

Montana Department of Transportation Stream Mitigation Monitoring Report

ASHLEY CREEK MITIGATION SITE

Project Overview

MDT Project Number: NH-MT 5-3(59) FST / UPN # 2038010

Watershed: Watershed #4 - Flathead

Monitoring Year: 2024

Years Monitored: 9th year of monitoring (2013-2015, 2018-2021, 2023, & 2024)

Corps Permit Number: NWO-2009-01808-MTM

Monitoring Conducted By: Confluence Consulting Inc.

Monitoring Dates: August 12, 2024

Purpose of the approved project:

As part of construction of the U.S. Highway 2 South Kalispell Bypass project, the Montana Department of Transportation (MDT) modified a segment of Ashley Creek at the North Bridge crossing. This project was developed to provide compensatory mitigation for stream impacts associated with the U.S. 93 Alternative widening segment of the Kalispell Bypass. Prior to construction, Ashley Creek had been channelized into a V-shaped drainage with steep side slopes (1.5:1). The purpose of this project was to restore Ashley Creek by widening the channel and recontouring the stream banks to have a more gradual slope where possible.

Site Location:

Upstream Coordinates: 48.19216, -114.337387

Downstream Coordinates: 48.19185, -114.335872

County: Flathead **Nearest Town:** Kalispell

Map Included: Figure 1 Site Location map on page #8.

Mitigation Site Construction Started: 2010

Construction Ended: Phase I - 2010; Phase II - 2017

Dates of any recent corrective or maintenance activities (since previous report):

Activity: Noxious weed control was conducted by MDT contractor **Date:** April 25, 2024

Specific recommendations for additional corrective actions: Adaptive bio-engineering effort were implemented in 2022 to mitigate bank erosion beneath the US Highway 93 - Kalispell Bypass bridge by installing coir wrapped soil lifts to maintain bank integrity. Since 2022 some of these coir wrapped soil lifts are not functioning as designed to maintain bank integrity. The downstream end of the north bank is continuing to slump and is beginning to collapse into the channel. Corrective action is likely necessary to maintain the bank slope and protect the bridge infrastructure. Any future corrective actions to repair these non-functional lifts may require a more aggressive engineered bank stabilization technique that does not rely on vegetative establishment beneath a bridge.

Previous Monitoring Reports and Methods Descriptions:

<https://www.mdt.mt.gov/publications/brochures/stream-mitigation.shtml>

Requirements (from approved mitigation plan, banking instrument, or DA permit conditions)

Monitoring Period: 5 years from the original 2010 construction completion or until concurrence by US Army Corps of Engineers (USACE). Due to adaptive management actions in 2022, the Corps. has required additional monitoring.

Table 1. Summary of Performance Standards

Performance Standards	Success Criteria	Criteria Achieved Y/N	Discussion
Riparian Buffer Establishment	Areas within creditable riparian buffer disturbed during construction must have 50% or greater aerial cover of non-noxious weed species by the end of the monitoring period.	Y	Riparian areas contain an estimated 62% cover from non-noxious species.
	Montana State-listed noxious weeds do not exceed 10% cover.	Y	Riparian buffer areas contain an estimated 5% noxious weeds cover.
Vegetation Success	Combined aerial cover of riparian and stream bank vegetation communities is at least 70%.	N	Combined aerial cover of riparian and stream bank vegetation communities is an estimated 67%. This percentage includes the shaded areas under the expanded bridge.
	Planted trees and shrubs must exhibit 50% survival after 5 years.	Y	This goal was met after the 5 year timeline.
Vegetation along Stream Banks	Majority of plants on the stream bank must have root stability indices of at least 6.	N	Greater than 50% of the stream bank under the bridge was dominated by bare ground, which has a root stability index of 1.
Stream Bank Stability Success	Less than 25% of bank length is unstable and classified as eroding bank.	Y	Total eroding bank length was 201' or 24% of the total bank length in 2024. The downstream 36' of the North Bank under the bridge has collapsed and will need corrective action.
Channel Form Success	Stream has stabilized, includes pool and riffles, allows for flood events to occupy the floodplain, and the habitat features such as riparian plant communities have successfully established along stream banks.	N	The streambed and banks are largely stable in areas outside the shaded bridge areas. Multiple pool and riffle sequences exist within the restored channel reaches. Re-sloping the banks beneath and immediately upstream of the bridge has increased flood capacity. Riparian vegetation continues to establish beyond the bridge footprint but has not established beneath the bridge due to shading and lack of precipitation.

Performance Standards:

Results from the 2024 monitoring event indicate the Ashley Creek stream mitigation site met four of the six quantitative performance standards established in the original monitoring plan (Table 1). Both performance standards for riparian buffer establishment were met, as the buffer has more than 50% cover of non-noxious plant species and total areal cover of noxious weed species is well below 10%. Due to recent adaptive management actions, the site has yet to meet the performance criteria of at least 70% combined areal cover of riparian and stream bank vegetation communities. The success criterion for planted woody vegetation survivorship was met in 2019 and was therefore not calculated in 2024. The site failed to meet vegetated bank stability success criteria due to high amounts of bare ground below the bridge from recent adaptive management actions. Following the bank reconstruction actions in 2022, the site met the bank stability success criteria due to the recovery of the eroding bank upstream of the bridge. While this criteria was also met in 2024, erosion under the bridge has worsened since 2023 as 36 feet of the north bank has fully collapsed at the downstream end. While overall eroding bank length has not increased and is below the success criteria threshold, the condition of the bank treatments beneath the bridge indicate it is unlikely to establish vegetation due to shading and lack of precipitation. The qualitative channel form success criteria was not met in 2024 due to the lack of vegetative establishment under the bridge. It should be noted that although the reach exhibits limited floodplain function, the reconstructed bank slopes and vegetation that has established are an improvement over the severely degraded bank and incised stream channel conditions exhibited along this reach of Ashley Creek prior to construction.

Summary Data***Riparian Buffer Vegetation Inventory***

Total vegetative cover combined across the riparian and stream bank belt transects was estimated at 67%. This includes 17% cover by woody species and 5% cover by noxious weeds (Table 2). Overall, 62% of the reach exhibited non-noxious vegetation cover (67% total riparian cover minus 5% noxious weed cover).

Total cover and noxious weed cover in 2024 remained consistent with the previous monitoring event which occurred in 2023. Revegetation along the south bank upstream of the bridge showed successful establishment by grasses and new willow growth among the plantings previously installed. Total woody cover increased with newly planted willow survival rate estimated at over 80%. Despite the revegetation success upstream of the bridge, total cover remained below the success criteria of 70% due to the amount of bare ground under the bridge. The bridge is approximately 104' wide, and covers 50% and 43% of the south and north belt transects, respectively. Vegetation below the bridge lacks adequate sunlight and precipitation to successfully establish and persist. In 2024, total riparian cover increased slightly due to establishment of Mexican-fireweed on the upstream end of the south bank and both ends of the north bank.

Dominant vegetative species along the riparian transects were combined with visual observations of vegetation in the surrounding area to develop a vegetation community map (Figure 3, Appendix A). The four community types documented since 2018 were again observed

during the 2024 monitoring event, with the addition of a community Type 6. Vegetation communities at the site include: Type 1 (*Phalaris arundinacea*), Type 3 (*Phalaris arundinacea/Elymus* spp.), Type 4 (Bare Ground/*Elymus* spp.), Type 5 (*Cornus alba/Alnus incana*), and Type 6 (*Salix* spp.). The streambanks below the bridge are highly disturbed and dominated by bare ground and early successional species including Mexican-fireweed (*Bassia scoparia*), lamb's quarters (*Chenopodium album*), tall hedge-mustard (*Sisymbrium altissimum*), prickly Russian thistle (*Salsola tragus*), and wild rye (*Elymus* spp.).

