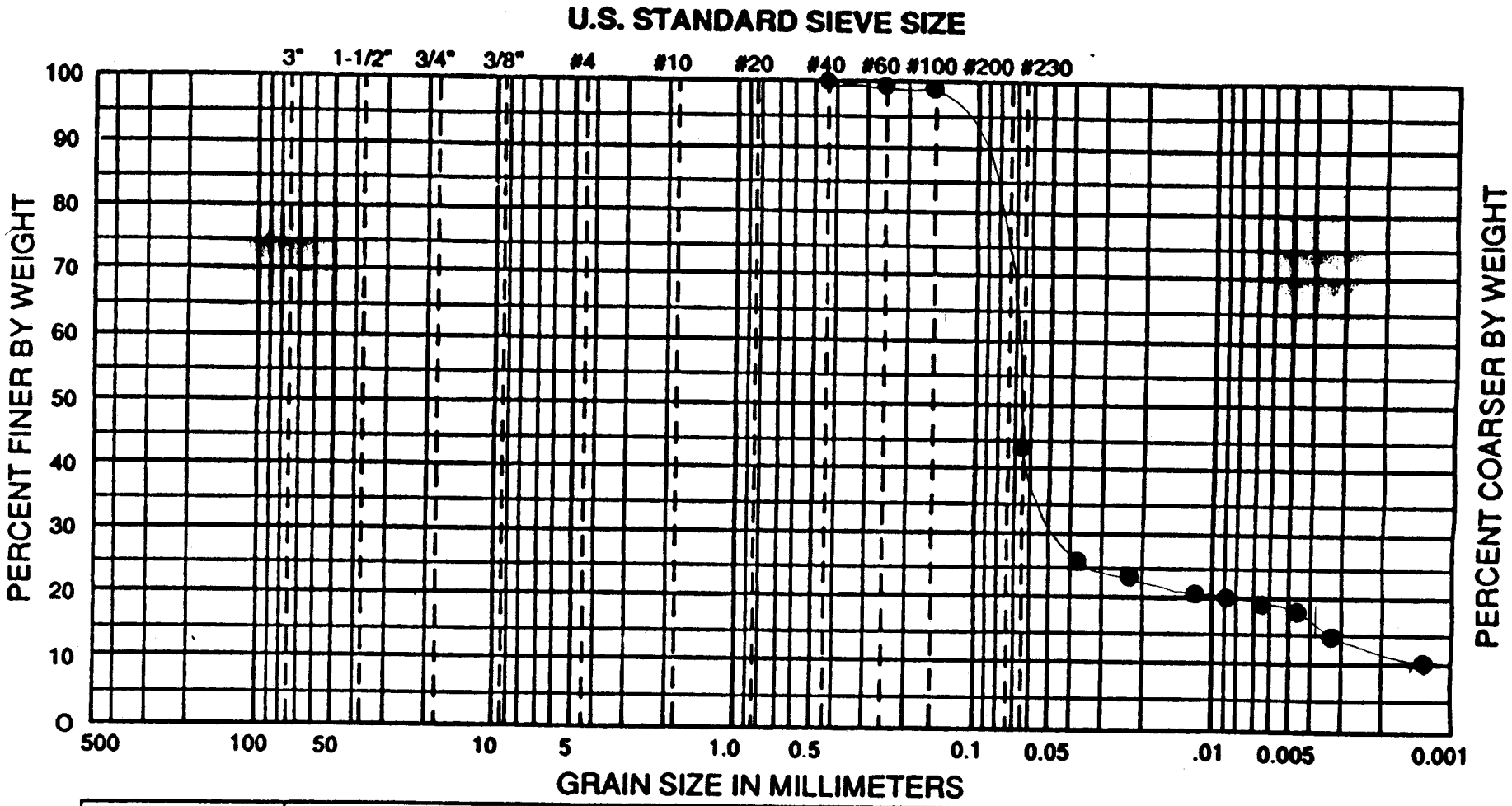
Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.69	Temp. Coef. K	0.01332
Value of "a"	0.99	Wt. Dry Sample "W"	57.625
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	5.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	36.50	30.50	52.5	52.5	10.30	0.0605
1.0	26.50	20.50	35.3	35.3	11.94	0.0460
2.0	21.50	15.50	26.7	26.7	12.76	0.0337
5.0	20.00	14.00	24.1	24.1	13.01	0.0215
15.0	19.00	13.00	22.4	22.4	13.17	0.0125
30.0	18.50	12.50	21.5	21.5	13.26	0.0089
60.0	17.50	11.50	19.8	19.8	13.42	0.0063
120.0	16.50	10.50	18.1	18.1	13.58	0.0045
250.0	15.00	9.00	15.5	15.5	13.83	0.0031
1440.0	12.50	6.50	11.2	11.2	14.24	0.0013

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 10+50 SAMPLE NO.: #6 DATE: 2-21-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
	72'	Silty Sand w/ some CLAY ROCKY FLATS [illegible] 20.5% Silt 10% Clay

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION - - - - - - - - - - - - - - - -

LABORATORY CLASSIFICATION - - - - - - - - - - - - -

JOB NO. 2066 - 03

CLIENT/OWNER WESTON

LOCATION EG+G

BORING 10+50 SAMPLE - - - - DEPTH 72'

(6)

FIELD DENSITY BY - - - - / - / - -

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD [redacted]

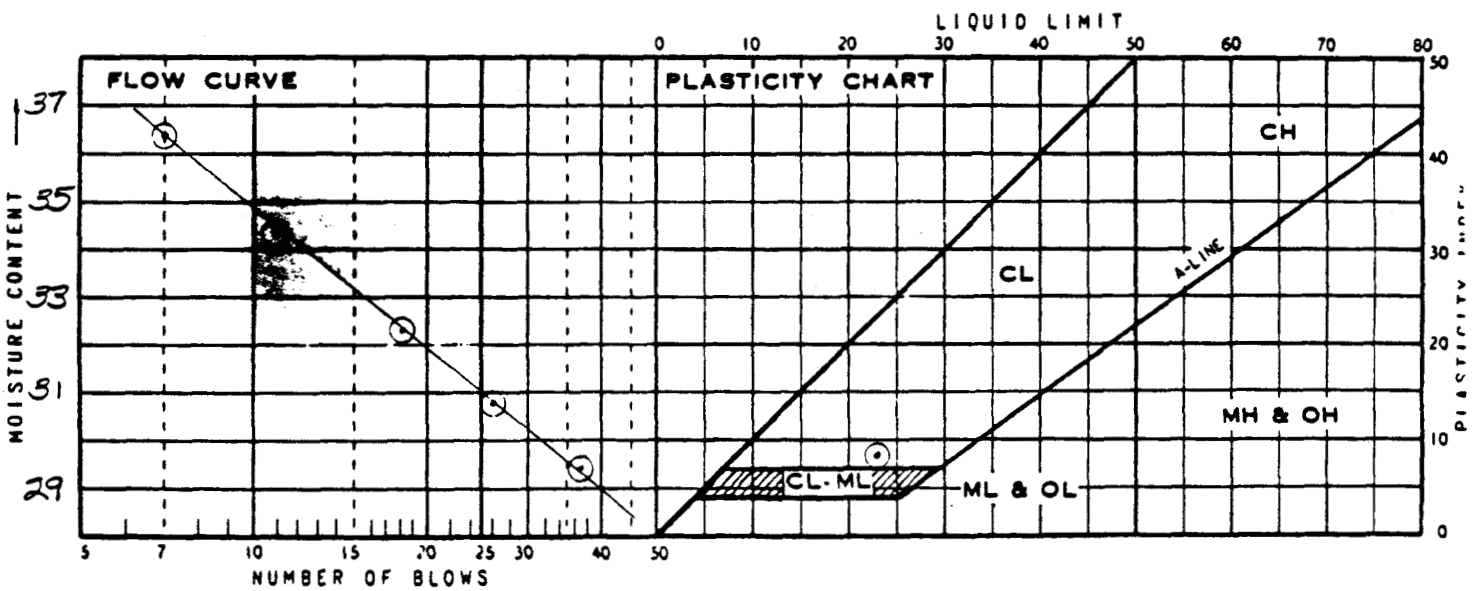
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY DW 2/23/92

DETERMINATION	1	2	3	4	5	6
DISH	2050	2052	2066			
WT OF DISH + WET SOIL	8.53g	8.57g	7.14g			
WT OF DISH + DRY SOIL	7.09g	7.16g	6.03g	—	—	—
WT OF MOISTURE	1.44g	1.41g	1.11g			
WT OF DISH	1.03g	1.02g	1.04g	—	—	—
WT OF DRY SOIL	6.06g	6.14g	4.99g			
MOISTURE CONTENT	23.8	23.0	22.2			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2051	2042	2004	2034	2025	2014
NUMBER OF BLOWS	37	31	26	18	11	7
WT OF DISH + WET SOIL	20.51g	24.25g	22.94g	22.98g	23.94g	21.05g
WT OF DISH + DRY SOIL	16.08g	18.87g	17.78g	17.62g	18.09g	15.72g
WT OF MOISTURE	4.43g	5.38g	5.16g	5.36g	5.85g	5.33g
WT OF DISH	1.02g	1.04g	1.03g	1.04g	1.04g	1.06g
WT OF DRY SOIL	15.06g	17.83g	16.75g	16.58g	17.05g	14.66g
MOISTURE CONTENT	29.4	30.2	30.8	32.3	34.3	36.4



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		31.0	23.0	8.0	CL	

ADVANCED TERRA TESTING INC

MECHANICAL ANALYSIS - SIEVE TEST DATA

" 1-24 signed in "

CLIENT Weston

JOB NO. 2066-03 "

BORING NO.	10+75	SAMPLED	12-28-91
DEPTH	1'	DATE TESTED	02-04-92 TNU
SAMPLE NO.	1 —	WASH SIEVE	Yes
SOIL DESCR.	Rocky Flats/EG&G	DRY SIEVE	No

MOISTURE/DENSITY DATA

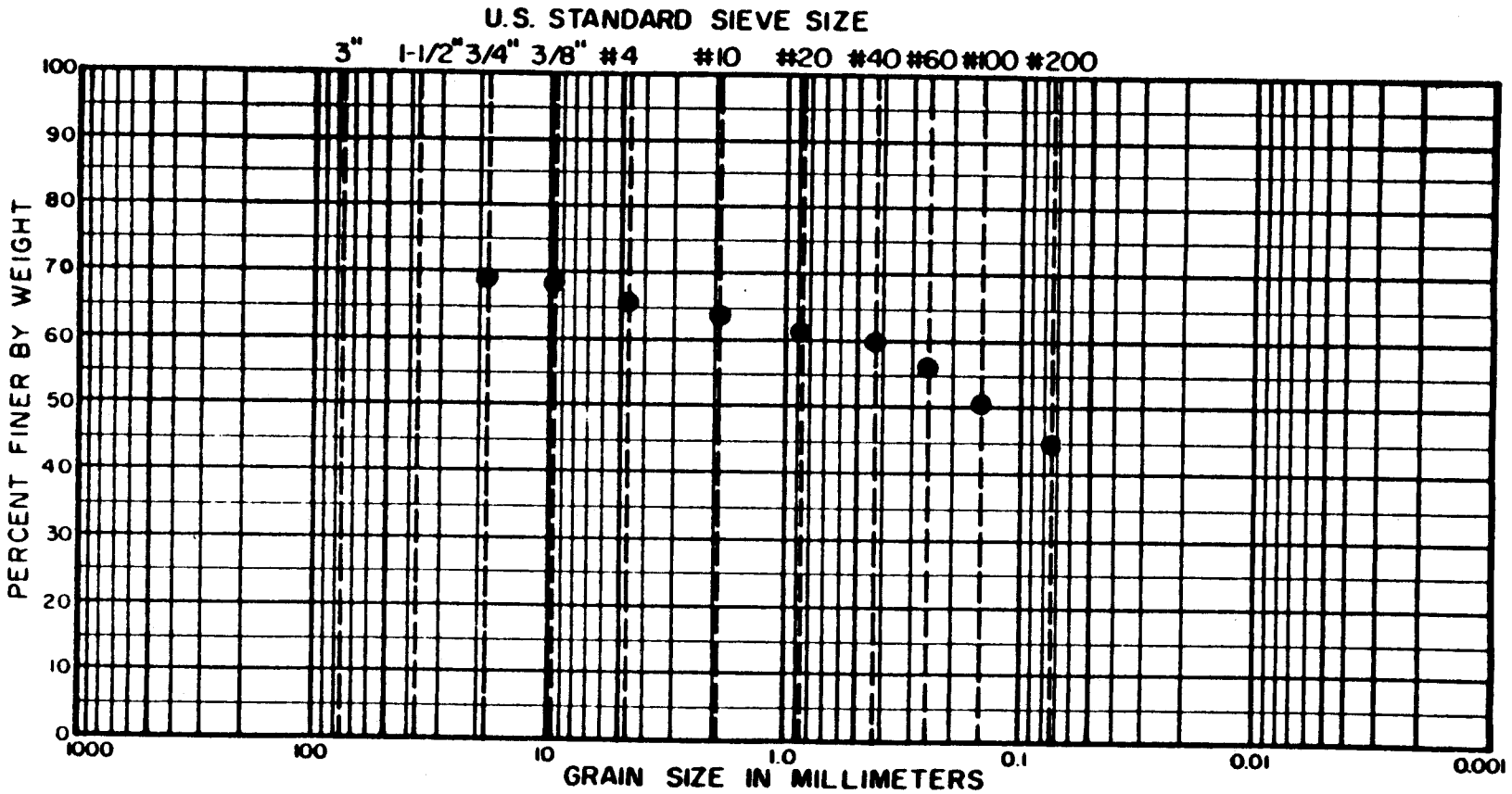
Wt. Soil & Ring(s) (g)	
Wt. Ring(s) (g)	
Wt. Soil (g)	
Wet Density PCF	
Wt. Wet Soil & Pan (g)	
Wt. Dry Soil & Pan (g)	
Wt. Lost Moisture (g)	
Wt. of Pan Only (g)	
Wt. of Dry Soil (g)	
Moisture Content %	
Dry Density PCF	

WASH SIEVE ANALYSIS

Wt. Wet Soil & Pan Before Washing (g)	
Wt. Dry Soil & Pan Before Washing (g)	246.2
Weight of Pan (g)	9.3
Wt. of Dry Soil Before Washing	236.9
Wt. Dry Soil & Pan After Washing (g)	139.2
Wt. of Dry Soil After Washing (g)	129.9
-#200 Wash. Out %	45.2

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
3"	0.00	0.00	0.00	0.00	0.0	100.0
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	3.35	75.75	72.40	72.40	30.6	69.4
3/8"	3.16	4.94	1.78	74.18	31.3	68.7
#4	3.62	8.78	5.16	79.34	33.5	66.5
#10	3.92	8.61	4.69	84.03	35.5	64.5
#20	3.58	7.86	4.28	88.31	37.3	62.7
#40	3.59	9.81	6.22	94.53	39.9	60.1
#60	3.63	11.97	8.34	102.87	43.4	56.6
#100	3.74	16.05	12.31	115.18	48.6	51.4
#200	3.79	18.50	14.71	129.89	54.8	45.2

ADVANCED TERRA TESTING, INC.



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

LOCATION	DEPTH	CLASSIFICATION
10+75	1.0'	33.3% Gravel, 2% Coarse, Gravelly Clayey Sand (SC) Rock Flat / EG+B 44% Med, 14.9% Fine, 45.2% Silt or Clay 21.3% Sand

ADVANCED TERRA TESTING

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03
CLIENT/OWNER Weston
LOCATION Rocky Flats EG+G
BORING 10+75 SAMPLE CH #1 DEPTH 1'

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

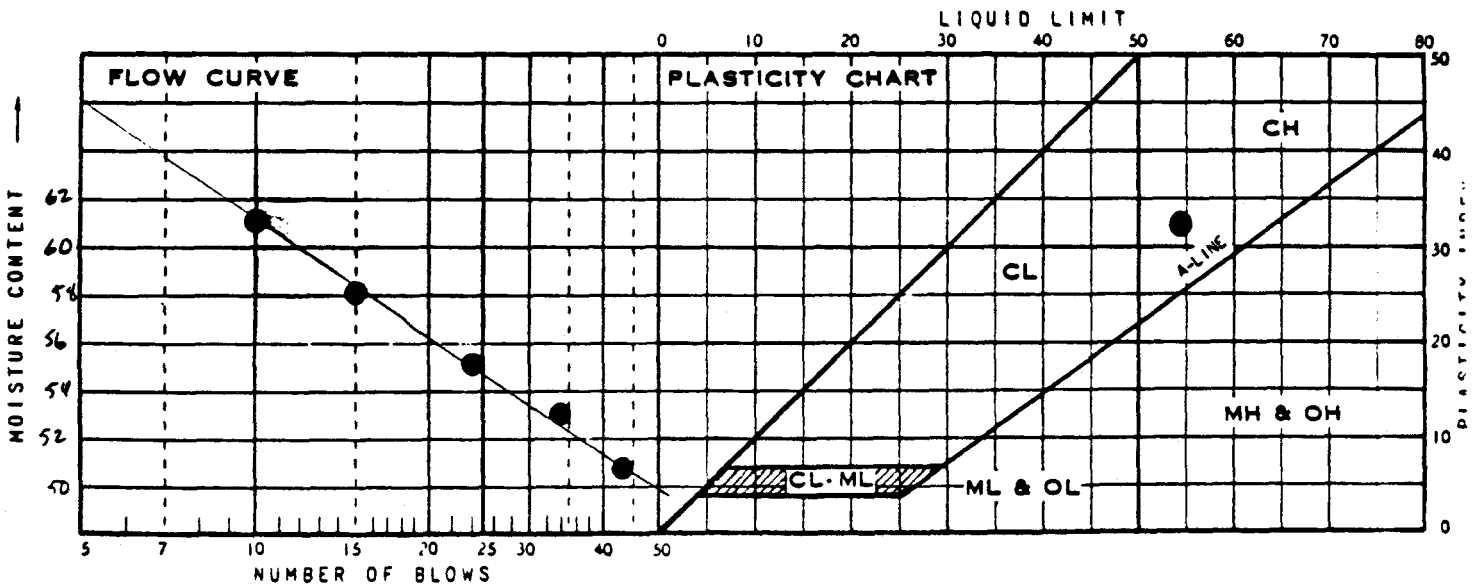
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY QM 2/15/92

DETERMINATION	1	2	3	4	5	6
DISH	2011	2012	2013			
WT OF DISH + WET SOIL g	10.46	7.76	8.10			
WT OF DISH + DRY SOIL g	8.71	6.57	6.84	—	—	—
WT OF MOISTURE g	1.75	1.19	1.26			
WT OF DISH g	1.04	1.04	1.03	—	—	—
WT OF DRY SOIL g	7.67	5.53	5.81			
MOISTURE CONTENT %	22.8	21.5	21.7			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2014	2015	2016	2017	2018	
NUMBER OF BLOWS	44	34+	24±	15	10+	
WT OF DISH + WET SOIL g	13.46	12.18	13.74	12.31	14.74	
WT OF DISH + DRY SOIL g	9.28	8.31	9.22	8.16	9.54	—
WT OF MOISTURE g	4.18	3.87	4.52	4.15	5.20	
WT OF DISH g	1.05	1.04	1.03	1.02	1.04	—
WT OF DRY SOIL g	8.23	7.27	8.19	7.14	8.50	
MOISTURE CONTENT %	50.8	53.2	55.2	58.1	61.2	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION
		54.7	22.0	32.7	CH

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	10+75	SAMPLED	12-28-91
DEPTH	3'	DATE TESTED	02-04-92 TNU
SAMPLE NO.	—	WASH SIEVE	Yes
SOIL DESCR.	Rocky Flats/EG&G	DRY SIEVE	No

MOISTURE/DENSITY DATA

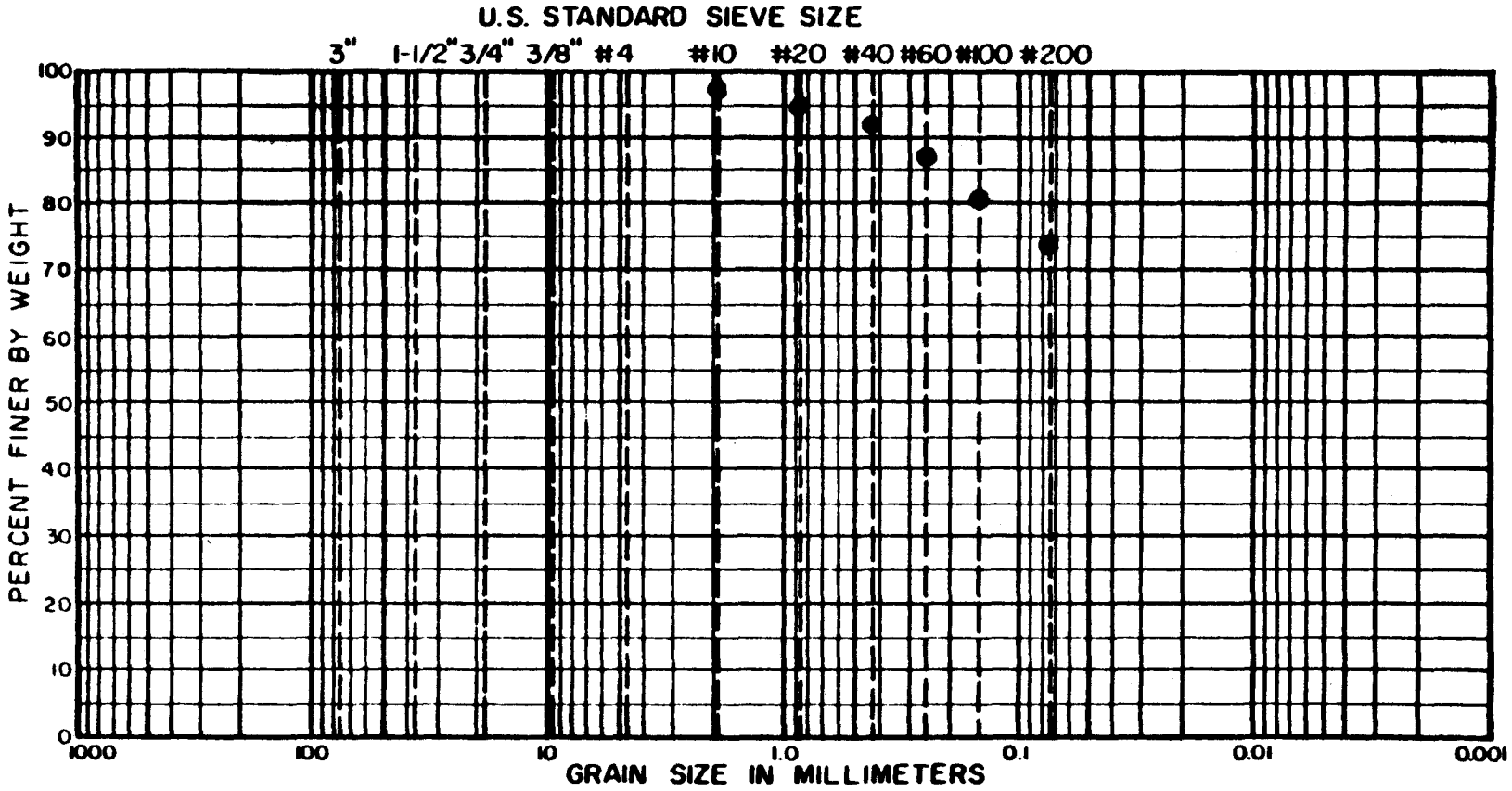
Wt. Soil & Ring(s) (g)	
Wt. Ring(s) (g)	
Wt. Soil (g)	
Wet Density PCF	
Wt. Wet Soil & Pan (g)	
Wt. Dry Soil & Pan (g)	
Wt. Lost Moisture (g)	
Wt. of Pan Only (g)	
Wt. of Dry Soil (g)	
Moisture Content %	
Dry Density PCF	

WASH SIEVE ANALYSIS

Wt. Wet Soil & Pan Before Washing (g)	
Wt. Dry Soil & Pan Before Washing (g)	189.3
Weight of Pan (g)	9.5
Wt. of Dry Soil Before Washing	179.8
Wt. Dry Soil & Pan After Washing (g)	55.8
Wt. of Dry Soil After Washing (g)	46.3
-#200 Wash. Out %	74.2

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
3"	0.00	0.00	0.00	0.00	0.0	100.0
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	3.71	7.77	4.06	4.06	2.3	97.7
#20	3.63	7.84	4.21	8.27	4.6	95.4
#40	3.65	10.28	6.63	14.90	8.3	91.7
#60	3.72	11.61	7.89	22.79	12.7	87.3
#100	3.83	14.51	10.68	33.47	18.6	81.4
#200	3.65	16.51	12.86	46.33	25.8	74.2

ADVANCED TERRA TESTING, INC.



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

LOCATION	DEPTH	CLASSIFICATION
10+75	3'	Rocky Fills / EGY Sandy Clay (CH) 23% Coarse, 6% Med, 17.5% [illegible], 74.[illegible]% Silt or clay

ADVANCED TERRA TESTING

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION - - - - - - - - - - - - - - - -

LABORATORY CLASSIFICATION - - - - - - - - - - - - -

JOB NO. 2066-03

CLIENT/OWNER Weston

LOCATION Rocky Flats EG+G

BORING 10-25 SAMPLE CH #1 DEPTH 3'

FIELD DENSITY BY ___/___/___

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

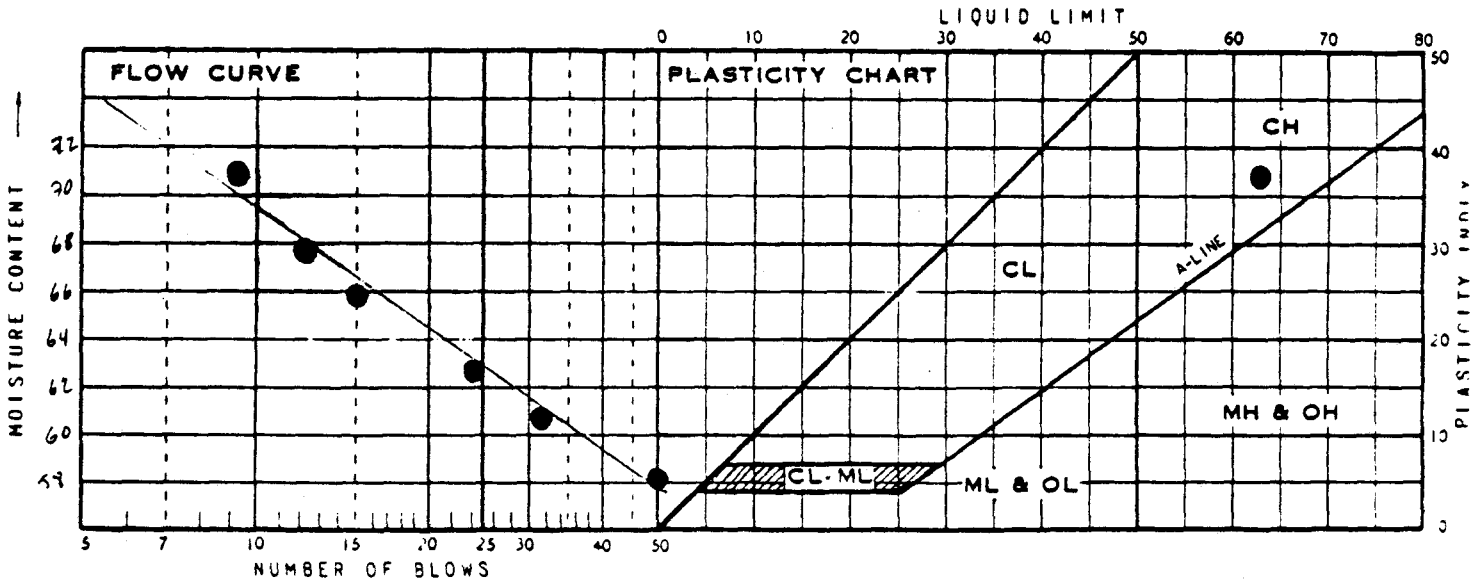
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY DU 2/15/92

DETERMINATION	1	2	3	4	5	6
DISH	2024	2030	2031			
WT OF DISH + WET SOIL g	8.33	9.18	8.90			
WT OF DISH + DRY SOIL g	6.84	7.51	7.26	—	—	—
WT OF MOISTURE g	1.49	1.67	1.64			
WT OF DISH g	1.03	1.03	1.02	—	—	—
WT OF DRY SOIL g	5.81	6.48	6.24			
MOISTURE CONTENT %	25.6	25.8	26.3			

LIQUID LIMIT ?

DETERMINATION	1	2	3	4	5	6
DISH	2032	2033	2034	2035	2036	2037
NUMBER OF BLOWS	50	31	24	15	12	9
WT OF DISH + WET SOIL g	13.75	12.43	12.64	14.50	14.42	12.56
WT OF DISH + DRY SOIL g	9.07	8.11	8.16	9.15	9.01	7.77
WT OF MOISTURE g	4.68	4.32	4.48	5.35	5.41	4.79
WT OF DISH g	1.03	1.02	1.02	1.03	1.03	1.02
WT OF DRY SOIL g	8.04	7.09	7.14	8.12	7.98	6.75
MOISTURE CONTENT %	58.2	60.9	62.7	65.9	67.8	70.0



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		62.9	25.9	37.0	CH	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	10+75	SAMPLED	12-28-91
DEPTH	4.5'	DATE TESTED	02-04-92 TNU
SAMPLE NO.	—	WASH SIEVE	Yes
SOIL DESCR.	Rocky Flats/EG&G	DRY SIEVE	No

MOISTURE/DENSITY DATA

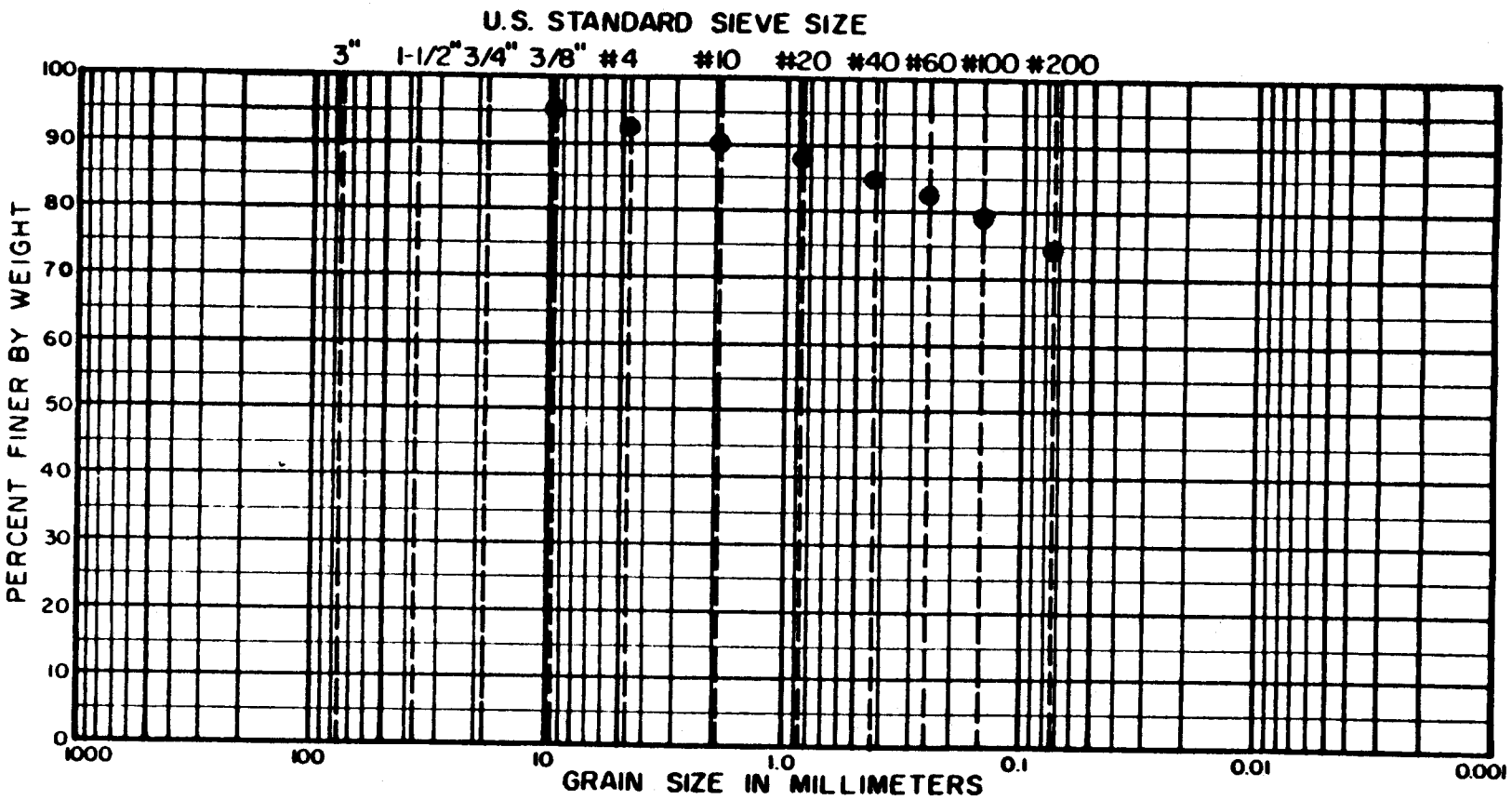
Wt. Soil & Ring(s) (g)	
Wt. Ring(s) (g)	
Wt. Soil (g)	
Wet Density PCF	
Wt. Wet Soil & Pan (g)	
Wt. Dry Soil & Pan (g)	
Wt. Lost Moisture (g)	
Wt. of Pan Only (g)	
Wt. of Dry Soil (g)	
Moisture Content %	
Dry Density PCF	

WASH SIEVE ANALYSIS

Wt. Wet Soil & Pan Before Washing (g)	
Wt. Dry Soil & Pan Before Washing (g)	202.7
Weight of Pan (g)	8.9
Wt. of Dry Soil Before Washing	193.8
Wt. Dry Soil & Pan After Washing (g)	57.5
Wt. of Dry Soil After Washing (g)	48.6
-#200 Wash. Out %	74.9

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
3"	0.00	0.00	0.00	0.00	0.0	100.0
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	3.69	12.21	8.52	8.52	4.4	95.6
#4	3.81	8.27	4.46	12.98	6.7	93.3
#10	3.72	8.13	4.41	17.39	9.0	91.0
#20	3.76	8.87	5.11	22.50	11.6	88.4
#40	3.64	9.53	5.89	28.39	14.6	85.4
#60	3.74	8.82	5.08	33.47	17.3	82.7
#100	3.80	10.10	6.30	39.77	20.5	79.5
#200	3.69	12.51	8.82	48.59	25.1	74.9

ADVANCED TERRA TESTING, INC.



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

LOCATION	DEPTH	CLASSIFICATION
10+75	4.5'	6.7% Gravel, 2.3% coarse, Gravelly Sandy Clay (CH) Rocky Flats / EG+GS 6% med, 10.2% f Sand, Clay + 4.9%

ADVANCED TERRA TESTING

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. [illegible]

CLIENT/OWNER WESTON

LOCATION _____

BORING [illegible] SAMPLE [illegible] DEPTH [illegible]

FIELD DENSITY BY ___/___/___

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

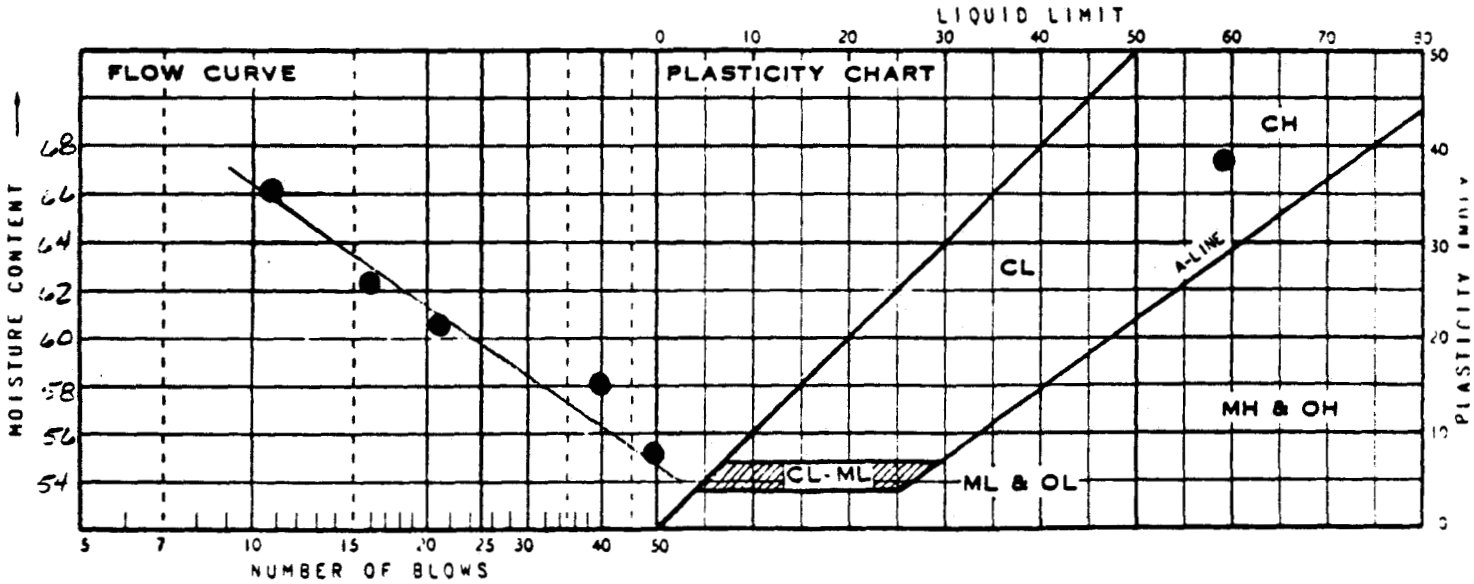
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY SB 2/18/92

DETERMINATION	1	2	3	4	5	6
DISH	2046	2017	2010			
WT OF DISH + WET SOIL g	9.25	10.77	9.03			
WT OF DISH + DRY SOIL g	7.82	9.06	7.65	—	—	—
WT OF MOISTURE g	1.43	1.73	1.38			
WT OF DISH g	1.05	1.05	1.05	—	—	—
WT OF DRY SOIL g	6.77	8.01	6.60			
MOISTURE CONTENT %	21.1	21.6	20.9			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	320	2039	2040	2097	2044	
NUMBER OF BLOWS	50	40	21	16	11	
WT OF DISH + WET SOIL g	16.80	14.68	14.47	17.97	19.06	
WT OF DISH + DRY SOIL g	11.9	9.67	9.40	11.46	11.88	—
WT OF MOISTURE g	5.61	5.01	5.07	6.51	7.18	
WT OF DISH g	1.07	1.05	1.04	1.03	1.04	—
WT OF DRY SOIL g	10.12	8.62	8.36	10.43	10.84	
MOISTURE CONTENT %	55.4	58.1	60.6	62.4	66.2	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		57.8	21.2	36.6	CH	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	10+75	SAMPLED	--
DEPTH	5.5'	DATE TESTED	02-92 TNU
SAMPLE NO.	C#1	WASH SIEVE	Yes
SOIL DESCR.	Bulk/Jar	DRY SIEVE	No

MOISTURE/DENSITY DATA

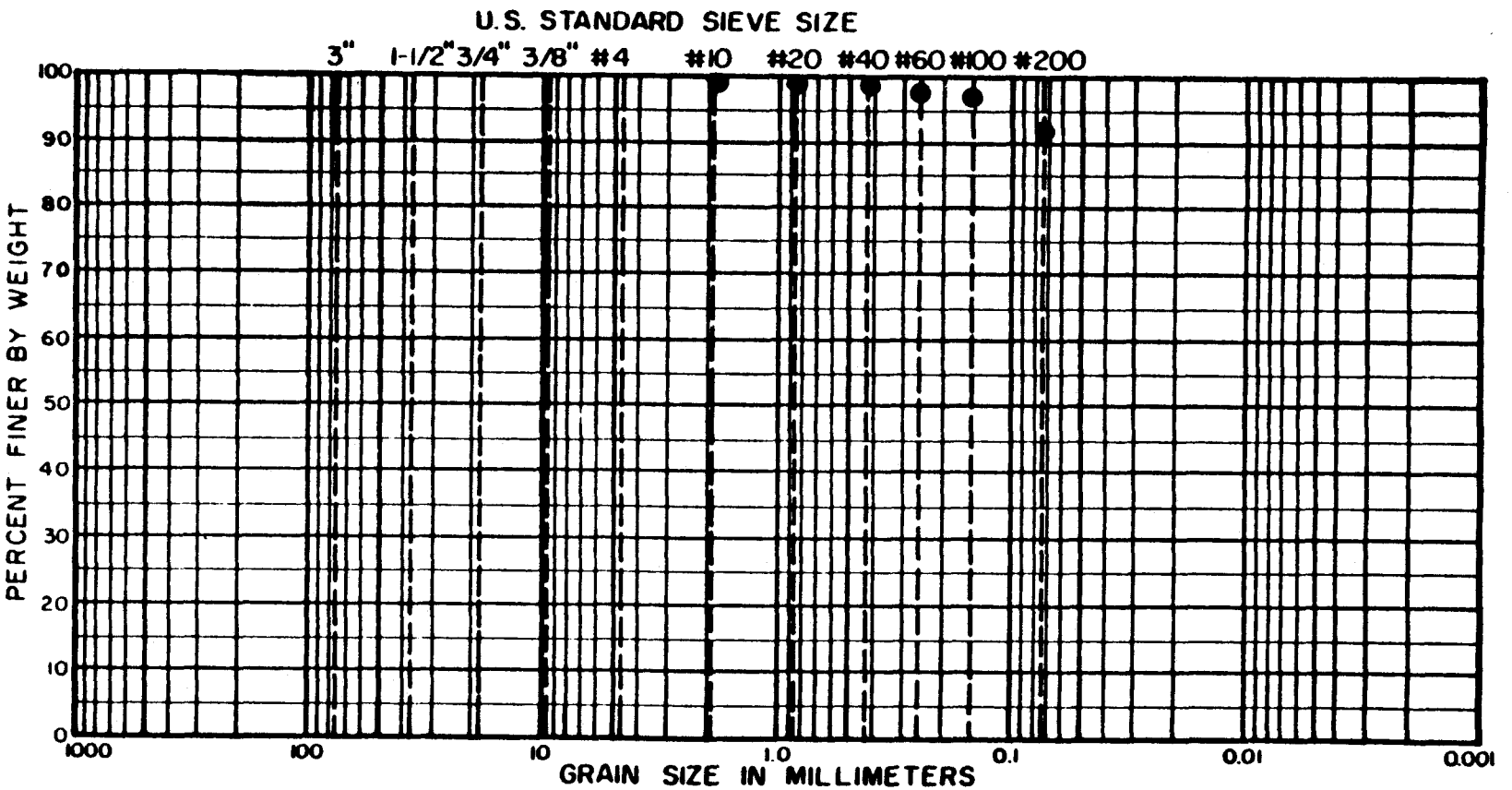
Wt. Soil & Ring(s) (g)	
Wt. Ring(s) (g)	
Wt. Soil (g)	
Wet Density PCF	
Wt. Wet Soil & Pan (g)	
Wt. Dry Soil & Pan (g)	
Wt. Lost Moisture (g)	
Wt. of Pan Only (g)	
Wt. of Dry Soil (g)	
Moisture Content %	
Dry Density PCF	

WASH SIEVE ANALYSIS

Wt. Wet Soil & Pan Before Washing (g)	
Wt. Dry Soil & Pan Before Washing (g)	172.1
Weight of Pan (g)	9.5
Wt. of Dry Soil Before Washing	162.7
Wt. Dry Soil & Pan After Washing (g)	21.9
Wt. of Dry Soil After Washing (g)	12.4
-#200 Wash. Out %	92.4

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
3"	0.00	0.00	0.00	0.00	0.0	100.0
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	3.62	4.55	0.93	0.93	0.6	99.4
#20	3.74	4.65	0.91	1.84	1.1	98.9
#40	3.69	4.33	0.64	2.48	1.5	98.5
#60	3.63	4.12	0.49	2.97	1.8	98.2
#100	3.78	4.72	0.94	3.91	2.4	97.6
#200	3.69	12.21	8.52	12.43	7.6	92.4

ADVANCED TERRA TESTING, INC.



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

LOCATION	DEPTH	CLASSIFICATION
10+75	5.5'	Rocky Flats Sandy Clay .6% coarse, .9% med, 6.1% fine sand, 92.4% Clay

ADVANCED TERRA TESTING

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION - - - - - - - - - - - - - - - -

LABORATORY CLASSIFICATION - - - - - - - - - - - - -

JOB NO. 2066-03

CLIENT/OWNER Weston

LOCATION Rocky Flats EG+G

BORING 10-75 SAMPLE CH #1 DEPTH 5.5'

FIELD DENSITY BY ___/___/___

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

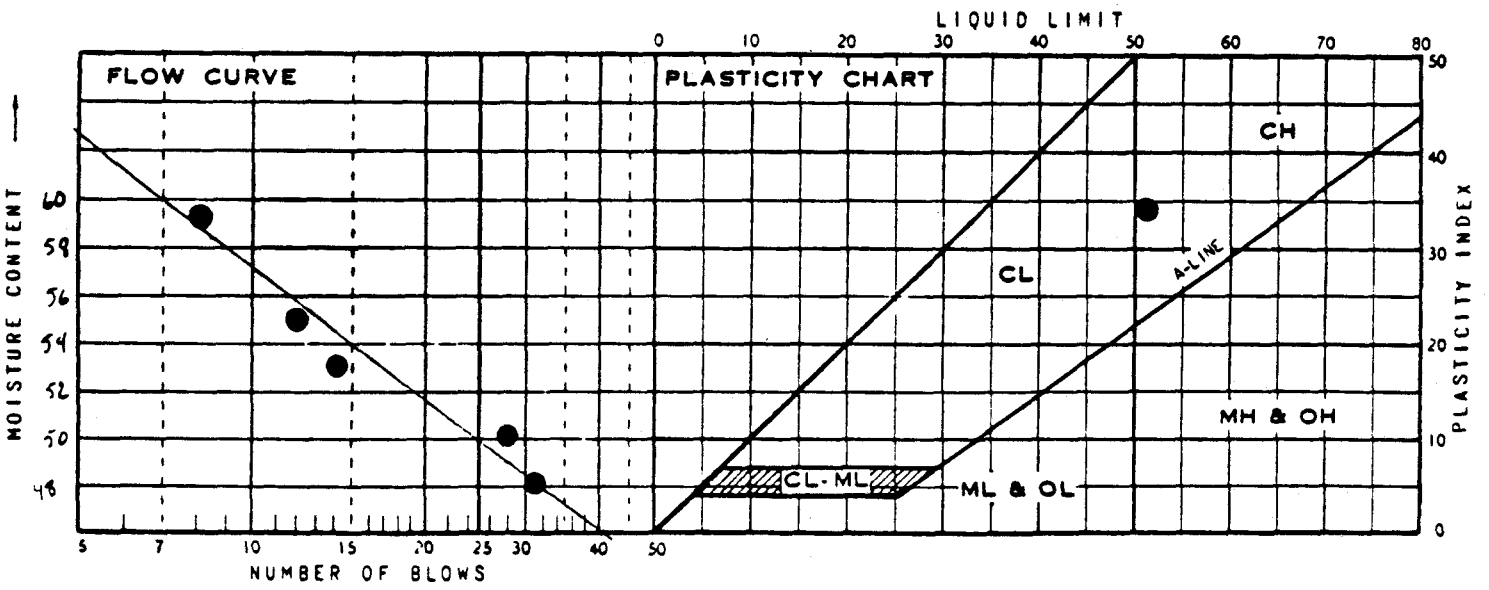
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY DLA 2/15/92

DETERMINATION	? 1 ?	2	3	4	5	6
DISH	2038	2034	2040			
WT OF DISH + WET SOIL g	10.79	8.67	10.29			
WT OF DISH + DRY SOIL g	9.25	7.55	8.92	—	—	—
WT OF MOISTURE g	1.54	1.12	1.37			
WT OF DISH g	1.03	1.04	1.03	—	—	—
WT OF DRY SOIL g	8.22	6.51	7.89			
MOISTURE CONTENT %	18.7	17.2	17.4			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2041	2042	2043	2044	2045	
NUMBER OF BLOWS	31	28+	14	12	8+	
WT OF DISH + WET SOIL g	14.29	12.48	13.94	11.35	10.90	
WT OF DISH + DRY SOIL g	9.98	8.65	8.82	7.69	7.23	—
WT OF MOISTURE g	4.31	3.83	4.12	3.66	3.67	
WT OF DISH g	1.04	1.04	1.04	1.03	1.04	—
WT OF DRY SOIL g	8.94	7.61	7.78	6.66	6.19	
MOISTURE CONTENT %	48.2	50.3	53.0	55.0	59.3	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		51.6	17.3	34.3	CH	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	10+75	SAMPLED	12-28-91
DEPTH	8'	DATE TESTED	02-04-92 TNU
SAMPLE NO.	--	WASH SIEVE	Yes
SOIL DESCR.	Rocky Flats/EG&G	DRY SIEVE	No

MOISTURE/DENSITY DATA

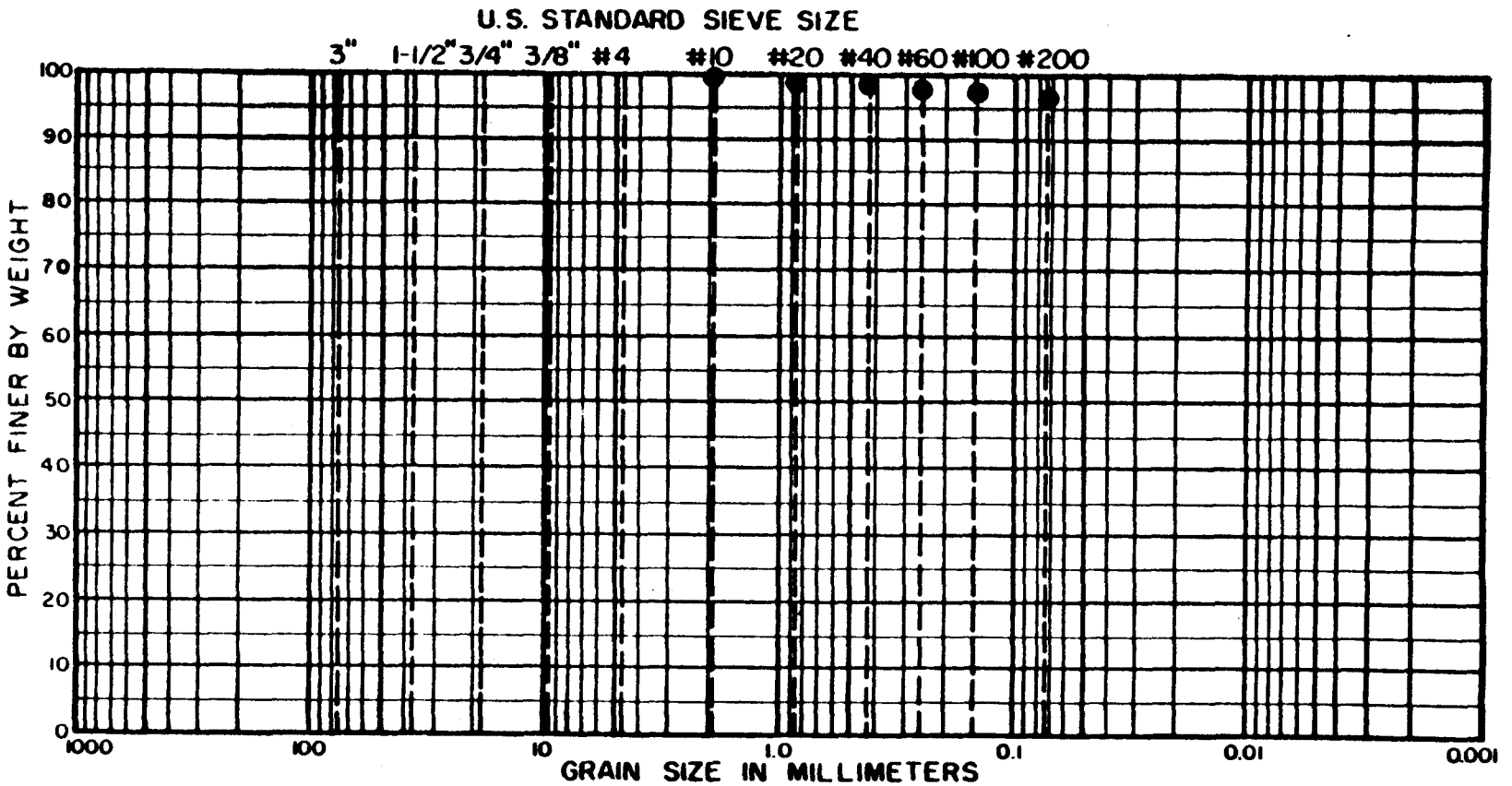
Wt. Soil & Ring(s) (g)	
Wt. Ring(s) (g)	
Wt. Soil (g)	
Wet Density PCF	
Wt. Wet Soil & Pan (g)	
Wt. Dry Soil & Pan (g)	
Wt. Lost Moisture (g)	
Wt. of Pan Only (g)	
Wt. of Dry Soil (g)	
Moisture Content %	
Dry Density PCF	

WASH SIEVE ANALYSIS

Wt. Wet Soil & Pan Before Washing (g)	
Wt. Dry Soil & Pan Before Washing (g)	199.1
Weight of Pan (g)	9.4
Wt. of Dry Soil Before Washing	189.6
Wt. Dry Soil & Pan After Washing (g)	13.3
Wt. of Dry Soil After Washing (g)	3.9
-#200 Wash. Out %	98.0

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
3"	0.00	0.00	0.00	0.00	0.0	100.0
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	3.76	4.06	0.30	0.30	0.2	99.8
#20	3.64	4.71	1.07	1.37	0.7	99.3
#40	3.79	4.82	1.03	2.40	1.3	98.7
#60	3.77	4.38	0.61	3.01	1.6	98.4
#100	3.68	4.12	0.44	3.45	1.8	98.2
#200	3.76	4.19	0.43	3.88	2.0	98.0

ADVANCED TERRA TESTING, INC.



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

LOCATION	DEPTH	CLASSIFICATION
10+75	8'	Rocky Fill / EGrvr clay [illegible] clay 98%

ADVANCED TERRA TESTING

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-07

CLIENT/OWNER WESTON

LOCATION _____

BORING 10+25 SAMPLE ____ DEPTH 8'

(1)

FIELD DENSITY BY ____/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD [redacted]

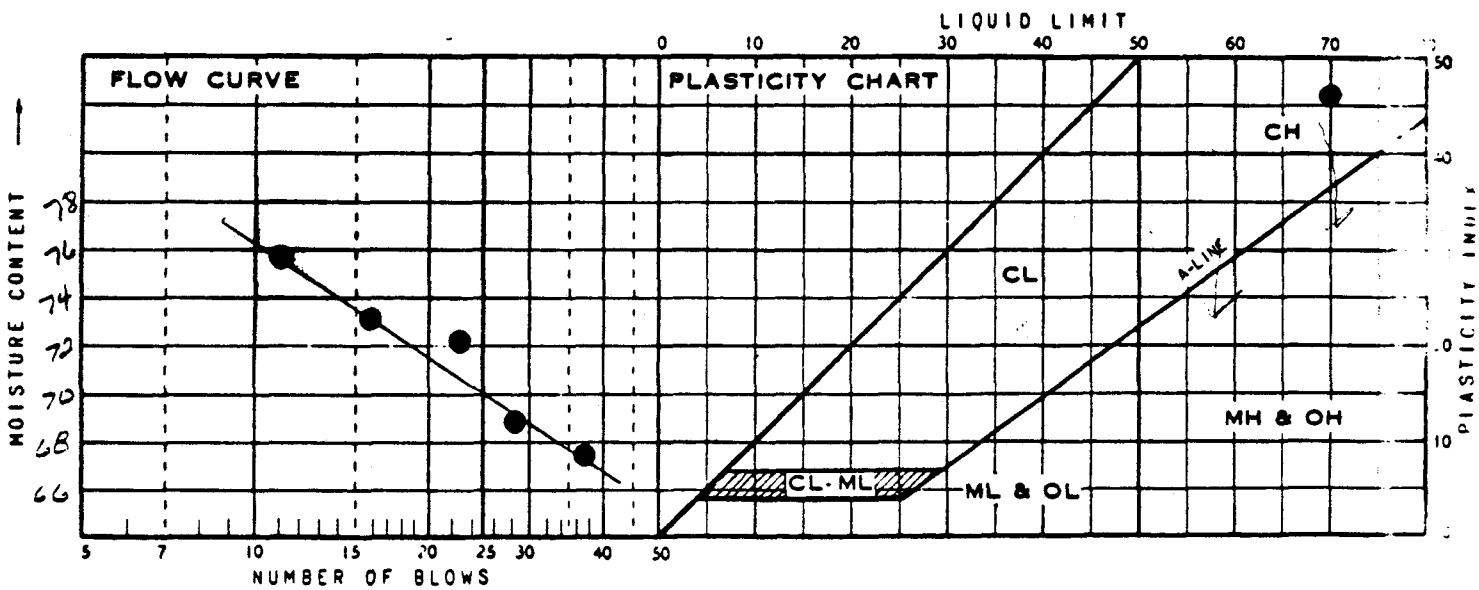
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY SB 12/20/92

DETERMINATION	1	2	3	4	5	6
DISH	1C	2C	3C			
WT OF DISH + WET SOIL g	8.50	6.67	6.87			
WT OF DISH + DRY SOIL g	7.07	5.58	5.76	—	—	—
WT OF MOISTURE g	1.43	1.09	1.11			
WT OF DISH g	1.05	1.03	1.04	—	—	—
WT OF DRY SOIL g	6.02	4.55	4.72			
MOISTURE CONTENT %	23.8	23.9	23.5			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	4C	5C	6C	7C	8C	
NUMBER OF BLOWS	38	29	24	16	11	
WT OF DISH + WET SOIL g	14.41	13.00	14.89?	13.07	14.12	
WT OF DISH + DRY SOIL g	9.02	8.12	9.08	7.99	8.51	—
WT OF MOISTURE g	5.39	4.88	5.81	5.08	5.67	
WT OF DISH g	1.04	1.04	1.03	1.04	1.03	—
WT OF DRY SOIL g	7.98	7.08	8.05	6.95	7.48	
MOISTURE CONTENT %	67.5	68.9	72.2	73.1	75.8	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION
		70.0	23.7	46.3	CH

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	10+75	SAMPLED	Rocky Flats
DEPTH	16'	DATE TESTED	02-12-92 TNU
SAMPLE NO.	#6	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes
NATURAL	No

Wt. Wet Soil & Pan	(g)	47.12
Wt. Dry Soil & Pan	(g)	46.35
Wt. Lost Moisture	(g)	0.77
Wt. of Pan Only	(g)	3.23
Wt. of Dry Soil	(g)	43.12
Moisture Content	%	1.8

Wt. Hydrom. Sample Wet (g)	56.77
Wt. Hydrom. Sample Dry (g)	55.78

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	525.43
Weight of + #10 Before Washing (g)	1.08
Weight of + #10 After Washing (g)	0.45
Weight of - #10 Wet (g)	524.35
Weight of - #10 Dry (g)	515.77
Wt. Total Sample Dry (g)	516.22
Calc. Wt. "W" (g)	55.82
Calc. Mass + #10	0.05

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.45	0.45	0.45	0.1	99.9
#20	1.55	2.14	0.59	0.59	1.1	98.9
#40	1.55	2.20	0.65	1.24	2.3	97.7
#60	1.55	2.20	0.65	1.89	3.5	96.5
#100	1.54	2.46	0.92	2.81	5.1	94.9 91.5
#230	1.58	3.59	2.01	4.82	8.7	91.3

Silt. Clay (CH)

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT Westen

JOB NO. 2066-03

BORING NO.	10+75	SAMPLED	Rocky Flats/E(
DEPTH	16'	DATE TESTED	02-12-92 TNU
SAMPLE NO.	#6	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

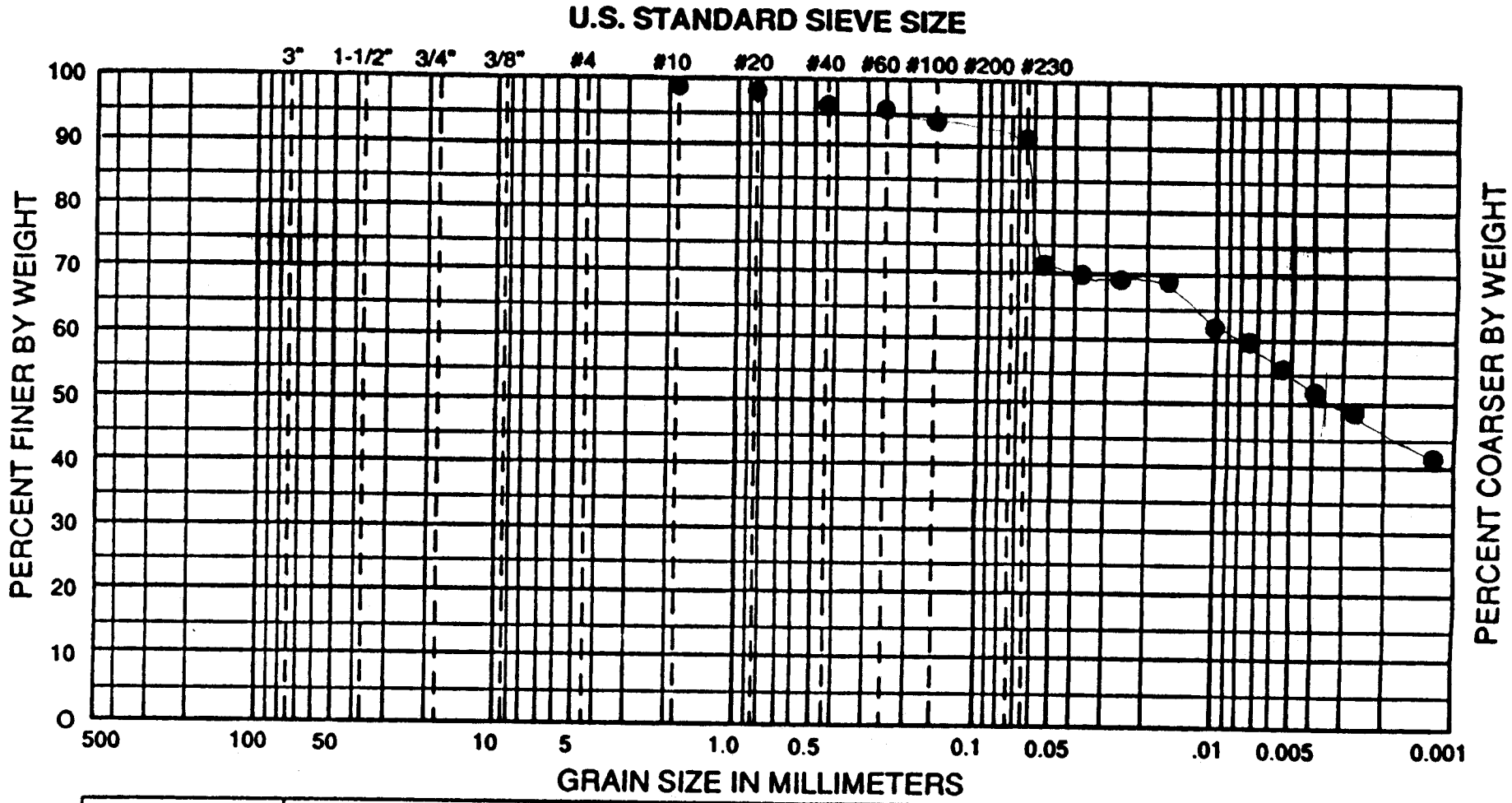
Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.74	Temp. Coef. K	0.01313
Value of "a"	0.98	Wt. Dry Sample "W"	55.824
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	5.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	47.00	41.00	72.1	72.1	8.58	0.0544
1.0	46.00	40.00	70.4	70.4	8.75	0.0388
2.0	45.50	39.50	69.5	69.5	8.83	0.0276
5.0	45.00	39.00	68.6	68.6	8.91	0.0175
15.0	42.00	36.00	63.3	63.3	9.40	0.0104
30.0	40.50	34.50	60.7	60.7	9.65	0.0074
60.0	38.00	32.00	56.3	56.3	10.06	0.0054
120.0	36.00	30.00	52.8	52.8	10.39	0.0039
250.0	33.50	27.50	48.4	48.4	10.80	0.0027
1440.0	30.00	24.00	42.2	42.2	11.37	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 10+75 SAMPLE NO.: #6 DATE: 2-21-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
	16'	SILTY CLAY w/ trace SAND (CH) ROCKY FLATS

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER WESTON

LOCATION Rocky Flats 1EG4G

BORING 10+75 SAMPLE ____ DEPTH 16'

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

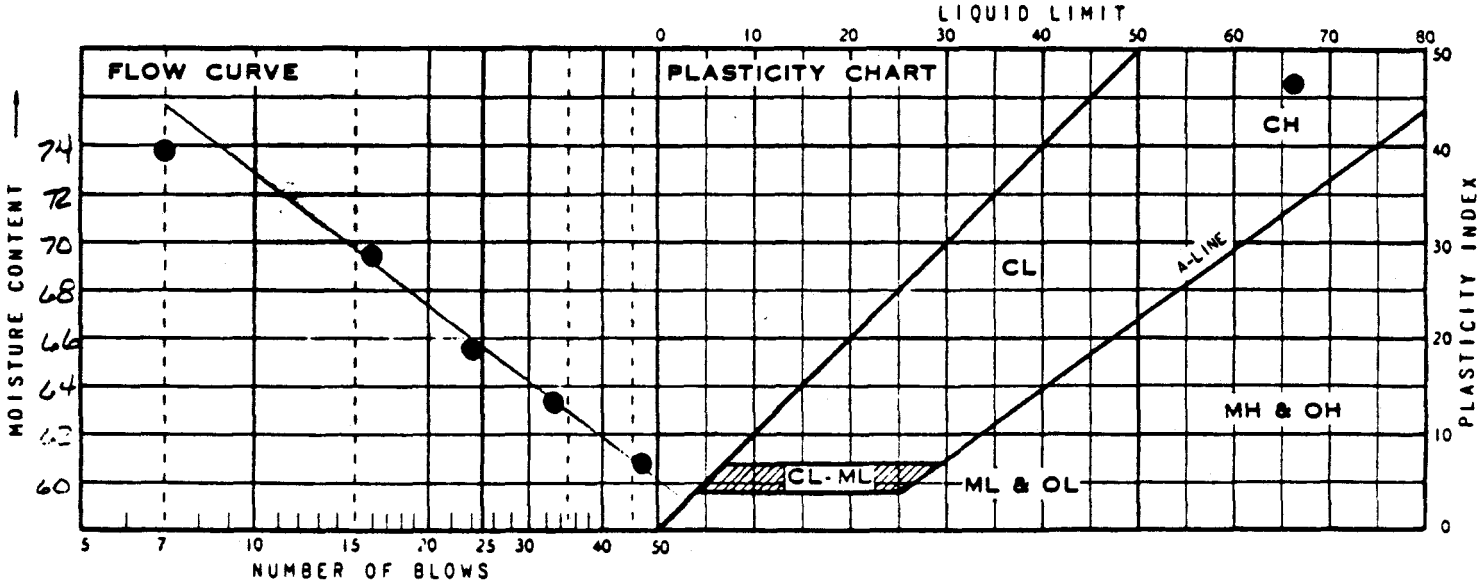
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY DMW 2/24/92

DETERMINATION	1	2	3	4	5	6
DISH	2067	24C	2065			
WT OF DISH + WET SOIL	8.66g	10.11g	9.86g			
WT OF DISH + DRY SOIL g	7.49	8.60	8.46	—	—	—
WT OF MOISTURE g	1.17	1.51	1.40			
WT OF DISH	1.02g	1.02g	1.04g	—	—	—
WT OF DRY SOIL g	6.47	7.57	7.42			
MOISTURE CONTENT %	18.1	20.0	18.9			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	35C	2006	2073	2057	2071	2063
NUMBER OF BLOWS	47	28	33	24	16	7
WT OF DISH + WET SOIL	14.40g	15.55g	13.77g	16.43g	13.70g	19.07g
WT OF DISH + DRY SOIL g	9.35	[illegible]	8.82	10.32	8.51	11.41
WT OF MOISTURE g	5.05		4.95	6.11	5.19	7.66
WT OF DISH	1.06g	1.04g	1.03g	1.04g	1.04g	1.04g
WT OF DRY SOIL g	8.29		7.79	9.28	7.47	10.37
MOISTURE CONTENT %	60.9		63.5	65.8	69.5	73.9



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		65.8	19.0	46.8	CH	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	10+75	SAMPLED	Rocky Flats
DEPTH	20.4'	DATE TESTED	02-21-92 TNU
SAMPLE NO.	#6	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes
NATURAL	No

Wt. Wet Soil & Pan	(g)	45.35
Wt. Dry Soil & Pan	(g)	44.86
Wt. Lost Moisture	(g)	0.49
Wt. of Pan Only	(g)	3.93
Wt. of Dry Soil	(g)	40.93
Moisture Content	%	1.2

Wt. Hydrom. Sample Wet (g)	60.09
Wt. Hydrom. Sample Dry (g)	59.38

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	492.13
Weight of + #10 Before Washing (g)	117.93
Weight of + #10 After Washing (g)	110.81
Weight of - #10 Wet (g)	374.20
Weight of - #10 Dry (g)	376.81
Wt. Total Sample Dry (g)	487.62
Calc. Wt. "W" (g)	76.84
Calc. Mass + #10	17.46

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	59.84	59.84	59.84	12.3	87.7
3/8"	0.00	37.69	37.69	97.53	20.0	80.0
#4	0.00	5.23	5.23	102.76	21.1	78.9
#10	0.00	8.05	8.05	110.81	22.7	77.3
#20	1.56	3.87	2.31	2.31	25.7	74.3
#40	1.55	4.24	2.69	5.00	29.2	70.8
#60	1.57	3.96	2.39	7.39	32.3	67.7
#100	1.55	5.09	3.54	10.93	36.9	63.1 >50
#230	1.57	8.06	6.49	17.42	45.4	54.6

Clay (CL)

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT	Weston	JOB NO.	2066-03
BORING NO.	10+75	SAMPLED	Rocky Flats
DEPTH	20.4'	DATE TESTED	02-21-92 TNU
SAMPLE NO.	#6	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

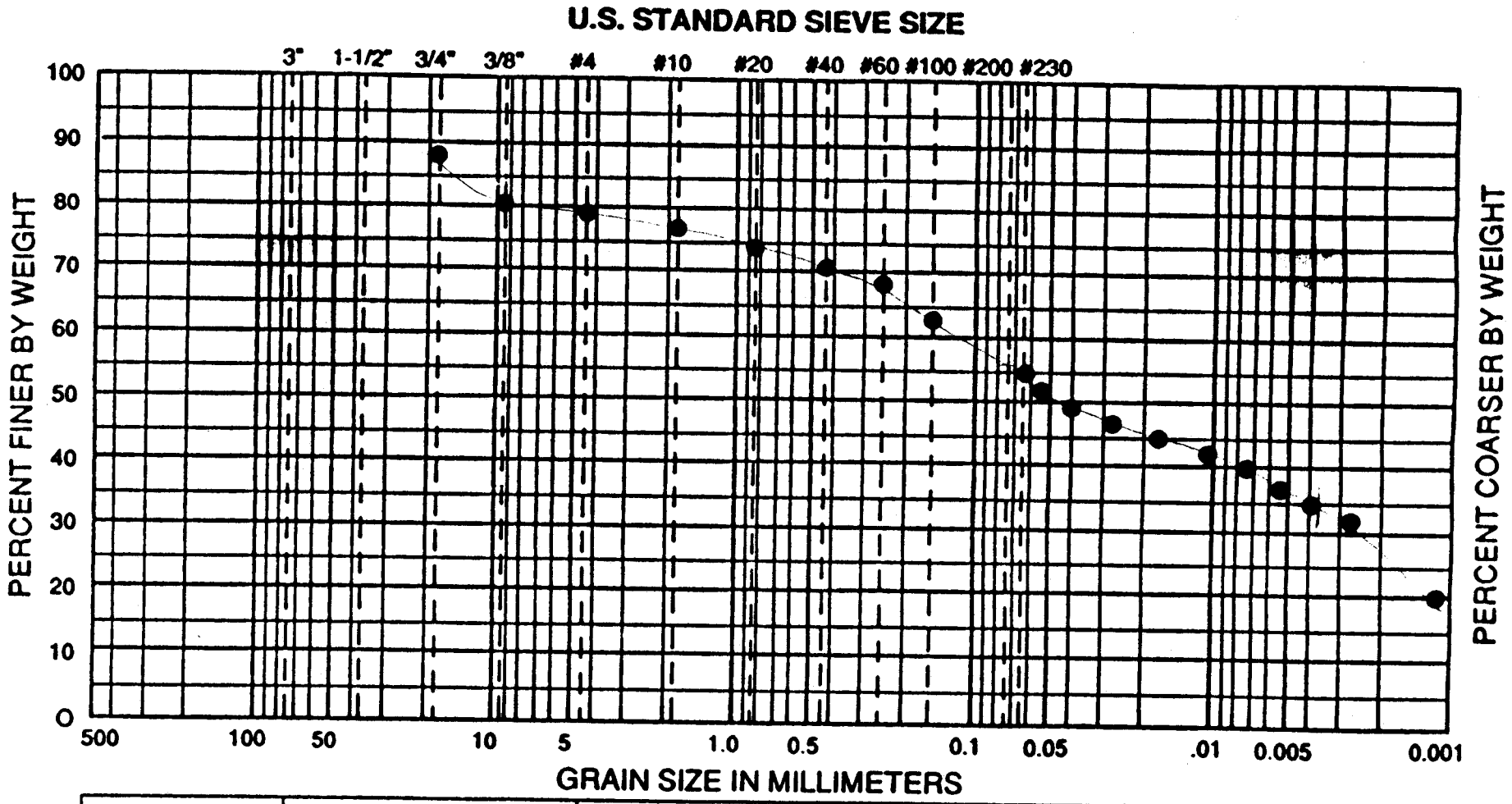
Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.74	Temp. Coef. K	0.01313
Value of "a"	0.98	Wt. Dry Sample "W"	76.841
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.5		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	46.00	40.50	51.8	51.8	8.75	0.0549
1.0	43.50	38.00	48.6	48.6	9.16	0.0397
2.0	42.50	37.00	47.3	47.3	9.32	0.0283
5.0	40.50	35.00	44.7	44.7	9.65	0.0182
15.0	38.00	32.50	41.5	41.5	10.06	0.0108
30.0	36.50	31.00	39.6	39.6	10.30	0.0077
60.0	34.50	29.00	37.1	37.1	10.63	0.0055
120.0	33.00	27.50	35.1	35.1	10.88	0.0040
250.0	31.00	25.50	32.6	32.6	11.21	0.0028
1440.0	20.80	15.30	19.6	19.6	12.88	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 10+75 SAMPLE NO.: #6 DATE: 2/25/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
	20.4	Rocky Flats CLAY (CH) w/ some SAND, SILT and gravel

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER WESTON

LOCATION _____

BORING 10+75 SAMPLE C #6 DEPTH 20.4'

SAVE ALL MATERIAL

FIELD DENSITY BY ...../../..

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD [redacted]

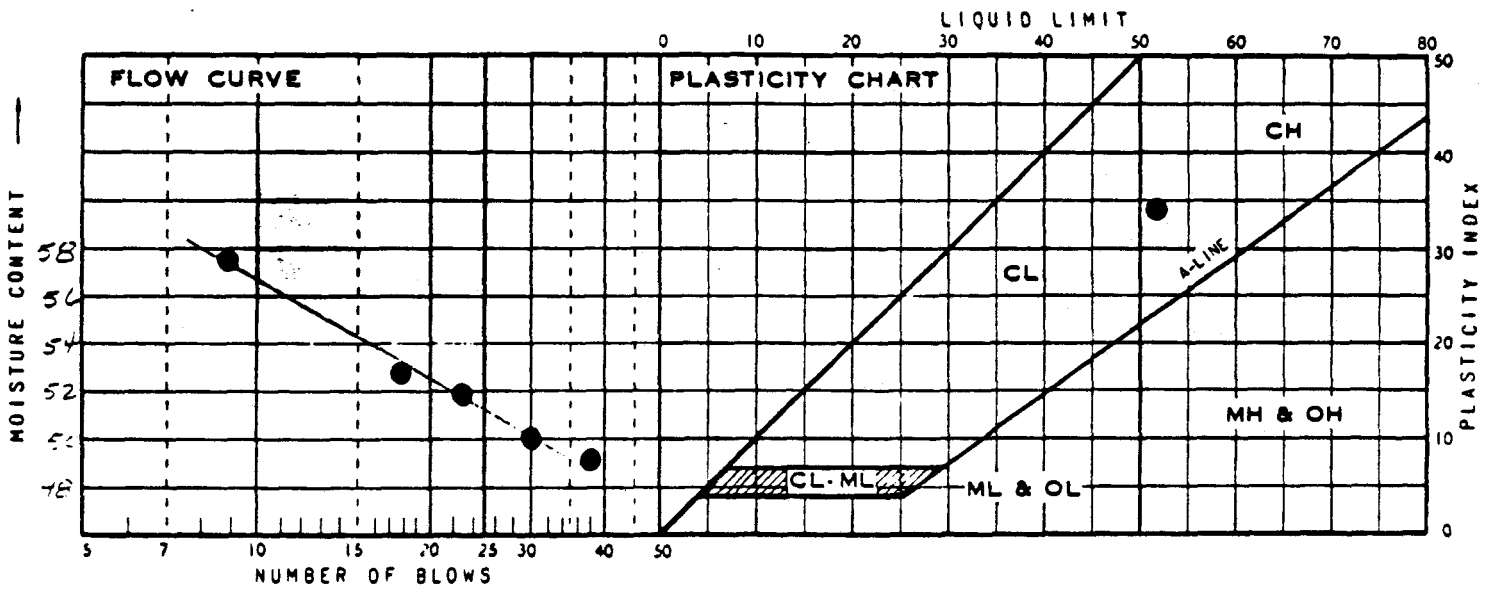
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY SR. 2/18/92.

DETERMINATION	1	2	3	4	5	6
DISH	2008	2027	2012			
WT OF DISH + WET SOIL g	11.24	11.02	10.09			
WT OF DISH + DRY SOIL g	9.65	9.52	8.71	—	—	—
WT OF MOISTURE g	1.59	1.50	1.38			
WT OF DISH g	1.05	1.04	1.04	—	—	—
WT OF DRY SOIL g	8.60	8.48	7.67			
MOISTURE CONTENT %	18.5	17.7	18.0			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2023	2028	2002	2017	2005	
NUMBER OF BLOWS	38	30	23	18±	9	
WT OF DISH + WET SOIL g	17.48	18.31	18.54	18.78	17.88	
WT OF DISH + DRY SOIL g	12.06	12.53	12.56	12.64	11.73	—
WT OF MOISTURE g	5.42	5.78	5.98	6.14	6.15	
WT OF DISH g	1.04	1.05	1.04	1.03	1.05	—
WT OF DRY SOIL g	11.02	11.48	11.52	11.61	10.68	
MOISTURE CONTENT %	49.2	50.3	51.9	52.9	57.6	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		52.5	21	31.4	CH	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	10+75	SAMPLED	Rocky Flats
DEPTH	32.0'	DATE TESTED	02-12-92 TNU
SAMPLE NO.	#6	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	43.92
Wt. Dry Soil & Pan	(g)	43.42
Wt. Lost Moisture	(g)	0.50
Wt. of Pan Only	(g)	3.54
Wt. of Dry Soil	(g)	39.88
Moisture Content	%	1.3

Wt. Hydrom. Sample Wet (g)	60.11
Wt. Hydrom. Sample Dry (g)	59.36

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	471.89
Weight of + #10 Before Washing (g)	0.19
Weight of + #10 After Washing (g)	0.13
Weight of - #10 Wet (g)	471.70
Weight of - #10 Dry (g)	465.92
Wt. Total Sample Dry (g)	466.05
Calc. Wt. "W" (g)	59.38
Calc. Mass + #10	0.02

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.13	0.13	0.13	0.0	100.0
#20	1.56	2.19	0.63	0.63	1.1	98.9
#40	1.55	2.12	0.57	1.20	2.0	98.0
#60	1.55	2.04	0.49	1.69	2.9	97.1
#100	1.56	2.15	0.59	2.28	3.9	96.1
#230	1.55	2.86	1.31	3.59	6.1	93.9

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	10+75	SAMPLED	Rocky Flats
DEPTH	32.0'	DATE TESTED	02-12-92 TNU
SAMPLE NO.	#6	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

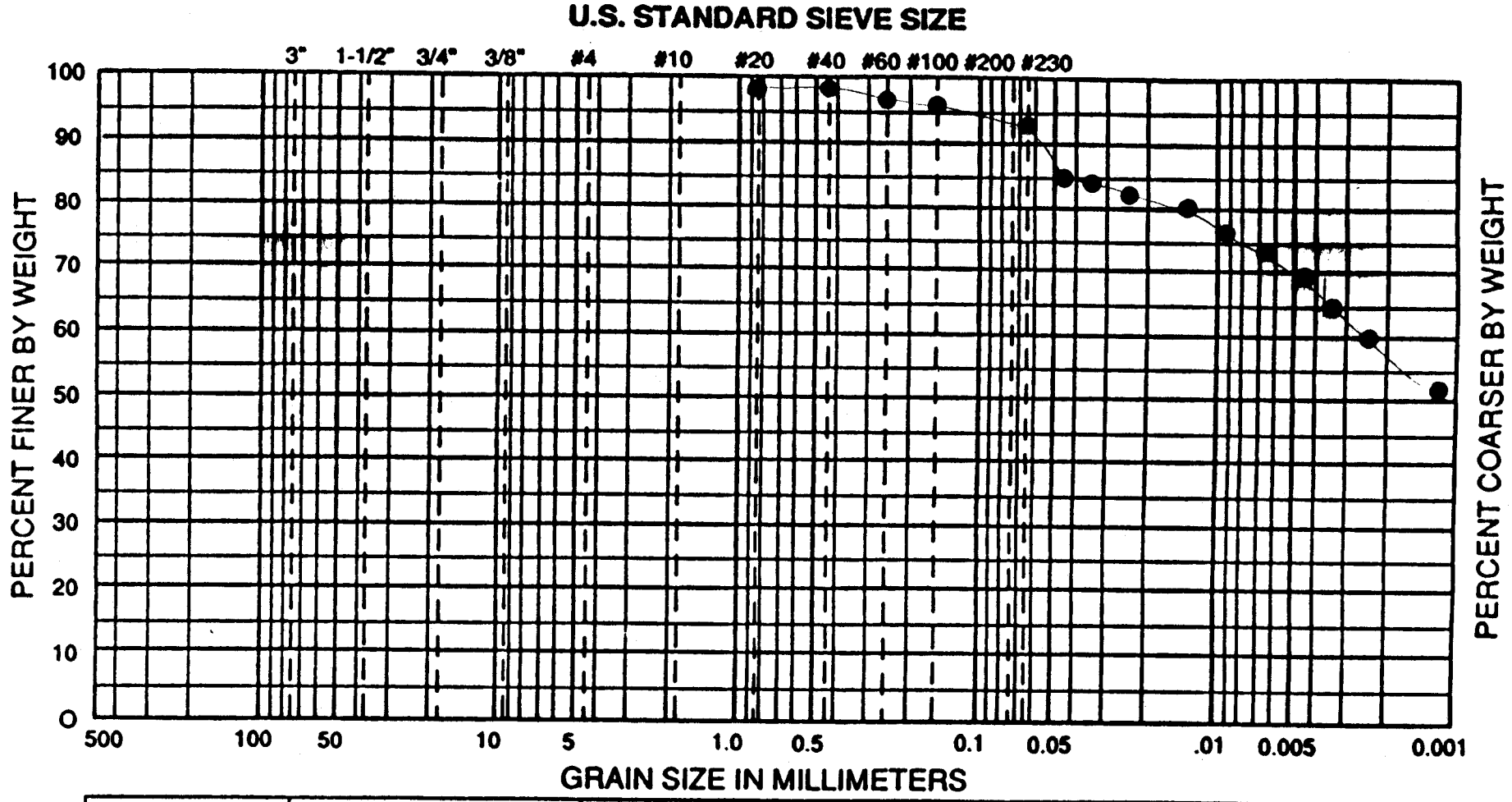
Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.86	Temp. Coef. K	0.01271
Value of "a"	0.96	Wt. Dry Sample "W"	59.377
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	5.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	59.00	53.00	85.5	85.5	6.61	0.0462
1.0	58.00	52.00	83.9	83.9	6.78	0.0331
2.0	57.50	51.50	83.1	83.1	6.86	0.0235
5.0	56.00	50.00	80.7	80.7	7.11	0.0152
15.0	53.50	47.50	76.6	76.6	7.52	0.0090
30.0	52.00	46.00	74.2	74.2	7.76	0.0065
60.0	49.00	43.00	69.4	69.4	8.25	0.0047
120.0	46.50	40.50	65.3	65.3	8.66	0.0034
250.0	43.50	37.50	60.5	60.5	9.16	0.0024
1440.0	38.50	32.50	52.4	52.4	9.98	0.0011

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 10+75 SAMPLE NO.: #6 DATE: 2-23-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
	32.0'	Silt, Clay, (CH) w/ trace Sand Rocky Flats 2% [illegible], 4% [illegible], 28% Silt, 66% Clay

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER WESTON

LOCATION _____

BORING 10+75 SAMPLE ____ DEPTH 32'

(6)

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD → [redacted]

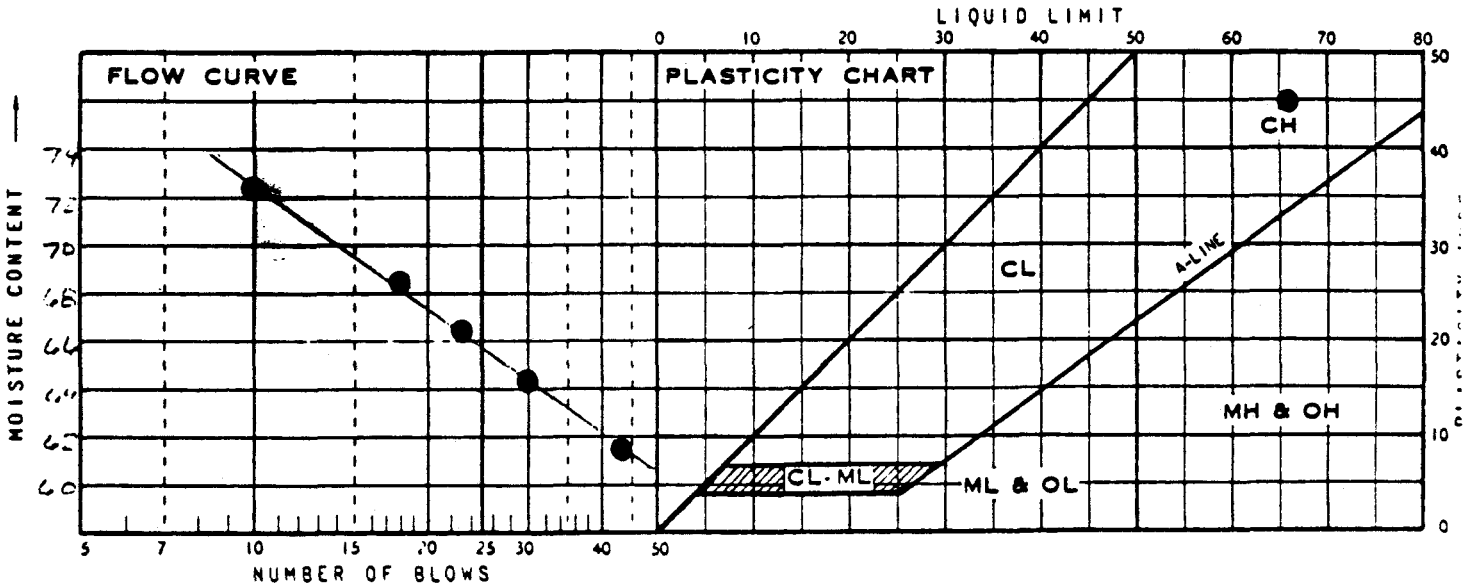
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY SR.2.122192.

DETERMINATION	1	2	3	4	5	6
DISH	2010	2030	2012			
WT OF DISH + WET SOIL g	7.10	6.84	8.07			
WT OF DISH + DRY SOIL g	6.06	5.84	6.86	—	—	—
WT OF MOISTURE g	1.04	1.00	1.21			
WT OF DISH g	1.05	1.05	1.04	—	—	—
WT OF DRY SOIL g	5.01	4.79	5.82			
MOISTURE CONTENT %	20.8	20.9	20.8			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	32C	2046	2037	2027	2044	
NUMBER OF BLOWS	44	30	23	18±	10±	
WT OF DISH + WET SOIL g	15.73	16.85	13.89	17.49	16.86	
WT OF DISH + DRY SOIL g	10.13	10.66	8.76	10.81	10.22	—
WT OF MOISTURE g	5.60	6.19	5.13	6.68	6.64	
WT OF DISH g	1.05	1.05	1.04	1.05	1.04	—
WT OF DRY SOIL g	9.08	9.61	7.72	9.76	9.18	
MOISTURE CONTENT %	61.7	64.4	66.5	68.4	72.3	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		65.8	20.8	45.0	CH	

ADVANCED TERRA TESTING

RAM

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	10+75
DEPTH	47.5'
SAMPLE NO.	#6
SOIL DESCR.	Bulk (Jar)

SAMPLED	Rocky Flats
DATE TESTED	02-12-92 TNU
WASH SIEVE	Yes
DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	59.66
Wt. Dry Soil & Pan	(g)	58.91
Wt. Lost Moisture	(g)	0.75
Wt. of Pan Only	(g)	3.83
Wt. of Dry Soil	(g)	55.08
Moisture Content	%	1.4

Wt. Hydrom. Sample Wet (g)	60.00
Wt. Hydrom. Sample Dry (g)	59.19

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	542.36
Weight of + #10 Before Washing (g)	62.73
Weight of + #10 After Washing (g)	60.57
Weight of - #10 Wet (g)	479.63
Weight of - #10 Dry (g)	475.32
Wt. Total Sample Dry (g)	535.89
Calc. Wt. "W" (g)	66.74
Calc. Mass + #10	7.54

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	46.54	46.54	46.54	8.7	91.3
3/8"	0.00	13.27	13.27	59.81	11.2	88.8
#4	0.00	0.70	0.70	60.51	11.3	88.7
#10	0.00	0.06	0.06	60.57	11.3	88.7
#20	1.56	2.05	0.49	0.49	12.0	88.0
#40	1.55	1.76	0.21	0.70	12.4	87.6
#60	1.55	1.66	0.11	0.81	12.5	87.5
#100	1.54	1.62	0.08	0.89	12.6	87.4
#230	1.55	1.67	0.12	1.01	12.8	87.2

>37.5

Clay (CH)

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT Westec

JOB NO. 2066-03

BORING NO.	10+75	SAMPLED	Rocky Flats
DEPTH	47.5'	DATE TESTED	02-12-92 TNU
SAMPLE NO.	#6	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

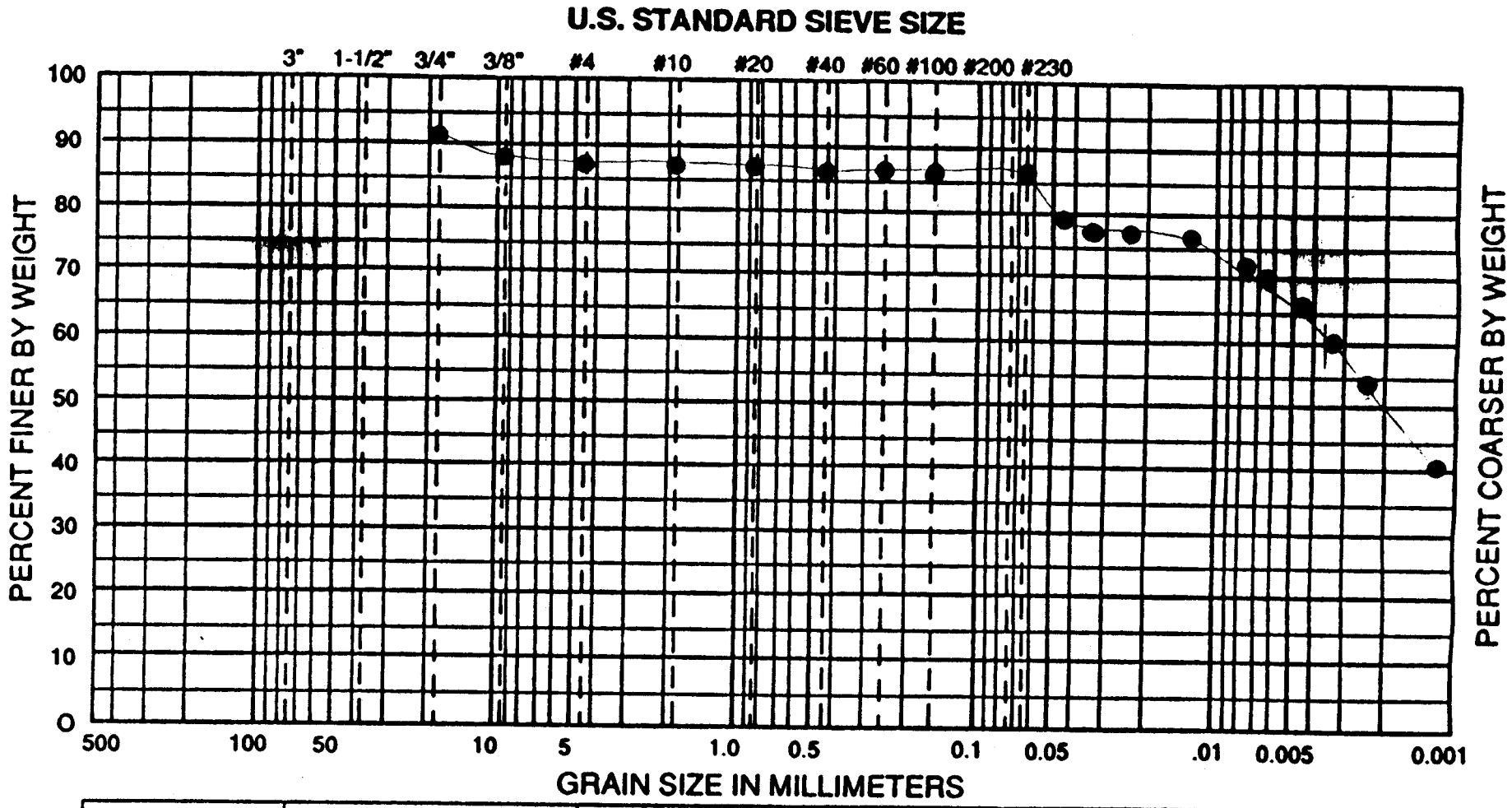
Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.85	Temp. Coef. K	0.01273
Value of "a"	0.96	Wt. Dry Sample "W"	66.737
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	5.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	61.00	55.00	79.1	79.1	6.29	0.0451
1.0	60.50	54.50	78.4	78.4	6.37	0.0321
2.0	60.25	54.25	78.0	78.0	6.41	0.0228
5.0	60.00	54.00	77.7	77.7	6.45	0.0145
15.0	57.00	51.00	73.4	73.4	6.94	0.0087
30.0	55.00	49.00	70.5	70.5	7.27	0.0063
60.0	52.00	46.00	66.2	66.2	7.76	0.0046
120.0	48.00	42.00	60.4	60.4	8.42	0.0034
250.0	44.00	38.00	54.7	54.7	9.07	0.0024
1440.0	35.00	29.00	41.7	41.7	10.55	0.0011

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 10+75 SAMPLE NO.: #6 DATE: 2-23-22 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
	47.5'	11.5% Gravel, CLAY w/ some silt and gravels, tr SAND. Rocky Flats 9% coarse, 12% med, 0.1% fine, 21.5% silt, 66% Clay

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION - - - - - - - - - - - - - - -

LABORATORY CLASSIFICATION - - - - - - - - - - - -

JOB NO. 2066-03

CLIENT/OWNER Weston

LOCATION

BORING 10+75 SAMPLE (6) DEPTH 47.5'

FIELD DENSITY BY

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

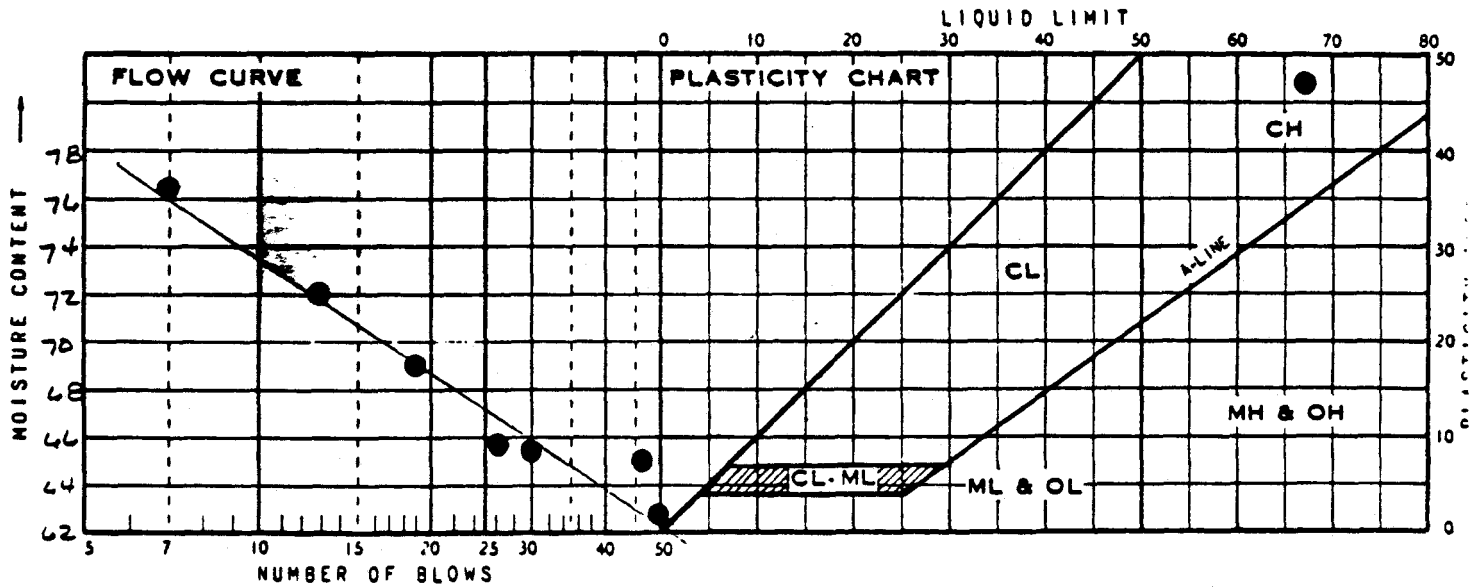
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY GW 2/22/92

DETERMINATION	1	2	3	4	5	6
DISH	4C	3C	11C			
WT OF DISH + WET SOIL	6.05 g	6.70 g	5.43 g			
WT OF DISH + DRY SOIL g	5.19	5.15	4.70	—	—	—
WT OF MOISTURE g	.86	.85	.73			
WT OF DISH g	1.04	1.04	1.03	—	—	—
WT OF DRY SOIL g	4.15	4.11	3.67			
MOISTURE CONTENT %	20.7	20.7	19.9			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	7C	37C	6C	5C	1C	2C
NUMBER OF BLOWS	50	47	30	26	19	13
WT OF DISH + WET SOIL	18.40 g	17.49 g	18.06 g	17.58 g	18.47 g	17.79 g
WT OF DISH + DRY SOIL g	11.70	11.01	11.32	11.02	11.36	10.77
WT OF MOISTURE g	6.70	6.48	6.74	6.56	7.11	7.02
WT OF DISH	1.04 g	1.07 g	1.03 g	1.05 g	1.05 g	1.03 g
WT OF DRY SOIL g	10.66	9.94	10.29	9.97	10.31	9.74
MOISTURE CONTENT %	62.9	65.2	65.5	65.8	69.0	72.1



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		67.2	20.4	46.8	CH	

ADVANCED TERRA TESTING

BR

MECHANICAL ANALYSIS - SIEVE TEST DATA

BR

CLIENT Weston

JOB NO. 2066-03

BORING NO.	10+75	SAMPLED	Rocky Flats
DEPTH	64.0'	DATE TESTED	02-18-92 TNU
SAMPLE NO.	#6	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	59.44
Wt. Dry Soil & Pan	(g)	58.59
Wt. Lost Moisture	(g)	0.85
Wt. of Pan Only	(g)	3.75
Wt. of Dry Soil	(g)	54.84
Moisture Content	%	1.5

Wt. Hydrom. Sample Wet (g)	60.00
Wt. Hydrom. Sample Dry (g)	59.08

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	60.00
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	60.00
Weight of - #10 Dry (g)	59.08
Wt. Total Sample Dry (g)	59.08
Calc. Wt. "W" (g)	59.08
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	1.57	1.58	0.01	0.01	0.0	100.0
#40	1.56	1.57	0.01	0.02	0.0	100.0
#60	1.31	1.33	0.02	0.04	0.1	99.9
#100	1.31	1.33	0.02	0.06	0.1	99.9
#230	1.51	1.61	0.10	0.16	0.3	99.7

Silty Claystone

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT	Weston	JOB NO.	2066-03
BORING NO.	10+75	SAMPLED	Rocky Flats
DEPTH	64.0'	DATE TESTED	02-18-92 TNU
SAMPLE NO.	#6	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

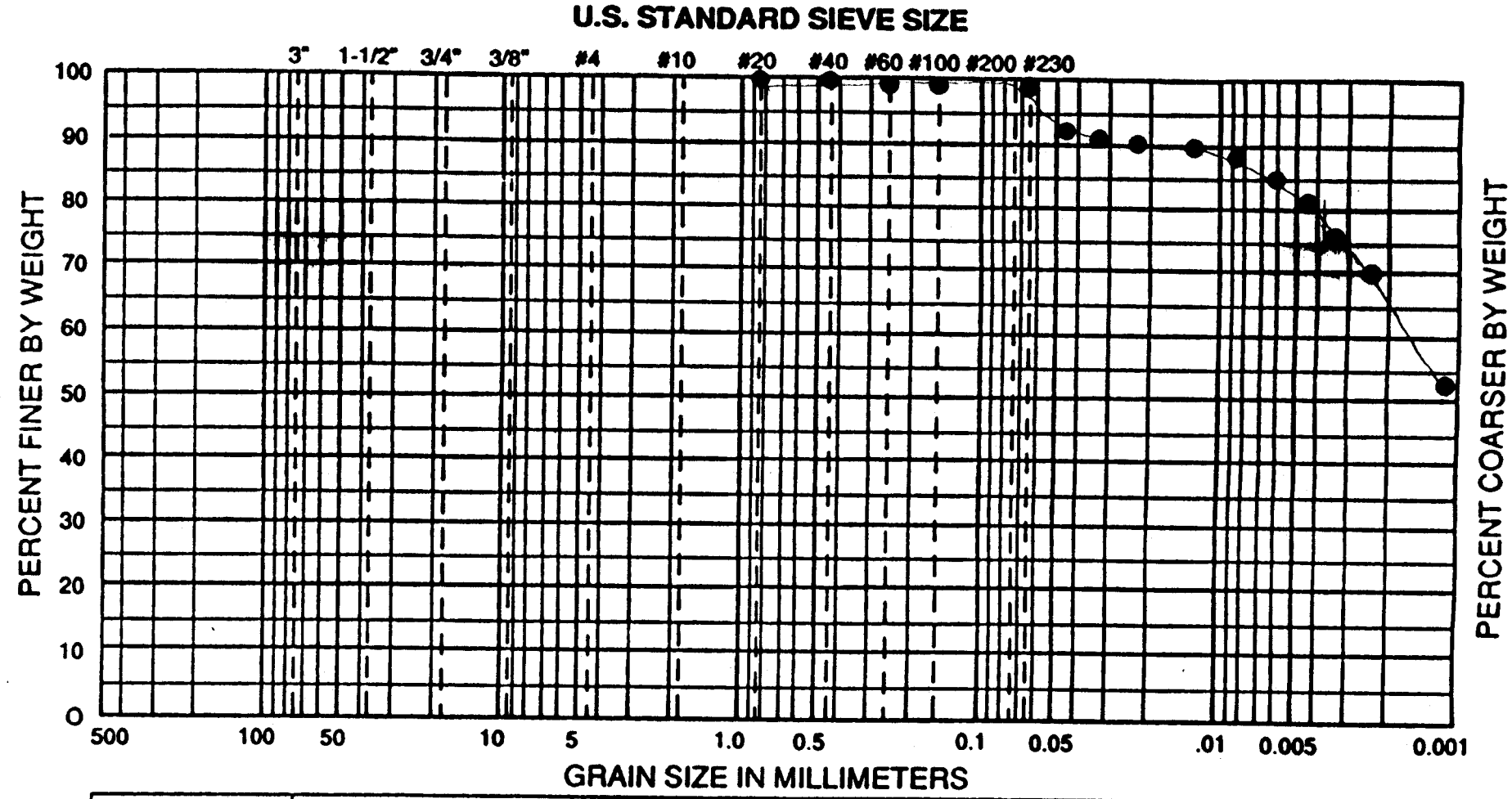
Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.84	Temp. Coef. K	0.01278
Value of "a"	0.96	Wt. Dry Sample "W"	59.084
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	5.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	63.00	57.00	92.8	92.8	5.96	0.0441
1.0	62.50	56.50	92.0	92.0	6.04	0.0314
2.0	62.00	56.00	91.2	91.2	6.12	0.0224
5.0	61.50	55.50	90.4	90.4	6.20	0.0142
15.0	60.00	54.00	87.9	87.9	6.45	0.0084
30.0	58.50	52.50	85.5	85.5	6.70	0.0060
60.0	56.50	50.50	82.2	82.2	7.02	0.0044
120.0	53.00	47.00	76.5	76.5	7.60	0.0032
250.0	49.00	43.00	70.0	70.0	8.25	0.0023
1440.0	39.00	33.00	53.7	53.7	9.89	0.0011

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 10 + 75 SAMPLE NO.: #6 DATE: 2-24-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
	640'	SILTY CLAYSTONE w/ tr sand ROCKY FLATS .3% F Sand, 21.7% Silt, [illegible]

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER WESTON

LOCATION EC&G

BORING 10±75 SAMPLE ____ DEPTH 64'

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

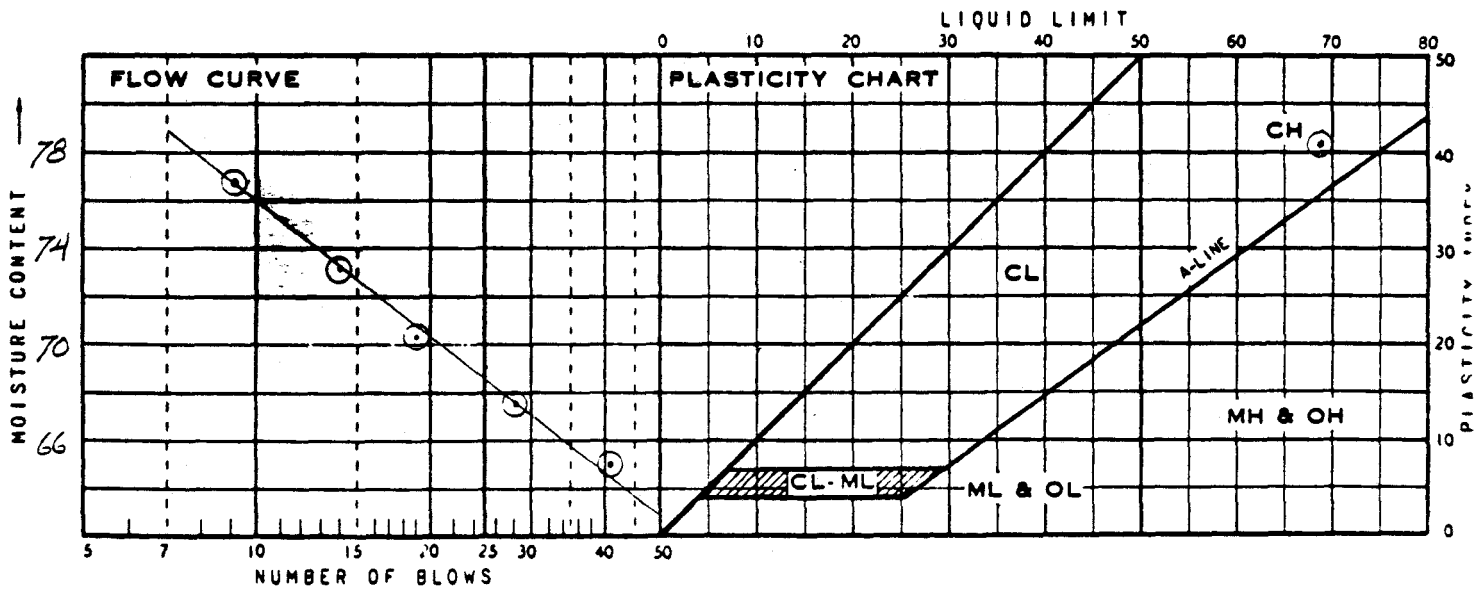
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY DW 2/23/92

DETERMINATION	1	2	3	4	5	6
DISH	2003	31C	32C			
WT OF DISH + WET SOIL	7.02g	6.75g	7.05g			
WT OF DISH + DRY SOIL	5.72g	5.51g	5.76g	—	—	—
WT OF MOISTURE	1.30g	1.24g	1.29g			
WT OF DISH	1.03g	1.04g	1.02g	—	—	—
WT OF DRY SOIL	4.69g	4.47g	4.74g			
MOISTURE CONTENT	27.7	27.7	27.2			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	10C	2045	2039	2001	2021	
NUMBER OF BLOWS	41	28	19	14	9	
WT OF DISH + WET SOIL	16.54g	16.88g	17.47g	18.09g	18.91g	
WT OF DISH + DRY SOIL	10.42g	10.49g	10.69g	10.89g	11.15g	—
WT OF MOISTURE	6.12g	6.39g	6.78g	7.20g	7.76g	
WT OF DISH	1.03g	1.05g	1.05g	1.05g	1.04g	—
WT OF DRY SOIL	9.39g	9.44g	9.64g	9.84g	10.11g	
MOISTURE CONTENT	65.2	67.7	70.3	73.2	76.8	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		63.7	27.5	41.2	CH	

ADVANCED TERRA TESTING INC

MECHANICAL ANALYSIS - SIEVE TEST DATA

BR

CLIENT Weston

JOB NO. 2066-03

BORING NO.	10+75	SAMPLED	Rocky Flats
DEPTH	65'	DATE TESTED	02-12-92 TNU
SAMPLE NO.	#6	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	47.19
Wt. Dry Soil & Pan	(g)	46.56
Wt. Lost Moisture	(g)	0.63
Wt. of Pan Only	(g)	3.67
Wt. of Dry Soil	(g)	42.89
Moisture Content	%	1.5

Wt. Hydrom. Sample Wet (g)	57.07
Wt. Hydrom. Sample Dry (g)	56.25

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	57.07
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	57.07
Weight of - #10 Dry (g)	56.25
Wt. Total Sample Dry (g)	56.25
Calc. Wt. "W" (g)	56.25
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	1.57	1.59	0.02	0.02	0.0	100.0
#40	1.31	1.34	0.03	0.05	0.1	99.9
#60	1.31	1.35	0.04	0.09	0.2	99.8
#100	1.50	1.67	0.17	0.26	0.5	99.5
#230	1.57	10.04	8.47	8.73	15.5	84.5

Silty Clay Loam

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	10+75	SAMPLED	Rocky Flats/E(
DEPTH	65'	DATE TESTED	02-12-92 TNU
SAMPLE NO.	#6	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

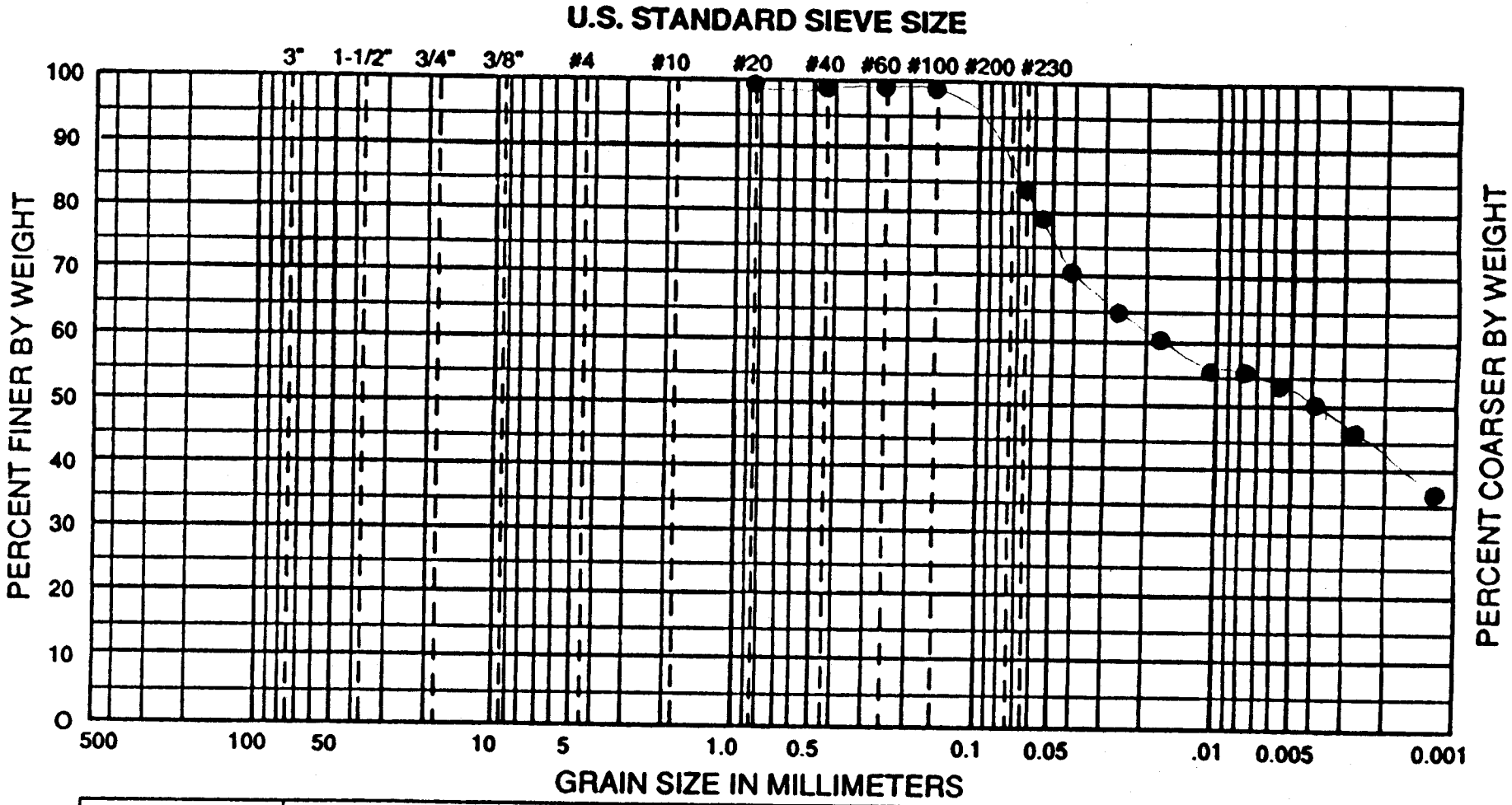
Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.70	Temp. Coef. K	0.01328
Value of "a"	0.99	Wt. Dry Sample "W"	56.247
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	5.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	51.00	45.00	79.2	79.2	7.93	0.0529
1.0	46.50	40.50	71.3	71.3	8.66	0.0391
2.0	43.00	37.00	65.1	65.1	9.24	0.0285
5.0	41.00	35.00	61.6	61.6	9.57	0.0184
15.0	38.00	32.00	56.3	56.3	10.06	0.0109
30.0	38.00	32.00	56.3	56.3	10.06	0.0077
60.0	37.00	31.00	54.6	54.6	10.22	0.0055
120.0	35.00	29.00	51.0	51.0	10.55	0.0039
250.0	33.00	27.00	47.5	47.5	10.88	0.0028
1440.0	27.00	21.00	37.0	37.0	11.86	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 10+75 SAMPLE NO.: #6 DATE: 2-21-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
	65'	Rocky Flats w/ some sand

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER WESTON

LOCATION _____

BORING 10+75 SAMPLE ____ DEPTH 65.0'

6

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD → [redacted]

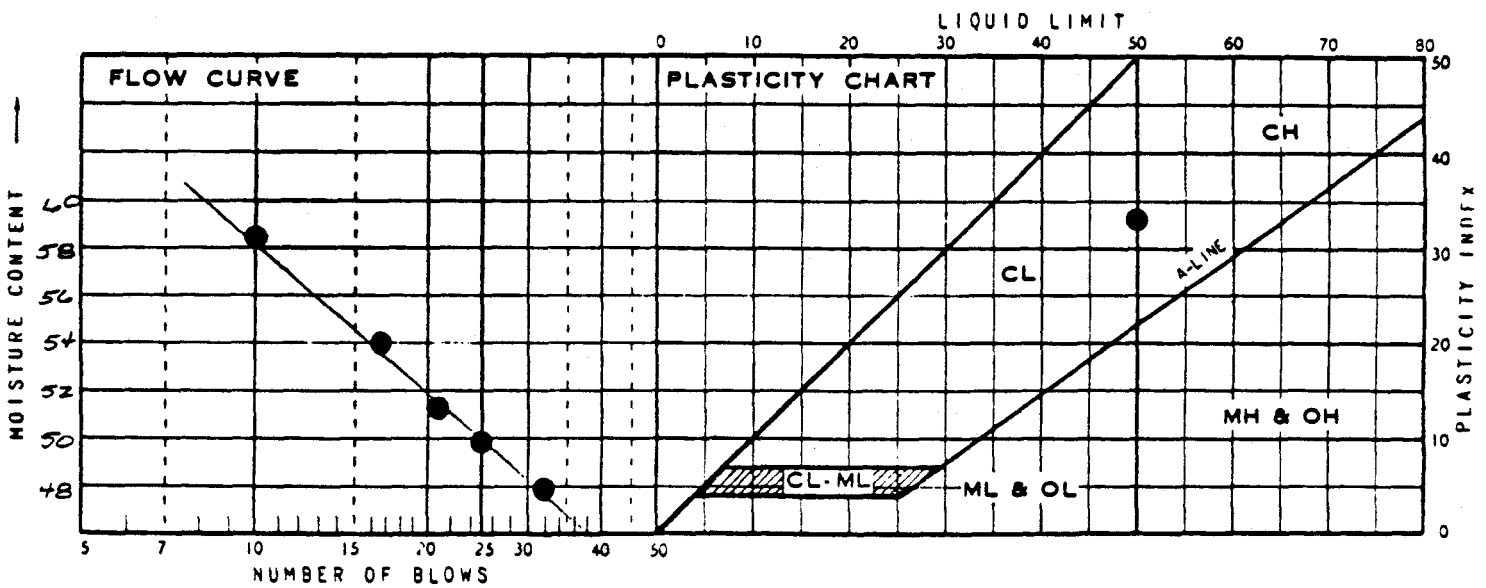
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY SR 2/24/92.

