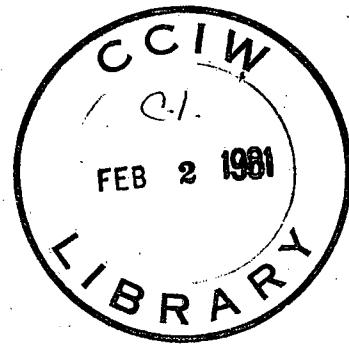


HYDRAULICS DIVISION

Technical Note



DATE:

January 1981

REPORT NO:

81-03

TITLE:

Particle Size Data Report 81-01

AUTHOR:

G. A. Duncan

REASON FOR REPORT:

This report responds to a request for particle size data from Gary Boyd, Shore Properties Section, Fisheries and Oceans.

CORRESPONDENCE FILE NO:

2242-1 (Study No. 2304)

1.0 INTRODUCTION

This report provides results of particle size analysis on sediments from 50 Mile Point, Lake Ontario.

G. Boyd, Fisheries and Oceans, submitted 26 samples to the Sedimentology Laboratory for particle size analysis. The samples were analyzed by K. Hill and the results checked by G. Duncan.

2.0 PROCEDURE

Four procedures were used to analyze the samples (Duncan and LaHaie, 1979).

- (1) The Sieve, Settling Tube, Pipette and Sedigraph Procedure, which provides gravel, sand, silt and clay percentages with 1/2 PHI resolution of the size classes, was used to analyze 17 samples.

Briefly, the procedure consists of:

- 1) Splitting the sample to 20 g.
- 2) Sieving the split at - 1/2 PHI (1.41 mm)
- 3) Dispersing the sample in 50 ml of Calgon solution (50 g/l and mixing it for 15 minutes.
- 4) Recovering a pipette aliquot of 25 ml for sedigraph analysis.
- 5) Automatic analysis by sedigraph.
- 6) Wet sieving the remaining suspension at 4.5 PHI (0.044 mm).
- 7) Resolving the sand residue with settling tube analysis.
- 8) Processing the results with SIZDIST: A Fortran IV computer program.

- (2) The Sieve, Short Pipette and Sedigraph Analyses, which provide sand, silt, and clay percentages with 1/2 PHI resolution on the silt and clay classes, was used to analyze one sample.

Briefly, the procedure consists of:

- 1) Splitting the sample to 20 g.
- 2) Dispersing the sample in 50 ml of Calgon solution (50 g/l) and mixing it for 15 minutes.
- 3) Recovering pipette aliquots of 25 ml for (a) sedigraph analysis (b) clay percentage.
- 4) Automatic analysis by sedigraph.
- 5) Processing the results with SIZDIST: A Fortran IV computer program.

- (3) The Sieve, Short Pipette and Settling Tube Analysis, which provides gravel, sand, silt and clay percentages with 1/2 PHI resolution of the sand by the settling tube procedure, was performed on five samples.

Briefly, the procedure consists of:

- 1) Splitting the sample to 20 g.
 - 2) Sieving the split at -0.5 PHI (1.41 mm).
 - 3) Dispersing the sample in 50 ml of Calgon solution (50 g/l) and mixing it for 15 minutes.
 - 4) Recovering two pipette aliquots of 25 ml for sand, silt and clay percentages.
 - 5) Wet sieving the remaining suspension at 4.5 PHI (0.044 mm).
 - 6) Resolving the sand residue with settling tube analysis.
- (4) Sieve analysis, which provides gravel, sand and silt/clay percentages was used to analyze the remaining three samples.

Briefly, the procedure consists of:

- 1) Splitting the sample to 100-200 g.
- 2) Sieving the split at 1/2 or 1/4 PHI intervals.
- 3) Processing the results with SIZDIST: A Fortran IV computer program.

3.0 RESULTS

Appendix 1 lists the size analysis results for each sample.

- (1) For the Sieve, Settling Tube, Pipette and Sedigraph Method, the output consists of:

- 1) A histogram of the frequency distribution.
- 2) The percentage and cumulative percentage of the material occurring within each 1/2 PHI unit.
- 3) Moment measure statistics (Krumbein and Pettijohn, 1938).
- 4) Percentiles.
- 5) Percent gravel, sand, silt and clay. Percentages of silt and clay are expressed as "(PIPETTE)" and "(SEDIGRAPH)" to show reproducibility of the two methods.
- 6) Ratios used to plot Folk's Ternary Classification.
- 7) Shepard (1954) and Folk (1968) Ternary Classifications.

- (2) For the Sieve, Short Pipette and Settling Tube Method, the output consists of:
- 1) A histogram of the frequency distribution.
 - 2) The percentage and cumulative percentage of the material occurring within 1/2 PHI unit.
 - 3) Moment measures (Krumbein and Pettijohn, 1938) and graphic (Folk and Ward, 1957) statistics.
 - 4) Percentiles.
 - 5) Percent gravel, sand, silt and clay.
 - 6) Ratios used to plot Folk's Ternary Classification.
 - 7) Shepard (1954) and Folk (1974) Ternary Classification.
- (3) For the Sieve Method, the output consists of:
- 1) A histogram of the frequency distribution.
 - 2) The percentage and cumulative percentage of the material occurring within 1/2 PHI unit.
 - 3) Moment measures (Krumbein and Pettijohn, 1938) and graphic (Folk and Ward, 1957) statistics.
 - 4) Percentiles.
 - 5) Percent gravel, sand and silt/clay.
 - 6) Ratios used to plot Folk's Ternary Classification.
 - 7) Shepard (1954) and Folk (1974) Ternary Classification.

4.0 REFERENCES

- Duncan, G. A. and G. G. LaHaie, 1979. "Size Analysis Procedures Used in the Sedimentology Laboratory, NWRI." Manual, Hydraulics Division.
- Folk, R. L., 1978. "Petrology of Sedimentary Rocks." Hemphill Publishing Co., Austin, Texas, 182 p.
- Krumbein, W. C. and F. J. Pettijohn, 1938. "Manual of Sedimentary Petrography." Appleton-Century-Crofts, New York, 549 p.
- Shepard, F. P., 1954. "Nomenclature Based on Sand-Silt Ratios." Jour. Sed. Petrology, V. 24, p. 151-158.

APPENDIX I
Size Analysis Data

FIFTY PT. #1 181280 SIEVE, SETT. TUBE, PIPET, SEDIGRAPH SAMPLE WT.= 24.9794

PHI PCT. CUMFCT.