Since 2013, 92 plant species have been identified within the project area, and plant diversity has increased by 36 species since the initial monitoring event (Table C-1, Appendix C). Of the species observed in 2024, 46% were hydrophytic based on the 2020 National Wetland Plant List (USACE, 2020).

Table 2. Aerial cover estimates (weighted average) for vegetation at the Ashley Creek Mitigation Site in 2013, 2023, and 2024 within the streambank and riparian transects combined.

Belt Transect	Length (ft)	Total % Riparian Cover			% Bare Ground			% Woody Cover			% Noxious Weed Cover		
		2013	2023	2024	2013	2023	2024	2013	2023	2024	2013	2023	2024
South bank	208	92	64	68	8	32	35	23	20	20	12	4	6
North bank	243	84	65	67	16	35	35	30	14	15	10	3	5
Total	451	88	65	67	12	34	35	26	17	17	11	3	5

Stream Bank Vegetation

Bare ground accounted for greater than 50% cover along the stream-bank vegetation transects, which extend both upstream and downstream of the overpass (Figure 2, Appendix A). Reed canary grass comprised between 21% and 50% cover along the north bank and between 11 and 20% along the south bank (Table D-1, Appendix D). The low vegetation cover is partially due to active bank erosion and limited sunlight beneath the bridge overpass. As most of the stream banks were bare, the dominant stream bank community type was considered “barren”, and the site was assigned a corresponding root stability index value of 1 (Winward 2000).

Woody Plant Survival

Woody plantings, including serviceberry (*Amelancier alnifolia*), choke cherry (*Prunus virginiana*), Woods’ rose (*Rosa woodsii*), common snowberry (*Symphoricarpos albus*), narrow-leaf willow (*Salix exigua*), gray willow (*Salix bebbiana*), Drummond’s willow (*Salix drummondiana*), speckled alder (*Alnus incana*), and red osier dogwood (*Cornus alba*) were observed within the project area in 2024. The success criteria for woody vegetation requires greater than 50% survival after a 5-year monitoring period. This criterion was met in the fifth year of monitoring (2019) and was therefore not quantitatively assessed in 2024.

Noxious Weed Inventory

Four Montana-Listed noxious weed species were identified during the 2024 monitoring event. Noxious weed infestations of a low cover class (1 to 5 percent) or higher were mapped and are displayed on Figure 3 (Appendix A). Noxious weed infestations identified in isolated and trace amounts (<1%) were noted but not mapped. In total, 15 infestations of two Priority 2B noxious

weeds were mapped within the riparian corridor (MDA 2019). These infestations included nine occurrences of Canada thistle (*Cirsium arvense*), five occurrences of common tansy (*Tanacetum vulgare*) and one occurrence of field bindweed (*Convolvulus arvensis*). A low cover class was assigned to each mapped weed infestation within the project area. An estimated 5% of the project area has been colonized by noxious weeds, with Canada thistle as the most prevalent in 2024. Weed treatments will continue in 2025 between MDT contractors and the City of Kalispell.

Bank Erosion Inventory

Bank erosion has been consistently reported in previous monitoring reports and MDT took adaptive management actions to address the eroding banks beneath the highway bridge in 2022. The following section provides an updated bank erosion inventory and describes current bank conditions as observed in 2024. Photos of observed bank conditions are included in Appendix B and corresponding locations are provided in Appendix A. Descriptions of bank erosion observed during previous monitoring events can be found online at:

<https://www.mdt.mt.gov/publications/brochures/stream-mitigation.aspx>

For the purposes of this report an "eroding bank" is defined as any bank greater than two feet in length that is more than 50% bare mineral soil, has little to no root mass, surface vegetation, or other stabilizing structure (e.g. rock, woody debris) to inhibit erosion.

The total eroding bank length within project reach did not change between 2023 and 2024 and remains at 24% of the total bank length. While the success criteria for bank erosion (<25%) was again met, erosion beneath the bridge has worsened with 36' of the north bank collapsing as a result of failing coir-wrapped soil lifts and a lack of vegetative establishment to stabilize those soils. Environmental constraints stemming from the bridge including permanent shading and cover from precipitation are preventing successful vegetative establishment and contributing to the bank erosion occurring beneath it.

In contrast to the eroding banks beneath the bridge, the south bank that was stabilized in 2022 (ERB1) has continued to vegetate and exhibited increased stability in 2024. While pedestrian access to Ashley Creek within the US-93 Bridge area is still prevalent, the exclusionary fencing appears to be discouraging foot traffic and is contributes to the vegetative establishment.

Channel Form

Annual surveys of the Ashley Creek longitudinal profile indicate the channel form is generally stable, and both pool and riffle features are being maintained over time (Appendix E). The reach supports three pools, each of which are separated by a distinct riffle. These pool-riffle sequences provide adequate slow water habitat for fish and faster-moving shallow water habitat for insect production. Two of the pools (transects #1 & #2) are 0.8-1foot shallower than in 2021. The four cross-sectional transects indicate lateral movement of Ashley Creek is minimal and maximum depths have remained consistent. Riparian vegetative communities have become well established with the exception of the area beneath and immediately adjacent to the US-93 Kalispell Bypass Bridge. The riparian transects include areas under the bridge devoid of riparian vegetation; therefore, the qualitative criteria for channel form relative to riparian vegetation establishment was not met.

Table 3. Maximum bankfull depths and bankfull widths at cross-section transects 2013-2015, 2020, 2021, 2023 and 2024.

Transect	Type	Maximum Depth (ft)							Bankfull Width (ft)						
		2013	2014	2015	2020	2021	2023	2024	2013	2014	2015	2020	2021	2023	2024
1	Pool	**	9.9	10.1	9.0	9.0	8.0	8.1	43.8	43.6	45.1	42.9	43.3	42.4	45.8
2	Pool	**	8.2	7.9	7.3	7.5	6.5	6.7	29.0	30.8	31.0	26.9	27.2	27.2	26.9
3	Riffle	2.6	2.8	2.8	2.9	2.9	3.0	2.7	26.3	26.3	27.0	25.0	23.6	25.9	25.8
4	Riffle	3	2.7	2.6	2.4	2.7	2.5	2.7	30.0	29.5	28.5	27.5	25.8	26.3	27.0
Average Riffles		2.8	2.8	2.7	2.7	2.8	2.8	2.7	28.2	27.9	27.8	26.3	24.7	26.1	26.4
Average Pools		N/A	9.1	9.0	8.2	8.2	7.3	7.4	36.4	37.2	38.1	34.9	35.3	34.8	36.3