DETERMINATION	1	2	3	4	5	6
DISH	20C	19C	2027			
WT OF DISH + WET SOIL g	8.37	8.34	7.59			
WT OF DISH + DRY SOIL g	7.33	7.28	6.67	—	—	—
WT OF MOISTURE g	1.04	1.06	.97			
WT OF DISH g	1.02	1.02	1.06	—	—	—
WT OF DRY SOIL g	6.31	6.26	5.61			
MOISTURE CONTENT %	16.5	16.9	17.3			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	22C	23C	2075	2046	2010	
NUMBER OF BLOWS	32	25	21	17	10±	
WT OF DISH + WET SOIL g	16.27	19.03	16.54	14.92	19.57	
WT OF DISH + DRY SOIL g	11.33	13.05	11.28	10.06	12.74	—
WT OF MOISTURE g	4.94	5.98	5.26	4.86	6.83	
WT OF DISH g	1.03	1.05	1.04	1.07	1.05	—
WT OF DRY SOIL g	10.30	12.00	10.24	8.99	11.69	
MOISTURE CONTENT %	48.0	49.8	51.4	54.1	58.4	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		50.0	16.9	33.1	CH	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	10+75	SAMPLED	Rocky Flats
DEPTH	67.9'	DATE TESTED	02-12-92 TNU
SAMPLE NO.	#6	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	43.74
Wt. Dry Soil & Pan	(g)	42.79
Wt. Lost Moisture	(g)	0.95
Wt. of Pan Only	(g)	3.69
Wt. of Dry Soil	(g)	39.10
Moisture Content	%	2.4

Wt. Hydrom. Sample Wet (g)	60.61
Wt. Hydrom. Sample Dry (g)	59.17

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	60.61
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	60.61
Weight of - #10 Dry (g)	59.17
Wt. Total Sample Dry (g)	59.17
Calc. Wt. "W" (g)	59.17
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	1.31	1.36	0.05	0.05	0.1	99.9
#40	1.56	1.64	0.08	0.13	0.2	99.8
#60	1.56	1.63	0.07	0.20	0.3	99.7
#100	1.56	1.68	0.12	0.32	0.5	99.5
#230	1.32	10.78	9.46	9.78	16.5	83.5

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	10+75	SAMPLED	Rocky Flats
DEPTH	67.9'	DATE TESTED	02-12-92 TNU
SAMPLE NO.	#6	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

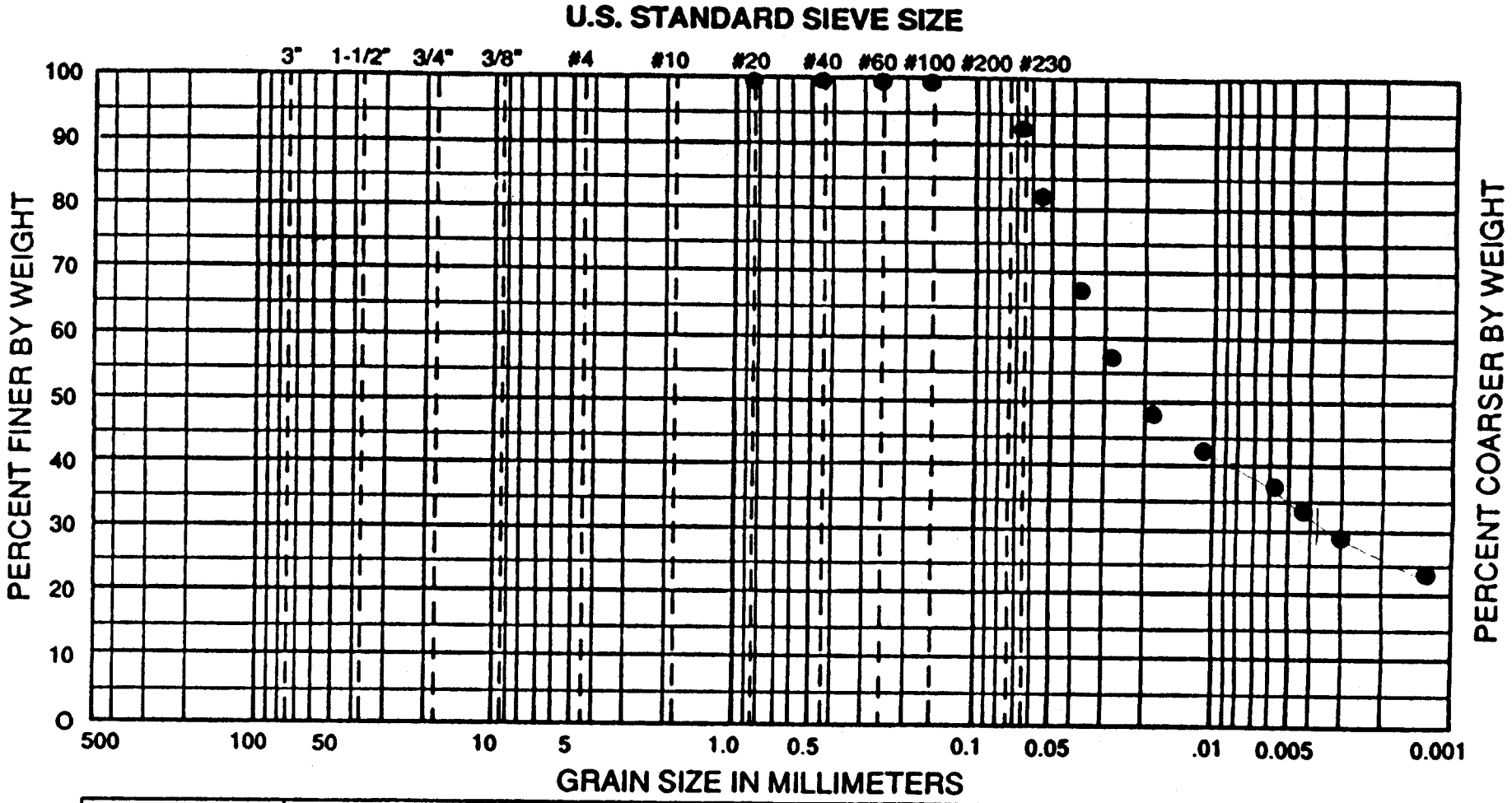
Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.69	Temp. Coef. K	0.01332
Value of "a"	0.99	Wt. Dry Sample "W"	59.172
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	5.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	52.00	46.00	77.1	77.1	7.76	0.0525
1.0	46.00	40.00	67.1	67.1	8.75	0.0394
2.0	40.00	34.00	57.0	57.0	9.73	0.0294
5.0	35.00	29.00	48.6	48.6	10.55	0.0193
15.0	32.00	26.00	43.6	43.6	11.04	0.0114
30.0	30.00	24.00	40.2	40.2	11.37	0.0082
60.0	28.50	22.50	37.7	37.7	11.62	0.0059
120.0	26.50	20.50	34.4	34.4	11.94	0.0042
250.0	23.50	17.50	29.3	29.3	12.44	0.0030
1440.0	20.50	14.50	24.3	24.3	12.93	0.0013

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 10+75 SAMPLE NO.: #6 DATE: 2-23-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
	67.9'	Cl[illegible] w/ some sand Rocky Flats [illegible]

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER WESTON

LOCATION _____

BORING 10+75 SAMPLE ____ DEPTH 67.9' (6)

FIELD DENSITY BY ___/___/___

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

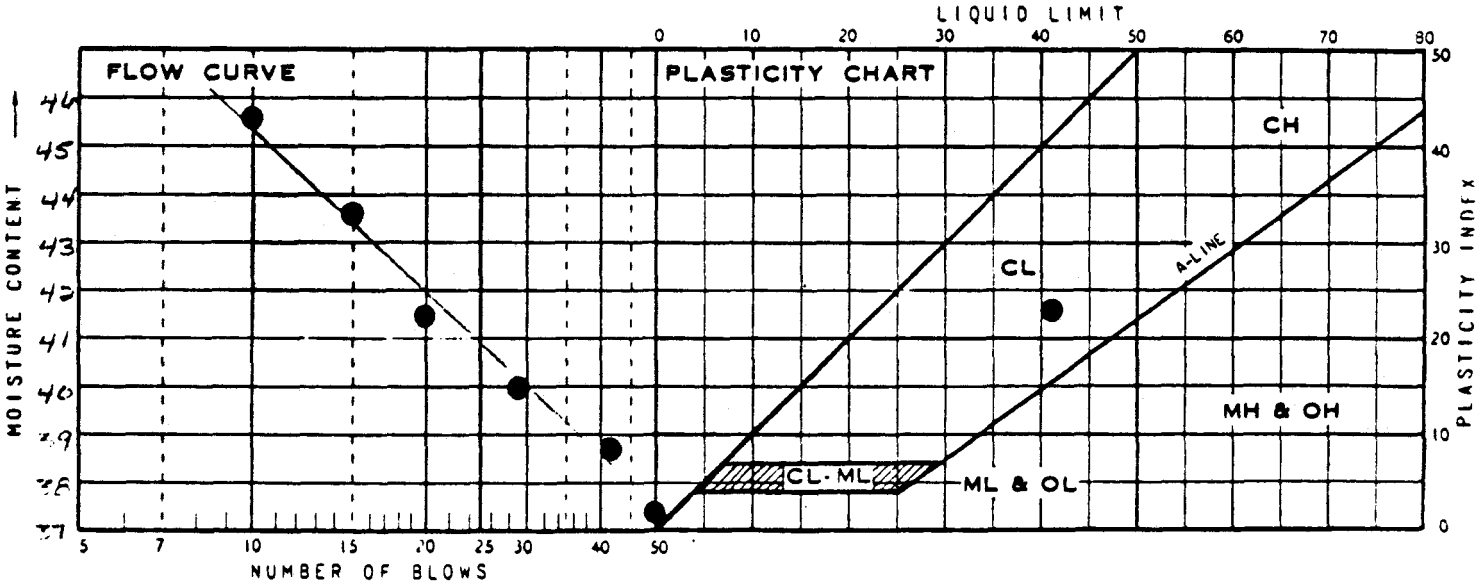
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY SR 2/22/92

DETERMINATION	1	2	3	4	5	6
DISH	2022	2065	2096			
WT OF DISH + WET SOIL g	9.82	8.84	8.11			
WT OF DISH + DRY SOIL g	8.50	7.65	7.05	—	—	—
WT OF MOISTURE g	1.32	1.19	1.06			
WT OF DISH g	1.06	1.04	1.05	—	—	—
WT OF DRY SOIL g	7.44	6.61	6.00			
MOISTURE CONTENT %	17.7	18.0	17.7			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2074	2075	2020	17 C	2026	2093
NUMBER OF BLOWS	50	41	29	20	15	10
WT OF DISH + WET SOIL g	15.65	15.90	15.70	16.17	14.86	16.11
WT OF DISH + DRY SOIL g	11.68	11.75	11.51	11.73	10.66	11.39
WT OF MOISTURE g	3.97	4.15	4.19	4.44	4.20	4.72
WT OF DISH g	1.03	1.04	1.04	1.03	1.03	1.03
WT OF DRY SOIL g	10.65	10.71	10.47	10.70	9.63	10.36
MOISTURE CONTENT %	37.3	38.8	40.0	41.5	43.6	45.6



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		40.9	17.8	23.1	CL	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	11+00	SAMPLED	Rocky Flats
DEPTH	2'	DATE TESTED	02-24-92 TNU/
SAMPLE NO.	#4	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes	
NATURAL	No	
Wt. Wet Soil & Pan	(g)	57.26
Wt. Dry Soil & Pan	(g)	54.79
Wt. Lost Moisture	(g)	2.47
Wt. of Pan Only	(g)	3.64
Wt. of Dry Soil	(g)	51.15
Moisture Content	%	4.8
Wt. Hydrom. Sample Wet	(g)	60.00
Wt. Hydrom. Sample Dry	(g)	57.24

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	435.39
Weight of + #10 Before Washing (g)	29.33
Weight of + #10 After Washing (g)	21.53
Weight of - #10 Wet (g)	406.06
Weight of - #10 Dry (g)	394.80
Wt. Total Sample Dry (g)	416.33
Calc. Wt. "W" (g)	60.36
Calc. Mass + #10	3.12

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	6.97	6.97	6.97	1.7	98.3
#4	0.00	5.02	5.02	11.99	2.9	97.1
#10	0.00	9.54	9.54	21.53	5.2	94.8
#20	1.56	3.44	1.88	1.88	8.3	91.7
#40	1.55	4.30	2.75	4.63	12.8	87.2
#60	1.55	4.62	3.07	7.70	17.9	82.1
#100	1.56	5.75	4.19	11.89	24.9	75.1
#230	1.56	7.82	6.26	18.15	35.2	64.8

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	11+00	SAMPLED	Rocky Flats
DEPTH	2'	DATE TESTED	02-24-92 TNU/
SAMPLE NO.	#4	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

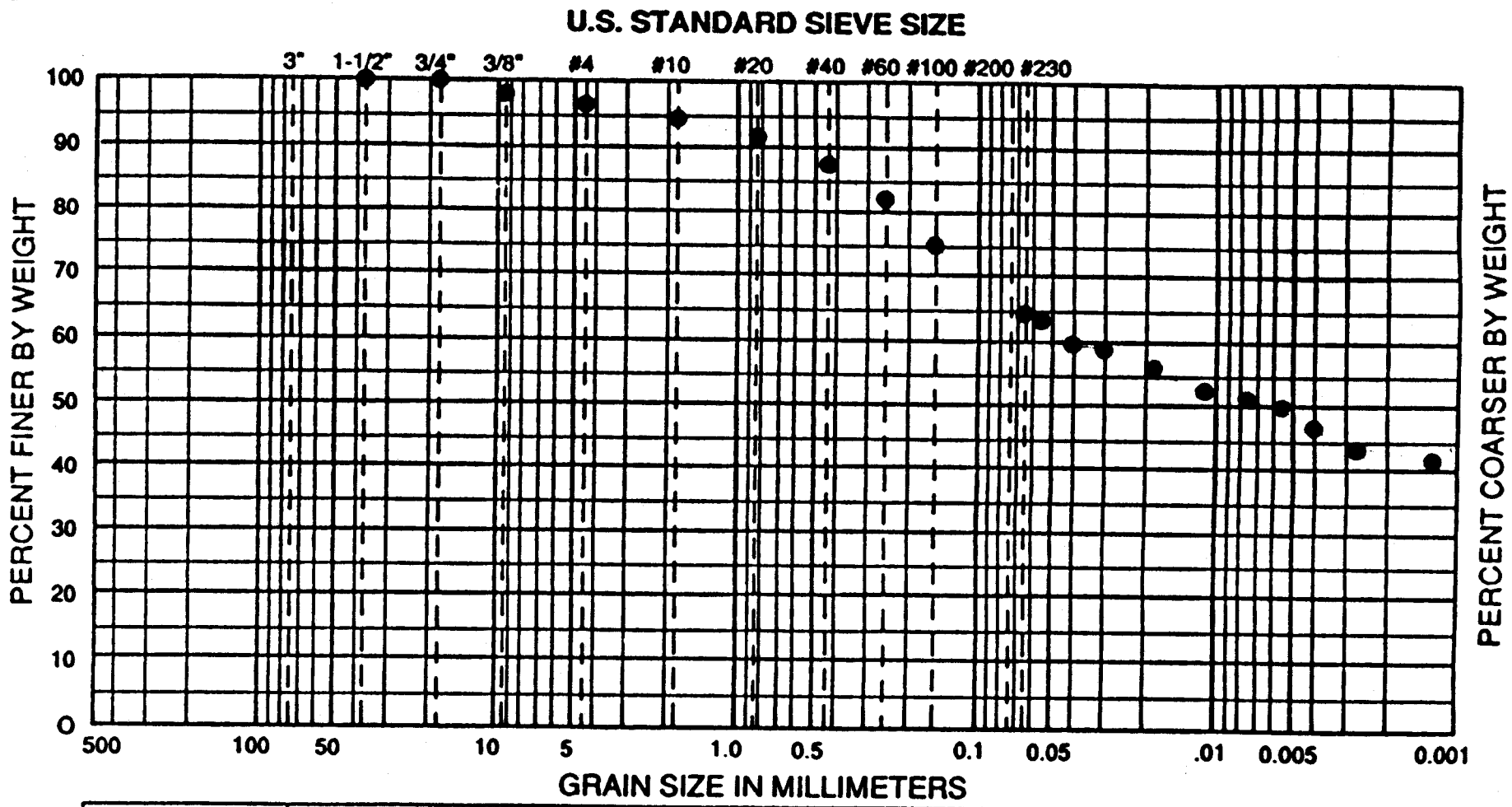
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.70	Temp. Coef. K	0.01312
Value of "a"	0.99	Wt. Dry Sample "W"	60.357
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	3.5		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	43.50	39.00	64.0	64.0	9.16	0.0561
1.0	41.00	36.50	59.9	59.9	9.57	0.0406
2.0	40.50	36.00	59.0	59.0	9.65	0.0288
5.0	39.00	34.50	56.6	56.6	9.89	0.0185
15.0	36.50	32.00	52.5	52.5	10.30	0.0109
30.0	35.75	31.25	51.3	51.3	10.43	0.0077
60.0	34.50	30.00	49.2	49.2	10.63	0.0055
120.0	33.00	28.50	46.7	46.7	10.88	0.0040
250.0	31.50	27.00	44.3	44.3	11.12	0.0028
1440.0	30.00	25.50	41.8	41.8	11.37	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 11+00 SAMPLE NO.: 4 DATE: 3 MAR 92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION SANDY
Rocky Flats	@ 2 ft	

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-53

CLIENT/OWNER WESTON

LOCATION

BORING 11+00 SAMPLE ____ DEPTH 2'

(4)

FIELD DENSITY BY ____

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD [redacted]

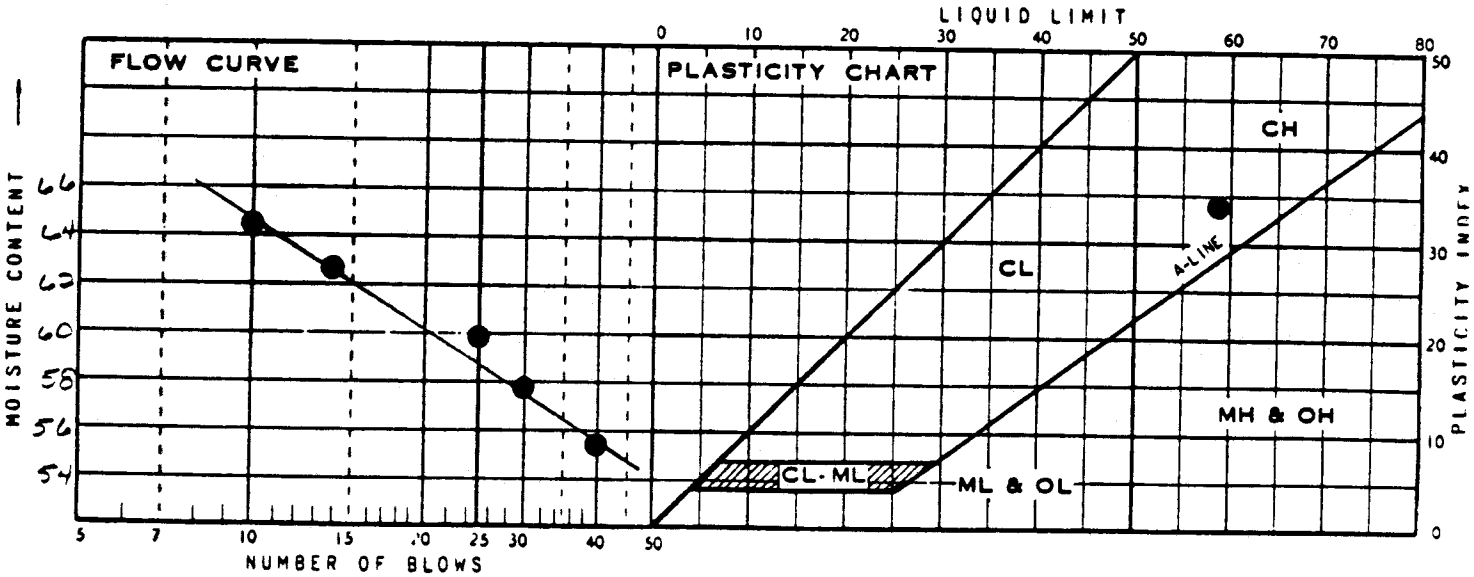
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY SB 2/25/92

DETERMINATION	1	2	3	4	5	6
DISH	2027	2071	2013			
WT OF DISH + WET SOIL g	7.36	7.33	7.18			
WT OF DISH + DRY SOIL g	6.13	6.09	5.95	—	—	—
WT OF MOISTURE g	1.23	1.24	1.23			
WT OF DISH g	1.06	1.05	1.05	—	—	—
WT OF DRY SOIL g	5.07	5.04	4.90			
MOISTURE CONTENT %	24.3	24.6	25.1			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2006	2040	25 C	19 C	35 C	
NUMBER OF BLOWS	40	30	26	14	10	
WT OF DISH + WET SOIL g	18.62	18.06	16.85	14.08	17.63	
WT OF DISH + DRY SOIL g	12.34	11.82	10.93	9.04	11.13	—
WT OF MOISTURE g	6.28	6.24	5.92	5.04	6.50	
WT OF DISH g	1.04	1.04	1.04	1.02	1.06	—
WT OF DRY SOIL g	11.30	10.78	9.89	8.02	10.07	
MOISTURE CONTENT %	55.6	57.9	59.9	62.8	64.6	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		58.8	24.7	34.1	CH	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	11+00	SAMPLED	Rocky Flats
DEPTH	6'	DATE TESTED	02-24-92 TNU/
SAMPLE NO.	#4	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes	
NATURAL	No	
Wt. Wet Soil & Pan	(g)	52.65
Wt. Dry Soil & Pan	(g)	50.97
Wt. Lost Moisture	(g)	1.68
Wt. of Pan Only	(g)	3.68
Wt. of Dry Soil	(g)	47.29
Moisture Content	%	3.6
Wt. Hydrom. Sample Wet	(g)	60.00
Wt. Hydrom. Sample Dry	(g)	57.94

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	452.46
Weight of + #10 Before Washing (g)	12.02
Weight of + #10 After Washing (g)	9.90
Weight of - #10 Wet (g)	440.45
Weight of - #10 Dry (g)	427.38
Wt. Total Sample Dry (g)	437.28
Calc. Wt. "W" (g)	59.28
Calc. Mass + #10	1.34

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	2.92	2.92	2.92	0.7	99.3
#10	0.00	6.98	6.98	9.90	2.3	97.7
#20	1.56	2.24	0.68	0.68	3.4	96.6
#40	1.31	4.14	2.83	3.51	8.2	91.8
#60	1.31	5.18	3.87	7.38	14.7	85.3
#100	1.56	7.33	5.77	13.15	24.4	75.6
#230	1.57	9.25	7.68	20.83	37.4	62.6

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	11+00	SAMPLED	Rocky Flats
DEPTH	6'	DATE TESTED	02-24-92 TNU/
SAMPLE NO.	#4	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

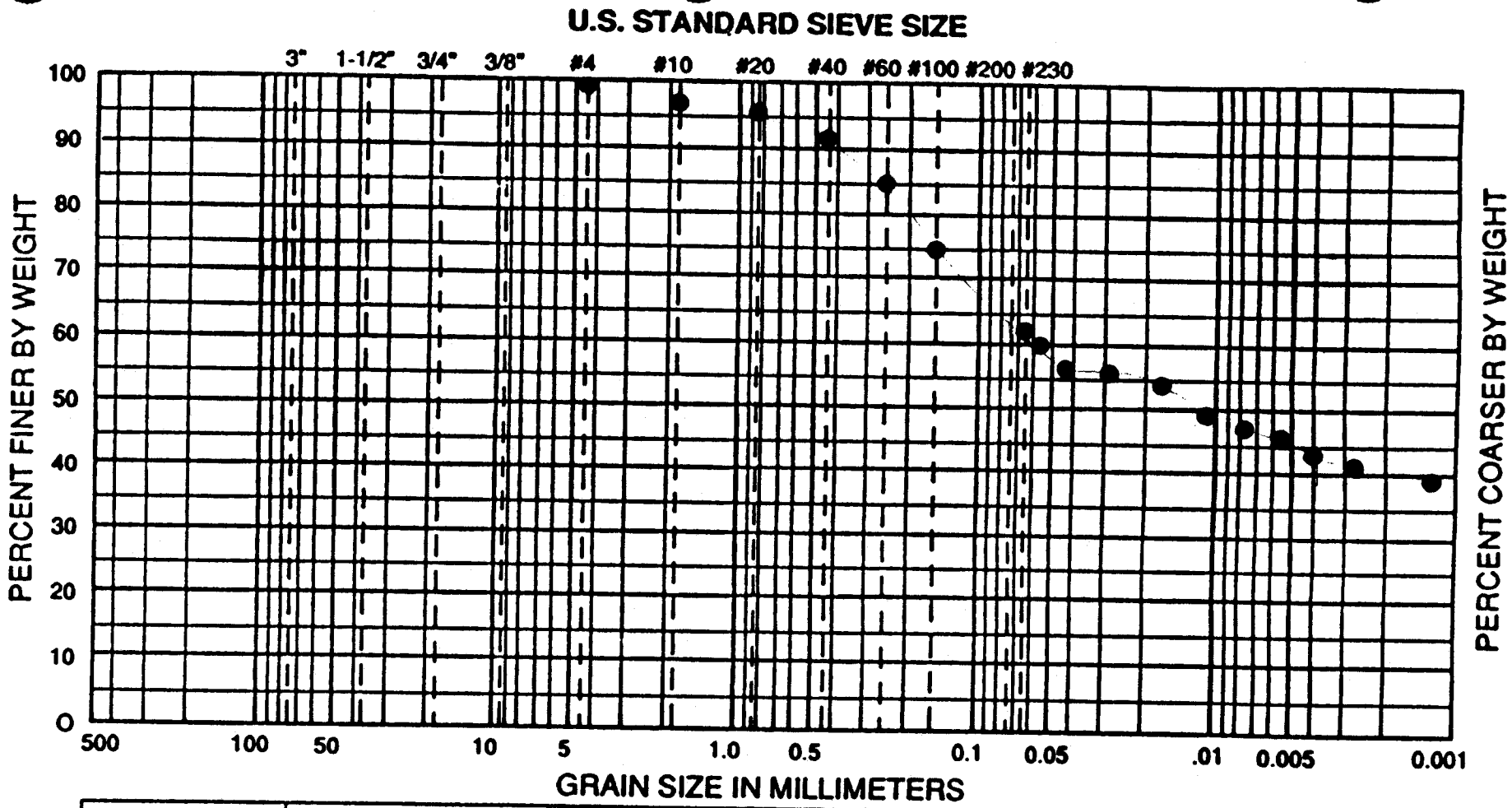
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.70	Temp. Coef. K	0.01312
Value of "a"	0.99	Wt. Dry Sample "W"	59.284
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	3.5		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	40.50	36.00	60.1	60.1	9.65	0.0576
1.0	38.50	34.00	56.8	56.8	9.98	0.0414
2.0	38.00	33.50	55.9	55.9	10.06	0.0294
5.0	37.00	32.50	54.3	54.3	10.22	0.0188
15.0	34.00	29.50	49.3	49.3	10.71	0.0111
30.0	33.00	28.50	47.6	47.6	10.88	0.0079
60.0	32.00	27.50	45.9	45.9	11.04	0.0056
120.0	31.00	26.50	44.3	44.3	11.21	0.0040
250.0	30.00	25.50	42.6	42.6	11.37	0.0028
1440.0	28.00	23.50	39.2	39.2	11.70	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 11+00 SAMPLE NO.: #4 DATE: 3-2-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	60'	[illegible]

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

CLIENT/OWNER WESTON

LOCATION _____

BORING 11+00 SAMPLE ____ DEPTH 6'

(4)

FIELD DENSITY BY ____/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD [redacted]

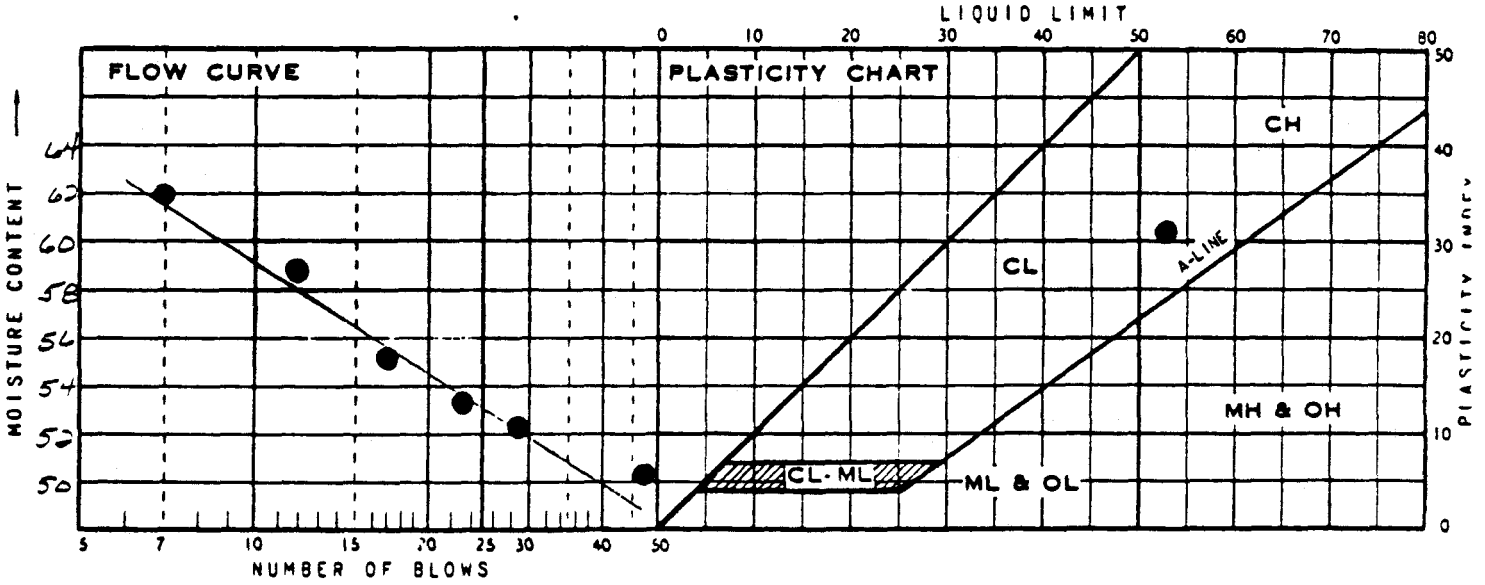
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY SR 7/25/90.

DETERMINATION	1	2	3	4	5	6
DISH	32 C	10 C	2021			
WT OF DISH + WET SOIL g	5.46	7.17	8.22			
WT OF DISH + DRY SOIL g	4.83	6.10	6.92	—	—	—
WT OF MOISTURE g	.83	1.07	1.30			
WT OF DISH g	1.02	1.03	1.05	—	—	—
WT OF DRY SOIL g	3.81	5.07	5.87			
MOISTURE CONTENT %	21.8	21.1	22.2			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2065	24 C	2067	2063	20 C	2030
NUMBER OF BLOWS	46	29	23	17	12	7
WT OF DISH + WET SOIL g	20.65	14.96	17.88	17.30	17.89	15.96
WT OF DISH + DRY SOIL g	14.08	10.17	12.00	11.53	11.64	10.25
WT OF MOISTURE g	6.57	4.79	5.88	5.77	6.25	5.71
WT OF DISH g	1.04	1.03	1.02	1.06	1.02	1.05
WT OF DRY SOIL g	13.04	9.14	10.98	10.47	10.62	9.20
MOISTURE CONTENT %	50.4	52.4	53.6	55.1	58.9	62.0



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		53.1	21.7	31.4	CH	

ADVANCED TERRA TESTING INC

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	11+00	SAMPLED	Rocky Flats
DEPTH	14'	DATE TESTED	02-24-92 TNU/
SAMPLE NO.	#4	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	57.55
Wt. Dry Soil & Pan	(g)	54.36
Wt. Lost Moisture	(g)	3.19
Wt. of Pan Only	(g)	3.35
Wt. of Dry Soil	(g)	51.01
Moisture Content	%	6.3

Wt. Hydrom. Sample Wet (g)	60.00
Wt. Hydrom. Sample Dry (g)	56.47

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	543.24
Weight of + #10 Before Washing (g)	0.89
Weight of + #10 After Washing (g)	0.17
Weight of - #10 Wet (g)	542.55
Weight of - #10 Dry (g)	511.30
Wt. Total Sample Dry (g)	511.47
Calc. Wt. "W" (g)	56.49
Calc. Mass + #10	0.02

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.17	0.17	0.17	0.0	100.0
#20	1.55	1.94	0.39	0.39	0.7	99.3
#40	1.54	1.91	0.37	0.76	1.4	98.6
#60	1.55	1.77	0.22	0.98	1.8	98.2
#100	1.55	1.72	0.17	1.15	2.1	97.9
#230	1.57	1.95	0.38	1.53	2.7	97.3

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT	Weston	JOB NO.	2066-03
BORING NO.	11+00	SAMPLED	Rocky Flats
DEPTH	14'	DATE TESTED	02-24-92 TNU/
SAMPLE NO.	#4	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

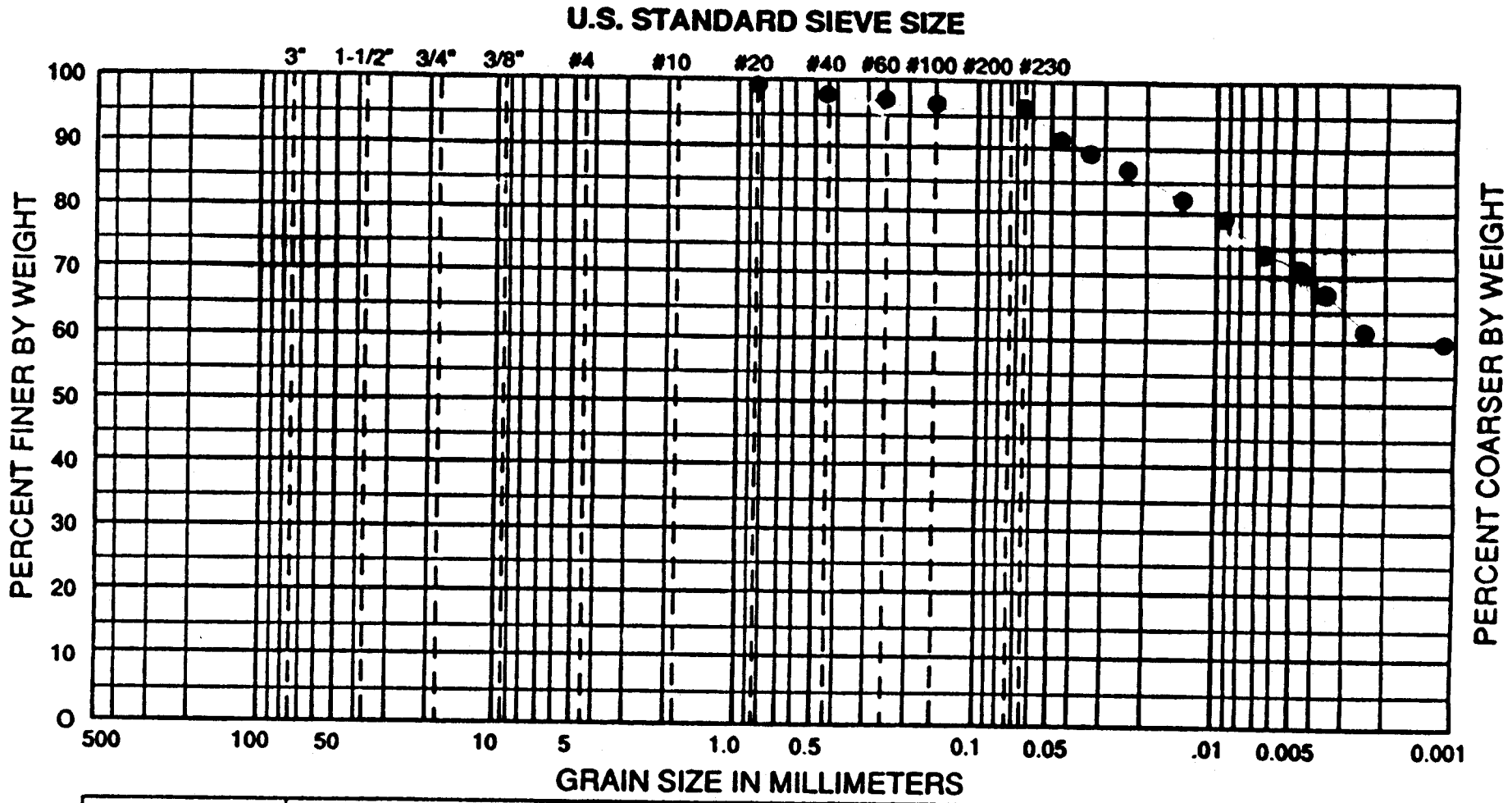
Hydrometer #	ASTM 152 H	Temp., Deg. C	23.0
Sp. Gr. of Soil	2.80	Temp. Coef. K	0.01261
Value of "a"	0.97	Wt. Dry Sample "W"	56.487
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	3.5		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	58.00	53.50	91.9	91.9	6.78	0.0464
1.0	56.50	52.00	89.3	89.3	7.02	0.0334
2.0	55.00	50.50	86.7	86.7	7.27	0.0240
5.0	53.25	48.75	83.7	83.7	7.56	0.0155
15.0	50.50	46.00	79.0	79.0	8.01	0.0092
30.0	48.00	43.50	74.7	74.7	8.42	0.0067
60.0	46.50	42.00	72.1	72.1	8.66	0.0048
120.0	44.00	39.50	67.8	67.8	9.07	0.0035
250.0	41.00	36.50	62.7	62.7	9.57	0.0025
1440.0	34.00	29.50	50.7	50.7	10.71	0.0011

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 11+00 SAMPLE NO.: #4 DATE: 3-2-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	140'	

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER WESTON

LOCATION EG&G

BORING 1400 SAMPLE ____ DEPTH 14'

(4)

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD → [redacted]

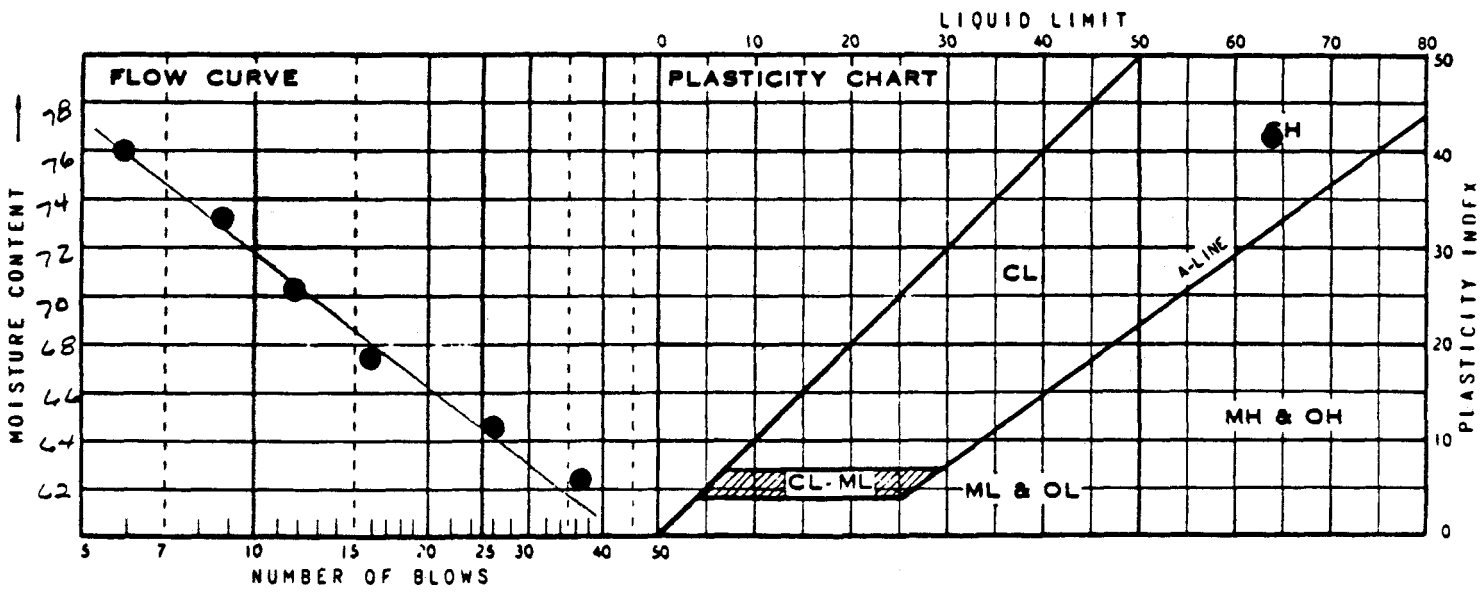
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY [illegible] 2/25/92

DETERMINATION	1	2	3	4	5	6
DISH	2050	12C	7C			
WT OF DISH + WET SOIL	9.08g	9.74g	11.04g			
WT OF DISH + DRY SOIL g	7.61	8.12	9.24	—	—	—
WT OF MOISTURE g	1.47	1.62	1.80			
WT OF DISH	1.03g	1.05g	1.05g	—	—	—
WT OF DRY SOIL g	6.58	7.07	8.19			
MOISTURE CONTENT %	22.3	22.9	22.0			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2045	2073	33C	43C	2051	2042
NUMBER OF BLOWS	37	26	16	12	9	6
WT OF DISH + WET SOIL	16.31g	17.81g	16.90g	16.42g	16.71g	18.80g
WT OF DISH + DRY SOIL g	10.44	11.21	10.51	10.06	10.08	11.13
WT OF MOISTURE g	5.87	6.60	6.39	6.36	6.63	7.67
WT OF DISH	1.05g	1.03g	1.04g	1.03g	1.02g	1.04g
WT OF DRY SOIL g	9.39	10.18	9.47	9.03	9.06	10.09
MOISTURE CONTENT %	62.5	64.8	67.5	70.4	73.2	76.0



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		64.5	22.4	42.1	CH	

ADVANCED TERRA TESTING INC

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	11+00
DEPTH	19.5'
SAMPLE NO.	#4
SOIL DESCR.	Bulk (Jar)

SAMPLED	Rocky Flats
DATE TESTED	02-24-92 TNU,
WASH SIEVE	Yes
DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes
NATURAL	No

Wt. Wet Soil & Pan	(g)	50.93
Wt. Dry Soil & Pan	(g)	48.90
Wt. Lost Moisture	(g)	2.03
Wt. of Pan Only	(g)	3.61
Wt. of Dry Soil	(g)	45.29
Moisture Content	%	4.5

Wt. Hydrom. Sample Wet (g)	60.00
Wt. Hydrom. Sample Dry (g)	57.43

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	60.00
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	60.00
Weight of - #10 Dry (g)	57.43
Wt. Total Sample Dry (g)	57.43
Calc. Wt. "W" (g)	57.43
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	1.56	1.57	0.01	0.01	0.0	100.0
#40	1.56	1.57	0.01	0.02	0.0	100.0
#60	1.57	1.59	0.02	0.04	0.1	99.9
#100	1.55	1.58	0.03	0.07	0.1	99.9
#230	1.55	1.84	0.29	0.36	0.6	99.4

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT	Weston	JOB NO.	2066-03
BORING NO.	11+00	SAMPLED	Rocky Flats
DEPTH	19.5'	DATE TESTED	02-24-92 TNU/
SAMPLE NO.	#4	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

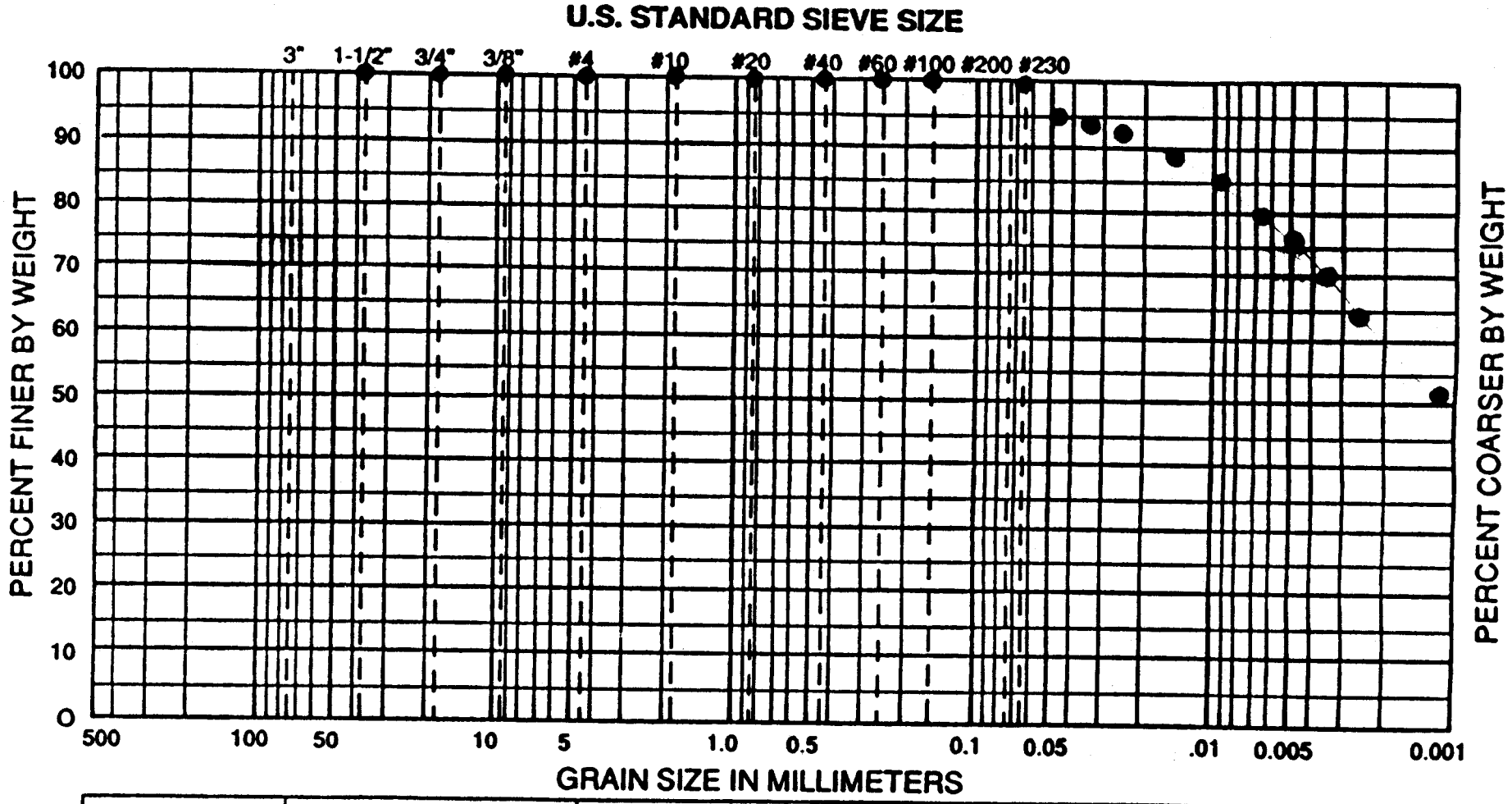
Hydrometer #	ASTM 152 H	Temp., Deg. C	23.0
Sp. Gr. of Soil	2.69	Temp. Coef. K	0.01301
Value of "a"	0.99	Wt. Dry Sample "W"	57.426
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	3.5		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	59.50	55.00	95.0	95.0	6.53	0.0470
1.0	58.50	54.00	93.3	93.3	6.70	0.0337
2.0	58.00	53.50	92.4	92.4	6.78	0.0240
5.0	56.00	51.50	89.0	89.0	7.11	0.0155
15.0	53.50	49.00	84.6	84.6	7.52	0.0092
30.0	50.50	46.00	79.5	79.5	8.01	0.0067
60.0	48.50	44.00	76.0	76.0	8.34	0.0048
120.0	45.00	40.50	70.0	70.0	8.91	0.0035
250.0	41.50	37.00	63.9	63.9	9.48	0.0025
1440.0	34.00	29.50	51.0	51.0	10.71	0.0011

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 11+00 SAMPLE NO.: #4 DATE: 3 MAR 92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	@ 19.5 ft	

FIELD CLASSIFICATION - - - - - - - - - - - - - - -

LABORATORY CLASSIFICATION - - - - - - - - - - - - -

JOB NO. 2066-03

CLIENT/OWNER Weston

LOCATION Rocky Flats EG+G

BORING U-100 SAMPLE CH #4 DEPTH 19.5'

FIELD DENSITY BY ___/___/___

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD [redacted]

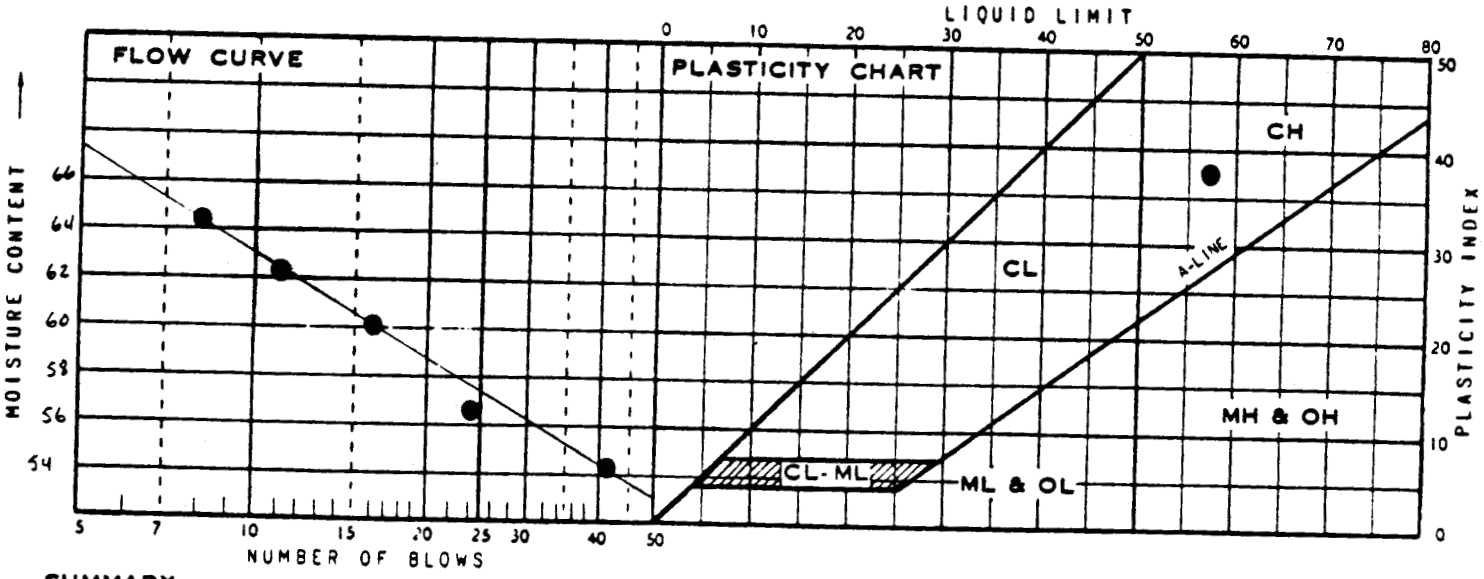
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY AA 2/26/92

DETERMINATION	1	2	3	4	5	6
DISH	35C	24C	2003			
WT OF DISH + WET SOIL g	6.94	7.40	7.34			
WT OF DISH + DRY SOIL g	5.95	6.37	6.33	—	—	—
WT OF MOISTURE g	.99	1.03	1.01			
WT OF DISH g	1.08	1.05	1.06	—	—	—
WT OF DRY SOIL g	4.87	5.32	5.27			
MOISTURE CONTENT %	20.3	19.4	19.2			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2071	25C	12C	7C	32C	19C
NUMBER OF BLOWS	41	24	25	16	11	8
WT OF DISH + WET SOIL g	12.53	11.88	12.54	11.82	11.88	12.48
WT OF DISH + DRY SOIL g	8.52	7.97	8.32	7.78	7.71	8.00
WT OF MOISTURE g	4.06	3.91	4.22	4.04	4.17	4.48
WT OF DISH g	1.06	1.06	1.06	1.06	1.03	1.03
WT OF DRY SOIL g	7.46	6.91	7.26	6.72	6.68	6.97
MOISTURE CONTENT %	54.4	56.6	58.1	60.1	62.4	64.3



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		57.4	19.6	37.8	CH	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	11+00	SAMPLED	Rocky Flats
DEPTH	24.5'	DATE TESTED	02-24-92 TNU/
SAMPLE NO.	#4	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes	
NATURAL	No	
Wt. Wet Soil & Pan	(g)	54.42
Wt. Dry Soil & Pan	(g)	52.63
Wt. Lost Moisture	(g)	1.79
Wt. of Pan Only	(g)	3.68
Wt. of Dry Soil	(g)	48.95
Moisture Content	%	3.7
Wt. Hydrom. Sample Wet	(g)	60.00
Wt. Hydrom. Sample Dry	(g)	57.88

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	60.00
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	60.00
Weight of - #10 Dry (g)	57.88
Wt. Total Sample Dry (g)	57.88
Calc. Wt. "W" (g)	57.88
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	1.55	1.57	0.02	0.02	0.0	100.0
#40	1.55	1.59	0.04	0.06	0.1	99.9
#60	1.55	1.63	0.08	0.14	0.2	99.8
#100	1.55	1.68	0.13	0.27	0.5	99.5
#230	1.55	3.15	1.60	1.87	3.2	96.8

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	11+00	SAMPLED	Rocky Flats
DEPTH	24.5'	DATE TESTED	02-24-92 TNU/
SAMPLE NO.	#4	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

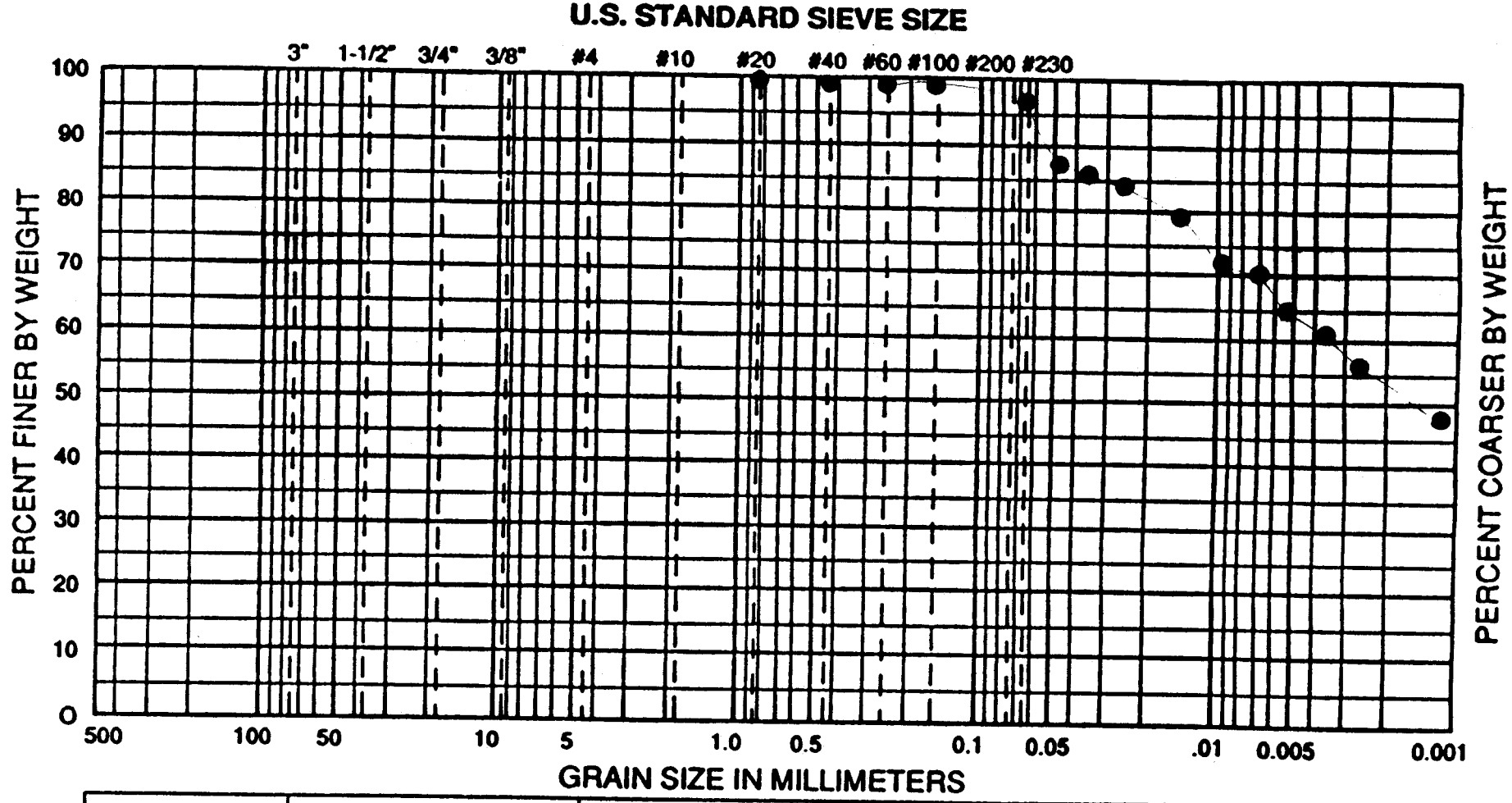
Hydrometer #	ASTM 152 H	Temp., Deg. C	23.0
Sp. Gr. of Soil	2.71	Temp. Coef. K	0.01293
Value of "a"	0.99	Wt. Dry Sample "W"	57.883
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	3.5		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	56.00	51.50	87.9	87.9	7.11	0.0487
1.0	55.00	50.50	86.2	86.2	7.27	0.0349
2.0	54.00	49.50	84.5	84.5	7.43	0.0249
5.0	51.00	46.50	79.4	79.4	7.93	0.0163
15.0	47.75	43.25	73.8	73.8	8.46	0.0097
30.0	46.00	41.50	70.8	70.8	8.75	0.0070
60.0	43.00	38.50	65.7	65.7	9.24	0.0051
120.0	40.50	36.00	61.4	61.4	9.65	0.0037
250.0	38.00	33.50	57.2	57.2	10.06	0.0026
1440.0	32.50	28.00	47.8	47.8	10.96	0.0011

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 11+00 SAMPLE NO.: #4 DATE: 3-2-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	24.5'	silty clay (CH)

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER Weston

LOCATION Rocky Flats EG+G

BORING 11-00 SAMPLE CH 4 DEPTH 24.5

FIELD DENSITY BY ____/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD [redacted]

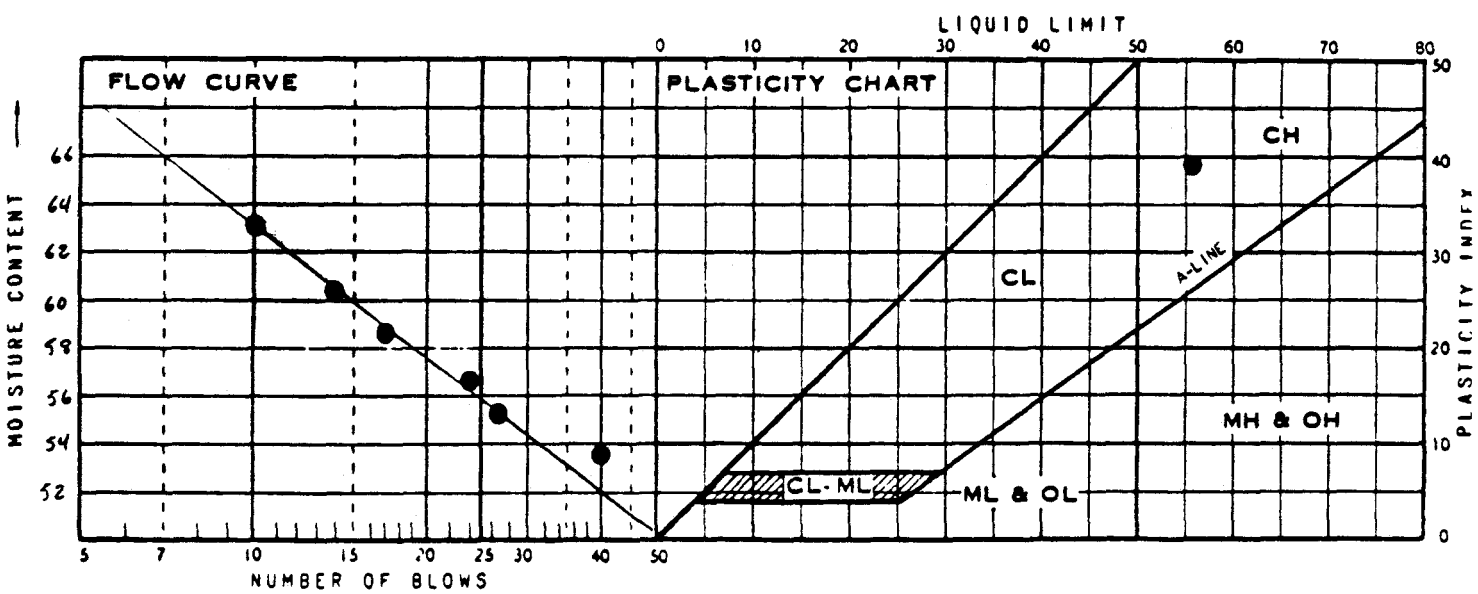
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY RW 2/26/92

DETERMINATION	1	2	3	4	5	6
DISH	2030	10C	33C			
WT OF DISH + WET SOIL g	5.25	5.97	6.04			
WT OF DISH + DRY SOIL g	4.67	5.25	5.34	—	—	—
WT OF MOISTURE g	.58	.72	.70			
WT OF DISH g	1.06	1.04	1.06	—	—	—
WT OF DRY SOIL g	3.61	4.21	4.28			
MOISTURE CONTENT %	16.1	17.1	16.4			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2042	2073	43C	2061	2069	2018
NUMBER OF BLOWS	40	27	24	17	14	10
WT OF DISH + WET SOIL g	12.59	11.85	12.20	11.31	11.47	11.56
WT OF DISH + DRY SOIL g	8.57	8.00	8.16	7.51	7.55	7.49
WT OF MOISTURE g	4.02	3.85	4.04	3.80	3.92	4.07
WT OF DISH g	1.08	1.05	1.04	1.04	1.05	1.06
WT OF DRY SOIL g	7.49	6.95	7.12	6.47	6.50	6.43
MOISTURE CONTENT %	53.7	55.4	56.7	58.7	60.3	63.3



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		55.9	16.5	39.4	CH	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Westen

JOB NO. 2066-03

BORING NO.	11+00	SAMPLED	Rocky Flats
DEPTH	55'	DATE TESTED	02-12-92 TNU
SAMPLE NO.	#6	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes
NATURAL	No

Wt. Wet Soil & Pan	(g)	49.87
Wt. Dry Soil & Pan	(g)	49.67
Wt. Lost Moisture	(g)	0.20
Wt. of Pan Only	(g)	3.75
Wt. of Dry Soil	(g)	45.92
Moisture Content	%	0.4

Wt. Hydrom. Sample Wet (g)	58.93
Wt. Hydrom. Sample Dry (g)	58.68

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	58.93
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	58.93
Weight of - #10 Dry (g)	58.68
Wt. Total Sample Dry (g)	58.68
Calc. Wt. "W" (g)	58.68
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	0.00	0.00	0.00	0.00	0.0	100.0
#40	1.56	1.58	0.02	0.02	0.0	100.0
#60	1.57	1.64	0.07	0.09	0.2	99.8
#100	1.56	1.76	0.20	0.29	0.5	99.5
#230	1.58	36.06	34.48	34.77	59.3	40.7

SILTY SAND

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	11+00	SAMPLED	Rocky Flats
DEPTH	55'	DATE TESTED	02-12-92 TN
SAMPLE NO.	#6	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.66	Temp. Coef. K	0.01344
Value of "a"	0.99	Wt. Dry Sample "W"	58.677
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	5.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	36.00	30.00	50.5	50.5	10.39	0.0613
1.0	25.50	19.50	32.8	32.8	12.11	0.0468
2.0	19.00	13.00	21.9	21.9	13.17	0.0345
5.0	17.00	11.00	18.5	18.5	13.50	0.0221
15.0	15.00	9.00	15.2	15.2	13.83	0.0129
30.0	15.00	9.00	15.2	15.2	13.83	0.0091
60.0	15.00	9.00	15.2	15.2	13.83	0.0065
120.0	13.75	7.75	13.0	13.0	14.04	0.0046
250.0	13.25	7.25	12.2	12.2	14.12	0.0032
1440.0	11.50	5.50	9.3	9.3	14.40	0.0013

Grain Diameter = K*(SQRT(L/T))

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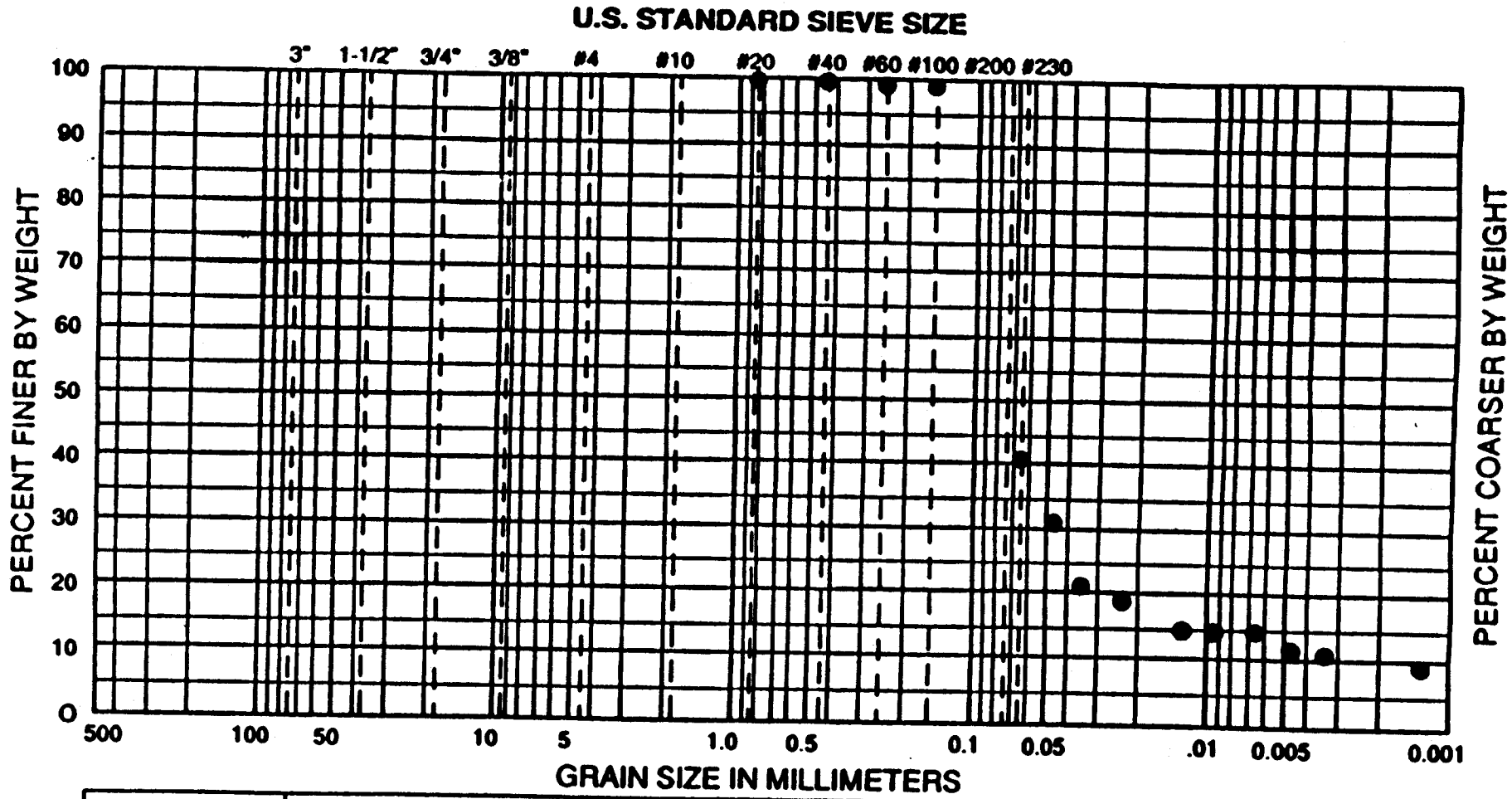
ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 11+00 SAMPLE NO.: #6 DATE: 2-21-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
		Silty Sand w/ some clay
	55'	Rocky Flats 45% f. Sand, 43% Silt, 12% Clay

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER WESTON

LOCATION _____

BORING 11+00 SAMPLE ____ DEPTH 55' (6)

FIELD DENSITY BY ...../../...

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY SR.2.12/92

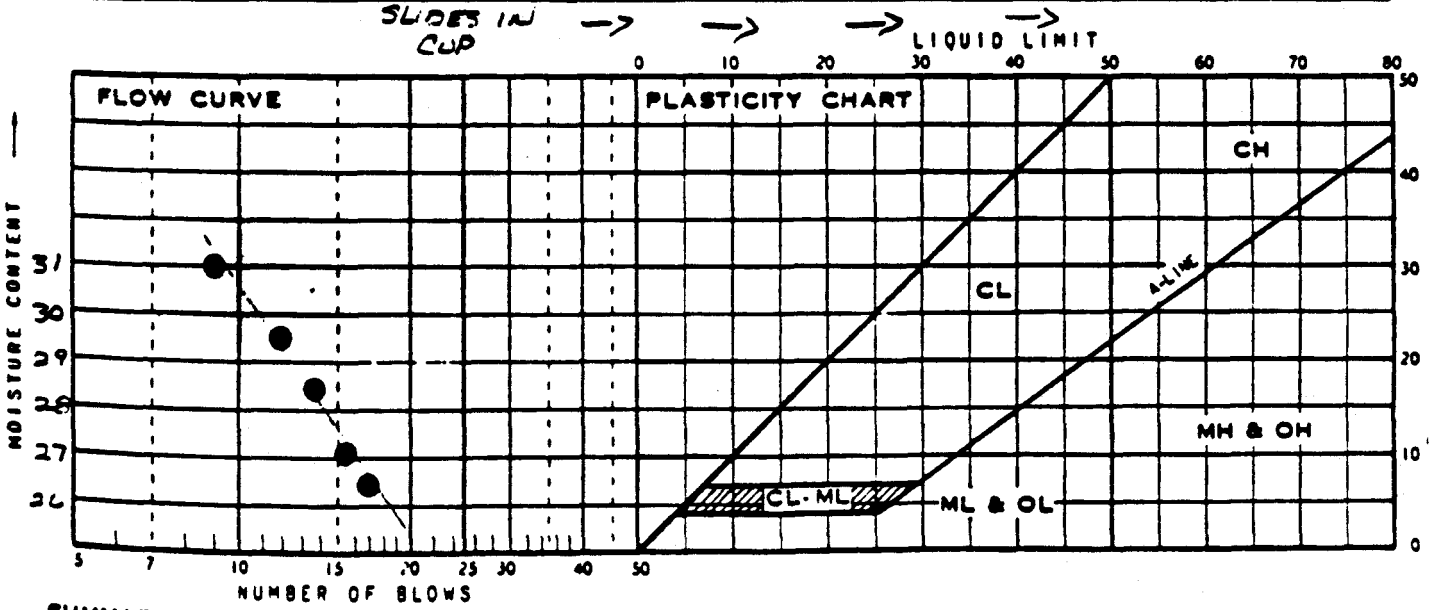
DETERMINATION	1	2	3	4	5	6
DISH	2040	2013	2043			
WT OF DISH + WET SOIL g	7.91	7.49	8.80			
WT OF DISH + DRY SOIL g	6.53	6.25	7.28	—	—	—
WT OF MOISTURE g	1.38	1.24	1.52			
WT OF DISH g	1.08	1.05	1.07	—	—	—
WT OF DRY SOIL g	5.45	5.20	6.21			
MOISTURE CONTENT %	25.3	23.9	25.5			

HARDLY ROLLED!

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2029	2032	2011	2038	OC	
NUMBER OF BLOWS	17	16±	15±	12	9±	
WT OF DISH + WET SOIL g	26.30	20.82	25.38	16.68	25.02	
WT OF DISH + DRY SOIL g	21.01	16.61	19.99	13.12	19.35	—
WT OF MOISTURE g	5.29	4.21	5.39	3.56	5.67	
WT OF DISH g	1.06	1.05	1.05	1.06	1.04	—
WT OF DRY SOIL g	19.95	15.56	18.94	12.06	18.31	
MOISTURE CONTENT %	26.5	27.1	28.5	29.5	31.0	

SLIDES IN CUP → → → →



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
			24.9			

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

BK

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	11+00	SAMPLED	Rocky Flats
DEPTH	62.5'	DATE TESTED	02-12-92 TNU
SAMPLE NO.	#6	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	57.78
Wt. Dry Soil & Pan	(g)	55.75
Wt. Lost Moisture	(g)	2.03
Wt. of Pan Only	(g)	3.86
Wt. of Dry Soil	(g)	51.89
Moisture Content	%	3.9

Wt. Hydrom. Sample Wet (g)	60.00
Wt. Hydrom. Sample Dry (g)	57.74

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	60.00
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	60.00
Weight of - #10 Dry (g)	57.74
Wt. Total Sample Dry (g)	57.74
Calc. Wt. "W" (g)	57.74
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	1.57	1.72	0.15	0.15	0.3	99.7
#40	1.57	1.64	0.07	0.22	0.4	99.6
#60	1.56	1.63	0.07	0.29	0.5	99.5
#100	1.56	1.65	0.09	0.38	0.7	99.3
#230	1.56	1.87	0.31	0.69	1.2	98.8

Silty Clay

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	11+00	SAMPLED	Rocky Flats
DEPTH	62.5'	DATE TESTED	02-12-92 TNU
SAMPLE NO.	#6	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

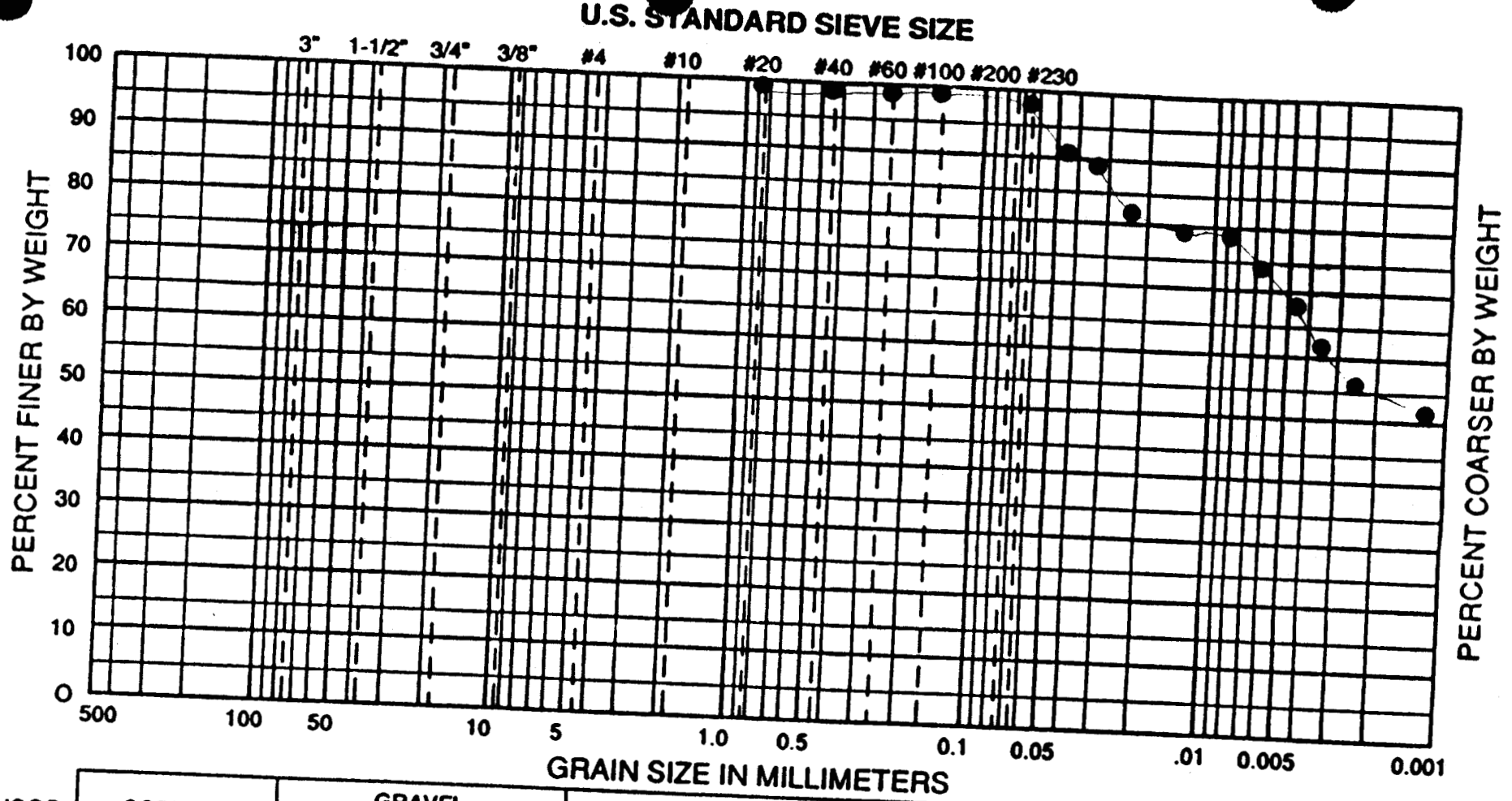
Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.89	Temp. Coef. K	0.01260
Value of "a"	0.95	Wt. Dry Sample "W"	57.741
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	5.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	61.50	55.50	91.5	91.5	6.20	0.0444
1.0	60.00	54.00	89.0	89.0	6.45	0.0320
2.0	59.50	53.50	88.2	88.2	6.53	0.0228
5.0	57.50	51.50	84.9	84.9	6.86	0.0148
15.0	54.00	48.00	79.1	79.1	7.43	0.0089
30.0	51.00	45.00	74.2	74.2	7.93	0.0065
60.0	47.50	41.50	68.4	68.4	8.50	0.0047
120.0	43.50	37.50	61.8	61.8	9.16	0.0035
250.0	40.00	34.00	56.1	56.1	9.73	0.0025
1440.0	32.00	26.00	42.9	42.9	11.04	0.0011

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 11 +00 SAMPLE NO.: #6 DATE: 2-22-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
	625'	SILTY Claystone w/ trace SAND. Rocky FLATS [illegible] 33.3% [illegible]

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION - - - - - - - - - - - - - - - -

LABORATORY CLASSIFICATION - - - - - - - - - - - - -

JOB NO. 8066-03
CLIENT/OWNER WESTON
LOCATION Rocky Flats / EGVG
BORING 1L+00 SAMPLE CH#6 DEPTH 62.5'

FIELD DENSITY BY

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

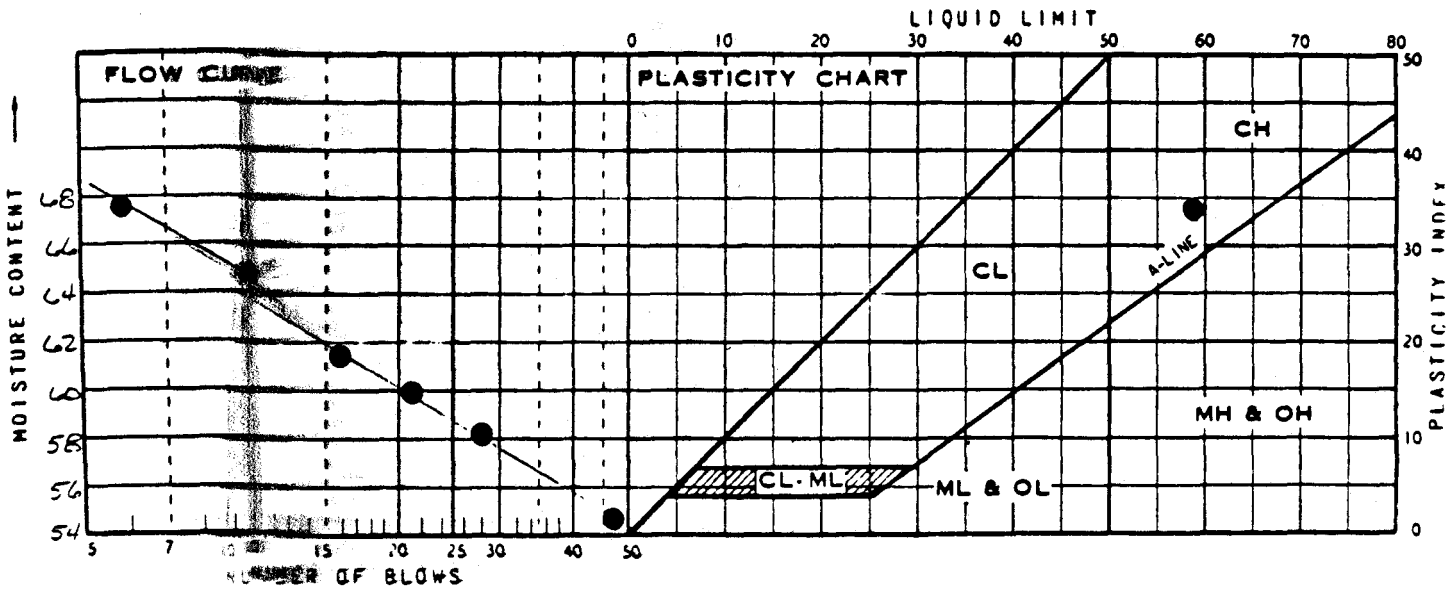
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY MW 2/28/92

DETERMINATION	1	2	3	4	5	6
DISH	33C	34C	35C			
WT OF DISH + WET SOIL	8.49g	8.22g	9.38g			
WT OF DISH + DRY SOIL g	6.99g	6.79	7.82	—	—	—
WT OF MOISTURE g	1.50	1.43	1.56			
WT OF DISH g	1.05g	1.03g	1.03g	—	—	—
WT OF DRY SOIL g	5.94	5.76	6.79			
MOISTURE CONTENT %	25.3	24.8	23.0			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	36C	37C	38C	39C	40C	41C
NUMBER OF BLOWS	46	28	21	16	10	6
WT OF DISH + WET SOIL	15.74g	15.17g	14.94g	16.09g	14.89g	12.48g
WT OF DISH + DRY SOIL g	10.54	9.96	9.73	10.35	9.44	7.85
WT OF MOISTURE g	5.20	5.21	5.21	5.74	5.45	4.63
WT OF DISH g	1.02g	1.01g	1.03g	1.02g	1.04g	1.02g
WT OF DRY SOIL g	9.52	8.95	8.70	9.33	8.40	6.83
MOISTURE CONTENT %	54.6	58.2	60.0	61.5	64.9	67.8



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		50.7	24.4	26.3	CH	

ADVANCED TERRA TESTING INC

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	11+10	SAMPLED	Rocky Flats
DEPTH	36'	DATE TESTED	02-24-92 TNU/
SAMPLE NO.	#4	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes	
NATURAL	No	
Wt. Wet Soil & Pan	(g)	59.70
Wt. Dry Soil & Pan	(g)	57.60
Wt. Lost Moisture	(g)	2.10
Wt. of Pan Only	(g)	3.70
Wt. of Dry Soil	(g)	53.90
Moisture Content	%	3.9
Wt. Hydrom. Sample Wet	(g)	60.00
Wt. Hydrom. Sample Dry	(g)	57.75

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	514.43
Weight of + #10 Before Washing (g)	14.18
Weight of + #10 After Washing (g)	4.43
Weight of - #10 Wet (g)	500.25
Weight of - #10 Dry (g)	490.88
Wt. Total Sample Dry (g)	495.31
Calc. Wt. "W" (g)	58.27
Calc. Mass + #10	0.52

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	3.50	3.50	3.50	0.7	99.3
#10	0.00	0.93	0.93	4.43	0.9	99.1
#20	1.57	1.75	0.18	0.18	1.2	98.8
#40	1.56	1.63	0.07	0.25	1.3	98.7
#60	1.57	1.60	0.03	0.28	1.4	98.6
#100	1.57	1.61	0.04	0.32	1.4	98.6
#230	1.57	1.65	0.08	0.40	1.6	98.4

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT	Weston	JOB NO.	2066-03
BORING NO.	11+10	SAMPLED	Rocky Flats
DEPTH	36'	DATE TESTED	02-24-92 TNU/
SAMPLE NO.	#4	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

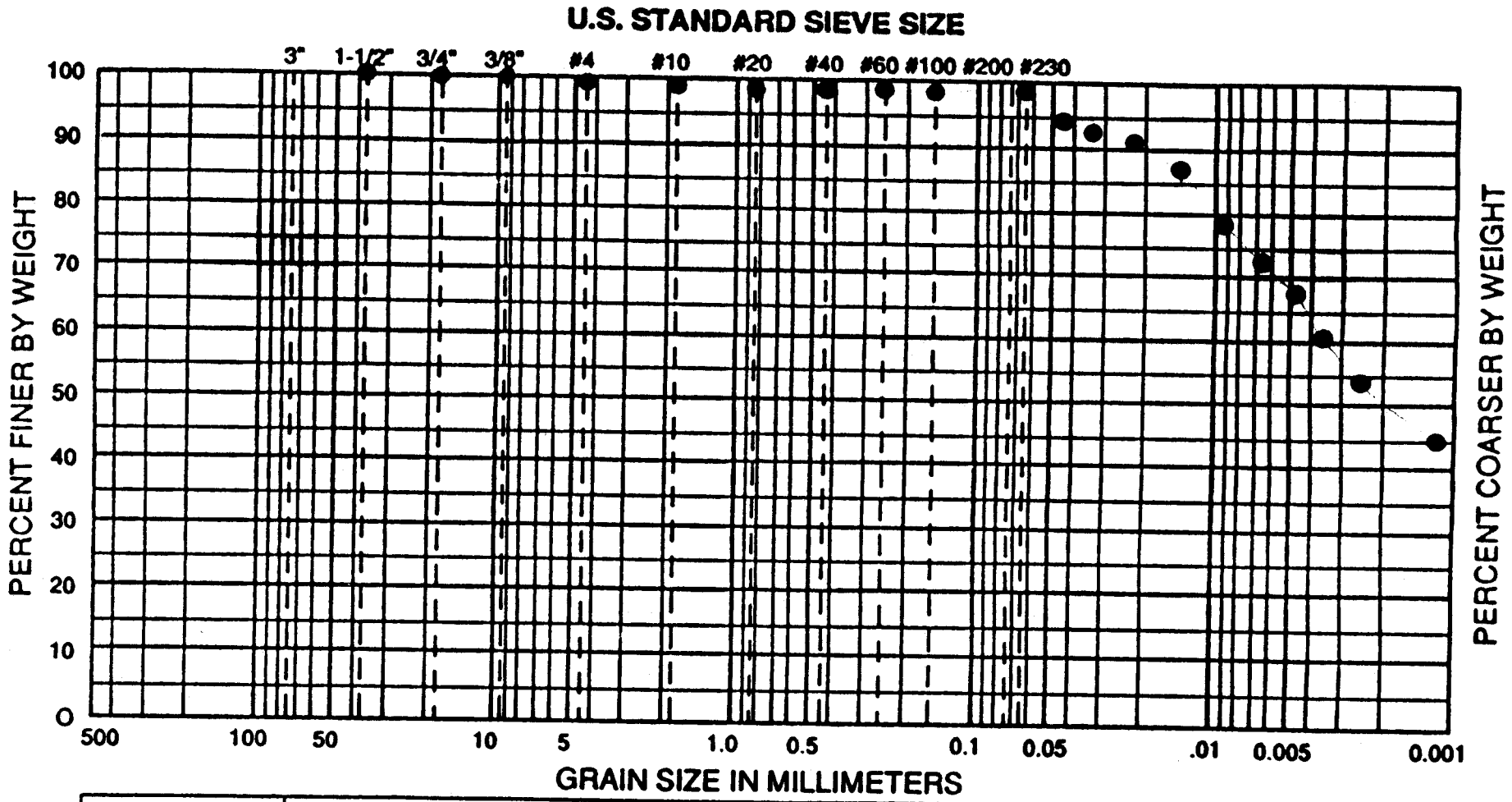
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.78	Temp. Coef. K	0.01278
Value of "a"	0.97	Wt. Dry Sample "W"	58.271
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	3.5		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	61.00	56.50	94.4	94.4	6.29	0.0453
1.0	60.00	55.50	92.8	92.8	6.45	0.0325
2.0	59.00	54.50	91.1	91.1	6.61	0.0232
5.0	56.50	52.00	86.9	86.9	7.02	0.0151
15.0	51.50	47.00	78.6	78.6	7.84	0.0092
30.0	48.00	43.50	72.7	72.7	8.42	0.0068
60.0	44.50	40.00	66.9	66.9	8.99	0.0049
120.0	40.50	36.00	60.2	60.2	9.65	0.0036
250.0	37.00	32.50	54.3	54.3	10.22	0.0026
1440.0	31.50	27.00	45.1	45.1	11.12	0.0011

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL			SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 11+00 SAMPLE NO.: #4 DATE: 3 MAR 92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
	@ 36 ft	Rocky FLATS

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 6066-03

CLIENT/OWNER Weston

LOCATION Rocky Flats EG+G

BORING 1+10 SAMPLE CH #4 DEPTH 36'

FIELD DENSITY BY _____

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD [redacted]

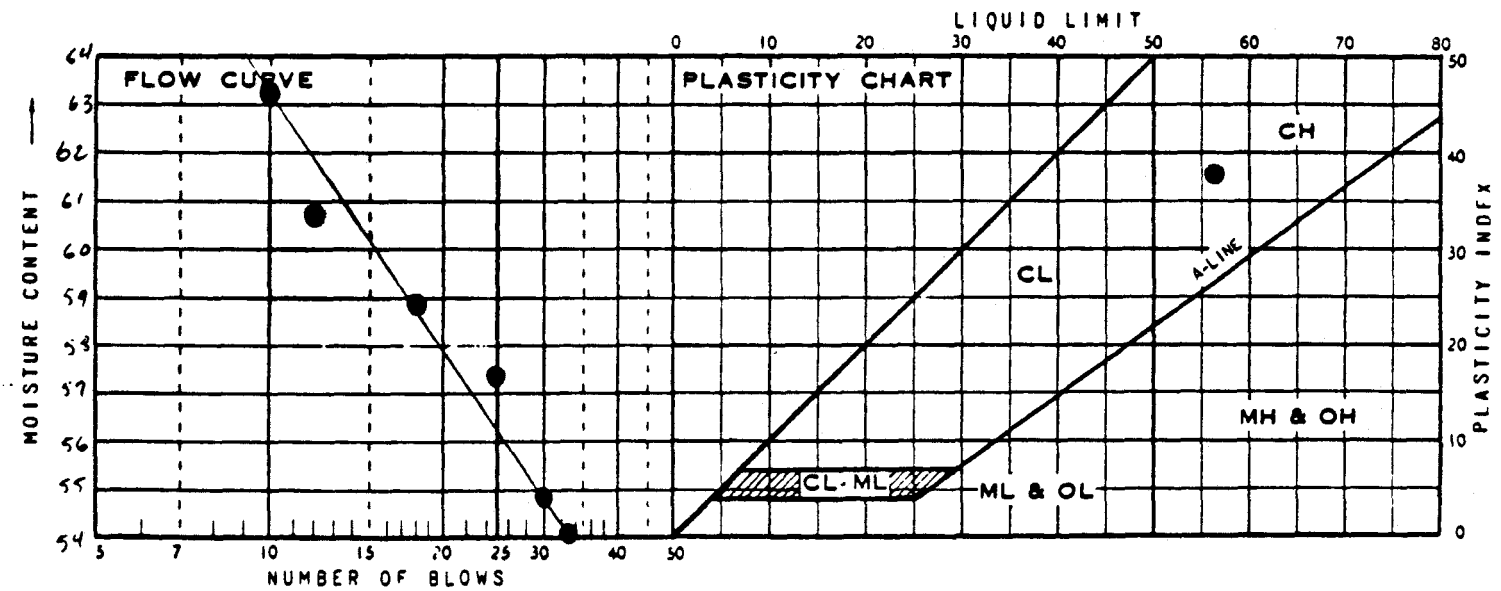
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY DH 7/26/92

DETERMINATION	1	2	3	4	5	6
DISH	2061	2015	2025			
WT OF DISH + WET SOIL g	7.31	6.25	6.23			
WT OF DISH + DRY SOIL g	6.30	5.42	5.44	—	—	—
WT OF MOISTURE g	1.01	.83	.79			
WT OF DISH g	1.02	1.05	1.05	—	—	—
WT OF DRY SOIL g	5.28	4.37	4.39			
MOISTURE CONTENT %	19.1	19.0	18.0			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6	
DISH	40C	35C	37C	2053	2055	1C	201
NUMBER OF BLOWS	33	30	37	25	18	12	10
WT OF DISH + WET SOIL g	13.01	11.92	13.17	12.07	12.55	12.27	12.3
WT OF DISH + DRY SOIL g	8.81	8.06	8.81	8.05	8.28	8.03	8.
WT OF MOISTURE g	4.20	3.86	4.36	4.02	4.27	4.24	4.
WT OF DISH g	1.04	1.03	1.01	1.04	1.03	1.06	1.0
WT OF DRY SOIL g	7.77	7.03	7.80	7.01	7.25	6.97	7.2
MOISTURE CONTENT %	54.1	54.9	55.9	57.3	58.9	60.8	63.



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		56.3	18.7	37.6	CH	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	11+10	SAMPLED	Rocky Flats
DEPTH	44'	DATE TESTED	02-24-92 TNU/
SAMPLE NO.	#4	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	64.49
Wt. Dry Soil & Pan	(g)	61.82
Wt. Lost Moisture	(g)	2.67
Wt. of Pan Only	(g)	3.76
Wt. of Dry Soil	(g)	58.06
Moisture Content	%	4.6

Wt. Hydrom. Sample Wet (g)	60.00
Wt. Hydrom. Sample Dry (g)	57.36

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	497.19
Weight of + #10 Before Washing (g)	24.66
Weight of + #10 After Washing (g)	3.05
Weight of - #10 Wet (g)	472.53
Weight of - #10 Dry (g)	472.42
Wt. Total Sample Dry (g)	475.47
Calc. Wt. "W" (g)	57.73
Calc. Mass + #10	0.37

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	1.30	1.30	1.30	0.3	99.7
#10	0.00	1.75	1.75	3.05	0.6	99.4
#20	1.57	2.00	0.43	0.43	1.4	98.6
#40	1.57	2.24	0.67	1.10	2.5	97.5
#60	1.55	2.33	0.78	1.88	3.9	96.1
#100	1.56	2.67	1.11	2.99	5.8	94.2
#230	1.57	3.37	1.80	4.79	8.9	91.1

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	11+10	SAMPLED	Rocky Flats
DEPTH	44'	DATE TESTED	02-24-92 TNU/
SAMPLE NO.	#4	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	23.0
Sp. Gr. of Soil	2.75	Temp. Coef. K	0.01279
Value of "a"	0.98	Wt. Dry Sample "W"	57.732
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	3.5		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	55.50	51.00	86.6	86.6	7.19	0.0485
1.0	54.50	50.00	84.9	84.9	7.35	0.0347
2.0	53.00	48.50	82.3	82.3	7.60	0.0249
5.0	52.00	47.50	80.6	80.6	7.76	0.0159
15.0	50.00	45.50	77.2	77.2	8.09	0.0094
30.0	48.00	43.50	73.8	73.8	8.42	0.0068
60.0	46.00	41.50	70.4	70.4	8.75	0.0049
120.0	43.50	39.00	66.2	66.2	9.16	0.0035
250.0	41.00	36.50	62.0	62.0	9.57	0.0025
1440.0	34.00	29.50	50.1	50.1	10.71	0.0011

Grain Diameter = K*(SQRT(L/T))

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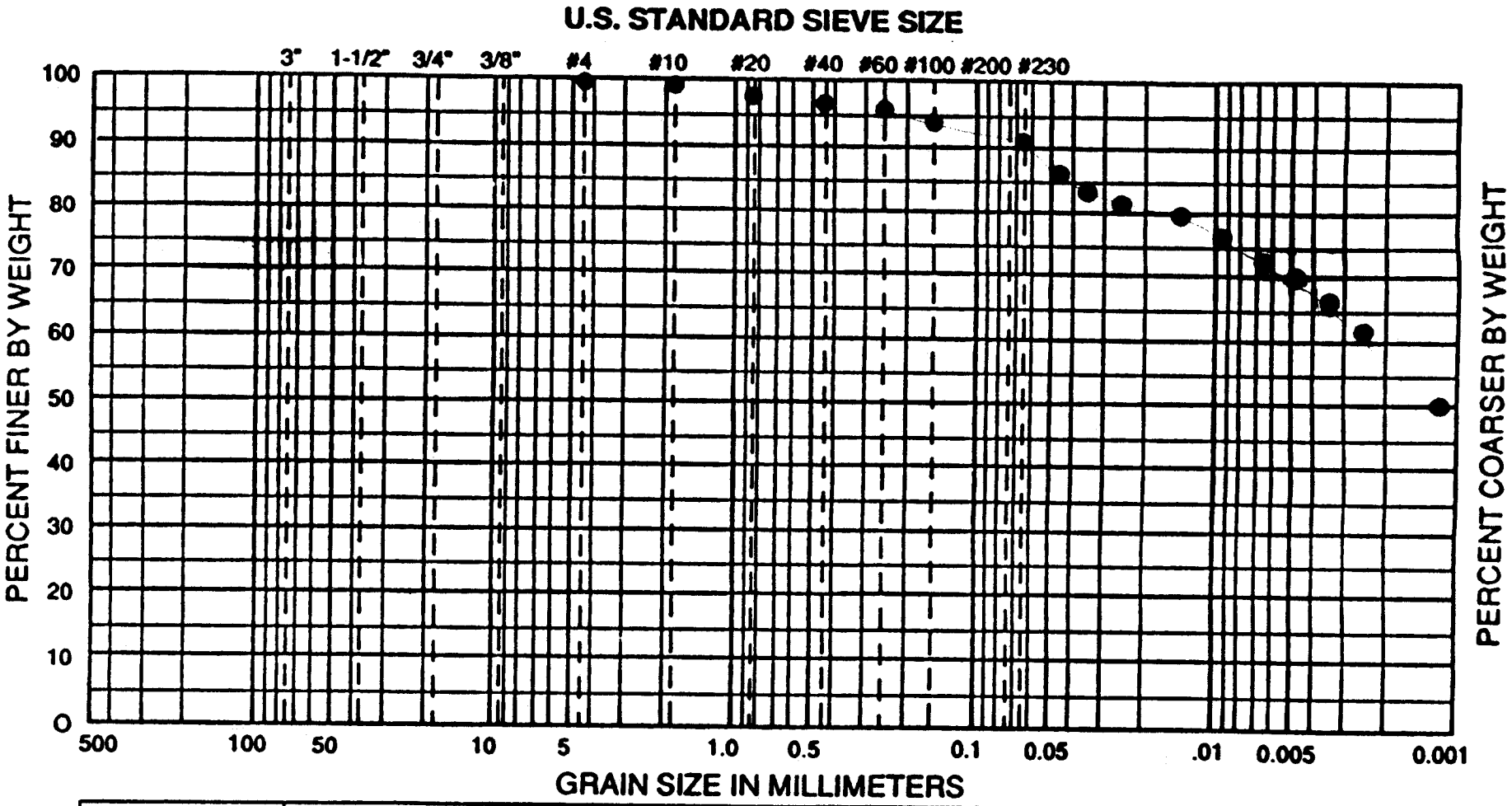


USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 11+00 SAMPLE NO.: #4 DATE: 3-2-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION (Clay (CH))
Rocky Flats	44.0'	

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03
CLIENT/OWNER Weston
LOCATION Rocky Flats EG+G
BORING 11-10 SAMPLE CH #4 DEPTH 44'

FIELD DENSITY BY ____/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

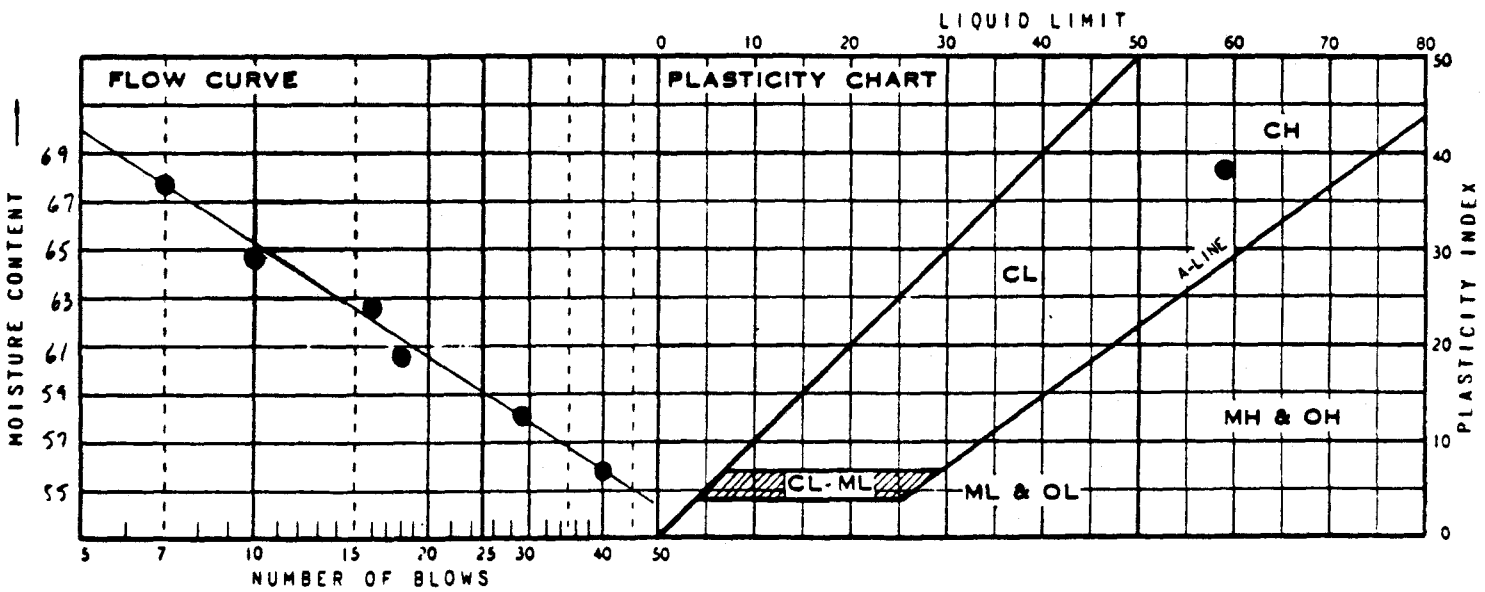
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY DH 2/26/92

DETERMINATION	1	2	3	4	5	6
DISH	20C	2057	2037			
WT OF DISH + WET SOIL g	5.66g	6.71g	6.19g			
WT OF DISH + DRY SOIL g	4.85	5.74	5.33	—	—	—
WT OF MOISTURE g	.81	.97	.86			
WT OF DISH g	1.02	1.04	1.04	—	—	—
WT OF DRY SOIL g	3.33	4.70	4.29			
MOISTURE CONTENT %	21.1	20.6	20.0			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2044	2011	2012	2026	2043	2045
NUMBER OF BLOWS	40	29	18	16	10	7
WT OF DISH + WET SOIL g	12.77	10.74	11.79	12.41	12.23	11.22
WT OF DISH + DRY SOIL g	8.57	7.17	7.73	8.03	7.84	7.12
WT OF MOISTURE g	4.20	3.57	4.06	4.38	4.39	4.10
WT OF DISH g	1.05	1.05	1.04	1.04	1.06	1.06
WT OF DRY SOIL g	7.52	6.12	6.69	6.99	6.78	6.06
MOISTURE CONTENT %	55.9	58.3	60.7	62.7	64.7	67.7



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		[illegible]	20.6	38.5	CH	

ADVANCED TERRA TESTING INC

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	11+10	SAMPLED	Rocky Flats
DEPTH	49'	DATE TESTED	02-24-92 TNU/
SAMPLE NO.	#4	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar) BR	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	60.36
Wt. Dry Soil & Pan	(g)	56.92
Wt. Lost Moisture	(g)	3.44
Wt. of Pan Only	(g)	3.69
Wt. of Dry Soil	(g)	53.23
Moisture Content	%	6.5

Wt. Hydrom. Sample Wet (g)	60.00
Wt. Hydrom. Sample Dry (g)	56.36

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	60.00
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	60.00
Weight of - #10 Dry (g)	56.36
Wt. Total Sample Dry (g)	56.36
Calc. Wt. "W" (g)	56.36
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	1.57	1.58	0.01	0.01	0.0	100.0
#40	1.56	1.57	0.01	0.02	0.0	100.0
#60	1.57	1.58	0.01	0.03	0.1	99.9
#100	1.30	1.31	0.01	0.04	0.1	99.9
#230	1.57	1.60	0.03	0.07	0.1	99.9

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston** JOB NO. 2066-03

BORING NO.	11+10	SAMPLED	Rocky Flats
DEPTH	49'	DATE TESTED	02-24-92 TNU/
SAMPLE NO.	#4	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

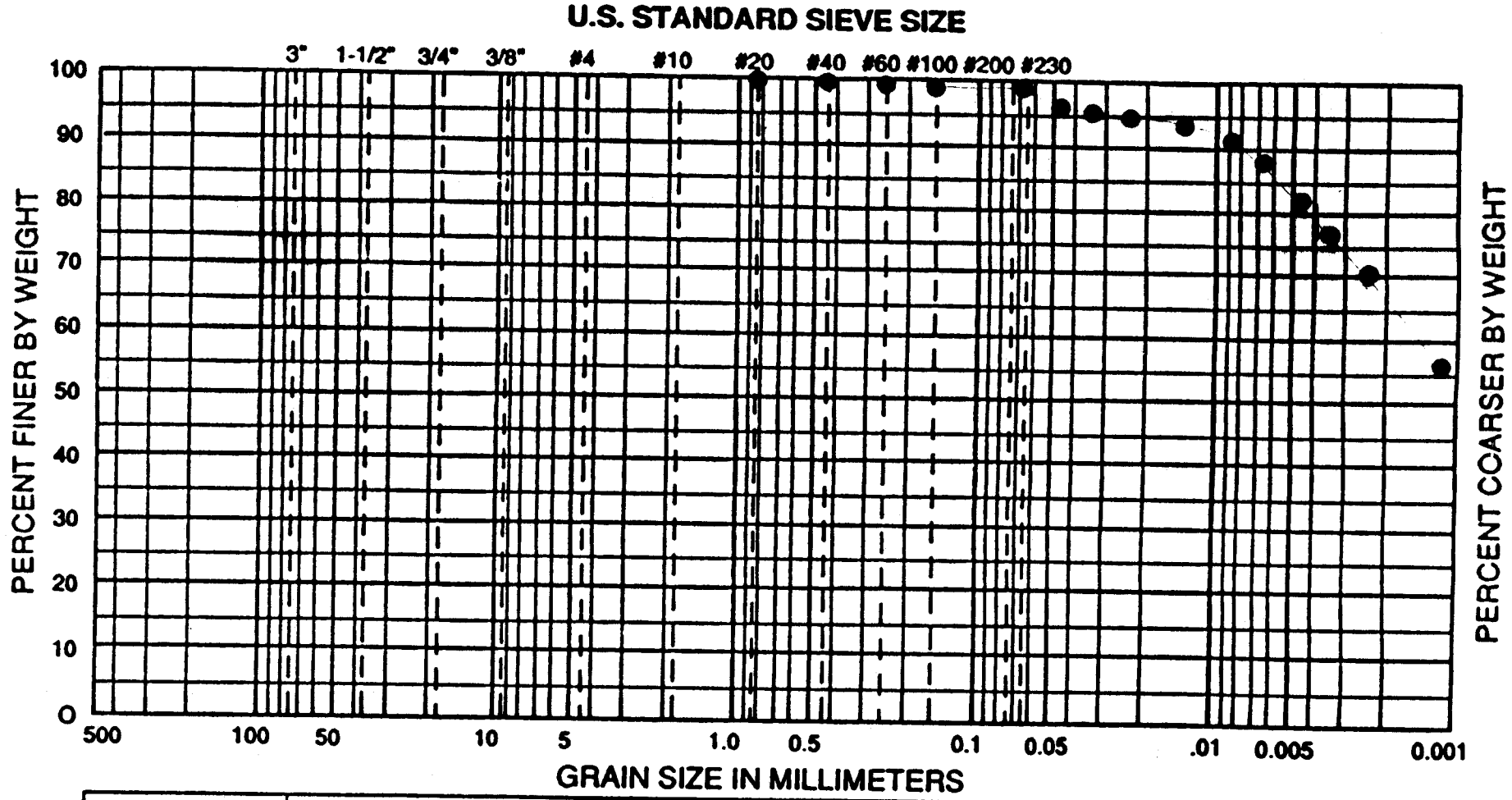
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.75	Temp. Coef. K	0.01294
Value of "a"	0.98	Wt. Dry Sample "W"	56.358
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	3.5		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	60.00	55.50	96.5	96.5	6.45	0.0465
1.0	59.75	55.25	96.1	96.1	6.49	0.0330
2.0	59.50	55.00	95.6	95.6	6.53	0.0234
5.0	59.00	54.50	94.8	94.8	6.61	0.0149
15.0	57.00	52.50	91.3	91.3	6.94	0.0088
30.0	55.50	51.00	88.7	88.7	7.19	0.0063
60.0	52.50	48.00	83.5	83.5	7.68	0.0046
120.0	49.00	44.50	77.4	77.4	8.25	0.0034
250.0	45.50	41.00	71.3	71.3	8.83	0.0024
1440.0	37.00	32.50	56.5	56.5	10.22	0.0011

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 11+00 SAMPLE NO.: #4 DATE: 3-2-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION Silty Claystone
Rocky Flats	49.0'	

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

CLIENT/OWNER WESTON

LOCATION _____

BORING 11+10 SAMPLE ____ DEPTH 49'

FIELD DENSITY BY ____/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD → [redacted]

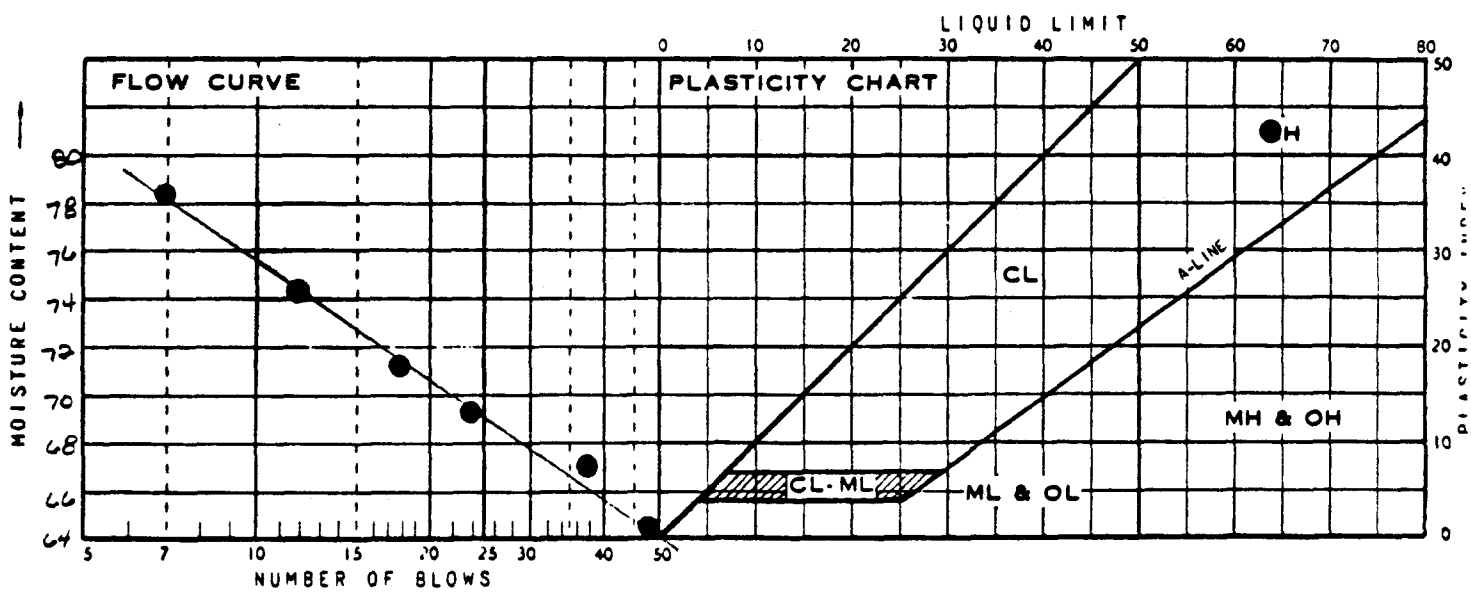
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY SR.2.125/92.

