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Bed-material grain size data for the Ngarradj catchment between 1998 and 2003

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1 Introduction

Erskine et al (2001) proposed that ***eriss*** should adopt a sediment budget framework to assess the physical impacts, if any, of the Jabiluka mine on the Ngarradj catchment (fig 1). Thirteen projects were outlined by Erskine et al (2001) to form the basis of this assessment including the systematic sampling of channel and floodplain sediments on the mine site channels and Ngarradj.

The purpose of this Internal Report is twofold, namely to:

- document the extensive particle size data collected by ***eriss*** for the bed material at each of the 56 permanently marked cross sections discussed by Saynor et al (2002a, 20004a, b) as well as for discrete sediment storages in the Ngarradj channel network; and
- present the particle size distribution data collected for the six years (1998 to 2003 inclusive) of the project.

The first sediment samples were collected before streamflow commenced for the 1998/1999 wet season and hence represent baseline data before any sediment had been eroded from the Jabiluka mine and supplied to the channel network.

Saynor et al (2001) outline all the geomorphic field monitoring that is being conducted by ***eriss*** in the Ngarradj catchment. Saynor et al (2002a; 2004a, b) discuss channel changes at the 56 cross sections that were used in this report to sample the bed material during the dry seasons between 1998 and 2003 inclusive. Saynor et al (2002b; 2004a, b) present the results of scour and fill for the wet seasons of 1998/99 to 2002/2003 at selected cross sections. Saynor et al (2003) detail the results of erosion pin measurements between 1998 and 2001 which were undertaken at the same cross sections as the scour chains. Erskine et al (2003) describe the bed-material and floodplain sediments in the Ngarradj catchment and outline the vertical variations in texture and other sediment characteristics. This report complements but significantly expands upon the data in Erskine et al (2003).

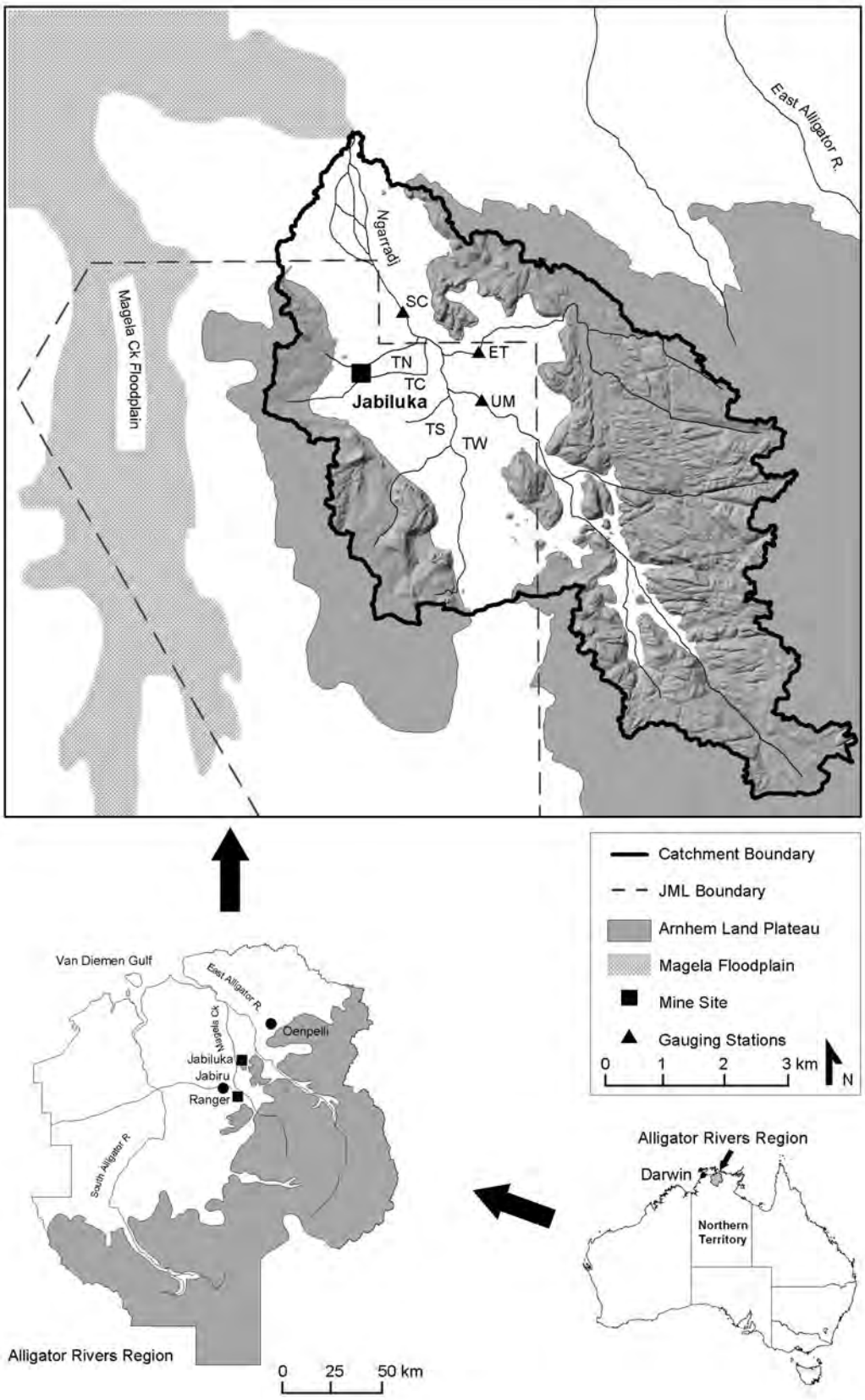

Figure 1 The Ngarradj catchment showing the Jabiluka mineral Lease, gauging stations and local creek names. SC refers to Swift Creek gauging station, TN Tributary North, ET East Tributary gauging station, TC Tributary Central, TS Tributary South, TW Tributary West and UM upper Swift Creek gauging station.

2 Methods

2.1 Field Methods

Bulk samples of specific depositional environments are the accepted method of sampling fluvial sediments (Kellerhals & Bray 1971). This involves the collection of all material from a predetermined volume within a specific depositional or geomorphic environment (Kellerhals & Bray 1971). Where collection of all sediment from a specific depositional environment is impossible because the mass is too large for collection, transport and/or analysis, sub-sampling is practised. Nevertheless, there are potential problems with bulk sampling that must be recognised. Very large sample masses are required to obtain reproducible measures of the grain size distributions of samples containing individual large clasts or gravels (de Vries 1970; Church et al 1987; Gale & Hoare 1992; Ferguson & Paola 1997). Recommended minimum sample mass also depends on sediment sorting or the dispersion of the grain size distribution (Gale & Hoare 1994; Ferguson & Paola 1997). For a particular depositional environment, poorly sorted sediments, such as found in mixed sand- and gravel-bed rivers, require larger masses than better sorted samples (Gale & Hoare 1994; Ferguson & Paola 1997). Bulk sampling is also usually restricted to small areas that may not be representative of all of a specific depositional environment (Wolman 1954; Muir 1969). This is a major concern on large rivers with spatially variable depositional environments (Mosley & Tindale 1985) but is not a problem on the small channels in the Ngarradj catchment.

During each dry season between 1998 and 2003, a total of 315 bulk bed-material samples (table 1) were collected. ***eriss*** has installed 56 permanently monumented cross sections throughout the Ngarradj catchment with 17 cross sections on Tributary North, 15 on Tributary Central and 8 on each of East Tributary, upper Swift Creek and lower Swift Creek at the ***eriss*** gauging stations (Saynor et al 2001; 2002a, 2004a, b). Bulk bed material samples were collected by a trowel or small spade from at least 3 equally spaced points across the stream bed and then combined into a single sample at each section. Similar bulk samples were collected of other depositional environments, such as in-channel benches, splays, floodouts and floodplains.

Table 1 Bulk bed material samples collected at each reach for each reach

	1998	1999	2000	2001	2002	2003	Total
Tributary North main gully	8	8	8	8	5*	8	45
Tributry North tributary gully	5	5	5	5	5	5	30
Tributary North additional depositional environments	10		1				11
Tributary Central	15	15	14**	14	14	14	86
Tributary Central additional depositional environments	2						2
East Tributary	7***	8	8	8	8	8	47
Upper Swift Creek	6****	8	8	8	8	8	46
Swift Ceek	8	8	8	8	8	8	48
Total							**315**

* Three samples were misplaced and consequently no results are available.

** Cross section TC02 was not sampled after the 1999 dry season because the channel was totally infilled with sediment.

*** One sample was misplaced and consequently the result is not available.

**** One sample was misplaced and one cross section had not been installed in 1998. Consequently, there are no results for two cross sections in 1998.

2.2 Laboratory Methods

All bulk bed-material samples were oven dried at 105°C for 24 hours before being subjected to particle size analysis. Initial field observations indicated that there was little mud (i.e.< 0.063 mm in diameter) present in the upper Swift Creek and East Tributary gauging station reaches. The phi (ϕ) notation system is often used to describe the grain size of clastic sediment by sedimentologists. It is a logarithmic scale in which each grade limit is twice as large as the next smaller grade limit (Folk 1974) and is denoted by:

$$\phi = -\log_2 d \qquad (1)$$ where d is the grain diameter in mm

The gravel fraction of the samples was manually sieved in its entirety at $\phi/2$ intervals. If the fraction less than 2 mm in diameter (fine earth fraction) was greater than 150 g it was passed through a riffle box to obtain a sample of approximately 100 g to ensure that the analytical stainless steel sieves were not damaged by excessive loading. This sub-sample was then dry sieved through a nest of stainless steel sieves at $\phi/2$ intervals using a 15 minutes shake time. For the fine earth fraction sample masses less than 150 g, the sample was sieved in its entirety.

Field observations of the mine site tributaries (Tributary North and Tributary Central) indicated that the mud fraction comprised a larger proportion of the bed material than in other channels. All samples in these reaches (mine site tributaries) were therefore subjected to a simplified particle size analysis according to the sieve and hydrometer method of Gee and Bauder (1986). All samples from the mine site tributaries were chemically dispersed with 25 mL of sodium hexametaphosphate before being mechanically dispersed on a shaking wheel or a shaking platform for at least 12 hours. The sample was then wet sieved through a 0.063 mm or 4 ϕ stainless steel sieve and the sand fraction was oven dried, weighed and dry sieved through a nest of sieves at $\phi/2$ intervals, as outlined above. In the complete hydrometer method of Gee and Bauder (1986), the sample passing through the a 0.063 mm or 4 ϕ stainless steel sieve is usually transferred to a 1000 mL cylinder for hydrometer analysis. Given the relatively small amounts of material less than 0.063mm that were generally obtained (see below), the remaining sample was oven dried at 105^0C for 24 hours and then weighed. During the first dry season sampling (1998), samples were also selected from the East Tributary, Upper Swift Creek and Swift Creek gauging reaches for the wet sieving method described above.

2.3 Sediment Texture

The sediment textural classification used for all fluviatile samples is that of Folk (1954; 1974) for unconsolidated materials and is based on a ternary diagram showing the proportions of gravel, sand and mud on separate axes (fig 2). This texture triangle is split into 15 groups and the median diameter is determined, where possible, for each component fraction. Each sediment fraction can be expressed in terms of one of the Wentworth size classes (table 2). To place a sample into one of the 15 major groups, only two properties need to be determined, namely the gravel percentage (boundaries at 80, 30, 5 and a trace or 0.01 %) and the ratio of sand to mud with boundaries at 9:1, 1:1 and 1:9 (Folk 1954; 1974). The gravel content is partly a function of the highest current velocity and the maximum grain size of the supplied sediment. The sand: mud ratio reflects the amount of winnowing (washing away of fine sediment) that has occurred. For samples lacking gravel, a further ternary diagram (fig 3) is used which expands the bottom tier of figure 2. It is based on the proportions of sand, silt and clay (see Folk 1954; 1974) but is not used for the Ngarradj sediment samples because of the low mud contents.

Table 2 The Wentworth grain size scale for sediments (after Folk 1974)

Finest Grain Size Diameter (mm)	Finest Grain Size Diameter (ϕ)	Wentworth Size Class
256	-8	Boulder
64	-6	Cobble
4	-2	Pebble
2	-1	Granule
1.00	0	Very coarse sand
0.50	1	Coarse sand
0.25	2	Medium sand
0.125	3	Fine sand
0.0625	4	Very fine sand
0.031	5	Coarse silt
0.0156	6	Medium silt
0.0078	7	Fine silt
0.0039	8	Very fine silt
0.00006	14	Clay

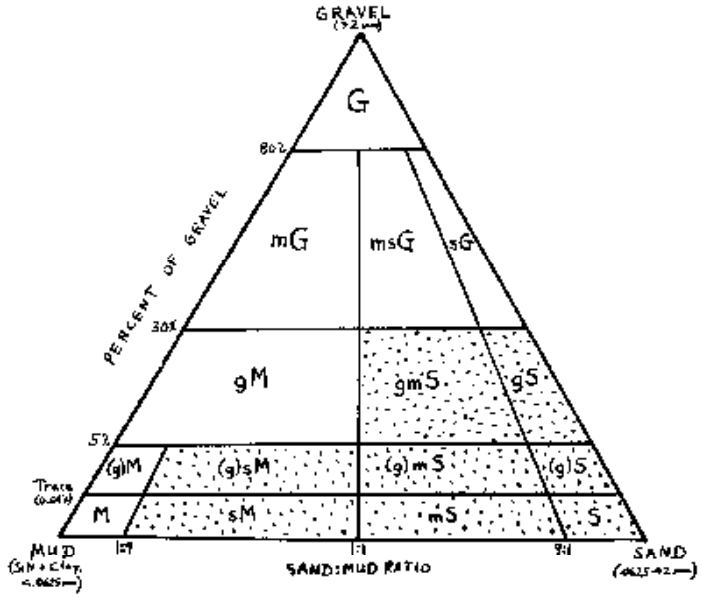

Figure 2 Folk's (1974) textural groups. G is gravel; sG sandy gravel; msG muddy sandy gravel; mG muddy gravel; gS gravelly sand; gmS gravelly muddy sand; gM gravelly mud; (g)S slightly gravelly mud; (g)mS slightly gravelly muddy sand; (g)sM slightly gravelly sandy mud; (g)M slightly gravelly mud; S sand; mS muddy sand; sM sandy mud; M mud.

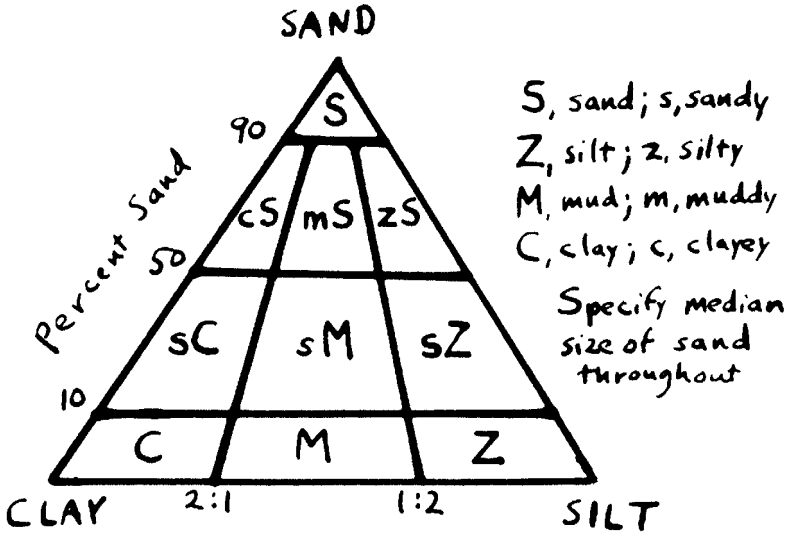

Figure 3 Folk's (1974) expansion of the bottom tier of Figure 2 to show textural classes for sediments lacking gravel. S is sand; zS silty sand; mS muddy sand; cS clayey sand; sZ sandy silt; sM sandy mud; sC sandy clay; Z silt; M mud; and C clay

3 Hydrology

Three gauging stations were installed by ***eriss*** in late 1998 on upper Swift Creek above the influence of the Jabiluka mine, on lower Swift Creek below the influence of the mine and on a right bank tributary between these two stations which is unimpacted by the mine (East Tributary) (fig 1). The respective catchment areas are 18.8, 43.6 and 8.5 km^2. The mine site tributaries, Tributary North and Tributary Central, are gauged by the mining company, Energy Resources of Australia (Moliere et al 2002). The total catchment areas of Tributary North and Tributary Central are 0.6 and 2.5 km^2 respectively.

Rainfall is highly seasonal in the Swift Creek catchment with monthly totals greater than 150 mm being recorded at the peak of the wet season between December and March (Moliere et al 2002, 2004). Much lower totals are recorded during both the build up to (September to November), and during the recession from (April and May), the wet season. Little rainfall is usually recorded between June and August. The earliest rainfall during the present study was recorded on 20 September (1998) and the latest rainfall was recorded on 24 May (2000) (Moliere et al 2002, 2004). Bed-material samples were collected during each dry season between 1998 and 2003, after the cross-sectional survey had been completed. The first three and the last wet seasons had above average rainfall (Moliere et al 2002, 2004) with the fourth wet season (2001/2002) having average rainfall (table 3).

Table 3 Total rainfall over the Ngarradj catchment and runoff at each gauging station for the 5-year monitoring period (1998 to 2003). Data sourced from Moliere et al (2002, 2004).

Year	Total rainfall (mm) [ARI (y)]	Rainfall period	Station	Antecedent rainfall (mm)	Runoff period	Total runoff (ML) [Peak discharge (m^3s^{-1})]
1998/99	1826 [1:13]	20 Sep – 28 Apr	SC	430(1)	9 Dec – 27 May	33665 [22.3]
			UM	440(1)	12 Dec – 10 Jun	15666 [15.0]
			ET	415(1)	9 Dec – 27 May	7621 [8.5]
1999/00	2047 [1:71]	14 Oct – 24 May	SC	260	20 Nov – 14 Jul	34899 [18.1]
			UM	305	20 Nov – 20 Jul	17426 [12.2]
			ET	280	20 Nov(2) – 25 Jun	8532 [8.1]
2000/01	1897 [1:21]	14 Oct – 27 Apr	SC	250	29 Nov – 14 Jun	34781 [20.6]
			UM	250	3 Dec – 14 Jun	17052 [13.0]
			ET	245	28 Nov – 21 May	8275 [8.2]
2001/02	1390 [1:2]	17 Oct – 14 Apr	SC	420	31 Dec – 15 Apr	14382 [22.0]
			UM	370	31 Dec – 1 May	7495 [13.6]
			ET	330	28 Dec – 25 Apr	3963 [8.3]
2002/03	1769 [1:9]	13 Sep – 1 May	SC	225	22 Dec – 7 May	33245 [21.2]
			UM	250	20 Dec – 1 Jun	18101 (3) [12.9]
			ET	355	1 Jan – 7 May	7249 [8.2]

(1) Data partly provided by Energy Resources of Australia

4 Bed-Material Samples

4.1 Tributary North

Figure 4 shows the location of the channel cross sections on Tributary North at which the bed material was bulk sampled. Oven dry sample masses collected for each year are summarised in table 4. From the criteria of de Vries (1970), Church et al (1987) and Gale & Hoare (1992), the sample masses are adequate to obtain reproducible measures of the grain size distribution for these bed-material sediments.

The cumulative frequency grain size distributions and Folk (1954; 1974) texture group for every sediment sample collected on Tributary North are contained in Appendix A, tables A1 to A14 inclusive. As there is a major left bank tributary gully of the lower gullied reach on Tributary North (Erskine et al 2001), the samples for each gully are presented separately.

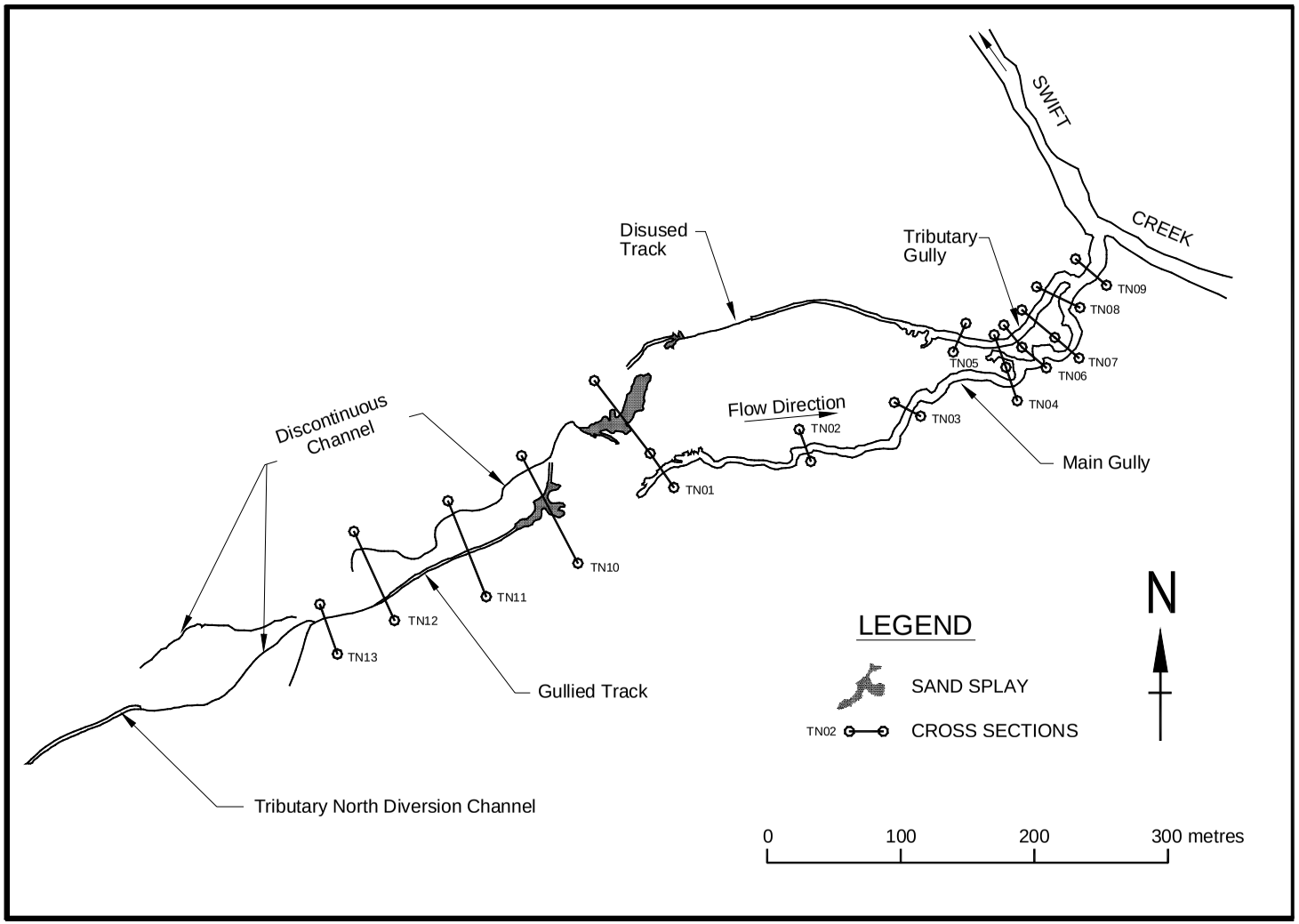

Figure 4 Location of cross sections on Tributary North at which bulk bed-material samples were collected

Table 4 Summary of oven dry bulk bed-material sample masses collected on Tributary North main gully and tributary gully for each year of the sediment program

Sample Masses main gully	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**
Mean (g)	1188.01	1273.82	994.94	945.69	1435.63	1098.90
Standard Error of Estimate (g)	119.01	114.80	26.35	101.60	204.76	93.12
Minimum (g)	718.00	908.96	940.42	655.1	1047.8	686.83
Maximum (g)	1676.19	1707.27	1156.19	1560.09	2183.83	1504.16
Sample Mass tributary gully	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**
Mean (g)	1472.64	1568.62	843.41	693.07	1070.04	1145.19
Standard Error of Estimate (g)	300.69	75.36	62.72	21.36	48.31	86.84
Minimum (g)	912.58	1341.45	677.11	633.73	940.51	858.52
Maximum (g)	2241.25	1729.43	1038.26	762.76	1183.71	1376.92

4.2 Tributary Central

Figure 5 shows the location of the channel cross sections at which the bed material was bulk sampled. Sample masses for each year are summarised in table 5. Samples were collected at cross section TC02 for 1998 and 1999, after which the channel (small distributary channel) (see figure 5) was infilled with sediment and hence subsequent samples were not collected. From the criteria of de Vries (1970), Church et al (1987) and Gale & Hoare (1992), the sample masses were adequate to obtain reproducible measures of the grain size distribution for these bed-material sediments, with the exception of the sample at cross section TC06A in 2001. The coarsest sample for the study period was obtained in 2001 at cross section TC06A because it contained a single cobble. A much larger sample mass should have been collected on this occasion to avoid a single isolated cobble distorting the grain size statistics (Church et al 1987; Gale & Hoare 1992). As this was not done, the grain size statistics for cross section TC06A for 2001 are unreliable and should not be used in any subsequent analyses.

Table 5 Summary of oven dry bulk bed-material sample masses collected on Tributary Central for each year of the sediment program.

Sample Mass	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**
Mean (g)	1634.9	1577.7	1341.6	1112.9	1283.1	1520.6
Standard Error of Estimate (g)	107.8	68.8	75.7	102.5	94.5	89.4
Minimum (g)	1194.2	1187.3	801.1	787.1	776.2	1127.7
Maximum (g)	2814.6	2072.3	1739.9	2300.5	1870.3	2114.9

The cumulative frequency grain size distributions and Folk (1954, 1974) texture group for every sediment sample collected on Tributary Central are contained in Appendix B, tables B1 to B7 inclusive.

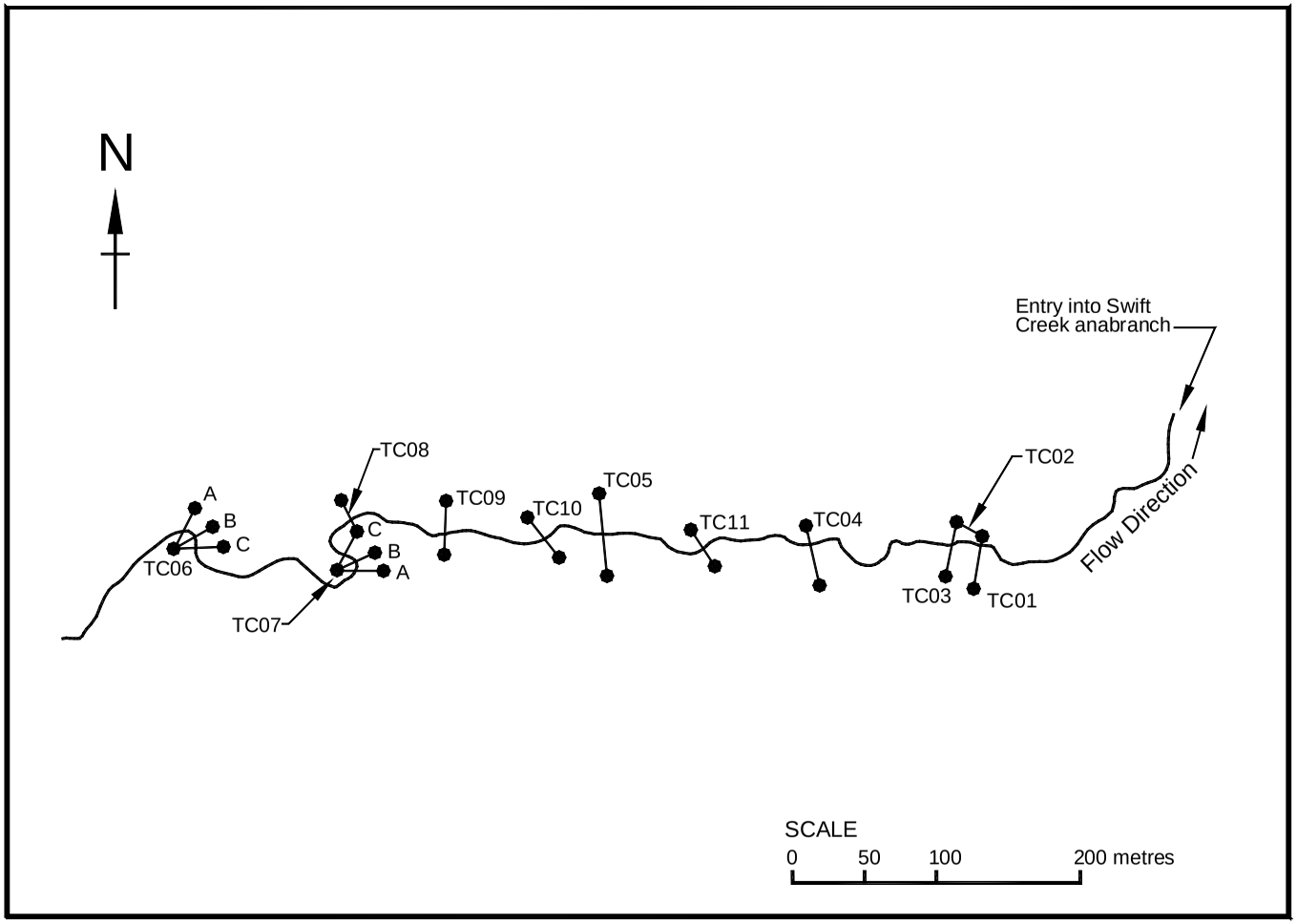

Figure 5 Location of the cross sections on Tributary Central

4.3 East Tributary

Figure 6 shows the location of the channel cross sections at which the bed material was bulk sampled. Oven dry sample masses collected for each year are summarised in table 6. From the criteria of de Vries (1970), Church et al (1987) and Gale & Hoare (1992), the sample masses were adequate to obtain reproducible measures of the grain size distribution for these bed-material sediments.

To determine the mud content of the bed material, four of the 1998 samples were dispersed and wet sieved through a 63 μm sieve. The percentage of the 1998 samples < 63 μm were as follows:

- cross section ET02 – 5.56%,
- cross section ET04 – 1.59%,
- cross section ET06 – 3.38%, and
- cross section ET08 – 1.21%.

As the samples in general (3 out of 4) contained less than 5% mud, samples were not chemically and physically dispersed in subsequent years thus reducing laboratory time. After 1998 all samples were oven dried and then dry sieved. Of the 47 samples collected at East Tributary (table1) there was only 1 sample with greater than 5% mud, this sample being that collected at cross section ET02 in 1998 (see above).

Table 6 Summary of oven dry bulk bed-material sample masses collected on East Tributary for each year of the sediment program

Sample Mass	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**
Mean (g)	1444.8	1330.0	1132.1	1123.9	1163.4	1376.5
Standard Error of Estimate (g)	156.3	183.8	97.0	86.7	71.6	68.2
Minimum (g)	985.6	939.0	934.1	906.0	932.0	1104.4
Maximum (g)	2208.7	2219.9	1721.4	1619.8	1606.3	1734.7

The cumulative frequency grain size distributions and Folk (1954, 1974) texture group for every sediment sample collected on East Tributary are contained in Appendix C, tables C1 to C6 inclusive.

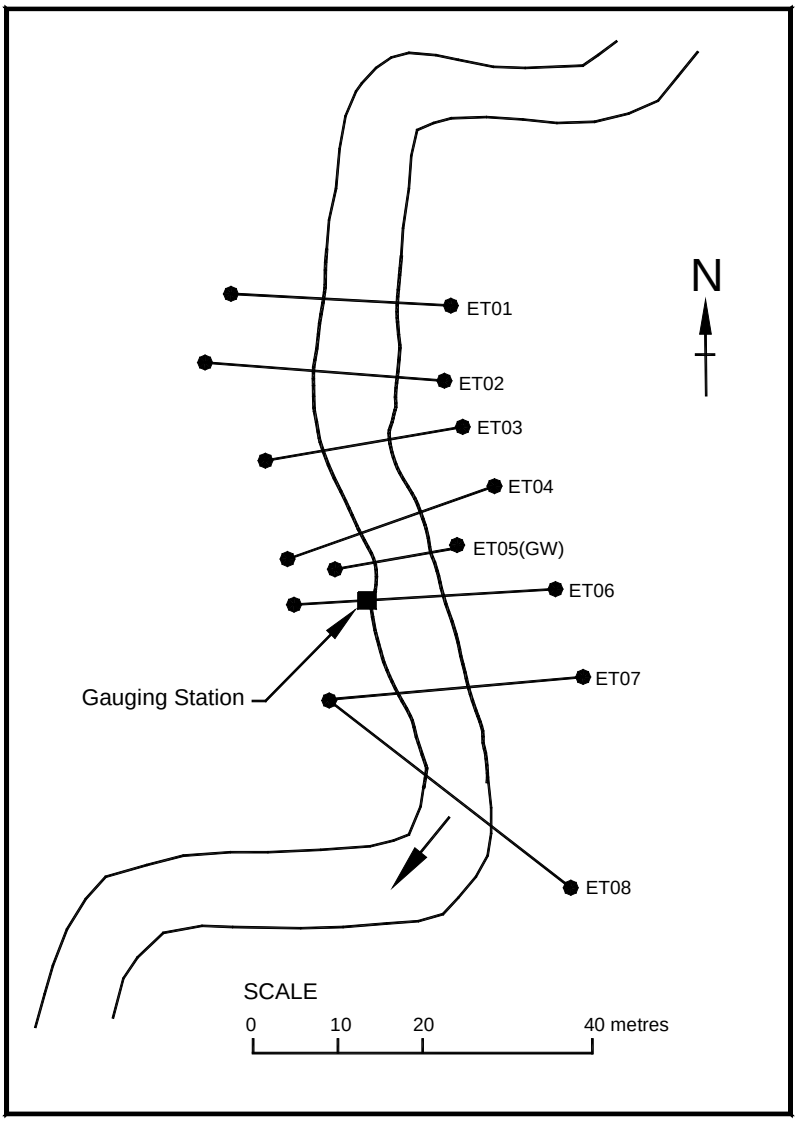

Figure 6 Location of the cross sections on East Tributary at the gauging station

4.4 Upper Swift Creek

Figure 7 shows the location of the channel cross sections at which the bed material was bulk sampled. A sample was collected at cross section UM04 in 1998, however, it was subsequently misplaced and, therefore, the results are not contained in table D1. The cross section at the gauging wire (cross section UMGW) was not installed until after the 1998/1999 wet season and hence no sample was collected during the 1998 dry season. Table 7 summarises the oven dry masses of the bulk samples collected for each year of the monitoring program. From the criteria of de Vries (1970), Church et al (1987) and Gale & Hoare (1992), the sample masses were adequate to obtain reproducible measures of the grain size distribution for these bed-material sediments.

To investigate the mud content of the bed material, four of the 1998 samples were dispersed and wet sieved through a 63 μm sieve. The percentage of the samples <63 μm were as follows:

- cross section UM01 – 2.64%,
- cross section UM03 – 0.91%,

- cross section UM05 – 0.95% &
- cross section UM07 – 0.76%.

As all four samples had less than 5 % mud, bed-material samples were oven dried and dry sieved in subsequent years. Of the 47 samples collected at upper Swift Creek (table1) there were no samples with greater than 5% mud.

