Reach S-I39 (Pipeline ROW) Intermittent Spread D Nicholas County, West Virginia

Data	Included
Photos	\checkmark
SWVM Form	\checkmark
FCI Calculator and HGM Form	\checkmark
RBP Physical Characteristics Form	\checkmark
Water Quality Data	N/A – No flow
RBP Habitat Form*	\checkmark
RBP Benthic Form	\checkmark
Benthic Identification Sheet	N/A –No flow
Wolman Pebble Count	\checkmark
Reference Reach Software Pebble Count Data	\checkmark
Longitudinal Profile and Cross Sections	\checkmark

* Modified RBP - No flow



Photo Type: US View at DS Edge of LOD Location, Orientation, Photographer Initials: Downstream Edge of Limit of Disturbance, Upstream View, TF/AG/TA



Photo Type: DS View at DS Edge of LOD Location, Orientation, Photographer Initials: Downstream Edge of Limit of Disturbance, Downstream View, TF/AG/TA



Photo Type: US View at Center of LOD

Location, Orientation, Photographer Initials: Center of Limit of Disturbance, Upstream View, TF/AG/TA



Photo Type: DS View at Center of LOD Location, Orientation, Photographer Initials: Center of Limit of Disturbance, Downstream View, TF/AG/TA



Photo Type: US View at US Edge of LOD Location, Orientation, Photographer Initials: Upstream Edge of LOD, Upstream View, TF/AG/TA



Photo Type: DS View at US Edge of LOD Location, Orientation, Photographer Initials: Upstream Edge of Limit of Disturbance, Downstream View, TF/AG/TA

"Q:\Charleston\2021 Projects\21-0244- MVP- STREAM AND WETLAND CONDITIONS ASSESSMENT AND SURVEY PLAN\002 - Pre-Crossing Monitoring\Spread D\S-139"

West Virginia Stream and Wetland Valuation Metric (SWVM) Version 2.1, September 2017

