Purlear Creek - Phase I
Stream Restoration
Annual Monitoring Report

Monitoring Year: 2008
Measurement Year: 4
As-built Date: 2004
NCEEP Project Number: 294

Submitted to: NCDENR-Ecosystem Enhancement Program
1619 Mail Service Center
Raleigh, NC 27699-1619

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Ecosystem Enhancement PROGRAM

NCDENR

PURLEAR CREEK - PHASE I STREAM RESTORATION
2008 MONITORING REPORT

CONDUCTED FOR THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

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TABLES

I. Executive Summary/Project Abstract

This report represents monitoring year 4 for the Purlear Creek Phase I stream restoration project in Wilkes County, North Carolina. The project is comprised of six reaches (Reach 1 – 6).

The channel has remained stable since construction. Study reaches show no significant bed profile or channel pattern changes, with the exception of aggradation in Reach 2 as illustrated in the permanent cross sections and profile. Permanent channel cross sections remain stable throughout the study reaches. Depositional point bars formed on many of the pool cross sections during previous monitoring periods and an inner berm feature formed on the riffle cross section in Reach 4 in 2006. Sediment load from upstream sources is the likely cause. The majority of channel banks are well-covered with vegetation. Planted trees and shrubs are doing well throughout the buffer.

The primary area of concern from previous monitoring years is the grade drops at several of the cross vanes on the project. The majority of these vanes are no longer considered problem areas as dense vegetation has established along the vane arms, reducing the risk of piping or undermining. No action is recommended at this time but these structures should be monitored closely in upcoming monitoring events. Other concern areas from previous reports are primarily small erosional areas that appear to have stabilized due to vegetation. Trampling, manure, and grazing effects from individual cattle were sporadically in evidence throughout the upper half of the project. This should be addressed to prevent future buffer vegetation grazing, streambank erosion, and water quality concerns.

Vegetation is generally successful at Purlear Phase I. In 2008, the lower reaches had greater herbaceous growth than the previous year due to higher rainfall. Total stems are higher in 2008 than 2007 as 26 new trees were added to the database. Many of these trees were missed in previous years because of thick ground cover. Mortality in 2008 was found to be a low 1.5%. Surviving planted stem density was estimated at 1086 stems per acre. Mortality is expected to be higher next year if cattle are continually allowed to graze inside the vegetative buffer.

II. Project Background

Project background information can be obtained from the as-built monitoring report prepared by Kimley-Horn and Associates dated 2004.

Table I lists project structure and objectives while Table II lists project activity and reporting history. The project contact table is listed in Table III and Table IV lists the background information for the project. Figure 1 shows a map with detailed directions to the project site.

Table I. Project Mitigation Structure and Objectives Purlear Creek Phase I / Project # 294					
Project Segment or Reach ID	**Mitigation Type**	**Approach**	**Linear Footage or Acreage**	**Monitoring Stationing***	**Comment**
Reach 1 - Upper Main Reach	R	P1	2,260 lf	-0+50 to 10+00	From Channel start to confluence with Upper Middle Tributary
Reach 2 - Upper Middle Tributary	R	P1	1,340 lf	0+00 to 2+60	
Reach 3 - Middle Main Reach	R	P1	2,850 lf	0+00 to 7+00	From confluence with Upper Middle Tributary to confluence with Lower Middle Tributary
Reach 4 – Lower Middle Tributary (upper reach)	R	P1	700 lf	0+00 to 6+50	From start of Lower Middle Tributary to first culvert crossing
Reach 5 - Lower Middle Tributary (lower reach)	R	P1	2,750 lf	0+00 to 7+00	From first culvert crossing below Lower Middle Tributary to confluence with Middle Main Reach
Reach 6 - Lower Main Reach	R	P1	1,600 lf	0+00 to 9+00	From confluence with Lower Middle Tributary to end of Phase I
Total Project			**11,500 lf**		

* Only a portion of each reach was surveyed for monitoring

R = Restoration
EI = Enhancement I
EII = Enhancement II
S = Stabilization
P1 = Priority I
P2 = Priority II
P3 = Priority III
SS = Stream Bank stabilization

Table II. Project Activity and Reporting History Purlear Creek Phase I / Project # 294			
Activity or Report	**Scheduled Completion**	**Data Collection Complete**	**Actual Completion or Delivery**
Restoration Plan	Unknown	N/A*	October-02
Final Design - 90%	Unknown	N/A*	N/A*
Construction	Unknown	N/A*	November-03
Temporary S&E mix applied to entire project area	Unknown	N/A*	November-03
Permanent seed mix applied to reach	Unknown	N/A*	November-03
Containerized and B&B plantings	Unknown	N/A*	N/A*
Mitigation Plan / As-built (Year 0 Monitoring – baseline)	January-04	January-04	March-04
Structural maintenance (Bank repair and revegetation)	N/A*	March-05	March-05
Initial – Year 1 monitoring	January-05	January-05	March-05
Year 2 Monitoring	August-06	August-06	December-06
Year 3 Monitoring	August-07	August-07	December-07
Year 4 Monitoring	August-08	October-08	December-08
Year 5 Monitoring	August-09		
Year 5+ Monitoring			

* Historical project documents necessary to provide these data were unavailable at the time of report submission

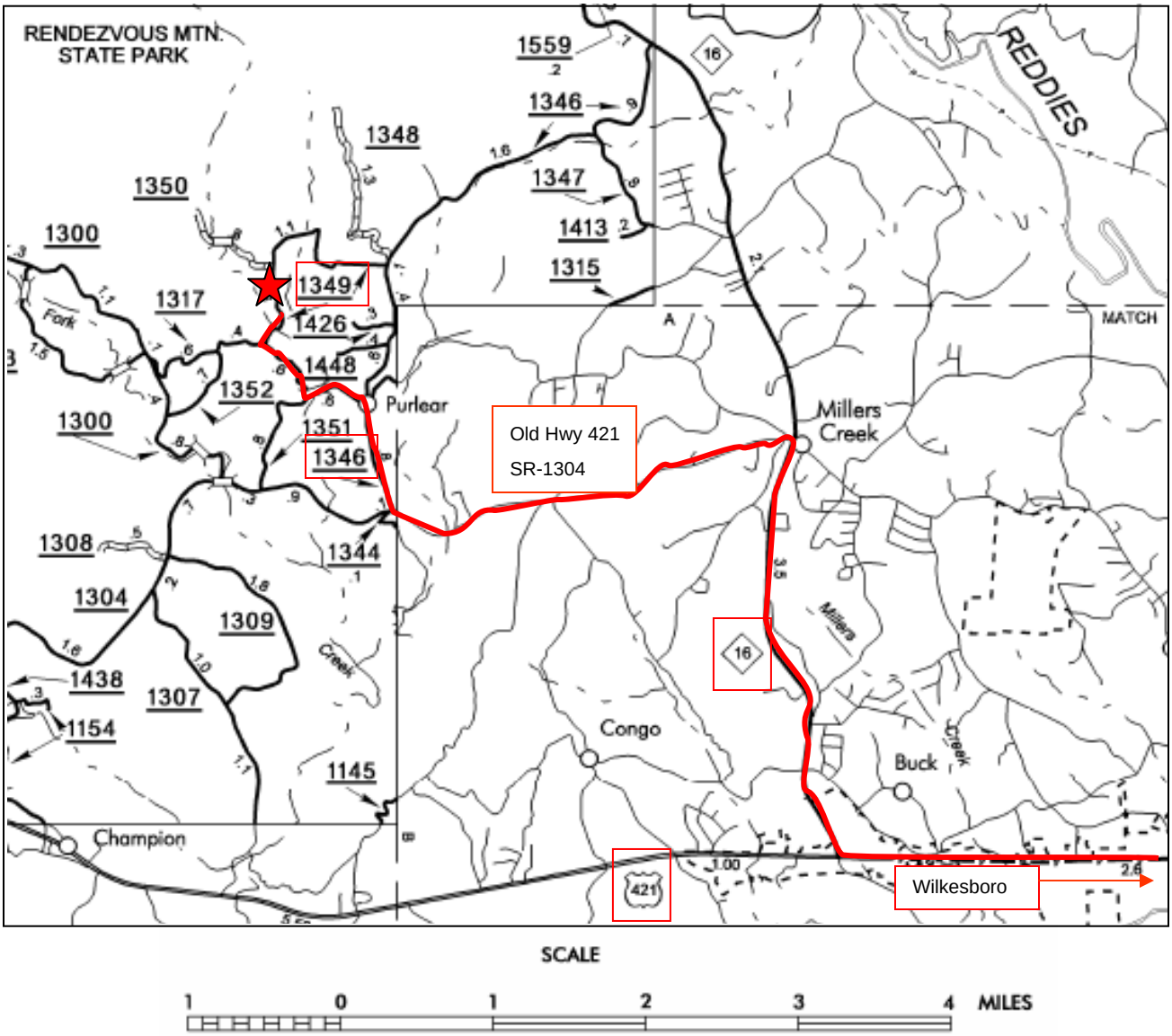
Table III. Project Contact Table Purlear Creek Phase I / Project # 294	
Designer Primary project design POC	Kimley-Horn and Associates 3001 Weston Parkway Cary, NC 27513 (919)-677-2000 Will Wilhelm, PE
Construction Contractor	L-J Inc.
Planting Contractor Planting contractor POC	N/A*
Seeding Contractor Planting contractor point of contact	N/A*
Seeding Contractor Planting contractor point of contact	N/A*
Nursery Stock Suppliers	N/A*
Monitoring Performers	Biological & Agricultural Engineering North Carolina State University Campus Box 7625 Raleigh, NC 27695
Stream Monitoring POC	Zan Price (828) 712-9194
Vegetation Monitoring POC	Zan Price (828) 712-9194

*Historical project documents necessary to provide these data were unavailable at the time of report submission.

Table IV. Project Background Table Purlear Creek Phase I / Project # 294	
Project County	Wilkes
Drainage Area	1.3 - 2.6 mi² (Main Reach) 0.1 - 0.8mi² (Tributaries)
Drainage impervious cover estimate (%)	Estimated at <5%
Stream Order	1st and 2nd Order
Physiographic Region	Piedmont
Ecoregion	Northern Inner Piedmont (45e)
Rosgen Classification of As-built	B and E-streamtypes
Cowardin Classification	N/A*
Dominant soil types	N/A*
Reference site ID	Big Warrior and Basin Creek
USGS HUC for Project and Reference	3040101
NCDWQ Sub-basin for Project and Reference	03-07-01
NCDWQ classification for Project and Reference	C
Any portion of any project segment 303d listed?	No
Any portion of any project segment upstream of a 303d listed segment?	No
Reasons for 303d listing or stressor	N/A
% of project easement fenced	100%

*Historical project documents necessary to provide these data were unavailable at the time of report submission.

Figure 1. Project Location



Directions from Hwy. 421 in Wilkesboro:

From Wilkesboro on Hwy. 421, turn right onto NC-16. Follow NC-16 for 3.5 miles to the Miller's Creek intersection. Turn left onto Old Hwy. 421 (SR-1304) and follow for 2.6 miles. Turn right onto Purlear Road (SR-1346) and follow for 0.8 miles. You will come to a stop sign at a church, turn left to stay on Purlear Road (also called New Hope Road). Follow Purlear Road for 0.6 miles until the intersection with Vannoy Maxwell Road. Project begins at this intersection and continues through the intersection with CC Hayes Road (SR- 1349).

Contact the EEP Project Manager for access and landowner notification instructions. Access is not permitted to this site without prior approval.

LEGEND

2008 THALWEG

2008 BANKFULL/TOB

CROSS SECTION

PHOTO POINT P#

VEG PLOT

REACH 1

REACH 2

REACH 3

REACH 4

VEG PLOT #1

VEG PLOT #2

CROSS SECTION #1 REACH 1 POOL

CROSS SECTION #2 REACH 1 RIFFLE

VEG PLOT #3

VEG PLOT #4

VEG PLOT #5

VEG PLOT #6

CROSS SECTION #1 REACH 2 RIFFLE

CROSS SECTION #2 REACH 2 POOL

VEG PLOT #7

VEG PLOT #8

VEG PLOT #9

VEG PLOT #10

CROSS SECTION #1 REACH 3 POOL

CROSS SECTION #2 REACH 3 RIFFLE

VEG PLOT #11

VEG PLOT #12

VEG PLOT #13

VEG PLOT #14

CROSS SECTION #1 REACH 4 RIFFLE/GLIDE

CROSS SECTION #2 REACH 4 POOL

VEG PLOT #15

VEG PLOT #16

VEG PLOT #17

VEG PLOT #18

VEG PLOT #19

VEG PLOT #20

VEG PLOT #21

VEG PLOT #22

VEG PLOT #23

VEG PLOT #24

VEG PLOT #25

VEG PLOT #26

MATCHLINE

MATCHLINE FOR OVERALL SITE PLAN SHEET

MATCHLINE

SCALE 1" = 200'

100 0 100 200

NO	REVISIONS	DRN	CHK	DATE
1	AS-BUILT PLAN	DRC	DAB	03/01/06
2	MONITORING YEAR 03	ZP	JMP	12/1/07
3	MONITORING YEAR 04	ZP	JZ	11/21/08

NC STATE UNIVERSITY

BIOLOGICAL & AGRICULTURAL ENGINEERING
Weaver Labs Campus Box 7625
North Carolina State University
Raleigh, NC 27695

PURLEAR CREEK – PHASE 1

WILKES COUNTY, N.C.

FIGURE 2a – REACH 1, 2, 3, & 4 MONITORING PLAN SHEET

DATE 03/01/2006

PROJECT NO. 294

FILENAME PULEAR ASBUILT 05.DWG

SHEET NO. MON OVERALL 1 of 2

MATCHLINE

MATCHLINE FOR OVERALL SITE PLAN SHEET

MATCHLINE

CROSS SECTION #2
REACH 3
RIFFLE

VEG PLOT #11

REACH 3

VEG PLOT #12

VEG PLOT #13

VEG PLOT #14

VEG PLOT #15

VEG PLOT #16

VEG PLOT #17

VEG PLOT #18

VEG PLOT #26

VEG PLOT #27

VEG PLOT #28

CROSS SECTION #1
REACH 5
POOL

VEG PLOT #29

CROSS SECTION #2
REACH 5
RIFFLE

REACH 5

VEG PLOT #30

VEG PLOT #31

VEG PLOT #32

REACH 6

CROSS SECTION #1
REACH 6
POOL

MATCHLINE

MATCHLINE FOR
OVERALL SITE PLAN SHEET

CROSS SECTION #2
REACH 6
RIFFLE

SCALE 1" = 200'

100 0 100 200

REACH 6
POOL

MATCHLINE

MATCHLINE FOR
OVERALL SITE PLAN SHEET

CROSS SECTION #2
REACH 6
RIFFLE

REACH 6

VEG PLOT #33

VEG PLOT #34

SCALE 1" = 200'

100 0 100 200

LEGEND

2008 THALWEG

2008 BANKFULL/TOB

CROSS SECTION

PHOTO POINT P#

VEG PLOT

NO	REVISIONS	DRN	CHK	DATE
1	AS-BUILT PLAN	DRC	DAB	03/01/06
2	MONITORING YEAR 03	ZP	JMP	12/1/07
3	MONITORING YEAR 04	ZP	JZ	11/21/08

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PURLEAR CREEK – PHASE 1
WILKES COUNTY, N.C.

FIGURE 2b – REACH 3, 5 & 6
MONITORING PLAN SHEET

DATE 03/01/2006

PROJECT NO. 294

FILENAME PULEAR ASBUILT 05.DWG

SHEET NO. MON OVERALL 2 of 2

III. Project Condition and Monitoring Results

A. Vegetation Assessment

Twenty-eight (28) vegetation monitoring plots were surveyed in the riparian buffer of the Purlear Phase I project. All the plots had been previously established and sampled in 2005, 2006, and 2007. Plot numbering is consistent with numbering from previous monitoring reports.

Vegetation is generally successful at Purlear Phase I. In 2008, the lower reaches had greater herbaceous growth than the previous year due to higher rainfall. Total stems are higher in 2008 than 2007 as 26 new trees were added to the database. Many of these trees were missed in previous years because of thick ground cover. Mortality in 2008 was found to be a low 1.5%. Surviving planted stem density was estimated at 1086 stems per acre. Mortality is expected to be higher next year if cattle are continually allowed to graze inside the vegetative buffer.

Vegetation data is presented in Appendix A of this report.

B. Stream Assessment

The stream channel is in a stable condition, with only localized problem areas identified in this survey.

Hydrologic Assessment

One bankfull event was recorded in 2008 as shown in Table V. Overall, four bankfull events have been recorded in two separate monitoring years.

Table V. Verification of Bankfull Events
Purlear Creek Phase I / Project # 294

Date of Data Collection	Date of Occurrence	Method	Photo # (if available)
7/1/2006	6/26/2006	On-site transducer/data logger	
9/1/2006	8/30/2006	On-site transducer/data logger	
11/1/2006	10/21/2006	On-site transducer/data logger	
8/27/2008	8/27/2008	Proximal USGS Gage Resource*	

*Bankfull event verified at two proximal USGS gage sites in Wilkes County (Reddies Rivers, North Wilkesboro and Elk Creek, Elkville, NC) using the rural Piedmont regional curve developed by NCSU (Harman et al 1999).

Bank Stability Assessment - Monitoring Year 05

Table VI. BEHI and Sediment Export Estimates shall be included in the monitoring year 5 report.

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Project Problem Area

The problem area Table B1, plan sheet and photographs can be found in Appendix B. The table lists current problem areas for 2008.

Several problem areas identified in previous monitoring years have been stabilized with a dense stand of vegetation. These previous areas of concern include cross vane structures with large bed elevation drops (> 0.5 feet) and localized areas of bank erosion. These areas have been removed from Table B1 since they are no longer considered problem areas.

In addition to the problem areas noted in Table B1, there is evidence of cattle intrusion in the fenced buffer at the upper reaches of the project. This should be addressed to prevent future buffer vegetation grazing, streambank erosion, and water quality concerns.

Stream Visual Assessment

Table VII lists the results of a visual assessment conducted over each study reach. The data used to calculate the percentages listed in this table are found in Tables B2 in Appendix B. Reach 2 was dry during the 2008 survey making it difficult to identify riffle and pool features.

Table VII. Categorical Stream Feature Visual Stability Assessment Purlear Creek Phase I / Project # 294 Reaches 1 - 6						
Feature	**Initial**	**MY-01**	**MY-02**	**MY-03**	**MY-04**	**MY-05**
A. Riffles						
Reach 1	100%	N/A	77%	85%	92%	
Reach 2	100%	N/A	60%	75%	N/A	
Reach 3	100%	N/A	100%	100%	100%	
Reach 4	100%	N/A	92%	83%	95%	
Reach 5	100%	N/A	100%	80%	80%	
Reach 6	100%	N/A	100%	100%	100%	
B. Pools						
Reach 1	100%	N/A	85%	92%	92%	
Reach 2	100%	N/A	91%	100%	N/A	
Reach 3	100%	N/A	91%	89%	100%	
Reach 4	100%	N/A	100%	83%	92%	
Reach 5	100%	N/A	100%	93%	93%	
Reach 6	100%	N/A	100%	100%	100%	
C. Thalweg						
Reach 1	100%	N/A	100%	100%	100%	
Reach 2	100%	N/A	100%	100%	100%	
Reach 3	100%	N/A	100%	100%	100%	
Reach 4	100%	N/A	100%	100%	100%	
Reach 5	100%	N/A	100%	100%	100%	
Reach 6	100%	N/A	100%	100%	100%	
D. Meanders						
Reach 1	100%	N/A	100%	100%	100%	
Reach 2	100%	N/A	89%	100%	100%	
Reach 3	100%	N/A	99%	99%	99%	
Reach 4	100%	N/A	100%	100%	100%	
Reach 5	100%	N/A	100%	100%	100%	
Reach 6	100%	N/A	82%	100%	100%	
E. Bed General						
Reach 1	100%	N/A	92%	100%	100%	
Reach 2	100%	N/A	89%	89%	55%	
Reach 3	100%	N/A	95%	95%	100%	
Reach 4	100%	N/A	71%	100%	100%	
Reach 5	100%	N/A	84%	100%	100%	
Reach 6	100%	N/A	83%	100%	100%	
F. Bank						
Reach 1	100%	N/A	92%	100%	100%	
Reach 2	100%	N/A	89%	100%	100%	
Reach 3	100%	N/A	95%	100%	100%	
Reach 4	100%	N/A	71%	100%	100%	
Reach 5	100%	N/A	84%	100%	100%	
Reach 6	100%	N/A	83%	100%	100%	
G. Vanes / J Hooks etc.						
Reach 1	100%	N/A	80%	55%	55%	
Reach 2	100%	N/A	70%	70%	70%	
Reach 3	100%	N/A	87%	87%	87%	
Reach 4	100%	N/A	94%	94%	94%	
Reach 5	100%	N/A	100%	95%	95%	
Reach 6	100%	N/A	85%	75%	75%	
H. Wads and Boulders						
Reach 1	N/A	N/A	N/A	N/A	N/A	
Reach 2	N/A	N/A	N/A	N/A	N/A	
Reach 3	N/A	N/A	N/A	N/A	N/A	
Reach 4	N/A	N/A	N/A	N/A	N/A	
Reach 5	N/A	N/A	N/A	N/A	N/A	
Reach 6	N/A	N/A	N/A	N/A	N/A	

Reach 1 – Upper Main Reach
The channel profile is similar to the as-built survey condition, with bedform features maintaining their locations and depths. This reach includes 8 cross vane grade controls with downstream elevation drops of greater than 0.5 ft. Three of these were located within the monitored reach, and four were located upstream. Three vanes remain a problem area in the current monitoring period due to the large elevation difference through the vane and some piping around the vane. Dense vegetation has established around all of the vanes minimizing the risk of failure.

Channel cross sections showed no significant changes in riffle cross sectional area but a large decrease in pool area was observed in the 2006 through 2008 surveys compared to the as built condition. A depositional bar formed between the 2005 and 2006 monitoring events. The pool cross section has stayed consistent since 2006 and appears stable. The riffle cross section dimensions remain consistent with as-built conditions.

A visual assessment of this reach showed a total decrease in number of riffles compared to the as built condition, but those that remain appear stable. Meanders are maintaining location and stability throughout the reach.

Reach 2 - Upper Middle Tributary
Reach 2 was dry during the 2008 survey making it difficult to observe riffle and pool features. Some aggradation has occurred along the channel profile compared to the as built condition. This is illustrated in the profile and channel cross sections included in the appendix. The cause of the aggradation is likely from excess sediment from an upstream source. Dense vegetation is doing an excellent job of inducing aggradation along the channel banks. There are no signs of erosion on the streambanks.

This reach includes seven cross vane grade controls with downstream elevation drops of greater than 0.5 ft. Of the seven, only one remains a concern for future stability. The remaining six have become embedded with dense vegetation around the vane arms. This vegetation has greatly reduced the risk of the vanes failing in the future.

Reach 3 – Middle Main Reach
The channel profile is similar to the as-built survey condition, with bedform features maintaining their locations and depths. This reach includes six cross vane grade controls with downstream elevation drops of greater than 0.5 ft. Three of these were removed from concern since dense vegetation is establishing along the vane arm, reducing the risk of piping or undermining. The three remaining structures continue to be at risk, but have not changed condition over the past year.

Channel cross sections are stable and remain similar to as-built conditions. The pool cross section filled in slightly in 2006. Since then, the pool area has remained consistent. Channel banks on both cross sections remain well vegetated and stable.

Minimal aggradation or degradation has occurred in the channel, indicating the channel appears to be transporting the sediment load delivered to it by its watershed.

Channel pattern is similar to as-built conditions. Since the channel in this area is mostly straight, no pattern measurements were conducted. Dense vegetation is establishing along the channel banks. This vegetation is providing an excellent root mass to stabilize the banks.

Reach 4 – Lower Middle Tributary (Upper Section)
The channel profile is similar to the as-built survey condition, with bedform features maintaining their locations and depths. This reach includes four cross vane grade controls with downstream elevation drops of greater than 0.5 ft. However, all of the vanes appear stable due to the dense vegetation surrounding the vane arms. The vegetation has reduced the risk of piping or undercutting.

Channel cross sections are stable and remain similar to as-built conditions. A small decrease in area has occurred in both sections and is likely the result of a large sediment load entering the project from channel instability above this project. An inner berm feature was created in the riffle cross section in 2006 narrowing the lower portion of the channel, which should help with sediment transport. A depositional point bar formed on the pool cross section in 2006. The pool cross section has stayed consistent since 2006 and appears stable. Channel banks are well vegetated and appear stable.

Area 5 - Lower Middle Tributary (Lower Section)
The channel profile is similar to the as-built survey condition, with bedform features maintaining their locations and depths. This reach includes five cross vane grade controls with downstream elevation drops of greater than 0.5 ft. All of these vanes appear stable due to the dense vegetation surrounding the vane arms. The vegetation has reduced the risk of piping or undercutting.

Channel cross sections are very stable and remain similar to as-built conditions. Vegetation has become well established within the active channel and is adding to the sediment deposition along the channel banks. Channel banks are well vegetated and appear stable. There are no areas of visible meander migrations throughout this reach. No erosion areas were observed along this reach.

Reach 6 – Lower Main Reach
The channel profile is similar to the as-built survey condition, with bedform features maintaining their locations and depths. This reach includes five cross vane grade controls with downstream elevation drops of greater than 0.5 ft. Four of the vanes are within the study reach and one is located upstream. All of these vanes appear to have stabilized with dense vegetation and are not currently a concern.

A depositional point bar formed in the riffle cross section in 2005. Since then the cross section has remained consistent. The right bank is armored with a dense stand of willows and remains stable. A depositional point bar formed in the pool cross section in 2005 as well. Dense herbaceous cover and willow have established along the banks and the cross section appears stable.

Channel pattern is similar to as-built conditions. Dense vegetation is establishing along the channel banks in most areas. This vegetation is providing an excellent root mass to stabilize the banks.

Two drain tiles that were installed in fall 2005 are still draining water through the buffer and adjacent field.

Quantitative Measures Summary Tables
The tables below present all of the quantitative summary data from the survey cross-sectional surveys, longitudinal surveys, and pebble counts. The associated raw data and plots are located in Appendix B of this report.

Table VIIIa. Baseline Morphology and Hydraulic Summary

Purlear Creek Phase I / Project # 294 - Main Stem

Parameter	USGS Gage Data			Regional Curve Interval			Pre-Existing				Design				Project Reference Stream			
							Main Channel				Proposed Reach	Proposed Reach	Propsed Reach	Proposed Reach	Reach	Upper Big	Reach Basin	Reach Basin
				Middle Main			(2A2)[1]	(2A)[1]	(2)[1]	(1A)[1]	(2A2)[1]	(2A)[1]	(2)[1]	(1A)[1]	Upstream 1	Warrior Creek	Creek 2	Creek
Dimension	Min	Max	Med	Min	Max	Med					Med	Med	Med	Med	Med	Med	Med	Med
BF Width (ft)	USGS gage data is unavailable for this project						22	14.8	16.2	37	17.2	17.6	18	25	12.5	15.7	30.7	33.2
Floodprone Width (ft)											31	31.7	30.6	70	18	30	85	329
BF Cross Sectional Area (ft2)							10.6	15.6	17.8	33.1	19	20	22.7	29	7.4	21.9	57.4	68.4
BF Mean Depth (ft)							0.5	1.1	1.1	0.9	1	1.1	1.3	1.1	0.6	1.4	1.9	2.1
BF Max Depth (ft)							1.3	1.5	1.6	2.2	1.5	1.7	1.8	1.5	1	1.8	2.5	3.1
Width/Depth Ratio							44	13.5	14.7	41.1	17.2	16	13.8	22.7	20.8	11.2	16.2	15.8
Entrenchment Ratio							1.4	2.2	4.3	2.2	1.8	1.8	1.7	2.8	1.4	1.9	2.8	9.9
Wetted Perimeter(ft)																		
Hydraulic radius (ft)																		
Pattern																		
Channel Beltwidth (ft)							N/A	N/A	N/A	N/A	29.2	29.9	30.6	67.5	21	N/A	105	64.7
Radius of Curvature (ft)							N/A	N/A	N/A	N/A	27.5	28.2	28.8	62.5	20.6	N/A		51.2
Meander Wavelength (ft)							N/A	N/A	N/A	N/A	172	176	180	275	100	N/A		350
Meander Width ratio							N/A	N/A	N/A	N/A	1.7	1.7	1.7	2.7	1.7	N/A		1.9
Profile																		
Riffle length (ft)																		
Riffle slope (ft/ft)															0.03	N/A	0.051	0.021
Pool length (ft)																		
Pool spacing (ft)							106	124	N/A	43	108	111	113	205	100	N/A	224	305
Substrate																		
d50 (mm)																		
d84 (mm)																		
Additional Reach Parameters																		
Valley Length (ft)																		
Channel Length (ft)																		
Valley Slope (ft)							0.022	0.016	0.015	0.01	0.013	0.013	0.011	0.01	0.017	N/A	0.014	N/A
Sinuosity							1	1	1.1	1	1.2	1.2	1.2	1.2	1.06	N/A	1.4	N/A
Water Surface Slope (ft/ft)																		
BF slope (ft/ft)																		
Rosgen Classification							F3	ncised)–	C4	(Incised)→	B3c	B4c	B4c	C4c	B4c	B	C4	C4
Number of Bankfull Events																		
Extent of BF floodplain (acres)																		
Drainage Area (sq mile)							1.3	1.5	1.71	2.59	1.3	1.5	1.71	2.59	0.57	0.7	6.8	7.2
Max d(riff) / d(bkf) ratio							2.6	1.4	1.5	2.4	1.5	1.5	1.4	1.4	1.7	1.3	1.3	1.5
Low Bank Height to max Dbkf ratio							1.8	2.2	1.5	1.8	1	1	1	1	2.8	N/A	N/A	1.2
Avg Stream Slope							0.022	0.016	0.014	0.0096	0.016	0.016	0.013	0.009	0.016	N/A	0.01	0.014
Riffle Slope							0.028	0.03	0.01	0.01	0.03	0.03	0.02	0.01	0.03	N/A	0.051	0.021
Ratio of Riffle Slope to Avg. Slope							1.273	1.875	1	1	1.8	1.8	1.8	1.5	1.8	N/A	3.6	1.5
Pool Slope							0.001	0.001	0.01	0.002	0.002	0.002	0.001	0.003	0.002	N/A	0.0055	0.002
Ratio of Pool Slope to Avg. Slope							0	0.1	0.7	0.2	0.1	0.1	0.1	0.4	0.1	N/A	0.6	0.1
Maximum Pool Depth							1.9	2.3	2.2	2.1	2.2	2.4	2.9	2.2	1.3	N/A	3.1	4.8
Ratio of Pool Depth to Avg. Depth							3.8	2.1	2	2.3	2.2	2.2	2.2	2	2.2	N/A	1.6	2.3
Pool Width							21.4	13.6	30.6	20.2	17.2	17.6	18	35	12.5	N/A	40.6	50.3
Ratio of Pool Width to Bankfull Width							1	0.9	1.9	0.5	1	1	1	1.4	1	N/A	1.3	1.5
Pool Area							21.2	24.4	36.9	26.9	20.9	22	25	40.6	8	N/A	64.4	109.6
Ratio of Pool Area to Bankfull Area							2	1.6	2.1	0.8	1.1	1.1	1.1	1.4	1.1	N/A	1.1	1.6
Ratio of Pool to Pool Spacing							4.8	8.4	N/A	1.2	6.3	6.3	6.3	8.2	6.3	N/A	7.3	9.2
*BEHI																		
Bankfull Mean Velocity							N/A	N/A	5.3	4								
Bankfull Discharge, cfs							N/A	N/A	94.3	132.4								
Ratio of Meander Length to Meander Bankfull							N/A	N/A	N/A	N/A	10	10	10	11	8	N/A	11.4	10.5
Ratio of Radius of Curvature to Bankfull Width							N/A	N/A	N/A	N/A	1.6	1.6	1.6	2.5	1.6	N/A	3.4	1.5

Note: Reaches 2A2, 2A, and 2 compare to As-built study reach 2. Reach 1A compares to As-built study reaches 1, 3, and 6.

Table VIIIb. Baseline Morphology and Hydraulic Summary
Purlear Creek Phase I / Project # 294 - Tributaries

Parameter	USGS Gage Data			Regional Curve			Pre-Existing			Design			Project Reference Stream			
							Tributary			Proposed Reach	Proposed Reach	Proposed Reach	Reach	Upper Big Warrior	Reach Basin	Reach Basin
				Middle Main			2A1	2B	3	(2A1)	(2B)	3	Upstream 1	Creek	Creek 2	Creek
Dimension	Min	Max	Med	Min	Max	Med				Med	Med	Med	Med	Med	Med	Med
BF Width (ft)	USGS gage data is unavailable for this project						5.1	8.9	10	8.9	6.5	15	12.5	15.7	30.7	33.2
Floodprone Width (ft)							19	14	16	15.1	18.2	42	18	30	85	329
BF Cross Sectional Area (ft2)							2.8	6.1	13.4	5.2	2.8	15.8	7.4	21.9	57.4	68.4
BF Mean Depth (ft)							0.5	0.7	1.3	0.6	0.4	1	0.6	1.4	1.9	2.1
BF Max Depth (ft)							1.1	1.2	2	0.8	0.6	1.5	1	1.8	2.5	3.1
Width/Depth Ratio							10.2	12.7	7.7	17.6	17.6	15	20.8	11.2	16.2	15.8
Entrenchment Ratio							3.7	1.6	1.6	1.7	2.8	2.8	1.4	1.9	2.8	9.9
Wetted Perimeter(ft)																
Hydraulic radius (ft)																
Pattern																
Channel Beltwidth (ft)								N/A		15.1	17.6	40.5	21	N/A	105	64.7
Radius of Curvature (ft)								N/A		14.2	16.3	37.5	20.6	N/A	105.3	51.2
Meander Wavelength (ft)								N/A		89	71.5	165	100	N/A	350	350
Meander Width ratio								N/A		1.7	2.7	2.7	1.7	N/A	3.4	1.9
Profile																
Riffle length (ft)																
Riffle slope (ft/ft)													0.03	N/A	0.051	0.021
Pool length (ft)																
Pool spacing (ft)							31	40	N/A	62	53	123	100	N/A	224	305
Substrate																
d50 (mm)																
d84 (mm)																
Additional Reach Parameters																
Valley Length (ft)																
Channel Length (ft)																
Valley Slope (ft)							0.018	0.023	0.014	0.015	0.007	0.012	0.017	N/A	0.014	N/A
Sinuosity							1.5	1.2	1.1	1.2	1.2	1.2	1.06	N/A	1.4	N/A
Water Surface Slope (ft/ft)																
BF slope (ft/ft)																
Rosgen Classification							E5b	B5c	G4	B4c	C4	C4	B4c	B	C4	C4
Number of Bankfull Events																
Extent of BF floodplain (acres)																
Drainage Area (sq mile)							0.2	0.08	0.72	0.2	0.08	0.8	0.57	0.7	6.8	7.2
Max d(riff) / d(bkf) ratio							2.2	1.7	1.5	1.4	1.5	1.5	1.7	1.3	1.3	1.5
Low Bank Height to max Dbkf ratio							1.1	2.6	2.4	1	1	1	2.8	N/A	N/A	1.2
Avg Stream Slope							0.012	0.019	0.013	0.018	0.008	0.014	0.016	N/A	0.01	0.014
Riffle Slope							0.017	0.028	0.02	0.03	0.01	0.02	0.03	N/A	0.051	0.021
Ratio of Riffle Slope to Avg. Slope							1.417	1.474	1.5	1.8	1.5	1.5	1.8	N/A	3.6	1.5
Pool Slope							0.001	0.001	0.01	0.002	0.003	0.005	0.002	N/A	0.0055	0.002
Ratio of Pool Slope to Avg. Slope							0.1	0.1	0.4	0.1	0.4	0.4	0.1	N/A	0.6	0.1
Maximum Pool Depth							1.4	1.5	2.2	1.3	0.8	2	1.3	N/A	3.1	4.8
Ratio of Pool Depth to Avg. Depth							2.8	2.1	1.7	2.2	2	2	2.2	N/A	1.6	2.3
Pool Width							7.7	24.3	18.5	10.7	9.1	21	12.5	N/A	40.6	50.3
Ratio of Pool Width to Bankfull Width							1.5	2.7	1.9	1.2	1.4	1.4	1	N/A	1.3	1.5
Pool Area							5.7	19.8	24.1	6.2	3.9	22.1	8	N/A	64.4	109.6
Ratio of Pool Area to Bankfull Area							2	3.2	1.8	1.2	1.4	1.4	1.1	N/A	1.1	1.6
Ratio of Pool to Pool Spacing							6.1	4.5	N/A	7	8.2	8.2	6.3	N/A	7.3	9.2
*BEHI																
Bankfull Mean Velocity							N/A	N/A	6.4							
Bankfull Discharge, cfs							N/A	N/A	85.8							
Ratio of Meander Length to Meander Bankfull							N/A	N/A	N/A	10	11	11	8	N/A	11.4	10.5
Ratio of Radius of Curvature to Bankfull Width							N/A	N/A	N/A	1.6	2.5	2.5	1.6	N/A	3.4	

Note: Reaches 2A1, 2B, and 3 compare to As-built study reaches 4 and 5.