01/20/81

-5.0	0.00	
0.00	0.00	
-5.0	0.00	
1.00	.07	
1.50	.13	
2.00	.20	
2.50	2.41	**
3.00	2.60	*****
3.50	9.11	*****
4.00	11.72	*****
4.50	19.85	*****
5.00	31.57	*****
5.50	15.30	*****
6.00	46.87	*****
6.50	11.39	*****
7.00	58.26	*****
7.50	.86	*
8.00	59.12	*****
8.50	4.73	*****
9.00	63.65	***
9.50	3.44	***
10.00	67.30	***
10.50	3.87	***
11.00	71.17	***
11.50	3.87	***
12.00	75.04	***
12.50	2.58	***
13.00	77.62	***
13.50	3.44	***
14.00	81.07	***
14.50	3.01	***
15.00	84.08	**
15.50	1.72	**
16.00	85.80	**
16.50	1.72	**
17.00	87.52	*
17.50	1.29	*
18.00	83.81	*
18.50	1.29	*
19.00	90.10	*
19.50	1.29	*
20.00	91.39	*
20.50	1.29	*
21.00	92.68	*
21.50	1.29	*
22.00	93.98	*
22.50	6.02	*****
23.00	100.00	*****

MEAN ST.DEV. SKEWNESS KURTOSIS

4.51 2.35 .58 .40 KRUMBEN + PETT JOHN (1938) MOMENT MEASURES
FOR SIZE RANGE 0.0 TO 11.5 PHI

> 5 PERCENT OF THE FINES ARE NOT RESOLVED, OBTAIN FOLK STATS. GRAPHICALLY

PERCENTILES	MEDIAN	3.64	5TH	2.13	16TH	2.61	25TH	2.83
			75TH	6.49	84TH	7.99	95TH	*****
PCT.	GRAVEL	0.00	SAND	58.26	SILT (PIPETTE)	30.59	CLAY (PIPETTE)	11.15
					(SEDIGRAPH)	25.82	(SEDIGRAPH)	15.92

GRAVEL+SAND 58.26 SILT/(SILT+CLAY) 61.86PCT.GRAV+SAND/SILT+CLAY 1.40

LABELS SHEPARD -SILTY SAND FOLK(GMS)-MUDDY SAND (SCS)-MUDDY SAND

FIFTY PT. :2 181280 SIEVE,SETT.TUBE,PIPET,SEDIGRAPH SAMPLE WT.= 20.6882

PHI PCT. CUMPCT.

01/20/81

-2.50	1.69	**
-2.00	1.69	*
-1.50	2.66	
-1.00	4.21	
.50	2.42	**
	6.62	
	.34	
0.00	6.97	
	9.95	*****
.50	16.91	
1.00	13.03	*****
	29.95	
	12.35	*****
1.50	42.29	
	11.66	*****
2.00	53.95	
	13.03	*****
2.50	66.99	
	16.81	*****
3.00	83.79	
	3.77	***
3.50	87.57	
	1.37	*
4.00	88.94	
	0.00	
4.50	88.94	
	0.00	
5.00	88.94	
	.37	
5.50	89.31	
	1.11	*
6.00	90.41	
	1.11	*
6.50	91.52	
	.74	*
7.00	92.26	
	.74	*
7.50	92.99	
	.74	*
8.00	93.73	
	.37	
8.50	94.10	
	.74	*
9.00	94.84	
	.74	*
9.50	95.58	
	.74	*
10.00	96.31	
	.37	
10.50	96.68	
	.37	
11.00	97.05	
	.37	
11.50	97.42	
	2.58	***
****	100.00	

MEAN ST.DEV. SKEWNESS KURTOSIS

2.04 2.21 .84 4.17 KRUMBEIN + PETTIGEHN (1938) MOMENT MEASURES
FOR SIZE RANGE -2.0 TO 11.5 PHI

1.77 2.15 .20 2.11 FOLK GRAPHIC STATISTICAL PARAMETERS
FOLK AND WARD, 1957

PERCENTILES	MEDIAN	1.83	5TH	-.84	16TH	.45	25TH	.81
			75TH	2.74	84TH	3.03	95TH	9.11

PCT. GRAVEL	4.21	SAND	84.73	SILT (PIPETTE)	8.36	CLAY (PIPETTE)	2.70
				(SEDIGRAPH)	4.79	(SEDIGRAPH)	6.27

GRAVEL+SAND 88.94 SILT/(SILT+CLAY) 43.33PCT.GRAV+SAND/SILT+CLAY 8.04

LABELS SHEPARD -SAND

FOLK(GMS)-MUDY SAND

(SCS)-MUDDY SAND

FIFTY PT. :4 181280 SIEVE,SETT.TUBE,PIPET,SEDIGRAPH SAMPLE WT.= 24.6540

PHI PCT. CUMPCT.

01/20/81

- .50	0.00	
0.00	6.00	0.00
.50		0.00
1.00		.04
1.50		.04
2.00		.07
2.50		2.43
3.00		2.50
3.50		8.20
4.00		10.70
4.50		39.23
5.00		49.93
5.50		24.96
6.00		74.89
6.50		3.21
7.00		78.10
7.50		.36
8.00		78.47
8.50		1.09
9.00		79.56
9.50		.73
10.00		80.29
10.50		1.09
11.00		81.39
11.50		1.82
12.00		83.21
12.50		2.19
13.00		85.40
13.50		1.82
14.00		87.23
14.50		2.19
15.00		89.42
15.50		1.09
16.00		90.51
16.50		.73
17.00		91.24
17.50		1.09
18.00		92.34
18.50		.73
19.00		93.07
19.50		.73
20.00		93.60
20.50		1.09
21.00		94.69
21.50		1.46
22.00		96.35
22.50		3.65
23.00		100.00

MEAN ST.DEV. SKEWNESS KURTOSIS

3.79 2.13 1.02 3.23 KRUMBEIN + PETTIJOHN (1938) MOMENT MEASURES
FOR SIZE RANGE 0.0 TO 11.5 PHI

4.08 2.37 .80 4.36 FOLK GRAPHIC STATISTICAL PARAMETERS
FOLK AND WARD, 1957

PERCENTILES MEDIAN 3.00 5TH 2.15 16TH 2.57 25TH 2.68
75TH 3.52 84TH 6.68 95TH 11.04

PCT. GRAVEL 0.00 SAND 78.10 SILT (PIPETTE) 14.37 CLAY (PIPETTE) 7.52
(SEDIGRAPH) 11.31 (SEDIGRAPH) 10.53

GRAVEL+SAND 78.10 SILT/(SILT+CLAY) 51.67 PCT.GRAV+SAND/SILT+CLAY 3.57
LABELS SHEPARD -SAND FOLK(GMS)-MUDDY SAND (SCS)-MUDDY SAND

FIFTY PT. :5 181280 SIEVE,SETT.TUBE,PIPET,SEDIGRAPH SAMPLE WT.= 23.0528

PHI PCT. CUMPCT.

01/20/81

-50	0.00	
0.00	0.00	
.50	0.00	
1.00	0.00	
1.50	.07	
2.00	.61	*
2.50	6.05	*****
3.00	30.25	*****
3.50	36.98	*****
4.00	34.96	*****
4.50	71.94	*****
5.00	10.08	*****
5.50	82.02	
6.00	0.00	
6.50	82.02	
7.00	.82	*
7.50	82.84	
8.00	.82	*
8.50	1.23	*
9.00	85.29	
9.50	1.23	*
10.00	86.52	
10.50	1.23	*
11.00	87.74	
11.50	1.63	*
12.00	89.38	
12.50	.82	*
13.00	90.19	
13.50	1.63	*
14.00	91.42	
14.50	.82	*
15.00	92.24	
15.50	.41	
16.00	92.65	
16.50	.41	
17.00	93.05	
17.50	.82	*
18.00	93.87	
18.50	.41	
19.00	94.28	
19.50	.41	
20.00	94.69	
20.50	5.31	****
21.00	100.00	

MEAN ST.DFV. SKEWNESS KURTOSIS

3.63 1.67 1.28 6.30 KRUMBEIN + PETTISON (1938) MOMENT MEASURES
FOR SIZE RANGE 0.0 TO 11.5 PHI

> 5 PERCENT OF THE FINES ARE NOT RESOLVED, OBTAIN FOLK STATS. GRAPHICALLY

PERCENTILES	MEDIAN	3.19	5TH	2.36	16TH	2.65	25TH	2.80
			75TH	3.65	84TH	5.61	95TH	*****
PCT.	GRAVEL	0.00	SAND	82.02	SILT (PIPETTE)	13.97	CLAY (PIPETTE)	4.01
					(SEDIGRAPH)	8.17	(SEDIGRAPH)	9.81
GRAVEL+SAND	82.02	SILT/(SILT+CLAY)	45.45	PCT.GRAV+SAND/SILT+CLAY		4.56		
LABELS SHEPARD -SAND		FOLK(GMS)-MUDDY SAND			(SCS)-MUDDY SAND			

FIFTY PT. 1-170-60 181280 SIEVE,SETT.TUBE,PIPET,SEDIGRAPH SAMPLE WT.= 23.5115

PHI PCT. CUMPCT.

