Baseline Assessment – Stream Attributes

Reach S-B2a (Pipeline ROW) Ephemeral Spread A Harrison County, West Virginia

Data	Included
Photos	✓
SWVM Form	✓
FCI Calculator and HGM Form	✓
RBP Physical Characteristics Form	✓
Water Quality Data	No Flow
RBP Habitat Form	✓
RBP Benthic Form	✓
Benthic Identification Sheet	No Flow
Wolman Pebble Count	✓
Reference Reach Software Pebble Count Data	✓
Longitudinal Profile and Cross Sections	✓

Spread A Stream S-B2a (Pipeline ROW) Harrison County



Photo Type: DS, US View
Location, Orientation, Photographer Initials: Downstream Edge of ROW, Upstream View, DP/PL
Lat: 39.359262 Long: -80.49329

Spread A Stream S-B2a (Pipeline ROW) Harrison County



Photo Type: DS, DS View Location, Orientation, Photographer Initials: Downstream Edge of ROW, Downstream View, DP/PL Lat: 39.359262 Long: -80.49329

Spread A Stream S-B2a (Pipeline ROW) Harrison County



Photo Type: US View at Center Location, Orientation, Photographer Initials: Center ROW, Upstream View, DP/PL Lat: 39.359262 Long: -80.49329



Photo Type: DS View at Center Location, Orientation, Photographer Initials: Center ROW, Downstream View, DP/PL Lat: 39.359262 Long: -80.49329

Spread A Stream S-B2a (Pipeline ROW) Harrison County



Photo Type: US, DS View
Location, Orientation, Photographer Initials: Upstream Edge of ROW, Downstream View, DP/PL
Lat: 39.359262 Long: -80.49329

Spread A Stream S-B2a (Pipeline ROW) Harrison County

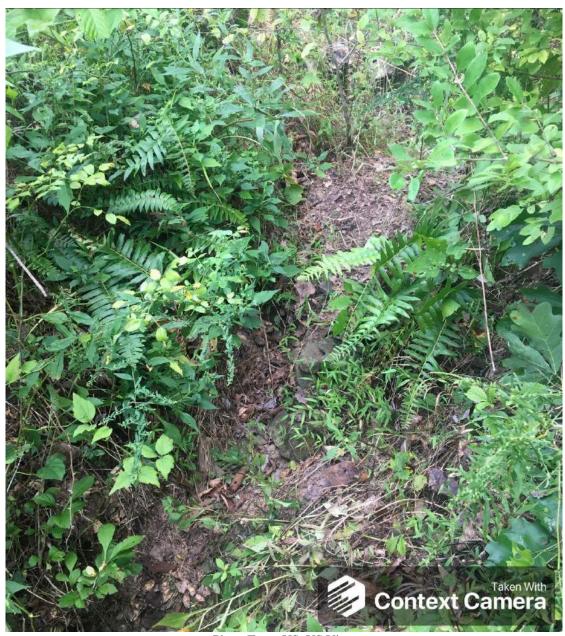


Photo Type: US, US View
Location, Orientation, Photographer Initials: Upstream Edge of ROW, Upstream View, DP/PL
Lat: 39.359262 Long: -80.49329

USACE FILE NO./ Project Name: (v2.1, Sept 2015)		Mountain	Valley Pipeline	IMPACT COORDINATES:	Lat.	39.359262 Loi	-80.49329	WEATHER:	Sunny	DATE:		
(vz.1, oept 2010)				(in Decimal Degrees)							8/28/20	021
IMPACT STREAM/SITE ID			S-B2a Pip	eline ROW	+	MITIGATION STREAM CLASS./SITE		N:		Comments:		
(watershed size (acreage),), unaltered or impairmen	nts)				(watershed size (acreage), unal	tered or impairments)					
STREAM IMPACT LENGTH:	115	FORM OF		MIT COORDINATES:	Lat.	Loi	ı.	PRECIPITATION PAST 48 HRS:		Mitigation Length:		
		MITIGATION:	RESTORATION (Levels I-III)	(in Decimal Degrees)								
Column No. 1- Impact Existing	ng Condition (Debit)		Column No. 2- Mitigation Existing C	ondition - Baseline (Credit)		Column No. 3- Mitigation Projecte Post Completion (Cre		Column No. 4- Mitigation Pro Post Completion		Column No. 5- Mitigation Projecte	ed at Maturity (Cre	edit)
Stream Classification:	Epheme	ral	Stream Classification:			Stream Classification:	0	Stream Classification:	0	Stream Classification:	0	
Percent Stream Channel SI	Slope	12	Percent Stream Channel Sle	оре		Percent Stream Channel Slope	0	Percent Stream Channel S	lope 0	Percent Stream Channel SI	оре	0
HGM Score (attach d	data forms):		HGM Score (attach	data forms):		HGM Score (attach data	forms):	HGM Score (attach o	lata forms):	HGM Score (attach da	ita forms):	
		Average		Average			Average		Average			Average
Hydrology	0.47		Hydrology			Hydrology		Hydrology		Hydrology		
Biogeochemical Cycling		.40333333	Biogeochemical Cycling	0		Biogeochemical Cycling	0	Biogeochemical Cycling	0	Biogeochemical Cycling		0
PART I - Physical, Chemical and	0.36 d Biological Indicato	ors	PART I - Physical, Chemical an	d Biological Indicators		PART I - Physical, Chemical and Bio	logical Indicators	PART I - Physical, Chemical and	Biological Indicators	PART I - Physical, Chemical and	Biological Indicat	tors
	Points Scale Range	Site Score		Points Scale Range Site Score		Point	Scale Range Site Score		Points Scale Range Site Score		Points Scale Range	Site Score
PHYSICAL INDICATOR (Applies to all streams	ns classifications)		PHYSICAL INDICATOR (Applies to all streams	classifications)		PHYSICAL INDICATOR (Applies to all streams classi	lications)	PHYSICAL INDICATOR (Applies to all stream	s classifications)	PHYSICAL INDICATOR (Applies to all streams	classifications)	
USEPA RBP (High Gradient Data Sheet)			USEPA RBP (Low Gradient Data Sheet)			USEPA RBP (High Gradient Data Sheet)		USEPA RBP (High Gradient Data Sheet)		USEPA RBP (High Gradient Data Sheet)		
Epifaunal Substrate/Available Cover	0-20	0	Epifaunal Substrate/Available Cover	0-20		Epifaunal Substrate/Available Cover O		Epifaunal Substrate/Available Cover	0-20	Epifaunal Substrate/Available Cover	0-20	
2. Embeddedness 3. Velocity/ Depth Regime	0-20	3	Pool Substrate Characterization Pool Variability	0-20			20	Embeddedness Velocity/ Depth Regime	0-20	Embeddedness Velocity/ Depth Regime	0-20	
Velocity Depth Regime Sediment Deposition	0-20	5	Sediment Deposition	0-20		4. Sediment Deposition 0	20	Velocity Depth Regime Sediment Deposition	0-20	Velocity Depth Regime Sediment Deposition	0-20	
5. Channel Flow Status	0-20 0.1	Ö	5. Channel Flow Status	0-20 0.4		5. Channel Flow Status 0-		5 Channel Flow Status	0-20	5. Channel Flow Status	0-20 0.1	
6. Channel Alteration	0-20 0-1	12	6. Channel Alteration	0-20 0-1		6. Channel Alteration 0		6. Channel Alteration	0-20 0-1	6. Channel Alteration	0-20 0-1	
7. Frequency of Riffles (or bends)	0-20	0	7. Channel Sinuosity	0-20		7. Frequency of Riffles (or bends)		7. Frequency of Riffles (or bends)	0-20	7. Frequency of Riffles (or bends)	0-20	
8. Bank Stability (LB & RB)	0-20	18	8. Bank Stability (LB & RB)	0-20		8. Bank Stability (LB & RB) 0-		8. Bank Stability (LB & RB)	0-20	8. Bank Stability (LB & RB)	0-20	
9. Vegetative Protection (LB & RB)	0-20	0	9. Vegetative Protection (LB & RB)	0-20			20	9. Vegetative Protection (LB & RB)	0-20	Vegetative Protection (LB & RB)	0-20	
Riparian Vegetative Zone Width (LB & RB)	0-20	10	Riparian Vegetative Zone Width (LB & RB)	0-20			20	Riparian Vegetative Zone Width (LB & RB)	0-20	10. Riparian Vegetative Zone Width (LB & RB)	0-20	
Total RBP Score	Marginal	48	Total RBP Score	Poor 0			Poor 0	Total RBP Score	Poor 0	Total RBP Score	Poor	0
Sub-Total		0.4	Sub-Total	0		Sub-Total	Ō	Sub-Total Sub-Total	0	Sub-Total	<u>' </u>	Ō
CHEMICAL INDICATOR (Applies to Intermitter		ns)	CHEMICAL INDICATOR (Applies to Intermittent	and Perennial Streams)		CHEMICAL INDICATOR (Applies to Intermittent and I	Perennial Streams)	CHEMICAL INDICATOR (Applies to Intermitte		CHEMICAL INDICATOR (Applies to Intermittent		ıms)
WVDEP Water Quality Indicators (General Specific Conductivity	al)		WVDEP Water Quality Indicators (General) Specific Conductivity			WVDEP Water Quality Indicators (General) Specific Conductivity		WVDEP Water Quality Indicators (General Specific Conductivity	1)	WVDEP Water Quality Indicators (General) Specific Conductivity		
Specific Conductivity			Specific Conductivity					Specific Conductivity		Specific Conductivity		
100-199 - 85 points	0-90			0-90		0-	90		0-90		0-90	
pH			pH			pH		рН		pH		
	0-80			5-90 0-1		5	90 0-1		5-90 0-1		5-90 0-1	
5.6-5.9 = 45 points						_						
DO			DO			DO		DO		DO		
	10-30			10-30		10	-30		10-30		10-30	
Sub-Total	1 1		Sub-Total			Sub-Total	0	Sub-Total		Sub-Total		-
	ittent and Perennial Stre	ams)	BIOLOGICAL INDICATOR (Applies to Intermitte			BIOLOGICAL INDICATOR (Applies to Intermittent		BIOLOGICAL INDICATOR (Applies to Intern		BIOLOGICAL INDICATOR (Applies to Intermi	ittent and Perennial	
BIOLOGICAL INDICATOR (Applies to Intermit			WV Stream Condition Index (WVSCI)			WV Stream Condition Index (WVSCI)	•	WV Stream Condition Index (WVSCI)		WV Stream Condition Index (WVSCI)		
				0.100 0.1		0-	100 0-1	, , , , , , , , , , , , , , , , , , , ,	0-100 0-1	,	0-100 0-1	
	0-100 0-1											
WV Stream Condition Index (WVSCI)	0-100 0-1			0-100 0-1								
	0-100 0-1	0	Sub-Total	0-100 0-1		Sub-Total	0	Sub-Total	0	Sub-Total		0
WV Stream Condition Index (WVSCI)		0	Sub-Total PART II - Index and	0		Sub-Total PART II - Index and Unit	0 Score	Sub-Total PART II - Index and t	0 Jnit Score	Sub-Total PART II - Index and U	nit Score	0
WV Stream Condition Index (WVSCI) 0 Sub-Total PART II - Index and U	Unit Score	0	PART II - Index and	0 Unit Score		PART II - Index and Unit		PART II - Index and I		PART II - Index and U		0
WV Stream Condition Index (WVSCI) 0 Sub-Total	Unit Score	Unit Score 7.6916667		0		PART II - Index and Unit	Score Hear Feet Unit Score		Julit Score Linear Feet Unit Score			0 Unit Scor

