Fletcher Stream and Wetland Mitigation Site

Annual Monitoring Report

Monitoring Year 2 of 7

FINAL

Fletcher Stream and Wetland Mitigation Site
NCDMS Contract No. 006997
NCDMS Project No. 100004
DWR# 16-1076
USACE Action ID: SAW-2016-02205
Henderson County, North Carolina
Data Collected: April – October 20th, 2021.
Date Submitted: February 2022

Submitted to:

NCDEQ-Division of Mitigation Services
1652 Mail Service Center Raleigh N C 27699-1652

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February 3, 2022

Harry Tsomides, Project Manager
NCDEQ-Division of Mitigation Services
5 Ravenscroft Drive, Suite 102
Asheville, NC 28801

Subject: MY2 Monitoring Report
Fletcher Stream and Wetland Site, Henderson County
French Broad River CU 06010105
DMS Project ID No. 100004 / DEQ Contract #006997

Dear Harry,

EWS has completed the review of the Fletcher Stream and Wetland Site Draft MY2 Monitoring Report comments. The following are the EWS responses to those DMS comments/questions (Red):

- During a recent site visit (Nov. 2021) by DMS there were some minor but numerous areas of boundary encroachment or fence issues (mowing/scalloping, fallen tree on fence, etc), areas of low stem density, and a plant-dominated stream bed; please see annotated PDF map attached to this email, and take these areas into consideration during the 2022 (MY3) assessment. Before too long I would like to get your feedback and discuss a plan for monitoring and/or addressing these in the upcoming monitoring year. EWS is aware of the numerous issues present during the MY2 monitoring period and has maintained active dialog with the lessee and property owners regarding fence repairs and encroachment. EWS is currently planning efforts to address areas of low vegetative performance and will continue communications with DMS.

- On the groundwater gage summary table, please list the number of consecutive days met as well as the percent for each gage. Consecutive number days added to the summary table.

- Where continuous stage recorders or are being used to monitor consecutive days of stream flow, please provide the maximum number of consecutive days where surface flow was present. No concerns have been raised about continuous streamflow at any of the Reaches within the Fletcher site. Consecutive number of days were added to both Coates and Raccoon Branch continuous stage recorder graphics due to ongoing concerns regarding vegetation within the channel.

- Stream geomorphology – there was a reach observed during recent DMS field visit with a lot of in-stream vegetation (near the culvert separating Coates Reach 1B and 1C). Please keep an eye on this area and report accordingly in MY3 (2022). This reach has been a focus of active invasive vegetation treatments and will continue to be a focus in future monitoring years with regard to native vegetation establishment and shading.

- Please provide Station numbers for areas of stream concern whenever possible (e.g., Fletcher Creek Reach 2B scouring). Stationing added within the text.

- Hydrology – It is stated that "Increased groundwater elevations and duration of saturation had increased in 6 of 11 wells during the MY2 monitoring period." Do you mean relative to MY1? Does this imply that recharge may be occurring? Please clarify what these data might mean, if anything. Yes the statement and observations are relative to MY1. Text added to further clarify the MY2 observations.

- In the hydrology discussion, please reference the gage data appendix and table. Reference added.

- If including herbicide logs (Appendix F), please provide a reference in the invasive species discussion. Reference added

- Please include photos of the installed culvert crossings; it is okay to swap out some of the other station photos that are less informative, if need be, with explanation. EWS does not currently have specific photos of culverted crossings but will commit to including crossing specific photos in future reports.

- Please include dates for the reach assessments (Table 5) and the vegetation visual assessment (Table 6), in the tables or footnoted. Added dates

- Project Activities table – Stream and vegetation data collections both indicated as October 2021 however cover page indicates data collection April-October 2021. Please clarify or correct. Added the initial site assessment as a line item in the Project Timeline.

DIGITAL SUPPORT FILES

In the interest of time, the digitals comments will be forwarded to you as soon as they are ready; they will need to be addressed before this deliverable is final-approved.

Digital Support files were received by email on January 19, 2022.

- For Table 6, the submitted spatial data representing the low stem density areas have a combined acreage of 0.09 ac, not 0.9 acres. Also, please be sure to report the cumulative total and include the encroachment area in this table. Please also provide a brief description of the encroachment so it can be characterized in the DMS geodatabase. Edited table. A description of the type of encroachment is available in the attribute table. (Mowing along easement boundary and area mistakenly cleared by adjacent property owner)

- For the BHR calculations, be sure that Omit Bkf boxes are selected based on the Low Bank Height elevation (LBH). For example, cross section 6 excludes points (23.15, 2106.380) and (37.17, 2106.264), but these should be included given that the LBH elevation is 2106.65. As another

example, cross section 22 does not omit points (17.79, 2131.489), (18.88, 2131.333), (24.56, 2131.314), and (26.10, 2131.556), but the LBH is 2131.21. Cross-section data reviewed and edited.

- The figure for MW7 highlights an area where the water level drops below the required depth. Replaced with corrected highlight.

- Please submit a feature characterizing the treated invasive areas. Included in the MY2 database.

- Please include the crest gauge photos in the report. Crest Gauges were depicted in the photos associated with cross-sections 1, 11, 15, and 26 in the report. Individual photos of the four Crest Gauges have been added to the Photopoints section of the report and in the support files.

Please submit two final hard copies, in addition to a flash drive or CD with a PDF of the report and all digital support files (addressing any comments) in the correct file structure. Please include a copy of your response letter, inserted inside the front cover of each hard copy report (and included in the final PDF). Two final hard copies and a USB with digital support files submitted.

Sincerely,

EW Solutions Project Manager

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Prepared for:

EW SOLUTIONS

37 Haywood Street, Suite 100
Asheville, NC 28801

Prepared by:

EQUINOX

balance through proper planning

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Asheville, NC 28801

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1.0 PROJECT SUMMARY

1.1. Project Setting and Background

The Fletcher Stream and Wetland Mitigation Site (Fletcher Site) is located in the French Broad River Basin (CU 06010105). The Fletcher Site also lies within the lower portion of the Cane Creek (HUC 060101050703) watershed which is identified as a Targeted Local Watershed (TLW) according to the 2009 French Broad River Basin Restoration Priorities (RBRP) Plan. Project work at the Fletcher Site was completed in March 2019, and included construction, planting, monitoring feature installation, and fence installation. Through the project work, a total of 9,528 linear feet were restored, 896 linear feet were enhanced through Enhancement II activities, 1,249 linear feet were preserved, and 8.91 acres of wetland were re-established. The Fletcher Site is anticipated to generate a total of 10,011.300 SMU's and 8.910 WMU's. Refer to Appendix A, Table 1 for the project components and mitigation credit information and Figure 2 for the Project Asset Map.

Historic land use at the Fletcher Site has consisted primarily of agriculture and livestock grazing. Additional land use practices, including the excavation of drainage ditches, maintenance and removal of riparian vegetation, and the relocating, dredging, and straightening of on-site streams have contributed to unstable channel characteristics, degraded water quality, and degradation of prior wetlands. Previous stream conditions at the site consisted of incised channels with unstable banks and a limited riparian buffer width. Fletcher Creek and Coates Branch flow though active pastures with livestock access to the streams. The floodplain adjacent to Weston Creek contains approximately 8.91 acres of mapped hydric soils that have been farmed for produce. Previous ditching and farming activities eliminated jurisdictional wetlands. The completed project restored ecological function to the existing streams, wetlands, and riparian corridor by returning streams to a proper relationship with the floodplain, excluding cattle from the riparian buffer, eliminating drainage ditches and spoil piles, removing invasive species, and re-vegetating the riparian buffer with native plant species appropriate for the valley and the watershed conditions. Grading activities improved the groundwater hydrology of the onsite wetlands, increased hydrologic access of the floodplain for overbank flows, and provided attenuation of flood flows.

This project is protected by a 34.81-acre conservation easement and is located approximately 1.1 miles southeast of Fletcher, NC in Henderson County at 35.422278° N, -82.486183° W. The Fletcher Site is bounded by agricultural land and is bisected by Jackson Road.

1.2. Project Goals and Objectives

The project goals address stressors identified in the TLW and priority subwatershed, as outlined in the Final Mitigation Plan, and include:

- Provide a network of streams with natural, stable forms that support proper stream functions;
- Improve groundwater hydrology to support recovery of native riparian vegetation;
- Reduce sediment inputs from eroding stream banks to reduce fine sediment loads and percentage of fines in the bed-material load;
- Restore proper sediment transport to support channel stability and bedform diversity;
- Improve substrate quality to facilitate hyporheic flow and support aquatic communities;
- Improve quantity, quality, and diversity of habitats to support healthy aquatic communities;
- Reduce pollutant inputs to the project streams (fecal coliform, nitrogen, phosphorus) to restore a balance to proper nutrient cycles;
- Improve riparian vegetation community to provide temperature regulation of the stream, provide a future source of organic inputs, and aid in long-term channel bank stability;

- Restore areas of former riparian wetlands so that the hydrology and soils will support wetland vegetative communities and wildlife;
- Improve landscape connectivity that allows space for biotic and abiotic process and provides a source and sink for natural populations; and,
- Prevent the site from future impacts of development and agricultural issues.

The following objectives are proposed for accomplishing the above listed goals as outlined in the Final Mitigation Plan:

- Construct stream channels that will maintain proper dimension, pattern, and profile and meet jurisdictional status;
- Construct streams with proper bankfull to floodplain relationship;
- Construct streams that provide naturally stable dimensions and stabilize constructed banks with appropriate bioengineering;
- Construct streams that maintain an appropriate sediment transport balance with the sediment that is supplied by the watershed so that the overall stream profile neither aggrades nor degrades over time;
- Create and improve stream bedform diversity by constructing pools of varied depths and riffles of varied slopes;
- Construct stable riffles that provide an improved diversity of bed material clast and a reduction in fines relative to existing conditions;
- Construct in-stream habitat features from native material to provide diversity of habitat;
- Prevent cattle from access to the streams and riparian areas by installing exclusion fencing;
- Install BMP's in concentrated runoff areas that drain agricultural fields;
- Provide a buffer from agricultural activates and row crops;
- Plant native climax tree species and understory species in the riparian zone;
- Reconstruct stream channels that are properly connected to the riparian wetlands;
- Re-grade topography to eliminate ditches and drainage features;
- Plant native wetland tree and shrub species; and,
- Establish a conservation easement that provides a minimum buffer from future activities in the adjacent watershed.

1.3. Project Performance Standards

The stream restoration performance standards for the project will follow accepted and approved criteria based on the Final Mitigation Plan for the Fletcher Mitigation Site (2018). Performance criteria will be evaluated throughout the monitoring period as defined in Table 4 of the Fletcher Adaptive Management Summary Packet. The table below provides a list of the performance standards associated with each project objective along with a description of the monitoring approach.

Fletcher Mitigation Site Project Performance Standards		
Objective	Performance Standard	Monitoring Approach
Construct stream channels that will maintain proper dimension, pattern, and profile and that meet jurisdictional status.	•Riffle section W/D ratios should remain within the range of the appropriate stream type. •BHR should not exceed 1.2. BHR should not change more than 10% in any given monitoring interval. Changes that do occur should indicate a trend toward stability. • Entrenchment Ratios should be ≥ 2.2 for C/E channels and ≥ 1.4 for B channels. • Document continuous surface flow in tributaries for at least 30 consecutive days each year.	•Survey of select cross sections and visual assessment. •Continuous stage recorders for base flow on tributaries.
Construct streams with proper bankfull to floodplain relationship	Four bankfull events or greater, in separate years, will be documented during the monitoring period	Crest gauges, continuous stage recorders, and debris lines.
Construct streams that provide naturally stable dimensions and stabilize constructed banks with appropriate bioengineering	Channel banks should generally remain stable. Where bank migration does occur it should not exceed 20% of the bankfull width for the duration of the monitoring.	Visual assessment and bank pin monitoring as necessary.
Construct streams that maintain an appropriate sediment transport balance with the sediment that is supplied by the watershed so that the overall stream profile neither aggrades nor degrades over time	Profile adjustments should not indicate significant aggradation or degradation. BHR requirements as stated above.	Resurvey of longitudinal profile if visual assessment indicates potential instability.
Create and improve stream bedform diversity by constructing pools of varied depths and riffles of varied slopes	Profile should maintain a diversity of depths expressed in riffle/pool forms.	Visual assessment
Construct stable riffles that provide an improved diversity of bed material clast and a reduction in fines relative to existing conditions	Substrate material should progress towards or maintain coarser material in riffles and runs with finer material present in pools and glides.	Pebble count measurements at surveyed cross sections
Construct in-stream habitat features from native material to provide a diversity of habitats	In-stream habitat structures should remain intact and functional.	Visual assessment
Prevent cattle from access to the streams and riparian areas by installing exclusion fencing.	Exclusion fencing should remain intact and effective at preventing livestock access.	Visual assessment
Install BMP's in concentrated runoff areas that drain agricultural fields	None. No maintainance will be performed on BMP's	Visual assessment
Provide a buffer from agricultural activities and row crops	Record conservation easement prior to implementation.	None
Plant native climax tree species and understory species in the riparian zone	Minimum of 320 stems/ac present at MY-3. Minimum of 260 stems/ac present at MY-5. Minimum of 210 stems/ac present at MY-7.	Vegetation plots
Reconstruct stream channels that are properly connected to the riparian wetlands	Groundwater elevation within 12 inches of the ground surface for 12% of the growing season.	Groundwater monitoring gauges
Re-grade topography to eliminate ditches and drainage features	Groundwater elevation within 12 inches of the ground surface for 12% of the growing season.	Groundwater monitoring gauges
Plant native wetland tree and shrub species.	Minimum of 320 stems/ac present at MY-3. Minimum of 260 stems/ac present at MY-5. Minimum of 210 stems/ac present at MY-7.	Vegetation plots
Establish a conservation easement that provides a minimum buffer from future activities in the adjacent watershed.	Record conservation easement prior to implementation.	None

The Fletcher Site generated 10,011.300 SMUs and 8.910 WMUs. Refer to Table 1 for project components and mitigation credit information for the Fletcher Site and Table 2 for the project component and the CCPV for a visual description of the project assets. These credits are based on the Approved Fletcher Site Mitigation Plan.

1.5. Project Performance

Monitoring Year 2 (MY 2) data was collected from April to October 2021. Monitoring activities included visual assessment of all reaches and the surrounding easement, collection of images at 33 permanent photo stations, inventory of 26 permanent vegetation monitoring plots, surveying of 28 cross-sections, and conducting 14 pebble counts.

Summary information/data related to the occurrence of items such as beaver or encroachment and statistics related to performance of various project and monitoring elements can be found in the tables and figures in the report appendices. Narrative background and supporting information formerly found in these reports can be found in the Baseline Monitoring Report (formerly Mitigation Plan) and in the Mitigation Plan (formerly Restoration Plan) documents available on the NCDMS website

(https://deq.nc.gov/about/divisions/mitigation-services/dms-project-documents-table). All raw data supporting the tables and figures in the appendices is available from DMS upon request.

1.5.1. Vegetation

Visual assessment of vegetation outside of the monitoring plots (Appendix B – Table 6) indicates that the herbaceous vegetation is becoming well established throughout the southern portion of the project. Areas within the Weston Creek and Fletcher Creek reaches previously noted as having sparce vegetation are beginning to fill in. The site will continue to be monitored for problems in future monitoring years.

Monitoring of the permanent vegetation plots (n = 26; VP) was completed in October 2021. Summary tables and photographs associated with MY2 vegetation monitoring are located in Appendix B and Appendix C. MY2 monitoring data indicates that plots #7 and #25 are marginally meeting the interim success criteria of 320 planted stems per acre. Missing stems from the previous year were observed during the MY2 survey. The remainder of plots are well above success criteria. Planted stem densities among plots ranged from 324 to 728 planted stems per acre with an annual mean of 535 planted stems per acre across all plots. A total of 34 species of stems were documented within the plots. When volunteer stems are included, the mean annual total stems per acre rises to 1698 and ranged between 445 and 4654 stems per acre. Results from the vegetation plots surveyed during MY2 (2021) and a summary of preceding years can be found in Table 7, Appendix C.

Two areas of encroachment were documented within the site. One area located along the southwestern boundary of Weston Branch near Jackson Rd consisted of a small area approximately 348 ft^2, which had been inadvertently cleared by the neighboring property owner. Additional signage and boundary markers have been installed in this area and plans for remediation of the area of encroachment are being formulated.

The second area of encroachment was located along the field margin of Fletcher Reach 1A. In this area easement signs had been misaligned or were obscured which allowed for mowing of a narrow strip of easement approximately 0.024 acres in size. Signage will be reset, and additional marking is planned for this area. Damage to planted stems will be evaluated in MY3. A summary of the encroachments can be found in Table 6 and the CCPV, Appendix B.

Invasive species occur in low abundance throughout the site. Largely along fences and around the bases of existing mature trees. A limited number of dense infestations were documented and treated in MY1 and MY2. The remaining areas (n=17) will continue to be treated in future monitoring years. The primary species documented at the Fletcher Site include Chinese Privet (*Ligustrum sinense*) and Multiflora Rose (*Rosa multiflora*), although there are areas containing Oriental bittersweet (*Celastrus orbiculatus*), kudzu (*Pueraria montana var. lobata*), and fescue (*Festuca spp.*). The largest areas of invasive vegetation occur along Raccoon Branch Reach 1B/1C (Rose), Coates Branch Reach 1A (Rose, Privet, and Bittersweet) and the lower portion of Coates Reach 1B (Fescue). Details on invasive species density and area can be found in Table 6 and the CCPV, Appendix B. Treatment logs are located in Appendix F.

1.5.2. Stream Geomorphology

Visual assessment of the stream channel was performed to document signs of beaver damage, structural instability, such as eroding banks, structural instability, or excessive sedimentation. The area of bank scour (Station 142+25) on Fletcher Creek Reach 2B in MY1 has remained stable (Table 5, Figure 2

CCPV). This area and the remainder of the project will continue to be monitored in future site visits for further signs of structural instability.

Three beaver dams were documented within the site during MY2. These beaver dams were located at Stations 119+00, 137+00, and 424+50. USDA APHIS is currently managing the beaver within the site. Beaver dams were removed in early July and follow-up visits were scheduled for December of 2021. The site will continue to be monitored for signs of beaver activity.

Geomorphic data for MY2 was collected during October 2021. Summary tables and cross-section data plots related to stream morphology are located in Appendix D. Cross-sectional dimensions remained relatively stable between baseline conditions and MY2 monitoring efforts. The most substantial changes have occurred at cross-sections 9 and 10. Cross-section 9 had shown some aggradation in the Pre-MY1 survey. This cross-section had reverted to near As-Built condition by MY1 and has remained stable into MY2. At cross-section 10 a portion of the toe structure has failed leading to an extension of the upstream pool (Appendix D, cross-section graphics and Table 11a). Riffle dimensions for each reach also remained relatively similar between baseline conditions and MY2 monitoring. Some minor shifts in dimensions were noted but none were indicative of structural instability (Appendix D, Table 11b).

Substrate monitoring was performed in October of 2021. Fletcher Creek Reaches 1B and 1C both showed no change in substrate composition between Baseline and MY2, with D_{50} falling between the medium and coarse gravel categories. Fletcher Creek Reach 2A remained unchanged with D_{50} falling in the fine to very coarse gravel categories. Fletcher Creek Reach 2B saw an increase in fine sediments with D_{50} values falling within the fine gravel category. Conversely, both Weston Creek Reach 1A and B showed coarsening of substrate between MY1 and MY2, falling in the medium to coarse sands and fine gravel categories, respectively. Coates Branch Reach 1D showed some coarsening over the previous two years, falling in the coarse sand category. Raccoon Branch Reach 1D and both Coates Branch Reach 1B and 1C fell into the same Silt/Clay category. The channel substrate will be monitored in future years for shifts in particle size distributions.

1.5.3.Hydrology

Since project completion in late 2019, a total of five bankfull events have been documented at three of the four streams within the Fletcher Creek Site. Continuous stage recorder and rainfall data indicate significant events occurring in April 2019, February 2020, April 2020, August 2020, March 2021, and August 2021. Lesser events were recorded in November and December 2020, January 2021, February 2021, and October 2021. The transducer on Raccoon Branch encountered a failure of the pressure sensor during MY2 which resulted in uncorrectable data starting on April 27th, 2021. A crest gauge will be installed on Raccoon Branch as a secondary means of monitoring bankfull within the reach. See Table 10, Appendix E for details regarding bankfull events by stream.

Groundwater wells (n=11) installed on Weston Creek Reach are largely falling short of the expected performance standard of 12% of the growing season. Increased groundwater elevations and duration of saturation had increased in 6 of 11 wells during the MY2 monitoring period relative to MY1. MW 9 met the performance standard during MY2 (15%). Additionally, MW 5, 6, and 10 fell just short of the 12% standard meeting criteria for 11% of the growing season. MW 8 met for 10% during MY2 (Groundwater Summary Table and Figures, Appendix E). Increased vegetative cover within the reach has likely contributed to a decrease in evapotranspiration rates. This observation coupled with a reduction in upland and facultative vegetation and a transition to more hydrophytic plants is indicative of a trend towards a wetter regime. This trend reflects only two growing seasons. Data from future monitoring years will

provide additional information regarding hydrologic uplift and wetland establishment. Groundwater wells will continue to be monitored throughout the life of the project.

2.0 METHODS

The visual assessment of the project was performed at the beginning and end of each monitoring year. Permanent photo station photos were taken during the initial visual assessment when leaf-off conditions exist. Additional photos of vegetation or stream problem areas were taken as needed.

Geomorphic measurements were taken during low flow conditions using a Nikon® NPR 332 Total Station. Three-dimensional coordinates associated with cross-section and profile data were collected in the field and geo-referenced (NAD83 State Plane feet FIPS 3200). Morphological data were collected at 28 cross-sections. Survey data was imported into CAD, ArcGIS®, and Microsoft Excel® for data processing and analysis. Channel substrate was characterized using a Wolman Pebble Count as outlined in Harrelson et al. (1994) and processed using Microsoft Excel. Vegetation success is being monitored at 26 permanent monitoring plots. Vegetation monitoring follows the CVS-EEP Level 2 Protocol for Recording Vegetation, version 4.2 (Lee et al. 2008) and includes analysis of species composition and density of planted species. Data is processed using the CVS data entry tool. In the field, the four corners of each plot were permanently marked with metal t-posts and photos of each plot are taken from the origin each monitoring year.

Precipitation data was reported from the onsite Onset HOBO Data Logging Rain Gauge and the NCCRONOS station in at the Asheville Regional Airport. Bankfull events were documented with crest gauges and continuous stage recorders, each cross-referenced with the bankfull elevation at its location. Crest gauges will be monitored semi-annually. The height of the corklines was recorded and cross-referenced with known bankfull elevations at each crest gauge.

Groundwater for hydrologic success of restored wetlands was monitored using eight HOBO U20 Water Level Loggers. An additional logger was installed on site, above ground, for use as a barometric reference. Data loggers collected depth to groundwater daily and all data were processed using HOBOware and analyzed using Microsoft Excel.

3.0 REFERENCE

Equinox Environmental. 2019. As-Built Baseline Report – Fletcher Mitigation Site. Prepared for North Carolina Department of Environmental Quality, Division of Mitigation Services. DMS Project No. 100004.

Kee Mapping and Survey. 2019. As-Built Survey of Fletcher Creek Restoration Project. Prepared for EW Solutions.

Lee, Michael T., R.K. Peet, S.D. Roberts, and T.R. Wentworth. 2008. CVS-EEP Protocol for Recording Vegetation, Version 4.2 (http://cvs.bio.unc.edu/methods.htm)

Stantec Consulting, Inc. 2018. Final Mitigation Plan – Fletcher Mitigation Site. Prepared for North Carolina Department of Environmental Quality, Division of Mitigation Services. DMS Project No. 100004.

USACE (U.S. Army Corps of Engineers). 2003. Stream Mitigation Guidelines. U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, North Carolina Wildlife Resources Commission, North Carolina Department of Environment and Natural Resources-Division of Water Quality. Wilmington District

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Appendix A
Project Background Data and Maps

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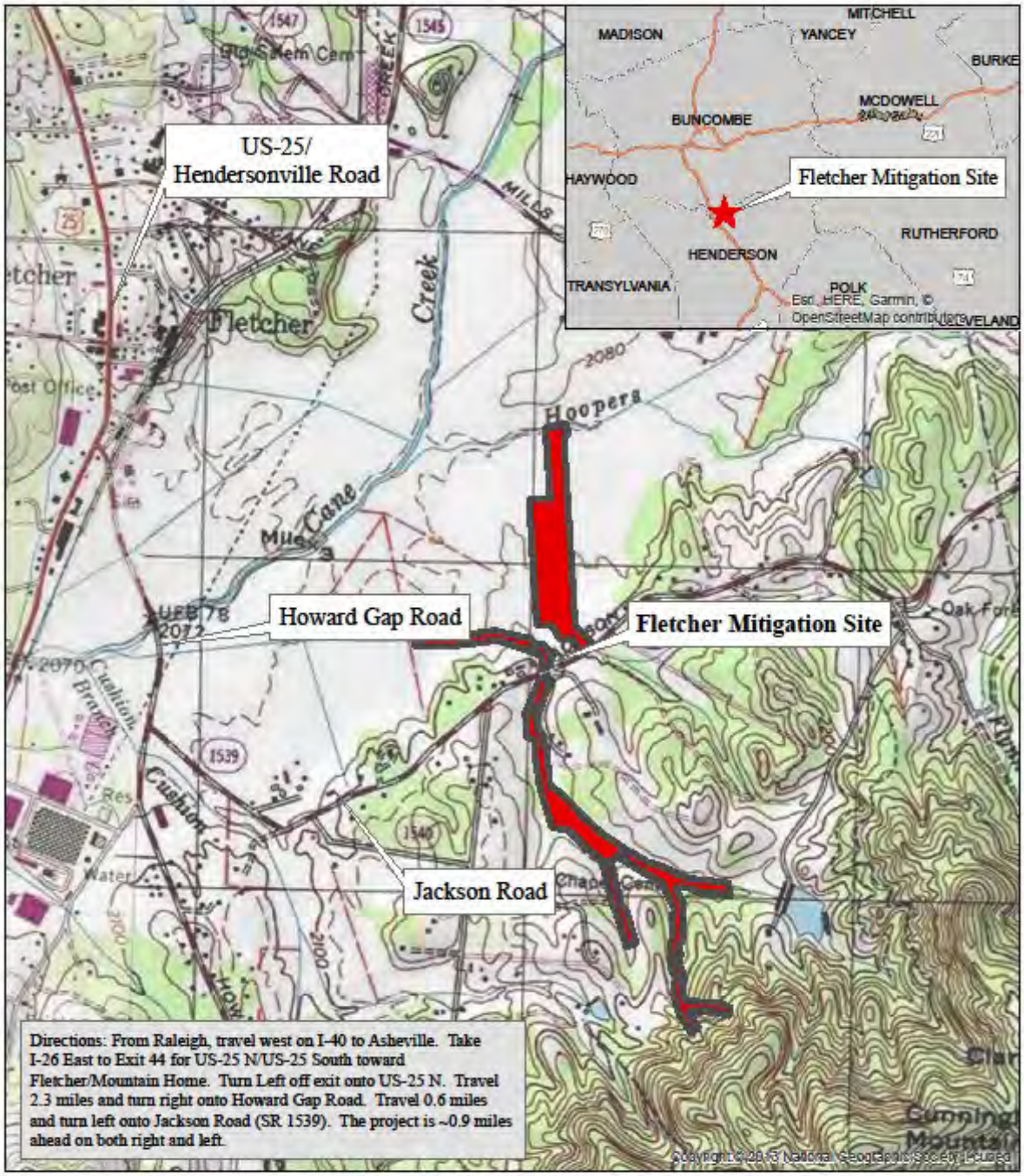

EQUINOX

Figure 1
Vicinity Map
Fletcher Mitigation Site

Proposed Site

0 500 1,000 2,000 Feet

This map is not a survey and is not to be construed as such.

Table 1. Project Mitigation Assets and Components Fletcher Mitigation Site							
Project Segment	Mitigation Plan (ft/Ac)	As-Built Centerline (ft/Ac)^	Mitigation Category	Restoration Level	Mitigation Ratio (X:1)	Mitigation Plan Credits*	Comments
Fletcher Creek 1a	461	457	Cool	EII	2.5	184.400	
Fletcher Creek 1b	377	377	Cool	R	1.0	377.000	
Fletcher Creek 1c	1,540	1,507	Cool	R	1.0	1,540.000	Less 51' for crossing
Fletcher Creek 2a	1,296	1,290	Cool	R	1.0	1,296.000	Less 33' for utility crossing; Less than 30' buffer for 86 LF
Fletcher Creek 2b	1,470	1,558	Cool	R	1.0	1,470.000	Less 33' for outlet protection and 51' and 73' for 2 crossings
Raccoon Branch 1a	489	489	Cool	P	10.0	48.900	.001 ac temporary impact to Wetland A
Raccoon Branch 1b	461	461	Cool	P	10.0	46.100	.006 ac temporary impact to Wetland B
Raccoon Branch 1c	153	143	Cool	EII	2.5	61.200	Less 53' for crossing; Stream length not included in wetlands
Raccoon Branch 1d	448	439	Cool	R	1.0	448.000	
Pine Branch 1	299	301	Cool	P	10.0	29.900	
Coates Branch Reach 1a	282	283	Cool	EII	2.5	112.800	
Coates Branch Reach 1b	606	598	Cool	R	1.0	606.000	.016 ac temporary impact to Wetland D
Coates Branch Reach 1c	708	702	Cool	R	1.0	708.000	Less 44' for crossing
Coates Branch Reach 1d	325	321	Cool	R	1.0	325.000	
Weston Creek 1a	1,954	1,916	Cold	R	1.0	1,954.000	Less 29' for ROW and outlet protection
Weston Creek 1b	804	798	Cold	R	1.0	804.000	
Wetland A	0.03	n/a	RNR	E	n/a	n/a	0.001 ac temporary impact to Wetland A
Wetland B	0.11	n/a	RNR	E	n/a	n/a	0.006 ac temporary impact to Wetland A
Wetland D	0.05	n/a	RNR	E	n/a	n/a	0.016 ac temporary impact to Wetland A
Wetland E	8.9	8.910	RNR	REE	1.0	8.910	

* Mitigation plan credits account for breaks in conservation easements and are based on design stream stationing and taken from the approved mitigation plan. Mitigation plan credits are the same as the approved mitigation plan.

^ Based on centerline calculations from the as-built survey, accounts for breaks in conservation easement and utility right-of-ways.

Project Credits

	Stream			Wetland	Non-Rip	Coastal
Restoration Level	Warm	Cool	Cold	Non-Riv	Wetland	Marsh
Restoration	-	6770.000	2758.000	-	-	-
Re-establishment				8.910	-	-
Rehabilitation				-	-	-
Enhancement				-	-	-
Enhancement I	-	-	-			
Enhancement II	-	358.400	-			
Creation						
Preservation	-	124.900	-	-	-	
Total Credits[%]	**-**	**7253.300**	**2758.000**	**8.910**	**-**	**-**

[%] Project credits reflect the sum of credits outlined in the approved mitigation plan.

Total Stream Credit 10,011.300

Total Wetland Credit 8.910

Wetland Mitigation Category

CM	Coastal Marsh
R	Riparian
NR	Non-Riparian

Restoration Level

HQP	High Quality Preservation
P	Preservation
E	Wetland Enhancement - Veg and Hydro
EII	Stream Enhancement II
EI	Stream Enhancement I
C	Wetland Creation
RH	Wetland Rehabilitation - Veg and Hydro
REE	Wetland Re-establishment Veg and Hydro
R	Restoration

Table 2. Project Activity and Reporting History Fletcher Mitigation Site		
Activity or Report	**Data Collection Complete**	**Completion or Delivery**
Mitigation Plan	Feb - 2018	Feb - 2018
Mitigation Plan Addendum	-	-
Final Design - Construction Plans	-	Mar - 2018
Construction	-	Mar - 2019
Temporary S&E Mix Applied	-	Mar - 2019
Permanent Seed Mix Applied	-	Mar - 2019
Bare Root and Live Stake Plantings	-	Mar- 2019
Baseline Monitoring Document (Year 0 Monitoring - Baseline)	Mar - 2019	Apr - 2019
Stream Assessment	Mar - 2019	Apr - 2019
Vegetation Assessment	Mar - 2019	
Adaptive Management-Weston Cr	-	Dec-2019
Adaptive Management-Weston Cr replant	-	Jan-2020
Pre-Year 1 Vegetation Monitoring-North Side	Dec 2019	-
Pre-Year 1 Geomorphology Monitoring-North Side	Dec 2019	-
Pre-Year 1 Vegetation Monitoring-South Side	Dec 2019	-
Pre-Year 1 Geomorphology Monitoring-South Side	Dec 2019	-
Weston Cr flood damage repair	-	Feb-2020
Weston Cr flood damage replant	-	Feb-2020
MY1 Invasive Vegetation Treatments	Jun 2020	-
MY1 Invasive Vegetation Treatments	Jul 2020	
MY1 Invasive Vegetation Treatments	Aug 2020	-
MY1 Weston Reach Beaver Removal	-	July 2020
MY1 Monitoring Geomorphology	Oct 2020	-
MY1 Monitoring Vegetation	Oct 2020	-
MY1 Monitoring Report	-	Dec-2020
MY2 Initial Site Assessment		April-2021
MY2 Weston Reach Beaver Removal	-	July-2021
MY2 Monitoring Vegetation	Oct-2021	-
MY2 Monitoring Geomorphology	Oct-2021	-
MY2 Monitoring Report		Dec-2021

Table 3. Project Contacts	
Fletcher Mitigation Site	
Prime Contractor	EW Solutions 37 Haywood Street, Suite 100 Asheville, NC 28801 David Tuch (828) 253-6856
Designer	Stantec Consulting, Inc 56 College Street, Suite 201 Asheville, North Carolina 28801 Grant Ginn (828) 449-1930
Construction Contractor (North Side)	Penland Contracting, Inc 300 NP&L Loop Franklin, NC 28734 Lewis Penland (828) 421-1753
Construction Contractor (South Side)	Baker Construction 1000 Bat Cave Road Old Fort, NC 28762 Charles Baker (828) 668-5060
Seeding Contractor (North Side)	Penland Contracting, Inc 300 NP&L Loop Franklin, NC 28734 Lewis Penland (828) 421-1753
Seeding Contractor (South Side)	Baker Construction 1000 Bat Cave Road Old Fort, NC 28762 Charles Baker (828) 668-5060
Planting Contractor	Equinox 37 Haywood St. Asheville, North Carolina 28801 Owen Carson (828) 253-6856
As-built Surveys	Kee Mapping 88 Central Ave. Asheville, NC 28801 Brad Kee (828) 575-9021
Seeding Mix Source	SESSCO LLC 209 Cane Creek Rd Fletcher , NC 28732 (828) 654-8991
Live Stakes	Mellow Marsh Farms 1312 Woody Store Road Siler City, NC 27344 (919) 742-1200
Monitoring Performers (MY2)- 2021	Equinox 37 Haywood St. Asheville, North Carolina 28801 Danvey Walsh (828) 253-6856

Table 4. Project Baseline Information and Attributes

Project Information

Project Name	Fletcher Stream and Wetland Mitigation Site
County	Henderson
Project Area (acres)	34.8
Project Coordinates (latitude and longitude)	35.422278° N, -82.486183° W

Project Watershed Summary Information

Physiographic Province	Blue Ridge		
River Basin	French Broad River		
USGS Hydrologic Unit 8-digit	6010105	USGS Hydrologic Unit 14-digit	060101050400 10
DWR Sub-basin	04-03-02		
Project Drainage Area (sq. miles)	0.52 Fletcher Creek / 0.37 Weston Branch		
Project Drainage Area Percentage of Impervious Area	< 1%		
CGIA Land Use Classification	Agricultural		

Reach Summary Information

Parameters	Fletcher Creek 1A	Fletcher Creek 1B	Fletcher Creek 1C	Fletcher Creek 2A	Fletcher Creek 2B	Raccoon Branch 1A	Raccoon Branch 1B	Raccoon Branch 1C	Raccoon Branch 1D	Pine Branch	Coates Branch 1A	Coates Branch 1B	Coates Branch 1C	Coates Branch 1D	Weston Creek 1A	Weston Creek 1B
Length of Reach (linear feet) ^	457	380	1,541	1,299	1,510	489	461	143	440	301	283	601	708	325	1,982	825
Valley Confinement (Rosgen)	II	II	II	II	VIII	II	II	II	II	II	II	II	II	II	VIII	VIII
Drainage area (miles^2)	0.30	0.30	0.37	0.49	0.52	0.01	0.03	0.04	0.04	0.01	0.02	0.03	0.04	0.07	0.30	0.37
Perennial, Intermittent, Ephemeral	Perennial	Perennial	Perennial	Perennial	Perennial	Perennial	Perennial	Perennial	Perennial	Intermittent	Perennial	Perennial	Perennial	Perennial	Perennial	Perennial
NCDWR Water Quality Classification	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C: Tr	C: Tr
Stream Classification (existing)	G	G	B, F, G	B, G	B, E, G	B	B	B, G	B, G	B	B, G	B, G	B, F, G	B	E, G	E, G
Stream Classification (proposed)	B4	B4	B4	B4	B5	B4	B4	B4	B4	B4	B4	B4	B4	B4	C5	C5
FEMA classification	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Wetland Summary Information

Parameters	Wetland A	Wetland B	Wetland D	Wetland E
Size of Wetland (acres)	0.03	0.11	0.05	8.91
Wetland Type (non-riparian, riparian riverine or riparian non-riverine)	Riparian	Riparian	Riparian	Riparian
Mapped Soil Series	-	-	-	Ha
Drainage class	-	-	-	poorly
Soil Hydric Status	Hydric	Hydric	Hydric	Hydric
Source of Hydrology	Spring	Spring	Spring	Groundwater
Hydrologic Impairment	Agriculture/ Livestock Grazing	Agriculture/ Livestock Grazing	Agriculture/ Livestock Grazing	Agriculture
Native vegetation community	Mountain Alluvial Forest	Mountain Alluvial Forest	Mountain Alluvial Forest	Mountain Alluvial Forest
Percent composition of exotic invasive vegetation	15%	15%	15%	1%

Regulatory Considerations

Regulation	Applicable ?	Resolved?	Supporting Documentation
Waters of the United States – Section 404	Yes	Yes	Jurisdictional Determination
Waters of the United States – Section 401	Yes	Yes	Jurisdictional Determination
Endangered Species Act	Yes	Yes	ERTR
Historic Preservation Act	No	N/A	ERTR
Coastal Zone Management Act (CZMA)/ Coastal Area Management Act (CAMA)	No	N/A	N/A
FEMA Floodplain Compliance	Yes	Yes	Yes
Essential Fisheries Habitat	No	N/A	N/A

^ Based on actual thalweg calculations from the as-built survey, accounts for breaks in conservation easement and utility right-of-ways.

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Appendix B
Visual Assessment Data

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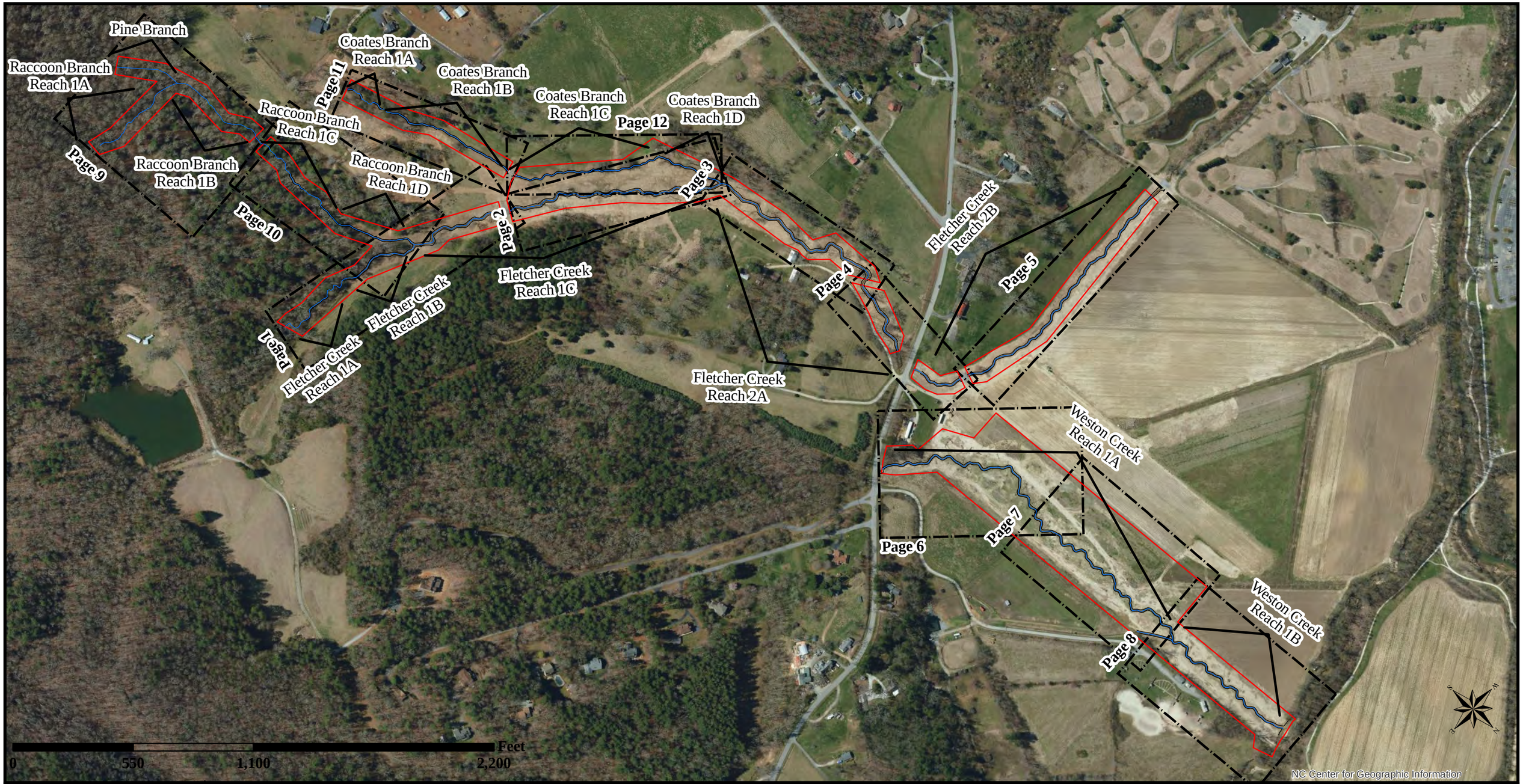

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Current Condition Plan View
Fletcher Mitigation Site
Monitoring Year 2
Henderson County, NC
NCDMS Contract No.: 006997
NCDMS Project No.: 100004
November 2021
Overview

Easement
Map Pages
As-Built Top of Bank
As-Built Thalweg

Notes:
1) Baseline Data Provided by Kee Mapping

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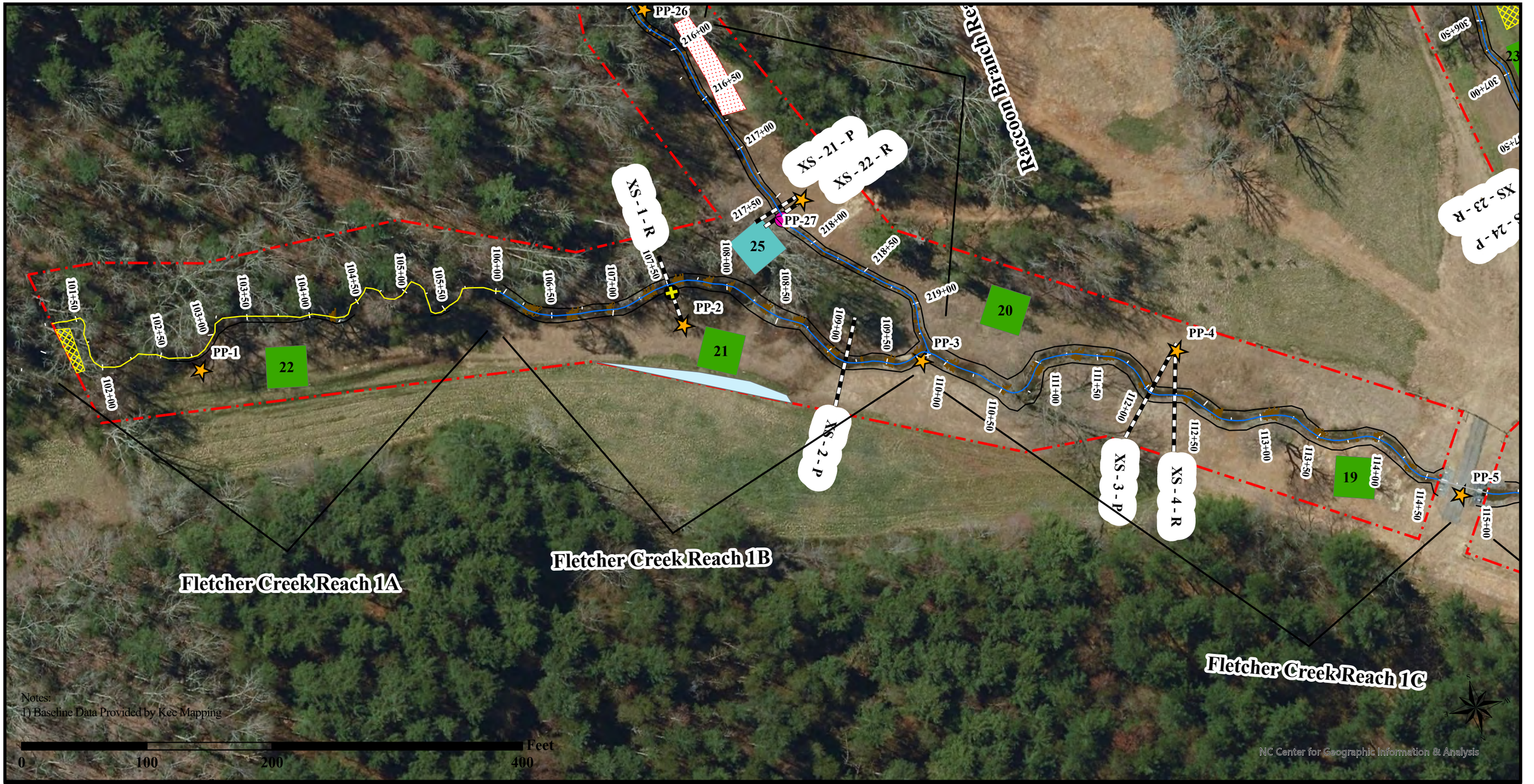

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Fletcher Mitigation Site
Monitoring Year 2
Henderson County, NC
NCDMS Contract No.: 006997
NCDMS Project No.: 100004
November 2021
Sheet 1 of 12

Invasive Vegetation
- Invasive Vegetation
- Encroachment
- Low Stem Density

Streams
- Enhancement II
- No Credit
- Restoration
- Continuous Stage Recorder

- Crest Gauge
- Photo Point
- Cross-Section
- As-Built Top of Bank

Vegetation Plot
- Meeting < 10%
- Meeting > 10%
- Conservation Easement

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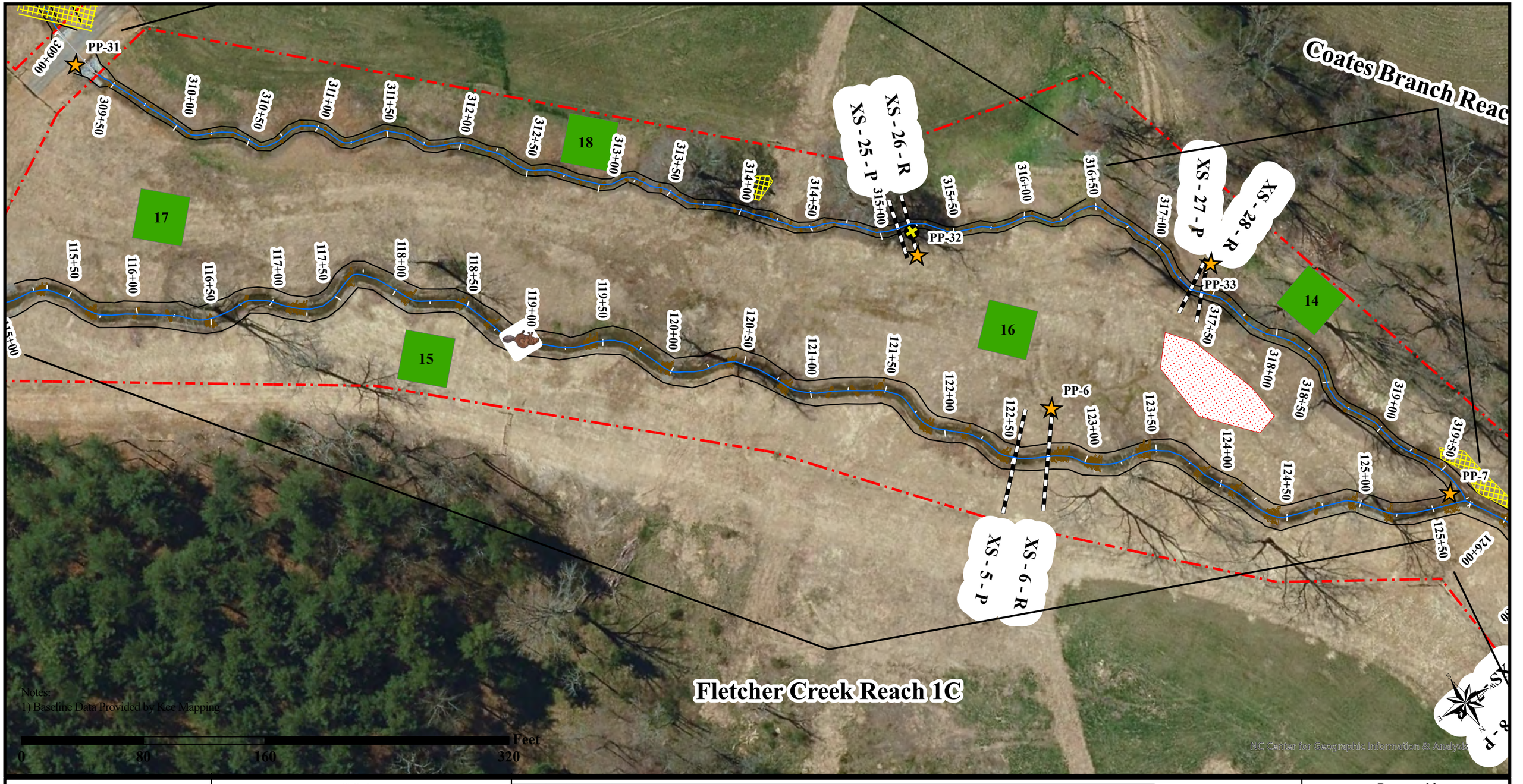

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Monitoring Year 2
Henderson County, NC
NCDMS Contract No.: 006997
NCDMS Project No.: 100004
November 2021
Sheet 2 of 12

Invasive Vegetation
- Invasive Vegetation
- Low Stem Density

Streams
- No Credit
- Restoration
- Crest Gauge

- Photo Point
- Beaver Dam
- Cross-Section
- As-Built Top of Bank

Vegetation Plot
- Meeting > 10%
- Conservation Easement

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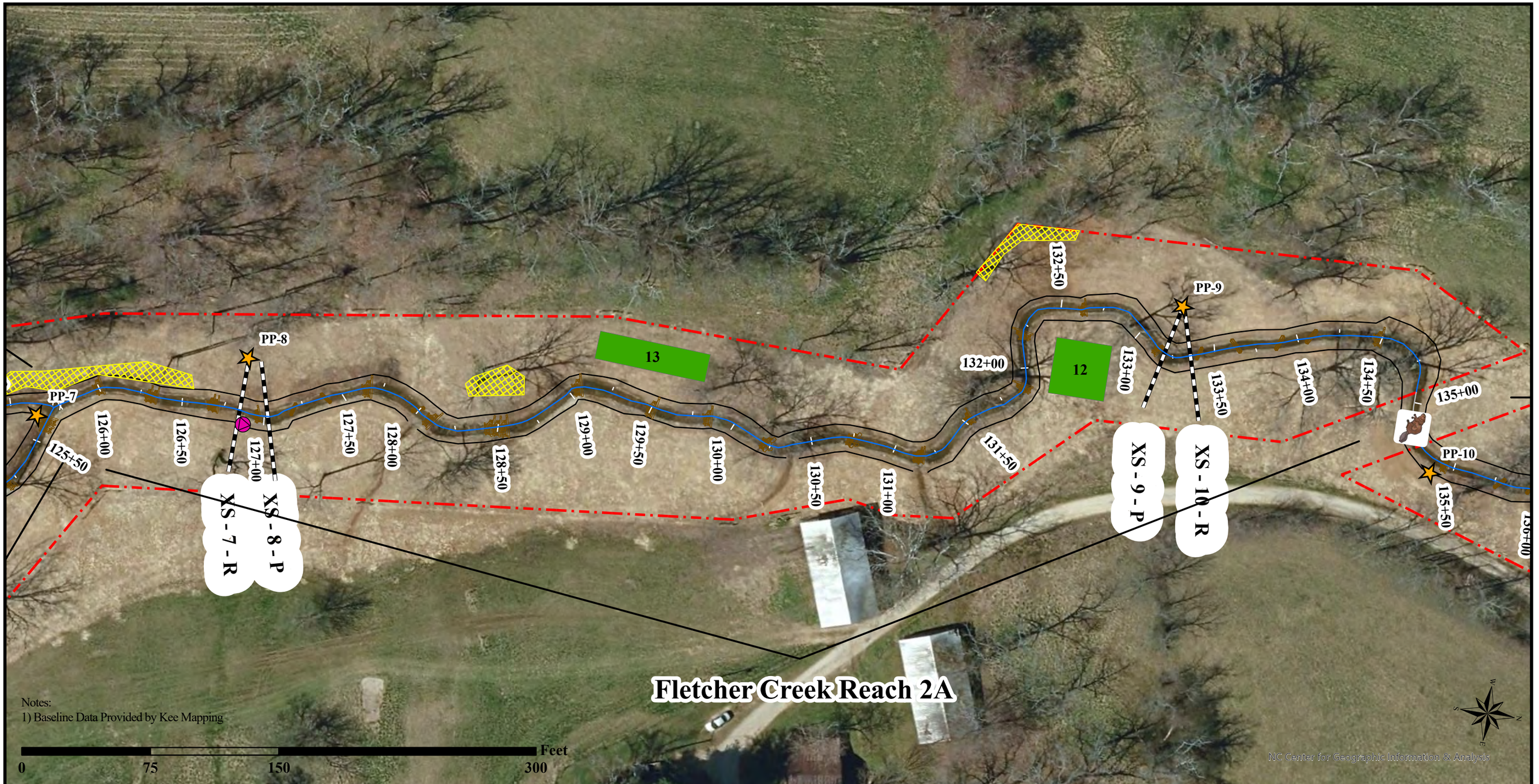

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Monitoring Year 2
Henderson County, NC
NCDMS Contract No.: 006997
NCDMS Project No.: 100004
November 2021
Sheet 3 of 12

Invasive Vegetation
- Invasive Vegetation

Streams
- No Credit
- Restoration

- Continuous Stage Recorder
- Photo Point
- Beaver Dam
- Cross-Section
- As-Built Top of Bank

Vegetation Plot
- Meeting > 10%
- Conservation Easement

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Fletcher Creek Reach 2A

Fletcher Creek Reach 2B

134+50
135+00
135+50
136+00
136+50
137+00
137+50
138+00
138+50
139+00
140+50
141+00
141+50
142+00
142+50
143+00
143+50
144+00

PP-10
PP-11
PP-12
PP-13

11

Notes:
1) Baseline Data Provided by Kee Mapping

0 62.5 125 250 Feet

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Monitoring Year 2
Henderson County, NC
NCDMS Contract No.: 006997
NCDMS Project No.: 100004
November 2021
Sheet 4 of 12

Invasive Vegetation
- Invasive Vegetation
- Bank Erosion

Streams
- No Credit
- Restoration
- Photo Point
- Beaver Dam
- As-Built Top of Bank

Vegetation Plot
- Meeting > 10%
- Conservation Easement

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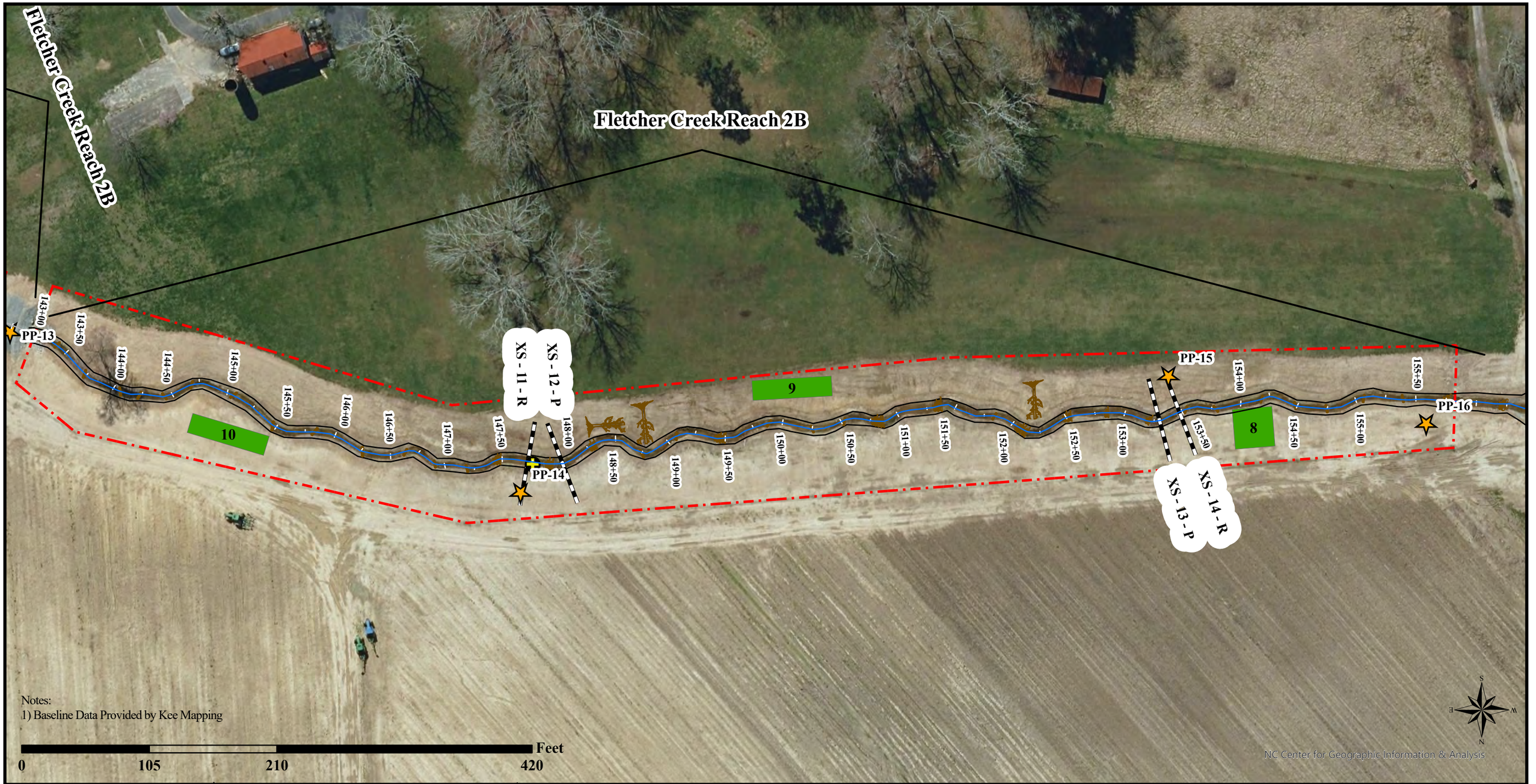

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Monitoring Year 2
Henderson County, NC
NCDMS Contract No.: 006997
NCDMS Project No.: 100004
November 2021
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Streams
- No Credit
- Restoration
- Crest Gauge

Photo Point
Cross-Section
As-Built Top of Bank

Vegetation Plot
- Meeting > 10%
- Conservation Easement

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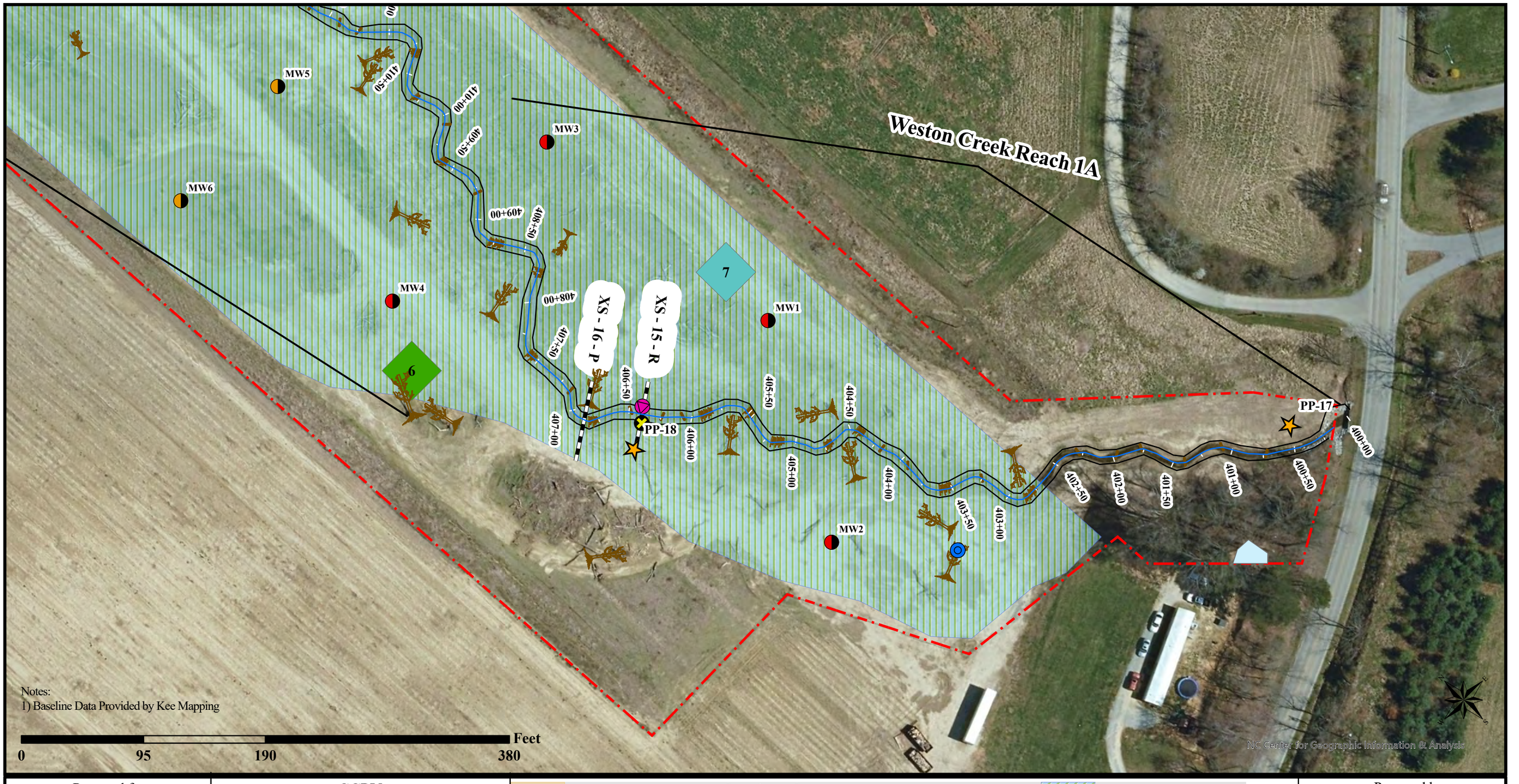

