



**FINAL REPORT
GOAT CANYON RETENTION BASIN
SOIL PARTICLE SIZE DISTRIBUTION STUDY**

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1.0 INTRODUCTION

This report summarizes the results of a baseline survey of soil particle size associated with the Goat Canyon soil retention basins. Four areas were surveyed with regard to soil particle size distributions: the upper retention basin, the lower retention basin, the native (i.e., unsorted) stockpile, and the sorted (i.e., processed) stockpile. The general purpose of this survey was to determine if particle size characteristics were (1) consistent and (2) suitable for use in a sediment fate and transport study currently being evaluated.

2.0 APPROACH & METHODOLOGY

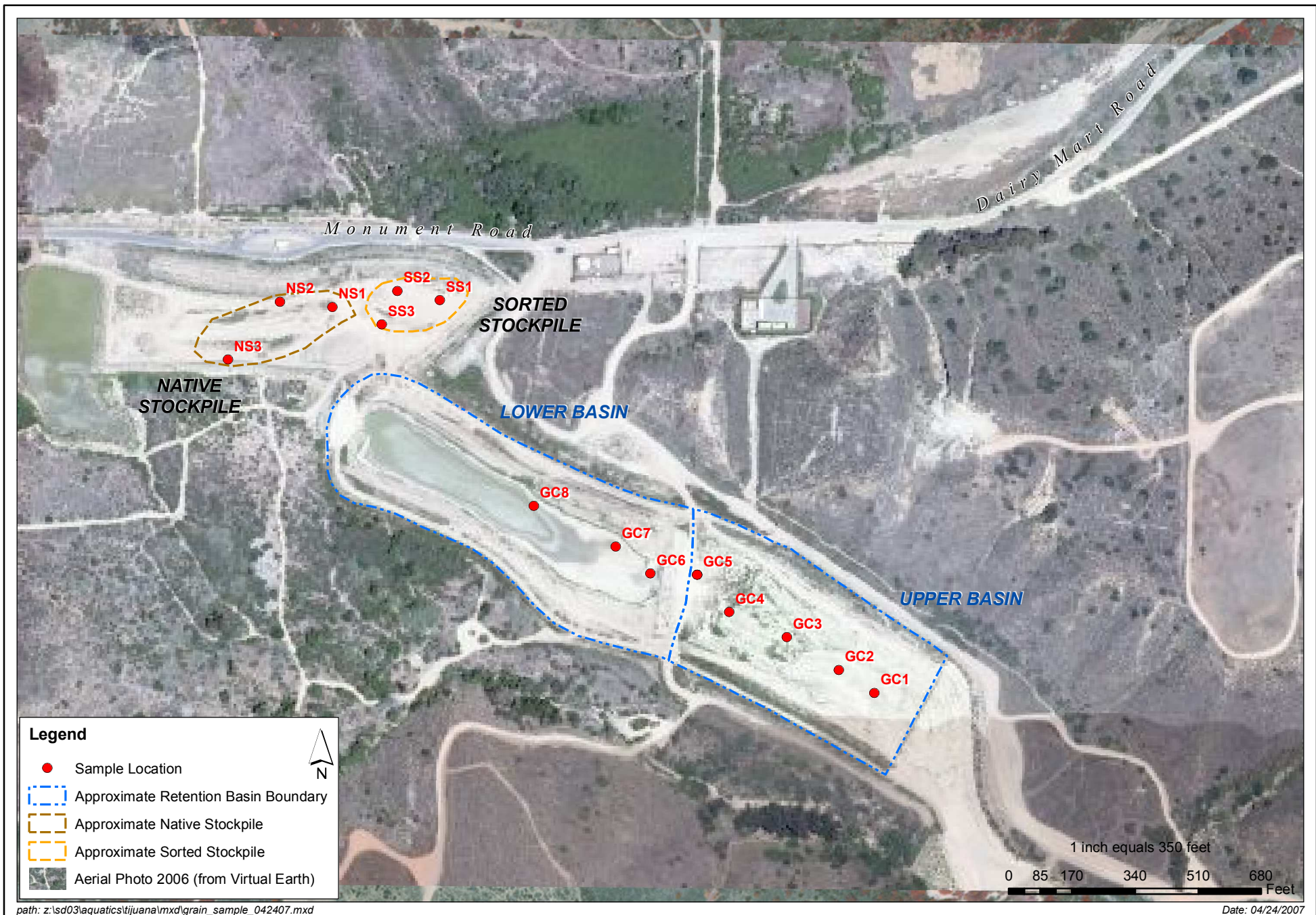
Samples were collected on 30 March 2007 by AMEC field personnel as depicted in Figure 1. Latitude and longitude data are presented in Table 1; photographs of the areas are included in Appendix A. Detailed sample descriptions are presented in Appendix B.

At the retention basin sites, sampling consisted of hand-auguring approximately 3 ft into the soil and collecting representative samples of the depth achieved. At multiple retention basin locations, a subsurface layer consisting of dark organically-enriched horizon was observed near the surface, possibly due to petroleum hydrocarbons.

Table 1. Sample Location Latitude and Longitude Data

Sample Identifier	Latitude	Longitude
Upper Basin:		
GC1	32.5402	-117.1043
GC2	32.5403	-117.1046
GC3	32.5406	-117.1050
GC4	32.5408	-117.1055
GC5	32.5410	-117.1058
Lower Basin:		
GC6	32.5410	-117.1062
GC7	32.5412	-117.1065
GC8	32.5415	-117.1072
Sorted Stockpile:		
SS1	32.5430	-117.1081
SS2	32.5431	-117.1085
SS3	32.5429	-117.1086
Native Stockpile:		
NS1	32.5430	-117.1090
NS2	32.5430	-117.1095
NS3	32.5426	-117.1099

Data presented in NAD 83



Goat Canyon Sampling Locations
Upper and Lower Retention Basin and Stockpile Areas

FIGURE

1

During an initial inspection of the perimeter of the stockpiles, the material was visually observed to be relatively homogeneous throughout, presumably due to handling and processing of the material. Sampling therefore consisted of excavating the top 6 inches of the surface material of the stockpile and collecting a sample representative of an approximately two-foot vertical section from the interior of the stockpiled material.

Samples were collected in food-grade polyethylene bags, sealed, and transported via courier to PTS Laboratories. Particle size analysis was undertaken using standard methodologies (ASTM International 2002 and 2005).

3.0 RESULTS

3.1 Particle Size Distribution Results Summary

Particle size analysis results are summarized below for key parameters, including median grain size, percent sand, and percent fines (silts and clays). Results have been pooled for the four soils sampled and are presented in Table 1. Mean values and standard deviations are presented in order to present summarized result in the context of sample variance for each parameter. The mean grain size of all samples was determined to be fine sand. Appendix C includes additional summary data, statistical test results, and results of the individual sample analyses.

Table 2. Summary of Mean Soil Particle Size Data

Soil Sampling Area	Number of Samples	Percent Sand ¹ (Mean ± SD)	Percent Fines ² (Mean ± SD)	Median Grain Size (mm) (Mean ± SD)
Upper Basin	5	53.7 ± 6.3	46.3 ± 6.3	0.079 ± 0.008
Lower Basin	3	60.2 ± 5.5	39.8 ± 5.5	0.092 ± 0.010
Native Stockpile	3	73.3 ± 2.4	26.7 ± 2.4	0.140 ± 0.016
Sorted Stockpile	3	63.5 ± 0.8	36.5 ± 0.8	0.098 ± 0.003

¹ - particle size range from 0.063 to 3.363 mm.

² - particle size below 0.063 mm.

mm - millimeters

SD - standard deviation

3.2 Statistical Analyses of Key Particle Size Parameters

With respect to the data, two comparisons were of particular interest: whether the particle size distributions differed between the upper and lower retention basins and between the two stockpiles. To address these comparisons, the median grain size, medium sand fraction, fine sand fraction and percent fines data were compared statistically to assess whether particle size distributions differed between areas. Data were pooled by area in order to generalize the data and obtain an estimate of variance. Two-tailed *t*-tests ($p < 0.05$, with an assumption of unequal variances due to the different sample sizes) were employed to determine if individual sediment parameters varied significantly between sampling areas. Comparisons between the upper and lower retention basins indicated no statistically significant difference.

Comparisons between the native and sorted piles indicated that mean values for median grain size, medium sand fraction, and the silt and clay fraction (i.e., fines) were significantly different between the piles (no significant difference was observed for percent fine sand). Although the variances associated with the data were generally low, this was not the primary source of statistically significant results: mean values were quite divergent and showed that the sorted pile contained material with a smaller median grain size and a higher proportion of fine sand and silts and clays. This result indicates that either the source material present in the two piles was inherently different, or that the mechanical process of sorting the material broke apart large particles into smaller particles. Lastly, the low variances associated with the data were likely a reflection of a low level of heterogeneity in the samples.

One additional statistical test was performed in order to provide information regarding whether or not the material characterized in this report is suitable for use in the fate and transport modeling effort currently under evaluation. Ultimately, soils used in the fate and transport modeling effort would likely require some kind of handling to remove debris, trash, boulders and other undesirable material, and would most likely undergo the type of sorting currently underway. Therefore, the material in the sorted pile was compared to the native material in the retention basins (all 8 sample data were pooled for this analysis) to determine if the rehandling and sorting process resulted in any changes in particle size distribution. Median grain size data was considered for this evaluation as the most representative datum relevant for this comparison. Median grain sizes were determined to be significantly different ($p < 0.05$, using a two-tailed *t*-test assuming unequal variances). The retention basin material median grain size was smaller than the sorted material, indicating that (somewhat in contradiction with the conclusion drawn above for the stockpile data) either the material is substantially different in nature or that the handling and sorting process does not reduce grain size to a degree which is relevant.

4.0 RECOMMENDATIONS

AMEC recommends the following additional efforts with regard to Goat Canyon soils:

1. These data should be reviewed by staff and agency personnel in order to determine if the particle size data described herein are compatible with the proposed fate and transport study.
2. In the case that the soils are considered appropriate for the study, we recommend additional characterization be undertaken in support of obtaining Clean Water Act (CWA) Sections 401 and 404 permits for aquatic (i.e., beach) disposal. This would entail additional testing including determination of soil chemistry and possibly elutriate and/or toxicity testing.
3. In the event that CWA Section 401 and 404 permitting is pursued, AMEC recommends that additional sampling be undertaken at a higher spatial density. It is presumed that additional characterization work necessary for permit approval would be performed as described in a project-specific sampling and analysis plan and that the plan would be reviewed and approved by the appropriate regulatory authorities (e.g., U.S. Army Corps of Engineers, California Regional Water Quality Control Board). Additional detailed

information on the as-built design elements of the retention basins would be of great value during the study design phase.

4. This effort was undertaken as a baseline-level study and therefore insufficient material was collected for elutriate or toxicity testing. However, subsamples of the materials characterized herein have been retained as archives. Archives were frozen and therefore may be analyzed for up to one year from the collection date for most chemical constituents. Based on the site history and visual characteristics, a complete suite of analyses are recommended, should they be undertaken. Any or all of the samples are available for testing in order to provide additional baseline-level chemistry data.

5.0 REFERENCES

ASTM International. 2002. Standard Test Method for Particle-Size Analysis of Soils. Active Standard: D422-63(2002)e1.

ASTM International. 2005. Standard Test Method for Particle Size Distribution of Catalytic Material by Laser Light Scattering. Active Standard: D4464-00, as modified.

Appendix A

Photographic Documentation



Figure 2. Native (left) and Sorted (right) Stockpiles, Perspective from Southeast.



Figure 3. Upper Retention Basin, Perspective from North. Sampling transect along centerline of Retention Basin: Station 5 in foreground, Station 4 near transition to darker soil, and Stations 3, 2, and 1 in lighter material in upper portion of basin (below culvert structure).



Figure 4. Lower Retention Basin, Perspective from South. Samples collected between upper limit of trash and debris and the dense mulefat vegetation. Station 6 just out of photo to left; Station 7 midway to ponded water, and Station 8 along nearest shoreline of ponded water.

Appendix B

Field Notes Summary

Field Notes Summary
**Goat Canyon Retention Basin Soil
Particle Size Distribution Study
Border Field State Park, Tijuana Estuary**

Field Sampling: 2007-03-30

Personnel:

Nicholas Buhbe, AMEC Marine Scientist, Project Manager

Tyler Huff, AMEC Marine Scientist

Nathan Starr, AMEC Professional Geologist

Both the upper retention basin (samples GC-1 through GC-5) and the lower retention basin (samples GC-6 through GC-8) were sampled along a linear transect designated in the vicinity of the centerlines of the basins using a 5-foot hand auger. A depth of approximately 3 to 3.5 feet was reached at each location. The sampling locations were selected by Nathan Starr, R.G. such that the samples would be representative of the retained soils. Latitude and longitude coordinate data were collected at each sampling locations using a GPS receiver.

Large amounts of trash and debris were scattered throughout the retention basins, particularly behind debris screen structures and in vegetation (mostly mulefat shrubs). The trash volume was slightly higher in the lower soil basin, though the prevalence of debris was highly localized. The upper basin was dry but moist below the surface deposits in low-lying areas. The lower retention basin had standing pooled water, as well as willows and waterfowl.

Stockpiles of materials were visually assessed and determined to be homogenous, likely as a result of rehandling and sorting, which was taking place during the sampling event. The three samples collected from each pile were designated on three sides of the piles (see Figure 1 of the report text); materials were collected from approximately 5 feet above the base of the piles.

Upper Soil Retention Basin

GC-1

1305 2007-03-30

Samples collected: 1 Ziploc bag (grain size), 1 16 oz (ounce) jar chemistry archive (frozen)

Description: At 0 – 1' Silty, fine sand. At 1-2' silty clay with heavy organics (possibly petroleum hydrocarbons). At 2' gravels that are stained (black – reddish brown color) with organic matter, possibly petroleum hydrocarbons.

32.54017 deg N, 117.10425 deg W – Mark 01

GC-2

1300 2007-03-30

Samples collected: 1 zip lock bag (grain size), 1 16 oz jar chemistry archive (frozen)

Description: At 0 - 0.5' silty, fine sand. 0.5' – 2.5' distinct layers of silty clay with strong evidence of black organics, possibly petroleum hydrocarbons. At 2' gravel (poorly sorted) with fine to coarse sand matrix. Gravel = v.f. – coarse gravel.