Table IXa. Morphology and Hydraulic Monitoring Summary
Purlear Creek Phase I / Project # 294 - Upper Main
Reach 1 - 1050 Feet

Parameter	Cross Section 1						Cross Section 2					
	Reach 1 Pool						Reach 1 Riffle					
Dimension	MY0	MY1	MY2	MY3	MY4	MY5	MY0	MY1	MY2	MY3	MY4	MY5
BF Width (ft)	29.9	29.6	22.7	22.2	20.3		26.7	26.4	31.4	28.3	27	
Floodprone Width (ft) (approx)							53	53	53	53	53	
BF Cross Sectional Area (ft^2)	36.7	35.5	14.8	11.06	12.2		39.6	39.6	41	41.3	41.2	
BF Mean Depth (ft)	1.2	1.2	0.6	0.5	0.6		1.5	1.5	1.3	1.5	1.5	
BF Max Depth (ft)	2.3	2.6	1.9	1.6	1.8		2.3	2.3	2.5	2.5	2.4	
Width/Depth Ratio							18.1	17.6	24.154	18.867	17.7	
Entrenchment Ratio (greater							2.0	2.0	1.7	1.9	2	
Bank Height Ratio	1.0	1	1	1	1		1.0	1	1	1	1	
Wetted Perimeter(ft)							29.7	29.4	34.0	31.3	30.0	
Hydraulic radius (ft)							1.3	1.3	1.2	1.3	1.4	
Substrate												
d50 (mm)	13.4	0.006	0.4	27.3	8		17.73	0.6	1.01	0.2	20.2	
d84 (mm)	35.7	0.2	1.14	68	16.5		36.4	1.5	4.42	4.43	68.6	

Parameter	MY-00 (2004)			MY-01 (2005)			MY-02 (2006)			MY-03 (2007)			MY-04 (2008)			MY-05 (2009)		
Pattern	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med
Channel Beltwidth (ft)	25	87		-	-	202	37	202	46	37	202	46	37	202	46			
Radius of Curvature (ft)	18	96		-	-	-	41	58	55	41	59	57	41	59	57			
Meander Wavelength (ft)	160	200		-	-	-	117	171	144	117	171	144	117	171	144			
Meander Width ratio	0.8	2.9		-	-	-	1.2	6.4	1.5	1.3	7.1	1.6	1.4	7.5	1.7			
Profile																		
Riffle length (ft)	-	-	-	30.0	116.0	43.5	24	99	41	30	88	40.5	17	50	29			
Riffle slope (ft/ft)	0.020	0.120	0.060	0.011	0.040	0.018	0.013	0.029	0.019	0.013	0.028	0.019	0.015	0.031	0.022			
Pool length (ft)	29	136	58	13.0	56.0	25.0	15	48	26	13	48	23	13	47	23			
Pool spacing (ft)	74	193	120	28	225	64	28	117	68	28	118	73.5	28	136.5	69.25			

Additional Reach Parameters	MY-0 (2004)	MY-01 (2005)	MY-02 (2006)	MY-03 (2007)	MY-04 (2008)	MY-05 (2009)
Valley Length (ft)	1022					
Channel Length (ft)	1091					
Sinuosity	1.07					
Water Surface Slope (ft/ft)	0.009	0.014	0.015	0.015	0.015	
BF slope (ft/ft)	0.008	0.016	0.015	0.015	0.015	
Rosgen Classification	B4c	B5c	B5c	B5c	B4c	

Table IXb. Morphology and Hydraulic Monitoring Summary
Purlear Creek Phase I / Project # 294 - Upper Middle Trib
Reach 2 - 260 Feet

Parameter	Cross Section 1 Reach 2 Riffle						Cross Section 2 Reach 2 Pool					
Dimension	MY0	MY1	MY2	MY3	MY4	MY5	MY0	MY1	MY2	MY3	MY4	MY5
BF Width (ft)	17.4	16.2	17.3	10.1	14		19.4	19.3	18.5	17.5	17.3	
Floodprone Width (ft) (approx)	40	40	40	40	40							
BF Cross Sectional Area (ft^2)	11.9	12.4	8.6	3.2	4.5		12.8	13.4	7.6	6.2	6.7	
BF Mean Depth (ft)	0.7	0.8	0.5	0.3	0.3		0.7	0.7	0.4	0.4	0.4	
BF Max Depth (ft)	1.5	1.7	1.4	0.8	0.7		1.6	1.6	1.1	1.1	1	
Width/Depth Ratio	25.5	21.1	34.6	31.8	43							
Entrenchment Ratio (greater	2.3	2.5	2.3	3.9	2.9							
Bank Heigh Ratio	1.0	1.0	1.0	1.0	1		1.0	1.0	1.0	1.0	1	
Wetted Perimeter(ft)	18.8	17.8	18.3	10.7	14.6							
Hydraulic radius (ft)	0.6	0.7	0.5	0.3	0.3							
Substrate												
d50 (mm)	0.06	17.42	0.06	0.06	0.11		0.16	17.42	0.06	0.06	0.14	
d84 (mm)	4.23	50.98	0.06	0.27	0.29		1	72	0.45	0.3	0.34	

Parameter	MY-00 (2004)			MY-01 (2005)			MY-02 (2006)			MY-03 (2007)			MY-04 (2008)			MY-05 (2009)		
Pattern	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med
Channel Beltwidth (ft)	-	-	-	69	70	69	69	70	69	69	70	69	69	70	69			
Radius of Curvature (ft)	-	-	17	62	81	73	56	68	63	56	68	63	56	68	63			
Meander Wavelength (ft)	-	-	-	236	255	245	236	255	245	236	255	245	236	255	245			
Meander Width ratio	-	-	-	4.3	4.3	4.3	4.0	4.0	4.0	3.9	4.0	3.9	4.0	4.0	4.0			
Profile																		
Riffle length (ft)	-	-	-	15.0	73.0	35.0	21	74	30	22	66	37.5	N/A	N/A	N/A			
Riffle slope (ft/ft)	-	-	-	0.003	0.017	0.007	0.016	0.024	0.019	0.008	0.016	0.015	N/A	N/A	N/A			
Pool length (ft)	10	18	13	5.0	25.0	11.0	16	23	19	11	19	16	N/A	N/A	N/A			
Pool spacing (ft)	42	100	71	29	93	45	40.5	95	67.75	40.5	136	88.25	N/A	N/A	N/A			

Additional Reach Parameters	MY-0 (2004)	MY-01 (2005)	MY-02 (2006)	MY-03 (2007)	MY-04 (2008)	MY-05 (2009)
Valley Length (ft)	358					
Channel Length (ft)	393					
Sinuosity	1.10					
Water Surface Slope (ft/ft)	0.016	0.015	0.016	0.016	N/A	
BF slope (ft/ft)	0.020	0.018	0.014	0.016	0.017	
Rosgen Classification	C4	C4	C4	C5	C5	

***Note: Reach 2 was dry during the 2008 survey so no water surface slopes could be determined**

Table IXc. Morphology and Hydraulic Monitoring Summary
Purlear Creek Phase I / Project # 294 - Middle Main
Reach 3 - 700

Parameter	Cross Section 1 Reach 3 Pool						Cross Section 2 Reach 3 Riffle					
Dimension	MY0	MY1	MY2	MY3	MY4	MY5	MY0	MY1	MY2	MY3	MY4	MY5
BF Width (ft)	26.8	26.2	24.2	25.1	25.9		24.5	24.2	25.1	24.1	24.1	
Floodprone Width (ft) (approx)							60	60	60	60	60	
BF Cross Sectional Area (ft^2)	45.2	44.8	37	36.9	37.8		28.3	28.1	27.2	29.4	30.62	
BF Mean Depth (ft)	1.7	1.7	1.5	1.5	1.5		1.2	1.2	1.1	1.2	1.3	
BF Max Depth (ft)	3.1	3.3	2.5	2.5	2.5		2.1	2.1	2.4	2.5	2.5	
Width/Depth Ratio							21.3	20.9	23	19.7	19	
Entrenchment Ratio (greater							2.4	2.5	2.4	2.5	2.5	
Bank Height Ratio	1.2	1.2	1.2	1.2	1.2		1.0	1.0	1.0	1.0	1	
Wetted Perimeter(ft)							26.9	26.6	27.3	26.5	26.7	
Hydraulic radius (ft)							1.1	1.1	1.0	1.1	1.1	
Substrate												
d50 (mm)	6.1	0.19	12.85	26.5	12.6		0.56	12.32	6.85	47.9	12	
d84 (mm)	22.63	8.25	37.94	54.5	62.5		14.36	36.86	33.46	77.6	68	

Parameter	MY-00 (2004)			MY-01 (2005)			MY-02 (2006)			MY-03 (2007)			MY-04 (2008)			MY-05 (2009)		
Pattern	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med
Channel Beltwidth (ft)	37	58		-	-	-	-	-	-	-	-	-	-	-	-			
Radius of Curvature (ft)	27	94		-	-	-	-	-	-	-	-	-	-	-	-			
Meander Wavelength (ft)	230	356		-	-	-	-	-	-	-	-	-	-	-	-			
Meander Width ratio	1.4	2.2		-	-	-	-	-	-	-	-	-	-	-	-			
Profile																		
Riffle length (ft)				16	94	35	17	59	46	24	68	46	18	39	34			
Riffle slope (ft/ft)	0.010	0.030	0.020	0.003	0.028	0.014	0.005	0.051	0.014	0.004	0.030	0.013	0.012	0.042	0.017			
Pool length (ft)	24	74	51	9	84	20	17	68	29	29	50	36	25	50	36			
Pool spacing (ft)	79	132	112	29	120	66	36	145	73	46	128.5	97.5	46	139.5	75.25			

Additional Reach Parameters	MY-0 (2004)	MY-01 (2005)	MY-02 (2006)	MY-03 (2007)	MY-04 (2008)	MY-05 (2009)
Valley Length (ft)	821					
Channel Length (ft)	850					
Sinuosity	1.04					
Water Surface Slope (ft/ft)	0.014	0.014	0.013	0.013	0.013	
BF slope (ft/ft)	0.015	0.013	0.015	0.013	0.013	
Rosgen Classification	C4	C4	C4	C4	C4	

Table IXd. Morphology and Hydraulic Monitoring Summary
Purlear Creek Phase I / Project # 294 - Lower Middle Trib (Upper Section)
Reach 4 - 650 Feet

Parameter	Cross Section 1 Reach 4 Riffle						Cross Section 2 Reach 4 Pool					
Dimension	MY0	MY1	MY2	MY3	MY4	MY5	MY0	MY1	MY2	MY3	MY4	MY5
BF Width (ft)	25.1	25.1	22.3	19.3	19.5		22.6	21.2	20.3	19.3	19	
Floodprone Width (ft) (approx)	50	50	50	50	50							
BF Cross Sectional Area (ft^2)	21.8	19.1	18.8	17.5	17.8		21.5	18.1	13.9	13.2	13.4	
BF Mean Depth (ft)	0.9	0.8	0.8	0.9	0.9		1	0.9	0.7	0.7	0.7	
BF Max Depth (ft)	1.6	1.5	2.2	2.1	2.1		2.3	2.2	2.2	2.0	2.1	
Width/Depth Ratio	28.9	32.9	26.5	21.4	21.4							
Entrenchment Ratio (greater	2.0	2.0	2.2	2.6	2.6							
Bank Height Ratio	1.0	1.0	1.0	1.0	1		1.0	1.0	1.0	1.0	1	
Wetted Perimeter(ft)	26.9	26.7	23.9	21.1	21.3							
Hydraulic radius (ft)	0.8	0.7	0.8	0.8	0.8							
Substrate												
d50 (mm)	10.36	0.69	0.09	0.11	0.09		3.93	3	0.38	0.2	0.75	
d84 (mm)	20.74	11.89	1.35	0.73	20.3		13.53	13.14	1.95	1.92	13.7	

Parameter	MY-00 (2004)			MY-01 (2005)			MY-02 (2006)			MY-03 (2007)			MY-04 (2008)			MY-05 (2009)		
Pattern	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med
Channel Beltwidth (ft)	28	71		28	55	47	28	55	47	28	55	47	28	55	47			
Radius of Curvature (ft)	81	81		37	77	49	37	77	49	37	77	49	37	77	49			
Meander Wavelength (ft)	116	170		120	157	135	120	157	135	120	157	135	120	157	135			
Meander Width ratio	1.1	2.8		1.1	2.2	1.9	1.3	2.5	2.1	1.5	2.8	2.4	1.5	2.9	2.5			
Profile																		
Riffle length (ft)				7	60	19	24	50	44.5	16	50	31	10	36	26			
Riffle slope (ft/ft)				0.007	0.019	0.012	0.008	0.036	0.015	0.004	0.023	0.015	0.010	0.040	0.020			
Pool length (ft)	54	85	70	6	45	23	15	91	27	14	64	26.5	12	64	19			
Pool spacing (ft)	88	184	131	29	115	49	26	106	63	30.5	90	62.5	27	90	62			

Additional Reach Parameters	MY-0 (2004)	MY-01 (2005)	MY-02 (2006)	MY-03 (2007)	MY-04 (2008)	MY-05 (2009)
Valley Length (ft)	599					
Channel Length (ft)	669					
Sinuosity	1.12					
Water Surface Slope (ft/ft)	0.015	0.013	0.014	0.014	0.014	
BF slope (ft/ft)	0.015	0.015	0.015	0.014	0.014	
Rosgen Classification	C4	C5	C5	C5	C5	

Table IXe. Morphology and Hydraulic Monitoring Summary
Purlear Creek Phase I / Project # 294 - Lower Middle Trib (Lower Section)
Reach 5 - 700 Feet

Parameter	Cross Section 1 Reach 5 Pool						Cross Section 2 Reach 5 Riffle					
Dimension	MY0	MY1	MY2	MY3	MY4	MY5	MY0	MY1	MY2	MY3	MY4	MY5
BF Width (ft)	21.4	21.4	23.7	22.2	22.2		26.3	25	23.5	24.8	24	
Floodprone Width (ft) (approx)							60	60	60	60	60	
BF Cross Sectional Area (ft^2)	26.8	29.4	27.4	26.2	26.4		23.1	19.8	17.9	17.9	18.2	
BF Mean Depth (ft)	1.3	1.4	1.2	1.2	1.2		0.9	0.8	0.8	0.7	0.8	
BF Max Depth (ft)	2.5	3.3	2.9	3.1	3		1.7	1.7	1.4	1.7	1.7	
Width/Depth Ratio							30	31.7	30.9	34.4	31.7	
Entrenchment Ratio (greater							2.3	2.4	2.6	2.4	2.5	
Bank Height Ratio	1.0	1.0	1.0	1.0	1		1.2	1.2	1.2	1.2	1.2	
Wetted Perimeter(ft)							28.1	26.6	25.1	26.2	25.6	
Hydraulic radius (ft)							0.8	0.7	0.7	0.7	0.7	
Substrate												
d50 (mm)	0.5	2.06	0.13	0.48	0.16		15.85	0.54	0.07	4.3	2.5	
d84 (mm)	8.25	13.06	1.48	19.3	3		29.94	3.33	0.75	34.2	9.4	

Parameter	MY-00 (2004)			MY-01 (2005)			MY-02 (2006)			MY-03 (2007)			MY-04 (2008)			MY-05 (2009)		
Pattern	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med
Channel Beltwidth (ft)	28	71		36	50	45	36	50	45	36	50	45	36	50	45			
Radius of Curvature (ft)	81	81		40	87	51	40	87	47	40	87	47	40	87	47			
Meander Wavelength (ft)	116	170		113	187	145	113	187	145	113	187	145	113	187	145			
Meander Width ratio	1.3	3.3		1.4	2.0	1.8	1.5	2.1	1.9	1.5	2.0	1.8	1.5	2.1	1.9			
Profile																		
Riffle length (ft)				5	49	28	16	48	33	16	44	32	17	36	28			
Riffle slope (ft/ft)				0.005	0.039	0.014	0.009	0.025	0.016	0.005	0.029	0.014	0.006	0.027	0.011			
Pool length (ft)	23	76	49	11	38	26	13	37	21.5	13	312	21	13	343	26.5			
Pool spacing (ft)	81	110	97	19	77	51	34	83	44	27	82.5	48	27	77	48			

Additional Reach Parameters	MY-0 (2004)	MY-01 (2005)	MY-02 (2006)	MY-03 (2007)	MY-04 (2008)	MY-05 (2009)
Valley Length (ft)	674					
Channel Length (ft)	778					
Sinuosity	1.15					
Water Surface Slope (ft/ft)	0.012	0.012	0.012	0.011	0.011	
BF slope (ft/ft)	0.009	0.011	0.010	0.011	0.011	
Rosgen Classification	C4	C4	C4	C4	C4	

Table IXf. Morphology and Hydraulic Monitoring Summary
Purlear Creek Phase I / Project # 294 - Lower Main
Reach 6 - 900 Feet

Parameter	Cross Section 1 Reach 6 Pool						Cross Section 2 Reach 6 Riffle					
Dimension	MY0	MY1	MY2	MY3	MY4	MY5	MY0	MY1	MY2	MY3	MY4	MY5
BF Width (ft)	18.9	19.2	17.9	19.7	19.6		27.1	26.9	34.3	37.5	32	
Floodprone Width (ft) (approx)							60	60	60	60	60	
BF Cross Sectional Area (ft^2)	43.6	36.3	33.2	31.8	35.1		40.2	37.8	35.2	35.5	39.1	
BF Mean Depth (ft)	2.3	1.9	1.9	1.6	1.8		1.5	1.4	1	0.9	1.2	
BF Max Depth (ft)	3.8	3.5	3.3	3.4	3.3		2.5	2.9	3	3	3	
Width/Depth Ratio	1.0	1.0	1.0	1.0	1		18.3	19.2	33.4	39.6	26.2	
Entrenchment Ratio (greater							2.2	2.2	1.7	1.6	1.9	
Bank Height Ratio							1.0	1.0	1.0	1.0	1	
Wetted Perimeter(ft)							30.1	29.7	36.3	39.3	34.4	
Hydraulic radius (ft)							1.3	1.3	1.0	0.9	1.1	
Substrate												
d50 (mm)	11.33	0.11	0.29	0.86	0.19		0.06	1.5	11.65	18.4	6.85	
d84 (mm)	24.5	14.22	12.85	32	6.35		11.01	65.75	45.17	47.7	38.5	

Parameter	MY-00 (2004)			MY-01 (2005)			MY-02 (2006)			MY-03 (2007)			MY-04 (2008)			MY-05 (2009)		
Pattern	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med
Channel Beltwidth (ft)	39	87		55	71	68	66	93	73	66	93	73	66	93	73			
Radius of Curvature (ft)	39	75		50	139	73	43	90	65	43	90	65	43	90	65			
Meander Wavelength (ft)	168	240		182	238	194	188	238	198	188	238	198	188	238	198			
Meander Width ratio	1.4	3.2		2.0	2.6	2.5	1.9	2.7	2.1	1.8	2.5	1.9	2.1	2.9	2.3			
Profile																		
Riffle length (ft)	-	-	-	30	36	34	19	32	24	19	45	30	13	44	28			
Riffle slope (ft/ft)	-	-	-	0.015	0.029	0.019	0.021	0.037	0.032	0.008	0.029	0.016	0.011	0.020	0.017			
Pool length (ft)	40	110	71	37	147	84	29	145	62	29	140	49	26	140	42			
Pool spacing (ft)	160	213	190	47	128	94	47	128	76	55	130	67.5	50	126	74			

Additional Reach Parameters	MY-0 (2004)	MY-01 (2005)	MY-02 (2006)	MY-03 (2007)	MY-04 (2008)	MY-05 (2009)
Valley Length (ft)	805					
Channel Length (ft)	931					
Sinuosity	1.16					
Water Surface Slope (ft/ft)	0.010	0.010	0.012	0.012	0.012	
BF slope (ft/ft)	0.009	0.010	0.012	0.012	0.012	
Rosgen Classification	B4c	B4c	B4c	B4c	B4c	

VI. Methodology Section

Monitoring methods used are based on US Army Corps of Engineering and NC Division of Water Quality Guides as referenced below.

The taxonomic standard for vegetation used in this report was based on "Flora of the Carolinas, Virginia, Georgia, and Surrounding Areas", by Alan S. Weakley. The vegetation monitoring protocol used for collecting vegetation data was the CVS-EEP Protocol for Recording Vegetation Version 4.0 (Lee et al. 2006).

References:

Harman, W.H. et al. 1999. *Bankfull Hydraulic Geometry Relationships for North Carolina Streams*. AWRA Wildland Hydrology Symposium Proceedings. Edited By: D.S. Olsen and J.P. Potyondy. AWRA Summer Symposium. Bozeman, MT.

Lee, Michael T., R. K. Peet, S. D. Roberts, and T. R. Wentworth. 2006. *CVS-EEP Protocol for Recording Vegetation*, Version 4.0 (http://cvs.bio.unc.edu/methods.htm)

Rosgen, D L. (1996) *Applied River Morphology*. Wildland Hydrology Books, Pagosa Springs, CO.

USACOE (2003) *Stream Mitigation Guidelines*. USACOE, USEPA, NCWRC, NCDENR-DWQ

Weakley, Alan S.*, Flora of the Carolinas, Virginia, Georgia, and Surrounding Areas*

APPENDIX A

1. Vegetation Data Tables
   - Table 1. Vegetation Metadata
   - Table 2. Vegetation Vigor by Species
   - Table 3. Vegetation Damage by Species
   - Table 4. Vegetation Damage by Plot
   - Table 5. Stem Count by Plot and Species
   - Table 6. Vegetation Problem Area Tables
   - Table 10. Vigor
   - Table 11. Damage

2. Vegetation Problem Area Photos
3. Vegetation Monitoring Plot Photos

Notes:

- No separate plan view was established for vegetation conditions. See monitoring plan view for this information.

Table 1. Vegetation Metadata

Report Prepared By	Nathan Buchanan
Date Prepared	11/25/2008 23:50

database name	CVS_EEP_EntryTool_v220.mdb
database location	C:\Users\nathan\Desktop
computer name	IMELT

DESCRIPTION OF WORKSHEETS IN THIS DOCUMENT----------

Metadata	This worksheet, which is a summary of the project and the project data.
Proj, planted	Each project is listed with its PLANTED stems, for each year. This excludes live stakes and lists stems per acre.
Proj, total stems	Each project is listed with its TOTAL stems, for each year. This includes live stakes, all planted stems, and all natural/volunteer stems. Listed in stems per acre.
Plots	List of plots surveyed.
Vigor	Frequency distribution of vigor classes.
Vigor by Spp	Frequency distribution of vigor classes listed by species.
Damage	List of most frequent damage classes with number of occurrences and percent of total stems impacted by each.
Damage by Spp	Damage values tallied by type for each species.
Damage by Plot	Damage values tallied by type for each plot.
ALL Stems by Plot and spp	Count of total living stems of each species (planted and natural volunteers combined) for each plot; dead and missing stems are excluded.

PROJECT SUMMARY----------

Project Code	Purlear 1
project Name	Purlear Phase 1
Description	
River Basin	
length(ft)	
stream-to-edge width (ft)	
area (sq m)	
Required Plots (calculated)	
Sampled Plots	25

Table 2. Vegetation Vigor by Species

	Species	4	3	2	1	0	Missing	Unknown
	Alnus serrulata	18	19	3	2		1	2
	Aronia arbutifolia		2	1	1			
	Betula nigra	39	7	2		5	3	5
	Celtis occidentalis			1	3		1	
	Cephalanthus occidentalis		1					1
	Cornus amomum	20	114	45	47	2	11	11
	Diospyros virginiana	1	5	7			2	3
	Fraxinus pennsylvanica	28	18	16	6		1	1
	Halesia carolina			1				
	Nyssa sylvatica	1	1	4	1		1	
	Quercus michauxii	14	11	16	13			5
	Quercus phellos	22	15	8	12		1	2
	Salix nigra	84	8	6	2	3	7	1
	Sambucus canadensis		1	2	1			
	Carpinus caroliniana				4			
	Hamamelis virginiana		2				2	1
	Populus deltoides	3				1	1	
	Acer rubrum				1		1	
TOT:	**18**	**230**	**204**	**112**	**93**	**11**	**32**	**32**

Table 3. Vegetation Damage by Species

	Species	All Damage Catagories	(no damage)	Beaver	Deer	Diseased	Human Trampled	Insects	Livestock	Site Too Dry	Site Too Wet	Unknown	Vine Strangulation	(other damage)
	Acer rubrum	2	1						1					
	Alnus serrulata	45	19	1				3	2			12	7	1
	Aronia arbutifolia	4							1			2	1	
	Betula nigra	61	47			2		1	1	1		9		
	Carpinus caroliniana	4							4					
	Celtis occidentalis	5	1						2			1	1	
	Cephalanthus occidentalis	2	1										1	
	Cornus amomum	250	40		2	55	7	4	78		3	51	9	1
	Diospyros virginiana	18	4						1			13		
	Fraxinus pennsylvanica	70	29		1	9	4		18	1		6	2	
	Halesia carolina	1										1		
	Hamamelis virginiana	5	3						1			1		
	Nyssa sylvatica	8	3						1			2	2	
	Populus deltoides	5	4						1					
	Quercus michauxii	59	17		1	4		4	19			11	3	
	Quercus phellos	60	25		1		1	3	18			10	2	
	Salix nigra	111	91	1				2	5			10	2	
	Sambucus canadensis	4						1				3		
TOT:	**18**	**714**	**285**	**2**	**5**	**70**	**12**	**18**	**153**	**2**	**3**	**132**	**30**	**2**

Table 4. Vegetation Damage by Plot

	plot	All Damage Categories	(no damage)	Beaver	Deer	Diseased	Human Trampled	Insects	Livestock	Site Too Dry	Site Too Wet	Unknown	Vine Strangulation	(other damage)
	3	21							17			4		
	4	39	15		4			2			3	12	1	2
	5	34	4			2	4	1	17			6		
	6	41	17						21			3		
	7	43	7			5		3	25			3		
	9	8	2						5			1		
	10	24	2						22					
	11	24	8						14			2		
	12	25	10			1	1	1	11			1		
	13	21	14						5			2		
	14	14	7				1	1				5		
	15	21	4						14			3		
	16	43	7			27		6				3		
	17	42	29									13		
	18	10	2									7	1	
	29	10	6		1					1		2		
	21	19	13					1				5		
	23	30	2									1	27	
	24	15	14			1								
	26	21	3			12	3	1				2		
	30	23	2			14						7		
	31	60	38			1		1	2			17	1	
	32	37	25	1		5	1			1		4		
	33	36	27			2						7		
	34	53	27	1			2	1				22		
TOT:	**25**	**714**	**285**	**2**	**5**	**70**	**12**	**18**	**153**	**2**	**3**	**132**	**30**	**2**

Table 5. Stem Count by Plot and Species

	Species	Total Stems	# plots	avg# stems	3	4	5	6	7	9	10	11	12	13	14	15	16	17	18	21	23	24	26	29	30	31	32	33	34
	Acer saccharinum	1	1	1																									1
	Ailanthus altissima	1	1	1																								1	
	Albizia julibrissin	1	1	1																				1					
	Alnus serrulata	50	13	3.85		2	1	6	2	2				2		3			1			6		1		9	8		7
	Aronia arbutifolia	5	4	1.25							2											1			1				1
	Betula nigra	63	16	3.94		5	2	1	4			4		4	6		3	2	5				3		1	7	8	6	2
	Celtis occidentalis	5	2	2.5												3			2									
	Cephalanthus occidentalis	2	2	1																		1							1
	Cornus amomum	270	20	13.5	16	29	10	10	25		15	7	13	7		5	28	16				9	2	10	14	12	14	1	27
	Diospyros virginiana	23	9	2.56	5					1			1					1	1		4						1	6	3
	Fraxinus pennsylvanica	69	19	3.63	1	7	12	2			4	2	1	2	2	5	2	5		5		2	6	7		2	1		1
	Halesia carolina	1	1	1																	1								
	Juglans nigra	8	3	2.67	1						1															6			
	Ligustrum sinense	38	3	12.67									36				1				1								
	Nyssa sylvatica	8	5	1.6												1					1	1				3		2	
	Oxydendrum arboreum	3	1	3																3									
	Pinus taeda	1	1	1																						1			
	Pinus virginiana	23	2	11.5																22					1				
	Pyrus calleryana	1	1	1																							1		
	Quercus michauxii	60	20	3		4	6	3			2	7	2	2	3	1	2	1	2	3	4	3	1		6		5	2	1
	Quercus phellos	60	14	4.29		1	3	8	6	5			2				11	2			2	2	1	1		8		8	
	Salix nigra	111	22	5.05	3	3	3	17	6	1		3		5	2	4	2	17		1	4	2	1	1	1	19	1	9	6
	Sambucus canadensis	7	6	1.17											1					2		1				1	1	1	
	Sambucus nigra	15	1	15																							15		
	Rhus copallinum	1	1	1																	1								
	Ilex opaca	1	1	1																	1								
	Carpinus caroliniana	4	1	4							4																		
	Catalpa	4	2	2					2	2																			
	Juniperus virginiana	4	3	1.33	1														2							1			
	Hamamelis virginiana	4	3	1.33				1		1			2																
	Liriodendron tulipifera	15	7	2.14		2		1												5	3	1				2			1
	Platanus occidentalis	12	4	3														4			5	1				2			
	Prunus serotina	38	10	3.8	4	1		1	2	8				10				1		3		3				5			
	Populus deltoides	4	3	1.33							1															1		2	
	Acer rubrum	181	16	11.31		3		2	1	15	38	24	8	1	1	1			1	2					27	54	1		2
TOT:	**35**	**1094**	**35**		**31**	**57**	**37**	**52**	**48**	**35**	**67**	**47**	**65**	**33**	**15**	**23**	**49**	**49**	**14**	**46**	**27**	**33**	**14**	**21**	**51**	**133**	**56**	**38**	**53**

Table 6. Vegetation Problem Areas

Issue	**UTM N**	**UTM E**	**Probable Cause**	**Photo**
Bare flood plain	4006028	0473744	Head cut from pasture channel	VPA-1
Bare flood plain	4006168	0473771	Head cut from pasture channel	VPA-2
Bare bank	4006343	0473269	Constructed steep slope	VPA-3
Kudzu Invasion	N 36.20173	W -81.29724	Animal dispersal	VPA-4

Table 10. Vigor

vigor	Count	Percent
0	11	1.5
1	93	13
2	112	15.7
3	204	28.6
4	230	32.2
Missing	32	4.5
Unknown	32	4.5

Table 11. Damage

Damage	Count	Percent Of Stems
(no damage)	285	39.9
Livestock	153	21.4
Unknown	132	18.5
Diseased	70	9.8
Vine Strangulation	30	4.2
Insects	18	2.5
Human Trampled	12	1.7
Deer	5	0.7
Site Too Wet	3	0.4
Site Too Dry	2	0.3
Beaver	2	0.3
(other damage)	2	0.3
(no damage)	285	39.9

Vegetation Problem Area Photos

VPA-1

VPA-2

VPA-3

VPA-4

Vegetation Monitoring Plot Photos

Purlear 1

Plot 03, 30-July-2008

Plot 04, 30-July-2008

Purlear 1

Plot 05, 30-July-2008

Plot 06, 31-July-2008

Purlear 1

Plot 07, 30-July-2008

Plot 09, 30-July-2008

Purlear 1

Plot 10, 30-July-2008

Plot 11, 30-July-2008

Purlear 1

Plot 12, 29-July-2008

Plot 13, 29-July-2008

Purlear 1

Plot 14, 28-July-2008

Plot 15, 29-July-2008

Purlear 1

Plot 16, 29-July-2008

Plot 17, 30-July-2008

Purlear 1

Plot 18, 30-July-2008

Plot 21, 31-July-2008

Purlear 1

Plot 23, 31-July-2008

Plot 24, 31-July-2008

Purlear 1

Plot 26, 31-July-2008

Plot 29, 31-July-2008

Purlear 1

Plot 30, 31-July-2008

Plot 31, 15-August-2008

Purlear 1

Plot 32, 30-July-2008

Plot 33, 15-August-2008

Purlear 1

Plot 34, 15-August-2008

APPENDIX B

Morphology Raw Data

1. Current Conditions Plan View
2. Stream Problem Area Table
3. Stream Problem Area Photos/Project Photo Log
4. Visual Morphological Stability Assessment Tables
5. Cross section and Pebble Count Plots and Raw Data Tables
6. Longitudinal Plots
7. Feature Slope and Length Calculations
8. Channel Pattern Measurements

LEGEND

2008 THALWEG

2008 BANKFULL/TOB

CROSS SECTION

PROBLEM PHOTO (IP#)

VEG PLOT

PROBLEM AREA

IP1

-0+55.86

0+00

CROSS SECTION #1
REACH 1
POOL

1+00

2+00

3+00

4+00

5+00

CROSS SECTION #2
REACH 1
RIFFLE

6+00

IP7

7+00

8+00

9+00

10+00

10+36.02

IP5

REACH 1

-1+28.65

-1+00

0+00

CROSS SECTION #1
REACH 2
RIFFLE

1+00

CROSS SECTION #2
REACH 2
POOL

2+00

2+64.82

IP14a

REACH 2

SCALE 1" = 100'

50 0 50 100

SHEET 1

NO	REVISIONS	DRN	CHK	DATE
1	AS-BUILT PLAN	DRC	DAB	03/01/06
2	MONITORING YEAR 03	ZP	JMP	12/1/07
3	MONITORING YEAR 03	ZP	JZ	12/1/08

NC STATE UNIVERSITY

BIOLOGICAL & AGRICULTURAL ENGINEERING
Weaver Labs Campus Box 7625
North Carolina State University
Raleigh, NC 27695

PURLEAR CREEK – PHASE 1
WILKES COUNTY, N.C.

CURRENT CONDITION PLAN VIEW
SHEET 1 of 3

DATE 03/01/2006

PROJECT NO. 294

FILENAME PULEAR ASBUILT 05.DWG

SHEET NO. CURRENT 1 of 3

SHEET 2A

REACH 3

0+00

IP18

1+00

CROSS SECTION #1
REACH 3
POOL

2+00

3+00

CROSS SECTION #2
REACH 3
RIFFLE

VEG PLOT #11

IP19

IP20

4+00

5+00

VEG PLOT #12

6+00

7+00

7+17.46

VEG PLOT #13

IP21

IP22

SHEET 2A

SHEET 2B

SHEET 2B

VEG PLOT #32

IP36

0+00

0+37.8

1+00

CROSS SECTION #1
REACH 6
POOL

IP39

2+00

3+00

4+00

5+00

CROSS SECTION #2
REACH 6
RIFFLE

6+00

VEG PLOT #33

8°30'0"

7+00

8+00

VPA3

8+99.35

REACH 6

SCALE 1" = 100'

50 0 50 100

LEGEND

2008 THALWEG

2008 BANKFULL/TOB

CROSS SECTION

PROBLEM PHOTO IP#

VEG PLOT

PROBLEM AREA

NO	REVISIONS	DRN	CHK	DATE
1	AS-BUILT PLAN	DRC	DAB	03/01/06
2	MONITORING YEAR 03	ZP 1	JMP	12/1/07
3	MONITORING YEAR 03	ZP	JZ	12/1/08

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Weaver Labs Campus Box 7625
North Carolina State University
Raleigh, NC 27695

PURLEAR CREEK – PHASE 1
WILKES COUNTY, N.C.