Ver. 10-20-17

FCI Calculator for the High-Gradient Headwater Streams in Appalachia

To ensure accurate calculations, the <u>UPPERMOST STRATUM</u> of the plant community is determined based on the calculated value for V_{CCANOPY} (≥20% cover is required for tree/sapling strata). Go to the SAR Data Entry tab and enter site characteristics and data in the yellow cells. For information on determining how to split a project into SARs, see Chapter 5 of the Operational Draft Regional Guidebook for the Functional Assessment of High-Gradient Headwater Streams and Low-Gradient Perennial Streams in Appalachia (Environmental Laboratory U.S. Army Corps of Engineers 2017).

Project Name: MVP Stream Assessment

Location: Harrison County

Sampling Date: 09/28/2021 Project Site Before Project

Subclass for this SAR:

Ephemeral Stream

Uppermost stratum present at this SAR: SAR number: S-B2a

Shrub/Herb Strata

Functional Results Summary: Enter Results in Section A of the Mitigation Sufficiency Calculator

Function	Functional Capacity Index
Hydrology	0.47
Biogeochemical Cycling	0.38
Habitat	0.36

Variable Measure and Subindex Summary:

Variable	Name	Average Measure	Subindex
V _{CCANOPY}	Percent canpoy over channel.	Not Used, <20%	Not Used
V _{EMBED}	Average embeddedness of channel.	2.70	0.71
V _{SUBSTRATE}	Median stream channel substrate particle size.	2.50	1.00
V _{BERO}	Total percent of eroded stream channel bank.	69.87	0.70
V_{LWD}	Number of down woody stems per 100 feet of stream.	0.87	0.11
V _{TDBH}	Average dbh of trees.	Not Used	Not Used
V _{SNAG}	Number of snags per 100 feet of stream.	0.00	0.10
V _{SSD}	Number of saplings and shrubs per 100 feet of stream.	13.10	0.20
V _{SRICH}	Riparian vegetation species richness.	0.00	0.00
V _{DETRITUS}	Average percent cover of leaves, sticks, etc.	22.50	0.27
V _{HERB}	Average percent cover of herbaceous vegetation.	39.38	0.52
V _{WLUSE}	Weighted Average of Runoff Score for Catchment.	0.51	0.54