32.54032 deg N, 117.10457 deg W – Mark 02

GC-3

1255 2007-03-30

Samples collected: 1 zip lock bag (grain size), 1 16 oz jar chemistry archive (frozen)

Description: at 0-0.5' silty, fine sand. Below that are distinct layers of silty clay with strong evidence of black organics, possibly petroleum hydrocarbons. 2.5' – 3' grades back to silty fine sand. At 3' gravel (poorly sorted) with fine to coarse sand matrix. Gravel is v.f. – coarse gravel.

32.54057 deg N, 117.10502 deg W – Mark 03

GC – 4

1253 2007-03-30

Samples collected: 1 zip lock bag (grain size), 1 16 oz jar chemistry archive (frozen)

Description: Range of Clay to Silty Sand. 0 – 4' below ground surface (bgs) distinct / visible layering. Organic matter evident. Possibly petroleum hydrocarbons.

32.54075 deg N, 117.10553 deg W – mark 4

GC – 5

1248 2007-03-30

Samples collected: 1 zip lock bag (grain size), 1 16 oz jar chemistry archive (frozen)

Description: Silty clay to 5'. Intermittent silty fine sand.

32.54103 deg N, 117.10580 deg W – Mark 5

Lower Soil Retention Basin

GC – 6

1320 2007-03-30

Samples collected: 1 zip lock bag (grain size), 1 16 oz jar chemistry archive (frozen)

Description: Fairly homogeneous silty / fine sand with dark layers of hydrocarbons, possibly petroleum hydrocarbons. Trash / debris nearby. Gravel at 3'.

32.54102 deg N, 117.10623 deg W – Mark 9

GC – 7

1330 2007-03-30

Samples collected: 1 zip lock bag (grain size), 1 16 oz jar chemistry archive (frozen)

Description: Very fine to fine sand consistent to bottom of hole (~3'). Top 1' has organic staining, possibly petroleum hydrocarbon staining.

32.54123 deg N, 117.10654 deg W – Mark 7

GC – 8

1340 2007-03-30

Samples collected: 1 zip lock bag (grain size), 1 16 oz jar chemistry archive (frozen)

Description: 0 – 0.5' silty clay. Black hydrocarbons, possibly petroleum hydrocarbons. 0.5 – 3' very fine to fine sand. At 3.5' medium grain, well sorted sand. S.P. (Sand that is poorly graded).

NOTE: This location has possible beach quality sand at 3.5'

Mark 8

Sorted Sand (SS) Stockpile Mound

General Description: Mostly fine sand. Sparse coarse grains

SS-1

1410 2007-03-30

Samples collected: 1 zip lock bag (grain size), 1 16 oz jar chemistry archive (frozen)

Mark 10

SS-2

1415 2007-03-30

Samples collected: 1 zip lock bag (grain size), 1 16 oz jar chemistry archive (frozen)

Mark 11

SS-3

1418 2007-03-30

Samples collected: 1 zip lock bag (grain size), 1 16 oz jar chemistry archive (frozen)

Mark 12

Native Stockpile (NS) Mound

General Description: Poorly sorted very fine sand to cobble. Mostly fine sand. ~ 10% cobble.

NS-1

1423 2007-03-30

Samples collected: 1 zip lock bag (grain size), 1 16 oz jar chemistry archive (frozen)

Mark 13

NS-2

1426 2007-03-30

Samples collected: 1 zip lock bag (grain size), 2 8 oz jars chemistry archive (frozen)

Mark 14

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NS-3

1430 2007-03-30

Samples collected: 1 zip lock bag (grain size), 2 8 oz jar chemistry archive (frozen)

Mark 15

Appendix C

Particle Size Data Summary and Original Data Report

Table C-1. Goat Canyon Particle Size Data Summary with Statistical Comparisons.

Sample Collection Location	Sample ID	Depth, ft.	Mean Grain Size Description	Median Grain Size mm	Particle Size Distribution, wt. percent						Silt & Clay	Mean Percent Sand
					Gravel	Sand Size			Silt	Clay		
						Coarse	Medium	Fine				
Sorted Pile	SS1	0-3	Fine sand	0.098	0.00	0.00	17.11	45.79	31.31	5.78	37.10	62.90
	SS2	0-3	Fine sand	0.101	0.00	0.00	20.07	44.32	30.91	4.71	35.61	64.39
	SS3	0-3	Fine sand	0.094	0.00	0.00	12.39	50.82	33.62	3.17	36.79	63.21
	Mean			0.098	0.0	0.0	16.5	47.0	31.9	4.6	36.5	63.50
	Standard Deviation			0.003	0.0	0.0	3.9	3.4	1.5	1.3	0.8	0.78
Statistical Significance (Sorted vs Native)?				Yes			Yes	NS			Yes	
Native Pile (Unsorted)	NS1	0-3	Fine sand	0.122	0.00	0.00	27.55	43.05	26.16	3.24	29.40	70.60
	NS2	0-3	Fine sand	0.146	0.00	0.00	30.01	43.93	22.81	3.25	26.05	73.95
	NS3	0-3	Fine sand	0.152	0.00	0.00	28.30	47.04	20.66	4.00	24.66	75.34
	Mean			0.140	0.0	0.0	28.6	44.7	23.2	3.5	26.7	73.30
	Standard Deviation			0.016	0.0	0.0	1.3	2.1	2.8	0.4	2.4	2.43
Upper Catchbasin	GC1	0-3	Fine sand	0.090	0.00	0.00	7.60	53.97	33.69	4.74	38.43	61.57
	GC2	0-3	Fine sand	0.076	0.00	0.00	3.48	47.67	43.19	5.65	48.85	51.15
	GC3	0-3	Fine sand	0.085	0.00	0.00	3.95	54.83	36.40	4.82	41.22	58.78
	GC4	0-3	Fine sand	0.075	0.00	0.00	10.08	40.33	42.62	6.96	49.58	50.42
	GC5	0-3	Fine sand	0.069	0.00	0.00	5.39	41.06	47.57	5.98	53.54	46.46
	Mean			0.079	0.0	0.0	6.1	47.6	40.7	5.6	46.3	53.67
	Standard Deviation			0.008	0.0	0.0	2.7	6.9	5.6	0.9	6.3	6.27
Statistical Significance (Upper vs Lower Catchbasin)?				NS			NS	NS			NS	
Lower Catchbasin	GC6	0-3	Fine sand	0.082	0.00	0.00	9.04	45.02	40.47	5.47	45.94	54.06
	GC7	0-3	Fine sand	0.094	0.00	0.00	3.38	61.31	30.79	4.53	35.32	64.68
	GC8	0-3	Fine sand	0.102	0.00	0.00	18.73	43.16	33.09	5.02	38.11	61.89
	Mean			0.092	0.0	0.0	10.4	49.8	34.8	5.0	39.8	60.21
	Standard Deviation			0.010	0.0	0.0	7.8	10.0	5.1	0.5	5.5	5.51
Catchbasin Samples (Pooled)	Mean			0.084	0.000	0.000	7.706	48.420	38.478	5.396	43.874	49.89
	Standard Deviation			0.011	0.000	0.000	5.141	7.533	5.872	0.803	6.528	6.53

MEDIAN GRAIN SIZE ANALYSES:

POOLED ANALYSES			STOCKPILE SAMPLES			CATCHBASIN SAMPLES		
t-Test: Two-Sample Assuming Unequal Variances Median Grain Size			t-Test: Two-Sample Assuming Equal Variances Median Grain Size			t-Test: Two-Sample Assuming Unequal Variances Median Grain Size		
	<i>Catchbasin</i>	<i>Sorted</i>		<i>sorted</i>	<i>unsorted</i>		<i>upper</i>	<i>lower</i>
Mean	0.084071	0.097503562	Mean	0.097504	0.140135	Mean	0.079033	0.092469
Variance	0.000118	1.22072E-05	Variance	1.22E-05	0.000246	Variance	7.08E-05	0.000103
Observation:	8	3	Observation	3	3	Observation	5	3
Hypothesize:	0		Pooled Var	0.000129		Hypothesize	0	
df	9		Hypothesize	0		df	4	
t Stat	-3.094698		df	4		t Stat	-1.930834	
P(T<=t) one-	0.006416		t Stat	-4.59851		P(T<=t) on	0.062847	
t Critical one	1.833114		P(T<=t) on	0.005021		t Critical on	2.131846	
P(T<=t) two-	0.012832*		t Critical on	2.131846		P(T<=t) tw	0.125695	
t Critical two-	2.262159		P(T<=t) tw	0.010042*		t Critical tw	2.776451	
			t Critical tw	2.776451				

STOCKPILE SAMPLES:

t-Test: Two-Sample Assuming Equal Variances Medium Sand		
	<i>sorted</i>	<i>unsorted</i>
Mean	16.52399	28.62198
Variance	14.98962	1.59574
Observation	3	3
Pooled Var	8.292683	
Hypothesize	0	
df	4	
t Stat	-5.145306	
P(T<=t) on	0.003383	
t Critical on	2.131846	
P(T<=t) tw	0.003768**	
t Critical tw	2.776451	
t-Test: Two-Sample Assuming Equal Variances Fine Sand		
	<i>sorted</i>	<i>unsorted</i>
Mean	46.97643	44.6734
Variance	11.6223	4.377806
Observation	3	3
Pooled Var	8.000053	
Hypothesize	0	
df	4	
t Stat	0.997239	
P(T<=t) on	0.187544	
t Critical on	2.131846	
P(T<=t) tw	0.375088	
t Critical tw	2.776451	
t-Test: Two-Sample Assuming Equal Variances Silts and Clays		
	<i>sorted</i>	<i>unsorted</i>
Mean	36.49957	26.70462
Variance	0.61126	5.926868
Observation	3	3
Pooled Var	3.269064	
Hypothesize	0	
df	4	
t Stat	6.634929	
P(T<=t) on	0.001339	
t Critical on	2.131846	
P(T<=t) tw	0.002678**	
t Critical tw	2.776451	

CATCHBASIN SAMPLES:

t-Test: Two-Sample Assuming Unequal Variances Medium Sand		
	<i>upper</i>	<i>lower</i>
Mean	6.099982	10.3826
Variance	7.519305	60.27851
Observation	5	3
Hypothesize	0	
df	2	
t Stat	-0.921544	
P(T<=t) on	0.227026	
t Critical on	2.919987	
P(T<=t) tw	0.454052	
t Critical tw	4.302656	
t-Test: Two-Sample Assuming Unequal Variances Fine Sand		
	<i>upper</i>	<i>lower</i>
Mean	47.57428	49.82975
Variance	47.08844	99.64365
Observation	5	3
Hypothesize	0	
df	3	
t Stat	-0.345436	
P(T<=t) on	0.376285	
t Critical on	2.353363	
P(T<=t) tw	0.75257	
t Critical tw	3.182449	
t-Test: Two-Sample Assuming Unequal Variances Silts and Clays		
	<i>upper</i>	<i>lower</i>
Mean	46.32574	39.78765
Variance	39.36932	30.34444
Observation	5	3
Hypothesize	0	
df	5	
t Stat	1.541527	
P(T<=t) on	0.091912	
t Critical on	2.015049	
P(T<=t) tw	0.183825	
t Critical tw	2.570578	

PARTICLE SIZE SUMMARY
(METHODOLOGY: ASTM D422/D4464M)

PROJECT NAME: N/A
PROJECT NO: 07-04-0082

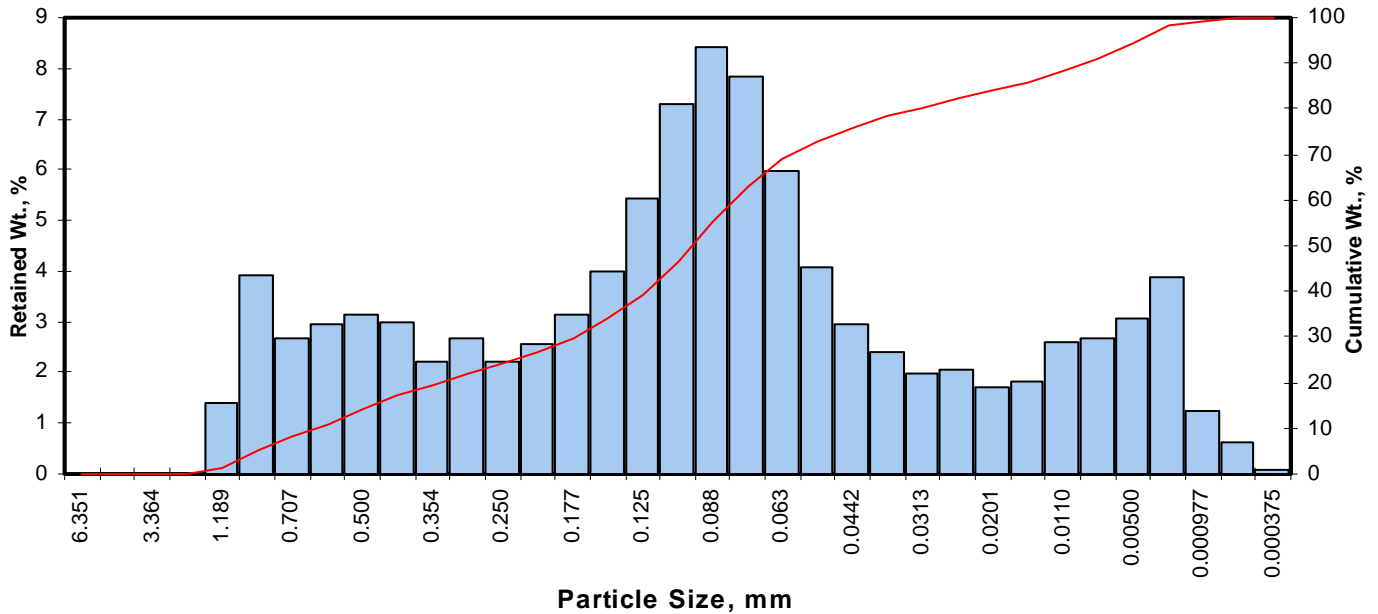
Sample ID	Depth, ft.	Mean Grain Size Description (1)	Median Grain Size mm	Particle Size Distribution, wt. percent						Silt & Clay
				Gravel	Sand Size			Silt	Clay	
					Coarse	Medium	Fine			
SS1	N/A	Fine sand	0.098	0.00	0.00	17.11	45.79	31.31	5.78	37.10
SS2	N/A	Fine sand	0.101	0.00	0.00	20.07	44.32	30.91	4.71	35.61
SS3	N/A	Fine sand	0.094	0.00	0.00	12.39	50.82	33.62	3.17	36.79
NS1	N/A	Fine sand	0.122	0.00	0.00	27.55	43.05	26.16	3.24	29.40
NS2	N/A	Fine sand	0.146	0.00	0.00	30.01	43.93	22.81	3.25	26.05
NS3	N/A	Fine sand	0.152	0.00	0.00	28.30	47.04	20.66	4.00	24.66
GC1	N/A	Fine sand	0.090	0.00	0.00	7.60	53.97	33.69	4.74	38.43
GC2	N/A	Fine sand	0.076	0.00	0.00	3.48	47.67	43.19	5.65	48.85
GC3	N/A	Fine sand	0.085	0.00	0.00	3.95	54.83	36.40	4.82	41.22
GC4	N/A	Fine sand	0.075	0.00	0.00	10.08	40.33	42.62	6.96	49.58
GC5	N/A	Fine sand	0.069	0.00	0.00	5.39	41.06	47.57	5.98	53.54
GC6	N/A	Fine sand	0.082	0.00	0.00	9.04	45.02	40.47	5.47	45.94
GC7	N/A	Fine sand	0.094	0.00	0.00	3.38	61.31	30.79	4.53	35.32
GC8	N/A	Fine sand	0.102	0.00	0.00	18.73	43.16	33.09	5.02	38.11