DETERMINATION	1	2	3	4	5	6
DISH	2070	2069	2018			
WT OF DISH + WET SOIL g	5.60	5.91	6.59			
WT OF DISH + DRY SOIL g	4.66	4.91	5.46	—	—	—
WT OF MOISTURE g	.94	1.00	1.13			
WT OF DISH g	1.05	1.03	1.05	—	—	—
WT OF DRY SOIL g	3.61	3.88	4.41			
MOISTURE CONTENT %	26.0	25.8	25.6			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2001	2004	2039	2014	31 C	2003
NUMBER OF BLOWS	49	38	24	18	12	8±
WT OF DISH + WET SOIL g	16.69	16.46	16.61	20.58	16.39	15.88
WT OF DISH + DRY SOIL g	10.56	10.27	10.23	12.45	9.85	9.35
WT OF MOISTURE g	6.13	6.19	6.38	8.13	6.54	6.53
WT OF DISH g	1.06	1.04	1.05	1.07	1.04	1.03
WT OF DRY SOIL g	9.50	9.23	9.18	11.38	8.81	8.32
MOISTURE CONTENT %	64.5	67.1	69.5	71.4	74.2	78.5



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		[illegible]	[illegible]	[illegible]	CH	

ADVANCED TERRA TESTING inc

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	11+25	SAMPLED	Rocky Flats
DEPTH	50'	DATE TESTED	02-24-92 TNU/
SAMPLE NO.	#5	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	54.34
Wt. Dry Soil & Pan	(g)	53.51
Wt. Lost Moisture	(g)	0.83
Wt. of Pan Only	(g)	3.70
Wt. of Dry Soil	(g)	49.81
Moisture Content	%	1.7

Wt. Hydrom. Sample Wet (g)	60.00
Wt. Hydrom. Sample Dry (g)	59.02

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	60.00
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	60.00
Weight of - #10 Dry (g)	59.02
Wt. Total Sample Dry (g)	59.02
Calc. Wt. "W" (g)	59.02
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	1.57	1.58	0.01	0.01	0.0	100.0
#40	1.55	1.56	0.01	0.02	0.0	100.0
#60	1.56	1.62	0.06	0.08	0.1	99.9
#100	1.56	1.80	0.24	0.32	0.5	99.5
#230	1.56	35.98	34.42	34.74	58.9	41.1

SILTY SANDSTONE w/ [illegible]

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	11+25	SAMPLED	Rocky Flats
DEPTH	50'	DATE TESTED	02-24-92 TNU
SAMPLE NO.	#5	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

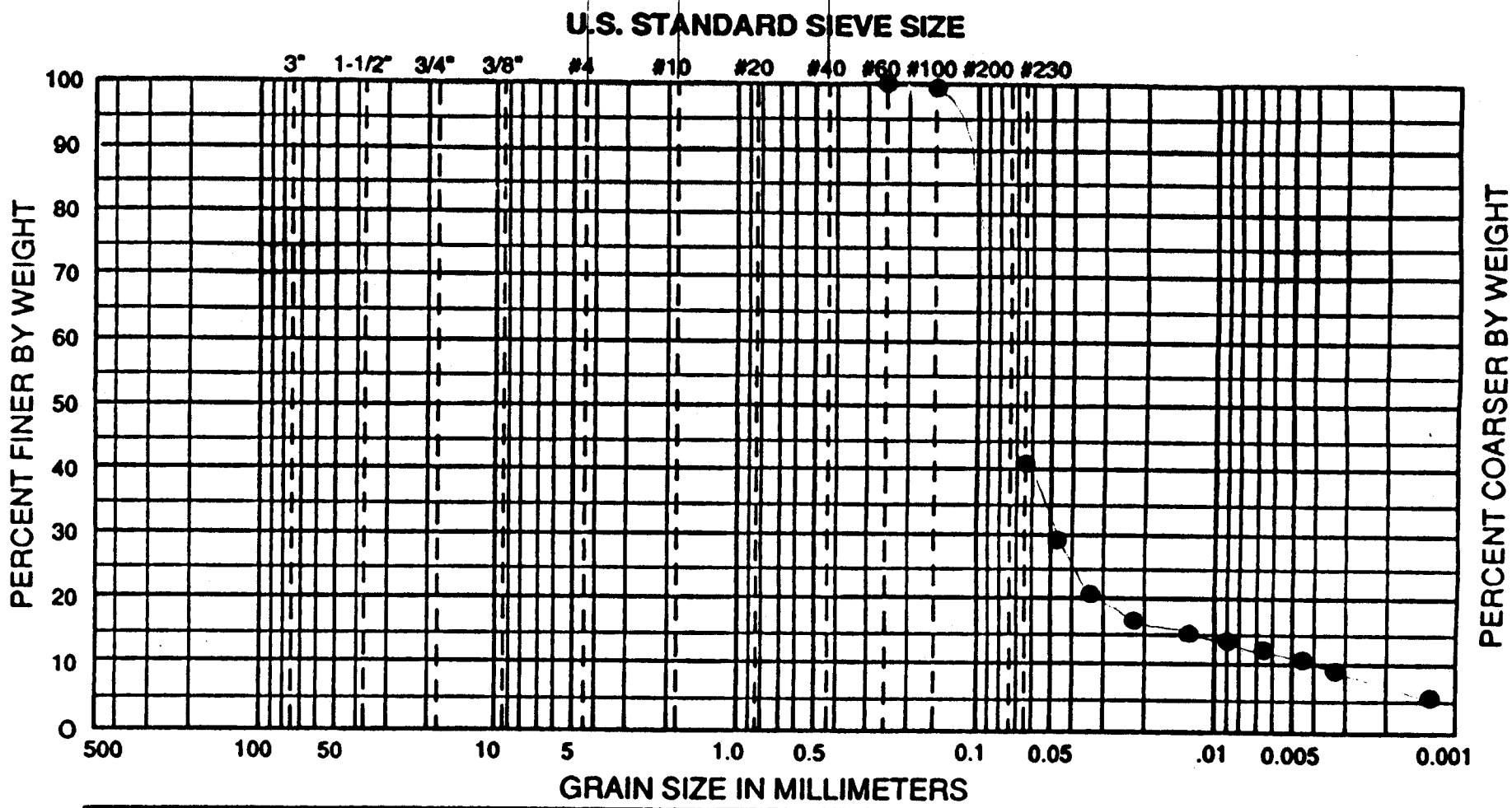
Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.69	Temp. Coef. K	0.01332
Value of "a"	0.99	Wt. Dry Sample "W"	59.017
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	6.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	34.50	27.50	46.2	46.2	10.63	0.0614
1.0	24.00	17.00	28.6	28.6	12.35	0.0468
2.0	19.50	12.50	21.0	21.0	13.09	0.0341
5.0	17.00	10.00	16.8	16.8	13.50	0.0219
15.0	16.00	9.00	15.1	15.1	13.67	0.0127
30.0	15.50	8.50	14.3	14.3	13.75	0.0090
60.0	14.50	7.50	12.6	12.6	13.91	0.0064
120.0	13.50	6.50	10.9	10.9	14.08	0.0046
250.0	12.50	5.50	9.2	9.2	14.24	0.0032
1440.0	10.50	3.50	5.9	5.9	14.57	0.0013

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 11+25 SAMPLE NO.: 5 DATE: 3/3/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	50'	1% m sd, 59% f sand, 30.1% SILT, 11% CLAY

ATTERBERG LIMITS TEST DATA

JOB NO. 2060-03

FIELD CLASSIFICATION _____

CLIENT/OWNER WESTON

LOCATION Rocky Flats EG&G

LABORATORY CLASSIFICATION _____

BORING U#25 SAMPLE 5 DEPTH @ 50'

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD [redacted]

DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

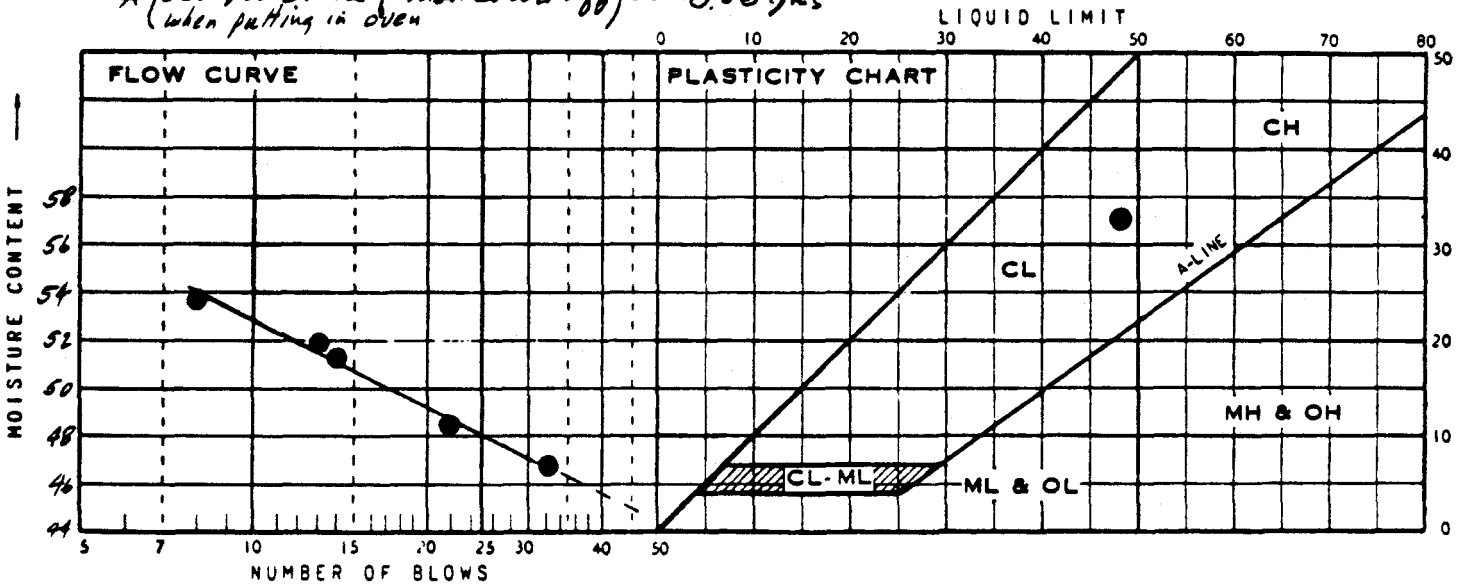
PLASTIC LIMIT BY [illegible] 2/28/92

DETERMINATION	1	2	3	4	5	6
DISH	2011	2010	2095			
WT OF DISH + WET SOIL g	6.04	7.00	6.16			
WT OF DISH + DRY SOIL g	5.41	6.19	5.48	—	—	—
WT OF MOISTURE g	0.63	.81	.68			
WT OF DISH g	1.05	1.05	1.05	—	—	—
WT OF DRY SOIL g	4.36	5.14	4.43	~~2+3=31.11/2 = 15.55~~		
MOISTURE CONTENT %	14.45	15.76	15.35	= 45.56/15.19		

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	? 6 *	A
DISH	1C	2057	2043	2053	40C	2061	20
NUMBER OF BLOWS	32	31+	22	14	13	9	8
WT OF DISH + WET SOIL g	10.40	11.31	10.68	10.77	10.17	11.47	9.
WT OF DISH + DRY SOIL g	7.42	8.03	7.54	7.47	7.05	7.70	6.
WT OF MOISTURE g	2.98	3.28	3.14	3.30	3.12	3.77	3.
WT OF DISH g	1.05	1.04	1.05	1.04	1.04	1.01	1.
WT OF DRY SOIL g	6.37	6.99	6.49	6.43	6.01	6.69	5.
MOISTURE CONTENT %	46.8	46.9	48.4	51.3	51.9	56.4	55

* (Scraped some of material off) ~ 0.30 gms
(when putting in oven



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		48.1	15.2	32.9	CL	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	11+12	SAMPLED	Rocky Flats
DEPTH	52'	DATE TESTED	02-24-92 TNU/
SAMPLE NO.	#5	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes
NATURAL	No

Wt. Wet Soil & Pan	(g)	51.62
Wt. Dry Soil & Pan	(g)	50.05
Wt. Lost Moisture	(g)	1.57
Wt. of Pan Only	(g)	3.73
Wt. of Dry Soil	(g)	46.32
Moisture Content	%	3.4

Wt. Hydrom. Sample Wet (g)	60.00
Wt. Hydrom. Sample Dry (g)	58.03

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	60.00
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	60.00
Weight of - #10 Dry (g)	58.03
Wt. Total Sample Dry (g)	58.03
Calc. Wt. "W" (g)	58.03
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	1.56	1.58	0.02	0.02	0.0	100.0
#40	1.57	1.58	0.01	0.03	0.1	99.9
#60	1.57	1.58	0.00	0.03	0.1	99.9
#100	1.57	1.64	0.07	0.10	0.2	99.8
#230	1.59	10.77	9.18	9.29	16.0	84.0

Silt, Clay (ML)

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT	Weston	JOB NO.	2066-03
BORING NO.	11+12	SAMPLED	Rocky Flats
DEPTH	52'	DATE TESTED	02-24-92 TNU
SAMPLE NO.	#5	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

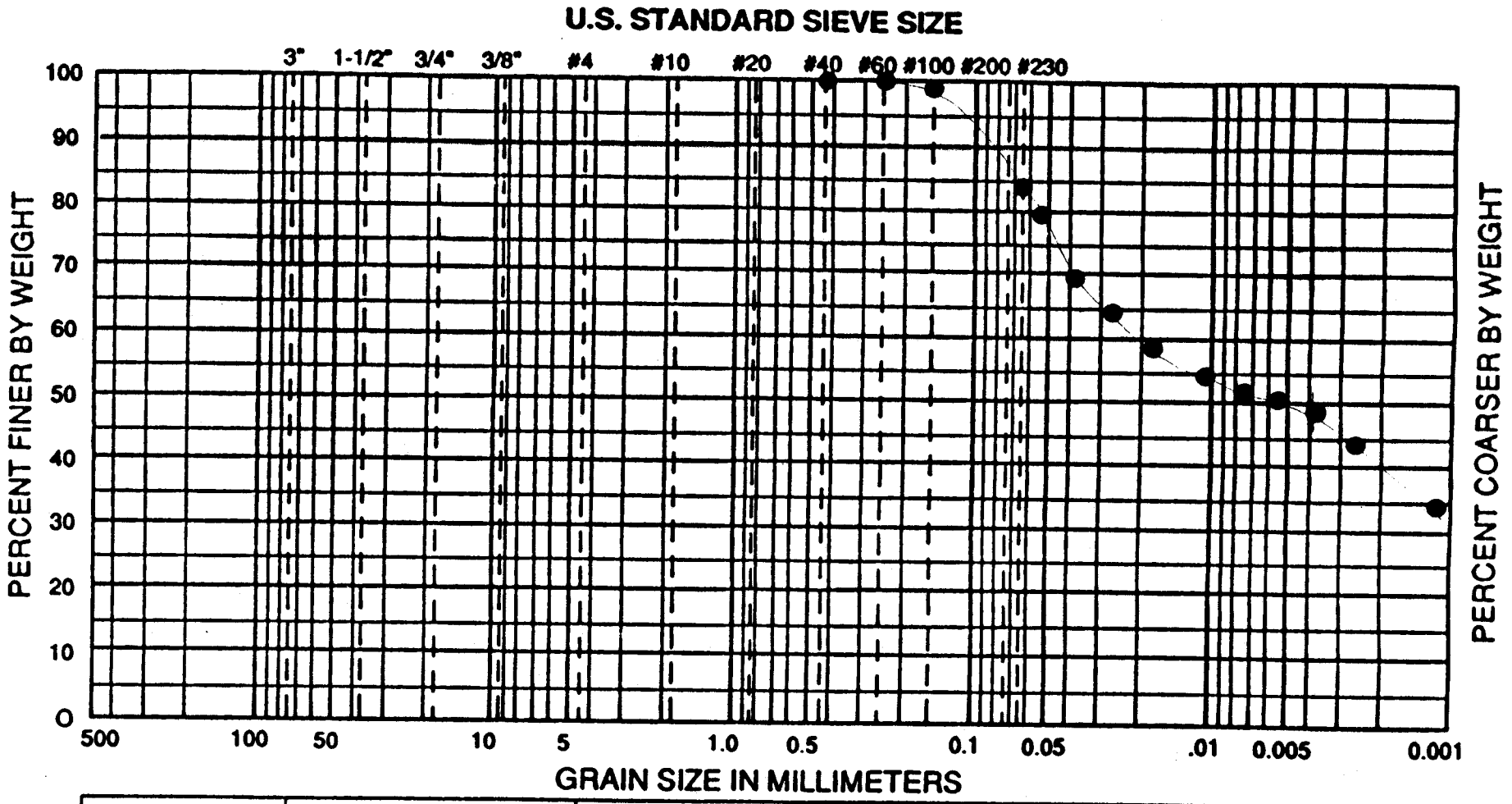
Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.70	Temp. Coef. K	0.01328
Value of "a"	0.99	Wt. Dry Sample "W"	58.033
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	6.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	53.00	46.00	78.5	78.5	7.60	0.0518
1.0	47.50	40.50	69.1	69.1	8.50	0.0387
2.0	44.50	37.50	64.0	64.0	8.99	0.0282
5.0	41.00	34.00	58.0	58.0	9.57	0.0184
15.0	38.50	31.50	53.7	53.7	9.98	0.0108
30.0	37.50	30.50	52.0	52.0	10.14	0.0077
60.0	37.00	30.00	51.2	51.2	10.22	0.0055
120.0	35.00	28.00	47.8	47.8	10.55	0.0039
250.0	32.50	25.50	43.5	43.5	10.96	0.0028
1440.0	27.00	20.00	34.1	34.1	11.86	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 11+12 SAMPLE NO.: 5 DATE: 3/3/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	52'	SILT, CLAYSTONE

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. _____

CLIENT/OWNER Weston

LOCATION _____

BORING U-12 SAMPLE CH #5 DEPTH 52'

FIELD DENSITY BY ____/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

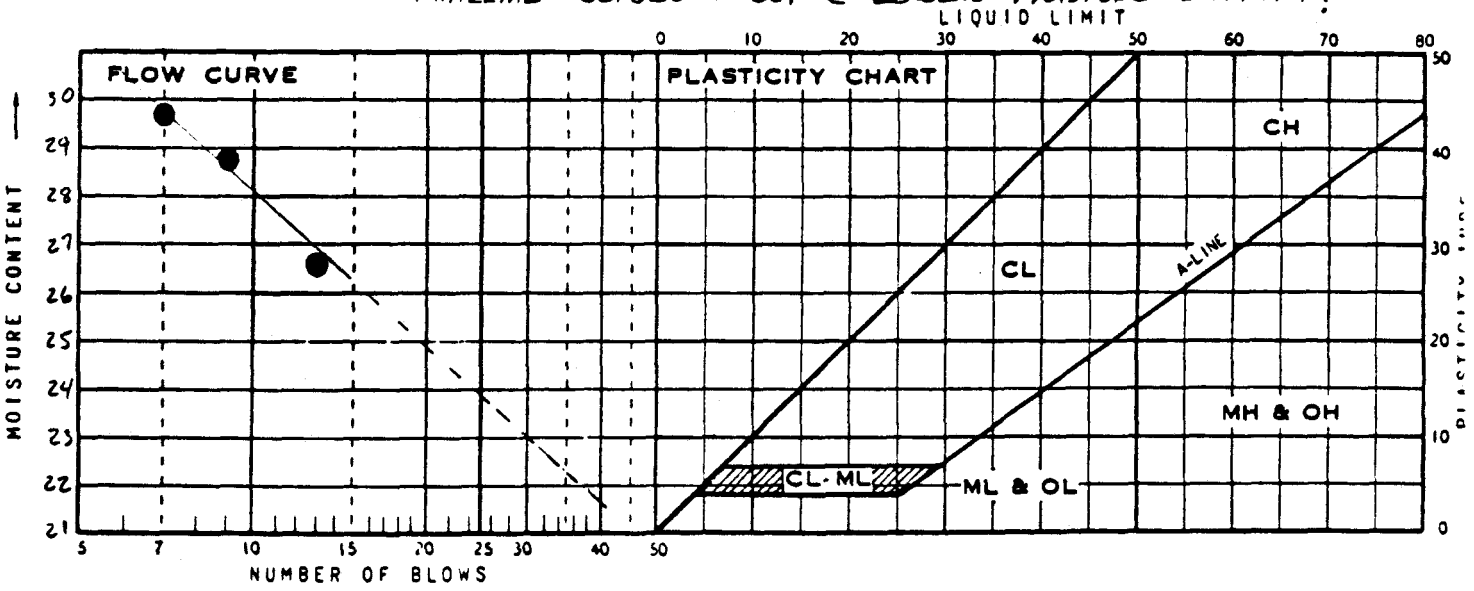
PLASTIC LIMIT BY GW 2/27/92

DETERMINATION	1	2	3	4	5	6
DISH	NON-PLASTIC					
WT OF DISH + WET SOIL						
WT OF DISH + DRY SOIL	—	—	—	—	—	—
WT OF MOISTURE						
WT OF DISH	—	—	—	—	—	—
WT OF DRY SOIL						
MOISTURE CONTENT						

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2016	32C	25C			
NUMBER OF BLOWS	13	9	7			
WT OF DISH + WET SOIL	23.84 g	27.43 g	26.20 g			
WT OF DISH + DRY SOIL	19.03 g	21.52 g	20.44 g	—	—	—
WT OF MOISTURE	4.81	5.91	5.76			
WT OF DISH	1.04 g	1.02 g	1.05 g	—	—	—
WT OF DRY SOIL	17.99	20.58	19.39			
MOISTURE CONTENT	26.7	28.8	29.7			

MATERIAL SLIDES IN CUP @ LOWER MOISTURE CONTENT!



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		23.8 (EST.)			NP	

ADVANCED TERRA TESTING INC

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	11+25	SAMPLED	Rocky Flats
DEPTH	34'	DATE TESTED	02-24-92 TNU/
SAMPLE NO.	#5	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	61.53
Wt. Dry Soil & Pan	(g)	57.96
Wt. Lost Moisture	(g)	3.57
Wt. of Pan Only	(g)	3.86
Wt. of Dry Soil	(g)	54.10
Moisture Content	%	6.6

Wt. Hydrom. Sample Wet (g)	60.00
Wt. Hydrom. Sample Dry (g)	56.29

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	528.94
Weight of + #10 Before Washing (g)	48.43
Weight of + #10 After Washing (g)	6.00
Weight of - #10 Wet (g)	480.51
Weight of - #10 Dry (g)	490.57
Wt. Total Sample Dry (g)	496.57
Calc. Wt. "W" (g)	56.97
Calc. Mass + #10	0.69

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	3.11	3.11	3.11	0.6	99.4
#4	0.00	1.51	1.51	4.62	0.9	99.1
#10	0.00	1.38	1.38	6.00	1.2	98.8
#20	1.56	1.77	0.21	0.21	1.6	98.4
#40	1.56	1.90	0.34	0.55	2.2	97.8
#60	1.56	2.08	0.52	1.07	3.1	96.9
#100	1.56	2.37	0.81	1.88	4.5	95.5
#230	1.57	2.69	1.12	3.00	6.5	93.5

Silty Clay (CL)

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	11+25	SAMPLED	Rocky Flats
DEPTH	34'	DATE TESTED	02-24-92 TNU,
SAMPLE NO.	#5	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

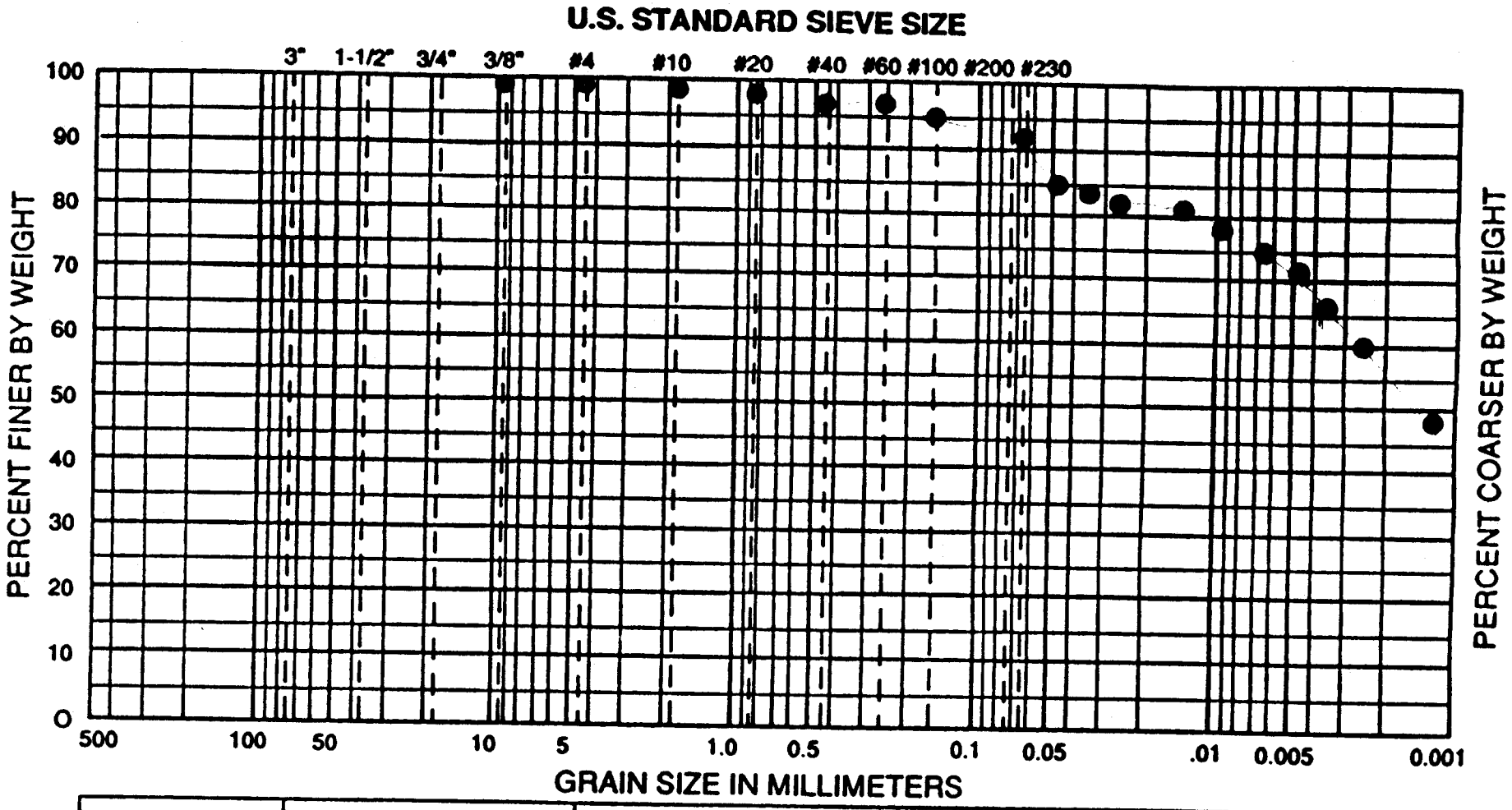
Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.79	Temp. Coef. K	0.01295
Value of "a"	0.97	Wt. Dry Sample "W"	56.974
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	6.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	57.00	50.00	85.3	85.3	6.94	0.0483
1.0	56.50	49.50	84.4	84.4	7.02	0.0343
2.0	55.50	48.50	82.7	82.7	7.19	0.0246
5.0	55.00	48.00	81.9	81.9	7.27	0.0156
15.0	53.00	46.00	78.5	78.5	7.60	0.0092
30.0	51.00	44.00	75.1	75.1	7.93	0.0067
60.0	49.00	42.00	71.7	71.7	8.25	0.0048
120.0	46.00	39.00	66.5	66.5	8.75	0.0035
250.0	42.50	35.50	60.6	60.6	9.32	0.0025
1440.0	35.50	28.50	48.6	48.6	10.47	0.0011

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 11+25 SAMPLE NO.: #5 DATE: 3-4-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
	34.0'	Rocky Flats [illegible] w/ TR [illegible]

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER Weston

LOCATION Rocky Flats EG+G

BORING 11-25 SAMPLE CH #5 DEPTH 34'

FIELD DENSITY BY ____/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

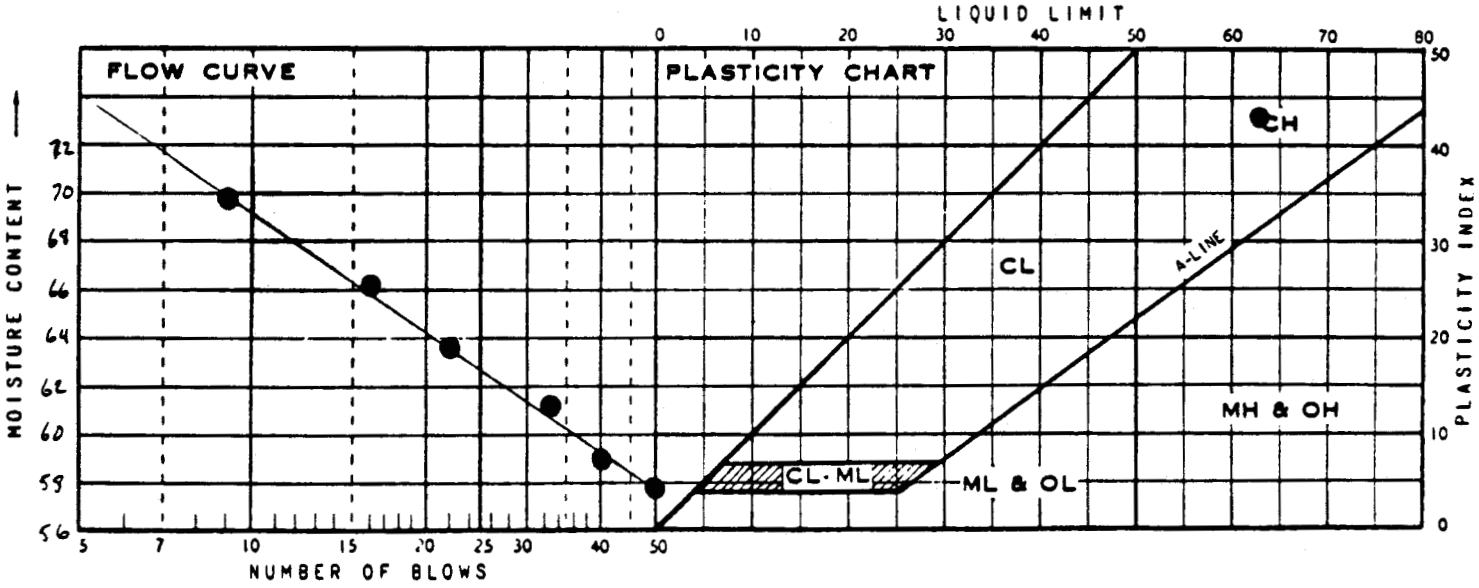
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY DM 2/25/92

DETERMINATION	1	2	3	4	5	6
DISH	20C	2026	2012			
WT OF DISH + WET SOIL g	4.98	6.35	6.18			
WT OF DISH + DRY SOIL g	4.31	5.45	5.35	—	—	—
WT OF MOISTURE g	.67	.90	.83			
WT OF DISH g	1.03	1.04	1.05	—	—	—
WT OF DRY SOIL g	3.28	4.41	4.30			
MOISTURE CONTENT %	20.4	20.4	19.3			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2004	2025	2015	35C	37C	2055
NUMBER OF BLOWS	50	40	33	22	16	9
WT OF DISH + WET SOIL g	11.99	12.56	11.63	12.06	11.62	12.16
WT OF DISH + DRY SOIL g	7.97	8.29	7.61	7.77	7.40	7.59
WT OF MOISTURE g	4.01	4.27	4.02	4.29	4.22	4.57
WT OF DISH g	1.05	1.05	1.05	1.05	1.03	1.05
WT OF DRY SOIL g	6.92	7.24	6.56	6.72	6.37	6.54
MOISTURE CONTENT %	57.9	59.0	61.3	63.8	66.2	69.9



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		62.7	20.0	42.7	CH	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	11+25	SAMPLED	Rocky Flats
DEPTH	43'	DATE TESTED	02-24-92 TNU,
SAMPLE NO.	#5	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	51.12
Wt. Dry Soil & Pan	(g)	50.12
Wt. Lost Moisture	(g)	1.00
Wt. of Pan Only	(g)	3.70
Wt. of Dry Soil	(g)	46.42
Moisture Content	%	2.2

Wt. Hydrom. Sample Wet (g)	60.00
Wt. Hydrom. Sample Dry (g)	58.73

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	60.00
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	60.00
Weight of - #10 Dry (g)	58.73
Wt. Total Sample Dry (g)	58.73
Calc. Wt. "W" (g)	58.73
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	1.32	1.33	0.01	0.01	0.0	100.0
#40	1.31	1.32	0.01	0.02	0.0	100.0
#60	1.32	1.33	0.01	0.03	0.1	99.9
#100	1.30	2.10	0.80	0.83	1.4	98.6
#230	1.56	20.28	18.72	19.55	33.3	66.7

Sand, S. [illegible] (C[illegible])

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston** JOB NO. 2066-03

BORING NO.	11+25	SAMPLED	Rocky Flats
DEPTH	43'	DATE TESTED	02-24-92 TNU/
SAMPLE NO.	#5	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

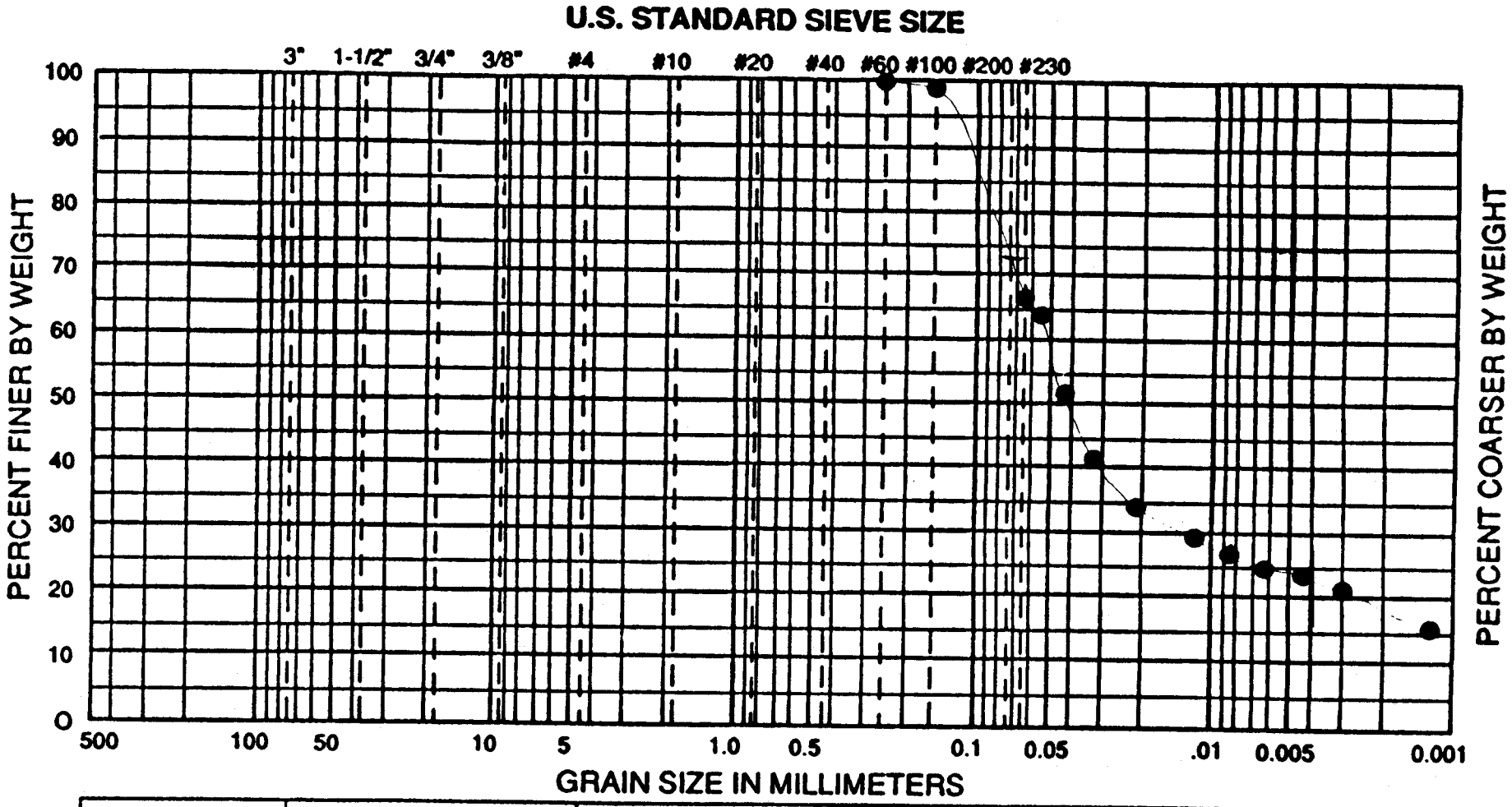
Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.69	Temp. Coef. K	0.01332
Value of "a"	0.99	Wt. Dry Sample "W"	58.735
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	6.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	45.00	38.00	64.2	64.2	8.91	0.0562
1.0	37.50	30.50	51.5	51.5	10.14	0.0424
2.0	31.00	24.00	40.5	40.5	11.21	0.0315
5.0	27.00	20.00	33.8	33.8	11.86	0.0205
15.0	24.00	17.00	28.7	28.7	12.35	0.0121
30.0	23.00	16.00	27.0	27.0	12.52	0.0086
60.0	22.00	15.00	25.3	25.3	12.68	0.0061
120.0	21.00	14.00	23.6	23.6	12.85	0.0044
250.0	19.50	12.50	21.1	21.1	13.09	0.0030
1440.0	16.50	9.50	16.0	16.0	13.58	0.0013

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL			SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 11+25 SAMPLE NO.: 5 DATE: 3/3/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION SANDY CLAYEY SILTSTONE
Rocky Flats	43'	27% F Sand, 50% Silt, 23

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER Weston

LOCATION Rocky Flats EG+G

BORING 11+25 SAMPLE CH #5 DEPTH 43'

FIELD DENSITY BY ...../../..

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

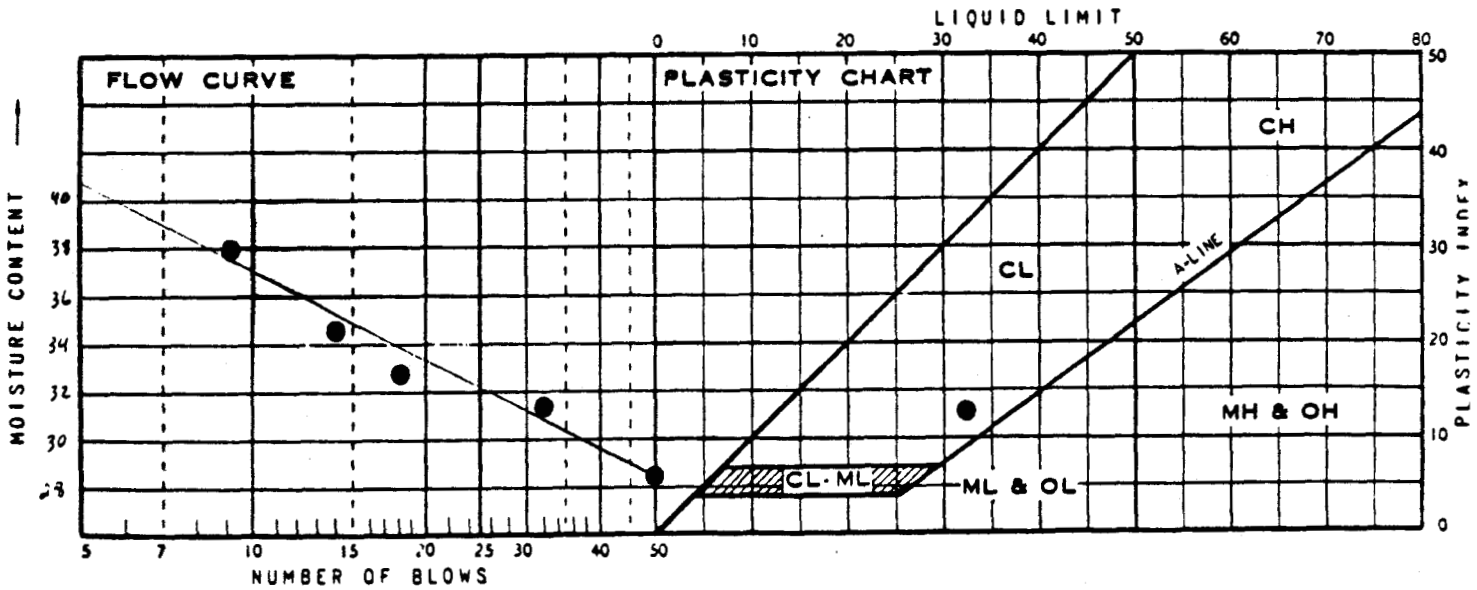
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY JW 2/26/92

DETERMINATION	1	2	3	4	5	6
DISH	27C	4C	3C			
WT OF DISH + WET SOIL g	8.33	8.54	8.37			
WT OF DISH + DRY SOIL g	7.12	7.33	7.23	—	—	—
WT OF MOISTURE g	1.21	1.21	1.14			
WT OF DISH g	1.03	1.04	1.04	—	—	—
WT OF DRY SOIL g	6.09	6.29	6.19			
MOISTURE CONTENT %	19.9	19.2	18.4			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2035	2072	42C	2031	2064	2058
NUMBER OF BLOWS	50*	27*	18	14	9	
WT OF DISH + WET SOIL g	11.67	15.89	14.62	14.97	13.78	
WT OF DISH + DRY SOIL g	9.31	12.34	11.26	11.39	10.27	—
WT OF MOISTURE g	2.36	3.55	3.36	3.58	3.51	
WT OF DISH g	1.04	1.03	1.03	1.04	1.03	1.02
WT OF DRY SOIL g	8.27	11.31	10.23	10.35	9.24	
MOISTURE CONTENT %	28.5	31.4	32.8	34.6	38.0	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		32.2	19.2	13.0	CL	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	11+50	SAMPLED	Rocky Flats
DEPTH	42'	DATE TESTED	02-24-92 TNU,
SAMPLE NO.	#5	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes
NATURAL	No

Wt. Wet Soil & Pan	(g)	57.73
Wt. Dry Soil & Pan	(g)	55.74
Wt. Lost Moisture	(g)	1.99
Wt. of Pan Only	(g)	3.55
Wt. of Dry Soil	(g)	52.19
Moisture Content	%	3.8

Wt. Hydrom. Sample Wet (g)	60.00
Wt. Hydrom. Sample Dry (g)	57.80

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	572.84
Weight of + #10 Before Washing (g)	201.39
Weight of + #10 After Washing (g)	184.61
Weight of - #10 Wet (g)	371.45
Weight of - #10 Dry (g)	373.97
Wt. Total Sample Dry (g)	558.58
Calc. Wt. "W" (g)	86.33
Calc. Mass + #10	28.53

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	84.26	84.26	84.26	15.1	84.9
3/8"	0.00	41.56	41.56	125.82	22.5	77.5
#4	0.00	32.55	32.55	158.37	28.4	71.6
#10	0.00	26.24	26.24	184.61	33.0	67.0
#20	1.56	5.47	3.91	3.91	37.6	62.4
#40	1.57	5.54	3.97	7.88	42.2	57.8
#60	1.57	4.96	3.39	11.27	46.1	53.9
#100	1.56	5.63	4.07	15.34	50.8	49.2
#230	1.32	7.11	5.79	21.13	57.5	42.5

Clay (CH)

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	11+50	SAMPLED	Rocky Flats
DEPTH	42'	DATE TESTED	02-24-92 TNU,
SAMPLE NO.	#5	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

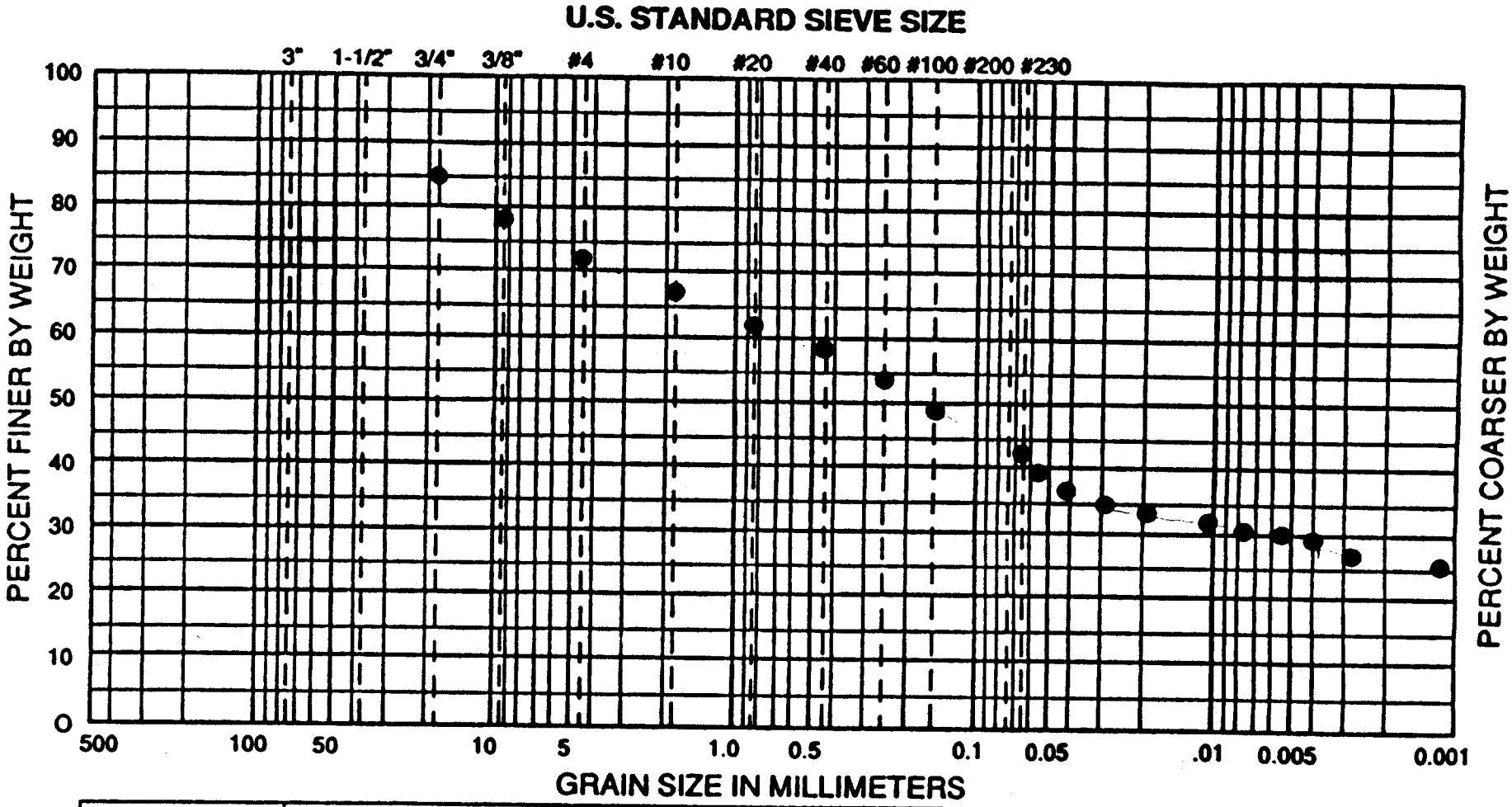
Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.73	Temp. Coef. K	0.01317
Value of "a"	0.98	Wt. Dry Sample "W"	86.327
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	6.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	41.50	34.50	39.3	39.3	9.48	0.0574
1.0	39.50	32.50	37.0	37.0	9.81	0.0413
2.0	38.75	31.75	36.2	36.2	9.94	0.0294
5.0	37.00	30.00	34.2	34.2	10.22	0.0188
15.0	36.00	29.00	33.1	33.1	10.39	0.0110
30.0	34.50	27.50	31.3	31.3	10.63	0.0078
60.0	34.00	27.00	30.8	30.8	10.71	0.0056
120.0	33.00	26.00	29.6	29.6	10.88	0.0040
250.0	31.00	24.00	27.4	27.4	11.21	0.0028
1440.0	30.00	23.00	26.2	26.2	11.37	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING INC



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 11+50 SAMPLE NO.: 5 DATE: 3/4/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	42'	

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER Weston

LOCATION Rocky Flats EG+G

BORING 11+50 SAMPLE CH #5 DEPTH 42'

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

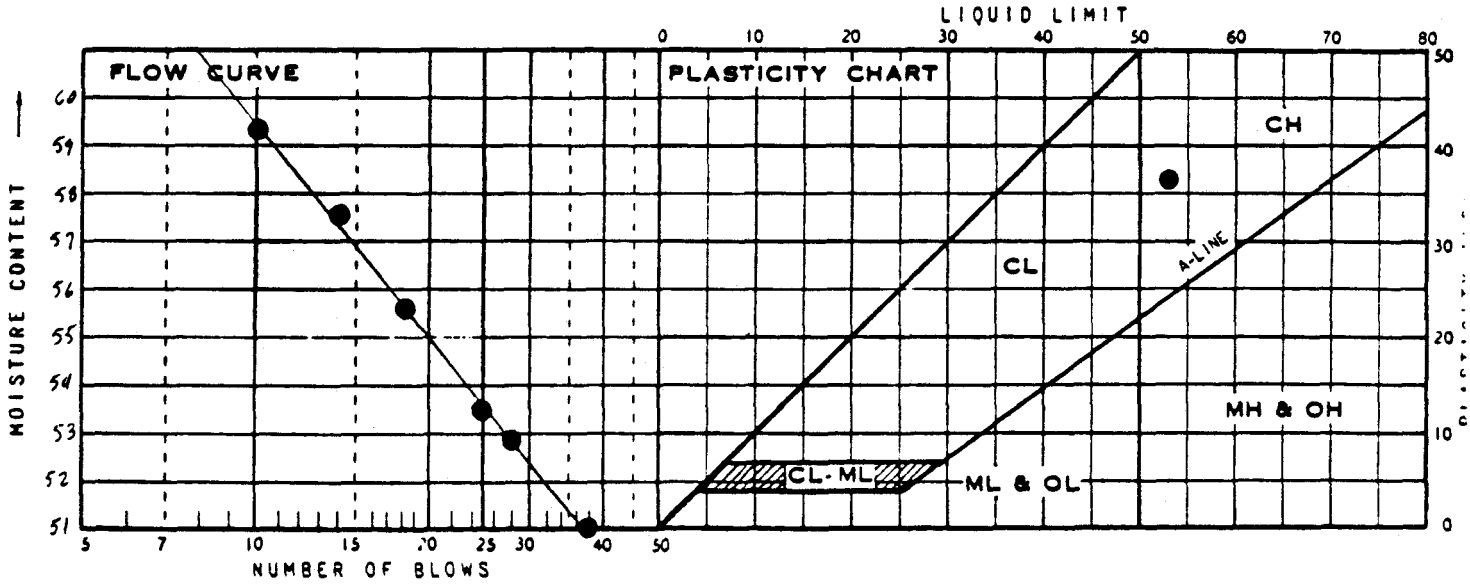
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY AM 6/28/92

DETERMINATION	1	2	3	4	5	6
DISH	2071	43C	36C			
WT OF DISH + WET SOIL g	5.17	4.65	5.56			
WT OF DISH + DRY SOIL g	4.58	4.15	4.91	—	—	—
WT OF MOISTURE g	.59	.50	.65			
WT OF DISH g	1.06	1.05	1.04	—	—	—
WT OF DRY SOIL g	3.52	3.10	3.87			
MOISTURE CONTENT %	16.8	16.1	16.8			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2054	2006	2013	2068	2060	2059
NUMBER OF BLOWS	38	28	25	18	14	10+
WT OF DISH + WET SOIL g	11.29	12.41	11.88	13.82	12.09	13.39
WT OF DISH + DRY SOIL g	7.83	8.48	8.11	9.26	8.05	8.79
WT OF MOISTURE g	3.46	3.93	3.77	4.56	4.04	4.60
WT OF DISH g	1.05	1.05	1.06	1.07	1.04	1.05
WT OF DRY SOIL g	6.78	7.43	7.05	8.19	7.01	7.74
MOISTURE CONTENT %	51.0	52.9	53.5	55.7	57.6	59.4



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		53.5	16.6	36.9	CH	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	11+50	SAMPLED	Rocky Flats
DEPTH	47'	DATE TESTED	02-24-92 TNU/
SAMPLE NO.	#5	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes
NATURAL	No

Wt. Wet Soil & Pan	(g)	54.78
Wt. Dry Soil & Pan	(g)	52.98
Wt. Lost Moisture	(g)	1.80
Wt. of Pan Only	(g)	3.83
Wt. of Dry Soil	(g)	49.15
Moisture Content	%	3.7

Wt. Hydrom. Sample Wet (g)	60.00
Wt. Hydrom. Sample Dry (g)	57.88

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	590.18
Weight of + #10 Before Washing (g)	161.12
Weight of + #10 After Washing (g)	146.21
Weight of - #10 Wet (g)	429.06
Weight of - #10 Dry (g)	428.29
Wt. Total Sample Dry (g)	574.50
Calc. Wt. "W" (g)	77.64
Calc. Mass + #10	19.76

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	53.48	53.48	53.48	9.3	90.7
3/8"	0.00	45.35	45.35	98.83	17.2	82.8
#4	0.00	27.49	27.49	126.32	22.0	78.0
#10	0.00	19.89	19.89	146.21	25.5	74.5
#20	1.55	4.42	2.87	2.87	29.1	70.9
#40	1.57	4.67	3.10	5.97	33.1	66.9
#60	1.55	5.02	3.47	9.44	37.6	62.4
#100	1.56	6.38	4.82	14.26	43.8	56.2
#230	1.57	8.56	6.99	21.25	52.8	47.2

Clay (CL)

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	11+50	SAMPLED	Rocky Flats
DEPTH	47'	DATE TESTED	02-24-92 TNU
SAMPLE NO.	#5	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

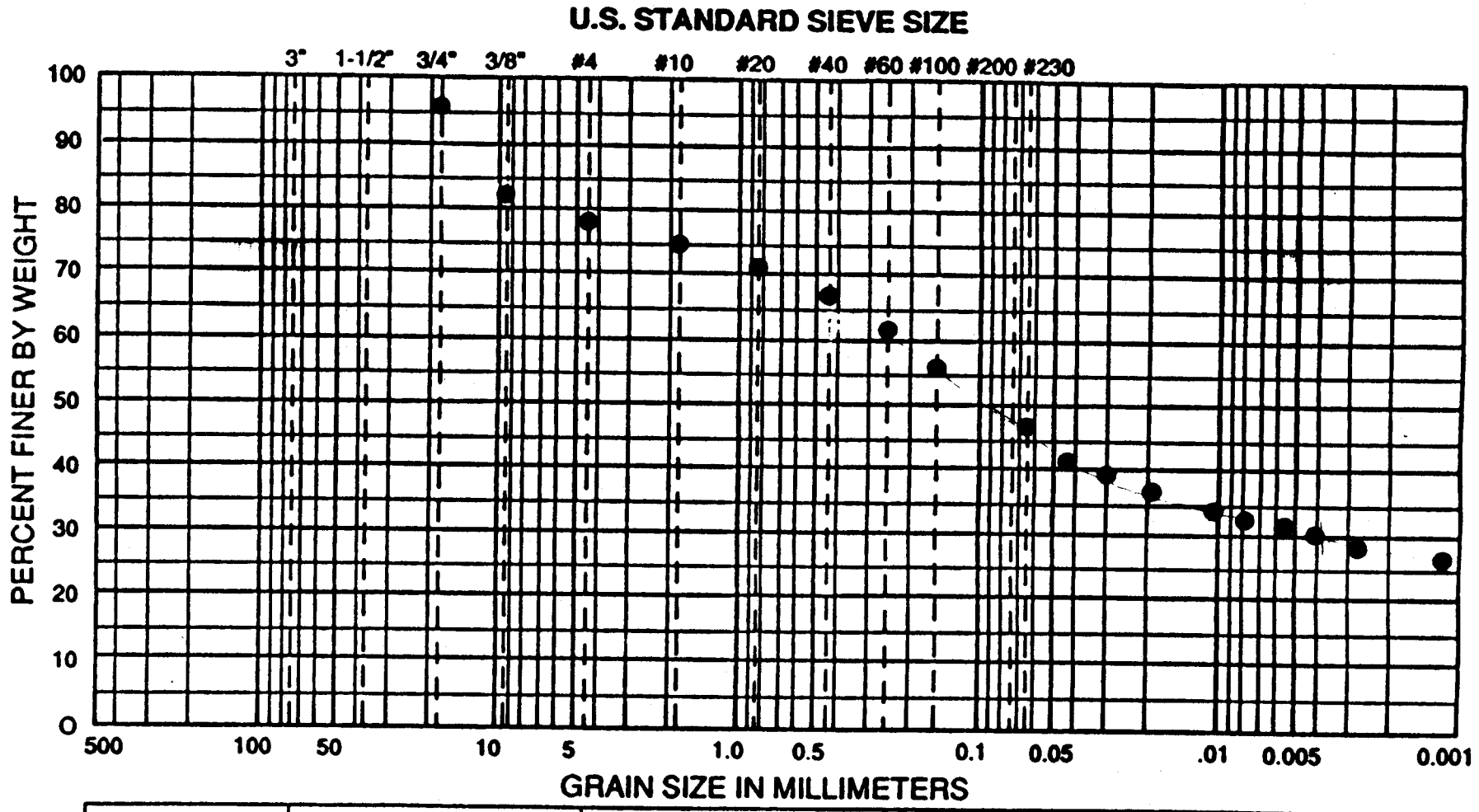
Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.72	Temp. Coef. K	0.01320
Value of "a"	0.99	Wt. Dry Sample "W"	77.640
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	6.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	45.00	38.00	48.3	48.3	8.91	0.0557
1.0	39.00	32.00	40.6	40.6	9.89	0.0415
2.0	38.00	31.00	39.4	39.4	10.06	0.0296
5.0	36.00	29.00	36.8	36.8	10.39	0.0190
15.0	34.00	27.00	34.3	34.3	10.71	0.0112
30.0	33.00	26.00	33.0	33.0	10.88	0.0079
60.0	32.00	25.00	31.7	31.7	11.04	0.0057
120.0	31.00	24.00	30.5	30.5	11.21	0.0040
250.0	29.00	22.00	27.9	27.9	11.53	0.0028
1440.0	28.00	21.00	26.7	26.7	11.70	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 11+50 SAMPLE NO.: 5 DATE: 9/4/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION SANDY (lean clay) w/some gravel & SILT
Rocky Flats	47'	

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER WESTON

LOCATION Rocky Flats / EG&G

BORING 1H50 SAMPLE C#5 DEPTH 47'

FIELD DENSITY BY ...../../...

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD [redacted]

DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

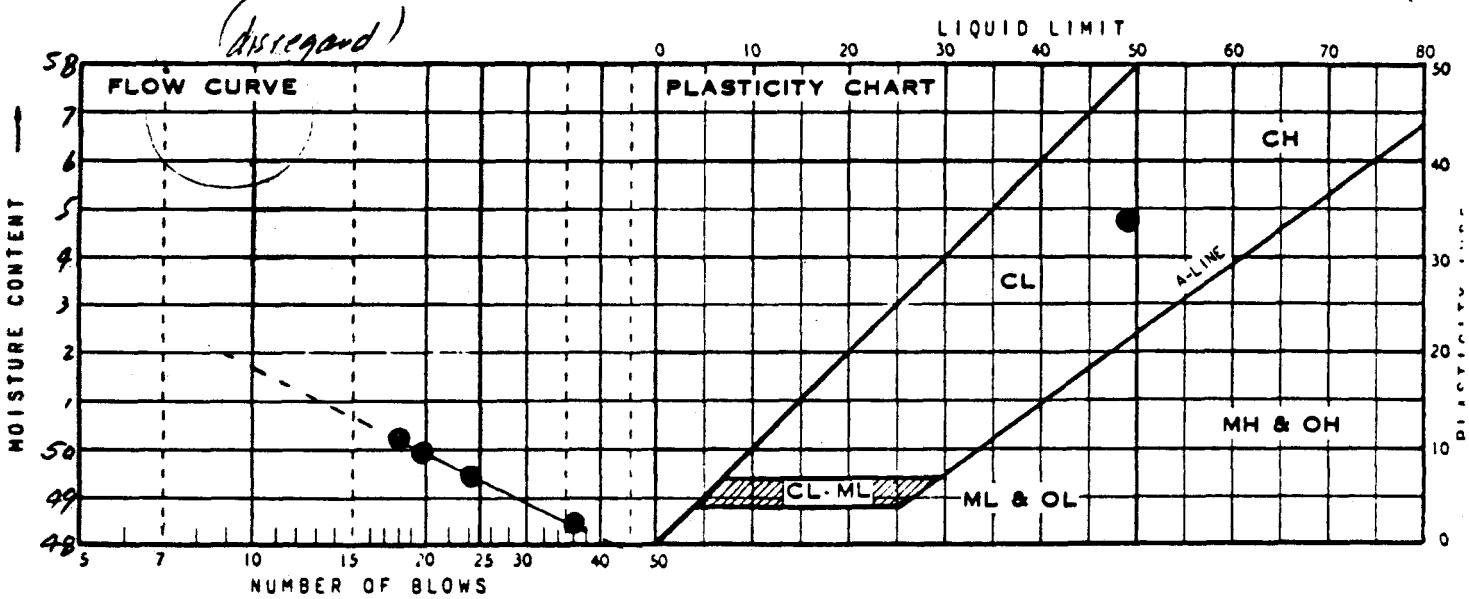
PLASTIC LIMIT BY [illegible] 2.27.92. [illegible]

DETERMINATION	1	2	3	4	5	6
DISH	2056	2006	2054			
WT OF DISH + WET SOIL g	7.82g	7.25g	8.21			
WT OF DISH + DRY SOIL g	6.80	6.41	7.25	—	—	—
WT OF MOISTURE g	1.02	.84	.96			
WT OF DISH g	1.03g	1.04g	1.04g	—	—	—
WT OF DRY SOIL g	5.77	5.37	6.21			
MOISTURE CONTENT %	17.7	15.64	15.46			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	33C-	2073	10C	2067	~~2069~~	~~43C~~
NUMBER OF BLOWS	36	24	20-	18	~~10~~	~~7~~
WT OF DISH + WET SOIL g	17.02g	12.98g	10.24g	12.68g	~~15.0g~~	~~15.11g~~
WT OF DISH + DRY SOIL g	11.81	9.03	7.17	8.75	~~9.99~~	~~9.95~~
WT OF MOISTURE g	5.21	3.95	3.07	3.93	~~5.01~~	~~5.16~~
WT OF DISH g	1.05g	1.05g	1.03g	1.03g	~~1.04g~~	~~1.04g~~
WT OF DRY SOIL g	10.76	7.98	6.14	7.72	~~8.95~~	~~8.91~~
MOISTURE CONTENT %	48.42	49.50	50.00	50.91	~~55.98~~	~~57.91~~

(disregard)



SUMMARY

*= Avg 2&3

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		49.4	15.55*	33.85	CL	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	11+50	SAMPLED	Rocky Flats
DEPTH	54'	DATE TESTED	02-24-92 TNU/
SAMPLE NO.	#5	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	58.95
Wt. Dry Soil & Pan	(g)	56.33
Wt. Lost Moisture	(g)	2.62
Wt. of Pan Only	(g)	3.63
Wt. of Dry Soil	(g)	52.70
Moisture Content	%	5.0

Wt. Hydrom. Sample Wet (g)	60.00
Wt. Hydrom. Sample Dry (g)	57.16

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	60.00
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	60.00
Weight of - #10 Dry (g)	57.16
Wt. Total Sample Dry (g)	57.16
Calc. Wt. "W" (g)	57.16
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	1.57	1.59	0.02	0.02	0.0	100.0
#40	1.57	1.59	0.02	0.04	0.1	99.9
#60	1.57	1.59	0.02	0.06	0.1	99.9
#100	1.56	1.59	0.03	0.09	0.2	99.8
#230	1.57	1.84	0.27	0.36	0.6	99.4

SILTY CLAYSTONE

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	11+50	SAMPLED	Rocky Flats
DEPTH	54'	DATE TESTED	02-24-92 TNU/
SAMPLE NO.	#5	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

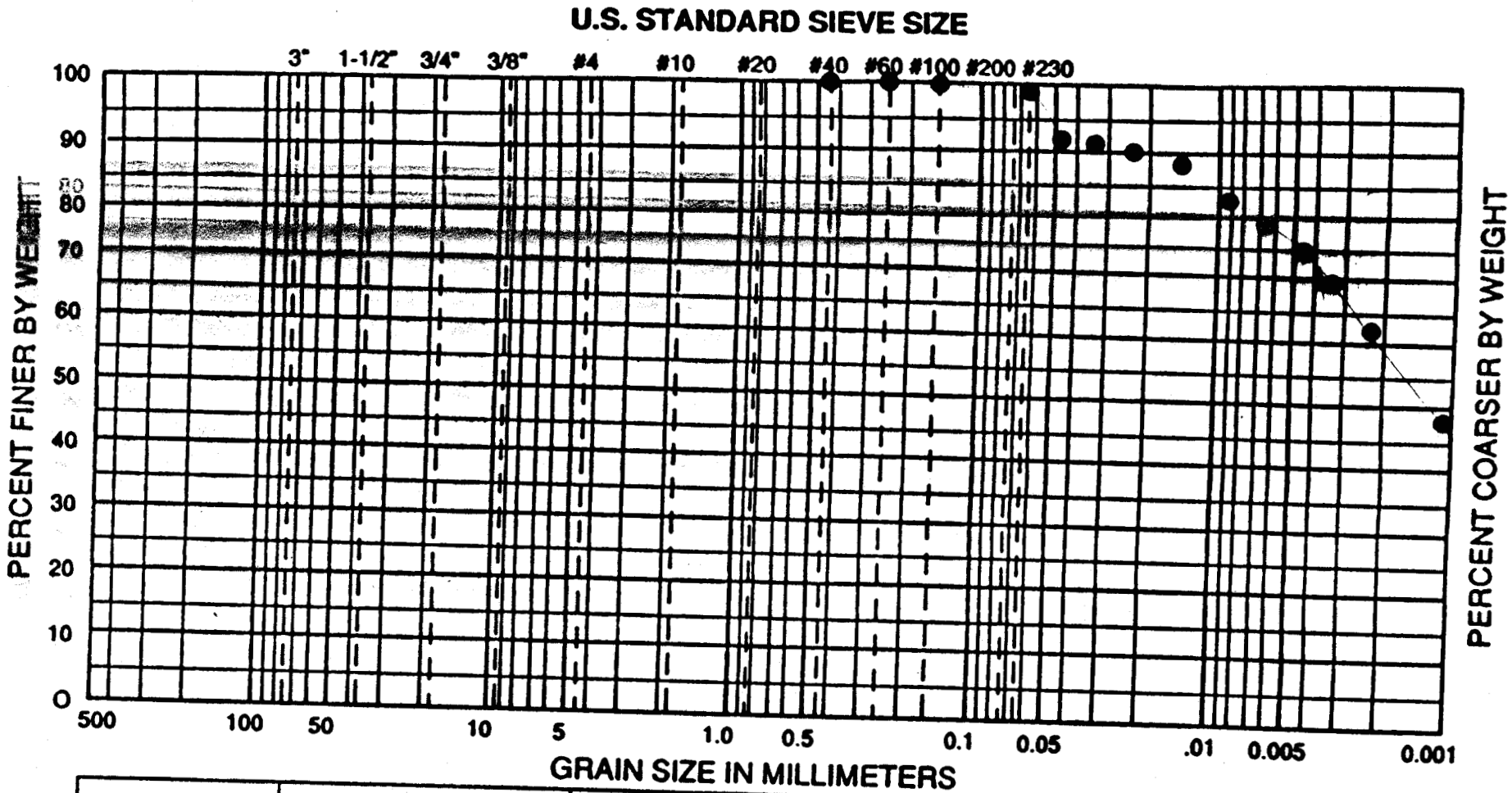
Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.73	Temp. Coef. K	0.01317
Value of "a"	0.98	Wt. Dry Sample "W"	57.158
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	6.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	60.50	53.50	92.1	92.1	6.37	0.0470
1.0	60.00	53.00	91.2	91.2	6.45	0.0334
2.0	59.50	52.50	90.4	90.4	6.53	0.0238
5.0	58.50	51.50	88.7	88.7	6.70	0.0152
15.0	55.00	48.00	82.6	82.6	7.27	0.0092
30.0	53.00	46.00	79.2	79.2	7.60	0.0066
60.0	50.50	43.50	74.9	74.9	8.01	0.0048
120.0	47.00	40.00	68.9	68.9	8.58	0.0035
250.0	43.00	36.00	62.0	62.0	9.24	0.0025
1440.0	35.00	28.00	48.2	48.2	10.55	0.0011

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRATESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 11+50 SAMPLE NO.: 5 DATE: 3/4/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION Silty Clay (CH)
Rocky Flats	54'	.1 Med .4% sand, 29.5% silt, 70% clay

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER Weston

LOCATION Rocky Flats EG-G

BORING U-50 SAMPLE CH #5 DEPTH 54'

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD [redacted]

DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY RM 2/26/90

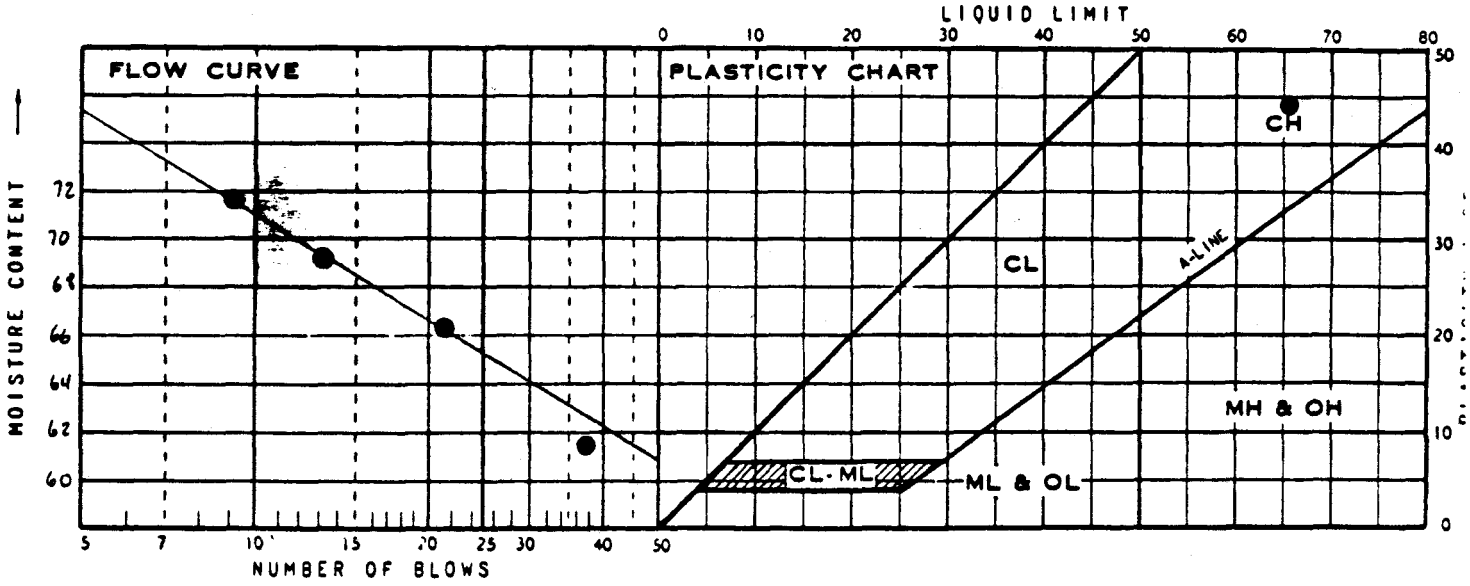
??

DETERMINATION	1	2	3	4	5	6
DISH	2029	2036	2032			
WT OF DISH + WET SOIL g	5.69g	6.12g	5.41g			
WT OF DISH + DRY SOIL g	4.89	5.19	4.65	—	—	—
WT OF MOISTURE g	.80	.93	.76			
WT OF DISH g	1.06	1.05	1.05	—	—	—
WT OF DRY SOIL g	3.83	4.14	3.60			
MOISTURE CONTENT %	20.9	22.5	21.1			

LIQUID LIMIT

?

DETERMINATION	1	2	3	4	5	6
DISH	120	320	2033	2050	2070	2058
NUMBER OF BLOWS	37	19	19	21	13	9
WT OF DISH + WET SOIL g	11.96	14.13	13.85	11.27	12.08	11.65
WT OF DISH + DRY SOIL g	7.80	9.06	8.83	7.19	7.57	7.21
WT OF MOISTURE g	4.16	5.07	5.02	4.08	4.51	4.44
WT OF DISH g	1.04	1.06	1.06	1.04	1.05	1.03
WT OF DRY SOIL g	6.76	8.00	7.77	6.15	6.52	6.18
MOISTURE CONTENT %	61.5	63.4	64.6	66.3	69.2	71.8



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		65.3	21.0	44.3	CH	

ADVANCED TERRA TESTING INC

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	11+50	SAMPLED	Rocky Flats
DEPTH	57'	DATE TESTED	02-24-92 TNU/
SAMPLE NO.	#5	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes	
NATURAL	No	
Wt. Wet Soil & Pan	(g)	51.62
Wt. Dry Soil & Pan	(g)	50.54
Wt. Lost Moisture	(g)	1.08
Wt. of Pan Only	(g)	3.73
Wt. of Dry Soil	(g)	46.81
Moisture Content	%	2.3
Wt. Hydrom. Sample Wet	(g)	60.00
Wt. Hydrom. Sample Dry	(g)	58.65

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	655.94
Weight of + #10 Before Washing (g)	30.06
Weight of + #10 After Washing (g)	26.59
Weight of - #10 Wet (g)	625.88
Weight of - #10 Dry (g)	615.16
Wt. Total Sample Dry (g)	641.75
Calc. Wt. "W" (g)	61.18
Calc. Mass + #10	2.53

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	26.20	26.20	26.20	4.1	95.9
#10	0.00	0.39	0.39	26.59	4.1	95.9
#20	1.55	1.64	0.09	0.09	4.3	95.7
#40	1.56	1.72	0.16	0.25	4.6	95.4
#60	1.58	1.79	0.21	0.46	4.9	95.1
#100	1.56	1.91	0.35	0.81	5.5	94.5 >85
#230	1.57	8.62	7.05	7.86	17.0	83.0

Silt & Clay Sediment

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	11+50	SAMPLED	Rocky Flats
DEPTH	57'	DATE TESTED	02-24-92 TNU,
SAMPLE NO.	#5	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

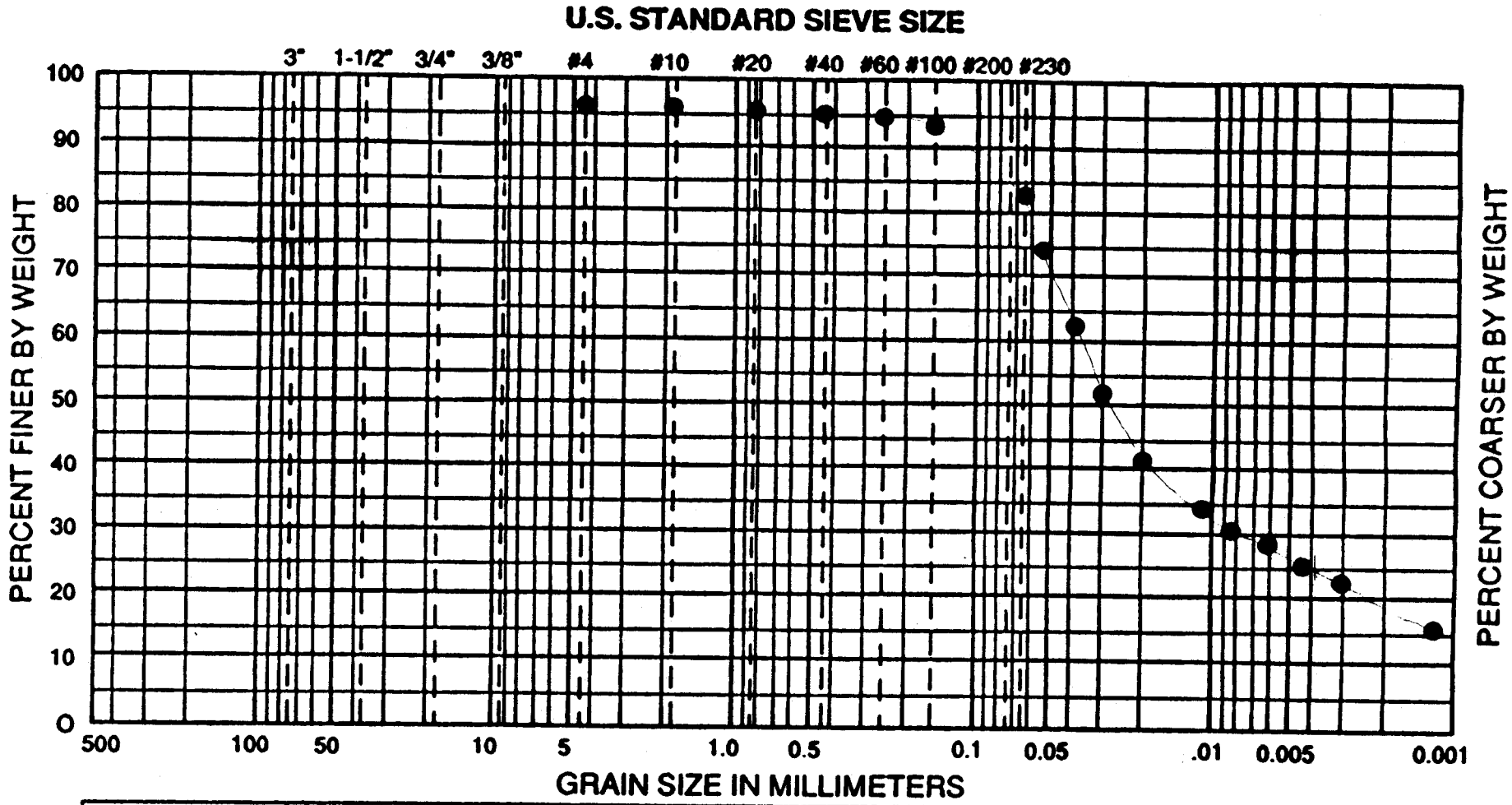
Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.70	Temp. Coef. K	0.01328
Value of "a"	0.99	Wt. Dry Sample "W"	61.182
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	6.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	52.50	45.50	73.6	73.6	7.68	0.0520
1.0	46.00	39.00	63.1	63.1	8.75	0.0393
2.0	39.00	32.00	51.8	51.8	9.89	0.0295
5.0	32.50	25.50	41.3	41.3	10.96	0.0197
15.0	28.00	21.00	34.0	34.0	11.70	0.0117
30.0	26.00	19.00	30.7	30.7	12.03	0.0084
60.0	25.00	18.00	29.1	29.1	12.19	0.0060
120.0	23.00	16.00	25.9	25.9	12.52	0.0043
250.0	21.00	14.00	22.7	22.7	12.85	0.0030
1440.0	17.00	10.00	16.2	16.2	13.50	0.0013

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 11+50 SAMPLE NO.: 5 DATE: 3/3/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	57'	

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER Weston

LOCATION _____

BORING 11+50 SAMPLE CH #5 DEPTH 57'

#5

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

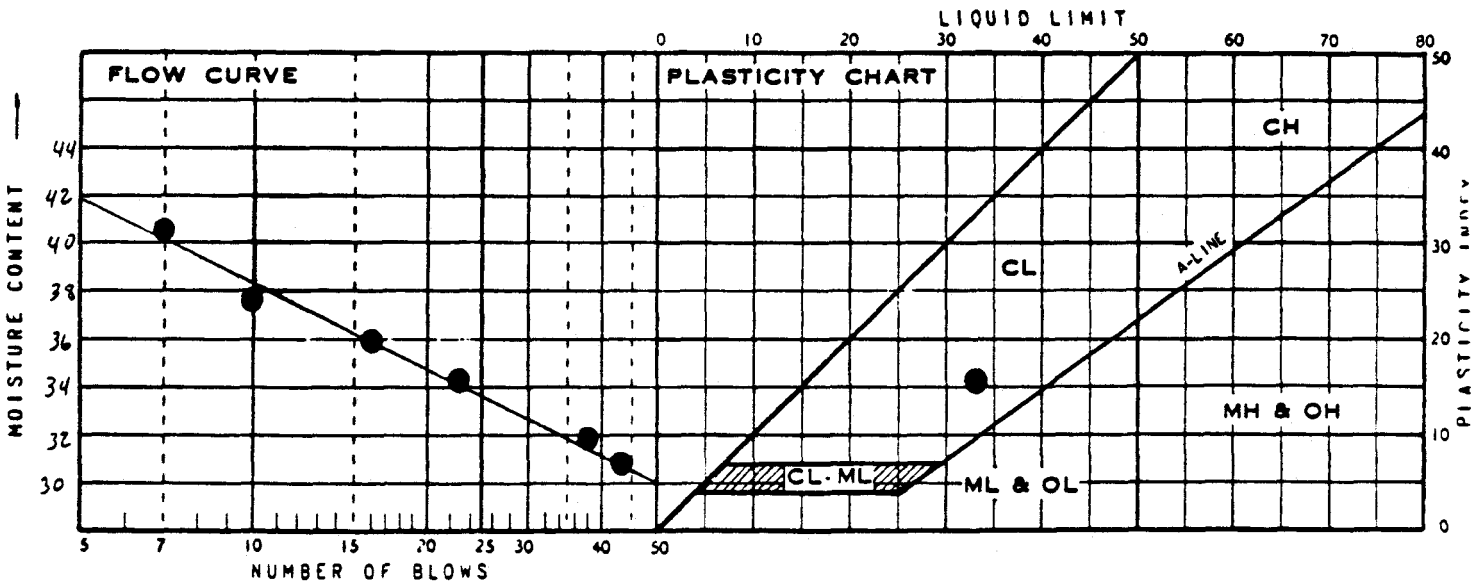
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY CW 2/27/92

DETERMINATION	1	2	3	4	5	6
DISH	41C	34C	2019			
WT OF DISH + WET SOIL	6.97g	8.13g	9.46g			
WT OF DISH + DRY SOIL	6.02g	7.05	8.18g	—	—	—
WT OF MOISTURE	.95	1.08	1.28			
WT OF DISH	1.02g	1.02g	1.06g	—	—	—
WT OF DRY SOIL	5.00	6.03	7.12			
MOISTURE CONTENT	19.0	17.9	18.0			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	36C	2013	2068	2059	2060	2062
NUMBER OF BLOWS	44	38	23	16	10	7
WT OF DISH + WET SOIL	21.50g	23.27g	24.90g	23.27g	22.31g	21.16g
WT OF DISH + DRY SOIL	16.66g	17.89g	18.81	17.38g	16.47g	15.36
WT OF MOISTURE	4.84	5.38	6.09	5.89	5.34	5.80
WT OF DISH	1.02g	1.05g	1.03g	1.04g	1.02g	1.03g
WT OF DRY SOIL	15.64	16.84	17.78	16.34	15.45	14.33
MOISTURE CONTENT	30.9	31.9	34.3	36.0	37.8	40.5



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		33.6	18.3	15.3	CL	

ADVANCED TERRA TESTING INC

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	11+75	SAMPLED	Rocky Flats
DEPTH	59'	DATE TESTED	03-05-92 SR
SAMPLE NO.	#3	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	61.14
Wt. Dry Soil & Pan	(g)	60.08
Wt. Lost Moisture	(g)	1.06
Wt. of Pan Only	(g)	3.68
Wt. of Dry Soil	(g)	56.40
Moisture Content	%	1.9

Wt. Hydrom. Sample Wet (g)	60.01
Wt. Hydrom. Sample Dry (g)	58.90

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	1000.71
Weight of + #10 Before Washing (g)	273.13
Weight of + #10 After Washing (g)	270.09
Weight of - #10 Wet (g)	727.58
Weight of - #10 Dry (g)	717.14
Wt. Total Sample Dry (g)	987.23
Calc. Wt. "W" (g)	81.09
Calc. Mass + #10	22.18

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	240.82	240.82	240.82	24.4	75.6
3/4"	0.00	14.69	14.69	255.51	25.9	74.1
3/8"	0.00	13.78	13.78	269.29	27.3	72.7
#4	0.00	0.51	0.51	269.80	27.3	72.7
#10	0.00	0.29	0.29	270.09	27.4	72.6
#20	1.57	1.60	0.03	0.03	27.4	72.6
#40	1.57	1.65	0.08	0.11	27.5	72.5
#60	1.55	1.63	0.08	0.19	27.6	72.4
#100	1.55	1.61	0.06	0.25	27.7	72.3
#230	1.56	1.79	0.23	0.48	28.0	72.0

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston** JOB NO. 2066-03

BORING NO.	11+75	SAMPLED	Rocky Flats
DEPTH	59'	DATE TESTED	03-05-92 SR
SAMPLE NO.	#3	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

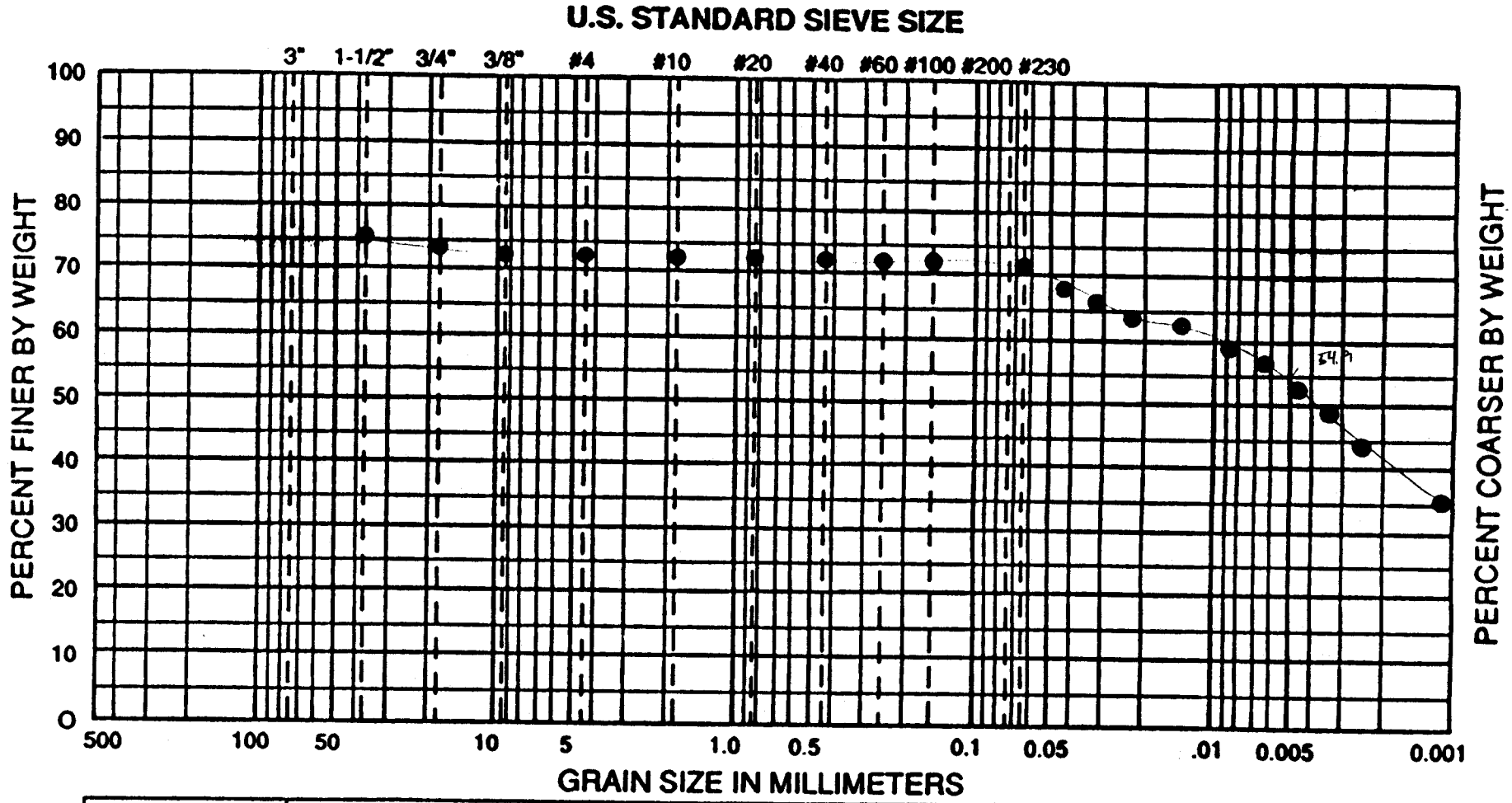
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.79	Temp. Coef. K	0.01280
Value of "a"	0.97	Wt. Dry Sample "W"	81.088
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	5.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	63.00	57.00	68.3	68.3	5.96	0.0442
1.0	61.25	55.25	66.2	66.2	6.25	0.0320
2.0	60.00	54.00	64.7	64.7	6.45	0.0230
5.0	58.75	52.75	63.2	63.2	6.66	0.0148
15.0	56.00	50.00	59.9	59.9	7.11	0.0088
30.0	53.25	47.25	56.6	56.6	7.56	0.0064
60.0	50.25	44.25	53.0	53.0	8.05	0.0047
120.0	47.00	41.00	49.1	49.1	8.58	0.0034
250.0	43.25	37.25	44.7	44.7	9.20	0.0025
1440.0	35.25	29.25	35.1	35.1	10.51	0.0011

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 11 + 75 SAMPLE NO.: CH #3 DATE: 3/9/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	59'	Gravely CLAY w/some silt + sand 25.9% C gravel, 1.4% f gvl, .1% C sd, .1% m sd, .5% f sd 17.1% silt, 34.9% CLAY

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER Weston

LOCATION Rocky Flats EG+G

BORING 11+75 SAMPLE CH#3 DEPTH 59'

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD [redacted]

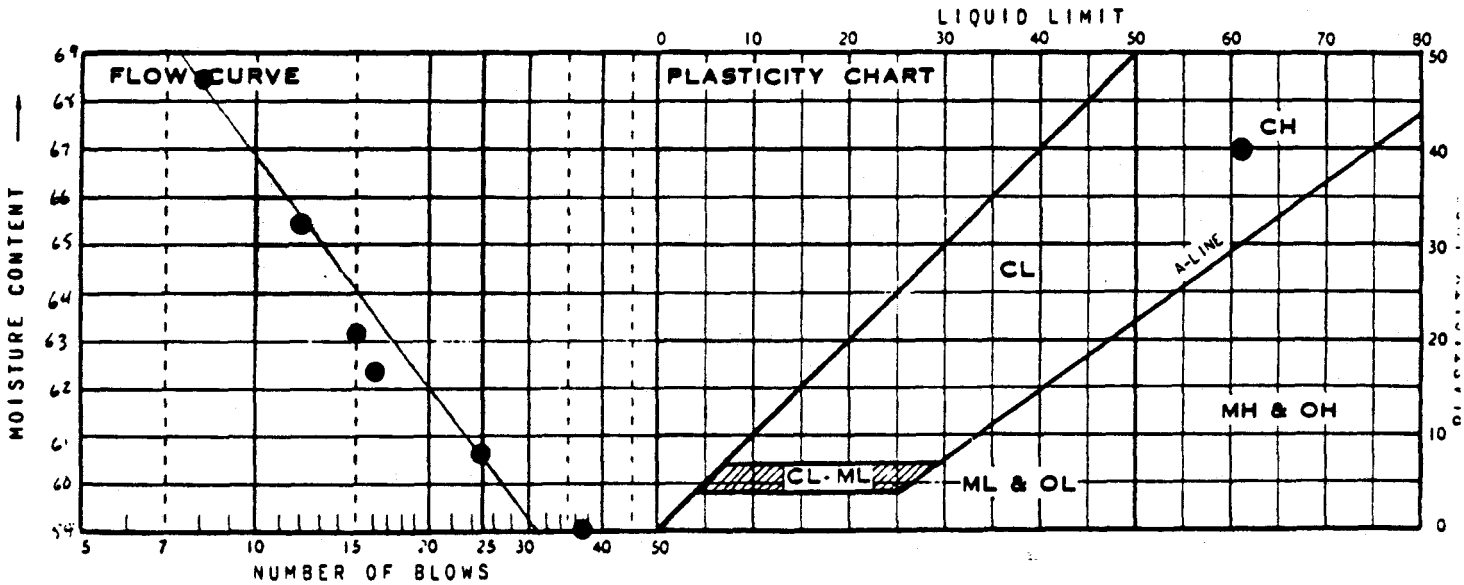
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY DW 3/3/92

DETERMINATION	1	2	3	4	5	6
DISH	2035	19C	3C			
WT OF DISH + WET SOIL g	5.17	5.64	5.89			
WT OF DISH + DRY SOIL g	4.50	4.85	5.06	—	—	—
WT OF MOISTURE g	.67	.79	.83			
WT OF DISH g	1.04	1.03	1.05	—	—	—
WT OF DRY SOIL g	3.46	3.82	4.01			
MOISTURE CONTENT %	19.4	20.7	20.7			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	35C	27C	2064	40C	4C	2031
NUMBER OF BLOWS	37	25	16	15	12	8
WT OF DISH + WET SOIL g	10.08	10.38	11.66	10.67	10.98	10.68
WT OF DISH + DRY SOIL g	6.73	6.85	7.58	6.94	7.05	6.76
WT OF MOISTURE g	3.35	3.53	4.08	3.73	3.93	3.92
WT OF DISH g	1.06	1.03	1.04	1.05	1.04	1.04
WT OF DRY SOIL g	5.67	5.82	6.54	5.90	6.01	5.72
MOISTURE CONTENT %	59.1	60.7	62.4	63.2	65.4	68.5



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		60.7	20.7	40.0	CH	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	11+80	SAMPLED	Rocky Flats
DEPTH	50'	DATE TESTED	03-05-92 SR
SAMPLE NO.	#3	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes	
NATURAL	No	
Wt. Wet Soil & Pan	(g)	64.32
Wt. Dry Soil & Pan	(g)	63.54
Wt. Lost Moisture	(g)	0.78
Wt. of Pan Only	(g)	3.74
Wt. of Dry Soil	(g)	59.80
Moisture Content	%	1.3
Wt. Hydrom. Sample Wet	(g)	60.01
Wt. Hydrom. Sample Dry	(g)	59.24

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	475.89
Weight of + #10 Before Washing (g)	48.15
Weight of + #10 After Washing (g)	33.69
Weight of - #10 Wet (g)	427.74
Weight of - #10 Dry (g)	436.51
Wt. Total Sample Dry (g)	470.20
Calc. Wt. "W" (g)	63.81
Calc. Mass + #10	4.57

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	26.67	26.67	26.67	5.7	94.3
#4	0.00	3.60	3.60	30.27	6.4	93.6
#10	0.00	3.42	3.42	33.69	7.2	92.8
#20	1.53	1.85	0.32	0.32	7.7	92.3
#40	1.53	2.28	0.75	1.07	8.8	91.2
#60	1.55	2.57	1.02	2.09	10.4	89.6
#100	1.55	4.06	2.51	4.60	14.4	85.6
#230	1.54	8.10	6.56	11.16	24.7	75.3

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	11+80	SAMPLED	Rocky Flats
DEPTH	50'	DATE TESTED	03-05-92 SR
SAMPLE NO.	#3	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

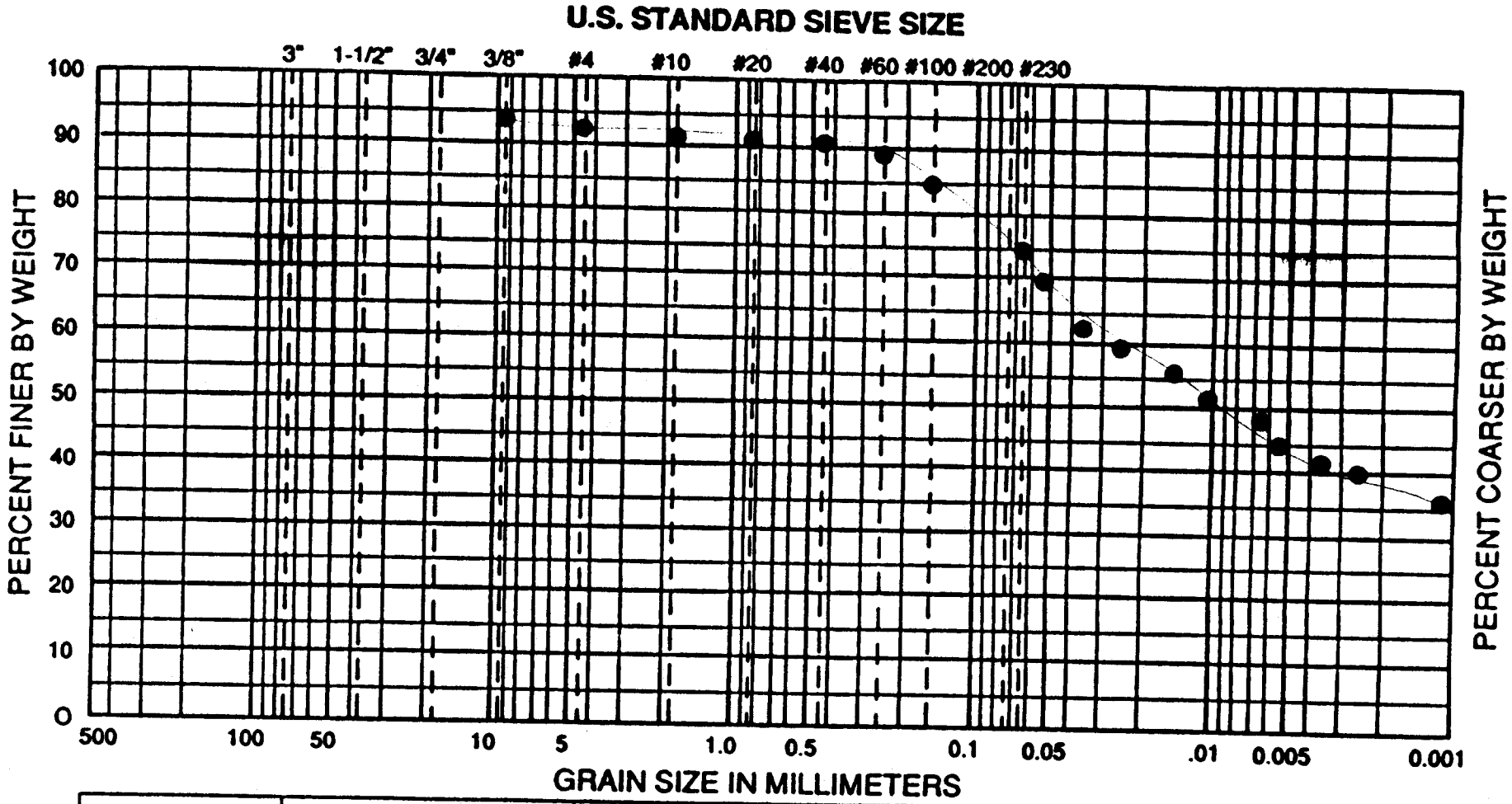
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.77	Temp. Coef. K	0.01287
Value of "a"	0.98	Wt. Dry Sample "W"	63.809
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	5.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	51.50	45.50	69.6	69.6	7.84	0.0510
1.0	47.75	41.75	63.9	63.9	8.46	0.0374
2.0	44.75	38.75	59.3	59.3	8.95	0.0272
5.0	42.75	36.75	56.2	56.2	9.28	0.0175
15.0	40.00	34.00	52.0	52.0	9.73	0.0104
30.0	38.00	32.00	48.9	48.9	10.06	0.0075
60.0	35.75	29.75	45.5	45.5	10.43	0.0054
120.0	34.00	28.00	42.8	42.8	10.71	0.0038
250.0	32.25	26.25	40.2	40.2	11.00	0.0027
1440.0	30.00	24.00	36.7	36.7	11.37	0.0011

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 11+80 SAMPLE NO.: CH # 3 DATE: 3-7-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Kaiky Flats	50.0'	SILTY Clay w/ some SAND & Trace gravel. 0.4% f. gravel, .8% c sd, 1.6% Med, 15.9% f. sand, 31.3% silt, 44% CLAY

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER Weston

LOCATION Rocky Flats EG+G

BORING 11+80 SAMPLE CH #3 DEPTH 50'

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD → [redacted]

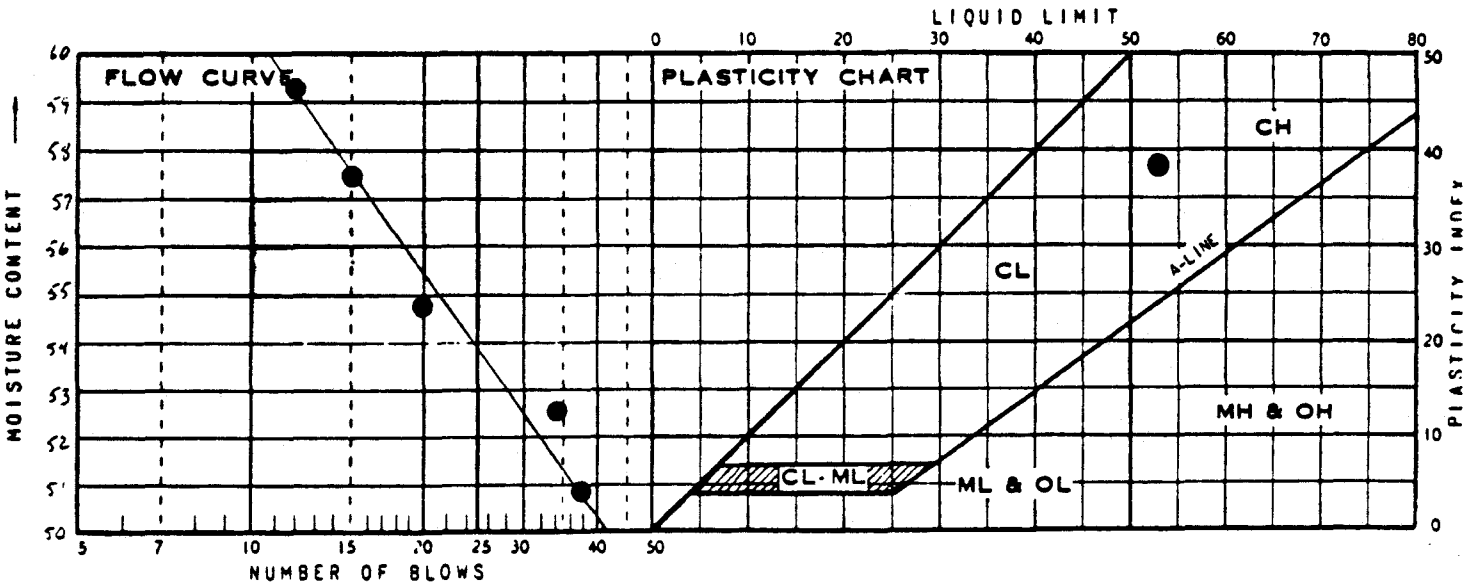
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY DM 3/4/92

DETERMINATION	1	2	3	4	5	6
DISH	2020	10C	43C			
WT OF DISH + WET SOIL g	6.28	6.20	7.36			
WT OF DISH + DRY SOIL g	5.59	5.51	6.52	—	—	—
WT OF MOISTURE g	.69	.69	.84			
WT OF DISH g	1.05	1.05	1.04	—	—	—
WT OF DRY SOIL g	4.54	4.46	5.48			
MOISTURE CONTENT %	15.2	15.5	15.3			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2069	2036	2067	26C	28C	5C
NUMBER OF BLOWS	38	34+	20	15	15	12
WT OF DISH + WET SOIL g	10.63	9.43	10.33	10.79	9.61	10.17
WT OF DISH + DRY SOIL g	7.40	6.54	7.04	7.31	6.48	6.78
WT OF MOISTURE g	3.23	2.89	3.29	3.48	3.13	3.39
WT OF DISH g	1.05	1.05	1.04	1.06	1.05	1.06
WT OF DRY SOIL g	6.35	5.49	6.00	6.25	5.43	5.72
MOISTURE CONTENT %	50.9	52.6	54.8	55.7	57.6	59.3



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		53.8	15.3	38.5	CH	

ADVANCED TERRA TESTING INC

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

All.

BORING NO.	11+80	SAMPLED	Rocky Flats
DEPTH	56'	DATE TESTED	03-05-92 SR
SAMPLE NO.	#3	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	67.24
Wt. Dry Soil & Pan	(g)	66.49
Wt. Lost Moisture	(g)	0.75
Wt. of Pan Only	(g)	3.82
Wt. of Dry Soil	(g)	62.67
Moisture Content	%	1.2

Wt. Hydrom. Sample Wet (g)	60.00
Wt. Hydrom. Sample Dry (g)	59.29

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	859.53
Weight of + #10 Before Washing (g)	511.60
Weight of + #10 After Washing (g)	459.38
Weight of - #10 Wet (g)	347.93
Weight of - #10 Dry (g)	395.42
Wt. Total Sample Dry (g)	854.80
Calc. Wt. "W" (g)	128.17
Calc. Mass + #10	68.88

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	112.38	112.38	112.38	13.1	86.9
3/4"	0.00	212.78	212.78	325.16	38.0	62.0
3/8"	0.00	41.56	41.56	366.72	42.9	57.1
#4	0.00	55.95	55.95	422.67	49.4	50.6
#10	0.00	36.71	36.71	459.38	53.7	46.3
#20	1.56	4.90	3.34	3.34	56.3	43.7
#40	1.57	4.88	3.31	6.65	58.9	41.1
#60	1.56	3.66	2.10	8.75	60.6	39.4
#100	1.57	7.04	5.47	14.22	64.8	35.2
#230	1.30	4.04	2.74	16.96	67.0	33.0

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	11+80	SAMPLED	Rocky Flats
DEPTH	56'	DATE TESTED	03-05-92 SR
SAMPLE NO.	#3	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

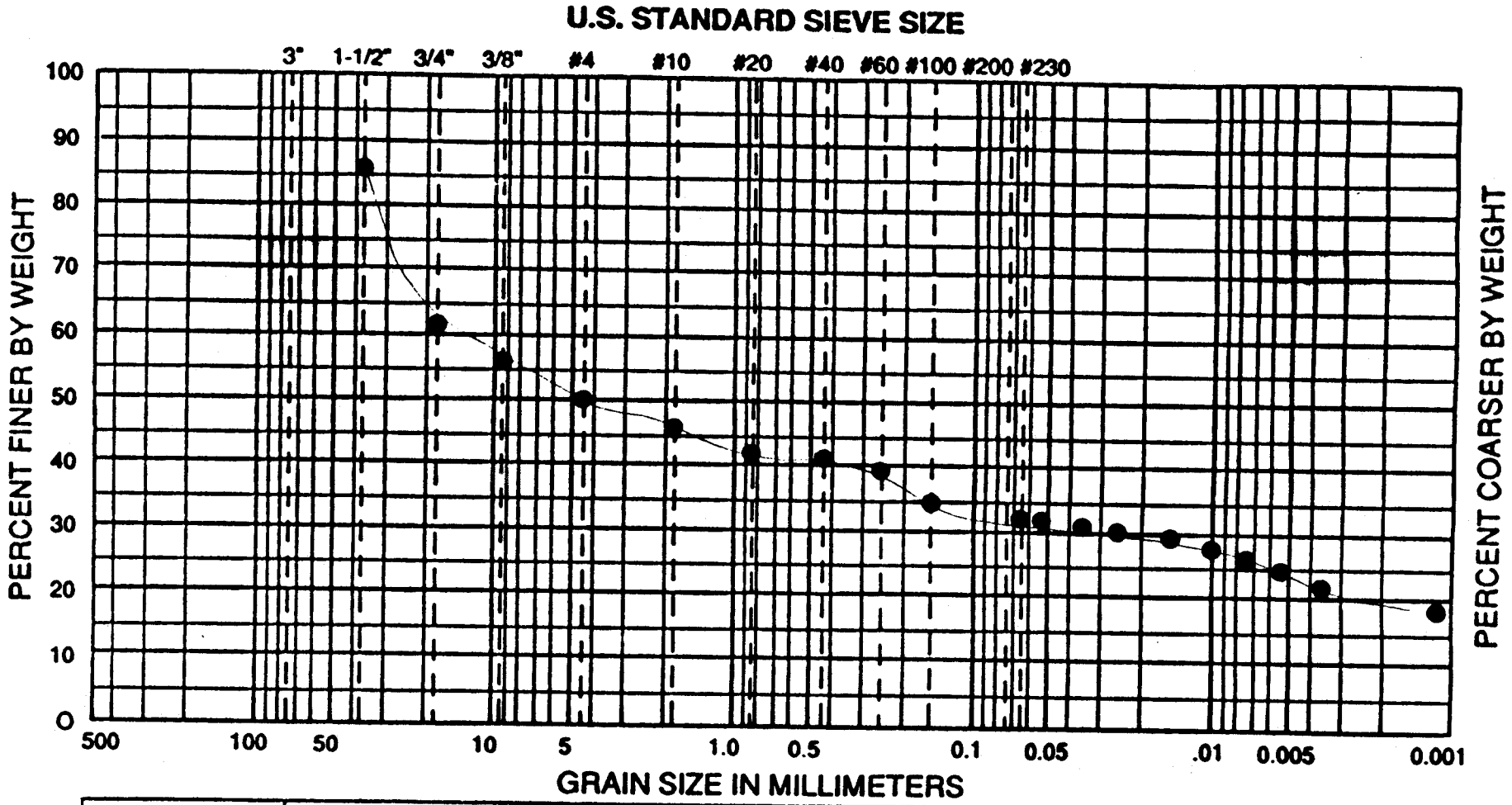
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.79	Temp. Coef. K	0.01280
Value of "a"	0.97	Wt. Dry Sample "W"	128.172
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	5.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Hydrometer Reading Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	49.50	43.50	33.0	33.0	8.17	0.0517
1.0	48.25	42.25	32.0	32.0	8.38	0.0370
2.0	47.75	41.75	31.7	31.7	8.46	0.0263
5.0	45.25	39.25	29.8	29.8	8.87	0.0170
15.0	43.75	37.75	28.6	28.6	9.12	0.0100
30.0	42.00	36.00	27.3	27.3	9.40	0.0072
60.0	39.75	33.75	25.6	25.6	9.77	0.0052
120.0	37.00	31.00	23.5	23.5	10.22	0.0037
250.0	35.00	29.00	22.0	22.0	10.55	0.0026
1440.0	30.25	24.25	18.4	18.4	11.33	0.0011

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY	
		COARSE	FINE	COARSE	MEDIUM	FINE		

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 11 + 80 SAMPLE NO.: CH #3 DATE: 3-7-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	56.0'	Gravel w/ some SAND, SILT & CLAY. 38% C. Gravel, 11.4% f. gvl, 4.3% c. sd, 5.2% m. sd, 8.1% f. sd, 10% silt, 23% Clay

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER Weston

LOCATION Rocky Flats EG+G

BORING 11+80 SAMPLE CH #3 DEPTH 56'

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD [redacted]

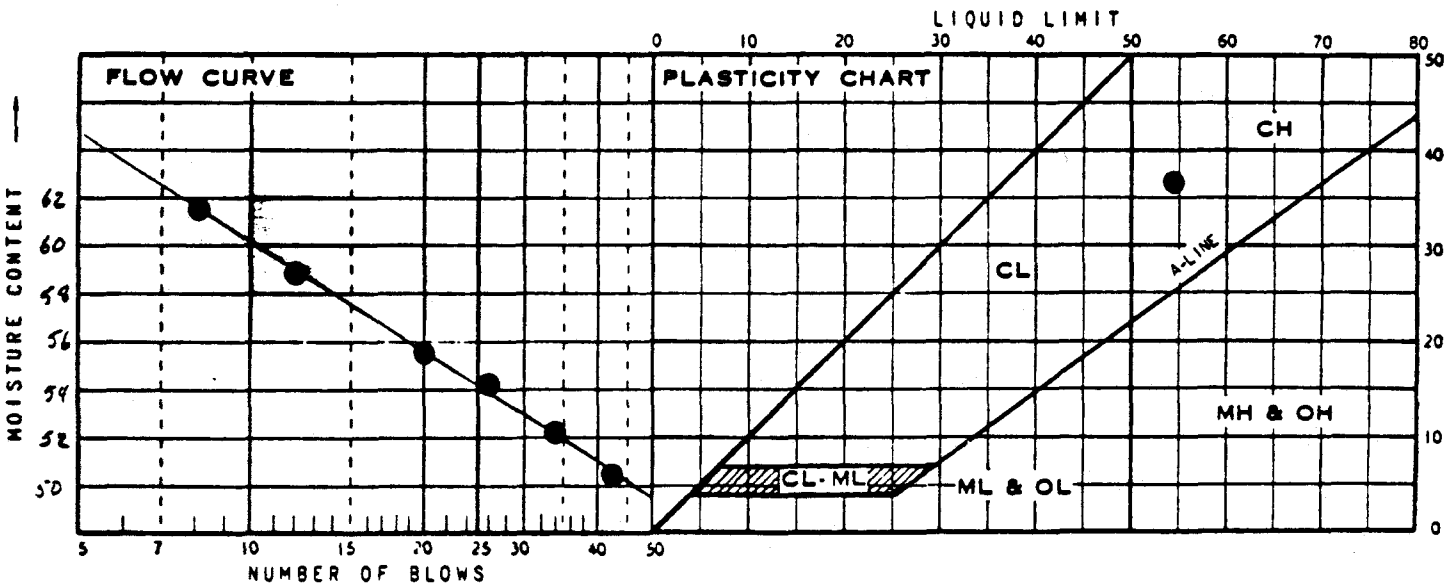
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY [illegible] 3/4/92

DETERMINATION	1	2	3	4	5	6
DISH	4C	27C	2031			
WT OF DISH + WET SOIL g	6.83	5.82	6.11			
WT OF DISH + DRY SOIL g	5.98	5.10	5.37	—	—	—
WT OF MOISTURE g	.85	.72	.74			
WT OF DISH g	1.06	1.03	1.06	—	—	—
WT OF DRY SOIL g	4.92	4.07	4.31			
MOISTURE CONTENT %	17.3	17.7	17.2			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2064	40C	35C	2035	3C	19C
NUMBER OF BLOWS	43	34	26+	20	12-	8+
WT OF DISH + WET SOIL g	11.00	10.65	11.31	11.67	11.28	10.92
WT OF DISH + DRY SOIL g	7.66	7.36	7.71	7.87	7.49	7.15
WT OF MOISTURE g	3.34	3.29	3.60	3.80	3.79	3.77
WT OF DISH g	1.04	1.06	1.07	1.04	1.05	1.03
WT OF DRY SOIL g	6.62	6.30	6.64	6.83	6.44	6.12
MOISTURE CONTENT %	50.5	52.2	54.2	55.6	58.9	61.6



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		54.3	17.4	36.9	CH	

ADVANCED TERRA TESTING inc

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	12+00	SAMPLED	Rocky Flats
DEPTH	41'	DATE TESTED	02-24-92 TNU,
SAMPLE NO.	#5	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	58.63
Wt. Dry Soil & Pan	(g)	56.25
Wt. Lost Moisture	(g)	2.38
Wt. of Pan Only	(g)	3.69
Wt. of Dry Soil	(g)	52.56
Moisture Content	%	4.5

Wt. Hydrom. Sample Wet (g)	60.00
Wt. Hydrom. Sample Dry (g)	57.40

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	609.04
Weight of + #10 Before Washing (g)	54.34
Weight of + #10 After Washing (g)	47.04
Weight of - #10 Wet (g)	554.70
Weight of - #10 Dry (g)	537.65
Wt. Total Sample Dry (g)	584.69
Calc. Wt. "W" (g)	62.42
Calc. Mass + #10	5.02

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	36.58	36.58	36.58	6.3	93.7
3/8"	0.00	7.19	7.19	43.77	7.5	92.5
#4	0.00	0.85	0.85	44.62	7.6	92.4
#10	0.00	2.42	2.42	47.04	8.0	92.0
#20	1.54	1.79	0.25	0.25	8.4	91.6
#40	1.55	2.21	0.66	0.91	9.5	90.5
#60	1.57	3.06	1.49	2.40	11.9	88.1
#100	1.55	6.05	4.50	6.90	19.1	80.9
#230	1.55	15.13	13.58	20.48	40.9	59.1

Sandy Clayey S. [illegible]

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	12+00	SAMPLED	Rocky Flats
DEPTH	41'	DATE TESTED	02-24-92 TNU/
SAMPLE NO.	#5	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

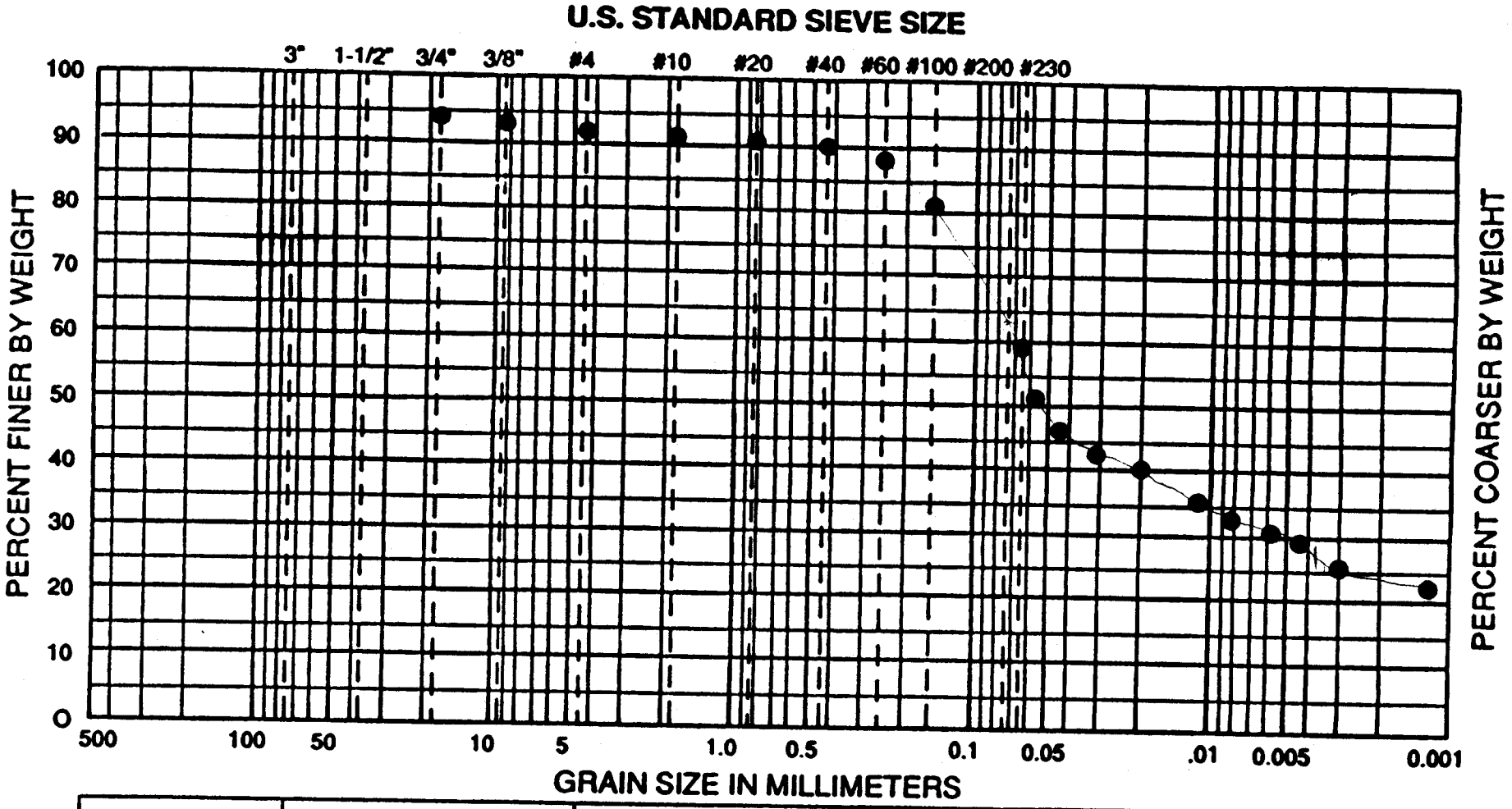
Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.71	Temp. Coef. K	0.01324
Value of "a"	0.99	Wt. Dry Sample "W"	62.423
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	6.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	40.00	33.00	52.2	52.2	9.73	0.0584
1.0	36.50	29.50	46.7	46.7	10.30	0.0425
2.0	34.00	27.00	42.7	42.7	10.71	0.0306
5.0	32.00	25.00	39.6	39.6	11.04	0.0197
15.0	29.50	22.50	35.6	35.6	11.45	0.0116
30.0	28.00	21.00	33.2	33.2	11.70	0.0083
60.0	26.50	19.50	30.9	30.9	11.94	0.0059
120.0	25.00	18.00	28.5	28.5	12.19	0.0042
250.0	23.00	16.00	25.3	25.3	12.52	0.0030
1440.0	21.00	14.00	22.2	22.2	12.85	0.0013

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 12+00 SAMPLE NO.: 5 DATE: 3/4/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	41'	

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER Weston

LOCATION Rocky Flats EG+G

BORING 12+00 SAMPLE CH #5 DEPTH 41'

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

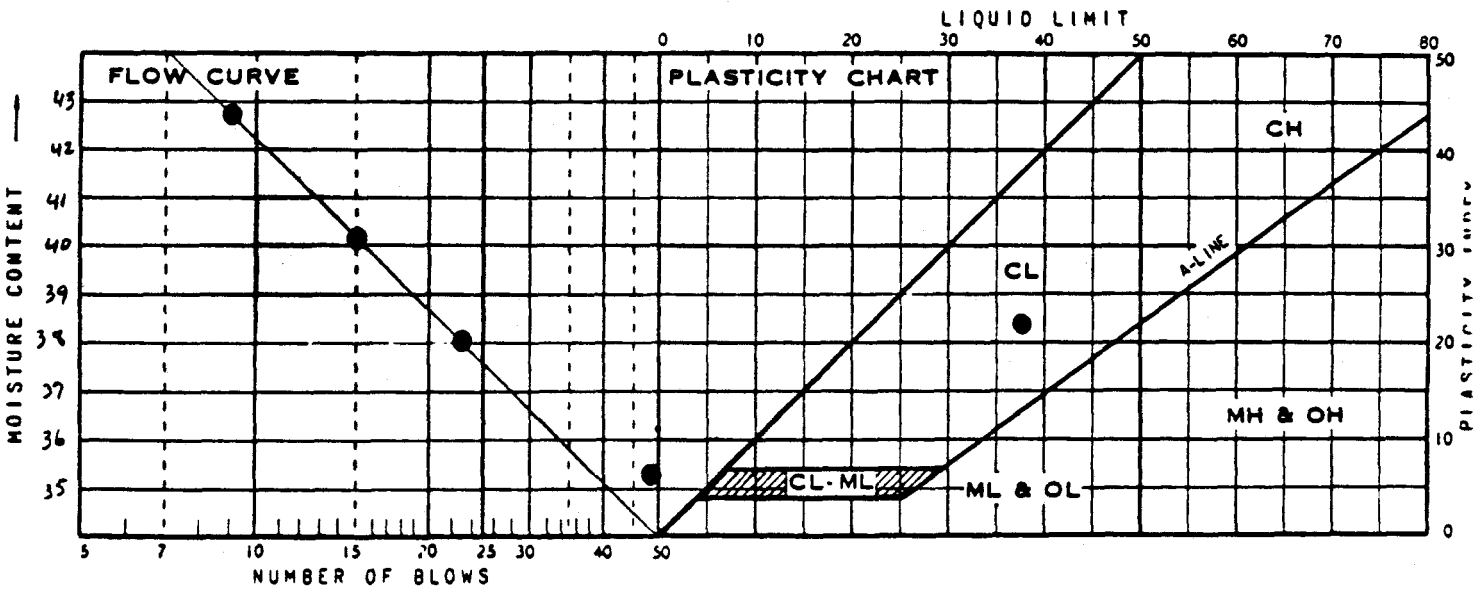
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY DM 2/28/92

DETERMINATION	1	2	3	4	5	6
DISH	2036	2070	17C			
WT OF DISH + WET SOIL g	7.01	6.29	8.24			
WT OF DISH + DRY SOIL g	6.21	5.60	7.29	—	—	—
WT OF MOISTURE g	.80	.69	.95			
WT OF DISH g	1.06	1.07	1.05	—	—	—
WT OF DRY SOIL g	5.15	4.53	6.24			
MOISTURE CONTENT %	15.5	15.2	15.2			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2050	2029	2032	2058	2042	2030
NUMBER OF BLOWS	25	49	50	23	15	9
WT OF DISH + WET SOIL g	12.54	12.34	12.24	13.04	12.93	11.75
WT OF DISH + DRY SOIL g	9.49	9.40	9.27	9.73	9.53	8.55
WT OF MOISTURE g	3.05	2.94	2.97	3.31	3.40	3.20
WT OF DISH g	1.06	1.06	1.06	1.05	1.07	1.06
WT OF DRY SOIL g	8.43	8.34	8.21	8.68	8.46	7.49
MOISTURE CONTENT %	36.2	35.3	36.2	38.1	40.2	42.8



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		37.6	15.3	22.3	CL	

ADVANCED TERRA TESTING INC

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	12+00	SAMPLED	Rocky Flats
DEPTH	46'	DATE TESTED	02-24-92 TNU/
SAMPLE NO.	#5	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes	
NATURAL	No	
Wt. Wet Soil & Pan	(g)	38.32
Wt. Dry Soil & Pan	(g)	37.10
Wt. Lost Moisture	(g)	1.22
Wt. of Pan Only	(g)	3.73
Wt. of Dry Soil	(g)	33.37
Moisture Content	%	3.7
Wt. Hydrom. Sample Wet	(g)	60.02
Wt. Hydrom. Sample Dry	(g)	57.90