Field Data Sheet and Calculator Team 25. KY Procec Name MVP-Steam Assessment Location Harmson Courty SAR Number: S-82a Reach Length (ft): 114.5 Stream Type: [phenoral Stream 176: 96.48329] SAR Number: S-82a Reach Length (ft): 114.5 Stream Type: [phenoral Stream 176: 96.48329] Top Strata: ShrubHerb Strata (determined from percent calculated in Vocaccin) Site and Timing: [piget Site: ShrubHerb Strata (determined from percent calculated in Vocaccin) Site and Timing: [piget Site: ShrubHerb Strata (determined from percent calculated in Vocaccin) Site and Timing: [piget Site: ShrubHerb Strata (determined from percent calculated in Vocaccin) Site and Timing: [piget Site: ShrubHerb Strata (determined from percent calculated in Vocaccin) List the percent cover nearestermine at each point below: 15 West Strata Strat				High-G					Appalachi tor	а		
Location: Harrison County SAR Numbers S-B2a Resch Length (fit) 114.5 Stream Type: Ephemenal Stream Top Strata: Shrub/Herb Strata (determined from percent calculated in V _{CORDET}) Size and Timing: Project Size Sample Variables 1-4 in stream channel 1 V _{CORDET} V _{CORDET} (and Stream Channel) 1 V _{CORDET} (and Stream Channel) 1 V _{CORDET} (and Stream Channel) List the percent cover over channel by tree and spaling cancey. Measure at no fewer than 10 roughly could start points along the stream American Measure only if mesispang cover as at least 20% (if less than 20%), where at less of the stream Channel Measure at no fewer than 50 roughly equidistant points along the stream channel have been described in the stream Channel Measure at no fewer than 50 roughly equidistant points and provided of the stream channel. Measure at no fewer than 50 roughly equidistant points and provided of the stream Channel Measure at no fewer than 50 roughly equidistant points and provided of the stream channel mesispance of the stream channel substance of the stream channel mesispance of the stream channel substance of the stream channel substance of the stream channel substance of the stream channel (25 feet from each		Team:	ZS, KY			Julu Ollo	or and o	uiouiu		M Northing:	39.359262	
SAR Number S-820 Reach Length (ft) 114.5 Stream Type: Ephemeral Stream Type Typ	Pro	oject Name:	MVP Stream	m Assessm	ent				•	-		
Site and Timing: Project Size Project Size Before Project Project Size Before Project Project Size Project Size Project Size Before Project Project Size Project Siz		Location:	Harrison Co	ounty				_	San	npling Date:	09/28/2021	
Site and Timing: Project size Sample Variables 1-4 in stream channel 1 Vocacor Werenge percent cover over channel by the and saping campy. Measure at no fewer than 10 roughly variables 1-4 in stream channel List the percent cover measurements at each port the service of the channel of the stream channel below. 15			O BZu									•
Sample Variables 1-4 in stream channel 1 Vocacor Average percent cover over channel by tree and saping cancey. Measure at no fewer than 10 roughly equidistant points along the stream. Measure only if tree haping cover is at least 20%. (friese than 20%, enter at least one value between 0 and 19 to trigger 10p Strate choice.) List the percent cover measurements at each point below. 15		·			rata	(determined	d from perce			_{PY})		
Vicesion Average percent cover over channel by tree and spiling cancoy. Measure at no fewer than 10 roughly equidistant points along the stream. Neasure only if tree-faping cover is at least 20%, (if less than 20%, enter at least one value between 0 and 19 to higger Top Strata choice.)			Industrial Resource	8			~	Before Pr	oject			~
equidistant points along the stream. Measure only if reérlaping cover is at least 20%, (if less than 20%, enter at least on evalue between and 19 to trigger Top Strata choice). List the percent cover measurements at each point below: 2 Visual Navarge embeddedness of the stream channel. Measure at no fewer than 30 roughly equidistant points along the stream. Select a particle from the bed. Before moving it, determine the percentage of the course of it. If the bed is composed of bedrove, use a rating score of it. If the bed is composed of bedrove, use a rating score of it. Embeddeness rating for gravel, cobbie and boulder particles (rescaled from Platts, Megahan, and Minishal 1983). Rating Rating Description. 5 < special percent of surface covered, surrounded, or buried by fine sediment, use a rating score of it. 8 15 to 25 percent of surface covered, surrounded, or buried by fine sediment (and it is sufficient to the score of its surrounded, or buried by fine sediment (and it is sufficient to the score of its surrounded, or buried by fine sediment (and it is sufficient to the score of its surrounded, or buried by fine sediment (and it is sufficient to the score of its surrounded, or buried by fine sediment (and it is sufficient to the score of its surrounded, or buried by fine sediment (and it is sufficient to the score of its surrounded, or buried by fine sediment (and it is sufficient to the score of its surrounded, or buried by fine sediment (and it is sufficient to the score of its surrounded, or buried by fine sediment (and it is sufficient to the surrounded of its surrounded, or buried by fine sediment (and its sufficient to the surrounded of its					over chann	al by trac ar	nd conling o	onony M	locauro et no f	ower than 1	0 roughly	
2 V _{DMED} 2 V _{DMED} Average embeddedness of the stream channel. Measure at no fewer than 30 roughly equidistant points aurign the stream. Select a particle from the bott. Before moving it, determine the percentage of the surface and area surrounding the particle that is covered by fine sediment, sue a rating score of 1. If the bed is composed of bedrock, use a rating score of 5. Embeddedness rating for gravel, cobbie and boulder particles (rescaled from Piatts, Megahan, and Minshall 1983) Rating Rating Description 5 of percent of surface covered, surrounded, or buside by fine sediment (or bedrock). 4 32 25 50 posed of surface covered surrounded, or buside by fine sediment (or bedrock). 2 1 1 4 5 2 2 2 4 1 1 5 1 1 2 2 1 1 3 75 percent of surface covered, surrounded, or buside by fine sediment. 1 2 75 percent of surface covered, surrounded, or buside by fine sediment (or artificial surface). List the ratings at each point below. 2 1 4 5 2 2 2 4 1 1 5 1 1 2 1 1 5 1 1 2 1 1 5 1 1 1 5 1 1 1 5 1 1 1 5 1 1 1 5 1 1 1 5 1 1 1 5 1 1 1 5 1 1 1 5 1 1 1 5 1 1 1 5 1 1 1 1 5 1 1 1 1 5 1 1 1 1 5 1 1 1 1 5 1 1 1 1 5 1 1 1 1 5 1 1 1 1 5 1 1 1 1 5 1 1 1 1 1 5 1	•		equidistant 20%, enter	points along at least one	the stream value betw	. Measure een 0 and 1	only if tree/s	apling co	ver is at least			
along the stream. Select a particle from the bed. Before moving it, determine the percentage of the surface and area surrounding the particle that is covered by fine sediment, and enter the rating according to the following lable. If the bed is an artificial surface, or composed of fine sediments, use a rating score of 1. If the bed is composed of bedrock, use a rating score of 5. Embeddedness rating for gravel, cobble and boulder particles (rescaled from Platts, Megahan, and Minshall 1983) Rating			00111	nousur cirro	no at caon p	JOHN DOIGHT.						
along the stream. Select a particle from the bed. Before moving it, determine the percentage of the surface and area surrounding the particle that is covered by fine sediment, and enter the rating according to the following lable. If the bed is an artificial surface, or composed of fine sediments, use a rating score of 1. If the bed is composed of bedrock, use a rating score of 5. Embeddedness rating for gravel, cobble and boulder particles (rescaled from Platts, Megahan, and Minshall 1983) Rating												
Minshall 1983 Rating Pescription Seprecent of auriface covered, surrounded, or buried by fine sediment (or bedrock) 4 5 5 5 5 5 5 5 5 5	2	V _{EMBED}	along the si surface and to the follow of 1. If the	tream. Sele d area surro ving table. I bed is comp	ect a particle unding the p f the bed is posed of bed	from the be particle that in an artificial stances arock, use a	ed. Before n s covered b surface, or c rating score	noving it, by fine sec composed of 5.	determine the diment, and en d of fine sedime	percentage ter the rating ents, use a r	of the g according rating score	2.7
Semble Variables 5-9 within the entire riparian/buffer zone adjacent to the stream channel (25 feet from each said and the total percent of stream channel and the total percentage will be calculated.			Minshall 19	983)		obbic and b	oulder partic	,ic3 (1030	aica iroiii i iati	o, weganan	i, and	
4 5 to 25 percent of surface covered, surrounded, or buried by fine sediment 3 28 to 50 percent of surface covered, surrounded, or buried by fine sediment 1 375 percent of surface covered, surrounded, or buried by fine sediment 1 375 percent of surface covered, surrounded, or buried by fine sediment 1 375 percent of surface covered, surrounded, or buried by fine sediment 2 1 4 5 2 2 4 4 1 5 1 2 1 4 5 2 2 2 4 1 5 5 1 2 1 4 4 5 2 2 2 4 1 5 5 1 2 1 1 4 5 2 2 2 4 1 1 5 1 1 2 1 1 4 5 2 2 2 4 1 1 5 1 1 3 V _{SUBSTRATE} Median stream channel substrate particle size. Measure at no fewer than 30 roughly equidistant points along the stream; use the same points and particles as used in V _{EMECO} . Enter particle size in inches to the nearest 0.1 inch at each point below (bedrock should be counted as 99 in, asphalt or concrete as 0.0 in, sand or finer particles as 0.08 in): 9.00 3.00 3.00 3.00 0.50 2.50 0.50 2.50 2.50 1.50 4.00 9.00 3.00 3.00 0.50 2.50 0.50 2.50 2.50 1.50 4.00 9.00 3.00 3.00 0.50 2.50 0.50 2.50 2.50 1.50 4.00 9.00 3.00 3.00 0.50 2.50 0.50 2.50 2.50 1.50 4.00 1 V _{SERO} Total percent of eroded stream channel bank. Enter the total number of feet of eroded bank on each side and the total percentage will be calculated if both banks are eroded, total erosion for the stream may be up to 200%. Left Bank: 40 ft Right Bank: 40 ft Average dbh of trees (measure only if V _{COMON} tree/sapiling cover is at least 20%). Trees are at least 4 inches inches (10 cm) in diameter. Enter the outber from the entire 50°-wide buffer and within the channel, and the amount per 100 feet of stream will be calculated. 1 V _{SIMO} Number of snags (at least 4" dbh and 38" tall) per 100 feet of stream. Enter number of snags on each side of the stream, and the amount per 100 feet of stream (measure only if V _{COMON} tree/sapiling cover is at least 20%). Trees are at least 4 inches side of the stream, and the amount per 100 feet of stream. Enter number of snags on each side of the stream, and the amount per 100 feet of stream (measure only			,			overed sur	rounded or	huried by	fine sediment	(or hedrock	d)	