USACE FILE NO./ Project Name: (v2.1, Sept 2015)	Mounta	ain Valley Pipeline	IMPACT COORDINATES: (in Decimal Degrees)	Lat.	38.194025	Lon.	-80.719298	WEATHER:			
IMPACT STREAM/SITE II (watershed size {acreage	D AND SITE DESCRIPTION:), unaltered or impairments)	UNT to Homi	UNT to Hominy Creek (S-I39)				MITIGATION STREAM CLASS./SITE ID AND SITE DESCRIPTION: (watershed size (acreage), unaltered or impairments)				
STREAM IMPACT LENGTH:	75 FORM OF MITIGATION:	RESTORATION (Levels I-III)	MIT COORDINATES: (in Decimal Degrees)	Lat.		Lon.		PRECIPITATION PAST 48 HRS:			
Column No. 1- Impact Existin	ng Condition (Debit)	Column No. 2- Mitigation Existing C	Condition - Baseline (Credit)		Column No. 3- Mitigati Post Comp	on Projected at F pletion (Credit)	ive Years	Column No. 4- Mitigation Pro Post Completion	jected at (Credit)	Ten	
Stream Classification:	Intermittent	Stream Classification:			Stream Classification:		0	Stream Classification:			
Percent Stream Channel S	ilope 11.7	Percent Stream Channel Slo	ope		Percent Stream Chann	nel Slope	0	Percent Stream Channel S	lope		
HGM Score (attach o	data forms):	HGM Score (attach	data forms):		HGM Score (a	ttach data forms	s):	HGM Score (attach o	lata form	s):	
	Average		Average				Average				
Hydrology	0.63	Hydrology			Hydrology			Hydrology			
Biogeochemical Cycling	0.53 0.483333333	Biogeochemical Cycling	0		Biogeochemical Cycling		0	Biogeochemical Cycling	_		
PART I - Physical, Chemical an	d Biological Indicators	PART I - Physical, Chemical an	d Biological Indicators		PART I - Physical, Chemi	cal and Biologica	al Indicators	PART I - Physical, Chemical and	d Biologic	al In	
	Points Scale Range Site Score		Points Scale Range Site Score			Points Scale	Range Site Score		Points Scale	Ra	
PHYSICAL INDICATOR (Applies to all stream	ns classifications)	PHYSICAL INDICATOR (Applies to all streams	classifications)		PHYSICAL INDICATOR (Applies to all s	treams classificatior	ns)	PHYSICAL INDICATOR (Applies to all stream	ns classifica	itions	
USEPA RBP (High Gradient Data Sheet)		USEPA RBP (Low Gradient Data Sheet)			USEPA RBP (High Gradient Data She	eet)		USEPA RBP (High Gradient Data Sheet)			
1. Epifaunal Substrate/Available Cover	0-20	1. Epifaunal Substrate/Available Cover	0-20		1. Epifaunal Substrate/Available Cover	0-20		1. Epifaunal Substrate/Available Cover	0-20	_	
2. Embeddedness	0-20 18	2. Pool Substrate Characterization	0-20		2. Embeddedness	0-20		2. Embeddedness	0-20	_	
Velocity/ Depth Regime Sediment Deposition	0-20	3. Pool Variability 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	5 Channel Flow Status	0-20		5 Channel Flow Status	0-20		5 Channel Flow Status	0-20	-	
6 Channel Alteration	0-20 0-1 17	6 Channel Alteration	0-20 0-1		6 Channel Alteration	0-20	0-1	6 Channel Alteration	0-20	- 0	
7. Frequency of Riffles (or bends)	0-20	7. Channel Sinuosity	0-20		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)	0-20		8. Bank Stability (LB & RB)	0-20	-	
9. Vegetative Protection (LB & RB)	0-20 18	9. Vegetative Protection (LB & RB)	0-20		9. Vegetative Protection (LB & RB)	0-20		9. Vegetative Protection (LB & RB)	0-20	1	
10. Riparian Vegetative Zone Width (LB & RB)	0-20 18	10. Riparian Vegetative Zone Width (LB & RB)	0-20		10. Riparian Vegetative Zone Width (LB &	RB) 0-20		10. Riparian Vegetative Zone Width (LB & RB)	0-20	-	
Total RBP Score	Marginal 106	Total RBP Score	Poor 0		Total RBP Score	Poor	0	Total RBP Score	Po	or	
Sub-Total	0.53	Sub-Total	0		Sub-Total		0	Sub-Total			
CHEMICAL INDICATOR (Applies to Intermitt	ent and Perennial Streams)	CHEMICAL INDICATOR (Applies to Intermitter	and Perennial Streams)		CHEMICAL INDICATOR (Applies to Inte	ermittent and Perenn	ial Streams)	CHEMICAL INDICATOR (Applies to Intermitte	ent and Per	ennia	
WVDEP Water Quality Indicators (Generation	al)	WVDEP Water Quality Indicators (General)			WVDEP Water Quality Indicators (Ge	eneral)		WVDEP Water Quality Indicators (Genera	al)		
Specific Conductivity		Specific Conductivity			Specific Conductivity			Specific Conductivity			
	0-90		0-90			0-90			0-90		
100-199 - 85 points										_	
pH	0.1	рН			рН		0.1	рН		_	
5.6.5.0 = 45 points	0-80		5-90			5-90	0-1		5-90	0	
		DO			DO			DO			
60		50			50			во		-	
	10-30		10-30			10-30			10-30		
Sub-Total		Sub-Total	0		Sub-Total	i	0	Sub-Total			
BIOLOGICAL INDICATOR (Applies to Intern	nittent and Perennial Streams)	BIOLOGICAL INDICATOR (Applies to Intermit	tent and Perennial Streams)		BIOLOGICAL INDICATOR (Applies to	Intermittent and Pe	erennial Streams)	BIOLOGICAL INDICATOR (Applies to Inter	mittent and	d Per	
WV Stream Condition Index (WVSCI)		WV Stream Condition Index (WVSCI)			WV Stream Condition Index (WVSCI)			WV Stream Condition Index (WVSCI)			
0	0-100 0-1		0-100 0-1			0-100	0-1		0-100	0	
Sub-Total	0	Sub-Total	0		Sub-Total		0	Sub-Total			
PART II Index and	Unit Score	DAPT II Index and	Unit Score		PART II Inda	y and Unit Score		PAPT II Index and	Linit Scor		

PART II - Index and Unit Score						
Index	Linear Feet	Unit Score				
0.574	75	43.0625				

PART II - Index and Unit Score						
Index	Linear Feet	Unit Score				
0	0	0				

PART II - Index and Unit Score						
Index	Linear Feet	Unit Score				
0	0	0				

Sub-Total		
	PART II - Index and U	nit Score
	Index	Linear Feet
	0	0





PART II - Index and Unit Score						
Index	Linear Feet	Unit Score				
0	0	0				

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-Preliminary Assessment Location: UNT to Hominy Creek Sampling Date: 8-26-21
 Project Site
 Before Project

