

APPENDIX A

Samples of Sub-Surface Beach Sediment in Rich Passage,
Grain Size Analysis – AMTEST Laboratories

AMTEST

LABORATORIES

Am Test Inc.
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Professional
Analytical
Services

Feb 25 2005
GRETTE ASSOCIATES
2111 N 30TH STREET
TACOMA, WA 98403
Attention: SHANNON BERTKIW

Dear SHANNON BERTKIW:

Enclosed please find the analytical data for your RICH PASSAGE HABITAT project.

The following is a cross correlation of client and laboratory identifications for your convenience.

CLIENT ID	MATRIX	AM TEST ID	TEST
TRANS 1 0FT (UPPER)	Sediment	05-A001241	CONV, GR SIZE,
TRANS 1 90FT (MID)	Sediment	05-A001242	CONV, GR SIZE,
TRANS 1 180FT (LOWER)	Sediment	05-A001243	CONV, GR SIZE,
TRANS 3 0FT (UPPER)	Sediment	05-A001244	CONV, GR SIZE,
TRANS 3 MID	Sediment	05-A001245	CONV, GR SIZE,
TRANS 3 DEEP	Sediment	05-A001246	CONV, GR SIZE,
TRANS 5 UPPER	Sediment	05-A001247	CONV, GR SIZE,
TRANS 5 MID	Sediment	05-A001248	CONV, GR SIZE,
TRANS 5 LOWER	Sediment	05-A001249	CONV, GR SIZE,
TRANS 9 UPPER	Sediment	05-A001250	CONV, GR SIZE,
TRANS 9 MID	Sediment	05-A001251	CONV, GR SIZE,
TRANS 9 LOWER	Sediment	05-A001252	CONV, GR SIZE,
TRANS 10 UPPER	Sediment	05-A001253	CONV, GR SIZE,
TRANS 10 LOWER	Sediment	05-A001254	CONV, GR SIZE,
TRANS 12 84FT (LOWER)	Sediment	05-A001255	CONV, GR SIZE,
TRANS 12 174FT (MID)	Sediment	05-A001256	CONV, GR SIZE,

Your sixteen (16) samples were received on Wednesday, February 2 2005. At the time of receipt, the samples were logged in and properly maintained prior to their subsequent analyses.

The analytical procedures used at Am Test are well documented, and are typically derived from the protocols of the EPA, USDA, FDA or the Army Corps of Engineers.

Following the analytical data you will find the QC results and "Methodology Report". This table includes information relative to the detection limits, analyses dates and method references.

Please note that the detection limits that are listed in the body of the report refer to the Method Detection Limits (MDL's), as opposed to Practical Quantitation Limits (PQL's).



GRETTE ASSOCIATES
SHANNON BERTKIW

If you should have any questions pertaining to the data package,
please feel free to contact me.

Sincerely,

Aaron W. Young
Am Test Inc.

BACT = Bacteriological
CONV = Conventional

MET = Metals
ORG = Organics

AMTEST

LABORATORIES
ANALYSIS REPORT

GRETTE ASSOCIATES
2111 N 30TH STREET
TACOMA, WA 98403 aa
Attention: SHANNON BERTKIW

Date Received: 2/ 2/05
Date Reported: 2/25/05

Project Name: RICH PASSAGE HABITAT

SEDIMENT SAMPLES

AM TEST Identification Number 05-A001241
Client Identification TRANS 1 0FT (UPPER)
Sampling Date

PARAMETER	RESULT	Q	D.L.
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Conventionals

Total Solids (%)	97.8
Total Volatile Solids (%)	< 1

GRAIN SIZE DISTRIBUTION

PHI	OPENING (MM)	% RETENTION	FRACTION	PERCENT
	4.75	97.6	gravel	97.6
-2	4.00	< 0.1		
-1	2.00	< 0.1		
0	1.00	< 0.1		
+1	0.50	< 0.1	sand	0.10
+2	0.25	0.10		
+3	0.125	< 0.1		
+4	0.063	< 0.1		
+5	0.032	< 0.1		
+6	0.016	0.30	silt	0.80
+7	0.008	0.50		
+8	0.004	< 0.1		
+9	0.002	< 0.1		
+10	0.001	< 0.1	clay	1.50
>+10	<0.001	1.50		

Gravel <-2 to -1 phi
Silt +5 to +8 phi

Sand 0 to +4 phi
Clay +9 to >+10 phi

Analysis by Tyler Screens and Hydrometer (ASTM D-422)



ANALYSIS REPORT

GRETTE ASSOCIATES
SHANNON BERTKIW

Date Received: 2/ 2/05
Date Reported: 2/25/05

SEDIMENT SAMPLES

AM TEST Identification Number 05-A001241
Client Identification TRANS 1 OFT (UPPER)
Sampling Date

PARAMETER	RESULT	Q	D.L.
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Due to the nature of the sample (bag of large rocks), the total solid and total volatile solid numbers are to be considered as subjective results for the sample identified as trans 1 OFT (upper).

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LABORATORIES
ANALYSIS REPORT

GRETTE ASSOCIATES
2111 N 30TH STREET
TACOMA, WA 98403 aa
Attention: SHANNON BERTKIW

Date Received: 2/ 2/05
Date Reported: 2/25/05

Project Name: RICH PASSAGE HABITAT

AM TEST Identification Number **SEDIMENT SAMPLES**
Client Identification 05-A001242
Sampling Date TRANS 1 90FT (MID)

PARAMETER	RESULT	Q	D.L.
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Conventionals

Total Solids (%)	81.2
Total Volatile Solids (%)	0.58

GRAIN SIZE DISTRIBUTION

PHI	OPENING (MM)	% RETENTION	FRACTION	PERCENT
-2	4.75	14.3	gravel	27.3
-1	4.00	2.70		
0	2.00	10.3		
+1	1.00	4.90		
+2	0.50	2.00	sand	68.9
+3	0.25	41.2		
+4	0.125	19.9		
+5	0.063	0.90		
+6	0.032	< 0.1	silt	0.60
+7	0.016	< 0.1		
+8	0.008	0.40		
+9	0.004	0.20		
+10	0.002	< 0.1	clay	3.10
>+10	0.001	< 0.1		
	<0.001	3.10		

