REPORT 1 OF 3

REPORT OF: SUBSURFACE INVESTIGATION
FOR
KINNICKINNIC RIVER
MILWAUKEE, WISCONSIN
PREPARED FOR:
U.S. ARMY CORPS OF ENGINEERS
DETROIT DISTRICT
OCTOBER 2002
CEC PROJECT #GD-02356

Coleman Engineering

Civil Engineering • Environmental Engineering
Geotechnical Engineering • Land Surveying • Test Drilling
Construction Quality Control • Materials Laboratory Testing

Coleman Engineering Co.

635 Circle Drive • Iron Mountain, MI 49801 • e-mail: colemanengineering@uplogon.com
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e also located at:
200 E. Ayer St.
Ironwood, MI 49938
(906) 932-5048
fax: (906) 932-3213

October 15, 2002

Mr. Ron Erickson
US Army Corps of Engineers
Detroit District
477 Michigan Avenue
Detroit, Michigan 48226

Re: Geotechnical Investigation
Kinnickinnic River
Milwaukee, Wisconsin

Dear Mr. Erickson:

Coleman Engineering Company (CEC) has completed the geotechnical investigation for the Kinnickinnic River Project at Milwaukee, Wisconsin. Work was completed under Government contract DACW35-01-D-0008 authorized under Delivery Order No. 4.

Enclosed are three (3) copies of the following items:

- Original boring logs
- Typed boring logs
- Location drawings
- Laboratory Tests (including Gradation Tests and Curves, Atterberg Limits, Moisture Content Determination-Loss on Ignition, and Specific Gravity)
- Laboratory Test Summary
- DWG Format Boring Log Files (disk bound in Report 1 of 3)

The scope of work for this phase of the project consisted of laboratory testing only, as described by letter of August 21, 2002. All soil samples and rough boring logs were submitted to CEC's Iron Mountain laboratory for confirmation of visual observations and for specified laboratory testing. All laboratory testing was assigned by the Detroit District and consisted of the following tests:

- Grain-size analyses, including hydrometers (ASTM D-422)
- Atterberg Limits (ASTM D-4318)
- Moisture Content - Loss on Ignition (ASTM D-2974)
- Specific Gravity (Engineer Manual EM 1110-2-1906, Appendix IV)

Test results are presented on the individual test reports as well as in the "Laboratory Test Summary". Soil descriptions on the final logs have been modified from those on the rough logs based on laboratory test results.

If you have any questions concerning this matter or if CEC can be of further service, please contact me at this office.

Sincerely,

COLEMAN ENGINEERING COMPANY

William D. Rice, P.G.
Geologist

WDR/al

cc: Ian Kerr - Altech

Enclosure

CEC Project #GD-02356

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REPORT OF: SUBSURFACE INVESTIGATION

FOR

KINNICKINNIC RIVER

MILWAUKEE, WISCONSIN

PREPARED FOR:

U.S. ARMY CORPS OF ENGINEERS

DETROIT DISTRICT

OCTOBER 2002

CEC PROJECT #GD-02356

Prepared By:

Coleman Engineering Company
635 Circle Drive
Iron Mountain, Michigan 49801

ORIGINAL BORING LOGS

Hole No. KK-02-US-1

DRILLING LOG	DIVISION GREAT LAKES/OHIO RIVER	INSTALLATION DETROIT	SHEET 1 OF 1 SHEETS

1. PROJECT: KINNICKINNIC RIVER
2. LOCATION (Coordinates or Station): 43° 0.33363', 87° 54.83575'
3. DRILLING AGENCY: COLEMAN ENGINEERING
4. HOLE NO. (As shown on drawing title and title number): KK-02US1
5. NAME OF ~~DRILLER~~ SAMPLER: S. Stright
6. DIRECTION OF HOLE: NA — VERTICAL — INCLINED _____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: NA
8. DEPTH DRILLED INTO ROCK: NA
9. TOTAL DEPTH OF HOLE: NA
10. SIZE AND TYPE OF BIT:
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): LWD 577.5
12. MANUFACTURER'S DESIGNATION OF DRILL: PONAR GRAB SAMPLER
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 1; UNDISTURBED 0
14. TOTAL NUMBER CORE BOXES: NA
15. ELEVATION GROUND WATER: N/A
16. DATE HOLE: STARTED 9-12-02; COMPLETED 9-12-02
17. ELEVATION TOP OF HOLE: 577.5 (LWD)
18. TOTAL CORE RECOVERY FOR BORING: NA %
19. SIGNATURE OF INSPECTOR:

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			KINNICKINNIC River - LAKE MICHIGAN			Bottom material sampled with a Ponar Grab Sampler from the boat
	5		4.5 dark brown Fine SAND, trace (10%) silt, some sticks & leaves			
	0					
	5					

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PROJECT: KINNICKINNIC RIVER | HOLE NO. KK-02-US

Hole No. KK-02-US-2

DRILLING LOG	DIVISION GREAT LAKES/Ohio River	INSTALLATION DETROIT	SHEET 1 OF 1 SHEETS
1. PROJECT KINNICKINNIC RIVER		10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station) 43° 0.29666' 87° 54.81202'		11. DATUM FOR ELEVATION SHOWN (TDN or MSL) LWD 577.5	
3. DRILLING AGENCY COLEMAN ENGINEERING CO.		12. MANUFACTURER'S DESIGNATION OF DRILL PONAR GRAB SAMPLER	
4. HOLE NO. (As shown on drawing title and title number) KK-02-US-2		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	DISTURBED 1 / UNDISTURBED 0
5. NAME OF ~~DRILLER~~ SAMPLER S. Strigel		14. TOTAL NUMBER CORE BOXES NA	
6. DIRECTION OF HOLE NA VERTICAL INCLINED ____ DEG. FROM VERT.		15. ELEVATION GROUND WATER NA	
7. THICKNESS OF OVERBURDEN NA		16. DATE HOLE STARTED 9-12-02	COMPLETED 9-12-02
8. DEPTH DRILLED INTO ROCK NA		17. ELEVATION TOP OF HOLE 577.5 (LWD)	
9. TOTAL DEPTH OF HOLE NA		18. TOTAL CORE RECOVERY FOR BORING NA %	
		19. SIGNATURE OF INSPECTOR	

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV. ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
	5		KINNICKINNIC River - LAKE Michigan			Bottom material sampled with a Ponar Grab Sampler from the boat.
			6-4			
	10		dark brown fine Sand trace silt			
	5					

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT KINNICKINNIC RIVER HOLE NO. KK-02-US-2

07:30

Hole No. KK-0201

DRILLING LOG | DIVISION GREAT LAKES & OHIO RIVER | INSTALLATION DETROIT | SHEET 1 OF SHEETS

1. PROJECT: KINNICKINNIC RIVER
2. LOCATION (Coordinates or Station): 43°0.41103 87° 54.83197
3. DRILLING AGENCY: CEC
4. HOLE NO. (As shown on drawing title and title number): KK 0201
5. NAME OF DRILLER: ADAMS
6. DIRECTION OF HOLE: (VERTICAL) INCLINED _____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: NA
8. DEPTH DRILLED INTO ROCK: NA
9. TOTAL DEPTH OF HOLE: 19.69
10. SIZE AND TYPE OF BIT: 4¼ HSA
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): LWD 577.5
12. MANUFACTURER'S DESIGNATION OF DRILL: DIEDRICH D-50, BOMBARDIAC BARGE
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 5; UNDISTURBED 0
14. TOTAL NUMBER CORE BOXES: —
15. ELEVATION GROUND WATER: —
16. DATE HOLE: STARTED 9-11-02; COMPLETED 9-11-02
17. ELEVATION TOP OF HOLE: 577.5 (LWD)
18. TOTAL CORE RECOVERY FOR BORING: — %
19. SIGNATURE OF INSPECTOR

ELEVATION (a)	DEPTH (b)	LEGEND (c)	CLASSIFICATION OF MATERIALS (Description) (d)	% CORE RECOV. ERY (e)	BOX OR SAMPLE NO. (f)	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) (g)
water to 9.69' deep		0002	LOOSE GRAY F-M SA WET (OFF AUGERS)	0		~~2'-5~~ 4¼" HSA 2" or 3" SS 140#, 30" Drop Driller's note: 3" SS for this boring
		0204	SAA	80 (1.6)		
			V SOFT GRAY SILT SOME F SA TR ORGANICS, WET (leaves, sticks, peaty material)	50 (1.0)		
	5	0406	LOOSE GRAY F-M SA TR SI TR ORG, WET (leaves, sticks, peaty material)			
		0608	SAA	40 (0.8)		
		0810	V SOFT GRAY SILT TR F-M SA ORG MOIST	80 (1.6)		
			LOOSE GRAY F-M SA TR SI, ORG, WET (leaves, sticks, peaty material)			
	0		EOB			
	5					

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PROJECT KINNICKINNIC RIVER | HOLE NO. KK-020

07:30

9.69 CORRECTED H_2O DEPTH

12:30

Hole No. KK-0202

DRILLING LOG	DIVISION GREAT LAKES/OHIO RIVER	INSTALLATION DETROIT - CC	SHEET 1 OF 1 SHEETS

1. PROJECT: KK River
2. LOCATION (Coordinates or Station): 43 0.43769 87 54.84705
3. DRILLING AGENCY: CEC
4. HOLE NO. (As shown on drawing title and title number): KK0202
5. NAME OF DRILLER: ADAMS
6. DIRECTION OF HOLE: (VERTICAL) INCLINED ____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: NA
8. DEPTH DRILLED INTO ROCK: NA
9. TOTAL DEPTH OF HOLE: 23.59
10. SIZE AND TYPE OF BIT: 4¼ HSA
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): LWD 577.5
12. MANUFACTURER'S DESIGNATION OF DRILL: D-50
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 10; UNDISTURBED 0
14. TOTAL NUMBER CORE BOXES: NA
15. ELEVATION GROUND WATER: NA
16. DATE HOLE: STARTED 9-10-02; COMPLETED 9-10-02
17. ELEVATION TOP OF HOLE: 577.5 (LWD)
18. TOTAL CORE RECOVERY FOR BORING: NA %
19. SIGNATURE OF INSPECTOR:

ELEVATION (a)	DEPTH (b)	LEGEND (c)	CLASSIFICATION OF MATERIALS (Description) (d)	% CORE RECOVERY (f)	BOX OR SAMPLE NO. (g)	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) (h)
		0002	V SOFT GRAY-BLACK SILT TR SA, ORGANICS WET	80 (1.6)		~~3" SS~~ 4¼" HSA 2" or 3" SS 140#, 30" Drop
WOR PUSH		0204	V LOOSE GRAY BLACK F-M SA	20 (0.4)		Driller's note: 3" SS for this boring
	5	0406	V SOFT GRAY BLACK VARVED SILT SOME ORGANICS TR SA	80 (1.6)		
		0608	SAA	80 (1.6)		
		0810	SAA NO VARVES TR ORGANICS (leaves, sticks, peaty material)	80 (1.6)		
	0	1012	SAA TR TIN FOIL	80 (1.6)		
		1214	TR TIN FOIL SOME ORGANICS	80 (1.6)		
	5	14-16	SAA NO TIN FOIL TR SHELLS DRY-MOIST ATTERBERG	80 (1.6)		
		16-18	SAA NO SAMPLE SAVED	80 (1.6)		
		18-20	0.5T/FT M DENSE LT BROWN SILT (~~LACUSTRINE VARVED~~) MOIST ATTERBERG	80 (1.6)		
			EOB 20			

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PROJECT KINNIC KINNIC RIVER HOLE NO. KK-0202

CORRECTED ELE = 3.59

15:15

Hole No. KK-0203

DRILLING LOG	DIVISION GREAT LAKES/OHIO RIVER	INSTALLATION DETROIT	SHEET 1 OF 1 SHEETS

1. PROJECT KK River	10. SIZE AND TYPE OF BIT 4¼ HSA
2. LOCATION (Coordinates or Station) 43° 0.45376 87° 54.84660	11. DATUM FOR ELEVATION SHOWN (TBM or MSL) LWD 577.5
3. DRILLING AGENCY CEC	12. MANUFACTURER'S DESIGNATION OF DRILL Diedrich D50 Bombardier Barge
4. HOLE NO. (As shown on drawing title and title number) KK02-03	13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 7, UNDISTURBED 0
5. NAME OF DRILLER Adams / Nickel / NT	14. TOTAL NUMBER CORE BOXES NA
6. DIRECTION OF HOLE (VERTICAL) INCLINED ____ DEG. FROM VERT.	15. ELEVATION GROUND WATER NA
7. THICKNESS OF OVERBURDEN NA	16. DATE HOLE STARTED 9-10-02 COMPLETED 9-10-02
8. DEPTH DRILLED INTO ROCK NA	17. ELEVATION TOP OF HOLE 577.5 (LWD)
9. TOTAL DEPTH OF HOLE 17.49'	18. TOTAL CORE RECOVERY FOR BORING NA %
	19. SIGNATURE OF INSPECTOR

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV. ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
water to 3.49' deep		0-2	V SOFT (SLOP) WET BLACK SILT	50 (1.0)		3" 4¼" HSA 2" or 3" SS 140# 30" Drop
			V LOOSE BLACK/GRAY F-M SA TR SI WET			
		2-4 0204	V SOFT BLACK/GRAY SILT SOME F-M SAND TR ORG WET (leaves, sticks peaty material)	25 (0.5)		Driller's note: 3" SS for this boring
	5	4-6 0406	SAA ~~SOME ORGANICS FR SA~~	80 (1.6)		
		0608	SAA	70 (1.4)		
		08.010	SAA VARVED	80 (1.6)		
	10	0012	SAA	80 (1.6)		
		12.14	SAA	80 (1.6)		
			EOB 14			
	15					

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WATER DEPTH
CAVE ELE 3.49

PROJECT KINNICKINNIC RIVER HOLE NO. KIR-0203

Hole No. -04

10:00

DRILLING LOG | DIVISION GREAT LAKES / OHIO RIVER | INSTALLATION DETROIT | SHEET 1 OF 1 SHEETS

1. PROJECT: KK RIVER
2. LOCATION (Coordinates or Station): 42.046292 83° 54.92653
3. DRILLING AGENCY: CEC
4. HOLE NO. (As shown on drawing title and title number): KK-02-04
5. NAME OF DRILLER: ADAMS
6. DIRECTION OF HOLE: VERTICAL (INCLINED ____ DEG. FROM VERT.)
7. THICKNESS OF OVERBURDEN: NA
8. DEPTH DRILLED INTO ROCK: 0
9. TOTAL DEPTH OF HOLE: 22.69
10. SIZE AND TYPE OF BIT: 4¼ HSA
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): LWD 577.5
12. MANUFACTURER'S DESIGNATION OF DRILL: DIEDRICH D-50 Track-mounted Drill
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 8; UNDISTURBED NA
14. TOTAL NUMBER CORE BOXES: NA
15. ELEVATION GROUND WATER: NA
16. DATE HOLE: STARTED 9-10-02; COMPLETED 9-10-02
17. ELEVATION TOP OF HOLE: 577.5 (LWD)
18. TOTAL CORE RECOVERY FOR BORING: NA %
19. SIGNATURE OF INSPECTOR

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOV.	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
water to 6.69' Deep	0	0002	LOOSE GRAY/BLACK F-M SA WET	20% (0.4)		3" SS ~~RETRY 25%~~ 4¼" HSA 2" or 3" SS 140#, 30" Drop
3331 (6)	1					
	2					
6653 (11)	3	0204	SAA TR FGR	20 (0.4)		Driller's note: 3" SS for this boring
	4					
	5	0406	V SOFT GRAY/BLACK SILT/CLAY WET OPP	80% (1.6)		
WOR	6		SAA TR GR			
1/1/1	7	0608		80 (1.6)		
	8		SAA	0 1ST TRY		
WOR	9	0810		80% 2ND (1.6)		
	10		ORGANICS-WOOD ROOTS TR SA			
	11	1012	SAA (HAIR)	100 (2.0)		
	12					
	13	1214	SAA	100 (2.0)		
	14					
	15	1416	SAA W ROCK(LIME) FRAGS	50 (1.0)		
	16		End of Boring			

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PROJECT

HOLE NO.

577.5 MSL
0.71' ABOVE LWD

6.69 CORRECTED

09:00 Hole No. KK-0205

DRILLING LOG | DIVISION GREAT LAKES/OHIO RIVER | INSTALLATION DETROIT | SHEET 1 OF 1 SHEETS

1. PROJECT: KINNICKINIC RIVER
2. LOCATION (Coordinates or Station): 43° 0.48616 87° 54.83357
3. DRILLING AGENCY: CEC
4. HOLE NO. (As shown on drawing title and title number): KK0205
5. NAME OF DRILLER: ADAMS
6. DIRECTION OF HOLE: (VERTICAL) INCLINED _____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: NA
8. DEPTH DRILLED INTO ROCK: NA
9. TOTAL DEPTH OF HOLE: 19.09'
10. SIZE AND TYPE OF BIT: 4 ¼ HSA
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): LWD 577.5
12. MANUFACTURER'S DESIGNATION OF DRILL: DIEDRICH D-50 Track-Mounted
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 8 | UNDISTURBED 0
14. TOTAL NUMBER CORE BOXES: NA
15. ELEVATION GROUND WATER: NA
16. DATE HOLE: STARTED 9-11-02 | COMPLETED 9-11-02
17. ELEVATION TOP OF HOLE: 577.5 (LWD)
18. TOTAL CORE RECOVERY FOR BORING: NA %
19. SIGNATURE OF INSPECTOR:

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
Water ↑ to 3.09' deep		0002	V SOFT BLACK SILT TR ORG STICKS	80 (1.6)		3" SS 4 1/4" HSA 2" or 3" SS 140#, 30" Drop Driller's note: 3" SS for this boring
		0204	V SOFT BLACK SILT	80 (1.6)		
5		0406	SAA	80 (1.6)		
		0608	SAA	80 (1.6)		
		0810	SAA	80 (1.6)		
10		1012	SAA TR TINFOIL MOIST → WET	80 (1.6)		
		1214	SAA NO TINFOIL	80 (1.6)		
15		1416	SAA	80 (1.6)		
		16.0	End of Boring			

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09:00 CORRECTED

PROJECT KINNICKINNIC RIVER | HOLE NO. KK-0205

11:00

Hole No. KK-0206

DRILLING LOG	DIVISION GREAT LAKES/OHIO RIVER	INSTALLATION DETROIT	SHEET 1 OF 1 SHEETS

1. PROJECT: KINNICKINNIC RIVER
2. LOCATION (Coordinates or Station): 43° 0.48500 87 54.78759
3. DRILLING AGENCY: CEC
4. HOLE NO. (As shown on drawing title and title number): KK0206
5. NAME OF DRILLER: ADAMS
6. DIRECTION OF HOLE: (VERTICAL) INCLINED ____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: NA
8. DEPTH DRILLED INTO ROCK: 0
9. TOTAL DEPTH OF HOLE: 20-69
10. SIZE AND TYPE OF BIT: 4 1/4 HSA
11. DATUM FOR ELEVATION SHOWN (TDM or MSL): LWD 577.5
12. MANUFACTURER'S DESIGNATION OF DRILL: DIEDRICH D50 - BOMBARDIAR - BARGE
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 9; UNDISTURBED NA
14. TOTAL NUMBER CORE BOXES: NA
15. ELEVATION GROUND WATER: NA
16. DATE HOLE: STARTED 9-11-02; COMPLETED 9-11-02
17. ELEVATION TOP OF HOLE: 577.5' (LWD)
18. TOTAL CORE RECOVERY FOR BORING: NA %
19. SIGNATURE OF INSPECTOR:

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV. ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
water to 2-69' deep		0002	V SOFT BLACK SILT WET	80 (1.6)		4" 4 1/4" HSA 2" or 3" SS 140#, 30" Drop Driller's note: 3" SS for this boring
		0204	LOOSE BLACK F-M SA SOME SI / ORG WET	50 (1.0)		
	5	0406	V SOFT BLACK SILT TR ORGANICS/DEBRIS (PLASTIC) (leaves, sticks, platy material) WET (SLOP)	50 (1.0)		
		0608	V SOFT BLACK SILT SOME ORGANICS LEAVES ROOTS TR SA WET	80 (1.6)		
		0810	V SOFT BLACK GRAY SILT MOIST → WET	80 (1.6)		
	10	1012	SAA TIN FOIL			
		1214	SAA			
	15	1416	SAA			
		1618	SAA			
	18		EOB 18			

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PROJECT KINNICKINNIC RIVER HOLE NO. KK-0206

2.69 CORRECTED H_2O DEPTH

07:30

Hole No. KK-0207

DRILLING LOG	DIVISION: GREAT LAKES/OHIO RIVER	INSTALLATION: DETROIT	SHEET 1 OF 1 SHEETS

1. PROJECT: KINNICKINNIC RIVER
2. LOCATION (Coordinates or Station): 43° 00.50125 ; 87° 54.76866
3. DRILLING AGENCY: COLEMAN ENGINEERING CO
4. HOLE NO. (As shown on drawing title and file number): KK-02-07
5. NAME OF DRILLER: ADAMS
6. DIRECTION OF HOLE: (VERTICAL) INCLINED _____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: NA
8. DEPTH DRILLED INTO ROCK: NA
9. TOTAL DEPTH OF HOLE: 20.39
10. SIZE AND TYPE OF BIT
11. DATUM FOR ELEVATION SHOWN (TYDN or MSL): LWD 577.5
12. MANUFACTURER'S DESIGNATION OF DRILL: DIEDRICH D-50 TRACK-MOUNT
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 3; UNDISTURBED 0
14. TOTAL NUMBER CORE BOXES: NA
15. ELEVATION GROUND WATER: NA
16. DATE HOLE: STARTED 9-12-02; COMPLETED 9-12-02
17. ELEVATION TOP OF HOLE: 577.5 (LWD)
18. TOTAL CORE RECOVERY FOR BORING: NA %
19. SIGNATURE OF INSPECTOR

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
water to 10.39' deep	0002		NO RECOVERY SEVERAL ATTEMPTS NO SAMPLE	0		~~3" SS~~ 4 1/4" HSA 2" or 3" SS 140#, 30" Drop Driller's Note: 3" SS to sample 0204 2" SS for rest of boring ~~2" SS~~ ↓
	0204		SAA			
	0401		V SOFT BLACK SILT TR SA MOIST → WET	80 (1.6)		
5	0698		SAA	80 (1.6)		
	0810		V SOFT GRAY BLACK SILT TR F SA	80 (1.6)		
10	1000		EOB			
15						

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT: KINNICKINNIC RIVER HOLE NO. KK-0207

11.1

10.39

08:30

Hole No. KK-02O7R

DRILLING LOG	DIVISION GREAT LAKES/OHIO RIVER	INSTALLATION DETROIT	SHEET 1 OF 1 SHEETS

1. PROJECT: KINNICKINIC RIVER
2. LOCATION (Coordinates or Station): 43° 0.50155 87° 54.76876
3. DRILLING AGENCY: COLEMAN ENGINEERING Co
4. HOLE NO. (As shown on drawing title and title number): KK 02 07R
5. NAME OF DRILLER: ADAMS
6. DIRECTION OF HOLE: (VERTICAL) INCLINED _____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: NA
8. DEPTH DRILLED INTO ROCK: NA
9. TOTAL DEPTH OF HOLE: 20.39
10. SIZE AND TYPE OF BIT:
11. DATUM FOR ELEVATION SHOWN (TOM or MSL): LWD 577.5
12. MANUFACTURER'S DESIGNATION OF DRILL: DIEDRICH D-50 TRACK MOUNT
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 4; UNDISTURBED 0
14. TOTAL NUMBER CORE BOXES: NA
15. ELEVATION GROUND WATER: NA
16. DATE HOLE: STARTED 9-17-02; COMPLETED 9-17-02
17. ELEVATION TOP OF HOLE: 577.5 (LWD)
18. TOTAL CORE RECOVERY FOR BORING: NA %
19. SIGNATURE OF INSPECTOR:

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV. ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
water ↑ to 10.39' deep		0002	V LOOSE GRAY BLACK F-M SAND WET NO TCLP SAMPLE PCB PAH TOC LOI	10 (0.2)		~~2" SS~~ 4 1/4" HSA 2" or 3" S.S. 140 #, 30" Drop Driller's Note: 2" SS for this boring
		0204	NO SAMPLE	0		
	5	0406	V SOFT GRAY SILT TR SA MOIST → WET	100 (2.0)		
		0608	SAA ROCK FRAGS IN TIP	80 (1.6)		
		0810	SAA WOOD IN TIP	80 (1.6)		
	10		10.0 EOB 10'			
	5					

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

~~8.09 CORREC~~ SAME W.O. AS 07

PROJECT KINNICKINIC RIVER

HOLE NO. KK-02O7R

12:15

Hole No. KK-0208

DRILLING LOG	DIVISION GREAT LAKES/OHIO RNG	INSTALLATION DETROIT	SHEET 1 OF 1 SHEETS

1. PROJECT: KINNICKINNIC RIVER
2. LOCATION (Coordinates or Station): 43 0.49569 87 54.74010
3. DRILLING AGENCY: COLEMAN ENG. CO.
4. HOLE NO. (As shown on drawing title and title number): KK0208
5. NAME OF DRILLER: DAVE ADAMS
6. DIRECTION OF HOLE: (VERTICAL) INCLINED ____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: NA
8. DEPTH DRILLED INTO ROCK: NA
9. TOTAL DEPTH OF HOLE: 19.89'
10. SIZE AND TYPE OF BIT
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): LWD 577.5
12. MANUFACTURER'S DESIGNATION OF DRILL: DIEDRICH D-50 TRACK MOUNT
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 5; UNDISTURBED 0
14. TOTAL NUMBER CORE BOXES: NA
15. ELEVATION GROUND WATER: NA
16. DATE HOLE: STARTED 9-11-02; COMPLETED 9-11-02
17. ELEVATION TOP OF HOLE: 577.5 (LWD)
18. TOTAL CORE RECOVERY FOR BORING: NA %
19. SIGNATURE OF INSPECTOR

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
water ↗ to 5.89' deep		0002	SA ? NO RECOVERY AFTER SEVERAL ATEMPS	0		3" SS
						4 1/4" HSA
						2" or 3" SS
						140 #, 30" Drop
		0204	LOOSE GRAY F-M SA	10 (0.2)		Driller's note:
						3" SS for this boring
	5	0406	NO RECOVERY	0		
		0608	V SOFT GRAY BLACK SILT TR SA SOME ORGANICS MOIST-WET	80 (1.6)		
		0810	LOOSE SILTY F-M SA	80 (1.6)		
	0					
		1012	V SOFT GRAY BLACK SILT SOME SA TR ORG & WOOD	80 (1.6)		
		1214	SAA TR SA	(1.6)		
			V SOFT BLACK SILT SOME ORGANICS EOB 14	1.0		
	5					

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE

5.89 CORRECTED DEPTH

PROJECT: KINNICKINNIC RIVER

HOLE NO. KK-0208

14:20

Hole No. KK-0209

DRILLING LOG	DIVISION GREAT LAKES/OHIO RIVER	INSTALLATION DETROIT	SHEET 1 OF 2 SHEETS

1. PROJECT: K K RIVER
2. LOCATION (Coordinates or Station): 43 0.49187 87 54.69561
3. DRILLING AGENCY: CEC
4. HOLE NO. (As shown on drawing title and title number): KK 02 09
5. NAME OF DRILLER: A04MJ S
6. DIRECTION OF HOLE: (VERTICAL) INCLINED ____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: NA
8. DEPTH DRILLED INTO ROCK: NA
9. TOTAL DEPTH OF HOLE: 27.59
10. SIZE AND TYPE OF BIT: 4¼ HSA
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): LWD 577.5
12. MANUFACTURER'S DESIGNATION OF DRILL: DIEDRICH D 50 TRACK-MOUNT
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 12; UNDISTURBED 0
14. TOTAL NUMBER CORE BOXES: NA
15. ELEVATION GROUND WATER: NA
16. DATE HOLE: STARTED 9-11-02; COMPLETED 9-11-02
17. ELEVATION TOP OF HOLE: 577.5 (LWD)
18. TOTAL CORE RECOVERY FOR BORING: NA %
19. SIGNATURE OF INSPECTOR:

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV. ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
water to 3.59' deep	0002		LOOSE GRAY F-M SA TR SI			~~3" SS~~
			V SOFT GRAY BLACK SILT & ORGANICS SA FIBRE LEAVES	80 (1.6)		4¼" HSA 2" or 3" SS 140 #, 30" Drop
	0204		SAA	80 (1.6)		Driller's note: 3" SS for this boring
5	0406		SAA	80 (1.6)		
	0608		SAA	80 (1.6)		
	0810		SOME ORGANICS	80 (1.6)		
0	1012		SAA Some organics	80 (1.6)		
	1214		SAA some organics TIN FOIL (IGNORE 1ST 1214 PHOTO)	80 (1.6)		
5	1416		SAA HAIRS	80 (1.6)		
17-18 22-24	1618		SAA NO SAMPLE KEPT	80 (1.6)		
	18-20		SAA TIN FOIL PLASTIC ATTERBERG HAIRS	(1.6)		

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT: KINNICKINNIC RIVER

HOLE NO. KK-0209

3.59

Hole No. KK-0209

DRILLING LOG	DIVISION	INSTALLATION	SHEET 2 OF 2 SHEETS

1. PROJECT: KINNICKINNIC RIVER
2. LOCATION (Coordinates or Station): 43° 0.49187' 87° 54.69561
3. DRILLING AGENCY:
4. HOLE NO. (As shown on drawing title and file number): KK0209
5. NAME OF DRILLER:
6. DIRECTION OF HOLE: VERTICAL INCLINED ____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: NA
8. DEPTH DRILLED INTO ROCK: NA
9. TOTAL DEPTH OF HOLE: 27.59
10. SIZE AND TYPE OF BIT: 4 1/4 HSA
11. DATUM FOR ELEVATION SHOWN (USGS or MSL):
12. MANUFACTURER'S DESIGNATION OF DRILL: DIEDRICH D-50 BOMBARDIAR
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED / UNDISTURBED
14. TOTAL NUMBER CORE BOXES:
15. ELEVATION GROUND WATER:
16. DATE HOLE: STARTED 9-11-02 COMPLETED
17. ELEVATION TOP OF HOLE:
18. TOTAL CORE RECOVERY FOR BORING: %
19. SIGNATURE OF INSPECTOR:

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
	20					
		2022	V SOFT GRAY BLACK SILT TR ORGANICS (LEAVES TWIGS, FIBRES HAIR	80 (1.6)		3" SS
	22					
		2224	SAA			
			ATTEBERG	80 (1.6)		
			24.0 EOB 24			
	5					
	0					
	5					

16:30. Hole No. KK-0210

DRILLING LOG	DIVISION: GREAT LAKES/OHIO RIVER	INSTALLATION: DETROIT	SHEET 1 OF 1 SHEETS

1. PROJECT	KINNICKINNIC RIVER
2. LOCATION (Coordinates or Station)	43 0.50283 87 54.68588
3. DRILLING AGENCY	CEC
4. HOLE NO. (As shown on drawing title and file number)	KK 0210
5. NAME OF DRILLER	D. Adams
6. DIRECTION OF HOLE	(VERTICAL) INCLINED ____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN	NA
8. DEPTH DRILLED INTO ROCK	NA
9. TOTAL DEPTH OF HOLE	24.39
10. SIZE AND TYPE OF BIT	4¼ HSA
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	LWD 577.5
12. MANUFACTURER'S DESIGNATION OF DRILL	DIEDRICH D-50 Track Mount
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED: 7 / UNDISTURBED: 0
14. TOTAL NUMBER CORE BOXES	NA
15. ELEVATION GROUND WATER	NA
16. DATE HOLE	STARTED: 9-11-02 / COMPLETED: 9-11-02
17. ELEVATION TOP OF HOLE	577.5 (LWD)
18. TOTAL CORE RECOVERY FOR BORING	NA %
19. SIGNATURE OF INSPECTOR	

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
water to 10.39' deep		0002	V LOOSE BLACK SILT TR ORGANICS (leaves, sticks, peaty material)	10 (0.2)		~~3¼~~ 4¼" HSA 2" or 3" SS 140#, 30" Drop Driller's Note: 3" SS for this boring
		0204	SAA (SLOP)	20 (0.4)		
	5	0406	V LOOSE BLACK SILT TR F SA ORG TIN FOIL PLASTIC	80 (1.6)		
		0608	SAA	50 (1.0)		
		0810 AT	SAA	80 (1.6)		
	0	1012	SAA NO SAMPLES TAKEN	80 (1.6)		
		1214	SAA			
		AT	STIFF TAN SILT TR F-C SA, F-C GR DRY 14.0	80 (1.6)		
			EOB 14			
	5					

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PROJECT: KINNICKINNIC RIVER — HOLE NO. KK-0210

11.1
71
[illegible] CORRECTED H2O DEPTH

13:30 Hole No. KK-02-11

DRILLING LOG	DIVISION GREAT LAKES/OHIO RIVER	INSTALLATION DETROIT	SHEET 1 OF 1 SHEETS

1. PROJECT: KINNICKINNIC RIVER
2. LOCATION (Coordinates or Station): 43 0.50853 87° 54.64123
3. DRILLING AGENCY: COLEMAN ENG. CO
4. HOLE NO. (As shown on drawing title and title number): KK 02 11
5. NAME OF DRILLER: DAVE ADAMS
6. DIRECTION OF HOLE: (VERTICAL) INCLINED _____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: NA
8. DEPTH DRILLED INTO ROCK: NA
9. TOTAL DEPTH OF HOLE: 18.79
10. SIZE AND TYPE OF BIT:
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): LWD 577.5
12. MANUFACTURER'S DESIGNATION OF DRILL: DIEDRICH D-50 TRACK MOUNT
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 6; UNDISTURBED 0
14. TOTAL NUMBER CORE BOXES: NA
15. ELEVATION GROUND WATER: NA
16. DATE HOLE: STARTED 9-12-02; COMPLETED 9-12-02
17. ELEVATION TOP OF HOLE: 577.5 (LWD)
18. TOTAL CORE RECOVERY FOR BORING: NA %
19. SIGNATURE OF INSPECTOR:

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
water to 6.79' deep	0	1 0002	V SOFT GRAY BLACK SILT TR SA WET	60 (1.6)		~~2" SS~~ ↓ 4 1/4" HSA 2" or 3" SS 140#, 30" Drop
		2 0204	SAA PLASTIC	80 (1.6)		Driller's Note: 2" SS to Sample 0810, then 3" SS to end of boring
	5	3 0406	SAA	80 (1.6)		
		4 0608	SAA TR ORG, SLAG (leaves, sticks, peaty material)	80 (1.6)		
		5 0810	SAA TR GRAY SILT FRAGS	80 (1.6)		
	10	6 1012	SAA NO FRAGS	80 (1.6)		~~3" SS~~
			12.0 EOB			
	15					

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PROJECT KINNICKINNIC RIVER HOLE NO. KK-02 11

6.79 COR

12:30

Hole No. KK-0212

DRILLING LOG	DIVISION GREAT LAKES/OHIO RIVER	INSTALLATION DETROIT	SHEET 1 OF 1 SHEETS

1. PROJECT: KINNICKINNIC RIVER
2. LOCATION (Coordinates or Station): 43° 0.48567 87° 54.63910
3. DRILLING AGENCY: COLEMAN ENG. Co
4. HOLE NO. (As shown on drawing title and title number): KK0212
5. NAME OF DRILLER: DAVE ADAMS
6. DIRECTION OF HOLE: (VERTICAL) INCLINED _____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: NA
8. DEPTH DRILLED INTO ROCK: NA
9. TOTAL DEPTH OF HOLE: 20.41
10. SIZE AND TYPE OF BIT
11. DATUM FOR ELEVATION SHOWN (TOM or MSL): LWD 577.5
12. MANUFACTURER'S DESIGNATION OF DRILL: DIEDRICH D-50 TRACKMOUNT
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 7; UNDISTURBED 0
14. TOTAL NUMBER CORE BOXES: NA
15. ELEVATION GROUND WATER: NA
16. DATE HOLE: STARTED 9-12-02; COMPLETED 9-12-02
17. ELEVATION TOP OF HOLE: 577.5 (LWD)
18. TOTAL CORE RECOVERY FOR BORING: NA %
19. SIGNATURE OF INSPECTOR

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV. ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
water to 6.41' deep	0	1 0002	V SOFT GRAY BLACK SILT TR F SA ORG	80 (1.6)		~~2" SS~~
		2 0204	SAA	80 (1.6)		4 1/4" HSA 2" or 3" SS 140 #, 30" Drop
	5	3 0406	SAA TR PLASTIC	80 (1.6)		Driller's note: 2" SS in this boring
		4 0608	SAA	80 (1.6)		
		5 0810	SAA	80 (1.6)		
	10	6 1012	SAA LEAVES WOOD PLASTIC	80 (1.6)		
		7 1214	SAA NO DEBRIS	80 (1.6)		
			14.0 EOB 14			
	15					

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

6.41 COVER H20

PROJECT: KINNICKINNIC RIVER | HOLE NO. KK-0212

10115

Hole No. KK-0213

DRILLING LOG	DIVISION GREAT LAKES/OHIO RIVER	INSTALLATION DETROIT	SHEET 1 OF 1 SHEETS

1. PROJECT	KINNICKINNIC RIVER
2. LOCATION (Coordinates or Station)	43° 0.48593 87° 54.58441
3. DRILLING AGENCY	COLEMAN ENG. CO
4. HOLE NO. (As shown on drawing title and file number)	KK 02 13
5. NAME OF DRILLER	DAVE ADAMS
6. DIRECTION OF HOLE	(VERTICAL) INCLINED _____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN	NA
8. DEPTH DRILLED INTO ROCK	NA
9. TOTAL DEPTH OF HOLE	24.09
10. SIZE AND TYPE OF BIT	
11. DATUM FOR ELEVATION SHOWN (TDM or MSL)	LWD 577.5
12. MANUFACTURER'S DESIGNATION OF DRILL	DIEDRICH D50 TRACK MOUNT
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 9 / UNDISTURBED 0
14. TOTAL NUMBER CORE BOXES	NA
15. ELEVATION GROUND WATER	NA
16. DATE HOLE	STARTED 9-12-02 / COMPLETED 9-12-02
17. ELEVATION TOP OF HOLE	577.5 (LWD)
18. TOTAL CORE RECOVERY FOR BORING	NA %
19. SIGNATURE OF INSPECTOR	

ELEVATION (a)	DEPTH (b)	LEGEND (c)	CLASSIFICATION OF MATERIALS (Description) (d)	% CORE RECOVERY (e)	BOX OR SAMPLE NO. (f)	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) (g)
water 8.09' Deep	0	1 0002	V SOFT BLACK SILT TR FSA WET	80 (1.6)		~~2" SS~~ 4 1/4" HSA 2" or 3" SS 140#, 30" Drop
		2 0204	SAA	80 (1.6)		
	5	3 0406	SAA	80 (1.6)		
		4 0608	SAA	80 (1.6)		
		5 0810	SAA	80 (1.6)		
	10	6 1012	SAA	80 (1.6)		
		NO ENVIRON NO TCLP 7 1214 ATT	SAA	80 (1.6)		
	15	8 1416 ATT	SAA	80 (1.6)		
			16.0 REFUSAL @ 16 EOB			

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT KINNICKINNIC RIVER

HOLE NO. KK-0213

8.09 CORRECTED

11:45

Hole No. KK-02 14

DRILLING LOG	DIVISION GREAT LAKES/OHIO RIVER	INSTALLATION DETROIT	SHEET 1 OF 1 SHEETS

1. PROJECT: KINNICKINNIC RIVER
2. LOCATION (Coordinates or Station): 43° 0.9742 87° 54.5546
3. DRILLING AGENCY: COLEMAN ENG. Co.
4. HOLE NO. (As shown on drawing title and title number): KK 02 14
5. NAME OF DRILLER: DAVE ADAMS
6. DIRECTION OF HOLE: (VERTICAL) INCLINED _____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: NA
8. DEPTH DRILLED INTO ROCK: NA
9. TOTAL DEPTH OF HOLE: 19.39
10. SIZE AND TYPE OF BIT:
11. DATUM FOR ELEVATION SHOWN (TOM or MSL): LWD 577.5
12. MANUFACTURER'S DESIGNATION OF DRILL: DIEDRICH D-50 TRACK MOUNT
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 4; UNDISTURBED 0
14. TOTAL NUMBER CORE BOXES: NA
15. ELEVATION GROUND WATER: NA
16. DATE HOLE: STARTED 9-12-02; COMPLETED 9-12-02
17. ELEVATION TOP OF HOLE: 577.5 (LWD)
18. TOTAL CORE RECOVERY FOR BORING: NA %
19. SIGNATURE OF INSPECTOR:

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV. ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
Water 9.39' deep	0002		NO RECOVERY NO SAMPLE	0		~~2" SS~~ 4 1/4" HSA 2" or 3" SS 140#, 30" Drop Driller's Note: 2" SS for this boring
	0204		LOOSE GRAY F-M SA WET	10 (0.2)		
	5 0406		SAA TR GR	30 (0.6)		
	0608		SAA NO GRAVEL	30 (0.6)		
	0810		SAA			
			LOOSE GRAY/TAN TR F-M SA MOIST/WET			
	10		NATIVE TILL 10.0			
	5					

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9.39 CORRECTED

PROJECT KINNICKINNIC RIVER HOLE NO. KK-0214

TYPED BORING LOGS

Hole No. KK-02-US-1

DRILLING LOG

DIVISION: Great Lakes/Ohio River

INSTALLATION: Detroit

SHEET 1 OF 1 SHEETS

1. PROJECT: Kinnickinnic River
2. LOCATION (Coordinates or Station): 43° 0.33363', 87° 54.83575'
3. DRILLING AGENCY: Coleman Engineering Company
4. HOLE NO. (As shown on drawing title and file number): KK-02-US-1
5. NAME OF DRILLER: Scott Strigel
6. DIRECTION OF HOLE: ☐ VERTICAL ☐ INCLINED 0.0 DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: N/A
8. DEPTH DRILLED INTO ROCK: N/A
9. TOTAL DEPTH OF HOLE: 5.50
10. SIZE AND TYPE OF BIT: N/A
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): LWD 577.5
12. MANUFACTURES'S DESIGNATION OF DRILL: Ponar Grab Sampler
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 1; UNDISTURBED 0
14. TOTAL NUMBER CORE BOXES: N/A
15. ELEVATION GROUND WATER:
16. DATE HOLE: STARTED Sep 12, 02; COMPLETED Sep 12, 02
17. ELEVATION TOP OF HOLE: 577.5
18. TOTAL CORE RECOVERY FOR BORING: N/A %
19. SIGNATURE OF INSPECTOR:

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV-ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
			Kinnickinnic River - Lake Michigan			*Bottom material sampled with a Ponar Grab Sampler from the boat*
573.0	*4.50*		*4.5'*			
			dark brown, fine SAND, trace (10%) of silt, some sticks and leaves			

Hole No. KK-02-US-2

DRILLING LOG

DIVISION: Great Lakes/Ohio River

INSTALLATION: Detroit

SHEET 1 OF 1 SHEETS

1. PROJECT: Kinnickinnic River
2. LOCATION (Coordinates or Station): 43° 0.29666', 87° 54.81202'
3. DRILLING AGENCY: Coleman Engineering Company
4. HOLE NO. (As shown on drawing title and file number): KK-02-US-2
5. NAME OF DRILLER: Scott Strigel
6. DIRECTION OF HOLE: ☐ VERTICAL ☐ INCLINED 0.0 DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: N/A
8. DEPTH DRILLED INTO ROCK: N/A
9. TOTAL DEPTH OF HOLE: 7.40
10. SIZE AND TYPE OF BIT: N/A
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): LWD 577.5
12. MANUFACTURES'S DESIGNATION OF DRILL: Ponar Grab Sampler
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 1 UNDISTURBED 0
14. TOTAL NUMBER CORE BOXES: N/A
15. ELEVATION GROUND WATER:
16. DATE HOLE: STARTED Sep 12, 02 COMPLETED Sep 12, 02
17. ELEVATION TOP OF HOLE: 577.5
18. TOTAL CORE RECOVERY FOR BORING: N/A %
19. SIGNATURE OF INSPECTOR:

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV-ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
			Kinnickinnic River - Lake Michigan			*Bottom material sampled with a Ponar Grab Sampler from the boat*
571.1	*6.40*		*6.4'*			
			dark brown, fine SAND, trace of silt			

Hole No. KK-0201

DRILLING LOG

DIVISION: Great Lakes/Ohio River

INSTALLATION: Detroit

SHEET 1 OF 1 SHEETS

1. PROJECT: Kinnickinnic River
2. LOCATION (Coordinates or Station): 43° 0.41103', 87° 54.83197'
3. DRILLING AGENCY: Coleman Engineering Company
4. HOLE NO. (As shown on drawing title and file number): KK-0201
5. NAME OF DRILLER: Dave Adams
6. DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED 0.0 DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: N/A
8. DEPTH DRILLED INTO ROCK: N/A
9. TOTAL DEPTH OF HOLE: 19.69
10. SIZE AND TYPE OF BIT: N/A
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): LWD 577.5
12. MANUFACTURES'S DESIGNATION OF DRILL: Diedrich D-50 Bombardier Barge
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 5 UNDISTURBED 0
14. TOTAL NUMBER CORE BOXES: N/A
15. ELEVATION GROUND WATER:
16. DATE HOLE: STARTED Sep 11, 02 COMPLETED Sep 11, 02
17. ELEVATION TOP OF HOLE: 577.5
18. TOTAL CORE RECOVERY FOR BORING: N/A %
19. SIGNATURE OF INSPECTOR:

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV-ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
			Kinnickinnic River - Lake Michigan			*4-1/4" HSA* *2" or 3" SPT Sampling* *140# wt, 30" Drop* *Driller's Note:* *3" SS for this boring*
567.8	*9.69*		*9.69'*			
			loose, gray, fine to coarse SILTY SAND, trace of organic matter, wet	*0%*	*0002* *9.7* *11.7*	*no recovery - sample from augers*
565.8	*11.69*		*11.69'*			
			loose, gray, fine to medium SAND, wet	*80%*	*0204* *11.7* *13.7*	
564.4	*13.09*		*13.09'*			
563.8	*13.69*		*very soft, gray ELASTIC SILT, some fine sand, trace of organics, (leaves, sticks, peaty material), wet*	*50%*	*0406* *13.7* *15.7*	
			13.69'			
			loose, gray, fine to coarse SAND, some silt, trace of organics (leaves, sticks, peaty material), wet			
561.8	*15.69*		*15.69'*			
			loose, gray, fine to medium SAND, trace of silt, trace of organics (leaves, sticks, peaty material), wet	*40%*	*0608* *15.7* *17.7*	
559.8	*17.69*		*17.69'*			
559.3	*18.19*		*loose, gray, fine to coarse SILTY SAND, some organics (leaves, sticks, peaty material), wet*	*80%*	*0810* *17.7* *19.7*	
558.8	*18.69*		*18.19'*			
			very soft, gray ELASTIC SILT, trace of fine to medium sand, trace of organics (leaves, sticks, peaty material) moist			
557.8	*19.69*		*18.69'*			
			loose, gray, fine to medium SAND, trace of silt, trace of organics (leaves, sticks, peaty material), wet			
			19.69'			
			End of Boring			

Hole No. KK-0202

DRILLING LOG

DIVISION: Great Lakes/Ohio River

INSTALLATION: Detroit

SHEET 1 OF 1 SHEETS

1. PROJECT: Kinnickinnic River
2. LOCATION (Coordinates or Station): 43° 0.43769', 87° 54.84705'
3. DRILLING AGENCY: Coleman Engineering Company
4. HOLE NO. (As shown on drawing title and file number): KK-0202
5. NAME OF DRILLER: Dave Adams
6. DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED 0.0 DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: N/A
8. DEPTH DRILLED INTO ROCK: N/A
9. TOTAL DEPTH OF HOLE: 23.59
10. SIZE AND TYPE OF BIT: N/A
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): LWD 577.5
12. MANUFACTURES'S DESIGNATION OF DRILL: Diedrich D-50 Bombardier Barge
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 10 UNDISTURBED 0
14. TOTAL NUMBER CORE BOXES: N/A
15. ELEVATION GROUND WATER
16. DATE HOLE: STARTED Sep 10, 02 COMPLETED Sep 10, 02
17. ELEVATION TOP OF HOLE: 577.5
18. TOTAL CORE RECOVERY FOR BORING: N/A %
19. SIGNATURE OF INSPECTOR

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV-ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
			Kinnickinnic River - Lake Michigan			*4-1/4" HSA* *2" or 3" SPT Sampling* *140# wt, 30" Drop* *Driller's Note:* *3" SS for this boring*
573.9	3.59		3.59'			
			very soft, gray-black ELASTIC SILT, trace of sand, organics, wet	80%	0002 3.6 5.6	
571.9	5.59		5.59'			
			very loose, gray-black, fine to coarse SILTY SAND, trace of organic matter	20%	0204 5.6 7.6	
569.9	7.59		7.59'			
			very soft, gray-black, varved ELASTIC SILT, some organics, trace of sand	80%	0406 7.6 9.6	
567.9	9.59		9.59'			
			very soft, gray-black, varved ELASTIC SILT, with fine to coarse sand, some organics	80%	0608 9.6 11.6	
565.9	11.59		11.59'			
			very soft, gray-black, ELASTIC SILT, trace of organics (leaves, sticks, peaty material), trace of sand	80%	0810 11.6 13.6	
563.9	13.59		13.59'			
			very soft, gray-black, ELASTIC SILT, with fine to coarse sand, trace of organics (leaves, sticks, peaty material), trace of tin foil	80%	1012 13.6 15.6	
561.9	15.59		15.59'			
			very soft, gray-black, ELASTIC SILT, some organics (leaves, sticks, peaty material), trace of sand, trace of tin foil	80%	1214 15.6 17.6	
559.9	17.59		17.59'			
			very soft, gray-black, ELASTIC SILT, with fine to coarse sand, some organics (leaves, sticks, peaty material), trace of shells, dry to moist	80%	1416 17.6 19.6	
557.9	19.59		19.59'			
			very soft, gray-black, ELASTIC SILT, some organics (leaves, sticks, peaty material), trace of sand, trace of shells, dry to moist	80%	1618 19.6 21.6	
555.9	21.59		21.59'			
			medium dense, light brown SILT, some fine to medium sand, trace of organic matter, moist	80%	1820 21.6 23.6	pocket pen 0.5 T/ft
553.9	23.59		23.59'			
			End of Boring			

Hole No. KK-0203

DRILLING LOG

DIVISION: Great Lakes/Ohio River

INSTALLATION: Detroit

SHEET 1 OF 1 SHEETS

1. PROJECT: Kinnickinnic River
2. LOCATION (Coordinates or Station): 43° 0.45376', 87° 54.84660'
3. DRILLING AGENCY: Coleman Engineering Company
4. HOLE NO. (As shown on drawing title and file number): KK-0203
5. NAME OF DRILLER: Dave Adams
6. DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED 0.0 DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: N/A
8. DEPTH DRILLED INTO ROCK: N/A
9. TOTAL DEPTH OF HOLE: 17.49
10. SIZE AND TYPE OF BIT: N/A
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): LWD 577.5
12. MANUFACTURES'S DESIGNATION OF DRILL: Diedrich D-50 Bombardier Barge
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 7 UNDISTURBED 0
14. TOTAL NUMBER CORE BOXES: N/A
15. ELEVATION GROUND WATER:
16. DATE HOLE: STARTED Sep 10, 02 COMPLETED Sep 10, 02
17. ELEVATION TOP OF HOLE: 577.5
18. TOTAL CORE RECOVERY FOR BORING: N/A %
19. SIGNATURE OF INSPECTOR:

