Environmental Field Surveys Waterbody Photo Page



Waterbody sbup016 facing southeast across bank.

Survey Description	on	- 1						1
Project Name:		Waterbody N				aterbody ID:		Date:
ATLANTIC COAS	I PIPELINE	UNITOW	ILLIS RIVEF	K	SE	3UL022		9/22/2014
State:	County:		Company:		Crew M	ember Initials:	Photos	:
Virginia	Buckingham		W&C		RMS,	WLM	100 –	1576 TO 1578
Tract Number(s):			Nearest Mile	epost:		Associated We	etland ID(s):	
09-105/106			202			WBUL007		
Survey Type: (check one)	⊠Centerli	ne ⊡Re	e-Route	□Access Road		□Other:		
Physical Attribute	es							
Stream Classification		eral ⊠Int	ermittent	□Perennial				
Waterbody Type: (check one)	□River ⊠ S	Stream 🗆 D	itch 🗆 C	anal 🛛 Other:	:			
онwм	OHWM India	ator:						
Width: ft.	(check all that ap	yly)	Clear lir on bank	ne Shelving	g	⊠Wrested vegetation	□Scourir	ng ⊠Water staining
Height: 0.5 ft.	⊠Bent vegetat	, matted, or miss	sing □Wrack li	ne □Litter an debris	nd	□ Abrupt plant community cha		characteristic change
N/A 🗆	Ŭ						0	
Width of Waterbody - Bank to Top of Bank:		n of Waterbody e of Slope:	- Toe of Slope	Width of Waterbo Water Edge:	ody - Wa	ater Edge to	Depth of Wate (Approx.)	er:
<u>5</u> ft.		<u>1_</u> ft.		-	<u>1</u> ft.			<u>0.2</u> ft.
Sinuosity:	Wate	r velocity:		N/A□ Bank height			N/A□ Bank slope	
(check one)	(Appro:			Right:			Righ	t:
		<u>_0.1</u> f	ps	Left:	<u>1.5_</u> ft.		Le	<u>35</u> degrees
Meander	ring N/A]			<u>1.5_</u> ft.		20	
Qualitative Attrib	utes					<u>.</u>		
Water Appearance: (check one)	□No water ▷	⊠Clear □Tu		neen ⊠Sur i surface scu		□Algal □ mats]Other:	
Substrate:		Boulder 🛛 Co	-		⊠ Silt/ cla		□ Other:	
(check all that apply) % of Substrate:	NA % NA	. % 5%	40 %	5 %	<u>10_</u> %	40 %	NA %	
Width of Riparian Zor		ve Layers:						
	(check all th	nat apply)	⊠ Trees	: 🛛	⊠ Saplin	gs/Shrubs:	⊠ Herbs	
<u>>100 ft</u> · N/A□	Avg. DB (approx.)	H of Dominants	: <u>10 i</u> n.	-	<u>2</u> in.			
Dominant Bank Vege	tation (list):							
ALDER SPICEBU	SH, POPLAR,	MAPLE, GR	EENBRIAR,	FERNS				
Aquatic Habitats (ex:	submerged or emerg	jed aquatic vegeta	tion, overhanging	banks/roots, leaf pack	ks, large s	submerged wood,	riffles, deep poo	ols):
CPOM, LEAF PAC	CKS, LWD, SH	ALLOW POO	DLS					
Aquatic Organisms O	bserved (list):							
FROGS								
T&E Species Observe	ed (list):							
NA								
Disturbances (ex: lives	stock access, manure	e in waterbody, wa	ste discharge pipe	es):				
NA								
Tributary is: (check one)			Artificial man	ada 🗆 Manini	ulatod			
Stream Quality ^a :	⊠ Natural		Artificial, man-m	ade 🗌 Manipu	alaicu			
(check one)	🗆 High		Voderate	⊠ Low				

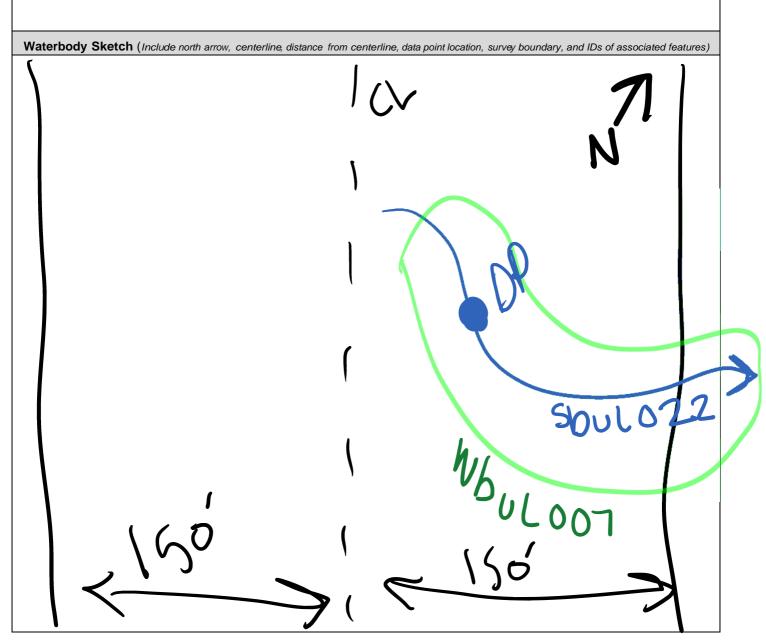
	Waterbody ID:
	SBUL022
^a High Quality: Natural channel, natural vegetation extends at least one or two active channel widths on each roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; div disturbance by livestock or man.	
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active c	, 0

greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

HEADWATER STREAM WITH ADJACENT SEEPAGE WETLANDS. STREAMBED THICK MUCK UNDERLAIN BY GRAVEL.





Waterbody point sbul022 facing Southwest and upstream



Waterbody point sbul022 facing Northeast and downstream



Waterbody point sbul022 facing North and across

	Descriptio	n											
Project Na					-		_			aterbody ID:		Date	
	C COAST		ΕU	JNIIC		LIS RIVE	۲ ۲		S	BUL021		9/22	2/2014
State:		County:				Company:				lember Initials	:	Photos:	
Virginia		Bucking	ham			N&C			RMS,	WLM		100-1563	to 1565
Tract Num	ber(s):					Nearest Mile	epost:			Associated W	etland	ID(s):	
09-107					4	203				WBUL006			
Survey Ty (check one)	pe:	⊠Ce	nterline	I	□Re-Ro	oute	□A	ccess Ro	ad	□Other:			
Physical	Attribute	s											
Stream Cla (check one)	assification:	□ _{Epl}	hemeral	I	Interm	nittent	⊠P	erennial					
Waterbody (check one)		River	⊠ Strea	am	Ditch	n 🗆 C	anal	□ Oth	er:				
онwм		онwм	Indicato	or:									
Width:	<u>3</u> ft.	(check all	that apply)			Clear lin on bank	ne	□Shelv	ring	⊠Wrested vegetation		Scouring	⊠Water staining
Height:	<u> 1 </u> ft.		Bent, ma	atted, or	missing	□Wrack li	ine	□Litter debris	and	⊠Abrupt plan community ch		□Soil chara	cteristic change
N/A□ Width of W	/aterbody - T	op of \	Width of	Waterb	ody - Te	oe of Slope	Width	n of Wate	rbody - W	ater Edge to	Depth	of Water:	
Bank to To			to Toe of		cuy I			r Edge:	bouy II		(Approx.)		
	<u>9</u> ft.		3	ft.			N/A□	1	<u>2.5</u> ft.		N/A□	<u>0.75</u>	ft.
Sinuosity:			Water ve	elocity:			Bank	height			Bank s	slope	
(check one)	□Straight	((Approx.)	0	E fac			Right:	<u>3</u> ft.			Right:	5 degrees
	⊠Meanderii			0.	<u>.5_</u> fps			Left:				Left:	
			N/A□						<u>2</u> ft.				5_degrees
Qualitati Water App	ve Attribu	ites											
(check one)		No water	⊠Cle	ear	Turbio		neen n surfac		Surface	□Algal mats	□Othe	r:	
Substrate:		Bedrock	⊠ Boul	lder 🛛	Cobble	e 🛛 Grav	el 🛛	Sand	□ Silt/ c	lay 🛛 Organic	: 🗆 (Other:	
(check all that % of Subs		<u>2_</u> %	2_%	5	<u>5</u> %	<u> 10 </u> %		<u>10_</u> %	<u>41_</u> %	<u> 30 </u> %	NA	<u>\</u> %	
Width of R	iparian Zone	e: Veo	jetative l	avers:									
		(chec	ck all that ap	oply)		[⊠] Trees	:		🛛 Saplir	igs/Shrubs:	\boxtimes	I Herbs	
N/A□ _	<u>>100 ft</u> ∙	Avg (appi	j. DBH o rox.)	f Domin	ants:	<u>8</u> in.			<u> 1 </u> in.				
	Bank Vegeta	()											
SYCAMC	DRE, POPI	_ar, maf	PLE, DI	IVERS	E SEC	GES, JE	WELV	NEED, (GRASS,	ALDER			
•	,		•	•	•			roots, leaf p	acks, large	submerged wood	, riffles,	deep pools):	
LWD, CF	POM, OVE	RHANGI	NG VE	GETAT	ION, I	DEEP PO	OLS						
-	rganisms Ob												
COPPER	RHEADS, F	ROGS, F	FISH, V	VATER	STRI	DER RIFI	FL BE	ETLE,	EPT				
T&E Speci	es Observed	l (list):											
NA													
	ces (ex: livesto T THROU			waterbody	, waste	discharge pip	es):						
Tributary i													
(check one)		🖾 Na	atural		□ Artif	icial, man-m	nade	🗆 Man	ipulated				
Stream Qu (check one)	ality ^a :	🛛 Hi	gh		⊠ Mod	lerate		□ Low					

Waterbody ID:
SBUL021

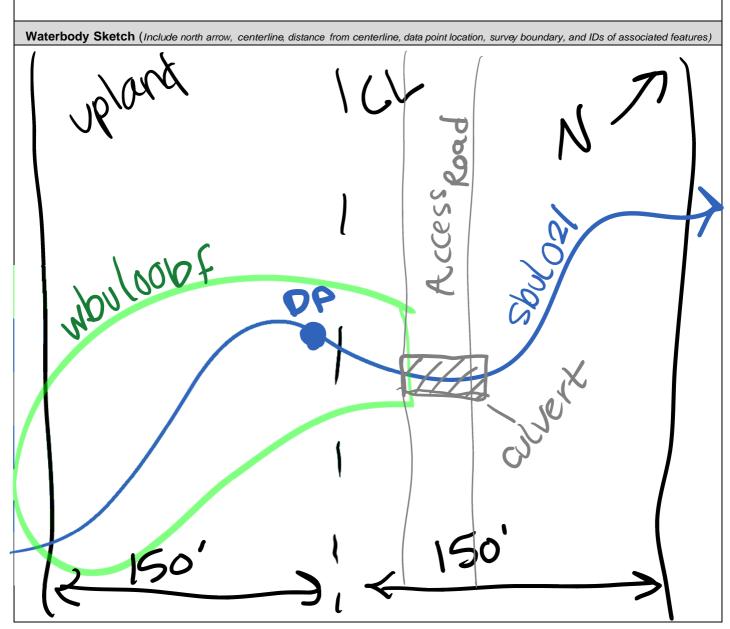
High Quality: Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

CULVERT STRUCTURE HAS CAUSED UPSTREAM AREA TO BACK UP INTO DIVERSE WETLAND, CREATING HIGH QUALITY STREAM HABITAT AND WATER QUALITY.





Waterbody point sbul021 facing South and upstream



Waterbody point sbul021 facing North and downstream



Waterbody point sbul021 facing West and across

Project Name: Waterbody Name: Waterbody ID: Date: Southeast Reliability UNNAMED TRIBUTARY TO BISHOP SBUK024 8/9/2014 State: County: Company: Crew Member Initial Photos: Virginia Buckingham WOODARD & CURRAN JD, SG IMG-2148 to 2151 #,x,u,d Tract Number(s): Nearest Milepost: Associated Wetland ID 09-109 09-109 202.85 NA Survey Type: ©Centerline Re-Route Access Road Other: Physical Attribute Stream Classification: [check one] Ephemeral Intermittent Waterbody Type: Other: Other: Other: Waterbody Type: (check one) Waterbody Type: (check one) Waterbody Type: (check all that ap
CREEK Company: Crew Member Initial Photos: Virginia Buckingham WOODARD & CURRAN JD, SG IMG-2148 to 2151 #,x,u,d Tract Number(s): Nearest Milepost: Associated Wetland ID 09-109 09-109 202.85 NA Survey Type: ©Centerline Re-Route Access Road Other: Physical Attribute Stream Classification: [check one] Ephemeral Intermittent Perennial Waterbody Type: @River Stream Ditch Canal Other: OHWM OHWM Indicator: @Clear line Shelving @Wrested Scouring @Water staining Vidth:
Virginia Buckingham WOODARD & CURRAN JD, SG IMG-2148 to 2151 #,x,u,d Tract Number(s): Nearest Milepost: Associated Wetland ID 09-109 202.85 NA Survey Type: Centerline Re-Route Access Road Other: Physical Attribute Stream Classification: Ephemeral Intermittent Perennial Waterbody Type: Check one) River Stream Ditch Canal Other: OHWM OHWM Indicator: Check all that apply) Scouring SWater staining Width:
Tract Number(s): Nearest Milepost: Associated Wetland ID 09-109 202.85 NA Survey Type: Centerline Re-Route Access Road Other: Physical Attribute Stream Classification: Check one) Ephemeral Intermittent Perennial Waterbody Type: Check one) River Stream Ditch Canal Other: OHWM OHWM Indicator: Check all that apply) Clear line Shelving Wrested Scouring Water staining
09-109 202.85 NA Survey Type: (check one) ⊠ Centerline Re-Route Access Road Other: Physical Attribute Stream Classification: (check one) □ Ephemeral ☑ Intermittent □ Perennial Waterbody Type: (check one) □ River ☑ Stream □ Ditch □ Canal □ Other: OHWM Width: OHWM Indicator: (check all that apply) ☑ Clear line on bank ☑ Shelving ☑ Wrested vegetation ☑ Scouring ☑ Water staining
Survey Type: (check one) Image: Centerline Image: Centerline Image: Centerline Physical Attribute Stream Classification: (check one) Image: Centerline Image: Centerline (check one) Image: Centerline Image: Centerline Waterbody Type: (check one) Image: Centerline Image: Centerline (check one) Image: Centerline Image: Centerline Waterbody Type: (check one) Image: Centerline Image: Centerline (check one) Image: Centerline Image: Centerline OHWM Other: Image: Centerline Image: Centerline OHWM OHWM Indicator: (check all that apply) Image: Centerline Image: Shelving Image: Centerline Ution in Image: Centerline Image: Centerline Image: Centerline Image: Centerline Ution in Image: Centerline Image: Centerline Image: Centerline Image: Centerline Image: Centerline Image: Centerline Image: Centerline Image: Centerline Image: Centerline Image: Centerline Image: Centerline Image: Centerline Image: Centerline Image: Centerline Image: Centerline Image: Ce
(check one) Image: Centerline Image: Re-Route Access Road Other: Physical Attribute Stream Classification: Image: Check one) Image: Check one) Image: Check one) Waterbody Type: Image: Check one) Image: Check one) Image: Check one) Image: Check one) Waterbody Type: Image: Check one) Image: Check one) Image: Check one) Image: Check one) OHWM Image: Check one) OHWM Image: Check one) OHWM Image: Check one) OHWM Image: Check one) OHWM Image: Check one) OHWM Image: Check one) Image: Check one) Image: Check one) Image: Check
Stream Classification: (check one) □ Ephemeral ☑ Intermittent □ Perennial Waterbody Type: □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □
(check one) □ Ephemeral ⊠ Intermittent □ Perennial Waterbody Type: (check one) □ River ⊠ Stream □ Ditch □ Canal □ Other: OHWM Width: ○HWM Indicator: (check all that apply) ⊠ Clear line on bank ⊠ Shelving ⊠ Wrested vegetation ⊠ Scouring ⊠ Water staining
(check one) □ River ⊠ Stream □ Ditch □ Canal □ Other: OHWM OHWM Indicator: (check all that apply) ⊠ Clear line ⊠Shelving ⊠Wrested ⊠ Scouring ⊠Water staining Width: _2 ft.
Width: (check all that apply) Image: Clear line Shelving Image: Wrested Scouring Image: Wrested 2 ft. on bank vegetation staining
Width: (check all that apply) Image: Clear line Shelving Image: Wrested Scouring Image: Wrested 2 ft. on bank vegetation staining
Height: Bent, matted, or missing Wrack line Litter and Abrupt plant Soil characteristic change
<u>5</u> ft. vegetation debris community change
Width of Waterbody - Top of Bank to Top of Bank: Width of Waterbody - Toe of Slope Width of Waterbody - Water Edge to Water Edge: Depth of Water: (Approx.)
Sinuosity: Water velocity: Bank height Bank slope
(check one) (Approx.) Right: Right: Right:
Left: Left:
⊠Meandering N/A⊠ _4 ft. _80 degrees
Qualitative Attributes
Water Appearance: (cheok one) □No water ⊠Clear □Turbid □Sheen □Surface □Algal □Other: on surface scum mats
Substrate: 🛛 🖾 Bedrock 🖾 Boulder 🖾 Cobble 🖾 Gravel 🖾 Sand 🖾 Silt/ clay 🖾 Organic 🗆 Other:
(check all that apply)NA % of Substrate: <u>2</u> % <u>3</u> % <u>30</u> % <u>10</u> % <u>5</u> % <u>45</u> % <u>5</u> % <u>NA</u> %
Width of Riparian Zone: Vegetative Layers: (check all that apply) Image: Trees: Image: Saplings/Shrubs: Image: Herbs
<u>100 ft</u> · Avg. DBH of Dominants: <u>14 in.</u> <u>1 in.</u> N/A□ (approx.)
Dominant Bank Vegetation (<i>list</i>):
AMER BEECH, WHITE OAK, TULIP TREE, SHORT-LEAF PINE, JUNIPERUS, FLOWERING DOGWOOD, LONICERA, LYCOPODIUM. FRAXINUS VIRGINIANA.
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): LEAF PACKS, LONG RIFFLES, LARGE WOODY DEBRIS
Aquatic Organisms Observed (list):
FROGS
T&E Species Observed (list):
NA
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes):
NA
Tributary is: (check one)
Stream Quality a: (check one) ☐ High ☐ Moderate ☐ Low ☐ ☐ ☐

Waterbody ID:
SBUK024

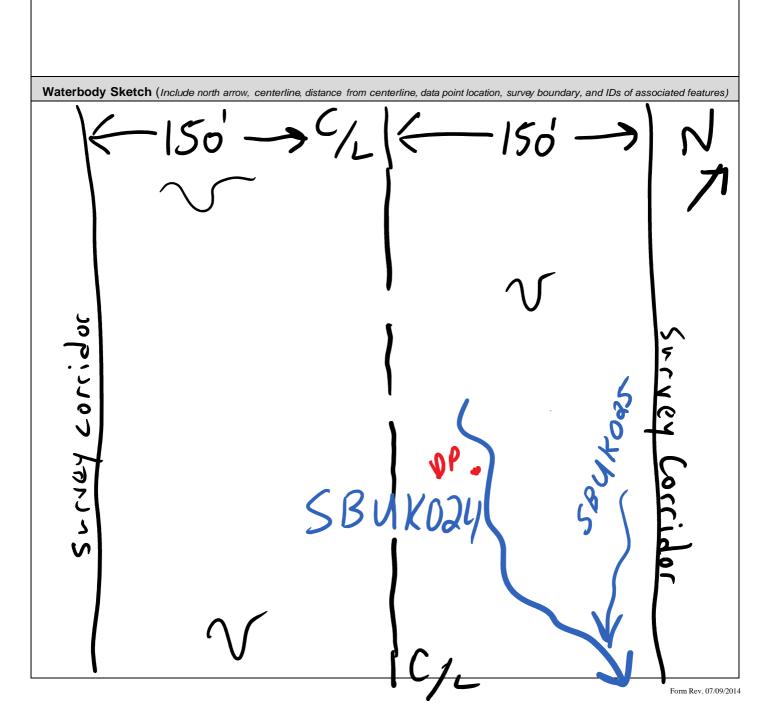
High Quality: Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

INTERMITTENT HEADWATER STREAM WITH POCKETS OF STANDING WATER, SLOW FLOW FOR SHORT STRETCHES IN SOME AREAS, HIGH AMOUNT OF WOODY DEBRIS. FLOW TO E. ASSOCIATED WITH STREAM SBUK025. STEEP BANKS.