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Fletcher Mitigation Site
Monitoring Year 2
Henderson County, NC
NCDMS Contract No.: 006997
NCDMS Project No.: 100004
November 2021
Sheet 6 of 12

Encroachment

Streams

Restoration

Continuous Stage Recorder

Crest Gauge

Groundwater Gauge

Failing < 10%

Failing > 10%

Photo Point

Rain Gauge

Cross-Section

As-Built Top of Bank

Vegetation Plot

Meeting < 10%

Meeting > 10%

Wetland Re-Establishment

Conservation Easement

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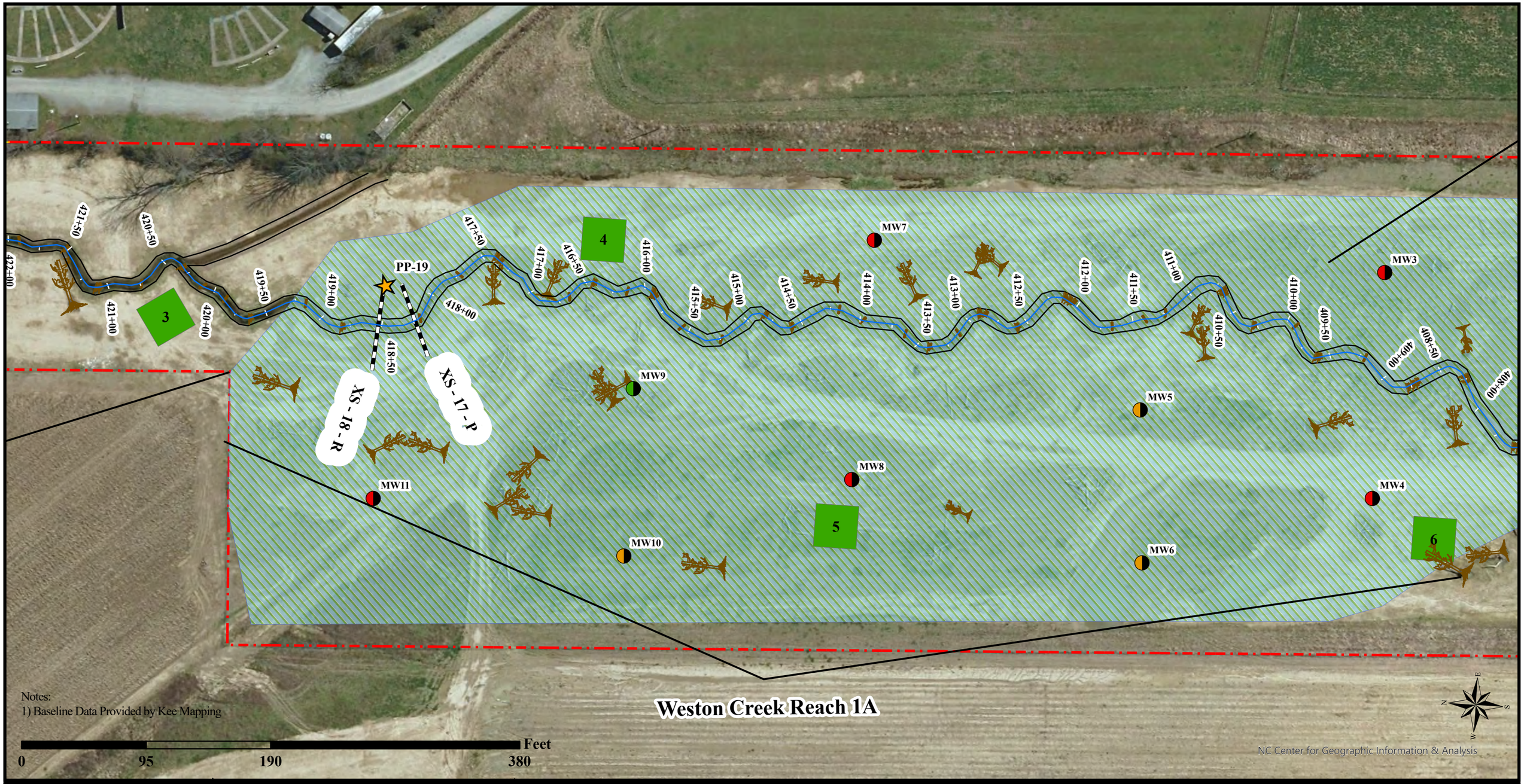

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Fletcher Mitigation Site
Monitoring Year 2
Henderson County, NC
NCDMS Contract No.: 006997
NCDMS Project No.: 100004
November 2021
Sheet 7 of 12

Invasive Vegetation
Invasive Vegetation

Streams
Restoration

Groundwater Gauge
Meeting > 10%
Failing < 10%
Failing > 10%

Photo Point
Cross-Section
As-Built Top of Bank

Vegetation Plot
Meeting > 10%
Wetland Re-Establishment
Conservation Easement

Prepared by

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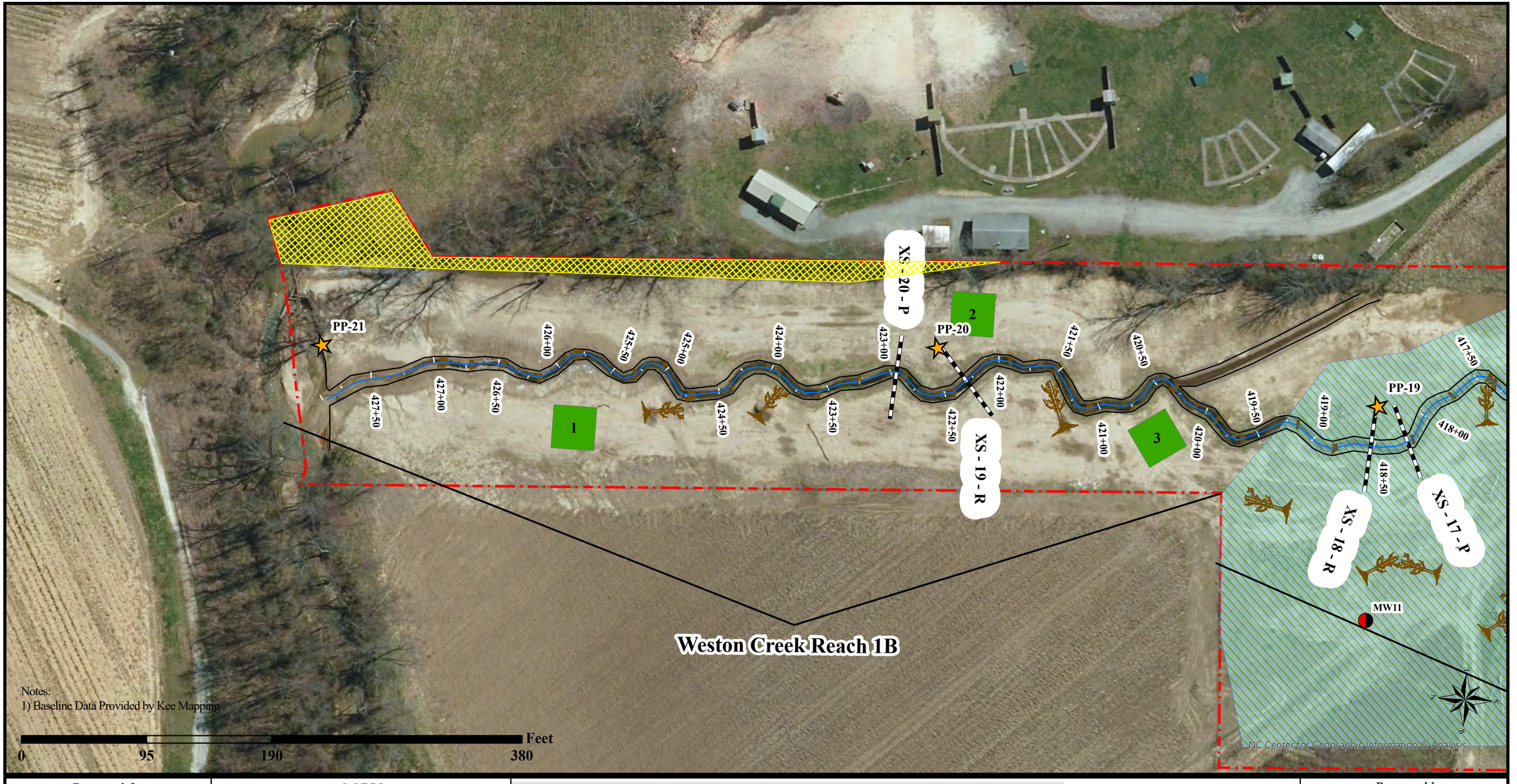

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Fletcher Mitigation Site
Monitoring Year 2
Henderson County, NC
NCDMS Contract No.: 006997
NCDMS Project No.: 100004
November 2021
Sheet 8 of 12

Invasive Vegetation
- Invasive Vegetation

Streams
- Restoration

Groundwater Gauge
- Failing > 10%
- Photo Point
- Cross-Section
- As-Built Top of Bank

Vegetation Plot
- Meeting > 10%
- Wetland Re-Establishment
- Conservation Easement

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Fletcher Mitigation Site
Monitoring Year 2
Henderson County, NC
NCDMS Contract No.: 006997
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Invasive Vegetation
- Invasive Vegetation

Streams
- Enhancement II
- No Credit
- Preservation
- Photo Point
- As-Built Top of Bank

Vegetation Plot
- Meeting > 10%
- Wetlands Enhancement
- Conservation Easement

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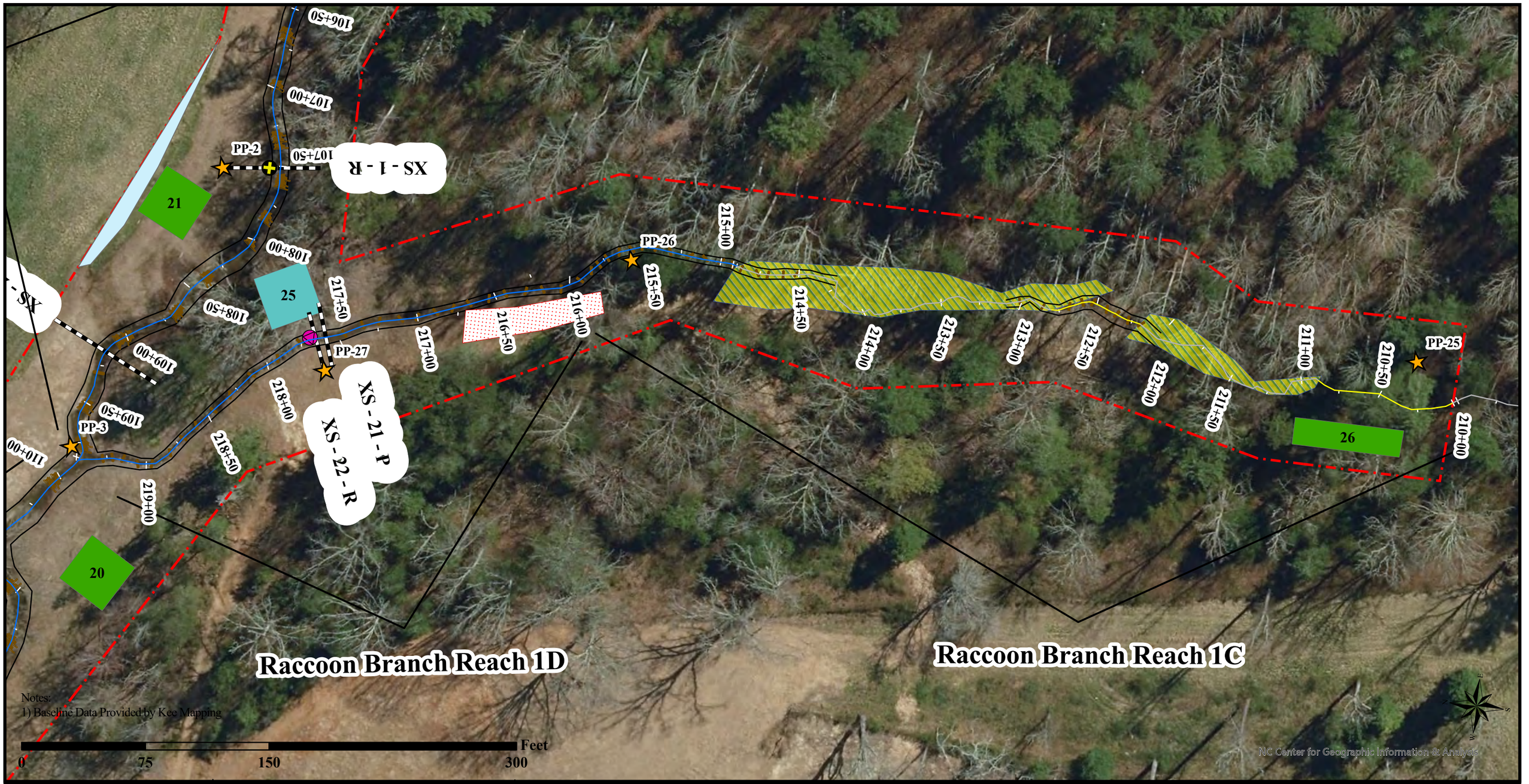

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Fletcher Mitigation Site
Monitoring Year 2
Henderson County, NC
NCDMS Contract No.: 006997
NCDMS Project No.: 100004
November 2021
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Encroachment
Low Stem Density

Streams
Enhancement II
No Credit

Restoration
Continuous Stage Recorder
Crest Gauge
Photo Point

Cross-Section
As-Built Top of Bank

Vegetation Plot
Meeting < 10%
Meeting > 10%

Wetlands Enhancement
Conservation Easement

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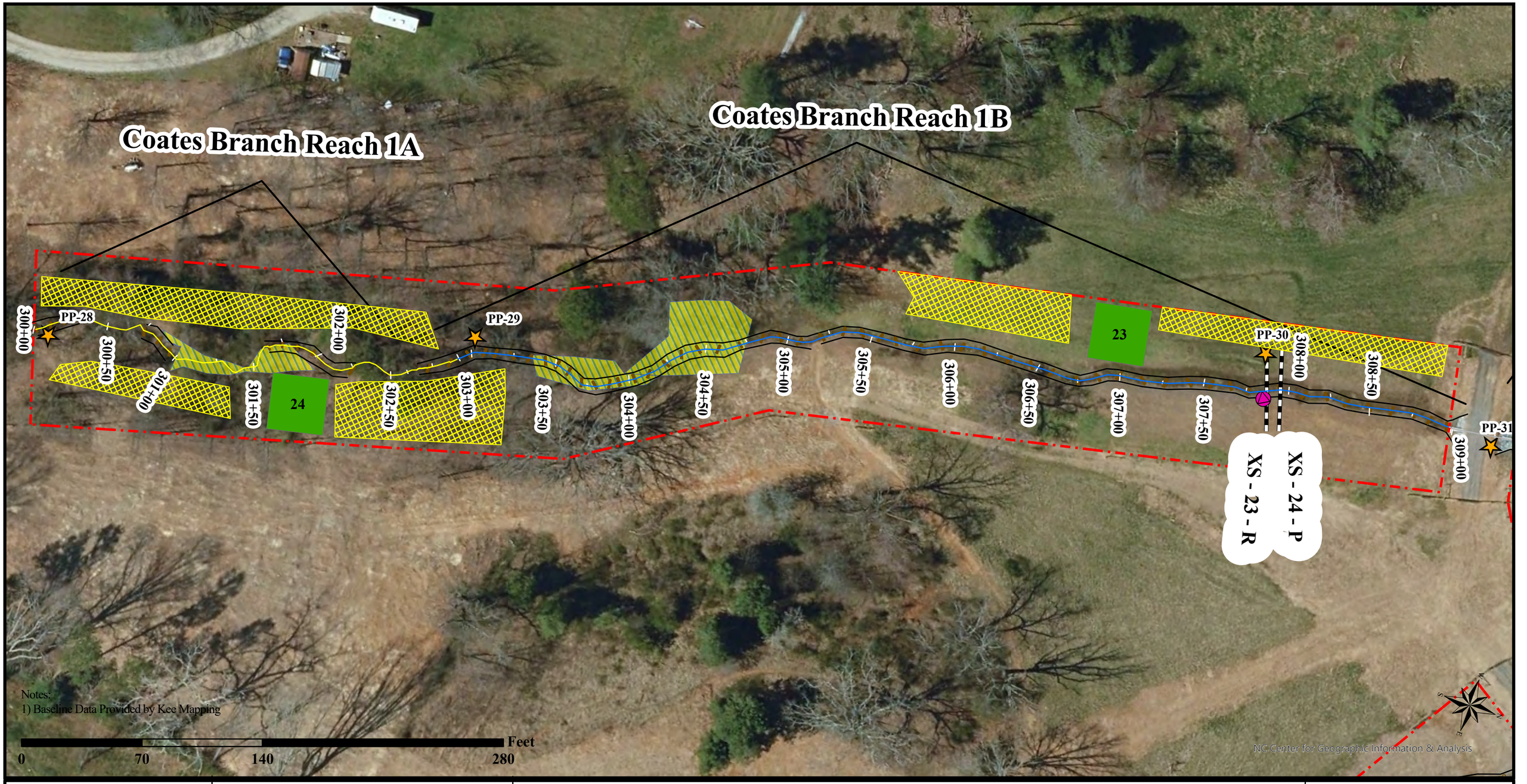

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Fletcher Mitigation Site
Monitoring Year 2
Henderson County, NC
NCDMS Contract No.: 006997
NCDMS Project No.: 100004
November 2021
Sheet 11 of 12

Invasive Vegetation
- Invasive Vegetation

Streams
- Enhancement II
- No Credit
- Restoration
- Continuous Stage Recorder
- Photo Point
- Cross-Section
- As-Built Top of Bank

Vegetation Plot
- Meeting > 10%
- Wetlands Enhancement
- Conservation Easement

Prepared by

EQUINOX

Coates Branch Reach 1C

Coates Branch Reach 1D

XS - 26 - R
XS - 25 - P
XS - 27 - P
XS - 28 - R
XS - 6 - R
XS - 5 - P

PP-31
PP-32
PP-33
PP-6
PP-5
PP-7

309+00
309+50
310+00
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119+00
119+50
120+00
120+50

18
17
16
15
14

Notes:
1) Baseline Data Provided by Kee Mapping

0 80 160 320 Feet

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Fletcher Mitigation Site
Monitoring Year 2
Henderson County, NC
NCDMS Contract No.: 006997
NCDMS Project No.: 100004
November 2021
Sheet 12 of 12

Invasive Vegetation
- Invasive Vegetation
- Low Stem Density

Streams
- No Credit
- Restoration
- Crest Gauge

- Photo Point
- Beaver Dam
- Cross-Section
- As-Built Top of Bank

Vegetation Plot
- Meeting > 10%
- Conservation Easement

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Table 5. Visual Stream Morphology Stability Assessment
Fletcher Mitigation Site (MY2) - Fletcher Creek Reach 1A - Enhancement II
Assessed Length 457 feet (April 27 & Oct 14, 2021)

Major Channel Category	Channel Sub-Category	Metric	Number Stable, Performing as Intended	Total Number in As-built	Number of Unstable Segments	Amount of Unstable Footage	% Stable, Performing as Intended	Number with Stabilizing Woody Vegetation	Footage with Stabilizing Woody Vegetation	Adjusted % for Stabilizing Woody Vegetation
1. Bank	1. Scoured / Eroding	Bank lacking vegetative cover resulting simply from poor growth and/or scour and erosion.			0	0	100%	0	0	100%
	2. Undercut	Banks undercut/overhanging to the extent that mass wasting appears likely. Does NOT include undercuts that are modest, appear sustainable and are providing habitat.			0	0	100%	N/A	N/A	N/A
	3. Mass Wasting	Bank slumping, calving, or collapse.			0	0	100%	N/A	N/A	N/A
				Totals	0	0	100%	N/A	N/A	N/A
3. Engineered Structures	1. Overall Integrity	Structures physically intact with no dislodged boulders or logs.	N/A	N/A			N/A			
	2. Grade Control	Grade control structures exhibiting maintenance of grade across the sill.	N/A	N/A			N/A			
	2a. Piping	Structures lacking any substantial flow underneath sills or arms.	N/A	N/A			N/A			
	3. Bank Protection	Bank erosion within the structures extent of influence does NOT exceed 15%.	N/A	N/A			N/A			
	4. Habitat	Pool forming structures maintaining ~ Max Pool Depth : Mean Bankfull Depth Ratio ≥ 1.6. Rootwads/logs providing some cover at base-flow.	N/A	N/A			N/A			

- Information Unavailable
N/A - Item does not apply.

Table 5 cont'd. Visual Stream Morphology Stability Assessment
Fletcher Mitigation Site (MY2) - Fletcher Creek Reach 1B - Restoration
Assessed Length 380 feet (April 27 & Oct 14, 2021)

Major Channel Category	Channel Sub-Category	Metric	Number Stable, Performing as Intended	Total Number in As-built	Number of Unstable Segments	Amount of Unstable Footage	% Stable, Performing as Intended	Number with Stabilizing Woody Vegetation	Footage with Stabilizing Woody Vegetation	Adjusted % for Stabilizing Woody Vegetation
1. Bank	1. Scoured / Eroding	Bank lacking vegetative cover resulting simply from poor growth and/or scour and erosion.			0	0	100%	0	0	100%
	2. Undercut	Banks undercut/overhanging to the extent that mass wasting appears likely. Does NOT include undercuts that are modest, appear sustainable and are providing habitat.			0	0	100%	0	0	100%
	3. Mass Wasting	Bank slumping, calving, or collapse.			0	0	100%	0	0	100%
				Totals	0	0	100%	0	0	100%
2. Engineered Structures	1. Overall Integrity	Structures physically intact with no dislodged boulders or logs.	1	1			100%			
	2. Grade Control	Grade control structures exhibiting maintenance of grade across the sill.	1	1			100%			
	2a. Piping	Structures lacking any substantial flow underneath sills or arms.	1	1			100%			
	3. Bank Protection	Bank erosion within the structures extent of influence does NOT exceed 15%.	1	1			100%			
	4. Habitat	Pool forming structures maintaining ~ Max Pool Depth : Mean Bankfull Depth Ratio ≥ 1.6. Rootwads/logs providing some cover at base-flow.	1	1			100%			

- Information Unavailable
N/A - Item does not apply.

Table 5 cont'd. Visual Stream Morphology Stability Assessment
Fletcher Mitigation Site (MY2) - Fletcher Creek Reach 1C - Restoration
Assessed Length 1,514 feet (April 27 & Oct 14, 2021)

Major Channel Category	Channel Sub-Category	Metric	Number Stable, Performing as Intended	Total Number in As-built	Number of Unstable Segments	Amount of Unstable Footage	% Stable, Performing as Intended	Number with Stabilizing Woody Vegetation	Footage with Stabilizing Woody Vegetation	Adjusted % for Stabilizing Woody Vegetation
1. Bank	1. Scoured / Eroding	Bank lacking vegetative cover resulting simply from poor growth and/or scour and erosion.			0	0	100%	0	0	100%
	2. Undercut	Banks undercut/overhanging to the extent that mass wasting appears likely. Does NOT include undercuts that are modest, appear sustainable and are providing habitat.			0	0	100%	0	0	100%
	3. Mass Wasting	Bank slumping, calving, or collapse.			0	0	100%	0	0	100%
				Totals	0	0	100%	0	0	100%
2. Engineered Structures	1. Overall Integrity	Structures physically intact with no dislodged boulders or logs.	6	6			100%			
	2. Grade Control	Grade control structures exhibiting maintenance of grade across the sill.	6	6			100%			
	2a. Piping	Structures lacking any substantial flow underneath sills or arms.	6	6			100%			
	3. Bank Protection	Bank erosion within the structures extent of influence does NOT exceed 15%.	6	6			100%			
	4. Habitat	Pool forming structures maintaining ~ Max Pool Depth : Mean Bankfull Depth Ratio ≥ 1.6. Rootwads/logs providing some cover at base-flow.	6	6			100%			

- Information Unavailable

N/A - Item does not apply.

Table 5 cont'd. Visual Stream Morphology Stability Assessment
Fletcher Mitigation Site (MY2) - Fletcher Creek Reach 2A - Restoration
Assessed Length 1,299 feet (April 27 & Oct 14, 2021)

Major Channel Category	Channel Sub-Category	Metric	Number Stable, Performing as Intended	Total Number in As-built	Number of Unstable Segments	Amount of Unstable Footage	% Stable, Performing as Intended	Number with Stabilizing Woody Vegetation	Footage with Stabilizing Woody Vegetation	Adjusted % for Stabilizing Woody Vegetation
1. Bank	1. Scoured / Eroding	Bank lacking vegetative cover resulting simply from poor growth and/or scour and erosion.			0	0	100%	0	0	100%
	2. Undercut	Banks undercut/overhanging to the extent that mass wasting appears likely. Does NOT include undercuts that are modest, appear sustainable and are providing habitat.			0	0	100%	0	0	100%
	3. Mass Wasting	Bank slumping, calving, or collapse.			0	0	100%	0	0	100%
				Totals	0	0	100%	0	0	100%
2. Engineered Structures	1. Overall Integrity	Structures physically intact with no dislodged boulders or logs.	14	14			100%			
	2. Grade Control	Grade control structures exhibiting maintenance of grade across the sill.	14	14			100%			
	2a. Piping	Structures lacking any substantial flow underneath sills or arms.	14	14			100%			
	3. Bank Protection	Bank erosion within the structures extent of influence does NOT exceed 15%.	14	14			100%			
	4. Habitat	Pool forming structures maintaining ~ Max Pool Depth : Mean Bankfull Depth Ratio ≥ 1.6. Rootwads/logs providing some cover at base-flow.	14	14			100%			

- Information Unavailable

N/A - Item does not apply.

Table 5 cont'd. Visual Stream Morphology Stability Assessment
Fletcher Mitigation Site (MY2) - Fletcher Creek Reach 2B - Restoration
Assessed Length 1,511 feet (April 27 & Oct 14, 2021)

Major Channel Category	Channel Sub-Category	Metric	Number Stable, Performing as Intended	Total Number in As-built	Number of Unstable Segments	Amount of Unstable Footage	% Stable, Performing as Intended	Number with Stabilizing Woody Vegetation	Footage with Stabilizing Woody Vegetation	Adjusted % for Stabilizing Woody Vegetation
1. Bank	1. Scoured / Eroding	Bank lacking vegetative cover resulting simply from poor growth and/or scour and erosion.			1	14	99%	0	0	100%
	2. Undercut	Banks undercut/overhanging to the extent that mass wasting appears likely. Does NOT include undercuts that are modest, appear sustainable and are providing habitat.			0	0	100%	0	0	100%
	3. Mass Wasting	Bank slumping, calving, or collapse.			0	0	100%	0	0	100%
				Totals	1	14	100%	0	0	100%
2. Engineered Structures	1. Overall Integrity	Structures physically intact with no dislodged boulders or logs.	27	27			100%			
	2. Grade Control	Grade control structures exhibiting maintenance of grade across the sill.	27	27			100%			
	2a. Piping	Structures lacking any substantial flow underneath sills or arms.	27	27			100%			
	3. Bank Protection	Bank erosion within the structures extent of influence does NOT exceed 15%.	27	27			100%			
	4. Habitat	Pool forming structures maintaining ~ Max Pool Depth : Mean Bankfull Depth Ratio ≥ 1.6. Rootwads/logs providing some cover at base-flow.	27	27			100%			

- Information Unavailable

N/A - Item does not apply.

Table 5 cont'd. Visual Stream Morphology Stability Assessment
Fletcher Mitigation Site (MY2) - Raccoon Branch Reach 1C - Enhancement II
Assessed Length 153 feet (April 27 & Oct 14, 2021)

Major Channel Category	Channel Sub-Category	Metric	Number Stable, Performing as Intended	Total Number in As-built	Number of Unstable Segments	Amount of Unstable Footage	% Stable, Performing as Intended	Number with Stabilizing Woody Vegetation	Footage with Stabilizing Woody Vegetation	Adjusted % for Stabilizing Woody Vegetation
1. Bank	1. Scoured / Eroding	Bank lacking vegetative cover resulting simply from poor growth and/or scour and erosion.			0	0	100%	0	0	100%
	2. Undercut	Banks undercut/overhanging to the extent that mass wasting appears likely. Does NOT include undercuts that are modest, appear sustainable and are providing habitat.			0	0	100%	0	0	100%
	3. Mass Wasting	Bank slumping, calving, or collapse.			0	0	100%	0	0	100%
				Totals	0	0	100%	0	0	100%
2. Engineered Structures	1. Overall Integrity	Structures physically intact with no dislodged boulders or logs.	N/A	N/A			N/A			
	2. Grade Control	Grade control structures exhibiting maintenance of grade across the sill.	N/A	N/A			N/A			
	2a. Piping	Structures lacking any substantial flow underneath sills or arms.	N/A	N/A			N/A			
	3. Bank Protection	Bank erosion within the structures extent of influence does NOT exceed 15%.	N/A	N/A			N/A			
	4. Habitat	Pool forming structures maintaining ~ Max Pool Depth : Mean Bankfull Depth Ratio ≥ 1.6. Rootwads/logs providing some cover at base-flow.	N/A	N/A			N/A			

- Information Unavailable

N/A - Item does not apply.

Table 5 cont'd. Visual Stream Morphology Stability Assessment
Fletcher Mitigation Site (MY2) - Raccoon Branch Reach 1D - Restoration
Assessed Length 440 feet (April 27 & Oct 14, 2021)

Major Channel Category	Channel Sub-Category	Metric	Number Stable, Performing as Intended	Total Number in As-built	Number of Unstable Segments	Amount of Unstable Footage	% Stable, Performing as Intended	Number with Stabilizing Woody Vegetation	Footage with Stabilizing Woody Vegetation	Adjusted % for Stabilizing Woody Vegetation
1. Bank	1. Scoured / Eroding	Bank lacking vegetative cover resulting simply from poor growth and/or scour and erosion.			0	0	100%	0	0	100%
	2. Undercut	Banks undercut/overhanging to the extent that mass wasting appears likely. Does NOT include undercuts that are modest, appear sustainable and are providing habitat.			0	0	100%	0	0	100%
	3. Mass Wasting	Bank slumping, calving, or collapse.			0	0	100%	0	0	100%
				Totals	0	0	100%	0	0	100%
2. Engineered Structures	1. Overall Integrity	Structures physically intact with no dislodged boulders or logs.	N/A	N/A			N/A			
	2. Grade Control	Grade control structures exhibiting maintenance of grade across the sill.	N/A	N/A			N/A			
	2a. Piping	Structures lacking any substantial flow underneath sills or arms.	N/A	N/A			N/A			
	3. Bank Protection	Bank erosion within the structures extent of influence does NOT exceed 15%.	N/A	N/A			N/A			
	4. Habitat	Pool forming structures maintaining ~ Max Pool Depth : Mean Bankfull Depth Ratio ≥ 1.6. Rootwads/logs providing some cover at base-flow.	N/A	N/A			N/A			

- Information Unavailable

N/A - Item does not apply.

Table 5 cont'd. Visual Stream Morphology Stability Assessment
Fletcher Mitigation Site (MY2) - Coates Branch Reach 1A - Enhancement II
Assessed Length 284 feet (April 27 & Oct 14, 2021)

Major Channel Category	Channel Sub-Category	Metric	Number Stable, Performing as Intended	Total Number in As-built	Number of Unstable Segments	Amount of Unstable Footage	% Stable, Performing as Intended	Number with Stabilizing Woody Vegetation	Footage with Stabilizing Woody Vegetation	Adjusted % for Stabilizing Woody Vegetation
1. Bank	1. Scoured / Eroding	Bank lacking vegetative cover resulting simply from poor growth and/or scour and erosion.			0	0	100%	0	0	100%
	2. Undercut	Banks undercut/overhanging to the extent that mass wasting appears likely. Does NOT include undercuts that are modest, appear sustainable and are providing habitat.			0	0	100%	0	0	100%
	3. Mass Wasting	Bank slumping, calving, or collapse.			0	0	100%	0	0	100%
				Totals	0	0	100%	0	0	100%
2. Engineered Structures	1. Overall Integrity	Structures physically intact with no dislodged boulders or logs.	N/A	N/A			N/A			
	2. Grade Control	Grade control structures exhibiting maintenance of grade across the sill.	N/A	N/A			N/A			
	2a. Piping	Structures lacking any substantial flow underneath sills or arms.	N/A	N/A			N/A			
	3. Bank Protection	Bank erosion within the structures extent of influence does NOT exceed 15%.	N/A	N/A			N/A			
	4. Habitat	Pool forming structures maintaining ~ Max Pool Depth : Mean Bankfull Depth Ratio ≥ 1.6. Rootwads/logs providing some cover at base-flow.	N/A	N/A			N/A			

- Information Unavailable

N/A - Item does not apply.

Table 5 cont'd. Visual Stream Morphology Stability Assessment
Fletcher Mitigation Site (MY2) - Coates Branch Reach 1B - Restoration
Assessed Length 601 feet (April 27 & Oct 14, 2021)

Major Channel Category	Channel Sub-Category	Metric	Number Stable, Performing as Intended	Total Number in As-built	Number of Unstable Segments	Amount of Unstable Footage	% Stable, Performing as Intended	Number with Stabilizing Woody Vegetation	Footage with Stabilizing Woody Vegetation	Adjusted % for Stabilizing Woody Vegetation
1. Bank	1. Scoured / Eroding	Bank lacking vegetative cover resulting simply from poor growth and/or scour and erosion.			0	0	100%	0	0	100%
	2. Undercut	Banks undercut/overhanging to the extent that mass wasting appears likely. Does NOT include undercuts that are modest, appear sustainable and are providing habitat.			0	0	100%	0	0	100%
	3. Mass Wasting	Bank slumping, calving, or collapse.			0	0	100%	0	0	100%
				Totals	0	0	100%	0	0	100%
2. Engineered Structures	1. Overall Integrity	Structures physically intact with no dislodged boulders or logs.	N/A	N/A			N/A			
	2. Grade Control	Grade control structures exhibiting maintenance of grade across the sill.	N/A	N/A			N/A			
	2a. Piping	Structures lacking any substantial flow underneath sills or arms.	N/A	N/A			N/A			
	3. Bank Protection	Bank erosion within the structures extent of influence does NOT exceed 15%.	N/A	N/A			N/A			
	4. Habitat	Pool forming structures maintaining ~ Max Pool Depth : Mean Bankfull Depth Ratio ≥ 1.6. Rootwads/logs providing some cover at base-flow.	N/A	N/A			N/A			

- Information Unavailable
N/A - Item does not apply.

Table 5 cont'd. Visual Stream Morphology Stability Assessment
Fletcher Mitigation Site (MY2) - Coates Branch Reach 1C - Restoration
Assessed Length 708 feet (April 27 & Oct 14, 2021)

Major Channel Category	Channel Sub-Category	Metric	Number Stable, Performing as Intended	Total Number in As-built	Number of Unstable Segments	Amount of Unstable Footage	% Stable, Performing as Intended	Number with Stabilizing Woody Vegetation	Footage with Stabilizing Woody Vegetation	Adjusted % for Stabilizing Woody Vegetation
1. Bank	1. Scoured / Eroding	Bank lacking vegetative cover resulting simply from poor growth and/or scour and erosion.			0	0	100%	0	0	100%
	2. Undercut	Banks undercut/overhanging to the extent that mass wasting appears likely. Does NOT include undercuts that are modest, appear sustainable and are providing habitat.			0	0	100%	0	0	100%
	3. Mass Wasting	Bank slumping, calving, or collapse.			0	0	100%	0	0	100%
				Totals	0	0	100%	0	0	100%
2. Engineered Structures	1. Overall Integrity	Structures physically intact with no dislodged boulders or logs.	N/A	N/A			N/A			
	2. Grade Control	Grade control structures exhibiting maintenance of grade across the sill.	N/A	N/A			N/A			
	2a. Piping	Structures lacking any substantial flow underneath sills or arms.	N/A	N/A			N/A			
	3. Bank Protection	Bank erosion within the structures extent of influence does NOT exceed 15%.	N/A	N/A			N/A			
	4. Habitat	Pool forming structures maintaining ~ Max Pool Depth : Mean Bankfull Depth Ratio ≥ 1.6. Rootwads/logs providing some cover at base-flow.	N/A	N/A			N/A			

- Information Unavailable
N/A - Item does not apply.

Table 5 cont'd. Visual Stream Morphology Stability Assessment
Fletcher Mitigation Site (MY2) - Coates Branch Reach 1D - Restoration
Assessed Length 325 feet (April 27 & Oct 14, 2021)

Major Channel Category	Channel Sub-Category	Metric	Number Stable, Performing as Intended	Total Number in As-built	Number of Unstable Segments	Amount of Unstable Footage	% Stable, Performing as Intended	Number with Stabilizing Woody Vegetation	Footage with Stabilizing Woody Vegetation	Adjusted % for Stabilizing Woody Vegetation
1. Bank	1. Scoured / Eroding	Bank lacking vegetative cover resulting simply from poor growth and/or scour and erosion.			0	0	100%	0	0	100%
	2. Undercut	Banks undercut/overhanging to the extent that mass wasting appears likely. Does NOT include undercuts that are modest, appear sustainable and are providing habitat.			0	0	100%	0	0	100%
	3. Mass Wasting	Bank slumping, calving, or collapse.			0	0	100%	0	0	100%
				Totals	0	0	100%	0	0	100%
2. Engineered Structures	1. Overall Integrity	Structures physically intact with no dislodged boulders or logs.	N/A	N/A			N/A			
	2. Grade Control	Grade control structures exhibiting maintenance of grade across the sill.	N/A	N/A			N/A			
	2a. Piping	Structures lacking any substantial flow underneath sills or arms.	N/A	N/A			N/A			
	3. Bank Protection	Bank erosion within the structures extent of influence does NOT exceed 15%.	N/A	N/A			N/A			
	4. Habitat	Pool forming structures maintaining ~ Max Pool Depth : Mean Bankfull Depth Ratio ≥ 1.6. Rootwads/logs providing some cover at base-flow.	N/A	N/A			N/A			

- Information Unavailable
N/A - Item does not apply.

Table 5 cont'd. Visual Stream Morphology Stability Assessment
Fletcher Mitigation Site (MY2) - Weston Creek Reach 1A - Restoration
Assessed Length 1,982 feet (April 27 & Oct 14, 2021)

Major Channel Category	Channel Sub-Category	Metric	Number Stable, Performing as Intended	Total Number in As-built	Number of Unstable Segments	Amount of Unstable Footage	% Stable, Performing as Intended	Number with Stabilizing Woody Vegetation	Footage with Stabilizing Woody Vegetation	Adjusted % for Stabilizing Woody Vegetation
1. Bank	1. Scoured / Eroding	Bank lacking vegetative cover resulting simply from poor growth and/or scour and erosion.			0	0	100%	0	0	100%
	2. Undercut	Banks undercut/overhanging to the extent that mass wasting appears likely. Does NOT include undercuts that are modest, appear sustainable and are providing habitat.			0	0	100%	0	0	100%
	3. Mass Wasting	Bank slumping, calving, or collapse.			0	0	100%	0	0	100%
				Totals	0	0	100%	0	0	100%
2. Engineered Structures	1. Overall Integrity	Structures physically intact with no dislodged boulders or logs.	30	30			100%			
	2. Grade Control	Grade control structures exhibiting maintenance of grade across the sill.	30	30			100%			
	2a. Piping	Structures lacking any substantial flow underneath sills or arms.	30	30			100%			
	3. Bank Protection	Bank erosion within the structures extent of influence does NOT exceed 15%.	30	30			100%			
	4. Habitat	Pool forming structures maintaining ~ Max Pool Depth : Mean Bankfull Depth Ratio ≥ 1.6. Rootwads/logs providing some cover at base-flow.	30	30			100%			

- Information Unavailable
N/A - Item does not apply.

Table 5 cont'd. Visual Stream Morphology Stability Assessment
Fletcher Mitigation Site (MY2) - Weston Creek Reach 1B - Restoration
Assessed Length 825 feet (April 27 & Oct 14, 2021)

Major Channel Category	Channel Sub-Category	Metric	Number Stable, Performing as Intended	Total Number in As-built	Number of Unstable Segments	Amount of Unstable Footage	% Stable, Performing as Intended	Number with Stabilizing Woody Vegetation	Footage with Stabilizing Woody Vegetation	Adjusted % for Stabilizing Woody Vegetation
1. Bank	1. Scoured / Eroding	Bank lacking vegetative cover resulting simply from poor growth and/or scour and erosion.			0	0	100%	0	0	100%
	2. Undercut	Banks undercut/overhanging to the extent that mass wasting appears likely. Does NOT include undercuts that are modest, appear sustainable and are providing habitat.			0	0	100%	0	0	100%
	3. Mass Wasting	Bank slumping, calving, or collapse.			0	0	100%	0	0	100%
				Totals	0	0	100%	0	0	100%
2. Engineered Structures	1. Overall Integrity	Structures physically intact with no dislodged boulders or logs.	10	10			100%			
	2. Grade Control	Grade control structures exhibiting maintenance of grade across the sill.	10	10			100%			
	2a. Piping	Structures lacking any substantial flow underneath sills or arms.	10	10			100%			
	3. Bank Protection	Bank erosion within the structures extent of influence does NOT exceed 15%.	10	10			100%			
	4. Habitat	Pool forming structures maintaining ~ Max Pool Depth : Mean Bankfull Depth Ratio ≥ 1.6. Rootwads/logs providing some cover at base-flow.	10	10			100%			

- Information Unavailable

N/A - Item does not apply.

Table 6. Vegetation Condition Assessment
Fletcher Creek Restoration Site (MY2)
Assessed April 27 & Oct 19, 2021

Planted Acreage : 32.3

Vegetation Category	Definitions	CCPV Depiction	Number of Polygons	Combined Acreage	% of Planted Acreage
1. Bare Areas	Very limited cover of both woody and herbaceous material.	Brown Stipple	0	0.00	0%
2. Low Stem Density Areas	Woody stem densities clearly below target levels based on MY3, 4, or 5 stem count criteria.	Red Stipple	2	0.09	0%
		Totals	2	0.00	0%
3. Areas of Poor Growth Rates or Vigor	Areas with woody stems of a size class that are obviously small given the monitoring year.	N/A	0	0.00	0%
		Cumulative Totals	2	0.00	0%

Easement Acreage : 34.8

Vegetation Category	Definitions	CCPV Depiction	Number of Polygons	Combined Acreage	% of Easement Acreage
4. Invasive Areas of Concern	Areas or points (if too small to render as polygons at map scale).	Cross Hatch (Yellow - Present)	17	0.76	2.2%
		Cross Hatch (Red - Dense)	0	0.00	0%
5. Easement Encroachment Areas	Areas or points (if too small to render as polygons at map scale).	Light Blue	2	0.03	0.1%
		Cumulative Totals	19	0.79	2.3%

N/A - Item does not apply.

Permanent Photo Stations

Fletcher Creek 1A – Permanent Photo Station 1
Looking Upstream

Fletcher Creek 1A – Permanent Photo Station 1
Looking Downstream

Fletcher 1B, Cross section 1 Crest Gauge.

Fletcher Creek 1B – Permanent Photo Station 2
Looking Upstream

Fletcher Creek 1B – Permanent Photo Station 2
Looking Downstream

Fletcher Creek 1B – Permanent Photo Station 3
Looking Upstream

Fletcher Creek 1C – Permanent Photo Station 3
Looking Downstream

Fletcher Creek 1C – Permanent Photo Station 4
Looking Upstream

Fletcher Creek 1C – Permanent Photo Station 4
Looking Downstream

Fletcher Creek 1C – Permanent Photo Station 5
Looking Upstream from Crossing

Fletcher Creek 1C – Permanent Photo Station 5
Looking Downstream from Crossing

Fletcher Creek 1C – Permanent Photo Station 6
Looking Upstream

Fletcher Creek 1C – Permanent Photo Station 6
Looking Downstream

Fletcher Creek 1C – Permanent Photo Station 7
Looking Upstream

Fletcher Creek 2A - Permanent Photo Station 7
Looking Downstream

Coates Branch 1D – Permanent Photo Station 7
Looking Upstream

Fletcher Creek 2A – Permanent Photo Station 8
Looking Upstream

Fletcher Creek 2A – Permanent Photo Station 8
Looking Downstream

Fletcher Creek 2A – Permanent Photo Station 9
Looking Upstream

Fletcher Creek 2A – Permanent Photo Station 9
Looking Downstream

Fletcher Creek 2A – Permanent Photo Station 10
Looking Upstream

Fletcher Creek 2A – Permanent Photo Station 10
Looking Downstream

Fletcher Creek 2A – Permanent Photo Station 11
Looking Upstream

Fletcher Creek 2B – Permanent Photo Station 12
Looking Downstream

Fletcher Creek 2B – Permanent Photo Station 13
Looking Upstream from Crossing

Fletcher Creek 2B – Permanent Photo Station 13
Looking Downstream from Crossing

Fletcher Reach 2B. Cross-section 11 Crest Gauge.

Fletcher Creek 2B – Permanent Photo Station 14
Looking Upstream

Fletcher Creek 2B – Permanent Photo Station 14
Looking Downstream

Fletcher Creek 2B – Permanent Photo Station 15
Looking Upstream

Fletcher Creek 2B – Permanent Photo Station 15
Looking Downstream

Fletcher Creek 2B – Permanent Photo Station 16
Looking Upstream

Weston Creek 1A – Permanent Photo Station 17
Looking Downstream

Weston Reach 1A, Cross-section 15 Crest Gauge.

Weston Creek 1A – Permanent Photo Station 18
Looking Upstream

Weston Creek 1A – Permanent Photo Station 18
Looking Downstream

Weston Creek 1A – Permanent Photo Station 19
Looking Upstream

Weston Creek 1A – Permanent Photo Station 19
Looking Downstream

Weston Creek 1B – Permanent Photo Station 20
Looking Upstream

Weston Creek 1B – Permanent Photo Station 20
Looking Downstream

Weston Creek 1D – Permanent Photo Station 21
Looking Upstream

Raccoon Branch 1A – Permanent Photo Station 22
Looking Downstream

Pine Branch – Permanent Photo Station 23
Looking Downstream

Raccoon Branch 1A – Permanent Photo Station 24
Looking Upstream

Raccoon Branch 1B – Permanent Photo Station 24
Looking Downstream

Pine Branch – Permanent Photo Station 24
Looking Upstream

Raccoon Branch 1B – Permanent Photo Station 25
Looking Upstream

Raccoon Branch 1C – Permanent Photo Station 25
Looking Downstream

Raccoon Branch 1C – Permanent Photo Station 26
Looking Upstream

Raccoon Branch 1D – Permanent Photo Station 26
Looking Downstream

Raccoon Branch 1D – Permanent Photo Station 27
Looking Upstream

Raccoon Branch 1D – Permanent Photo Station 27
Looking Downstream

Coates Branch 1A – Permanent Photo Station 28
Looking Downstream

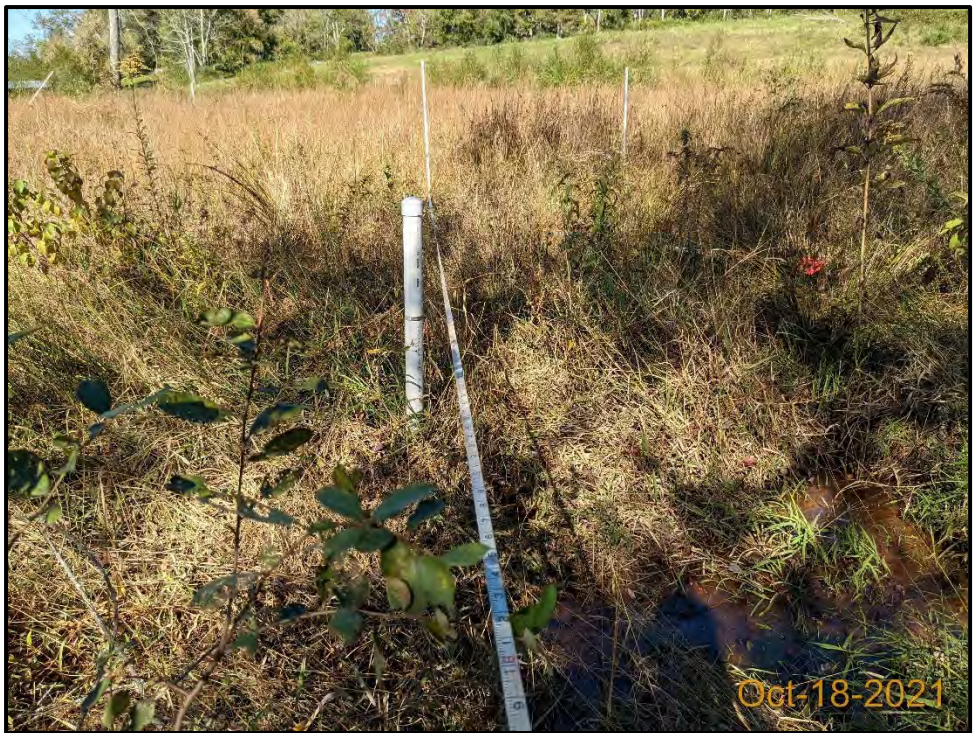
Coates Branch 1B – Permanent Photo Station 29
Looking Downstream

Coates Branch 1B – Permanent Photo Station 30
Looking Upstream

Coates Branch 1B – Permanent Photo Station 30
Looking Downstream

Coates Branch 1B – Permanent Photo Station 31
Looking Upstream from Crossing

Coates Branch 1C – Permanent Photo Station 31
Looking Downstream from Crossing



Cross-section 26 Crest Gauge.

Coates Branch 1C – Permanent Photo Station 32
Looking Upstream

Coates Branch 1C – Permanent Photo Station 32
Looking Downstream

Coates Branch 1D – Permanent Photo Station 33
Looking Upstream

Coates Branch 1D – Permanent Photo Station 33
Looking Downstream

Vegetation Plot Photos

Vegetation Monitoring Plot 1

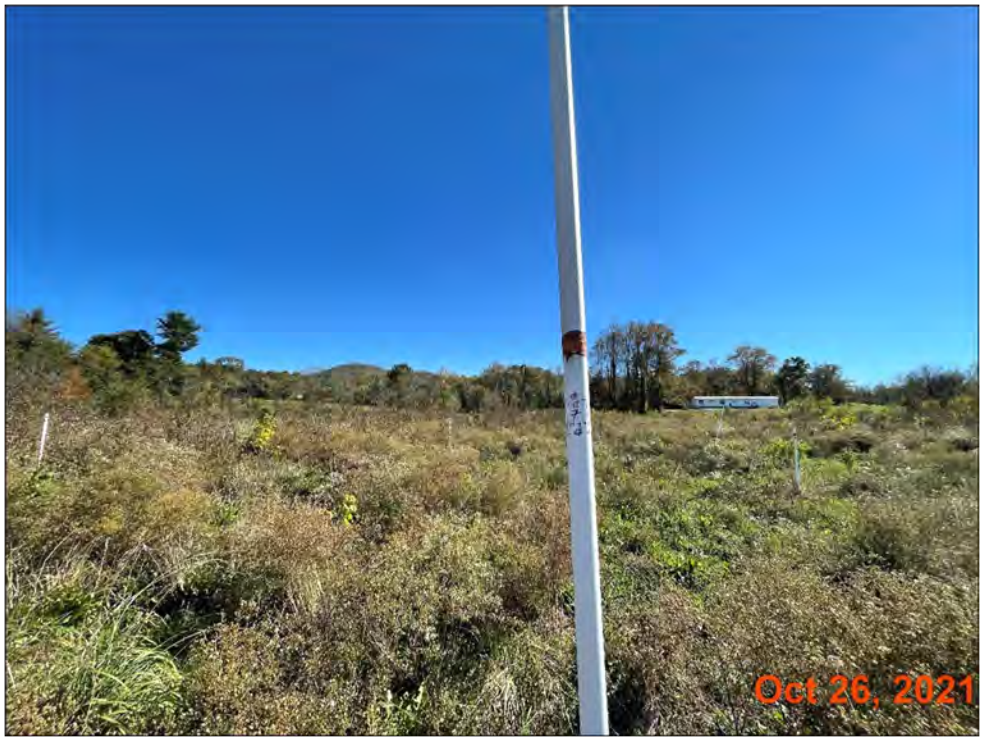
Vegetation Monitoring Plot 2

Vegetation Monitoring Plot 3

Vegetation Monitoring Plot 4

Vegetation Monitoring Plot 5

Vegetation Monitoring Plot 6



Vegetation Monitoring Plot 7

Vegetation Monitoring Plot 8

Vegetation Monitoring Plot 9

Vegetation Monitoring Plot 10

Vegetation Monitoring Plot 11

Vegetation Monitoring Plot 12

Vegetation Monitoring Plot 13

Vegetation Monitoring Plot 14

Vegetation Monitoring Plot 15

Vegetation Monitoring Plot 16

Vegetation Monitoring Plot 17

Vegetation Monitoring Plot 18

Vegetation Monitoring Plot 19

Vegetation Monitoring Plot 20

Vegetation Monitoring Plot 21

Vegetation Monitoring Plot 22

Vegetation Monitoring Plot 23

Vegetation Monitoring Plot 24

Vegetation Monitoring Plot 25

Vegetation Monitoring Plot 26

Problem Areas

Beaver Dam Fletcher Reach 1C, Station 119+00

Beaver Dam Fletcher Reach 1C, Station 135+00

Bank Scour Fletcher Reach 2 Station 144+00

Appendix C
Vegetation Plot Data

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Table 7 Current Plot Data MY2 2021
Fletcher Mitigation Site

Current Plot Data (MY2 2021)

Scientific Name	Common Name	Species Type	100004-01-0001			100004-01-0002			100004-01-0003			100004-01-0004			100004-01-0005			100004-01-0006			100004-01-0007			100004-01-0008		
			PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T
Acer negundo		Tree	2	2	34	3	3	12	2	2	21	3	3	3			23	3	3	10	4	4	19	3	3	3
Acer rubrum		Tree																					5			
Alnus serrulata	Tag Alder	Shrub Tree							1	1	5															
Aronia arbutifolia	Red Chokeberry	Shrub																								
Aronia melanocarpa	Black Chokeberry	Shrub																								
Asimina triloba	Common Pawpaw	Shrub Tree																								
Betula nigra	River Birch	Tree				4	4	4	1	1	1	2	2	2										1	1	1
Carpinus caroliniana		Shrub Tree							1	1	1				1	1	1							1	1	1
Cephalanthus occidentalis	Buttonbush	Shrub Tree	2	2	2				1	1	1	6	6	6	3	3	3	4	4	4	1	1	1			
Cornus amomum	Silky Dogwood	Shrub Tree	3	3	3	1	1	1	4	4	4	3	3	3	4	4	4	5	5	5	2	2	2	1	1	1
Crataegus	Hawthorn	Shrub Tree																								
Fraxinus pennsylvanica	Green Ash	Tree	2	2	2	3	3	3	3	3	3				1	1	1							6	6	6
Gleditsia triacanthos	Honey Locust	Shrub Tree																								
Hamamelis virginiana		Shrub Tree																								
Ilex opaca	American Holly	Shrub Tree																								
Juglans nigra	Black Walnut	Tree																								
Lindera benzoin	Northern Spicebush	Shrub Tree																								
Liquidambar styraciflua	Sweet Gum	Tree													1	1	1									
Liriodendron tulipifera		Tree				3	3	3				1	1	1							1	1	1	1	1	1
Oxydendrum arboreum	Sourwood	Shrub Tree																								
Pinus echinata	Shortleaf Pine	Tree																								
Pinus virginiana	Virginia Pine	Tree																								
Platanus occidentalis	Sycamore	Tree	1	1	4	4	4	4							1	1	1						4	3	3	3
Prunus serotina		Shrub Tree																								
Quercus alba	White Oak	Tree																								
Quercus falcata	Southern Red Oak	Tree																								
Quercus nigra	Water Oak	Tree																								
Quercus rubra		Tree																								
Quercus velutina	Black Oak	Tree																								
Robinia pseudoacacia	Black Locust	Tree																								
Salix caprea	Goat Willow	Shrub Tree																								
Salix nigra	Black Willow	Tree									2															
Salix sericea	Silky Willow	Shrub Tree			8				1	1	1															
Sambucus canadensis	Common Elderberry	Shrub Tree																								
		Stem count	10	10	53	18	18	27	14	14	39	15	15	15	11	11	34	12	12	19	8	8	32	16	16	16
		size (ares)	1			1			1			1			1			1			1			1		
		size (ACRES)	0.02			0.02			0.02			0.02			0.02			0.02			0.02			0.02		
		Species count	5	5	6	6	6	6	8	8	9	5	5	5	6	6	7	3	3	3	4	4	6	7	7	7
		Stems per ACRE	404.7	404.7	2145	728.4	728.4	1093	566.6	566.6	1578	607	607	607	445.2	445.2	1376	485.6	485.6	768.9	323.7	323.7	1295	647.5	647.5	647.5

Scientific Name	Common Name	Species Type	100004-01-0009			100004-01-0010			100004-01-0011			100004-01-0012			100004-01-0013			100004-01-0014			100004-01-0015		
			PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T
Acer negundo		Tree				6	6	6	1	1	1	3	3	3	1	1	1	2	2	28	2	2	2
Acer rubrum		Tree						2												6			3
Alnus serrulata	Tag Alder	Shrub Tree																					
Aronia arbutifolia	Red Chokeberry	Shrub																					
Aronia melanocarpa	Black Chokeberry	Shrub																					
Asimina triloba	Common Pawpaw	Shrub Tree																					
Betula nigra	River Birch	Tree	2	2	2	1	1	1	3	3	3	5	5	61	5	5	62	4	4	4	6	6	6
Carpinus caroliniana		Shrub Tree	4	4	4							1	1	1				2	2	2	4	4	4
Cephalanthus occidentalis	Buttonbush	Shrub Tree																					
Cornus amomum	Silky Dogwood	Shrub Tree							3	3	3										1	1	1
Crataegus	Hawthorn	Shrub Tree																					
Fraxinus pennsylvanica	Green Ash	Tree	2	2	2	3	3	3				1	1	1	1	1	1	1	1	1	4	4	4
Gleditsia triacanthos	Honey Locust	Shrub Tree																					
Hamamelis virginiana		Shrub Tree																					
Ilex opaca	American Holly	Shrub Tree																					
Juglans nigra	Black Walnut	Tree																					
Lindera benzoin	Northern Spicebush	Shrub Tree				1	1	1															
Liquidambar styraciflua	Sweet Gum	Tree																					
Liriodendron tulipifera		Tree	3	3	3				1	1	1			3	1	1	5			3	1	1	1
Oxydendrum arboreum	Sourwood	Shrub Tree																					
Pinus echinata	Shortleaf Pine	Tree																					4
Pinus virginiana	Virginia Pine	Tree																					6
Platanus occidentalis	Sycamore	Tree	5	5	5	6	6	6	3	3	3				3	3	15	6	6	9			5
Prunus serotina		Shrub Tree																		8			
Quercus alba	White Oak	Tree																					
Quercus falcata	Southern Red Oak	Tree																		13			4
Quercus nigra	Water Oak	Tree																					
Quercus rubra		Tree																					
Quercus velutina	Black Oak	Tree																					
Robinia pseudoacacia	Black Locust	Tree																					
Salix caprea	Goat Willow	Shrub Tree																					
Salix nigra	Black Willow	Tree															2						
Salix sericea	Silky Willow	Shrub Tree												2	1	1	1						
Sambucus canadensis	Common Elderberry	Shrub Tree																					
		Stem count	16	16	16	17	17	19	11	11	11	10	10	71	12	12	87	15	15	74	18	18	40
		size (ares)	1			1			1			1			1			1			1		
		size (ACRES)	0.02			0.02			0.02			0.02			0.02			0.02			0.02		
		Species count	5	5	5	5	5	6	5	5	5	4	4	6	6	6	7	5	5	9	6	6	11
		Stems per ACRE	647.5	647.5	647.5	688	688	768.9	445.2	445.2	445.2	404.7	404.7	2873	485.6	485.6	3521	607	607	2995	728.4	728.4	1619

