Annual Sediment Basin Yield Calculations for 2005

	Method **chk-sum/calculator**	Method **sedcalpc**
WS #1:		
104E	Survey points avg: 471.58 / 165 = 2.859	
	Elevation calculation: 100 + 1.252 – 2.859 = 98.393	secalpc = 98.39394
105F	Survey points avg. 461.870 / 165 = 2.799	
	Elevation calculation: 100 + 1.245 – 2.799 = 98.446	sedcalpc = 98.44579
	Elevation difference: 98.446 – 98.393 = 0.053	
	Sediment volume: 0.053 x 199.37 = 10.567 m^3	10.27 m^3
	Basin wide : 10.567/95.9 = 0.110 m^3 / ha	0.11 m^3 / ha

	Method **chk-sum/calculator**	Method **sedcalpc**
WS #2:		
204E	Survey points avg: 515.120 / 173 = 2.978	
	Elevation calculation: 100 + 1.168 – 2.978 = 98.190	secalpc = 98.19043
205F	Survey points avg. 478.770 / 173 = 2.768	
	Elevation calculation: 100 + 0.987 – 2.768 = 98.219	sedcalpc = 98.21954
	Elevation difference: 98.21954 – 98.19043 = 0.02911	
	Sediment volume: 0.02911 x 175 = 5.094 m^3	5.10 m^3
	Basin wide : 5.094/60.3 = 0.085 m^3 / ha	0.08 m^3 / ha

WS#3

1 liquid gallon = 0.003785 m^3

Volume of a 5 gallon bucket = 5 gal x 0.003785 m^3 = 0.019 m^3

Total # of 5 gallon buckets = 37

Sediment Volume = 37 x 0.019 = 0.703 m^3

Basin wide: 0.703cubic meters / 101.1 hectares = 0.007 m^3 / ha

WS#9

Total # of 5 gallon buckets = 14

Sediment Volume = 14 x 0.019 = 0.266 m^3

Basin wide: 0.266 cubic meters / 8.54 hectares = 0.031 m^3 / ha

WS#10

Total # of 5 gallon buckets = 46

Sediment Volume = 46 x 0.019 = 0.874 m^3

Basin wide: 0.874cubic meters / 10.12 hectares = 0.086 m^3 / ha

Annual Sediment Basin Yield Calculations for 2006

	Method chk-sum/calculator	Method sedcalpc
WS #1:		
105E	Survey points avg: 571.47 / 191 = 2.992	
	Elevation calculation: 100 + 1.460 – 2.992 = 98.468	secalpc = 98.46801
106F	Survey points avg. 443.79 / 191 = 2.324	
	Elevation calculation: 100 + 1.259 – 2.324 = 98.935	sedcalpc = 98.93549
	Elevation difference: 98.935 – 98.468 = 0.467	
	Sediment volume: 0.467 x 199.37 = 93.106 m^3	92.56 m^3
	Basin wide : 93.106/95.9 = 0.971 m^3 / ha	0.97 m^3 / ha

	Method chk-sum/calculator	Method sedcalpc
WS #2:		
205E	Survey points avg: 524.08 / 180 = 2.912	
	Elevation calculation: 100 + 1.142 – 2.912 = 98.230	secalpc = 98.23044
206F	Survey points avg. 434.39 / 180 = 2.413	
	Elevation calculation: 100 + 0.945 – 2.413 = 98.532	sedcalpc = 98.53172
	Elevation difference: 98.532 – 98.230 = 0.302	
	Sediment volume: 0.302 x 175 = 52.85 m^3	52.72 m^3
	Basin wide : 52.85/60.3 = 0.877 m^3 / ha	0.87 m^3 / ha

WS#3

1 liquid gallon = 0.003785 m^3

Volume of a 5 gallon bucket = 5 gal x 0.003785 m^3 = 0.019 m^3

Total # of 5 gallon buckets = 605 or 649

Sediment Volume = 605 or 649 x 0.019 = 11.495 or 12.331 m^3

Basin wide: cubic meters11.495 or 12.33 1 / 101.1 hectares = 0.114 or 0.122 m^3 / ha

WS#9

Total # of 5 gallon buckets = 24

Sediment Volume = 24 x 0.019 = .456 m^3

Basin wide: 0.456 cubic meters / 8.54 hectares = 0.054 m^3 / ha

WS#10

Total # of 5 gallon buckets = 170

Sediment Volume = 170 x 0.019 = 3.23 m^3

Basin wide: 3.23 cubic meters / 10.12 hectares = 0.319 m^3 / ha

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Annual Sediment Basin Yield Calculations for 2007

WS#1

107F Survey points avg.: 465.74 / 184 = 2.53
Elevation calculation: (100 + 1.273) – 2.53 = 98.743
106E Survey points avg.: 481.320 / 184 = 2.62
Elevation calculation: (100 + 1.272) – 2.62 = 98.652
Elevation difference: 98.743 – 98.652 = 0.091
Sediment volume: 199.37 x 0.086 = 18.143 m^3
Basin wide: 18.143 m^3 / 95.9 ha. = 0.189 m^3/ha

