Survey Descripti	on												
Project Name:			Waterbo	-					aterbody ID:			Date:	
Atlantic Coast Pipeline			UNT to	Mudo	dy Run			sl	baa008		7	7/1/20	16
State:	Count	y:			Company:			Crew I	Member Initials	: 1	Photos:		
Virginia	Bath				NRG/ERM	1		GB, ⊧	(O		3 photo	DS	
Tract Number(s):			Nearest Milepost:						Associated W	etland	ID(s):		
36-016 – GWNF; acce	ess road	36-014.AR	2		93.6				none				
Survey Type: (check one)		Centerline	1	□Re-R	loute	⊠A	ccess Road		□Other:				
Physical Attribut													
Stream Classification (check one)	_	Ephemera	I	⊠Inter	mittent	□P	erennial						
Waterbody Type: (check one)	□River	⊠ Stre	eam	Ditc	h □C	anal		:					
OHWM Width: _ <u>2.0_f</u> t.		VM Indicat			⊠ Clear lir on bank	ne	□Shelvin	g	□Wrested vegetation	\boxtimes	Scouring		□Water staining
Height: N/A□		□Bent, m vegetation		missin	g □Wrack li	ne	⊠Litter ar debris	nd	□Abrupt plan community ch		⊡Soil cł	naracter	istic change
Width of Waterbody - Bank to Top of Bank			of Waterk of Slope:		Foe of Slope		of Waterb Edge:	ody - W	ater Edge to	Depth (Approx.)	of Water	:	
<u>_10.0_</u> ft.		-	<u>_1.0_</u> ft.			N/A□	_	<u>1.5_</u> ft.		N/A□		<u>0.25</u> f	t.
Sinuosity:			elocity:			Bank	height			Bank s	lope		
(check one)		(Approx.)					Right:	<i>.</i>			Right:		
			1	<u>.0_</u> fps			Left:	<u>6.0_</u> ft.			Left		legrees
	ering	N/A□					-	<u>2.5_</u> ft.				<u>60</u> d	legrees
Analysis of Bank Sta Banks are road cut a			cture, ve	getatio	on, substrate	e chara	cteristics):	:					
Qualitative Attrib	outes												
Water Appearance:	_												
(check one)	□No wat	er ⊠C	Clear	□Turb		surfac		um	mats	□Other			
Substrate: (check all that apply)	□ Bedro	ck 🗆 Bo	ulder	Cobb	le 🛛 Grav	el 🛛	Sand	⊠ Silt/ c	lay 🛛 Organic		Other:		
% of Substrate:	%		_% _	<u>10</u> _%	<u>_30</u> _%	-	<u>25 </u> %	<u>25</u> %	<u>_10</u> %		%		
Width of Riparian Zo	ne:	Vegetative			⊠ Trees	:	۵	⊠ Saplir	ngs/Shrubs:		Herbs		
<u>ft</u> . N/A⊠		Avg. DBH (approx.)	of Domir	nants:	<u>14.0</u> ii	า.		<u>1.5</u> in	-	_			
Dominant Bank Vege	tation (lis	st):											
Chestnut oak, swe grass. crown vetc	h. milkw	eéd. Chr	istmas	fern		•						•	anese stilt
Aquatic Habitats (ex: Leaf packs	submerge	d or emerged	aquatic v	egetatior	n, overhanging	banks/r	oots, leaf pac	ks, large	submerged wood	, riffles,	deep pools	5):	
Aquatic Organisms (Observed	(list):											
caddisfly													
T&E Species Observ	ed (list):												
none													
Disturbances (ex: live	stock acce	ss, manure ir	n waterboo	ly, waste	discharge pip	es):							
Culvert crossing f	or existi	ng road,	confine	d to d	itch upstre	am of	culvert						
Tributary is: (check one)	[□ Natural		∏ Art	ificial, man-m	ade	🛛 Manip	ulated					
· · · · ·		. tatului											

sbaa008

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:

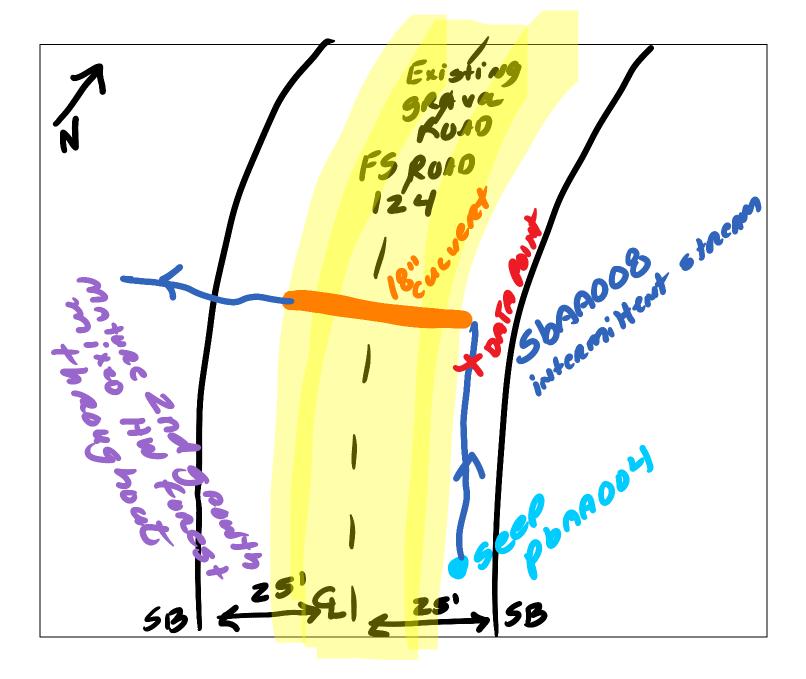
Stream begins within ditch at road cut seep pbaa004; passes under existing gravel road via 18" corrugated metal culvert; downstream continues out of access road survey corridor where flow becomes subterranean. Mature second growth mixed hardwood forest.

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

⊠ Moderate

Stream Quality ^a: (check one)

🗆 High





Waterbody SBAA008 facing south upstream



Waterbody SBAA008 facing north downstream



Waterbody SBAA008 facing east across

Survey Descr	iption													
Project Name:				erbody Nai					aterbody ID:			Date:		
Atlantic Coast Pipe	eline		UN	T to Mude	dy Run			s	baa009		7.	/1/2016		
State:	Co	ounty:			Company:			Crew I	Member Initials	: F	Photos:			
Virginia	Ba	ath			NRG/ERM	1		GB, k	(O		3 photo	S		
Tract Number(s):					Nearest Mile	epost:		1	Associated W	etland	ID(s):			
36-016 – GWNF;	access re	oad 36-0	14.AR2		93.6				none					
Survey Type: (check one)		□Cer	nterline	□Re-F	Route	⊠Aco	cess Road	ł	□Other:					
Physical Attri														
Stream Classifica (check one)	ation:	□Epł	nemeral	⊠Inter	mittent	□Pe	rennial							
Waterbody Type: (check one)	: □Ri [,]	ver	Stream	Ditc	h 🗆 C	anal	□ Other	:						
OHWM Width:	ft.	OHWM (check all t	Indicator: that apply)		⊠ Clear lir on bank	ne	□Shelvin	g	□Wrested vegetation		Scouring	□Water staining		
Height: 	_ft.		Bent, matte getation	d, or missin	g □Wrack li	ne	⊠Litter a debris	nd	□Abrupt plan community ch		□Soil cha	aracteristic change		
Width of Waterbo Bank to Top of B			Vidth of Wa o Toe of SI		Toe of Slope	Width o Water I		ody - W		Depth (Approx.)	of Water:			
6.0	<u>)</u> ft.		1.0_	_ft.		N/A□	-	<u>1.5</u> ft.		N/A□	(<u>).25_</u> ft.		
Sinuosity:			Nater veloc	;ity:		Bank h	eight			Bank s	lope			
(check one)	aight	(4	Approx.)				Right:	<u>3.5_</u> ft.			Right:	60 dogroos		
				<u>_0.75</u> fp:	8		Left:				Left:	<u>60</u> degrees		
	andering	٢	N/A□				-	<u>2.0_</u> ft.				<u>60</u> degrees		
Analysis of Bank Banks are road o				e, vegetatio	on, substrate	e charac	teristics)	:						
Qualitative At	tribute	s												
Water Appearance	ce:													
(check one)	⊡No	o water	⊠Clear	□Turb		ieen i surface		irface um	□ Algal mats	□Other	:			
Substrate: (check all that apply)	□ B	edrock	Boulder		le 🛛 Grav	el 🖂	Sand	⊠ Silt/ c	lay 🛛 Organic)ther:			
% of Substrate:		_%	%	_ <u>10</u> _%	_ <u>35</u> _%	3	<u>0</u> %	<u>15</u> %	_ <u>10</u> _%		_%			
Width of Ripariar	n Zone:	(chec	etative Lay		⊠ Trees	:	[⊠ Saplir	ngs/Shrubs:	\boxtimes	Herbs			
N/A⊠	<u>ft</u> .	Avg (appr	. DBH of D	ominants:	<u>13.0</u> ii	n.	-	<u>1.0 i</u> n.		_				
Dominant Bank V	/egetatio	n (list):	,											
Northern red o aolden raawor	ak, whit	te oak,	sugar ma	ple, black	k gum, strip	bed ma	ale, scar	let oak	, black locus	t, blac	kberry,	Christmas fern,		
Aquatic Habitats	(ex: subm	nerged or e	emerged aqua	atic vegetatio	n, overhanging	banks/roo	ots, leaf pac	cks, large	submerged wood	, riffles, o	deep pools)	:		
Leaf packs														
Aquatic Organis	ms Obsei	rved (list):											
caddisfly														
T&E Species Obs	served (lis	st):												
none	livoctori	000000		arbody wast	diapharmaria									
Disturbances (ex: Culvert crossir					• • • •		culvert							
Tributary is:	-	Ŭ			•									
(check one)		🗆 Na	atural	🗆 Art	ificial, man-m	ade	🛛 Manip	ulated						

sbaa009

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:

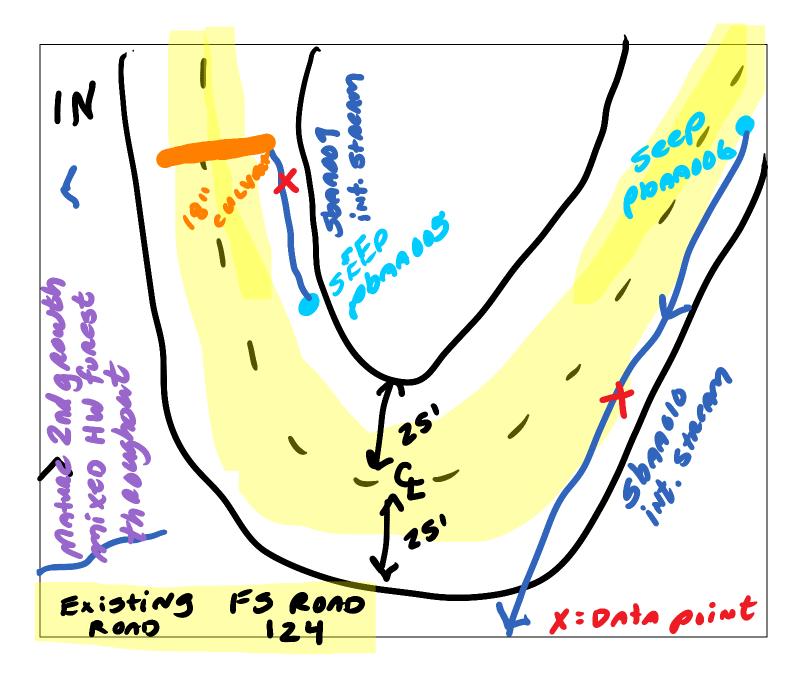
Stream begins within ditch at road cut seep pbaa005; passes under existing gravel road via 18" corrugated metal culvert; downstream continues out of access road survey corridor where flow becomes subterranean. Mature second growth mixed hardwood forest.