Waterbody point sbuk024 facing across



Waterbody point sbuk024 facing upstream



Waterbody point sbuk024 facing downstream

Survey De										-	
Project Name				erbody Nar				Aterbody ID:			ate:
Southeast			CRE	EK		Y TO BISHOP		BUK025			9/2014
State:		ounty:			Company:			Member Initial		Photos:	
Virginia		uckingh	am			D & CURRAN	JD, SC				2 to 2155 #,x,u,d
Tract Numbe	er(s):				Nearest Mile	epost:		Associated W	etland	ID	
09-109 Survey Type	-				202.86						
(check one)		⊠Cen	nterline	□Re-R	loute	□Access Roa	d	□Other:			
Physical A											
Stream Class (check one)	sification:	⊠Eph	nemeral	□Inter	mittent	Perennial					
Waterbody T (check one)	′ype: □Ri	ver	⊠ Stream	□ Ditc	h 🗆 Ca	anal 🗆 Othe	r:				
OHWM Width:	<u>2 ft.</u>	OHWM I (check all th	Indicator: hat apply)		⊠ Clear lin on bank	ie ⊠Shelvii	ng	□Wrested vegetation	\boxtimes	Scouring	⊠Water staining
Height: N/A□	<u>.5</u> ft.		Bent, matted getation	, or missing	g □Wrack lii	ne ⊠Litter a debris	ind	□Abrupt plan community ch		□Soil cha	racteristic change
Width of Wat Bank to Top			Vidth of Wa o Toe of Slo		oe of Slope	Width of Waters Water Edge:	oody - W	ater Edge to	Depth (Approx.)	of Water:	
Dank to Top	<u>10 ft</u> .	ŭ	<u>2</u> ft.	ipe.			<u>1.0_</u> ft.		N/A⊠	_	<u>0.3 f</u> t.
Sinuosity:		v	Vater veloci	ty:		N/A⊠ Bank height			Bank s	lope	
(check one)	∃Straight	(#	Approx.)			Right:	C H			Right:	75 deserves
5	Moondoring			fps		Left:	<u>6</u> ft.			Left:	<u>75</u> degrees
	Meandering	N	N/A⊠				<u>6</u> ft.				85 degrees
Qualitative		S									
Water Appea (check one)		o water	⊠Clear	□Turb			urface cum	□Algal mats	□Other	:	
Substrate: (check all that app		edrock	□ Boulder	⊠ Cobb	le 🛛 Grave	el 🛛 Sand	⊠ Silt/ c	clay 🛛 Organic	; □ C	Other:	
% of Substra		_%	<u>NA</u> %	<u> 5 </u> %	<u>5</u> %	<u> 5 </u> %	<u>65</u> %	<u>20</u> %	NA	_%	
Width of Ripa	arian Zone:	Vege	etative Laye	ers:							
	<u>00 ft</u> .	(checl	k all that apply) . DBH of Do		[⊠] Trees: <u>14 i</u> n.	:	⊠ Saplir _ <u>1_</u> in.	ngs/Shrubs:	\boxtimes	Herbs	
Dominant Ba RED BUD,	RED MAP	LÈ, SY(CAMORE	, TULIP ⁻ IS VIRGI	TREE, JUN NIANA, PO	NIPERUS, FLO	OWERI ASSAF	ING DOGWO RAS, GRAP	DOD, (PE	GREEN	ASH,
Aquatic Habi	tats (ex: subm	nerged or e	emerged aquat	ic vegetation	n, overhanging	banks/roots, leaf pa	cks, large	submerged wood	, riffles, o	deep pools):	
LEAF PAC	KS, LONG	RIFFLE	ES, LARG	E WOOD	DY DEBRIS	S, SHELVES					
Aquatic Orga	anisms Obse	rved (list)):								
FROG											
T&E Species	Observed (li	st):									
NA											
Disturbances NA	s (ex: livestock	access, m	anure in wate	rbody, waste	discharge pipe	es):					
Tributary is:											
(check one)	1	⊠ Na	tural	□ Art	ficial, man-m	ade 🗌 Manip	oulated				
Stream Qual	ity ° :	🗆 Hig	jh	⊠ Mo	derate	□ Low					

Waterbody ID:
SBUK025

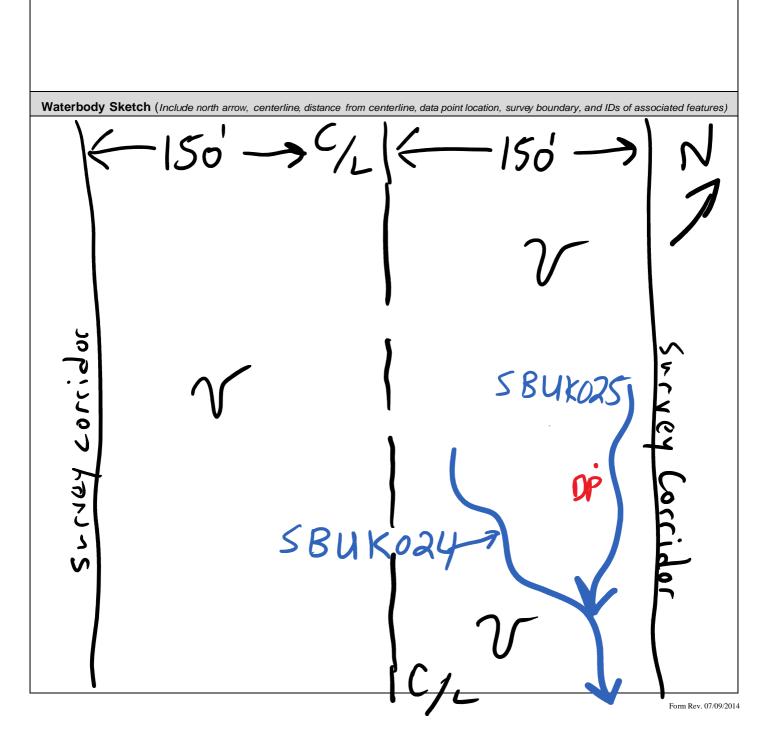
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Notes:

EPHEMERAL HEADWATER STREAM WITH POCKETS OF STANDING WATER, SMALL AMOUNT OF WOODY DEBRIS. FLOW TO SE. ASSOCIATED WITH STREAM SBUK024.





Waterbody point sbuk025 facing across



Waterbody point sbuk025 facing upstream



Waterbody point sbuk025 facing downstream

Survey Des								h				
Project Name				terbody Nai					aterbody ID:			Date:
Southeast F				REEK	TRIBUTAR	TUB	SHUP		BUK026			3/9/2014
State:		ounty:			Company:				lember Initial		Photos:	
Virginia		uckingh	nam		WOODAR		RRAN	JD, SG				71 to 2174 #,x,u,d
Tract Number	(s):				Nearest Mile	epost:			Associated W NA	/etland	ID	
09-109					202.93				INA			
Survey Type: (check one)		⊠Cei	nterline	□Re-F	Route		ss Road		□Other:			
Physical At	ttribute											
Stream Class		□Epl	hemeral	⊠Inter	mittent	□Perer	nnial					
Waterbody Ty (check one)	⁄pe: □Ri	ver	Stream	Ditc	ch 🗆 Ca	anal [Other	:				
OHWM Width:	_ft.	OHWM (check all	Indicator: that apply)		⊠ Clear lir on bank	ie 🛛	Shelvin	g	□Wrested vegetation	×	Scouring	⊠Water staining
Height: N/A□	_ft.		Bent, matte getation	ed, or missin	ig □Wrack li		Litter ar ebris	nd	⊠ Abrupt plar community ch		□Soil ch	aracteristic change
Width of Wate Bank to Top o			Width of W		Toe of Slope	Width of Water Ed		ody - W	ater Edge to	Depth (Approx.)	of Water	:
	<u>20 ft</u> .	Ľ	<u>3</u> ft.	iope.			•	<u>2.0_</u> ft.		N/A□		<u>0.3 ft</u> .
Sinuosity:			Water velo	city:		Bank hei	ght			Bank s	slope	
(check one)	Straight	((Approx.)	-		R	ight:				Right:	
_	-			<u>1_</u> fps			Left:	<u>8</u> ft.			Left	<u>85</u> degrees
X	Meandering	1	N/A□					<u>5</u> ft.				45_degrees
Qualitative		s										
Water Appear (check one)		o water	⊠Clea	r 🗆 Turb		een surface	⊡Sui sci		□Algal mats	□Othe	r:	
Substrate:		edrock	⊠ Boulde	r 🛛 Cobb	ole 🛛 Grave	el 🛛 Sa	ind 🛛	⊠ Silt/ c	lay 🛛 Organio		Other:	
(check all that apply % of Substrat		%	<u> 5 </u> %	<u>30</u> %	<u>25_</u> %	15	%	<u>10</u> %	<u> 5 </u> %	NA	<u>%</u>	
Width of Ripa	rian Zone:	Vea	etative La	vers:								
<u>_100</u>		(chec	ck all that apply . DBH of E		⊠ Trees <u>8 i</u> n.	:		⊠ Saplin _ <u>2_</u> in.	igs/Shrubs:	\boxtimes	I Herbs	
N/A⊡ Dominant Bar TULIP TRE HOLLY, PO	E, AMER	n (list BEECH	,	EOAK, S⊦	IORT-LEAI	F PINE,	FLOW	ERINO	G DOGWOC	D, JU	NIPER	JS, HORNBEAM,
Aquatic Habit			emerged aqu	atic vegetatio	n, overhanging	banks/roots	, leaf pac	ks, large	submerged wood	d, riffles,	deep pools):
LEAF PACH				GE WOO	DY DEBRI	S, SHEL	VES, I	MEDIU	IM SIZED P	OOLS	;	
Aquatic Orgai	nisms Obse	rved (list	t):									
FROG, BLACK	(,										
T&E Species NA	Observed (li	st):										
Disturbances NA	(ex: livestock	access, m	nanure in wa	terbody, waste	e discharge pipe	es):						
Tributary is: (check one)		⊠ Na	atural	□ Art	tificial, man-m	ade 🗆	Manip	ulated				
Stream Qualit (check one)	y ^a :	🗆 Hię	gh	⊠ Mo	oderate		Low					

	erbody ID: JK026
^a High Quality: Natural channel, natural vegetation extends at least one or two active channel widths on each side; roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse disturbance by livestock or man.	
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, su greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock	Ibmerged objects covered with
Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetat channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (erodir turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish moveme severe disturbance from livestock or man.	ng); water color is muddy and
Notes:	
INTERMITTENT HEADWATER STREAM WITH SOME FLOW THROUGHOUT, WITHIN CUT C SUCCESIONAL FOREST, A FEW SCATTERED MATURE TREES. HIGH AMOUNT OF WOOD BANKS AND SLOPE. FLOW TO E/SE.	
Waterbody Sketch (Include north arrow, centerline, distance from centerline, data point location, survey boundary,	and IDs of associated features)
K-150' -> C/L K-150' -	\rightarrow N
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SBUK026	5
DP SBUK026	- cver
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	Form Rev. 07/09/2014



Waterbody point sbuk026 facing across



Waterbody point sbuk026 facing upstream



Waterbody point sbuk026 facing downstream

Survey Descripti	on									
Project Name:			body Nan				Naterbody ID:		Date:	
Southeast Reliabil	ity			RIBUTAR	Y TO BISH	OP S	SBUK027		8/9/2	2014
State:	County:			Company:		Crew	Member Initial	Ph	otos:	
Virginia	Bucking	ham		WOODAR	D & CURR	AN JD, S	G	IN	1G-2167 t	o 2170 #,x,u,d
Tract Number(s):	1			Nearest Mile	epost:	l	Associated W	etland ID)	
09-109				202.99						
Survey Type: (check one)	⊠Ce	enterline	□Re-R	loute	□Access R	load	□Other:			
Physical Attribut										
Stream Classification	n:	ohemeral	□Interi	mittent	Perennia					
Waterbody Type:										
(check one)	□River	⊠ Stream	□ Ditc	h 🗆 Ca	anal 🗆 O	ther:				
OHWM Width: 2 ft.		I Indicator: I that apply)		⊠ Clear lir on bank	ie ⊠She	elving	⊠Wrested vegetation	⊠S	couring	⊠Water staining
Height:		Bent, matted, o	or missing	g ⊠Wrack li		er and	□Abrupt plan		Soil charac	teristic change
ft. N/A□		egetation			debris		community ch	lange		
Width of Waterbody - Bank to Top of Bank:		Width of Wate to Toe of Slop		oe of Slope	Width of Wat Water Edge:		Vater Edge to	Depth of (Approx.)	Water:	
18 ft.		2 ft.			J	.0 ft.			f	t.
<u>-10</u> 10		<u>-</u>			N/A□	<u>.o_</u> n.		N/A□	-	-
Sinuosity: (check one)		Water velocity (Approx.)	r:		Bank height			Bank slo	-	
□Straight			.1 fps		Righ	t: <u>8 f</u> t.			Right:65	_degrees
⊠Meande	ring	N/A□			Let	f t: 8 ft.			Left: 85	degrees
Qualitative Attrib	outes									
Water Appearance:							— • • •			
(check one)	[⊠] No water	□Clear	□Turbi		surface	∃Surface scum	□Algal mats	□Other:		
Substrate: (check all that apply)NA	Bedrock	⊠ Boulder	⊠ Cobb	le 🛛 Grave	el 🛛 Sand	⊠ Silt/	clay 🛛 Organic	: 🗆 Oth	ner:	
	<u>10 </u> %	<u> 5 </u> %	<u>20 </u> %	<u>25_</u> %	<u> 15 </u> %	<u> 20 </u> %	<u> 5 </u> %	<u>NA</u> %	%	
Width of Riparian Zo	ne: Veç	getative Layers	6:							
<u>100 ft</u> ·	Ave	eck all that apply) g. DBH of Dom prox.)	inants:	⊠ Trees: <u>8</u> in.	:	⊠ Sapl <u>3</u> in.	ings/Shrubs:	⊠⊦	lerbs	
N/A□ Dominant Bank Vege TULIP TREE, AM	tation (list	,	AK. BL	ACKJACK	OAK. SHO	RT-LEA	F PINE. FLOW	VERINO	G DOGW	DOD.
BLUEBERRY, HC	RNBEAM	, HOLLY, PO	DISON	IVY			-			,
Aquatic Habitats (ex: LEAF PACKS, LA	•	o .	•		banks/roots, lea	f packs, larg	e submerged wood	, riffles, dee	ep pools):	
Aquatic Organisms C NA	Dbserved (lis	st):								
TOE Chasica Obas	od (list):									
T&E Species Observe	eu (<i>IIst)</i> :									
Disturbances (ex: live	stock access, i	manure in waterb	ody, waste	discharge pipe	es):					
NA										
Tributary is:										
(check one) Stream Quality ^a :	⊠ N	atural	□ Arti	ificial, man-m	ade 🗆 Ma	anipulated				
(check one)	□ H	igh	□ Mo	derate	⊠ Lo	w				

				Waterbody II	D:
				SBUK027	
roots; water co	Natural channel, natural vegetatio lor is clear to tea-colored; no bai livestock or man.				
function or ripa	lity: Altered channel evidenced the rian vegetation only moderately considerate odor; minor barriers to fise	ompromised; banks modera	tely unstable; water colo	or is cloudy, submerged	n each side; filterin; objects covered wit
channel width turbid; obvious	Channel is actively down cutting o on each side; lack of regeneratio pollutants (algal mats, surface so nce from livestock or man.	on; filtering function severely	compromised; banks u	nstable (eroding); water	color is muddy and
Notes:					
TERMITTEN	T HEADWATER STREAM,	NO FLOW. WITHIN C		SUCCESIONAL FO	REST. ONLY
	MATURE TREES. HIGH AM				
	LLS AND GULLYS WITH DRA	INAGES THROUGHOUT	THIS GENERAL ARE	EA.	
Waterbody S	ketch (Include north arrow, cent	erline, distance from centerlin	ne, data point location, su	rvey boundary, and IDs o	f associated feature
K	-150'-			50'-	
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	EARLY S	5042551	NAL .	U	
		•	-1-		Form Rev. 07

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Waterbody point sbuk027 facing across