01/20/81

-2.00	.30	
-1.50	.72	*
-1.00	1.02	*
-.50	.51	*
0.00	.33	
	1.53	
	1.86	
	4.33	****
	.50	6.19
	3.33	***
1.00	9.52	
	4.00	****
1.50	13.52	
	7.33	*****
2.00	20.85	
	17.98	*****
2.50	38.83	
	37.30	*****
3.00	76.12	
	16.65	*****
3.50	94.77	
	.67	*
4.00	95.44	
	0.00	
4.50	95.44	
	.33	
5.00	95.76	
	.33	
5.50	96.09	
	.33	
6.00	96.42	
	.33	
6.50	96.74	
	.33	
7.00	97.07	
	.33	
7.50	97.39	
	.65	*
8.00	98.05	
	.33	
8.50	98.37	
	.33	
9.00	98.70	
	0.00	
9.50	98.70	
	.33	
10.00	99.02	
	.98	*
*****	100.00	

MEAN ST.DEV. SKEWNESS KURTOSIS

2.54 1.29 .67 8.25 KRUMBEN + PETTIGRAPH (1938) MOMENT MEASURES
FOR SIZE RANGE -1.5 TO 10.0 PHI

2.51 .69 -.33 1.56 FOLK GRAPHIC STATISTICAL PARAMETERS
FOLK AND WARD, 1957

PERCENTILES	MEDIAN	2.65	5TH	.36	16TH	1.67	25TH	2.12
			75TH	2.98	84TH	3.21	95TH	3.67
PCT.	GRAVEL	1.02	SAND	94.42	SILT (PIPETTE)	2.90	CLAY (PIPETTE)	1.66
					(SEDIGRAPH)	2.61	(SEDIGRAPH)	1.95
GRAVEL+SAND	95.44	SILT/(SILT+CLAY)	57.14	PCT.GRAV+SAND/SILT+CLAY		20.92		
LABELS SHEPARD -SAND		FOLK(GMS)-SAND					(SCS)-SAND	

FIFTY PT. 1-170-360181280 SIEVE, SETT. TUBE, PIPET, SEDIGRAPH SAMPLE WT.= 23.8873

PHI PCT. CUMFCT.

01/20/81

-2.50	2.14	**
-2.00	2.14	*
-1.50	.59	*
-1.00	2.72	*
-0.50	.84	*
0.00	3.56	**
.50	1.67	*
1.00	5.23	*
1.50	.69	*
2.00	5.92	*****
2.50	11.00	*****
3.00	16.92	*****
3.50	11.00	*****
4.00	27.91	*****
4.50	17.18	*****
5.00	45.00	*****
5.50	32.30	*****
6.00	77.39	*****
6.50	14.43	*****
7.00	91.82	*****
7.50	1.37	*
8.00	93.20	
8.50	.34	
9.00	93.54	
9.50	0.00	
10.00	93.54	
10.50	0.00	
11.00	93.54	
11.50	0.00	
12.00	93.54	
12.50	.27	
13.00	93.81	
13.50	.81	*
14.00	94.62	
14.50	.54	*
15.00	95.16	
15.50	.54	*
16.00	95.70	
16.50	.54	*
17.00	96.23	
17.50	.27	
18.00	96.50	
18.50	.27	
19.00	96.77	
19.50	.54	*
20.00	97.31	
20.50	.54	*
21.00	97.85	
21.50	2.15	**
22.00	100.00	

MEAN ST.DEV. SKEWNESS KURTOSIS

1.54 1.64 1.08 9.06 KRUMBELIN + PETTIGEHN (1938) MOMENT MEASURES
FOR SIZE RANGE -2.0 TO 10.0 PHI

1.42 1.57 .08 2.78 FOLK GRAPHIC STATISTICAL PARAMETERS
FOLK AND WARD, 1957

PERCENTILES	MEDIAN	1.58	5TH	-.57	16TH	.46	25TH	.87
			75TH	1.96	84TH	2.23	95TH	6.85
PCT.	GRAVEL	3.56	SAND	89.98	SLIT (PIPETTE)	4.19	CLAY (PIPETTE)	2.27
					(SEDIGRAPH)	2.69	(SEDIGRAPH)	3.77
GRAVEL+SAND	93.54	SLIT/(SLIT+CLAY)	41.67	PCT.GRAV+SAND/SLIT+CLAY	14.49			
LABELS SHEPARD	-SAND		FOLK(GMS)-SAND				(SCS)-SAND	

FIFTY PT. 1-174-57 181280 SIEVE, SETT. TUBE, PIPET, SEDIGRAPH SAMPLE WT.= 26.1693

PHI PCT. CUMPCT.

01/20/81

-2.50	.76	*
-2.00	.76	*
-1.50	1.53	
-1.00	.38	
-0.50	1.91	
-0.50	.42	
-0.50	2.33	
0.00	0.00	
0.00	2.33	
0.00	.99	*
.50	3.32	
1.00	.99	*
1.00	4.31	
1.50	1.65	**
1.50	5.95	
2.00	3.62	****
2.00	9.57	
2.50	16.46	*****
2.50	26.03	*****
3.00	46.75	*****
3.00	72.78	
3.50	15.14	*****
3.50	87.92	
4.00	.66	*
4.00	88.58	
4.50	0.00	
4.50	88.58	
5.00	.31	
5.00	88.89	
5.50	.31	
5.50	89.20	
6.00	.62	*
6.00	89.81	
6.50	.93	*
6.50	90.74	
7.00	.93	*
7.00	91.67	
7.50	1.23	*
7.50	92.50	
8.00	.93	*
8.00	93.83	
8.50	.93	*
8.50	94.75	
9.00	.93	*
9.00	95.68	
9.50	.31	
9.50	95.99	
10.00	.31	
10.00	96.30	
10.50	.62	*
10.50	96.91	
11.00	.62	*
11.00	97.53	
11.50	.31	
11.50	97.84	
11.50	2.16	**
11.50	100.00	

MEAN ST.DEV. SKEWNESS KURTOSIS

3.02 1.85 .93 6.30 KRUMBEIN + PETT JOHN (1938) MOMENT MEASURES
FOR SIZE RANGE -2.0 TO 11.5 PHI

2.77 1.42 .31 5.03 FOLK GRAPHIC STATISTICAL PARAMETERS
FOLK AND WARD, 1957

PERCENTILES	MEDIAN	2.76	5TH	1.21	16TH	2.20	25TH	2.47
			75TH	3.07	84TH	3.37	95TH	8.63

PCT. GRAVEL	1.91	SAND	86.67	SILT (PIPETTE)	7.34	CLAY (PIPETTE)	4.03
				(SEDIGRAPH)	5.25	(SEDIGRAPH)	6.17

GRAVEL+SAND 88.58 SILT/(SILT+CLAY) 45.95PCT.GRAV+SAND/SILT+CLAY 7.76

LABELS SHEPARD -SAND

FOLK(GMS)-MUDY SAND

(SCS)-MUDDY SAND

FIFTY PT.1-174-77 181280 SIEVE,SETT.TUBE,PIPET,SEDIGRAPH SAMPLE WT.= 25.9281

PHI PCT. CUMFCT.