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

⊠ Moderate

Stream Quality ^a: (check one)

🗆 High





Waterbody SBAA009 facing southwest upstream



Waterbody SBAA009 facing northeast downstream



Waterbody SBAA009 facing southeast across

Survey Description	on							ha				
Project Name:			Waterbo	-					/aterbody ID:		Date:	
Atlantic Coast Pipeline			UNT to		iy Run				baa010		7/1/2016	
State:	County	y:			Company:			Crew	Member Initials	: Photos	;;	
Virginia	Bath				NRG/ERM			GB, ł	<0	3 pho	otos	
Tract Number(s):					Nearest Mile	epost:		•	Associated W	etland ID(s):		
36-016 – GWNF; acce	ss road 3	36-014.AR2	2		93.6				none			
Survey Type: (check one)		Centerline	1	□Re-R	oute	⊠A	ccess Roa	d	□Other:			
Physical Attribute												
Stream Classification (check one)]Ephemera	I	⊠Interr	nittent	□P	erennial					
Waterbody Type: (check one)	River	⊠ Stre	eam		h 🗆 Ca	anal	□ Othe	r:				
OHWM Width: _ <u>2.0_ft.</u>		VM Indicat			⊠ Clear lir on bank	ie	□Shelviı	ng	□Wrested vegetation	⊠Scouri	ng ⊟Water staining	
Height: ft. N/A□		□Bent, m vegetatio	,	missing	g	ne	⊠Litter a debris	and	□Abrupt plan community ch		characteristic change	
Width of Waterbody - Bank to Top of Bank:	Top of		of Waterl of Slope		oe of Slope		n of Waterk r Edge:	oody - W		Depth of Wat (Approx.)	er:	
<u>_10.0</u> ft.		_	<u>1.5_</u> ft.			N/A□	-	<u>1.5</u> ft.		N/A□	<u>0.25</u> ft.	
Sinuosity:			elocity:			Bank	height			Bank slope		
(check one)		(Approx.)	0	75 600			Right:	1.5_ ft		Rigl	ht: 60 degrees	
□Meander	rina		0	<u>.75_</u> fps	i		Left:			Le	eft:	
		N/A□						<u>8.0_</u> ft	•		<u>50</u> degrees	
Analysis of Bank Sta Banks are road cut a			cture, ve	getatio	n, substrate	e chara	acteristics):				
Qualitative Attrib	utes											
Water Appearance:	_											
	□No wat	er ⊠C	Clear	□Turbi		een surfac		urface cum	□Algal mats	□Other:		
Substrate: (check all that apply)	□ Bedroo	ck 🗆 Bo	ulder	Cobbl	e 🛛 Grave	el 🗵	Sand	Silt/ o	clay 🛛 Organic	: Other:		
% of Substrate:	%		_% _	<u>20</u> _%	_ <u>40_</u> %		<u>20 </u> %	<u>10</u> %	_ <u>10_</u> %	%		
Width of Riparian Zor		Vegetative			⊠ Trees	:		🛛 Sapli	ngs/Shrubs:	⊠ Herbs		
<u>ft</u> .		Avg. DBH (approx.)	of Domii	nants:	<u>13.0</u> ir			<u>1.0</u> in.	-	_		
N/A⊠ Dominant Bank Veget		,										
Northern red oak, golden ragwort, bu	white oa	ak, sugar er. white	snaker	oot. ie	wel weed.	colts	foot				-	
Aquatic Habitats (ex: s Leaf packs	submerged	d or emerged	l aquatic v	egetation	i, overhanging	banks/r	oots, leaf pa	cks, large	e submerged wood	, riffles, deep po	ols):	
Aquatic Organisms O	bserved	(list):										
caddisfly												
T&E Species Observe	d (list):											
none												
Disturbances (ex: lives	stock acces	ss, manure ir	n waterboo	dy, waste	discharge pipe	es):						
Confined to ditch a	along ex	kisting roa	ad									
Tributary is: (check one)	Г	☐ Natural		□ Λ r+;	ficial, man-m	ade	🛛 Manir	Julated				
	L	indiuldi			noiai, man-m	aue		Juialeu				

sbaa010

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:

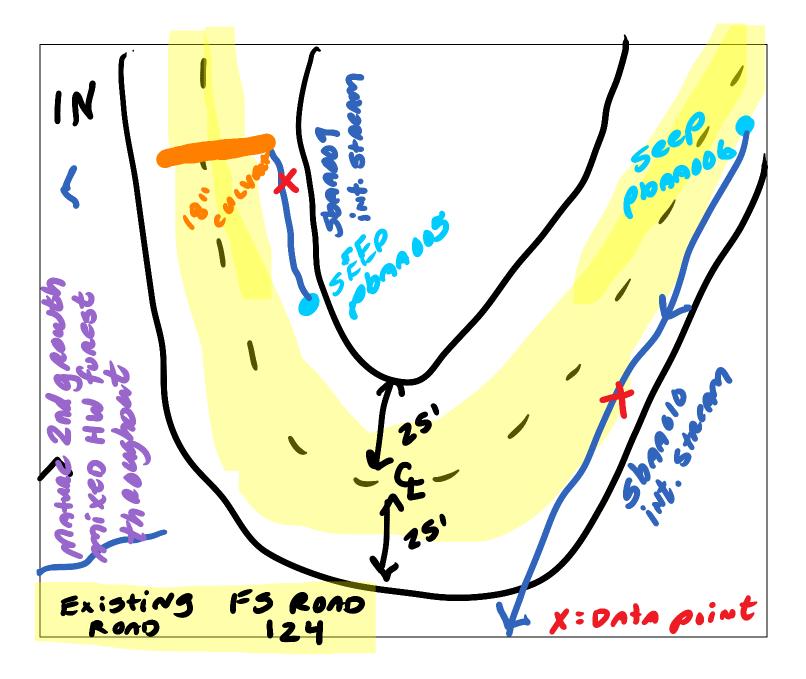
Stream begins within ditch at nick point seep pbaa006; does not cross road; downstream continues out of access road survey corridor where flow becomes subterranean. Mature second growth mixed hardwood forest.

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

⊠ Moderate

Stream Quality ^a: (check one)

🗆 High





Waterbody SBAA010 facing northeast upstream



Waterbody SBAA010 facing southwest downstream



Waterbody SBAA010 facing southeast across

Survey Desc	ription											<u> </u>		
Project Name:					ody Nar					Waterbody ID:			Date:	
Atlantic Coast Pi	peline		U	NT to	Mudo	dy Run				sbaa011		4	7/1/201	6
State:	Co	ounty:				Company:			Crew	Member Initials	s:	Photos:		
Virginia	Ba	ath				NRG/ER	N		GB,	KO		3 photo	DS	
Tract Number(s	s):					Nearest Mi	lepos	st:		Associated W	/etland	ID(s):		
36-016 – GWNF	; access ro	oad 36-0	014.AR2			93.6				none				
Survey Type: (check one)		□Ce	nterline		□Re-R	Route	D	Access Roa	ad	□Other:				
Physical Attr														
Stream Classifie (check one)	cation:	□Epl	hemeral		⊠Inter	mittent		Perennial						
Waterbody Type (check one)	e: □Riv	/er	⊠ Strea	m	Ditc	h 🗆 C	Canal	□ Othe	er:					
OHWM Width:			Indicator that apply)	:		⊠ Clear li on bank	ine	□Shelv	ing	□Wrested vegetation		Scouring]Water taining
Height: N/A□	<u>0</u> ft.		Bent, mategetation	tted, or	missin	g ⊟Wrack	line	⊠Litter debris	and	□Abrupt plai community cl		⊡Soil ch	aracteri	stic change
Width of Waterk Bank to Top of			Width of to Toe of			Foe of Slope		dth of Water ter Edge:	body -	Water Edge to	Depth (Approx.	of Water		
10	<u>0.0</u> ft.		1.	<u>5_</u> ft.			N/A		_1.5_1	ft.	N/A□	_	<u>0.25</u> ft	
Sinuosity:			Water vel	ocity:				nk height			Bank s	slope		
(check one)	traight		(Approx.)					Right:				Right:		
	0			_0	<u>.50_</u> fps	6		Left:	10.0_	_ft.		Left	<u>75</u> de	egrees
	eandering	I	N/A□						3.0_	ft.			<u>45</u> de	egrees
Analysis of Bar Banks are road		•		ure, ve	egetatio	on, substrat	e cha	aracteristics	s):					
Qualitative A	Attributes	5												
Water Appearar	nce:													
(check one)	⊔No	water	⊠Cle	ar	□Turb		heen n sur		urface cum	□ Algal mats	□Othe	r:		
Substrate: (check all that apply)	🗆 Be	edrock	Bould	der 🛛	⊠ Cobb	le 🛛 Grav	vel	⊠ Sand	⊠ Silt	/ clay 🛛 Organi	c 🗆 (Other:		
% of Substrate:		_%	Q	% _	<u>5_</u> %	_ <u>25</u> _%		<u>35</u> %	<u>20</u> %	_ <u>15_</u> %	_	_%		
Width of Riparia	an Zone:		jetative L			M T				lin en (Clemula e		Llauba		
	<u>ft</u> .	Avg	. DBH of	• ·	nants:	⊠ Tree: 10.0			⊠ Sap	olings/Shrubs: in.	_	Herbs		
N/A⊠ Dominant Bank	Vegetatio	(appi	rox.)											
Northern red grass, jewel v	oak, hick veed. wh	ory, sv ite sna	ike root.	New	York	fern. viole	t. bla	ackberrv			-			anese stilt
Aquatic Habitat Leaf packs, e	: s (ex: subm	erged or	emerged a	quatic v	egetatior	n, overhanging	g bank	s/roots, leaf pa	acks, lar	ge submerged wood	d, riffles,	deep pools	5):	
Aquatic Organis	0	0												
caddisfly	SIIIS ODSEI	veu (lisi	<i>()</i> .											
T&E Species Ob	bserved (lis	st):												
none														
Disturbances (e	ex: livestock	access, n	nanure in w	vaterboo	dy, waste	e discharge pip	oes):							
Culvert cross	ing for ex	disting	road, co	onfine	d to d	itch upstre	eam	of culvert						
Tributary is:					• ·	if all all and								
(check one)		⊔N	latural		⊔ Art	ificial, man-r	nade	🛛 Mani	pulated	l				

sbaa011

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:

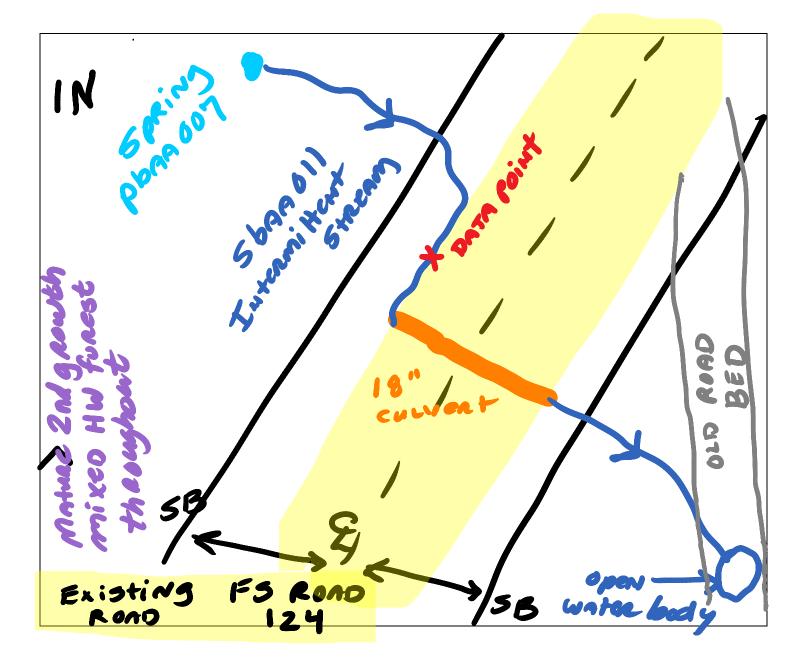
Stream begins well outside proposed access road survey corridor on a rocky slope at spring pbaa007; follows ditch along existing road for 120 feet before passing under existing gravel road via 18" corrugated metal culvert; downstream continues out of access road survey corridor where most flow becomes subterranean; remaining flow enters a small, excavated and bermed open water body approximately 12 feet in diameter on a decommissioned road bed outside survey corridor. Mature second growth mixed hardwood forest.