 Subclass for this SAR: Intermittent Stream
 Intermittent Stream
 SAR number:
 S-139

 Shrub/Herb Strata
 SAR number:
 S-139

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

Function	Functional Capacity Index
Hydrology	0.63
Biogeochemical Cycling	0.53
Habitat	0.29

Variable Measure and Subindex Summary:

Variable	Name	Average Measure	Subindex
VCCANOPY	Percent canpoy over channel.	Not Used, <20%	Not Used
V _{EMBED}	Average embeddedness of channel.	3.10	0.86
V _{SUBSTRATE}	Median stream channel substrate particle size.	0.65	0.33
V _{BERO}	Total percent of eroded stream channel bank.	0.00	1.00
V _{LWD}	Number of down woody stems per 100 feet of stream.	2.67	0.33
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.	12.00	0.18
V _{SRICH}	Riparian vegetation species richness.	0.00	0.00
VDETRITUS	Average percent cover of leaves, sticks, etc.	8.13	0.10
V _{HERB}	Average percent cover of herbaceous vegetation.	82.50	1.00
V _{WLUSE}	Weighted Average of Runoff Score for Catchment.	0.88	0.93

											Versio	on 10-20-17
			High-G	radient Field [Headwa [:] Data She	ter Strea et and C	ms i alcu	in Ap Ilato	opalachi r	a		
	Team:	T. Ferguso	n/ A. Grimm	ett				L	_atitude/UT	M Northing:	38.194025	
Pro	oject Name:	MVP-Prelin	ninary Asse	ssment				L	ongitude/UT	FM Easting:	-80.719298	3
	Location:	UNT to Hor	miny Creek						Sam	pling Date:	8-26-21	
SA	R Number:	S-139	Reach	Length (ft):	75	Stream Ty	/pe:	Interi	mittent Strea	m		•
	Top Strata:	Sh	rub/Herb Str	ata	(determine	d from perce	ent cal	lculate	ed in V _{CCANC}	_{PPY})		
Site	and Timing:	Project Site				•	Before	e Proje	ct			•
Sample	e Variables	1-4 in strea	m channel									
1	V _{CCANOPY}	Average pe	ercent cover	over chann	el by tree a	nd sapling c	anopy	. Mea	asure at no	fewer than	10 roughly	
		equidistant	points along	g the strean	n. Measure	only if tree/s	sapling	g cove	er is at least	20%. (If le	ss than	Not Used,
		20%, enter	at least one	e value betw	een 0 and 2	9 to trigger	Top S	Strata	choice.)			<20%
	List the per	rcent cover i	measureme	nts at each	point below							_
	0	0	0	0	0							
	0	0	0	0	0							
2	V _{EMBED}	Average er along the s	nbeddednes tream. Sele	ss of the stre ect a particle	eam channe e from the b	el. Measure ed. Before i	at no noving	fewer g it, de	than 30 rou etermine the	ughly equidi e percentag	stant points e of the	3.1
		surface and	d area surro	unding the	particle that	is covered l	by fine	sedir	nent, and e	nter the rati	ng	
		according t	o the followi	ng table. If	the bed is a	an artificial s	urface	e, or c	omposed of	fine sedim	ents, use a	
		rating score	e of 1. If the	bed is com	posed of be	edrock, use	a ratin	ng sco	re of 5.			-
		Embedded Minshall 19	ness rating 983)	for gravel, c	obble and b	oulder parti	cles (r	escale	ed from Pla	tts, Megaha	n, and	
		Rating	Rating Des	scription]
		5	<5 percent	of surface of	covered, sur	rounded, or	buried	d by fi	ne sedimen	t (or bedroc	:k)	-
		4	5 to 25 per	cent of surfa	ace covered	, surrounde	d, or b	uried	by fine sedi	ment		4
		3	26 to 50 pe	rcent of sur	face covere	d, surround	ed, or	buried	by fine see	diment		4
		1	>75 nercen	t of surface	covered si	u, sundunu irrounded c	r hurie	ed by	fine sedime	nt (or artific	ial surface)	-
	l ist the rati	ings at each	point below	r r	0010100,00		i baii	ouby			iai ouriacoj	1
	4	1	1	4	1	4						1
	4	4	4	4	1	1						
	4	4	4	1	1	1						
	4	4	4	4	4	4						1
	1	4	4	4	4	4						1
3	V _{SUBSTRATE}	Median stre	eam channe tream: use f	I substrate	particle size	. Measure a rticles as us	at no f ed in '	ewer t Vemee	han 30 rou	ghly equidis	tant points	0.65 in
	Enter parti	nla eize in in	ches to the	noaroet 0 1	inch at eac	h noint hele	w (her		should be a	ounted as 0	10 in	
	asphalt or	concrete as	0.0 in sand	or finer nai	ticles as 0 ()8 in).	w (Dec				ын, Топп,	
					0.08	4 70						1
	7.10	0.00	5.00	0.60	0.00	0.08						1
	13.50	20.00	5.60	0.00	0.00	0.00						1
	4.20	1.60	4.20	0.00	0.00	2.00						1
	4.20	0.90	4.20	21 50	0.50	2.00						1
4	0.08	Total paras	0.50	21.50		4.90 Entor the t	atal a:	umbor	of fact of a	rodod bork	on oach	
4	V BERO	side and th	e total perce to 200%	entage will b	e calculate	d If both ba	nks ar	re ero	ded, total e	rosion for th	ne stream	0 %
			Left Rank	0	ft		Right F	Rank.	0	ft		
I			Len Dalik.	0	11		Signe		0	11		