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	2821.44
Weight of + #10 Before Washing (g)	2170.30
Weight of + #10 After Washing (g)	2147.77
Weight of - #10 Wet (g)	651.14
Weight of - #10 Dry (g)	649.91
Wt. Total Sample Dry (g)	2797.68
Calc. Wt. "W" (g)	249.24
Calc. Mass + #10	191.34

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
3"	0.00	885.75	885.75	885.75	31.7	68.3
1 1/2"	0.00	823.07	823.07	1708.82	61.1	38.9
3/4"	0.00	166.09	166.09	1874.91	67.0	33.0
3/8"	0.00	122.73	122.73	1997.64	71.4	28.6
#4	0.00	79.64	79.64	2077.28	74.3	25.7
#10	0.00	70.49	70.49	2147.77	76.8	23.2
#20	1.55	7.96	6.41	6.41	79.3	20.7
#40	1.55	6.18	4.63	11.04	81.2	18.8
#60	1.56	4.98	3.42	14.46	82.6	17.4
#100	1.56	5.66	4.10	18.56	84.2	15.8
#230	1.56	8.67	7.11	25.67	87.1	12.9

Gravel (G-M)

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT	Weston	JOB NO.	2066-03
BORING NO.	12+00	SAMPLED	Rocky Flats
DEPTH	46'	DATE TESTED	02-24-92 TNU/
SAMPLE NO.	#5	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

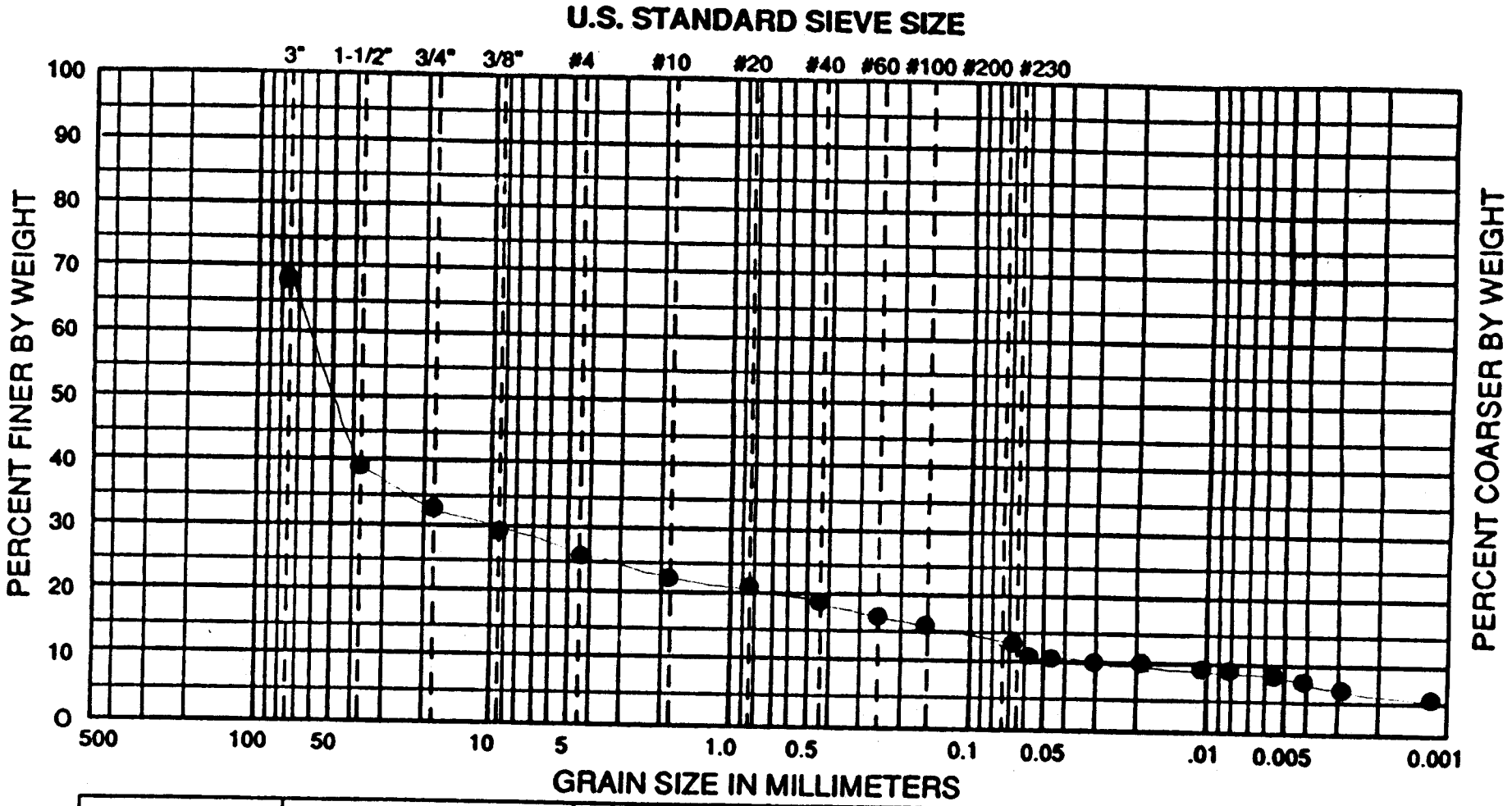
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.74	Temp. Coef. K	0.01298
Value of "a"	0.98	Wt. Dry Sample "W"	249.236
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	6.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	36.00	29.00	11.4	11.4	10.39	0.0592
1.0	34.00	27.00	10.6	10.6	10.71	0.0425
2.0	33.00	26.00	10.2	10.2	10.88	0.0303
5.0	32.00	25.00	9.9	9.9	11.04	0.0193
15.0	30.00	23.00	9.1	9.1	11.37	0.0113
30.0	29.00	22.00	8.7	8.7	11.53	0.0080
60.0	28.00	21.00	8.3	8.3	11.70	0.0057
120.0	27.00	20.00	7.9	7.9	11.86	0.0041
250.0	25.50	18.50	7.3	7.3	12.11	0.0029
1440.0	23.00	16.00	6.3	6.3	12.52	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 12+00 SAMPLE NO.: 5 DATE: 3/4/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION Gravel						
Rocky Flats	4/6'	7	10.9	3.7	6.4	3.4	8.8	12.3%

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER Weston

LOCATION Rocky Flats EG+G

BORING 12+00 SAMPLE Clt #5 DEPTH 46'

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD [redacted]

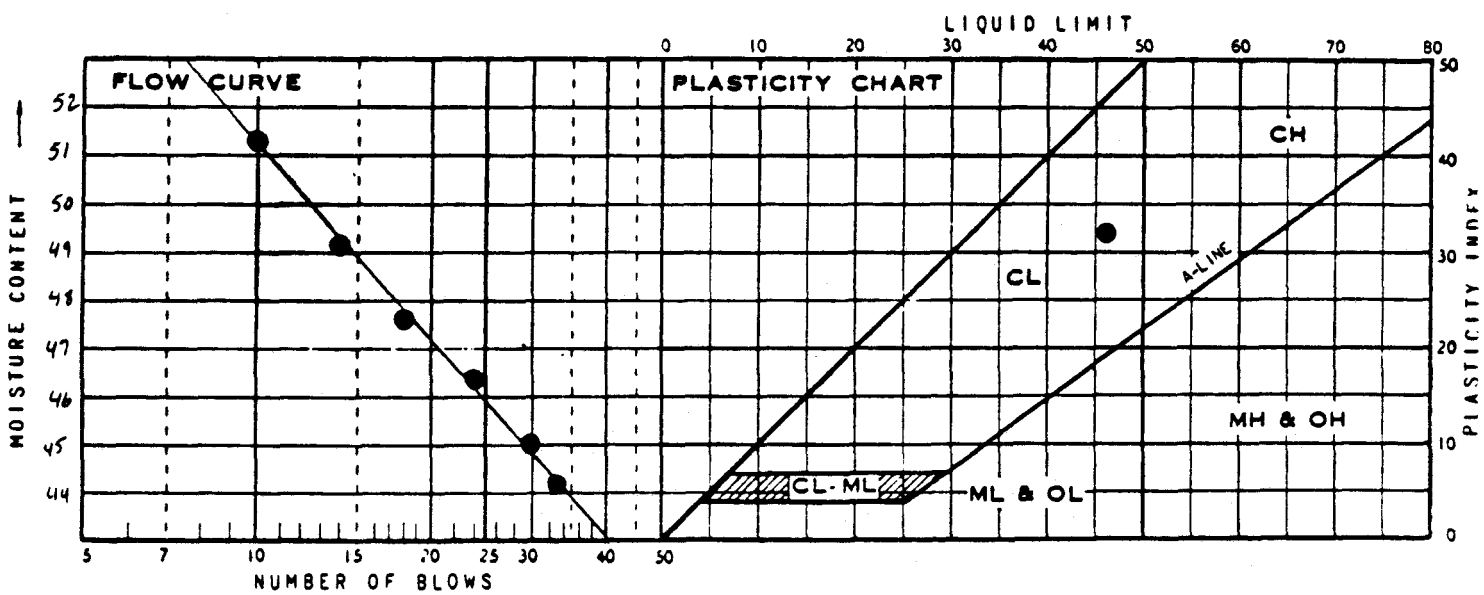
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY Del. 2/28/92

DETERMINATION	1	2	3	4	5	6
DISH	54C	15C	2007			
WT OF DISH + WET SOIL g	7.97	6.38	8.01			
WT OF DISH + DRY SOIL g	7.11	5.76	7.16	—	—	—
WT OF MOISTURE g	.86	.62	.85			
WT OF DISH g	1.07	1.05	1.05	—	—	—
WT OF DRY SOIL g	6.04	4.71	6.11			
MOISTURE CONTENT %	14.2	13.2	13.9			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	58C	46C	3	2005	2028	2008
NUMBER OF BLOWS	33	30	24	18	14	10
WT OF DISH + WET SOIL g	12.99	11.97	11.92	12.92	12.58	12.74
WT OF DISH + DRY SOIL g	9.34	8.58	8.48	9.09	8.78	8.77
WT OF MOISTURE g	3.65	3.39	3.44	3.83	3.80	3.97
WT OF DISH g	1.08	1.06	1.07	1.05	1.05	1.04
WT OF DRY SOIL g	8.26	7.52	7.41	8.04	7.73	7.73
MOISTURE CONTENT %	44.2	45.1	46.4	47.7	49.2	51.4



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		45.9	13.8	32.1	CL	

ADVANCED TERRA TESTING INC

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	12+00	SAMPLED	Rocky Flats
DEPTH	49'	DATE TESTED	02-24-92 TNU/
SAMPLE NO.	#5	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	60.31
Wt. Dry Soil & Pan	(g)	58.62
Wt. Lost Moisture	(g)	1.69
Wt. of Pan Only	(g)	3.76
Wt. of Dry Soil	(g)	54.86
Moisture Content	%	3.1

Wt. Hydrom. Sample Wet (g)	60.00
Wt. Hydrom. Sample Dry (g)	58.21

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	427.81
Weight of + #10 Before Washing (g)	12.36
Weight of + #10 After Washing (g)	0.67
Weight of - #10 Wet (g)	415.45
Weight of - #10 Dry (g)	414.37
Wt. Total Sample Dry (g)	415.04
Calc. Wt. "W" (g)	58.30
Calc. Mass + #10	0.09

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.54	0.54	0.54	0.1	99.9
#10	0.00	0.13	0.13	0.67	0.2	99.8
#20	1.56	1.63	0.07	0.07	0.3	99.7
#40	1.55	1.60	0.05	0.12	0.4	99.6
#60	1.55	1.62	0.07	0.19	0.5	99.5
#100	1.55	1.80	0.25	0.44	0.9	99.1
#230	1.56	16.07	14.51	14.95	25.8	74.2

SANDY CLAYEY SILT

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT	Weston	JOB NO.	2066-03
BORING NO.	12+00	SAMPLED	Rocky Flats
DEPTH	49'	DATE TESTED	02-24-92 TNU,
SAMPLE NO.	#5	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

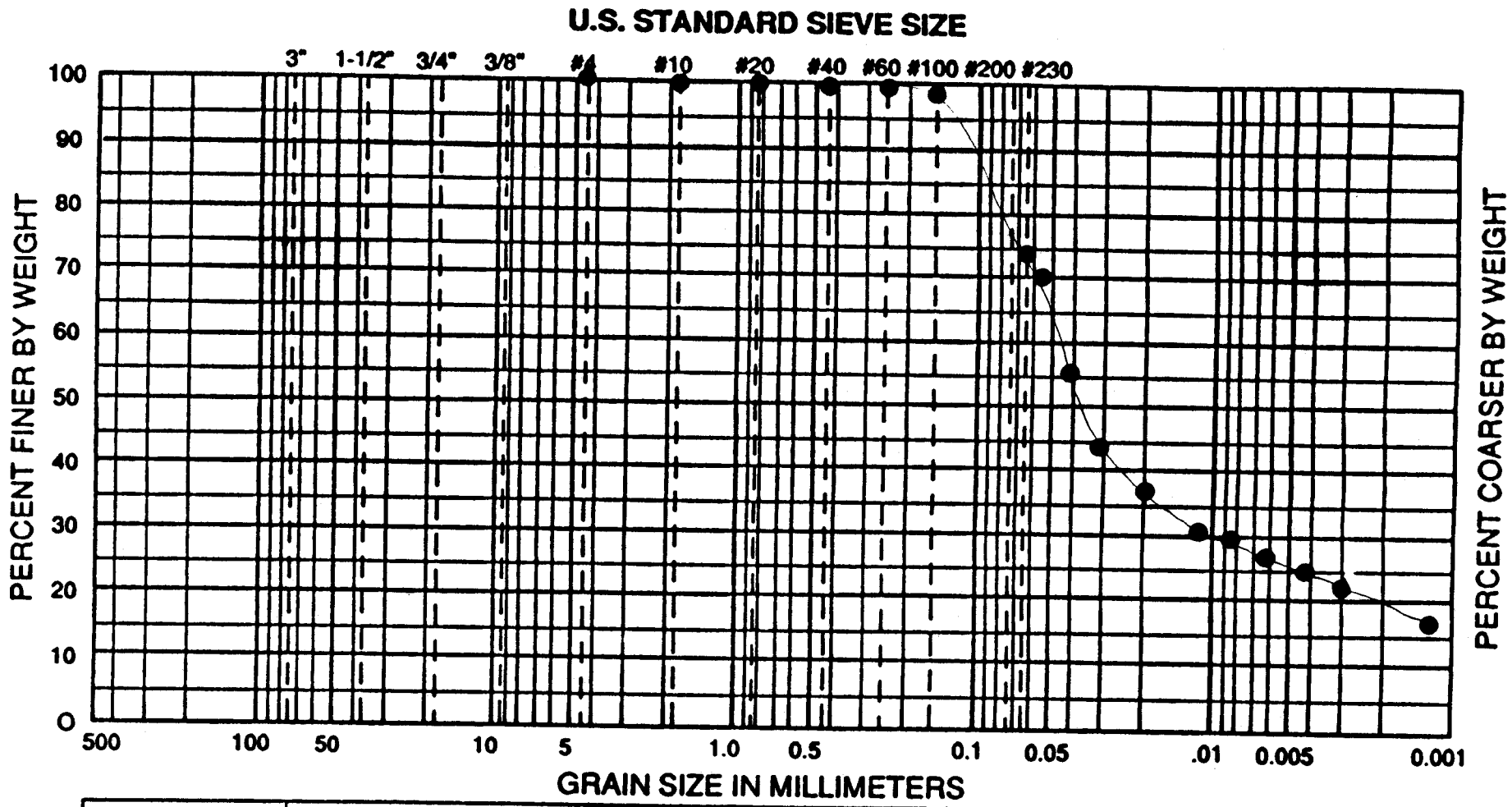
Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.70	Temp. Coef. K	0.01328
Value of "a"	0.99	Wt. Dry Sample "W"	58.301
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	6.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	48.00	41.00	69.6	69.6	8.42	0.0545
1.0	40.00	33.00	56.0	56.0	9.73	0.0414
2.0	33.00	26.00	44.2	44.2	10.88	0.0310
5.0	29.00	22.00	37.4	37.4	11.53	0.0202
15.0	25.50	18.50	31.4	31.4	12.11	0.0119
30.0	24.50	17.50	29.7	29.7	12.27	0.0085
60.0	23.00	16.00	27.2	27.2	12.52	0.0061
120.0	21.50	14.50	24.6	24.6	12.76	0.0043
250.0	20.00	13.00	22.1	22.1	13.01	0.0030
1440.0	17.00	10.00	17.0	17.0	13.50	0.0013

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 12+00 SAMPLE NO.: 5 DATE: 3/3/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	4/9'	

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03
CLIENT/OWNER Luxton
LOCATION Rocky Flats E&C
BORING 12+00 SAMPLE 5 DEPTH @ 49'

FIELD DENSITY BY ____/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

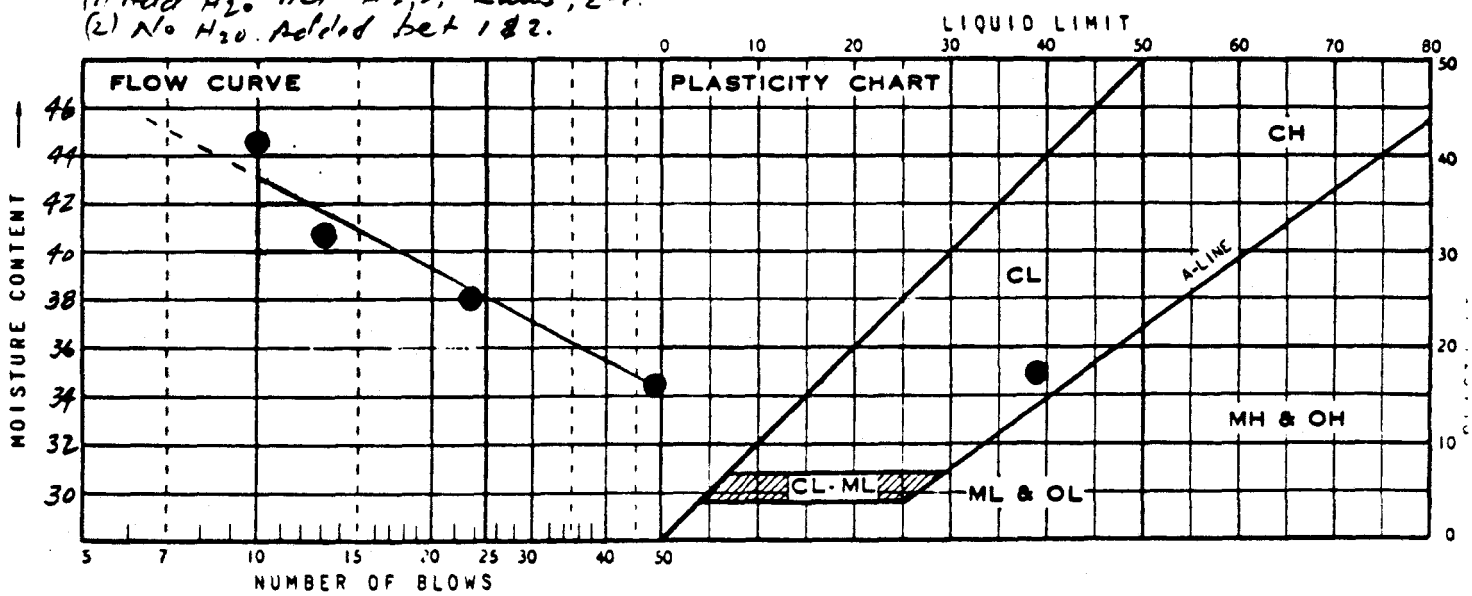
PLASTIC LIMIT BY ~~RH~~ 12/28/92

DETERMINATION	1	2	3	4	5	6
DISH	42C	7C	2003			
WT OF DISH + WET SOIL g	7.56	8.21	9.02			
WT OF DISH + DRY SOIL g	6.42	7.01	7.65	—	—	—
WT OF MOISTURE g	1.14	1.20	1.37			
WT OF DISH g	1.04	1.04	1.03	—	—	—
WT OF DRY SOIL g	5.38	5.97	6.62			
MOISTURE CONTENT %	21.19	20.10	20.69			

LIQUID LIMIT

DETERMINATION	1 (2)	2 (1)	3	4	5	6
DISH	27C	2064	2031	4C	2072	3C
NUMBER OF BLOWS	26	40	48	23	13	10
WT OF DISH + WET SOIL g	8.39	9.77	9.64	8.96	9.59	11.28
WT OF DISH + DRY SOIL g	6.54	7.59	7.44	6.78	7.07	8.13
WT OF MOISTURE g	1.85	2.18	2.20	2.18	2.52	3.15
WT OF DISH g	1.03	1.04	1.04	1.04	1.03	1.04
WT OF DRY SOIL g	5.51	6.55	6.40	5.74	6.04	7.09
MOISTURE CONTENT %	33.58	33.28	34.38	37.98	41.72	44.43

(1) Add H_2O bet #2,3, Runs, etc.
(2) No H_2O added bet 1 & 2.



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		38.1	20.7	17.4	CL	

ADVANCED TERRA TESTING inc

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston** BR

JOB NO. 2066-03

BORING NO.	12+00	SAMPLED	Rocky Flats
DEPTH	53'	DATE TESTED	02-24-92 TNU
SAMPLE NO.	#5	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes
NATURAL	No

Wt. Wet Soil & Pan	(g)	61.35
Wt. Dry Soil & Pan	(g)	60.80
Wt. Lost Moisture	(g)	0.55
Wt. of Pan Only	(g)	3.82
Wt. of Dry Soil	(g)	56.98
Moisture Content	%	1.0

Wt. Hydrom. Sample Wet (g)	60.00
Wt. Hydrom. Sample Dry (g)	59.43

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	60.00
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	60.00
Weight of - #10 Dry (g)	59.43
Wt. Total Sample Dry (g)	59.43
Calc. Wt. "W" (g)	59.43
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	1.56	1.57	0.01	0.01	0.0	100.0
#40	1.55	1.58	0.03	0.04	0.1	99.9
#60	1.55	2.10	0.55	0.59	1.0	99.0
#100	1.55	10.24	8.69	9.28	15.6	84.4
#230	1.55	32.06	30.51	39.79	67.0	33.0

SILTYSANDSTONE w/ some clay

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	12+00	SAMPLED	Rocky Flats
DEPTH	53'	DATE TESTED	02-24-92 TNU/
SAMPLE NO.	#5	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

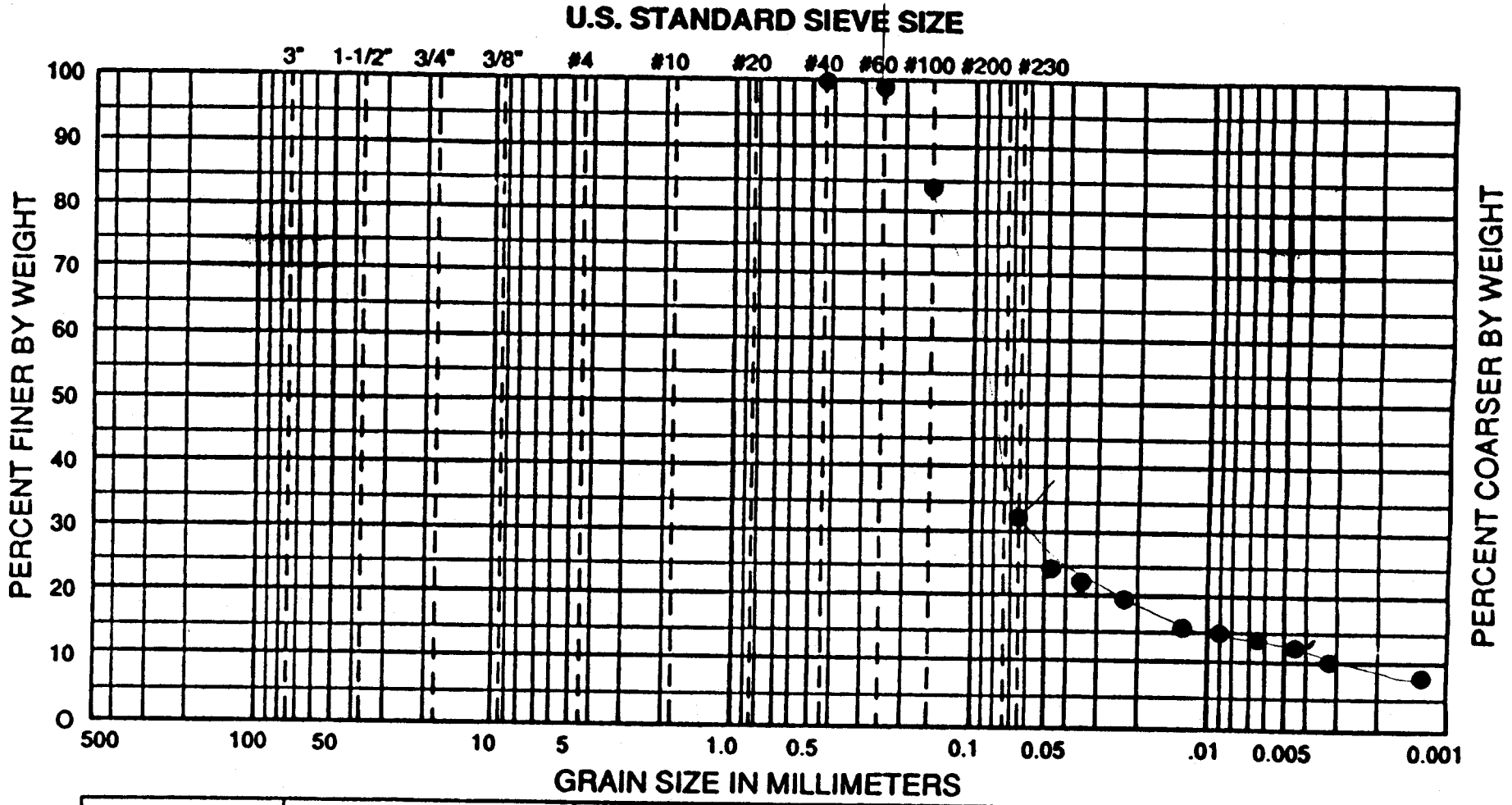
Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.68	Temp. Coef. K	0.01336
Value of "a"	0.99	Wt. Dry Sample "W"	59.426
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	6.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	27.00	20.00	33.5	33.5	11.86	0.0651
1.0	21.50	14.50	24.3	24.3	12.76	0.0477
2.0	20.00	13.00	21.7	21.7	13.01	0.0341
5.0	18.50	11.50	19.2	19.2	13.26	0.0218
15.0	16.25	9.25	15.5	15.5	13.63	0.0127
30.0	16.00	9.00	15.1	15.1	13.67	0.0090
60.0	15.50	8.50	14.2	14.2	13.75	0.0064
120.0	14.50	7.50	12.5	12.5	13.91	0.0045
250.0	13.00	6.00	10.0	10.0	14.16	0.0032
1440.0	12.00	5.00	8.4	8.4	14.32	0.0013

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL			SAND				SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 12+00 SAMPLE NO.: 5 DATE: 3/3/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION SILTY SANDstone w/some CLAY,
Rocky Flats	53'	.1% C sd, .9% m sd, 66% f sd, 20.5% SILT, 12.5% CLAY

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03
CLIENT/OWNER Weston
LOCATION Rocky Flats EG&G
BORING 12400 SAMPLE #5 DEPTH 5.3'

FIELD DENSITY BY ____/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

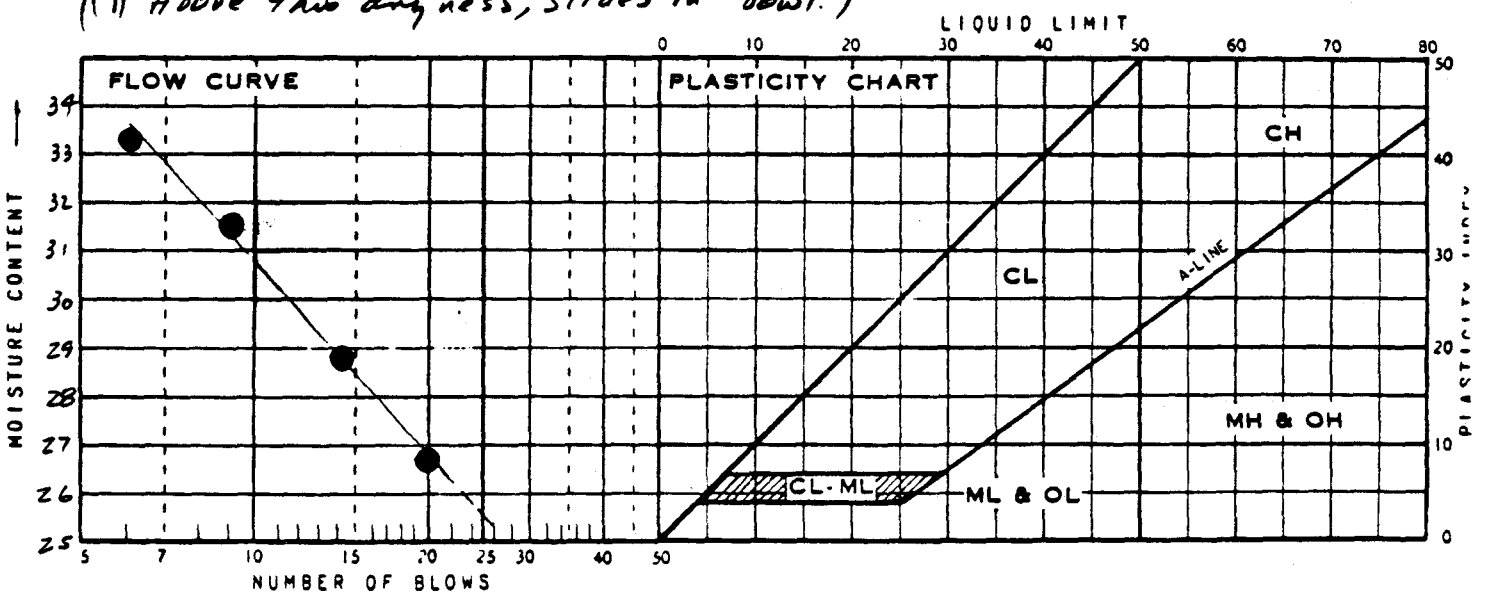
PLASTIC LIMIT BY [illegible] 2/20/92

DETERMINATION	1	2	3	4	5	6
DISH	42C	27C	2064			
WT OF DISH + WET SOIL	NP - (Rolls to ~ 1/8" wet (dry-ish & falls Apart) (@ wetness @ 6 blows, will not roll)					
WT OF DISH + DRY SOIL	—	—	—	—	—	—
WT OF MOISTURE						
WT OF DISH g	1.04	1.03	1.03	—	—	—
WT OF DRY SOIL						
MOISTURE CONTENT						

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2035	19C	24C	35C	2003	7C
NUMBER OF BLOWS	20±(1)	14	9	6		
WT OF DISH + WET SOIL g	8.64	10.08	11.29	10.93		
WT OF DISH + DRY SOIL g	7.03	8.06	8.83	8.47	—	—
WT OF MOISTURE g	1.61	2.02	2.46	2.46		
WT OF DISH g	1.04	1.03	1.03	1.06	1.03	1.05
WT OF DRY SOIL g	5.99	7.03	7.80	7.41		
MOISTURE CONTENT %	26.9	28.7	31.5	33.2		

((1) Above this dryness, slides in bowl.)



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		25.6 EST	—		NP	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	12+50	SAMPLED	Rocky Flats
DEPTH	40.5'	DATE TESTED	02-24-92 TNU/
SAMPLE NO.	#5	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes	
NATURAL	No	
Wt. Wet Soil & Pan	(g)	65.13
Wt. Dry Soil & Pan	(g)	64.10
Wt. Lost Moisture	(g)	1.03
Wt. of Pan Only	(g)	3.70
Wt. of Dry Soil	(g)	60.40
Moisture Content	%	1.7
Wt. Hydrom. Sample Wet	(g)	60.01
Wt. Hydrom. Sample Dry	(g)	59.01

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	2474.35
Weight of + #10 Before Washing (g)	1751.19
Weight of + #10 After Washing (g)	1726.32
Weight of - #10 Wet (g)	723.16
Weight of - #10 Dry (g)	735.49
Wt. Total Sample Dry (g)	2461.81
Calc. Wt. "W" (g)	199.41
Calc. Mass + #10	140.40

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
3"	0.00	1069.85	1069.85	1069.85	43.5	56.5
1 1/2"	0.00	270.76	270.76	1340.61	54.5	45.5
3/4"	0.00	257.32	257.32	1597.93	64.9	35.1
3/8"	0.00	68.10	68.10	1666.03	67.7	32.3
#4	0.00	35.64	35.64	1701.67	69.1	30.9
#10	0.00	31.65	31.65	1733.32	70.4	29.6
#20	1.55	5.85	4.30	4.30	72.6	27.4
#40	1.56	10.45	8.89	13.19	77.0	23.0
#60	1.58	11.60	10.02	23.21	82.0	18.0
#100	1.55	11.31	9.76	32.97	86.9	13.1
#230	1.55	8.22	6.67	39.64	90.3	9.7

Grow 1 (GM)

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	12+50	SAMPLED	Rocky Flats
DEPTH	40.5'	DATE TESTED	02-24-92 TNU,
SAMPLE NO.	#5	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

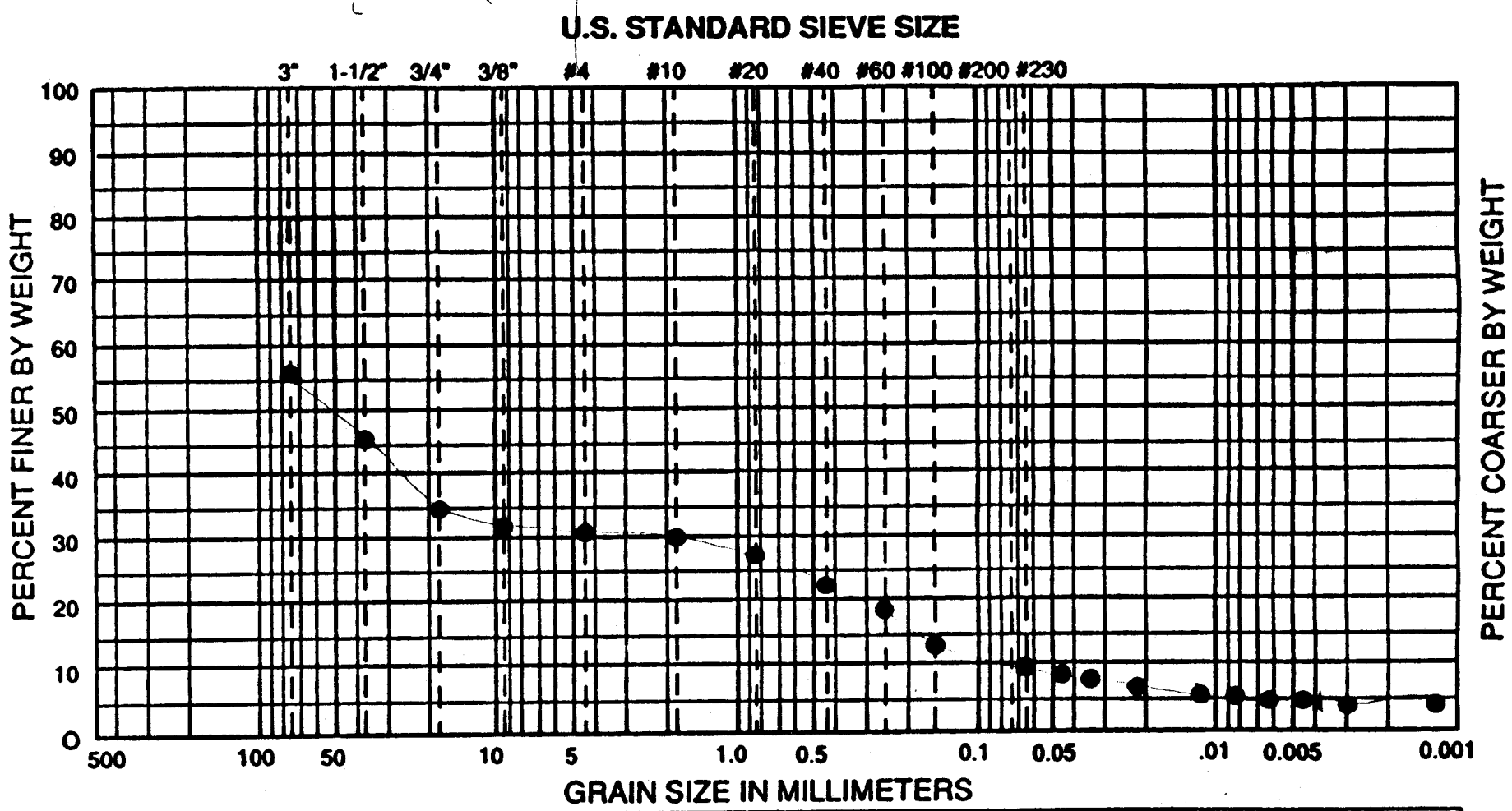
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.73	Temp. Coef. K	0.01301
Value of "a"	0.98	Wt. Dry Sample "W"	199.407
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	6.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	24.00	17.00	8.4	8.4	12.35	0.0647
1.0	22.25	15.25	7.5	7.5	12.64	0.0463
2.0	22.00	15.00	7.4	7.4	12.68	0.0328
5.0	21.50	14.50	7.2	7.2	12.76	0.0208
15.0	19.50	12.50	6.2	6.2	13.09	0.0122
30.0	19.00	12.00	5.9	5.9	13.17	0.0086
60.0	18.50	11.50	5.7	5.7	13.26	0.0061
120.0	18.00	11.00	5.4	5.4	13.34	0.0043
250.0	16.25	9.25	4.6	4.6	13.63	0.0030
1440.0	15.00	8.00	3.9	3.9	13.83	0.0013

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY	
		COARSE	FINE	COARSE	MEDIUM	FINE		
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL			SAND		SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE

WELLNAME: 12+50 SAMPLE NO.: 5 DATE: 3/4/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION Gravel / GM
Rocky Flats	40.5'	37.4 7.4 2.3 11.7 23.0 10.6 7.1
		43.5% Cobble / [illegible] / 1.39 66 [illegible] / 6 [illegible]

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03
CLIENT/OWNER Weston
LOCATION Rocky Flats EG+G
BORING 12-50 SAMPLE CH #5 DEPTH 40.5'

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

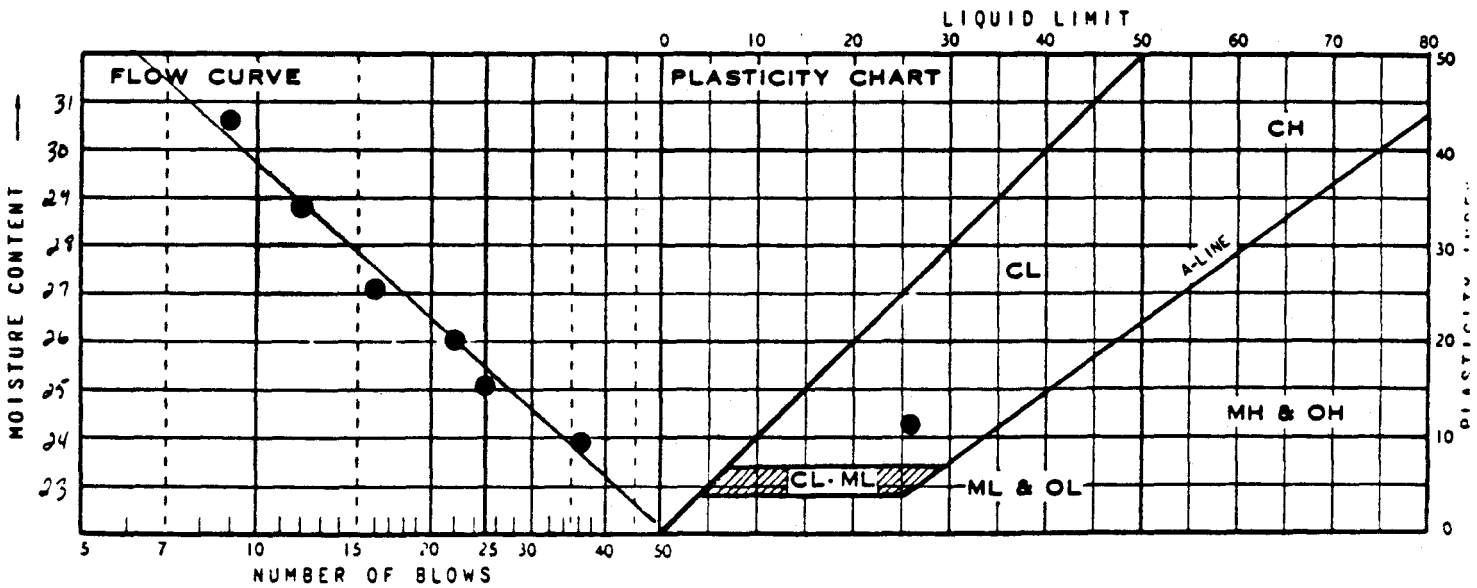
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY AH 2/28/92

DETERMINATION	1	2	3	4	5	6
DISH	34C	2068	2062			
WT OF DISH + WET SOIL g	6.75	8.70	9.18			
WT OF DISH + DRY SOIL g	6.06	7.74	8.15	—	—	—
WT OF MOISTURE g	.69	.96	1.03			
WT OF DISH g	1.04	1.05	1.04	—	—	—
WT OF DRY SOIL g	5.02	6.69	7.11			
MOISTURE CONTENT %	13.7	14.4	14.5			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6	
DISH	41C	2056	2073	2067	33C	10C	20
NUMBER OF BLOWS	24	36	25	22	16	12	9
WT OF DISH + WET SOIL g	15.72	14.30	12.57	14.63	15.68	17.36	14.
WT OF DISH + DRY SOIL g	12.86	11.74	10.26	11.82	12.56	13.70	11.
WT OF MOISTURE g	2.86	2.56	2.31	2.81	3.12	3.66	3.
WT OF DISH g	1.04	1.05	1.05	1.04	1.06	1.05	1.0
WT OF DRY SOIL g	11.82	10.69	9.21	10.78	11.50	12.65	10
MOISTURE CONTENT %	24.2	23.9	25.1	26.1	27.1	28.9	30.



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		25.5	14.2	11.3	CL	

ADVANCED TERRA TESTING INC

MECHANICAL ANALYSIS - SIEVE TEST DATA

BR

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	12+50	SAMPLED	Rocky Flats
DEPTH	43.5'	DATE TESTED	02-24-92 TNU/
SAMPLE NO.	#5	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes	
NATURAL	No	
Wt. Wet Soil & Pan	(g)	59.39
Wt. Dry Soil & Pan	(g)	58.50
Wt. Lost Moisture	(g)	0.89
Wt. of Pan Only	(g)	3.74
Wt. of Dry Soil	(g)	54.76
Moisture Content	%	1.6
Wt. Hydrom. Sample Wet	(g)	60.00
Wt. Hydrom. Sample Dry	(g)	59.04

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	60.00
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	60.00
Weight of - #10 Dry (g)	59.04
Wt. Total Sample Dry (g)	59.04
Calc. Wt. "W" (g)	59.04
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	1.57	1.60	0.03	0.03	0.1	99.9
#40	1.57	1.63	0.06	0.09	0.2	99.8
#60	1.57	1.65	0.08	0.17	0.3	99.7
#100	1.57	2.04	0.47	0.64	1.1	98.9
#230	1.58	32.61	31.03	31.67	53.6	46.4

Clay Silty Sandstone

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	12+50	SAMPLED	Rocky Flats
DEPTH	43.5'	DATE TESTED	02-24-92 TNU/
SAMPLE NO.	#5	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

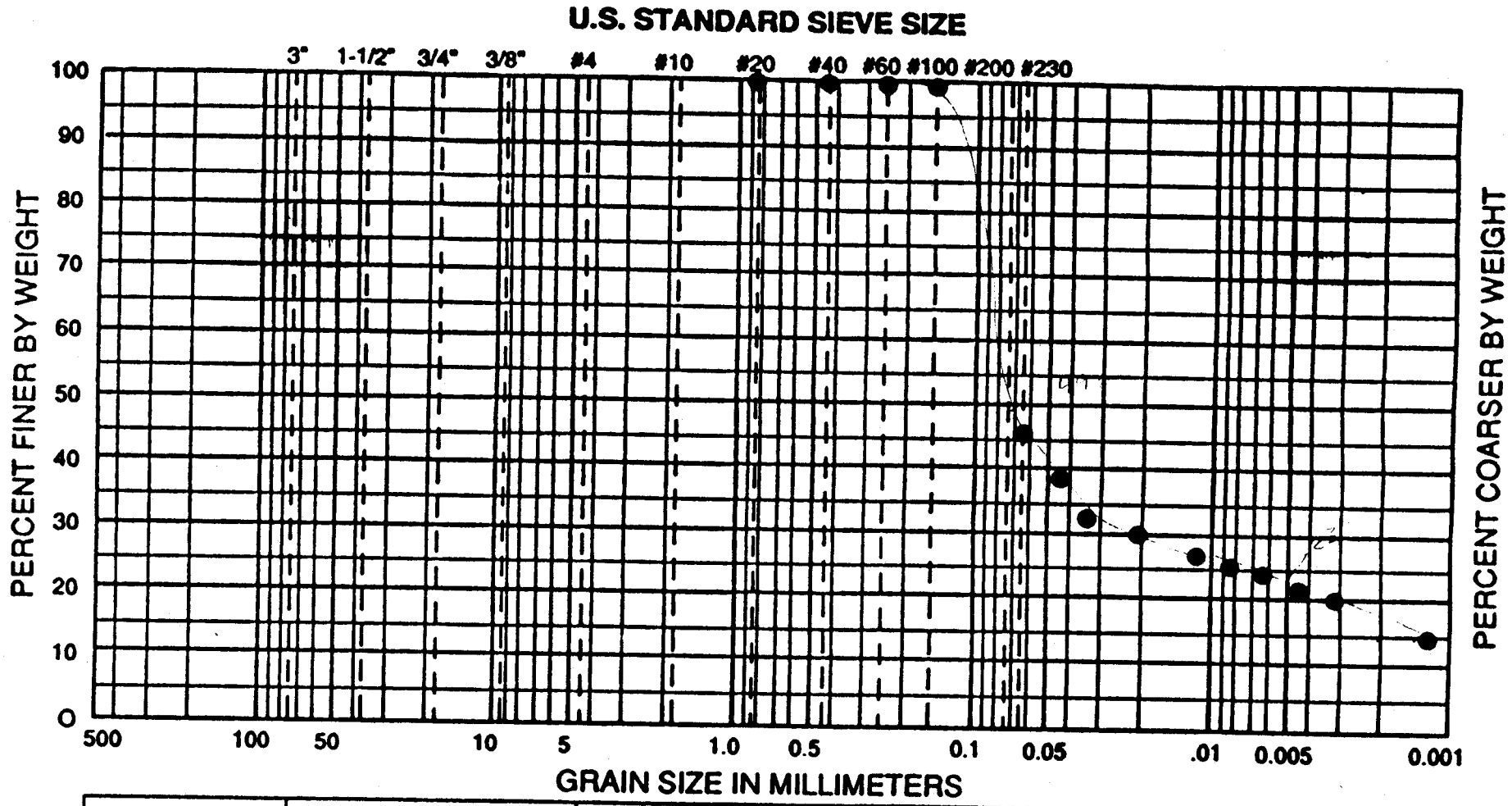
Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.65	Temp. Coef. K	0.01348
Value of "a"	1.00	Wt. Dry Sample "W"	59.040
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	6.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	36.50	29.50	50.0	50.0	10.30	0.0612
1.0	29.50	22.50	38.1	38.1	11.45	0.0456
2.0	26.50	19.50	33.0	33.0	11.94	0.0329
5.0	24.50	17.50	29.6	29.6	12.27	0.0211
15.0	23.00	16.00	27.1	27.1	12.52	0.0123
30.0	22.50	15.50	26.3	26.3	12.60	0.0087
60.0	21.00	14.00	23.7	23.7	12.85	0.0062
120.0	20.00	13.00	22.0	22.0	13.01	0.0044
250.0	18.50	11.50	19.5	19.5	13.26	0.0031
1440.0	15.50	8.50	14.4	14.4	13.75	0.0013

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 12+50 SAMPLE NO.: 5 DATE: 3/3/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION Sand
Rocky Flats	113.5'	[illegible], 52.9 [illegible], 25% SILT, 23% CLAY

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION - - - - - - - - - - - - - - - -

LABORATORY CLASSIFICATION - - - - - - - - - - - - -

JOB NO. 2066-C3

CLIENT/OWNER Weston

LOCATION Rocky Flats EG-G

BORING 12-SQ SAMPLE CH #5 DEPTH 43.5

FIELD DENSITY BY ___/___/___

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY DW 2/28/92.

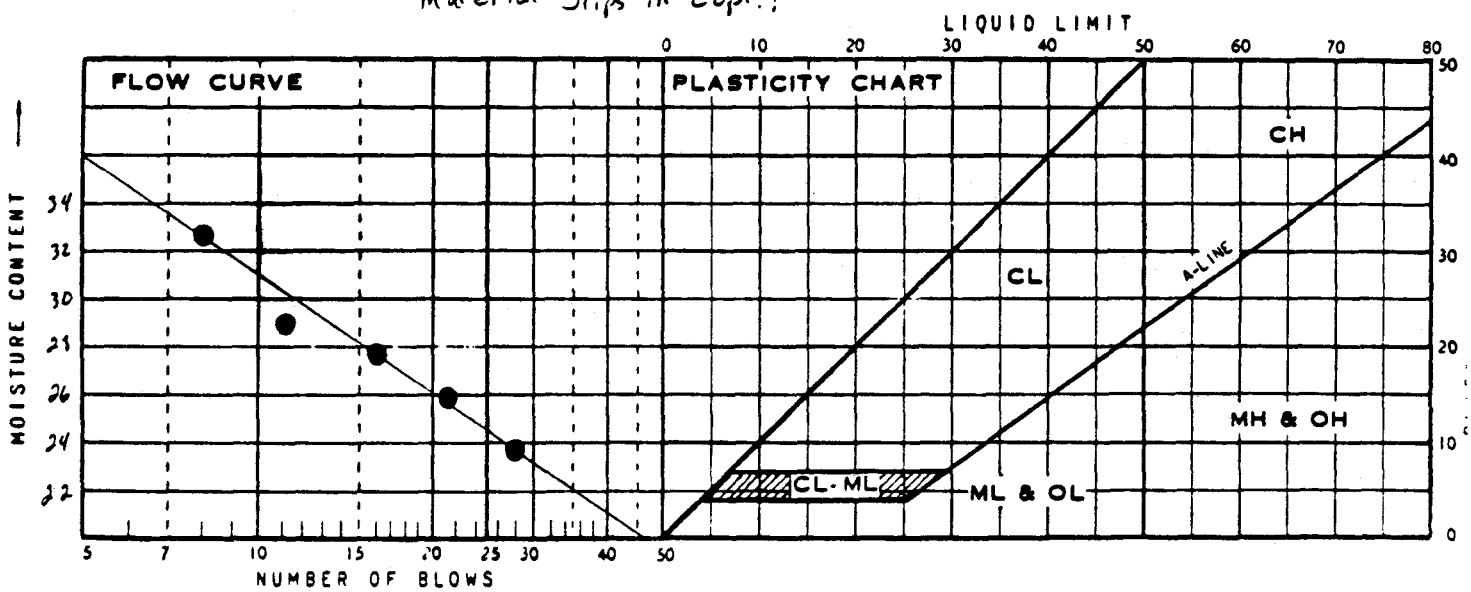
DETERMINATION	1	2	3	4	5	6
DISH						
WT OF DISH + WET SOIL						
WT OF DISH + DRY SOIL	—	—	—	—	—	—
WT OF MOISTURE						
WT OF DISH	—	—	—	—	—	—
WT OF DRY SOIL						
MOISTURE CONTENT						

Material Non-plastic!! UNTESTABLE for Plastic Limits!!

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	31C	2065	2063	2027	2040	2009
NUMBER OF BLOWS	28	21	16	11	8	
WT OF DISH + WET SOIL	15.94	14.59	12.65	14.96	16.49	
WT OF DISH + DRY SOIL	13.09	11.79	10.13	11.83	12.68	—
WT OF MOISTURE	2.85	2.80	2.52	3.13	3.81	
WT OF DISH	1.05	1.04	1.06	1.05	1.04	1.04
WT OF DRY SOIL	12.04	10.75	9.07	10.78	11.64	
MOISTURE CONTENT	23.7	26.0	27.8	29.0	32.7	

Material Slips in cup!!



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		24.3			NP	

ADVANCED TERRA TESTING

RA

MECHANICAL ANALYSIS - SIEVE TEST DATA

8R

CLIENT Weston

JOB NO. 2066-03

BORING NO.	12+70	SAMPLED	Rocky Flats
DEPTH	55'	DATE TESTED	02-12-92 TNU
SAMPLE NO.	#2	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes	
NATURAL	No	
Wt. Wet Soil & Pan	(g)	51.41
Wt. Dry Soil & Pan	(g)	51.17
Wt. Lost Moisture	(g)	0.24
Wt. of Pan Only	(g)	3.76
Wt. of Dry Soil	(g)	47.41
Moisture Content	%	0.5
Wt. Hydrom. Sample Wet	(g)	58.93
Wt. Hydrom. Sample Dry	(g)	58.64

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	56.19
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	56.19
Weight of - #10 Dry (g)	55.91
Wt. Total Sample Dry (g)	55.91
Calc. Wt. "W" (g)	58.64
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	1.30	1.33	0.03	0.03	0.1	99.9
#40	1.57	1.65	0.08	0.11	0.2	99.8
#60	1.57	2.11	0.54	0.65	1.1	98.9
#100	1.57	6.12	4.55	5.20	8.9	91.1
#230	1.32	34.60	33.28	38.48	65.6	34.4

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT	Weston	JOB NO.	2066-03
BORING NO.	12+70	SAMPLED	Rocky Flats/E
DEPTH	55'	DATE TESTED	02-12-92 TNU
SAMPLE NO.	#2	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

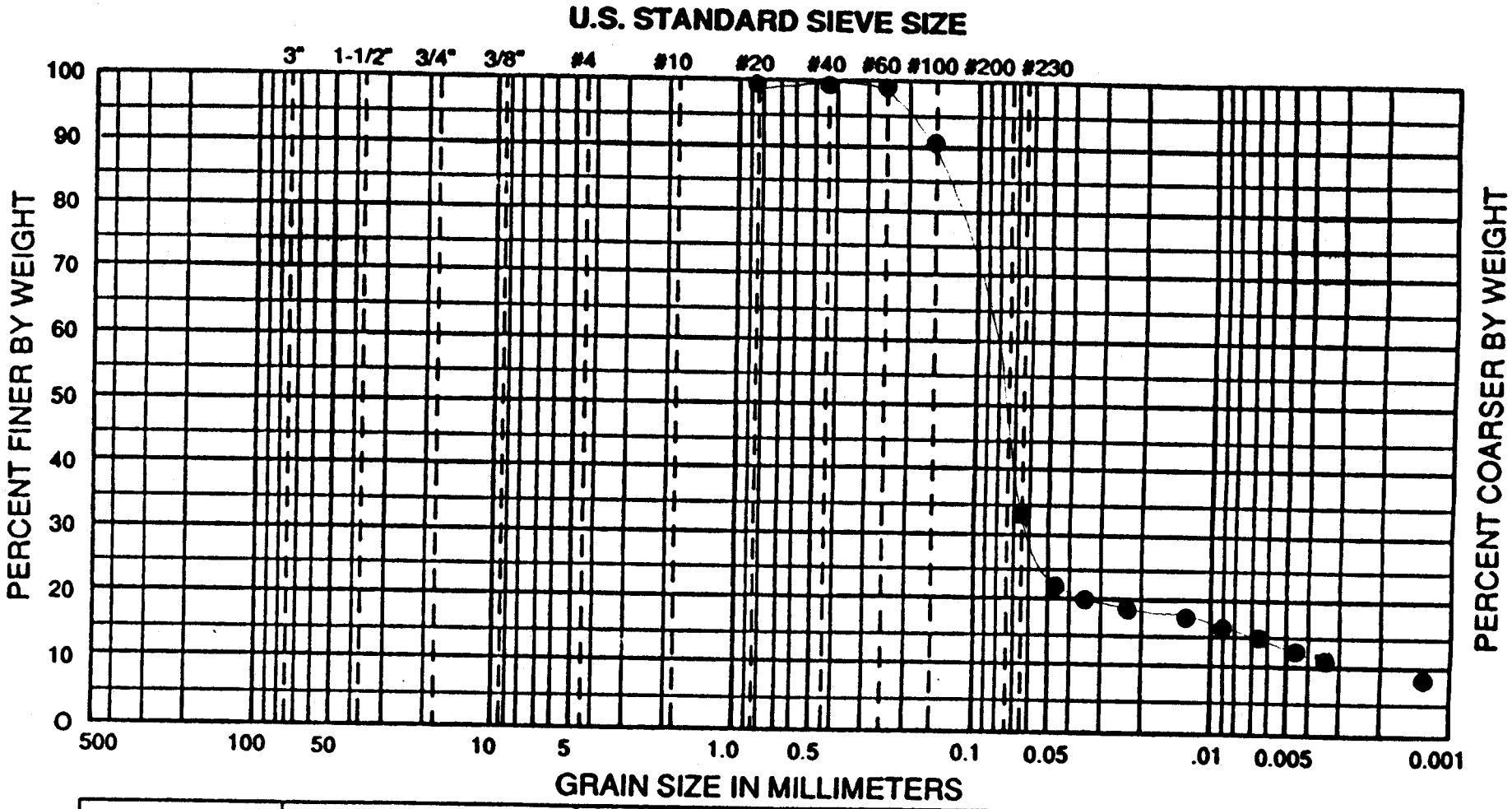
Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.68	Temp. Coef. K	0.01336
Value of "a"	0.99	Wt. Dry Sample "W"	58.636
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	5.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	26.50	20.50	34.8	34.8	11.94	0.0653
1.0	20.00	14.00	23.7	23.7	13.01	0.0482
2.0	18.00	12.00	20.3	20.3	13.34	0.0345
5.0	16.75	10.75	18.2	18.2	13.54	0.0220
15.0	16.00	10.00	17.0	17.0	13.67	0.0128
30.0	15.50	9.50	16.1	16.1	13.75	0.0090
60.0	15.00	9.00	15.3	15.3	13.83	0.0064
120.0	14.00	8.00	13.6	13.6	13.99	0.0046
250.0	13.00	7.00	11.9	11.9	14.16	0.0032
1440.0	11.00	5.00	8.5	8.5	14.49	0.0013

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 12+70 SAMPLE NO.: # 2 DATE: 2-21-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
		SILTY SAND STONE w/some clay
	55'	ROCKY FLAT [illegible] 22.4% silt, 12% clay

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER Weston

LOCATION Rocky Flats EG&G

BORING 12+70 SAMPLE CH #2 DEPTH 55'

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

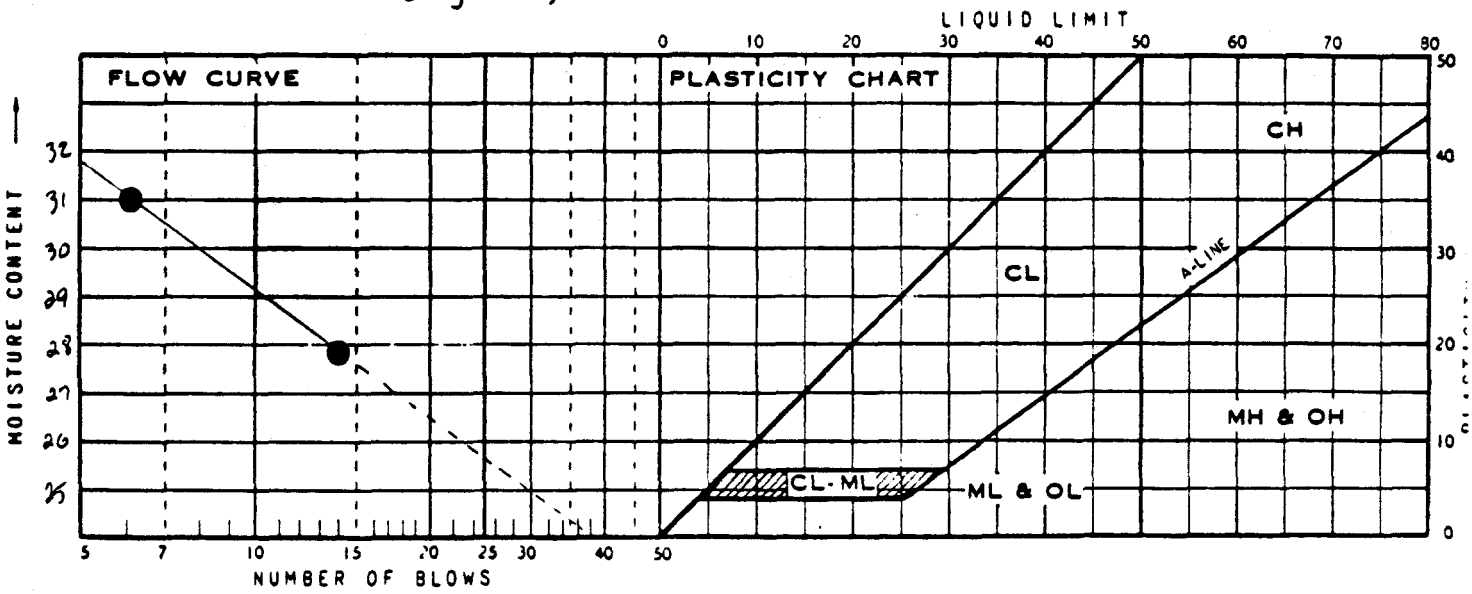
PLASTIC LIMIT BY DU 2/20/92

DETERMINATION	1	2	3	4	5	6
DISH						
WT OF DISH + WET SOIL g						
WT OF DISH + DRY SOIL g	—	—	—	—	—	—
WT OF MOISTURE g		non-PLASTIC!!				
WT OF DISH g	—	—	—	—	—	—
WT OF DRY SOIL g						
MOISTURE CONTENT %						

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2065	2022	2036			
NUMBER OF BLOWS	6	14	6			
WT OF DISH + WET SOIL g	17.17	18.22	15.96			
WT OF DISH + DRY SOIL g	14.16	14.47	12.43	—	—	—
WT OF MOISTURE g	3.01	3.75	3.53			
WT OF DISH g	1.04	1.05	1.04	—	—	—
WT OF DRY SOIL g	13.12	13.42	11.39			
MOISTURE CONTENT %	22.9	27.9	31.0			

Very SANDY SLIPS IN CUP



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		25.0	0.00			

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	13+00	SAMPLED	Rocky Flats
DEPTH	7'	DATE TESTED	02-12-92 TNU
SAMPLE NO.	#2	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	31.60
Wt. Dry Soil & Pan	(g)	30.70
Wt. Lost Moisture	(g)	0.90
Wt. of Pan Only	(g)	3.81
Wt. of Dry Soil	(g)	26.89
Moisture Content	%	3.3

Wt. Hydrom. Sample Wet (g)	60.02
Wt. Hydrom. Sample Dry (g)	58.08

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	342.73
Weight of + #10 Before Washing (g)	20.33
Weight of + #10 After Washing (g)	18.29
Weight of - #10 Wet (g)	322.40
Weight of - #10 Dry (g)	313.93
Wt. Total Sample Dry (g)	332.22
Calc. Wt. "W" (g)	61.46
Calc. Mass + #10	3.38

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	4.88	4.88	4.88	1.5	98.5
#4	0.00	7.09	7.09	11.97	3.6	96.4
#10	0.00	6.32	6.32	18.29	5.5	94.5
#20	1.56	2.88	1.32	1.32	7.7	92.3
#40	1.56	4.07	2.51	3.83	11.7	88.3
#60	1.56	6.35	4.79	8.62	19.5	80.5
#100	1.55	10.87	9.32	17.94	34.7	65.3
#230	1.56	12.41	10.85	28.79	52.3	47.7

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	13+00	SAMPLED	Rocky Flats/E
DEPTH	7'	DATE TESTED	02-12-92 TNU
SAMPLE NO.	#2	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

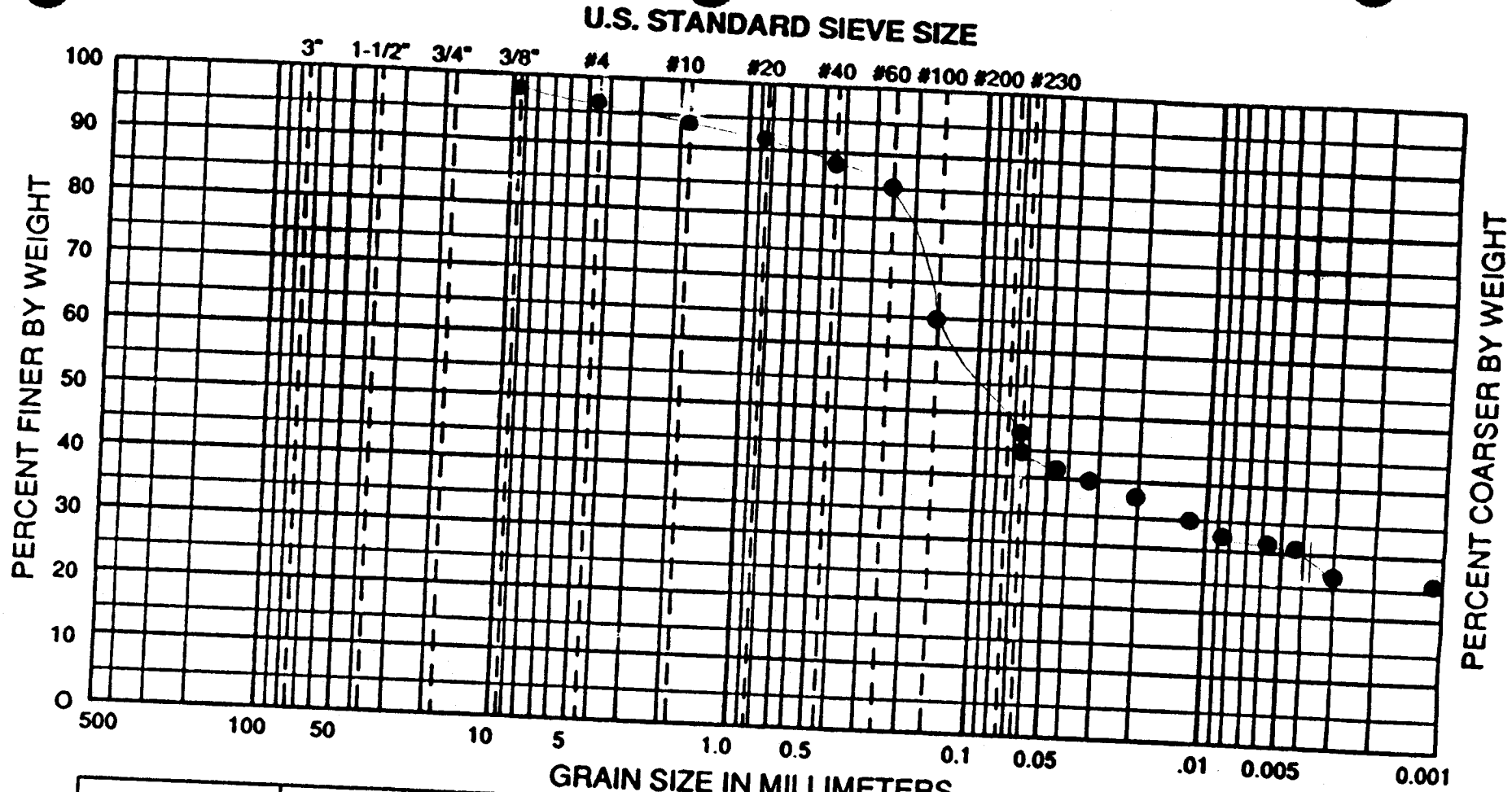
Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.72	Temp. Coef. K	0.01324
Value of "a"	0.99	Wt. Dry Sample "W"	61.459
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	5.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	34.00	28.00	44.9	44.9	10.71	0.0613
1.0	32.00	26.00	41.7	41.7	11.04	0.0440
2.0	31.00	25.00	40.1	40.1	11.21	0.0313
5.0	29.00	23.00	36.9	36.9	11.53	0.0201
15.0	28.00	22.00	35.3	35.3	11.70	0.0117
30.0	26.50	20.50	32.9	32.9	11.94	0.0084
60.0	25.75	19.75	31.7	31.7	12.07	0.0059
120.0	25.00	19.00	30.5	30.5	12.19	0.0042
250.0	23.00	17.00	27.3	27.3	12.52	0.0030
1440.0	22.50	16.50	26.5	26.5	12.60	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 13+00 SAMPLE NO.: #2 DATE: 2-22-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
	70'	CLAYEY SAND w/ some SILT & Gravel (SC) Rocky [illegible]

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION - - - - - - - - - - - - - - - -

LABORATORY CLASSIFICATION - - - - - - - - - - - -

JOB NO. 2066-03

CLIENT/OWNER WESTON

LOCATION

BORING 13+00 SAMPLE - - - - DEPTH 7' - - -

(2)

FIELD DENSITY BY ../../..

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

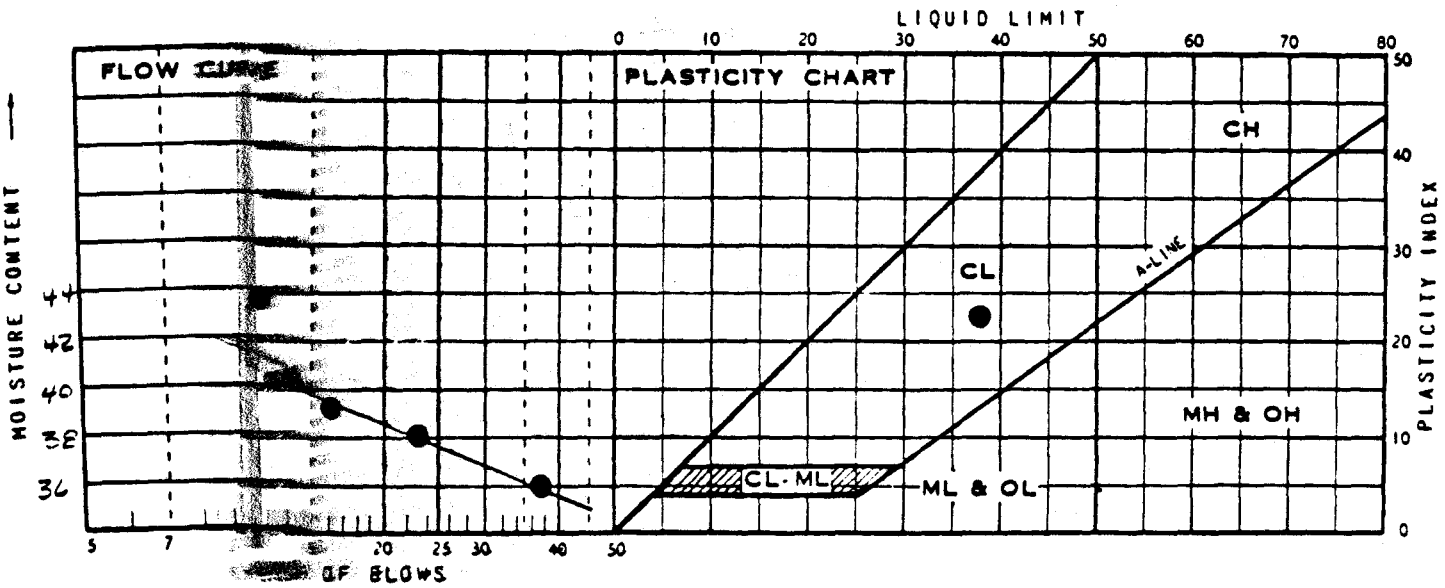
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY SR. 2/19/92.

DETERMINATION	1	2	3	4	5	6
DISH	2022	2011	35C			
WT OF DISH + WET SOIL g	9.98	11.13	10.62			
WT OF DISH + DRY SOIL g	8.81	9.80	9.37	—	—	—
WT OF MOISTURE g	1.17	1.33	1.25			
WT OF DISH g	1.05	1.04	1.07	—	—	—
WT OF DRY SOIL g	7.76	8.76	8.30			
MOISTURE CONTENT %	15.0	15.2	15.0			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	20C	22	10C	4	2077	
NUMBER OF BLOWS	38	23±	16±	13±	11	
WT OF DISH + WET SOIL g	16.76	16.54	18.15	18.86	19.03	
WT OF DISH + DRY SOIL g	12.61	12.27	13.33	13.74	13.56	—
WT OF MOISTURE g	4.15	4.27	4.82	5.12	5.47	
WT OF DISH g	1.08	1.06	1.07	1.06	1.05	—
WT OF DRY SOIL g	11.53	11.21	12.26	12.68	12.51	
MOISTURE CONTENT %	36.0	38.1	39.3	40.4	43.7	



SUMMARY

DRY DENSITY	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
	37.8	15.0	22.8	CL	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	13+50	SAMPLED	Rocky Flats
DEPTH	1'	DATE TESTED	02-12-92 TNU
SAMPLE NO.	#2	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	56.62
Wt. Dry Soil & Pan	(g)	52.29
Wt. Lost Moisture	(g)	4.33
Wt. of Pan Only	(g)	3.65
Wt. of Dry Soil	(g)	48.64
Moisture Content	%	8.9

Wt. Hydrom. Sample Wet (g)	60.00
Wt. Hydrom. Sample Dry (g)	55.10

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	348.02
Weight of + #10 Before Washing (g)	20.00
Weight of + #10 After Washing (g)	2.66
Weight of - #10 Wet (g)	328.02
Weight of - #10 Dry (g)	317.13
Wt. Total Sample Dry (g)	319.79
Calc. Wt. "W" (g)	55.56
Calc. Mass + #10	0.46

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	1.02	1.02	1.02	0.3	99.7
#10	0.00	1.64	1.64	2.66	0.8	99.2
#20	1.57	1.83	0.26	0.26	1.3	98.7
#40	1.56	1.86	0.30	0.56	1.8	98.2
#60	1.58	1.87	0.29	0.85	2.4	97.6
#100	1.57	1.93	0.36	1.21	3.0	97.0
#230	1.56	2.34	0.78	1.99	4.4	95.6

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	13+50	SAMPLED	Rocky Flats/E
DEPTH	1'	DATE TESTED	02-12-92 TNU
SAMPLE NO.	#2	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

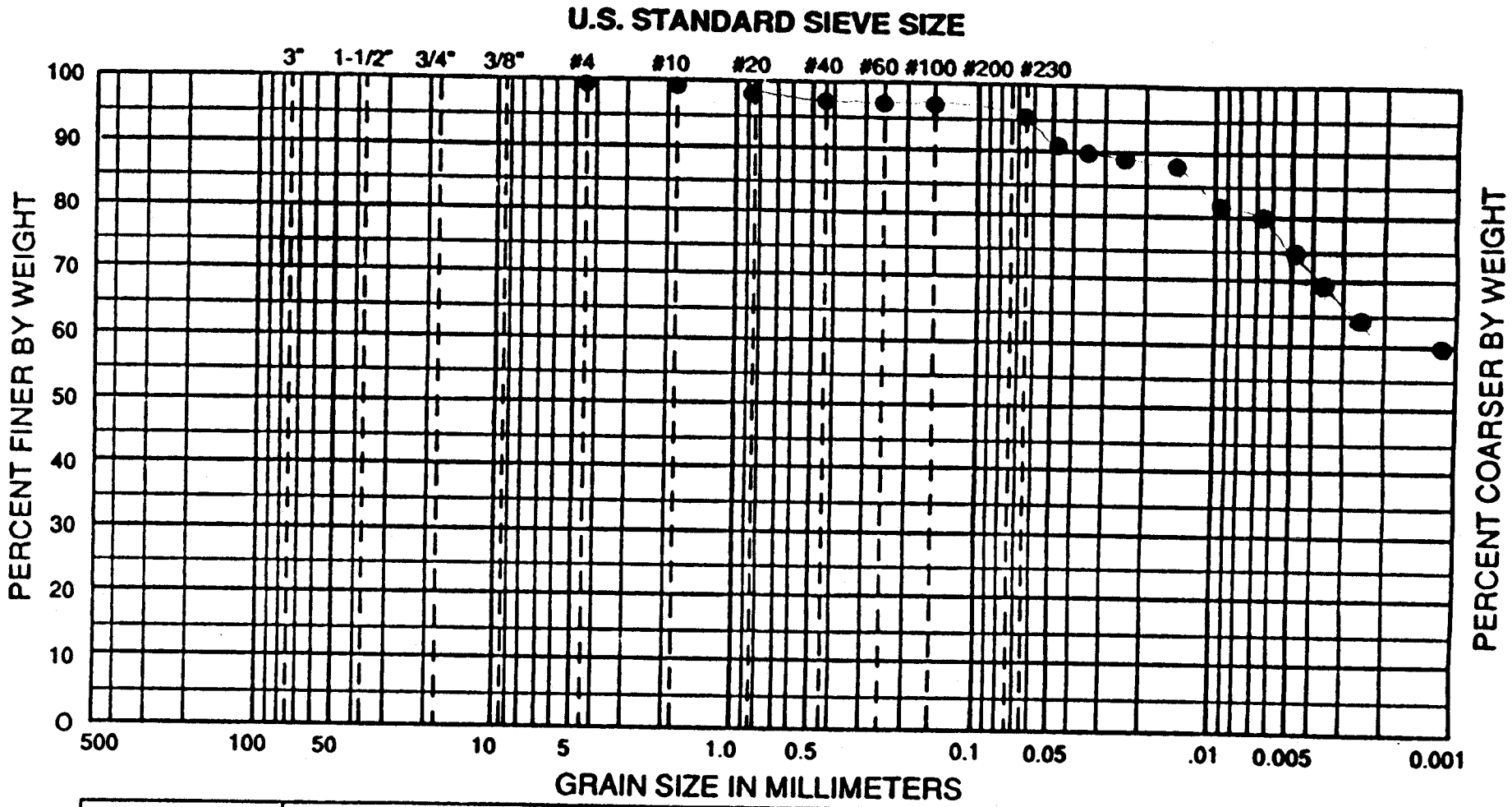
Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.71	Temp. Coef. K	0.01308
Value of "a"	0.99	Wt. Dry Sample "W"	55.557
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	5.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	57.50	51.50	91.6	91.6	6.86	0.0485
1.0	56.75	50.75	90.3	90.3	6.98	0.0346
2.0	56.50	50.50	89.8	89.8	7.02	0.0245
5.0	55.50	49.50	88.0	88.0	7.19	0.0157
15.0	53.00	47.00	83.6	83.6	7.60	0.0093
30.0	51.00	45.00	80.0	80.0	7.93	0.0067
60.0	48.50	42.50	75.6	75.6	8.34	0.0049
120.0	45.00	39.00	69.4	69.4	8.91	0.0036
250.0	42.00	36.00	64.0	64.0	9.40	0.0025
1440.0	40.00	34.00	60.5	60.5	9.73	0.0011

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL			SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE	

WELLNAME: 13+50 SAMPLE NO.: #2 DATE: 2-22-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
	10'	SILTY CLAY w/ Trace SAND and gravels (CH) .3% Gravels Rocky + LATS [illegible]

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER Weston

LOCATION Rocky Flats EG+G

BORING 13+50 SAMPLE CH #2 DEPTH 1'

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD [redacted]

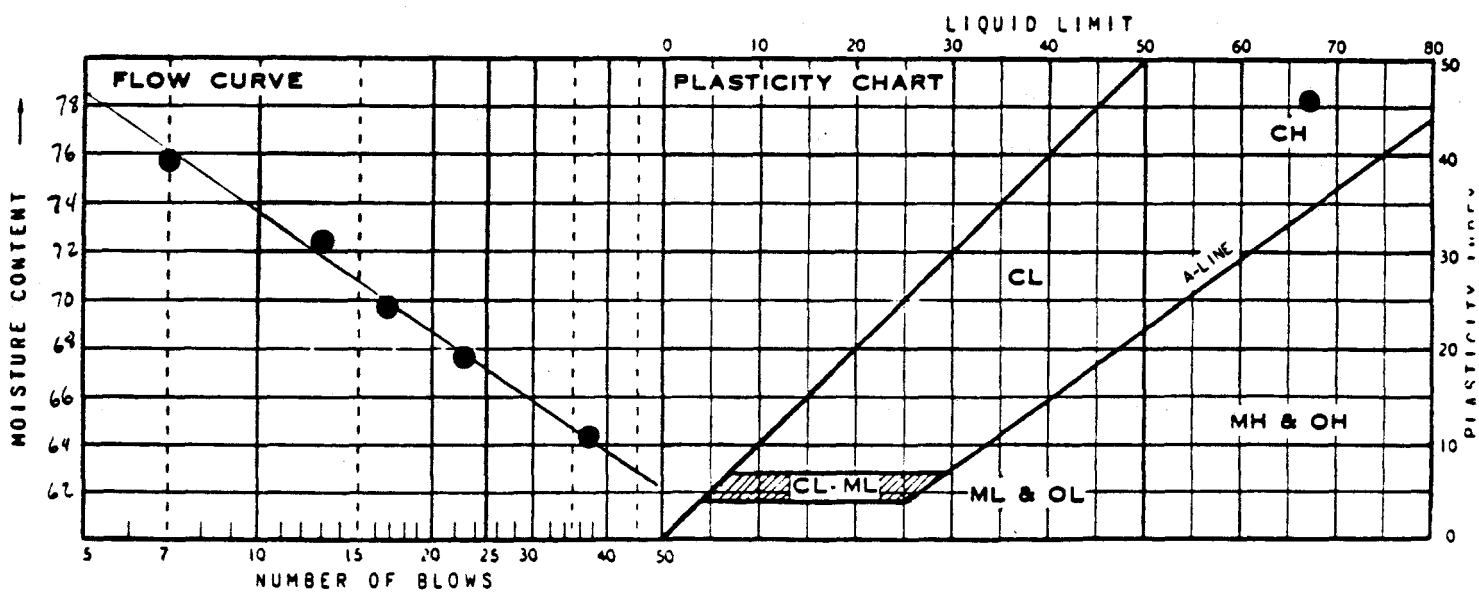
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY QM 2/20/92

DETERMINATION	1	2	3 (?)	4	5	6
DISH	2066	2067	2063			
WT OF DISH + WET SOIL g	6.92	7.41	5.91			
WT OF DISH + DRY SOIL g	5.87	6.27	5.10	—	—	—
WT OF MOISTURE g	1.05	1.14	.81			
WT OF DISH g	1.03	1.02	1.03	—	—	—
WT OF DRY SOIL g	4.84	5.25	4.07			
MOISTURE CONTENT %	21.7	21.7	19.9			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2069	2070	2071	2072	2073	2074
NUMBER OF BLOWS	37	23	17	13	7	
WT OF DISH + WET SOIL g	9.99	10.56	12.29	9.46	10.95	
WT OF DISH + DRY SOIL g	6.48	6.72	7.67	5.92	6.67	—
WT OF MOISTURE g	3.51	3.84	4.62	3.54	4.28	
WT OF DISH g	1.03	1.04	1.04	1.03	1.03	1.03
WT OF DRY SOIL g	5.45	5.68	6.63	4.89	5.64	
MOISTURE CONTENT %	64.4	67.6	69.7	72.4	75.8	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		67.2	21.7	45.5	CH	

ADVANCED TERRA TESTING

RPM

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	13+50	SAMPLED	Rocky Flats
DEPTH	4.5'	DATE TESTED	02-12-92 TNU
SAMPLE NO.	#2	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	58.51
Wt. Dry Soil & Pan	(g)	56.06
Wt. Lost Moisture	(g)	2.45
Wt. of Pan Only	(g)	3.93
Wt. of Dry Soil	(g)	52.13
Moisture Content	%	4.7

Wt. Hydrom. Sample Wet (g)	60.00
Wt. Hydrom. Sample Dry (g)	57.31

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	384.03
Weight of + #10 Before Washing (g)	127.55
Weight of + #10 After Washing (g)	94.46
Weight of - #10 Wet (g)	256.48
Weight of - #10 Dry (g)	276.57
Wt. Total Sample Dry (g)	371.03
Calc. Wt. "W" (g)	76.88
Calc. Mass + #10	19.57

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	40.78	40.78	40.78	11.0	89.0
#4	0.00	28.54	28.54	69.32	18.7	81.3
#10	0.00	25.14	25.14	94.46	25.5	74.5
#20	1.56	5.38	3.82	3.82	30.4	69.6
#40	1.57	5.05	3.48	7.30	35.0	65.0
#60	1.56	5.75	4.19	11.49	40.4	59.6
#100	1.57	6.59	5.02	16.51	46.9	53.1
#230	1.30	6.88	5.58	22.09	54.2	45.8

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston** JOB NO. 2066-03

BORING NO.	13+50	SAMPLED	Rocky Flats/E
DEPTH	4.5'	DATE TESTED	02-12-92 TNU
SAMPLE NO.	#2	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

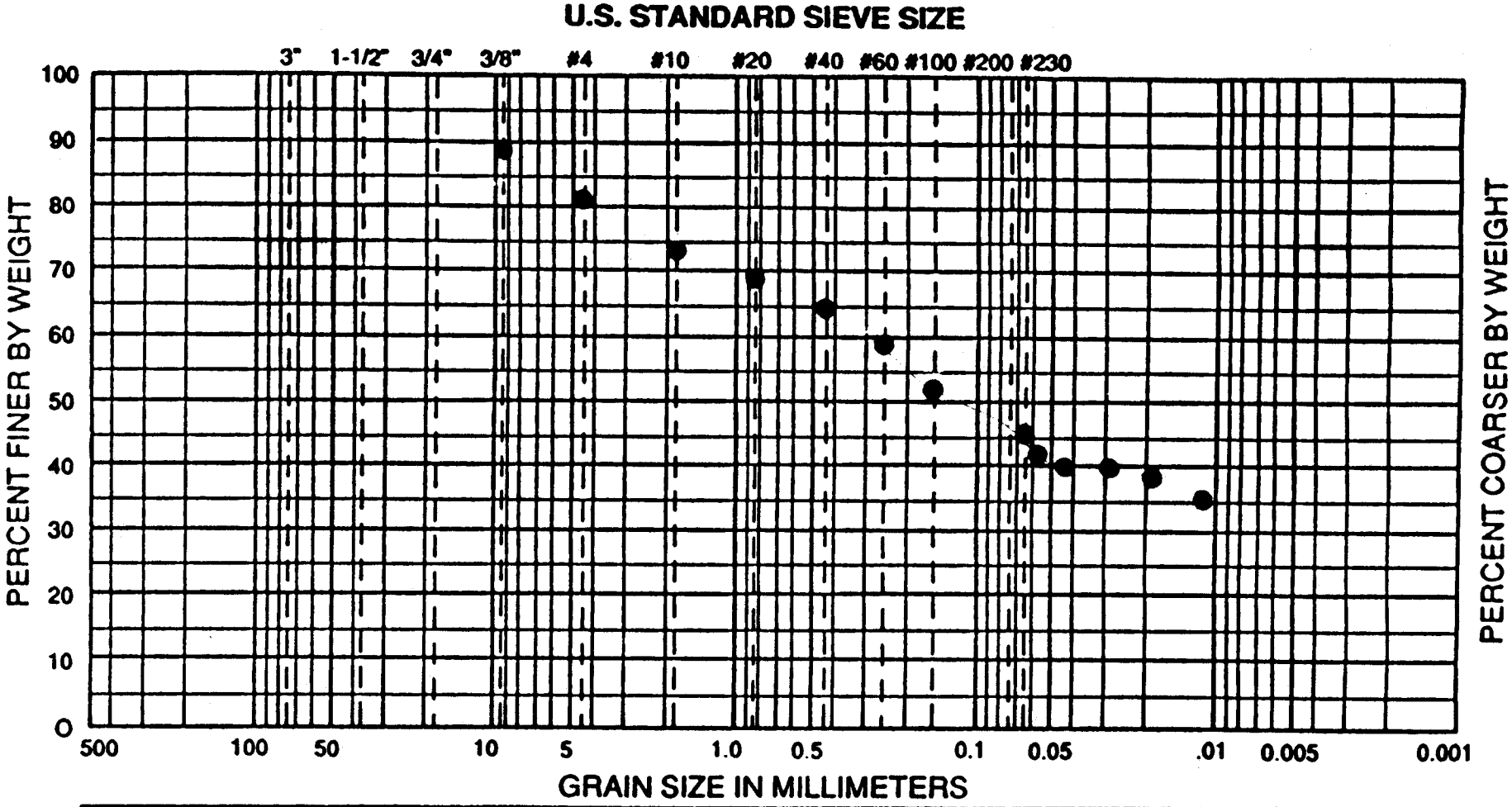
Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.74	Temp. Coef. K	0.01313
Value of "a"	0.98	Wt. Dry Sample "W"	76.879
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	5.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	39.50	33.50	42.8	42.8	9.81	0.0582
1.0	38.00	32.00	40.9	40.9	10.06	0.0416
2.0	37.50	31.50	40.2	40.2	10.14	0.0296
5.0	36.00	30.00	38.3	38.3	10.39	0.0189
15.0	34.00	28.00	35.8	35.8	10.71	0.0111
30.0	33.00	27.00	34.5	34.5	10.88	0.0079
60.0	32.00	26.00	33.2	33.2	11.04	0.0056
120.0	30.50	24.50	31.3	31.3	11.29	0.0040
250.0	29.00	23.00	29.4	29.4	11.53	0.0028
1440.0	27.00	21.00	26.8	26.8	11.86	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL			SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 13+50 SAMPLE NO.: #2 DATE: 2-21-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
	4.5'	CLAYEY SAND w/some SILT & GVL ROCKY FLATS

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER WESTON

LOCATION _____

BORING 13+50 SAMPLE ____ DEPTH 4.5'

(2)

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

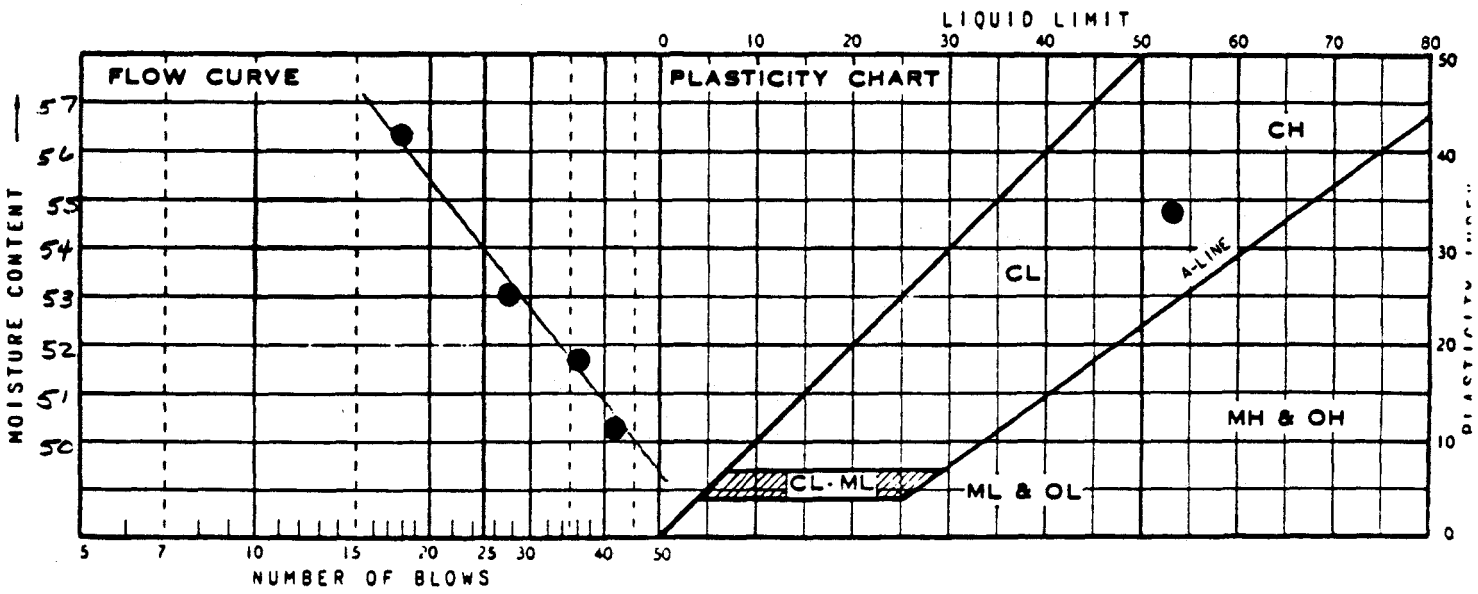
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY SR 2/19/92

DETERMINATION	1	2	3	4	5	6
DISH	2018	2003	2006			
WT OF DISH + WET SOIL g	9.72	8.42	8.99			
WT OF DISH + DRY SOIL g	8.28	7.17	7.68	—	—	—
WT OF MOISTURE g	1.44	1.25	1.31			
WT OF DISH g	1.04	1.03	1.04	—	—	—
WT OF DRY SOIL g	7.24	6.14	6.64			
MOISTURE CONTENT %	19.9	20.4	19.7			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2020	2026	200[illegible]	2025	2[illegible]	
NUMBER OF BLOWS	42	37	28	18	9[illegible]	
WT OF DISH + WET SOIL g	14.62	10.54	11.86	14.80	14.6[illegible]	
WT OF DISH + DRY SOIL g	11.41	7.30	8.11	9.85	8.77	—
WT OF MOISTURE g	3.21	3.24	3.75	4.95	5.88	
WT OF DISH g	1.04	1.03	1.0[illegible]	1.05	1.04	—
WT OF DRY SOIL g	10.37	6.27	7.06	8.80	7.73	
MOISTURE CONTENT %	50.2	51.7	53.1	56.3	76.0	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		57.9	20.0	37.9	CH	

ADVANCED TERRA TESTING

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MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	13+50	SAMPLED	Rocky Flats
DEPTH	9.3'	DATE TESTED	02-12-92 TNU
SAMPLE NO.	#2	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes	
NATURAL	No	
Wt. Wet Soil & Pan	(g)	53.73
Wt. Dry Soil & Pan	(g)	51.64
Wt. Lost Moisture	(g)	2.09
Wt. of Pan Only	(g)	3.68
Wt. of Dry Soil	(g)	47.96
Moisture Content	%	4.4
Wt. Hydrom. Sample Wet	(g)	60.00
Wt. Hydrom. Sample Dry	(g)	57.50

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	365.34
Weight of + #10 Before Washing (g)	5.11
Weight of + #10 After Washing (g)	3.86
Weight of - #10 Wet (g)	360.23
Weight of - #10 Dry (g)	346.39
Wt. Total Sample Dry (g)	350.25
Calc. Wt. "W" (g)	58.14
Calc. Mass + #10	0.64

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	1.66	1.66	1.66	0.5	99.5
#10	0.00	2.20	2.20	3.86	1.1	98.9
#20	1.56	1.94	0.38	0.38	1.8	98.2
#40	1.56	2.56	1.00	1.38	3.5	96.5
#60	1.56	3.66	2.10	3.48	7.1	92.9
#100	1.57	5.43	3.86	7.34	13.7	86.3
#230	1.57	8.62	7.05	14.39	25.9	74.1

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	13+50	SAMPLED	Rocky Flats
DEPTH	9.3'	DATE TESTED	02-12-92 TNU
SAMPLE NO.	#2	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

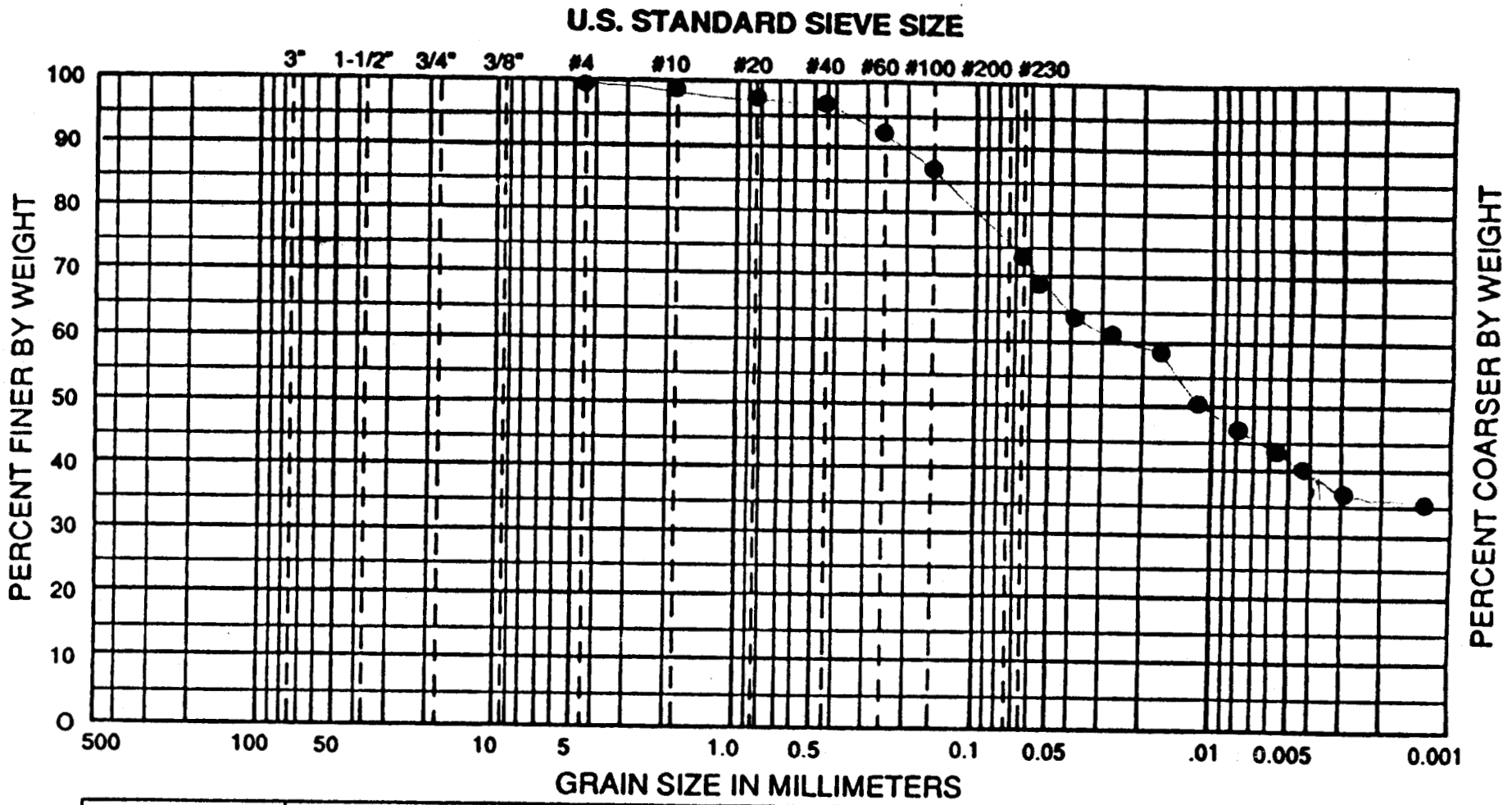
Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.70	Temp. Coef. K	0.01328
Value of "a"	0.99	Wt. Dry Sample "W"	58.138
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	5.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	47.00	41.00	69.8	69.8	8.58	0.0550
1.0	44.50	38.50	65.6	65.6	8.99	0.0398
2.0	42.50	36.50	62.2	62.2	9.32	0.0287
5.0	41.00	35.00	59.6	59.6	9.57	0.0184
15.0	36.00	30.00	51.1	51.1	10.39	0.0111
30.0	34.00	28.00	47.7	47.7	10.71	0.0079
60.0	32.00	26.00	44.3	44.3	11.04	0.0057
120.0	30.00	24.00	40.9	40.9	11.37	0.0041
250.0	28.00	22.00	37.5	37.5	11.70	0.0029
1440.0	27.00	21.00	35.8	35.8	11.86	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 13+50 SAMPLE NO.: #2 DATE: 2-22-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION SILTY CLAY w/ [illegible] SAND, [illegible] GVL
	9.3'	ROCKY T-LATS

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER WESTON

LOCATION _____

BORING 13+50 SAMPLE ____ DEPTH 9.3'

(2)

FIELD DENSITY BY ____/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD → [redacted]

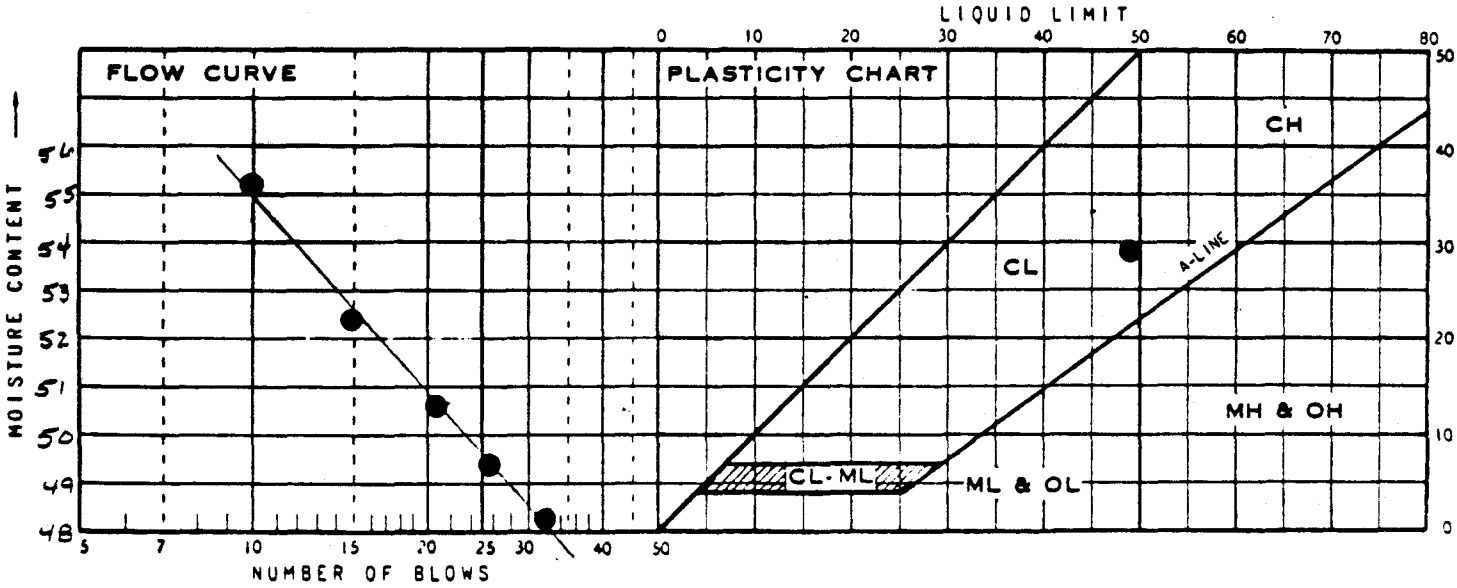
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY SB 2/19/92

DETERMINATION	1	2	3	4	5	6
DISH	2014	2033	2045			
WT OF DISH + WET SOIL g	9.52	11.91	10.09			
WT OF DISH + DRY SOIL g	8.06	10.17	8.53	—	—	—
WT OF MOISTURE g	1.46	1.74	1.56			
WT OF DISH g	1.07	1.03	1.05	—	—	—
WT OF DRY SOIL g	6.99	9.14	7.48			
MOISTURE CONTENT %	20.9	19.0	20.9			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2007	2013	2009	2024	2036	
NUMBER OF BLOWS	32	26	22 =	15	10	
WT OF DISH + WET SOIL g	20.36	17.39	16.16	18.58	16.33	
WT OF DISH + DRY SOIL g	14.08	11.99	11.08	12.55	10.89	—
WT OF MOISTURE g	6.28	5.40	5.08	6.03	5.44	
WT OF DISH g	1.05	1.05	1.06	1.04	1.04	—
WT OF DRY SOIL g	13.03	10.94	10.02	11.51	9.85	
MOISTURE CONTENT %	48.2	49.4	50.7	52.4	55.2	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		49.6	20.7	29.7	CL	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	13+50	SAMPLED	Rocky Flats
DEPTH	12.5'	DATE TESTED	02-12-92 TNU
SAMPLE NO.	#2	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	54.18
Wt. Dry Soil & Pan	(g)	53.28
Wt. Lost Moisture	(g)	0.90
Wt. of Pan Only	(g)	3.78
Wt. of Dry Soil	(g)	49.50
Moisture Content	%	1.8

Wt. Hydrom. Sample Wet (g)	60.00
Wt. Hydrom. Sample Dry (g)	58.93

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	298.82
Weight of + #10 Before Washing (g)	52.46
Weight of + #10 After Washing (g)	47.40
Weight of - #10 Wet (g)	246.36
Weight of - #10 Dry (g)	246.93
Wt. Total Sample Dry (g)	294.33
Calc. Wt. "W" (g)	70.24
Calc. Mass + #10	11.31

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	14.49	14.49	14.49	4.9	95.1
3/8"	0.00	5.05	5.05	19.54	6.6	93.4
#4	0.00	14.93	14.93	34.47	11.7	88.3
#10	0.00	12.93	12.93	47.40	16.1	83.9
#20	1.57	4.79	3.22	3.22	20.7	79.3
#40	1.55	3.56	2.01	5.23	23.6	76.4
#60	1.55	4.31	2.76	7.99	27.5	72.5
#100	1.54	5.46	3.92	11.91	33.1	66.9
#230	1.56	6.70	5.14	17.05	40.4	59.6

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT	Weston	JOB NO.	2066-03
BORING NO.	13+50	SAMPLED	Rocky Flats/E
DEPTH	12.5'	DATE TESTED	02-12-92 TNU
SAMPLE NO.	#2	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

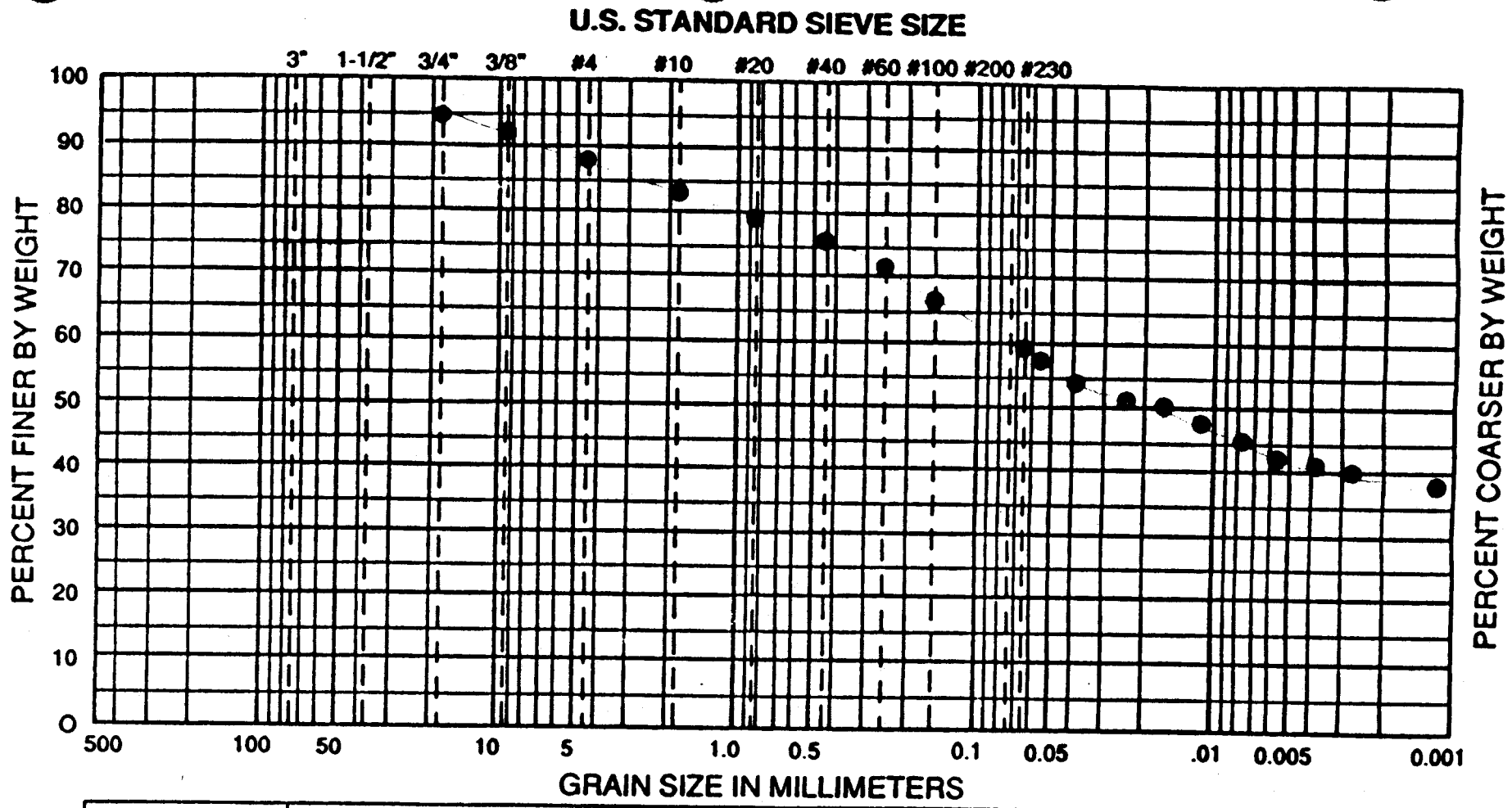
Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.70	Temp. Coef. K	0.01328
Value of "a"	0.99	Wt. Dry Sample "W"	70.240
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	5.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	46.50	40.50	57.1	57.1	8.66	0.0553
1.0	44.50	38.50	54.3	54.3	8.99	0.0398
2.0	43.50	37.50	52.9	52.9	9.16	0.0284
5.0	42.00	36.00	50.7	50.7	9.40	0.0182
15.0	40.00	34.00	47.9	47.9	9.73	0.0107
30.0	38.50	32.50	45.8	45.8	9.98	0.0077
60.0	37.00	31.00	43.7	43.7	10.22	0.0055
120.0	36.00	30.00	42.3	42.3	10.39	0.0039
250.0	35.00	29.00	40.9	40.9	10.55	0.0027
1440.0	33.00	27.00	38.1	38.1	10.88	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 13+50 SAMPLE NO.: #2 DATE: 2-21-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
	12.5'	SANDY CLAY w/ some silt 4 Gravel ROCKY FLATS 20" 40%

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION - - - - - - - - - - - - - - - -

LABORATORY CLASSIFICATION - - - - - - - - - - - - -

JOB NO. 2066-03

CLIENT/OWNER WESTON

LOCATION

BORING 13+50 SAMPLE - - - - DEPTH 12.5'

FIELD DENSITY BY...../../..

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

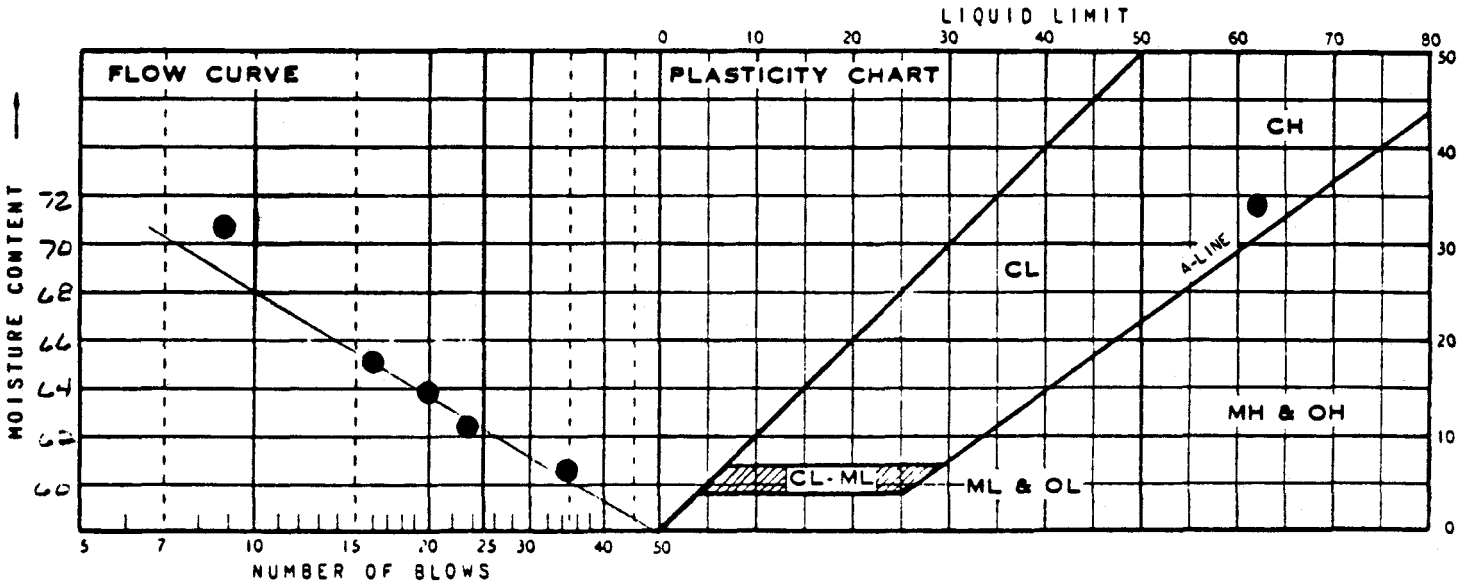
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY SR 3/29/92

DETERMINATION	1	2	3	4	5	6
DISH	9 C	10 C	11 C			
WT OF DISH + WET SOIL g	8.02	6.82	7.37			
WT OF DISH + DRY SOIL g	6.48	5.58	5.98	—	—	—
WT OF MOISTURE g	1.54	1.24	1.39			
WT OF DISH g	1.05	1.03	1.03	—	—	—
WT OF DRY SOIL g	5.43	4.55	4.95			
MOISTURE CONTENT %	28.4	27.3	28.1			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	12 C	13 C	14 C	15 C	16 C	
NUMBER OF BLOWS	35	24	20	16	9	
WT OF DISH + WET SOIL g	11.33	11.71	11.67	12.79	12.12	
WT OF DISH + DRY SOIL g	7.46	7.62	7.52	8.14	11.04	—
WT OF MOISTURE g	3.87	4.09	4.15	4.65	7.08	
WT OF DISH g	1.04	1.04	1.03	1.04	1.05	—
WT OF DRY SOIL g	6.42	6.58	6.49	7.10	9.99	
MOISTURE CONTENT %	60.3	62.2	63.9	65.5	70.9	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		62.2	27.9	34.3	CH	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	13+50	SAMPLED	Rocky Flats
DEPTH	13.6'	DATE TESTED	02-12-92 TNU
SAMPLE NO.	#2	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes	
NATURAL	No	
Wt. Wet Soil & Pan	(g)	50.64
Wt. Dry Soil & Pan	(g)	48.30
Wt. Lost Moisture	(g)	2.34
Wt. of Pan Only	(g)	3.76
Wt. of Dry Soil	(g)	44.54
Moisture Content	%	5.3
Wt. Hydrom. Sample Wet	(g)	60.00
Wt. Hydrom. Sample Dry	(g)	57.01

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	420.42
Weight of + #10 Before Washing (g)	128.99
Weight of + #10 After Washing (g)	125.11
Weight of - #10 Wet (g)	291.43
Weight of - #10 Dry (g)	280.57
Wt. Total Sample Dry (g)	405.68
Calc. Wt. "W" (g)	82.42
Calc. Mass + #10	25.42

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	48.57	48.57	48.57	12.0	88.0
3/8"	0.00	39.24	39.24	87.81	21.6	78.4
#4	0.00	19.69	19.69	107.50	26.5	73.5
#10	0.00	17.61	17.61	125.11	30.8	69.2
#20	1.57	3.77	2.20	2.20	33.5	66.5
#40	1.56	4.18	2.62	4.82	36.7	63.3
#60	1.59	5.34	3.75	8.57	41.2	58.8
#100	1.56	7.10	5.54	14.11	48.0	52.0
#230	1.56	9.18	7.62	21.73	57.2	42.8

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	13+50	SAMPLED	Rocky Flats
DEPTH	13.6'	DATE TESTED	02-12-92 TNU
SAMPLE NO.	#2	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.58	Temp. Coef. K	0.01300
Value of "a"	1.02	Wt. Dry Sample "W"	82.425
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	5.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	38.00	32.00	39.4	39.4	10.06	0.0583
1.0	36.00	30.00	36.9	36.9	10.39	0.0419
2.0	35.00	29.00	35.7	35.7	10.55	0.0299
5.0	34.00	28.00	34.5	34.5	10.71	0.0190
15.0	31.50	25.50	31.4	31.4	11.12	0.0112
30.0	30.00	24.00	29.6	29.6	11.37	0.0080
60.0	28.50	22.50	27.7	27.7	11.62	0.0057
120.0	27.00	21.00	25.9	25.9	11.86	0.0041
250.0	25.00	19.00	23.4	23.4	12.19	0.0029
1440.0	22.50	16.50	20.3	20.3	12.60	0.0012

Grain Diameter = K*(SQRT(L/T))

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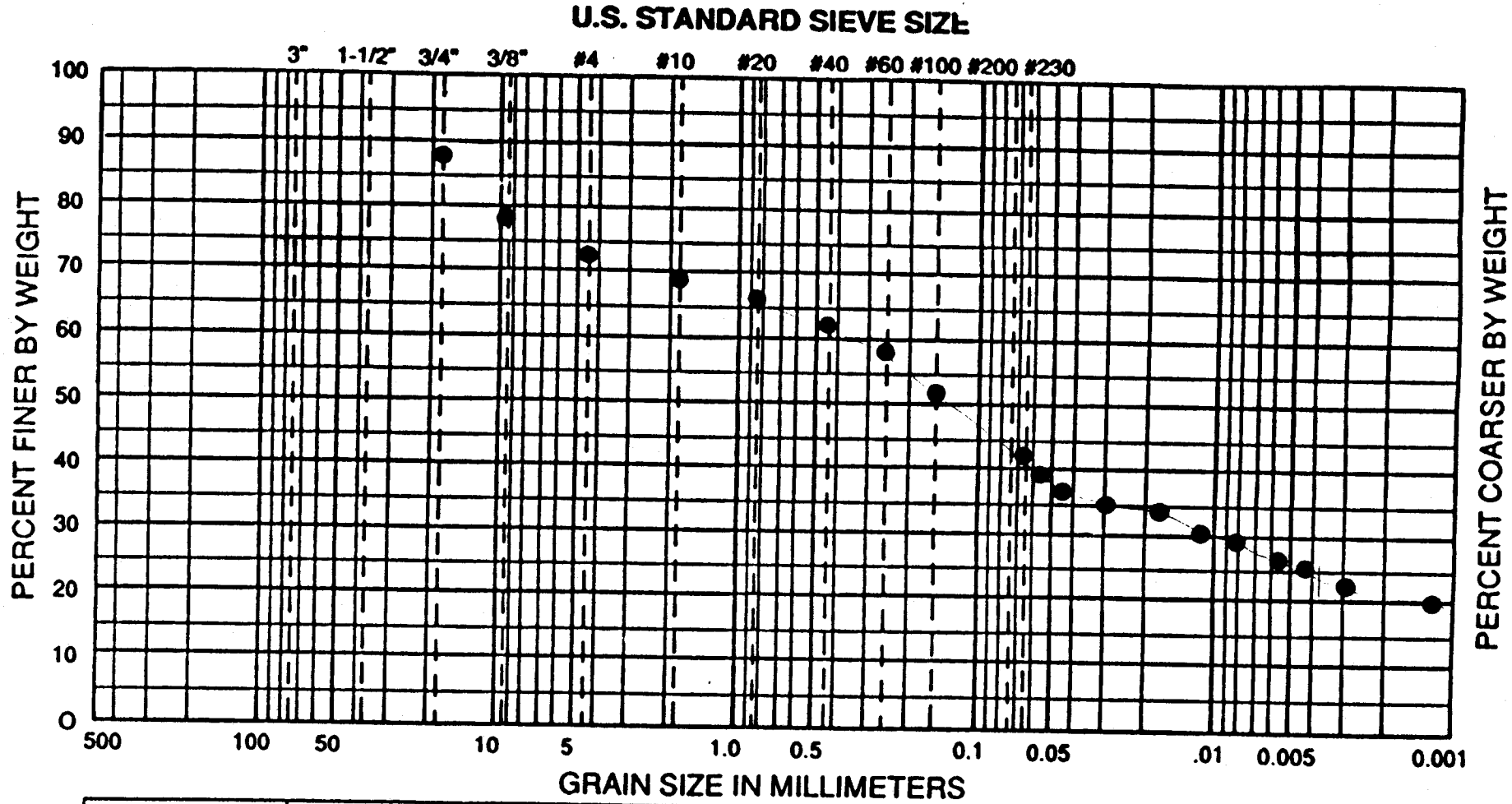


USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 13+50 SAMPLE NO.: #2 DATE: 2-23-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
	13.6'	Gravel, SAND w/some SILT & CLAY Rocky Flats

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION - - - - - - - - - - - - - - - -

LABORATORY CLASSIFICATION - - - - - - - - - - - - -

JOB NO. 2066-33

CLIENT/OWNER WESTON

LOCATION

BORING 13+50 SAMPLE C#2 DEPTH 13.6'

FIELD DENSITY BY ../../..