2 51 to 75 percent of surface covered, surrounded, or buried by fine sediment 1 77 Spercent of surface covered, surrounded, or buried by fine sediment (or artificial surface)											9	
1 >75 percent of surface covered, surrounded, or buried by fine sediment (or artificial surface)												
List the ratings at each point below: 2			1								al surface)	I
2		List the rati	ngs at each						· · · · · · · · · · · · · · · · · · ·	(2. 2		J
2		2	1	4		2	2	4	1	5	1	
3 V _{SUBSITEATE} Median stream channel substrate particle size. Measure at no fewer than 30 roughly equidistant points along the stream; use the same points and particles as used in V _{EMBED} . Enter particle size in inches to the nearest 0,1 inch at each point below (bedrock should be counted as 99 in, asphalt or concrete as 0.0 in, sand or finer particles as 0.08 in): 9.00 3.00 3.00 0.50 2.50 0.50 2.50 2.50 1.50 4.00 9.00 3.00 3.00 0.50 2.50 0.50 2.50 2.50 1.50 4.00 9.00 3.00 3.00 0.50 2.50 0.50 2.50 2.50 1.50 4.00 9.00 3.00 3.00 0.50 2.50 0.50 2.50 2.50 1.50 4.00 9.00 3.00 3.00 0.50 2.50 0.50 2.50 2.50 1.50 4.00 9.00 3.00 3.00 0.50 2.50 0.50 2.50 2.50 1.50 4.00 9.00 3.00 3.00 0.50 2.50 0.50 2.50 0.50 2.50 1.50 4.00 9.00 3.00 3.00 0.50 2.50 0.50 2.50 0.50 2.50 1.50 4.00 9.00 3.00 3.00 0.50 2.50 0.50 2.50 0.50 2.50 1.50 4.00 9.00 3.00 3.00 0.50 2.50 0.50 2.50 0.50 2.50 1.50 4.00 9.00 3.00 3.00 0.50 2.50 0.50 2.50 0.50 2.50 1.50 4.00 9.00 9.00 3.00 3.00 0.50 2.50 0.50 2.50 0.50 2.50 1.50 4.00 9.00 9.00 3.00 3.00 0.50 2.50 0.50 2.50 0.50 2.50 1.50 4.00 9.00 9.00 3.00 3.00 0.50 2.50 0.50 2.50 0.50 2.50 1.50 4.00 9.00 9.00 9.00 3.00 3.00 0.50 2.50 0.50 2.50 0.50 2.50 1.50 4.00 9.00 9.00 9.00 3.00 3.00 0.50 2.50 0.50 2.50 0.50 2.50 1.50 4.00 9.00 9.00 9.00 3.00 3.00 0.50 2.50 0.50 2.50 0.50 2.50 1.50 4.00 9.00 9.00 9.00 3.00 3.00 0.50 2.50 0.50 2.50 0.50 2.50 1.50 4.00 9.00 9.00 9.00 3.00 3.00 0.50 2.50 0.50 2.50 2.50 1.50 4.00 9.00 9.00 9.00 3.00 3.00 0.50 2.50 0.50 2.50 2.50 1.50 4.00 9.00 9.00 9.00 3.00 3.00 0.50 2.50 0.50 2.50 2.50 2.50 1.50 4.00 9.00 9.00 9.00 3.00 3.00 0.50 2.50 0.50 2.50 2.50 1.50 4.00 9.00 9.00 9.00 9.00 3.00 0.50 2.50 0.50 2.50 2.50 2.50 1.50 4.00 9.00 9.00 9.00 9.00 9.00 3.00 0.50 2.50 0.50 2.50 2.50 2.50 1.50 4.00 9.00 9.00 9.00 9.00 9.00 9.00 9.0									_			
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along the stream; use the same points and particles as used in V _{EMBED} . Enter particle size in inches to the nearest 0.1 inch at each point below (bedrock should be counted as 99 in, asphalt or concrete as 0.0 in, sand or finer particles as 0.08 in); 9.00 3.00 3.00 0.50 2.50 0.50 2.50 2.50 1.50 4.00 9.00 3.00 3.00 0.50 2.50 0.50 2.50 2.50 1.50 4.00 9.00 3.00 3.00 0.50 2.50 0.50 2.50 0.50 2.50 1.50 4.00 9.00 3.00 3.00 0.50 2.50 0.50 2.50 0.50 2.50 1.50 4.00 9.00 3.00 3.00 0.50 2.50 0.50 2.50 0.50 2.50 1.50 4.00 9.00 3.00 3.00 0.50 2.50 0.50 2.50 0.50 2.50 1.50 4.00 9.00 3.00 3.00 0.50 2.50 0.50 2.50 0.50 2.50 1.50 4.00 9.00 3.00 3.00 0.50 2.50 0.50 2.50 0.50 2.50 1.50 4.00 9.00 3.00 3.00 0.50 2.50 0.50 2.50 0.50 2.50 1.50 4.00 9.00 3.00 3.00 0.50 2.50 0.50 2.50 0.50 2.50 1.50 4.00 9.00 3.00 3.00 0.50 2.50 0.50 2.50 0.50 2.50 1.50 4.00 9.00 3.00 3.00 0.50 2.50 0.50 2.50 0.50 2.50 1.50 4.00 9.00 9.00 3.00 3.00 0.50 2.50 0.50 2.50 0.50 2.50 1.50 4.00 9.00 9.00 3.00 3.00 0.50 2.50 0.50 2.50 0.50 2.50 1.50 4.00 9.00 9.00 3.00 3.00 0.50 2.50 0.50 2.50 2.50 1.50 4.00 9.00 9.00 3.00 3.00 0.50 2.50 0.50 2.50 2.50 1.50 4.00 9.00 9.00 9.00 9.00 9.00 9.00 9.0												
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4 V _{BERO} Total percent of eroded stream channel bank. Enter the total number of feet of eroded bank on each side and the total percentage will be calculated. If both banks are eroded, total erosion for the stream may be up to 200%. Left Bank: 40 ft Right Bank: 40 ft Sample Variables 5-9 within the entire riparian/buffer zone adjacent to the stream channel (25 feet from each bank). Number of down woody stems (at least 4 inches in diameter and 36 inches in length) per 100 feet of stream reach. Enter the number from the entire 50*-wide buffer and within the channel, and the amount per 100 feet of stream will be calculated. Number of downed woody stems: Average dbh of trees (measure only if V _{CCANOPY} tree/sapling cover is at least 20%). Trees are at least 4 inches (10 cm) in diameter. Enter tree DBHs in inches. List the dbh measurements of individual trees (at least 4 in) within the buffer on each side of the stream below: Right Side 7 V _{SNAG} Number of snags (at least 4" dbh and 36" tall) per 100 feet of stream. Enter number of snags on each side of the stream, and the amount per 100 feet will be calculated. 8 V _{SSD} Number of saplings and shrubs (woody stems up to 4 inches dbh) per 100 feet of stream (measure only if tree cover is <20%). Enter number of saplings and shrubs on each side of the stream, and the amount 13.1							0.50	2.50	2.50	1.50	4.00	
Total percent of eroded stream channel bank. Enter the total number of feet of eroded bank on each side and the total percentage will be calculated. If both banks are eroded, total erosion for the stream may be up to 200%. Left Bank: 40 ft Right Bank: 40 ft Sample Variables 5-9 within the entire riparian/buffer zone adjacent to the stream channel (25 feet from each bank). 5 V _{LWD} Number of down woody stems (at least 4 inches in diameter and 36 inches in length) per 100 feet of stream reach. Enter the number from the entire 50'-wide buffer and within the channel, and the amount per 100 feet of stream will be calculated. Number of downed woody stems: 1 6 V _{TDBH} Average dbh of trees (measure only if V _{CCANDFY} tree/sapling cover is at least 20%). Trees are at least 4 inches (10 cm) in diameter. Enter tree DBHs in inches. List the dbh measurements of individual trees (at least 4 in) within the buffer on each side of the stream below: Left Side Right Side Number of snags (at least 4" dbh and 36" tall) per 100 feet of stream. Enter number of snags on each side of the stream, and the amount per 100 feet will be calculated. Left Side: 0 Right Side: 0 Number of saplings and shrubs (woody stems up to 4 inches dbh) per 100 feet of stream, and the amount if tree cover is <20%). Enter number of saplings and shrubs on each side of the stream, and the amount if the cover is <20%). Enter number of saplings and shrubs on each side of the stream, and the amount if the cover is <20%). Enter number of saplings and shrubs on each side of the stream, and the amount if the cover is <20%). Enter number of saplings and shrubs on each side of the stream, and the amount if the cover is <20%). Enter number of saplings and shrubs on each side of the stream, and the amount if the cover is <20%). Enter number of saplings and shrubs on each side of the stream, and the amount if the cover is <20%.		9.00	3.00	3.00	0.50	2.50	0.50	2.50	2.50	1.50	4.00	
and the total percentage will be calculated. If both banks are eroded, total erosion for the stream may be up to 200%. Left Bank: 40 ft Right Bank: 40 ft Sample Variables 5-9 within the entire riparian/buffer zone adjacent to the stream channel (25 feet from each bank). 5 V _{LWD} Number of down woody stems (at least 4 inches in diameter and 36 inches in length) per 100 feet of stream reach. Enter the number from the entire 50'-wide buffer and within the channel, and the amount per 100 feet of stream will be calculated. Number of downed woody stems: 1 6 V _{TDBH} Average dbh of trees (measure only if V _{CCANOPY} tree/sapling cover is at least 20%). Trees are at least 4 inches (10 cm) in diameter. Enter tree DBHs in inches. List the dbh measurements of individual trees (at least 4 in) within the buffer on each side of the stream below: Left Side Right Side 7 V _{SNAG} Number of snags (at least 4" dbh and 36" tall) per 100 feet of stream. Enter number of snags on each side of the stream, and the amount per 100 feet will be calculated. Left Side: 0 Right Side: 0 Number of saplings and shrubs (woody stems up to 4 inches dbh) per 100 feet of stream (measure only if tree cover is <20%). Enter number of saplings and shrubs on each side of the stream, and the amount 13.1		9.00	3.00	3.00	0.50	2.50	0.50	2.50	2.50	1.50	4.00	
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Number of down woody stems (at least 4 inches in diameter and 36 inches in length) per 100 feet of stream reach. Enter the number from the entire 50'-wide buffer and within the channel, and the amount per 100 feet of stream will be calculated. Number of downed woody stems: Number of downed woody stems: Number of downed woody stems: Not Used Not Used Not Used To Vania and the amount per 100 feet of stream will be calculated. Not Used Not Used Not Used Not Used Not Used Not Used Right Side Number of snags (at least 4" dbh and 36" tall) per 100 feet of stream. Enter number of snags on each side of the stream, and the amount per 100 feet will be calculated. Left Side: Number of snags and shrubs (woody stems up to 4 inches dbh) per 100 feet of stream (measure only if tree cover is <20%). Enter number of snaghings and shrubs on each side of the stream, and the amount 13.1			up to 20070		40) ft		Right Bar	nk: 40	0 ft		
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Left Side Right Side	Ü	· IDBH	inches (10	cm) in diam	eter. Enter	tree DBHs i	n inches.				at load: I	Not Used
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8 V _{SSD} Number of saplings and shrubs (woody stems up to 4 inches dbh) per 100 feet of stream (measure only if tree cover is <20%). Enter number of saplings and shrubs on each side of the stream, and the amount 13.1	7	V_{SNAG}							n. Enter numb	er of snags	on each	0.0
if tree cover is <20%). Enter number of saplings and shrubs on each side of the stream, and the amount 13.1				Left Side:		0		Right Sic	de:	0		
per 100 ft of stream will be calculated.	8	V _{SSD}	if tree cove	r is <20%).	Enter numb	er of sapling						13.1