Gravel <-2 to -1 phi
Silt +5 to +8 phi

Sand 0 to +4 phi
Clay +9 to >+10 phi

Analysis by Tyler Screens and Hydrometer (ASTM D-422)

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LABORATORIES
ANALYSIS REPORT

GRETTE ASSOCIATES
2111 N 30TH STREET
TACOMA, WA 98403 aa
Attention: SHANNON BERTKIW

Date Received: 2/ 2/05
Date Reported: 2/25/05

Project Name: RICH PASSAGE HABITAT

SEDIMENT SAMPLES

AM TEST Identification Number 05-A001243
Client Identification TRANS 1 180FT (LOWER)
Sampling Date

PARAMETER	RESULT	Q	D.L.
Conventionals			
Total Solids (%)	89.6		
Total Volatile Solids (%)	1.01		

GRAIN SIZE DISTRIBUTION

PHI	OPENING (MM)	% RETENTION	FRACTION	PERCENT
-2	4.75	20.6	gravel	42.1
-1	4.00	4.40		
0	2.00	17.1		
+1	1.00	7.00		
+2	0.50	2.10	sand	50.8
+3	0.25	15.7		
+4	0.125	23.4		
+5	0.063	2.60		
+6	0.032	2.80		
+7	0.016	0.30	silt	4.30
+8	0.008	1.00		
+9	0.004	0.20		
+10	0.002	< 0.1		
>+10	0.001	< 0.1	clay	2.80
	<0.001	2.80		

Gravel <-2 to -1 phi
Silt +5 to +8 phi

Sand 0 to +4 phi
Clay +9 to >+10 phi

Analysis by Tyler Screens and Hydrometer (ASTM D-422)

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LABORATORIES
ANALYSIS REPORT

GRETTE ASSOCIATES
2111 N 30TH STREET
TACOMA, WA 98403 aa
Attention: SHANNON BERTKIW

Date Received: 2/ 2/05
Date Reported: 2/25/05

Project Name: RICH PASSAGE HABITAT

SEDIMENT SAMPLES

AM TEST Identification Number 05-A001244
Client Identification TRANS 3 0FT (UPPER)
Sampling Date

PARAMETER	RESULT	Q	D.L.
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Conventionals

Total Solids (%)	91.7
Total Volatile Solids (%)	< 0.1

GRAIN SIZE DISTRIBUTION

PHI	OPENING (MM)	% RETENTION	FRACTION	PERCENT
	4.75	27.8	gravel	55.7
-2	4.00	4.80		
-1	2.00	23.1		
0	1.00	14.6	sand	41.2
+1	0.50	14.6		
+2	0.25	11.7		
+3	0.125	0.30		
+4	0.063	< 0.1		
+5	0.032	0.30		
+6	0.016	< 0.1	silt	1.40
+7	0.008	1.10		
+8	0.004	< 0.1		
+9	0.002	< 0.1		
+10	0.001	< 0.1	clay	1.60
>+10	<0.001	1.60		

Gravel <-2 to -1 phi
Silt +5 to +8 phi

Sand 0 to +4 phi
Clay +9 to >+10 phi

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LABORATORIES
ANALYSIS REPORT

GRETTE ASSOCIATES
2111 N 30TH STREET
TACOMA, WA 98403 aa
Attention: SHANNON BERTKIW

Date Received: 2/ 2/05
Date Reported: 2/25/05

Project Name: RICH PASSAGE HABITAT

SEDIMENT SAMPLES

AM TEST Identification Number 05-A001245
Client Identification TRANS 3 MID
Sampling Date

PARAMETER	RESULT	Q	D.L.
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Conventionals

Total Solids (%)	97.3
Total Volatile Solids (%)	0.46

GRAIN SIZE DISTRIBUTION

PHI	OPENING (MM)	% RETENTION	FRACTION	PERCENT
-2	4.75	82.3	gravel	86.3
-1	4.00	1.30		
0	2.00	2.70		
+1	1.00	0.90		
+2	0.50	1.20	sand	10.7
+3	0.25	7.20		
+4	0.125	1.30		
+5	0.063	0.10		
+6	0.032	0.30		
+7	0.016	< 0.1	silt	1.40
+8	0.008	0.80		
+9	0.004	0.30		
+10	0.002	< 0.1		
>+10	0.001	< 0.1	clay	1.50
	<0.001	1.50		

Gravel <-2 to -1 phi
Silt +5 to +8 phi

Sand 0 to +4 phi
Clay +9 to >+10 phi

Analysis by Tyler Screens and Hydrometer (ASTM D-422)

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LABORATORIES
ANALYSIS REPORT

GRETTE ASSOCIATES
2111 N 30TH STREET
TACOMA, WA 98403 aa
Attention: SHANNON BERTKIW

Date Received: 2/ 2/05
Date Reported: 2/25/05

Project Name: RICH PASSAGE HABITAT

SEDIMENT SAMPLES

AM TEST Identification Number 05-A001246
Client Identification TRANS 3 DEEP
Sampling Date

PARAMETER	RESULT	Q	D.L.
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Conventionals

Total Solids (%)	95.9
Total Volatile Solids (%)	< 0.1

GRAIN SIZE DISTRIBUTION

PHI	OPENING (MM)	% RETENTION	FRACTION	PERCENT
	4.75	78.8	gravel	82.0
-2	4.00	1.10		
-1	2.00	2.10		
0	1.00	1.30		
+1	0.50	1.00	sand	15.1
+2	0.25	10.6		
+3	0.125	2.10		
+4	0.063	0.10		
+5	0.032	0.20		
+6	0.016	< 0.1	silt	0.70
+7	0.008	0.40		
+8	0.004	0.10		
+9	0.002	< 0.1		
+10	0.001	< 0.1	clay	2.10
>+10	<0.001	2.10		

Gravel <-2 to -1 phi
Silt +5 to +8 phi

Sand 0 to +4 phi
Clay +9 to >+10 phi

Analysis by Tyler Screens and Hydrometer (ASTM D-422)