(1) Based on Mean from Trask

Client: Calscience
 Project: N/A
 Project No: 07-04-0082

PTS File No: 37261
 Sample ID: SS1
 Depth, ft: N/A

Grv	Sand Size			Silt	Clay
	crs	medium	fine		



Opening		Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
Inches	Millimeters					
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	1.40	1.40	1.40
0.0331	0.841	0.25	20	3.93	3.93	5.33
0.0278	0.707	0.50	25	2.67	2.67	8.00
0.0234	0.595	0.75	30	2.96	2.96	10.96
0.0197	0.500	1.00	35	3.15	3.15	14.11
0.0166	0.420	1.25	40	3.00	3.00	17.11
0.0139	0.354	1.50	45	2.22	2.22	19.33
0.0117	0.297	1.75	50	2.66	2.66	21.99
0.0098	0.250	2.00	60	2.23	2.23	24.22
0.0083	0.210	2.25	70	2.57	2.57	26.79
0.0070	0.177	2.50	80	3.14	3.14	29.93
0.0059	0.149	2.75	100	3.99	3.99	33.92
0.0049	0.125	3.00	120	5.43	5.43	39.35
0.0041	0.105	3.25	140	7.29	7.29	46.64
0.0035	0.088	3.50	170	8.42	8.42	55.06
0.0029	0.074	3.75	200	7.84	7.84	62.90
0.0025	0.063	4.00	230	5.97	5.97	68.87
0.0021	0.053	4.25	270	4.09	4.09	72.96
0.00174	0.0442	4.50	325	2.95	2.95	75.91
0.00146	0.0372	4.75	400	2.39	2.39	78.30
0.00123	0.0313	5.00	450	1.99	1.99	80.29
0.000986	0.0250	5.32	500	2.05	2.05	82.34
0.000790	0.0201	5.64	635	1.72	1.72	84.07
0.000615	0.0156	6.00		1.81	1.81	85.88
0.000435	0.0110	6.50		2.61	2.61	88.49
0.000308	0.00781	7.00		2.67	2.67	91.16
0.000197	0.00500	7.65		3.06	3.06	94.22
0.000077	0.00195	9.00		3.87	3.87	98.09
0.000038	0.000977	10.00		1.23	1.23	99.32
0.000019	0.000488	11.00		0.62	0.62	99.94
0.000015	0.000375	11.38		0.06	0.06	100.00
TOTALS				100.00	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size	
		Inches	Millimeters
5	0.21	0.0341	0.866
10	0.67	0.0248	0.629
16	1.16	0.0177	0.448
25	2.08	0.0093	0.237
40	3.02	0.0048	0.123
50	3.35	0.0039	0.098
60	3.66	0.0031	0.079
75	4.42	0.0018	0.047
84	5.63	0.0008	0.020
90	6.78	0.0004	0.009
95	7.92	0.0002	0.004

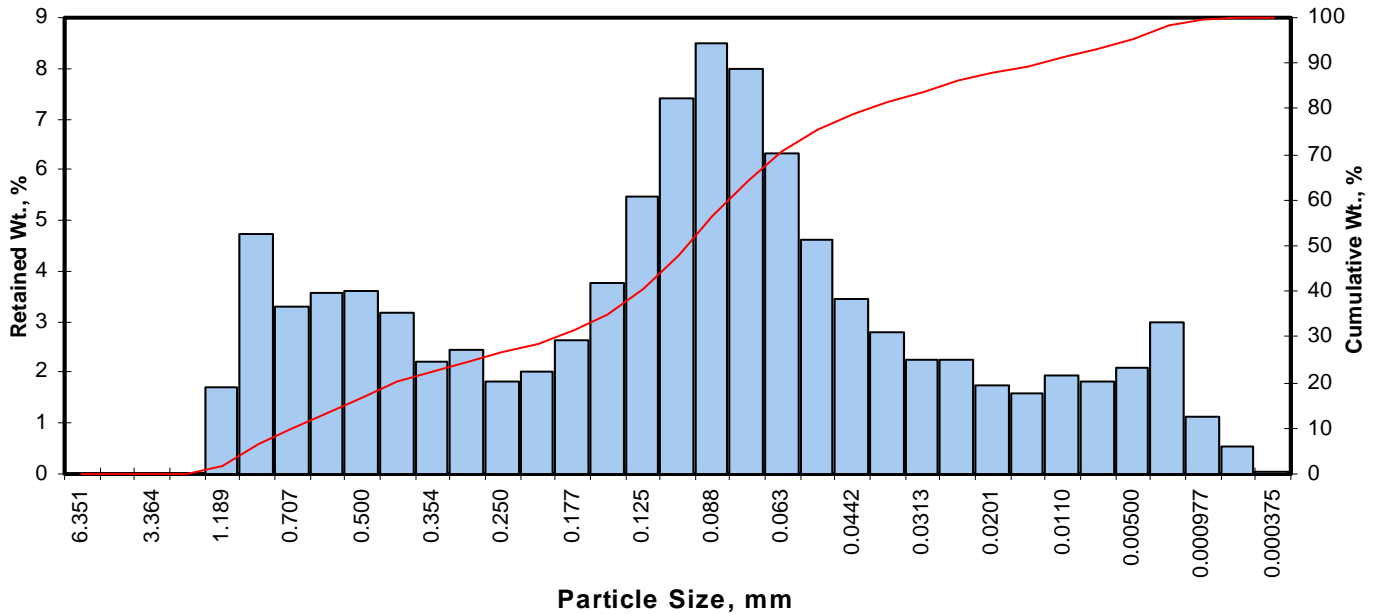
Measure	Trask	Inman	Folk-Ward
Median, phi	3.35	3.35	3.35
Median, in.	0.0039	0.0039	0.0039
Median, mm	0.098	0.098	0.098
Mean, phi	2.82	3.39	3.38
Mean, in.	0.0056	0.0037	0.0038
Mean, mm	0.142	0.095	0.096
Sorting	2.255	2.235	2.286
Skewness	1.072	0.019	0.102
Kurtosis	0.154	0.725	1.347
Grain Size Description (ASTM-USCS Scale)	Fine sand (based on Mean from Trask)		

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	17.11
Fine Sand	200	45.79
Silt	>0.005 mm	31.31
Clay	<0.005 mm	5.78
Total		100

Client: Calscience
 Project: N/A
 Project No: 07-04-0082

PTS File No: 37261
 Sample ID: SS2
 Depth, ft: N/A

Grv	Sand Size			Silt	Clay
	crs	medium	fine		



Opening		Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
Inches	Millimeters					
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	1.69	1.69	1.69
0.0331	0.841	0.25	20	4.73	4.73	6.42
0.0278	0.707	0.50	25	3.28	3.28	9.70
0.0234	0.595	0.75	30	3.58	3.58	13.28
0.0197	0.500	1.00	35	3.59	3.59	16.87
0.0166	0.420	1.25	40	3.20	3.20	20.07
0.0139	0.354	1.50	45	2.22	2.22	22.29
0.0117	0.297	1.75	50	2.46	2.46	24.75
0.0098	0.250	2.00	60	1.84	1.84	26.59
0.0083	0.210	2.25	70	2.03	2.03	28.62
0.0070	0.177	2.50	80	2.64	2.64	31.26
0.0059	0.149	2.75	100	3.76	3.76	35.02
0.0049	0.125	3.00	120	5.46	5.46	40.48
0.0041	0.105	3.25	140	7.40	7.40	47.88
0.0035	0.088	3.50	170	8.51	8.51	56.39
0.0029	0.074	3.75	200	8.00	8.00	64.39
0.0025	0.063	4.00	230	6.32	6.32	70.71
0.0021	0.053	4.25	270	4.60	4.60	75.30
0.00174	0.0442	4.50	325	3.47	3.47	78.77
0.00146	0.0372	4.75	400	2.79	2.79	81.56
0.00123	0.0313	5.00	450	2.26	2.26	83.82
0.000986	0.0250	5.32	500	2.26	2.26	86.08
0.000790	0.0201	5.64	635	1.74	1.74	87.82
0.000615	0.0156	6.00		1.60	1.60	89.42
0.000435	0.0110	6.50		1.95	1.95	91.37
0.000308	0.00781	7.00		1.82	1.82	93.19
0.000197	0.00500	7.65		2.10	2.10	95.29
0.000077	0.00195	9.00		2.97	2.97	98.26
0.000038	0.000977	10.00		1.12	1.12	99.38
0.000019	0.000488	11.00		0.56	0.56	99.94
0.000015	0.000375	11.38		0.06	0.06	100.00
TOTALS				100.00	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size	
		Inches	Millimeters
5	0.10	0.0367	0.933
10	0.52	0.0274	0.697
16	0.94	0.0205	0.521
25	1.78	0.0114	0.290
40	2.98	0.0050	0.127
50	3.31	0.0040	0.101
60	3.61	0.0032	0.082
75	4.23	0.0021	0.053
84	5.02	0.0012	0.031
90	6.15	0.0006	0.014
95	7.55	0.0002	0.005

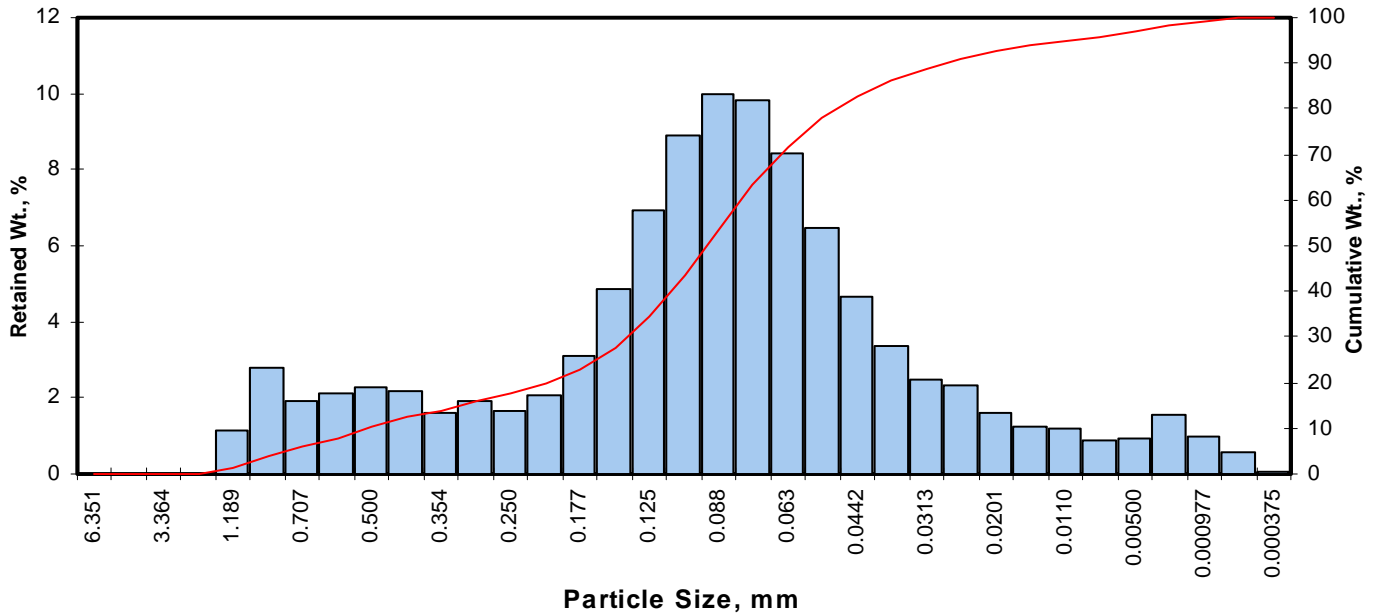
Measure	Trask	Inman	Folk-Ward
Median, phi	3.31	3.31	3.31
Median, in.	0.0040	0.0040	0.0040
Median, mm	0.101	0.101	0.101
Mean, phi	2.54	2.98	3.09
Mean, in.	0.0068	0.0050	0.0046
Mean, mm	0.172	0.127	0.117
Sorting	2.337	2.043	2.151
Skewness	1.234	-0.162	-0.012
Kurtosis	0.174	0.825	1.247
Grain Size Description (ASTM-USCS Scale)		Fine sand (based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	20.07
Fine Sand	200	44.32
Silt	>0.005 mm	30.91
Clay	<0.005 mm	4.71
Total		100