CURRENT CONDITION PLAN VIEW
SHEET 2 of 3

DATE 03/01/2006

PROJECT NO. 294

FILENAME PULEAR ASBUILT 05.DWG

SHEET NO. CURRENT 2 of 3

LEGEND

2008 THALWEG

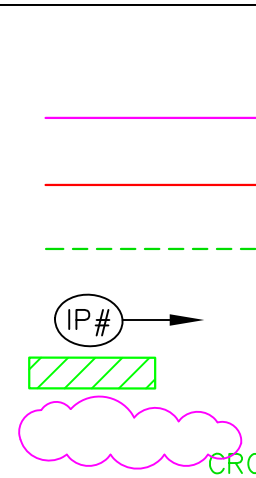
2008 BANKFULL/TOB

CROSS SECTION

PROBLEM PHOTO

VEG PLOT

PROBLEM AREA



REACH 4

3+00

4+00

5+00

6+00

6+69.64

VEG PLOT #

CROSS SECTION #2
REACH 4
POOL

VEG PLOT
#22

VEG PLOT #23

SCALE 1" = 100'

50 0 50 100

VPA1

SHEET 3A

-0+60.92

0+00

1+00

VEG PLOT
#27

VEG PLOT #28

2+00

3+00

CROSS SECTION #1
REACH 5
POOL

VEG PLOT
#29

CROSS SECTION #2
REACH 5
RIFFLE

4+00

0°4'51"

VPA2

5+00

VEG PLOT #30

6+00

7+17.52

7+00

VEG PLOT #31

REACH 5

SHEET 3A

SHEET 3B

SHEET 3B

NO	REVISIONS	DRN	CHK	DATE
1	MONITORING PLAN	DRC	DAB	03/01/06
2	MONITORING YEAR 03	ZP	JMP	12/1/07
3	MONITORING YEAR 03	ZP	JZ	12/1/08

NC STATE UNIVERSITY

BIOLOGICAL & AGRICULTURAL ENGINEERING
Weaver Labs Campus Box 7625
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Raleigh, NC 27695

PURLEAR CREEK – PHASE 1

WILKES COUNTY, N.C.

CURRENT CONDITION PLAN VIEW
SHEET 3 of 3

DATE 03/01/2006

PROJECT NO. 294

FILENAME PULEAR ASBUILT 05.DWG

SHEET NO. CURRENT 3 of 3

Table B1. Stream Problem Area Table
Purlear Creek Phase I / Project # 294
Reaches 1 - 6

Feature Issue	Reach	Problem/ Photo Number	Station Numbers	Suspected Cause
Bed Elevation Drop	Reach 1	IP1 IP5 IP7	Above Study Reach 1+00 5+50	Steep Channel Grade Drop Designed into Structure
Piping	Reach 2	IP 14a	2+20	Large grade drop through the structure.
Bed Elevation Drop	Reach 3	IP19 IP21	2+77 Below Study Reach	Steep Channel Grade Drop Designed into Structure
Slump Arm		IP 18	0+00	Poor Soils, Lack of sufficient footers
Erosion / Ground Hog Tunnels		IP20	4+00	Ground Hogs
Slump Arm		IP 22	Below Study Reach	Poor Soils, Lack of sufficient footers
Drainage Tile	Reach 6	IP36	Above Study Reach	Farmer
Drainage Tile		IP39	2+10	Farmer

2008 Purlear Phase I
Stream
Problem Areas

Reach 1

October 17, 2007 **October 7, 2008**

IP 1 Bed Elevation Drop and Loose Boulder (Upstream of Study Reach)

IP 5 Bed Elevation Drop and Piping at Left Arm (Station 0+89)

IP 7 Bed Elevation Drop (Station 5+50)

Reach 2

October 17, 2007 **October 7, 2008**


IP14a Piping through cross vane (Station 2+20) – Creek bed dry in 2007 and 2008

Reach 3


IP 18 Slump Arm (Station 0+00)


IP 19 Bed Elevation Drop (Station 2+77)

October 17, 2007 **October 7, 2008**


IP 20 Erosion Ground Hog Tunnels (Station 4+00)


IP 21 Bed Elevation Drop and Piping Under Left Arm (Below Study Reach)


IP 22 Slump Arm and Piping (Below Study Reach)

Reach 6

October 17, 2007

October 7, 2008

IP 36 Tile (Above Study Reach)

October 18, 2007

October 7, 2008

IP 39 Tile (Station 2+10)

Purlear Creek Photo Log
2008

Reach 1

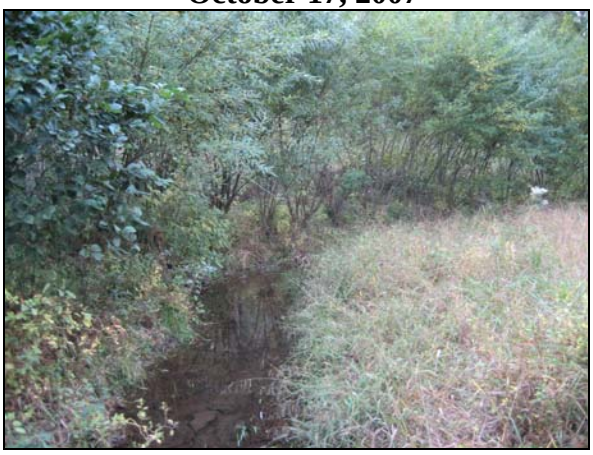
October 17, 2007 **October 7, 2008**


P1. Start Downstream


P2. Start Upstream


P3. X1 Downstream (Station 0+00)

October 17, 2007



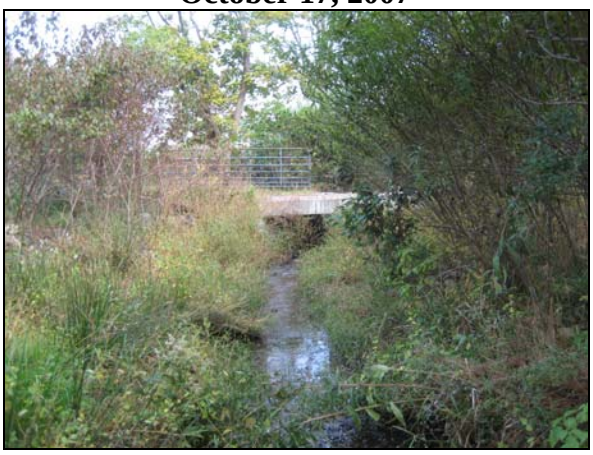
October 7, 2008

P4. X1 Upstream (Station 0+00)

P5. X2 Downstream (Station 5+25)

P6. X2 Upstream (Station 5+25)

October 17, 2007



October 7, 2008

P7. End Downstream

P8. End Upstream

Reach 2

October 17, 2007

P9. Start Downstream

October 17, 2007

October 7, 2008

P10. Start Upstream

P11. X1 Downstream (Station 0+25)

P12. X1 Upstream (Station 0+25)

October 17, 2007

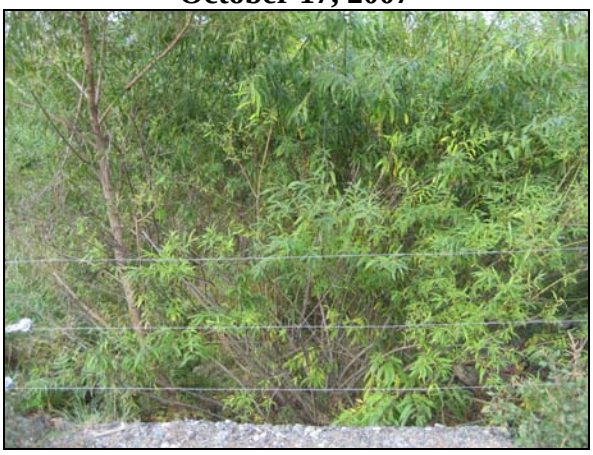
October 7, 2008

P13. X2 Downstream (Station 1+20)

P14. X2 Upstream (Station 1+20)

P15. End Downstream

October 17, 2007



October 7, 2008

P16. End Upstream

Reach 3

October 17, 2007

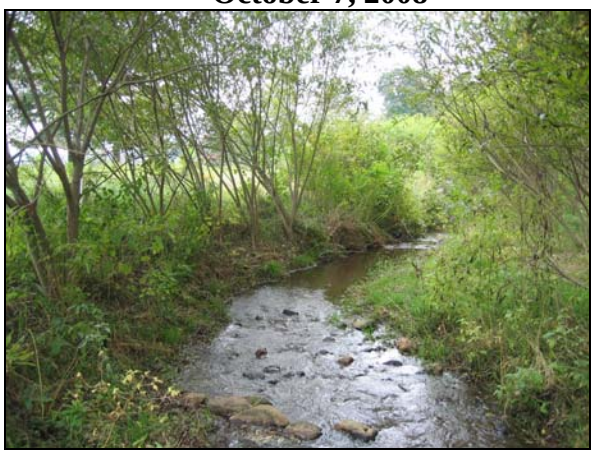
October 7, 2008

P17. Start Downstream

P18. Start Upstream

October 17, 2007

October 7, 2008



P19. X1 Downstream (Station 0+80)

P20. X1 Upstream (Station 0+80)

P21. X2 Downstream (Station 3+45)

October 17, 2007 **October 7, 2008**


P22. X2 Upstream (Station 3+45)


P23. End Downstream


P24. End Upstream

Reach 4

October 18, 2007

October 7, 2008

P25. Start Downstream

P26. Start Upstream

P27. X1 Downstream (Station 1+75)

October 18, 2007 **October 7, 2008**


P28. X1 Upstream (Station 1+75)


P29. X2 Downstream (Station 5+45)


P30. X2 Upstream (Station 5+45)

October 18, 2007

October 7, 2008

P31. End Downstream

P32. End Upstream

Reach 5

October 18, 2007

October 7, 2008

P33. Start Downstream

October 18, 2007 **October 7, 2008**


P34. Start Upstream


P35. X1 Downstream (Station 3+00)


P36. X1 Upstream (Station 3+00)

October 18, 2007 **October 7, 2008**

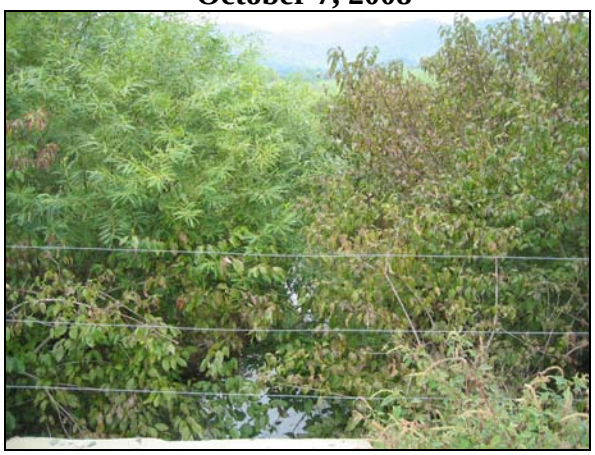

P37. X2 Downstream (Station 3+85)


P38. X2 Upstream (Station 3+85)


P39. End Downstream

October 18, 2007

October 7, 2008



P40. End Upstream

Reach 6

October 18, 2007

October 7, 2008

P41. Start Downstream

P42. Start Upstream

October 18, 2007 **October 7, 2008**


P43. X1 Downstream (Station 2+05)


P44. X1 Upstream (Station 2+05)


P45. X2 Downstream (Station 5+80)

October 18, 2007

October 7, 2008

P46. X2 Upstream (Station 5+80)

P47. End Downstream

P48. End Upstream

Table B2. Visual Morphological Stability Assessment

Purlear Creek Phase I / Project # 294 - Upper Main Reach 1 - 1050

Feature Category	Metric (per As-built and reference baselines)	(# Stable) Number Performing as Intended	Total number per As-built	Total Number / feet in unstable state[1]	% Perform in Stable Condition[2]	Feature Perform. Mean or Total[3]
A. Riffles	1. Present?[4]	12	13	NA	92	
	2. Armor stable (e.g. no displacement)?	12	13	NA	92	
	3. Facet grade appears stable?	12	13	NA	92	
	4. Minimal evidence of embedding/fining?	12	13	NA	92	
	5. Length appropriate?	12	13	NA	92	**92%**
B. Pools	1. Present? (e.g not subject to severe aggrad. or migrat.?)[4]	13	13	NA	100	
	2. Sufficiently deep (Max Pool D:Mean Bkf >1.6?)	13	13	NA	100	
	3. Length appropriate?	10	13	NA	77	**92%**
C. Thalweg	1. Upstream of meander bend (run/inflection) centering?[5]	8	8	NA	100	
	2. Downstream of meander (glide/inflection) centering?[5]	8	8	NA	100	**100%**
D. Meanders	1. Outer bend in state of limited/controlled erosion?	8	8	NA	100	
	2. Of those eroding, # w/concomitant point bar formation?	0	0	NA	100	
	3. Apparent Rc within spec?	3	3	NA	100	
	4. Sufficient floodplain access and relief?[6]	8	8	NA	100	**100%**
E. Bed General	1. General channel bed aggradation areas (bar formation)	NA	NA	0/0	100	
	2. Channel bed degradation – areas of increasing down-cutting or head cutting?	NA	NA	0/0	100	**100%**
F. Bank	1. Actively eroding, wasting, or slumping bank	NA	NA	0/0	100%	**100%**
G. Vanes	1. Free of back or arm scour?	4	5	NA	80	
	2. Height appropriate?	1	5	NA	20	
	3. Angle and geometry appear appropriate?	5	5	NA	40	
	4. Free of piping or other structural failures?	4	5	NA	80	**55%**
F. Wads/ Boulders	1. Free of scour?	NA	NA	NA	NA	
	2. Footing stable?	NA	NA	NA	NA	**NA**

Footnotes:

The above table should be completed using the visual assessment data form for each project reach/segment

It is recognized that the various metrics within a feature category may not have equal influence on the overall stability of that feature and that this does not incorporate weighting or scoring; however, at this time, EEP requires documentation of the relevant observations for these feature categories.

1 Metrics that are spatial estimates should be entered as: The number of locales over the reach for which the failing condition is observed / followed by the total linear distance (feet) or area for which the failing or unstable condition is observed.

2 In the case of categorical metrics for which a feature count is involved, this is simply calculated as the number of functional features that are in a state of stability as a percentage of the total. In the case of those metrics based on footage or aerial extent it is that amount in a state of failure or instability expressed as a proportion of the total amount of that feature. The resulting proportion is then subtracted from 1 and then multiplied by 100 to give a percentage that represents the proportion of that feature category in a state of apparent stability.

3 The mean of the metrics for a given feature category.

4 Was the feature actually present as compared to the As-built or has the feature been completely obscured (aggraded) or removed (degraded).

5 Is the Thalweg centering up on the channel in between meander bends?

6 Is the meander bend in a state of constriction?

Documents referenced in the construct of the above assessment table

USDA-NRCS (1998) *Stream Visual Assessment Protocol* National Water and Climate Center (Technical Note 99–1)

Rosgen, D L. (1996) *Applied River Morphology* . Wildland Hydrology Books, Pagosa Springs, CO.

Phankuch, D.J. (1975) Stream reach inventory and channel stability evaluation. USDA Forest Service, R1-75-002. GPO #696-260/200

Table B2. Visual Morphological Stability Assessment
Purlear Creek Phase I / Project # 294 - Upper Middle Trib
Reach 2 - 260 Feet

Feature Category	Metric (per As-built and reference baselines)	(# Stable) Number Performing as Intended	Total number per As-built	Total Number / feet in unstable state[1]	% Perform in Stable Condition[2]	Feature Perform. Mean or Total[3]
A. Riffles	1. Present?[4]	NA	4	NA	NA	
	2. Armor stable (e.g. no displacement)?	NA	4	NA	NA	
	3. Facet grade appears stable?	NA	4	NA	NA	
	4. Minimal evidence of embedding/fining?	NA	4	NA	NA	
	5. Length appropriate?	NA	4	NA	NA	**NA**
B. Pools	1. Present? (e.g not subject to severe aggrad. or migrat.?)[4]	NA	3	NA	NA	
	2. Sufficiently deep (Max Pool D:Mean Bkf >1.6?)	NA	3	NA	NA	
	3. Length appropriate?	NA	3	NA	NA	**NA**
C. Thalweg	1. Upstream of meander bend (run/inflection) centering?[5]	4	4	NA	100	
	2. Downstream of meander (glide/inflection) centering?[5]	4	4	NA	100	**100%**
D. Meanders	1. Outer bend in state of limited/controlled erosion?	4	4	NA	100	
	2. Of those eroding, # w/concomitant point bar formation?	0	0	NA	100	
	3. Apparent Rc within spec?	4	4	NA	100	
	4. Sufficient floodplain access and relief?[6]	4	4	NA	100	**100%**
E. Bed General	1. General channel bed aggradation areas (bar formation)	NA	393	1/350	10	
	2. Channel bed degradation – areas of increasing down-cutting or head cutting?	NA	NA	0/0	100	**55%**
F. Bank	1. Actively eroding, wasting, or slumping bank	NA	NA	0/0	100%	**100%**
G. Vanes	1. Free of back or arm scour?	5	5	NA	100	
	2. Height appropriate?	1	5	NA	20	
	3. Angle and geometry appear appropriate?	5	5	NA	100	
	4. Free of piping or other structural failures?	3	5	NA	60	**70%**
H. Wads/ Boulders	1. Free of scour?	NA	NA	NA	NA	
	2. Footing stable?	NA	NA	NA	NA	**N/A**

Note: Reach 2 was dry during the 2008 survey making it dificult to determine the locations of riffles and pools

Footnotes:

The above table should be completed using the visual assessment data form for each project reach/segment

It is recognized that the various metrics within a feature category may not have equal influence on the overall stability of that feature and that this does not incorporate weighting or scoring; however, at this time, EEP requires documentation of the relevant observations for these feature categories.

1 Metrics that are spatial estimates should be entered as: The number of locales over the reach for which the failing condition is observed /

2 In the case of categorical metrics for which a feature count is involved, this is simply calculated as the number of functional features that are in a state of stability as a percentage of the total. In the case of those metrics based on footage or aerial extent it is that amount in a state of failure or instability expressed as a proportion of the total amount of that feature. The resulting proportion is then subtracted from 1 and then multiplied by 100 to give a percentage that represents the proportion of that feature category in a state of apparent stability.

3 The mean of the metrics for a given feature category.

4 Was the feature actually present as compared to the As-built or has the feature been completely obscured (aggraded) or removed (degraded).

5 Is the Thalweg centering up on the channel in between meander bends?

6 Is the meander bend in a state of constriction?

Documents referenced in the construct of the above assessment table

USDA-NRCS (1998) *Stream Visual Assessment Protocol* National Water and Climate Center (Technical Note 99–1)

Rosgen, D L. (1996) *Applied River Morphology* . Wildland Hydrology Books, Pagosa Springs, CO.

Phankuch, D.J. (1975) Stream reach inventory and channel stability evaluation. USDA Forest Service, R1-75-002. GPO #696-260/200

Table B2. Visual Morphological Stability Assessment
Purlear Creek Phase I / Project # 294 - Middle Main
Reach 3 - 700

Feature Category	Metric (per As-built and reference baselines)	(# Stable) Number Performing as Intended	Total number per As-built	Total Number / feet in unstable state[1]	% Perform in Stable Condition[2]	Feature Perform. Mean or Total[3]
A. Riffles	1. Present?[4]	7	7	NA	100	
	2. Armor stable (e.g. no displacement)?	7	7	NA	100	
	3. Facet grade appears stable?	7	7	NA	100	
	4. Minimal evidence of embedding/fining?	7	7	NA	100	
	5. Length appropriate?	7	7	NA	100	**100%**
B. Pools	1. Present? (e.g not subject to severe aggrad. or migrat.?)[4]	9	9	NA	100	
	2. Sufficiently deep (Max Pool D:Mean Bkf >1.6?)	9	9	NA	100	
	3. Length appropriate?	9	9	NA	100	**100%**
C. Thalweg	1. Upstream of meander bend (run/inflection) centering?[5]	6	6	NA	100	
	2. Downstream of meander (glide/inflection) centering?[5]	6	6	NA	100	**100%**
D. Meanders	1. Outer bend in state of limited/controlled erosion?	5	6	NA	96	
	2. Of those eroding, # w/concomitant point bar formation?	0	0	NA	100	
	3. Apparent Rc within spec?	6	6	NA	100	
	4. Sufficient floodplain access and relief?[6]	6	6	NA	100	**99%**
E. Bed General	1. General channel bed aggradation areas (bar formation)	NA	NA	0/0	100	
	2. Channel bed degradation – areas of increasing down-cutting or head cutting?	NA	NA	0/0	100	**100%**
F. Bank	1. Actively eroding, wasting, or slumping bank	NA	NA	0/0	100%	**100%**
G. Vanes	1. Free of back or arm scour?	6	6	NA	100	
	2. Height appropriate?	4	6	NA	66	
	3. Angle and geometry appear appropriate?	6	6	NA	100	
	4. Free of piping or other structural failures?	5	6	NA	83	**87%**
H. Wads/ Boulders	1. Free of scour?	NA	NA	NA	NA	
	2. Footing stable?	NA	NA	NA	NA	**NA**

Footnotes:

The above table should be completed using the visual assessment data form for each project reach/segment

It is recognized that the various metrics within a feature category may not have equal influence on the overall stability of that feature and that this does not incorporate weighting or scoring; however, at this time, EEP requires documentation of the relevant observations for these feature categories.

1 Metrics that are spatial estimates should be entered as: The number of locales over the reach for which the failing condition is observed / followed by the total linear distance (feet) or area for which the failing or unstable condition is observed.

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3 The mean of the metrics for a given feature category.

4 Was the feature actually present as compared to the As-built or has the feature been completely obscured (aggraded) or removed (degraded).

5 Is the Thalweg centering up on the channel in between meander bends?

6 Is the meander bend in a state of constriction?

Documents referenced in the construct of the above assessment table

USDA-NRCS (1998) *Stream Visual Assessment Protocol* National Water and Climate Center (Technical Note 99–1)
Rosgen, D L. (1996) *Applied River Morphology*. Wildland Hydrology Books, Pagosa Springs, CO
Phankuch, D.J. (1975) Stream reach inventory and channel stability evaluation. USDA Forest Service, R1-75-002. GPO #696-260/20

Table B2. Visual Morphological Stability Assessment
Purlear Creek Phase I / Project # 294 - Lower Middle Trib (Upper Section)
Reach 4 - 650 Feet

Feature Category	Metric (per As-built and reference baselines)	(# Stable) Number Performing as Intended	Total number per As-built	Total Number / feet in unstable state[1]	% Perform in Stable Condition[2]	Feature Perform. Mean or Total[3]
A. Riffles	1. Present?[4]	8	8	NA	100	
	2. Armor stable (e.g. no displacement)?	8	8	NA	100	
	3. Facet grade appears stable?	8	8	NA	100	
	4. Minimal evidence of embedding/fining?	6	8	NA	75	
	5. Length appropriate?	8	8	NA	100	**95%**
B. Pools	1. Present? (e.g not subject to severe aggrad. or migrat.?)[4]	11	12	NA	92	
	2. Sufficiently deep (Max Pool D:Mean Bkf >1.6?)	11	12	NA	92	
	3. Length appropriate?	11	12	NA	92	**92%**
C. Thalweg	1. Upstream of meander bend (run/inflection) centering?[5]	9	9	NA	100	
	2. Downstream of meander (glide/inflection) centering?[5]	9	9	NA	100	**100%**
D. Meanders	1. Outer bend in state of limited/controlled erosion?	9	9	NA	100	
	2. Of those eroding, # w/concomitant point bar formation?	0	0	NA	100	
	3. Apparent Rc within spec?	9	9	NA	100	
	4. Sufficient floodplain access and relief?[6]	9	9	NA	100	**100%**
E. Bed General	1. General channel bed aggradation areas (bar formation)	NA	NA	0/0	100	
	2. Channel bed degradation – areas of increasing down-cutting or head cutting?	NA	NA	0/0	100	**100%**
F. Bank	1. Actively eroding, wasting, or slumping bank	NA	NA	0/0	100%	**100%**
G. Vanes	1. Free of back or arm scour?	8	8	NA	100	
	2. Height appropriate?	6	8	NA	75	
	3. Angle and geometry appear appropriate?	8	8	NA	100	
	4. Free of piping or other structural failures?	8	8	NA	100	**94%**
H. Wads/ Boulders	1. Free of scour?	NA	NA	NA	NA	
	2. Footing stable?	NA	NA	NA	NA	**NA**

Footnotes:

The above table should be completed using the visual assessment data form for each project reach/segment

It is recognized that the various metrics within a feature category may not have equal influence on the overall stability of that feature and that this does not incorporate weighting or scoring; however, at this time, EEP requires documentation of the relevant observations for these feature categories.

1 Metrics that are spatial estimates should be entered as: The number of locales over the reach for which the failing condition is observed / followed by the total linear distance (feet) or area for which the failing or unstable condition is observed.

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3 The mean of the metrics for a given feature category.

4 Was the feature actually present as compared to the As-built or has the feature been completely obscured (aggraded) or removed (degraded).

5 Is the Thalweg centering up on the channel in between meander bends?

6 Is the meander bend in a state of constriction?

Documents referenced in the construct of the above assessment table

USDA-NRCS (1998) *Stream Visual Assessment Protocol* National Water and Climate Center (Technical Note 99–1).
Rosgen, D L. (1996) *Applied River Morphology*. Wildland Hydrology Books, Pagosa Springs, CO
Phankuch, D.J. (1975) Stream reach inventory and channel stability evaluation. USDA Forest Service, R1-75-002. GPO #696-260/10

Table B2. Visual Morphological Stability Assessment
Purlear Creek Phase I / Project # 294 - Lower Middle Trib (Lower Section)
Reach 5 - 700 Feet

Feature Category	Metric (per As-built and reference baselines)	(# Stable) Number Performing as Intended	Total number per As-built	Total Number / feet in unstable state[1]	% Perform in Stable Condition[2]	Feature Perform. Mean or Total[3]
A. Riffles	1. Present?[4]	8	10	NA	80	
	2. Armor stable (e.g. no displacement)?	8	10	NA	80	
	3. Facet grade appears stable?	8	10	NA	80	
	4. Minimal evidence of embedding/fining?	8	10	NA	80	
	5. Length appropriate?	8	10	NA	80	**80%**
B. Pools	1. Present? (e.g not subject to severe aggrad. or migrat.?)[4]	14	15	NA	93	
	2. Sufficiently deep (Max Pool D:Mean Bkf >1.6?)	14	15	NA	93	
	3. Length appropriate?	14	15	NA	93	**93%**
C. Thalweg	1. Upstream of meander bend (run/inflection) centering?[5]	9	9	NA	100	
	2. Downstream of meander (glide/inflection) centering?[5]	9	9	NA	100	**100%**
D. Meanders	1. Outer bend in state of limited/controlled erosion?	9	9	NA	100	
	2. Of those eroding, # w/concomitant point bar formation?	0	0	NA	100	
	3. Apparent Rc within spec?	9	9	NA	100	
	4. Sufficient floodplain access and relief?[6]	9	9	NA	100	**100%**
E. Bed General	1. General channel bed aggradation areas (bar formation)	NA	NA	0/0	100	
	2. Channel bed degradation – areas of increasing down-cutting or head cutting?	NA	NA	0/0	100	**100%**
F. Bank	1. Actively eroding, wasting, or slumping bank	NA	NA	0/0	100%	**100%**
G. Vanes	1. Free of back or arm scour?	5	5	0/0	100	
	2. Height appropriate?	4	5	0/0	80	
	3. Angle and geometry appear appropriate?	5	5	0/0	100	
	4. Free of piping or other structural failures?	5	5	0/0	100	**95%**
H. Wads/ Boulders	1. Free of scour?	NA	NA	NA	NA	
	2. Footing stable?	NA	NA	NA	NA	**NA**

Footnotes:

The above table should be completed using the visual assessment data form for each project reach/segment

It is recognized that the various metrics within a feature category may not have equal influence on the overall stability of that feature and that this does not incorporate weighting or scoring; however, at this time, EEP requires documentation of the relevant observations for these feature categories.

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3 The mean of the metrics for a given feature category.

4 Was the feature actually present as compared to the As-built or has the feature been completely obscured (aggraded) or removed (degraded).

5 Is the Thalweg centering up on the channel in between meander bends?

6 Is the meander bend in a state of constriction?

Documents referenced in the construct of the above assessment table

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Rosgen, D L. (1996) *Applied River Morphology* . Wildland Hydrology Books, Pagosa Springs, CO.

Phankuch, D.J. (1975) Stream reach inventory and channel stability evaluation. USDA Forest Service, R1-75-002. GPO #696-260/200

Table B2. Visual Morphological Stability Assessment
Purlear Creek Phase I / Project # 294 - Lower Main
Reach 6 - 900 Feet

Feature Category	Metric (per As-built and reference baselines)	(# Stable) Number Performing as Intended	Total number per As-built	Total Number / feet in unstable state1	% Perform in Stable Condition2	Feature Perform. Mean or Total3
A. Riffles	1. Present?4	4	4	NA	100	
	2. Armor stable (e.g. no displacement)?	4	4	NA	100	
	3. Facet grade appears stable?	4	4	NA	100	
	4. Minimal evidence of embedding/fining?	4	4	NA	100	
	5. Length appropriate?	4	4	NA	100	**100%**
B. Pools	1. Present? (e.g not subject to severe aggrad. or migrat.?)4	9	9	NA	100	
	2. Sufficiently deep (Max Pool D:Mean Bkf >1.6?)	9	9	NA	100	
	3. Length appropriate?	9	9	NA	100	**100%**
C. Thalweg	1. Upstream of meander bend (run/inflection) centering?5	7	7	NA	100	
	2. Downstream of meander (glide/inflection) centering?5	7	7	NA	100	**100%**
D. Meanders	1. Outer bend in state of limited/controlled erosion?	7	7	NA	100	
	2. Of those eroding, # w/concomitant point bar formation?	0	0	NA	100	
	3. Apparent Rc within spec?	7	7	NA	100	
	4. Sufficient floodplain access and relief?6	7	7	NA	100	**100%**
E. Bed General	1. General channel bed aggradation areas (bar formation)	NA	NA	0/0	100	
	2. Channel bed degradation – areas of increasing down-cutting or head cutting?	NA	NA	0/0	66	**100%**
F. Bank	1. Actively eroding, wasting, or slumping bank	NA	NA	0/0	100%	**100%**
G. Vanes	1. Free of back or arm scour?	5	5	NA	100	
	2. Height appropriate?	0	5	NA	0	
	3. Angle and geometry appear appropriate?	5	5	NA	100	
	4. Free of piping or other structural failures?	5	5	NA	100	**75%**
H. Wads/ Boulders	1. Free of scour?	NA	NA	NA	NA	
	2. Footing stable?	NA	NA	NA	NA	**NA**

Footnotes:

The above table should be completed using the visual assessment data form for each project reach/segment

It is recognized that the various metrics within a feature category may not have equal influence on the overall stability of that feature and that this does not incorporate weighting or scoring; however, at this time, EEP requires documentation of the relevant observations for these feature categories.

1 Metrics that are spatial estimates should be entered as: The number of locales over the reach for which the failing condition is observed / followed by the total linear distance (feet) or area for which the failing or unstable condition is observed.

2 In the case of categorical metrics for which a feature count is involved, this is simply calculated as the number of functional features that are in a state of stability as a percentage of the total. In the case of those metrics based on footage or aerial extent it is that amount in a state of failure or instability expressed as a proportion of the total amount of that feature. The resulting proportion is then subtracted from 1 and then multiplied by 100 to give a percentage that represents the proportion of that feature category in a state of apparent stability.

3 The mean of the metrics for a given feature category.

4 Was the feature actually present as compared to the As-built or has the feature been completely obscured (aggraded) or removed (degraded).