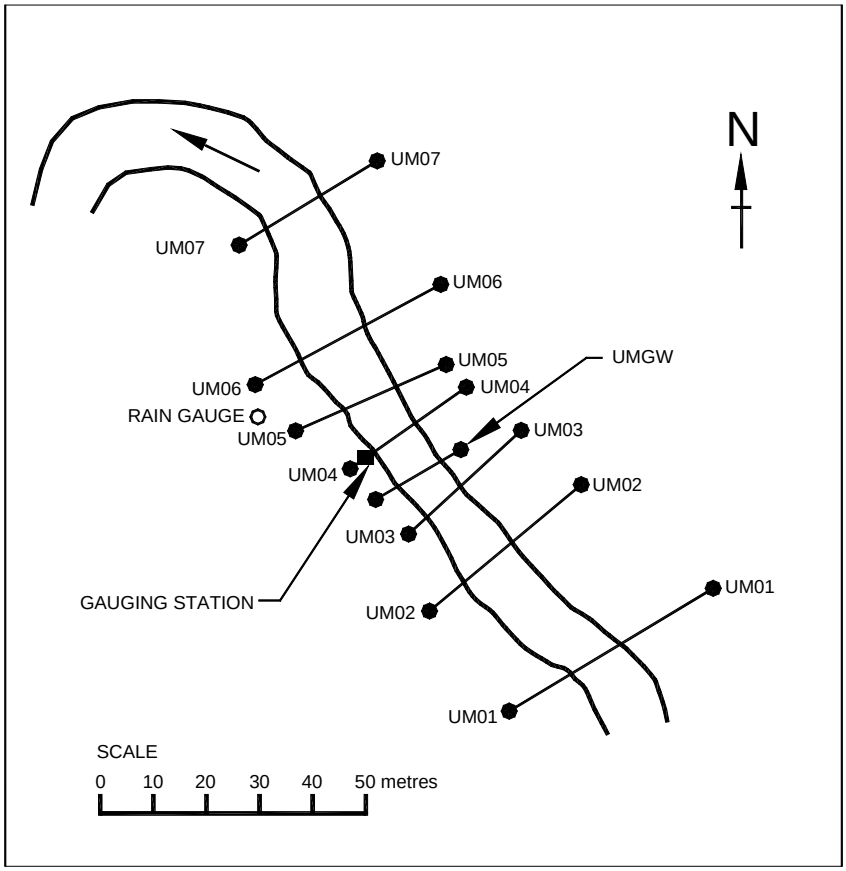

Figure 7 Location of the cross sections at the upper Swift Creek gauge

Table 7 Summary of oven dry bulk bed-material sample masses collected on upper Swift Creek for each year of the sediment program

Sample Mass	1998	1999	2000	2001	2002	2003
Mean (g)	1516.0	1542.5	1357.4	1206.7	956.0	1378.0
Standard Error of Estimate (g)	146.6	119.4	73.7	91.6	60.9	107.9
Minimum (g)	930.5	827.3	1130.7	928.5	655.1	855.9
Maximum (g)	1867.9	1901.9	1686.6	1622.7	1160.0	1757.0

The cumulative frequency grain size distributions and Folk (1954, 1974) texture group for every sediment sample collected at the upper Swift Creek gauge are contained in Appendix D, tables D1 to D6 inclusive.

4.5 Swift Creek

Figure 8 shows the location of the cross sections where the bed material samples were collected. Table 8 summarises the oven dry masses of the bulk samples collected for each year of the monitoring program. From the criteria of de Vries (1970), Church et al (1987) and Gale & Hoare (1992), the sample masses were adequate to obtain reproducible measures of the grain size distribution for these bed-material sediments.

To determine the mud content of the bed material, four of the 1998 samples were dispersed and wet sieved through a 63 μm sieve. The percentage of the samples <63 μm were as follows:

- cross section SM02 – 1.01%,
- cross section SM04 – 1.22%,
- cross section SM06 – 0.76% &
- cross section SM08 – 1.11%.

As all four samples had less than 5 % mud, bed-material samples were oven dried and dry sieved in subsequent years. Over the six years of sampling only one of the 48 samples (cross section SM02 in 2000) exhibited more than 5 % mud (table E3). Parts of the bed were scoured during the 1999/2000 wet season exposing clay that was sampled at cross section SM02 in 2000.

Table 8 Summary of oven dry, bulk bed-material sample masses collected on Swift Creek for each year of the sediment program

Sample Mass	1998	1999	2000	2001	2002	2003
Mean (g)	1751.36	2122.04	1363.42	1541.15	2103.4	2355.8
Standard Error of Estimate (g)	113.95	194.92	69.15	76.67	168.1	165.1
Minimum (g)	1207.25	1494.41	1113.36	1283.85	1240.5	1749.5
Maximum (g)	2259.00	3031.31	1679.69	1904.05	2677.4	3035.6

The cumulative frequency grain size distributions and Folk (1954, 1974) texture group for every sediment sample collected at the Swift Creek gauge are contained in Appendix E, tables E1 to E6 inclusive.

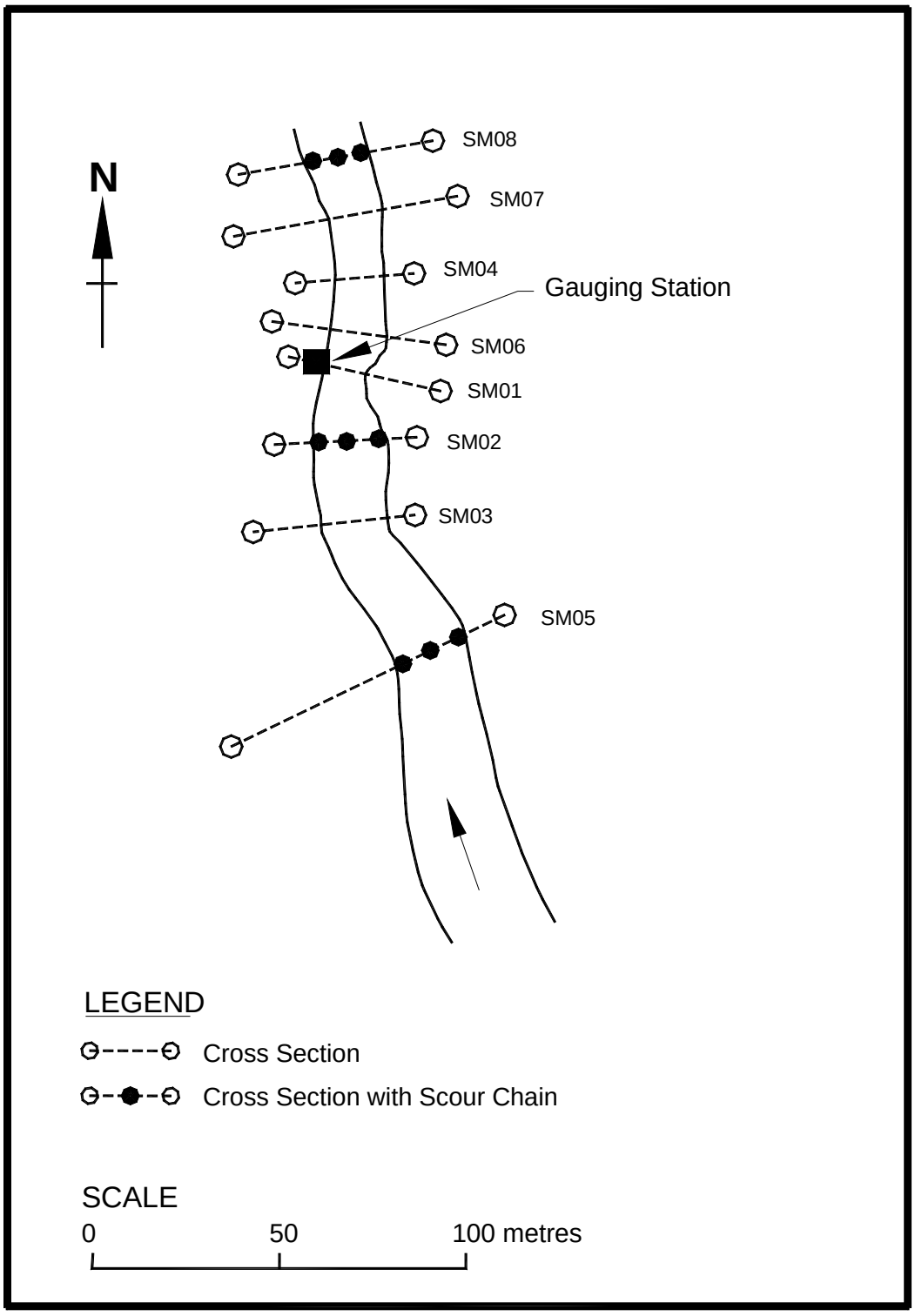

Figure 10 Location of cross sections at the lower Swift Creek gauge

6 Conclusions

This report contains the cumulative frequency grain size distribution data for a range of sediment storages in the Ngarradj catchment. Bulk sampling was used to collect bed, bar, bench, floodout, splay and distributary channel sediments on the tributaries draining the Jabiluka mine site between the 1998 and 2003 dry seasons. Ngarradj at the two ***eriss***

gauging stations located up- and downstream of the mine site tributaries was also sampled at the same time along with East Tributary, which is not impacted by the mine. The 56 permanently monumented cross sections used to assess channel changes (Saynor et al 2002a, 2004a) were sampled annually and provide a valuable baseline data set for assessment of mine impacts as well as the success of mine rehabilitation. The data set has been analysed by Saynor et al (2004c) to determine statistically significant changes in grain size statistics over time and between sites.

7 Acknowledgements

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Appendices A to E Cumulative Frequency Grain Size Distributions

These appendices contain the cumulative frequency grain size distributions for all bulk sediment samples collected in the Ngarradj catchment between 1998 and 2003. The data are usually presented for the cross sections at which the sediment was sampled. Cross sections are arranged in the tables in downstream sequence at each site for each year. The cumulative percent for the gravel fraction (> 2mm in diameter) was calculated for the total samples and is denoted by a line between –0.1 and –0.5 ϕ (2.0 and 1.4 mm respectively) in the following tables. The cumulative percent for the fine earth fraction (< 2mm in diameter) was usually calculated for a subsample and weighted by the percentage of the fine earth fraction of the total sample.

Appendix A

Cumulative frequency grain size distributions for bulk bed-material and other sediment samples on Tributary North for the period 1998 to 2003

The cumulative frequency distributions are shown separately for Tributary North main gully and Tributary North tributary gully in tables A1 to A14. The location of the cross sections where the bulk bed material samples were collected is shown in figure 4. The following tables are included in Appendix A:

Table A1 – 1998: main gully data

Table A2 – 1998: tributary gully data

Table A3 – 1998: data for additional sediment samples on Tributary North

Table A4 – 1999: main gully data

Table A5 – 1999: tributary gully data

Table A6 – 2000: main gully data

Table A7 – 2000: tributary gully data

Table A8 – 2000: data for drainage channel from under pond

Table A9 – 2001: main gully data

Table A10 – 2001: tributary gully data

Table A11 – 2002: main gully data

Table A12 – 2002: tributary gully data

Table A13 – 2003: main gully data

Table A14 – 2003: tributary gully data

Table A1 Cumulative frequency grain size distributions for bulk bed-material samples on the main gully of Tributary North for 1998

Sample	TN01	Gravel Mass = 20.58 g	
Date	8-Oct-98	Remaining Mass = 697.42 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	20.58	2.87
-0.5	1.4 mm	1.46	4.17
0.0	1.0 mm	3.59	6.07
0.5	710 μm	7.73	9.76
1.0	500 μm	20.89	21.49
1.5	355 μm	43.30	41.47
2.0	250 μm	67.34	62.90
2.5	180 μm	88.41	81.69
3.0	125 μm	95.75	88.23
3.5	90 μm	99.15	91.26
4.0	63 μm	100.29	92.28
<4.0	<63 μm	108.95	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	TN03	Gravel Mass = 108.16 g	
Date	8-Oct-98	Remaining Mass = 1676.19 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm	39.83	2.37
-1.5	2.4 mm	88.19	5.25
-1.0	2.0 mm	108.16	6.44
-0.5	1.4 mm	4.28	9.82
0.0	1.0 mm	9.36	13.83
0.5	710 μm	19.06	21.50
1.0	500 μm	41.15	38.96
1.5	355 μm	67.41	59.71
2.0	250 μm	91.46	78.72
2.5	180 μm	108.36	92.08
3.0	125 μm	113.26	95.95
3.5	90 μm	115.02	97.34
4.0	63 μm	115.39	97.64
<4.0	<63 μm	118.38	100.00

Folk (1974) Texture Group: Granular medium sand

Sample	TN02	Gravel Mass = 3.68 g	
Date	30-Oct-98	Remaining Mass =731.29 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	3.68	0.50
-0.5	1.4 mm	2.07	2.34
0.0	1.0 mm	5.92	5.77
0.5	710 μm	15.56	14.34
1.0	500 μm	38.50	34.75
1.5	355 μm	65.37	58.65
2.0	250 μm	88.38	79.12
2.5	180 μm	103.07	92.19
3.0	125 μm	107.02	95.70
3.5	90 μm	108.18	96.74
4.0	63 μm	108.46	96.98
<4.0	<63 μm	111.85	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	TN04	Gravel Mass = 65.26 g	
Date	8-Oct-98	Remaining Mass =1398.35 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	65.26	4.46
-0.5	1.4 mm	2.39	6.42
0.0	1.0 mm	6.33	9.64
0.5	710 μm	15.18	16.89
1.0	500 μm	37.84	35.44
1.5	355 μm	61.93	55.16
2.0	250 μm	85.91	74.79
2.5	180 μm	99.62	86.01
3.0	125 μm	108.31	93.12
3.5	90 μm	110.66	95.05
4.0	63 μm	111.77	95.96
<4.0	<63 μm	116.71	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Table A1 Cumulative frequency grain size distributions for bulk bed-material samples on the main gully of Tributary North for 1998 (Continued)

Sample	TN06	Gravel Mass = 29.04 g	
Date	14-Oct-98	Remaining Mass = 1189.45 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	29.04	2.38
-0.5	1.4 mm	4.37	6.01
0.0	1.0 mm	11.16	11.65
0.5	710 µm	20.77	19.64
1.0	500 µm	37.01	33.13
1.5	355 µm	53.51	46.83
2.0	250 µm	73.38	63.34
2.5	180 µm	89.88	77.04
3.0	125 µm	104.24	88.97
3.5	90 µm	109.60	93.42
4.0	63 µm	112.39	95.74
<4.0	<63 µm	117.52	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	TN08	Gravel Mass = 97.08 g	
Date	14-Oct-98	Remaining Mass = 1225.24 g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	3.82	0.29
-2.0	4.0 mm	39.69	2.99
-1.5	2.4 mm	79.34	5.98
-1.0	2.0 mm	97.08	7.32
-0.5	1.4 mm	5.62	11.67
0.0	1.0 mm	12.83	17.25
0.5	710 µm	23.17	25.25
1.0	500 µm	41.21	39.20
1.5	355 µm	61.12	54.61
2.0	250 µm	82.94	71.49
2.5	180 µm	99.13	84.02
3.0	125 µm	112.04	94.00
3.5	90 µm	115.56	96.73
4.0	63 µm	116.75	97.65
<4.0	<63 µm	119.79	100.00

Folk (1974) Texture Group: Granular medium sand

Sample	TN07	Gravel Mass = 49.52 g	
Date	14-Oct-98	Remaining Mass = 984.25 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	49.52	4.79
-0.5	1.4 mm	6.55	9.99
0.0	1.0 mm	14.43	16.25
0.5	710 µm	28.50	27.43
1.0	500 µm	58.07	50.92
1.5	355 µm	85.42	72.65
2.0	250 µm	103.29	86.84
2.5	180 µm	113.63	95.06
3.0	125 µm	116.30	97.18
3.5	90 µm	117.34	98.01
4.0	63 µm	117.67	98.27
<4.0	<63 µm	119.85	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	TN09	Gravel Mass = 54.67 g	
Date	14-Oct-98	Remaining Mass = 1282.09	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	54.67	4.09
-0.5	1.4 mm	2.40	6.39
0.0	1.0 mm	6.28	10.10
0.5	710 µm	14.60	18.06
1.0	500 µm	33.98	36.61
1.5	355 µm	55.92	57.61
2.0	250 µm	74.62	75.50
2.5	180 µm	89.17	89.43
3.0	125 µm	94.62	94.64
3.5	90 µm	96.94	96.86
4.0	63 µm	97.65	97.54
<4.0	<63 µm	100.22	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Table A2 Cumulative frequency grain size distributions for bulk bed-material samples on the tributary gully of Tributary North for 1998

Sample	TN05 Trib	Gravel Mass = 10.55 g	
Date	28-Oct-98	Remaining Mass = 2230.70 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	10.55	0.47
-0.5	1.4 mm	1.26	1.53
0.0	1.0 mm	4.64	4.37
0.5	710 μm	12.89	11.31
1.0	500 μm	32.71	27.98
1.5	355 μm	54.32	46.16
2.0	250 μm	76.46	64.78
2.5	180 μm	89.40	75.67
3.0	125 μm	98.61	83.41
3.5	90 μm	102.99	87.10
4.0	63 μm	106.54	90.08
<4.0	<63 μm	118.33	100.00

Folk (1974) Texture Group: Slightly granular muddy medium sand

Sample	TN06 Trib	Gravel Mass = 4.13 g	
Date	14-Oct-98	Remaining Mass = 948.58 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	4.13	0.43
-0.5	1.4 mm	1.81	1.97
0.0	1.0 mm	7.21	6.54
0.5	710 μm	20.39	17.70
1.0	500 μm	50.17	42.92
1.5	355 μm	81.74	69.66
2.0	250 μm	105.31	89.62
2.5	180 μm	110.74	94.22
3.0	125 μm	112.22	95.47
3.5	90 μm	112.87	96.02
4.0	63 μm	113.45	96.51
<4.0	<63 μm	117.57	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	TN04 Trib	Gravel Mass = 9.78 g	
Date	28-Oct-98	Remaining Mass = 2159.39 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	9.78	0.45
-0.5	1.4 mm	1.30	1.55
0.0	1.0 mm	4.71	4.42
0.5	710 μm	14.09	12.32
1.0	500 μm	36.89	31.51
1.5	355 μm	62.61	53.17
2.0	250 μm	87.77	74.36
2.5	180 μm	99.22	84.00
3.0	125 μm	104.71	88.62
3.5	90 μm	107.17	90.70
4.0	63 μm	109.25	92.45
<4.0	<63 μm	118.22	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	TN07 Trib	Gravel Mass = 33.91 g	
Date	14-Oct-98	Remaining Mass = 878.67 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	33.91	3.72
-0.5	1.4 mm	3.28	6.44
0.0	1.0 mm	9.05	11.23
0.5	710 μm	18.63	19.18
1.0	500 μm	39.65	36.63
1.5	355 μm	66.38	58.81
2.0	250 μm	91.27	79.47
2.5	180 μm	101.02	87.57
3.0	125 μm	105.64	91.40
3.5	90 μm	107.61	93.04
4.0	63 μm	109.16	94.32
<4.0	<63 μm	116.00	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Table A2 Cumulative frequency grain size distributions for bulk bed-material samples on the tributary gully of Tributary North for 1998 (Continued)

Sample	**TN08 Trib**	**Gravel Mass = 11.53 g**	
Date	**14-Oct-98**	**Remaining Mass = 1075.98 g**	
Phi		**Mass (g)**	**Cumulative %**
-2.0	**4.0 mm**		
-1.5	**2.4 mm**		
-1.0	**2.0 mm**	11.53	1.06
-0.5	**1.4 mm**	2.60	3.24
0.0	**1.0 mm**	8.02	7.78
0.5	**710 μm**	18.49	16.54
1.0	**500 μm**	39.70	34.30
1.5	**355 μm**	61.54	52.59
2.0	**250 μm**	82.76	70.36
2.5	**180 μm**	94.61	80.28
3.0	**125 μm**	102.16	86.60
3.5	**90 μm**	105.28	89.22
4.0	**63 μm**	107.73	91.27
<4.0	**<63 μm**	118.16	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Table A3 Cumulative frequency grain size distributions for additional bulk sediment samples in the floodout zone of Tributary North for 1998

Sample	TN13	Gravel Mass = 12.31 g	
Date	23-Oct-98	Remaining Mass = 831.41 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	12.31	1.46
-0.5	1.4 mm	1.38	2.75
0.0	1.0 mm	3.56	4.78
0.5	710 μm	7.82	8.75
1.0	500 μm	18.60	18.81
1.5	355 μm	32.93	32.17
2.0	250 μm	49.91	48.01
2.5	180 μm	67.35	64.28
3.0	125 μm	75.49	71.87
3.5	90 μm	80.49	76.53
4.0	63 μm	83.04	78.91
<4.0	<63 μm	105.65	100.00

Folk (1974) Texture Group: Slightly granular muddy medium sand

Sample - TN12 Bed of discontinuous channel		Gravel Mass = 4.92 g	
Date	23-Oct-98	Remaining Mass = 849.01 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	4.92	0.55
-0.5	1.4 mm	0.96	1.35
0.0	1.0 mm	4.34	4.18
0.5	710 μm	12.99	11.42
1.0	500 μm	34.29	29.25
1.5	355 μm	57.35	48.55
2.0	250 μm	79.97	67.49
2.5	180 μm	91.97	77.53
3.0	125 μm	99.71	84.01
3.5	90 μm	102.40	86.26
4.0	63 μm	104.15	87.73
<4.0	<63 μm	118.81	100.00

Folk (1974) Texture Group: Slightly granular muddy medium sand

Sample	TN12 Gully	Gravel Mass = 5.21 g	
Date	23-Oct-98	Remaining Mass = 730.25 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	5.21	0.71
-0.5	1.4 mm	0.71	1.39
0.0	1.0 mm	3.24	3.82
0.5	710 μm	8.99	9.34
1.0	500 μm	22.49	22.30
1.5	355 μm	38.01	37.21
2.0	250 μm	54.38	52.93
2.5	180 μm	64.90	63.03
3.0	125 μm	73.44	71.23
3.5	90 μm	77.70	75.32
4.0	63 μm	81.11	78.60
<4.0	<63 μm	103.40	100.00

Folk (1974) Texture Group: Slightly granular muddy medium sand

Sample - TN11 Bed of discontinuous channel		Gravel Mass = 5.20 g	
Date	23-Oct-98	Remaining Mass = 917.38 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	5.20	0.56
-0.5	1.4 mm	0.68	1.15
0.0	1.0 mm	3.18	3.30
0.5	710 μm	10.46	9.58
1.0	500 μm	31.30	27.53
1.5	355 μm	57.07	49.73
2.0	250 μm	83.69	72.66
2.5	180 μm	96.97	84.10
3.0	125 μm	102.92	89.23
3.5	90 μm	104.53	90.62
4.0	63 μm	105.46	91.42
<4.0	<63 μm	115.42	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Table A3 Cumulative frequency grain size distributions for additional bulk sediment samples on Tributary North for 1998 (continued)

Sample	TN11 Gully	Gravel Mass = 6.30 g	
Date	23-Oct-98	Remaining Mass = 1005.64 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	6.30	0.62
-0.5	1.4 mm	1.01	1.49
0.0	1.0 mm	3.77	3.87
0.5	710 µm	11.47	10.50
1.0	500 µm	32.27	28.40
1.5	355 µm	54.62	47.64
2.0	250 µm	74.25	64.54
2.5	180 µm	91.33	79.24
3.0	125 µm	98.08	85.05
3.5	90 µm	101.98	88.41
4.0	63 µm	103.77	89.95
<4.0	<63 µm	115.45	100.00

Folk (1974) Texture Group: Slightly granular muddy medium sand

Sample	TN10 Splay	Gravel Mass = 12.22 g	
Date	23-Oct-98	Remaining Mass = 1668.44 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	12.22	0.73
-0.5	1.4 mm	2.44	2.79
0.0	1.0 mm	7.39	6.98
0.5	710 µm	19.87	17.54
1.0	500 µm	55.09	47.33
1.5	355 µm	87.27	74.56
2.0	250 µm	103.79	88.54
2.5	180 µm	109.96	93.76
3.0	125 µm	111.40	94.97
3.5	90 µm	112.10	95.57
4.0	63 µm	112.47	95.88
<4.0	<63 µm	117.34	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	TN01 Bed of discontinuous channel	Gravel Mass = 12.27 g	
Date	23-Oct-98	Remaining Mass = 1182.31 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	12.27	1.03
-0.5	1.4 mm	1.37	2.18
0.0	1.0 mm	4.67	4.95
0.5	710 µm	12.61	11.62
1.0	500 µm	31.46	27.46
1.5	355 µm	53.23	45.75
2.0	250 µm	77.45	66.10
2.5	180 µm	92.46	78.71
3.0	125 µm	101.00	85.89
3.5	90 µm	104.05	88.45
4.0	63 µm	106.08	90.15
<4.0	<63 µm	117.80	100.00

Folk (1974) Texture Group: Slightly granular muddy medium sand

Sample	TN01 Splay	Gravel Mass = 7.90 g	
Date	23-Oct-98	Remaining Mass = 928.99 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	7.90	0.84
-0.5	1.4 mm	1.58	2.15
0.0	1.0 mm	6.57	6.30
0.5	710 µm	18.84	16.48
1.0	500 µm	50.81	43.01
1.5	355 µm	85.72	71.98
2.0	250 µm	106.96	89.61
2.5	180 µm	114.33	95.73
3.0	125 µm	115.51	96.71
3.5	90 µm	115.96	97.08
4.0	63 µm	116.13	97.22
<4.0	<63 µm	119.48	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Table A3 Cumulative frequency grain size distributions for additional bulk sediment samples on Tributary North for 1998 (continued)

Sample	TN01 Bank	Gravel Mass = 7.14 g	
Date	8-Oct-98	Remaining Mass = 738.33 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	7.14	0.96
-0.5	1.4 mm	4.12	5.02
0.0	1.0 mm	13.87	14.65
0.5	710 µm	32.13	32.67
1.0	500 µm	55.27	55.51
1.5	355 µm	69.01	69.07
2.0	250 µm	76.07	76.04
2.5	180 µm	80.06	79.97
3.0	125 µm	81.56	81.45
3.5	90 µm	82.50	82.38
4.0	63 µm	83.01	82.89
<4.0	<63 µm	100.35	100.00

Folk (1974) Texture Group: Slightly granular muddy coarse sand

Sample	TN06 Bench	Gravel Mass = 1.62 g	
	14-Oct-98	Remaining Mass = 609.62 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	1.62	0.27
-0.5	1.4 mm	0.43	0.64
0.0	1.0 mm	1.68	1.72
0.5	710 µm	4.39	4.06
1.0	500 µm	10.45	9.30
1.5	355 µm	16.64	14.65
2.0	250 µm	24.14	21.14
2.5	180 µm	34.52	30.12
3.0	125 µm	57.67	50.14
3.5	90 µm	72.83	63.25
4.0	63 µm	84.36	73.22
<4.0	<63 µm	115.33	100.00

Folk (1974) Texture Group: Slightly granular muddy fine sand

Table A4 Cumulative frequency grain size distributions for bulk bed-material samples on the main gully of Tributary North for 1999

Sample	TN01	Gravel Mass = 28.85 g	
Date	21-Oct-99	Remaining Mass = 880.11 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	28.85	3.17
-0.5	1.4 mm	2.26	5.06
0.0	1.0 mm	6.58	8.66
0.5	710 μm	15.61	16.18
1.0	500 μm	37.41	34.34
1.5	355 μm	59.03	52.36
2.0	250 μm	77.06	67.38
2.5	180 μm	92.78	80.48
3.0	125 μm	99.65	86.20
3.5	90 μm	103.36	89.29
4.0	63 μm	104.93	90.60
<4.0	<63 μm	116.21	100.00

Folk (1974) Texture Group: Slightly granular muddy medium sand

Sample	TN03	Gravel Mass = 158.90 g	
Date	21-Oct-99	Remaining Mass = 756.94 g	
Phi		Mass (g)	Cumulative %
-4.0	16.0 mm	0.00	0.00
-3.25	9.5 mm	63.13	6.87
-2.0	4.0 mm	113.20	12.32
-1.5	2.4 mm	145.93	15.88
-1.0	2.0 mm	158.90	17.29
-0.5	1.4 mm	3.50	19.73
0.0	1.0 mm	8.04	22.90
0.5	710 μm	16.16	28.56
1.0	500 μm	34.12	41.09
1.5	355 μm	55.29	55.86
2.0	250 μm	76.73	70.81
2.5	180 μm	96.05	84.29
3.0	125 μm	104.53	90.20
3.5	90 μm	109.67	93.79
4.0	63 μm	111.55	95.10
<4.0	<63 μm	118.58	100.00

Folk (1974) Texture Group: Pebbly medium sand

Sample	TN02	Gravel Mass = 37.55 g	
Date	21-Oct-99	Remaining Mass = 1476.17 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	37.55	2.48
-0.5	1.4 mm	3.31	5.20
0.0	1.0 mm	10.56	11.14
0.5	710 μm	24.22	22.34
1.0	500 μm	47.17	41.17
1.5	355 μm	68.42	58.59
2.0	250 μm	87.01	73.84
2.5	180 μm	98.66	83.39
3.0	125 μm	107.20	90.40
3.5	90 μm	110.17	92.83
4.0	63 μm	111.86	94.22
<4.0	<63 μm	118.91	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	TN04	Gravel Mass = 48.55 g	
Date	21-Oct-99	Remaining Mass = 989.74 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	48.55	4.68
-0.5	1.4 mm	4.26	8.10
0.0	1.0 mm	10.79	13.35
0.5	710 μm	22.30	22.59
1.0	500 μm	44.77	40.65
1.5	355 μm	69.36	60.40
2.0	250 μm	93.20	79.56
2.5	180 μm	109.07	92.31
3.0	125 μm	113.60	95.95
3.5	90 μm	115.26	97.28
4.0	63 μm	115.75	97.68
<4.0	<63 μm	118.64	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Table A4 Cumulative frequency grain size distributions for bulk bed-material samples on the main gully of Tributary North for 1999 (Continued)

Sample	TN06	Gravel Mass = 50.40 g	
Date	21-Oct-99	Remaining Mass = 1293.63 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	50.40	3.75
-0.5	1.4 mm	1.59	5.01
0.0	1.0 mm	4.10	7.01
0.5	710 µm	24.92	23.56
1.0	500 µm	83.52	70.15
1.5	355 µm	97.36	81.16
2.0	250 µm	105.29	87.46
2.5	180 µm	113.15	93.71
3.0	125 µm	115.28	95.40
3.5	90 µm	116.61	96.46
4.0	63 µm	117.14	96.88
<4.0	<63 µm	121.06	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Sample	TN08	Gravel Mass = 59.86 g	
Date	21-Oct-99	Remaining Mass = 1647.41 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	59.86	3.51
-0.5	1.4 mm	2.95	5.91
0.0	1.0 mm	7.23	9.40
0.5	710 µm	15.82	16.39
1.0	500 µm	35.69	32.58
1.5	355 µm	58.53	51.19
2.0	250 µm	80.11	68.77
2.5	180 µm	101.78	86.43
3.0	125 µm	110.05	93.16
3.5	90 µm	113.33	95.84
4.0	63 µm	114.31	96.64
<4.0	<63 µm	118.44	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	TN07	Gravel Mass = 55.39 g	
Date	21-Oct-99	Remaining Mass = 1054.83 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	55.39	4.99
-0.5	1.4 mm	3.64	7.90
0.0	1.0 mm	10.35	13.25
0.5	710 µm	22.58	23.02
1.0	500 µm	43.17	39.45
1.5	355 µm	63.53	55.71
2.0	250 µm	85.52	73.26
2.5	180 µm	99.77	84.64
3.0	125 µm	109.44	92.36
3.5	90 µm	112.64	94.91
4.0	63 µm	114.23	96.18
<4.0	<63 µm	119.01	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	TN09	Gravel Mass = 42.98 g	
Date	21-Oct-99	Remaining Mass = 1609.01 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	42.98	2.60
-0.5	1.4 mm	2.57	4.67
0.0	1.0 mm	6.87	8.14
0.5	710 µm	16.68	16.05
1.0	500 µm	39.53	34.49
1.5	355 µm	64.47	54.60
2.0	250 µm	90.83	75.87
2.5	180 µm	105.18	87.44
3.0	125 µm	113.27	93.97
3.5	90 µm	115.75	95.97
4.0	63 µm	117.03	97.00
<4.0	<63 µm	120.75	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Table A5 Cumulative frequency grain size distributions for bulk bed-material samples on the tributary gully of Tributary North for 1999

Sample	TN05 Trib	Gravel Mass = 12.75 g	
Date	21-Oct-99	Remaining Mass = 1651.57 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	12.75	0.77
-0.5	1.4 mm	1.12	1.69
0.0	1.0 mm	4.77	4.69
0.5	710 μm	14.78	12.94
1.0	500 μm	38.10	32.14
1.5	355 μm	61.50	51.40
2.0	250 μm	83.18	69.25
2.5	180 μm	94.52	78.59
3.0	125 μm	102.25	84.96
3.5	90 μm	105.63	87.74
4.0	63 μm	108.49	90.09
<4.0	<63 μm	120.52	100.00

Folk (1974) Texture Group: Slightly granular muddy medium sand

Sample	TN06 Trib	Gravel Mass = 4.62 g	
Date	21-Oct-99	Remaining Mass = 1724.81 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	4.62	0.27
-0.5	1.4 mm	0.82	0.94
0.0	1.0 mm	3.72	3.33
0.5	710 μm	13.09	11.03
1.0	500 μm	38.14	31.63
1.5	355 μm	67.54	55.81
2.0	250 μm	96.55	79.66
2.5	180 μm	107.02	88.27
3.0	125 μm	110.60	91.22
3.5	90 μm	111.91	92.29
4.0	63 μm	113.04	93.22
<4.0	<63 μm	121.28	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	TN04 Trib	Gravel Mass = 10.78 g	
Date	21-Oct-99	Remaining Mass = 1658.36 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	10.78	0.65
-0.5	1.4 mm	1.73	2.09
0.0	1.0 mm	4.89	4.74
0.5	710 μm	13.27	11.74
1.0	500 μm	37.91	32.35
1.5	355 μm	64.78	54.83
2.0	250 μm	85.86	72.46
2.5	180 μm	98.23	82.80
3.0	125 μm	102.70	86.54
3.5	90 μm	105.99	89.29
4.0	63 μm	107.78	90.79
<4.0	<63 μm	118.79	100.00

Folk (1974) Texture Group: Slightly granular muddy medium sand

Sample	TN07 Trib	Gravel Mass = 5.62 g	
Date	21-Oct-99	Remaining Mass = 1433.13 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	5.62	0.39
-0.5	1.4 mm	1.52	1.67
0.0	1.0 mm	5.58	5.07
0.5	710 μm	16.54	14.26
1.0	500 μm	46.11	39.07
1.5	355 μm	77.20	65.15
2.0	250 μm	100.86	84.99
2.5	180 μm	108.70	91.57
3.0	125 μm	111.82	94.19
3.5	90 μm	112.71	94.93
4.0	63 μm	113.33	95.45
<4.0	<63 μm	118.75	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Table A5 Cumulative frequency grain size distributions for bulk bed-material samples on the tributary gully of Tributary North for 1999 (Continued)

Sample	**TN08 Trib**	**Gravel Mass = 20.56 g**	
Date	**21-Oct-99**	**Remaining Mass = 1320.80 g**	
Phi		**Mass (g)**	**Cumulative %**
-2.0	**4.0 mm**		
-1.5	**2.4 mm**		
-1.0	**2.0 mm**	20.56	1.54
-0.5	**1.4 mm**	2.52	3.62
0.0	**1.0 mm**	6.86	7.21
0.5	**710 μm**	16.27	14.98
1.0	**500 μm**	40.21	34.76
1.5	**355 μm**	66.50	56.48
2.0	**250 μm**	87.12	73.51
2.5	**180 μm**	101.31	85.24
3.0	**125 μm**	106.76	89.74
3.5	**90 μm**	109.83	92.28
4.0	**63 μm**	111.25	93.45
<4.0	**<63 μm**	119.18	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Table A6 Cumulative frequency grain size distributions for bulk bed-material samples on the main gully of Tributary North for 2000

Sample	TN01	Gravel Mass = 18.40 g	
Date	3-Oct-00	Remaining Mass = 949.46 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	18.40	1.90
-0.5	1.4 mm	1.66	3.22
0.0	1.0 mm	4.19	5.23
0.5	710 µm	10.12	9.93
1.0	500 µm	26.82	23.18
1.5	355 µm	45.93	38.34
2.0	250 µm	65.78	54.09
2.5	180 µm	88.54	72.15
3.0	125 µm	99.17	80.58
3.5	90 µm	105.79	85.83
4.0	63 µm	107.85	87.46
<4.0	<63 µm	123.65	100.00

Folk (1974) Texture Group: Slightly granular muddy medium sand

Sample	TN03	Gravel Mass = 26.16 g	
Date	3-Oct-00	Remaining Mass = 1130.03 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	26.16	2.26
-0.5	1.4 mm	1.40	3.40
0.0	1.0 mm	3.76	5.33
0.5	710 µm	7.53	8.40
1.0	500 µm	15.17	14.63
1.5	355 µm	28.27	25.31
2.0	250 µm	58.73	50.15
2.5	180 µm	93.51	78.51
3.0	125 µm	105.48	88.27
3.5	90 µm	111.41	93.11
4.0	63 µm	113.23	94.59
<4.0	<63 µm	119.86	100.00