Client: Calscience
 Project: N/A
 Project No: 07-04-0082

PTS File No: 37261
 Sample ID: SS3
 Depth, ft: N/A

Grv	Sand Size			Silt	Clay
	crs	medium	fine		



Opening		Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
Inches	Millimeters					
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	1.15	1.15	1.15
0.0331	0.841	0.25	20	2.81	2.81	3.96
0.0278	0.707	0.50	25	1.89	1.89	5.85
0.0234	0.595	0.75	30	2.12	2.12	7.97
0.0197	0.500	1.00	35	2.26	2.26	10.23
0.0166	0.420	1.25	40	2.16	2.16	12.39
0.0139	0.354	1.50	45	1.60	1.60	13.99
0.0117	0.297	1.75	50	1.92	1.92	15.91
0.0098	0.250	2.00	60	1.64	1.64	17.55
0.0083	0.210	2.25	70	2.08	2.08	19.63
0.0070	0.177	2.50	80	3.09	3.09	22.72
0.0059	0.149	2.75	100	4.84	4.84	27.57
0.0049	0.125	3.00	120	6.94	6.94	34.51
0.0041	0.105	3.25	140	8.89	8.89	43.40
0.0035	0.088	3.50	170	10.00	10.00	53.40
0.0029	0.074	3.75	200	9.81	9.81	63.21
0.0025	0.063	4.00	230	8.41	8.41	71.62
0.0021	0.053	4.25	270	6.46	6.46	78.08
0.00174	0.0442	4.50	325	4.66	4.66	82.75
0.00146	0.0372	4.75	400	3.36	3.36	86.11
0.00123	0.0313	5.00	450	2.49	2.49	88.60
0.000986	0.0250	5.32	500	2.32	2.32	90.92
0.000790	0.0201	5.64	635	1.61	1.61	92.53
0.000615	0.0156	6.00		1.26	1.26	93.79
0.000435	0.0110	6.50		1.21	1.21	95.00
0.000308	0.00781	7.00		0.90	0.90	95.90
0.000197	0.00500	7.65		0.93	0.93	96.83
0.000077	0.00195	9.00		1.56	1.56	98.39
0.000038	0.000977	10.00		0.96	0.96	99.35
0.000019	0.000488	11.00		0.59	0.59	99.94
0.000015	0.000375	11.38		0.06	0.06	100.00
TOTALS				100.00	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size	
		Inches	Millimeters
5	0.39	0.0301	0.764
10	0.97	0.0200	0.509
16	1.76	0.0116	0.295
25	2.62	0.0064	0.163
40	3.15	0.0044	0.112
50	3.42	0.0037	0.094
60	3.67	0.0031	0.079
75	4.13	0.0022	0.057
84	4.59	0.0016	0.041
90	5.19	0.0011	0.027
95	6.50	0.0004	0.011

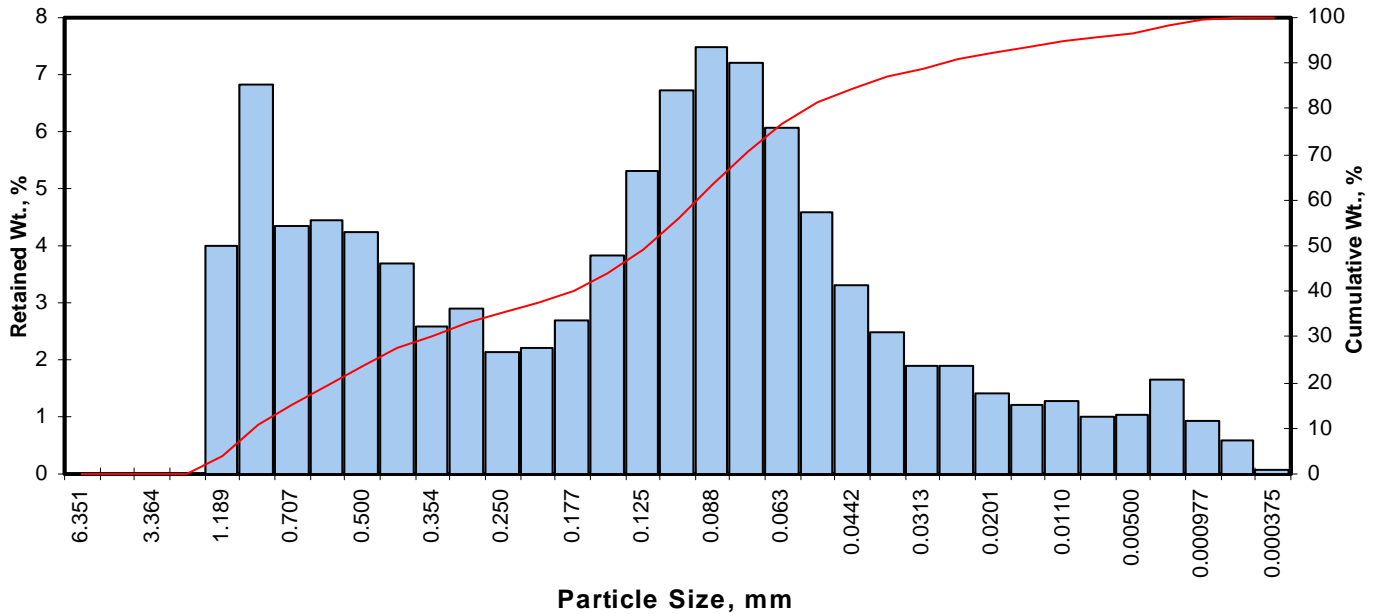
Measure	Trask	Inman	Folk-Ward
Median, phi	3.42	3.42	3.42
Median, in.	0.0037	0.0037	0.0037
Median, mm	0.094	0.094	0.094
Mean, phi	3.18	3.18	3.26
Mean, in.	0.0043	0.0043	0.0041
Mean, mm	0.110	0.110	0.105
Sorting	1.689	1.415	1.634
Skewness	1.029	-0.167	-0.079
Kurtosis	0.110	1.160	1.656
Grain Size Description (ASTM-USCS Scale)	Fine sand (based on Mean from Trask)		

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	12.39
Fine Sand	200	50.82
Silt	>0.005 mm	33.62
Clay	<0.005 mm	3.17
Total		100

Client: Calscience
 Project: N/A
 Project No: 07-04-0082

PTS File No: 37261
 Sample ID: NS1
 Depth, ft: N/A

Grv	Sand Size			Silt	Clay
	crs	medium	fine		



Opening		Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
Inches	Millimeters					
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	3.99	3.99	3.99
0.0331	0.841	0.25	20	6.82	6.82	10.81
0.0278	0.707	0.50	25	4.33	4.33	15.14
0.0234	0.595	0.75	30	4.45	4.45	19.60
0.0197	0.500	1.00	35	4.25	4.25	23.85
0.0166	0.420	1.25	40	3.70	3.70	27.55
0.0139	0.354	1.50	45	2.57	2.57	30.12
0.0117	0.297	1.75	50	2.88	2.88	33.00
0.0098	0.250	2.00	60	2.14	2.14	35.14
0.0083	0.210	2.25	70	2.20	2.20	37.34
0.0070	0.177	2.50	80	2.70	2.70	40.04
0.0059	0.149	2.75	100	3.82	3.82	43.86
0.0049	0.125	3.00	120	5.32	5.32	49.19
0.0041	0.105	3.25	140	6.73	6.73	55.92
0.0035	0.088	3.50	170	7.47	7.47	63.39
0.0029	0.074	3.75	200	7.21	7.21	70.60
0.0025	0.063	4.00	230	6.07	6.07	76.67
0.0021	0.053	4.25	270	4.60	4.60	81.28
0.00174	0.0442	4.50	325	3.32	3.32	84.60
0.00146	0.0372	4.75	400	2.47	2.47	87.07
0.00123	0.0313	5.00	450	1.91	1.91	88.98
0.000986	0.0250	5.32	500	1.88	1.88	90.86
0.000790	0.0201	5.64	635	1.41	1.41	92.27
0.000615	0.0156	6.00		1.20	1.20	93.47
0.000435	0.0110	6.50		1.26	1.26	94.73
0.000308	0.00781	7.00		0.99	0.99	95.72
0.000197	0.00500	7.65		1.04	1.04	96.76
0.000077	0.00195	9.00		1.67	1.67	98.43
0.000038	0.000977	10.00		0.94	0.94	99.37
0.000019	0.000488	11.00		0.57	0.57	99.94
0.000015	0.000375	11.38		0.06	0.06	100.00
TOTALS				100.00	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size	
		Inches	Millimeters
5	-0.18	0.0445	1.130
10	0.19	0.0345	0.876
16	0.55	0.0269	0.684
25	1.08	0.0187	0.474
40	2.50	0.0070	0.177
50	3.03	0.0048	0.122
60	3.39	0.0038	0.096
75	3.93	0.0026	0.066
84	4.46	0.0018	0.046
90	5.17	0.0011	0.028
95	6.64	0.0004	0.010

Measure	Trask	Inman	Folk-Ward
Median, phi	3.03	3.03	3.03
Median, in.	0.0048	0.0048	0.0048
Median, mm	0.122	0.122	0.122
Mean, phi	1.89	2.50	2.68
Mean, in.	0.0106	0.0070	0.0062
Mean, mm	0.270	0.177	0.156
Sorting	2.688	1.954	2.009
Skewness	1.440	-0.271	-0.106
Kurtosis	0.240	0.744	0.979

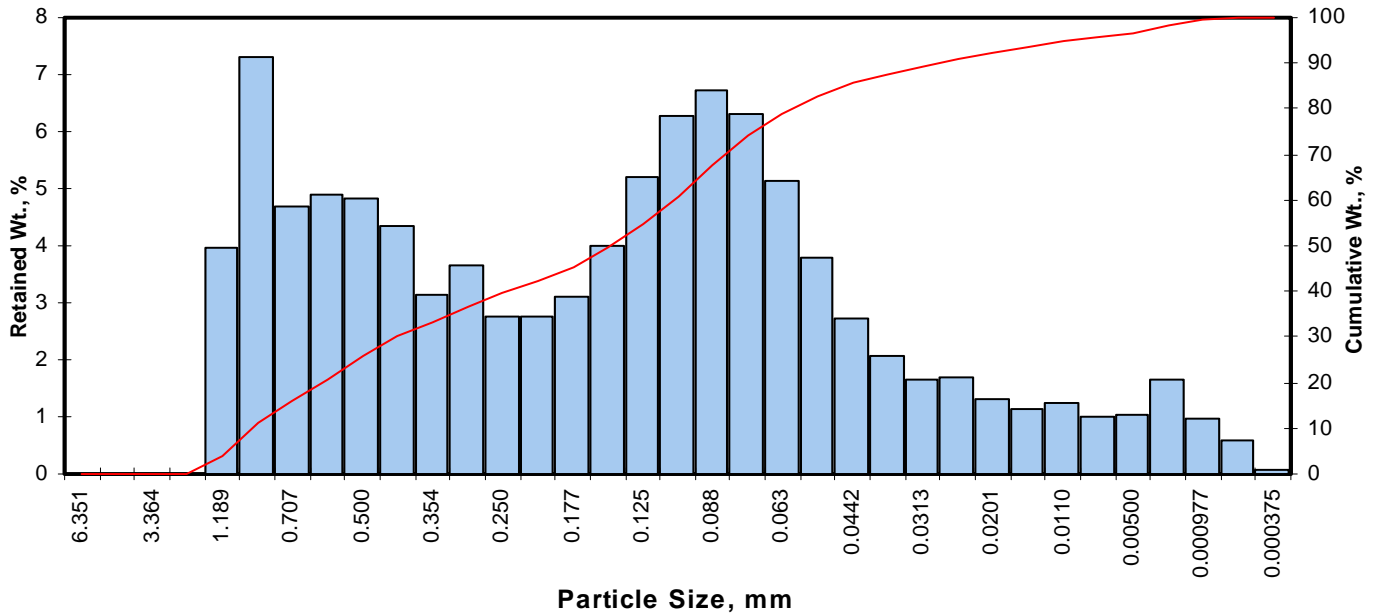
Grain Size Description (ASTM-USCS Scale)	Fine sand (based on Mean from Trask)
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Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	27.55
Fine Sand	200	43.05
Silt	>0.005 mm	26.16
Clay	<0.005 mm	3.24
Total		100

Client: Calscience
 Project: N/A
 Project No: 07-04-0082

PTS File No: 37261
 Sample ID: NS2
 Depth, ft: N/A

Grv	Sand Size			Silt	Clay
	crs	medium	fine		



Opening		Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
Inches	Millimeters					
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	3.95	3.95	3.95
0.0331	0.841	0.25	20	7.32	7.32	11.27
0.0278	0.707	0.50	25	4.68	4.68	15.95
0.0234	0.595	0.75	30	4.90	4.90	20.85
0.0197	0.500	1.00	35	4.82	4.82	25.66
0.0166	0.420	1.25	40	4.35	4.35	30.01
0.0139	0.354	1.50	45	3.13	3.13	33.14
0.0117	0.297	1.75	50	3.65	3.65	36.79
0.0098	0.250	2.00	60	2.76	2.76	39.55
0.0083	0.210	2.25	70	2.75	2.75	42.30
0.0070	0.177	2.50	80	3.12	3.12	45.42
0.0059	0.149	2.75	100	4.01	4.01	49.43
0.0049	0.125	3.00	120	5.20	5.20	54.63
0.0041	0.105	3.25	140	6.28	6.28	60.91
0.0035	0.088	3.50	170	6.74	6.74	67.65
0.0029	0.074	3.75	200	6.30	6.30	73.95
0.0025	0.063	4.00	230	5.14	5.14	79.08
0.0021	0.053	4.25	270	3.80	3.80	82.88
0.00174	0.0442	4.50	325	2.74	2.74	85.62
0.00146	0.0372	4.75	400	2.07	2.07	87.69
0.00123	0.0313	5.00	450	1.65	1.65	89.34
0.000986	0.0250	5.32	500	1.68	1.68	91.02
0.000790	0.0201	5.64	635	1.30	1.30	92.32
0.000615	0.0156	6.00		1.15	1.15	93.47
0.000435	0.0110	6.50		1.24	1.24	94.71
0.000308	0.00781	7.00		0.99	0.99	95.70
0.000197	0.00500	7.65		1.05	1.05	96.75
0.000077	0.00195	9.00		1.67	1.67	98.42
0.000038	0.000977	10.00		0.95	0.95	99.37
0.000019	0.000488	11.00		0.57	0.57	99.94
0.000015	0.000375	11.38		0.06	0.06	100.00
TOTALS				100.00	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size	
		Inches	Millimeters
5	-0.18	0.0445	1.131
10	0.16	0.0352	0.893
16	0.50	0.0278	0.706
25	0.97	0.0202	0.512
40	2.04	0.0096	0.243
50	2.78	0.0057	0.146
60	3.21	0.0042	0.108
75	3.80	0.0028	0.072
84	4.35	0.0019	0.049
90	5.13	0.0011	0.029
95	6.65	0.0004	0.010