01/20/81

-1.50	.31	
-1.00	.31	
-.50	.62	
0.00	0.00	
0.00	.62	
.50	2.24	**
.50	2.85	***
1.00	2.68	***
1.00	5.54	
1.50	3.13	***
1.50	8.67	
2.00	5.37	*****
2.00	14.03	
2.50	21.91	*****
2.50	35.94	
3.00	48.74	*****
3.00	84.68	
3.50	11.63	*****
3.50	96.31	
4.00	0.00	
4.00	96.31	
4.50	.22	
4.50	96.53	
5.00	0.00	
5.00	96.53	
5.50	.22	
5.50	96.74	
6.00	0.00	
6.00	96.74	
6.50	.22	
6.50	96.96	
7.00	.22	
7.00	97.18	
7.50	.22	
7.50	97.40	
8.00	.43	
8.00	97.83	
8.50	.22	
8.50	98.05	
9.00	.22	
9.00	98.26	
9.50	.22	
9.50	98.48	
10.00	.22	
10.00	98.70	
10.50	0.00	
10.50	98.70	
11.00	.22	
11.00	98.91	
11.50	0.00	
11.50	98.91	
*****	1.09	*
*****	100.00	

MEAN ST.DEV. SKEWNESS KURTOSIS

2.59 1.12 1.39 18.16 KRUMBELIN + PETTIJOHN (1938) MOMENT MEASURES
FOR SIZE RANGE -1.0 TO 11.5 PHI

2.56 .62 -.32 1.60 FOLK GRAPHIC STATISTICAL PARAMETERS
FOLK AND WARD, 1957

PERCENTILES MEDIAN 2.64 5TH .90 16TH 2.04 25TH 2.25
75TH 2.90 84TH 2.99 95TH 3.44

PCT. GRAVEL .31 SAND 96.00 SILT (PIPETTE) 2.27 CLAY (PIPETTE) 1.42
(SEDIGRAPH) 1.52 (SEDIGRAPH) 2.17

GRAVEL+SAND 96.31 SILT/(SILT+CLAY) 41.18PCT.GRAV+SAND/SILT+CLAY 26.11

LABELS SHEPARD -SAND FOLK(GMS)-SAND (SCS)-SAND

FIFTY PT. 1-174-180181280 SIEVE, SETT. TUBE, PIPET, SEDIGRAPH SAMPLE WT.= 22.3177

PHI PCT. CUMPCT.

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-50	0.00	0.00	
0.00	0.35	0.00	
.50	.35	.35	
1.00	.35	.70	*
1.50	1.05	1.75	***
2.00	3.15	4.90	*****
2.50	5.25	10.15	*****
3.00	14.36	24.51	*****
3.50	29.41	53.92	*****
4.00	25.91	79.83	*****
4.50	1.68	81.51	**
5.00	3.78	85.30	****
5.50	2.52	87.82	***
6.00	.84	88.66	*
6.50	.84	89.50	*
7.00	1.68	91.18	**
7.50	.84	92.02	*
8.00	.84	92.86	*
8.50	1.26	94.12	*
9.00	.42	94.54	
9.50	.42	94.96	
10.00	.42	95.38	
10.50	.42	95.80	
11.00	.42	96.22	
11.50	.42	96.64	
12.00	3.36	100.00	***

MEAN ST.DEV. SKEWNESS KURTOSIS

3.72 1.59 1.11 6.25 KRUMBELIN + PETTILJOHN (1938) MOMENT MEASURES
FOR SIZE RANGE 0.0 TO 11.5 PHI

3.66 1.67 .47 3.44 FOLK GRAPHIC STATISTICAL PARAMETERS
FOLK AND WARD, 1957

PERCENTILES MEDIAN 3.43 5TH 2.01 16TH 2.70 25TH 3.01
75TH 3.91 84TH 4.83 95TH 9.55

PCT. GRAVEL 0.00 SAND 79.83 SILT (PIPETTE) 17.13 CLAY (PIPETTE) 3.03
(SEDIGRAPH) 13.02 (SEDIGRAPH) 7.14

GRAVEL+SAND 79.83 SILT/(SILT+CLAY) 64.58 PCT.GRAV+SAND/SILT+CLAY 3.96
LABFLS SHEPPARD -SAND FOLK(GMS)-MUDSY SAND (SCS)-MUDDY SAND

FIFTY PT. 1-174-225181280

SIEVE, SH. PIP., SEDIGRAPH SAMPLE WT.= 21.9781

PHI PCT. CUMPCT.

01/20/81

3.50	0.00	
4.00	0.00	
4.50	0.00	
5.00	.50	*
5.50	1.00	*
5.50	1.50	
6.00	2.50	***
6.00	4.00	
6.50	5.50	*****
6.50	9.50	
7.00	9.50	*****
7.00	19.00	
7.50	16.00	*****
7.50	35.00	
8.00	10.00	*****
8.00	45.00	
8.50	9.00	*****
8.50	54.00	
9.00	8.00	*****
9.00	62.00	
9.50	6.00	*****
9.50	68.00	
32.00	32.00	*****
*****	100.00	

MEAN ST.DEV. SKEWNESS KURTOSIS

7.56 1.00 -.07 -.43 KRUMBEIN + PETT JOHN (1938) MOMENT MEASURES
FOR SIZE RANGE 4.0 TO 9.5 PHI

> 5 PERCENT OF THE FINES ARE NOT RESOLVED, OBTAIN FOLK STATS. GRAPHICALLY

PERCENTILES MEDIAN 8.26 5TH 6.09 16TH 6.84 25TH 7.19
75TH***** 84TH***** 95TH*****PCT. GRAVEL 0.00 SAND -.00 SILT (PIPETTE) 49.15 CLAY (PIPETTE) 50.85
(SEDIGRAPH) 45.00 (SEDIGRAPH) 55.00

GRAVEL+SAND -.00 SILT/(SILT+CLAY) 45.00 PCT.GRAV+SAND/SILT+CLAY -.00

LABELS SHEPARD -SILTY CLAY FOLK(GMS)-MLD (SCS)-MUD

COMMENTS -
FIFTY PT. 1-74-225 ORGANIC DETRITYS PRESENT

FIFTY PT. 1-174-375181280 SIEVE, SETT. TUBE, PIPET, SEDIGRAPH SAMPLE WT.= 27.9955

PHI PCT. CUMPCT.