Folk (1974) Texture Group: Slightly granular fine sand

Sample	TN02	Gravel Mass = 30.28 g	
Date	3-Oct-00	Remaining Mass = 910.58 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	30.28	3.22
-0.5	1.4 mm	6.52	8.58
0.0	1.0 mm	15.13	15.67
0.5	710 µm	28.13	26.37
1.0	500 µm	51.10	45.28
1.5	355 µm	72.38	62.79
2.0	250 µm	92.74	79.55
2.5	180 µm	103.25	88.20
3.0	125 µm	109.41	93.27
3.5	90 µm	111.59	95.06
4.0	63 µm	112.69	95.97
<4.0	<63 µm	117.59	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	TN04	Gravel Mass = 88.06 g	
Date	3-Oct-00	Remaining Mass = 874.34 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm	14.25	1.48
-1.5	2.4 mm	37.99	3.95
-1.0	2.0 mm	88.06	9.15
-0.5	1.4 mm	9.060	15.97
0.0	1.0 mm	19.07	23.52
0.5	710 µm	29.61	31.46
1.0	500 µm	45.49	43.43
1.5	355 µm	62.77	56.46
2.0	250 µm	83.24	71.89
2.5	180 µm	95.55	81.16
3.0	125 µm	102.52	86.42
3.5	90 µm	105.04	88.32
4.0	63 µm	106.34	89.30
<4.0	<63 µm	120.54	100.00

Folk (1974) Texture Group: Granular muddy medium sand

Table A6 Cumulative frequency grain size distributions for bulk bed-material samples on the main gully of Tributary North for 2000 (Continued)

Sample	TN06	Gravel Mass = 61.02 g	
Date	3-Oct-00	Remaining Mass = 881.16 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm	30.3	3.21
-1.5	2.4 mm	43.52	4.61
-1.0	2.0 mm	61.02	6.47
-0.5	1.4 mm	3.66	9.24
0.0	1.0 mm	8.72	13.08
0.5	710 µm	18.03	20.14
1.0	500 µm	36.44	34.10
1.5	355 µm	55.44	48.51
2.0	250 µm	78.49	65.99
2.5	180 µm	93.04	77.02
3.0	125 µm	102.13	83.92
3.5	90 µm	105.2	86.24
4.0	63 µm	106.66	87.35
<4.0	<63 µm	123.34	100.00

Folk (1974) Texture Group: Granular muddy medium sand

Sample	TN08	Gravel Mass = 41.30 g	
Date	3-Oct-00	Remaining Mass = 966.14 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	41.30	4.10
-0.5	1.4 mm	2.80	6.35
0.0	1.0 mm	6.84	9.60
0.5	710 µm	14.64	15.88
1.0	500 µm	32.86	30.54
1.5	355 µm	54.28	47.77
2.0	250 µm	76.19	65.40
2.5	180 µm	97.54	82.58
3.0	125 µm	105.90	89.31
3.5	90 µm	110.16	92.73
4.0	63 µm	111.39	93.72
<4.0	<63 µm	119.19	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	TN07	Gravel Mass = 53.35 g	
Date	3-Oct-00	Remaining Mass = 988.97 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm	0.00	0.00
-1.0	2.0 mm	53.35	5.12
-0.5	1.4 mm	2.64	7.18
0.0	1.0 mm	6.32	10.06
0.5	710 µm	13.24	15.47
1.0	500 µm	32.44	30.49
1.5	355 µm	54.07	47.40
2.0	250 µm	80.5	68.07
2.5	180 µm	95.62	79.89
3.0	125 µm	106.09	88.08
3.5	90 µm	110.51	91.54
4.0	63 µm	112.81	93.34
<4.0	<63 µm	121.33	100.00

Folk (1974) Texture Group: Granular medium sand

Sample	TN09	Gravel Mass = 61.78 g	
Date	3-Oct-00	Remaining Mass = 878.91 g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	1.18	0.12
-2.0	4.0 mm	17.32	1.83
-1.5	2.4 mm	33.66	3.56
-1.0	2.0 mm	61.78	6.54
-0.5	1.4 mm	6.21	11.32
0.0	1.0 mm	14.16	17.45
0.5	710 µm	27.52	27.74
1.0	500 µm	53.96	48.10
1.5	355 µm	77.887	66.53
2.0	250 µm	96.65	80.98
2.5	180 µm	108.19	89.87
3.0	125 µm	112.54	93.22
3.5	90 µm	115.38	95.41
4.0	63 µm	116.52	96.29
<4.0	<63 µm	121.34	100.00

Folk (1974) Texture Group: Granular medium sand

Table A7 Cumulative frequency grain size distributions for bulk bed-material samples on the tributary gully of Tributary North for 2000

Sample	TN05 Trib	Gravel Mass = 2.41 g	
Date	3-Oct-00	Remaining Mass = 1031.44 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	2.41	0.23
-0.5	1.4 mm	1.42	1.45
0.0	1.0 mm	5.03	4.56
0.5	710 μm	16.15	14.12
1.0	500 μm	46.60	40.30
1.5	355 μm	74.03	63.88
2.0	250 μm	92.52	79.78
2.5	180 μm	102.39	88.26
3.0	125 μm	105.98	91.35
3.5	90 μm	108.55	93.56
4.0	63 μm	109.78	94.62
<4.0	<63 μm	116.04	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	TN06 Trib	Gravel Mass = 3.39 g	
Date	3-Oct-00	Remaining Mass = 729.14 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	3.39	0.46
-0.5	1.4 mm	1.53	1.75
0.0	1.0 mm	5.20	4.83
0.5	710 μm	15.89	13.81
1.0	500 μm	46.09	39.17
1.5	355 μm	77.97	65.95
2.0	250 μm	102.07	86.19
2.5	180 μm	109.76	92.65
3.0	125 μm	111.08	93.76
3.5	90 μm	111.98	94.52
4.0	63 μm	112.53	94.98
<4.0	<63 μm	118.51	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	TN04 Trib	Gravel Mass = 3.21 g	
Date	3-Oct-00	Remaining Mass = 1035.05 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	3.21	0.31
-0.5	1.4 mm	1.00	1.14
0.0	1.0 mm	2.90	2.73
0.5	710 μm	8.52	7.42
1.0	500 μm	18.66	15.88
1.5	355 μm	54.31	45.64
2.0	250 μm	76.81	64.41
2.5	180 μm	91.18	76.41
3.0	125 μm	96.48	80.83
3.5	90 μm	100.31	84.03
4.0	63 μm	102.33	85.71
<4.0	<63 μm	119.45	100.00

Folk (1974) Texture Group: Slightly granular muddy medium sand

Sample	TN07 Trib	Gravel Mass = 11.48 g	
Date	3-Oct-00	Remaining Mass = 665.63 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	11.48	1.70
-0.5	1.4 mm	2.19	3.53
0.0	1.0 mm	6.65	7.28
0.5	710 μm	17.64	16.50
1.0	500 μm	48.52	42.42
1.5	355 μm	78.67	67.73
2.0	250 μm	96.54	82.73
2.5	180 μm	103.34	88.44
3.0	125 μm	105.04	89.87
3.5	90 μm	105.97	90.65
4.0	63 μm	106.34	90.96
<4.0	<63 μm	117.11	100.00

Folk (1974) Texture Group: Slightly granular muddy medium sand

Table A7 Cumulative frequency grain size distributions for bulk bed-material samples on the tributary gully of Tributary North for 2000 (Continued)

Sample	**TN08 Trib**	**Gravel Mass = 4.59 g**	
Date	**3-Oct-00**	**Remaining Mass = 730.71 g**	
Phi		**Mass (g)**	**Cumulative %**
-2.0	**4.0 mm**		
-1.5	**2.4 mm**		
-1.0	**2.0 mm**	4.59	0.62
-0.5	**1.4 mm**	0.95	1.42
0.0	**1.0 mm**	3.94	3.91
0.5	**710 µm**	11.40	10.13
1.0	**500 µm**	33.27	28.37
1.5	**355 µm**	55.69	47.06
2.0	**250 µm**	77.95	65.63
2.5	**180 µm**	88.04	74.04
3.0	**125 µm**	93.97	78.99
3.5	**90 µm**	96.58	81.16
4.0	**63 µm**	98.16	82.48
<4.0	**<63 µm**	119.17	100.00

Folk (1974) Texture Group: Slightly granular muddy medium sand

Table A8 Cumulative frequency grain size distribution for a bulk bed-material sample from the channel draining the Jabiluka Interim Water Management Pond in 2000.

Sample	**Pond Channel**	**Gravel Mass = 63.21 g**	
Date	**3-Oct-00**	**Remaining Mass = 1277.43 g**	
Phi		**Mass (g)**	**Cumulative %**
-2.0	**4.0 mm**		
-1.5	**2.4 mm**	0.00	0.00
-1.0	**2.0 mm**	63.21	4.71
-0.5	**1.4 mm**	1.38	6.16
0.0	**1.0 mm**	3.67	8.55
0.5	**710 µm**	9.72	14.86
1.0	**500 µm**	28.19	34.15
1.5	**355 µm**	50.22	57.14
2.0	**250 µm**	70.50	78.32
2.5	**180 µm**	79.72	87.94
3.0	**125 µm**	86.02	94.52
3.5	**90 µm**	89.13	97.77
4.0	**63 µm**	91.05	99.77
<4.0	**<63 µm**	91.27	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Table A9 Cumulative frequency grain size distributions for bulk bed-material samples on the main gully of Tributary North for 2001

Sample	TN01	Gravel Mass = 17.61 g	
Date	2-Oct-01	Remaining Mass = 751.61 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	17.61	2.29
-0.5	1.4 mm	1.99	4.05
0.0	1.0 mm	4.91	6.64
0.5	710 µm	10.84	11.90
1.0	500 µm	28.43	27.49
1.5	355 µm	46.54	43.54
2.0	250 µm	66.27	61.02
2.5	180 µm	84.73	77.38
3.0	125 µm	93.91	85.52
3.5	90 µm	97.46	88.66
4.0	63 µm	99.16	90.17
<4.0	<63 µm	110.25	100.00

Folk (1974) Texture Group: Slightly granular muddy medium sand

Sample	TN03	Gravel Mass = 89.27 g	
Date	2-Oct-01	Remaining Mass = 865.92 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm	38.71	4.05
-1.5	2.4 mm	73.07	7.65
-1.0	2.0 mm	89.27	9.35
-0.5	1.4 mm	5.97	14.00
0.0	1.0 mm	13.29	19.72
0.5	710 µm	24.69	28.61
1.0	500 µm	50.34	48.63
1.5	355 µm	74.38	67.38
2.0	250 µm	93.50	82.30
2.5	180 µm	105.21	91.44
3.0	125 µm	110.13	95.28
3.5	90 µm	112.13	96.84
4.0	63 µm	112.96	97.49
<4.0	<63 µm	116.18	100.00

Folk (1974) Texture Group: Granular medium sand

Sample	TN02	Gravel Mass = 8.37 g	
Date	2-Oct-01	Remaining Mass = 646.73 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	8.37	1.28
-0.5	1.4 mm	2.43	3.51
0.0	1.0 mm	8.92	9.48
0.5	710 µm	22.28	21.77
1.0	500 µm	53.49	50.49
1.5	355 µm	77.78	72.83
2.0	250 µm	93.47	87.27
2.5	180 µm	100.69	93.91
3.0	125 µm	103.33	96.34
3.5	90 µm	104.06	97.01
4.0	63 µm	104.33	97.26
<4.0	<63 µm	107.31	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	TN04	Gravel Mass = 42.42 g	
Date	2-Oct-01	Remaining Mass = 823.95 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	42.42	4.90
-0.5	1.4 mm	3.14	7.64
0.0	1.0 mm	7.70	11.63
0.5	710 µm	14.06	17.20
1.0	500 µm	29.68	30.87
1.5	355 µm	47.67	46.61
2.0	250 µm	69.07	65.33
2.5	180 µm	88.06	81.95
3.0	125 µm	97.49	90.20
3.5	90 µm	100.78	93.08
4.0	63 µm	102.32	94.43
<4.0	<63 µm	108.69	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Table A9 Cumulative frequency grain size distributions for bulk bed-material samples on the main gully of Tributary North for 2001 (Continued)

Sample	TN06	Gravel Mass = 129.87 g	
Date	2-Oct-01	Remaining Mass = 904.67 g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	24.14	2.33
-2.0	4.0 mm	82.74	8.00
-1.5	2.4 mm	118.96	11.50
-1.0	2.0 mm	129.87	12.55
-0.5	1.4 mm	3.95	15.44
0.0	1.0 mm	8.90	19.05
0.5	710 µm	16.12	24.32
1.0	500 µm	30.54	34.85
1.5	355 µm	48.04	47.62
2.0	250 µm	72.78	65.68
2.5	180 µm	96.39	82.92
3.0	125 µm	107.61	91.11
3.5	90 µm	111.70	94.09
4.0	63 µm	113.56	95.45
<4.0	<63 µm	119.79	100.00

Folk (1974) Texture Group: Pebbly medium sand

Sample	TN08	Gravel Mass = 75.71 g	
Date	2-Oct-01	Remaining Mass = 955.38 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm	22.21	2.15
-1.5	2.4 mm	60.71	5.89
-1.0	2.0 mm	75.71	7.34
-0.5	1.4 mm	4.69	11.11
0.0	1.0 mm	11.25	16.37
0.5	710 µm	22.33	25.26
1.0	500 µm	48.47	46.22
1.5	355 µm	72.87	65.80
2.0	250 µm	91.95	81.10
2.5	180 µm	103.61	90.45
3.0	125 µm	109.26	94.99
3.5	90 µm	111.11	96.47
4.0	63 µm	111.88	97.09
<4.0	<63 µm	115.51	100.00

Folk (1974) Texture Group: Granular medium sand

Sample	TN07	Gravel Mass = 64.48 g	
Date	2-Oct-01	Remaining Mass = 629.43 g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	24.82	3.58
-2.0	4.0 mm	42.45	6.12
-1.5	2.4 mm	57.36	8.27
-1.0	2.0 mm	64.48	9.29
-0.5	1.4 mm	3.30	12.09
0.0	1.0 mm	8.08	16.15
0.5	710 µm	16.75	23.51
1.0	500 µm	39.57	42.87
1.5	355 µm	62.42	62.27
2.0	250 µm	82.12	78.99
2.5	180 µm	95.02	89.93
3.0	125 µm	101.04	95.04
3.5	90 µm	102.95	96.66
4.0	63 µm	103.71	97.31
<4.0	<63 µm	106.88	100.00

Folk (1974) Texture Group: Pebbly medium sand

Sample	TN09	Gravel Mass = 34.36 g	
Date	2-Oct-01	Remaining Mass = 1525.73 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	34.36	2.20
-0.5	1.4 mm	2.52	4.45
0.0	1.0 mm	6.33	7.85
0.5	710 µm	13.81	14.53
1.0	500 µm	33.72	32.31
1.5	355 µm	54.19	50.59
2.0	250 µm	72.91	67.31
2.5	180 µm	87.71	80.52
3.0	125 µm	96.20	88.11
3.5	90 µm	99.79	91.31
4.0	63 µm	101.54	92.87
<4.0	<63 µm	109.52	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Table A10 Cumulative frequency grain size distributions for bulk bed-material samples on the tributary gully of Tributary North for 2001

Sample	TN05 Trib	Gravel Mass = 6.62 g	
Date	2-Oct-01	Remaining Mass = 741.52 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	6.62	0.88
-0.5	1.4 mm	1.08	1.89
0.0	1.0 mm	3.57	4.20
0.5	710 µm	9.87	10.05
1.0	500 µm	32.45	31.00
1.5	355 µm	57.36	54.12
2.0	250 µm	77.23	72.56
2.5	180 µm	87.92	82.49
3.0	125 µm	92.64	86.87
3.5	90 µm	94.91	88.97
4.0	63 µm	96.62	90.56
<4.0	<63 µm	106.79	100.00

Folk (1974) Texture Group: Slightly granular muddy medium sand

Sample	TN06 Trib	Gravel Mass = 8.21 g	
Date	2-Oct-01	Remaining Mass = 625.52 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	8.21	1.30
-0.5	1.4 mm	1.14	2.32
0.0	1.0 mm	3.99	4.88
0.5	710 µm	10.66	10.86
1.0	500 µm	36.17	33.76
1.5	355 µm	64.81	59.47
2.0	250 µm	86.23	78.69
2.5	180 µm	96.22	87.66
3.0	125 µm	99.96	91.02
3.5	90 µm	101.41	92.32
4.0	63 µm	102.21	93.03
<4.0	<63 µm	109.97	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	TN04 Trib	Gravel Mass = 5.42 g	
Date	2-Oct-01	Remaining Mass = 677.78 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	5.42	0.79
-0.5	1.4 mm	1.25	1.94
0.0	1.0 mm	3.87	4.36
0.5	710 µm	9.50	9.54
1.0	500 µm	30.30	28.69
1.5	355 µm	53.60	50.14
2.0	250 µm	73.23	68.22
2.5	180 µm	84.69	78.77
3.0	125 µm	90.35	83.98
3.5	90 µm	93.26	86.66
4.0	63 µm	95.43	88.66
<4.0	<63 µm	107.75	100.00

Folk (1974) Texture Group: Slightly granular muddy medium sand

Sample	TN07 Trib	Gravel Mass = 7.03 g	
Date	2-Oct-01	Remaining Mass = 755.73 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	7.03	0.92
-0.5	1.4 mm	1.15	2.00
0.0	1.0 mm	4.73	5.35
0.5	710 µm	13.42	13.48
1.0	500 µm	42.20	40.41
1.5	355 µm	70.85	67.23
2.0	250 µm	89.63	84.80
2.5	180 µm	96.63	91.35
3.0	125 µm	98.67	93.26
3.5	90 µm	99.37	93.92
4.0	63 µm	99.86	94.38
<4.0	<63 µm	105.87	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Table A10 Cumulative frequency grain size distributions for a bulk bed-material samples on the tributary gully of Tributary North for 2001 (Continued)

Sample	**TN08 Trib**	**Gravel Mass = 6.96 g**	
Date	**2-Oct-01**	**Remaining Mass = 630.54 g**	
Phi		**Mass (g)**	**Cumulative %**
-2.0	**4.0 mm**		
-1.5	**2.4 mm**		
-1.0	**2.0 mm**	6.96	1.09
-0.5	**1.4 mm**	1.50	2.45
0.0	**1.0 mm**	5.22	5.83
0.5	**710 µm**	13.36	13.23
1.0	**500 µm**	37.68	35.32
1.5	**355 µm**	62.08	57.49
2.0	**250 µm**	81.94	75.53
2.5	**180 µm**	93.52	86.05
3.0	**125 µm**	98.85	90.90
3.5	**90 µm**	101.13	92.97
4.0	**63 µm**	102.55	94.26
<4.0	**<63 µm**	108.87	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Table A11 Cumulative frequency grain size distributions for bulk bed material samples on the main gully of Tributary North for 2002

Sample	TN01	Gravel Mass = g	
Date		Remaining Mass = g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm	Sample Misplaced	
-1.5	2.4 mm		
-1.0	2.0 mm		
-0.5	1.4 mm		
0.0	1.0 mm		
0.5	710 µm		
1.0	500 µm		
1.5	355 µm		
2.0	250 µm		
2.5	180 µm		
3.0	125 µm		
3.5	90 µm		
4.0	63 µm		
<4.0	<63 µm		

Sample	TN03	Gravel Mass = g	
Date		Remaining Mass = g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm	Sample Misplaced	
-1.5	2.4 mm		
-1.0	2.0 mm		
-0.5	1.4 mm		
0.0	1.0 mm		
0.5	710 µm		
1.0	500 µm		
1.5	355 µm		
2.0	250 µm		
2.5	180 µm		
3.0	125 µm		
3.5	90 µm		
4.0	63 µm		
<4.0	<63 µm		

Sample	TN02	Gravel Mass = g	
Date		Remaining Mass = g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm	Sample Misplaced	
-1.5	2.4 mm		
-1.0	2.0 mm		
-0.5	1.4 mm		
0.0	1.0 mm		
0.5	710 µm		
1.0	500 µm		
1.5	355 µm		
2.0	250 µm		
2.5	180 µm		
3.0	125 µm		
3.5	90 µm		
4.0	63 µm		
<4.0	<63 µm		

Sample	TN04	Gravel Mass = 178.62g	
Date	18-Jun-02	Remaining Mass = 1170.01g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	12.09	0.90
-2.0	4.0 mm	84.82	6.29
-1.5	2.4 mm	153.51	11.38
-1.0	2.0 mm	178.62	13.24
-0.5	1.4 mm	6.25	18.23
0.0	1.0 mm	13.84	24.29
0.5	710 µm	24.74	32.98
1.0	500 µm	47.13	50.85
1.5	355 µm	69.00	68.29
2.0	250 µm	91.77	86.46
2.5	180 µm	101.51	94.23
3.0	125 µm	104.57	96.67
3.5	90 µm	105.47	97.39
4.0	63 µm	105.86	97.70
<4.0	<63 µm	108.74	100.00

Folk (1974) Texture Group: Granular medium sand

Table A11 Cumulative frequency grain size distributions for bulk bed material samples on the main gully of Tributary North for 2002 (Cont.)

Sample	TN06	Gravel Mass = 156.67g	
Date	18-Jun-02	Remaining Mass = 891.13g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	24.24	2.31
-2.0	4.0 mm	100.92	9.63
-1.5	2.4 mm	144.49	13.79
-1.0	2.0 mm	156.67	14.95
-0.5	1.4 mm	1.84	16.44
0.0	1.0 mm	4.10	18.28
0.5	710 µm	8.05	21.48
1.0	500 µm	24.04	34.44
1.5	355 µm	50.73	56.07
2.0	250 µm	79.30	79.23
2.5	180 µm	94.66	91.68
3.0	125 µm	100.14	96.12
3.5	90 µm	101.54	97.25
4.0	63 µm	102.08	97.69
<4.0	<63 µm	104.93	100.00

Folk (1974) Texture Group: Pebbly medium sand

Sample	TN08	Gravel Mass = 142.16g	
Date	18-Jun-02	Remaining Mass = 1360.99g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm		
-2.0	4.0 mm	55.34	3.68
-1.5	2.4 mm	116.92	7.78
-1.0	2.0 mm	142.16	9.46
-0.5	1.4 mm	6.80	15.14
0.0	1.0 mm	14.54	21.60
0.5	710 µm	25.27	30.57
1.0	500 µm	48.22	49.74
1.5	355 µm	69.96	67.91
2.0	250 µm	90.22	84.84
2.5	180 µm	101.38	94.16
3.0	125 µm	105.26	97.40
3.5	90 µm	106.13	98.13
4.0	63 µm	106.47	98.41
<4.0	<63 µm	108.37	100.00

Folk (1974) Texture Group: Granular medium sand

Sample	TN07	Gravel Mass = 33.13g	
Date	18-Jun-02	Remaining Mass = 1061.62g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	33.13	3.03
-0.5	1.4 mm	2.17	4.94
0.0	1.0 mm	5.93	8.27
0.5	710 µm	12.86	14.39
1.0	500 µm	32.58	31.82
1.5	355 µm	54.27	51.00
2.0	250 µm	75.63	69.88
2.5	180 µm	91.24	83.67
3.0	125 µm	99.95	91.37
3.5	90 µm	102.81	93.90
4.0	63 µm	104.11	95.05
<4.0	<63 µm	109.71	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	TN09	Gravel Mass = 114.28g	
Date	18-Jun-02	Remaining Mass = 2069.55g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm	19.96	0.91
-1.0	2.0 mm	86.93	3.98
-0.5	1.4 mm	114.28	5.23
0.0	1.0 mm	3.31	8.08
0.5	710 µm	8.39	12.46
1.0	500 µm	16.35	19.31
1.5	355 µm	37.08	37.15
2.0	250 µm	59.23	56.22
2.5	180 µm	80.40	74.45
3.0	125 µm	93.86	86.04
3.5	90 µm	101.14	92.30
4.0	63 µm	103.75	94.55
<4.0	<63 µm	110.08	100.00

Folk (1974) Texture Group: Granular medium sand

Table A12 Cumulative frequency grain size distributions for bulk bed material samples on the tributary gully of Tributary North for 2002

Sample	TN05 Trib	Gravel Mass = 6.86g	
Date	18-Jun-02	Remaining Mass = 1014.56g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	6.86	0.67
-0.5	1.4 mm	1.74	2.21
0.0	1.0 mm	4.52	4.68
0.5	710 µm	11.68	11.02
1.0	500 µm	32.86	29.80
1.5	355 µm	55.25	49.64
2.0	250 µm	77.46	69.32
2.5	180 µm	89.14	79.68
3.0	125 µm	95.15	85.00
3.5	90 µm	98.46	87.94
4.0	63 µm	100.52	89.76
<4.0	<63 µm	112.07	100.00

Folk (1974) Texture Group: Slightly granular muddy medium sand

Sample	TN06 Trib	Gravel Mass = 4.53g	
Date	18-Junt-02	Remaining Mass = 935.98g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	4.53	0.48
-0.5	1.4 mm	0.86	1.27
0.0	1.0 mm	4.05	4.20
0.5	710 µm	12.72	12.15
1.0	500 µm	34.99	32.58
1.5	355 µm	60.03	55.55
2.0	250 µm	85.56	78.97
2.5	180 µm	96.04	88.58
3.0	125 µm	99.26	91.53
3.5	90 µm	100.3	92.49
4.0	63 µm	100.9	93.04
<4.0	<63 µm	108.49	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	TN04 Trib	Gravel Mass = 10.03g	
Date	18-Jun-02	Remaining Mass = 1171.41g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm	0.00	0.00
-1.0	2.0 mm	10.03	0.85
-0.5	1.4 mm	1.72	2.41
0.0	1.0 mm	5.72	6.04
0.5	710 µm	14.46	13.98
1.0	500 µm	36.14	33.66
1.5	355 µm	58.45	53.92
2.0	250 µm	80.37	73.82
2.5	180 µm	90.94	83.41
3.0	125 µm	95.66	87.70
3.5	90 µm	98.12	89.93
4.0	63 µm	99.63	91.30
<4.0	<63 µm	109.21	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	TN07 Trib	Gravel Mass = 7.65g	
Date	18-Jun-02	Remaining Mass = 1015.47g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm	0.00	0.00
-1.0	2.0 mm	7.65	0.75
-0.5	1.4 mm	1.45	2.14
0.0	1.0 mm	5.12	5.66
0.5	710 µm	13.56	13.77
1.0	500 µm	42.52	41.57
1.5	355 µm	71.12	69.03
2.0	250 µm	88.98	86.17
2.5	180 µm	95.07	92.02
3.0	125 µm	97.05	93.92
3.5	90 µm	97.74	94.59
4.0	63 µm	98.15	94.98
<4.0	<63 µm	103.38	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Table A12 Cumulative frequency grain size distributions for bulk bed material samples on the tributary gully of Tributary North for 2002 (Continued)

Sample	**TN08 Trib**	**Gravel Mass = 8.86g**	
Date	**18-Jun-02**	**Remaining Mass = 1174.85g**	
Phi		**Mass (g)**	**Cumulative %**
-2.0	**4.0 mm**		
-1.5	**2.4 mm**		
-1.0	**2.0 mm**	8.86	0.75
-0.5	**1.4 mm**	1.30	1.89
0.0	**1.0 mm**	4.95	5.08
0.5	**710 µm**	12.97	12.09
1.0	**500 µm**	38.26	34.21
1.5	**355 µm**	63.70	56.46
2.0	**250 µm**	84.20	74.39
2.5	**180 µm**	94.78	83.64
3.0	**125 µm**	99.75	87.99
3.5	**90 µm**	101.85	89.83
4.0	**63 µm**	103.19	91.00
<4.0	**<63 µm**	113.48	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Table A13 Cumulative frequency grain size distributions for bulk bed material samples on the main gully of Tributary North for 2003

Sample	TN01	Gravel Mass = 66.54g	
Date	14-Aug-03	Remaining Mass = 620.29g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	31.56	4.60
-2.0	4.0 mm	51.30	7.47
-1.5	2.4 mm	61.64	8.97
-1.0	2.0 mm	66.54	9.69
-0.5	1.4 mm	1.49	10.96
0.0	1.0 mm	3.80	12.94
0.5	710 µm	8.00	16.54
1.0	500 µm	17.68	24.82
1.5	355 µm	27.15	32.93
2.0	250 µm	40.78	44.60
2.5	180 µm	61.53	62.36
3.0	125 µm	80.15	78.30
3.5	90 µm	87.22	84.35
4.0	63 µm	90.43	87.10
<4.0	<63 µm	105.50	100.00

Folk (1974) Texture Group: Pebbly muddy fine sand

Sample	TN03	Gravel Mass = 12.52g	
Date	14-Aug-03	Remaining Mass = 835.45g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm		
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	12.52	1.48
-0.5	1.4 mm	2.80	4.10
0.0	1.0 mm	7.69	8.67
0.5	710 µm	17.25	17.61
1.0	500 µm	45.72	44.23
1.5	355 µm	78.52	74.91
2.0	250 µm	97.05	92.24
2.5	180 µm	101.88	96.75
3.0	125 µm	102.90	97.71
3.5	90 µm	103.14	97.93
4.0	63 µm	103.26	98.05
<4.0	<63 µm	105.35	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	TN02	Gravel Mass = 4.59 g	
Date	14-Aug-03	Remaining Mass = 914.46g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	4.59	0.50
-0.5	1.4 mm	3.27	3.46
0.0	1.0 mm	11.39	10.82
0.5	710 µm	27.37	25.31
1.0	500 µm	62.39	57.06
1.5	355 µm	89.24	81.40
2.0	250 µm	102.53	93.45
2.5	180 µm	105.83	96.44
3.0	125 µm	106.57	97.11
3.5	90 µm	106.78	97.30
4.0	63 µm	106.91	97.42
<4.0	<63 µm	109.76	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Sample	TN04	Gravel Mass = 37.14g	
Date	14-Aug-03	Remaining Mass = 1197.40g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	37.14	3.00
-0.5	1.4 mm	2.58	5.40
0.0	1.0 mm	6.32	8.86
0.5	710 µm	13.81	15.81
1.0	500 µm	40.99	40.99
1.5	355 µm	66.08	64.24
2.0	250 µm	85.26	82.01
2.5	180 µm	93.80	89.93
3.0	125 µm	98.56	94.34
3.5	90 µm	100.51	96.15
4.0	63 µm	101.08	96.67
<4.0	<63 µm	104.67	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Table A13 Cumulative frequency grain size distributions for bulk bed material samples on the main gully of Tributary North for 2003 (Cont.)

Sample	TN06	Gravel Mass = 93.12g	
Date	14-Aug-03	Remaining Mass = 1035.96g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	39.04	3.46
-2.0	4.0 mm	65.05	5.76
-1.5	2.4 mm	85.66	7.59
-1.0	2.0 mm	93.12	8.25
-0.5	1.4 mm	1.75	9.79
0.0	1.0 mm	4.45	12.17
0.5	710 µm	9.54	16.65
1.0	500 µm	20.86	26.61
1.5	355 µm	35.79	39.76
2.0	250 µm	58.44	59.70
2.5	180 µm	78.50	77.36
3.0	125 µm	89.34	86.91
3.5	90 µm	94.50	91.45
4.0	63 µm	96.93	93.59
<4.0	<63 µm	104.21	100.00

Folk (1974) Texture Group: Pebbly medium sand

Sample	TN08	Gravel Mass = 116.94g	
Date	14-Aug-03	Remaining Mass = 1387.22g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm		
-2.0	4.0 mm	33.37	2.22
-1.5	2.4 mm	97.11	6.46
-1.0	2.0 mm	116.94	7.77
-0.5	1.4 mm	4.13	11.46
0.0	1.0 mm	10.24	16.91
0.5	710 µm	19.41	25.09
1.0	500 µm	36.33	40.18
1.5	355 µm	54.93	56.78
2.0	250 µm	74.42	74.16
2.5	180 µm	87.27	85.63
3.0	125 µm	94.05	91.68
3.5	90 µm	96.54	93.90
4.0	63 µm	97.81	95.03
<4.0	<63 µm	103.38	100.00

Folk (1974) Texture Group: Granular medium sand

Sample	TN07	Gravel Mass = 69.26g	
Date	14-Aug-03	Remaining Mass = 1170.63g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	2.47	0.20
-2.0	4.0 mm	27.98	2.26
-1.5	2.4 mm	58.48	4.72
-1.0	2.0 mm	69.26	5.59
-0.5	1.4 mm	2.93	8.26
0.0	1.0 mm	7.09	12.05
0.5	710 µm	14.62	18.92
1.0	500 µm	31.04	33.89
1.5	355 µm	48.31	49.64
2.0	250 µm	69.70	69.15
2.5	180 µm	86.05	84.06
3.0	125 µm	93.61	90.95
3.5	90 µm	96.81	93.87
4.0	63 µm	98.16	95.10
<4.0	<63 µm	103.53	100.00

Folk (1974) Texture Group: Granular medium sand

Sample	TN09	Gravel Mass = 99.06g	
Date	12-Aug-03	Remaining Mass = 1130.61g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm		
-2.0	4.0 mm	27.63	2.25
-1.5	2.4 mm	86.6	7.04
-1.0	2.0 mm	99.06	8.06
-0.5	1.4 mm	4.55	12.04
0.0	1.0 mm	10.98	17.68
0.5	710 µm	20.24	25.79
1.0	500 µm	44.07	46.67
1.5	355 µm	65.23	65.21
2.0	250 µm	82.89	80.69
2.5	180 µm	91.53	88.26
3.0	125 µm	96.22	92.37
3.5	90 µm	98.17	94.08
4.0	63 µm	99.63	95.36
<4.0	<63 µm	104.93	100.00

Folk (1974) Texture Group: Granular medium sand

Table A14 Cumulative frequency grain size distributions for bulk bed material samples on the tributary gully of Tributary North for 2003

Sample	TN05 Trib	Gravel Mass = 6.37g	
Date	14-Aug-03	Remaining Mass = 852.15g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	6.37	0.74
-0.5	1.4 mm	1.20	1.86
0.0	1.0 mm	4.53	4.95
0.5	710 µm	13.13	12.94
1.0	500 µm	35.53	33.75
1.5	355 µm	58.07	54.69
2.0	250 µm	78.34	73.52
2.5	180 µm	90.22	84.56
3.0	125 µm	94.91	88.92
3.5	90 µm	97.32	91.16
4.0	63 µm	98.00	91.79
<4.0	<63 µm	106.84	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	TN06 Trib	Gravel Mass = 9.26g	
Date	14-Aug-03	Remaining Mass = 1122.44g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	9.26	0.82
-0.5	1.4 mm	1.37	2.13
0.0	1.0 mm	5.23	5.81
0.5	710 µm	13.28	13.49
1.0	500 µm	36.55	35.71
1.5	355 µm	62.12	60.11
2.0	250 µm	80.38	77.54
2.5	180 µm	88.55	85.34
3.0	125 µm	92.34	88.96
3.5	90 µm	93.98	90.52
4.0	63 µm	95.17	91.66
<4.0	<63 µm	103.91	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	TN04 Trib	Gravel Mass = 12.36g	
Date	14-Aug-03	Remaining Mass = 1245.81g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	12.36	0.98
-0.5	1.4 mm	1.51	2.42
0.0	1.0 mm	4.84	5.60
0.5	710 µm	12.61	13.01
1.0	500 µm	32.17	31.66
1.5	355 µm	53.98	52.46
2.0	250 µm	75.59	73.07
2.5	180 µm	89.66	86.49
3.0	125 µm	93.53	90.18
3.5	90 µm	95.47	92.03
4.0	63 µm	96.06	92.59
<4.0	<63 µm	103.83	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	TN07 Trib	Gravel Mass = 14.59g	
Date	14-Aug-03	Remaining Mass = 1362.33g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	14.59	1.06
-0.5	1.4 mm	1.44	2.43
0.0	1.0 mm	4.34	5.19
0.5	710 µm	10.18	10.75
1.0	500 µm	31.64	31.17
1.5	355 µm	56.72	55.03
2.0	250 µm	79.75	76.94
2.5	180 µm	89.95	86.65
3.0	125 µm	94.32	90.81
3.5	90 µm	95.69	92.11
4.0	63 µm	96.58	92.96
<4.0	<63 µm	103.98	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Table A14 Cumulative frequency grain size distributions for bulk bed material samples on the tributary gully of Tributary North for 2003 (Continued)