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV-ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
			Kinnickinnic River - Lake Michigan			*4-1/4" HSA* *2" or 3" SPT Sampling* *140# wt, 30" Drop* *Driller's Note:* *3" SS for this boring*
574.0	3.49		3.49'			
			very soft (slop) black ELASTIC SILT, sandy, some organic matter, wet	50%	0002 3.5 5.5	
573.0	4.49		4.49'			
			very loose, black-gray, fine to medium SAND, trace of silt, wet			
572.0	5.49		5.49'			
			very soft, black-gray ELASTIC SILT, some fine to medium sand, trace of organics (leaves, sticks, peaty material), wet	25%	0204 5.5 7.5	
570.0	7.49		7.49'			
			very soft, black-gray ELASTIC SILT, with fine to medium sand, some organics (leaves, sticks, peaty material), wet	80%	0406 7.5 9.5	
568.0	9.49		9.49'			
			very soft, black-gray ELASTIC SILT, trace of sand, some organics (leaves, sticks, peaty material), wet	70%	0608 9.5 11.5	
566.0	11.49		11.49'			
			very soft, black-gray, varved ELASTIC SILT, with fine to coarse sand, trace of organics (leaves, sticks, peaty material), wet	80%	0810 11.5 13.5	
564.0	13.49		13.49'			
			very soft, black-gray, ELASTIC SILT, trace of sand, some organics (leaves, sticks, peaty material), wet	80%	1012 13.5 15.5	
562.0	15.49		15.49'			
			very soft, black-gray, ELASTIC SILT, some fine to coarse sand, some organics (leaves, sticks, peaty material), wet	80%	1214 15.5 17.5	
560.0	17.49		17.49'			
			End of Boring			

Hole No. KK-0204

DRILLING LOG

DIVISION: Great Lakes/Ohio River

INSTALLATION: Detroit

SHEET 1 OF 1 SHEETS

1. PROJECT: Kinnickinnic River
2. LOCATION (Coordinates or Station): 43° 0.46292', 87° 54.82653'
3. DRILLING AGENCY: Coleman Engineering Company
4. HOLE NO. (As shown on drawing title and file number): KK-0204
5. NAME OF DRILLER: Dave Adams
6. DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED 0.0 DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: N/A
8. DEPTH DRILLED INTO ROCK: N/A
9. TOTAL DEPTH OF HOLE: 22.69
10. SIZE AND TYPE OF BIT: N/A
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): LWD 577.5
12. MANUFACTURES'S DESIGNATION OF DRILL: Diedrich D-50 Bombardier Barge
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 8 / UNDISTURBED 0
14. TOTAL NUMBER CORE BOXES: N/A
15. ELEVATION GROUND WATER
16. DATE HOLE: STARTED Sep 10, 02 / COMPLETED Sep 10, 02
17. ELEVATION TOP OF HOLE: 577.5
18. TOTAL CORE RECOVERY FOR BORING: N/A %
19. SIGNATURE OF INSPECTOR

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV-ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
			Kinnickinnic River - Lake Michigan			*4-1/4" HSA* *2" or 3" SPT Sampling* *140# wt, 30" Drop* *Driller's Note:* *3" SS for this boring*
570.8	6.69		6.69'			
			loose, gray-black, fine to medium SAND, wet	*20%*	*0002* *6.7* *8.7*	*blows = 3 - 3 - 3 - 1* *n = 6*
568.8	8.69		8.69'			
			loose, gray-black, fine to coarse SAND, some silt, trace of organic matter, wet	*20%*	*0204* *8.7* *10.7*	*blows = 6 - 6 - 5 - 3* *n = 11*
566.8	10.69		10.69'			
566.3	11.19		*loose, gray-black, fine to medium SAND, trace of fine gravel, wet* 11.19'	*80%*	*0406* *10.7* *12.7*	*blows = WOR* *pocket pen = 0*
			very soft, gray-black, ELASTIC SILT, wet			
564.8	12.69		12.69'			
			very soft, gray-black, ELASTIC SILT, sandy (fine to coarse), trace of organic matter, wet	*80%*	*0608* *12.7* *14.7*	*blows = 1 --> 1', 1 --> 1'*
562.8	14.69		14.69'			
			very soft, gray-black, ELASTIC SILT, trace of gravel, wet	*80%*	*0810* *14.7* *16.7*	*blows = WOR*
561.3	16.19		16.19'			
560.8	16.69		*Organics-wood roots, trace of sand* 16.69'			
			very soft, gray-black ELASTIC SILT, with fine to coarse sand, some organic matter, some hair, wet	*100%*	*1012* *16.7* *18.7*	*blows = WOR*
558.8	18.69		18.69'			
			very soft, gray-black ELASTIC SILT, trace of gravel, wet	*100%*	*1214* *18.7* *20.7*	*blows = WOR*
556.8	20.69		20.69'			
			very soft, gray-black ELASTIC SILT, with fine to coarse sand, some organic matter, wet, with rock (limestone) fragments	*50%*	*1416* *20.7* *22.7*	*blows = WOR*
554.8	22.69		22.69'			
			End of Boring			

Hole No. KK-0205

DRILLING LOG

DIVISION: Great Lakes/Ohio River

INSTALLATION: Detroit

SHEET 1 OF 1 SHEETS

1. PROJECT: Kinnickinnic River
2. LOCATION (Coordinates or Station): 43° 0.48616', 87° 54.83357'
3. DRILLING AGENCY: Coleman Engineering Company
4. HOLE NO. (As shown on drawing title and file number): KK-0205
5. NAME OF DRILLER: Dave Adams
6. DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED 0.0 DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: N/A
8. DEPTH DRILLED INTO ROCK: N/A
9. TOTAL DEPTH OF HOLE: 19.09
10. SIZE AND TYPE OF BIT: N/A
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): LWD 577.5
12. MANUFACTURES'S DESIGNATION OF DRILL: Diedrich D-50 Bombardier Barge
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 8 UNDISTURBED 0
14. TOTAL NUMBER CORE BOXES: N/A
15. ELEVATION GROUND WATER
16. DATE HOLE: STARTED Sep 11, 02 COMPLETED Sep 11, 02
17. ELEVATION TOP OF HOLE: 577.5
18. TOTAL CORE RECOVERY FOR BORING: N/A %
19. SIGNATURE OF INSPECTOR

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV-ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
			Kinnickinnic River - Lake Michigan			*4-1/4" HSA* *2" or 3" SPT Sampling* *140# wt, 30" Drop* *Driller's Note:* *3" SS for this boring*
574.4	3.09		*3.09'*			
			very soft, black ELASTIC SILT, with fine to coarse sand, some organics (sticks)	*80%*	*0002* *3.1* *5.1*	
572.4	5.09		*5.09'*			
			very soft, black ELASTIC SILT	*80%*	*0204* *5.1* *7.1*	
570.4	7.09		*7.09'*			
			very soft, black ELASTIC SILT, with fine to medium sand, some organic matter	*80%*	*0406* *7.1* *9.1*	
568.4	9.09		*9.09'*			
			very soft, black ELASTIC SILT	*80%*	*0608* *9.1* *11.1*	
566.4	11.09		*11.09'*			
			very soft, black ELASTIC SILT, some fine to medium sand, trace of organic matter	*80%*	*0810* *11.1* *13.1*	
564.4	13.09		*13.09'*			
			very soft, black ELASTIC SILT, trace of tin foil, moist to wet	*80%*	*1012* *13.1* *15.1*	
562.4	15.09		*15.09'*			
			very soft, black ELASTIC SILT, some fine sand, some organic matter, moist to wet	*80%*	*1214* *15.1* *17.1*	
560.4	17.09		*17.09'*			
			very soft, black ELASTIC SILT, moist to wet	*80%*	*1416* *17.1* *19.1*	
558.4	19.09		*19.09'*			
			End of Boring			

Hole No. KK-0206

DRILLING LOG

DIVISION: Great Lakes/Ohio River

INSTALLATION: Detroit

SHEET 1 OF 1 SHEETS

1. PROJECT: Kinnickinnic River
2. LOCATION (Coordinates or Station): 43° 0.48500', 87° 54.78759'
3. DRILLING AGENCY: Coleman Engineering Company
4. HOLE NO. (As shown on drawing title and file number): KK-0206
5. NAME OF DRILLER: Dave Adams
6. DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED 0.0 DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: N/A
8. DEPTH DRILLED INTO ROCK: N/A
9. TOTAL DEPTH OF HOLE: 20.69
10. SIZE AND TYPE OF BIT: N/A
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): LWD 577.5
12. MANUFACTURES'S DESIGNATION OF DRILL: Diedrich D-50 Bombardier Barge
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 9 UNDISTURBED 0
14. TOTAL NUMBER CORE BOXES: N/A
15. ELEVATION GROUND WATER:
16. DATE HOLE: STARTED Sep 11, 02 COMPLETED Sep 11, 02
17. ELEVATION TOP OF HOLE: 577.5
18. TOTAL CORE RECOVERY FOR BORING: N/A %
19. SIGNATURE OF INSPECTOR:

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV-ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
			Kinnickinnic River - Lake Michigan			*4-1/4" HSA* *2" or 3" SPT Sampling* *140# wt, 30" Drop*
574.8	2.69		2.69'			*Driller's Note:*
			very soft, black ELASTIC SILT, wet	80%	0002 2.7 4.7	3" SS for this boring
572.8	4.69		4.69'			
			loose, black, fine to medium SAND, with silt, trace of organic matter, wet	50%	0204 4.7 6.7	
570.8	6.69		6.69'			
			very soft, black ELASTIC SILT, trace of organics (leaves, sticks, peaty material)/debris (plastic), wet (slop)	50%	0406 6.7 8.7	
568.8	8.69		8.69'			
			very soft, black ELASTIC SILT, with fine to coarse sand, some organics (leaves and roots), wet	80%	0608 8.7 10.7	
566.8	10.69		10.69'			
			very soft, black-gray ELASTIC SILT, moist to wet	80%	0810 10.7 12.7	
564.8	12.69		12.69'			
			very soft, black-gray ELASTIC SILT, some fine to medium sand, some organic matter, trace of tin foil, moist to wet	80%	1012 12.7 14.7	
562.8	14.69		14.69'			
			very soft, black-gray ELASTIC SILT, moist to wet	80%	1214 14.7 16.7	
560.8	16.69		16.69'			
			very soft, black-gray ELASTIC SILT, some fine to coarse sand, some organic matter, moist to wet	80%	1416 16.7 18.7	
558.8	18.69		18.69'			
			very soft, black-gray ELASTIC SILT, moist to wet	80%	1618 18.7 20.7	
556.8	20.69		20.69'			
			End of Boring			

Hole No. KK-0207

DRILLING LOG

DIVISION: Great Lakes/Ohio River

INSTALLATION: Detroit

SHEET 1 OF 1 SHEETS

1. PROJECT: Kinnickinnic River
2. LOCATION (Coordinates or Station): 43° 0.50125', 87° 54.76866'
3. DRILLING AGENCY: Coleman Engineering Company
4. HOLE NO. (As shown on drawing title and file number): KK-0207
5. NAME OF DRILLER: Dave Adams
6. DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED 0.0 DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: N/A
8. DEPTH DRILLED INTO ROCK: N/A
9. TOTAL DEPTH OF HOLE: 20.39
10. SIZE AND TYPE OF BIT: N/A
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): LWD 577.5
12. MANUFACTURES'S DESIGNATION OF DRILL: Diedrich D-50 Bombardier Barge
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 3 / UNDISTURBED 0
14. TOTAL NUMBER CORE BOXES: N/A
15. ELEVATION GROUND WATER:
16. DATE HOLE: STARTED Sep 12, 02 / COMPLETED Sep 12, 02
17. ELEVATION TOP OF HOLE: 577.5
18. TOTAL CORE RECOVERY FOR BORING: N/A %
19. SIGNATURE OF INSPECTOR:

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
			Kinnickinnic River - Lake Michigan			*4-1/4" HSA* *2" or 3" SPT Sampling* *140# wt, 30" Drop* *Driller's Note:* *3" SS to Sample 2, then 2" SS for rest of boring*
567.1	*10.39*		*10.39'*			
			No recovery, several attempts, no sample	*0%*	*0002* *10.4* *12.4*	
565.1	*12.39*		*12.39'*			
			No recovery, several attempts, no sample	*0%*	*0204* *12.4* *14.4*	
563.1	*14.39*		*14.39'*			
			very soft, black ELASTIC SILT, with fine to coarse sand, some organic matter, moist to wet	*80%*	*0406* *14.4* *16.4*	
561.1	*16.39*		*16.39'*			
			very soft, black ELASTIC SILT, trace of sand, moist to wet	*80%*	*0608* *16.4* *18.4*	
559.1	*18.39*		*18.39'*			
			very soft, gray-black ELASTIC SILT, sandy (fine to coarse), some organic matter	*80%*	*0810* *18.4* *20.4*	
557.1	*20.39*		*20.39'*			
			End of Boring			

Hole No. KK-0207R

DRILLING LOG

DIVISION: Great Lakes/Ohio River

INSTALLATION: Detroit

SHEET 1 OF 1 SHEETS

1. PROJECT: Kinnickinnic River
2. LOCATION (Coordinates or Station): 43° 0.50155', 87° 54.76876'
3. DRILLING AGENCY: Coleman Engineering Company
4. HOLE NO. (As shown on drawing title and file number): KK-0207R
5. NAME OF DRILLER: Dave Adams
6. DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED 0.0 DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: N/A
8. DEPTH DRILLED INTO ROCK: N/A
9. TOTAL DEPTH OF HOLE: 20.39
10. SIZE AND TYPE OF BIT: N/A
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): LWD 577.5
12. MANUFACTURES'S DESIGNATION OF DRILL: Diedrich D-50 Bombardier Barge
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 4 UNDISTURBED 0
14. TOTAL NUMBER CORE BOXES: N/A
15. ELEVATION GROUND WATER:
16. DATE HOLE: STARTED Sep 12, 02 COMPLETED Sep 12, 02
17. ELEVATION TOP OF HOLE: 577.5
18. TOTAL CORE RECOVERY FOR BORING: N/A %
19. SIGNATURE OF INSPECTOR:

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
			Kinnickinnic River - Lake Michigan			*4-1/4" HSA* *2" or 3" SPT Sampling* *140# wt, 30" Drop* *Driller's Note:* *2" SS for this boring*
567.1	*10.39*		*10.39'*			
			very loose, gray-black, fine to medium <u>SAND</u>, wet	*10%*	*0002* *10.4* *12.4*	*No TCLP Sample* *PCB, PAH, TOC, LOI*
565.1	*12.39*		*12.39'*			
			No sample	*0%*	*0204* *12.4* *14.4*	
563.1	*14.39*		*14.39'*			
			very soft, gray <u>ELASTIC SILT</u>, some fine to medium sand, some organic matter, moist to wet	*100%*	*0406* *14.4* *16.4*	
561.1	*16.39*		*16.39'*			
			very soft, gray <u>ELASTIC SILT</u>, trace of sand, moist to wet, rock fragments in tip	*80%*	*0608* *16.4* *18.4*	
559.1	*18.39*		*18.39'*			
			very soft, gray <u>ELASTIC SILT</u>, some fine to medium sand, some organic matter, moist to wet, wood in tip	*80%*	*0810* *18.4* *20.4*	
557.1	*20.39*		*20.39'*			
			End of Boring			

Hole No. KK-0208

DRILLING LOG

DIVISION: Great Lakes/Ohio River

INSTALLATION: Detroit

SHEET 1 OF 1 SHEETS

1. PROJECT: Kinnickinnic River
2. LOCATION (Coordinates or Station): 43° 0.49569', 87° 54.74010'
3. DRILLING AGENCY: Coleman Engineering Company
4. HOLE NO. (As shown on drawing title and file number): KK-0208
5. NAME OF DRILLER: Dave Adams
6. DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED 0.0 DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: N/A
8. DEPTH DRILLED INTO ROCK: N/A
9. TOTAL DEPTH OF HOLE: 19.89
10. SIZE AND TYPE OF BIT: N/A
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): LWD 577.5
12. MANUFACTURES'S DESIGNATION OF DRILL: Diedrich D-50 Bombardier Barge
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 5 UNDISTURBED 0
14. TOTAL NUMBER CORE BOXES: N/A
15. ELEVATION GROUND WATER:
16. DATE HOLE: STARTED Sep 11, 02 COMPLETED Sep 11, 02
17. ELEVATION TOP OF HOLE: 577.5
18. TOTAL CORE RECOVERY FOR BORING: N/A %
19. SIGNATURE OF INSPECTOR:

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV-ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
			Kinnickinnic River - Lake Michigan			*4-1/4" HSA* *2" or 3" SPT Sampling* *140# wt, 30" Drop* *Driller's Note:* *3" SS for this boring*
571.6	*5.89*		*5.89'*			
			No recovery after several attempts	*0%*	*0002* *5.9* *7.9*	
569.6	*7.89*		*7.89'*			
			loose, gray, fine to medium SAND, trace of silt, trace of organic matter	*10%*	*0204* *7.9* *9.9*	
567.6	*9.89*		*9.89'*			
			No recovery	*0%*	*0406* *9.9* *11.9*	
565.6	*11.89*		*11.89'*			
			very soft, gray-black ELASTIC SILT, with fine to medium sand, trace of organic matter, moist to wet	*80%*	*0608* *11.9* *13.9*	
563.6	*13.89*		*13.89'*			
			loose, silty, fine to medium SAND	*80%*	*0810* *13.9* *15.9*	
561.6	*15.89*		*15.89'*			
			very soft, gray-black ELASTIC SILT, some fine to medium sand, trace of organic wood, some organic matter	*80%*	*1012* *15.9* *17.9*	
559.6	*17.89*		*17.89'*			
			very soft, gray-black ELASTIC SILT, trace of sand	*80%*	*1214* *17.9* *19.9*	
558.1	*19.39*		*19.39'*			
557.6	*19.89*		*very soft, black ELASTIC SILT, some organics*			
			19.89'			
			End of Boring			

Hole No. KK-0209

DRILLING LOG

DIVISION: Great Lakes/Ohio River

INSTALLATION: Detroit

SHEET 1 OF 2 SHEETS

1. PROJECT: Kinnickinnic River
2. LOCATION (Coordinates or Station): 43° 0.49187', 87° 54.69561'
3. DRILLING AGENCY: Coleman Engineering Company
4. HOLE NO. (As shown on drawing title and file number): KK-0209
5. NAME OF DRILLER: Dave Adams
6. DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED 0.0 DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: N/A
8. DEPTH DRILLED INTO ROCK: N/A
9. TOTAL DEPTH OF HOLE: 27.59
10. SIZE AND TYPE OF BIT: N/A
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): LWD 577.5
12. MANUFACTURES'S DESIGNATION OF DRILL: Diedrich D-50 Bombardier Barge
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 12 UNDISTURBED 0
14. TOTAL NUMBER CORE BOXES: N/A
15. ELEVATION GROUND WATER
16. DATE HOLE: STARTED Sep 11, 02 COMPLETED Sep 11, 02
17. ELEVATION TOP OF HOLE: 577.5
18. TOTAL CORE RECOVERY FOR BORING: N/A %
19. SIGNATURE OF INSPECTOR

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
			Kinnickinnic River - Lake Michigan			*4-1/4" HSA* *2" or 3" SPT Sampling* *140# wt, 30" Drop* *Driller's Note:* *3" SS for this boring*
573.9	3.59		*3.59'*			
573.4	4.09		*loose gray, fine to medium SAND, trace of silt* *4.09'*	*80%*	*0002* *3.6* *5.6*	
571.9	5.59		*very soft, gray-black ELASTIC SILT, sandy (fine to medium), plastic, some organic matter* *5.59'*			
569.9	7.59		*very soft, gray-black ELASTIC SILT, trace of organics, sand, fiber, leaves* *7.59'*	*80%*	*0204* *5.6* *7.6*	
567.9	9.59		*very soft, gray-black ELASTIC SILT, with fine to medium sand, some organic matter (fiber, leaves)* *9.59'*	*80%*	*0406* *7.6* *9.6*	
565.9	11.59		*very soft, gray-black ELASTIC SILT, trace of organics, sand, fiber, leaves* *11.59'*	*80%*	*0608* *9.6* *11.6*	
563.9	13.59		*very soft, gray-black ELASTIC SILT, with fine to medium sand, fiber, leaves, some organic matter* *13.59'*	*80%*	*0810* *11.6* *13.6*	
561.9	15.59		*very soft, gray-black ELASTIC SILT, sand, fiber, leaves, some organics* *15.59'*	*80%*	*1012* *13.6* *15.6*	
559.9	17.59		*very soft, gray-black ELASTIC SILT, some fine to medium sand, fiber, leaves, some organics, tin foil* *17.59'*	*80%*	*1214* *15.6* *17.6*	
557.9	19.59		*very soft, gray-black ELASTIC SILT, sand, fiber, leaves, some organics, hairs* *19.59'*	*80%*	*1416* *17.6* *19.6*	
555.9	21.59		*very soft, gray-black ELASTIC SILT, sand, fiber, leaves, some organics* *21.59'*	*80%*	*1618* *19.6* *21.6*	*No samples kept*
553.9	23.59		*very soft, gray-black ELASTIC SILT, sand, fiber, leaves, some organics, tin foil, plastic* *23.59'*	*80%*	*1820* *21.6* *23.6*	
			very soft, gray-black ELASTIC SILT, with fine to medium sand, some organics (leaves, twigs, fibres, hair)	*80%*	*2022* *23.6* *25.6*	

Hole No. KK-0209

DRILLING LOG

DIVISION: Great Lakes/Ohio River

INSTALLATION: Detroit

SHEET 2 OF 2 SHEETS

1. PROJECT: Kinnickinnic River
2. LOCATION (Coordinates or Station): 43° 0.49187', 87° 54.69561'
3. DRILLING AGENCY: Coleman Engineering Company
4. HOLE NO. (As shown on drawing title and file number): KK-0209
5. NAME OF DRILLER: Dave Adams
6. DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED 0.0 DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: N/A
8. DEPTH DRILLED INTO ROCK: N/A
9. TOTAL DEPTH OF HOLE: 27.59
10. SIZE AND TYPE OF BIT: N/A
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): LWD 577.5
12. MANUFACTURES'S DESIGNATION OF DRILL: Diedrich D-50 Bombardier Barge
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 12 / UNDISTURBED 0
14. TOTAL NUMBER CORE BOXES: N/A
15. ELEVATION GROUND WATER:
16. DATE HOLE: STARTED Sep 11, 02 / COMPLETED Sep 11, 02
17. ELEVATION TOP OF HOLE: 577.5
18. TOTAL CORE RECOVERY FOR BORING: N/A %
19. SIGNATURE OF INSPECTOR:

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV-ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
551.9	25.59		25.59'			
			very soft, gray-black ELASTIC SILT, trace of organics (leaves, twigs, fibres, hair)	80%	2224 25.6 27.6	
549.9	27.59		27.59'			
			End of Boring			

Hole No. KK-0210

DRILLING LOG

DIVISION: Great Lakes/Ohio River

INSTALLATION: Detroit

SHEET 1 OF 1 SHEETS

1. PROJECT: Kinnickinnic River
2. LOCATION (Coordinates or Station): 43° 0.50283', 87° 54.68588'
3. DRILLING AGENCY: Coleman Engineering Company
4. HOLE NO. (As shown on drawing title and file number): KK-0210
5. NAME OF DRILLER: Dave Adams
6. DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED 0.0 DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: N/A
8. DEPTH DRILLED INTO ROCK: N/A
9. TOTAL DEPTH OF HOLE: 24.39
10. SIZE AND TYPE OF BIT: N/A
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): LWD 577.5
12. MANUFACTURES'S DESIGNATION OF DRILL: Diedrich D-50 Bombardier Barge
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 7 UNDISTURBED 0
14. TOTAL NUMBER CORE BOXES: N/A
15. ELEVATION GROUND WATER
16. DATE HOLE: STARTED Sep 11, 02 COMPLETED Sep 11, 02
17. ELEVATION TOP OF HOLE: 577.5
18. TOTAL CORE RECOVERY FOR BORING: N/A %
19. SIGNATURE OF INSPECTOR

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV-ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
			Kinnickinnic River - Lake Michigan			*4-1/4" HSA* *2" or 3" SPT Sampling* *140# wt, 30" Drop* *Driller's Note:* *3" SS for this boring*
567.1	10.39		10.39'			
			very loose, black ELASTIC SILT, trace of organics (leaves, sticks, peaty material)	10%	0002 10.4 12.4	
565.1	12.39		12.39'			
			very loose, black ELASTIC SILT, some organics (leaves, sticks, peaty material) (slop), with fine to medium sand	20%	0204 12.4 14.4	
563.1	14.39		14.39'			
			very loose, black ELASTIC SILT, trace of fine sand, organics, tin foil, plastic	80%	0406 14.4 16.4	
561.1	16.39		16.39'			
			very loose, black ELASTIC SILT, with fine to coarse sand, some organic matter, plastic	50%	0608 16.4 18.4	
559.1	18.39		18.39'			
			very loose, black ELASTIC SILT, trace of fine sand, organics	80%	0810 18.4 20.4	
557.1	20.39		20.39'			
			very loose, black ELASTIC SILT, trace of fine sand, organics no sample taken	80%	1012 20.4 22.4	
555.1	22.39		22.39'			
			very loose, black ELASTIC SILT, with fine to coarse sand, trace of organic matter	80%	1214 22.4 24.4	
554.1	23.39		23.39'			
			stiff, tan SILT, trace of fine to coarse sand, fine to coarse gravel, dry			
553.1	24.39		24.39'			
			End of Boring			

Hole No. KK-0211

DRILLING LOG

DIVISION: Great Lakes/Ohio River

INSTALLATION: Detroit

SHEET 1 OF 1 SHEETS

1. PROJECT: Kinnickinnic River
2. LOCATION (Coordinates or Station): 43° 0.50853', 87° 54.64123'
3. DRILLING AGENCY: Coleman Engineering Company
4. HOLE NO. (As shown on drawing title and file number): KK-0211
5. NAME OF DRILLER: Dave Adams
6. DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED 0.0 DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: N/A
8. DEPTH DRILLED INTO ROCK: N/A
9. TOTAL DEPTH OF HOLE: 18.79
10. SIZE AND TYPE OF BIT: N/A
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): LWD 577.5
12. MANUFACTURES'S DESIGNATION OF DRILL: Diedrich D-50 Bombardier Barge
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 6 UNDISTURBED 0
14. TOTAL NUMBER CORE BOXES: N/A
15. ELEVATION GROUND WATER:
16. DATE HOLE: STARTED Sep 12, 02 COMPLETED Sep 12, 02
17. ELEVATION TOP OF HOLE: 577.5
18. TOTAL CORE RECOVERY FOR BORING: N/A %
19. SIGNATURE OF INSPECTOR:

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV-ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
			Kinnickinnic River - Lake Michigan			*4-1/4" HSA* *2" or 3" SPT Sampling* *140# wt, 30" Drop* *Driller's Note:* *2" SS to Sample #5, then 3" SS to end of boring*
570.7	*6.79*		*6.79'*			
			very soft, gray-black ELASTIC SILT, some fine to medium sand, trace of organic matter, wet	*80%*	*0002* *6.8* *8.8*
568.7	*8.79*		*8.79'*			
			very soft, gray-black ELASTIC SILT, trace of sand, plastic, wet	*80%*	*0204* *8.8* *10.8*
566.7	*10.79*		*10.79'*			
			very soft, gray-black ELASTIC SILT, some fine to medium sand, some organic matter, wet	*80%*	*0406* *10.8* *12.8*
564.7	*12.79*		*12.79'*			
			very soft, gray-black ELASTIC SILT, trace of sand, trace of organics (leaves, sticks, peaty material), slag, wet	*80%*	*0608* *12.8* *14.8*
562.7	*14.79*		*14.79'*			
			very soft, gray-black ELASTIC SILT, some fine to medium sand, trace of gray silt fragments, trace of fine gravel, some organic matter, piece of string, wet	*80%*	*0810* *14.8* *16.8*
560.7	*16.79*		*16.79'*			
			very soft, gray-black ELASTIC SILT, trace of sand, trace of organics (leaves, sticks, peaty material), wet	*80%*	*1012* *16.8* *18.8*
558.7	*18.79*		*18.79'*			
			End of Boring			

Hole No. KK-0212

DRILLING LOG

DIVISION: Great Lakes/Ohio River

INSTALLATION: Detroit

SHEET 1 OF 1 SHEETS

1. PROJECT: Kinnickinnic River
2. LOCATION (Coordinates or Station): 43° 0.48567', 87° 54.63910'
3. DRILLING AGENCY: Coleman Engineering Company
4. HOLE NO. (As shown on drawing title and file number): KK-0212
5. NAME OF DRILLER: Dave Adams
6. DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED 0.0 DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: N/A
8. DEPTH DRILLED INTO ROCK: N/A
9. TOTAL DEPTH OF HOLE: 20.41
10. SIZE AND TYPE OF BIT: N/A
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): LWD 577.5
12. MANUFACTURES'S DESIGNATION OF DRILL: Diedrich D-50 Bombardier Barge
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 7 UNDISTURBED 0
14. TOTAL NUMBER CORE BOXES: N/A
15. ELEVATION GROUND WATER:
16. DATE HOLE: STARTED Sep 12, 02 COMPLETED Sep 12, 02
17. ELEVATION TOP OF HOLE: 577.5
18. TOTAL CORE RECOVERY FOR BORING: N/A %
19. SIGNATURE OF INSPECTOR:

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
			Kinnickinnic River - Lake Michigan			*4-1/4" HSA* *2" or 3" SPT Sampling* *140# wt, 30" Drop* *Driller's Note:* *2" SS for this boring*
571.1	*6.41*		*6.41'*			
			very soft, gray-black ELASTIC SILT, trace of fine sand, trace of organics (leaves, sticks, peaty material)	*80%*	*0002* *6.4* *8.4*
569.1	*8.41*		*8.41'*			
			very soft, gray-black ELASTIC SILT, some fine to medium sand, some organic matter	*80%*	*0204* *8.4* *10.4*
567.1	*10.41*		*10.41'*			
			very soft, gray-black ELASTIC SILT, trace of fine sand, trace of organics (leaves, sticks, peaty material), trace of plastic	*80%*	*0406* *10.4* *12.4*
565.1	*12.41*		*12.41'*			
			very soft, gray-black ELASTIC SILT, with fine to medium sand, some organic matter	*80%*	*0608* *12.4* *14.4*
563.1	*14.41*		*14.41'*			
			very soft, gray-black ELASTIC SILT, trace of fine sand, organics, trace of plastic	*80%*	*0810* *14.4* *16.4*
561.1	*16.41*		*16.41'*			
			very soft, gray-black ELASTIC SILT, some fine to medium sand, some organic matter, trace of plastic	*80%*	*1012* *16.4* *18.4*
559.1	*18.41*		*18.41'*			
			very soft, gray-black ELASTIC SILT, trace of fine sand, organics	*80%*	*1214* *18.4* *20.4*
557.1	*20.41*		*20.41'*			
			End of Boring			

Hole No. KK-0213

DRILLING LOG

DIVISION: Great Lakes/Ohio River

INSTALLATION: Detroit

SHEET 1 OF 1 SHEETS

1. PROJECT: Kinnickinnic River
2. LOCATION (Coordinates or Station): 43° 0.48593', 87° 54.58441'
3. DRILLING AGENCY: Coleman Engineering Company
4. HOLE NO. (As shown on drawing title and file number): KK-0213
5. NAME OF DRILLER: Dave Adams
6. DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED 0.0 DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: N/A
8. DEPTH DRILLED INTO ROCK: N/A
9. TOTAL DEPTH OF HOLE: 24.09
10. SIZE AND TYPE OF BIT: N/A
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): LWD 577.5
12. MANUFACTURES'S DESIGNATION OF DRILL: Diedrich D-50 Bombardier Barge
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 8; UNDISTURBED 0
14. TOTAL NUMBER CORE BOXES: N/A
15. ELEVATION GROUND WATER:
16. DATE HOLE: STARTED Sep 12, 02; COMPLETED Sep 12, 02
17. ELEVATION TOP OF HOLE: 577.5
18. TOTAL CORE RECOVERY FOR BORING: N/A %
19. SIGNATURE OF INSPECTOR:

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV-ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
			Kinnickinnic River - Lake Michigan			*4-1/4" HSA* *2" or 3" SPT Sampling* *140# wt, 30" Drop*
569.4	8.09		8.09'			
			very soft, black ELASTIC SILT, some fine to medium sand, trace of organic matter, wet	80%	0002 8.1 10.1	
567.4	10.09		10.09'			
			very soft, black ELASTIC SILT, trace of fine sand, wet	50%	0204 10.1 12.1	
565.4	12.09		12.09'			
			very soft, black SILTY SAND, fine to coarse, some fine gravel, some organic matter, wet	50%	0406 12.1 14.1	
563.4	14.09		14.09'			
			very soft, black ELASTIC SILT, trace of fine sand, wet	80%	0608 14.1 16.1	
561.4	16.09		16.09'			
			very soft, black ELASTIC SILT, some fine to medium sand, some organic matter, wet	80%	0810 16.1 18.1	
559.4	18.09		18.09'			
			very soft, black ELASTIC SILT, trace of fine sand, wet	80%	1012 18.1 20.1	
557.4	20.09		20.09'			
			very soft, black ELASTIC SILT, trace of fine sand, wet	80%	1214 20.1 22.1	
555.4	22.09		22.09'			
			very soft, black SILT, trace of fine sand, wet	80%	1416 22.1 24.1	
553.4	24.09		24.09'			
			End of Boring and Refusal			

Hole No. KK-0214

DRILLING LOG

DIVISION: Great Lakes/Ohio River

INSTALLATION: Detroit

SHEET 1 OF 1 SHEETS

1. PROJECT: Kinnickinnic River
2. LOCATION (Coordinates or Station): 43° 0.49742', 87° 54.55466'
3. DRILLING AGENCY: Coleman Engineering Company
4. HOLE NO. (As shown on drawing title and file number): KK-0214
5. NAME OF DRILLER: Dave Adams
6. DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED 0.0 DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: N/A
8. DEPTH DRILLED INTO ROCK: N/A
9. TOTAL DEPTH OF HOLE: 19.39
10. SIZE AND TYPE OF BIT: N/A
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): LWD 577.5
12. MANUFACTURES'S DESIGNATION OF DRILL: Diedrich D-50 Bombardier Barge
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 4 / UNDISTURBED 0
14. TOTAL NUMBER CORE BOXES: N/A
15. ELEVATION GROUND WATER
16. DATE HOLE: STARTED Sep 12, 02 / COMPLETED Sep 12, 02
17. ELEVATION TOP OF HOLE: 577.5
18. TOTAL CORE RECOVERY FOR BORING: N/A %
19. SIGNATURE OF INSPECTOR

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
			Kinnickinnic River - Lake Michigan			*4-1/4" HSA* *2" or 3" SPT Sampling* *140# wt, 30" Drop* *Driller's Note:* *2" SS for this boring*
568.1	*9.39*		*9.39'*			
			No recovery, no sample	*0%*	*0002* *9.4* *11.4*	
566.1	*11.39*		*11.39'*			
			very loose, gray, fine to medium SAND, wet	*10%*	*0204* *11.4* *13.4*	
564.1	*13.39*		*13.39'*			
			very loose, gray, fine to coarseSAND, some fine gravel, trace of organic matter, wet	*30%*	*0406* *13.4* *15.4*	
562.1	*15.39*		*15.39'*			
			very loose, gray, fine to coarse SAND, some silt, some fine gravel, trace of organic matter, wet	*30%*	*0608* *15.4* *17.4*	
560.1	*17.39*		*17.39'*			
			very loose, gray, fine to medium SAND, wet		*0810* *17.4* *19.4*	
558.7	*18.79*		*18.79'*			
558.1	*19.39*		*very soft, gray/tan, trace of fine to medium SAND, moist (native till)*			
			19.39'			
			End of Boring			

LABORATORY TESTS

COLEMAN ENGINEERING COMPANY
635 Circle Drive
Iron Mountain, Michigan 49801
Telephone: (906) 774-3440 Fax: (906) 774-7776

REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Boring No. KK-0201

Job No: GL-02356

Sample No. 0002

Remarks: (SM) SILTY SAND, fine to coarse, trace of organic matter

Depth: 0.0' - 2.0'

Date: 09/23/2002

MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1			
1/2	12.7			
4M	4.76	0	0	100
10M	2.00	1.8	1.9	98.1
40M	0.42	24.6	26.1	/* 72.0
100M	0.149	40.8	43.3	/* 28.7
200M	0.074	0.1	0.1	/* 28.6
Pan		27.0	28.6	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 1.8 = 1.9%

Material passing No. 10 mesh: weight = 92.53 = 98.1%

Weight of Total Sample = 94.33

COLEMAN ENGINEERING COMPANY
635 Circle Drive
Iron Mountain, Michigan 49801
Telephone: (906) 774-3440 Fax: (906) 774-7776

REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

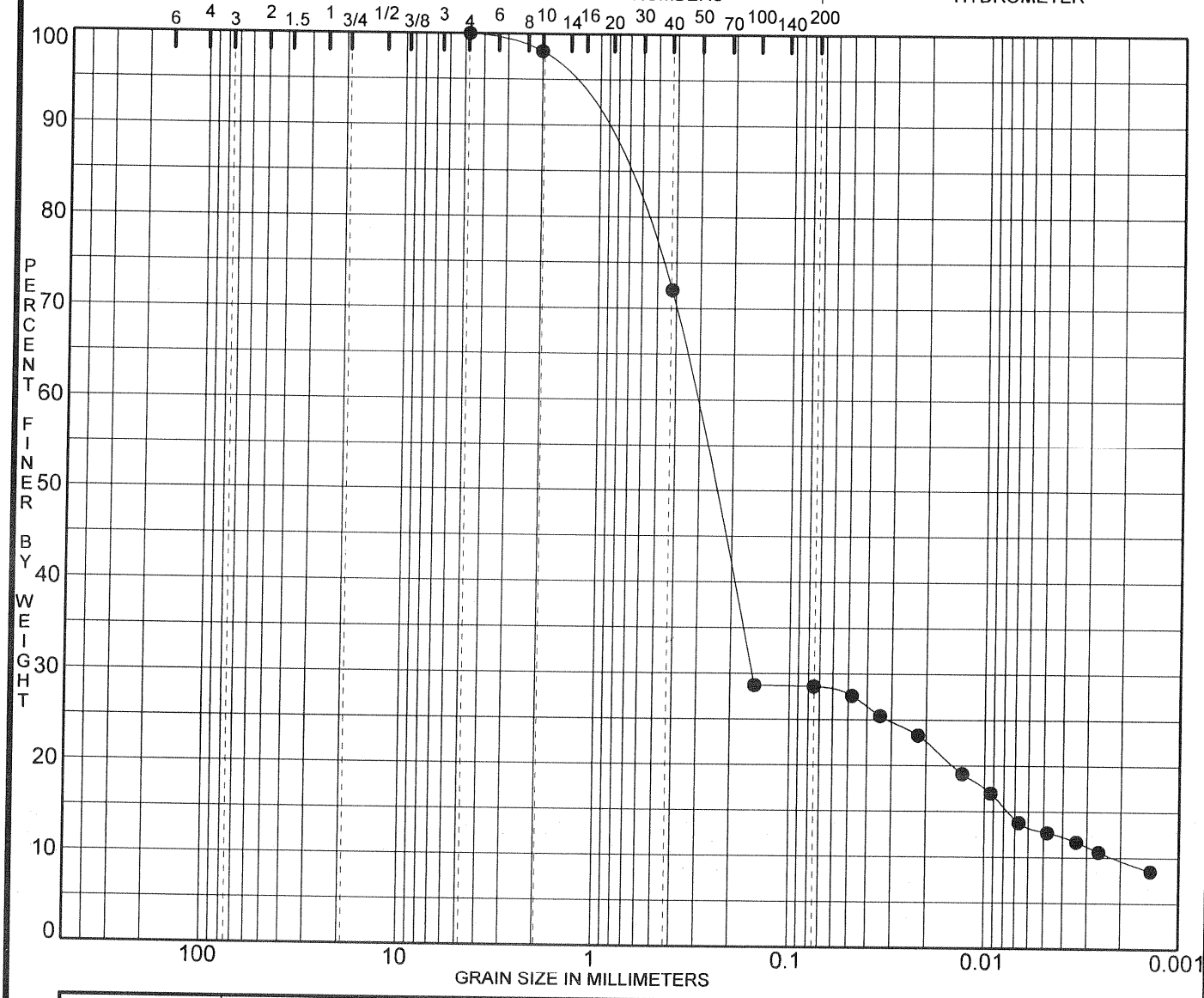
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (SM) SILTY SAND, fine to coarse, trace of organic matter

Boring No: KK-0201
Sample No: 0002
Depth: 0.0' - 2.0'
Date: 09/20/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.65
Starting Time: 9:46

% of Original Sample Used For Hydrometer Analysis: 98.1 %
Weight of Sample Dispersed: 92.53 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature ° C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
9:46:30	0.5	33	17	4	29	31.3	0.01417	10.9	0.0662	30.7
9:47:00	1.0	30	17	4	26	28.1	0.01417	11.4	0.0478	27.6
9:48:00	2.0	28	17	4	24	25.9	0.01417	11.7	0.0343	25.4
9:51:00	5.0	26	17	4	22	23.8	0.01417	12.0	0.0220	23.3
10:01:00	15.0	22	17	4	18	19.5	0.01417	12.7	0.0130	19.1
10:16:00	30.0	20	17	4	16	17.3	0.01417	13.0	0.0093	17.0
10:46:00	60.0	17	17	4	13	14.0	0.01417	13.5	0.0067	13.8
11:46:00	120.0	16	17	4	12	13.0	0.01417	13.7	0.0048	12.7
1:46:00	240.0	15	17	4	11	11.9	0.01417	13.8	0.0034	11.7
4:49:00	423.0	14	17	4	10	10.8	0.01417	14.0	0.0026	10.6
9:25:00	1419.0	12	17	4	8	8.6	0.01417	14.3	0.0014	8.5



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0201 S0002	0.0	(SM) SILTY SAND, f to c, tr/organic matter					34.80	144.9

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0201 S0002	0.0	4.75	0.32	0.155	0.0022	0.0	71.4	15.8	12.8

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/8/02**

GRADATION CURVES

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Job No: GL-02356

Remarks: (SP-SM) SAND, fine to coarse, some silt, trace of organic matter

Boring No. KK-0201

Sample No. 0406

Depth: 4.0' - 6.0'

Date: 09/20/2002

MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1			
1/2	12.7			
4M	4.76	0	0	100
10M	2.00	26.2	23.6	76.4
40M	0.42	38.3	34.6	/* 41.8
100M	0.149	31.7	28.6	/* 13.2
200M	0.074	2.3	2.1	/* 11.1
Pan		12.3	11.1	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 27.62 = 24.9%

Material passing No. 10 mesh: weight = 83.21 = 75.1%

Weight of Total Sample = 110.83

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

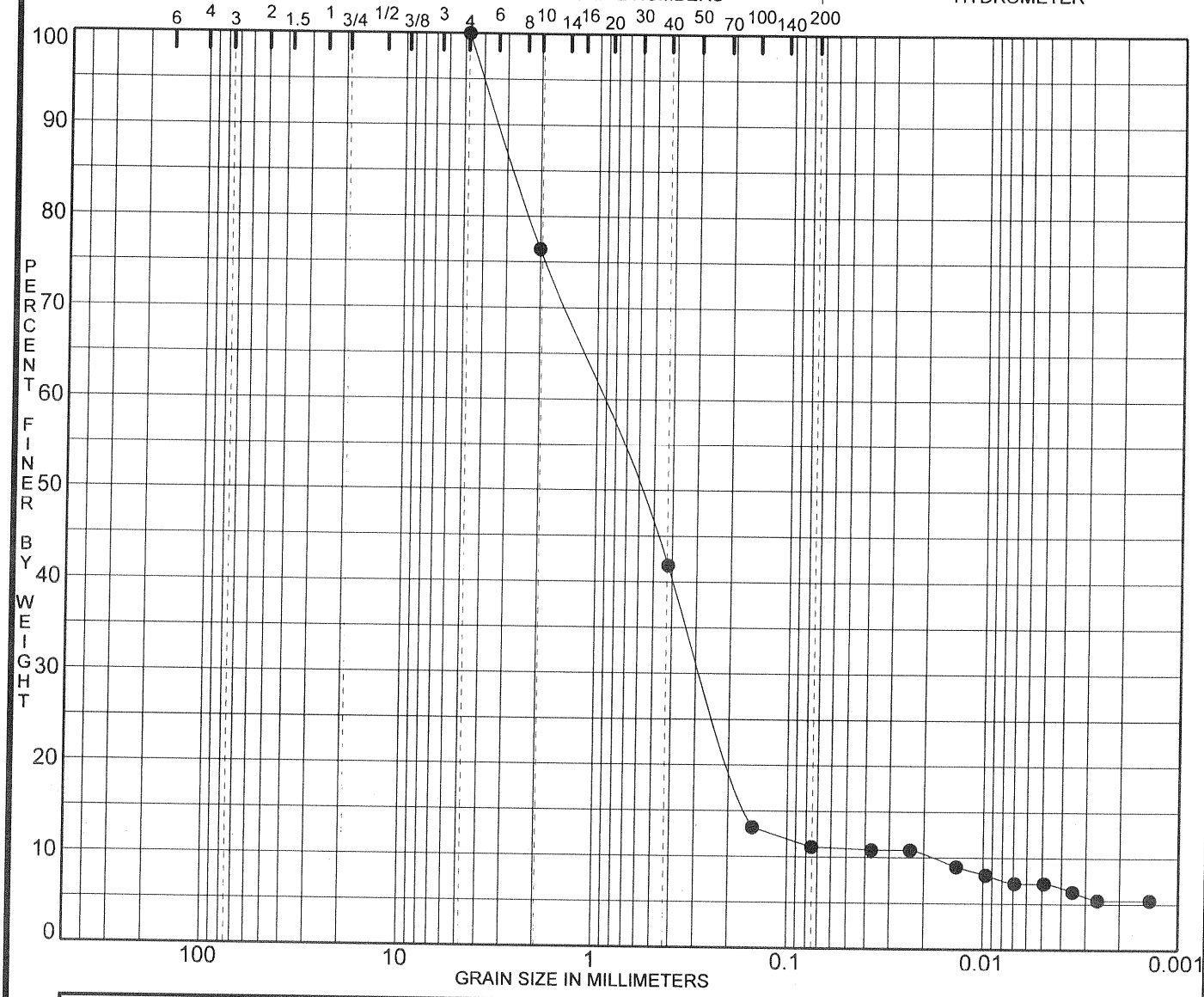
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (SP-SM) SAND, fine to coarse, some silt, trace of organic matter

Boring No: KK-0201
Sample No: 0406
Depth: 4.0' - 6.0'
Date: 09/20/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.65
Starting Time: 9:14

% of Original Sample Used
For Hydrometer Analysis: 75.1 %
Weight of Sample Dispersed: 83.21 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature ° C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
9:14:30	0.5	18	17	4	14	16.8	0.01417	13.3	0.0731	12.6
9:15:00	1.0	17	17	4	13	15.6	0.01417	13.5	0.0521	11.7
9:16:00	2.0	16	17	4	12	14.4	0.01417	13.7	0.0371	10.8
9:19:00	5.0	16	17	4	12	14.4	0.01417	13.7	0.0235	10.8
9:29:00	15.0	14	17	4	10	12.0	0.01417	14.0	0.0137	9.0
9:44:00	30.0	13	17	4	9	10.8	0.01417	14.2	0.0097	8.1
10:15:00	61.0	12	17	4	8	9.6	0.01417	14.3	0.0069	7.2
11:15:00	120.0	12	17	4	8	9.6	0.01417	14.3	0.0049	7.2
1:15:00	240.0	11	17	4	7	8.4	0.01417	14.5	0.0035	6.3
4:47:00	452.0	10	17	4	6	7.2	0.01417	14.7	0.0026	5.4
9:15:00	1441.0	10	17	4	6	7.2	0.01417	14.7	0.0014	5.4



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0201 S0406	4.0	(SP-SM) SAND, f to c, some silt, tr/organic matter					4.27	51.6

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0201 S0406	4.0	4.75	0.95	0.275	0.0185	0.0	88.9	3.9	7.2

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/8/02**

GRADATION CURVES

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Job No: GL-02356

Remarks: (SM) SILTY SAND, fine to coarse, some organic matter

Boring No. KK-0201

Sample No. 0810

Depth: 8.0' - 10.0'

Date: 09/20/2002

MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1			
1/2	12.7			
4M	4.76	0	0	100
10M	2.00	19.8	16.6	83.4
40M	0.42	50.5	42.2	/* 41.2
100M	0.149	28.3	23.6	/* 17.6
200M	0.074	4.0	3.4	/* 14.2
Pan		16.97	14.2	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 22.21 = 18.6%

Material passing No. 10 mesh: weight = 97.36 = 81.4%

Weight of Total Sample = 119.57

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

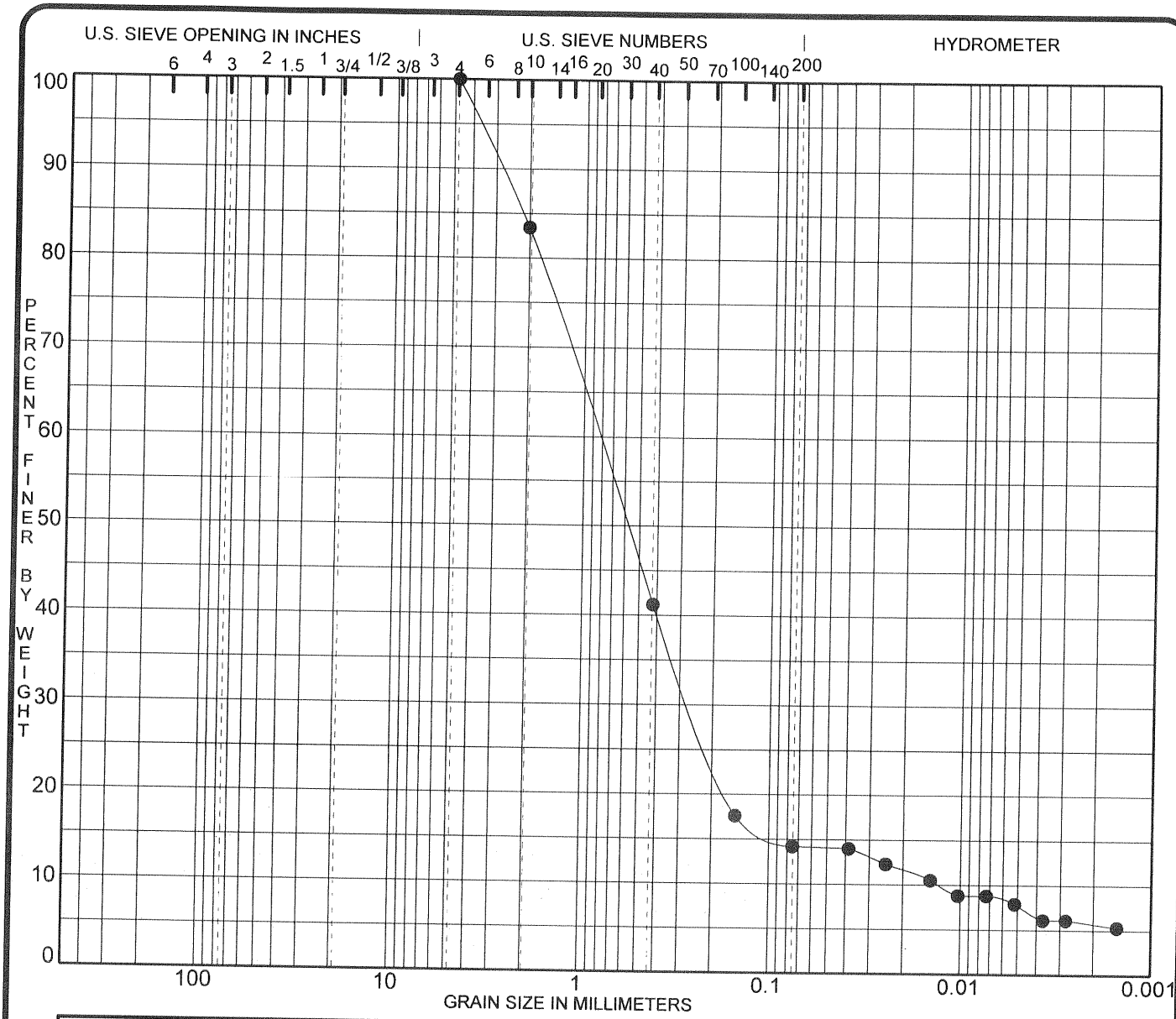
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (SM) SILTY SAND, fine to coarse, some organic matter