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-3.00	4.21	****
-2.50	4.21	**
-2.00	5.89	**
-1.50	8.00	**
-1.00	1.61	9.61
	1.46	*
-.50	11.07	*
.00	.54	
0.50	11.62	
1.00	14.13	*****
.50	25.74	*****
1.00	16.84	*****
2.00	42.59	*****
2.50	22.82	*****
1.50	65.40	*****
2.00	17.39	*****
2.50	82.79	*****
3.00	4.89	*****
2.50	87.68	
3.00	.54	*
3.50	88.22	
4.00	1.09	*
3.50	89.31	
4.00	0.00	
4.50	89.31	
5.00	.53	*
5.50	89.85	
6.00	1.07	*
6.50	90.91	
7.00	.80	*
6.50	91.72	
7.00	.80	*
7.50	92.52	
8.00	1.07	*
7.50	93.59	
8.00	.53	*
8.50	94.12	
9.00	.80	*
8.50	94.92	
9.00	.80	*
9.50	95.72	*
9.00	.53	*
9.50	96.26	
9.00	3.74	****
9.50	100.00	

MEAN ST.DEV. SKEWNESS KURTOSIS

1.23 2.06 .71 4.16 KRUMBEIN + PETT JOHN (1938) MOMENT MEASURES
FOR SIZE RANGE -2.5 TO 9.5 PHI

1.15 2.13 .17 3.40 FOLK GRAPHIC STATISTICAL PARAMETERS
FOLK AND WARD, 1957

PERCENTILES MEDIAN 1.16 5TH -2.27 16TH .16 25TH .47
75TH 1.78 84TH 2.12 95TH 8.55

PCT. GRAVEL 9.61 SAND 79.70 SILT (PIPETTE) 7.24 CLAY (PIPETTE) 3.45
(SEDIGRAPH) 4.81 (SEDIGRAPH) 5.88

GRAVEL+SAND 89.31 SILT/(SILT+CLAY) 45.00 PCT.GRAV+SAND/SILT+CLAY 8.36

LABELS SHEPARD -SAND FOLK(GMS)-GRAVELLY MUDDY SAND (SCS)-

50 PT. 149-174-100171280 SIEVE,SETT.TUBE,PIPET,SEDIGRAPH SAMPLE WT.= 22.3776

PHI PCT. CUMPCT.

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-5.00	0.00	
0.00	0.00	
.50	2.00	
1.00	.07	
1.50	.07	
2.00	.90	*
2.50	1.04	*****
2.50	5.87	6.91
3.00	28.33	*****
3.00	35.24	*****
3.50	21.77	*****
3.50	57.01	*****
4.00	3.80	***
4.00	60.81	
4.50	.45	
4.50	61.25	
5.00	1.78	**
5.00	63.03	
5.50	.45	
5.50	63.48	
6.00	2.23	**
6.00	65.71	
6.50	4.45	****
6.50	70.16	
7.00	4.01	***
7.00	74.17	
7.50	5.79	*****
7.50	79.96	
8.00	4.01	***
8.00	83.97	
8.50	1.78	**
8.50	85.75	
9.00	1.78	**
9.00	87.53	
9.50	2.23	**
9.50	89.76	
10.00	1.34	*
10.00	91.09	.
10.50	1.34	*
10.50	92.43	
*****	7.57	*****
	100.00	

MEAN ST.DEV. SKENNESS KURTOSIS

4.42 2.26 .50 -.39 KRUMBELN + PETTIGRAPH (1938) MOMENT MEASURES
FOR SIZE RANGE 0.0 TO 10.5 PHI

> 5 PERCENT OF THE FINES ARE NOT RESOLVED, OBTAIN FOLK STATS. GRAPHICALLY

PERCENTILES MEDIAN 3.34 5TH 2.34 16TH 2.66 25TH 2.82
75TH 7.07 84TH 8.01 95TH*****

PCT. GRAVEL 0.00 SAND 60.81 SILT (PIPETTE) 25.06 CLAY (PIPETTE) 14.13
(SEDIGRAPH) 23.16 (SEDIGRAPH) 16.03

GRAVEL+SAND 60.81 SILT/(SILT+CLAY) 59.09 PCT.GRAV+SAND/SILT+CLAY 1.55

LABELS SHEPARD -SILTY SAND FOLK(GMS)-MUDDY SAND (SCS)-MUDDY SAND

50 PT. 138-174-233171280 SIEVE,SETT.TUBE,PIPET,SEDIGRAPH SAMPLE WT.= 24.1483

PHI PCT. CUMPCT.

01/20/81

-50	0.00	
0.00	0.00	
.50	.06	
1.00	.54	*
1.50	4.16	****
2.00	8.92	*****
2.50	17.24	*****
3.00	21.40	*****
3.50	52.32	*****
4.00	8.62	*****
4.50	60.94	
5.00	2.68	**
5.50	63.61	
6.00	.77	*
6.50	64.39	
7.00	1.16	*
7.50	65.55	
8.00	1.94	**
8.50	67.49	
9.00	3.48	***
9.50	70.97	
10.00	3.87	***
10.50	74.84	
11.00	3.10	***
11.50	77.94	
12.00	3.87	***
12.50	81.81	
13.00	1.94	**
13.50	83.74	
14.00	2.71	***
14.50	86.45	
15.00	1.16	*
15.50	87.61	
16.00	1.16	*
16.50	88.77	
17.00	1.55	**
17.50	90.32	
18.00	1.16	*
18.50	91.48	
19.00	.77	*
19.50	92.26	
20.00	1.16	*
20.50	93.42	
21.00	6.58	*****
21.50	100.00	

MEAN ST.DEV. SKEWNESS KURTOSIS

4.02 2.53 .57 .21 KRUMBEIN + PETT JOHN (1938) MOMENT MEASURES
FOR SIZE RANGE 0.0 TO 11.5 PHI

> 5 PERCENT OF THE FINES ARE NOT RESOLVED, OBTAIN FOLK STATS. GRAPHICALLY

PERCENTILES	MEDIAN	2.95	5TH	1.51	16TH	2.07	25TH	2.33
			75TH	6.53	84TH	8.05	95TH	*****
PCT.	GRAVEL	0.00	SAND	63.61	SILT (PIPETTE)	24.56	CLAY (PIPETTE)	11.82
					(SEDIGRAPH)	20.13	(SEDIGRAPH)	16.26
GRAVEL+SAND	63.61	SILT/(SILT+CLAY)	55.32	PCT.GRAV+SAND/SILT+CLAY		1.75		
LABELS SHEPARD -SILTY SAND	FOLK(GMS)-MUDDY SAND						(SCS)-MUDDY SAND	

50 PT. 145-174-145171280 SIEVE,SETT.TUBE,PIPET,SEDIGRAPH SAMPLE WT.= 24.1170

PHI PCT. CUMPCT.

01/20/81

-50	0.00	
0.00	0.00	
.50	0.00	
1.00	.06	
1.50	.12	
2.00	.18	*
2.50	1.01	
3.00	1.19	*****
3.50	5.06	
4.00	6.25	*****
4.50	30.05	*****
5.00	36.30	*****
5.50	31.54	*****
6.00	67.83	
6.50	5.36	****
7.00	73.19	
7.50	.77	*
8.00	73.95	
8.50	.77	*
9.00	74.72	
9.50	1.15	*
10.00	75.87	
10.50	1.92	**
11.00	77.78	
11.50	1.92	**
12.00	79.70	
12.50	2.68	***
13.00	82.38	
13.50	2.68	***
14.00	85.06	
14.50	2.30	**
15.00	87.36	
15.50	1.92	**
16.00	89.27	
16.50	1.15	*
17.00	90.42	
17.50	1.15	*
18.00	91.57	
18.50	1.53	**
19.00	93.11	
19.50	.77	*
20.00	93.87	
20.50	.77	*
21.00	94.64	
21.50	.77	*
22.00	95.40	
22.50	4.60	****
23.00	100.00	****

MEAN ST.DEV. SKEWNESS KURTOSIS

4.85 2.13 .85 1.81 KRUMBEIN + PETTIGEHN (1938) MOMENT MEASURES
FOR SIZE RANGE 0.0 TO 11.5 PHI

4.39 2.50 .79 1.57 FOLK GRAPHIC STATISTICAL PARAMETERS
FOLK AND HARD, 1957

PERCENTILES MEDIAN 3.22 5TH 2.38 16TH 2.66 25TH 2.81
75TH 5.12 84TH 7.30 95TH 11.24

PCT. GRAVEL 0.00 SAND 73.19 SILT (PIPETTE) 17.90 CLAY (PIPETTE) 8.92
(SEDTGRAPH) 14.17 (SEDTGRAPH) 12.64

GRAVEL+SAND 73.19 SILT/(SILT+CLAY) 52.86 PCT.GRAV+SAND/SILT+CLAY 2.73

LABELS SHEPARD -SILTY SAND FOLK(GMS)-MUDY SAND (SCS)-MUDDY SAND

FIFTY PT. 2-11-90 171280

SIEVE ONLY

SAMPLE WT.=895.8100

PHI PCT. CUMPCT.