Sampl	le Variable:	s 5-9 within t	the entire	riparian/buf	fer zone ad	jacent to t	he stream cl	hannel (25	feet from e	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.									2.7	
0		Number of downed woody stems: 2										
6	V _{TDBH}	Average db	oh of trees cm) in diar	(measure or neter Enter	ily if V _{CCANOF} tree DBHs	_{PY} tree/sap in inches	ling cover is a	at least 20%). Trees ar 	e at least 4	Not Used	
		List the dbr	n measurer	ments of indi	vidual trees	(at least 4	in) within the	buffer on e	ach side of			
		the stream	below:			(at loadt 1						
			Left Side					Right Side]	
7	V_{SNAG}	Number of	snags (at l	east 4" dbh	and 36" tall)	per 100 fe	et of stream.	Enter num	ber of snag	s on each	0.0	
		side of the	stream, an	a the amour	it per 100 te	et will de c	alculated.				0.0	
			Left Side	:	0		Right Side:		0			
8	V_{SSD}	Number of	saplings a	nd shrubs (w	oody stems	up to 4 inc	ches dbh) per	100 feet of	f stream (m	easure only	40.0	
		if tree cove	r is <20%). • 100 ft of s	Enter num	ber of saplin	gs and shi	ubs on each	side of the	stream, and	the	12.0	
		amount por	Left Side		3		Right Side:		6			
9	V _{SRICH}	Riparian ve	getation s	pecies richne	ess per 100	feet of stre	am reach. C	heck all spe	ecies prese	nt from		
		Group 1 in	the tallest	stratum. Ch	eck all exoti	c and inva	sive species p I from those o	present in a	ll strata. Sp	pecies	0.00	
		Grou	p 1 = 10			calculated		Group	2 (-1 0)			
	Acer rubr	um		Magnolia t	ripetala		Ailanthus a	Itissima		Lonicera ja	aponica	
	Acer sace	harum		Nvssa svlv	vatica		Albizia iulib	rissin		Lonicera ta	atarica	
	Δεςτιμις	flava		Oxydendrur	n arboreum		Δlliaria neti	olata			iculatus	
	Acimina t	riloho		Drupus so	rotino			olata				
	Asiiiiiia u	riona		Cuereus e	llina		Alternanthe	era es		Lyunun se		
	Betula alle	gnaniensis		Quercus a	ida	_		63		Microstegiui	m vimineum	
	Betula ler	nta		Quercus c	occinea		Aster tatarı	cus		Paulownia	tomentosa	
	Carya alb	а		Quercus ir	nbricaria		Cerastium	fontanum		Polygonum	cuspidatum	
	Carya gla	bra		Quercus p	rinus		Coronilla va	aria		Pueraria m	nontana	
	Carya ova	alis		Quercus ru	ıbra		Elaeagnus u	mbellata		Rosa multi	iflora	
	Carya ova	ata		Quercus v	elutina		Lespedeza	bicolor		Sorghum h	alepense	
	Cornus flo	orida		Sassafras	albidum		Lespedeza	cuneata		Verbena b	rasiliensis	
	Fagus gra	andifolia		Tilia ameri	cana		Ligustrum ob	otusifolium				
	Fraxinus	americana		Tsuga can	adensis		Ligustrum s	sinense				
	Liriodendro	on tulipifera		Ulmus am	ericana							
	Magnolia	acuminata										
	5											
		0	Species ir	n Group 1				0	Species in	Group 2		