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

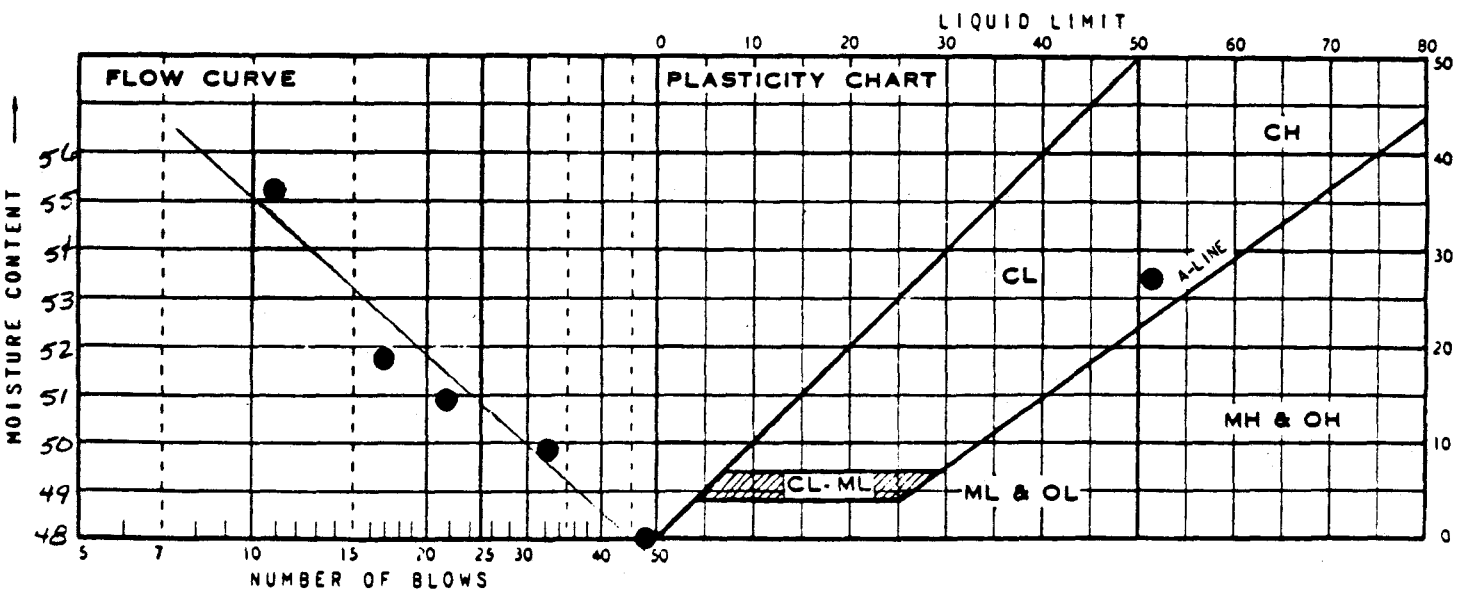
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY SB. 2/12/92

DETERMINATION	1	2	3	4	5	6
DISH	47	60	07			
WT OF DISH + WET SOIL g	8.85	8.20	9.40			
WT OF DISH + DRY SOIL g	7.43	6.96	7.91	—	—	—
WT OF MOISTURE g	1.42	1.24	1.49			
WT OF DISH g	1.57	1.57	1.57	—	—	—
WT OF DRY SOIL g	5.86	5.39	6.34			
MOISTURE CONTENT %	24.2	23.0	23.5			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	39	30	50	00	17	
NUMBER OF BLOWS	49	33	22	17±	11	
WT OF DISH + WET SOIL g	17.36	15.03	17.31	16.96	19.26	
WT OF DISH + DRY SOIL g	12.23	10.55	12.00	11.71	12.97	—
WT OF MOISTURE g	5.13	4.48	5.31	5.25	6.29	
WT OF DISH g	1.56	1.57	1.57	1.56	1.58	—
WT OF DRY SOIL g	10.67	8.98	10.43	10.15	11.39	
MOISTURE CONTENT %	48.0	49.9	50.9	51.7	55.2	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		50.8	23.1	27.2	CH	

ADVANCED TERRA TESTING

REV

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	13+50	SAMPLED	Rocky Flats
DEPTH	28'	DATE TESTED	02-12-92 TNU
SAMPLE NO.	#1	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	45.05
Wt. Dry Soil & Pan	(g)	42.14
Wt. Lost Moisture	(g)	2.91
Wt. of Pan Only	(g)	3.77
Wt. of Dry Soil	(g)	38.37
Moisture Content	%	7.6

Wt. Hydrom. Sample Wet (g)	60.02
Wt. Hydrom. Sample Dry (g)	55.79

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	476.76
Weight of + #10 Before Washing (g)	33.66
Weight of + #10 After Washing (g)	30.78
Weight of - #10 Wet (g)	443.10
Weight of - #10 Dry (g)	414.54
Wt. Total Sample Dry (g)	445.32
Calc. Wt. "W" (g)	59.93
Calc. Mass + #10	4.14

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	15.89	15.89	15.89	3.6	96.4
#4	0.00	7.06	7.06	22.95	5.2	94.8
#10	0.00	7.83	7.83	30.78	6.9	93.1
#20	1.56	3.12	1.56	1.56	9.5	90.5
#40	1.56	3.33	1.77	3.33	12.5	87.5
#60	1.56	3.14	1.58	4.91	15.1	84.9
#100	1.56	3.21	1.65	6.56	17.9	82.1
#230	1.56	3.65	2.09	8.65	21.3	78.7

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston** JOB NO. 2066-03

BORING NO.	13+50	SAMPLED	Rocky Flats/E(
DEPTH	28'	DATE TESTED	02-12-92 TNU
SAMPLE NO.	#1	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

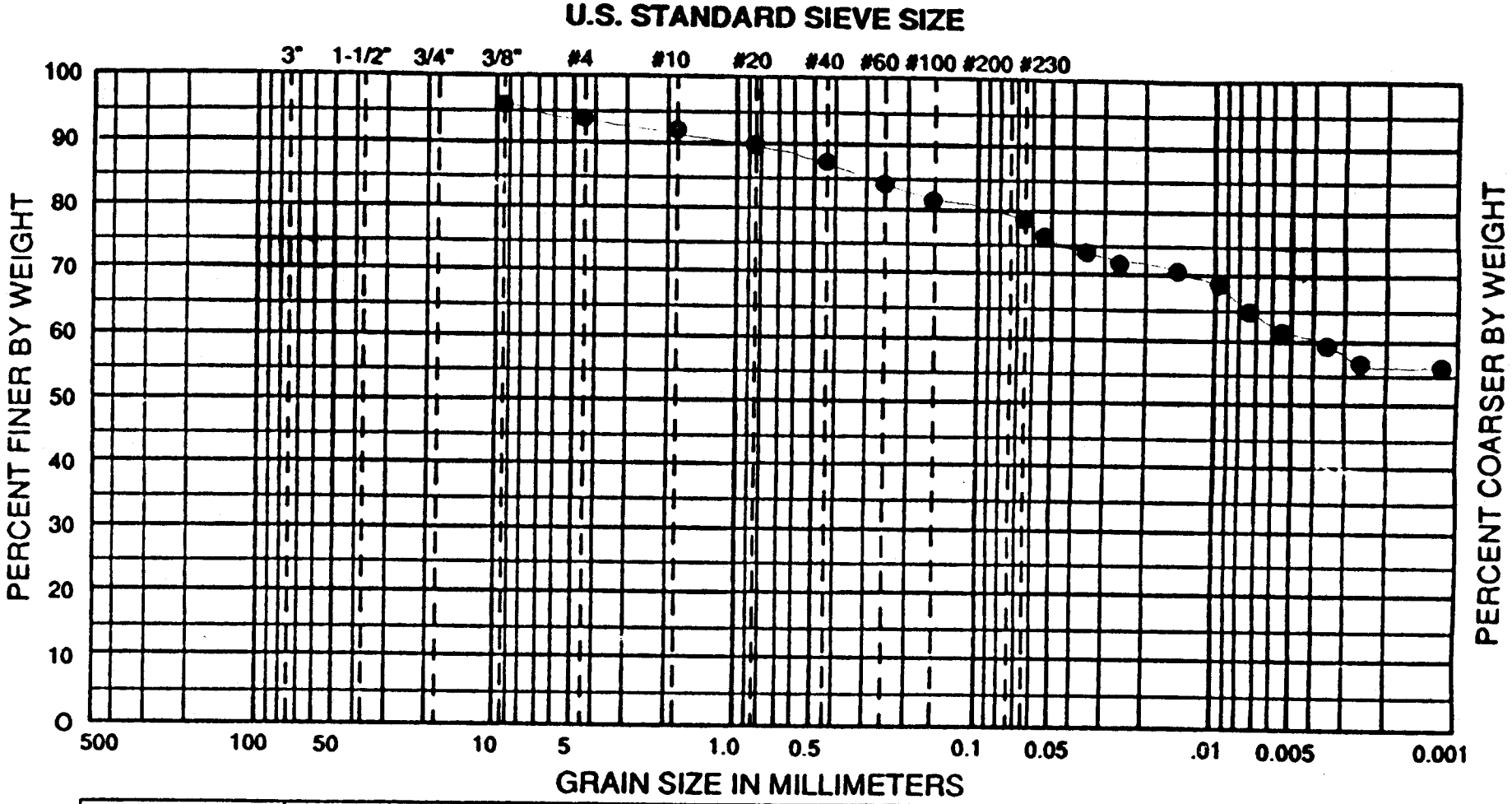
Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.75	Temp. Coef. K	0.01309
Value of "a"	0.98	Wt. Dry Sample "W"	59.933
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	5.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	53.00	47.00	76.9	76.9	7.60	0.0510
1.0	51.50	45.50	74.4	74.4	7.84	0.0367
2.0	51.00	45.00	73.6	73.6	7.93	0.0261
5.0	50.00	44.00	71.9	71.9	8.09	0.0167
15.0	48.00	42.00	68.7	68.7	8.42	0.0098
30.0	46.00	40.00	65.4	65.4	8.75	0.0071
60.0	44.00	38.00	62.1	62.1	9.07	0.0051
120.0	42.50	36.50	59.7	59.7	9.32	0.0036
250.0	41.00	35.00	57.2	57.2	9.57	0.0026
1440.0	41.00	35.00	57.2	57.2	9.57	0.0011

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 13+50 SAMPLE NO.: #1 DATE: 2-21-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
	28	CLAY w/ some SAND & SILT, trace gravel 52% [illegible] | 1.7 coarse [illegible] 5% [illegible] | 10% [illegible] | 60% [illegible]

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER WESTON

LOCATION

BORING B-55 SAMPLE C#2 DEPTH 28.0'

FIELD DENSITY BY ___/___/___

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

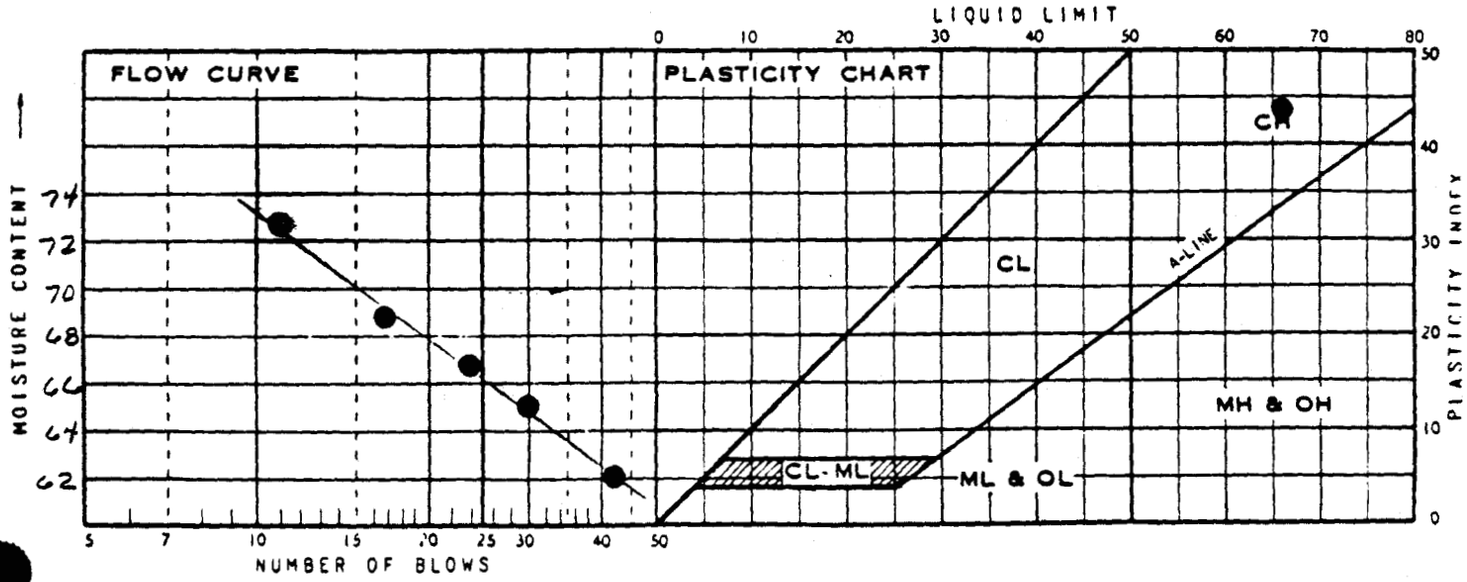
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY SR, 7/12/92

DETERMINATION	1	2	3	4	5	6
DISH	21A	134	108			
WT OF DISH + WET SOIL g	7.88	9.13	8.85			
WT OF DISH + DRY SOIL g	6.70	7.71	7.49	—	—	—
WT OF MOISTURE g	1.18	1.42	1.36			
WT OF DISH g	1.31	1.30	1.31	—	—	—
WT OF DRY SOIL g	5.39	6.41	6.18			
MOISTURE CONTENT %	21.9	22.2	22.0			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	75B	112	19A	115	51	
NUMBER OF BLOWS	43	30	24I	17	11	
WT OF DISH + WET SOIL g	12.54	16.56	15.16	18.16	17.78	
WT OF DISH + DRY SOIL g	8.23	10.54	9.61	11.35	10.85	—
WT OF MOISTURE g	4.31	6.02	5.50	6.81	6.93	
WT OF DISH g	1.31	1.31	1.31	1.46	1.31	—
WT OF DRY SOIL g	6.92	9.23	8.30	9.89	9.54	
MOISTURE CONTENT %	62.3	65.2	66.9	68.9	72.6	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		66.2	22.0	44.2	CH	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

BR

CLIENT Western

JOB NO. 2066-03

BORING NO.	13+50	SAMPLED	Rocky Flats
DEPTH	44.7'	DATE TESTED	02-12-92 TNU
SAMPLE NO.	#1	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes	
NATURAL	No	
Wt. Wet Soil & Pan	(g)	50.66
Wt. Dry Soil & Pan	(g)	50.50
Wt. Lost Moisture	(g)	0.16
Wt. of Pan Only	(g)	3.83
Wt. of Dry Soil	(g)	46.67
Moisture Content	%	0.3
Wt. Hydrom. Sample Wet	(g)	60.33
Wt. Hydrom. Sample Dry	(g)	60.13

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	517.51
Weight of + #10 Before Washing (g)	1.41
Weight of + #10 After Washing (g)	0.94
Weight of - #10 Wet (g)	516.10
Weight of - #10 Dry (g)	514.81
Wt. Total Sample Dry (g)	515.75
Calc. Wt. "W" (g)	60.24
Calc. Mass + #10	0.11

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.35	0.35	0.35	0.1	99.9
#10	0.00	0.59	0.59	0.94	0.2	99.8
#20	1.55	1.94	0.39	0.39	0.8	99.2
#40	1.55	1.71	0.16	0.55	1.1	98.9
#60	1.54	1.74	0.20	0.75	1.4	98.6
#100	1.55	3.70	2.15	2.90	5.0	95.0
#230	1.54	43.21	41.67	44.57	74.2	25.8

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	13+50	SAMPLED	Rocky Flats/E
DEPTH	44.7'	DATE TESTED	02-12-92 TNU
SAMPLE NO.	#1	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

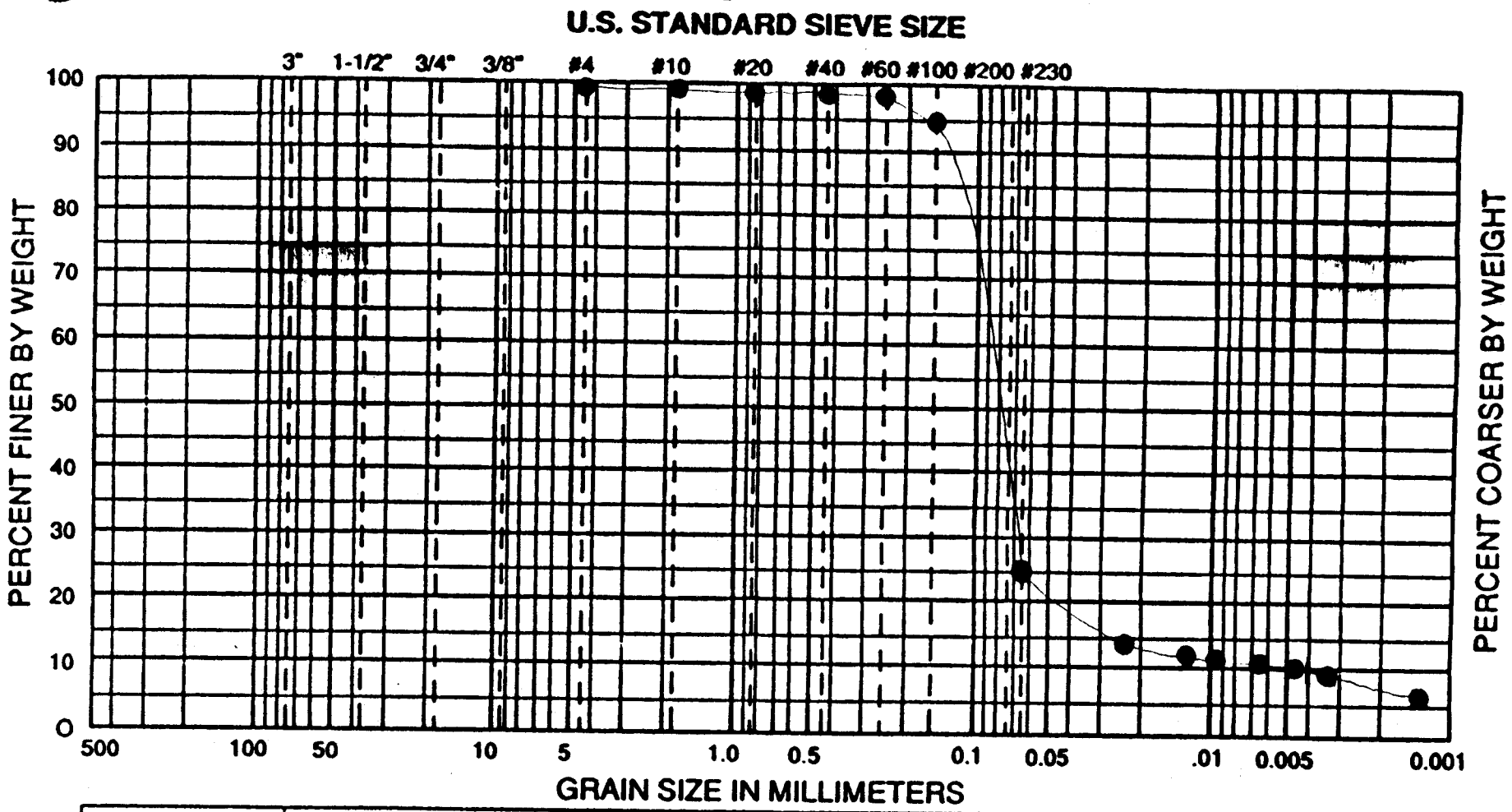
Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.69	Temp. Coef. K	0.01332
Value of "a"	0.99	Wt. Dry Sample "W"	60.237
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	5.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	25.00	19.00	31.3	31.3	12.19	0.0658
1.0	18.00	12.00	19.8	19.8	13.34	0.0486
2.0	16.50	10.50	17.3	17.3	13.58	0.0347
5.0	15.00	9.00	14.8	14.8	13.83	0.0222
15.0	14.00	8.00	13.2	13.2	13.99	0.0129
30.0	14.00	8.00	13.2	13.2	13.99	0.0091
60.0	13.00	7.00	11.5	11.5	14.16	0.0065
120.0	12.50	6.50	10.7	10.7	14.24	0.0046
250.0	11.50	5.50	9.1	9.1	14.40	0.0032
1440.0	10.00	4.00	6.6	6.6	14.65	0.0013

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 13+50 SAMPLE NO.: #1 DATE: 2-21-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION SANDSTONE w/ some SILT, Trace clay and Gravel
	44.7	.2% Gravels / 0.9% coarse, BOCKY FLATS 0.3 med, 22.8% fine sand, 15.8% Silt, 10% clay

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-09

CLIENT/OWNER WESTON

LOCATION

BORING 13+50 SAMPLE ____ DEPTH 4-4.7'

FIELD DENSITY BY ____/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD [redacted]

DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

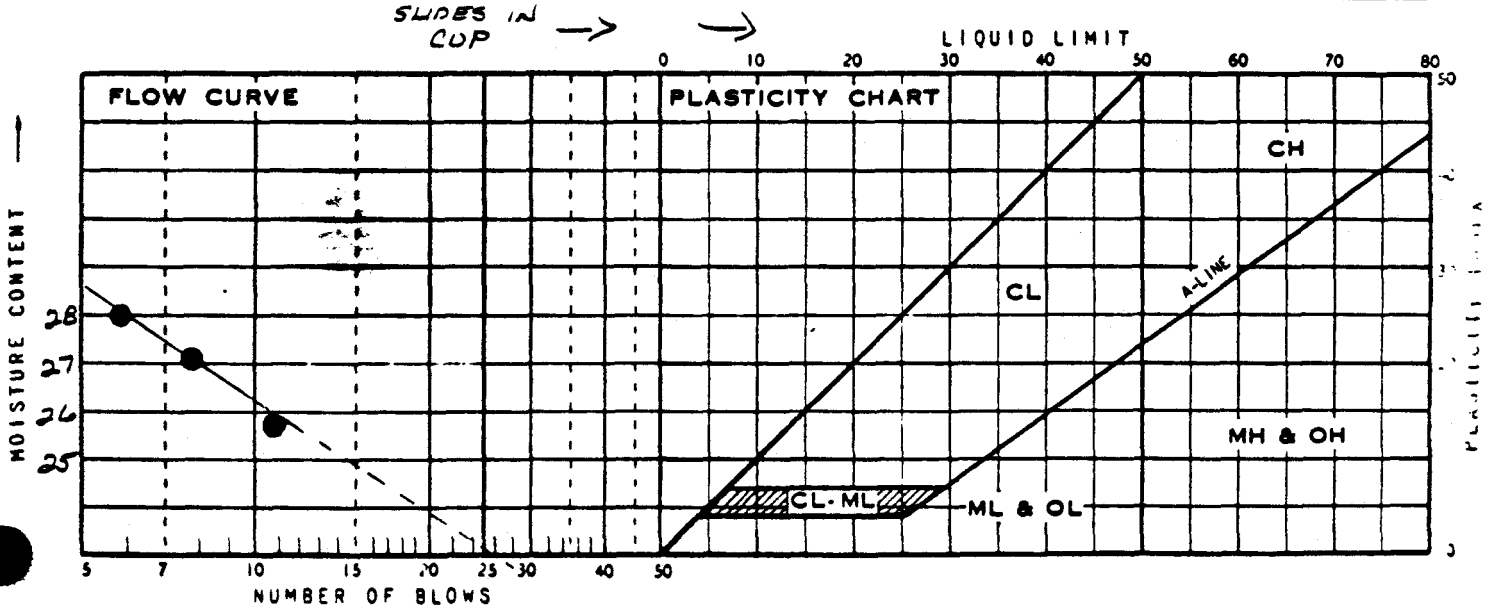
PLASTIC LIMIT BY SR. 2/22/92

DETERMINATION	1	2	3	4	5	6
DISH						
WT OF DISH + WET SOIL	NON-PLASTIC!					
WT OF DISH + DRY SOIL	—	—	—	—	—	—
WT OF MOISTURE						
WT OF DISH	—	—	—	—	—	—
WT OF DRY SOIL						
MOISTURE CONTENT						

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	0 C	2017	2011			
NUMBER OF BLOWS	11	8	6			
WT OF DISH + WET SOIL g	20.09	21.21	21.82			
WT OF DISH + DRY SOIL g	16.20	16.91	17.28	—	—	—
WT OF MOISTURE g	3.89	4.30	4.54			
WT OF DISH g	1.04	1.05	1.04	—	—	—
WT OF DRY SOIL g	15.16	15.86	16.24			
MOISTURE CONTENT %	25.7	27.1	28.0			

SLIDES IN CUP → →



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	

ADVANCED TERRA TESTING

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MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	13+85	SAMPLED	Rocky Flats
DEPTH	4'	DATE TESTED	02-12-92 TNU
SAMPLE NO.	#1	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes
NATURAL	No

Wt. Wet Soil & Pan	(g)	56.81
Wt. Dry Soil & Pan	(g)	55.78
Wt. Lost Moisture	(g)	1.03
Wt. of Pan Only	(g)	3.69
Wt. of Dry Soil	(g)	52.09
Moisture Content	%	2.0

Wt. Hydrom. Sample Wet (g)	60.00
Wt. Hydrom. Sample Dry (g)	58.84

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	60.00
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	60.00
Weight of - #10 Dry (g)	58.84
Wt. Total Sample Dry (g)	58.84
Calc. Wt. "W" (g)	58.84
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	1.55	1.56	0.01	0.01	0.0	100.0
#40	1.57	1.59	0.02	0.03	0.1	99.9
#60	1.58	1.60	0.02	0.05	0.1	99.9
#100	1.55	1.57	0.02	0.07	0.1	99.9
#230	1.57	1.77	0.20	0.27	0.5	99.5

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	13+85	SAMPLED	Rocky Flats/E(
DEPTH	4'	DATE TESTED	02-12-92 TNU
SAMPLE NO.	#1	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

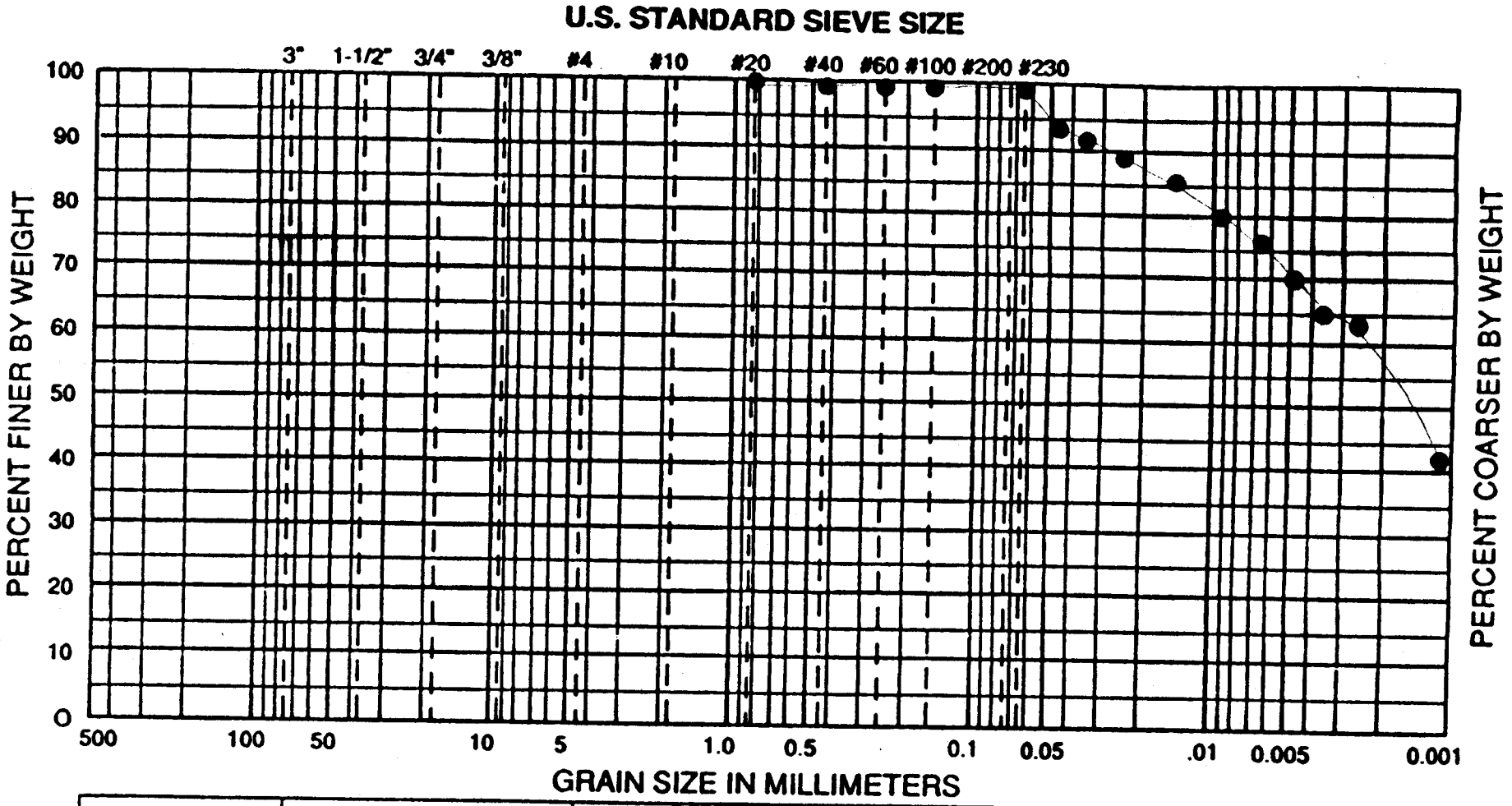
Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.76	Temp. Coef. K	0.01305
Value of "a"	0.98	Wt. Dry Sample "W"	58.837
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	5.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	63.00	57.00	94.7	94.7	5.96	0.0451
1.0	62.00	56.00	93.1	93.1	6.12	0.0323
2.0	60.00	54.00	89.8	89.8	6.45	0.0234
5.0	58.00	52.00	86.4	86.4	6.78	0.0152
15.0	54.50	48.50	80.6	80.6	7.35	0.0091
30.0	52.00	46.00	76.5	76.5	7.76	0.0066
60.0	48.50	42.50	70.6	70.6	8.34	0.0049
120.0	45.00	39.00	64.8	64.8	8.91	0.0036
250.0	41.00	35.00	58.2	58.2	9.57	0.0026
1440.0	32.00	26.00	43.2	43.2	11.04	0.0011

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 13+65 SAMPLE NO.: #1 DATE: 2-21-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
	4	SILTY CLAY w/ Trace Sand (CH [illegible]

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER Weston

LOCATION Rocky Flats EG+G

BORING 13-85 SAMPLE CL #1 DEPTH 4'

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

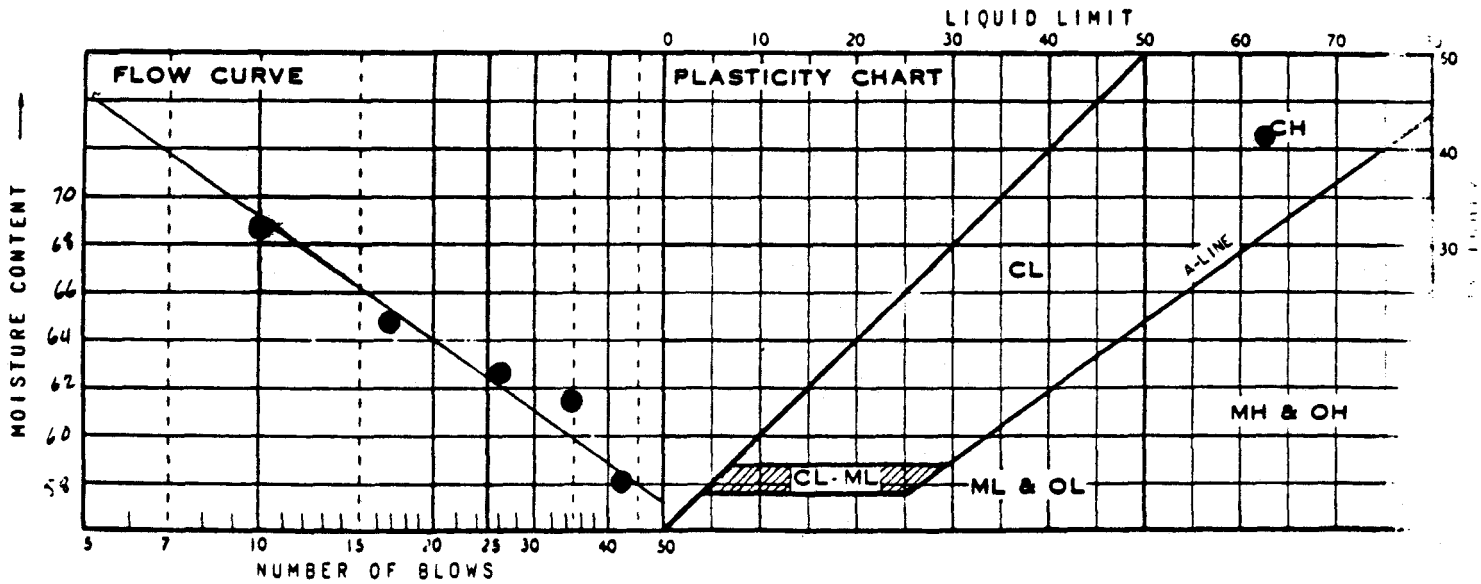
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY DW 2/20/92

DETERMINATION	1	2	3	4	5	6
DISH	2058	2057	2056			
WT OF DISH + WET SOIL g	6.19	7.09	7.06			
WT OF DISH + DRY SOIL g	5.29	5.99	6.03	—	—	—
WT OF MOISTURE g	.90	1.10	1.03			
WT OF DISH g	1.02	1.04	1.03	—	—	—
WT OF DRY SOIL g	4.27	4.95	5.00			
MOISTURE CONTENT %	21.1	22.2	20.6			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2055	2054	2053	2052	2051	2050
NUMBER OF BLOWS	43	35	26	17	14	10
WT OF DISH + WET SOIL g	9.40	12.30	9.95	10.87	13.12	10.83
WT OF DISH + DRY SOIL g	6.32	8.01	6.52	7.00	8.79	6.84
WT OF MOISTURE g	3.08	4.29	3.43	3.87	4.33	3.99
WT OF DISH g	1.03	1.03	1.04	1.02	1.02	1.03
WT OF DRY SOIL g	5.29	6.98	5.48	5.98	7.37	5.8.
MOISTURE CONTENT %	58.2	61.5	62.6	64.7	64.2	68.7



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION
		62.5	21.3	41.2	CH

ADVANCED TERRA TESTING

Rm

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	13+85	SAMPLED	Rocky Flats
DEPTH	9.5'	DATE TESTED	02-12-92 TNU
SAMPLE NO.	#1	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	50.37
Wt. Dry Soil & Pan	(g)	50.20
Wt. Lost Moisture	(g)	0.17
Wt. of Pan Only	(g)	3.63
Wt. of Dry Soil	(g)	46.57
Moisture Content	%	0.4

Wt. Hydrom. Sample Wet (g)	60.00
Wt. Hydrom. Sample Dry (g)	59.78

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	444.67
Weight of + #10 Before Washing (g)	108.19
Weight of + #10 After Washing (g)	44.51
Weight of - #10 Wet (g)	336.48
Weight of - #10 Dry (g)	398.68
Wt. Total Sample Dry (g)	443.19
Calc. Wt. "W" (g)	66.45
Calc. Mass + #10	6.67

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	12.41	12.41	12.41	2.8	97.2
#4	0.00	18.71	18.71	31.12	7.0	93.0
#10	0.00	13.39	13.39	44.51	10.0	90.0
#20	1.57	1.79	0.22	0.22	10.4	89.6
#40	1.56	1.68	0.12	0.34	10.6	89.4
#60	1.56	1.76	0.20	0.54	10.9	89.1
#100	1.57	2.14	0.57	1.11	11.7	88.3
#230	1.56	8.32	6.76	7.87	21.9	78.1

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT	Weston	JOB NO.	2066-03
BORING NO.	13+85	SAMPLED	Rocky Flats/E(
DEPTH	9.5'	DATE TESTED	02-12-92 TNU
SAMPLE NO.	#1	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

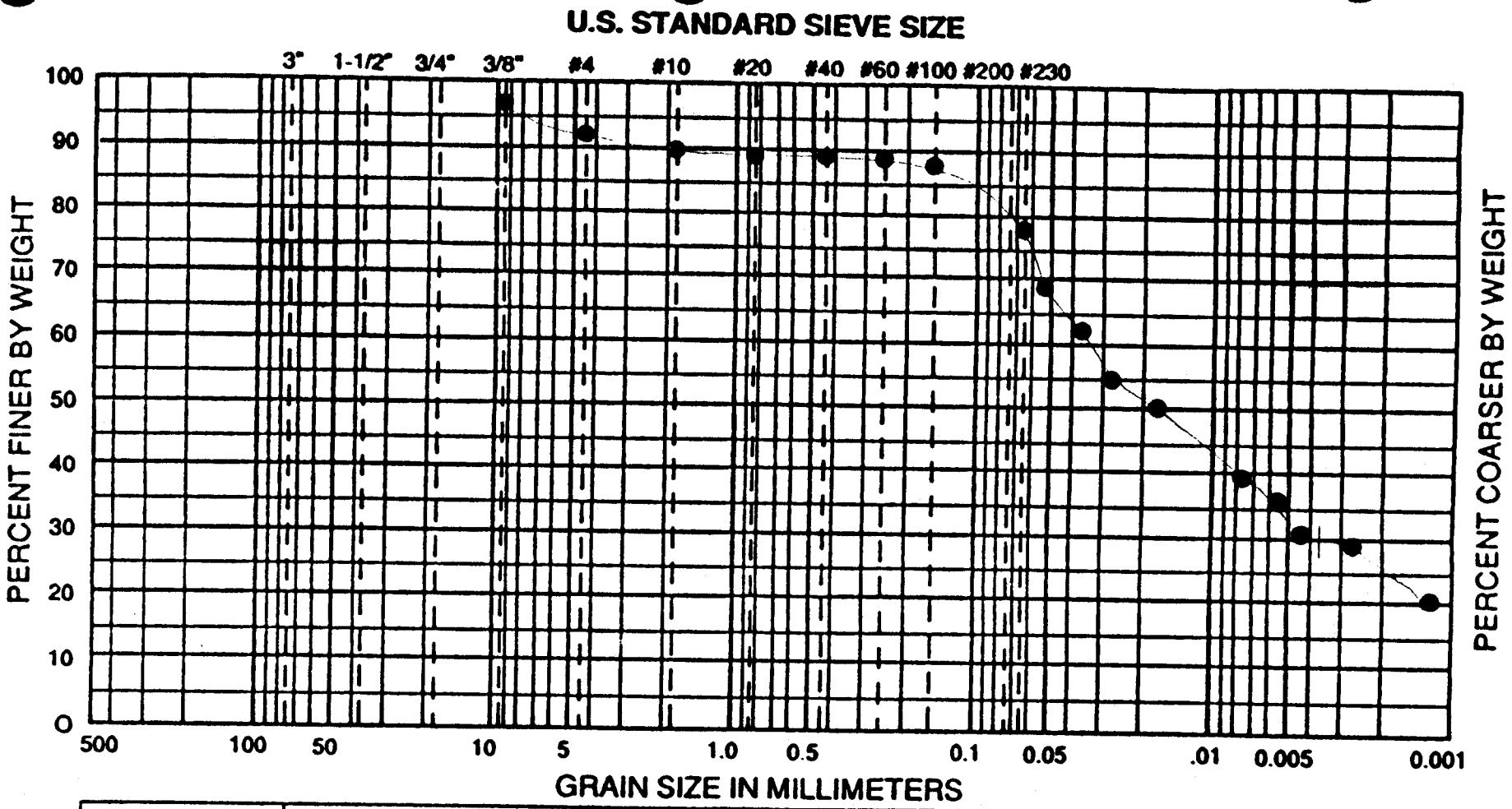
Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.78	Temp. Coef. K	0.01298
Value of "a"	0.97	Wt. Dry Sample "W"	66.452
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	5.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	52.50	46.50	68.2	68.2	7.68	0.0509
1.0	49.00	43.00	63.0	63.0	8.25	0.0373
2.0	43.50	37.50	55.0	55.0	9.16	0.0278
5.0	40.50	34.50	50.6	50.6	9.65	0.0180
15.0	35.50	29.50	43.2	43.2	10.47	0.0108
30.0	33.00	27.00	39.6	39.6	10.88	0.0078
60.0	31.00	25.00	36.6	36.6	11.21	0.0056
120.0	28.00	22.00	32.2	32.2	11.70	0.0041
250.0	26.00	20.00	29.3	29.3	12.03	0.0028
1440.0	20.00	14.00	20.5	20.5	13.01	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 13+85 SAMPLE NO.: #1 DATE: 2-21-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
	25'	CLAYEY SILT w/some SAND & Trace Gravel [illegible] / 3% coarse, Rocky Flat [illegible] 9.4% F [illegible] / 50% silt, 38% cl[illegible]

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER WESTON

LOCATION _____

BORING 13+85 SAMPLE C#2 DEPTH 9.5'

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD → [redacted]

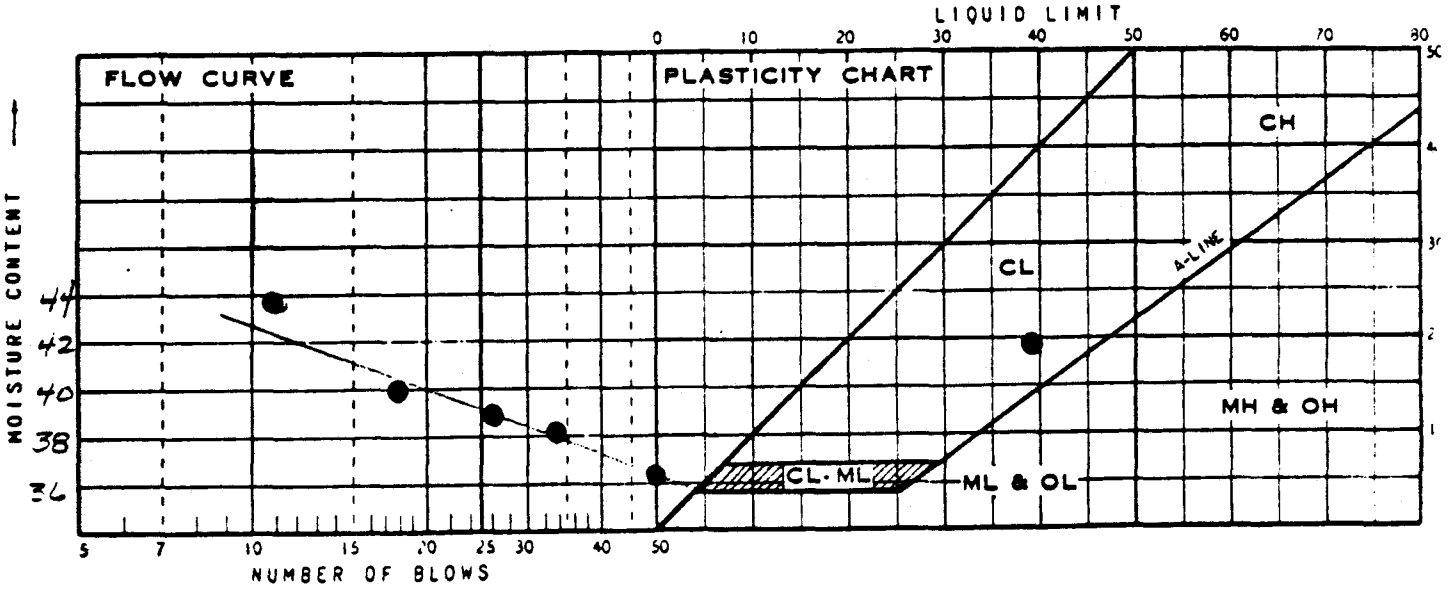
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY SB_.2.118/82.

DETERMINATION	1	2	3	4	5	6
DISH	2040	2042	2033			
WT OF DISH + WET SOIL g	10.87	13.31	11.68			
WT OF DISH + DRY SOIL g	9.30	11.41	9.99	—	—	—
WT OF MOISTURE g	1.57	1.90	1.69			
WT OF DISH g	1.03	1.05	1.03	—	—	—
WT OF DRY SOIL g	8.27	9.51	8.96			
MOISTURE CONTENT %	19.0	20.0	18.9			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2032	2043	2035	2029	2036	
NUMBER OF BLOWS	50	34	26	17±	11±	
WT OF DISH + WET SOIL g	12.71	13.33	14.84	18.01	17.51	
WT OF DISH + DRY SOIL g	9.60	9.94	10.97	13.17	12.49	—
WT OF MOISTURE g	3.11	3.39	3.87	4.84	5.02	
WT OF DISH g	1.04	1.05	1.03	1.04	1.04	—
WT OF DRY SOIL g	8.56	8.89	9.94	12.13	11.45	
MOISTURE CONTENT %	36.3	38.1	38.9	40.0	43.8	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		37.1	19.3	17.8	CL	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	13+85	SAMPLED	Rocky Flats
DEPTH	11'	DATE TESTED	02-12-92 TNU
SAMPLE NO.	#1	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	63.66
Wt. Dry Soil & Pan	(g)	62.05
Wt. Lost Moisture	(g)	1.61
Wt. of Pan Only	(g)	3.84
Wt. of Dry Soil	(g)	58.21
Moisture Content	%	2.8

Wt. Hydrom. Sample Wet (g)	60.01
Wt. Hydrom. Sample Dry (g)	58.39

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	60.01
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	60.01
Weight of - #10 Dry (g)	58.39
Wt. Total Sample Dry (g)	58.39
Calc. Wt. "W" (g)	58.39
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	1.32	1.33	0.01	0.01	0.0	100.0
#40	1.56	1.60	0.04	0.05	0.1	99.9
#60	1.56	1.76	0.20	0.25	0.4	99.6
#100	1.56	2.34	0.78	1.03	1.8	98.2
#230	1.36	23.49	22.13	23.16	39.7	60.3

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT	Weston	JOB NO.	2066-03
BORING NO.	13+85	SAMPLED	Rocky Flats/E
DEPTH	11'	DATE TESTED	02-12-92 TNU
SAMPLE NO.	#1	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

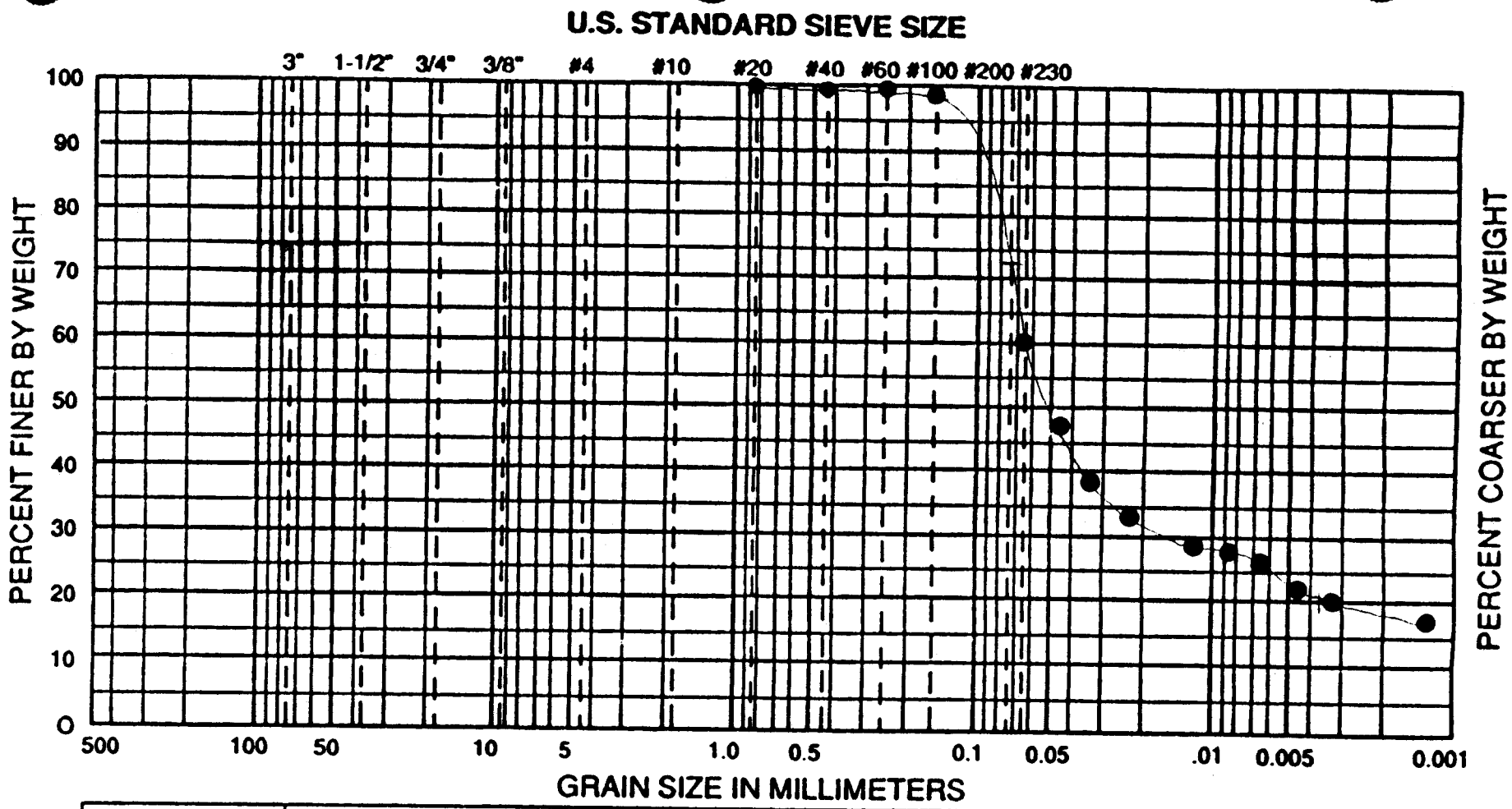
Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.72	Temp. Coef. K	0.01324
Value of "a"	0.99	Wt. Dry Sample "W"	58.394
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	5.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	43.00	37.00	62.5	62.5	9.24	0.0569
1.0	34.00	28.00	47.3	47.3	10.71	0.0433
2.0	29.00	23.00	38.8	38.8	11.53	0.0318
5.0	26.00	20.00	33.8	33.8	12.03	0.0205
15.0	23.50	17.50	29.5	29.5	12.44	0.0121
30.0	22.50	16.50	27.9	27.9	12.60	0.0086
60.0	21.50	15.50	26.2	26.2	12.76	0.0061
120.0	20.00	14.00	23.6	23.6	13.01	0.0044
250.0	18.00	12.00	20.3	20.3	13.34	0.0031
1440.0	16.00	10.00	16.9	16.9	13.67	0.0013

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 12+85 SAMPLE NO.: #1 DATE: 2-22-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
		SANDY SILT w/some Clay
	'	Poorly Graded [illegible]

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION - - - - - - - - - - - - - - - -

LABORATORY CLASSIFICATION - - - - - - - - - - - - -

JOB NO. 2066-37

CLIENT/OWNER LIDETON

LOCATION

BORING 13+85 SAMPLE C#2 DEPTH 11'

FIELD DENSITY BY.../.../...

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

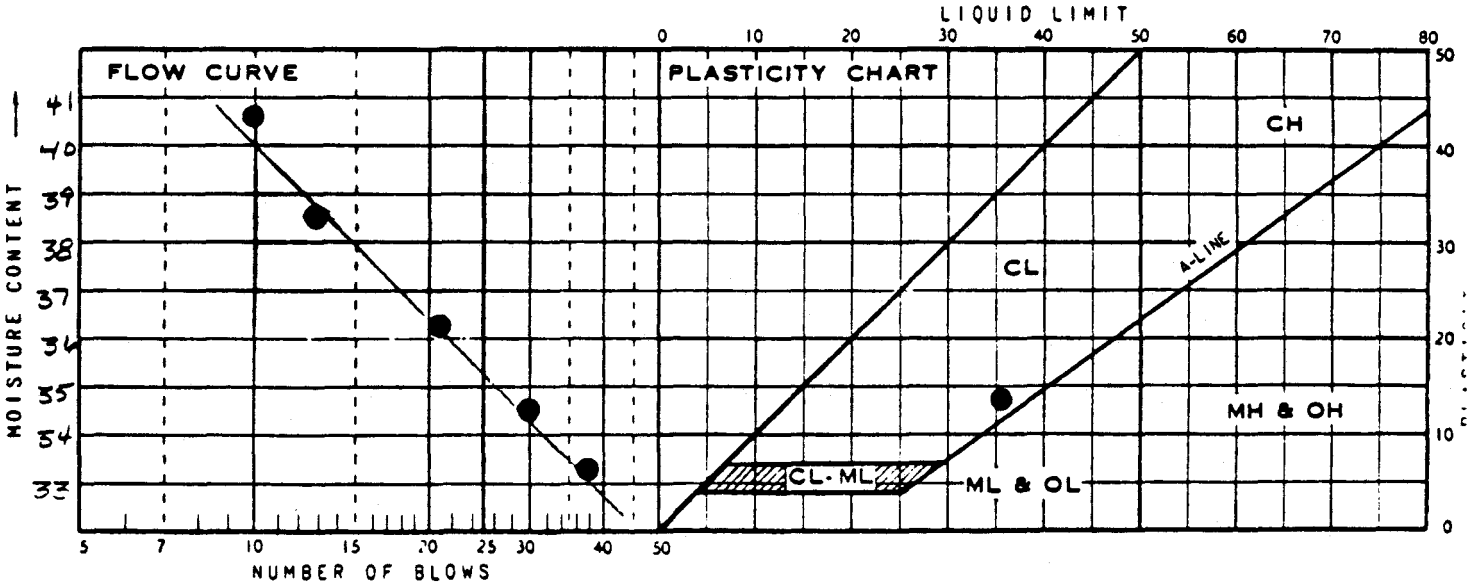
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY SR. 2/12/92.

DETERMINATION	1	2	3	4	5	6
DISH	54 C	22	15 C			
WT OF DISH + WET SOIL g	10.65	11.93	10.55			
WT OF DISH + DRY SOIL g	9.00	10.11	9.92	—	—	—
WT OF MOISTURE g	1.65	1.82	1.63			
WT OF DISH g	1.09	1.06	1.06	—	—	—
WT OF DRY SOIL g	7.92	9.05	7.86			
MOISTURE CONTENT %	20.8	20.1	20.7			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	48C	3	58C	32C	10 C	
NUMBER OF BLOWS	38	50	22±	14±	10	
WT OF DISH + WET SOIL g	17.44	16.31	16.62	16.38	20.32	
WT OF DISH + DRY SOIL g	13.35	12.38	12.08	12.11	14.75	—
WT OF MOISTURE g	4.09	3.93	4.00	4.27	5.57	
WT OF DISH g	1.06	1.06	1.07	1.05	1.06	—
WT OF DRY SOIL g	12.29	11.32	11.01	11.06	13.69	
MOISTURE CONTENT %	33.3	34.7	36.3	38.6	40.7	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		35.2	20.5	14.7	CL	

ADVANCED TERRA TESTING

R2'

MECHANICAL ANALYSIS - SIEVE TEST DATA

5395.64

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	14+15	SAMPLED	Rocky Flats
DEPTH	13.0'	DATE TESTED	02-12-92 TNU
SAMPLE NO.	#1	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	58.80
Wt. Dry Soil & Pan	(g)	57.26
Wt. Lost Moisture	(g)	1.54
Wt. of Pan Only	(g)	3.84
Wt. of Dry Soil	(g)	53.42
Moisture Content	%	2.9

Wt. Hydrom. Sample Wet (g)	60.01
Wt. Hydrom. Sample Dry (g)	58.32

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	60.01
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	60.01
Weight of - #10 Dry (g)	58.32
Wt. Total Sample Dry (g)	58.32
Calc. Wt. "W" (g)	58.32
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	1.57	1.62	0.05	0.05	0.1	99.9
#40	1.57	1.66	0.09	0.14	0.2	99.8
#60	1.55	1.71	0.16	0.30	0.5	99.5
#100	1.55	1.94	0.39	0.69	1.2	98.8
#230	1.55	20.34	18.79	19.48	33.4	66.6

SH-CL

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	14+15	SAMPLED	Rocky Flats
DEPTH	13.0'	DATE TESTED	02-12-92 TNU
SAMPLE NO.	#1	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

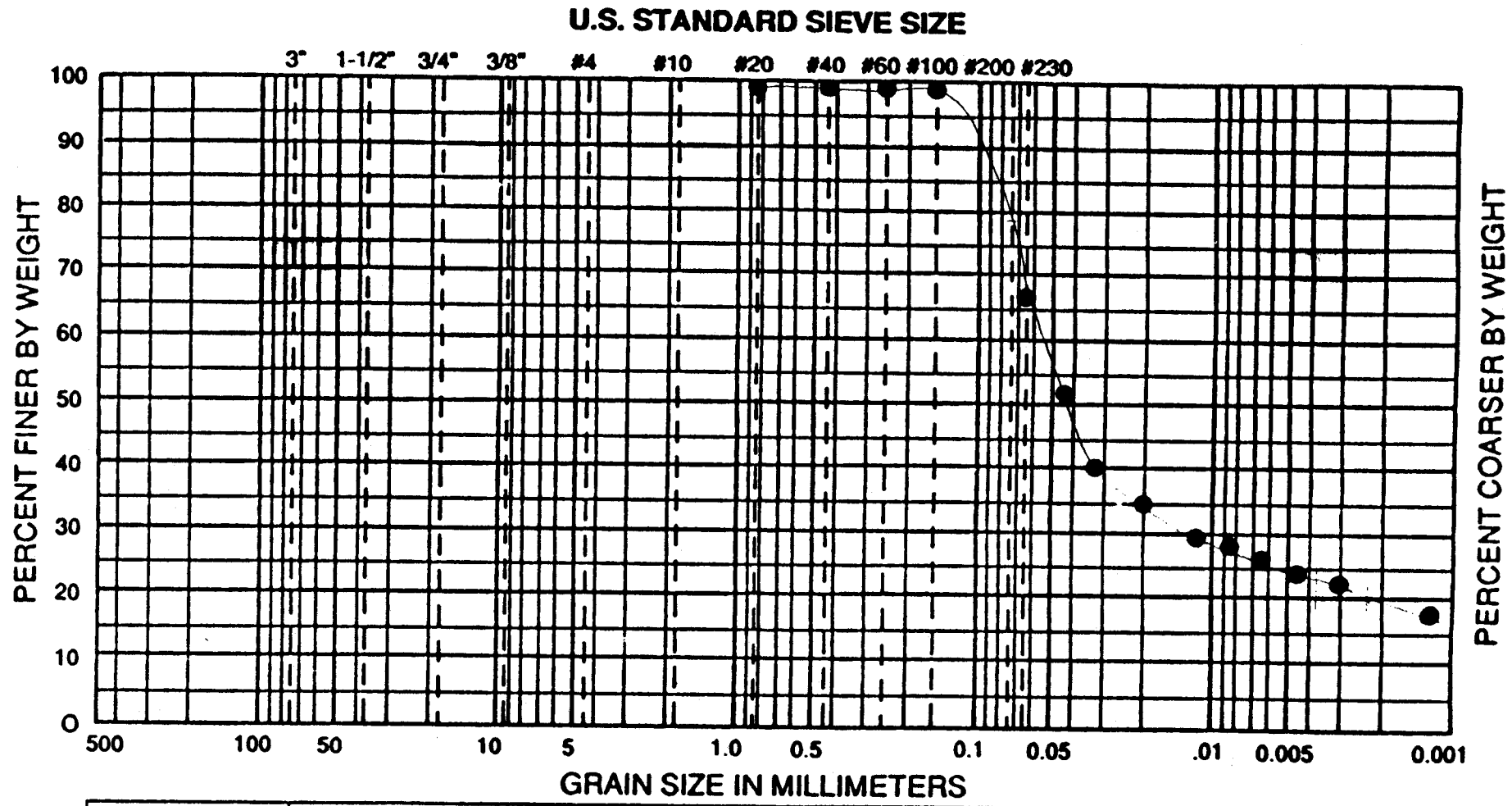
Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.69	Temp. Coef. K	0.01332
Value of "a"	0.99	Wt. Dry Sample "W"	58.325
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	5.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	45.50	39.50	67.2	67.2	8.83	0.0560
1.0	37.00	31.00	52.7	52.7	10.22	0.0426
2.0	30.00	24.00	40.8	40.8	11.37	0.0318
5.0	26.50	20.50	34.9	34.9	11.94	0.0206
15.0	24.00	18.00	30.6	30.6	12.35	0.0121
30.0	23.00	17.00	28.9	28.9	12.52	0.0086
60.0	22.00	16.00	27.2	27.2	12.68	0.0061
120.0	20.50	14.50	24.7	24.7	12.93	0.0044
250.0	20.00	14.00	23.8	23.8	13.01	0.0030
1440.0	16.00	10.00	17.0	17.0	13.67	0.0013

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 14+15 SAMPLE NO.: #1 DATE: 2-23-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
	[illegible]	SILT w/ some clay and SAND Rocky Fwt [illegible] 54% [illegible] 24% [illegible]

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2[illegible]

CLIENT/OWNER WESTON

LOCATION _____

BORING 14+15 SAMPLE CH #7 DEPTH 3

FIELD DENSITY BY ___/___/___

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

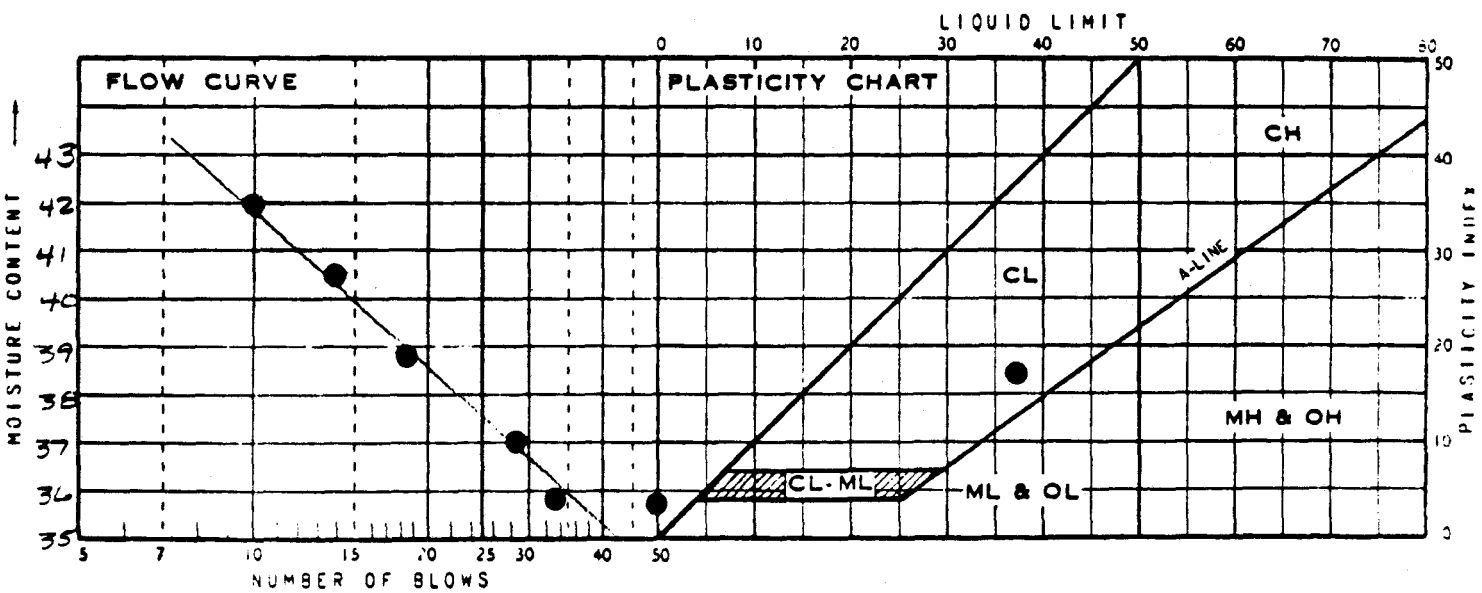
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY SR. 2/12/92.

DETERMINATION	1	2	3	4	5	6
DISH	24	66 C	53 C			
WT OF DISH + WET SOIL g	11.32	10.03	9.69			
WT OF DISH + DRY SOIL g	9.53	8.50	8.23	—	—	—
WT OF MOISTURE g	1.79	1.53	1.46			
WT OF DISH g	1.05	1.06	1.07	—	—	—
WT OF DRY SOIL g	8.48	7.44	7.16			
MOISTURE CONTENT %	21.1	20.6	20.4			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	4	20	37 C	6 C	46 C	4K
NUMBER OF BLOWS	50	33	29	19	15±	11
WT OF DISH + WET SOIL g	17.33	13.97	18.16	17.61	16.73	17.02
WT OF DISH + DRY SOIL g	13.19	10.56	13.55	12.98	12.21	12.30
WT OF MOISTURE g	4.34	3.41	4.61	4.63	4.52	4.72
WT OF DISH g	1.06	1.07	1.08	1.08	1.06	1.08
WT OF DRY SOIL g	12.13	9.49	12.47	11.90	11.15	11.22
MOISTURE CONTENT %	35.8	35.9	37.0	38.9	40.5	42.0



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		37.6	20.7	[illegible]	CL	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

BR

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	14+15	SAMPLED	--
DEPTH	27.5'	DATE TESTED	02-15-92 TNU
SAMPLE NO.	1	WASH SIEVE	Yes
SOIL DESCR.	Bulk/Jar	DRY SIEVE	No

MOISTURE/DENSITY DATA

Wt. Soil & Ring(s) (g)	
Wt. Ring(s) (g)	
Wt. Soil (g)	
Wet Density PCF	
Wt. Wet Soil & Pan (g)	
Wt. Dry Soil & Pan (g)	
Wt. Lost Moisture (g)	
Wt. of Pan Only (g)	
Wt. of Dry Soil (g)	
Moisture Content %	
Dry Density PCF	

WASH SIEVE ANALYSIS

Wt. Wet Soil & Pan Before Washing (g)	
Wt. Dry Soil & Pan Before Washing (g)	177.1
Weight of Pan (g)	8.7
Wt. of Dry Soil Before Washing	168.4
Wt. Dry Soil & Pan After Washing (g)	33.8
Wt. of Dry Soil After Washing (g)	25.1
-#200 Wash. Out %	85.1

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
3"	0.00	0.00	0.00	0.00	0.0	100.0
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	3.75	4.22	0.47	0.47	0.3	99.7
#20	3.73	4.06	0.33	0.80	0.5	99.5
#40	3.80	4.40	0.60	1.40	0.8	99.2
#60	3.73	4.44	0.71	2.11	1.3	98.7
#100	3.67	4.92	1.25	3.36	2.0	98.0
#200	3.79	25.52	21.73	25.09	14.9	85.1

Silt or Clay

Silty Clay (CL)

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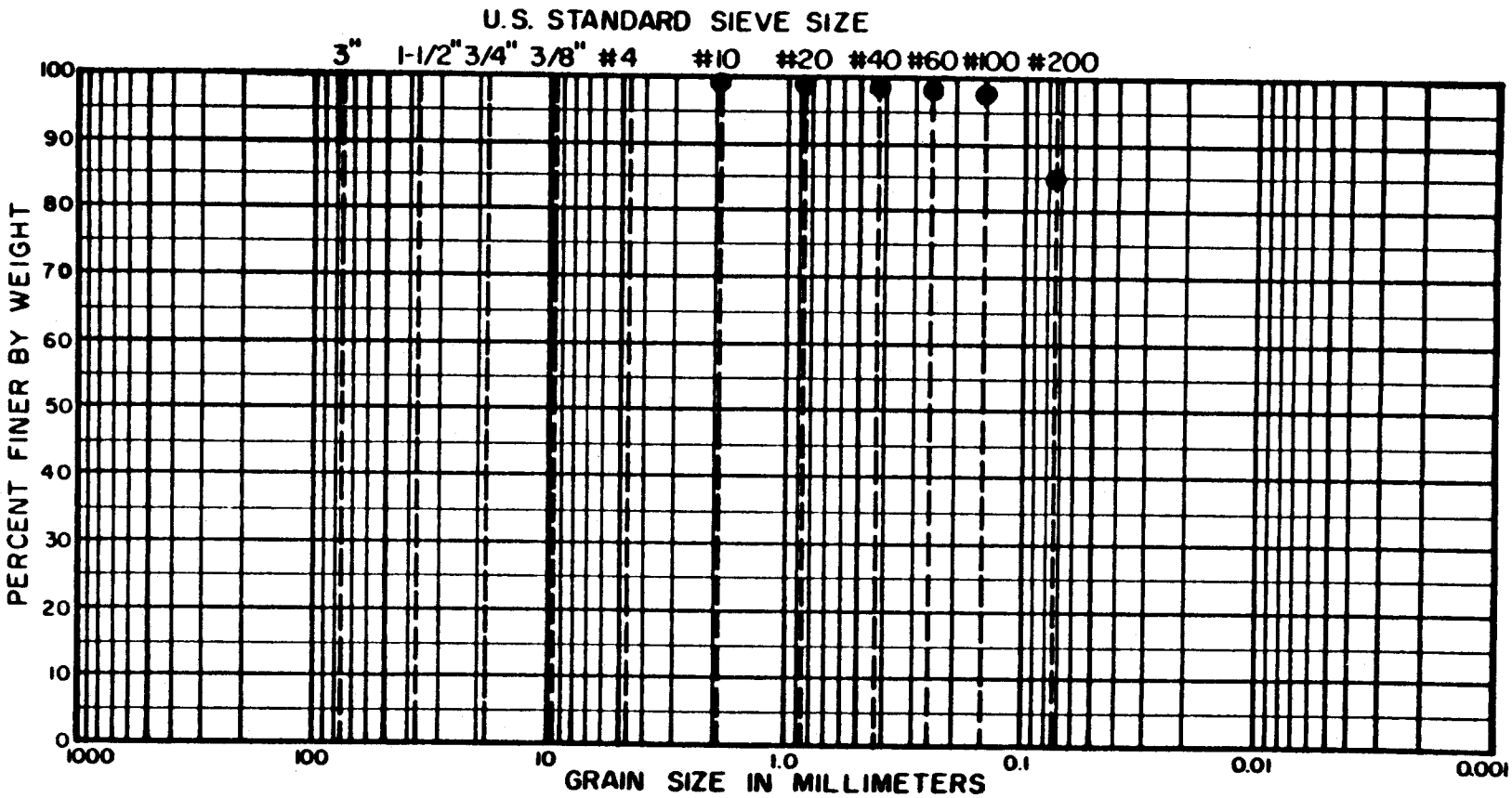


COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

LOCATION	DEPTH	CLASSIFICATION
14+15	27.5'	Rocky Flats / EG+G [illegible] 14.1% F Sand, 85.1% Silt or Clay

trace tn sand

ADVANCED TERRA TESTING

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03
CLIENT/OWNER Weston
LOCATION Rocky Flats EG+G
BORING 14+15 SAMPLE CH #2 DEPTH 27.5'

FIELD DENSITY BY ___/___/___

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

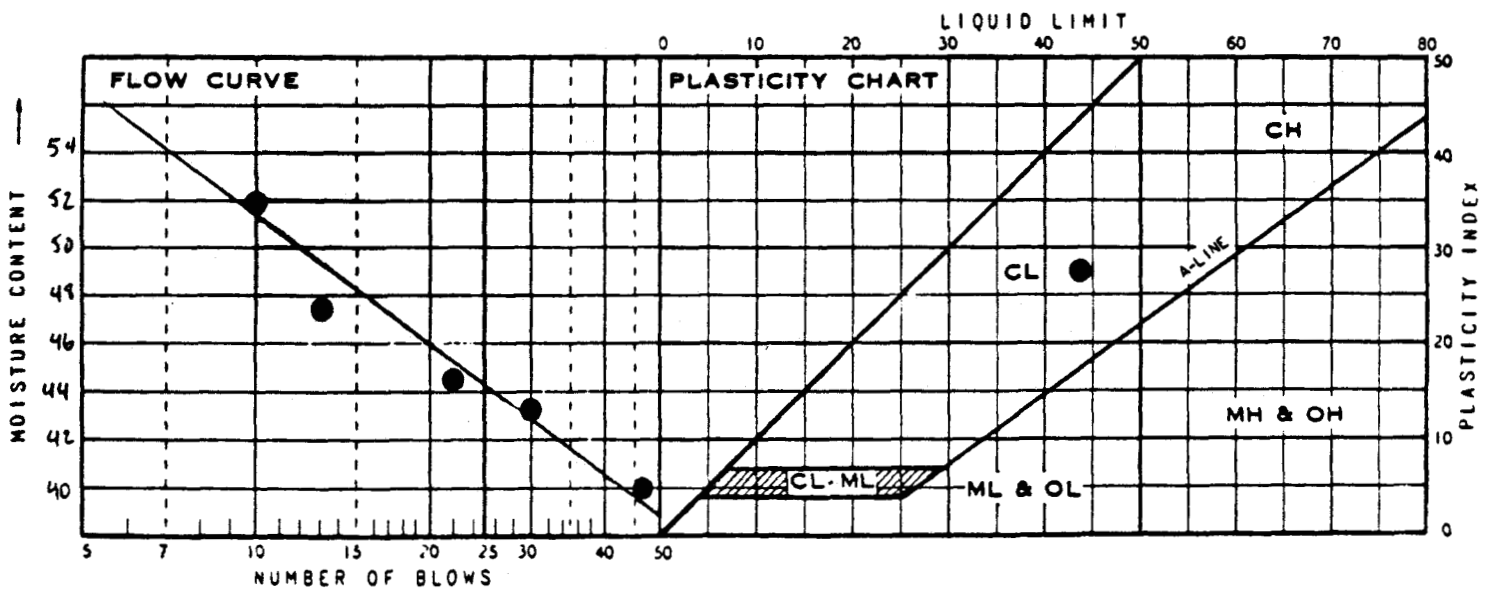
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY DW 2/15/92

DETERMINATION	1	2	3	4	5	6
DISH	2001	2002	2003			
WT OF DISH + WET SOIL g	7.77	9.66	7.79			
WT OF DISH + DRY SOIL g	6.83	8.45	6.85	—	—	—
WT OF MOISTURE g	.94	1.21	.94			
WT OF DISH g	1.04	1.04	1.04	—	—	—
WT OF DRY SOIL g	5.79	7.41	5.81			
MOISTURE CONTENT %	16.2	16.3	16.2			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2004	2005	2006	2007	2008	2009
NUMBER OF BLOWS	47	28	30	22	13	10
WT OF DISH + WET SOIL g	13.96	12.43	13.28	13.85	11.97	11.19
WT OF DISH + DRY SOIL g	10.27	9.05	9.59	9.91	8.44	7.72
WT OF MOISTURE g	3.69	3.38	3.69	3.94	3.53	3.47
WT OF DISH g	1.04	1.04	1.04	1.04	1.04	1.04
WT OF DRY SOIL g	9.23	8.01	8.55	8.87	7.40	6.68
MOISTURE CONTENT %	40.0	42.2	43.2	44.4	47.7	52.0



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		44.4	16.2	28.2	CL	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	14+50	SAMPLED	Rocky Flats
DEPTH	24'	DATE TESTED	02-21-92 TNU
SAMPLE NO.	#1	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes
NATURAL	No

Wt. Wet Soil & Pan	(g)	42.34
Wt. Dry Soil & Pan	(g)	41.95
Wt. Lost Moisture	(g)	0.39
Wt. of Pan Only	(g)	3.76
Wt. of Dry Soil	(g)	38.19
Moisture Content	%	1.0

Wt. Hydrom. Sample Wet (g)	59.67
Wt. Hydrom. Sample Dry (g)	59.07

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	172.13
Weight of + #10 Before Washing (g)	0.43
Weight of + #10 After Washing (g)	0.40
Weight of - #10 Wet (g)	171.70
Weight of - #10 Dry (g)	169.99
Wt. Total Sample Dry (g)	170.39
Calc. Wt. "W" (g)	59.21
Calc. Mass + #10	0.14

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.36	0.36	0.36	0.2	99.8
#10	0.00	0.04	0.04	0.40	0.2	99.8
#20	1.56	1.75	0.19	0.19	0.6	99.4
#40	1.57	1.85	0.28	0.47	1.0	99.0
#60	1.57	2.01	0.44	0.91	1.8	98.2
#100	1.55	2.66	1.11	2.02	3.6	96.4
#230	1.57	12.14	10.57	12.59	21.5	78.5

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT	Weston	JOB NO.	2066-03
BORING NO.	14+50	SAMPLED	Rocky Flats
DEPTH	24'	DATE TESTED	02-21-92 TNU
SAMPLE NO.	#1	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.73	Temp. Coef. K	0.01317
Value of "a"	0.98	Wt. Dry Sample "W"	59.209
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.5		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	50.00	44.50	74.0	74.0	8.09	0.0530
1.0	43.50	38.00	63.2	63.2	9.16	0.0399
2.0	37.50	32.00	53.2	53.2	10.14	0.0297
5.0	32.50	27.00	44.9	44.9	10.96	0.0195
15.0	28.50	23.00	38.2	38.2	11.62	0.0116
30.0	27.00	21.50	35.7	35.7	11.86	0.0083
60.0	25.00	19.50	32.4	32.4	12.19	0.0059
120.0	24.00	18.50	30.7	30.7	12.35	0.0042
250.0	22.50	17.00	28.3	28.3	12.60	0.0030
1440.0	19.00	13.50	22.4	22.4	13.17	0.0013

Grain Diameter = K*(SQRT(L/T))

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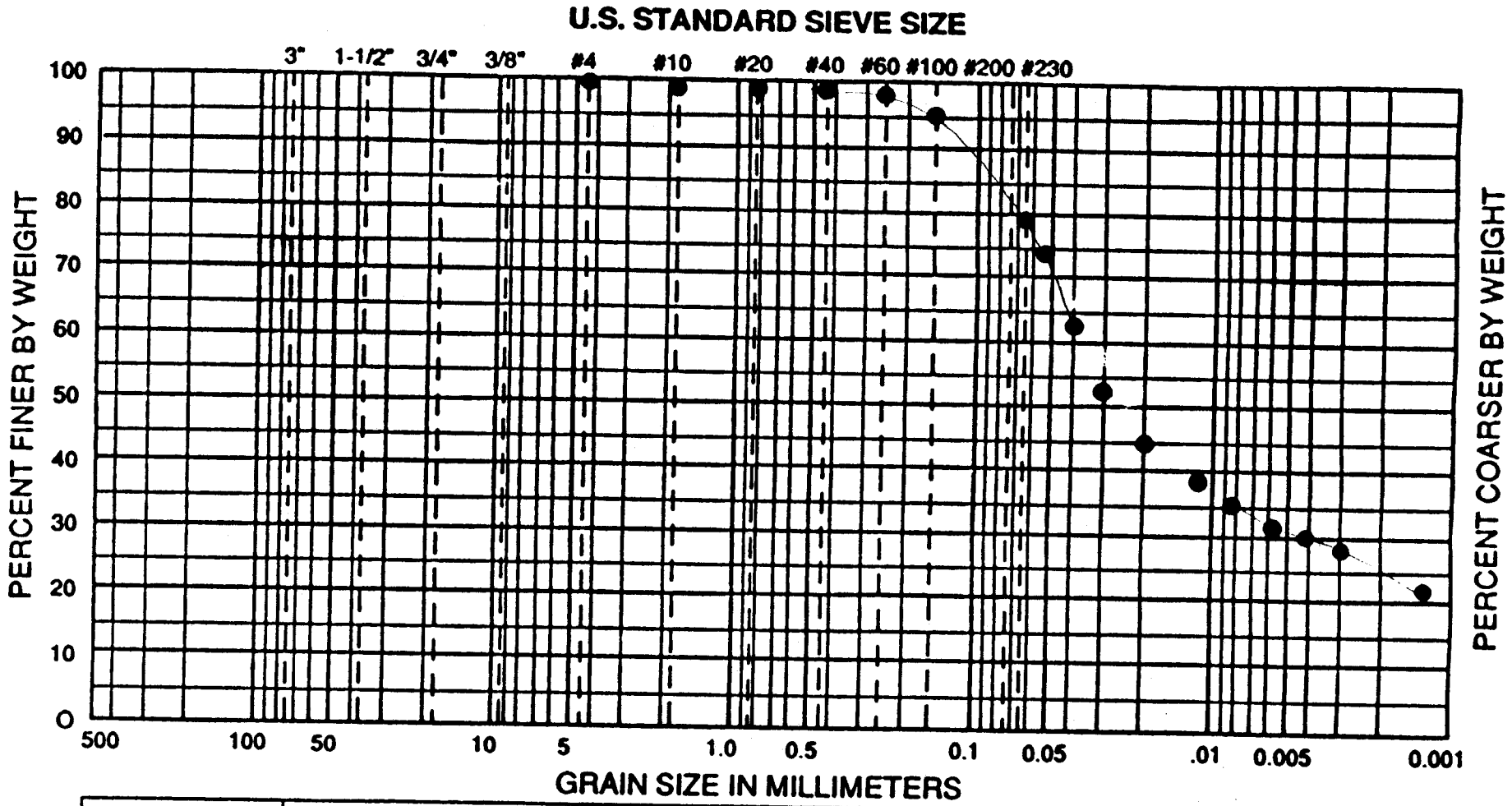
ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 14+50 SAMPLE NO.: #1 DATE: 2/20/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
	24'	Rocky Fists Clayey Silt (AL) w/ some sand & TR Gravel 2% Gravel, 8% med, 14% Fine, 56% Silt, 29% Clay

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER Weston

LOCATION Rocky Flats EG+G

BORING 14+50 SAMPLE CH #1 DEPTH [illegible]

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD [redacted]

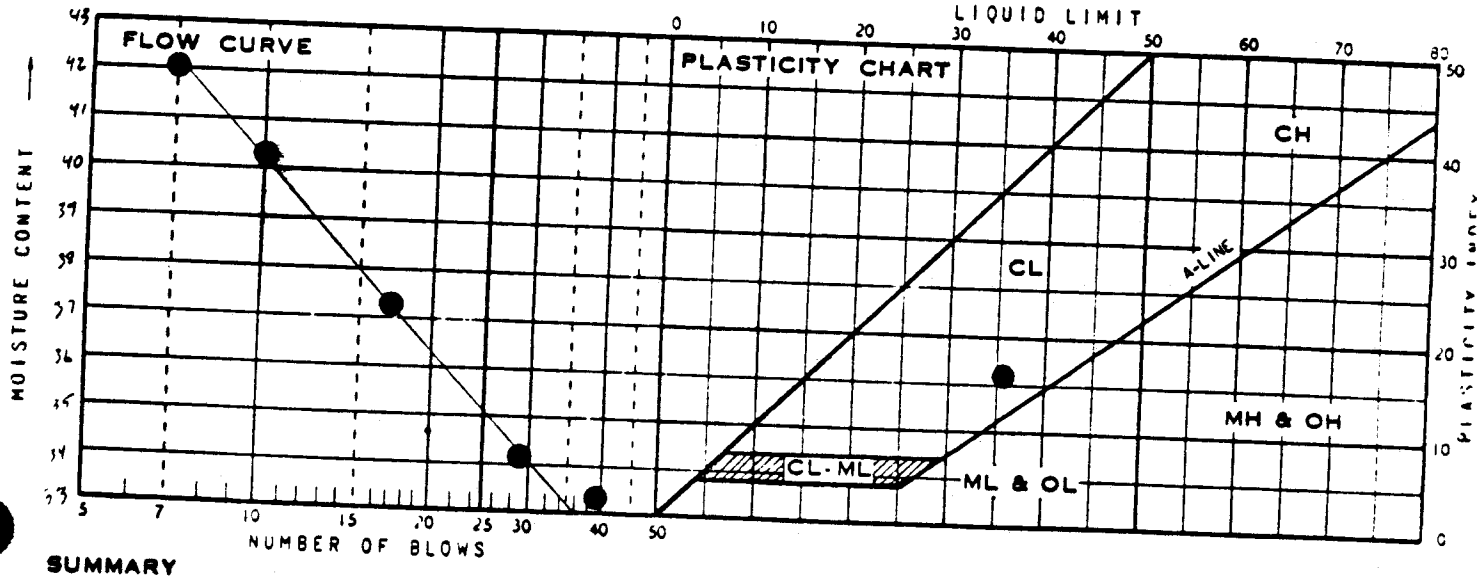
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY [illegible] 2/18/91.

DETERMINATION	1	2	3	4	5	6
DISH	24	66C	37C			
WT OF DISH + WET SOIL g	8.64	10.64	11.36			
WT OF DISH + DRY SOIL g	7.48	9.12	9.72	—	—	—
WT OF MOISTURE g	1.16	1.52	1.64			
WT OF DISH g	1.05	1.06	1.07	—	—	—
WT OF DRY SOIL g	6.43	8.06	8.65			
MOISTURE CONTENT %	18.0	18.9	19.0			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2004	2041	48C	2016	2034	2031
NUMBER OF BLOWS	39	24	20	17	10	7
WT OF DISH + WET SOIL g	16.09	14.16	15.23	13.44	12.96	13.[illegible]
WT OF DISH + DRY SOIL g	12.33	10.82	11.58	10.07	9.53	9.[illegible]
WT OF MOISTURE g	3.76	3.34	3.65	3.37	3.43	3.[illegible]
WT OF DISH g	1.03	1.04	1.05	1.03	1.03	1.03
WT OF DRY SOIL g	11.30	9.78	10.53	9.04	8.50	8.[illegible]
MOISTURE CONTENT %	33.3	34.[illegible]	34.7	37.3	40.3	42.[illegible]



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		35.1	18.6	[illegible].5	CL	

ADVANCED TERRA TESTING

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MECHANICAL ANALYSIS - SIEVE TEST DATA

BR

CLIENT Weston

JOB NO. 2066-03

BORING NO.	14+50	SAMPLED	Rocky Flats
DEPTH	33'	DATE TESTED	02-15-92 TNU
SAMPLE NO.	#1	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	65.74
Wt. Dry Soil & Pan	(g)	63.46
Wt. Lost Moisture	(g)	2.28
Wt. of Pan Only	(g)	3.80
Wt. of Dry Soil	(g)	59.66
Moisture Content	%	3.8

Wt. Hydrom. Sample Wet (g)	60.00
Wt. Hydrom. Sample Dry (g)	57.79

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	60.00
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	60.00
Weight of - #10 Dry (g)	57.79
Wt. Total Sample Dry (g)	57.79
Calc. Wt. "W" (g)	57.79
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	1.56	1.67	0.11	0.11	0.2	99.8
#40	1.56	1.63	0.07	0.18	0.3	99.7
#60	1.57	1.65	0.08	0.26	0.4	99.6
#100	1.57	1.86	0.29	0.55	1.0	99.0
#230	1.56	7.82	6.26	6.81	11.8	88.2

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT	Weston	JOB NO.	2066-03
BORING NO.	14+50	SAMPLED	Rocky Flats
DEPTH	33'	DATE TESTED	02-15-92 TNU
SAMPLE NO.	#1	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

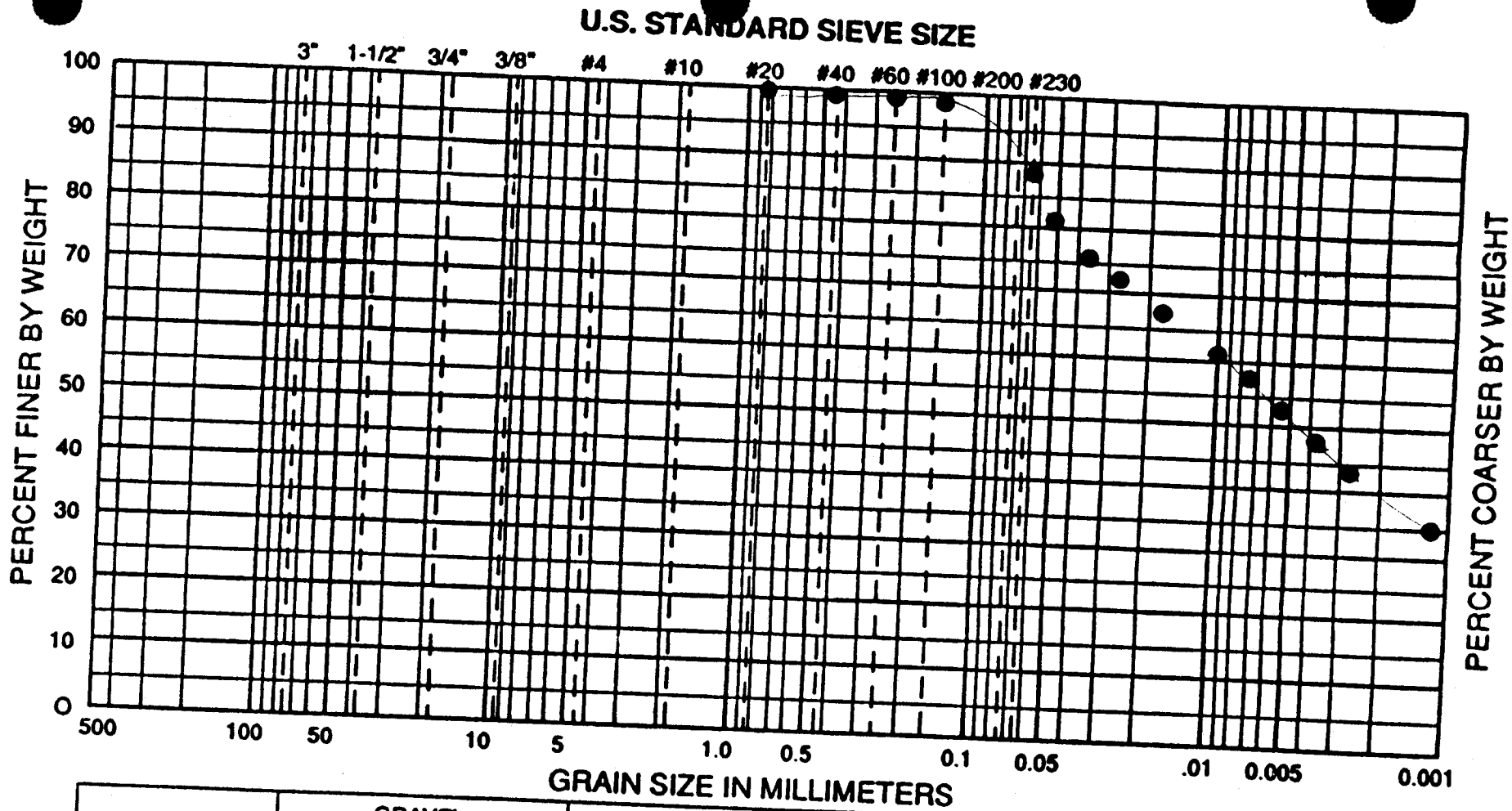
Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.73	Temp. Coef. K	0.01317
Value of "a"	0.98	Wt. Dry Sample "W"	57.791
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	5.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	54.00	48.00	81.7	81.7	7.43	0.0508
1.0	50.50	44.50	75.8	75.8	8.01	0.0373
2.0	49.00	43.00	73.2	73.2	8.25	0.0268
5.0	45.50	39.50	67.3	67.3	8.83	0.0175
15.0	42.00	36.00	61.3	61.3	9.40	0.0104
30.0	40.00	34.00	57.9	57.9	9.73	0.0075
60.0	37.00	31.00	52.8	52.8	10.22	0.0054
120.0	34.00	28.00	47.7	47.7	10.71	0.0039
250.0	32.00	26.00	44.3	44.3	11.04	0.0028
1440.0	26.50	20.50	34.9	34.9	11.94	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 14+50 SAMPLE NO.: # 1 DATE: 2/20/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
	33'	Flats Silty Clay w/ some SAND 0.3 [illegible] pl med, 11.4% [illegible], 41.2% silt, 47% clay

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER WESTON

LOCATION _____

BORING 14+50 SAMPLE [illegible] DEPTH [illegible]

FIELD DENSITY BY _____

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

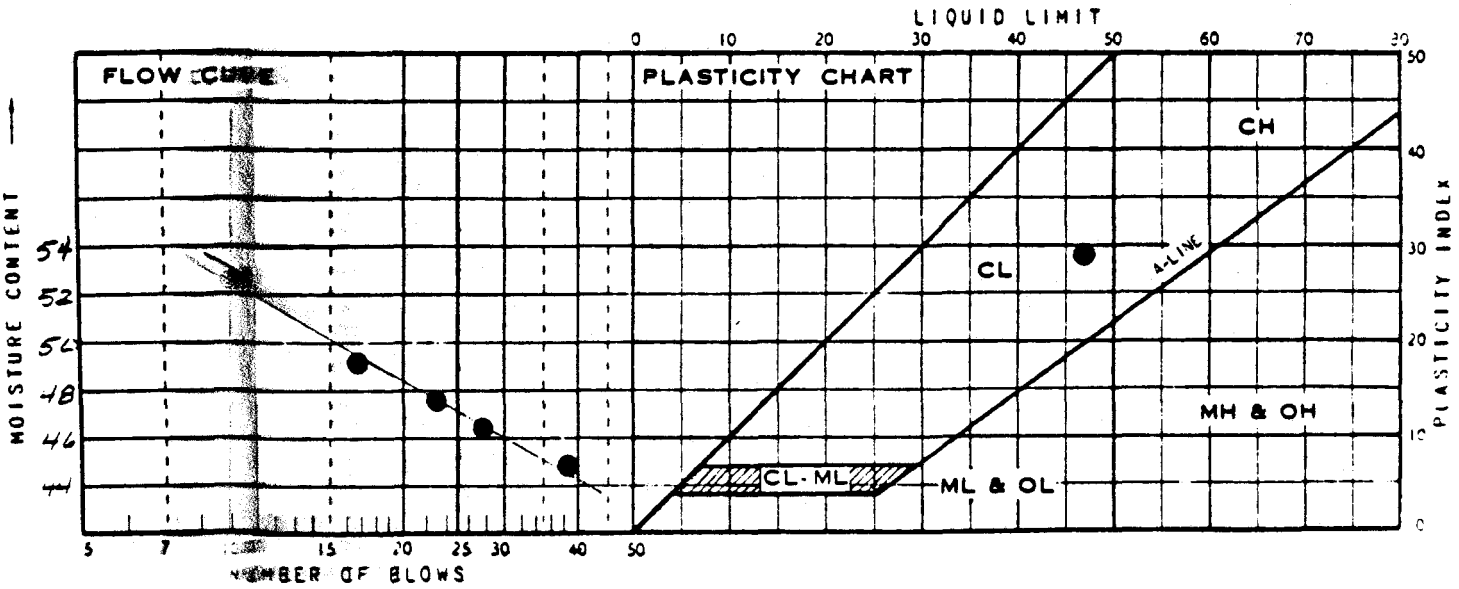
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY [illegible]

DETERMINATION	1	2	3	4	5	6
DISH	2024	2045	2038			
WT OF DISH + WET SOIL	11.22	9.92	10.21			
WT OF DISH + DRY SOIL	10.36	8.56	8.54	—	—	—
WT OF MOISTURE	.97	1.36	1.37			
WT OF DISH	1.04	1.05	1.04	—	—	—
WT OF DRY SOIL	9.22	7.51	7.80			
MOISTURE CONTENT %	10.5	18.1	17.6			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2007	2014	2015	2009	2013	
NUMBER OF BLOWS	37	28	24	17	10	
WT OF DISH + WET SOIL	13.95	13.10	15.45	16.68	16.46	
WT OF DISH + DRY SOIL	9.95	9.28	10.81	11.52	11.13	—
WT OF MOISTURE	4.00	3.82	4.64	5.16	5.33	
WT OF DISH	1.05	1.05	1.04	1.04	1.04	—
WT OF DRY SOIL	8.90	8.23	9.77	10.48	10.09	
MOISTURE CONTENT %	44.9	46.4	47.5	49.2	52.8	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		47.2	17.9	29.3	CL	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	14+75	SAMPLED	12-28-91
DEPTH	4'	DATE TESTED	02-04-92 TNU
SAMPLE NO.	—	WASH SIEVE	Yes
SOIL DESCR.	Rocky Flats/EG&G	DRY SIEVE	No

MOISTURE/DENSITY DATA

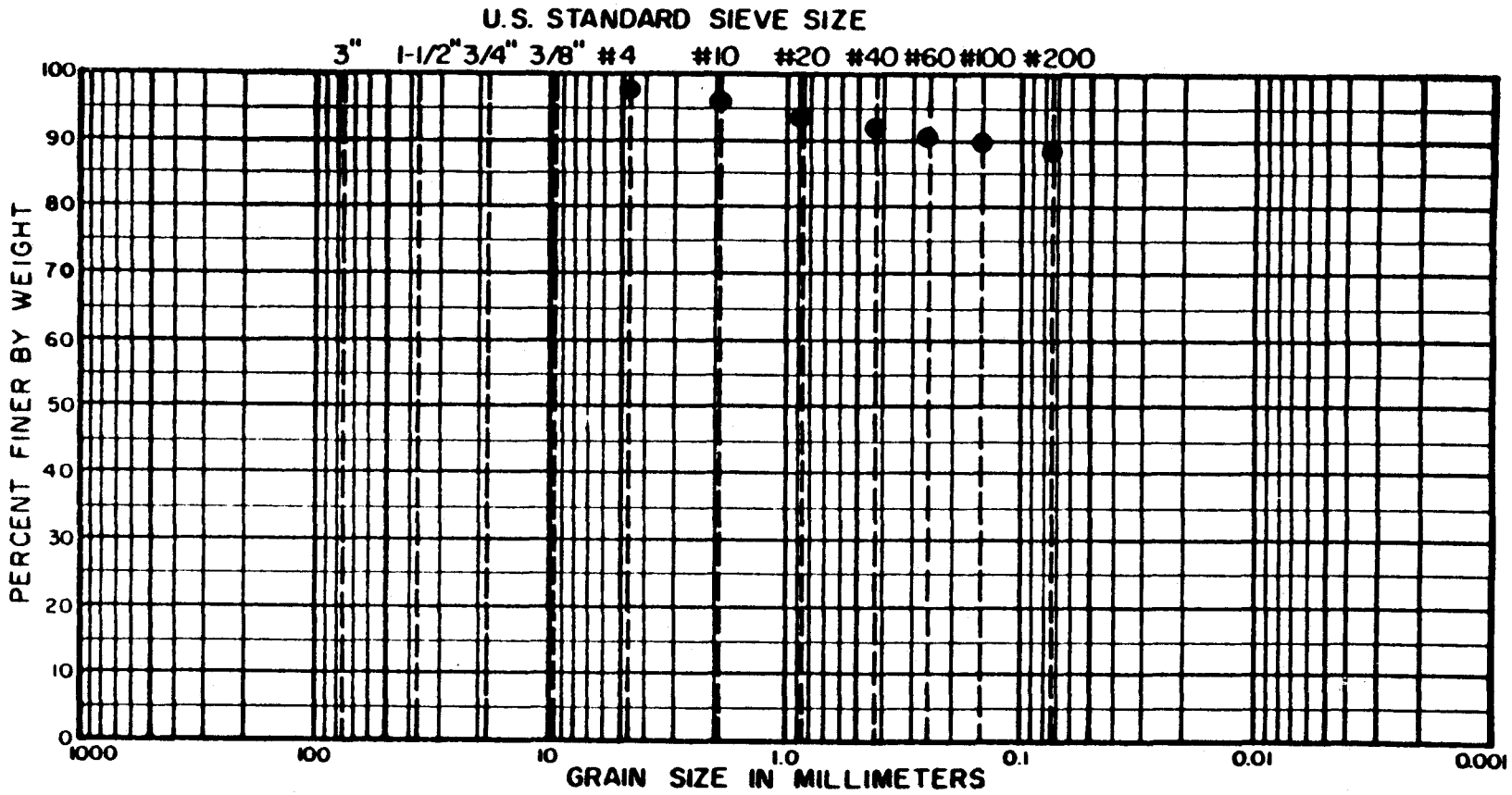
Wt. Soil & Ring(s) (g)	
Wt. Ring(s) (g)	
Wt. Soil (g)	
Wet Density PCF	
Wt. Wet Soil & Pan (g)	
Wt. Dry Soil & Pan (g)	
Wt. Lost Moisture (g)	
Wt. of Pan Only (g)	
Wt. of Dry Soil (g)	
Moisture Content %	
Dry Density PCF	

WASH SIEVE ANALYSIS

Wt. Wet Soil & Pan Before Washing (g)	
Wt. Dry Soil & Pan Before Washing (g)	130.5
Weight of Pan (g)	9.4
Wt. of Dry Soil Before Washing	121.1
Wt. Dry Soil & Pan After Washing (g)	23.9
Wt. of Dry Soil After Washing (g)	14.5
-#200 Wash. Out %	88.0

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
3"	0.00	0.00	0.00	0.00	0.0	100.0
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	3.68	5.23	1.55	1.55	1.3	98.7
#10	3.77	6.61	2.84	4.39	3.6	96.4
#20	3.77	6.23	2.46	6.85	5.7	94.3
#40	3.75	5.62	1.87	8.72	7.2	92.8
#60	3.74	5.04	1.30	10.02	8.3	91.7
#100	3.72	5.19	1.47	11.49	9.5	90.5
#200	3.71	6.71	3.00	14.49	12.0	88.0

ADVANCED TERRA TESTING, INC.



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

LOCATION	DEPTH	CLASSIFICATION CLAY w/ Some Silt
14+75	40	1.3% f Gravels, 2.3% Coarse, Rocky Flats/Eq 3.6% Med, 4.8% F Sand, 88% silt or clay

ADVANCED TERRA TESTING

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER Weston

LOCATION Rocky Flats EG+E

BORING 14±75 SAMPLE Ch #1 DEPTH 4'

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

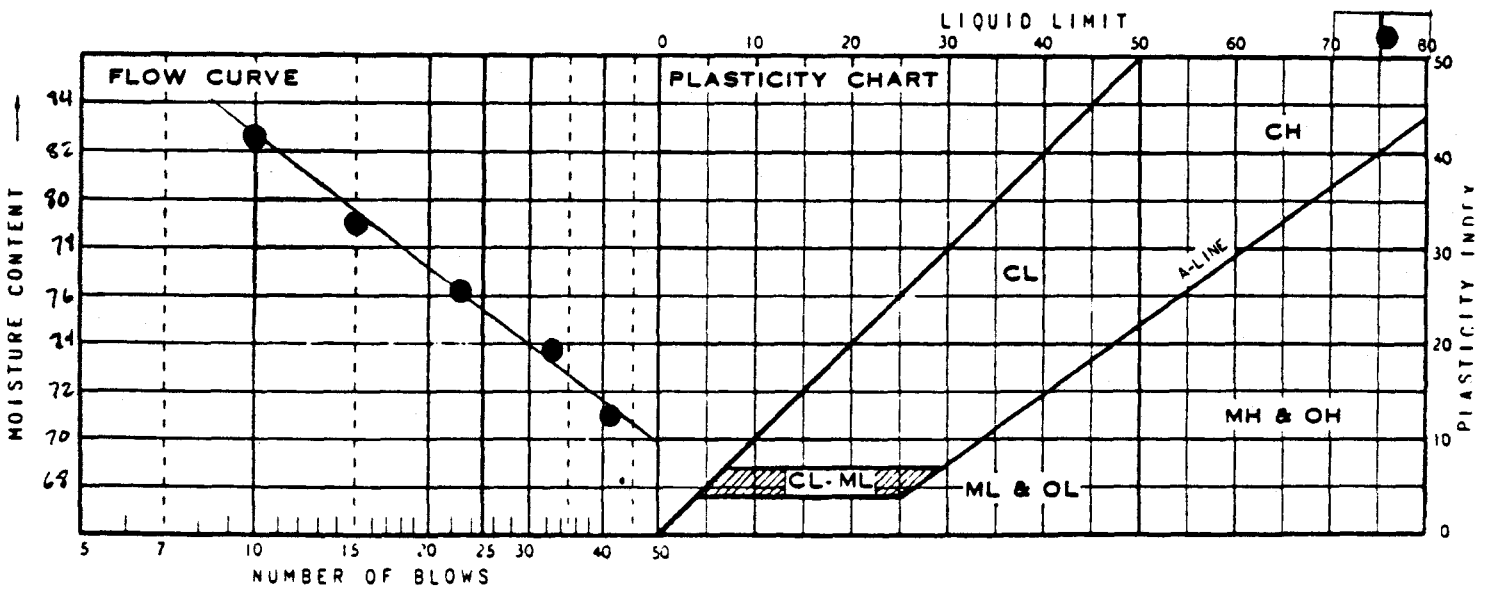
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY DU 2/15/92

DETERMINATION	1	2	3	4	5	6
DISH	2020	2021	2022			
WT OF DISH + WET SOIL g	7.89	6.25	6.55			
WT OF DISH + DRY SOIL g	6.59	5.25	5.55	—	—	—
WT OF MOISTURE g	1.30	1.00	1.00			
WT OF DISH g	1.03	1.04	1.05	—	—	—
WT OF DRY SOIL g	5.56	4.21	4.50			
MOISTURE CONTENT %	23.4	23.8	22.2			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2023	2024	2025	2026	2027	2028
NUMBER OF BLOWS	44	41	33	23	15±	10+
WT OF DISH + WET SOIL g	13.58	11.85	13.10	12.21	11.71	13.05
WT OF DISH + DRY SOIL g	8.49	7.36	7.98	7.37	7.00	7.61
WT OF MOISTURE g	5.09	4.49	5.12	4.84	4.71	5.44
WT OF DISH g	1.04	1.04	1.04	1.02	1.04	1.04
WT OF DRY SOIL g	7.45	6.32	6.94	6.35	5.96	6.57
MOISTURE CONTENT %	68.3	71.0	73.8	76.2	79.0	82.8



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		75.5	23.1	52.4	CH	

ADVANCED TERRA TESTING

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT	Roy F. Weston	JOB NO.	2066-03
BORING NO.	15+00	SAMPLED	12-17-91 SRC
DEPTH	20.5'	DATE TESTED	01-22-92 TNU
SAMPLE NO.	—	WASH SIEVE	Yes
SOIL DESCR.	Bulk	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.71	Temp. Coef. K	0.01324
Value of "a"	0.99	Wt. Dry Sample "W"	59.225
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.5		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	—	—	—	—	—	—
0.5	58.50	53.00	88.4	88.4	6.70	0.0485
1.0	54.00	48.50	80.9	80.9	7.43	0.0361
2.0	51.50	46.00	76.7	76.7	7.84	0.0262
5.0	47.00	41.50	69.2	69.2	8.58	0.0173
15.0	42.50	37.00	61.7	61.7	9.32	0.0104
30.0	40.00	34.50	57.6	57.6	9.73	0.0075
60.0	37.50	32.00	53.4	53.4	10.14	0.0054
120.0	35.00	29.50	49.2	49.2	10.55	0.0039
250.0	32.00	26.50	44.2	44.2	11.04	0.0028
1440.0	26.50	21.00	35.0	35.0	11.94	0.0012

Grain Diameter = K*(SQRT(L/T))

Clayey Silt

(ML)

ADVANCED TERRA TESTING, INC.