01/20/81

-4.50	1.76	**
-4.00	1.76	*****
-3.50	5.93	*****
-3.00	18.19	*****
-3.00	25.87	*****
-2.50	18.36	*****
-2.50	44.23	*****
-2.00	12.80	*****
-2.00	57.03	*****
-1.50	15.22	*****
-1.50	72.25	*****
-1.00	11.21	*****
-1.00	83.45	*****
.50	6.55	*****
.50	90.01	****
0.00	4.12	***
0.00	94.13	***
.50	2.53	***
.50	96.66	*
1.00	1.47	*
1.00	98.13	*
1.50	.99	*
1.50	99.12	*
2.00	.75	*
2.00	99.87	*
2.50	.10	*
2.50	99.98	*
3.00	.01	*
3.00	99.99	*
3.50	.01	*
3.50	100.00	*
4.00	.00	*
4.00	100.00	*
*****	100.00	*

MEAN ST.DEV. SKEWNESS KURTOSIS

-2.10	1.20	.38	.46	KRUMBEIN + PETTIGEHN (1938) MOMENT MEASURES FOR SIZE RANGE -4.0 TO 4.0 PHI
-2.17	1.17	.20	.97	FOLK GRAPHIC STATISTICAL PARAMETERS FOLK AND WARD, 1957

PERCENTILES	MEDIAN	-2.27	5TH	-3.73	16TH	-3.27	25TH	-3.02
			75TH	-1.38	84TH	-.96	95TH	.17

PCT. GRAVEL	83.45	SAND	16.55	SILT+CLAY	0.00
GRAVEL+SAND	100.00			GRAV+SAND/SILT+CLAY	99999.99

LABEL'S SHEPARD -SAND	FOLK(GMS)-GRAVEL	.	(SCS)-
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FIFTY PT. 2-13-0 171280

SIEVE ONLY

SAMPLE WT.=637.0200

PHI PCT. CUMPCT.

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-4.50	60.99	*****
-4.00	60.99	*
-3.50	.67	
	61.66	
-3.00	.78	*
	62.44	
-2.50	2.47	**
	64.91	
-2.00	2.10	**
	67.01	
-1.50	2.95	***
	69.96	
-1.00	4.33	****
	74.29	
-.50	5.55	*****
	79.84	
0.00	7.47	*****
	87.31	
.50	7.07	*****
	94.38	
1.00	4.26	****
	93.64	
1.50	1.21	*
	90.85	
2.00	.12	
	99.97	
2.50	.01	
	99.98	
3.00	.00	
	99.98	
3.50	0.00	
	99.98	
4.00	.02	
	100.00	

MEAN ST.DEV. SKEWNESS KURTOSIS

-2.86 1.89 .41 -1.03 KRUMBEIN + PETTIGEHN (1938) MOMENT MEASURES
FOR SIZE RANGE -4.0 TO 4.0 PHI

-2.89 1.80 .86 .61 FOLK GRAPHIC STATISTICAL PARAMETERS
FOLK AND WARD, 1957

PERCENTILES MEDIAN -4.09 5TH -4.46 16TH -4.37 25TH -4.30
75TH -.94 84TH -.22 95TH .57

PCT. GRAVEL 74.29 SAND 25.69 SILT+CLAY .02

GRAVEL+SAND 99.98 GRAV+SAND/SILT+CLAY 5790.09

LABELS SHEPARD -SAND FOLK(GMS)-SANDY GRAVEL (SCS)-

FIFTY PT. 2-13-50 171280 SIEVE,SETT.TUBE,PIPET,SEDIGRAPH SAMPLE WT.= 18.5149

PHI PCT. CUMPCT.

01/20/81

-50	0.00	
0.00	0.00	
.50	.08	
1.00	3.88	****
1.50	3.96	
2.00	22.19	*****
2.50	26.16	
3.00	45.18	*****
3.50	71.34	
4.00	21.40	*****
4.50	92.74	
5.00	4.76	****
5.50	97.50	
6.00	.79	*
6.50	98.29	
7.00	0.00	
7.50	98.29	
8.00	.13	
8.50	98.42	
9.00	0.00	
9.50	98.42	
10.00	.13	
10.50	98.95	
11.00	.26	
11.50	99.21	
12.00	.13	
12.50	99.34	
13.00	.13	
13.50	99.47	
14.00	.13	
14.50	99.61	
15.00	0.00	
15.50	99.61	
16.00	.13	
16.50	99.74	
17.00	.13	
17.50	99.87	
18.00	.13	
18.50	100.00	

MEAN ST.DEV. SKEWNESS KURTOSIS

1.86 .87 2.58 37.89 KRUMBEN + PETTJOHN (1938) MOMENT MEASURES
FOR SIZE RANGE 0.0 TO 10.5 PHI

1.78 .52 .09 1.15 FOLK GRAPHIC STATISTICAL PARAMETERS
FOLK AND WARD, 1957

PERCENTILES	MEDIAN	1.76	5TH	1.02	16TH	1.27	25TH	1.47
			75TH	2.09	84TH	2.30	95TH	2.74
PCT.	GRAVEL	0.00	SAND	98.29	SILT (PIPETTE)	1.09	CLAY (PIPETTE)	.62
					(SEDIGRAPH)	1.05	(SEDIGRAPH)	.66
GRAVEL+SAND	98.29	SILT/(SILT+CLAY)	61.54	PCT.GRAV+SAND/SILT+CLAY		57.50		
LABELS SHEPARD -SAND		FOLK(GMS)-SAND					(SCS)-SAND	

FIFTY PT. 2-13-65 171280 SIEVE,SETT.TUBE,PIPET,SEDIGRAPH SAMPLE WT.= 23.4555

PHI PCT. CUMPCT.

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-50	0.00	
0.00	0.00	
.11	.11	
.50	.11	***
1.00	3.09	*****
	3.19	
	25.56	*****
1.50	28.75	*****
	42.59	*****
2.00	71.35	*****
	15.97	*****
2.50	87.32	*****
	7.45	*****
3.00	94.77	*
	1.06	
3.50	95.84	
	0.00	
4.00	95.84	
	0.00	
4.50	95.84	
	0.00	
5.00	95.84	
	0.00	
5.50	95.84	
	.23	
6.00	96.07	
	.46	
6.50	96.53	
	.23	
7.00	96.76	
	.93	*
7.50	97.69	
	.23	
8.00	97.92	
	.23	
8.50	98.15	
	.23	
9.00	98.38	
	.23	
9.50	98.61	
	.23	
10.00	98.84	
	.23	
10.50	99.07	
	.23	
11.00	99.31	
	.23	
11.50	99.54	
****	.46	
	100.00	

MEAN ST.DEV. SKEWNESS KURTOSIS

2.00 1.34 2.17 21.32 KRUMBEN + PETTIGEHN (1938) MOMENT MEASURES
FOR SIZE RANGE 0.0 TO 11.5 PHI

1.80 .60 .22 1.23 FOLK GRAPHIC STATISTICAL PARAMETERS
FOLK AND WARD, 1957

PERCENTILES MEDIAN 1.75 5TH 1.04 16TH 1.25 25TH 1.43
75TH 2.11 84TH 2.40 95TH 3.11

PCT. GRAVEL 0.00 SAND 95.84 SILT (PIPETTE) 2.48 CLAY (PIPETTE) 1.68
(SEDTIGRAPH) 2.08 (SEDIGRAPH) 2.08

GRAVEL+SAND 95.84 SILTY(SILT+CLAY) 50.00 PCT.GRAV+SAND/SILT+CLAY 23.02
LABELS SHEPARD -SAND FOLK(GMS)-SAND (SCS)-SAND

FIFTY PT. 2-13-75 171280 SIEVE,SETT.TUBE,PIPET,SEDIGRAPH SAMPLE WT.= 23.2126

PHI PCT. CUMPCT.