** Maximum pool depths not surveyed in 2013

Conclusions

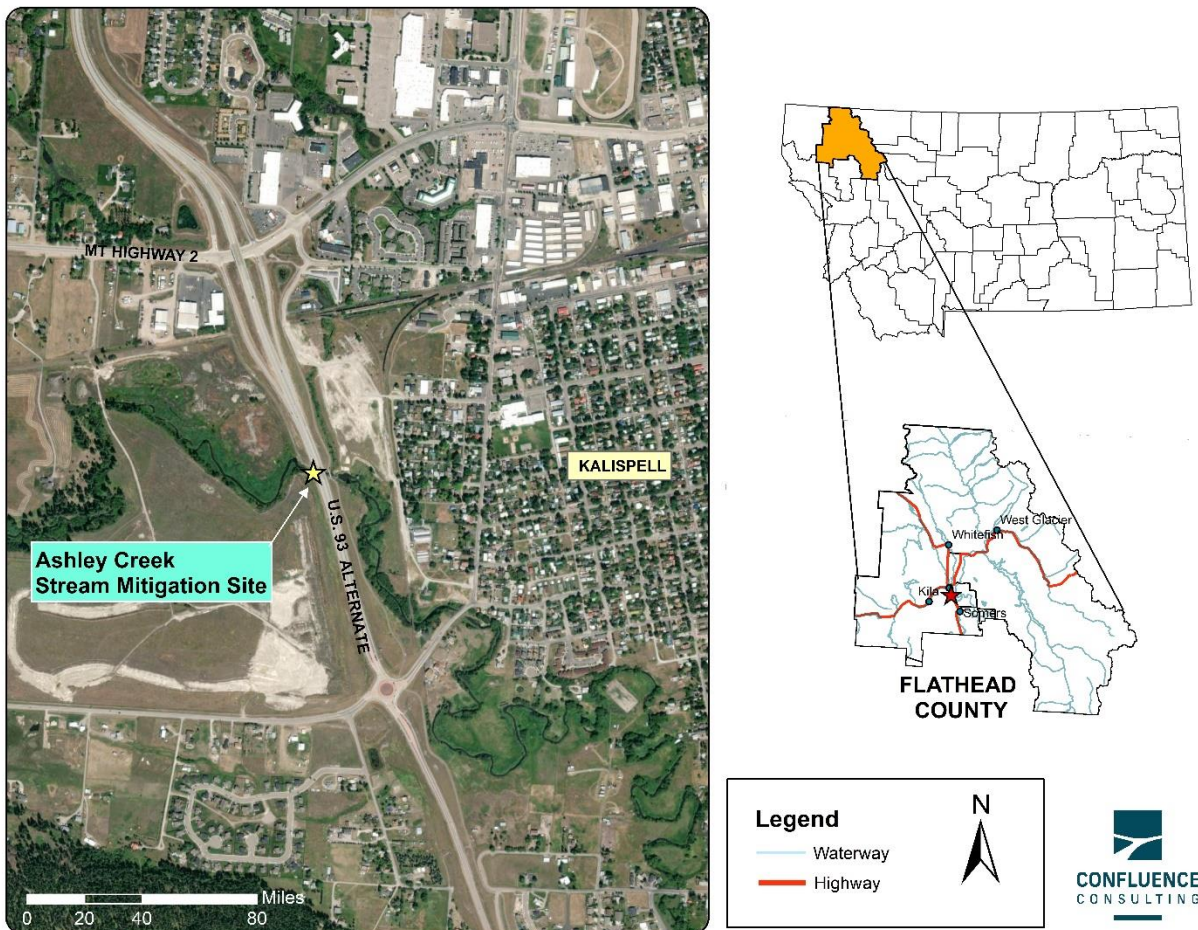
In 2024, the Ashley Creek mitigation site met four of the six quantitative performance standards. The site met or exceeded the performance criteria for non-noxious vegetative cover, noxious weed cover, planted woody vegetation survival, and streambank stability.

The site did not meet success criteria for stream bank vegetation communities, root stability, and channel form success. Combined aerial cover of riparian and stream bank vegetation fell 3% short of the 70% cover threshold as the transects largely occur under the bridge which precludes plant growth. Areas that are not beneath the bridge exhibit well-established vegetation. The stream bank vegetation community also failed to meet the required root stability index threshold of 6 due to the prevalence of bare ground along the transects beneath the bridge. Lastly, the site did not meet the qualitative performance criterion for channel form due to the limited floodplain function and lack of riparian vegetation establishment along the recently reconstructed banks.

In summary, the performance standard failures at the Ashley Creek mitigation site are associated with physical and environmental constraints caused by bridge infrastructure. The 100-foot-wide bridge covers 48% (220 of 460 feet) of the riparian transects and prohibits vegetation establishment by intercepting direct sunlight making the area devoid of vegetation. Moreover, while bank erosion extents are meeting performance targets, the lack of vegetation and use of soils lifts beneath the bridge has resulted in systematic bank instability issues.

Maps, Plans, Photos:

Figure 1. Site Location Map



Project Area Maps/Figures: See Appendix A (Figure 2 – Monitoring Features, Figure 3 – Noxious Weeds and Vegetation Communities).

Photos: See Appendix B (Monitoring Photo and Survey Photo Logs).

Comprehensive Plant List: See Appendix C (Table C-1).

Stream Bank Vegetation Composition: See Appendix D (Table D-1).

Perpendicular Transect and Longitudinal Profile Plots: See Appendix E.

Plans: See Appendix E of the 2013 Monitoring Report.