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LABORATORIES
ANALYSIS REPORT

GRETTE ASSOCIATES
2111 N 30TH STREET
TACOMA, WA 98403 aa
Attention: SHANNON BERTKIW

Date Received: 2/ 2/05
Date Reported: 2/25/05

Project Name: RICH PASSAGE HABITAT

SEDIMENT SAMPLES

AM TEST Identification Number 05-A001247
Client Identification TRANS 5 UPPER
Sampling Date

PARAMETER	RESULT	Q	D.L.
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Conventionals

Total Solids (%)	97.6
Total Volatile Solids (%)	0.35

GRAIN SIZE DISTRIBUTION

PHI	OPENING (MM)	% RETENTION	FRACTION	PERCENT
	4.75	96.9	gravel	98.0
-2	4.00	0.70		
-1	2.00	0.40		
0	1.00	< 0.1		
+1	0.50	< 0.1	sand	
+2	0.25	< 0.1		
+3	0.125	< 0.1		
+4	0.063	< 0.1		
+5	0.032	< 0.1		
+6	0.016	< 0.1	silt	1.00
+7	0.008	0.90		
+8	0.004	0.10		
+9	0.002	< 0.1		
+10	0.001	< 0.1	clay	0.90
>+10	<0.001	0.90		

Gravel <-2 to -1 phi
Silt +5 to +8 phi

Sand 0 to +4 phi
Clay +9 to >+10 phi

Analysis by Tyler Screens and Hydrometer (ASTM D-422)

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LABORATORIES
ANALYSIS REPORT

GRETT ASSOCIATES
2111 N 30TH STREET
TACOMA, WA 98403 aa
Attention: SHANNON BERTKIW

Date Received: 2/ 2/05
Date Reported: 2/25/05

Project Name: RICH PASSAGE HABITAT

AM TEST Identification Number
Client Identification
Sampling Date

SEDIMENT SAMPLES
05-A001248
TRANS 5 MID

PARAMETER	RESULT	Q	D.L.
Conventionals			
Total Solids (%)	84.8		
Total Volatile Solids (%)	0.56		

GRAIN SIZE DISTRIBUTION

PHI	OPENING (MM)	% RETENTION	FRACTION	PERCENT
-2	4.75	90.2	gravel	95.3
-1	4.00	1.80		
0	2.00	3.30		
+1	1.00	0.70		
+2	0.50	0.40	sand	2.50
+3	0.25	0.70		
+4	0.125	0.60		
+5	0.063	0.10		
+6	0.032	< 0.1	silt	0.60
+7	0.016	0.60		
+8	0.008	< 0.1		
+9	0.004	< 0.1		
+10	0.002	< 0.1		
>+10	0.001	< 0.1	clay	1.70
	<0.001	1.70		

Gravel <-2 to -1 phi
Silt +5 to +8 phi

Sand 0 to +4 phi
Clay +9 to >+10 phi

Analysis by Tyler Screens and Hydrometer (ASTM D-422)

AMTEST

LABORATORIES
ANALYSIS REPORT

GRETTE ASSOCIATES
2111 N 30TH STREET
TACOMA, WA 98403 aa
Attention: SHANNON BERTKIW

Date Received: 2/ 2/05
Date Reported: 2/25/05

Project Name: RICH PASSAGE HABITAT

SEDIMENT SAMPLES
AM TEST Identification Number 05-A001249
Client Identification TRANS 5 LOWER
Sampling Date

PARAMETER	RESULT	Q	D.L.
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Conventionals

Total Solids (%)	84.7
Total Volatile Solids (%)	0.46

GRAIN SIZE DISTRIBUTION

PHI	OPENING (MM)	% RETENTION	FRACTION	PERCENT
	4.75	67.3	gravel	73.3
-2	4.00	2.50		
-1	2.00	3.50		
0	1.00	1.80		
+1	0.50	0.90	sand	23.1
+2	0.25	3.30		
+3	0.125	14.6		
+4	0.063	2.50		
+5	0.032	< 0.1		
+6	0.016	1.10	silt	1.80
+7	0.008	0.50		
+8	0.004	0.20		
+9	0.002	< 0.1		
+10	0.001	< 0.1	clay	1.80
>+10	<0.001	1.80		

Gravel <-2 to -1 phi
Silt +5 to +8 phi

Sand 0 to +4 phi
Clay +9 to >+10 phi

Analysis by Tyler Screens and Hydrometer (ASTM D-422)

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LABORATORIES
ANALYSIS REPORT

GRETT ASSOCIATES
2111 N 30TH STREET
TACOMA, WA 98403 aa
Attention: SHANNON BERTKIW

Date Received: 2/ 2/05
Date Reported: 2/25/05

Project Name: RICH PASSAGE HABITAT

SEDIMENT SAMPLES

AM TEST Identification Number 05-A001250
Client Identification TRANS 9 UPPER
Sampling Date

PARAMETER	RESULT	Q	D.L.
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Conventionals

Total Solids (%)	92.6
Total Volatile Solids (%)	0.53

GRAIN SIZE DISTRIBUTION

PHI	OPENING (MM)	% RETENTION	FRACTION	PERCENT
	4.75	28.5	gravel	32.5
-2	4.00	1.20		
-1	2.00	2.80		
0	1.00	1.90		
+1	0.50	10.4	sand	64.8
+2	0.25	50.8		
+3	0.125	1.40		
+4	0.063	0.30		
+5	0.032	< 0.1		
+6	0.016	< 0.1	silt	1.00
+7	0.008	0.90		
+8	0.004	0.10		
+9	0.002	< 0.1		
+10	0.001	< 0.1	clay	1.60
>+10	<0.001	1.60		

Gravel <-2 to -1 phi
Silt +5 to +8 phi

Sand 0 to +4 phi
Clay +9 to >+10 phi

Analysis by Tyler Screens and Hydrometer (ASTM D-422)