01/20/81

-.50	0.00	
0.00	0.00	
.50	.08	
1.00	3.68	*****
1.50	3.75	*****
1.50	16.51	*****
2.00	20.26	*****
2.00	37.52	*****
2.50	57.78	*****
2.50	24.01	*****
3.00	81.80	*****
3.00	11.26	*****
3.50	93.05	
3.50	1.50	**
3.50	94.55	
4.00	0.00	
4.00	94.55	
4.50	0.00	
4.50	94.55	
5.00	0.00	
5.00	94.55	
5.50	0.00	
5.50	94.55	
6.00	.22	
6.00	94.77	
6.50	.44	
6.50	95.21	
7.00	.44	
7.00	95.64	
7.50	.44	
7.50	96.08	
8.00	.65	*
8.00	96.73	
8.50	.44	
8.50	97.17	
9.00	.44	
9.00	97.60	
9.50	.44	
9.50	98.04	
10.00	.22	
10.00	98.26	
10.50	.22	
10.50	98.47	
11.00	.22	
11.00	98.69	
11.50	.22	
11.50	98.91	
****	1.09	*
****	100.00	

MEAN ST.DEV. SKEWNESS KURTOSIS

2.17 1.43 1.93 16.62 KRUMBEIN + PETTIGEHN (1938) MOMENT MEASURES
FOR SIZE RANGE 0.0 TO 11.5 PHI

1.96 1.10 .41 2.69 FOLK GRAPHIC STATISTICAL PARAMETERS
FOLK AND WARD, 1957

PERCENTILES	MEDIAN	1.90	5TH	1.04	16TH	1.37	25TH	1.56
			75TH	2.36	84TH	2.60	95TH	6.26
PCT. GRAVEL	0.00	SAND	94.55	SILT (PIPETTE)	2.77	CLAY (PIPETTE)	2.68	
				(SEDIGRAPH)	2.18	(SEDIGRAPH)	3.27	
GRAVEL+SAND	94.55	SILT/(SILT+CLAY)	40.00PCT.GRAV+SAND/SILT+CLAY				17.36	
LABELS SHEPARD -SAND		FOLK(GMS)-SAND					(SCS)-SAND	

FIFTY PT. 2-13-190171280 SIEVE,SETT,TUEE,PIPETTE(2) SAMPLE WT.= 22.8329

PHI PCT. CUMPCT.

01/20/81

-50	.07	
0.00	.07	
.50	.28	
1.00	.35	
1.50	2.46	**
	2.81	*****
	6.32	
1.50	9.13	
	26.67	*****
2.00	35.80	*****
	49.84	*****
2.50	85.63	
	7.72	*****
3.00	93.36	
	1.40	*
3.50	94.76	
	0.00	
4.00	94.76	
	3.29	***
8.00	98.05	
	1.95	**
*****	100.00	

MEAN ST.DEV. SKEWNESS KURTOSIS

2.05 .46 -.36 1.80 KRUMBEIN + PETTIGRAPH (1938) MOMENT MEASURES
FOR SIZE RANGE 0.0 TO 4.0 PHI

2.08 .69 .09 2.15 FOLK GRAPHIC STATISTICAL PARAMETERS
FOLK AND WARD, 1957

PERCENTILES MEDIAN 2.14 5TH 1.17 16TH 1.63 25TH 1.80
75TH 2.39 84TH 2.48 95TH 4.29

PCT. GRAVEL 0.00 SAND 94.76 SILT (PIPETTE) 3.29 CLAY (PIPETTE) 1.95
(SEDTGRAPH) 0.00 (SEDTGRAPH) 0.00

GRAVEL+SAND 94.76 SILT/(SILT+CLAY) 62.85PCT.GRAV+SAND/SILT+CLAY 18.08

LABELS SHEPARD -SAND FOLK(GMS)-SAND (SCS)-SAND

FIFTY PT. 2-13-515171280 SIEVE,SETT.TUBE,PIPETTE(2) SAMPLE WT.= 22.3150

PHI PCT. CUMPCT.

01/20/81

-1.00	.18
-.50	.18
0.00	.16
	.34
1.00	1.47
.50	1.82
1.00	18.00
	19.81
1.50	37.63
2.00	57.45
2.50	27.82
3.00	85.26
3.50	5.73
4.00	90.99
4.50	2.05
5.00	93.04
5.50	.41
6.00	93.45
6.50	0.00
7.00	93.45
7.50	5.04
8.00	98.48
8.50	1.52
9.00	100.00

MEAN ST.DEV. SKEWNESS KURTOSIS

1.38 .51 .15 1.12 KRUMBEN + PETTIGEHN (1938) MOMENT MEASURES
FOR SIZE RANGE -.5 TO 4.0 PHI

1.42 .97 .36 2.55 FOLK GRAPHIC STATISTICAL PARAMETERS
FOLK AND WARD, 1957

PERCENTILES MEDIAN 1.40 5TH .59 16TH .89 25TH 1.07
75TH 1.82 84TH 1.93 95TH 5.23

PCT. GRAVEL 0.00 SAND 93.45 SILT (PIPETTE) 5.04 CLAY (PIPETTE) 1.52
(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 93.45 SILT/(SILT+CLAY) 76.85PCT.GRAV+SAND/SILT+CLAY 14.26

LABELS SHEPARD -SAND FOLK(GMS)-SAND (SCS)-SAND

FIFTY PT. 2-20-63 171280 SIEVE,SETT,TUEE,PIPETTE(2) SAMPLE WT.= 22.8938

PHI PCT. CUMPCT.

01/20/81

PHI	PCT.	CUMPCT.
-5.0	.23	
0.00	.23	
.50	.91	*
1.00	4.53	*****
1.50	12.47	*****
2.00	34.01	*****
2.50	52.15	*****
3.00	31.74	*****
3.50	83.90	*****
4.00	9.64	*****
4.50	.57	*
5.00	94.10	
5.50	3.63	****
6.00	97.74	
6.50	2.26	**
*****		100.00

MEAN ST.DEV. SKEWNESS KURTOSIS

1.90 .54 -.26 .63 KRUMBEN + PETT JOHN (1938) MOMENT MEASURES
FOR SIZE RANGE 0.0 TO 4.0 PHI

1.96 .89 .24 2.19 FOLK GRAPHIC STATISTICAL PARAMETERS
FOLK AND WARD, 1957

PERCENTILES MEDIAN 1.97 5TH .93 16TH 1.41 25TH 1.60
75TH 2.36 84TH 2.51 95TH 4.99

PCT. GRAVEL 0.00 SAND 94.10 SILT (PIPETTE) 3.63 CLAY (PIPETTE) 2.26
(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 94.10 SILT/(SILT+CLAY) 61.61 PCT.GRAV+SAND/SILT+CLAY 15.95

LABELS SHEPPARD -SAND FOLK(GMS)-SAND (SCS)-SAND

FIFTY PT. 2-20-100171280 SIEVE,SETT.TUBE,PIPETTE(2) SAMPLE WT.= 22.4535

PHI PCT. CUMPCT.