<https://www.mdt.mt.gov/publications/brochures/stream-mitigation.aspx>

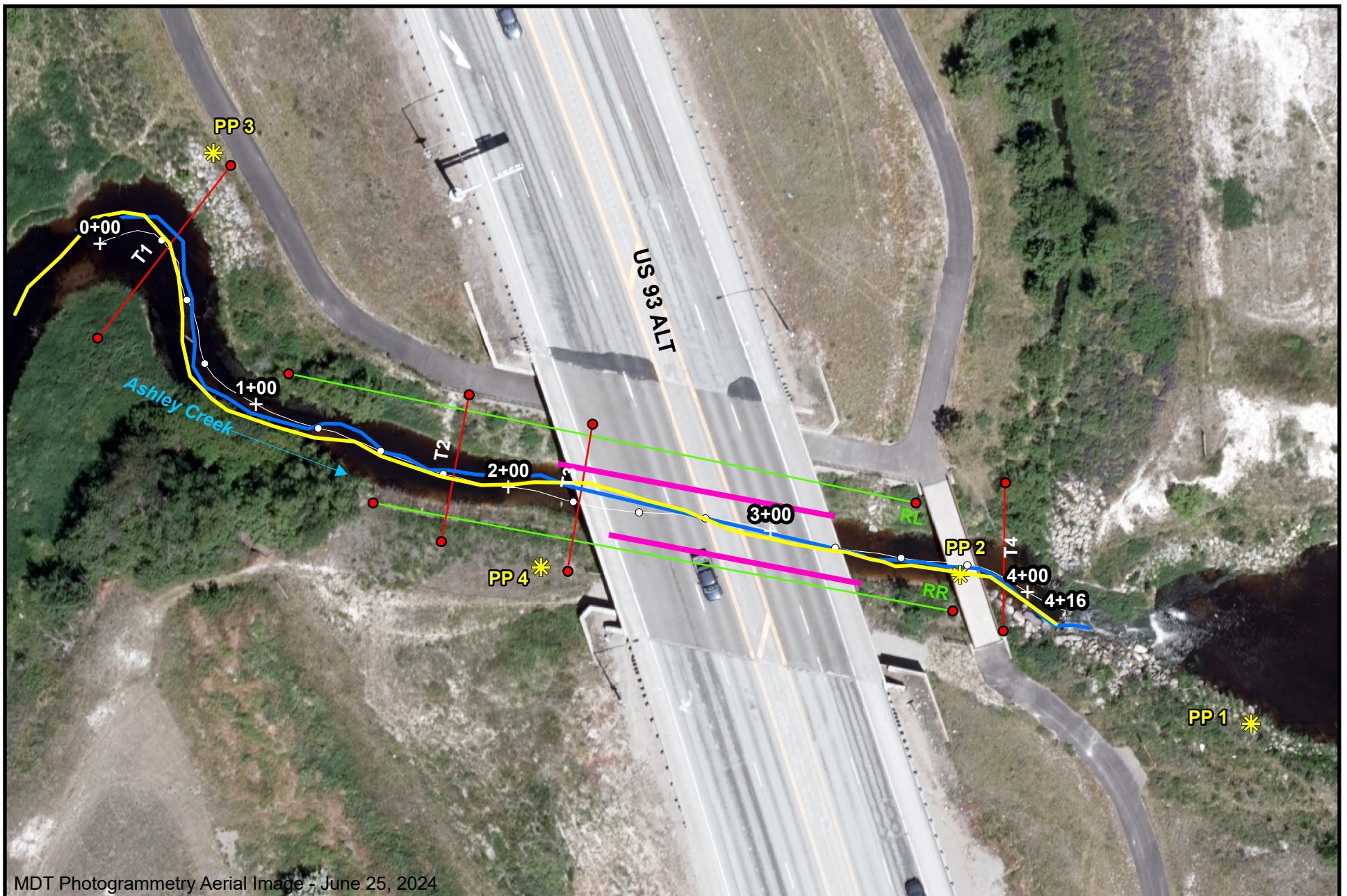
References

- Montana Department of Agriculture (MDA).** June 2019. *Montana Noxious Weed List*. Accessed December 2024 at: <https://agr.mt.gov/docs/weeds-docs/2019-Montana-Noxious-Weed-List.pdf>
- National Drought Mitigation Center (NDMC).** 2021. *U.S. Drought Monitor – Montana*. Accessed December 2021 at <https://droughtmonitor.unl.edu/Maps/MapArchive.aspx>
- U.S. Army Corps of Engineers (USACE).** 2020. *National Wetland Plant List* (Version 3.2), prepared by U.S. Army Corps of Engineers, U.S. Army Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH
- Winward, Alma H.** 2000. *Monitoring the Vegetation Resources in Riparian Areas*. Gen. Tech. Rep. RMRS-GTR-47. Ogden, UT: U.S. Department of Agriculture, Rocky Mountain Research Station.

APPENDIX A

PROJECT AREA MAPS

MDT Streams Mitigation Monitoring
Ashley Creek
Flathead County, Montana

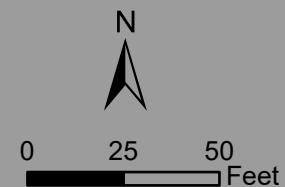


MDT Photogrammetry Aerial Image - June 25, 2024



Legend

- ★ Photo Points
- Design Channel Center
- + Major Station (100')
- Minor Station (25')
- 2024 Thalweg
- 2021 Thalweg
- Eroding Banks
- Pool and Riffle Transects
- Riparian Transects

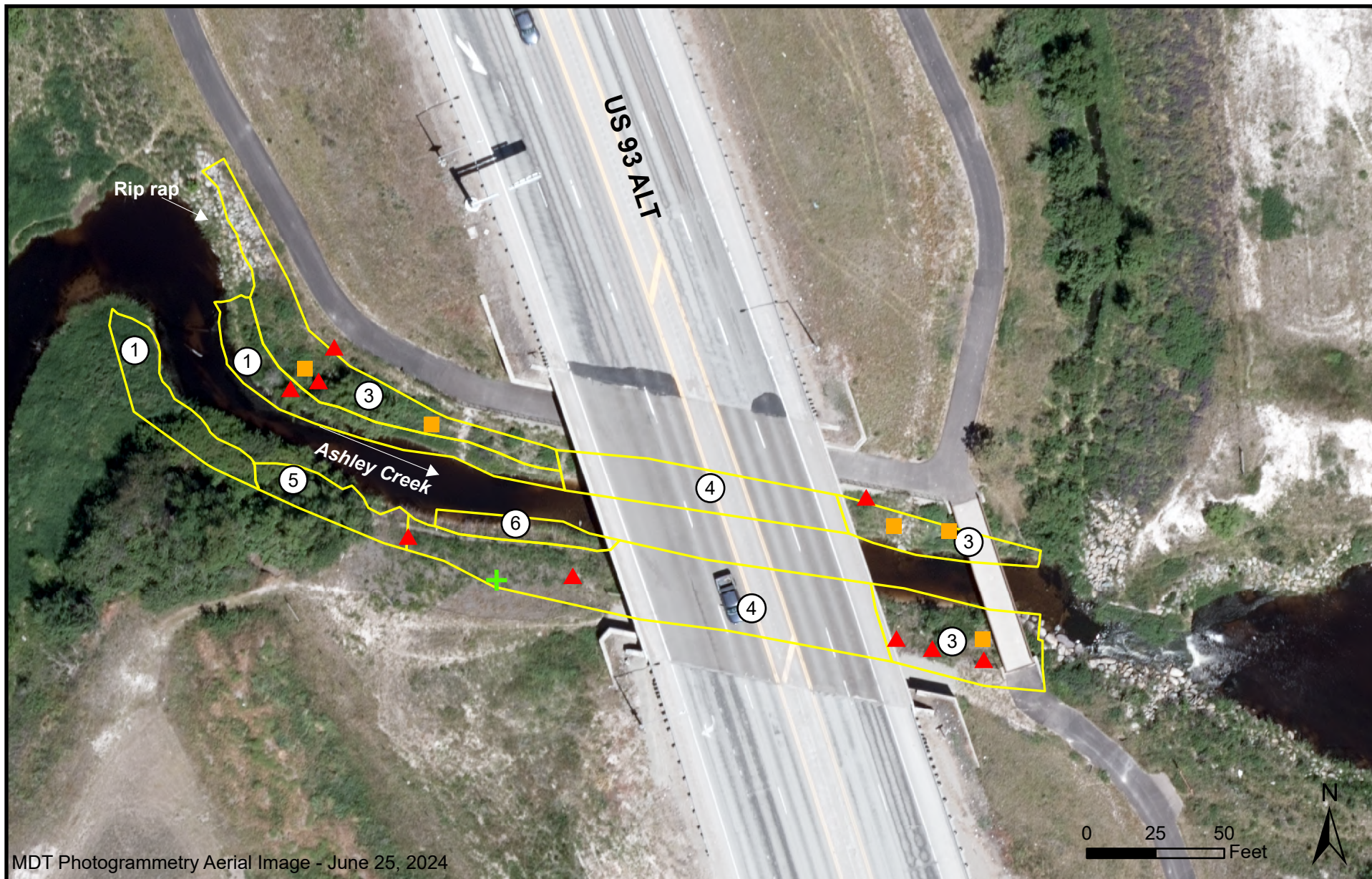


Ashley Creek - 2024 Monitoring Features

Figure 2

Date: 12/06/2024

Ashley_features2024.mxd



Legend

Vegetation Community Boundary

Noxious Weeds

▲ *Cirsium arvense* ■ *Tanacetum vulgare*
+ *Convolvulus arvensis*

Vegetation Community

① Phalaris Community
 ③ Phalaris/Elymus Community
 ④ Bare Ground/Elymus Community
 ⑤ Cornus/Alnus Community
 ⑥ Salix Community

Ashley Creek - 2024 Noxious Weeds and Vegetation Communities

Figure 3

Date: 12/09/2024

Ashley_monitor2024.mxd

APPENDIX B

PROJECT AREA PHOTOGRAPHS

MDT Streams Mitigation Monitoring
Ashley Creek
Flathead County, Montana

MONITORING PHOTO LOG

SITE NAME: Ashley Creek
MONITORING YEARS: 2013 and 2024



2013



2024

Photo Point 1: View of grade control structure downstream of project area. **Compass:** 315° (Northwest)



2013



2024

Photo Point 2: View looking upstream from pedestrian bridge. **Compass:** 315° (Northwest)



2013



2024

Photo Point 3 (3.1): View looking south at upstream end of project site. **Compass:** 180° (South)

MONITORING PHOTO LOG

SITE NAME: Ashley Creek

MONITORING YEARS: 2013 and 2024



2013



2024

Photo Point 3 (3.2): View looking at upstream end of project site. **Compass:** 225° (Southwest)



2013



2024

Photo Point 4 (4.1): View looking downstream from south bank. **Compass** 90° (East)



2013



2024

Photo Point 4 (4.2): View of channel looking upstream from south bank. **Compass** 315° (Northwest)

MONITORING PHOTO LOG

SITE NAME: Ashley Creek

MONITORING YEARS: 2013 and 2024



2013



2024

Additional Photo 1: View of Ashley/Spring Creek confluence.