AMTEST

LABORATORIES
ANALYSIS REPORT

GRETTE ASSOCIATES
2111 N 30TH STREET
TACOMA, WA 98403 aa
Attention: SHANNON BERTKIW

Date Received: 2/ 2/05
Date Reported: 2/25/05

Project Name: RICH PASSAGE HABITAT

SEDIMENT SAMPLES

AM TEST Identification Number 05-A001251
Client Identification TRANS 9 MID
Sampling Date

PARAMETER	RESULT	Q	D.L.
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Conventionals

Total Solids (%)	55.6
Total Volatile Solids (%)	2.60

GRAIN SIZE DISTRIBUTION

PHI	OPENING (MM)	% RETENTION	FRACTION	PERCENT
	4.75	7.70	gravel	32.8
-2	4.00	6.10		
-1	2.00	19.0		
0	1.00	18.9		
+1	0.50	11.5	sand	60.1
+2	0.25	16.4		
+3	0.125	11.7		
+4	0.063	1.60		
+5	0.032	< 0.1		
+6	0.016	1.90	silt	4.50
+7	0.008	1.50		
+8	0.004	1.10		
+9	0.002	0.80		
+10	0.001	0.40	clay	2.70
>+10	<0.001	1.50		

Gravel <-2 to -1 phi
Silt +5 to +8 phi

Sand 0 to +4 phi
Clay +9 to >+10 phi

Analysis by Tyler Screens and Hydrometer (ASTM D-422)

AMTEST

LABORATORIES
ANALYSIS REPORT

GRETTE ASSOCIATES
2111 N 30TH STREET
TACOMA, WA 98403 aa
Attention: SHANNON BERTKIW

Date Received: 2/ 2/05
Date Reported: 2/25/05

Project Name: RICH PASSAGE HABITAT

SEDIMENT SAMPLES

AM TEST Identification Number 05-A001252
Client Identification TRANS 9 LOWER
Sampling Date

PARAMETER	RESULT	Q	D.L.
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Conventionals

Total Solids (%)	64.4
Total Volatile Solids (%)	1.30

GRAIN SIZE DISTRIBUTION

PHI	OPENING (MM)	% RETENTION	FRACTION	PERCENT
-2	4.75	12.8	gravel	32.2
-1	4.00	3.20		
0	2.00	16.2		
+1	1.00	10.4	sand	62.0
+2	0.50	9.00		
+3	0.25	30.5		
+4	0.125	10.7		
+5	0.063	1.40		
+6	0.032	< 0.1	silt	3.90
+7	0.016	1.00		
+8	0.008	0.90		
+9	0.004	2.00		
+10	0.002	0.30		
>+10	0.001	< 0.1	clay	1.80
	<0.001	1.50		

Gravel <-2 to -1 phi
Silt +5 to +8 phi

Sand 0 to +4 phi
Clay +9 to >+10 phi

Analysis by Tyler Screens and Hydrometer (ASTM D-422)

AMTEST

LABORATORIES
ANALYSIS REPORT

GRETTE ASSOCIATES
2111 N 30TH STREET
TACOMA, WA 98403 aa
Attention: SHANNON BERTKIW

Date Received: 2/ 2/05
Date Reported: 2/25/05

Project Name: RICH PASSAGE HABITAT

SEDIMENT SAMPLES

AM TEST Identification Number 05-A001253
Client Identification TRANS 10 UPPER
Sampling Date

PARAMETER	RESULT	Q	D.L.
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Conventionals

Total Solids (%)	90.4
Total Volatile Solids (%)	< 0.1

GRAIN SIZE DISTRIBUTION

PHI	OPENING (MM)	% RETENTION	FRACTION	PERCENT
	4.75	< 0.1	gravel	0.50
-2	4.00	0.10		
-1	2.00	0.40		
0	1.00	1.90		
+1	0.50	43.3	sand	96.1
+2	0.25	50.7		
+3	0.125	0.10		
+4	0.063	0.10		
+5	0.032	0.60		
+6	0.016	0.60	silt	2.30
+7	0.008	0.60		
+8	0.004	0.50		
+9	0.002	0.10		
+10	0.001	< 0.1	clay	1.20
>+10	<0.001	1.10		

Gravel <-2 to -1 phi
Silt +5 to +8 phi

Sand 0 to +4 phi
Clay +9 to >+10 phi

Analysis by Tyler Screens and Hydrometer (ASTM D-422)

AMTEST

LABORATORIES
ANALYSIS REPORT

GRETTE ASSOCIATES
2111 N 30TH STREET
TACOMA, WA 98403 aa
Attention: SHANNON BERTKIW

Date Received: 2/ 2/05
Date Reported: 2/25/05

Project Name: RICH PASSAGE HABITAT

AM TEST Identification Number 05-A001254
Client Identification TRANS 10 LOWER
Sampling Date

SEDIMENT SAMPLES

PARAMETER	RESULT	Q	D.L.
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Conventionals

Total Solids (%)	46.9
Total Volatile Solids (%)	< 0.1

GRAIN SIZE DISTRIBUTION

PHI	OPENING (MM)	% RETENTION	FRACTION	PERCENT
-2	4.75	2.60	gravel	3.70
-1	4.00	< 0.1		
0	2.00	1.10		
+1	1.00	1.10		
+2	0.50	14.7	sand	91.1
+3	0.25	63.1		
+4	0.125	10.7		
+5	0.063	1.50		
+6	0.032	< 0.1	silt	2.10
+7	0.016	0.90		
+8	0.008	0.90		
+9	0.004	0.30		
+10	0.002	< 0.1	clay	3.20
>+10	0.001	< 0.1		
	<0.001	3.20		

Gravel <-2 to -1 phi
Silt +5 to +8 phi

Sand 0 to +4 phi
Clay +9 to >+10 phi

Analysis by Tyler Screens and Hydrometer (ASTM D-422)

AMTEST

LABORATORIES
ANALYSIS REPORT

GRETTE ASSOCIATES
2111 N 30TH STREET
TACOMA, WA 98403 aa
Attention: SHANNON BERTKIW

Date Received: 2/ 2/05
Date Reported: 2/25/05

Project Name: RICH PASSAGE HABITAT

	SEDIMENT SAMPLES
AM TEST Identification Number	05-A001255
Client Identification	TRANS 12 84FT (LOWER)
Sampling Date	