WS#2

207F Survey points avg.: 460.79 / 175 = 2.633
Elevation calculation: (100 + 0.986) – 2.63 = 98.356
206E Survey points avg.: 491.59 / 175 = 2.81
Elevation calculation: (100 + 1.131) – 2.81 = 98.321
Elevation difference: 98.356 – 98.321 = 0.035
Sediment volume: 175 x 0.035 = 6.125 m^3
Basin wide: 6.125 m^3 / 60.3 ha. = 0.102 m^3/ha

WS#3

1 liquid gallon = 0.003785 m^3
Volume of a 5 gallon bucket = 5 gal x 0.003785 m^3
Total # of 5 gallon buckets = 341
Sediment Volume = 341 x 0.019 = 6.479 m^3
Basin wide: 6.479 cubic meters / 101.1 hectares = 0.064 m^3 / ha

WS#9

Total # of 5 gallon buckets = 11
Sediment Volume = 11 x 0.019 = 0.209 m^3
Basin wide: 0.209 cubic meters / 8.54 hectares = 0.025 m^3 / ha

Ws#10

Total # of 5 gallon buckets = 79
Sediment Volume = 79 x 0.019 = 1.501 m^3
Basin wide: 1.501 m^3 / 10.12 hectares = 0.148 m^3/ ha

HJ Andrews
Annual Sediment Basin Yield Calculations for 2008

		Method **chk_sum/calculator**	Method **sedcalpc**
WS#1			
	108F	Survey points avg.: 444.46 / 175 = 2.55	
		Elevation calculation: (100 + 1.203) – 2.55 = 98.653	108F = 98.65731
	107E	Survey points avg.: 467.07 / 175 = 2.67	
		Elevation calculation: (100 + 1.225) – 2.67 = 98.555	107E = 98.55591
		Elevation difference: 98.653 – 98.555 = 0.098	
		Sediment volume: 199.37 x 0.098 = 19.538 m^3	Sed. Volume = 20.17 m^3
		Basin wide: 19.538 m^3 / 95.9 ha. = 0.204 m^3/ha	Basin wide = 0.21 m^3/ha

		Method **Chk_sum/calculator**	Method **sedcalpc**
WS#2			
	208F	Survey points avg.: 437.12 / 161 = 2.72	208F = 98.34797
		Elevation calculation: (100 + 1.063) – 2.72 = 98.343	
	207F	Survey points avg.: 427.83 / 161 = 2.64	207F = 98.32867
		Elevation calculation: (100 + 0.986) – 2.66 = 98.326	
		Elevation difference: 98.343 – 98.326 = 0.017	
		Sediment volume: 175 x 0.017 = 2.975 m^3	Sed. Volume = 3.38m^3
		Basin wide: 2.975 m^3 / 60.3 ha. = 0.049 m^3/ha	Basin wide = 0.06m^3/ha

*** Due to the small amount of sediment deposited the data was manipulated by eliminating data from lines 15,16,17 that didn't show much if any deposition. If this was not done the sediment calculation was a negative number, which doesn't make sense knowing that some new sediment was deposited. This certainly adds more bias to the calculation

** The sediment basin @ Ws#2 was not cleaned out in 2007 year due to the small volume of sediment deposited. There was no sed207E file so sed207F was compared to Sed208F.

WS#3

1 liquid gallon = 0.003785 m^3
Volume of a 5 gallon bucket = 5 gal x 0.003785 m^3
Total # of 5 gallon buckets = 103
Sediment Volume = 103 x 0.019 = 1.957 m^3
Basin wide: 1.957 cubic meters / 101.1 hectares = 0.019 m^3 / ha

WS#9

Total # of 5 gallon buckets = 14
Sediment Volume = 14 x 0.019 = 0.266 m^3
Basin wide: 0.266 cubic meters / 8.54 hectares = 0.031 m^3 / ha

Ws#10

Total # of 5 gallon buckets = 45
Sediment Volume = 45 x 0.019 = 0.855 m^3
Basin wide: 0.855 m^3 / 10.12 hectares = 0.085 m^3/ ha

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Annual Sediment Basin Yield Calculations for 2009

	Method **chk_sum/calculator**	**sedcalpc**
WS#1		
109F	Survey points avg.: 452.42 / 183 = 2.47	
	Elevation calculation: (100 + 1.208) – 2.47 = 98.738	109F = 98.73576
108E	Survey points avg.: 494.52 / 183 = 2.70	
	Elevation calculation: (100 + 1.247) – 2.70 = 98.547	108E = 98.54470
	Elevation difference: 98.738 – 98.547 = 0.191	
	Sediment volume: 199.37 x 0.191 = 38.080 m^3	Sed. Volume = 38.09 m^3
	Basin wide: 38.080 m^3 / 95.9 ha. = 0.397 m^3/ha	Basin wide = 0.40 m^3/ha

	Method **Chk_sum/calculator**	**sedcalpc**
WS#2		
209F	Survey points avg.: 464.04 / 173 = 2.68	209F = 98.43469
	Elevation calculation: (100 + 1.117) – 2.68 = 98.437	
208E	Survey points avg.: 470.97 / 173 = 2.72	208E = 98.31463
	Elevation calculation: (100 + 1.038) – 2.72 = 98.318	
	Elevation difference: 98.437 – 98.318 = 0.119	
	Sediment volume: 175 x 0.119 = 20.825 m^3	Sed. Volume = 21.01 m^3
	Basin wide: 20.825 m^3 / 60.3 ha. = 0.345 m^3/ha	Basin wide = 0.35 m^3/ha