2013 (before)



2024 (after)

Additional Photo 2: South bank upstream of the US 93-Kalispell Bypass Bridge before and after the 2022 repair.



2018



2024

Additional Photo 3: Upstream end of eroding south bank under the US 93-Kalispell Bypass bridge.

MONITORING PHOTO LOG

SITE NAME: Ashley Creek

MONITORING YEARS: 2013 and 2024



2013



2024

Additional Photo 4: Downstream end of the eroding south bank under the US 93-Kalispell Bypass Bridge.



2014



2024

Additional Photo 5: Stabilized culvert outlet on the upstream end of the project area. This culvert may have been jeopardized by fence post placement, which appears to be washing out. See additional Photo 7.



2013



2024

Additional Photo 6: Eroding north bank under the US 93 – Kalispell Bypass bridge.

MONITORING PHOTO LOG

SITE NAME: Ashley Creek

MONITORING YEARS: 2013 and 2024



August 2023

Additional Photo 7: Looking at the culvert shown in additional photo 5 from above. The area around the fence post footers is eroding.



August 2024

Additional Photo 8: Close-up of the downstream end of the north bank repair showing cracks and slumping.



August 2023

Additional Photo 9: Photo of the north bank in 2023.



August 2024

Additional Photo 10: Photo of the north bank during the 2024 monitoring event. The downstream extent has collapsed and is failing.



May 2023

Additional Photo 11: Repaired south bank upstream of the bridge.



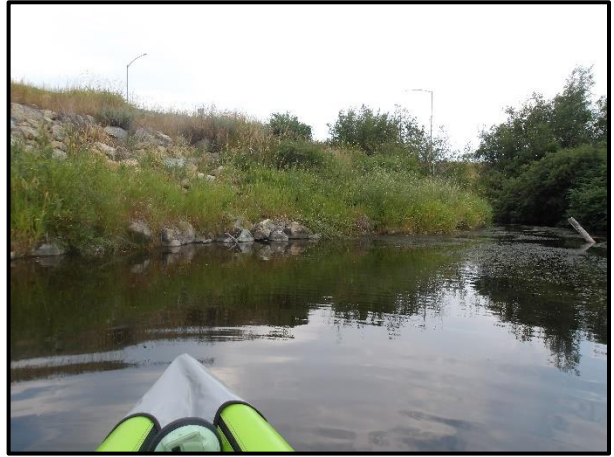
August 2024

SURVEY PHOTO LOG

SITE NAME: Ashley Creek
MONITORING YEAR: 2024



Survey Photo 1: T1: Looking Upstream.



Survey Photo 2: T1: Looking Downstream.



Survey Photo 3: T1: Looking Upstream (northwest).



Survey Photo 4: T1: Looking Downstream (southwest).



Survey Photo 5: T1: Looking Upstream (north).



Survey Photo 6: T1: Looking Downstream (east).

SURVEY PHOTO LOG

SITE NAME: Ashley Creek
MONITORING YEAR: 2024



Survey Photo 7: T2: Looking Upstream.



Survey Photo 8: T2: Looking Downstream.



Survey Photo 9: T2: Looking Upstream (west).



Survey Photo 10: T2: Looking Downstream (east).



Survey Photo 11: T2: Looking Upstream (northwest).



Survey Photo 12: T2: Looking Downstream (east).

SURVEY PHOTO LOG

SITE NAME: Ashley Creek
MONITORING YEAR: 2024



Survey Photo 13: T3: Looking Upstream.



Survey Photo 14: T3: Looking Downstream.



Survey Photo 15: T3: Looking Upstream (west).



Survey Photo 16: T3: Looking Downstream (east).



Survey Photo 17: T3: Looking Upstream (northwest).



Survey Photo 18: T3: Looking Downstream(north).

SURVEY PHOTO LOG

SITE NAME: Ashley Creek
MONITORING YEAR: 2024



Survey Photo 19: T4: Looking Upstream.



Survey Photo 20: T4: Looking Downstream.



Survey Photo 21: T4: Looking Upstream (west).



Survey Photo 22: T4: Looking Downstream (south).



Survey Photo 23: T4: Looking Upstream (north).



Survey Photo 24: T4: Looking Downstream (east).

APPENDIX C

2013 – 2024 COMPREHENSIVE PLANT SPECIES LIST

MDT Streams Mitigation Monitoring
Ashley Creek
Flathead County, Montana

Table C-1. Comprehensive list of plant species observed at the Ashley Creek Stream Mitigation Site from 2013 through 2015, 2018 through 2021, 2023, and 2024.

Scientific Name	Common Name	WMVC Indicator Status*
<i>Agropyron</i> sp.	Wheatgrass	N/A
<i>Agrostis gigantea</i>	Black Bent	FAC
<i>Agrostis stolonifera</i>	Spreading Bent	FAC
<i>Alnus incana</i>	Speckled Alder	FACW
<i>Alopecurus pratensis</i>	Field Meadow-Foxtail	FAC
<i>Amelanchier alnifolia</i>	Saskatoon Service-Berry	FACU
<i>Artemisia absinthium</i>	Absinthium	UPL
<i>Artemisia biennis</i>	Biennial Wormwood	FACW
<i>Asperugo procumbens</i>	German-Madwort	UPL
<i>Avena fatua</i>	Wild Oats	UPL
<i>Bassia scoparia</i>	Mexican-Fireweed	FAC
<i>Beckmannia syzigachne</i>	American Slough Grass	OBL
<i>Betula pumila</i>	Bog Birch	OBL
<i>Bromus carinatus</i>	California Brome	UPL
<i>Bromus inermis</i>	Smooth Brome	UPL
<i>Bromus tectorum</i>	Cheatgrass	UPL
<i>Carex stipata</i>	Stalk-Grain Sedge	OBL
<i>Centaurea stoebe</i>	Spotted Knapweed	UPL
<i>Chenopodium album</i>	Lamb's-Quarters	FACU
<i>Cirsium arvense</i>	Canadian Thistle	FAC
<i>Cirsium vulgare</i>	Bull Thistle	FACU
<i>Clematis ligusticifolia</i>	Deciduous Traveler's Joy	FAC
<i>Convolvulus arvensis</i>	Field Bindweed	UPL
<i>Cornus alba</i>	Red Osier	FACW
<i>Cynoglossum officinale</i>	Gypsy-Flower	FACU
<i>Descurainia sophia</i>	Herb Sophia	UPL
<i>Elodea canadensis</i>	Canadian Waterweed	OBL
<i>Elymus canadensis</i>	Nodding Wild Rye	FAC
<i>Elymus hispidus</i>	Intermediate Wheatgrass	UPL
<i>Elymus repens</i>	Creeping Wild Rye	FAC
<i>Elymus trachycaulus</i>	Slender Wild Rye	FAC
<i>Epilobium brachycarpum</i>	Panicled Willowherb	UPL
<i>Epilobium ciliatum</i>	Fringed Willowherb	FACW
<i>Equisetum arvense</i>	Field Horsetail	FAC
<i>Equisetum hyemale</i>	Tall Scouring-Rush	FACW
<i>Festuca idahoensis</i>	Bluebunch Fescue	FACU
<i>Galium aparine</i>	Sticky-Willy	FACU
<i>Glyceria grandis</i>	American Manna Grass	OBL
<i>Helianthus maximiliani</i>	Maximilian Sunflower	UPL
<i>Helianthus nuttallii</i>	Nuttall's Sunflower	FACW