9	V _{SRICH}	Group 1 in									
				nd the subir	ndex will be	calculated f	rom these d		2 (1 0)		
	Acor rubru		p 1 = 1.0	Magnalia t	rinotolo		Ailanthus a		2 (-1.0)	I onicoro io	nonico
	Acer rubrui			Magnolia tr						Lonicera ja	
_	Acer sacch			Nyssa sylv			Albizia julib			Lonicera ta	
	Aesculus fl	ava		Oxydendrun	n arboreum		Alliaria peti	olata		Lotus corni	
	Asimina tril	oba		Prunus ser	rotina		Alternanthe			Lythrum sa	licaria
	Betula alleg	haniensis		Quercus al	lba		philoxeroid	es		Microstegiur	n vimineum
	Betula lenta	а		Quercus co	occinea		Aster tatari	cus		Paulownia	tomentosa
	Carya alba			Quercus in	nbricaria		Cerastium	fontanum		Polygonum	cuspidatum
	Carya glab	arya glabra Quercus prinus		rinus		Coronilla va	aria		Pueraria m	ontana	
	Carya ovalis Quercus rubra				Elaeagnus u	mbellata		Rosa multi	flora		
П	Carya ovat	а		Quercus ve	elutina		Lespedeza	bicolor		Sorghum h	alepense
$\overline{\Box}$	Cornus flor			Sassafras	albidum		Lespedeza			Verbena bi	•
	Fagus gran			Tilia americ			Ligustrum ol				
	Fraxinus a			Tsuga cana			Ligustrum s				
							Ligustrum	SILICIISE			
	Liriodendron			Ulmus ame	ericaria						
Ш	Magnolia a	cuminata									
		0	Species in	Group 1				0	Species in	Group 2	
			•			L			•	•	
ampl	e Variables	10-11 withi	n at least 8	subplots (4	40" x 40", o	r 1m x 1m)	in the ripari	an/buffer	zone within	25 feet fron	n each
	The four sul										
10	V _{DETRITUS}	• .				-		•	<4" diamete	er and <36"	22.50 %
		long are inc		•	t cover of th	e uetritaria)				1	
		70	80 80	Side 0	0	10	10	Side 10	0		
		70	60	0	0	10	10	10	0		
11	V_{HERB}	Average pe	ercentage co	over of herba	aceous vege	etation (mea	asure only if	tree cover	is <20%). D	o not	
									ayers of gro		39 %
				s up through	า 200% are a	accepted. E	nter the per	cent cover	of ground ve	egetation at	00 /0
		each subplot.									
		each subpi		Side			Right	Side		1	
		·	Left	Side	0	85		Side 80	10]	
Sample 12	e Variable 1	20 2 within the	Left 30 e entire cate	0 chment of t	0 he stream.	85 ned:	Right	Side 80	10		
	e Variable 1	20 2 within the	Left 30 e entire cate	0 chment of t	he stream.				10		0.51
		20 2 within the	Left 30 e entire cato werage of F	0 chment of t	he stream.	ned:			Runoff Score	% in Catch-	Running Percent
	V _{WLUSE}	20 2 within the	Left 30 e entire cate werage of F	0 Chment of t Runoff Score Use (Choose	he stream. e for watersh	ned:			Runoff	Catch- ment	Running Percent (not >100)
	V _{WLUSE}	20 2 within the	Left 30 e entire cate werage of F	0 Chment of t Runoff Score Use (Choose	he stream. e for watersh	ned:			Runoff	Catch-	Running Percent
	V _{WLUSE}	20 2 within the	Left 30 entire cato verage of F Land	O Chment of t Runoff Score Use (Choos	he stream. e for watersh se From Dro	ned:			Runoff	Catch- ment	Running Percent (not >100)
	V _{WLUSE} Open space Open space	20 2 within the Weighted A	Left 30 e entire cato everage of F Land ns, parks, etc.	O Chment of t Runoff Score Use (Choos), grass cover	he stream. e for watersh se From Dro < 50% < 50%	ned:			Runoff Score	Catch- ment 0.41	Running Percent (not >100)
	VwLusE Open space Open space Forest and n	20 2 within the Weighted A (pasture, law) (pasture, law) attive range (5)	Left 30 e entire cate werage of F Land hs, parks, etc. hs, parks, etc. soft to 75% g	O Chment of t Runoff Score Use (Choose), grass cover), grass cover	he stream. e for watersh se From Dro <50%	ned:			Runoff Score 0.1 0.1 0.7	Catchment 0.41 0.06 73.01	Running Percent (not >100) 0.41 0.47 73.48
	VwLusE Open space Open space Forest and n	20 2 within the Weighted A (pasture, law)	Left 30 e entire cate werage of F Land hs, parks, etc. hs, parks, etc. soft to 75% g	O Chment of t Runoff Score Use (Choose), grass cover), grass cover	he stream. e for watersh se From Dro <50%	ned:			Runoff Score	Catch- ment 0.41 0.06	Running Percent (not >100) 0.41 0.47
	VwLusE Open space Open space Forest and n	20 2 within the Weighted A (pasture, law) (pasture, law) attive range (5)	Left 30 e entire cate werage of F Land hs, parks, etc. hs, parks, etc. soft to 75% g	O Chment of t Runoff Score Use (Choose), grass cover), grass cover	he stream. e for watersh se From Dro <50%	ned:			Runoff Score 0.1 0.1 0.7	Catchment 0.41 0.06 73.01	Running Percent (not >100) 0.41 0.47 73.48
	VwLusE Open space Open space Forest and n	20 2 within the Weighted A (pasture, law) (pasture, law) attive range (5)	Left 30 e entire cate werage of F Land hs, parks, etc. hs, parks, etc. soft to 75% g	O Chment of t Runoff Score Use (Choose), grass cover), grass cover	he stream. e for watersh se From Dro <50%	ned:			Runoff Score 0.1 0.1 0.7	Catchment 0.41 0.06 73.01	Running Percent (not >100) 0.41 0.47 73.48
	VwLusE Open space Open space Forest and n	20 2 within the Weighted A (pasture, law) (pasture, law) (pasture law) (Left 30 e entire cate werage of F Land hs, parks, etc. hs, parks, etc. soft to 75% g	O Chment of t Runoff Score Use (Choose), grass cover), grass cover	he stream. e for watersh se From Dro <50%	ned:			Runoff Score 0.1 0.1 0.7	Catchment 0.41 0.06 73.01	Running Percent (not >100) 0.41 0.47 73.48
	VwLusE Open space Open space Forest and n	20 2 within the Weighted A (pasture, law) (pasture, law) (pasture law) (Left 30 e entire cate werage of F Land hs, parks, etc. hs, parks, etc. soft to 75% g	O Chment of t Runoff Score Use (Choose), grass cover), grass cover	he stream. e for watersh se From Dro <50%	ned:			Runoff Score 0.1 0.1 0.7	Catchment 0.41 0.06 73.01	Running Percent (not >100) 0.41 0.47 73.48
	VwLusE Open space Open space Forest and n	20 2 within the Weighted A (pasture, law) (pasture, law) (pasture law) (Left 30 e entire cate werage of F Land hs, parks, etc. hs, parks, etc. soft to 75% g	O Chment of t Runoff Score Use (Choose), grass cover), grass cover	he stream. e for watersh se From Dro <50%	ned:			Runoff Score 0.1 0.1 0.7	Catchment 0.41 0.06 73.01	Running Percent (not >100) 0.41 0.47 73.48
	Open space Open space Forest and in	20 2 within the Weighted A (pasture, law) (pasture, law) (pasture law) (Left 30 e entire cate werage of F Land hs, parks, etc. hs, parks, etc. soft to 75% g	O Chment of t Runoff Score Use (Choose), grass cover), grass cover	he stream. e for watersh se From Dro <50%	ned:	90		Runoff Score 0.1 0.1 0.7	Catchment 0.41 0.06 73.01	Running Percent (not >100) 0.41 0.47 73.48
12	Open space Open space Forest and in Newly grade	20 2 within the Weighted A (pasture, law) (pasture, law) attive range (1) areas (bare	Left 30 e entire cate werage of F Land ns, parks, etc.; ns, parks, etc.) soft to 75% g soil, no vege	O Chment of t Runoff Score Use (Choos), grass cover), grass cover round cover)	he stream. e for watersh se From Dro <50% <50%	p List)	90 No	80 ************************************	Runoff Score 0.1 0.1 0.7	Catchment 0.41 0.06 73.01 26.52	Running Percent (not >100) 0.41 0.47 73.48 100
12 V	Open space Open space Forest and n Newly grade	20 2 within the Weighted A (pasture, law) (pasture, law) (pasture ange (1) (pasture ange (2) (pasture ange (3) (pasture ange (4) (pasture	Left 30 e entire cate werage of F Land ns, parks, etc. ns, parks, etc. solve to 75% g soil, no vege	Use (Choose Use (Choose Use), grass cover (Choose Use), grass (Choose Use),	he stream. e for watersh se From Dro <50% <50% verment) ver Analysis e (NLCD), fi	p List) p was comrom Lands	90 No pleted using sat satellite	tes:	Runoff Score 0.1 0.1 0.7 0 National and other s	Catchment 0.41 0.06 73.01 26.52 Land Coverupplement	Running Percent (not >100 0.41 0.47 73.48 100 er arry
12 V	Open space Open space Forest and in Newly grade	20 2 within the Weighted A (pasture, law) (pasture, law) attive range (1) areas (bare	Left 30 e entire cate werage of F Land ns, parks, etc.; ns, parks, etc.) soft to 75% g soil, no vege	Use (Choose), grass cover round cover) tataion or pave Land Cov Database datasets.	he stream. e for watersh se From Dro <50% <50% <form (mlcd),="" fi="" td="" watershee<=""><td>p List) s was comrom Landsd boundari</td><td>No pleted usir sat satellite es are bas</td><td>tes: gg the 201 imagery ed off of f</td><td>Runoff Score 0.1 0.1 0.7 0 9 National and others sield delinear</td><td>Catchment 0.41 0.06 73.01 26.52 Land Coverupplement ated stream</td><td>Running Percent (not >100 0.41 0.47 73.48 100</td></form>	p List) s was comrom Landsd boundari	No pleted usir sat satellite es are bas	tes: gg the 201 imagery ed off of f	Runoff Score 0.1 0.1 0.7 0 9 National and others sield delinear	Catchment 0.41 0.06 73.01 26.52 Land Coverupplement ated stream	Running Percent (not >100 0.41 0.47 73.48 100
12 V	Open space Open space Forest and n Newly grade	20 2 within the Weighted A (pasture, law) (pasture, law) ative range (!	Left 30 e entire cate werage of F Land ns, parks, etc. ns, parks, etc. solve to 75% g soil, no vege	Use (Choose), grass cover round cover) tataion or pave Land Cov Database datasets.	he stream. e for watersh se From Dro <50% <50% <form (mlcd),="" fi="" td="" watershee<=""><td>p List) s was comrom Landsd boundari</td><td>No pleted usir sat satellite es are bas</td><td>tes: gg the 201 imagery ed off of f</td><td>Runoff Score 0.1 0.1 0.7 0 National and other s</td><td>Catchment 0.41 0.06 73.01 26.52 Land Coverupplement ated stream</td><td>Running Percent (not >100 0.41 0.47 73.48 100</td></form>	p List) s was comrom Landsd boundari	No pleted usir sat satellite es are bas	tes: gg the 201 imagery ed off of f	Runoff Score 0.1 0.1 0.7 0 National and other s	Catchment 0.41 0.06 73.01 26.52 Land Coverupplement ated stream	Running Percent (not >100 0.41 0.47 73.48 100
V V	Open space Open space Forest and n Newly grade sariable CCANOPY MED	20 2 within the Weighted A (pasture, law) (pasture, law) ative range (1) areas (bare) 3-B2a Value Not Used, <20%	Left 30 entire cato everage of F Land ns, parks, etc. solve to 75% g soil, no vege	Use (Choose), grass cover round cover) tataion or pave Land Cov Database datasets.	he stream. e for watersh se From Dro <50% <50% <form (mlcd),="" fi="" td="" watershee<=""><td>p List) s was comrom Landsd boundari</td><td>No pleted usir sat satellite es are bas</td><td>tes: gg the 201 imagery ed off of f</td><td>Runoff Score 0.1 0.1 0.7 0 9 National and others sield delinear</td><td>Catchment 0.41 0.06 73.01 26.52 Land Coverupplement ated stream</td><td>Running Percent (not >100 0.41 0.47 73.48 100</td></form>	p List) s was comrom Landsd boundari	No pleted usir sat satellite es are bas	tes: gg the 201 imagery ed off of f	Runoff Score 0.1 0.1 0.7 0 9 National and others sield delinear	Catchment 0.41 0.06 73.01 26.52 Land Coverupplement ated stream	Running Percent (not >100 0.41 0.47 73.48 100