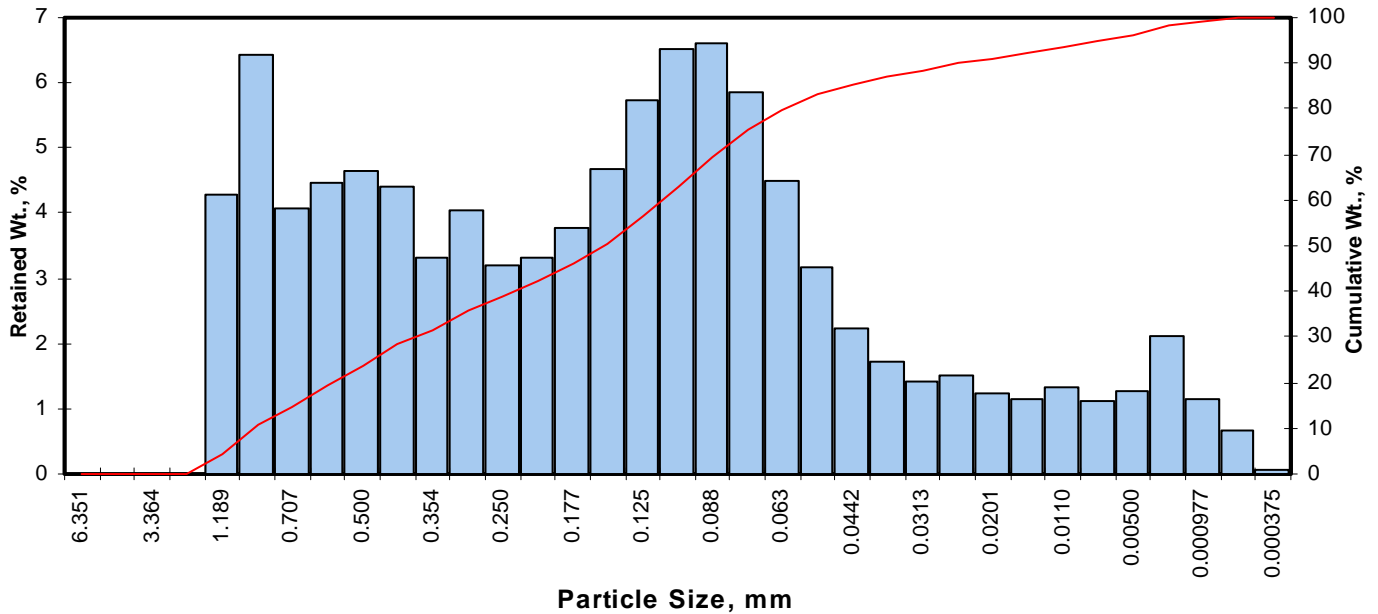
Measure	Trask	Inman	Folk-Ward
Median, phi	2.78	2.78	2.78
Median, in.	0.0057	0.0057	0.0057
Median, mm	0.146	0.146	0.146
Mean, phi	1.78	2.43	2.54
Mean, in.	0.0115	0.0073	0.0068
Mean, mm	0.292	0.186	0.171
Sorting	2.672	1.925	1.996
Skewness	1.314	-0.182	-0.024
Kurtosis	0.255	0.773	0.986
Grain Size Description		Fine sand	
(ASTM-USCS Scale)		(based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	30.01
Fine Sand	200	43.93
Silt	>0.005 mm	22.81
Clay	<0.005 mm	3.25
Total		100

Client: Calscience
 Project: N/A
 Project No: 07-04-0082

PTS File No: 37261
 Sample ID: NS3
 Depth, ft: N/A

Grv	Sand Size			Silt	Clay
	crs	medium	fine		



Opening		Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
Inches	Millimeters					
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	4.27	4.27	4.27
0.0331	0.841	0.25	20	6.44	6.44	10.71
0.0278	0.707	0.50	25	4.08	4.08	14.79
0.0234	0.595	0.75	30	4.45	4.45	19.24
0.0197	0.500	1.00	35	4.65	4.65	23.89
0.0166	0.420	1.25	40	4.41	4.41	28.30
0.0139	0.354	1.50	45	3.31	3.31	31.61
0.0117	0.297	1.75	50	4.03	4.03	35.64
0.0098	0.250	2.00	60	3.21	3.21	38.85
0.0083	0.210	2.25	70	3.32	3.32	42.18
0.0070	0.177	2.50	80	3.78	3.78	45.96
0.0059	0.149	2.75	100	4.67	4.67	50.63
0.0049	0.125	3.00	120	5.72	5.72	56.35
0.0041	0.105	3.25	140	6.52	6.52	62.87
0.0035	0.088	3.50	170	6.62	6.62	69.49
0.0029	0.074	3.75	200	5.85	5.85	75.34
0.0025	0.063	4.00	230	4.50	4.50	79.84
0.0021	0.053	4.25	270	3.16	3.16	83.00
0.00174	0.0442	4.50	325	2.23	2.23	85.23
0.00146	0.0372	4.75	400	1.72	1.72	86.95
0.00123	0.0313	5.00	450	1.43	1.43	88.38
0.000986	0.0250	5.32	500	1.52	1.52	89.90
0.000790	0.0201	5.64	635	1.25	1.25	91.15
0.000615	0.0156	6.00		1.15	1.15	92.30
0.000435	0.0110	6.50		1.32	1.32	93.62
0.000308	0.00781	7.00		1.12	1.12	94.74
0.000197	0.00500	7.65		1.26	1.26	96.00
0.000077	0.00195	9.00		2.12	2.12	98.12
0.000038	0.000977	10.00		1.15	1.15	99.27
0.000019	0.000488	11.00		0.66	0.66	99.93
0.000015	0.000375	11.38		0.07	0.07	100.00
TOTALS				100.00	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size	
		Inches	Millimeters
5	-0.19	0.0450	1.143
10	0.19	0.0344	0.874
16	0.57	0.0266	0.675
25	1.06	0.0188	0.479
40	2.09	0.0093	0.235
50	2.72	0.0060	0.152
60	3.14	0.0045	0.113
75	3.74	0.0030	0.075
84	4.36	0.0019	0.049
90	5.35	0.0010	0.025
95	7.13	0.0003	0.007

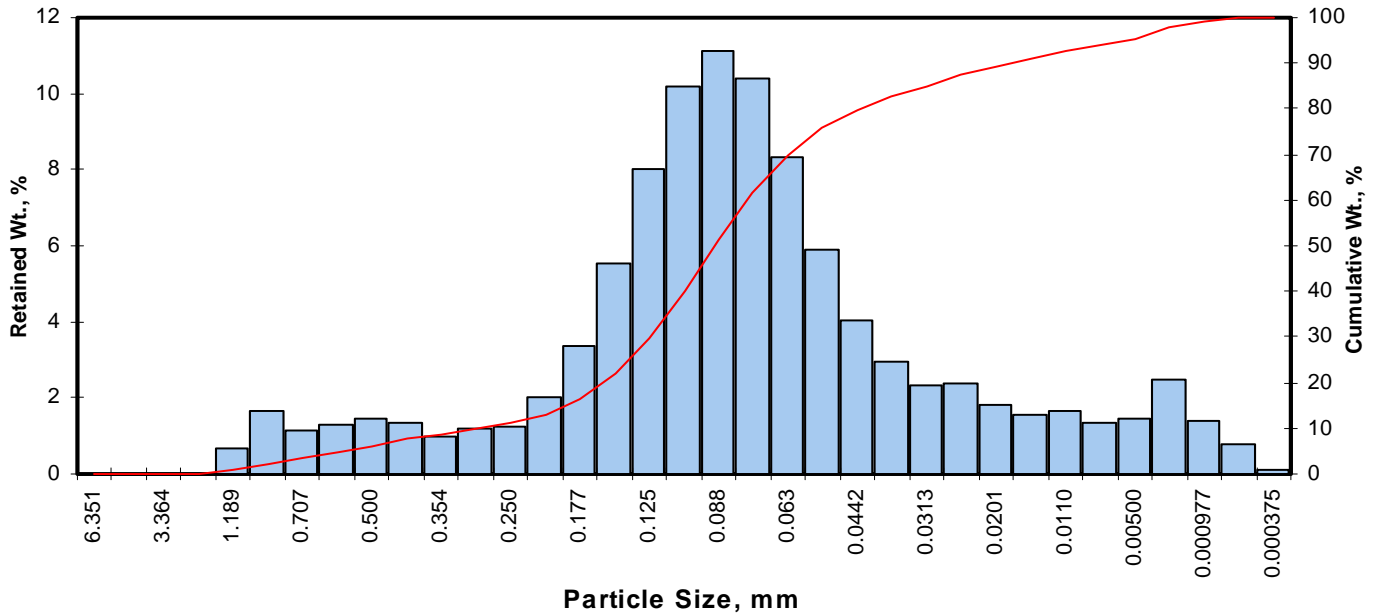
Measure	Trask	Inman	Folk-Ward
Median, phi	2.72	2.72	2.72
Median, in.	0.0060	0.0060	0.0060
Median, mm	0.152	0.152	0.152
Mean, phi	1.85	2.46	2.55
Mean, in.	0.0109	0.0071	0.0067
Mean, mm	0.277	0.181	0.171
Sorting	2.525	1.897	2.059
Skewness	1.246	-0.133	0.037
Kurtosis	0.238	0.931	1.123
Grain Size Description (ASTM-USCS Scale)	Fine sand (based on Mean from Trask)		

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	28.30
Fine Sand	200	47.04
Silt	>0.005 mm	20.66
Clay	<0.005 mm	4.00
Total		100

Client: Calscience
Project: N/A
Project No: 07-04-0082

PTS File No: 37261
Sample ID: GC1
Depth, ft: N/A

Grv	Sand Size			Silt	Clay
	crs	medium	fine		



Opening		Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
Inches	Millimeters					
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.67	0.67	0.67
0.0331	0.841	0.25	20	1.66	1.66	2.33
0.0278	0.707	0.50	25	1.13	1.13	3.46
0.0234	0.595	0.75	30	1.31	1.31	4.77
0.0197	0.500	1.00	35	1.46	1.46	6.23
0.0166	0.420	1.25	40	1.37	1.37	7.60
0.0139	0.354	1.50	45	0.97	0.97	8.57
0.0117	0.297	1.75	50	1.18	1.18	9.75
0.0098	0.250	2.00	60	1.25	1.25	11.00
0.0083	0.210	2.25	70	2.00	2.00	13.00
0.0070	0.177	2.50	80	3.37	3.37	16.36
0.0059	0.149	2.75	100	5.52	5.52	21.88
0.0049	0.125	3.00	120	8.00	8.00	29.88
0.0041	0.105	3.25	140	10.20	10.20	40.08
0.0035	0.088	3.50	170	11.10	11.10	51.17
0.0029	0.074	3.75	200	10.40	10.40	61.57
0.0025	0.063	4.00	230	8.34	8.34	69.91
0.0021	0.053	4.25	270	5.92	5.92	75.83
0.00174	0.0442	4.50	325	4.03	4.03	79.85
0.00146	0.0372	4.75	400	2.94	2.94	82.79
0.00123	0.0313	5.00	450	2.32	2.32	85.11
0.000986	0.0250	5.32	500	2.36	2.36	87.47
0.000790	0.0201	5.64	635	1.80	1.80	89.27
0.000615	0.0156	6.00		1.55	1.55	90.82
0.000435	0.0110	6.50		1.65	1.65	92.47
0.000308	0.00781	7.00		1.33	1.33	93.80
0.000197	0.00500	7.65		1.46	1.46	95.26
0.000077	0.00195	9.00		2.47	2.47	97.73
0.000038	0.000977	10.00		1.39	1.39	99.12
0.000019	0.000488	11.00		0.80	0.80	99.92
0.000015	0.000375	11.38		0.08	0.08	100.00
TOTALS				100.00	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size	
		Inches	Millimeters
5	0.79	0.0228	0.578
10	1.80	0.0113	0.287
16	2.47	0.0071	0.180
25	2.85	0.0055	0.139
40	3.25	0.0041	0.105
50	3.47	0.0035	0.090
60	3.71	0.0030	0.076
75	4.22	0.0021	0.054
84	4.88	0.0013	0.034
90	5.81	0.0007	0.018
95	7.53	0.0002	0.005