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Roy F. Weston

JOB NO. 2066-03

BORING NO.	15+00	SAMPLED	12-17-91 SRC
DEPTH	20.5'	DATE TESTED	01-22-92 TNU
SAMPLE NO.	—	WASH SIEVE	Yes
SOIL DESCR.	Bulk	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	59.36
Wt. Dry Soil & Pan	(g)	58.64
Wt. Lost Moisture	(g)	0.72
Wt. of Pan Only	(g)	3.64
Wt. of Dry Soil	(g)	55.00
Moisture Content	%	1.3

Wt. Hydrom. Sample Wet	(g)	60.00
Wt. Hydrom. Sample Dry	(g)	59.22

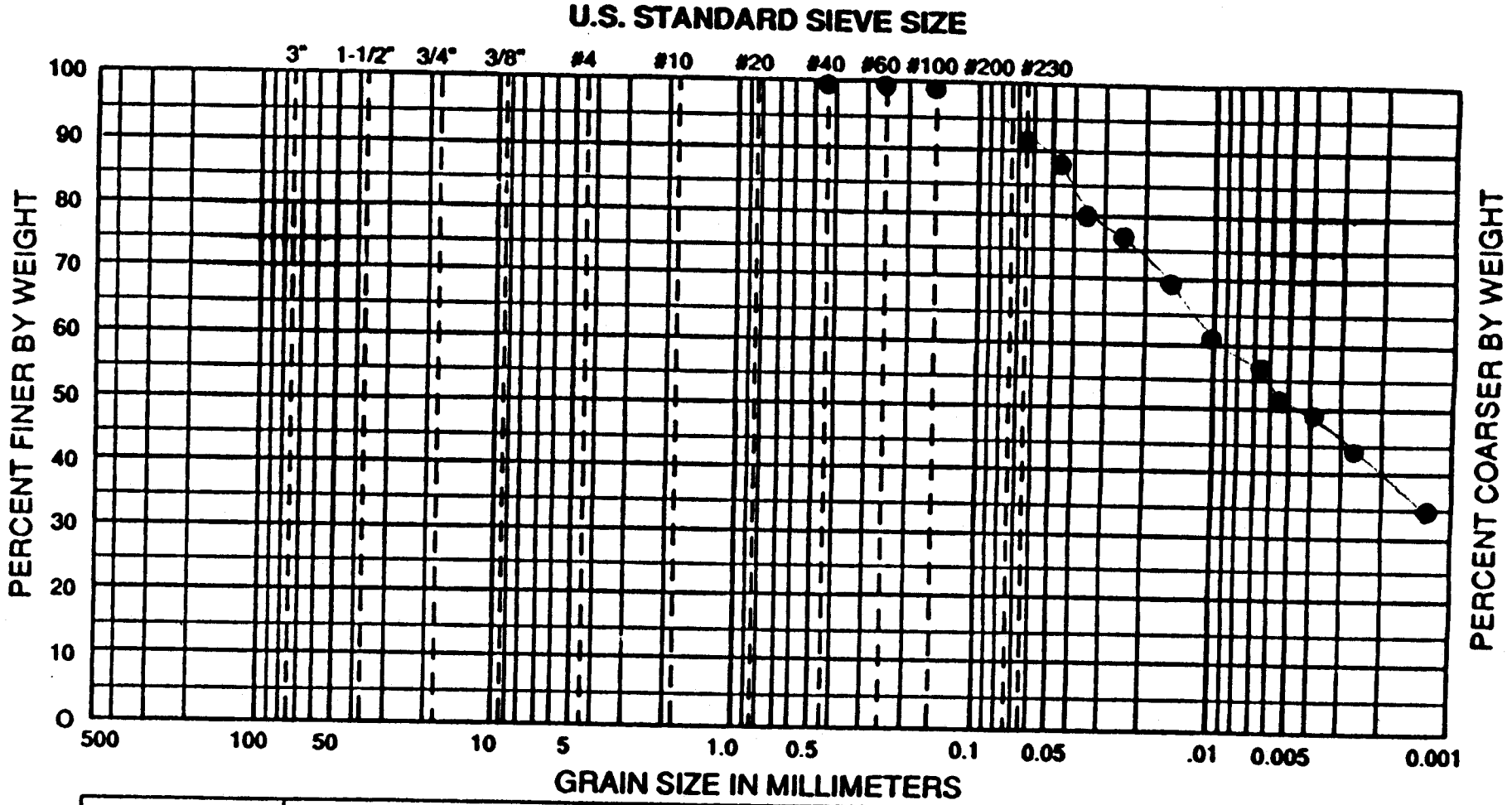
WASH SIEVE ANALYSIS

Wt. Total Sample	Wet (g)	60.00
Weight of + #10 Before Washing	(g)	0.00
Weight of + #10 After Washing	(g)	0.00
Weight of - #10	Wet (g)	60.00
Weight of - #10	Dry (g)	59.22
Wt. Total Sample	Dry (g)	59.22
Calc. Wt. "W"	(g)	59.22
Calc. Mass + #10		0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	0.00	0.00	0.00	0.00	0.0	100.0
#40	1.56	1.60	0.04	0.04	0.1	99.9
#60	1.56	1.79	0.23	0.27	0.5	99.5
#100	1.56	1.71	0.15	0.42	0.7	99.3
#230	1.55	5.65	4.10	4.52	7.6	92.4

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING

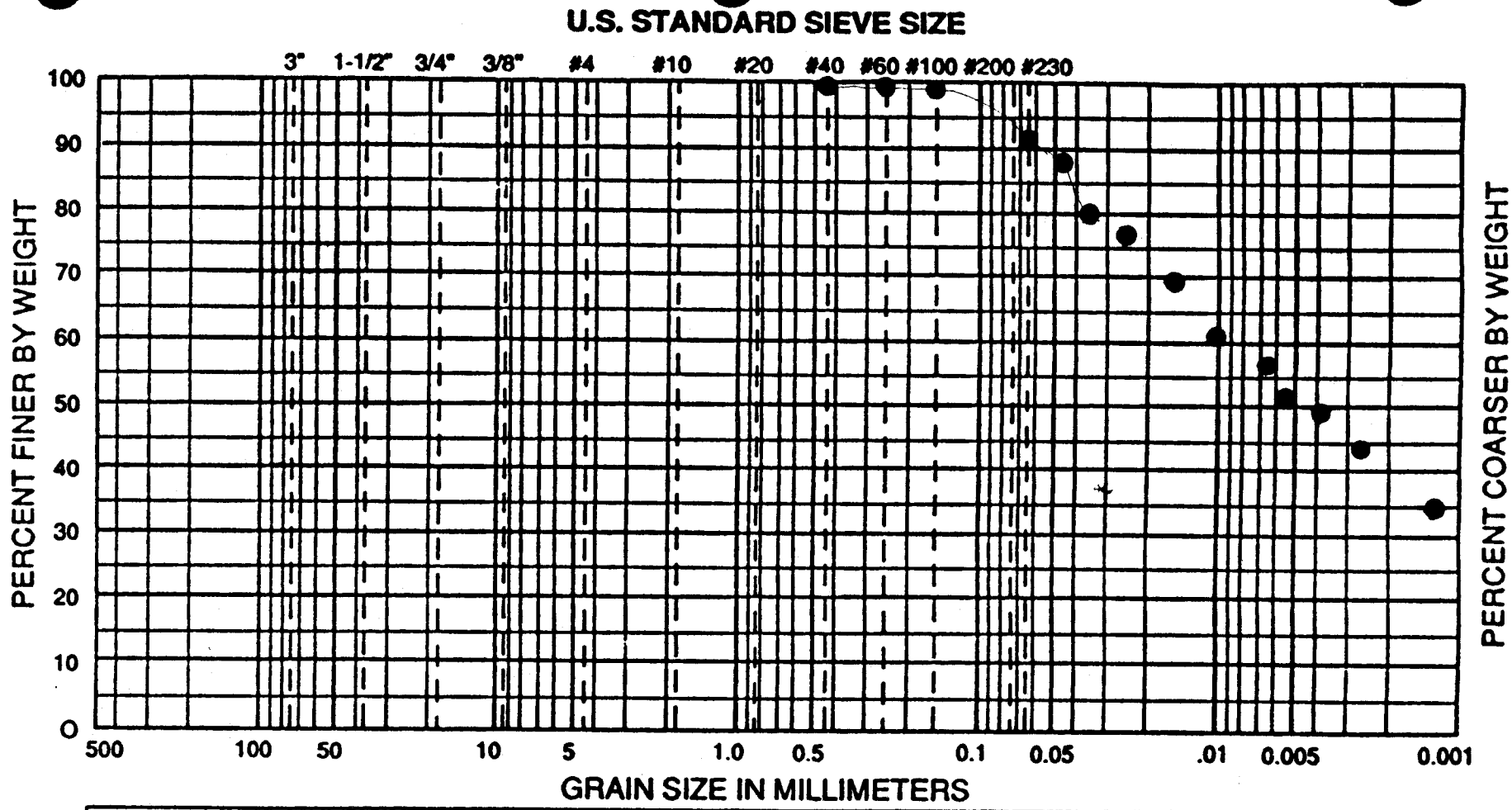


USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 15+00 SAMPLE NO.: DATE: 1-29-92 PROJECT NO.: 2029-33-09-0050

AREA	DEPTH	CLASSIFICATION
	20.5'	CLAYEY SILT w/ trace SAND (ML) 2% sand 50% silt, 48% clay

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL			SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 15+00 SAMPLE NO.: DATE: 1-29-92 PROJECT NO.: 2029-33-09-0030

AREA	DEPTH	CLASSIFICATION
	20.5'	98%

MECHANICAL ANALYSIS - SIEVE TEST DATA

BR

CLIENT Roy F. Weston

JOB NO. 2066-03

BORING NO.	15+10	SAMPLED	12-17-91 SRC
DEPTH	27.0'	DATE TESTED	01-22-92 TNU
SAMPLE NO.	—	WASH SIEVE	Yes
SOIL DESCR.	Bulk	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes
NATURAL	No

Wt. Wet Soil & Pan	(g)	45.44
Wt. Dry Soil & Pan	(g)	45.10
Wt. Lost Moisture	(g)	0.34
Wt. of Pan Only	(g)	3.68
Wt. of Dry Soil	(g)	41.42
Moisture Content	%	0.8

Wt. Hydrom. Sample Wet (g)	60.00
Wt. Hydrom. Sample Dry (g)	59.51

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	60.00
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	60.00
Weight of - #10 Dry (g)	59.51
Wt. Total Sample Dry (g)	59.51
Calc. Wt. "W" (g)	59.51
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	0.00	0.00	0.00	0.00	0.0	100.0
#40	1.57	1.63	0.06	0.06	0.1	99.9
#60	1.55	2.39	0.84	0.90	1.5	98.5
#100	1.56	2.75	1.19	2.09	3.5	96.5
#230	1.56	11.74	10.18	12.27	20.6	79.4

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT	Roy F. Weston	JOB NO.	2066-03
BORING NO.	15+10	SAMPLED	12-17-91 SRC
DEPTH	27.0'	DATE TESTED	01-22-92 TNU
SAMPLE NO.	—	WASH SIEVE	Yes
SOIL DESCR.	Bulk	DRY SIEVE	No

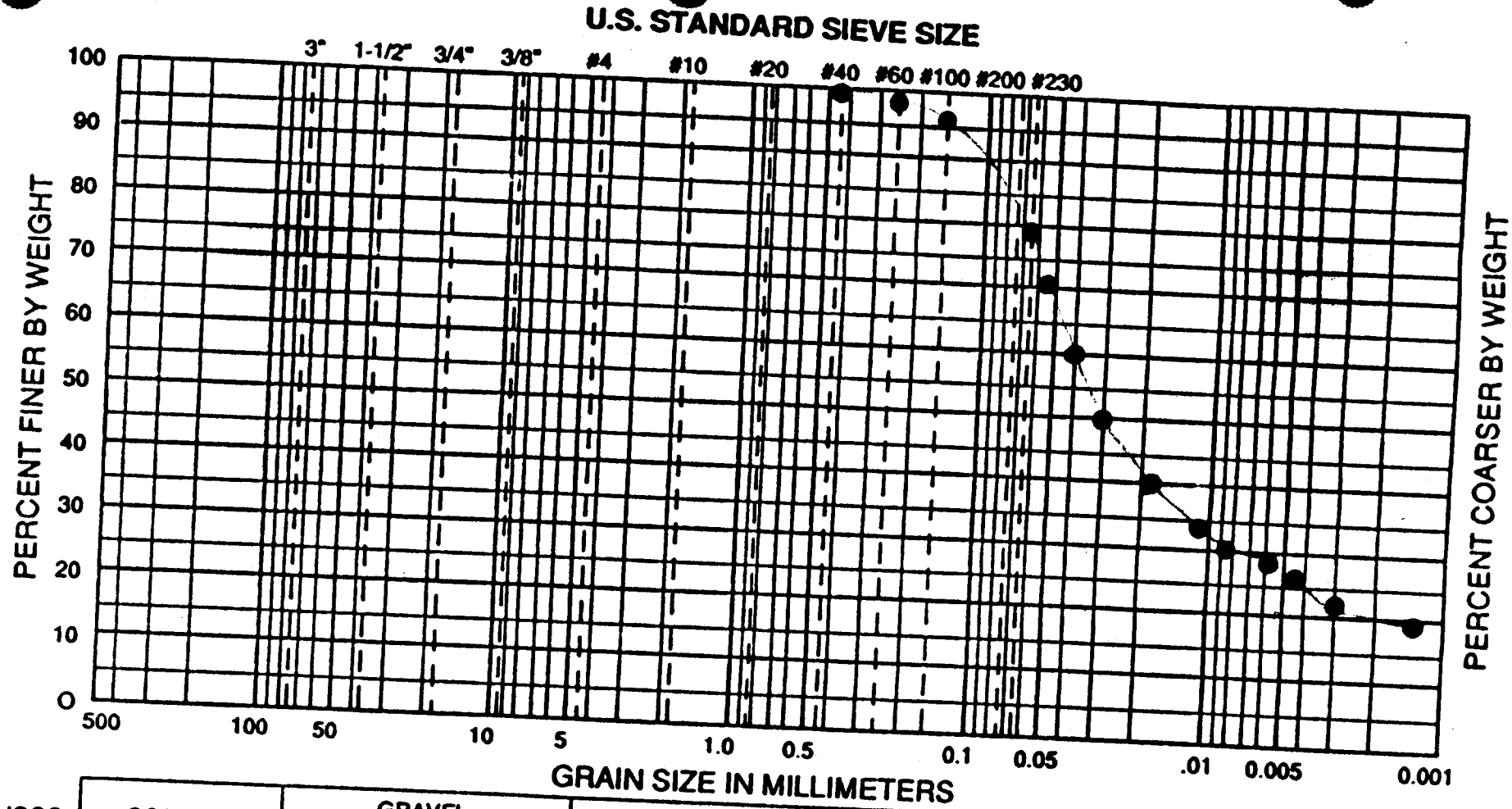
Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.79	Temp. Coef. K	0.01295
Value of "a"	0.97	Wt. Dry Sample "W"	59.511
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.5		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	—	—	—	—	—	—
0.5	49.00	43.50	71.0	71.0	8.25	0.0526
1.0	42.50	37.00	60.4	60.4	9.32	0.0395
2.0	36.00	30.50	49.8	49.8	10.39	0.0295
5.0	30.00	24.50	40.0	40.0	11.37	0.0195
15.0	26.50	21.00	34.3	34.3	11.94	0.0116
30.0	24.50	19.00	31.0	31.0	12.27	0.0083
60.0	23.00	17.50	28.6	28.6	12.52	0.0059
120.0	22.00	16.50	26.9	26.9	12.68	0.0042
250.0	19.50	14.00	22.9	22.9	13.09	0.0030
1440.0	17.50	12.00	19.6	19.6	13.42	0.0013

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 15+10

SAMPLE NO.:

DATE: 1-29-92

PROJECT NO.: 2029-33-09-0030

AREA	DEPTH	CLASSIFICATION
	27.0'	SANDY SILTSTONE w/some clay .1% coarse, 1.4% m, 19.1% F sand, 58.4% silt, 22% clay

MECHANICAL ANALYSIS - SIEVE TEST DATA

BR

CLIENT Roy F. Weston

JOB NO. 2066-03

BORING NO.	15+15	SAMPLED	12-17-91 SRC
DEPTH	19.0'	DATE TESTED	01-22-92 TNU
SAMPLE NO.	—	WASH SIEVE	Yes
SOIL DESCR.	Bulk	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	53.13
Wt. Dry Soil & Pan	(g)	52.87
Wt. Lost Moisture	(g)	0.26
Wt. of Pan Only	(g)	3.65
Wt. of Dry Soil	(g)	49.22
Moisture Content	%	0.5

Wt. Hydrom. Sample	Wet (g)	60.00
Wt. Hydrom. Sample	Dry (g)	59.68

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	60.00
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	60.00
Weight of - #10 Dry (g)	59.68
Wt. Total Sample Dry (g)	59.68
Calc. Wt. "W" (g)	59.68
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	0.00	0.00	0.00	0.00	0.0	100.0
#40	1.57	1.58	0.01	0.01	0.0	100.0
#60	1.56	1.57	0.01	0.02	0.0	100.0
#100	1.55	1.64	0.09	0.11	0.2	99.8
#230	1.56	30.98	29.42	29.53	49.5	50.5

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT	Roy F. Weston	JOB NO.	2066-03
BORING NO.	15+15	SAMPLED	12-17-91 SRC
DEPTH	19.0'	DATE TESTED	01-22-92 TNU
SAMPLE NO.	—	WASH SIEVE	Yes
SOIL DESCR.	Bulk	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.70	Temp. Coef. K	0.01328
Value of "a"	0.99	Wt. Dry Sample "W"	59.685
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.5		
Meniscus Corr'n	-1.0		

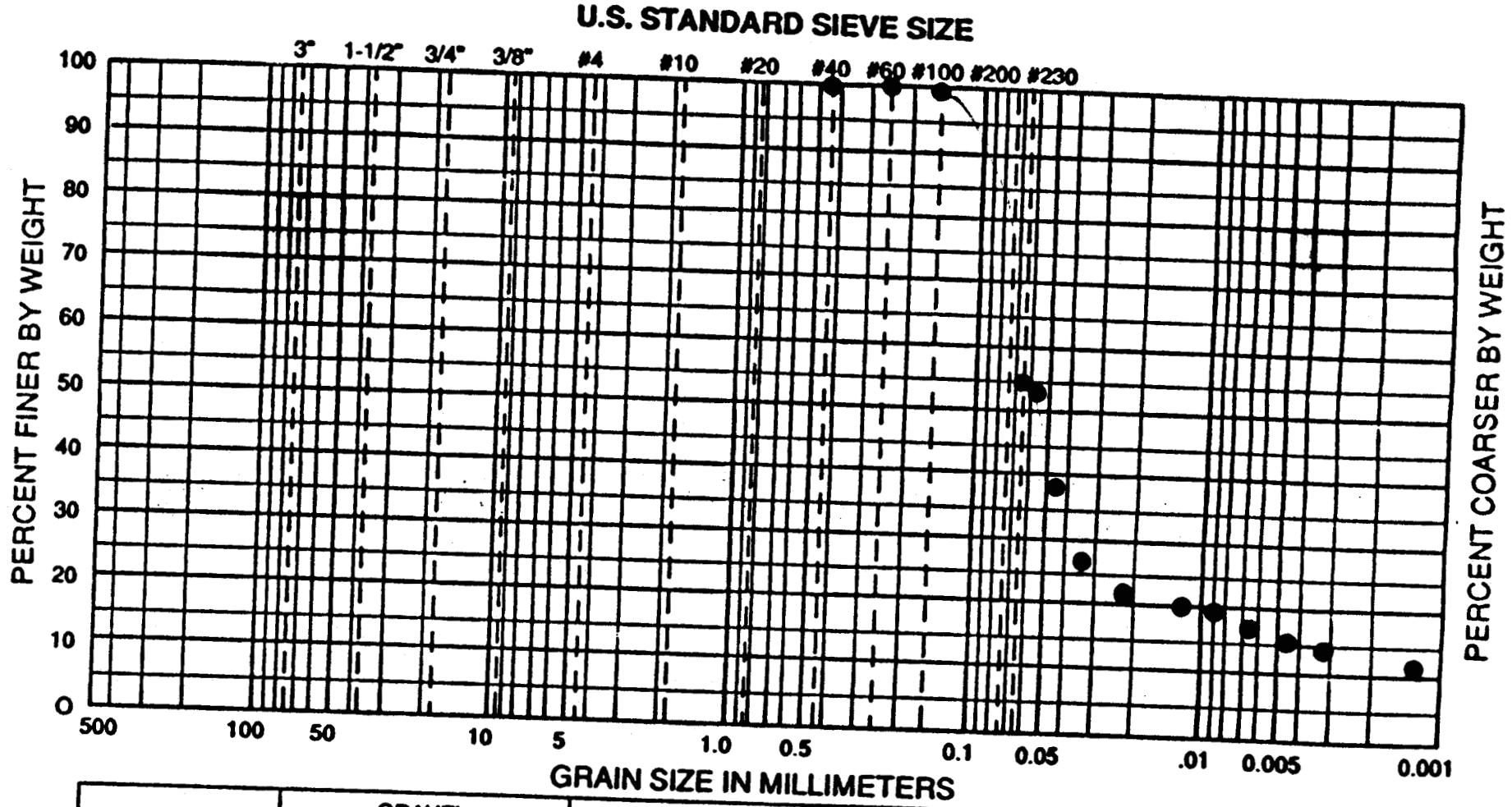
T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	—	—	—	—	—	—
0.5	38.00	32.50	53.9	53.9	10.06	0.0596
1.0	28.50	23.00	38.2	38.2	11.62	0.0453
2.0	22.00	16.50	27.4	27.4	12.68	0.0334
5.0	19.50	14.00	23.2	23.2	13.09	0.0215
15.0	18.00	12.50	20.7	20.7	13.34	0.0125
30.0	17.50	12.00	19.9	19.9	13.42	0.0089
60.0	16.00	10.50	17.4	17.4	13.67	0.0063
120.0	15.50	10.00	16.6	16.6	13.75	0.0045
250.0	14.00	8.50	14.1	14.1	13.99	0.0031
1440.0	13.00	7.50	12.4	12.4	14.16	0.0013

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

Bed Rock as per [illegible]

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 15+15 SAMPLE NO.: DATE: 1-29-92 PROJECT NO.: 2029-33-09-0090

AREA	DEPTH	CLASSIFICATION SILTY SANDSTONE w/ some clay
	190'	~~[illegible]~~ [illegible] 15 [illegible] 49.5% F [illegible] 32.5% [illegible] 18% [illegible]

MECHANICAL ANALYSIS - SIEVE TEST DATA

BR

CLIENT Roy F. Weston

JOB NO. 2066-03

BORING NO.	15+25	SAMPLED	12-17-91 SRC
DEPTH	26.5'	DATE TESTED	01-22-92 TNU
SAMPLE NO.	—	WASH SIEVE	Yes
SOIL DESCR.	Bulk	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes
NATURAL	No

Wt. Wet Soil & Pan	(g)	46.19
Wt. Dry Soil & Pan	(g)	45.84
Wt. Lost Moisture	(g)	0.35
Wt. of Pan Only	(g)	3.78
Wt. of Dry Soil	(g)	42.06
Moisture Content	%	0.8

Wt. Hydrom. Sample Wet (g)	60.00
Wt. Hydrom. Sample Dry (g)	59.50

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	60.00
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	60.00
Weight of - #10 Dry (g)	59.50
Wt. Total Sample Dry (g)	59.50
Calc. Wt. "W" (g)	59.50
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	0.00	0.00	0.00	0.00	0.0	100.0
#40	1.56	1.58	0.02	0.02	0.0	100.0
#60	1.57	1.65	0.08	0.10	0.2	99.8
#100	1.56	1.94	0.38	0.48	0.8	99.2
#230	1.57	17.54	15.97	16.45	27.6	72.4

Tom S[illegible]

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT Roy F. Weston

JOB NO. 2066-03

BORING NO.	15+25	SAMPLED	12-17-91 SRC
DEPTH	26.5'	DATE TESTED	01-22-92 TNU
SAMPLE NO.	—	WASH SIEVE	Yes
SOIL DESCR.	Bulk	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.75	Temp. Coef. K	0.01309
Value of "a"	0.98	Wt. Dry Sample "W"	59.505
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.5		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	—	—	—	—	—	—
0.5	46.00	40.50	66.7	66.7	8.75	0.0547
1.0	38.00	32.50	53.5	53.5	10.06	0.0415
2.0	31.00	25.50	42.0	42.0	11.21	0.0310
5.0	25.00	19.50	32.1	32.1	12.19	0.0204
15.0	22.00	16.50	27.2	27.2	12.68	0.0120
30.0	21.00	15.50	25.5	25.5	12.85	0.0086
60.0	20.00	14.50	23.9	23.9	13.01	0.0061
120.0	18.50	13.00	21.4	21.4	13.26	0.0044
250.0	17.00	11.50	18.9	18.9	13.50	0.0030
1440.0	15.00	9.50	15.6	15.6	13.83	0.0013

Grain Diameter = K*(SQRT(L/T))

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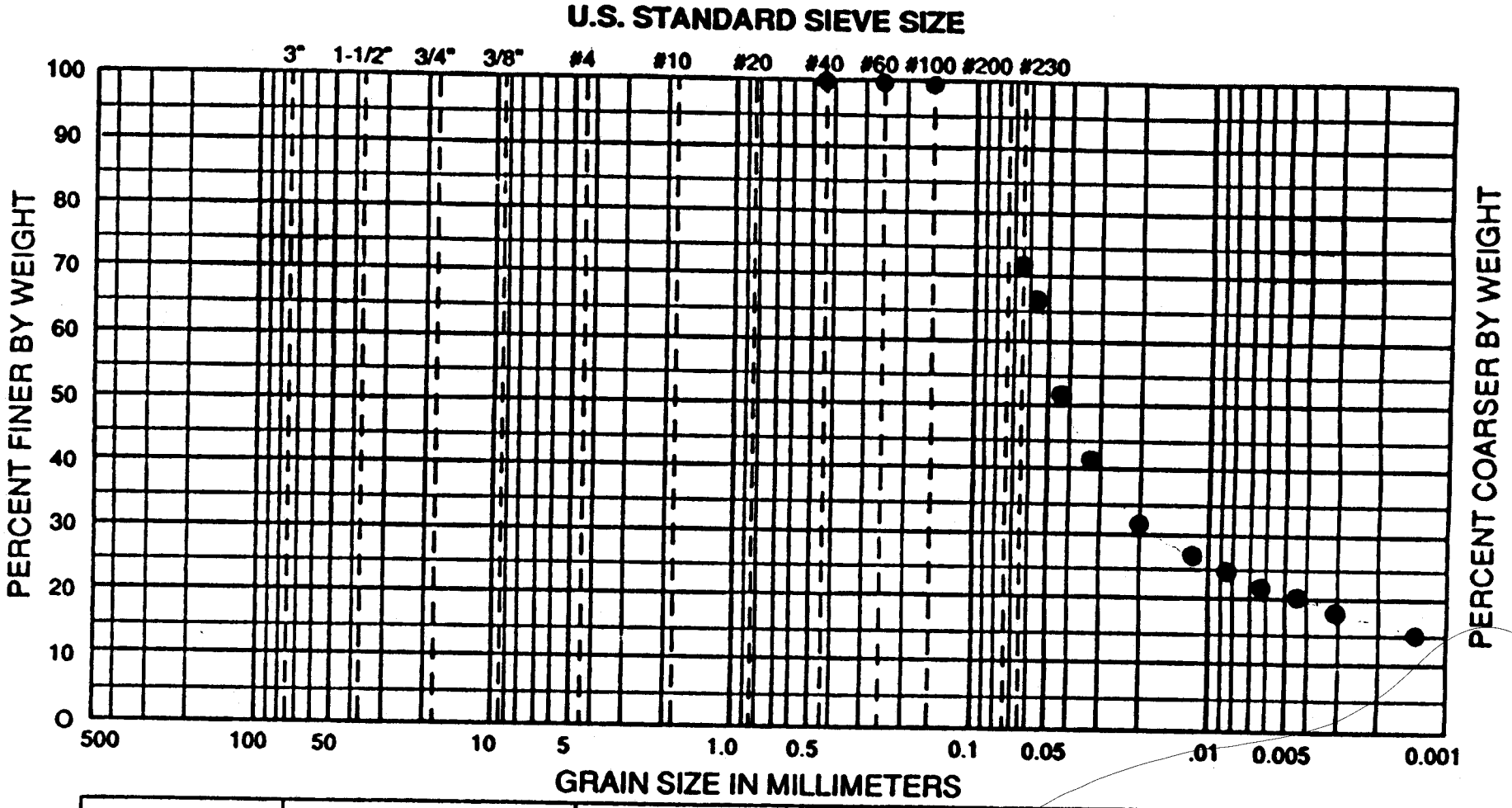

USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY	
		COARSE	FINE	COARSE	MEDIUM	FINE		
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL			SAND		SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE

WELLNAME: 15+25 SAMPLE NO.: DATE: 1-29-92 PROJECT NO.: 2029-33-09-0030

AREA	DEPTH	CLASSIFICATION
	26.5'	SANDY Siltstone w/Some Clay [illegible] Siltstone .2% [illegible], 27.4% F sand / 53.4% silt / 19% clay

MECHANICAL ANALYSIS - SIEVE TEST DATA
-#230 SIEVE ONLY

BR

CLIENT Roy F. Weston

JOB NO. 2066-03

BORING NO.	15+25	SAMPLED	12-17-91 SRC
DEPTH	31'	DATE TESTED	01-22-92 TNU
SAMPLE NO.	—	WASH SIEVE	Yes
SOIL DESCR.	Bulk/Jar	DRY SIEVE	No

MOISTURE/DENSITY DATA

Wt. Soil & Ring(s)	(g)	
Wt. Ring(s)	(g)	
Wt. Soil	(g)	
Wet Density	PCF	
Wt. Wet Soil & Pan	(g)	338.2
Wt. Dry Soil & Pan	(g)	289.7
Wt. Lost Moisture	(g)	48.4
Wt. of Pan Only	(g)	14.3
Wt. of Dry Soil	(g)	275.4
Moisture Content	%	17.6
Dry Density	PCF	

WASH SIEVE ANALYSIS

Wt. Wet Soil & Pan Before Washing (g)	338.2
Wt. Dry Soil & Pan Before Washing (g)	289.7
Weight of Pan (g)	14.3
Wt. of Dry Soil Before Washing	275.4
Wt. Dry Soil & Pan After Washing (g)	16.1
Wt. of Dry Soil After Washing (g)	1.8
-#230 Wash. Out %	99.4

Silty Claystone **

ADVANCED TERRA TESTING, INC.

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	15+40	SAMPLED	Rocky Flats
DEPTH	27.5'	DATE TESTED	02-28-92 TNU
SAMPLE NO.	#7	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	61.69
Wt. Dry Soil & Pan	(g)	60.34
Wt. Lost Moisture	(g)	1.35
Wt. of Pan Only	(g)	3.76
Wt. of Dry Soil	(g)	56.58
Moisture Content	%	2.4

Wt. Hydrom. Sample Wet (g)	60.02
Wt. Hydrom. Sample Dry (g)	58.62

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	60.02
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	60.02
Weight of - #10 Dry (g)	58.62
Wt. Total Sample Dry (g)	58.62
Calc. Wt. "W" (g)	58.62
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	1.59	1.60	0.01	0.01	0.0	100.0
#40	1.56	1.58	0.02	0.03	0.1	99.9
#60	1.58	1.70	0.12	0.15	0.3	99.7
#100	1.47	2.47	1.00	1.15	2.0	98.0
#230	1.57	20.48	18.91	20.06	34.2	65.8

Clayey [illegible]

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston** JOB NO. 2066-03

BORING NO.	15+40	SAMPLED	Rocky Flats
DEPTH	27.5'	DATE TESTED	02-28-92 TNU
SAMPLE NO.	#7	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.71	Temp. Coef. K	0.01308
Value of "a"	0.99	Wt. Dry Sample "W"	58.619
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	44.00	39.00	65.7	65.7	9.07	0.0557
1.0	36.00	31.00	52.2	52.2	10.39	0.0422
2.0	30.00	25.00	42.1	42.1	11.37	0.0312
5.0	25.00	20.00	33.7	33.7	12.19	0.0204
15.0	23.00	18.00	30.3	30.3	12.52	0.0119
30.0	20.00	15.00	25.3	25.3	13.01	0.0086
60.0	19.50	14.50	24.4	24.4	13.09	0.0061
120.0	18.00	13.00	21.9	21.9	13.34	0.0044
250.0	16.50	11.50	19.4	19.4	13.58	0.0030
1440.0	14.00	9.00	15.2	15.2	13.99	0.0013

Grain Diameter = K*(SQRT(L/T))

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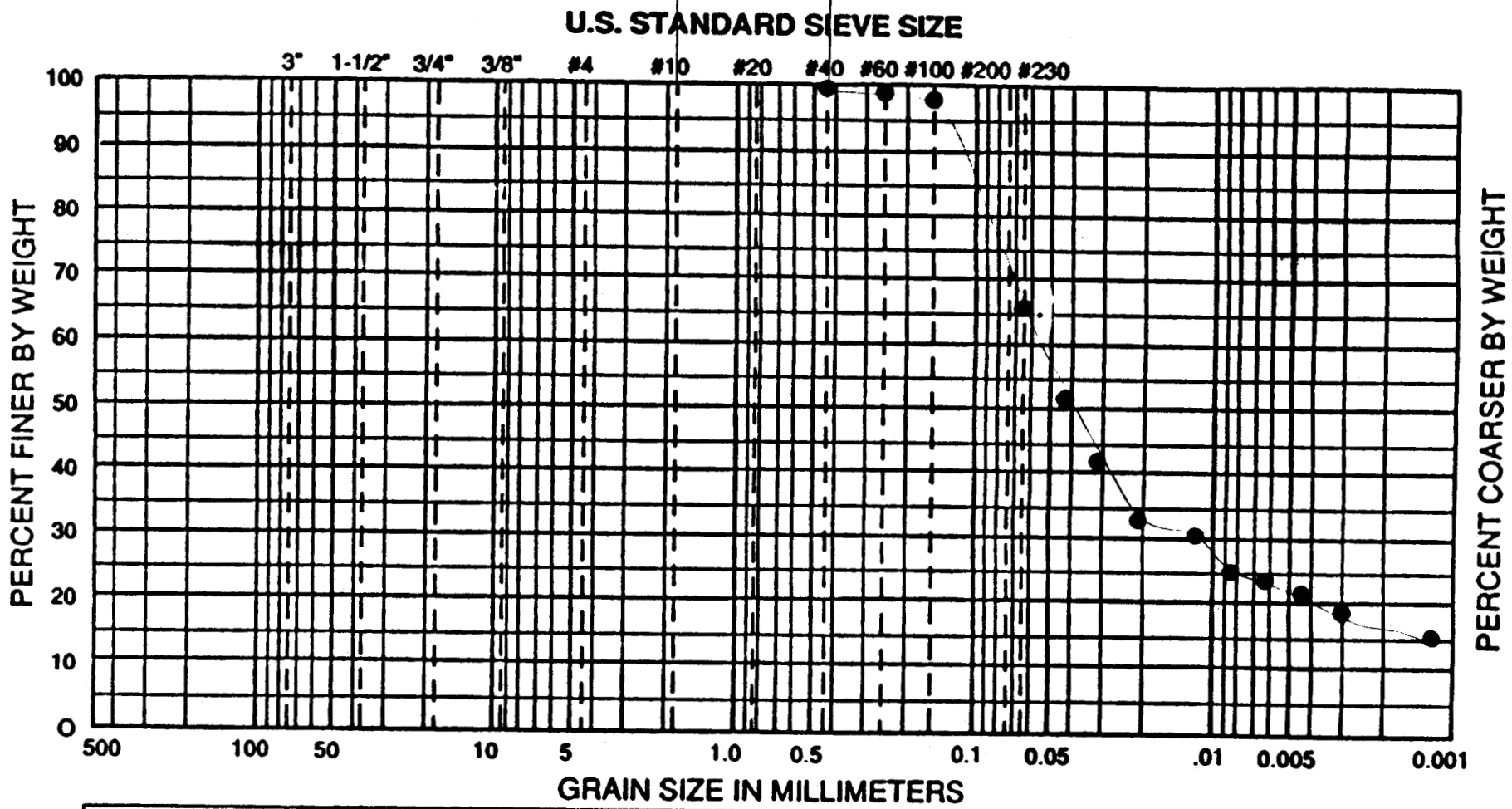


USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 15+40 SAMPLE NO.: CH # 7 DATE: 3/9/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	27.5'	CLAYEY SANDY SILTSTONE .1% medium sand, 29.9% f sd, 48% SILT, 22% CLAY

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER WESTON

LOCATION Rocky FLATS E G & G

BORING 15+40 SAMPLE # 7 DEPTH @ 27.5

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

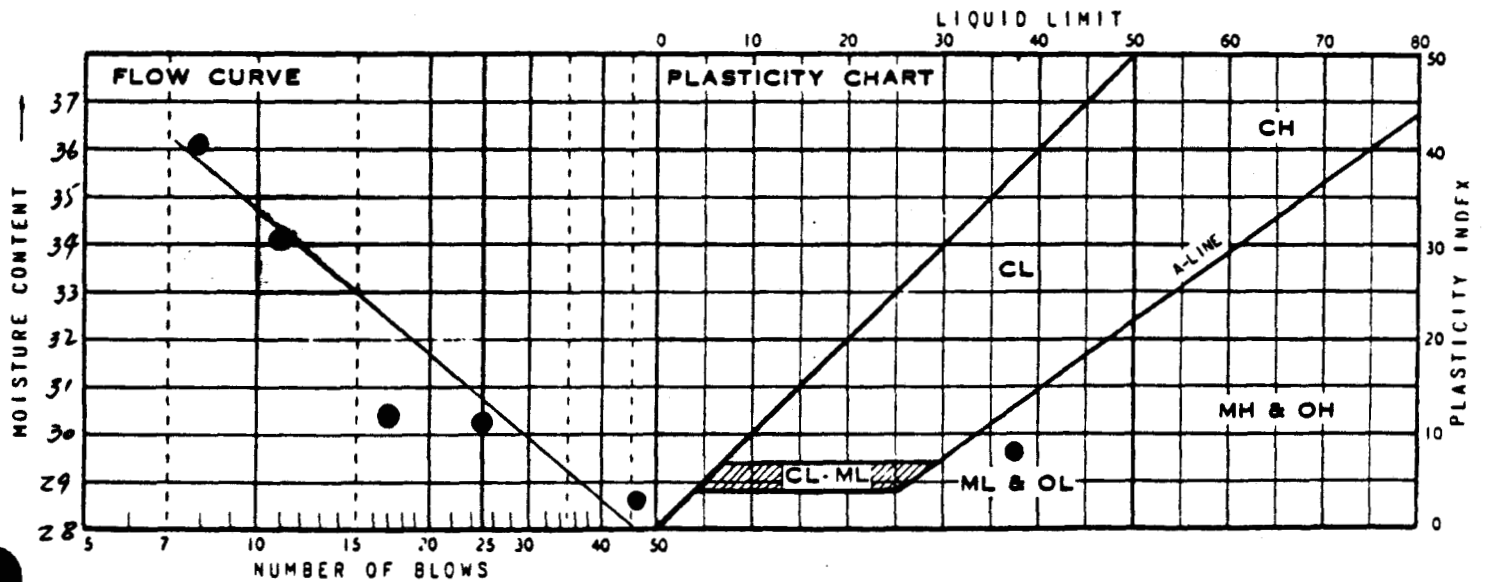
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY ~~[illegible]~~ 3/12/92

DETERMINATION	1	2	3	4	5	6
DISH	2016	25C	32C	15C		
WT OF DISH + WET SOIL	6.08	4.55g	6.46g	6.66		
WT OF DISH + DRY SOIL	5.18	3.89	5.42	5.65	—	—
WT OF MOISTURE	0.90	0.66	1.04	1.01		
WT OF DISH	1.04	1.04	1.02	1.04	—	—
WT OF DRY SOIL	4.14	2.85	4.40	4.61		
MOISTURE CONTENT	21.7	23.2	23.6	21.9	= 90.4/4 =	22.6

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2018	2023	13C	16C	9C	
NUMBER OF BLOWS	17	46	25	11	8	
WT OF DISH + WET SOIL	12.95	10.46	9.27	13.43	13.84	
WT OF DISH + DRY SOIL	10.17	8.36	7.36	10.28	10.45	—
WT OF MOISTURE	2.78	2.10	1.91	3.15	3.39	
WT OF DISH	1.04	1.04	1.04	1.05	1.05	—
WT OF DRY SOIL	9.13	7.32	6.32	9.23	9.40	
MOISTURE CONTENT	30.4	28.7	30.3	34.1	36.1	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		30.8	22.6	8.2	ML	

ADVANCED TERRA TESTING INC

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	15+55	SAMPLED	Rocky Flats
DEPTH	2.3'	DATE TESTED	03-05-92 SR
SAMPLE NO.	#7	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	62.87
Wt. Dry Soil & Pan	(g)	60.64
Wt. Lost Moisture	(g)	2.23
Wt. of Pan Only	(g)	3.74
Wt. of Dry Soil	(g)	56.90
Moisture Content	%	3.9

Wt. Hydrom. Sample Wet (g)	60.01
Wt. Hydrom. Sample Dry (g)	57.74

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	1301.67
Weight of + #10 Before Washing (g)	770.73
Weight of + #10 After Washing (g)	713.23
Weight of - #10 Wet (g)	530.94
Weight of - #10 Dry (g)	566.25
Wt. Total Sample Dry (g)	1279.48
Calc. Wt. "W" (g)	130.48
Calc. Mass + #10	72.73

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	306.03	306.03	306.03	23.9	76.1
3/8"	0.00	223.55	223.55	529.58	41.4	58.6
#4	0.00	110.18	110.18	639.76	50.0	50.0
#10	0.00	73.47	73.47	713.23	55.7	44.3
#20	1.31	5.54	4.23	4.23	59.0	41.0
#40	1.56	7.11	5.55	9.78	63.2	36.8
#60	1.57	5.45	3.88	13.66	66.2	33.8
#100	1.56	5.79	4.23	17.89	69.5	30.5
#230	1.57	7.49	5.92	23.81	74.0	26.0

Clayey Sand (SC)

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston** JOB NO. 2066-03

BORING NO.	15+55	SAMPLED	Rocky Flats
DEPTH	2.3'	DATE TESTED	03-05-92 SR
SAMPLE NO.	#7	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.73	Temp. Coef. K	0.01301
Value of "a"	0.98	Wt. Dry Sample "W"	130.477
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	5.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	38.50	32.50	24.5	24.5	9.98	0.0581
1.0	35.50	29.50	22.2	22.2	10.47	0.0421
2.0	34.75	28.75	21.7	21.7	10.59	0.0299
5.0	33.00	27.00	20.4	20.4	10.88	0.0192
15.0	31.75	25.75	19.4	19.4	11.08	0.0112
30.0	29.75	23.75	17.9	17.9	11.41	0.0080
60.0	28.00	22.00	16.6	16.6	11.70	0.0057
120.0	27.00	21.00	15.8	15.8	11.86	0.0041
250.0	25.50	19.50	14.7	14.7	12.11	0.0029
1440.0	23.50	17.50	13.2	13.2	12.44	0.0012

Grain Diameter = K*(SQRT(L/T))

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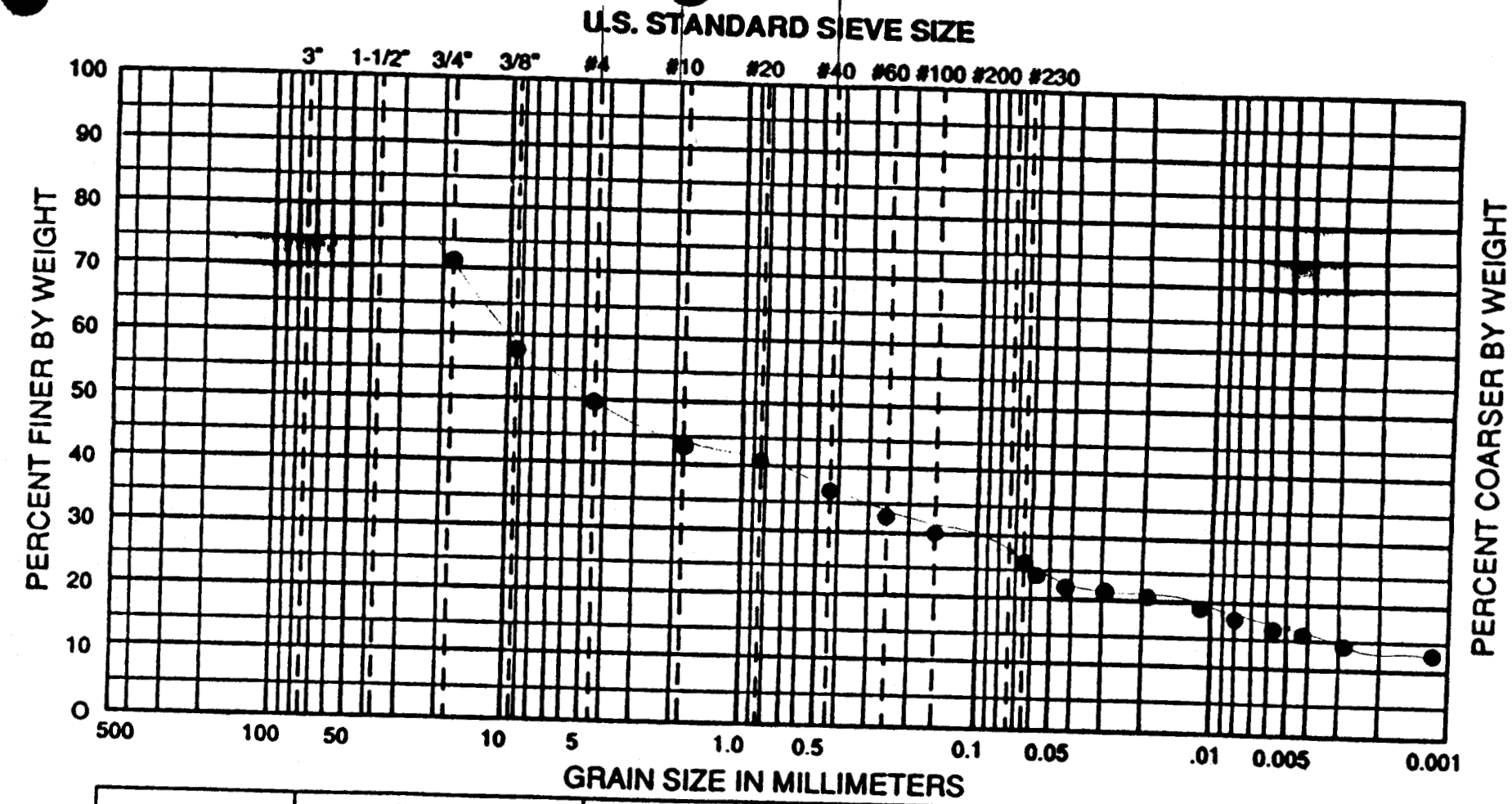


USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 15+55 **SAMPLE NO.:** CH # 7 **DATE:** 3/9/92 **PROJECT NO.:**

AREA	DEPTH	CLASSIFICATION
Rocky Flats	2.3'	Gravel w/some SAND, SILT & CLAY (CLAYEY SAND w/ some SILT & GUL) 23% 27% 23.9% C GUL, 26.1% f GUL, 5.7% C sd, 7.5% m sd, 9.8% f sd, 11% SILT, 16% CLAY

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER WESTON

LOCATION

BORING 15+55 SAMPLE #7 DEPTH 2.3'

FIELD DENSITY BY ___/___/___

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

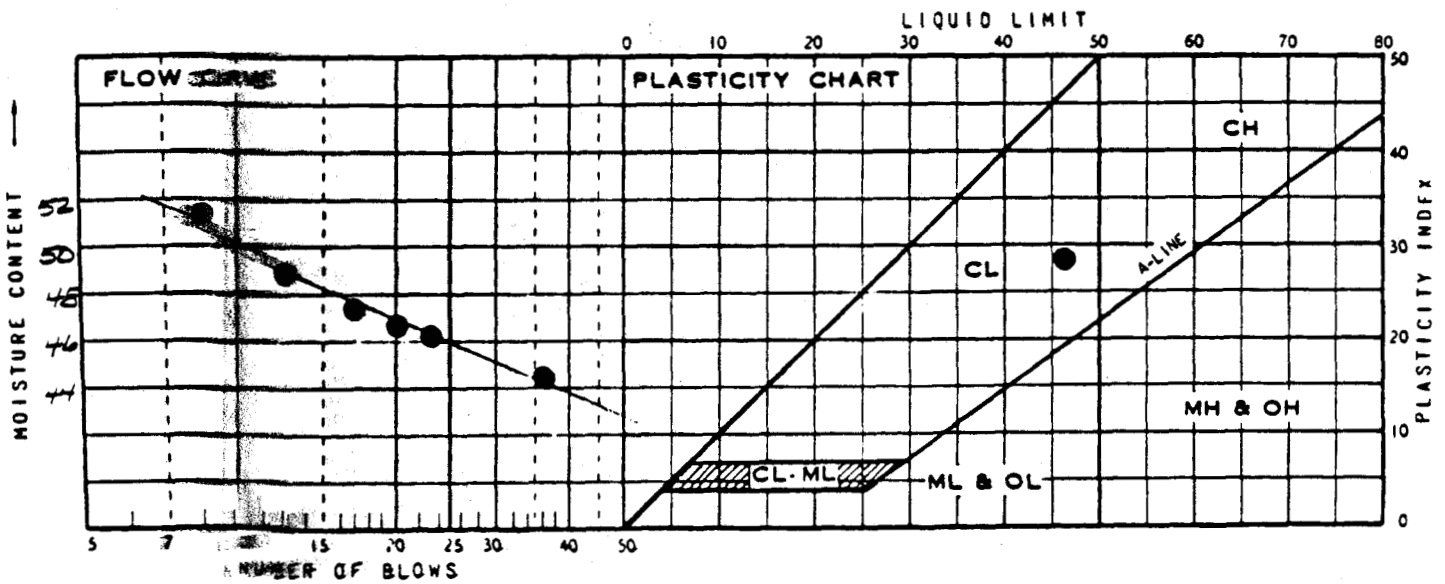
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY 3/4/92

DETERMINATION	1	2	3	4	5	6
DISH	06	31 C	12 C			
WT OF DISH + WET SOIL g	7.14	6.89	5.73			
WT OF DISH + DRY SOIL g	6.25	5.99	5.02	—	—	—
WT OF MOISTURE g	.89	.90	.71			
WT OF DISH g	1.06	1.06	1.06	—	—	—
WT OF DRY SOIL g	5.19	4.93	3.96			
MOISTURE CONTENT M_c	17.2	18.3	17.9			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2071	2027	2040	2038	2063	24C
NUMBER OF BLOWS	36	23±	20	17	13	9±
WT OF DISH + WET SOIL g	17.55	20.70	19.77	22.53	24.52	20.51
WT OF DISH + DRY SOIL g	12.47	14.49	13.81	15.63	16.81	13.86
WT OF MOISTURE g	5.08	6.21	5.96	6.90	7.71	6.65
WT OF DISH g	1.05	1.05	1.05	1.06	1.06	1.03
WT OF DRY SOIL g	11.42	13.44	12.76	14.57	15.75	12.83
MOISTURE CONTENT M_c	44.5	46.2	46.7	47.4	48.9	51.8



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		46.0	17.8	28.2	CL	

ADVANCED TERRA TESTING

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MECHANICAL ANALYSIS - SIEVE TEST DATA

BR

CLIENT Roy F. Weston

JOB NO. 2066-03

BORING NO.	15+58	SAMPLED	12-04-91 SRC
DEPTH	25.0'	DATE TESTED	01-22-92 TNU
SAMPLE NO.	—	WASH SIEVE	Yes
SOIL DESCR.	Bulk	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	53.08
Wt. Dry Soil & Pan	(g)	52.66
Wt. Lost Moisture	(g)	0.42
Wt. of Pan Only	(g)	3.68
Wt. of Dry Soil	(g)	48.98
Moisture Content	%	0.9

Wt. Hydrom. Sample Wet (g)	60.00
Wt. Hydrom. Sample Dry (g)	59.49

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	60.00
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	60.00
Weight of - #10 Dry (g)	59.49
Wt. Total Sample Dry (g)	59.49
Calc. Wt. "W" (g)	59.49
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	0.00	0.00	0.00	0.00	0.0	100.0
#40	1.56	1.58	0.02	0.02	0.0	100.0
#60	1.57	1.68	0.11	0.13	0.2	99.8
#100	1.57	2.24	0.67	0.80	1.3	98.7
#230	1.56	22.20	20.64	21.44	36.0	64.0

Sandy Silt

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT	Roy F. Weston	JOB NO.	2066-03
BORING NO.	15+58	SAMPLED	12-04-91 SRC
DEPTH	25.0'	DATE TESTED	01-22-92 TNU
SAMPLE NO.	—	WASH SIEVE	Yes
SOIL DESCR.	Bulk	DRY SIEVE	No

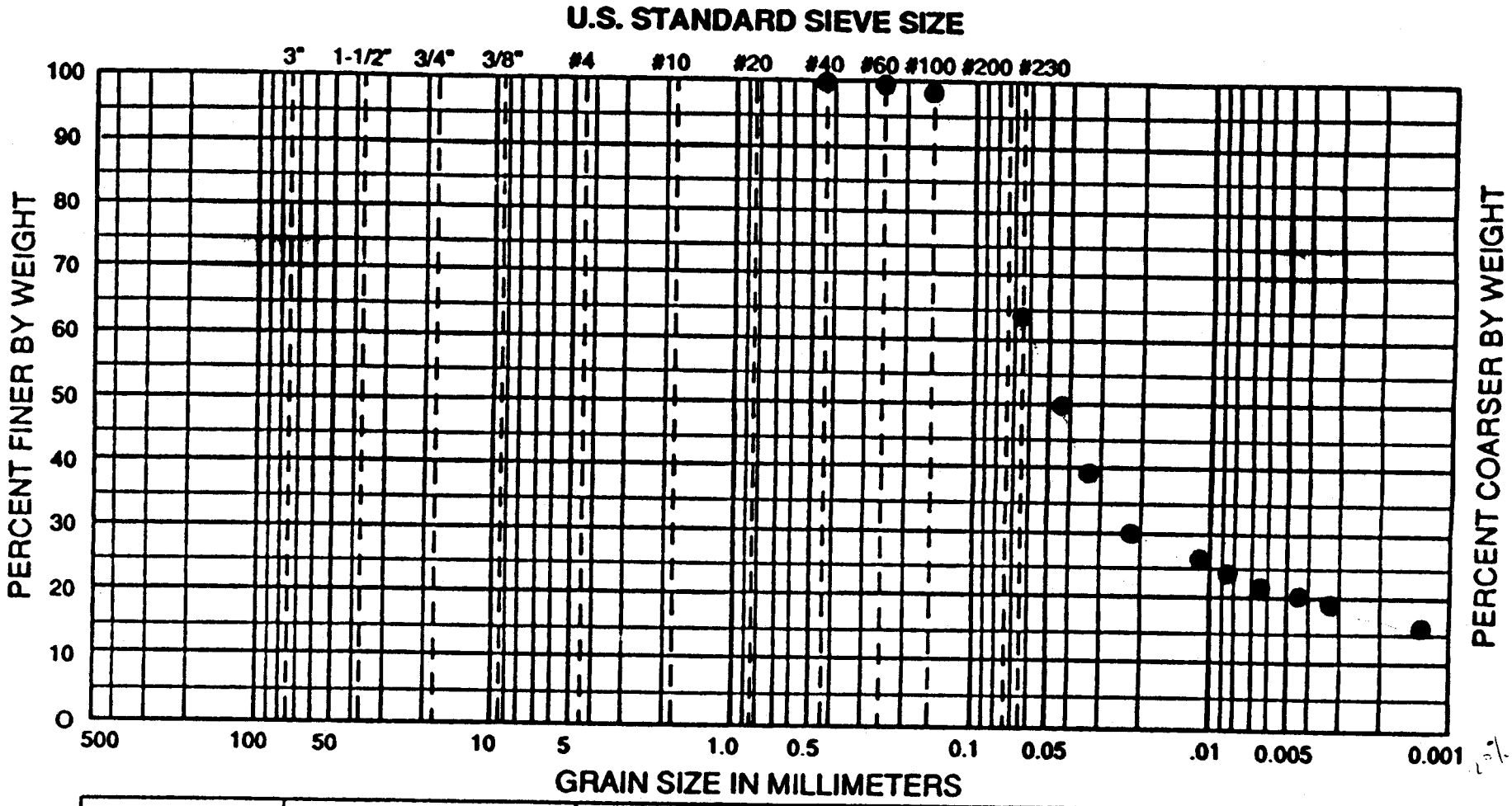
Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.73	Temp. Coef. K	0.01317
Value of "a"	0.98	Wt. Dry Sample "W"	59.490
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.5		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	—	—	—	—	—	—
0.5	46.50	41.00	67.8	67.8	8.66	0.0548
1.0	36.00	30.50	50.4	50.4	10.39	0.0424
2.0	29.00	23.50	38.9	38.9	11.53	0.0316
5.0	24.00	18.50	30.6	30.6	12.35	0.0207
15.0	21.50	16.00	26.5	26.5	12.76	0.0121
30.0	20.50	15.00	24.8	24.8	12.93	0.0086
60.0	19.50	14.00	23.2	23.2	13.09	0.0062
120.0	18.50	13.00	21.5	21.5	13.26	0.0044
250.0	17.00	11.50	19.0	19.0	13.50	0.0031
1440.0	15.00	9.50	15.7	15.7	13.83	0.0013

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 15+58 SAMPLE NO.: DATE: 1-29-92 PROJECT NO.: 2029-33-09-0030

AREA	DEPTH	CLASSIFICATION
	25.0'	[illegible] with [illegible] clay, 35.8% F Sand, 46% Silt, 18% [illegible]

MECHANICAL ANALYSIS - SIEVE TEST DATA

BR

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	15+58	SAMPLED	Rocky Flats
DEPTH	26.5'	DATE TESTED	03-27-92 TNU
SAMPLE NO.	#16	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	43.78
Wt. Dry Soil & Pan	(g)	42.53
Wt. Lost Moisture	(g)	1.25
Wt. of Pan Only	(g)	3.75
Wt. of Dry Soil	(g)	38.78
Moisture Content	%	3.2

Wt. Hydrom. Sample Wet (g)	55.01
Wt. Hydrom. Sample Dry (g)	53.29

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	55.01
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	55.01
Weight of - #10 Dry (g)	53.29
Wt. Total Sample Dry (g)	53.29
Calc. Wt. "W" (g)	53.29
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	1.31	1.32	0.01	0.01	0.0	100.0
#40	1.57	1.58	0.01	0.02	0.0	100.0
#60	1.55	1.56	0.01	0.03	0.1	99.9
#100	1.56	1.59	0.03	0.06	0.1	99.9
#230	1.57	2.09	0.52	0.58	1.1	98.9

Silty Claystone

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	15+58	SAMPLED	Rocky Flats
DEPTH	26.5'	DATE TESTED	03-27-92 TNU
SAMPLE NO.	#16	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

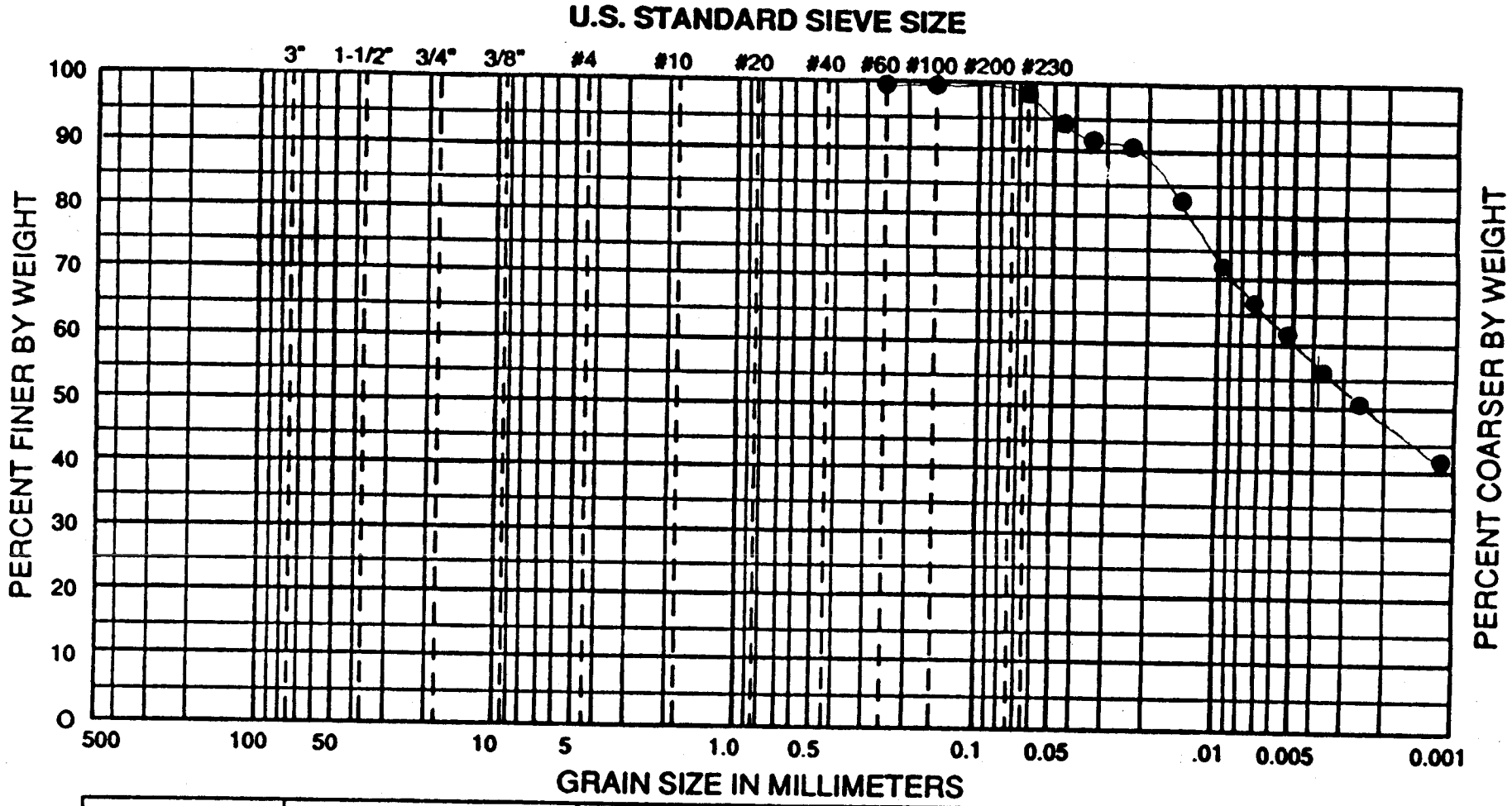
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.84	Temp. Coef. K	0.01262
Value of "a"	0.96	Wt. Dry Sample "W"	53.294
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	57.50	52.50	94.8	94.8	6.86	0.0467
1.0	56.00	51.00	92.1	92.1	7.11	0.0336
2.0	55.00	50.00	90.3	90.3	7.27	0.0241
5.0	51.00	46.00	83.0	83.0	7.93	0.0159
15.0	45.00	40.00	72.2	72.2	8.91	0.0097
30.0	42.00	37.00	66.8	66.8	9.40	0.0071
60.0	39.00	34.00	61.4	61.4	9.89	0.0051
120.0	36.00	31.00	56.0	56.0	10.39	0.0037
250.0	33.00	28.00	50.5	50.5	10.88	0.0026
1440.0	28.00	23.00	41.5	41.5	11.70	0.0011

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 15+58 SAMPLE NO.: CH #16 DATE: 4-2-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION Silty Claystone
Rocky Flats	26.5'	.1% Mud, 1.0% Sand, 42.9% Silt, 56% Clay

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER WESTON

LOCATION ROCKY FLATS / EG&G

BORING 15+58 SAMPLE CH #16 DEPTH 26.5'

SAVE ALL!

FIELD DENSITY BY ...../../...

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

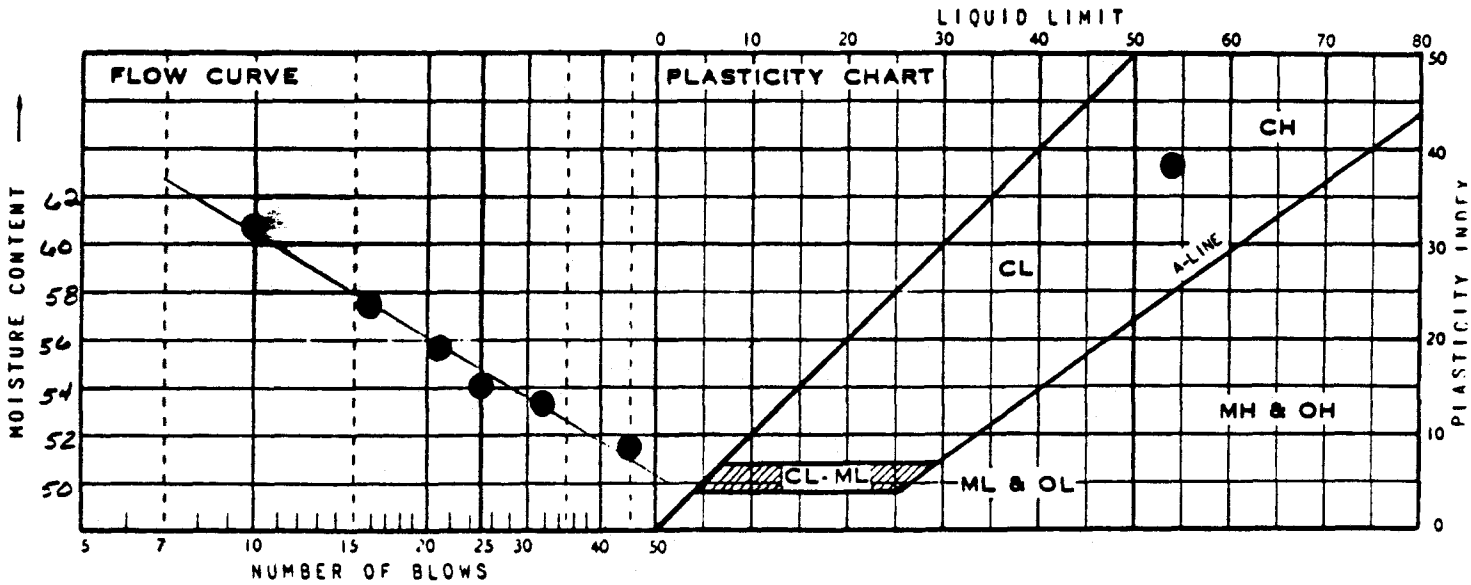
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY SR.3.R5193

DETERMINATION	1	2	3	4	5	6
DISH	B15	B6				
WT OF DISH + WET SOIL g	4.48	6.34				
WT OF DISH + DRY SOIL g	3.98	5.59	—	—	—	—
WT OF MOISTURE g	.50	.75				
WT OF DISH g	1.03	1.03	—	—	—	—
WT OF DRY SOIL g	2.95	4.56				
MOISTURE CONTENT %	17.0	16.5				

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	B16	B14	B5	B1	B3	7C
NUMBER OF BLOWS	45	32	25	21	16	10
WT OF DISH + WET SOIL g	12.73	13.47	14.26	10.78	13.16	13.90
WT OF DISH + DRY SOIL g	8.75	9.14	9.62	7.29	8.73	9.04
WT OF MOISTURE g	3.98	4.33	4.64	3.49	4.43	4.86
WT OF DISH g	1.02	1.03	1.04	1.03	1.02	1.06
WT OF DRY SOIL g	7.73	8.11	8.58	6.26	7.71	7.98
MOISTURE CONTENT %	51.5	53.4	54.1	55.8	57.5	60.9



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		54.8	16.8	38.0	CH	

ADVANCED TERRA TESTING inc

MECHANICAL ANALYSIS - SIEVE TEST DATA
-#230 SIEVE ONLY

CLIENT	Roy F. Weston	JOB NO.	2066-03
BORING NO.	~~15+17~~ 70	SAMPLED	12-17-91 SRC
DEPTH	6.5'	DATE TESTED	01-22-92 TNU
SAMPLE NO.	—	WASH SIEVE	Yes
SOIL DESCR.	Bulk/Jar	DRY SIEVE	No

MOISTURE/DENSITY DATA

Wt. Soil & Ring(s)	(g)	
Wt. Ring(s)	(g)	
Wt. Soil	(g)	
Wet Density	PCF	
Wt. Wet Soil & Pan	(g)	174.0
Wt. Dry Soil & Pan	(g)	140.6
Wt. Lost Moisture	(g)	33.3
Wt. of Pan Only	(g)	9.5
Wt. of Dry Soil	(g)	131.2
Moisture Content	%	25.4
Dry Density	PCF	

WASH SIEVE ANALYSIS

Wt. Wet Soil & Pan Before Washing (g)	174.0
Wt. Dry Soil & Pan Before Washing (g)	140.6
Weight of Pan (g)	9.5
Wt. of Dry Soil Before Washing	131.2
Wt. Dry Soil & Pan After Washing (g)	14.8
Wt. of Dry Soil After Washing (g)	5.3
-#230 Wash. Out %	96.0

Silt, clay (CL-ML) **

ADVANCED TERRA TESTING, INC.

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 266-03

CLIENT/OWNER WESTON

LOCATION _____

BORING 1570 SAMPLE ____ DEPTH 65'

FIELD DENSITY BY ____/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

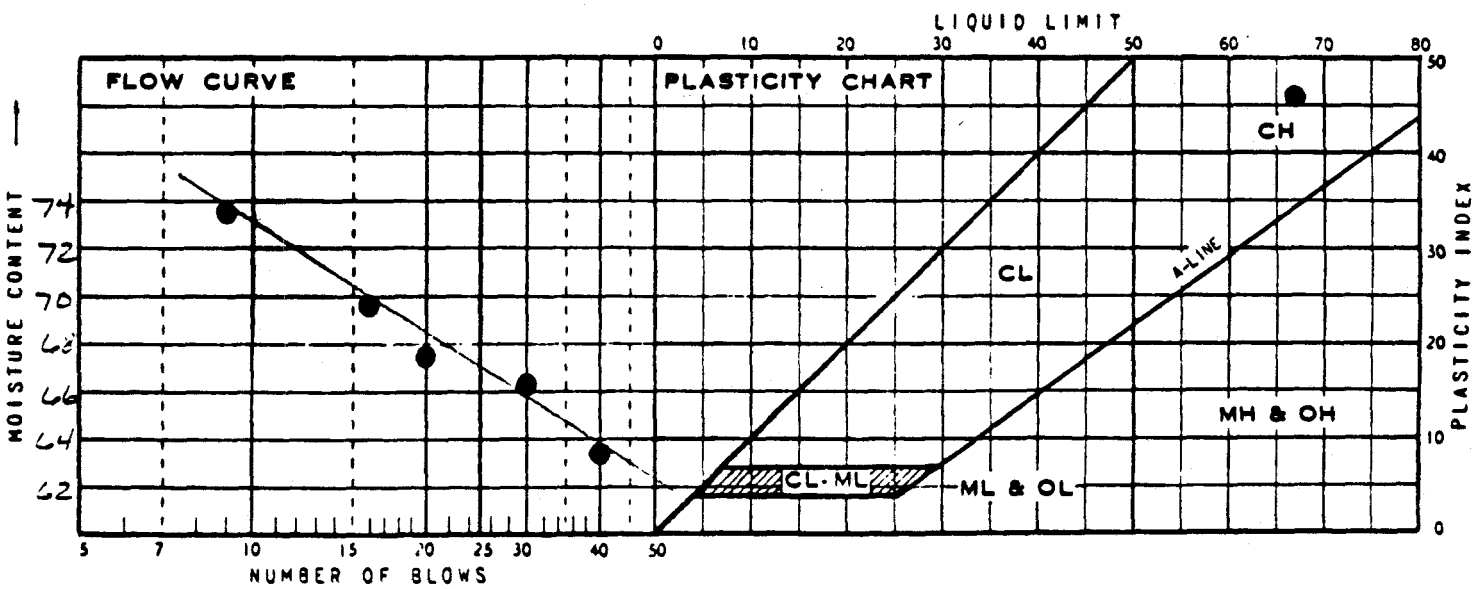
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY SR 1/24/92

DETERMINATION	1	2	3	4	5	6
DISH	22	21	36			
WT OF DISH + WET SOIL g	8.15	7.37	7.94			
WT OF DISH + DRY SOIL g	6.91	6.34	6.79	—	—	—
WT OF MOISTURE g	1.24	1.09	1.15			
WT OF DISH g	1.02	1.03	1.04	—	—	—
WT OF DRY SOIL g	5.88	5.21	5.75			
MOISTURE CONTENT %	21.1	20.9	20.0			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	38	37	20	19	18	
NUMBER OF BLOWS	40	30	20	16	9	
WT OF DISH + WET SOIL g	13.30	14.58	14.60	13.70	15.52	
WT OF DISH + DRY SOIL g	8.53	9.37	9.13	7.92	9.38	—
WT OF MOISTURE g	4.77	5.51	5.47	4.78	6.14	
WT OF DISH g	1.04	1.04	1.05	1.04	1.05	—
WT OF DRY SOIL g	7.49	8.33	8.08	6.88	8.33	
MOISTURE CONTENT %	63.7	66.2	67.7	69.5	73.7	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		67.1	20.7	46.4	CH	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA
-#230 SIEVE ONLY

CLIENT Roy F. Weston

JOB NO. 2066-03

BORING NO.	16+25	SAMPLED	12-05-91 SRC
DEPTH	13'	DATE TESTED	01-22-92 TNU
SAMPLE NO.	—	WASH SIEVE	Yes
SOIL DESCR.	Bulk/Jar	DRY SIEVE	No

MOISTURE/DENSITY DATA

Wt. Soil & Ring(s)	(g)	
Wt. Ring(s)	(g)	
Wt. Soil	(g)	
Wet Density	PCF	
Wt. Wet Soil & Pan	(g)	134.7
Wt. Dry Soil & Pan	(g)	124.8
Wt. Lost Moisture	(g)	10.0
Wt. of Pan Only	(g)	9.5
Wt. of Dry Soil	(g)	115.3
Moisture Content	%	8.7
Dry Density	PCF	

WASH SIEVE ANALYSIS

Wt. Wet Soil & Pan Before Washing (g)	134.7
Wt. Dry Soil & Pan Before Washing (g)	124.8
Weight of Pan (g)	9.5
Wt. of Dry Soil Before Washing	115.3
Wt. Dry Soil & Pan After Washing (g)	15.9
Wt. of Dry Soil After Washing (g)	6.4
-#230 Wash. Out %	94.4

Silty Clay (CL) **

ADVANCED TERRA TESTING, INC.

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2266-03

CLIENT/OWNER WESTON

LOCATION _____

BORING 16-35 SAMPLE ____ DEPTH 13'

FIELD DENSITY BY _____

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

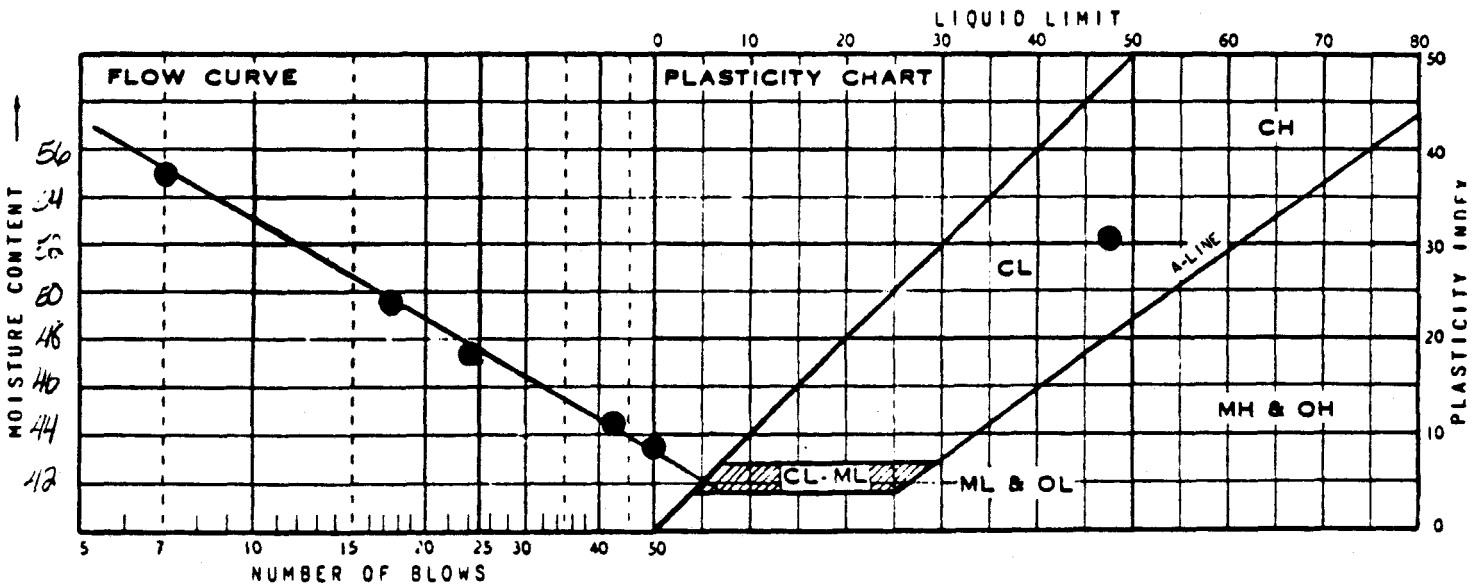
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY MW.1.12/92

DETERMINATION	1	2	3	4	5	6
DISH	11	38C	23			
WT OF DISH + WET SOIL	10.60g	12.42g	12.66g			
WT OF DISH + DRY SOIL	9.21g	10.80g	10.97g	—	—	—
WT OF MOISTURE	1.39g	1.62g	1.69g			
WT OF DISH	1.05g	1.05g	1.05g	—	—	—
WT OF DRY SOIL	8.16g	9.75g	9.93g			
MOISTURE CONTENT	17.0%	16.6%	17.0%			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	16	15	14	13	12	
NUMBER OF BLOWS	50	43	24	18	7	
WT OF DISH + WET SOIL	20.82g	15.67g	19.19g	15.27g	17.43g	
WT OF DISH + DRY SOIL	14.85g	11.16g	13.37g	10.56g	11.65g	—
WT OF MOISTURE	6.02g	4.51g	5.82g	4.73g	5.82g	
WT OF DISH	1.03g	1.04g	1.04g	1.04g	1.03g	—
WT OF DRY SOIL	13.82g	10.12g	12.33g	9.52g	10.62g	
MOISTURE CONTENT	43.6%	44.6%	47.2%	49.7%	55.0%	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		47.5	16.9%	30.6	CL	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	16+50	SAMPLED	Rocky Flats
DEPTH	5.5'	DATE TESTED	3-5-92 SR
SAMPLE NO.	#8	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	60.90
Wt. Dry Soil & Pan	(g)	60.03
Wt. Lost Moisture	(g)	0.87
Wt. of Pan Only	(g)	3.68
Wt. of Dry Soil	(g)	56.35
Moisture Content	%	1.5

Wt. Hydrom. Sample Wet (g)	60.01
Wt. Hydrom. Sample Dry (g)	59.10

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	438.88
Weight of + #10 Before Washing (g)	0.48
Weight of + #10 After Washing (g)	0.43
Weight of - #10 Wet (g)	438.40
Weight of - #10 Dry (g)	431.78
Wt. Total Sample Dry (g)	432.21
Calc. Wt. "W" (g)	59.16
Calc. Mass + #10	0.06

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.43	0.43	0.43	0.1	99.9
#20	1.55	1.64	0.09	0.09	0.3	99.7
#40	1.55	1.90	0.35	0.44	0.8	99.2
#60	1.55	1.88	0.33	0.77	1.4	98.6
#100	1.31	1.69	0.38	1.15	2.0	98.0
#230	1.56	2.42	0.86	2.01	3.5	96.5

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT	**Weston**	JOB NO.	2066-03
BORING NO.	16+50	SAMPLED	Rocky Flats
DEPTH	5.5'	DATE TESTED	3-5-92 SR
SAMPLE NO.	#8	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

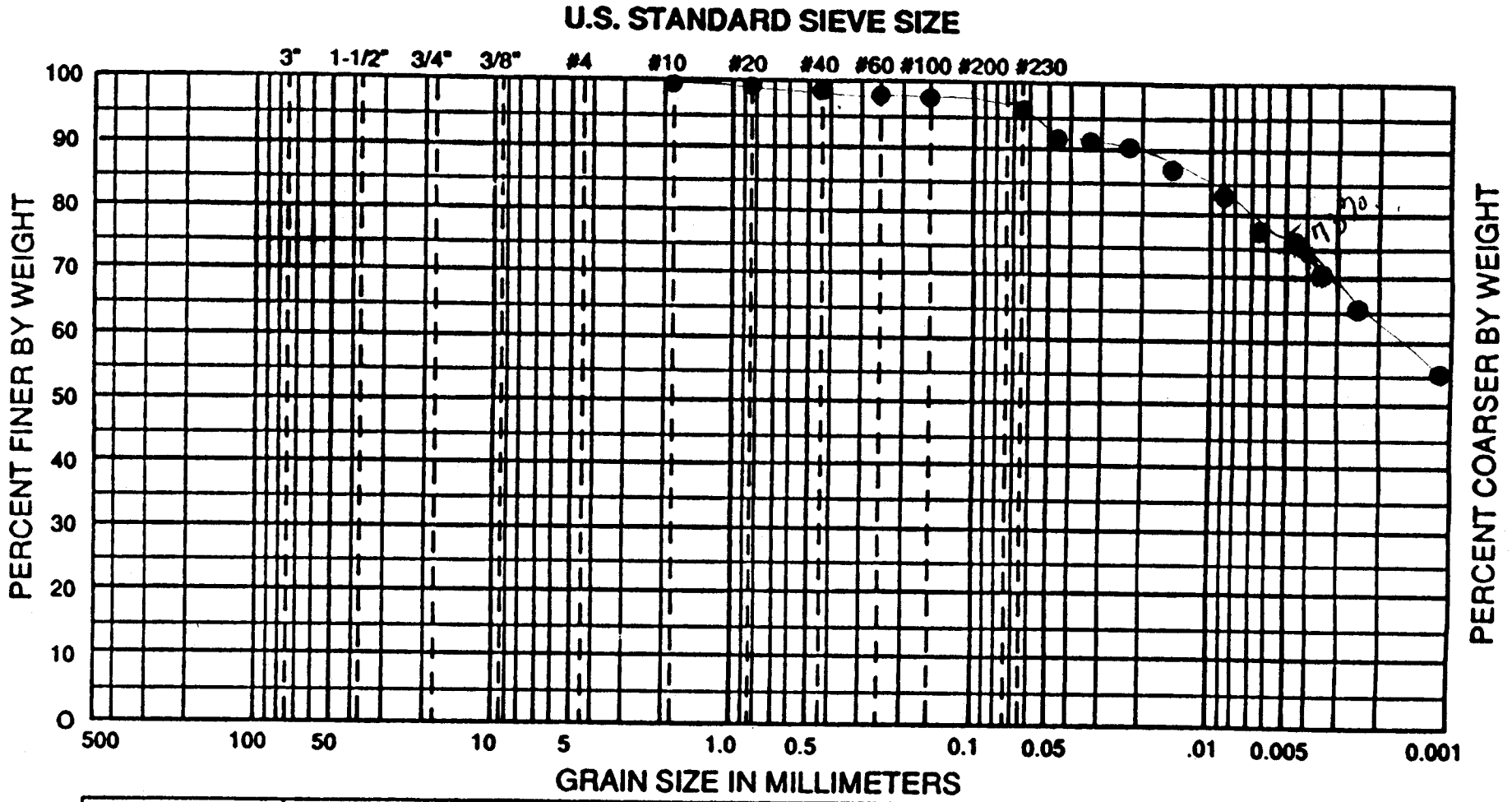
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.71	Temp. Coef. K	0.01308
Value of "a"	0.99	Wt. Dry Sample "W"	59.160
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	5.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	61.00	55.00	91.9	91.9	6.29	0.0464
1.0	60.50	54.50	91.0	91.0	6.37	0.0330
2.0	60.00	54.00	90.2	90.2	6.45	0.0235
5.0	58.25	52.25	87.3	87.3	6.74	0.0152
15.0	55.75	49.75	83.1	83.1	7.15	0.0090
30.0	53.00	47.00	78.5	78.5	7.60	0.0066
60.0	51.50	45.50	76.0	76.0	7.84	0.0047
120.0	48.25	42.25	70.6	70.6	8.38	0.0035
250.0	45.25	39.25	65.5	65.5	8.87	0.0025
1440.0	39.00	33.00	55.1	55.1	9.89	0.0011

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 16+50 SAMPLE NO.: CH # 8 DATE: 3/11/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION (CH) CLAY w/ some silt, tr SAND 3'
Rocky Flats	5.5'	0.6 0.7 2.1 23.6 73 .1% C sand, .7% med sd, 2.1% f. sd, 19.5% silt, 77% Clay

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03
CLIENT/OWNER Weston
LOCATION Rocky Flats EG+G
BORING 16-50 SAMPLE CH #8 DEPTH 5.5'

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD [redacted]

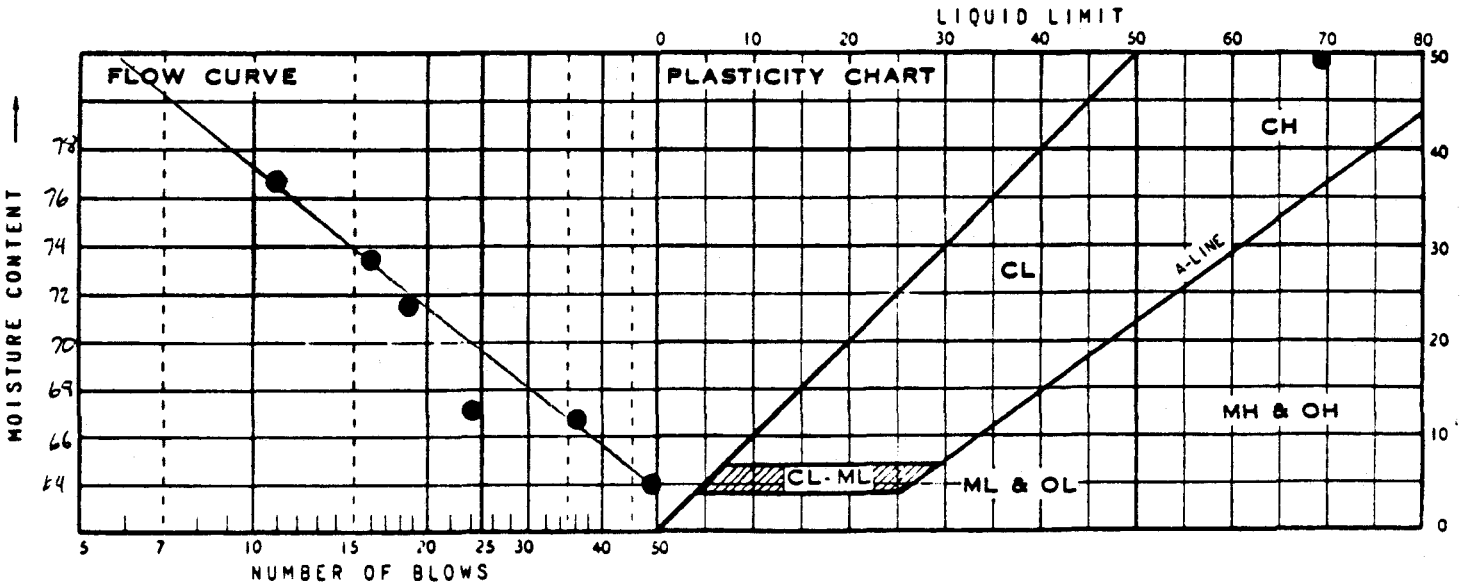
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY DW 3/3/92

DETERMINATION	1	2	3	4	5	6
DISH	2073	13C	25C			
WT OF DISH + WET SOIL g	5.87	5.63	6.70			
WT OF DISH + DRY SOIL g	5.07	4.88	5.77	—	—	—
WT OF MOISTURE g	.80	.75	.93			
WT OF DISH g	1.04	1.04	1.04	—	—	—
WT OF DRY SOIL g	4.03	3.84	4.73			
MOISTURE CONTENT %	19.9	19.5	19.7			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	16C	2016	2018	32C	2023	9C
NUMBER OF BLOWS	49	36	24	19	16	11
WT OF DISH + WET SOIL g	11.63	11.73	10.25	11.255	11.31	10.79
WT OF DISH + DRY SOIL g	7.50	7.45	6.49	6.95	6.96	6.57
WT OF MOISTURE g	4.13	4.28	3.76	4.375	4.35	4.22
WT OF DISH g	1.06	1.04	1.05	1.02	1.04	1.06
WT OF DRY SOIL g	6.44	6.41	5.44	5.96	5.92	5.51
MOISTURE CONTENT %	64.1	66.8	69.1	71.7	73.5	76.6



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		69.6	19.7	49.9	CH	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	16+50	SAMPLED	Rocky Flats
DEPTH	26.1'	DATE TESTED	3-9-92 DU
SAMPLE NO.	#8	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes	
NATURAL	No	
Wt. Wet Soil & Pan	(g)	70.50
Wt. Dry Soil & Pan	(g)	67.55
Wt. Lost Moisture	(g)	2.95
Wt. of Pan Only	(g)	3.78
Wt. of Dry Soil	(g)	63.77
Moisture Content	%	4.6
Wt. Hydrom. Sample Wet	(g)	55.01
Wt. Hydrom. Sample Dry	(g)	52.58

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	55.01
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	55.01
Weight of - #10 Dry (g)	52.58
Wt. Total Sample Dry (g)	52.58
Calc. Wt. "W" (g)	52.58
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	1.57	1.60	0.03	0.03	0.1	99.9
#40	1.32	1.34	0.02	0.05	0.1	99.9
#60	1.57	1.72	0.15	0.20	0.4	99.6
#100	1.56	1.82	0.26	0.46	0.9	99.1
#230	1.56	2.55	0.99	1.45	2.8	97.2

Claystone

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	16+50	SAMPLED	Rocky Flats
DEPTH	26.1'	DATE TESTED	3-9-92 DU
SAMPLE NO.	#8	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

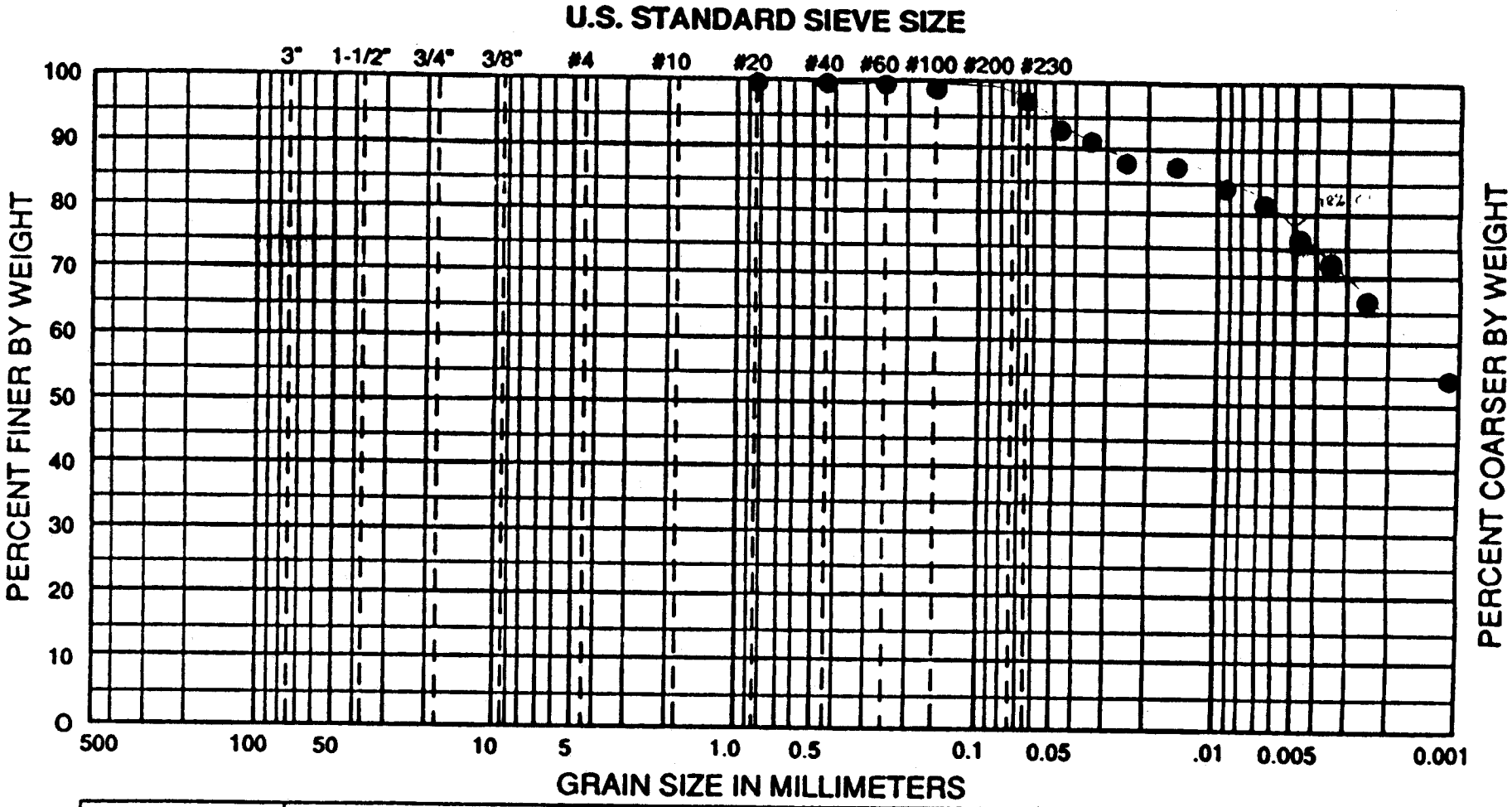
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.76	Temp. Coef. K	0.01290
Value of "a"	0.98	Wt. Dry Sample "W"	52.580
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.5		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	56.00	50.50	93.9	93.9	7.11	0.0486
1.0	54.50	49.00	91.1	91.1	7.35	0.0350
2.0	53.00	47.50	88.4	88.4	7.60	0.0251
5.0	52.75	47.25	87.9	87.9	7.64	0.0159
15.0	51.00	45.50	84.6	84.6	7.93	0.0094
30.0	49.00	43.50	80.9	80.9	8.25	0.0068
60.0	46.50	41.00	76.3	76.3	8.66	0.0049
120.0	44.50	39.00	72.5	72.5	8.99	0.0035
250.0	41.25	35.75	66.5	66.5	9.53	0.0025
1440.0	35.00	29.50	54.9	54.9	10.55	0.0011

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 16+50 SAMPLE NO.: CH# 8 DATE: 3/11/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	26.1'	CLAYST w/ some SILT + TR sd Claystone .1% med sd, .7% f sd 19.2% SILT, 78% CLAY

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER WESTON

LOCATION _____

BORING 16+50 SAMPLE #8 DEPTH 26.1

SAVE ALL!

FIELD DENSITY BY ____/____/____

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD [redacted]

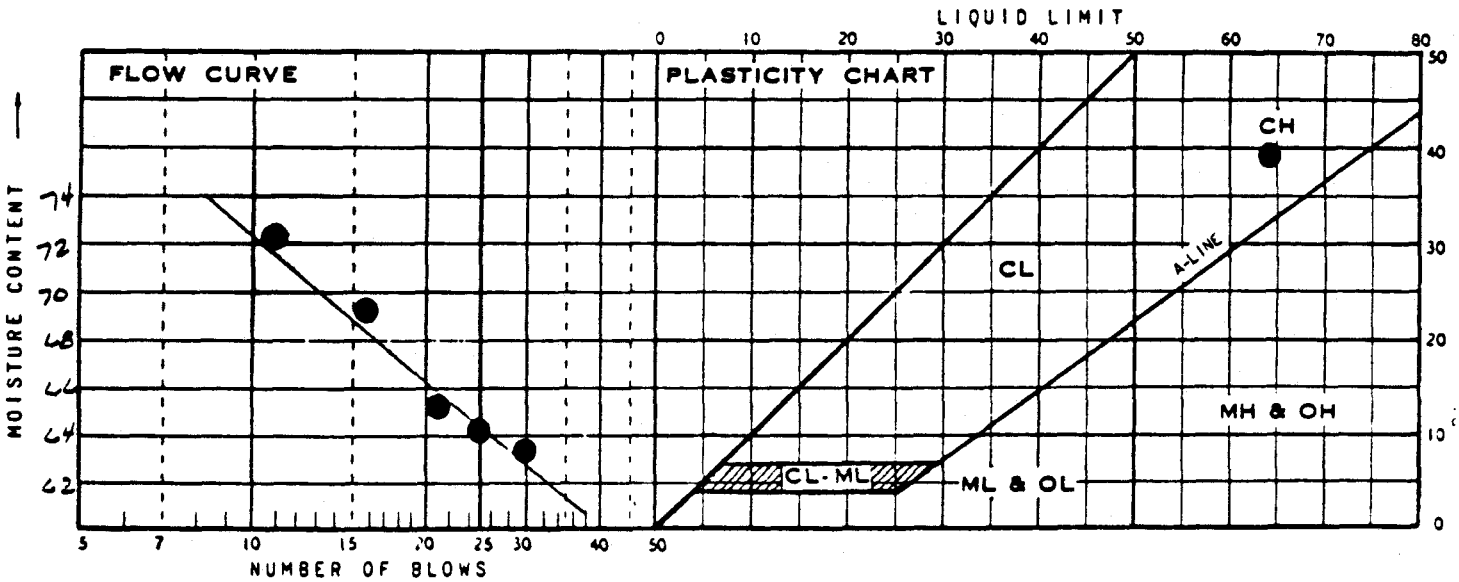
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY SB 3/22/92

DETERMINATION	1	2	3	4	5	6
DISH	54C	58C	200B			
WT OF DISH + WET SOIL g	6.66	6.50	6.92			
WT OF DISH + DRY SOIL g	5.52	5.41	5.72	—	—	—
WT OF MOISTURE g	1.14	1.09	1.20			
WT OF DISH g	1.07	1.07	1.05	—	—	—
WT OF DRY SOIL g	4.45	4.34	4.67			
MOISTURE CONTENT %	25.6	25.1	25.7			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	202B	200T	2005	15C	46C	
NUMBER OF BLOWS	30	25	21	17	11	
WT OF DISH + WET SOIL g	18.57	17.62	10.51	16.23	17.76	
WT OF DISH + DRY SOIL g	11.77	11.14	6.78	10.02	10.75	—
WT OF MOISTURE g	6.80	6.48	3.73	6.21	7.01	
WT OF DISH g	1.06	1.05	1.06	1.05	1.06	—
WT OF DRY SOIL g	10.71	10.09	5.72	8.97	9.69	
MOISTURE CONTENT %	63.5	64.2	65.2	69.2	72.3	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		64.5	25.5	39.0	CH	

ADVANCED TERRA TESTING INC

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	16+50	SAMPLED	Rocky Flats
DEPTH	27.5'	DATE TESTED	3-9-92 DU
SAMPLE NO.	#8	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	83.69
Wt. Dry Soil & Pan	(g)	81.42
Wt. Lost Moisture	(g)	2.27
Wt. of Pan Only	(g)	3.79
Wt. of Dry Soil	(g)	77.63
Moisture Content	%	2.9

Wt. Hydrom. Sample Wet (g)	55.06
Wt. Hydrom. Sample Dry (g)	53.49

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	55.06
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	55.06
Weight of - #10 Dry (g)	53.49
Wt. Total Sample Dry (g)	53.49
Calc. Wt. "W" (g)	53.49
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	1.57	1.58	0.01	0.01	0.0	100.0
#40	1.57	1.58	0.01	0.02	0.0	100.0
#60	1.57	1.62	0.05	0.07	0.1	99.9
#100	1.56	1.64	0.08	0.15	0.3	99.7
#230	1.56	4.28	2.72	2.87	5.4	94.6

Silty Clay

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	16+50	SAMPLED	Rocky Flats
DEPTH	27.5'	DATE TESTED	3-9-92 DU
SAMPLE NO.	#8	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

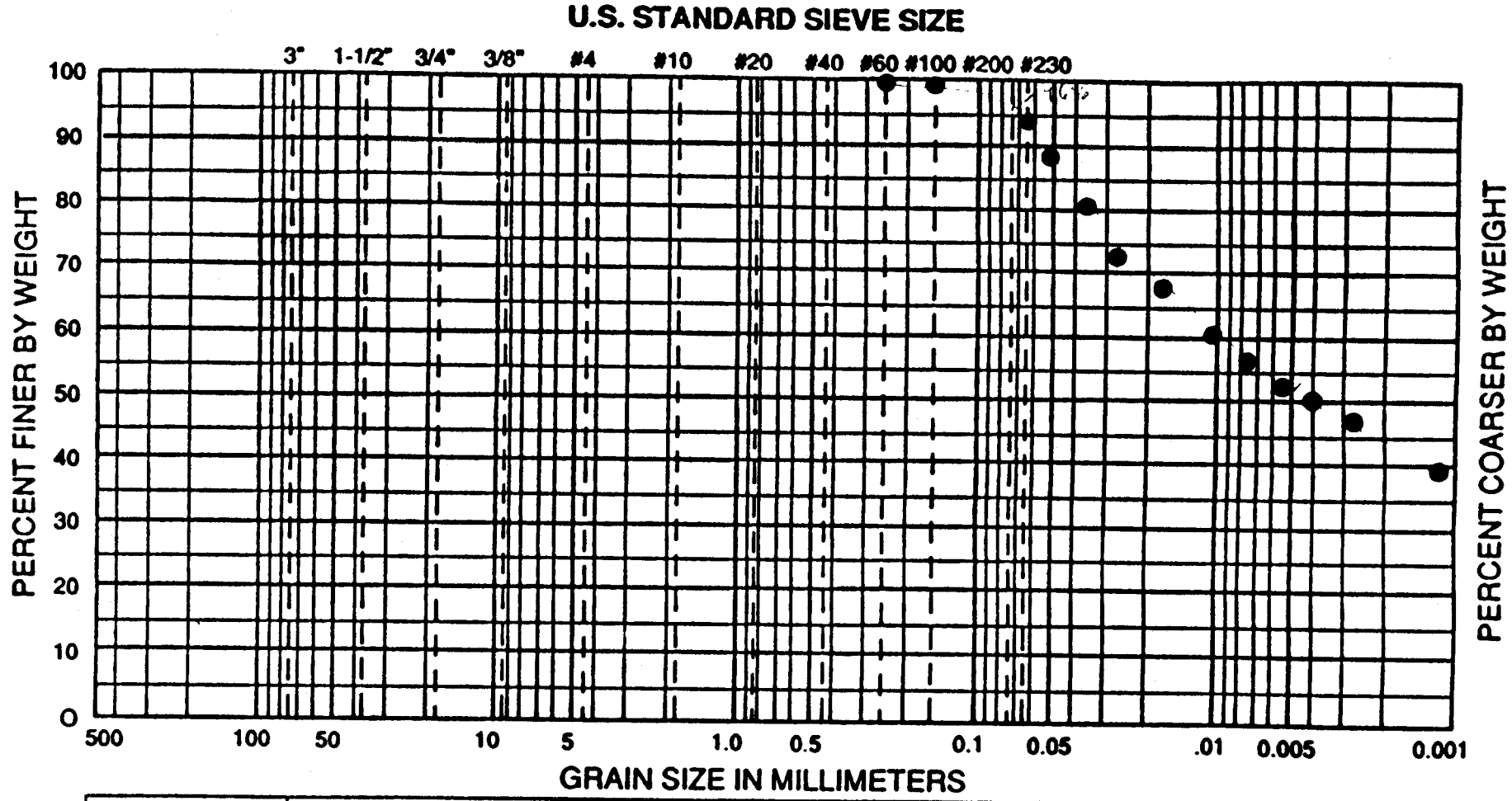
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.70	Temp. Coef. K	0.01312
Value of "a"	0.99	Wt. Dry Sample "W"	53.493
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.5		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	53.50	48.00	88.8	88.8	7.52	0.0509
1.0	49.00	43.50	80.5	80.5	8.25	0.0377
2.0	45.00	39.50	73.1	73.1	8.91	0.0277
5.0	42.25	36.75	68.0	68.0	9.36	0.0180
15.0	38.00	32.50	60.1	60.1	10.06	0.0107
30.0	36.00	30.50	56.4	56.4	10.39	0.0077
60.0	34.00	28.50	52.7	52.7	10.71	0.0055
120.0	32.75	27.25	50.4	50.4	10.92	0.0040
250.0	31.00	25.50	47.2	47.2	11.21	0.0028
1440.0	27.00	21.50	39.8	39.8	11.86	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 16+50 SAMPLE NO.: CH# 8 DATE: 3/11/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	27.5'	SILTY CLAY. TONE W/ trace SAND .1% m sd, 3.9% f sd, 44% SILT, 52% CLAY

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER Weston

LOCATION Rocky Flats EG+G

BORING 16+50 SAMPLE CH #8 DEPTH 27.5'

SAVE ALL MATERIAL!!

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

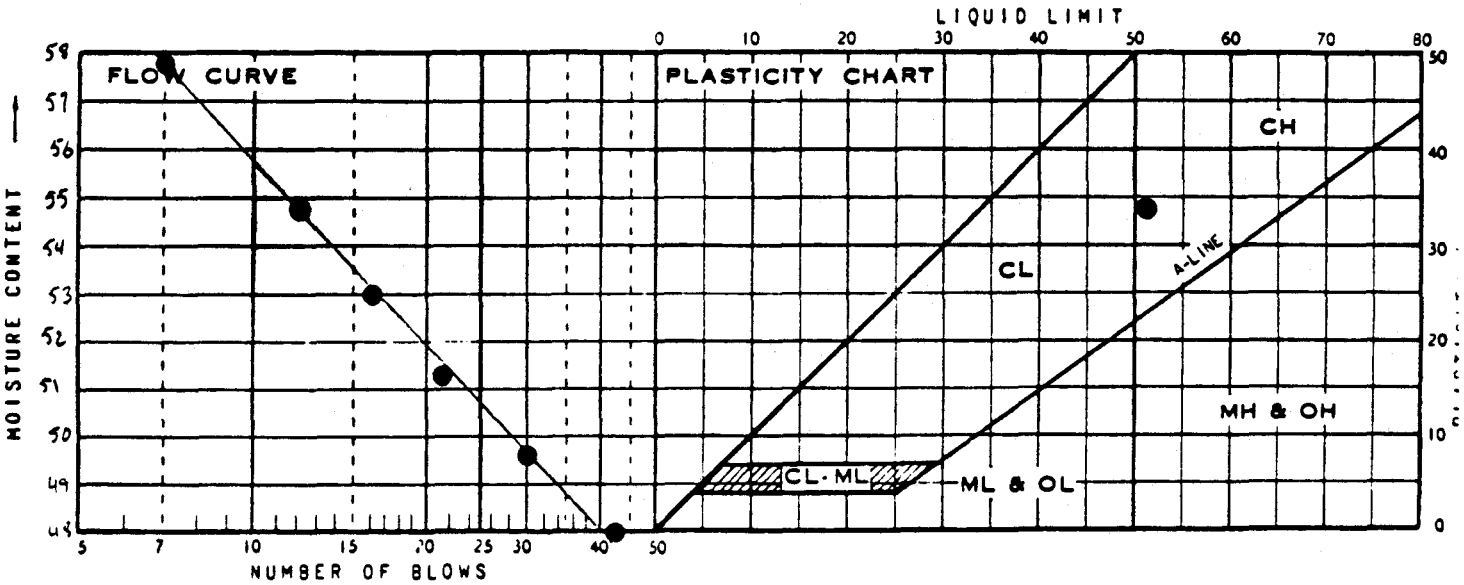
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY DM 2/29/92

DETERMINATION	1	2	3	4	5	6
DISH	3	2032	2058			
WT OF DISH + WET SOIL g	5.81g	6.10g	5.82			
WT OF DISH + DRY SOIL g	5.10	5.38	5.13	—	—	—
WT OF MOISTURE g	.71	.72	.69			
WT OF DISH g	1.07	1.05	1.04	—	—	—
WT OF DRY SOIL g	4.03	4.33	4.09			
MOISTURE CONTENT %	17.6	16.6	16.9			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2050	2030	2036	2024	2029	17C
NUMBER OF BLOWS	44	30	21	16	12	7
WT OF DISH + WET SOIL g	10.17	11.78	11.66	11.80	11.81	12.75
WT OF DISH + DRY SOIL g	7.21	8.22	8.06	8.08	8.00	8.46
WT OF MOISTURE g	2.96	3.56	3.60	3.72	3.81	4.29
WT OF DISH g	1.04	1.05	1.04	1.06	1.05	1.04
WT OF DRY SOIL g	6.17	7.17	7.02	7.02	6.95	7.42
MOISTURE CONTENT %	48.0	49.7	51.3	53.0	54.8	57.8



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		50.7	17.0	33.7	CH	

ADVANCED TERRA TESTING inc

MECHANICAL ANALYSIS - SIEVE TEST DATA

BR

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	16+50	SAMPLED	Rocky Flats
DEPTH	31.4'	DATE TESTED	03-27-92 TNU
SAMPLE NO.	#16	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	16.43
Wt. Dry Soil & Pan	(g)	16.05
Wt. Lost Moisture	(g)	0.38
Wt. of Pan Only	(g)	3.69
Wt. of Dry Soil	(g)	12.36
Moisture Content	%	3.1

Wt. Hydrom. Sample Wet (g)	55.05
Wt. Hydrom. Sample Dry (g)	53.41

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	55.05
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	55.05
Weight of - #10 Dry (g)	53.41
Wt. Total Sample Dry (g)	53.41
Calc. Wt. "W" (g)	53.41
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	1.57	1.58	0.01	0.01	0.0	100.0
#40	1.57	1.58	0.01	0.02	0.0	100.0
#60	1.57	1.58	0.01	0.03	0.1	99.9
#100	1.56	1.57	0.01	0.04	0.1	99.9
#230	1.56	2.69	1.13	1.17	2.2	97.8

ADVANCED TERRA TESTING, INC.

Seitz, Christine

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston** JOB NO. 2066-03

BORING NO.	16+50	SAMPLED	Rocky Flats
DEPTH	31.4'	DATE TESTED	03-27-92 TNU
SAMPLE NO.	#16	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

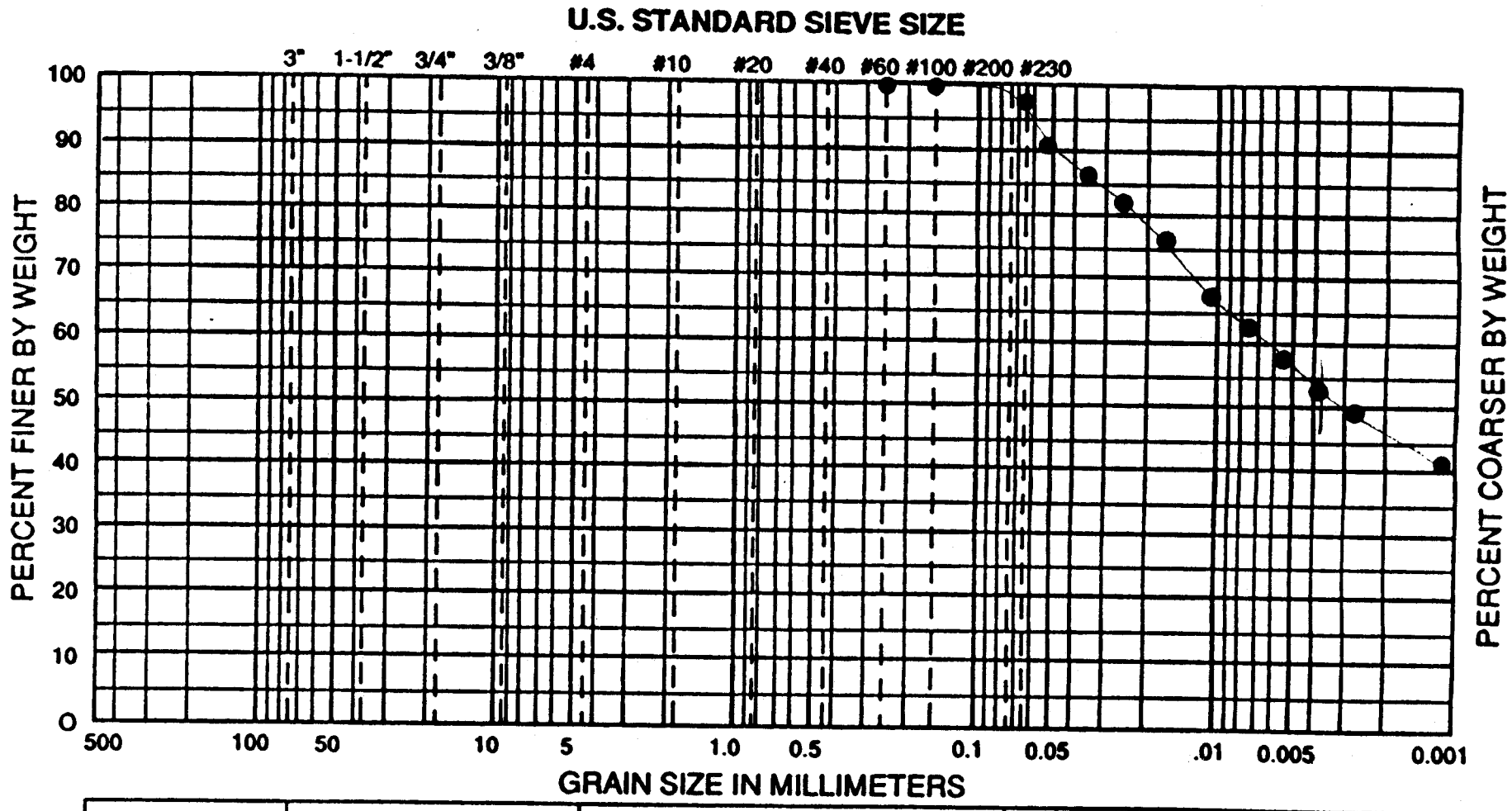
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.71	Temp. Coef. K	0.01308
Value of "a"	0.99	Wt. Dry Sample "W"	53.408
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	54.00	49.00	90.6	90.6	7.43	0.0504
1.0	52.00	47.00	86.9	86.9	7.76	0.0364
2.0	50.00	45.00	83.2	83.2	8.09	0.0263
5.0	46.00	41.00	75.8	75.8	8.75	0.0173
15.0	41.50	36.50	67.5	67.5	9.48	0.0104
30.0	39.00	34.00	62.9	62.9	9.89	0.0075
60.0	36.50	31.50	58.3	58.3	10.30	0.0054
120.0	34.00	29.00	53.6	53.6	10.71	0.0039
250.0	32.00	27.00	49.9	49.9	11.04	0.0027
1440.0	27.00	22.00	40.7	40.7	11.86	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 16+50 SAMPLE NO.: CH# 16 DATE: 4-2-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION Silty Claystone
Rocky Flats	31.4'	.1% Gravel, .0% Med, 2.1% Fine, 44.8% Silt, 53% Clay

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION - - - - - - - - - - - - - - - -

LABORATORY CLASSIFICATION - - - - - - - - - - - - -

JOB NO. 2066-03
CLIENT/OWNER WESTON
LOCATION ROCKY FLATS / EG&G
BORING 16+50 SAMPLE CH4/16 DEPTH 31.4'
SAME ALL

FIELD DENSITY BY ___/___/___

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

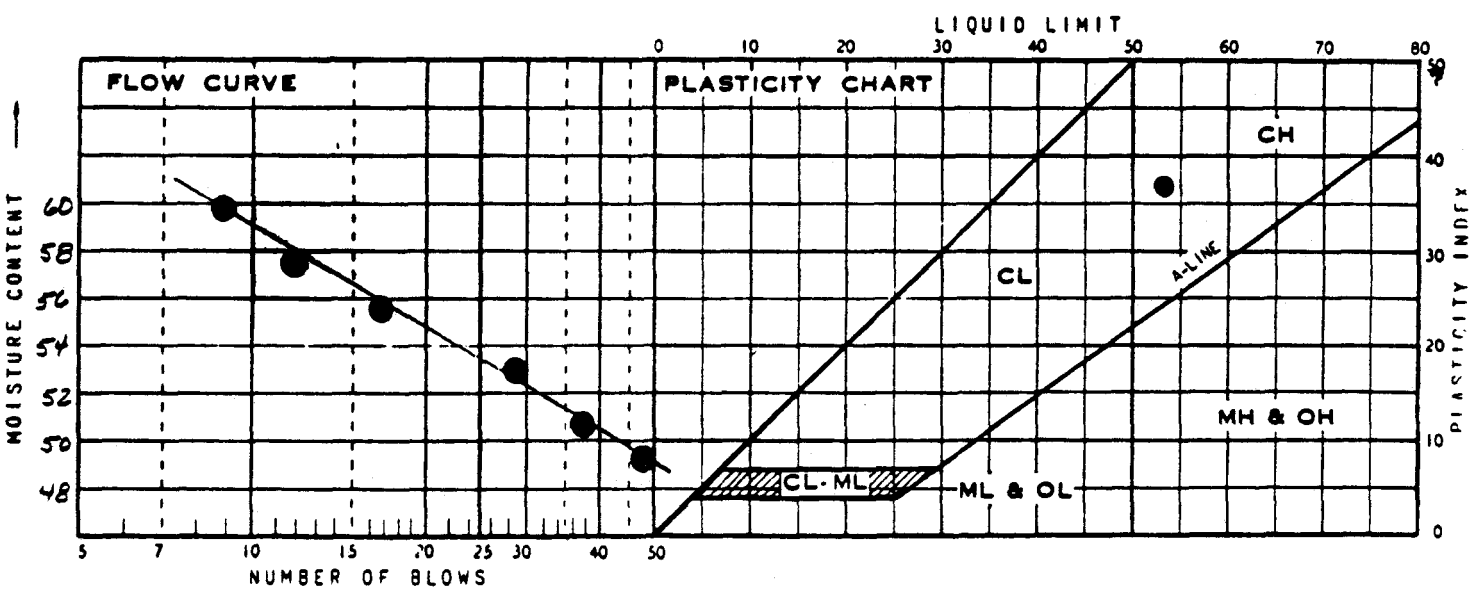
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY SR 3/25/92

DETERMINATION	1	2	3	4	5	6
DISH	2069	2053	20C			
WT OF DISH + WET SOIL g	5.21	5.24	5.27			
WT OF DISH + DRY SOIL g	4.66	4.66	4.61	—	—	—
WT OF MOISTURE g	.55	.58	.66			
WT OF DISH g	1.04	1.06	1.02	—	—	—
WT OF DRY SOIL g	3.62	3.60	3.59			
MOISTURE CONTENT %	15.2	16.1	18.4			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	24C	2039	32C	31C	37C	2027
NUMBER OF BLOWS	49	38	29	17	12	10±
WT OF DISH + WET SOIL g	8.99	10.84	8.99	12.59	13.61	11.76
WT OF DISH + DRY SOIL g	6.36	7.54	6.24	8.46	9.02	7.75
WT OF MOISTURE g	2.63	3.30	2.75	4.13	4.59	4.01
WT OF DISH g	1.04	1.06	1.05	1.05	1.03	1.06
WT OF DRY SOIL g	5.32	6.48	5.19	7.41	7.99	6.69
MOISTURE CONTENT %	49.4	50.9	53.0	55.7	57.5	59.9



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		53.5	16.6	36.9	CH	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	16+70	SAMPLED	Rocky Flats
DEPTH	24.5'	DATE TESTED	02-28-92 TNU
SAMPLE NO.	#8	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	72.41
Wt. Dry Soil & Pan	(g)	69.35
Wt. Lost Moisture	(g)	3.06
Wt. of Pan Only	(g)	3.61
Wt. of Dry Soil	(g)	65.74
Moisture Content	%	4.7

Wt. Hydrom. Sample Wet (g)	60.02
Wt. Hydrom. Sample Dry (g)	57.35

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	60.02
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	60.02
Weight of - #10 Dry (g)	57.35
Wt. Total Sample Dry (g)	57.35
Calc. Wt. "W" (g)	57.35
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	1.57	1.58	0.01	0.01	0.0	100.0
#40	1.55	1.56	0.01	0.02	0.0	100.0
#60	1.55	1.62	0.07	0.09	0.2	99.8
#100	1.57	1.98	0.41	0.50	0.9	99.1
#230	1.56	16.56	15.00	15.50	27.0	73.0

Silt (ML)

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston** JOB NO. 2066-03

BORING NO.	16+70	SAMPLED	Rocky Flats
DEPTH	24.5'	DATE TESTED	02-28-92 TNU
SAMPLE NO.	#8	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

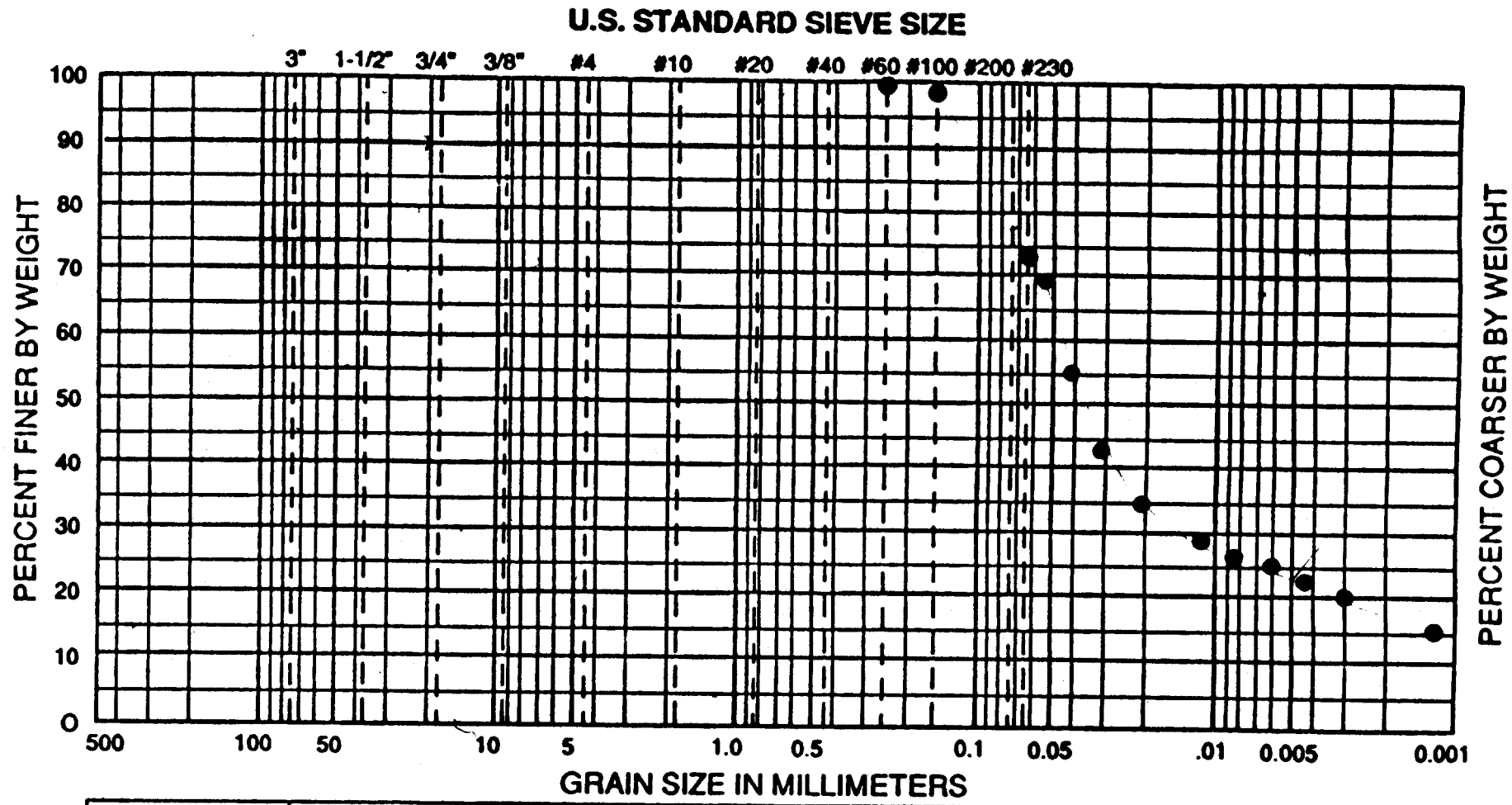
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.75	Temp. Coef. K	0.01294
Value of "a"	0.98	Wt. Dry Sample "W"	57.353
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	45.50	40.50	69.2	69.2	8.83	0.0544
1.0	37.50	32.50	55.5	55.5	10.14	0.0412
2.0	30.50	25.50	43.6	43.6	11.29	0.0307
5.0	25.50	20.50	35.0	35.0	12.11	0.0201
15.0	22.00	17.00	29.0	29.0	12.68	0.0119
30.0	20.50	15.50	26.5	26.5	12.93	0.0085
60.0	19.75	14.75	25.2	25.2	13.05	0.0060
120.0	18.50	13.50	23.1	23.1	13.26	0.0043
250.0	17.00	12.00	20.5	20.5	13.50	0.0030
1440.0	14.00	9.00	15.4	15.4	13.99	0.0013

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 16-70 SAMPLE NO.: CH #8 DATE: 3/4/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	24.5	SILT w/ some CLAY and SAND (ML) 22.9 F. SAND, 54% SILT, 23% [illegible]

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER WESTON

LOCATION _____

BORING 1670 SAMPLE #8 DEPTH 24.5'

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

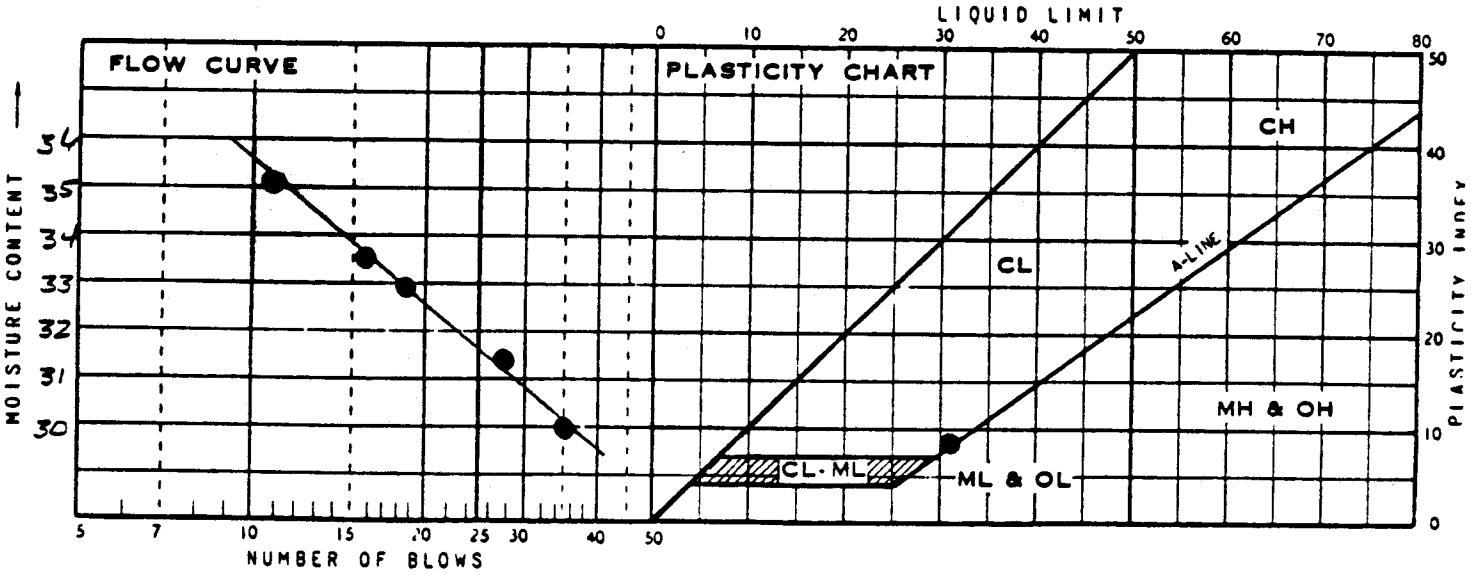
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY SR 3.10.82.