5 Is the Thalweg centering up on the channel in between meander bends?

6 Is the meander bend in a state of constriction?

Documents referenced in the construct of the above assessment table

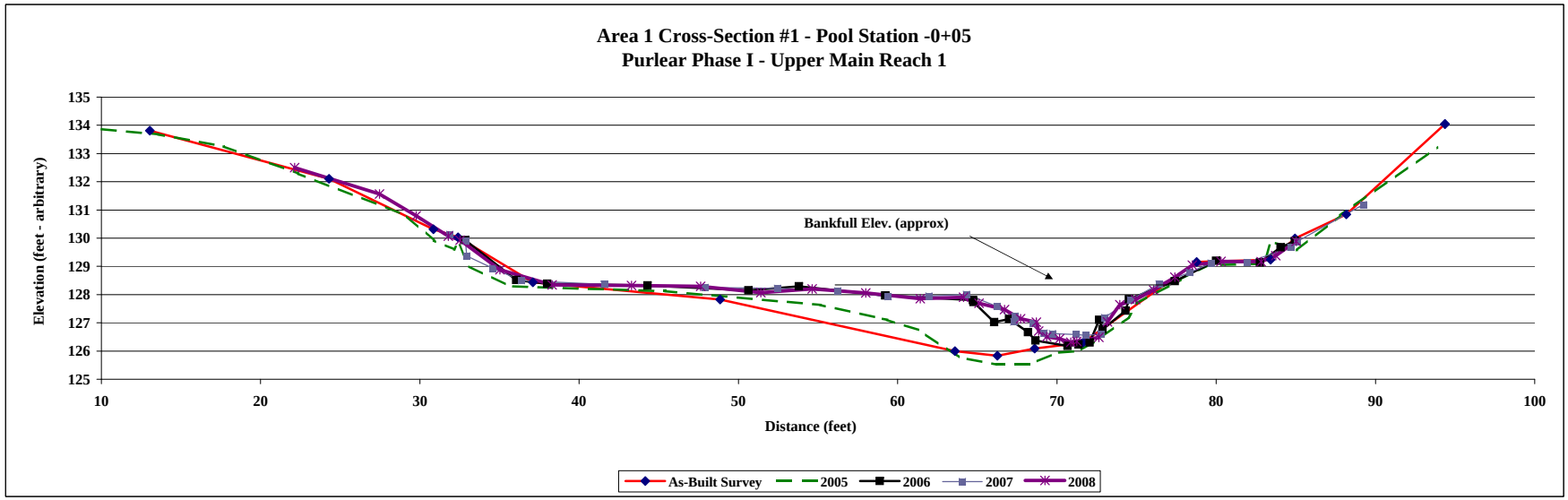
USDA-NRCS (1998) *Stream Visual Assessment Protocol* National Water and Climate Center (Technical Note 99–)
Rosgen, D L. (1996) *Applied River Morphology*. Wildland Hydrology Books, Pagosa Springs, CO
Phankuch, D.J. (1975) Stream reach inventory and channel stability evaluation. USDA Forest Service, R1-75-002. GPO #696-260/20

Project Name	Purlear Phase I
Cross Section	1 - Upper Main Reach 1
Feature	Pool
Date	7/14/2008
Crew	C George, Z Price

2004 As-Built Survey			2005 MY - 01			2006 MY - 02			2007 MY - 03			2008 MY - 04		
Station	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**	**Station**	**Elevation**	**Notes**	**Station**	**Elevation**	**Notes**
13.04	133.81	XS4	10.03	133.86	X1	32.84	129.93	(R1X1LP)	31.87	130.13	R1X1	22.14	132.5	R1XS1
24.29	132.1	XS4	13.58	133.68	X1	36.06	128.52	(R1X1)	32.87	129.9	R1X1LP07	27.47	131.57	R1XS1
30.85	130.32	XS4	17.69	133.25	X1	37.99	128.38	(R1X1)	32.93	129.37	R1X1	29.76	130.79	R1XS1
32.4	130.03	XS4LP	22.36	132.29	X1	44.29	128.32	(R1X1)	34.57	128.93	R1X1	31.79	130.07	R1XS1
37.1	128.44	BKF	29.17	130.79	X1	50.64	128.15	(R1X1)	36.37	128.5	R1X1	32.53	129.93	R1XS1LP08
48.85	127.83	XS4	30.89	129.92	x1lp	53.8	128.29	(R1X1)	41.58	128.36	R1X1	35.03	128.88	R1XS1
63.6	126	XS4	32.14	129.6	X1	59.22	127.97	(R1X1)	41.58	128.36	R1X1	38.3	128.34	R1XS1
66.26	125.83	XS4	32.4	129.86	X1LP	64.73	127.8	(R1X1)	47.92	128.25	R1X1	43.28	128.32	R1XS1
68.6	126.09	XS4	33.04	129.01	X1	64.76	127.73	(R1X1)	52.45	128.22	R1X1	47.62	128.29	R1XS1
71.64	126.3	XS4	35.62	128.29	BKF	66.07	127.02	(R1X1W)	56.23	128.13	R1X1	51.4	128.07	R1XS1
78.77	129.16	XS4BF	45.44	128.12	X1	67	127.13	(R1X1)	59.41	127.93	R1X1	54.63	128.2	R1XS1
83.42	129.24	XS4	55.17	127.63	X1	68.18	126.67	(R1X1)	61.96	127.95	R1X1	57.99	128.06	R1XS1
84.94	129.99	XS4LP	59.03	127.14	X1W	68.66	126.37	(R1X1)	64.31	128.01	R1X1	61.41	127.86	R1XS1
88.18	130.84	XS4	59.34	127.1	w	70.68	126.18	(R1X1)	66.24	127.58	R1X1	64.13	127.91	R1XS1
94.37	134.04	XS4	61.4	126.73	X1	71.35	126.23	(R1X1)	67.28	127.03	R1X1	65.11	127.69	R1XS1
94.37	134.04	XS4	63.89	125.77	X1	72.06	126.3	(R1X1)	67.36	127.24	R1X1W	66.72	127.47	R1XS1
			66.2	125.52	X1	72.65	127.1	(R1X1W)	68.5	126.97	R1X1	67.72	127.14	R1XS1
			68.27	125.53	X1T	72.87	126.77	(R1X1)	69.19	126.64	R1X1	68.71	127.02	R1XS1W
			70.05	125.95	m	74.3	127.43	(R1X1)	69.71	126.62	R1X1	68.86	126.71	R1XS1
			71.36	126	X1	74.53	127.84	(R1X1)	71.21	126.59	R1X1	69.36	126.5	R1XS1
			72.82	126.49	X1	77.41	128.48	(R1X1)	71.83	126.55	R1X1	70.17	126.43	R1XS1
			74.47	127.19	X1W	80	129.2	(R1X1)	72.75	126.6	R1X1	70.87	126.31	R1XS1
			75.06	127.7	X1	82.75	129.14	(R1X1)	72.99	127.18	R1X1	71.24	126.34	R1XS1
			77.76	128.54	X1	84.04	129.67	(R1X1)	74.62	127.82	R1X1	72.63	126.48	R1XS1
			79.49	129.04	X1B	84.94	129.9	(R1X1RP)	76.42	128.37	R1X1	73.18	127.03	R1XS1W
			83.01	129.09	X1				78.33	128.78	R1X1	73.94	127.64	R1XS1
			83.42	129.87	x1rp				79.68	129.12	R1X1	74.94	127.83	R1XS1
			84.28	129.74	X1RP				81.94	129.14	R1X1	76.08	128.16	R1XS1
			85.08	129.57	X1				84.68	129.67	R1X1	77.4	128.62	R1XS1
			87.8	130.8	X1				85.07	129.88	R1X1RP07	78.51	129.04	R1XS1
			93.87	133.23	X1				89.24	131.19	R1X1	80.3	129.18	R1XS1
												82.82	129.17	R1XS1
												83.75	129.38	R1XS1
												85.03	129.89	R1XS1RP08

Photo of Area 1 Cross-Section #1 - Looking Downstream

	As-Built	**2005**	**2006**	**2007**	**2008**
Area	36.7	35.5	14.8	11.06	12.16
Width	29.9	29.6	22.7	22.2	20.3
Mean Depth	1.2	1.2	0.6	0.5	0.6
Max Depth	2.3	2.6	1.9	1.6	1.8

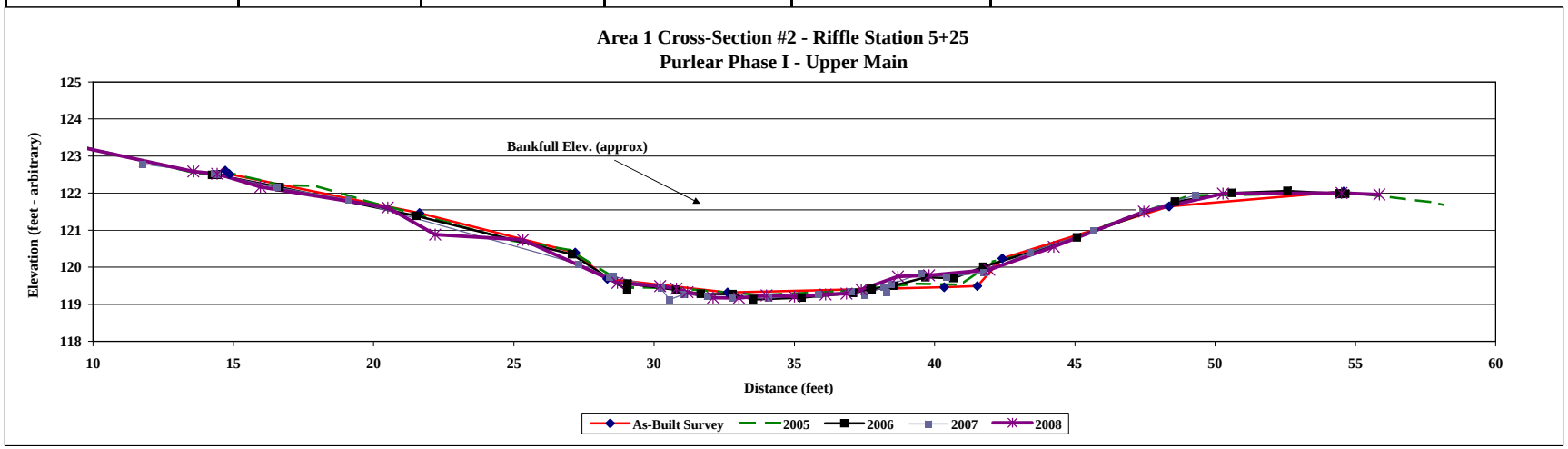


Project Name	Purlear Phase I
Cross Section	2 - Upper Main Reach 1
Feature	Riffle
Date	7/14/2008
Crew	C George, Z Price

2004 As-Built Survey			2005 MY - 01			2006 MY - 02			2007 MY - 03			2008 MY - 04		
Station	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**
14.71	122.61	XPR	5.91	123.92	X2	14.25	122.49	R1X2LP	11.75	122.79	R1X2	5.92	123.84	R1XS2
14.86	122.51	XSRPL	13.78	122.51	x2lp	14.39	122.5	R1X2LP	14.31	122.53	R1X2LP07	13.58	122.58	R1XS2
21.64	121.46	XSR3	14.67	122.51	X2	14.42	122.5	R1X2LP	14.42	122.5	R1X2LP	14.42	122.52	R1XS2LP08
27.19	120.39	XSR3	14.86	122.55	X2LP	14.42	122.5	R1X2LP	16.57	122.15	R1X2	15.97	122.17	R1XS2
28.33	119.69	XSR3	16.74	122.21	X2	14.43	122.49	R1X2LP	19.12	121.82	R1X2	20.51	121.61	R1XS2
32.62	119.32	XSR3	17.94	122.2	2lp	16.65	122.16	R1X2	27.3	120.09	R1X2	22.2	120.88	R1XS2
40.34	119.46	XSR3	19.54	121.83	X2B	21.53	121.38	R1X2	28.43	119.73	R1X2	25.33	120.74	R1XS2
41.52	119.49	XSR3	21.16	121.5	X2	27.08	120.35	R1X2	28.53	119.76	R1X2	28.69	119.58	R1XS2
42.41	120.24	XSR3	22.93	121.15	X2	29.05	119.37	R1X2W	30.25	119.43	R1X2W	30.22	119.49	R1XS2
48.36	121.64	XSR3	24.92	120.72	X2	29.06	119.55	R1X2	30.55	119.12	R1X2	30.8	119.42	R1XS2W
54.58	122.04	XSR3	27.04	120.46	X2	30.79	119.39	R1X2W	31.06	119.27	R1X2	31.19	119.33	R1XS2
			29.12	119.46	X2	31.67	119.28	R1X2	31.9	119.21	R1X2	32.1	119.18	R1XS2
			30.77	119.44	X2	32.8	119.27	R1X2	32.78	119.18	R1X2	33.03	119.17	R1XS2
			33.71	119.25	X2T	33.53	119.13	R1X2	34.06	119.16	R1X2	34.01	119.24	R1XS2
			36.67	119.35	X2	35.26	119.18	R1X2	35.85	119.27	R1X2	35.01	119.21	R1XS2
			39.37	119.55	X2	37.1	119.3	R1X2	37.02	119.34	R1X2	36.11	119.26	R1XS2
			40.95	119.53	X2	37.72	119.41	R1X2W	37.5	119.25	R1X2	36.86	119.29	R1XS2
			42.08	120.15	X2	37.76	119.4	R1X2W	38.2	119.47	R1X2W	37.39	119.4	R1XS2W
			43.86	120.46	X2	38.53	119.5	R1X2	38.29	119.32	R1X2	38.69	119.75	R1XS2
			46.07	121.11	X2	39.68	119.73	R1X2	38.46	119.54	W	39.8	119.78	R1XS2
			49.05	121.94	X2B	40.67	119.7	R1X2	39.52	119.84	R1X2	41.95	119.93	R1XS2
			53.92	121.99	x2rp	41.74	120.01	R1X2	40.44	119.74	R1X2	44.25	120.55	R1XS2
			54.29	122.03	X2	45.08	120.8	R1X2	41.75	119.85	R1X2	47.46	121.5	R1XS2
			54.6	122.03	X2RP	48.57	121.77	R1X2	43.39	120.4	R1X2	50.28	121.99	R1XS2
			57.68	121.76	X2	50.6	122	R1X2	45.67	120.98	R1X2	54.51	122	R1XS2RP08
			58.12	121.68	2rp	52.58	122.06	R1X2	47.42	121.51	R1X2	55.85	121.96	R1XS2
						54.41	121.99	R1X2RP	49.31	121.95	R1X2			
						54.47	121.99	R1X2RP	51.96	122.01	R1X2			
						54.48	121.97	R1X2RP	53.7	122.06	TOB			
						54.53	121.98	R1X2RP	54.43	122	R1X2RP07			
						54.64	121.98	R1X2RP	54.47	121.99	R1X2RP			

Photo of Area 1 Cross-Section #2 - Looking Downstream

	As-Built	2005	2006	2007	2008
Area	39.6	39.6	41.0	41.32	41.23
Width	26.7	26.4	31.4	28.3	27.0
Mean Depth	1.5	1.5	1.3	1.5	1.5
Max Depth	2.3	2.3	2.5	2.5	2.4
w/d ratio	18.1	17.6	24.1	19.4	17.7
FPW	53	53	53	53	53
ER (greater than)	2.0	2.0	1.7	1.9	2.0
Stream Type	C4	C4	C4	C4	C4

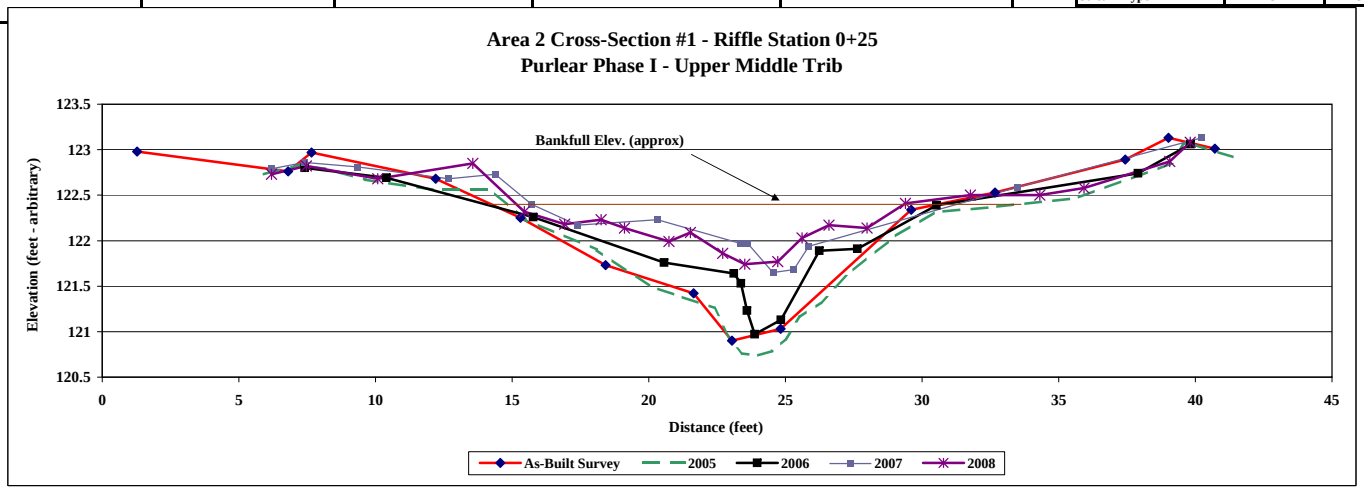


Project Name	Purlear Phase I
Cross Section	1 - Upper Middle Trib Reach 2
Feature	Riffle
Date	7/15/2008
Crew	C George, Z Price

2004 As-Built Survey			2005 MY - 01			2006 MY - 02			2007 MY - 03			2008 MY - 04		
Station	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**
1.28	122.98	X1	5.93	122.73	X1	7.41	122.8	(R1X1LP)	6.18	122.79	(2007-R2X1)	6.19	122.73	R2XS1
6.8	122.76	X1TPL	7.15	122.83	X1LP	10.4	122.69	(R1X1)	7.4	122.86	(2007-R2X1LP07)	7.47	122.82	R2XS1LP08
7.66	122.97	X1	7.25	122.82	X1LP	15.77	122.26	(R1X1)	9.34	122.81	(2007-R2X1)	10.08	122.68	R2XS1
12.2	122.68	X1	7.36	122.82	x1lp	20.56	121.76	(R1X1)	12.68	122.68	(2007-R2X1)	13.56	122.85	R2XS1
15.3	122.25	XB	8.16	122.79	X1	23.12	121.64	(R1X1)	14.38	122.73	(2007-R2X1)	15.44	122.32	R2XS1
18.42	121.73	X1	9.64	122.67	X1	23.37	121.53	(R1X1W)	15.72	122.4	(2007-R2X1)	16.92	122.18	R2XS1
21.64	121.42	X1	12.08	122.56	X1	23.6	121.23	(R1X1)	17.39	122.17	(2007-R2X1)	18.25	122.23	R2XS1
23.04	120.9	XT	14.22	122.56	X1	23.88	120.97	(R1X1)	20.32	122.23	(2007-R2X1)	19.11	122.14	R2XS1
24.82	121.03	W	15.49	122.23	X1	24.84	121.13	(R1X1)	23.35	121.97	(2007-R2X1)	20.74	121.99	R2XS1
29.6	122.34	XB	18.1	121.9	X1	26.24	121.89	(R1X1)	23.62	121.97	(2007-R2X1W)	21.52	122.09	R2XS1
32.67	122.53	X1	20.05	121.5	X1	27.64	121.91	(R1X1)	24.54	121.65	(2007-R2X1)	22.7	121.86	R2XS1
37.44	122.89	X1	21.24	121.38	X1	30.53	122.39	(R1X1)	25.31	121.68	(2007-R2X1)	23.51	121.74	R2XS1
39.02	123.13	X1TPR	22.4	121.26	X1	37.9	122.74	(R1X1)	25.85	121.94	(2007-R2X1W)	24.72	121.77	R2XS1
40.72	123.01	X1	23	120.9	X1	39.83	123.06	(R1X1RP)	33.5	122.59	(2007-R2X1)	25.61	122.03	R2XS1
			23.43	120.76	X1				40.24	123.13	(2007-R2X1RP07)	26.59	122.17	R2XS1
			24	120.74	X1							27.99	122.14	R2XS1
			24.52	120.79	X1							29.39	122.41	R2XS1
			24.99	120.92	X1							31.77	122.5	R2XS1
			25.54	121.16	X1							34.31	122.5	R2XS1
			26.28	121.32	X1							35.93	122.58	R2XS1
			27.34	121.64	X1							39.06	122.87	R2XS1
			28.9	122.03	X1							39.81	123.08	R2XS1RP08
			30.44	122.31	X1									
			32.6	122.37	X1									
			35.69	122.47	X1									
			39.11	122.85	X1									
			39.6	123.07	X1rp									
			39.76	123.05	x1rp									
			39.79	123.07	X1RP									
			41.36	122.92	X1									

Photo of Area 2 Cross-Section #1 - Looking Downstream

	As-Built	2005	2006	2007	2008
Area	11.9	12.4	8.6	3.23	4.52
Width	17.4	16.2	17.3	10.1	14.0
Mean Depth	0.7	0.8	0.5	0.3	0.3
Max Depth	1.5	1.7	1.4	0.8	0.7
w/d ratio	25.5	21.1	34.6	31.8	43.1
FPW	40	40	40	40	40
ER (greater than)	2.3	2.5	2.3	3.9	2.9
Stream Type	C4	C4	C4	C4	C4

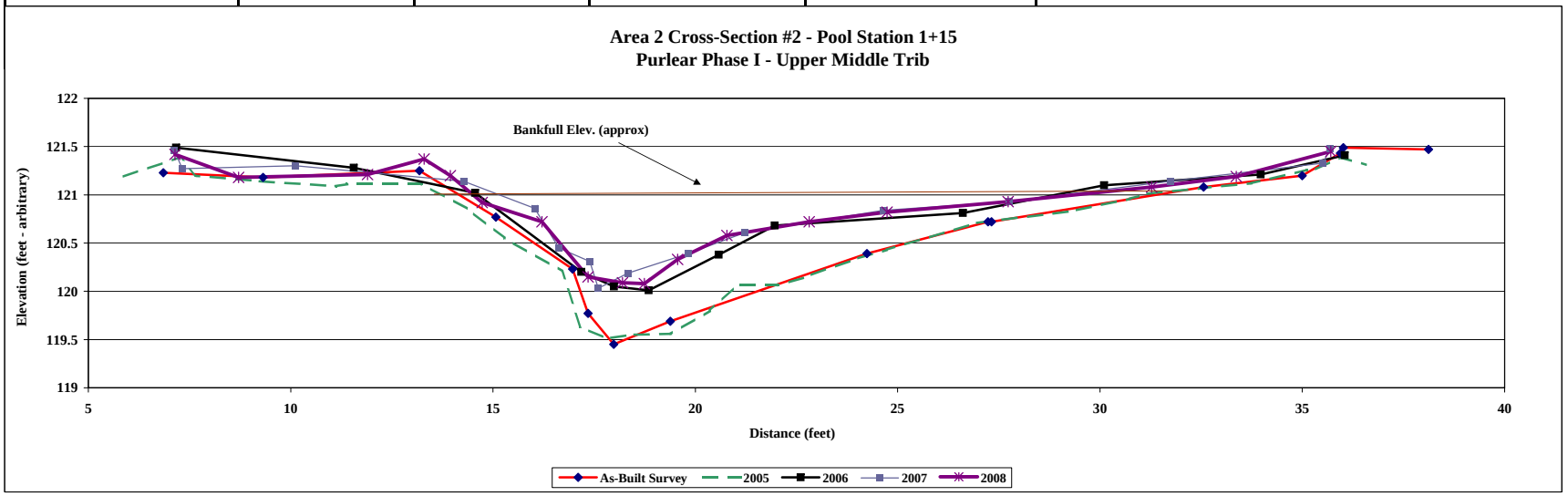


Project Name	Purlear Phase I
Cross Section	2 - Upper Middle Trib Reach 2
Feature	Pool
Date	7/15/2008
Crew	C George, Z Price

2004 As-Built Survey			2005 MY - 01			2006 MY - 02			2007 MY - 03			2008 MY - 04		
Station	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**
6.85	121.23	X2TPL	5.88	121.19	X2	7.17	121.49	(R1X2LP)	7.13	121.46	R2X2LP07	7.14	121.42	R2XS2LP08
9.32	121.18	X2	7.26	121.39	X2LP	11.56	121.28	(R1X2)	7.32	121.27	R2X2	8.71	121.18	R2XS2
13.18	121.25	X2	7.66	121.2	X2	14.56	121.02	(R1X2)	10.12	121.3	R2X2	11.9	121.21	R2XS2
15.07	120.77	XB	9.24	121.14	X2	17.18	120.2	(R1X2)	14.27	121.14	R2X2	13.3	121.37	R2XS2
16.97	120.23	X2	11.11	121.09	B	17.99	120.05	(R1X2)	16.03	120.86	R2X2	13.95	121.2	R2XS2
17.35	119.77	X2	11.4	121.11	X2	18.85	120.01	(R1X2)	16.63	120.45	R2X2	14.73	120.92	R2XS2
17.98	119.45	XT	13.25	121.11	X2	20.58	120.38	(R1X2)	17.39	120.31	R2X2W	16.21	120.72	R2XS2
19.38	119.69	XW	14.39	120.85	X2	21.96	120.68	(R1X2)	17.6	120.03	R2X2	17.35	120.15	R2XS2
24.24	120.39	X2	15.29	120.55	X2	26.61	120.81	(R1X2)	18.34	120.19	R2X2	18.2	120.09	R2XS2
27.23	120.72	XB	16.71	120.21	X2	30.1	121.1	(R1X2)	19.82	120.39	R2X2W	18.74	120.08	R2XS2
27.32	120.72	7	17.16	119.63	X2	33.97	121.21	(R1X2)	21.23	120.61	R2X2	19.56	120.33	R2XS2
32.56	121.08	X2	17.82	119.51	X2	36.05	121.41	(R1X2RP)	24.64	120.84	R2X2	20.78	120.58	R2XS2
35	121.2	X2	18.45	119.55	X2				27.76	120.93	R2X2	22.81	120.72	R2XS2
35.94	121.43	X2RP	19.4	119.56	X2				31.73	121.14	R2X2	24.74	120.82	R2XS2
36.01	121.49	X2RT	20.36	119.8	X2				35.51	121.33	R2X2	27.73	120.93	R2XS2
38.12	121.47	X2	21.01	120.06	X2				35.69	121.48	R2X2RP07	31.28	121.08	R2XS2
			22.04	120.06	X2							33.37	121.19	R2XS2
			22.66	120.14	X2							35.7	121.45	R2XS2RP
			23.93	120.33	X2									
			24.73	120.43	X2									
			26.95	120.71	X2									
			29.28	120.83	X2									
			30.74	120.96	X2									
			31.17	121.01	B									
			32.52	121.07	X2									
			33.74	121.12	X2									
			35.11	121.26	X2									
			35.31	121.26	X2									
			35.94	121.39	X2RP									
			36.57	121.31	X2									

Photo of Area 2 Cross-Section #2 - Looking Downstream

	As-Built	2005	2006	2007	2008
Area	12.8	13.4	7.6	6.17	6.67
Width	19.4	19.3	18.5	17.5	17.3
Mean Depth	0.7	0.7	0.4	0.4	0.4
Max Depth	1.6	1.6	1.1	1.1	1.0

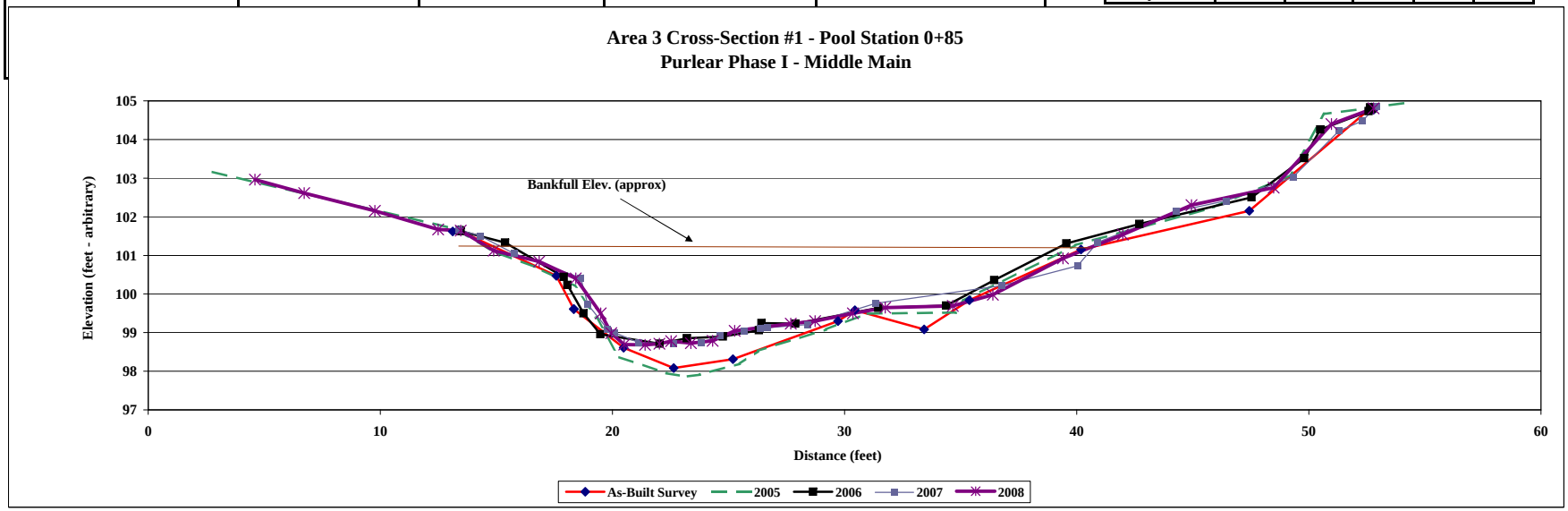


Project Name	Purlear Phase I
Cross Section	1 - Middle Main Reach 3
Feature	Pool
Date	7/15/2008
Crew	C George, Z Price

2004 As-Built Survey			2005 MY - 01			2006 MY - 02			2007 MY - 03			2008 MY - 04		
Station	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**
13.12	101.62	X2P	2.79	103.16	fl	13.42	101.65	(R3X2LP)	13.37	101.66	(R3XS1LP07)	4.6	102.96	R3XS1
13.37	101.65	X2PLP	13.37	101.66	x2lp	13.47	101.63	(R3X1LP)	14.32	101.5	(R3XS1)	6.72	102.61	R3XS1
17.58	100.47	X2P	14.78	101.12	bf	15.37	101.33	(R3X1)	15.76	101.05	(R3XS1)	9.77	102.15	R3XS1
18.33	99.61	X2P	16.79	100.67	x2	17.9	100.44	(R3X1)	18.63	100.42	(R3XS1)	12.49	101.67	R3XS1
18.34	99.61	X2P	18.36	100.21	x2	18.07	100.23	(R3X1)	18.94	99.73	(R3XS1)	13.47	101.64	R3XS1LP08
20.48	98.61	X2P	19.3	99.39	x2	18.76	99.5	(R3X1)	19.79	99.09	(R3XS1W)	14.88	101.12	R3XS1
22.64	98.08	X2P	20.27	98.37	x2	19.48	98.96	(R3X1W)	20.08	99	(R3XS1)	16.84	100.84	R3XS1
25.19	98.31	X2P	22.33	97.95	x2	22.03	98.71	(R3X1)	21.13	98.74	(R3XS1)	18.42	100.4	R3XS1
29.72	99.3	X2P	23.19	97.86	m	23.2	98.85	(R3X1)	22.62	98.72	(R3XS1)	19.5	99.5	R3XS1
30.44	99.58	WS	23.77	97.91	x2	24.76	98.9	(R3X1)	23.82	98.74	(R3XS1)	19.95	98.99	R3XS1W
33.43	99.08	X2P	25.49	98.19	x2	26.31	99.06	(R3X1W)	24.62	98.92	(R3XS1)	20.5	98.69	R3XS1
35.38	99.84	X2P	26.28	98.53	x2	26.43	99.25	(R3X1)	25.66	99.04	(R3XS1)	21.4	98.68	R3XS1
40.19	101.15	X2P	29.21	99.08	x2	27.88	99.23	(R3X1)	26.36	99.12	(R3XS1)	22.02	98.71	R3XS1
47.43	102.15	X2P	30.95	99.49	x2	31.46	99.64	(R3X1)	26.68	99.13	(R3XS1)	22.53	98.78	R3XS1
52.7	104.83	X2PRP	34.79	99.52	x2	34.38	99.7	(R3X1)	28.4	99.21	(R3XS1)	23.38	98.73	R3XS1
52.79	104.77	X2P	35.13	99.83	x2	36.45	100.36	(R3X1)	31.35	99.76	(R3XS1)	24.32	98.79	R3XS1
			39.94	101.26	x2	39.55	101.31	(R3X1)	36.78	100.22	(R3XS1)	25.26	99.05	R3XS1
			45.88	102.24	x2	42.7	101.81	(R3X1)	40.04	100.73	(R3XS1)	27.68	99.23	R3XS1
			49.19	103.07	x2	47.53	102.5	(R3X1)	40.9	101.34	(R3XS1)	28.73	99.3	R3XS1
			50.66	104.66	x2	49.8	103.52	(R3X1)	44.29	102.14	(R3XS1)	30.36	99.5	R3XS1
			52.49	104.81	x2rp	50.49	104.26	(R3X1)	46.43	102.41	(R3XS1)	31.75	99.65	R3XS1
			54.45	104.97	fl	52.58	104.73	(R3X1)	49.31	103.02	(R3XS1)	34.66	99.69	R3XS1
						52.64	104.82	(R3X2RP)	51.29	104.22	(R3XS1)	36.39	99.98	R3XS1
						52.65	104.83	(R3X1RP)	52.3	104.48	(R3XS1)	39.41	100.92	R3XS1
						52.73	104.79	(R3X1RP)	52.9	104.85	(R3XS1RP07)	41.99	101.54	R3XS1
												44.94	102.3	R3XS1
												48.48	102.75	R3XS1
												50.98	104.4	R3XS1
												52.79	104.81	R3XS1RP08

Photo of Area 3 Cross-Section #1 - Looking Downstream

	As-Built	2005	2006	2007	2008
Area	43.7	44.8	37.0	36.90	37.75
Width	22.6	26.2	24.2	25.1	25.9
Mean Depth	1.9	1.7	1.5	1.5	1.5
Max Depth	3.1	3.3	2.5	2.5	2.5

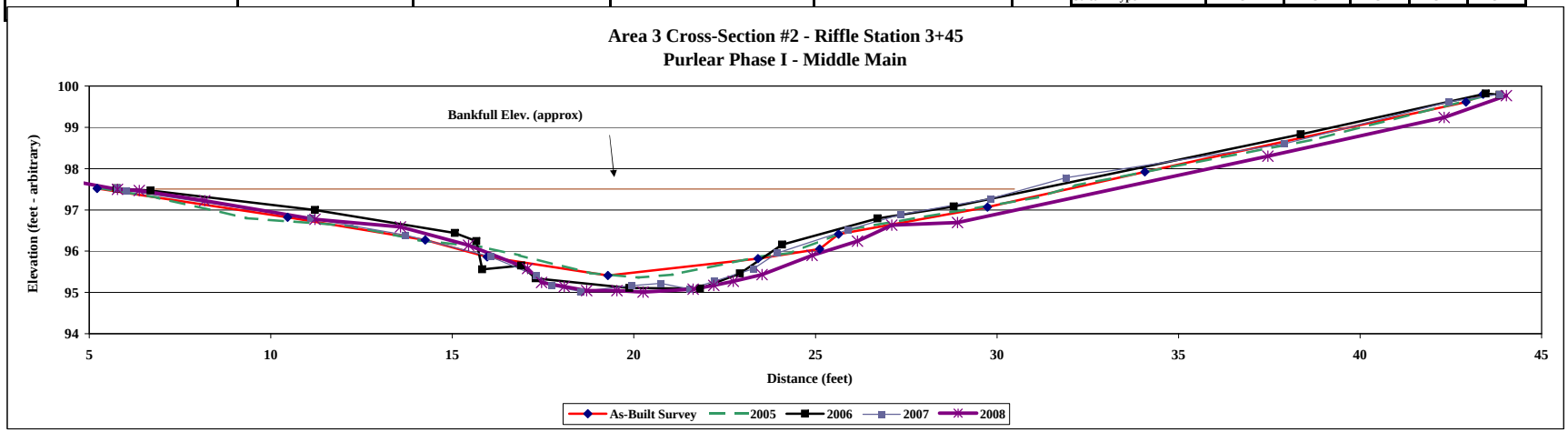


Project Name	Purlear Phase I
Cross Section	2 - Middle Main Reach 3
Feature	Riffle
Date	7/15/2008
Crew	C George, Z Price

2004 As-Built Survey			2005 MY - 01			2006 MY - 02			2007 MY - 03			2008 MY - 04		
Station	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**
5.22	97.52	X1L	5.22	97.54	x1lp	5.75	97.52	(R3X2LP)	5.76	97.52	R3X2LP	2.99	97.95	R3XS2
10.46	96.82	X1	6.89	97.29	x1	5.76	97.52	(R3X2LP06)	6.02	97.47	R3XS2LP07	5.78	97.5	R3XS2LP08
14.25	96.27	X1	9.33	96.8	x1	6.69	97.47	(R3X2)	11.1	96.79	R3XS2	6.38	97.47	R3XS2
15.96	95.86	X1LEW	12.24	96.61	x1	11.22	97	(R3X2)	13.7	96.39	R3XS2	8.18	97.22	R3XS2
19.28	95.41	X1	14.08	96.26	x1	15.07	96.44	(R3X2)	16.05	95.87	R3XS2	11.22	96.77	R3XS2
23.42	95.82	X1REW	15.82	96.1	x1	15.66	96.24	(R3X2)	17.3	95.41	R3XS2W	13.57	96.59	R3XS2
25.12	96.05	X1	16.86	95.9	x1	15.82	95.56	(R3X2)	17.74	95.16	R3X2	15.45	96.14	R3XS2
25.64	96.41	X1	18.8	95.47	x1	16.9	95.65	(R3X2)	18.52	95.02	R3XS2	17.07	95.58	R3XS2
29.74	97.07	X1	20.13	95.36	x1	17.3	95.34	(R3X2W)	19.94	95.16	R3XS2	17.46	95.24	R3XS2W
34.07	97.92	X1	21.07	95.43	x1	19.88	95.11	(R3X2)	20.74	95.22	R3XS2	18.08	95.14	R3XS2
42.92	99.61	X1	23.48	95.87	x1	21.82	95.09	(R3X2)	21.54	95.08	R3XS2	18.7	95.04	R3XS2
43.39	99.8	X1R	24.33	95.96	x1	22.92	95.46	(R3X2W)	22.21	95.27	R3XS2	19.53	95.04	R3XS2
			25.99	96.53	x1	24.08	96.16	(R3X2)	23.29	95.57	R3XS2W	20.25	95.01	R3XS2
			31.13	97.31	x1	26.71	96.79	(R3X2)	23.95	95.95	R3XS2	21.63	95.08	R3XS2
			32.16	97.59	x1	28.81	97.08	(R3X2)	25.89	96.52	R3XS2	22.2	95.17	R3XS2
			38.87	98.73	x1	38.37	98.83	(R3X2)	27.36	96.89	R3XS2	22.74	95.27	R3XS2
			43.55	99.79	x1rp	43.46	99.82	(R3X2RP)	29.83	97.27	R3XS2	23.53	95.43	R3XS2
						43.85	99.79	(R3X2RP06)	31.9	97.78	R3XS2	24.91	95.9	R3XS2
									37.9	98.6	R3XS2	26.16	96.24	R3XS2
									42.45	99.62	R3XS2	27.1	96.63	R3XS2
									43.84	99.8	R3XS2RP07	28.91	96.69	R3XS2
									43.85	99.79	R3X2RP	37.46	98.3	R3XS2
									43.99	100.02	R3XS2	42.32	99.24	R3XS2
												44.03	99.77	R3XS2RP08

Photo of Area 3 Cross-Section #2 - Looking Downstream

	As-Built	2005	2006	2007	2008
Area	28.3	28.1	27.2	29.41	30.62
Width	24.5	24.2	25.1	24.1	24.1
Mean Depth	1.2	1.2	1.1	1.2	1.3
Max Depth	2.1	2.1	2.4	2.5	2.5
w/d ratio	21.3	20.9	23.0	19.7	19.0
FPW	60	60	60	60	60
ER (greater than)	2.4	2.5	2.4	2.5	2.5
Stream Type	C4	C4	C4	C4	C4