V V	Open space Open space Forest and n Newly grade sariable CCANOPY SUBSTRATE	20 2 within the Weighted A (pasture, law) (pasture, law) (pasture and (pasture, law) (pasture and (pasture, law) (pasture, l	Left 30 Pentire cate werage of F Land Ins, parks, etc. Solutions, parks, etc.	Use (Choose), grass cover round cover) tataion or pave Land Cov Database datasets.	he stream. e for watersh se From Dro <50% <50% <form (mlcd),="" fi="" td="" watershee<=""><td>p List) s was comrom Landsd boundari</td><td>No pleted usir sat satellite es are bas</td><td>tes: gg the 201 imagery ed off of f</td><td>Runoff Score 0.1 0.1 0.7 0 9 National and others sield delinear</td><td>Catchment 0.41 0.06 73.01 26.52 Land Coverupplement ated stream</td><td>Running Percent (not >100 0.41 0.47 73.48 100</td></form>	p List) s was comrom Landsd boundari	No pleted usir sat satellite es are bas	tes: gg the 201 imagery ed off of f	Runoff Score 0.1 0.1 0.7 0 9 National and others sield delinear	Catchment 0.41 0.06 73.01 26.52 Land Coverupplement ated stream	Running Percent (not >100 0.41 0.47 73.48 100
V V	Open space Open space Forest and n Newly grade sariable CCANOPY MED	20 2 within the Weighted A (pasture, law) (pasture, law) (pasture ange (!) 2 dareas (bare) S-B2a Value Not Used, <20% 2.7	Left 30 entire cate werage of F Land ns, parks, etc.) soft to 75% g soil, no vege VSI Not Used 0.71	Use (Choose), grass cover round cover) tataion or pave Land Cov Database datasets.	he stream. e for watersh se From Dro <50% <50% <form (mlcd),="" fi="" td="" watershee<=""><td>p List) s was comrom Landsd boundari</td><td>No pleted usir sat satellite es are bas</td><td>tes: gg the 201 imagery ed off of f</td><td>Runoff Score 0.1 0.1 0.7 0 9 National and others sield delinear</td><td>Catchment 0.41 0.06 73.01 26.52 Land Coverupplement ated stream</td><td>Running Percent (not >100 0.41 0.47 73.48 100</td></form>	p List) s was comrom Landsd boundari	No pleted usir sat satellite es are bas	tes: gg the 201 imagery ed off of f	Runoff Score 0.1 0.1 0.7 0 9 National and others sield delinear	Catchment 0.41 0.06 73.01 26.52 Land Coverupplement ated stream	Running Percent (not >100 0.41 0.47 73.48 100
V V V V V V V V V V V V V V V V V V V	Open space Open space Forest and n Newly grade sariable CCANOPY SUBSTRATE	20 2 within the Weighted A (pasture, law) (pasture, law) (pasture and (pasture, law) (pasture and (pasture, law) (pasture, l	Left 30 Pentire cate werage of F Land Ins, parks, etc. Solutions, parks, etc.	Use (Choose), grass cover round cover) tataion or pave Land Cov Database datasets.	he stream. e for watersh se From Dro <50% <50% <form (mlcd),="" fi="" td="" watershee<=""><td>p List) s was comrom Landsd boundari</td><td>No pleted usir sat satellite es are bas</td><td>tes: gg the 201 imagery ed off of f</td><td>Runoff Score 0.1 0.1 0.7 0 9 National and others sield delinear</td><td>Catchment 0.41 0.06 73.01 26.52 Land Coverupplement ated stream</td><td>Running Percent (not >100 0.41 0.47 73.48 100</td></form>	p List) s was comrom Landsd boundari	No pleted usir sat satellite es are bas	tes: gg the 201 imagery ed off of f	Runoff Score 0.1 0.1 0.7 0 9 National and others sield delinear	Catchment 0.41 0.06 73.01 26.52 Land Coverupplement ated stream	Running Percent (not >100 0.41 0.47 73.48 100
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V V V V V V V V V V V V V V V V V V V	Open space Open space Forest and n Newly grade Canopy CANOPY SUBSTRATE BERO LWD	20 2 within the Weighted A (pasture, law) (pastur	Left 30 e entire cate werage of F Land ns, parks, etc.) so, parks, etc.) so% to 75% g soil, no vege VSI Not Used 0.71 1.00 0.70 0.11	Use (Choose), grass cover round cover) tataion or pave Land Cov Database datasets.	he stream. e for watersh se From Dro <50% <50% <form (mlcd),="" fi="" td="" watershee<=""><td>p List) s was comrom Landsd boundari</td><td>No pleted usir sat satellite es are bas</td><td>tes: gg the 201 imagery ed off of f</td><td>Runoff Score 0.1 0.1 0.7 0 9 National and others sield delinear</td><td>Catchment 0.41 0.06 73.01 26.52 Land Coverupplement ated stream</td><td>Running Percent (not >100 0.41 0.47 73.48 100</td></form>	p List) s was comrom Landsd boundari	No pleted usir sat satellite es are bas	tes: gg the 201 imagery ed off of f	Runoff Score 0.1 0.1 0.7 0 9 National and others sield delinear	Catchment 0.41 0.06 73.01 26.52 Land Coverupplement ated stream	Running Percent (not >100 0.41 0.47 73.48 100
V V	Open space Open space Forest and n Newly grade Sariable CCANOPY SUBSTRATE BERO LWD TDBH SNAG	20 2 within the Weighted A (pasture, law (pasture, law end of the law end of th	Left 30 Pentire cate werage of F Land Is, parks, etc. Is, p	Use (Choose), grass cover round cover) tataion or pave Land Cov Database datasets.	he stream. e for watersh se From Dro <50% <50% <form (mlcd),="" fi="" td="" watershee<=""><td>p List) s was comrom Landsd boundari</td><td>No pleted usir sat satellite es are bas</td><td>tes: gg the 201 imagery ed off of f</td><td>Runoff Score 0.1 0.1 0.7 0 9 National and others sield delinear</td><td>Catchment 0.41 0.06 73.01 26.52 Land Coverupplement ated stream</td><td>Running Percent (not >100 0.41 0.47 73.48 100</td></form>	p List) s was comrom Landsd boundari	No pleted usir sat satellite es are bas	tes: gg the 201 imagery ed off of f	Runoff Score 0.1 0.1 0.7 0 9 National and others sield delinear	Catchment 0.41 0.06 73.01 26.52 Land Coverupplement ated stream	Running Percent (not >100 0.41 0.47 73.48 100
V V V V V V V V V V V V V V V V V V V	Open space Open space Forest and n Newly grade Canopy Canopy	20 2 within the Weighted A (pasture, law) (pastur	Left 30 entire cate werage of F Land ns, parks, etc.) so, parks, etc.) so, to 75% g soil, no vege VSI Not Used 0.71 1.00 0.70 0.11 Not Used 0.10 0.20	Use (Choose), grass cover round cover) tataion or pave Land Cov Database datasets.	he stream. e for watersh se From Dro <50% <50% <form (mlcd),="" fi="" td="" watershee<=""><td>p List) s was comrom Landsd boundari</td><td>No pleted usir sat satellite es are bas</td><td>tes: gg the 201 imagery ed off of f</td><td>Runoff Score 0.1 0.1 0.7 0 9 National and others sield delinear</td><td>Catchment 0.41 0.06 73.01 26.52 Land Coverupplement ated stream</td><td>Running Percent (not >100 0.41 0.47 73.48 100</td></form>	p List) s was comrom Landsd boundari	No pleted usir sat satellite es are bas	tes: gg the 201 imagery ed off of f	Runoff Score 0.1 0.1 0.7 0 9 National and others sield delinear	Catchment 0.41 0.06 73.01 26.52 Land Coverupplement ated stream	Running Percent (not >100 0.41 0.47 73.48 100
V V V V V V V V V V V V V V V V V V V	Open space Open space Forest and n Newly grade Cariable CCANOPY FEMBED SUBSTRATE BERO LWD TDBH SNAG SSD SRICH	20 2 within the Weighted A (pasture, law) (pasture, law) (pasture and continue to the contin	Left 30 Pentire cate Werage of F Land Ins, parks, etc., 50% to 75% g Soil, no vege VSI Not Used 0.71 1.00 0.70 0.11 Not Used 0.10 0.20 0.00	Use (Choose), grass cover round cover) tataion or pave Land Cov Database datasets.	he stream. e for watersh se From Dro <50% <50% <form (mlcd),="" fi="" td="" watershee<=""><td>p List) s was comrom Landsd boundari</td><td>No pleted usir sat satellite es are bas</td><td>tes: gg the 201 imagery ed off of f</td><td>Runoff Score 0.1 0.1 0.7 0 9 National and others sield delinear</td><td>Catchment 0.41 0.06 73.01 26.52 Land Coverupplement ated stream</td><td>Running Percent (not >100 0.41 0.47 73.48 100</td></form>	p List) s was comrom Landsd boundari	No pleted usir sat satellite es are bas	tes: gg the 201 imagery ed off of f	Runoff Score 0.1 0.1 0.7 0 9 National and others sield delinear	Catchment 0.41 0.06 73.01 26.52 Land Coverupplement ated stream	Running Percent (not >100 0.41 0.47 73.48 100
V V V V V V V V V V V V V V V V V V V	Open space Open space Forest and n Newly grade Canopy Canopy	20 2 within the Weighted A (pasture, law) (pastur	Left 30 entire cate werage of F Land ns, parks, etc.) so, parks, etc.) so, to 75% g soil, no vege VSI Not Used 0.71 1.00 0.70 0.11 Not Used 0.10 0.20	Use (Choose), grass cover round cover) tataion or pave Land Cov Database datasets.	he stream. e for watersh se From Dro <50% <50% <form (mlcd),="" fi="" td="" watershee<=""><td>p List) s was comrom Landsd boundari</td><td>No pleted usir sat satellite es are bas</td><td>tes: gg the 201 imagery ed off of f</td><td>Runoff Score 0.1 0.1 0.7 0 9 National and others sield delinear</td><td>Catchment 0.41 0.06 73.01 26.52 Land Coverupplement ated stream</td><td>Running Percent (not >100 0.41 0.47 73.48 100</td></form>	p List) s was comrom Landsd boundari	No pleted usir sat satellite es are bas	tes: gg the 201 imagery ed off of f	Runoff Score 0.1 0.1 0.7 0 9 National and others sield delinear	Catchment 0.41 0.06 73.01 26.52 Land Coverupplement ated stream	Running Percent (not >100 0.41 0.47 73.48 100
V V V V V V V V V V V V V V V V V V V	Open space Open space Forest and n Newly grade Cariable CCANOPY FEMBED SUBSTRATE BERO LWD TDBH SNAG SSD SRICH	20 2 within the Weighted A (pasture, law) (pasture, law) (pasture and continue to the contin	Left 30 Pentire cate Werage of F Land Ins, parks, etc., 50% to 75% g Soil, no vege VSI Not Used 0.71 1.00 0.70 0.11 Not Used 0.10 0.20 0.00	Use (Choose), grass cover round cover) tataion or pave Land Cov Database datasets.	he stream. e for watersh se From Dro <50% <50% <form (mlcd),="" fi="" td="" watershee<=""><td>p List) s was comrom Landsd boundari</td><td>No pleted usir sat satellite es are bas</td><td>tes: gg the 201 imagery ed off of f</td><td>Runoff Score 0.1 0.1 0.7 0 9 National and others sield delinear</td><td>Catchment 0.41 0.06 73.01 26.52 Land Coverupplement ated stream</td><td>Running Percent (not >100 0.41 0.47 73.48 100</td></form>	p List) s was comrom Landsd boundari	No pleted usir sat satellite es are bas	tes: gg the 201 imagery ed off of f	Runoff Score 0.1 0.1 0.7 0 9 National and others sield delinear	Catchment 0.41 0.06 73.01 26.52 Land Coverupplement ated stream	Running Percent (not >100 0.41 0.47 73.48 100
V V V V V V V V V V V V V V V V V V V	Open space Open space Open space Forest and n Newly grade Canopy Sariable CCANOPY Substrate BERO LWD TDBH SNAG SSD SRICH DETRITUS	20 2 within the Weighted A (pasture, law) (pastur	Left 30 Pentire cate Werage of F Land Ins, parks, etc.	Use (Choose), grass cover round cover) tataion or pave Land Cov Database datasets.	he stream. e for watersh se From Dro <50% <50% <form (mlcd),="" fi="" td="" watershee<=""><td>p List) s was comrom Landsd boundari</td><td>No pleted usir sat satellite es are bas</td><td>tes: gg the 201 imagery ed off of f</td><td>Runoff Score 0.1 0.1 0.7 0 9 National and others sield delinear</td><td>Catchment 0.41 0.06 73.01 26.52 Land Coverupplement ated stream</td><td>Running Percent (not >100) 0.41 0.47 73.48 100</td></form>	p List) s was comrom Landsd boundari	No pleted usir sat satellite es are bas	tes: gg the 201 imagery ed off of f	Runoff Score 0.1 0.1 0.7 0 9 National and others sield delinear	Catchment 0.41 0.06 73.01 26.52 Land Coverupplement ated stream	Running Percent (not >100) 0.41 0.47 73.48 100