DETERMINATION	1	2	3	4	5	6
DISH	20C	22	24			
WT OF DISH + WET SOIL g	8.03	7.50	7.71			
WT OF DISH + DRY SOIL g	6.74	6.28	6.47	—	—	—
WT OF MOISTURE g	1.29	1.22	1.24			
WT OF DISH g	1.09	1.06	1.05	—	—	—
WT OF DRY SOIL g	5.65	5.22	5.42			
MOISTURE CONTENT %	22.8	23.4	22.9			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	44C	6C	10C	4	14C	
NUMBER OF BLOWS	35	28±	19	16	11±	
WT OF DISH + WET SOIL g	24.31	17.80	21.03	20.19	22.74	
WT OF DISH + DRY SOIL g	18.95	13.81	16.09	15.39	17.10	—
WT OF MOISTURE g	5.36	3.99	4.94	4.80	5.64	
WT OF DISH g	1.08	1.10	1.07	1.06	1.03	—
WT OF DRY SOIL g	17.87	12.71	15.02	14.33	16.07	
MOISTURE CONTENT %	30.0	31.4	32.9	33.5	35.1	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		31.6	23.0	8.6	CL	

ADVANCED TERRA TESTING inc

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	16+83	SAMPLED	Rocky Flats
DEPTH	3.0'	DATE TESTED	02-28-92 TNU
SAMPLE NO.	#8	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	53.94
Wt. Dry Soil & Pan	(g)	51.70
Wt. Lost Moisture	(g)	2.24
Wt. of Pan Only	(g)	3.80
Wt. of Dry Soil	(g)	47.90
Moisture Content	%	4.7

Wt. Hydrom. Sample Wet (g)	60.00
Wt. Hydrom. Sample Dry (g)	57.32

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	1199.66
Weight of + #10 Before Washing (g)	695.43
Weight of + #10 After Washing (g)	644.10
Weight of - #10 Wet (g)	504.23
Weight of - #10 Dry (g)	530.74
Wt. Total Sample Dry (g)	1174.84
Calc. Wt. "W" (g)	126.89
Calc. Mass + #10	69.57

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	269.74	269.74	269.74	23.0	77.0
3/8"	0.00	242.17	242.17	511.91	43.6	56.4
#4	0.00	83.91	83.91	595.82	50.7	49.3
#10	0.00	48.28	48.28	644.10	54.8	45.2
#20	1.57	2.89	1.32	1.32	55.9	44.1
#40	1.31	3.58	2.27	3.59	57.7	42.3
#60	1.57	3.78	2.21	5.80	59.4	40.6
#100	1.58	4.34	2.76	8.56	61.6	38.4
#230	1.57	6.21	4.64	13.20	65.2	34.8

Clayey Sand (SC)

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	16+83	SAMPLED	Rocky Flats
DEPTH	3.0'	DATE TESTED	02-28-92 TNU
SAMPLE NO.	#8	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

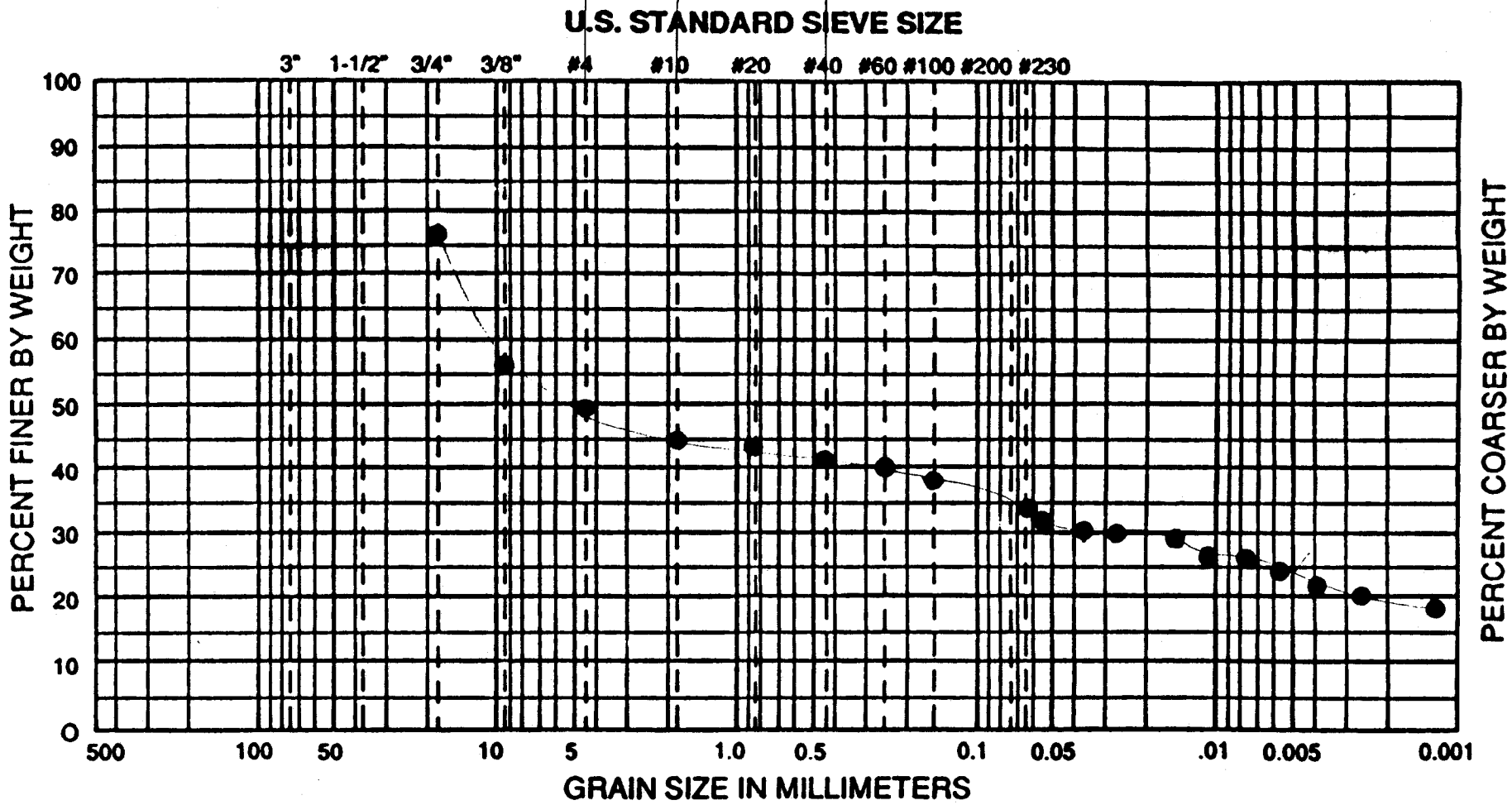
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.76	Temp. Coef. K	0.01290
Value of "a"	0.98	Wt. Dry Sample "W"	126.888
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	48.00	43.00	33.1	33.1	8.42	0.0529
1.0	46.00	41.00	31.6	31.6	8.75	0.0382
2.0	45.00	40.00	30.8	30.8	8.91	0.0272
5.0	43.00	38.00	29.3	29.3	9.24	0.0175
15.0	40.00	35.00	27.0	27.0	9.73	0.0104
30.0	39.00	34.00	26.2	26.2	9.89	0.0074
60.0	36.00	31.00	23.9	23.9	10.39	0.0054
120.0	34.00	29.00	22.4	22.4	10.71	0.0039
250.0	32.00	27.00	20.8	20.8	11.04	0.0027
1440.0	28.50	23.50	18.1	18.1	11.62	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 16+83 SAMPLE NO.: CH# 8 DATE: 3-7-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION (CLAYEY SAND w/Some Silt & Gvl.) (SC)
	3.0'	Gravel w/ some sd, slt, clay Rocky Flats 23% c gvl, 20.6% f gvl, 4.1% c sd, 2.9% m sd, 14.6% f sd, 5.3% Silt, 17.5% clay

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03
CLIENT/OWNER Weston
LOCATION Rocky Flats EG+G
BORING 16+83 SAMPLE CH #8 DEPTH 3'

FIELD DENSITY BY ___/___/___

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

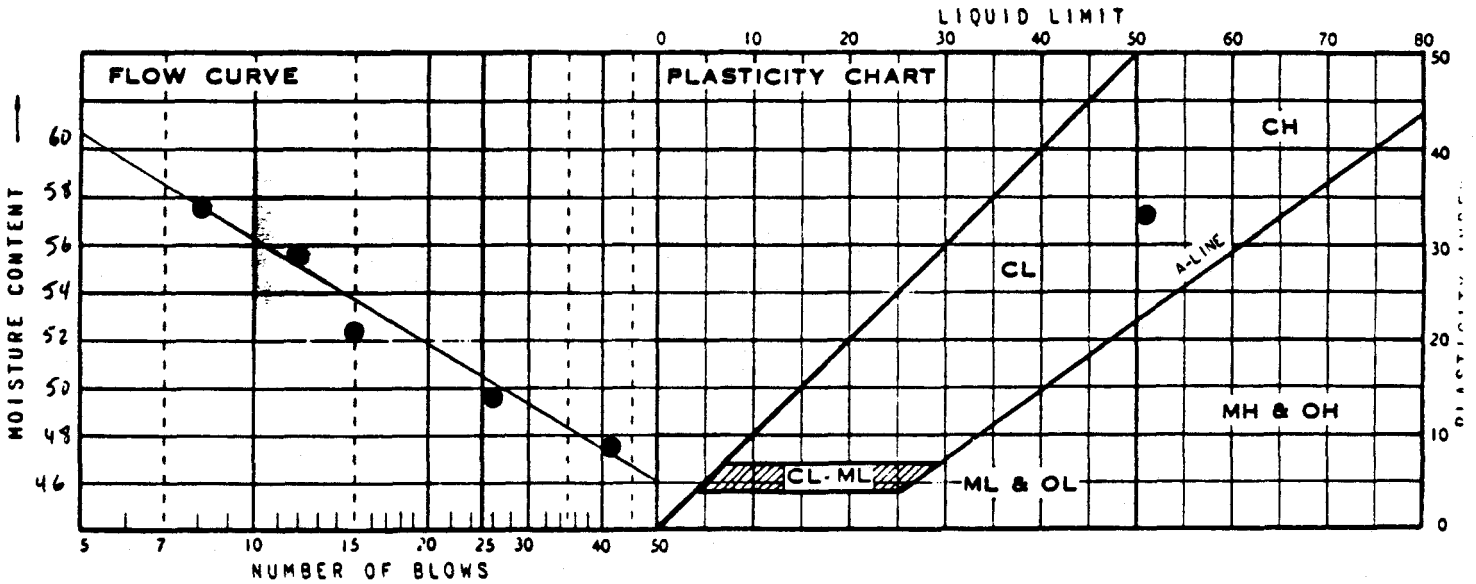
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY DW 3/3/92

DETERMINATION	1	2	3	4	5	6
DISH	2062	34C	2056			
WT OF DISH + WET SOIL g	6.14	5.80	5.15			
WT OF DISH + DRY SOIL g	5.38	5.11	4.54	—	—	—
WT OF MOISTURE g	.76	.69	.61			
WT OF DISH g	1.03	1.03	1.04	—	—	—
WT OF DRY SOIL g	4.35	4.08	3.50			
MOISTURE CONTENT %	17.5	16.9	17.4			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	33C	41C	2070	2022	2068	37C
NUMBER OF BLOWS	41	26	15	15	12	8
WT OF DISH + WET SOIL g	12.75	12.25	11.25	11.54	10.96	11.85
WT OF DISH + DRY SOIL g	9.00	8.52	7.78	7.93	7.41	7.91
WT OF MOISTURE g	3.75	3.73	3.47	3.61	3.55	3.94
WT OF DISH g	1.06	1.03	1.06	1.05	1.04	1.08
WT OF DRY SOIL g	7.94	7.49	6.72	6.88	6.37	6.83
MOISTURE CONTENT %	47.2	49.8	51.6	52.5	55.7	57.7



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		50.5	17.3	33.2	CH	

ADVANCED TERRA TESTING INC

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	17+10	SAMPLED	Rocky Flats
DEPTH	4.8'	DATE TESTED	03-05-92 SR
SAMPLE NO.	#7	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	69.89
Wt. Dry Soil & Pan	(g)	68.56
Wt. Lost Moisture	(g)	1.33
Wt. of Pan Only	(g)	3.76
Wt. of Dry Soil	(g)	64.80
Moisture Content	%	2.1

Wt. Hydrom. Sample Wet (g)	60.01
Wt. Hydrom. Sample Dry (g)	58.81

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	804.96
Weight of + #10 Before Washing (g)	0.49
Weight of + #10 After Washing (g)	0.38
Weight of - #10 Wet (g)	804.47
Weight of - #10 Dry (g)	788.40
Wt. Total Sample Dry (g)	788.78
Calc. Wt. "W" (g)	58.83
Calc. Mass + #10	0.03

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.38	0.38	0.38	0.0	100.0
#20	1.31	1.36	0.05	0.05	0.1	99.9
#40	1.57	1.72	0.15	0.20	0.4	99.6
#60	1.57	1.66	0.09	0.29	0.5	99.5
#100	1.56	1.63	0.07	0.36	0.7	99.3
#230	1.57	1.77	0.20	0.56	1.0	99.0

Silty clay (CH)

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	17+10	SAMPLED	Rocky Flats
DEPTH	4.8'	DATE TESTED	03-05-92 SR
SAMPLE NO.	#7	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

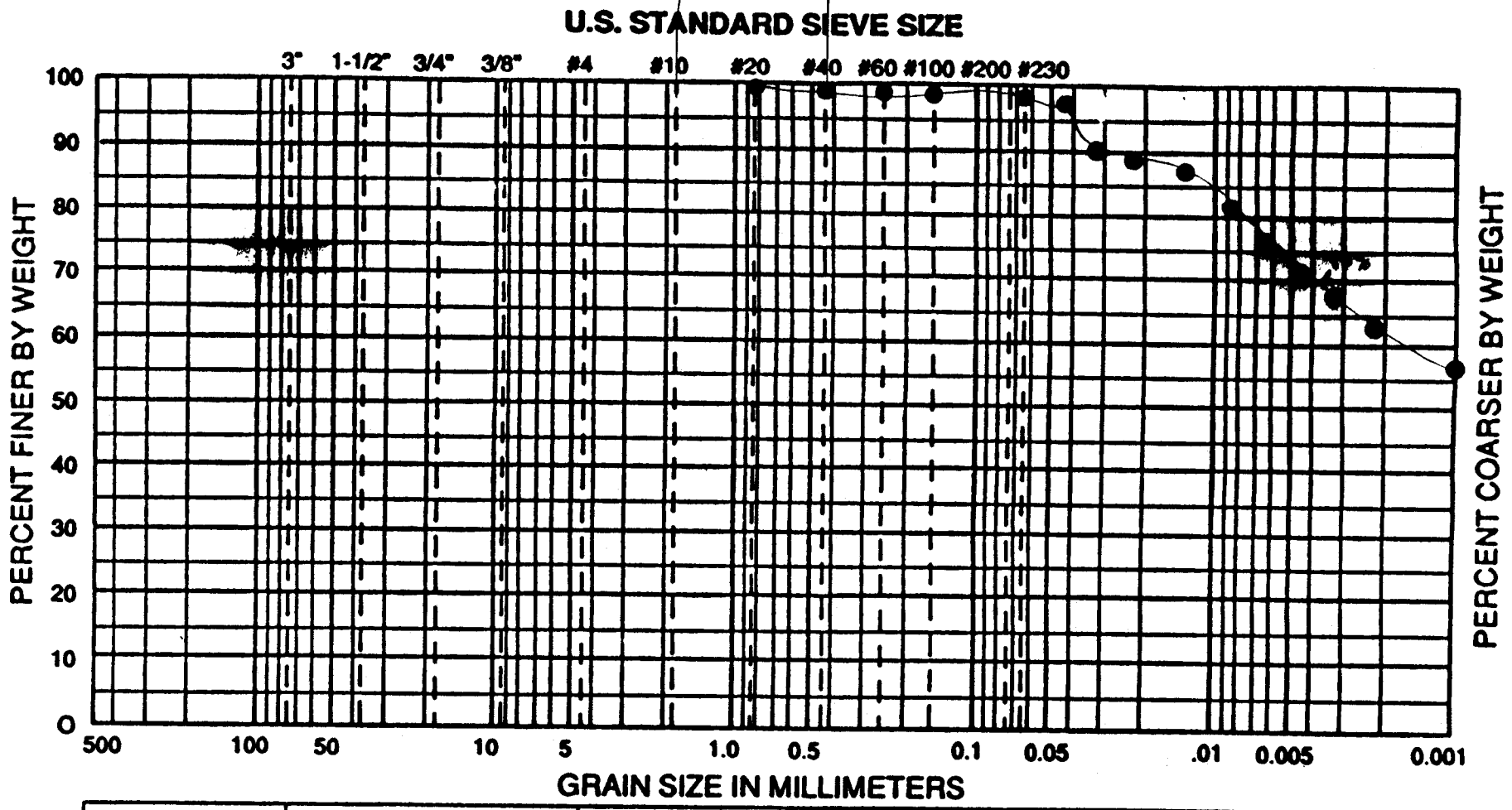
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.79	Temp. Coef. K	0.01280
Value of "a"	0.97	Wt. Dry Sample "W"	58.834
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	5.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	65.00	59.00	97.5	97.5	5.63	0.0430
1.0	60.50	54.50	90.0	90.0	6.37	0.0323
2.0	60.00	54.00	89.2	89.2	6.45	0.0230
5.0	58.75	52.75	87.1	87.1	6.66	0.0148
15.0	55.25	49.25	81.4	81.4	7.23	0.0089
30.0	52.25	46.25	76.4	76.4	7.72	0.0065
60.0	49.00	43.00	71.0	71.0	8.25	0.0047
120.0	47.00	41.00	67.7	67.7	8.58	0.0034
250.0	44.00	38.00	62.8	62.8	9.07	0.0024
1440.0	40.25	34.25	56.6	56.6	9.69	0.0010

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 17 + 10 SAMPLE NO.: CH # 7 DATE: 3/9/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION SILTY CLAY w/ tr SAND
Rocky Flats	4.8'	.4% med sd, .6% f. sd, 29% SILT, 70% CLAY

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION - - - - - - - - - - - - - - - -

LABORATORY CLASSIFICATION - - - - - - - - - - - - -

JOB NO. 2066-03

CLIENT/OWNER Weston

LOCATION Rocky Flats EG+G

BORING 17+10 SAMPLE CM #7 DEPTH 4.3'

FIELD DENSITY BY ../../..

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

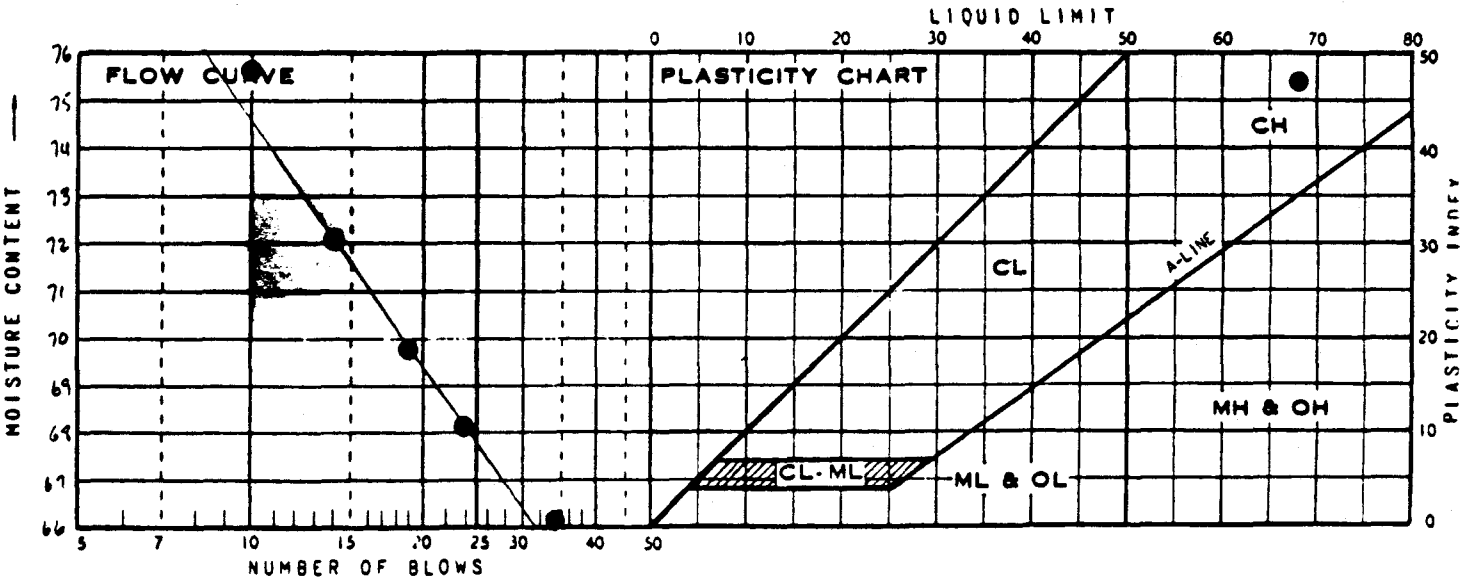
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY DW 3/4/93

DETERMINATION	1	2	3	4	5	6
DISH	34C	2062	2068			
WT OF DISH + WET SOIL g	4.81	5.52	4.84			
WT OF DISH + DRY SOIL g	4.17	4.75	4.19	—	—	—
WT OF MOISTURE g	.64	.77	.65			
WT OF DISH g	1.03	1.04	1.05	—	—	—
WT OF DRY SOIL g	3.14	3.71	3.14			
MOISTURE CONTENT %	20.4	20.8	20.7			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2070	37C	2056	41C	33C	2022
NUMBER OF BLOWS	34	29 ±	19 ±	14	10	
WT OF DISH + WET SOIL g	10.85	9.39	10.76	10.10	10.32	
WT OF DISH + DRY SOIL g	6.95	6.02	6.76	6.30	6.33	—
WT OF MOISTURE g	3.90	3.37	4.00	3.80	3.99	
WT OF DISH g	1.06	1.08	1.03	1.03	1.06	1.06
WT OF DRY SOIL g	5.89	4.94	5.73	5.27	5.27	
MOISTURE CONTENT %	66.2	68.2	69.8	72.1	75.7	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		67.8	20.6	47.2	CH	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	17+32	SAMPLED	Rocky Flats
DEPTH	18'	DATE TESTED	3-9-92 DU
SAMPLE NO.	#7	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes
NATURAL	No

Wt. Wet Soil & Pan	(g)	64.84
Wt. Dry Soil & Pan	(g)	62.15
Wt. Lost Moisture	(g)	2.69
Wt. of Pan Only	(g)	3.74
Wt. of Dry Soil	(g)	58.41
Moisture Content	%	4.6

Wt. Hydrom. Sample Wet (g)	60.01
Wt. Hydrom. Sample Dry (g)	57.37

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	60.01
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	60.01
Weight of - #10 Dry (g)	57.37
Wt. Total Sample Dry (g)	57.37
Calc. Wt. "W" (g)	57.37
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	1.57	1.59	0.02	0.02	0.0	100.0
#40	1.57	1.62	0.05	0.07	0.1	99.9
#60	1.56	1.60	0.04	0.11	0.2	99.8
#100	1.55	1.61	0.06	0.17	0.3	99.7
#230	1.57	1.74	0.17	0.34	0.6	99.4

CLAY (&IT)

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	17+32	SAMPLED	Rocky Flats
DEPTH	18'	DATE TESTED	3-9-92 DU
SAMPLE NO.	#7	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

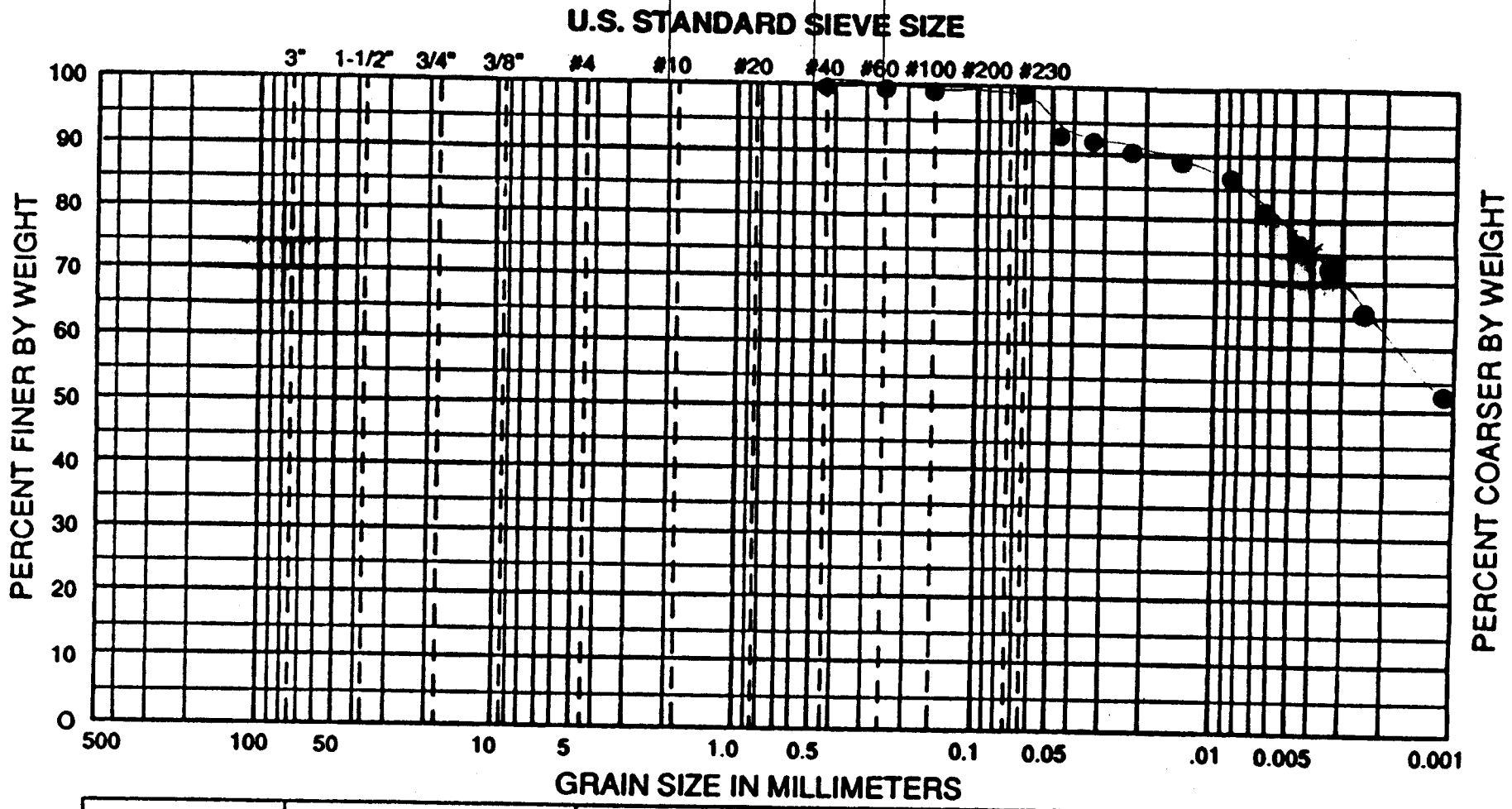
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.76	Temp. Coef. K	0.01290
Value of "a"	0.98	Wt. Dry Sample "W"	57.368
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.5		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	60.50	55.00	93.8	93.8	6.37	0.0460
1.0	59.50	54.00	92.1	92.1	6.53	0.0330
2.0	58.50	53.00	90.4	90.4	6.70	0.0236
5.0	58.00	52.50	89.5	89.5	6.78	0.0150
15.0	56.00	50.50	86.1	86.1	7.11	0.0089
30.0	53.50	48.00	81.8	81.8	7.52	0.0065
60.0	50.50	45.00	76.7	76.7	8.01	0.0047
120.0	48.00	42.50	72.5	72.5	8.42	0.0034
250.0	44.00	38.50	65.6	65.6	9.07	0.0025
1440.0	37.00	31.50	53.7	53.7	10.22	0.0011

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 17+32 SAMPLE NO.: CH # 7 DATE: 3/11/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION (CH) CLAY w/some silt	
Rocky Flats	18'	0% c sd, .1% msd, .3% f sd	24.4 silt, 75% CLAY

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03
CLIENT/OWNER WESTON
LOCATION ROCKY FLATS EG&G
BORING 17+33 SAMPLE CH#7 DEPTH 18'

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + ~~WET~~ SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

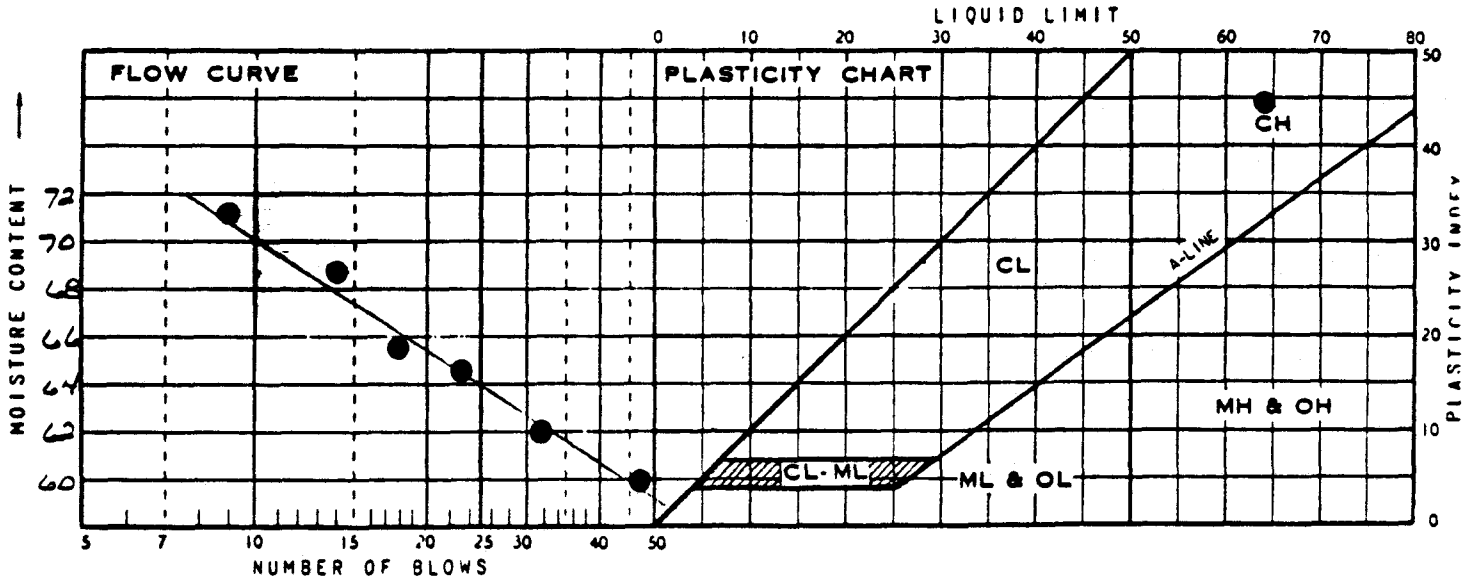
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY SB 3/16/92

DETERMINATION	1	2	3	4	5	6
DISH	38 C	2029	2015			
WT OF DISH + WET SOIL g	4.84	5.55	5.10			
WT OF DISH + DRY SOIL g	4.23	4.81	4.44	—	—	—
WT OF MOISTURE g	.61	.74	.66			
WT OF DISH g	1.04	1.05	1.06	—	—	—
WT OF DRY SOIL g	3.19	3.76	3.38			
MOISTURE CONTENT %	19.1	19.7	19.5			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2032	3	10 C	20 C	4	2010
NUMBER OF BLOWS	48	32	23	18	15 ±	9
WT OF DISH + WET SOIL g	18.77	17.33	20.15	19.98	19.12	18.26
WT OF DISH + DRY SOIL g	11.82	11.10	12.66	12.50	11.76	11.10
WT OF MOISTURE g	6.45	6.23	7.49	7.48	7.36	7.16
WT OF DISH g	1.05	1.07	1.07	1.08	1.07	1.05
WT OF DRY SOIL g	10.77	10.03	11.59	11.42	10.69	10.05
MOISTURE CONTENT %	60.0	62.1	64.6	65.5	68.9	71.2



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		64.0	19.4	44.6	CH	

ADVANCED TERRA TESTING INC

MECHANICAL ANALYSIS - SIEVE TEST DATA
-#230 SIEVE ONLY

CLIENT Roy F. Weston

JOB NO. 2066-03

BORING NO.	17+32	SAMPLED	12-12-91 SRC
DEPTH	18'	DATE TESTED	01-23-92 TNU
SAMPLE NO.	—	WASH SIEVE	Yes
SOIL DESCR.	Bulk/Jar	DRY SIEVE	No

MOISTURE/DENSITY DATA

Wt. Soil & Ring(s)	(g)	
Wt. Ring(s)	(g)	
Wt. Soil	(g)	
Wet Density	PCF	
Wt. Wet Soil & Pan	(g)	171.1
Wt. Dry Soil & Pan	(g)	148.1
Wt. Lost Moisture	(g)	22.9
Wt. of Pan Only	(g)	9.3
Wt. of Dry Soil	(g)	138.8
Moisture Content	%	16.5
Dry Density	PCF	

WASH SIEVE ANALYSIS

Wt. Wet Soil & Pan Before Washing (g)	171.1
Wt. Dry Soil & Pan Before Washing (g)	148.1
Weight of Pan (g)	9.3
Wt. of Dry Soil Before Washing	138.8
Wt. Dry Soil & Pan After Washing (g)	10.1
Wt. of Dry Soil After Washing (g)	0.7
-#230 Wash. Out %	99.5

ADVANCED TERRA TESTING, INC.

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER WESTON

LOCATION _____

BORING 17+32 SAMPLE ____ DEPTH 18'

FIELD DENSITY BY ____/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

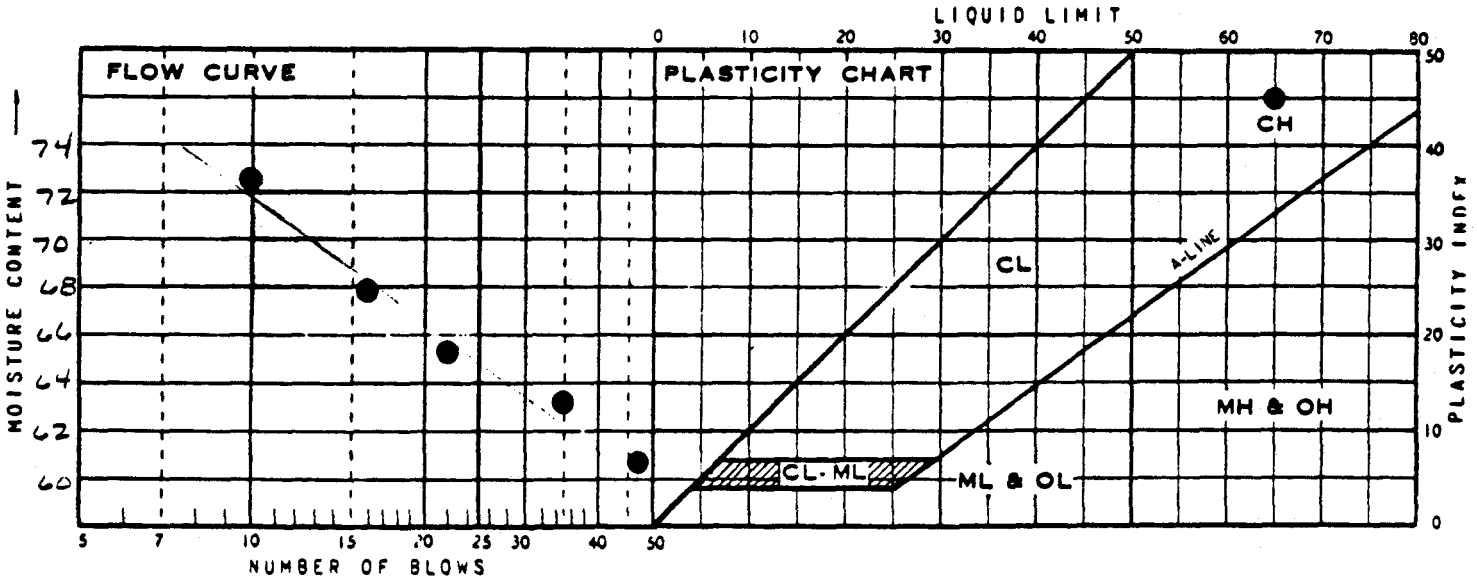
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY SB/1/12/92

DETERMINATION	1	2	3	4	5	6
DISH	35	34	33			
WT OF DISH + WET SOIL g	8.67	9.26	7.75			
WT OF DISH + DRY SOIL g	7.43	7.86	6.64	—	—	—
WT OF MOISTURE g	1.26	1.40	1.11			
WT OF DISH g	1.02	1.04	1.04	—	—	—
WT OF DRY SOIL g	6.41	6.82	5.60			
MOISTURE CONTENT %	19.7	20.5	19.8			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	32	31	30	29	28	
NUMBER OF BLOWS	47	35	22	16	11	
WT OF DISH + WET SOIL g	13.84	13.16	14.84	16.12	15.96	
WT OF DISH + DRY SOIL g	10.01	8.46	9.38	10.02	9.49	—
WT OF MOISTURE g	4.83	4.70	5.46	6.10	6.27	
WT OF DISH g	1.05	1.04	1.02	1.04	1.04	—
WT OF DRY SOIL g	7.96	7.42	8.36	8.98	8.65	
MOISTURE CONTENT %	60.7	63.3	65.3	67.9	72.5	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		65.0	20.0	45.0	CH	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA
-#230 SIEVE ONLY

CLIENT Roy F. Weston

JOB NO. 2066-03

BORING NO.	17+50	SAMPLED	12-12-91 SRC
DEPTH	.3'	DATE TESTED	01-23-92 TNU
SAMPLE NO.	—	WASH SIEVE	Yes
SOIL DESCR.	Bulk/Jar	DRY SIEVE	No

MOISTURE/DENSITY DATA

Wt. Soil & Ring(s) (g)	
Wt. Ring(s) (g)	
Wt. Soil (g)	
Wet Density PCF	
Wt. Wet Soil & Pan (g)	
Wt. Dry Soil & Pan (g)	
Wt. Lost Moisture (g)	
Wt. of Pan Only (g)	
Wt. of Dry Soil (g)	
Moisture Content %	
Dry Density PCF	

WASH SIEVE ANALYSIS

Wt. Wet Soil & Pan Before Washing (g)	0.0
Wt. Dry Soil & Pan Before Washing (g)	319.3
Weight of Pan (g)	9.6
Wt. of Dry Soil Before Washing	309.8
Wt. Dry Soil & Pan After Washing (g)	171.4
Wt. of Dry Soil After Washing (g)	161.9
-#230 Wash. Out %	47.7

? Silty Sand (CL)
Sandy Clay

ADVANCED TERRA TESTING, INC.

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER WESTON

LOCATION _____

BORING 17+50 SAMPLE ____ DEPTH 3'

FIELD DENSITY BY ____/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD [redacted]

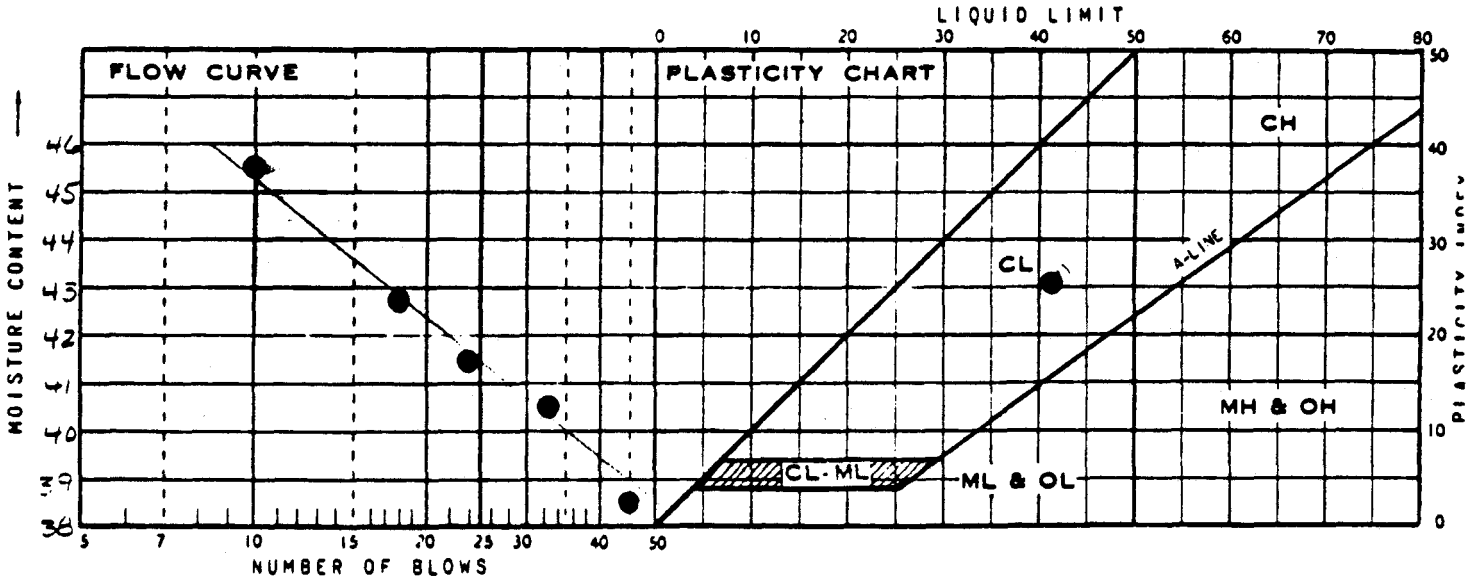
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY 53.1.1249!

DETERMINATION	1	2	3	4	5	6
DISH	56	55	54			
WT OF DISH + WET SOIL g	8.59	9.70	9.63			
WT OF DISH + DRY SOIL g	7.55	8.50	8.45	—	—	—
WT OF MOISTURE g	1.04	1.20	1.18			
WT OF DISH g	1.03	1.04	1.03	—	—	—
WT OF DRY SOIL g	6.52	7.46	7.42			
MOISTURE CONTENT %	16.0	16.1	15.9			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	53	52	51	50	39	
NUMBER OF BLOWS	45	33	24	18	11 ±	
WT OF DISH + WET SOIL g	16.86	17.19	15.42	14.63	16.68	
WT OF DISH + DRY SOIL g	12.46	12.54	11.20	10.56	11.79	—
WT OF MOISTURE g	4.40	4.65	4.22	4.07	4.89	
WT OF DISH g	1.04	1.05	1.04	1.05	1.04	—
WT OF DRY SOIL g	11.42	11.49	10.16	9.51	10.75	
MOISTURE CONTENT %	38.5	40.5	41.5	42.8	45.5	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		41.4	16.0	25.4	CL	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT ~~Weston~~

JOB NO. 2066-03

BORING NO.	17+50	SAMPLED	Rocky Flats
DEPTH	.8'	DATE TESTED	02-28-92 TNU
SAMPLE NO.	#7	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	75.30
Wt. Dry Soil & Pan	(g)	71.09
Wt. Lost Moisture	(g)	4.21
Wt. of Pan Only	(g)	3.74
Wt. of Dry Soil	(g)	67.35
Moisture Content	%	6.3

Wt. Hydrom. Sample Wet (g)	60.01
Wt. Hydrom. Sample Dry (g)	56.47

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	384.41
Weight of + #10 Before Washing (g)	7.85
Weight of + #10 After Washing (g)	5.66
Weight of - #10 Wet (g)	376.56
Weight of - #10 Dry (g)	356.47
Wt. Total Sample Dry (g)	362.13
Calc. Wt. "W" (g)	57.37
Calc. Mass + #10	0.90

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	4.45	4.45	4.45	1.2	98.8
#10	0.00	1.21	1.21	5.66	1.6	98.4
#20	1.56	1.85	0.29	0.29	2.1	97.9
#40	1.56	1.84	0.28	0.57	2.6	97.4
#60	1.56	1.83	0.27	0.84	3.0	97.0
#100	1.55	1.90	0.35	1.19	3.6	96.4
#230	1.57	2.38	0.81	2.00	5.0	95.0

CLAY (CH)

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	17+50	SAMPLED	Rocky Flats
DEPTH	.8'	DATE TESTED	02-28-92 TNU
SAMPLE NO.	#7	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

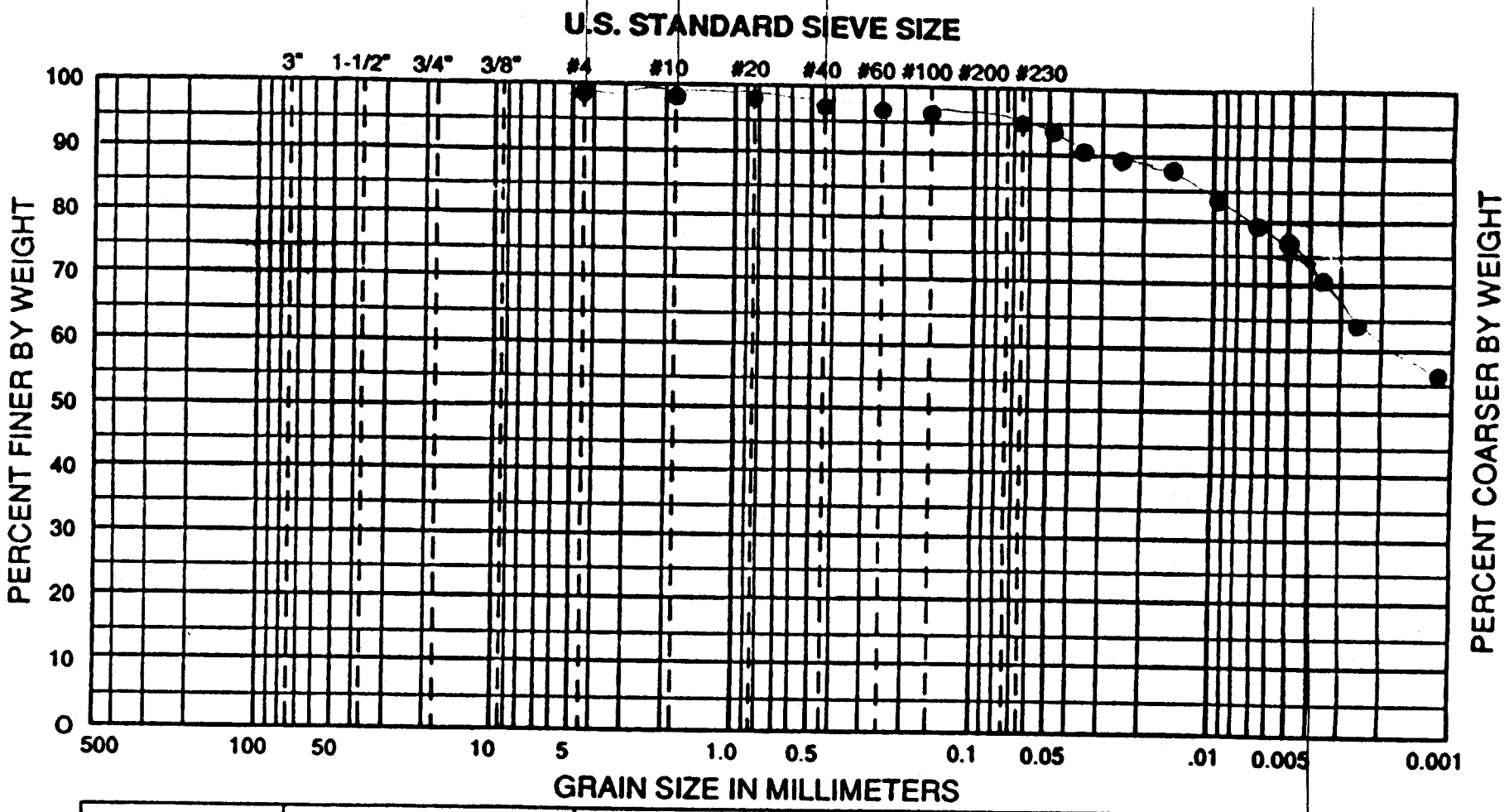
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.62	Temp. Coef. K	0.01345
Value of "a"	1.01	Wt. Dry Sample "W"	57.372
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	58.50	53.50	93.8	93.8	6.70	0.0492
1.0	56.50	51.50	90.3	90.3	7.02	0.0356
2.0	56.25	51.25	89.9	89.9	7.07	0.0253
5.0	55.00	50.00	87.7	87.7	7.27	0.0162
15.0	52.50	47.50	83.3	83.3	7.68	0.0096
30.0	50.50	45.50	79.8	79.8	8.01	0.0069
60.0	48.50	43.50	76.3	76.3	8.34	0.0050
120.0	45.50	40.50	71.0	71.0	8.83	0.0036
250.0	42.00	37.00	64.9	64.9	9.40	0.0026
1440.0	37.00	32.00	56.1	56.1	10.22	0.0011

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 17+50 SAMPLE NO.: CH# 7 DATE: 3/9/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	.8'	.2% Gravel CLAY .4% C sd, 1% Med sd, 2.4% f. sd, 22% SILT, 73% CLAY

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION - - - - - - - - - - - - - - - -

LABORATORY CLASSIFICATION - - - - - - - - - - - - -

JOB NO. 2066-02

CLIENT/OWNER Weston

LOCATION Rocky Flats EG+G

BORING 12+50 SAMPLE CH #7 DEPTH 8'

FIELD DENSITY BY ../../..

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

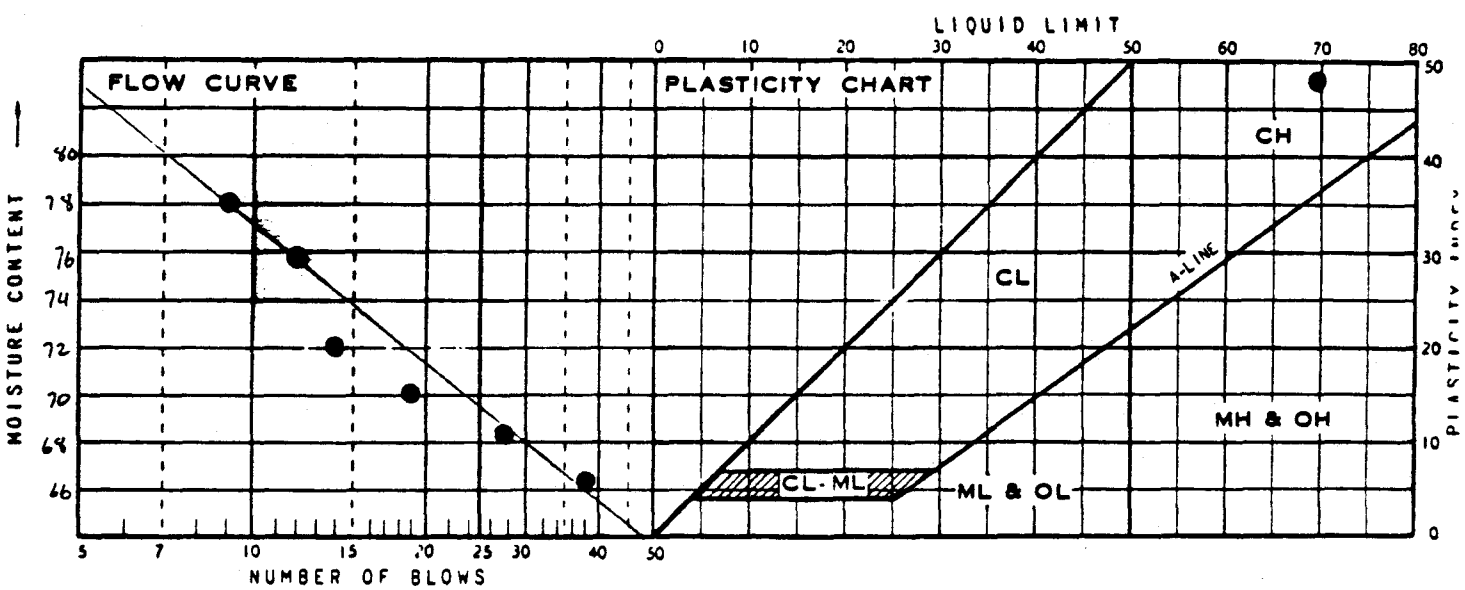
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY DM 3/4/92

DETERMINATION	1	2	3	4	5	6
DISH	32C	2018	16C			
WT OF DISH + WET SOIL g	7.22	6.00	6.84			
WT OF DISH + DRY SOIL g	6.11	5.11	5.81	—	—	—
WT OF MOISTURE g	1.11	.89	1.03			
WT OF DISH g	1.03	1.05	1.06	—	—	—
WT OF DRY SOIL g	5.08	4.06	4.75			
MOISTURE CONTENT %	21.9	21.9	21.7			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	9C	2023	2073	13C	2016	25C
NUMBER OF BLOWS	38	27	19	14	12	9
WT OF DISH + WET SOIL g	10.36	9.65	10.40	10.61	9.43	10.77
WT OF DISH + DRY SOIL g	6.65	6.16	6.54	6.60	5.81	6.50
WT OF MOISTURE g	3.71	3.49	3.86	4.01	3.62	4.27
WT OF DISH g	1.07	1.06	1.04	1.04	1.04	1.04
WT OF DRY SOIL g	5.58	5.10	5.50	5.56	4.77	5.46
MOISTURE CONTENT %	66.5	68.4	70.2	72.1	75.9	78.2



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		69.6	21.8	47.8	CH	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Roy F. Weston

JOB NO. 2066-03

BORING NO.	17+50	SAMPLED	12-12-91 SRC
DEPTH	15'	DATE TESTED	01-27-91 TNU
SAMPLE NO.		WASH SIEVE	Yes
SOIL DESCR.	Bulk/Jar	DRY SIEVE	No

MOISTURE/DENSITY DATA

Wt. Soil & Ring(s) (g)	
Wt. Ring(s) (g)	
Wt. Soil (g)	
Wet Density PCF	
Wt. Wet Soil & Pan (g)	
Wt. Dry Soil & Pan (g)	
Wt. Lost Moisture (g)	
Wt. of Pan Only (g)	
Wt. of Dry Soil (g)	
Moisture Content %	
Dry Density PCF	

WASH SIEVE ANALYSIS

Wt. Wet Soil & Pan Before Washing (g)	
Wt. Dry Soil & Pan Before Washing (g)	302.6
Weight of Pan (g)	8.9
Wt. of Dry Soil Before Washing	293.7
Wt. Dry Soil & Pan After Washing (g)	108.8
Wt. of Dry Soil After Washing (g)	99.9
-#200 Wash. Out %	66.0

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
3"	0.00	0.00	0.00	0.00	0.0	100.0
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	3.69	6.62	2.93	2.93	1.0	99.0
#10	0.00	0.00	0.00	2.93	1.0	99.0
#20	0.00	0.00	0.00	2.93	1.0	99.0
#40	0.00	0.00	0.00	2.93	1.0	99.0
#60	0.00	0.00	0.00	2.93	1.0	99.0
#100	0.00	0.00	0.00	2.93	1.0	99.0
#200	8.89	105.82	96.93	99.86	34.0	66.0

Sandy Clay (CH) *

ADVANCED TERRA TESTING, INC.

ATTERBERG LIMITS TEST DATA

JOB NO. 2666-02
CLIENT/OWNER WESTON
LOCATION
BORING 17+50 SAMPLE ____ DEPTH 15'

FIELD CLASSIFICATION ____
LABORATORY CLASSIFICATION ____

FIELD DENSITY BY ____

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD [redacted]

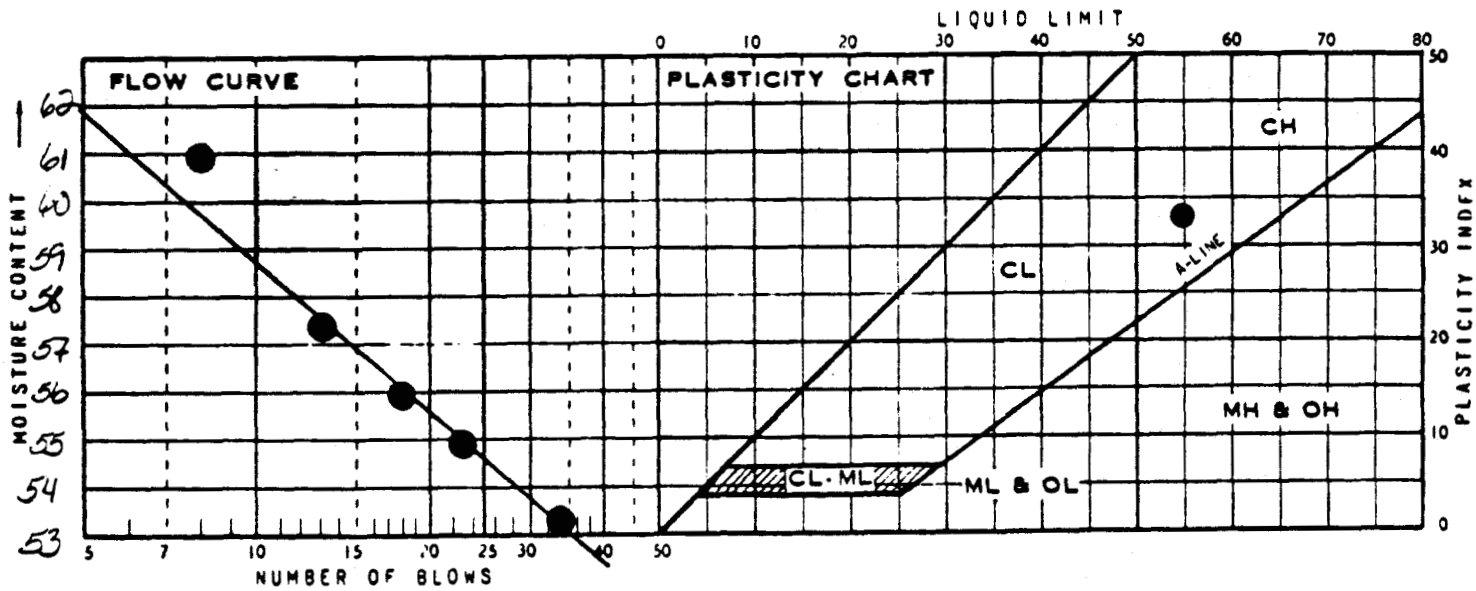
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY DWW 12/4/95

DETERMINATION	1	2	3	4	5	6
DISH	11	17	10			
WT OF DISH + WET SOIL	10.55g	10.24g	12.15g			
WT OF DISH + DRY SOIL	8.87g	9.08g	10.18g	—	—	—
WT OF MOISTURE	1.68g	1.76g	1.97g			
WT OF DISH	1.03g	1.05g	1.04g	—	—	—
WT OF DRY SOIL	7.84g	8.03g	9.14g			
MOISTURE CONTENT	21.4%	21.9%	21.6%			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	30C	17C	14C	29C	53C	
NUMBER OF BLOWS	34	23	18	13	8	
WT OF DISH + WET SOIL	16.45	15.83	14.59	15.16	14.26g	
WT OF DISH + DRY SOIL	11.24g	10.60g	9.74g	10.03g	9.25g	—
WT OF MOISTURE	5.41g	5.23g	4.85g	5.13g	5.01g	
WT OF DISH	1.08g	1.07g	1.07g	1.07g	1.25g	—
WT OF DRY SOIL	10.16g	9.53g	8.67g	8.96g	8.20g	
MOISTURE CONTENT	53.2%	54.9%	55.9%	57.8%	61.1%	

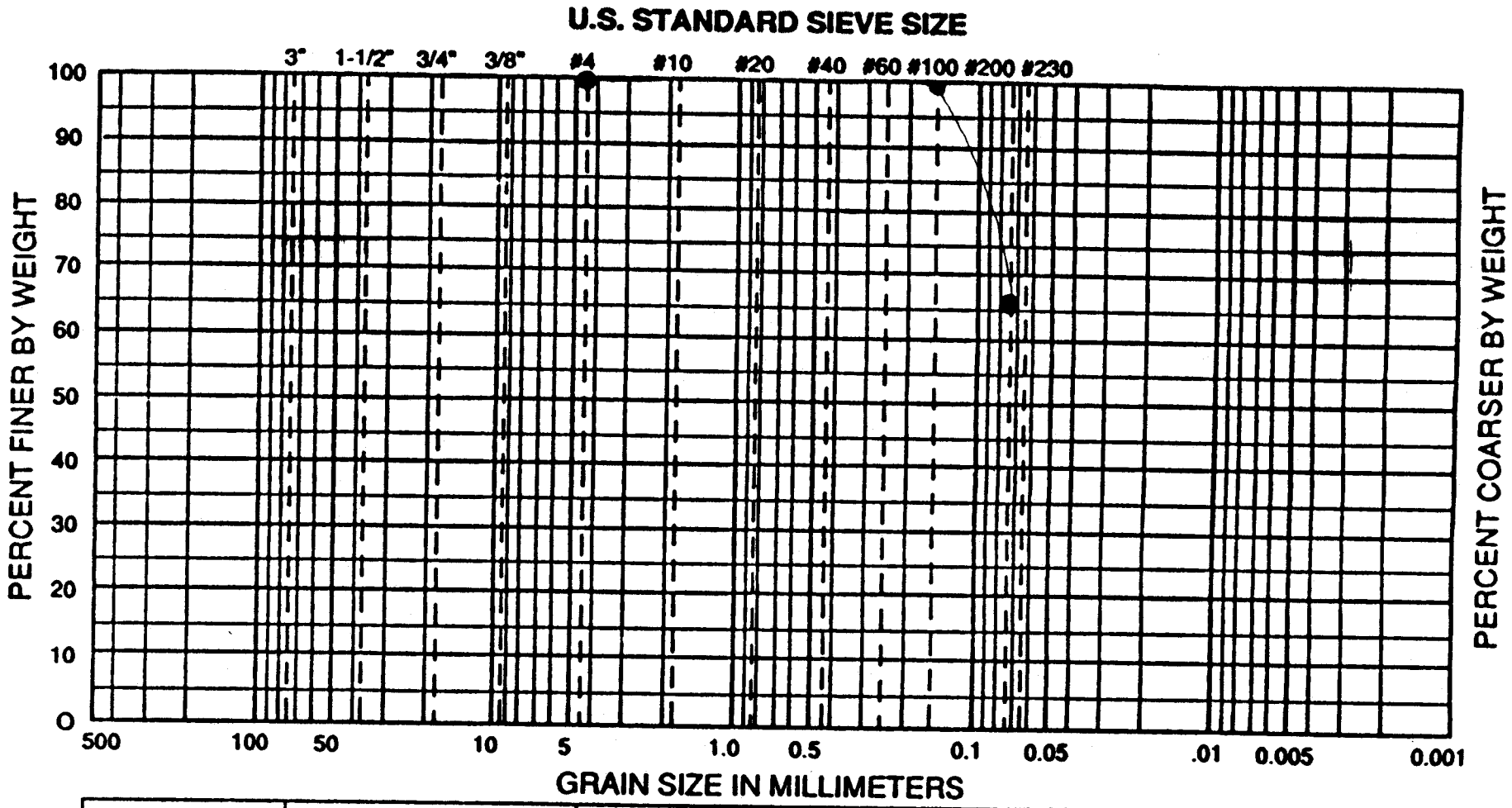


SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		54.6	21.6	33.0	CH	

ADVANCED TERRA TESTING

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 17+50 SAMPLE NO.: DATE: 1-29-92 PROJECT NO.: 2029-39-09-0030

AREA	DEPTH	CLASSIFICATION
	15'	Gravelly Sandy Clay (CL/CH) 1% Gravel, 33% Sand, 66% Clay

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Roy F. Weston

JOB NO. 2066-03

BORING NO.	17+50	SAMPLED	12-12-91 SRC
DEPTH	18'	DATE TESTED	01-27-91 TNU
SAMPLE NO.		WASH SIEVE	Yes
SOIL DESCR.	Bulk/Jar	DRY SIEVE	No

MOISTURE/DENSITY DATA

Wt. Soil & Ring(s) (g)	
Wt. Ring(s) (g)	
Wt. Soil (g)	
Wet Density PCF	
Wt. Wet Soil & Pan (g)	
Wt. Dry Soil & Pan (g)	
Wt. Lost Moisture (g)	
Wt. of Pan Only (g)	
Wt. of Dry Soil (g)	
Moisture Content %	
Dry Density PCF	

WASH SIEVE ANALYSIS

Wt. Wet Soil & Pan Before Washing (g)	
Wt. Dry Soil & Pan Before Washing (g)	280.7
Weight of Pan (g)	9.4
Wt. of Dry Soil Before Washing	271.3
Wt. Dry Soil & Pan After Washing (g)	79.5
Wt. of Dry Soil After Washing (g)	70.1
-#200 Wash. Out %	74.2

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
3"	0.00	0.00	0.00	0.00	0.0	100.0
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	9.40	35.21	25.81	25.81	9.5	90.5
#10	0.00	0.00	0.00	25.81	9.5	90.5
#20	0.00	0.00	0.00	25.81	9.5	90.5
#40	0.00	0.00	0.00	25.81	9.5	90.5
#60	0.00	0.00	0.00	25.81	9.5	90.5
#100	0.00	0.00	0.00	25.81	9.5	90.5
#200	8.30	52.58	44.28	70.09	25.8	74.2

Silty Clay (CH) *

ADVANCED TERRA TESTING, INC.

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-67

CLIENT/OWNER WESTON

LOCATION _____

BORING 17+50 SAMPLE ____ DEPTH 18'

FIELD DENSITY BY ____/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD → [redacted]

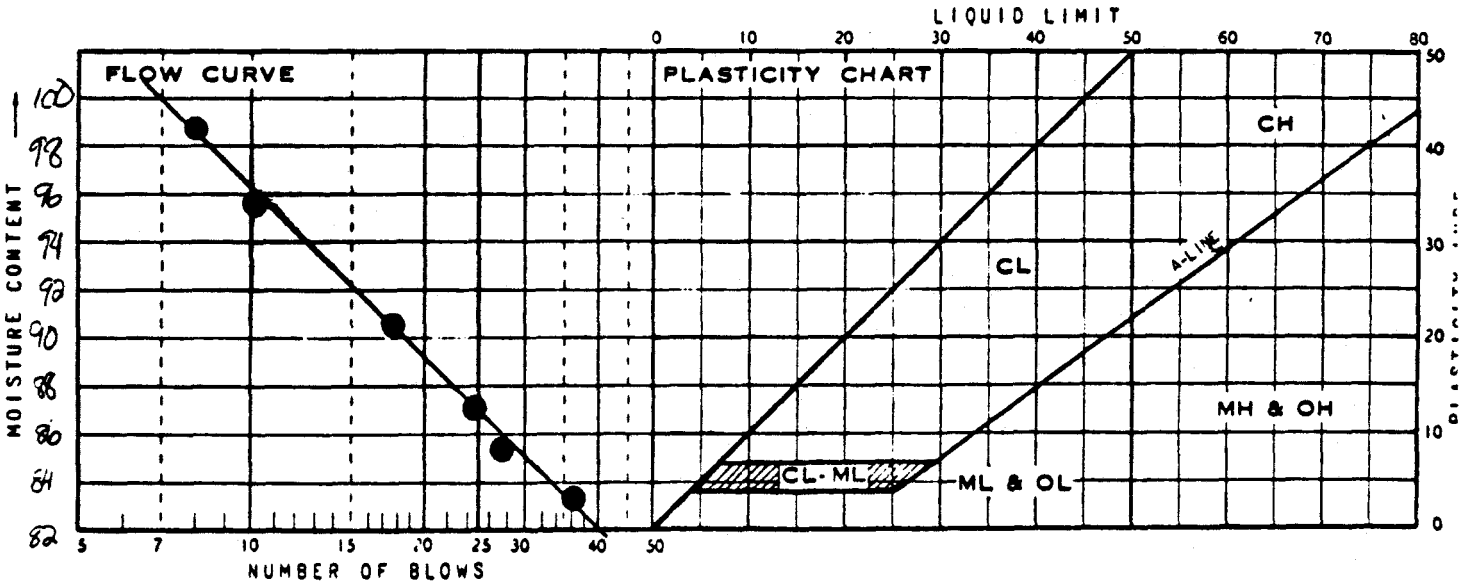
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY JMW 1/24/92

DETERMINATION	1	2	3	4	5	6
DISH	8	56C	20			
WT OF DISH + WET SOIL	8.81g	10.33g	10.63g			
WT OF DISH + DRY SOIL	7.11g	8.32g	8.56g	—	—	—
WT OF MOISTURE	1.70g	2.01g	2.07g			
WT OF DISH	1.08g	1.07g	1.06g	—	—	—
WT OF DRY SOIL	6.03g	7.25g	7.50g			
MOISTURE CONTENT	28.2%	27.7%	27.6%			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	27	43C	26	25	24	23
NUMBER OF BLOWS	36+	27	25	18	10	8
WT OF DISH + WET SOIL	16.11g	16.24g	15.[illegible]	14.87g	13.82g	13.01g
WT OF DISH + DRY SOIL	9.26g	9.25g	8.80g	8.29g	7.57g	7.06g
WT OF MOISTURE	6.85g	6.99g	6.77g	6.58g	6.25g	5.95g
WT OF DISH	1.03g	1.06g	1.04	1.03g	1.04g	1.04g
WT OF DRY SOIL	8.23g	8.19g	7.76g	7.26g	6.53g	6.02g
MOISTURE CONTENT	83.2%	85.3%	87.2%	90.6%	95.7%	98.8%

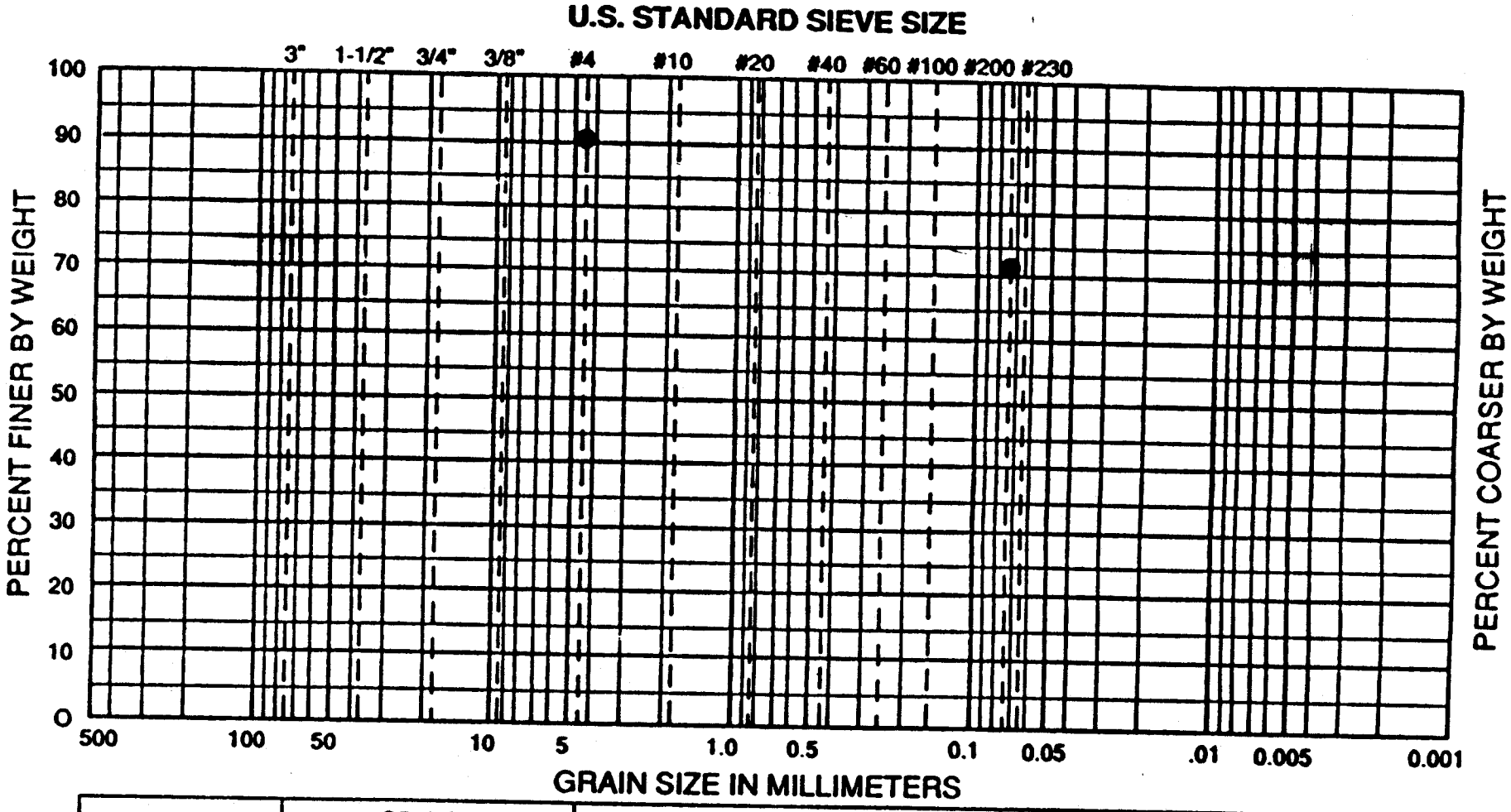


SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		86.8	27.8	59.0	CH	

ADVANCED TERRA TESTING INC

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 17+50 SAMPLE NO.: DATE: 1-29-92 PROJECT NO.: 2029-33-09-0030

AREA	DEPTH	CLASSIFICATION
		Gravelly Sandy Clay (CL/CH) . 74.2% silt or clay 9.5% Gravel, 16.3% F Sand,

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	17+75	SAMPLED	Rocky Flats
DEPTH	21'	DATE TESTED	03-05-92 SR
SAMPLE NO.	#7	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes	
NATURAL	No	
Wt. Wet Soil & Pan	(g)	72.06
Wt. Dry Soil & Pan	(g)	68.90
Wt. Lost Moisture	(g)	3.16
Wt. of Pan Only	(g)	3.69
Wt. of Dry Soil	(g)	65.21
Moisture Content	%	4.8
Wt. Hydrom. Sample Wet	(g)	60.00
Wt. Hydrom. Sample Dry	(g)	57.23

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	596.97
Weight of + #10 Before Washing (g)	64.85
Weight of + #10 After Washing (g)	52.15
Weight of - #10 Wet (g)	532.12
Weight of - #10 Dry (g)	519.64
Wt. Total Sample Dry (g)	571.79
Calc. Wt. "W" (g)	62.97
Calc. Mass + #10	5.74

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	25.66	25.66	25.66	4.5	95.5
#4	0.00	11.08	11.08	36.74	6.4	93.6
#10	0.00	15.41	15.41	52.15	9.1	90.9
#20	1.31	2.83	1.52	1.52	11.5	88.5
#40	1.57	4.39	2.82	4.34	16.0	84.0
#60	1.46	3.90	2.44	6.78	19.9	80.1
#100	1.57	4.07	2.50	9.28	23.9	76.1
#230	1.55	4.77	3.22	12.50	29.0	71.0

CLAY (CH)

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	17+75	SAMPLED	Rocky Flats
DEPTH	21'	DATE TESTED	03-05-92 SR
SAMPLE NO.	#7	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

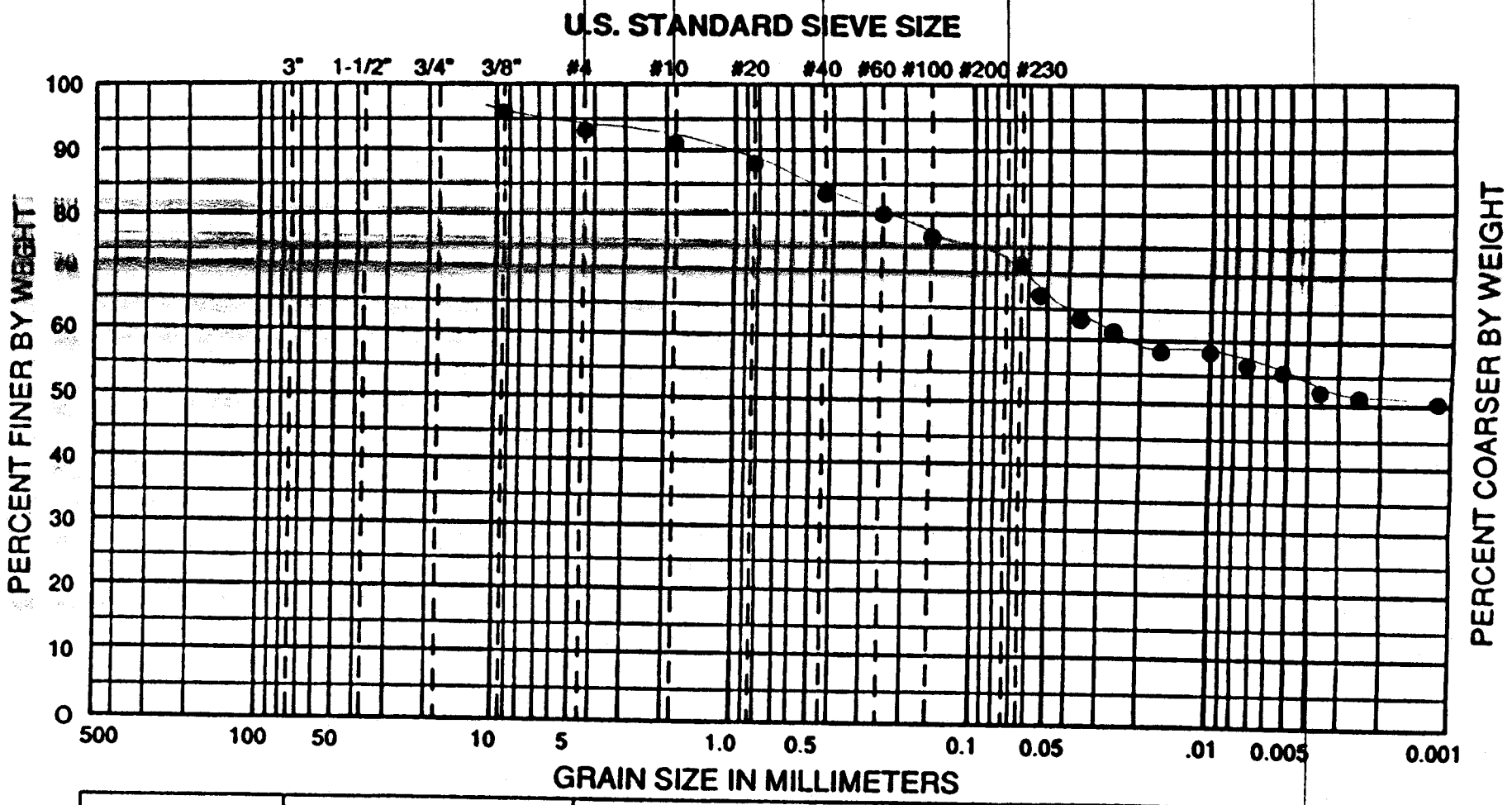
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.79	Temp. Coef. K	0.01280
Value of "a"	0.97	Wt. Dry Sample "W"	62.972
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	5.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	49.50	43.50	67.1	67.1	8.17	0.0517
1.0	47.50	41.50	64.1	64.1	8.50	0.0373
2.0	45.50	39.50	61.0	61.0	8.83	0.0269
5.0	44.00	38.00	58.7	58.7	9.07	0.0172
15.0	44.00	38.00	58.7	58.7	9.07	0.0100
30.0	42.75	36.75	56.7	56.7	9.28	0.0071
60.0	42.00	36.00	55.6	55.6	9.40	0.0051
120.0	40.00	34.00	52.5	52.5	9.73	0.0036
250.0	39.50	33.50	51.7	51.7	9.81	0.0025
1440.0	38.75	32.75	50.6	50.6	9.94	0.0011

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 17+75 SAMPLE NO.: CH # 7 DATE: 3/9/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION CLAY			
Rocky Flats	21'	TR 4.5% C Gvl, 1.9% f grvl	some 1.1% sd 2.7% c sd, 6.9% msd, 11.5% f sd	some 18.5% silt	54% clay

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER Weston

LOCATION Rocky Flats EG+G

BORING 17-75 SAMPLE CH # 7 DEPTH 21'

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

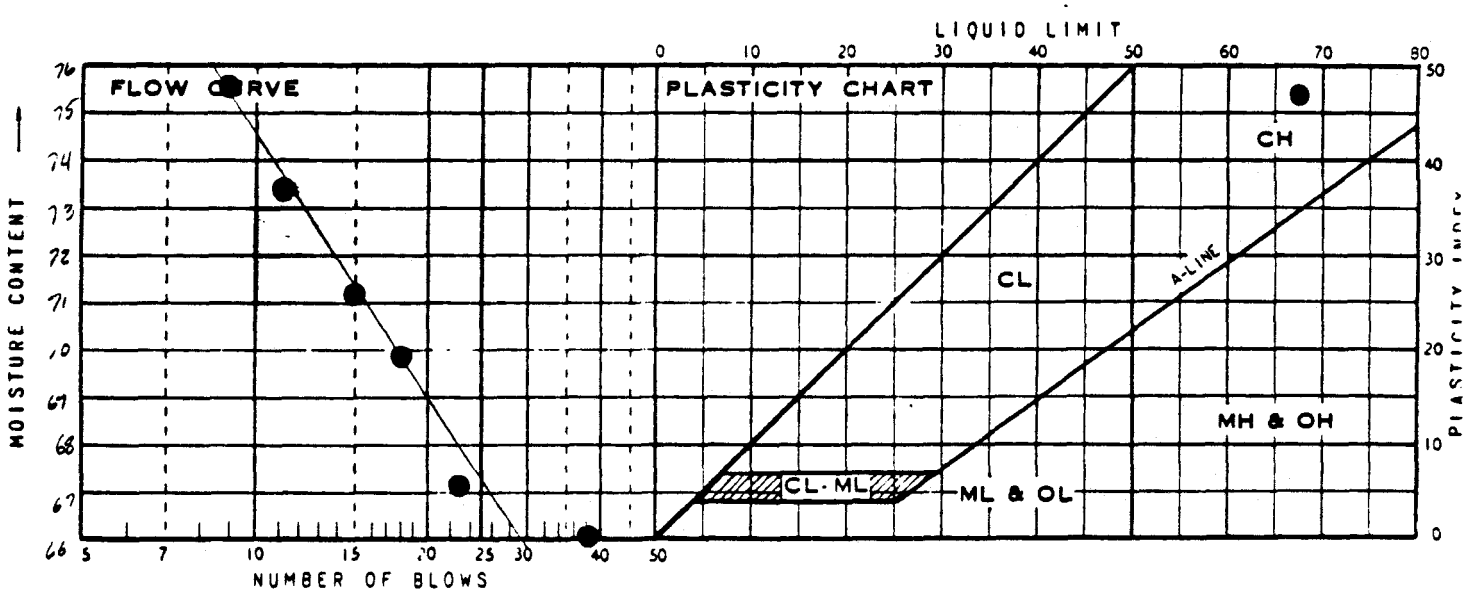
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY Dev. 3/6/92

DETERMINATION	1	2	3	4	5	6
DISH	32C	28C	2020			
WT OF DISH + WET SOIL g	7.16	6.01	5.78			
WT OF DISH + DRY SOIL g	6.11	5.19	4.99	—	—	—
WT OF MOISTURE g	1.05	.82	.79			
WT OF DISH g	1.05	1.06	1.05	—	—	—
WT OF DRY SOIL g	5.06	4.13	3.94			
MOISTURE CONTENT %	20.8	19.9	20.1			

LIQUID LIMIT ?

DETERMINATION	1	2	3	4	5	6	
DISH	26C	2008	2036	5C	2026	46C	20[illegible]
NUMBER OF BLOWS	38±	23	16±	18	15	11	9
WT OF DISH + WET SOIL g	11.24	11.16	11.62	11.05	10.92	10.89	11.1
WT OF DISH + DRY SOIL g	7.19	7.10	7.32	6.95	6.81	6.73	6.[illegible]
WT OF MOISTURE g	4.05	4.06	4.30	4.10	4.11	4.16	4.[illegible]
WT OF DISH g	1.06	1.06	1.05	1.06	1.04	1.06	1.0
WT OF DRY SOIL g	6.13	6.04	6.27	5.89	5.77	5.67	5.[illegible]
MOISTURE CONTENT %	66.1	67.2	68.6	69.6	71.2	73.4	75.[illegible]



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		67.3	20.3	47.0	CH	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	17+90	SAMPLED	Rocky Flats
DEPTH	25'	DATE TESTED	02-28-92 TNU
SAMPLE NO.	#7	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	44.17
Wt. Dry Soil & Pan	(g)	42.31
Wt. Lost Moisture	(g)	1.86
Wt. of Pan Only	(g)	3.81
Wt. of Dry Soil	(g)	38.50
Moisture Content	%	4.8

Wt. Hydrom. Sample Wet (g)	60.01
Wt. Hydrom. Sample Dry (g)	57.24

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	943.04
Weight of + #10 Before Washing (g)	55.87
Weight of + #10 After Washing (g)	50.83
Weight of - #10 Wet (g)	887.17
Weight of - #10 Dry (g)	851.09
Wt. Total Sample Dry (g)	901.92
Calc. Wt. "W" (g)	60.66
Calc. Mass + #10	3.42

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	12.49	12.49	12.49	1.4	98.6
3/8"	0.00	9.30	9.30	21.79	2.4	97.6
#4	0.00	13.19	13.19	34.98	3.9	96.1
#10	0.00	15.85	15.85	50.83	5.6	94.4
#20	1.56	1.57	0.01	0.01	5.7	94.3
#40	1.55	1.57	0.02	0.03	5.7	94.3
#60	1.31	1.33	0.02	0.05	5.7	94.3
#100	1.31	1.34	0.03	0.08	5.8	94.2
#230	1.56	2.30	0.74	0.82	7.0	93.0

CLAY (CL)

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	17+90	SAMPLED	Rocky Flats
DEPTH	25'	DATE TESTED	02-28-92 TNU
SAMPLE NO.	#7	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

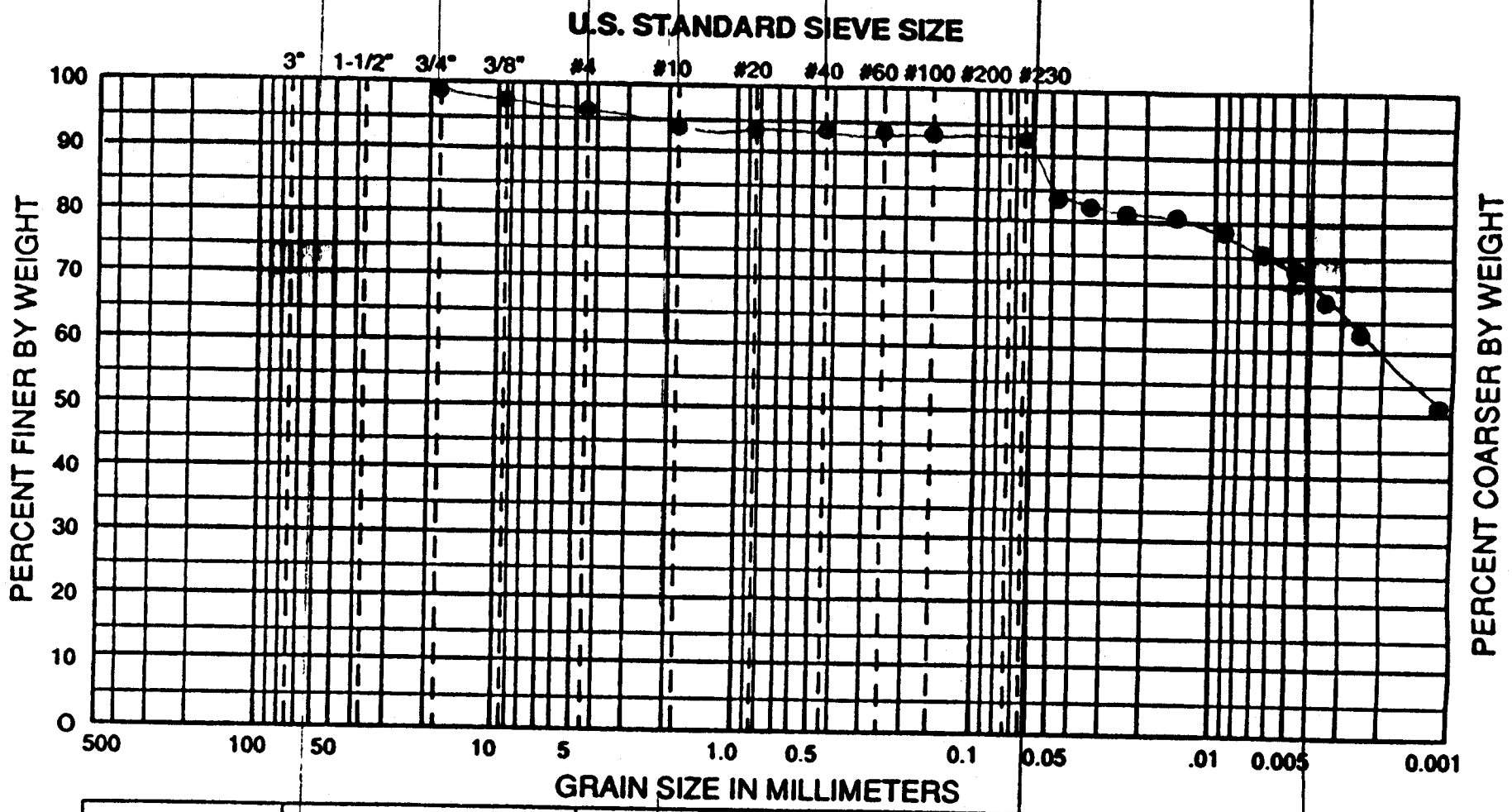
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.75	Temp. Coef. K	0.01294
Value of "a"	0.98	Wt. Dry Sample "W"	60.659
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	57.00	52.00	84.0	84.0	6.94	0.0482
1.0	56.00	51.00	82.4	82.4	7.11	0.0345
2.0	55.50	50.50	81.6	81.6	7.19	0.0245
5.0	55.00	50.00	80.8	80.8	7.27	0.0156
15.0	54.00	49.00	79.2	79.2	7.43	0.0091
30.0	52.00	47.00	75.9	75.9	7.76	0.0066
60.0	50.00	45.00	72.7	72.7	8.09	0.0048
120.0	47.00	42.00	67.9	67.9	8.58	0.0035
250.0	44.00	39.00	63.0	63.0	9.07	0.0025
1440.0	36.50	31.50	50.9	50.9	10.30	0.0011

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL			SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 17+90 SAMPLE NO.: CH # 7 DATE: 3/9/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION CLAY		
Rocky Flats	25'	1.4% CG 2.5% fG, 1.7% csd, .1% mdsd, 1.3% fsd	23% silt	70% clay

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION - - - - - - - - - - - - - - -

LABORATORY CLASSIFICATION - - - - - - - - - - - -

JOB NO. 2066-03

CLIENT/OWNER WESTON

LOCATION ROCKY FLATS

BORING 12+90 SAMPLE CH#7 DEPTH 25'

FIELD DENSITY BY ...../...../.....

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

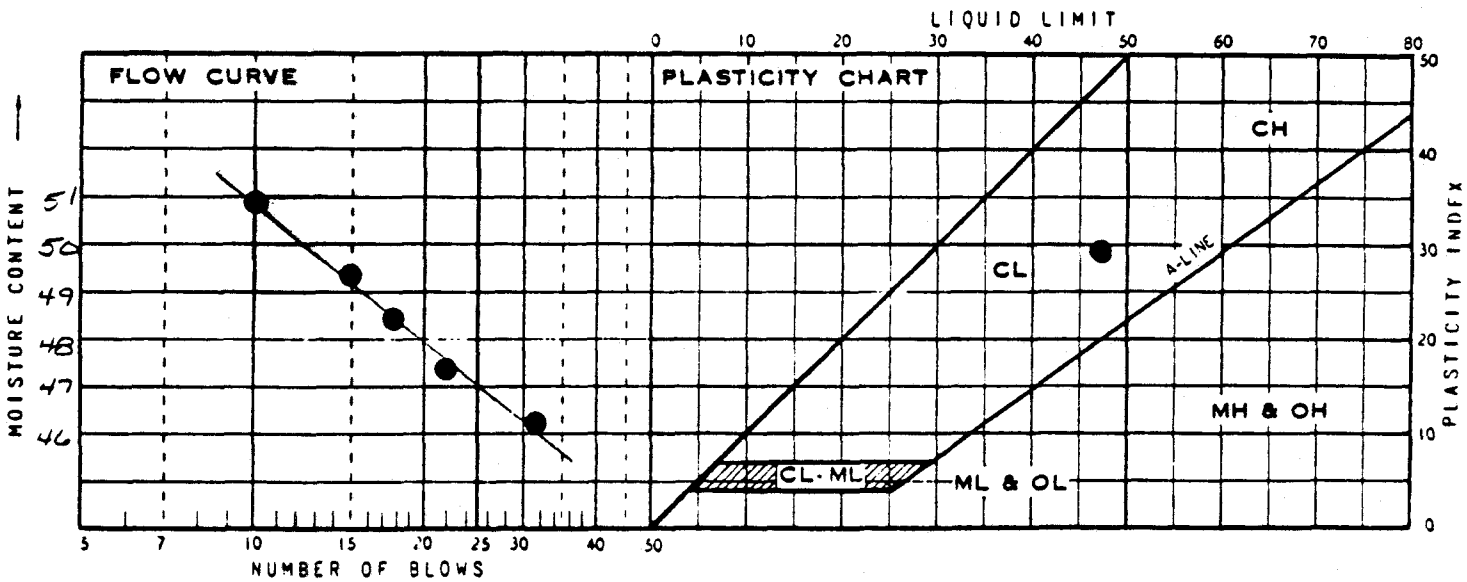
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY SR 3/15/92

DETERMINATION	1	2	3	4	5	6
DISH	2022	2015	38C			
WT OF DISH + WET SOIL g	6.34	5.51	5.96			
WT OF DISH + DRY SOIL g	5.55	4.84	5.20	—	—	—
WT OF MOISTURE g	.79	.67	.76			
WT OF DISH g	1.06	1.07	1.04	—	—	—
WT OF DRY SOIL g	4.49	3.77	4.16			
MOISTURE CONTENT %	17.6	17.8	18.3			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	8C	2C	39C	44C	11C	
NUMBER OF BLOWS	32	22	19±	15	10	
WT OF DISH + WET SOIL g	20.51	17.65	18.00	20.23	19.02	
WT OF DISH + DRY SOIL g	14.36	12.31	12.46	13.88	12.95	—
WT OF MOISTURE g	6.15	5.34	5.54	6.35	6.07	
WT OF DISH g	1.04	1.04	1.03	1.03	1.03	—
WT OF DRY SOIL g	13.32	11.27	11.43	12.85	11.92	
MOISTURE CONTENT %	46.2	47.4	48.5	49.4	50.9	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		47.6	17.9	29.1	CL	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	18+00	SAMPLED	Rocky Flats
DEPTH	17'	DATE TESTED	02-28-92 TNU
SAMPLE NO.	#7	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes	
NATURAL	No	
Wt. Wet Soil & Pan	(g)	43.82
Wt. Dry Soil & Pan	(g)	41.37
Wt. Lost Moisture	(g)	2.45
Wt. of Pan Only	(g)	3.17
Wt. of Dry Soil	(g)	38.20
Moisture Content	%	6.4
Wt. Hydrom. Sample Wet	(g)	60.01
Wt. Hydrom. Sample Dry	(g)	56.40

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	866.61
Weight of + #10 Before Washing (g)	4.17
Weight of + #10 After Washing (g)	2.94
Weight of - #10 Wet (g)	862.44
Weight of - #10 Dry (g)	811.62
Wt. Total Sample Dry (g)	814.56
Calc. Wt. "W" (g)	56.60
Calc. Mass + #10	0.20

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	2.11	2.11	2.11	0.3	99.7
#10	0.00	0.83	0.83	2.94	0.4	99.6
#20	1.56	1.73	0.17	0.17	0.7	99.3
#40	1.56	1.83	0.27	0.44	1.1	98.9
#60	1.57	1.74	0.17	0.61	1.4	98.6
#100	1.56	1.70	0.14	0.75	1.7	98.3
#230	1.56	2.05	0.49	1.24	2.6	97.4

Silty Clay

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	18+00	SAMPLED	Rocky Flats
DEPTH	17'	DATE TESTED	02-28-92 TNU
SAMPLE NO.	#7	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

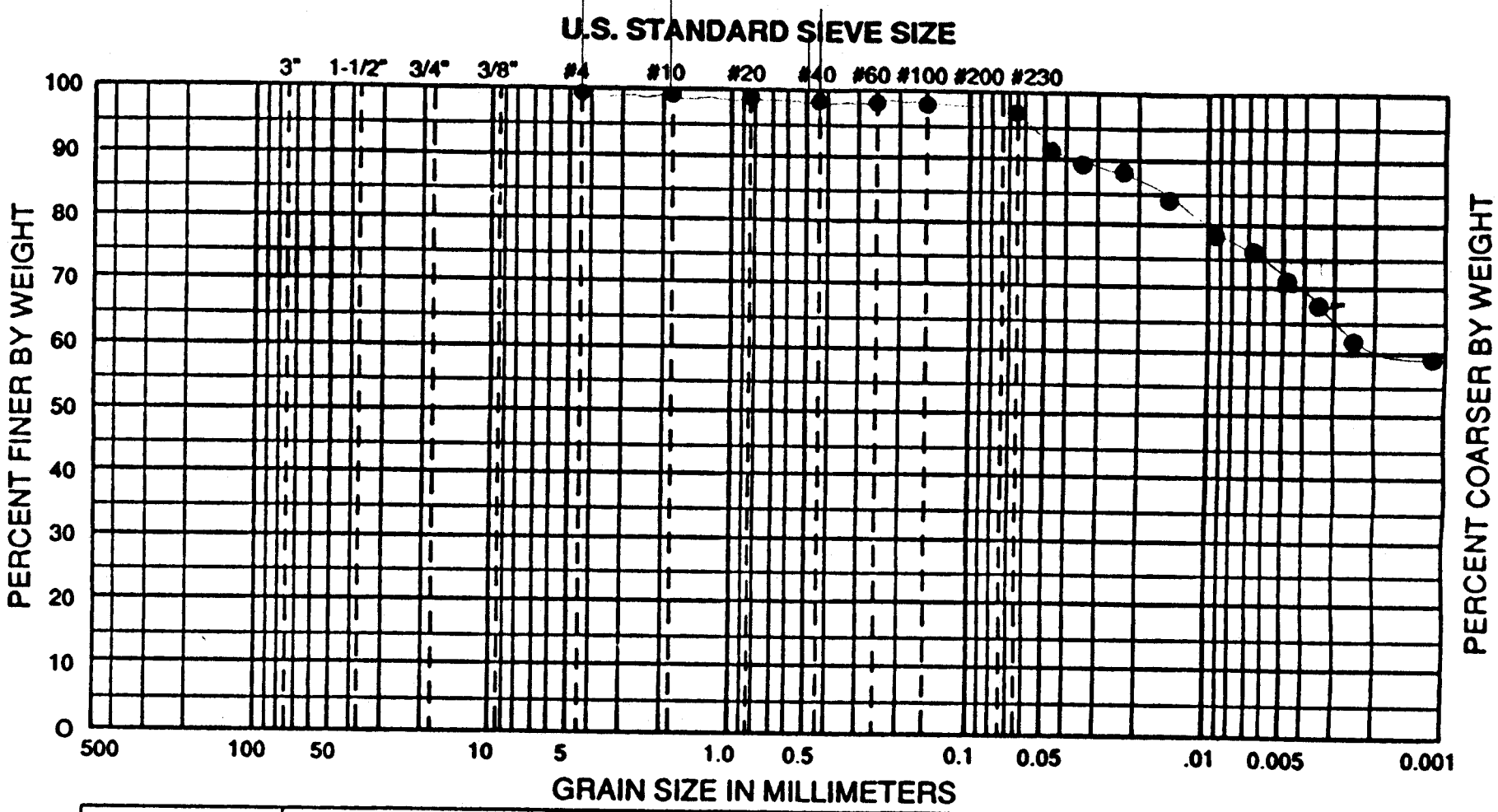
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.76	Temp. Coef. K	0.01290
Value of "a"	0.98	Wt. Dry Sample "W"	56.600
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	58.00	53.00	91.6	91.6	6.78	0.0475
1.0	57.00	52.00	89.9	89.9	6.94	0.0340
2.0	56.00	51.00	88.1	88.1	7.11	0.0243
5.0	54.00	49.00	84.7	84.7	7.43	0.0157
15.0	50.50	45.50	78.6	78.6	8.01	0.0094
30.0	49.00	44.00	76.0	76.0	8.25	0.0068
60.0	46.00	41.00	70.8	70.8	8.75	0.0049
120.0	44.00	39.00	67.4	67.4	9.07	0.0035
250.0	41.00	36.00	62.2	62.2	9.57	0.0025
1440.0	39.50	34.50	59.6	59.6	9.81	0.0011

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 18+00 SAMPLE NO.: CH #7 DATE: 3/9/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	17.0'	SILTY CLAY .1% Csd, .7% Msd, 1.5% fsd, 30.4% Silt 67% CLAY

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-02

CLIENT/OWNER Weston

LOCATION Rocky Flats EG-G

BORING 18-00 SAMPLE CH #7 DEPTH 17'

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD [redacted]

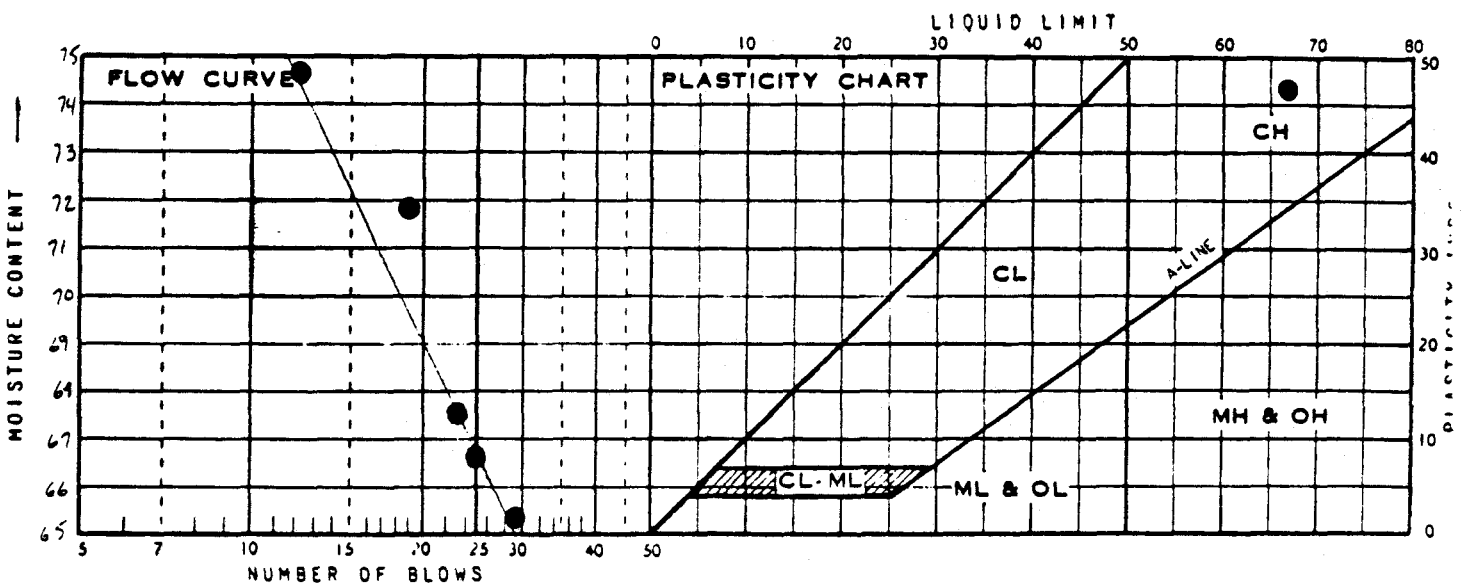
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY DM 3/4/92

DETERMINATION	1	2	3	4	5	6
DISH	2044	20C	2007			
WT OF DISH + WET SOIL g	4.70	4.13	5.56			
WT OF DISH + DRY SOIL g	4.10	3.62	4.83	—	—	—
WT OF MOISTURE g	.60	.51	.73			
WT OF DISH g	1.05	1.02	1.06	—	—	—
WT OF DRY SOIL g	3.05	2.60	3.77			
MOISTURE CONTENT %	19.7	19.6	19.4			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2.005	58C	46C	2065	2028	32C
NUMBER OF BLOWS	29	25	23	23	19	12
WT OF DISH + WET SOIL g	11.68	10.49	9.95	10.36	9.78	9.70
WT OF DISH + DRY SOIL g	7.48	6.72	6.36	6.53	6.14	6.00
WT OF MOISTURE g	4.20	3.77	3.59	3.83	3.64	3.70
WT OF DISH g	1.06	1.07	1.06	1.04	1.08	1.05
WT OF DRY SOIL g	6.42	5.65	5.30	5.49	5.06	4.95
MOISTURE CONTENT %	65.4	66.7	67.7	69.8	71.9	74.7



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		66.7	19.6	47.1	CH	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	18+00	SAMPLED	Rocky Flats
DEPTH	21.5'	DATE TESTED	02-21-92 TNU
SAMPLE NO.	#2	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	53.14
Wt. Dry Soil & Pan	(g)	52.49
Wt. Lost Moisture	(g)	0.65
Wt. of Pan Only	(g)	3.84
Wt. of Dry Soil	(g)	48.65
Moisture Content	%	1.3

Wt. Hydrom. Sample Wet (g)	60.11
Wt. Hydrom. Sample Dry (g)	59.32

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	307.16
Weight of + #10 Before Washing (g)	49.86
Weight of + #10 After Washing (g)	37.59
Weight of - #10 Wet (g)	257.30
Weight of - #10 Dry (g)	266.02
Wt. Total Sample Dry (g)	303.61

Calc. Wt. "W" (g)	67.70
Calc. Mass + #10	8.38

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	10.56	10.56	10.56	3.5	96.5
#4	0.00	13.74	13.74	24.30	8.0	92.0
#10	0.00	13.29	13.29	37.59	12.4	87.6
#20	1.57	4.07	2.50	2.50	16.1	83.9
#40	1.57	5.07	3.50	6.00	21.2	78.8
#60	1.57	5.12	3.55	9.55	26.5	73.5
#100	1.57	5.91	4.34	13.89	32.9	67.1
#230	1.31	7.49	6.18	20.07	42.0	58.0

Sandy Clay (CL-)

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	18+00	SAMPLED	Rocky Flats
DEPTH	21.5'	DATE TESTED	02-21-92 TNU
SAMPLE NO.	#2	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

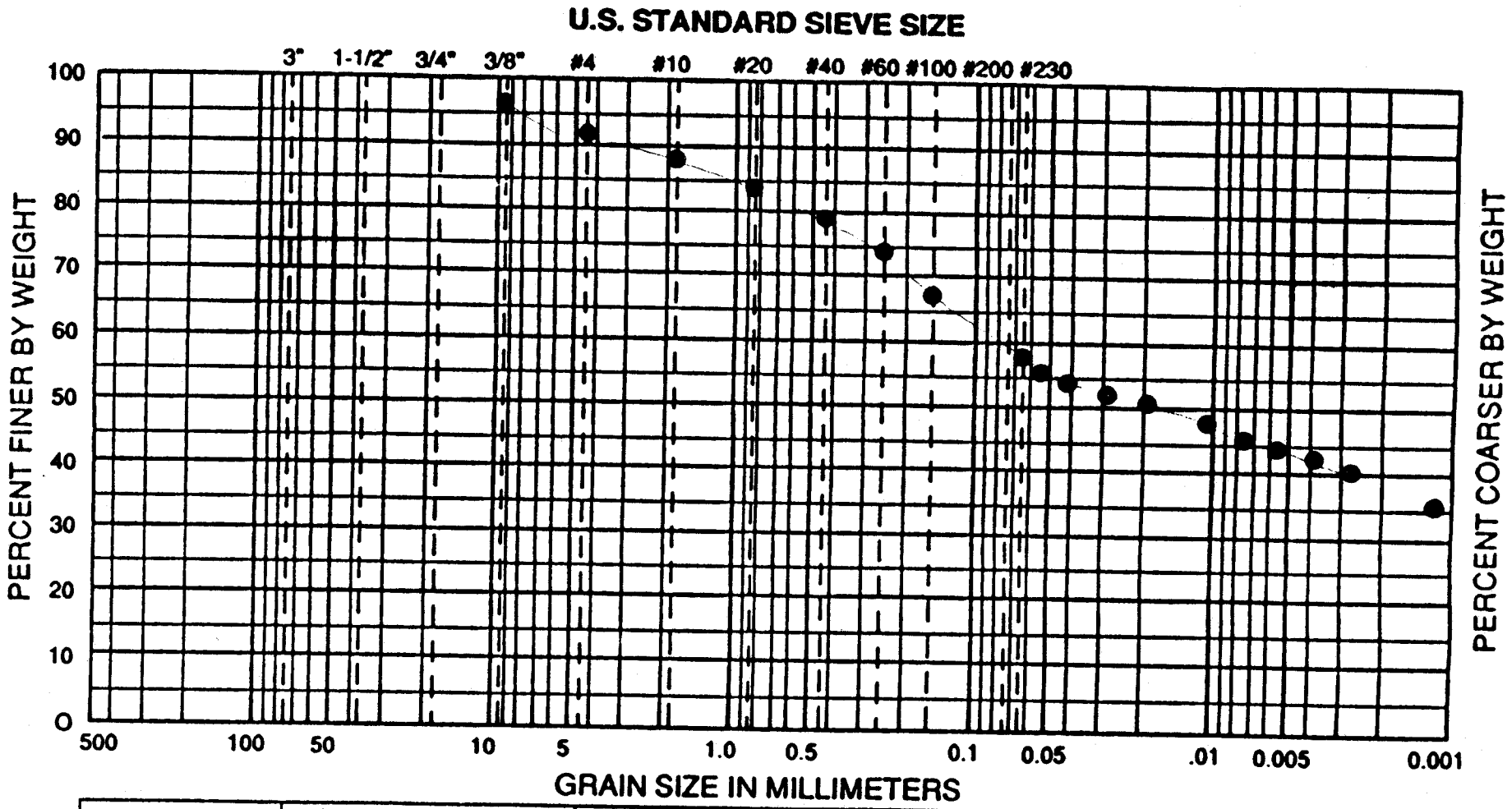
Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.69	Temp. Coef. K	0.01332
Value of "a"	0.99	Wt. Dry Sample "W"	67.697
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.5		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	44.00	38.50	56.4	56.4	9.07	0.0567
1.0	42.00	36.50	53.5	53.5	9.40	0.0408
2.0	41.50	36.00	52.8	52.8	9.48	0.0290
5.0	40.00	34.50	50.6	50.6	9.73	0.0186
15.0	38.50	33.00	48.4	48.4	9.98	0.0109
30.0	37.00	31.50	46.2	46.2	10.22	0.0078
60.0	36.00	30.50	44.7	44.7	10.39	0.0055
120.0	35.00	29.50	43.2	43.2	10.55	0.0039
250.0	33.50	28.00	41.0	41.0	10.80	0.0028
1440.0	30.10	24.60	36.0	36.0	11.35	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 18+00 SAMPLE NO.: #2 DATE: 2/25/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
	21.5'	SANDY CLAY Rocky Flats

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03
CLIENT/OWNER Weston
LOCATION Rocky Flats EG-6
BORING 18+00 SAMPLE Ch #2 DEPTH 21.5'

FIELD DENSITY BY ___/___/___

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

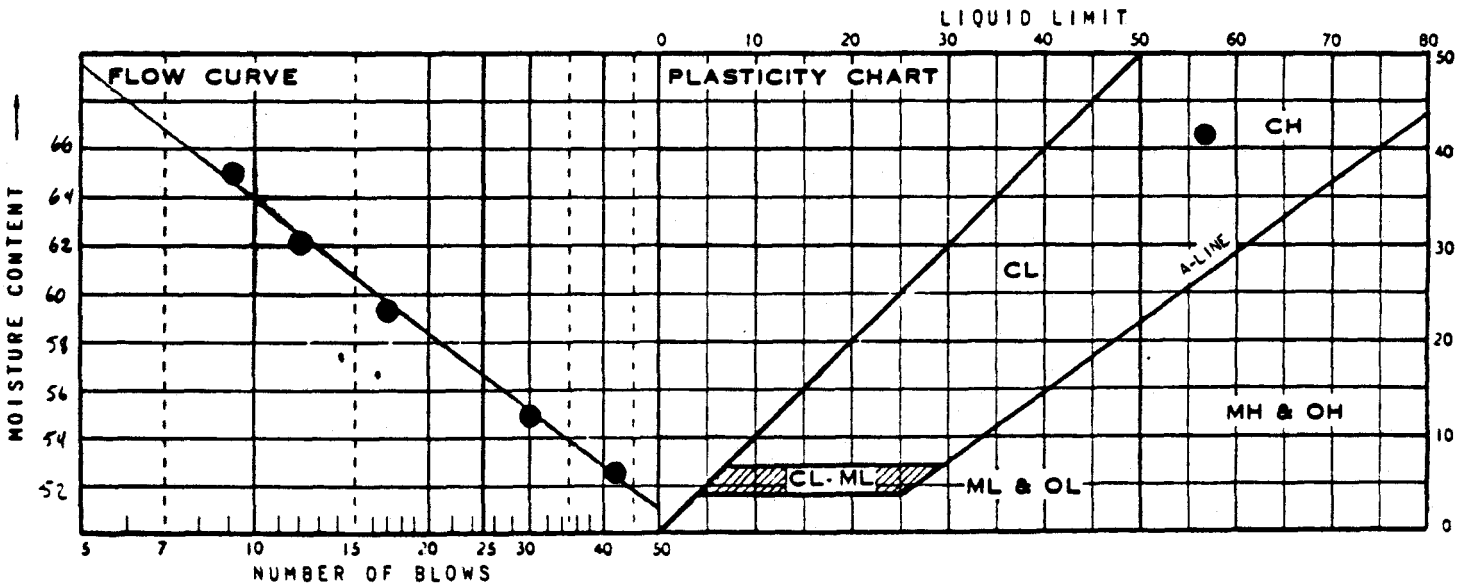
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY AU 2/18/92

DETERMINATION	1	2	3	4	5	6
DISH	2025	2026	2021			
WT OF DISH + WET SOIL g	7.37	8.67	8.10			
WT OF DISH + DRY SOIL g	6.56	7.63	7.23	—	—	—
WT OF MOISTURE g	.81	1.04	.87			
WT OF DISH g	1.04	1.03	1.04	—	—	—
WT OF DRY SOIL g	5.52	6.60	6.19			
MOISTURE CONTENT %	14.7	15.8	14.1			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2022	2011	2003	2006	2001	2020
NUMBER OF BLOWS	43	30	16	14	17	12
WT OF DISH + WET SOIL g	12.85	12.76	13.35	13.04	12.44	10.77
WT OF DISH + DRY SOIL g	9.79	8.60	8.90	11.82	8.18	7.04
WT OF MOISTURE g	4.06	4.16	4.45	1.22	4.26	3.73
WT OF DISH g	1.05	1.04	1.03	1.04	1.05	1.03
WT OF DRY SOIL g	7.74	7.56	7.87	10.78	7.13	6.01
MOISTURE CONTENT %	52.5	55.0	56.6	57.7	59.7	62.1



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		56.7	14.9	41.8	CH	

ADVANCED TERRA TESTING INC

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	18+10	SAMPLED	Rocky Flats
DEPTH	27'	DATE TESTED	3-9-92 DU
SAMPLE NO.	#7	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes	
NATURAL	No	
Wt. Wet Soil & Pan	(g)	67.49
Wt. Dry Soil & Pan	(g)	64.58
Wt. Lost Moisture	(g)	2.91
Wt. of Pan Only	(g)	3.72
Wt. of Dry Soil	(g)	60.86
Moisture Content	%	4.8
Wt. Hydrom. Sample Wet	(g)	60.01
Wt. Hydrom. Sample Dry	(g)	57.27

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	60.01
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	60.01
Weight of - #10 Dry (g)	57.27
Wt. Total Sample Dry (g)	57.27
Calc. Wt. "W" (g)	57.27
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	1.56	1.57	0.01	0.01	0.0	100.0
#40	1.55	1.56	0.01	0.02	0.0	100.0
#60	1.56	1.59	0.03	0.05	0.1	99.9
#100	1.57	1.62	0.05	0.10	0.2	99.8
#230	1.56	2.45	0.89	0.99	1.7	98.3

rido

Silty clay stone

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston** JOB NO. 2066-03

BORING NO.	18+10	SAMPLED	Rocky Flats
DEPTH	27'	DATE TESTED	3-9-92 DU
SAMPLE NO.	#7	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

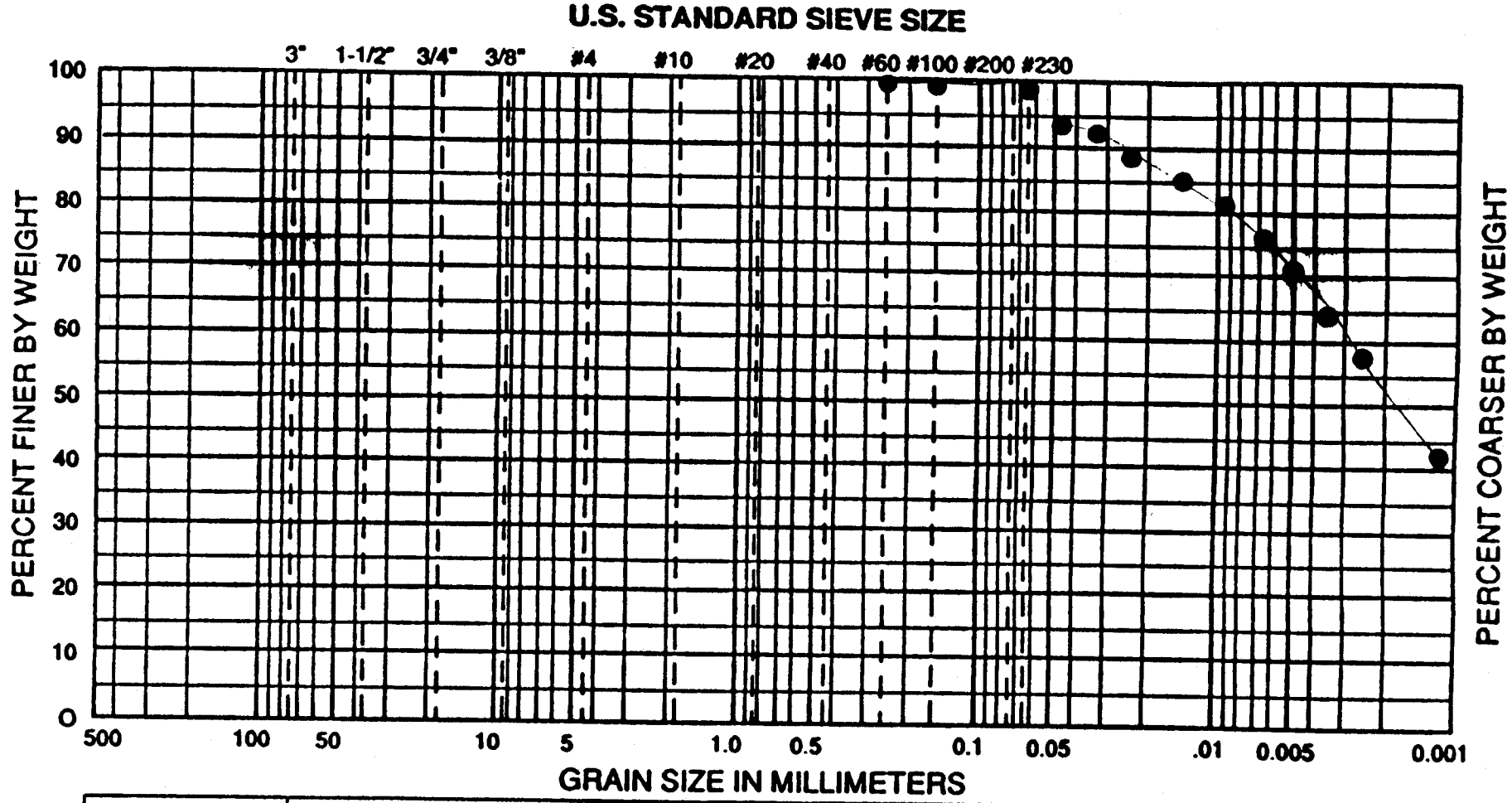
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.70	Temp. Coef. K	0.01312
Value of "a"	0.99	Wt. Dry Sample "W"	57.271
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.5		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	60.00	54.50	94.2	94.2	6.45	0.0471
1.0	59.00	53.50	92.5	92.5	6.61	0.0337
2.0	57.00	51.50	89.0	89.0	6.94	0.0244
5.0	55.00	49.50	85.6	85.6	7.27	0.0158
15.0	52.50	47.00	81.2	81.2	7.68	0.0094
30.0	49.50	44.00	76.1	76.1	8.17	0.0068
60.0	46.50	41.00	70.9	70.9	8.66	0.0050
120.0	43.00	37.50	64.8	64.8	9.24	0.0036
250.0	39.00	33.50	57.9	57.9	9.89	0.0026
1440.0	30.00	24.50	42.4	42.4	11.37	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 18+10 SAMPLE NO.: CH # 7 DATE: 3/11/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	27'	[illegible] 30.3% SILT, 6.86 CLAY

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2666-03
CLIENT/OWNER Western
LOCATION Rocky Flats EG+G
BORING 18-10 SAMPLE CH-7 DEPTH 27'

FIELD DENSITY BY ____/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

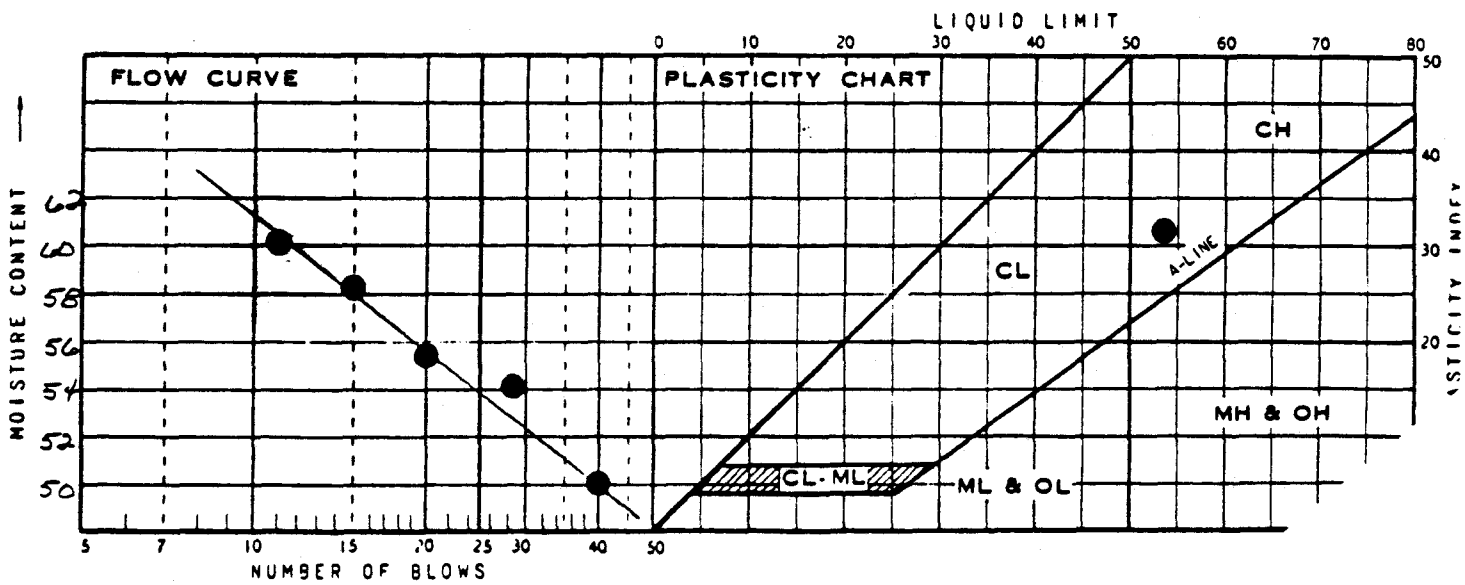
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY SB 3/15/92

DETERMINATION	1	2	3	4	5	6
DISH	2029	2030	10C			
WT OF DISH + WET SOIL g	6.17	5.65	5.95			
WT OF DISH + DRY SOIL g	5.26	4.84	5.07	—	—	—
WT OF MOISTURE g	.91	.81	.88			
WT OF DISH g	1.05	1.05	1.07	—	—	—
WT OF DRY SOIL g	4.21	3.79	4.00			
MOISTURE CONTENT %	21.6	21.4	22.0			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	4	3	14C	20C	24	
NUMBER OF BLOWS	40	30 ±	20	15	11	
WT OF DISH + WET SOIL g	17.57	18.68	19.27	19.96	19.45	
WT OF DISH + DRY SOIL g	12.00	12.49	12.76	13.01	12.53	—
WT OF MOISTURE g	5.57	6.19	6.51	6.95	6.92	
WT OF DISH g	1.06	1.06	1.03	1.08	1.05	—
WT OF DRY SOIL g	10.94	11.43	11.73	11.93	11.48	
MOISTURE CONTENT %	50.9	54.2	55.5	58.3	60.3	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION
		53.9	21.7	32.2	CH

ADVANCED TERR

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO. 18+60
DEPTH ~~20.5'~~ 18.5'
SAMPLE NO. #2
SOIL DESCR. Bulk (Jar)

SAMPLED Rocky Flats
DATE TESTED 02-12-92 TNU
WASH SIEVE Yes
DRY SIEVE No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	60.14
Wt. Dry Soil & Pan	(g)	58.23
Wt. Lost Moisture	(g)	1.91
Wt. of Pan Only	(g)	3.73
Wt. of Dry Soil	(g)	54.50
Moisture Content	%	3.5

Wt. Hydrom. Sample Wet (g)	56.22
Wt. Hydrom. Sample Dry (g)	54.32

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	56.22
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	56.22
Weight of - #10 Dry (g)	54.32
Wt. Total Sample Dry (g)	54.32
Calc. Wt. "W" (g)	54.32
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	1.56	1.62	0.06	0.06	0.1	99.9
#40	1.56	1.61	0.05	0.11	0.2	99.8
#60	1.31	1.35	0.04	0.15	0.3	99.7
#100	1.56	1.65	0.09	0.24	0.4	99.6
#230	1.30	2.21	0.91	1.15	2.1	97.9

Silty Clay (CH)

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	18+60	SAMPLED	Rocky Flats
DEPTH	20.5'	DATE TESTED	02-12-92 TNU
SAMPLE NO.	#2	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

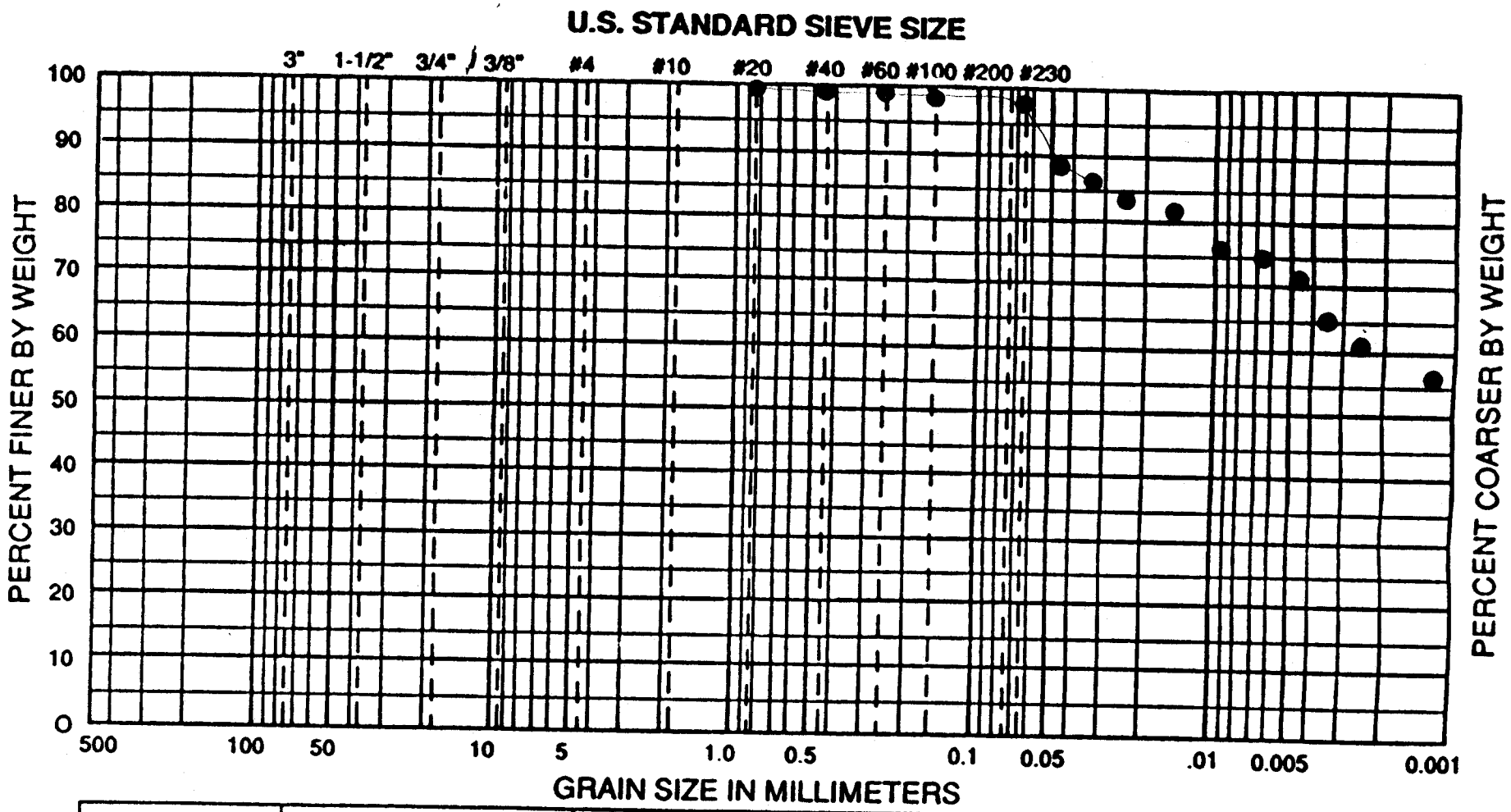
Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.86	Temp. Coef. K	0.01271
Value of "a"	0.96	Wt. Dry Sample "W"	54.316
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	5.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	56.00	50.00	88.2	88.2	7.11	0.0479
1.0	55.00	49.00	86.4	86.4	7.27	0.0343
2.0	53.75	47.75	84.2	84.2	7.48	0.0246
5.0	53.00	47.00	82.9	82.9	7.60	0.0157
15.0	50.00	44.00	77.6	77.6	8.09	0.0093
30.0	49.00	43.00	75.8	75.8	8.25	0.0067
60.0	47.00	41.00	72.3	72.3	8.58	0.0048
120.0	43.00	37.00	65.3	65.3	9.24	0.0035
250.0	41.00	35.00	61.7	61.7	9.57	0.0025
1440.0	33.00	27.00	47.6	47.6	10.88	0.0011

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 18+60 SAMPLE NO.: #2 DATE: 2-23-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
	20.5'	[illegible]

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER Weston

LOCATION Rocky Flats EG+G

BORING 18+60 SAMPLE CH #2 DEPTH 20.5'

FIELD DENSITY BY ___/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD [redacted]

DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

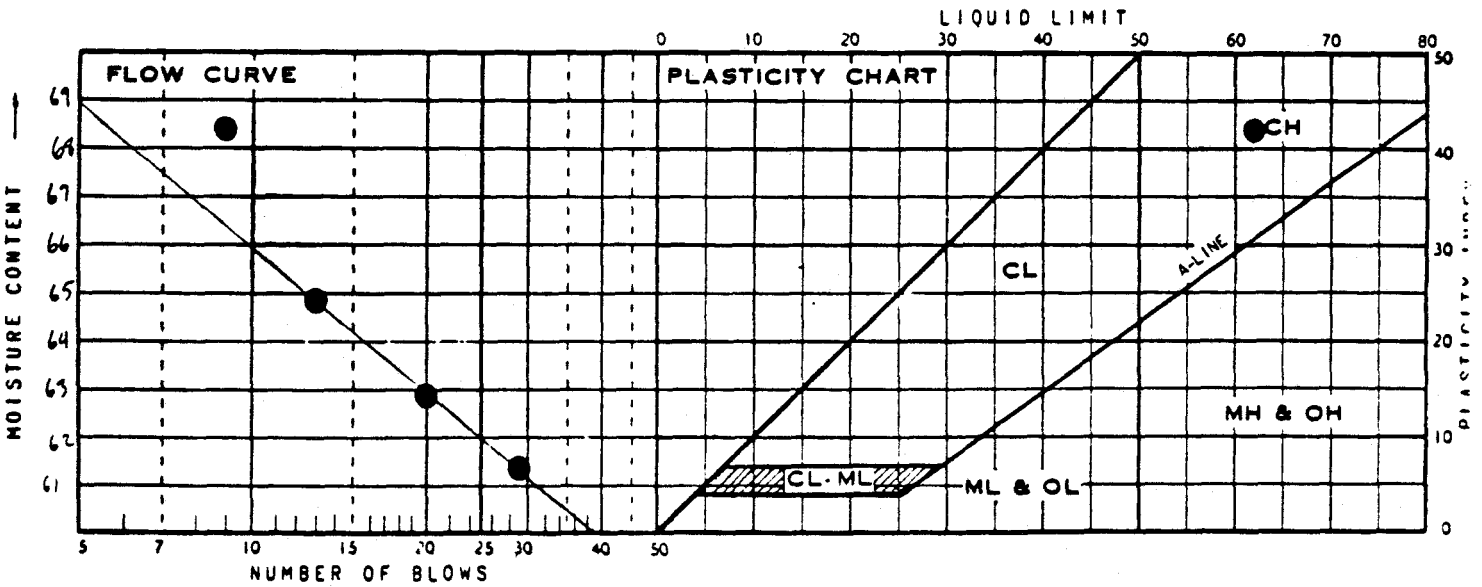
PLASTIC LIMIT BY [illegible] 2/20/92.