Sample	**TN08 Trib**	**Gravel Mass = 13.29g**	
Date	**14-Aug-03**	**Remaining Mass = 1087.36g**	
Phi		**Mass (g)**	**Cumulative %**
-2.0	**4.0 mm**		
-1.5	**2.4 mm**		
-1.0	**2.0 mm**	13.29	1.21
-0.5	**1.4 mm**	1.83	2.86
0.0	**1.0 mm**	6.01	6.62
0.5	**710 µm**	14.39	14.16
1.0	**500 µm**	37.71	35.16
1.5	**355 µm**	63.23	58.14
2.0	**250 µm**	81.83	74.89
2.5	**180 µm**	91.27	83.39
3.0	**125 µm**	96.12	87.75
3.5	**90 µm**	98.28	89.70
4.0	**63 µm**	99.77	91.04
<4.0	**<63 µm**	109.72	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Appendix B

Cumulative frequency grain size distributions for bulk bed-material and other sediment samples on Tributary Central for the period 1998 to 2003

The cumulative frequency distributions are shown in Tables B1 to B7. The location of the cross sections where the bulk bed material samples were collected is shown in figure 5. The following tables are included in Appendix B:

Table B1 – 1998 bed material at cross sections

Table B2 – 1998 additional bed material samples on Tributary Central

Table B3 – 1999 bed material at cross sections

Table B4 – 2000 bed material at cross sections

Table B5 – 2001 bed material at cross sections

Table B6 – 2002 bed material at cross sections

Table B7 – 2003 bed material at cross sections

Table B1 Cumulative frequency grain size distributions for bulk bed-material samples on Tributary Central for 1998

Sample	TC06A	Gravel Mass = 89.35 g	
Date	26-Oct-98	Remaining Mass = 1672.57 g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	50.95	2.88
-2.0	4.0 mm	63.82	3.61
-1.5	2.4 mm	79.38	4.49
-1.0	2.0 mm	89.35	5.05
-0.5	1.4 mm	2.47	7.20
0.0	1.0 mm	7.92	11.93
0.5	710 µm	20.43	22.81
1.0	500 µm	49.27	47.88
1.5	355 µm	77.62	72.52
2.0	250 µm	96.13	88.61
2.5	180 µm	105.01	96.33
3.0	125 µm	106.69	97.79
3.5	90 µm	107.08	98.13
4.0	63 µm	107.18	98.22
<4.0	<63 µm	109.23	100.00

Folk (1974) Texture Group: Pebbly medium sand

Sample	TC06C	Gravel Mass = 52.90 g	
Date	26-Oct-98	Remaining Mass = 1944.88 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	52.90	2.65
-0.5	1.4 mm	4.29	6.20
0.0	1.0 mm	12.03	12.60
0.5	710 µm	28.69	26.39
1.0	500 µm	61.72	53.73
1.5	355 µm	91.23	78.15
2.0	250 µm	107.69	91.77
2.5	180 µm	114.01	97.00
3.0	125 µm	114.97	97.80
3.5	90 µm	115.20	97.99
4.0	63 µm	115.28	98.06
<4.0	<63 µm	117.63	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	TC06B	Gravel Mass = 159.10 g	
Date	26-Oct-98	Remaining Mass = 1688.41 g	
Phi		Mass (g)	Cumulative %
-4.0	16.0 mm	0.00	0.00
-3.25	9.5 mm	108.78	5.87
-2.0	4.0 mm	131.28	7.08
-1.5	2.4 mm	148.86	8.03
-1.0	2.0 mm	159.10	8.58
-0.5	1.4 mm	3.24	11.11
0.0	1.0 mm	9.66	16.10
0.5	710 µm	23.31	26.72
1.0	500 µm	54.99	51.37
1.5	355 µm	86.23	75.67
2.0	250 µm	103.96	89.47
2.5	180 µm	112.48	96.09
3.0	125 µm	114.39	97.58
3.5	90 µm	114.89	97.97
4.0	63 µm	115.01	98.06
<4.0	<63 µm	117.50	100.00

Folk (1974) Texture Group: Pebbly medium sand

Sample	TC07A	Gravel Mass = 1159.35 g	
Date	26-Oct-98	Remaining Mass = 1659.22 g	
Phi		Mass (g)	Cumulative %
-6.0	64.0 mm	0.00	0.00
-5.0	32.0 mm	162.16	5.74
-4.0	16.0 mm	538.93	19.08
-3.25	9.5 mm	864.32	30.60
-2.0	4.0 mm	1054.40	37.33
-1.5	2.4 mm	1137.93	40.29
-1.0	2.0 mm	1159.35	41.05
-0.5	1.4 mm	4.60	43.42
0.0	1.0 mm	8.99	45.67
0.5	710 µm	15.79	49.17
1.0	500 µm	30.80	56.89
1.5	355 µm	54.73	69.20
2.0	250 µm	88.02	86.32
2.5	180 µm	105.31	95.22
3.0	125 µm	110.16	97.71
3.5	90 µm	110.74	98.01
4.0	63 µm	110.95	98.12
<4.0	<63 µm	114.61	100.00

Folk (1974) Texture Group: Medium sandy pebble gravel

Table B1 Cumulative frequency grain size distributions for bulk bed-material samples on Tributary Central for 1998 (Continued)

Sample	TC07B	Gravel Mass = 656.45 g	
Date	26-Oct-98	Remaining Mass = 1290.24 g	
Phi		Mass (g)	Cumulative %
-5.0	32.0 mm	20.17	1.03
-4.0	16.0 mm	82.44	4.22
-3.25	9.5 mm	308.74	15.82
-2.0	4.0 mm	541.91	27.77
-1.5	2.4 mm	631.86	32.38
-1.0	2.0 mm	656.45	33.64
-0.5	1.4 mm	4.42	36.58
0.0	1.0 mm	8.41	39.23
0.5	710 µm	14.56	43.32
1.0	500 µm	29.68	53.37
1.5	355 µm	53.17	68.99
2.0	250 µm	75.63	83.93
2.5	180 µm	90.60	93.88
3.0	125 µm	94.46	96.45
3.5	90 µm	95.72	97.29
4.0	63 µm	96.06	97.51
<4.0	<63 µm	99.80	100.00

Folk (1974) Texture Group: Medium sandy pebble gravel

Sample	TC08	Gravel Mass = 643.05 g	
Date	26-Oct-98	Remaining Mass = 961.42 g	
Phi		Mass (g)	Cumulative %
-5.0	32.0 mm	187.54	11.66
-4.0	16.0 mm	359.40	22.35
-3.25	9.5 mm	470.68	29.27
-2.0	4.0 mm	579.49	36.03
-1.5	2.4 mm	626.87	38.98
-1.0	2.0 mm	643.05	39.98
-0.5	1.4 mm	6.13	42.93
0.0	1.0 mm	13.75	46.60
0.5	710 µm	26.23	52.60
1.0	500 µm	48.19	63.17
1.5	355 µm	73.26	75.23
2.0	250 µm	95.60	85.97
2.5	180 µm	113.06	94.37
3.0	125 µm	118.32	96.90
3.5	90 µm	119.95	97.69
4.0	63 µm	120.42	97.91
<4.0	<63 µm	124.76	100.00

Folk (1974) Texture Group: Medium sandy pebble gravel

Sample	TC07C	Gravel Mass = 207.79 g	
Date	26-Oct-98	Remaining Mass = 1454.99 g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	51.93	3.11
-2.0	4.0 mm	129.49	7.77
-1.5	2.4 mm	187.01	11.22
-1.0	2.0 mm	207.79	12.46
-0.5	1.4 mm	4.40	15.89
0.0	1.0 mm	8.76	19.29
0.5	710 µm	15.59	24.61
1.0	500 µm	33.56	38.62
1.5	355 µm	60.24	59.41
2.0	250 µm	86.70	80.03
2.5	180 µm	104.02	93.53
3.0	125 µm	107.90	96.56
3.5	90 µm	108.65	97.14
4.0	63 µm	108.82	97.27
<4.0	<63 µm	112.32	100.00

Folk (1974) Texture Group: Pebbly medium sand

Sample	TC09	Gravel Mass = 257.41 g	
Date	26-Oct-98	Remaining Mass = 937.49 g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	59.41	4.96
-2.0	4.0 mm	141.58	11.82
-1.5	2.4 mm	225.86	18.86
-1.0	2.0 mm	257.41	21.50
-0.5	1.4 mm	11.91	29.75
0.0	1.0 mm	26.08	39.57
0.5	710 µm	44.41	52.28
1.0	500 µm	68.68	69.10
1.5	355 µm	86.77	81.64
2.0	250 µm	99.59	90.52
2.5	180 µm	105.62	94.70
3.0	125 µm	108.98	97.03
3.5	90 µm	109.77	97.58
4.0	63 µm	110.10	97.81
<4.0	<63 µm	113.26	100.00

Folk (1974) Texture Group: Pebbly coarse sand

Table B1 Cumulative frequency grain size distributions for bulk samples on Tributary Central for 1998 (Cont)

Sample	TC10	Gravel Mass =602.57 g	
Date	29-Oct-98	Remaining Mass = 740.77 g	
Phi		Mass (g)	Cumulative %
-5.0	32.0 mm	0.00	0.00
-4.0	16.0 mm	209.36	15.56
-3.25	9.5 mm	336.81	25.02
-2.0	4.0 mm	489.41	36.36
-1.5	2.4 mm	577.17	42.88
-1.0	2.0 mm	602.57	44.77
-0.5	1.4 mm	7.04	48.63
0.0	1.0 mm	14.39	52.66
0.5	710 µm	24.35	58.12
1.0	500 µm	41.67	67.62
1.5	355 µm	59.72	77.51
2.0	250 µm	76.79	86.87
2.5	180 µm	86.44	92.16
3.0	125 µm	92.12	95.27
3.5	90 µm	93.91	96.26
4.0	63 µm	94.88	96.79
<4.0	<63 µm	100.74	100.00

Folk (1974) Texture Group: Medium sandy pebble gravel

Sample	TC11	Gravel Mass = 318.02 g	
Date	29-Oct-98	Remaining Mass = 940.31 g	
Phi		Mass (g)	Cumulative %
-4.0	16.0 mm	31.78	2.52
-3.25	9.5 mm	120.73	9.57
-2.0	4.0 mm	227.59	18.05
-1.5	2.4 mm	295.01	23.39
-1.0	2.0 mm	318.02	25.22
-0.5	1.4 mm	7.71	30.16
0.0	1.0 mm	14.7	34.64
0.5	710 µm	24.14	40.70
1.0	500 µm	42.81	52.67
1.5	355 µm	65.85	67.44
2.0	250 µm	87.09	81.05
2.5	180 µm	102.27	90.79
3.0	125 µm	107.73	94.29
3.5	90 µm	110.3	95.94
4.0	63 µm	111.15	96.48
<4.0	<63 µm	116.64	100.00

Folk (1974) Texture Group: Granular medium sand

Sample	TC05	Gravel Mass = 482.06 g	
Date	19-Oct-98	Remaining Mass = 1016.97 g	
Phi		Mass (g)	Cumulative %
-4.0	16.0 mm	52.86	3.52
-3.25	9.5 mm	170.75	11.37
-2.0	4.0 mm	353.27	23.52
-1.5	2.4 mm	449.97	29.96
-1.0	2.0 mm	482.06	32.10
-0.5	1.4 mm	10.63	38.24
0.0	1.0 mm	24.82	46.44
0.5	710 µm	44.91	58.04
1.0	500 µm	71.53	73.42
1.5	355 µm	90.85	84.59
2.0	250 µm	105.18	92.86
2.5	180 µm	111.03	96.24
3.0	125 µm	113.60	97.73
3.5	90 µm	114.22	98.09
4.0	63 µm	114.61	98.31
<4.0	<63 µm	117.53	100.00

Folk (1974) Texture Group: Coarse sandy pebble gravel

Sample	TC04	Gravel Mass = 395.19 g	
Date	19-Oct-98	Remaining Mass = 1274.59 g	
Phi		Mass (g)	Cumulative %
-4.0	16.0 mm	43.54	2.60
-3.25	9.5 mm	165.77	9.90
-2.0	4.0 mm	311.98	18.63
-1.5	2.4 mm	377.37	22.53
-1.0	2.0 mm	395.19	23.60
-0.5	1.4 mm	4.19	26.64
0.0	1.0 mm	9.00	30.14
0.5	710 µm	18.21	36.83
1.0	500 µm	38.73	51.74
1.5	355 µm	60.79	67.76
2.0	250 µm	78.65	80.74
2.5	180 µm	91.46	90.05
3.0	125 µm	97.03	94.09
3.5	90 µm	99.47	95.87
4.0	63 µm	100.23	96.42
<4.0	<63 µm	105.16	100.00

Folk (1974) Texture Group: Pebbly medium sand

Table B1 Cumulative frequency grain size distributions for bulk bed-material samples on Tributary Central for 1998 (Continued)

Sample	TC03	Gravel Mass = 67.87 g	
Date	19-Oct-98	Remaining Mass = 1265.86 g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	1.65	0.12
-2.0	4.0 mm	15.07	1.13
-1.5	2.4 mm	50.47	3.78
-1.0	2.0 mm	67.87	5.08
-0.5	1.4 mm	4.85	9.53
0.0	1.0 mm	11.26	15.42
0.5	710 µm	22.87	26.07
1.0	500 µm	44.85	46.24
1.5	355 µm	67.06	66.63
2.0	250 µm	86.47	84.44
2.5	180 µm	94.89	92.17
3.0	125 µm	98.35	95.35
3.5	90 µm	99.10	96.04
4.0	63 µm	99.48	96.38
<4.0	<63 µm	103.42	100.00

Folk (1974) Texture Group: Granular medium sand

Sample	TC01	Gravel Mass = 11.98 g	
Date	19-Oct-98	Remaining Mass = 1276.56 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	11.98	0.93
-0.5	1.4 mm	2.56	3.28
0.0	1.0 mm	7.49	7.81
0.5	710 µm	18.72	18.12
1.0	500 µm	43.73	41.08
1.5	355 µm	70.98	66.10
2.0	250 µm	94.44	87.63
2.5	180 µm	103.22	95.69
3.0	125 µm	105.77	98.04
3.5	90 µm	106.13	98.37
4.0	63 µm	106.27	98.49
<4.0	<63 µm	107.91	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	TC02	Gravel Mass = 52.49 g	
Date	19-Oct-98	Remaining Mass = 1260.87 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	52.49	3.99
-0.5	1.4 mm	0.56	4.44
0.0	1.0 mm	1.56	5.25
0.5	710 µm	4.37	7.51
1.0	500 µm	15.70	16.63
1.5	355 µm	37.86	34.47
2.0	250 µm	71.71	61.73
2.5	180 µm	91.57	77.72
3.0	125 µm	102.44	86.47
3.5	90 µm	106.07	89.39
4.0	63 µm	108.25	91.14
<4.0	<63 µm	119.25	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Table B2 Cumulative frequency grain size distributions for several additional bed-material samples collected on Tributary Central in 1998

Sample	TC06 upstream	Gravel Mass = 62.06 g	
Date	19-Oct-98	Remaining Mass = 793.12 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	2.85	0.36
-0.5	1.4 mm	0.49	0.83
0.0	1.0 mm	1.14	1.46
0.5	710 μm	2.83	3.10
1.0	500 μm	8.36	8.44
1.5	355 μm	19.90	19.60
2.0	250 μm	38.42	37.51
2.5	180 μm	60.08	58.46
3.0	125 μm	70.81	68.83
3.5	90 μm	79.33	77.07
4.0	63 μm	84.15	81.73
<4.0	<63 μm	103.42	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	TC01 Trib Bed	Gravel Mass = 61.93 g	
Date	19-Oct-98	Remaining Mass = 793.12 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm	29.96	3.50
-1.5	2.4 mm	54.68	6.38
-1.0	2.0 mm	62.06	7.24
-0.5	1.4 mm	2.33	9.34
0.0	1.0 mm	6.53	13.13
0.5	710 μm	15.03	20.79
1.0	500 μm	34.72	38.54
1.5	355 μm	56.88	58.52
2.0	250 μm	74.80	74.67
2.5	180 μm	85.69	84.49
3.0	125 μm	89.08	87.54
3.5	90 μm	90.73	89.03
4.0	63 μm	91.45	89.68
<4.0	<63 μm	102.90	100.00

Folk (1974) Texture Group: Granular medium sand

Table B3 Cumulative frequency grain size distributions for bulk bed-material samples on Tributary Central for 1999

Sample	TC06A	Gravel Mass = 26.32 g	
Date	21-Oct-99	Remaining Mass = 1401.77 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	26.32	1.84
-0.5	1.4 mm	1.69	3.23
0.0	1.0 mm	5.34	6.22
0.5	710 µm	14.23	13.51
1.0	500 µm	36.46	31.75
1.5	355 µm	65.07	55.21
2.0	250 µm	93.51	78.54
2.5	180 µm	106.02	88.80
3.0	125 µm	112.06	93.75
3.5	90 µm	113.74	95.13
4.0	63 µm	114.57	95.81
<4.0	<63 µm	119.68	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	TC06B	Gravel Mass = 102.10 g	
Date	21-Oct-99	Remaining Mass = 1573.09 g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	17.53	1.04
-2.0	4.0 mm	45.60	2.72
-1.5	2.4 mm	81.89	4.88
-1.0	2.0 mm	102.10	6.08
-0.5	1.4 mm	6.87	11.53
0.0	1.0 mm	16.44	19.11
0.5	710 µm	32.64	31.94
1.0	500 µm	59.71	53.39
1.5	355 µm	83.38	72.14
2.0	250 µm	100.22	85.49
2.5	180 µm	110.16	93.36
3.0	125 µm	112.50	95.21
3.5	90 µm	113.46	95.98
4.0	63 µm	113.80	96.24
<4.0	<63 µm	118.54	100.00

Folk (1974) Texture Group: Granular coarse sand

Sample	TC06C	Gravel Mass = 79.95 g	
Date	21-Oct-99	Remaining Mass = 1107.65 g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	37.06	3.11
-2.0	4.0 mm	49.95	4.19
-1.5	2.4 mm	68.58	5.75
-1.0	2.0 mm	79.95	6.71
-0.5	1.4 mm	4.16	9.95
0.0	1.0 mm	12.28	16.26
0.5	710 µm	28.73	29.07
1.0	500 µm	57.97	51.82
1.5	355 µm	85.50	73.25
2.0	250 µm	107.23	90.16
2.5	180 µm	114.27	95.64
3.0	125 µm	116.31	97.23
3.5	90 µm	116.65	97.49
4.0	63 µm	116.79	97.60
<4.0	<63 µm	119.87	100.00

Folk (1974) Texture Group: Pebbly medium sand

Sample	TC07A	Gravel Mass = 718.56 g	
Date	21-Oct-99	Remaining Mass = 897.95 g	
Phi		Mass (g)	Cumulative %
-5.0	32.0 mm	0.00	0.00
-4.0	16.0 mm	270.06	16.66
-3.25	9.5 mm	479.27	29.57
-2.0	4.0 mm	615.96	38.01
-1.5	2.4 mm	691.35	42.66
-1.0	2.0 mm	718.56	44.34
-0.5	1.4 mm	6.09	47.14
0.0	1.0 mm	12.55	50.11
0.5	710 µm	23.59	55.19
1.0	500 µm	47.96	66.40
1.5	355 µm	76.08	79.34
2.0	250 µm	98.67	89.73
2.5	180 µm	111.30	95.54
3.0	125 µm	114.39	96.96
3.5	90 µm	115.57	97.51
4.0	63 µm	115.96	97.69
<4.0	<63 µm	120.99	100.00

Folk (1974) Texture Group: Medium sandy pebble gravel

Table B3 Cumulative frequency grain size distributions for bulk bed-material samples on Tributary Central for 1999 (Cont.)

Sample	TC07B	Gravel Mass = 240.42 g	
Date	21-Oct-99	Remaining Mass = 1650.47 g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	79.99	4.22
-2.0	4.0 mm	165.00	8.70
-1.5	2.4 mm	216.41	11.41
-1.0	2.0 mm	240.42	12.68
-0.5	1.4 mm	4.98	16.31
0.0	1.0 mm	12.60	21.85
0.5	710 µm	25.41	31.18
1.0	500 µm	50.71	49.60
1.5	355 µm	76.90	68.67
2.0	250 µm	95.90	82.50
2.5	180 µm	108.81	91.90
3.0	125 µm	113.39	95.23
3.5	90 µm	114.94	96.36
4.0	63 µm	115.29	96.61
<4.0	<63 µm	119.94	100.00

Folk (1974) Texture Group: Pebbly medium sand

Sample	TC07C	Gravel Mass = 358.13 g	
Date	21-Oct-99	Remaining Mass = 1715.31 g	
Phi		Mass (g)	Cumulative %
-4.0	16.0 mm	72.68	3.50
-3.25	9.5 mm	142.22	6.84
-2.0	4.0 mm	252.12	12.13
-1.5	2.4 mm	330.81	15.91
-1.0	2.0 mm	358.13	17.23
-0.5	1.4 mm	5.26	20.86
0.0	1.0 mm	11.83	25.39
0.5	710 µm	20.60	31.44
1.0	500 µm	36.58	42.46
1.5	355 µm	56.57	56.25
2.0	250 µm	82.90	74.41
2.5	180 µm	100.72	86.71
3.0	125 µm	109.44	92.72
3.5	90 µm	111.47	94.12
4.0	63 µm	112.50	94.83
<4.0	<63 µm	119.99	100.00

Folk (1974) Texture Group: Pebbly medium sand

Sample	TC08	Gravel Mass = 366.18 g	
Date	21-Oct-99	Remaining Mass = 919.91 g	
Phi		Mass (g)	Cumulative %
-5.0	32.0 mm	0.00	0.00
-4.0	16.0 mm	65.11	5.05
-3.25	9.5 mm	164.63	12.77
-2.0	4.0 mm	270.71	21.00
-1.5	2.4 mm	339.69	26.35
-1.0	2.0 mm	366.18	28.40
-0.5	1.4 mm	8.23	33.36
0.0	1.0 mm	20.25	40.59
0.5	710 µm	36.18	50.17
1.0	500 µm	58.53	63.62
1.5	355 µm	77.79	75.20
2.0	250 µm	94.97	85.54
2.5	180 µm	104.20	91.09
3.0	125 µm	109.21	94.10
3.5	90 µm	110.89	95.12
4.0	63 µm	111.86	95.70
<4.0	<63 µm	119.01	100.00

Folk (1974) Texture Group: Pebbly medium sand

Sample	TC09	Gravel Mass = 179.56 g	
Date	21-Oct-99	Remaining Mass = 1638.53 g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	59.89	3.29
-2.0	4.0 mm	109.97	6.04
-1.5	2.4 mm	158.18	8.68
-1.0	2.0 mm	179.35	9.84
-0.5	1.4 mm	4.19	12.99
0.0	1.0 mm	10.55	17.75
0.5	710 µm	23.18	27.22
1.0	500 µm	52.34	49.09
1.5	355 µm	85.74	74.13
2.0	250 µm	107.57	90.50
2.5	180 µm	113.90	95.25
3.0	125 µm	116.28	97.03
3.5	90 µm	116.83	97.44
4.0	63 µm	117.07	97.62
<4.0	<63 µm	120.24	100.00

Folk (1974) Texture Group: Pebbly medium sand

Table B3 Cumulative frequency grain size distributions for bulk bed-material samples on Tributary Central for 1999 (Continued)

Sample	TC10	Gravel Mass = 631.76	
Date	21-Oct-99	Remaining Mass = 1107.19 g	
Phi		Mass (g)	Cumulative %
-5.0	32.0 mm	0.00	0.00
-4.0	16.0 mm	190.74	10.95
-3.25	9.5 mm	364.96	20.94
-2.0	4.0 mm	512.29	29.40
-1.5	2.4 mm	602.45	34.57
-1.0	2.0 mm	631.76	36.25
-0.5	1.4 mm	5.71	39.24
0.0	1.0 mm	14.36	43.76
0.5	710 µm	27.19	50.46
1.0	500 µm	49.63	62.19
1.5	355 µm	72.76	74.28
2.0	250 µm	94.89	85.84
2.5	180 µm	105.63	91.46
3.0	125 µm	111.01	94.27
3.5	90 µm	112.69	95.15
4.0	63 µm	113.72	95.68
<4.0	<63 µm	121.98	100.00

Folk (1974) Texture Group: Medium sandy pebble gravel

Sample	TC11	Gravel Mass = 492.38 g	
Date	21-Oct-99	Remaining Mass = 1343.43 g	
Phi		Mass (g)	Cumulative %
-4.0	16.0 mm	41.58	2.26
-3.25	9.5 mm	147.20	8.00
-2.0	4.0 mm	324.08	17.61
-1.5	2.4 mm	449.64	24.44
-1.0	2.0 mm	492.38	26.76
-0.5	1.4 mm	10.36	32.96
0.0	1.0 mm	21.04	39.35
0.5	710 µm	36.69	48.71
1.0	500 µm	60.60	63.01
1.5	355 µm	83.56	76.75
2.0	250 µm	101.36	87.40
2.5	180 µm	112.28	93.93
3.0	125 µm	115.54	95.88
3.5	90 µm	116.88	96.68
4.0	63 µm	117.37	96.97
<4.0	<63 µm	122.43	100.00

Folk (1974) Texture Group: Pebbly coarse sand

Sample	TC05	Gravel Mass = 336.91 g	
Date	21-Oct-99	Remaining Mass = 1293.39 g	
Phi		Mass (g)	Cumulative %
-4.0	16.0 mm	66.20	4.05
-3.25	9.5 mm	150.12	9.19
-2.0	4.0 mm	257.16	15.74
-1.5	2.4 mm	316.91	19.39
-1.0	2.0 mm	336.91	20.62
-0.5	1.4 mm	3.92	23.26
0.0	1.0 mm	9.78	27.21
0.5	710 µm	20.21	34.23
1.0	500 µm	41.57	48.62
1.5	355 µm	65.35	64.64
2.0	250 µm	87.93	79.85
2.5	180 µm	99.47	87.62
3.0	125 µm	106.53	92.37
3.5	90 µm	108.98	94.03
4.0	63 µm	110.35	94.95
<4.0	<63 µm	117.85	100.00

Folk (1974) Texture Group: Pebbly medium sand

Sample	TC04	Gravel Mass = 102.10 g	
Date	21-Oct-99	Remaining Mass = 1460.29 g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	17.53	1.15
-2.0	4.0 mm	45.60	2.99
-1.5	2.4 mm	81.89	5.37
-1.0	2.0 mm	102.10	6.69
-0.5	1.4 mm	2.71	8.83
0.0	1.0 mm	7.30	12.46
0.5	710 µm	17.68	20.65
1.0	500 µm	40.63	38.78
1.5	355 µm	67.03	59.64
2.0	250 µm	89.74	77.57
2.5	180 µm	100.03	85.70
3.0	125 µm	105.71	90.19
3.5	90 µm	107.85	91.88
4.0	63 µm	109.42	93.12
<4.0	<63 µm	118.13	100.00

Folk (1974) Texture Group: Granular coarse sand

Table B3 Cumulative frequency grain size distributions for bulk bed-material samples on Tributary Central for 1999 (Continued)

Sample	TC03	Gravel Mass = 42.56 g	
Date	21-Oct-99	Remaining Mass = 1219.34 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	42.56	3.37
-0.5	1.4 mm	5.36	7.67
0.0	1.0 mm	14.67	15.12
0.5	710 µm	30.34	27.67
1.0	500 µm	57.36	49.32
1.5	355 µm	82.42	69.39
2.0	250 µm	101.41	84.60
2.5	180 µm	109.64	91.19
3.0	125 µm	112.71	93.65
3.5	90 µm	113.45	94.24
4.0	63 µm	113.98	94.67
<4.0	<63 µm	120.64	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Sample	TC01	Gravel Mass = 255.05	
Date	21-Oct-99	Remaining Mass = 1002.22 g	
Phi		Mass (g)	Cumulative %
-4.0	16.0 mm	0.00	0.00
-3.25	9.5 mm	75.54	5.99
-2.0	4.0 mm	176.62	14.02
-1.5	2.4 mm	240.97	19.12
-1.0	2.0 mm	255.05	20.24
-0.5	1.4 mm	3.66	22.66
0.0	1.0 mm	7.72	25.34
0.5	710 µm	13.59	29.21
1.0	500 µm	25.02	36.76
1.5	355 µm	39.69	46.45
2.0	250 µm	60.81	60.40
2.5	180 µm	79.95	73.04
3.0	125 µm	93.95	82.28
3.5	90 µm	98.73	85.44
4.0	63 µm	102.17	87.71
<4.0	<63 µm	120.78	100.00

Folk (1974) Texture Group: Pebbly medium sand

Sample	TC02	Gravel Mass = 39.49 g	
Date	21-Oct-99	Remaining Mass =1374.04 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	39.49	2.79
-0.5	1.4 mm	1.47	3.98
0.0	1.0 mm	3.34	5.49
0.5	710 µm	6.84	8.31
1.0	500 µm	16.95	16.46
1.5	355 µm	37.80	33.26
2.0	250 µm	70.99	60.01
2.5	180 µm	100.68	83.94
3.0	125 µm	110.48	91.84
3.5	90 µm	114.34	94.95
4.0	63 µm	115.41	95.82
<4.0	<63 µm	120.60	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Table B4 Cumulative frequency grain size distributions for bulk bed-material samples on Tributary Central for 2000

Sample	TC06A	Gravel Mass = 24.32 g	
Date	3-Oct-00	Remaining Mass = 1100.04 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	24.32	2.16
-0.5	1.4 mm	3.82	5.37
0.0	1.0 mm	12.68	12.81
0.5	710 µm	31.31	28.45
1.0	500 µm	65.57	57.22
1.5	355 µm	89.89	77.65
2.0	250 µm	101.94	87.77
2.5	180 µm	104.61	90.01
3.0	125 µm	105.32	90.60
3.5	90 µm	105.52	90.77
4.0	63 µm	105.63	90.86
<4.0	<63 µm	116.51	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Sample	TC06C	Gravel Mass = 270.33 g	
Date	3-Oct-00	Remaining Mass = 1164.06 g	
Phi		Mass (g)	Cumulative %
-4.0	16.0 mm	0.00	0.00
-3.25	9.5 mm	97.35	6.77
-2.0	4.0 mm	166.86	11.61
-1.5	2.4 mm	238.37	16.59
-1.0	2.0 mm	270.33	18.81
-0.5	1.4 mm	11.56	26.69
0.0	1.0 mm	27.15	37.32
0.5	710 µm	47.58	51.25
1.0	500 µm	74.75	69.78
1.5	355 µm	93.45	82.53
2.0	250 µm	106.04	91.12
2.5	180 µm	109.38	93.39
3.0	125 µm	110.37	94.07
3.5	90 µm	110.65	94.26
4.0	63 µm	110.80	94.36
<4.0	<63 µm	119.07	100.00

Folk (1974) Texture Group: Pebbly coarse sand

Sample	TC06B	Gravel Mass = 258.55 g	
Date	3-Oct-00	Remaining Mass = 1300.65 g	
Phi		Mass (g)	Cumulative %
-4.55	26.0 mm	30.79	1.97
-4.0	16.0 mm	100.45	6.43
-3.25	9.5 mm	129.60	8.30
-2.0	4.0 mm	187.93	12.03
-1.5	2.4 mm	235.89	15.10
-1.0	2.0 mm	258.55	16.55
-0.5	1.4 mm	6.93	21.53
0.0	1.0 mm	15.61	27.77
0.5	710 µm	30.48	38.46
1.0	500 µm	56.70	57.30
1.5	355 µm	77.82	72.48
2.0	250 µm	91.47	82.30
2.5	180 µm	98.51	87.36
3.0	125 µm	99.96	88.40
3.5	90 µm	100.45	88.75
4.0	63 µm	100.60	88.86
<4.0	<63 µm	116.10	100.00

Folk (1974) Texture Group: Pebbly coarse sand

Sample	TC07A	Gravel Mass = 406.96 g	
Date	3-Oct-00	Remaining Mass = 1012.60 g	
Phi		Mass (g)	Cumulative %
-4.25	38.0 mm	30.01	2.11
-4.0	16.0 mm	83.50	5.88
-3.25	9.5 mm	128.96	9.08
-2.0	4.0 mm	335.49	23.63
-1.5	2.4 mm	387.55	27.30
-1.0	2.0 mm	406.96	28.67
-0.5	1.4 mm	7.27	33.00
0.0	1.0 mm	16.14	38.28
0.5	710 µm	30.54	46.85
1.0	500 µm	57.81	63.09
1.5	355 µm	80.61	76.67
2.0	250 µm	95.00	85.23
2.5	180 µm	101.63	89.18
3.0	125 µm	103.63	90.37
3.5	90 µm	104.72	91.02
4.0	63 µm	105.10	91.25
<4.0	<63 µm	119.80	100.00

Folk (1974) Texture Group: Pebbly coarse sand

Table B4 Cumulative frequency grain size distributions for bulk bed-material samples on Tributary Central for 2000 (Cont.)

Sample	TC07B	Gravel Mass = 433.60 g	
Date	3-Oct-00	Remaining Mass = 948.46 g	
Phi		Mass (g)	Cumulative %
-4.7	27.0 mm	34.19	2.47
-4.0	16.0 mm	77.23	5.58
-3.25	9.5 mm	187.89	13.57
-2.0	4.0 mm	332.28	24.00
-1.5	2.4 mm	403.70	29.15
-1.0	2.0 mm	433.60	31.31
-0.5	1.4 mm	7.23	35.49
0.0	1.0 mm	16.53	40.87
0.5	710 µm	30.03	48.68
1.0	500 µm	54.71	62.95
1.5	355 µm	79.96	77.55
2.0	250 µm	100.46	89.41
2.5	180 µm	106.79	93.07
3.0	125 µm	108.78	94.22
3.5	90 µm	109.24	94.48
4.0	63 µm	109.40	94.58
<4.0	<63 µm	118.78	100.00

Folk (1974) Texture Group: Medium sandy pebble gravel

Sample	TC07C	Gravel Mass = 485.03 g	
Date	3-Oct-00	Remaining Mass = 1074.33 g	
Phi		Mass (g)	Cumulative %
-4.0	16.0 mm	77.23	4.94
-3.25	9.5 mm	247.98	15.87
-2.0	4.0 mm	389.13	24.90
-1.5	2.4 mm	460.80	29.49
-1.0	2.0 mm	485.03	31.04
-0.5	1.4 mm	6.19	34.61
0.0	1.0 mm	13.13	38.61
0.5	710 µm	24.36	45.08
1.0	500 µm	45.00	56.98
1.5	355 µm	65.66	68.90
2.0	250 µm	83.65	79.27
2.5	180 µm	96.36	86.60
3.0	125 µm	101.67	89.66
3.5	90 µm	104.99	91.58
4.0	63 µm	106.18	92.26
<4.0	<63 µm	119.60	100.00

Folk (1974) Texture Group: Medium sandy pebble gravel

Sample	TC08	Gravel Mass = 452.69 g	
Date	3-Oct-00	Remaining Mass = 722.28 g	
Phi		Mass (g)	Cumulative %
-6.25	75.0 mm	0.00	0.00
-6.0	64.0 mm	136.26	11.60
-5.25	38. mm	200.47	17.06
-4.0	16.0 mm	300.51	25.58
-3.25	9.5 mm	344.95	29.36
-2.0	4.0 mm	410.27	34.92
-1.5	2.4 mm	441.07	37.54
-1.0	2.0 mm	452.69	38.53
-0.5	1.4 mm	3.94	40.74
0.0	1.0 mm	10.01	44.15
0.5	710 µm	21.24	50.46
1.0	500 µm	42.96	62.66
1.5	355 µm	66.52	75.90
2.0	250 µm	86.97	87.38
2.5	180 µm	95.13	91.97
3.0	125 µm	99.53	94.44
3.5	90 µm	101.05	95.29
4.0	63 µm	102.09	95.88
<4.0	<63 µm	109.43	100.00

Folk (1974) Texture Group: Medium sandy pebble gravel

Table B4 Cumulative frequency grain size distributions for bulk bed-material samples on Tributary Central for 2000 (Cont.)