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

⊠ Moderate

Stream Quality ^a: (check one)

🗆 High





Waterbody SBAA011 facing northeast upstream



Waterbody SBAA011 facing southeast downstream



Waterbody SBAA011 facing southeast across

Survey De													
Project Nam	ne:			Waterbody Na	me:			w	aterbody ID:			Date:	
Atlantic Coas	st Pipeline			Laurel Run				st	baa004			6/21/2	2016
State:		Count	y:		Company:		Cr	ew N	lember Initia	ls:	Photos:		
Virginia		Bath			NRG/ERM		G	B, K	0		3 phot	os	
Tract Numb	er(s):				Nearest Mile	post:			Associated	Wetland	ID(s):		
36-016 - GW	NF				94.1				none				
Survey Type (check one)	e :	\boxtimes (Centerline	□Re-R	oute	□Access Ro	bad		Other:				
Physical A													
Stream Clas (check one)	sification:		Ephemeral	□Intern	nittent	⊠Perennial							
Waterbody (check one)		River	⊠ Strea	m 🗆 Ditcł	n 🗆 Car	al 🗆 Oti	her:						
OHWM Width:	<u>7.0</u> ft.		WM Indicat		⊠ Clear lin on bank	e ⊡Sh	elving		□Wrested vegetation	×	Scouring	g	□Water staining
Height: N/A□	<u>1.0</u> ft.		□Bent, m vegetatior	atted, or missir 1	ng ⊠Wrack lii	ne ⊠Litt debri	er and s		□Abrupt pla community o		□Soil c	haracte	ristic change
Width of Wa to Top of Ba		p of Ba		f Waterbody - of Slope:	Toe of Slope	Width of Wa Water Edge:	terbody	y - W	ater Edge to	Depth (Approx.)	of Wate	r:	
	<u>_12.0</u> ft.		_	<u>4.0_</u> ft.		N/A□	6.0)ft.		N/A□	-	_0.50_1	ft.
Sinuosity:			Water v	elocity:		Bank height				Bank s	slope		
(check one)	□Straight		(Approx.)			Righ					Right		
				<u>_0.75</u> fp	S	Le		<u>)</u> ft.			Left		degrees
[⊠Meandering)	N/A□					<u>5_</u> ft.					degrees
	ar stable for a	stream		ure, vegetatio te gradient; sm	•			nds c	considered no	rmal.			
Water Appe	arance:												
(check one)		No wate	r ⊠Cle	ar 🗆 Turbi		en □ urface	Surface scum		□ Algal mats	□Other:			
Substrate: (check all that ap		Bedrocl	k 🗆 Boul	der 🛛 Cobbl	e 🛛 Gravel	⊠ Sand	⊠ Sil	lt/ cla	y 🛛 Organic	: 🗆 01	ther:		
% of Substr		%		% <u>55</u> %	_ <u>25</u> _%	<u> 10 </u> %	ţ	<u>5</u> %	_ <u>5</u> _% _	%	6		
Width of Rip	oarian Zone:		Vegetative (check all that a		⊠ Trees:			anlin	gs/Shrubs:		Herbs		
_ <u>6</u> N/A□	<u>0 ft</u> .		•	of Dominants:	<u> 12.0 </u> ir			<u>5</u> in.	•	_	TIEIDS		
Dominant B	ank Vegetati	on (list):										
Irhododenc	dron. wood	fern.	Indian cu	hestnut oak cumber root	. violet. Chr	istmas fern		-					el,
-		-	-	verhanging			-	-	abmerged wood	, mies, u).	
Aquatic Org	anisms Obs	erved (list):										
Invertebra	tes – caddi	isfly, c	ranefly, n	nayfly; crayfi	ish								
-	s Observed ((list):											
none													
	,			vaterbody, waste	• • • •								
None rece	ent; there is	a ver	y old road	d bed on the	west side t	hat has gro	own co	mpl	etely shut				
Tributary is: (check one)			Natural	□ Arti	ficial, man-mae	de 🗆 Ma	nipulate	d					

sbaa004

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.

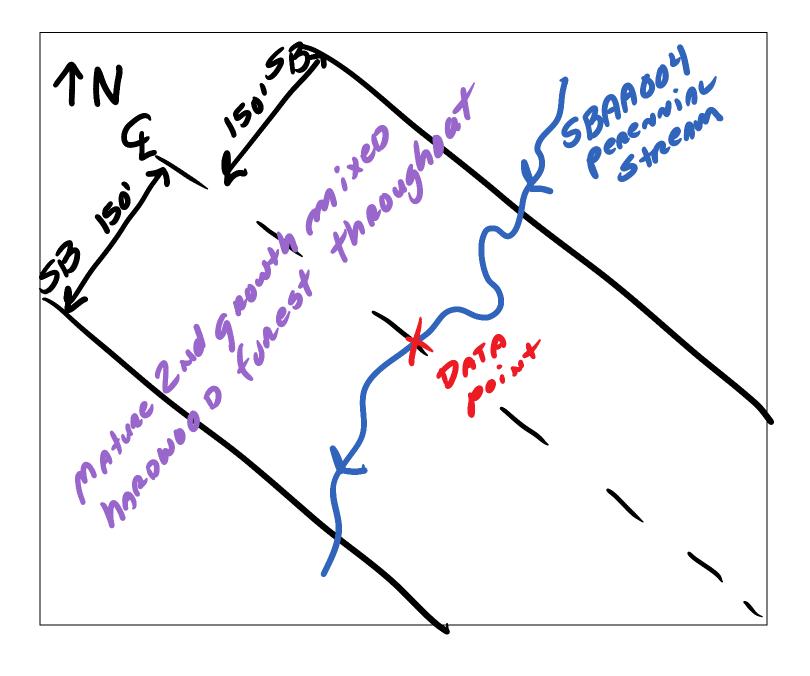
Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious 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:

Perennial stream of moderate gradient with a meandering channel; there is a small braid at the upstream edge of the corridor. Mature second growth mixed hardwood forest with scattered white pine.

Waterbody Sketch (Include north arrow, centerline, distance from centerline, data point location, survey boundary, and IDs of associated features) Stream Quality a: ⊠ High □ Moderate

check one)





Waterbody sbaa004 facing southwest downstream



Waterbody sbaa004 facing northeast upstream



Waterbody sbaa004 facing northwest across

Survey Description	on									
Project Name:		Waterbody Na				/aterbody ID:			Date:	
Atlantic Coast Pipe	line	UNT to Laure	el Run		S	baa012		ę	9/26/2016	
State:	County:		Company:		Crew I	Member Initials	: F	Photos:		
Virginia	Bath		NRG - ER	M	GB, S	SA		4 photo	S	
Tract Number(s):			Nearest Mile	epost:		Associated W	etland	ID(s):		
36-017			94.75			non				
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)	□River ⊠ Str	eam 🗆 Dito	:h □ Ca	anal 🗌 Other:	:					
OHWM Width: 5.0 f	OHWM Indica (check all that appl		⊠ Clear lir on bank	ne 🗆 Shelvin	g	□Wrested vegetation	\boxtimes	Scouring	□Water staining	
Height: 	□Bent, r	natted, or missin	g 🗆 Wrack I	ine ⊠Litter ar debris	nd	□Abrupt plan community ch		□Soil ch	haracteristic change	
Width of Waterbody -	Top of Width	of Waterbody -	Toe of Slope	Width of Waterbo	ody - W	ater Edge to	Depth (of Water		
Bank to Top of Bank:		of Slope:		Water Edge:		- J	(Approx.)			
<u> </u>	t	<u>3.0</u> ft.		N/A⊠	ft		N/A⊠	_	<u> </u>	
Sinuosity: (check one) ⊠Straight	(Approx.)		DS	Bank height Right: Left:	4.0 _	_ft.	Bank s	lope Right: Left:	<u>70</u> degrees	
Meander					8.0 _	<u>_ft.</u>			60 degrees	
Qualitative Attribu Water Appearance:	lies									
(check one)	$^{\boxtimes}$ No water \Box (Clear 🗆 Turb		een 🗆 Sui surface scu		□Algal [mats	□Other	:		
Substrate: [(check all that apply) % of Substrate:		oulder ⊠ Cobb % <u>45</u> %			⊠ Silt/ o <u>10_</u> %	blay ⊠ Organic 5_%	□ C	Other: %		
Width of Riparian Zon	(check all that Avg. DBH		⊠ Trees: 14.0_			ngs/Shrubs: in.	\boxtimes	Herbs		
N/A⊠ Dominant Bank Veget	(approx.) ation (list):									
Northern red oak, o		ack gum, whi	te pine, mo	ountain laurel, v	vitch h	nazel, hucklel	berry,	Christn	nas fern, violet	
Aquatic Habitats (ex: s coarse woody debi		d aquatic vegetatio	n, overhanging	banks/roots, leaf pac	ks, large	submerged wood,	, riffles, o	deep pools	3):	
Aquatic Organisms O										
none										
T&E Species Observe	d (list):									
none										
Disturbances (ex: lives	tock access, manure i	n waterbody, waste	e discharge pipe	es):						
Culvert crossing fo	r Muddy Run R	oad								
Tributary is: (check one)	⊠ Natural	□ Ari	ificial, man-m	ade 🗌 Manipi	ulated					
Stream Quality ^a : (check one)	□ High	⊠ Mo	oderate	□ Low						

sbaa012

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.

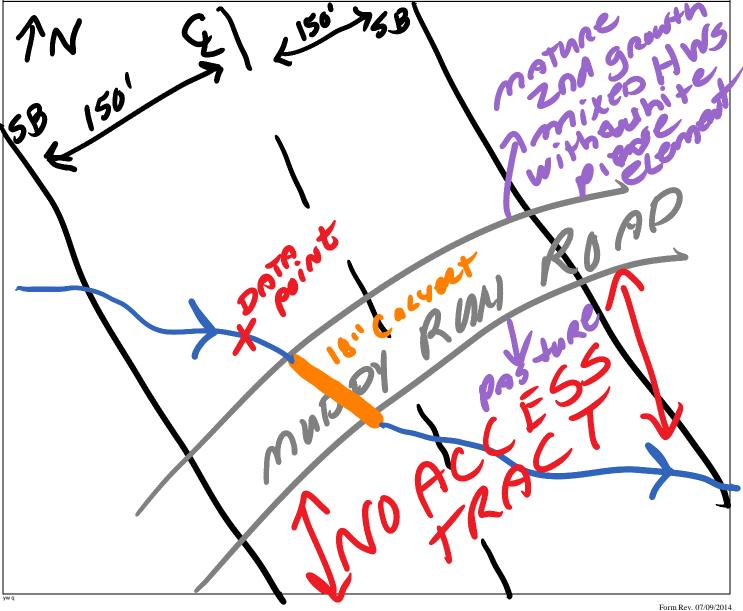
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate 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:

Upstream continues out of corridor; downstream passes under Muddy Run Road via 18" corrugated metal culvert; downstream of culvert is red no access tract.