Waterbody point sbuk027 facing upstream



Waterbody point sbuk027 facing downstream

Survey Descript	ion	Matar				10/	eterkedy ID:		Dete
Project Name: Southeast Reliabi	litv		oody Nar MFD 1		Y TO BISHOP		aterbody ID: BUK028		Date: 8/9/2014
State:	County:	ČREE		Company:			/ember Initial	PI	notos:
Virginia	Bucking	ham			D & CURRAN				/IG 2175 to 2178 #,x,u,d
Tract Number(s):	Baoking			Nearest Mile		50, 30	Associated W		
09-109				203.12					
Survey Type: (check one)	Ma								
· ,		enterline	□Re-F	Route	□ Access Road		□Other:		
Physical Attribut Stream Classification (check one)	n:	ohemeral	⊠Inter	mittent	□Perennial				
Waterbody Type: (check one)	□River	⊠ Stream	□ Ditc	:h □ Ca	anal 🗌 Other	:			
OHWM Width: <u>4</u> ft.		I Indicator: I that apply)		⊠ Clear lir on bank	ne ⊠Shelvin	g	⊠Wrested vegetation	⊠S	couring ⊠Water staining
Height: N/A□	V	Bent, matted, egetation	·	•	debris		□ Abrupt plan community ch		∃Soil characteristic change
Width of Waterbody Bank to Top of Bank		Width of Wate to Toe of Slop		Toe of Slope	Width of Waterb Water Edge:	ody - W		Depth of (Approx.)	Water:
_ <u>22 f</u> t.		<u>4</u> ft.			N/A□	<u>2_</u> ft.		N/A□	<u>0.3</u> ft.
Sinuosity: (check one)		Water velocity (Approx.)	<i>'</i> :		Bank height			Bank slo	
□Straigh	t		0.1 fps		Right:	<u>6 ft</u> .			Right: degrees
⊠Meande	ering	N/A□			Left:	<u>7</u> ft.			Left: <u>80</u> degrees
Qualitative Attrik	outes								
Water Appearance: (check one)	□No water	⊠Clear	□Turb		leen ⊡Su surface sci		□Algal [mats	□Other:	
Substrate:	Bedrock	⊠ Boulder	⊠ Cobb	le 🛛 Grave	el 🛛 Sand 🛛	⊠ Silt/ c	lay 🗆 Organic	⊡ Ot	her:
(check all that apply)NA % of Substrate:	<u>40_</u> %	<u> 5 </u> %	<u>20</u> %	<u>G€%</u>	<u> 10 </u> % <u> </u>	<u>5_</u> %	<u>NA</u> %	NA	%
Width of Riparian Zo	one: Ve	getative Layers	s:	_					
<u>100 ft</u> · N/A□	Av	eck all that apply) g. DBH of Dom prox.)	inants:	⊠ Trees: <u>10 i</u> n.		⊠ Saplir <u>3_</u> in.	ngs/Shrubs:		Herbs
Dominant Bank Vege TULIP TREE, AM FLOWERING DO	IER BÉECI	H, WHITE O BLUEBERR	AK, BL Y, HOF	ACK CHER RNBEAM, H	RRY, GREEN A HOLLY, POISC	ASH, J DN IVY	JUNIPERUS,	, SHOF	RT-LEAF PINE,
Aquatic Habitats (ex:	•	o .	•		•				••• •
LEAF PACKS, LA OVERHANGING Aquatic Organisms	BANKS		S, SIGN	NIFICANT	SHELVES, LO	NG RI	FFLES, MED	DIUM S	IZED POOLS,
MANY FROGS	(
Disturbances (ex: live	estock access,	manure in waterb	ody, waste	e discharge pipe	es):				
NA Diaturkanasa (suu liu		· · · ·	- 4						
Disturbances (ex: live NA	estock access, I	manure in waterb	ody, waste	e discharge pipe	es):				
Tributary is: (check one)	⊠ N	atural	□ Art	ificial, man-m	ade 🗆 Manip	ulated			
Stream Quality ^a : (check one)	⊠H	igh	⊠ Mo	oderate	□ Low				

Waterboo SBUK0	-
^a High Quality: Natural channel, natural vegetation extends at least one or two active channel widths on each side; bank roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and a disturbance by livestock or man.	
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel wid function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submer greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or material states and the states of the	rged objects covered with
Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation le channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); v turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; li severe disturbance from livestock or man.	water color is muddy and
Notes:	
INTERMITTENT HEADWATER STREAM WITH FLOW THROUGHOUT, WITHIN CUT OVER EARL FOREST TO NORTH AND MATURE FOREST TO SOUTH, HIGH AMOUNT OF WOODY DEBRIS. SLOPE, WITH WIDE SHELVES. FLOW TO NE. SERIES OF KNOLLS AND GULLYS WITH DRAINAGES THROUGHOUT THIS GENERAL AREA.	
Waterbody Sketch (Include north arrow, centerline, distance from centerline, data point location, survey boundary, and	IDs of associated features)
K-150' -> C/2 K-150'-) N
EARLY SURCESSIONAL SUB028	
SUB028	~
	~ ~
DP V	r v e
MATURE DO	orc.
i miti	dor
$ C_{l} $	Form Rev. 07/09/2014



Waterbody point sbuk028 facing across



Waterbody point sbuk028 facing upstream



Waterbody point sbuk028 facing downstream

Survey De												1	
Project Name							V TO	BISHOP		aterbody ID: BUK029			ate:
Southeast I				REEK		-	TIU	BISHUP					/9/2014
State:		ounty:				npany:				Member Initial		Photos:	
Virginia		uckingł	nam					URRAN	JD, SG				79 to 2182 #,x,u,d
Tract Number	r(s):					rest Mile	epost:			Associated W	etland	ID	
09-109					203	5.12				NA			
Survey Type: (check one)		⊠Ce	nterline	□R	e-Route	•		ccess Road	b	□Other:			
Physical A	ttribute												
Stream Class (check one)		⊠Epl	hemeral	□Ir	ntermitte	nt	□P	erennial					
Waterbody T (check one)	ype: □Ri	ver	⊠ Stream	n 🗆 [Ditch	□ C	anal	□ Other	r:				
OHWM Width:	<u>2 ft.</u>		Indicator: that apply)			Clear lir bank	ne	□Shelvir	ng	□Wrested vegetation	X	Scouring	⊠Water staining
Height: N/A□	<u>).5</u> ft.	ve	Bent, matt egetation	,	0			⊠Litter a debris		□Abrupt plan community ch		□Soil cha	aracteristic change
Width of Wate Bank to Top			Width of V		/ - Toe c	of Slope		of Waterb Edge:	ody - W	ater Edge to	Depth (Approx.)	of Water:	
	<u>20 </u> ft.		<u>2</u> ft.	Jope.			N/A⊠	Luge.	ft.		N/A⊠		ft.
Sinuosity:			Water velo	ocity:				height			Bank s	slope	
(check one)	Straight	((Approx.)					Right:	0.5			Right:	
	-			fp:	S			Left:	<u>9 ft</u> .			Left:	<u>45</u> degrees
X	Meandering		N/A⊠						<u>7</u> ft.				<u>80</u> degrees
Qualitative		s											
Water Appear (check one)		o water	□Clea	r 🗆 T	urbid	⊡Sh on	een surfac		urface sum	□Algal mats	□Other	r:	
Substrate:		edrock	⊠ Bould	er 🛛 Co	obble	⊠ Grav	el 🛛	Sand	⊠ Silt/ c	lay 🛛 Organic		Other:	
(check all that app. % of Substrat		%	<u> 5</u> %	<u>25</u> %		<u>30 </u> %	1	<u>15_</u> %	<u>10_</u> %	<u> 5 </u> %	NA	_%	
Width of Ripa	arian Zone:	Veq	jetative La	vers:									
<u>100</u> N/A		(chec	ck all that appl j. DBH of I	y)		[⊠] Trees <u>10 i</u> n.	:		⊠ Saplir <u>_3_</u> in.	ngs/Shrubs:	\boxtimes	I Herbs	
Dominant Ba	K, AMER B	n (list BEECH	I, TULIP	TREE,	JUNIP	ERUS,	SHO	RT-LEAI	F PINE	, FLOWERII	NG DO	OGWOC	D, BLUEBERRY,
Aquatic Habit	tats (ex: subm	nerged or o	emerged aq	uatic vegeta	ation, ove	erhanging	banks/re	oots, leaf pa	cks, large	submerged wood	l, riffles,	deep pools)):
LEAF PAC	KS												
Aquatic Orga	inisms Obse	rved (list	t):										
Disturbances	(ex: livestock	access, n	nanure in wa	aterbody, wa	aste discł	harge pipe	es):						
NA													
Disturbances NA	(ex: livestock	access, n	nanure in wa	aterbody, wa	aste discł	harge pipe	es):						
Tributary is: (check one)		⊠ Na	atural		Artificial	, man-m	ade	🗆 Manip	oulated				
Stream Quali	ty ª :	🗆 Hig	gh		Moderat	te		□ Low					

			Waterbody ID SBUK029	:
roots; water co	Natural channel, natural vegetation extends at l lor is clear to tea-colored; no barriers to fish r livestock or man.			
function or ripa	lity: Altered channel evidenced by rip-rap; narrian vegetation only moderately compromised; noderate odor; minor barriers to fish movement;	banks moderately unstable	water color is cloudy, submerged o	each side; filtering objects covered with
channel width o turbid; obvious	Channel is actively down cutting or widening; r on each side; lack of regeneration; filtering fur pollutants (algal mats, surface scum, surface nce from livestock or man.	nction severely compromise	d; banks unstable (eroding); water	color is muddy and
Notes:				
SCATTERED N WIDE SHELVE	HEADWATER STREAM, NO FLOW. N MATURE TREES ALONG CHANNEL S. FLOW TO N. HIGH QUALITY FOR LLS AND GULLYS WITH DRAINAGES TH	EDGE. HIGH AMOUN AN EPHEMERAL FE	T OF WOODY DEBRIS, STE ATURE.	
Waterbody SI	ketch (Include north arrow, centerline, distance	e from centerline, data point	location, survey boundary, and IDs of	associated features)
F	-150'-, C	/L (-150'	N
	EARLY	SURCESS	VONAL	7
ų	EARLY	29	V	
ومدنطه			\mathcal{V}	Sucred
SUCUEY	MATUR	E	$\mathcal{O}(\mathcal{O})$	Corrido
			U	
				Form Rev. 07/09/2014



Waterbody point sbuk029 facing across



Waterbody point sbuk029 facing upstream



Waterbody point sbuk029 facing downstream

Survey Descriptio	n	-				
•		Waterbody			Waterbody ID:	Date:
Southeast Reliabilit		BISHOP C	REEK		SBUK030	8/9/2014
State:	County:		Company:		Crew Member Initial	Photos:
Virginia	Buckingham			RD & CURRAN		IMG 2185 to 2188 #,x,u,d
Tract Number(s):			Nearest Mil	epost:	Associated V NA	Vetland ID
09-111			203.50		NA	
Survey Type: (check one)	⊠Centerlin	e □R	e-Route	□Access Road	□Other:	
Physical Attribute						
Stream Classification: (check one)	Ephemer	al ⊡Ir	ntermittent	⊠Perennial		
Waterbody Type: (check one)]River ⊠ St	ream 🗆 [Ditch 🗆 C	anal 🗌 Other:		
OHWM Width: 8 ft.	OHWM Indica (check all that app		⊠ Clear li on bank	ne ⊠Shelving	g ⊠Wrested vegetation	⊠Scouring ⊠Water staining
Height:ft.	⊠Bent, vegetatio	,	sing ⊠Wrack I	ine ⊠Litter an debris	0	nt □Soil characteristic change
N/A□ Width of Waterbody - 1	op of Width	of Waterbody	/ - Toe of Slope	Width of Waterbo	ody - Water Edge to	Depth of Water:
Bank to Top of Bank:		of Slope:	,	Water Edge:		(Approx.)
<u>25 ft</u> .	-	<u>8 ft</u> .		N/A⊠	<u>7_</u> ft.	_ <u>_1</u> ft. N/A⊠
Sinuosity: (check one)	Water (Approx.	velocity:		Bank height		Bank slope
□Straight		0.3 1	īos	Right:	<u>4</u> ft.	Right: <u>80</u> degrees
⊠Meanderi	ng N/A⊠		F -	Left:	<u>6</u> ft.	Left: 90 degrees
Qualitative Attribu	tas					
Water Appearance:	-	_				
(check one)	No water	Clear □T		neen ⊡Sur n surface scu	U	Other:
Substrate:	Bedrock 🗆 B	oulder 🗆 Co	obble 🛛 Grav	el 🛛 Sand 🛛	🛛 Silt/ clay 🛛 Organi	c 🛛 Other:
% of Substrate: <u>N</u>	<u>A</u> % <u>NA</u>	% <u>NA</u> %	<u>25 </u> %	<u> 15 </u> % <u>6</u>	<u>0</u> % <u>NA</u> %	<u>NA</u> %
Width of Riparian Zone						
<u>100 ft</u> · N/A□	(check all tha Avg. DBH (approx.)	t apply) I of Dominant	⊠ Trees s: <u>18</u> in		3 Saplings/Shrubs: <u>3_</u> in.	⊠ Herbs
Dominant Bank Vegeta TULIP TREE, GRE FERN	tion (list EN ASH, SYC	AMORE, B	LACK CHER	RY, GRAPE, S	PICE BUSH, LON	IICERA, ROSE, CHRISTMAS
Aquatic Habitats (ex: su	Ibmerged or emerge	d aquatic vegeta	ation, overhanging	banks/roots, leaf pack	ks, large submerged woo	d, riffles, deep pools):
DEEP POOLS		LVES, OVE	RHANGING	VEGETATION/	BANKS/ROOTS,	LONG AND SHORT RIFFLES,
Aquatic Organisms Ob						
FISH, CLAMS, WATE	, ,	ROGS				
FISH, CLAMS, WATE Disturbances (ex: liveste NA	ER STRIDERS, F		aste discharge pip	es):		
Disturbances (ex: livest	CR STRIDERS, F	in waterbody, wa				
Disturbances (ex: liveste NA Disturbances (ex: liveste	CR STRIDERS, F	in waterbody, w		es):	Ilated	

				Waterbody ID:	
				SBUK030	
	al channel, natural vegetation extends clear to tea-colored; no barriers to t ck or man.				
function or riparian ve	Nerved channel evidenced by rip-rap egetation only moderately compromi te odor; minor barriers to fish movem	sed; banks moderately	unstable; water color is cloud	y, submerged object	
channel width on eac	el is actively down cutting or wideni ch side; lack of regeneration; filterin ants (algal mats, surface scum, sur om livestock or man.	g function severely co	mpromised; banks unstable (e	eroding); water colo	r is muddy and
Notes:					
ROAD. HIGH AMOL	AM, DEEP SILTY BOTTON, 7 JNT OF WOODY DEBRIS, S ATION. FLOW TO NE. LOW (TEEP BANKS AN	D WIDE EXTENSIVE SH		
Waterbody Sketch	ח (Include north arrow, centerline, dis	stance from centerline,	data point location, survey bound	dary, and IDs of ass	ociated features)
K	-150'->	C/2 K	— 150'	->	N
	V	-			
corcidoa			SBUKO	30	S
20					R
	05				SURVEY
Survey	V	l			K
2				-	6
					RR
		١	V		CORRIDOR
		11	1		
l l			16		Form Rev. 07/09/2014



Waterbody point sbuk030 facing across



Waterbody point sbuk030 facing upstream



Waterbody point sbuk030 facing downstream

Survey Description	n							
Project Name:		Waterbody Na				aterbody ID:		ate:
Southeast Reliability	ý	UNAMED TH WILLIS RIVE		TO LITTLE	SE	3UK031	8	/11/2014
State:	County:	• -	Company:		Crew M	ember Initial	Photos:	
Virginia	Buckingham		WOODAR	D & CURRAN	JD, SG		IMG 220	4 to 2207 #,x,u,d
Tract Number(s):			Nearest Mile	epost:	ŀ	Associated We	etland ID	
09-114			204			NA		
Survey Type: (check one)	⊠Centerlin	e □Re-F	Route	□ Access Road		□Other:		
Physical Attribute	- Ochichin		toute					
Stream Classification: (check one)	Ephemer	ral □Inter	mittent	⊠Perennial				
Waterbody Type: (check one)	River ⊠ St	ream 🗆 Dito	ch □ Ca	anal	:			
OHWM Width:	OHWM Indica (check all that app		⊠ Clear lir on bank	ne ⊠Shelving	g	□Wrested vegetation	⊠Scouring	⊠Water staining
<u>_5</u> ft. Height: ft.	⊠Bent, vegetati	matted, or missin on		ne ⊠Litter an debris	nd	Abrupt plant		aracteristic change
N/A□ Width of Waterbody - T	on of Width	of Waterbody -	Toe of Slone	Width of Waterbo	ody - Wa	ater Edge to	Depth of Water:	
Bank to Top of Bank:		e of Slope:		Water Edge:	ou, 110		Approx.)	
<u>_20_</u> ft.		<u>5 ft.</u>		N/A⊠	<u>4_</u> ft.	L.	N/A⊠	<u>0.5 ft</u> .
Sinuosity:		velocity:		Bank height		E	Bank slope	
(check one)	(Approx.			Right:	2.4		Right:	00 damaga
		<u>0.1</u> fps		Left:	<u>3</u> ft.		Left:	90 degrees
Meanderir	ng N/A⊠				<u> </u>			<u>90</u> degrees
Qualitative Attribu	tes							
Water Appearance: (check one)	No water	Clear		leen ⊡Sur surface scu		□Algal □ mats	∃Other:	
	Bedrock 🗆 B	oulder 🛛 Cobb	ole 🛛 Grave	el 🛛 Sand 🛛	⊠ Silt/ cla	ay 🛛 Organic	□ Other:	
(check all that apply)NA % of Substrate: 2	% <u>NA</u>	% <u>8</u> %	<u>10 </u> %	<u> 15 </u> % <u>6</u>	<u>30_</u> %	<u> 5 </u> %	<u>NA</u> %	
Width of Riparian Zone		e Layers:	-					
<u>_100_ft</u> - N/A□	(check all tha Avg. DBH (approx.)	H of Dominants:	⊠ Trees <u>14 i</u> n.		⊴ Saplinę _2_in.	gs/Shrubs:	⊠ Herbs	
Dominant Bank Vegeta TULIP TREE, GREI FERN, LONICERA,	EN ASH, SYC	AMORE, REL RAWBERRY	D MAPLE, S	SPICE BUSH, I	PAW-P	PAW, IRONW	vood, twis ⁻	TED STALK, NY
Aquatic Habitats (ex: su	bmerged or emerge	ed aquatic vegetatio	n, overhanging	banks/roots, leaf pacl	ks, large s	submerged wood,	riffles, deep pools)	:
EXTENSIVE SHELY A FEW MEDIUM SI	ZED POOLS.	ANGING VEG	ETATION/	BANKS/ROOT	S, BAN	IK UNDERC	UTTING, SH	ORT RIFFLES,
Aquatic Organisms Ob FISH, WATER STRID	• •							
Disturbances (ex: livesto NA	ock access, manure	in waterbody, waste	e discharge pipe	es):				
Disturbances (ex: livesto	ock access, manure	in waterbody, waste	e discharge pipe	es):				
Tributary is: (check one)	⊠ Natural	□ Ari	tificial, man-m	ade 🗆 Manipu	ulated			
Stream Quality ^a : (check one)	⊠ High		oderate	□ Low				

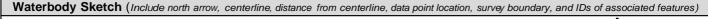
		Waterbody ID:
		SBUK031
a	High Quality: Natural channel, natural vegetation extends at least one or two active channel widths on each s roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; div	, , , , , , , , , , , , , , , , , , , ,

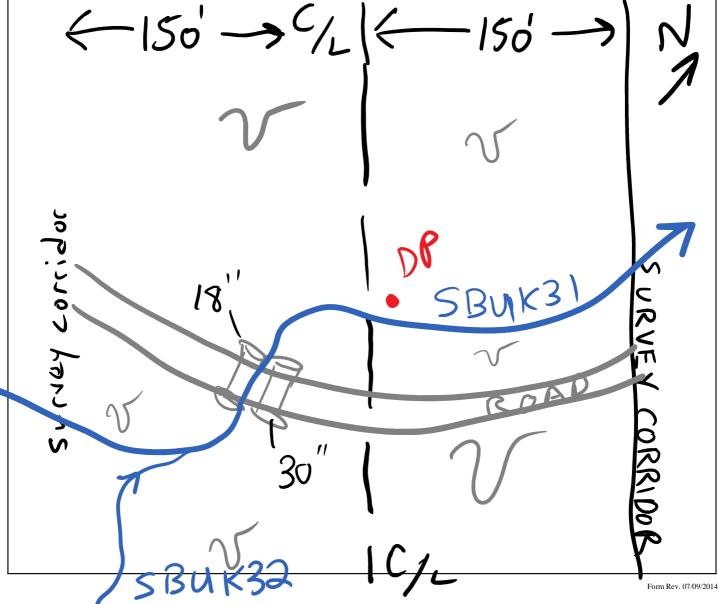
disturbance by livestock or man. **Moderate Quality:** Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

PERRENIAL STREAM, SILTY BOTTON, 0.5 FT OF FLOW TO NE, BISECTED BY DIRT ROAD JUST SOUTH OF CENTERLINE. 18 & 30 INCH DIP CULVERTS AT ROAD CROSSING, ONE PARTIALLY BLOCKED BY A BOULDER. FLOW, BANKS, NATURAL FEATURES HAVE BEEN ALTERED BY ROAD CONSTRICTION. MODERATE AMOUNT OF WOODY DEBRIS, STEEP BANKS AND WIDE EXTENSIVE SHELVES COVERED IN A MIX OF UPLAND AND WETLAND VEGETATION (SOIL NOT HYDRIC). LOW GRADIENT, SINUOUS. ASSOCIATED WITH SBUK32.