Color for Density

Exceeds requirements by 10%

Exceeds requirements, but by less than 10%

Fails to meet requirements, by less than 10%

Fails to meet requirements by more than 10%

Table 7 cont. Current Plot Data MY2 2021
Fletcher Mitigation Site

			Current Plot Data (MY2 2021)																															Annual Means											
			100004-01-0016			100004-01-0017			100004-01-0018			100004-01-0019			100004-01-0020			100004-01-0021			100004-01-0022			100004-01-0023			100004-01-0024			100004-01-0025			100004-01-0026			MY2 (2021)			MY1 (2020)			*Pre-MY1 (2019)			MY0 (2019)		
Scientific Name	Common Name	Species Type	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T
Acer negundo		Tree				3	3	3	4	4	8	1	1	1	1	1	1	2	2	2	4	4	4	1	1	1										51	51	186	48	48	127	44	44	44	52	52	52
Acer rubrum		Tree			42			22			33																					13						126			27						
Alnus serrulata	Tag Alder	Shrub Tree																					3													1	1	8							6	6	6
Aronia arbutifolia	Red Chokeberry	Shrub																1	1	1																1	1	1	1	1	1	4	4	4	4	4	4
Aronia melanocarpa	Black Chokeberry	Shrub																									1	1	1							1	1	1									
Asimina triloba	Common Pawpaw	Shrub Tree	1	1	1							1	1	1	1	1	1	2	2	2							1	1	1	1	1	1	5	5	5	12	12	12	17	17	17	24	24	24	28	28	28
Betula nigra	River Birch	Tree	1	1	8	1	1	1	2	2	2				3	3	3	5	5	27	1	1	1													47	47	189	51	51	153	43	43	52	61	61	61
Carpinus caroliniana		Shrub Tree				1	1	1	2	2	2	4	4	4										12	12	12										33	33	33	36	36	36	37	37	37	41	41	41
Cephalanthus occidentalis	Buttonbush	Shrub Tree	3	3	3							2	2	2				1	1	1				1	1	1				1	1	1	1	1	1	26	26	26	24	24	24	13	13	13	31	31	31
Cornus amomum	Silky Dogwood	Shrub Tree																1	1	1				1	1	1	1	1	1	4	4	4				34	34	34	35	35	35	14	14	14	33	33	33
Crataegus	Hawthorn	Shrub Tree																																							4						
Fraxinus pennsylvanica	Green Ash	Tree	3	3	3	4	4	4	3	3	3	1	1	1	2	2	2	3	3	3	2	2	2				3	3	4	1	1	1				49	49	50	49	49	49	44	44	44	54	54	54
Gleditsia triacanthos	Honey Locust	Shrub Tree																											2									2									
Hamamelis virginiana		Shrub Tree																																					1	1	1			2	1	1	1
Ilex opaca	American Holly	Shrub Tree																											8									8						4			
Juglans nigra	Black Walnut	Tree																																							2						
Lindera benzoin	Northern Spicebush	Shrub Tree										1	1	1				1	1	1	1	1	1				3	3	3	1	1	1	1	1	1	9	9	9	9	9	9	16	16	16	21	21	21
Liquidambar styraciflua	Sweet Gum	Tree																																		1	1	1	2	2	2				9	9	9
Liriodendron tulipifera		Tree	1	1	1							2	2	2	3	3	22				1	1	1						8							19	19	56	20	20	41	15	15	16	34	34	34
Oxydendrum arboreum	Sourwood	Shrub Tree																														23						23									
Pinus echinata	Shortleaf Pine	Tree																																				4									
Pinus virginiana	Virginia Pine	Tree																														6						12			1						
Platanus occidentalis	Sycamore	Tree	1	1	24	3	3	14	1	1	12	4	4	6			28	1	1	15	7	7	7													49	49	165	49	49	111	43	43	45	52	52	52
Prunus serotina		Shrub Tree																																				8						1			
Quercus alba	White Oak	Tree																																							5						
Quercus falcata	Southern Red Oak	Tree																																				17			1			3			
Quercus nigra	Water Oak	Tree																														8						8			3						
Quercus rubra		Tree																																							2						
Quercus velutina	Black Oak	Tree																																							18			1			
Robinia pseudoacacia	Black Locust	Tree																																							3						
Salix caprea	Goat Willow	Shrub Tree																																							12						
Salix nigra	Black Willow	Tree									8				1	1	1																			1	1	13			24			31			
Salix sericea	Silky Willow	Shrub Tree	2	2	33	1	1	1			8	2	2	16						26	1	1	1										2	2	2	10	10	99	10	10	10	10	10	11	11	11	11
Sambucus canadensis	Common Elderberry	Shrub Tree																																					1	1	7	3	3	4	5	5	5
		Stem count	12	12	115	13	13	46	12	12	76	18	18	34	11	11	58	17	17	79	17	17	20	15	15	15	9	9	28	8	8	58	9	9	9	344	344	1091	353	353	725	310	310	366	443	443	443
		size (ares)		1			1			1			1			1			1			1			1			1			1			1			26			26		19				26	
		size (ACRES)		0.02			0.02			0.02			0.02			0.02			0.02			0.02			0.02			0.02			0.02			0.02			0.64			0.64		0.47				0.64	
		Species count	7	7	8	6	6	7	5	5	8	9	9	9	6	6	7	9	9	10	7	7	8	4	4	4	5	5	8	5	5	9	4	4	4	16	16	25	15	15	27	16	16	16	16	16	16
		Stems per ACRE	485.6	485.6	4654	526.1	526.1	1862	485.6	485.6	3076	728.4	728.4	1376	445.2	445.2	2347	688	688	3197	688	688	809.4	607	607	607	364.2	364.2	1133	323.7	323.7	2347	364.2	364.2	364.2	535.4	535.4	1698	549.4	549.4	1128	660.3	660.3	660.3	689.5	689.5	689.5

Color for Density

Exceeds requirements by 10%

Exceeds requirements, but by less than 10%

Fails to meet requirements, by less than 10%

Fails to meet requirements by more than 10%

Table 9. Vegetation Plot Criteria Attainment Fletcher Creek Restoration Project		
Vegetation Plot ID	Vegetation Survival Threshold Met?	Tract Mean
1	Yes	100.0%
2	Yes	
3	Yes	
4	Yes	
5	Yes	
6	Yes	
7	Yes	
8	Yes	
9	Yes	
10	Yes	
11	Yes	
12	Yes	
13	Yes	
14	Yes	
15	Yes	
16	Yes	
17	Yes	
18	Yes	
19	Yes	
20	Yes	
21	Yes	
22	Yes	
23	Yes	
24	Yes	
25	Yes	
26	Yes	

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Appendix D
Stream Measurement and Geomorphology Data

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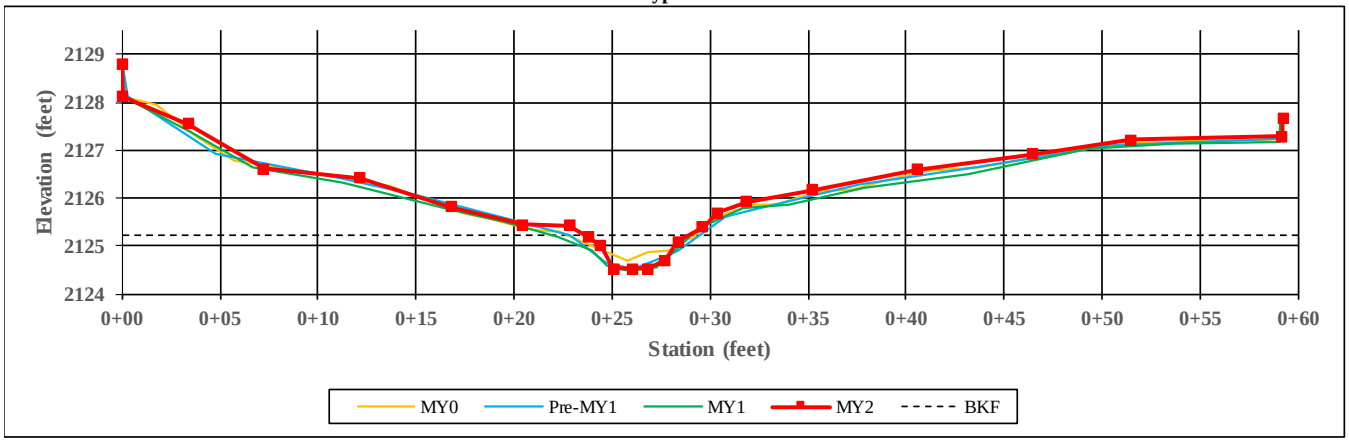
Project Name: Fletcher Mitigation site **XS Number:** 1 **Station:** 107+51

Reach Name: Fletcher Creek Reach 1B **XS Type:** Riffle



CHANNEL DIMENSIONS SUMMARY	MY0	*Pre-MY1	MY1	MY2	MY3	MY4	MY5	MY6
Bankful Width (ft)	7.1	6.1	6.1	4.5	-	-	-	-
Floodprone Width (ft)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Bankfull Mean Depth (ft)	0.3	0.4	0.4	0.5	-	-	-	-
Bankfull Max Depth (ft)	0.6	0.6	0.6	0.7	-	-	-	-
Bankfull Cross-Sectional Area (ft^2)	2.3	2.3	2.3	2.3	-	-	-	-
Width/Depth Ratio	21.4	16.4	15.9	8.8	-	-	-	-
Entrenchment Ratio	2.8	3.3	3.3	4.4	-	-	-	-
Bank Height Ratio	1.0	1.0	1.1	0.9	-	-	-	-

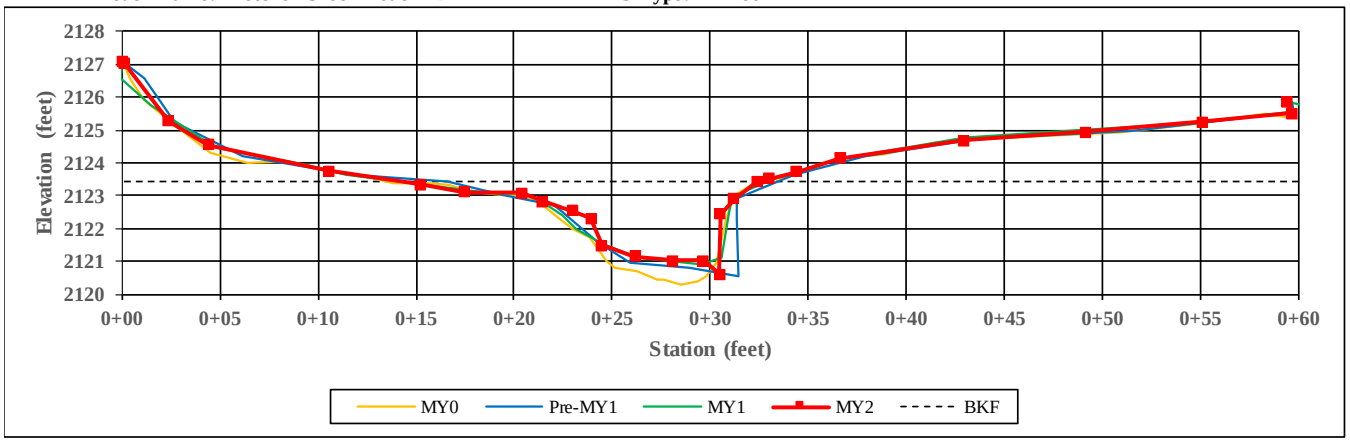
Left Descending Bank

Right Descending Bank

*** Data collected as part of 2019 monitoring year during adaptive management on Weston Reach 1A and 1B**

Project Name: Fletcher Mitigation site **XS Number:** 2 **Station:** 109+16

Reach Name: Fletcher Creek Reach 1B **XS Type:** Pool



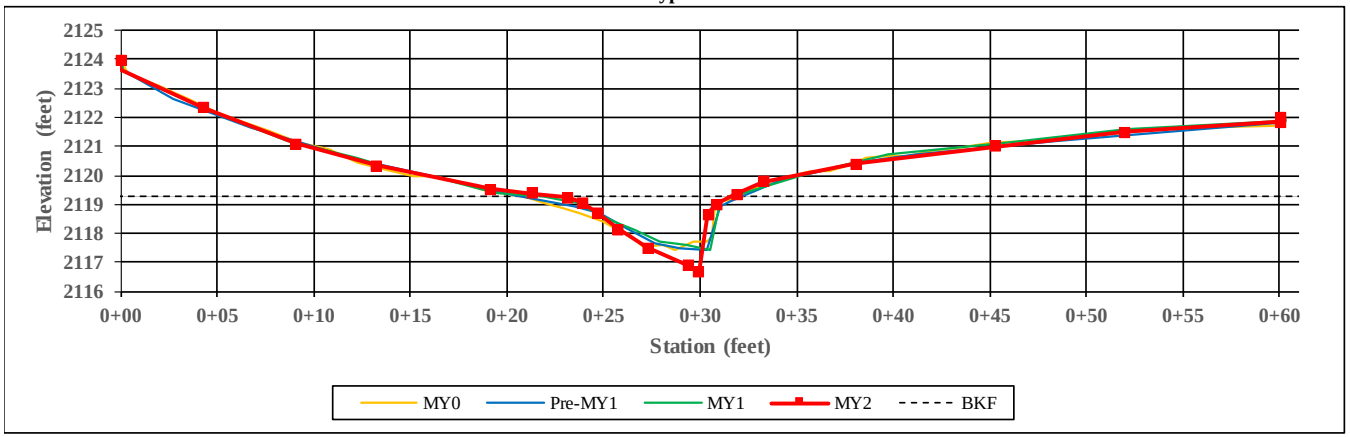
CHANNEL DIMENSIONS SUMMARY	MY0	Pre-MY1	MY1	MY2	MY3	MY4	MY5	MY6
Bankful Width (ft)	10.9	11.9	12.2	10.8	-	-	-	-
Floodprone Width (ft)	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Bankfull Mean Depth (ft)	1.7	1.5	1.5	1.7	-	-	-	-
Bankfull Max Depth (ft)	2.7	2.5	5.7	2.8	-	-	-	-
Bankfull Cross-Sectional Area (ft^2)	18.3	18.3	18.3	18.3	-	-	-	-
Width/Depth Ratio	6.5	7.8	8.1	6.4	-	-	-	-
Entrenchment Ratio	5.5	5.0	4.9	5.5	-	-	-	-
Bank Height Ratio	1.0	1.1	0.9	0.9	-	-	-	-

Left Descending Bank

Right Descending Bank

Project Name: Fletcher Mitigation site **XS Number:** 3 **Station:** 112+04

Reach Name: Fletcher Creek Reach 1C **XS Type:** P



CHANNEL DIMENSIONS SUMMARY	MY0	*Pre-MY1	MY1	MY2	MY3	MY4	MY5	MY6
Bankful Width (ft)	10.9	7.5	12.2	6.9	-	-	-	-
Floodprone Width (ft)	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
Bankfull Mean Depth (ft)	0.9	1.4	0.8	1.5	-	-	-	-
Bankfull Max Depth (ft)	1.8	2.0	2.0	2.6	-	-	-	-
Bankfull Cross-Sectional Area (ft^2)	10.3	10.3	10.3	10.3	-	-	-	-
Width/Depth Ratio	11.5	5.5	14.5	4.7	-	-	-	-
Entrenchment Ratio	3.7	5.3	3.3	5.8	-	-	-	-
Bank Height Ratio	1.0	0.8	0.8	0.9	-	-	-	-

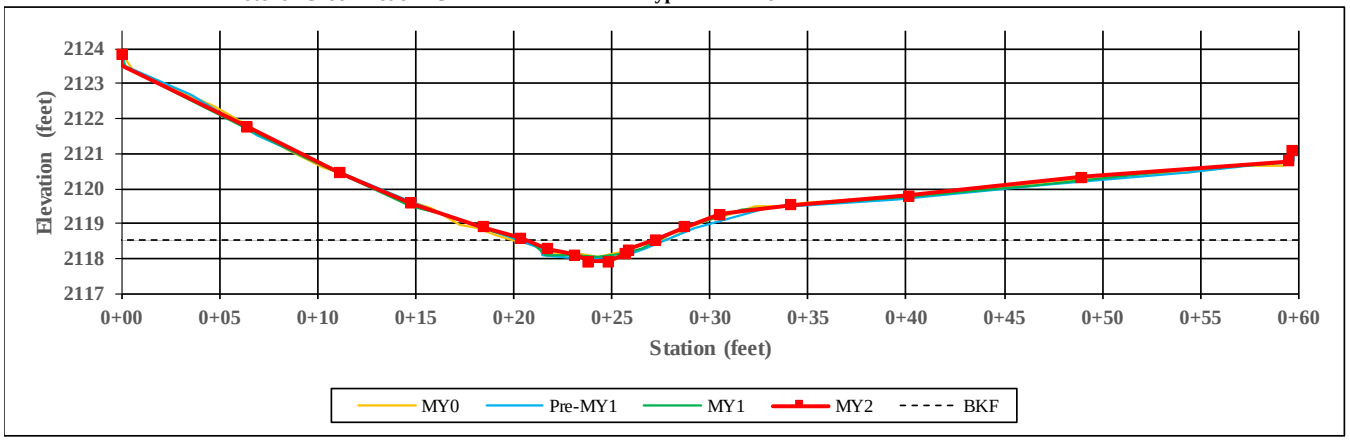
Left Descending Bank

Right Descending Bank

*** Data collected as part of 2019 monitoring year during adaptive management on Weston Reach 1A and 1B**

Project Name: Fletcher Mitigation site **XS Number:** 4 **Station:** 112+24

Reach Name: Fletcher Creek Reach 1C **XS Type:** Riffle



CHANNEL DIMENSIONS SUMMARY	MY0	*Pre-MY1	MY1	MY2	MY3	MY4	MY5	MY6
Bankful Width (ft)	7.6	6.1	6.5	5.4	-	-	-	-
Floodprone Width (ft)	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
Bankfull Mean Depth (ft)	0.3	0.3	0.3	0.4	-	-	-	-
Bankfull Max Depth (ft)	0.5	0.5	0.4	0.6	-	-	-	-
Bankfull Cross-Sectional Area (ft^2)	2.1	2.1	2.1	2.1	-	-	-	-
Width/Depth Ratio	27.6	18.2	19.8	14.0	-	-	-	-
Entrenchment Ratio	1.3	1.6	1.5	1.8	-	-	-	-
Bank Height Ratio	1.0	1.4	1.3	1.0	-	-	-	-

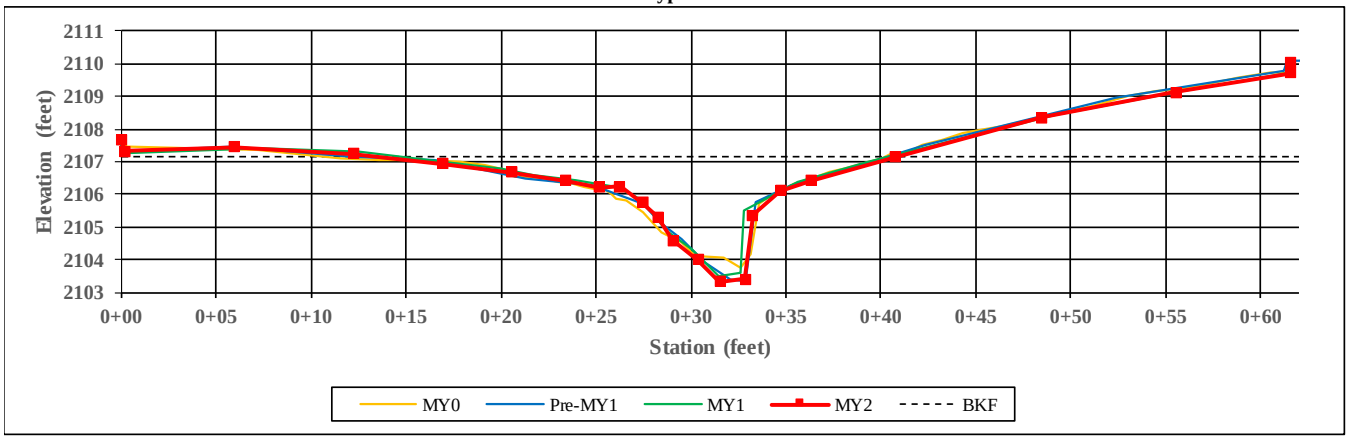
Left Descending Bank

Right Descending Bank

*** Data collected as part of 2019 monitoring year during adaptive management on Weston Reach 1A and 1B**

Project Name: Fletcher Mitigation site **XS Number:** 5 **Station:** 122+51

Reach Name: Fletcher Creek Reach 1C **XS Type:** Pool



CHANNEL DIMENSIONS SUMMARY	MY0	*Pre-MY1	MY1	MY2	MY3	MY4	MY5	MY6
Bankful Width (ft)	16.6	14.0	18.7	8.5	-	-	-	-
Floodprone Width (ft)	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Bankfull Mean Depth (ft)	1.2	1.5	1.1	2.4	-	-	-	-
Bankfull Max Depth (ft)	3.0	3.5	3.4	3.8	-	-	-	-
Bankfull Cross-Sectional Area (ft^2)	20.3	20.3	20.3	20.3	-	-	-	-
Width/Depth Ratio	13.7	9.6	17.2	3.5	-	-	-	-
Entrenchment Ratio	3.6	4.3	3.2	7.1	-	-	-	-
Bank Height Ratio	1.0	0.8	0.8	0.8	-	-	-	-

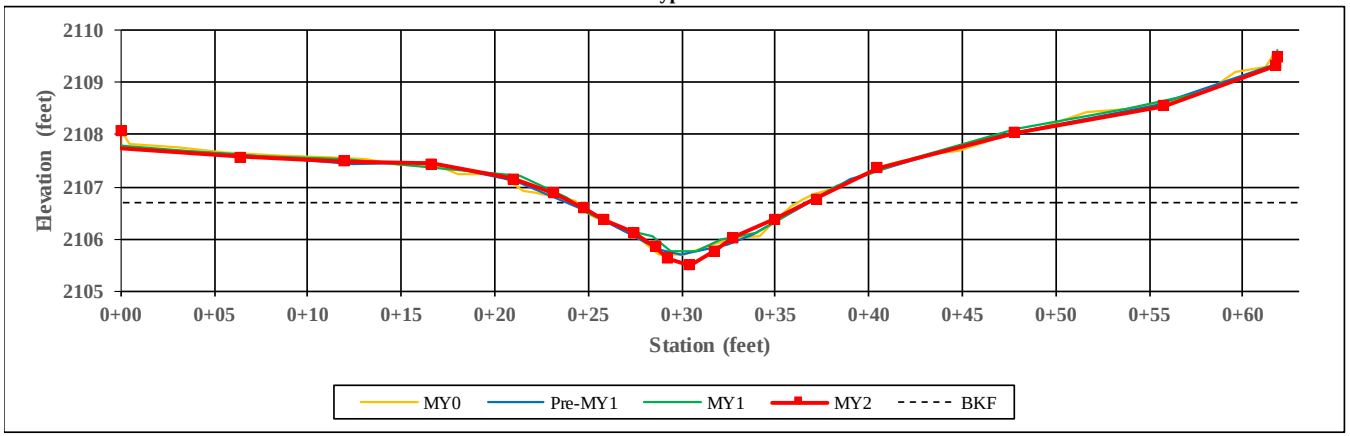
Left Descending Bank

Right Descending Bank

*** Data collected as part of 2019 monitoring year during adaptive management on Weston Reach 1A and 1B**

Project Name: Fletcher Mitigation site **XS Number:** 6 **Station:** 122+74

Reach Name: Fletcher Creek Reach 1C **XS Type:** Riffle



CHANNEL DIMENSIONS SUMMARY	MY0	*Pre-MY1	MY1	MY2	MY3	MY4	MY5	MY6
Bankful Width (ft)	12.0	12.9	13.0	12.8	-	-	-	-
Floodprone Width (ft)	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
Bankfull Mean Depth (ft)	0.6	0.6	0.6	0.6	-	-	-	-
Bankfull Max Depth (ft)	1.0	1.0	1.0	1.2	-	-	-	-
Bankfull Cross-Sectional Area (ft^2)	7.5	7.5	7.5	7.5	-	-	-	-
Width/Depth Ratio	19.2	22.4	22.4	21.8	-	-	-	-
Entrenchment Ratio	4.2	3.9	3.9	3.9	-	-	-	-
Bank Height Ratio	1.0	1.4	1.4	1.1	-	-	-	-

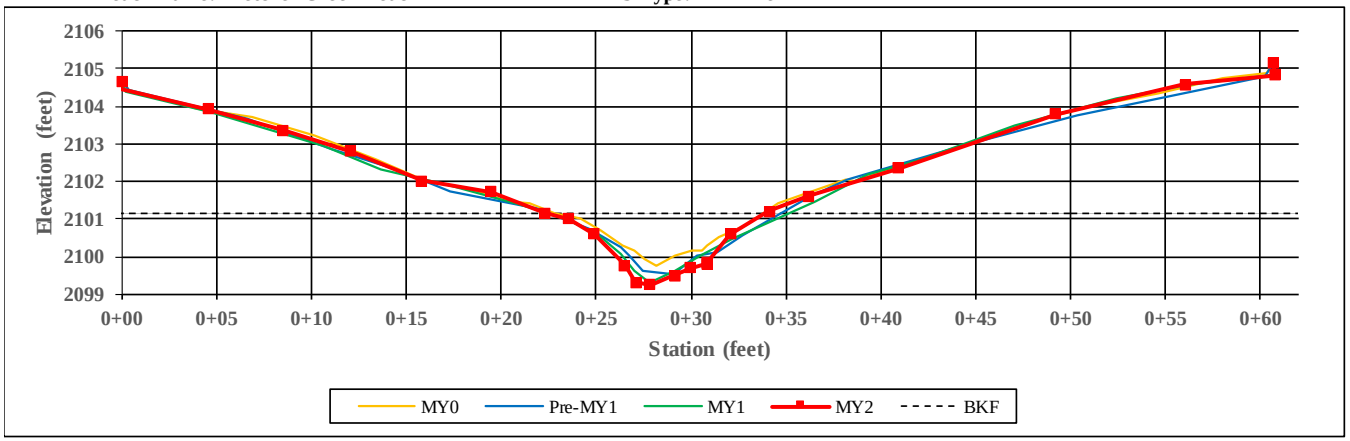
Left Descending Bank

Right Descending Bank

*** Data collected as part of 2019 monitoring year during adaptive management on Weston Reach 1A and 1B**

Project Name: Fletcher Mitigation site **XS Number:** 7 **Station:** 127+03

Reach Name: Fletcher Creek Reach 2A **XS Type:** Riffle



CHANNEL DIMENSIONS SUMMARY	MY0	*Pre-MY1	MY1	MY2	MY3	MY4	MY5	MY6
Bankful Width (ft)	13.1	10.6	11.7	8.5	-	-	-	-
Floodprone Width (ft)	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0
Bankfull Mean Depth (ft)	0.8	1.0	0.9	1.2	-	-	-	-
Bankfull Max Depth (ft)	1.6	1.7	1.8	1.9	-	-	-	-
Bankfull Cross-Sectional Area (ft^2)	10.4	10.4	10.4	10.4	-	-	-	-
Width/Depth Ratio	16.5	10.7	13.2	6.9	-	-	-	-
Entrenchment Ratio	2.7	3.3	3.0	4.1	-	-	-	-
Bank Height Ratio	1.0	1.0	0.9	0.9	-	-	-	-

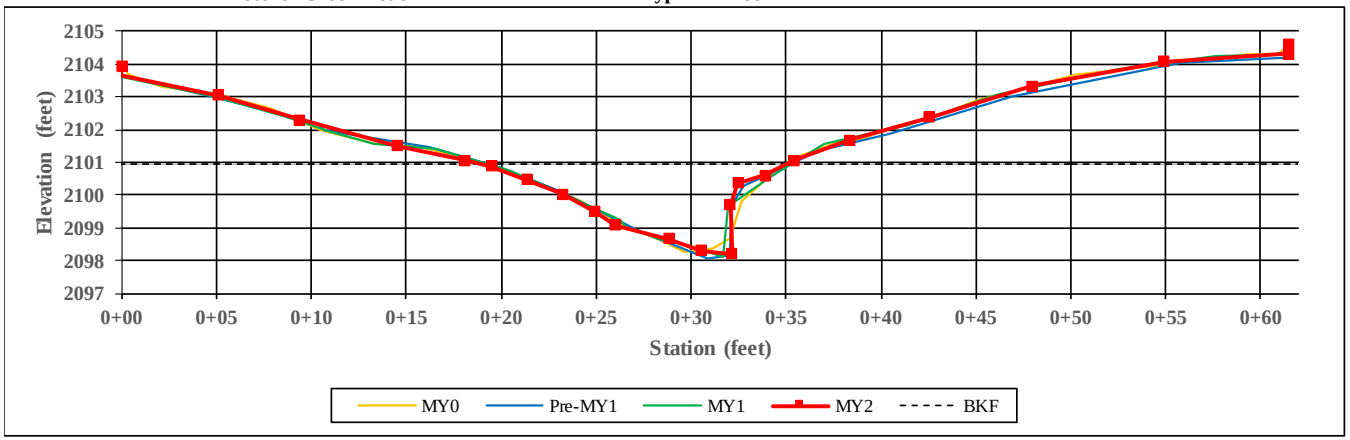
Left Descending Bank

Right Descending Bank

*** Data collected as part of 2019 monitoring year during adaptive management on Weston Reach 1A and 1B**

Project Name: Fletcher Mitigation site **XS Number:** 8 **Station:** 133+19

Reach Name: Fletcher Creek Reach 2A **XS Type:** Pool



CHANNEL DIMENSIONS SUMMARY	MY0	*Pre-MY1	MY1	MY2	MY3	MY4	MY5	MY6
Bankful Width (ft)	15.3	15.0	15.7	12.5	-	-	-	-
Floodprone Width (ft)	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
Bankfull Mean Depth (ft)	1.3	1.4	1.3	1.6	-	-	-	-
Bankfull Max Depth (ft)	2.6	2.8	2.8	2.8	-	-	-	-
Bankfull Cross-Sectional Area (ft^2)	20.5	20.5	20.5	20.5	-	-	-	-
Width/Depth Ratio	11.4	11.0	12.0	7.7	-	-	-	-
Entrenchment Ratio	3.3	3.3	3.2	4.0	-	-	-	-
Bank Height Ratio	1.0	0.8	0.9	0.9	-	-	-	-

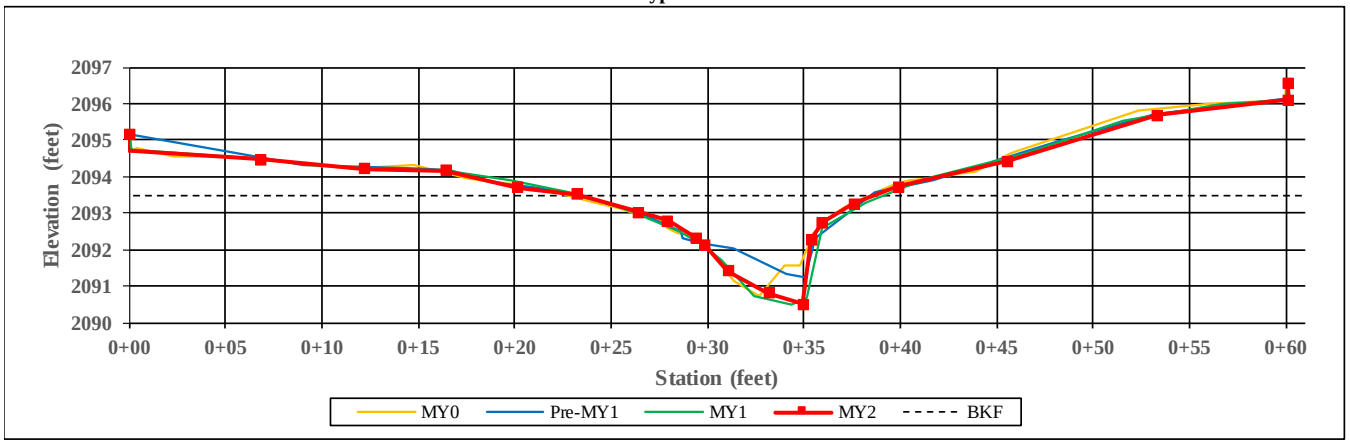
Left Descending Bank

Right Descending Bank

*** Data collected as part of 2019 monitoring year during adaptive management on Weston Reach 1A and 1B**

Project Name: Fletcher Mitigation site **XS Number:** 9 **Station:** 133+19

Reach Name: Fletcher Creek Reach 2A **XS Type:** Pool



CHANNEL DIMENSIONS SUMMARY	MY0	*Pre-MY1	MY1	MY2	MY3	MY4	MY5	MY6
Bankful Width (ft)	15.5	16.1	13.6	11.2	-	-	-	-
Floodprone Width (ft)	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Bankfull Mean Depth (ft)	1.1	1.0	1.2	1.5	-	-	-	-
Bankfull Max Depth (ft)	2.8	2.3	2.8	3.0	-	-	-	-
Bankfull Cross-Sectional Area (ft^2)	16.9	16.9	16.9	16.9	-	-	-	-
Width/Depth Ratio	14.2	15.4	10.9	7.4	-	-	-	-
Entrenchment Ratio	3.9	3.7	4.4	5.4	-	-	-	-
Bank Height Ratio	1.0	1.0	0.7	0.9	-	-	-	-

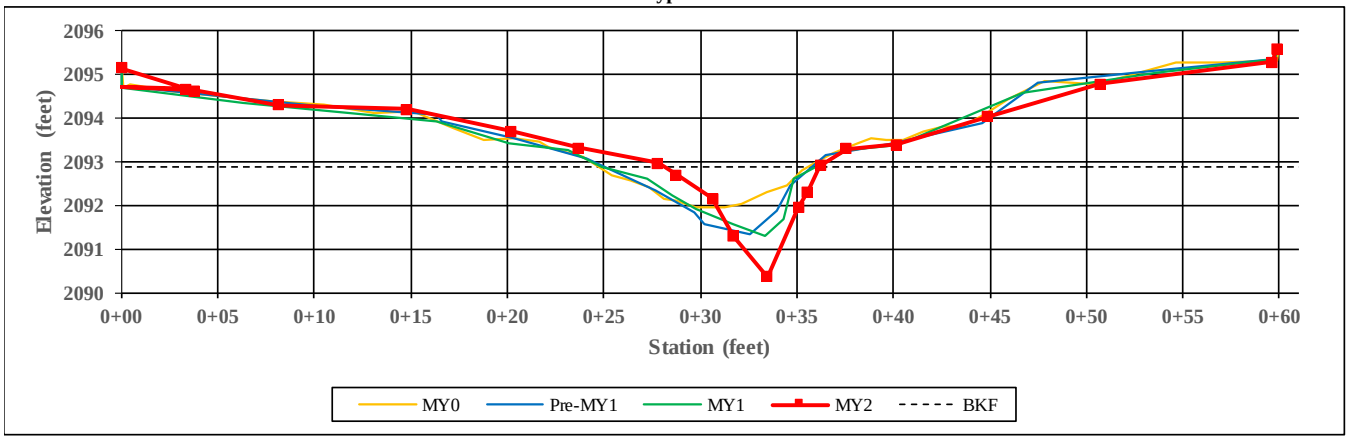
Left Descending Bank

Right Descending Bank

*** Data collected as part of 2019 monitoring year during adaptive management on Weston Reach 1A and 1B**

Project Name: Fletcher Mitigation site **XS Number:** 10 **Station:** 133+36

Reach Name: Fletcher Creek Reach 2A **XS Type:** Riffle



CHANNEL DIMENSIONS SUMMARY	MY0	*Pre-MY1	MY1	MY2	MY3	MY4	MY5	MY6
Bankful Width (ft)	12.6	11.0	11.8	8.2	-	-	-	-
Floodprone Width (ft)	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
Bankfull Mean Depth (ft)	0.7	0.8	0.8	1.1	-	-	-	-
Bankfull Max Depth (ft)	1.2	1.6	1.7	2.5	-	-	-	-
Bankfull Cross-Sectional Area (ft^2)	9.2	9.2	9.2	9.2	-	-	-	-
Width/Depth Ratio	17.4	13.2	15.0	7.3	-	-	-	-
Entrenchment Ratio	4.0	4.6	4.3	6.1	-	-	-	-
Bank Height Ratio	1.0	1.1	1.2	1.0	-	-	-	-

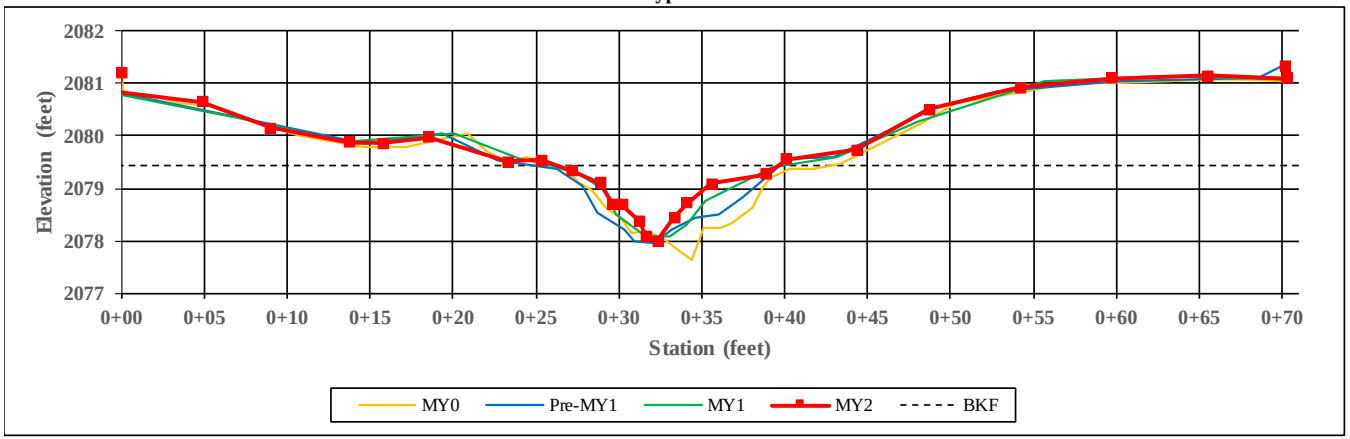
Left Descending Bank

Right Descending Bank

*** Data collected as part of 2019 monitoring year during adaptive management on Weston Reach 1A and 1B**

Project Name: Fletcher Mitigation site **XS Number:** 11 **Station:** 147+71

Reach Name: Fletcher Creek Reach 2B **XS Type:** Riffle



CHANNEL DIMENSIONS SUMMARY	MY0	*Pre-MY1	MY1	MY2	MY3	MY4	MY5	MY6
Bankful Width (ft)	10.2	9.6	11.2	12.6	-	-	-	-
Floodprone Width (ft)	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
Bankfull Mean Depth (ft)	0.7	0.7	0.6	0.6	-	-	-	-
Bankfull Max Depth (ft)	1.3	1.1	1.2	1.4	-	-	-	-
Bankfull Cross-Sectional Area (ft^2)	7.1	7.1	7.1	7.1	-	-	-	-
Width/Depth Ratio	14.6	13.0	17.7	22.4	-	-	-	-
Entrenchment Ratio	3.9	4.2	3.6	3.2	-	-	-	-
Bank Height Ratio	1.0	1.1	1.0	1.1	-	-	-	-

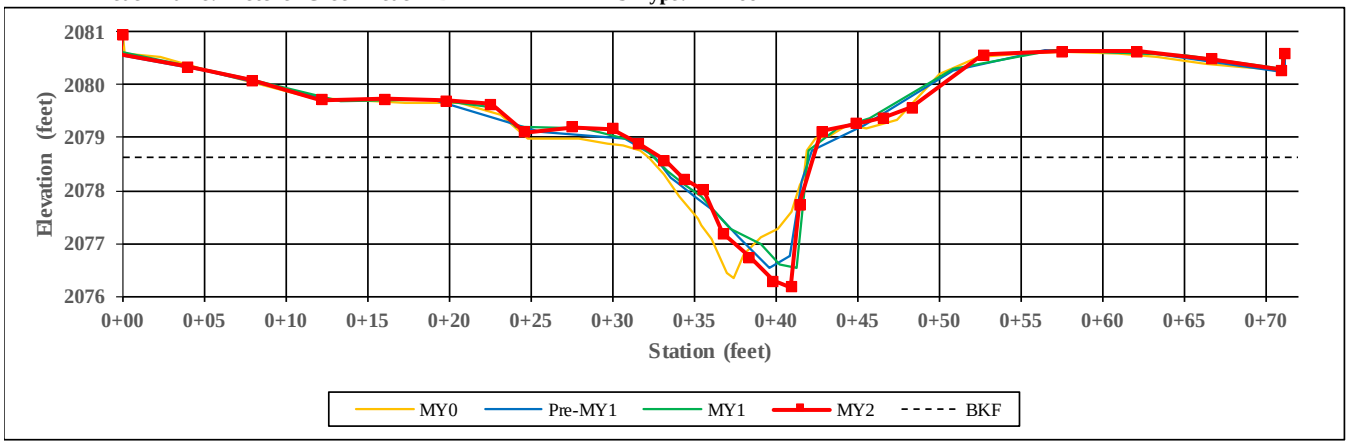
Left Descending Bank

Right Descending Bank

*** Data collected as part of 2019 monitoring year during adaptive management on Weston Reach 1A and 1B**

Project Name: Fletcher Mitigation site **XS Number: 12** **Station: 148+00**

Reach Name: Fletcher Creek Reach 2B **XS Type: Pool**



CHANNEL DIMENSIONS SUMMARY	MY0	*Pre-MY1	MY1	MY2	MY3	MY4	MY5	MY6
Bankful Width (ft)	9.7	10.0	9.7	9.4	-	-	-	-
Floodprone Width (ft)	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
Bankfull Mean Depth (ft)	1.2	1.2	1.2	1.2	-	-	-	-
Bankfull Max Depth (ft)	2.3	2.2	2.2	2.4	-	-	-	-
Bankfull Cross-Sectional Area (ft^2)	11.7	11.7	11.7	11.7	-	-	-	-
Width/Depth Ratio	8.1	8.5	8.1	7.6	-	-	-	-
Entrenchment Ratio	7.2	7.0	7.2	7.5	-	-	-	-
Bank Height Ratio	1.0	1.0	1.0	1.2	-	-	-	-

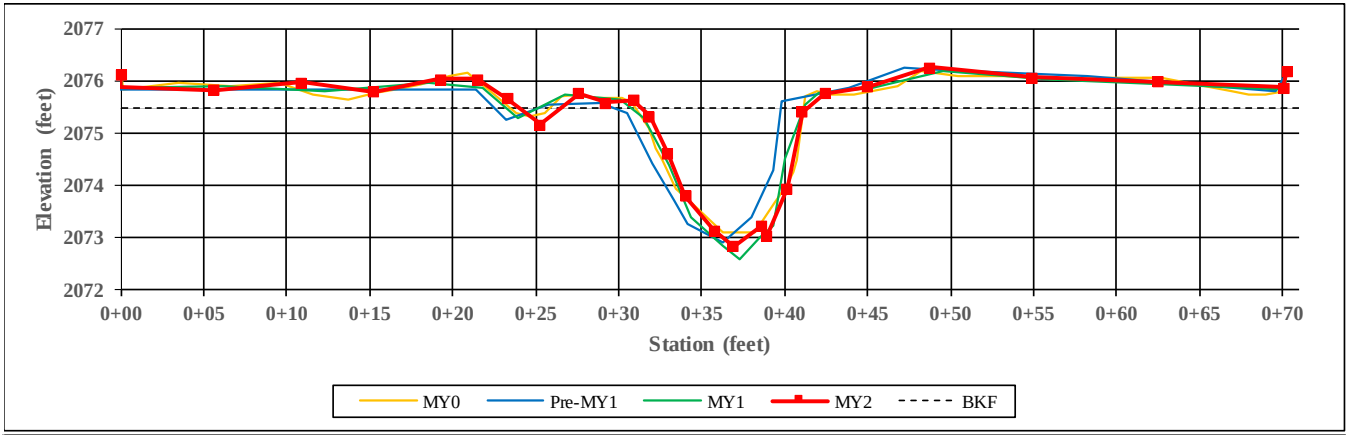
Left Descending Bank

Right Descending Bank

*** Data collected as part of 2019 monitoring year during adaptive management on Weston Reach 1A and 1B**

Project Name: Fletcher Mitigation site **XS Number:** 13 **Station:** 153+30

Reach Name: Fletcher Creek Reach 2B **XS Type:** Pool



CHANNEL DIMENSIONS SUMMARY	MY0	*Pre-MY1	MY1	MY2	MY3	MY4	MY5	MY6
Bankful Width (ft)	10.1	13.1	8.5	9.7	-	-	-	-
Floodprone Width (ft)	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
Bankfull Mean Depth (ft)	1.6	1.2	1.9	1.7	-	-	-	-
Bankfull Max Depth (ft)	2.4	2.6	2.8	2.6	-	-	-	-
Bankfull Cross-Sectional Area (ft^2)	16.4	16.4	16.4	16.4	-	-	-	-
Width/Depth Ratio	6.2	10.5	4.5	5.7	-	-	-	-
Entrenchment Ratio	6.9	5.3	8.2	7.2	-	-	-	-
Bank Height Ratio	1.0	1.0	1.1	1.1	-	-	-	-

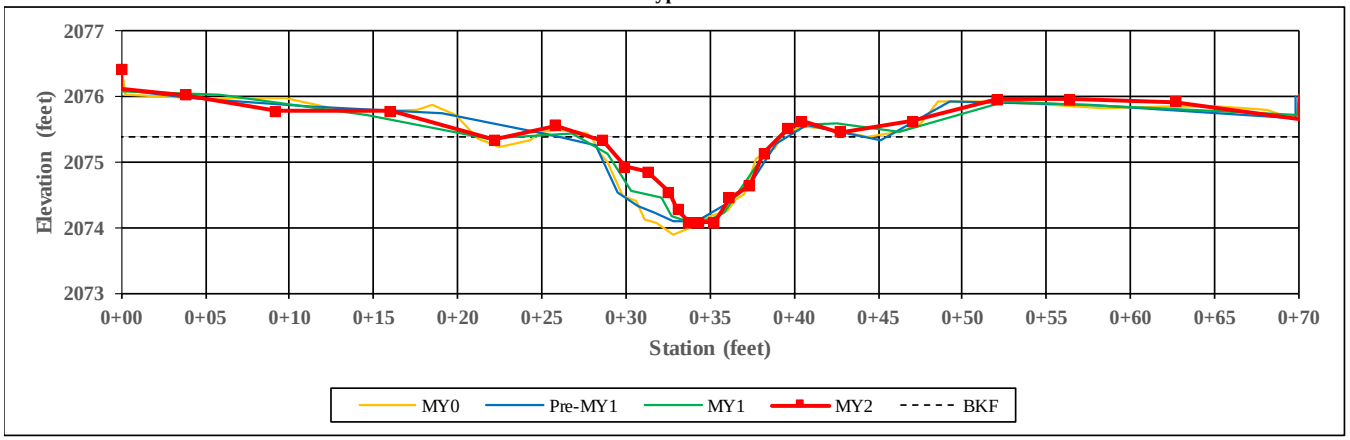
Left Descending Bank

Right Descending Bank

*** Data collected as part of 2019 monitoring year during adaptive management on Weston Reach 1A and 1B**

Project Name: Fletcher Mitigation site **XS Number:** 14 **Station:** 153+48

Reach Name: Fletcher Creek Reach 2B **XS Type:** Riffle



CHANNEL DIMENSIONS SUMMARY	MY0	*Pre-MY1	MY1	MY2	MY3	MY4	MY5	MY6
Bankful Width (ft)	9.8	10.3	9.7	9.6	-	-	-	-
Floodprone Width (ft)	70.0	70.0	70.0	70.0	70.0	70.0	70.0	70.0
Bankfull Mean Depth (ft)	0.8	0.7	0.8	0.8	-	-	-	-
Bankfull Max Depth (ft)	1.2	1.1	1.2	1.3	-	-	-	-
Bankfull Cross-Sectional Area (ft^2)	7.6	7.6	7.6	7.6	-	-	-	-
Width/Depth Ratio	12.6	14.0	12.3	12.2	-	-	-	-
Entrenchment Ratio	7.1	6.8	7.2	7.3	-	-	-	-
Bank Height Ratio	1.0	1.1	1.1	1.0	-	-	-	-

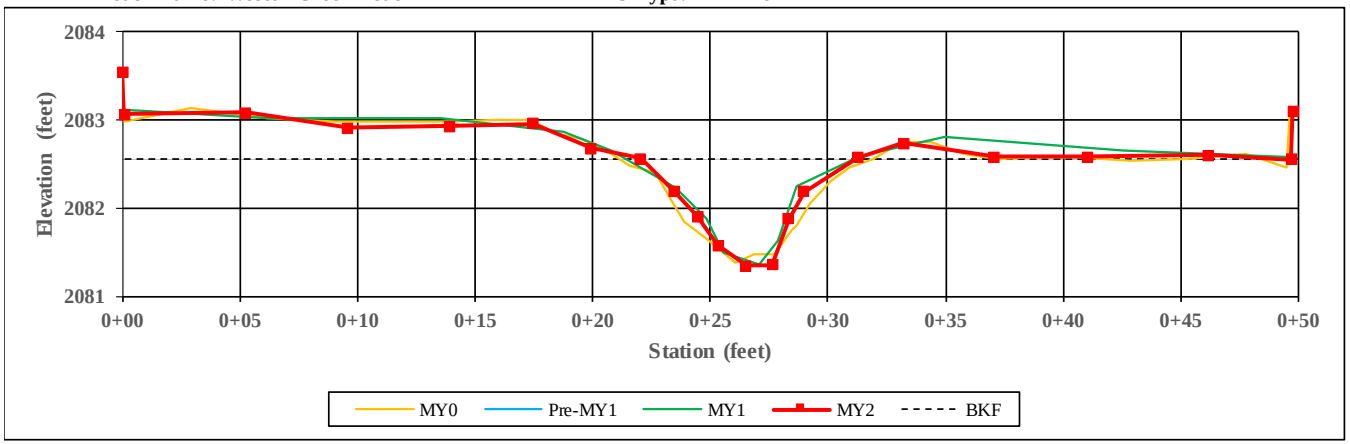
Left Descending Bank

Right Descending Bank

*** Data collected as part of 2019 monitoring year during adaptive management on Weston Reach 1A and 1B**

Project Name: Fletcher Mitigation site **XS Number:** 15 **Station:** 406+40

Reach Name: Weston Creek Reach 1A **XS Type:** Riffle



CHANNEL DIMENSIONS SUMMARY	MY0	*Pre-MY1	MY1	MY2	MY3	MY4	MY5	MY6
Bankful Width (ft)	9.1	-	10.8	9.0	-	-	-	-
Floodprone Width (ft)	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
Bankfull Mean Depth (ft)	0.6	-	0.5	0.6	-	-	-	-
Bankfull Max Depth (ft)	1.1	-	1.2	1.2	-	-	-	-
Bankfull Cross-Sectional Area (ft^2)	5.4	-	5.4	5.4	-	-	-	-
Width/Depth Ratio	15.5	-	21.7	15.0	-	-	-	-
Entrenchment Ratio	5.5	-	4.6	5.5	-	-	-	-
Bank Height Ratio	1.0	-	1.2	1.1	-	-	-	-

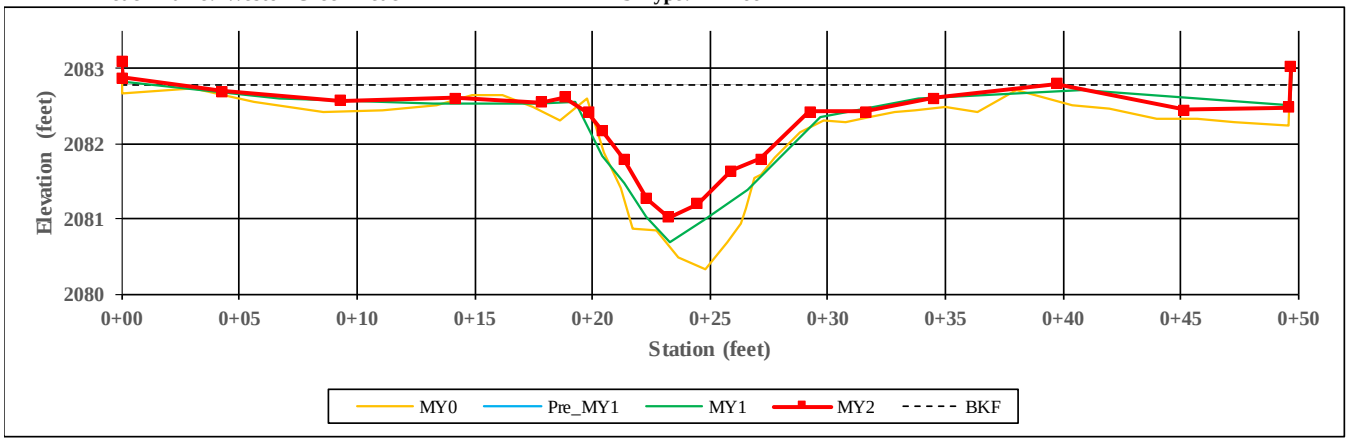
Left Descending Bank

Right Descending Bank

*** Data not collected due to adaptive management on Weston Reach 1A and 1B**

Project Name: Fletcher Mitigation site **XS Number:** 16 **Station:** 406+87

Reach Name: Weston Creek Reach 1A **XS Type:** Pool



CHANNEL DIMENSIONS SUMMARY	MY0	*Pre-MY1	MY1	MY2	MY3	MY4	MY5	MY6
Bankful Width (ft)	9.7	-	9.3	9.4	-	-	-	-
Floodprone Width (ft)	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
Bankfull Mean Depth (ft)	1.1	-	1.1	1.1	-	-	-	-
Bankfull Max Depth (ft)	2.0	-	1.8	1.8	-	-	-	-
Bankfull Cross-Sectional Area (ft^2)	10.4	-	10.4	10.4	-	-	-	-
Width/Depth Ratio	9.1	-	8.3	8.5	-	-	-	-
Entrenchment Ratio	5.1	-	5.4	5.3	-	-	-	-
Bank Height Ratio	1.0	-	0.9	0.8	-	-	-	-

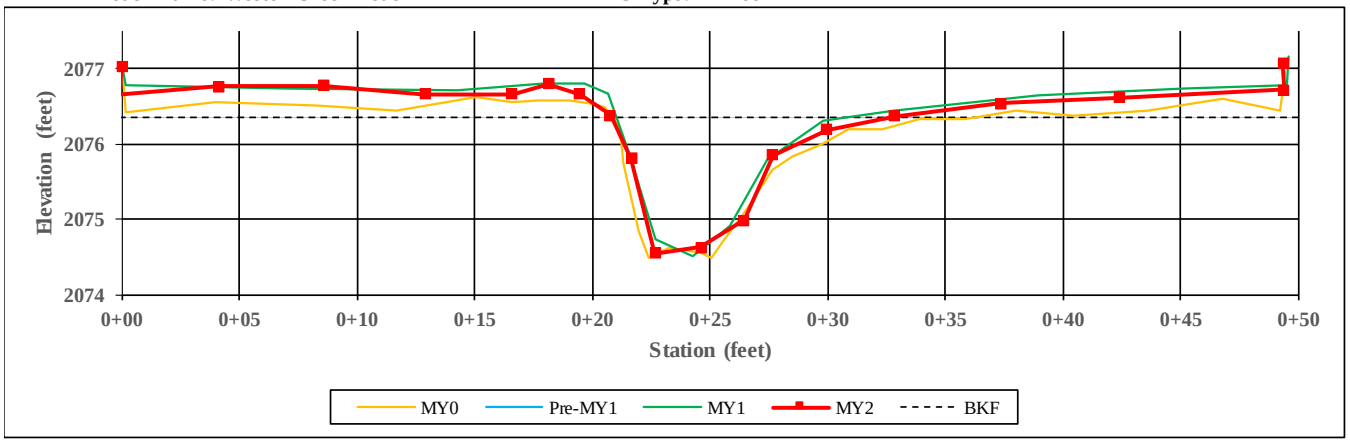
Left Descending Bank

Right Descending Bank

*** Data not collected due to adaptive management on Weston Reach 1A and 1B**

Project Name: Fletcher Mitigation site **XS Number:** 17 **Station:** 418+23

Reach Name: Weston Creek Reach 1A **XS Type:** Pool



CHANNEL DIMENSIONS SUMMARY	MY0	*Pre-MY1	MY1	MY2	MY3	MY4	MY5	MY6
Bankful Width (ft)	9.8	-	8.2	8.3	-	-	-	-
Floodprone Width (ft)	50.0	50.0	50.0	50.0	-	-	-	-
Bankfull Mean Depth (ft)	1.0	-	1.1	1.1	-	-	-	-
Bankfull Max Depth (ft)	1.7	-	1.9	1.8	-	-	-	-
Bankfull Cross-Sectional Area (ft^2)	9.4	-	9.4	9.4	-	-	-	-
Width/Depth Ratio	10.1	-	7.2	7.4	-	-	-	-
Entrenchment Ratio	5.1	-	6.1	6.0	-	-	-	-
Bank Height Ratio	1.0	-	0.9	0.9	-	-	-	-

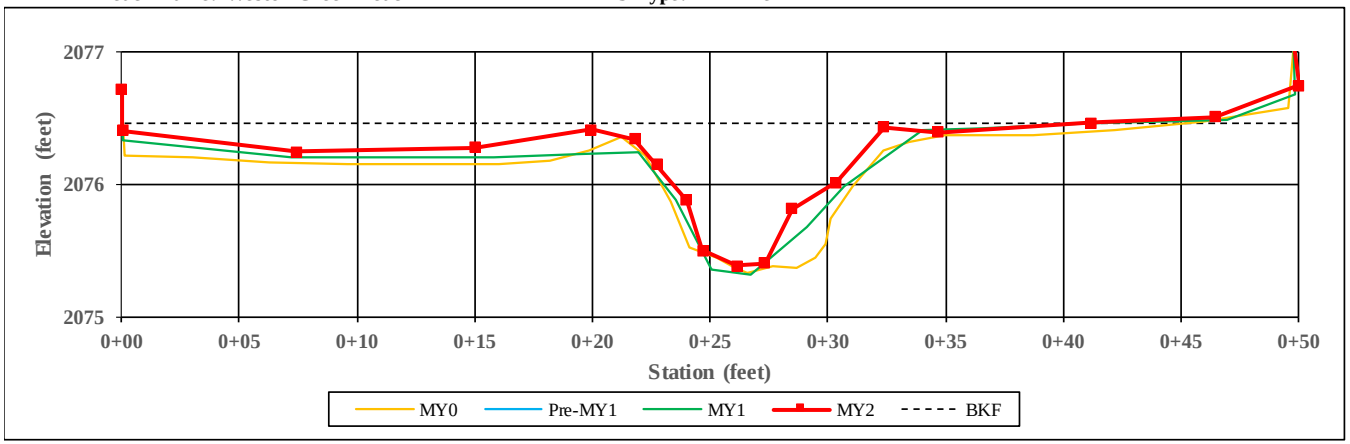
Left Descending Bank

Right Descending Bank

*** Data not collected due to adaptive management on Weston Reach 1A and 1B**

Project Name: Fletcher Mitigation site **XS Number:** 18 **Station:** 418+53

Reach Name: Weston Creek Reach 1A **XS Type:** Riffle



CHANNEL DIMENSIONS SUMMARY	MY0	*Pre-MY1	MY1	MY2	MY3	MY4	MY5	MY6
Bankful Width (ft)	10.4	-	23.5	10.4	-	-	-	-
Floodprone Width (ft)	50.0	50.0	50.0	50.0	50.0	-	-	-
Bankfull Mean Depth (ft)	0.6	-	0.3	0.6	-	-	-	-
Bankfull Max Depth (ft)	0.9	-	0.9	1.1	-	-	-	-
Bankfull Cross-Sectional Area (ft^2)	6.2	-	6.2	6.2	-	-	-	-
Width/Depth Ratio	17.4	-	89.4	17.6	-	-	-	-
Entrenchment Ratio	4.8	-	2.1	4.8	-	-	-	-
Bank Height Ratio	1.0	-	1.0	1.0	-	-	-	-

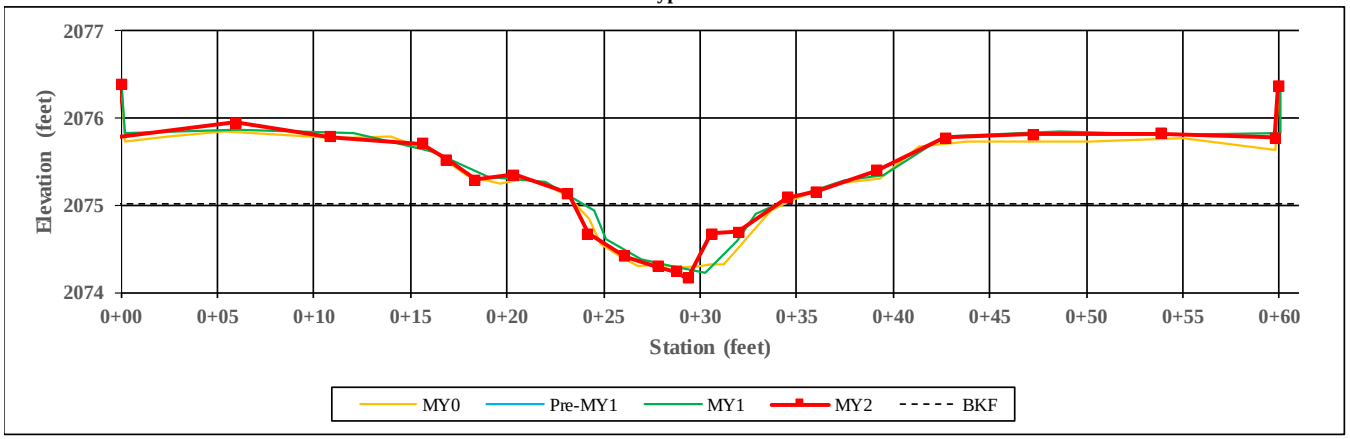
Left Descending Bank

Right Descending Bank

*** Data not collected due to adaptive management on Weston Reach 1A and 1B**

Project Name: Fletcher Mitigation site **XS Number:** 19 **Station:** 422+31

Reach Name: Weston Creek Reach 1B **XS Type:** Riffle



CHANNEL DIMENSIONS SUMMARY	MY0	*Pre-MY1	MY1	MY2	MY3	MY4	MY5	MY6
Bankful Width (ft)	9.7	-	9.4	9.8	-	-	-	-
Floodprone Width (ft)	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
Bankfull Mean Depth (ft)	0.5	-	0.5	0.5	-	-	-	-
Bankfull Max Depth (ft)	0.7	-	0.8	0.8	-	-	-	-
Bankfull Cross-Sectional Area (ft^2)	4.7	-	4.7	4.7	-	-	-	-
Width/Depth Ratio	20.4	-	19.0	20.4	-	-	-	-
Entrenchment Ratio	4.1	-	4.2	4.1	-	-	-	-
Bank Height Ratio	1.0	-	1.3	1.1	-	-	-	-