10 V _{DETRITUS} Average percent cover of le	reaging equilateration		ich side or i	rne stream)_		
-36" long are include. Ent	leaves, sticks, or othe	er organic i	material. W	oody debri each subpl	s <4" diamet ot.	er and	8.13 %
Left Side	Left Side Right Side						
5 5		5	5	15	10		
15 5 11 Vuess Average percentage cover	r of herbaceous vege	tation (me	asure only if	tree cover	is <20%) [o not	
include woody stems at lea vegetation percentages up at each subplot.	east 4" dbh and 36" ta p through 200% are a	III. Because	e there may Enter the pe	be several rcent cove	layers of gro r of ground v	egetation	83 %
Left Side	le	50	Right	Side			
80 80		50	95	80	90		
Sample Variable 12 within the optice catche	mont of the stream						
12 V Weighted Average of Pupe	off Score for watersh	od:					
Weighted Average of Nunc	ion score for watersh	ieu.					0.88
Land Use	e (Choose From Drop	o List)			Runoff Score	% in Catch- ment	Running Percent (not >100)
Forest and native range (>75% ground cove	ver)			-	1	85.99	85.99
Residential districts, 2 acres (12% cover)				-	0.3	1.25	87.24
Open space (pasture, lawns, parks, etc.), gra	rass cover <50%			-	0.1	12	99.24
Residential districts, 1/2 - 1 ac (25% to 20%	% cover)			-	0.2	0.76	100
				-			
-				-			
				-			
				-			
S-139			Not	tes:			
Variable Value VSI							
V _{CCANOPY} Not Used, Not Used							
V _{EMBED} 3.1 0.86							
V _{SUBSTRATE} 0.65 in 0.33							
V BERO 0 % 1.00							
V _{LWD} 2.7 0.33							
V _{TDBH} Not Used Not Used							
V_{SNAG} 0.0 0.10							
V_{SSD} 12.0 0.18							
V _{SRICH} 0.00 0.00							
V DETRITUS 8.1 % 0.10							
V _{HERB} 83 % 1.00							
V _{WLUSE} 0.88 0.93							

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (FRONT)

STREAM NAME S-13	9	LOCATION	LOCATION UNT to Hominy Creek, Spread D							
STATION #	RIVERMILE	STREAM CL	ASS Intermitter	nt						
LAT 38.194025	LONG -80.719298	COUNTY	Nicholas							
STORET #		AGENCYPO	testa							
INVESTIGATORS TH	/AG	ad e								
FORM COMPLETED	^{BY} TF	DATE 8-26-2 TIME 1050	21	REASON FOR SURVEY Preliminary Assessment						
WEATHER CONDITIONS	Now storr rain showe c	n (heavy rain) (steady rain) rs (intermittent) cloud cover lear/sunny	Past 24 hours	Has there been a heavy rain in the last 7 days? Yes V No Air Temperature <u>80 F</u> °C Other						
SITE LOCATION/M/	P Draw a map of the s	ite and indicate (he areas sample	ed (or attach a photograph)						
	- +	olest		torest						
		1-21-19	R THE	Boy heid						
	A	P-	Zuu	Ting Bride						
	LOD ECO			ECS						
STREAM CHARACTERIZATIO	DN ☐Perennial ☑In Stream Origin ☐Glacial ☐Swamp and bog	ntermittent Ti Spring-f Mixture Other	dal [dal [dal]	Stream Type Coldwater Warmwater Catchment Areakm ²						

PHYSICAL CHARACTERIZATION/WATER QUALITY FIELD DATA SHEET (BACK)