PARAMETER	RESULT	Q	D.L.
Conventionals			
Total Solids (%)	72.7		
Total Volatile Solids (%)	0.61		

GRAIN SIZE DISTRIBUTION

PHI	OPENING (MM)	% RETENTION	FRACTION	PERCENT
-2	4.75	6.50	gravel	12.5
-1	4.00	1.20		
0	2.00	4.80		
+1	1.00	4.10		
+2	0.50	12.2	sand	78.3
+3	0.25	37.7		
+4	0.125	19.5		
+5	0.063	4.80		
+6	0.032	< 0.1	silt	6.00
+7	0.016	2.40		
+8	0.008	2.00		
+9	0.004	1.60		
+10	0.002	0.20		
>+10	0.001	< 0.1	clay	3.00
	<0.001	2.80		

Gravel <-2 to -1 phi
Silt +5 to +8 phi

Sand 0 to +4 phi
Clay +9 to >+10 phi

Analysis by Tyler Screens and Hydrometer (ASTM D-422)

AMTEST

LABORATORIES
ANALYSIS REPORT

GRETTE ASSOCIATES
2111 N 30TH STREET
TACOMA, WA 98403 aa
Attention: SHANNON BERTKIW

Date Received: 2/ 2/05
Date Reported: 2/25/05

Project Name: RICH PASSAGE HABITAT

SEDIMENT SAMPLES

AM TEST Identification Number 05-A001256
Client Identification TRANS 12 174FT (MID)
Sampling Date

PARAMETER	RESULT	Q	D.L.
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Conventionals

Total Solids (%)	84.1
Total Volatile Solids (%)	1.10

GRAIN SIZE DISTRIBUTION

PHI	OPENING (MM)	% RETENTION	FRACTION	PERCENT
	4.75	28.0	gravel	48.8
-2	4.00	4.40		
-1	2.00	16.4		
0	1.00	8.60		
+1	0.50	14.3	sand	47.7
+2	0.25	18.2		
+3	0.125	5.20		
+4	0.063	1.40		
+5	0.032	< 0.1		
+6	0.016	< 0.1	silt	1.20
+7	0.008	0.80		
+8	0.004	0.40		
+9	0.002	0.40		
+10	0.001	0.30	clay	2.30
>+10	<0.001	1.60		

Gravel <-2 to -1 phi
Silt +5 to +8 phi

Sand 0 to +4 phi
Clay +9 to >+10 phi

Analysis by Tyler Screens and Hydrometer (ASTM D-422)



Quality Control Summary

QC for 545359

05-A001241
 05-A001242
 05-A001243
 05-A001244
 05-A001245
 05-A001246
 05-A001247
 05-A001248
 05-A001249
 05-A001250
 05-A001251
 05-A001252
 05-A001253
 05-A001254
 05-A001255
 05-A001256

DUPLICATES

	sample value	duplicate value	RPD %
05-A001244 DUP: Total Solids %	91.7	91.1	0.66
05-A001253 DUP: Total Solids %	90.4	89.4	1.1
05-A001244 DUP: Total Volatile Solids %	< 0.1	< 0.1	
05-A001253 DUP: Total Volatile Solids %	< 0.1	< 0.1	
05-A001244 DUP: %	27.8	27.0	2.9
05-A001244 DUP: %	27.8	20.2	32.
05-A001253 DUP: %	< 0.1	< 0.1	
05-A001253 DUP: %	< 0.1	< 0.1	
05-A001244 DUP: - 2 %	4.80	6.80	34.
05-A001244 DUP: - 2 %	4.80	3.70	26.
05-A001253 DUP: - 2 %	0.10	< 0.1	
05-A001253 DUP: - 2 %	0.10	0.10	0.00
05-A001244 DUP: - 1 %	23.1	20.3	13.
05-A001244 DUP: - 1 %	23.1	18.5	22.
05-A001253 DUP: - 1 %	0.40	0.30	29.
05-A001253 DUP: - 1 %	0.40	0.30	29.
05-A001244 DUP: 0 %	14.6	14.8	1.4
05-A001244 DUP: 0 %	14.6	15.8	7.9
05-A001253 DUP: 0 %	1.90	1.70	11.
05-A001253 DUP: 0 %	1.90	1.60	17.
05-A001244 DUP: + 1 %	14.6	13.8	5.6
05-A001244 DUP: + 1 %	14.6	15.7	7.3
05-A001253 DUP: + 1 %	43.3	43.8	1.1
05-A001253 DUP: + 1 %	43.3	39.6	8.9
05-A001244 DUP: + 2 %	11.7	14.6	22.
05-A001244 DUP: + 2 %	11.7	21.7	60.
05-A001253 DUP: + 2 %	50.7	45.9	9.9
05-A001253 DUP: + 2 %	50.7	55.7	9.4
05-A001244 DUP: + 3 %	0.30	0.40	29.
05-A001244 DUP: + 3 %	0.30	0.70	80.
05-A001253 DUP: + 3 %	0.10	0.20	67.
05-A001253 DUP: + 3 %	0.10	0.30	100
05-A001244 DUP: + 4 %	< 0.1	< 0.1	
05-A001244 DUP: + 4 %	< 0.1	0.10	
05-A001253 DUP: + 4 %	0.10	0.10	0.00
05-A001253 DUP: + 4 %	0.10	< 0.1	



Quality Control Summary
(continued)