Boring No: KK-0201
Sample No: 0810
Depth: 8.0' - 10.0'
Date: 09/20/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.45
Starting Time: 9:55

% of Original Sample Used For Hydrometer Analysis: 81.4 %
Weight of Sample Dispersed: 97.36 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature ° C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
9:55:30	0.5	22	17	4	18	19.4	0.01511	12.7	0.0762	15.8
9:56:00	1.0	22	17	4	18	19.4	0.01511	12.7	0.0538	15.8
9:57:00	2.0	20	17	4	16	17.3	0.01511	13.0	0.0385	14.0
10:00:00	5.0	18	17	4	14	15.1	0.01511	13.3	0.0246	12.3
10:10:00	15.0	16	17	4	12	12.9	0.01511	13.7	0.0144	10.5
10:25:00	30.0	14	17	4	10	10.8	0.01511	14.0	0.0103	8.8
10:55:00	60.0	14	17	4	10	10.8	0.01511	14.0	0.0073	8.8
11:55:00	120.0	13	17	4	9	9.7	0.01511	14.2	0.0052	7.9
13:55:00	240.0	11	17	4	7	7.5	0.01511	14.5	0.0037	6.1
4:50:00	425.0	11	17	4	7	7.5	0.01511	14.5	0.0028	6.1
9:27:00	1412.0	10	17	4	6	6.5	0.01511	14.7	0.0015	5.3



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0201 S0810	8.0	(SM) SILTY SAND, f to c, some organic matter					6.04	64.5

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0201 S0810	8.0	4.75	0.84	0.258	0.0130	0.0	85.8	6.5	7.7

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/8/02**

GRADATION CURVES

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Job No: GL-02356

Remarks: (SM) SILTY SAND, fine to coarse, trace of organic matter

Boring No. KK-0202

Sample No. 0204

Depth: 2.0' - 4.0'

Date: 09/20/2002

MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1			
1/2	12.7			
4M	4.76	0	0	100
10M	2.00	0.1	0.2	99.8
40M	0.42	8.0	13.7	/* 86.1
100M	0.149	37.9	64.8	/* 21.3
200M	0.074	4.2	7.2	/* 14.1
Pan		8.3	14.1	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 0.1 = 0.2%

Material passing No. 10 mesh: weight = 58.36 = 99.8%

Weight of Total Sample = 58.46

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

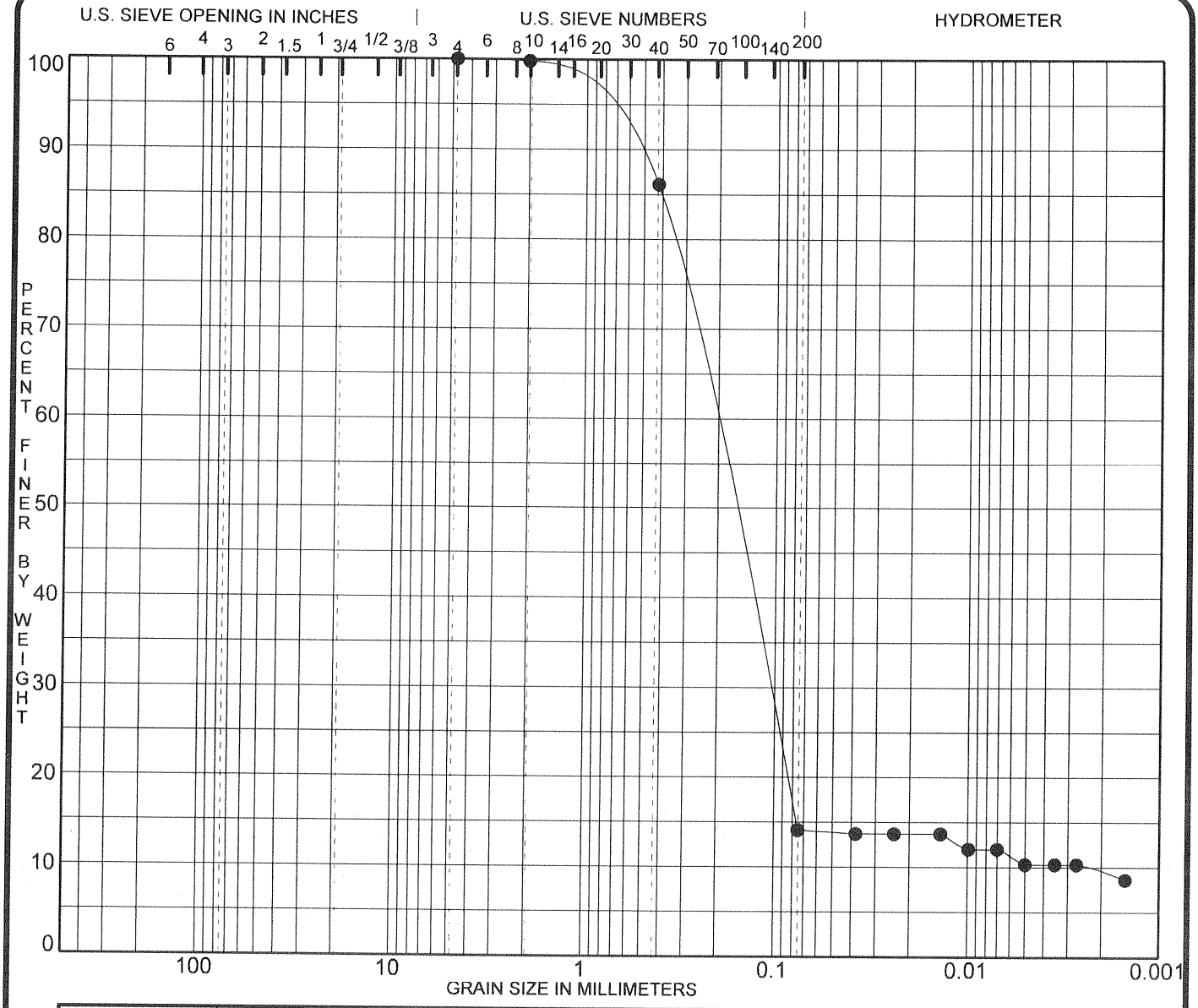
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (SM) SILTY SAND, fine to coarse, trace of organic matter

Boring No: KK-0202
Sample No: 0204
Depth: 2.0' - 4.0'
Date: 09/20/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.65
Starting Time: 10:12

% of Original Sample Used For Hydrometer Analysis: 99.8 %
Weight of Sample Dispersed: 58.36 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature ° C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
10:12:30	0.5	14	17	4	10	17.1	0.01417	14.0	0.0750	17.1
10:13:00	1.0	13	17	4	9	15.4	0.01417	14.2	0.0534	15.4
10:14:00	2.0	12	17	4	8	13.7	0.01417	14.3	0.0379	13.7
10:17:00	5.0	12	17	4	8	13.7	0.01417	14.3	0.0240	13.7
10:27:00	15.0	12	17	4	8	13.7	0.01417	14.3	0.0138	13.7
10:42:00	30.0	11	17	4	7	12.0	0.01417	14.5	0.0099	12.0
11:12:00	60.0	11	17	4	7	12.0	0.01417	14.5	0.0070	12.0
12:12:00	120.0	10	17	4	6	10.3	0.01417	14.7	0.0050	10.3
2:12:00	240.0	10	17	4	6	10.3	0.01417	14.7	0.0035	10.3
4:51:00	399.0	10	17	4	6	10.3	0.01417	14.7	0.0027	10.3
9:29:00	1397.0	9	17	4	5	8.6	0.01417	14.8	0.0015	8.6



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0202 S0204	2.0	(SM) SILTY SAND, f to c, tr/organic matter					21.99	92.4

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0202 S0204	2.0	4.75	0.22	0.110	0.0024	0.0	85.9	3.8	10.3

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/7/02**

GRADATION CURVES

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Job No: GL-02356

Remarks: (MH) ELASTIC SILT, with fine to coarse sand, some organic matter

Boring No. KK-0202

Sample No. 0608

Depth: 6.0' - 8.0'

Date: 09/24/2002

MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1			
1/2	12.7			
4M	4.76	0	0	100
10M	2.00	0.2	0.4	99.6
40M	0.42	2.4	4.3	/* 95.3
100M	0.149	6.6	11.9	/* 83.4
200M	0.074	4.8	8.6	/* 74.8
Pan		41.6	74.8	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 0.2 = 0.4%

Material passing No. 10 mesh: weight = 55.47 = 99.6%

Weight of Total Sample = 55.67

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

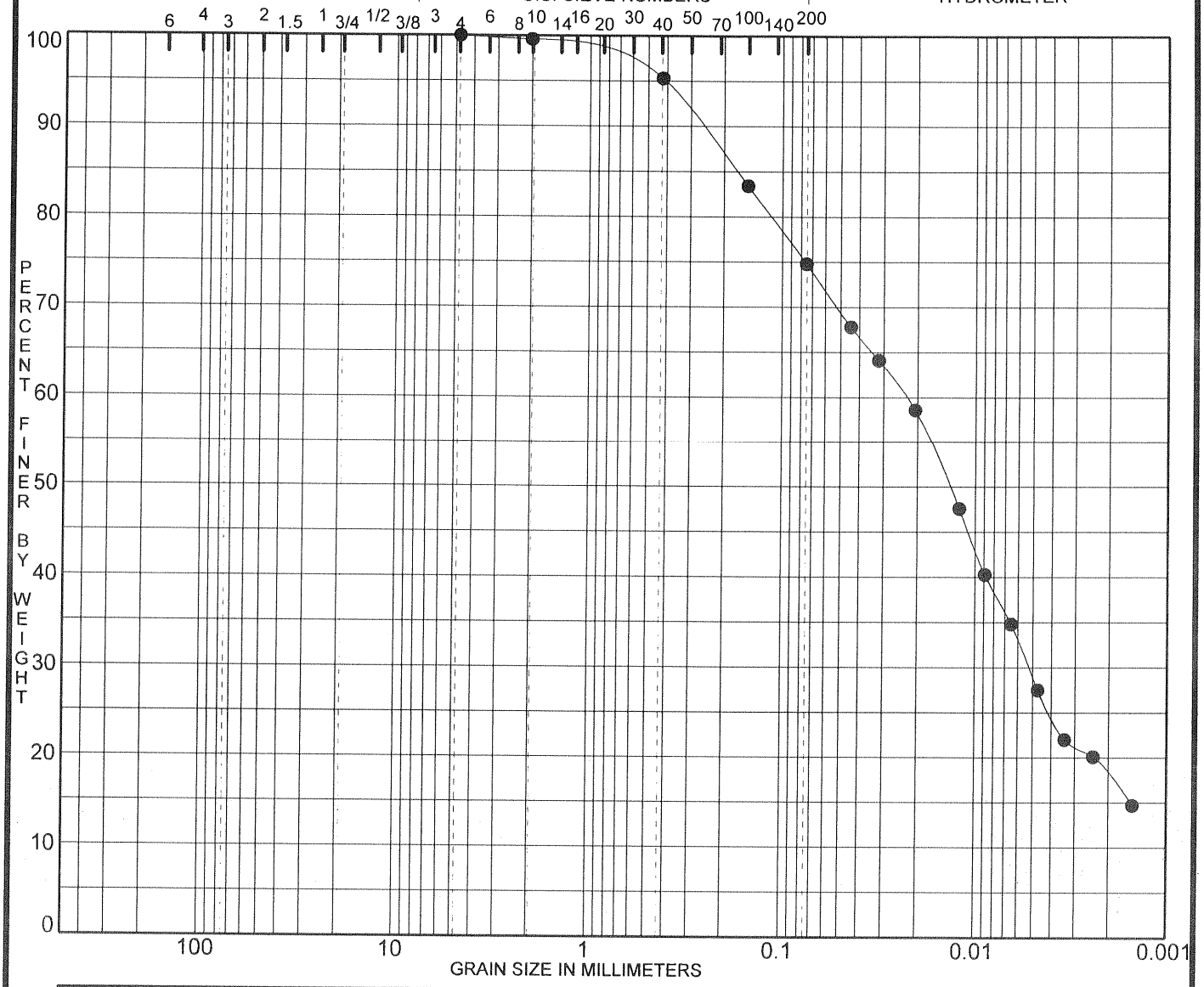
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (MH) ELASTIC SILT, with fine to coarse sand, some organic matter

Boring No: KK-0202
Sample No: 0608
Depth: 6.0' - 8.0'
Date: 09/24/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.55
Starting Time: 9:25

% of Original Sample Used
For Hydrometer Analysis: 99.6 %
Weight of Sample Dispersed: 55.47 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature ° C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
9:25:30	0.5		18	5						
9:26:00	1.0	42	18	5	37	68.0	0.01443	9.4	0.0442	67.8
9:27:00	2.0	40	18	5	35	64.4	0.01443	9.7	0.0318	64.1
9:30:00	5.0	37	18	5	32	58.8	0.01443	10.2	0.0206	58.6
9:41:00	16.0	31	18	5	26	47.8	0.01443	11.2	0.0121	47.6
9:56:00	31.0	27	18	5	22	40.5	0.01443	11.9	0.0089	40.3
10:26:00	61.0	24	18	5	19	34.9	0.01443	12.4	0.0065	34.8
11:25:00	120.0	20	18	5	15	27.6	0.01443	13.0	0.0047	27.5
1:25:00	240.0	17	18	5	12	22.1	0.01443	13.5	0.0034	22.0
5:23:00	478.0	16	18	5	11	20.2	0.01443	13.7	0.0024	20.1
7:50:00	1345.0	13	18	5	8	14.7	0.01443	14.2	0.0015	14.7



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0202 S0608	6.0	(MH) ELASTIC SILT, w/f to c sand, some organic matter						

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0202 S0608	6.0	4.75	0.02	0.005		0.0	25.2	45.9	28.9

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/7/02**

GRADATION CURVES

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Job No: GL-02356

Remarks: (MH) ELASTIC SILT, with fine to coarse sand, trace of organic matter

Boring No. KK-0202

Sample No. 1012

Depth: 10.0' - 12.0'

Date: 09/23/2002

MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1			
1/2	12.7			
4M	4.76	0	0	100
10M	2.00	0.6	1.2	98.8
40M	0.42	1.4	2.8	/* 96.0
100M	0.149	2.5	5.0	/* 91.0
200M	0.074	2.7	5.4	/* 85.6
Pan		42.49	85.6	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 0.6 = 1.2%

Material passing No. 10 mesh: weight = 49.09 = 98.8%

Weight of Total Sample = 49.69

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

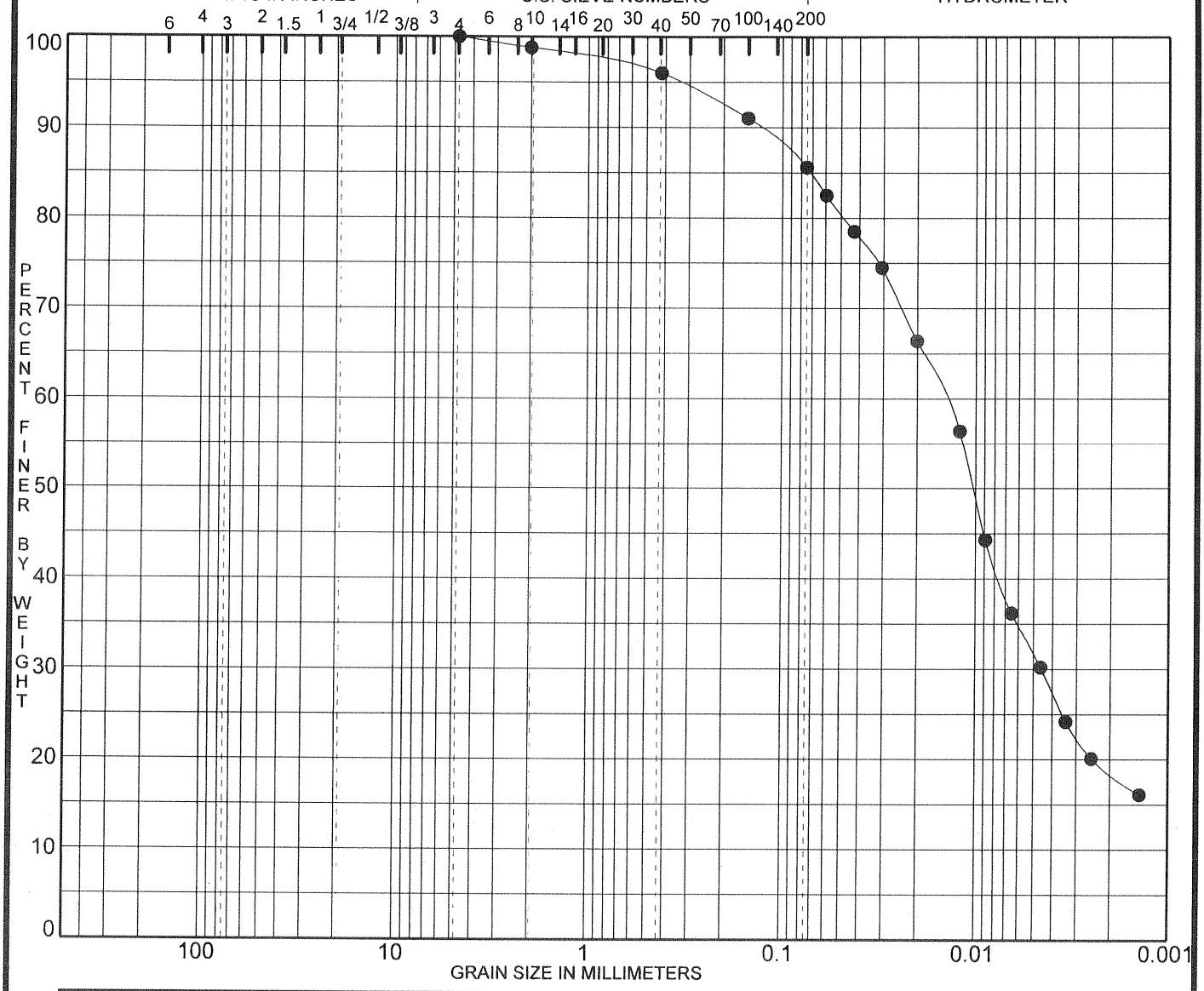
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (MH) ELASTIC SILT, with fine to coarse sand, trace of organic matter

Boring No: KK-0202
Sample No: 1012
Depth: 10.0' - 12.0'
Date: 09/23/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.65
Starting Time: 8:49

% of Original Sample Used For Hydrometer Analysis: 98.8 %
Weight of Sample Dispersed: 49.09 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature ° C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
8:49:30	0.5	46	17	5	41	83.5	0.01417	8.8	0.0594	82.5
8:50:00	1.0	44	17	5	39	79.4	0.01417	9.1	0.0427	78.5
8:51:00	2.0	42	17	5	37	75.4	0.01417	9.4	0.0307	74.5
8:54:00	5.0	38	17	5	33	67.2	0.01417	10.1	0.0201	66.4
9:04:00	15.0	33	17	5	28	57.0	0.01417	10.9	0.0121	56.4
9:19:00	30.0	27	17	5	22	44.8	0.01417	11.9	0.0089	44.3
9:49:00	60.0	23	17	5	18	36.7	0.01417	12.5	0.0065	36.2
10:52:00	123.0	20	17	5	15	30.6	0.01417	13.0	0.0046	30.2
12:49:00	240.0	17	17	5	12	24.4	0.01417	13.5	0.0034	24.2
16:49:00	450.0	15	17	5	10	20.4	0.01417	13.8	0.0025	20.1
7:26:00	1357.0	13	17	5	8	16.3	0.01417	14.2	0.0014	16.1



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0202 S1012	10.0	(MH) ELASTIC SILT, w/f to c sand, tr/organic matter						

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0202 S1012	10.0	4.75	0.01	0.005		0.0	14.4	54.0	31.6

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/7/02**

GRADATION CURVES

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Boring No. KK-0202

Job No: GL-02356

Sample No. 1416

Remarks: (MH) ELASTIC SILT, with fine to coarse sand, some organic matter

Depth: 14.0' - 16.0'

Date: 09/23/2002

MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1			
1/2	12.7			
4M	4.76	0	0	100
10M	2.00	0.1	0.2	99.8
40M	0.42	1.4	2.7	/* 97.1
100M	0.149	2.1	4.1	/* 93.0
200M	0.074	2.4	4.7	/* 88.3
Pan		44.98	88.4	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 0.1 = 0.2%

Material passing No. 10 mesh: weight = 50.88 = 99.8%

Weight of Total Sample = 50.98

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

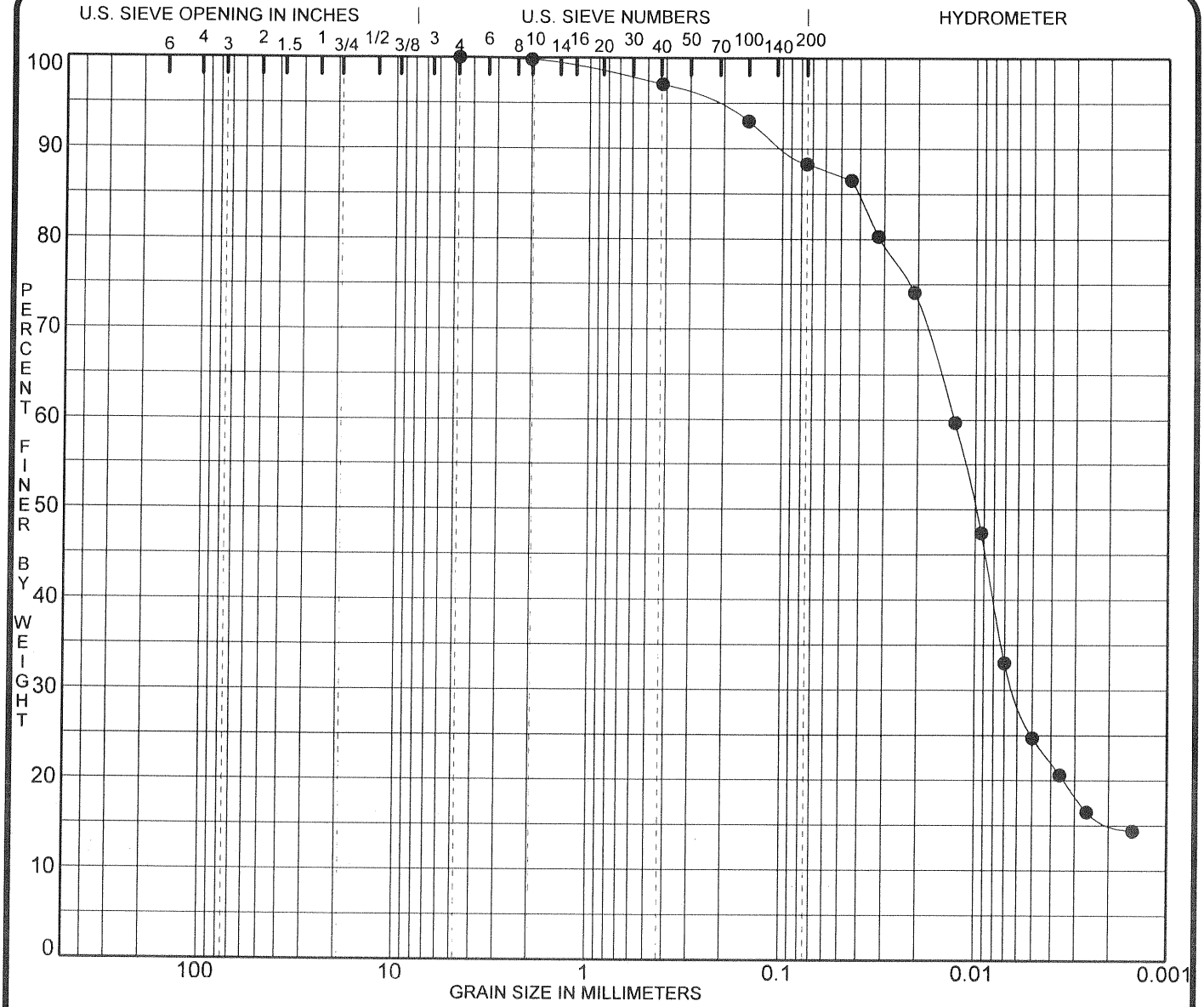
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (MH) ELASTIC SILT, some fine to coarse sand, some organic matter

Boring No: KK-0202
Sample No: 1416
Depth: 14.0' - 16.0'
Date: 09/23/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.45
Starting Time: 8:24

% of Original Sample Used For Hydrometer Analysis: 99.8 %
Weight of Sample Dispersed: 50.88 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature ° C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
8:24:30	0.5	50	17	5	45	92.9	0.01511	8.1	0.0608	92.7
8:25:00	1.0	47	17	5	42	86.7	0.01511	8.6	0.0443	86.5
8:26:00	2.0	44	17	5	39	80.5	0.01511	9.1	0.0322	80.3
8:29:00	5.0	41	17	5	36	74.3	0.01511	9.6	0.0209	74.1
8:39:00	15.0	34	17	5	29	59.8	0.01511	10.7	0.0128	59.7
8:55:00	31.0	28	17	5	23	47.5	0.01511	11.7	0.0093	47.4
9:24:00	60.0	21	17	5	16	33.0	0.01511	12.9	0.0070	33.0
10:25:00	121.0	17	17	5	12	24.8	0.01511	13.5	0.0050	24.7
12:24:00	240.0	15	17	5	10	20.6	0.01511	13.8	0.0036	20.6
4:17:00	473.0	13	17	5	8	16.5	0.01511	14.2	0.0026	16.5
7:24:00	1380.0	12	17	5	7	14.4	0.01511	14.3	0.0015	14.4



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0202 S1416	14.0	(MH) ELASTIC SILT, w/f to c sand, some organic matter						

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0202 S1416	14.0	4.75	0.01	0.006		0.0	11.7	63.6	24.7

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/7/02**

GRADATION CURVES

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Job No: GL-02356

Remarks: (ML) SILT, some fine to medium sand, trace of organic matter

Boring No. KK-0202

Sample No. 1820

Depth: 18.0' - 20.0'

Date: 10/01/2002

MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1			
1/2	12.7			
4M	4.76			
10M	2.00	0	0	100
40M	0.42	0.04	0.1	/* 99.9
100M	0.149	0.47	0.8	/* 99.1
200M	0.074	5.37	8.9	/* 90.2
Pan		54.26	90.2	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 0 = 0%

Material passing No. 10 mesh: weight = 60.14 = 100%

Weight of Total Sample = 60.14

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Job No: GL-02356

Remarks: (MH) ELASTIC SILT, sandy, some organic matter

Boring No. KK-0203

Sample No. 0002

Depth: 0.0' - 2.0'

Date: 09/20/2002

MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1			
1/2	12.7			
4M	4.76	0	0	100
10M	2.00	1.7	1.9	98.1
40M	0.42	5.7	6.5	/* 91.6
100M	0.149	18.6	21.1	/* 70.5
200M	0.074	5.5	6.2	/* 64.3
Pan		56.8	64.3	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 1.7 = 1.9%

Material passing No. 10 mesh: weight = 86.59 = 98.1%

Weight of Total Sample = 88.29

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

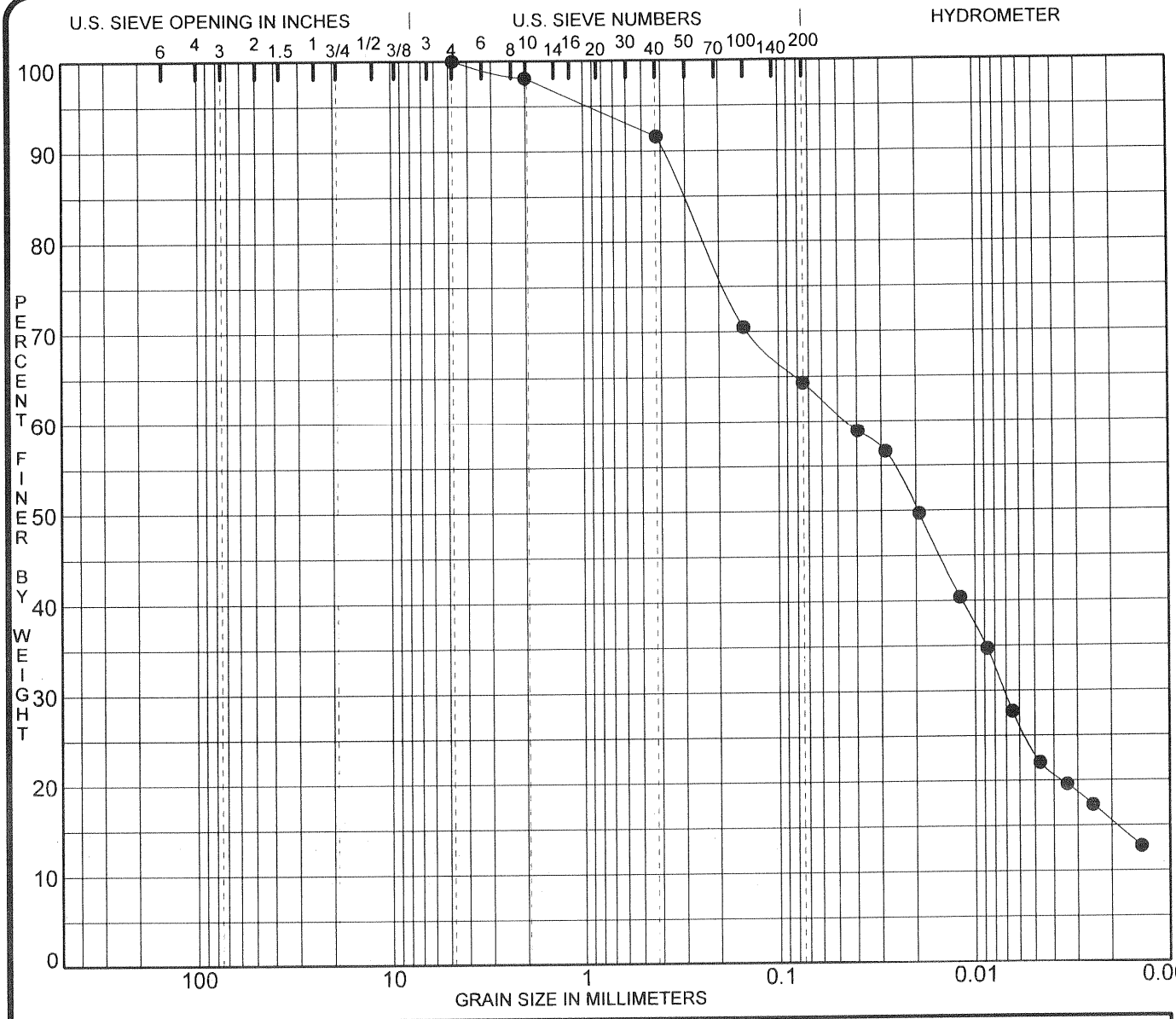
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (MH) ELASTIC SILT, sandy, some organic matter

Boring No: KK-0203
Sample No: 0002
Depth: 0.0' - 2.0'
Date: 09/20/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.55
Starting Time: 9:06

% of Original Sample Used For Hydrometer Analysis: 98.1 %
Weight of Sample Dispersed: 86.59 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature ° C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
9:06:30	0.5	60	17	4	56	66.0	0.01462	6.5	0.0527	64.7
9:07:00	1.0	55	17	4	51	60.1	0.01462	7.3	0.0395	58.9
9:08:00	2.0	53	17	4	49	57.7	0.01462	7.6	0.0285	56.6
9:11:00	5.0	47	17	4	43	50.7	0.01462	8.6	0.0192	49.7
9:21:00	15.0	39	17	4	35	41.2	0.01462	9.9	0.0119	40.4
9:36:00	30.0	34	17	4	30	35.3	0.01462	10.7	0.0087	34.7
10:06:00	60.0	28	17	4	24	28.3	0.01462	11.7	0.0065	27.7
11:06:00	120.0	23	17	4	19	22.4	0.01462	12.5	0.0047	22.0
1:06:00	240.0	21	17	4	17	20.0	0.01462	12.9	0.0034	19.6
4:45:00	459.0	19	17	4	15	17.7	0.01462	13.2	0.0025	17.3
9:07:00	1441.0	15	17	4	11	13.0	0.01462	13.8	0.0014	12.7



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0203 S0002	0.0	(MH) ELASTIC SILT, sandy, some organic matter						

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0203 S0002	0.0	4.75	0.05	0.007		0.0	35.7	41.2	23.1

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/7/02**

GRADATION CURVES

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Job No: GL-02356

Remarks: (MH) ELASTIC SILT, with fine to coarse sand, some organic matter

Boring No. KK-0203

Sample No. 0002D

Depth: 0.0' - 2.0'

Date: 09/24/2002

MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1			
1/2	12.7			
4M	4.76	0	0	100
10M	2.00	0.9	1.0	99.0
40M	0.42	4.6	5.1	/* 93.9
100M	0.149	16.0	17.8	/* 76.1
200M	0.074	4.3	4.8	/* 71.3
Pan		64.2	71.3	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 0.9 = 1.0%

Material passing No. 10 mesh: weight = 89.14 = 99.0%

Weight of Total Sample = 90.04

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

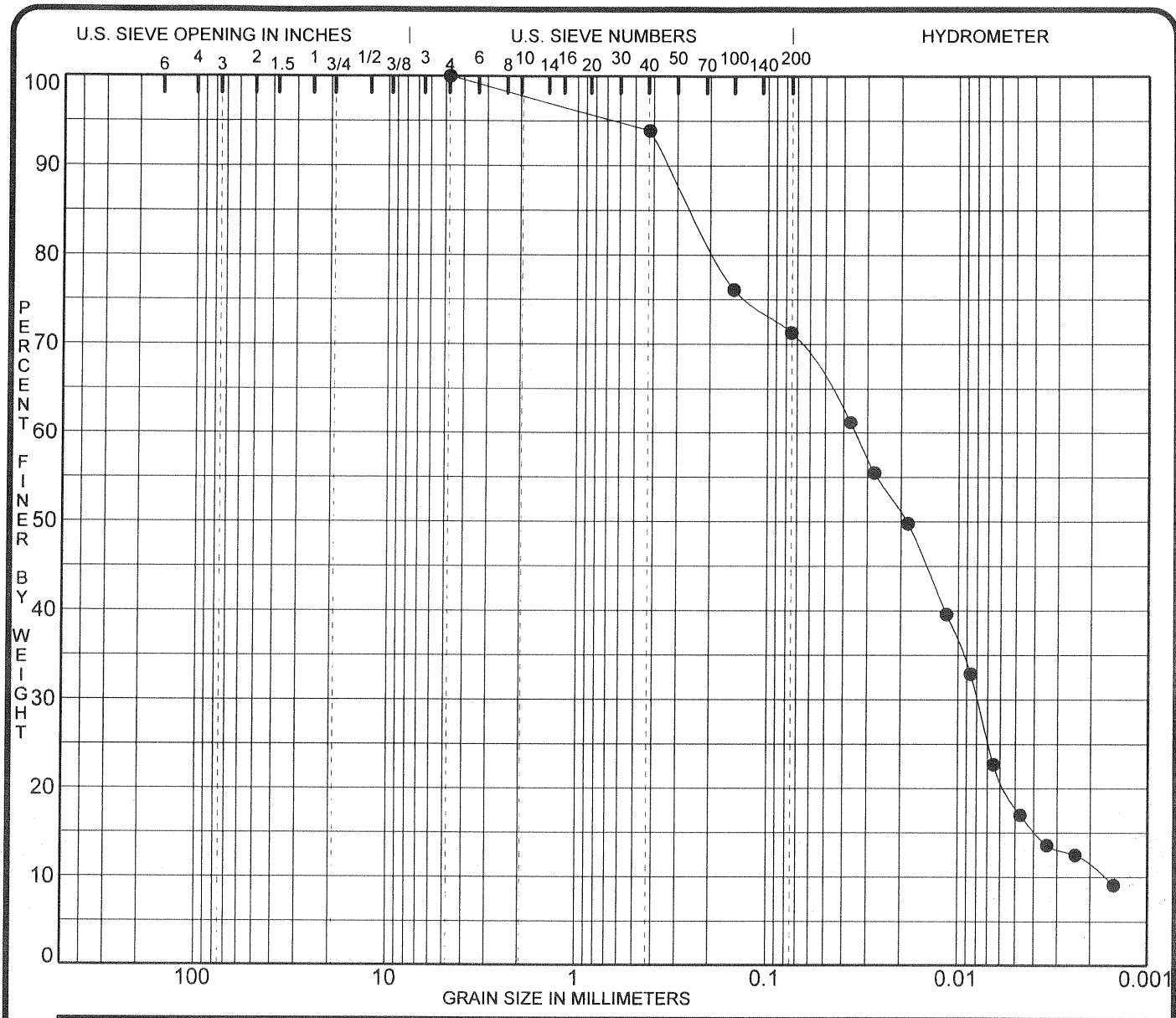
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (MH) ELASTIC SILT, with fine to coarse sand, some organic matter

Boring No: KK-0203
Sample No: 0002D
Depth: 0.0' - 2.0'
Date: 09/29/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.55
Starting Time: 8:30

% of Original Sample Used For Hydrometer Analysis: 99.0 %
Weight of Sample Dispersed: 89.14 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature °C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
8:30:30	0.5		18	6						
8:31:00	1.0	60	18	6	54	61.8	0.01443	6.5	0.0368	61.2
8:32:00	2.0	55	18	6	49	56.1	0.01443	7.3	0.0276	55.5
8:35:00	5.0	50	18	6	44	50.3	0.01443	8.1	0.0184	49.8
8:45:00	15.0	41	18	6	35	40.0	0.01443	9.6	0.0115	39.6
9:00:00	30.0	35	18	6	29	33.2	0.01443	10.6	0.0086	32.9
9:30:00	60.0	26	18	6	20	22.9	0.01443	12	0.0065	22.7
10:30:00	120.0	21	18	6	15	17.2	0.01443	12.9	0.0047	17.0
12:36:00	246.0	18	18	6	12	13.7	0.01443	13.3	0.0034	13.6
4:30:00	480.0	17	18	6	11	12.6	0.01443	13.5	0.0024	12.5
7:14:00	1364.0	14	18	6	8	9.2	0.01443	14	0.0015	9.1



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0203 S0002D	0.0	(MH) ELASTIC SILT, w/f to c sand, some organic matter					1.07	20.4

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0203 S0002D	0.0	4.75	0.03	0.008	0.0017	0.0	28.7	53.2	18.1

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/7/02**

GRADATION CURVES

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Job No: GL-02356

Remarks: (MH) ELASTIC SILT, with fine to coarse sand, some organic matter

Boring No. KK-0203

Sample No. 0406

Depth: 4.0' - 6.0'

Date: 09/23/2002

MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1			
1/2	12.7			
4M	4.76	0	0	100
10M	2.00	0.2	0.4	99.6
40M	0.42	1.2	2.4	/* 97.2
100M	0.149	4.1	8.1	/* 89.1
200M	0.074	3.0	5.9	/* 83.2
Pan		42.19	83.2	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 0.2 = 0.4%

Material passing No. 10 mesh: weight = 50.49 = 99.6%

Weight of Total Sample = 50.69

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

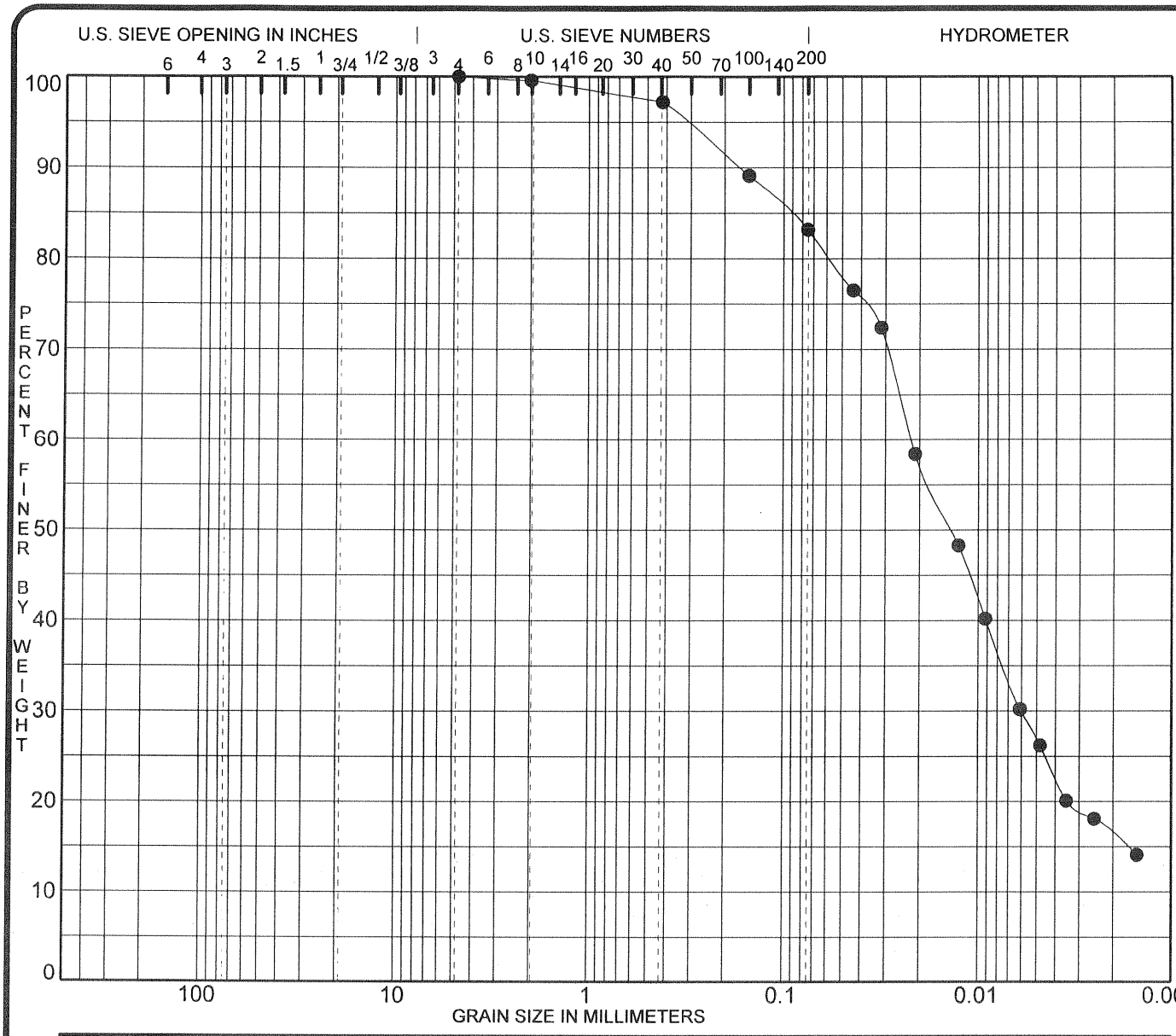
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (MH) ELASTIC SILT, with fine to coarse sand, some organic matter

Boring No: KK-0203
Sample No: 0406
Depth: 4.0' - 6.0'
Date: 09/23/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.55
Starting Time: 9:17

% of Original Sample Used For Hydrometer Analysis: 99.6 %
Weight of Sample Dispersed: 50.49 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature ° C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
9:17:30	0.5		18	5						
9:18:00	1.0	43	18	5	38	76.8	0.01443	9.2	0.0438	76.5
9:19:00	2.0	41	18	5	36	72.7	0.01443	9.6	0.0316	72.4
9:22:00	5.0	34	18	5	29	58.6	0.01443	10.7	0.0211	58.4
9:32:00	15.0	29	18	5	24	48.5	0.01443	11.5	0.0126	48.3
9:47:00	30.0	25	18	5	20	40.4	0.01443	12.2	0.0092	40.2
10:30:00	73.0	20	18	5	15	30.3	0.01443	13.0	0.0061	30.2
11:17:00	120.0	18	18	5	13	26.3	0.01443	13.3	0.0048	26.2
1:17:00	240.0	15	18	5	10	20.2	0.01443	13.8	0.0035	20.1
5:22:00	485.0	14	18	5	9	18.2	0.01443	14.0	0.0025	18.1
7:28:00	1331.0	12	18	5	7	14.1	0.01443	14.3	0.0015	14.1



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0203 S0406	4.0	(MH) ELASTIC SILT, w/f to c sand, some organic matter						

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0203 S0406	4.0	4.75	0.02	0.006		0.0	16.8	56.3	26.9

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/7/02**

GRADATION CURVES

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Boring No. KK-0203

Job No: GL-02356

Sample No. 0406D

Remarks: (MH) ELASTIC SILT, with fine to medium sand, some organic matter

Depth: 4.0' - 6.0'

Date: 10/01/2002

MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1			
1/2	12.7			
4M	4.76	0	0	100
10M	2.00	0.27	0.3	99.7
40M	0.42	1.65	2.3	/* 97.4
100M	0.149	5.04	6.9	/* 90.5
200M	0.074	4.55	6.3	/* 84.2
Pan		61.20	84.2	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 0.31 = 0.4%

Material passing No. 10 mesh: weight = 72.4 = 99.6%

Weight of Total Sample = 72.71

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

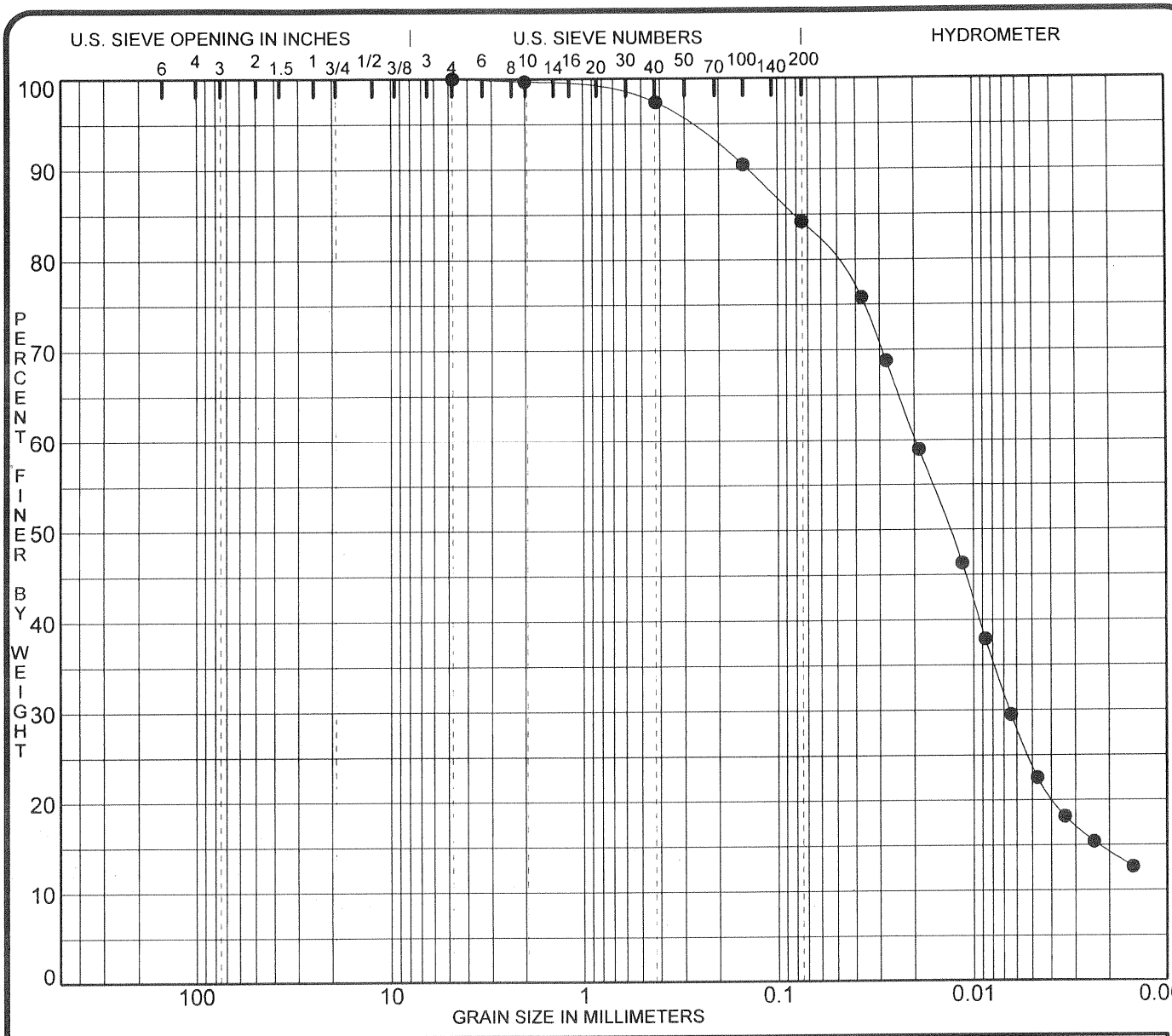
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (MH) ELASTIC SILT, with fine to medium sand, some organic matter

Boring No: KK-0203
Sample No: 0406D
Depth: 4.0' - 6.0'
Date: 09/23/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.55
Starting Time: 8:53

% of Original Sample Used For Hydrometer Analysis: 99.6 %
Weight of Sample Dispersed: 72.4 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature ° C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
8:53:30	0.5		19	4						
8:54:00	1.0	58	19	4	54	76.1	0.01425	6.8	0.0372	75.8
8:55:00	2.0	53	19	4	49	69.0	0.01425	7.6	0.0278	68.8
8:58:00	5.0	46	19	4	42	59.2	0.01425	8.8	0.0189	58.9
9:09:00	16.0	37	19	4	33	46.5	0.01425	10.2	0.0114	46.3
9:23:00	30.0	31	19	4	27	38.0	0.01425	11.2	0.0087	37.9
9:54:00	61.0	25	19	4	21	29.6	0.01425	12.2	0.0064	29.5
10:53:00	120.0	20	19	4	16	22.5	0.01425	13.0	0.0047	22.5
12:54:00	241.0	17	19	4	13	18.3	0.01425	13.5	0.0034	18.2
4:53:00	480.0	15	19	4	11	15.5	0.01425	13.8	0.0024	15.4
7:28:00	1355.0	13	19	4	9	12.7	0.01425	14.2	0.0015	12.6



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0203 S0406D	4.0	(MH) ELASTIC SILT, w/f to m sand, some organic matter						

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0203 S0406D	4.0	4.75	0.02	0.007		0.0	15.8	60.3	23.9

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/7/02**

GRADATION CURVES

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Job No: GL-02356

Remarks: (MH) ELASTIC SILT, with fine to coarse sand, trace of organic matter

Boring No. KK-0203

Sample No. 0810

Depth: 8.0' - 10.0'

Date: 09/23/2002

MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1			
1/2	12.7			
4M	4.76	0	0	100
10M	2.00	0.1	0.2	99.8
40M	0.42	0.8	1.4	/* 98.4
100M	0.149	2.5	4.5	/* 93.9
200M	0.074	5.1	9.2	/* 84.7
Pan		46.88	84.7	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 0.1 = 0.2%