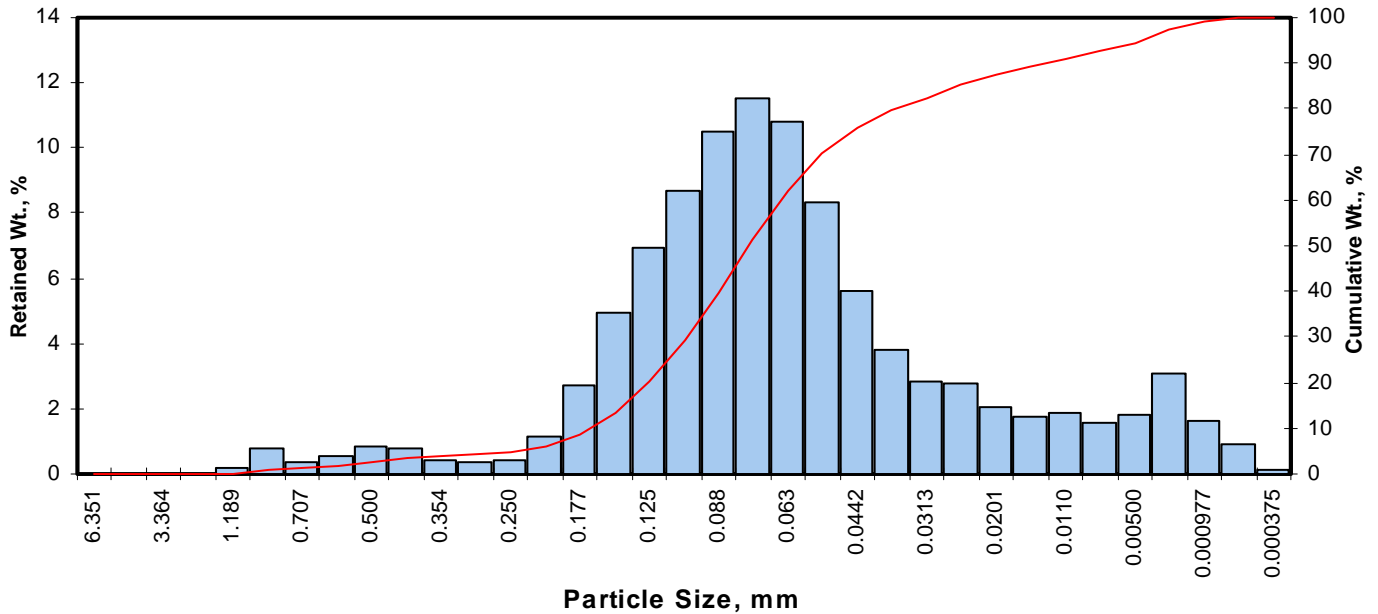
Measure	Trask	Inman	Folk-Ward
Median, phi	3.47	3.47	3.47
Median, in.	0.0035	0.0035	0.0035
Median, mm	0.090	0.090	0.090
Mean, phi	3.37	3.68	3.61
Mean, in.	0.0038	0.0031	0.0032
Mean, mm	0.096	0.078	0.082
Sorting	1.606	1.204	1.623
Skewness	0.961	0.169	0.186
Kurtosis	0.158	1.800	2.020
Grain Size Description (ASTM-USCS Scale)	Fine sand (based on Mean from Trask)		

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	7.60
Fine Sand	200	53.97
Silt	>0.005 mm	33.69
Clay	<0.005 mm	4.74
Total		100

Client: Calscience
 Project: N/A
 Project No: 07-04-0082

PTS File No: 37261
 Sample ID: GC2
 Depth, ft: N/A

Grv	Sand Size			Silt	Clay
	crs	medium	fine		



Opening		Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
Inches	Millimeters					
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.17	0.17	0.17
0.0331	0.841	0.25	20	0.77	0.77	0.94
0.0278	0.707	0.50	25	0.38	0.38	1.32
0.0234	0.595	0.75	30	0.55	0.55	1.87
0.0197	0.500	1.00	35	0.83	0.83	2.70
0.0166	0.420	1.25	40	0.78	0.78	3.48
0.0139	0.354	1.50	45	0.43	0.43	3.91
0.0117	0.297	1.75	50	0.36	0.36	4.27
0.0098	0.250	2.00	60	0.44	0.44	4.71
0.0083	0.210	2.25	70	1.17	1.17	5.88
0.0070	0.177	2.50	80	2.71	2.71	8.59
0.0059	0.149	2.75	100	4.92	4.92	13.51
0.0049	0.125	3.00	120	6.92	6.92	20.44
0.0041	0.105	3.25	140	8.71	8.71	29.15
0.0035	0.088	3.50	170	10.50	10.50	39.65
0.0029	0.074	3.75	200	11.50	11.50	51.15
0.0025	0.063	4.00	230	10.80	10.80	61.96
0.0021	0.053	4.25	270	8.35	8.35	70.31
0.00174	0.0442	4.50	325	5.60	5.60	75.91
0.00146	0.0372	4.75	400	3.78	3.78	79.69
0.00123	0.0313	5.00	450	2.82	2.82	82.51
0.000986	0.0250	5.32	500	2.79	2.79	85.30
0.000790	0.0201	5.64	635	2.05	2.05	87.35
0.000615	0.0156	6.00		1.72	1.72	89.07
0.000435	0.0110	6.50		1.87	1.87	90.94
0.000308	0.00781	7.00		1.59	1.59	92.53
0.000197	0.00500	7.65		1.81	1.81	94.35
0.000077	0.00195	9.00		3.05	3.05	97.40
0.000038	0.000977	10.00		1.61	1.61	99.01
0.000019	0.000488	11.00		0.90	0.90	99.91
0.000015	0.000375	11.38		0.09	0.09	100.00
TOTALS				100.00	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size	
		Inches	Millimeters
5	2.06	0.0094	0.240
10	2.57	0.0066	0.168
16	2.84	0.0055	0.140
25	3.13	0.0045	0.114
40	3.51	0.0035	0.088
50	3.72	0.0030	0.076
60	3.95	0.0025	0.064
75	4.46	0.0018	0.045
84	5.17	0.0011	0.028
90	6.25	0.0005	0.013
95	7.94	0.0002	0.004

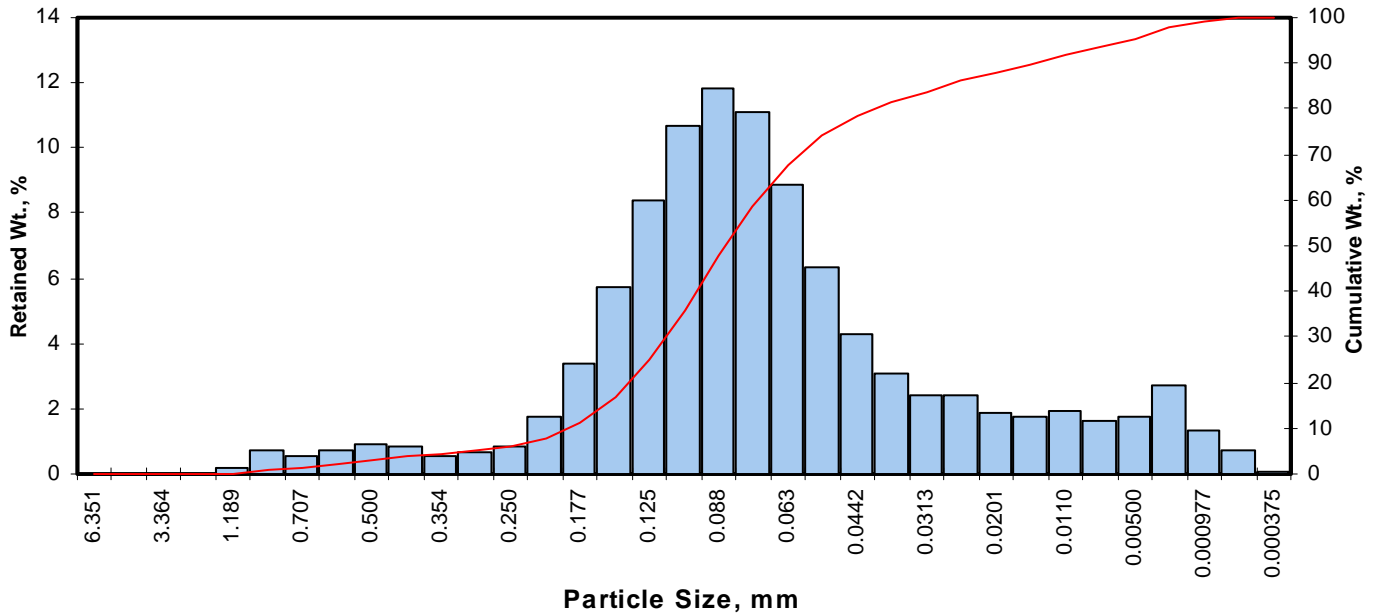
Measure	Trask	Inman	Folk-Ward
Median, phi	3.72	3.72	3.72
Median, in.	0.0030	0.0030	0.0030
Median, mm	0.076	0.076	0.076
Mean, phi	3.65	4.01	3.91
Mean, in.	0.0031	0.0025	0.0026
Mean, mm	0.080	0.062	0.066
Sorting	1.585	1.165	1.473
Skewness	0.952	0.240	0.337
Kurtosis	0.222	1.520	1.812
Grain Size Description (ASTM-USCS Scale)	Fine sand (based on Mean from Trask)		

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	3.48
Fine Sand	200	47.67
Silt	>0.005 mm	43.19
Clay	<0.005 mm	5.65
Total		100

Client: Calscience
 Project: N/A
 Project No: 07-04-0082

PTS File No: 37261
 Sample ID: GC3
 Depth, ft: N/A

Grv	Sand Size			Silt	Clay
	crs	medium	fine		



Opening		Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
Inches	Millimeters					
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.20	0.20	0.20
0.0331	0.841	0.25	20	0.71	0.71	0.91
0.0278	0.707	0.50	25	0.53	0.53	1.44
0.0234	0.595	0.75	30	0.72	0.72	2.16
0.0197	0.500	1.00	35	0.92	0.92	3.08
0.0166	0.420	1.25	40	0.87	0.87	3.95
0.0139	0.354	1.50	45	0.57	0.57	4.52
0.0117	0.297	1.75	50	0.65	0.65	5.17
0.0098	0.250	2.00	60	0.83	0.83	6.00
0.0083	0.210	2.25	70	1.74	1.74	7.74
0.0070	0.177	2.50	80	3.36	3.36	11.10
0.0059	0.149	2.75	100	5.72	5.72	16.82
0.0049	0.125	3.00	120	8.36	8.36	25.18
0.0041	0.105	3.25	140	10.70	10.70	35.88
0.0035	0.088	3.50	170	11.80	11.80	47.68
0.0029	0.074	3.75	200	11.10	11.10	58.78
0.0025	0.063	4.00	230	8.88	8.88	67.66
0.0021	0.053	4.25	270	6.32	6.32	73.98
0.00174	0.0442	4.50	325	4.30	4.30	78.28
0.00146	0.0372	4.75	400	3.09	3.09	81.37
0.00123	0.0313	5.00	450	2.39	2.39	83.76
0.000986	0.0250	5.32	500	2.41	2.41	86.17
0.000790	0.0201	5.64	635	1.90	1.90	88.07
0.000615	0.0156	6.00		1.72	1.72	89.79
0.000435	0.0110	6.50		1.96	1.96	91.75
0.000308	0.00781	7.00		1.65	1.65	93.40
0.000197	0.00500	7.65		1.78	1.78	95.18
0.000077	0.00195	9.00		2.70	2.70	97.88
0.000038	0.000977	10.00		1.32	1.32	99.20
0.000019	0.000488	11.00		0.73	0.73	99.93
0.000015	0.000375	11.38		0.08	0.07	100.00
TOTALS				100.00	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size	
		Inches	Millimeters
5	1.68	0.0122	0.311
10	2.42	0.0074	0.187
16	2.71	0.0060	0.152
25	2.99	0.0049	0.125
40	3.34	0.0039	0.099
50	3.55	0.0034	0.085
60	3.78	0.0029	0.073
75	4.31	0.0020	0.050
84	5.03	0.0012	0.031
90	6.05	0.0006	0.015
95	7.58	0.0002	0.005

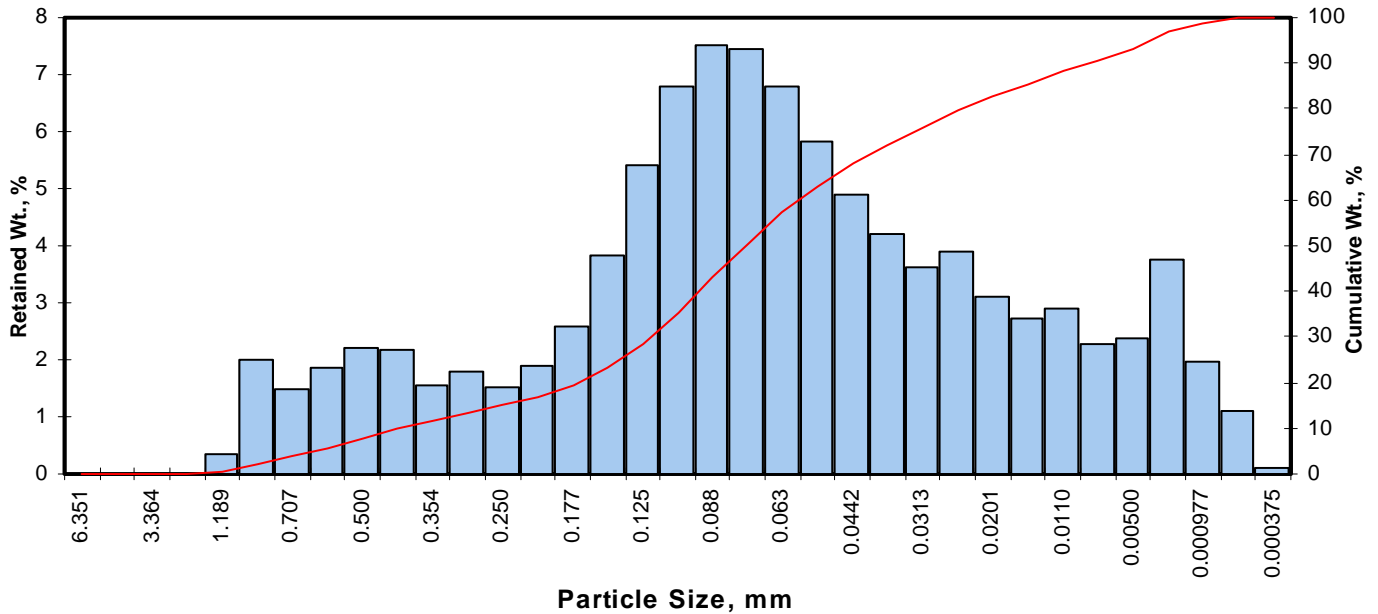
Measure	Trask	Inman	Folk-Ward
Median, phi	3.55	3.55	3.55
Median, in.	0.0034	0.0034	0.0034
Median, mm	0.085	0.085	0.085
Mean, phi	3.51	3.87	3.77
Mean, in.	0.0035	0.0027	0.0029
Mean, mm	0.088	0.068	0.073
Sorting	1.577	1.159	1.473
Skewness	0.933	0.277	0.322
Kurtosis	0.218	1.544	1.838
Grain Size Description		Fine sand	
(ASTM-USCS Scale)		(based on Mean from Trask)	