WATERSHED FEATURES RIPARIAN VEGETATION (18 meter buffer)	Predominant Surrounding Landuse Forest □Commercial Field/Pasture □Industrial Agricultural □Other Pipeline ROW Indicate the dominant type and record the domin □Trees □Shrubs Dominant exercise present multiflora rose	Local Watershed NPS Pollution No evidence Some potential sources Obvious sources Local Watershed Erosion None Moderate Heavy nant species present Grasses
INSTREAM FEATURES	Estimated Reach Length 75 ft m Estimated Stream Width 3.0 ft m Sampling Reach Area m² Area in km² (m²x1000) km² Estimated Stream Depth 0.1 ft m Surface Velocity m/sec (at thalweg) Stream Dry	Canopy Cover □Partly shaded □Shaded □Partly open □Partly shaded □Shaded High Water Mark 5.0 ft m Proportion of Reach Represented by Stream Morphology Types Riffleso % Pool20 % Channelized Yes Dam Present Yes
LARGE WOODY DEBRIS	LWD 20 m ² Density of LWDm ² /km ² (LWD/ rea	ch area)
AQUATIC VEGETATION	Indicate the dominant type and record the domin Rooted emergent Rooted submergent Floating Algae Attached Algae Dominant species present Portion of the reach with aquatic vegetation 0	nant species present Rooted floating Free floating
WATER QUALITY No water quality taken No flow	Temperature ⁰ C Specific Conductance Dissolved Oxygen pH Turbidity WQ Instrument Used	Water Odors Normal/None Sewage Petroleum Chemical Fishy Other Water Surface Oils Slick Slick Sheen Globs None Other Turbidity (if not measured) Turbid Clear Slightly turbid Turbid
SEDIMENT/ SUBSTRATE	Odors ✓ Normal Chemical Other Other Oils ✓ Absent Slight Moderate Profuse	Deposits Sludge Sawdust Paper fiber Sand Relict shells Other Epoking at stones which are not deeply embedded, are the undersides black in color? Yes ☑No
INORGANIC SUB (should a	STRATE COMPONENTS O dd up to 100%)	RGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)

	(should add up to 1	100%)	(does not necessarily add up to 100%)						
Substrate Type	Diameter	% Composition in Sampling Reach	Substrate Type	Characteristic	% Composition in Sampling Area				
Bedrock		0	Detritus	sticks, wood, coarse plant	15				
Boulder	> 256 mm (10")	5		materials (CPOM)	15				
Cobble	64-256 mm (2.5"-10")	30	Muck-Mud	black, very fine organic	0				
Gravel	2-64 mm (0.1"-2.5")	40		(FPOM)	U				
Sand	0.06-2mm (gritty)	15	Marl	grey, shell fragments					
Silt	0.004-0.06 mm	10			()				
Clay	< 0.004 mm (slick)	0			V				

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

STREAM NAME S-I39	LOCATION UNT to Hominy Creek					
STATION # RIVERMILE	STREAM CLASS Intermittent					
LAT <u>38.194025</u> LONG <u>-80.719298</u>	COUNTY Nicholas					
STORET #	AGENCYPotesta					
INVESTIGATORS AG/ TF						
FORM COMPLETED BY	DATE 8-26-21 TIME 1050 AM PM REASON FOR SURVEY Preliminary Assessment					

	Habitat		Condition 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 <u>not</u> new fall and <u>not</u> 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 0	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0									
ı 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} 18 ▼	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0									
eters to be evalua	3. Velocity/Depth Regime V N/A	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).									
aram	score 0	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0									
P	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 17	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 N/A	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									