Material passing No. 10 mesh: weight = 55.28 = 99.8%

Weight of Total Sample = 55.38

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

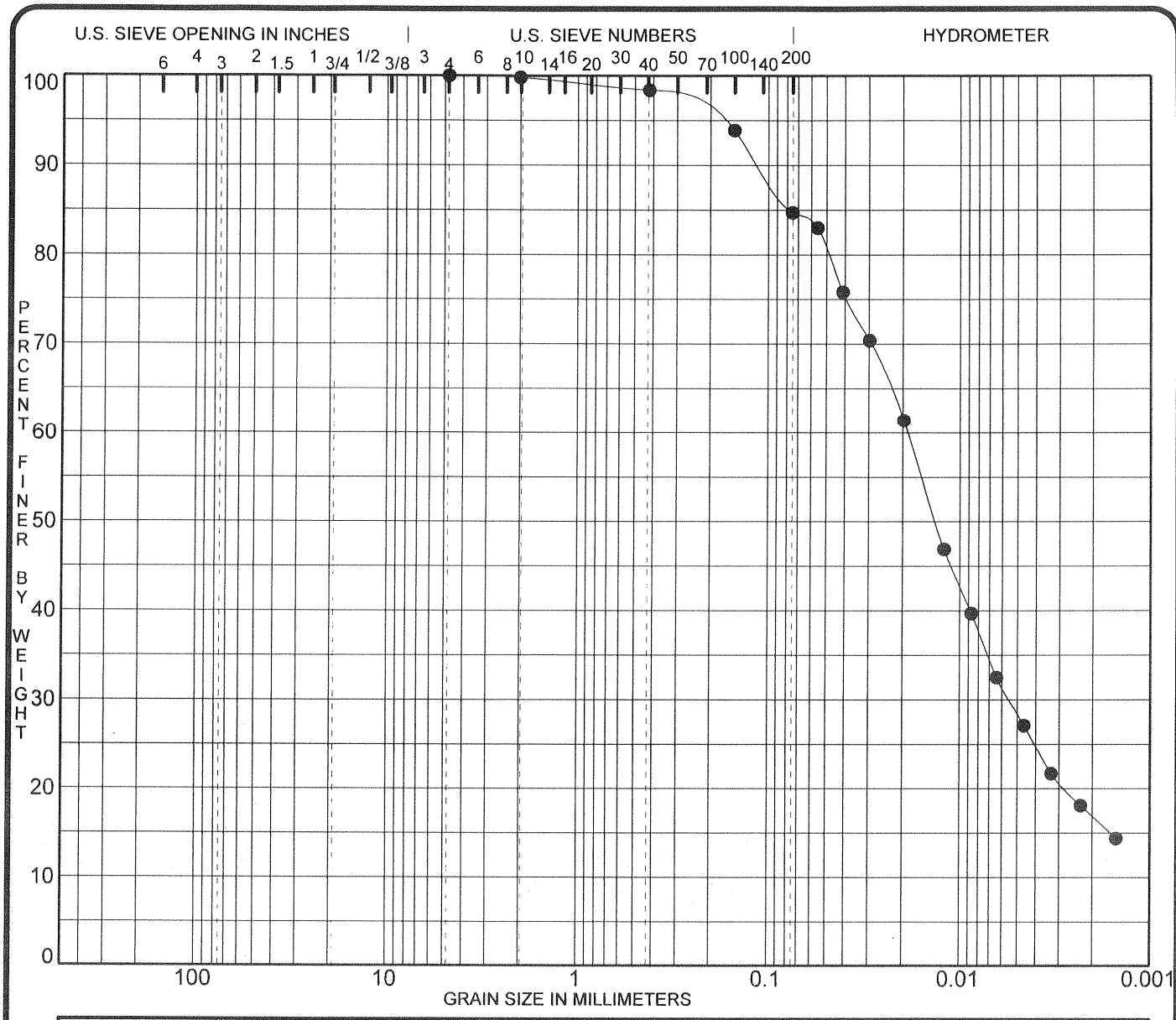
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (MH) ELASTIC SILT, with fine to coarse sand, trace of organic matter

Boring No: KK-0203
Sample No: 0810
Depth: 8.0' - 10.0'
Date: 09/23/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.65
Starting Time: 9:00

% of Original Sample Used For Hydrometer Analysis: 99.8 %
Weight of Sample Dispersed: 55.28 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature ° C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
9:00:30	0.5	51	18	5	46	83.2	0.01399	7.9	0.0556	83.0
9:01:00	1.0	47	18	5	42	76.0	0.01399	8.6	0.0410	75.8
9:02:00	2.0	44	18	5	39	70.5	0.01399	9.1	0.0298	70.4
9:05:00	5.0	39	18	5	34	61.5	0.01399	9.9	0.0197	61.4
9:15:00	15.0	31	18	5	26	47.0	0.01399	11.2	0.0121	46.9
9:31:00	31.0	27	18	5	22	39.8	0.01399	11.9	0.0087	39.7
10:00:00	60.0	23	18	5	18	32.6	0.01399	12.5	0.0064	32.5
11:00:00	120.0	20	18	5	15	27.1	0.01399	13.0	0.0046	27.1
1:01:00	241.0	17	18	5	12	21.7	0.01399	13.5	0.0033	21.7
5:20:00	500.0	15	18	5	10	18.1	0.01399	13.8	0.0023	18.1
6:08:00	1268.0	13	18	5	8	14.5	0.01399	14.2	0.0015	14.4



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0203 S0810	8.0	(MH) ELASTIC SILT, w/f to c sand, tr/organic matter						

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0203 S0810	8.0	4.75	0.02	0.005		0.0	15.3	56.2	28.5

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/7/02**

GRADATION CURVES

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Boring No. KK-0203

Job No: GL-02356

Sample No. 0810D

Remarks: (MH) ELASTIC SILT, with fine to coarse sand, some organic matter

Depth: 8.0' - 10.0'

Date: 09/23/2002

MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1			
1/2	12.7			
4M	4.76	0	0	100
10M	2.00	0.2	0.4	99.6
40M	0.42	1.1	2.2	/* 97.4
100M	0.149	3.4	6.7	/* 90.7
200M	0.074	6.9	13.6	/* 77.1
Pan		39.25	77.1	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 0.2 = 0.4%

Material passing No. 10 mesh: weight = 50.65 = 99.6%

Weight of Total Sample = 50.85

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

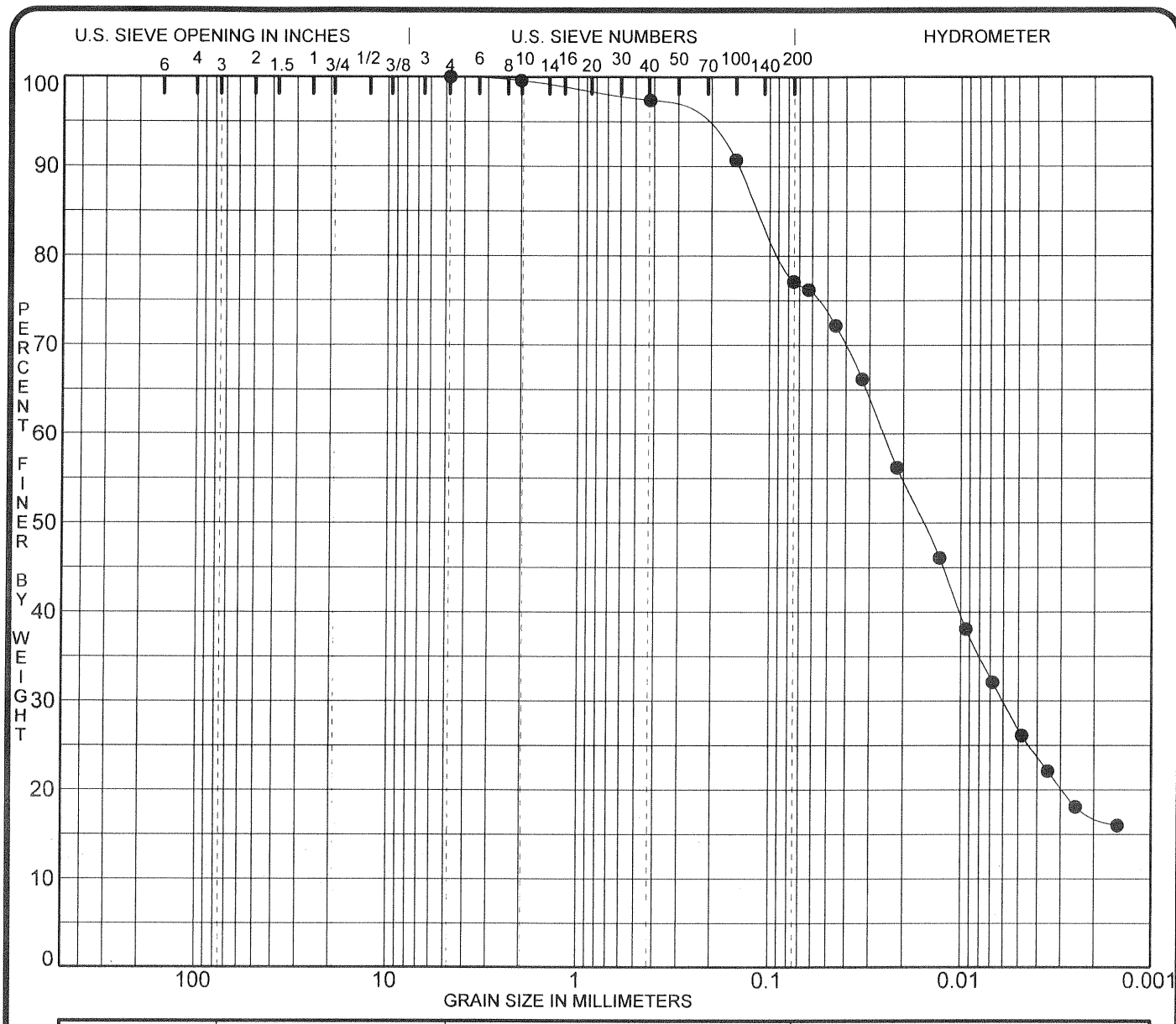
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (MH) ELASTIC SILT, with fine to coarse sand, some organic matter

Boring No: KK-0203
Sample No: 0810D
Depth: 8.0' - 10.0'
Date: 09/23/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.55
Starting Time: 8:32

% of Original Sample Used For Hydrometer Analysis: 99.6 %
Weight of Sample Dispersed: 50.65 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature ° C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
8:32:30	0.5	43	17	5	38	76.5	0.01462	9.2	0.0627	76.2
8:33:00	1.0	41	17	5	36	72.5	0.01462	9.6	0.0453	72.2
8:34:00	2.0	38	17	5	33	66.5	0.01462	10.1	0.0329	66.2
8:37:00	5.0	33	17	5	28	56.4	0.01462	10.9	0.0216	56.2
8:47:00	15.0	28	17	5	23	46.3	0.01462	11.7	0.0129	46.1
9:02:00	30.0	24	17	5	19	38.3	0.01462	12.4	0.0094	38.1
9:32:00	60.0	21	17	5	16	32.2	0.01462	12.9	0.0068	32.1
10:36:00	124.0	18	17	5	13	26.2	0.01462	13.3	0.0048	26.1
12:32:00	240.0	16	17	5	11	22.2	0.01462	13.7	0.0035	22.1
4:18:00	466.0	14	17	5	9	18.1	0.01462	14.0	0.0025	18.1
7:25:00	1373.0	13	17	5	8	16.1	0.01462	14.2	0.0015	16.0



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0203 S0810D 8.0	(MH) ELASTIC SILT, w/f to c sand, some organic matter						

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0203 S0810D 8.0	4.75	0.03	0.006		0.0	22.9	50.3	26.8

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/7/02**

GRADATION CURVES

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Job No: GL-02356

Remarks: (MH) ELASTIC SILT, some fine to coarse sand, some organic matter

Boring No. KK-0203

Sample No. 1214

Depth: 12.0' - 14.0'

Date: 09/24/2002

MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1			
1/2	12.7			
4M	4.76	0	0	100
10M	2.00	0.28	0.5	99.5
40M	0.42	1.0	2.0	/* 97.5
100M	0.149	2.7	5.3	/* 92.2
200M	0.074	1.4	2.7	/* 89.5
Pan		45.15	89.5	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 0.28 = 0.5%

Material passing No. 10 mesh: weight = 50.87 = 99.5%

Weight of Total Sample = 51.15

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (MH) ELASTIC SILT, some fine to coarse sand, some organic matter

Boring No: KK-0203
Sample No: 1214
Depth: 12.0' - 14.0'
Date: 09/23/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.55
Starting Time: 10:02

% of Original Sample Used For Hydrometer Analysis: 99.5 %
Weight of Sample Dispersed: 50.87 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature ° C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
10:02:30	0.5		18	5						
10:03:00	1.0	47	18	5	42	84.2	0.01443	8.6	0.0423	83.8
10:04:00	2.0	45	18	5	40	80.2	0.01443	8.9	0.0304	79.8
10:07:00	5.0	42	18	5	37	74.2	0.01443	9.4	0.0198	73.8
10:17:00	15.0	38	18	5	33	66.2	0.01443	10.1	0.0118	65.8
10:32:00	30.0	33	18	5	28	56.1	0.01443	10.9	0.0087	55.9
11:02:00	60.0	27	18	5	22	44.1	0.01443	11.9	0.0064	43.9
12:02:00	120.0	22	18	5	17	34.1	0.01443	12.7	0.0047	33.9
2:02:00	240.0	20	18	5	15	30.1	0.01443	13.0	0.0034	29.9
5:49:00	467.0	18	18	5	13	26.1	0.01443	13.3	0.0024	25.9
9:18:00	1396.0	15	18	5	10	20.1	0.01443	13.8	0.0014	20.0

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

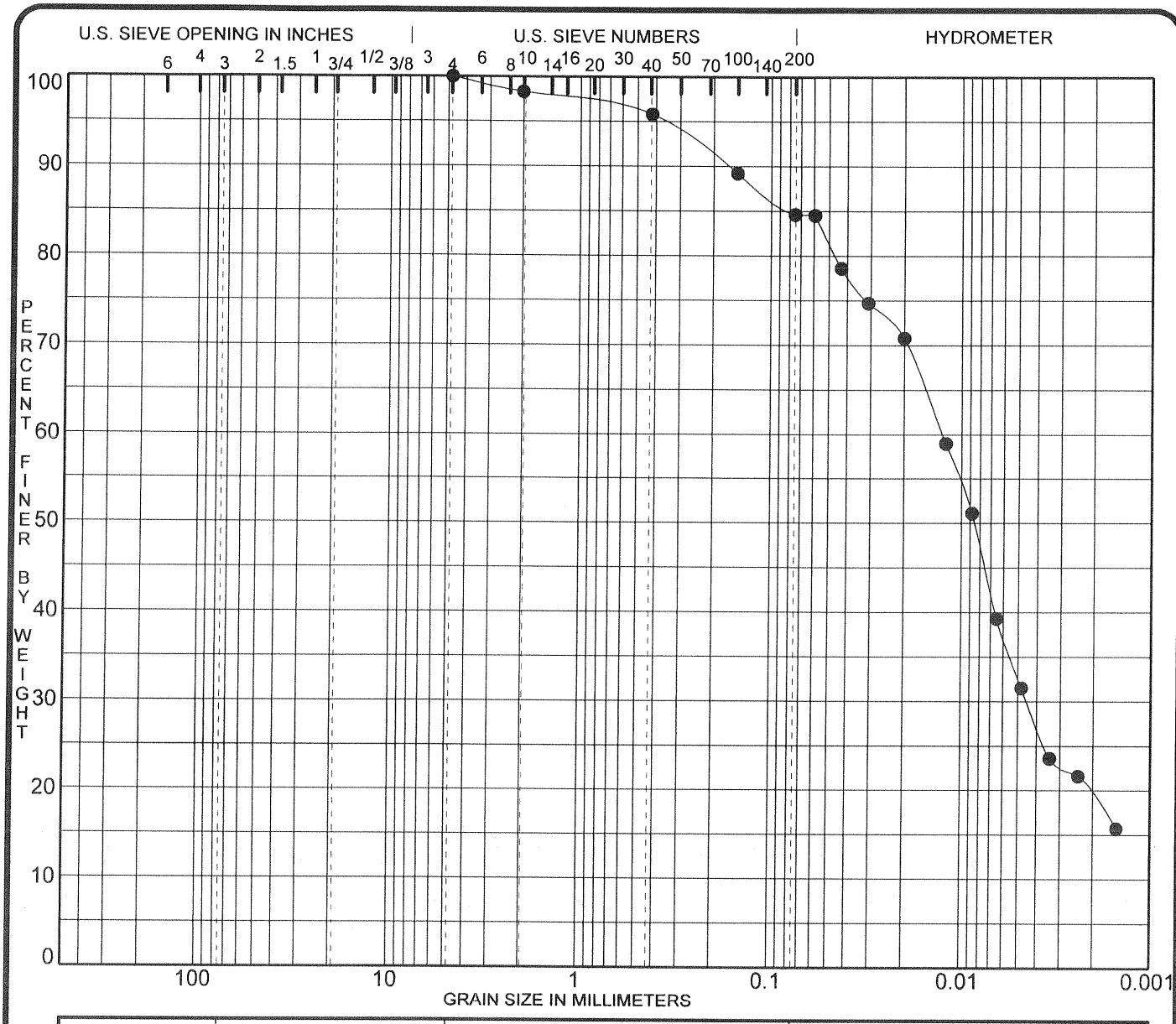
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (MH) ELASTIC SILT, some fine to coarse sand, some organic matter

Boring No: KK-0203
Sample No: 1214D
Depth: 12.0' - 14.0'
Date: 09/26/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.55
Starting Time: 9:43

% of Original Sample Used
For Hydrometer Analysis: 98.3 %
Weight of Sample Dispersed: 51.0 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature °C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
9:43:30	0.5	48	18	5	43	86.0	0.01443	8.4	0.0591	84.5
9:44:00	1.0	45	18	5	40	80.0	0.01443	8.9	0.0430	78.6
9:45:00	2.0	43	18	5	38	76.0	0.01443	9.2	0.0309	74.7
9:48:00	5.0	41	18	5	36	72.0	0.01443	9.6	0.0200	70.8
9:58:00	15.0	35	18	5	30	60.0	0.01443	10.6	0.0121	59.0
10:13:00	30.0	31	18	5	26	52.0	0.01443	11.2	0.0088	51.1
10:43:00	60.0	25	18	5	20	40.0	0.01443	12.2	0.0065	39.3
11:42:00	119.0	21	18	5	16	32.0	0.01443	12.9	0.0048	31.5
1:43:00	240.0	17	18	5	12	24.0	0.01443	13.5	0.0034	23.6
5:40:00	477.0	16	18	5	11	22.0	0.01443	13.7	0.0024	21.6
8:17:00	1354.0	13	18	5	8	16.0	0.01443	14.2	0.0015	15.7



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0203 S1214D 12.0	(MH) ELASTIC SILT, some f to c sand, some organic matter						

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0203 S1214D 12.0	4.75	0.01	0.004		0.0	15.4	52.0	32.6

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/7/02**

GRADATION CURVES

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Job No: GL-02356

Remarks: (SP-SM) SAND, fine to coarse, some silt, trace of organics

Boring No. KK-0204

Sample No. 0204

Depth: 2.0' - 4.0'

Date: 09/20/2002

MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1			
1/2	12.7			
4M	4.76	0	0	100
10M	2.00	2.1	2.3	97.7
40M	0.42	19.8	21.4	/* 76.3
100M	0.149	63.4	68.4	/* 7.9
200M	0.074	1.7	1.8	/* 6.1
Pan		5.6	6.1	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 2.1 = 2.3%

Material passing No. 10 mesh: weight = 90.54 = 97.7%

Weight of Total Sample = 92.64

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

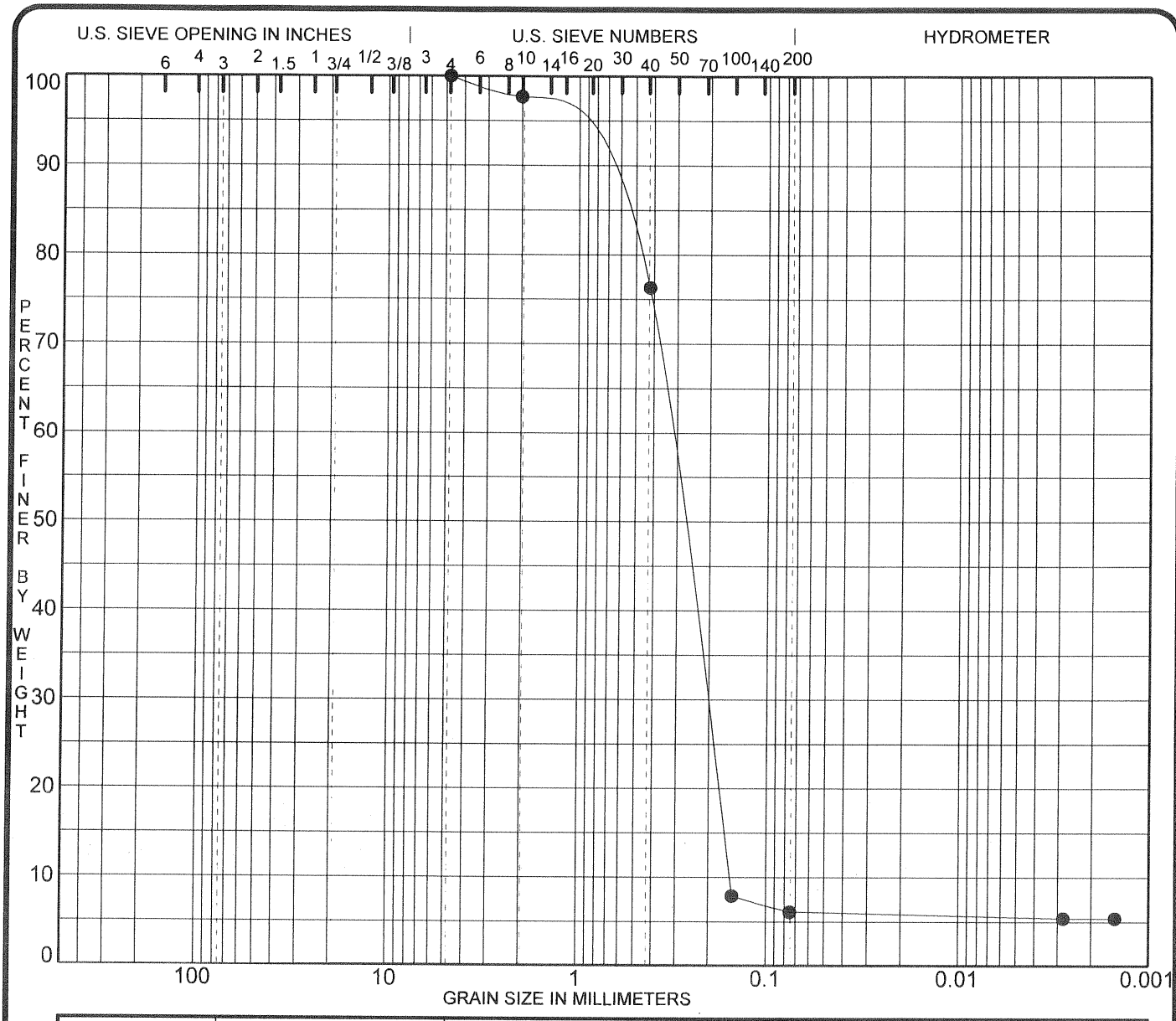
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (SP-SM) SAND, fine to coarse, some silt, trace of organics

Boring No: KK-0204
Sample No: 0204
Depth: 2.0' - 4.0'
Date: 09/20/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.65
Starting Time: 10:19

% of Original Sample Used For Hydrometer Analysis: 97.7 %
Weight of Sample Dispersed: 90.54 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature ° C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
10:19:30	0.5	13	17	4	9	9.9	0.01417	14.2	0.0755	9.7
10:20:00	1.0	12	17	4	8	8.8	0.01417	14.3	0.0536	8.6
10:21:00	2.0	12	17	4	8	8.8	0.01417	14.3	0.0379	8.6
10:24:00	5.0	11	17	4	7	7.7	0.01417	14.5	0.0241	7.6
10:35:00	16.0	11	17	4	7	7.7	0.01417	14.5	0.0135	7.6
10:49:00	30.0	11	17	4	7	7.7	0.01417	14.5	0.0099	7.6
11:20:00	61.0	10	17	4	6	6.6	0.01417	14.7	0.0070	6.5
12:19:00	120.0	10	17	4	6	6.6	0.01417	14.7	0.0050	6.5
2:19:00	240.0	10	17	4	6	6.6	0.01417	14.7	0.0035	6.5
4:54:00	392.0	9	17	4	5	5.5	0.01417	14.8	0.0028	5.4
9:31:00	1392.0	9	17	4	5	5.5	0.01417	14.8	0.0015	5.4



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0204 S0204	2.0	(SP-SM) SAND, f to c, some silt, tr/organics					0.86	2.1

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0204 S0204	2.0	4.75	0.33	0.209	0.1548	0.0	93.9	6.1	

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/7/02**

GRADATION CURVES

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Job No: GL-02356

Remarks: (MH) ELASTIC SILT, sandy (fine to coarse), trace of organic matter

Boring No. KK-0204

Sample No. 0608

Depth: 6.0' - 8.0'

Date: 09/20/2002

MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1			
1/2	12.7			
4M	4.76	0	0	100
10M	2.00	3.7	4.0	96.0
40M	0.42	8.2	9.0	/* 87.0
100M	0.149	19.7	21.5	/* 65.5
200M	0.074	0.1	0.1	/* 65.4
Pan		59.8	65.4	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 3.7 = 4.0%

Material passing No. 10 mesh: weight = 87.8 = 96.0%

Weight of Total Sample = 91.5

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

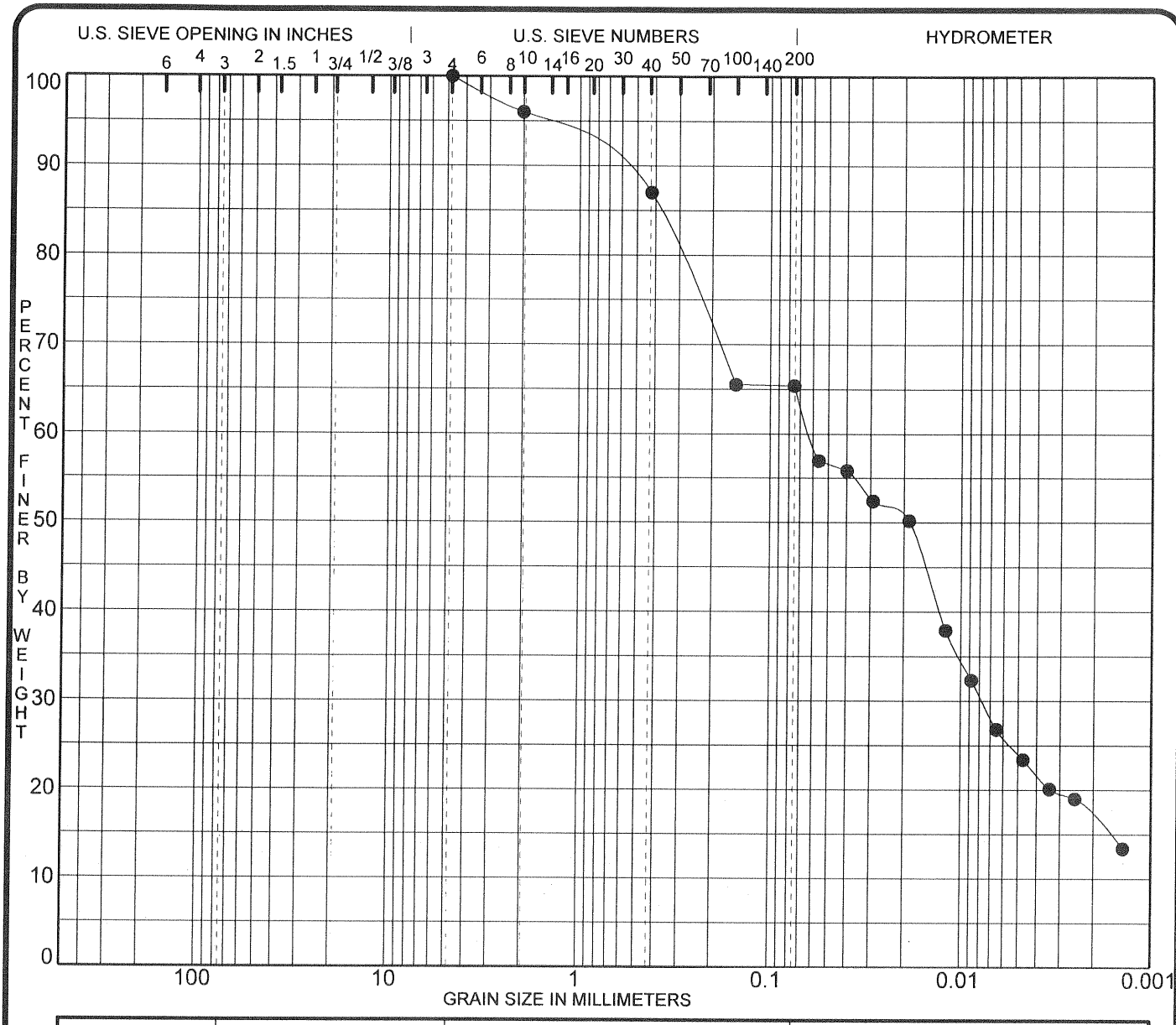
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (MH) ELASTIC SILT, sandy (fine to coarse), trace of organic matter

Boring No: KK-0204
Sample No: 0608
Depth: 6.0' - 8.0'
Date: 09/20/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.55
Starting Time: 9:23

% of Original Sample Used For Hydrometer Analysis: 96.0 %
Weight of Sample Dispersed: 87.8 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature ° C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
9:23:30	0.5	55	17	4	51	59.2	0.01462	7.3	0.0559	56.9
9:24:00	1.0	54	17	4	50	58.1	0.01462	7.4	0.0398	55.8
9:25:00	2.0	51	17	4	47	54.6	0.01462	7.9	0.0291	52.4
9:28:00	5.0	49	17	4	45	52.3	0.01462	8.3	0.0188	50.2
9:38:00	15.0	38	17	4	34	39.5	0.01462	10.1	0.0120	37.9
9:53:00	30.0	33	17	4	29	33.7	0.01462	10.9	0.0088	32.3
10:23:00	60.0	28	17	4	24	27.9	0.01462	11.7	0.0065	26.8
11:23:00	120.0	25	17	4	21	24.4	0.01462	12.2	0.0047	23.4
1:23:00	240.0	22	17	4	18	20.9	0.01462	12.7	0.0034	20.1
4:48:00	445.0	21	17	4	17	19.7	0.01462	12.9	0.0025	19.0
9:24:00	1441.0	16	17	4	12	13.9	0.01462	13.7	0.0014	13.4



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0204 S0608	6.0	(MH) ELASTIC SILT, sandy(f to c), tr/organic matter						

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0204 S0608	6.0	4.75	0.06	0.008		0.0	34.6	41.4	24.0

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/7/02**

GRADATION CURVES

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Job No: GL-02356

Remarks: (MH) ELASTIC SILT, with fine to coarse sand, some organic matter

Boring No. KK-0204

Sample No. 1012

Depth: 10.0' - 12.0'

Date: 09/20/2002

MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1			
1/2	12.7			
4M	4.76	0	0	100
10M	2.00	0.5	1.0	99.0
40M	0.42	2.2	4.4	/* 94.6
100M	0.149	3.1	6.2	/* 88.4
200M	0.074	1.0	2.1	/* 86.3
Pan		42.97	86.3	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 0.5 = 1.0%

Material passing No. 10 mesh: weight = 49.27 = 99.0%

Weight of Total Sample = 49.77

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

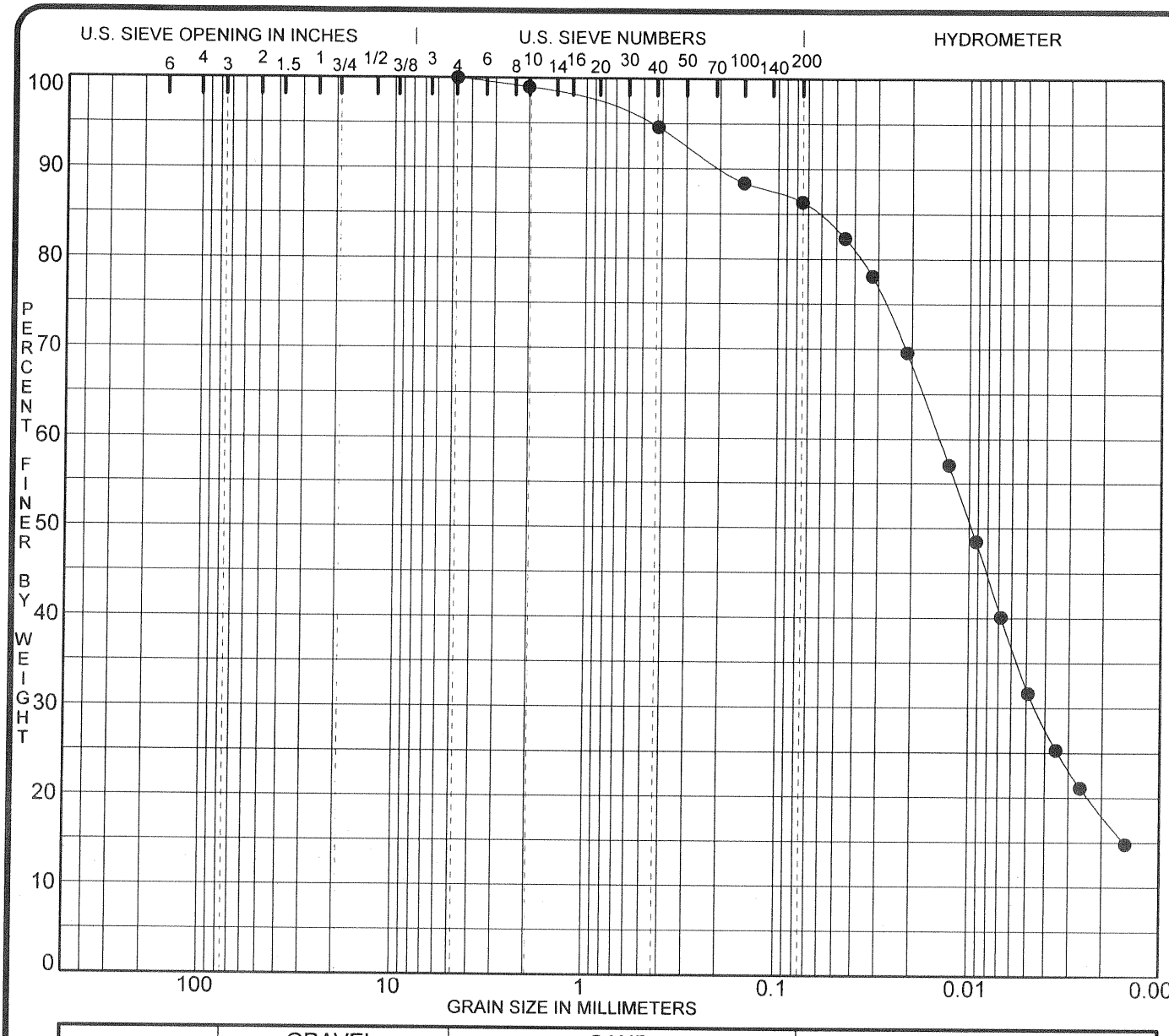
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (MH) ELASTIC SILT, with fine to coarse sand, some organic matter

Boring No: KK-0204
Sample No: 1012
Depth: 10.0' - 12.0'
Date: 09/23/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.45
Starting Time: 10:10

% of Original Sample Used For Hydrometer Analysis: 99.0 %
Weight of Sample Dispersed: 49.27 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature °C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
10:10:30	0.5		18	5						
10:11:00	1.0	44	18	5	39	83.1	0.01492	9.1	0.0450	82.3
10:12:00	2.0	42	18	5	37	78.9	0.01492	9.4	0.0323	78.1
10:15:00	5.0	38	18	5	33	70.3	0.01492	10.1	0.0212	69.6
10:25:00	15.0	32	18	5	27	57.5	0.01492	11.1	0.0128	57.0
10:41:00	31.0	28	18	5	23	49.0	0.01492	11.7	0.0092	48.5
11:10:00	60.0	24	18	5	19	40.5	0.01492	12.4	0.0068	40.1
12:10:00	120.0	20	18	5	15	32.0	0.01492	13.0	0.0049	31.6
2:22:00	252.0	17	18	5	12	25.6	0.01492	13.5	0.0035	25.3
5:50:00	460.0	15	18	5	10	21.3	0.01492	13.8	0.0026	21.1
9:30:00	1400.0	12	18	5	7	14.9	0.01492	14.3	0.0015	14.8



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0204 S1012	10.0	(MH) ELASTIC SILT, w/f to c sand, some organic matter						

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0204 S1012	10.0	4.75	0.01	0.004		0.0	13.7	54.2	32.1

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/7/02**

GRADATION CURVES

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Job No: GL-02356

Remarks: (MH) ELASTIC SILT, with fine to coarse sand, some organic matter

Boring No. KK-0204

Sample No. 1416

Depth: 14.0' - 16.0'

Date: 09/23/2002

MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1			
1/2	12.7			
4M	4.76	0	0	100
10M	2.00	1.47	2.7	97.3
40M	0.42	2.1	3.8	/* 93.5
100M	0.149	5.1	9.2	/* 84.3
200M	0.074	3.9	7.0	/* 77.3
Pan		42.5	77.3	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 1.47 = 2.7%

Material passing No. 10 mesh: weight = 53.86 = 97.3%

Weight of Total Sample = 55.33

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

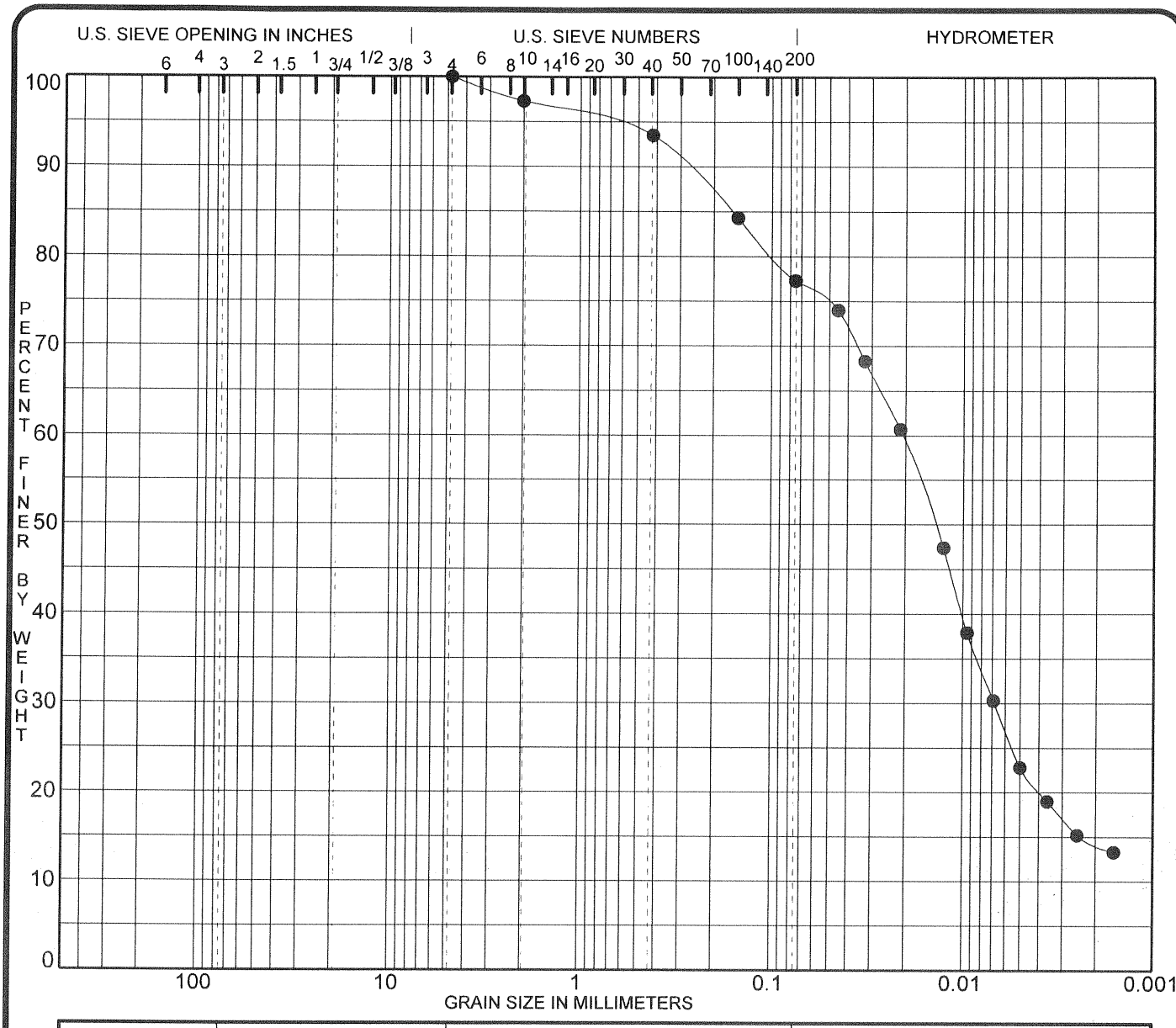
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (MH) ELASTIC SILT, with fine to coarse sand, some organic matter

Boring No: KK-0204
Sample No: 1416
Depth: 14.0' - 16.0'
Date: 09/23/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.45
Starting Time: 9:07

% of Original Sample Used For Hydrometer Analysis: 97.3 %
Weight of Sample Dispersed: 53.86 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature ° C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
9:07:30	0.5		18	5						
9:08:00	1.0	44	18	5	39	76.0	0.01492	9.1	0.0450	74.0
9:09:00	2.0	41	18	5	36	70.2	0.01492	9.6	0.0327	68.3
9:12:00	5.0	37	18	5	32	62.4	0.01492	10.2	0.0213	60.7
9:23:00	16.0	30	18	5	25	48.7	0.01492	11.4	0.0126	47.4
9:37:00	30.0	25	18	5	20	39.0	0.01492	12.2	0.0095	37.9
10:08:00	61.0	21	18	5	16	31.2	0.01492	12.9	0.0069	30.3
11:07:00	120.0	17	18	5	12	23.4	0.01492	13.5	0.0050	22.8
1:08:00	241.0	15	18	5	10	19.5	0.01492	13.8	0.0036	19.0
5:21:00	494.0	13	18	5	8	15.6	0.01492	14.2	0.0025	15.2
6:09:00	1262.0	12	18	5	7	13.6	0.01492	14.3	0.0016	13.3



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0204 S1416 14.0	(MH) ELASTIC SILT, w/f to c sand, some organic matter						

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0204 S1416 14.0	4.75	0.02	0.007		0.0	22.7	54.5	22.8

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/8/02**

GRADATION CURVES

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Job No: GL-02356

Remarks: (MH) ELASTIC SILT, with fine to coarse sand, some organic matter

Boring No. KK-0205

Sample No. 0002

Depth: 0.0' - 2.0'

Date: 09/24/2002

MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1			
1/2	12.7			
4M	4.76	0	0	100
10M	2.00	0.6	0.7	99.3
40M	0.42	1.7	1.9	/* 97.4
100M	0.149	16.4	18.1	/* 79.3
200M	0.074	0.1	0.1	/* 79.2
Pan		71.7	79.2	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 0.6 = 0.7%

Material passing No. 10 mesh: weight = 89.93 = 99.3%

Weight of Total Sample = 90.53

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

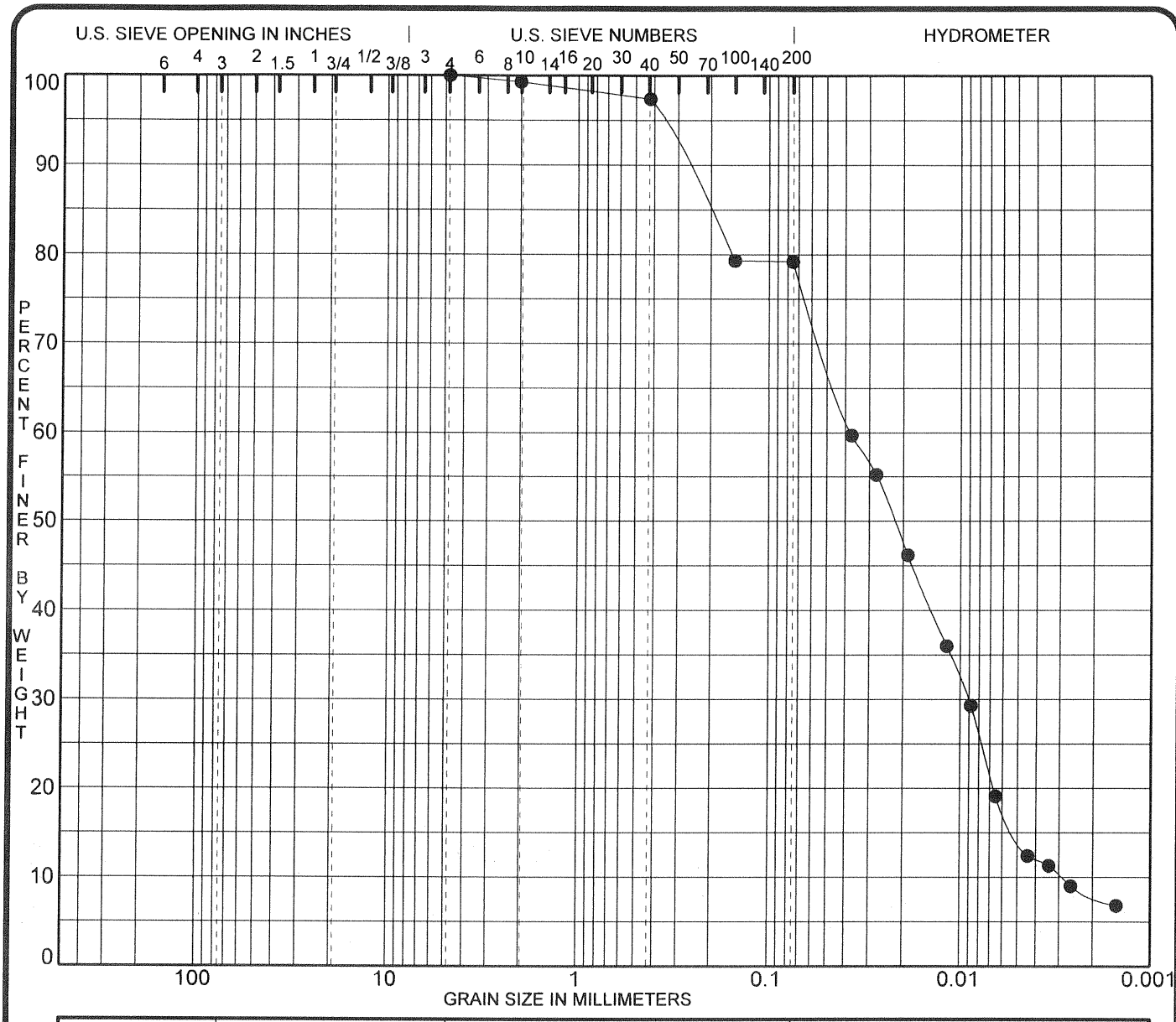
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (MH) ELASTIC SILT, with fine to coarse sand, some organic matter

Boring No: KK-0205
Sample No: 0002
Depth: 0.0' - 2.0'
Date: 09/24/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.55
Starting Time: 9:43

% of Original Sample Used
For Hydrometer Analysis: 99.3 %
Weight of Sample Dispersed: 89.93 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature ° C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
9:43:30	0.5		18	6						
9:44:00	1.0	59	18	6	53	60.1	0.01443	6.6	0.0371	59.7
9:45:00	2.0	55	18	6	49	55.6	0.01443	7.3	0.0276	55.2
9:48:00	5.0	47	18	6	41	46.5	0.01443	8.6	0.0189	46.2
9:58:00	15.0	38	18	6	32	36.3	0.01443	10.1	0.0118	36.0
10:13:00	30.0	32	18	6	26	29.5	0.01443	11.1	0.0088	29.3
10:44:00	61.0	23	18	6	17	19.3	0.01443	12.5	0.0065	19.1
12:10:00	147.0	17	18	6	11	12.5	0.01443	13.5	0.0044	12.4
1:43:00	240.0	16	18	6	10	11.3	0.01443	13.7	0.0034	11.3
5:07:00	444.0	14	18	6	8	9.1	0.01443	14.0	0.0026	9.0
7:15:00	1292.0	12	18	6	6	6.8	0.01443	14.3	0.0015	6.8



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0205 S0002	0.0	(MH) ELASTIC SILT, w/f to c sand, some organic matter					0.75	12.8

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0205 S0002	0.0	4.75	0.04	0.009	0.0029	0.0	20.8	64.6	14.6

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/7/02**

GRADATION CURVES

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Boring No. KK-0205

Job No: GL-02356

Sample No. 0406

Remarks: (MH) ELASTIC SILT, with fine to medium sand, some organic matter

Depth: 4.0' - 6.0'

Date: 09/25/2002

MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1			
1/2	12.7			
4M	4.76	0	0	100
10M	2.00	0.2	0.4	99.6
40M	0.42	0.8	1.6	/* 98.0
100M	0.149	2.8	5.4	/* 92.6
200M	0.074	3.2	6.3	/* 86.3
Pan		44.17	86.3	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 0.2 = 0.4%

Material passing No. 10 mesh: weight = 50.97 = 99.6%

Weight of Total Sample = 51.17

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (MH) ELASTIC SILT, with fine to medium sand, some organic matter

Boring No: KK-0205
Sample No: 0406
Depth: 4.0' - 6.0'
Date: 09/25/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.55
Starting Time: 8:15

% of Original Sample Used For Hydrometer Analysis: 99.6 %
Weight of Sample Dispersed: 50.97 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature ° C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
8:15:30	0.5		17	5						
8:16:00	1.0	45	17	5	40	80.0	0.01462	8.9	0.0436	79.7
8:17:00	2.0	43	17	5	38	76.0	0.01462	9.2	0.0314	75.7
8:20:00	5.0	38	17	5	33	66.0	0.01462	10.1	0.0208	65.8
8:30:00	15.0	33	17	5	28	56.0	0.01462	10.9	0.0125	55.8
8:45:00	30.0	28	17	5	23	46.0	0.01462	11.7	0.0091	45.8
9:15:00	60.0	23	17	5	18	36.0	0.01462	12.5	0.0067	35.9
10:15:00	120.0	19	17	5	14	28.0	0.01462	13.2	0.0048	27.9
12:16:00	241.0	17	17	5	12	24.0	0.01462	13.5	0.0035	23.9
4:16:00	481.0	15	17	5	10	20.0	0.01462	13.8	0.0025	19.9
7:23:00	1388.0	14	17	5	9	18.0	0.01462	14.0	0.0015	17.9

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

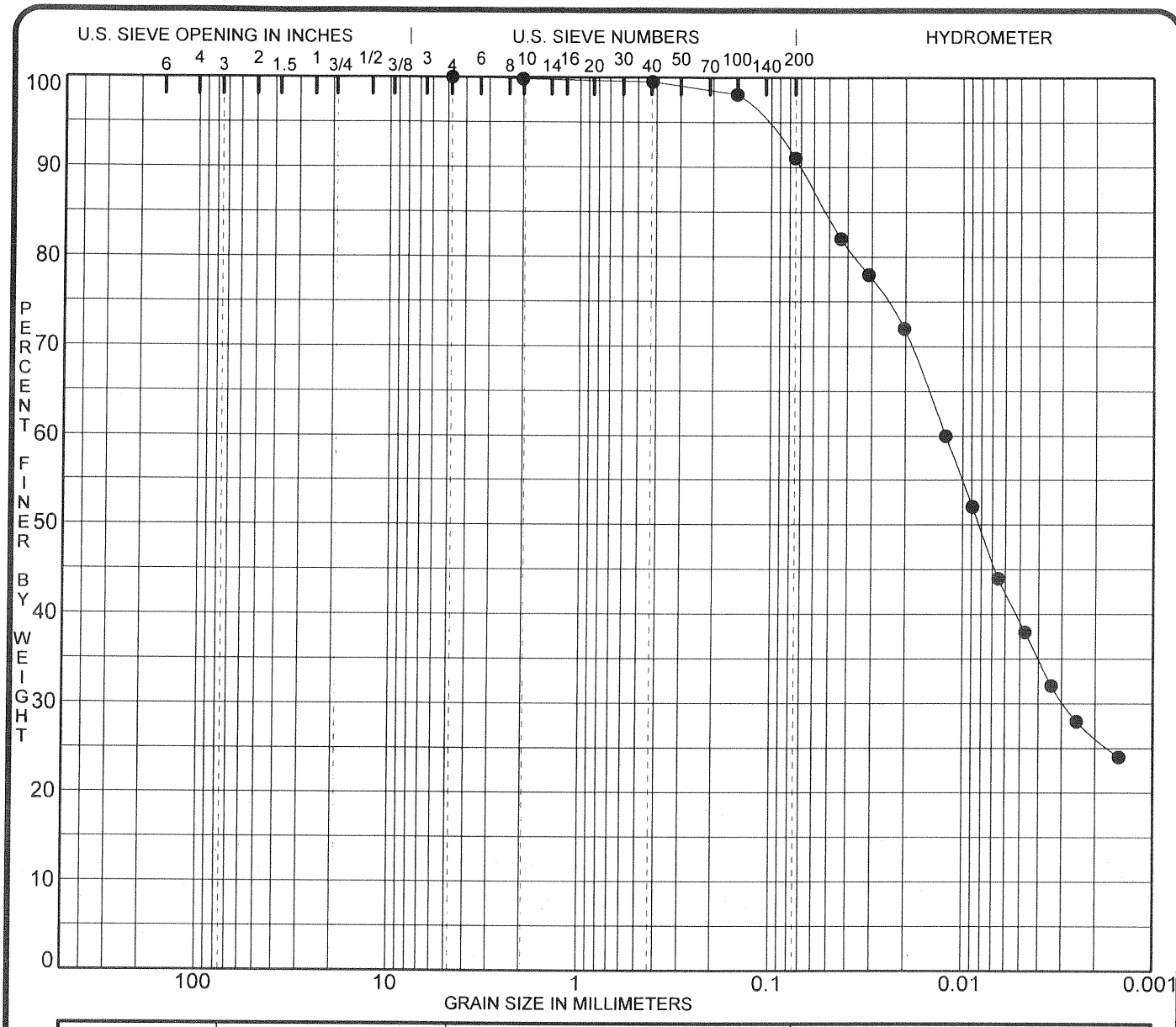
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (MH) ELASTIC SILT, some fine to medium sand, trace of organic matter