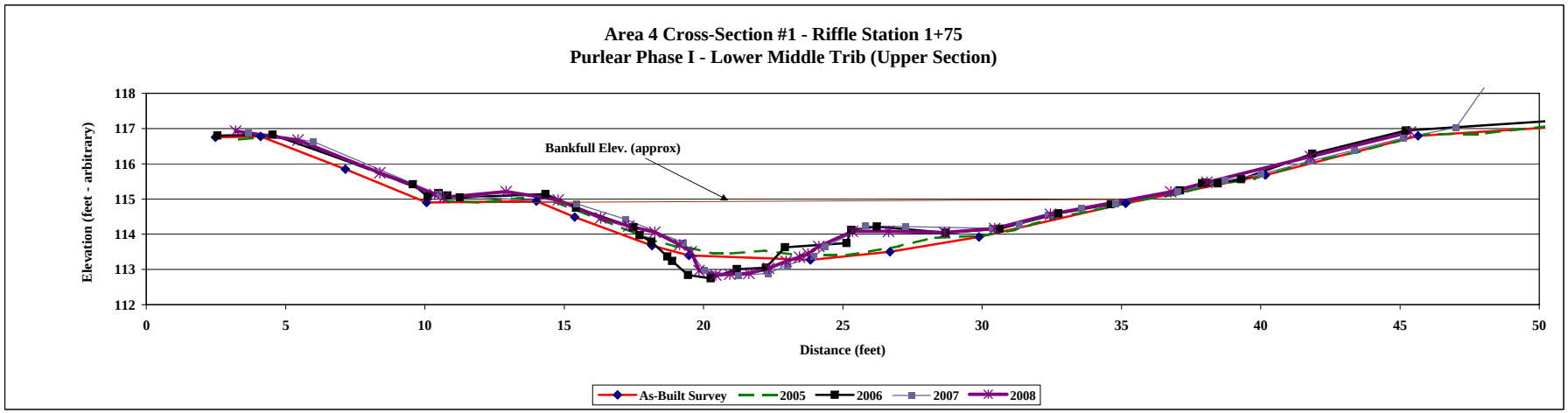


Project Name	Purlear Phase I
Cross Section	1 - Lower Middle Trib (Upper Section) Reach 4
Feature	Riffle
Date	7/16/2008
Crew	C George, Z Price

2004 As-Built Survey			2005 MY - 01			2006 MY - 02			2007 MY - 03			2008 MY - 04		
Station	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**
2.48	116.75	X1	3.34	116.69	x1	2.55	116.8	(x1r4)	3.68	116.89	(2007-R4XS1)	3.21	116.93	R4XS1
4.1	116.78	X1	4.85	116.79	x1	4.53	116.82	(x1r4)	5.98	116.63	(2007-R4XS1)	5.45	116.67	R4XS1
7.15	115.85	X1	7.96	115.84	x1	9.57	115.42	(x1r4)	10.49	115.13	(2007-R4XS1LP07)	8.38	115.74	R4XS1
10.06	114.9	X1	10.49	115.1	x1lp	10.1	115.07	(x1r4)	15.43	114.87	(2007-R4XS1)	10.35	115.13	R4XS1LP08
14	114.94	X1B	10.72	114.95	x1	10.49	115.16	(r4x1lp)	17.21	114.42	(2007-R4XS1)	10.67	115.04	R4XS1
15.38	114.49	X1	11.97	114.9	x1	10.49	115.15	(x1r4lp)	19.29	113.76	(2007-R4XS1W)	12.91	115.21	R4XS1
18.15	113.68	X1EW	13.34	115.02	x1	10.8	115.1	(r4x1lp)	20.03	112.97	(2007-R4XS1)	14.78	114.97	R4XS1
19.48	113.4	X1	14.22	115.11	x1	11.26	115.04	(x1r4)	21.26	112.83	(2007-R4XS1)	16.31	114.46	R4XS1
23.84	113.27	X1	14.65	114.93	bf	14.33	115.14	(x1r4)	22.33	112.89	(2007-R4XS1)	17.32	114.23	R4XS1
26.69	113.5	X1EW	18.05	113.87	x1	15.43	114.75	(x1r4)	23.01	113.12	(2007-R4XS1)	18.25	114.06	R4XS1
29.89	113.92	X1	18.98	113.65	x1	17.49	114.19	(x1r4)	23.96	113.37	(2007-R4XS1)	19.15	113.7	R4XS1
35.16	114.88	X1	19.29	113.66	w	17.71	113.97	(x1r4)	24.37	113.64	(2007-R4XS1W)	19.56	113.5	R4XS1
40.17	115.68	X1RP	20.35	113.45	x1	18.13	113.79	(x1r4)	25.82	114.23	(2007-R4XS1)	19.84	112.97	R4XS1
45.65	116.79	X1	20.83	113.45	x1	18.7	113.37	(x1r4)	27.24	114.22	(2007-R4XS1)	20.44	112.84	R4XS1
50.51	117.04	X1	22.2	113.53	x1	18.87	113.24	(x1r4)	30.35	114.17	(2007-R4XS1)	20.94	112.87	R4XS1
			23.43	113.41	x1	19.45	112.84	(x1r4)	31.33	114.28	(2007-R4XS1)	21.63	112.89	R4XS1
			24.42	113.41	x1	20.26	112.75	(x1r4)	32.38	114.54	(2007-R4XS1)	22.34	113.03	R4XS1
			25.14	113.41	x1	21.2	113.01	(x1r4)	33.57	114.75	(2007-R4XS1)	22.96	113.23	R4XS1
			25.96	113.51	x1	22.24	113.05	(x1r4)	34.77	114.87	(2007-R4XS1)	23.45	113.35	R4XS1W
			27.03	113.66	x1	22.92	113.63	(x1r4)	37.03	115.2	(2007-R4XS1)	23.75	113.45	R4XS1
			28.16	113.89	x1	25.14	113.75	(x1r4)	38.7	115.53	(2007-R4XS1RP07)	24.14	113.65	R4XS1
			30.04	113.96	x1	25.31	114.12	(x1r4)	40	115.7	(2007-R4XS1)	25.35	114.08	R4XS1
			31.19	114.12	x1	26.22	114.22	(x1r4)	41.78	116.08	(2007-R4XS1)	26.64	114.08	R4XS1
			31.8	114.28	bf	28.69	114.04	(x1r4)	43.36	116.39	(2007-R4XS1)	28.65	114.05	R4XS1
			32.59	114.46	x1	30.63	114.15	(x1r4)	45.11	116.73	(2007-R4XS1)	30.45	114.16	R4XS1
			33.97	114.67	x1	32.73	114.59	(x1r4)	47.02	117.03	(2007-R4XS1)	32.45	114.57	R4XS1
			35.63	114.96	x1	34.62	114.85	(x1r4)	50.43	120.87	(2007-R4XS1)	36.77	115.2	R4XS1
			37.06	115.14	x1	37.11	115.24	(x1r4)				38.07	115.47	R4XS1RP08
			38.11	115.39	x1rp	37.9	115.45	(x1r4rp)				41.79	116.2	R4XS1
			38.94	115.47	x1	38.02	115.46	(r4x1rp)				45.38	116.9	R4XS1
			39.77	115.57	x1	38.46	115.44	(r4x1rp)						
			41.63	116.03	x1	39.3	115.56	(x1r4)						
						41.85	116.28	(x1r4)						
						45.21	116.94	(x1r4)						
						50.52	117.22	(x1r4)						

Photo of Area 4 Cross-Section #1 - Looking Downstream

	As-Built	**2005**	**2006**	**2007**	**2008**
Area	21.8	19.1	18.8	17.49	17.81
Width	25.1	25.1	22.3	19.3	19.5
Mean Depth	0.9	0.8	0.8	0.9	0.9
Max Depth	1.6	1.5	2.2	2.1	2.1
w/d ratio	28.9	32.9	26.5	21.4	21.4
FPW	50	50	50	50	50
ER (greater than)	2.0	2.0	2.2	2.6	2.6
Stream Type	C4	C4	C4	C4	C4

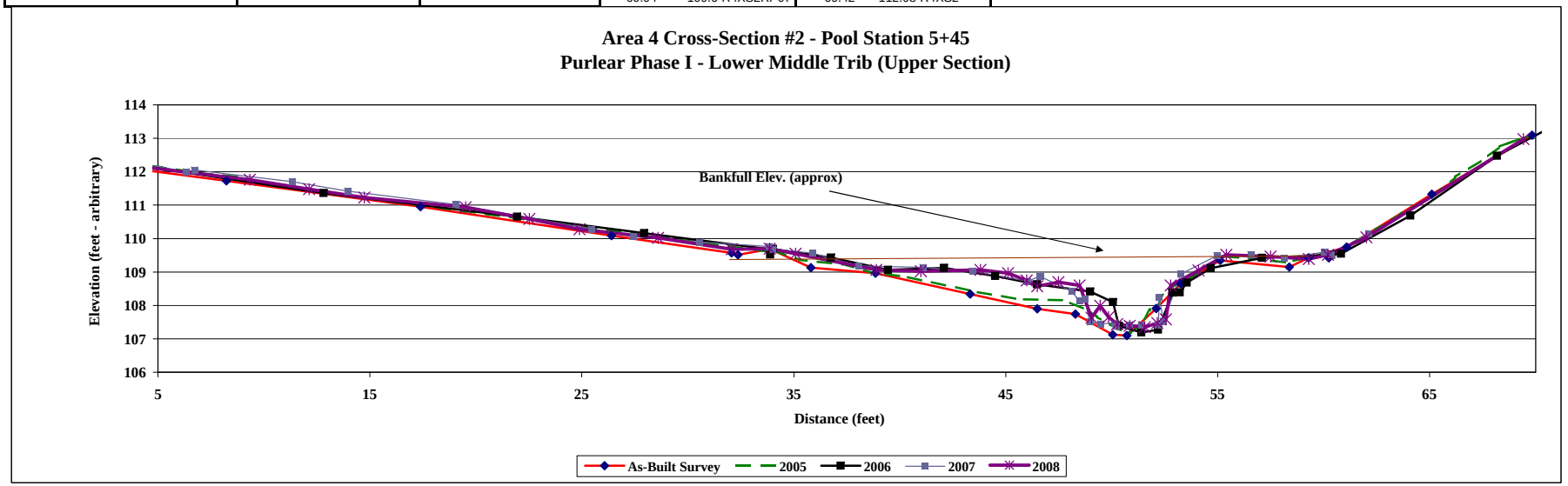


Project Name	Purlear Phase I
Cross Section	2 - Lower Middle Trib (Upper Section) Reach 4
Feature	Pool
Date	7/16/2008
Crew	C George, Z Price

2004 As-Built Survey			2005 MY - 01			2006 MY - 02			2007 MY - 03			2008 MY - 04		
Station	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**
3.21	112.14	X2	3.7	112.27	x2	3.85	112.21	(x2)	3.2	112.36	R4XS2	4.69	112.11	R4XS2
8.23	111.73	X2	5.21	112.13	x2	12.81	111.36	(x2)	6.34	112	R4XS2	9.33	111.76	R4XS2
17.39	110.95	X2	6.85	111.97	x2	21.94	110.65	(x2)	6.72	112.05	R4XS2	12.13	111.48	R4XS2
26.4	110.09	X2	8.77	111.85	x2	27.93	110.16	(x2)	11.33	111.7	R4XS2	14.73	111.23	R4XS2
32.06	109.57	VP	10.13	111.61	x2	33.88	109.68	(R4x2LP)	13.95	111.42	R4XS2	19.52	110.94	R4XS2
32.36	109.51	X2	33.72	109.61	lp	33.89	109.52	(x2)	19.04	111.02	R4XS2	22.52	110.59	R4XS2
33.88	109.69	X2LP	33.88	109.68	x2lp	33.98	109.68	(x2lp)	25.44	110.29	R4XS2	24.89	110.28	R4XS2
35.81	109.13	X2	35.27	109.36	x2	34.01	109.69	(r4x2lp)	27.41	110.06	R4XS2	28.59	110.02	R4XS2
38.85	108.96	X2	37.48	109.21	bf	36.75	109.43	(x2)	30.56	109.9	R4XS2	32.07	109.68	R4XS2
43.32	108.34	X2	38.6	108.99	x2	39.44	109.06	(x2)	33.84	109.76	R4XS2LP07	33.86	109.7	R4XS2LP08
46.49	107.9	X2EW	40.37	108.85	x2	42.08	109.12	(x2)	34.01	109.69	R4X2LP	35.08	109.55	R4XS2
48.28	107.74	X2	43.55	108.41	x2	44.5	108.88	(x2)	35.89	109.56	R4XS2	38.89	109.06	R4XS2
50.05	107.12	T	45.56	108.19	x2	46.47	108.63	(x2)	38.07	109.18	R4XS2	40.99	109.02	R4XS2
50.71	107.1	X2	47.76	108.16	x2	48.98	108.41	(x2w)	41.08	109.14	R4XS2	43.8	109.06	R4XS2
52.1	107.91	X2EW	48.93	107.83	x2	50.06	108.1	(x2)	43.43	109.03	R4XS2	45.1	108.96	R4XS2
53.25	108.65	X2	49.31	107.66	x2	50.33	107.39	(x2)	46.03	108.72	R4XS2	45.99	108.75	R4XS2
55.11	109.35	X2BF	49.91	107.44	x2	51.4	107.19	(x2)	46.6	108.87	R4XS2	46.48	108.57	R4XS2
58.38	109.15	X2	50.42	107.25	x2	52.19	107.27	(x2)	46.63	108.86	R4XS2	47.48	108.7	R4XS2
59.28	109.42	X2RP	50.91	107.18	x2	52.88	108.38	(x2w)	48.1	108.42	R4XS2	48.48	108.6	R4XS2
61.08	109.75	X2	51.38	107.43	x2	53.21	108.39	(x2)	48.47	108.14	R4XS2W	49.05	107.63	R4XS2
65.1	111.33	X2	51.81	107.87	x2	53.54	108.68	(x2)	48.72	108.2	R4XS2	49.46	107.99	R4XS2W
69.83	113.09	X2	52.07	107.87	x2	54.67	109.11	(x2)	48.97	107.51	R4XS2	49.85	107.65	R4XS2
60.24	109.42	X2	52.46	108.36	x2	57.09	109.42	(x2)	49.48	107.45	R4XS2	50.25	107.44	R4XS2
			52.7	108.49	x2	60.36	109.51	(r4x2rp)	50.12	107.47	R4XS2	50.85	107.39	R4XS2
			54.19	109.01	x2	60.82	109.55	(x2)	50.23	107.38	T	51.55	107.35	R4XS2
			54.82	109.28	x2	64.09	110.69	(x2)	50.84	107.42	R4XS2	52.15	107.47	R4XS2
			55.09	109.38	bf	68.18	112.48	(x2)	51.4	107.41	R4XS2	52.56	107.58	R4XS2
			55.4	109.46	x2	70.91	113.39	(x2)	52.2	107.42	R4XS2	52.78	108.6	R4XS2
			57.01	109.37	x2				52.24	108.24	R4XS2W	54.09	109.05	R4XS2
			58.28	109.28	x2				52.44	107.52	R4XS2	55.4	109.51	R4XS2
			59.96	109.55	x2rp				53.26	108.94	R4XS2	57.5	109.46	R4XS2
			59.96	109.58	rp				54.96	109.49	R4XS2	59.3	109.39	R4XS2
									56.56	109.51	R4XS2	60.2	109.51	R4XS2RP08
									58.13	109.41	R4XS2	62.01	110.04	R4XS2
									60.04	109.6	R4XS2RP07	69.42	112.98	R4XS2

Photo of Area 4 Cross-Section #2 - Looking Downstream

	As-Built	2005	2005	2007	2008
Area	21.5	18.1	13.9	13.16	13.36
Width	22.6	21.2	20.3	19.3	19.0
Mean Depth	1.0	0.9	0.7	0.7	0.7
Max Depth	2.3	2.2	2.2	2.0	2.1

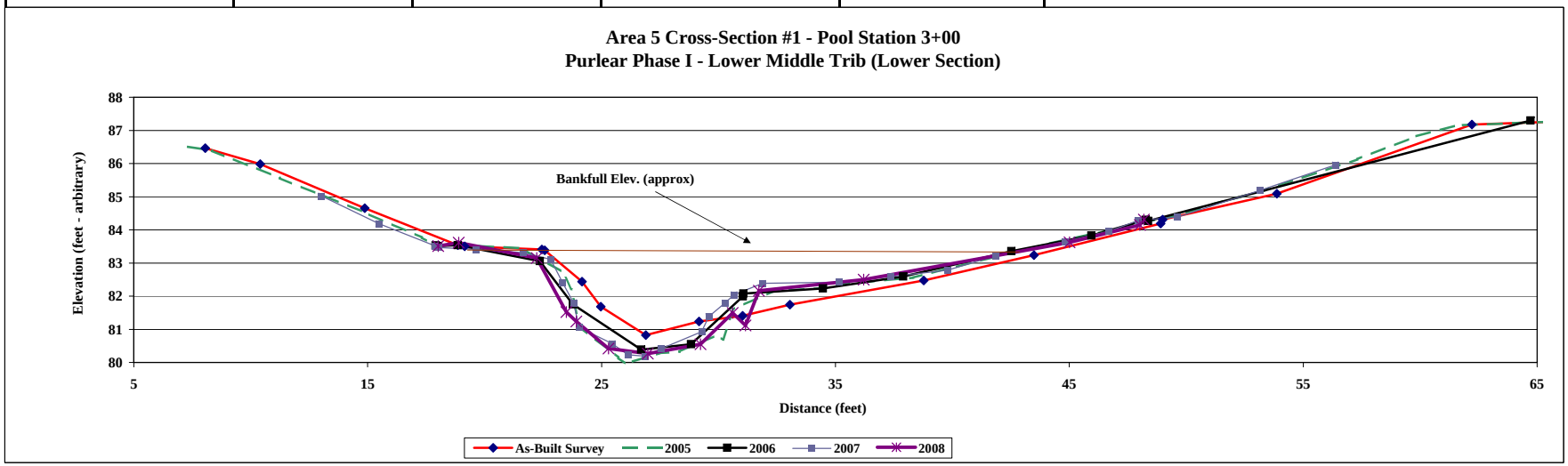


Project Name	Purlear Phase I
Cross Section	1 -Lower Middle Trib (Lower Section) Reach 5
Feature	Pool
Date	7/14/2008
Crew	C George, Morgan

2004 As-Built Survey			2005 MY - 01			2006 MY - 02			2007 MY - 03			2008 MY - 04		
Station	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**
8.05	86.46	X1	7.32	86.51	x1	17.91	83.53	(x1p)	13.02	85.02	R5X1	18.02	83.51	R5XS1LP08
10.4	85.98	X1	8.35	86.39	x1	18.02	83.5	(r5x1lp)	15.47	84.19	R5X1	18.89	83.61	R5XS1
14.88	84.65	X1	11.25	85.56	x1	18.02	83.51	(r5x1lp)	17.87	83.52	R5X1LP07	22.23	83.15	R5XS1
18.86	83.54	X1LP	14.78	84.55	x1	18.86	83.54	(X1LP)	18.01	83.47	R5X1	23.5	81.52	R5XS1W
19.15	83.5	X1	17.32	83.77	x1	22.36	83.06	(r5x1)	19.65	83.41	R5X1	23.92	81.24	R5XS1
22.45	83.41	X1	17.91	83.53	x1p	23.77	81.75	(r5x1)	21.64	83.31	R5X1	25.3	80.42	R5XS1
22.57	83.38	X1B	17.99	83.53	lp	26.7	80.39	(r5x1)	22.83	83.11	R5X1	26.98	80.27	R5XS1
24.16	82.44	X1	18.71	83.55	x1	28.83	80.55	(r5x1)	23.34	82.4	R5X1	29.23	80.55	R5XS1
24.97	81.68	X1EW	21.61	83.44	x1	31.04	81.99	(r5x1w)	23.8	81.8	R5X1W	30.6	81.49	R5XS1W
26.89	80.82	X1	23.35	82.72	x1	31.07	82.08	(r5x1)	24.04	81.06	R5X1	31.15	81.12	R5XS1
29.17	81.24	X1	23.71	82.21	x1	34.46	82.23	(r5x1)	25.46	80.57	R5X1	31.72	82.16	R5XS1
31.03	81.41	X1	24.05	81.09	x1	37.9	82.59	(r5x1)	26.13	80.23	R5X1	36.21	82.5	R5XS1
33.05	81.74	X1EW	25.72	80.15	x1	42.53	83.36	(r5x1)	26.85	80.19	R5X1	45.01	83.62	R5XS1
38.78	82.47	X1	26.04	79.96	t	45.95	83.83	(r5x1)	27.54	80.41	R5X1	48.01	84.15	R5XS1
43.49	83.24	X1	27.48	80.28	x1	48.27	84.3	(x1p)	29.28	80.93	R5X1	48.18	84.31	R5XS1RP08
48.91	84.19	X1	28.34	80.33	x1	48.37	84.27	(r5x1rp)	29.58	81.38	R5X1			
48.99	84.31	X1	29.87	80.81	x1	64.72	87.3	(r5x1)	30.27	81.79	R5X1W			
53.87	85.09	X1	30.19	80.69	x1				30.67	82.04	R5X1			
62.21	87.18	X1	30.63	81.6	x1				31.88	82.39	R5X1			
66.44	87.28	X1	32.32	82.15	x1				35.15	82.42	R5X1			
			34.54	82.25	x1				37.37	82.59	R5X1			
			35.17	82.36	x1				39.78	82.78	R5X1			
			38.32	82.56	x1				41.84	83.22	R5X1			
			42.02	83.23	x1				44.81	83.65	R5X1			
			44.13	83.58	x1				46.69	83.96	R5X1			
			47.61	84.13	x1				47.95	84.28	R5X1RP07			
			48.04	84.34	rp				49.62	84.39	R5X1			
			48.27	84.3	x1p				53.17	85.19	R5X1			
			48.92	84.29	x1				56.37	85.96	R5X1			
			51.14	84.77	x1									
			53.38	85.2	x1									

Photo of Area 5 Cross-Section #1 - Looking Downstream

	As-Built	2005	2006	2007	2008
Area	26.8	29.4	27.4	26.21	26.43
Width	21.4	21.4	23.7	22.2	22.2
Mean Dept	1.3	1.4	1.2	1.2	1.2
Max Depth	2.5	3.3	2.9	3.1	3.0



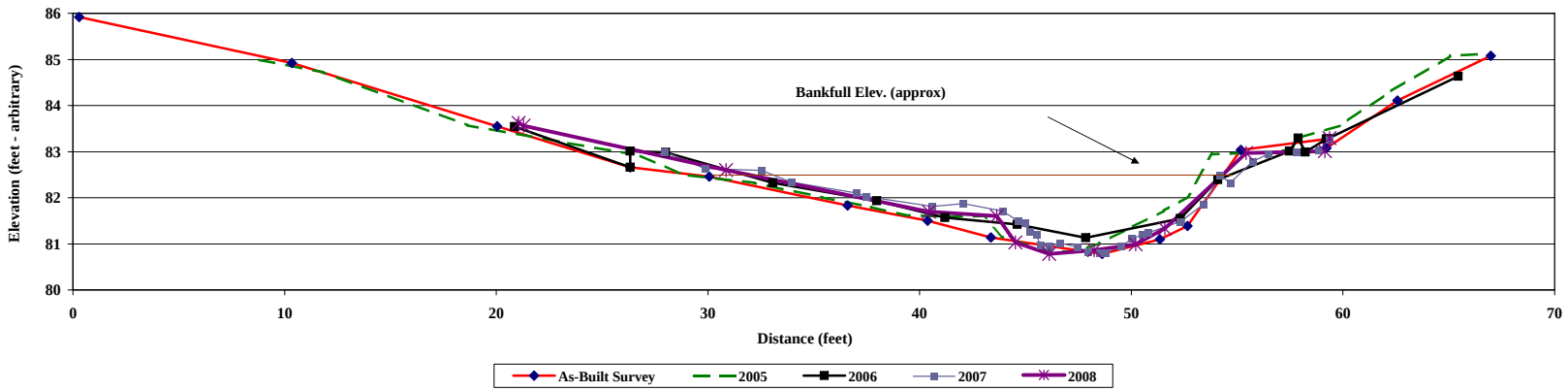
Project Name	Purlear Phase I
Cross Section	2 -Lower Middle Trib (Lower Section) Reach 5
Feature	Riffle
Date	7/14/2008
Crew	C George, Morgan

2004 As-Built Survey			2005 MY - 01			2006 MY - 02			2007 MY - 03			2008 MY - 04		
Station	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**
0.29	85.92	X2	8.82	84.99	x2	20.86	83.54	(r5x2)	27.95	83	R5X2LP07	21.06	83.62	R5XS2
10.35	84.92	X2	11.83	84.72	x2	26.33	82.66	(X2LP)	29.86	82.63	R5X2	21.28	83.56	R5XS2
20.04	83.55	X2	18.65	83.57	x2	26.33	83.01	(x2lp)	32.54	82.59	R5X2	30.86	82.6	R5XS2
26.33	82.66	X2LP	22.97	83.22	x2	27.99	82.98	(r5x2lp)	33.93	82.34	R5X2	40.44	81.7	R5XS2
30.06	82.46	X2	26.32	82.95	x2	33.07	82.32	(r5x2)	37.03	82.1	R5X2	43.65	81.6	R5XS2
36.6	81.83	2)	26.33	83.01	x2lp	37.97	81.93	(r5x2)	37.48	82.03	R5X2	44.53	81.03	R5XS2W
40.37	81.5	X2T	28.8	82.5	x2	41.2	81.57	(r5x2)	40.59	81.81	R5X2	46.12	80.78	R5XS2
43.37	81.14	X2EW	32.19	82.32	x2	44.61	81.42	(r5x2w)	42.07	81.87	R5X2	48.24	80.86	R5XS2
48.63	80.78	X2	35.39	82.01	x2	47.85	81.13	(r5x2)	43.92	81.71	R5X2	50.21	80.99	R5XS2W
51.35	81.1	X2EW	37.71	81.8	x2	52.31	81.55	(r5x2w)	44.67	81.49	R5X2	51.59	81.33	R5XS2
52.65	81.39	X2	39.3	81.62	x2	54.09	82.39	(r5x2)	44.98	81.45	R5X2	55.43	82.97	R5XS2
55.18	83.04	X2B	41.39	81.59	x2	57.47	83.01	(r5x2)	45.22	81.26	R5X2	59.14	83.01	R5XS2
59.21	83.27	X2RP	42.98	81.6	x2	57.88	83.29	(x2rp)	45.52	81.2	R5X2W	59.37	83.29	R5XS2RP08
59.22	83.08	X2	43.91	81.16	x2	58.22	82.99	(r5x2)	45.69	80.97	R5X2			
62.57	84.11	X2	45	80.98	x2	59.21	83.27	(X2RP)	46.12	80.95	R5X2			
66.98	85.08	X2	45.89	80.86	x2	59.28	83.28	(r5x2rp)	46.63	81.02	R5X2			
			47.3	80.82	x2	65.44	84.63	(r5x2)	47.45	80.93	R5X2			
			48.5	81.01	x2				47.97	80.83	R5X2			
			49.93	81.34	x2				48.52	80.81	R5X2			
			51.54	81.72	x2				48.77	80.81	R5X2			
			52.65	82.02	x2				49.53	80.94	R5X2			
			53.81	82.94	x2				50.01	81.11	R5X2			
			56.56	82.98	x2				50.52	81.2	R5X2W			
			57.54	83.05	x2				50.8	81.24	R5X2			
			57.88	83.29	x2rp				52.31	81.48	R5X2			
			59.86	83.56	x2				53.42	81.86	R5X2			
			61.96	84.23	x2				54.21	82.48	R5X2			
			65.07	85.08	x2				54.67	82.32	R5X2			
			66.45	85.12	x2				55.73	82.79	R5X2			
									56.49	82.95	R5X2			
									57.82	82.99	R5X2			
									58.85	83.03	R5X2			
									59.35	83.26	R5X2RP07			

Photo of Area 5 Cross-Section #2 - Looking Downstream

	As-Built	**2005**	**2006**	**2007**	**2008**
Area	23.1	19.8	17.9	17.9	18.2
Width	26.3	25.0	23.5	24.8	24.0
Mean Depth	0.9	0.8	0.8	0.7	0.8
Max Depth	1.7	1.7	1.4	1.7	1.7
w/d ratio	30.0	31.7	30.9	34.4	31.7
FPW	60	60	60	60	60
ER (greater than)	2.3	2.4	2.6	2.4	2.5
Stream Type	C4	C4	C4	C4	C4

Area 5 Cross-Section #2 - Riffle Station 3+85
Purlear Phase I - Lower Middle Trib (Lower Section)

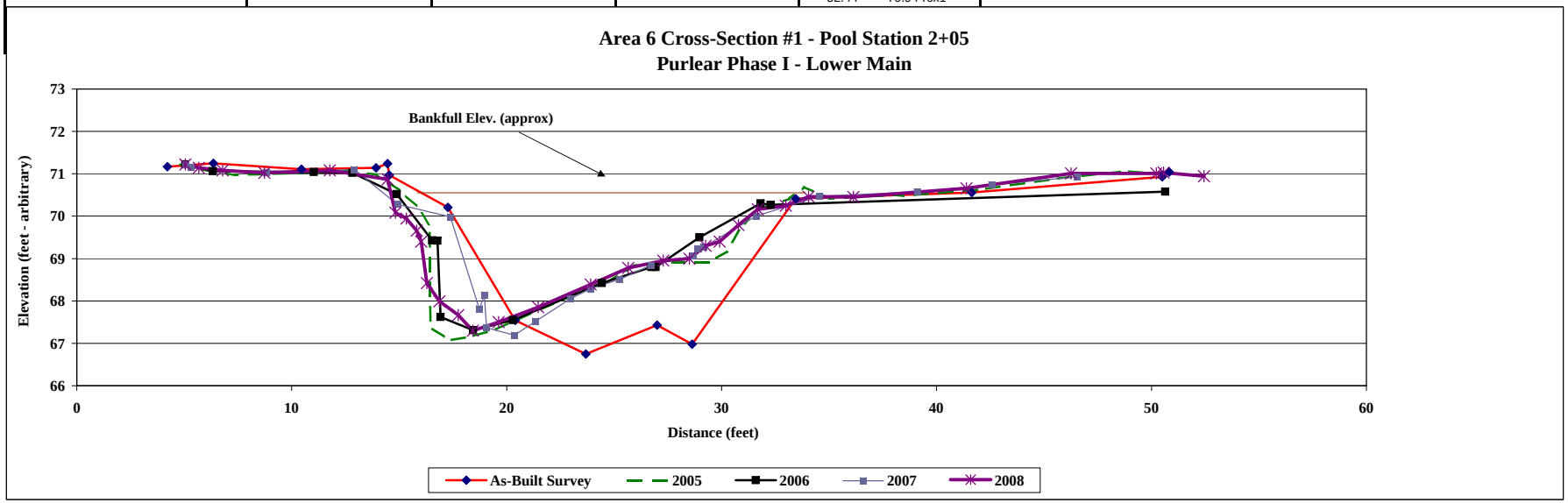


Project Name	Purlear Phase I
Cross Section	1 - Lower Main Reach 6
Feature	Pool
Date	10/6/2008
Crew	Price, Shaffer

2004 As-Built Survey			2005 MY - 01			2006 MY - 02			2007 MY - 03			2008 MY - 04		
Station	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**
4.21	71.17	X1	4.81	71.22	xlp	5.05	71.22	(r6x1lp)	5.05	71.22	R6X1LP	5.05	71.22	r6x1lp08
6.35	71.25	X2LP	5.32	71.15	x	6.33	71.06	(r6x1)	5.33	71.15	R6X1	5.67	71.14	r6x1
10.45	71.11	X1	7.36	70.97	x	11.03	71.04	(r6x1)	8.84	71.03	R6X1	6.78	71.08	r6x1
13.92	71.14	X1	10.42	71.02	x	12.83	71.02	(r6x1)	12.91	71.1	R6X1	8.73	71.02	r6x1
14.46	71.24	B	12.27	71.08	x	14.89	70.52	(r6x1)	14.92	70.28	R6X1	11.77	71.08	r6x1
14.54	70.97	X1	13.96	70.98	x	16.53	69.43	(r6x1w)	17.38	69.98	R6X1	14.46	70.87	r6x1
17.27	70.21	X1	15.04	70.6	x	16.78	69.42	(r6x1)	18.72	67.81	R6X1	14.83	70.08	r6x1
20.4	67.54	X1	15.83	70.23	x	16.93	67.62	(r6x1)	18.96	68.14	R6X1	15.33	69.94	r6x1
23.69	66.75	X1	16.42	69.79	x	18.44	67.31	(r6x1)	19.07	67.37	R6X1	15.82	69.66	r6x1
27	67.43	X1	16.45	67.38	x	20.29	67.55	(r6x1)	20.36	67.19	R6X1	16.02	69.4	r6x1
28.63	66.98	X1	17.35	67.07	x	24.43	68.42	(r6x1)	21.35	67.52	R6X1	16.29	68.42	r6x1
33.44	70.41	X1	18.32	67.16	x	26.74	68.8	(r6x1)	22.96	68.05	R6X1	16.87	67.99	r6x1
41.64	70.56	X1	19.5	67.32	x	26.93	68.8	(r6x1)	23.9	68.29	R6X1	17.75	67.67	r6x1
50.5	70.93	X1RP	23.5	68.24	x	28.97	69.5	(r6x1w)	25.24	68.51	R6X1	18.42	67.3	r6x1
50.82	71.04	X1	24.77	68.46	x	31.81	70.3	(r6x1)	26.7	68.84	R6X1	19.63	67.5	r6x1
			25.91	68.84	x	32.29	70.27	(r6x1)	28.65	69.06	R6X1	21.47	67.85	r6x1
			27.79	68.91	x	50.64	70.58	(r6x1rp)	28.9	69.22	R6X1	23.9	68.39	r6x1
			29.4	68.91	x				29.15	69.27	R6X1W	25.65	68.78	r6x1
			30.23	69.17	x				31.6	70	R6X1	27.28	68.95	r6x1
			30.83	69.67	x				34.57	70.47	R6X1	28.5	69	r6x1
			31.58	70.14	x				39.1	70.57	R6X1	29.25	69.3	r6x1w
			33.16	70.41	x				42.57	70.74	R6X1	29.91	69.4	r6x1
			33.84	70.69	bf				46.54	70.93	R6X1	30.78	69.79	r6x1
			35.02	70.41	x				50.64	70.58	R6X1RP	31.68	70.16	r6x1
			38.05	70.5	bf							32.99	70.25	r6x1
			38.45	70.48	x							34.05	70.46	r6x1
			42.09	70.63	x							36.13	70.45	r6x1
			45.65	70.89	x							41.39	70.66	r6x1
			48.74	71.06	x							46.26	71.01	r6x1
			50.29	71	x							50.22	71.01	r6x1
			50.5	71.06	xrp							50.56	71.03	r6x1rp08
												52.44	70.94	r6x1

Photo of Area 6 Cross-Section #1 - Looking Downstream

	As-Built	2005	2006	2007	2008
Area	43.6	36.3	33.2	31.8	35.1
Width	18.9	19.2	17.9	19.7	19.6
Mean Depth	2.3	1.9	1.9	1.6	1.8
Max Depth	3.8	3.5	3.3	3.4	3.3

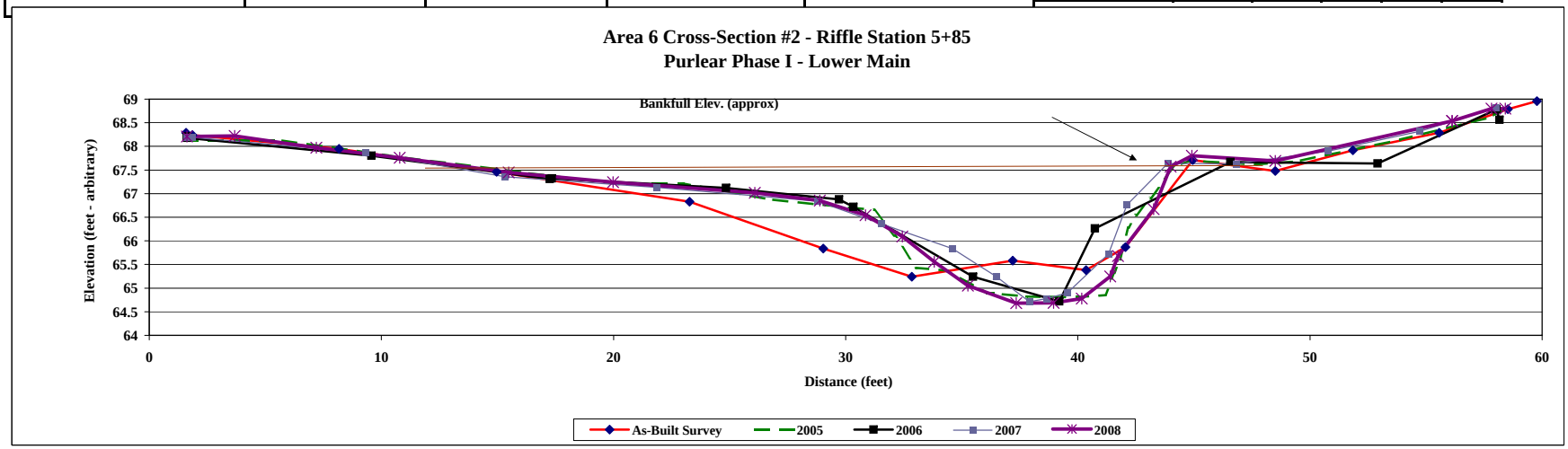


Project Name	Purlear Phase I
Cross Section	2 - Lower Main Reach 6
Feature	Riffle
Date	10/6/2008
Crew	Price, Shaffer