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (FRONT)

STREAM NAME	LOCATION			
STATION # RIVERMILE	STREAM CLASS			
LAT LONG	RIVER BASIN			
STORET#	AGENCY			
INVESTIGATORS				
FORM COMPLETED BY	DATE TIME	REASON FOR SURVEY		

WEATHER CONDITIONS SITE LOCATION/MAP	Now Past 24 hours Yes No storm (heavy rain) rain (steady rain) showers (intermittent) %cloud cover clear/sunny Draw a map of the site and indicate the areas sampled (or attach a photograph)
	S-B2a North
STREAM CHARACTERIZATION	Stream Subsystem Perennial Intermittent Tidal Stream Type Coldwater Warmwater Stream Origin Glacial Spring-fed Non-glacial montane Mixture of origins Swamp and bog Other

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (BACK)

WATERS FEATURI		Fores Field Agric	Pasture Industria	rcial	No evidence Sor Obvious sources Local Watershed Erosi None Moderate	ne potential sources
RIPARIA VEGETA (18 meter	ΓION	Trees	e the dominant type and Sl ant species present	hrubs	Grasses He	brbaceous
INSTREA FEATURI		Estimat Samplin Area in Estimat	red Stream Depthm	m m² km² m	Canopy Cover Partly open Part High Water Mark Proportion of Reach R Morphology Types Riffle Pool 9 Channelized Yes Dam Present Yes	epresented by Stream Run% No
LARGE V DEBRIS	VOODY		m² of LWDm	1 ² /km ² (LWD / 1	reach area)	
AQUATIO VEGETA		Domina			minant species present nt Rooted floating	Ü
WATER ((DS, US)	QUALITY	Specific Dissolve pH Turbidi	rature0 C Conductance ed Oxygen ty trument Used		Water Odors Normal/None Sewage Petroleum Fishy Water Surface Oils Slick Sheen None Other Turbidity (if not measu Clear ☐ Slightly tu Opaque Stained	Chemical Other Globs Flecks
SEDIMEN SUBSTRA		Odors Norm Chen Other Oils Abser	al Sewage nical Anaerobic 		are the undersides blac	th are not deeply embedded,
INC	ORGANIC SUBS (should a		COMPONENTS 00%)		ORGANIC SUBSTRATE C (does not necessarily add	
Substrate Type	Diamet	er	% Composition in Sampling Reach	Substrate Type	Characteristic	% Composition in Sampling Area
Bedrock				Detritus	sticks, wood, coarse plant materials (CPOM)	
Boulder Cobble	> 256 mm (10") 64-256 mm (2.5			Muck-Mud	black, very fine organic	
Gravel	2-64 mm (0.1"-2			IVIUCK-IVIUU	(FPOM)	

Sand

Silt

Clay

0.06-2mm (gritty)

< 0.004 mm (slick)

0.004-0.06 mm

grey, shell fragments

Marl

HABITAT ASSESSMENT FIELD DATA SHEET - HG - USE ON ALL STREAMS (FRONT)

STREAM NAME	LOCATION	
STATION # RIVERMILE	STREAM CLASS	
LAT LONG	RIVER BASIN	
STORET#	AGENCY	
INVESTIGATORS		
FORM COMPLETED BY	DATE AM PM	REASON FOR SURVEY

	Habitat		Condition	ı Category	
	Parameter	Optimal	Suboptimal	Marginal	Poor
	1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are not new fall and not transient).	40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale).	20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed.	Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking.
	SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
n sampling reach	2. Embeddedness	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space.	Gravel, cobble, and boulder particles are 25- 50% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 50- 75% surrounded by fine sediment.	Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment.
ted in	SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
Parameters to be evaluated in sampling reach	3. Velocity/Depth Regime	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow is < 0.3 m/s, deep is > 0.5 m.)	Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes).	Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low).	Dominated by 1 velocity/depth regime (usually slow-deep).
ıram	SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
Pa	4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
	SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
	5. Channel Flow Status	Water reaches base of both lower banks, and minimal amount of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
	SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0

HABITAT ASSESSMENT FIELD DATA SHEET—HIGH GRADIENT STREAMS (BACK)

	Habitat		Condition	n Category	
	Parameter	Optimal	Suboptimal	Marginal	Poor
	6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr) may be present, but recent channelization is not present.	Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted.	Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely.
	SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
oling reach	7. Frequency of Riffles (or bends)	Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important.	Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.
samp	SCORE	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
Parameters to be evaluated broader than sampling reach	8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion	Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods.	Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars.
e eva	SCORE (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
to be	SCORE (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
Parameters	9. Vegetative Protection (score each bank)	More than 90% of the streambank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally.	70-90% of the streambank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	50-70% of the streambank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one- half of the potential plant stubble height remaining.	Less than 50% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
	SCORE (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
	SCORE (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
	10. Riparian Vegetative Zone Width (score each bank riparian zone)	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone.	Width of riparian zone 12-18 meters; human activities have impacted zone only minimally.	Width of riparian zone 6- 12 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.
	SCORE (LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
ĺ	SCORE (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0

Total	Caare	
i otai	Score	

BENTHIC MACROINVERTEBRATE FIELD DATA SHEET

STREAM NAME		LOCATION					
STATION #	_ RIVERMILE	STREAM CLASS					
LAT	LONG	RIVER BASIN					
STORET#		AGENCY					
INVESTIGATORS			LOT NUMBER				
FORM COMPLETED	ВҮ	DATE TIME	REASON FOR SURVEY				
HABITAT TYPES	Indicate the percentage of	each habitat type present	onks % Sand %				

HABITAT TYPES	Indicate the percentage of each habitat type present Cobble% Snags% Vegetated Banks% Sand% Submerged Macrophytes% Other ()%
SAMPLE COLLECTION	Gear used D-frame kick-net Other
	How were the samples collected? wading from bank from boat
	Indicate the number of jabs/kicks taken in each habitat type. Cobble Snags Vegetated Banks Sand Submerged Macrophytes Other ()
GENERAL COMMENTS	

QUALITATIVE LISTING OF AQUATIC BIOTA

Indicate estimated abundance: 0 = Absent/Not Observed, 1 = Rare, 2 = Common, 3= Abundant, 4 = Dominant

Periphyton	0	1	2	3	4	Slimes	0	1	2	3	4
Filamentous Algae	0	1	2	3	4	Macroinvertebrates	0	1	2	3	4
Macrophytes	0	1	2	3	4	Fish	0	1	2	3	4

FIELD OBSERVATIONS OF MACROBENTHOS

Indicate estimated abundance: 0 = Absent/Not Observed, 1 = Rare (1-3 organisms), 2 = Common (3-9 organisms), 3 = Abundant (>10 organisms), 4 = Dominant (>50 organisms)

Porifera	0	1	2	3	4	Anisoptera	0	1	2	3	4	Chironomidae	0	1	2	3	4
Hydrozoa	0	1	2	3	4	Zygoptera	0	1	2	3	4	Ephemeroptera	0	1	2	3	4
Platyhelminthes	0	1	2	3	4	Hemiptera	0	1	2	3	4	Trichoptera	0	1	2	3	4
Turbellaria	0	1	2	3	4	Coleoptera	0	1	2	3	4	Other	0	1	2	3	4
Hirudinea	0	1	2	3	4	Lepidoptera	0	1	2	3	4						
Oligochaeta	0	1	2	3	4	Sialidae	0	1	2	3	4						
Isopoda	0	1	2	3	4	Corydalidae	0	1	2	3	4						
Amphipoda	0	1	2	3	4	Tipulidae	0	1	2	3	4						
Decapoda	0	1	2	3	4	Empididae	0	1	2	3	4						
Gastropoda	0	1	2	3	4	Simuliidae	0	1	2	3	4						
Bivalvia	0	1	2	3	4	Tabinidae	0	1	2	3	4						
						Culcidae	0	1	2	3	4						