Sample	TC09	Gravel Mass = 378.52 g	
Date	3-Oct-00	Remaining Mass = 1004.00 g	
Phi		Mass (g)	Cumulative %
-4.0	16.0 mm	55.47	4.01
-3.25	9.5 mm	167.92	12.15
-2.0	4.0 mm	284.92	20.61
-1.5	2.4 mm	353.11	25.54
-1.0	2.0 mm	378.52	27.38
-0.5	1.4 mm	4.97	30.74
0.0	1.0 mm	11.05	34.85
0.5	710 µm	20.18	41.03
1.0	500 µm	21.14	41.68
1.5	355 µm	43.11	56.54
2.0	250 µm	60.74	68.47
2.5	180 µm	71.17	75.52
3.0	125 µm	75.30	78.32
3.5	90 µm	77.72	79.96
4.0	63 µm	78.67	80.60
<4.0	<63 µm	107.35	100.00

Folk (1974) Texture Group: Pebbly muddy medium sand

Sample	TC05	Gravel Mass = 356.08 g	
Date	3-Oct-00	Remaining Mass = 1337.42 g	
Phi		Mass (g)	Cumulative %
-4.0	16.0 mm	19.73	1.16
-3.25	9.5 mm	130.56	7.69
-2.0	4.0 mm	258.93	15.26
-1.5	2.4 mm	328.62	19.37
-1.0	2.0 mm	356.08	20.98
-0.5	1.4 mm	5.27	24.63
0.0	1.0 mm	10.64	28.34
0.5	710 µm	19.73	34.62
1.0	500 µm	39.51	48.29
1.5	355 µm	60.79	62.99
2.0	250 µm	78.81	75.44
2.5	180 µm	90.14	83.27
3.0	125 µm	93.90	85.87
3.5	90 µm	95.80	87.18
4.0	63 µm	96.49	87.66
<4.0	<63 µm	114.35	100.00

Folk (1974) Texture Group: Pebbly muddy medium sand

Sample	TC10	Gravel Mass = 460.11 g	
Date	3-Oct-00	Remaining Mass = 1281.01 g	
Phi		Mass (g)	Cumulative %
-5.25	38.0 mm	0.00	0
-4.0	16.0 mm	125.25	7.18
-3.25	9.5 mm	222.94	12.78
-2.0	4.0 mm	365.47	20.95
-1.5	2.4 mm	437.77	25.09
-1.0	2.0 mm	460.11	26.37
-0.5	1.4 mm	5.59	29.88
0.0	1.0 mm	13.05	34.55
0.5	710 µm	24.49	41.72
1.0	500 µm	43.82	53.83
1.5	355 µm	63.89	66.41
2.0	250 µm	83.96	78.99
2.5	180 µm	95.86	86.45
3.0	125 µm	104.10	91.61
3.5	90 µm	106.68	93.23
4.0	63 µm	108.31	94.25
<4.0	<63 µm	117.49	100.00

Folk (1974) Texture Group: Pebbly medium sand

Sample	TC11	Gravel Mass = 385.82 g	
Date	3-Oct-00	Remaining Mass = 809.59 g	
Phi		Mass (g)	Cumulative %
-4.0	16.0 mm	41.87	3.50
-3.25	9.5 mm	135.37	11.31
-2.0	4.0 mm	257.36	21.51
-1.5	2.4 mm	352.13	29.43
-1.0	2.0 mm	385.82	32.24
-0.5	1.4 mm	11.13	38.82
0.0	1.0 mm	20.59	44.42
0.5	710 µm	32.16	51.26
1.0	500 µm	55.08	64.82
1.5	355 µm	77.53	78.10
2.0	250 µm	95.29	88.61
2.5	180 µm	104.10	93.82
3.0	125 µm	107.10	95.59
3.5	90 µm	108.75	96.57
4.0	63 µm	109.28	96.88
<4.0	<63 µm	114.55	100.00

Folk (1974) Texture Group: Coarse sandy pebble gravel

Table B4 Cumulative frequency grain size distributions for bulk bed-material samples on Tributary Central for 2000 (Continued)

Sample	TC04	Gravel Mass = 67.59 g	
Date	3-Oct-00	Remaining Mass = 1406.40 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	67.59	4.59
-0.5	1.4 mm	1.98	6.18
0.0	1.0 mm	5.41	8.93
0.5	710 µm	13.11	15.12
1.0	500 µm	32.25	30.51
1.5	355 µm	53.03	47.21
2.0	250 µm	69.88	60.75
2.5	180 µm	82.58	70.96
3.0	125 µm	88.31	75.57
3.5	90 µm	92.30	78.77
4.0	63 µm	94.04	80.17
<4.0	<63 µm	118.71	100.00

Folk (1974) Texture Group: Slightly granular muddy medium sand

Sample	TC01	Gravel Mass = 69.28 g	
Date	3-Oct-00	Remaining Mass = 778.97 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm	39.44	4.64
-1.5	2.4 mm	61.27	7.22
-1.0	2.0 mm	69.28	8.16
-0.5	1.4 mm	2.70	10.41
0.0	1.0 mm	7.12	14.10
0.5	710 µm	15.53	21.12
1.0	500 µm	35.97	38.17
1.5	355 µm	59.17	57.53
2.0	250 µm	81.06	75.79
2.5	180 µm	89.17	82.56
3.0	125 µm	92.87	85.65
3.5	90 µm	94.31	86.85
4.0	63 µm	95.23	87.62
<4.0	<63 µm	110.07	100.00

Folk (1974) Texture Group: Pebbly muddy medium sand

Cross section TC02 was not sampled in 2000 because the cross section had been infilled with sediment.

Sample	TC03	Gravel Mass = 111.83 g	
Date	3-Oct-00	Remaining Mass = 689.41 g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	8.16	1.02
-2.0	4.0 mm	49.61	6.19
-1.5	2.4 mm	92.98	11.59
-1.0	2.0 mm	111.83	13.94
-0.5	1.4 mm	7.31	19.37
0.0	1.0 mm	16.25	26.01
0.5	710 µm	29.83	36.09
1.0	500 µm	53.18	53.43
1.5	355 µm	75.89	70.29
2.0	250 µm	92.40	82.55
2.5	180 µm	99.61	87.90
3.0	125 µm	101.04	88.96
3.5	90 µm	101.56	89.35
4.0	63 µm	101.69	89.44
<4.0	<63 µm	115.91	100.00

Folk (1974) Texture Group: Granular muddy coarse sand

Table B5 Cumulative frequency grain size distributions for bulk bed-material samples on Tributary Central for 2001

Sample	TC06A	Gravel Mass = 1658.72 g	
Date	2-Oct-01	Remaining Mass = 641.86 g	
Phi		Mass (g)	Cumulative %
-7.0	132.0 mm	0.00	0.00
-6.0	64.0 mm	881.97	38.34
-5.0	32.0 mm	1315.01	57.16
-4.0	16.0 mm	1397.08	60.73
-3.25	9.5 mm	1448.68	62.97
-2.0	4.0 mm	1554.04	67.55
-1.5	2.4 mm	1635.60	71.09
-1.0	2.0 mm	1658.72	72.10
-0.5	1.4 mm	10.84	74.80
0.0	1.0 mm	23.22	77.89
0.5	710 µm	39.70	82.00
1.0	500 µm	65.15	88.35
1.5	355 µm	83.41	92.91
2.0	250 µm	97.84	96.51
2.5	180 µm	104.59	98.20
3.0	125 µm	107.10	98.82
3.5	90 µm	107.92	99.03
4.0	63 µm	108.31	99.12
<4.0	<63 µm	111.82	100.00

Folk (1974) Texture Group: Coarse sandy cobble gravel

Sample	TC06B	Gravel Mass = 63.77 g	
Date	2-Oct-01	Remaining Mass = 1108.17 g	
Phi		Mass (g)	Cumulative %
-4.0	16.0 mm	0.00	0.00
-3.25	9.5 mm	1.45	0.12
-2.0	4.0 mm	15.51	1.32
-1.5	2.4 mm	47.40	4.04
-1.0	2.0 mm	63.77	5.44
-0.5	1.4 mm	6.10	10.75
0.0	1.0 mm	14.94	18.45
0.5	710 µm	29.21	30.88
1.0	500 µm	62.31	59.71
1.5	355 µm	85.08	79.53
2.0	250 µm	95.76	88.84
2.5	180 µm	100.52	92.98
3.0	125 µm	102.60	94.79
3.5	90 µm	103.39	95.48
4.0	63 µm	103.86	95.89
<4.0	<63 µm	108.58	100.00

Folk (1974) Texture Group: Granular coarse sand

Sample	TC06C	Gravel Mass = 215.35 g	
Date	2-Oct-01	Remaining Mass = 1195.25 g	
Phi		Mass (g)	Cumulative %
-4.0	16.0 mm	39.62	2.81
-3.25	9.5 mm	88.08	6.24
-2.0	4.0 mm	156.50	11.09
-1.5	2.4 mm	200.24	14.20
-1.0	2.0 mm	215.35	15.27
-0.5	1.4 mm	3.81	18.14
0.0	1.0 mm	10.68	23.33
0.5	710 µm	23.46	32.98
1.0	500 µm	54.23	56.22
1.5	355 µm	80.51	76.06
2.0	250 µm	98.34	89.53
2.5	180 µm	105.73	95.11
3.0	125 µm	107.84	96.70
3.5	90 µm	108.43	97.15
4.0	63 µm	108.73	97.37
<4.0	<63 µm	112.21	100.00

Folk (1974) Texture Group: Pebbly medium sand

Table B5 Cumulative frequency grain size distributions for bulk bed-material samples on Tributary Central for 2001 (Cont.)

Sample	TC07A	Gravel Mass = 281.31 g	
Date	2-Oct-01	Remaining Mass = 748.42 g	
Phi		Mass (g)	Cumulative %
-5.0	32.0 mm	0.00	0.00
-4.0	16.0 mm	66.61	6.46
-3.25	9.5 mm	127.38	12.35
-2.0	4.0 mm	204.03	19.78
-1.5	2.4 mm	261.08	25.30
-1.0	2.0 mm	283.31	27.46
-0.5	1.4 mm	7.70	32.89
0.0	1.0 mm	15.74	38.56
0.5	710 µm	27.01	46.51
1.0	500 µm	46.14	60.00
1.5	355 µm	64.66	73.06
2.0	250 µm	83.48	86.33
2.5	180 µm	93.90	93.68
3.0	125 µm	97.48	96.21
3.5	90 µm	98.38	96.84
4.0	63 µm	98.73	97.09
<4.0	<63 µm	102.86	100.00

Folk (1974) Texture Group: Pebbly medium sand

Sample	TC07C	Gravel Mass = 353.91 g	
Date	2-Oct-01	Remaining Mass = 901.60 g	
Phi		Mass (g)	Cumulative %
-5.0	38. mm	49.63	3.95
-4.0	16.0 mm	114.07	9.09
-3.25	9.5 mm	189.54	15.10
-2.0	4.0 mm	279.82	22.29
-1.5	2.4 mm	334.77	26.66
-1.0	2.0 mm	353.91	28.19
-0.5	1.4 mm	4.58	31.10
0.0	1.0 mm	11.18	35.28
0.5	710 µm	20.17	40.99
1.0	500 µm	37.91	52.25
1.5	355 µm	56.19	63.85
2.0	250 µm	76.66	76.85
2.5	180 µm	92.94	87.18
3.0	125 µm	101.42	92.56
3.5	90 µm	104.45	94.48
4.0	63 µm	105.85	95.37
<4.0	<63 µm	113.14	100.00

Folk (1974) Texture Group: Pebbly medium sand

Sample	TC07B	Gravel Mass = 264.68 g	
Date	2-Oct-01	Remaining Mass = 877.74 g	
Phi		Mass (g)	Cumulative %
-4.0	16.0 mm	7.85	0.69
-3.25	9.5 mm	81.54	7.14
-2.0	4.0 mm	191.29	16.74
-1.5	2.4 mm	246.74	21.60
-1.0	2.0 mm	264.68	23.17
-0.5	1.4 mm	3.57	25.60
0.0	1.0 mm	9.37	29.56
0.5	710 µm	18.97	36.11
1.0	500 µm	41.14	51.23
1.5	355 µm	63.59	66.54
2.0	250 µm	86.01	81.83
2.5	180 µm	101.44	92.35
3.0	125 µm	106.69	95.94
3.5	90 µm	107.73	96.64
4.0	63 µm	108.06	96.87
<4.0	<63 µm	112.65	100.00

Folk (1974) Texture Group: Pebbly medium sand

Table B5 Cumulative frequency grain size distributions for bulk bed-material samples on Tributary Central for 2001 (Cont.)

Sample	TC08	Gravel Mass = 602.50 g	
Date	2-Oct-01	Remaining Mass = 426.95 g	
Phi		Mass (g)	Cumulative %
-6.0	64.0 mm	0.00	0.00
-5.0	32.0 mm	198.86	19.32
-4.0	16.0 mm	307.51	29.87
-3.25	9.5 mm	406.64	39.50
-2.0	4.0 mm	535.00	51.97
-1.5	2.4 mm	588.30	57.15
-1.0	2.0 mm	602.50	58.53
-0.5	1.4 mm	8.82	61.72
0.0	1.0 mm	17.68	64.93
0.5	710 µm	28.80	68.95
1.0	500 µm	49.60	76.49
1.5	355 µm	70.91	84.20
2.0	250 µm	92.93	92.18
2.5	180 µm	104.96	96.53
3.0	125 µm	108.79	97.92
3.5	90 µm	109.75	98.27
4.0	63 µm	110.14	98.41
<4.0	<63 µm	114.54	100.00

Folk (1974) Texture Group: Medium sandy pebble gravel

Sample	TC10	Gravel Mass = 414.79 g	
Date	2-Oct-01	Remaining Mass = 511.53 g	
Phi		Mass (g)	Cumulative %
-6.0	64.0 mm	0.00	0.00
-5.0	32.0 mm	120.64	13.02
-4.0	16.0 mm	230.88	24.92
-3.25	9.5 mm	296.43	32.00
-2.0	4.0 mm	368.24	39.75
-1.5	2.4 mm	404.49	43.67
-1.0	2.0 mm	414.79	44.78
-0.5	1.4 mm	6.08	47.63
0.0	1.0 mm	13.13	50.94
0.5	710 µm	23.45	55.78
1.0	500 µm	46.03	66.37
1.5	355 µm	68.92	77.11
2.0	250 µm	88.81	86.44
2.5	180 µm	101.84	92.55
3.0	125 µm	107.88	95.39
3.5	90 µm	109.76	96.27
4.0	63 µm	110.60	96.66
<4.0	<63 µm	117.71	100.00

Folk (1974) Texture Group: Medium sandy pebble gravel

Sample	TC09	Gravel Mass = 93.49 g	
Date	2-Oct-01	Remaining Mass = 906.14 g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	28.56	2.86
-2.0	4.0 mm	67.83	6.79
-1.5	2.4 mm	86.47	8.65
-1.0	2.0 mm	93.40	9.34
-0.5	1.4 mm	2.14	11.05
0.0	1.0 mm	5.60	13.81
0.5	710 µm	12.68	19.47
1.0	500 µm	35.90	38.00
1.5	355 µm	62.60	59.32
2.0	250 µm	86.86	78.69
2.5	180 µm	100.00	89.17
3.0	125 µm	104.78	92.99
3.5	90 µm	106.44	94.32
4.0	63 µm	107.29	95.00
<4.0	<63 µm	113.56	100.00

Folk (1974) Texture Group: Pebbly medium sand

Sample	TC05	Gravel Mass = 101.07 g	
Date	2-Oct-01	Remaining Mass = 807.11 g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	20.18	2.20
-2.0	4.0 mm	57.96	6.32
-1.5	2.4 mm	96.21	10.49
-1.0	2.0 mm	110.07	12.00
-0.5	1.4 mm	6.00	16.57
0.0	1.0 mm	14.72	23.20
0.5	710 µm	28.56	33.73
1.0	500 µm	61.32	58.65
1.5	355 µm	87.86	78.84
2.0	250 µm	103.32	90.60
2.5	180 µm	109.24	95.11
3.0	125 µm	111.23	96.62
3.5	90 µm	111.81	97.06
4.0	63 µm	112.10	97.28
<4.0	<63 µm	115.67	100.00

Folk (1974) Texture Group: Pebbly coarse sand

Table B5 Cumulative frequency grain size distributions for bulk bed-material samples on Tributary Central for 2001 (Continued)

Sample	TC11	Gravel Mass = 29.44 g	
Date	2-Oct-01	Remaining Mass = 809.26 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	29.44	3.51
-0.5	1.4 mm	1.27	4.65
0.0	1.0 mm	3.78	6.91
0.5	710 µm	9.04	11.64
1.0	500 µm	29.03	29.62
1.5	355 µm	61.65	58.95
2.0	250 µm	91.57	85.86
2.5	180 µm	102.14	95.37
3.0	125 µm	104.37	97.37
3.5	90 µm	104.71	97.68
4.0	63 µm	104.80	97.76
<4.0	<63 µm	107.29	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	TC03	Gravel Mass = 83.21 g	
Date	2-Oct-01	Remaining Mass = 842.81 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm	33.48	3.62
-1.5	2.4 mm	67.70	7.31
-1.0	2.0 mm	83.21	8.99
-0.5	1.4 mm	5.89	13.50
0.0	1.0 mm	15.44	20.81
0.5	710 µm	31.11	32.81
1.0	500 µm	63.32	57.48
1.5	355 µm	91.57	79.11
2.0	250 µm	109.29	92.68
2.5	180 µm	114.41	96.60
3.0	125 µm	115.29	97.27
3.5	90 µm	115.54	97.47
4.0	63 µm	115.70	97.59
<4.0	<63 µm	118.85	100.00

Folk (1974) Texture Group: Granular coarse sand

Sample	TC04	Gravel Mass = 149.08 g	
Date	2-Oct-01	Remaining Mass = 694.76 g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	26.60	3.15
-2.0	4.0 mm	85.08	10.08
-1.5	2.4 mm	135.56	16.06
-1.0	2.0 mm	149.08	17.67
-0.5	1.4 mm	5.99	22.14
0.0	1.0 mm	13.70	27.89
0.5	710 µm	25.89	36.99
1.0	500 µm	53.69	57.73
1.5	355 µm	78.63	76.34
2.0	250 µm	95.55	88.97
2.5	180 µm	102.06	93.83
3.0	125 µm	104.44	95.60
3.5	90 µm	105.34	96.28
4.0	63 µm	105.84	96.65
<4.0	<63 µm	110.33	100.00

Folk (1974) Texture Group: Pebbly coarse sand

Sample	TC01	Gravel Mass = 159.63 g	
Date	2-Oct-01	Remaining Mass = 627.48 g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	38.62	4.91
-2.0	4.0 mm	103.10	13.10
-1.5	2.4 mm	147.41	18.73
-1.0	2.0 mm	159.63	20.28
-0.5	1.4 mm	4.77	23.81
0.0	1.0 mm	9.84	27.56
0.5	710 µm	16.88	32.77
1.0	500 µm	33.88	45.35
1.5	355 µm	52.29	58.97
2.0	250 µm	70.54	72.47
2.5	180 µm	84.01	82.44
3.0	125 µm	90.28	87.08
3.5	90 µm	92.52	88.74
4.0	63 µm	93.79	89.68
<4.0	<63 µm	107.74	100.00

Folk (1974) Texture Group: Pebbly muddy medium sand

Table B6 Cumulative frequency grain size distributions for bulk bed-material samples on Tributary Central for 2002

Sample	TC06A	Gravel Mass = 142.62g	
Date	24-Jul-02	Remaining Mass = 1314.02g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	36.61	2.51
-2.0	4.0 mm	69.59	4.78
-1.5	2.4 mm	117.03	8.03
-1.0	2.0 mm	142.64	9.79
-0.5	1.4 mm	5.49	14.54
0.0	1.0 mm	15.77	23.43
0.5	710 µm	33.45	38.73
1.0	500 µm	60.83	62.42
1.5	355 µm	82.71	81.35
2.0	250 µm	96.19	93.01
2.5	180 µm	100.64	96.86
3.0	125 µm	101.87	97.92
3.5	90 µm	102.13	98.15
4.0	63 µm	102.24	98.24
<4.0	<63 µm	104.27	100.00

Folk (1974) Texture Group: Granular coarse sand

Sample	TC06C	Gravel Mass = 110.84g	
Date	24-Jul-02	Remaining Mass = 1558.10g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm		0.00
-2.0	4.0 mm	22.00	1.32
-1.5	2.4 mm	49.57	2.97
-1.0	2.0 mm	92.68	5.55
-0.5	1.4 mm	110.84	6.64
0.0	1.0 mm	3.80	10.02
0.5	710 µm	12.04	17.33
1.0	500 µm	25.49	29.28
1.5	355 µm	48.73	49.92
2.0	250 µm	69.20	68.10
2.5	180 µm	88.01	84.80
3.0	125 µm	96.95	92.74
3.5	90 µm	99.94	95.40
4.0	63 µm	100.76	96.13
<4.0	<63 µm	105.12	100.00

Folk (1974) Texture Group: Granular medium sand

Sample	TC06B	Gravel Mass = 88.02g	
Date	24-Jul-02	Remaining Mass = 1436.04g	
Phi		Mass (g)	Cumulative %
-5.5	45.3mm		
-5.0	32.0 mm		
-3.25	9.5 mm	16.79	1.10
-2.0	4.0 mm	35.04	2.30
-1.5	2.4 mm	68.49	4.49
-1.0	2.0 mm	88.02	5.77
-0.5	1.4 mm	3.37	8.75
0.0	1.0 mm	9.82	14.44
0.5	710 µm	21.98	25.17
1.0	500 µm	47.34	47.54
1.5	355 µm	72.59	69.82
2.0	250 µm	93.13	87.95
2.5	180 µm	100.54	94.49
3.0	125 µm	102.44	96.16
3.5	90 µm	102.96	96.62
4.0	63 µm	103.24	96.87
<4.0	<63 µm	106.79	100.00

Folk (1974) Texture Group: Granular medium sand

Sample	TC07A	Gravel Mass = 641.17g	
Date	24-Jul-02	Remaining Mass = 1229.17g	
Phi		Mass (g)	Cumulative %
-5.5	45.3mm	186.11	9.95
-5.0	32.0 mm	186.11	9.95
-4.0	16.0 mm	262.42	14.03
-3.25	9.5 mm	388.00	20.74
-2.0	4.0 mm	520.93	27.85
-1.5	2.4 mm	607.45	32.48
-1.0	2.0 mm	641.20	34.28
-0.5	1.4 mm	5.38	37.68
0.0	1.0 mm	11.80	41.73
0.5	710 µm	21.47	47.83
1.0	500 µm	38.62	58.65
1.5	355 µm	57.01	70.25
2.0	250 µm	77.13	82.95
2.5	180 µm	88.54	90.14
3.0	125 µm	93.99	93.58
3.5	90 µm	96.10	94.91
4.0	63 µm	97.12	95.00
<4.0	<63 µm	104.16	100.00

Folk (1974) Texture Group: Medium sandy pebble gravel

Table B6 Cumulative frequency grain size distributions for bulk bed-material samples on Tributary Central for 2002 (Cont.)

Sample	TC07B	Gravel Mass = 350.34g	
Date	24-Jul-02	Remaining Mass = 892.07g	
Phi		Mass (g)	Cumulative %
-4.0	16.0 mm	18.27	1.47
-3.25	9.5 mm	118.42	9.53
-2.0	4.0 mm	246.01	19.80
-1.5	2.4 mm	324.23	26.10
-1.0	2.0 mm	350.34	28.20
-0.5	1.4 mm	5.08	31.61
0.0	1.0 mm	11.43	35.87
0.5	710 µm	20.03	41.64
1.0	500 µm	36.53	52.72
1.5	355 µm	57.99	67.13
2.0	250 µm	83.89	84.52
2.5	180 µm	96.83	93.21
3.0	125 µm	101.06	96.05
3.5	90 µm	102.01	96.68
4.0	63 µm	102.33	96.90
<4.0	<63 µm	106.95	100.00

Folk (1974) Texture Group: Pebbly medium sand

Sample	TC08	Gravel Mass = 318.72g	
Date	24-Jul-02	Remaining Mass = 873.31g	
Phi		Mass (g)	Cumulative %
-4.0	16.0 mm	47.48	3.98
-3.25	9.5 mm	137.14	11.50
-2.0	4.0 mm	241.31	20.24
-1.5	2.4 mm	302.26	25.35
-1.0	2.0 mm	318.72	26.74
-0.5	1.4 mm	3.12	28.94
0.0	1.0 mm	8.15	32.49
0.5	710 µm	16.62	38.47
1.0	500 µm	36.75	52.69
1.5	355 µm	63.29	71.43
2.0	250 µm	86.32	87.69
2.5	180 µm	96.02	94.54
3.0	125 µm	99.42	96.94
3.5	90 µm	100.15	97.46
4.0	63 µm	100.42	97.65
<4.0	<63 µm	103.75	100.00

Folk (1974) Texture Group: Pebbly medium sand

Sample	TC07C	Gravel Mass = 122.40 g	
Date	24-Jul-02	Remaining Mass = 1173.67g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	58.51	4.51
-2.0	4.0 mm	84.68	6.53
-1.5	2.4 mm	110.02	8.49
-1.0	2.0 mm	122.42	9.44
-0.5	1.4 mm	1.63	10.85
0.0	1.0 mm	4.06	12.95
0.5	710 µm	8.70	16.96
1.0	500 µm	19.79	26.55
1.5	355 µm	39.58	43.65
2.0	250 µm	69.54	69.55
2.5	180 µm	86.78	84.45
3.0	125 µm	93.27	90.06
3.5	90 µm	95.96	92.39
4.0	63 µm	97.30	93.54
<4.0	<63 µm	104.77	100.00

Folk (1974) Texture Group: Pebbly medium sand

Sample	TC09	Gravel Mass = 563.30g	
Date	24-Jul-02	Remaining Mass = 1228.59g	
Phi		Mass (g)	Cumulative %
-6	64.0 mm	0.00	0.00
-5	32.0 mm	103.13	5.76
-4	16.0 mm	196.09	10.94
-3.25	9.5 mm	313.45	17.49
-2.0	4.0 mm	458.08	25.56
-1.5	2.4 mm	539.70	30.12
-1.0	2.0 mm	563.30	31.43
-0.5	1.4 mm	5.87	34.98
0.0	1.0 mm	12.88	39.21
0.5	710 µm	24.80	46.41
1.0	500 µm	46.89	59.75
1.5	355 µm	67.93	72.46
2.0	250 µm	89.76	85.64
2.5	180 µm	101.09	92.49
3.0	125 µm	105.77	95.31
3.5	90 µm	107.30	96.24
4.0	63 µm	107.93	96.62
<4.0	<63 µm	113.53	100.00

Folk (1974) Texture Group: Medium sandy pebble gravel

Table B6 Cumulative frequency grain size distributions for bulk bed-material samples on Tributary Central for 2002 (Cont.)

Sample	TC10	Gravel Mass = 540.48g	
Date	24-Jul-02	Remaining Mass = 852.11g	
Phi		Mass (g)	Cumulative %
-5.0	32.0 mm	78.37	5.63
-4.0	16.0 mm	155.7	11.18
-3.25	9.5 mm	294.68	21.16
-2.0	4.0 mm	454.52	32.64
-1.5	2.4 mm	516.82	37.11
-1.0	2.0 mm	540.48	38.81
-0.5	1.4 mm	5.00	41.68
0.0	1.0 mm	12.63	46.07
0.5	710 µm	25.06	53.21
1.0	500 µm	46.27	65.40
1.5	355 µm	65.10	76.22
2.0	250 µm	82.49	86.21
2.5	180 µm	92.70	92.08
3.0	125 µm	97.87	95.05
3.5	90 µm	99.96	96.25
4.0	63 µm	100.94	96.82
<4.0	<63 µm	106.48	100.00

Folk (1974) Texture Group: Medium sandy pebble gravel

Sample	TC11	Gravel Mass = 158.66g	
Date	24-Jul-02	Remaining Mass = 796.92g	
Phi		Mass (g)	Cumulative %
-5.0	32.0 mm		
-4.0	16.0 mm		0.00
-3.25	9.5 mm	55.49	5.81
-2.0	4.0 mm	108.77	11.38
-1.5	2.4 mm	143.07	14.97
-1.0	2.0 mm	158.66	16.60
-0.5	1.4 mm	4.39	20.11
0.0	1.0 mm	10.11	24.68
0.5	710 µm	18.55	31.42
1.0	500 µm	35.84	45.22
1.5	355 µm	59.84	64.39
2.0	250 µm	86.35	85.55
2.5	180 µm	97.67	94.59
3.0	125 µm	100.79	97.09
3.5	90 µm	101.42	97.59
4.0	63 µm	101.63	97.76
<4.0	<63 µm	104.44	100.00

Folk (1974) Texture Group: Pebbly medium sand

Sample	TC05	Gravel Mass = 143.23g	
Date	24-Jul-02	Remaining Mass = 900.26g	
Phi		Mass (g)	Cumulative %
-4.0	16.0 mm		0.00
-3.25	9.5 mm	39.94	3.83
-2.0	4.0 mm	93.73	8.98
-1.5	2.4 mm	127.59	12.23
-1.0	2.0 mm	143.23	13.73
-0.5	1.4 mm	4.86	17.26
0.0	1.0 mm	15.78	25.18
0.5	710 µm	33.30	37.91
1.0	500 µm	62.38	59.02
1.5	355 µm	88.95	78.32
2.0	250 µm	108.81	92.74
2.5	180 µm	114.98	97.22
3.0	125 µm	116.37	98.23
3.5	90 µm	116.59	98.39
4.0	63 µm	116.68	98.45
<4.0	<63 µm	118.81	100.00

Folk (1974) Texture Group: Pebbly coarse sand

Sample	TC04	Gravel Mass = 57.13g	
Date	27-Jul-02	Remaining Mass = 719.11g	
Phi		Mass (g)	Cumulative %
-4.0	16.0 mm		0.00
-3.25	9.5 mm	31.53	4.06
-2.0	4.0 mm	44.19	5.69
-1.5	2.4 mm	51.64	6.65
-1.0	2.0 mm	57.13	7.36
-0.5	1.4 mm	1.79	8.90
0.0	1.0 mm	6.29	12.77
0.5	710 µm	18.04	22.88
1.0	500 µm	46.67	47.52
1.5	355 µm	73.41	70.53
2.0	250 µm	94.58	88.74
2.5	180 µm	102.21	95.31
3.0	125 µm	104.13	96.96
3.5	90 µm	104.59	97.36
4.0	63 µm	104.77	97.51
<4.0	<63 µm	107.66	100.00

Folk (1974) Texture Group: Pebbly medium sand

Table B6 Cumulative frequency grain size distributions for bulk bed-material samples on Tributary Central for 2002 (Continued)

Sample	**TC03**	**Gravel Mass = 89.42g**	
Date	**24-Jul-02**	**Remaining Mass = 716.18 g**	
Phi		**Mass (g)**	**Cumulative %**
-3.25	**9.5 mm**	20.3	2.52
-2.0	**4.0 mm**	44.16	5.48
-1.5	**2.4 mm**	70.48	8.75
-1.0	**2.0 mm**	89.42	11.10
-0.5	**1.4 mm**	5.86	16.01
0.0	**1.0 mm**	16.04	24.53
0.5	**710 µm**	32.06	37.95
1.0	**500 µm**	57.71	59.43
1.5	**355 µm**	78.89	77.16
2.0	**250 µm**	95.45	91.03
2.5	**180 µm**	101.39	96.01
3.0	**125 µm**	102.87	97.24
3.5	**90 µm**	103.34	97.64
4.0	**63 µm**	103.59	97.85
<4.0	**<63 µm**	106.16	100.00

Folk (1974) Texture Group: Granular coarse sand

Sample	**TC01**	**Gravel Mass = 235.89g**	
Date	**24-Jul-02**	**Remaining Mass = 711.98g**	
Phi		**Mass (g)**	**Cumulative %**
-3.25	**9.5 mm**	41.49	4.38
-2.0	**4.0 mm**	150.04	15.83
-1.5	**2.4 mm**	217.82	22.98
-1.0	**2.0 mm**	235.89	24.89
-0.5	**1.4 mm**	3.50	27.39
0.0	**1.0 mm**	7.87	30.52
0.5	**710 µm**	15.02	35.63
1.0	**500 µm**	30.07	46.39
1.5	**355 µm**	49.64	60.39
2.0	**250 µm**	72.7	76.88
2.5	**180 µm**	86.58	86.81
3.0	**125 µm**	92.72	91.20
3.5	**90 µm**	94.65	92.58
4.0	**63 µm**	95.49	93.18
<4.0	**<63 µm**	105.02	100.00

Folk (1974) Texture Group: Pebbly medium sand

Table B7 Cumulative frequency grain size distributions for bulk bed-material samples on Tributary Central for 2003

Sample	TC06A	Gravel Mass = 196.14g	
Date	15-Aug-03	Remaining Mass = 1431.00g	
Phi		Mass (g)	Cumulative %
-5.0	32 mm	53.00	3.26
-4.0	16 mm	99.68	6.13
-3.25	9.5 mm	115.42	7.09
-2.0	4.0 mm	150.81	9.27
-1.5	2.4 mm	181.49	11.15
-1.0	2.0 mm	196.14	12.05
-0.5	1.4 mm	4.07	15.54
0.0	1.0 mm	16.80	26.46
0.5	710 μm	34.39	41.54
1.0	500 μm	59.42	63.00
1.5	355 μm	84.35	84.37
2.0	250 μm	95.23	93.70
2.5	180 μm	98.58	96.57
3.0	125 μm	99.06	96.98
3.5	90 μm	99.26	97.15
4.0	63 μm	102.58	100.00

Folk (1974) Texture Group: Pebbly coarse sand

Sample	TC06C	Gravel Mass = 46.00g	
Date	15-Aug-03	Remaining Mass = 1786.46g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	46.00	2.51
-0.5	1.4 mm	2.47	4.78
0.0	1.0 mm	7.10	9.02
0.5	710 μm	16.46	17.61
1.0	500 μm	39.82	39.03
1.5	355 μm	67.29	64.22
2.0	250 μm	92.19	87.06
2.5	180 μm	101.75	95.83
3.0	125 μm	103.60	97.52
3.5	90 μm	103.83	97.73
4.0	63 μm	103.92	97.82
<4.0	<63 μm	106.30	100.00

Folk (1974) Texture Group Slightly granular medium sand

Sample	TC06B	Gravel Mass = 147.76g	
Date	15-Aug-03	Remaining Mass = 1967.14g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	69.72	3.30
-2.0	4.0 mm	99.06	4.68
-1.5	2.4 mm	132.09	6.25
-1.0	2.0 mm	147.76	6.99
-0.5	1.4 mm	3.07	9.69
0.0	1.0 mm	8.54	14.52
0.5	710 μm	18.71	23.48
1.0	500 μm	41.12	43.24
1.5	355 μm	67.11	66.15
2.0	250 μm	90.93	87.15
2.5	180 μm	99.59	94.79
3.0	125 μm	101.74	96.69
3.5	90 μm	102.22	97.11
4.0	63 μm	102.44	97.30
<4.0	<63 μm	105.50	100.00

Folk (1974) Texture Group: Pebbly medium sand

Sample	TC07A	Gravel Mass = 872.23g	
Date	15-Aug-03	Remaining Mass = 1141.97g	
Phi		Mass (g)	Cumulative %
-5.0	32.0 mm	144.02	7.15
-4.0	16.0 mm	277.79	13.79
-3.25	9.5 mm	494.76	24.56
-2.0	4.0 mm	705.71	35.04
-1.5	2.4 mm	836.82	41.55
-1.0	2.0 mm	872.23	43.30
-0.5	1.4 mm	8.35	47.92
0.0	1.0 mm	18.10	53.30
0.5	710 μm	29.03	59.33
1.0	500 μm	45.71	68.55
1.5	355 μm	63.55	78.40
2.0	250 μm	82.46	88.84
2.5	180 μm	92.74	94.52
3.0	125 μm	96.68	96.69
<4.0	<63 μm	102.67	100.00

Folk (1974) Texture Group: Medium sandy pebble gravel

Table B7 Cumulative frequency grain size distributions for bulk bed-material samples on Tributary Central for 2003 (Cont.)