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





Waterbody SBAA012 facing northwest upstream



Waterbody SBAA012 facing southeast downstream



Waterbody SBAA012 facing southwest across

Survey Descriptio	on							
Project Name:		Waterbody Na				aterbody ID:		Date:
Atlantic Coast Pipe		UNT to Dry I	Run		SI	bay008		8/25/2016
State:	County:		Company:		Crew N	lember Initials	: Photo	S:
West Virginia	Bath County		Dominion		KO, S		1-3	
Tract Number(s):			Nearest Mile	epost:		Associated W	etland ID(s):	
036-022			95.5			none		
Survey Type: (check one)	⊠Centerline	Re-I	Route	□Access Road		Other:		
Physical Attribute	S							
Stream Classification: (check one)		al 🗌 Inter	rmittent	Perennial				
Waterbody Type: (check one)					_			
	□River ⊠ Str		ch 🗆 Ca	anal 🗌 Other:				
OHWM Width: 9 ft.	OHWM Indica (check all that apply		□ Clear lir on bank	ne 🗆 Shelvin	g	□Wrested vegetation	⊠Scou	ring □Water staining
Height:	□Bent n	natted, or missir	ng ⊟Wrack li	ne ⊠Litter ar	nd	 □Abrupt plan	it ⊡Soi	il characteristic change
<u>.25</u> ft. N/A□	vegetatio	n	0	debris		community ch		
Width of Waterbody - ⁻ Bank to Top of Bank:		of Waterbody - of Slope:	Toe of Slope	Width of Waterbo Water Edge:	ody - W	ater Edge to	Depth of Wa (Approx.)	iter:
_13 ft.		_10 ft.		_	f	t.		ft.
	-	<u></u>		N/A⊠			N/A⊠	
Sinuosity: (check one)	Water (Approx.)	velocity:		Bank height			Bank slope	
⊠Straight	(,,,),,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	f	ps	Right:	<u>3_</u> ft.		Rig	ght: 45 degrees
		I	μs	Left:			L	.eft:
					<u>3_</u> ft.			<u>35</u> degrees
Qualitative Attribu	utes							
Water Appearance: (check one)	$^{\boxtimes}$ No water \Box C	Clear □Turk		een 🗆 Sui surface scu		□Algal mats	□Other:	
	Bedrock 🛛 Bo	ulder 🛛 Cobb	ole 🛛 Grave	el 🛛 Sand 🛛	□ Silt/ c	lay 🗆 Organic	: Other:	
(check all that apply) % of Substrate:	<u>% 15 %</u>	% <u>55</u> %	<u> 15 </u> %	<u>15</u> %		_%%	9	6
Width of Riparian Zon								
ft.	(check all that	apply) of Dominants:	⊠ Trees:		•	ngs/Shrubs:	⊠ Herb	S
N/A⊠	(approx.)	or Dominants.	<u>_14"</u> in.	-	<u>1</u> in.			
Dominant Bank Vegeta Smooth Blackhawk		ugar Maple, (Cinnamon I	Fern, Japanese	e Burb	erry, Japane	ese Stilt gra	ass, Christmas Fern,
Hog Peanut Vine. F Aquatic Habitats (ex: s	<u>Roval Fern. Viol</u>	a. Rosa Mult	iflora					
none								
Aquatic Organisms Of	oserved (list):							
none								
T&E Species Observed	d (list):							
none								
Disturbances (ex: livest	ock access, manure i	n waterbody, wast	e discharge pipe	es):				
Tributary is:								
(check one)	⊠ Natural	□ Ar	tificial, man-m	ade 🗌 Manip	ulated			
Stream Quality ^a : (check one)	□ High	⊠ Mo	oderate	□ Low				

Sbay008

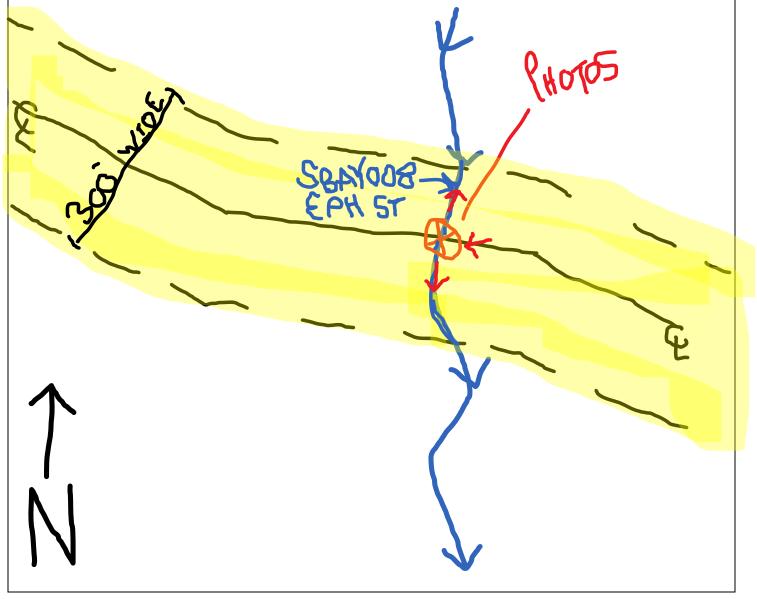
High Quality: Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance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

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





Waterbody SBAY008 facing north upstream



Waterbody SBAY008 facing south downstream



Waterbody SBAY008 facing west across

Open Waterboo	dy Data	Sheet										
Survey Descripti	ion											
Project Name:		M	aterboo	dy Name:				Wat	erbody ID:		Date:	
Atlantic Coast Pip	eline	L	Inname	ed Pond	ł			oba	aa003		10/27/2	016
State:	County:			Com	pany:		Crew	Me	mber Initials:	Photos:		
Virginia	Bath			NRC	G/ERM		GB,	AS		3 photo	S	
Tract Number(s):				Near	est Milepost:			Ass	ociated Wetlar	d ID(s):		
36-016 - GWNF				96.3	5			noi	ne			
Survey Type: (check one)	\boxtimes (Centerline		□Re-Ro	ute		Road		□Other:			
Physical Attribut	tes											
Waterbody Type: (check one)	ck Pond] Natural F	Pond 🗆	lake [Reservoir	⊲ Impound	lment 🗆] Ox	bow 🗆 Other:			
Hydrologic Regime:	🗆 Perm	nanently Fl	ooded	🛛 Sem	ipermanently	Flooded	□ Seas	sona	ally Flooded	Temporari	ly Floode	d
онwм	OH	NM Indica	tor:									
Height:	(chec	ck all that appl	y)		⊠ Clear line on bank	e ⊡S	Shelving		□Wrested vegetation	□Sco	uring	□Water staining
<u>3.0</u> ft.		□Bent, r vegetatio		or missinę	g ⊟Wrack line	□L det	litter and oris		□Abrupt pla community c	nt □Soil cł hange	naracterist	ic change
Depth of Water:			Bank h	eight (av	erage):			E	Bank slope (av	erage):		
) <u></u> ft.				<u>5.0</u> ft.					<u>70</u> degree	es	
Qualitative Attrib	outes							<u> </u>				
Water Appearance: (check one)	□No wate	r ⊠Cl	ear	□Turbid	□ Sheer on surfa		□ Surface scum	e	□Algal [mats	□Other:		
Substrate: (check all that apply)	Bedrock	k 🗆 Bou	Ilder [Cobble	□ Gravel	⊠ Sand	⊠ Si	ilt/ cl	lay 🛛 Organic	□ Other:		
% of Substrate:	%		_%	%	%	<u>20</u> %	60	_%	<u> 20 </u> %		%	
Width of Riparian Zo		getative L										
ft.	(ch	eck all that ap	ply)		⊠ Trees:		⊠ Sa∣	pling	gs/Shrubs:	⊠ Hei	bs	
N/A⊠		g. DBH of	Domina	ants:	<u>_14.0</u> in.		<u>_1.0</u>	_in.				
Dominant Bank Vege	etation (list)):										
Scarlet oak, suga oldenrod, rough le	eaf golder	<u>nrod, mo</u>	untain	laurel,	spotted win	tergreen	11				low pop	lar, zigzag g
Aquatic Habitats (ex: Pool, coarse wood		emerged aqua	itic vegetati	ion, overnan	ging banks/roots, le	eat packs, larg	je submerge	ed woo	od, riffies, deep pools	s, etc.) :		
Aquatic Organisms (- Observed (/	list):										
none												
T&E Species Observ	ed (list):											
none												
Disturbances (ex: live	stock access	, manure in	waterbod	ly, waste d	ischarge pipes):							
None observed												
Waterbody is: (check one)		Natural		⊠ Artific	cial, man-made	e 🗆 N	lanipulate	ed				
Waterbody Quality ^a : (check one)		High		⊠ Mode	erate	□ Low						

obaa003

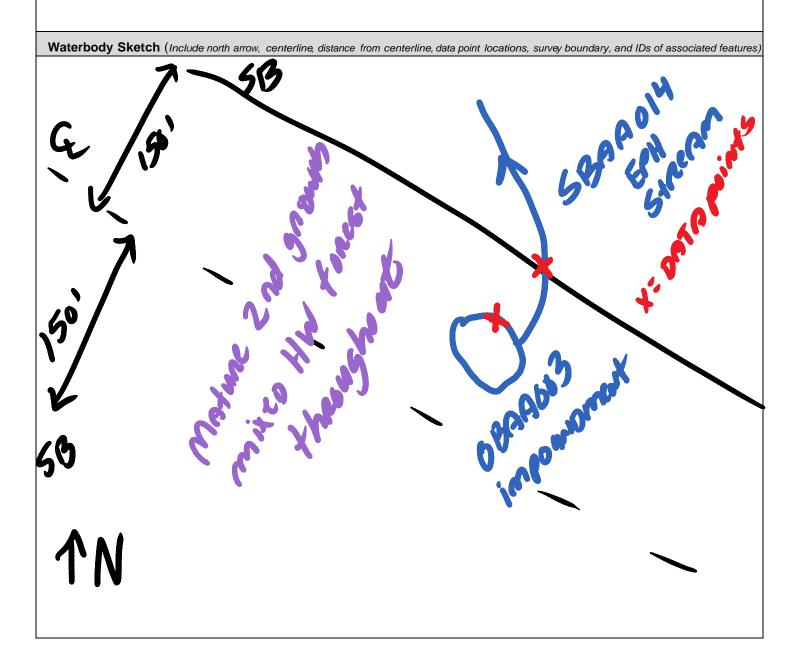
High Quality: Natural, natural bank vegetation around entire waterbody; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

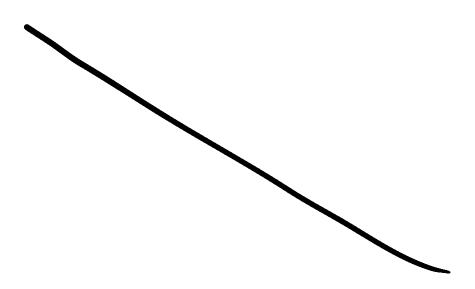
Moderate Quality: Altered by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or bank vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers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

Low Quality: 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:

Excavated and beamed small, artificial impoundment located in a draw; filled by sheet flow; overflow to ephemeral stream sbaa014; mature second growth mixed hardwood forest.







obaa003 facing southeast



obaa003 facing southwest



obaa003 facing northwest

Survey Descriptio	n	la a a										
Project Name:			erbody Nam					aterbody ID:			Date:	
Atlantic Coast Pipeline		Can	npbell Rur	ו			0.0	baa014			10/27/2016	
State:	County:		C	Company:		-		lember Initials	: P	hotos:		
Virginia	Bath		1	NRG/ERM		GI	B, A	S	3	3 photo	DS .	
Tract Number(s):			1	Nearest Mile	epost:	•		Associated W				
36-016. GWNF			ç	96.3				none				
Survey Type: (check one)	⊠Ce	enterline	□Re-Ro	oute	□Access	Road		□Other:				
Physical Attribute	S											
Stream Classification: (check one)	⊠Eŗ	phemeral		nittent	Perenni	al						
Waterbody Type: (check one)	River	⊠ Stream	□ Ditch	n 🗆 Ca	anal 🗆 (Other:						
OHWM Width: _ <u>2.0_ft</u> .		I Indicator: Il that apply)		□ Clear lir on bank	ne ⊡Sł	nelving		□Wrested vegetation	\boxtimes	Scouring	g □Water staining	
Height: ft. N/A□	V	Bent, matted egetation			debr			□Abrupt plar community ch	nange		haracteristic chan	ıge
Width of Waterbody - Bank to Top of Bank:	Гор of	Width of War to Toe of Slo		oe of Slope	Width of Wa Water Edge		/ - Wa	ater Edge to	Depth o (Approx.)	of Water	:	
<u>_5.0</u> ft.		1.0	ft.		N/A⊠		ft		N/A⊠	-	ft.	
Sinuosity:		Water veloci	ity:		Bank heigh	t			Bank sl	оре		
(check one)		(Approx.)			Rig		5_ ft.			Right	: 40 degrees	
		-	fps	6	L	eft:				Left		
	ng	N/A⊠				3.0)_ft.				60 degrees	
Analysis of Bank Stab No evidence of bank i	• •		, vegetatioi	n, substrate	characteris	tics):						
Qualitative Attribu	ites											
Water Appearance:												
(check one)	[⊠] No water	□Clear	□Turbio	-	een surface	□Surfac scum	e	□Algal mats	□Other:			
Substrate:	Bedrock	Boulder	⊠ Cobble	e 🛛 Grave	el 🛛 Sanc	⊠ S	Silt/ cl	ay 🛛 Organio	; □ O	ther:		
% of Substrate:	%	%	_30_9	% <u>10</u>	% <u>15</u>	% <u>2</u>	<u>25 </u> %	<u>_20</u> _%		_%		
Width of Riparian Zone		getative Laye	ers:	⊠ Trees:		⊠ S	aplin	gs/Shrubs:	×	Herbs		
<u>ft</u> ·		g. DBH of Do	minants:	<u>14.0</u> ir	۱.		<u>0_</u> in.	-		in.		
Dominant Bank Vegeta												
Scarlet oak, sugar oldenrod. rough lea	if aoldeni	rod. mounta	ain laŭrel.	spotted w	vinterareer							ag g
Aquatic Habitats (ex: s Leaf packs	ubmerged or	r emerged aquat	tic vegetation,	, overhanging	banks/roots, le	af packs, l	large :	submerged wood	l, riffles, d	leep pools	3):	
Aquatic Organisms Ob	served (lis	s <i>t</i>):										
none												
T&E Species Observed	d (list):											
none												
Disturbances (ex: livest	ock access,	manure in wate	rbody, waste	discharge pipe	es):							
none												
Tributary is: (check one)	⊠ N	latural	□ Artif	ïcial, man-m	ade 🗆 N	lanipulat	ed					