WS#3 1 liquid gallon = 0.003785 m^3
Volume of a 5 gallon bucket = 5 gal x 0.003785 m^3
Total # of 5 gallon buckets = 638
Sediment Volume = 638 x 0.019 = 12.122 m^3
Basin wide: 12.112 cubic meters / 101.1 hectares = 0.120 m^3 / ha

WS#9
Total # of 5 gallon buckets = 76
Sediment Volume = 76 x 0.019 = 1.444 m^3
Basin wide: 1.444 cubic meters / 8.54 hectares = 0.169 m^3 / ha

Ws#10
Total # of 5 gallon buckets = 141
Sediment Volume = 141 x 0.019 = 2.679 m^3
Basin wide: 2.679 m^3 / 10.12 hectares = 0.265 m^3/ ha

HJ Andrews
Annual Sediment Basin Yield Calculations for 2010 / 2011

The Sediment Basins weren't cleaned in 2010

Method

	chk_sum/calculator	**sedcalpc**
WS#1		
111F	Survey points avg.: 468.43 / 183 = 2.56	
	Elevation calculation: (100 + 1.387) – 2.56 = 98.827	111F = 98.82727
109E	Survey points avg.: 509.14 / 183 = 2.78	
	Elevation calculation: (100 + 1.262) – 2.78 = 98.482	109E = 98.47981
	Elevation difference: 98.827 – 98.482 = 0.345	
	Sediment volume: 199.37 x 0.345 = 68.783 m^3	Sed. Volume = 69.07 ? m^3
	Basin wide: 68.783 m^3 / 95.9 ha. = 0.717 m^3/ha	Basin wide = 0.72 ? m^3/ha

? = the sedcalpc program wouldn't calculate using the proper count so the Volumes are off a little. It worked fine for the WS#2 values 69.381 m^3 and 0.724 m^3/ha are the hand calculated values for the two sedcalpc elevation averages for 183 points.

Method

	Chk_sum/calculator	**sedcalpc**
WS#2		
211F	Survey points avg.: 496.00 / 184 = 2.70	211F = 98.37435
	Elevation calculation: (100 + 1.070) – 2.70 = 98.370	
209E	Survey points avg.: 522.89 / 184 = 2.84	209E = 98.25321
	Elevation calculation: (100 + 1.095) – 2.84 = 98.255	
	Elevation difference: 98.370 – 98.255 = 0.115	
	Sediment volume: 175 x 0.115 = 20.125 m^3	Sed. Volume = 21.20 m^3
	Basin wide: 20.125 m^3 / 60.3 ha. = 0.334 m^3/ha	Basin wide = 0.35 m^3/ha

WS#3 1 liquid gallon = 0.003785 m^3

Volume of a 5 gallon bucket = 5 gal x 0.003785 m^3

Total # of 5 gallon buckets = 379.5

Sediment Volume = 379.5 x 0.019 = 7.211 m^3

Basin wide: 7.211 cubic meters / 101.1 hectares = 0.071 m^3 / ha

WS#9

Total # of 5 gallon buckets = 40

Sediment Volume = 40 x 0.019 = 0.760 m^3

Basin wide: 0.76 cubic meters / 8.54 hectares = 0.089 m^3 / ha

Ws#10

Total # of 5 gallon buckets = 153

Sediment Volume = 153 x 0.019 = 2.907 m^3

Basin wide: 2.907 m^3 / 10.12 hectares = 0.287 m^3/ ha

HJ Andrews
Annual Sediment Basin Yield Calculations for 2012

	Method **chk_sum/calculator**	**sedcalpc**
WS#1		
112F	Survey points avg.: 436.28 / 185 = 2.36	
	Elevation calculation: (100 + 1.263) – 2.36 = 98.903	112F = 98.90473
111E	Survey points avg.: 497.70 / 185 = 2.69	
	Elevation calculation: (100 + 1.264) – 2.69 = 98.574	111E = 98.57373
	Elevation difference: 98.903 – 98.574 = 0.329	
	Sediment volume: 199.37 x 0.329 = 65.593m³	Sed. Volume = 66.03 ? m³
	Basin wide: 65.593 m³ / 95.9 ha. = 0.684 m³/ha	Basin wide = 0.69 ? m³/ha

? = the sedcalpc program wouldn't calculate using the proper count so the Volumes are off a little.

	Method **Chk_sum/calculator**	**sedcalpc**
WS#2		
212F	Survey points avg.: 463.04 / 177 = 2.62	212F = 98.28195
	Elevation calculation: (100 + 0.898) – 2.62 = 98.278	
211E	Survey points avg.: 489.79 / 177 = 2.78	211E = 98.21282
	Elevation calculation: (100 + 0.980) – 2.78 = 98.200	
	Elevation difference: 98.278 – 98.200 = 0.078	
	Sediment volume: 175 x 0.078 = 13.65 m³	Sed. Volume = 12.10 m³
	Basin wide: 13.65 m³ / 60.3 ha. = 0.226 m³/ha	Basin wide = 0.20 m³/ha

WS#3 1 liquid gallon = 0.003785 m³
Volume of a 5 gallon bucket = 5 gal x 0.003785 m³
Total # of 5 gallon buckets = 201.3
Sediment Volume = 201.3 x 0.019 = 3.825 m^3
Basin wide: 3.825 cubic meters / 101.1 hectares = 0.038 m^3 / ha