2004 As-Built Survey			2005 MY - 01			2006 MY - 02			2007 MY - 03			2008 MY - 04		
Station	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**	**Station**	**Elev.**	**Notes**
1.59	68.29	X2LP	1.62	68.22	xlp	1.62	68.21	(r6x2lp)	1.61	68.19	r6x2LP07	1.62	68.21	r6x2lp08
1.86	68.24	X2	1.9	68.13	x	1.64	68.18	(r6x2)	1.85	68.19	r6x2	3.68	68.22	r6x2
8.17	67.95	X2	5.63	68.13	x	9.57	67.8	(r6x2)	9.31	67.87	r6x2	7.2	67.97	r6x2
14.96	67.46	X2	10.28	67.81	x	17.26	67.31	(r6x2)	15.32	67.36	r6x2	10.79	67.76	r6x2
23.27	66.83	X2	16.19	67.44	x	17.34	67.32	(r6x2)	21.85	67.13	r6x2	15.48	67.45	r6x2
29.04	65.84	X2EW	20.27	67.2	bf	24.85	67.12	(r6x2)	28.77	66.84	r6x2	19.98	67.24	r6x2
32.85	65.24	X2	23	67.22	x	29.71	66.88	(r6x2)	31.54	66.36	r6x2	26.08	67.02	r6x2
37.2	65.58	X2	26.72	66.88	x	30.33	66.72	(r6x2)	34.6	65.84	r6x2w	28.88	66.85	r6x2
40.36	65.38	X2	31.22	66.65	x	35.49	65.24	(r6x2)	36.48	65.25	r6x2	30.86	66.54	r6x2
42.05	65.87	X2EW	32.1	66.11	x	39.2	64.72	(r6x2)	37.91	64.71	R6X2	32.44	66.09	r6x2
44.95	67.71	X2B	33.05	65.43	x	40.74	66.26	(r6x2w)	38.66	64.78	R6X2	33.81	65.56	r6x2
48.51	67.48	X2	34.4	65.37	x	46.57	67.67	(r6x2)	39.55	64.9	R6X2	35.27	65.05	r6x2
51.85	67.92	X2	36.11	64.89	x	52.91	67.64	(r6x2)	41.32	65.72	R6X2W	37.35	64.68	r6x2
55.57	68.29	X2	36.37	64.89	x	58.03	68.78	(r6x2rp)	42.11	66.76	R6X2	38.96	64.69	r6x2
58.52	68.79	X2RP	37.79	64.82	x	58.17	68.56	(r6x2)	43.87	67.64	R6X2	40.17	64.78	r6x2
59.78	68.96	X2	40.02	64.81	x				46.83	67.63	R6X2	41.39	65.25	r6x2
			41.19	64.85	x				50.79	67.9	R6X2	41.73	65.68	r6x2w
			41.57	65.32	x				54.72	68.32	R6X2	43.27	66.67	r6x2
			41.82	65.6	x				58.03	68.82	R6X2RP07	44	67.57	r6x2
			42.18	66.28	x							44.91	67.8	r6x2
			42.5	66.54	x							48.51	67.69	r6x2
			43.12	66.9	x							56.12	68.54	r6x2
			44.16	67.57	x							56.12	68.54	r6x2
			44.8	67.7	x							57.82	68.8	r6x2
			47.71	67.62	x							58.42	68.8	r6x2rp08
			49.42	67.68	x									
			53.89	68.14	x									
			57.79	68.62	x									
			58.23	68.76	xrp									

Photo of Area 6 Cross-Section #2 - Looking Downstream

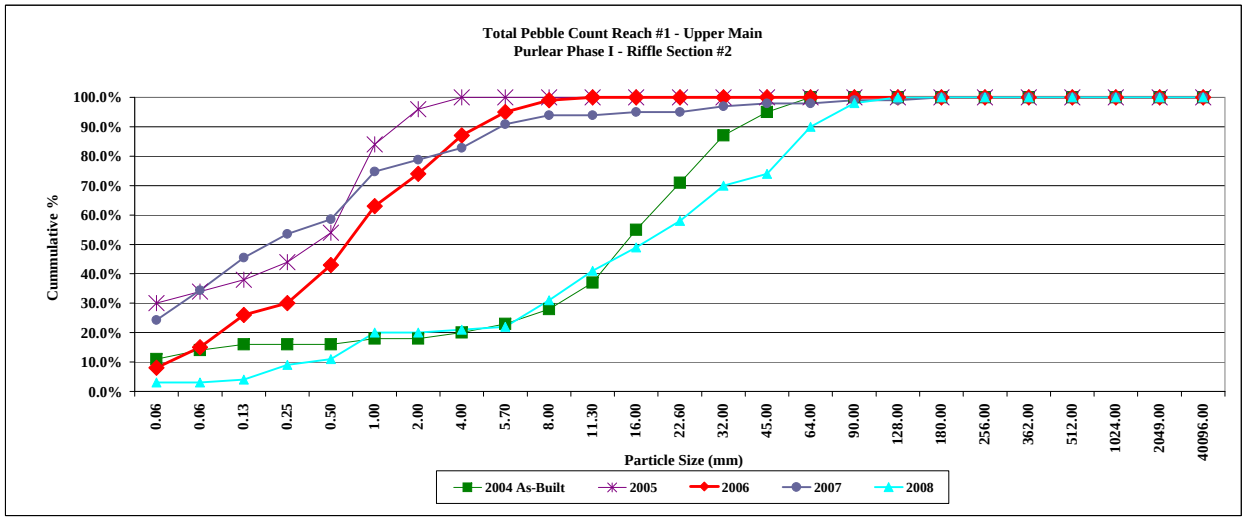
	As-Built	2005	2006	2007	2008
Area	40.2	37.8	35.2	35.5	39.1
Width	27.1	26.9	34.3	37.5	32.0
Mean Depth	1.5	1.4	1.0	0.9	1.2
Max Depth	2.5	2.9	3.0	3.0	3.0
w/d ratio	18.3	19.2	33.4	39.6	26.2
FPW	60	60	60	60	60
ER (greater than)	2.2	2.2	1.7	1.6	1.9
Stream Type	C4	C4	C4	C4	C4



Project Name	Purlear Phase I
Cross Section	2 - Reach #1 - Upper Main
Feature	Riffle
Date	7/23/2008
Crew	C. George, M. Hancock

		2004 As-Built				2005				2006				2007			2008			
Description	**Material**	**Size (mm)**	**Riffle**	**%**	**Cum %**	**Riffle - Bed**	**Riffle - Bank**	**%**	**Cum %**	**Riffle - Bed**	**Riffle - Bank**	**%**	**Cum %**	**Riffle**	**%**	**Cum %**	**Riffle - Bed**	**Riffle - Bank**	**%**	**Cum %**
Silt/Clay	silt/clay	0.061	11	11.0%	11.0%	9	6	30.0%	30.0%	3	5	8.0%	8.0%	24	24.2%	24.2%	0	3	3.0%	3.0%
Sand	very fine sand	0.062	3	3.0%	14.0%	0	2	4.0%	34.0%	0	7	7.0%	15.0%	10	10.1%	34.3%	0	0	0.0%	3.0%
	fine sand	0.125	2	2.0%	16.0%	0	2	4.0%	38.0%	3	8	11.0%	26.0%	11	11.1%	45.5%	0	1	1.0%	4.0%
	medium sand	0.25	0	0.0%	16.0%	3	0	6.0%	44.0%	4	0	4.0%	30.0%	8	8.1%	53.5%	0	5	5.0%	9.0%
	course sand	0.50	0	0.0%	16.0%	5	0	10.0%	54.0%	13	0	13.0%	43.0%	5	5.1%	58.6%	2	0	2.0%	11.0%
	very course sand	1.0	2	2.0%	18.0%	15	0	30.0%	84.0%	20	0	20.0%	63.0%	16	16.2%	74.7%	9	0	9.0%	20.0%
G r a v e l	very fine gravel	2.0	0	0.0%	18.0%	6	0	12.0%	96.0%	11	0	11.0%	74.0%	4	4.0%	78.8%	0	0	0.0%	20.0%
	fine gravel	4.0	2	2.0%	20.0%	2	0	4.0%	100.0%	13	0	13.0%	87.0%	4	4.0%	82.8%	1	0	1.0%	21.0%
	fine gravel	5.7	3	3.0%	23.0%	0	0	0.0%	100.0%	8	0	8.0%	95.0%	8	8.1%	90.9%	1	0	1.0%	22.0%
	medium gravel	8.0	5	5.0%	28.0%	0	0	0.0%	100.0%	4	0	4.0%	99.0%	3	3.0%	93.9%	9	0	9.0%	31.0%
	medium gravel	11.3	9	9.0%	37.0%	0	0	0.0%	100.0%	1	0	1.0%	100.0%	0	0.0%	93.9%	10	0	10.0%	41.0%
	course gravel	16.0	18	18.0%	55.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	1	1.0%	94.9%	7	1	8.0%	49.0%
	course gravel	22.6	16	16.0%	71.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	94.9%	8	1	9.0%	58.0%
	very course gravel	32	16	16.0%	87.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	2	2.0%	97.0%	9	3	12.0%	70.0%
	very course gravel	45	8	8.0%	95.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	1	1.0%	98.0%	2	2	4.0%	74.0%
Cobble	small cobble	64	5	5.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	98.0%	15	1	16.0%	90.0%
	medium cobble	90	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	1	1.0%	99.0%	6	2	8.0%	98.0%
	large cobble	128	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	99.0%	1	1	2.0%	100.0%
	very large cobble	180	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	1	1.0%	100.0%	0	0	0.0%	100.0%
Boulder	small boulder	256	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	small boulder	362	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	medium boulder	512	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	large boulder	1024	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	very large boulder	2049	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
Bedrock	bedrock	40096	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
TOTAL / %of whole count			100	100.0%		40	10	100%		80	20	100%		99	100.0%		80	20	100%	

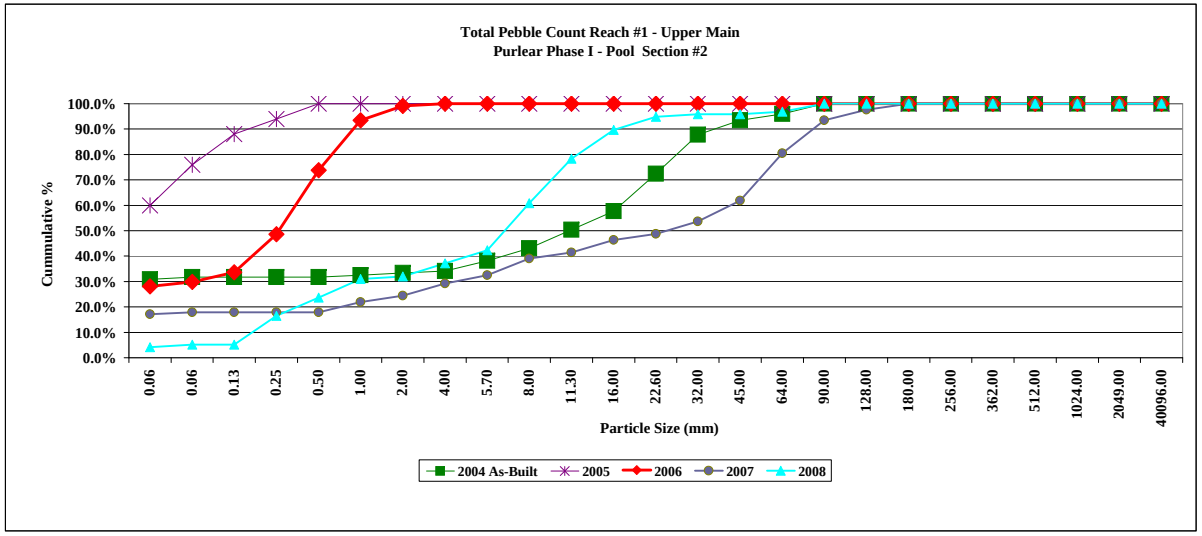
	d16	d35	d50	d84	d95
2004 As-Built	0.38	12.76	17.73	36.40	54.50
2005	0.00	0.12	0.60	1.50	2.88
2006	0.10	0.52	1.01	4.42	6.85
2007	0	0.062	0.2	4.43	19.3
2008	1.20	11.30	20.20	68.60	97.00
2009					



Project Name	Purlear Phase I
Cross Section	1 - Reach #1 - Upper Main
Feature	Pool
Date	7/23/2008
Crew	C. George, M. Hancock

		2004 As-Built				2005				2006				2007			2008			
Description	**Material**	**Size (mm)**	**Pool**	**%**	**Cum %**	**Pool - Bed**	**Pool - Bank**	**%**	**Cum %**	**Pool - Bed**	**Pool - Bank**	**%**	**Cum %**	**Pool**	**%**	**Cum %**	**Pool - Bed**	**Pool - Bank**	**%**	**Cum %**
Silt/Clay	silt/clay	0.061	38	30.9%	30.9%	20	10	60.0%	60.0%	10	20	28.0%	28.0%	21	17.1%	17.1%	1	3	4.1%	4.1%
Sand	very fine sand	0.062	1	0.8%	31.7%	8	0	16.0%	76.0%	2	0	1.9%	29.9%	1	0.8%	17.9%	0	1	1.0%	5.2%
	fine sand	0.125	0	0.0%	31.7%	6	0	12.0%	88.0%	4	0	3.7%	33.6%	0	0.0%	17.9%	0	0	0.0%	5.2%
	medium sand	0.25	0	0.0%	31.7%	3	0	6.0%	94.0%	16	0	15.0%	48.6%	0	0.0%	17.9%	5	6	11.3%	16.5%
	course sand	0.50	0	0.0%	31.7%	3	0	6.0%	100.0%	27	0	25.2%	73.8%	0	0.0%	17.9%	4	3	7.2%	23.7%
	very course sand	1.0	1	0.8%	32.5%	0	0	0.0%	100.0%	21	0	19.6%	93.5%	5	4.1%	22.0%	7	0	7.2%	30.9%
G r a v e l	very fine gravel	2.0	1	0.8%	33.3%	0	0	0.0%	100.0%	6	0	5.6%	99.1%	3	2.4%	24.4%	1	0	1.0%	32.0%
	fine gravel	4.0	1	0.8%	34.1%	0	0	0.0%	100.0%	1	0	0.9%	100.0%	6	4.9%	29.3%	5	0	5.2%	37.1%
	fine gravel	5.7	5	4.1%	38.2%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	4	3.3%	32.5%	5	0	5.2%	42.3%
	medium gravel	8.0	6	4.9%	43.1%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	8	6.5%	39.0%	17	1	18.6%	60.8%
	medium gravel	11.3	9	7.3%	50.4%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	3	2.4%	41.5%	17	0	17.5%	78.4%
	course gravel	16.0	9	7.3%	57.7%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	6	4.9%	46.3%	10	1	11.3%	89.7%
	course gravel	22.6	18	14.6%	72.4%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	3	2.4%	48.8%	4	1	5.2%	94.8%
	very course gravel	32	19	15.4%	87.8%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	6	4.9%	53.7%	0	1	1.0%	95.9%
	very course gravel	45	7	5.7%	93.5%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	10	8.1%	61.8%	0	0	0.0%	95.9%
Cobble	small cobble	64	3	2.4%	95.9%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	23	18.7%	80.5%	1	0	1.0%	96.9%
	medium cobble	90	5	4.1%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	16	13.0%	93.5%	3	0	3.1%	100.0%
	large cobble	128	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	5	4.1%	97.6%	0	0	0.0%	100.0%
	very large cobble	180	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	3	2.4%	100.0%	0	0	0.0%	100.0%
Boulder	small boulder	256	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	small boulder	362	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	medium boulder	512	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	large boulder	1024	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	very large boulder	2049	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
Bedrock	bedrock	40096	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
TOTAL / %of whole count			123	100.0%		40	10	100%		87	20	100%		123	100.0%		80	17	100%	

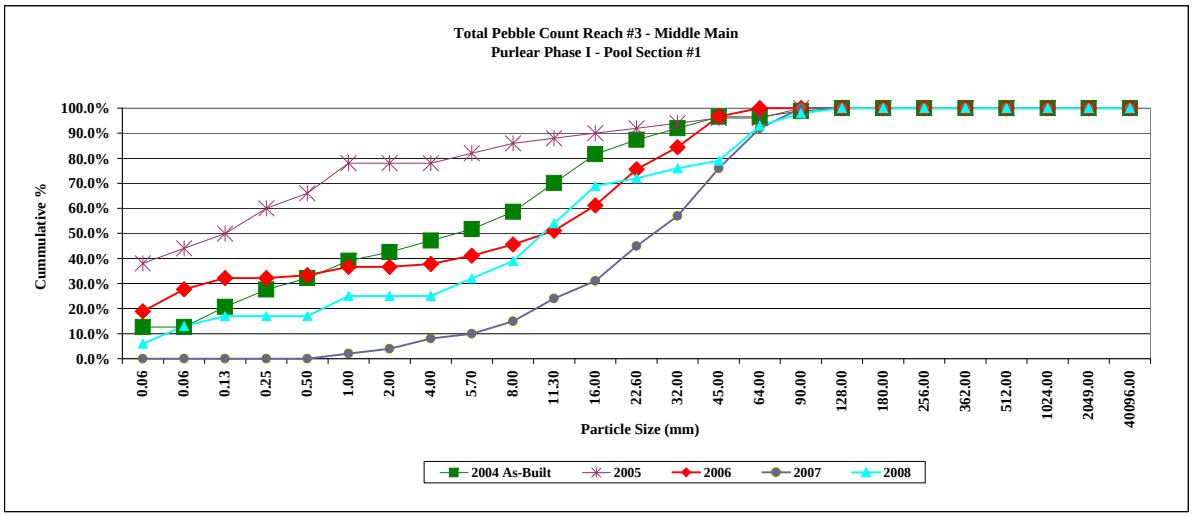
	d16	d35	d50	d84	d95
2004 As-Built	0.00	5.27	13.43	35.74	68.37
2005	0.00	0.00	0.00	0.16	0.44
2006	0.00	0.20	0.40	1.14	1.91
2007	0.06	6.85	27.30	68.00	109.00
2008	0.37	4.09	8.02	16.46	28.98
2009					



Project Name	Purlear Phase I
Cross Section	1 - Reach #3 - Middle Main
Feature	Pool
Date	7/23/2008
Crew	C. George, M. Hancock

		2004 As-Built				2005				2006				2007			2008			
Description	**Material**	**Size (mm)**	**Pool - Bed**	**%**	**Cum %**	**Pool - Bed**	**Pool - Bank**	**%**	**Cum %**	**Pool - Bed**	**Pool - Bank**	**%**	**Cum %**	**Pool - Bed**	**%**	**Cum %**	**Pool - Bed**	**Pool - Bank**	**%**	**Cum %**
Silt/Clay	silt/clay	0.061	11	12.6%	12.6%	12	7	38.0%	38.0%	0	17	18.9%	18.9%	0	0.0%	0.0%	0	6	6.0%	6.0%
Sand	very fine sand	0.062	0	0.0%	12.6%	0	3	6.0%	44.0%	0	8	8.9%	27.8%	0	0.0%	0.0%	0	7	7.0%	13.0%
	fine sand	0.125	7	8.0%	20.7%	1	2	6.0%	50.0%	1	3	4.4%	32.2%	0	0.0%	0.0%	0	4	4.0%	17.0%
	medium sand	0.25	6	6.9%	27.6%	2	3	10.0%	60.0%	0	0	0.0%	32.2%	0	0.0%	0.0%	0	0	0.0%	17.0%
	course sand	0.50	4	4.6%	32.2%	2	1	6.0%	66.0%	0	1	1.1%	33.3%	0	0.0%	0.0%	0	0	0.0%	17.0%
	very course sand	1.0	6	6.9%	39.1%	4	2	12.0%	78.0%	2	1	3.3%	36.7%	2	2.0%	2.0%	8	0	8.0%	25.0%
Gravel	very fine gravel	2.0	3	3.4%	42.5%	0	0	0.0%	78.0%	0	0	0.0%	36.7%	2	2.0%	4.0%	0	0	0.0%	25.0%
	fine gravel	4.0	4	4.6%	47.1%	0	0	0.0%	78.0%	1	0	1.1%	37.8%	4	4.0%	8.0%	0	0	0.0%	25.0%
	fine gravel	5.7	4	4.6%	51.7%	2	0	4.0%	82.0%	3	0	3.3%	41.1%	2	2.0%	10.0%	7	0	7.0%	32.0%
	medium gravel	8.0	6	6.9%	58.6%	0	2	4.0%	86.0%	4	0	4.4%	45.6%	5	5.0%	15.0%	7	0	7.0%	39.0%
	medium gravel	11.3	10	11.5%	70.1%	1	0	2.0%	88.0%	5	0	5.6%	51.1%	9	9.0%	24.0%	15	0	15.0%	54.0%
	course gravel	16.0	10	11.5%	81.6%	1	0	2.0%	90.0%	9	0	10.0%	61.1%	7	7.0%	31.0%	15	0	15.0%	69.0%
	course gravel	22.6	5	5.7%	87.4%	1	0	2.0%	92.0%	13	0	14.4%	75.6%	14	14.0%	45.0%	2	1	3.0%	72.0%
	very course gravel	32	4	4.6%	92.0%	1	0	2.0%	94.0%	8	0	8.9%	84.4%	12	12.0%	57.0%	3	1	4.0%	76.0%
	very course gravel	45	4	4.6%	96.6%	1	0	2.0%	96.0%	11	0	12.2%	96.7%	19	19.0%	76.0%	3	0	3.0%	79.0%
Cobble	small cobble	64	0	0.0%	96.6%	0	0	0.0%	96.0%	3	0	3.3%	100.0%	16	16.0%	92.0%	14	0	14.0%	93.0%
	medium cobble	90	2	2.3%	98.9%	2	0	4.0%	100.0%	0	0	0.0%	100.0%	8	8.0%	100.0%	4	1	5.0%	98.0%
	large cobble	128	1	1.1%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	2	0	2.0%	100.0%
	very large cobble	180	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
Boulder	small boulder	256	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	small boulder	362	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	medium boulder	512	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	large boulder	1024	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	very large boulder	2049	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
Bedrock	bedrock	40096	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
TOTAL / %of whole count			87	100.0%		30	20	100.0%		60	30	100.0%		100	100.0%		80	20	100.0%	

	d16	d35	d50	d84	d95
2004 As-Built	0.13	1.06	6.10	22.63	49.10
2005	0.00	0.00	0.19	8.25	46.50
2006	0.00	1.13	12.85	37.94	52.32
2007	8.37	17.89	26.52	54.50	73.75
2008	0.16	8.05	12.58	62.54	89.80
2009					

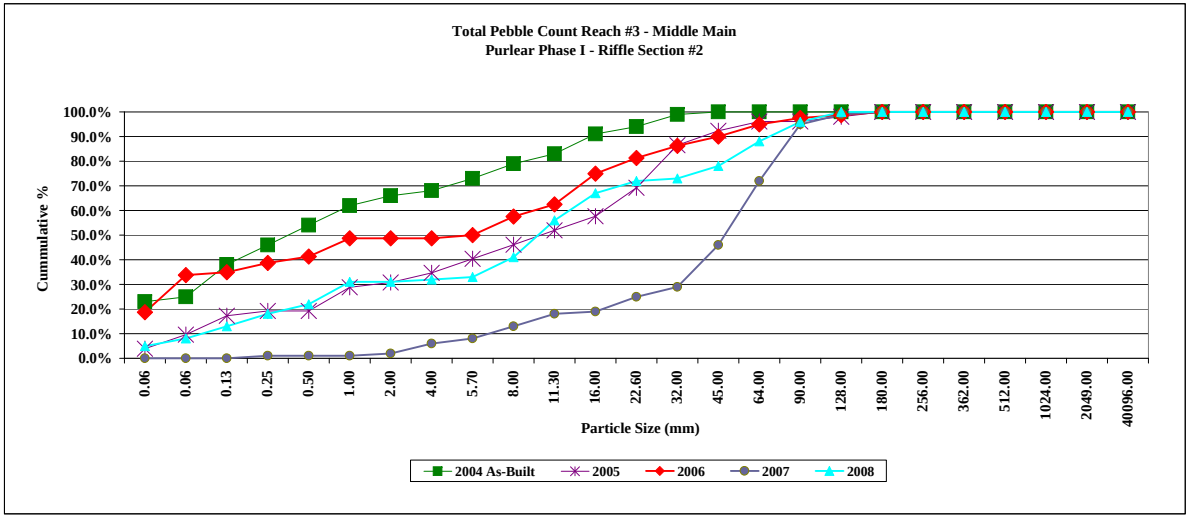


Project Name	Purlear Phase I
Cross Section	2 - Reach #3 - Middle Main
Feature	Riffle
Date	7/23/2008
Crew	C. George, M. Hancock

Cross Section #1

		2004 As-Built				2005				2006				2007			2008			
Description	**Material**	**Size (mm)**	**Riffle - Bed**	**%**	**Cum %**	**Riffle - Bed**	**Riffle - Bank**	**%**	**Cum %**	**Riffle - Bed**	**Riffle - Bank**	**%**	**Cum %**	**Riffle - Bed**	**%**	**Cum %**	**Riffle - Bed**	**Riffle - Bank**	**%**	**Cum %**
Silt/Clay	silt/clay	0.061	23	23.0%	23.0%	0	2	3.8%	3.8%	0	15	18.8%	18.8%	0	0.0%	0.0%	0	5	5.0%	5.0%
Sand	very fine sand	0.062	2	2.0%	25.0%	0	3	5.8%	9.6%	0	12	15.0%	33.8%	0	0.0%	0.0%	0	3	3.0%	8.0%
	fine sand	0.125	13	13.0%	38.0%	0	4	7.7%	17.3%	0	1	1.3%	35.0%	0	0.0%	0.0%	0	5	5.0%	13.0%
	medium sand	0.25	8	8.0%	46.0%	0	1	1.9%	19.2%	3	0	3.8%	38.8%	1	1.0%	1.0%	0	5	5.0%	18.0%
	course sand	0.50	8	8.0%	54.0%	0	0	0.0%	19.2%	1	1	2.5%	41.3%	0	0.0%	1.0%	4	0	4.0%	22.0%
	very course sand	1.0	8	8.0%	62.0%	5	0	9.6%	28.8%	5	1	7.5%	48.8%	0	0.0%	1.0%	9	0	9.0%	31.0%
Gravel	very fine gravel	2.0	4	4.0%	66.0%	1	0	1.9%	30.8%	0	0	0.0%	48.8%	1	1.0%	2.0%	0	0	0.0%	31.0%
	fine gravel	4.0	2	2.0%	68.0%	2	0	3.8%	34.6%	0	0	0.0%	48.8%	4	4.0%	6.0%	1	0	1.0%	32.0%
	fine gravel	5.7	5	5.0%	73.0%	3	0	5.8%	40.4%	1	0	1.3%	50.0%	2	2.0%	8.0%	1	0	1.0%	33.0%
	medium gravel	8.0	6	6.0%	79.0%	3	0	5.8%	46.2%	6	0	7.5%	57.5%	5	5.0%	13.0%	8	0	8.0%	41.0%
	medium gravel	11.3	4	4.0%	83.0%	3	0	5.8%	51.9%	4	0	5.0%	62.5%	5	5.0%	18.0%	15	0	15.0%	56.0%
	course gravel	16.0	8	8.0%	91.0%	3	0	5.8%	57.7%	10	0	12.5%	75.0%	1	1.0%	19.0%	11	0	11.0%	67.0%
	course gravel	22.6	3	3.0%	94.0%	6	0	11.5%	69.2%	5	0	6.3%	81.3%	6	6.0%	25.0%	5	0	5.0%	72.0%
	very course gravel	32	5	5.0%	99.0%	9	0	17.3%	86.5%	4	0	5.0%	86.3%	4	4.0%	29.0%	1	0	1.0%	73.0%
	very course gravel	45	1	1.0%	100.0%	3	0	5.8%	92.3%	3	0	3.8%	90.0%	17	17.0%	46.0%	5	0	5.0%	78.0%
Cobble	small cobble	64	0	0.0%	100.0%	2	0	3.8%	96.2%	4	0	5.0%	95.0%	26	26.0%	72.0%	10	0	10.0%	88.0%
	medium cobble	90	0	0.0%	100.0%	0	0	0.0%	96.2%	2	0	2.5%	97.5%	23	23.0%	95.0%	7	1	8.0%	96.0%
	large cobble	128	0	0.0%	100.0%	1	0	1.9%	98.1%	1	0	1.3%	98.8%	4	4.0%	99.0%	3	1	4.0%	100.0%
	very large cobble	180	0	0.0%	100.0%	1	0	1.9%	100.0%	1	0	1.3%	100.0%	1	1.0%	100.0%	0	0	0.0%	100.0%
Boulder	small boulder	256	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	small boulder	362	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	medium boulder	512	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	large boulder	1024	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	very large boulder	2049	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
Bedrock	bedrock	40096	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
TOTAL / %of whole count			100	100.0%		42	10	100%		50	30	100%		100	100.0%		80	20	100%	

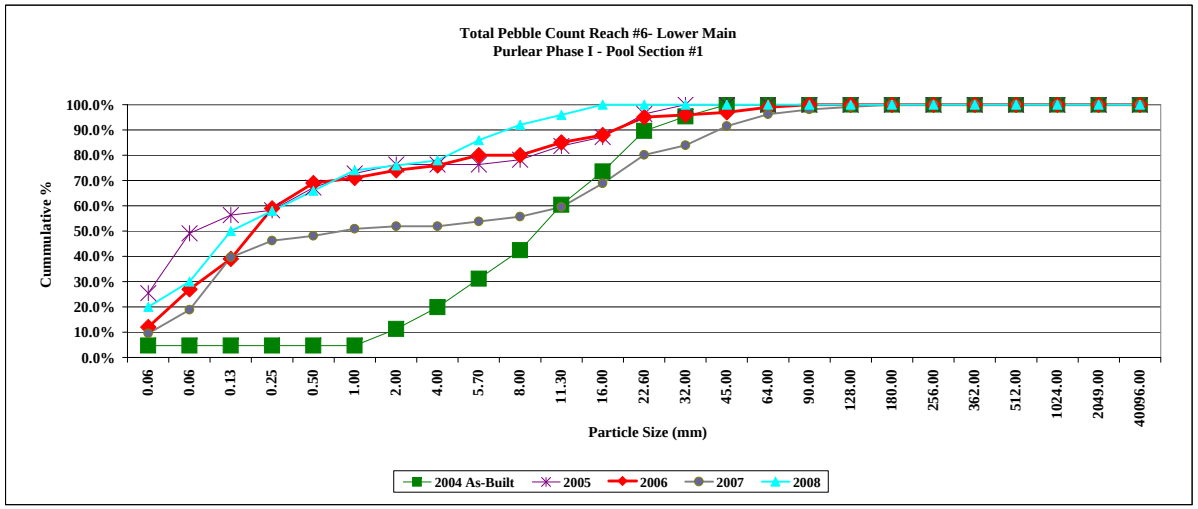
	d16	d35	d50	d84	d95
2004 As-Built	0.00	0.17	0.56	14.36	29.54
2005	0.17	4.98	12.32	36.86	70.25
2006	0.00	0.19	6.85	33.46	77.00
2007	0.00	36.59	47.92	77.57	90.00
2008	0.30	7.55	12.05	68.00	105.00
2009					



Project Name	Purlear Phase I
Cross Section	1 - Reach #6 - Lower Main
Feature	Pool
Date	10/7/2008
Crew	Price

		2004 As-Built				2005				2006				2007			2008			
Description	**Material**	**Size (mm)**	**Pool - Bed**	**%**	**Cum %**	**Pool - Bed**	**Pool - Bank**	**%**	**Cum %**	**Pool - Bed**	**Pool - Bank**	**%**	**Cum %**	**Pool - Bed**	**%**	**Cum %**	**Pool - Bed**	**Pool - Bank**	**%**	**Cum %**
Silt/Clay	silt/clay	0.061	5	4.7%	4.7%	12	2	25.5%	25.5%	3	9	12.0%	12.0%	10	9.4%	9.4%	4	6	20.0%	20.0%
Sand	very fine sand	0.062	0	0.0%	4.7%	7	6	23.6%	49.1%	8	7	15.0%	27.0%	10	9.4%	18.9%	3	2	10.0%	30.0%
	fine sand	0.125	0	0.0%	4.7%	3	1	7.3%	56.4%	8	4	12.0%	39.0%	22	20.8%	39.6%	8	2	20.0%	50.0%
	medium sand	0.25	0	0.0%	4.7%	1	0	1.8%	58.2%	20	0	20.0%	59.0%	7	6.6%	46.2%	4	0	8.0%	58.0%
	course sand	0.50	0	0.0%	4.7%	4	1	9.1%	67.3%	10	0	10.0%	69.0%	2	1.9%	48.1%	4	0	8.0%	66.0%
	very course sand	1.0	0	0.0%	4.7%	3	0	5.5%	72.7%	2	0	2.0%	71.0%	3	2.8%	50.9%	4	0	8.0%	74.0%
Gravel	very fine gravel	2.0	7	6.6%	11.3%	2	0	3.6%	76.4%	3	0	3.0%	74.0%	1	0.9%	51.9%	1	0	2.0%	76.0%
	fine gravel	4.0	9	8.5%	19.8%	0	0	0.0%	76.4%	2	0	2.0%	76.0%	0	0.0%	51.9%	1	0	2.0%	78.0%
	fine gravel	5.7	12	11.3%	31.1%	0	0	0.0%	76.4%	4	0	4.0%	80.0%	2	1.9%	53.8%	4	0	8.0%	86.0%
	medium gravel	8.0	12	11.3%	42.5%	1	0	1.8%	78.2%	0	0	0.0%	80.0%	2	1.9%	55.7%	3	0	6.0%	92.0%
	medium gravel	11.3	19	17.9%	60.4%	3	0	5.5%	83.6%	5	0	5.0%	85.0%	4	3.8%	59.4%	2	0	4.0%	96.0%
	course gravel	16.0	14	13.2%	73.6%	2	0	3.6%	87.3%	3	0	3.0%	88.0%	10	9.4%	68.9%	2	0	4.0%	100.0%
	course gravel	22.6	17	16.0%	89.6%	5	0	9.1%	96.4%	7	0	7.0%	95.0%	12	11.3%	80.2%	0	0	0.0%	100.0%
	very course gravel	32	6	5.7%	95.3%	2	0	3.6%	100.0%	1	0	1.0%	96.0%	4	3.8%	84.0%	0	0	0.0%	100.0%
	very course gravel	45	5	4.7%	100.0%	0	0	0.0%	100.0%	1	0	1.0%	97.0%	8	7.5%	91.5%	0	0	0.0%	100.0%
Cobble	small cobble	64	0	0.0%	100.0%	0	0	0.0%	100.0%	2	0	2.0%	99.0%	5	4.7%	96.2%	0	0	0.0%	100.0%
	medium cobble	90	0	0.0%	100.0%	0	0	0.0%	100.0%	1	0	1.0%	100.0%	2	1.9%	98.1%	0	0	0.0%	100.0%
	large cobble	128	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	1	0.9%	99.1%	0	0	0.0%	100.0%
	very large cobble	180	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	1	0.9%	100.0%	0	0	0.0%	100.0%
Boulder	small boulder	256	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	small boulder	362	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	medium boulder	512	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	large boulder	1024	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	very large boulder	2049	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
Bedrock	bedrock	40096	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
TOTAL / %of whole count			106	100.0%		45	10	100%		80	20	100%		106	100.0%		40	10	100%	