Boring No: KK-0205
Sample No: 0810
Depth: 8.0' - 10.0'
Date: 09/27/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.55
Starting Time: 9:06

% of Original Sample Used For Hydrometer Analysis: 99.8 %
Weight of Sample Dispersed: 50.88 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature ° C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
9:06:30	0.5	51	17	5	46	92.2	0.01462	7.9	0.0581	92.0
9:07:00	1.0	46	17	5	41	82.2	0.01462	8.8	0.0434	82.0
9:08:00	2.0	44	17	5	39	78.2	0.01462	9.1	0.0312	78.0
9:11:00	5.0	41	17	5	36	72.2	0.01462	9.6	0.0203	72.0
9:21:00	15.0	35	17	5	30	60.1	0.01462	10.6	0.0123	60.0
9:36:00	30.0	31	17	5	26	52.1	0.01462	11.2	0.0089	52.0
10:07:00	61.0	27	17	5	22	44.1	0.01462	11.9	0.0065	44.0
11:06:00	120.0	24	17	5	19	38.1	0.01462	12.4	0.0047	38.0
1:05:00	239.0	21	17	5	16	32.1	0.01462	12.9	0.0034	32.0
4:20:00	434.0	19	17	5	14	28.1	0.01462	13.2	0.0025	28.0
7:27:00	1341.0	17	17	5	12	24.1	0.01462	13.5	0.0015	24.0



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0205 S0810	8.0	(MH) ELASTIC SILT, some f to m sand, tr/organic matter						

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0205 S0810	8.0	4.75	0.01	0.003		0.0	9.0	51.9	39.1

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/8/02**

GRADATION CURVES

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Boring No. KK-0205

Job No: GL-02356

Sample No. 1214

Remarks: (MH) ELASTIC SILT, some fine sand, some organic matter

Depth: 12.0' - 14.0'

Date: 09/30/2002

MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1			
1/2	12.7			
4M	4.76	0	0	100
10M	2.00	0.1	0.2	99.8
40M	0.42	0.2	0.4	/* 99.4
100M	0.149	0.8	1.7	/* 97.7
200M	0.074	2.4	5.0	/* 92.7
Pan		44.7	92.7	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 0.1 = 0.2%

Material passing No. 10 mesh: weight = 48.1 = 99.8%

Weight of Total Sample = 48.2

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

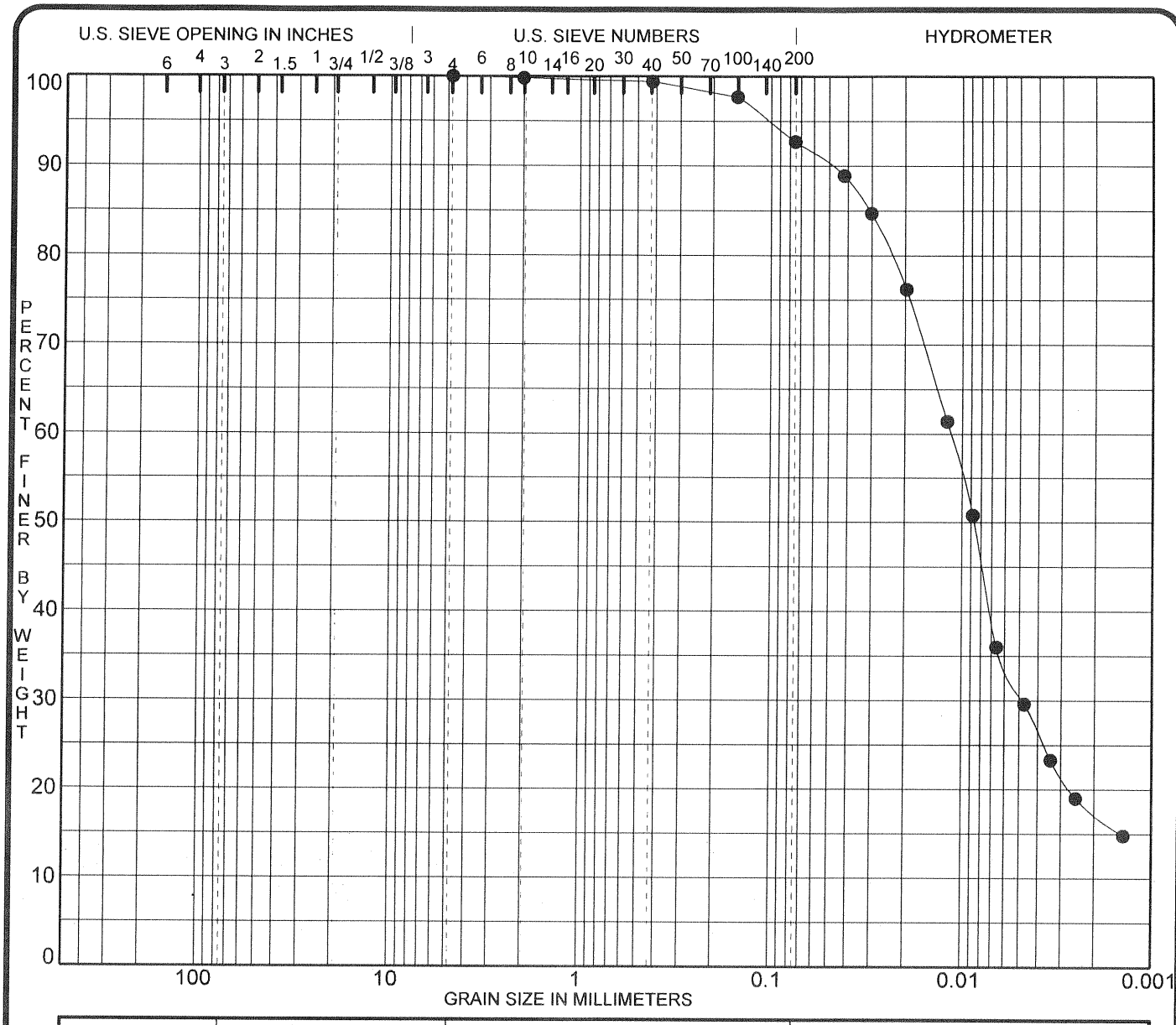
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (MH) ELASTIC SILT, some fine sand, some organic matter

Boring No: KK-0205
Sample No: 1214
Depth: 12.0' - 14.0'
Date: 09/27/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.55
Starting Time: 8:55

% of Original Sample Used For Hydrometer Analysis: 99.8 %
Weight of Sample Dispersed: 48.1 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature ° C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
8:55:30	0.5		19	5						
8:56:00	1.0	47	19	5	42	89.1	0.01425	8.6	0.0418	88.9
8:57:00	2.0	45	19	5	40	84.8	0.01425	8.9	0.0301	84.7
9:00:00	5.0	41	19	5	36	76.3	0.01425	9.6	0.0197	76.2
9:10:00	15.0	34	19	5	29	61.5	0.01425	10.7	0.0120	61.4
9:25:00	30.0	29	19	5	24	50.9	0.01425	11.5	0.0088	50.8
9:55:00	60.0	22	19	5	17	36.0	0.01425	12.7	0.0066	36.0
10:55:00	120.0	19	19	5	14	29.7	0.01425	13.2	0.0047	29.6
12:55:00	240.0	16	19	5	11	23.3	0.01425	13.7	0.0034	23.3
4:46:00	471.0	14	19	5	9	19.1	0.01425	14.0	0.0025	19.0
8:08:00	1393.0	12	19	5	7	14.8	0.01425	14.3	0.0014	14.8



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0205 S1214	12.0	(MH) ELASTIC SILT, some fine sand, some organic matter						

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0205 S1214	12.0	4.75	0.01	0.005		0.0	7.3	61.9	30.8

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/7/02**

GRADATION CURVES

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Job No: GL-02356

Remarks: (SM) SILTY SAND, fine to medium, trace of organic matter

Boring No. KK-0206

Sample No. 0204

Depth: 2.0' - 4.0'

Date: 09/26/2002

	Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
	1	25.4			
	3/4	19.1			
	1/2	12.7			
	4M	4.76	0	0	100
	10M	2.00	0.4	0.8	99.2
MECHANICAL ANALYSIS	40M	0.42	1.1	2.1	/* 97.1
PORTION OF	100M	0.149	29.2	56.1	/* 41.0
HYDROMETER ANALYSIS	200M	0.074	8.8	17.0	/* 24.0
	Pan		12.5	24.0	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 0.4 = 0.8%

Material passing No. 10 mesh: weight = 51.62 = 99.2%

Weight of Total Sample = 52.02

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

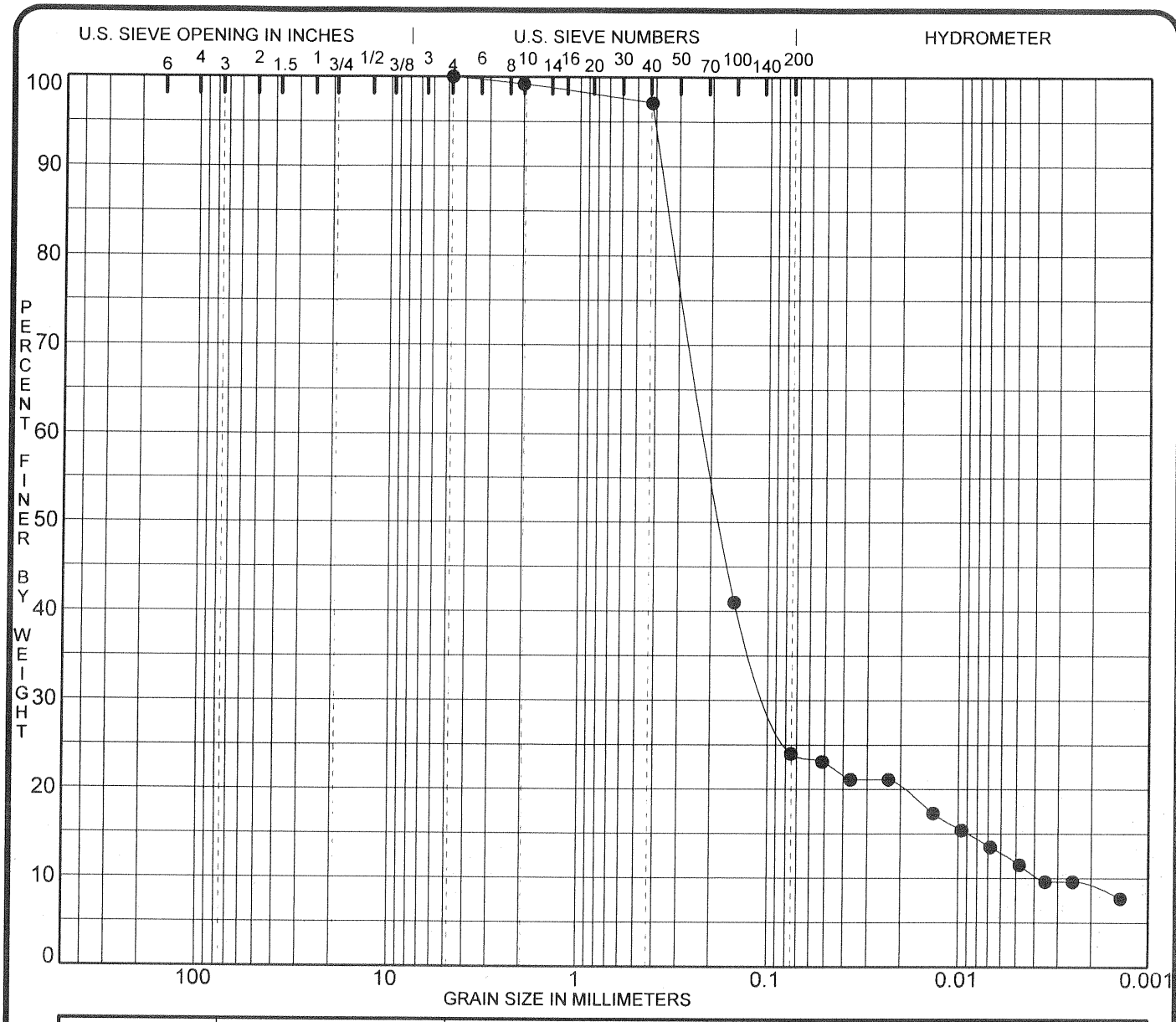
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (SM) SILTY SAND, fine to medium, trace of organic matter

Boring No: KK-0206
Sample No: 0204
Depth: 2.0' - 4.0'
Date: 09/26/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.65
Starting Time: 9:50

% of Original Sample Used For Hydrometer Analysis: 99.2 %
Weight of Sample Dispersed: 51.62 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature ° C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
9:50:30	0.5		18	5						
9:51:00	1.0	17	18	5	12	23.2	0.01399	13.5	0.0514	23.1
9:52:00	2.0	16	18	5	11	21.3	0.01399	13.7	0.0366	21.1
9:55:00	5.0	16	18	5	11	21.3	0.01399	13.7	0.0232	21.1
10:05:00	15.0	14	18	5	9	17.4	0.01399	14.0	0.0135	17.3
10:20:00	30.0	13	18	5	8	15.5	0.01399	14.2	0.0096	15.4
10:51:00	61.0	12	18	5	7	13.6	0.01399	14.3	0.0068	13.5
11:51:00	121.0	11	18	5	6	11.6	0.01399	14.5	0.0048	11.5
1:50:00	240.0	10	18	5	5	9.7	0.01399	14.7	0.0035	9.6
5:48:00	478.0	10	18	5	5	9.7	0.01399	14.7	0.0025	9.6
9:00:00	1390.0	9	18	5	4	7.7	0.01399	14.8	0.0014	7.7



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0206 S0204	2.0	(SM) SILTY SAND, f to m, tr/organic matter					11.54	56.8

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0206 S0204	2.0	4.75	0.21	0.096	0.0037	0.0	76.0	12.3	11.7

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/7/02**

GRADATION CURVES

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Boring No. KK-0206

Job No: GL-02356

Sample No. 0608

Remarks: (MH) ELASTIC SILT, with fine to coarse sand, some organic matter

Depth: 6.0' - 8.0'

Date: 09/30/2002

MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1			
1/2	12.7			
4M	4.76	0	0	100
10M	2.00	0.66	1.5	98.5
40M	0.42	1.9	4.2	/* 94.3
100M	0.149	5.0	11.2	/* 83.1
200M	0.074	4.4	9.8	/* 73.3
Pan		32.67	73.0	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 0.66 = 1.5%

Material passing No. 10 mesh: weight = 44.11 = 98.5%

Weight of Total Sample = 44.77

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

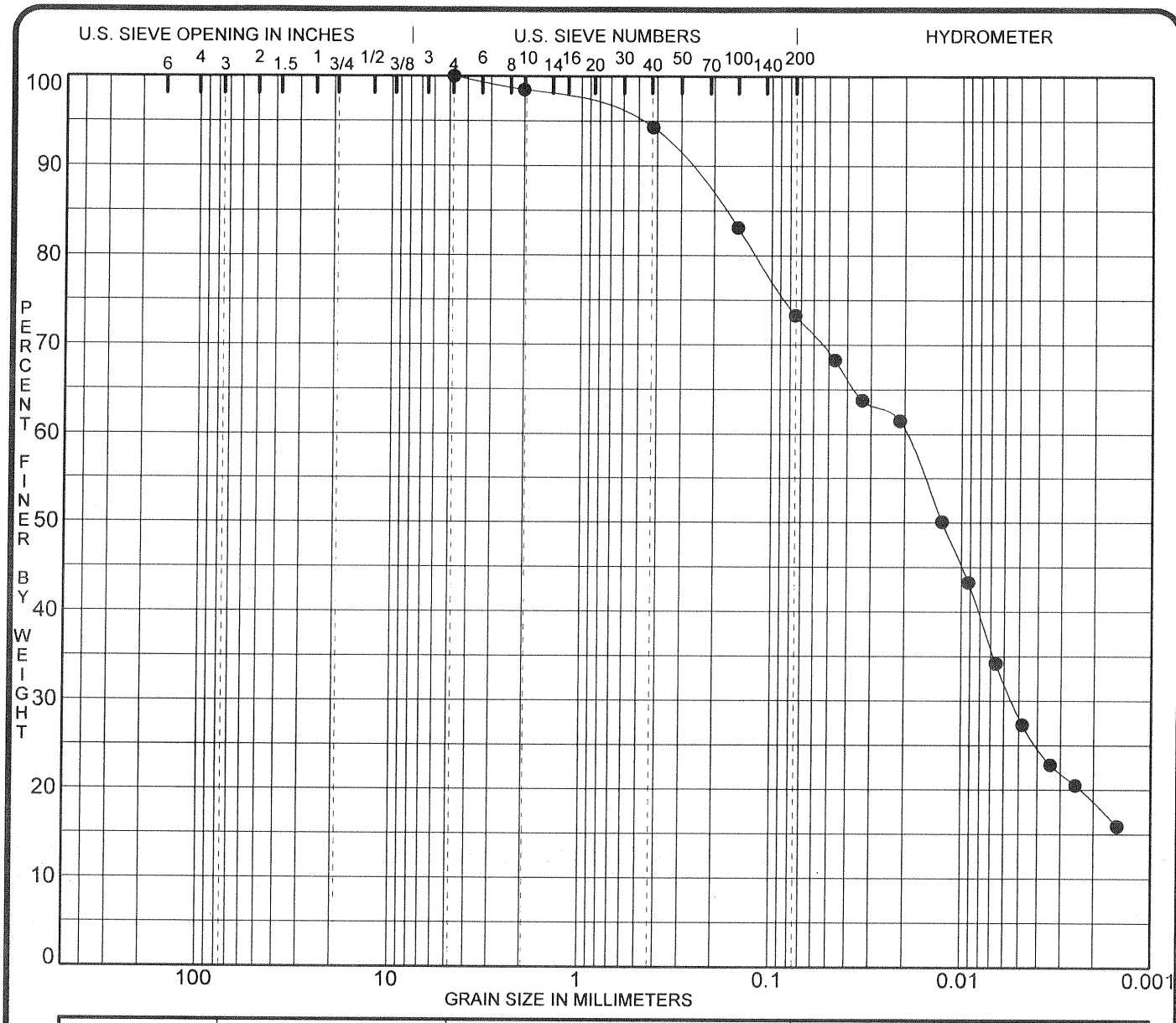
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (MH) ELASTIC SILT, with fine to coarse sand, some organic matter

Boring No: KK-0206
Sample No: 0608
Depth: 6.0' - 8.0'
Date: 09/27/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.55
Starting Time: 9:13

% of Original Sample Used
For Hydrometer Analysis: 98.5 %
Weight of Sample Dispersed: 44.11 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature ° C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
9:13:30	0.5		19	5						
9:14:00	1.0	35	19	5	30	69.4	0.01425	10.6	0.0464	68.3
9:15:00	2.0	33	19	5	28	64.7	0.01425	10.9	0.0333	63.8
9:18:00	5.0	32	19	5	27	62.4	0.01425	11.1	0.0212	61.5
9:28:00	15.0	27	19	5	22	50.9	0.01425	11.9	0.0127	50.1
9:43:00	30.0	24	19	5	19	43.9	0.01425	12.4	0.0092	43.3
10:13:00	60.0	20	19	5	15	34.7	0.01425	13.0	0.0066	34.2
11:13:00	120.0	17	19	5	12	27.7	0.01425	13.5	0.0048	27.3
1:18:00	245.0	15	19	5	10	23.1	0.01425	13.8	0.0034	22.8
4:48:00	455.0	14	19	5	9	20.8	0.01425	14.0	0.0025	20.5
8:10:00	1377.0	12	19	5	7	16.2	0.01425	14.3	0.0015	15.9



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0206 S0608	6.0	(MH) ELASTIC SILT, w/f to c sand, some organic matter						

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0206 S0608	6.0	4.75	0.02	0.005		0.0	26.7	45.1	28.2

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/7/02**

GRADATION CURVES

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Boring No. KK-0206

Job No: GL-02356

Sample No. 1012

Remarks: (MH) ELASTIC SILT, some fine to medium sand, some organic matter

Depth: 10.0' - 12.0'

Date: 09/30/2002

MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1			
1/2	12.7			
4M	4.76	0	0	100
10M	2.00	0.1	0.2	99.8
40M	0.42	0.4	0.9	/* 98.9
100M	0.149	0.9	2.0	/* 96.9
200M	0.074	2.4	5.4	/* 91.5
Pan		40.41	91.5	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 0.1 = 0.2%

Material passing No. 10 mesh: weight = 44.11 = 99.8%

Weight of Total Sample = 44.21

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

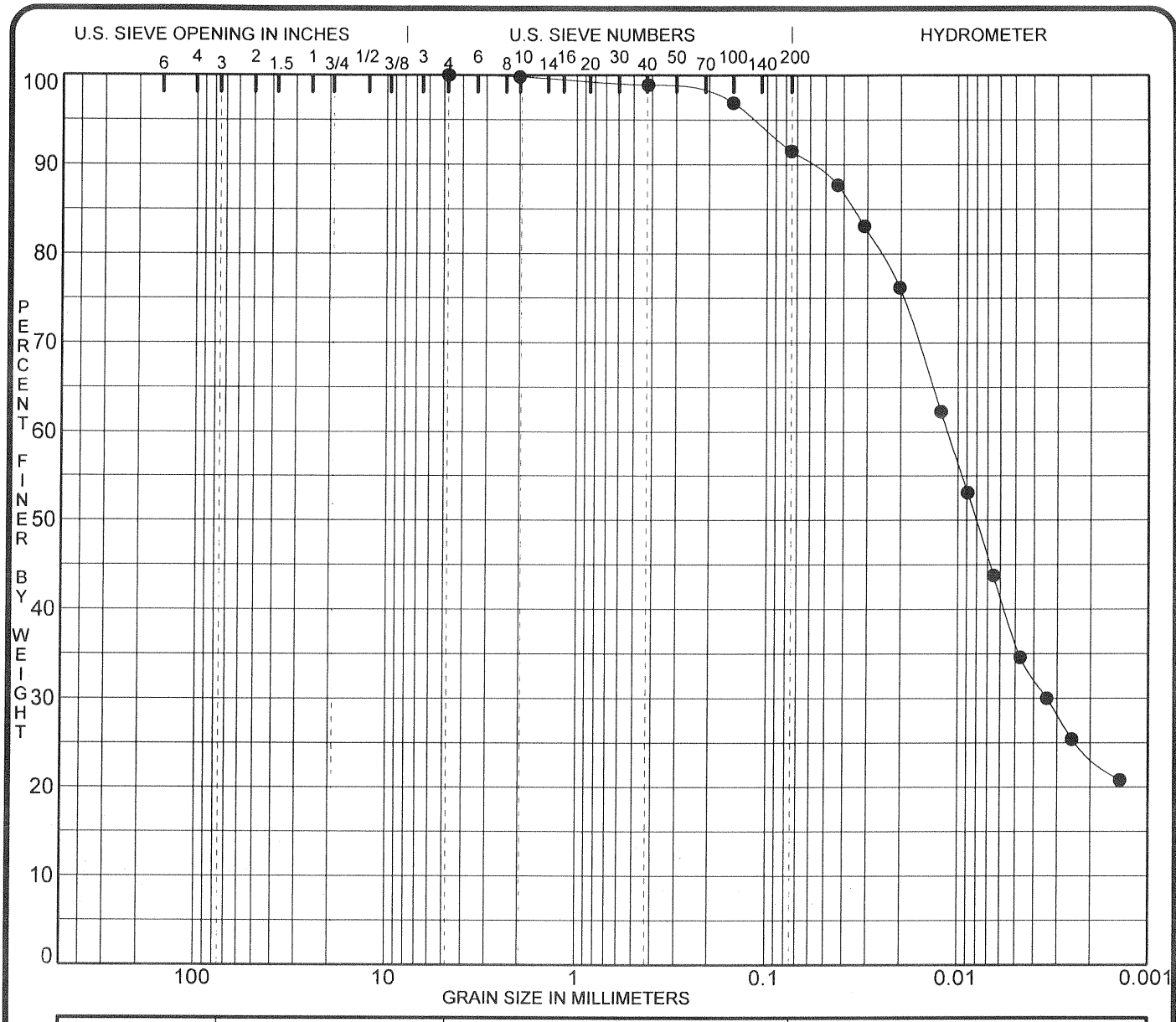
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (MH) ELASTIC SILT, some fine to medium sand, some organic matter

Boring No: KK-0206
Sample No: 1012
Depth: 10.0' - 12.0'
Date: 09/27/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.55
Starting Time: 9:30

% of Original Sample Used
For Hydrometer Analysis: 99.8 %
Weight of Sample Dispersed: 44.11 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature ° C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
9:30:30	0.5		19	5						
9:31:00	1.0	43	19	5	38	87.9	0.01425	9.2	0.0432	87.7
9:32:00	2.0	41	19	5	36	83.2	0.01425	9.6	0.0312	83.1
9:35:00	5.0	38	19	5	33	76.3	0.01425	10.1	0.0203	76.2
9:45:00	15.0	32	19	5	27	62.4	0.01425	11.1	0.0123	62.3
10:00:00	30.0	28	19	5	23	53.2	0.01425	11.7	0.0089	53.1
10:30:00	60.0	24	19	5	19	43.9	0.01425	12.4	0.0065	43.8
11:31:00	121.0	20	19	5	15	34.7	0.01425	13.0	0.0047	34.6
1:30:00	240.0	18	19	5	13	30.1	0.01425	13.3	0.0034	30.0
4:49:00	439.0	16	19	5	11	25.4	0.01425	13.7	0.0025	25.4
8:11:00	1361.0	14	19	5	9	20.8	0.01425	14.0	0.0014	20.8



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0206 S1012	10.0	(MH) ELASTIC SILT, some f to m sand, some organic matter						

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0206 S1012	10.0	4.75	0.01	0.003		0.0	8.5	55.1	36.4

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/8/02**

GRADATION CURVES

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Job No: GL-02356

Remarks: (MH) ELASTIC SILT, some fine to coarse sand, some organic matter

Boring No. KK-0206

Sample No. 1416

Depth: 14.0' - 16.0'

Date: 09/30/2002

MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1			
1/2	12.7			
4M	4.76	0	0	100
10M	2.00	0.2	0.5	99.5
40M	0.42	0.3	0.7	/* 98.8
100M	0.149	0.9	2.1	/* 96.7
200M	0.074	1.6	3.7	/* 93.0
Pan		40.13	93.0	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 0.2 = 0.5%

Material passing No. 10 mesh: weight = 42.93 = 99.5%

Weight of Total Sample = 43.13

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

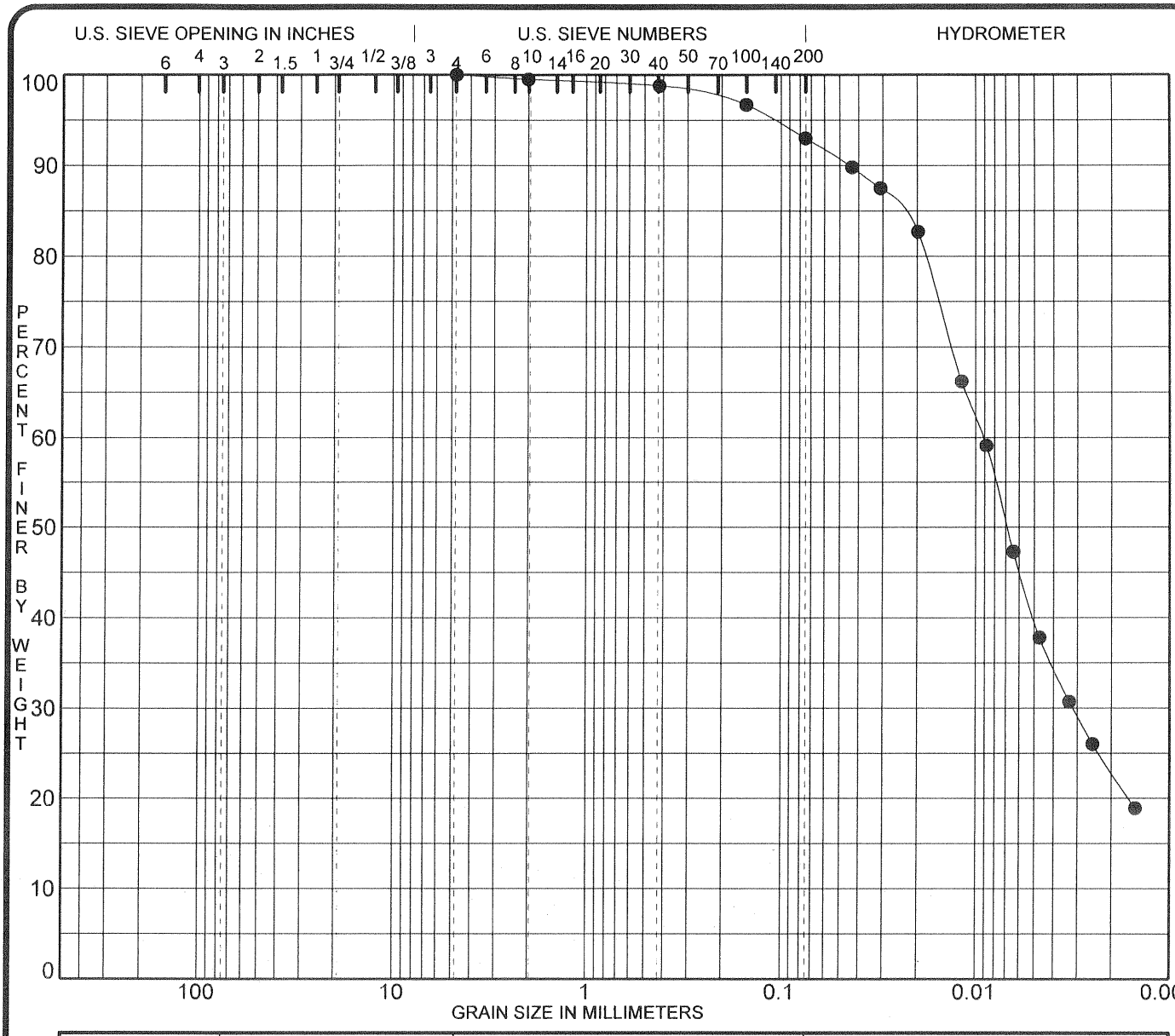
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (MH) ELASTIC SILT, some fine to coarse sand, some organic matter

Boring No: KK-0206
Sample No: 1416
Depth: 14.0' - 16.0'
Date: 09/27/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.55
Starting Time: 9:37

% of Original Sample Used For Hydrometer Analysis: 99.5 %
Weight of Sample Dispersed: 42.93 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature ° C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
9:37:30	0.5		19	5						
9:38:00	1.0	43	19	5	38	90.3	0.01425	9.2	0.0432	89.8
9:39:00	2.0	42	19	5	37	87.9	0.01425	9.4	0.0309	87.5
9:42:00	5.0	40	19	5	35	83.2	0.01425	9.7	0.0198	82.7
9:53:00	16.0	33	19	5	28	66.5	0.01425	10.9	0.0118	66.2
10:07:00	30.0	30	19	5	25	59.4	0.01425	11.4	0.0088	59.1
10:37:00	60.0	25	19	5	20	47.5	0.01425	12.2	0.0064	47.3
11:37:00	120.0	21	19	5	16	38.0	0.01425	12.9	0.0047	37.8
1:43:00	246.0	18	19	5	13	30.9	0.01425	13.3	0.0033	30.7
4:50:00	433.0	16	19	5	11	26.1	0.01425	13.7	0.0025	26.0
8:12:00	1355.0	13	19	5	8	19.0	0.01425	14.2	0.0015	18.9



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0206 S1416	14.0	(MH) ELASTIC SILT, some f to c sand, some organic matter						

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0206 S1416	14.0	4.75	0.01	0.003		0.0	7.0	53.3	39.7

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/7/02**

GRADATION CURVES

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Boring No. KK-0207

Job No: GL-02356

Sample No. 0406

Remarks: (MH) ELASTIC SILT, with fine to coarse sand, some organic matter

Depth: 4.0' - 6.0'

Date: 09/30/2002

MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1			
1/2	12.7			
4M	4.76	0	0	100
10M	2.00	0.3	0.6	99.4
40M	0.42	3.7	7.7	/* 91.7
100M	0.149	2.3	4.8	/* 86.9
200M	0.074	1.9	4.0	/* 82.9
Pan		39.68	82.9	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 0.3 = 0.6%

Material passing No. 10 mesh: weight = 47.58 = 99.4%

Weight of Total Sample = 47.88

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

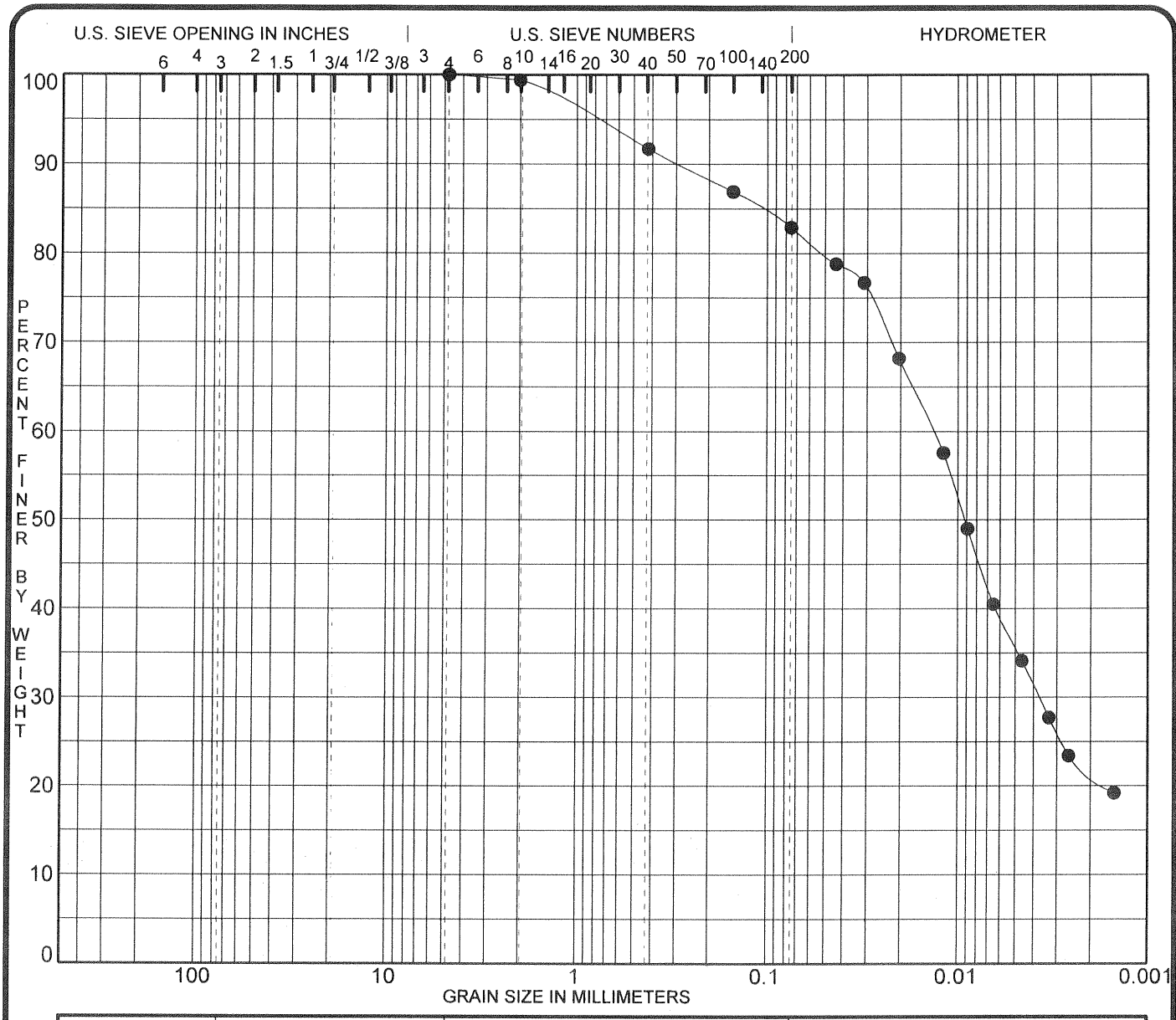
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (MH) ELASTIC SILT, with fine to coarse sand, some organic matter

Boring No: KK-0207
Sample No: 0406
Depth: 4.0' - 6.0'
Date: 09/27/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.55
Starting Time: 9:47

% of Original Sample Used For Hydrometer Analysis: 99.4 %
Weight of Sample Dispersed: 47.58 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature ° C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
9:47:30	0.5		19	5						
9:48:00	1.0	42	19	5	37	79.3	0.01425	9.4	0.0437	78.8
9:49:00	2.0	41	19	5	36	77.2	0.01425	9.6	0.0312	76.7
9:52:00	5.0	37	19	5	32	68.6	0.01425	10.2	0.0204	68.2
10:03:00	16.0	32	19	5	27	57.9	0.01425	11.1	0.0119	57.5
10:17:00	30.0	28	19	5	23	49.3	0.01425	11.7	0.0089	49.0
10:47:00	60.0	24	19	5	19	40.7	0.01425	12.4	0.0065	40.5
11:50:00	123.0	21	19	5	16	34.3	0.01425	12.9	0.0046	34.1
1:51:00	244.0	18	19	5	13	27.9	0.01425	13.3	0.0033	27.7
4:51:00	424.0	16	19	5	11	23.6	0.01425	13.7	0.0026	23.4
8:13:00	1346.0	14	19	5	9	19.3	0.01425	14.0	0.0015	19.2



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0207 S0406	4.0	(MH) ELASTIC SILT, w/f to c sand, some organic matter						

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0207 S0406	4.0	4.75	0.01	0.004		0.0	17.1	47.3	35.6

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/7/02**

GRADATION CURVES

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Job No: GL-02356

Remarks: (MH) ELASTIC SILT, some fine to medium sand, some organic matter

Boring No. KK-0207

Sample No. 0406R

Depth: 4.0' - 6.0'

Date: 09/30/2002

MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1			
1/2	12.7			
4M	4.76	0	0	100
10M	2.00	0.1	0.2	99.8
40M	0.42	0.5	1.2	/* 98.6
100M	0.149	1.4	3.3	/* 95.3
200M	0.074	1.6	3.7	/* 91.6
Pan		39.09	91.6	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 0.1 = 0.2%

Material passing No. 10 mesh: weight = 42.59 = 99.8%

Weight of Total Sample = 42.69

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (MH) ELASTIC SILT, some fine to medium sand, some organic matter

Boring No: KK-0207
Sample No: 0406R
Depth: 4.0' - 6.0'
Date: 09/27/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.45
Starting Time: 10:09

% of Original Sample Used For Hydrometer Analysis: 99.8 %
Weight of Sample Dispersed: 42.59 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature ° C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
10:09:30	0.5		19	5						
10:10:00	1.0	42	19	5	37	91.2	0.01474	9.4	0.0452	91.0
10:11:00	2.0	41	19	5	36	88.8	0.01474	9.6	0.0323	88.6
10:14:00	5.0	38	19	5	33	81.4	0.01474	10.1	0.0209	81.2
10:24:00	15.0	32	19	5	27	66.6	0.01474	11.1	0.0127	66.4
10:39:00	30.0	29	19	5	24	59.2	0.01474	11.5	0.0091	59.1
11:09:00	60.0	24	19	5	19	46.8	0.01474	12.4	0.0067	46.7
12:09:00	120.0	20	19	5	15	37.0	0.01474	13.0	0.0049	36.9
2:09:00	240.0	17	19	5	12	29.6	0.01474	13.5	0.0035	29.5
4:53:00	404.0	15	19	5	10	24.7	0.01474	13.8	0.0027	24.6
8:15:00	1326.0	13	19	5	8	19.7	0.01474	14.2	0.0015	19.7

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

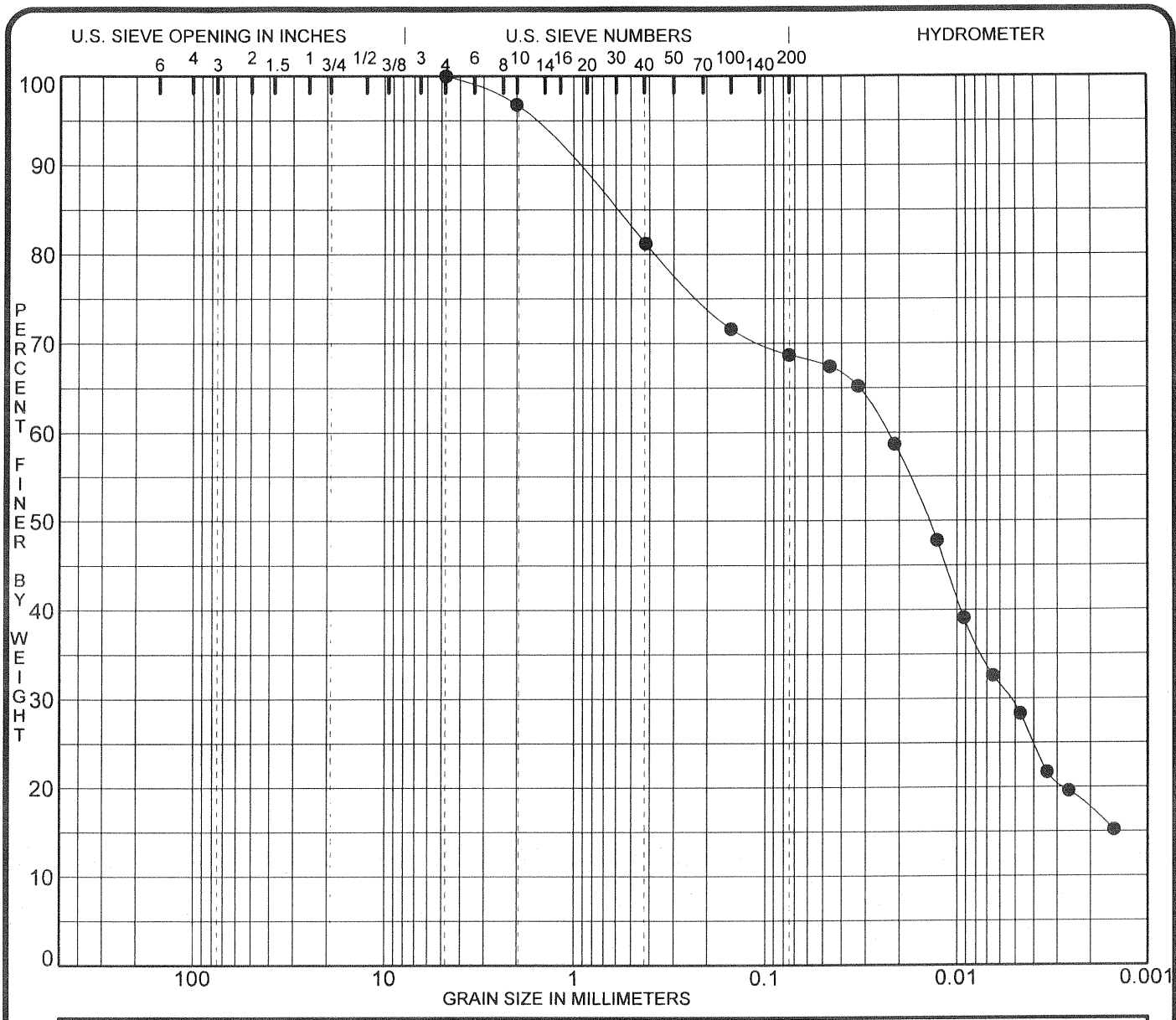
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (MH) ELASTIC SILT, sandy (fine to coarse), some organic matter

Boring No: KK-0207
Sample No: 0810
Depth: 8.0' - 10.0'
Date: 09/27/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.55
Starting Time: 9:57

% of Original Sample Used For Hydrometer Analysis: 96.7 %
Weight of Sample Dispersed: 45.35 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature ° C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
9:57:30	0.5		19	5						
9:58:00	1.0	36	19	5	31	69.7	0.01425	10.4	0.0460	67.4
9:59:00	2.0	35	19	5	30	67.5	0.01425	10.6	0.0328	65.2
10:02:00	5.0	32	19	5	27	60.7	0.01425	11.1	0.0212	58.7
10:12:00	15.0	27	19	5	22	49.5	0.01425	11.9	0.0127	47.8
10:27:00	30.0	23	19	5	18	40.5	0.01425	12.5	0.0092	39.1
11:00:00	63.0	20	19	5	15	33.7	0.01425	13.0	0.0065	32.6
11:57:00	120.0	18	19	5	13	29.2	0.01425	13.3	0.0047	28.3
1:57:00	240.0	15	19	5	10	22.5	0.01425	13.8	0.0034	21.7
4:52:00	415.0	14	19	5	9	20.2	0.01425	14.0	0.0026	19.6
8:14:00	1337.0	12	19	5	7	15.7	0.01425	14.3	0.0015	15.2



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0207 S0810	8.0	(MH) ELASTIC SILT, sandy (f to c), some organic matter						

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0207 S0810	8.0	4.75	0.02	0.005		0.0	31.3	39.6	29.1

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/7/02**

GRADATION CURVES

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Boring No. KK-0207

Job No: GL-02356

Sample No. 0810R

Remarks: (MH) ELASTIC SILT, some fine to medium sand, some organic matter

Depth: 8.0' - 10.0'

Date: 09/30/2002

MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1			
1/2	12.7			
4M	4.76	0	0	100
10M	2.00	0.12	0.2	99.8
40M	0.42	1.2	2.7	/* 97.1
100M	0.149	1.9	4.2	/* 92.9
200M	0.074	1.2	2.7	/* 90.2
Pan		41.2	90.2	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 0.12 = 0.3%

Material passing No. 10 mesh: weight = 45.55 = 99.7%

Weight of Total Sample = 45.67

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

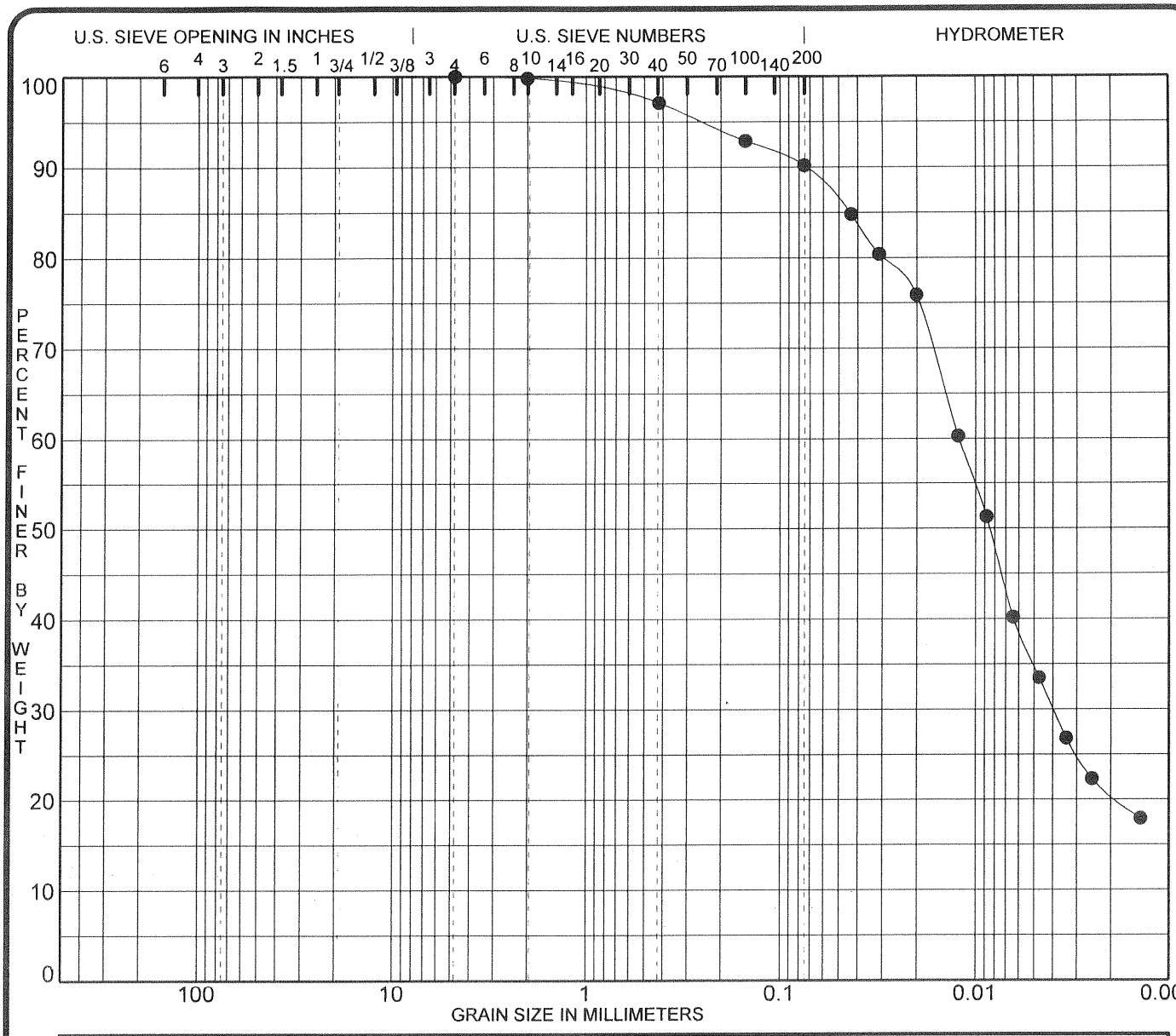
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (MH) ELASTIC SILT, some sand, fine to medium, some organic matter

Boring No: KK-0207
Sample No: 0810R
Depth: 8.0' - 10.0'
Date: 09/27/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.55
Starting Time: 9:02

% of Original Sample Used For Hydrometer Analysis: 99.7 %
Weight of Sample Dispersed: 45.55 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature ° C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
9:02:30	0.5		19	5						
9:03:00	1.0	43	19	5	38	85.1	0.01425	9.2	0.0432	84.8
9:04:00	2.0	41	19	5	36	80.6	0.01425	9.6	0.0312	80.4
9:07:00	5.0	39	19	5	34	76.1	0.01425	9.9	0.0201	75.9
9:17:00	15.0	32	19	5	27	60.5	0.01425	11.1	0.0123	60.3
9:33:00	31.0	28	19	5	23	51.5	0.01425	11.7	0.0088	51.3
10:04:00	62.0	23	19	5	18	40.3	0.01425	12.5	0.0064	40.2
11:02:00	120.0	20	19	5	15	33.6	0.01425	13.0	0.0047	33.5
1:02:00	240.0	17	19	5	12	26.9	0.01425	13.5	0.0034	26.8
4:47:00	465.0	15	19	5	10	22.4	0.01425	13.8	0.0025	22.3
8:09:00	1387.0	13	19	5	8	17.9	0.01425	14.2	0.0014	17.9