Modified RBP - No flow

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

	Habitat			(Condition	Category						
	Parameter	Optimal	Su	boptim	al	M	largina	al		Poor		
	6. Channel Alteration	Channelization or dredging absent or minimal; stream with normal pattern.	Some cha present, u of bridge a evidence o channeliza dredging, past 20 yr present, b channeliza present.	nnelizat sually in abutmen of past ation, i.e (greater) may b ut recen ation is	ion n areas nts; e., t than e t t not	Channeliz extensive; or shoring present or and 40 to reach chai disrupted.	zation n ; embar ; structu 1 both b 80% of nnelized	nay be ikments ires panks; f stream d and	Banks sh or cemer the strear channeliz disrupted habitat g removed	ored wit it; over 8 n reach zed and l. Instrea reatly ali entirely.	th gabion 30% of am tered or	
	SCORE 1/	20 19 18 17 16	15 14	13	12 11	10 9	8	7 6	54	3 2	1 0	
ling 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 infrequent between r the width between 7	ce of riff t; distan iffles di of the st 7 to 15.	fles ce vided by tream is	Occasiona bottom co some hab between r the width between 1	al riffle ontours itat; dis iffles di of the s 15 to 25	or bend; provide tance ivided by stream is 5.	Generall shallow n habitat; c riffles div width of ratio of >	y all flat iffles; po- listance l vided by the strea 25.	water or oor between the um is a	
ampl	SCORE 0	20 19 18 17 16	15 14	13	12 11	10 9	8	7 6	54	3 2	1 0	
luated broader than	8. Bank Stability (score each bank) Note: determine left or right side by facing detraction	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected.	Moderatel infrequent erosion m over. 5-3 reach has	ly stable t, small ostly he 0% of b areas of	e; areas of aled ank in Ferosion.	Moderate 60% of ba areas of er erosion po floods.	ly unsta ank in r rosion; otential	able; 30- each has high during	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 9	Left Bank 10 🧕	8	7	6	5	4	3	2	1	0	
s to b	SCORE 9	Right Bank 10 🛛 🗐	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% o streambar covered b vegetation of plants i represente evident bu full plant to any gree than one-l potential p height rem	f the hk surface y native h, but or s not we ed; disru- ut not af growth eat exten- half of the plant stu- naining.	ces te class ell- ption fecting potential t; more ne bble	50-70% o streambar covered b disruption patches of closely cri- common; half of the stubble he	f the hk surfa y veget a obviou f bare su opped v less that e potent sight rep	aces ation; us; oil or vegetation nn one- tial plant maining.	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 9	Left Bank 10 🧕	8	7	6	5	4	3	2	1	0	
	score 9 ,	Right Bank 10 🗕 👰	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 12-18 met activities zone only	riparian ters; hui have im minima	zone man pacted illy.	Width of 12 meters activities zone a gre	ripariar ; huma have in eat deal	n zone 6- n npacted	Width of riparian zone <6 meters: little or no riparian vegetation due to human activities.			
	SCORE 9	Left Bank 10 🕘	8	7	6	5	4	3	2	1	0	
	SCORE 9 (1)	Right Bank 10 🛛 🧕	8	7	6	5	4	3	2	1	0	
Tota	106 al Score	Modified RBP -	No flo	W								

BENTHIC MACROINVERTEBRATE FIELD DATA SHEET

STREAM NAME S-	39	LOCATION UNT to Homing	y Creek						
STATION #	RIVERMILE	STREAM CLASS Intermitter	nt						
LAT 38.194025	LONG -80.719298	COUNTY Nicholas	COUNTY Nicholas						
STORET #		AGENCY Potesta							
INVESTIGATORS A	G/ TF		LOT NUMBER						
FORM COMPLETED	TF	DATE <u>8-26-21</u> TIME <u>1050</u>	REASON FOR SURVEY Preliminary Assessment						
HABITAT TYPES	Indicate the percentage of each habitat type present Cobble% Snags% Vegetated Banks% Sand% Submerged Macrophytes% Other ()%								
SAMPLE COLLECTION	Gear used D-frame How were the samples coll Indicate the number of jat Cobble Sn Submerged Macrophytes	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. Other Submarged Magraphytag Sand							
GENERAL COMMENTS	No benthics taken due to no flow in channel								

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						

Spread D

S/C

(S < ZD)

GRAVEL

10

Summer Co

to Hominy Creek

UNT

SITE ID: S-I39

DATE: 8 26 21

COLLECTOR(S): 46 TF

Wolman Peb	ble Count (R	each Wide)								NOTED	1		
8	FSA	95	(80	90	10	18	FSA	110	120	MOTES:			
180	115	11	38	14	160	190	25	57	FSA				
345	142	190	115	ESA	18	10	14	9	FSA	Strom is	Incipar	2520 17	Million
110	(05	132	20	14	10	15	15	23	70	Survisied as Tart.	1.10,10-	\$if / Clay	141
MKA	14	110	8	4	54	<.	5.7	CT	137	CIACHIE CIAC		very Fire	082 - 125
Se A	20	NO	10		27		01	31	145	al Flow in moninel		Fine	125 - 25
+ <u>7</u> /1	0 4	1	15	1	8	12	35	FSA	215	NO TION SI		Redium	25 - 51
<u> </u>	15	75	115	90	65	6	270	130	115			Coarse	50-10
500	555	260	135	21	38	CSA	70	40	72		<u> </u>	Vary Casies	1.6 - 2
40	FSA	18	12	8	75	150	130	45	CSA	-	18.16	very fine	2-4
22	20	50	12	4	140	25	20	85	30		25 - 21	*17÷	4.57
L				<u> </u>	1110	112		07	27		31 44	Mad an	8.413
Riffle Pebble	Count									1	44 - 63	Vedrupt	11.5 - 16
						T				NOTES:	63. 99	Coarse	16 - 22 6
						-		-			88-13	Coarse	22.6 - 30
-		~									19-18	very Goarse	32 - 46
			-			/	U				16.25	Verv Orlanse	45 - 64
					/						25.35	5mall	64 - 36
											35-60	Smail	90 - 123
				/							50+71	Large	125 - 180
				/							1011-102	Large Small	180 x 20x
			/								14 8 - 20	Small	201-202
		_/									227.42	Wednum	512 - 1024
											40 - 80	-arge-viry Large	1024 - 2048
	/											Bedrock	
<				//					1				
	_								7				
								-	CORE OF THE OWNER	NOTES:			
			-										
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					\times								
			-	Same and State									
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1		/											
	/												
-	/												
L													