QC for 545359

05-A001244 DUP: + 5	%	0.30	< 0.1	
05-A001244 DUP: + 5	%	0.30	< 0.1	
05-A001253 DUP: + 5	%	0.60	5.10	160
05-A001253 DUP: + 5	%	0.60	0.10	140
05-A001244 DUP: + 6	%	< 0.1	< 0.1	
05-A001244 DUP: + 6	%	< 0.1	1.20	
05-A001253 DUP: + 6	%	0.60	< 0.1	
05-A001253 DUP: + 6	%	0.60	< 0.1	
05-A001244 DUP: + 7	%	1.10	0.40	93.
05-A001244 DUP: + 7	%	1.10	0.70	44.
05-A001253 DUP: + 7	%	0.60	0.40	40.
05-A001253 DUP: + 7	%	0.60	0.40	40.
05-A001244 DUP: + 8	%	< 0.1	0.10	
05-A001244 DUP: + 8	%	< 0.1	< 0.1	
05-A001253 DUP: + 8	%	0.50	1.20	82.
05-A001253 DUP: + 8	%	0.50	0.70	33.
05-A001244 DUP: + 9	%	< 0.1	< 0.1	
05-A001244 DUP: + 9	%	< 0.1	< 0.1	
05-A001253 DUP: + 9	%	0.10	0.10	0.00
05-A001253 DUP: + 9	%	0.10	0.10	0.00
05-A001244 DUP: + 10	%	< 0.1	< 0.1	
05-A001244 DUP: + 10	%	< 0.1	< 0.1	
05-A001253 DUP: + 10	%	< 0.1	< 0.1	
05-A001253 DUP: + 10	%	< 0.1	< 0.1	
05-A001244 DUP: > +10	%	1.60	1.60	0.00
05-A001244 DUP: > +10	%	1.60	1.70	6.1
05-A001253 DUP: > +10	%	1.10	1.10	0.00
05-A001253 DUP: > +10	%	1.10	1.10	0.00
MATRIX SPIKES		sample value	sample+spk value	spike value
				Recovery %
STANDARD REFERENCE MATERIALS		measured value	true value	Recovery %
BLANKS			Result	



METHODOLOGY REPORT

AM TEST ID 05-A001241
 CLIENT ID TRANS 1 0FT (UPPER)

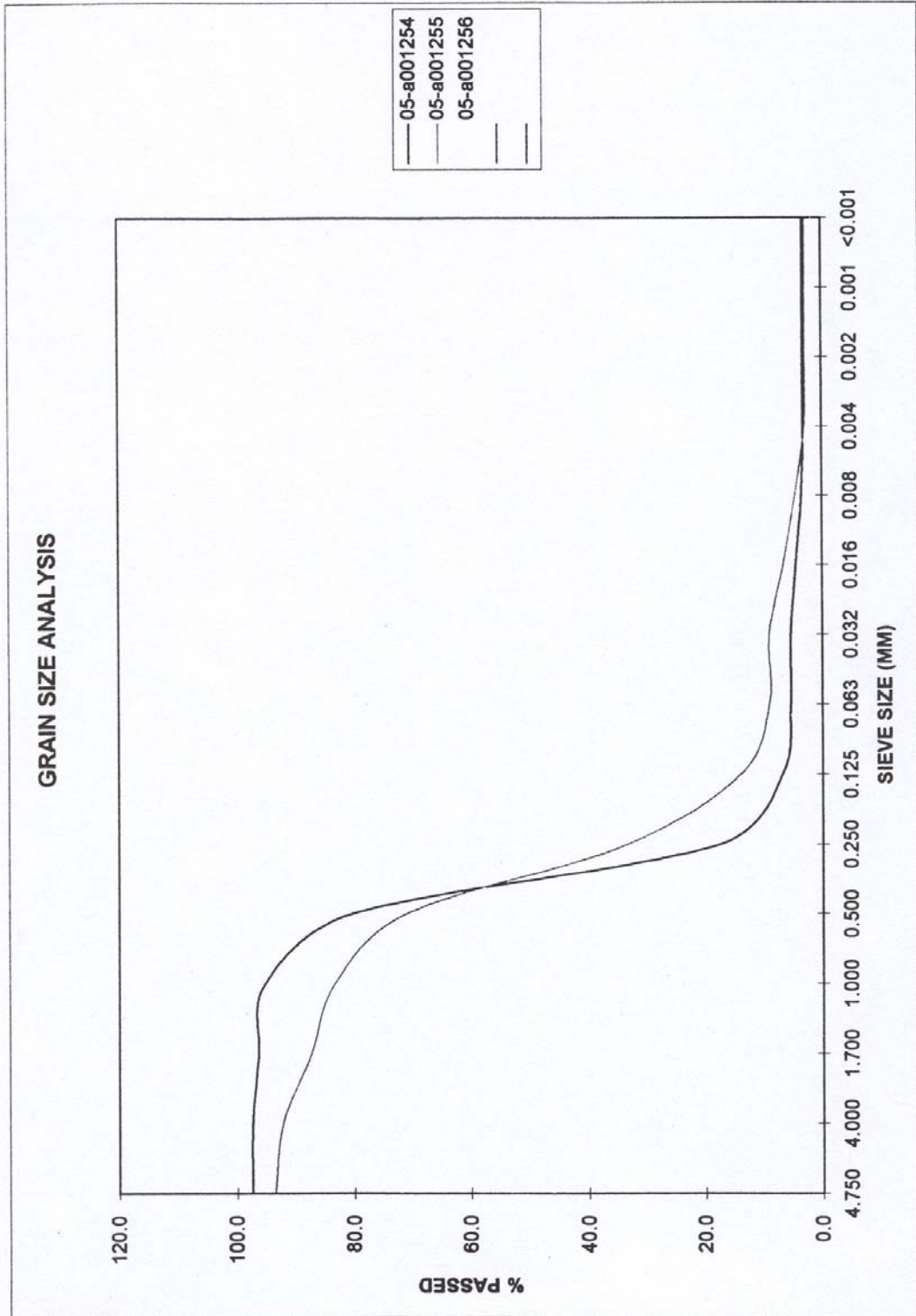
MATRIX : Sediment
 SAMPLED:

ANALYTE	UNITS	METHOD NUMBER	METHOD REFERENCE	DETECTION LIMIT *	DATE OF ANALYSIS
Grain Size	% Retained	D422	ASTM	0.10	2/10/05
Total Solids	%	p17	PSEP	0.01	2/ 9/05
Total Volatile Solids	%	p20	PSEP	0.01	2/ 9/05