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0207 S0810R 8.0	(MH) ELASTIC SILT, some f to m sand, some organic matter						

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0207 S0810R 8.0	4.75	0.01	0.004		0.0	9.8	55.4	34.8

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/7/02**

GRADATION CURVES

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Job No: GL-02356

Remarks: (SP) SAND, fine to medium, trace of silt, trace of organic matter

Boring No. KK-0208

Sample No. 0204

Depth: 2.0' - 4.0'

Date: 10/01/2002

MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1			
1/2	12.7			
4M	4.76	0	0	100
10M	2.00	0.15	0.3	99.7
40M	0.42	2.23	3.8	/* 95.9
100M	0.149	51.52	86.8	/* 9.1
200M	0.074	3.19	5.4	/* 3.7
Pan				/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 0.15 = 0.3%

Material passing No. 10 mesh: weight = 59.18 = 99.7%

Weight of Total Sample = 59.33

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

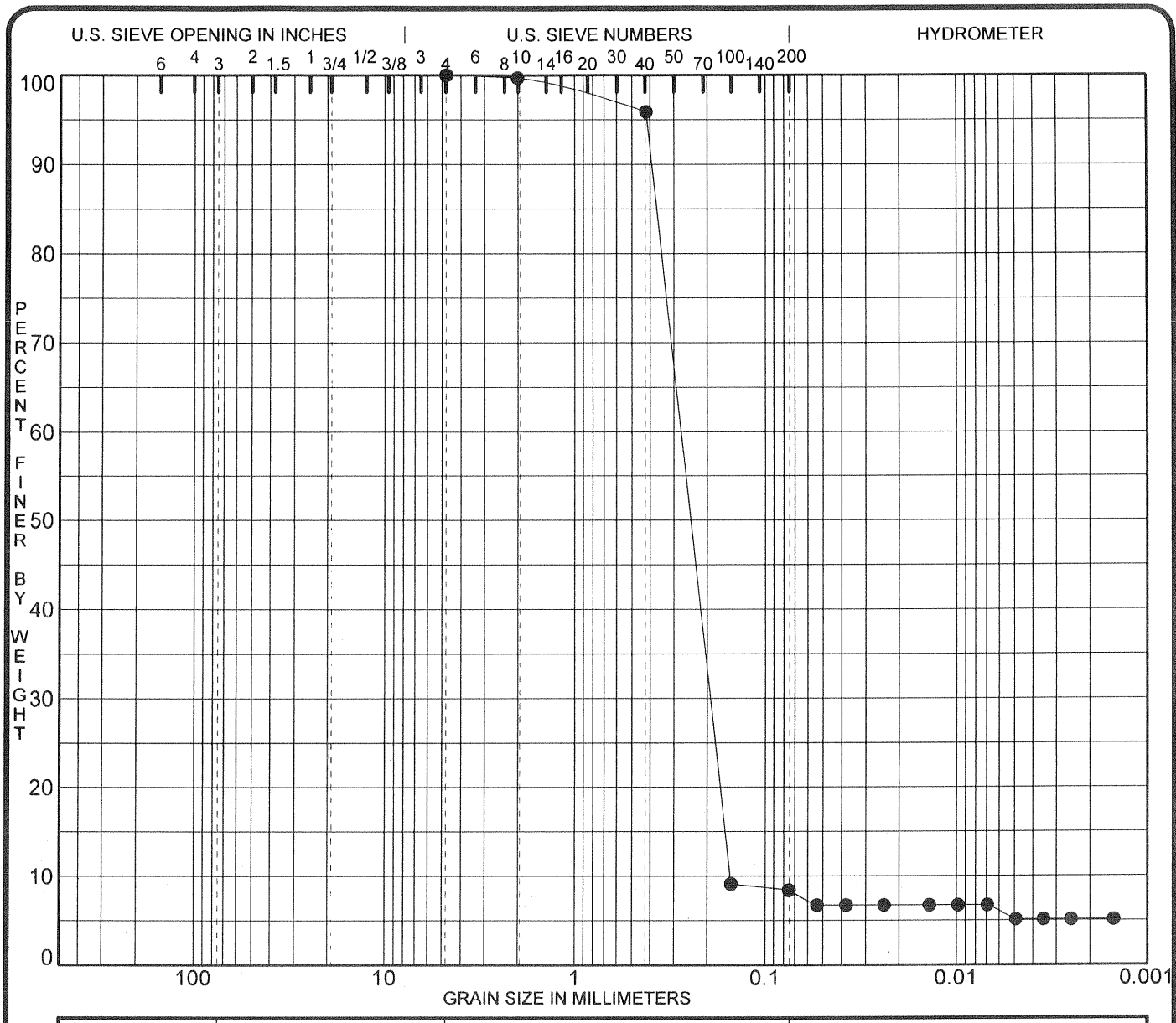
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (SP) SAND, fine to medium, trace of silt, trace of organic matter

Boring No: KK-0208
Sample No: 0204
Depth: 2.0' - 4.0'
Date: 09/27/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.65
Starting Time: 9:28

% of Original Sample Used For Hydrometer Analysis: 99.7 %
Weight of Sample Dispersed: 59.18 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature ° C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
9:28:30	0.5	9	19	4	5	8.4	0.01382	14.8	0.0752	8.4
9:29:00	1.0	8	19	4	4	6.8	0.01382	15.0	0.0535	6.7
9:30:00	2.0	8	19	4	4	6.8	0.01382	15.0	0.0378	6.7
9:33:00	5.0	8	19	4	4	6.8	0.01382	15.0	0.0239	6.7
9:43:00	15.0	8	19	4	4	6.8	0.01382	15.0	0.0138	6.7
9:58:00	30.0	8	19	4	4	6.8	0.01382	15.0	0.0098	6.7
10:28:00	60.0	8	19	4	4	6.8	0.01382	15.0	0.0069	6.7
11:28:00	120.0	7	19	4	3	5.1	0.01382	15.2	0.0049	5.1
1:28:00	240.0	7	19	4	3	5.1	0.01382	15.2	0.0035	5.1
5:09:00	461.0	7	19	4	3	5.1	0.01382	15.2	0.0025	5.1
7:32:00	1324.0	7	19	4	3	5.1	0.01382	15.2	0.0015	5.1



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0208 S0204	2.0	(SP) SAND, f to m, tr/silt, tr/organic matter					0.89	1.8

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0208 S0204	2.0	4.75	0.27	0.192	0.1516	0.0	91.6	3.2	5.2

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/8/02**

GRADATION CURVES

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Job No: GL-02356

Remarks: (MH) ELASTIC SILT, with fine to medium sand, trace of organic matter

Boring No. KK-0208

Sample No. 0608

Depth: 6.0' - 8.0'

Date: 10/01/2002

	Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
	1	25.4			
	3/4	19.1			
	1/2	12.7			
	4M	4.76			
	10M	2.00	0	0	100
MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS	40M	0.42	1.00	1.9	/* 98.1
	100M	0.149	9.26	17.5	/* 80.6
	200M	0.074	3.59	6.8	/* 73.8
	Pan		38.92	73.8	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 0 = 0%

Material passing No. 10 mesh: weight = 52.77 = 100%

Weight of Total Sample = 52.77

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

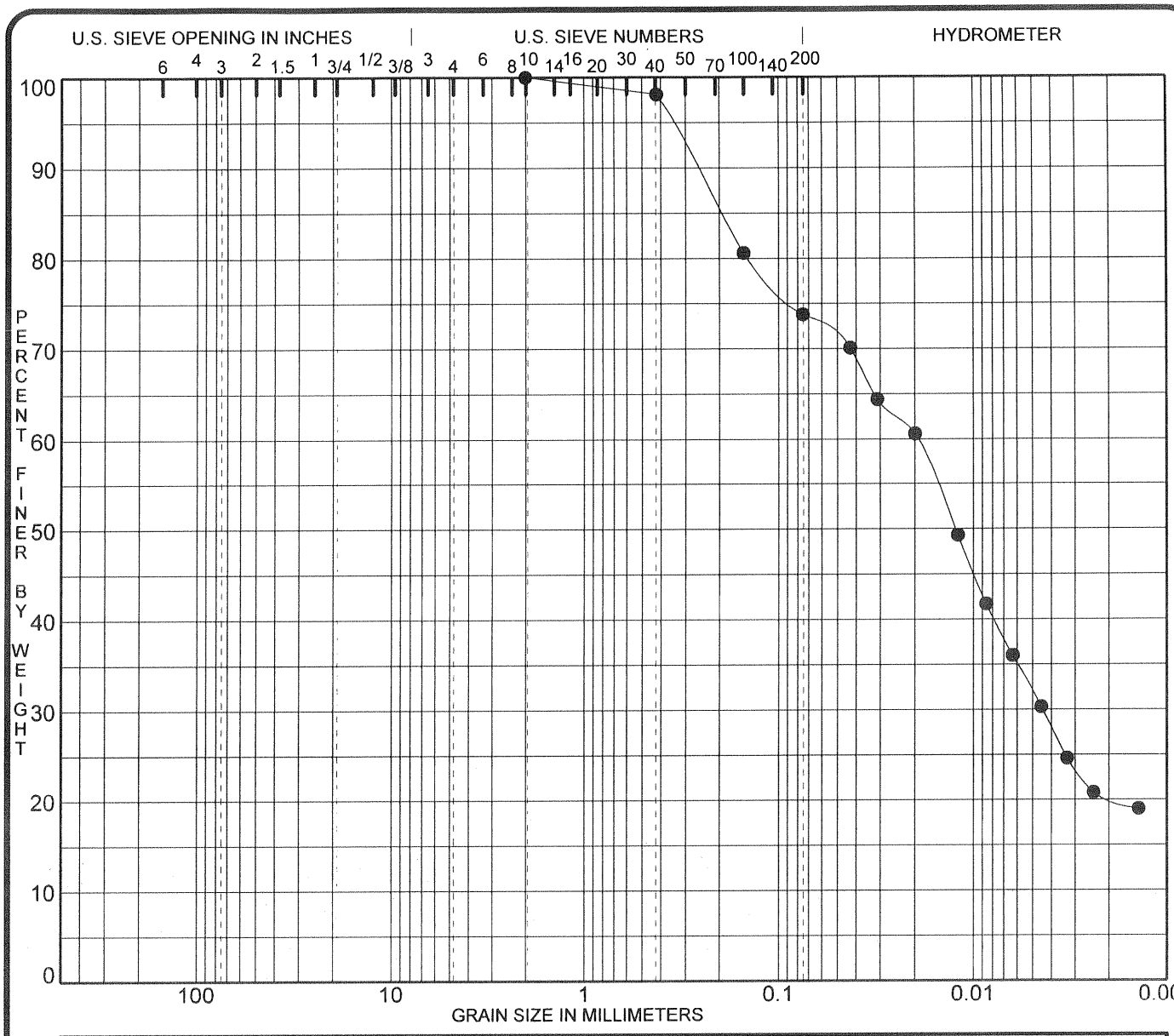
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (MH) ELASTIC SILT, with fine to medium sand, trace of organic matter

Boring No: KK-0208
Sample No: 0608
Depth: 6.0' - 8.0'
Date: 09/27/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.65
Starting Time: 9:20

% of Original Sample Used For Hydrometer Analysis: 100 %
Weight of Sample Dispersed: 52.77 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature ° C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
9:20:30	0.5		19	4						
9:21:00	1.0	41	19	4	37	70.1	0.01382	9.6	0.0428	70.1
9:22:00	2.0	38	19	4	34	64.4	0.01382	10.1	0.0311	64.4
9:25:00	5.0	36	19	4	32	60.6	0.01382	10.4	0.0199	60.6
9:35:00	15.0	30	19	4	26	49.3	0.01382	11.4	0.0120	49.3
9:51:00	31.0	26	19	4	22	41.7	0.01382	12.0	0.0086	41.7
10:20:00	60.0	23	19	4	19	36.0	0.01382	12.5	0.0063	36.0
11:20:00	120.0	20	19	4	16	30.3	0.01382	13.0	0.0045	30.3
1:20:00	240.0	17	19	4	13	24.6	0.01382	13.5	0.0033	24.6
5:08:00	468.0	15	19	4	11	20.8	0.01382	13.8	0.0024	20.8
7:31:00	1331.0	14	19	4	10	19.0	0.01382	14.0	0.0014	19.0



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0208 S0608	6.0	(MH) ELASTIC SILT, w/f to m sand, tr/organic matter						

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0208 S0608	6.0	2.00	0.02	0.004		0.0	26.2	41.7	32.1

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/7/02**

GRADATION CURVES

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Boring No. KK-0208

Job No: GL-02356

Sample No. 1012

Remarks: (MH) ELASTIC SILT, some fine to medium sand, some organic matter

Depth: 10.0' - 12.0'

Date: 09/27/2002

MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1			
1/2	12.7			
4M	4.76			
10M	2.00	0	0	100
40M	0.42	0.49	0.9	/* 99.1
100M	0.149	3.07	5.8	/* 93.3
200M	0.074	2.59	4.9	/* 88.4
Pan		46.81	88.4	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 0 = 0%

Material passing No. 10 mesh: weight = 52.96 = 100%

Weight of Total Sample = 52.96

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

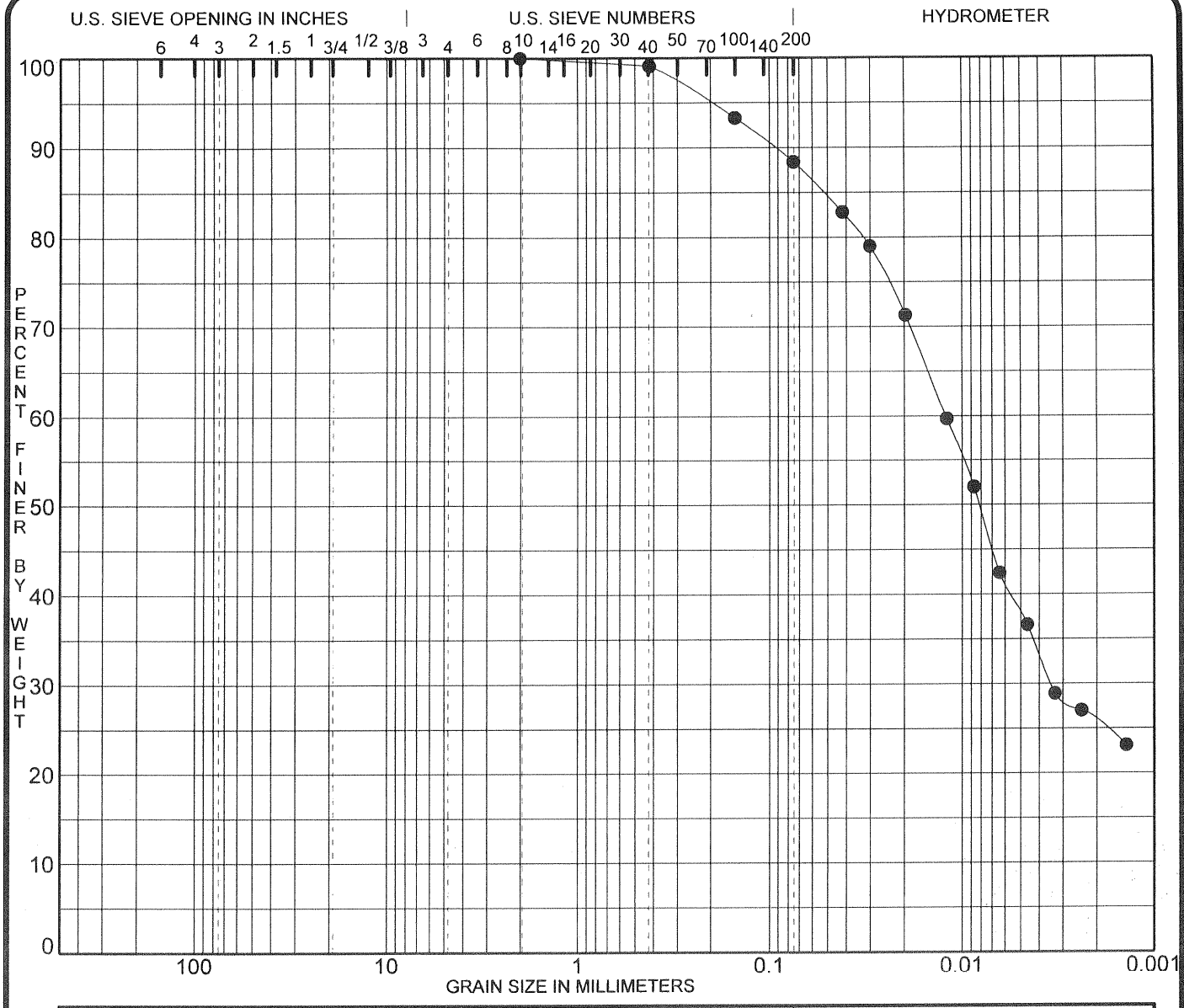
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (MH) ELASTIC SILT, some fine to medium sand, some organic matter

Boring No: KK-0208
Sample No: 1012
Depth: 10.0' - 12.0'
Date: 09/27/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.55
Starting Time: 9:11

% of Original Sample Used For Hydrometer Analysis: 100 %
Weight of Sample Dispersed: 52.96 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature ° C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
9:11:30	0.5	50	19	4	46	88.6	0.01425	8.1	0.0574	88.6
9:12:00	1.0	47	19	4	43	82.8	0.01425	8.6	0.0418	82.8
9:13:00	2.0	45	19	4	41	79.0	0.01425	8.9	0.0301	79.0
9:16:00	5.0	41	19	4	37	71.3	0.01425	9.6	0.0197	71.3
9:26:00	15.0	35	19	4	31	59.7	0.01425	10.6	0.0120	59.7
9:41:00	30.0	31	19	4	27	52.0	0.01425	11.2	0.0087	52.0
10:11:00	60.0	26	19	4	22	42.4	0.01425	12.0	0.0064	42.4
11:11:00	120.0	23	19	4	19	36.6	0.01425	12.5	0.0046	36.6
1:11:00	240.0	19	19	4	15	28.9	0.01425	13.2	0.0033	28.9
5:07:00	476.0	18	19	4	14	27.0	0.01425	13.3	0.0024	27.0
7:30:00	1339.0	16	19	4	12	23.1	0.01425	13.7	0.0014	23.1



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0208 S1012	10.0	(MH) ELASTIC SILT, some f to m sand, some organic matter						

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0208 S1012	10.0	2.00	0.01	0.003		0.0	11.6	50.3	38.1

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/7/02**

GRADATION CURVES

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Boring No. KK-0209

Job No: GL-02356

Sample No. 0002

Remarks: (MH) ELASTIC SILT, sandy, fine to medium, some organic matter, trace of plastic

Depth: 0.0' - 2.0'

Date: 10/01/2002

MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1			
1/2	12.7			
4M	4.76	0	0	100
10M	2.00	0.28	0.6	99.4
40M	0.42	1.40	2.8	/* 96.6
100M	0.149	9.98	19.8	/* 76.8
200M	0.074	7.42	14.7	/* 62.1
Pan		31.41	62.1	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 0.28 = 0.6%

Material passing No. 10 mesh: weight = 50.21 = 99.4%

Weight of Total Sample = 50.49

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

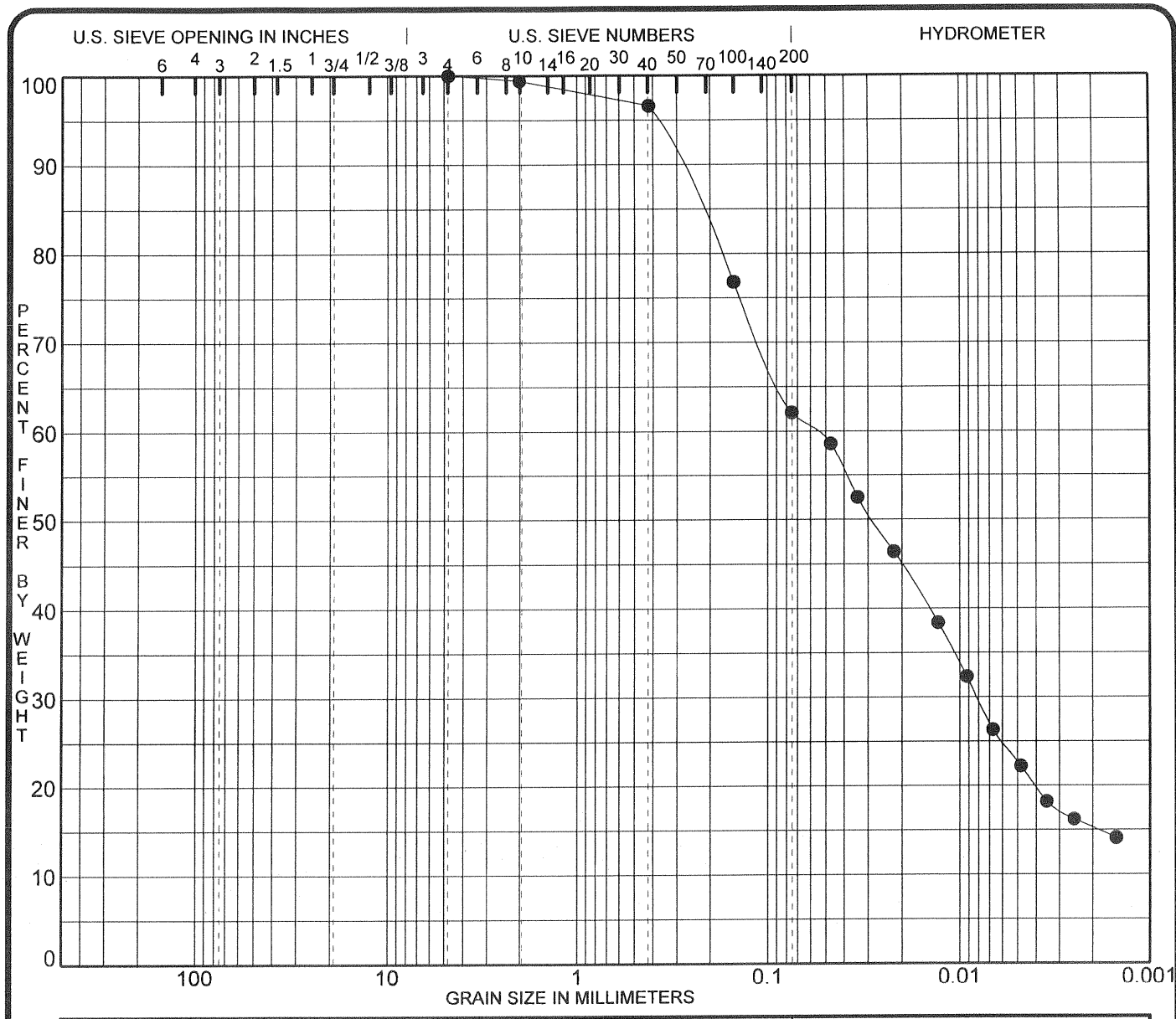
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (MH) ELASTIC SILT, sandy, fine to medium, some organic matter, trace of plastic

Boring No: KK-0209
Sample No: 0002
Depth: 0.0' - 2.0'
Date: 09/27/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.55
Starting Time: 9:03

% of Original Sample Used For Hydrometer Analysis: 99.4 %
Weight of Sample Dispersed: 50.21 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature °C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
9:03:30	0.5	37	19	4	33	67.0	0.01425	10.2	0.0644	66.6
9:04:00	1.0	33	19	4	29	58.9	0.01425	10.9	0.0470	58.6
9:05:00	2.0	30	19	4	26	52.8	0.01425	11.4	0.0340	52.5
9:08:00	5.0	27	19	4	23	46.7	0.01425	11.9	0.0220	46.4
9:18:00	15.0	23	19	4	19	38.6	0.01425	12.5	0.0130	38.4
9:34:00	31.0	20	19	4	16	32.5	0.01425	13.0	0.0092	32.3
10:04:00	61.0	17	19	4	13	26.4	0.01425	13.5	0.0067	26.3
11:04:00	121.0	15	19	4	11	22.3	0.01425	13.8	0.0048	22.2
1:04:00	241.0	13	19	4	9	18.3	0.01425	14.2	0.0035	18.2
5:03:00	480.0	12	19	4	8	16.3	0.01425	14.3	0.0025	16.2
7:29:00	1346.0	11	19	4	7	14.2	0.01425	14.5	0.0015	14.1



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0209 S0002 0.0	(MH) ELASTIC SILT, sandy (f to m), some org matter, tr/plastic						

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0209 S0002 0.0	4.75	0.06	0.008		0.0	37.9	39.4	22.7

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/8/02**

GRADATION CURVES

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Boring No. KK-0209

Job No: GL-02356

Sample No. 0406

Remarks: (MH) ELASTIC SILT, with fine to medium sand, some organic matter

Depth: 4.0' - 6.0'

Date: 10/02/2002

MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1			
1/2	12.7			
4M	4.76			
10M	2.00	0	0	100
40M	0.42	0.94	2.1	/* 97.9
100M	0.149	4.29	9.5	/* 88.4
200M	0.074	4.84	10.8	/* 77.6
Pan		34.97	77.6	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 0 = 0%

Material passing No. 10 mesh: weight = 45.04 = 100%

Weight of Total Sample = 45.04

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (MH) ELASTIC SILT, with fine to medium sand, some organic matter

Boring No: KK-0209
Sample No: 0406
Depth: 4.0' - 6.0'
Date: 10/01/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.55
Starting Time: 11:01

% of Original Sample Used For Hydrometer Analysis: 100 %
Weight of Sample Dispersed: 45.04 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature ° C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
11:01:30	0.5	39	19	4	35	79.3	0.01425	9.9	0.0634	79.3
11:02:00	1.0	36	19	4	32	72.5	0.01425	10.4	0.0460	72.5
11:03:00	2.0	33	19	4	29	65.7	0.01425	10.9	0.0333	65.7
11:06:00	5.0	30	19	4	26	58.9	0.01425	11.4	0.0215	58.9
11:16:00	15.0	25	19	4	21	47.6	0.01425	12.2	0.0129	47.6
11:31:00	30.0	21	19	4	17	38.5	0.01425	12.9	0.0093	38.5
12:01:00	60.0	18	19	4	14	31.7	0.01425	13.3	0.0067	31.7
1:01:00	120.0	16	19	4	12	27.2	0.01425	13.7	0.0048	27.2
3:01:00	240.0	14	19	4	10	22.6	0.01425	14.0	0.0034	22.6
6:20:00	439.0	12	19	4	8	18.1	0.01425	14.3	0.0026	18.1
8:52:00	1311.0	11	19	4	7	15.9	0.01425	14.5	0.0015	15.9

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

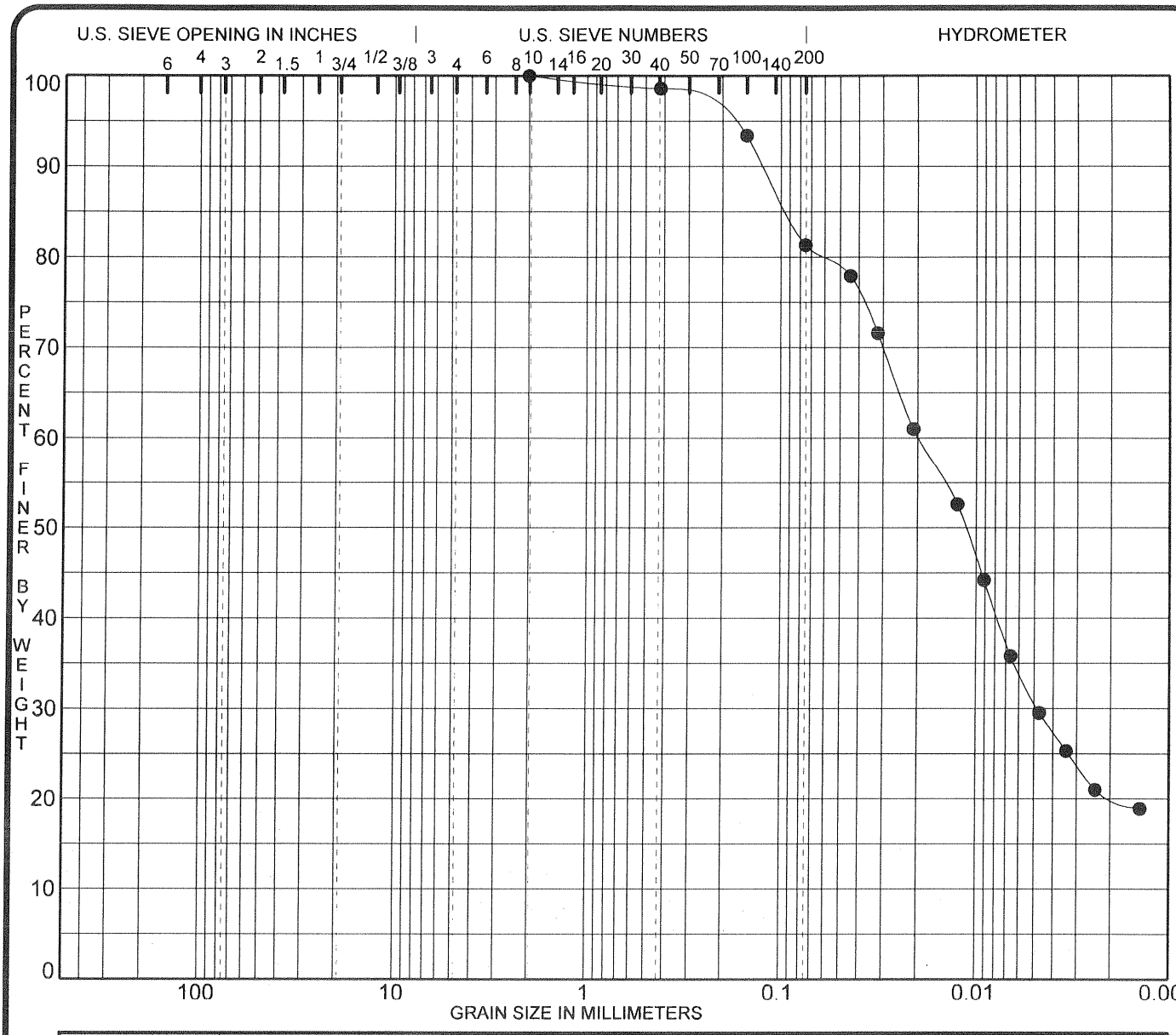
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (MH) ELASTIC SILT, with fine to medium sand, some organic matter

Boring No: KK-0209
Sample No: 0810
Depth: 8.0' - 10.0'
Date: 10/01/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.55
Starting Time: 10:09

% of Original Sample Used For Hydrometer Analysis: 100 %
Weight of Sample Dispersed: 48.46 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature ° C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
10:09:30	0.5	43	19	4	39	82.1	0.01425	9.2	0.0611	82.1
10:10:00	1.0	41	19	4	37	77.9	0.01425	9.6	0.0442	77.9
10:11:00	2.0	38	19	4	34	71.6	0.01425	10.1	0.0320	71.6
10:14:00	5.0	33	19	4	29	61.0	0.01425	10.9	0.0210	61.0
10:24:00	15.0	29	19	4	25	52.6	0.01425	11.5	0.0125	52.6
10:39:00	30.0	25	19	4	21	44.2	0.01425	12.2	0.0091	44.2
11:09:00	60.0	21	19	4	17	35.8	0.01425	12.9	0.0066	35.8
12:09:00	120.0	18	19	4	14	29.5	0.01425	13.3	0.0047	29.5
2:09:00	240.0	16	19	4	12	25.3	0.01425	13.7	0.0034	25.3
6:09:00	480.0	14	19	4	10	21.0	0.01425	14.0	0.0024	21.0
7:30:00	1481.0	13	19	4	9	18.9	0.01425	14.2	0.0014	18.9



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0209 S0810	8.0	(MH) ELASTIC SILT, w/f to m sand, some organic matter						

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0209 S0810	8.0	2.00	0.02	0.005		0.0	18.7	50.7	30.6

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/7/02**

GRADATION CURVES

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Job No: GL-02356

Remarks: (MH) ELASTIC SILT, some fine to medium sand, some organic matter

Boring No. KK-0209

Sample No. 1214

Depth: 12.0' - 14.0'

Date: 10/01/2002

MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1			
1/2	12.7			
4M	4.76			
10M	2.00	0	0	100
40M	0.42	0.28	0.6	/* 99.4
100M	0.149	0.73	1.5	/* 97.9
200M	0.074	2.34	4.8	/* 93.1
Pan		45.63	93.1	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 0 = 0%

Material passing No. 10 mesh: weight = 48.98 = 100%

Weight of Total Sample = 48.98

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

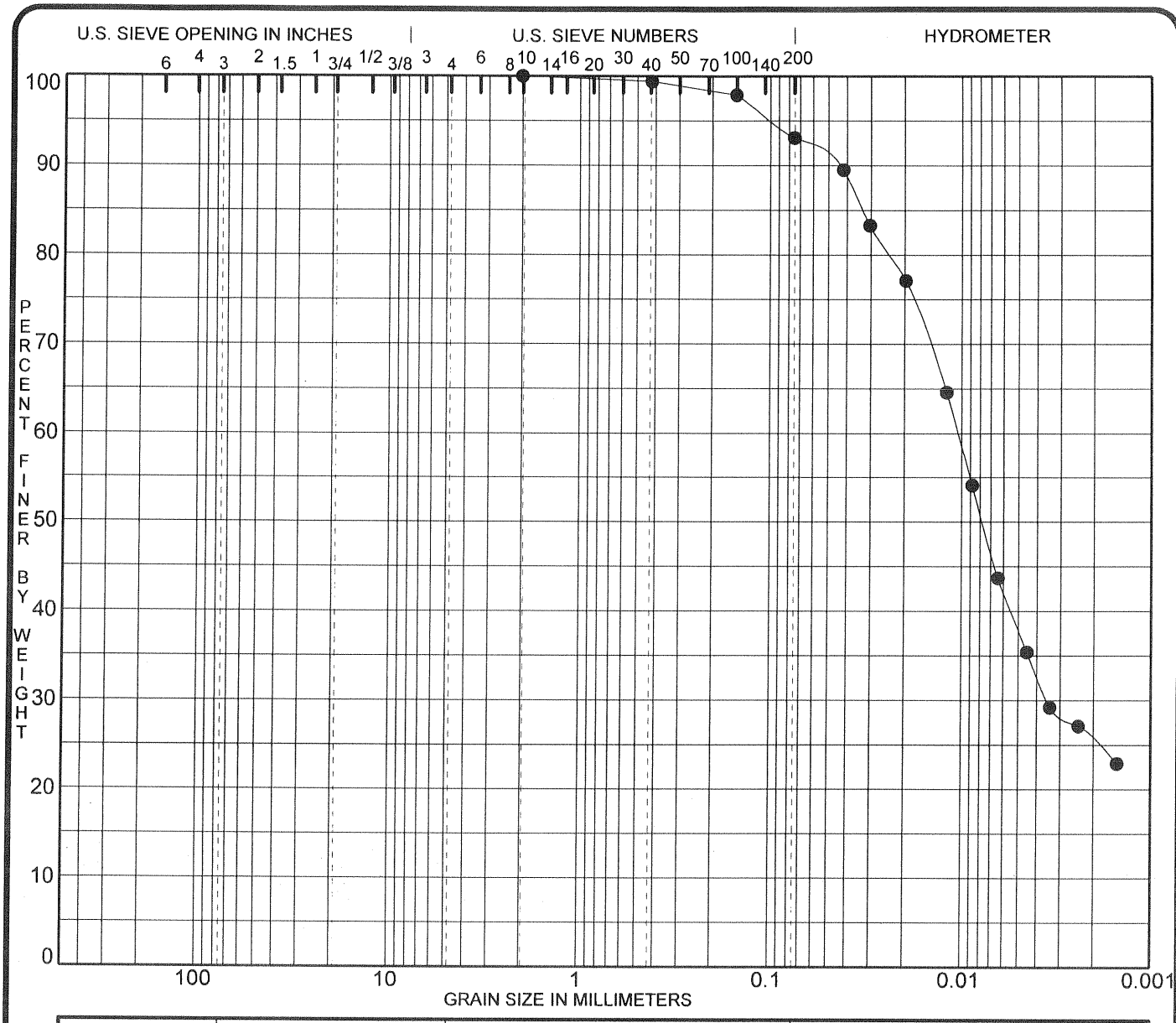
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (MH) ELASTIC SILT, some fine to medium sand, some organic matter

Boring No: KK-0209
Sample No: 1214
Depth: 12.0' - 14.0'
Date: 09/27/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.55
Starting Time: 9:48

% of Original Sample Used For Hydrometer Analysis: 100 %
Weight of Sample Dispersed: 48.98 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature ° C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
9:48:30	0.5	50	19	4	46	95.8	0.01425	8.1	0.0574	95.8
9:49:00	1.0	47	19	4	43	89.5	0.01425	8.6	0.0418	89.5
9:50:00	2.0	44	19	4	40	83.3	0.01425	9.1	0.0304	83.3
9:53:00	5.0	41	19	4	37	77.1	0.01425	9.6	0.0197	77.1
10:03:00	15.0	35	19	4	31	64.6	0.01425	10.6	0.0120	64.6
10:18:00	30.0	30	19	4	26	54.1	0.01425	11.4	0.0088	54.1
10:48:00	60.0	25	19	4	21	43.7	0.01425	12.2	0.0064	43.7
11:57:00	129.0	21	19	4	17	35.4	0.01425	12.9	0.0045	35.4
1:48:00	240.0	18	19	4	14	29.2	0.01425	13.3	0.0034	29.2
5:48:00	480.0	17	19	4	13	27.1	0.01425	13.5	0.0024	27.1
7:34:00	1306.0	15	19	4	11	22.9	0.01425	13.8	0.0015	22.9



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0209 S1214	12.0	(MH) ELASTIC SILT, some f to m sand, some organic matter						

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0209 S1214	12.0	2.00	0.01	0.004		0.0	6.9	55.2	37.9

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/8/02**

GRADATION CURVES

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Boring No. KK-0209

Job No: GL-02356

Sample No. 2022

Remarks: (MH) ELASTIC SILT, with fine to medium sand, some organic matter

Depth: 20.0' - 22.0'

Date: 10/01/2002

MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1			
1/2	12.7			
4M	4.76			
10M	2.00	0	0	100
40M	0.42	0.80	1.6	/* 98.4
100M	0.149	2.73	5.5	/* 92.9
200M	0.074	4.02	8.2	/* 84.7
Pan		41.75	84.7	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 0 = 0%

Material passing No. 10 mesh: weight = 49.30 = 100%

Weight of Total Sample = 49.30

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

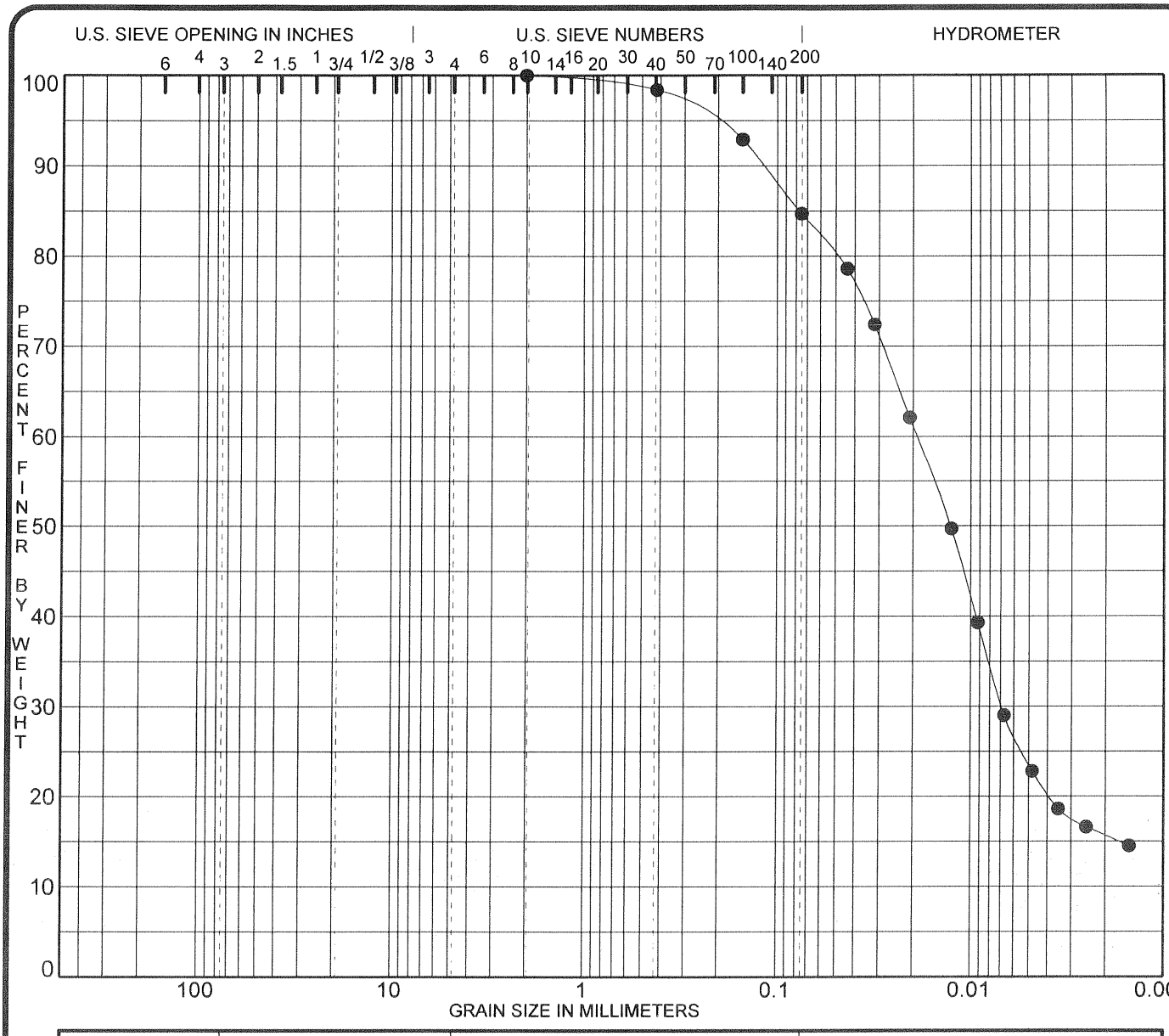
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (MH) ELASTIC SILT, with fine to medium sand, some organic matter

Boring No: KK-0209
Sample No: 2022
Depth: 20.0' - 22.0'
Date: 09/27/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.55
Starting Time: 9:37

% of Original Sample Used For Hydrometer Analysis: 100 %
Weight of Sample Dispersed: 49.3 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature °C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
9:37:30	0.5	46	19	4	42	86.9	0.01425	8.8	0.0598	86.9
9:38:00	1.0	42	19	4	38	78.6	0.01425	9.4	0.0437	78.6
9:39:00	2.0	39	19	4	35	72.4	0.01425	9.9	0.0317	72.4
9:42:00	5.0	34	19	4	30	62.1	0.01425	10.7	0.0208	62.1
9:52:00	15.0	28	19	4	24	49.7	0.01425	11.7	0.0126	49.7
10:07:00	30.0	23	19	4	19	39.3	0.01425	12.5	0.0092	39.3
10:37:00	60.0	18	19	4	14	29.0	0.01425	13.3	0.0067	29.0
11:37:00	120.0	15	19	4	11	22.8	0.01425	13.8	0.0048	22.8
1:37:00	240.0	13	19	4	9	18.6	0.01425	14.2	0.0035	18.6
5:10:00	453.0	12	19	4	8	16.6	0.01425	14.3	0.0025	16.6
7:33:00	1324.0	11	19	4	7	14.5	0.01425	14.5	0.0015	14.5



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0209 S2022	20.0	(MH) ELASTIC SILT, w/f to m sand, some organic matter						

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0209 S2022	20.0	2.00	0.02	0.007		0.0	15.3	61.1	23.6

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/7/02**

GRADATION CURVES

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Job No: GL-02356

Remarks: (MH) ELASTIC SILT, with fine to medium sand, some organic matter

Boring No. KK-0210

Sample No. 0204

Depth: 2.0' - 4.0'

Date: 10/03/2002

MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1			
1/2	12.7	0	0	100
4M	4.76	0.37	0.8	99.2
10M	2.00	0.12	0.3	98.9
40M	0.42	0.51	1.1	/* 97.8
100M	0.149	3.95	8.3	/* 89.5
200M	0.074	1.56	3.3	/* 86.2
Pan		41.29	86.2	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 0.49 = 1.0%

Material passing No. 10 mesh: weight = 47.31 = 99.0%

Weight of Total Sample = 47.8

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

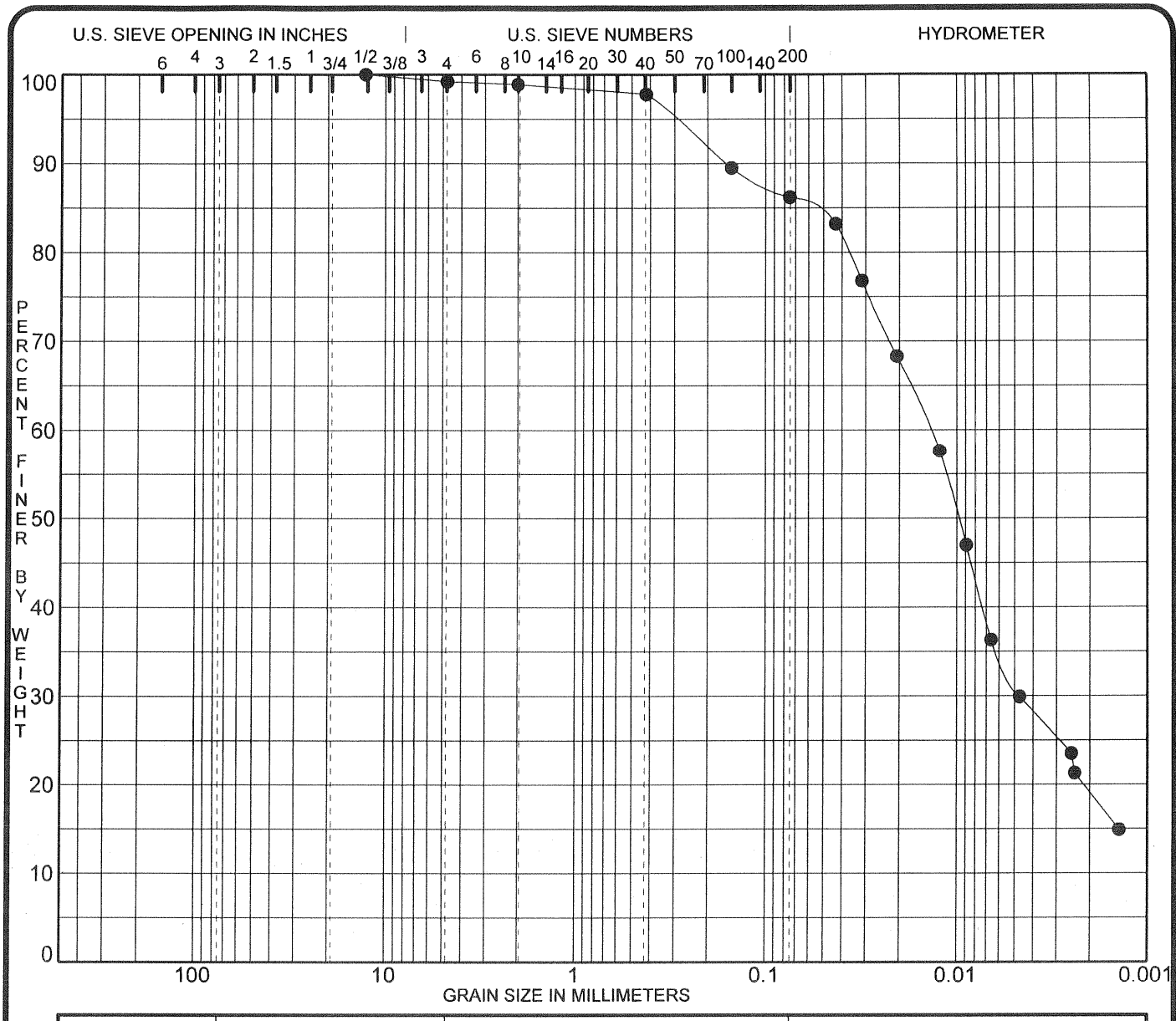
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (MH) ELASTIC SILT, with fine to medium sand, some organic matter

Boring No: KK-0210
Sample No: 0204
Depth: 2.0' - 4.0'
Date: 10/02/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.55
Starting Time: 9:32

% of Original Sample Used For Hydrometer Analysis: 99.0 %
Weight of Sample Dispersed: 47.31 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature °C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
9:32:30	0.5	46	19	4	42	90.6	0.01425	8.8	0.0598	89.6
9:33:00	1.0	43	19	4	39	84.1	0.01425	9.2	0.0432	83.2
9:34:00	2.0	40	19	4	36	77.6	0.01425	9.7	0.0314	76.8
9:37:00	5.0	36	19	4	32	69.0	0.01425	10.4	0.0206	68.3
9:47:00	15.0	31	19	4	27	58.2	0.01425	11.2	0.0123	57.6
10:03:00	31.0	26	19	4	22	47.4	0.01425	12.0	0.0089	47.0
10:33:00	61.0	21	19	4	17	36.7	0.01425	12.9	0.0066	36.3
11:32:00	120.0	18	19	4	14	30.2	0.01425	13.3	0.0047	29.9
1:42:00	450.0	15	19	4	11	23.7	0.01425	13.8	0.0025	23.5
5:34:00	482.0	14	19	4	10	21.6	0.01425	14.0	0.0024	21.3
9:21:00	1429.0	11	19	4	7	15.1	0.01425	14.5	0.0014	14.9



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0210 S0204	2.0	(MH) ELASTIC SILT, w/f to m sand, some organic matter						

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0210 S0204	2.0	12.70	0.01	0.005		0.8	13.0	55.1	31.1

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/7/02**

GRADATION CURVES

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Job No: GL-02356

Remarks: (MH) ELASTIC SILT, with fine to coarse sand, some organic matter, piece of plastic

Boring No. KK-0210

Sample No. 0608

Depth: 6.0' - 8.0'

Date: 10/03/2002

MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1			
1/2	12.7	0	0	100
4M	4.76	0.79	1.9	98.1
10M	2.00	0.21	0.5	97.6
40M	0.42	0.86	2.1	/* 95.5
100M	0.149	2.00	4.8	/* 90.7
200M	0.074	2.30	5.6	/* 85.1
Pan		35.19	85.1	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 1.0 = 2.4%