Sample	TC07B	Gravel Mass = 414.68g	
Date	15-Aug-03	Remaining Mass = 1459.99g	
Phi		Mass (g)	Cumulative %
-5.0	32.0 mm	35.21	1.88
-4.0	16.0 mm	120.33	6.42
-3.25	9.5 mm	229.16	12.22
-2.0	4.0 mm	341.32	18.21
-1.5	2.4 mm	404.71	21.59
-1.0	2.0 mm	414.68	22.12
-0.5	1.4 mm	3.96	25.08
0.0	1.0 mm	8.62	28.56
0.5	710 µm	15.60	33.78
1.0	500 µm	29.82	44.41
1.5	355 µm	48.77	58.58
2.0	250 µm	72.99	76.68
2.5	180 µm	88.49	88.27
3.0	125 µm	94.70	92.91
3.5	90 µm	96.65	94.37
4.0	63 µm	97.63	95.10
<4.0	<63 µm	104.18	100.00

Folk (1974) Texture Group: Pebbly medium sand

Sample	TC08	Gravel Mass = 425.18g	
Date	15-Aug-03	Remaining Mass = 715.55g	
Phi		Mass (g)	Cumulative %
-5.0	32.0 mm	126.54	11.09
-4.0	16.0 mm	261.75	22.95
-3.25	9.5 mm	330.88	29.01
-2.0	4.0 mm	399.11	34.99
-1.5	2.4 mm	418.29	36.67
-1.0	2.0 mm	425.18	37.27
-0.5	1.4 mm	1.75	38.34
0.0	1.0 mm	4.52	40.04
0.5	710 µm	9.13	42.86
1.0	500 µm	22.59	51.09
1.5	355 µm	48.66	67.03
2.0	250 µm	77.77	84.83
2.5	180 µm	90.76	92.78
3.0	125 µm	96.08	96.03
3.5	90 µm	97.53	96.92
4.0	63 µm	98.06	97.24
<4.0	<63 µm	102.57	100.00

Folk (1974) Texture Group: Medium sandy pebble gravel

Sample	TC07C	Gravel Mass = 50.79 g	
Date	15-Aug-03	Remaining Mass = 1169.59g	
Phi		Mass (g)	Cumulative %
-4	16mm		
-3.25	9.5 mm		
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	50.59	4.16
-0.5	1.4 mm	2.07	6.05
0.0	1.0 mm	5.46	9.14
0.5	710 µm	10.03	13.30
1.0	500 µm	18.73	21.22
1.5	355 µm	36.85	37.73
2.0	250 µm	72.38	70.09
2.5	180 µm	94.29	90.05
3.0	125 µm	99.95	95.21
3.5	90 µm	100.75	95.94
4.0	63 µm	100.90	96.07
<4.0	<63 µm	105.21	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	TC09	Gravel Mass = 379.01g	
Date	15-Aug-03	Remaining Mass = 1227.63g	
Phi		Mass (g)	Cumulative %
-4	16mm	63.33	3.94
-3.25	9.5 mm	167.65	10.43
-2.0	4.0 mm	296.65	18.46
-1.5	2.4 mm	360.04	22.41
-1.0	2.0 mm	379.01	23.59
-0.5	1.4 mm	3.4	26.06
0.0	1.0 mm	7.25	28.87
0.5	710 µm	12.77	32.88
1.0	500 µm	25.93	42.46
1.5	355 µm	44.25	55.79
2.0	250 µm	64.35	70.41
2.5	180 µm	78.94	81.03
3.0	125 µm	88.94	88.31
3.5	90 µm	93.51	91.63
4.0	63 µm	96.08	95.00
<4.0	<63 µm	105.01	100.00

Folk (1974) Texture Group: Pebbly medium sand

Table B7 Cumulative frequency grain size distributions for bulk bed-material samples on Tributary Central for 2003 (Cont.)

Sample	TC10	Gravel Mass = 690.68g	
Date	15-Aug-03	Remaining Mass = 790.90g	
Phi		Mass (g)	Cumulative %
-5.0	32.0 mm	0.00	0.00
-4.0	16.0 mm	192.07	12.96
-3.25	9.5 mm	379.91	25.64
-2.0	4.0 mm	593.55	40.06
-1.5	2.4 mm	670.84	45.28
-1.0	2.0 mm	690.68	46.62
-0.5	1.4 mm	5.26	49.37
0.0	1.0 mm	12.31	53.06
0.5	710 µm	23.24	58.77
1.0	500 µm	43.80	69.52
1.5	355 µm	64.82	80.52
2.0	250 µm	82.40	89.71
2.5	180 µm	92.58	95.03
3.0	125 µm	98.44	98.10
3.5	90 µm	100.87	99.37
4.0	63 µm	102.02	99.97
<4.0	<63 µm	102.08	100.00

Folk (1974) Texture Group: Medium sandy pebble gravel

Sample	TC11	Gravel Mass = 178.48g	
Date	15-Aug-03	Remaining Mass = 1096.11g	
Phi		Mass (g)	Cumulative %
-5.0	32.0 mm		
-4.0	16.0 mm	14.04	1.10
-3.25	9.5 mm	59.86	4.70
-2.0	4.0 mm	127.59	10.01
-1.5	2.4 mm	165.27	12.97
-1.0	2.0 mm	178.48	14.00
-0.5	1.4 mm	2.22	15.78
0.0	1.0 mm	6.60	19.27
0.5	710 µm	15.20	26.14
1.0	500 µm	35.43	42.30
1.5	355 µm	60.59	62.40
2.0	250 µm	87.42	83.83
2.5	180 µm	100.93	94.62
3.0	125 µm	104.46	97.44
3.5	90 µm	104.98	97.85
4.0	63 µm	105.09	97.94
<4.0	<63 µm	107.67	100.00

Folk (1974) Texture Group: Pebbly medium sand

Sample	TC05	Gravel Mass = 460.93g	
Date	15-Aug-03	Remaining Mass = 990.08g	
Phi		Mass (g)	Cumulative %
-4.0	16.0 mm	53.32	3.67
-3.25	9.5 mm	172.65	11.90
-2.0	4.0 mm	349.74	24.10
-1.5	2.4 mm	431.7	29.75
-1.0	2.0 mm	460.93	31.77
-0.5	1.4 mm	6.81	36.17
0.0	1.0 mm	16.04	42.13
0.5	710 µm	29.90	51.08
1.0	500 µm	52.85	65.91
1.5	355 µm	74.35	79.80
2.0	250 µm	92.00	91.21
2.5	180 µm	99.28	95.91
3.0	125 µm	101.70	97.47
3.5	90 µm	102.44	97.95
4.0	63 µm	102.62	98.07
<4.0	<63 µm	105.61	100.00

Folk (1974) Texture Group: Coarse sandy pebble gravel

Sample	TC04	Gravel Mass = 91.40g	
Date	15-Aug-03	Remaining Mass = 1286.21g	
Phi		Mass (g)	Cumulative %
-4.0	16.0 mm	14.48	1.05
-3.25	9.5 mm	27.9	2.03
-2.0	4.0 mm	53.28	3.87
-1.5	2.4 mm	79.78	5.79
-1.0	2.0 mm	91.40	6.63
-0.5	1.4 mm	3.42	9.69
0.0	1.0 mm	8.23	13.99
0.5	710 µm	16.37	21.26
1.0	500 µm	36.12	38.91
1.5	355 µm	59.25	59.58
2.0	250 µm	77.21	75.62
2.5	180 µm	87.02	84.39
3.0	125 µm	93.09	89.81
3.5	90 µm	95.94	92.36
4.0	63 µm	97.50	93.75
<4.0	<63 µm	104.49	100.00

Folk (1974) Texture Group: Pebbly medium sand

Table B7 Cumulative frequency grain size distributions for bulk bed-material samples on Tributary Central for 2003 (Continued)

Sample	TC03	Gravel Mass = 213.55g	
Date	15-Aug-03	Remaining Mass = 931.55 g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	35.18	3.07
-2.0	4.0 mm	138.13	12.06
-1.5	2.4 mm	195.13	17.04
-1.0	2.0 mm	213.55	18.65
-0.5	1.4 mm	5.60	23.03
0.0	1.0 mm	11.45	27.61
0.5	710 µm	19.88	34.21
1.0	500 µm	37.13	47.72
1.5	355 µm	56.96	63.25
2.0	250 µm	74.37	76.88
2.5	180 µm	86.31	86.23
3.0	125 µm	94.73	92.82
3.5	90 µm	98.17	95.51
4.0	63 µm	99.50	96.55
<4.0	<63 µm	103.90	100.00

Folk (1974) Texture Group: Pebbly medium sand

Sample	TC01	Gravel Mass = 269.31g	
Date	14-Aug-03	Remaining Mass = 858.42g	
Phi		Mass (g)	Cumulative %
-4.00	16 mm	22.64	2.01
-3.25	9.5 mm	84.83	7.52
-2.0	4.0 mm	205.75	18.24
-1.5	2.4 mm	254.80	22.59
-1.0	2.0 mm	269.31	23.88
-0.5	1.4 mm	3.77	26.61
0.0	1.0 mm	10.02	31.12
0.5	710 µm	21.51	39.43
1.0	500 µm	45.11	56.48
1.5	355 µm	69.90	74.40
2.0	250 µm	90.49	89.28
2.5	180 µm	99.32	95.66
3.0	125 µm	102.17	97.72
3.5	90 µm	102.82	98.19
4.0	63 µm	102.95	98.28
<4.0	<63 µm	105.33	100.00

Folk (1974) Texture Group: Pebbly medium sand

Appendix C

Cumulative frequency grain size distributions for bulk bed-material samples at the East Tributary gauging station for the period 1998 to 2003

The cumulative frequency distributions are shown in Tables C1 to C6. The location of the cross sections where the bulk bed material samples were collected is shown in figure 6. The following tables are included in Appendix C:

Table C1 – 1998 bed material at cross sections

Table C2 – 1999 bed material at cross sections

Table C3 – 2000 bed material at cross sections

Table C4 – 2001 bed material at cross sections

Table C5 – 2002 bed material at cross sections

Table C6 – 2003 bed material at cross sections

Table C1 Cumulative frequency grain size distributions for bulk bed-material samples on East Tributary for 1998.

Sample	ET01	Gravel Mass = 5.95 g	
Date	4-Nov-98	Remaining Mass = 1629.18 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	5.95	0.36
-0.5	1.4 mm	0.68	0.93
0.0	1.0 mm	2.65	2.56
0.5	710 μm	9.12	7.92
1.0	500 μm	31.92	26.81
1.5	355 μm	61.20	51.07
2.0	250 μm	94.41	78.59
2.5	180 μm	111.34	92.62
3.0	125 μm	118.02	98.15
3.5	90 μm	119.39	99.29
4.0	63 μm	120.01	99.80
<4.0	<63 μm	120.25	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	ET03	Gravel Mass = 12.76 g	
Date	4-Nov-98	Remaining Mass = 2195.91 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	12.76	0.58
-0.5	1.4 mm	1.66	1.94
0.0	1.0 mm	5.00	4.68
0.5	710 μm	13.46	11.62
1.0	500 μm	39.44	32.94
1.5	355 μm	71.12	58.94
2.0	250 μm	97.49	80.58
2.5	180 μm	114.66	94.67
3.0	125 μm	119.06	98.28
3.5	90 μm	120.53	99.48
4.0	63 μm	120.99	99.86
<4.0	<63 μm	121.16	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	ET02	Gravel Mass = 158.10 g	
Date	4-Nov-98	Remaining Mass = 1008.82 g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	5.49	0.47
-2.0	4.0 mm	79.36	6.80
-1.5	2.4 mm	139.19	11.92
-1.0	2.0 mm	158.10	13.54
-0.5	1.4 mm	5.82	17.91
0.0	1.0 mm	10.85	21.69
0.5	710 μm	16.39	25.86
1.0	500 μm	26.28	33.29
1.5	355 μm	39.46	43.20
2.0	250 μm	58.30	57.36
2.5	180 μm	85.30	77.65
3.0	125 μm	97.53	86.84
3.5	90 μm	105.15	92.57
4.0	63 μm	108.19	94.85
<4.0	<63 μm	115.04	100.00

Folk (1974) Texture Group: Pebbly medium sand

Sample	ET04	Gravel Mass = 107.87 g	
Date	4-Nov-98	Remaining Mass = 1136.63 g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	0.64	0.05
-2.0	4.0 mm	30.87	2.48
-1.5	2.4 mm	83.48	6.70
-1.0	2.0 mm	107.87	8.66
-0.5	1.4 mm	9.47	16.08
0.0	1.0 mm	17.82	22.63
0.5	710 μm	29.52	31.81
1.0	500 μm	53.34	50.49
1.5	355 μm	76.11	68.34
2.0	250 μm	93.36	81.87
2.5	180 μm	107.07	92.62
3.0	125 μm	111.93	96.43
3.5	90 μm	113.92	97.99
4.0	63 μm	114.60	98.53
<4.0	<63 μm	116.48	100.00

Folk (1974) Texture Group: Granular medium sand

Table C1 Cumulative frequency grain size distributions for bulk bed-material samples on East Tributary for 1998 (Continued)

Sample	ET06	Gravel Mass = 52.85 g	
Date	3-Nov-98	Remaining Mass = 933.07 g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	4.57	0.46
-2.0	4.0 mm	14.37	1.45
-1.5	2.4 mm	40.92	4.13
-1.0	2.0 mm	52.85	5.33
-0.5	1.4 mm	3.52	8.09
0.0	1.0 mm	8.96	12.35
0.5	710 µm	18.89	20.12
1.0	500 µm	42.16	38.35
1.5	355 µm	67.41	58.13
2.0	250 µm	92.60	77.86
2.5	180 µm	106.40	88.67
3.0	125 µm	113.48	94.22
3.5	90 µm	115.57	95.86
4.0	63 µm	116.67	96.72
<4.0	<63 µm	120.86	100.00

Folk (1974) Texture Group: Granular medium sand

Sample	ET08	Gravel Mass = 106.41 g	
Date	9-Nov-98	Remaining Mass = 1527.37 g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	0.89	0.05
-2.0	4.0 mm	34.91	2.13
-1.5	2.4 mm	85.75	5.24
-1.0	2.0 mm	106.41	6.50
-0.5	1.4 mm	4.52	10.01
0.0	1.0 mm	10.87	14.95
0.5	710 µm	22.84	24.26
1.0	500 µm	51.24	46.35
1.5	355 µm	81.73	70.06
2.0	250 µm	101.44	85.39
2.5	180 µm	114.40	95.47
3.0	125 µm	117.58	97.94
3.5	90 µm	118.49	98.65
4.0	63 µm	118.75	98.85
<4.0	<63 µm	120.23	100.00

Folk (1974) Texture Group: Granular medium sand

Sample	ET07	Gravel Mass = 73.68 g	
Date	9-Nov-98	Remaining Mass = 1165.99 g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	1.39	0.11
-2.0	4.0 mm	13.15	1.06
-1.5	2.4 mm	54.58	4.39
-1.0	2.0 mm	73.68	5.92
-0.5	1.4 mm	4.77	9.59
0.0	1.0 mm	10.37	13.89
0.5	710 µm	20.05	21.33
1.0	500 µm	43.37	39.26
1.5	355 µm	70.99	60.49
2.0	250 µm	96.14	79.82
2.5	180 µm	115.52	94.71
3.0	125 µm	120.53	98.56
3.5	90 µm	121.99	99.68
4.0	63 µm	122.32	99.94
<4.0	<63 µm	122.40	100.00

Folk (1974) Texture Group: Granular medium sand

Sample at cross section ET05 was collected in 1998 but was misplaced and therefore there are no results

Table C2 Cumulative frequency grain size distributions for bulk bed-material samples on East Tributary for 1999

Sample	ET01	Gravel Mass = 2.81 g	
Date	16-Aug-99	Remaining Mass = 936.14 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	2.81	0.30
-0.5	1.4 mm	0.57	0.77
0.0	1.0 mm	3.19	2.91
0.5	710 µm	12.46	10.50
1.0	500 µm	51.50	42.44
1.5	355 µm	95.04	78.08
2.0	250 µm	115.85	95.11
2.5	180 µm	121.28	99.55
3.0	125 µm	121.70	99.89
3.5	90 µm	121.79	99.97
4.0	63 µm	121.81	99.98
<4.0	<63 µm	121.83	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	ET03	Gravel Mass = 101.76 g	
Date	16-Aug-99	Remaining Mass = 853.97 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm	22.34	2.34
-1.5	2.4 mm	79.13	8.28
-1.0	2.0 mm	101.76	10.64
-0.5	1.4 mm	6.90	15.79
0.0	1.0 mm	13.19	20.49
0.5	710 µm	23.83	28.44
1.0	500 µm	52.65	49.96
1.5	355 µm	89.03	77.13
2.0	250 µm	110.81	93.39
2.5	180 µm	118.57	99.19
3.0	125 µm	119.48	99.87
3.5	90 µm	119.62	99.97
4.0	63 µm	119.65	99.99
<4.0	<63 µm	119.66	100.00

Folk (1974) Texture Group: Granular medium sand

Sample	ET02	Gravel Mass = 501.28 g	
Date	16-Aug-99	Remaining Mass = 1718.80 g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	28.49	1.28
-2.0	4.0 mm	273.50	12.32
-1.5	2.4 mm	456.96	20.58
-1.0	2.0 mm	501.28	22.57
-0.5	1.4 mm	4.70	25.53
0.0	1.0 mm	9.04	28.26
0.5	710 µm	15.51	32.33
1.0	500 µm	35.42	44.86
1.5	355 µm	67.07	64.78
2.0	250 µm	97.14	83.71
2.5	180 µm	116.82	96.09
3.0	125 µm	121.51	99.04
3.5	90 µm	122.70	99.79
4.0	63 µm	122.93	99.94
<4.0	<63 µm	123.03	100.00

Folk (1974) Texture Group: Pebbly medium sand

Sample	ET04	Gravel Mass = 97.43 g	
Date	16-Aug-99	Remaining Mass = 937.63 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm	23.20	2.24
-1.5	2.4 mm	75.13	7.26
-1.0	2.0 mm	97.43	9.41
-0.5	1.4 mm	7.34	14.94
0.0	1.0 mm	16.00	21.47
0.5	710 µm	30.67	32.52
1.0	500 µm	65.02	58.40
1.5	355 µm	94.80	80.84
2.0	250 µm	112.63	94.27
2.5	180 µm	118.20	98.47
3.0	125 µm	119.90	99.75
3.5	90 µm	120.12	99.92
4.0	63 µm	120.20	99.98
<4.0	<63 µm	120.23	100.00

Folk (1974) Texture Group: Granular coarse sand

Table C2 Cumulative frequency grain size distributions for bulk bed-material samples on East Tributary for 1999 (Continued)

Sample	ET05	Gravel Mass = 99.24 g	
Date	16-Aug-99	Remaining Mass = 890.13 g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	3.03	0.31
-2.0	4.0 mm	31.79	3.21
-1.5	2.4 mm	79.31	8.01
-1.0	2.0 mm	99.24	10.02
-0.5	1.4 mm	6.68	14.98
0.0	1.0 mm	14.77	20.99
0.5	710 µm	27.09	30.14
1.0	500 µm	57.39	52.65
1.5	355 µm	93.25	79.28
2.0	250 µm	114.69	95.20
2.5	180 µm	120.53	99.54
3.0	125 µm	121.03	99.91
3.5	90 µm	121.12	99.98
4.0	63 µm	121.14	99.99
<4.0	<63 µm	121.15	100.00

Folk (1974) Texture Group: Granular medium sand

Sample	ET07	Gravel Mass = 57.29 g	
Date	16-Aug-99	Remaining Mass = 1192.71 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	57.28	4.58
-0.5	1.4 mm	5.00	8.48
0.0	1.0 mm	11.32	13.41
0.5	710 µm	23.14	22.64
1.0	500 µm	53.35	46.21
1.5	355 µm	87.64	72.96
2.0	250 µm	111.22	91.36
2.5	180 µm	120.69	98.75
3.0	125 µm	122.03	99.80
3.5	90 µm	122.25	99.97
4.0	63 µm	122.28	99.99
<4.0	<63 µm	122.29	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	ET06	Gravel Mass = 137.31 g	
Date	16-Aug-99	Remaining Mass = 1028.96 g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	3.40	0.29
-2.0	4.0 mm	47.51	4.07
-1.5	2.4 mm	115.48	9.90
-1.0	2.0 mm	137.31	11.77
-0.5	1.4 mm	6.36	16.48
0.0	1.0 mm	14.19	22.29
0.5	710 µm	25.69	30.81
1.0	500 µm	50.60	49.28
1.5	355 µm	79.87	70.97
2.0	250 µm	102.76	87.94
2.5	180 µm	114.84	96.89
3.0	125 µm	117.47	98.84
3.5	90 µm	118.33	99.48
4.0	63 µm	118.65	99.72
<4.0	<63 µm	119.03	100.00

Folk (1974) Texture Group: Granular medium sand

Sample	ET08	Gravel Mass = 151.72 g	
Date	16-Aug-99	Remaining Mass = 1933.90 g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	2.99	0.14
-2.0	4.0 mm	55.66	2.66
-1.5	2.4 mm	120.68	5.78
-1.0	2.0 mm	151.72	7.26
-0.5	1.4 mm	5.51	11.48
0.0	1.0 mm	14.91	18.68
0.5	710 µm	31.24	31.18
1.0	500 µm	64.67	56.78
1.5	355 µm	93.17	78.60
2.0	250 µm	110.38	91.78
2.5	180 µm	118.95	98.34
3.0	125 µm	120.61	99.61
3.5	90 µm	121.02	99.92
4.0	63 µm	121.09	99.98
<4.0	<63 µm	121.12	100.00

Folk (1974) Texture Group: Granular coarse sand

Table C3 Cumulative frequency grain size distributions for bulk bed-material samples on East Tributary for 2000

Sample	ET01	Gravel Mass = 60.94 g	
Date	3-Oct-00	Remaining Mass = 873.17 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	60.94	6.52
-0.5	1.4 mm	6.48	12.09
0.0	1.0 mm	14.03	18.58
0.5	710 µm	26.04	28.91
1.0	500 µm	56.16	54.80
1.5	355 µm	84.32	79.01
2.0	250 µm	100.11	92.58
2.5	180 µm	107.46	98.90
3.0	125 µm	108.51	99.80
3.5	90 µm	108.67	99.94
4.0	63 µm	108.72	99.98
<4.0	<63 µm	108.74	100.00

Folk (1974) Texture Group: Granular coarse sand

Sample	ET03	Gravel Mass = 42.06 g	
Date	3-Oct-00	Remaining Mass = 938.40 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	42.06	4.29
-0.5	1.4 mm	5.54	8.54
0.0	1.0 mm	12.19	13.64
0.5	710 µm	24.88	23.38
1.0	500 µm	53.83	45.60
1.5	355 µm	81.87	67.12
2.0	250 µm	106.51	86.03
2.5	180 µm	120.76	96.96
3.0	125 µm	123.55	99.10
3.5	90 µm	124.44	99.79
4.0	63 µm	124.63	99.93
<4.0	<63 µm	124.72	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	ET02	Gravel Mass = 39.32 g	
Date	3-Oct-00	Remaining Mass = 1304.92 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	39.32	2.93
-0.5	1.4 mm	4.79	5.67
0.0	1.0 mm	13.86	10.87
0.5	710 µm	31.63	21.06
1.0	500 µm	79.26	48.37
1.5	355 µm	127.23	75.88
2.0	250 µm	159.40	94.32
2.5	180 µm	167.05	98.71
3.0	125 µm	168.92	99.78
3.5	90 µm	169.18	99.93
4.0	63 µm	169.25	99.97
<4.0	<63 µm	169.30	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	ET04	Gravel Mass = 119.56 g	
Date	3-Oct-00	Remaining Mass = 918.69 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm	32.92	3.17
-1.5	2.4 mm	63.62	6.13
-1.0	2.0 mm	119.56	11.52
-0.5	1.4 mm	12.35	20.13
0.0	1.0 mm	25.45	29.26
0.5	710 µm	40.82	39.97
1.0	500 µm	64.26	56.31
1.5	355 µm	85.59	71.17
2.0	250 µm	107.55	86.48
2.5	180 µm	119.17	94.58
3.0	125 µm	124.87	98.55
3.5	90 µm	126.30	99.55
4.0	63 µm	126.71	99.83
<4.0	<63 µm	126.95	100.00

Folk (1974) Texture Group: Granular coarse sand

Table C3 Cumulative frequency grain size distributions for bulk bed-material samples on East Tributary for 2000 (Continued)

Sample	ET05	Gravel Mass = 27.66 g	
Date	3-Oct-00	Remaining Mass = 911.87 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	27.66	2.94
-0.5	1.4 mm	6.76	8.51
0.0	1.0 mm	15.96	16.08
0.5	710 μm	32.89	30.02
1.0	500 μm	65.93	57.22
1.5	355 μm	94.64	80.85
2.0	250 μm	111.35	94.61
2.5	180 μm	117.05	99.30
3.0	125 μm	117.73	99.86
3.5	90 μm	117.85	99.96
4.0	63 μm	117.88	99.98
<4.0	<63 μm	117.90	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Sample	ET07	Gravel Mass = 62.56 g	
Date	3-Oct-00	Remaining Mass = 905.16 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm	24.93	2.57
-1.5	2.4 mm	40.67	4.19
-1.0	2.0 mm	62.56	6.44
-0.5	1.4 mm	5.05	10.40
0.0	1.0 mm	12.20	16.00
0.5	710 μm	25.25	26.22
1.0	500 μm	55.81	50.16
1.5	355 μm	87.27	74.80
2.0	250 μm	108.81	91.67
2.5	180 μm	117.83	98.73
3.0	125 μm	119.13	99.75
3.5	90 μm	119.39	99.95
4.0	63 μm	119.43	99.98
<4.0	<63 μm	119.45	100.00

Folk (1974) Texture Group: Granular medium sand

Sample	ET06	Gravel Mass = 49.05 g	
Date	3-Oct-00	Remaining Mass = 1082.30 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	49.05	4.34
-0.5	1.4 mm	6.89	9.12
0.0	1.0 mm	17.10	16.20
0.5	710 μm	32.13	26.63
1.0	500 μm	60.63	46.41
1.5	355 μm	88.44	65.71
2.0	250 μm	115.32	84.36
2.5	180 μm	128.04	93.19
3.0	125 μm	133.89	97.25
3.5	90 μm	135.90	98.65
4.0	63 μm	136.93	99.36
<4.0	<63 μm	137.85	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	ET08	Gravel Mass = 174.98 g	
Date	3-Oct-00	Remaining Mass = 1545.95 g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	7.72	0.45
-2.0	4.0 mm	62.99	3.67
-1.5	2.4 mm	111.19	6.47
-1.0	2.0 mm	174.98	10.19
-0.5	1.4 mm	10.97	15.23
0.0	1.0 mm	27.22	22.69
0.5	710 μm	50.56	33.41
1.0	500 μm	96.70	54.60
1.5	355 μm	137.57	73.37
2.0	250 μm	173.95	90.08
2.5	180 μm	188.63	96.82
3.0	125 μm	193.95	99.26
3.5	90 μm	195.13	99.80
4.0	63 μm	195.46	99.95
<4.0	<63 μm	195.56	100.00

Folk (1974) Texture Group: Granular medium sand

Table C4 Cumulative frequency grain size distributions for bulk bed-material samples on East Tributary for 2001

Sample	ET01	Gravel Mass = 6.28 g	
Date	2-Oct-01	Remaining Mass = 1085.64 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	6.28	0.58
-0.5	1.4 mm	0.85	1.17
0.0	1.0 mm	3.69	3.15
0.5	710 μm	13.14	9.75
1.0	500 μm	54.02	38.30
1.5	355 μm	101.87	71.72
2.0	250 μm	130.86	91.97
2.5	180 μm	140.30	98.56
3.0	125 μm	142.01	99.76
3.5	90 μm	142.23	99.91
4.0	63 μm	142.30	99.96
<4.0	<63 μm	142.36	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	ET03	Gravel Mass = 118.42 g	
Date	2-Oct-01	Remaining Mass = 787.60 g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	11.57	1.28
-2.0	4.0 mm	46.30	5.11
-1.5	2.4 mm	93.87	10.36
-1.0	2.0 mm	118.42	13.07
-0.5	1.4 mm	7.92	19.22
0.0	1.0 mm	18.99	27.81
0.5	710 μm	35.11	40.32
1.0	500 μm	66.09	64.37
1.5	355 μm	90.28	83.14
2.0	250 μm	105.50	94.95
2.5	180 μm	110.61	98.92
3.0	125 μm	111.67	99.74
3.5	90 μm	111.85	99.88
4.0	63 μm	111.95	99.96
<4.0	<63 μm	112.00	100.00

Folk (1974) Texture Group: Granular coarse sand

Sample	ET02	Gravel Mass = 271.17 g	
Date	2-Oct-01	Remaining Mass = 1081.60 g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	31.50	2.33
-2.0	4.0 mm	165.63	12.24
-1.5	2.4 mm	251.86	18.62
-1.0	2.0 mm	271.17	20.05
-0.5	1.4 mm	5.89	23.83
0.0	1.0 mm	10.78	26.96
0.5	710 μm	18.33	31.81
1.0	500 μm	42.81	47.52
1.5	355 μm	75.23	68.32
2.0	250 μm	104.51	87.11
2.5	180 μm	119.26	96.57
3.0	125 μm	123.23	99.12
3.5	90 μm	124.06	99.65
4.0	63 μm	124.40	99.87
<4.0	<63 μm	124.60	100.00

Folk (1974) Texture Group: Pebbly medium sand

Sample	ET04	Gravel Mass = 73.21 g	
Date	2-Oct-01	Remaining Mass = 892.39 g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	4.73	0.49
-2.0	4.0 mm	35.66	3.69
-1.5	2.4 mm	62.36	6.46
-1.0	2.0 mm	73.21	7.58
-0.5	1.4 mm	4.70	11.34
0.0	1.0 mm	11.88	17.09
0.5	710 μm	25.26	27.80
1.0	500 μm	59.30	55.04
1.5	355 μm	87.40	77.53
2.0	250 μm	104.75	91.41
2.5	180 μm	112.21	97.38
3.0	125 μm	114.63	99.32
3.5	90 μm	115.19	99.77
4.0	63 μm	115.37	99.91
<4.0	<63 μm	115.48	100.00

Folk (1974) Texture Group: Granular coarse sand

Table C4 Cumulative frequency grain size distributions for bulk bed-material samples on East Tributary for 2001 (Continued)

Sample	ET05	Gravel Mass = 38.01 g	
Date	2-Oct-01	Remaining Mass = 897.63 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	38.01	4.14
-0.5	1.4 mm	5.88	8.64
0.0	1.0 mm	16.21	16.54
0.5	710 µm	32.65	29.11
1.0	500 µm	70.52	58.06
1.5	355 µm	103.62	83.37
2.0	250 µm	120.91	96.59
2.5	180 µm	124.84	99.59
3.0	125 µm	125.27	99.92
3.5	90 µm	125.31	99.95
4.0	63 µm	125.35	99.98
<4.0	<63 µm	125.37	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Sample	ET07	Gravel Mass = 42.75 g	
Date	2-Oct-01	Remaining Mass = 1042.37 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	42.75	3.94
-0.5	1.4 mm	4.99	7.17
0.0	1.0 mm	12.68	12.14
0.5	710 µm	25.04	20.13
1.0	500 µm	66.27	46.79
1.5	355 µm	111.16	75.82
2.0	250 µm	137.54	92.87
2.5	180 µm	145.97	98.33
3.0	125 µm	148.03	99.66
3.5	90 µm	148.39	99.89
4.0	63 µm	148.50	99.96
<4.0	<63 µm	148.56	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	ET06	Gravel Mass = 33.56 g	
Date	2-Oct-01	Remaining Mass = 1019.09 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	33.56	3.19
-0.5	1.4 mm	5.11	7.01
0.0	1.0 mm	12.83	12.77
0.5	710 µm	24.27	21.32
1.0	500 µm	53.80	43.38
1.5	355 µm	84.36	66.21
2.0	250 µm	109.09	84.68
2.5	180 µm	122.51	94.70
3.0	125 µm	127.37	98.33
3.5	90 µm	128.64	99.28
4.0	63 µm	129.19	99.69
<4.0	<63 µm	129.60	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	ET08	Gravel Mass = 207.54 g	
Date	2-Oct-01	Remaining Mass = 1412.30 g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	4.95	0.31
-2.0	4.0 mm	80.31	4.96
-1.5	2.4 mm	179.64	11.09
-1.0	2.0 mm	207.54	12.81
-0.5	1.4 mm	9.65	20.89
0.0	1.0 mm	18.67	28.44
0.5	710 µm	30.56	38.40
1.0	500 µm	57.91	61.30
1.5	355 µm	82.67	82.03
2.0	250 µm	97.71	94.62
2.5	180 µm	102.79	98.88
3.0	125 µm	103.86	99.77
3.5	90 µm	104.04	99.92
4.0	63 µm	104.09	99.97
<4.0	<63 µm	104.13	100.00

Folk (1974) Texture Group: Granular coarse sand

Table C5 Cumulative frequency grain size distributions for bulk bed-material samples on East Tributary for 2002

Sample	ET01	Gravel Mass = 59.48g	
Date	20-Jun-02	Remaining Mass = 872.56g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	0.51	0.05
-2.0	4.0 mm	18.48	1.98
-1.5	2.4 mm	45.87	4.92
-1.0	2.0 mm	59.48	6.38
-0.5	1.4 mm	5.38	10.84
0.0	1.0 mm	11.91	16.25
0.5	710 µm	22.36	24.92
1.0	500 µm	52.17	49.63
1.5	355 µm	83.25	75.39
2.0	250 µm	104.65	93.13
2.5	180 µm	111.19	98.55
3.0	125 µm	112.54	99.67
3.5	90 µm	112.79	99.88
4.0	63 µm	112.89	99.96
<4.0	<63 µm	112.94	100.00

Folk (1974) Texture Group: Granular medium sand

Sample	ET03	Gravel Mass = 95.30g	
Date	20-Jun-02	Remaining Mass = 1013.33g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	6.77	0.61
-2.0	4.0 mm	44.20	3.99
-1.5	2.4 mm	82.86	7.47
-1.0	2.0 mm	95.30	8.60
-0.5	1.4 mm	2.20	10.29
0.0	1.0 mm	5.82	13.08
0.5	710 µm	12.54	18.26
1.0	500 µm	39.05	38.70
1.5	355 µm	77.27	68.16
2.0	250 µm	107.74	91.64
2.5	180 µm	116.49	98.39
3.0	125 µm	118.14	99.66
3.5	90 µm	118.42	99.88
4.0	63 µm	118.53	99.96
<4.0	<63 µm	118.58	100.00

Folk (1974) Texture Group: Granular medium sand

Sample	ET02	Gravel Mass = 6.64g	
Date	20-Jun-02	Remaining Mass = 1006.44g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm		
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	6.64	0.70
-0.5	1.4 mm	1.17	1.68
0.0	1.0 mm	4.16	4.29
0.5	710 µm	11.60	10.79
1.0	500 µm	39.15	34.86
1.5	355 µm	73.50	64.87
2.0	250 µm	102.01	89.78
2.5	180 µm	111.63	98.18
3.0	125 µm	113.29	99.63
3.5	90 µm	113.54	99.85
4.0	63 µm	113.64	99.94
<4.0	<63 µm	113.71	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	ET04	Gravel Mass = 184.98g	
Date	20-Jun-02	Remaining Mass = 889.90g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	5.09	0.47
-2.0	4.0 mm	89.41	8.32
-1.5	2.4 mm	162.17	15.09
-1.0	2.0 mm	184.98	17.21
-0.5	1.4 mm	10.61	24.37
0.0	1.0 mm	20.56	31.08
0.5	710 µm	34.11	40.22
1.0	500 µm	65.91	61.66
1.5	355 µm	94.40	80.88
2.0	250 µm	113.32	93.64
2.5	180 µm	120.40	98.42
3.0	125 µm	122.20	99.63
3.5	90 µm	122.57	99.88
4.0	63 µm	122.69	99.96
<4.0	<63 µm	122.75	100.00

Folk (1974) Texture Group: Granular coarse sand

Table C5 Cumulative frequency grain size distributions for bulk bed-material samples on East Tributary for 2002 (Cont.)