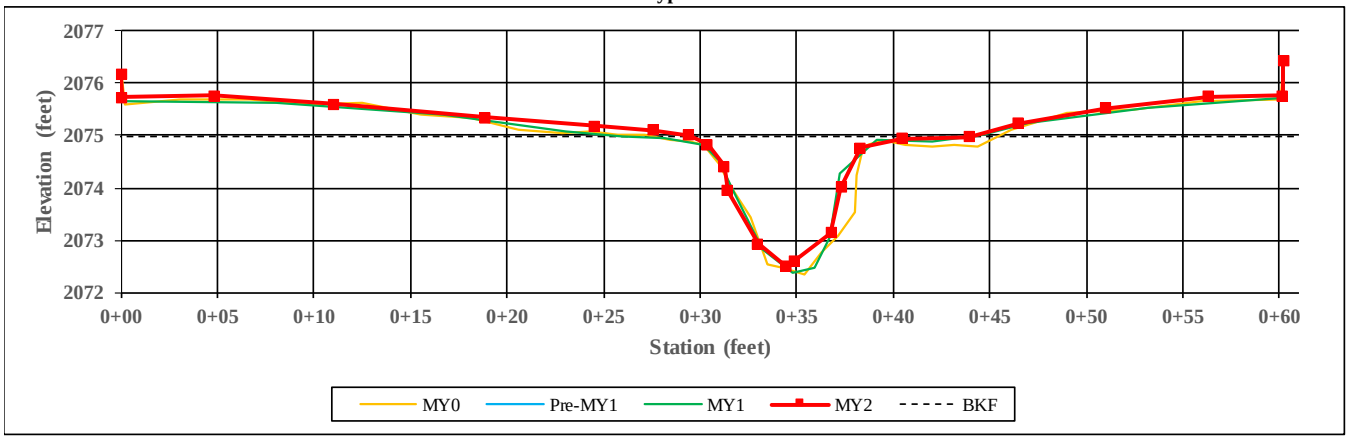
Left Descending Bank

Right Descending Bank

*** Data not collected due to adaptive management on Weston Reach 1A and 1B**

Project Name: Fletcher Mitigation site **XS Number:** 20 **Station:** 422+95

Reach Name: Weston Creek Reach 1B **XS Type:** Pool



CHANNEL DIMENSIONS SUMMARY	MY0	*Pre-MY1	MY1	MY2	MY3	MY4	MY5	MY6
Bankful Width (ft)	8.3	-	13.4	10.8	-	-	-	-
Floodprone Width (ft)	60.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Bankfull Mean Depth (ft)	1.5	-	0.9	1.2	-	-	-	-
Bankfull Max Depth (ft)	2.5	-	2.5	2.5	-	-	-	-
Bankfull Cross-Sectional Area (ft^2)	12.7	-	12.7	12.7	-	-	-	-
Width/Depth Ratio	5.4	-	14.2	9.2	-	-	-	-
Entrenchment Ratio	7.2	-	4.5	5.5	-	-	-	-
Bank Height Ratio	1.0	-	1.0	1.0	-	-	-	-

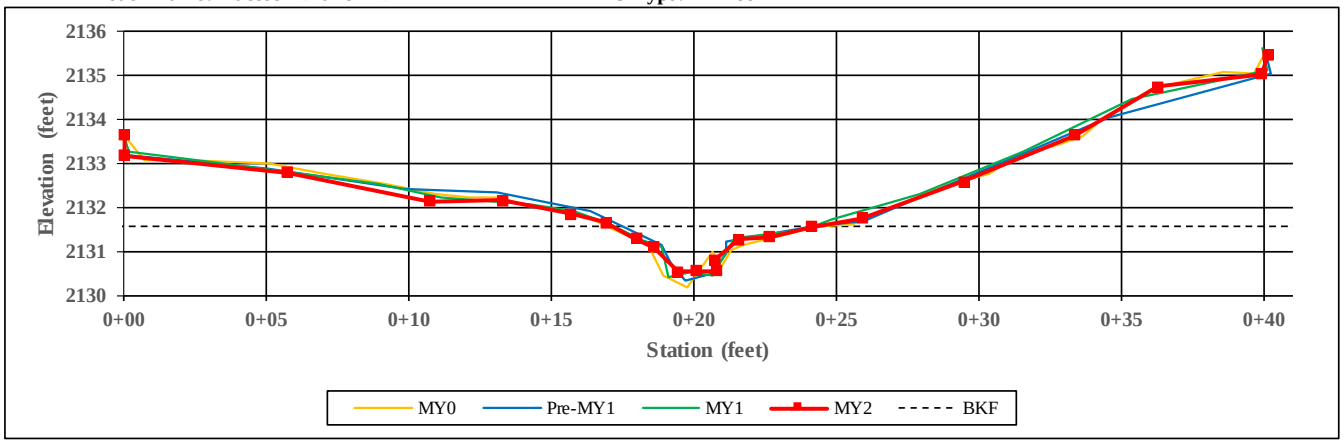
Left Descending Bank

Right Descending Bank

*** Data not collected due to adaptive management on Weston Reach 1A and 1B**

Project Name: Fletcher Mitigation site **XS Number: 21** **Station: 217+59**

Reach Name: Raccoon Branch 1D **XS Type: Pool**



CHANNEL DIMENSIONS SUMMARY	MY0	*Pre-MY1	MY1	MY2	MY3	MY4	MY5	MY6
Bankful Width (ft)	5.6	6.1	6.1	3.6	-	-	-	-
Floodprone Width (ft)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Bankfull Mean Depth (ft)	0.5	0.4	0.4	0.7	-	-	-	-
Bankfull Max Depth (ft)	1.2	1.2	1.1	1.0	-	-	-	-
Bankfull Cross-Sectional Area (ft^2)	2.7	2.7	2.7	2.7	-	-	-	-
Width/Depth Ratio	11.6	13.7	13.8	4.9	-	-	-	-
Entrenchment Ratio	3.6	3.3	3.3	5.6	-	-	-	-
Bank Height Ratio	1.0	0.7	0.6	0.7	-	-	-	-

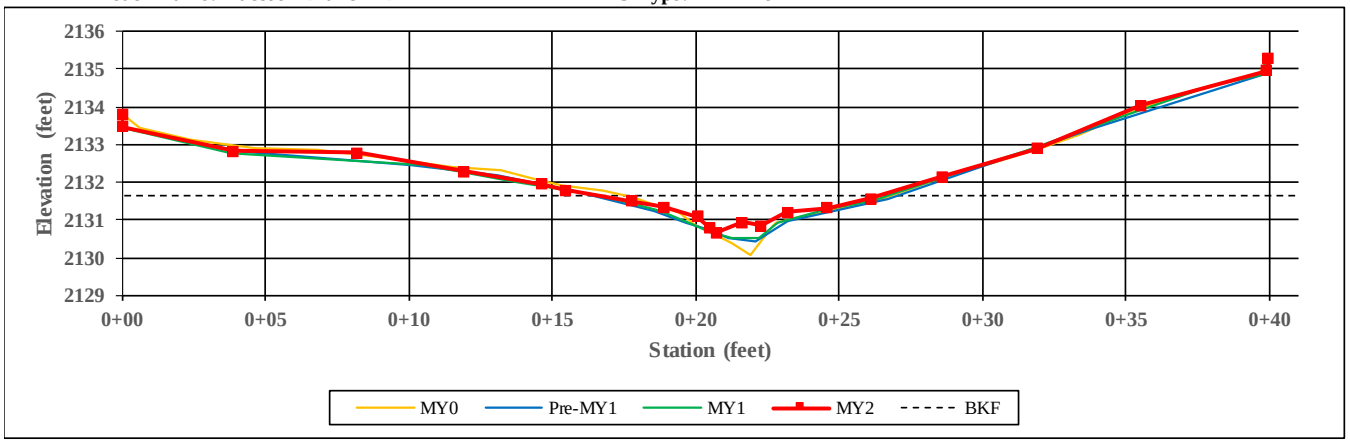
Left Descending Bank

Right Descending Bank

*** Data collected as part of 2019 monitoring year during adaptive management on Weston Reach 1A and 1B**

Project Name: Fletcher Mitigation site **XS Number: 22** **Station: 217+65**

Reach Name: Raccoon Branch 1D **XS Type: Riffle**



CHANNEL DIMENSIONS SUMMARY	MY0	*Pre-MY1	MY1	MY2	MY3	MY4	MY5	MY6
Bankful Width (ft)	6.8	7.8	6.9	5.7	-	-	-	-
Floodprone Width (ft)	20.0	20.0	20.0	20.0	-	-	-	-
Bankfull Mean Depth (ft)	0.5	0.4	0.5	0.6	-	-	-	-
Bankfull Max Depth (ft)	1.3	0.9	0.9	1.0	-	-	-	-
Bankfull Cross-Sectional Area (ft^2)	3.4	3.4	3.4	3.4	-	-	-	-
Width/Depth Ratio	13.8	18.1	14.2	9.5	-	-	-	-
Entrenchment Ratio	2.9	2.6	2.9	3.5	-	-	-	-
Bank Height Ratio	1.0	0.6	0.8	0.7	-	-	-	-

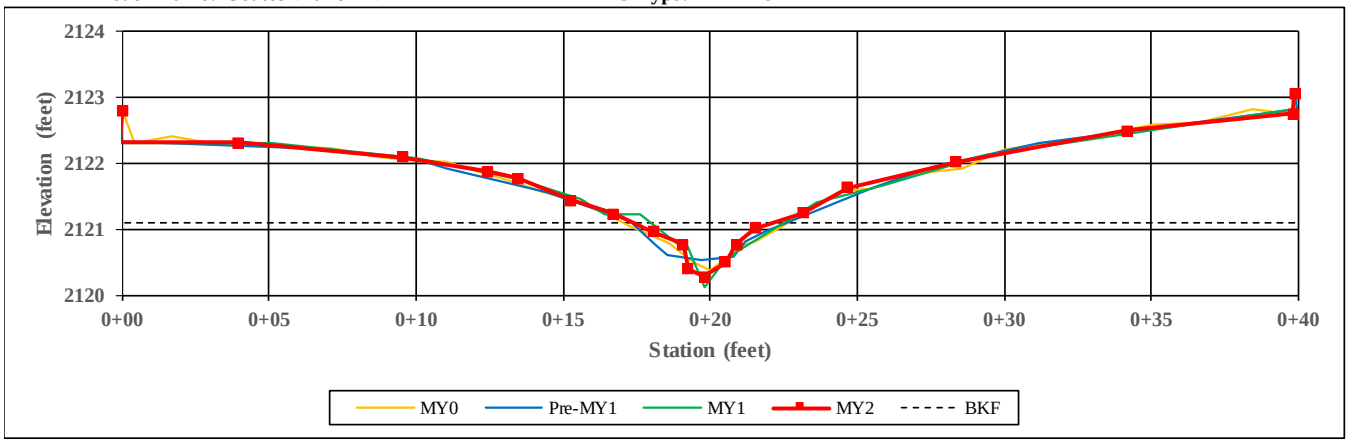
Facing Upstream

Right Descending Bank

*** Data collected as part of 2019 monitoring year during adaptive management on Weston Reach 1A and 1B**

Project Name: Fletcher Mitigation site **XS Number:** 23 **Station:** 307+87

Reach Name: Coates Branch 1B **XS Type:** Riffle



CHANNEL DIMENSIONS SUMMARY	MY0	*Pre-MY1	MY1	MY2	MY3	MY4	MY5	MY6
Bankful Width (ft)	5.2	4.9	3.4	3.5	-	-	-	-
Floodprone Width (ft)	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Bankfull Mean Depth (ft)	0.3	0.3	0.5	0.5	-	-	-	-
Bankfull Max Depth (ft)	0.7	0.5	1.0	0.8	-	-	-	-
Bankfull Cross-Sectional Area (ft^2)	1.6	1.6	1.6	1.6	-	-	-	-
Width/Depth Ratio	16.5	15.1	7.5	7.6	-	-	-	-
Entrenchment Ratio	2.9	3.1	4.4	4.3	-	-	-	-
Bank Height Ratio	1.0	1.3	1.1	0.9	-	-	-	-

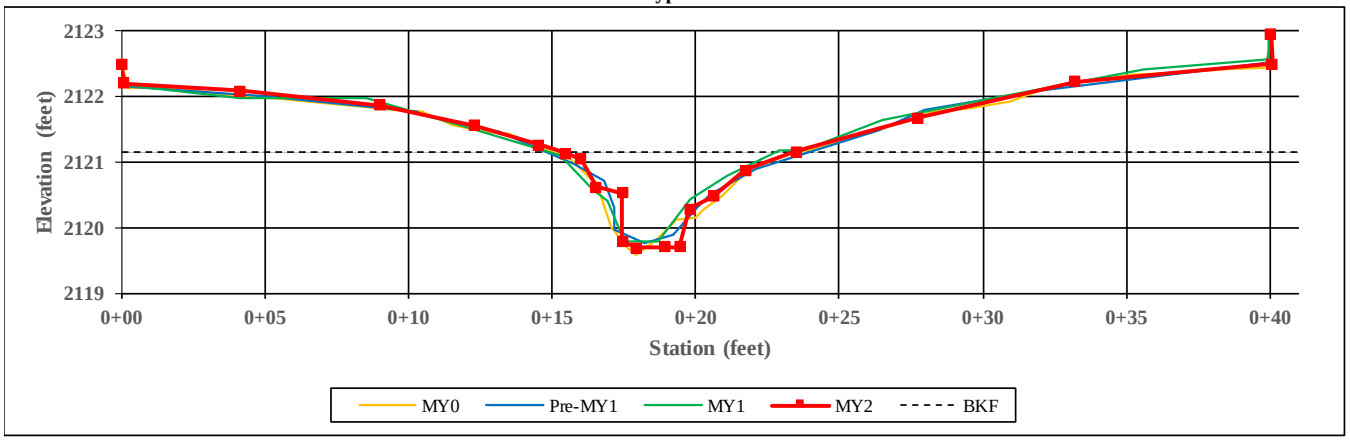
Left Descending Bank

Right Descending Bank

*** Data collected as part of 2019 monitoring year during adaptive management on Weston Reach 1A and 1B**

Project Name: Fletcher Mitigation site **XS Number:** 24 **Station:** 307+95

Reach Name: Coates Branch 1B **XS Type:** Pool



CHANNEL DIMENSIONS SUMMARY	MY0	*Pre-MY1	MY1	MY2	MY3	MY4	MY5	MY6
Bankful Width (ft)	7.4	8.6	7.9	5.7	-	-	-	-
Floodprone Width (ft)	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
Bankfull Mean Depth (ft)	0.7	0.6	0.6	0.9	-	-	-	-
Bankfull Max Depth (ft)	1.5	1.3	1.4	1.4	-	-	-	-
Bankfull Cross-Sectional Area (ft^2)	5.1	5.1	5.1	5.1	-	-	-	-
Width/Depth Ratio	10.7	14.5	12.3	6.4	-	-	-	-
Entrenchment Ratio	5.4	4.6	5.0	7.0	-	-	-	-
Bank Height Ratio	1.0	0.9	0.9	0.9	-	-	-	-

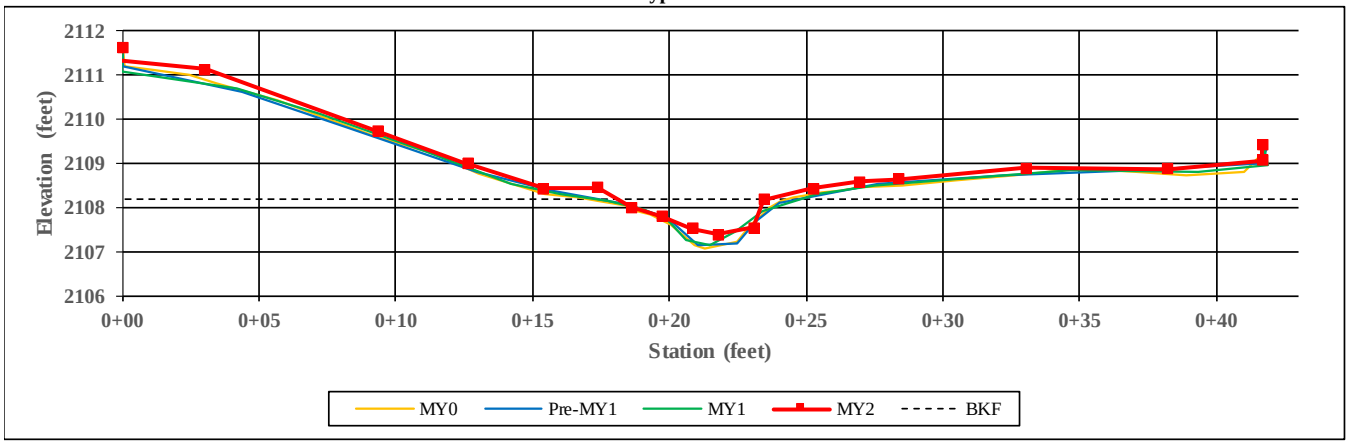
Left Descending Bank

Looking Downstream

*** Data collected as part of 2019 monitoring year during adaptive management on Weston Reach 1A and 1B**

Project Name: Fletcher Mitigation site **XS Number:** 25 **Station:** 315+12

Reach Name: Coates Branch 1C **XS Type:** Pool



CHANNEL DIMENSIONS SUMMARY	MY0	*Pre-MY1	MY1	MY2	MY3	MY4	MY5	MY6
Bankful Width (ft)	5.3	5.6	6.2	4.8	-	-	-	-
Floodprone Width (ft)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Bankfull Mean Depth (ft)	0.5	0.5	0.4	0.6	-	-	-	-
Bankfull Max Depth (ft)	0.9	0.9	0.9	0.8	-	-	-	-
Bankfull Cross-Sectional Area (ft^2)	2.7	2.7	2.7	2.7	-	-	-	-
Width/Depth Ratio	10.5	11.3	14.5	8.8	-	-	-	-
Entrenchment Ratio	3.8	3.6	3.2	4.1	-	-	-	-
Bank Height Ratio	1.0	1.0	0.8	1.0	-	-	-	-

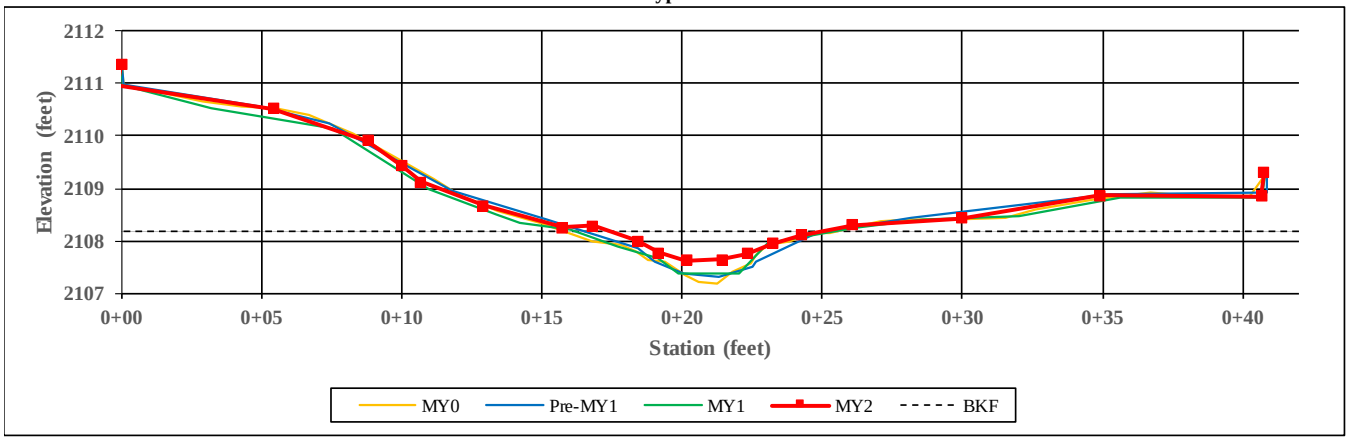
Looking Upstream

Right Descending Bank

*** Data collected as part of 2019 monitoring year during adaptive management on Weston Reach 1A and 1B**

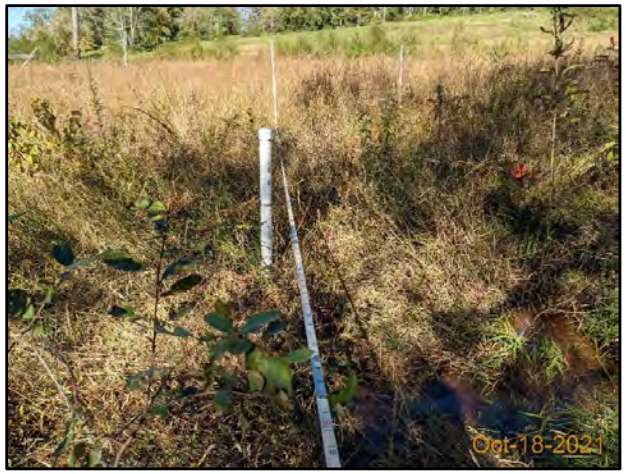
Project Name: Fletcher Mitigation site **XS Number: 26** **Station: 315+20**

Reach Name: Coates Branch 1C **XS Type: Riffle**



CHANNEL DIMENSIONS SUMMARY	MY0	*Pre-MY1	MY1	MY2	MY3	MY4	MY5	MY6
Bankful Width (ft)	5.4	5.5	5.8	5.8	-	-	-	-
Floodprone Width (ft)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Bankfull Mean Depth (ft)	0.4	0.4	0.4	0.4	-	-	-	-
Bankfull Max Depth (ft)	0.8	0.6	0.6	0.5	-	-	-	-
Bankfull Cross-Sectional Area (ft^2)	2.2	2.2	2.2	2.2	-	-	-	-
Width/Depth Ratio	13.5	14.0	15.4	15.5	-	-	-	-
Entrenchment Ratio	3.7	3.6	3.4	3.4	-	-	-	-
Bank Height Ratio	1.0	0.9	0.8	0.9	-	-	-	-

Left Descending Bank

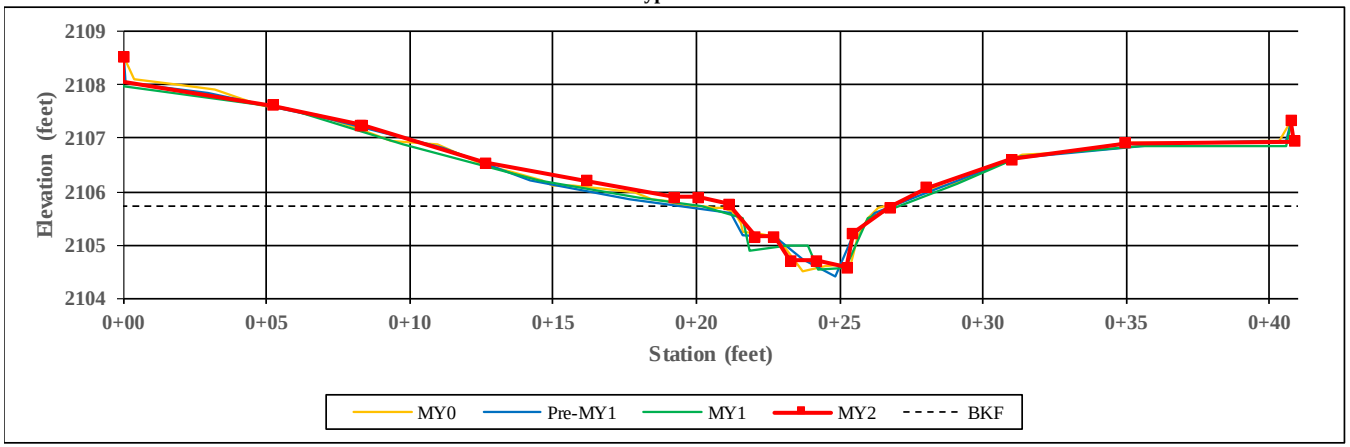


Right Descending Bank

*** Data collected as part of 2019 monitoring year during adaptive management on Weston Reach 1A and 1B**

Project Name: Fletcher Mitigation site **XS Number:** 27 **Station:** 317+35

Reach Name: Coates Branch 1D **XS Type:** Pool



CHANNEL DIMENSIONS SUMMARY	MY0	*Pre-MY1	MY1	MY2	MY3	MY4	MY5	MY6
Bankful Width (ft)	5.9	6.9	6.4	5.6	-	-	-	-
Floodprone Width (ft)	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Bankfull Mean Depth (ft)	0.6	0.5	0.6	0.7	-	-	-	-
Bankfull Max Depth (ft)	1.2	1.3	1.1	1.2	-	-	-	-
Bankfull Cross-Sectional Area (ft^2)	3.7	3.7	3.7	3.7	-	-	-	-
Width/Depth Ratio	9.2	13.2	11.1	8.4	-	-	-	-
Entrenchment Ratio	4.3	3.6	3.9	4.5	-	-	-	-
Bank Height Ratio	1.0	1.0	0.8	1.0	-	-	-	-

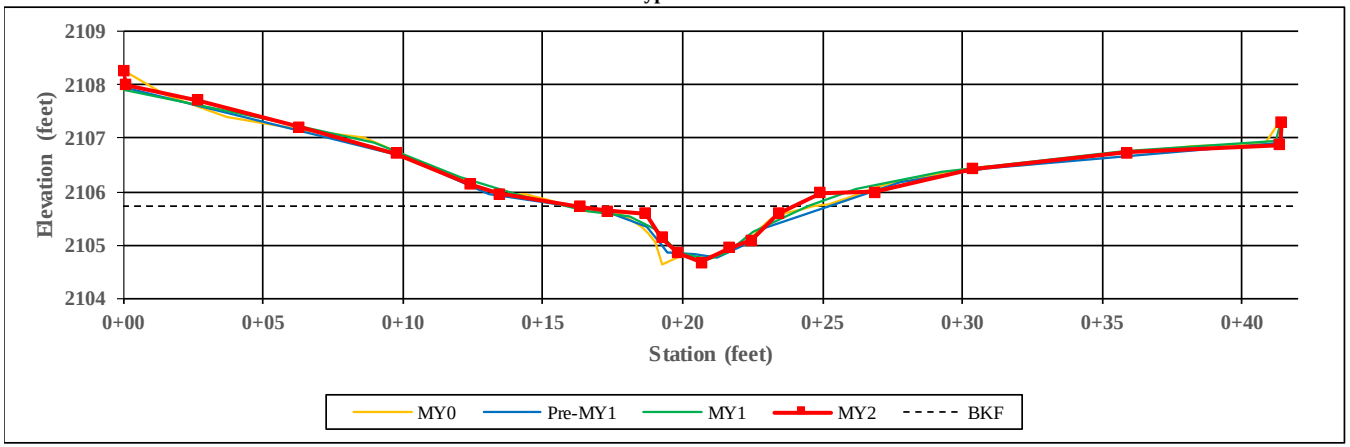
Left Descending Bank

Right Descending Bank

*** Data collected as part of 2019 monitoring year during adaptive management on Weston Reach 1A and 1B**

Project Name: Fletcher Mitigation site **XS Number:** 28 **Station:** 317+42

Reach Name: Coates Branch 1D **XS Type:** Riffle



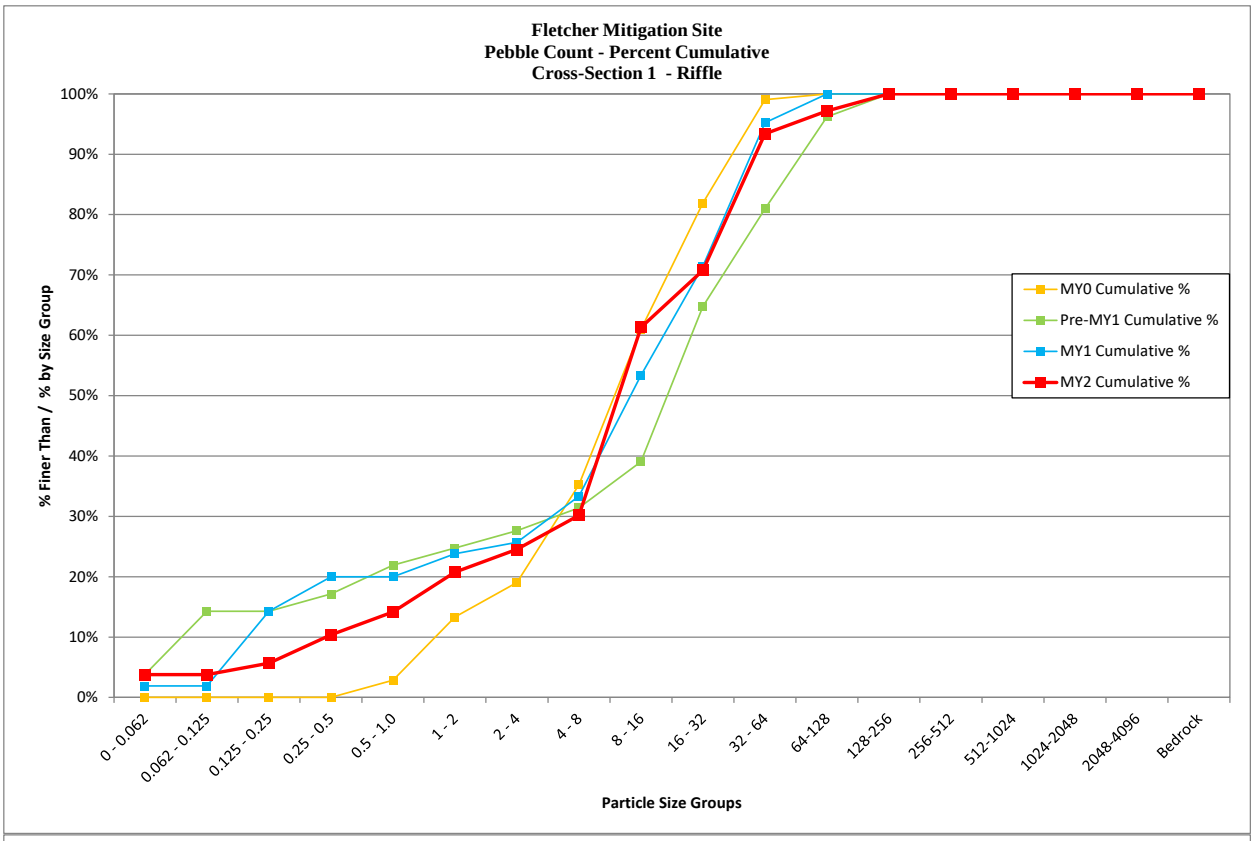
CHANNEL DIMENSIONS SUMMARY	MY0	*Pre-MY1	MY1	MY2	MY3	MY4	MY5	MY6
Bankful Width (ft)	6.1	7.4	7.5	4.7	-	-	-	-
Floodprone Width (ft)	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Bankfull Mean Depth (ft)	0.5	0.4	0.4	0.7	-	-	-	-
Bankfull Max Depth (ft)	1.0	0.9	0.9	1.0	-	-	-	-
Bankfull Cross-Sectional Area (ft^2)	3.3	3.3	3.3	3.3	-	-	-	-
Width/Depth Ratio	11.4	16.5	17.2	6.9	-	-	-	-
Entrenchment Ratio	4.1	3.4	3.3	5.3	-	-	-	-
Bank Height Ratio	1.0	1.0	0.9	0.9	-	-	-	-

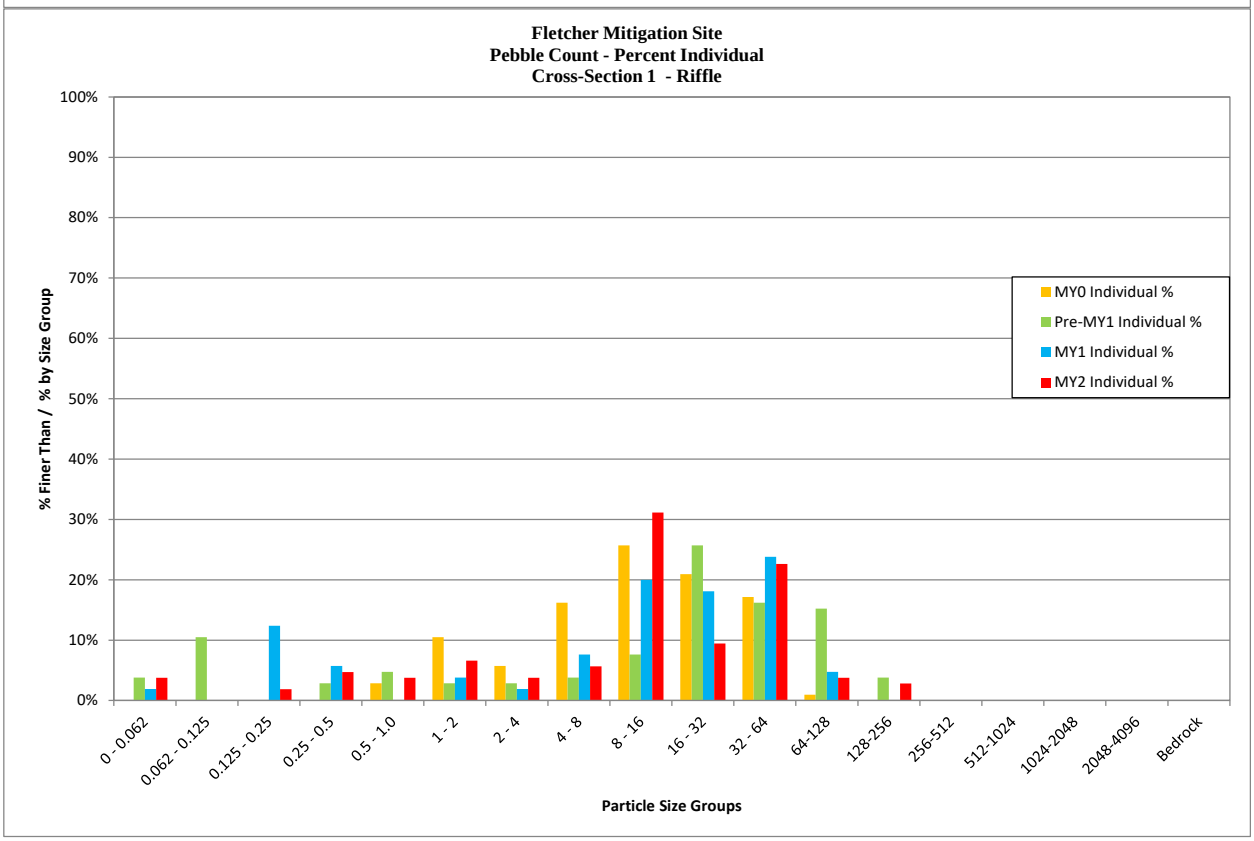
Left Descending Bank

Right Descending Bank

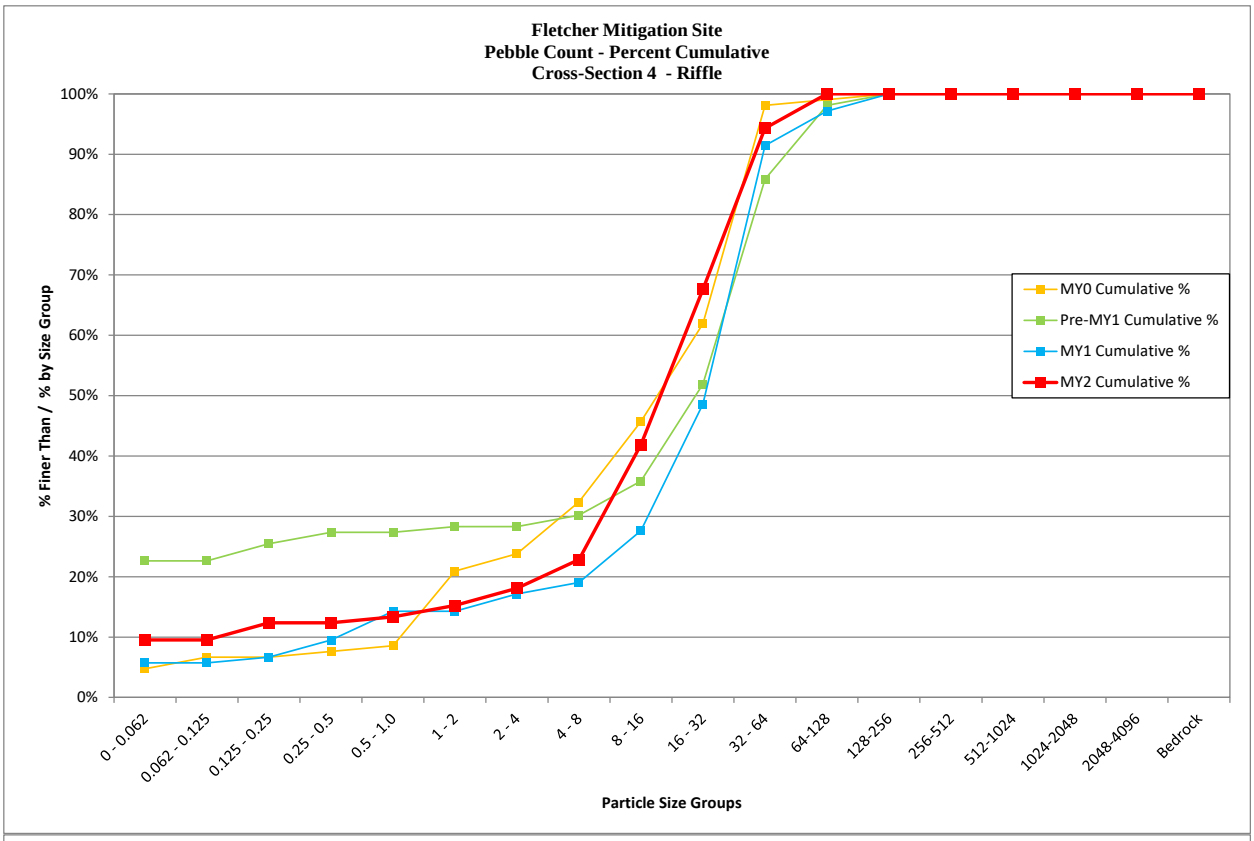
*** Data collected as part of 2019 monitoring year during adaptive management on Weston Reach 1A and 1B**

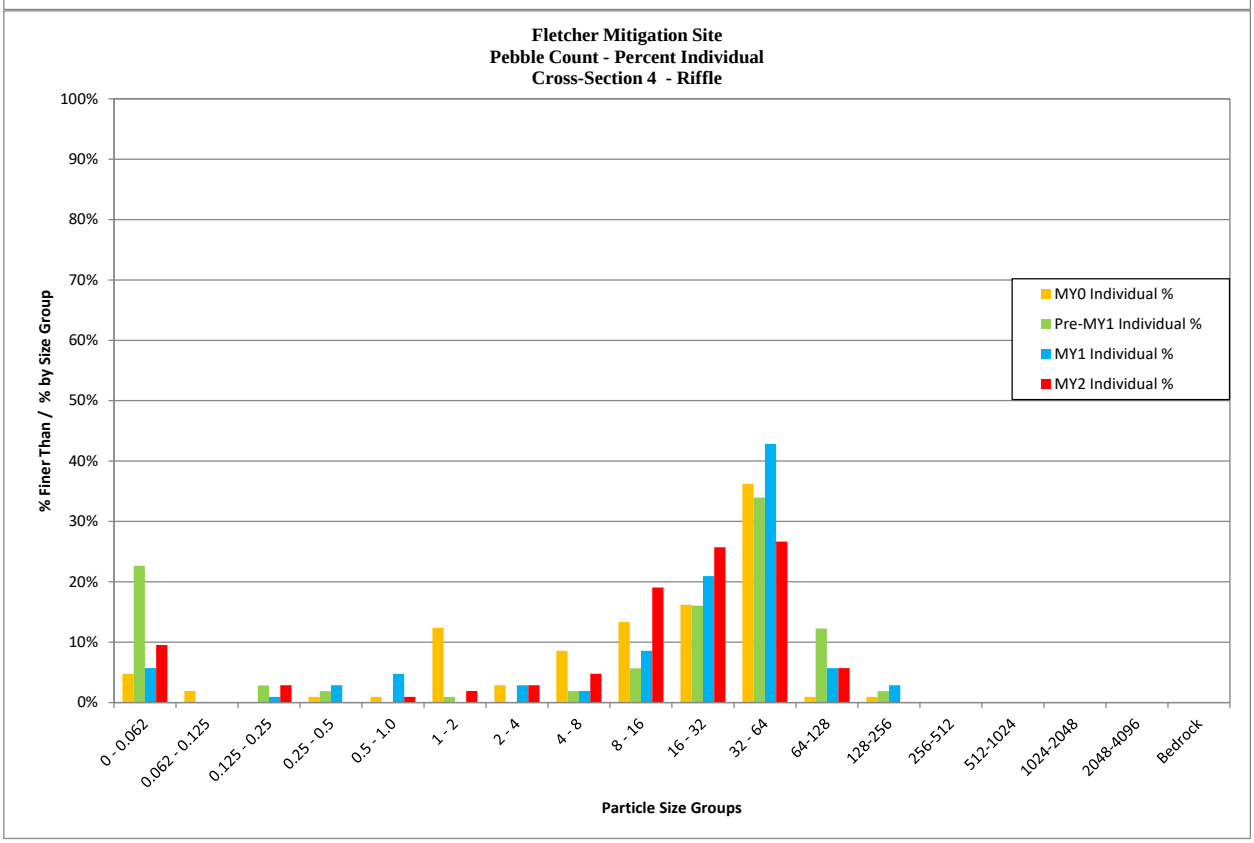
Fletcher Mitigation Site			
Cross Section 1 - Riffle			
Monitoring Year - 2021; MY2			
Bed Surface Material Particle Size Class (mm)	**Number**	**% Individual**	**% Cumulative**
0 - 0.062	4	3.8%	4%
0.062 - 0.125	0	0.0%	4%
0.125 - 0.25	2	1.9%	6%
0.25 - 0.5	5	4.7%	10%
0.5 - 1.0	4	3.8%	14%
1 - 2	7	6.6%	21%
2 - 4	4	3.8%	25%
4 - 8	6	5.7%	30%
8 - 16	33	31.1%	61%
16 - 32	10	9.4%	71%
32 - 64	24	22.6%	93%
64-128	4	3.8%	97%
128-256	3	2.8%	100%
256-512	0	0.0%	100%
512-1024	0	0.0%	100%
1024-2048	0	0.0%	100%
2048-4096	0	0.0%	100%
Bedrock	0	0.0%	100%
Total	**106**	**100%**	**100%**
		Summary Data	
		D50	**13**
		D84	**48**
		D95	**78**


Fletcher Mitigation Site
Pebble Count - Percent Cumulative
Cross-Section 1 - Riffle
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
% Finer Than / % by Size Group
MY0 Cumulative %
Pre-MY1 Cumulative %
MY1 Cumulative %
MY2 Cumulative %
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

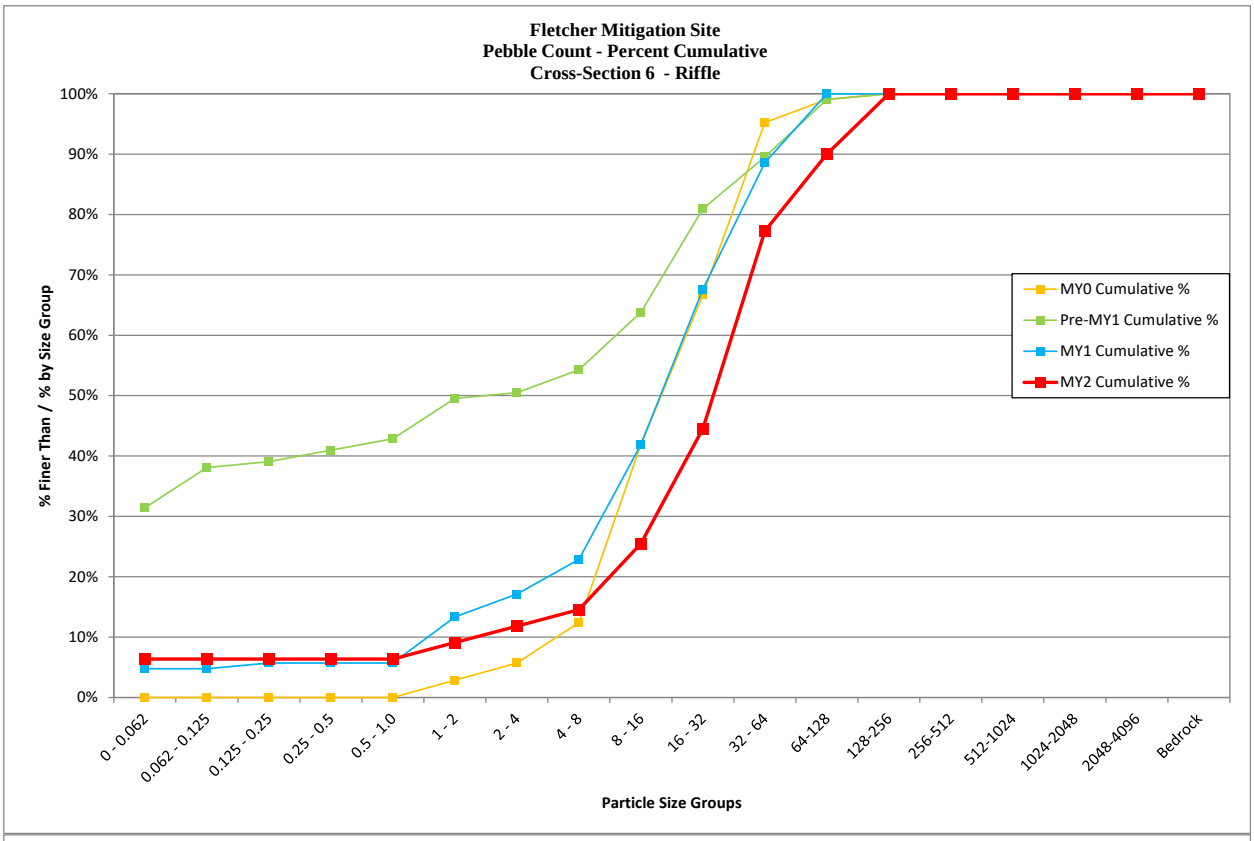

Fletcher Mitigation Site
Pebble Count - Percent Individual
Cross-Section 1 - Riffle
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
% Finer Than / % by Size Group
MY0 Individual %
Pre-MY1 Individual %
MY1 Individual %
MY2 Individual %
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

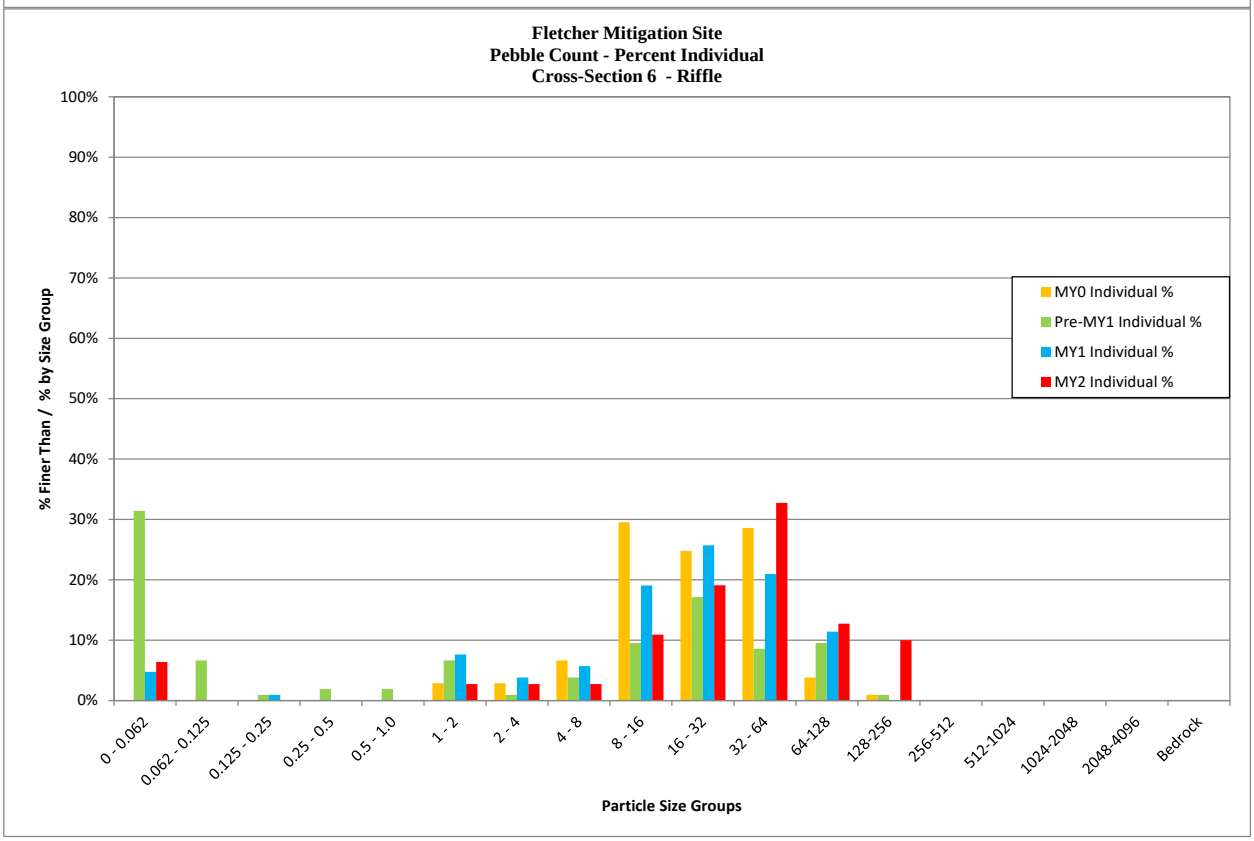
Fletcher Mitigation Site			
Cross Section 4 - Riffle			
Monitoring Year - 2021; MY2			
Bed Surface Material Particle Size Class (mm)	**Number**	**% Individual**	**% Cumulative**
0 - 0.062	10	9.5%	10%
0.062 - 0.125	0	0.0%	10%
0.125 - 0.25	3	2.9%	12%
0.25 - 0.5	0	0.0%	12%
0.5 - 1.0	1	1.0%	13%
1 - 2	2	1.9%	15%
2 - 4	3	2.9%	18%
4 - 8	5	4.8%	23%
8 - 16	20	19.0%	42%
16 - 32	27	25.7%	68%
32 - 64	28	26.7%	94%
64-128	6	5.7%	100%
128-256	0	0.0%	100%
256-512	0	0.0%	100%
512-1024	0	0.0%	100%
1024-2048	0	0.0%	100%
2048-4096	0	0.0%	100%
Bedrock	0	0.0%	100%
Total	**105**	**100%**	**100%**
		Summary Data	
		D50	**18**
		D84	**42**
		D95	**68**


Fletcher Mitigation Site
Pebble Count - Percent Cumulative
Cross-Section 4 - Riffle
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MY0 Cumulative %
Pre-MY1 Cumulative %
MY1 Cumulative %
MY2 Cumulative %
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

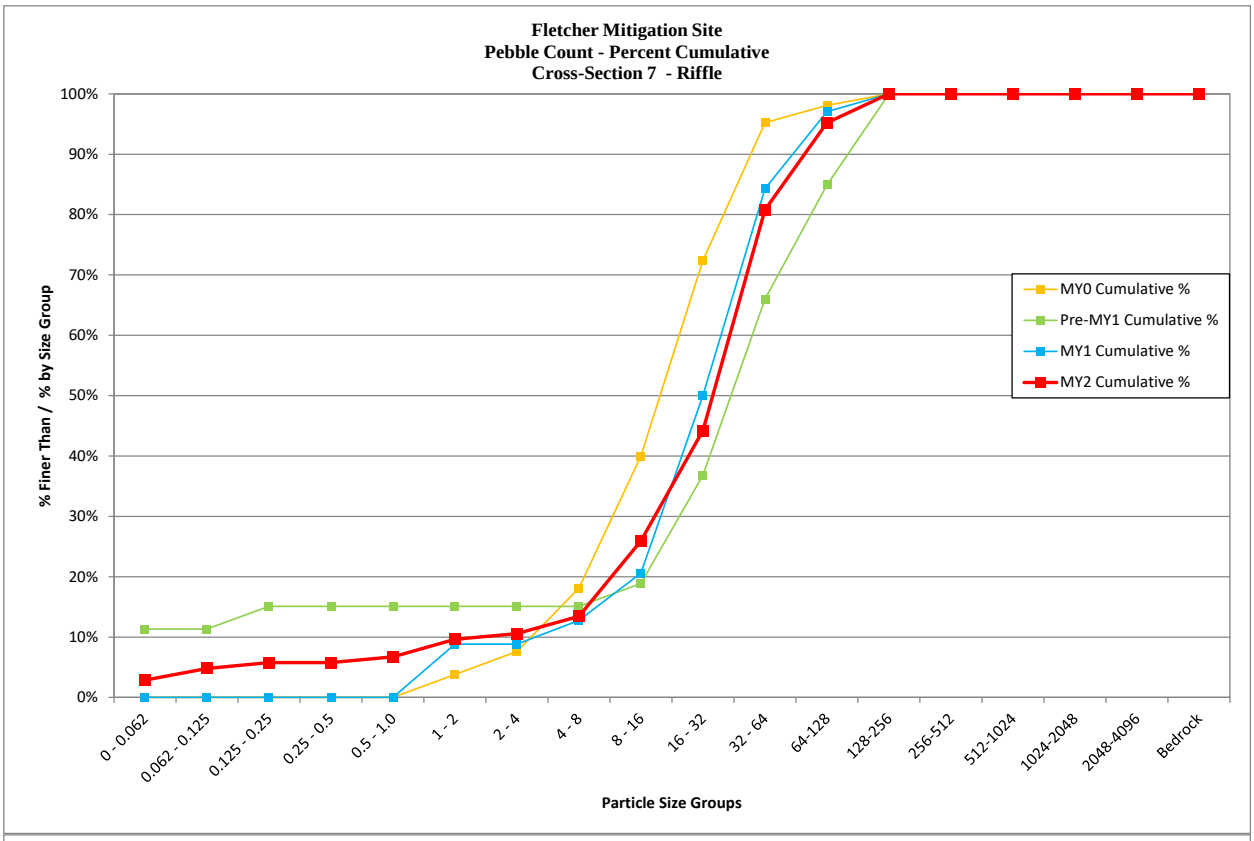

Fletcher Mitigation Site
Pebble Count - Percent Individual
Cross-Section 4 - Riffle
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MY0 Individual %
Pre-MY1 Individual %
MY1 Individual %
MY2 Individual %
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

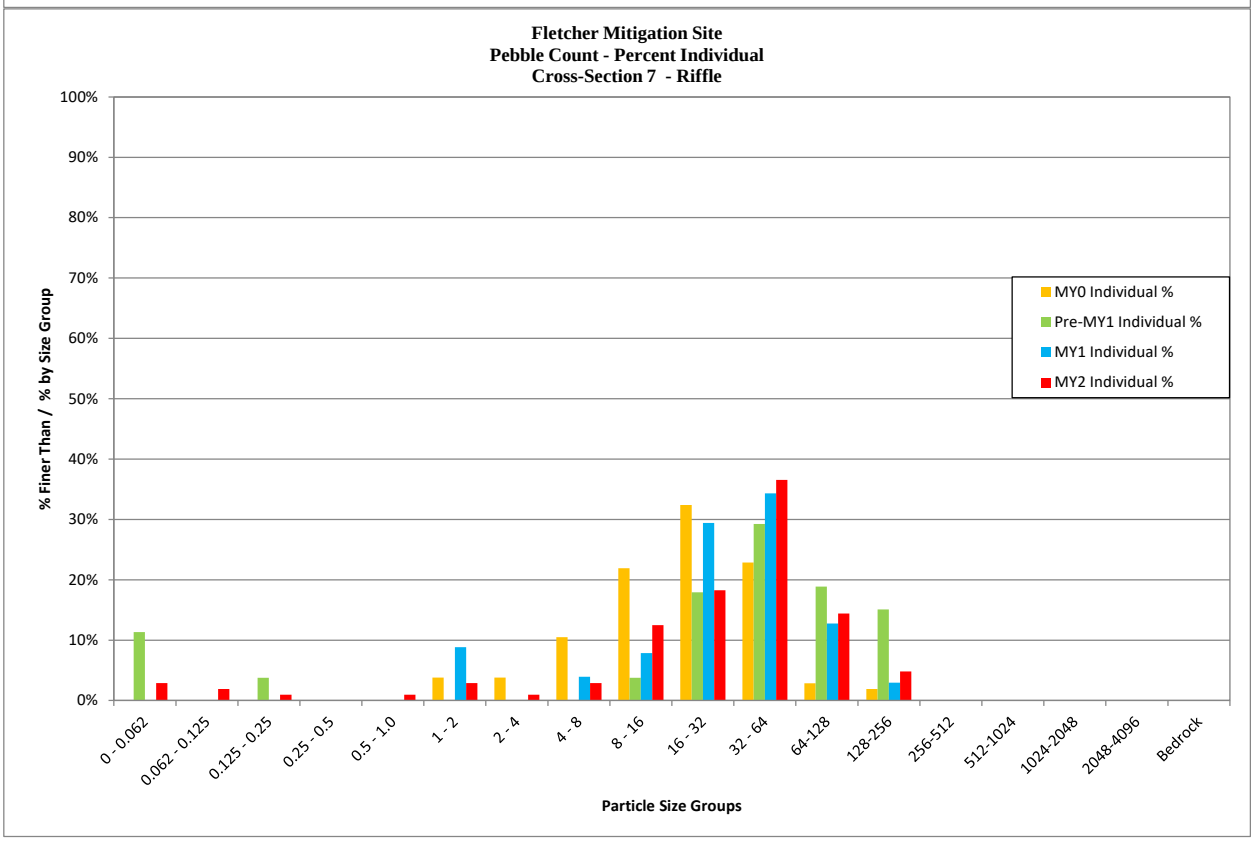
Fletcher Mitigation Site			
Cross Section 6 - Riffle			
Monitoring Year - 2021; MY2			
Bed Surface Material Particle Size Class (mm)	**Number**	**% Individual**	**% Cumulative**
0 - 0.062	7	6.4%	6%
0.062 - 0.125	0	0.0%	6%
0.125 - 0.25	0	0.0%	6%
0.25 - 0.5	0	0.0%	6%
0.5 - 1.0	0	0.0%	6%
1 - 2	3	2.7%	9%
2 - 4	3	2.7%	12%
4 - 8	3	2.7%	15%
8 - 16	12	10.9%	25%
16 - 32	21	19.1%	45%
32 - 64	36	32.7%	77%
64-128	14	12.7%	90%
128-256	11	10.0%	100%
256-512	0	0.0%	100%
512-1024	0	0.0%	100%
1024-2048	0	0.0%	100%
2048-4096	0	0.0%	100%
Bedrock	0	0.0%	100%
Total	**110**	**100%**	**100%**
		Summary Data	
		D50	**36**
		D84	**85**
		D95	**150**


Fletcher Mitigation Site
Pebble Count - Percent Cumulative
Cross-Section 6 - Riffle
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MY0 Cumulative %
Pre-MY1 Cumulative %
MY1 Cumulative %
MY2 Cumulative %
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

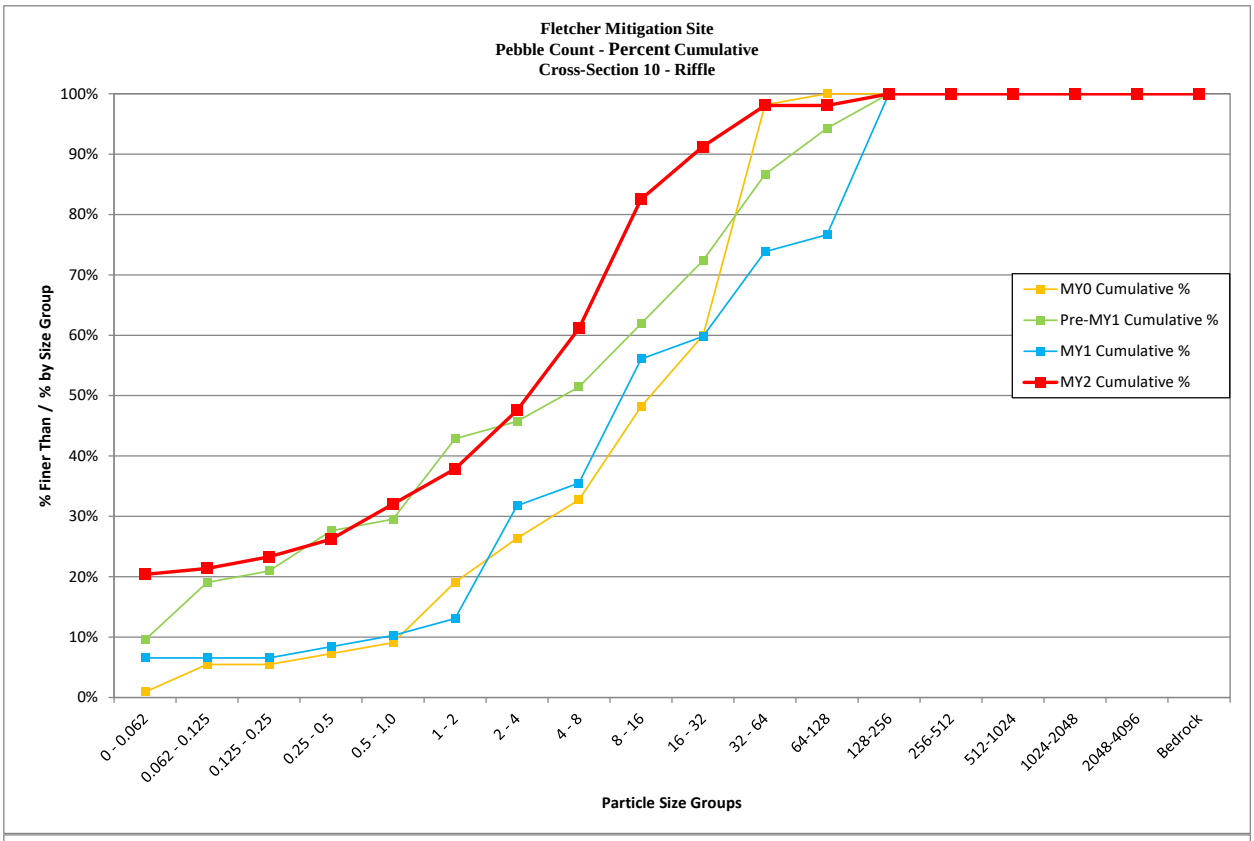

Fletcher Mitigation Site
Pebble Count - Percent Individual
Cross-Section 6 - Riffle
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MY0 Individual %
Pre-MY1 Individual %
MY1 Individual %
MY2 Individual %
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