WS#9
Total # of 5 gallon buckets = 23.5
Sediment Volume = 23.5 x 0.019 = 0.447 m^3
Basin wide: 0.447 cubic meters / 8.54 hectares = 0.052 m^3 / ha

Ws#10
Total # of 5 gallon buckets = 113
Sediment Volume = 113 x 0.019 = 2.147 m³
Basin wide: 2.147 m³ / 10.12 hectares = 0. 212 m³/ ha

HJ Andrews
Annual Sediment Basin Yield Report for 2013

Method

chk_sum/calculator **sedcalpc**

WS#1

113F Survey points avg.: 430.27 / 172 = 2.50
Elevation calculation: (100 + 1.203) – 2.50 = 98.703 113F = 98.70143

112E Survey points avg.: 463.60 / 172 = 2.70
Elevation calculation: (100 + 1.293) – 2.70 = 98.593 112E = 98.59765
Elevation difference: 98.703 – 98.593 = 0.110
Sediment Basin Area: 199.37 Watershed Area: 95.9 ha
Sediment volume: 199.37 x 0.11 = 21.931m³ Sed. Volume = 20.77 ? m³
Watershed Basin wide: 21.931 m³ / 95.9 ha. = 0.23 m³/ha Basin wide = 0.22 ? m³/ha

? = the sedcalpc program wouldn't calculate using the proper count so the Volumes are off a little.

Method

Chk_sum/calculator **sedcalpc**

WS#2

213F Survey points avg.: 443.71 / 163 = 2.72 213F = 98.20685
Elevation calculation: (100 + 0.929) – 2.72 = 98.209

212E Survey points avg.: 445.11 / 163 = 2.73 212E = 98.17626
Elevation calculation: (100 + 0.907) – 2.73 = 98.177
Elevation difference: 98.209 – 98.177 = 0.032
Sediment Basin Area: 175 m^2 Watershed Area: 95.9 ha
Sediment volume: 175 x 0.032 = 5.60 m³ Sed. Volume = 5.35 m³
Basin wide: 5.60 m³ / 60.3 ha. = 0.093 m³/ha Basin wide = 0.09 m³/ha

WS#3 1 liquid gallon = 0.003785 m³
Volume of a 5 gallon bucket = 5 gal x 0.003785 m³
Total # of 5 gallon buckets = 71
Sediment Volume = 71 x 0.019 = 1.349 m^3
Basin wide: 1.349 cubic meters / 101.1 hectares = 0.013 m^3 / ha

WS#9
Total # of 5 gallon buckets = 9
Sediment Volume = 9 x 0.019 = 0.171 m^3
Basin wide: 0.171 cubic meters / 8.54 hectares = 0.020 m^3 / ha

Ws#10
Total # of 5 gallon buckets = 47
Sediment Volume = 47 x 0.019 = 0.893 m³
Basin wide: 0.893 m³ / 10.12 hectares = 0. 088 m³/ ha

Note: The WS#2 basin was not cleaned this year due to the small amount of sediment deposition. Therefore there is not SED213E file for 2013. Sed213F will be compared with Sed214F to obtain the 2014 volume of bedload deposition.

HJ Andrews
Annual Sediment Basin Yield Report for 2014

Method

chk_sum/calculator **sedcalpc**

WS#1

114F Survey points avg.: 475.90 / 197 = 2.42
Elevation calculation: (100 + 1.350) – 2.42 = 98.930 114F = 98.93426
113E Survey points avg.: 504.57 / 197 = 2.56 count = 197
Elevation calculation: (100 + 1.233) – 2.56 = 98.673 113E = 98.67121
Elevation difference: 98.930 – 98.673 = 0.257 count = 196
Sediment Basin Area: 199.37 Watershed Area: 95.9 ha
Sediment volume: 199.37 x 0.257 = 51.238m³ Sed. Volume = 52.44 ? m³
Watershed Basin wide: 51.238 m³ / 95.9 ha. = 0.53 m³/ha Basin wide = 0.55 ? m³/ha

? = the sedcalpc program wouldn't calculate using the proper count so the Volumes are off a little.

Method

Chk_sum/calculator **sedcalpc**

WS#2

214F Survey points avg.: 450.33 / 167 = 2.70 214F = 98.24841
Elevation calculation: (100 + 0.945) – 2.70 = 98.245
213E Survey points avg.: 454.01 / 167 = 2.72 213E = 98.21038
Elevation calculation: (100 + 0.929) – 2.72 = 98.209
Elevation difference: 98.245 – 98.209 = 0.036
Sediment Basin Area: 175 m^2 Watershed Area: 95.9 ha
Sediment volume: 175 x 0.036 = 6.30 m³ Sed. Volume = 6.66 m³
Basin wide: 6.30 m³ / 60.3 ha. = 0.105 m³/ha Basin wide = 0.11 m³/ha

WS#3 1 liquid gallon = 0.003785 m³
Volume of a 5 gallon bucket = 5 gal x 0.003785 m³
Total # of 5 gallon buckets = 71
Sediment Volume = 71 x 0.019 = 1.349 m^3
Basin wide: 1.349 cubic meters / 101.1 hectares = 0.013 m^3 / ha

WS#9
Total # of 5 gallon buckets = 9
Sediment Volume = 9 x 0.019 = 0.171 m^3
Basin wide: 0.171 cubic meters / 8.54 hectares = 0.020 m^3 / ha

Ws#10
Total # of 5 gallon buckets = 47
Sediment Volume = 47 x 0.019 = 0.893 m³
Basin wide: 0.893 m³ / 10.12 hectares = 0. 088 m³/ ha

Note: The WS#2 basin was not cleaned this year due to the small amount of sediment deposition. Therefore there is not SED213E file for 2013. Sed213F will be compared with Sed214F to obtain the 2014 volume of bedload deposition.