Material passing No. 10 mesh: weight = 40.35 = 97.6%

Weight of Total Sample = 41.35

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

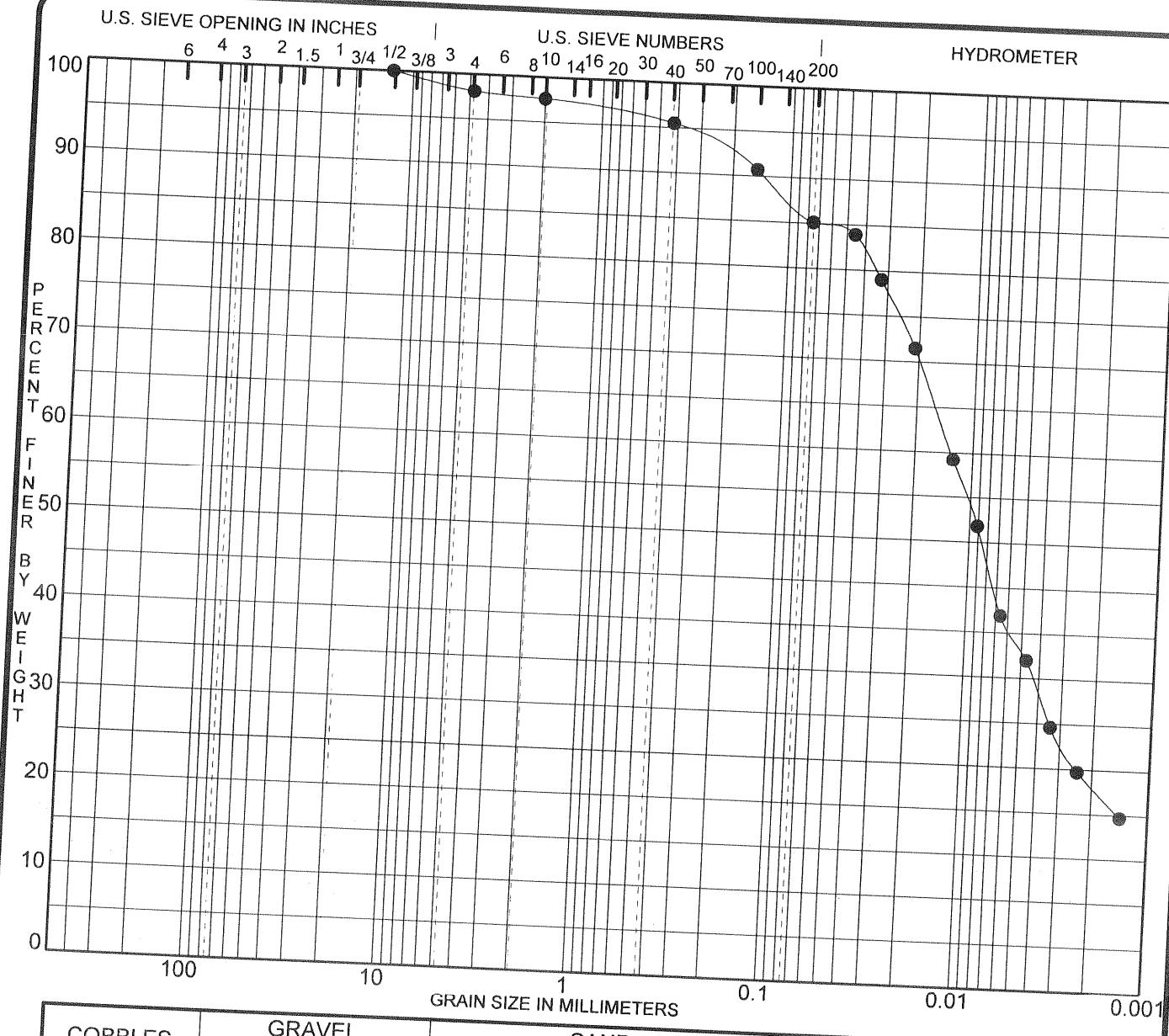
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (MH) ELASTIC SILT, with fine to coarse sand, some organic matter, piece of plastic

Boring No: KK-0210
Sample No: 0608
Depth: 6.0' - 8.0'
Date: 10/02/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.55
Starting Time: 9:57

% of Original Sample Used For Hydrometer Analysis: 97.6 %
Weight of Sample Dispersed: 40.35 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature ° C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
9:57:30	0.5	41	19	4	37	93.5	0.01425	9.6	0.0624	91.3
9:58:00	1.0	38	19	4	34	85.9	0.01425	10.1	0.0453	83.9
9:59:00	2.0	36	19	4	32	80.9	0.01425	10.4	0.0325	79.0
10:02:00	5.0	33	19	4	29	73.3	0.01425	10.9	0.0210	71.5
10:12:00	15.0	28	19	4	24	60.7	0.01425	11.7	0.0126	59.2
10:27:00	30.0	25	19	4	21	53.1	0.01425	12.2	0.0091	51.8
10:57:00	60.0	21	19	4	17	43.0	0.01425	12.9	0.0066	41.9
11:59:00	122.0	19	19	4	15	37.9	0.01425	13.2	0.0047	37.0
1:57:00	240.0	16	19	4	12	30.3	0.01425	13.7	0.0034	29.6
5:56:00	479.0	14	19	4	10	25.3	0.01425	14.0	0.0024	24.7
9:38:00	1421.0	12	19	4	8	20.2	0.01425	14.3	0.0014	19.7



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0210 S0608	6.0(MH) ELASTIC SILT, w/f to c sand, some org mat, plastic piece						

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0210 S0608	6.0	12.70	0.01	0.003		1.9	13.0	47.2	37.9

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/8/02**

GRADATION CURVES

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Job No: GL-02356

Remarks: (MH) ELASTIC SILT, with fine to coarse sand, trace of organic matter

Boring No. KK-0210

Sample No. 1214

Depth: 12.0' - 14.0'

Date: 10/03/2002

MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1			
1/2	12.7			
4M	4.76			
10M	2.00	0	0	100
40M	0.42	0.50	0.9	/* 99.1
100M	0.149	3.03	5.5	/* 93.6
200M	0.074	5.17	9.4	/* 84.2
Pan		46.13	84.2	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 0 = 0%

Material passing No. 10 mesh: weight = 54.84 = 100%

Weight of Total Sample = 54.84

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

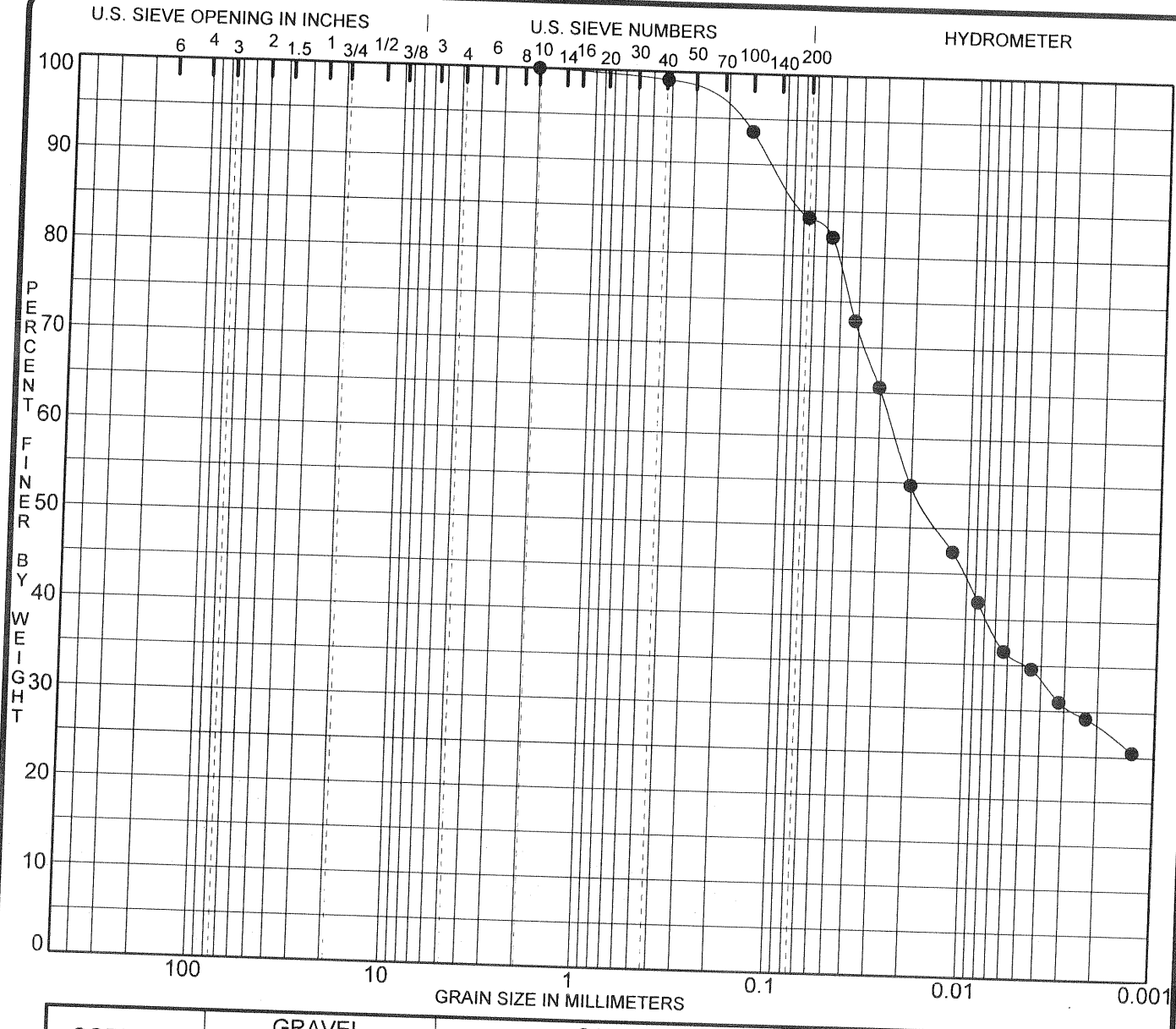
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (MH) ELASTIC SILT, with fine to coarse sand, trace of organic matter

Boring No: KK-0210
Sample No: 1214
Depth: 12.0' - 14.0'
Date: 10/02/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.65
Starting Time: 9:49

% of Original Sample Used For Hydrometer Analysis: 100 %
Weight of Sample Dispersed: 54.84 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature ° C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
9:49:30	0.5	49	19	4	45	82.1	0.01382	8.3	0.0563	82.1
9:50:00	1.0	44	19	4	40	72.9	0.01382	9.1	0.0417	72.9
9:51:00	2.0	40	19	4	36	65.6	0.01382	9.7	0.0304	65.6
9:54:00	5.0	34	19	4	30	54.7	0.01382	10.7	0.0202	54.7
10:04:00	15.0	30	19	4	26	47.4	0.01382	11.4	0.0120	47.4
10:19:00	30.0	27	19	4	23	41.9	0.01382	11.9	0.0087	41.9
10:49:00	60.0	24	19	4	20	36.5	0.01382	12.4	0.0063	36.5
11:49:00	120.0	23	19	4	19	34.6	0.01382	12.5	0.0045	34.6
1:49:00	240.0	21	19	4	17	31.0	0.01382	12.9	0.0032	31.0
5:54:00	485.0	20	19	4	16	29.2	0.01382	13.0	0.0023	29.2
9:27:00	1418.0	18	19	4	14	25.5	0.01382	13.3	0.0013	25.5



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0210 S1214 12.0	(MH) ELASTIC SILT, w/f to c sand, tr/organic matter						

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0210 S1214 12.0	2.00	0.02	0.003		0.0	15.8	49.0	35.2

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/7/02**

GRADATION CURVES

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Job No: GL-02356

Remarks: (MH) ELASTIC SILT, some fine to medium sand, trace of organic matter

Boring No. KK-0211

Sample No. 0002

Depth: 0.0' - 2.0'

Date: 10/03/2002

MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1			
1/2	12.7			
4M	4.76			
10M	2.00	0	0	100
40M	0.42	0.22	0.6	/* 99.4
100M	0.149	1.12	3.1	/* 96.3
200M	0.074	2.35	6.6	/* 89.7
Pan		32.13	89.7	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 0 = 0%

Material passing No. 10 mesh: weight = 35.82 = 100%

Weight of Total Sample = 35.82

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

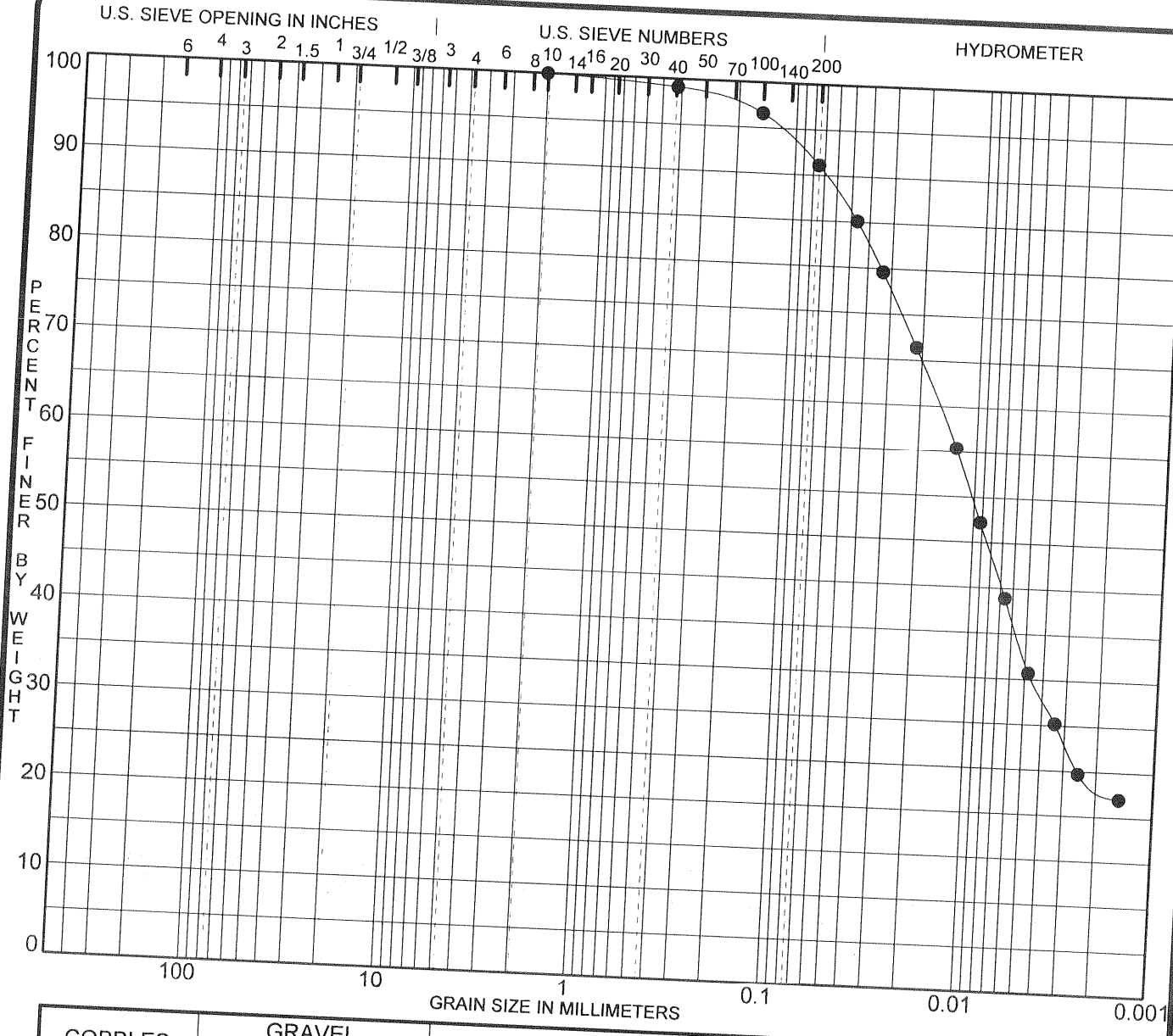
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (MH) ELASTIC SILT, with fine to coarse sand, trace of organic matter

Boring No: KK-0211
Sample No: 0002
Depth: 0.0' - 2.0'
Date: 10/02/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.65
Starting Time: 9:40

% of Original Sample Used For Hydrometer Analysis: 100 %
Weight of Sample Dispersed: 35.82 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature ° C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
9:40:30	0.5		19	4						
9:41:00	1.0	35	19	4	31	86.5	0.01382	10.6	0.0450	86.5
9:42:00	2.0	32	19	4	28	78.2	0.01382	11.1	0.0326	78.2
9:45:00	5.0	30	19	4	26	72.6	0.01382	11.4	0.0209	72.6
9:55:00	15.0	25	19	4	21	58.6	0.01382	12.2	0.0125	58.6
10:10:00	30.0	22	19	4	18	50.3	0.01382	12.7	0.0090	50.3
10:40:00	60.0	19	19	4	15	41.9	0.01382	13.2	0.0065	41.9
11:45:00	125.0	16	19	4	12	33.5	0.01382	13.7	0.0046	33.5
1:43:00	243.0	14	19	4	10	27.9	0.01382	14.0	0.0033	27.9
5:35:00	475.0	13	19	4	9	25.1	0.01382	14.2	0.0024	25.1
9:26:00	1426.0	11	19	4	7	19.5	0.01382	14.5	0.0014	19.5



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0211 S0406 4.0	(MH) ELASTIC SILT, some f to m sand, some organic matter						

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0211 S0406 4.0	2.00	0.01	0.003		0.0	8.9	54.3	36.8

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/7/02**

GRADATION CURVES

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Job No: GL-02356

Remarks: (MH) ELASTIC SILT, some fine to medium sand, trace of fine gravel, some organic matter, piece of string

Boring No. KK-0211

Sample No. 0810

Depth: 8.0' - 10.0'

Date: 10/03/2002

MECHANICAL ANALYSIS
PORTION OF
HYDROMETER
ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1			
1/2	12.7	0	0	100
4M	4.76	0.54	1.3	98.7
10M	2.00	0.00	0.0	98.7
40M	0.42	0.88	2.2	/* 96.5
100M	0.149	1.47	3.6	/* 92.9
200M	0.074	1.65	4.0	/* 88.9
Pan		36.23	88.9	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 0.54 = 1.3%

Material passing No. 10 mesh: weight = 40.23 = 98.7%

Weight of Total Sample = 40.77

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

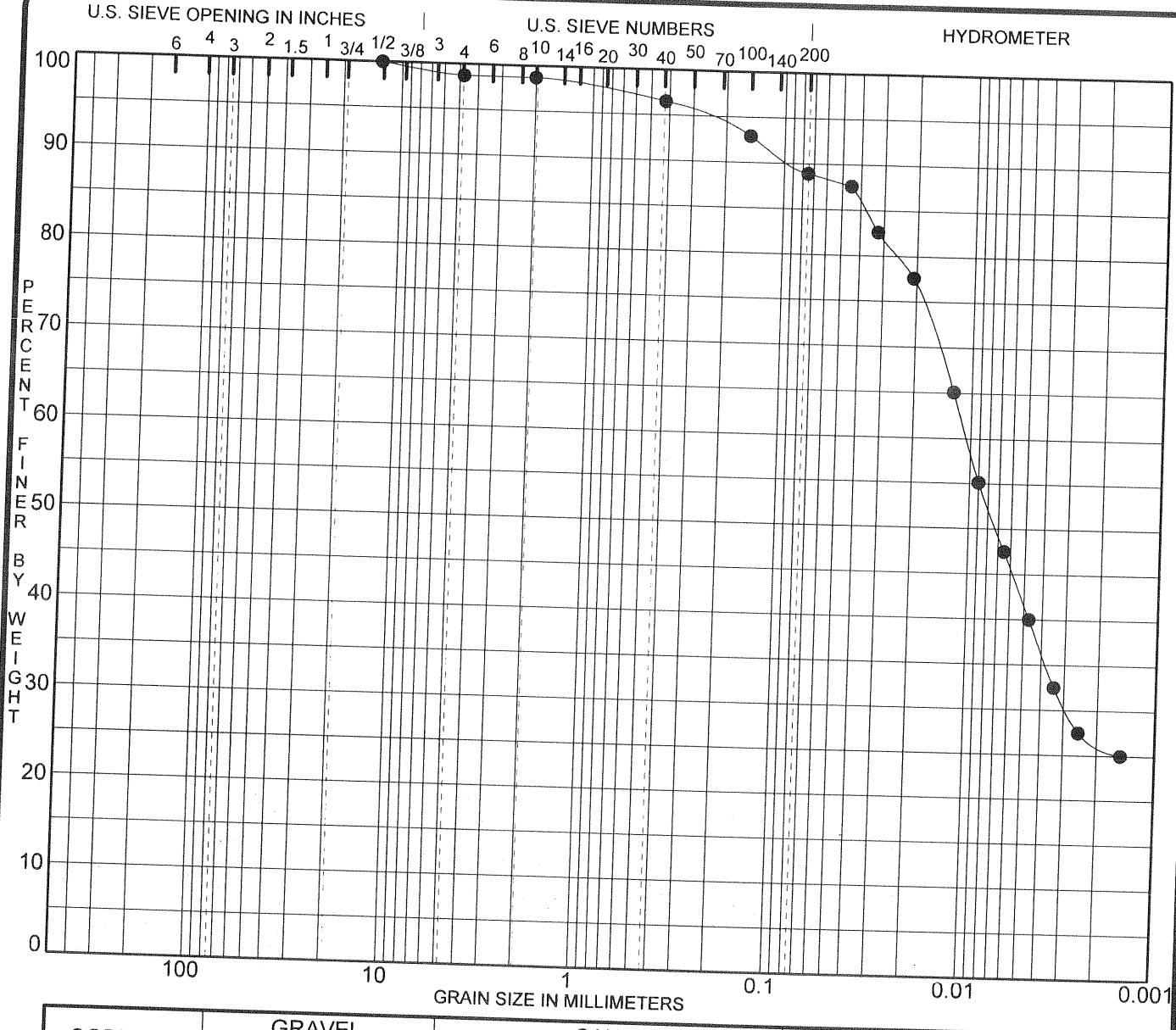
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (MH) ELASTIC SILT, some fine to medium sand, trace of fine gravel, some organic matter, piece of string

Boring No: KK-0211
Sample No: 0810
Depth: 8.0' - 10.0'
Date: 10/01/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.55
Starting Time: 10:53

% of Original Sample Used For Hydrometer Analysis: 98.7 %
Weight of Sample Dispersed: 40.23 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature ° C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
10:53:30	0.5	41	19	4	37	93.8	0.01425	9.6	0.0624	92.6
10:54:00	1.0	39	19	4	35	88.7	0.01425	9.9	0.0448	87.6
10:55:00	2.0	37	19	4	33	83.7	0.01425	10.2	0.0322	82.6
10:58:00	5.0	35	19	4	31	78.6	0.01425	10.6	0.0207	77.6
11:08:00	15.0	30	19	4	26	65.9	0.01425	11.4	0.0124	65.1
11:23:00	30.0	26	19	4	22	55.8	0.01425	12.0	0.0090	55.1
11:53:00	60.0	23	19	4	19	48.2	0.01425	12.5	0.0065	47.5
12:53:00	120.0	20	19	4	16	40.6	0.01425	13.0	0.0047	40.0
2:53:00	240.0	17	19	4	13	33.0	0.01425	13.5	0.0034	32.5
6:19:00	446.0	15	19	4	11	27.9	0.01425	13.8	0.0025	27.5
8:41:00	1308.0	14	19	4	10	25.4	0.01425	14.0	0.0015	25.0



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0211 S0810 8.0	(MH) ELASTIC SILT, so f to m sand, tr/f gvl, so org mat, string						

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0211 S0810	8.0	12.70	0.01	0.003		1.3	9.8	47.5	41.4

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/8/02**

GRADATION CURVES

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Job No: GL-02356

Remarks: (MH) ELASTIC SILT, some fine to medium sand, some organic matter

Boring No. KK-0212

Sample No. 0204

Depth: 2.0' - 4.0'

Date: 10/02/2002

MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1			
1/2	12.7			
4M	4.76	0	0	100
10M	2.00	0.06	0.1	99.9
40M	0.42	0.27	0.6	/* 99.3
100M	0.149	0.78	1.9	/* 97.4
200M	0.074	1.55	3.7	/* 93.7
Pan		39.50	93.7	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 0.06 = 0.1%

Material passing No. 10 mesh: weight = 42.1 = 99.9%

Weight of Total Sample = 42.16

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

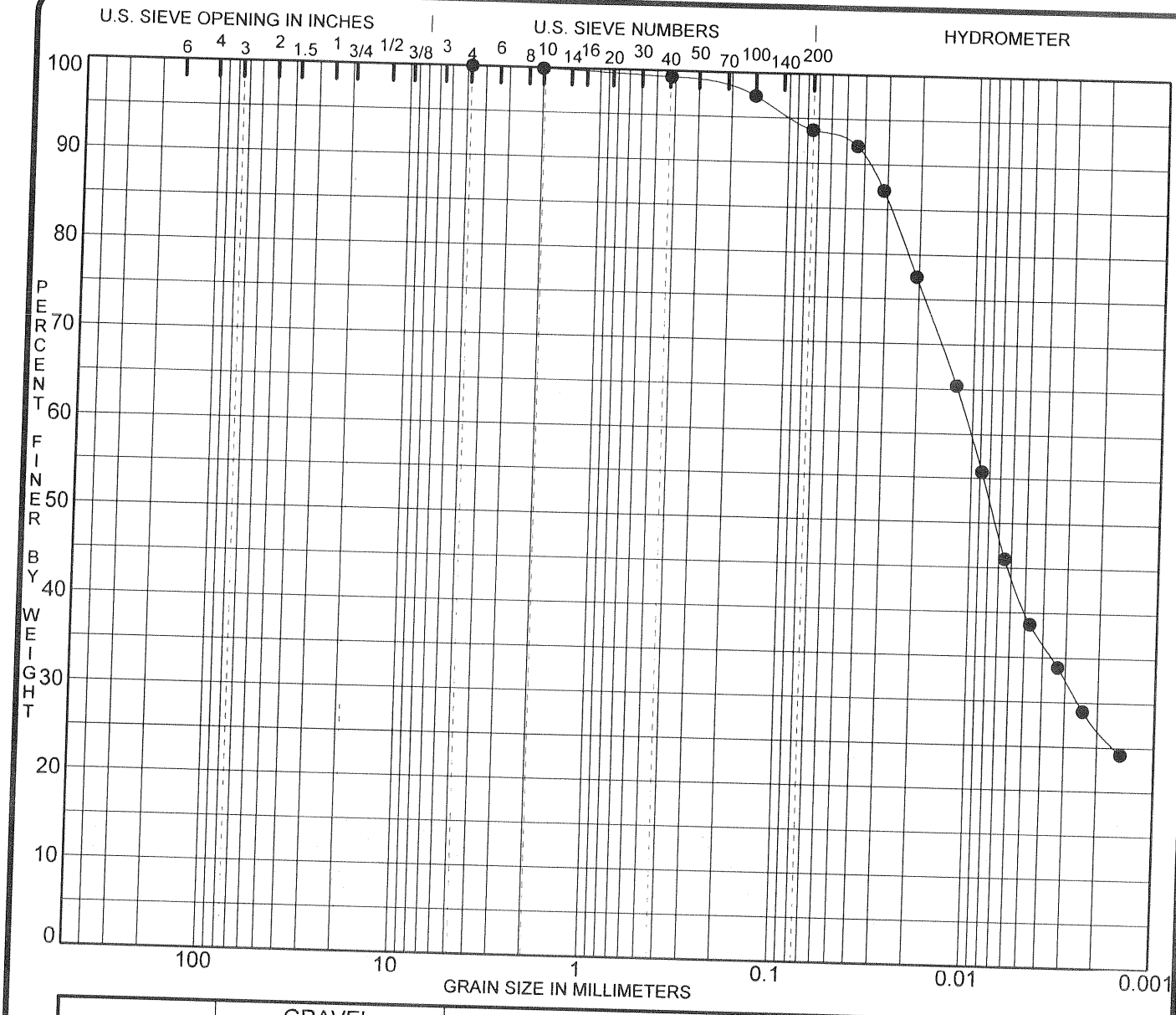
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (MH) ELASTIC SILT, some fine to medium sand, some organic matter

Boring No: KK-0212
Sample No: 0204
Depth: 2.0' - 4.0'
Date: 10/01/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.55
Starting Time: 10:36

% of Original Sample Used For Hydrometer Analysis: 99.9 %
Weight of Sample Dispersed: 42.1 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature °C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
10:36:30	0.5	44	19	4	40	96.9	0.01425	9.1	0.0608	96.8
10:37:00	1.0	42	19	4	38	92.1	0.01425	9.4	0.0437	92.0
10:38:00	2.0	40	19	4	36	87.2	0.01425	9.7	0.0314	87.1
10:41:00	5.0	36	19	4	32	77.5	0.01425	10.4	0.0206	77.5
10:51:00	15.0	31	19	4	27	65.4	0.01425	11.2	0.0123	65.4
11:07:00	31.0	27	19	4	23	55.7	0.01425	11.9	0.0088	55.7
11:36:00	60.0	23	19	4	19	46.0	0.01425	12.5	0.0065	46.0
12:36:00	120.0	20	19	4	16	38.8	0.01425	13.0	0.0047	38.7
2:40:00	244.0	18	19	4	14	33.9	0.01425	13.3	0.0033	33.9
6:17:00	466.0	16	19	4	12	29.1	0.01425	13.7	0.0024	29.0
8:14:00	1298.0	14	19	4	10	24.2	0.01425	14.0	0.0015	24.2



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0212 S0204	2.0	(MH) ELASTIC SILT, some f to m sand, some organic matter						

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0212 S0204	2.0	4.75	0.01	0.003		0.0	6.3	53.6	40.1

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/8/02**

GRADATION CURVES

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Job No: GL-02356

Remarks: (MH) ELASTIC SILT, with fine to medium sand, some organic matter

Boring No. KK-0212

Sample No. 0608

Depth: 6.0' - 8.0'

Date: 10/02/2002

MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1			
1/2	12.7			
4M	4.76			
10M	2.00	0	0	100
40M	0.42	0.79	2.0	/* 98.0
100M	0.149	2.86	7.2	/* 90.8
200M	0.074	4.38	11.1	/* 79.7
Pan		31.56	79.7	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 0 = 0%

Material passing No. 10 mesh: weight = 39.59 = 100%

Weight of Total Sample = 39.59

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

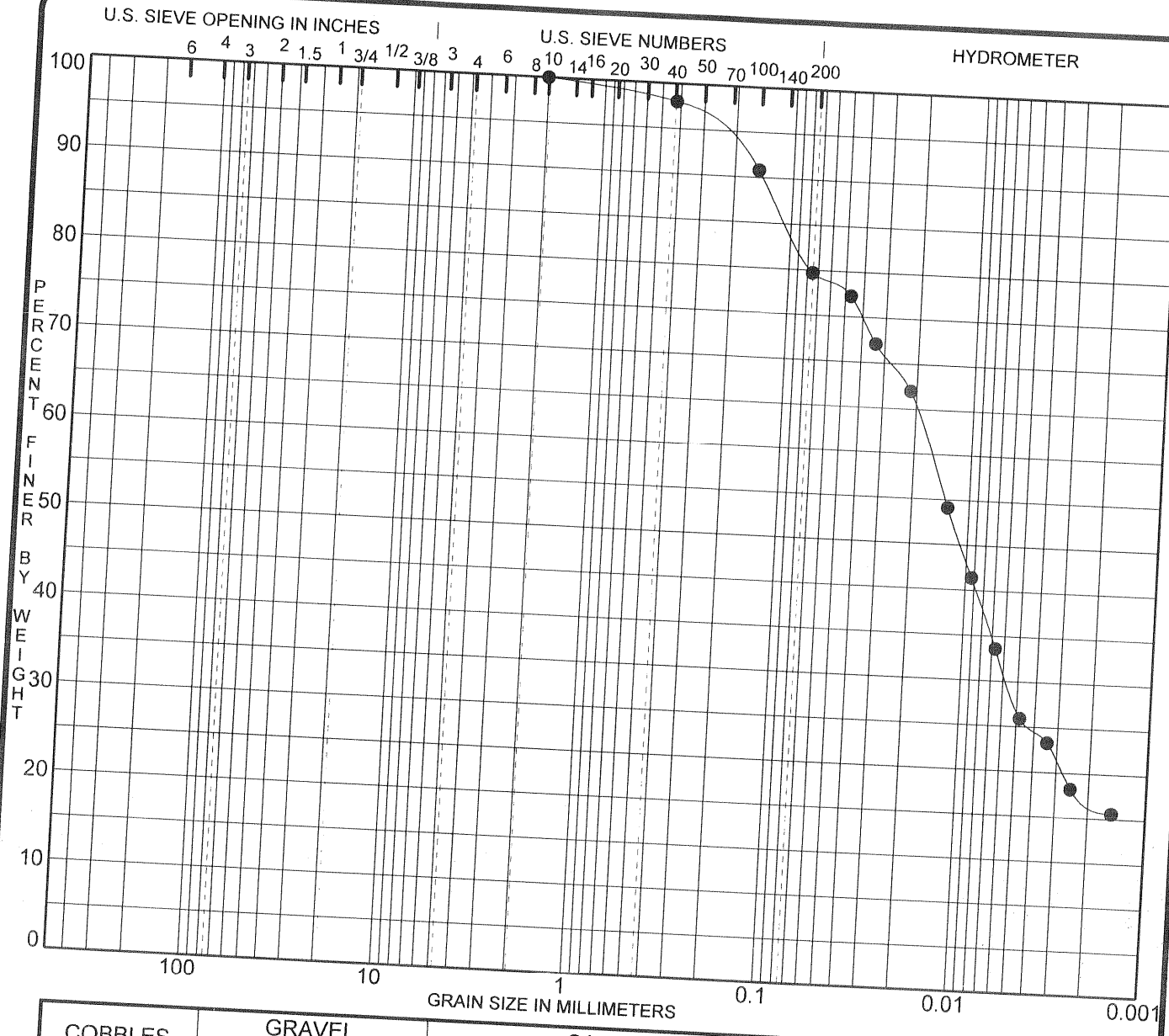
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (MH) ELASTIC SILT, with fine to medium sand, some organic matter

Boring No: KK-0212
Sample No: 0608
Depth: 6.0' - 8.0'
Date: 10/01/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.55
Starting Time: 10:44

% of Original Sample Used For Hydrometer Analysis: 100 %
Weight of Sample Dispersed: 39.59 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature ° C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
10:44:30	0.5	37	19	4	33	85.0	0.01425	10.2	0.0644	85.0
10:45:00	1.0	34	19	4	30	77.3	0.01425	10.7	0.0466	77.3
10:46:00	2.0	32	19	4	28	72.1	0.01425	11.1	0.0336	72.1
10:49:00	5.0	30	19	4	26	67.0	0.01425	11.4	0.0215	67.0
10:59:00	15.0	25	19	4	21	54.1	0.01425	12.2	0.0129	54.1
11:15:00	30.0	22	19	4	18	46.4	0.01425	12.7	0.0093	46.4
11:45:00	60.0	19	19	4	15	38.6	0.01425	13.2	0.0067	38.6
12:45:00	120.0	16	19	4	12	30.9	0.01425	13.7	0.0048	30.9
2:47:00	242.0	15	19	4	11	28.3	0.01425	13.8	0.0034	28.3
6:18:00	453.0	13	19	4	9	23.2	0.01425	14.2	0.0025	23.2
8:30:00	1306.0	12	19	4	8	20.6	0.01425	14.3	0.0015	20.6



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0212 S0608	6.0	(MH) ELASTIC SILT, some f to m sand, some organic matter						

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0212 S0608	6.0	2.00	0.02	0.004		0.0	20.3	47.9	31.8

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/7/02**

GRADATION CURVES

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Job No: GL-02356

Remarks: (MH) ELASTIC SILT, some fine to medium sand, some organic matter, piece of plastic

Boring No. KK-0212

Sample No. 1012

Depth: 10.0' - 12.0'

Date: 10/03/2002

MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1			
1/2	12.7			
4M	4.76	0	0	100
10M	2.00	0.05	0.1	99.9
40M	0.42	0.70	1.6	/* 98.3
100M	0.149	1.55	3.5	/* 94.8
200M	0.074	2.32	5.3	/* 89.5
Pan		39.40	89.5	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 0.05 = 0.1%

Material passing No. 10 mesh: weight = 43.97 = 99.9%

Weight of Total Sample = 44.02

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

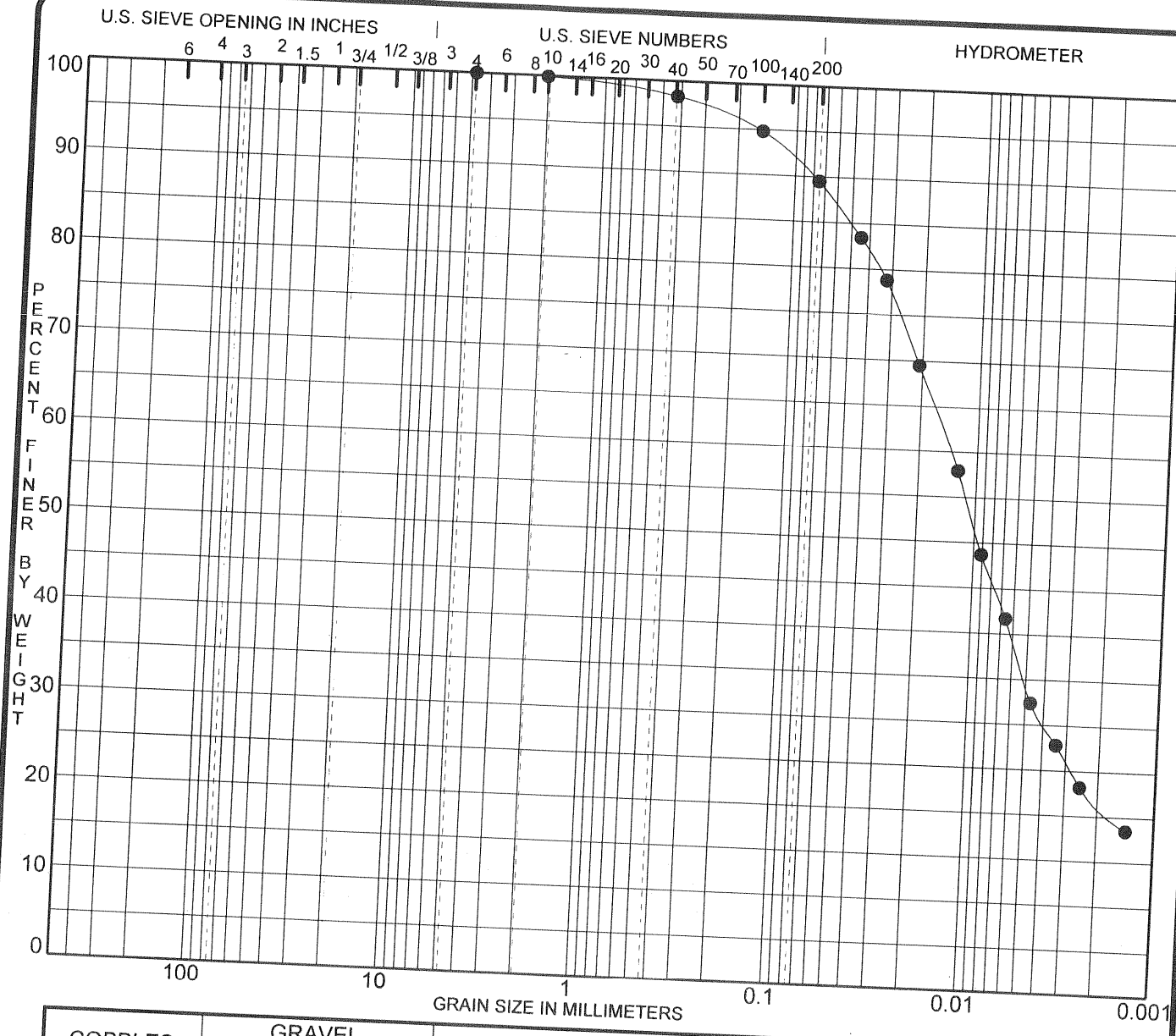
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (MH) ELASTIC SILT, some fine to medium sand, some organic matter, piece of plastic

Boring No: KK-0212
Sample No: 1012
Depth: 10.0' - 12.0'
Date: 10/02/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.55
Starting Time: 10:14

% of Original Sample Used For Hydrometer Analysis: 99.9 %
Weight of Sample Dispersed: 43.97 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature ° C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
10:14:30	0.5	43	19	4	39	90.5	0.01425	9.2	0.0611	90.4
10:15:00	1.0	40	19	4	36	83.5	0.01425	9.7	0.0444	83.4
10:16:00	2.0	38	19	4	34	78.9	0.01425	10.1	0.0320	78.8
10:19:00	5.0	34	19	4	30	69.6	0.01425	10.7	0.0208	69.5
10:29:00	15.0	29	19	4	25	58.0	0.01425	11.5	0.0125	57.9
10:44:00	30.0	25	19	4	21	48.7	0.01425	12.2	0.0091	48.7
11:14:00	60.0	22	19	4	18	41.8	0.01425	12.7	0.0066	41.7
12:14:00	120.0	18	19	4	14	32.5	0.01425	13.3	0.0047	32.4
2:14:00	240.0	16	19	4	12	27.8	0.01425	13.7	0.0034	27.8
6:07:00	473.0	14	19	4	10	23.2	0.01425	14.0	0.0025	23.2
9:40:00	1406.0	12	19	4	8	18.6	0.01425	14.3	0.0014	18.5



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0212 S1012 10.0	(MH) ELASTIC SILT, so f to m sand, so org mat, plastic piece						

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0212 S1012 10.0	4.75	0.01	0.004		0.0	10.5	55.4	34.1

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/8/02**

GRADATION CURVES

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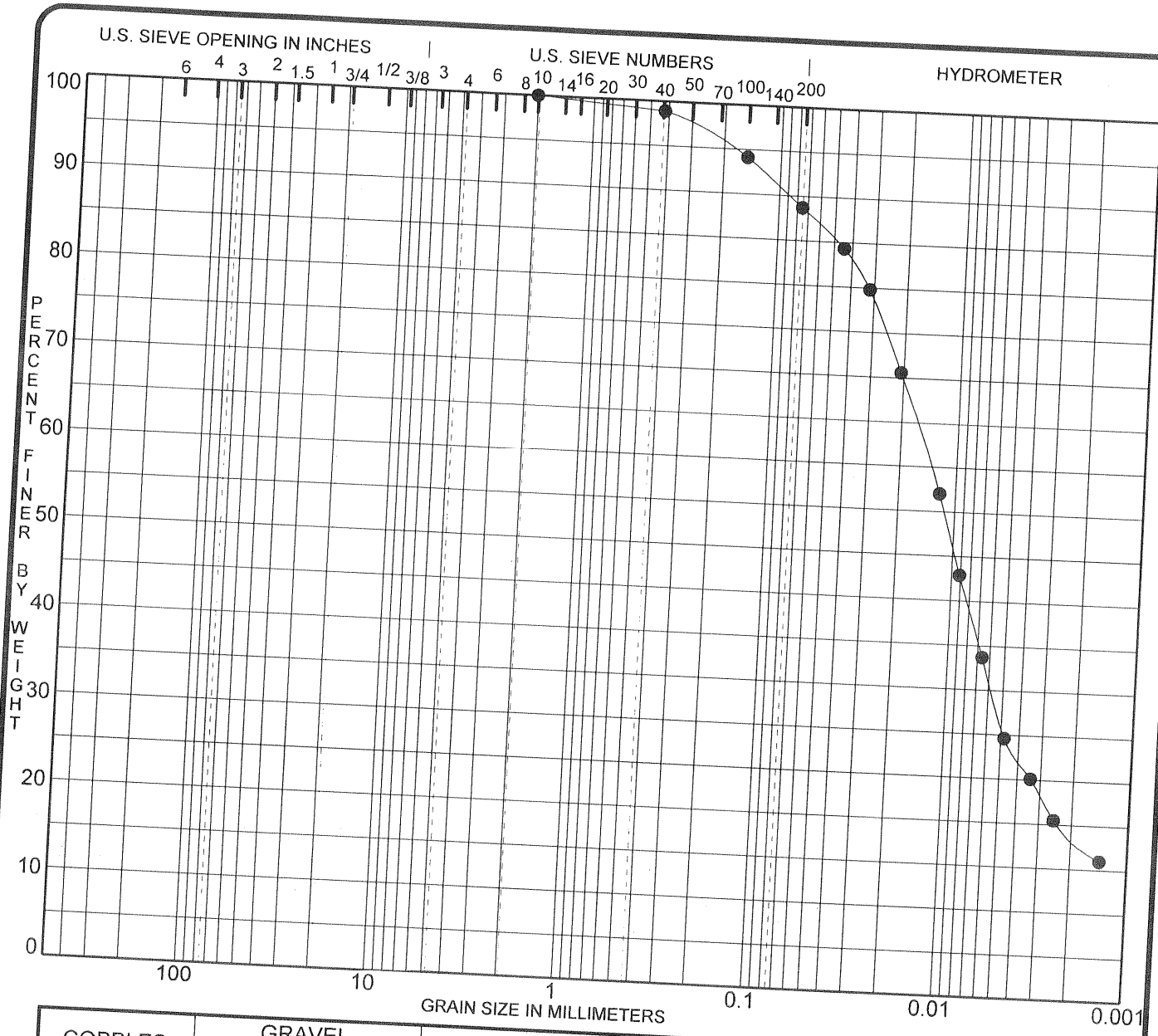

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0213 S0002	0.0	(MH) ELASTIC SILT, some f to m sand, tr/organic matter						

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0213 S0002	0.0	2.00	0.01	0.005		0.0	11.3	57.9	30.8

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/7/02**

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Job No: GL-02356

Remarks: (SM) SILTY SAND, fine to coarse, some fine gravel, some organic matter

Boring No. KK-0213

Sample No. 0406

Depth: 4.0' - 6.0'

Date: 10/03/2002

MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1	0	0	100
1/2	12.7	2.13	4.3	95.7
4M	4.76	0.48	1.0	94.7
10M	2.00	0.40	0.8	93.9
40M	0.42	3.70	7.5	/* 86.4
100M	0.149	15.63	31.8	/* 54.6
200M	0.074	3.80	7.7	/* 46.9
Pan		23.09	46.9	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 3.01 = 6.1%

Material passing No. 10 mesh: weight = 46.22 = 93.9%

Weight of Total Sample = 49.23

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

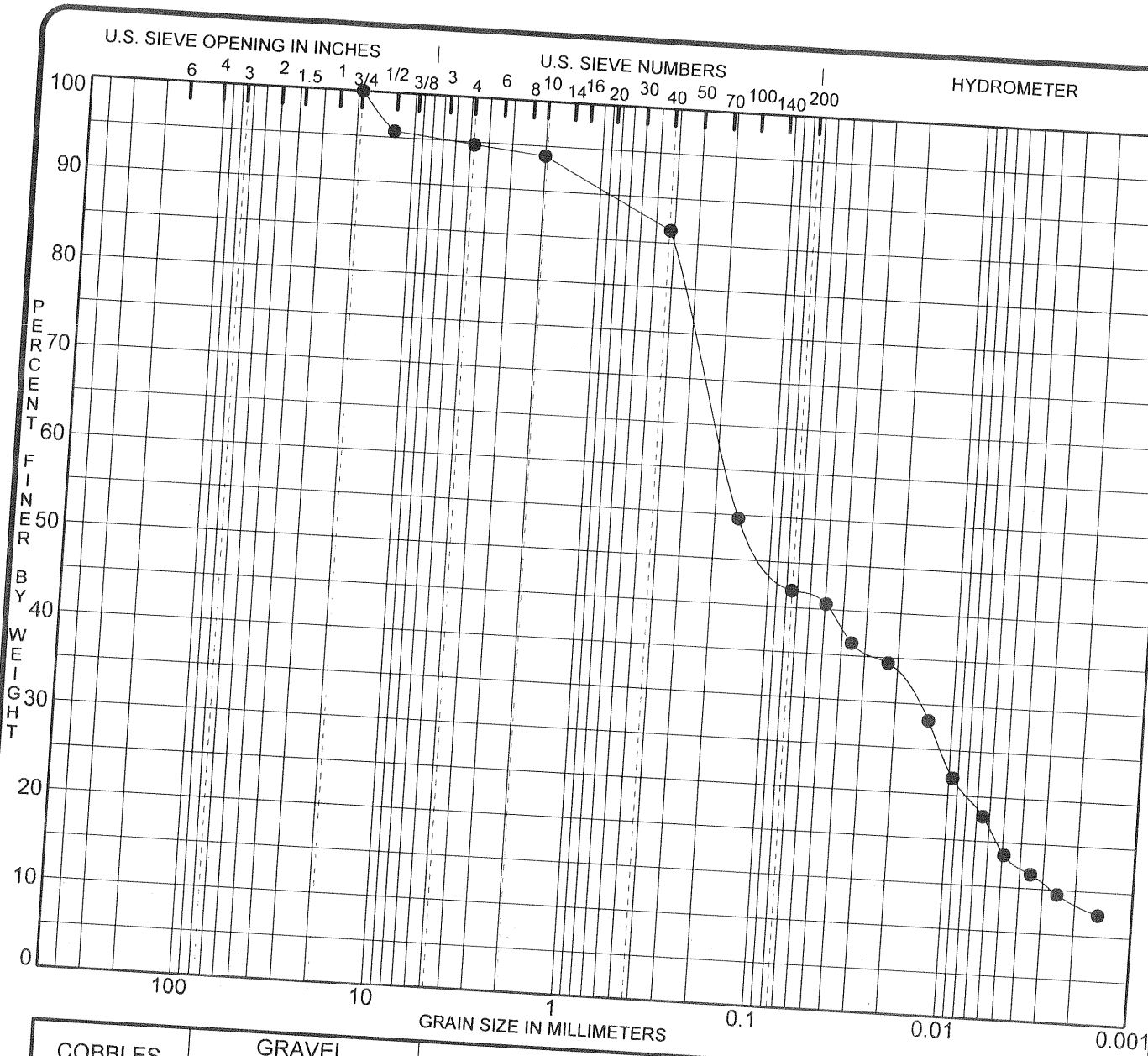
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (SM) SILTY SAND, fine to coarse, some fine gravel, some organic matter

Boring No: KK-0213
Sample No: 0406
Depth: 4.0' - 6.0'
Date: 10/02/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.55
Starting Time: 10:06

% of Original Sample Used For Hydrometer Analysis: 93.9 %
Weight of Sample Dispersed: 46.22 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature ° C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
10:06:30	0.5	30	19	4	26	57.4	0.01425	11.4	0.0680	53.9
10:07:00	1.0	26	19	4	22	48.6	0.01425	12.0	0.0494	45.6
10:08:00	2.0	24	19	4	20	44.1	0.01425	12.4	0.0355	41.4
10:11:00	5.0	23	19	4	19	41.9	0.01425	12.5	0.0225	39.4
10:21:00	15.0	20	19	4	16	35.3	0.01425	13.0	0.0133	33.2
10:36:00	30.0	17	19	4	13	28.7	0.01425	13.5	0.0096	26.9
11:13:00	67.0	15	19	4	11	24.3	0.01425	13.8	0.0065	22.8
12:06:00	120.0	13	19	4	9	19.9	0.01425	14.2	0.0049	18.6
2:06:00	240.0	12	19	4	8	17.7	0.01425	14.3	0.0035	16.6
6:06:00	480.0	11	19	4	7	15.4	0.01425	14.5	0.0025	14.5
9:39:00	1413.0	10	19	4	6	13.2	0.01425	14.7	0.0015	12.4



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0213 S0406	4.0	(SM) SILTY SAND, f to c, some fine gvl, some org matter						

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0213 S0406	4.0	19.00	0.18	0.011		5.3	47.8	28.0	18.9

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/8/02**

GRADATION CURVES

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Job No: GL-02356

Remarks: (MH) ELASTIC SILT, some fine to medium sand, some organic matter

Boring No. KK-0213

Sample No. 0810

Depth: 8.0' - 10.0'

Date: 10/03/2002

MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1			
1/2	12.7			
4M	4.76			
10M	2.00	0	0	100
40M	0.42	0.12	0.2	/* 99.8
100M	0.149	0.90	1.9	/* 97.9
200M	0.074	2.19	4.7	/* 93.2
Pan		43.48	93.2	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 0 = 0%