Waterbody point sbuk031 facing East and across



Waterbody point sbuk031 facing South and upstream



Waterbody point sbuk031 facing North and downstream

Survey Description	n						
Project Name:		Waterbody N			Waterbo	•	Date:
Southeast Reliability		WILLIS RI		Y TO LITTLE	SBUK0		8/11/2014
State:	County:		Company:		Crew Membe	r Initial	Photos:
Virginia	Buckingham		WOODAR	D & CURRAN	JD, SG		IMG 2216 to 2219 #,x,u,d
Tract Number(s):			Nearest Mile	epost:	Assoc	iated Wetland	ID
09-114			204				
Survey Type: (check one)	⊠Centerlir	ne ⊡Re	-Route	□Access Road	□Othe	er:	
Physical Attribute							
Stream Classification: (check one)	⊠Epheme	ral □Int	ermittent	□Perennial			
Waterbody Type:							
(check one)	River S	tream 🗆 D	itch 🗆 C	anal 🗌 Other			
OHWM Width: _2 ft.	OHWM Indic (check all that app		⊠ Clear lir on bank	ne ⊡Shelvin	g ⊡Wr veget		Scouring ⊠Water staining
Height:	□Pont	matted, or miss		ine ⊠Litter ar	0	rupt plant	□ Soil characteristic change
<u>0.5_</u> ft. N/A□	vegetati	ion	C C	debris	comn	nunity change	, i i i i i i i i i i i i i i i i i i i
Width of Waterbody - T Bank to Top of Bank:		of Waterbody e of Slope:	- Toe of Slope	Width of Waterb Water Edge:	ody - Water Ed	dge to Depth (Approx.)	of Water:
10_ft.		_ <u>2_</u> ft.			NA ft.		_NA ft.
<u></u> n.		<u></u> n.		N/A⊠	<u>va_</u> n.	N/A⊠	
Sinuosity: (check one)	Water (Approx	r velocity:		Bank height		Bank	•
Straight		fps		Right:	<u>4</u> ft.		Right: <u>80</u> degrees
Meanderir	ng N/A⊠			Left:	<u>4</u> ft.		Left: _80_degrees
Qualitative Attribu					<u></u> n.		<u></u> dogioco
Water Appearance:	163						
(check one)	No water]Clear □Tu		neen DSur n surface scu		gal ⊡Othe ats	n:
Substrate:	Bedrock 🗆 B	Boulder 🗆 Col	oble 🛛 Grav	el 🛛 Sand 🛛	🛛 Silt/ clay 🛛	Organic 🗆 🤇	Other:
% of Substrate: <u>1</u>	% <u>NA</u>	% <u>NA</u> %	<u>20 </u> %	<u> 30 </u> % 4	<u>40 % 9 </u>	% <u>N</u> A	<u>4_</u> %
Width of Riparian Zone	: Vegetativ	ve Layers:					
<u>100 ft</u> -	(check all th	at apply) H of Dominants	⊠ Trees : <u>16 i</u> n.		⊠ Saplings/Shr _3_in.	ubs: D	∃ Herbs
N/A Dominant Bank Vegeta RED OAK, WHITE	tion (list OAK, BEECH	I, JUNIPERU	S, IRONWC		, FLOWERI		OOD, CHRISTMAS
FERN, V CREEPER	-						
Aquatic Habitats (ex: su	ibmerged or emerg	ed aquatic vegetat	ion, overnanging	banks/roots, leat pac	ks, large submer	ged wood, riffies,	deep pools):
Aquatic Organisms Ob	served (list):						
Disturbances (ex: livesto	ock access, manure	e in waterbody, was	ste discharge pip	es):			
NA							
Disturbances (ex: livesto	ock access, manure	e in waterbody, was	ste discharge pip	es):			
NA							
Tributary is: (check one)	⊠ Natural	\Box A	Artificial, man-m	iade 🗆 Manipi	ulated		
Stream Quality ^a : (check one)	🗆 High		Noderate	⊠ Low			

	Waterbody ID:							
Г	SBUK033							
^a High Quality: Natural channel, natural vegetation extends at least one or two active channel widths on eac roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; disturbance by livestock or man.								
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.								
Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.								
Notes:								
EPHEMERAL STREAM, NO FLOW TIES INTO SBUK32, GOOD QUAKITY FOR AN EPH AMOUNT OF WOODY DEBRIS. STARTS JUST WEST OF CENTERLINE. HIGH GRADI SBUK32 AT ROW EDGE								
Waterbody Sketch (Include north arrow, centerline, distance from centerline, data point location, survey bo	oundary, and IDs of associated features)							
	N C							
.22	1							
ONK-								
50 7 1								
	c							
105 3 105	URVE							
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J 394K33	- 1							
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	R							
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	Ŏ							
	γ~							
14/6	Form Rev. 07/09/201							



Waterbody point sbuk033 facing North and across



Waterbody point sbuk033 facing East and upstream



Waterbody point sbuk033 facing West and downstream

Survey Descrip	tion										
Project Name:			oody Name:					aterbody ID:			Date:
Atlantic Coast Pi			o Willis Riv	rer			_	puz001		_	5/5/2016
State:	County:		Com	ipany:			Crew N	lember Initials	5:	Photos:	
Virginia	Buckin	gham	ERN	RM SS &			SS &	AS		1 - 3	
Tract Number(s):			Near	rest Mile	epost:			Associated W	etland	ID(s):	
09-114 & 09-116	5		208	.4				None			
Survey Type: (check one)	\boxtimes (Centerline	□Re-Route		□Ac	cess Road	1	Other:			
Physical Attribu											
Stream Classification (check one)		Ephemeral		nt	□Pe	rennial					
Waterbody Type: (check one)	□River	⊠ Stream	□ Ditch	□ Ca	anal	□ Other	:				
OHWM Width:		M Indicator: all that apply)		Clear lir	ne	□Shelvin	g	□Wrested		Scouring	g □Water
<u>2</u> ft.			on	bank				vegetation			staining
Height: 4_ft. N/A□		□Bent, matted, ovegetation	or missing \Box	Wrack li	ne	□Litter a debris	nd	□Abrupt plan community ch		□Soil cł	naracteristic change
Width of Waterbody	y - Top of	Width of Wate	rbody - Toe o	of Slope	Width	of Waterb	ody - W	ater Edge to	Depth	of Water	
Bank to Top of Ban		to Toe of Slop			Water			U	(Approx.		
<u>_5</u> ft.		<u>3</u> ft.			N/A□	-	<u>2</u> ft.		N/A□	-	<u>0.3</u> ft.
Sinuosity:		Water velocity	:		Bank ł	neight			Bank	slope	
(check one) Straig	ht	(Approx.)				Right:				Right:	
			<u>0.1_</u> fps			Left:	<u>4_</u> ft.			Left	<u>50</u> degrees
□Meano	dering	N/A□				Long	<u>3_</u> ft.			2011	_ <u>45</u> degrees
Qualitative Attri											
Water Appearance: (check one)	\Box No wate	r ⊠Clear	□Turbid	⊡Sh on	een surface		rface um	□Algal mats	□Othe	er:	
Substrate:	Bedrock	k 🗆 Boulder	□ Cobble	Grave	el 🛛	Sand	□ Silt/ c	lay 🗆 Organio	; 🗆 (Other:	
(check all that apply) % of Substrate:	%	%	%	<u>90_</u> %	1	<u>0 </u> %		_%%		%	
Width of Riparian Z		egetative Layers									
<u>_150_ft</u> - N/A□	A	heck all that apply) vg. DBH of Dom pprox.)		[⊠] Trees: _4_in.			⊠ Saplır _ <u>1_</u> in.	igs/Shrubs:	Þ	☑ Herbs	
Dominant Bank Veg	getation (list)):									
Nyssa sylvatica,	Cornus flo	orida									
Aquatic Habitats (e)	c: submerged	or emerged aquatic	vegetation, ove	rhanging	banks/ro	ots, leaf pac	ks, large	submerged wood	, riffles,	deep pools	;):
None											
Aquatic Organisms	Observed (list):									
None											
T&E Species Obser	ved (list):										
None											
Disturbances (ex: liv	vestock access	, manure in waterb	ody, waste disch	narge pipe	es):						
None											
Tributary is: (check one)	\boxtimes	Natural	□ Artificial	, man-m	ade	Manip	ulated				
Stream Quality ^a : (check one)		High	□ Moderat	te		⊠ Low					

Waterbody ID:

sbuz001

High Quality: Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

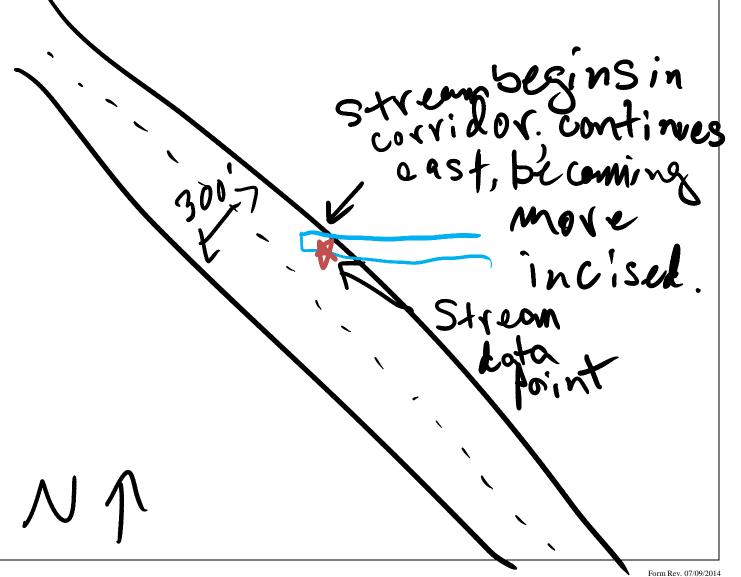
Moderate Quality: Altered channel evidenced by rip-rap: natural vegetation extends 1/3-1/2 of the active channel width on each side: filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

This is an ephemeral stream of not high quality.

Waterbody Sketch (Include north arrow, centerline, distance from centerline, data point location, survey boundary, and IDs of associated features)





Waterbody sbuz001 facing northwest upstream

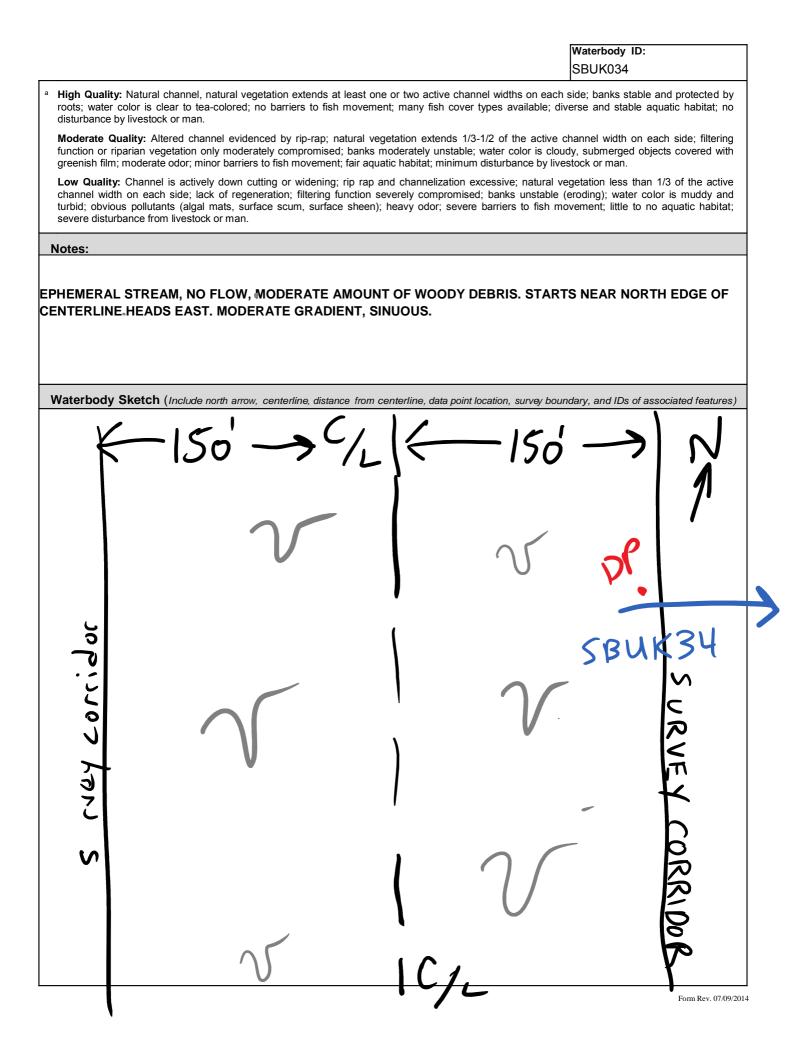


Waterbody sbuz001 facing southeast downstream



Waterbody sbuz001 facing northeast across

Survey Description	n	har a n									
Project Name:		Waterbod			V T O I			aterbody ID:			Date:
Southeast Reliabilit		WILLIS		RIBUTAR` R	Y IOL	_11 1 L E	5	BUK034			3/11/2014
State:	County:			ompany:				Member Initial		Photos:	
Virginia	Buckingham		M	/OODAR	D & Cl	JRRAN	JD, SG	ì		IMG 22	20 to 2223 #,x,u,d
Tract Number(s):			N	earest Mile	post:			Associated W	etland	ID	
09-114			2	04							
Survey Type: (check one)	⊠Centerli	ne r]Re-Roi	ute		cess Road		□Other:			
Physical Attribute	Contoni			410							
Stream Classification: (check one)	⊠Epheme	eral 🗆	Intermi	ittent	□Per	rennial					
Waterbody Type: (check one)		Stroom [Ditab								
	River ⊠ S	Stream [] Ditch	🗆 Ca	anai	□ Other:					
OHWM Width: _2 ft.	OHWM India (check all that ap			⊠ Clear lin on bank	е	□Shelving	g	□Wrested vegetation	\boxtimes	Scouring	u ⊟Water staining
Height: 0.3_ft.	□Bent vegeta	, matted, or n tion	nissing	□Wrack lir	ne	⊠Litter an debris	nd	□ Abrupt plan community ch		⊡Soil ch	naracteristic change
N/A□ Width of Waterbody - T		h of Waterbo	dy - To	a of Slope	Width	of Waterby	ody - W	ater Edge to	Denth	of Water	
Bank to Top of Bank:		e of Slope:	uy - 10	e or orope	Water I		buy II	ater Luge to	(Approx.)		•
<u>7 ft.</u>		<u>2</u> ft.				N	<u>IA_</u> ft.				<u>NA</u> ft.
Sinuosity:	Wote	er velocity:			N/A⊠ Bank h	aight			N/A⊠ Bank s	lone	
(check one)	(Appro				валк п	Right:			Danks	Right:	
□Straight		_	fps			-	<u>2.5 </u> ft.			Left	40 degrees
⊠Meanderir	ng N/A⊠	3					<u>2.5 ft</u> .			Leit	<u>70</u> degrees
Qualitative Attribu	tes										
Water Appearance: (check one)	No water	⊂Clear □]Turbid	□Sh	000	□Sur	faco	□Algal	□Othe	<i>.</i> .	
					surface			mats			
Substrate:	Bedrock 🗆 I	Boulder 🛛	Cobble	🛛 Grave	el 🖂	Sand D	⊠ Silt/ c	ay 🛛 Organic	; □ (Other:	
	<u>A</u> % <u>N</u> A	<u>\</u> % <u>15</u> 9	%	<u>40 </u> %	30	<u>)</u> % <u>5</u>	5_%	<u> 10 </u> %	NA	<u>%</u>	
Width of Riparian Zone	: Vegetati	ve Layers:									
<u>100_ft</u> - N/A□	(check all ti		nts:	⊠ Trees: <u>16 i</u> n.			⊠ Saplir _ <u>3_</u> in.	ngs/Shrubs:	\boxtimes	Herbs	
Dominant Bank Vegeta BLACK OAK, WHIT	tion (list E OAK, SWE	EET GUM,	JUNIF	PERUS, F	RED B	UD, FLO	WER	ING DOGW	DOD,	CHRIS	TMAS FERN, V
CREEPER, SASSA		rod aquatic yoo	otation	workanging	hanks/roc			submorgod wood	rifflog	doon noola	· · ·
NA	interded of enterg	jeu aqualic veg		Svemanging i	Janks/100	ns, ieai paci	ks, iaige	submerged wood	, 111105, 1		
Aquatic Organisms Ob NA	served (list):										
Disturbances (ex: livesto	ock access, manur	e in waterbody,	waste di	ischarge pipe	es):						
NA											
Disturbances (ex: livesto	ock access, manur	e in waterbody,	waste di	ischarge pipe	es):						
NA											
Tributary is: (check one)	⊠ Natural		□ Artific	cial, man-ma	ade	🗆 Manipu	ulated				
Stream Quality ^a : (check one)	□ High		□ Mode	erate		⊠ Low					