HJ Andrews
Annual Sediment Basin Yield Report for 2015

Method

Excel/calculator **sedcalpc**

WS#1

115F Survey points avg.: 432.13 / 194 = 2.23
Elevation calculation: (100 + 1.210) – 2.23 = 98.980
114E Survey points avg.: 504.59 / 194 = 2.60
Elevation calculation: (100 + 1.273) – 2.60 = 98.673
Elevation difference: 98.980 – 98.673 = 0.307
Sediment Basin Area: 199.37 Watershed Area: 95.9 ha
Sediment volume: 199.37 x 0.307 = 61.207m³
Watershed Basin wide: 61.207 m³ / 95.9 ha. = 0.64 m³/ha

The sedcalpc program will no longer be used as of 2015. the data files were changed from FoxPro to Excel as FoxPro is out of production.

Excel/calculator

WS#2

215F Survey points avg.: 446.92 / 161 = 2.78
Elevation calculation: (100 + 0.988) – 2.78 = 98.208
214E Survey points avg.: 454.14 / 161 = 2.82
Elevation calculation: (100 + 0.973) – 2.82 = 98.153
Elevation difference: 98.208 – 98.153 = 0.055
Sediment Basin Area: 175 m^2 Watershed Area: 95.9 ha
Sediment volume: 175 x 0.055 = 9.63 m³
Basin wide: 9.63 m³ / 60.3 ha. = 0.160 m³/ha

WS#3 1 liquid gallon = 0.003785 m³
Volume of a 5 gallon bucket = 5 gal x 0.003785 m³
Total # of 5 gallon buckets = 140
Sediment Volume = 140 x 0.019 = 2.66 m^3
Basin wide: 2.66 cubic meters / 101.1 hectares = 0.026 m^3 / ha
(the excavator bucket volume = 33 , 5 gallon buckets)

WS#9

Total # of 5 gallon buckets = 29
Sediment Volume = 29 x 0.019 = 0.551 m^3
Basin wide: 0.551 cubic meters / 8.54 hectares = 0.065 m^3 / ha

Ws#10

Total # of 5 gallon buckets = 143.5
Sediment Volume = 143.5 x 0.019 = 2.727 m³
Basin wide: 2.727 m³ / 10.12 hectares = 0.270 m³/ ha

HJ Andrews
Annual Sediment Basin Yield Report for 2016

Method

Excel/calculator **sedcalpc**

WS#1

116F Survey points avg.: 464.95 / 191 = 2.43
Elevation calculation: (100 + 1.277) – 2.43 = 98.847

115E Survey points avg.: 568.31 / 191 = 2.98
Elevation calculation: (100 + 1.672) – 2.98 = 98.692
Elevation difference: 98.847 – 98.692 = 0.155
Sediment Basin Area: 199.37 Watershed Area: 95.9 ha
Sediment volume: 199.37 x 0.155 = 30.902m^3
Watershed Basin wide: 30.902 m^3 / 95.9 ha. = 0.32 m^3/ha

The sedcalpc program will no longer be used as of 2015. the data files were changed from FoxPro to Excel as FoxPro is out of production.

Excel/calculator

WS#2

216F Survey points avg.: 406.70 / 152= 2.68
Elevation calculation: (100 + 0.889) – 2.68 = 98.209

215E Survey points avg.: 416.28 / 152 = 2.74
Elevation calculation: (100 + 0.921) – 2.74 = 98.181
Elevation difference: 98.209 – 98.181 = 0.028
Sediment Basin Area: 175 m^2 Watershed Area: 95.9 ha
Sediment volume: 175 x 0.028 = 4.9 m^3
Basin wide: 4.9 m^3 / 60.3 ha. = 0.081 m^3/ha

WS#3 1 liquid gallon = 0.003785 m^3
Volume of a 5 gallon bucket = 5 gal x 0.003785 m^3
Total # of 5 gallon buckets = 165
Sediment Volume = 165 x 0.019 = 3.135 m^3
Basin wide: 3.135 cubic meters / 101.1 hectares = 0.031 m^3 / ha
(the excavator bucket volume = 33 , 5 gallon buckets)

WS#9
Total # of 5 gallon buckets = 21
Sediment Volume = 21 x 0.019 = 0.399 m^3
Basin wide: cubic meters 0.399 / 8.54 hectares = 0.047 m^3 / ha

Ws#10
Total # of 5 gallon buckets = 85.5
Sediment Volume = 85.5 x 0.019 = 1.625 m^3
Basin wide: m^3 / 10.12 hectares = 0.161 m^3/ ha

HJ Andrews
Annual Sediment Basin Yield Report for 2017

Method

Excel/calculator **sedcalpc**

WS#1

117F Survey points avg.: 581.26/ 190 = 3.06
Elevation calculation: (100 + 1.850) – 3.06 = 98.79

116E Survey points avg.: 488.26 / 190 = 2.57
Elevation calculation: (100 + 1.195) – 2.57 = 98.625
Elevation difference: 98.79 – 98.625 = 0.165
Sediment Basin Area: 199.37 Watershed Area: 95.9 ha
Sediment volume: 199.37 x 0.165 = 32.896m³
Watershed Basin wide: 32.896 m³ / 95.9 ha. = 0.34 m³/ha

The sedcalpc program will no longer be used as of 2015. the data files were changed from FoxPro to Excel as FoxPro is out of production.