Sample	ET05	Gravel Mass = 77.18g	
Date	20-Jun-02	Remaining Mass = 1136.14g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	4.12	0.34
-2.0	4.0 mm	23.85	1.97
-1.5	2.4 mm	60.85	5.02
-1.0	2.0 mm	77.17	6.36
-0.5	1.4 mm	5.25	10.99
0.0	1.0 mm	13.36	18.13
0.5	710 µm	24.88	28.28
1.0	500 µm	51.82	52.02
1.5	355 µm	78.95	75.92
2.0	250 µm	99.63	94.14
2.5	180 µm	105.44	99.26
3.0	125 µm	106.16	99.89
3.5	90 µm	106.22	99.95
4.0	63 µm	106.26	99.98
<4.0	<63 µm	106.28	100.00

Folk (1974) Texture Group: Granular medium sand

Sample	ET07	Gravel Mass = 49.94g	
Date	20-Jun-02	Remaining Mass = 1152.46g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm		
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	49.94	4.15
-0.5	1.4 mm	7.05	9.92
0.0	1.0 mm	18.43	19.22
0.5	710 µm	34.70	32.53
1.0	500 µm	70.55	61.84
1.5	355 µm	97.00	83.47
2.0	250 µm	111.49	95.32
2.5	180 µm	115.95	98.97
3.0	125 µm	116.96	99.80
3.5	90 µm	117.12	99.93
4.0	63 µm	117.18	99.98
<4.0	<63 µm	117.21	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Sample	ET06	Gravel Mass = 142.87g	
Date	20-Jun-02	Remaining Mass = 1013.73g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	2.66	0.23
-2.0	4.0 mm	57.64	4.98
-1.5	2.4 mm	120.68	10.43
-1.0	2.0 mm	142.88	12.35
-0.5	1.4 mm	5.79	16.81
0.0	1.0 mm	14.01	23.13
0.5	710 µm	26.02	32.36
1.0	500 µm	54.74	54.45
1.5	355 µm	83.13	76.28
2.0	250 µm	103.84	92.21
2.5	180 µm	111.18	97.85
3.0	125 µm	112.95	99.22
3.5	90 µm	113.44	99.59
4.0	63 µm	113.70	99.79
<4.0	<63 µm	113.97	100.00

Folk (1974) Texture Group: Granular medium sand

Sample	ET08	Gravel Mass = 127.54g	
Date	20-Jun-02	Remaining Mass = 1478.78g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	1.83	0.11
-2.0	4.0 mm	42.66	2.66
-1.5	2.4 mm	104.82	6.53
-1.0	2.0 mm	127.54	7.94
-0.5	1.4 mm	5.96	12.61
0.0	1.0 mm	14.01	18.92
0.5	710 µm	26.88	29.00
1.0	500 µm	59.64	54.67
1.5	355 µm	88.23	77.07
2.0	250 µm	107.35	92.05
2.5	180 µm	115.05	98.09
3.0	125 µm	116.99	99.61
3.5	90 µm	117.34	99.88
4.0	63 µm	117.45	99.97
<4.0	<63 µm	117.49	100.00

Folk (1974) Texture Group: Granular medium sand

Table C6 Cumulative frequency grain size distributions for bulk bed-material samples on East Tributary for 2003

Sample	ET01	Gravel Mass = 32.17g	
Date	14-Aug-03	Remaining Mass = 1412.22g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	32.17	2.23
-0.5	1.4 mm	3.03	5.04
0.0	1.0 mm	9.35	10.90
0.5	710 µm	23.54	24.06
1.0	500 µm	58.34	56.35
1.5	355 µm	86.17	82.16
2.0	250 µm	100.35	95.32
2.5	180 µm	104.19	98.88
3.0	125 µm	105.11	99.73
3.5	90 µm	105.29	99.90
4.0	63 µm	105.35	99.95
<4.0	<63 µm	105.40	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Sample	ET03	Gravel Mass = 34.23g	
Date	14-Aug-03	Remaining Mass = 1133.77g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	34.23	2.93
-0.5	1.4 mm	2.44	5.18
0.0	1.0 mm	8.11	10.42
0.5	710 µm	19.70	21.13
1.0	500 µm	53.87	52.69
1.5	355 µm	87.94	84.16
2.0	250 µm	101.37	96.56
2.5	180 µm	104.31	99.28
3.0	125 µm	104.92	99.84
3.5	90 µm	105.03	99.94
4.0	63 µm	105.06	99.97
<4.0	<63 µm	105.09	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Sample	ET02	Gravel Mass = 126.07g	
Date	14-Aug-03	Remaining Mass = 1295.45g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm	34.85	2.45
-1.5	2.4 mm	99.14	6.97
-1.0	2.0 mm	126.07	8.87
-0.5	1.4 mm	6.18	14.16
0.0	1.0 mm	15.01	21.72
0.5	710 µm	30.96	35.38
1.0	500 µm	65.49	64.95
1.5	355 µm	91.29	87.04
2.0	250 µm	101.93	96.16
2.5	180 µm	105.21	98.96
3.0	125 µm	106.15	99.77
3.5	90 µm	106.33	99.92
4.0	63 µm	106.38	99.97
<4.0	<63 µm	106.42	100.00

Folk (1974) Texture Group: Granular coarse sand

Sample	ET04	Gravel Mass = 152.64g	
Date	14-Aug-03	Remaining Mass = 951.76g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm	46.99	4.25
-1.5	2.4 mm	124.84	11.30
-1.0	2.0 mm	152.64	13.82
-0.5	1.4 mm	7.93	19.89
0.0	1.0 mm	16.77	26.65
0.5	710 µm	28.38	35.53
1.0	500 µm	56.63	57.14
1.5	355 µm	83.98	78.07
2.0	250 µm	100.93	91.03
2.5	180 µm	108.84	97.09
3.0	125 µm	111.69	99.27
3.5	90 µm	112.29	99.72
4.0	63 µm	112.50	99.89
<4.0	<63 µm	112.65	100.00

Folk (1974) Texture Group: Granular coarse sand

Table C6 Cumulative frequency grain size distributions for bulk bed-material samples on East Tributary for 2003 (Continued)

Sample	ET05	Gravel Mass = 49.97g	
Date	14-Aug-03	Remaining Mass = 1369.17g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	0.00	3.52
-0.5	1.4 mm	4.30	7.46
0.0	1.0 mm	11.88	14.39
0.5	710 µm	26.70	27.95
1.0	500 µm	60.57	58.94
1.5	355 µm	89.66	85.55
2.0	250 µm	102.17	97.00
2.5	180 µm	104.86	99.46
3.0	125 µm	105.34	99.90
3.5	90 µm	105.40	99.95
4.0	63 µm	105.43	99.98
<4.0	<63 µm	105.45	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Sample	ET07	Gravel Mass = 34.95g	
Date	14-Aug-03	Remaining Mass = 1377.75g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	0.00	2.47
-0.5	1.4 mm	4.90	6.98
0.0	1.0 mm	13.38	14.78
0.5	710 µm	27.53	27.80
1.0	500 µm	58.59	56.37
1.5	355 µm	87.17	82.66
2.0	250 µm	101.73	96.05
2.5	180 µm	105.14	99.19
3.0	125 µm	105.88	99.87
3.5	90 µm	105.97	99.95
4.0	63 µm	105.99	99.97
<4.0	<63 µm	106.02	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Sample	ET06	Gravel Mass = 16.00g	
Date	14-Aug-03	Remaining Mass = 1290.85g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	16.00	1.22
-0.5	1.4 mm	1.50	2.61
0.0	1.0 mm	5.07	5.89
0.5	710 µm	14.61	14.68
1.0	500 µm	44.07	41.82
1.5	355 µm	79.88	74.80
2.0	250 µm	99.17	92.57
2.5	180 µm	104.91	97.85
3.0	125 µm	106.82	99.61
3.5	90 µm	107.13	99.90
4.0	63 µm	107.21	99.97
<4.0	<63 µm	107.24	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Sample	ET08	Gravel Mass = 51.61g	
Date	14-Aug-03	Remaining Mass = 1683.06g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	51.61	2.98
-0.5	1.4 mm	2.52	5.31
0.0	1.0 mm	8.19	10.56
0.5	710 µm	18.93	20.52
1.0	500 µm	47.18	46.70
1.5	355 µm	77.30	74.61
2.0	250 µm	95.14	91.14
2.5	180 µm	102.12	97.61
3.0	125 µm	104.27	99.60
3.5	90 µm	104.59	99.90
4.0	63 µm	104.65	99.95
<4.0	<63 µm	104.70	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Appendix D

Cumulative frequency grain size distributions for bulk bed-material samples at the upper Swift Creek gauging station for the period 1998 to 2003

The cumulative frequency distributions are shown in Tables D1 to D6. The location of the cross sections where the bulk bed material samples were collected is shown in figure 7. The following tables are included in Appendix D:

Table D1 – 1998 bed material at cross sections

Table D2 – 1999 bed material at cross sections

Table D3 – 2000 bed material at cross sections

Table D4 – 2001 bed material at cross sections

Table D5 – 2002 bed material at cross sections

Table D6 – 2003 bed material at cross sections

Table D1 Cumulative frequency grain size distributions for bulk bed-material samples on upper Swift Creek for 1998

Sample	UM01	Gravel Mass = 166.06 g	
Date	30-Oct-98	Remaining Mass = 764.90 g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	35.77	3.83
-2.0	4.0 mm	139.93	15.00
-1.5	2.4 mm	154.03	16.51
-1.0	2.0 mm	166.06	17.80
-0.5	1.4 mm	5.57	21.68
0.0	1.0 mm	14.20	27.69
0.5	710 µm	28.19	37.43
1.0	500 µm	54.73	55.92
1.5	355 µm	79.78	73.36
2.0	250 µm	102.79	89.39
2.5	180 µm	111.83	95.69
3.0	125 µm	114.38	97.46
3.5	90 µm	114.76	97.73
4.0	63 µm	114.90	97.83
<4.0	<63 µm	118.02	100.00

Folk (1974) Texture Group: Pebbly medium sand

Sample	UM03	Gravel Mass = 37.54 g	
Date	30-Oct-98	Remaining Mass = 1227.67 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	37.54	2.97
-0.5	1.4 mm	3.92	6.19
0.0	1.0 mm	11.77	12.64
0.5	710 µm	27.18	25.30
1.0	500 µm	57.11	49.89
1.5	355 µm	83.71	71.74
2.0	250 µm	103.69	88.16
2.5	180 µm	113.45	96.18
3.0	125 µm	116.57	98.74
3.5	90 µm	116.92	99.03
4.0	63 µm	117.01	99.10
<4.0	<63 µm	118.10	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	UM02	Gravel Mass = 6.82 g	
Date	30-Oct-98	Remaining Mass = 1360.97 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	6.82	0.50
-0.5	1.4 mm	0.60	0.99
0.0	1.0 mm	2.35	2.44
0.5	710 µm	9.95	8.72
1.0	500 µm	42.11	35.28
1.5	355 µm	82.64	68.75
2.0	250 µm	106.03	88.07
2.5	180 µm	116.86	97.01
3.0	125 µm	119.52	99.21
3.5	90 µm	120.21	99.78
4.0	63 µm	120.36	99.90
<4.0	<63 µm	120.48	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	UM05	Gravel Mass = 75.53 g	
Date	30-Oct-98	Remaining Mass = 1792.35 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	75.53	4.04
-0.5	1.4 mm	2.95	6.44
0.0	1.0 mm	8.68	11.09
0.5	710 µm	22.98	22.70
1.0	500 µm	54.50	48.29
1.5	355 µm	83.40	71.75
2.0	250 µm	104.76	89.09
2.5	180 µm	112.61	95.46
3.0	125 µm	116.15	98.34
3.5	90 µm	116.86	98.91
4.0	63 µm	117.06	99.07
<4.0	<63 µm	118.20	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Table D1 Cumulative frequency grain size distributions for bulk bed-material samples on upper Swift Creek for 1998 (Continued)

Sample	UM06	Gravel Mass = 216.37 g	
Date	30-Oct-98	Remaining Mass = 1640.24 g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	3.6	0.19
-2.0	4.0 mm	146.12	7.87
-1.5	2.4 mm	187.19	10.08
-1.0	2.0 mm	216.37	11.65
-0.5	1.4 mm	6.54	16.37
0.0	1.0 mm	15.26	22.66
0.5	710 µm	28.82	32.45
1.0	500 µm	56.15	52.17
1.5	355 µm	85.15	73.10
2.0	250 µm	108.86	90.21
2.5	180 µm	118.14	96.91
3.0	125 µm	121.59	99.40
3.5	90 µm	122.19	99.83
4.0	63 µm	122.36	99.96
<4.0	<63 µm	122.42	100.00

Folk (1974) Texture Group: Pebbly medium sand

Sample	UM07	Gravel Mass = 40.71 g	
Date	30-Oct-98	Remaining Mass = 1767.08 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	40.71	2.25
-0.5	1.4 mm	3.12	4.80
0.0	1.0 mm	8.33	9.06
0.5	710 µm	19.71	18.37
1.0	500 µm	51.88	44.67
1.5	355 µm	90.45	76.20
2.0	250 µm	111.21	93.17
2.5	180 µm	117.50	98.32
3.0	125 µm	118.35	99.01
3.5	90 µm	118.58	99.20
4.0	63 µm	118.64	99.25
<4.0	<63 µm	119.56	100.00

Folk (1974) Texture Group: Slightly granular medium sand

A sample was collected at cross section UM04 in 1998 however, it was misplaced and therefore, the result is not contained in this table. The cross section at the gauging wire (UMGW) was not installed until after the 1998/1999 wet season and hence a sample was not collected during the 1998 dry season.

Table D2 Cumulative frequency grain size distributions for bulk bed-material samples on upper Swift Creek for 1999

Sample	UM01	Gravel Mass = 62.54 g	
Date	3-Sep-99	Remaining Mass = 764.74 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	62.54	7.56
-0.5	1.4 mm	7.77	13.61
0.0	1.0 mm	19.15	22.47
0.5	710 μm	38.88	37.84
1.0	500 μm	72.07	63.68
1.5	355 μm	96.89	83.01
2.0	250 μm	111.22	94.17
2.5	180 μm	117.51	99.07
3.0	125 μm	118.53	99.86
3.5	90 μm	118.69	99.98
4.0	63 μm	118.70	99.99
<4.0	<63 μm	118.71	100.00

Folk (1974) Texture Group: Granular coarse sand

Sample	UM03	Gravel Mass = 78.32 g	
Date	3-Sep-99	Remaining Mass = 1385.48 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	78.32	5.35
-0.5	1.4 mm	9.31	12.78
0.0	1.0 mm	23.46	24.06
0.5	710 μm	45.86	41.93
1.0	500 μm	76.25	66.17
1.5	355 μm	98.00	83.51
2.0	250 μm	111.62	94.38
2.5	180 μm	117.68	99.21
3.0	125 μm	118.54	99.90
3.5	90 μm	118.64	99.98
4.0	63 μm	118.65	99.98
<4.0	<63 μm	118.67	100.00

Folk (1974) Texture Group: Granular coarse sand

Sample	UM02	Gravel Mass = 30.39 g	
Date	3-Sep-99	Remaining Mass = 1351.12 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	30.39	2.20
-0.5	1.4 mm	5.20	6.36
0.0	1.0 mm	14.70	13.95
0.5	710 μm	34.03	29.39
1.0	500 μm	69.66	57.87
1.5	355 μm	98.01	80.52
2.0	250 μm	114.93	94.05
2.5	180 μm	121.36	99.18
3.0	125 μm	122.19	99.85
3.5	90 μm	122.34	99.97
4.0	63 μm	122.37	99.99
<4.0	<63 μm	122.38	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Sample	UMGW	Gravel Mass = 37.71 g	
Date	3-Sep-99	Remaining Mass = 1567.80 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	37.71	2.35
-0.5	1.4 mm	3.58	3.06
0.0	1.0 mm	13.34	11.40
0.5	710 μm	34.34	29.34
1.0	500 μm	69.20	59.12
1.5	355 μm	95.89	81.92
2.0	250 μm	112.32	95.96
2.5	180 μm	116.30	99.36
3.0	125 μm	116.98	99.94
3.5	90 μm	117.04	99.99
4.0	63 μm	117.05	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Table D2 Cumulative frequency grain size distributions for bulk bed-material samples on upper Swift Creek for 1999 (Continued)

Sample	UM04	Gravel Mass = 71.88 g	
Date	3-Sep-99	Remaining Mass = 1518.63 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	71.88	4.52
-0.5	1.4 mm	6.55	9.78
0.0	1.0 mm	19.01	19.78
0.5	710 µm	39.84	36.50
1.0	500 µm	70.71	61.29
1.5	355 µm	94.20	80.15
2.0	250 µm	111.45	93.99
2.5	180 µm	117.39	98.76
3.0	125 µm	118.79	99.89
3.5	90 µm	118.90	99.98
4.0	63 µm	118.92	99.99
<4.0	<63 µm	118.93	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Sample	UM06	Gravel Mass = 127.30 g	
Date	3-Sep-99	Remaining Mass = 1687.00 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	127.30	7.02
-0.5	1.4 mm	8.80	13.75
0.0	1.0 mm	20.38	22.62
0.5	710 µm	40.16	37.76
1.0	500 µm	74.36	63.94
1.5	355 µm	99.31	83.04
2.0	250 µm	113.70	94.05
2.5	180 µm	120.12	98.97
3.0	125 µm	121.23	99.82
3.5	90 µm	121.43	99.97
4.0	63 µm	121.45	99.98
<4.0	<63 µm	121.47	100.00

Folk (1974) Texture Group: Granular coarse sand

Sample	UM05	Gravel Mass = 93.26 g	
Date	3-Sep-99	Remaining Mass = 1808.54 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	93.26	4.90
-0.5	1.4 mm	5.36	9.12
0.0	1.0 mm	16.08	17.54
0.5	710 µm	34.99	32.40
1.0	500 µm	63.01	54.42
1.5	355 µm	88.91	74.77
2.0	250 µm	112.16	93.04
2.5	180 µm	119.26	98.62
3.0	125 µm	120.86	99.87
3.5	90 µm	120.98	99.97
4.0	63 µm	121.00	99.98
<4.0	<63 µm	121.02	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Sample	UM07	Gravel Mass = 42.72 g	
Date	3-Sep-99	Remaining Mass = 1712.70 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	42.72	2.43
-0.5	1.4 mm	4.10	5.75
0.0	1.0 mm	11.41	11.66
0.5	710 µm	27.33	24.54
1.0	500 µm	59.82	50.82
1.5	355 µm	90.45	75.60
2.0	250 µm	113.56	94.30
2.5	180 µm	119.40	99.02
3.0	125 µm	120.49	99.90
3.5	90 µm	120.58	99.98
4.0	63 µm	120.60	99.99
<4.0	<63 µm	120.61	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Table D3 Cumulative frequency grain size distributions for bulk bed-material samples on upper Swift Creek for 2000

Sample	UM01	Gravel Mass = 255.65 g	
Date	3-Oct-00	Remaining Mass = 1077.08 g	
Phi		Mass (g)	Cumulative %
-5.75	45.0 mm	192.73	14.46
-3.25	9.5 mm	196.90	14.77
-2.0	4.0 mm	209.76	15.74
-1.5	2.4 mm	234.22	17.57
-1.0	2.0 mm	255.65	19.18
-0.5	1.4 mm	6.65	23.00
0.0	1.0 mm	13.42	26.88
0.5	710 μm	25.25	33.67
1.0	500 μm	53.73	50.01
1.5	355 μm	88.43	69.92
2.0	250 μm	119.31	87.63
2.5	180 μm	136.50	97.49
3.0	125 μm	140.01	99.51
3.5	90 μm	140.73	99.92
4.0	63 μm	140.82	99.97
<4.0	<63 μm	140.87	100.00

Folk (1974) Texture Group: Pebbly medium sand

Sample	UM03	Gravel Mass = 47.79 g	
Date	3-Oct-00	Remaining Mass = 1110.20 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	47.79	4.13
-0.5	1.4 mm	7.74	9.04
0.0	1.0 mm	19.67	16.61
0.5	710 μm	42.53	31.11
1.0	500 μm	83.89	57.35
1.5	355 μm	118.18	79.11
2.0	250 μm	140.92	93.53
2.5	180 μm	149.72	99.12
3.0	125 μm	150.89	99.86
3.5	90 μm	151.07	99.97
4.0	63 μm	151.10	99.99
<4.0	<63 μm	151.11	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Sample	UM02	Gravel Mass = 49.57 g	
Date	3-Oct-00	Remaining Mass = 1176.52 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	49.57	4.04
-0.5	1.4 mm	6.79	8.32
0.0	1.0 mm	18.02	15.40
0.5	710 μm	38.57	28.34
1.0	500 μm	81.54	55.42
1.5	355 μm	116.31	77.32
2.0	250 μm	144.60	95.15
2.5	180 μm	150.82	99.07
3.0	125 μm	152.13	99.89
3.5	90 μm	152.25	99.97
4.0	63 μm	152.29	99.99
<4.0	<63 μm	152.30	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Sample	UMGW	Gravel Mass = 20.74 g	
Date	3-Oct-00	Remaining Mass = 1214.53 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	20.74	1.68
-0.5	1.4 mm	6.33	5.54
0.0	1.0 mm	19.62	13.64
0.5	710 μm	42.75	27.73
1.0	500 μm	86.43	54.36
1.5	355 μm	123.56	76.99
2.0	250 μm	152.89	94.86
2.5	180 μm	159.92	99.15
3.0	125 μm	161.10	99.87
3.5	90 μm	161.25	99.96
4.0	63 μm	161.29	99.98
<4.0	<63 μm	161.32	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Table D3 Cumulative frequency grain size distributions for bulk bed-material samples on upper Swift Creek for 2000 (Continued)

Sample	UM04	Gravel Mass = 45.11 g	
Date	3-Oct-00	Remaining Mass = 1526.63 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	45.11	2.87
-0.5	1.4 mm	8.00	7.88
0.0	1.0 mm	20.87	15.93
0.5	710 µm	40.28	28.07
1.0	500 µm	79.56	52.65
1.5	355 µm	115.57	75.18
2.0	250 µm	144.72	93.42
2.5	180 µm	152.85	98.51
3.0	125 µm	154.99	99.85
3.5	90 µm	155.20	99.98
4.0	63 µm	155.22	99.99
<4.0	<63 µm	155.23	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Sample	UM06	Gravel Mass = 66.96 g	
Date	3-Oct-00	Remaining Mass = 1451.24 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	66.96	4.41
-0.5	1.4 mm	10.22	9.49
0.0	1.0 mm	24.64	16.66
0.5	710 µm	48.61	28.58
1.0	500 µm	95.47	51.87
1.5	355 µm	136.65	72.34
2.0	250 µm	175.23	91.52
2.5	180 µm	187.73	97.74
3.0	125 µm	191.53	99.63
3.5	90 µm	192.14	99.93
4.0	63 µm	192.24	99.98
<4.0	<63 µm	192.28	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	UM05	Gravel Mass = 82.09 g	
Date	3-Oct-00	Remaining Mass = 1604.53 g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	3.18	0.19
-2.0	4.0 mm	24.10	1.43
-1.5	2.4 mm	61.91	3.67
-1.0	2.0 mm	82.09	4.87
-0.5	1.4 mm	5.97	8.44
0.0	1.0 mm	16.32	14.64
0.5	710 µm	36.90	26.96
1.0	500 µm	72.18	48.08
1.5	355 µm	103.35	66.73
2.0	250 µm	130.73	83.12
2.5	180 µm	150.90	95.20
3.0	125 µm	156.81	98.74
3.5	90 µm	158.57	99.79
4.0	63 µm	158.82	99.94
<4.0	<63 µm	158.92	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	UM07	Gravel Mass = 27.19 g	
Date	3-Oct-00	Remaining Mass = 1103.50 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	27.19	2.40
-0.5	1.4 mm	4.50	5.56
0.0	1.0 mm	13.33	11.74
0.5	710 µm	33.01	25.53
1.0	500 µm	71.14	52.24
1.5	355 µm	105.20	76.10
2.0	250 µm	128.56	92.47
2.5	180 µm	137.74	98.90
3.0	125 µm	139.00	99.78
3.5	90 µm	139.25	99.96
4.0	63 µm	139.28	99.98
<4.0	<63 µm	139.31	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Table D4 Cumulative frequency grain size distributions for bulk bed-material samples on upper Swift Creek for 2001

Sample	UM01	Gravel Mass = 41.77 g	
Date	2-Oct-01	Remaining Mass = 952.12 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	41.77	4.20
-0.5	1.4 mm	5.69	8.11
0.0	1.0 mm	13.81	13.70
0.5	710 μm	29.73	24.64
1.0	500 μm	66.98	50.24
1.5	355 μm	102.48	74.64
2.0	250 μm	129.05	92.91
2.5	180 μm	137.96	99.03
3.0	125 μm	139.18	99.87
3.5	90 μm	139.31	99.96
4.0	63 μm	139.34	99.98
<4.0	<63 μm	139.37	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	UM03	Gravel Mass = 54.61 g	
Date	2-Oct-01	Remaining Mass = 118.87 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	54.61	4.65
-0.5	1.4 mm	7.82	10.90
0.0	1.0 mm	17.99	19.02
0.5	710 μm	34.57	32.26
1.0	500 μm	71.40	61.67
1.5	355 μm	99.52	84.12
2.0	250 μm	114.78	96.30
2.5	180 μm	118.74	99.47
3.0	125 μm	119.28	99.90
3.5	90 μm	119.36	99.96
4.0	63 μm	119.39	99.98
<4.0	<63 μm	119.41	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Sample	UM02	Gravel Mass = 94.60 g	
Date	2-Oct-01	Remaining Mass = 833.94 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm	12.45	1.34
-1.5	2.4 mm	66.72	7.19
-1.0	2.0 mm	94.60	10.19
-0.5	1.4 mm	11.08	18.07
0.0	1.0 mm	23.33	26.79
0.5	710 μm	40.59	39.08
1.0	500 μm	74.02	62.87
1.5	355 μm	100.27	81.56
2.0	250 μm	117.52	93.84
2.5	180 μm	124.41	98.74
3.0	125 μm	125.90	99.80
3.5	90 μm	126.11	99.95
4.0	63 μm	126.18	100.00

Folk (1974) Texture Group: Granular coarse sand

Sample	UMGW	Gravel Mass = 27.49 g	
Date	2-Oct-01	Remaining Mass = 1040.53 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	27.49	2.57
-0.5	1.4 mm	4.23	5.60
0.0	1.0 mm	11.24	10.62
0.5	710 μm	26.33	21.42
1.0	500 μm	70.31	52.90
1.5	355 μm	109.88	81.22
2.0	250 μm	130.49	95.98
2.5	180 μm	135.28	99.41
3.0	125 μm	135.94	99.88
3.5	90 μm	136.04	99.95
4.0	63 μm	136.11	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Table D4 Cumulative frequency grain size distributions for bulk bed-material samples on upper Swift Creek for 2001 (Continued)

Sample	UM04	Gravel Mass = 66.55 g	
Date	2-Oct-01	Remaining Mass = 1068.80 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm	12.63	1.11
-1.5	2.4 mm	51.29	4.52
-1.0	2.0 mm	66.55	5.86
-0.5	1.4 mm	7.78	11.84
0.0	1.0 mm	17.05	18.96
0.5	710 µm	30.92	29.61
1.0	500 µm	63.42	54.57
1.5	355 µm	91.34	76.01
2.0	250 µm	112.59	92.33
2.5	180 µm	121.32	99.03
3.0	125 µm	122.47	99.92
3.5	90 µm	122.54	99.97
4.0	63 µm	122.56	99.98
<4.0	<63 µm	122.58	100.00

Folk (1974) Texture Group: Granular coarse sand

Sample	UM06	Gravel Mass = 72.66 g	
Date	2-Oct-01	Remaining Mass = 1514.79 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	72.66	4.58
-0.5	1.4 mm	4.61	8.49
0.0	1.0 mm	10.45	13.44
0.5	710 µm	22.04	23.28
1.0	500 µm	51.40	48.19
1.5	355 µm	79.10	71.69
2.0	250 µm	99.79	89.24
2.5	180 µm	108.75	96.84
3.0	125 µm	111.73	99.37
3.5	90 µm	112.28	99.84
4.0	63 µm	112.41	99.95
<4.0	<63 µm	112.47	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	UM05	Gravel Mass = 71.76g	
Date	2-Oct-01	Remaining Mass = 1072.41 g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	0.54	0.05
-2.0	4.0 mm	13.46	1.18
-1.5	2.4 mm	52.74	4.61
-1.0	2.0 mm	71.76	6.27
-0.5	1.4 mm	7.37	11.16
0.0	1.0 mm	17.03	17.56
0.5	710 µm	32.76	27.98
1.0	500 µm	71.98	53.98
1.5	355 µm	109.28	78.70
2.0	250 µm	133.00	94.42
2.5	180 µm	139.91	99.00
3.0	125 µm	141.18	99.84
3.5	90 µm	141.35	99.95
4.0	63 µm	141.39	99.98
<4.0	<63 µm	141.42	100.00

Folk (1974) Texture Group: Granular coarse sand

Sample	UM07	Gravel Mass = 56.66 g	
Date	2-Oct-01	Remaining Mass = 1566.03 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	56.66	3.49
-0.5	1.4 mm	5.30	8.15
0.0	1.0 mm	12.03	14.06
0.5	710 µm	23.98	24.56
1.0	500 µm	53.29	50.32
1.5	355 µm	81.87	75.43
2.0	250 µm	101.91	93.04
2.5	180 µm	107.97	98.37
3.0	125 µm	109.40	99.62
3.5	90 µm	109.72	99.90
4.0	63 µm	109.8	99.97
<4.0	<63 µm	109.83	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Table D5 Cumulative frequency grain size distributions for bulk bed-material samples on upper Swift Creek for 2002

Sample	UM01	Gravel Mass = 8.58g	
Date	18-Jun-02	Remaining Mass = 646.56g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	8.58	1.31
-0.5	1.4 mm	1.40	2.58
0.0	1.0 mm	5.72	6.52
0.5	710 µm	17.93	17.63
1.0	500 µm	46.13	43.30
1.5	355 µm	74.13	68.79
2.0	250 µm	98.26	90.76
2.5	180 µm	106.75	98.49
3.0	125 µm	108.25	99.85
3.5	90 µm	108.37	99.96
4.0	63 µm	108.39	99.98
<4.0	<63 µm	108.41	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	UM03	Gravel Mass = 38.41g	
Date	18-Jun-02	Remaining Mass = 883.51g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	38.41	4.17
-0.5	1.4 mm	2.99	6.79
0.0	1.0 mm	10.43	13.34
0.5	710 µm	25.94	26.97
1.0	500 µm	57.63	54.83
1.5	355 µm	85.28	79.14
2.0	250 µm	104.09	95.67
2.5	180 µm	108.32	99.39
3.0	125 µm	108.89	99.89
3.5	90 µm	108.97	99.96
4.0	63 µm	109.00	99.99
<4.0	<63 µm	109.01	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Sample	UM02	Gravel Mass = 16.41g	
Date	18-Jun-02	Remaining Mass = 778.27g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	16.41	2.06
-0.5	1.4 mm	2.79	4.55
0.0	1.0 mm	8.80	9.91
0.5	710 µm	21.21	20.98
1.0	500 µm	51.29	47.80
1.5	355 µm	81.68	74.90
2.0	250 µm	103.01	93.92
2.5	180 µm	108.48	98.80
3.0	125 µm	109.56	99.76
3.5	90 µm	109.75	99.93
4.0	63 µm	109.80	99.97
<4.0	<63 µm	109.83	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	UMGW	Gravel Mass = 23.50g	
Date	18-Jun-02	Remaining Mass = 1052.78g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	23.50	2.18
-0.5	1.4 mm	2.80	4.80
0.0	1.0 mm	10.89	12.37
0.5	710 µm	26.13	26.62
1.0	500 µm	55.43	54.02
1.5	355 µm	82.64	79.47
2.0	250 µm	100.64	96.31
2.5	180 µm	104.14	99.58
3.0	125 µm	104.52	99.93
3.5	90 µm	104.57	99.98
4.0	63 µm	104.58	99.99
<4.0	<63 µm	104.59	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Table D5 Cumulative frequency grain size distributions for bulk bed-material samples on upper Swift Creek for 2002 (Continued)

Sample	UM04	Gravel Mass = 46.69g	
Date	18-Jun-02	Remaining Mass = 869.08g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm	6.73	0.74
-1.5	2.4 mm	33.18	3.62
-1.0	2.0 mm	46.69	5.10
-0.5	1.4 mm	4.42	8.84
0.0	1.0 mm	12.84	15.96
0.5	710 µm	27.73	28.55
1.0	500 µm	58.75	54.78
1.5	355 µm	86.28	78.06
2.0	250 µm	107.24	95.79
2.5	180 µm	111.40	99.31
3.0	125 µm	111.94	99.76
3.5	90 µm	112.09	99.89
4.0	63 µm	112.21	99.99
<4.0	<63 µm	112.22	100.00

Folk (1974) Texture Group: Granular coarse sand

Sample	UM06	Gravel Mass = 46.46g	
Date	18-Jun-02	Remaining Mass = 1113.56g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	46.46	4.01
-0.5	1.4 mm	3.66	7.17
0.0	1.0 mm	11.45	13.92
0.5	710 µm	26.23	26.72
1.0	500 µm	55.31	51.90
1.5	355 µm	84.13	76.86
2.0	250 µm	105.11	95.03
2.5	180 µm	110.13	99.38
3.0	125 µm	110.76	99.92
3.5	90 µm	110.82	99.97
4.0	63 µm	110.83	99.98
<4.0	<63 µm	110.85	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	UM05	Gravel Mass = 21.68g	
Date	18-Jun-02	Remaining Mass = 969.38g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	21.68	2.19
-0.5	1.4 mm	3.48	5.31
0.0	1.0 mm	9.79	10.96
0.5	710 µm	23.81	23.52
1.0	500 µm	58.46	54.56
1.5	355 µm	88.68	81.63
2.0	250 µm	105.52	96.72
2.5	180 µm	108.70	99.57
3.0	125 µm	109.11	99.94
3.5	90 µm	109.16	99.98
4.0	63 µm	109.17	99.99
<4.0	<63 µm	109.18	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	UM07	Gravel Mass = 20.55g	
Date	18-Jun-02	Remaining Mass = 1112.30g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	20.55	1.81
-0.5	1.4 mm	3.03	4.68
0.0	1.0 mm	9.07	10.38
0.5	710 µm	21.93	22.54
1.0	500 µm	50.95	49.96
1.5	355 µm	79.71	77.13
2.0	250 µm	99.19	95.54
2.5	180 µm	103.39	99.51
3.0	125 µm	103.83	99.92
3.5	90 µm	103.87	99.96
4.0	63 µm	103.90	99.99
<4.0	<63 µm	103.91	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Table D6 Cumulative frequency grain size distributions for bulk bed-material samples on upper Swift Creek for 2003

Sample	UM01	Gravel Mass = 6.72g	
Date	15-Aug-03	Remaining Mass = 849.20g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	6.72	0.79
-0.5	1.4 mm	1.49	2.20
0.0	1.0 mm	5.91	6.41
0.5	710 µm	19.00	18.86
1.0	500 µm	47.43	45.91
1.5	355 µm	74.72	71.88
2.0	250 µm	95.18	91.34
2.5	180 µm	102.66	98.46
3.0	125 µm	104.14	99.87
3.5	90 µm	104.24	99.96
4.0	63 µm	104.26	99.98
<4.0	<63 µm	104.28	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	UM03	Gravel Mass = 28.07g	
Date	15-Aug-03	Remaining Mass = 1132.26g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	28.07	2.42
-0.5	1.4 mm	3.16	5.44
0.0	1.0 mm	9.51	11.51
0.5	710 µm	22.38	23.81
1.0	500 µm	50.91	51.08
1.5	355 µm	79.08	78.01
2.0	250 µm	96.33	94.49
2.5	180 µm	100.84	98.81
3.0	125 µm	101.85	99.77
3.5	90 µm	102.02	99.93
4.0	63 µm	102.06	99.97
<4.0	<63 µm	102.09	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	UM02	Gravel Mass = 34.67g	
Date	15-Aug-03	Remaining Mass = 1204.63g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	34.67	2.80
-0.5	1.4 mm	3.57	6.11
0.0	1.0 mm	10.21	12.27
0.5	710 µm	22.91	24.06
1.0	500 µm	50.14	49.34
1.5	355 µm	77.15	74.41
2.0	250 µm	96.11	92.01
2.5	180 µm	102.93	98.34
3.0	125 µm	104.51	99.81
3.5	90 µm	104.68	99.96
4.0	63 µm	104.70	99.98
<4.0	<63 µm	104.72	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	UMGW	Gravel Mass = 21.64g	
Date	15-Aug-03	Remaining Mass = 1267.08g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	21.64	1.68
-0.5	1.4 mm	2.29	3.86
0.0	1.0 mm	7.66	8.99
0.5	710 µm	21.10	21.81
1.0	500 µm	54.69	53.86
1.5	355 µm	84.48	82.28
2.0	250 µm	99.88	96.98
2.5	180 µm	102.57	99.54
3.0	125 µm	102.98	99.93
3.5	90 µm	103.02	99.97
4.0	63 µm	103.04	99.99
<4.0	<63 µm	103.05	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Table D6 Cumulative frequency grain size distributions for bulk bed-material samples on upper Swift Creek for 2003 (Continued)