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	3.95
Fine Sand	200	54.83
Silt	>0.005 mm	36.40
Clay	<0.005 mm	4.82
Total		100

Client: Calscience
 Project: N/A
 Project No: 07-04-0082

PTS File No: 37261
 Sample ID: GC4
 Depth, ft: N/A

Grv	Sand Size			Silt	Clay
	crs	medium	fine		



Opening		Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
Inches	Millimeters					
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.34	0.34	0.34
0.0331	0.841	0.25	20	2.01	2.01	2.35
0.0278	0.707	0.50	25	1.49	1.49	3.84
0.0234	0.595	0.75	30	1.87	1.87	5.71
0.0197	0.500	1.00	35	2.21	2.21	7.92
0.0166	0.420	1.25	40	2.16	2.16	10.08
0.0139	0.354	1.50	45	1.55	1.55	11.63
0.0117	0.297	1.75	50	1.79	1.79	13.42
0.0098	0.250	2.00	60	1.53	1.53	14.95
0.0083	0.210	2.25	70	1.88	1.88	16.83
0.0070	0.177	2.50	80	2.58	2.58	19.41
0.0059	0.149	2.75	100	3.83	3.83	23.24
0.0049	0.125	3.00	120	5.40	5.40	28.64
0.0041	0.105	3.25	140	6.79	6.79	35.43
0.0035	0.088	3.50	170	7.52	7.52	42.95
0.0029	0.074	3.75	200	7.46	7.46	50.42
0.0025	0.063	4.00	230	6.78	6.78	57.20
0.0021	0.053	4.25	270	5.81	5.81	63.01
0.00174	0.0442	4.50	325	4.91	4.91	67.92
0.00146	0.0372	4.75	400	4.20	4.20	72.12
0.00123	0.0313	5.00	450	3.63	3.63	75.75
0.000986	0.0250	5.32	500	3.91	3.91	79.66
0.000790	0.0201	5.64	635	3.12	3.12	82.78
0.000615	0.0156	6.00		2.74	2.74	85.52
0.000435	0.0110	6.50		2.88	2.88	88.40
0.000308	0.00781	7.00		2.26	2.26	90.66
0.000197	0.00500	7.65		2.38	2.38	93.04
0.000077	0.00195	9.00		3.76	3.76	96.80
0.000038	0.000977	10.00		1.96	1.96	98.76
0.000019	0.000488	11.00		1.12	1.12	99.88
0.000015	0.000375	11.38		0.12	0.12	100.00
TOTALS				100.00	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size	
		Inches	Millimeters
5	0.66	0.0250	0.635
10	1.24	0.0167	0.423
16	2.14	0.0089	0.227
25	2.83	0.0055	0.140
40	3.40	0.0037	0.095
50	3.74	0.0030	0.075
60	4.12	0.0023	0.057
75	4.95	0.0013	0.032
84	5.80	0.0007	0.018
90	6.85	0.0003	0.009
95	8.35	0.0001	0.003

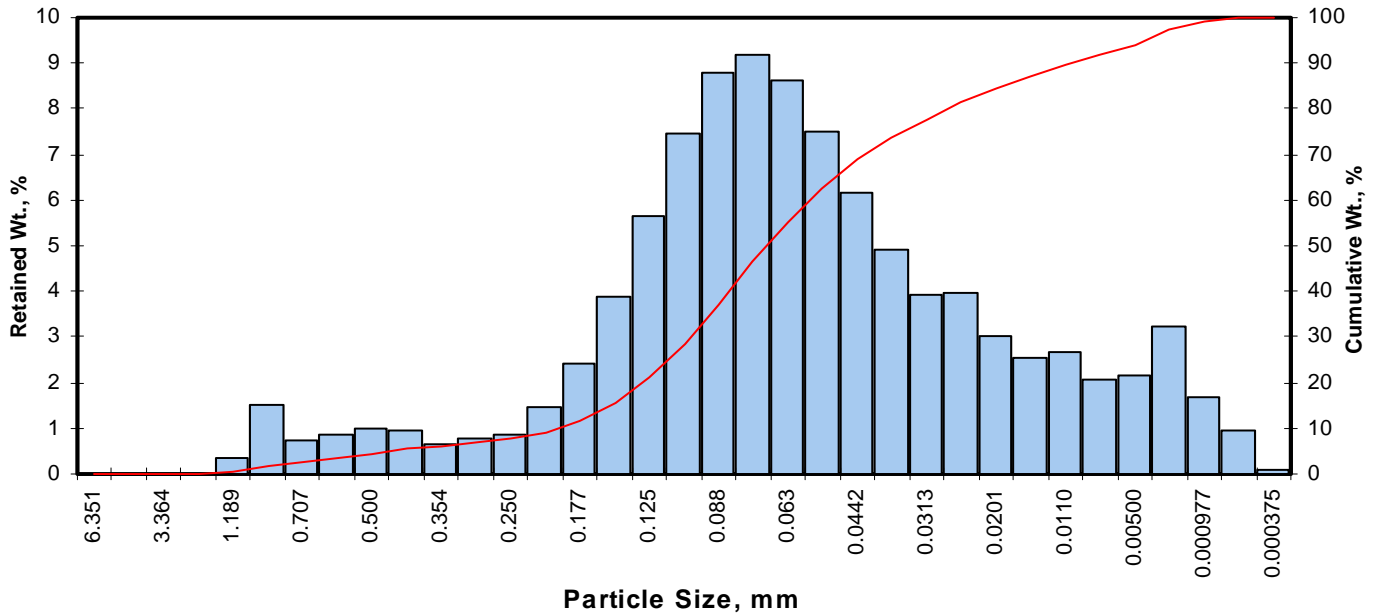
Measure	Trask	Inman	Folk-Ward
Median, phi	3.74	3.74	3.74
Median, in.	0.0030	0.0030	0.0030
Median, mm	0.075	0.075	0.075
Mean, phi	3.53	3.97	3.89
Mean, in.	0.0034	0.0025	0.0027
Mean, mm	0.086	0.064	0.067
Sorting	2.083	1.831	2.081
Skewness	0.899	0.128	0.164
Kurtosis	0.130	1.102	1.490
Grain Size Description (ASTM-USCS Scale)	Fine sand (based on Mean from Trask)		

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	10.08
Fine Sand	200	40.33
Silt	>0.005 mm	42.62
Clay	<0.005 mm	6.96
Total		100

Client: Calscience
 Project: N/A
 Project No: 07-04-0082

PTS File No: 37261
 Sample ID: GC5
 Depth, ft: N/A

Grv	Sand Size			Silt	Clay
	crs	medium	fine		



Opening		Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
Inches	Millimeters					
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.33	0.33	0.33
0.0331	0.841	0.25	20	1.50	1.50	1.83
0.0278	0.707	0.50	25	0.75	0.75	2.58
0.0234	0.595	0.75	30	0.85	0.85	3.43
0.0197	0.500	1.00	35	1.01	1.01	4.44
0.0166	0.420	1.25	40	0.95	0.95	5.39
0.0139	0.354	1.50	45	0.64	0.64	6.03
0.0117	0.297	1.75	50	0.77	0.77	6.80
0.0098	0.250	2.00	60	0.86	0.86	7.66
0.0083	0.210	2.25	70	1.45	1.45	9.11
0.0070	0.177	2.50	80	2.42	2.42	11.53
0.0059	0.149	2.75	100	3.86	3.86	15.39
0.0049	0.125	3.00	120	5.63	5.63	21.02
0.0041	0.105	3.25	140	7.46	7.46	28.48
0.0035	0.088	3.50	170	8.79	8.79	37.27
0.0029	0.074	3.75	200	9.18	9.18	46.46
0.0025	0.063	4.00	230	8.64	8.64	55.10
0.0021	0.053	4.25	270	7.50	7.50	62.60
0.00174	0.0442	4.50	325	6.17	6.17	68.77
0.00146	0.0372	4.75	400	4.93	4.93	73.70
0.00123	0.0313	5.00	450	3.93	3.93	77.63
0.000986	0.0250	5.32	500	3.95	3.95	81.58
0.000790	0.0201	5.64	635	3.01	3.01	84.59
0.000615	0.0156	6.00		2.56	2.56	87.15
0.000435	0.0110	6.50		2.66	2.66	89.81
0.000308	0.00781	7.00		2.07	2.07	91.88
0.000197	0.00500	7.65		2.14	2.14	94.02
0.000077	0.00195	9.00		3.25	3.25	97.27
0.000038	0.000977	10.00		1.67	1.67	98.94
0.000019	0.000488	11.00		0.96	0.96	99.90
0.000015	0.000375	11.38		0.10	0.10	100.00
TOTALS				100.00	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size	
		Inches	Millimeters
5	1.15	0.0178	0.451
10	2.34	0.0078	0.197
16	2.78	0.0057	0.146
25	3.13	0.0045	0.114
40	3.57	0.0033	0.084
50	3.85	0.0027	0.069
60	4.16	0.0022	0.056
75	4.83	0.0014	0.035
84	5.58	0.0008	0.021
90	6.55	0.0004	0.011
95	8.05	0.0001	0.004

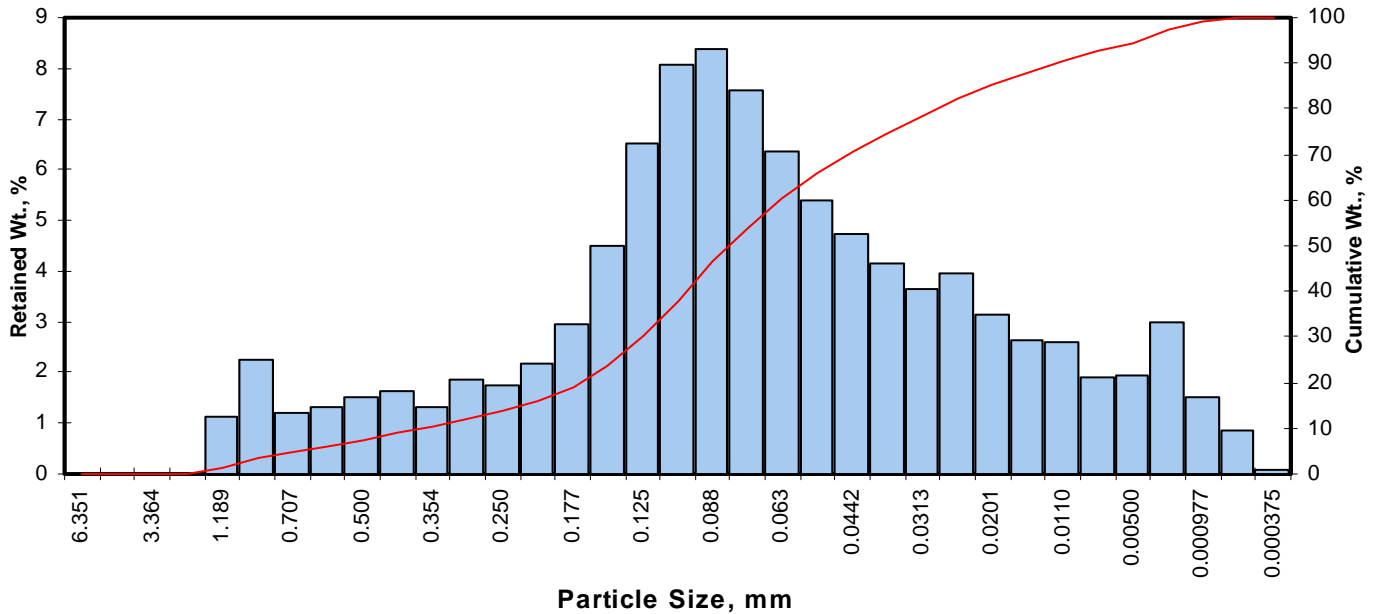
Measure	Trask	Inman	Folk-Ward
Median, phi	3.85	3.85	3.85
Median, in.	0.0027	0.0027	0.0027
Median, mm	0.069	0.069	0.069
Mean, phi	3.75	4.18	4.07
Mean, in.	0.0029	0.0022	0.0023
Mean, mm	0.075	0.055	0.060
Sorting	1.802	1.400	1.746
Skewness	0.914	0.232	0.224
Kurtosis	0.211	1.466	1.665
Grain Size Description (ASTM-USCS Scale)	Fine sand (based on Mean from Trask)		

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	5.39
Fine Sand	200	41.06
Silt	>0.005 mm	47.57
Clay	<0.005 mm	5.98
Total		100

Client: Calscience
 Project: N/A
 Project No: 07-04-0082

PTS File No: 37261
 Sample ID: GC6
 Depth, ft: N/A

Grv	Sand Size			Silt	Clay
	crs	medium	fine		



Opening		Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
Inches	Millimeters					
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	1.14	1.14	1.14
0.0331	0.841	0.25	20	2.25	2.25	3.39
0.0278	0.707	0.50	25	1.20	1.20	4.59
0.0234	0.595	0.75	30	1.30	1.30	5.89
0.0197	0.500	1.00	35	1.53	1.53	7.42
0.0166	0.420	1.25	40	1.62	1.62	9.04
0.0139	0.354	1.50	45	1.33	1.33	10.37
0.0117	0.297	1.75	50	1.85	1.85	12.22
0.0098	0.250	2.00	60	1.76	1.76	13.98
0.0083	0.210	2.25	70	2.16	2.16	16.14
0.0070	0.177	2.50	80	2.94	2.94	19.08
0.0059	0.149	2.75	100	4.49	4.49	23.57
0.0049	0.125	3.00	120	6.50	6.50	30.06
0.0041	0.105	3.25	140	8.07	8.07	38.13
0.0035	0.088	3.50	170	8.38	8.38	46.51
0.0029	0.074	3.75	200	7.55	7.55	54.06
0.0025	0.063	4.00	230	6.36	6.36	60.42
0.0021	0.053	4.25	270	5.38	5.38	65.80
0.00174	0.0442	4.50	325	4.72	4.72	70.52
0.00146	0.0372	4.75	400	4.17	4.17	74.69
0.00123	0.0313	5.00	450	3.66	3.66	78.34
0.000986	0.0250	5.32	500	3.96	3.96	82.30
0.000790	0.0201	5.64	635	3.13	3.13	85.43
0.000615	0.0156	6.00		2.63	2.63	88.06
0.000435	0.0110	6.50		2.60	2.60	90.66
0.000308	0.00781	7.00		1.92	1.92	92.58
0.000197	0.00500	7.65		1.95	1.95	94.53
0.000077	0.00195	9.00		2.98	2.98	97.51
0.000038	0.000977	10.00		1.53	1.53	99.04
0.000019	0.000488	11.00		0.87	0.87	99.91
0.000015	0.000375	11.38		0.09	0.09	100.00
TOTALS				100.00	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size	
		Inches	Millimeters
5	0.58	0.0264	0.669
10	1.43	0.0146	0.371
16	2.23	0.0084	0.213
25	2.81	0.0056	0.143
40	3.31	0.0040	0.101
50	3.62	0.0032	0.082
60	3.98	0.0025	0.063
75	4.77	0.0014	0.037
84	5.49	0.0009	0.022
90	6.37	0.0005	0.012
95	7.86	0.0002	0.004