Waterbody point sbuk034 facing South and across



Waterbody point sbuk034 facing West and upstream



Waterbody point sbuk034 facing East and downstream

Survey Descriptio	n									I	
Project Name:			body Nam			. –		aterbody ID:			ate:
Southeast Reliabilit			IS RIVE	IBUTARY R	10 LITT	LE	_	BUK035			11/2014
State:	County:			Company:				Member Initial		Photos:	
Virginia	Bucking	ham		WOODAR	D & CUF	RAN	JD, SG	;		IMG 222	4 to 2227 #,x,u,d
Tract Number(s):				Nearest Mile	epost:			Associated W	etland	ID	
09-114				204							
Survey Type: (check one)		enterline	□Re-R	oute		s Road		□Other:			
Physical Attribute				oute		0 110000					
Stream Classification: (check one)	_	ohemeral	⊠Interr	nittent	□Peren	nial					
Waterbody Type: (check one)	∃River	⊠ Stream	□ Ditch	n 🗆 Ca	anal 🗆] Other:	:				
онwм		I Indicator:									
Width: _ <u>4</u> ft.	(check al	ll that apply)		☑ Clear lin on bank	ie 🛛	Shelving	g	□Wrested vegetation	×	Scouring	⊠Water staining
Height: ft. N/A□		∃Bent, matted, egetation	or missing	g		Litter ar bris	nd	□Abrupt plan community ch		□Soil cha	racteristic change
Width of Waterbody - 1 Bank to Top of Bank:		Width of Wate to Toe of Slop		oe of Slope	Width of Water Ed		ody - W	ater Edge to	Depth (Approx.)	of Water:	
			Je.			-			(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		0.2.#
<u>_12</u> ft.		<u>4</u> ft.			N/A□		<u>2_</u> ft.		N/A□	_	<u>0.3 </u> ft.
Sinuosity:		Water velocity	y:		Bank heig	jht			Bank s	slope	
(check one)		(Approx.)	0 1 fpp		R	ight:	<u>3.5 ft</u> .			Right:	70 degrees
⊠Meanderi	20	· · · · -	<u>0.1</u> fps			Left:				Left:	
	<u> </u>	N/A□				•	<u>1.0 </u> ft.				20_degrees
Qualitative Attribu Water Appearance:	ites										
	□No water	⊠Clear	□Turbi		een surface	⊡Sur scu		□Algal mats	□Othe	r:	
	Bedrock	□ Boulder	⊠ Cobbl	e 🛛 Grave	el 🛛 Sa	nd 🛛	⊠ Silt/ c	ay 🗆 Organic	: 🗆 (Other:	
(check all that apply)NA % of Substrate: <u>N</u>	<u>A</u> %	<u>NA</u> %	<u>25</u> %	<u>40 </u> %	<u>30</u>	6 <u>5</u>	<u>5</u> %	<u>NA</u> %	NA	<u>`</u> %	
Width of Riparian Zone		getative Layer	s:							_	
<u>_100_ft</u> - N/A□	Av	eck all that apply) g. DBH of Don prox.)	ninants:	⊠ Trees: <u>12</u> in.	:		⊠ Saplir _4_in.	ngs/Shrubs:		Herbs	
Dominant Bank Vegeta BLACK OAK, WHIT SASSAFRAS	ation <i>(list</i> ΓΕ ΟΑΚ,	SWEET GU	IM, TULI	IP TREE, I	PAW-PA	W, C⊦	IRISTI	MAS FERN,	VIRG	INIA CR	EEPER,
Aquatic Habitats (ex: s	ubmerged or	emerged aquation	vegetation	, overhanging	banks/roots,	leaf pacl	ks, large	submerged wood	, riffles,	deep pools):	
NA											
Aquatic Organisms Ob NA	oserved (lis	st):									
Disturbances (ex: livest	ock access,	manure in waterb	ody, waste	discharge pipe	es):						
Disturbances (ex: livest	ock access,	manure in waterb	ody, waste	discharge pipe	es):						
NA											
Tributary is: (check one)	⊠ N	atural	□ Arti	ficial, man-m	ade 🗆	Manipu	ulated				
Stream Quality ^a : (check one)		ligh	⊠ Moo	derate		Low					

			Waterbody ID:						
			SBUK035						
	atural channel, natural vegetation extends at least one o r is clear to tea-colored; no barriers to fish movement; restock or man.								
function or riparia	Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.								
channel width on turbid; obvious p	Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.								
Notes:									
VARIABLE; VER	STREAM, SPORADIC FLOW TO NE, MODE Y WIDE BANK/SHELF OVER CENTERLINE UOUS. 18_INCH HDPE CULVERT								
Waterbody Ske	etch (Include north arrow, centerline, distance from cen	terline, data point location, survey boun	dary, and IDs of associated features)						
K	-150' - C/1	150	->IN						
	25								
	V	V	18 HOPE						
			UNERTO						
с o	CBU	1K35							
			N N						
ž			C						
J J			URVEY						
2	V								
トカトン									
			2						
Š			OR						
			R						
			CORRIDOR						
	25		\mathcal{P}						
	V	16/6	Form Rev. 07/09/201						
			10hii Kev. 07/09/201						



Waterbody point sbuk035 facing North and across



Waterbody point sbuk035 facing West and upstream



Waterbody point sbuk035 facing East and downstream

Survey Des								
Project Name:			Waterbody N				body ID:	Date:
Southeast R	Reliability		UNNAMED	TRIB TO LIT	LE WILLIS RIVI	ER SBUI	(020	8/8/2014
State:	Co	unty:		Company:		Crew Mem	ber Initial	Photos:
Virginia	Bu	ickingham		WOODAR	D & CURRAN			IMG 2110 to 2113 #,x,u,d
Tract Number	(s):			Nearest Mile	epost:		ociated Wetl	and ID(s):
09-119				205		NA	۱	
Survey Type: (check one)		⊠Centerline	□Re	-Route	□ Access Road		ther:	
Physical At	tribute							
Stream Classi								
(check one)		⊠Ephemera	al 🗌 Inte	ermittent	□Perennial			
Waterbody Ty (check one)	pe: □Riv	rer 🛛 Stro	eam 🗆 Di	tch 🗆 C	anal 🛛 Other	:		
онwм		OHWM Indicat						
Width:	ft.	(check all that apply	()	Clear line on bank	ne 🗆 Shelvin	0	Wrested getation	Scouring □Water staining
Height:		□Bent, n	natted, or miss	ing 🗆 Wrack li	ne ⊠Litter a	nd 🗆	Abrupt plant	□Soil characteristic change
_0. N/A□	<u>.3 f</u> t.	vegetatio		0	debris		nmunity chan	
Width of Wate				- Toe of Slope	Width of Waterb	ody - Water	Edge to De	pth of Water:
Bank to Top o	f Bank:	to Toe	of Slope:		Water Edge:		(Ap	prox.)
	<u>7 ft</u> .	_1	<u>1_</u> ft.			<u>ft</u> .		ft.
Sinuosity:		Wator	velocity:		N/A⊠ Bank height			A⊠ nk slope
(check one)	Otraialat	(Approx.)	velocity.		Right:		Da	Right:
	Straight		fps	;		<u>2_</u> ft.		<u>60</u> degrees
	Meandering	N/A⊠			Left:	<u>2_</u> ft.		Left: _ <u>45</u> degrees
Qualitative	Attributes	5						
Water Appeara (check one)		water 🗆 🗆	Clear □Tu	rbid □Sł		rface 🗆	Algal 🗆 🗆	Other:
(oneon one)	-110						mats	
Substrate: (check all that apply		edrock 🛛 Bo	ulder 🗆 Cot	oble 🛛 🖾 Grav	el 🛛 Sand	⊠ Silt/ clay	⊠ Organic	□ Other:
% of Substrate		% <u>NA</u> %	<u>NA</u> %	<u> 5 </u> %	<u> 5 </u> %	<u>10_</u> %	<u>80</u> %	<u>NA</u> %
Width of Ripa	rian Zone:	Vegetative	E Layers:					
100	a	(check all that	apply) of Dominants	⊠ Trees		⊠ Saplings/S	Shrubs:	⊠ Herbs
_ <u>100</u> N/A□	<u>, </u>	Avg. DB П (approx.)	or Dominants	<u>12</u> in.	-	<u>2</u> in.		
Dominant Ban	nk Vegetatior	n (list):						
GREEN ASI	H, WHITE	OAK, RED I	BUD, RED (CEDAR, SW	EET GUM, LC	NICERA,	SMILAX, C	HRISTMAS FERN
Aquatic Habita	ats (ex: subme	erged or emerged	d aquatic vegetat	ion, overhanging	banks/roots, leaf pac	ks, large subn	nerged wood, rif	fles, deep pools):
NA								
Aquatic Organ	nisms Observ	ved (list):						
NA								
T&E Species (Observed (lis	<i>t)</i> :						
NA								
Disturbances	(ex: livestock a	access, manure i	n waterbody, was	ste discharge pip	es):			
NA								
Tributary is: (check one)		⊠ Notural		rtificial man ~	ade 🗆 Marin	ulated		
· ,	v ^a :	⊠ Natural		rtificial, man-m	iade 🗌 Manip	นเสเซน		
Stream Quality								

Waterbody ID:
SBUK020

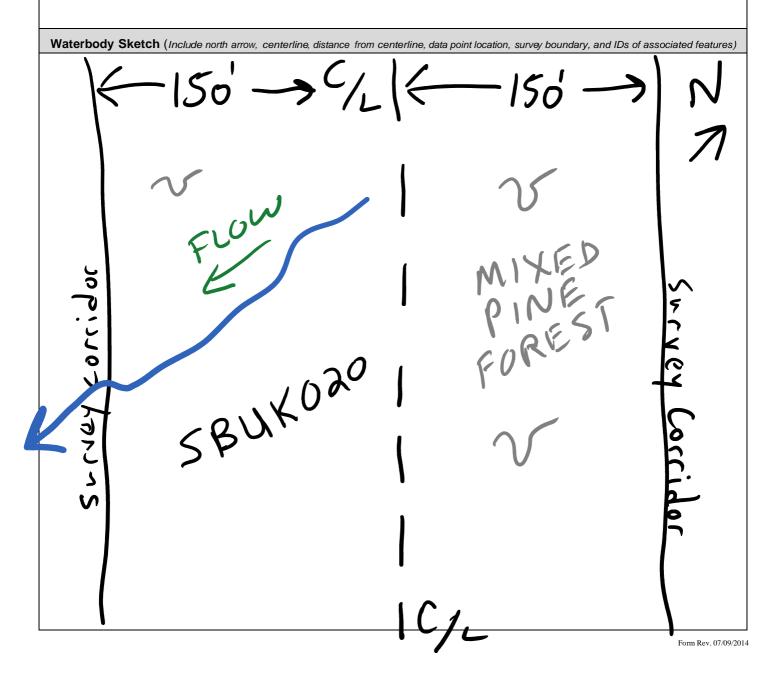
High Quality: Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

EPHEMERAL STREAM, NO FLOW AT TIME OF SURVEY. SHORT SEGMENTS OF SORTED MATERIAL, BUT PRIMARILY LEAF LITTER IN BED. NO WETLANDS PRESENT. WILDLIFE TRACKS INCLUDE WHITETAIL DEER. FLOW TO S/SE.





Waterbody point sbuk020 facing across



Waterbody point sbuk020 facing upstream



Waterbody point sbuk020 facing downstream

Survey Description	on	hereite								Dete	
Project Name: Southeast Reliabil	itv		-	9: B TO LITT	.1 = ///11 1			aterbody ID: BUK021		Date: 8/8/2014	
	•	UNINAM		-							
State:	County:			ompany:				lember Initial		Photos:	, ,
Virginia	Buckingha	m		/OODAR		RRAN	JD, SG			MG 2121 to 2124 #	₹,X,U,O
Tract Number(s): 09-120				earest Mile 05	epost:			Associated W WBUK013	etland	ID(s):	
Survey Type:			2	00				WBOR013			
(check one)	⊠Cente	erline [□Re-Ro	ute		ess Road		□Other:			
Physical Attribute											
Stream Classification (check one)	: ⊠Ephe	meral	□Intermi	ittent	□Pere	nnial					
Waterbody Type:				litterit		inna					
	□River ⊠	Stream	Ditch	🗆 Ca	anal	□ Other:					
онwм	OHWM In	dicator:									
Width:	(check all that			☑ Clear lin on bank	e D	Shelving	9	⊠Wrested vegetation	\boxtimes	Scouring DWater staining	
<u>2</u> ft. Height:						71 :44		Ū		0	
<u>0.6 ft</u> .		ent, matted, or i etation	missing	□Wrack li		⊠Litter an Iebris	a	☐ Abrupt plan community ch		Soil characteristic cha	ange
N/A□ Width of Waterbody -	Top of Wi	dth of Waterb	ody - To	e of Slope	Width of	f Waterbo	odv - W	ater Edge to	Depth (of Water:	
Bank to Top of Bank:		Toe of Slope:	ouy .o	e el elepe	Water E	dge:			(Approx.)		
<u>4 ft.</u>		<u>2_</u> ft.					ft.			ft.	
Cinuccitur	14/4				N/A⊠ Benk he				N/A⊠ Benk e	lana	
Sinuosity: (check one)	(Ap	ater velocity: prox.)			Bank he	Right:			Bank s	Right:	
⊠Straight			_fps			-	<u>2.5_</u> ft.			85 degrees	
□Meande	ring N/	A⊠				Left:	<u>2_</u> ft.			Left: _ <u>45</u> degrees	
Qualitative Attrib	utes										
Water Appearance: (check one)	⊠No water	□Clear [□Turbid	□Sh	000	□Sur	faaa		□Other		
					surface	scu		mats			
Substrate: (check all that apply)NA	Bedrock	Boulder 🛛	Cobble	⊠ Grave	el ⊠S	and D	⊠ Silt/ c	lay 🛛 Organic		Other:	
	<u>NA</u> % <u>N</u>	<u>NA % 10</u>	<u>0</u> %	<u>45 </u> %	30	_%	<u>5_</u> %	<u> 10 </u> %	NA	_%	
Width of Riparian Zor	ne: Veget	ative Layers:									
100 ft-	(check a	all that apply) DBH of Domina	ante	⊠ Trees:				gs/Shrubs:	\boxtimes	Herbs	
N/A⊠	(approx.		anto.	<u>8</u> in.		_	<u>2</u> in.				
Dominant Bank Vege	. ,										
WHITE OAK, RED CHRISTMAS FER Aquatic Habitats (ex:	<u>N. BRYOPH</u>	IYTES	-								
NA			gotation, v	overnanging	burnerroot	o, iour puor	io, iurgo		, 111100, 0	100p p0010).	
Aquatic Organisms O	bserved (list):										
NA											
T&E Species Observe	ed (list):										
NA											
Disturbances (ex: lives	stock access, mar	nure in waterbody	/, waste di	ischarge pipe	es):						
NA											
Tributary is:			_								
(check one)	⊠ Natu	ral	□ Artific	cial, man-m	ade	🗆 Manipu	lated				
Stream Quality ^a : (check one)	🗆 High		□ Mode	erate		⊠ Low					

Waterbody ID:
SBUK021

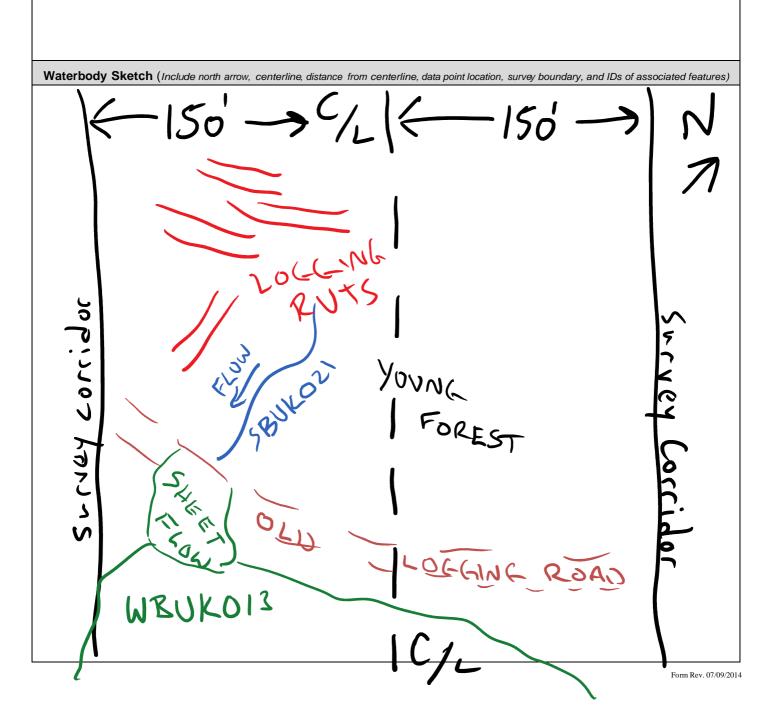
High Quality: Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

EPHEMERAL STREAM, NO FLOW AT TIME OF SURVEY. VARIABLE; SEGMENTS OF SORTED MATERIAL THROUGHOUT AND SOME COBBLE-SIZED MATERIAL. PRIMARILY LEAF LITTER IN BED IN UPPER REACHES. FLOW TO S/SE, FLOWS HITS OLD ROAD AND DISPERSES. CHANNEL BARELY DISCERNABLE. LOCATED IN OLD CUT AREA, NUMEROUS RUTS THROUGHOUT.