Scientific Name	Common Name	WMVC Indicator Status*
<i>Lactuca serriola</i>	Prickly Lettuce	FACU
<i>Lepidium perfoliatum</i>	Clasping Pepperwort	FACU
<i>Lupinus argenteus</i>	Silvery Lupine	UPL
<i>Lupinus lepidus</i>	Stemless-dwarf Lupine	UPL
<i>Lupinus</i> sp.	Lupine	N/A
<i>Malva neglecta</i>	Dwarf Cheeseweed	UPL
<i>Medicago lupulina</i>	Black Medick	FACU
<i>Medicago sativa</i>	Alfalfa	UPL
<i>Melilotus albus</i>	White Sweetclover	UPL
<i>Melilotus officinalis</i>	Yellow Sweet-Clover	FACU
<i>Mentha arvensis</i>	American Wild Mint	FACW
<i>Onopordum acanthium</i>	Scotch Thistle	UPL
<i>Pascopyrum smithii</i>	Western-Wheat Grass	FACU
<i>Peritoma serrulata</i>	Rocky Mountain Beeplant	FACU
<i>Phalaris arundinacea</i>	Reed Canary Grass	FACW
<i>Plantago major</i>	Great Plantain	FAC
<i>Poa palustris</i>	Fowl Blue Grass	FAC
<i>Poa pratensis</i>	Kentucky Blue Grass	FAC
<i>Populus angustifolia</i>	Narrow-Leaf Cottonwood	FACW
<i>Populus balsamifera</i>	Balsam Poplar	FAC
<i>Potamogeton richardsonii</i>	Red-Head Pondweed	OBL
<i>Potentilla anserina</i>	Silverweed	OBL
<i>Prunus virginiana</i>	Choke Cherry	FACU
<i>Rosa woodsii</i>	Woods' Rose	FACU
<i>Rumex acetosa</i>	Garden Sorrel	FAC
<i>Rumex crispus</i>	Curly Dock	FAC
<i>Salix bebbiana</i>	Gray Willow	FACW
<i>Salix drummondiana</i>	Drummond's Willow	FACW
<i>Salix exigua</i>	Narrow-Leaf Willow	FACW
<i>Salix lasiandra</i>	Pacific Willow	FACW
<i>Salsola tragus</i>	Prickly Russian Thistle	FACU
<i>Scirpus microcarpus</i>	Red-Tinge Bulrush	OBL
<i>Silene latifolia</i>	Bladder Campion	UPL
<i>Silene repens</i>	Creeping Catchfly	UPL
<i>Silene vulgaris</i>	Maiden's-tears	UPL
<i>Sinapis arvensis</i>	Corn Mustard	UPL
<i>Sisymbrium altissimum</i>	Tall Hedge-Mustard	FACU
<i>Solanum dulcamara</i>	Climbing Nightshade	FAC
<i>Solidago canadensis</i>	Canadian Goldenrod	FACU
<i>Sonchus arvensis</i>	Field Sow-Thistle	FACU
<i>Symphoricarpos albus</i>	Common Snowberry	FACU
<i>Symphoricarpos occidentalis</i>	Western Snowberry	FAC

Scientific Name	Common Name	WMVC Indicator Status*
<i>Symphyotrichum ascendens</i>	Western American-Aster	FACU
<i>Symphyotrichum laeve</i>	Smooth Blue American-Aster	FACU
<i>Tanacetum vulgare</i>	Common Tansy	FACU
<i>Taraxacum officinale</i>	Common Dandelion	FACU
<i>Thlaspi arvense</i>	Field Pennycress	UPL
<i>Tragopogon dubius</i>	Meadow Goat's-Beard	UPL
<i>Trifolium repens</i>	White Clover	FAC
<i>Urtica dioica</i>	Stinging Nettle	FAC
<i>Verbascum thapsus</i>	Great Mullein	FACU
<i>Vicia americana</i>	American Purple Vetch	FAC

* 2020 National Wetland Plant List; Western Mountains, Valleys, and Coast Region (WMVC) (USACE 2020)

New species identified in 2024 are **bolded**

Species identified to genus level have been assigned an indicator status of N/A

APPENDIX D

2024 STREAM BANK VEGETATION COMPOSITION

MDT Streams Mitigation Monitoring
Ashley Creek
Flathead County, Montana

Table D-1. Plant species and their associated cover classes along the stream banks of the Ashley Creek stream mitigation site in 2024.

Cover Class Percentages: 0 = <1%, 1 = 1-5%, 2 = 6-10%, 3 = 11-20%, 4 = 21-50%, 5 = >50%

Streambank Species	North Bank	North Bank Cover Class	South Bank	South Bank Cover Class	WMVC Indicator Status*
<i>Agropyron sp.</i>	-	-	X	1	N/A
<i>Agrostis stolonifera</i>	X	1	X	1	FAC
<i>Alnus incana</i>	X	0	X	0	FACW
<i>Artemisia absinthium</i>	X	1	X	0	UPL
<i>Bassia scoparia</i>	X	1	X	1	FAC
<i>Bromus inermis</i>	X	1	X	1	UPL
<i>Carex stipata</i>	X	0	-	-	OBL
<i>Centaurea stoebe</i>	X	0	-	-	UPL
<i>Chenopodium album</i>	X	0	X	1	FACU
<i>Cirsium arvense</i>	X	1	X	1	FAC
<i>Cornus alba</i>	-	-	X	1	FACW
<i>Cynoglossum officinale</i>	X	0	-	-	FACU
<i>Elymus canadensis</i>	-	-	X	1	FAC
<i>Elymus repens</i>	X	1	X	2	FAC
<i>Elymus trachycaulus</i>	X	1	X	1	FAC
<i>Equisetum arvense</i>	X	0	X	1	FAC
<i>Galium aparine</i>	X	0	-	-	FACU
<i>Glyceria grandis</i>	X	0	-	-	OBL
<i>Helianthus maximiliani</i>	X	1	-	-	UPL
<i>Lactuca serriola</i>	X	1	-	-	FACU
<i>Medicago lupulina</i>	X	0	-	-	FACU
<i>Melilotus officinalis</i>	X	0	X	1	FACU
<i>Peritoma serrulata</i>	X	0	X	0	FACU
<i>Phalaris arundinacea**</i>	X	4	X	3	FACW
<i>Poa pratensis</i>	X	0	X	0	FAC
<i>Prunus virginiana</i>	-	-	X	1	FACU
<i>Rosa woodsii</i>	X	0	-	-	FACU
<i>Salix bebbiana</i>	X	0	-	-	FACW
<i>Salix drummondiana</i>	X	0	X	2	FACW
<i>Salix exigua</i>	-	-	X	1	FACW
<i>Salix lasiandra</i>	-	-	X	1	FACW
<i>Scirpus microcarpus</i>	X	1	-	-	OBL
<i>Sisymbrium altissimum</i>	-	-	X	1	FACU
<i>Sonchus arvensis</i>	X	1			FACU

Streambank Species	North Bank	North Bank Cover Class	South Bank	South Bank Cover Class	WMVC Indicator Status*
<i>Symphoricarpos albus</i>	X	0	X	0	FACU
<i>Symphyotrichum campestre</i>	X	0	-	-	UPL
<i>Symphyotrichum foliaceum</i>	X	0	-	-	FACU
<i>Tanacetum vulgare</i>	X	1	X	1	FACU
<i>Taraxacum officinale</i>	X	1	-	-	FACU
<i>Thlaspi arvense</i>	X	0	X	0	UPL
<i>Typha latifolia</i>	X	1	-	-	OBL

* 2020 National Wetland Plant List; Western Mountains, Valleys, and Coast Region (USACE 2020)