sbaa014

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:

Begins as outflow/overflow from impoundment obaa003 within the survey corridor; downstream continues out of the survey corridor; bed/bank/OHWM weakly developed within the corridor becoming more distinct outside the survey corridor.

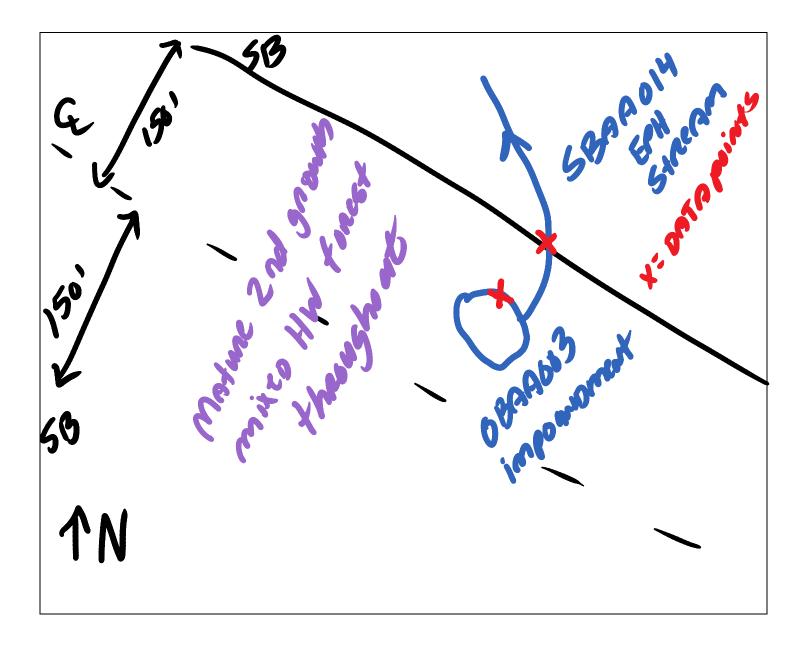
Waterbody Sketch (Include north arrow, centerline, distance from centerline, data point location, survey boundary, and IDs of associated features)

⊠ Moderate

Stream Quality ^a: (check one)

🗆 High

□ Low





sbaa014 facing west upstream



sbaa014 facing east downstream



sbaa014 facing north across

Open Waterboo	dy Data	Sheet										
Survey Descripti	on											
Project Name:		V	Vaterbody	Name:				Wat	terbody ID:		Date:	
Atlantic Coast Pip	eline	ι	Jnname	d Pond				oba	aa001		6/25/20 ⁻	16
State:	County:			Comp	any:		Crew	v Me	mber Initials:	Photos:		
Virginia	Bath				/ERM		GB,			1 Photo)	
Tract Number(s):				Neare	st Milepost:			Ass	ociated Wetlan	d ID(s):		
36-016 – GWNF;	access r	oad 36-0	16.AR1	96.5				no	ne			
Survey Type: (check one)		Centerline		Re-Rout	te	⊠Access Ro	bad		□Other:			
Physical Attribut	tes											
Waterbody Type: (check one) Stor		☐ Natural F	Pond 🗆 l	_ake □	Reservoir D	Impoundm	ient 🗆] Ox	kbow 🗆 Other:			
Hydrologic Regime:	Perr	manently F	looded	🛛 Semip	permanently	Flooded	□ Sea	sona	ally Flooded	Temporari	ly Flooded	1
онwм	ОН	WM Indica	ator:									
(check all that a Height:			ly)		☑ Clear line on bank	e ⊡Sh	elving		□Wrested vegetation	□Sco	uring	□Water staining
<u>2.0</u> ft.		□Bent, i vegetatio	matted, or on	missing	□Wrack line	□Litt debri	er and s	l	⊠Abrupt pla community c		naracteristi	c change
Depth of Water:			Bank he	ight (ave	rage): <u>3.5</u> f	t.		I	Bank slope (ave	erage):		
_ <u>1.5</u>	<u>5</u> ft.									<u>70</u> degree	es	
Qualitative Attrib	outes											
Water Appearance: (check one)	□No wate	er □Cl	lear 🗵	Turbid	□ Sheer on surfa		Surfac um	e	□Algal □ mats	Other:		
Substrate: (check all that apply)	Bedroc	k 🗆 Bou	ılder 🗆	Cobble	□ Gravel	⊠ Sand	⊠S	Silt/ c	lay 🛛 Organic	□ Other:		
% of Substrate:	%	o	_%	_%	%	<u>30</u> %	40	_%	<u> 30 </u> %		%	
Width of Riparian Zo		egetative L										
ft.	(Ci	heck all that ap	oply)		☑ Trees:		⊠ Sa	apling	gs/Shrubs:	⊠ Her	bs	
		vg. DBH of	f Dominar	nts:	<u>12.0</u> in.		<u>_1.7</u>	<u>5_</u> in.				
Dominant Bank Vege	etation (lisi	t):										
Scarlet oak, swee	<u>eroot, Vi</u>	<u>rginia cre</u>	eper				-		•	-	ane, Jap	oanese stilt
Aquatic Habitats (ex: pool	submerged or	emerged aqua	atic vegetatior	n, overhangi	ng banks/roots, le	eaf packs, large	submerge	ed woo	od, riffles, deep pools	, etc.) :		
Aquatic Organisms (Observed	(list):										
Tadpoles, salama	Inder											
T&E Species Observ	ed (list):											
none												
Disturbances (ex: live				waste dis	charge pipes):							
Sediment run-off f	nom adja		u									
Waterbody is: (check one)		Natural		⊠ Artifici	al, man-made	e □ Ma	nipulate	ed				
Waterbody Quality ^a : (check one)		High		⊠ Moder	ate	□ Low						

obaa001

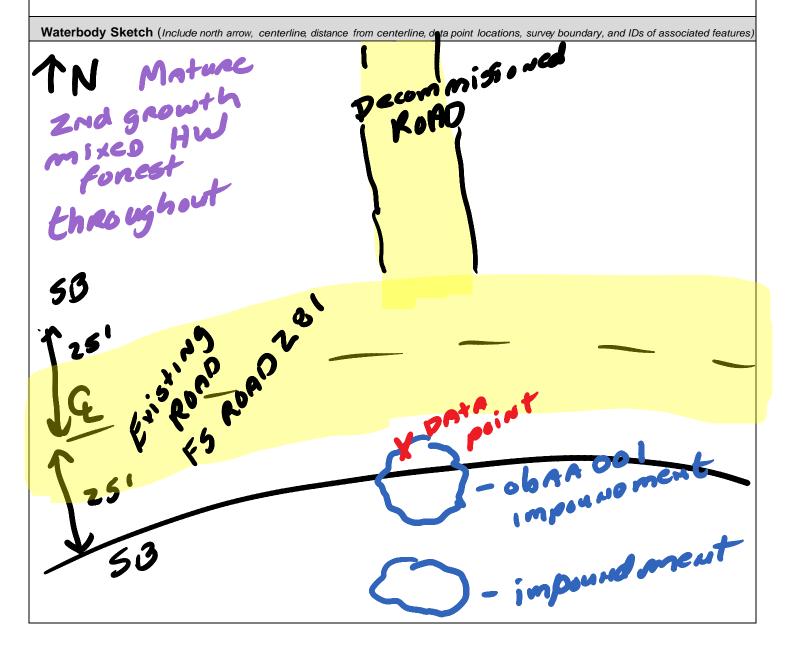
High Quality: Natural, natural bank vegetation around entire waterbody; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

Moderate Quality: Altered by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or bank 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: 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:

Excavated impoundment adjacent to existing forest service road; likely created for amphibian habitat; there are additional impoundments down-slope of this one which are outside the access road survey corridor. Receives sheet flow from adjacent roadbeds and slope. Mature second growth mixed hardwood forest.





Open waterbody OBAA001 facing south

Survey Descriptio	n								
Project Name:		Waterbody Na			v	aterbody ID:		Date:	
Atlantic Coast Pipe	line	Cowpasture	River		s	baa015		10/28/2016	
State:	County:		Company:		Crew	Member Initials:	Photos:		
Virginia	Bath		NRG - ER		GB, A		3 phot	os	
Tract Number(s):			Nearest Mile	epost:		Associated Wetland ID(s):			
36-033-A001			97.9			wbaa003; wbaa	a004		
Survey Type: (check one)	Centerline	e □Re-F	Route	□ Access Road		□Other:			
Physical Attribute	S 🛛								
Stream Classification: (check one)	□ Ephemera	al 🗆 Inter	mittent	Perennial					
Waterbody Type:	•								
	River 🗆 Str	eam 🗌 Dito	ch □C	anal 🛛 Other:					
онwм	OHWM Indica								
Width:	(check all that apply ft.	/)	⊠ Clear liı on bank	ne 🗆 Shelving	g	□Wrested vegetation	⊠Scourin	g □Water staining	
Height:	□Bent, r	natted, or missin	g ⊠ Wrack	line □Litter ar	nd	□Abrupt plant	□Soil c	haracteristic change	
<u> </u>	vegetatio		-	debris		community change)	-	
Width of Waterbody - 1 Bank to Top of Bank:		of Waterbody - ' of Slope:	Toe of Slope	Width of Waterbo Water Edge:	ody - W	Ater Edge to Dept	h of Wate	r:	
		-			/			1.5 _ ft.	
<u>ft</u>	· -	<u>70 </u> ft.		N/A□	<u>75 f</u>	τ. Ν/Α[<u> </u>	
Sinuosity:		velocity:		Bank height		Banl	k slope		
(check one)	(Approx.)			Right:	7.0	1	Right		
		1.25	fps	Left:	7.0 _	_n.	Lef	<u>65</u> degrees t:	
	ng N/A 🗆				8.0	_ft.		<u>60</u> degrees	
Qualitative Attribu Water Appearance:	ites								
(check one)	[□] No water ⊠0	Clear □Turb		neen ⊡Sur n surface scu		□Algal □Oth mats	ner:		
	Bedrock 🛛 🖾 Bo	ulder 🛛 Cobb	ole 🛛 Grav	el 🛛 Sand 🛛	⊠ Silt/ o	clay 🗆 Organic 🗆	Other:		
(check all that apply) % of Substrate:	<u>20 % 5 </u>	<u>% 50 %</u>	% <u>10</u> %	% <u>10</u> % _	<u>5</u> %	%	%		
Width of Riparian Zone									
600 ft-	(check all that	apply) of Dominants:	⊠ Trees			ngs/Shrubs:	⊠ Herbs		
N/A□	(approx.)	or Dominants.	12.0	in	1.0	in.			
Dominant Bank Vegeta	()								
Sycamore, black wa river cane, deer ton	que grass, golo	denrod	· · ·	•		•		•	
Aquatic Habitats (ex: se Pools, coarse wood				-	ks, large	e submerged wood, riffle	s, deep poo	ls):	
Aquatic Organisms Ob	served (list):								
Several species of		ddisfly, stone	fly, musse	shells					
T&E Species Observed	l (list):								
none									
Disturbances (ex: livest	ock access, manure i	n waterbody, waste	e discharge pip	es):					
Historic pasture on	floodplain; no l	onger active							
Tributary is: (check one)	⊠ Natural	□ Ar	tificial, man-m	nade 🗆 Manipu	ulated				
Stream Quality ^a : (check one)	⊠ High		oderate	□ Low					

sbaa015

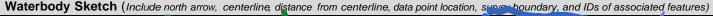
High Quality: Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance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