WOLMAN PEBBLE COUNT FORM

County: Harrison Stream ID: S-B2a

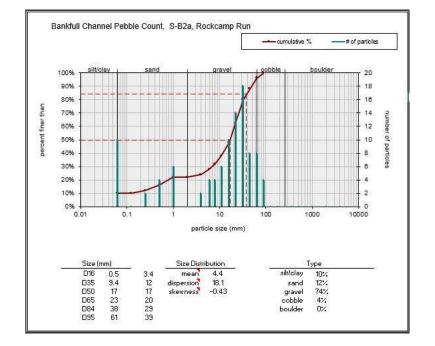
Stream Name: UNT to Rockcamp Run

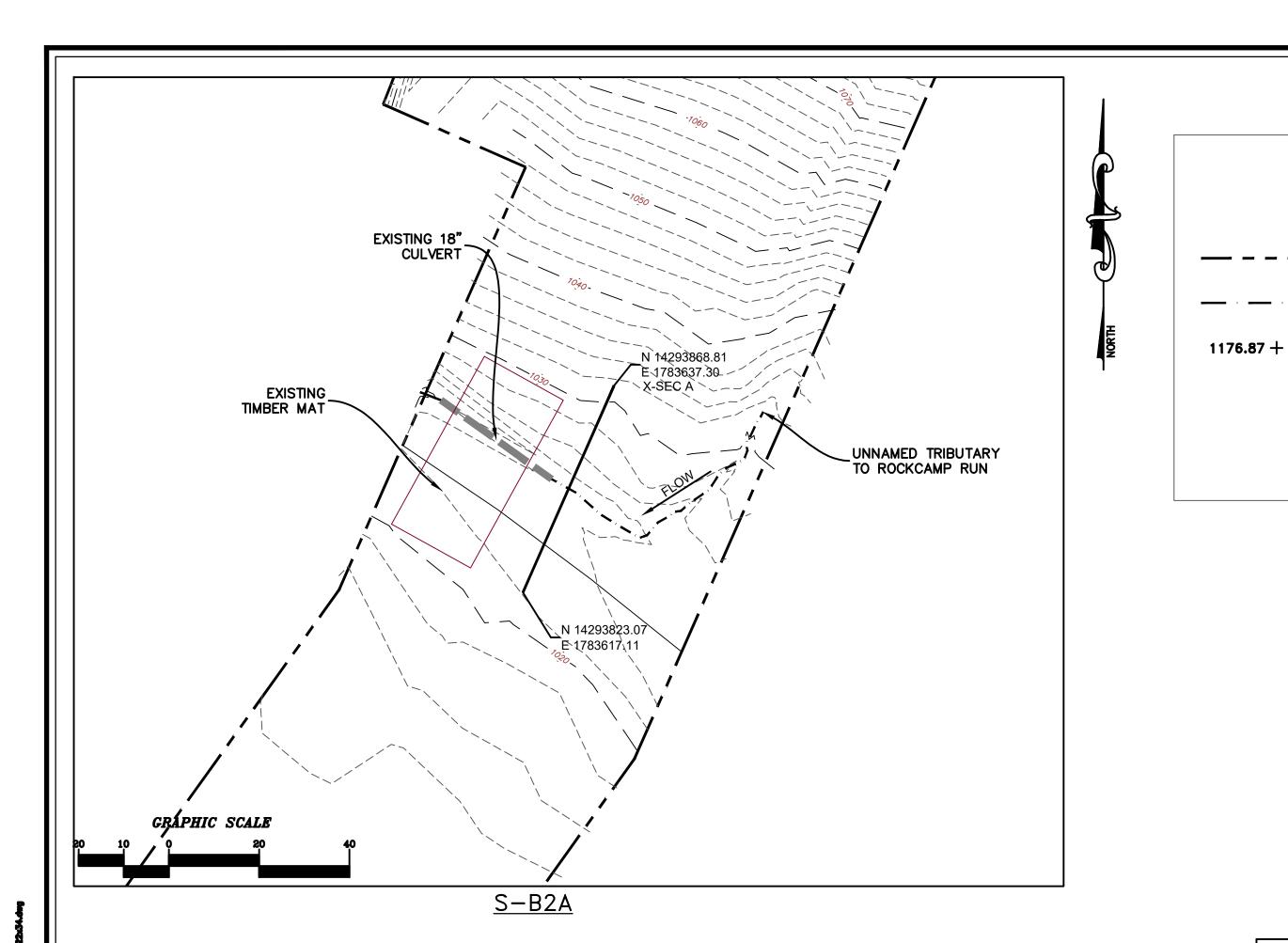
HUC Code: 05020002 Basin: West Fork

Survey Date: 8/28/2021 Surveyors: DP, LP

Type: Bankfull Channel

* 1	D . DEVOY E		LE COUNT				
Inches	PARTICLE	Millimeters		Particle Count	Total #	Item %	% Cur
	Silt/Clay	< .062	S/C	^	10	10.00	10.00
	Very Fine	.062125		*	0	0.00	10.00
	Fine	.12525		*	2	2.00	12.00
	Medium	.255	SAND	•	4	4.00	16.00
	Coarse	.50-1.0		^	6	6.00	22.00
.0408	Very Coarse	1.0-2		A	0	0.00	22.00
.0816	Very Fine	2 -4		*	2	2.00	24.00
.1622	Fine	4 -5.7		*	4	4.00	28.00
.2231	Fine	5.7 - 8		*	4	4.00	32.00
.3144	Medium	8 -11.3		A	6	6.00	38.00
.4463	Medium	11.3 - 16	GRAVEL	*	10	10.00	48.00
.6389	Coarse	16 -22.6		*	14	14.00	62.00
.89 - 1.26	Coarse	22.6 - 32		*	18	18.00	80.00
1.26 - 1.77	Vry Coarse	32 - 45		^	8	8.00	88.00
1.77 -2.5	Vry Coarse	45 - 64		^	8	8.00	96.00
2.5 - 3.5	Small	64 - 90		^	4	4.00	100.0
3.5 - 5.0	Small	90 - 128		^	0	0.00	100.0
5.0 - 7.1	Large	128 - 180	COBBLE	^	0	0.00	100.0
7.1 - 10.1	Large	180 - 256		^	0	0.00	100.0
10.1 - 14.3	Small	256 - 362		A	0	0.00	100.0
14.3 - 20	Small	362 - 512	1	A	0	0.00	100.0
20 - 40	Medium	512 - 1024	BOULDER	A	0	0.00	100.0
40 - 80	Large	1024 -2048	1		0	0.00	100.0
80 - 160	Vry Large	2048 -4096	1		0	0.00	100.0
	Bedrock		BDRK	A	0	0.00	100.0
				Totals:	100		





SURVEY NOTES:

LEGEND

STUDY AREA (EASEMENT)

EXISTING SURVEY-LOCATED THALWEG

EXISTING SURVEYED GROUND SHOT ELEVATION

- 1. THIS MAP HAS BEEN ORIENTED TO NAD 1983 UTM ZONE 17N, AND VERTICALLY TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88), USING REAL TIME DGPS. FIELD LOCATIONS WERE COMPLETED ON SEPTEMBER 3, 2021.
- 2. EASEMENT LINES SHOWN ON PLAN VIEW WERE PROVIDED BY MOUNTAIN VALLEY PIPELINE.
- 3. SURVEY POINTS FOR CROSS SECTIONS AND THALWEG PROFILES COLLECTED IN 2021 HAVE BEEN USED IN COMBINATION WITH SURVEY POINTS COLLECTED PREVIOUSLY IN 2020 IN ORDER TO GENERATE THE PRE-CROSSING SURFACE SHOWN IN PLAN. DUE TO NATURAL EROSIONAL STREAM PROCESSES THAT CAN OCCUR OVER TIME, MINOR ADJUSTMENTS TO THE PROFILE ALIGNMENTS MAY HAVE BEEN REQUIRED IN ORDER TO GENERATE A CLEAN PRE-CROSSING SURFACE.
- 4. ALL SECTION VIEWS SHOWN LEFT TO RIGHT FACING DOWNSTREAM.
- 5. POST-CROSSING SURVEY INFORMATION SHOWN IN RED. DATA PENDING.
- 6. POST-CROSSING SURVEY POINTS FOR CROSS SECTIONS AND THALWEG ARE PROJECTED ONTO PRE-CROSSING SECTION AND PROFILE VIEWS FOR COMPARISON.

PRE-CROSSING PHOTOS



PHOTO TAKEN LOOKING DOWNSTREAM FROM UPSTREAM IMPACT LIMITS





PENDING CROSSING

PHOTO TAKEN LOOKING DOWNSTREAM FROM UPSTREAM IMPACT LIMITS

PENDING CROSSING

PHOTO TAKEN LOOKING UPSTREAM FROM DOWNSTREAM IMPACT LIMITS

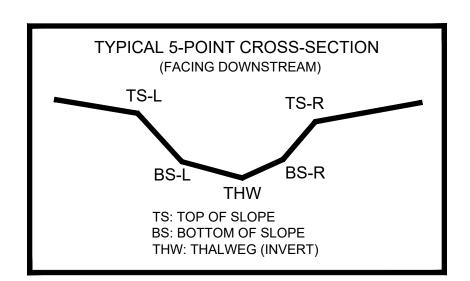
PRE-CROSSING

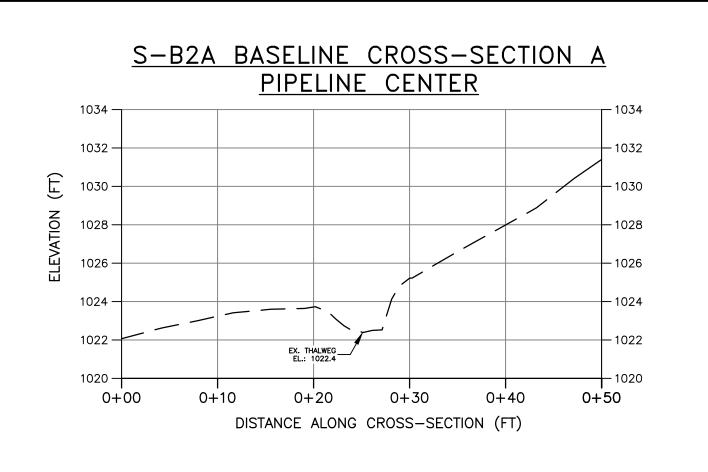
CAD File No.

Drawing No

S-B2A BASELINE THALWEG PROFILE 1032 - 1030 EXISTING 18"_ CULVERT - 1028 1026 띡 1024 -1020 -- 1020 1018 — 0+10 0+50 0+60 0+70 0+80 0+20DISTANCE ALONG CROSS-SECTION (FT) PROFILE LEGEND PROFILE
H: 1"=10'
V: 1"=5' EXISTING STREAM PROFILE SCALE: INVERT ALONG THALWEG

AS-BUILT TABLE: S-B2A CROSS SECTION A								
	PI	PRE-CROSSING						
PT. LOC.	NORTHING	EASTING	ELEV	VERT. DIFF.	HORZ. DIFF.			
TS-L	14293843.52	1783626.13	1023.07					
BS-L	14293844.81	1783626.70	1022.57					
THW	14293846.04	1783627.25	1022.38					
BS-R	14293847.89	1783628.06	1022.52					
TS-R	14293849.49	1783628.77	1024.78					





CROSS SECTION LEGEND — EXISTING GRADE CROSS SECTION
H: 1"=10'
V: 1"=5'

NOTE: ALL SECTIONS VIEWS SHOWN LEFT TO RIGHT FACING DOWNSTREAM.