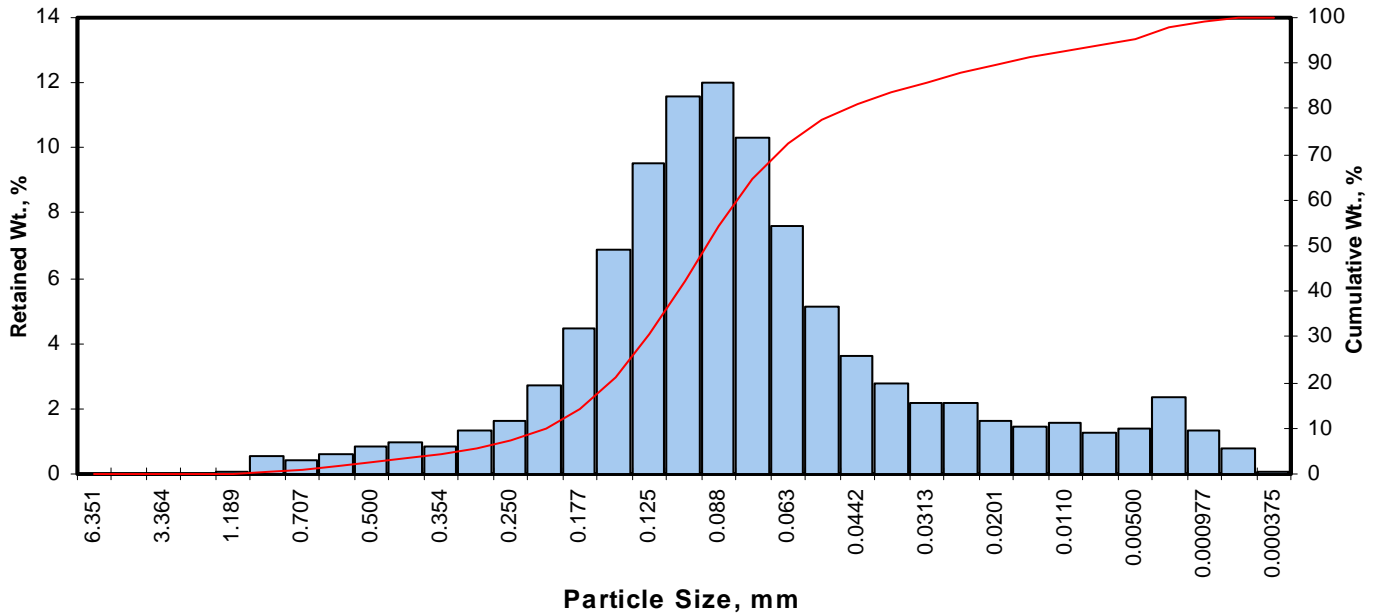
Measure	Trask	Inman	Folk-Ward
Median, phi	3.62	3.62	3.62
Median, in.	0.0032	0.0032	0.0032
Median, mm	0.082	0.082	0.082
Mean, phi	3.48	3.86	3.78
Mean, in.	0.0035	0.0027	0.0029
Mean, mm	0.090	0.069	0.073
Sorting	1.977	1.630	1.918
Skewness	0.887	0.152	0.159
Kurtosis	0.148	1.233	1.517
Grain Size Description (ASTM-USCS Scale)	Fine sand (based on Mean from Trask)		

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	9.04
Fine Sand	200	45.02
Silt	>0.005 mm	40.47
Clay	<0.005 mm	5.47
Total		100

Client: Calscience
Project: N/A
Project No: 07-04-0082

PTS File No: 37261
Sample ID: GC7
Depth, ft: N/A

Grv	Sand Size			Silt	Clay
	crs	medium	fine		



Opening		Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
Inches	Millimeters					
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.06	0.06	0.06
0.0331	0.841	0.25	20	0.52	0.52	0.58
0.0278	0.707	0.50	25	0.40	0.40	0.98
0.0234	0.595	0.75	30	0.58	0.58	1.56
0.0197	0.500	1.00	35	0.84	0.84	2.40
0.0166	0.420	1.25	40	0.98	0.98	3.38
0.0139	0.354	1.50	45	0.85	0.85	4.23
0.0117	0.297	1.75	50	1.33	1.33	5.56
0.0098	0.250	2.00	60	1.66	1.66	7.22
0.0083	0.210	2.25	70	2.74	2.74	9.96
0.0070	0.177	2.50	80	4.45	4.45	14.40
0.0059	0.149	2.75	100	6.87	6.87	21.27
0.0049	0.125	3.00	120	9.53	9.53	30.80
0.0041	0.105	3.25	140	11.60	11.60	42.39
0.0035	0.088	3.50	170	12.00	12.00	54.39
0.0029	0.074	3.75	200	10.30	10.30	64.68
0.0025	0.063	4.00	230	7.58	7.58	72.26
0.0021	0.053	4.25	270	5.15	5.15	77.41
0.00174	0.0442	4.50	325	3.61	3.61	81.02
0.00146	0.0372	4.75	400	2.75	2.75	83.77
0.00123	0.0313	5.00	450	2.18	2.18	85.95
0.000986	0.0250	5.32	500	2.17	2.17	88.12
0.000790	0.0201	5.64	635	1.65	1.65	89.76
0.000615	0.0156	6.00		1.44	1.44	91.20
0.000435	0.0110	6.50		1.57	1.57	92.77
0.000308	0.00781	7.00		1.29	1.29	94.06
0.000197	0.00500	7.65		1.41	1.41	95.47
0.000077	0.00195	9.00		2.36	2.36	97.83
0.000038	0.000977	10.00		1.32	1.32	99.15
0.000019	0.000488	11.00		0.77	0.77	99.92
0.000015	0.000375	11.38		0.08	0.08	100.00
TOTALS				100.00	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size	
		Inches	Millimeters
5	1.65	0.0126	0.320
10	2.25	0.0083	0.210
16	2.56	0.0067	0.170
25	2.85	0.0055	0.139
40	3.20	0.0043	0.109
50	3.41	0.0037	0.094
60	3.64	0.0032	0.080
75	4.13	0.0022	0.057
84	4.78	0.0014	0.036
90	5.70	0.0008	0.019
95	7.43	0.0002	0.006

Measure	Trask	Inman	Folk-Ward
Median, phi	3.41	3.41	3.41
Median, in.	0.0037	0.0037	0.0037
Median, mm	0.094	0.094	0.094
Mean, phi	3.35	3.67	3.58
Mean, in.	0.0039	0.0031	0.0033
Mean, mm	0.098	0.079	0.084
Sorting	1.561	1.109	1.431
Skewness	0.945	0.233	0.312
Kurtosis	0.215	1.607	1.844

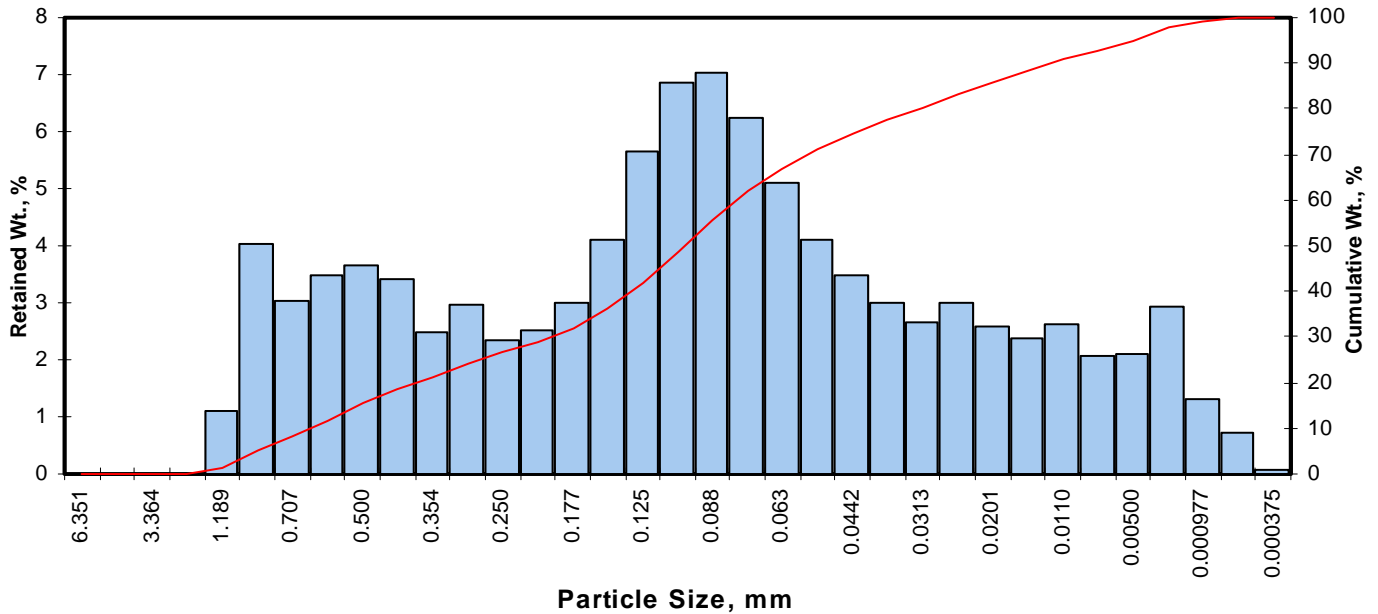
Grain Size Description (ASTM-USCS Scale) Fine sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	3.38
Fine Sand	200	61.31
Silt	>0.005 mm	30.79
Clay	<0.005 mm	4.53
Total		100

Client: Calscience
 Project: N/A
 Project No: 07-04-0082

PTS File No: 37261
 Sample ID: GC8
 Depth, ft: N/A

Grv	Sand Size			Silt	Clay
	crs	medium	fine		



Opening		Phi of Screen	U.S. No.	Sample Weight, grams	Increment Weight, percent	Cumulative Weight, percent
Inches	Millimeters					
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	1.10	1.10	1.10
0.0331	0.841	0.25	20	4.02	4.02	5.12
0.0278	0.707	0.50	25	3.05	3.05	8.17
0.0234	0.595	0.75	30	3.49	3.49	11.66
0.0197	0.500	1.00	35	3.66	3.66	15.32
0.0166	0.420	1.25	40	3.41	3.41	18.73
0.0139	0.354	1.50	45	2.49	2.49	21.22
0.0117	0.297	1.75	50	2.96	2.96	24.18
0.0098	0.250	2.00	60	2.36	2.36	26.54
0.0083	0.210	2.25	70	2.50	2.50	29.04
0.0070	0.177	2.50	80	2.99	2.99	32.03
0.0059	0.149	2.75	100	4.11	4.11	36.14
0.0049	0.125	3.00	120	5.65	5.65	41.79
0.0041	0.105	3.25	140	6.85	6.85	48.64
0.0035	0.088	3.50	170	7.02	7.02	55.66
0.0029	0.074	3.75	200	6.23	6.23	61.89
0.0025	0.063	4.00	230	5.09	5.09	66.98
0.0021	0.053	4.25	270	4.12	4.12	71.10
0.00174	0.0442	4.50	325	3.47	3.47	74.57
0.00146	0.0372	4.75	400	3.00	3.00	77.57
0.00123	0.0313	5.00	450	2.66	2.66	80.23
0.000986	0.0250	5.32	500	2.99	2.99	83.22
0.000790	0.0201	5.64	635	2.57	2.57	85.79
0.000615	0.0156	6.00		2.38	2.38	88.17
0.000435	0.0110	6.50		2.62	2.62	90.79
0.000308	0.00781	7.00		2.08	2.08	92.87
0.000197	0.00500	7.65		2.11	2.11	94.98
0.000077	0.00195	9.00		2.92	2.92	97.90
0.000038	0.000977	10.00		1.30	1.30	99.20
0.000019	0.000488	11.00		0.72	0.72	99.92
0.000015	0.000375	11.38		0.08	0.08	100.00
TOTALS				100.00	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size	
		Inches	Millimeters
5	0.24	0.0335	0.850
10	0.63	0.0254	0.646
16	1.05	0.0190	0.483
25	1.84	0.0110	0.280
40	2.92	0.0052	0.132
50	3.30	0.0040	0.102
60	3.67	0.0031	0.078
75	4.54	0.0017	0.043
84	5.42	0.0009	0.023
90	6.35	0.0005	0.012
95	7.65	0.0002	0.005

Measure	Trask	Inman	Folk-Ward
Median, phi	3.30	3.30	3.30
Median, in.	0.0040	0.0040	0.0040
Median, mm	0.102	0.102	0.102
Mean, phi	2.63	3.23	3.25
Mean, in.	0.0064	0.0042	0.0041
Mean, mm	0.162	0.106	0.105
Sorting	2.548	2.183	2.215
Skewness	1.081	-0.030	0.072
Kurtosis	0.187	0.699	1.126

Grain Size Description (ASTM-USCS Scale)	Fine sand (based on Mean from Trask)
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Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	18.73
Fine Sand	200	43.16
Silt	>0.005 mm	33.09
Clay	<0.005 mm	5.02
Total		100