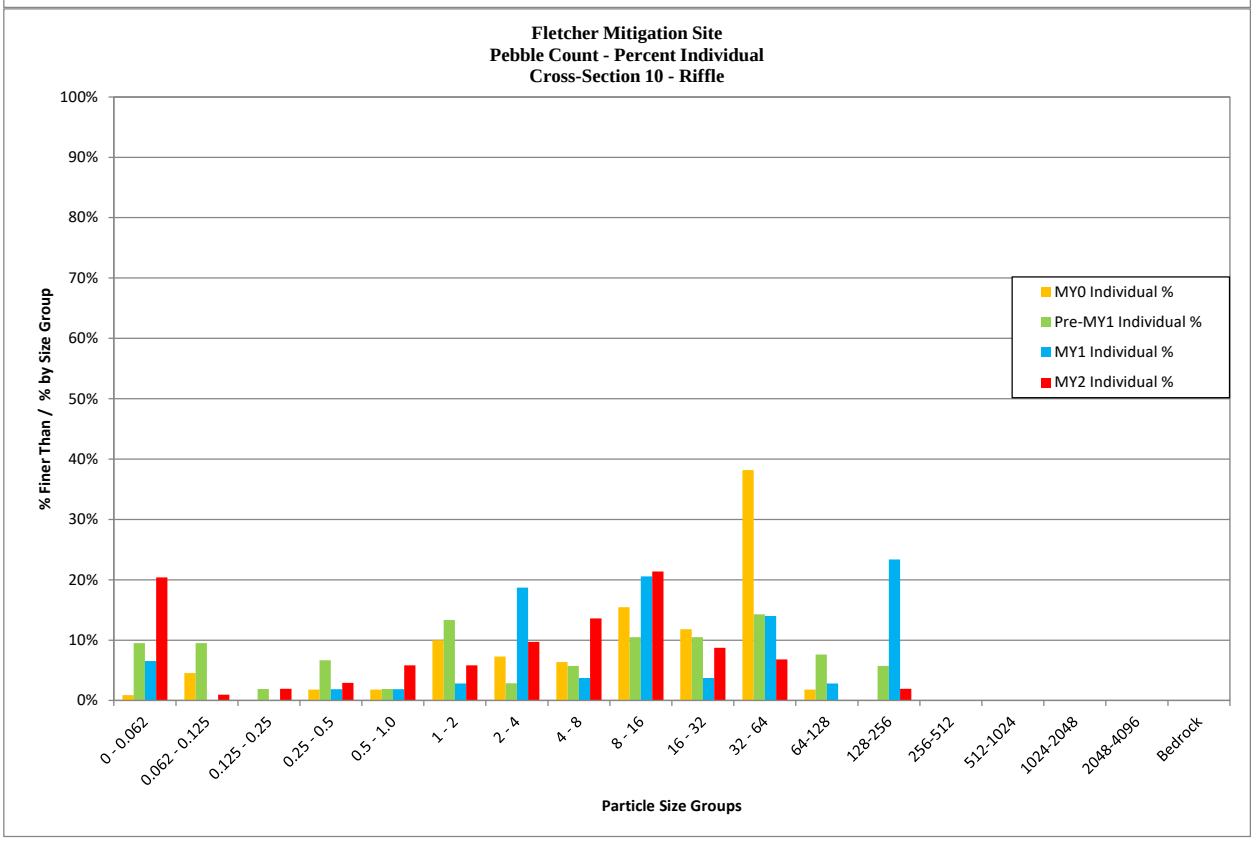
Fletcher Mitigation Site			
Cross Section 7 - Riffle			
Monitoring Year - 2021; MY2			
Bed Surface Material Particle Size Class (mm)	**Number**	**% Individual**	**% Cumulative**
0 - 0.062	3	2.9%	3%
0.062 - 0.125	2	1.9%	5%
0.125 - 0.25	1	1.0%	6%
0.25 - 0.5	0	0.0%	6%
0.5 - 1.0	1	1.0%	7%
1 - 2	3	2.9%	10%
2 - 4	1	1.0%	11%
4 - 8	3	2.9%	13%
8 - 16	13	12.5%	26%
16 - 32	19	18.3%	44%
32 - 64	38	36.5%	81%
64-128	15	14.4%	95%
128-256	5	4.8%	100%
256-512	0	0.0%	100%
512-1024	0	0.0%	100%
1024-2048	0	0.0%	100%
2048-4096	0	0.0%	100%
Bedrock	0	0.0%	100%
Total	**104**	**100%**	**100%**
		Summary Data	
		D50	**35**
		D84	**80**
		D95	**130**


Fletcher Mitigation Site
Pebble Count - Percent Cumulative
Cross-Section 7 - Riffle
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MY0 Cumulative %
Pre-MY1 Cumulative %
MY1 Cumulative %
MY2 Cumulative %
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

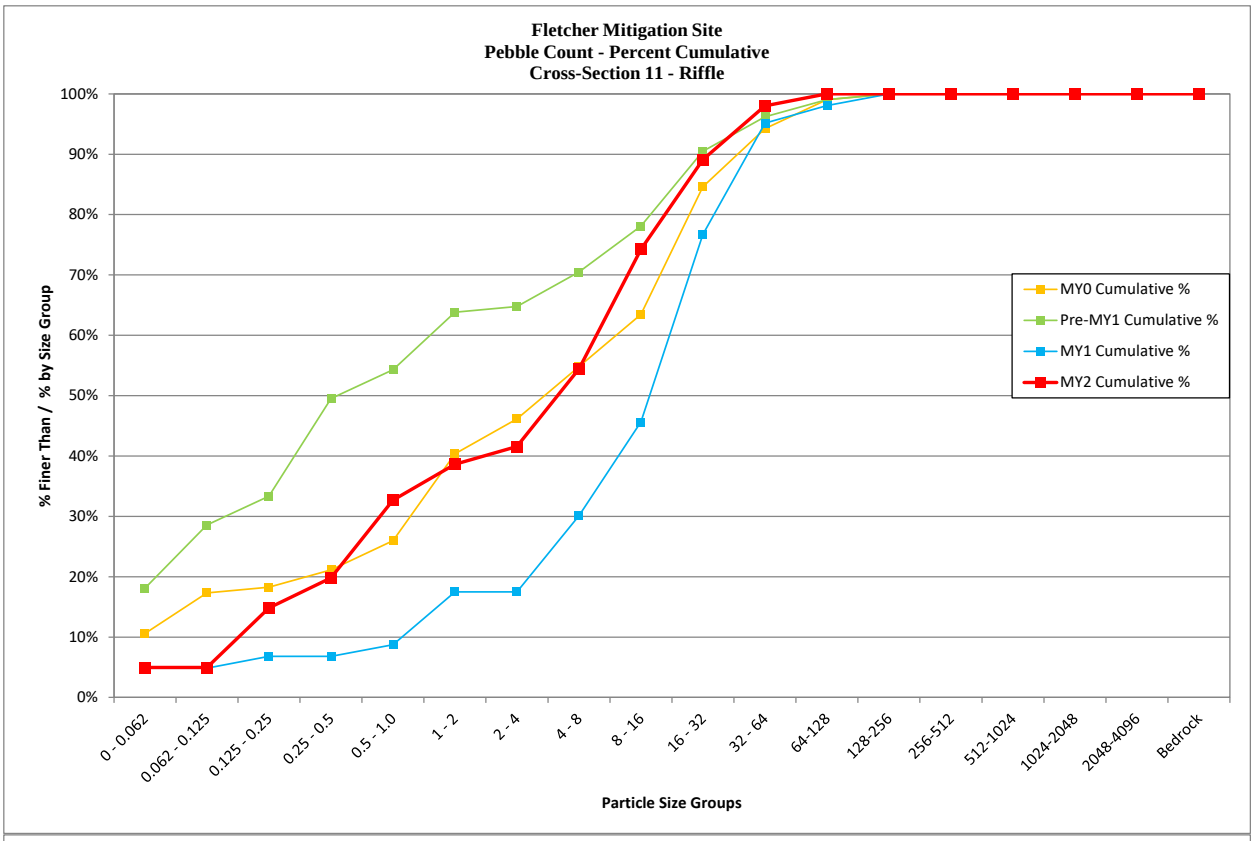

Fletcher Mitigation Site
Pebble Count - Percent Individual
Cross-Section 7 - Riffle
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MY0 Individual %
Pre-MY1 Individual %
MY1 Individual %
MY2 Individual %
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

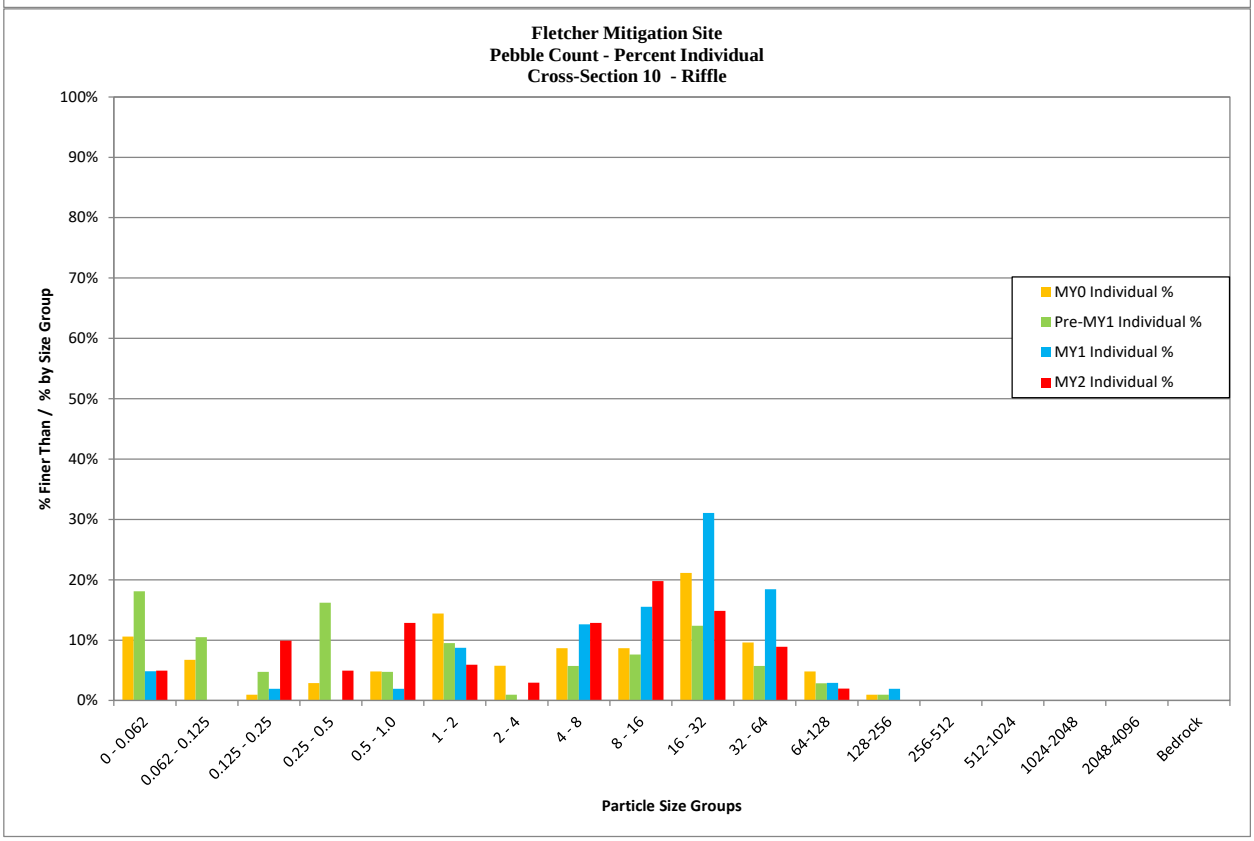
Fletcher Mitigation Site			
Cross Section 10 - Riffle			
Monitoring Year - 2021; MY2			
Bed Surface Material Particle Size Class (mm)	**Number**	**% Individual**	**% Cumulative**
0 - 0.062	21	20.4%	20%
0.062 - 0.125	1	1.0%	21%
0.125 - 0.25	2	1.9%	23%
0.25 - 0.5	3	2.9%	26%
0.5 - 1.0	6	5.8%	32%
1 - 2	6	5.8%	38%
2 - 4	10	9.7%	48%
4 - 8	14	13.6%	61%
8 - 16	22	21.4%	83%
16 - 32	9	8.7%	91%
32 - 64	7	6.8%	98%
64-128	0	0.0%	98%
128-256	2	1.9%	100%
256-512	0	0.0%	100%
512-1024	0	0.0%	100%
1024-2048	0	0.0%	100%
2048-4096	0	0.0%	100%
Bedrock	0	0.0%	100%
Total	**103**	**100%**	**100%**
		Summary Data	
		D50	**5.6**
		D84	**19**
		D95	**39**


Fletcher Mitigation Site
Pebble Count - Percent Cumulative
Cross-Section 10 - Riffle
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
% Finer Than / % by Size Group
MY0 Cumulative %
Pre-MY1 Cumulative %
MY1 Cumulative %
MY2 Cumulative %
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

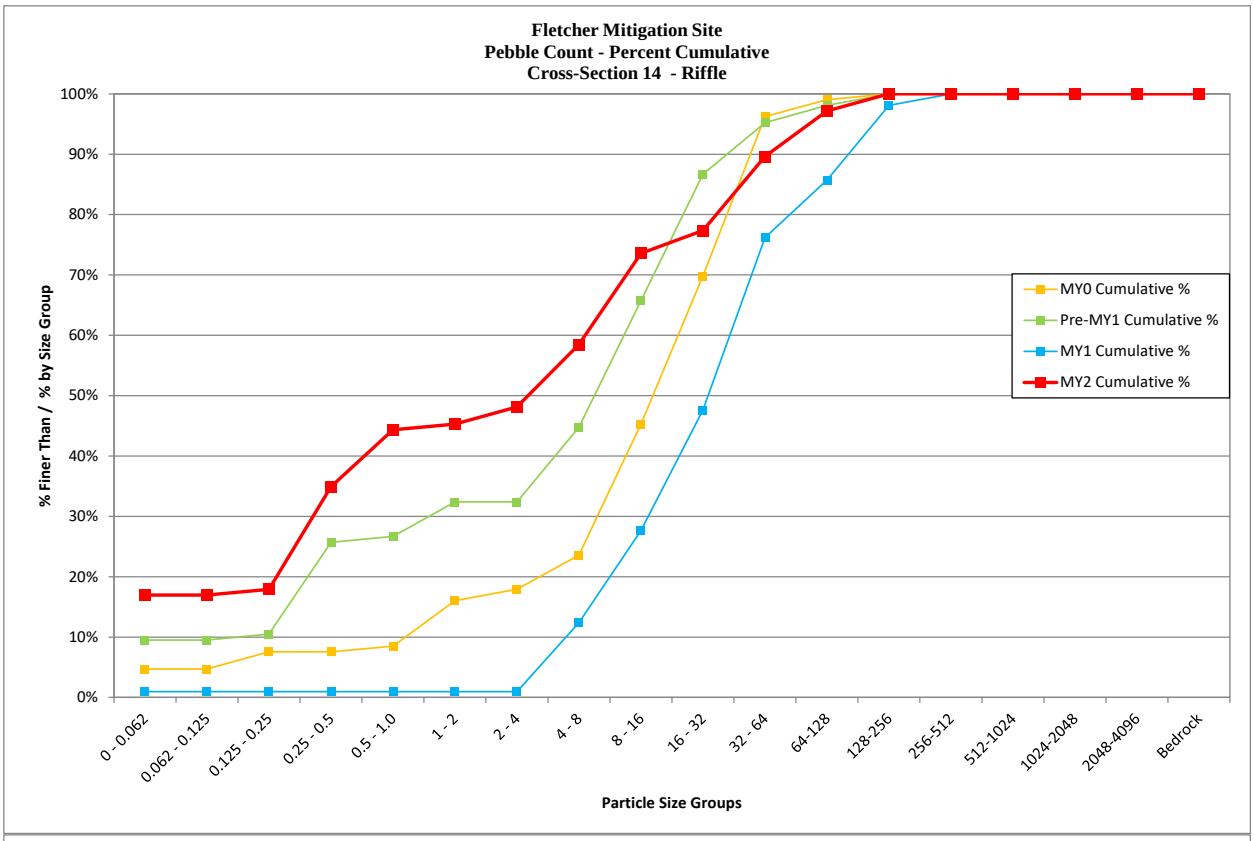

Fletcher Mitigation Site
Pebble Count - Percent Individual
Cross-Section 10 - Riffle
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
% Finer Than / % by Size Group
MY0 Individual %
Pre-MY1 Individual %
MY1 Individual %
MY2 Individual %
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

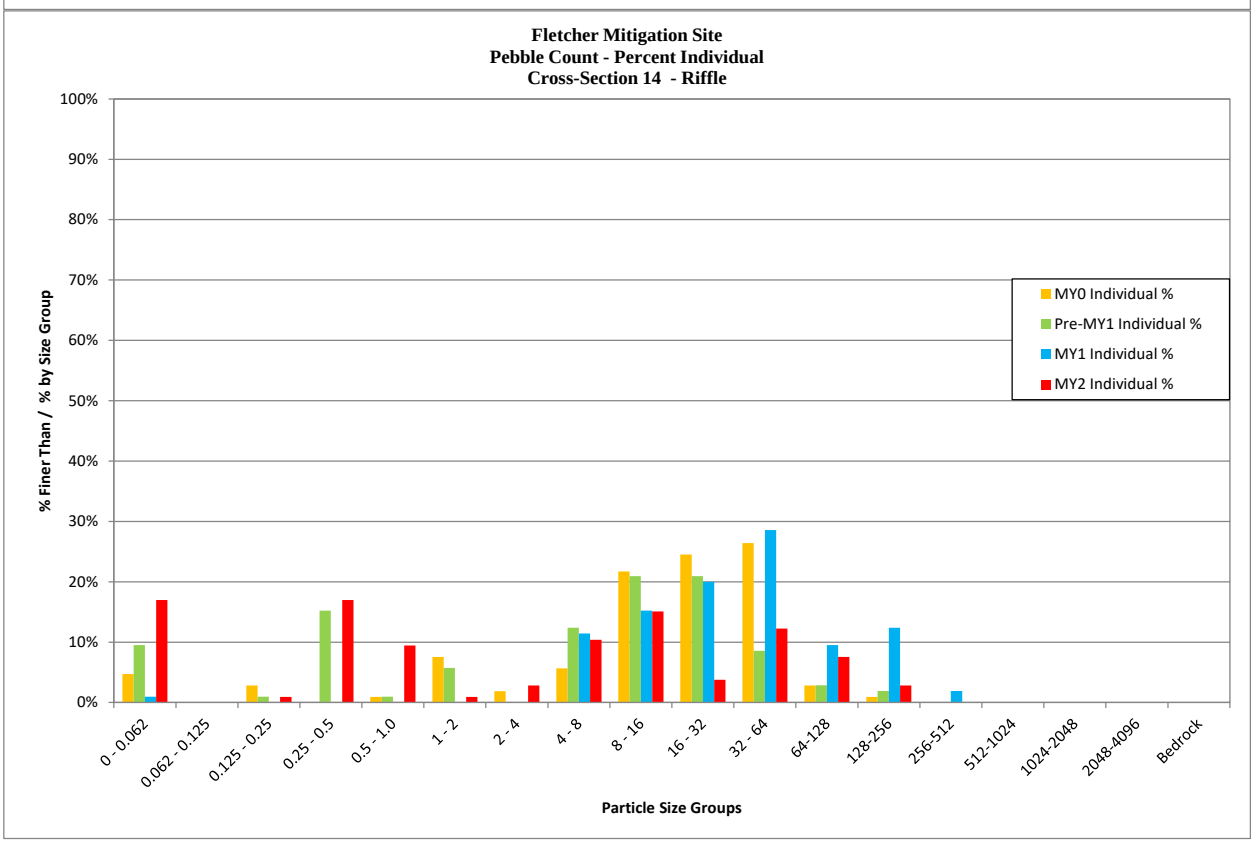
Fletcher Mitigation Site			
Cross Section 11 - Riffle			
Monitoring Year - 2021; MY2			
Bed Surface Material Particle Size Class (mm)	**Number**	**% Individual**	**% Cumulative**
0 - 0.062	5	5.0%	5%
0.062 - 0.125	0	0.0%	5%
0.125 - 0.25	10	9.9%	15%
0.25 - 0.5	5	5.0%	20%
0.5 - 1.0	13	12.9%	33%
1 - 2	6	5.9%	39%
2 - 4	3	3.0%	42%
4 - 8	13	12.9%	54%
8 - 16	20	19.8%	74%
16 - 32	15	14.9%	89%
32 - 64	9	8.9%	98%
64-128	2	2.0%	100%
128-256	0	0.0%	100%
256-512	0	0.0%	100%
512-1024	0	0.0%	100%
1024-2048	0	0.0%	100%
2048-4096	0	0.0%	100%
Bedrock	0	0.0%	100%
Total	**101**	**100%**	**100%**
		Summary Data	
		D50	**6.6**
		D84	**21**
		D95	**45**


Fletcher Mitigation Site
Pebble Count - Percent Cumulative
Cross-Section 11 - Riffle
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
% Finer Than / % by Size Group
MY0 Cumulative %
Pre-MY1 Cumulative %
MY1 Cumulative %
MY2 Cumulative %
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

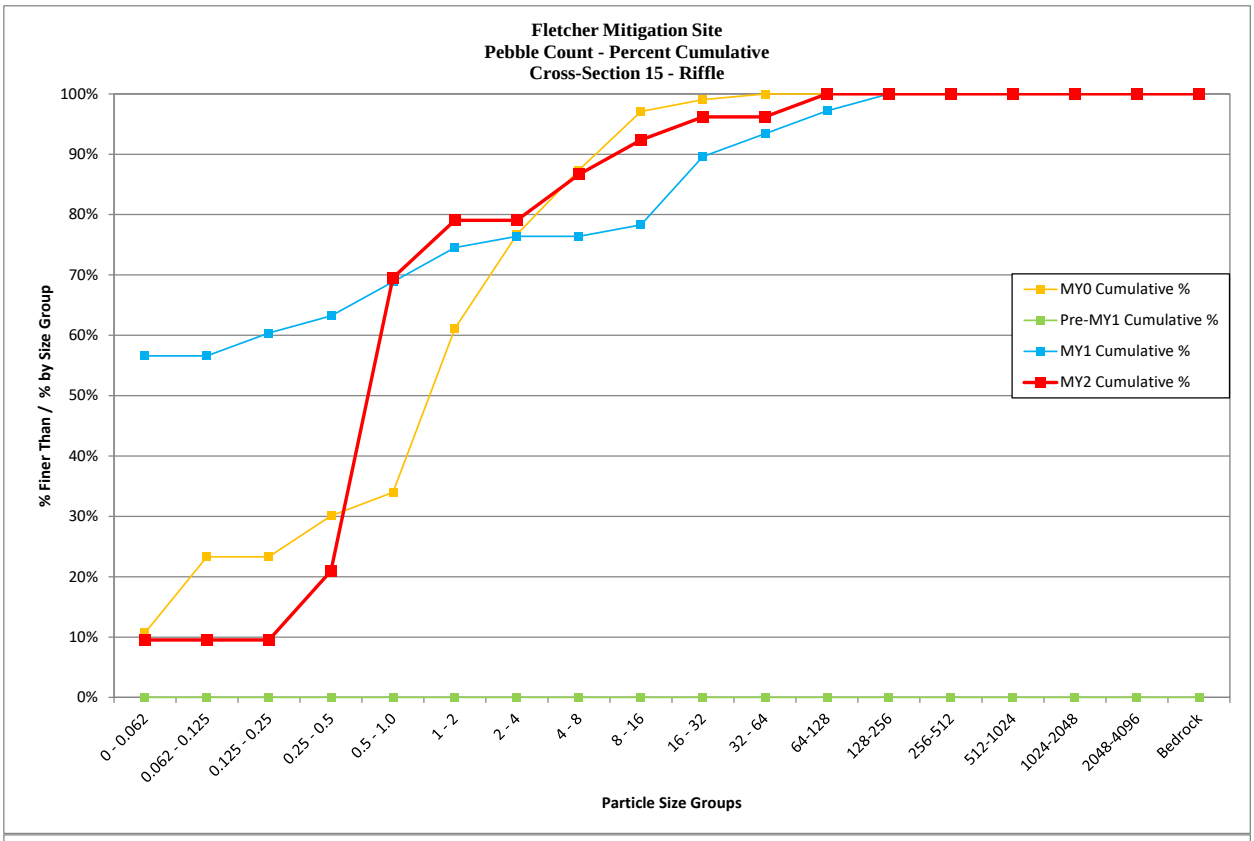

Fletcher Mitigation Site
Pebble Count - Percent Individual
Cross-Section 10 - Riffle
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
% Finer Than / % by Size Group
MY0 Individual %
Pre-MY1 Individual %
MY1 Individual %
MY2 Individual %
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

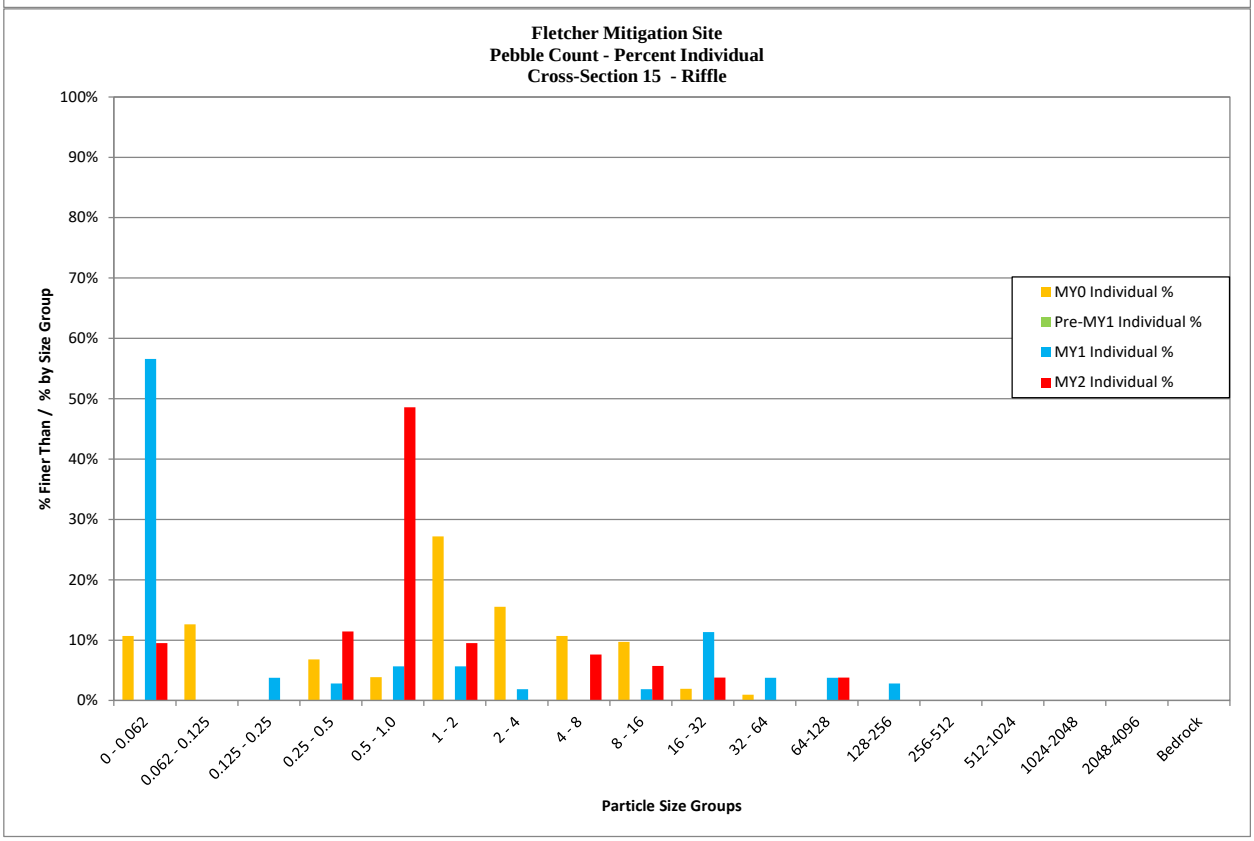
Fletcher Mitigation Site			
Cross Section 14 - Riffle			
Monitoring Year - 2021; MY2			
Bed Surface Material Particle Size Class (mm)	**Number**	**% Individual**	**% Cumulative**
0 - 0.062	18	17.0%	17%
0.062 - 0.125	0	0.0%	17%
0.125 - 0.25	1	0.9%	18%
0.25 - 0.5	18	17.0%	35%
0.5 - 1.0	10	9.4%	44%
1 - 2	1	0.9%	45%
2 - 4	3	2.8%	48%
4 - 8	11	10.4%	58%
8 - 16	16	15.1%	74%
16 - 32	4	3.8%	77%
32 - 64	13	12.3%	90%
64-128	8	7.5%	97%
128-256	3	2.8%	100%
256-512	0	0.0%	100%
512-1024	0	0.0%	100%
1024-2048	0	0.0%	100%
2048-4096	0	0.0%	100%
Bedrock	0	0.0%	100%
Total	**106**	**100%**	**100%**
		Summary Data	
		D50	**5.2**
		D84	**52**
		D95	**98**


Fletcher Mitigation Site
Pebble Count - Percent Cumulative
Cross-Section 14 - Riffle
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MY0 Cumulative %
Pre-MY1 Cumulative %
MY1 Cumulative %
MY2 Cumulative %
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

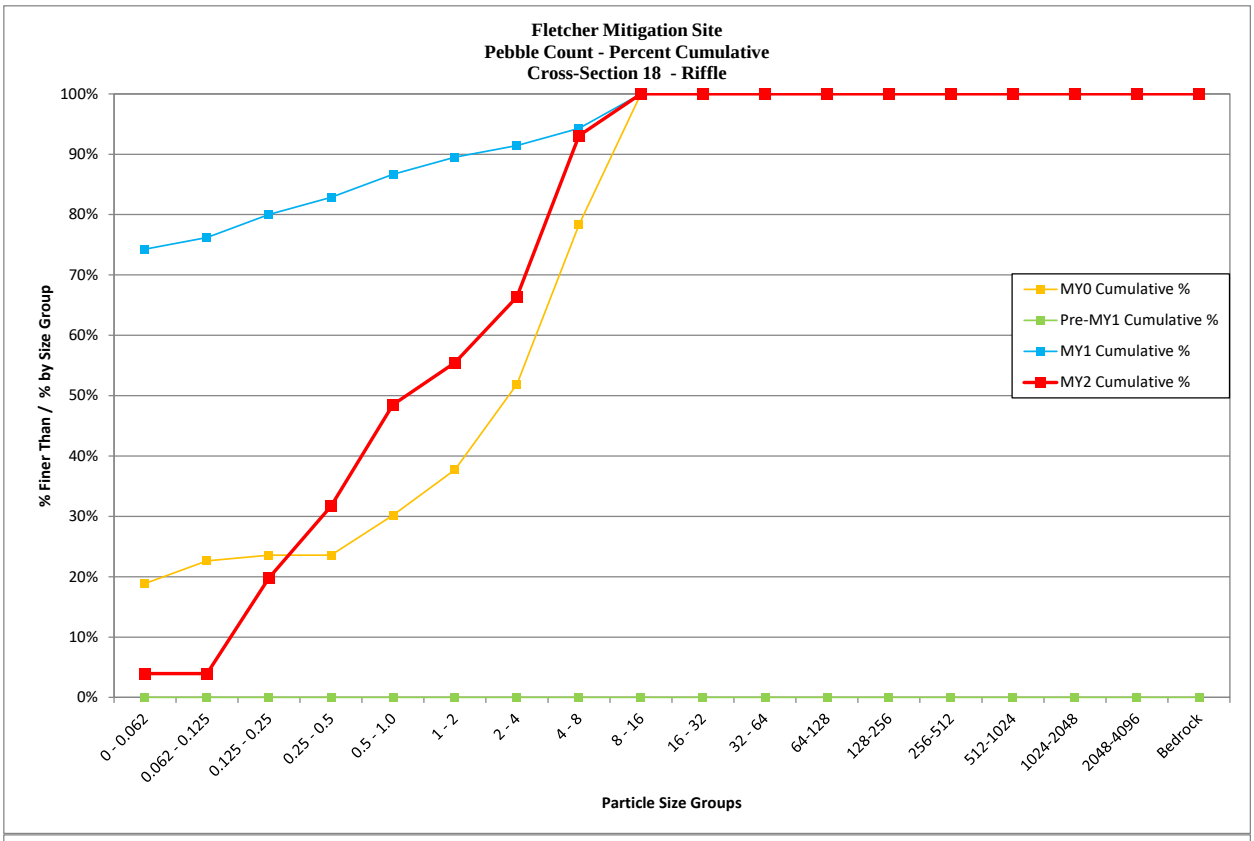

Fletcher Mitigation Site
Pebble Count - Percent Individual
Cross-Section 14 - Riffle
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MY0 Individual %
Pre-MY1 Individual %
MY1 Individual %
MY2 Individual %
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

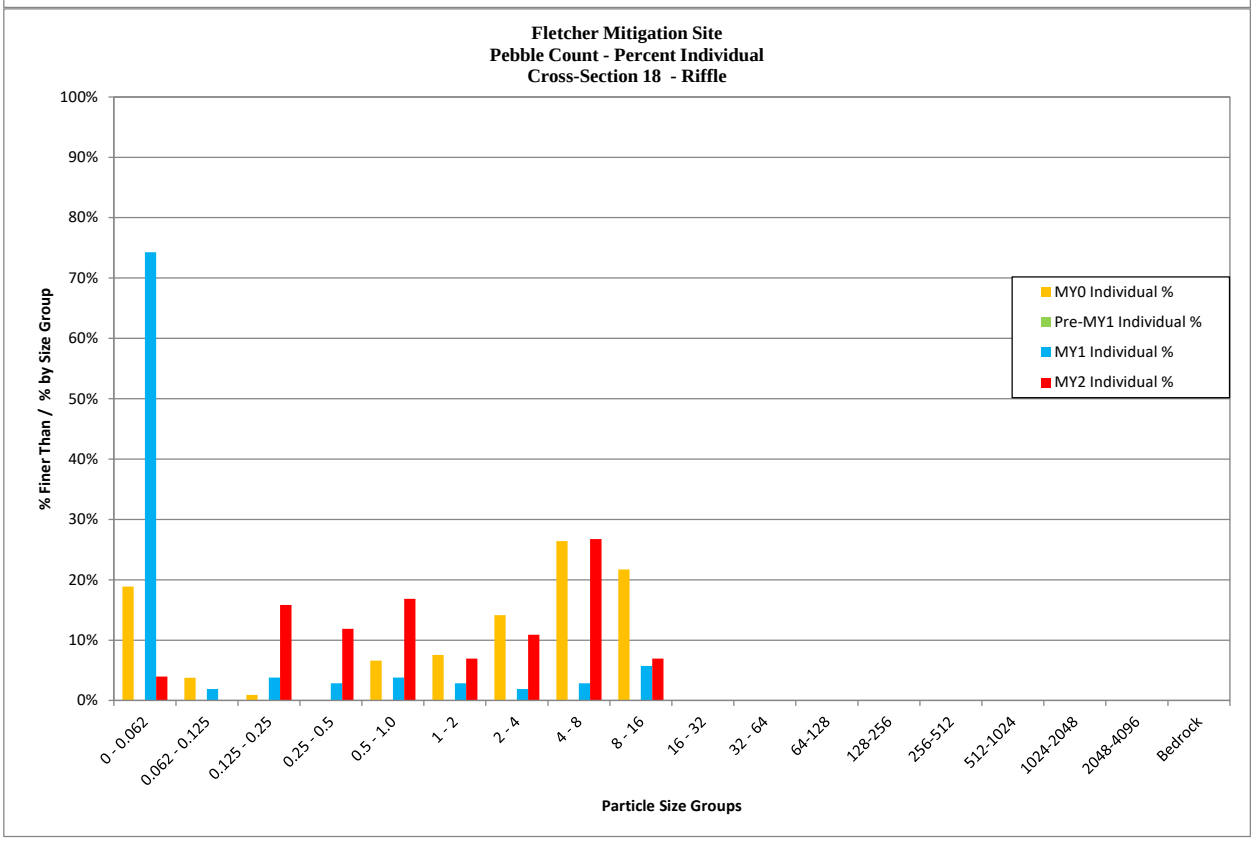
Fletcher Mitigation Site			
Cross Section 15 - Riffle			
Monitoring Year - 2021; MY2			
Bed Surface Material Particle Size Class (mm)	**Number**	**% Individual**	**% Cumulative**
0 - 0.062	10	9.5%	10%
0.062 - 0.125	0	0.0%	10%
0.125 - 0.25	0	0.0%	10%
0.25 - 0.5	12	11.4%	21%
0.5 - 1.0	51	48.6%	70%
1 - 2	10	9.5%	79%
2 - 4	0	0.0%	79%
4 - 8	8	7.6%	87%
8 - 16	6	5.7%	92%
16 - 32	4	3.8%	96%
32 - 64	0	0.0%	96%
64-128	4	3.8%	100%
128-256	0	0.0%	100%
256-512	0	0.0%	100%
512-1024	0	0.0%	100%
1024-2048	0	0.0%	100%
2048-4096	0	0.0%	100%
Bedrock	0	0.0%	100%
Total	**105**	**100%**	**100%**
		Summary Data	
		D50	**0.76**
		D84	**6.5**
		D95	**20**


Fletcher Mitigation Site
Pebble Count - Percent Cumulative
Cross-Section 15 - Riffle
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MY0 Cumulative %
Pre-MY1 Cumulative %
MY1 Cumulative %
MY2 Cumulative %
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

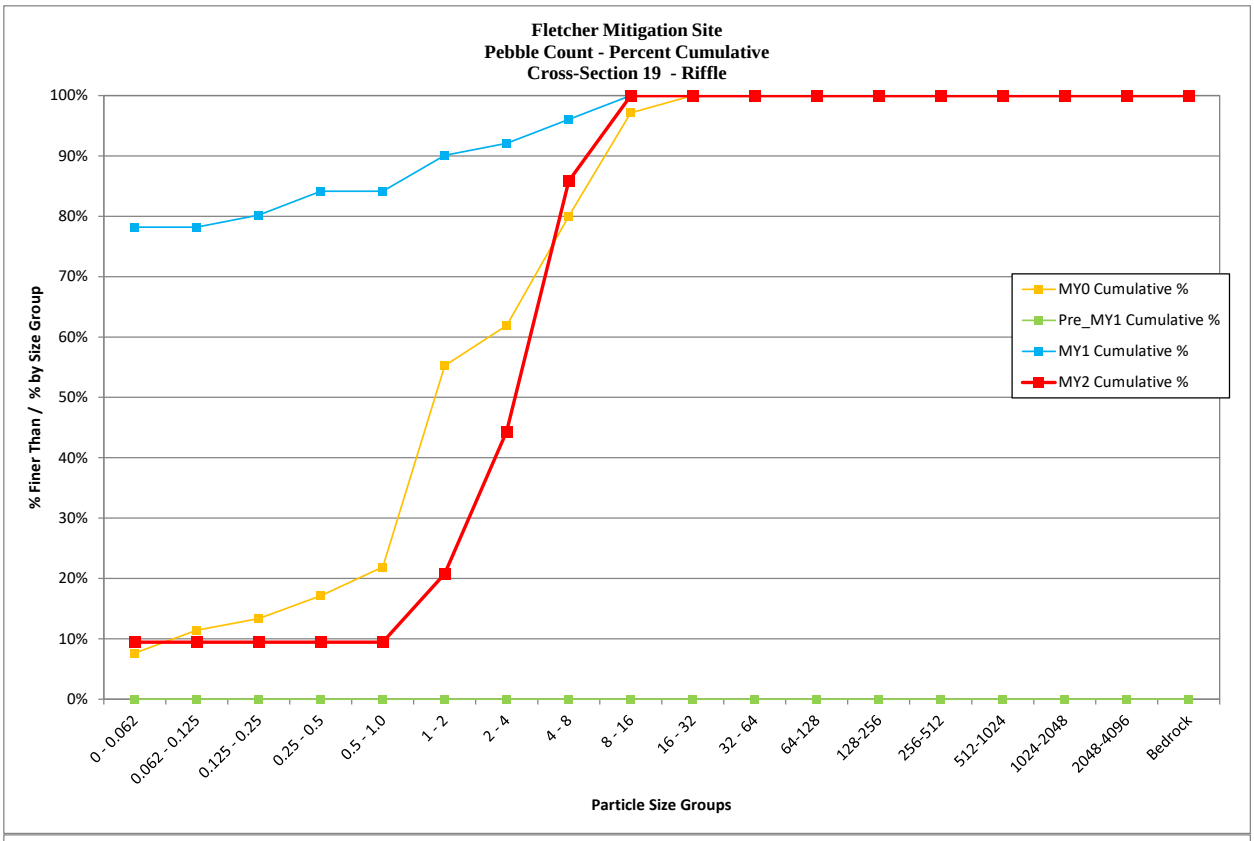

Fletcher Mitigation Site
Pebble Count - Percent Individual
Cross-Section 15 - Riffle
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MY0 Individual %
Pre-MY1 Individual %
MY1 Individual %
MY2 Individual %
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

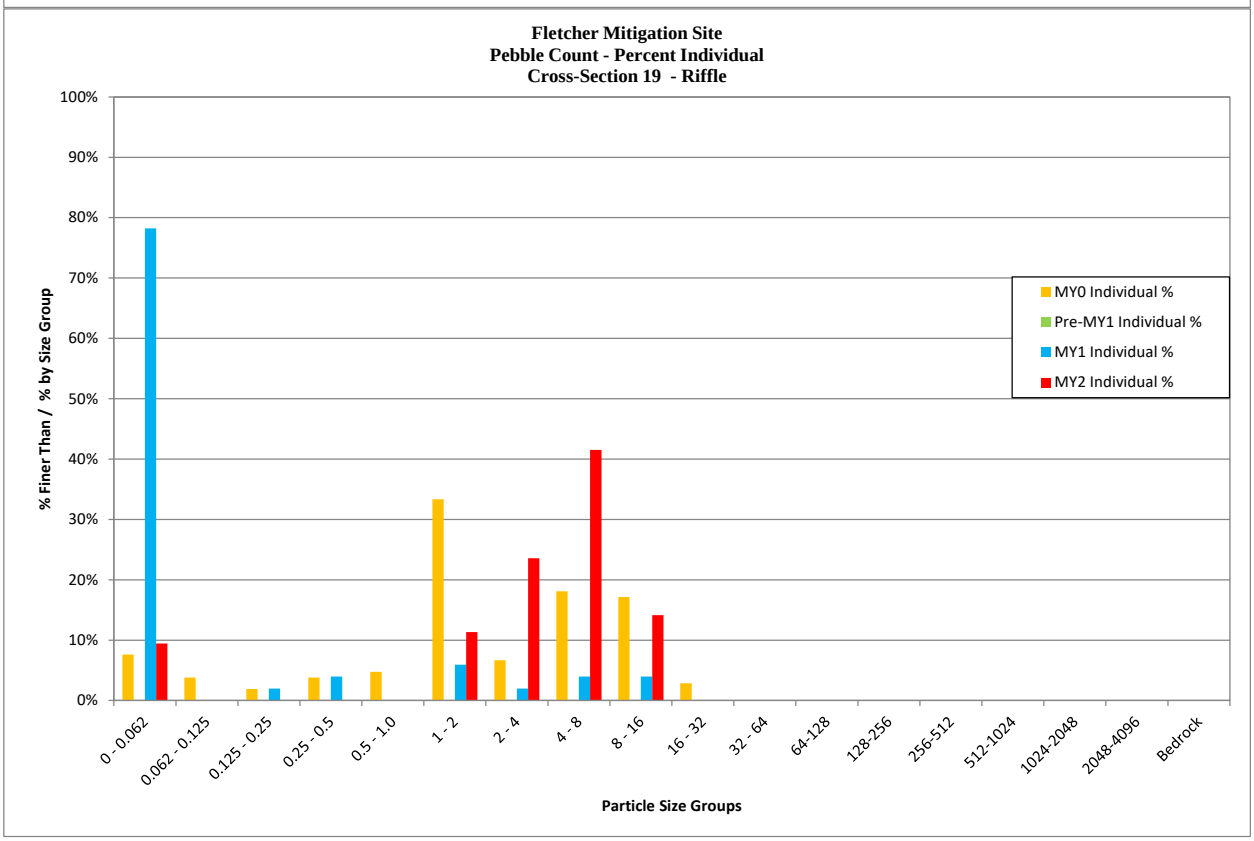
Fletcher Mitigation Site			
Cross Section 18 - Riffle			
Monitoring Year - 2021; MY2			
Bed Surface Material Particle Size Class (mm)	**Number**	**% Individual**	**% Cumulative**
0 - 0.062	4	4.0%	4%
0.062 - 0.125	0	0.0%	4%
0.125 - 0.25	16	15.8%	20%
0.25 - 0.5	12	11.9%	32%
0.5 - 1.0	17	16.8%	49%
1 - 2	7	6.9%	55%
2 - 4	11	10.9%	66%
4 - 8	27	26.7%	93%
8 - 16	7	6.9%	100%
16 - 32	0	0.0%	100%
32 - 64	0	0.0%	100%
64-128	0	0.0%	100%
128-256	0	0.0%	100%
256-512	0	0.0%	100%
512-1024	0	0.0%	100%
1024-2048	0	0.0%	100%
2048-4096	0	0.0%	100%
Bedrock	0	0.0%	100%
Total	**101**	**100%**	**100%**
		Summary Data	
		D50	**1.2**
		D84	**6.6**
		D95	**9.3**


Fletcher Mitigation Site
Pebble Count - Percent Cumulative
Cross-Section 18 - Riffle
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MY0 Cumulative %
Pre-MY1 Cumulative %
MY1 Cumulative %
MY2 Cumulative %
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

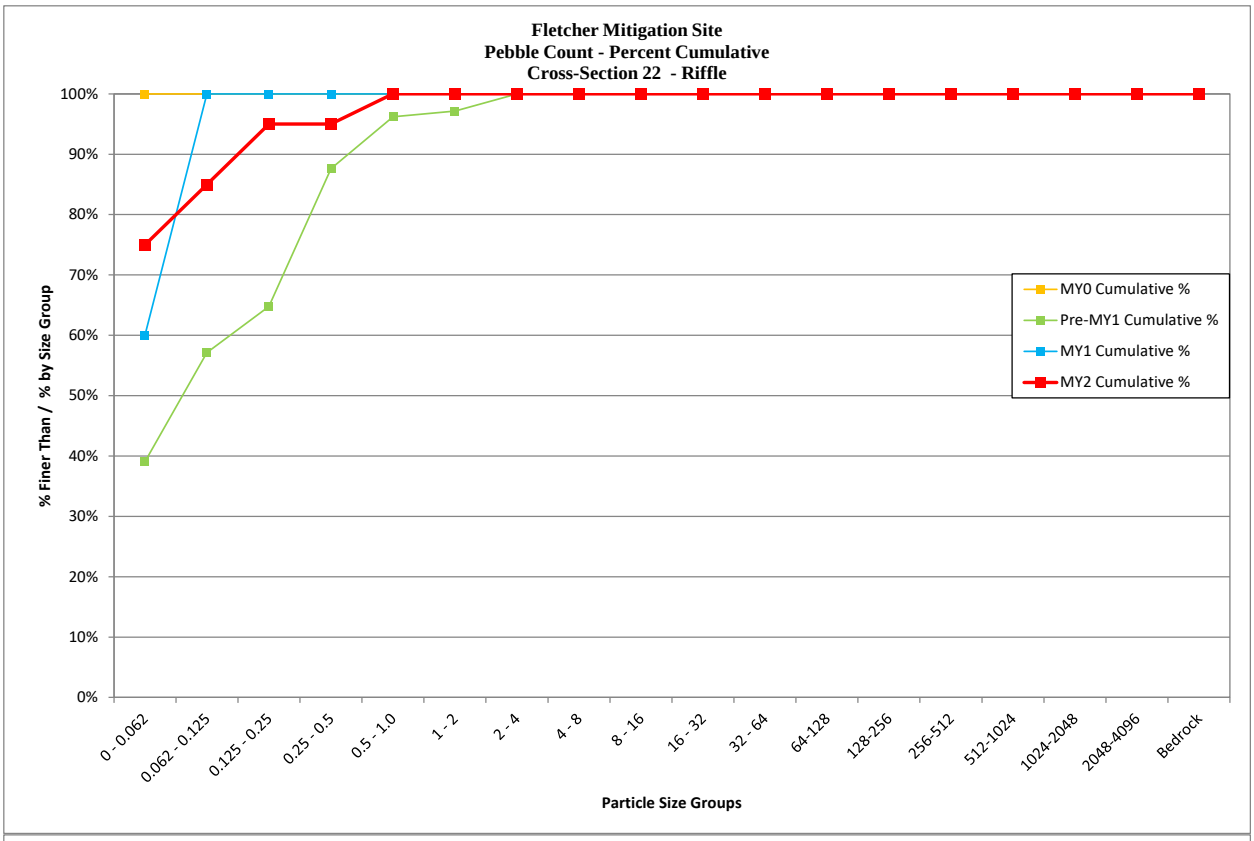

Fletcher Mitigation Site
Pebble Count - Percent Individual
Cross-Section 18 - Riffle
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MY0 Individual %
Pre-MY1 Individual %
MY1 Individual %
MY2 Individual %
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

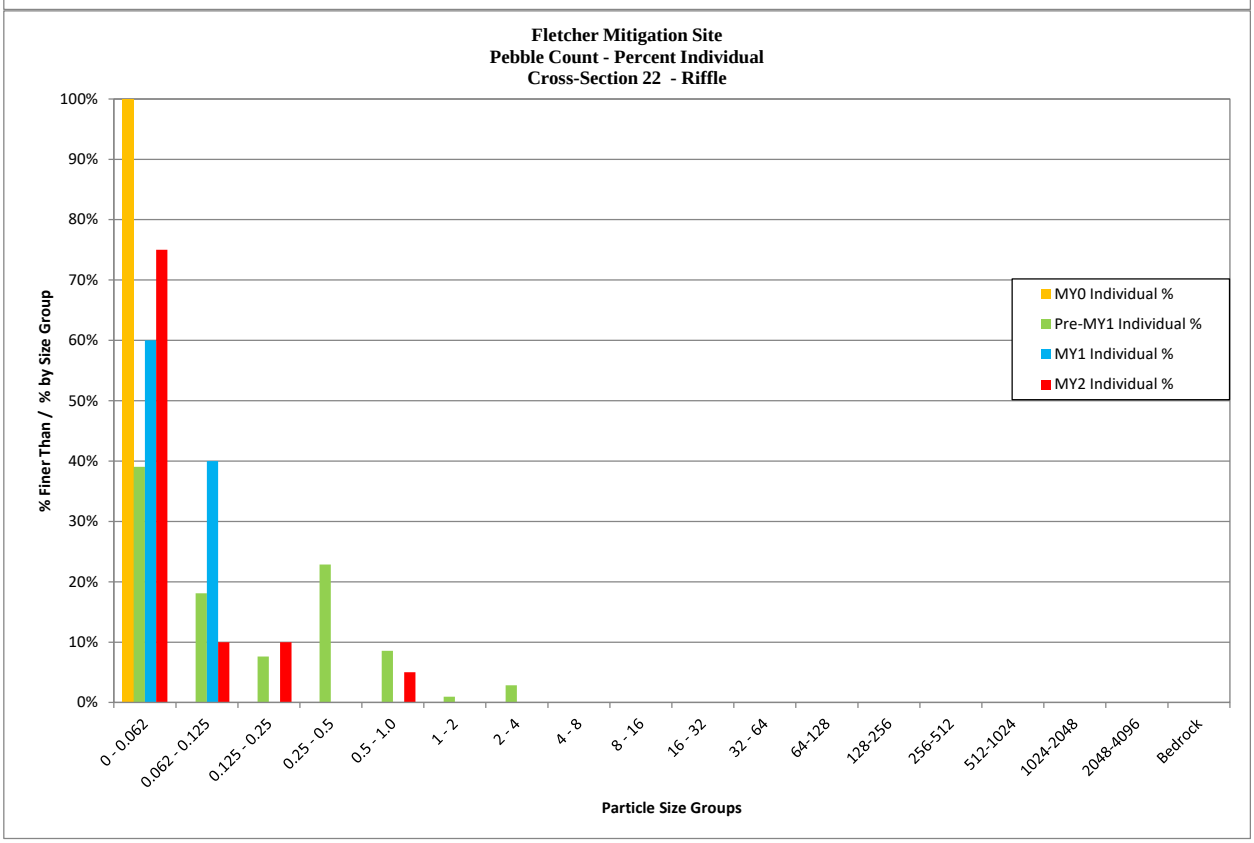
Fletcher Mitigation Site			
Cross Section 19 - Riffle			
Monitoring Year - 2021; MY2			
Bed Surface Material Particle Size Class (mm)	**Number**	**% Individual**	**% Cumulative**
0 - 0.062	10	9.4%	9%
0.062 - 0.125	0	0.0%	9%
0.125 - 0.25	0	0.0%	9%
0.25 - 0.5	0	0.0%	9%
0.5 - 1.0	0	0.0%	9%
1 - 2	12	11.3%	21%
2 - 4	25	23.6%	44%
4 - 8	44	41.5%	86%
8 - 16	15	14.2%	100%
16 - 32	0	0.0%	100%
32 - 64	0	0.0%	100%
64-128	0	0.0%	100%
128-256	0	0.0%	100%
256-512	0	0.0%	100%
512-1024	0	0.0%	100%
1024-2048	0	0.0%	100%
2048-4096	0	0.0%	100%
Bedrock	0	0.0%	100%
Total	**106**	**100%**	**100%**
		Summary Data	
		D50	**4.6**
		D84	**7.8**
		D95	**10**


Fletcher Mitigation Site
Pebble Count - Percent Cumulative
Cross-Section 19 - Riffle
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MY0 Cumulative %
Pre_MY1 Cumulative %
MY1 Cumulative %
MY2 Cumulative %
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

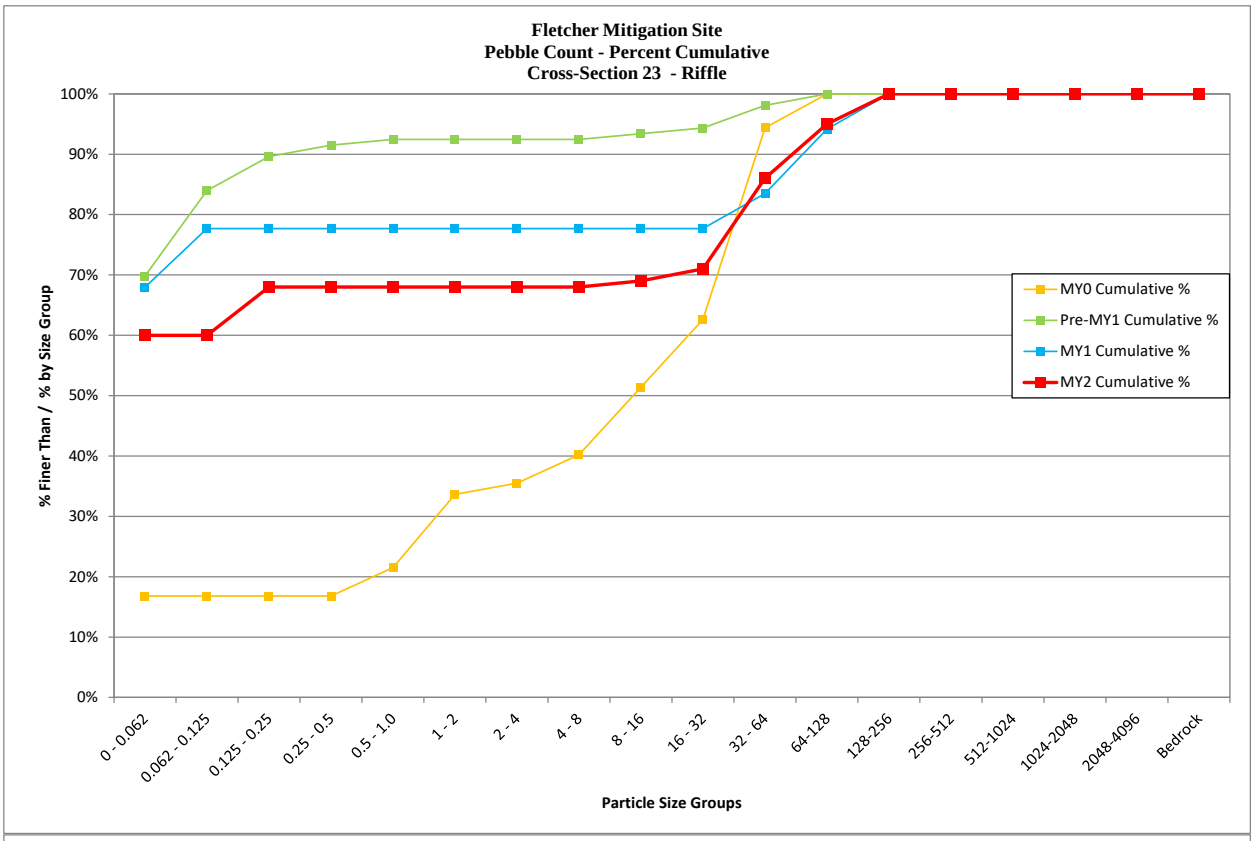

Fletcher Mitigation Site
Pebble Count - Percent Individual
Cross-Section 19 - Riffle
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MY0 Individual %
Pre-MY1 Individual %
MY1 Individual %
MY2 Individual %
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

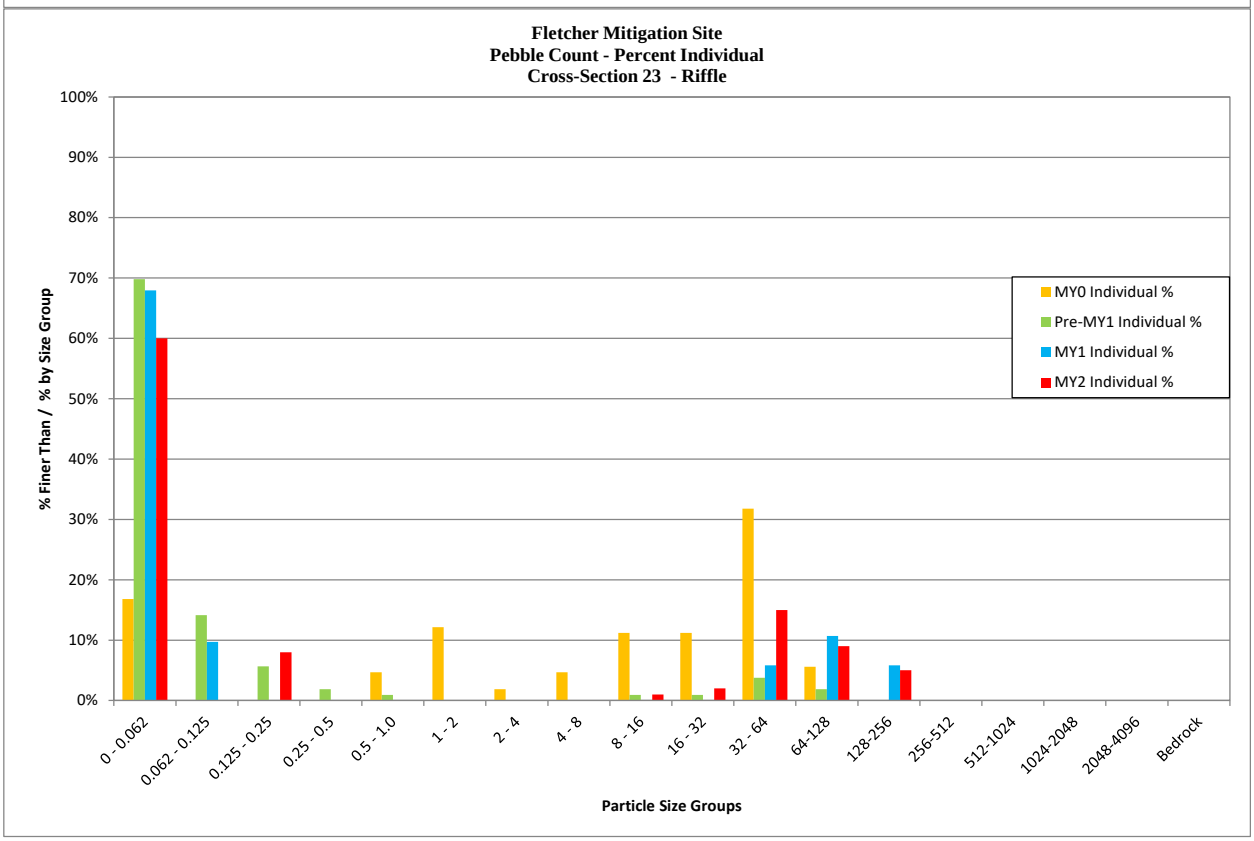
Fletcher Mitigation Site			
Cross Section 22 - Riffle			
Monitoring Year - 2021; MY2			
Bed Surface Material Particle Size Class (mm)	**Number**	**% Individual**	**% Cumulative**
0 - 0.062	75	75.0%	75%
0.062 - 0.125	10	10.0%	85%
0.125 - 0.25	10	10.0%	95%
0.25 - 0.5	0	0.0%	95%
0.5 - 1.0	5	5.0%	100%
1 - 2	0	0.0%	100%
2 - 4	0	0.0%	100%
4 - 8	0	0.0%	100%
8 - 16	0	0.0%	100%
16 - 32	0	0.0%	100%
32 - 64	0	0.0%	100%
64-128	0	0.0%	100%
128-256	0	0.0%	100%
256-512	0	0.0%	100%
512-1024	0	0.0%	100%
1024-2048	0	0.0%	100%
2048-4096	0	0.0%	100%
Bedrock	0	0.0%	100%
Total	**100**	**100%**	**100%**
		Summary Data	
		D50	**0.062**
		D84	**0.12**
		D95	**0.25**