Waterbody point sbuk021 facing across



Waterbody point sbuk021 facing upstream



Waterbody point sbuk021 facing downstream

Survey Description	n	Matada					14	aterbody ID:			-4
Project Name: Southeast Reliabilit		,								ate: /8/2014	
								SBUK022A			0/2014
State:	County:							w Member Initial Photo			
Virginia	Ç			WOODARD & CURRAN J							
Tract Number(s): 09-121			Nearest Mile	post:			Associated Wetland ID(s):				
Survey Type:		205					Wbuk013f				
(check one)	erline	□Re-R	oute	□Acc	ess Road		□Other:				
Physical Attribute											
Stream Classification: (check one)	emeral	□Inter	nittent	□Per	ennial						
Waterbody Type: (check one)	River D	⊠ Stream	□ Ditc	h 🗆 Ca	anal	□ Other:					
OHWM Width:	OHWM In (check all tha			⊠ Clear lin on bank	e	⊠Shelving		⊠Wrested	X	Scouring	⊠Water staining
<u>4</u> ft. Height:								vegetation			Ū
	vege	ent, matted, or etation	·			⊠Litter an debris	□Abrupt plant □Soil characteristic community change			iractenstic change	
Width of Waterbody - T Bank to Top of Bank:		idth of Water Toe of Slope		oe of Slope	Width o Water E		ody - W		Depth (Approx.)	of Water:	
<u>6 ft</u> .		4 ft.					ft				ft.
<u> </u>	<u>4</u>			ft. N/A⊠		<u></u> n.	N/A⊠				
Sinuosity: (check one) □ Straight ⊠ Meandering		ater velocity: oprox.)		Bank h	•		Bank slop				
		. ,	fps			Right:				Right:	45 degrees
		A⊠		Left:			2.5 ft.				85 degrees
Qualitative Attribu	tes									-	
Water Appearance:											
(check one)	No water	□Clear	□Turbi		een surface	⊡Sur scu		□Algal [mats	□Other	r:	
Substrate:	Bedrock	Boulder	⊠ Cobb	e 🛛 Grave	el ⊠ S	Sand D	⊠ Silt/ c	lay 🛛 Organic		Other:	
% of Substrate:	<u>NA %</u>	<u>NA %</u>	<u>NA </u> %	<u>5</u> %	5	% _	<u>80_</u> %	<u> 10 </u> %	NA	<u>~</u> %	
Width of Riparian Zone	: Veget	tative Layers:	:	[⊠] Trees:							
100 ft-	(check a	all that apply) DBH of Domi				ngs/Shrubs: 🛛 Herbs					
N/A 🗆	(approx.			<u>14</u> in.		-	<u>3</u> in.				
Dominant Bank Vegetation (<i>list</i>): WHITE OAK, RED MAPLE, SWEET GUM, POISON IVEY, CAREX, SPICEBUSH,											
Aquatic Habitats (ex: su	ubmerged or em	nerged aquatic v	regetatior	, overhanging	banks/roo	ts, leaf pack	ks, large	submerged wood	, riffles,	deep pools)	:
NA											
Aquatic Organisms Ob	served (list):										
BOX TURTLE, FRO	OGS										
T&E Species Observed	(list):										
NA											
Disturbances (ex: livesto	ock access, mar	nure in waterbo	dy, waste	discharge pipe	es):						
NA											
Tributary is: (check one)	⊠ Natu	ıral	□ Arti	ficial, man-m	ade	🗆 Manipu	ulated				
Stream Quality ^a : (check one)	🗆 High	1	□ Mo	derate		⊠ Low					

Waterbody ID:
SBUK022A

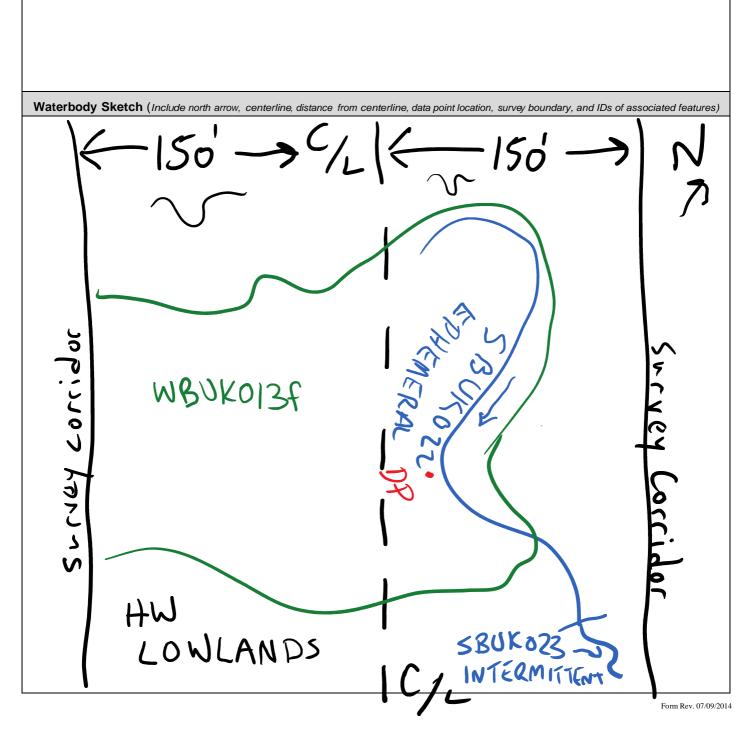
High Quality: Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

EPHEMERAL STREAM, NO FLOW AT TIME OF SURVEY. PRIMARILY LEAF LITTER IN BED IN UPPER REACHES. FLOW TO S/SE, FLOWS THRU WETLAND AND CONTINUES TO INTERMITTENT.





Waterbody point sbuk022a facing across



Waterbody point sbuk022a facing upstream



Waterbody point sbuk022a facing downstream

Survey Descrip	otion												
•									aterbody ID:			ate: /8/2014	
	······································								SBUK022B			8/2014	
State:				Company: Crev WOODARD & CURRAN JD, 1					w Member Initial Photo				
Virginia					URRAN	JD, SG				4 to 2147 #,x,u,d			
Tract Number(s): 09-121			Nearest Milepost: 205						Associated Wetland ID(s): Wbuk013f				
Survey Type: (check one)	X	Centerline		□Re-Ro	oute		cess Road	I	□Other:				
Physical Attrib		Contonino						<u>.</u>					
Stream Classificati	ion:	Ephemera	1	⊠Interm	nittent	□P€	erennial						
Waterbody Type: (check one)	□River	⊠ Stre	eam	Ditch		anal	□ Other	: :					
OHWM Width: _4_ft.		VM Indicat k all that apply,			⊠ Clear lir on bank	e	⊠Shelvin	g	⊠Wrested vegetation		Scouring	⊠Water staining	
Height: <u>3</u> ft. N/A□		⊠Bent, m vegetatior	า	0		ne ⊠Litter and debris			□ Abrupt plant community ch		□Soil cha	racteristic change	
Width of Waterbod Bank to Top of Bar			of Waterl		oe of Slope		of Waterb Edge:	ody - W	ater Edge to	Depth (Approx.)	of Water:		
<u>10</u> ft.			_ft.	-		N/A⊠		<u>2</u> ft.		N/A⊠	_	<u>0.3 f</u> t.	
Sinuosity: (check one)		Water v (Approx.)	elocity:			Bank	height			Bank s			
Straig	iht			fps			Right:	<u>5 ft</u> .			Right:	75 degrees	
⊠Mean	dering	N/A⊠				Left: 5 ft.					Left:	Left: 85 degrees	
Qualitative Attr	ibutos										-	0	
Water Appearance													
(check one)	□No wate	er ⊠C	lear	Turbic		een surface	⊟Su e sci		□Algal mats	□Othe	r:		
Substrate: (check all that apply)NA	□ Bedroo	ck 🗆 Bou	ulder [e 🛛 Grave	el 🛛	Sand	⊠ Silt/ c	lay 🛛 Organic		Other:		
% of Substrate:	<u>NA</u> %	<u>NA </u> %	<u>_</u>	<u>NA </u> %	<u>30 </u> %	_1	<u>0 </u> %	<u>45</u> %	<u>15</u> %	NA	<u>`</u> %		
Width of Riparian 2	Zone:	Vegetative		:									
(check all that a			apply) ☑ Trees: of Dominants: _16_in.					⊠ Saplir _ <u>1_</u> in.	Saplings/Shrubs: ⊠ Herbs _in.				
Dominant Bank Ve	getation (lis	<i>t)</i> :											
ELM, GREEN AS CHRISTMAS FER Aquatic Habitats (e	RŃ	•					•						
NA	Ū	-		egetation,	overnanging	banks/re		ing, iaige	Submerged wood	, 111100,			
Aquatic Organisms	s Observed	(list):											
NA													
T&E Species Obse NA	rved (list):												
Disturbances (ex: li NA	ivestock acces	ss, manure in	waterboo	dy, waste	discharge pipe	es):							
Tributary is: (check one)		Natural		□ Artif	icial, man-m	ade	🗆 Manip	ulated					
Stream Quality ^a : (check one)] High		⊠ Mod	lerate		□ Low						

Waterbody ID:
SBUK022B

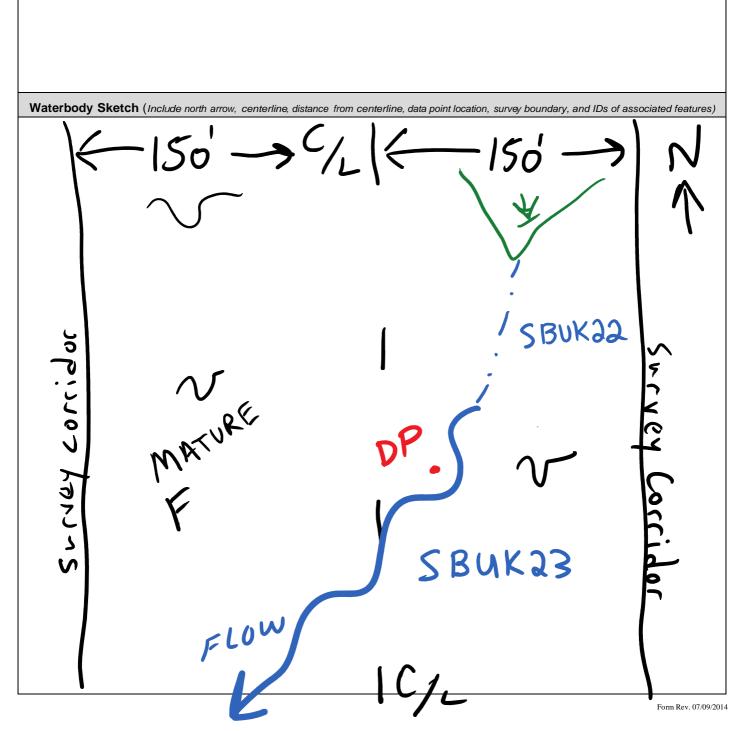
High Quality: Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

INTERMITTENT STREAM WITH POKETS OF STANDING WATER, EXTENDS FROM WETLAND WBUK13 AND EPHEMERAL STREAM SBUK22. HIGH AMOUNT OF WOODY DEBRIS. FLOW TO S/SW.





Waterbody point sbuk022b facing across



Waterbody point sbuk022b facing upstream



Waterbody point sbuk022b facing downstream

Linear	Waterbody	Data	Sheet

Survey Description	n	1							
Project Name:		Waterbody Na				/aterbody ID:		Dat	
Atlantic Coast Pipel	ine	UNT to Little	e Willis Rive	er	S	buc101		9/2	21/2015
State:	County:		Company:		Crew I	Member Initials	: P	hotos:	
Virginia	Buckingham		NRG		CR, A	AS	1	1-3	
Tract Number(s):			Nearest Mile	epost:		Associated W	etland II	D(s):	
09-121.AR			209			Wbuc013			
Survey Type: (check one)		e ⊠Re-	Route	□Access Road		□Other:			
Physical Attributes	S								
Stream Classification: (check one)	Ephemera	al 🗆 Inte	rmittent	Perennial					
	Ephemere								
Waterbody Type: (check one)	River 🛛 Str	eam 🗆 Dite	ch 🗆 Ca	anal 🗆 Other	:				
онwм	OHWM Indica								
Width: ft.	(check all that apply	()	Clear lir on bank	ne 🗆 Shelving	g	☐Wrested vegetation		Scouring	□Water staining
Height:	□Bent, r	natted, or missir	ng ⊡Wrack li	ne ⊠Litter ar	nd	□Abrupt plan	t [☐Soil chara	acteristic change
ft. N/A□	vegetatio	'n	0	debris		community ch	ange		Ū
Width of Waterbody - T			Toe of Slope	Width of Waterb	ody - W	ater Edge to		f Water:	
Bank to Top of Bank:	to Toe	of Slope:		Water Edge:			(Approx.)		
<u>8</u> ft.	_	<u>2</u> ft.		<u></u>	f	ft.			ft.
Sinuosity:	Water	velocity:		N/A⊠ Bank height			N/A⊠ Bank sle	one	
(check one)	(Approx.)			Right:			Dalik Si	Right:	
□Straight		f	ps		<u>3</u> ft.			<u> </u>	<u>30</u> degrees
⊠Meanderir	ng N/A⊠			Left:	<u>3</u> ft.			Left:	<u>60</u> degrees
Qualitative Attribu	tes								
Water Appearance: (check one)	No water □0	Clear □Turl				0	Other:		
Substrate:	Bedrock 🗆 Bo	oulder 🗆 Cobl		el ⊠ Sand [mats clay ⊠ Organic		ther:	
(check all that apply)						, ,			
% of Substrate:	%	%	_%	% <u>90</u> % _		_% <u>10 %</u>		%	
Width of Riparian Zone	: Vegetative		57 -	5	7 O I'	(0)			
ft.	`	of Dominants:	⊠ Trees _ <u>8_</u> in.		⊴ Sapiir _ <u>2_</u> in.	ngs/Shrubs:		Herbs	
N/A⊠	(approx.)		<u>_0_</u>	-	_ <u>_</u>				
Dominant Bank Vegeta Black walnut, winge		kernut hickor	y, Japanes	e honeysuckle,	swee	et-gum, Chine	ese priv	vet, red c	edar
Aquatic Habitats (ex: su	bmerged or emerged	d aquatic vegetatio	on, overhanging	banks/roots, leaf pac	ks, large	submerged wood	, riffles, de	eep pools):	
None									
Aquatic Organisms Ob	served (list):								
None									
T&E Species Observed	(list):								
None									
Disturbances (ex: livesto	ock access, manure i	n waterbody, wast	e discharge pipe	es):					
Stream flows throug	gh a 18" culver	t within the c	orridor						
Tributary is: (check one)	⊠ Natural	□ Ar	tificial, man-m	ade 🗆 Manip	ulated				
Stream Quality ^a : (check one)	□ High	⊠ M	oderate	□ Low					

Waterbody ID:

Sbuc101

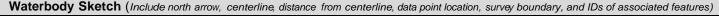
High Quality: Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

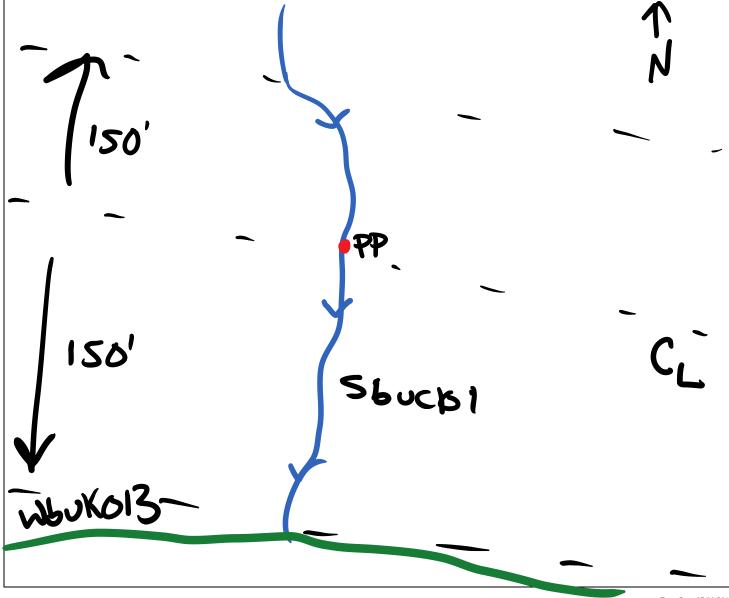
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

This feature has weak OHWM indicators, it may not be a stream and act more like an upland drainage system, but it is difficult to tell at this time of year. FAC and FACU plants grow within the bed and there are extensive fibrous roots.







Waterbody SBUC101 facing north upstream



Waterbody SBUC101 facing south downstream



Waterbody SBUC101 facing west across

Survey Descriptio	n								
Project Name:		Wate	rbody Nan	ne:			Waterbody ID:		
Atlantic Coast Pipe	line	UNT	to Little	Willis Rive	r		sbua005		
State:	County:			Company:		Crev	v Member Initia	s: Ph	noto
Virginia	Buckingha	m	I	NRG		GB,	TP	3	ph
Tract Number(s):				Nearest Mile	epost:		Associated V	Vetland ID)(s):
09-121; access roa	d 45			206.3			none		
Survey Type: (check one)	□Cente	erline	□Re-R	oute	⊠Access	Road	□Other:		
Physical Attribute	S								
Stream Classification:	_								
(check one)	□Ephe	meral	⊠Interr	nittent	Perenn	nal			
Waterbody Type: (check one)	∃River ⊠	Stream	□ Ditcl	n 🗆 Ca	anal 🗆	Other:			
OHWM Width: <u>4.0</u> ft.	OHWM In (check all tha			⊠ Clear lin on bank	ie ⊡S	belving	□Wrested vegetation	⊠So	cour
Height: ft. N/A□		ent, matted tation	, or missing	g	ne ⊠L deb	itter and pris	□Abrupt pla community o]Soi
Width of Waterbody - Bank to Top of Bank:		dth of Wat Toe of Slo		oe of Slope	Width of W Water Edg		Water Edge to	Depth of (Approx.)	Wa
<u>6.0</u> ft.			ft.		N/A□	3.0	ft.	N/A□	
Sinuosity:		ater veloci	ty:		Bank heig	ht		Bank slo	ре
(check one)	(Ap	prox.)	0.50 (Rig	ght: 3.0	#		Rig
⊠Meanderi	n a		_0.50_fps		L	.eft:	-		L
	N//	4 □				3.0	<u>ft.</u>		
Qualitative Attribu	ites								
Water Appearance: (check one)	[□] No water	⊠Clear	□Turbi		een surface	□Surface scum	□Algal mats	□Other:	
	Bedrock	Boulder	⊠ Cobbl	e 🗆 Grave	el 🛛 San	d 🛛 Silt	/ clay 🛛 Organ	ic 🗆 Oth	ner:
(check all that apply) % of Substrate:	%	%	<u>30</u> %		% <u>45</u> %	<u> 15 </u> %	% <u>10</u> %		%
Width of Riparian Zone		ative Laye	ers:	⊠ Trees:		⊠ Sar	olings/Shrubs:	⊠H	lerb
<u>ft</u> .	Avg. [(approx.	DBH of Do	minants:	<u>_12.0</u> _ir		_ <u>1.5</u>	0		
N/A⊠									
Dominant Bank Vegeta	. ,								
	sh, black wa	s woodla	and seda	e wood ru	sh			-	