** Dominant species observed along Ashley Creek stream banks

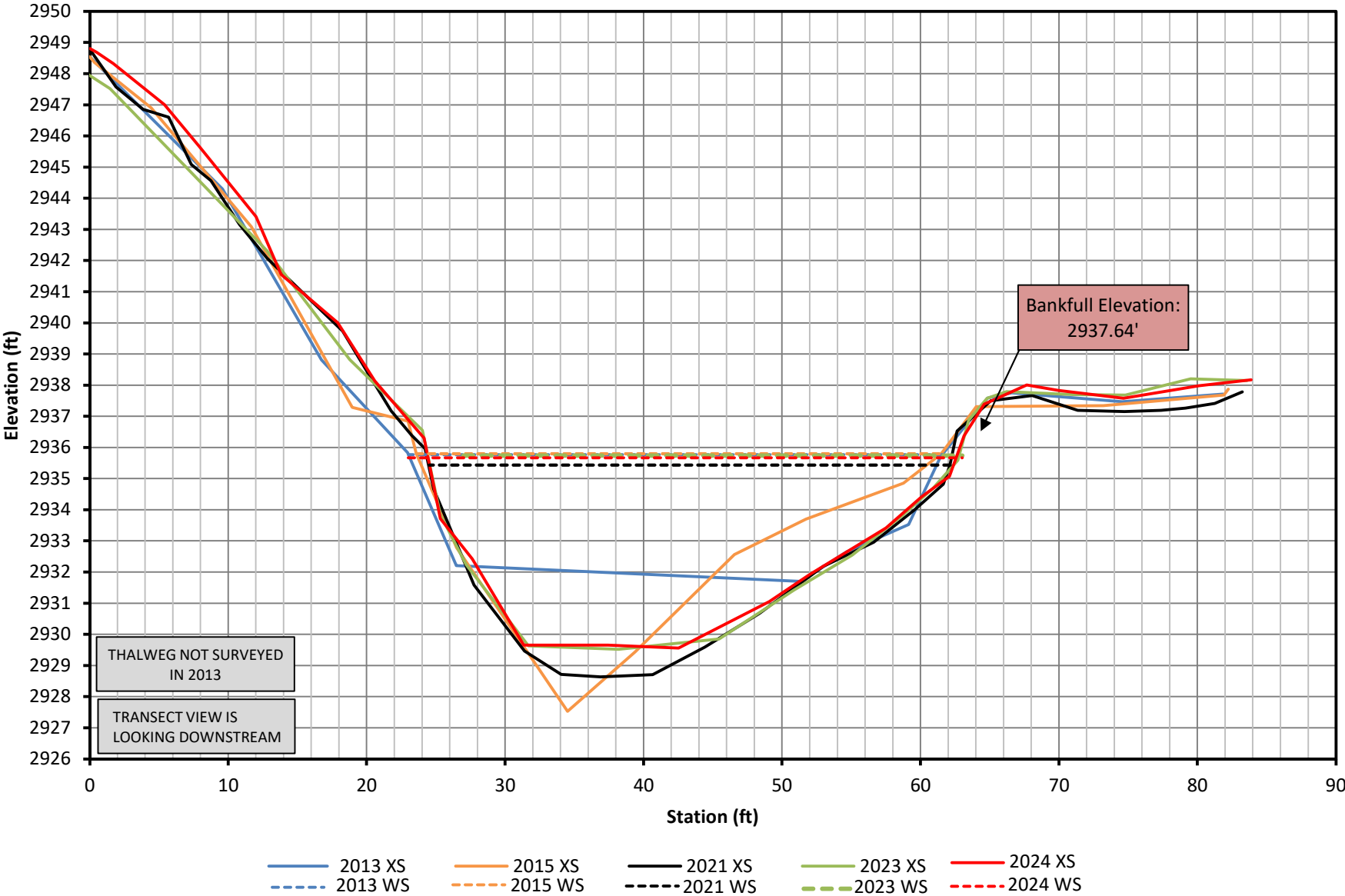
*** Bare ground was observed along both stream banks as a cover class of 5 (greater than 50%)