Fletcher Mitigation Site
Pebble Count - Percent Cumulative
Cross-Section 22 - Riffle
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MY0 Cumulative %
Pre-MY1 Cumulative %
MY1 Cumulative %
MY2 Cumulative %
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

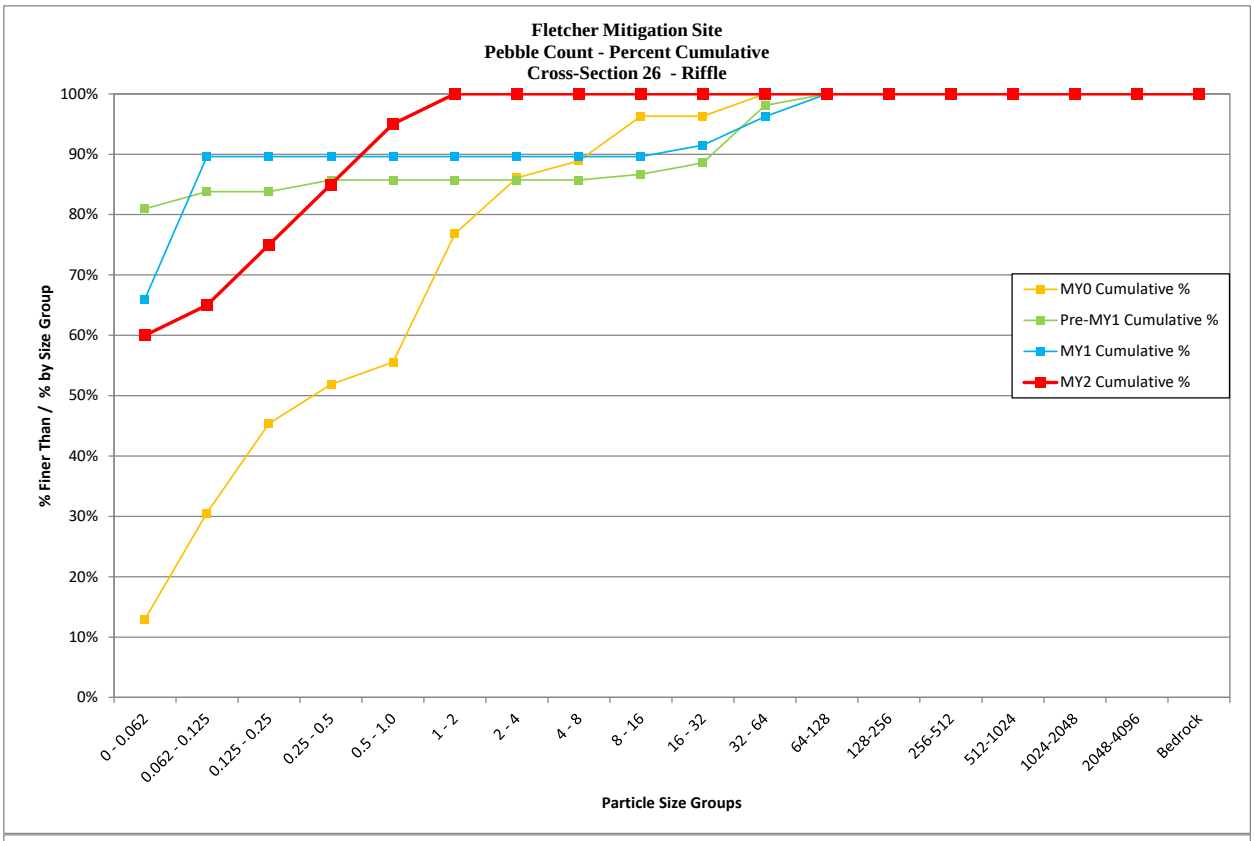

Fletcher Mitigation Site
Pebble Count - Percent Individual
Cross-Section 22 - Riffle
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MY0 Individual %
Pre-MY1 Individual %
MY1 Individual %
MY2 Individual %
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

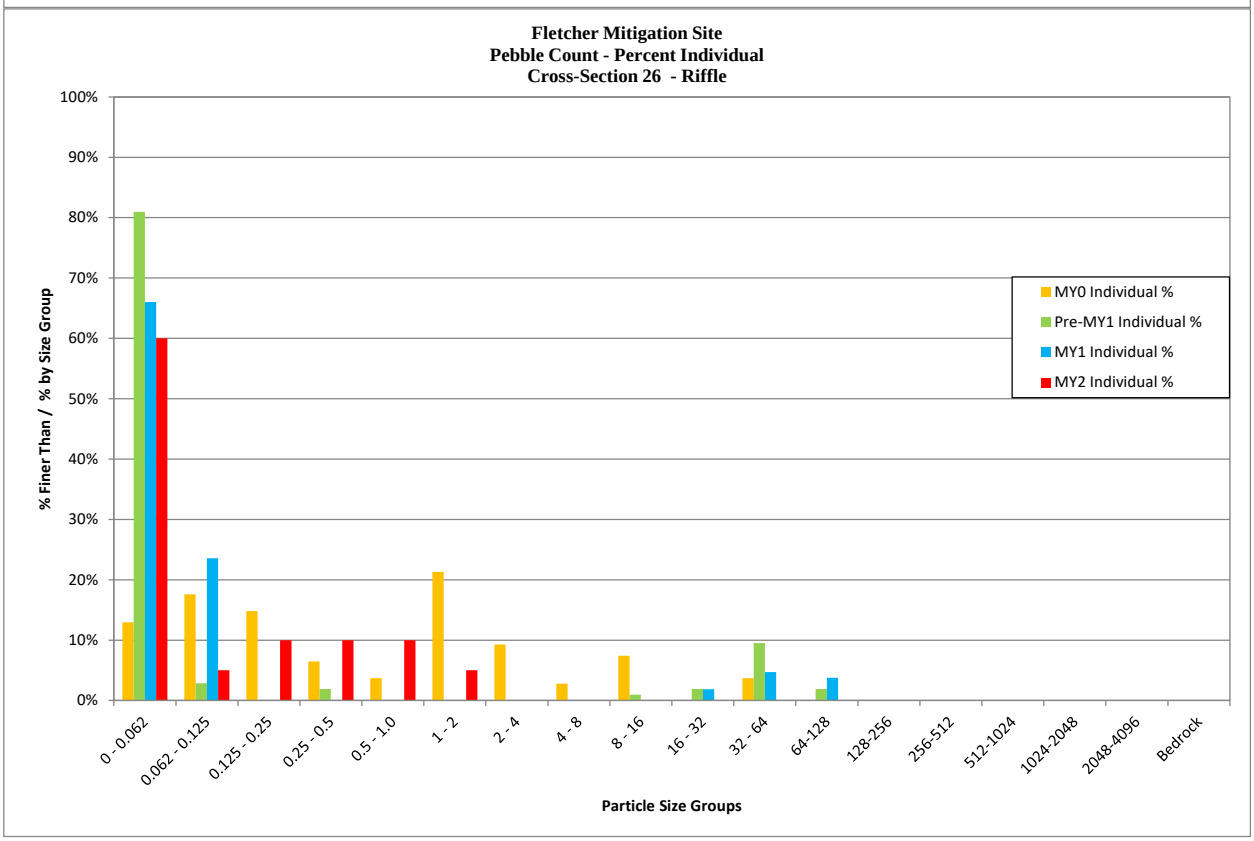
Fletcher Mitigation Site			
Cross Section 23 - Riffle			
Monitoring Year - 2021; MY2			
Bed Surface Material Particle Size Class (mm)	**Number**	**% Individual**	**% Cumulative**
0 - 0.062	60	60.0%	60%
0.062 - 0.125	0	0.0%	60%
0.125 - 0.25	8	8.0%	68%
0.25 - 0.5	0	0.0%	68%
0.5 - 1.0	0	0.0%	68%
1 - 2	0	0.0%	68%
2 - 4	0	0.0%	68%
4 - 8	0	0.0%	68%
8 - 16	1	1.0%	69%
16 - 32	2	2.0%	71%
32 - 64	15	15.0%	86%
64-128	9	9.0%	95%
128-256	5	5.0%	100%
256-512	0	0.0%	100%
512-1024	0	0.0%	100%
1024-2048	0	0.0%	100%
2048-4096	0	0.0%	100%
Bedrock	0	0.0%	100%
Total	**100**	**100%**	**100%**
		Summary Data	
		D50	**0.062**
		D84	**57**
		D95	**130**


Fletcher Mitigation Site
Pebble Count - Percent Cumulative
Cross-Section 23 - Riffle
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MY0 Cumulative %
Pre-MY1 Cumulative %
MY1 Cumulative %
MY2 Cumulative %
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

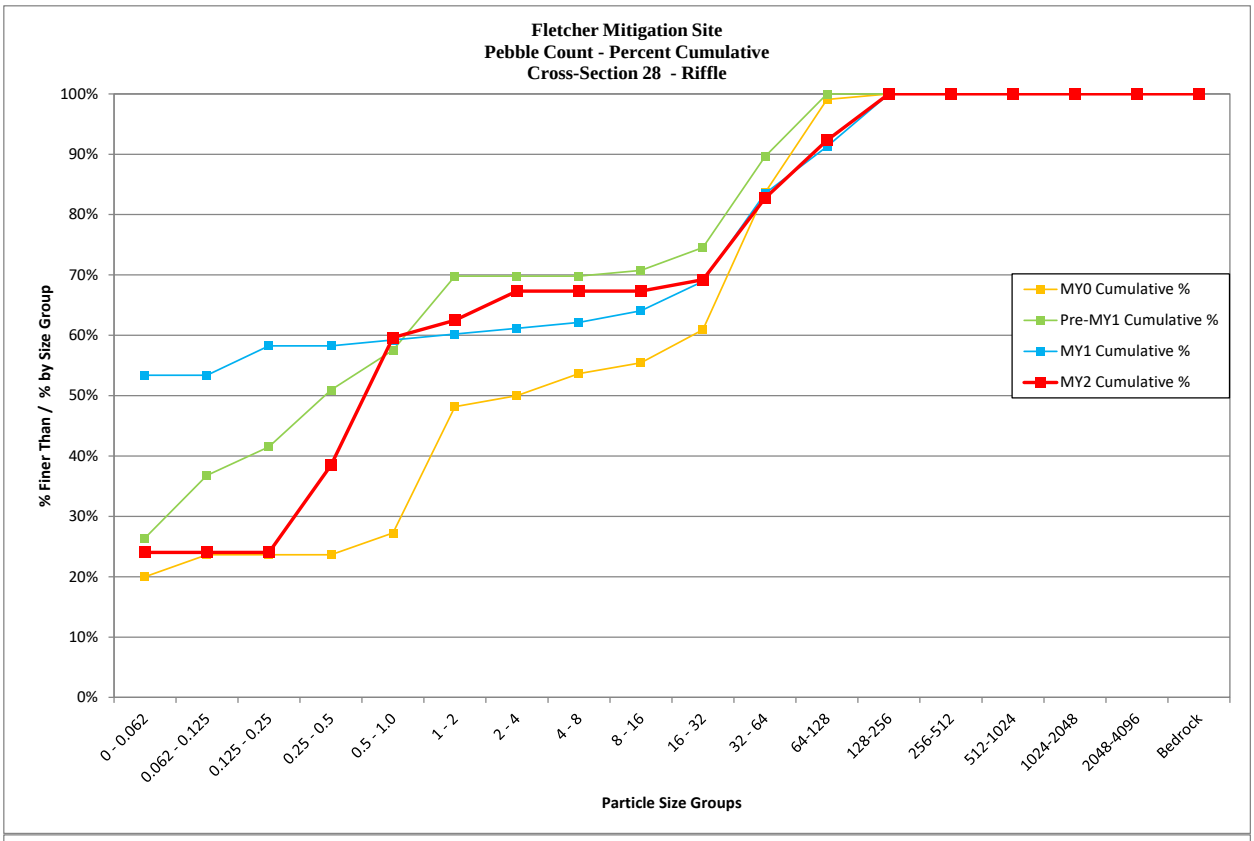

Fletcher Mitigation Site
Pebble Count - Percent Individual
Cross-Section 23 - Riffle
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MY0 Individual %
Pre-MY1 Individual %
MY1 Individual %
MY2 Individual %
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

Fletcher Mitigation Site			
Cross Section 26 - Riffle			
Monitoring Year - 2021; MY2			
Bed Surface Material Particle Size Class (mm)	**Number**	**% Individual**	**% Cumulative**
0 - 0.062	60	60.0%	60%
0.062 - 0.125	5	5.0%	65%
0.125 - 0.25	10	10.0%	75%
0.25 - 0.5	10	10.0%	85%
0.5 - 1.0	10	10.0%	95%
1 - 2	5	5.0%	100%
2 - 4	0	0.0%	100%
4 - 8	0	0.0%	100%
8 - 16	0	0.0%	100%
16 - 32	0	0.0%	100%
32 - 64	0	0.0%	100%
64-128	0	0.0%	100%
128-256	0	0.0%	100%
256-512	0	0.0%	100%
512-1024	0	0.0%	100%
1024-2048	0	0.0%	100%
2048-4096	0	0.0%	100%
Bedrock	0	0.0%	100%
Total	**100**	**100%**	**100%**
		Summary Data	
		D50	**0.062**
		D84	**0.47**
		D95	**1**


Fletcher Mitigation Site
Pebble Count - Percent Cumulative
Cross-Section 26 - Riffle
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MY0 Cumulative %
Pre-MY1 Cumulative %
MY1 Cumulative %
MY2 Cumulative %
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups


Fletcher Mitigation Site
Pebble Count - Percent Individual
Cross-Section 26 - Riffle
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MY0 Individual %
Pre-MY1 Individual %
MY1 Individual %
MY2 Individual %
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

Fletcher Mitigation Site			
Cross Section 28 - Riffle			
Monitoring Year - 2021; MY2			
Bed Surface Material Particle Size Class (mm)	**Number**	**% Individual**	**% Cumulative**
0 - 0.062	25	24.0%	24%
0.062 - 0.125	0	0.0%	24%
0.125 - 0.25	0	0.0%	24%
0.25 - 0.5	15	14.4%	38%
0.5 - 1.0	22	21.2%	60%
1 - 2	3	2.9%	63%
2 - 4	5	4.8%	67%
4 - 8	0	0.0%	67%
8 - 16	0	0.0%	67%
16 - 32	2	1.9%	69%
32 - 64	14	13.5%	83%
64-128	10	9.6%	92%
128-256	8	7.7%	100%
256-512	0	0.0%	100%
512-1024	0	0.0%	100%
1024-2048	0	0.0%	100%
2048-4096	0	0.0%	100%
Bedrock	0	0.0%	100%
Total	**104**	**100%**	**100%**
		Summary Data	
		D50	**0.73**
		D84	**70**
		D95	**140**


Fletcher Mitigation Site
Pebble Count - Percent Cumulative
Cross-Section 28 - Riffle
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
% Finer Than / % by Size Group
MY0 Cumulative %
Pre-MY1 Cumulative %
MY1 Cumulative %
MY2 Cumulative %
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

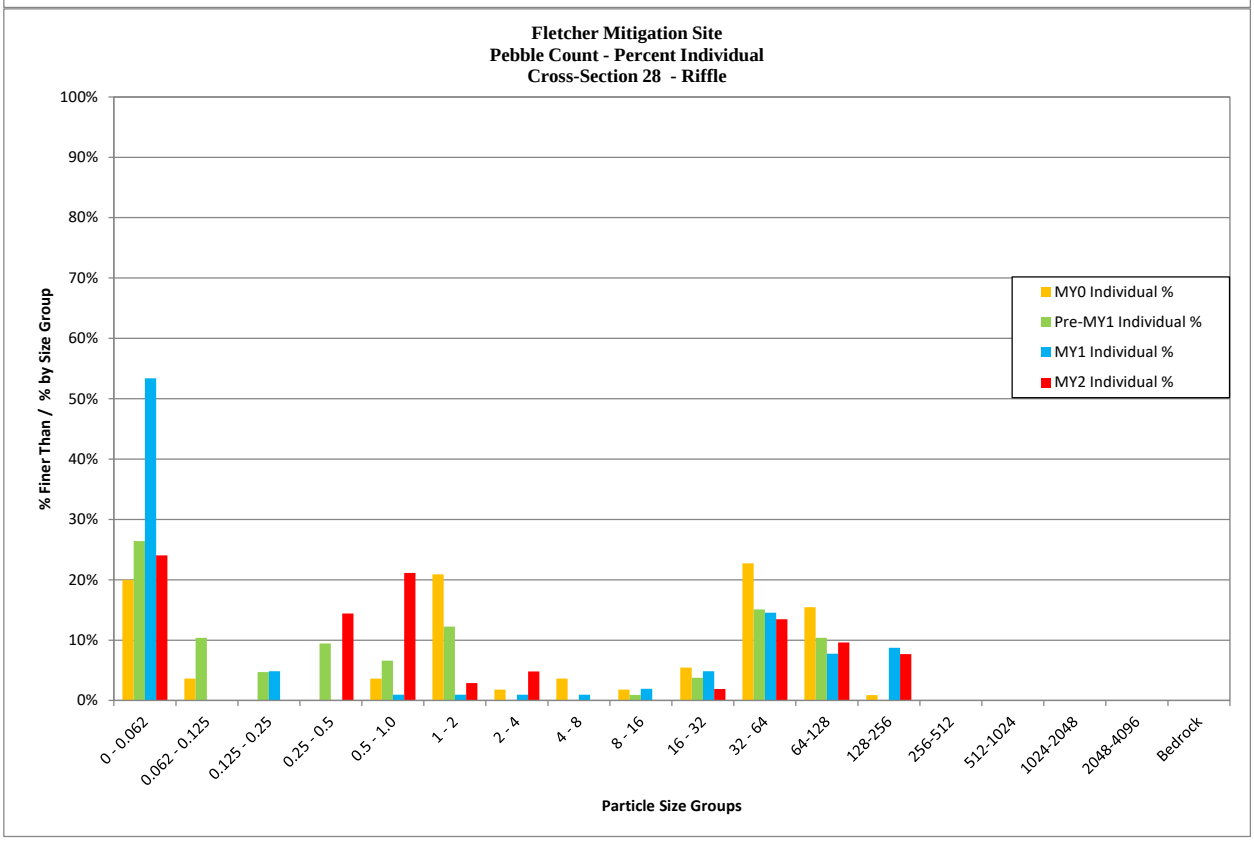

Fletcher Mitigation Site
Pebble Count - Percent Individual
Cross-Section 28 - Riffle
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
% Finer Than / % by Size Group
MY0 Individual %
Pre-MY1 Individual %
MY1 Individual %
MY2 Individual %
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

Table 10. Baseline Stream Data Summary
Fletcher Mitigation Site - Fletcher Creek Reach 1B (380 feet *)

Parameter	Regional Curve			Pre-Existing Condition						Reference Reach Data						Design			As-Built / Baseline					
Dimension & Substrate - Riffle	**LL**	**UL**	**Eq.**	**Min**	**Mean**	**Med**	**Max**	**SD**	**N**	**Min**	**Mean**	**Med**	**Max**	**SD**	**N**	**Min**	**Mean**	**Max**	**Min**	**Mean**	**Med**	**Max**	**SD**	**N**
Bankfull Width (ft)	-	-	-	6.1	-	-	8.0	-	-	14.7	-	-	19.5	-	-	-	8.7	-	-	7.1	-	-	-	1
Floodprone Width (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20.0	-	-	-	1
Bankfull Mean Depth (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	0.6	-	-	0.3	-	-	-	1
Bankfull Max Depth (ft)				0.7	-	-	0.8	-	-	1.2	-	-	1.4	-	-	-	0.9	-	-	0.6	-	-	-	1
Bankfull Cross Sectional Area (ft^2)		-		4.4	-	-	6.2	-	-	18.0	-	-	27.2	-	-	-	5.5	-	-	2.3	-	-	-	1
Width/Depth Ratio				8.5	-	-	10.5	-	-	12.0	-	-	14	-	-	-	13.6	-	-	21.4	-	-	-	1
Entrenchment Ratio				1.1	-	-	2.1	-	-	1.4	-	-	1.5	-	-	-	2.4	-	-	2.8	-	-	-	1
Bank Height Ratio				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.0	-	-	-	1
d50 (mm)				6.0	-	-	11.0	-	-	60.0	-	-	125	-	-	-	-	-	-	12.0	-	-	-	1
Profile																								
Riffle Length (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	8.5	8.0	13.1	2.5	13
Riffle Slope (ft/ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.002	0.018	0.014	0.044	0.013	13
Pool Length (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.1	9.6	9.7	14.4	2.8	12
Pool Max Depth (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	1.4	-	1.2	2.0	1.9	2.9	0.5	12
Pool Spacing (ft)				-	-	-	-	-	-	-	-	-	-	-	-	23.4	-	39.0	14.6	27.9	29.4	40.5	8.0	11
Pattern																								
Channel Belt Width (ft)				-	-	-	-	-	-	-	-	-	-	-	-	10.3	13.7	17.2	17.7	18.2	17.8	19.0	0.7	3
Radius of Curvature (ft)				-	-	-	-	-	-	-	-	-	-	-	-	14.0	-	21.0	17.0	22.7	25.0	26.0	4.9	3
Rc: Bankfull Width (ft/ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.0	2.6	2.9	3.0	0.6	3
Meander Wavelength (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17.7	18.2	17.8	19.1	0.8	3
Meander Width Ratio				-	-	-	-	-	-	-	-	-	-	-	-	-	2.5	-	2.0	2.1	2.0	2.2	0.1	3
Substrate, Bed and Transport Parameters																								
Reach Shear Stress (Competency) lb/ft^2				-						-						-			-					
Max Part Size (mm) Mobilized at Bankfull				-						-						-			-					
Stream Power (Transport Capacity) W/m^2				-						-						-			-					
Additional Reach Parameters																								
Drainage Area (mi^2)				0.30						2.35						0.30								
Rosgen Classification				G						B4						B4			B4					
Bankfull Velocity (fps)		-		2.3 - 3.6						-						-								
Bankfull Discharge (cfs)		-		22.0						-						15.0								
Valley Length (ft)				-						-						-			337					
* Channel Thalweg Length (ft)				-						-						-			380					
^ Channel Centerline (ft)				-						-									377					
Sinuosity				-						-						1.11			1.12					
Water Surface Slope (ft/ft)				0.008 - 0.018						0.011 - 0.018						0.016			0.015					
Bankfull Slope (ft/ft)				-						-						-			0.016					
Bankfull Floodplain Area (acres)				-						-														
% of Reach with Eroding Banks				-						-														
Channel Stability or Habitat Metric				Unstable						-														
Biological or Other				-						-														

* Channel Thalweg Length (ft): Based on actual thalweg calculations from the as-built survey, accounts for breaks in conservation easement and utility right-of-ways.

^ Channel Centerline (ft): Based on stream centerline stationing from design stream stationing; accounts for breaks in conservation easement and utility right-of-ways.

- Information unavailable.

Non-Applicable.

Table 10. Baseline Stream Data Summary
Fletcher Mitigation Site - Fletcher Creek Reach 1B (380 feet *)

Parameter	Regional Curve			Pre-Existing Condition						Reference Reach Data						Design			As-Built / Baseline					
Dimension & Substrate - Riffle	**LL**	**UL**	**Eq.**	**Min**	**Mean**	**Med**	**Max**	**SD**	**N**	**Min**	**Mean**	**Med**	**Max**	**SD**	**N**	**Min**	**Mean**	**Max**	**Min**	**Mean**	**Med**	**Max**	**SD**	**N**
Bankfull Width (ft)	-	-	-	6.1	-	-	8.0	-	-	14.7	-	-	19.5	-	-	-	8.7	-	-	7.1	-	-	-	1
Floodprone Width (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20.0	-	-	-	1
Bankfull Mean Depth (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	0.6	-	-	0.3	-	-	-	1
Bankfull Max Depth (ft)				0.7	-	-	0.8	-	-	1.2	-	-	1.4	-	-	-	0.9	-	-	0.6	-	-	-	1
Bankfull Cross Sectional Area (ft^2)		-		4.4	-	-	6.2	-	-	18.0	-	-	27.2	-	-	-	5.5	-	-	2.3	-	-	-	1
Width/Depth Ratio				8.5	-	-	10.5	-	-	12.0	-	-	14	-	-	-	13.6	-	-	21.4	-	-	-	1
Entrenchment Ratio				1.1	-	-	2.1	-	-	1.4	-	-	1.5	-	-	-	2.4	-	-	2.8	-	-	-	1
Bank Height Ratio				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.0	-	-	-	1
d50 (mm)				6.0	-	-	11.0	-	-	60.0	-	-	125	-	-	-	-	-	-	12.0	-	-	-	1
Profile																								
Riffle Length (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.8	8.5	8.0	13.1	2.5	13
Riffle Slope (ft/ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.002	0.018	0.014	0.044	0.013	13
Pool Length (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.1	9.6	9.7	14.4	2.8	12
Pool Max Depth (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	1.4	-	1.2	2.0	1.9	2.9	0.5	12
Pool Spacing (ft)				-	-	-	-	-	-	-	-	-	-	-	-	23.4	-	39.0	14.6	27.9	29.4	40.5	8.0	11
Pattern																								
Channel Belt Width (ft)				-	-	-	-	-	-	-	-	-	-	-	-	10.3	13.7	17.2	17.7	18.2	17.8	19.0	0.7	3
Radius of Curvature (ft)				-	-	-	-	-	-	-	-	-	-	-	-	14.0	-	21.0	17.0	22.7	25.0	26.0	4.9	3
Rc: Bankfull Width (ft/ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.0	2.6	2.9	3.0	0.6	3
Meander Wavelength (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17.7	18.2	17.8	19.1	0.8	3
Meander Width Ratio				-	-	-	-	-	-	-	-	-	-	-	-	-	2.5	-	2.0	2.1	2.0	2.2	0.1	3
Substrate, Bed and Transport Parameters																								
Reach Shear Stress (Competency) lb/ft^2				-						-						-			-					
Max Part Size (mm) Mobilized at Bankfull				-						-						-			-					
Stream Power (Transport Capacity) W/m^2				-						-						-			-					
Additional Reach Parameters																								
Drainage Area (mi^2)				0.30						2.35						0.30								
Rosgen Classification				G						B4						B4			B4					
Bankfull Velocity (fps)		-		2.3 - 3.6						-						-								
Bankfull Discharge (cfs)		-		22.0						-						15.0								
Valley Length (ft)				-						-						-			337					
* Channel Thalweg Length (ft)				-						-						-			380					
^ Channel Centerline (ft)				-						-									377					
Sinuosity				-						-						1.11			1.12					
Water Surface Slope (ft/ft)				0.008 - 0.018						0.011 - 0.018						0.016			0.015					
Bankfull Slope (ft/ft)				-						-						-			0.016					
Bankfull Floodplain Area (acres)				-						-														
% of Reach with Eroding Banks				-						-														
Channel Stability or Habitat Metric				Unstable						-														
Biological or Other				-						-														

* Channel Thalweg Length (ft): Based on actual thalweg calculations from the as-built survey, accounts for breaks in conservation easement and utility right-of-ways.

^ Channel Centerline (ft): Based on stream centerline stationing from design stream stationing; accounts for breaks in conservation easement and utility right-of-ways.

- Information unavailable.

Non-Applicable.

Table 10 Cont'd. Baseline Stream Data Summary
Fletcher Mitigation Site - Fletcher Creek Reach 1C (1,541 feet *)

Parameter	Regional Curve			Pre-Existing Condition						Reference Reach Data						Design			As-Built / Baseline					
Dimension & Substrate - Riffle	**LL**	**UL**	**Eq.**	**Min**	**Mean**	**Med**	**Max**	**SD**	**N**	**Min**	**Mean**	**Med**	**Max**	**SD**	**N**	**Min**	**Mean**	**Max**	**Min**	**Mean**	**Med**	**Max**	**SD**	**N**
Bankfull Width (ft)	-	-	-	6.3	-	-	9.3	-	-	14.7	-	-	19.5	-	-	-	9.4	-	7.6	9.8	9.8	12.0	3.1	2
Floodprone Width (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10.0	30.0	30.0	50.0	28.3	2
Bankfull Mean Depth (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	0.7	-	0.3	0.5	0.5	0.6	0.2	2
Bankfull Max Depth (ft)				0.6	-	-	0.9	-	-	1.2	-	-	1.4	-	-	-	0.9	-	0.5	0.8	0.8	1.0	0.4	2
Bankfull Cross Sectional Area (ft^2)	-			4.9	-	-	7.5	-	-	18.0	-	-	27.2	-	-	-	6.4	-	2.1	4.8	4.8	7.5	3.8	2
Width/Depth Ratio				8.2	-	-	16.6	-	-	12.0	-	-	14	-	-	-	13.8	-	19.2	23.4	23.4	27.6	6.0	2
Entrenchment Ratio				1.3	-	-	1.7	-	-	1.4	-	-	1.5	-	-	-	2.4	-	1.3	2.7	2.7	4.2	2.0	2
Bank Height Ratio				-	-	-	-	-	-	-	-	-	-	-	-	-		-	1.0	1.0	1.0	1.0	0.0	2
d50 (mm)				5.0	-	-	14.0	-	-	60.0	-	-	125	-	-	-	-	-	18.0	18.5	19.0	19.0	0.71	2
Profile																								
Riffle Length (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.4	10.9	11.1	21.1	4.9	44
Riffle Slope (ft/ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.000	0.009	0.007	0.029	0.008	44
Pool Length (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.3	13.1	12.8	29.0	4.6	44
Pool Max Depth (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	1.4	-	1.5	2.8	2.8	4.0	0.6	44
Pool Spacing (ft)				-	-	-	-	-	-	-	-	-	-	-	-	31.0	-	51.7	13.5	35.0	34.4	96.1	13.5	43
Pattern																								
Channel Belt Width (ft)				-	-	-	-	-	-	-	-	-	-	-	-	11.2	15.0	18.7	18.7	20.2	19.7	22.3	1.9	3
Radius of Curvature (ft)				-	-	-	-	-	-	-	-	-	-	-	-	15.0	-	22.0	17.2	21.0	20.6	25.3	4.1	3
Rc: Bankfull Width (ft/ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	2.2	2.2	2.7	0.5	3
Meander Wavelength (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.7	20.2	19.7	22.3	1.9	3
Meander Width Ratio				-	-	-	-	-	-	-	-	-	-	-	-	-	2.9	-	2.0	2.1	2.1	2.4	0.2	3
Substrate, Bed and Transport Parameters																								
Reach Shear Stress (Competency) lb/ft^2				-						-						-			-					
Max Part Size (mm) Mobilized at Bankfull				-						-						-			-					
Stream Power (Transport Capacity) W/m^2				-						-						-			-					
Additional Reach Parameters																								
Drainage Area (mi^2)				0.37						2.35						0.37								
Rosgen Classification				B, F, G						B4						B4			B4					
Bankfull Velocity (fps)	-			-						-						-								
Bankfull Discharge (cfs)	-			25.0						-						18.0								
Valley Length (ft)				-						-						-			1,436					
* Channel Thalweg Length (ft)				-						-						-			1,541					
^ Channel Centerline (ft)				-						-						-			1,540					
Sinuosity				1.24						-						1.10			1.10					
Water Surface Slope (ft/ft)				0.009 - 0.015						0.011 - 0.018						0.012			0.012					
Bankfull Slope (ft/ft)				-						-						-			0.012					
Bankfull Floodplain Area (acres)				-						-														
% of Reach with Eroding Banks				-						-														
Channel Stability or Habitat Metric				Unstable						-														
Biological or Other				-						-														

* Channel Thalweg Length (ft): Based on actual thalweg calculations from the as-built survey, accounts for breaks in conservation easement and utility right-of-ways.

^ Channel Centerline (ft): Based on stream centerline stationing from design stream stationing; accounts for breaks in conservation easement and utility right-of-ways.

- Information unavailable.

Non-Applicable.

Table 10 Cont'd. Baseline Stream Data Summary
Fletcher Mitigation Site - Fletcher Creek Reach 2A (1,299 feet *)

Parameter	Regional Curve			Pre-Existing Condition						Reference Reach Data						Design			As-Built / Baseline					
Dimension & Substrate - Riffle	**LL**	**UL**	**Eq.**	**Min**	**Mean**	**Med**	**Max**	**SD**	**N**	**Min**	**Mean**	**Med**	**Max**	**SD**	**N**	**Min**	**Mean**	**Max**	**Min**	**Mean**	**Med**	**Max**	**SD**	**N**
Bankfull Width (ft)	-	-	-	4.9	-	-	7.9	-	-	14.7	-	-	19.5	-	-	-	10.4	-	12.6	12.9	12.9	13.1	0.3	2
Floodprone Width (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-		-	35.0	42.5	42.5	50.0	10.6	2
Bankfull Mean Depth (ft)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7	-	0.7	0.8	0.8	0.8	0.0	2
Bankfull Max Depth (ft)				0.8	-	-	1.1	-	-	1.2	-	-	1.4	-	-	-	1.0	-	1.2	1.4	1.4	1.6	0.3	2
Bankfull Cross Sectional Area (ft^2)		-		4.8	-	-	7.9	-	-	18.0	-	-	27.2	-	-	-	7.6	-	9.2	9.8	9.8	10.4	0.9	2
Width/Depth Ratio				5.0	-	-	9.1	-	-	12.0	-	-	14	-	-	-	14.2	-	16.5	17.0	17.0	17.4	0.6	2
Entrenchment Ratio				1.4	-	-	1.9	-	-	1.4	-	-	1.5	-	-	-	2.4	-	2.7	3.3	3.3	4.0	0.9	2
Bank Height Ratio				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.0	1.0	1.0	1.0	0.0	2
d50 (mm)				9.0	-	-	14.0	-	-	60.0	-	-	125.0	-	-	-	-	-	18.0	19.0	20.0	20.0	1.4	2
Profile																								
Riffle Length (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.3	16.0	14.6	32.2	6.7	35
Riffle Slope (ft/ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.001	0.010	0.008	0.028	0.007	35
Pool Length (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.58	10.8	10.2	25.3	4.2	34
Pool Max Depth (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	1.2	2.5	2.6	3.7	0.7	34
Pool Spacing (ft)				-	-	-	-	-	-	-	-	-	-	-	-	34.2	-	57.2	9.4	36.8	37.5	52.2	9.4	33
Pattern																								
Channel Belt Width (ft)				-	-	-	-	-	-	-	-	-	-	-	-	12.6	16.8	21.0	23.8	24.5	24.1	25.5	0.9	3
Radius of Curvature (ft)				-	-	-	-	-	-	-	-	-	-	-	-	17.0	-	25.0	16.8	22.1	19.8	29.6	6.7	3
Rc: Bankfull Width (ft/ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.6	2.1	1.9	2.8	0.6	3
Meander Wavelength (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23.8	24.5	24.1	25.5	0.9	3
Meander Width Ratio				-	-	-	-	-	-	-	-	-	-	-	-	-	3.5	-	2.3	2.4	2.3	2.5	0.1	3
Substrate, Bed and Transport Parameters																								
Reach Shear Stress (Competency) lb/ft^2				-						-						-			-					
Max Part Size (mm) Mobilized at Bankfull				-						-						-			-					
Stream Power (Transport Capacity) W/m^2				-						-						-			-					
Additional Reach Parameters																								
Drainage Area (mi^2)				0.49						2.35						0.49								
Rosgen Classification				B, G						B4						B4			B4					
Bankfull Velocity (fps)		-		2.0 - 3.4						-						-								
Bankfull Discharge (cfs)		-		32.0						-						22.0								
Valley Length (ft)				-						-						-			1,158					
* Channel Thalweg Length (ft)				-						-						-			1,299					
^ Channel Centerline (ft)				-						-						-			1,296					
Sinuosity				1.35						-						1.17			1.15					
Water Surface Slope (ft/ft)				0.005 - 0.014						0.011 - 0.018						0.012			0.011					
Bankfull Slope (ft/ft)				-						-						-			0.012					
Bankfull Floodplain Area (acres)				-						-														
% of Reach with Eroding Banks				-						-														
Channel Stability or Habitat Metric				Severe						-														
Biological or Other				-						-														

* Channel Thalweg Length (ft): Based on actual thalweg calculations from the as-built survey, accounts for breaks in conservation easement and utility right-of-ways.

^ Channel Centerline (ft): Based on stream centerline stationing from design stream stationing; accounts for breaks in conservation easement and utility right-of-ways.

- Information unavailable.

Non-Applicable.

Table 10 Cont'd. Baseline Stream Data Summary
Fletcher Mitigation Site - Fletcher Creek Reach 2B (1,510 feet *)

Parameter	Regional Curve			Pre-Existing Condition						Reference Reach Data						Design			As-Built / Baseline					
Dimension & Substrate - Riffle	**LL**	**UL**	**Eq.**	**Min**	**Mean**	**Med**	**Max**	**SD**	**N**	**Min**	**Mean**	**Med**	**Max**	**SD**	**N**	**Min**	**Mean**	**Max**	**Min**	**Mean**	**Med**	**Max**	**SD**	**N**
Bankfull Width (ft)	-	-	-	4.4	-	-	10.7	-	-	14.7	-	-	19.5	-	-	-	10.6	-	9.8	10.0	10.0	10.2	0.3	2
Floodprone Width (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	40.0	55.0	55.0	70.0	21.2	2
Bankfull Mean Depth (ft)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7	-	0.7	0.7	0.7	0.8	0.1	2
Bankfull Max Depth (ft)				0.7	-	-	1.0	-	-	1.2	-	-	1.4	-	-	-	1.0	-	1.2	1.3	1.3	1.3	0.1	2
Bankfull Cross Sectional Area (ft^2)	-			3.3	-	-	7.2	-	-	18.0	-	-	27.2	-	-	-	7.9	-	7.1	7.4	7.4	7.6	0.3	2
Width/Depth Ratio				5.2	-	-	15.7	-	-	12.0	-	-	14	-	-	-	14.3	-	12.6	13.6	13.6	14.6	1.4	2
Entrenchment Ratio				1.4	-	-	5.9	-	-	1.4	-	-	1.5	-	-	-	2.3	-	3.9	5.5	5.5	7.2	2.3	2
Bank Height Ratio				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.0	1.0	1.0	1.0	0.0	2
d50 (mm)				-	5.0	-	-	-	-	60.0	-	-	125.0	-	-	-	-	-	5.5	11.8	18.0	18.0	8.8	2
Profile																								
Riffle Length (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.3	16.0	14.6	32.2	6.7	35
Riffle Slope (ft/ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.001	0.010	0.008	0.028	0.007	35
Pool Length (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.58	10.8	10.2	25.3	4.2	34
Pool Max Depth (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	1.2	2.5	2.6	3.7	0.7	34
Pool Spacing (ft)				-	-	-	-	-	-	-	-	-	-	-	-	35.0	-	58.3	9.4	36.8	37.5	52.2	9.4	33
Pattern																								
Channel Belt Width (ft)				-	-	-	-	-	-	-	-	-	-	-	-	12.9	17.2	21.5	18.0	19.9	19.2	22.6	2.4	3
Radius of Curvature (ft)				-	-	-	-	-	-	-	-	-	-	-	-	17.0	-	26.0	23.5	25.3	24.8	27.5	2.0	3
Rc: Bankfull Width (ft/ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.2	2.4	2.3	2.6	0.2	3
Meander Wavelength (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17.9	19.9	19.2	22.6	2.4	3
Meander Width Ratio				-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	1.7	1.9	1.8	2.1	0.2	3
Substrate, Bed and Transport Parameters																								
Reach Shear Stress (Competency) lb/ft^2				-						-														
Max Part Size (mm) Mobilized at Bankfull				-						-														
Stream Power (Transport Capacity) W/m^2				-						-														
Additional Reach Parameters																								
Drainage Area (mi^2)				0.52						2.35						0.52								
Rosgen Classification				B, E, G						B4						B5			B5					
Bankfull Velocity (fps)	-			1.8 - 2.7						-						-								
Bankfull Discharge (cfs)	-			33.0						-						23.0								
Valley Length (ft)				-						-						-			1,467					
* Channel Thalweg Length (ft)				-						-						-			1,510					
^ Channel Centerline (ft)				-						-						-			1,470					
Sinuosity				1.03						-						1.10			1.10					
Water Surface Slope (ft/ft)				0.004 - 0.01						0.011 - 0.018						0.007			0.011					
Bankfull Slope (ft/ft)				-						-						-			0.012					
Bankfull Floodplain Area (acres)				-						-														
% of Reach with Eroding Banks				-						-														
Channel Stability or Habitat Metric				Unstable						-														
Biological or Other				-						-														

* Channel Thalweg Length (ft): Based on actual thalweg calculations from the as-built survey, accounts for breaks in conservation easement and utility right-of-ways.

^ Channel Centerline (ft): Based on stream centerline stationing from design stream stationing; accounts for breaks in conservation easement and utility right-of-ways.

- Information unavailable.

Non-Applicable.

Table 10 Cont'd. Baseline Stream Data Summary
Fletcher Mitigation Site - Weston Creek Reach 1A (1,982 feet *)

Parameter	Regional Curve			Pre-Existing Condition						Reference Reach Data						Design			As-Built / Baseline					
Dimension & Substrate - Riffle	**LL**	**UL**	**Eq.**	**Min**	**Mean**	**Med**	**Max**	**SD**	**N**	**Min**	**Mean**	**Med**	**Max**	**SD**	**N**	**Min**	**Mean**	**Max**	**Min**	**Mean**	**Med**	**Max**	**SD**	**N**
Bankfull Width (ft)	-	-	-	4.5	-	-	6.3	-	-	6.3	-	-	10.7	-	-	-	8.6	-	9.1	9.8	9.8	10.4	0.9	2
Floodprone Width (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50.0	50.0	50.0	50.0	0.0	2
Bankfull Mean Depth (ft)	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	0.6	-	0.6	0.6	0.6	0.6	0.0	2
Bankfull Max Depth (ft)				0.6	-	-	0.7	-	-	1.0	-	-	1.2	-	-	-	0.9	-	0.9	1.0	1.0	1.1	0.1	2
Bankfull Cross Sectional Area (ft^2)	-			2.7	-	-	4.6	-	-	7.7	-	-	10.0	-	-	-	5.5	-	5.4	5.8	5.8	6.2	0.6	2
Width/Depth Ratio				7.4	-	-	10.0	-	-	6.0	-	-	11.0	-	-	-	13.6	-	15.5	16.4	16.4	17.4	1.3	2
Entrenchment Ratio				1.6	-	-	2.6	-	-	2.3	-	-	4.8	-	-	-	4.6	-	4.8	5.1	5.1	5.5	0.5	2
Bank Height Ratio				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.0	1.0	1.0	1.0	0.0	2
d50 (mm)				1.0	-	-	4.0	-	-	13.0	-	-	17.0	-	-	-	-	-	1.5	2.6	3.6	3.6	1.5	2
Profile																								
Riffle Length (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.3	13.3	11.9	38.6	7.8	55
Riffle Slope (ft/ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.000	0.004	0.002	0.017	0.004	55
Pool Length (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.7	13.1	12.8	26.1	4.3	54
Pool Max Depth (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	1.4	-	1.1	1.7	1.7	2.6	0.4	54
Pool Spacing (ft)				-	-	-	-	-	-	-	-	-	-	-	-	43.0	-	60.2	8.9	35.7	34.4	72.9	12.0	53
Pattern																								
Channel Belt Width (ft)				-	-	-	-	-	-	-	-	-	-	-	-	13.7	27.4	34.3	24.8	27.0	27.2	29.0	2.1	3
Radius of Curvature (ft)				-	-	-	-	-	-	-	-	-	-	-	-	10.0	-	17.0	11.0	14.3	14.6	17.4	3.2	3
Rc: Bankfull Width (ft/ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.3	1.7	1.7	2.0	0.4	3
Meander Wavelength (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24.5	26.9	27.2	29.0	2.3	3
Meander Width Ratio				-	-	-	-	-	-	-	-	-	-	-	-	-	2.9	-	2.9	3.1	3.2	3.4	0.2	3
Substrate, Bed and Transport Parameters																								
Reach Shear Stress (Competency) lb/ft^2				-						-						-			-					
Max Part Size (mm) Mobilized at Bankfull				-						-						-			-					
Stream Power (Transport Capacity) W/m^2				-						-						-			-					
Additional Reach Parameters																								
Drainage Area (mi^2)				0.30						0.25						0.30								
Rosgen Classification				E, G						E4						C5			C5					
Bankfull Velocity (fps)	-			1.8 - 2.2						-						-								
Bankfull Discharge (cfs)	-			21.0						-						15.0								
Valley Length (ft)				-						-						-			1,616					
* Channel Thalweg Length (ft)				-						-						-			1,982					
^ Channel Centerline				-						-						-			1,954					
Sinuosity				1.01						1.60						1.24			1.24					
Water Surface Slope (ft/ft)				0.006 - 0.009						0.008						0.005			0.005					
Bankfull Slope (ft/ft)				-						-						-			0.005					
Bankfull Floodplain Area (acres)				-						-														
% of Reach with Eroding Banks				-						-														
Channel Stability or Habitat Metric				Unstable						-														
Biological or Other				-						-														

* Channel Thalweg Length (ft): Based on actual thalweg calculations from the as-built survey, accounts for breaks in conservation easement and utility right-of-ways.

^ Channel Centerline (ft): Based on stream centerline stationing from design stream stationing; accounts for breaks in conservation easement and utility right-of-ways.

- Information unavailable.

Non-Applicable.

Table 10 Cont'd. Baseline Stream Data Summary
Fletcher Mitigation Site - Weston Creek Reach 1B (825 feet *)

Parameter	Regional Curve			Pre-Existing Condition						Reference Reach Data						Design			As-Built / Baseline					
Dimension & Substrate - Riffle	**LL**	**UL**	**Eq.**	**Min**	**Mean**	**Med**	**Max**	**SD**	**N**	**Min**	**Mean**	**Med**	**Max**	**SD**	**N**	**Min**	**Mean**	**Max**	**Min**	**Mean**	**Med**	**Max**	**SD**	**N**
Bankfull Width (ft)	-	-	-	4.5	-	-	9.6	-	-	6.3	-	-	10.7	-	-	-	9.4	-	-	9.7	-	-	-	1
Floodprone Width (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	40.0	-	-	-	1
Bankfull Mean Depth (ft)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7	-	-	0.5	-	-	-	1
Bankfull Max Depth (ft)				0.6	-	-	1.0	-	-	1.0	-	-	1.2	-	-	-	0.9	-	-	0.7	-	-	-	1
Bankfull Cross Sectional Area (ft^2)		-		3.8	-	-	7.8	-	-	7.7	-	-	10	-	-	-	6.3	-	-	4.7	-	-	-	1
Width/Depth Ratio				5.3	-	-	11.9	-	-	6.0	-	-	11	-	-	-	3.3	-	-	20.4	-	-	-	1
Entrenchment Ratio				1.3	-	-	2.2	-	-	2.3	-	-	4.8	-	-	-	4.3	-	-	4.1	-	-	-	1
Bank Height Ratio				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.0	-	-	-	1
d50 (mm)				1.0	-	-	4.0	-	-	13.0	-	-	17.0	-	-	-	-	-	-	1.8	-	-	-	-
Profile																								
Riffle Length (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.5	12.3	12.1	29.1	5.9	21
Riffle Slope (ft/ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.000	0.007	0.002	0.031	0.008	21
Pool Length (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.6	14.8	14.0	26.8	6.9	21
Pool Max Depth (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	1.4	-	1.4	2.0	2.0	2.7	0.3	21
Pool Spacing (ft)				-	-	-	-	-	-	-	-	-	-	-	-	47.0	-	65.8	19.7	35.2	34.8	68.4	12.1	20
Pattern																								
Channel Belt Width (ft)				-	-	-	-	-	-	-	-	-	-	-	-	14.9	29.9	37.3	27.3	28.4	28.1	29.9	1.3	3
Radius of Curvature (ft)				-	-	-	-	-	-	-	-	-	-	-	-	11.0	-	19.0	15.8	19.5	18.2	24.5	4.5	3
Rc: Bankfull Width (ft/ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.7	2.1	1.9	2.6	0.5	3
Meander Wavelength (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	27.3	28.4	28.1	29.9	1.3	3
Meander Width Ratio				-	-	-	-	-	-	-	-	-	-	-	-	-	3.3	-	2.9	3.0	3.0	3.2	0.1	3
Substrate, Bed and Transport Parameters																								
Reach Shear Stress (Competency) lb/ft^2				-						-						-			-					
Max Part Size (mm) Mobilized at Bankfull				-						-						-			-					
Stream Power (Transport Capacity) W/m^2				-						-						-			-					
Additional Reach Parameters																								
Drainage Area (mi^2)				0.37						0.25						0.37								
Rosgen Classification				G, E						E4						C5			C5					
Bankfull Velocity (fps)		-		1.8 - 2.3						-						-								
Bankfull Discharge (cfs)		-		25.0						-						18.0								
Valley Length (ft)				-						-						-			708					
* Channel Thalweg Length (ft)				-						-						-			825					
^ Channel Centerline (ft)				-						-						-			804					
Sinuosity				1.01						1.60						1.20			1.17					
Water Surface Slope (ft/ft)				0.005 - 0.007						0.0080						0.009			0.0024					
Bankfull Slope (ft/ft)				-						-						-			0.0026					
Bankfull Floodplain Area (acres)				-						-														
% of Reach with Eroding Banks				-						-														
Channel Stability or Habitat Metric				Unstable						-														
Biological or Other				-						-														

* Channel Thalweg Length (ft): Based on actual thalweg calculations from the as-built survey, accounts for breaks in conservation easement and utility right-of-ways.

^ Channel Centerline (ft): Based on stream centerline stationing from design stream stationing; accounts for breaks in conservation easement and utility right-of-ways.

- Information unavailable.

Non-Applicable.

Table 10 Cont'd. Baseline Stream Data Summary
Fletcher Mitigation Site - Raccoon Branch Reach 1C (153 feet)

Parameter	Regional Curve			Pre-Existing Condition						Reference Reach Data						Design			As-Built / Baseline					
Dimension & Substrate - Riffle	**LL**	**UL**	**Eq.**	**Min**	**Mean**	**Med**	**Max**	**SD**	**N**	**Min**	**Mean**	**Med**	**Max**	**SD**	**N**	**Min**	**Mean**	**Max**	**Min**	**Mean**	**Med**	**Max**	**SD**	**N**
Bankfull Width (ft)	-	-	-	1.8	-	-	3.4	-	-	14.7	-	-	19.5	-	-	-	6.0	-						
Floodprone Width (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Bankfull Mean Depth (ft)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.3	-						
Bankfull Max Depth (ft)				0.1	-	-	0.2	-	-	1.2	-	-	1.4	-	-	-	0.5	-						
Bankfull Cross Sectional Area (ft^2)	-			0.4	-	-	0.6	-	-	18	-	-	27.2	-	-	-	2.0	-						
Width/Depth Ratio				8.0	-	-	25.7	-	-	12	-	-	14.0	-	-	-	17.8	-						
Entrenchment Ratio				1.7	-	-	2.1	-	-	1.4	-	-	1.5	-	-	-	2.3	-						
Bank Height Ratio				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
d50 (mm)				1.0	-	-	2.0	-	-	60.0	-	-	125.0	-	-	-	-	-						
Profile																								
Riffle Length (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Riffle Slope (ft/ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Pool Length (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Pool Max Depth (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	0.8	-						
Pool Spacing (ft)				-	-	-	-	-	-	-	-	-	-	-	-	3.3	-	5.5						
Pattern																								
Channel Belt Width (ft)				-	-	-	-	-	-	-	-	-	-	-	-	6.4	8.5	10.7						
Radius of Curvature (ft)				-	-	-	-	-	-	-	-	-	-	-	-	9.0	-	13.0						
Rc: Bankfull Width (ft/ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Meander Wavelength (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Meander Width Ratio				-	-	-	-	-	-	-	-	-	-	-	-	-	1.9	-						
Substrate, Bed and Transport Parameters																								
Reach Shear Stress (Competency) lb/ft^2				-						-						-								
Max Part Size (mm) Mobilized at Bankfull				-						-						-								
Stream Power (Transport Capacity) W/m^2				-						-						-								
Additional Reach Parameters																								
Drainage Area (mi^2)				0.04						2.35						0.04								
Rosgen Classification				B, G						B4						B4								
Bankfull Velocity (fps)	-			2.4 - 3.4						-						-								
Bankfull Discharge (cfs)	-			4.0						-						3.0								
Valley Length (ft)				-						-						-								
Channel Thalweg Length (ft)				-						-						-								
Sinuosity				1.09						-						1.09								
Water Surface Slope (ft/ft)				0.048 - 0.092						0.011 - 0.018						0.040								
Bankfull Slope (ft/ft)				-						-						-								
Bankfull Floodplain Area (acres)				-						-														
% of Reach with Eroding Banks				-						-														
Channel Stability or Habitat Metric				Unstable						-														
Biological or Other				-						-														

- Information unavailable.

Non-Applicable.

Table 10 Cont'd. Baseline Stream Data Summary
Fletcher Mitigation Site - Raccoon Branch Reach 1D (440 feet *)

Parameter	Regional Curve			Pre-Existing Condition						Reference Reach Data						Design			As-Built / Baseline					
Dimension & Substrate - Riffle	**LL**	**UL**	**Eq.**	**Min**	**Mean**	**Med**	**Max**	**SD**	**N**	**Min**	**Mean**	**Med**	**Max**	**SD**	**N**	**Min**	**Mean**	**Max**	**Min**	**Mean**	**Med**	**Max**	**SD**	**N**
Bankfull Width (ft)	-	-	-	1.8	-	-	3.4	-	-	14.7	-	-	19.5	-	-	-	6.1	-	-	6.9	-	-	-	1
Floodprone Width (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	20	-	-	-	1
Bankfull Mean Depth (ft)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.3	-	-	0.5	-	-	-	1
Bankfull Max Depth (ft)				0.1	-	-	0.2	-	-	1.2	-	-	1.4	-	-	-	0.5	-	-	1.34	-	-	-	1
Bankfull Cross Sectional Area (ft^2)	-			0.4	-	-	0.6	-	-	18	-	-	27.2	-	-	-	2.1	-	-	3.42	-	-	-	1
Width/Depth Ratio				8.0	-	-	25.7	-	-	12	-	-	14.0	-	-	-	17.8	-	-	13.8	-	-	-	1
Entrenchment Ratio				1.7	-	-	2.1	-	-	1.4	-	-	1.5	-	-	-	2.3	-	-	2.91	-	-	-	1
Bank Height Ratio				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.0	-	-	-	1
d50 (mm)				1.0	-	-	2.0	-	-	60.0	-	-	125.0	-	-	-	-	-	-	0.062	-	-	-	1
Profile																								
Riffle Length (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	4.5	4.2	7.9	1.7	38.0
Riffle Slope (ft/ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.003	0.033	0.030	0.085	0.021	38.0
Pool Length (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.7	5.4	5.0	12.7	2.6	37.0
Pool Max Depth (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	0.8	-	0.6	1.0	1.1	1.4	0.2	37.0
Pool Spacing (ft)				-	-	-	-	-	-	-	-	-	-	-	-	20.1	-	33.6	4.1	12.1	11.2	28.8	5.5	35.0
Pattern																								
Channel Belt Width (ft)				-	-	-	-	-	-	-	-	-	-	-	-	6.5	8.7	10.9	6.7	7.5	7.0	8.7	1.1	3
Radius of Curvature (ft)				-	-	-	-	-	-	-	-	-	-	-	-	9.0	-	13.0	7.9	10.1	8.5	13.9	3.3	3
Rc: Bankfull Width (ft/ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.2	1.6	1.3	2.2	0.6	3
Meander Wavelength (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.7	7.5	7.0	8.7	1.1	3
Meander Width Ratio				-	-	-	-	-	-	-	-	-	-	-	-	-	2.5	-	1.1	1.2	1.1	1.4	0.1	3
Substrate, Bed and Transport Parameters																								
Reach Shear Stress (Competency) lb/ft^2				-						-						-			-					
Max Part Size (mm) Mobilized at Bankfull				-						-						-			-					
Stream Power (Transport Capacity) W/m^2				-						-						-			-					
Additional Reach Parameters																								
Drainage Area (mi^2)				0.04						2.35						0.04								
Rosgen Classification				B, G						B4						B4			B4					
Bankfull Velocity (fps)	-			2.4 - 3.4						-						-								
Bankfull Discharge (cfs)	-			4.0						-						3.0								
Valley Length (ft)				-						-						-			413					
* Channel Thalweg Length (ft)				-						-						-			440					
^ Channel Centerline (ft)				-						-						-			448					
Sinuosity				1.09						-						1.05			1.08					
Water Surface Slope (ft/ft)				0.048 - 0.092						0.011 - 0.018						0.048			0.040					
Bankfull Slope (ft/ft)				-						-						-			0.041					
Bankfull Floodplain Area (acres)				-						-														
% of Reach with Eroding Banks				-						-														
Channel Stability or Habitat Metric				Unstable						-														
Biological or Other				-						-														

* Channel Thalweg Length (ft): Based on actual thalweg calculations from the as-built survey, accounts for breaks in conservation easement and utility right-of-ways.

^ Channel Centerline (ft): Based on stream centerline stationing from design stream stationing; accounts for breaks in conservation easement and utility right-of-ways.

- Information unavailable.

Non-Applicable.

Table 10 Cont'd. Baseline Stream Data Summary
Fletcher Mitigation Site - Coates Branch Reach 1A (282 feet)

Parameter	Regional Curve			Pre-Existing Condition						Reference Reach Data						Design			As-Built / Baseline					
Dimension & Substrate - Riffle	**LL**	**UL**	**Eq.**	**Min**	**Mean**	**Med**	**Max**	**SD**	**N**	**Min**	**Mean**	**Med**	**Max**	**SD**	**N**	**Min**	**Mean**	**Max**	**Min**	**Mean**	**Med**	**Max**	**SD**	**N**
Bankfull Width (ft)	-	-	-	0.9	-	-	1.3	-	-	14.7	-	-	19.5	-	-	-	5.0	-						
Floodprone Width (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Bankfull Mean Depth (ft)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.3	-						
Bankfull Max Depth (ft)				0.2	-	-	0.3	-	-	1.2	-	-	1.4	-	-	-	0.4	-						
Bankfull Cross Sectional Area (ft^2)	-			0.2	-	-	0.3	-	-	18.0	-	-	27.2	-	-	-	1.4	-						
Width/Depth Ratio				5.1	-	-	5.6	-	-	12.0	-	-	14.0	-	-	-	18.0	-						
Entrenchment Ratio				2.0	-	-	2.8	-	-	1.4	-	-	1.5	-	-	-	2.4	-						
Bank Height Ratio				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
d50 (mm)				1.0	-	-	2.0	-	-	60.0	-	-	125.0	-	-	-	-	-						
Profile																								
Riffle Length (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Riffle Slope (ft/ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Pool Length (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Pool Max Depth (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	0.7	-						
Pool Spacing (ft)				-	-	-	-	-	-	-	-	-	-	-	-	3.3	-	5.5						
Pattern																								
Channel Belt Width (ft)				-	-	-	-	-	-	-	-	-	-	-	-	5.4	7.2	9.0						
Radius of Curvature (ft)				-	-	-	-	-	-	-	-	-	-	-	-	7.0	-	11.0						
Rc: Bankfull Width (ft/ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Meander Wavelength (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Meander Width Ratio				-	-	-	-	-	-	-	-	-	-	-	-	-	2.5	-						
Substrate, Bed and Transport Parameters																								
Reach Shear Stress (Competency) lb/ft^2				-						-						-								
Max Part Size (mm) Mobilized at Bankfull				-						-						-								
Stream Power (Transport Capacity) W/m^2				-						-						-								
Additional Reach Parameters																								
Drainage Area (mi^2)				0.02						2.4						0.02								
Rosgen Classification				B, G						B4						B4								
Bankfull Velocity (fps)	-			1.7 - 2.0						-						-								
Bankfull Discharge (cfs)	-			3.0						-						1.0								
Valley Length (ft)				-						-						-								
Channel Thalweg Length (ft)				-						-						-								
Sinuosity				1.08						-						1.14								
Water Surface Slope (ft/ft)				0.03 - 0.034						0.011 - 0.018						0.031								
Bankfull Slope (ft/ft)				-						-						-								
Bankfull Floodplain Area (acres)				-						-														
% of Reach with Eroding Banks				-						-														
Channel Stability or Habitat Metric				Unstable						-														
Biological or Other				-						-														

- Information unavailable.

Non-Applicable.