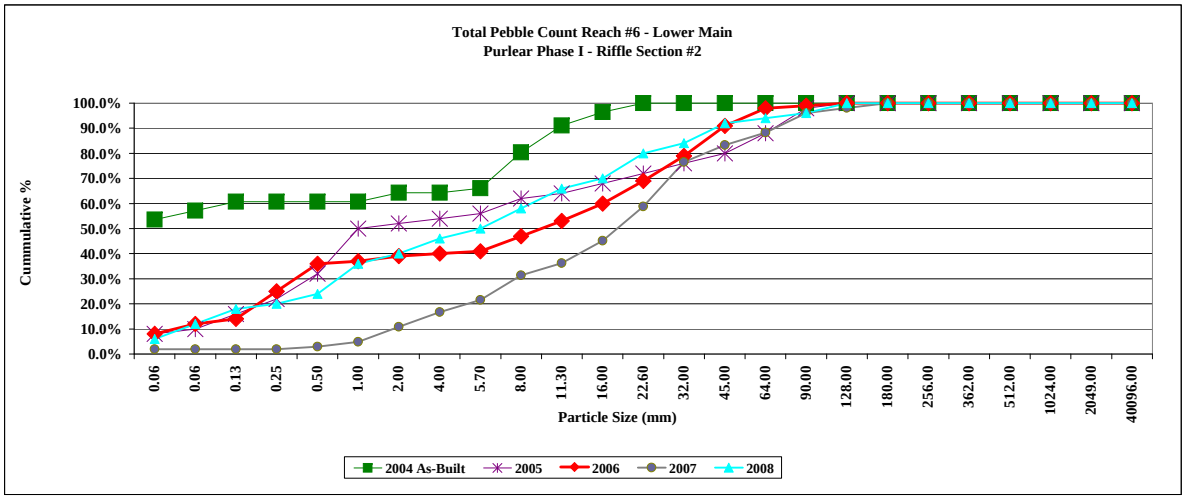
	d16	d35	d50	d84	d95
2004 As-Built	4.02	7.81	11.33	24.50	37.94
2005	0.00	0.07	0.11	14.22	26.10
2006	0.07	0.16	0.29	12.85	27.30
2007	0.06	0.11	0.86	32.00	63.19
2008	silt	0.12	0.19	6.35	12.65
2009					



Project Name	Purlear Phase I
Cross Section	2 - Reach #6 - Lower Main
Feature	Riffle
Date	10/7/2008
Crew	Price

		2004 As-Built				2005				2006				2007			2008			
Description	**Material**	**Size (mm)**	**Riffle - Bed**	**%**	**Cum %**	**Riffle - Bed**	**Riffle - Bank**	**%**	**Cum %**	**Riffle - Bed**	**Riffle - Bank**	**%**	**Cum %**	**Riffle - Bed**	**%**	**Cum %**	**Riffle - Bed**	**Riffle - Bank**	**%**	**Cum %**
Silt/Clay	silt/clay	0.061	30	53.6%	53.6%	2	2	8.0%	8.0%	8	0	8.0%	8.0%	2	2.0%	2.0%	0	3	6.0%	6.0%
Sand	very fine sand	0.062	2	3.6%	57.1%	0	1	2.0%	10.0%	4	0	4.0%	12.0%	0	0.0%	2.0%	3	0	6.0%	12.0%
	fine sand	0.125	2	3.6%	60.7%	3	0	6.0%	16.0%	2	0	2.0%	14.0%	0	0.0%	2.0%	3	0	6.0%	18.0%
	medium sand	0.25	0	0.0%	60.7%	2	1	6.0%	22.0%	11	0	11.0%	25.0%	0	0.0%	2.0%	0	1	2.0%	20.0%
	course sand	0.50	0	0.0%	60.7%	4	1	10.0%	32.0%	11	0	11.0%	36.0%	1	1.0%	2.9%	0	2	4.0%	24.0%
	very course sand	1.0	0	0.0%	60.7%	7	2	18.0%	50.0%	1	0	1.0%	37.0%	2	2.0%	4.9%	4	2	12.0%	36.0%
G r a v e l	very fine gravel	2.0	2	3.6%	64.3%	1	0	2.0%	52.0%	0	2	2.0%	39.0%	6	5.9%	10.8%	2	0	4.0%	40.0%
	fine gravel	4.0	0	0.0%	64.3%	1	0	2.0%	54.0%	1	0	1.0%	40.0%	6	5.9%	16.7%	2	1	6.0%	46.0%
	fine gravel	5.7	1	1.8%	66.1%	1	0	2.0%	56.0%	0	1	1.0%	41.0%	5	4.9%	21.6%	2	0	4.0%	50.0%
	medium gravel	8.0	8	14.3%	80.4%	1	2	6.0%	62.0%	2	4	6.0%	47.0%	10	9.8%	31.4%	4	0	8.0%	58.0%
	medium gravel	11.3	6	10.7%	91.1%	1	0	2.0%	64.0%	3	3	6.0%	53.0%	5	4.9%	36.3%	4	0	8.0%	66.0%
	course gravel	16.0	3	5.4%	96.4%	1	1	4.0%	68.0%	2	5	7.0%	60.0%	9	8.8%	45.1%	2	0	4.0%	70.0%
	course gravel	22.6	2	3.6%	100.0%	2	0	4.0%	72.0%	0	9	9.0%	69.0%	14	13.7%	58.8%	4	1	10.0%	80.0%
	very course gravel	32	0	0.0%	100.0%	2	0	4.0%	76.0%	0	10	10.0%	79.0%	18	17.6%	76.5%	2	0	4.0%	84.0%
	very course gravel	45	0	0.0%	100.0%	2	0	4.0%	80.0%	0	12	12.0%	91.0%	7	6.9%	83.3%	4	0	8.0%	92.0%
Cobble	small cobble	64	0	0.0%	100.0%	4	0	8.0%	88.0%	0	7	7.0%	98.0%	5	4.9%	88.2%	1	0	2.0%	94.0%
	medium cobble	90	0	0.0%	100.0%	5	0	10.0%	98.0%	0	1	1.0%	99.0%	8	7.8%	96.1%	1	0	2.0%	96.0%
	large cobble	128	0	0.0%	100.0%	1	0	2.0%	100.0%	0	1	1.0%	100.0%	2	2.0%	98.0%	2	0	4.0%	100.0%
	very large cobble	180	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	2	2.0%	100.0%	0	0	0.0%	100.0%
Boulder	small boulder	256	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	small boulder	362	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	medium boulder	512	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	large boulder	1024	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	very large boulder	2049	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
Bedrock	bedrock	40096	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
TOTAL / %of whole count			56	100.0%		40	10	100%		45	55	100%		102	100.0%		40	10	100%	

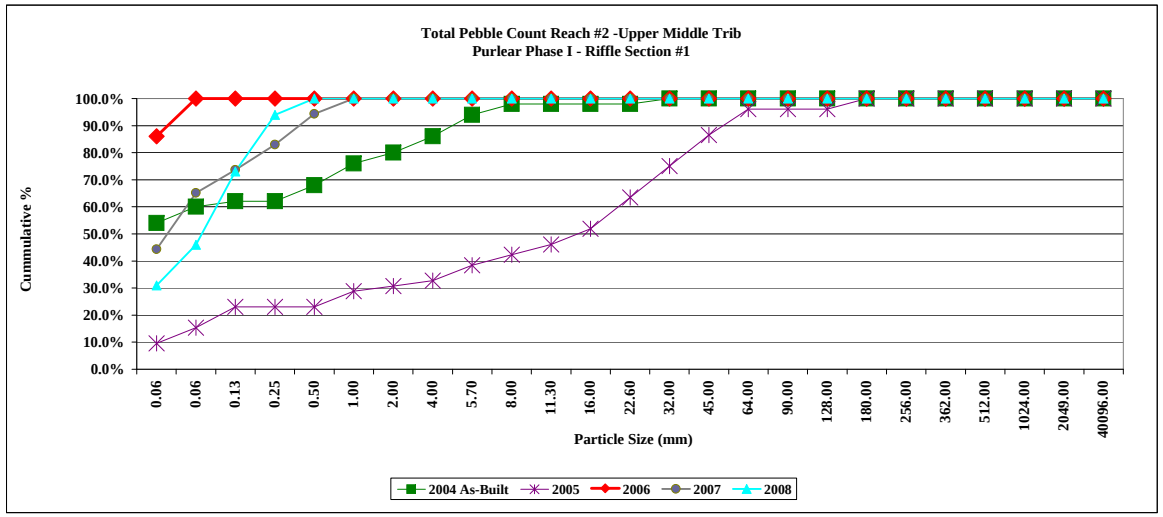
	d16	d35	d50	d84	d95
2004 As-Built	0.00	0.00	0.00	11.01	17.79
2005	0.19	0.88	1.50	65.75	99.40
2006	0.22	0.72	11.65	45.17	67.36
2007	4.10	10.42	18.36	47.71	86.38
2008	0.16	1.44	6.85	38.50	93.00
2009					



Project Name	Purlear Phase I
Cross Section	1 - Reach #2 - Upper Middle Trib
Feature	Riffle
Date	7/23/2008
Crew	C. George, M. Hancock

		2004 As-Built				2005				2006				2007			2008			
Description	**Material**	**Size (mm)**	**Riffle**	**%**	**Cum %**	**Riffle**	**Riffle - Bank**	**%**	**Cum %**	**Riffle**	**Riffle - Bank**	**%**	**Cum %**	**Riffle**	**%**	**Cum %**	**Riffle**	**Riffle - Bank**	**%**	**Cum %**
Silt/Clay	silt/clay	0.061	27	54.0%	54.0%	1	4	9.6%	9.6%	33	10	86.0%	86.0%	47	44.3%	44.3%	20	11	31.0%	31.0%
Sand	very fine sand	0.062	3	6.0%	60.0%	0	3	5.8%	15.4%	7	0	14.0%	100.0%	22	20.8%	65.1%	15	0	15.0%	46.0%
	fine sand	0.125	1	2.0%	62.0%	1	3	7.7%	23.1%	0	0	0.0%	100.0%	9	8.5%	73.6%	18	9	27.0%	73.0%
	medium sand	0.25	0	0.0%	62.0%	0	0	0.0%	23.1%	0	0	0.0%	100.0%	10	9.4%	83.0%	7	14	21.0%	94.0%
	course sand	0.50	3	6.0%	68.0%	0	0	0.0%	23.1%	0	0	0.0%	100.0%	12	11.3%	94.3%	0	6	6.0%	100.0%
	very course sand	1.0	4	8.0%	76.0%	3	0	5.8%	28.8%	0	0	0.0%	100.0%	6	5.7%	100.0%	0	0	0.0%	100.0%
G r a v e l	very fine gravel	2.0	2	4.0%	80.0%	1	0	1.9%	30.8%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	fine gravel	4.0	3	6.0%	86.0%	1	0	1.9%	32.7%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	fine gravel	5.7	4	8.0%	94.0%	3	0	5.8%	38.5%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	medium gravel	8.0	2	4.0%	98.0%	2	0	3.8%	42.3%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	medium gravel	11.3	0	0.0%	98.0%	2	0	3.8%	46.2%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	course gravel	16.0	0	0.0%	98.0%	3	0	5.8%	51.9%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	course gravel	22.6	0	0.0%	98.0%	6	0	11.5%	63.5%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	very course gravel	32	1	2.0%	100.0%	6	0	11.5%	75.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	very course gravel	45	0	0.0%	100.0%	6	0	11.5%	86.5%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
Cobble	small cobble	64	0	0.0%	100.0%	5	0	9.6%	96.2%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	medium cobble	90	0	0.0%	100.0%	0	0	0.0%	96.2%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	large cobble	128	0	0.0%	100.0%	0	0	0.0%	96.2%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	very large cobble	180	0	0.0%	100.0%	2	0	3.8%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
Boulder	small boulder	256	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	small boulder	362	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	medium boulder	512	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	large boulder	1024	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	very large boulder	2049	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
Bedrock	bedrock	40096	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
TOTAL / %of whole count			50	100.0%		42	10	100%		40	10	100%		106	100.0%		60	40	100%	

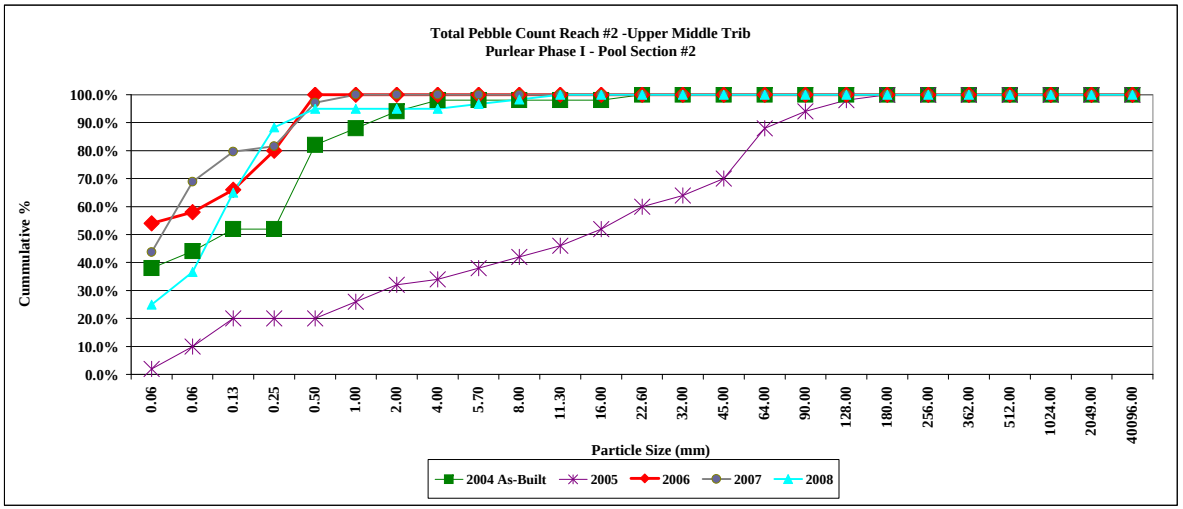
	d16	d35	d50	d84	d95
2004 As-Built	0.00	0.00	0.00	4.23	7.55
2005	0.10	5.65	17.42	50.98	74.30
2006	0.00	0.00	0.00	0.00	0.08
2007	0.00	0.00	0.06	0.27	0.56
2008	silt	0.07	0.11	0.29	0.44
2009					



Project Name	Purlear Phase I
Cross Section	2 - Reach #2 - Upper Middle Trib
Feature	Pool
Date	7/23/2008
Crew	C. George, M. Hancock

		2004 As-Built				2005				2006				2007			2008			
Description	**Material**	**Size (mm)**	**Pool**	**%**	**Cum %**	**Pool**	**Pool - Bank**	**%**	**Cum %**	**Pool**	**Pool - Bank**	**%**	**Cum %**	**Pool**	**%**	**Cum %**	**Pool**	**Pool - Bank**	**%**	**Cum %**
Silt/Clay	silt/clay	0.061	19	38.0%	38.0%	0	1	2.0%	2.0%	19	8	54.0%	54.0%	45	43.7%	43.7%	5	10	25.0%	25.0%
Sand	very fine sand	0.062	3	6.0%	44.0%	0	4	8.0%	10.0%	0	2	4.0%	58.0%	26	25.2%	68.9%	7	0	11.7%	36.7%
	fine sand	0.125	4	8.0%	52.0%	0	5	10.0%	20.0%	4	0	8.0%	66.0%	11	10.7%	79.6%	7	10	28.3%	65.0%
	medium sand	0.25	0	0.0%	52.0%	0	0	0.0%	20.0%	7	0	14.0%	80.0%	2	1.9%	81.6%	14	0	23.3%	88.3%
	course sand	0.50	15	30.0%	82.0%	0	0	0.0%	20.0%	10	0	20.0%	100.0%	16	15.5%	97.1%	4	0	6.7%	95.0%
	very course sand	1.0	3	6.0%	88.0%	3	0	6.0%	26.0%	0	0	0.0%	100.0%	3	2.9%	100.0%	0	0	0.0%	95.0%
Gravel	very fine gravel	2.0	3	6.0%	94.0%	3	0	6.0%	32.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	95.0%
	fine gravel	4.0	2	4.0%	98.0%	1	0	2.0%	34.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	95.0%
	fine gravel	5.7	0	0.0%	98.0%	2	0	4.0%	38.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	1	0	1.7%	96.7%
	medium gravel	8.0	0	0.0%	98.0%	2	0	4.0%	42.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	1	0	1.7%	98.3%
	medium gravel	11.3	0	0.0%	98.0%	2	0	4.0%	46.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	1	0	1.7%	100.0%
	course gravel	16.0	0	0.0%	98.0%	3	0	6.0%	52.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	course gravel	22.6	1	2.0%	100.0%	4	0	8.0%	60.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	very course gravel	32	0	0.0%	100.0%	2	0	4.0%	64.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	very course gravel	45	0	0.0%	100.0%	3	0	6.0%	70.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
Cobble	small cobble	64	0	0.0%	100.0%	9	0	18.0%	88.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	medium cobble	90	0	0.0%	100.0%	3	0	6.0%	94.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	large cobble	128	0	0.0%	100.0%	2	0	4.0%	98.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	very large cobble	180	0	0.0%	100.0%	1	0	2.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
Boulder	small boulder	256	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	small boulder	362	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	medium boulder	512	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	large boulder	1024	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	very large boulder	2049	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
Bedrock	bedrock	40096	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
TOTAL / %of whole count			50	100.0%		40	10	100%		40	10	100%		103	100.0%		40	20	100%	

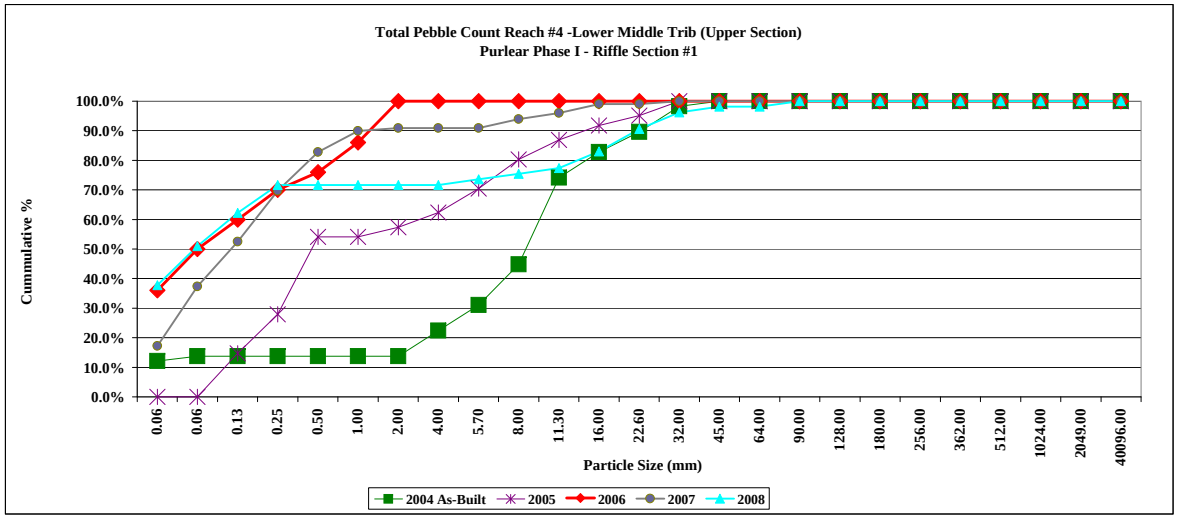
	d16	d35	d50	d84	d95
2004 As-Built	0.00	0.00	0.16	1.00	3.46
2005	0.15	5.35	17.42	72.00	120.25
2006	0.00	0.00	0.00	0.45	0.66
2007	0.00	0.00	0.06	0.30	0.47
2008	silt	0.09	0.14	0.34	10.10
2009					



Project Name	Purlear Phase I
Cross Section	1 - Reach #4- Lower Middle Trib (Upper section)
Feature	Riffle
Date	10/7/2008
Crew	Price

		2004 As-Built				2005				2006				2007			2008			
Description	**Material**	**Size (mm)**	**Riffle - Bed**	**%**	**Cum %**	**Riffle - Bed**	**Riffle - Bank**	**%**	**Cum %**	**Riffle - Bed**	**Riffle - Bank**	**%**	**Cum %**	**Riffle - Bed**	**%**	**Cum %**	**Riffle - Bed**	**Riffle - Bank**	**%**	**Cum %**
Silt/Clay	silt/clay	0.061	7	12.1%	12.1%	0	0	0.0%	0.0%	12	6	36.0%	36.0%	17	17.2%	17.2%	13	7	37.7%	37.7%
Sand	very fine sand	0.062	1	1.7%	13.8%	0	0	0.0%	0.0%	4	3	14.0%	50.0%	20	20.2%	37.4%	4	3	13.2%	50.9%
	fine sand	0.125	0	0.0%	13.8%	7	2	14.8%	14.8%	4	1	10.0%	60.0%	15	15.2%	52.5%	6	0	11.3%	62.3%
	medium sand	0.25	0	0.0%	13.8%	0	8	13.1%	27.9%	5	0	10.0%	70.0%	17	17.2%	69.7%	5	0	9.4%	71.7%
	course sand	0.50	0	0.0%	13.8%	16	0	26.2%	54.1%	3	0	6.0%	76.0%	13	13.1%	82.8%	0	0	0.0%	71.7%
	very course sand	1.0	0	0.0%	13.8%	0	0	0.0%	54.1%	5	0	10.0%	86.0%	7	7.1%	89.9%	0	0	0.0%	71.7%
G r a v e l	very fine gravel	2.0	0	0.0%	13.8%	2	0	3.3%	57.4%	7	0	14.0%	100.0%	1	1.0%	90.9%	0	0	0.0%	71.7%
	fine gravel	4.0	5	8.6%	22.4%	3	0	4.9%	62.3%	0	0	0.0%	100.0%	0	0.0%	90.9%	0	0	0.0%	71.7%
	fine gravel	5.7	5	8.6%	31.0%	5	0	8.2%	70.5%	0	0	0.0%	100.0%	0	0.0%	90.9%	1	0	1.9%	73.6%
	medium gravel	8.0	8	13.8%	44.8%	6	0	9.8%	80.3%	0	0	0.0%	100.0%	3	3.0%	93.9%	1	0	1.9%	75.5%
	medium gravel	11.3	17	29.3%	74.1%	4	0	6.6%	86.9%	0	0	0.0%	100.0%	2	2.0%	96.0%	1	0	1.9%	77.4%
	course gravel	16.0	5	8.6%	82.8%	3	0	4.9%	91.8%	0	0	0.0%	100.0%	3	3.0%	99.0%	3	0	5.7%	83.0%
	course gravel	22.6	4	6.9%	89.7%	2	0	3.3%	95.1%	0	0	0.0%	100.0%	0	0.0%	99.0%	4	0	7.5%	90.6%
	very course gravel	32	5	8.6%	98.3%	3	0	4.9%	100.0%	0	0	0.0%	100.0%	1	1.0%	100.0%	3	0	5.7%	96.2%
	very course gravel	45	1	1.7%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	1	0	1.9%	98.1%
Cobble	small cobble	64	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	98.1%
	medium cobble	90	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	1	0	1.9%	100.0%
	large cobble	128	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	very large cobble	180	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
Boulder	small boulder	256	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	small boulder	362	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	medium boulder	512	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	large boulder	1024	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	very large boulder	2049	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
Bedrock	bedrock	40096	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
TOTAL / %of whole count			58	100.0%		51	10	100%		40	10	100%		99	100.0%		43	10	100%	

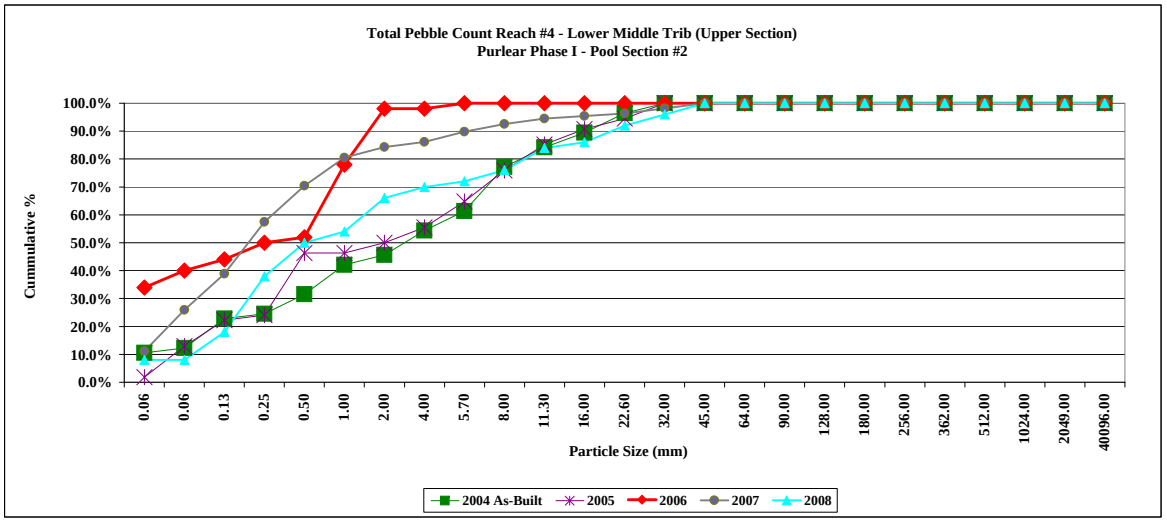
	d16	d35	d50	d84	d95
2004 As-Built	3.47	7.66	10.36	20.74	34.24
2005	0.21	0.48	0.69	11.89	27.10
2006	0.00	0.00	0.09	1.35	2.46
2007	0.00	0.06	0.11	0.73	9.73
2008	silt	silt	0.09	20.34	36.07
2009					



Project Name	Purlear Phase I
Cross Section	2 -Reach #4 - Lower Middle Trib (Upper Section)
Feature	Pool
Date	10/7/2008
Crew	Price

		2004 As-Built				2005				2006				2007			2008			
Description	**Material**	**Size (mm)**	**Riffle - Bed**	**%**	**Cum %**	**Riffle - Bed**	**Riffle - Bank**	**%**	**Cum %**	**Riffle - Bed**	**Riffle - Bank**	**%**	**Cum %**	**Pool-Bed**	**%**	**Cum %**	**Riffle - Bed**	**Riffle - Bank**	**%**	**Cum %**
Silt/Clay	silt/clay	0.061	6	10.5%	10.5%	0	1	1.9%	1.9%	9	8	34.0%	34.0%	12	11.1%	11.1%	0	4	8.0%	8.0%
Sand	very fine sand	0.062	1	1.8%	12.3%	2	4	11.1%	13.0%	1	2	6.0%	40.0%	16	14.8%	25.9%	0	0	0.0%	8.0%
	fine sand	0.125	6	10.5%	22.8%	5	0	9.3%	22.2%	2	0	4.0%	44.0%	14	13.0%	38.9%	2	3	10.0%	18.0%
	medium sand	0.25	1	1.8%	24.6%	0	1	1.9%	24.1%	3	0	6.0%	50.0%	20	18.5%	57.4%	8	2	20.0%	38.0%
	course sand	0.50	4	7.0%	31.6%	8	4	22.2%	46.3%	1	0	2.0%	52.0%	14	13.0%	70.4%	5	1	12.0%	50.0%
	very course sand	1.0	6	10.5%	42.1%	0	0	0.0%	46.3%	13	0	26.0%	78.0%	11	10.2%	80.6%	2	0	4.0%	54.0%
G r a v e l	very fine gravel	2.0	2	3.5%	45.6%	2	0	3.7%	50.0%	10	0	20.0%	98.0%	4	3.7%	84.3%	6	0	12.0%	66.0%
	fine gravel	4.0	5	8.8%	54.4%	3	0	5.6%	55.6%	0	0	0.0%	98.0%	2	1.9%	86.1%	2	0	4.0%	70.0%
	fine gravel	5.7	4	7.0%	61.4%	5	0	9.3%	64.8%	1	0	2.0%	100.0%	4	3.7%	89.8%	1	0	2.0%	72.0%
	medium gravel	8.0	9	15.8%	77.2%	6	0	11.1%	75.9%	0	0	0.0%	100.0%	3	2.8%	92.6%	2	0	4.0%	76.0%
	medium gravel	11.3	4	7.0%	84.2%	4	1	9.3%	85.2%	0	0	0.0%	100.0%	2	1.9%	94.4%	4	0	8.0%	84.0%
	course gravel	16.0	3	5.3%	89.5%	3	0	5.6%	90.7%	0	0	0.0%	100.0%	1	0.9%	95.4%	1	0	2.0%	86.0%
	course gravel	22.6	4	7.0%	96.5%	2	0	3.7%	94.4%	0	0	0.0%	100.0%	1	0.9%	96.3%	3	0	6.0%	92.0%
	very course gravel	32	2	3.5%	100.0%	3	0	5.6%	100.0%	0	0	0.0%	100.0%	2	1.9%	98.1%	2	0	4.0%	96.0%
	very course gravel	45	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	2	1.9%	100.0%	2	0	4.0%	100.0%
Cobble	small cobble	64	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	medium cobble	90	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	large cobble	128	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	very large cobble	180	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
Boulder	small boulder	256	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	small boulder	362	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	medium boulder	512	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	large boulder	1024	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	very large boulder	2049	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
Bedrock	bedrock	40096	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
TOTAL / %of whole count			57	100.0%		43	11	100%		40	10	100%		108	100.0%		40	10	100%	

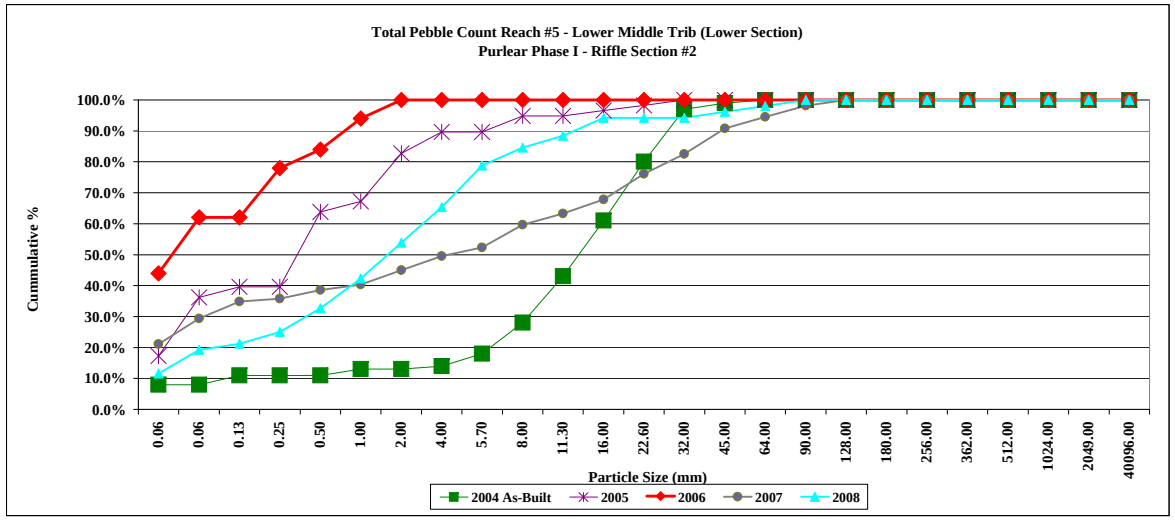
	d16	d35	d50	d84	d95
2004 As-Built	0.13	0.99	3.93	13.53	25.60
2005	0.12	0.56	3.00	13.14	28.42
2006	0.00	0.07	0.38	1.95	2.78
2007	0.06	0.11	0.20	1.92	14.12
2008	0.17	0.35	0.75	13.65	35.70
2009					



Project Name	Purlear Phase I
Cross Section	2 - Reach #5 - Lower Middle Trib (Lower Section)
Feature	Riffle
Date	10/7/2008
Crew	Price

		2004 As-Built				2005				2006				2007			2008			
Description	**Material**	**Size (mm)**	**Riffle - Bed**	**%**	**Cum %**	**Riffle - Bed**	**Riffle - Bank**	**%**	**Cum %**	**Riffle - Bed**	**Riffle - Bank**	**%**	**Cum %**	**Riffle - Bed**	**%**	**Cum %**	**Riffle - Bed**	**Riffle - Bank**	**%**	**Cum %**
Silt/Clay	silt/clay	0.061	8	8.0%	8.0%	7	3	17.2%	17.2%	16	6	44.0%	44.0%	23	21.1%	21.1%	0	6	11.5%	11.5%
Sand	very fine sand	0.062	0	0.0%	8.0%	4	7	19.0%	36.2%	7	2	18.0%	62.0%	9	8.3%	29.4%	1	3	7.7%	19.2%
	fine sand	0.125	3	3.0%	11.0%	1	1	3.4%	39.7%	0	0	0.0%	62.0%	6	5.5%	34.9%	0	1	1.9%	21.2%
	medium sand	0.25	0	0.0%	11.0%	0	0	0.0%	39.7%	8	0	16.0%	78.0%	1	0.9%	35.8%	2	0	3.8%	25.0%
	course sand	0.50	0	0.0%	11.0%	14	0	24.1%	63.8%	1	2	6.0%	84.0%	3	2.8%	38.5%	4	0	7.7%	32.7%
	very course sand	1.0	2	2.0%	13.0%	2	0	3.4%	67.2%	5	0	10.0%	94.0%	2	1.8%	40.4%	5	0	9.6%	42.3%
Gravel	very fine gravel	2.0	0	0.0%	13.0%	9	0	15.5%	82.8%	3	0	6.0%	100.0%	5	4.6%	45.0%	6	0	11.5%	53.8%
	fine gravel	4.0	1	1.0%	14.0%	4	0	6.9%	89.7%	0	0	0.0%	100.0%	5	4.6%	49.5%	6	0	11.5%	65.4%
	fine gravel	5.7	4	4.0%	18.0%	0	0	0.0%	89.7%	0	0	0.0%	100.0%	3	2.8%	52.3%	7	0	13.5%	78.8%
	medium gravel	8.0	10	10.0%	28.0%	3	0	5.2%	94.8%	0	0	0.0%	100.0%	8	7.3%	59.6%	3	0	5.8%	84.6%
	medium gravel	11.3	15	15.0%	43.0%	0	0	0.0%	94.8%	0	0	0.0%	100.0%	4	3.7%	63.3%	2	0	3.8%	88.5%
	course gravel	16.0	18	18.0%	61.0%	1	0	1.7%	96.6%	0	0	0.0%	100.0%	5	4.6%	67.9%	3	0	5.8%	94.2%
	course gravel	22.6	19	19.0%	80.0%	1	0	1.7%	98.3%	0	0	0.0%	100.0%	9	8.3%	76.1%	0	0	0.0%	94.2%
	very course gravel	32	17	17.0%	97.0%	1	0	1.7%	100.0%	0	0	0.0%	100.0%	7	6.4%	82.6%	0	0	0.0%	94.2%
	very course gravel	45	2	2.0%	99.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	9	8.3%	90.8%	1	0	1.9%	96.2%
Cobble	small cobble	64	1	1.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	4	3.7%	94.5%	1	0	1.9%	98.1%
	medium cobble	90	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	4	3.7%	98.2%	1	0	1.9%	100.0%
	large cobble	128	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	2	1.8%	100.0%	0	0	0.0%	100.0%
	very large cobble	180	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
Boulder	small boulder	256	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	small boulder	362	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	medium boulder	512	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	large boulder	1024	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	very large boulder	2049	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
Bedrock	bedrock	40096	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
TOTAL / %of whole count			100	100.0%		47	11	100%		40	10	100%		109	100.0%		42	10	100%	

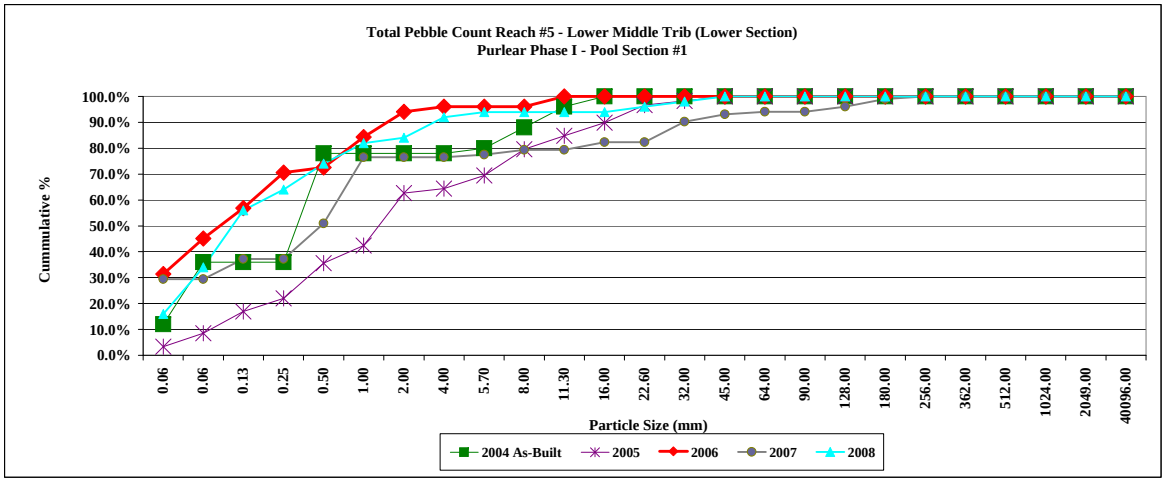
	d16	d35	d50	d84	d95
2004 As-Built	5.85	11.52	15.85	29.94	37.18
2005	0.00	0.09	0.54	3.33	14.22
2006	0.00	0.00	0.07	0.75	1.75
2007	0.00	0.13	4.30	34.22	67.51
2008	0.08	0.93	2.50	9.35	44.90
2009					