01/20/81

-1.50	.22	
-1.00	.22	
-.50	.36	
0.00	.71	*
.50	1.42	**
1.00	3.55	**
1.50	2.49	
	6.04	
2.00	6.75	*****
	12.79	
2.50	15.28	*****
	28.08	
3.00	49.75	*****
	77.83	
3.50	18.12	*****
	95.95	
4.00	.36	
	96.31	
8.00	2.32	**
	98.63	
*****	1.37	*
	100.00	

MEAN ST.DEV. SKENNESS KURTOSIS

2.57 .64 -1.00 6.06 KRUMEEIN + PETTJOHN (1938) MOMENT MEASURES
FOR SIZE RANGE -1.0 TO 4.0 PHI

2.67 .60 -.23 1.56 FOLK GRAPHIC STATISTICAL PARAMETERS
FOLK AND WARD, 1957

PERCENTILES	MEDIAN	2.72	5TH	1.29	16TH	2.10	25TH	2.40
			75TH	2.97	84TH	3.17	95TH	3.47

PCT. GRAVEL .22 SAND 96.09 SILT (PIPETTE) 2.32 CLAY (PIPETTE) 1.37
(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 96.31 SILT/(SILT+CLAY) 63.01PCT.GRAV+SAND/SILT+CLAY 26.10

LABELS SHEPARD -SAND FCLK(GMS)-SAND (SCS)-SAND

FIFTY PT. 2-20-135171280 SIEVE,SETT.TUBE,PIPETTE(2) SAMPLE WT.= 21.9955

PHI PCT. CUMPCT.

01/20/81

-50	.15	
0.00	.15	
.23		
.50	.38	
.38		
1.00	.76	*
1.50	.76	
1.51	1.51	**
1.89		
2.00	3.41	****
4.17		
2.50	7.57	*****
26.51		*****
3.00	34.08	*****
55.29		*****
3.50	89.37	*****
6.06		*****
4.00	95.42	***
2.78		***
8.00	98.21	
1.79		**
*****	100.00	

MEAN ST.DEV. SKEWNESS KURTOSIS

3.03 .47 -1.13 9.13 KRUMBEIN + PETTIGRAPH (1938) MOMENT MEASURES FOR SIZE RANGE 0.0 TO 4.0 PHI

3.08 .47 -.15 1.34 FOLK GRAPHIC STATISTICAL PARAMETERS FOLK AND WARD, 1957

PERCENTILES MEDIAN 3.14 5TH 2.19 16TH 2.66 25TH 2.83
75TH 3.37 84TH 3.45 95TH 3.97

PCT. GRAVEL 0.00 SAND 95.42 SILT (PIPETTE) 2.78 CLAY (PIPETTE) 1.79
(SEDIGRAPH) 0.00 (SEDIGRAPH) 0.00

GRAVEL+SAND 95.42 SILT/(SILT+CLAY) 60.80 PCT.GRAV+SAND/SILT+CLAY 20.85
LABELS SHEPARD -SAND FOLK(GMS)-SAND (SCS)-SAND

FIFTY PT. 2-20-200171280 SIEVE,SETT.TUBE,PIPET,SEDIGRAPH SAMPLE WT.= 26.1962

PHI PCT. CUMFCT.

01/20/81

-1.50	.08	
-1.00	.08	
-.50	.11	
0.00	.19	
.50	.10	
.50	.29	*
.50	1.22	****
1.00	4.13	
1.00	5.36	*****
1.50	4.65	
1.50	10.01	
2.00	5.68	*****
2.00	15.69	
2.50	11.37	*****
2.50	27.06	
3.00	34.11	*****
3.00	61.17	
3.50	27.90	*****
3.50	89.07	
4.00	3.10	***
4.00	92.17	
4.50	0.00	
4.50	92.17	
5.00	.33	
5.00	92.50	
5.50	0.00	
5.50	92.50	
6.00	.98	*
6.00	93.48	
6.50	.65	*
6.50	94.13	
7.00	.65	*
7.00	94.78	
7.50	.65	*
7.50	95.43	
8.00	.98	*
8.00	96.41	
8.50	.65	*
8.50	97.06	
9.00	.65	*
9.00	97.72	
9.50	.33	
9.50	98.04	
10.00	.65	*
10.00	98.70	
10.50	.33	
10.50	99.02	
11.00	.33	
11.00	99.35	
11.50	.33	
11.50	99.67	
*****	100.00	

MEAN ST.DEV. SKEWNESS KURTOSIS

3.01 1.63 1.22 8.06 KRUMBEN + PETTIGEHN (1938) MOMENT MEASURES
FOR SIZE RANGE -1.0 TO 11.5 PHI

2.75 1.29 .11 3.04 FOLK GRAPHIC STATISTICAL PARAMETERS
FOLK AND WARD, 1957

PERCENTILES	MEDIAN	2.84	5TH	.96	16TH	2.01	25TH	2.41
			75TH	3.25	84TH	3.41	95TH	7.17
PCT. GRAVEL	.08	SAND	92.10	SILT (PIPETTE)	5.36	CLAY (PIPETTE)	2.47	
				(SEDIGRAPH)	4.24	(SEDIGRAPH)	3.59	

GRAVEL+SAND 92.17 SILT/(SILT+CLAY) 54.17PCT.GRAV+SAND/SILT+CLAY 11.78

LABELS SHEPARD -SAND

FOLK(GMS)-SAND

(SCS)-SAND

23685

FIFTY PT. BEACH 181280

SIEVE ONLY

SAMPLE WT.=212.3000

PHI PCT. CUMPCT.

01/20/81

-4.50	5.06	*****
-4.00	5.06	**
-3.50	2.25	**
	7.31	
-3.00	2.72	***
	10.03	
-2.50	11.32	*****
	21.35	
-2.00	9.26	*****
	30.60	
-1.50	13.11	*****
	43.72	
-1.00	11.16	*****
	54.88	
-.50	5.23	****
	60.10	
0.00	6.80	*****
	66.91	
.50	6.95	*****
	73.86	
1.00	6.99	*****
	80.85	
1.50	6.22	*****
	89.07	
2.00	7.97	*****
	97.04	
2.50	2.40	**
	99.44	
3.00	.48	
	99.92	
3.50	.07	
	99.99	
4.00	.00	
	100.00	
*****	.00	
	100.00	

MEAN ST.DEV. SKEWNESS KURTOSIS

-.95	1.77	.04	-.94	KRUMBEIN + PETT JOHN (1938) MOMENT MEASURES FOR SIZE RANGE -4.0 TO 4.0 PHI
-.92	1.87	.14	.84	FOLK GRAPHIC STATISTICAL PARAMETERS FOLK AND WARD, 1957

PERCENTILES	MEDIAN	-1.22	5TH	-4.01	16TH	-2.74	25TH	-2.30
			75TH	.58	84TH	1.19	95TH	1.87

PCT. GRAVEL 54.88 SAND 45.12 SILT+CLAY 0.00

GRAVEL+SAND 100.00

GRAV+SAND/SILT+CLAY 99999.99

LABELS SHEPARD -SAND

FOLK(GMS)-SANDY GRAVEL

(SCS)-