OHWM Width:	<u>4.0</u> ft.		I Indicator: Il that apply)		⊠ Clear lin on bank	ıe	□Shel	<i>v</i> ing	□Wrested vegetation	⊠Sco	ouring	□Water staining
Height: N/A□	<u>0.75</u> ft.		∃Bent, matted egetation	, or missing	□Wrack li	ne	⊠Litter debris	and	□Abrupt pla community c		oil cha	racteristic change
	/aterbody - Top op of Bank:	of	Width of Wat to Toe of Slo		be of Slope		th of Wate er Edge:	rbody - W	ater Edge to	Depth of W (Approx.)	/ater:	
	<u>6.0</u> ft.			ft.		N/A□		<u>3.0</u> ft.		N/A□	_0	<u>.33_</u> ft.
Sinuosity: (check one)	□Straight		Water veloci (Approx.)	ty: fps		Bank	k height Right: Left:			Bank slop R	ight:	90_ degrees
	⊠Meandering		N/A□					<u>3.0</u> ft.				60 degrees
Qualitati	ive Attribute	s										
Water App (check one)		o water	⊠Clear	□Turbid		neen 1 surfa		Surface scum	□Algal mats	□Other:		
Substrate:		Bedrock	□ Boulder	⊠ Cobble	e 🗆 Grave	el 🛛	⊠ Sand	⊠ Silt/ c	lay 🛛 Organi	c 🗆 Othe	r:	
(check all that a % of Subs		%	%	<u>30</u> %		<u>%</u>	<u>45</u> %	<u> 15 </u> %	<u> 10 </u> %		_%	
Width of R 	l iparian Zone:	(che Av	getative Laye ack all that apply) g. DBH of Do prox.)		⊠ Trees: _ <u>12.0_</u> ii			⊠ Saplir _ <u>1.5_</u> in.	ngs/Shrubs:	⊠ He	rbs	
Dominant Sweetgui	Bank Vegetation m, white ash	black	walnut, ha	ckberry, e	eastern re	d ceo	dar, mult	iflora ros	se, spicebus	sh, green	brier.	Japanese
honevšuo	ckle. Virginia abitats (ex: subr	rve ar	ass. woodla	and sedae	e. wood ru	ish	/roots_loof_r	acks Jargo	submorgod woo	d rifflos door		•
	ols, leaf pac				overnanging	Danks	10013, 1641	acks, large	Submerged woo	a, miles, deep	pools).	
Aquatic Or	rganisms Obse	rved (lis	s <i>t)</i> :									
frog												
T&E Speci	es Observed (ist):										
none												
Disturband	ces (ex: livestock	access,	manure in water	rbody, waste o	discharge pipe	es):						
Culvert c	rossing for a	ccess	road 45									
Tributary is (check one)		× N	latural	□ Artifi	icial, man-m	ade	□ Mar	nipulated				
Stream Qu (check one)	ality ^a :		ligh	⊠ Mod	erate		□ Low					

Date: 10/23/2014

Photos:

3 photos

Waterbody ID:

sbua005

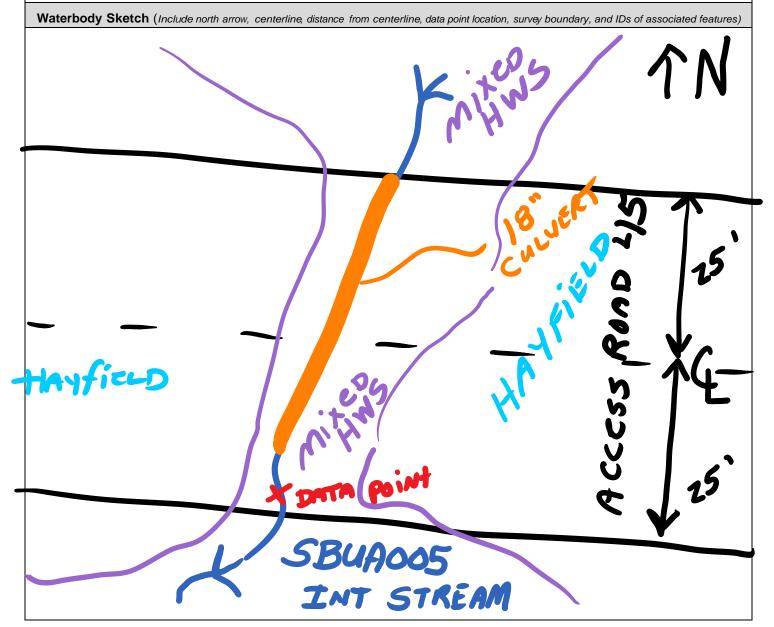
High Quality: Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

Continues out of access road 45 corridor in both directions, 18"plastic culvert for road crossing, strip of mixed hardwoods surrounded by hayfields.





SBUA005 facing northeast upstream



SBUA005 facing southwest downstream



SBUA005 facing east across

Survey Descriptio	n							
Project Name:		Waterbody Nar				aterbody ID:		Date:
Southeast Reliabilit	У	LITTLE WILL	IS RIVER		SI	BUK037		8/13/2014
State:	County:	•	Company:		Crew N	lember Initial	Pho	tos:
Virginia	Buckingham			D & CURRAN	JD, SG			G 2263 to 2265 x,u,d
Tract Number(s):			Nearest Mile	epost:		Associated W wbuk017e	etland ID	
09-124, 09-125			205					
Survey Type: (check one)	⊠Centerline	e □Re-F	Route	□Access Road		□Other:		
Physical Attribute								
Stream Classification: (check one)	Ephemera	al ⊡Inter	mittent	⊠Perennial				
Waterbody Type:								
(check one)	IRiver □ Str	eam 🗆 Ditc	h 🗆 Ca	anal 🗌 Other:	:			
OHWM Width:	OHWM Indica (check all that apply		🛛 Clear lin	ne ⊠Shelving	g	⊠Wrested	⊠Sco	ouring ⊠Water
<u>25 ft</u> .			on bank			vegetation		staining
Height:	⊠Bent, r vegetatio	natted, or missin	g ⊠Wrack li	ne ⊠Litter ar debris	nd	□Abrupt plan community ch		oil characteristic change
N/A□ Width of Waterbody - 1	Fon of Width	of Waterbody - 1	Toe of Slone	Width of Waterbo	ody - W	ater Edge to	Depth of V	Vater:
Bank to Top of Bank:		of Slope:		Water Edge:	ouy - W	ater Euge to	(Approx.)	
<u>25 ft</u> .		1 <u>6 ft</u> .			<u>11 ft.</u>			<u>0.5 ft</u> .
				N/A 🗆			N/A⊠	
Sinuosity: (check one)	(Approx.)	velocity:		Bank height Right:			Bank slop	e light:
□Straight		<u>0.1</u> fps			<u> 5 </u> ft.			_ <u>70</u> degrees
⊠Meanderi	ng N/A□			Left:	<u> 5 </u> ft.			Left: _ <u>30</u> degrees
Qualitative Attribu	Ites							
Water Appearance:								
(check one)	No water ⊠0	Clear □Turb		een ⊡Sur surface scu		□Algal [mats	□Other:	
Substrate:	Bedrock 🗆 Bo	oulder 🛛 Cobb	le 🛛 Grave	el 🛛 Sand 🛛	⊠ Silt/ cl	lay 🗆 Organic	□ Othe	r:
	<u>A</u> % <u>NA</u> %	% <u>25</u> %	<u>35 </u> %	<u> 30 </u> % <u>1</u>	<u>10_</u> %	<u>NA</u> %	<u>NA</u> %	
Width of Riparian Zone								
<u>100_ft</u> -	(check all that Avg. DBH (approx.)	of Dominants:	⊠ Trees: _ <u>20 i</u> n.		⊠ Saplin _ <u>2_</u> in.	ngs/Shrubs:	⊠ He	rbs
N/A	ation (list							
SYCAMORE, SWE	ET GUM, IRUI	N WOOD, PA	VV-PAVV, P	UISON IVY, H	ICKOF	KY, FALSE M	NETTLE,	IRUMPET WEED
Aquatic Habitats (ex: s	ubmerged or emerged	d aquatic vegetatior	n, overhanging	banks/roots, leaf pacl	ks, large	submerged wood	riffles, deep	pools):
OVERHANGING B	ANKS, LWD, R	ROOTS, DEEF	POOLS,	SUBMERGED	LARG	E WOOD, L	EAF PAC	CKS
Aquatic Organisms Ob FISH, CLAMS, FRO								
Disturbances (ex: livest	ock access, manure i	n waterbody, waste	discharge pipe	es):				
LIVESTOCK ON D	OWNLINE BAN	NK, ROAD CL	JLVERT 50	OFT WEST OF	COOF	RIDOR		
Disturbances (ex: livest	ock access, manure i	n waterbody, waste	discharge pipe	es):				
NA								
Tributary is: (check one)	⊠ Natural	□ Art	ificial, man-m	ade 🗌 Manipi	ulated			
Stream Quality ^a : (check one)	🗆 High	⊠ Mo	derate	□ Low				

	Waterbody ID: SBUK037
^a High Quality: Natural channel, natural vegetation extends at least one or two active channel widths on each roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; d disturbance by livestock or man.	h side; banks stable and protected by
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active function or riparian vegetation only moderately compromised; banks moderately unstable; water color is clo greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by liv	oudy, submerged objects covered with
Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural or channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish m severe disturbance from livestock or man.	(eroding); water color is muddy and
Notes:	
PERENNIAL STREAM, FLOWING SOUTHEAST THROUGH COORIDOR, LARGE AMOU OF RAIN FELL DAY BEFORE VISIT. EVIDENCE OF FLOW OVER SHELVES. VERY WII CENTERLINE. MODERATE GRADIENT, SINUOUS.	
Waterbody Sketch (Include north arrow, centerline, distance from centerline, data point location, survey bou	undary, and IDs of associated features)
VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTOR VOPUTO	DUVERT SURVEY CORRIDOR
	7 Form Rev. 07/09/2014



Waterbody point sbuk037 facing South and across



Waterbody point sbuk036 facing East and upstream



Waterbody point sbuk037 facing West and downstream

Survey Description	on								
Project Name:		Waterbody N	ame:		w	aterbody ID:			Date:
Atlantic Coast Pipe	line	Gills Creek			s	buc106			11/6/2015
State:	County:	•	Company:		Crew I	Member Initials:	: F	hotos:	
West Virginia	Buckingham		NRG		CR, A	AS		1-3	
Tract Number(s):			Nearest Mil	epost:		Associated W	etland I	ID(s):	
09-128						Wbuc104			
Survey Type: (check one)		ne ⊠Re	-Route	□Access Road		□Other:			
Physical Attribute									
Stream Classification: (check one)	⊡Epheme	ral □Int	ermittent	⊠Perennial					
Waterbody Type: (check one)	□River ⊠ Si	tream 🗆 Di	itch 🗆 C	anal 🗆 Other	:				
онwм	OHWM Indic	ator:							
Width: <u>12 ft</u> .	(check all that app		☑ Clear li on bank	ne 🗆 Shelvin	g	□Wrested vegetation		Scouring	g ⊟Water staining
Height: <u>2.5</u> ft.	⊠Bent, vegetati	matted, or miss	ing ⊠Wrack I	ine ⊠Litter ar debris	nd	□Abrupt plant community ch		□Soil cl	naracteristic change
N/A 🗆					\4		0	() A / - / -	
Width of Waterbody - Bank to Top of Bank:		e of Waterbody	- Toe of Slope	Width of Waterb Water Edge:	ody - W	ater Edge to	Deptn ((Approx.)	of Water	:
<u>18</u> ft.		<u>3</u> ft.			<u>10</u> ft.			-	<u>1.5</u> ft.
Sinuosity:	Wata.	velocity:		N/A□ Bank height			N/A⊡ Bank sl	lono	
(check one)	(Approx			Right:		I		Right	:
□Straight		0.5f	os		<u>5</u> ft.			•	70 degrees
⊠Meander	ing N/A□			Left:	<u>5</u> ft.			Left	: <u>70</u> degrees
Qualitative Attribu	utes			1		1			
Water Appearance: (check one)	□No water ⊠	lClear □Tu		neen ⊡Sui n surface sci		0]Other:	:	
Substrate:	Bedrock B	oulder 🗆 Col				mats		ther:	
(check all that apply)						, ,			
% of Substrate: _	%	%	_% <u>20</u> %	<u>60</u> %	<u>20 </u> %	%		%	
Width of Riparian Zon	e: Vegetativ	/e Layers:	Troop		7 Conlin	ngo/Chruhou		Horbo	
<u>200 ft</u> ⊷ N/A□	·	H of Dominants	⊠ Trees : _ <u>20_</u> in.		⊴ Sapiir _ <u>2_</u> in.	ngs/Shrubs:		Herbs	
Dominant Bank Veget	ation (list):								
Sycamore, red map	ole, sweet-gun	n, river birch,	river cane, r	nultiflora rose, f	ulip po	oplar			
Aquatic Habitats (ex: s	submerged or emerge	ed aquatic vegetat	ion, overhanging	banks/roots, leaf pac	ks, large	submerged wood,	riffles, c	leep pool	5):
Overhanging roots	, pools, leaf pa	icks							
Aquatic Organisms Ol	bserved (list):								
Crayfish									
T&E Species Observe	d (list):								
None									
Disturbances (ex: lives	tock access, manure	in waterbody, was	ste discharge pip	es):					
Stream flows throu	gh three culve	rts under a ro	bad						
Tributary is: (check one)	⊠ Natural	□ A	Artificial, man-m	nade 🗆 Manip	ulated				
Stream Quality ^a : (check one)	□ High		Noderate	□ Low					

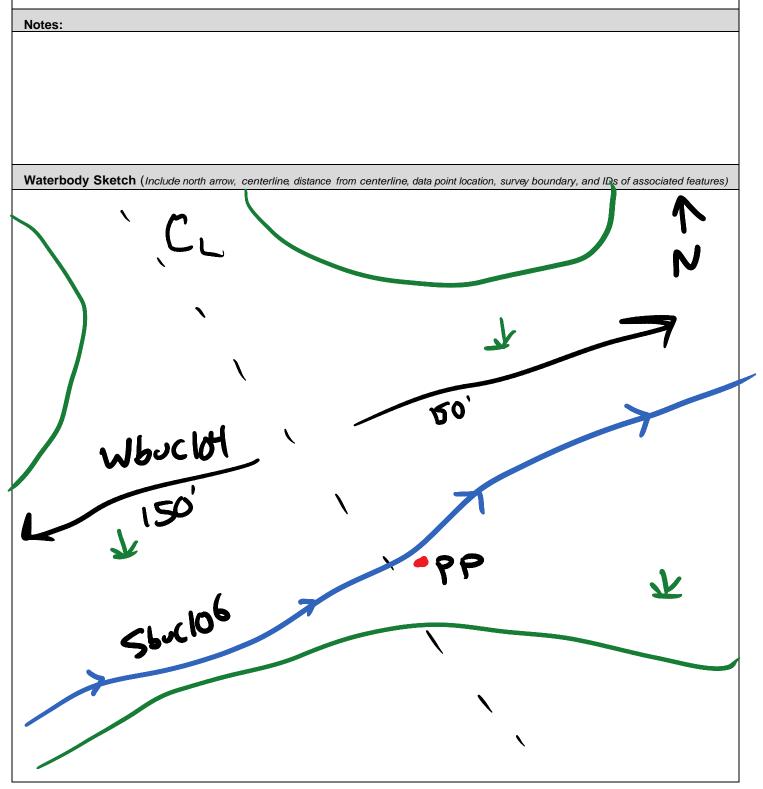
Waterbody ID:

Sbuc106

High Quality: Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.





Waterbody SBUC106 facing southwest upstream



Waterbody SBUC106 facing northeast downstream



Waterbody SBUC106 facing northwest across

Survey Description	1						1				
Project Name:		Waterbo	•					Vaterbody ID:			ate:
Southeast Reliability	1	UNT to	Little	Willis Rive	r		S	BUK018		8/	7/2014
State:	County:			Company:			Crew	Member Initials	5:	Photos:	
0	Buckinghan	n		W&C			WM,	JD, SG			8 to 0591 #,x,u,d
Tract Number(s):				Nearest Mile	post:			Associated W	etland	ID(s):	
09-129				207				WBUK010F			
Survey Type: (check one)	⊠Center	line	□Re-R	oute	□Ac	ccess Roa	d	□Other:			
Physical Attributes	5										
Stream Classification: (check one)	⊠Epherr	neral	□Interr	nittent	□P€	erennial					
Waterbody Type:											
(check one)	River 🛛	Stream	Ditcl	n 🗆 Ca	anal	□ Othe	r:				
ОНЖМ	OHWM Ind (check all that a						~~	⊠Wrested	N	Coouring	Matar
Width: <u>1</u> ft.	(check all that e	ippiy)		⊠ Clear lin on bank	е	□Shelvi	ng	vegetation		Scouring	⊠Water staining
Height:	⊠Ber	nt, matted, or	missing	g ⊠Wrack li	ne	⊠Litter a	and	□Abrupt plar	nt	⊠ Soil cha	racteristic change
ft. N/A□	vegeta	ation	-			debris		community ch	nange		-
Width of Waterbody - To				oe of Slope			body - W	Vater Edge to		of Water:	
Bank to Top of Bank:	to T	oe of Slope:			Water	Edge:			(Approx.)		
<u>3</u> ft.		<u> </u>			N/A⊠		<u>ft</u> .		N/A⊠	-	ft.
Sinuosity:	Wat	er velocity:				height			Bank s	slope	
(check one) Straight	(Аррі	rox.)				Right:				Right:	
		-	_fps			Left:	<u>1</u> ft.			Left:	45 degrees
	9 N/A	\boxtimes					<u> </u>			-	45 degrees
Qualitative Attribut	es										
Water Appearance: (check one)	No water	□Clear	□Turbi		een surface		urface cum	□Algal mats	□Othe	r:	
	Bedrock	Boulder	Cobbl	e 🛛 Grave	el 🛛	Sand	⊠ Silt/ o	clay 🛛 Organio	; □0	Other:	
(check all that apply) % of Substrate: N	4% N	A % A	NA %	15 %	6	0 %	20 %	5 %		%	
Width of Riparian Zone:	Vegeta	tive Layers:									
	(check all	that apply)		⊠ Trees:			🛛 Sapli	ngs/Shrubs:	\boxtimes	Herbs	
<u>>100 ft</u> - N/A□	Avg. DI (approx.)	BH of Domin	ants:	<u>12</u> in.			<u>2</u> in.				
Dominant Bank Vegetat	ion (list):										
LOBLOLLY PINE, S	WEET GUN	И, HASH B	BARK	HICKORY	, CED	AR, MO	SS,CA	REX			
Aquatic Habitats (ex: sul	omerged or eme	rged aquatic ve	egetation	, overhanging	banks/ro	oots, leaf pa	cks, large	e submerged wood	l, riffles,	deep pools):	:
ROOTED,SANDY B	OTTOM W	ITH LEAF	PACK	S, SMALL	WOC	DDY DEI	BRIS				
Aquatic Organisms Obs	served (list):										
NA											
T&E Species Observed	(list):										
NA											
Disturbances (ex: livesto	ck access, manu	re in waterbod	y, waste	discharge pipe	es):						
NA											
Tributary is: (check one)	⊠ Natura	al	🗆 Arti	ficial, man-m	ade	🗆 Manip	oulated				
Stream Quality ^a : (check one)	□ High			derate		⊡ Low					
· ,											