River continues out of survey corridor in both directions; sbaa016 is a tributary; PFO wetland sbaa003 & PEM wetland sbaa004 are located on floodplain, but neither have surface hydrology connection to river within the corridor. There are braids in the river channel downstream of centerline; these braid connect to sbaa016 – the outermost OHWM of the outermost braid was followed on the downlink side of rive







sbaa015 facing north upstream



sbaa015 facing south downstream



sbaa015 facing east across

Survey Descriptio	n									
Project Name:		Waterbody Na	me:		N	/aterbody ID:		Date:		
Atlantic Coast Pipe	line	UNT to Cow	pasture Riv	/er	S	baa016		10/28/2016		
State:	County:		Company:		Crew I	Member Initials:	Photos:			
Virginia	Bath		NRG - ER	Μ	GB, A	AS	3 phot	os		
Tract Number(s):	1		Nearest Mile	epost:		Associated Wetlan				
36-033-A001; 36-03	33		97.9			none				
Survey Type: (check one)	⊠Centerline	e □Re-F	Route	□ Access Road		□Other:				
Physical Attribute	S 🛛									
Stream Classification: (check one)	Ephemera	al 🗌 Inter	rmittent	Perennial						
Waterbody Type:	·									
	River Str	eam 🗆 Dito	ch 🗆 C	anal 🗌 Other:	:					
онwм										
Width:	(check all that appl ft.	()	Clear ling on bank	ne 🗆 Shelvin	g	□Wrested vegetation	⊠Scourin	g □Water staining		
Height:	□Bent, r	natted, or missin	ng 🛛 Wrack	line ⊠Litter ar	nd	□Abrupt plant	lant Soil characteristic change			
<u>2.0</u> ft. N/A□	vegetatio	n		debris		community change				
Width of Waterbody - 1 Bank to Top of Bank:			Toe of Slope	Width of Waterbo Water Edge:	ody - W	Ater Edge to Dept	h of Wate	r:		
Ballk to Top of Ballk.	10 100	of Slope:		water Euge.		(700)	~.)			
<u>30.0</u> ft	· _	<u>15.0</u> ft.			16.0 _	ft. N/A□	ı —	<u>1.25 _</u> ft.		
Sinuosity:	Water	velocity:		Bank height			slope			
(check one)	(Approx.)			Right:			Right	t:		
		0.50	<u>f</u> ps	Left:	7.0 _	<u>_ft.</u>	Lef	<u>50</u> degrees		
⊠Meanderi	ng N/A□				16.0 _	_ft.	ECI	80 degrees		
Qualitative Attribu	ites									
Water Appearance: (check one)	No water ⊠0	Clear 🗆 Turb				□Algal □Oth	er:			
Substrate:	Bedrock 🗆 Bo	oulder 🛛 Cobb	_		⊠ Silt/ o	mats clay ⊠ Organic □	Other:			
(check all that apply)										
% of Substrate:	_%	% <u>15 </u> 9	% <u>15</u> %	% <u>30</u> %	<u>30</u> %	<u> 10 </u> % <u> </u>	%			
Width of Riparian Zone	e: Vegetative		⊠ Trees		Z Sanlii	ngs/Shrubs:	⊠ Herbs			
<u>100 ft</u> ·	Avg. DBH	of Dominants:		in	•	in.				
N/A 🗆 Dominant Bank Varate	(approx.)									
Dominant Bank Vegeta Sycamore, black wa		rad aak bitta	rnut hickor		outur	n aliva, spisabus	h wing	stom groophrior		
wild rve. violt. arour Aquatic Habitats (ex: si	nd ivv. knotwee	d				•				
Pools, coarse wood					no, large		, doop poo			
Aquatic Organisms Ob	served (list):									
minnows, mayfly, c	addisfly, water	striders								
T&E Species Observed	l (list):									
none										
Disturbances (ex: livest	ock access, manure i	n waterbody, waste	e discharge pip	es):						
None apparent										
Tributary is: (check one)	⊠ Natural	□ Ar	tificial, man-m	ade 🗆 Manip	ulated					
Stream Quality ^a : (check one)	□ High	⊠ Mo	oderate	□ Low	-					

sbaa016

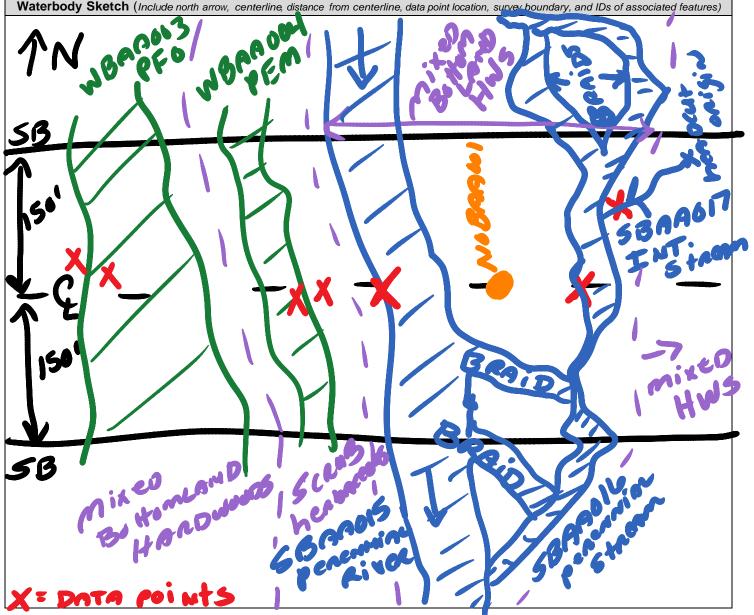
High Quality: Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance 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 survey corridor in both directions; sbaa017 is a tributary within the corridor; joins with sbaa015 braids within the survey corridor downstream of centerline; sbaa016 channel is braided in several places – OHWM taken along outer most braids; no point taken within NWI wetland polygon between sbaa016 & sbaa015 – does not meet criteria for hydric soils.





sbaa016 facing northwest upstream



sbaa016 facing southeast downstream



sbaa016 facing northeast across

Survey Descriptio	n							,	
Project Name:		Waterbody Nar				laterbody ID:			Date:
Atlantic Coast Pipel	ine	UNT to Cow	pasture Riv	ver	s	baa017			10/28/2016
State:	County:		Company:		Crew	Member Initials:	P	hotos:	
Virginia	Bath		NRG - ER	М	GB, A	AS	3	3 photo	DS
Tract Number(s):			Nearest Mile	epost:		Associated We	D(s):		
36-033-A001			97.9			none			
Survey Type: (check one)	⊠Centerline	e □Re-F	Route	□Access Road	1	□Other:			
Physical Attribute	S 🖂								
Stream Classification: (check one)		al ⊠Inter	mittent	Perennial					
Waterbody Type: (check one)	River ⊠ Stı	ream 🗆 Dito	h □C	anal 🛛 Other	:				
OHWM Width: 	OHWM Indica (check all that appl		⊠ Clear lii on bank	ne 🗆 Shelvin	g	□Wrested vegetation	\boxtimes	Scouring	g ⊟Water staining
Height: ft N/A□		matted, or missin on	g 🗆 Wrack	line ⊠Litter a debris	nd	□Abrupt plant community cha		⊡Soil cl	naracteristic change
Width of Waterbody - 1 Bank to Top of Bank:		of Waterbody - ⁻ of Slope:	Toe of Slope	Width of Waterb Water Edge:	ody - W		Depth o	of Water	•
<u>_ 12.0</u> ft.		<u>1.5 ft.</u>		N/A⊠	ft.		N/A⊠	_	ft.
Sinuosity:	Water	velocity:		Bank height		E	Bank sl	оре	
(check one) ⊠Straight ⊡Meanderin	(Approx.)) fp:	6	Right:	9.0			Right Left	<u>50</u> degrees
					12.0	<u>.</u> n.			<u>60</u> degrees
Qualitative Attribu Water Appearance:	ites								
(check one)	No water □	Clear			rface um	□Algal □ mats	Other:		
	Bedrock 🗆 Bo	oulder 🛛 Cobb	le 🛛 Grav	el 🛛 Sand	⊠ Silt/ o	clay 🛛 Organic		ther:	
(check all that apply) % of Substrate:	_%	<u>% 25</u> %	% <u>10</u> %	% <u>15</u> %	<u>35</u> %	<u> 15 </u> %		%	
Width of Riparian Zone									
<u>ft</u> . N/A⊠	(check all that Avg. DBH (approx.)	of Dominants:	⊠ Trees 13.0	:: [in		ngs/Shrubs: in.	\boxtimes	Herbs	
Dominant Bank Vegeta	,								
northern red oak, bi woodland strawberr	v. white aoldei	nrođ		•	-				
Aquatic Habitats (ex: so coarse woody debr		d aquatic vegetation	n, overhanging	banks/roots, leaf pac	ks, large	submerged wood,	rittles, d	eep pool	s):
Aquatic Organisms Ob	served (list):								
none									
T&E Species Observed	(list):								
none									
Disturbances (ex: liveste	ock access, manure	in waterbody, waste	e discharge pip	es):					
None apparent									
Tributary is: (check one)	⊠ Natural	□ Art	ificial, man-m	nade 🗆 Manip	ulated				
Stream Quality ^a : (check one)	🗆 High	⊠ Mo	oderate	□ Low					

sbaa017

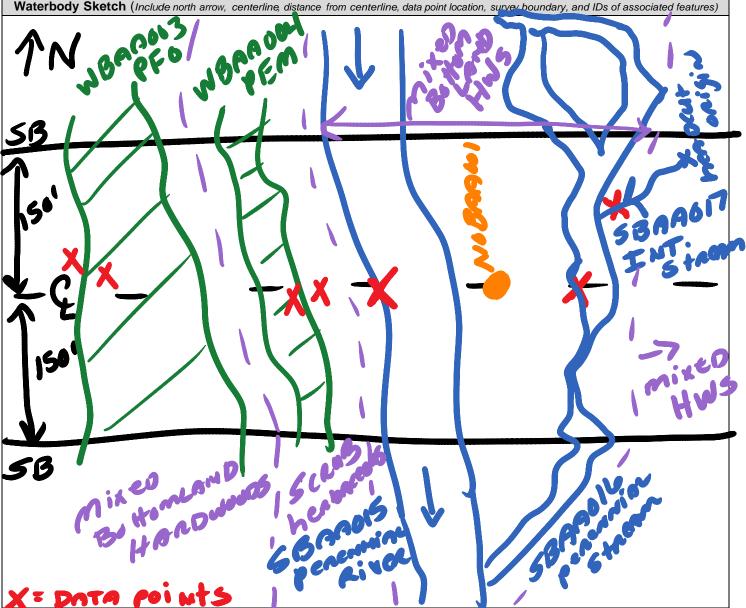
High Quality: Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance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

Begins at a head cut within the survey corridor; downstream flows into sbaa016 within the corridor; small, weakly intermittent stream.