Excel/calculator

WS#2

217F Survey points avg.: 443.38 / 164 = 2.70
Elevation calculation: (100 + 0.988) – 2.70 = 98.288

216F Survey points avg.: 436.59 / 164 = 2.66
Elevation calculation: (100 + 0.899) – 2.66 = 98.239
Elevation difference: 98.288 – 98.159 = 0.049
Sediment Basin Area: 175 m^2 Watershed Area: 60.3 ha
Sediment volume: 175 x 0.049 = 8.575 m³
Basin wide: 8.575 m³ / 60.3 ha. = 0.14 m³/ha

WS#3 1 liquid gallon = 0.003785 m³
Volume of a 5 gallon bucket = 5 gal x 0.003785 m³
Total # of 5 gallon buckets = 213
Sediment Volume = 213 x 0.019 = m^3
Basin wide: 4.047 cubic meters / 101.1 hectares = 0.040 m^3 / ha
(the excavator bucket volume = 33 , 5 gallon buckets)

WS#9

Total # of 5 gallon buckets = 25.5
Sediment Volume = 25.5 x 0.019 = 0.485 m^3
Basin wide: cubic meters 0.485 / 8.54 hectares = 0.057 m^3 / ha

Ws#10

Total # of 5 gallon buckets = 43.5
Sediment Volume = 43.5 x 0.019 = 0.827 m³
Basin wide: 0.827m³ / 10.12 hectares = 0.082 m³/ ha

HJ Andrews
Annual Sediment Basin Yield Report for 2018

Method

Excel/calculator **sedcalpc**

WS#1

118F Survey points avg.: 485.22/ 190 = 2.55
Elevation calculation: (100 + 1.367) – 2.55 = 98.817

117F Survey points avg.: 580.38 / 190 = 3.06
Elevation calculation: (100 + 1.850) – 3.06 = 98.79
Elevation difference: 98.817 – 98.79 = 0.027
Sediment Basin Area: 199.37 Watershed Area: 95.9 ha
Sediment volume: 199.37 x 0.027 = 5.383 m^3
Watershed Basin wide: 5.383 m^3 / 95.9 ha. = 0.06 m^3/ha

The sedcalpc program will no longer be used as of 2015. the data files were changed from FoxPro to Excel as FoxPro is out of production.

Excel/calculator

WS#2

218F Survey points avg.: 436.65 / 160 = 2.73
Elevation calculation: (100 + 1.047) – 2.73 = 98.317

217F Survey points avg.: 433.04 / 160 = 2.71
Elevation calculation: (100 + 0.988) – 2.71 = 98.278
Elevation difference: 98.317 – 98.278 = 0.039
Sediment Basin Area: 175 m^2 Watershed Area: 60.3 ha
Sediment volume: 175 x 0.039 = 6.825 m^3
Basin wide: 6.825 m^3 / 60.3 ha. = 0.11 m^3/ha

WS#3

2017 sediment was not removed from basin due to high fire danger. Subtract 2017 bucket total from 2018 total to get actual 2018 bucket total
1 gallon = 0.003785 m^3 Volume of a 5 gallon bucket = 5 gal x 0.003785 m^3
2018 Total # of 5 gallon buckets = 221
2017 Total # of 5 gallon buckets = 213 (221 – 213 = 8 buckets for 2018)
Sediment Volume = 8 x 0.019 = 0.152 m^3
Basin wide: 0.152 m^3 / 101.1 hectares = 0.002 m^3
(2018, the excavator bucket volume = 35 , 5 gallon buckets 2017 = 33
The previous bucket volume used until 2018 was 33, 5 gallon buckets)

WS#9

Total # of 5 gallon buckets = 8.5
Sediment Volume = 8.5 x 0.019 = 0.162 m^3
Basin wide: cubic meters 0.162 / 8.54 hectares = 0.019 m^3/ ha

Ws#10

Total # of 5 gallon buckets = 21
Sediment Volume = 21 x 0.019 = 0.399 m^3
Basin wide: .399 m^3 / 10.12 hectares = 0.039 m^3/ ha

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Annual Sediment Basin Yield Report for 2019

Method

Excel/calculator **sedcalpc**

WS#1

119F Survey points avg.: 484.3 / 178 = 2.72
Elevation calculation: (100 + 1.355) – 2.72 = 98.635

118E Survey points avg.: 464.40 / 178 = 2.61
Elevation calculation: (100 + 1.175) – 2.61 = 9.565
Elevation difference: 98.635 – 98.565 = 0.070
Sediment Basin Area: 199.37 Watershed Area: 95.9 ha
Sediment volume: 199.37 x 0.070 = 13.96 m^3
Watershed Basin wide: 13.96 m^3 / 95.9 ha. = 0.146 m^3/ha

The sedcalpc program will no longer be used as of 2015. the data files were changed from FoxPro to Excel as FoxPro is out of production.