APPENDIX E

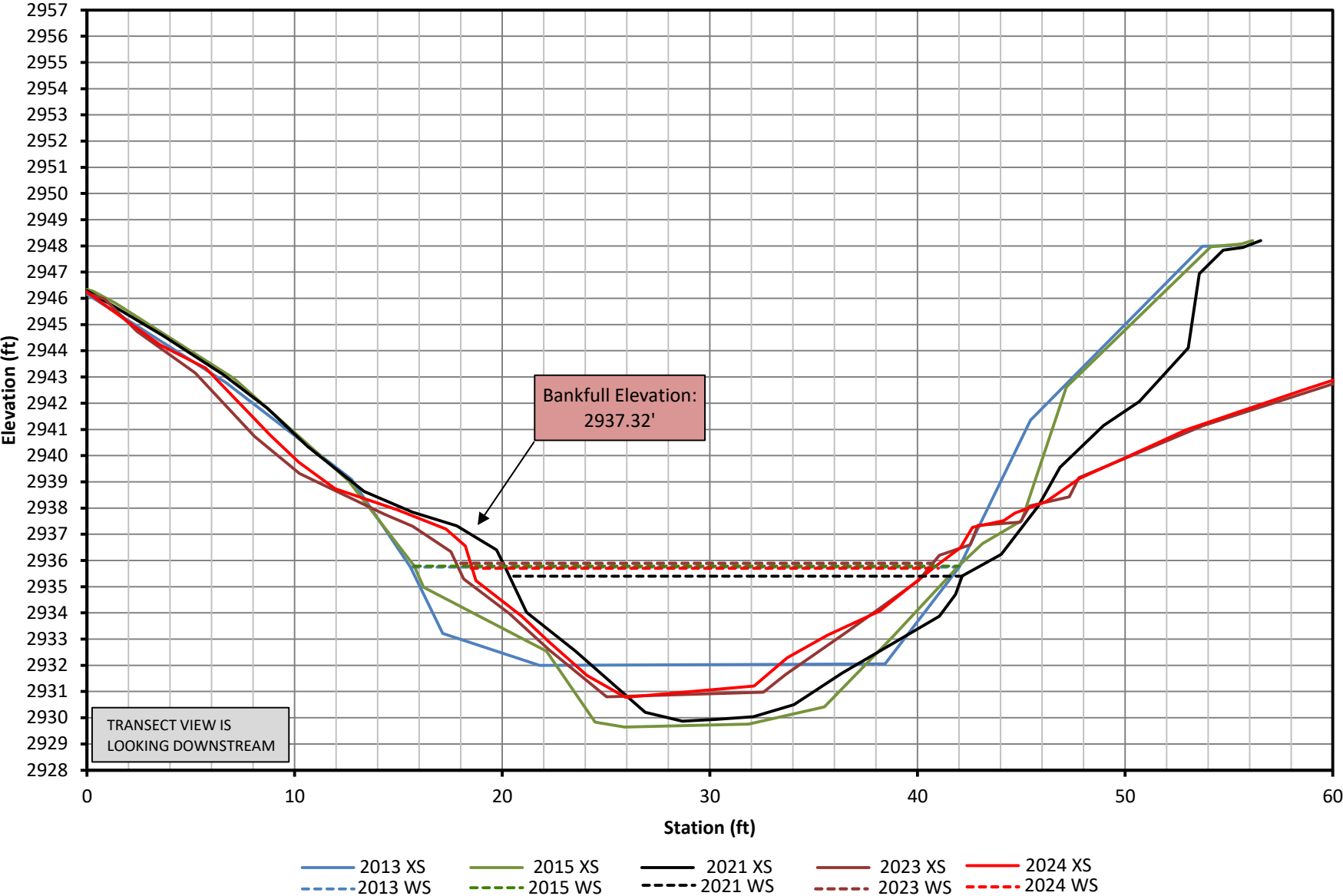
LONGITUDINAL PROFILE AND PERPENDICULAR TRANSECT PLOTS

MDT Streams Mitigation Monitoring
Ashley Creek
Flathead County, Montana

Ashley Creek Transect #1 - Pool

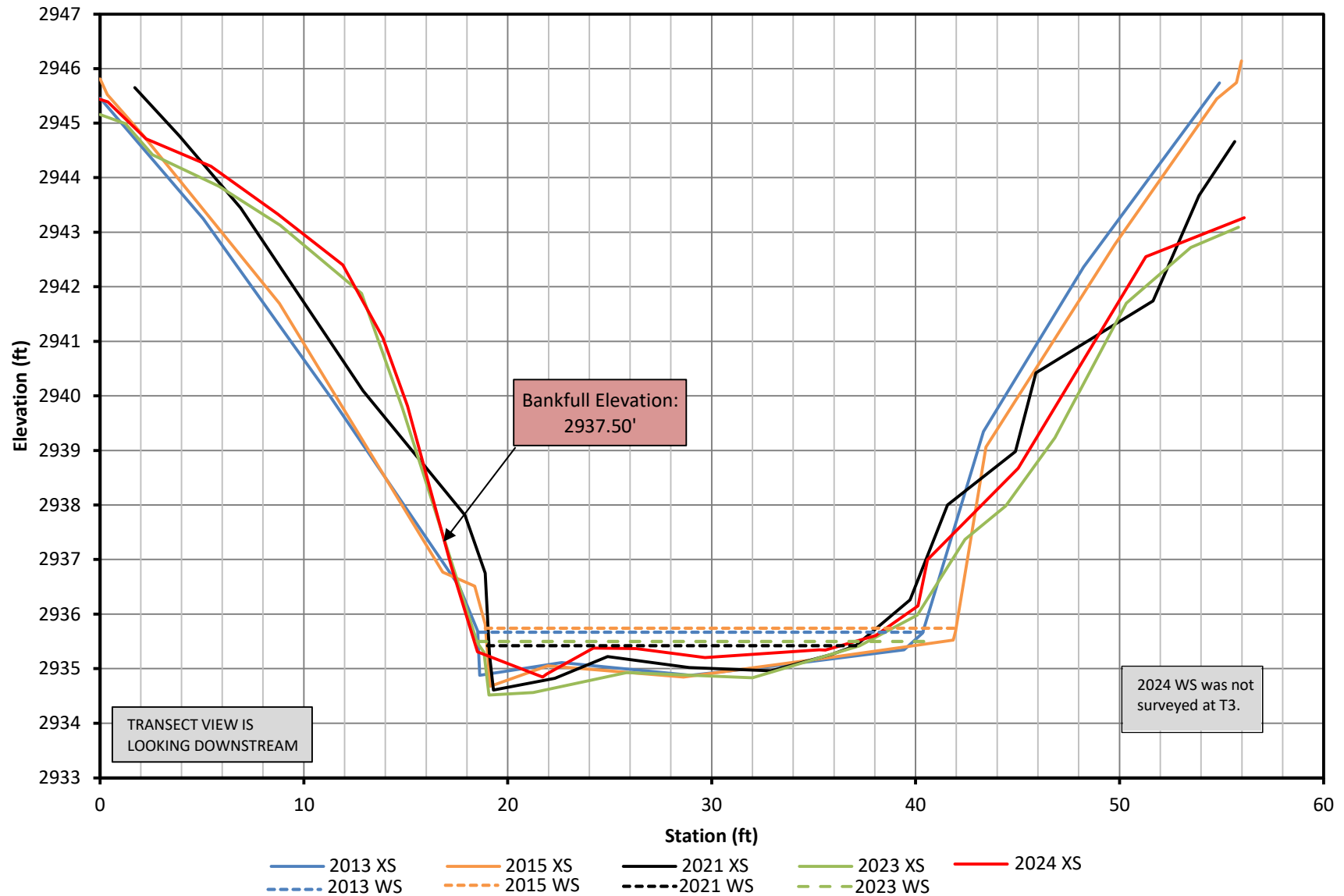


Ashley Creek Transect #2 - Pool

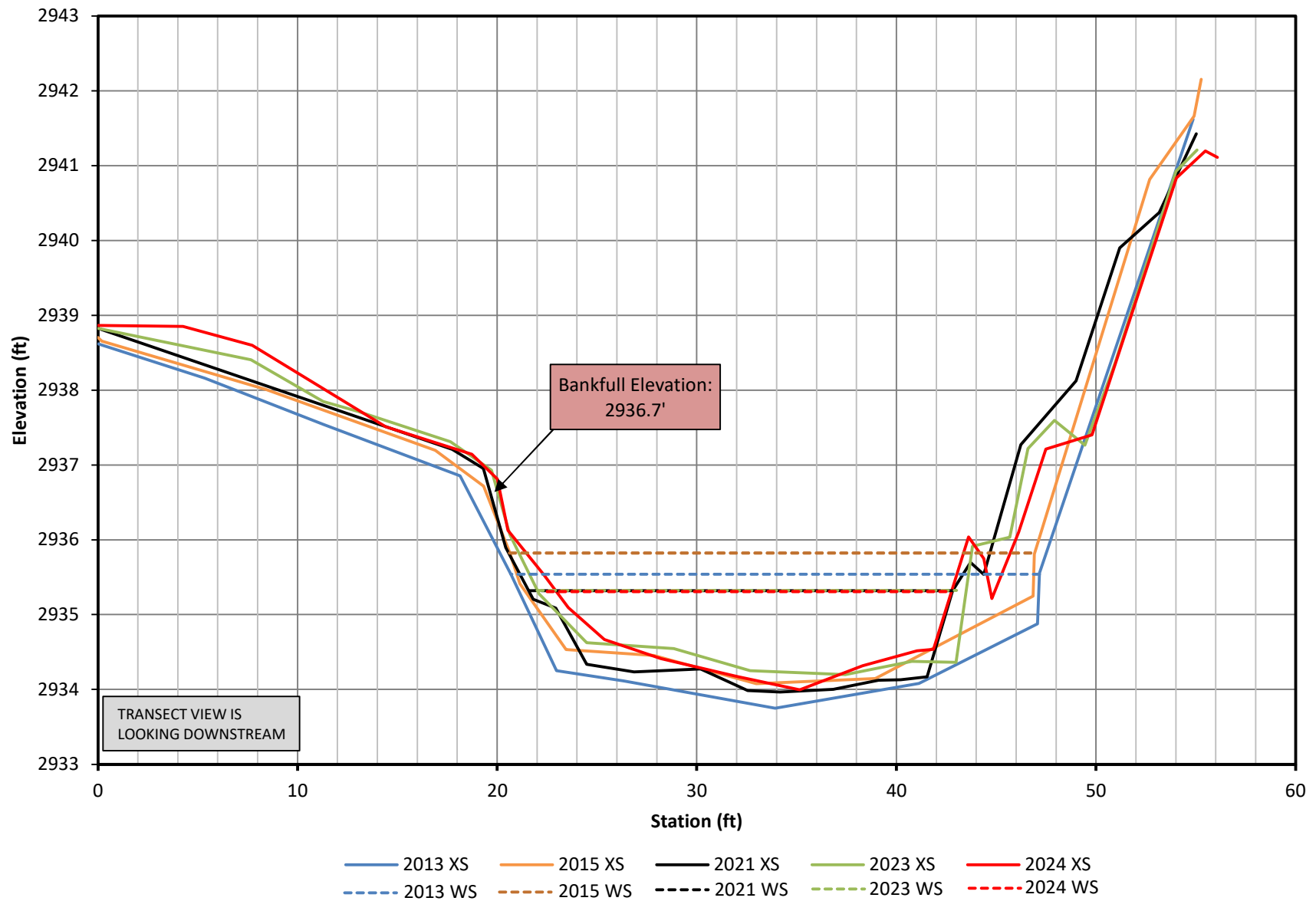


TRANSECT VIEW IS
LOOKING DOWNSTREAM

Ashley Creek Transect #3 - Riffle



Ashley Creek Transect #4 - Riffle



Ashley Creek Longitudinal Profiles