Bankfull Channel	-		
Material	Size R	ange (mm)	Count
silt/clay	0	- 0.062	4
very fine sand	0.062	- 0.125	
fine sand	0.125	- 0.25	8
medium sand	0.25	- 0.5	1
coarse sand	0.5	- 1	2
very coarse sand	1	- 2	
very fine gravel	2	- 4	
fine gravel	4	- 6	2
fine gravel	6	- 8	6
medium gravel	8	- 11	5
medium gravel	11	- 16	12
coarse gravel	16	- 22	8
coarse gravel	22	- 32	4
very coarse gravel	32	- 45	10
very coarse gravel	45	- 64	2
small cobble	64	- 90	8
medium cobble	90	- 128	11
large cobble	128	- 180	9
very large cobble	180	- 256	3
small boulder	256	- 362	3
small boulder	362	- 512	1
medium boulder	512	- 1024	1
large boulder	1024	- 2048	
very large boulder	2048	- 4096	
tota	al parti	cle count:	100
bedrock		[
clay hardpan			
detritus/wood			
artificial			
	to	otal count:	100
Note:			





THW: THALWEG (INVERT)

BS-R

13869321.39

TS-R 13869322.75 1721053.30 2379.83

1721053.73 2379.54

	LEGEND
	STUDY AREA (EASEMENT)
· ·	EXISTING SURVEY-LOCATED THALWEG
1176.87 +	EXISTING SURVEYED GROUND SHOT ELEVATION

SURVEY NOTES:

- 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 8-26-2021.
- 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 AND COLLECTED PREVIOUSLY IN 2020 IN ORDER TO GENERATE THE PRE-CROSSING SURFACE SHOWN IN PLAN. DUE TO NATURAL EROSIONAL STREAM PROCESSES THAT 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.
- SECTION AND PROFILE VIEWS FOR COMPARISON.

S-139 BASELINE CROSS-SECTION A



DISTANCE ALONG CROSS-SECTION (FT)

S-139 BASELINE CROSS-SECTION B



DISTANCE ALONG CROSS-SECTION (FT)

CROSS SECTION LEGEND	
EXISTING GRADE	
$\begin{array}{c c} \underline{CROSS \ SECTION} \\ Brian $	

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

6. POST-CROSSING SURVEY POINTS FOR CROSS SECTIONS AND THALWEG ARE PROJECTED ONTO PRE-CROSSING

ASSOCIATES, Ĵ OTESTA PRE-CROSSING PHOTOS Δ PHOTO TAKEN LOOKING DOWNSTREAM FROM UPSTREAM IMPACT LIMITS **R** R 317 E. 2ND A 153 PIPEL PHOTO TAKEN LOOKING UPSTREAM FROM AIN VALLEY PI NERCY DRIVE, NONSBURG, PA DOWNSTREAM IMPACT LIMITS POST-CROSSING PHOTOS MOUNTAIN 2200 ENERC CANON PENDING CROSSING Б TRI 51) PHOTO TAKEN LOOKING DOWNSTREAM UPSTREAM FROM IMPACT LIMITS PENDING CROSSING SING

> PHOTO TAKEN LOOKING UPSTREAM FROM UPSTREAM IMPACT LIMITS

PRE-CROSSING

Drawing No

0

6

-S-I39 CAD File No.

MBS Drawn

СНН Checked

BB/JLY Approved

NOTED Scale:

SEPT. 2021 Date:

21-0244-005 Project No.

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