Table 10 Cont'd. Baseline Stream Data Summary
Fletcher Mitigation Site - Coates Branch Reach 1B (601 feet *)

Parameter	Regional Curve			Pre-Existing Condition						Reference Reach Data						Design			As-Built / Baseline					
Dimension & Substrate - Riffle	**LL**	**UL**	**Eq.**	**Min**	**Mean**	**Med**	**Max**	**SD**	**N**	**Min**	**Mean**	**Med**	**Max**	**SD**	**N**	**Min**	**Mean**	**Max**	**Min**	**Mean**	**Med**	**Max**	**SD**	**N**
Bankfull Width (ft)	-	-	-	0.9	-	-	1.3	-	-	14.7	-	-	19.5	-	-	-	5.7	-	-	5.2	-	-	-	1
Floodprone Width (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15.0	-	-	-	1
Bankfull Mean Depth (ft)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.3	-	-	0.3	-	-	-	1
Bankfull Max Depth (ft)				0.2	-	-	0.3	-	-	1.2	-	-	1.4	-	-	-	0.5	-	-	0.7	-	-	-	1
Bankfull Cross Sectional Area (ft^2)	-			0.2	-	-	0.3	-	-	18	-	-	27.2	-	-	-	1.8	-	-	1.6	-	-	-	1
Width/Depth Ratio				5.1	-	-	5.6	-	-	12	-	-	14.0	-	-	-	17.9	-	-	16.5	-	-	-	1
Entrenchment Ratio				2.0	-	-	2.8	-	-	1.4	-	-	1.5	-	-	-	2.4	-	-	2.9	-	-	-	1
Bank Height Ratio				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.0	-	-	-	1
d50 (mm)				1.0	-	-	2.0	-	-	60.0	-	-	125.0	-	-	-	-	-	-	15.0	-	-	-	1
Profile																								
Riffle Length (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.0	6.5	6.3	14.0	2.1	52
Riffle Slope (ft/ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.000	0.020	0.016	0.072	0.016	52
Pool Length (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.2	3.4	3.2	6.3	1.2	51
Pool Max Depth (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	0.8	-	0.24	1.2	1.1	2.5	0.4	51
Pool Spacing (ft)				-	-	-	-	-	-	-	-	-	-	-	-	18.8	-	31.4	5.8	11.7	12	18.7	2.5	50
Pattern																								
Channel Belt Width (ft)				-	-	-	-	-	-	-	-	-	-	-	-	6.1	8.1	10.2	9.7	10.6	10.5	11.5	0.9	3
Radius of Curvature (ft)				-	-	-	-	-	-	-	-	-	-	-	-	8.0	-	12.0	9.0	11.0	12.0	12.1	1.8	3
Rc: Bankfull Width (ft/ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	1.9	2.1	2.1	0.3	3
Meander Wavelength (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.7	10.6	10.5	11.5	0.9	3
Meander Width Ratio				-	-	-	-	-	-	-	-	-	-	-	-	-	2.5	-	1.7	1.9	1.8	2.0	0.1	3
Substrate, Bed and Transport Parameters																								
Reach Shear Stress (Competency) lb/ft^2				-						-						-			-					
Max Part Size (mm) Mobilized at Bankfull				-						-						-			-					
Stream Power (Transport Capacity) W/m^2				-						-						-			-					
Additional Reach Parameters																								
Drainage Area (mi^2)				0.03						2.4						0.03								
Rosgen Classification				B, G						B4						B4			B4					
Bankfull Velocity (fps)	-			1.7 - 2.0						-						-								
Bankfull Discharge (cfs)	-			3.0						-						2.0								
Valley Length (ft)				-						-						-			597					
* Channel Thalweg Length (ft)				-						-						-			601					
^ Channel Centerline (ft)				-						-						-			606					
Sinuosity				1.08						-						1.04			1.05					
Water Surface Slope (ft/ft)				0.03 - 0.034						0.011 - 0.018						0.033			0.033					
Bankfull Slope (ft/ft)				-						-						-			0.033					
Bankfull Floodplain Area (acres)				-						-														
% of Reach with Eroding Banks				-						-														
Channel Stability or Habitat Metric				Severe						-														
Biological or Other				-						-														

* Channel Thalweg Length (ft): Based on actual thalweg calculations from the as-built survey, accounts for breaks in conservation easement and utility right-of-ways.

^ Channel Centerline (ft): Based on stream centerline stationing from design stream stationing; accounts for breaks in conservation easement and utility right-of-ways.

- Information unavailable.

Non-Applicable.

Table 10 Cont'd. Baseline Stream Data Summary
Fletcher Mitigation Site - Coates Branch Reach 1C (708 feet *)

Parameter	Regional Curve			Pre-Existing Condition						Reference Reach Data						Design			As-Built / Baseline					
Dimension & Substrate - Riffle	**LL**	**UL**	**Eq.**	**Min**	**Mean**	**Med**	**Max**	**SD**	**N**	**Min**	**Mean**	**Med**	**Max**	**SD**	**N**	**Min**	**Mean**	**Max**	**Min**	**Mean**	**Med**	**Max**	**SD**	**N**
Bankfull Width (ft)	-	-	-	1.9	-	-	3.4	-	-	14.7	-	-	19.5	-	-	-	6.0	-	-	5.4	-	-	-	1
Floodprone Width (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	20.0	-	-	-	1
Bankfull Mean Depth (ft)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.3	-	-	0.4	-	-	-	1
Bankfull Max Depth (ft)				0.2	-	-	0.3	-	-	1.2	-	-	1.4	-	-	-	0.5	-	-	0.8	-	-	-	1
Bankfull Cross Sectional Area (ft^2)	-			0.3	-	-	0.8	-	-	18	-	-	27.2	-	-	-	2.0	-	-	2.2	-	-	-	1
Width/Depth Ratio				10.4	-	-	14.5	-	-	12	-	-	14.0	-	-	-	17.8	-	-	13.5	-	-	-	1
Entrenchment Ratio				1.2	-	-	1.9	-	-	1.4	-	-	1.5	-	-	-	2.3	-	-	3.7	-	-	-	1
Bank Height Ratio				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.0	-	-	-	1
d50 (mm)				9.0	-	-	12.0	-	-	60.0	-	-	125.0	-	-	-	-	-	-	0.4	-	-	-	1
Profile																								
Riffle Length (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.8	7.4	7.7	10.1	1.6	48
Riffle Slope (ft/ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.000	0.010	0.010	0.033	0.007	48
Pool Length (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.2	4.6	4.2	7.3	1.4	48
Pool Max Depth (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	0.8	-	0.6	1.0	1.0	1.4	0.2	49
Pool Spacing (ft)				-	-	-	-	-	-	-	-	-	-	-	-	19.8	-	33.0	6.4	14.3	14.6	19.6	2.6	48
Pattern																								
Channel Belt Width (ft)				-	-	-	-	-	-	-	-	-	-	-	-	6.5	8.6	10.8	10.9	11.7	11.6	12.5	0.8	3
Radius of Curvature (ft)				-	-	-	-	-	-	-	-	-	-	-	-	9.0	-	13.0	7.0	8.8	7.2	12.1	2.9	3
Rc: Bankfull Width (ft/ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.2	1.5	1.2	2.1	0.5	3
Meander Wavelength (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10.9	12.1	11.6	13.7	1.5	3
Meander Width Ratio				-	-	-	-	-	-	-	-	-	-	-	-	-	2.3	-	1.8	2.0	1.9	2.1	0.1	3
Substrate, Bed and Transport Parameters																								
Reach Shear Stress (Competency) lb/ft^2				-						-						-			-					
Max Part Size (mm) Mobilized at Bankfull				-						-						-			-					
Stream Power (Transport Capacity) W/m^2				-						-						-			-					
Additional Reach Parameters																								
Drainage Area (mi^2)				0.04						2.4						0.04								
Rosgen Classification				B, F, G						B4						B4			B4					
Bankfull Velocity (fps)	-			0.9 - 1.8						-						-								
Bankfull Discharge (cfs)	-			4.0						-						3.0								
Valley Length (ft)				-						-						-			667					
* Channel Thalweg Length (ft)				-						-						-			708					
^ Channel Centerline (ft)				-						-						-			708					
Sinuosity				1.03						-						1.07			1.06					
Water Surface Slope (ft/ft)				0.009 - 0.021						0.011 - 0.018						0.015			0.013					
Bankfull Slope (ft/ft)				-						-						-			0.013					
Bankfull Floodplain Area (acres)				-						-														
% of Reach with Eroding Banks				-						-														
Channel Stability or Habitat Metric				Unstable						-														
Biological or Other				-						-														

* Channel Thalweg Length (ft): Based on actual thalweg calculations from the as-built survey, accounts for breaks in conservation easement and utility right-of-ways.

^ Channel Centerline (ft): Based on stream centerline stationing from design stream stationing; accounts for breaks in conservation easement and utility right-of-ways.

- Information unavailable.

Non-Applicable.

Table 10 Cont'd. Baseline Stream Data Summary
Fletcher Mitigation Site - Coates Branch Reach 1D (325 feet *)

Parameter	Regional Curve			Pre-Existing Condition						Reference Reach Data						Design			As-Built / Baseline					
Dimension & Substrate - Riffle	**LL**	**UL**	**Eq.**	**Min**	**Mean**	**Med**	**Max**	**SD**	**N**	**Min**	**Mean**	**Med**	**Max**	**SD**	**N**	**Min**	**Mean**	**Max**	**Min**	**Mean**	**Med**	**Max**	**SD**	**N**
Bankfull Width (ft)	-	-	-	3.6	-	-	5.0	-	-	14.7	-	-	19.5	-	-	-	6.9	-	-	6.1	-	-	-	1
Floodprone Width (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25.0	-	-	-	1
Bankfull Mean Depth (ft)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.4	-	-	0.5	-	-	-	1
Bankfull Max Depth (ft)				0.2	-	-	0.3	-	-	1.2	-	-	1.4	-	-	-	0.6	-	-	1.0	-	-	-	1
Bankfull Cross Sectional Area (ft^2)	-			1.0	-	-	1.4	-	-	18	-	-	27.2	-	-	-	2.7	-	-	3.3	-	-	-	1
Width/Depth Ratio				13.0	-	-	18.0	-	-	12	-	-	14.0	-	-	-	17.7	-	-	11.4	-	-	-	1
Entrenchment Ratio				1.7	-	-	1.8	-	-	1.4	-	-	1.5	-	-	-	2.2	-	-	4.1	-	-	-	1
Bank Height Ratio				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.0	-	-	-	1
d50 (mm)				8.0	-	-	14.0	-	-	60.0	-	-	125.0	-	-	-	-	-	-	4.0	-	-	-	1
Profile																								
Riffle Length (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.1	7.2	7.3	11.9	1.8	22
Riffle Slope (ft/ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.000	0.008	0.006	0.021	0.006	22
Pool Length (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.8	4.6	4.4	8.1	1.8	22
Pool Max Depth (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	0.9	-	0.6	1.1	1.1	2.2	0.3	22
Pool Spacing (ft)				-	-	-	-	-	-	-	-	-	-	-	-	22.8	-	38.0	8.0	13.9	14.0	19.1	3.2	21
Pattern																								
Channel Belt Width (ft)				-	-	-	-	-	-	-	-	-	-	-	-	7.4	9.9	12.3	11.5	12.7	12.8	13.8	1.2	3
Radius of Curvature (ft)				-	-	-	-	-	-	-	-	-	-	-	-	10.0	-	15.0	4.7	7.0	7.2	9.2	2.3	3
Rc: Bankfull Width (ft/ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.7	1.0	1.0	1.3	0.3	3
Meander Wavelength (ft)				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11.5	12.5	12.1	13.8	1.2	3
Meander Width Ratio				-	-	-	-	-	-	-	-	-	-	-	-	-	2.6	-	1.7	1.8	1.9	2.0	0.1	3
Substrate, Bed and Transport Parameters																								
Reach Shear Stress (Competency) lb/ft^2				-						-						-			-					
Max Part Size (mm) Mobilized at Bankfull				-						-						-			-					
Stream Power (Transport Capacity) W/m^2				-						-						-			-					
Additional Reach Parameters																								
Drainage Area (mi^2)				0.07						2.4						0.07								
Rosgen Classification				B						B4						B4			B4					
Bankfull Velocity (fps)	-			0.9 - 1.3						-						-								
Bankfull Discharge (cfs)	-			7.0						-						5.0								
Valley Length (ft)				-						-						-			311					
* Channel Thalweg Length (ft)				-						-						-			325					
^ Channel Centerline (ft)				-						-						-			325					
Sinuosity				1.05						-						1.12			1.05					
Water Surface Slope (ft/ft)				0.004 - 0.009						0.011 - 0.018						0.015			0.013					
Bankfull Slope (ft/ft)				-						-						-			0.014					
Bankfull Floodplain Area (acres)				-						-														
% of Reach with Eroding Banks				-						-														
Channel Stability or Habitat Metric				Unstable						-														
Biological or Other				-						-														

* Channel Thalweg Length (ft): Based on actual thalweg calculations from the as-built survey, accounts for breaks in conservation easement and utility right-of-ways.

^ Channel Centerline (ft): Based on stream centerline stationing from design stream stationing; accounts for breaks in conservation easement and utility right-of-ways.

- Information unavailable.

Non-Applicable.

Table 11a. Monitoring Data - Dimensional Morphology Summary (Dimensional Parameters – Cross Sections)
Fletcher Mitigation Site

	Cross Section 1 (Riffle) Fletcher Creek Reach 1B									Cross Section 2 (Pool) Fletcher Creek Reach 1B									Cross Section 3 (Pool) Fletcher Creek Reach 1C									Cross Section 4 (Riffle) Fletcher Creek Reach 1C								
Dimension	**Base**	**Pre-MY1**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**	**Base**	**Pre-MY1**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**	**Base**	**Pre-MY1**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**	**Base**	**Pre-MY1**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**
Record Elevation (datum) Used	2124.8	2124.7	2124.6	2124.7						2123.0	2123.1	2123.1	2123.5						2118.8	2118.9	2118.9	2118.8						2118.5	2118.4	2118.5	2118.5					
Low Bank Height Elevation (datum) Used	2124.8	2124.7	2124.7	2124.7						2123.0	2123.4	2122.9	2123.1						2118.8	2118.6	2118.6	2118.6						2118.5	2118.6	2119.5	2118.5					
Bankfull Width (ft)	7.1	6.1	6.1	4.5						10.9	11.9	12.2	10.8						10.9	7.5	12.2	6.9						7.6	6.1	6.5	5.4					
Floodprone Width (ft)	20.0	20.0	20.0	20.0						60.0	60.0	60.0	60.0						40.0	40.0	40.0	40.0						10.0	10.0	10.0	10.0					
Bankfull Mean Depth (ft)	0.3	0.4	0.4	0.5						1.7	1.5	1.3	1.7						0.9	1.4	0.8	1.5						0.3	0.3	0.3	0.4					
Bankfull Max Depth (ft)	0.6	0.6	0.6	0.7						2.7	2.5	2.2	2.8						1.8	2.0	2.0	2.6						0.5	0.5	0.4	0.6					
Bankfull Cross Sectional Area (ft^2)	2.3	2.3	2.3	2.3						18.3	18.3	18.3	18.3						10.3	10.3	10.3	10.3						2.1	2.1	2.1	2.1					
Bankfull Width/Depth Ratio	21.4	16.4	15.9	8.8						6.5	7.8	9.4	6.4						11.6	5.5	14.5	4.7						27.6	18.2	19.8	14.0					
Bankfull Entrenchment Ratio	2.8	3.3	3.3	4.4						5.5	5.0	4.9	5.5						3.7	5.3	3.3	5.8						1.3	1.6	1.5	1.8					
*Bankfull Bank Height Ratio	1.0	1.1	1.1	0.9						1.0	1.1	0.9	0.9						1.0	0.8	0.8	0.9						1.0	1.4	1.3	1.0					
Low Top of Bank Depth (ft)	0.6	0.7	0.7	0.6						2.7	2.9	2.0	2.4						1.8	1.6	1.7	2.4						0.5	0.6	0.6	0.6					

	Cross Section 5 (Pool) Fletcher Creek Reach 1C									Cross Section 6 (Riffle) Fletcher Creek Reach 1C									Cross Section 7 (Riffle) Fletcher Creek Reach 2A									Cross Section 8 (Pool) Fletcher Creek Reach 2A								
Dimension	**Base**	**Pre-MY1**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**	**Base**	**Pre-MY1**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**	**Base**	**Pre-MY1**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**	**Base**	**Pre-MY1**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**
Record Elevation (datum) Used	2106.8	2106.8	2106.9	2107.1						2106.2	2106.2	2106.3	2106.2						2101.4	2101.3	2101.1	2101.2						2100.9	2100.9	2100.9	2101.0					
Low Bank Height Elevation (datum) Used	2106.8	2106.3	2106.3	2106.3						2106.2	2106.6	2106.6	2106.4						2101.4	2101.3	2101.0	2101.0						2100.9	2100.3	2100.6	2100.6					
Bankfull Width (ft)	16.6	14.0	18.7	8.5						12.0	12.9	13.0	12.8						13.1	10.6	11.7	8.5						15.3	15.0	15.7	12.5					
Floodprone Width (ft)	60.0	60.0	60.0	60.0						50.0	50.0	50.0	50.0						35.0	35.0	35.0	35.0						50.0	50.0	50.0	50.0					
Bankfull Mean Depth (ft)	1.2	1.5	1.1	2.4						0.6	0.6	0.6	0.6						0.8	1.0	0.9	1.2						1.3	1.4	1.3	1.6					
Bankfull Max Depth (ft)	3.0	3.5	3.4	3.8						1.0	1.0	1.0	1.2						1.6	1.7	1.8	1.9						2.6	2.8	2.8	2.8					
Bankfull Cross Sectional Area (ft^2)	20.3	20.3	20.3	20.3						7.5	7.5	7.5	7.5						10.4	10.4	10.4	10.4						20.5	20.5	20.5	20.5					
Bankfull Width/Depth Ratio	13.7	9.6	17.2	3.5						19.2	22.4	22.4	21.8						16.5	10.7	13.2	6.9						11.4	11.0	12.0	7.7					
Bankfull Entrenchment Ratio	3.6	4.3	3.2	7.1						4.2	3.9	3.9	3.9						2.7	3.3	3.0	4.1						3.3	3.3	3.2	4.0					
*Bankfull Bank Height Ratio	1.0	0.8	0.8	0.8						1.0	1.4	1.4	1.1						1.0	1.0	0.9	0.9						1.0	0.8	0.9	0.9					
Low Top of Bank Depth (ft)	3.0	3.0	2.8	2.9						1.2	1.4	1.4	1.4						1.6	1.8	1.7	1.8						2.6	2.2	2.4	2.4					

	Cross Section 9 (Pool) Fletcher Creek Reach 2A									Cross Section 10 (Riffle) Fletcher Creek Reach 2A									Cross Section 11 (Riffle) Fletcher Creek Reach 2B									Cross Section 12 (Pool) Fletcher Creek Reach 2B								
Dimension	**Base**	**Pre-MY1**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**	**Base**	**Pre-MY1**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**	**Base**	**Pre-MY1**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**	**Base**	**Pre-MY1**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**
Record Elevation (datum) Used	2093.5	2093.6	2093.3	2093.5						2093.1	2092.9	2093.0	2092.9						2079.0	2079.1	2079.3	2079.4						2078.6	2078.7	2078.7	2078.6					
Low Bank Height Elevation (datum) Used	2093.5	2093.6	2092.6	2093.3						2093.1	2093.1	2093.3	2093.0						2079.0	2079.3	2079.3	2079.5						2078.6	2078.8	2078.7	2079.1					
Bankfull Width (ft)	15.6	16.1	13.6	11.2						12.6	11.0	11.8	8.2						10.2	9.6	11.2	12.6						9.7	10.0	9.7	9.4					
Floodprone Width (ft)	60.0	60.0	60.0	60.0						50.0	50.0	50.0	50.0						40.0	40.0	40.0	40.0						70.0	70.0	70.0	70.0					
Bankfull Mean Depth (ft)	1.1	1.0	1.2	1.5						0.7	0.8	0.8	1.1						0.7	0.7	0.6	0.6						1.2	1.2	1.2	1.2					
Bankfull Max Depth (ft)	2.8	2.3	2.8	3.0						1.2	1.6	1.7	2.5						1.3	1.1	1.2	1.4						2.3	2.2	2.2	2.4					
Bankfull Cross Sectional Area (ft^2)	16.9	16.9	16.9	16.9						9.2	9.2	9.2	9.2						7.1	7.1	7.1	7.1						11.7	11.7	11.7	11.7					
Bankfull Width/Depth Ratio	14.4	15.4	10.9	7.4						17.4	13.2	15.0	7.3						14.6	13.0	17.7	22.4						8.1	8.5	8.1	7.6					
Bankfull Entrenchment Ratio	3.9	3.7	4.4	5.4						4.0	4.6	4.3	6.1						3.9	4.2	3.6	3.2						7.2	7.0	7.2	7.5					
*Bankfull Bank Height Ratio	1.0	1.0	0.7	0.9						1.0	1.1	1.2	1.0						1.0	1.2	1.0	1.1						1.0	1.0	1.0	1.2					
Low Top of Bank Depth (ft)	2.8	2.3	2.1	2.7						1.5	1.7	2.0	2.6						1.3	1.4	1.2	1.5						2.3	2.2	2.2	2.9					

	Cross Section 13 (Pool) Fletcher Creek Reach 2B									Cross Section 14 (Riffle) Fletcher Creek Reach 2B								
Dimension	**Base**	**Pre-MY1**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**	**Base**	**Pre-MY1**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**
Record Elevation (datum) Used	2075.5	2075.5	2075.4	2075.5						2075.1	2075.2	2075.3	2075.4					
Low Bank Height Elevation (datum) Used	2075.5	2075.6	2075.8	2075.6						2075.1	2075.2	2075.4	2075.3					
Bankfull Width (ft)	10.1	13.1	9.9	9.7						9.8	10.3	9.7	9.6					
Floodprone Width (ft)	70.0	70.0	70.0	70.0						70.0	70.0	70.0	70.0					
Bankfull Mean Depth (ft)	1.6	1.2	1.7	1.7						0.8	0.7	0.8	0.8					
Bankfull Max Depth (ft)	2.4	2.6	2.8	2.6						1.2	1.1	1.2	1.3					
Bankfull Cross Sectional Area (ft^2)	16.4	16.4	16.4	16.4						7.6	7.6	7.6	7.6					
Bankfull Width/Depth Ratio	6.2	10.5	6.0	5.7						12.6	14.0	12.3	12.2					
Bankfull Entrenchment Ratio	6.9	5.3	7.1	7.2						7.2	6.8	7.2	7.3					
*Bankfull Bank Height Ratio	1.0	1.0	1.1	1.1						1.0	1.1	1.1	1.0					
Low Top of Bank Depth (ft)	2.4	2.7	3.2	2.8						1.2	1.1	1.4	1.3					

*Bank Height Ratio is calculated based on the As-built (MY0) cross-sectional area as described in the Standard Measurement of the BHR Monitoring Parameter document produced by the technical industry work group consisting of the NCIRT, NCDMS, and Industry Practitioners in NC (9/2018). The remainder of the bankfull dimensions are calculated based on the current year's low bank height.

+ Data not collected due to adaptive management on Weston Reach 1A and 1B

Table 11a Cont'd. Monitoring Data - Dimensional Morphology Summary (Dimensional Parameters – Cross Sections)
Fletcher Mitigation Site

	Cross Section 15 (Riffle) Weston Creek 1A									Cross Section 16 (Pool) Weston Creek 1A									Cross Section 17 (Pool) Weston Creek 1A									Cross Section 18 (Riffle) Weston Creek 1A								
Dimension	**Base**	**+Pre-MY1**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**	**Base**	**+Pre-MY1**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**	**Base**	**+Pre-MY1**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**	**Base**	**+Pre-MY1**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**
Record Elevation (datum) Used	2082.5	-	2082.6	2082.6						2082.3	-	2082.5	2082.8						2076.2	-	2076.4	2076.4						2076.3	-	2076.3	2076.5					
Low Bank Height Elevation (datum) Used	2082.5	-	2082.8	2082.6						2082.3	-	2082.4	2082.4						2076.2	-	2076.3	2076.2						2076.3	-	2076.2	2076.4					
Bankfull Width (ft)	9.1	-	10.8	9.0						9.7	-	9.3	9.4						9.8	-	8.2	8.3						10.4	-	23.5	10.4					
Floodprone Width (ft)	50.0	-	50.0	50.0						50.0	-	50.0	50.0						50.0	-	50.0	50.0						50.0	-	50.0	50.0					
Bankfull Mean Depth (ft)	0.6	-	0.5	0.6						1.1	-	1.1	1.1						1.0	-	1.1	1.1						0.6	-	0.3	0.6					
Bankfull Max Depth (ft)	1.1	-	1.2	1.2						2.0	-	1.8	1.8						1.7	-	1.9	1.8						0.9	-	0.9	1.1					
Bankfull Cross Sectional Area (ft^2)	5.4	-	5.4	5.4						10.4	-	10.4	10.4						9.4	-	9.4	9.4						6.2	-	6.2	6.2					
Bankfull Width/Depth Ratio	15.5	-	21.7	15.0						9.1	-	8.3	8.5						10.1	-	7.2	7.4						17.4	-	89.4	17.6					
Bankfull Entrenchment Ratio	5.5	-	4.6	5.5						5.1	-	5.4	5.3						5.1	-	6.1	6.0						4.8	-	2.1	4.8					
*Bankfull Bank Height Ratio	1.0	-	1.2	1.0						1.0	-	0.9	0.8						1.0	-	0.9	0.9						1.0	-	1.0	1.0					
Low Top of Bank Depth (ft)	1.1	-	1.4	1.2						2.0	-	1.7	1.4						1.7	-	1.8	1.6						0.9	-	0.9	1.0					

	Cross Section 19 (Riffle) Weston Creek 1B									Cross Section 20 (Pool) Weston Creek 1B									Cross Section 21 (Pool) Raccoon Branch 1D									Cross Section 22 (Riffle) Raccoon Branch 1D								
Dimension	**Base**	**+Pre-MY1**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**	**Base**	**+Pre-MY1**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**	**Base**	**Pre-MY1**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**	**Base**	**Pre-MY1**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**
Record Elevation (datum) Used	2074.9	-	2075.0	2075.0						2074.8	-	2074.9	2075.0						2131.4	2131.5	2131.5	2131.6						2131.4	2131.4	2131.4	2131.7					
Low Bank Height Elevation (datum) Used	2074.9	-	2075.3	2075.1						2074.8	-	2074.8	2074.9						2131.4	2131.2	2131.1	2131.3						2131.4	2131.0	2131.3	2131.3					
Bankfull Width (ft)	9.7	-	9.4	9.8						8.3	-	13.4	10.8						5.6	6.1	6.1	3.6						6.9	7.8	6.9	5.7					
Floodprone Width (ft)	40.0	-	40.0	40.0						60.0	-	60.0	60.0						20.0	20.0	20.0	20.0						20.0	20.0	20.0	20.0					
Bankfull Mean Depth (ft)	0.5	-	0.5	0.5						1.5	-	0.9	1.2						0.5	0.4	0.4	0.7						0.5	0.4	0.5	0.6					
Bankfull Max Depth (ft)	0.7	-	0.8	0.8						2.5	-	2.5	2.5						1.2	1.2	1.1	1.0						1.3	0.9	0.9	1.0					
Bankfull Cross Sectional Area (ft^2)	4.7	-	4.7	4.7						12.7	-	12.7	12.7						2.7	2.7	2.7	2.7						3.4	3.4	3.4	3.4					
Bankfull Width/Depth Ratio	20.4	-	19.0	20.4						5.4	-	14.2	9.2						11.6	13.7	13.8	4.9						13.8	18.1	14.2	9.5					
Bankfull Entrenchment Ratio	4.1	-	4.2	4.1						7.2	-	0.0	5.5						3.6	3.3	3.3	5.6						2.9	2.6	2.9	3.5					
*Bankfull Bank Height Ratio	1.0	-	1.3	1.1						1.0	-	1.0	1.0						1.0	0.7	0.6	0.7						1.0	0.6	0.8	0.7					
Low Top of Bank Depth (ft)	0.7	-	1.0	0.9						2.5	-	2.4	2.4						1.2	0.8	0.7	0.7						1.3	0.5	0.7	0.7					

	Cross Section 23 (Riffle) Coates Branch 1B									Cross Section 24 (Pool) Coates Branch 1B									Cross Section 25 (Pool) Coates Branch 1C									Cross Section 26 (Riffle) Coates Branch 1C								
Dimension	**Base**	**Pre-MY1**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**	**Base**	**Pre-MY1**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**	**Base**	**Pre-MY1**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**	**Base**	**Pre-MY1**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**
Record Elevation (datum) Used	2121.0	2121.1	2121.1	2121.1						2121.1	2121.1	2121.2	2121.2						2108.0	2108.1	2108.1	2108.2						2107.9	2107.9	2108.0	2108.2					
Low Bank Height Elevation (datum) Used	2121.0	2121.2	2121.2	2121.0						2121.1	2121.0	2121.0	2121.0						2108.0	2108.1	2107.9	2108.2						2107.9	2107.9	2107.9	2108.1					
Bankfull Width (ft)	5.2	4.9	3.4	3.5						7.4	8.6	7.9	5.7						5.3	5.6	6.2	4.8						5.4	5.5	5.8	5.8					
Floodprone Width (ft)	15.0	15.0	15.0	15.0						40.0	40.0	40.0	40.0						20.0	20.0	20.0	20.0						20.0	20.0	20.0	20.0					
Bankfull Mean Depth (ft)	0.3	0.3	0.5	0.5						0.7	0.6	0.6	0.9						0.5	0.5	0.4	0.6						0.4	0.4	0.4	0.4					
Bankfull Max Depth (ft)	0.7	0.5	1.0	0.8						1.5	1.3	1.4	1.4						0.9	0.9	0.9	0.8						0.8	0.6	0.6	0.5					
Bankfull Cross Sectional Area (ft^2)	1.6	1.6	1.6	1.6						5.1	5.1	5.1	5.1						2.7	2.7	2.7	2.7						2.2	2.2	2.2	2.2					
Bankfull Width/Depth Ratio	16.5	15.1	7.5	7.6						10.7	14.5	12.3	6.4						10.5	11.3	14.5	8.8						13.5	14.0	15.4	15.5					
Bankfull Entrenchment Ratio	2.9	3.1	4.4	4.3						5.4	4.6	5.0	7.0						3.8	3.6	3.2	4.1						3.7	3.6	3.4	3.4					
*Bankfull Bank Height Ratio	1.0	1.1	1.1	0.9						1.0	0.9	0.9	0.9						1.0	1.0	0.8	1.0						1.0	1.0	0.8	0.9					
Low Top of Bank Depth (ft)	0.7	0.6	1.1	0.7						1.5	1.2	1.2	1.3						0.9	0.9	0.8	0.8						0.8	0.6	0.5	0.5					

	Cross Section 27 (Pool) Coates Branch 1D									Cross Section 28 (Riffle) Coates Branch 1D								
Dimension	**Base**	**Pre-MY1**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**	**Base**	**Pre-MY1**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**
Record Elevation (datum) Used	2105.7	2105.7	2105.7	2105.7						2105.6	2105.6	2105.7	2105.7					
Low Bank Height Elevation (datum) Used	2105.7	2105.7	2105.5	2105.8						2105.6	2105.6	2105.5	2105.6					
Bankfull Width (ft)	5.9	6.9	6.4	5.6						6.1	7.4	7.5	4.7					
Floodprone Width (ft)	25.0	25.0	25.0	25.0						25.0	25.0	25.0	25.0					
Bankfull Mean Depth (ft)	0.6	0.5	0.6	0.7						0.5	0.4	0.4	0.7					
Bankfull Max Depth (ft)	1.2	1.3	1.1	1.2						1.0	0.9	0.9	1.0					
Bankfull Cross Sectional Area (ft^2)	3.7	3.7	3.7	3.7						3.3	3.3	3.3	3.3					
Bankfull Width/Depth Ratio	9.2	13.2	11.1	8.4						11.4	16.5	17.2	6.9					
Bankfull Entrenchment Ratio	4.3	3.6	3.9	4.5						4.1	3.4	3.3	5.3					
*Bankfull Bank Height Ratio	1.0	1.0	0.8	1.0						1.0	1.0	0.9	0.9					
Low Top of Bank Depth (ft)	1.2	1.3	1.0	1.2						1.0	0.9	0.8	0.9					

*Bank Height Ratio is calculated based on the As-built (MY0) cross-sectional area as described in the Standard Measurement of the BHR Monitoring Parameter document produced by the technical industry work group consisting of the NCIRT, NCDMS, and Industry Practitioners in NC (9/2018). The remainder of the bankfull dimensions are calculated based on the current year's low bank height.

+ Data not collected due to adaptive management on Weston Reach 1A and 1B

Table 11b. Monitoring Data - Stream Reach Data Summary
Fletcher Mitigation Site - Fletcher Creek Reach 1B (380 feet *)

Parameter	Baseline						Pre-MY - 1						MY - 1						MY - 2						MY - 3						MY - 4						MY -5						MY - 6					
Dimension & Substrate - Riffle	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**
Bankfull Width (ft)	-	7.1	-	-	-	1	-	6.1	-	-	-	1	-	6.1	-	-	-	1	-	4.5	-	-	-	1																								
Floodprone Width (ft)	-	20.0	-	-	-	1	-	20.0	-	-	-	1	-	20.0	-	-	-	1	-	20.0	-	-	-	1																								
Bankfull Mean Depth (ft)	-	0.3	-	-	-	1	-	0.4	-	-	-	1	-	0.4	-	-	-	1	-	0.5	-	-	-	1																								
Bankfull Max Depth (ft)	-	0.6	-	-	-	1	-	0.6	-	-	-	1	-	0.6	-	-	-	1	-	0.7	-	-	-	1																								
Bankfull Cross-Sectional Area (ft^2)	-	2.3	-	-	-	1	-	2.3	-	-	-	1	-	2.3	-	-	-	1	-	2.3	-	-	-	1																								
Width/Depth Ratio	-	21.4	-	-	-	1	-	16.4	-	-	-	1	-	15.9	-	-	-	1	-	8.8	-	-	-	1																								
Entrenchment Ratio	-	2.8	-	-	-	1	-	3.3	-	-	-	1	-	3.3	-	-	-	1	-	4.4	-	-	-	1																								
Bank Height Ratio	-	1.0	-	-	-	1	-	1.0	-	-	-	1	-	1.1	-	-	-	1	-	0.9	-	-	-	1																								
Profile																																															
Riffle Length (ft)	4.8	8.5	8.0	13.1	2.5	13																																									
Riffle Slope (ft/ft)	0.002	0.018	0.014	0.044	0.013	13																																									
Pool Length (ft)	5.1	9.6	9.7	14.4	2.8	12																																									
Pool Max Depth (ft)	1.2	2.0	1.9	2.9	0.5	12																																									
Pool Spacing (ft)	14.6	27.9	29.4	40.5	8.0	11																																									
Pattern																																															
Channel Belt Width (ft)	17.7	18.2	17.8	19.0	0.7	3																																									
Radius of Curvature (ft)	17.0	22.7	25.0	26.0	4.9	3																																									
Rc: Bankfull Width (ft/ft)	2.0	2.6	2.9	3.0	0.6	3																																									
Meander Wavelength (ft)	17.7	18.2	17.8	19.1	0.8	3																																									
Meander Width Ratio	2.0	2.1	2.0	2.2	0.1	3																																									
Additional Reach Parameters																																															
Rosgen Classification	B4																																														
*Channel Thalweg Length (ft)	380																																														
Sinuosity (ft)	1.12																																														
Water Surface Slope (Channel) (ft/ft)	0.015																																														
Bankfull Slope (ft/ft)	0.016																																														
Ri% / Ru% / P% / G% / S%	30%	26%	32%	12%	0%																																									

* Channel Thalweg Length (ft): Based on actual thalweg calculations from the as-built survey, accounts for breaks in conservation easement and utility right-of-ways.

- Information Unavailable

N/A - Information does not apply.

Ri = Riffle / Ru = Run / P = Pool / G = Glide / S = Step

Table 11b Cont'd. Monitoring Data - Stream Reach Data Summary
Fletcher Mitigation Site - Fletcher Creek Reach 1C (1,541 feet *)

Parameter	Baseline						Pre-MY - 1						MY - 1						MY - 2						MY - 3						MY - 4						MY - 5						MY - 6					
Dimension & Substrate - Riffle	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**
Bankfull Width (ft)	7.6	9.8	9.8	12.0	3.1	2	6.1	9.5	9.5	12.9	4.8	2	6.5	9.7	9.7	13.0	4.6	2	5.4	9.1	9.1	12.8	5.2	2																								
Floodprone Width (ft)	10.0	30.0	30.0	50.0	28.3	2	10.0	30.0	30.0	50.0	28.3	2	10.0	30.0	30.0	50.0	28.3	2	10.0	30.0	30.0	50.0	28.3	2																								
Bankfull Mean Depth (ft)	0.3	0.5	0.5	0.6	0.2	2	0.3	0.5	0.5	0.6	0.2	2	0.3	0.5	0.5	0.6	0.2	2	0.4	0.5	0.5	0.6	0.1	2																								
Bankfull Max Depth (ft)	0.5	0.8	0.8	1.0	0.4	2	0.5	0.7	0.7	1.0	0.4	2	0.4	0.7	0.7	1.0	0.4	2	0.6	0.9	0.9	1.2	0.4	2																								
Bankfull Cross-Sectional Area (ft^2)	2.1	4.8	4.8	7.5	3.8	2	2.1	4.8	4.8	7.5	3.8	2	2.1	4.8	4.8	7.5	3.8	2	2.1	4.8	4.8	7.5	3.8	2																								
Width/Depth Ratio	19.2	23.4	23.4	27.6	6.0	2	18.2	20.3	20.3	22.4	3.0	2	19.8	21.1	21.1	22.4	1.9	2	14.0	17.9	17.9	21.8	5.5	2																								
Entrenchment Ratio	1.3	2.7	2.7	4.2	2.0	2	1.6	2.7	2.7	3.9	1.6	2	1.5	2.7	2.7	3.9	1.6	2	1.8	2.9	2.9	3.9	1.5	2																								
Bank Height Ratio	1.0	1.0	1.0	1.0	0.0	2	1.4	1.4	1.4	1.4	0.0	2	1.3	1.3	1.3	1.4	0.0	2	1.0	1.1	1.1	1.1	0.1	2																								
Profile																																															
Riffle Length (ft)	3.4	10.9	11.1	21.1	4.9	44																																									
Riffle Slope (ft/ft)	0.000	0.009	0.007	0.029	0.008	44																																									
Pool Length (ft)	6.3	13.1	12.8	29.0	4.6	44																																									
Pool Max Depth (ft)	1.5	2.8	2.8	4.0	0.6	44																																									
Pool Spacing (ft)	13.5	35.0	34.4	96.1	13.5	43																																									
Pattern																																															
Channel Belt Width (ft)	18.7	20.2	19.7	22.3	1.9	3																																									
Radius of Curvature (ft)	17.2	21.0	20.6	25.3	4.1	3																																									
Rc: Bankfull Width (ft/ft)	1.8	2.2	2.2	2.7	0.5	3																																									
Meander Wavelength (ft)	18.7	20.2	19.7	22.3	1.9	3																																									
Meander Width Ratio	2.0	2.1	2.1	2.4	0.2	3																																									
Additional Reach Parameters																																															
Rosgen Classification	B4																																														
*Channel Thalweg Length (ft)	1,541																																														
Sinuosity (ft)	1.10																																														
Water Surface Slope (Channel) (ft/ft)	0.012																																														
Bankfull Slope (ft/ft)	0.012																																														
Ri% / Ru% / P% / G% / S%	32%	19%	38%	11%	0%																																									

* Channel Thalweg Length (ft): Based on actual thalweg calculations from the as-built survey, accounts for breaks in conservation easement and utility right-of-ways.

- Information Unavailable

N/A - Information does not apply.

Ri = Riffle / Ru = Run / P = Pool / G = Glide / S = Step

Table 11b Cont'd. Monitoring Data - Stream Reach Data Summary
Fletcher Mitigation Site - Fletcher Creek Reach 2A (1,299 feet *)

Parameter	Baseline						Pre-MY - 1						MY - 1						MY - 2						MY -3						MY -4						MY - 5						MY - 6					
Dimension & Substrate - Riffle	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**
Bankfull Width (ft)	13.1	14.3	14.3	15.5	1.7	2	10.6	13.4	13.4	16.1	4.0	2	11.7	12.6	12.6	13.6	1.3	2	8.2	8.3	8.3	8.5	0.20	2																								
Floodprone Width (ft)	35.0	47.5	47.5	60.0	17.7	2	35.0	47.5	47.5	60.0	17.7	2	35.0	47.5	47.5	60.0	17.7	2	35.0	42.5	42.5	50.0	10.61	2																								
Bankfull Mean Depth (ft)	0.8	0.9	0.9	1.1	0.2	2	1.0	1.0	1.0	1.0	0.0	2	0.9	1.1	1.1	1.2	0.3	2	1.1	1.2	1.2	1.2	0.08	2																								
Bankfull Max Depth (ft)	1.6	2.2	2.2	2.8	0.8	2	1.7	2.0	2.0	2.3	0.4	2	1.8	2.3	2.3	2.8	0.7	2	1.9	2.2	2.2	2.5	0.44	2																								
Bankfull Cross-Sectional Area (ft^2)	10.4	13.6	13.6	16.9	4.6	2	10.4	13.7	13.7	16.9	4.6	2	10.4	13.6	13.6	16.9	4.6	2	9.2	9.8	9.8	10.4	0.86	2																								
Width/Depth Ratio	14.2	15.3	15.3	16.5	1.7	2	10.7	13.0	13.0	15.4	3.3	2	10.9	12.0	12.0	13.2	1.6	2	6.9	7.1	7.1	7.3	0.29	2																								
Entrenchment Ratio	2.7	3.3	3.3	3.9	0.9	2	3.3	3.5	3.5	3.7	0.3	2	3.0	3.7	3.7	4.4	1.0	2	4.1	5.1	5.1	6.1	1.39	2																								
Bank Height Ratio	1.0	1.0	1.0	1.0	0.0	2	1.0	1.0	1.0	1.0	0.0	2	0.7	0.8	0.8	0.9	0.1	2	0.9	1.0	1.0	1.0	0.07	2																								
Profile																																															
Riffle Length (ft)	5.3	16.0	14.6	32.2	6.7	35																																									
Riffle Slope (ft/ft)	0.001	0.010	0.008	0.028	0.007	35																																									
Pool Length (ft)	5.6	10.8	10.2	25.3	4.2	34																																									
Pool Max Depth (ft)	1.2	2.5	2.6	3.7	0.7	34																																									
Pool Spacing (ft)	9.4	36.8	37.5	52.2	9.4	33																																									
Pattern																																															
Channel Belt Width (ft)	23.8	24.5	24.1	25.5	0.9	3																																									
Radius of Curvature (ft)	16.8	22.1	19.8	29.6	6.7	3																																									
Rc: Bankfull Width (ft/ft)	1.6	2.1	1.9	2.8	0.6	3																																									
Meander Wavelength (ft)	23.8	24.5	24.1	25.5	0.9	3																																									
Meander Width Ratio	2.3	2.4	2.3	2.5	0.1	3																																									
Additional Reach Parameters																																															
Rosgen Classification	B4																																														
*Channel Thalweg Length (ft)	1,299																																														
Sinuosity (ft)	1.15																																														
Water Surface Slope (Channel) (ft/ft)	0.011																																														
Bankfull Slope (ft/ft)	0.012																																														
Ri% / Ru% / P% / G% / S%	44%	15%	29%	12%	0%																																									

* Channel Thalweg Length (ft): Based on actual thalweg calculations from the as-built survey, accounts for breaks in conservation easement and utility right-of-ways.

- Information Unavailable

N/A - Information does not apply.

Ri = Riffle / Ru = Run / P = Pool / G = Glide / S = Step

Table 11b Cont'd. Monitoring Data - Stream Reach Data Summary
Fletcher Mitigation Site - Fletcher Creek Reach 2B (1,510 feet *)

Parameter	Baseline						Pre-MY - 1						MY - 1						MY - 2						MY - 3						MY - 4						MY - 5						MY - 6					
Dimension & Substrate - Riffle	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**
Bankfull Width (ft)	9.8	10.0	10.0	10.2	0.3	2	9.6	9.9	9.9	10.3	0.5	2	9.7	10.4	10.4	11.2	1.1	2	9.6	11.1	11.1	12.6	2.11	2																								
Floodprone Width (ft)	40.0	55.0	55.0	70.0	21.2	2	40.0	55.0	55.0	70.0	21.2	2	40.0	55.0	55.0	70.0	21.2	2	40.0	55.0	55.0	70.0	21.21	2																								
Bankfull Mean Depth (ft)	0.7	0.7	0.7	0.8	0.1	2	0.7	0.7	0.7	0.7	0.0	2	0.6	0.7	0.7	0.8	0.1	2	0.6	0.7	0.7	0.8	0.16	2																								
Bankfull Max Depth (ft)	1.2	1.3	1.3	1.3	0.1	2	1.1	1.1	1.1	1.1	0.1	2	1.2	1.2	1.2	1.2	0.0	2	1.3	1.4	1.4	1.4	0.09	2																								
Bankfull Cross-Sectional Area (ft^2)	7.1	7.4	7.4	7.6	0.3	2	7.1	7.3	7.3	7.6	0.3	2	7.1	7.3	7.3	7.6	0.4	2	7.1	7.3	7.3	7.6	0.35	2																								
Width/Depth Ratio	12.6	13.6	13.6	14.6	1.4	2	13.0	13.5	13.5	14.0	0.7	2	12.3	15.0	15.0	17.7	3.8	2	12.2	17.3	17.3	22.4	7.22	2																								
Entrenchment Ratio	3.9	5.5	5.5	7.2	2.3	2	4.2	5.5	5.5	6.8	1.9	2	3.6	5.4	5.4	7.2	2.6	2	3.2	5.2	5.2	7.3	2.92	2																								
Bank Height Ratio	1.0	1.0	1.0	1.0	0.0	2	1.1	1.1	1.1	1.1	0.0	2	1.0	1.1	1.1	1.1	0.1	2	1.0	1.0	1.0	1.1	0.08	2																								
Profile																																															
Riffle Length (ft)	5.3	16.0	14.6	32.2	6.7	35																																									
Riffle Slope (ft/ft)	0.001	0.010	0.008	0.028	0.007	35																																									
Pool Length (ft)	5.6	10.8	10.2	25.3	4.2	34																																									
Pool Max Depth (ft)	1.2	2.5	2.6	3.7	0.7	34																																									
Pool Spacing (ft)	9.4	36.8	37.5	52.2	9.4	33																																									
Pattern																																															
Channel Belt Width (ft)	18.0	19.9	19.2	22.6	2.4	3																																									
Radius of Curvature (ft)	23.5	25.3	24.8	27.5	2.0	3																																									
Rc: Bankfull Width (ft/ft)	2.2	2.4	2.3	2.6	0.2	3																																									
Meander Wavelength (ft)	17.9	19.9	19.2	22.6	2.4	3																																									
Meander Width Ratio	1.7	1.9	1.8	2.1	0.2	3																																									
Additional Reach Parameters																																															
Rosgen Classification	B5																																														
*Channel Thalweg Length (ft)	1,510																																														
Sinuosity (ft)	1.10																																														
Water Surface Slope (Channel) (ft/ft)	0.011																																														
Bankfull Slope (ft/ft)	0.012																																														
Ri% / Ru% / P% / G% / S%	44%	15%	29%	12%	0%																																									

* Channel Thalweg Length (ft): Based on actual thalweg calculations from the as-built survey, accounts for breaks in conservation easement and utility right-of-ways.

- Information Unavailable

N/A - Information does not apply.

Ri = Riffle / Ru = Run / P = Pool / G = Glide / S = Step

Table 11b Cont'd. Monitoring Data - Stream Reach Data Summary
Fletcher Mitigation Site - Weston Creek Reach 1A (1,982 feet *)

Parameter	Baseline						+Pre-MY - 1						MY - 1						MY - 2						MY - 3						MY - 4						MY - 5						MY - 6					
Dimension & Substrate - Riffle	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**
Bankfull Width (ft)	9.1	9.8	9.8	10.4	0.9	2	-	-	-	-	-	-	10.2	16.8	16.8	23.5	9.4	2	9.0	9.7	9.7	10.4	0.97	2																								
Floodprone Width (ft)	50.0	50.0	50.0	50.0	0.0	2	-	-	-	-	-	-	50.0	50.0	50.0	50.0	0.0	2	50.0	50.0	50.0	50.0	0.00	2																								
Bankfull Mean Depth (ft)	0.6	0.6	0.6	0.6	0.0	2	-	-	-	-	-	-	0.3	0.4	0.4	0.5	0.2	2	0.6	0.6	0.6	0.6	0.01	2																								
Bankfull Max Depth (ft)	0.9	1.0	1.0	1.1	0.1	2	-	-	-	-	-	-	0.9	1.1	1.1	1.2	0.2	2	1.1	1.1	1.1	1.2	0.10	2																								
Bankfull Cross-Sectional Area (ft^2)	5.4	5.8	5.8	6.2	0.6	2	-	-	-	-	-	-	5.4	5.8	5.8	6.2	0.6	2	5.4	5.8	5.8	6.2	0.51	2																								
Width/Depth Ratio	15.5	16.4	16.4	17.4	1.3	2	-	-	-	-	-	-	21.7	55.5	55.5	89.4	47.9	2	15.0	16.3	16.3	17.6	1.83	2																								
Entrenchment Ratio	4.8	5.1	5.1	5.5	0.5	2	-	-	-	-	-	-	2.1	3.5	3.5	4.9	2.0	2	4.8	5.2	5.2	5.5	0.52	2																								
Bank Height Ratio	1.0	1.0	1.0	1.0	0.0	2	-	-	-	-	-	-	1.0	1.1	1.1	1.2	0.2	2	1.0	1.0	1.0	1.0	0.05	2																								
Profile																																															
Riffle Length (ft)	4.3	13.3	11.9	38.6	7.8	55																																									
Riffle Slope (ft/ft)	0.000	0.004	0.002	0.017	0.004	55																																									
Pool Length (ft)	5.7	13.1	12.8	26.1	4.3	54																																									
Pool Max Depth (ft)	1.1	1.7	1.7	2.6	0.4	54																																									
Pool Spacing (ft)	8.9	35.7	34.4	72.9	12.0	53																																									
Pattern																																															
Channel Belt Width (ft)	24.8	27.0	27.2	29.0	2.1	3																																									
Radius of Curvature (ft)	11.0	14.3	14.6	17.4	3.2	3																																									
Rc: Bankfull Width (ft/ft)	1.3	1.7	1.7	2.0	0.4	3																																									
Meander Wavelength (ft)	24.5	26.9	27.2	29.0	2.3	3																																									
Meander Width Ratio	2.9	3.1	3.2	3.4	0.2	3																																									
Additional Reach Parameters																																															
Rosgen Classification	C5																																														
*Channel Thalweg Length (ft)	1,982																																														
Sinuosity (ft)	1.24																																														
Water Surface Slope (Channel) (ft/ft)	0.005																																														
Bankfull Slope (ft/ft)	0.005																																														
Ri% / Ru% / P% / G% / S%	38%	15%	36%	11%	0%																																									

* Channel Thalweg Length (ft): Based on actual thalweg calculations from the as-built survey, accounts for breaks in conservation easement and utility right-of-ways.
- Information Unavailable
+ Data not collected due to adaptive management on Weston Reach 1A and 1B
N/A - Information does not apply.
Ri = Riffle / Ru = Run / P = Pool / G = Glide / S = Step

Table 11b Cont'd. Monitoring Data - Stream Reach Data Summary
Fletcher Mitigation Site - Weston Creek Reach 1B (825 feet *)

Parameter	Baseline						+Pre-MY - 1						MY - 1						MY - 2						MY - 3						MY - 4						MY - 5						MY - 6					
Dimension & Substrate - Riffle	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**
Bankfull Width (ft)	-	9.7	-	-	-	1	-	-	-	-	-	-	-	9.4	-	-	-	1	-	9.8	-	-	-	1																								
Floodprone Width (ft)	-	40.0	-	-	-	1	-	-	-	-	-	-	-	40.0	-	-	-	1	-	40.0	-	-	-	1																								
Bankfull Mean Depth (ft)	-	0.5	-	-	-	1	-	-	-	-	-	-	-	0.5	-	-	-	1	-	0.5	-	-	-	1																								
Bankfull Max Depth (ft)	-	0.7	-	-	-	1	-	-	-	-	-	-	-	0.8	-	-	-	1	-	0.8	-	-	-	1																								
Bankfull Cross-Sectional Area (ft^2)	-	4.7	-	-	-	1	-	-	-	-	-	-	-	4.7	-	-	-	1	-	4.7	-	-	-	1																								
Width/Depth Ratio	-	20.4	-	-	-	1	-	-	-	-	-	-	-	19.0	-	-	-	1	-	20.4	-	-	-	1																								
Entrenchment Ratio	-	4.1	-	-	-	1	-	-	-	-	-	-	-	4.2	-	-	-	1	-	4.1	-	-	-	1																								
Bank Height Ratio	-	1.0	-	-	-	1	-	-	-	-	-	-	-	1.3	-	-	-	1	-	1.1	-	-	-	1																								
Profile																																															
Riffle Length (ft)	4.5	12.3	12.1	29.1	5.9	21																																									
Riffle Slope (ft/ft)	0.000	0.007	0.002	0.031	0.008	21																																									
Pool Length (ft)	5.6	14.8	14.0	26.8	6.9	21																																									
Pool Max Depth (ft)	1.4	2.0	2.0	2.7	0.3	21																																									
Pool Spacing (ft)	19.7	35.2	34.8	68.4	12.1	20																																									
Pattern																																															
Channel Belt Width (ft)	27.3	28.4	28.1	29.9	1.3	3																																									
Radius of Curvature (ft)	15.8	19.5	18.2	24.5	4.5	3																																									
Rc: Bankfull Width (ft/ft)	1.7	2.1	1.9	2.6	0.5	3																																									
Meander Wavelength (ft)	27.3	28.4	28.1	29.9	1.3	3																																									
Meander Width Ratio	2.9	3.0	3.0	3.2	0.1	3																																									
Additional Reach Parameters																																															
Rosgen Classification	C5																																														
*Channel Thalweg Length (ft)	825																																														
Sinuosity (ft)	1.17																																														
Water Surface Slope (Channel) (ft/ft)	0.0024																																														
Bankfull Slope (ft/ft)	0.0026																																														
Ri% / Ru% / P% / G% / S%	35%	9%	42%	14%	0%																																									

* Channel Thalweg Length (ft): Based on actual thalweg calculations from the as-built survey, accounts for breaks in conservation easement and utility right-of-ways.
- Information Unavailable
+ Data not collected due to adaptive management on Weston Reach 1A and 1B
N/A - Information does not apply.
Ri = Riffle / Ru = Run / P = Pool / G = Glide / S = Step

Table 11b Cont'd. Monitoring Data - Stream Reach Data Summary
Fletcher Mitigation Site - Raccoon Branch Reach 1D (440 feet *)

Parameter	Baseline						Pre-MY - 1						MY - 1						MY - 2						MY - 3						MY - 4						MY - 5						MY - 6					
Dimension & Substrate - Riffle	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**
Bankfull Width (ft)	-	6.9	-	-	-	1	-	7.8	-	-	-	1	-	6.9	-	-	-	1	-	5.7	-	-	-	1																								
Floodprone Width (ft)	-	20.0	-	-	-	1	-	20.0	-	-	-	1	-	20.0	-	-	-	1	-	20.0	-	-	-	1																								
Bankfull Mean Depth (ft)	-	0.5	-	-	-	1	-	0.4	-	-	-	1	-	0.5	-	-	-	1	-	0.6	-	-	-	1																								
Bankfull Max Depth (ft)	-	1.3	-	-	-	1	-	0.9	-	-	-	1	-	0.9	-	-	-	1	-	1.0	-	-	-	1																								
Bankfull Cross-Sectional Area (ft^2)	-	3.4	-	-	-	1	-	3.4	-	-	-	1	-	3.4	-	-	-	1	-	3.4	-	-	-	1																								
Width/Depth Ratio	-	13.8	-	-	-	1	-	18.1	-	-	-	1	-	14.2	-	-	-	1	-	9.5	-	-	-	1																								
Entrenchment Ratio	-	2.9	-	-	-	1	-	2.6	-	-	-	1	-	2.9	-	-	-	1	-	3.5	-	-	-	1																								
Bank Height Ratio	-	1.0	-	-	-	1	-	0.6	-	-	-	1	-	0.8	-	-	-	1	-	0.7	-	-	-	1																								
Profile																																															
Riffle Length (ft)	1.5	4.5	4.2	7.9	1.7	38																																									
Riffle Slope (ft/ft)	0.003	0.033	0.030	0.085	0.021	38																																									
Pool Length (ft)	1.7	5.4	5.0	12.7	2.6	37																																									
Pool Max Depth (ft)	0.6	1.0	1.1	1.4	0.2	37																																									
Pool Spacing (ft)	4.1	12.1	11.2	28.8	5.5	35																																									
Pattern																																															
Channel Belt Width (ft)	6.7	7.5	7.0	8.7	1.1	3																																									
Radius of Curvature (ft)	7.9	10.1	8.5	13.9	3.3	3																																									
Rc: Bankfull Width (ft/ft)	1.2	1.6	1.3	2.2	0.6	3																																									
Meander Wavelength (ft)	6.7	7.5	7.0	8.7	1.1	3																																									
Meander Width Ratio	1.1	1.2	1.1	1.4	0.1	3																																									
Additional Reach Parameters																																															
Rosgen Classification	B4																																														
*Channel Thalweg Length (ft)	440																																														
Sinuosity (ft)	1.08																																														
Water Surface Slope (Channel) (ft/ft)	0.040																																														
Bankfull Slope (ft/ft)	0.041																																														
Ri% / Ru% / P% / G% / S%	39%	0%	46%	8%	6%																																									

* Channel Thalweg Length (ft): Based on actual thalweg calculations from the as-built survey, accounts for breaks in conservation easement and utility right-of-ways.

- Information Unavailable

N/A - Information does not apply.

Ri = Riffle / Ru = Run / P = Pool / G = Glide / S = Step

Table 11b Cont'd. Monitoring Data - Stream Reach Data Summary
Fletcher Mitigation Site - Coates Branch Reach 1B (606 feet *)

Parameter	Baseline						Pre-MY - 1						MY - 1						MY - 2						MY - 3						MY - 4						MY - 5						MY - 6					
Dimension & Substrate - Riffle	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**
Bankfull Width (ft)	-	5.2	-	-	-	1	-	4.9	-	-	-	1	-	3.4	-	-	-	1	-	3.5	-	-	-	1																								
Floodprone Width (ft)	-	15.0	-	-	-	1	-	15.0	-	-	-	1	-	15.0	-	-	-	1	-	15.0	-	-	-	1																								
Bankfull Mean Depth (ft)	-	0.3	-	-	-	1	-	0.3	-	-	-	1	-	0.5	-	-	-	1	-	0.5	-	-	-	1																								
Bankfull Max Depth (ft)	-	0.7	-	-	-	1	-	0.5	-	-	-	1	-	1.0	-	-	-	1	-	0.8	-	-	-	1																								
Bankfull Cross-Sectional Area (ft^2)	-	1.6	-	-	-	1	-	1.6	-	-	-	1	-	1.6	-	-	-	1	-	1.6	-	-	-	1																								
Width/Depth Ratio	-	16.5	-	-	-	1	-	15.1	-	-	-	1	-	7.5	-	-	-	1	-	7.6	-	-	-	1																								
Entrenchment Ratio	-	2.9	-	-	-	1	-	3.1	-	-	-	1	-	4.4	-	-	-	1	-	4.3	-	-	-	1																								
Bank Height Ratio	-	1.0	-	-	-	1	-	1.3	-	-	-	1	-	1.1	-	-	-	1	-	0.9	-	-	-	1																								
Profile																																															
Riffle Length (ft)	3.0	6.5	6.3	14.0	2.1	52																																									
Riffle Slope (ft/ft)	0.000	0.020	0.016	0.072	0.016	52																																									
Pool Length (ft)	1.2	3.4	3.2	6.3	1.2	51																																									
Pool Max Depth (ft)	0.2	1.2	1.1	2.5	0.4	51																																									
Pool Spacing (ft)	5.8	11.7	12.0	18.7	2.5	50																																									
Pattern																																															
Channel Belt Width (ft)	9.7	10.6	10.5	11.5	0.9	3																																									
Radius of Curvature (ft)	9.0	11.0	12.0	12.1	1.8	3																																									
Rc: Bankfull Width (ft/ft)	1.5	1.9	2.1	2.1	0.3	3																																									
Meander Wavelength (ft)	9.7	10.6	10.5	11.5	0.9	3																																									
Meander Width Ratio	1.7	1.9	1.8	2.0	0.1	3																																									
Additional Reach Parameters																																															
Rosgen Classification	B4																																														
*Channel Thalweg Length (ft)	601																																														
Sinuosity (ft)	1.05																																														
Water Surface Slope (Channel) (ft/ft)	0.033																																														
Bankfull Slope (ft/ft)	0.033																																														
Ri% / Ru% / P% / G% / S%	56%	0%	28%	10%	6%																																									

* Channel Thalweg Length (ft): Based on actual thalweg calculations from the as-built survey, accounts for breaks in conservation easement and utility right-of-ways.

- Information Unavailable

N/A - Information does not apply.

Ri = Riffle / Ru = Run / P = Pool / G = Glide / S = Step

Table 11b Cont'd. Monitoring Data - Stream Reach Data Summary
Fletcher Mitigation Site - Coates Branch Reach 1C (708 feet *)

Parameter	Baseline						Pre-MY - 1						MY - 1						MY - 2						MY - 3						MY - 4						MY - 5						MY - 6					
Dimension & Substrate - Riffle	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**
Bankfull Width (ft)	-	5.4	-	-	-	1	-	5.5	-	-	-	1	-	5.8	-	-	-	1	-	5.8	-	-	-	1																								
Floodprone Width (ft)	-	20.0	-	-	-	1	-	20.0	-	-	-	1	-	20.0	-	-	-	1	-	20.0	-	-	-	1																								
Bankfull Mean Depth (ft)	-	0.4	-	-	-	1	-	0.4	-	-	-	1	-	0.4	-	-	-	1	-	0.4	-	-	-	1																								
Bankfull Max Depth (ft)	-	0.8	-	-	-	1	-	0.6	-	-	-	1	-	0.6	-	-	-	1	-	0.5	-	-	-	1																								
Bankfull Cross-Sectional Area (ft^2)	-	2.2	-	-	-	1	-	2.2	-	-	-	1	-	2.2	-	-	-	1	-	2.2	-	-	-	1																								
Width/Depth Ratio	-	13.5	-	-	-	1	-	14.0	-	-	-	1	-	15.4	-	-	-	1	-	15.5	-	-	-	1																								
Entrenchment Ratio	-	3.7	-	-	-	1	-	3.6	-	-	-	1	-	3.4	-	-	-	1	-	3.4	-	-	-	1																								
Bank Height Ratio	-	1.0	-	-	-	1	-	0.9	-	-	-	1	-	0.8	-	-	-	1	-	0.9	-	-	-	1																								
Profile																																															
Riffle Length (ft)	3.8	7.4	7.7	10.1	1.6	48																																									
Riffle Slope (ft/ft)	0.000	0.010	0.010	0.033	0.007	48																																									
Pool Length (ft)	1.2	4.6	4.2	7.3	1.4	48																																									
Pool Max Depth (ft)	0.6	1.0	1.0	1.4	0.2	49																																									
Pool Spacing (ft)	6.4	14.3	14.6	19.6	2.6	48																																									
Pattern																																															
Channel Belt Width (ft)	10.9	11.7	11.6	12.5	0.8	3																																									
Radius of Curvature (ft)	7.0	8.8	7.2	12.1	2.9	3																																									
Rc: Bankfull Width (ft/ft)	1.2	1.5	1.2	2.1	0.5	3																																									
Meander Wavelength (ft)	10.9	12.1	11.6	13.7	1.5	3																																									
Meander Width Ratio	1.8	2.0	1.9	2.1	0.1	3																																									
Additional Reach Parameters																																															
Rosgen Classification	B4																																														
*Channel Thalweg Length (ft)	708																																														
Sinuosity (ft)	1.06																																														
Water Surface Slope (Channel) (ft/ft)	0.013																																														
Bankfull Slope (ft/ft)	0.013																																														
Ri% / Ru% / P% / G% / S%	52%	0%	32%	11%	5%																																									

* Channel Thalweg Length (ft): Based on actual thalweg calculations from the as-built survey, accounts for breaks in conservation easement and utility right-of-ways.