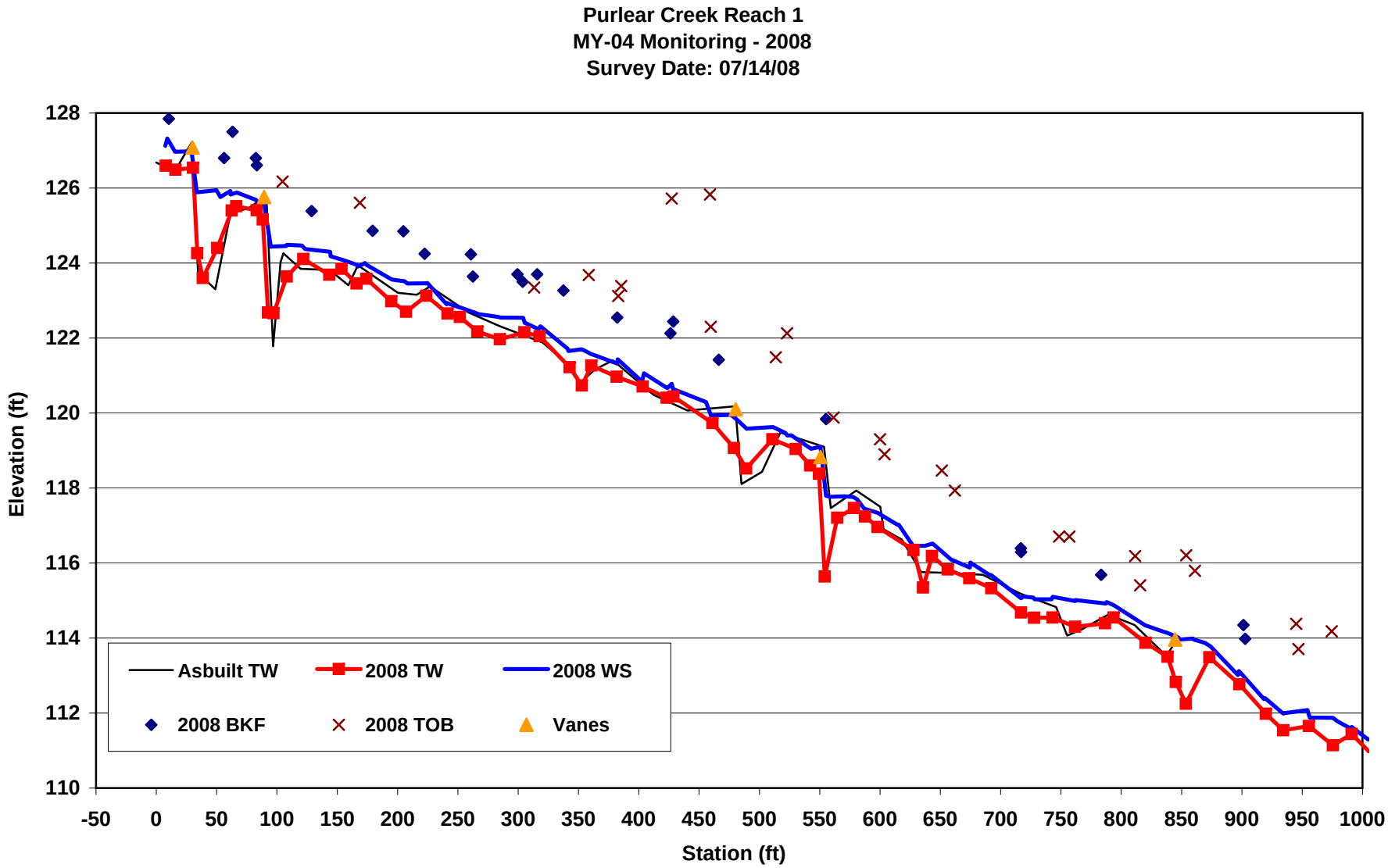


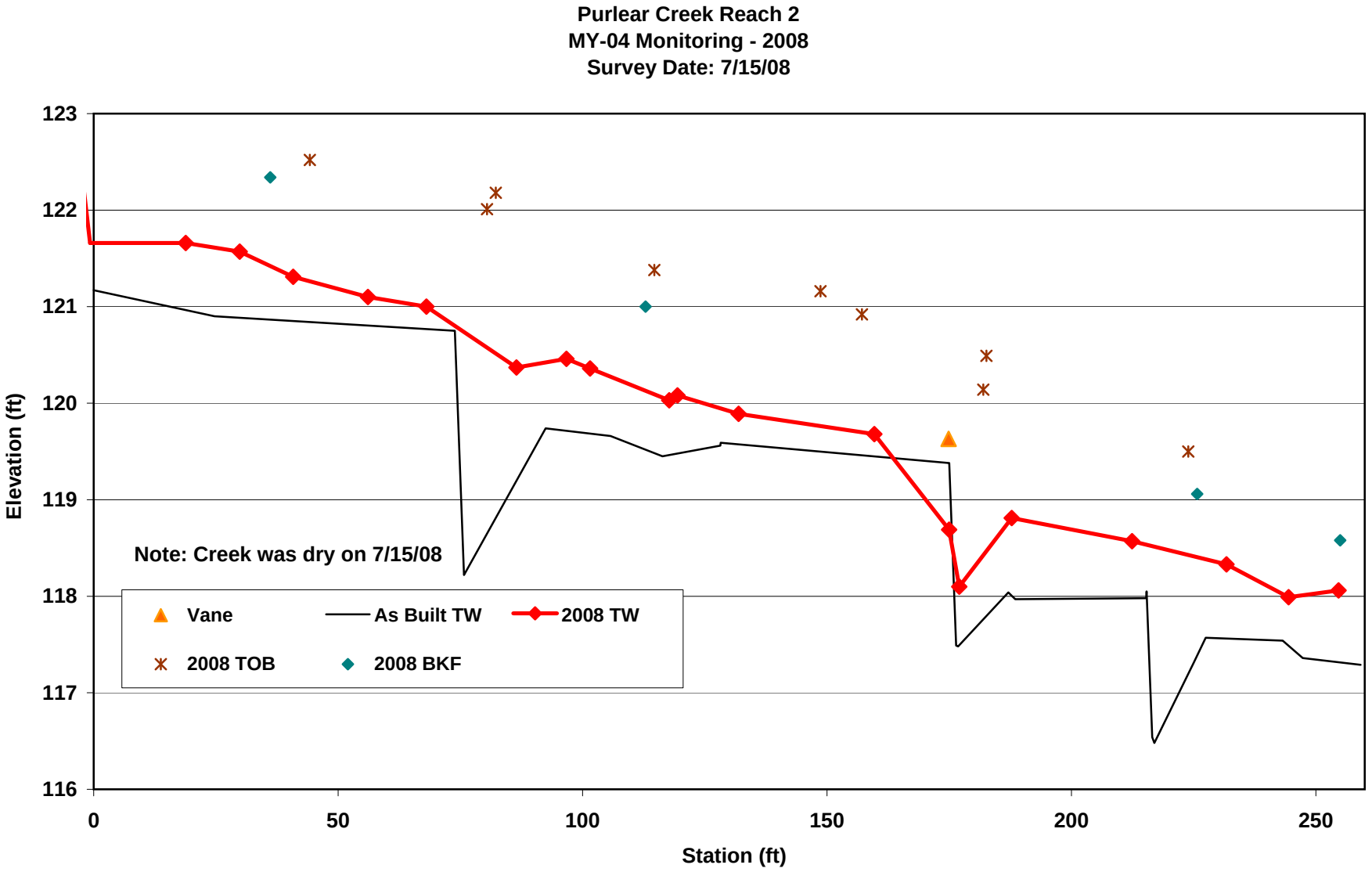
Project Name	Purlear Phase I
Cross Section	1 - Reach #5 - Lower Middle Trib (Lower Section)
Feature	Pool
Date	10/7/2008
Crew	Price

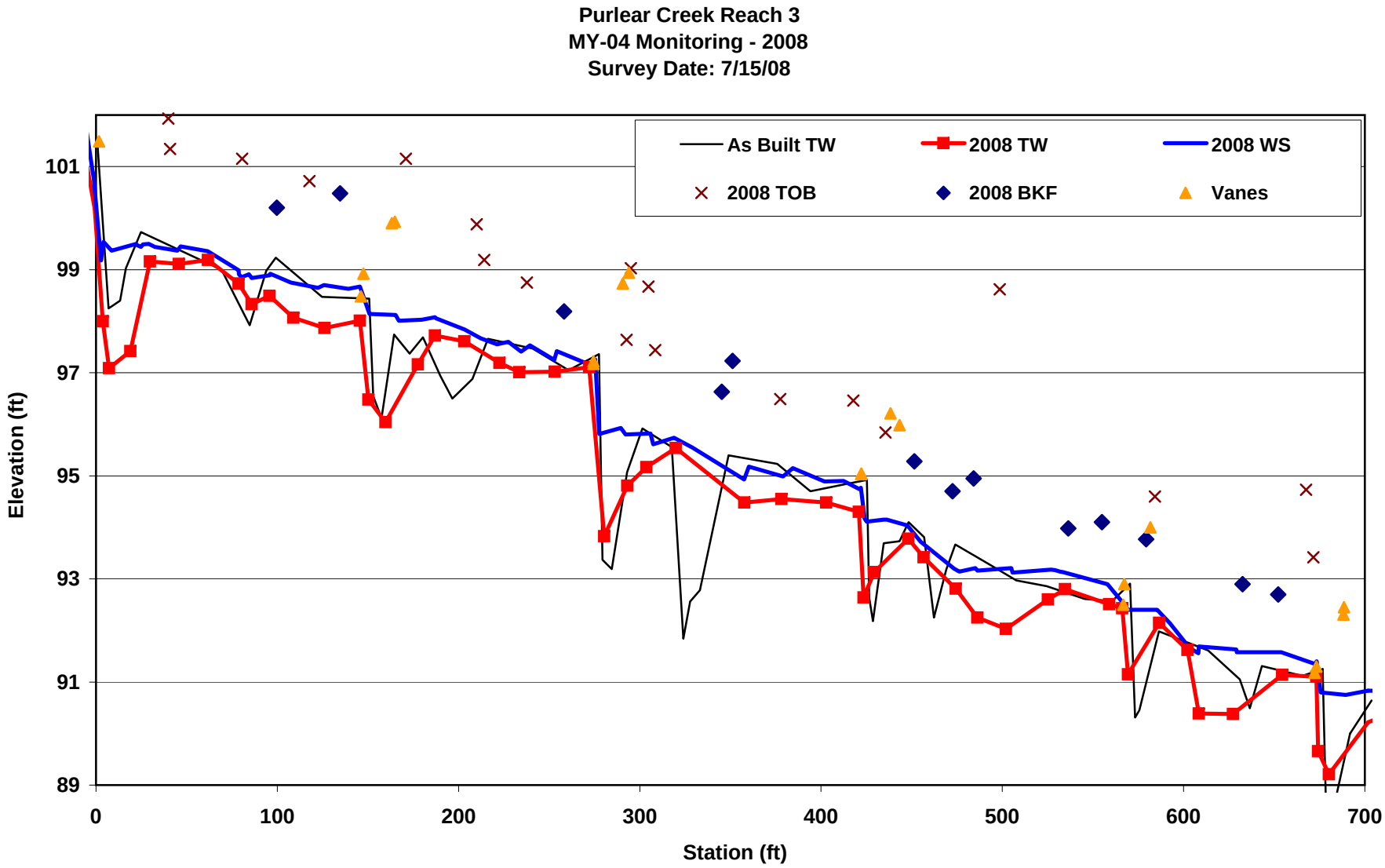
		2004 As-Built				2005				2006				2007			2008			
Description	**Material**	**Size (mm)**	**Pool - Bed**	**%**	**Cum %**	**Pool - Bed**	**Pool - Bank**	**%**	**Cum %**	**Pool - Bed**	**Pool - Bank**	**%**	**Cum %**	**Pool - Bed**	**%**	**Cum %**	**Pool - Bed**	**Pool - Bank**	**%**	**Cum %**
Silt/Clay	silt/clay	0.061	6	12.0%	12.0%	0	2	3.4%	3.4%	11	5	31.4%	31.4%	30	29.4%	29.4%	2	6	16.0%	16.0%
Sand	very fine sand	0.062	12	24.0%	36.0%	0	3	5.1%	8.5%	6	1	13.7%	45.1%	0	0.0%	29.4%	6	3	18.0%	34.0%
	fine sand	0.125	0	0.0%	36.0%	0	5	8.5%	16.9%	5	1	11.8%	56.9%	8	7.8%	37.3%	10	1	22.0%	56.0%
	medium sand	0.25	0	0.0%	36.0%	1	2	5.1%	22.0%	5	2	13.7%	70.6%	0	0.0%	37.3%	4	0	8.0%	64.0%
	course sand	0.50	21	42.0%	78.0%	8	0	13.6%	35.6%	1	0	2.0%	72.5%	14	13.7%	51.0%	5	0	10.0%	74.0%
	very course sand	1.0	0	0.0%	78.0%	4	0	6.8%	42.4%	6	0	11.8%	84.3%	26	25.5%	76.5%	4	0	8.0%	82.0%
Gravel	very fine gravel	2.0	0	0.0%	78.0%	12	0	20.3%	62.7%	5	0	9.8%	94.1%	0	0.0%	76.5%	1	0	2.0%	84.0%
	fine gravel	4.0	0	0.0%	78.0%	1	0	1.7%	64.4%	1	0	2.0%	96.1%	0	0.0%	76.5%	4	0	8.0%	92.0%
	fine gravel	5.7	1	2.0%	80.0%	3	0	5.1%	69.5%	0	0	0.0%	96.1%	1	1.0%	77.5%	1	0	2.0%	94.0%
	medium gravel	8.0	4	8.0%	88.0%	6	0	10.2%	79.7%	0	0	0.0%	96.1%	2	2.0%	79.4%	0	0	0.0%	94.0%
	medium gravel	11.3	4	8.0%	96.0%	3	0	5.1%	84.7%	1	1	3.9%	100.0%	0	0.0%	79.4%	0	0	0.0%	94.0%
	course gravel	16.0	2	4.0%	100.0%	3	0	5.1%	89.8%	0	0	0.0%	100.0%	3	2.9%	82.4%	0	0	0.0%	94.0%
	course gravel	22.6	0	0.0%	100.0%	4	0	6.8%	96.6%	0	0	0.0%	100.0%	0	0.0%	82.4%	1	0	2.0%	96.0%
	very course gravel	32	0	0.0%	100.0%	1	0	1.7%	98.3%	0	0	0.0%	100.0%	8	7.8%	90.2%	1	0	2.0%	98.0%
	very course gravel	45	0	0.0%	100.0%	1	0	1.7%	100.0%	0	0	0.0%	100.0%	3	2.9%	93.1%	1	0	2.0%	100.0%
Cobble	small cobble	64	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	1	1.0%	94.1%	0	0	0.0%	100.0%
	medium cobble	90	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	94.1%	0	0	0.0%	100.0%
	large cobble	128	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	2	2.0%	96.1%	0	0	0.0%	100.0%
	very large cobble	180	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	3	2.9%	99.0%	0	0	0.0%	100.0%
Boulder	small boulder	256	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	1	1.0%	100.0%	0	0	0.0%	100.0%
	small boulder	362	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	medium boulder	512	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	large boulder	1024	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
	very large boulder	2049	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
Bedrock	bedrock	40096	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0	0.0%	100.0%	0	0.0%	100.0%	0	0	0.0%	100.0%
TOTAL / %of whole count			50	100.0%		47	12	100%		41	10	100%		102	100.0%		40	10	100%	

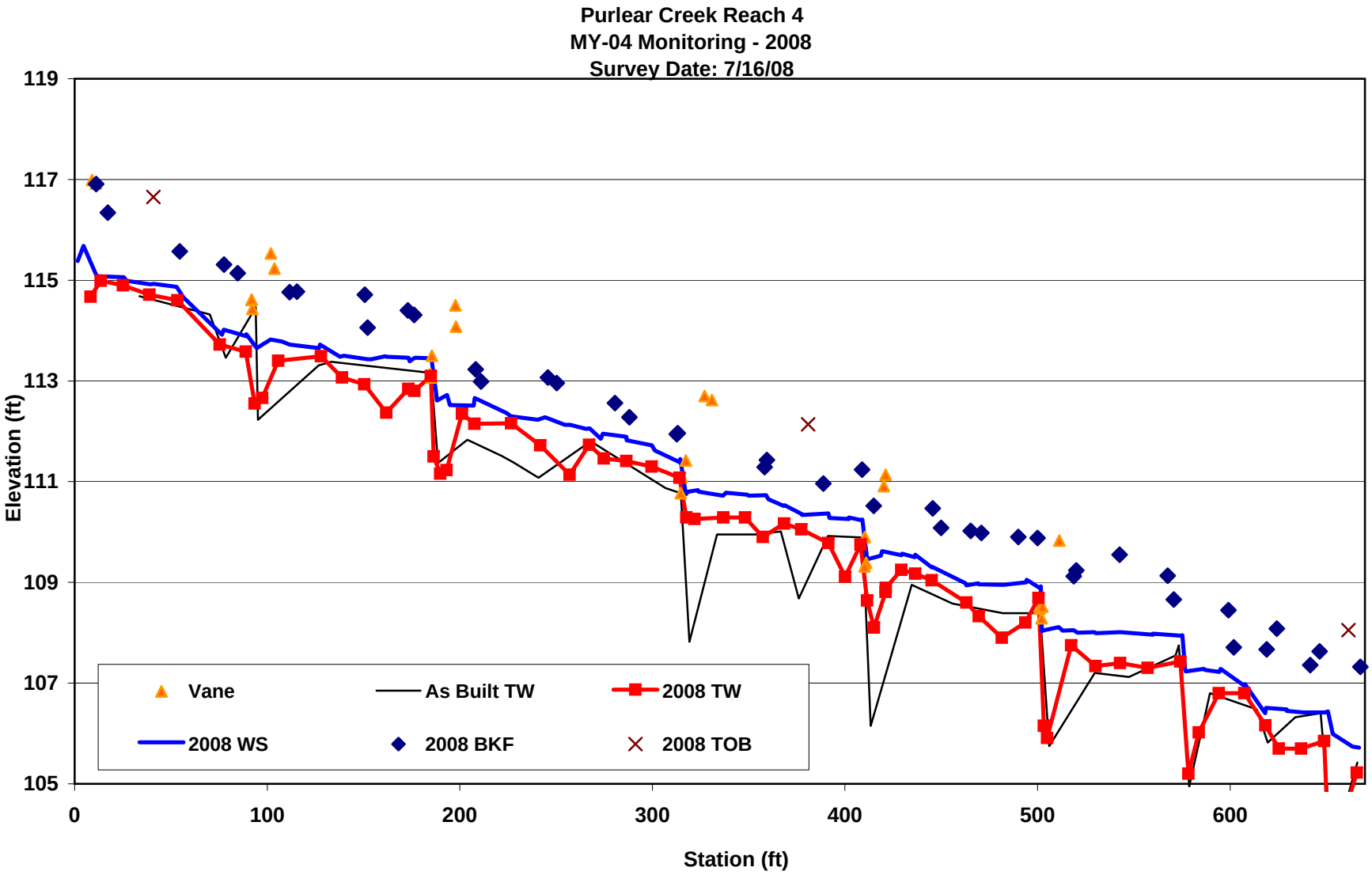
	d16	d35	d50	d84	d95
2004 As-Built	0.07	0.09	0.50	8.25	13.15
2005	0.18	0.73	2.06	13.06	25.40
2006	0.00	0.07	0.13	1.48	3.83
2007	0.00	0.11	0.48	19.28	92.80
2008	0.06	0.10	0.16	3.00	23.30
2009					



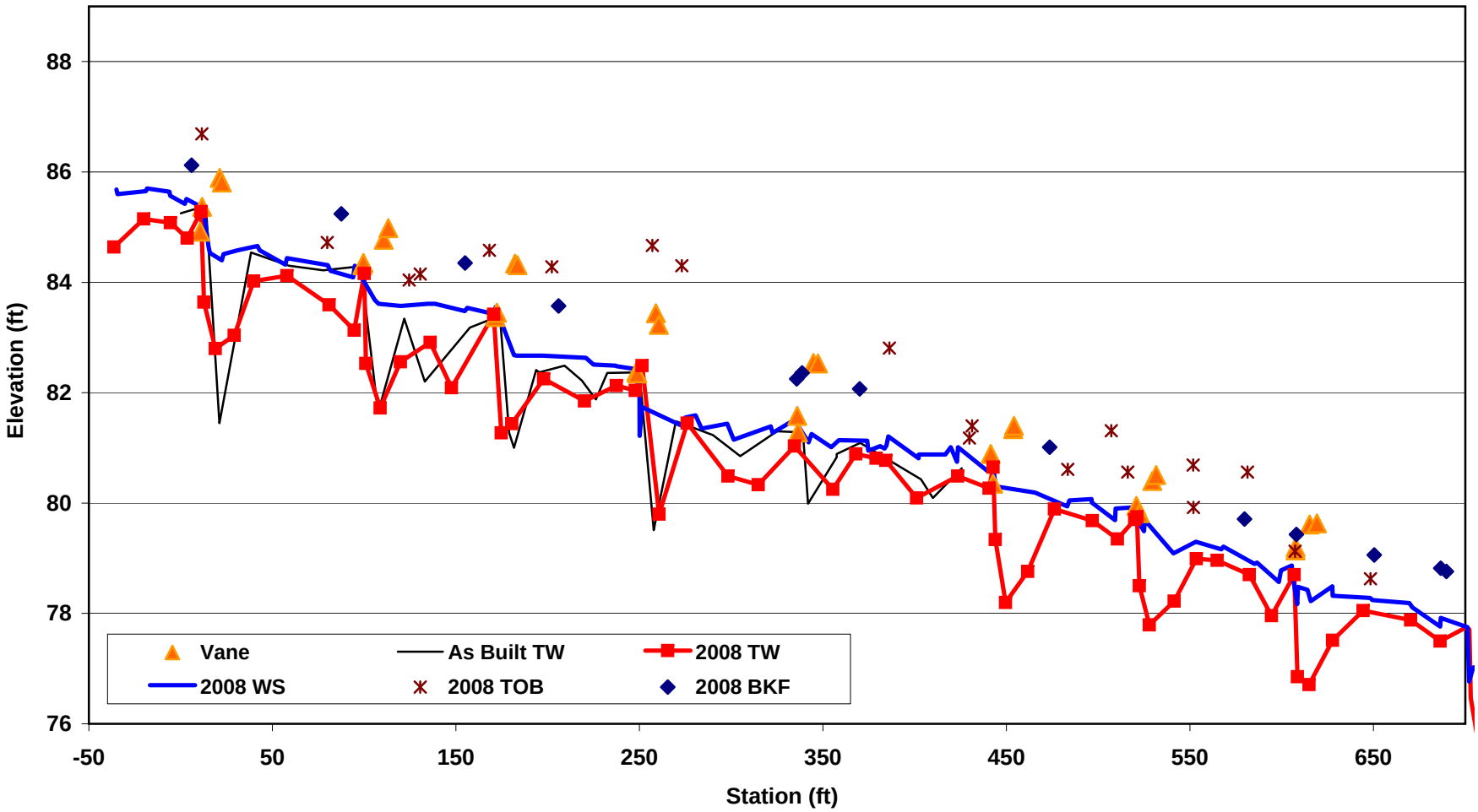

Purlear Creek Reach 1
MY-04 Monitoring - 2008
Survey Date: 07/14/08
Elevation (ft)
Station (ft)
128
126
124
122
120
118
116
114
112
110
-50
0
50
100
150
200
250
300
350
400
450
500
550
600
650
700
750
800
850
900
950
1000
Asbuilt TW
2008 TW
2008 WS
2008 BKF
2008 TOB
Vanes

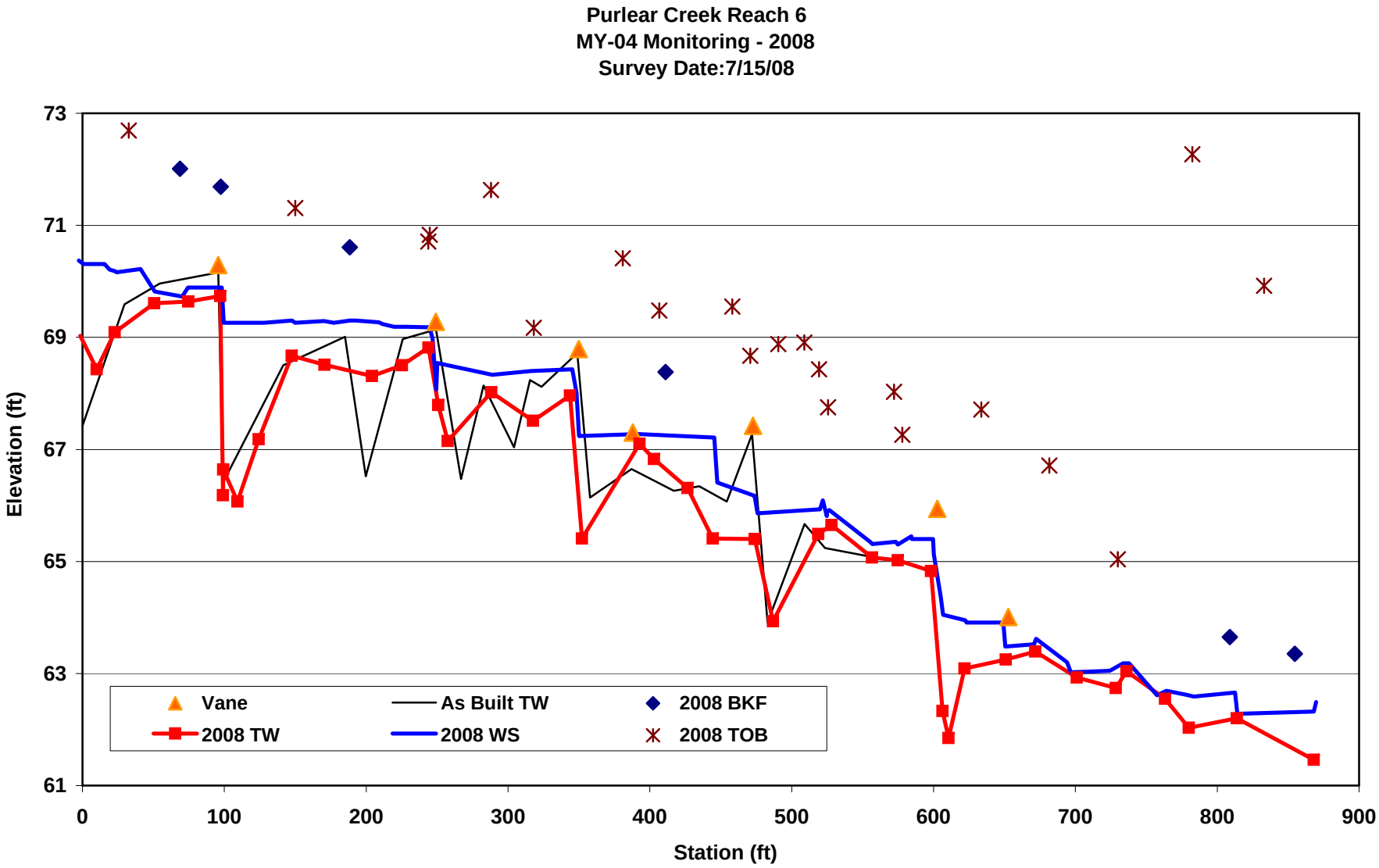

Purlear Creek Reach 2
MY-04 Monitoring - 2008
Survey Date: 7/15/08
Elevation (ft)
123
122
121
120
119
118
117
116
0
50
100
150
200
250
Station (ft)
Note: Creek was dry on 7/15/08
Vane
As Built TW
2008 TW
2008 TOB
2008 BKF


Purlear Creek Reach 3
MY-04 Monitoring - 2008
Survey Date: 7/15/08
As Built TW
2008 TW
2008 WS
2008 TOB
2008 BKF
Vanes
Elevation (ft)
101
99
97
95
93
91
89
0
100
200
300
400
500
600
700
Station (ft)


Purlear Creek Reach 4
MY-04 Monitoring - 2008
Survey Date: 7/16/08
Elevation (ft)
119
117
115
113
111
109
107
105
0
100
200
300
400
500
600
Station (ft)
Vane
As Built TW
2008 TW
2008 WS
2008 BKF
2008 TOB

Purlear Creek Reach 5
MY-04 Monitoring - 2008
Survey Date: 7/14/08




Purlear Creek Reach 6
MY-04 Monitoring - 2008
Survey Date:7/15/08
Elevation (ft)
73
71
69
67
65
63
61
0
100
200
300
400
500
600
700
800
900
Station (ft)
Vane
As Built TW
2008 BKF
2008 TW
2008 WS
2008 TOB

Project Name	Purlear Creek
Task	Feature Slope and Length Calculations
Date	7/25/08
Crew	Z Price, C George

Area 1 - 2008

Riffle Station	Change	Water Elev	change	slope
66.66		125.88		
83.65	16.99	125.63	0.25	1.47%
174.06		123.95		
194.81	20.75	123.57	0.38	1.83%
223.58		123.46		
251.55	27.97	122.81	0.65	2.32%
316.71		122.24		
341.61	24.9	121.65	0.59	2.37%
360.72		121.57		
402.71	41.99	120.84	0.73	1.74%
427.38		120.78		
459.78	32.4	119.93	0.85	2.62%
577.8		117.76		
627.39	49.59	116.46	1.3	2.62%
643.61		116.52		
674.53	30.92	115.88	0.64	2.07%
793.84		114.87		
819.74	25.9	114.34	0.53	2.05%
873.98		113.78		
919.15	45.17	112.4	1.38	3.06%
991.15		111.63		
1004.77	13.62	111.29	0.34	2.50%
511.38		119.63		
542.73	31.35	119.05	0.58	1.85%
	361.55			
	12			

Pool Station	length	p-p spacing
35		
82	47	
95		
121	26	49.5
148		
170	22	51
194		
223	29	49.5
266		
306	40	77.5
346		
359	13	66.5
460		
481	21	118
487		
510	23	28
563		
578	15	72
625		
642	17	63
748		
792	44	136.5
830		
866	36	78
949		
972	23	112.5
	356	
	13	

	min	max	median
Riffle Length	17.0	49.6	29.4
Riffle Slope	1.47%	3.06%	2.20%
Pool Length	13.0	47.0	23.0
Pool Spacing	28	137	69

Area 2 - 2008

Riffle Station	Change	Water Elev	change	slope
N/A				
Channel Dry during survey				
	0			
	0			

Pool Station	length	p-p spacing
N/A		
Channel Dry during survey		

	min	max	median
Riffle Length	N/A	N/A	N/A
Riffle Slope	N/A	N/A	N/A
Pool Length	N/A	N/A	N/A
Pool Spacing	N/A	N/A	N/A

Area 3 - 2008

Riffle Station	Change	Water Elev	change	slope
44.84		99.37		
78.81	33.97	98.91	0.46	1.35%
187		98.06		
221	34	97.55	0.51	1.49%
319		95.74		
358	38.67	94.93	0.81	2.09%
448		94.04		
476	28.71	93.14	0.900	3.13%
531.88		93.14		
566.76	34.88	92.53	0.610	1.75%
585.46		92.4		
603.27	17.81	91.66	0.740	4.15%
653.82		91.58		
673	19.18	91.35	0.230	1.20%
	207.47			
	7			

Pool Station	length	p-p spacing
7		
32	25	
96		
146	50	101.5
149		
185	36	46
224		
268	44	79
280		
309	29	48.5
420		
448	28	139.5
486		
525	39	71.5
612		
648	36	124.5
675		
705	30	60
	317	
	9	

	min	max	median
Riffle Length	17.8	38.7	34.0
Riffle Slope	1.20%	4.15%	1.75%
Pool Length	25.0	50.0	36.0
Pool Spacing	46	140	75

Area 4 - 2008

Riffle Station	Change	Water Elev	change	slope
25		115.06		
39	14	114.92	0.14	1.00%
53		114.87		
77	24	113.92	0.95	3.96%
128		113.72		
138	10	113.48	0.24	2.40%
208		112.66		
227	19	112.3	0.36	1.89%
274		111.95		
310	36	111.45	0.5	1.39%
360		110.73		
391	31	110.37	0.36	1.16%
437		109.55		
463	26	108.98	0.57	2.19%
607		106.95		
618	11	106.51	0.44	4.00%
	171			
	8			

Pool Station	length	p-p spacing
86		
105	19	
145		
184	39	69
189		
208	19	34
256		
272	16	65.5
319		
358	39	74.5
383		
404	21	55
411		
430	19	27
467		
500	33	90
510		
574	64	58.5
576		
594	18	43
618		
630	12	82
	299	
	11	

	min	max	median
Riffle Length	10.0	36.0	26.0
Riffle Slope	1.00%	4.00%	2.04%
Pool Length	12.0	64.0	19.0
Pool Spacing	27	90	62

Area 5 - 2008

Riffle Station	Change	Water Elev	change	slope
-18		85.7		
3	21	85.51	0.19	0.90%
57		84.44		
81	24	84.21	0.23	0.96%
220		82.63		
253	33	81.74	0.89	2.70%
274		81.55		
301	27	81.15	0.4	1.48%
423		80.75		
440	17	80.57	0.18	1.06%
463		80.19		
493	30	80.01	0.18	0.60%
551		79.3		
587	36	78.57	0.73	2.03%
658		78.24		
687	29	77.92	0.32	1.10%
	217			
	8			

Pool Station	length	p-p spacing
-40		
-13	27	
23		
58	35	67
79		
98	19	48
115		
130	15	34
154		
167	13	38
181		
207	26	33.5
253		
273	20	69
298		
335	37	53.5
350		
365	15	41
398		
426	28	54.5
443		
476	33	47.5
520		
553	33	77
584		
611	27	61
617		
632	15	27
	343	
	14	

	min	max	median
Riffle Length	17.0	36.0	28.0
Riffle Slope	0.60%	2.70%	1.08%
Pool Length	13.0	343.0	26.5
Pool Spacing	27	77	48

Area 6 - 2008

Riffle Station	Change	Water Elev	change	slope
392		67.73		
405	13	67.52	0.21	1.62%
526.57		65.92		
556.74	30.17	65.31	0.61	2.02%
650.53		63.52		
694.07	43.54	63.02	0.5	1.15%
737.8		63.18		
764.18	26.38	62.69	0.49	1.86%
	113.09			
	4			

Pool Station	length	p-p spacing
20		
96	76	
107		
247	140	119
263		
343	80	126
350		
392	42	68
411		
473	62	71
488		
522	34	63
570		
604	34	82
624		
650	26	50
700		
728	28	77
780		
825	45	88.5
	567	
	10	

	min	max	median
Riffle Length	13.0	43.5	28.3
Riffle Slope	1.15%	2.02%	1.74%
Pool Length	26.0	140.0	42.0
Pool Spacing	50	126	74

Project Name	Purlear Phase 1
Task	Channel Pattern Measurements
Date	
Crew	Z. Price, C George

Area 1
2007

Radius of Curvature	Meander Wavelength	Channel Beltwidth	
41	117	202	
55	171	38	
58		37	
59		53	
41	117	37	***min***
59	171	202	***max***
57	144	46	***median***

Area 2
2007

Radius of Curvature	Meander Wavelength	Channel Beltwidth
64	255	69
62	245	69
68	236	70
56		
56	236	69
68	255	70
63	245	69

Area 3
2007

Radius of Curvature	Meander Wavelength	Channel Beltwidth	
Straight Channel No Pattern Measements Necessary			
0	0	0	***min***
0	0	0	***max***
-	-	-	***median***

Area 4
2007

Radius of Curvature	Meander Wavelength	Channel Beltwidth
77	138	28
34	132	32
39	120	47
37	153	50
	157	55
	132	
34	120	28
77	157	55
38	135	47

Area 5
2007

Radius of Curvature	Meander Wavelength	Channel Beltwidth	
41	113	40	
40	134	42	
49	134	48	
43	174	50	
87	187	49	
45	145	36	
52	149		
66			
40	113	36	***min***
87	187	50	***max***
47	145	45	***median***

Area 6
2007

Radius of Curvature	Meander Wavelength	Channel Beltwidth
80	238	78
90	198	68
63	188	93
65	216	66
69	194	
64		
43		
43	188	66
90	238	93
65	198	73