DETERMINATION	1	2	3	4	5	6
DISH	35C	2006	2059			
WT OF DISH + WET SOIL g	7.51	7.78	6.48			
WT OF DISH + DRY SOIL g	6.39	6.62	5.58	—	—	—
WT OF MOISTURE g	1.12	1.16	.90			
WT OF DISH g	1.06	1.04	1.03	—	—	—
WT OF DRY SOIL g	5.33	5.58	4.55			
MOISTURE CONTENT %	21.0	20.8	19.8			

LIQUID LIMIT

?

DETERMINATION	1	2	3	4	5	6
DISH	2060	2061	2062	2063	2064	
NUMBER OF BLOWS	41	29	20	13	9	
WT OF DISH + WET SOIL g	9.95	11.64	11.48	12.47	12.77	
WT OF DISH + DRY SOIL g	6.85	7.60	7.45	7.97	8.00	—
WT OF MOISTURE g	3.10	4.04	4.03	4.50	4.77	
WT OF DISH g	1.02	1.01	1.03	1.04	1.03	—
WT OF DRY SOIL g	5.83	6.59	6.42	6.93	6.97	
MOISTURE CONTENT %	53.2	61.3	62.8	64.9	68.4	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		62.0	20.5	41.5	CH	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

BR

CLIENT Weston

JOB NO. 2066-03

BORING NO.	18+60	SAMPLED	Rocky Flats
DEPTH	24.5'	DATE TESTED	02-12-92 TNU
SAMPLE NO.	#2	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes
NATURAL	No

Wt. Wet Soil & Pan	(g)	44.00
Wt. Dry Soil & Pan	(g)	42.81
Wt. Lost Moisture	(g)	1.19
Wt. of Pan Only	(g)	3.79
Wt. of Dry Soil	(g)	39.02
Moisture Content	%	3.0

Wt. Hydrom. Sample Wet (g)	60.02
Wt. Hydrom. Sample Dry (g)	58.24

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	60.02
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	60.02
Weight of - #10 Dry (g)	58.24
Wt. Total Sample Dry (g)	58.24
Calc. Wt. "W" (g)	58.24
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	1.57	2.07	0.50	0.50	0.9	99.1
#40	1.55	1.85	0.30	0.80	1.4	98.6
#60	1.57	1.82	0.25	1.05	1.8	98.2
#100	1.57	1.83	0.26	1.31	2.2	97.8
#230	1.55	2.06	0.51	1.82	3.1	96.9

Silty Clay Tone

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	18+60	SAMPLED	Rocky Flats
DEPTH	24.5'	DATE TESTED	02-12-92 TNU
SAMPLE NO.	#2	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

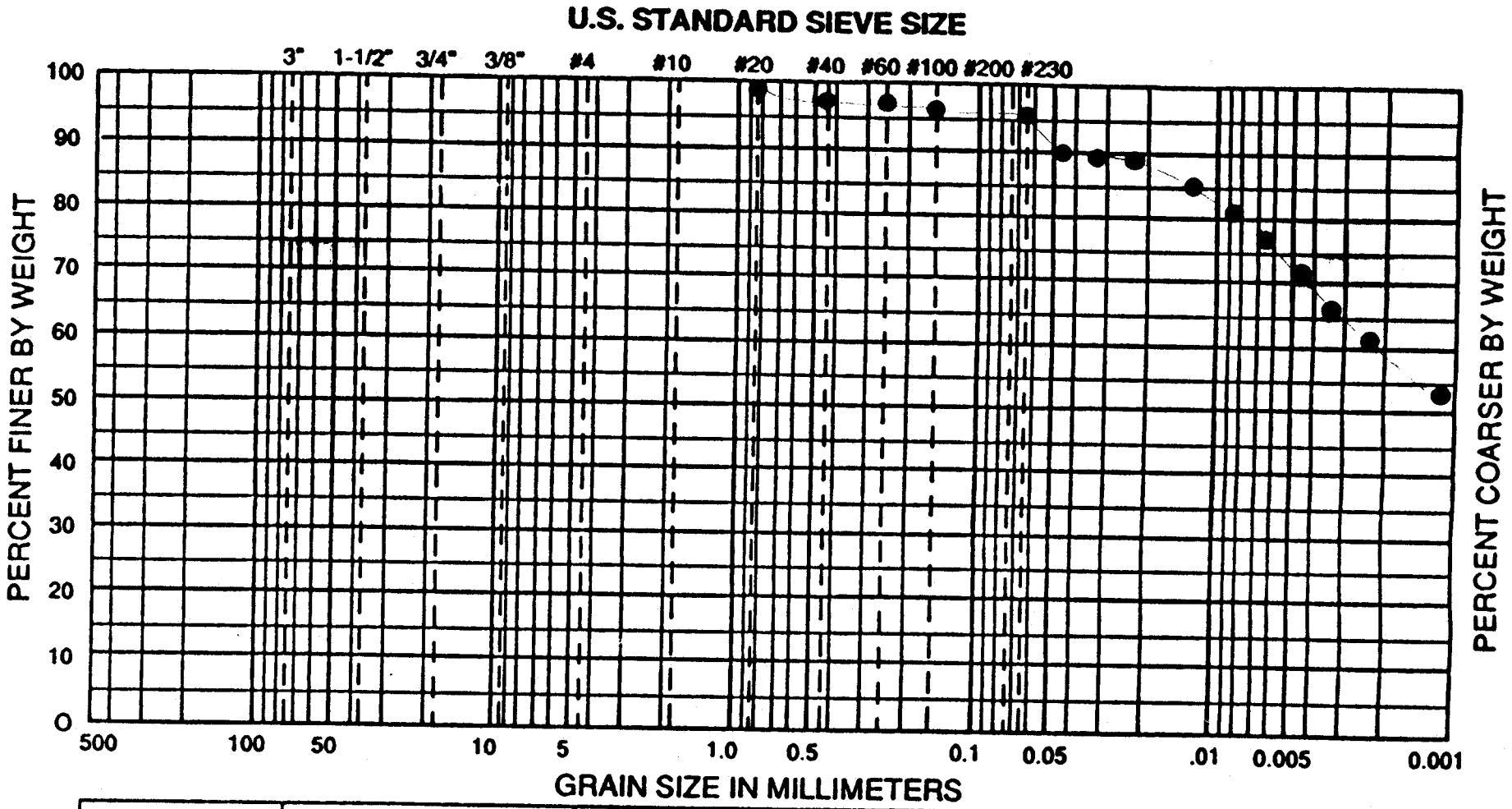
Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.85	Temp. Coef. K	0.01273
Value of "a"	0.96	Wt. Dry Sample "W"	58.241
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	5.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	61.00	55.00	90.7	90.7	6.29	0.0451
1.0	60.50	54.50	89.8	89.8	6.37	0.0321
2.0	60.00	54.00	89.0	89.0	6.45	0.0229
5.0	58.50	52.50	86.5	86.5	6.70	0.0147
15.0	55.50	49.50	81.6	81.6	7.19	0.0088
30.0	53.00	47.00	77.5	77.5	7.60	0.0064
60.0	50.00	44.00	72.5	72.5	8.09	0.0047
120.0	46.50	40.50	66.8	66.8	8.66	0.0034
250.0	44.00	38.00	62.6	62.6	9.07	0.0024
1440.0	38.50	32.50	53.6	53.6	9.98	0.0011

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY
		COARSE	FINE	COARSE	MEDIUM	FINE	

WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 18+60 SAMPLE NO.: #2 DATE: 2-23-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
	24.5'	Silty Claystone [illegible] 30.9% [illegible] 66% [illegible]

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2000-03

CLIENT/OWNER WESTON

LOCATION

BORING 18+60 SAMPLE ____ DEPTH 24.5'

(3)

FIELD DENSITY BY ___/___/___

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

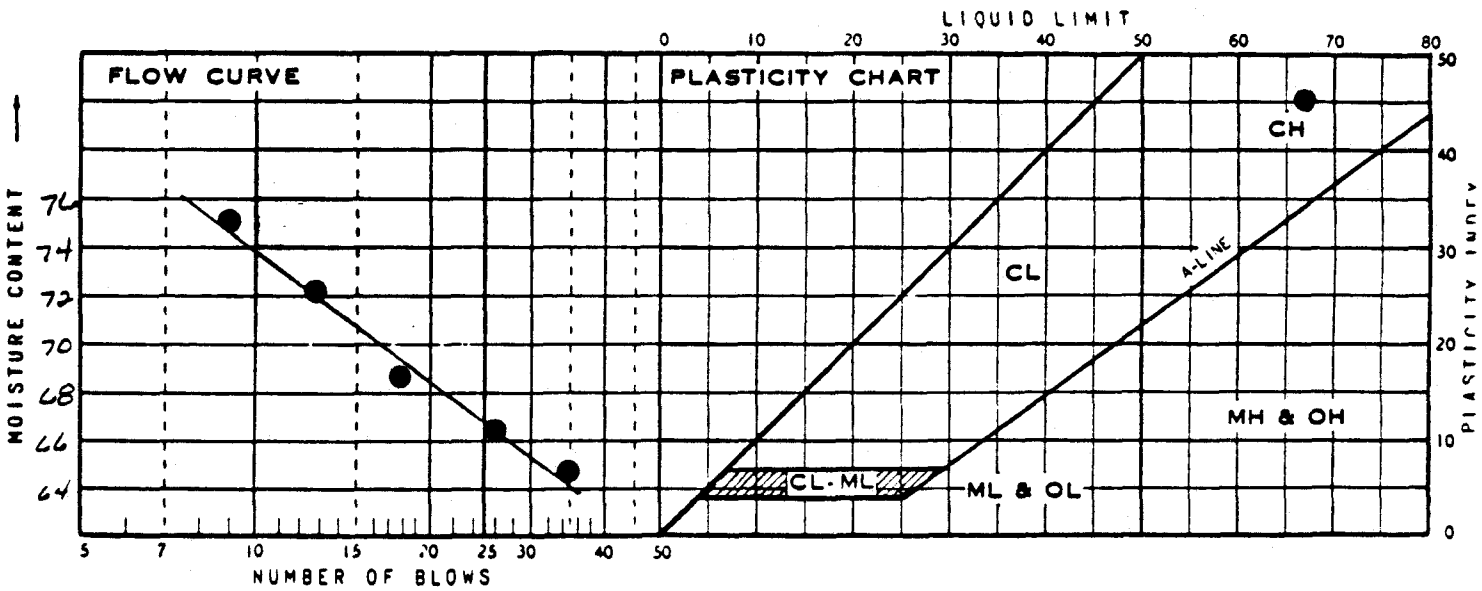
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY SR 2/20/92

DETERMINATION	1	2	3	4	5	6
DISH	2003	2025	2045			
WT OF DISH + WET SOIL g	6.14	6.30	6.19			
WT OF DISH + DRY SOIL g	5.23	5.37	5.29	—	—	—
WT OF MOISTURE g	.91	.93	.90			
WT OF DISH g	1.03	1.05	1.05	—	—	—
WT OF DRY SOIL g	4.20	4.32	4.24			
MOISTURE CONTENT %	21.7	21.5	21.2			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	316	320	2001	2021	2014	
NUMBER OF BLOWS	35	26	18	13	10±	
WT OF DISH + WET SOIL g	15.19	13.87	17.04	13.34	17.03	
WT OF DISH + DRY SOIL g	9.63	8.74	10.52	8.18	10.18	—
WT OF MOISTURE g	5.56	5.13	6.52	5.16	6.85	
WT OF DISH g	1.04	1.02	1.05	1.04	1.06	—
WT OF DRY SOIL g	8.59	7.72	9.47	7.14	9.12	
MOISTURE CONTENT %	64.7	66.5	68.8	72.3	75.1	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		66.9	21.5	45.4	CH	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	19+00	SAMPLED	Rocky Flats
DEPTH	6.0'	DATE TESTED	3-9-92 DU
SAMPLE NO.	#7	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	46.07
Wt. Dry Soil & Pan	(g)	45.41
Wt. Lost Moisture	(g)	0.66
Wt. of Pan Only	(g)	3.78
Wt. of Dry Soil	(g)	41.63
Moisture Content	%	1.6

Wt. Hydrom. Sample Wet (g)	60.02
Wt. Hydrom. Sample Dry (g)	59.08

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	758.16
Weight of + #10 Before Washing (g)	366.89
Weight of + #10 After Washing (g)	294.97
Weight of - #10 Wet (g)	391.27
Weight of - #10 Dry (g)	455.96
Wt. Total Sample Dry (g)	750.93
Calc. Wt. "W" (g)	97.30
Calc. Mass + #10	38.22

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	105.47	105.47	105.47	14.0	86.0
3/8"	0.00	88.97	88.97	194.44	25.9	74.1
#4	0.00	59.89	59.89	254.33	33.9	66.1
#10	0.00	40.64	40.64	294.97	39.3	60.7
#20	1.56	5.10	3.54	3.54	42.9	57.1
#40	1.57	6.67	5.10	8.64	48.2	51.8
#60	1.57	5.25	3.68	12.32	51.9	48.1
#100	1.55	4.53	2.98	15.30	55.0	45.0
#230	1.57	5.43	3.86	19.16	59.0	41.0

Sandy Clay

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT **Weston**

JOB NO. 2066-03

BORING NO.	19+00	SAMPLED	Rocky Flats
DEPTH	6.0'	DATE TESTED	3-9-92 DU
SAMPLE NO.	#7	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

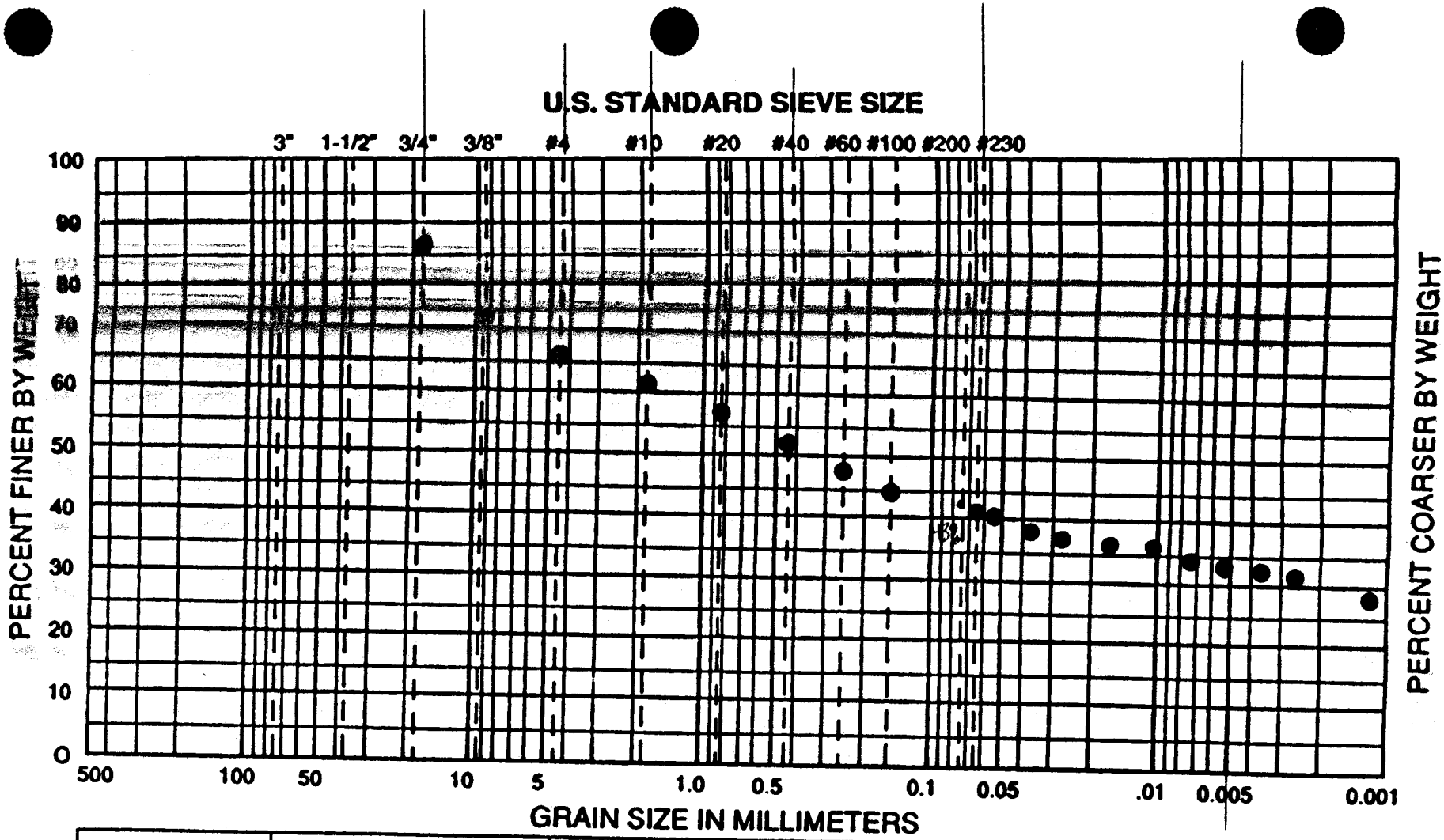
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.77	Temp. Coef. K	0.01287
Value of "a"	0.98	Wt. Dry Sample "W"	97.297
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.5		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	45.50	40.00	40.1	40.1	8.83	0.0541
1.0	44.00	38.50	38.6	38.6	9.07	0.0388
2.0	42.75	37.25	37.4	37.4	9.28	0.0277
5.0	42.50	37.00	37.1	37.1	9.32	0.0176
15.0	41.50	36.00	36.1	36.1	9.48	0.0102
30.0	40.25	34.75	34.9	34.9	9.69	0.0073
60.0	39.50	34.00	34.1	34.1	9.81	0.0052
120.0	38.50	33.00	33.1	33.1	9.98	0.0037
250.0	37.00	31.50	31.6	31.6	10.22	0.0026
1440.0	34.00	28.50	28.6	28.6	10.71	0.0011

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 19+00 SAMPLE NO.: CH #7 DATE: 3/11/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
Rocky Flats	6.0'	14% C gravel 25.1% Sd SANDY CLAY 17.9% fine gravel 5.4% csd, 8.9% msd, 10.8% fsd, 8% Slt, 33% CLAY

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03
CLIENT/OWNER WESTON
LOCATION ROCKY FLATS EGC
BORING 19+00 SAMPLE CH#7 DEPTH 6.0'

FIELD DENSITY BY ___/___/___

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

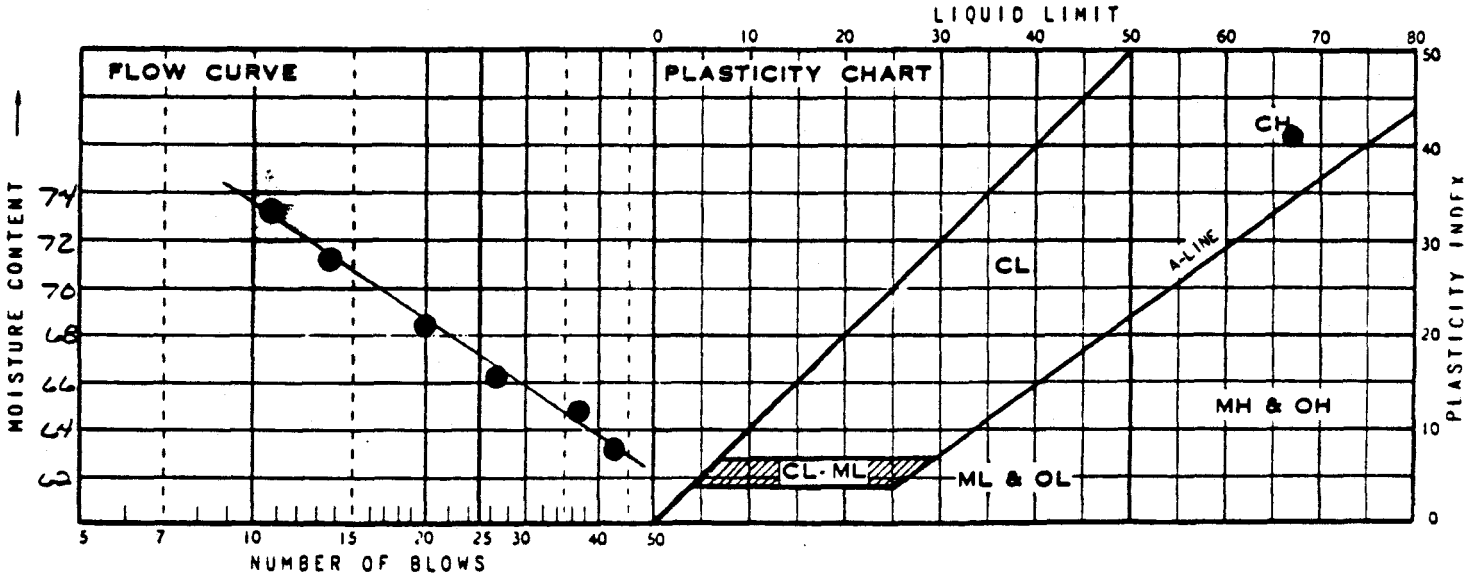
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY SR 3/5/92

DETERMINATION	1	2	3	4	5	6
DISH	2028	24	2030			
WT OF DISH + WET SOIL g	4.27	6.23	6.64			
WT OF DISH + DRY SOIL g	3.62	5.14	5.47	—	—	—
WT OF MOISTURE g	.65	1.09	1.17			
WT OF DISH g	1.08	1.05	1.05	—	—	—
WT OF DRY SOIL g	2.54	4.09	4.42			
MOISTURE CONTENT %	25.6	26.7	26.5			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	14C	6C	48C	1202	2051	22C
NUMBER OF BLOWS	43	38	27	20	14	11
WT OF DISH + WET SOIL g	15.60	17.25	15.64	16.25	13.85	17.17
WT OF DISH + DRY SOIL g	9.96	10.87	9.81	10.07	8.52	10.35
WT OF MOISTURE g	5.64	6.38	5.83	6.18	5.33	6.82
WT OF DISH g	1.04	1.04	1.04	1.05	1.04	1.04
WT OF DRY SOIL g	8.92	9.83	8.77	9.02	7.48	9.31
MOISTURE CONTENT %	63.2	64.9	66.5	68.5	71.3	73.3



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		67.3	26.3	41.0	CH	

ADVANCED TERRA TESTING

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MECHANICAL ANALYSIS - SIEVE TEST DATA

SURFACE ELEV. ELEV 5990'

CLIENT Weston

JOB NO. 2066-03

BORING NO.	19+20	SAMPLED	Rocky Flats
DEPTH	5'	DATE TESTED	02-21-92 TNU
SAMPLE NO.	#2	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes	
NATURAL	No	
Wt. Wet Soil & Pan	(g)	42.79
Wt. Dry Soil & Pan	(g)	42.17
Wt. Lost Moisture	(g)	0.62
Wt. of Pan Only	(g)	3.63
Wt. of Dry Soil	(g)	38.54
Moisture Content	%	1.6
Wt. Hydrom. Sample Wet	(g)	65.82
Wt. Hydrom. Sample Dry	(g)	64.77

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	374.35
Weight of + #10 Before Washing (g)	159.55
Weight of + #10 After Washing (g)	141.87
Weight of - #10 Wet (g)	214.80
Weight of - #10 Dry (g)	228.80
Wt. Total Sample Dry (g)	370.67
Calc. Wt. "W" (g)	104.94
Calc. Mass + #10	40.16

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	18.35	18.35	18.35	5.0	95.0
3/8"	0.00	71.26	71.26	89.61	24.2	75.8
#4	0.00	28.86	28.86	118.47	32.0	68.0
#10	0.00	23.40	23.40	141.87	38.3	61.7
#20	1.55	7.97	6.42	6.42	44.4	55.6
#40	1.33	6.59	5.26	11.68	49.4	50.6
#60	1.56	4.59	3.03	14.71	52.3	47.7
#100	1.57	4.42	2.85	17.56	55.0	45.0
#230	1.57	5.92	4.35	21.91	59.2	40.8

Sandy Gravelly Clay

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT Weston

JOB NO. 2066-03

BORING NO.	19+20	SAMPLED	Rocky Flats
DEPTH	5'	DATE TESTED	02-21-92 TNU
SAMPLE NO.	#2	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

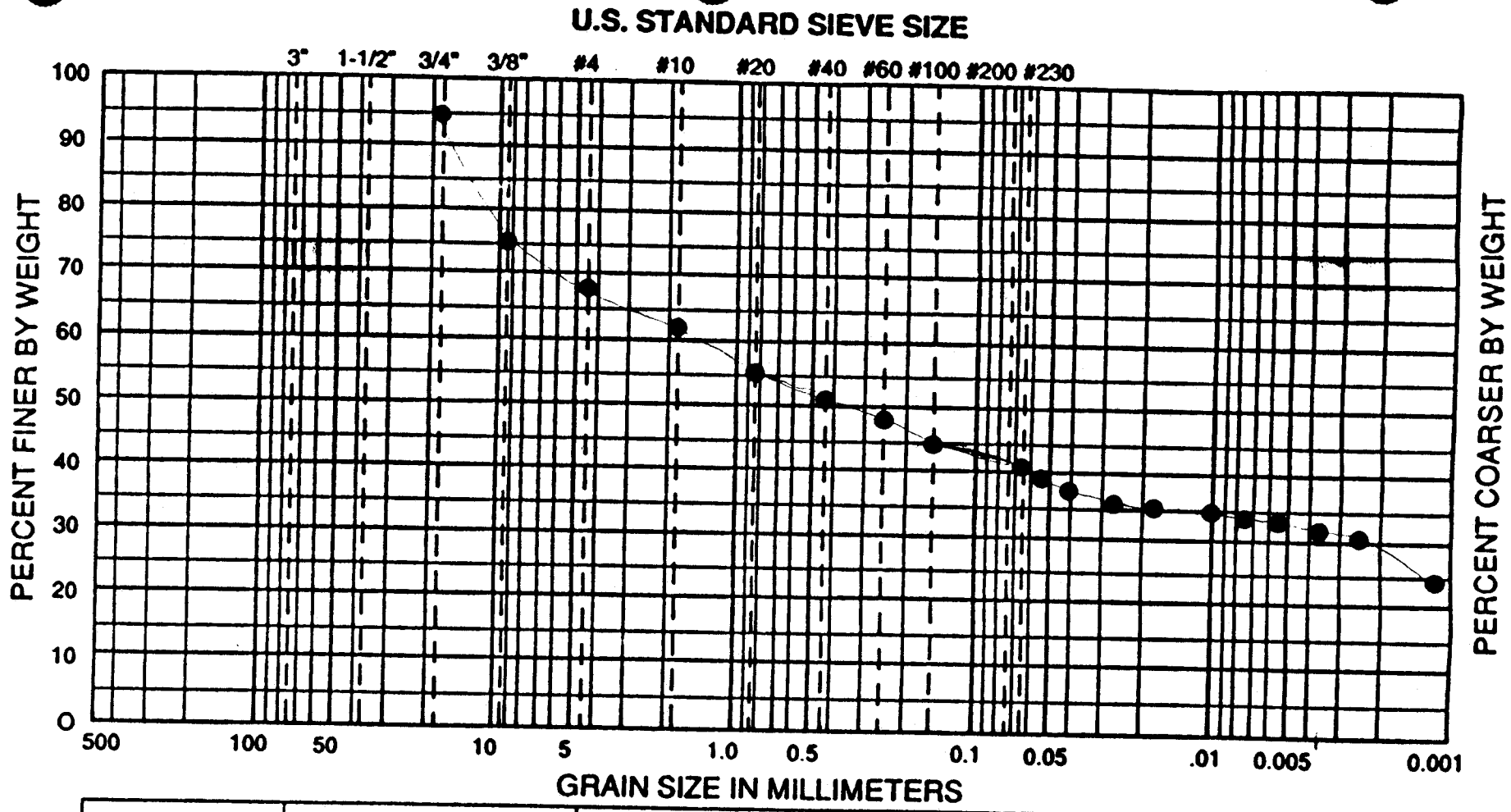
Hydrometer #	ASTM 152 H	Temp., Deg. C	21.0
Sp. Gr. of Soil	2.71	Temp. Coef. K	0.01324
Value of "a"	0.99	Wt. Dry Sample "W"	104.938
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.5		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	46.50	41.00	38.6	38.6	8.66	0.0551
1.0	45.00	39.50	37.2	37.2	8.91	0.0395
2.0	44.00	38.50	36.2	36.2	9.07	0.0282
5.0	43.75	38.25	36.0	36.0	9.12	0.0179
15.0	42.50	37.00	34.8	34.8	9.32	0.0104
30.0	42.00	36.50	34.4	34.4	9.40	0.0074
60.0	40.50	35.00	33.0	33.0	9.65	0.0053
120.0	39.50	34.00	32.0	32.0	9.81	0.0038
250.0	38.50	33.00	31.1	31.1	9.98	0.0026
1440.0	30.60	25.10	23.6	23.6	11.27	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY		
		COARSE	FINE	COARSE	MEDIUM	FINE			
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

ASTM D-422

WELLNAME: 19+20 SAMPLE NO.: #2 DATE: 2/25/92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
	5'	Rocky Flats Sandy Gravelly Clay (CH) 32% Cobbles 6.3% Coarse 11.1% Medium 9.9% Fine, 7.8% Silt, 33% Clay

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION _____

LABORATORY CLASSIFICATION _____

JOB NO. 2066-03

CLIENT/OWNER WESTON

LOCATION _____

BORING 19+20 SAMPLE ____ DEPTH 5'

2

FIELD DENSITY BY ____/__/__

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD [redacted]

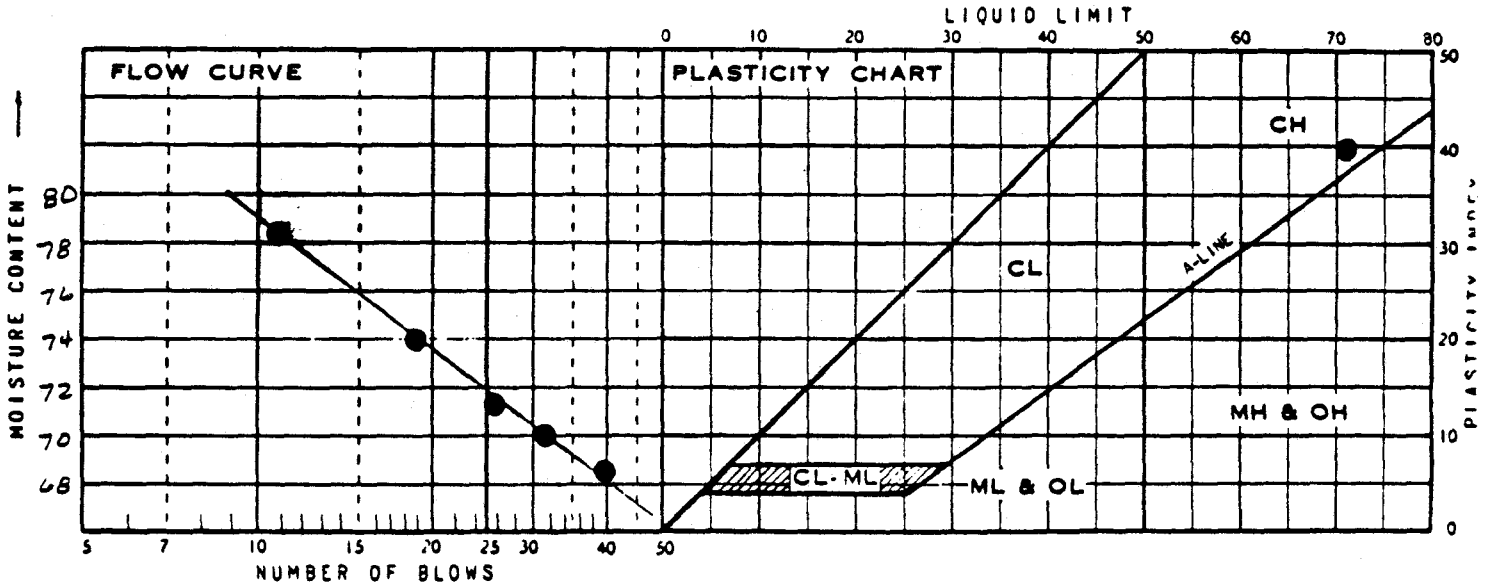
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY SB_2.119/92.

DETERMINATION	1	2	3	4	5	6
DISH	2042	2040	2038			
WT OF DISH + WET SOIL g	9.48	9.33	9.08			
WT OF DISH + DRY SOIL g	7.47	7.30	7.10	—	—	—
WT OF MOISTURE g	2.01	2.03	1.98			
WT OF DISH g	1.04	1.03	1.03	—	—	—
WT OF DRY SOIL g	6.43	6.27	6.07			
MOISTURE CONTENT %	31.3	32.4	32.6			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2029	2043	2015	2032	2035	
NUMBER OF BLOWS	40	31	26	19	11	
WT OF DISH + WET SOIL g	15.05	15.74	13.36	13.70	12.84	
WT OF DISH + DRY SOIL g	9.36	9.69	8.24	8.32	10.45	—
WT OF MOISTURE g	5.69	6.05	5.12	5.38	7.39	
WT OF DISH g	1.05	1.05	1.07	1.05	1.04	—
WT OF DRY SOIL g	8.31	8.64	7.17	7.27	9.41	
MOISTURE CONTENT %	68.5	70.0	71.4	74.0	78.5	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		71.9	32.1	39.8	CH	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

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CLIENT Weston

JOB NO. 2066-03

BORING NO.	19+20	SAMPLED	Rocky Flats
DEPTH	15'	DATE TESTED	02-12-92 TNU
SAMPLE NO.	#2	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	44.90
Wt. Dry Soil & Pan	(g)	43.33
Wt. Lost Moisture	(g)	1.57
Wt. of Pan Only	(g)	3.65
Wt. of Dry Soil	(g)	39.68
Moisture Content	%	4.0

Wt. Hydrom. Sample Wet (g)	56.69
Wt. Hydrom. Sample Dry (g)	54.53

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	56.69
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	56.69
Weight of - #10 Dry (g)	54.53
Wt. Total Sample Dry (g)	54.53
Calc. Wt. "W" (g)	54.53
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	1.57	1.60	0.03	0.03	0.1	99.9
#40	1.56	1.60	0.04	0.07	0.1	99.9
#60	1.56	1.60	0.04	0.11	0.2	99.8
#100	1.57	1.65	0.08	0.19	0.3	99.7
#230	1.57	7.48	5.91	6.10	11.2	88.8

Silty Claystone

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT	Weston	JOB NO.	2066-03
BORING NO.	19+20	SAMPLED	Rocky Flats/E(
DEPTH	15'	DATE TESTED	02-12-92 TNU
SAMPLE NO.	#2	WASH SIEVE	Yes
SOIL DESCR.	Bulk (Jar)	DRY SIEVE	No

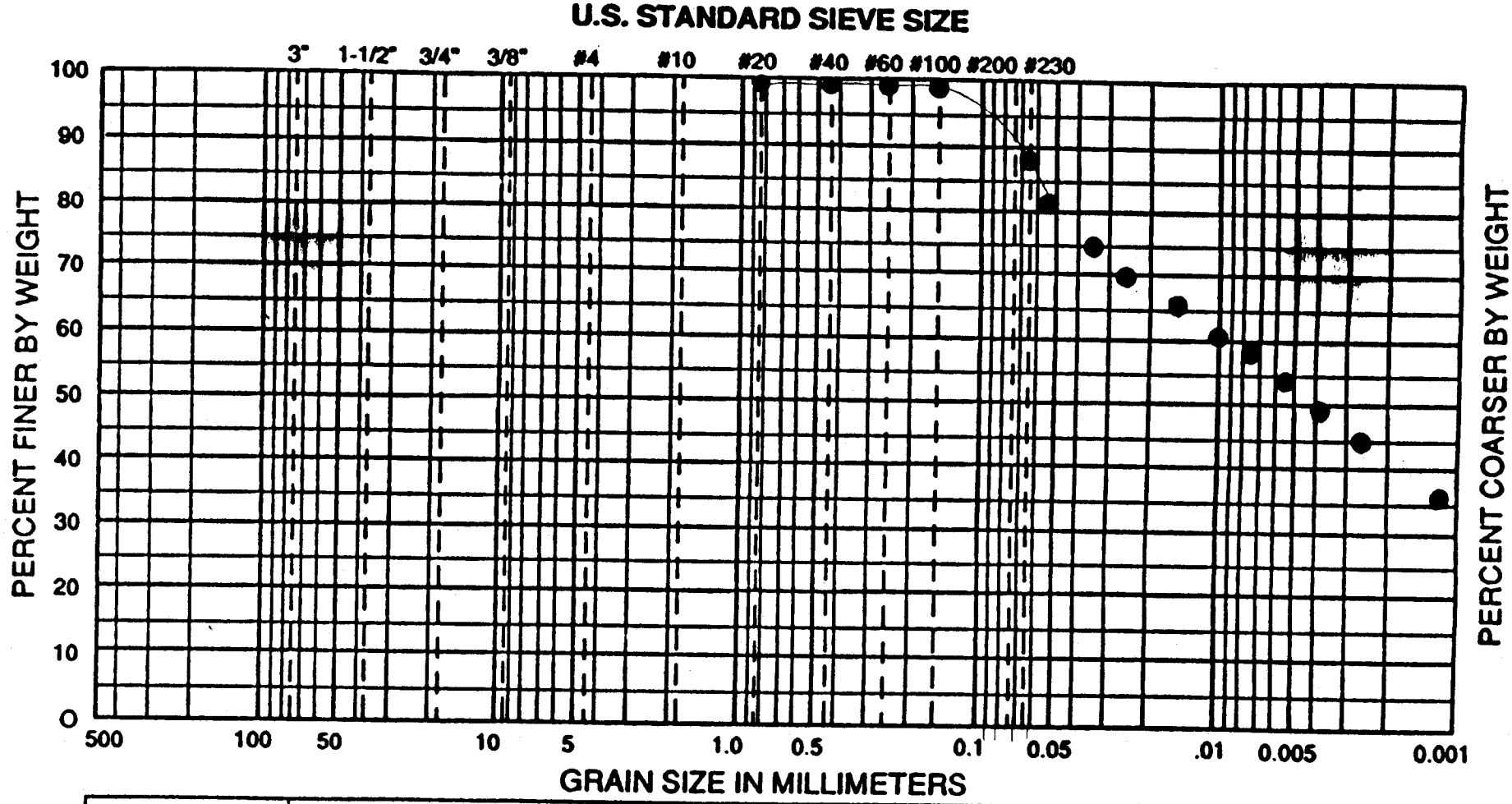
Hydrometer #	ASTM 152 H	Temp., Deg. C	22.0
Sp. Gr. of Soil	2.75	Temp. Coef. K	0.01294
Value of "a"	0.98	Wt. Dry Sample "W"	54.528
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	5.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	51.50	45.50	81.8	81.8	7.84	0.0513
1.0	48.00	42.00	75.5	75.5	8.42	0.0375
2.0	45.00	39.00	70.1	70.1	8.91	0.0273
5.0	43.00	37.00	66.5	66.5	9.24	0.0176
15.0	40.00	34.00	61.1	61.1	9.73	0.0104
30.0	38.50	32.50	58.4	58.4	9.98	0.0075
60.0	36.00	30.00	53.9	53.9	10.39	0.0054
120.0	33.50	27.50	49.4	49.4	10.80	0.0039
250.0	31.50	25.50	45.8	45.8	11.12	0.0027
1440.0	26.50	20.50	36.8	36.8	11.94	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.

ADVANCED TERRA TESTING



USCS	COBBLES	GRAVEL		SAND			SILT OR CLAY			
		COARSE	FINE	COARSE	MEDIUM	FINE				
WENTWORTH	COBBLES TO BOULDERS	PEBBLE GRAVEL				SAND			SILT	CLAY
		COARSE	MED	FINE	GRAN	COARSE	MED	FINE		

WELLNAME: 19+20 SAMPLE NO.: # 2 DATE: 2-21-92 PROJECT NO.:

AREA	DEPTH	CLASSIFICATION
	15'	Silty Clay(stone) Rocky Flats 11.2% Fine Sand 38.8% Silt 50% Clay, brn

ATTERBERG LIMITS TEST DATA

FIELD CLASSIFICATION - - - - - - - - - - - - - - - -

LABORATORY CLASSIFICATION - - - - - - - - - - - - -

JOB NO. 2066-03

CLIENT/OWNER WESTON

LOCATION

BORING 19+20 SAMPLE - - - - DEPTH 15' (2)

FIELD DENSITY BY ../../..

DETERMINATION	1	2
NUMBER OF RINGS		
WT OF RINGS + WET SOIL		
WT OF RINGS	—	—
WT OF WET SOIL		
FIELD DENSITY		
DRY DENSITY		

THIS IS AN 1/8-INCH THREAD

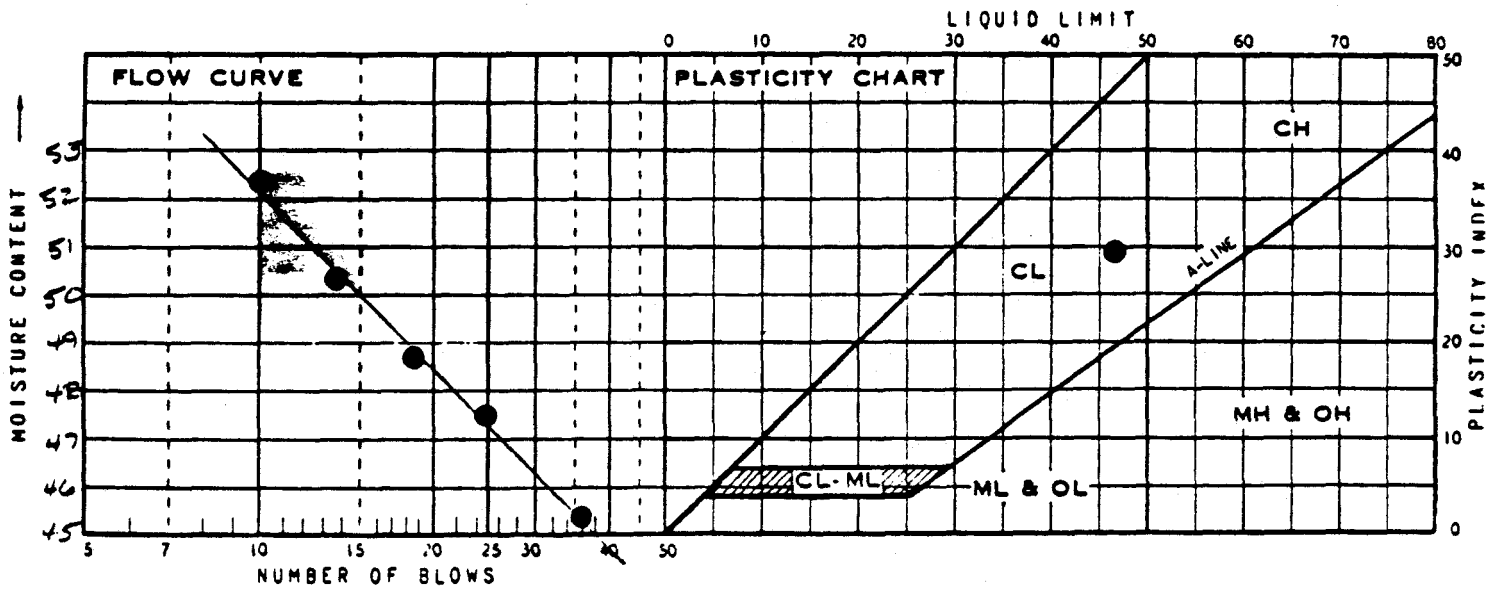
DETERMINATION	1	2
DISH		
WT OF DISH + WET SOIL		
WT OF DISH + DRY SOIL	—	—
WT OF MOISTURE		
WT OF DISH	—	—
WT OF DRY SOIL		
FIELD MOISTURE CONTENT		

PLASTIC LIMIT BY SR 2/2/92

DETERMINATION	1	2	3	4	5	6
DISH	OC	2013	2011			
WT OF DISH + WET SOIL g	8.45	9.06	9.76			
WT OF DISH + DRY SOIL g	7.35	7.83	8.49	—	—	—
WT OF MOISTURE g	1.10	1.23	1.27			
WT OF DISH g	1.04	1.05	1.05	—	—	—
WT OF DRY SOIL g	6.31	6.78	7.44			
MOISTURE CONTENT %	17.4	18.1	17.1			

LIQUID LIMIT

DETERMINATION	1	2	3	4	5	6
DISH	2029	2032	2043	2040	2038	
NUMBER OF BLOWS	36	25	19	15½	11½	
WT OF DISH + WET SOIL g	12.78	17.10	16.79	17.53	16.24	
WT OF DISH + DRY SOIL g	9.12	11.93	11.63	12.00	11.01	—
WT OF MOISTURE g	3.66	5.17	5.16	5.53	5.23	
WT OF DISH g	1.04	1.04	1.05	1.04	1.04	—
WT OF DRY SOIL g	8.08	10.89	10.58	10.96	4.97	
MOISTURE CONTENT %	45.3	47.5	48.8	50.5	52.5	



SUMMARY

DRY DENSITY	MOISTURE CONTENT	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	IDENTIFICATION	
		47.2	17.5	29.7	CL	

ADVANCED TERRA TESTING

ATTACHMENT A4-4
GEOTECHNICAL ANALYSES SUMMARY REPORTS

ATTACHMENT A4-4-1
GRAIN SIZE DISTRIBUTION AND ATTERBERG LIMITS FOR ALLUVIAL MATERIALS

Grain Size Distribution and Atterberg Limits for Alluvium Materials

SAMPLE NUMBER (1)	DEPTH INTERVAL (feet)	SLOPE (2) (degrees)	CORRECTED DEPTH (3) /ELEVATION (4)	GRAIN SIZE (PERCENT) (5) COARSE GRAVEL& COBBLES	FINE GRAVEL	COARSE SAND	MED SAND	FINE SAND	SILT	CLAY	U.S.C.S. CLASSIFICATION (6)	ATTERBERG LIMITS (7) LIQUID LIMIT	PLAS-TIC LIMIT	PLAS-TIC INDEX
05+00-43.0	0-43.0	28	20.19 / 5913.8	1.8	4.3	1.9	5.6	13.9	25.5	47.0	Clay (CH)	55.3	20.1	35.2
05+00-57.0	0-57.0	28	26.76 / 5907.2	0	0.1	0.4	1.4	9.1	26.5	62.5	Silty Clay (CH)	57.6	16.6	41.0
05+00-62.5	0-62.5	28	29.34 / 5904.7	0	0	0	0.1	0.7	23.2	76.0	Clay (CH)	56.1	19.1	37
05+25-32.0	0-26.0 26.0-32.0	18 24	10.47 / 5923.5	0	14.2	6.0	10.1	23.7	18.7	27.3	Clayey Sand (SC)	35.4	15.3	20.1
05+25-42.0	0-26.0 26.0-42.0	18 24	14.54 / 5919.5	3.8	3.4	1.9	3.4	13.5	29.5	44.5	Silty Clay (CL/CH)	53.1	16.5	36.6
05+25-50.4	0-26.0 26.0-45.0 45.0-50.4	18 24 40	19.23 / 5914.8	0	0	0	0.4	0.6	27.9	71.1	Silty Clay (CH)	55.1	20.3	34.8
05+50-24.0	0-24.0	28	11.27 / 5921.7	0	4.9	0.5	3.5	13.1	17.0	61.0	Clay (CH)	72.6	20.6	52.0
05+50-31.5	0-31.5	28	14.79 / 5918.2	0	0.1	0.2	1.7	17.0	32.5	48.5	Silty Clay (CL)	48.5	16.5	32.0

(1) Sample Number corresponds to the Station Number (Engineering Sciences, 1991) and the sample depth during excavation. (2) Slope equals angle from horizontal.
(3) Corrected depth corresponds to the sine of the slope angle. (4) Elevation refers to the corrected elevation of the sample location.
(5) Grain size distribution is analyzed according to Anerican Society for Testing and Materials (ASTM), 1989.
(6) U.S.C.S. (Unified Soil Classification System) 1960. The silt and clay category has been further subdivided to include clay size particles less than 0.0039 millimeters.
(7) Atterberg limits are analyzed according to ASTM, 1989.
* Percent clay indicates total silt and clay since sieve analysis #230 was not performed. NP - Non-plastic
** Sieve analysis includes #230 only; hydrometer was not performed. ND - No Data

Grain Size Distribution and Atterberg Limits for Alluvium Materials

SAMPLE NUMBER (1)	DEPTH INTERVAL (feet)	SLOPE (2) (degrees)	CORRECTED DEPTH (3) /ELEVATION (4)	GRAIN SIZE (PERCENT) (5) COARSE GRAVEL& COBBLES	FINE GRAVEL	COARSE SAND	MED SAND	FINE SAND	SILT	CLAY	U.S.C.S. CLASSIFICATION (6)	ATTERBERG LIMITS (7) LIQUID LIMIT	PLASTIC LIMIT	PLASTIC INDEX
05+50-39.0	0-39.0	28	18.31 / 5914.7	0	0.4	0.3	1.4	5.9	27.1	64.9	Silty Clay (CH)	55.7	18.5	37.2
05+50-47.0	0-47.0	28	22.07 / 5910.9	0	0	0	0.9	4.1	44.0	51.0	Silty Clay (CL)	49.9	14.4	35.5
06+00-18.0	0-12.7 12.7-18.0	25 22	7.35 / 5924.6	0	0.2	0.4	4.1	13.8	23.0	58.5	Clay (CH)	63.7	23.5	40.2
06+00-24.0	0-12.7 12.7-22.0 22.0-24.0	25 22 32	9.91 / 5922.1	0	0.2	0.6	2.6	21.6	32.5	42.5	Silty Clay (CL)	42.9	16.8	26.1
06+00-26.0	0-12.7 12.7-22.0 22.0-26.0	25 22 32	10.97 / 5921.0	0	1.4	0.6	2.4	5.6	17.0	73.0	Clay (CH)	72.7	18.3	54.4
06+00-41.0	0-12.7 12.7-22.0 22.0-40.0	25 22 32	18.70 / 5913.3	0	2.0	1.4	3.8	12.8	17.5	62.5	Clay (CH)	59.4	17.2	42.2
06+25-24.0	0-19.0 19.0-24.0	20 30	9.00 / 5923.0	0	0	1.0	2.0	19.5	33.5	44.0	Silty Clay (CL)	44.0	17.3	26.7
06+25-27.0	0-19.0 19.0-27.0	20 30	10.50 / 5921.5	0	0.1	0	1.4	20.5	43.0	35.0	Clayey Silt (CL)	43.3	17.1	26.2

(1) Sample Number corresponds to the Station Number (Engineering Sciences, 1991) and the sample depth during excavation. (2) Slope equals angle from horizontal.
(3) Corrected depth corresponds to the sine of the slope angle. (4) Elevation refers to the corrected elevation of the sample location.
(5) Grain size distribution is analyzed according to Anerican Society for Testing and Materials (ASTM), 1989.
(6) U.S.C.S. (Unified Soil Classification System) 1960. The silt and clay category has been further subdivided to include clay size particles less than 0.0039 millimeters.
(7) Atterberg limits are analyzed according to ASTM, 1989.
* Percent clay indicates total silt and clay since sieve analysis #230 was not performed.
** Sieve analysis includes #230 only; hydrometer was not performed.

NP - Non-plastic
ND - No Data

Grain Size Distribution and Atterberg Limits for Alluvium Materials

SAMPLE NUMBER (1)	DEPTH INTERVAL (feet)	SLOPE (2) (degrees)	CORRECTED DEPTH (3) /ELEVATION (4)	GRAIN SIZE (PERCENT) (5) COARSE GRAVEL& COBBLES	FINE GRAVEL	COARSE SAND	MED SAND	FINE SAND	SILT	CLAY	U.S.C.S. CLASSIFICATION (6)	ATTERBERG LIMITS (7) LIQUID LIMIT	PLAS-TIC LIMIT	PLAS-TIC INDEX
06+25-42.0	0-19.0 19.0-28.6 28.6-42.0	20 30 25	16.96 / 5915.0	0	0.2	0.3	1.9	7.6	25.0	65.0	Clay (CH)	58.2	18.1	40.1
06+25-45.0	0-19.0 19.0-28.6 28.6-43.0	20 30 25	18.53 / 5913.5	0	0	0	0.4	1.9	28.7	69.0	Silty Clay (CH)	61.0	18.0	43.0
06+40-51.7	0-24.0 24.0-45.0 45.0-51.7	16 32 18	19.81 / 5912.2	0	0	0	0.4	9.6	32.5	57.5	Silty Clay (CH)	55.3	16.5	38.8
06+40-55.0	0-24.0 24.0-45.0 45.0-55.0	16 32 18	20.83 / 5911.2	0	0	0	0.7	1.0	19.3	79.0	Clay (CH)	66.4	21.5	44.9
06+50-30.0	0-24.0 24.0-30.0	16 32	9.79 / 5922.2	0	0	0	2.4	22.4	30.3	44.9	Silty Clay (CL)	44.5	16.1	28.4
06+75-26.0	0-26.0	18	8.03 / 5923.0	0	0.1	0	2.7	14.2	39.5	43.5	Silty Clay (CL)	47.6	16.7	30.9
06+75-38.3	0-34.0 34.0-38.3	18 32	12.79 / 5918.2	0	0	0	1.2	20.8	40.5	37.5	Clayey Silt (CL)	47.2	15.5	31.7
06+75-51.0	0-34.0 34.0-49.8 49.8-51.0	18 32 8	19.05 / 5912.0	8.6	15.1	9.2	25.3	9.8	5.5	26.5	Clayey Sand (SC)	59.9	19.6	40.3

(1) Sample Number corresponds to the Station Number (Engineering Sciences, 1991) and the sample depth during excavation. (2) Slope equals angle from horizontal.
(3) Corrected depth corresponds to the sine of the slope angle. (4) Elevation refers to the corrected elevation of the sample location.
(5) Grain size distribution is analyzed according to American Society for Testing and Materials (ASTM), 1989.
(6) U.S.C.S. (Unified Soil Classification System) 1960. The silt and clay category has been further subdivided to include clay size particles less than 0.0039 millimeters.
(7) Atterberg limits are analyzed according to ASTM, 1989.
* Percent clay indicates total silt and clay since sieve analysis #230 was not performed. NP - Non-plastic
** Sieve analysis includes #230 only; hydrometer was not performed. ND - No Data

Grain Size Distribution and Atterberg Limits for Alluvium Materials

SAMPLE NUMBER (1)	DEPTH INTERVAL (feet)	SLOPE (2) (degrees)	CORRECTED DEPTH (3) /ELEVATION (4)	GRAIN SIZE (PERCENT) (5) COARSE GRAVEL& COBBLES	FINE GRAVEL	COARSE SAND	MED SAND	FINE SAND	SILT	CLAY	U.S.C.S. CLASSIFICATION (6)	ATTERBERG LIMITS (7) LIQUID LIMIT	PLAS-TIC LIMIT	PLAS-TIC INDEX
06+75-58.9	0-34.0	18	20.15 / 5910.9	0	0	0.1	1.7	2.9	16.3	79.0	Clay (CH)	72.0	22.1	49.9
	34.0-49.8	32												
	49.8-58.9	8												
07+00-34.0	0-16.0	25	17.09 / 5912.9	0	2.6	1.5	3.3	20.1	32.5	40.0	Silty Clay (CL)	44.1	16.9	27.2
	16.0-34.0	35												
07+00-43.0	0-16.0	25	22.25 / 5907.8	7.9	15.4	5.4	16.0	14.3	9.0	32.0	Clayey Sand (CH)	65.4	19.4	46.0
	16.0-43.0	35												
07+00-46.0	0-16.0	25	23.97 / 5906.0	0	0	0	0.8	1.7	25.5	72.0	Silty Clay (CH)	75.8	18.9	56.9
	16.0-46.0	35												
07+25-15.0	0-15.0	19	4.88 / 5924.1	0	0.3	0.2	1.5	22.0	32.0	44.0	Silty Clay (CL)	43.8	17.4	26.4
07+25-25.0	0-25.0	19	8.14 / 5920.9	34.0	7.9	1.6	3.5	10.0	15.5	27.5	Clayey Gravel (GM)	47.9	18.4	29.5
07+25-33.0	0-33.0	19	10.74 / 5918.3	10.7	11.5	5.1	2.3	6.4	24.0	40.0	Clay (CL)	48.7	15.5	33.2
07+25-44.3	0-40.0	19	14.97 / 5914.0	0	0.9	0.2	2.3	4.6	19.0	73.0	Clay (CH)	69.9	21.2	48.7
	40.0-44.3	27												

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(5) Grain size distribution is analyzed according to Anerican Society for Testing and Materials (ASTM), 1989.
(6) U.S.C.S. (Unified Soil Classification System) 1960. The silt and clay category has been further subdivided to include clay size particles less than 0.0039 millimeters.
(7) Atterberg limits are analyzed according to ASTM, 1989.
* Percent clay indicates total silt and clay since sieve analysis #230 was not performed. NP - Non-plastic
** Sieve analysis includes #230 only; hydrometer was not performed. ND - No Data

Grain Size Distribution and Atterberg Limits for Alluvium Materials

SAMPLE NUMBER (1)	DEPTH INTERVAL (feet)	SLOPE (2) (degrees)	CORRECTED DEPTH (3) /ELEVATION (4)	GRAIN SIZE (PERCENT) (5) COARSE GRAVEL& COBBLES	FINE GRAVEL	COARSE SAND	MED SAND	FINE SAND	SILT	CLAY	U.S.C.S. CLASSIFICATION (6)	ATTERBERG LIMITS (7) LIQUID LIMIT	PLAS-TIC LIMIT	PLAS-TIC INDEX
07+25-63.5	0-40.0 40.0-63.5	19 27	23.69 / 5905.3	0	0	0	0.6	1.4	46.0	52.0	Silty Clay (CH)	53.0	18.3	34.7
07+75-23.0	0-23.0	22	8.62 / 5919.4	15.3	24.8	6.2	5.3	17.4	12.0	19.0	Gravelly Sand (SW)	43.9	16.4	27.4
07+75-29.5	0-29.5	22	11.05 / 5916.9	17.7	8.2	4.9	12.7	22.5	10.0	24.0	Gravelly Sand (SC)	46.8	17.8	29.0
07+75-36.0	0-36.0	22	13.49 / 5914.5	0	1.7	0.3	2.0	15.0	38.5	42.5	Silty Clay (CL)	48.3	16.8	31.5
07+75-45.0	0-45.0	22	16.86 / 5911.1	6.9	2.5	0.3	0.8	5.5	32.0	52.0	Silty Clay (CH)	62.7	18.0	44.7
07+75-46.5	0-46.5	22	17.42 / 5910.6	0	0	0	0.1	0.9	1.5	97.5	Clay (CH)	75.9	24.9	51.0
08+00-6.5	0- 6.5	26	2.85 / 5924.2	0	0.4	0	0.2	16.9	42.5	40.0	Clayey Silt (CL)	47.5	16.9	30.6
08+00-13.5	0-13.5	26	5.92 / 5921.1	6.9	6.1	2.7	8.4	30.9	19.0	26.0	Clayey Sand (SC)	41.6	17.0	24.6

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(5) Grain size distribution is analyzed according to Anerican Society for Testing and Materials (ASTM), 1989.
(6) U.S.C.S. (Unified Soil Classification System) 1960. The silt and clay category has been further subdivided to include clay size particles less than 0.0039 millimeters.
(7) Atterberg limits are analyzed according to ASTM, 1989.
* Percent clay indicates total silt and clay since sieve analysis #230 was not performed. NP - Non-plastic
** Sieve analysis includes #230 only; hydrometer was not performed. ND - No Data

Grain Size Distribution and Atterberg Limits for Alluvium Materials

SAMPLE NUMBER (1)	DEPTH INTERVAL (feet)	SLOPE (2) (degrees)	CORRECTED DEPTH (3) /ELEVATION (4)	GRAIN SIZE (PERCENT) (5) COARSE GRAVEL& COBBLES	FINE GRAVEL	COARSE SAND	MED SAND	FINE SAND	SILT	CLAY	U.S.C.S. CLASSIFICATION (6)	ATTERBERG LIMITS (7) LIQUID LIMIT	PLAS-TIC LIMIT	PLAS-TIC INDEX
08+00-29.0	0-29.0	26	12.71 / 5914.3	12.6	22.0	8.0	20.2	15.2	9.5	12.5	Gravely Sand (GM)	49.5	16.5	33.0
08+00-38.0	0-38.0	26	16.66 / 5910.3	0	0	0	0.1	8.9	43.0	48.0	Silty Clay (CL)	49.8	18.5	31.3
08+25-1.5	0- 1.5	19	0.49 / 5926.0	8.9	12.1	3.8	4.5	15.7	23.0	32.0	Clay (CL)	46.9	16.7	30.2
08+25-4.0	0- 4.0	19	1.30 / 5925.2	5.1	7.7	0.9	6.7	13.6	26.0	40.0	Silty Clay (CH)	54.1	19.0	35.1
08+25-8.0	0- 8.0	19	2.60 / 5923.9	0	0.7	0.2	1.3	17.8	30.0	50.0	Silty Clay (CH)	57.0	18.8	38.2
08+25-18.0	0-18.0	19	5.86 / 5920.1	0	1.5	1.8	13.6	24.1	23.0	36.0	Clayey Sand (SC)	46.0	17.3	28.7
08+25-21.5	0-21.5	19	7.00 / 5919.5	32.5	18.2	6.8	12.3	12.2	7.0	11.0	Sandy Gravel (GM)	44.7	17.3	27.4
08+25-25.5	0-25.5	19	8.30 / 5918.2	0	0	0	0.7	9.3	46.0	44.0	Clayey Silt (CH)	51.7	17.1	34.6

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(6) U.S.C.S. (Unified Soil Classification System) 1960. The silt and clay category has been further subdivided to include clay size particles less than 0.0039 millimeters.
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Grain Size Distribution and Atterberg Limits for Alluvium Materials

SAMPLE NUMBER (1)	DEPTH INTERVAL (feet)	SLOPE (2) (degrees)	CORRECTED DEPTH (3) /ELEVATION (4)	GRAIN SIZE (PERCENT) (5) COARSE GRAVEL& COBBLES	FINE GRAVEL	COARSE SAND	MED SAND	FINE SAND	SILT	CLAY	U.S.C.S. CLASSIFICATION (6)	ATTERBERG LIMITS (7) LIQUID LIMIT	PLAS-TIC LIMIT	PLAS-TIC INDEX
08+25-35.0	0-30.5 30.5-35.0	19 31	12.25 / 5914.3	0	0	0	0.1	9.9	42.0	48.0	Silty Clay (CH)	52.8	18.6	34.2
08+25-45.0	0-30.5 30.5-45.0	19 31	17.40 / 5909.1	0	0	0	3.4	3.6	20.0	73.0	Clay (CH)	61.4	22.0	39.4
08+25-55.0	0-30.5 30.5-55.0	19 31	22.55 / 5904.0	0	3.6	0.8	2.3	8.3	30.0	55.0	Silty Clay (CH)	54.2	17.6	36.6
08+50-2.6	0- 2.6	20	0.89 / 5921.1	0	6.0	1.8	4.3	17.4	25.5	45.0	Clay (CH)	54.5	19.3	35.2
08+50-4.2	0- 4.2	20	1.44 / 5920.6	28.4	16.8	5.8	7.1	11.9	12.0	18.0	Gravel (GM)	48.6	17.9	30.7
08+50-12.7	0-12.7	20	4.34 / 5917.7	28.7	26.7	6.3	12.5	11.8	6.0	8.0	Sandy Gravel (GM)	42.6	16.5	26.1
08+50-36.0	0-36.0	20	12.31 / 5909.7	0	0.9	0.5	1.3	11.3	47.0	39.0	Clayey Silt (CL)	46.2	16.7	29.5
08+50-39.0	0-39.0	20	13.34 / 5908.7	5.4	5.1	2.4	5.2	4.4	30.5	47.0	Silty Clay (CH)	53.8	17.4	36.4

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(5) Grain size distribution is analyzed according to Anerican Society for Testing and Materials (ASTM), 1989.
(6) U.S.C.S. (Unified Soil Classification System) 1960. The silt and clay category has been further subdivided to include clay size particles less than 0.0039 millimeters.
(7) Atterberg limits are analyzed according to ASTM, 1989.
* Percent clay indicates total silt and clay since sieve analysis #230 was not performed.
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Grain Size Distribution and Atterberg Limits for Alluvium Materials

SAMPLE NUMBER (1)	DEPTH INTERVAL (feet)	SLOPE (2) (degrees)	CORRECTED DEPTH (3) /ELEVATION (4)	GRAIN SIZE (PERCENT) (5) COARSE GRAVEL& COBBLES	FINE GRAVEL	COARSE SAND	MED SAND	FINE SAND	SILT	CLAY	U.S.C.S. CLASSIFICATION (6)	ATTERBERG LIMITS (7) LIQUID LIMIT	PLAS-TIC LIMIT	PLAS-TIC INDEX
08+75-15.0	0-15.0	22	5.62 / 5916.4	10.1	7.7	1.7	5.0	10.5	20.0	39.0	Silty Clay (CH)	54.0	17.0	37.0
08+75-31.3	0-31.3	22	11.73 / 5910.3	0	5.3	0.3	2.4	5.0	25.0	62.0	Silty Clay (CH)	63.4	19.2	44.2
08+75-33.8	0-33.8	22	12.66 / 5909.3	21.8	14.0	3.4	12.4	20.9	10.5	17.0	Gravely Sand (SC)	41.9	15.6	26.3
08+75-51.0	0-51.0	22	19.10 / 5902.9	0	2.2	1.0	2.8	26.0	35.0	33.0	Sandy Clayey Silt (CL)	36.8	15.1	21.7
08+75-64.1	0-64.1	22	24.01 / 5898.0	0	0.8	0	0.7	1.5	18.0	79.0	Clay (CH)	67.2	23.8	43.4
08+75-72.0	0-72.0	22	26.97 / 5895.0	0	0	0	0	0.1	15.9	84.0	Clay (CH)	67.5	25.4	42.1
09+00-7.5	0- 7.5	20	2.57 / 5918.4	10.9	11.5	2.9	4.4	12.8	25.0	32.5	Clay (CH)	51.6	17.2	34.4
09+00-19.8	0-19.8	20	6.77 / 5914.2	11.6	6.8	2.7	5.3	5.6	16.5	51.5	Clay (CH)	67.7	18.7	49.0

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(5) Grain size distribution is analyzed according to American Society for Testing and Materials (ASTM), 1989.
(6) U.S.C.S. (Unified Soil Classification System) 1960. The silt and clay category has been further subdivided to include clay size particles less than 0.0039 millimeters.
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Grain Size Distribution and Atterberg Limits for Alluvium Materials

SAMPLE NUMBER (1)	DEPTH INTERVAL (feet)	SLOPE (2) (degrees)	CORRECTED DEPTH (3) /ELEVATION (4)	GRAIN SIZE (PERCENT) (5) COARSE GRAVEL& COBBLES	FINE GRAVEL	COARSE SAND	MED SAND	FINE SAND	SILT	CLAY	U.S.C.S. CLASSIFICATION (6)	ATTERBERG LIMITS (7) LIQUID LIMIT	PLAS-TIC LIMIT	PLAS-TIC INDEX
09+00-26.0	0-26.0	20	8.89 / 5912.1	13.9	28.9	7.2	18.4	12.1	6.5	13.0	Sandy Gravel (SW)	48.6	15.8	32.8
09+00-31.8	0-31.8	20	10.88 / 5910.1	12.3	27.9	7.9	16.6	12.3	10.0	13.0	Sandy Gravel (SW)	48.5	17.3	31.2
09+00-40.0	0-40.0	20	13.68 / 5907.3	3.5	1.1	0.9	3.5	12.0	33.0	46.0	Silty Clay (CH)	51.6	17.0	34.6
09+00-52.0	0-52.0	20	17.79 / 5903.2	0	0	0.1	0.7	3.2	17.0	79.0	Clay (CH)	68.4	21.3	47.1
09+50-5.0	0- 5.0	28	2.35 / 5915.7	0.3	0	0.1	4.2	14.4	28.0	53.0	Silty Clay (CH)	52.1	16.8	35.3
09+50-11.5	0-11.5	28	5.40 / 5912.6	0	2.9	0.5	1.5	15.1	37.5	42.5	Silty Clay (CL)	49.4	16.0	33.4
09+50-30.0	0-30.0	28	14.08 / 5903.9	0	26.0	7.6	15.6	12.3	13.5	25.0	Gravely Sand (SC)	52.3	16.5	35.8
09+50-36.5	0-36.5	28	17.14 / 5900.9	17.3	35.5	9.4	10.4	12.4	5.0	10.0	Sandy Gravel (SW)	NP	NP	NP

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Grain Size Distribution and Atterberg Limits for Alluvium Materials

SAMPLE NUMBER (1)	DEPTH INTERVAL (feet)	SLOPE (2) (degrees)	CORRECTED DEPTH (3) /ELEVATION (4)	GRAIN SIZE (PERCENT) (5) COARSE GRAVEL& COBBLES	FINE GRAVEL	COARSE SAND	MED SAND	FINE SAND	SILT	CLAY	U.S.C.S. CLASSIFICATION (6)	ATTERBERG LIMITS (7) LIQUID LIMIT	PLAS-TIC LIMIT	PLAS-TIC INDEX
09+50-46.0	0-46.0	28	21.60 / 5896.4	0	6.2	0.8	2.1	6.9	34.0	50.0	Silty Clay (CH)	57.8	23.3	34.5
09+50-54.0	0-54.0	28	25.35 / 5892.6	0	1.0	0.1	0.4	0.9	18.1	79.5	Clay (CH)	67.4	22.2	45.2
09+75-3.0	0- 3.0	28	1.41 / 5916.6	0	0	0	5.1	11.9	36.0	47.0	Silty Clay (CH)	55.4	17.2	38.2
09+75-12.5	0-12.5	28	5.87 / 5912.1	0	2.4	0.3	2.7	21.6	32.0	41.0	Silty Clay (CL)	44.9	16.6	28.3
09+75-20.0	0-20.0	28	9.39 / 5908.6	25.7	3.1	2.6	6.8	16.8	17.0	28.0	Sandy Clayey Gravel (GM)	45.0	17.0	28.0
09+75-26.0	0-26.0	28	12.21 / 5905.8	3.8	10.1	4.5	11.7	20.9	16.0	33.0	Clayey Sand (SC)	51.3	15.8	35.5
09+75-31.0	0-31.0	28	14.55 / 5903.4	0	2.9	0.8	1.9	16.9	25.5	52.0	Clay (CL)	46.3	15.6	30.7
09+75-34.5	0-34.5	28	16.20 / 5901.8	0	0	0	0.1	29.9	36.5	33.5	Sandy Clayey Silt (CL)	34.5	15.7	18.8

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Grain Size Distribution and Atterberg Limits for Alluvium Materials

SAMPLE NUMBER (1)	DEPTH INTERVAL (feet)	SLOPE (2) (degrees)	CORRECTED DEPTH (3) /ELEVATION (4)	GRAIN SIZE (PERCENT) (5) COARSE GRAVEL& COBBLES	FINE GRAVEL	COARSE SAND	MED SAND	FINE SAND	SILT	CLAY	U.S.C.S. CLASSIFICATION (6)	ATTERBERG LIMITS (7) LIQUID LIMIT	PLAS-TIC LIMIT	PLAS-TIC INDEX
09+75-39.0	0-39.0	28	18.31 / 5899.7	0	0	0.3	0.1	4.0	31.6	64.0	Silty Clay (CH)	55.4	19.0	36.4
10+00-1.0	0- 1.0	31	0.52 / 5917.0	0	0.7	1.9	3.5	14.9	27.0	52.0	Silty Clay (CH)	58.6	16.6	42.0
10+00-5.0	0- 5.0	31	2.58 / 5914.9	0	0.3	0.2	3.5	21.0	31.0	44.0	Silty Clay (CL)	46.5	17.0	29.5
10+00-13.0	0-13.0	31	6.70 / 5910.8	0	0	0.4	2.8	24.8	32.0	40.0	Sandy Silty Clay (CL)	41.9	15.1	26.8
10+00-31.0	0-31.0	31	15.97 / 5901.5	5.3	4.9	2.9	10.1	20.8	26.0	30.0	Silty Clayey Sand (SC/SM)	47.3	14.1	33.2
10+00-43.0	0-36.0 36.0-43.0	31 14	20.23 / 5897.3	0	0	0	0	0.8	8.2	91.0	Clay (CH)	65.7	23.2	42.5
10+25-15.0	0-15.0	31	7.73 / 5909.8	0	1.1	0.8	5.3	16.8	26.0	50.0	Silty Clay (CH)	58.7	20.6	38.1
10+25-22.0	0-22.0	31	11.33 / 5906.2	0	1.0	0.4	4.6	17.0	37.0	40.0	Silty Clay (CL)	49.4	17.4	32.0

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Grain Size Distribution and Atterberg Limits for Alluvium Materials

SAMPLE NUMBER (1)	DEPTH INTERVAL (feet)	SLOPE (2) (degrees)	CORRECTED DEPTH (3) /ELEVATION (4)	GRAIN SIZE (PERCENT) (5) COARSE GRAVEL& COBBLES	FINE GRAVEL	COARSE SAND	MED SAND	FINE SAND	SILT	CLAY	U.S.C.S. CLASSIFICATION (6)	ATTERBERG LIMITS (7) LIQUID LIMIT	PLAS-TIC LIMIT	PLAS-TIC INDEX
10+25-30.0	0-30.0	31	15.45 / 5902.0	0	0.1	0.6	2.0	22.3	38.0	37.0	Clayey Silt (CL)	42.4	15.0	27.4
10+25-40.0	0-36.0 36.0-40.0	31 14	19.51 / 5898.0	0	1.9	0.5	2.1	6.5	32.0	57.0	Silty Clay (CH)	60.8	16.6	44.2
10+25-46.0	0-36.0 36.0-46.0	31 14	20.96 / 5896.5	0	0	0	0.5	1.5	35.0	63.0	Silty Clay (CH)	57.7	18.8	38.9
10+50-1.4	0- 1.4	40	0.90 / 5916.1	15.3	1.7	2.0	9.5	14.5	21.5	35.5	Sandy Clay (CH)	50.0	17.4	32.6
10+50-4.5	0- 4.5	40	2.89 / 5914.1	0	6.0	1.3	1.9	5.1	25.7	60.0	Silty Clay (CH)	59.0	18.3	40.7
10+50-20.5	0-11.2 11.2-20.5	40 29	11.71 / 5905.3	0	0	0	0.2	0.4	24.4	75.0	Clay (CH)	64.0	21.3	42.7
10+50-42.5	0-11.2 11.2-42.5	40 29	22.37 / 5894.6	0	0.2	0.1	0.1	0.5	29.1	70.0	Silty Clay (CH)	67.7	23.5	44.2
10+50-46.0	0-11.2 11.2-46.0	40 29	24.07 / 5892.9	0	0	0	0.1	0.2	22.7	77.0	Clay (CH)	72.8	21.8	51.0

(1) Sample Number corresponds to the Station Number (Engineering Sciences, 1991) and the sample depth during excavation. (2) Slope equals angle from horizontal.
(3) Corrected depth corresponds to the sine of the slope angle. (4) Elevation refers to the corrected elevation of the sample location.
(5) Grain size distribution is analyzed according to Anerican Society for Testing and Materials (ASTM), 1989.
(6) U.S.C.S. (Unified Soil Classification System) 1960. The silt and clay category has been further subdivided to include clay size particles less than 0.0039 millimeters.
(7) Atterberg limits are analyzed according to ASTM, 1989.
* Percent clay indicates total silt and clay since sieve analysis #230 was not performed. NP - Non-plastic
** Sieve analysis includes #230 only; hydrometer was not performed. ND - No Data

Grain Size Distribution and Atterberg Limits for Alluvium Materials

SAMPLE NUMBER (1)	DEPTH INTERVAL (feet)	SLOPE (2) (degrees)	CORRECTED DEPTH (3) /ELEVATION (4)	GRAIN SIZE (PERCENT) (5) COARSE GRAVEL& COBBLES	FINE GRAVEL	COARSE SAND	MED SAND	FINE SAND	SILT	CLAY	U.S.C.S. CLASSIFICATION (6)	ATTERBERG LIMITS (7) LIQUID LIMIT	PLAS-TIC LIMIT	PLAS-TIC INDEX
10+75-1.0	0- 1.0	36	0.59 / 5915.9	0	33.5	2.0	4.4	14.9	0	45.2	Gravelly Clayey Sand (SC)*	54.7	22.0	32.7
10+75-3.0	0- 3.0	36	1.76 / 5914.7	0	0	2.3	6.0	17.5	0	74.2	Sandy Clay (CH)*	62.9	25.9	37.0
10+75-4.5	0- 4.5	36	2.65 / 5913.9	0	6.7	2.3	5.6	10.5	0	74.9	Sandy Clay (CH)*	59.8	21.2	38.6
10+75-5.5	0- 5.5	36	3.23 / 5913.3	0	0	0.6	0.9	6.1	0	92.4	Sandy Clay (CH)*	51.6	17.3	34.3
10+75-8.0	0- 8.0	36	4.70 / 5911.8	0	0	0.2	1.1	0.7	0	98.0	Clay (CH)*	70.0	23.7	46.3
10+75-16.0	0- 8.0 8.0-16.0	36 27	8.33 / 5908.2	0	0	0.1	2.2	6.2	40.5	51.0	Silty Clay (CH)	65.8	19.0	46.8
10+75-20.4	0- 8.0 8.0-20.4	36 27	10.33 / 5906.2	0	21.1	1.6	6.5	14.8	22.0	34.0	Clay (CH)	52.5	18.1	34.4
10+75-32.0	0- 8.0 8.0-32.0	36 27	15.60 / 5900.9	0	0	0	2.0	4.0	28.0	66.0	Silty Clay (CH)	65.8	20.8	45.0

(1) Sample Number corresponds to the Station Number (Engineering Sciences, 1991) and the sample depth during excavation. (2) Slope equals angle from horizontal.
(3) Corrected depth corresponds to the sine of the slope angle. (4) Elevation refers to the corrected elevation of the sample location.
(5) Grain size distribution is analyzed according to American Society for Testing and Materials (ASTM), 1989.
(6) U.S.C.S. (Unified Soil Classification System) 1960. The silt and clay category has been further subdivided to include clay size particles less than 0.0039 millimeters.
(7) Atterberg limits are analyzed according to ASTM, 1989.
* Percent clay indicates total silt and clay since sieve analysis #230 was not performed.
** Sieve analysis includes #230 only; hydrometer was not performed.

NP - Non-plastic
ND - No Data

Grain Size Distribution and Atterberg Limits for Alluvium Materials

SAMPLE NUMBER (1)	DEPTH INTERVAL (feet)	SLOPE (2) (degrees)	CORRECTED DEPTH (3) /ELEVATION (4)	GRAIN SIZE (PERCENT) (5) COARSE GRAVEL& COBBLES	FINE GRAVEL	COARSE SAND	MED SAND	FINE SAND	SILT	CLAY	U.S.C.S. CLASSIFICATION (6)	ATTERBERG LIMITS (7) LIQUID LIMIT	PLAS-TIC LIMIT	PLAS-TIC INDEX
10+75-47.5	0- 8.0 8.0-47.5	36 27	22.63 / 5903.9	0	11.3	0	1.1	0.1	21.5	66.0	Clay (CH)	67.2	20.4	46.8
10+75-53.0	0- 8.0 8.0-53.0	36 27	25.13 / 5891.4	0	0.2	0.6	2.3	7.9	30.0	59.0	Silty Clay (CH)	59.4	20.0	39.4
11+00-2.0	0- 2.0	31	1.03 / 5915.0	0	2.9	2.3	7.6	21.2	20.0	46.0	Sandy Clay (CH)	58.8	24.7	34.1
11+00-6.0	0- 6.0	31	3.09 / 5912.9	0	0.7	1.6	5.9	28.8	20.0	43.0	Sandy Clay (CH)	53.1	21.7	31.4
11+00-14.0	0-14.0	31	7.21 / 5908.8	0	0	0	1.4	1.1	30.5	67.0	Silty Clay (CH)	64.5	22.4	42.1
11+00-19.5	0-19.5	31	10.04 / 5906.0	0	0	0	0	0.5	29.5	70.0	Silty Clay (CH)	57.4	19.6	37.8
11+00-24.5	0-24.5	31	12.62 / 5903.4	0	0	0	0.1	2.9	35.0	62.0	Silty Clay (CH)	55.9	16.5	39.4
11+00-55.0	0-55.0	31	28.33 / 5887.7	0	0	0	0	45.0	43.0	12.0	Silty Sand (SM)		24.9	

(1) Sample Number corresponds to the Station Number (Engineering Sciences, 1991) and the sample depth during excavation. (2) Slope equals angle from horizontal.
(3) Corrected depth corresponds to the sine of the slope angle. (4) Elevation refers to the corrected elevation of the sample location.
(5) Grain size distribution is analyzed according to American Society for Testing and Materials (ASTM), 1989.
(6) U.S.C.S. (Unified Soil Classification System) 1960. The silt and clay category has been further subdivided to include clay size particles less than 0.0039 millimeters.
(7) Atterberg limits are analyzed according to ASTM, 1989.
* Percent clay indicates total silt and clay since sieve analysis #230 was not performed. NP - Non-plastic
** Sieve analysis includes #230 only; hydrometer was not performed. ND - No Data

Grain Size Distribution and Atterberg Limits for Alluvium Materials

SAMPLE NUMBER (1)	DEPTH INTERVAL (feet)	SLOPE (2) (degrees)	CORRECTED DEPTH (3) /ELEVATION (4)	GRAIN SIZE (PERCENT) (5) COARSE GRAVEL& COBBLES	FINE GRAVEL	COARSE SAND	MED SAND	FINE SAND	SILT	CLAY	U.S.C.S. CLASSIFICATION (6)	ATTERBERG LIMITS (7) LIQUID LIMIT	PLAS-TIC LIMIT	PLAS-TIC INDEX
11+10-36.0	0-36.0	31	18.54 / 5897.1	0	0.7	0.2	0.4	0.2	38.5	60.0	Silty Clay (CH)	56.3	18.7	37.6
11+10-44.0	0-44.0	31	22.66 / 5892.9	0	0.3	0.3	1.9	5.5	19.0	73.0	Clay (CH)	59.1	20.6	38.5
11+12-52.0	0-52.0	31	26.78 / 5888.8	0	0	0	0.1	12.9	39.0	48.0	Silty Clay (ML)	23.8	NP	NP
11+25-34.0	0-34.0	31	17.51 / 5898.0	0	0.9	0.3	1.0	3.8	28.0	66.0	Silty Clay (CH)	62.7	20.0	42.7
11+25-43.0	0-43.0	31	22.15 / 5893.4	0	0	0	0	27.0	50.0	23.0	Sandy Silt (CL)	32.2	19.2	13.0
11+50-42.0	0-42.0	40	27.00 / 5888.0	15.1	13.3	4.6	9.2	10.8	8.0	39.0	Clay (CH)	53.5	16.6	36.9
11+50-47.0	0-47.0	40	30.21 / 5884.8	9.3	12.7	3.5	7.6	17.9	19.0	30.0	Clay (CL)	49.4	15.55	33.85
11+75-59.0	0-59.0	40	37.92 / 5876.6	25.9	1.4	0.1	0.1	0.5	17.1	54.9	Gravely Clay (CH)	60.7	20.7	40.0

(1) Sample Number corresponds to the Station Number (Engineering Sciences, 1991) and the sample depth during excavation. (2) Slope equals angle from horizontal.
(3) Corrected depth corresponds to the sine of the slope angle. (4) Elevation refers to the corrected elevation of the sample location.
(5) Grain size distribution is analyzed according to Anerican Society for Testing and Materials (ASTM), 1989.
(6) U.S.C.S. (Unified Soil Classification System) 1960. The silt and clay category has been further subdivided to include clay size particles less than 0.0039 millimeters.
(7) Atterberg limits are analyzed according to ASTM, 1989.
* Percent clay indicates total silt and clay since sieve analysis #230 was not performed. NP - Non-plastic
** Sieve analysis includes #230 only; hydrometer was not performed. ND - No Data

Grain Size Distribution and Atterberg Limits for Alluvium Materials

SAMPLE NUMBER (1)	DEPTH INTERVAL (feet)	SLOPE (2) (degrees)	CORRECTED DEPTH (3) /ELEVATION (4)	GRAIN SIZE (PERCENT) (5) COARSE GRAVEL& COBBLES	FINE GRAVEL	COARSE SAND	MED SAND	FINE SAND	SILT	CLAY	U.S.C.S. CLASSIFICATION (6)	ATTERBERG LIMITS (7) LIQUID LIMIT	PLAS-TIC LIMIT	PLAS-TIC INDEX
11+80-50.0	0-50.0	40	32.14 / 5882.3	0	6.4	0.8	1.6	15.9	31.3	44.0	Silty Clay (CH)	53.8	15.3	38.5
11+80-56.0	0-56.0	40	36.00 / 5878.4	38.0	11.4	4.3	5.2	8.1	10.0	23.0	Gravel (GC)	54.3	17.4	36.9
12+00-41.0	0-41.0	40	26.35 / 5887.6	6.3	1.3	0.4	1.5	26.5	37.0	27.0	Sandy Clayey Silt (CL)	37.6	15.3	22.3
12+00-46.0	0-46.0	40	29.57 / 5884.4	51.7	10.8	3.7	6.4	8.4	8.8	10.2	Gravel (GM)	45.9	13.8	32.1
12+50-40.5	0-40.5	40	26.03 / 5886.0	37.9	7.4	2.3	11.7	23.0	10.6	7.1	Gravel (GM)	25.5	14.2	11.3
13+00-7.0	0- 7.0	40	4.50 / 5905.5	0	3.6	1.9	6.2	38.3	21.0	29.0	Clayey Sand (SC)	37.8	15.0	22.8
13+50-1.0	0- 1.0	40	0.64 / 5907.4	0	0.3	0.5	1.0	2.2	26.0	70.0	Silty Clay (CH)	67.2	21.7	45.5
13+50-4.5	0- 4.5	40	2.89 / 5905.1	0	18.7	6.8	9.5	18.0	31.0	16.0	Clayey Sand (SC)	53.9	20.0	33.9

(1) Sample Number corresponds to the Station Number (Engineering Sciences, 1991) and the sample depth during excavation. (2) Slope equals angle from horizontal.
(3) Corrected depth corresponds to the sine of the slope angle. (4) Elevation refers to the corrected elevation of the sample location.
(5) Grain size distribution is analyzed according to Anerican Society for Testing and Materials (ASTM), 1989.
(6) U.S.C.S. (Unified Soil Classification System) 1960. The silt and clay category has been further subdivided to include clay size particles less than 0.0039 millimeters.
(7) Atterberg limits are analyzed according to ASTM, 1989.
* Percent clay indicates total silt and clay since sieve analysis #230 was not performed. NP - Non-plastic
** Sieve analysis includes #230 only; hydrometer was not performed. ND - No Data

Grain Size Distribution and Atterberg Limits for Alluvium Materials

SAMPLE NUMBER (1)	DEPTH INTERVAL (feet)	SLOPE (2) (degrees)	CORRECTED DEPTH (3) /ELEVATION (4)	GRAIN SIZE (PERCENT) (5) COARSE GRAVEL& COBBLES	FINE GRAVEL	COARSE SAND	MED SAND	FINE SAND	SILT	CLAY	U.S.C.S. CLASSIFICATION (6)	ATTERBERG LIMITS (7) LIQUID LIMIT	PLAS-TIC LIMIT	PLAS-TIC INDEX
13+50-9.3	0- 9.3	40	5.98 / 5902.0	0	0.5	0.6	2.4	21.5	36.0	39.0	Silty Clay (CL)	49.6	20.3	29.3
13+50-12.5	0-12.5	40	8.03 / 5900.0	0	11.7	4.4	7.5	16.4	20.0	40.0	Sandy Clay (CH)	62.2	27.9	34.3
13+50-13.6	0-13.6	40	8.74 / 5899.3	0	26.5	4.3	5.9	20.5	18.8	24.0	Gravely Sand (SM/SC)	50.8	23.6	27.2
13+50-28.0	0-28.0	40	18.00 / 5890.0	0	5.2	1.7	5.6	8.5	19.0	60.0	Clay (CH)	66.2	22.0	44.2
13+85-4.0	0- 4.0	40	2.57 / 5903.4	0	0	0	0.1	0.4	34.5	65.0	Silty Clay (CH)	62.5	21.3	41.2
13+85-9.5	0- 9.5	40	6.11 / 5899.9	0	7.0	3.0	0.6	9.4	50.0	30.0	Clayey Silt (CL)	39.1	19.3	19.8
13+85-11.0	0-11.0	40	7.07 / 5898.9	0	0	0	0.1	26.9	52.0	21.0	Sandy Silt (CL)	35.2	20.5	14.7
14+15-13.0	0-13.0	40	8.36 / 5895.6	0	0	0	0.2	21.8	54.0	24.0	Silt (CL)	37.6	20.7	16.9

(1) Sample Number corresponds to the Station Number (Engineering Sciences, 1991) and the sample depth during excavation. (2) Slope equals angle from horizontal.
(3) Corrected depth corresponds to the sine of the slope angle. (4) Elevation refers to the corrected elevation of the sample location.
(5) Grain size distribution is analyzed according to Anerican Society for Testing and Materials (ASTM), 1989.
(6) U.S.C.S. (Unified Soil Classification System) 1960. The silt and clay category has been further subdivided to include clay size particles less than 0.0039 millimeters.
(7) Atterberg limits are analyzed according to ASTM, 1989.
* Percent clay indicates total silt and clay since sieve analysis #230 was not performed. NP - Non-plastic
** Sieve analysis includes #230 only; hydrometer was not performed. ND - No Data

Grain Size Distribution and Atterberg Limits for Alluvium Materials

SAMPLE NUMBER (1)	DEPTH INTERVAL (feet)	SLOPE (2) (degrees)	CORRECTED DEPTH (3) /ELEVATION (4)	GRAIN SIZE (PERCENT) (5) COARSE GRAVEL& COBBLES	FINE GRAVEL	COARSE SAND	MED SAND	FINE SAND	SILT	CLAY	U.S.C.S. CLASSIFICATION (6)	ATTERBERG LIMITS (7) LIQUID LIMIT	PLAS-TIC LIMIT	PLAS-TIC INDEX
14+50-24.0	0-24.0	40	15.43 / 5885.6	0	0.2	0	0.8	14.0	56.0	29.0	Clayey Silt (CL)	35.1	18.6	16.5
14+75-4.0	0- 4.0	40	2.57 / 5896.9	0	1.3	2.3	3.6	4.8	88.0	0	Clay (CH)	75.5	23.1	52.4
15+00-20.5	0-20.5	40	13.18 / 5973.8	0	0	0	1.0	1.0	50.0	48.0	Clayey Silt (ML)	ND	ND	ND
15+55-2.3	0- 2.3	40	1.48 / 5892.3	23.9	26.1	5.7	7.5	9.8	11.0	16.0	Clayey Sand (SC)	46.0	17.8	28.2
15+70-6.5	0- 6.5	40	4.18 / 5889.0	ND	ND	ND	ND	ND	ND	96.0	Silty Clay (CH)**	67.1	20.7	46.4
16+25-13.0	0-13.0	40	8.36 / 5879.6	ND	ND	ND	ND	ND	ND	94.4	Silty Clay (CL)**	47.5	16.9	30.6
16+50-5.5	0- 5.5	40	3.54 / 5893.5	0	0	0.6	0.7	2.1	23.6	73.0	Clay (CH)	69.6	19.7	49.9
16+70-24.5	0-24.5	40	15.75 / 5878.3	0	0	0	0	22.9	54.0	23.1	Silt (ML)	31.6	23.0	8.6

(1) Sample Number corresponds to the Station Number (Engineering Sciences, 1991) and the sample depth during excavation. (2) Slope equals angle from horizontal.
(3) Corrected depth corresponds to the sine of the slope angle. (4) Elevation refers to the corrected elevation of the sample location.
(5) Grain size distribution is analyzed according to Anerican Society for Testing and Materials (ASTM), 1989.
(6) U.S.C.S. (Unified Soil Classification System) 1960. The silt and clay category has been further subdivided to include clay size particles less than 0.0039 millimeters.
(7) Atterberg limits are analyzed according to ASTM, 1989.
* Percent clay indicates total silt and clay since sieve analysis #230 was not performed. NP - Non-plastic
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Grain Size Distribution and Atterberg Limits for Alluvium Materials

SAMPLE NUMBER (1)	DEPTH INTERVAL (feet)	SLOPE (2) (degrees)	CORRECTED DEPTH (3) /ELEVATION (4)	GRAIN SIZE (PERCENT) (5) COARSE GRAVEL& COBBLES	FINE GRAVEL	COARSE SAND	MED SAND	FINE SAND	SILT	CLAY	U.S.C.S. CLASSIFICATION (6)	ATTERBERG LIMITS (7) LIQUID LIMIT	PLAS-TIC LIMIT	PLAS-TIC INDEX
16+83-3.0	0- 3.0	40	1.93 / 5892.9	23.0	20.6	4.1	2.9	14.6	15.3	19.5	Clayey Sand (SC)	50.5	17.3	33.2
17+10-4.8	0- 4.8	40	3.09 / 5893.6	0	0	0	0.4	0.6	29.0	70.0	Silty Clay (CH)	67.8	20.6	47.2
17+32-18.0	0-18.0	40	11.57 / 5884.6	0	0	0	0.1	0.4	24.5	75.0	Clay (CH)	64.0	19.4	44.6
17+50-0.3	0- 0.3	40	0.19 / 5895.8	ND	ND	ND	ND	ND	ND	47.7	Silty Sand (CL)**	41.4	16.0	25.4
17+50-0.8	0- 0.8	40	0.51 / 5895.5	0	0.2	0.4	1.0	2.4	22.0	74.0	Clay (CH)	69.6	21.8	47.8
17+50-15.0	0-15.0	40	9.64 / 5886.4	0	1.0	0	0	33.0	0	66.0	Sandy Clay (CH)*	54.6	21.6	33.0
17+50-18.0	0-18.0	40	11.57 / 5884.4	0	9.5	0	0	16.3	0	74.2	Silty Clay (CH)*	86.8	27.8	59.0
17+75-21.0	0-21.0	40	13.50 / 5881.5	4.5	1.9	2.7	6.9	11.5	18.5	54.0	Clay (CH)	67.3	20.3	47.0

(1) Sample Number corresponds to the Station Number (Engineering Sciences, 1991) and the sample depth during excavation. (2) Slope equals angle from horizontal.
(3) Corrected depth corresponds to the sine of the slope angle. (4) Elevation refers to the corrected elevation of the sample location.
(5) Grain size distribution is analyzed according to Anerican Society for Testing and Materials (ASTM), 1989.
(6) U.S.C.S. (Unified Soil Classification System) 1960. The silt and clay category has been further subdivided to include clay size particles less than 0.0039 millimeters.
(7) Atterberg limits are analyzed according to ASTM, 1989.
* Percent clay indicates total silt and clay since sieve analysis #230 was not performed. NP - Non-plastic
** Sieve analysis includes #230 only; hydrometer was not performed. ND - No Data

Grain Size Distribution and Atterberg Limits for Alluvium Materials

SAMPLE NUMBER (1)	DEPTH INTERVAL (feet)	SLOPE (2) (degrees)	CORRECTED DEPTH (3) /ELEVATION (4)	GRAIN SIZE (PERCENT) (5) COARSE GRAVEL& COBBLES	FINE GRAVEL	COARSE SAND	MED SAND	FINE SAND	SILT	CLAY	U.S.C.S. CLASSIFICATION (6)	ATTERBERG LIMITS (7) LIQUID LIMIT	PLAS-TIC LIMIT	PLAS-TIC INDEX
17+90-25.0	0-25.0	40	16.07 / 5878.9	1.4	2.5	1.7	0.1	1.3	23.0	70.0	Clay (CL)	47.0	17.9	29.1
18+00-17.0	0-17.0	40	10.93 / 5884.1	0	0	0.3	0.8	1.5	30.4	67.0	Silty Clay (CH)	66.7	19.6	47.1
18+00-21.5	0-21.5	40	13.82 / 5881.2	0	8.0	4.4	8.8	19.8	16.0	43.0	Sandy Clay (CH)	56.7	14.9	41.8
18+60-20.5	0-20.5	40	13.18 / 5880.8	0	0	0	0.1	1.9	33.0	65.0	Silty Clay (CH)	62.0	20.5	41.5
19+00-6.0	0- 6.0	40	3.86 / 5888.1	14.0	19.9	5.4	8.9	10.8	8.0	33.0	Sandy Clay (CH)	67.3	26.3	41.0
19+20-5.0	0- 5.0	40	3.21 / 5886.4	0	32.0	6.3	11.1	9.8	7.8	33.0	Sandy Gravely Clay (CH)	71.9	32.1	39.8

(1) Sample Number corresponds to the Station Number (Engineering Sciences, 1991) and the sample depth during excavation. (2) Slope equals angle from horizontal.
(3) Corrected depth corresponds to the sine of the slope angle. (4) Elevation refers to the corrected elevation of the sample location.
(5) Grain size distribution is analyzed according to Anerican Society for Testing and Materials (ASTM), 1989.
(6) U.S.C.S. (Unified Soil Classification System) 1960. The silt and clay category has been further subdivided to include clay size particles less than 0.0039 millimeters.
(7) Atterberg limits are analyzed according to ASTM, 1989.
* Percent clay indicates total silt and clay since sieve analysis #230 was not performed. NP - Non-plastic
** Sieve analysis includes #230 only; hydrometer was not performed. ND - No Data

ATTACHMENT A4-4-2

GRAIN SIZE DISTRIBUTION AND ATTERBERG LIMITS FOR BEDROCK MATERIALS

Grain Size Distribution and Atterberg Limits for Bedrock Materials

SAMPLE NUMBER (1)	DEPTH INTERVAL (feet)	SLOPE (2) (degrees)	CORRECTED DEPTH (3) /ELEVATION (4)	GRAIN SIZE (PERCENT) (5) COARSE GRAVEL& COBBLES	FINE GRAVEL	COARSE SAND	MED SAND	FINE SAND	SILT	CLAY	WENTWORTH CLASSIFICATION (6)	ATTERBERG LIMITS (7) LIQUID LIMIT	PLAS-TIC LIMIT	PLAS-TIC INDEX
05+25-63.2	0-26.0	18	27.46 / 5906.5	0	0	0	0	0.2	20.3	79.5	Silty Claystone	70.0	22.4	47.6
	26.0-45.0	24												
	45.0-63.2	40												
05+50-56.3	0-50.0	28	27.27 / 5905.7	0	0	0	0.3	0.8	12.9	86.0	Claystone	68.7	22.7	46.0
	50.0-56.3	37												
06+25-53.6	0-19.0	20	23.46 / 5908.5	0	0	0	0.1	0.3	15.6	84.0	Claystone	64.7	23.4	41.3
	19.0-28.6	30												
	28.6-43.0	25												
07+00-56.0	0-16.0	25	25.28 / 5904.7	0	0	0	2.1	1.0	20.4	76.5	Silty Claystone	63.8	21.5	42.3
	16.0-46.2	35												
	46.2-56.0	7												
07+25-66.5	0-40.0	19	25.05 / 5903.9	0	0	0	0.1	1.9	40.0	58.0	Silty Claystone	57.0	18.6	38.4
	40.0-66.5	27												
07+25-67.5	0-40.0	19	25.51 / 5903.5	0	0	0.2	0.4	0.9	17.5	80.0	Claystone	41.4	16.0	25.4
	40.0-67.5	27												
07+75-52.0	0-52.0	22	19.48 / 5908.5	0	0	0	0.2	0.5	14.3	85.0	Claystone	69.8	26.2	43.6
08+00-52.0	0-52.0	26	22.80 / 5904.2	0	0	0	0.5	1.5	18.0	80.0	Claystone	69.2	25.1	44.1

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08+25-56.1	0-30.5	19	22.73 / 5903.8	0	0	0	0	3.3	19.7	77.0	Claystone	58.8	22.7	36.1
	30.5-56.1	30												
08+75-75.0	0-75.0	22	28.10 / 5893.9	0	0	0	0	10.8	31.2	58.0	Silty Claystone	49.5	18.7	30.8
09+00-60.0	0-60.0	20	20.52 / 5900.5	0	0	0.1	0.3	1.3	15.3	83.0	Claystone	71.2	24.0	47.2
09+50-55.0	0-55.0	28	25.82 / 5892.2	0	0	0	0.1	4.9	25.0	70.0	Silty Claystone	64.8	19.3	45.5
09+50-58.1	0-58.1	28	27.28 / 5890.7	0	0	0	0.1	18.9	51.0	30.0	Clayey Siltstone	39.4	18.1	21.3
09+75-55.0	0-55.0	28	25.82 / 5892.2	0	0	0	0.3	3.6	16.1	80.0	Claystone	69.2	22.3	46.9
10+00-53.4	0-36.0	31	24.51 / 5893.0	0	0	0	0	1.0	13.0	86.0	Claystone	67.6	27.1	40.5
	36.0-49.0	14												
	49.0-53.4	40												
10+00-55.5	0-36.0	31	25.86 / 5891.6	0	0	0.1	0.1	13.8	50.5	35.5	Clayey Siltstone	40.7	15.3	25.4
	36.0-49.0	14												
	49.0-55.5	40												

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10+25-69.0	0-36.0 36.0-49.0 49.0-69.0	31 14 40	34.54 / 5883.0	0	0	0	8.1	26.9	25.0	40.0	Sandy Silty Claystone	68.7	22.5	46.2
10+25-74.0	0-36.0 36.0-49.0 49.0-74.0	31 14 40	37.76 / 5879.7	0	0	0.1	0	19.0	45.9	35.0	Clayey Siltstone	39.6	14.6	25.0
10+50-55.0	0-11.2 11.2-55.0	40 29	28.43 / 5888.6	0	0.1	0.1	0.1	0.2	26.5	73.0	Silty Claystone	62.3	23.6	38.7
10+50-72.0	0-11.2 11.2-72.0	40 29	36.68 / 5880.3	0	0	0	0.1	55.4	28.5	16.0	Silty Sandstone	31.0	23.0	8.0
10+75-64.0	0- 8.0 8.0-64.0	36 27	30.13 / 5886.4	0	0	0	0	0.3	21.7	78.0	Claystone	68.7	27.5	41.2
10+75-65.0	0- 8.0 8.0-65.0	36 27	30.58 / 5885.9	0	0	0	0.2	15.3	35.5	49.0	Silty Claystone	50.0	16.9	33.1
10+75-67.9	0- 8.0 8.0-67.9	36 27	31.90 / 5884.6	0	0	0.2	0.1	16.2	51.5	32.0	Clayey Siltstone	40.9	17.8	23.1
11+00-62.5	0-62.5	31	32.19 / 5883.8	0	0	0.4	0.1	0.7	33.8	65.0	Silty Claystone	58.7	24.4	34.3

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11+10-49.0	0-49.0	31	25.24 / 5890.4	0	0	0	0	0.1	21.9	78.0	Silty Claystone	69.0	25.8	43.2
11+25-50.0	0-50.0	31	25.75 / 5889.7	0	0	0	0.1	58.9	30.1	10.9	Silty Sandstone	48.1	15.2	32.9
11+50-54.0	0-54.0	40	34.71 / 5880.3	0	0	0	0.1	0.4	29.5	70.0	Silty Claystone	65.3	21.0	44.3
11+50-57.0	0-57.0	40	36.64 / 5878.4	0	4.1	0	0.5	12.4	59.0	24.0	Clayey Siltstone	33.6	18.3	15.3
12+00-49.0	0-49.0	40	31.50 / 5882.5	0	0.1	0.1	0.2	22.6	53.0	24.0	Sandy Clayey Siltstone	38.1	20.7	17.4
12+00-53.0	0-53.0	40	34.07 / 5879.9	0	0	0.1	0.9	66.0	20.5	12.5	Silty Sandstone	25.6 E		
12+50-43.5	0-43.5	40	27.96 / 5884.0	0	0	0	0.2	50.8	25.0	23.0	Clayey Silty Sandstone	24.3		
12+70-55.0	0-55.0	40	35.35 / 5876.2	0	0	0.2	0.9	64.5	22.4	12.0	Silty Sandstone	25.0	0.00	

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13+50-44.7	0-44.7	40	28.73 / 5879.3	0	0.2	0.9	0.3	72.8	15.8	10.0	Sandstone	ND	ND	ND
14+15-27.5	0-27.5	40	17.68 / 5886.3	0	0	0.3	0.5	14.1	0	85.1	Claystone *	44.4	16.2	28.2
14+50-33.0	0-33.0	40	21.21 / 5879.8	0	0	0.3	0.1	11.4	41.2	47.0	Silty Claystone	47.2	17.9	29.3
15+10-27.0	0-27.0	40	17.36 / 5969.5	0	0	0.1	1.4	19.1	57.4	22.0	Sandy Siltstone	ND	ND	ND
15+15-19.0	0-19.0	40	12.21 / 5974.6	0	0	0	0	49.5	32.5	18.0	Silty Sandstone	ND	ND	ND
15+25-26.5	0-26.5	40	17.03 / 5969.0	0	0	0	0.2	27.4	53.4	19.0	Sandy Siltstone	ND	ND	ND
15+25-31.0	0-31.0	40	19.93 / 5966.1	ND	ND	ND	ND	ND	ND	99.4	Silty Claystone **	ND	ND	ND
15+40-27.5	0-27.5	40	17.68 / 5876.5	0	0	0	0.1	29.9	48.0	22.0	Clayey Sandy Siltstone	30.8	22.6	8.2

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15+58-25.0	0-25.0	40	16.07 / 5877.5	0	0	0	0.2	35.8	46.0	18.0	Sandy Siltstone	ND	ND	ND
15+58-26.5	0-26.5	40	17.03 / 5876.6	0	0	0	0.1	1.0	42.9	56.0	Silty Claystone	54.8	16.8	38.0
16+50-26.1	0-26.1	40	16.78 / 5880.2	0	0	0	0.1	2.7	19.2	78.0	Claystone	64.5	25.5	39.0
16+50-27.5	0-27.5	40	17.68 / 5879.3	0	0	0	0.1	3.9	44.0	52.0	Silty Claystone	50.7	17.0	33.7
16+50-31.4	0-31.4	40	20.18 / 5876.8	0	0	0.1	0	2.1	44.8	53.0	Silty Claystone	53.5	16.6	36.9
18+10-27.0	0-27.0	40	17.36 / 5877.5	0	0	0	0	1.7	30.3	68.0	Silty Claystone	53.9	21.7	32.2
18+60-24.5	0-24.5	40	15.75 / 5878.3	0	0	0.9	0.5	1.7	30.9	66.0	Silty Claystone	66.9	21.5	45.4
19+20-15.0	0-15.0	40	9.64 / 5880.0	0	0	0	0	11.2	38.8	50.0	Silty Claystone	47.2	17.5	29.7

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