sbaa017 facing east upstream



sbaa017 facing west downstream



sbaa017 facing south across

Survey Descriptio	n										
Project Name:		Waterbo	-					aterbody ID:			Date:
Atlantic Coast Pipel	line	UNT to	Cowp	asture Riv	/er		st	baa005			6/24/2016
State:	County:		C	Company:			Crew M	Member Initials	6:	Photos:	
Virginia	Bath		٦	NRG/ERM	l		GB, K	(O		3 Phot	os
Tract Number(s):			٦	Nearest Mile	epost:			Associated W	/etland	ID(s):	
36-016 - GWNF			ę	98.3				None			
Survey Type: (check one)	⊠Center	line	□Re-Ro	oute		ess Road		Other:			
Physical Attribute	s										
Stream Classification: (check one)	Ephem	ieral	□Interm	nittent	⊠Pere	ennial					
Waterbody Type: (check one)	River ⊠	Stream	□ Ditch		anal	Other:	:				
OHWM Width: 11.0 ft.	OHWM Ind (check all that a			⊠ Clear lir on bank	ne [Shelvin	g	□Wrested vegetation	Þ	Scouring	g □Water staining
Height: ft. N/A□	□Ben vegeta	nt, matted, or ation	r missing	⊠Wrack li		□Litter ar debris	nd	□Abrupt plar community cł		□Soil cl	naracteristic change
Width of Waterbody - 1				oe of Slope			ody - W	ater Edge to		of Water	:
Bank to Top of Bank:	to T	oe of Slope	:		Water E	dge:			(Approx.)	
<u>_20.0</u> ft.		<u>_6.5</u> ft.			N/A□		<u>10.0_</u> ft.		N/A□	-	<u>1.25_</u> ft.
Sinuosity:	Wat	er velocity:			Bank he	eight			Bank	slope	
(check one) Straight	(Appr					Right:				Right	
		1	<u>.25_</u> fps			Left:	<u>5.0_</u> ft.			Left	60 degrees
	ng N/A					_	<u>10.0_</u> ft	•			<u>70</u> degrees
Qualitative Attribu	ites										
Water Appearance: (check one)	No water	⊠Clear	□Turbio	-	een surface	⊡Sui scu		□Algal mats	□Othe	r:	
Substrate:	Bedrock	Boulder 2		e 🛛 Grave	el 🛛 S	and [□ Silt/ c	lay 🗆 Organio	c □ (Other:	
(check all that apply) % of Substrate: 2	<u>20 % 10</u>)%	_ <u>30_</u> %	_ <u>30</u> _%	<u>10</u>	_%	%	%		_%	
Width of Riparian Zone		tive Layers:									
<u>50 ft</u> .		that apply) BH of Domin	nants:	⊠ Trees: _ <u>12.0_</u> ir			⊠ Saplir <u>1.5_</u> in	ngs/Shrubs:	_	Herbs	
N/A Dominant Bank Vegeta	,										
White oak, sugar m huckleberry, grape.	cinquefoil. b	anić gras	s. wild	rvė. violet	. woodl	and sed	lae	• •			
Aquatic Habitats (ex: si Step pools, coarse				overhanging	banks/root	s, leaf pac	ks, large	submerged wood	d, riffles,	deep pool	5):
Aquatic Organisms Ob	served (list):										
Invertebrates – may	/fly, caddisfly	/; crayfish									
T&E Species Observed	l (list):										
none											
Disturbances (ex: livester None apparent	ock access, manu	ire in waterboo	dy, waste o	discharge pipe	es):						
Tributary is: (check one)	⊠ Natura		•••••	icial man	ada		latad				
Stream Quality ^a : (check one)	⊠ Natura	ai		icial, man-m		□ Manip	ulateu				

sbaa005

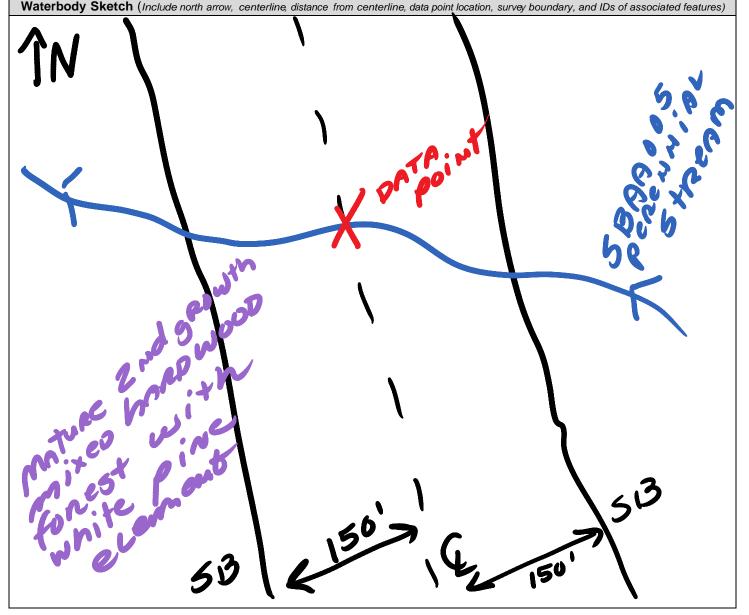
High Quality: Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance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

Moderately steep gradient perennial stream; continues out of the survey corridor in both directions; banks exhibit no signs of instability; slopes above bank are steep; mature second growth mixed hardwood forest with a white pine element.





Waterbody SBAA005 facing east upstream



Waterbody SBAA005 facing northwest downstream



Waterbody SBAA005 facing north across

Survey Description	1											
Project Name:		Wate	erbody Nan	ne:			V	Vaterbody ID:		I	Date:	
Atlantic Coast Pipeline		UNT	to Cowp	asture Riv	er		s	baa006		e	6/24/20)16
State:	County:			Company:			Crew	Member Initial	s: I	Photos:		
Virginia	Bath			NRG/ERM			GB, I	KO		3 photo)S	
Tract Number(s):				Nearest Mile	post:			Associated V	Vetland	ID(s):		
36-016 - GWNF				98.9				None				
Survey Type: (check one)	⊠Cente	erline	□Re-Ro	ute		ss Road		□Other:				
Physical Attributes	5											
Stream Classification: (check one)	□Ephe	emeral	⊠Interm	ittent	□Pere	nnial						
Waterbody Type: (check one)	River D	I Stream	□ Ditch	□ Can	al [Other:						
онwм	онум	Indicator:										
Width: _ <u>4.0_</u> ft.	(check all t	hat apply)		Clear lin on bank	е	□Shelvir	ng	⊠Wrested vegetation	\boxtimes	Scouring		∃Water taining
Height: ft. N/A□		Bent, matted getation	l, or missing	g		⊠Litter a debris	nd	□Abrupt pla community c		□Soil ch	naracteri	stic change
Width of Waterbody - To to Top of Bank:		Vidth of Wa o Toe of Slo			Width c Water E		ody - V	Vater Edge to	Depth (Approx.)	of Water	:	
<u>_12.0</u> ft.		3.5	ft.		N/A□	_	<u>3.5</u> ft		N/A□		<u>0.25_</u> ft.	
Sinuosity:	v	Vater veloci	tv [.]		Bank h	eiaht			Bank s	lone		
(check one)		Approx.)			Juni	Right:			Dunit	Right:		
⊠Straight			0.75fps	6		•	<u>6.0</u> ft			•	<u>75</u> d	egrees
□Meanderin	g N	J/A□				Left:	6.0_ ft			Left:		egrees
Analysis of Bank Stabil No evidence of bank inst	•	•	vegetation	, substrate c	haracte	eristics):			1			
Qualitative Attribut	es											
Water Appearance:												
(check one)	No water	⊠Clear	□Turbid	□Shee on s	en ourface	⊡Surl scu		□Algal [mats]Other:			
Substrate:	Bedrock [Boulder	⊠ Cobble	⊠ Gravel	🛛 Sa	and 🗵	∃ Silt/ cl	ay 🛛 Organic	□ Ot	her:		
% of Substrate:	%	%	_ <u>10_</u> % _	<u>40</u> _%	3	<u>0</u> %	<u>10 </u> %	_10_%	%			
Width of Riparian Zone:		etative Laye	ers:									
ft-	`	k all that apply) . DBH of Do	minants:	⊠ Trees:				ings/Shrubs:	\boxtimes	Herbs		
N/A⊠	(appro			<u>13.0</u> ir	•		_ 1.75		-			
Dominant Bank Vegetat	. ,											
White oak, black gur huckleberry, panic g Aquatic Habitats (ex: sul	rass, wood	<u>d rush, cin</u>	<u>iquefoil, v</u>	<u>voodland s</u>	sedge,	violet, v	<u>vild ya</u>	ms, spotted	winter	green		
Leaf packs, coarse						, F		;				
Aquatic Organisms Obs	served (list):											
none												
T&E Species Observed	(list):											
none												
Disturbances (ex: livesto	ck access, mai	nure in waterb	ody, waste d	lischarge pipes)):							
None apparent												
Tributary is: (check one)	⊠ Natu	ural	□ Artifi	cial, man-mao	de 「] Manipu	lated					
	itati			,								

sbaa006

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.

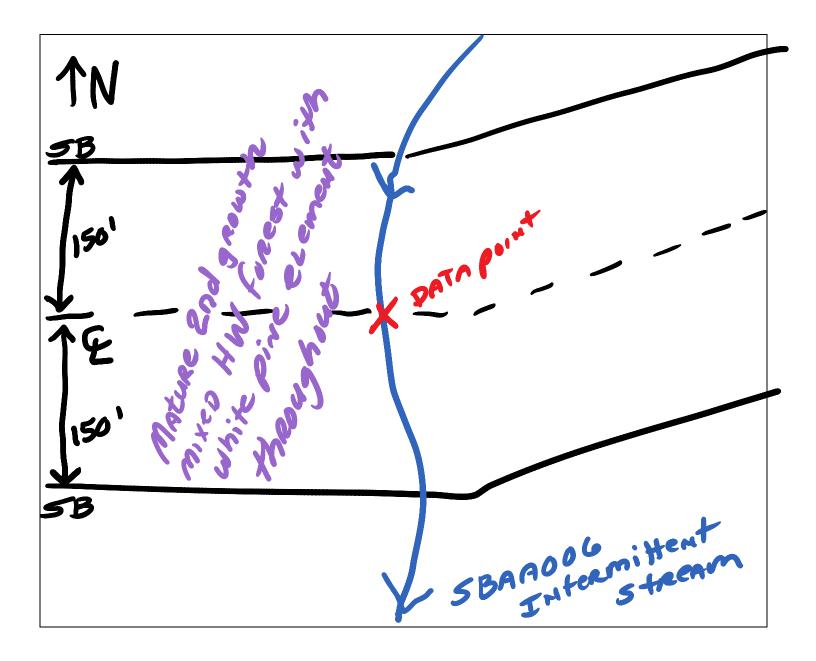
Notes:

Weakly intermittent stream of moderately steep gradient; banks not well defined; slopes above steep; continues out of the survey corridor in both directions; mature second growth mixed hardwood forest with white pine element.