Material passing No. 10 mesh: weight = 46.69 = 100%

Weight of Total Sample = 46.69

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

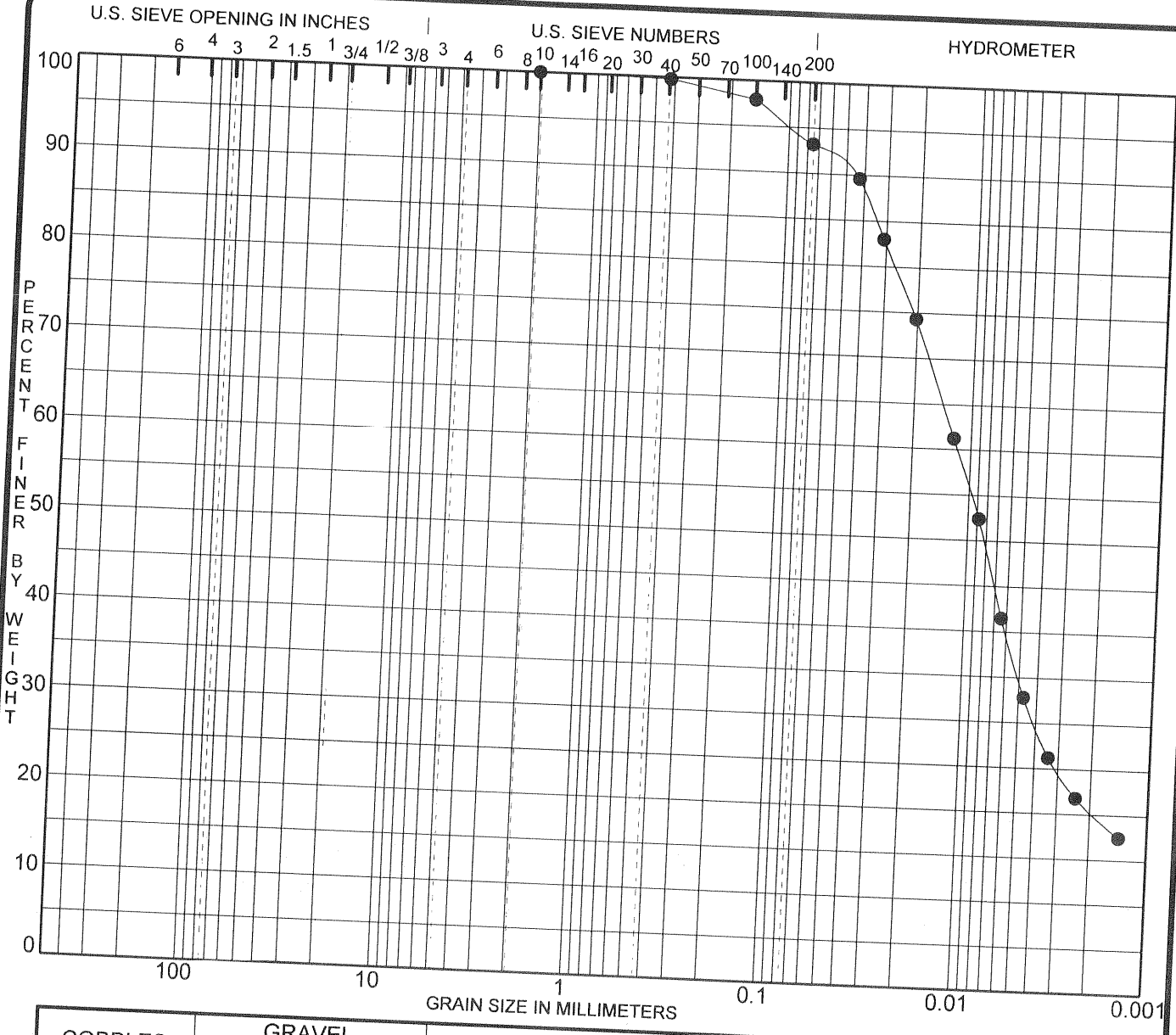
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (MH) ELASTIC SILT, some fine to medium sand, some organic matter

Boring No: KK-0213
Sample No: 0810
Depth: 8.0' - 10.0'
Date: 10/02/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.55
Starting Time: 9:15

% of Original Sample Used For Hydrometer Analysis: 100 %
Weight of Sample Dispersed: 46.69 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature ° C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
9:15:30	0.5	47	19	4	43	93.9	0.01425	8.6	0.0591	93.9
9:16:00	1.0	45	19	4	41	89.6	0.01425	8.9	0.0425	89.6
9:17:00	2.0	42	19	4	38	83.0	0.01425	9.4	0.0309	83.0
9:20:00	5.0	38	19	4	34	74.3	0.01425	10.1	0.0203	74.3
9:30:00	15.0	32	19	4	28	61.2	0.01425	11.1	0.0123	61.2
9:46:00	31.0	28	19	4	24	52.4	0.01425	11.7	0.0088	52.4
10:17:00	62.0	23	19	4	19	41.5	0.01425	12.5	0.0064	41.5
11:15:00	120.0	19	19	4	15	32.8	0.01425	13.2	0.0047	32.8
1:15:00	240.0	16	19	4	12	26.2	0.01425	13.7	0.0034	26.2
5:19:00	484.0	14	19	4	10	21.8	0.01425	14.0	0.0024	21.8
9:15:00	1440.0	12	19	4	8	17.5	0.01425	14.3	0.0014	17.5



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0213 S0810	8.0	(MH) ELASTIC SILT, some f to m sand, some organic matter						

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0213 S0810	8.0	2.00	0.01	0.004		0.0	6.8	58.7	34.5

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/7/02**

GRADATION CURVES

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Job No: GL-02356

Remarks: (SP-SM) SAND, fine to coarse, some silt, some fine gravel, trace of organic matter

Boring No. KK-0214

Sample No. 0406

Depth: 4.0' - 6.0'

Date: 10/02/2002

MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1			
1/2	12.7	0	0	100
4M	4.76	5.31	6.9	93.1
10M	2.00	6.82	8.9	84.2
40M	0.42	22.75	29.6	/* 54.6
100M	0.149	30.80	40.0	/* 14.6
200M	0.074	3.31	4.3	/* 10.3
Pan		7.92	10.3	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 13.09 = 17.0%

Material passing No. 10 mesh: weight = 63.82 = 83.0%

Weight of Total Sample = 76.91

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

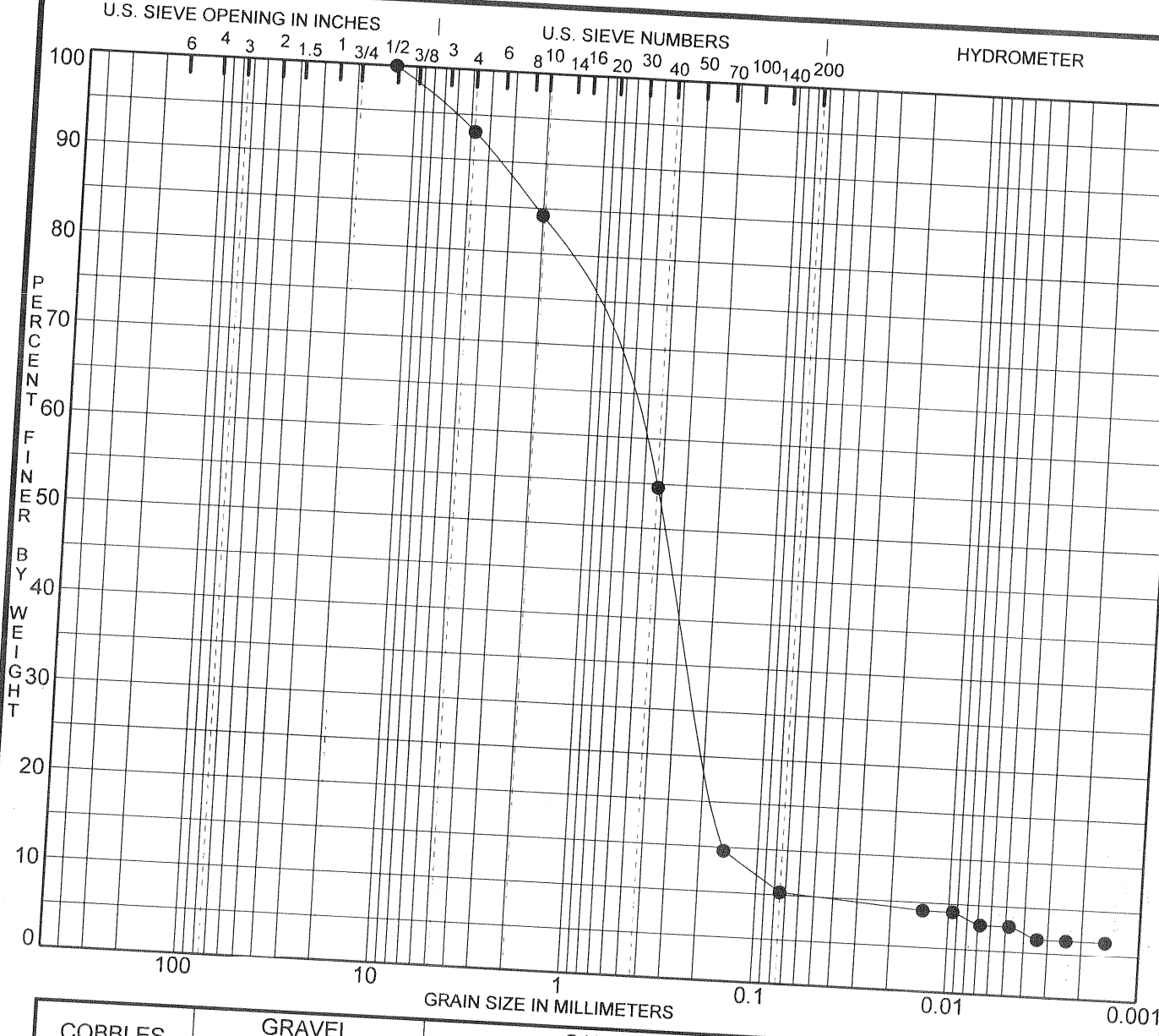
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (SP-SM) SAND, fine to coarse, some silt, some fine gravel, trace of organic matter

Boring No: KK-0214
Sample No: 0406
Depth: 4.0' - 6.0'
Date: 10/01/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.65
Starting Time: 10:19

% of Original Sample Used For Hydrometer Analysis: 83.0 %
Weight of Sample Dispersed: 63.82 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature ° C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
10:19:30	0.5	14	19	4	10	15.7	0.01382	14.0	0.0731	13.0
10:20:00	1.0	13	19	4	9	14.1	0.01382	14.2	0.0521	11.7
10:21:00	2.0	12	19	4	8	12.5	0.01382	14.3	0.0370	10.4
10:24:00	5.0	12	19	4	8	12.5	0.01382	14.3	0.0234	10.4
10:34:00	15.0	11	19	4	7	11.0	0.01382	14.5	0.0136	9.1
10:50:00	31.0	11	19	4	7	11.0	0.01382	14.5	0.0095	9.1
11:19:00	60.0	10	19	4	6	9.4	0.01382	14.7	0.0068	7.8
12:19:00	120.0	10	19	4	6	9.4	0.01382	14.7	0.0048	7.8
2:23:00	244.0	9	19	4	5	7.8	0.01382	14.8	0.0034	6.5
6:15:00	476.0	9	19	4	5	7.8	0.01382	14.8	0.0024	6.5
7:43:00	1284.0	9	19	4	5	7.8	0.01382	14.8	0.0015	6.5



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0214 S0406	4.0	(SP-SM) SAND, f to c, some silt, some f gvl, tr/org matter					1.82	11.4

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0214 S0406	4.0	12.70	0.56	0.223	0.0489	6.9	82.8	2.5	7.8

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/8/02**

GRADATION CURVES

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REPORT OF: MECHANICAL GRAIN SIZE ANALYSIS

Job Name: U.S. Army C.O.E. - Kinnickinnic River

Job No: GL-02356

Remarks: (SP-SM) SAND, fine to coarse, some silt, some fine gravel, trace of organic matter

Boring No. KK-0214

Sample No. 0608

Depth: 6.0' - 8.0'

Date: 10/02/2002

MECHANICAL ANALYSIS PORTION OF HYDROMETER ANALYSIS

Sieve Size	Grain Diameter (mm)	Weight Retained	Percent Retained	Percent Finer
1	25.4			
3/4	19.1	0	0	100
1/2	12.7	6.49	9.3	90.7
4M	4.76	1.32	1.9	88.8
10M	2.00	2.01	2.9	85.9
40M	0.42	18.59	26.5	/* 59.4
100M	0.149	31.66	45.3	/* 14.1
200M	0.074	2.44	3.5	/* 10.6
Pan		7.44	10.6	/*

***Percent Based on Total Sample**

Original Sample:

Material retained on No. 10 mesh: weight = 10.28 = 14.7%

Material passing No. 10 mesh: weight = 59.67 = 85.3%

Weight of Total Sample = 69.95

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REPORT OF: HYDROMETER GRAIN SIZE ANALYSIS

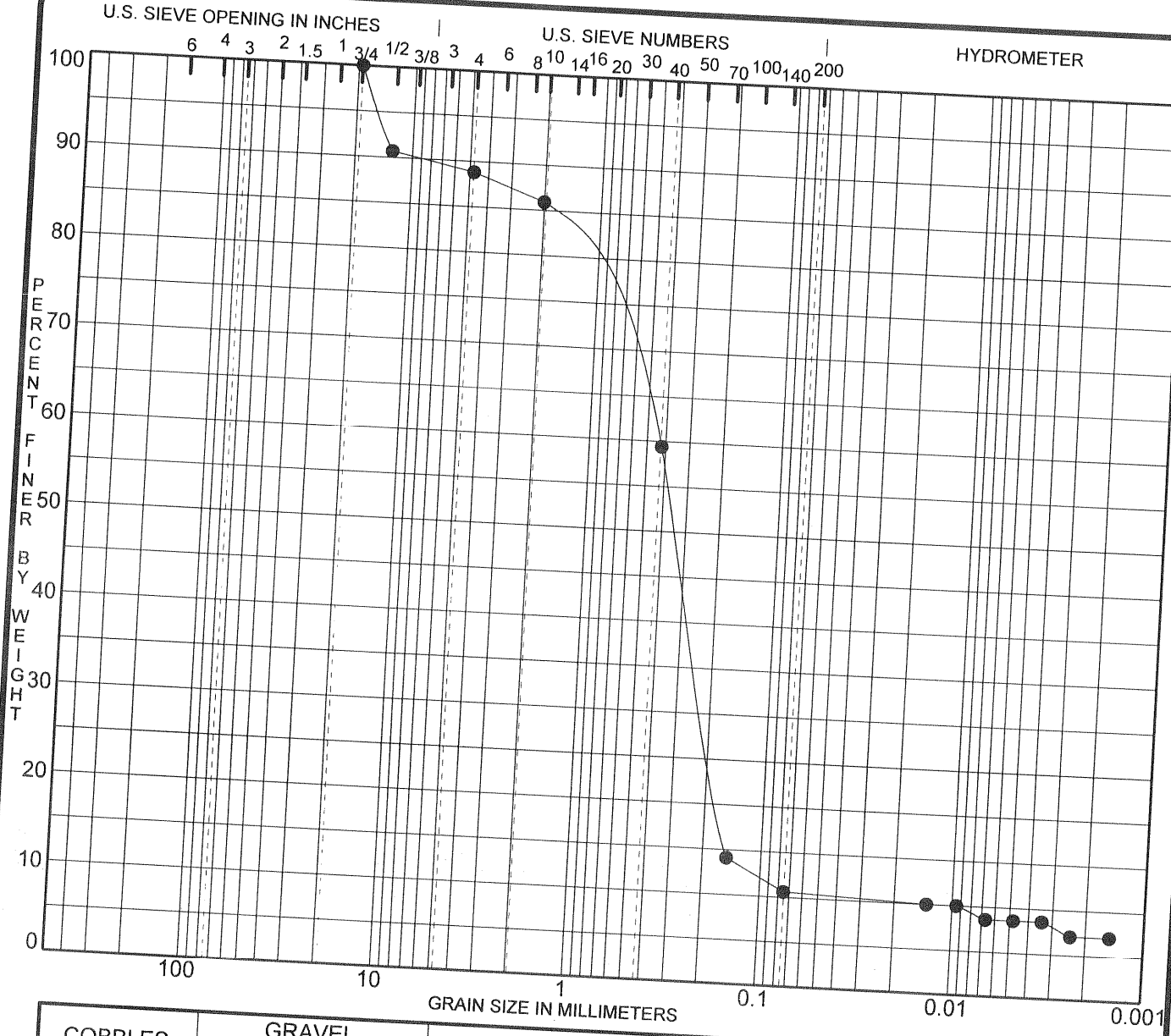
Job Name: U.S. Army C.O.E. - Kinnickinnic River
Job No: GL-02356
Remarks: (SP-SM) SAND, fine to coarse, some silt, some fine gravel, trace of organic matter

Boring No: KK-0214
Sample No: 0608
Depth: 6.0' - 8.0'
Date: 10/01/2002

Dispersing Agent:
Kind Used: Sodium Hexametaphosphate
Amount: 125 ml @ 4% solution
Hydrometer Number: 152 H
Specific Gravity (G): 2.65
Starting Time: 10:02

% of Original Sample Used For Hydrometer Analysis: 85.3 %
Weight of Sample Dispersed: 59.67 g.

Time	Elapsed Time Minutes (T)	Hydrometer Reading	Temperature ° C	Correction (DR)	Corr. Hydrometer Reading (R)	Percent Soil in Suspension (P)	K, Values from Table II	L, Values from Table III	Calculated Grain Diameter, mm (d)	Percent of Total Sample C.G.D.
10:02:30	0.5	14	19	4	10	16.8	0.01382	14.0	0.0731	14.3
10:03:00	1.0	12	19	4	8	13.4	0.01382	14.3	0.0523	11.4
10:04:00	2.0	12	19	4	8	13.4	0.01382	14.3	0.0370	11.4
10:07:00	5.0	12	19	4	8	13.4	0.01382	14.3	0.0234	11.4
10:17:00	15.0	11	19	4	7	11.7	0.01382	14.5	0.0136	10.0
10:33:00	31.0	11	19	4	7	11.7	0.01382	14.5	0.0095	10.0
11:02:00	62.0	10	19	4	6	10.1	0.01382	14.7	0.0067	8.6
12:02:00	120.0	10	19	4	6	10.1	0.01382	14.7	0.0048	8.6
2:23:00	240.0	10	19	4	6	10.1	0.01382	14.7	0.0034	8.6
6:15:00	484.0	9	19	4	5	8.4	0.01382	14.8	0.0024	7.1
7:43:00	1272.0	9	19	4	5	8.4	0.01382	14.8	0.0015	7.1



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	MC%	LL	PL	PI	Cc	Cu
● KK-0214 S0608	6.0	(SP-SM) SAND, f to c, some silt, some f gvl, tr/org matter					11.21	45.8

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● KK-0214 S0608	6.0	19.00	0.44	0.215	0.0095	11.2	78.2	2.0	8.6

PROJECT **Kinnickinnic River - Milwaukee, WI**

JOB NO. **GL-02356**

DATE **10/8/02**

GRADATION CURVES

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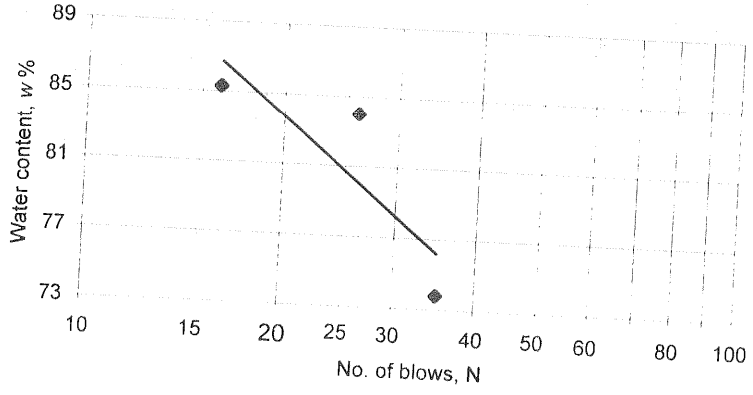
ATTERBERG LIMITS DETERMINATION

Client: U.S. Army Corps of Engineers - Detroit District
Project: Kinnickinnic River, Milwaukee, Wisconsin
Job No.: GL-02356
Date: 09/30/2002
Description of Soil: (MH) ELASTIC SILT, with fine to coarse sand, some organic matter
Depth of Sample: 14.0' to 16.0' Boring No.: KK-0202 Sample No.: 1416

Liquid limit Determination

Can No.	3	11	12			
Wt. of wet soil +can (g)	27.68	31.00	32.95			
Wt. of dry soil + can (g)	25.26	26.97	28.03			
Wt. of can (g)	21.98	22.17	22.26			
Wt of dry soil (g)	3.28	4.80	5.77			
Wt of moisture (g)	2.42	4.03	4.92			
No of blows, N (g)	35	26	16			
Water content, *w* %	73.8	84.0	85.3			



Flow index F_i =
Liquid limit = **80.0**
Plastic limit = **75.3**
Plasticity index I_p = **4.7**

Plastic Limit Determination

Can no.	18	20				
Wt. of wet soil + can (g)	28.98	29.63				
Wt. of dry soil + can (g)	26.10	26.57				
Wt. of can (g)	22.36	22.41				
Wt. of dry soil (g)	3.74	4.16				
Wt. of moisture (g)	2.88	3.06				
Water content, w % = w_p	77.0	73.6				

Tested by: John Reynolds

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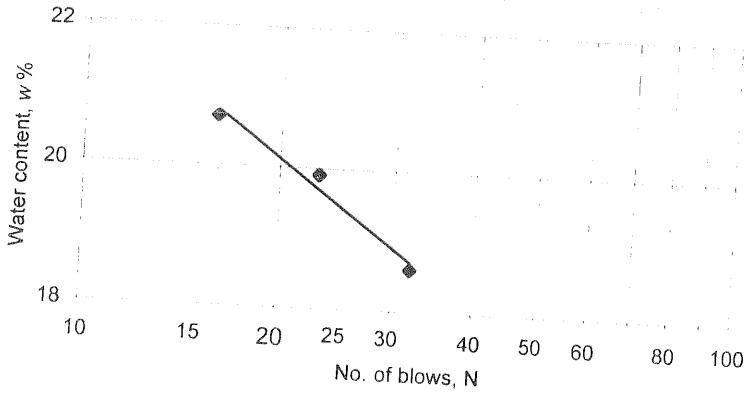
ATTERBERG LIMITS DETERMINATION

Client: U.S. Army Corps of Engineers - Detroit District
Project: Kinnickinnic River, Milwaukee, Wisconsin
Job No.: GL-02356
Date: 09/27/2002
Description of Soil: (ML) SILT, some fine to medium sand, trace of organic matter
Depth of Sample: 18.0' to 20.0' Boring No.: KK-0202 Sample No.: 1820

Liquid limit Determination

Can No.	15	29	19			
Wt. of wet soil +can (g)	31.42	32.58	30.02			
Wt. of dry soil + can (g)	29.90	30.89	28.82			
Wt. of can (g)	22.57	22.38	22.37			
Wt of dry soil (g)	7.33	8.51	6.45			
Wt of moisture (g)	1.52	1.69	1.20			
No of blows, N (g)	16	23	32			
Water content, *w* %	20.7	19.9	18.6			



Flow index F_i =
Liquid limit = **19.4**
Plastic limit = **17.0**
Plasticity index I_p = **2.4**

Plastic Limit Determination

Can no.	1	24				
Wt. of wet soil + can (g)	26.66	29.47				
Wt. of dry soil + can (g)	25.68	28.45				
Wt. of can (g)	19.97	22.36				
Wt. of dry soil (g)	5.71	6.09				
Wt. of moisture (g)	0.98	1.02				
Water content, $w\ \% = w_p$	17.2	16.7	Ave. 17.0			

Tested by: John Reynolds

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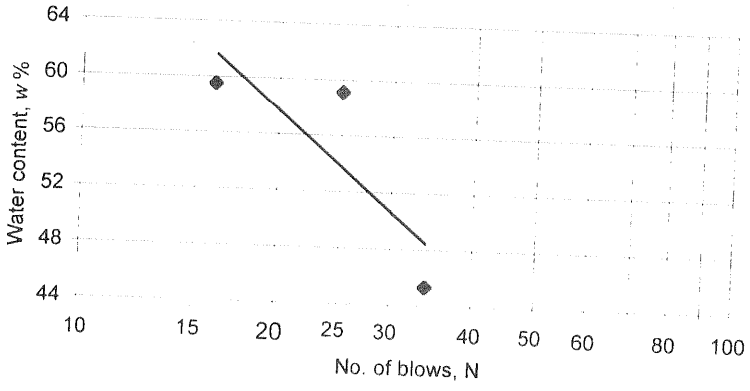
ATTERBERG LIMITS DETERMINATION

Client: U.S. Army Corps of Engineers - Detroit District
Project: Kinnickinnic River, Milwaukee, Wisconsin
Job No.: GL-02356
Date: 09/30/2002
Description of Soil: (MH) ELASTIC SILT
Depth of Sample: 22.0' to 24.0' Boring No.: KK-0209 Sample No.: 2224

Liquid limit Determination

Can No.	1	2	4			
Wt. of wet soil +can (g)	29.69	31.81	31.18			
Wt. of dry soil + can (g)	26.97	28.26	27.68			
Wt. of can (g)	22.40	22.25	19.96			
Wt of dry soil (g)	4.57	6.01	7.72			
Wt of moisture (g)	2.72	3.55	3.50			
No of blows, N (g)	16	25	34			
Water content, *w* %	59.5	59.1	45.3			



Flow index F_i =
Liquid limit = **55.0**
Plastic limit =
Plasticity index I_p =

LIQUID LIMIT ONLY

Plastic Limit Determination

Can no.						
Wt. of wet soil + can (g)						
Wt. of dry soil + can (g)						
Wt. of can (g)						
Wt. of dry soil (g)						
Wt. of moisture (g)						
Water content, w % = w_p						

Tested by: John Reynolds

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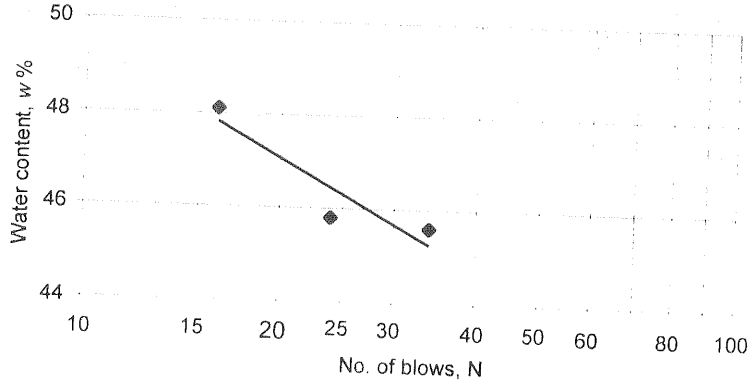
ATTERBERG LIMITS DETERMINATION

Client: U.S. Army Corps of Engineers - Detroit District
Project: Kinnickinnic River, Milwaukee, Wisconsin
Job No.: GL-02356
Date: 09/30/2002
Description of Soil: (MH) ELASTIC SILT
Depth of Sample: 8.0' to 10.0' Boring No.: KK-0210 Sample No.: 0810

Liquid limit Determination

Can No.	3	11	12			
Wt. of wet soil +can (g)	30.83	32.59	31.61			
Wt. of dry soil + can (g)	27.95	29.32	28.67			
Wt. of can (g)	21.96	22.15	22.25			
Wt of dry soil (g)	5.99	7.17	6.42			
Wt of moisture (g)	2.88	3.27	2.94			
No of blows, N (g)	16	34	24			
Water content, *w* %	48.1	45.6	45.8			



Flow index F_i =
Liquid limit = 46.0
Plastic limit =
Plasticity index I_p =

LIQUID LIMIT ONLY

Plastic Limit Determination

Can no.						
Wt. of wet soil + can (g)						
Wt. of dry soil + can (g)						
Wt. of can (g)						
Wt. of dry soil (g)						
Wt. of moisture (g)						
Water content, w % = w_p						

Tested by: John Reynolds

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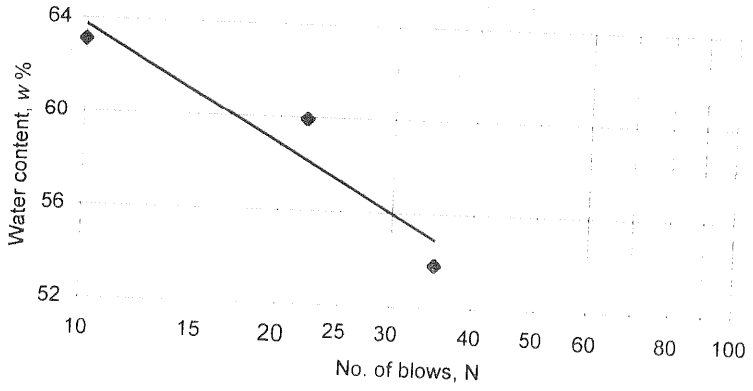
ATTERBERG LIMITS DETERMINATION

Client: U.S. Army Corps of Engineers - Detroit District
Project: Kinnickinnic River, Milwaukee, Wisconsin
Job No.: GL-02356
Date: 09/30/2002
Description of Soil: (MH) ELASTIC SILT
Depth of Sample: 8.0' to 10.0' Boring No.: KK-0210 Sample No.: 0810

Liquid limit Determination

Can No.	3	11	12			
Wt. of wet soil +can (g)	27.10	29.34	30.35			
Wt. of dry soil + can (g)	25.19	26.57	27.52			
Wt. of can (g)	22.00	22.18	22.26			
Wt of dry soil (g)	3.19	4.39	5.26			
Wt of moisture (g)	1.91	2.77	2.83			
No of blows, N (g)	22	10	35			
Water content, *w* %	59.9	63.1	53.8			



Flow index F_i =
Liquid limit = **57.5**
Plastic limit = **31.2**
Plasticity index I_p = **26.3**

Plastic Limit Determination

Can no.	18	20				
Wt. of wet soil + can (g)	25.48	27.14				
Wt. of dry soil + can (g)	24.74	26.02				
Wt. of can (g)	22.35	22.44				
Wt. of dry soil (g)	2.39	3.58				
Wt. of moisture (g)	0.74	1.12				
Water content, *w* % = w_p	31.0	31.3	Ave. 31.2			

Tested by: John Reynolds

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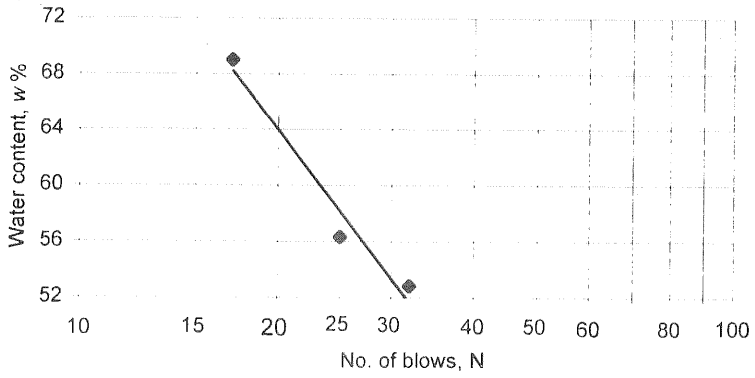
ATTERBERG LIMITS DETERMINATION

Client: U.S. Army Corps of Engineers - Detroit District — Job No.: GL-02356
Project: Kinnickinnic River, Milwaukee, Wisconsin — Date: 09/23/2002
Description of Soil: (MH) ELASTIC SILT
Depth of Sample: 14.0' to 16.0' Boring No.: KK-0213 Sample No.: 1416

Liquid limit Determination

Can No.	12	9	3			
Wt. of wet soil +can (g)	32.04	31.30	30.22			
Wt. of dry soil + can (g)	28.04	28.16	27.36			
Wt. of can (g)	22.24	22.58	21.94			
Wt of dry soil (g)	5.80	5.58	5.42			
Wt of moisture (g)	4.00	3.14	2.86			
No of blows, N (g)	17	25	32			
Water content, *w* %	69.0	56.3	52.8			



Flow index F_i =
Liquid limit = **58.0**
Plastic limit = **33.7**
Plasticity index I_p = **24.3**

Plastic Limit Determination

Can no.	11	20				
Wt. of wet soil + can (g)	28.65	29.01				
Wt. of dry soil + can (g)	26.96	27.40				
Wt. of can (g)	22.15	22.41				
Wt. of dry soil (g)	4.81	4.99				
Wt. of moisture (g)	1.69	1.61				
Water content, *w* % = w_p	35.1	32.3	Ave. 33.7			

Tested by: John Reynolds

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MOISTURE CONTENT DETERMINATION - LOSS ON IGNITION DETERMINATION

Project: Kinnickinnic River

Job No. GL-02356

Client: U.S. Army C.O.E.-Detroit District

Date: 09/19/2002

Location of Project: Milwaukee, WI

Crucible No.	1	2	3	4	
Boring No.	KK-0201	KK-0201	KK-0201	KK-0201	
Sample No.	0002	0406	0810	0204	
Crucible Wt. (g)	53.07	49.06	57.48	56.20	
Weight-Wet Sample	69.32	61.13	80.49	51.30	
Weight-Dry Sample	50.67	47.63	69.93	37.47	
Weight of Cooked Sample	49.62	46.51	63.60	36.81	
Moisture Content (%)	36.8	28.3	15.1	36.9	
Loss of Ignition (%)	2.1	2.4	9.1	1.8	

Crucible No.	5	6	Tin 11	Tin 8	
Boring No.	KK-0202	KK-0202	KK-0202	KK-0202	
Sample No.	0608	1012	1416	1820	
Crucible Wt. (g)	48.08	48.08	37.10	37.21	
Weight-Wet Sample	58.62	56.86	59.52	68.49	
Weight-Dry Sample	38.07	34.34	34.56	57.43	
Weight of Cooked Sample	36.08	34.33	30.93	56.44	
Moisture Content (%)	54.0	65.6	72.2	19.3	
Loss of Ignition (%)	5.2	0.03	10.5	1.7	

Remarks:

Tested By: Craig Reidner

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MOISTURE CONTENT DETERMINATION - LOSS ON IGNITION DETERMINATION

Project: Kinnickinnic River

Job No. GL-02356

Client: U.S. Army C.O.E.-Detroit District

Date: 09/19/2002

Location of Project: Milwaukee, WI

Crucible No.	Tin 5	Tin 6	Tin 05	Tin 5	
Boring No.	KK-0203	KK-0203	KK-0203	KK-0203	
Sample No.	0002	0002D	0406	0406D	
Crucible Wt. (g)	37.68	36.41	38.14	37.11	
Weight-Wet Sample	64.79	66.1	64.41	49.42	
Weight-Dry Sample	39.77	40.36	39.40	29.94	
Weight of Cooked Sample	37.54	37.75	36.70	27.57	
Moisture Content (%)	62.9	63.8	63.5	27.57	
Loss of Ignition (%)	5.6	6.5	6.9	7.9	

Crucible No.	1	2	3	4	
Boring No.	KK-0203	KK-0203	KK-0203	KK-0203	
Sample No.	0810	0810D	1214	1214D	
Crucible Wt. (g)	53.07	49.02	57.44	56.20	
Weight-Wet Sample	51.31	52.25	50.04	50.51	
Weight-Dry Sample	30.81	33.29	30.55	30.87	
Weight of Cooked Sample	29.82	31.52	28.60	28.64	
Moisture Content (%)	66.5	57.0	63.9	63.6	
Loss of Ignition (%)	3.2	5.3	6.4	7.2	

Remarks:

Tested By: Craig Reidner

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MOISTURE CONTENT DETERMINATION - LOSS ON IGNITION DETERMINATION

Project: Kinnickinnic River

Job No. GL-02356

Client: U.S. Army C.O.E.-Detroit District

Date: 09/19/2002

Location of Project: Milwaukee, WI

Crucible No.	5	6	Tin 2	Tin 4	
Boring No.	KK-0204	KK-0204	KK-0204	KK-0204	
Sample No.	0204	0608	1012	1416	
Crucible Wt. (g)	48.02	50.52	38.22	37.14	
Weight-Wet Sample	55.02	55.49	57.62	51.28	
Weight-Dry Sample	43.68	37.47	35.90	31.82	
Weight of Cooked Sample	43.29	35.67	32.41	28.68	
Moisture Content (%)	26.0	48.1	60.5	61.2	
Loss of Ignition (%)	0.9	4.8	9.7	9.9	

Crucible No.	Tin 1	Tin 3	Crucible 1	Crucible 2	
Boring No.	KK-0205	KK-0205	KK-0205	KK-0205	
Sample No.	0002	0406	0810	1214	
Crucible Wt. (g)	37.83	36.47	53.04	49.03	
Weight-Wet Sample	56.92	53.03	44.88	32.00	
Weight-Dry Sample	37.61	33.26	29.55	19.61	
Weight of Cooked Sample	35.58	30.72	28.17	18.25	
Moisture Content (%)	51.3	59.4	51.9	63.2	
Loss of Ignition (%)	5.4	7.6	4.7	6.9	

Remarks:

Tested By: Craig Reidner

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MOISTURE CONTENT DETERMINATION - LOSS ON IGNITION DETERMINATION

Project: Kinnickinnic River

Job No. GL-02356

Client: U.S. Army C.O.E.-Detroit District

Date: 09/19/2002

Location of Project: Milwaukee, WI

Crucible No.	Crucible 3	Crucible 4	Crucible 5	Crucible 6	
Boring No.	KK-0206	KK-0206	KK-0206	KK-0206	
Sample No.	0204	0608	1012	1416	
Crucible Wt. (g)	57.40	56.19	48.03	50.54	
Weight-Wet Sample	43.10	49.06	40.84	42.90	
Weight-Dry Sample	30.71	30.80	26.90	26.06	
Weight of Cooked Sample	29.93	28.83	25.50	24.23	
Moisture Content (%)	40.3	59.3	51.8	64.6	
Loss of Ignition (%)	2.6	6.4	5.2	7.0	

Crucible No.	Tin 1	Tin 2	Tin 3	Tin 4	
Boring No.	KK-0207	KK-0207	KK-0207	KK-0207	
Sample No.	0406	0406R	0810	0810R	
Crucible Wt. (g)	37.78	36.45	38.26	37.20	
Weight-Wet Sample	40.64	42.57	46.56	40.99	
Weight-Dry Sample	26.28	25.51	30.53	25.91	
Weight of Cooked Sample	24.56	22.89	28.51	23.96	
Moisture Content (%)	54.6	66.9	52.5	58.2	
Loss of Ignition (%)	6.5	10.3	6.6	7.5	

Remarks:

Tested By: Craig Reidner

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MOISTURE CONTENT DETERMINATION - LOSS ON IGNITION DETERMINATION

Project: Kinnickinnic River — Job No. GL-02356

Client: U.S. Army C.O.E.-Detroit District — Date: 09/19/2002

Location of Project: Milwaukee, WI

Crucible No.	Tin 5	Crucible 1	Crucible 2	Crucible 3	
Boring No.	KK-0208	KK-0208	KK-0208	KK-0209	
Sample No.	0204	0608	1012	0002	
Crucible Wt. (g)	37.17	53.03	49.03	57.40	
Weight-Wet Sample	52.60	38.66	35.34	40.31	
Weight-Dry Sample	40.73	26.44	23.28	26.25	
Weight of Cooked Sample	40.35	25.14	21.97	24.81	
Moisture Content (%)	29.1	46.2	51.8	53.6	
Loss of Ignition (%)	0.9	1.3	5.6	5.5	

Crucible No.	Crucible 4	Crucible 5	Crucible 6	Tin 1	
Boring No.	KK-0209	KK-0209	KK-0209	KK-0209	
Sample No.	0406	0810	1214	2022	
Crucible Wt. (g)	56.18	48.03	50.53	37.79	
Weight-Wet Sample	35.29	40.60	34.85	50.11	
Weight-Dry Sample	20.64	25.17	22.64	31.75	
Weight of Cooked Sample	19.15	23.50	21.28	29.10	
Moisture Content (%)	71.0	61.3	53.9	57.8	
Loss of Ignition (%)	7.2	6.6	6.0	8.3	

Remarks:

Tested By: Craig Reidner

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MOISTURE CONTENT DETERMINATION - LOSS ON IGNITION DETERMINATION

Project: Kinnickinnic River

Job No. GL-02356

Client: U.S. Army C.O.E.-Detroit District

Date: 09/19/2002

Location of Project: Milwaukee, WI

Crucible No.	Tin 2	Tin 3	Tin 4		
Boring No.	KK-0210	KK-0210	KK-0210		
Sample No.	0204	0608	1214		
Crucible Wt. (g)	38.28	36.41	37.15		
Weight-Wet Sample	58.74	54.01	68.70		
Weight-Dry Sample	40.07	33.70	59.95		
Weight of Cooked Sample	37.93	30.95	59.11		
Moisture Content (%)	46.6	60.3	64.6		
Loss of Ignition (%)	5.3	8.2	1.4		

Crucible No.	Tin 5	1	2		
Boring No.	KK-0211	KK-0211	KK-0211		
Sample No.	0002	0406	0810		
Crucible Wt. (g)	37.17	53.05	57.81		
Weight-Wet Sample	41.47	48.95	53.00		
Weight-Dry Sample	23.37	28.04	32.09		
Weight of Cooked Sample	21.47	26.09	30.11		
Moisture Content (%)	77.4	74.6	65.2		
Loss of Ignition (%)	1.9	7.0	6.2		

Remarks:

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MOISTURE CONTENT DETERMINATION - LOSS ON IGNITION DETERMINATION

Project: Kinnickinnic River — Job No. GL-02356

Client: U.S. Army C.O.E.-Detroit District — Date: 09/19/2002

Location of Project: Milwaukee, WI

Crucible No.	3	4	5	6	
Boring No.	KK-0212	KK-0212	KK-0212	KK-0213	
Sample No.	0204	0608	1012	0002	
Crucible Wt. (g)	55.07	47.43	48.04	52.88	
Weight-Wet Sample	53.27	49.56	57.63	55.04	
Weight-Dry Sample	33.71	28.59	33.28	30.47	
Weight of Cooked Sample	31.74	26.68	31.24	28.68	
Moisture Content (%)	61.0	73.3	73.2	80.6	
Loss of Ignition (%)	5.8	6.7	6.1	5.9	

Crucible No.	Tin 1	Tin 2	Tin 3	Tin 4	
Boring No.	KK-0213	KK-0213	KK-0214	KK-0214	
Sample No.	0406	0810	0406	0608	
Crucible Wt. (g)	37.82	38.33	36.41	37.17	
Weight-Wet Sample	50.63	58.23	40.98	30.84	
Weight-Dry Sample	29.02	34.25	33.64	23.70	
Weight of Cooked Sample	26.85	31.81	32.92	23.04	
Moisture Content (%)	74.5	70.0	21.8	30.1	
Loss of Ignition (%)	7.5	7.1	2.1	2.8	

Remarks:

Tested By: Craig Reidner

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SPECIFIC GRAVITY TESTS

Project: U.S. Army C.O.E. - Kinnickinnic River Date: 10/3/02

Boring No: Job No: GL-02356

SPECIFIC GRAVITY OF SOLIDS (G_s)

Sample or Specimen No.			KK-0202 1416	KK-0202 1820	KK-0203 0406	
Flask No.			1	2	4	
Temperature of water and soil, T, °C						
Dish No.			Bowl A	Bowl 98	Bowl 13	
Weight in grams	Dish + dry soil					
	Flask		175.05	167.80	171.95	
	Dry Soil	W_s	69.51	96.36	74.36	
	Flask + water at T, °C	W_{bw}	673.61	666.29	670.42	
	$W_s + W_{bw}$		743.12	762.65	744.78	
	Flask + water + imersed soil	W_{bws}	713.45	727.05	715.53	
	Displaced water, $W_s + W_{bw} - W_{bws}$		29.67	35.60	29.25	
	Correction factor	K	1.0004	1.0004	1.0004	
	$(W_sK) + (W_s + W_{bw} - W_{bws})$	G_s	2.344	2.708	2.543	

APPARENT (G_a) AND BULK (G_m) SPECIFIC GRAVITY

Sample or Specimen No.						
Temperature of water and soil, T, °C						
Weight in grams	Tare + saturated surface-dry soil					
	Tare + saturated surface-dry soil					
	Saturated surface-dry soil	B				
	(Wire basket + soil) in water					
	Wire basket in water					
	Saturated soil in water	C				
	Tare + dry soil					
	Tare					
	Dry soil	A				
Correction factor		K				
(AK) ÷ (A - C) (Apparent)		G_a				
(AK) ÷ (B - C) (Bulk)		G_m				

Remarks:

Computed by: Checked by:

Technician:

LABORATORY TEST SUMMARY

COLEMAN ENGINEERING COMPANY
635 Circle Drive
Iron Mountain, Michigan 49801

LOCATION: Kinnickinnic River, Milwaukee, WI

PROJECT NO: GL-02356

LABORATORY TEST SUMMARY

				Mechanical Analysis				Atterberg Limits				
Boring Number	Sample Number	Depth (Feet)	Lab Class	Gravel	Sand	Silt/ Clay	Clay	LL	PL	Specific Gravity	Natural Moist. %	Organics (%)
KK-0201	0002	0.0' – 2.0'	SM	0.0	71.4	15.8	12.8				36.8	2.1
	0406	4.0' – 6.0'	SP-SM	0.0	88.9	3.9	7.2				28.3	2.4
	0810	8.0' – 10.0'	SM	0.0	85.8	6.5	7.7				15.1	9.1
KK-0202	0204	2.0' – 4.0'	SM	0.0	85.9	3.8	10.3				36.9	1.8
	0608	6.0' – 8.0'	MH	0.0	25.2	45.9	28.9				54.0	5.2
	1012	10.0' – 12.0'	MH	0.0	14.4	54.0	31.6				65.6	0.03
	1416	14.0' – 16.0'	MH	0.0	11.7	63.6	24.7	80.0	75.3	2.344	72.2	10.5
	1820	18.0' – 20.0'	ML	0.0	9.8	71.3	18.9	19.4	17.0	2.708	19.3	1.7
KK-0203	0002	0.0' – 2.0'	MH	0.0	35.7	41.2	23.1				62.9	5.6
	0406	4.0' – 6.0'	MH	0.0	16.8	56.3	26.9			2.543	63.5	6.9
	0810	8.0' – 10.0'	MH	0.0	15.3	56.2	28.5				66.5	3.2
	1214	12.0' – 14.0'	MH	0.0	10.5	53.6	35.9				63.9	6.4
	0002D	0.0' – 2.0'	MH	0.0	28.7	53.2	18.1				63.8	6.5
	0406D	4.0' – 6.0'	MH	0.0	15.8	60.3	23.9				65.1	7.9
	0810D	8.0' – 10.0'	MH	0.0	22.9	50.3	26.8				57.0	5.3
	1214D	12.0' – 14.0'	MH	0.0	15.4	52.0	32.6				63.6	7.2

COLEMAN ENGINEERING COMPANY
635 Circle Drive
Iron Mountain, Michigan 49801

LOCATION: Kinnickinnic River, Milwaukee, WI

PROJECT NO: GL-02356

LABORATORY TEST SUMMARY

				Mechanical Analysis				Atterberg Limits				
Boring Number	Sample Number	Depth (Feet)	Lab Class	Gravel	Sand	Silt/ Clay	Clay	LL	PL	Specific Gravity	Natural Moist. %	Organics (%)
KK-0204	0204	2.0' – 4.0'	SP-SM	0.0	93.9	6.1					26.0	0.9
	0608	6.0' – 8.0'	MH	0.0	34.6	41.4	24.0				48.1	4.8
	1012	10.0' – 12.0'	MH	0.0	13.7	54.2	32.1				60.5	9.7
	1416	14.0' – 16.0'	MH	0.0	22.7	54.5	22.8				61.2	9.9
KK-0205	0002	0.0' – 2.0'	MH	0.0	20.8	64.6	14.6				51.3	5.4
	0406	4.0' – 6.0'	MH	0.0	13.7	57.4	28.9				59.4	7.6
	0810	8.0' – 10.0'	MH	0.0	9.0	51.9	39.1				51.9	4.7
	1214	12.0' – 14.0'	MH	0.0	7.3	61.9	30.8				63.2	6.9
KK-0206	0204	2.0' – 4.0'	SM	0.0	76.0	12.3	11.7				40.3	2.6
	0608	6.0' – 8.0'	MH	0.0	26.7	45.1	28.2				59.3	6.4
	1012	10.0' – 12.0'	MH	0.0	8.5	55.1	36.4				51.8	5.2
	1416	14.0' – 16.0'	MH	0.0	7.0	53.3	39.7				64.6	7.0
KK-0207	0406	4.0' – 6.0'	MH	0.0	17.1	47.3	35.6				54.6	6.5
	0810	8.0' – 10.0'	MH	0.0	31.3	39.6	29.1				52.5	6.6
KK-0207R	0406R	4.0' – 6.0'	MH	0.0	8.4	54.1	37.5				66.9	10.3
	0810R	8.0' – 10.0'	MH	0.0	9.8	55.4	34.8				58.2	7.5

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LOCATION: Kinnickinnic River, Milwaukee, WI

PROJECT NO: GL-02356

LABORATORY TEST SUMMARY

Boring Number	Sample Number	Depth (Feet)	Lab Class	Mechanical Analysis				Atterberg Limits		Specific Gravity	Natural Moist. %	Organics (%)
				Gravel	Sand	Silt/ Clay	Clay	LL	PL			
KK-0208	0204	2.0' – 4.0'	SP	0.0	91.6	3.2	5.2				29.1	0.9
	0608	6.0' – 8.0'	MH	0.0	26.2	41.7	32.1				46.2	1.3
	1012	10.0' – 20.0'	MH	0.0	11.6	50.3	38.1				51.8	5.6
KK-0209	0002	0.0' – 2.0'	MH	0.0	37.9	39.4	22.7				53.6	5.5
	0406	4.0' – 6.0'	MH	0.0	22.4	49.8	27.8				71.0	7.2
	0810	8.0' – 10.0'	MH	0.0	18.7	50.7	30.6				61.3	6.6
	1214	12.0' – 14.0'	MH	0.0	6.9	55.2	37.9				53.9	6.0
	1820	18.0' – 20.0'	MH					59.8	44.3			
	2022	20.0' – 22.0'	MH	0.0	15.3	61.1	23.6				57.8	8.3
	2224	22.0' – 24.0'	MH					62.5	47.7	(natural moisture)		
	2224	22.0' – 24.0'	MH					55.0		(oven-dried)		
KK-0210	0204	2.0' – 4.0'	MH	0.8	13.0	55.1	31.1					
	0608	6.0' – 8.0'	MH	1.9	13.0	47.2	37.9					
	0810	8.0' – 10.0'	MH					57.5	31.2	(natural moisture)		
	0810	8.0' – 10.0'	MH					46.0		(oven-dried)		
	1214	12.0' – 14.0'	MH	0.0	15.8	49.0	35.2	63.0	56.6		64.6	1.4

COLEMAN ENGINEERING COMPANY
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LOCATION: Kinnickinnic River, Milwaukee, WI

PROJECT NO: GL-02356

LABORATORY TEST SUMMARY

				Mechanical Analysis				Atterberg Limits				
Boring Number	Sample Number	Depth (Feet)	Lab Class	Gravel	Sand	Silt/ Clay	Clay	LL	PL	Specific Gravity	Natural Moist. %	Organics (%)
KK-0211	0002	0.0' – 2.0'	MH	0.0	10.3	54.2	35.5				77.4	1.9
	0406	4.0' – 6.0'	MH	0.0	8.9	54.3	36.8				74.6	7.0
	0810	8.0' – 10.0'	MH	1.3	9.8	47.5	41.4				65.2	6.2
KK-0212	0204	2.0' – 4.0'	MH	0.0	6.3	53.6	40.1				61.0	5.8
	0608	6.0' – 8.0'	MH	0.0	20.3	47.9	31.8				73.3	6.7
	1012	10.0' – 20.0'	MH	0.0	10.5	55.4	34.1				73.2	6.1
KK-0213	0002	0.0' – 2.0'	MH	0.0	11.3	57.9	30.8				80.6	5.9
	0406	4.0' – 6.0'	SM	5.3	47.8	28.0	18.9				74.5	7.5
	0810	8.0' – 10.0'	MH	0.0	6.8	58.7	34.5				70.0	7.1
	1214	12.0' – 14.0'	MH					53.0	37.2			
	1416	14.0' – 16.0'	MH					58.0	33.7			
KK-0214	0406	4.0' – 6.0'	SP-SM	6.9	82.8	2.5	7.8				21.8	2.1
	0608	6.0' – 8.0'	SP-SM	11.2	78.2	2.0	8.6				30.1	2.8

DWG FORMAT BORING LOG FILES

(BOUND IN REPORT 1 OF 3)