WS#1 118E file benchmark reading was 2.103m. or 6.9 feet. That is too high unless a person is standing on a bucket or something else but that was unlikely. By looking at the rod used for the benchmark survey it looked as though the rod had not been raised when it should have been. Raising the rod would have given a reading of 1.175 m. instead of 2.103. Craig suggested double checking the number I came up with and the difference between a point on the dam with the benchmark reading from the 119F survey. That difference could then be subtracted from the elevation reading from the sed118E file for the same point on the dam and that should give you the benchmark reading. That came out to 1.175 m also. 1.175 m is the number I chose to use for the bench mark reading for the sed118E file.

Excel/calculator

WS#2

219F Survey points avg.: 430.71 / 155 = 2.78
Elevation calculation: (100 + 0.945) – 2.78 = 98.165

218E Survey points avg.: 433.94 / 155 = 2.80
Elevation calculation: (100 + 0.941) – 2.80 = 98.141
Elevation difference: 98.165 – 98.141 = 0.024
Sediment Basin Area: 175 m^2 Watershed Area: 60.3 ha
Sediment volume: 175 x 0.024 = 4.2 m^3
Basin wide: 4.2 m^3 / 60.3 ha. = 0.07 m^3/ha

WS#3

1 gallon = 0.003785 m^3
Volume of a 5 gallon bucket = 5 gal x 0.003785 m^3 = 0.019
1 backhoe bucket -= 10 – 5 gallon buckets
The HJA Compound backhoe was used since we did not hire and excavator this year.
There were 19 backhoe buckets X 10 = 190 – 5 gallon buckets
Sediment Volume = 190 x 0.019 = 3.61 m^3
Basin wide: 3.61 m^3 / 101.1 hectares = 0.036 m^3
(2018, the excavator bucket volume = 35 , 5 gallon buckets
The previous bucket volume used until 2018 was 33, 5 gallon buckets)

WS#9

Backhoe bucket = 10 , 5 gallon buckets
Recorded 2 full backhoe buckets = 20 ‘ 5 gallon buckets
Total # of 5 gallon buckets = 20
Sediment Volume = 20 x 0.019 = 0.38 m^3
Basin wide: cubic meters 0.38 / 8.54 hectares = 0.045 m^3 / ha

Ws#10

Recorded 3 full backhoe buckets = 30 , 5 gallon buckets
Total # of 5 gallon buckets = 30
Sediment Volume = 30 x 0.019 = 0.570 m^3
Basin wide: 0.057m^3 / 10.12 hectares = 0.056 m^3/ ha

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Annual Sediment Basin Yield Report for 2020

Excel/calculator

WS#1

120F Survey points avg.: 513.62/ 183 = 2.81
Elevation calculation: (100 + 1.443) – 2.807 = 98.636 .

119F Survey points avg.: 496.79 / 183 = 2.715
Elevation calculation: (100 + 1.355) – 2.715 = 98.640
Elevation difference: 98.636 – 98.64 = - 0.004
Sediment Basin Area: 199.37 Watershed Area: 95.9 ha
Sediment volume: 199.37 x 0-.004 = - 0.798 m^3
Watershed Basin wide:-0.798 m^3 / 95.9 ha. = -0.008 m^3/ha

The - .798 m^3 and -.008 m^3/ha values indicate that some sediment was actually flushed through the sediment basin while not enough came into the basin to replace it or just that the survey method is not accurate enough to account for little or no sediment being added to the basin. Upon second glance of the survey data it does appear that some sediment may have flushed from the basin between the sediment basin entrance and the basin outlet.

Excel/calculator

WS#2

220F Survey points avg.: 400.56 / 148 = 2.707
Elevation calculation: (100 + 0.908) – 2.707 = 98.201

219F Survey points avg.: 412.14 / 148 = 2.79
Elevation calculation: (100 + 0.945) – 2.785 = 98.160
Elevation difference: 98.201 – 98.160 = 0.041
Sediment Basin Area: 175 m^2 Watershed Area: 60.3 ha
Sediment volume: 175 x 0.041 = 7.18 m^3
Basin wide: 7.18 m^3 / 60.3 ha. = 0.12 m^3/ha

7.18 m^3 of calculated sediment deposition seems like more deposition then likely actually happened. The sediment basin area plays a big role in how much the sediment volume will be. Because we don't change that value even though we use a smaller area to calculate the annual elevation change between the two surveys it makes the sediment volume greater than if we used a basin area that corresponded to area of the basin that we actually used in the calculation. Historically, we cut down the number of points that we include in the average basin elevation calculation to the number of points that appear to show deposition in the current year compared to the previous year. By cutting down on the points in the calculation it keeps the points that show no deposition from reducing the sediment volume calculation. The surveys are only so accurate so errors can add up in the averaging with points that don't' appear to be significant deposition wise. A smaller basin would give a smaller sediment volume even though it is the same amount of sediment.