SM = Standard Methods for the Examination of Water and Wastewater 18th ed.
 SW-846 = Test Methods for Evaluating Solid Waste Physical/Chemical Methods
 EPA = Methods for Chemical Analysis of Water and Wastes 1983
 * Instrument Detection Limit

AMTEST

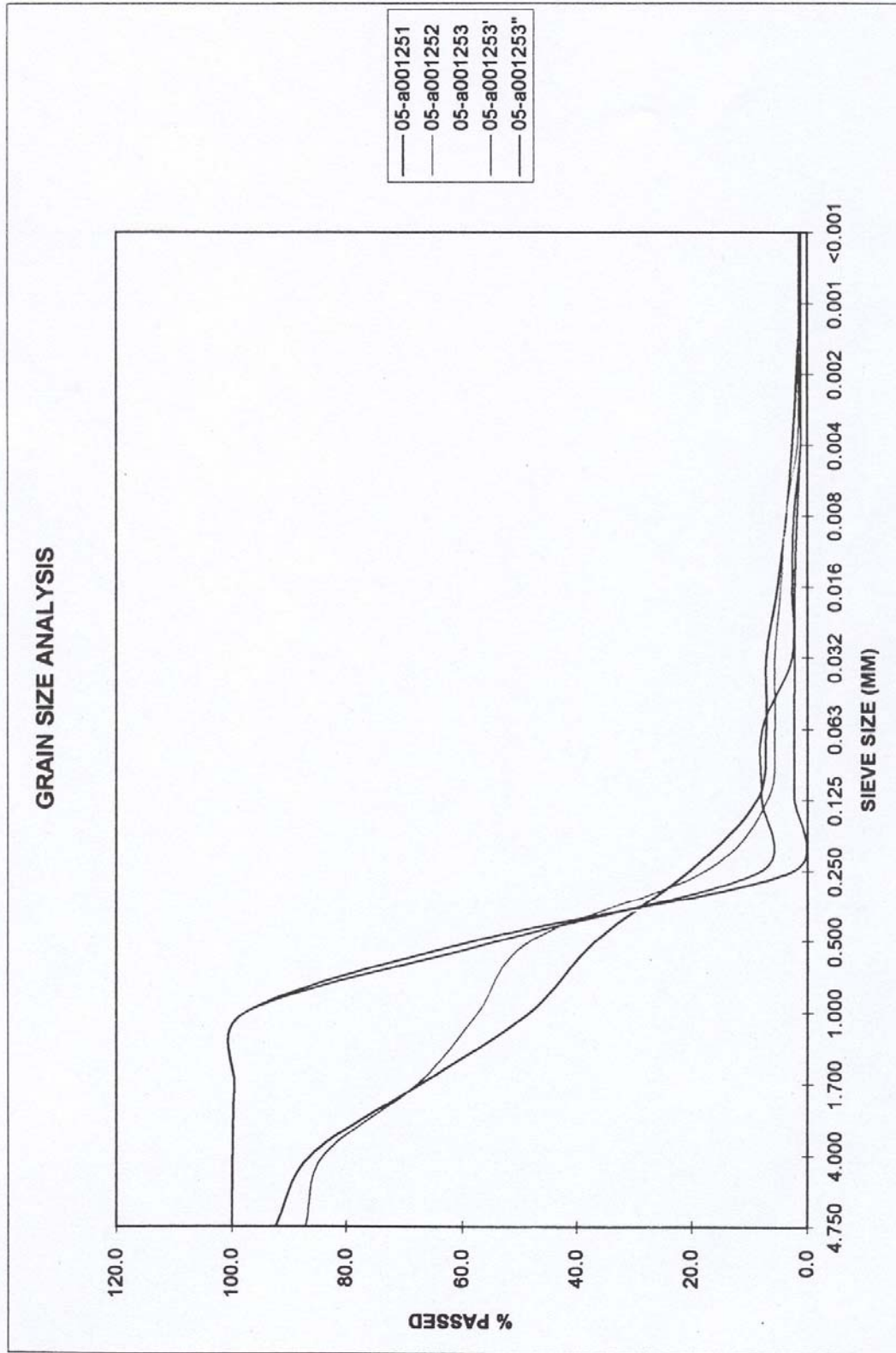