- Information Unavailable

N/A - Information does not apply.

Ri = Riffle / Ru = Run / P = Pool / G = Glide / S = Step

Table 11b Cont'd. Monitoring Data - Stream Reach Data Summary
Fletcher Mitigation Site - Coates Branch Reach 1D (325 feet *)

Parameter	Baseline						Pre-MY - 1						MY - 1						MY - 2						MY - 3						MY - 4						MY - 5						MY - 6					
Dimension & Substrate - Riffle	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**	**Min**	**Mean**	**Med**	**Max**	**SD**	**n**
Bankfull Width (ft)	-	6.1	-	-	-	1	-	7.4	-	-	-	1	-	7.5	-	-	-	1	-	4.7	-	-	-	1																								
Floodprone Width (ft)	-	25.0	-	-	-	1	-	25.0	-	-	-	1	-	25.0	-	-	-	1	-	25.0	-	-	-	1																								
Bankfull Mean Depth (ft)	-	0.5	-	-	-	1	-	0.4	-	-	-	1	-	0.4	-	-	-	1	-	0.7	-	-	-	1																								
Bankfull Max Depth (ft)	-	1.0	-	-	-	1	-	0.9	-	-	-	1	-	0.9	-	-	-	1	-	1.0	-	-	-	1																								
Bankfull Cross-Sectional Area (ft^2)	-	3.3	-	-	-	1	-	3.3	-	-	-	1	-	3.3	-	-	-	1	-	3.3	-	-	-	1																								
Width/Depth Ratio	-	11.4	-	-	-	1	-	16.5	-	-	-	1	-	17.2	-	-	-	1	-	6.9	-	-	-	1																								
Entrenchment Ratio	-	4.1	-	-	-	1	-	3.4	-	-	-	1	-	3.3	-	-	-	1	-	5.3	-	-	-	1																								
Bank Height Ratio	-	1.0	-	-	-	1	-	1.0	-	-	-	1	-	0.9	-	-	-	1	-	0.9	-	-	-	1																								
Profile																																															
Riffle Length (ft)	4.1	7.2	7.3	11.9	1.8	22																																									
Riffle Slope (ft/ft)	0.000	0.008	0.006	0.021	0.006	22																																									
Pool Length (ft)	1.8	4.6	4.4	8.1	1.8	22																																									
Pool Max Depth (ft)	0.6	1.1	1.1	2.2	0.3	22																																									
Pool Spacing (ft)	8.0	13.9	14.0	19.1	3.2	21																																									
Pattern																																															
Channel Belt Width (ft)	11.5	12.7	12.8	13.8	1.2	3																																									
Radius of Curvature (ft)	4.7	7.0	7.2	9.2	2.3	3																																									
Rc: Bankfull Width (ft/ft)	0.7	1.0	1.0	1.3	0.3	3																																									
Meander Wavelength (ft)	11.5	12.5	12.1	13.8	1.2	3																																									
Meander Width Ratio	1.7	1.8	1.9	2.0	0.1	3																																									
Additional Reach Parameters																																															
Rosgen Classification	B4																																														
*Channel Thalweg Length (ft)	325																																														
Sinuosity (ft)	1.05																																														
Water Surface Slope (Channel) (ft/ft)	0.013																																														
Bankfull Slope (ft/ft)	0.014																																														
Ri% / Ru% / P% / G% / S%	52%	0%	33%	10%	5%																																									

* Channel Thalweg Length (ft): Based on actual thalweg calculations from the as-built survey, accounts for breaks in conservation easement and utility right-of-ways.

- Information Unavailable

N/A - Information does not apply.

Ri = Riffle / Ru = Run / P = Pool / G = Glide / S = Step

Appendix E
Hydrologic Data

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Monitoring Gauge	Performance Standard: 12 % WETS Station: Asheville 13S Growing Season: 4/9 to 10/26 (201 days) Max. Consecutive Hydroperiod (%) and number of consecutive days (n)															
	Pre MY-1 (2020)		MY-1 (2020)		MY-2 (2021)		MY-3 (2022)		MY-4 (2024)		MY-5 (2025)		MY-6 (2026)		MY-7 (2027)	
	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n
MW-1	-	-	4	9	4	9	-	-	-	-	-	-	-	-	-	-
MW-2	-	-	4	9	3	7	-	-	-	-	-	-	-	-	-	-
MW-3	-	-	5	11	7	14	-	-	-	-	-	-	-	-	-	-
MW-4	-	-	6	13	5	10	-	-	-	-	-	-	-	-	-	-
MW-5	-	-	6	13	11	23	-	-	-	-	-	-	-	-	-	-
MW-6	-	-	4	9	11	22	-	-	-	-	-	-	-	-	-	-
MW-7	-	-	2	4	4	9	-	-	-	-	-	-	-	-	-	-
MW-8	-	-	6	13	10	21	-	-	-	-	-	-	-	-	-	-
MW-9	-	-	12	24	15	31	-	-	-	-	-	-	-	-	-	-
MW-10	-	-	11	23	11	22	-	-	-	-	-	-	-	-	-	-
MW-11	-	-	3	6	3	7	-	-	-	-	-	-	-	-	-	-

* Performace standard for groundwater gauges was calculated at 12 percent (24 days). Percent deviation is based upon this duration (2.4 days)

Exceeds requirements by 10%

Exceeds requirements, but by less than 10%

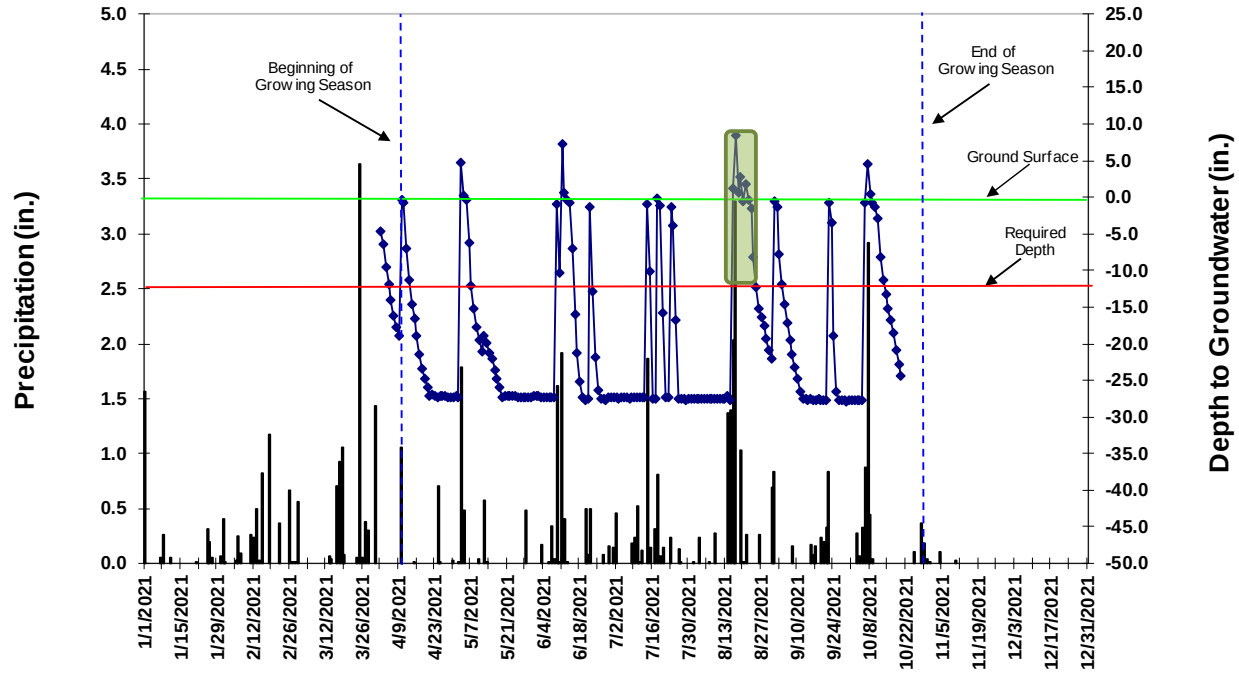
Fails to meet requirements, by less than 10%

Fails to meet requirements by more than 10%

Gauge ID: **MW1**

Total Number of Consecutive Days Water Table within 12 inches of Soil Surface: **9**

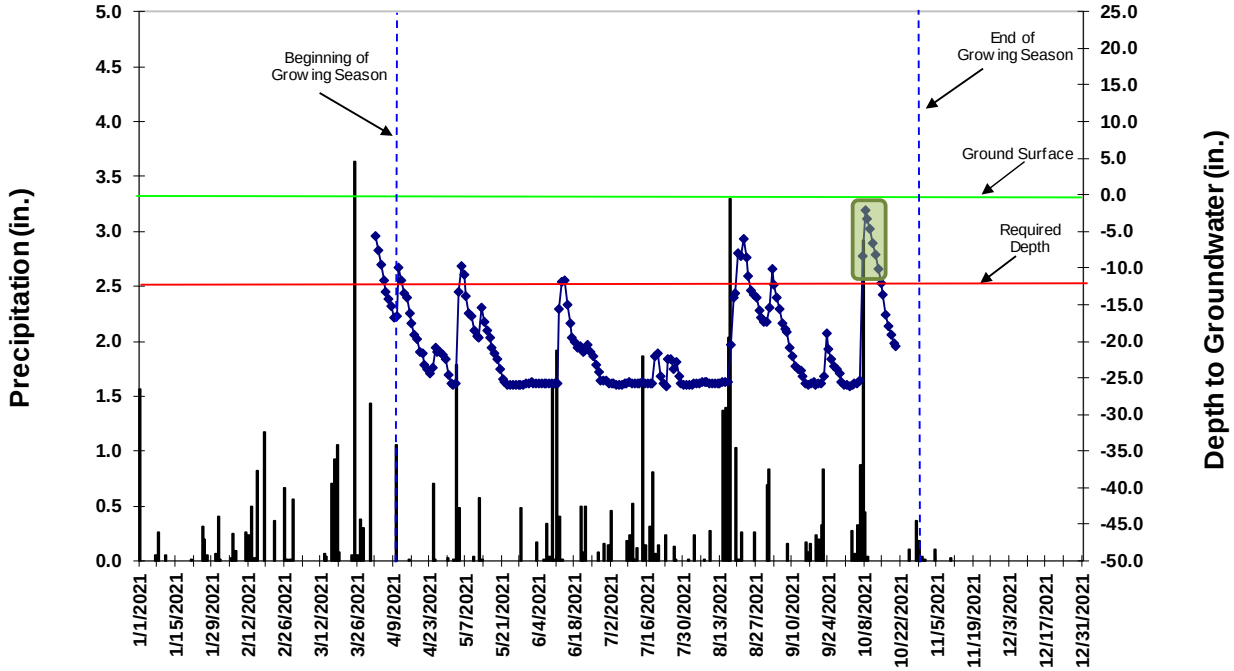
Percentage of Growing Season Water Table within 12 inches of Soil Surface: **4.5%**



Gauge ID: **MW2**

Total Number of Consecutive Days Water Table within 12 inches of Soil Surface: **7**

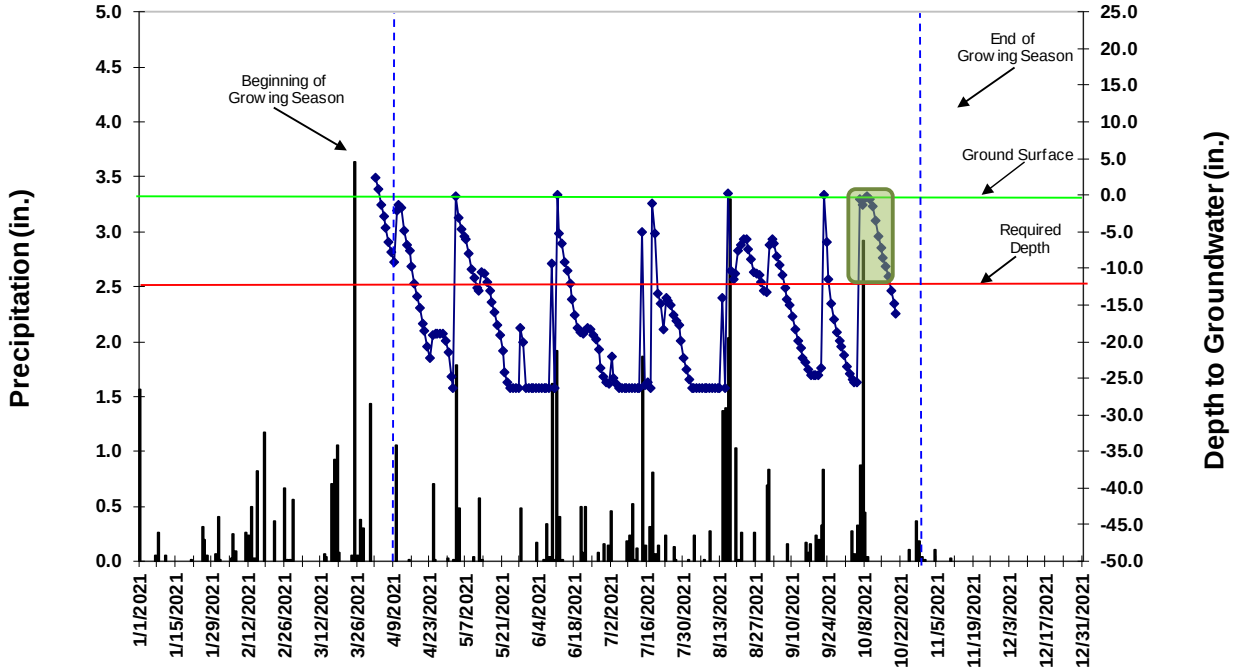
Percentage of Growing Season Water Table within 12 inches of Soil Surface: **3%**



Gauge ID: **MW3**

Total Number of Consecutive Days Water Table within 12 inches of Soil Surface: **14**

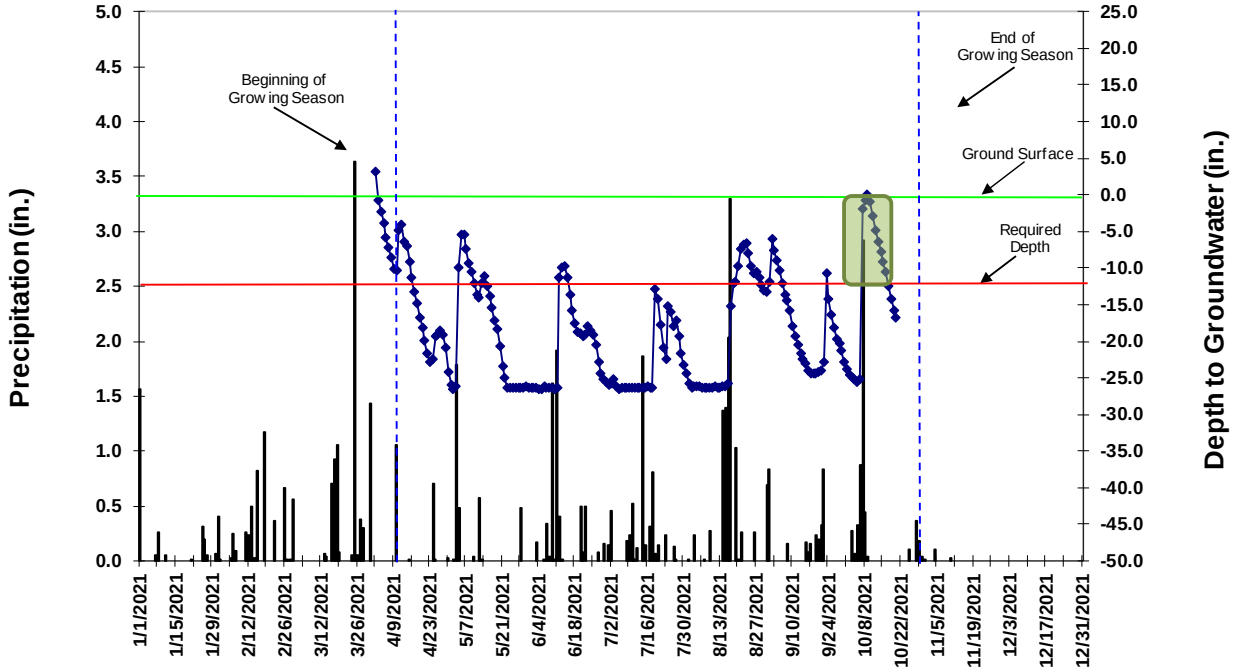
Percentage of Growing Season Water Table within 12 inches of Soil Surface: **7%**



Gauge ID: **MW4**

Total Number of Consecutive Days Water Table within 12 inches of Soil Surface: **10**

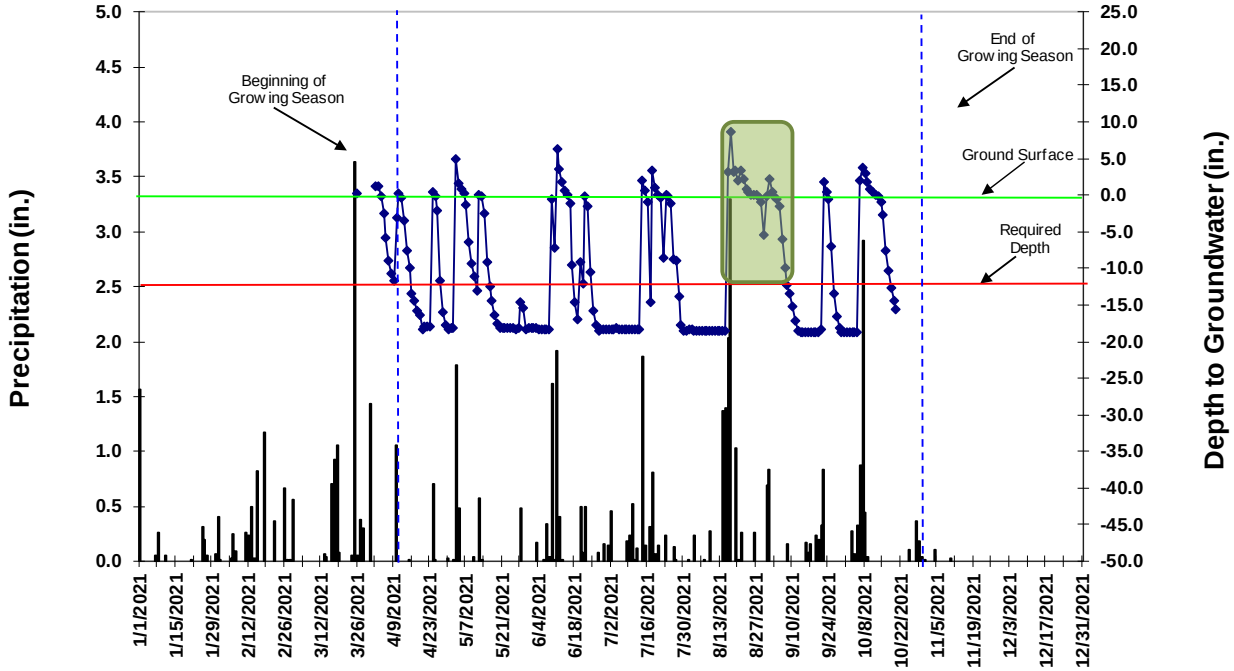
Percentage of Growing Season Water Table within 12 inches of Soil Surface: **5%**



Gauge ID: **MW5**

Total Number of Consecutive Days Water Table within 12 inches of Soil Surface: **23**

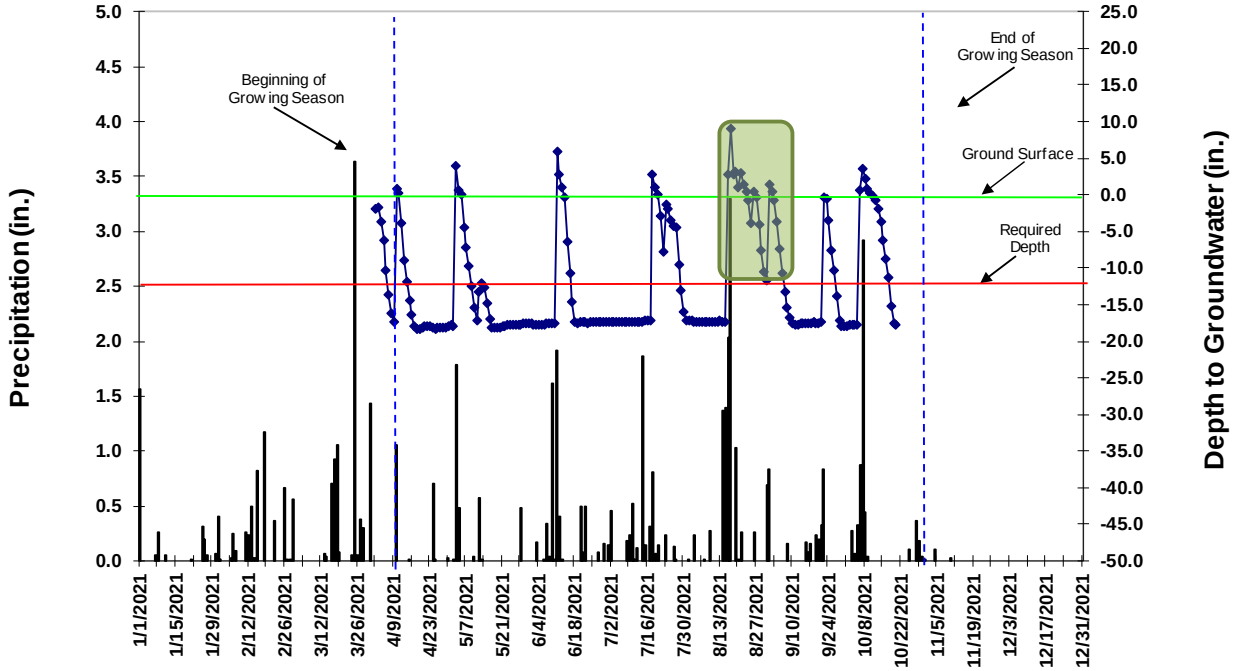
Percentage of Growing Season Water Table within 12 inches of Soil Surface: **11%**



Gauge ID: **MW6**

Total Number of Consecutive Days Water Table within 12 inches of Soil Surface: **22**

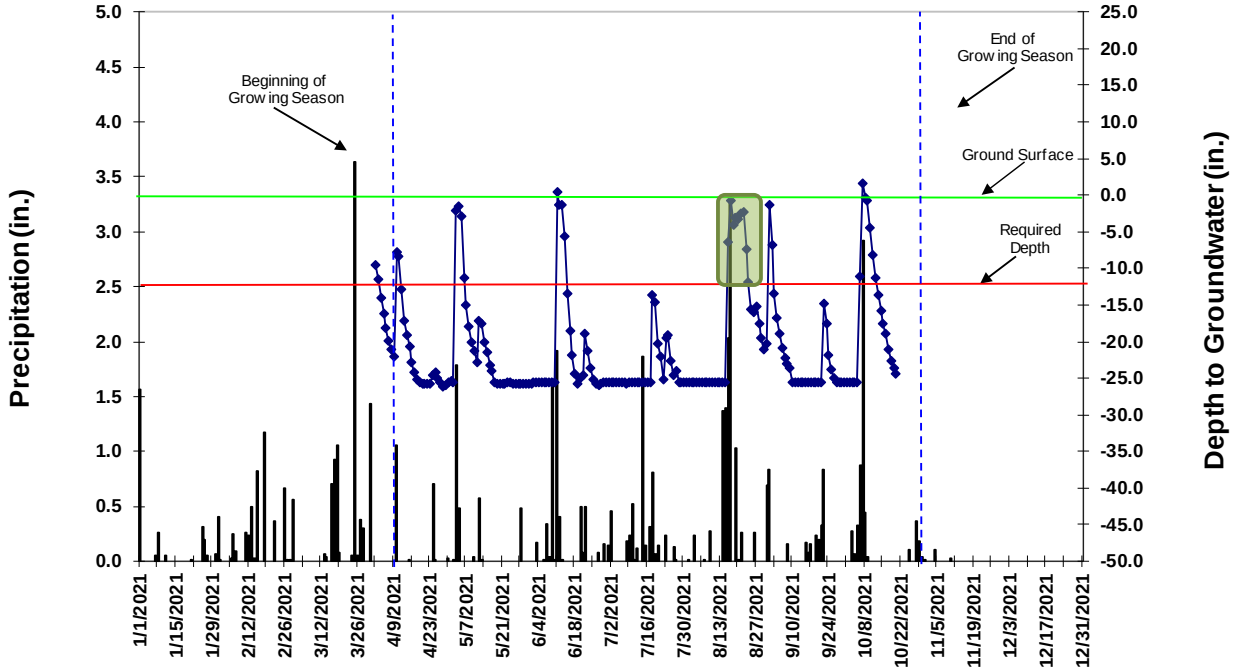
Percentage of Growing Season Water Table within 12 inches of Soil Surface: **11%**



Gauge ID: **MW7**

Total Number of Consecutive Days Water Table within 12 inches of Soil Surface: **9**

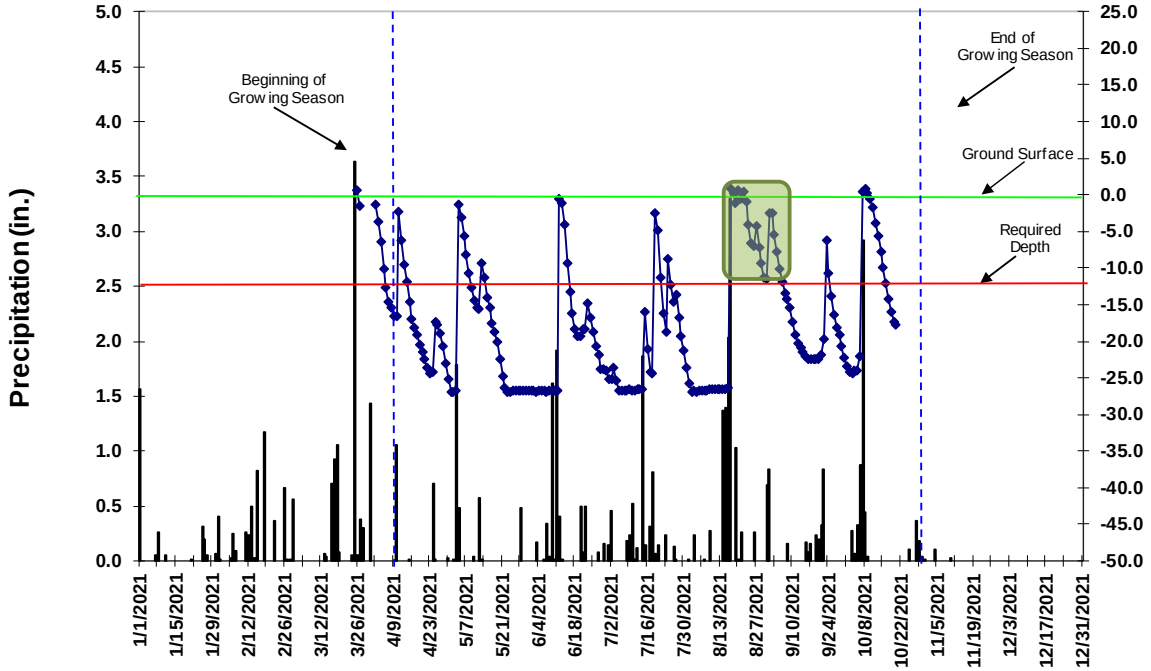
Percentage of Growing Season Water Table within 12 inches of Soil Surface: **4%**



Gauge ID: **MW8**

Total Number of Consecutive Days Water Table within 12 inches of Soil Surface: **21**

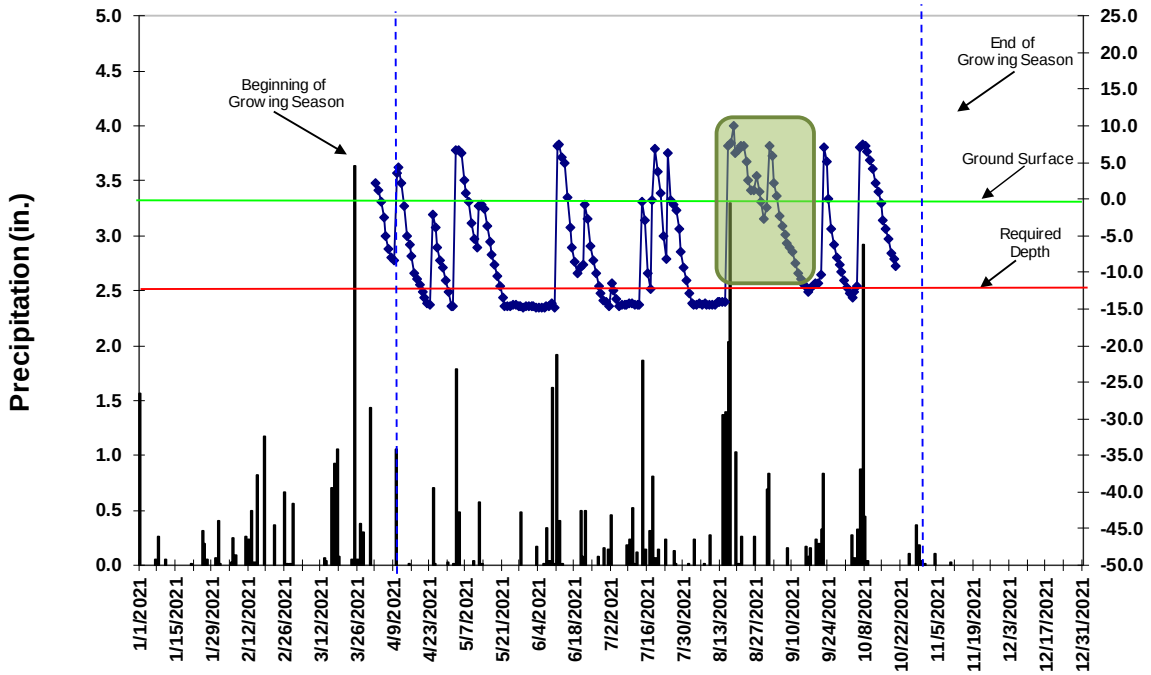
Percentage of Growing Season Water Table within 12 inches of Soil Surface: **10%**



Gauge ID: **MW9**

Total Number of Consecutive Days Water Table within 12 inches of Soil Surface: **31**

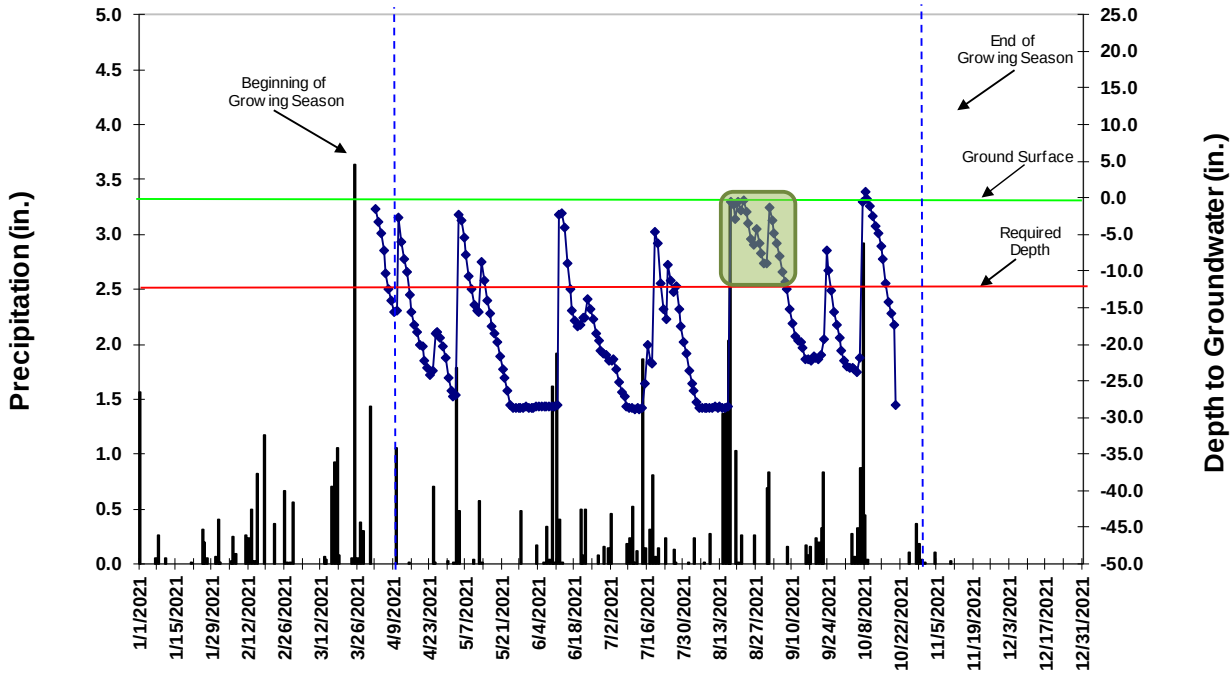
Percentage of Growing Season Water Table within 12 inches of Soil Surface: **15%**



Gauge ID: **MW10**

Total Number of Consecutive Days Water Table within 12 inches of Soil Surface: **22**

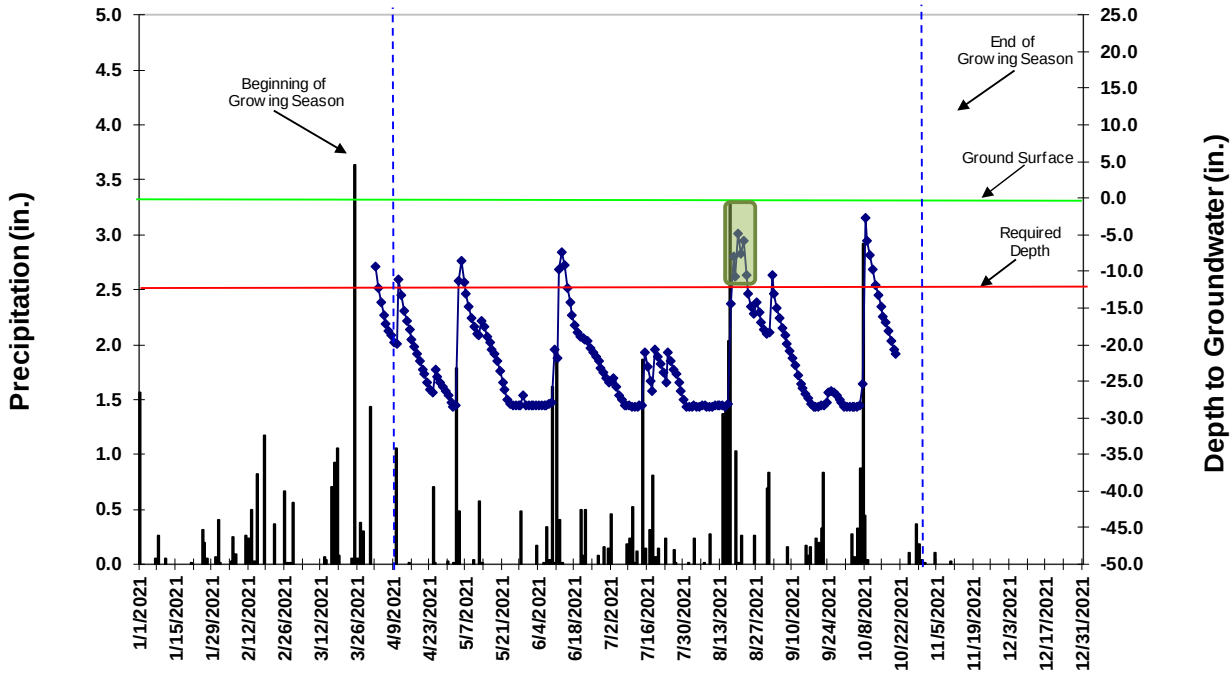
Percentage of Growing Season Water Table within 12 inches of Soil Surface: **11%**

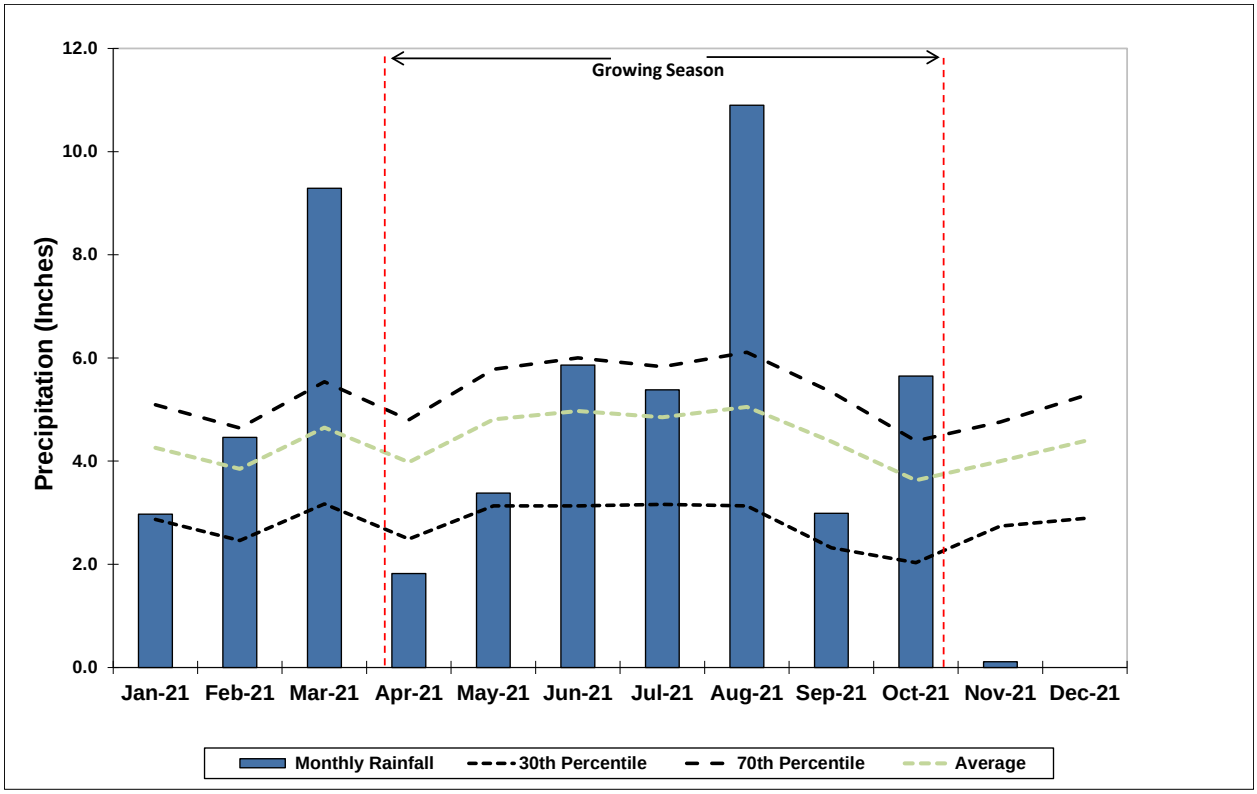


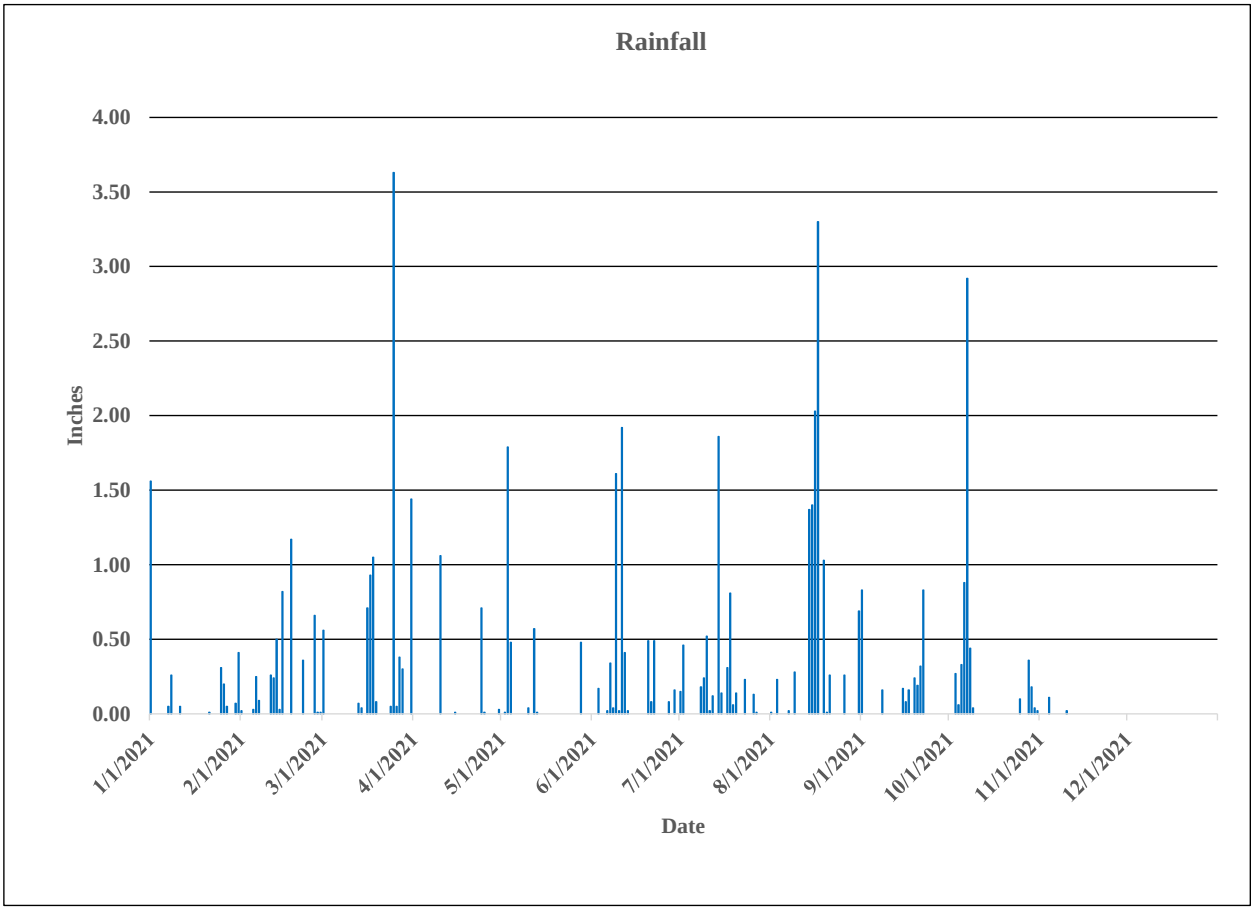
Gauge ID: **MW11**

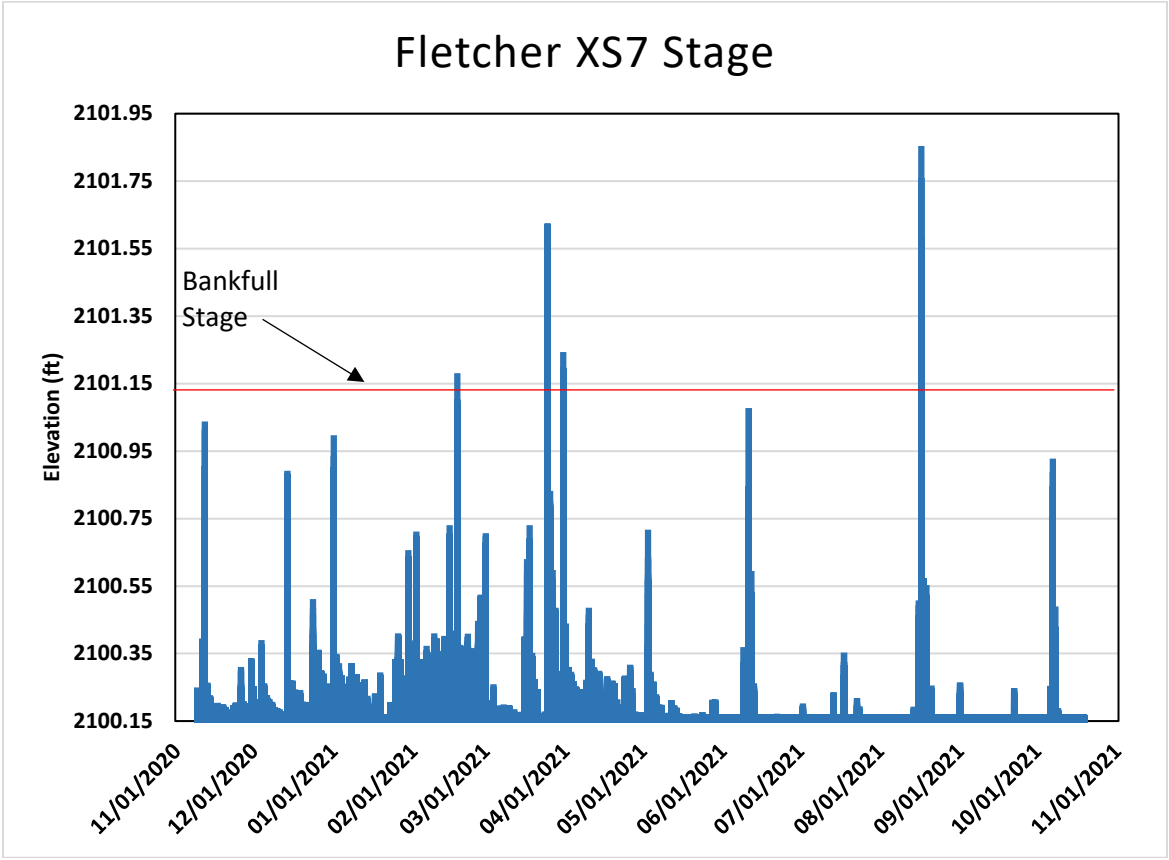
Total Number of Consecutive Days Water Table within 12 inches of Soil Surface: **6**

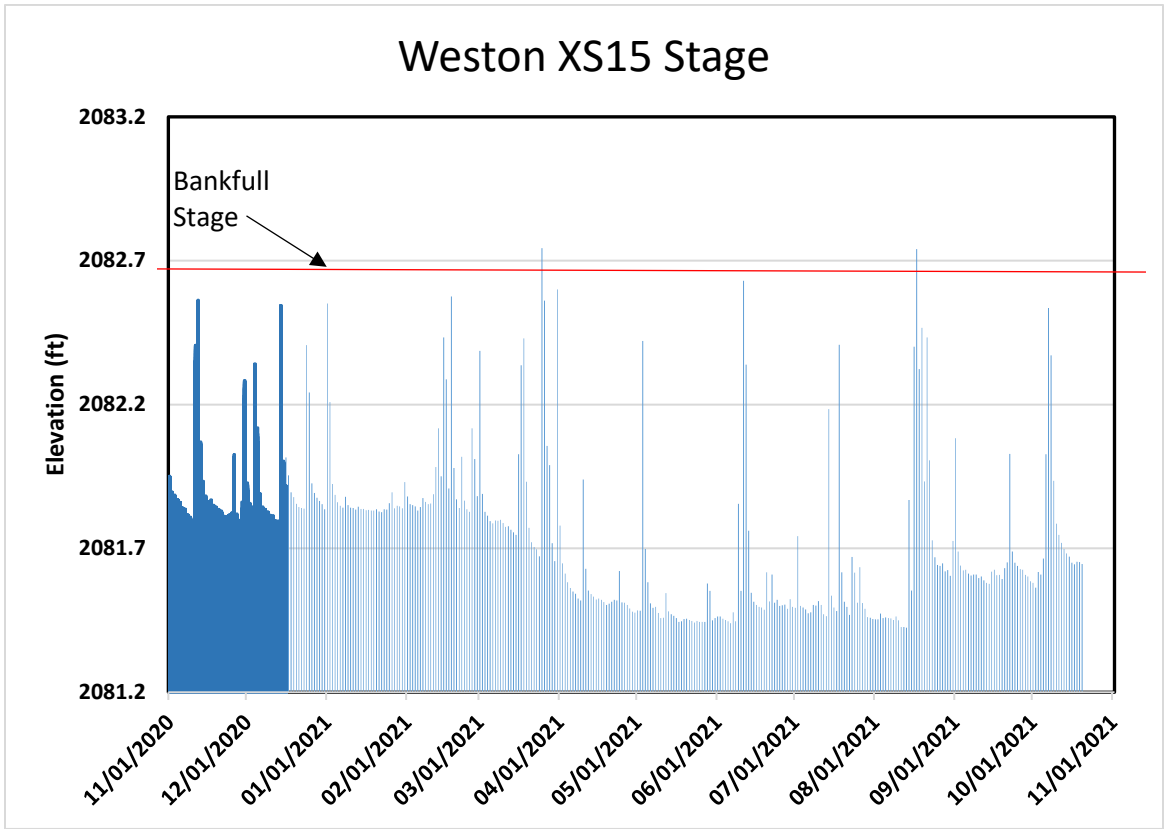
Percentage of Growing Season Water Table within 12 inches of Soil Surface: **3%**

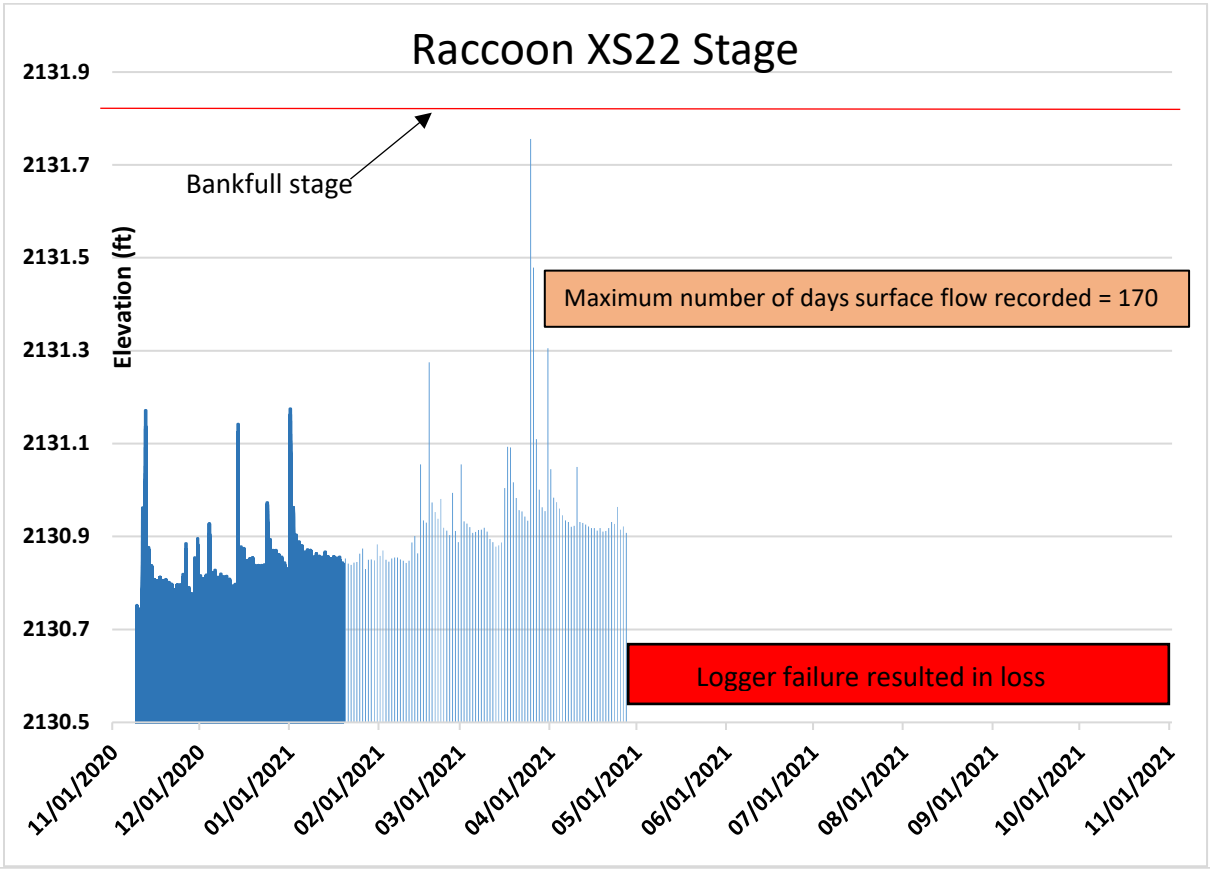



Growing Season
Precipitation (Inches)
12.0
10.0
8.0
6.0
4.0
2.0
0.0
Jan-21
Feb-21
Mar-21
Apr-21
May-21
Jun-21
Jul-21
Aug-21
Sep-21
Oct-21
Nov-21
Dec-21
Monthly Rainfall
30th Percentile
70th Percentile
Average


Rainfall
Inches
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
1/1/2021
2/1/2021
3/1/2021
4/1/2021
5/1/2021
6/1/2021
7/1/2021
8/1/2021
9/1/2021
10/1/2021
11/1/2021
12/1/2021
Date


Fletcher XS7 Stage
Elevation (ft)
2101.95
2101.75
2101.55
2101.35
2101.15
2100.95
2100.75
2100.55
2100.35
2100.15
Bankfull
Stage
11/01/2020
12/01/2020
01/01/2021
02/01/2021
03/01/2021
04/01/2021
05/01/2021
06/01/2021
07/01/2021
08/01/2021
09/01/2021
10/01/2021
11/01/2021


Weston XS15 Stage
Elevation (ft)
2083.2
2082.7
2082.2
2081.7
2081.2
Bankfull
Stage
11/01/2020
12/01/2020
01/01/2021
02/01/2021
03/01/2021
04/01/2021
05/01/2021
06/01/2021
07/01/2021
08/01/2021
09/01/2021
10/01/2021
11/01/2021


Raccoon XS22 Stage
2131.9
2131.7
2131.5
2131.3
2131.1
2130.9
2130.7
2130.5
Elevation (ft)
Bankfull stage
Maximum number of days surface flow recorded = 170
Logger failure resulted in loss
11/01/2020
12/01/2020
01/01/2021
02/01/2021
03/01/2021
04/01/2021
05/01/2021
06/01/2021
07/01/2021
08/01/2021
09/01/2021
10/01/2021
11/01/2021

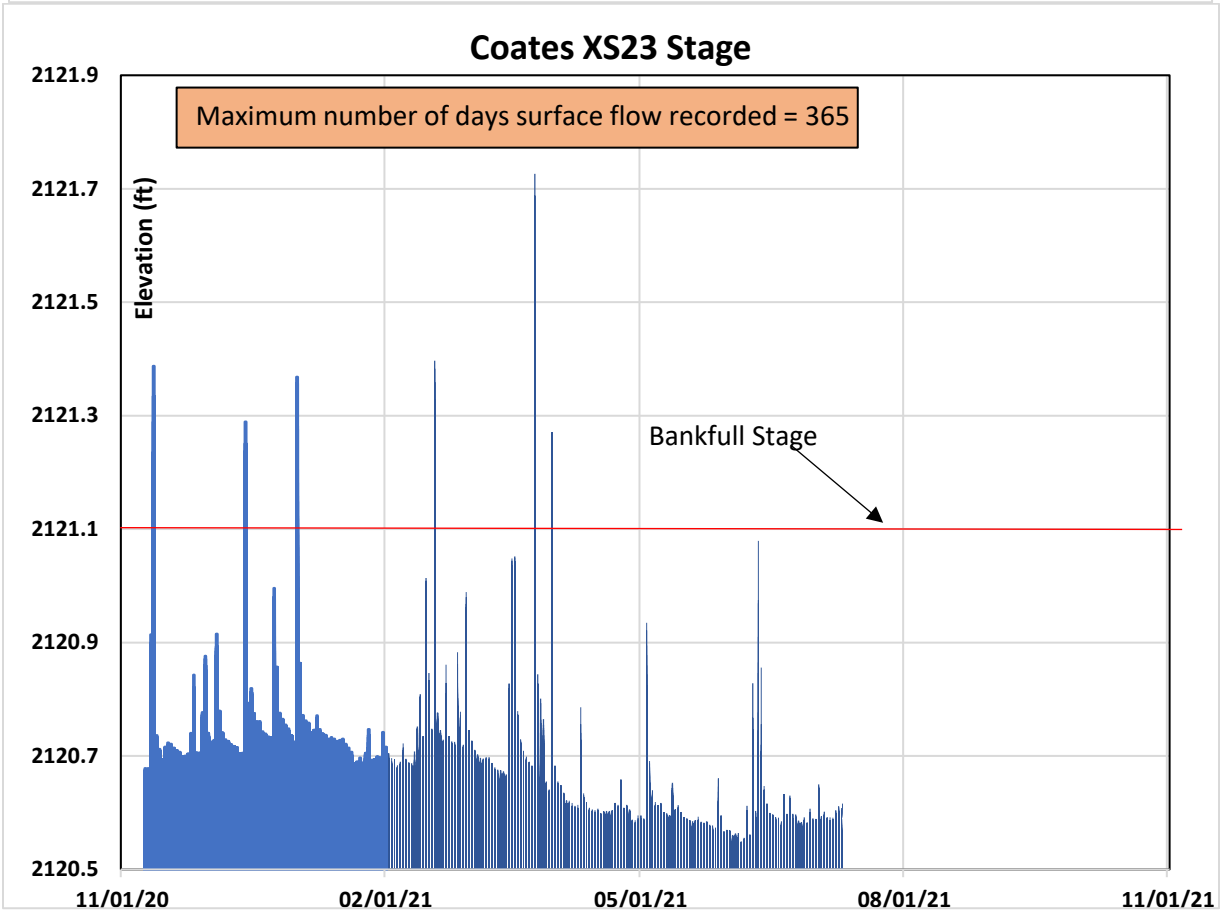

Coates XS23 Stage
2121.9
2121.7
2121.5
2121.3
2121.1
2120.9
2120.7
2120.5
Elevation (ft)
Maximum number of days surface flow recorded = 365
Bankfull Stage
11/01/20
02/01/21
05/01/21
08/01/21
11/01/21

Table 10. Verification of Bankfull Events Fletcher Creek Mitigation Project				
Reach	**Date of Data Collection**	***Date of Occurrence**	**Method**	**Photo # (if available)**
Fletcher Reach 1	8/6/2020	8/6/2020	Stage Recorder	n/a
	8/15/2020	8/15/2020	Stage Recorder	n/a
	10/18/2021	unknown	Crest Gauge	1
Fletcher Reach 2	10/18/2021	unknown	Crest Gauge	2
	10/19/2021	3/25/2021	Stage Recorder	n/a
	10/19/2022	3/31/2021	Stage Recorder	n/a
	10/19/2023	8/17/2021	Stage Recorder	n/a
Coates Branch	4/19/2019	4/19/2019	Stage Recorder	n/a
	2/6/2020	2/6/2020	Stage Recorder	n/a
	4/29/2020	4/29/2020	Stage Recorder	n/a
	8/6/2020	8/6/2020	Stage Recorder	n/a
	8/15/2020	8/15/2020	Stage Recorder	n/a
	10/18/2021	unknown	Crest Gauge	3
	10/19/2021	11/12/2020	Stage Recorder	n/a
	10/19/2021	12/14/2020	Stage Recorder	n/a
	10/19/2021	1/1/2021	Stage Recorder	n/a
	10/19/2021	2/18/2021	Stage Recorder	n/a
	10/19/2021	3/25/2021	Stage Recorder	n/a
	10/19/2021	3/31/2021	Stage Recorder	n/a
	10/19/2021	8/17/2021	Stage Recorder	n/a
	10/19/2021	10/7/2021	Stage Recorder	n/a
Weston Creek Reach 1A	No data collected during 2019 due to Adaptive Management			
	10/15/2021	2/6/2020	Stage Recorder	n/a
	10/15/2021	10/15/2021	Crest Gauge	4
	10/19/2021	3/25/2021	Stage Recorder	n/a
	10/19/2022	8/17/2021	Stage Recorder	n/a

*The dates listed for 2021 were based on precipitation and stage recorder data collected between November 2020 and October 2021

Appendix F
Other Data

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Date	Start / End Time	Certified Applicator #	Site & Target Species	Herbicide	Concentration (%)	Volume Herbicide Concentration Used (oz)	Volume Mixture Used (gal)	Weather (Temp/Wind)	Site Notes
7/15/2021	10:00-15:00	C. Lawson 26-38261	Fletcher (S), MFR, Privet, Bittersweet,	Glypho	4	~36	12	80+/light var	Retreat of ~ 8 acres, Upper Fletcher
10/21/2021	10:00-12:00	C. Lawson 26-38261	Fletcher (N), Kudzu	Clopyrilid	1	2.5	5	70/light var	Spot treatment Kudzu along easement boundary.
10/21/2021	12:00-14:00	C. Lawson 26-38261	Fletcher (S), MFR, Festuca.	Glypho	4	12	4	70/light var	Festuca treatment along fenceline, native vegetation boundary, and around planted and natural stems.

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