WS#3

1 gallon = 0.003785 m^3

Volume of a 5 gallon bucket = 5 gal x 0.003785 m^3 = 0.019

Total number of 5 gallon buckets = 67

Sediment Volume = 67 x 0.019 = 1.27 m^3

Basin wide: 1.27 m^3 / 101.1 hectares = 0.013 m^3/ha

WS#9

Total # of 5 gallon buckets = 10

Sediment Volume = 10 x 0.019 = 0.19 m^3

Basin wide: cubic meters 0.19 / 8.54 hectares = 0.022 m^3 / ha

Ws#10

Total # of 5 gallon buckets = 21

Sediment Volume = 21 x 0.019 = 0.40 m^3

Basin wide: 0.40m^3 / 10.12 hectares = 0.040 m^3/ ha

2020 Logistics: Brad McNutt using his backhoe worked with a truck driver from Portable Rock Inc.to dig the sediment out of WS#1 and lift it out of WS#3 after we shoveled sediment into the backhoe bucket. We did not calibrate the backhoe bucket by number of 5-gallon buckets at WS#3 as there wasn't enough sediment to make it worthwhile.

We did not have Brad dig out the basin at WS#2 as the backhoe would have had trouble getting into the basin and would have wallowed around in the mud making a big mess and potentially compromising the integrity of the basin. Let alone the backhoe might have gotten stuck in there. Like Mike Mulligan and his steam shovel. We could have a coffee bar and heated pool by using the backhoe engine as a boiler Fortunately, there was not a large amount of sediment in the basin to require that it be removed this year.

Sed119F and Sed219F are used to compare the 2020 full surveys. The WS#1 and #2 basins were not cleaned out in 2019 as I was not able to find an excavator operator to dig out the sediment. Rod Fouts did use the HJ Andrews backhoe to lift sediment out of the WS#3 basin in 2019.

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Annual Sediment Basin Yield Report for 2021

Excel spreadsheet comparison

WS#1

121F Survey points avg.: 468.65/ 173 = 2.709
Elevation calculation: (100 + 1.335) – 2.709 = 98.626 .

120E Survey points avg.: 492.73 / 173 = 2.848
Elevation calculation: (100 + 1.351) – 2.848 = 98.503
Elevation difference: 98.626 – 98.503 = 0.123
Sediment Basin Area: 199.37 Watershed Area: 95.9 ha
Sediment volume: 199.37 x 0.123 = 24.52 m^3
Watershed Basin wide: 24.52 m^3 / 95.9 ha. = 0.257 m^3/ha

Excel spreadsheet comparison

WS#2

221F Survey points avg.: 440.96 / 163 = 2.705
Elevation calculation: (100 + 0.923) – 2.705 = 98.218

220F Survey points avg.: 438.61 / 163 = 2.691
Elevation calculation: (100 + 0.908) – 2.691 = 98.217
Elevation difference: 98.218 – 98.217 = 0.001
Sediment Basin Area: 175 m^2 Watershed Area: 60.3 ha
Sediment volume: 175 x 0.001 = 0.175 m^3
Basin wide: 0.175 m^3 / 60.3 ha. = 0.003 m^3/ha

WS#3

1 gallon = 0.003785 m^3
Volume of a 5 gallon bucket = 5 gal x 0.003785 m^3 = 0.019
Total number of 5 gallon buckets = 80
Sediment Volume = 80 x 0.019 = 1.52 m^3
Basin wide: 1.52 m^3 / 101.1 hectares = 0.015 m^3/ha

WS#9 Total # of 5 gallon buckets = 307.5 buckets
Sediment Volume = 307.5 x 0.019 = 5.84 m^3
Basin wide: cubic meters 5.84 / 8.54 hectares = 0.684 m^3 / ha

The sediment total for WS#9 for 2021 is a combination of 3 different sediment removal actions.
10-14-20 27 - 5 gal buckets, 0.513 m^3 of sediment and 0.06 m^3 /ha basin wide.
12-1-20: 224 -5 gal buckets , 4.26 $m^3$of sediment and 0.498m^3/ha basin wide.
7-19-21: 56.5 - 5 gal. buckets, 1.074 m^3 of sediment and 0.126m^3/ha basin wide .

This, larger than normal, sediment total is due to the effects of the Holiday Farm Fire burning the entire WS#9 watershed.

Ws#10

Total # of ½ of a 5 gallon buckets = 49 ½ buckets
Total # of 5 gallon buckets = 49 / 2 = 24.5 5 gallon buckets
Sediment Volume = 24.5 x 0.019 = 0.47 m^3
Basin wide: 0.47m^3 / 10.12 hectares = 0.046 m^3/ ha

2021 Logistics: Neither WS#1 or WS#2 sediment basins were dug out in 2021. The contractor that I had interacted with to dig out the basins was not available, his equipment was all committed to wildfire assignments. Fortunately, WS#1 did not receive an extreme amount of sediment in 2021 and the deposition at WS#2 was low so the basins will likely be safe from overflowing with sediment in 2022.

Sed120F and Sed220F are used to compare to the 2021 full surveys. As mentioned above, the WS #2 basins was not cleaned out in 2020 or 2021 as I was not able to find an excavator operator to dig out the sediment. Rod Fouts did use the HJ Andrews backhoe to lift sediment out of the WS#3 basin in 2019, 2020 and 2021. Brad McNutt dug out WS#1 in 2020 with his backhoe.