HYDROTMP Chart 1



AMTEST

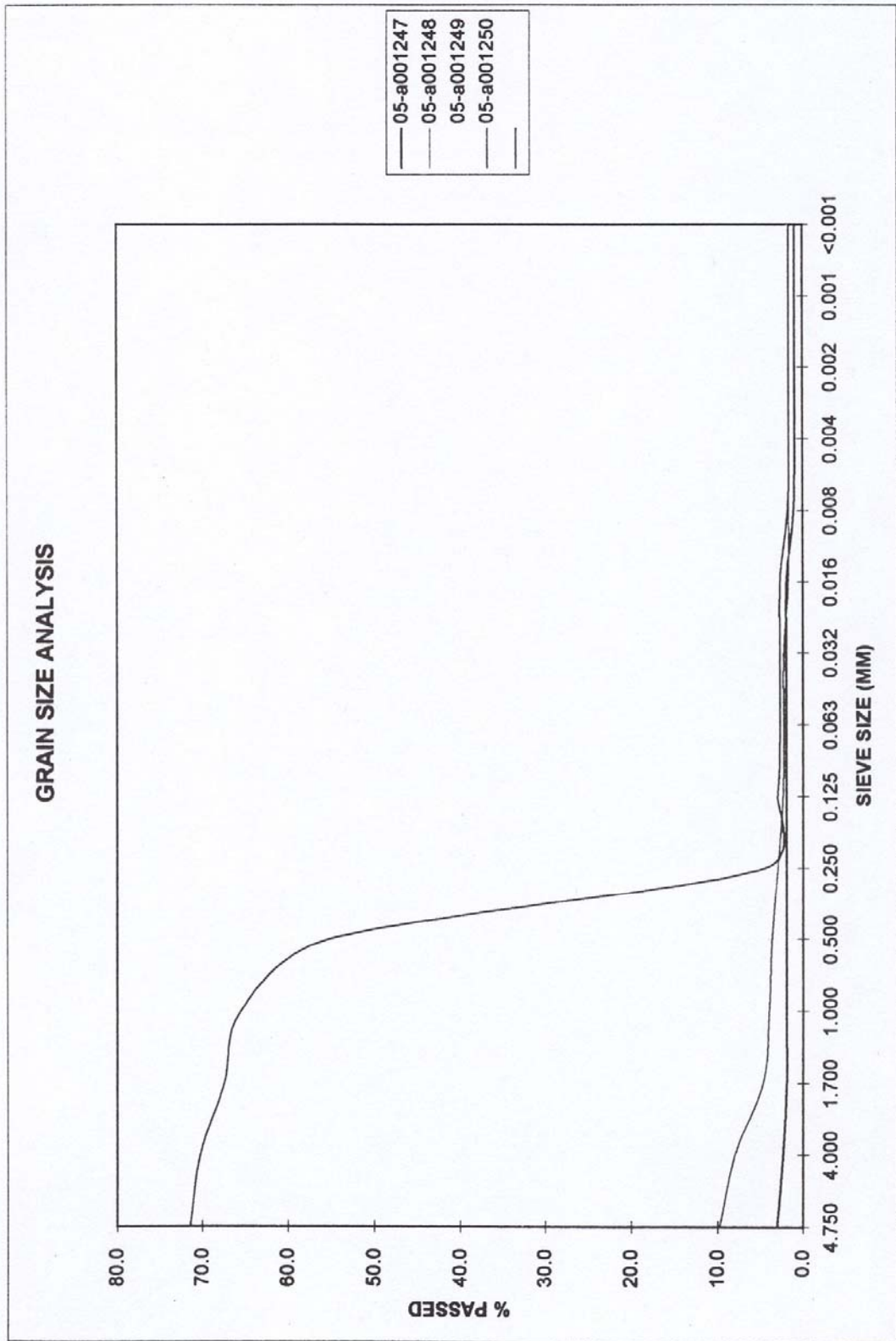
HYDROTMP Chart 1

GRAIN SIZE ANALYSIS



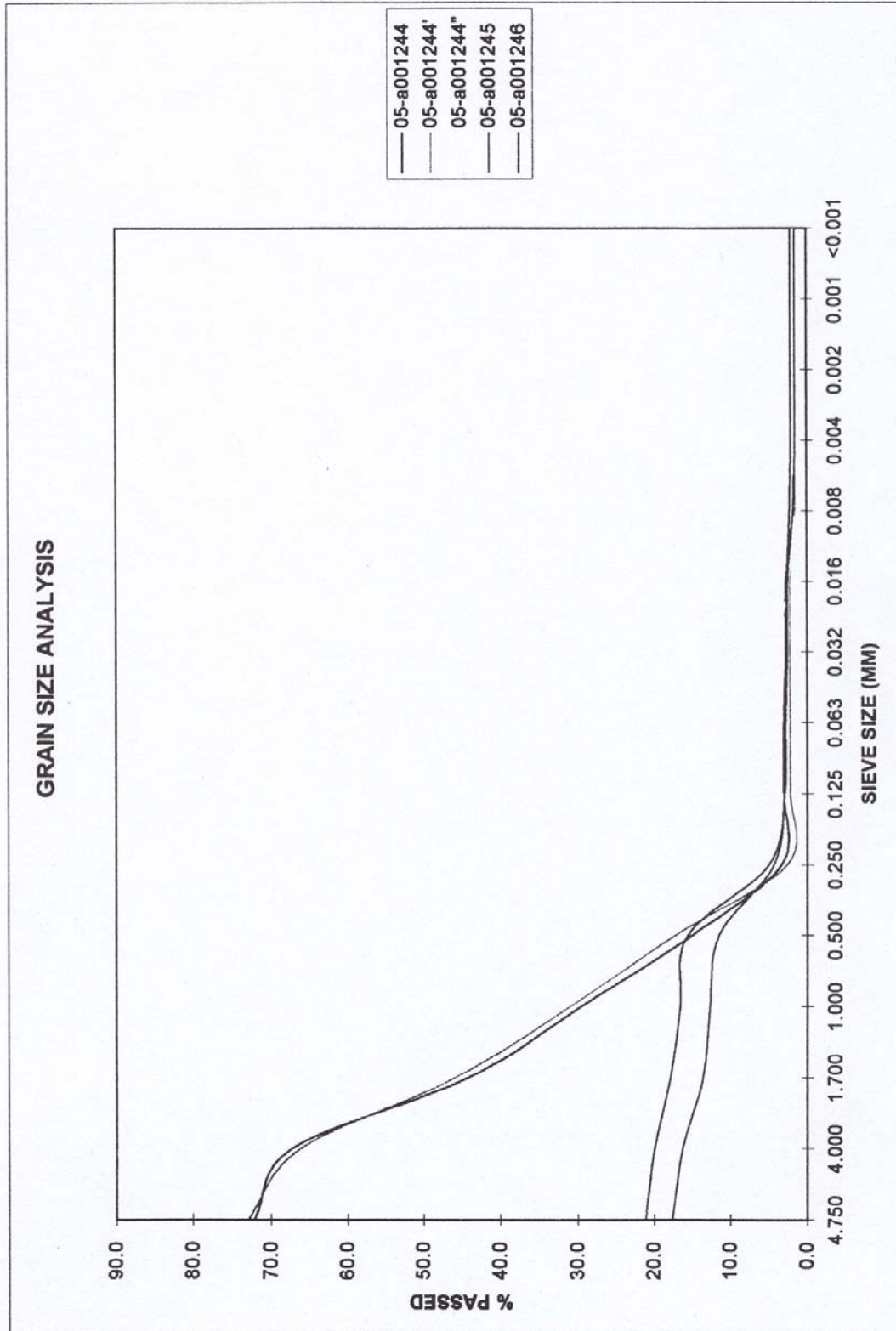
AMTEST

HYDROTMP Chart 1



AMTEST

HYDROTMP Chart 1



AMTTEST

HYDROTMP Chart 1

GRAIN SIZE ANALYSIS