Sample	UM04	Gravel Mass = 48.60g	
Date	15-Aug-03	Remaining Mass = 1352.22g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	48.60	3.47
-0.5	1.4 mm	2.72	5.91
0.0	1.0 mm	7.33	10.05
0.5	710 µm	17.24	18.94
1.0	500 µm	46.19	44.92
1.5	355 µm	78.21	73.65
2.0	250 µm	98.94	92.25
2.5	180 µm	105.74	98.35
3.0	125 µm	107.31	99.76
3.5	90 µm	107.52	99.95
4.0	63 µm	107.56	99.98
<4.0	<63 µm	107.58	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	UM06	Gravel Mass = 126.34g	
Date	15-Aug-03	Remaining Mass = 1630.63g	
Phi		Mass (g)	Cumulative %
	9.5	26.49	1.78
-2.0	4.0 mm	59.21	3.98
-1.5	2.4 mm	106.89	7.19
-1.0	2.0 mm	126.34	8.50
-0.5	1.4 mm	4.11	10.84
0.0	1.0 mm	11.95	17.79
0.5	710 µm	26.29	30.51
1.0	500 µm	53.54	54.68
1.5	355 µm	78.59	76.90
2.0	250 µm	97.29	93.49
2.5	180 µm	103.20	98.73
3.0	125 µm	104.43	99.82
3.5	90 µm	104.58	99.96
4.0	63 µm	104.60	99.97
<4.0	<63 µm	104.63	100.00

Folk (1974) Texture Group: Granular coarse sand

Sample	UM05	Gravel Mass = 56.94g	
Date	15-Aug-03	Remaining Mass = 1617.27g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	56.94	3.40
-0.5	1.4 mm	4.61	7.71
0.0	1.0 mm	11.50	14.14
0.5	710 µm	23.83	25.65
1.0	500 µm	50.17	50.24
1.5	355 µm	74.11	72.60
2.0	250 µm	92.02	89.32
2.5	180 µm	99.87	96.65
3.0	125 µm	102.58	99.18
3.5	90 µm	103.16	99.72
4.0	63 µm	103.34	99.89
<4.0	<63 µm	103.46	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	UM07	Gravel Mass = 35.04g	
Date	15-Aug-03	Remaining Mass = 1612.87g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	35.04	2.13
-0.5	1.4 mm	3.78	5.66
0.0	1.0 mm	11.11	12.52
0.5	710 µm	24.66	25.20
1.0	500 µm	56.03	54.55
1.5	355 µm	83.10	79.88
2.0	250 µm	96.82	92.71
2.5	180 µm	102.61	98.13
3.0	125 µm	104.36	99.77
3.5	90 µm	104.58	99.97
4.0	63 µm	104.60	99.99
<4.0	<63 µm	104.61	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Appendix E

Cumulative frequency grain size distributions for bulk bed-material samples at the Swift Creek gauging station for the period 1998 to 2003

The cumulative frequency distributions are shown in Tables E1 to E6. The location of the cross sections where the bulk bed material samples were collected is shown in figure 8. The following tables are included in Appendix E:

Table E1 - 1998 bed material at cross sections

Table E2 - 1999 bed material at cross sections

Table E3 - 2000 bed material at cross sections

Table E4 - 2001 bed material at cross sections

Table E5 - 2002 bed material at cross sections

Table E6 - 2003 bed material at cross sections

Table E1 Cumulative frequency grain size distributions for bulk bed-material samples on Swift Creek for 1998

Sample	SM05	Gravel Mass = 17.21	
Date	21-Oct-98	Remaining Mass = 1745.04 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	17.21	0.98
-0.5	1.4 mm	2.50	3.00
0.0	1.0 mm	7.88	7.34
0.5	710 µm	21.44	18.30
1.0	500 µm	53.91	44.53
1.5	355 µm	87.34	71.54
2.0	250 µm	109.71	89.61
2.5	180 µm	119.82	97.78
3.0	125 µm	121.85	99.42
3.5	90 µm	122.40	99.86
4.0	63 µm	122.51	99.95
<4.0	<63 µm	122.57	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	SM02	Gravel Mass = 37.99 g	
Date	21-Oct-98	Remaining Mass = 1529.91 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	37.99	2.42
-0.5	1.4 mm	3.86	5.57
0.0	1.0 mm	8.68	9.49
0.5	710 µm	18.24	17.27
1.0	500 µm	43.33	37.69
1.5	355 µm	75.89	64.20
2.0	250 µm	101.04	84.67
2.5	180 µm	113.93	95.16
3.0	125 µm	117.12	97.76
3.5	90 µm	118.34	98.75
4.0	63 µm	118.63	98.99
<4.0	<63 µm	119.87	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	SM03	Gravel Mass = 23.45 g	
Date	21-Oct-98	Remaining Mass = 1653.13 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	23.45	1.40
-0.5	1.4 mm	2.96	3.73
0.0	1.0 mm	7.68	7.45
0.5	710 µm	18.93	16.31
1.0	500 µm	51.20	41.73
1.5	355 µm	85.32	68.60
2.0	250 µm	108.42	86.80
2.5	180 µm	121.33	96.97
3.0	125 µm	124.30	99.31
3.5	90 µm	124.96	99.83
4.0	63 µm	125.10	99.94
<4.0	<63 µm	125.18	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	SM01	Gravel Mass = 26.31 g	
Date	26-Oct-98	Remaining Mass = 1555.96 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	26.31	1.66
-0.5	1.4 mm	2.76	3.94
0.0	1.0 mm	7.63	7.95
0.5	710 µm	18.83	17.17
1.0	500 µm	47.23	40.56
1.5	355 µm	78.81	66.57
2.0	250 µm	104.46	87.70
2.5	180 µm	117.46	98.40
3.0	125 µm	119.15	99.79
3.5	90 µm	119.35	99.96
4.0	63 µm	119.38	99.98
<4.0	<63 µm	119.40	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Table E1 Cumulative frequency grain size distributions for bulk bed-material samples on Swift Creek for 1998 (continued)

Sample	SM06	Gravel Mass = 39.01 g	
Date	21-Oct-98	Remaining Mass =1168.24 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	39.01	3.23
-0.5	1.4 mm	4.34	6.71
0.0	1.0 mm	10.18	11.39
0.5	710 µm	19.26	18.67
1.0	500 µm	41.58	36.56
1.5	355 µm	73.89	62.46
2.0	250 µm	106.21	88.36
2.5	180 µm	116.84	96.88
3.0	125 µm	119.27	98.83
3.5	90 µm	119.66	99.14
4.0	63 µm	119.79	99.25
<4.0	<63 µm	120.73	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	SM07	Gravel Mass = 38.23 g	
Date	22-Oct-98	Remaining Mass = 1977.66 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	38.23	1.90
-0.5	1.4 mm	3.76	4.90
0.0	1.0 mm	10.52	10.31
0.5	710 µm	23.75	20.90
1.0	500 µm	55.34	46.17
1.5	355 µm	86.55	71.14
2.0	250 µm	110.05	89.94
2.5	180 µm	118.78	96.93
3.0	125 µm	121.81	99.35
3.5	90 µm	122.31	99.75
4.0	63 µm	122.51	99.91
<4.0	<63 µm	122.62	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	SM04	Gravel Mass = 106.03 g	
Date	22-Oct-98	Remaining Mass = 1168.24 g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	0.30	0.02
-2.0	4.0 mm	11.12	0.57
-1.5	2.4 mm	77.57	3.99
-1.0	2.0 mm	106.03	5.46
-0.5	1.4 mm	7.06	11.25
0.0	1.0 mm	17.01	19.42
0.5	710 µm	32.36	32.02
1.0	500 µm	56.88	52.15
1.5	355 µm	76.75	68.46
2.0	250 µm	97.07	85.14
2.5	180 µm	108.57	94.58
3.0	125 µm	112.75	98.01
3.5	90 µm	113.45	98.59
4.0	63 µm	113.75	98.83
<4.0	<63 µm	115.17	100.00

Folk (1974) Texture Group: Granular coarse sand

Sample	SM08	Gravel Mass = 101.18 g	
Date	22-Oct-98	Remaining Mass = 1977.66 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	101.18	4.48
-0.5	1.4 mm	5.80	9.35
0.0	1.0 mm	15.62	17.59
0.5	710 µm	31.01	30.51
1.0	500 µm	57.84	53.03
1.5	355 µm	81.43	72.83
2.0	250 µm	100.76	89.05
2.5	180 µm	109.31	96.23
3.0	125 µm	112.87	99.22
3.5	90 µm	113.54	99.78
4.0	63 µm	113.78	99.98
<4.0	<63 µm	113.80	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Table E2 Cumulative frequency grain size distributions for bulk bed-material samples on Swift Creek for 1999

Sample	SM05	Gravel Mass = 153.99 g	
Date	16-Aug-99	Remaining Mass = 2760.83 g	
Phi		**Mass (g)**	**Cumulative %**
-3.25	9.5 mm	0.14	0.00
-2.0	4.0 mm	22.47	0.77
-1.5	2.4 mm	112.60	3.86
-1.0	2.0 mm	153.99	5.28
-0.5	1.4 mm	4.24	8.66
0.0	1.0 mm	12.36	15.12
0.5	710 µm	26.75	26.58
1.0	500 µm	54.10	48.37
1.5	355 µm	79.64	68.71
2.0	250 µm	104.75	88.71
2.5	180 µm	116.16	97.79
3.0	125 µm	118.71	99.82
3.5	90 µm	118.87	99.95
4.0	63 µm	118.90	99.98
<4.0	<63 µm	118.93	100.00

Folk (1974) Texture Group: Granular medium sand

Sample	SM02	Gravel Mass = 67.28 g	
Date	16-Aug-99	Remaining Mass = 1946.62 g	
Phi		**Mass (g)**	**Cumulative %**
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	67.28	3.34
-0.5	1.4 mm	6.00	8.09
0.0	1.0 mm	13.49	14.02
0.5	710 µm	28.50	25.90
1.0	500 µm	62.62	52.91
1.5	355 µm	92.25	76.36
2.0	250 µm	110.56	90.85
2.5	180 µm	120.28	98.54
3.0	125 µm	121.83	99.77
3.5	90 µm	122.07	99.96
4.0	63 µm	122.11	99.99
<4.0	<63 µm	122.12	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Sample	SM03	Gravel Mass = 138.86 g	
Date	16-Aug-99	Remaining Mass = 2892.45 g	
Phi		**Mass (g)**	**Cumulative %**
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	138.86	4.58
-0.5	1.4 mm	8.22	11.09
0.0	1.0 mm	22.78	22.62
0.5	710 µm	44.93	40.17
1.0	500 µm	76.04	64.81
1.5	355 µm	98.77	82.81
2.0	250 µm	114.35	95.15
2.5	180 µm	119.23	99.02
3.0	125 µm	120.33	99.89
3.5	90 µm	120.42	99.96
4.0	63 µm	120.45	99.98
<4.0	<63 µm	120.47	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Sample	SM01	Gravel Mass = 46.60 g	
Date	16-Aug-998	Remaining Mass = 1447.81 g	
Phi		**Mass (g)**	**Cumulative %**
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	46.60	3.12
-0.5	1.4 mm	5.32	7.44
0.0	1.0 mm	13.83	14.36
0.5	710 µm	30.64	28.02
1.0	500 µm	62.57	53.97
1.5	355 µm	90.56	76.72
2.0	250 µm	112.49	94.54
2.5	180 µm	118.29	99.25
3.0	125 µm	119.15	99.95
3.5	90 µm	119.19	99.98
4.0	63 µm	119.20	99.99
<4.0	<63 µm	119.21	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Table E2 Cumulative frequency grain size distributions for bulk bed-material samples on Swift Creek for 1999 (continued)

Sample	SM06	Gravel Mass = 69.70 g	
Date	16-Aug-99	Remaining Mass = 1773.75 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	69.70	3.78
-0.5	1.4 mm	7.78	10.05
0.0	1.0 mm	19.28	19.32
0.5	710 µm	40.02	36.03
1.0	500 µm	73.41	62.94
1.5	355 µm	98.68	83.31
2.0	250 µm	114.57	96.12
2.5	180 µm	118.74	99.48
3.0	125 µm	119.34	99.96
3.5	90 µm	119.36	99.98
4.0	63 µm	119.38	99.99
<4.0	<63 µm	119.39	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Sample	SM07	Gravel Mass = 49.54 g	
Date	16-Aug-99	Remaining Mass = 1731.95 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	49.54	2.78
-0.5	1.4 mm	7.92	9.09
0.0	1.0 mm	18.88	17.83
0.5	710 µm	39.24	34.06
1.0	500 µm	73.20	61.13
1.5	355 µm	100.43	82.84
2.0	250 µm	115.67	94.99
2.5	180 µm	121.28	99.46
3.0	125 µm	121.86	99.92
3.5	90 µm	121.93	99.98
4.0	63 µm	121.95	99.99
<4.0	<63 µm	121.96	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Sample	SM04	Gravel Mass = 69.75 g	
Date	16-Aug-99	Remaining Mass = 1797.99 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	69.75	3.73
-0.5	1.4 mm	7.11	9.43
0.0	1.0 mm	17.01	17.36
0.5	710 µm	34.41	31.29
1.0	500 µm	68.68	58.73
1.5	355 µm	97.07	81.47
2.0	250 µm	113.62	94.72
2.5	180 µm	119.63	99.54
3.0	125 µm	120.13	99.94
3.5	90 µm	120.19	99.98
4.0	63 µm	120.20	99.99
<4.0	<63 µm	120.21	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Sample	SM08	Gravel Mass = 30.03 g	
Date	16-Aug-99	Remaining Mass = 1999.21 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	30.03	1.48
-0.5	1.4 mm	3.57	4.40
0.0	1.0 mm	10.41	9.98
0.5	710 µm	25.15	22.02
1.0	500 µm	58.80	49.50
1.5	355 µm	89.47	74.55
2.0	250 µm	109.70	91.07
2.5	180 µm	119.07	98.73
3.0	125 µm	120.41	99.82
3.5	90 µm	120.58	99.96
4.0	63 µm	120.62	99.99
<4.0	<63 µm	120.63	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Table E3 Cumulative frequency grain size distributions for bulk bed-material samples on Swift Creek for 2000

Sample	SM05	Gravel Mass = 75.31 g	
Date	3-Oct-00	Remaining Mass = 1531.25 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	75.31	4.69
-0.5	1.4 mm	9.03	9.07
0.0	1.0 mm	22.66	15.67
0.5	710 μm	46.75	27.35
1.0	500 μm	98.11	52.25
1.5	355 μm	140.53	72.81
2.0	250 μm	177.06	90.52
2.5	180 μm	190.42	97.00
3.0	125 μm	195.24	99.34
3.5	90 μm	196.28	99.84
4.0	63 μm	196.53	99.96
<4.0	<63 μm	196.61	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	SM02	Gravel Mass = 51.25 g	
Date	3-Oct-00	Remaining Mass = 1380.95 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	51.25	3.58
-0.5	1.4 mm	6.13	6.58
0.0	1.0 mm	15.17	11.00
0.5	710 μm	30.46	18.49
1.0	500 μm	65.52	35.65
1.5	355 μm	102.26	53.64
2.0	250 μm	147.73	75.90
2.5	180 μm	163.97	83.85
3.0	125 μm	169.11	86.37
3.5	90 μm	169.79	86.70
4.0	63 μm	169.91	86.76
<4.0	<63 μm	196.96	100.00

Folk (1974) Texture Group: Slightly granular muddy medium sand

Sample	SM03	Gravel Mass = 41.60 g	
Date	3-Oct-00	Remaining Mass = 1638.09 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	41.60	2.48
-0.5	1.4 mm	4.78	6.62
0.0	1.0 mm	14.09	14.70
0.5	710 μm	30.55	28.99
1.0	500 μm	64.11	58.11
1.5	355 μm	88.39	79.18
2.0	250 μm	106.75	95.11
2.5	180 μm	111.16	98.94
3.0	125 μm	112.11	99.77
3.5	90 μm	112.30	99.93
4.0	63 μm	112.36	99.98
<4.0	<63 μm	112.38	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Sample	SM01	Gravel Mass = 12.43 g	
Date	3-Oct-00	Remaining Mass = 1219.44 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	12.43	1.01
-0.5	1.4 mm	3.11	2.93
0.0	1.0 mm	10.21	7.33
0.5	710 μm	24.77	16.34
1.0	500 μm	67.00	42.48
1.5	355 μm	108.47	68.15
2.0	250 μm	148.68	93.04
2.5	180 μm	158.15	98.90
3.0	125 μm	159.72	99.88
3.5	90 μm	159.87	99.97
4.0	63 μm	159.90	99.99
<4.0	<63 μm	159.92	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Table E3 Cumulative frequency grain size distributions for bulk bed-material samples on Swift Creek for 2000 (continued)

Sample	SM06	Gravel Mass = 35.10 g	
Date	3-Oct-00	Remaining Mass = 1078.26 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	35.10	3.15
-0.5	1.4 mm	4.68	6.45
0.0	1.0 mm	15.35	13.96
0.5	710 µm	33.92	27.04
1.0	500 µm	70.33	52.68
1.5	355 µm	104.60	76.82
2.0	250 µm	130.33	94.94
2.5	180 µm	136.34	99.17
3.0	125 µm	137.38	99.90
3.5	90 µm	137.49	99.98
4.0	63 µm	137.51	99.99
<4.0	<63 µm	137.52	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Sample	SM07	Gravel Mass = 17.62 g	
Date	3-Oct-00	Remaining Mass = 1220.09 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	17.62	1.42
-0.5	1.4 mm	4.06	3.94
0.0	1.0 mm	12.31	9.05
0.5	710 µm	34.02	22.51
1.0	500 µm	84.95	54.08
1.5	355 µm	127.64	80.54
2.0	250 µm	151.20	95.15
2.5	180 µm	158.06	99.40
3.0	125 µm	158.81	99.86
3.5	90 µm	158.97	99.96
4.0	63 µm	159.01	99.99
<4.0	<63 µm	159.03	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Sample	SM04	Gravel Mass = 59.15 g	
Date	3-Oct-00	Remaining Mass = 1221.93 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	59.15	4.62
-0.5	1.4 mm	11.60	11.43
0.0	1.0 mm	30.00	22.24
0.5	710 µm	57.46	38.38
1.0	500 µm	104.80	66.20
1.5	355 µm	134.44	83.61
2.0	250 µm	156.28	96.45
2.5	180 µm	161.15	99.31
3.0	125 µm	162.15	99.89
3.5	90 µm	162.29	99.98
4.0	63 µm	162.32	99.99
<4.0	<63 µm	162.33	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Sample	SM08	Gravel Mass = 19.23 g	
Date	3-Oct-00	Remaining Mass = 1305.69 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	19.23	1.45
-0.5	1.4 mm	5.94	4.98
0.0	1.0 mm	19.00	12.75
0.5	710 µm	44.61	27.98
1.0	500 µm	98.86	60.25
1.5	355 µm	134.40	81.38
2.0	250 µm	158.78	95.88
2.5	180 µm	164.24	99.13
3.0	125 µm	165.40	99.82
3.5	90 µm	165.60	99.94
4.0	63 µm	165.66	99.98
<4.0	<63 µm	165.70	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Table E4 Cumulative frequency grain size distributions for bulk bed-material samples on Swift Creek for 2001

Sample	SM05	Gravel Mass = 92.59 g	
Date	2-Oct-01	Remaining Mass = 1431.31 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm	12.29	0.81
-1.5	2.4 mm	66.48	4.36
-1.0	2.0 mm	92.59	6.08
-0.5	1.4 mm	6.81	12.20
0.0	1.0 mm	15.67	20.17
0.5	710 µm	29.46	32.57
1.0	500 µm	59.44	59.54
1.5	355 µm	83.63	81.29
2.0	250 µm	98.39	94.57
2.5	180 µm	103.45	99.12
3.0	125 µm	104.27	99.86
3.5	90 µm	104.38	99.96
4.0	63 µm	104.42	99.99
<4.0	<63 µm	104.43	100.00

Folk (1974) Texture Group: Granular coarse sand

Sample	SM02	Gravel Mass = 12.73 g	
Date	2-Oct-01	Remaining Mass = 1509.72 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	12.73	0.84
-0.5	1.4 mm	1.96	2.70
0.0	1.0 mm	4.92	5.51
0.5	710 µm	12.32	12.55
1.0	500 µm	36.09	35.15
1.5	355 µm	65.13	62.76
2.0	250 µm	89.65	86.07
2.5	180 µm	100.84	96.71
3.0	125 µm	103.80	99.52
3.5	90 µm	104.19	99.90
4.0	63 µm	104.29	99.99
<4.0	<63 µm	104.30	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	SM03	Gravel Mass = 102.89 g	
Date	2-Oct-01	Remaining Mass = 1801.17 g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	0.63	0.03
-2.0	4.0 mm	11.16	0.59
-1.5	2.4 mm	69.09	3.63
-1.0	2.0 mm	102.89	5.40
-0.5	1.4 mm	8.78	12.93
0.0	1.0 mm	19.73	22.32
0.5	710 µm	36.54	36.72
1.0	500 µm	69.06	64.60
1.5	355 µm	91.05	83.45
2.0	250 µm	103.57	94.18
2.5	180 µm	108.92	98.77
3.0	125 µm	110.15	99.82
3.5	90 µm	110.29	99.94
4.0	63 µm	110.35	99.99
<4.0	<63 µm	110.36	100.00

Folk (1974) Texture Group: Granular coarse sand

Sample	SM01	Gravel Mass = 72.61 g	
Date	2-Oct-01	Remaining Mass = 1211.25 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm	5.39	0.42
-1.5	2.4 mm	50.09	3.90
-1.0	2.0 mm	72.61	5.65
-0.5	1.4 mm	6.84	11.28
0.0	1.0 mm	19.60	21.77
0.5	710 µm	40.16	38.67
1.0	500 µm	76.93	68.91
1.5	355 µm	100.23	88.06
2.0	250 µm	111.36	97.21
2.5	180 µm	114.26	99.60
3.0	125 µm	114.66	99.93
3.5	90 µm	114.72	99.98
4.0	63 µm	114.74	99.99
<4.0	<63 µm	114.75	100.00

Folk (1974) Texture Group: Granular coarse sand

Table E4 Cumulative frequency grain size distributions for bulk bed-material samples on Swift Creek for 2001 (continued)

Sample	SM06	Gravel Mass = 59.64 g	
Date	2-Oct-01	Remaining Mass = 1233.05 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	59.64	4.61
-0.5	1.4 mm	7.23	11.28
0.0	1.0 mm	17.76	20.98
0.5	710 µm	34.65	36.55
1.0	500 µm	69.41	68.58
1.5	355 µm	90.73	88.23
2.0	250 µm	99.98	96.76
2.5	180 µm	102.72	99.28
3.0	125 µm	103.30	99.82
3.5	90 µm	103.43	99.94
4.0	63 µm	103.49	99.99
<4.0	<63 µm	103.50	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Sample	SM07	Gravel Mass = 43.53 g	
Date	2-Oct-01	Remaining Mass = 1736.03 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	43.53	2.45
-0.5	1.4 mm	6.33	7.91
0.0	1.0 mm	16.18	16.40
0.5	710 µm	31.78	29.86
1.0	500 µm	67.83	60.95
1.5	355 µm	95.26	84.61
2.0	250 µm	108.95	96.42
2.5	180 µm	112.27	99.28
3.0	125 µm	112.96	99.88
3.5	90 µm	113.05	99.96
4.0	63 µm	113.09	99.99
<4.0	<63 µm	113.10	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Sample	SM04	Gravel Mass = 107.67 g	
Date	2-Oct-01	Remaining Mass = 1475.43 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm	14.39	0.91
-1.5	2.4 mm	86.24	5.45
-1.0	2.0 mm	107.67	6.80
-0.5	1.4 mm	11.08	16.98
0.0	1.0 mm	22.31	27.30
0.5	710 µm	37.59	41.34
1.0	500 µm	68.14	69.41
1.5	355 µm	88.78	88.37
2.0	250 µm	98.04	96.88
2.5	180 µm	100.66	99.28
3.0	125 µm	101.30	99.87
3.5	90 µm	101.41	99.97
4.0	63 µm	101.43	99.99
<4.0	<63 µm	101.44	100.00

Folk (1974) Texture Group: Granular coarse sand

Sample	SM08	Gravel Mass = 34.25 g	
Date	2-Oct-01	Remaining Mass =1405.33 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	34.25	2.38
-0.5	1.4 mm	5.52	7.17
0.0	1.0 mm	13.31	13.93
0.5	710 µm	27.77	26.48
1.0	500 µm	64.30	58.19
1.5	355 µm	94.30	84.23
2.0	250 µm	108.36	96.43
2.5	180 µm	111.74	99.37
3.0	125 µm	112.33	99.88
3.5	90 µm	112.42	99.96
4.0	63 µm	112.47	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Table E5: Cumulative frequency grain size distributions for bulk bed-material samples on Swift Creek for 2002

Sample	SM05	Gravel Mass = 20.04 g	
Date	24-Jul-02	Remaining Mass = 2638.49 g	
Phi		Mass (g)	Cumulative %
-3.25	9.5mm		
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	20.04	0.75
-0.5	1.4 mm	1.38	2.05
0.0	1.0 mm	5.88	6.29
0.5	710 µm	17.31	17.04
1.0	500 µm	45.40	43.48
1.5	355 µm	74.37	70.74
2.0	250 µm	97.40	92.41
2.5	180 µm	104.11	98.73
3.0	125 µm	105.30	99.85
3.5	90 µm	105.40	99.94
4.0	63 µm	105.43	99.97
<4.0	<63 µm	105.46	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	SM02	Gravel Mass = 137.61 g	
Date	24-Jul-02	Remaining Mass = 2243.81g	
Phi		Mass (g)	Cumulative %
-3.25	9.5mm	5.13	0.22
-2.0	4.0 mm	42.33	1.78
-1.5	2.4 mm	112.99	4.74
-1.0	2.0 mm	137.61	5.78
-0.5	1.4 mm	2.29	7.68
0.0	1.0 mm	6.45	11.14
0.5	710 µm	14.82	18.09
1.0	500 µm	30.62	31.21
1.5	355 µm	51.84	48.84
2.0	250 µm	84.57	76.03
2.5	180 µm	104.8	92.84
3.0	125 µm	111.61	98.50
3.5	90 µm	113.00	99.65
4.0	63 µm	113.40	99.98
<4.0	<63 µm	113.42	100.00

Folk (1974) Texture Group: Granular medium sand

Sample	SM03	Gravel Mass =43.72 g	
Date	24-Jul-02	Remaining Mass = 1954.18 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	43.72	2.19
-0.5	1.4 mm	2.63	4.46
0.0	1.0 mm	8.33	9.38
0.5	710 µm	19.87	19.33
1.0	500 µm	45.85	41.75
1.5	355 µm	74.91	66.82
2.0	250 µm	103.12	91.16
2.5	180 µm	111.74	98.60
3.0	125 µm	113.19	99.85
3.5	90 µm	113.32	99.97
4.0	63 µm	113.35	99.99
<4.0	<63 µm	113.36	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	SM01	Gravel Mass = 77.65 g	
Date	24-Jul-02	Remaining Mass = 1162.82g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm	6.48	0.52
-1.5	2.4 mm	52.71	4.25
-1.0	2.0 mm	77.65	6.26
-0.5	1.4 mm	7.58	12.28
0.0	1.0 mm	17.73	20.33
0.5	710 µm	32.32	31.92
1.0	500 µm	57.91	52.23
1.5	355 µm	81.03	70.58
2.0	250 µm	106.43	90.74
2.5	180 µm	116.55	98.78
3.0	125 µm	117.95	99.89
3.5	90 µm	118.05	99.97
4.0	63 µm	118.08	99.99
<4.0	<63 µm	118.09	100.00

Folk (1974) Texture Group: Granular medium sand

Table E5 Cumulative frequency grain size distributions for bulk bed-material samples on Swift Creek for 2002 (continued)

Sample	SM06	Gravel Mass = 60.89 g	
Date	24-Jul-02	Remaining Mass =1718.20 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	60.89	3.42
-0.5	1.4 mm	4.90	7.42
0.0	1.0 mm	13.30	14.28
0.5	710 µm	27.76	26.08
1.0	500 µm	55.64	48.83
1.5	355 µm	82.65	70.88
2.0	250 µm	109.60	92.87
2.5	180 µm	117.31	99.17
3.0	125 µm	118.17	99.87
3.5	90 µm	118.29	99.97
4.0	63 µm	118.32	99.99
<4.0	<63 µm	118.33	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	SM07	Gravel Mass = 34.02 g	
Date	24-Jul-02	Remaining Mass = 2643.36g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	34.02	1.27
-0.5	1.4 mm	3.83	4.47
0.0	1.0 mm	13.27	12.35
0.5	710 µm	32.74	28.61
1.0	500 µm	69.44	59.25
1.5	355 µm	96.01	81.44
2.0	250 µm	111.27	94.18
2.5	180 µm	116.69	98.71
3.0	125 µm	118.05	99.84
3.5	90 µm	118.21	99.97
4.0	63 µm	118.23	99.99
<4.0	<63 µm	118.24	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Sample	SM04	Gravel Mass = 74.74 g	
Date	24-Jul-02	Remaining Mass = 1973.09g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm		
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	74.74	3.65
-0.5	1.4 mm	5.20	7.94
0.0	1.0 mm	15.42	16.36
0.5	710 µm	30.63	28.90
1.0	500 µm	58.72	52.05
1.5	355 µm	85.47	74.10
2.0	250 µm	106.32	91.28
2.5	180 µm	114.49	98.01
3.0	125 µm	116.59	99.74
3.5	90 µm	116.85	99.96
4.0	63 µm	116.89	99.99
<4.0	<63 µm	116.90	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Sample	SM08	Gravel Mass = 128.77 g	
Date	24-Jul-02	Remaining Mass = 1915.68g	
Phi		Mass (g)	Cumulative %
-3.25	9.5 mm	0.18	0.01
-2.0	4.0 mm	17.83	0.87
-1.5	2.4 mm	97.02	4.75
-1.0	2.0 mm	128.77	6.30
-0.5	1.4 mm	5.62	11.24
0.0	1.0 mm	14.09	18.69
0.5	710 µm	28.38	31.25
1.0	500 µm	56.29	55.79
1.5	355 µm	80.11	76.73
2.0	250 µm	98.53	92.92
2.5	180 µm	104.97	98.58
3.0	125 µm	106.38	99.82
3.5	90 µm	106.53	99.96
4.0	63 µm	106.57	99.99
<4.0	<63 µm	106.58	100.00

Folk (1974) Texture Group: Granular coarse sand

Table E6 Cumulative frequency grain size distributions for bulk bed-material samples on Swift Creek for 2003

Sample	SM05	Gravel Mass = 97.94 g	
Date	12-Aug-03	Remaining Mass = 2937.70g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	97.94	3.23
-0.5	1.4 mm	2.61	5.68
0.0	1.0 mm	8.63	11.35
0.5	710 µm	21.55	23.51
1.0	500 µm	50.53	50.78
1.5	355 µm	77.40	76.07
2.0	250 µm	95.68	93.28
2.5	180 µm	101.77	99.01
3.0	125 µm	102.68	99.87
3.5	90 µm	102.77	99.95
4.0	63 µm	102.80	99.98
<4.0	<63 µm	102.82	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	SM02	Gravel Mass = 125.89 g	
Date	12-Aug-03	Remaining Mass = 2644.71g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	125.89	4.54
-0.5	1.4 mm	3.10	7.36
0.0	1.0 mm	7.42	11.30
0.5	710 µm	15.03	18.22
1.0	500 µm	35.94	37.25
1.5	355 µm	60.92	59.98
2.0	250 µm	84.08	81.06
2.5	180 µm	99.05	94.69
3.0	125 µm	104.12	99.30
3.5	90 µm	104.70	99.83
4.0	63 µm	104.81	99.93
<4.0	<63 µm	104.89	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	SM03	Gravel Mass = 112.25 g	
Date	12-Aug-03	Remaining Mass = 2744.16 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	112.25	3.93
-0.5	1.4 mm	4.85	8.26
0.0	1.0 mm	13.22	15.72
0.5	710 µm	29.35	30.11
1.0	500 µm	63.89	60.91
1.5	355 µm	89.83	84.04
2.0	250 µm	102.31	95.18
2.5	180 µm	106.54	98.95
3.0	125 µm	107.47	99.78
3.5	90 µm	107.62	99.91
4.0	63 µm	107.67	99.96
<4.0	<63 µm	107.72	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Sample	SM01	Gravel Mass = 119.31 g	
Date	12-Aug-03	Remaining Mass =1852.57 g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm	13.73	0.70
-1.5	2.4 mm	93.98	4.77
-1.0	2.0 mm	119.31	6.05
-0.5	1.4 mm	6.68	12.16
0.0	1.0 mm	17.87	22.39
0.5	710 µm	34.53	37.61
1.0	500 µm	63.35	63.96
1.5	355 µm	85.31	84.03
2.0	250 µm	97.94	95.58
2.5	180 µm	102.07	99.35
3.0	125 µm	102.69	99.92
3.5	90 µm	102.74	99.96
4.0	63 µm	102.76	99.98
<4.0	<63 µm	102.78	100.00

Folk (1974) Texture Group: Granular coarse sand

Table E6 Cumulative frequency grain size distributions for bulk bed-material samples on Swift Creek for 2003 (continued)

Sample	SM06	Gravel Mass = 88.66 g	
Date	12-Aug-03	Remaining Mass = 1660.88g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm	9.66	0.55
-1.5	2.4 mm	69.75	3.99
-1.0	2.0 mm	88.66	5.07
-0.5	1.4 mm	7.53	11.75
0.0	1.0 mm	18.56	21.53
0.5	710 µm	35.08	36.18
1.0	500 µm	63.29	61.20
1.5	355 µm	87.04	82.27
2.0	250 µm	101.3	94.92
2.5	180 µm	106.17	99.24
3.0	125 µm	106.91	99.89
3.5	90 µm	106.98	99.96
4.0	63 µm	107	99.97
<4.0	<63 µm	107.03	100.00

Folk (1974) Texture Group: Granular coarse sand

Sample	SM07	Gravel Mass =48.65 g	
Date	12-Aug-03	Remaining Mass = 2061.06g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	48.65	2.31
-0.5	1.4 mm	4.12	6.07
0.0	1.0 mm	11.39	12.72
0.5	710 µm	23.97	24.23
1.0	500 µm	50.35	48.35
1.5	355 µm	77.49	73.18
2.0	250 µm	94.31	88.56
2.5	180 µm	102.21	95.78
3.0	125 µm	105.77	99.04
3.5	90 µm	106.5	99.71
4.0	63 µm	106.7	99.89
<4.0	<63 µm	106.82	100.00

Folk (1974) Texture Group: Slightly granular medium sand

Sample	SM04	Gravel Mass = 42.93 g	
Date	12-Aug-03	Remaining Mass = 2161.93g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	42.93	1.95
-0.5	1.4 mm	2.87	4.68
0.0	1.0 mm	9.29	10.78
0.5	710 µm	22.68	23.52
1.0	500 µm	51.63	51.06
1.5	355 µm	78.46	76.59
2.0	250 µm	95.69	92.98
2.5	180 µm	102.23	99.20
3.0	125 µm	103.01	99.94
3.5	90 µm	103.05	99.98
4.0	63 µm	103.06	99.99
<4.0	<63 µm	103.07	100.00

Folk (1974) Texture Group: Slightly granular coarse sand

Sample	SM08	Gravel Mass = 77.74 g	
Date	12-Aug-03	Remaining Mass = 2069.67g	
Phi		Mass (g)	Cumulative %
-2.0	4.0 mm		
-1.5	2.4 mm		
-1.0	2.0 mm	77.74	3.62
-0.5	1.4 mm	5.07	8.21
0.0	1.0 mm	13.62	15.94
0.5	710 µm	27.92	28.87
1.0	500 µm	54.91	53.28
1.5	355 µm	82.51	78.24
2.0	250 µm	100.40	94.42
2.5	180 µm	105.07	98.64
3.0	125 µm	106.20	99.67
3.5	90 µm	106.45	99.89
4.0	63 µm	106.52	99.95
<4.0	<63 µm	106.57	100.00

Folk (1974) Texture Group: Slightly granular coarse sand