Waterbody ID:
SBUK018

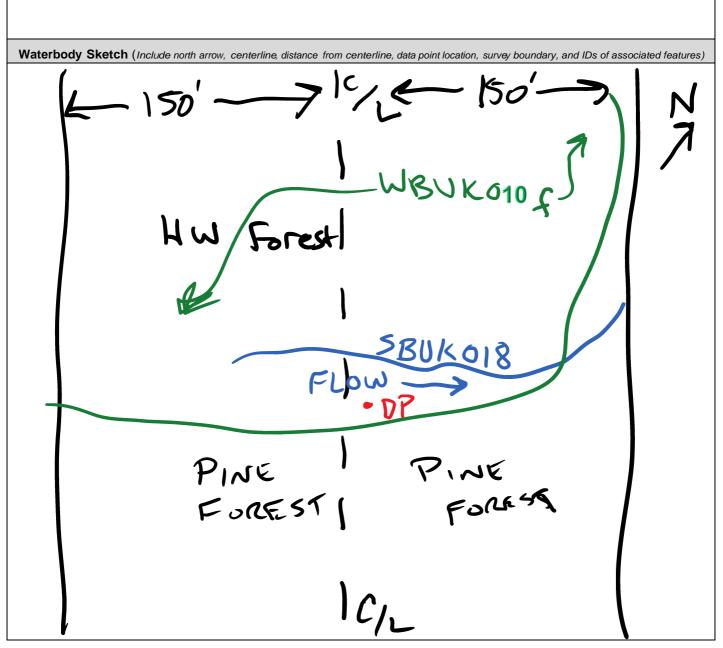
High Quality: Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man

Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

SMALL EPHEMERAL STREAM IN UPLAND PINE AND HW FOREST; MINIMUM HUMAN DISTURBANCE. WITH ABUTTING WETLAND(WBUK010f)





Waterbody point sbuk018 facing across



Waterbody point sbuk018 facing upstream



Waterbody point sbuk018 facing downstream

Survey Descriptio	n								
Project Name:		Waterbody Na				aterbody ID:			Date:
Atlantic Coast Pipe	line	UNT to Perk	ins Creek		st	bua003		ſ	10/18/2014
State:	County:		Company:		Crew M	Member Initials:	Ρ	hotos:	
Virginia	Buckingham		NRG		GB, L	.E	3	3 photo)S
Tract Number(s):			Nearest Mile	epost:		Associated We	etland I	D(s):	
09-129			Access Ro	oad 47		none			
Survey Type: (check one)		e □Re-l	Route	⊠Access Road		□Other:			
Physical Attribute	S								
Stream Classification: (check one)	⊠Ephemera	al 🗆 Inte	rmittent	Perennial					
Waterbody Type: (check one)]River ⊠ Stro	eam 🗆 Dite	ch 🗆 Ca	anal 🗆 Other					
OHWM Width: ft.	OHWM Indicat (check all that apply		□ Clear lir on bank	ne 🗆 Shelvin	g	□Wrested vegetation	\boxtimes	Scouring	□Water staining
Height: 0.5 ft.		natted, or missir	ng ⊡Wrack li	ne ⊠Litter ar debris	nd	□Abrupt plant community cha		∃Soil ch	aracteristic change
N/A□	vegetatio						ange		
Width of Waterbody - Bank to Top of Bank:		of Waterbody - of Slope:	Toe of Slope	Width of Waterbo Water Edge:	ody - W		Depth o Approx.)	f Water	:
4.0 ft.		1.5 ft.			f	t.			ft.
	-	<u></u>		N/A⊠	·		N/A⊠		
Sinuosity: (check one)	Water (Approx.)	velocity:		Bank height		E	Bank sl	•	
□Straight	(f	ps	Right:	<u>2.5</u> ft.			Right:	70degrees
⊠Meanderi		'	μs	Left:				Left	:
					<u>2.5</u> ft.				<u>65</u> degrees
Qualitative Attribu Water Appearance:	ites								
(check one)	[⊠] No water □C	Clear □Turb		leen ⊡Sui surface sci		□Algal □ mats	Other:		
	Bedrock 🗆 Bo	ulder 🛛 Cobl	ole 🛛 Grave	el 🛛 Sand 🛛	⊠ Silt/ c	lay 🗆 Organic		ther:	
(check all that apply) % of Substrate:	%	<u>% 45</u> %	<u> 10 </u> %	<u> 25 </u> %	<u>20_</u> %	%		%	
Width of Riparian Zone									
ft	(check all that	11.37	⊠ Trees			ngs/Shrubs:	\boxtimes	Herbs	
<u></u> . N/A⊠	(approx.)	of Dominants:	_ <u>11.0_</u> ii	n. –	_ <u>1.5_</u> in				
Dominant Bank Vegeta Loblolly pine, redbu	. ,	eastern red c	edar, black	berry, Japanes	e hon	eysuckle, wo	od oat	s, ebo	ny spleenwort
Aquatic Habitats (ex: s	ubmerged or emerged	d aquatic vegetatio	on, overhanging	banks/roots, leaf pac	ks, large	submerged wood,	riffles, d	eep pools	\$):
none									
Aquatic Organisms Ob	served (list):								
none									
T&E Species Observed	l (list):								
none									
Disturbances (ex: livest			e discharge pipe	es):					
Culvert crossing for	two track road	l							
Tributary is: (check one)	⊠ Natural	□ Ar	tificial, man-m	ade 🗌 Manipi	ulated				
Stream Quality ^a : (check one)	□ High	⊠ Me	oderate	□ Low					

Waterbody ID:

sbua003

High Quality: Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

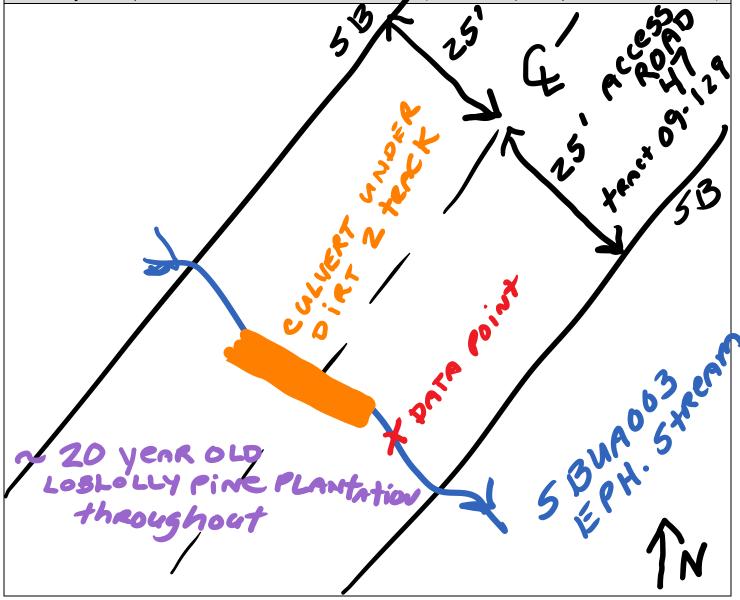
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

Continues out of corridor in both directions; culvert crossing in place for access road 47; 15-20 year old pine plantation

Waterbody Sketch (Include north arrow, centerline, distance from centerline, data point location, survey boundary, and IDs of associated features)





Waterbody SBUA003 facing northwest upstream



Waterbody SBUA003 facing southeast downstream



Waterbody SBUA003 facing northeast across

Survey Description	on	1						
Project Name:		Waterbody Na				aterbody ID:		Date:
Southeast Reliabili	ty	PERKINS CI	REFK		SE	3UK017	8	8/6/2014
State:	County:		Company:		Crew M	ember Initials:	Photos:	
Virginia	Buckingham		W&C		WM, J	D	100-05	68 TO 0570
Tract Number(s):			Nearest Mile	epost:		Associated W	etland ID(s):	
09-129			207			NA		
Survey Type: (check one)	⊠Centerline	e □Re-F	Route	□ Access Road		□Other:		
Physical Attribute	es							
Stream Classification		al 🛛 Inter	mittent	⊠Perennial				
Waterbody Type: (check one)	⊐River ⊠ Str	eam 🗆 Dito	h □C	anal 🗌 Other:				
					•			
OHWM Width: 13 ft.	OHWM Indica (check all that apply		⊠ Clear lir on bank	ne Shelving	g	⊠Wrested vegetation	⊠Scouring	⊠Water staining
Height:	⊠Bent n	natted, or missin	a ⊠Wrack li	ne ⊠Litter ar	hd	Abrupt plant	t 🛛 Soil ch	aracteristic change
	vegetatio	n	•	debris		community cha		
Width of Waterbody - Bank to Top of Bank:		of Waterbody - ⁻ of Slope:	Foe of Slope	Width of Waterbo Water Edge:	ody - Wa		Depth of Water: (Approx.)	
22 ft.		13 ft.		_	12 ft.			<u>2</u> ft.
	-	<u>10</u> 11.		N/A□	<u></u>		N/A□	
Sinuosity: (check one)	Water (Approx.)	velocity:		Bank height			Bank slope	
Straight	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	0.3 fps		Right:	<u>8</u> ft.		Right:	85 degrees
□Meander	ing N/A□	<u></u> ,po		Left:	8 ft.		Left:	85 degrees
Qualitative Attrib								
Water Appearance:	_							
(check one)	–'No water ⊠0	Clear □Turb		leen ⊡Sur I surface scu		□Algal [mats]Other:	
Substrate: (check all that apply)	Bedrock Bc	ulder 🛛 Cobb	le 🛛 Grav	el 🛛 Sand 🛛	⊠ Silt/ cla	ay 🛛 Organic	□ Other:	
	<u>NA_% NA_</u>	% <u> 5 </u> %	<u>20</u> %	<u>50</u> %	<u>20 </u> %	<u> 5 </u> %	%	
Width of Riparian Zon								
>100 ft·	(check all that	apply) of Dominants:	⊠ Trees			gs/Shrubs:	⊠ Herbs	
N/A 🗆	(approx.)	or Dominants.	<u>18</u> in.	_	<u>3</u> in.			
Dominant Bank Veget TULIP POPLAR, R		SPICEBUSH,	IRONWO	DD, CEDAR, EI	LM, XN	IAS FERN,	HOLLY	
Aquatic Habitats (ex: s):
LWD, POOLS, RIF	• •			•		.		,-
Aquatic Organisms O	bserved (list):							
FISH, FROGS, WA	ATER STRIDER	S, COLEOPT	FERANS, E	PT				
T&E Species Observe	d (list):							
NA								
Disturbances (ex: lives NA	tock access, manure i	n waterbody, waste	e discharge pipe	es):				
Tributary is: (check one)	⊠ Natural	□ Art	ificial, man-m	ade 🗆 Manipu	ulated			
Stream Quality ^a : (check one)	🛛 High		oderate	□ Low				

Waterbody ID:
SBUK017

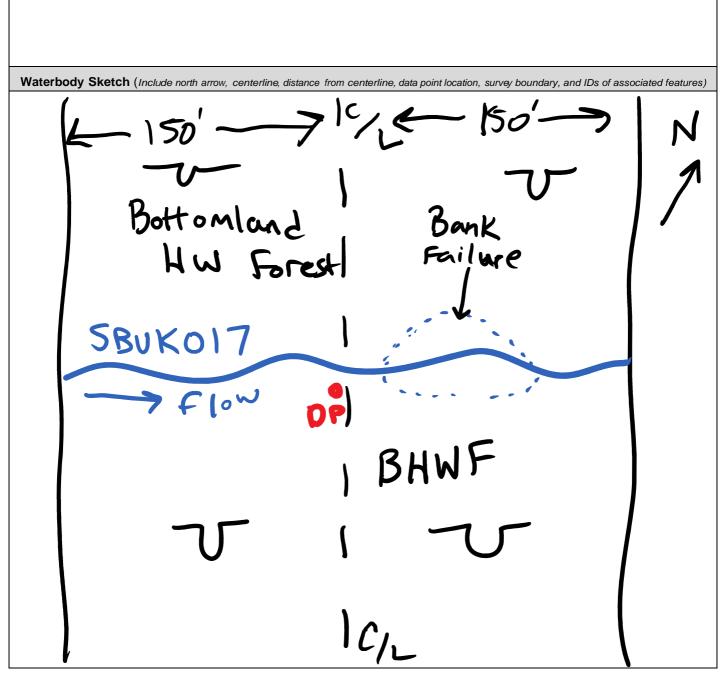
High Quality: Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man

Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

LARGE PERENIAL STREAM IN BOTOMLAND HW FOREST; MINIMUM HUMAN DISTURBANCE. BANKS INCISED AND SOME EROSION EVIDENT





Waterbody point sbuk017 facing south and upstream



Waterbody point sbuk017 facing north and downstream



Waterbody point sbuk017 facing west and across

	escription							T					
•									Vaterbody ID:		Date: 8/6/2014		
,			UNN	UNNAMED TRIB TO PERKINS CREEK					SBUK016			/2014	
State: County:				Company:				Crew Member Initials:			Photos:		
Virginia Buckingham			ו		N&C			WM,	JD		100-0565	TO 0567	
Tract Number(s):					Nearest Mile	epost:			Associated W	etland	ID(s):		
09-129				4	207				NA				
Survey Typ (check one)	e:	⊠Center	ine	□Re-Ro	oute	□Ac	cess Road		□Other:				
Physical	Attributes												
Stream Cla													
(check one)		⊠Ephem	eral		nittent	□Pe	rennial						
Waterbody (check one)	Type: □Ri	ver 🖂	Stream	□ Ditch	ı 🗆 Ca	anal	□ Other						
								•					
OHWM Width:		OHWM Indi (check all that a			🛛 Clear lir	ne ⊠Shelving		g	⊠Wrested		Scouring	□Water	
	<u>3</u> ft.			on bank			5		vegetation		staining		
Height:	1 #	⊠Ben vegeta	, ,	or missing	⊠Wrack li	ne	⊠Litter ar	nd	□ Abrupt plan		□Soil chara	acteristic change	
N/A□							debris community change						
Width of W Bank to To	aterbody - Top p of Bank:		h of Wate		oe of Slope	Width Water		ody - V	Vater Edge to	Depth (Approx.)	of Water:		
			•			mater	Luge.			(£4	
	<u>7</u> ft.		<u>3</u> ft.			N/A⊠		<u>ft</u> .		N/A⊠		_ft.	
Sinuosity:			er velocity	y:		Bank h	eight			Bank s	slope		
(check one)	□Straight	(Appr	<i>DX.)</i>	6			Right:	<u>3</u> ft.			Right:	5 degrees	
	⊠Meandering		_	fps			Left:				Left:		
		N/A	≤					<u>3</u> ft.				5 degrees	
Qualitative Attributes Water Appearance:													
(check one)		o water	□Clear	□Turbic		een surface	⊡Sui scu		□Algal mats	□Other	r:		
Substrate:		edrock 🗆	Boulder		e 🛛 Grave	el 🗆	Sand 🛛	⊠ Silt/ o	clay 🛛 Organio	; □ 0	Other:		
(check all that a % of Subst		% N	Α%	NA %	10 %	NA	۹ %	<u>85_</u> %	<u> 5 </u> %		%		
Width of Di	parian Zone:		ive Layer:										
	pariari zone:	(check all	that apply)		[⊠] Trees	:	۵	⊠ Sapli	ngs/Shrubs:	\boxtimes	Herbs		
 N/A□	<u>>100 ft</u> ·	Avg. DE (approx.)	BH of Dom	ninants:	<u> 16 i</u> n.		-	<u>3</u> in.					
Dominant Bank Vegetation (<i>list</i>):													
PINUS SPP, SHAGBARK HICKORY, WHITE OAK, CEDAR, DOGWOOD, XMAS FERN, CARDINAL FLOWER													
Aquatic Ha	bitats (ex: subm	nerged or emer	ged aquatio	vegetation,	overhanging	banks/roo	ots, leaf pac	ks, large	e submerged wood	l, riffles,	deep pools):		
NA													
Aquatic Or	ganisms Obse	rved (list):											
NA													
T&E Specie	es Observed (li	st):											
NA		- /											
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes):													
NA	, -	,			0-1-1-								
Tributary is	:												
(check one)		🛛 Natura	l	🗆 Artif	icial, man-m	ade	🗆 Manipi	ulated					
Stream Qua (check one)	ality " :	🗆 High			lerate		⊠ Low						

	Waterbody ID:
	SBUK016
a Lick Quality Natural shanned natural vogetation extends at least one or two estive channel widths on ea	a side: hanks stable and protected by

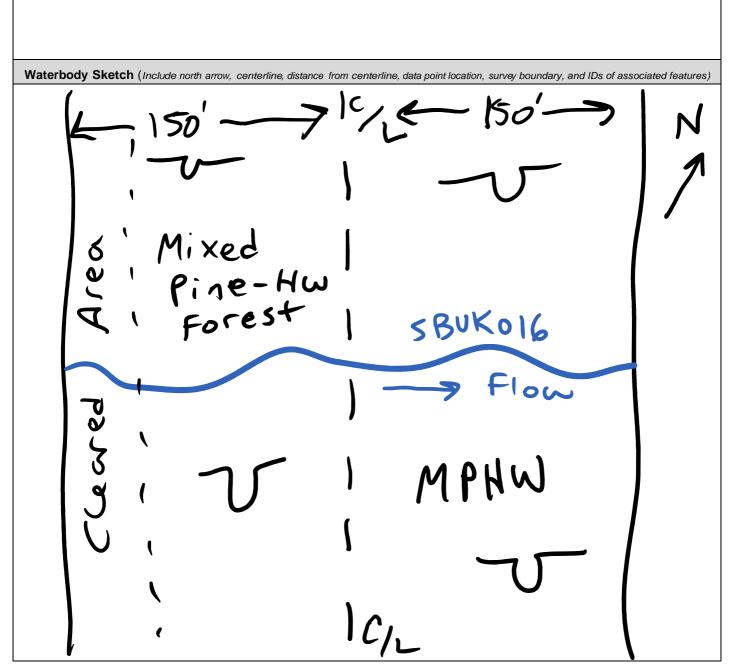
High Quality: Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man

Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man.

Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man.

Notes:

HEADWATER EPHEMERAL STREAM IN MIXED PINE-HW FOREST WITH NO FLOW; MINIMUM HUMAN DISTURBANCE.



Form Rev. 07/09/2014



Waterbody point sbuk016 facing north and downstream



Waterbody point sbuk016 facing south and upstream



Waterbody point sbuk016 facing west and across