Waterbody Sketch (Include north arrow, centerline, distance from centerline, data point location, survey boundary, and IDs of associated features) Stream Quality a: ⊠ High □ Moderate

check one)

□ Low





Waterbody SBAA006 facing north upstream



Waterbody SBAA006 facing south downstream



Waterbody SBAA006 facing west across

Survey Descriptio	n										
Project Name:			Waterbody Na	me:		W	aterbody ID:		Dat	Date:	
Atlantic Coast Pipeline			UNT to Cow	pasture Riv	ver	sl	baa007		6/2	24/2016	
State:	Count	y:		Company:		Crew I	Member Initials	: Pho	otos:		
Virginia	Bath			NRG/ERM		GB, ⊧	(O	5	photos		
Tract Number(s):				Nearest Mile	epost:	1	Associated W	etland ID	(s):		
36-016 – GWNF; red tra labels within polygon	act poly	gon with 36	-029 – 36-0	98.95			Maybe with	in no aco	cess tra	ct	
Survey Type: (check one)	\boxtimes	Centerline	□Re-R	oute	□Access Road		□Other:				
Physical Attribute	S										
Stream Classification: (check one)		Ephemeral	⊠Intern	nittent	Perennial						
Waterbody Type:		-									
	River	⊠ Strea	m 🗆 Ditch	n 🗆 Car	nal 🗆 Other:						
OHWM Width: _ <u>9.0_ft.</u>		WM Indicat ck all that apply,		⊠ Clear lin on bank	e 🗆 Shelvin	g	⊠Wrested vegetation	⊠Sc	couring	□Water staining	
Height:		□Bent, m vegetatior	atted, or missir า	ng ⊠Wrack li	ne ⊠Litter ar debris	nd	□Abrupt plar community ch		Soil chara	acteristic change	
N/A□ Width of Waterbody - 1 to Top of Bank:	Fop of Ba		•	Toe of Slope		ody - W	ater Edge to	Depth of (Approx.)	Water:		
		to roe t	of Slope:		Water Edge:			() (pp/0x.)		_ <i>i</i>	
<u>_20.0</u> ft.		-	<u>4.5_</u> ft.		N/A□	<u>6.5</u> ft.		N/A□	0.7	′ <u>5_</u> ft.	
Sinuosity:		Water v	elocity:		Bank height			Bank slop	oe		
(check one)		(Approx.)	•		Right:			-	Right:		
			<u>_1.0_</u> fp:	S	Left:	<u>10.0_</u> ft	•		Left:	70 degrees	
⊠Meanderi	ng	N/A□				<u>3.0_</u> ft.				<u>90</u> degrees	
Analysis of Bank Stab Banks exhibit undercu	itting on					ove bar	ık; see photos				
Qualitative Attribu	ites										
Water Appearance: (check one)	[□] No wate	er ⊠Cle	ear ⊡Turbi		en ⊡Surfa surface scun		□Algal □ mats	Other:			
Substrate:	Bedroc	k 🗆 Boul	der 🛛 Cobbl	e 🛛 Gravel	⊠ Sand ⊠	Silt/ cla	ay 🗆 Organic	□ Other	r:		
% of Substrate:	%		% <u>10</u> %	_ <u>60</u> _%	<u> 15 </u> %	<u>15 </u> %	%	%			
Width of Riparian Zone	e:	Vegetative (check all that a		⊠ Trees:		Z Sanlir	ngs/Shrubs:	⊠ He	rha		
<u>150 ft</u> -		Avg. DBH	of Dominants:	<u> </u>		<u>_ 1.75_</u> i	-	_	105		
N/A□ Dominant Bank Vegeta	ation (list	(approx.)									
White oak, black gu	ım, sha ush w	gbark hic	edae winas	stem Japar	hese stilt grass	aolde	in radwort	•		zel, blackhaw,	
Aquatic Habitats (ex: si Leaf packs, coarse	ubmerged	or emerged a	quatic vegetation	, overhanging ba	anks/roots, leaf packs	s, large s	ubmerged wood,	riffles, deep	pools):		
Aquatic Organisms Ob	-		5 5	· 1							
Water striders, cade		,									
T&E Species Observed	l (list):										
none											
Disturbances (ex: livest	ock acces	s, manure in v	vaterbody, waste	discharge pipes):						
None apparent											
Tributary is: (check one)		Natural	□ Arti	ficial, man-ma	de 🗌 Manipul	ated					

sbaa007

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:

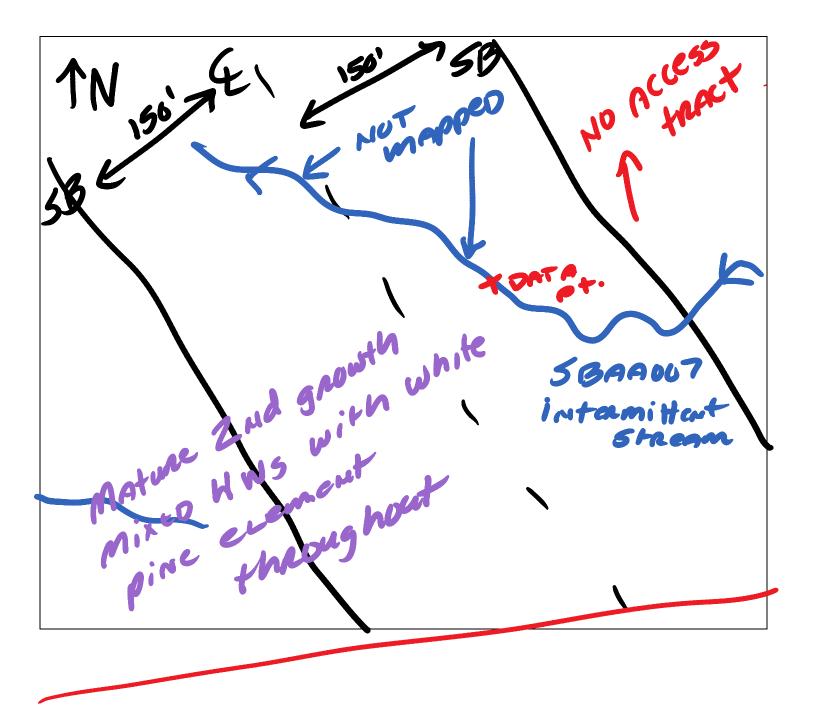
Intermittent stream of moderately steep gradient; banks undercut at outside meanders; slopes above steep with some slumping due to undercut; continues out of the survey corridor in both directions; mature second growth mixed hardwood forest with white pine element.

Only a portion of stream could be delineated as the majority is on a private no access tract owned by Fort Lewis.

Waterbody Sketch (Include north arrow, centerline, distance from centerline, data point location, survey boundary, and IDs of associated features) Stream Quality a: ⊠ High □ Moderate

check one)

□ Low





Waterbody SBAA007 facing north upstream



Waterbody SBAA007 facing south downstream



Waterbody SBAA007 facing west across

Survey Descriptio	n								
Project Name:		Waterbody Nar	ne:		v	Vaterbody ID:			Date:
Atlantic Coast Pipe		UNT to Gibs				baa022			10/29/2016
State:	County:		Company:		Crew I	Member Initials:	.	Photos:	
Virginia	Bath		NRG - ER	М	GB, A	AS		3 phote	os
Tract Number(s):			Nearest Mile	epost:		Associated We	etland	ID(s):	
36-029			99.0			none			
Survey Type: (check one)	⊠Centerline	e □Re-F	Route	□ Access Road		□Other:			
Physical Attribute	S 🛛								
Stream Classification: (check one)	⊠Ephemera	al 🗆 Inter	mittent	Perennial					
Waterbody Type:									
(check one)	River Str	eam 🗆 Dito	h 🗆 Ca	anal 🗌 Other:					
OHWM Width: 2.0ft	OHWM Indica (check all that appl		⊠ Clear lir on bank	ne 🗆 Shelving	g	□Wrested vegetation	\boxtimes	Scourinę	g ⊟Water staining
Height: 0.33_ft.	□Bent, r vegetatic	natted, or missin n	g □ Wrack I	line ⊠Litter ar debris	nd			□Soil cl	naracteristic change
Width of Waterbody - 1	op of Width	of Waterbody -	Foe of Slope	Width of Waterbo	ody - W	ater Edge to	Depth	of Water	:
Bank to Top of Bank:	to Toe	of Slope:		Water Edge:	-	- ((Approx.)		
<u>_10.0</u> ft	-	<u>1.0 </u> ft.			ft		N/A⊠		ft.
Sinuosity:	Water	velocity:		Bank height			Bank s	lope	
(check one)	(Approx.)			Right:				Right	:
_		fp	S	Left:	6.5 _	_ft.		Left	<u>70</u> degrees
	ng N/A⊠				7.0 _	ft.			<u>75</u> degrees
Qualitative Attribu	tes								
Water Appearance: (check one)	³ No water □0	Clear □Turb		neen ⊡Sur n surface scu		□Algal □ mats	□Other	:	
	Bedrock 🗆 Bo	ulder 🛛 Cobb	le 🛛 Grav	el 🛛 Sand 🛛	⊠ Silt/ o	clay 🛛 Organic		Other:	
(check all that apply) % of Substrate:	%	% <u>10</u> %	% <u>25</u> %	% <u>20</u> %	<u>30</u> %	<u> 15 </u> %		%	
Width of Riparian Zone									
<u>ft</u> .	(check all that Avg. DBH	of Dominants:	⊠ Trees 12.0	:in		ngs/Shrubs: in.	\boxtimes	Herbs	
N/A⊠ Dominant Bank Vegeta	(approx.)								
White pine, red mal		black gum, sh	agbark hic	kory, Christma	s fern,	, woodland se	edge,	violet	
Aquatic Habitats (ex: se	ubmerged or emerge	d aquatic vegetation	n, overhanging	banks/roots, leaf pac	ks, large	submerged wood,	riffles,	deep pool	s):
coarse woody debr									
Aquatic Organisms Ob	served (list):								
none									
T&E Species Observed	(list):								
none									
Disturbances (ex: livest	ock access, manure i	n waterbody, waste	e discharge pipe	es):					
None apparent									
Tributary is: (check one)	⊠ Natural	□ Art	ificial, man-m	ade 🗆 Manipu	ulated				
Stream Quality ^a : (check one)	□ High	⊠ Mo	derate	□ Low	-				

sbaa022

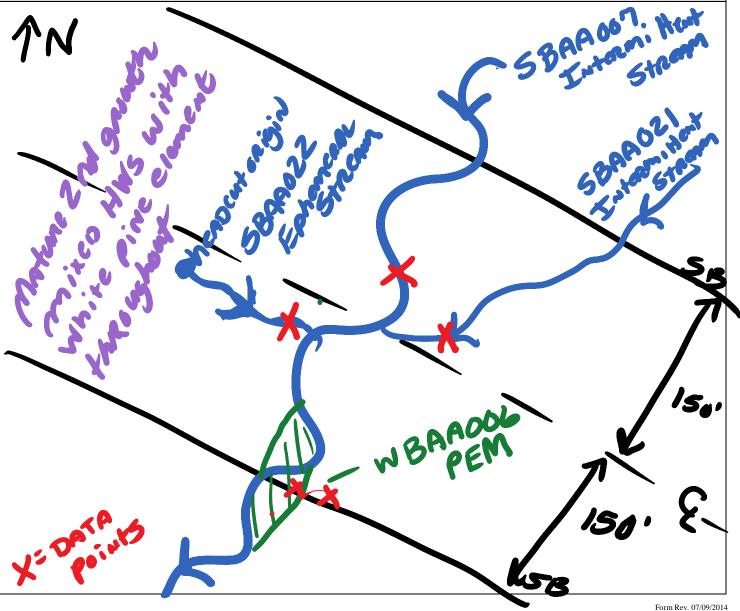
High Quality: Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance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

Upstream begins at a head cut within the survey corridor; Downstream flows into sbaa007 within the corridor downstream of centerline.





sbaa022 facing west upstream



sbaa022 facing east downstream



sbaa022 facing north across

Survey Descriptio	n								
Project Name:		Waterbody Na				Vaterbody ID:			Date:
Atlantic Coast Pipe	line	UNT to Gibs	son Hollow		s	baa021			10/29/2016
State:	County:		Company:		Crew	Member Initials:	:	Photos:	
Virginia	Bath		NRG - ER	М	GB, A	AS		3 phote	os
Tract Number(s):			Nearest Mile	epost:		Associated W	etland	ID(s):	
36-029			99.0			none			
Survey Type: (check one)	⊠Centerlir	ne □Re-	Route	□ Access Road		□Other:			
Physical Attribute	S 🛛								
Stream Classification: (check one)	□Epheme	ral ⊠Inte	rmittent	Perennial					
Waterbody Type:									
(check one)	□River ⊠ S	tream 🗆 Dit	ch 🗆 C	anal 🛛 Other:					
OHWM Width: 4.0ft	OHWM Indic (check all that ap		⊠ Clear lir on bank	ne 🗆 Shelving	g	□Wrested vegetation	×	Scouring	g ⊟Water staining
Height:0.50_ft.	□Bent, vegetat	matted, or missir	ng 🗆 Wrack	line ⊠Litter ar debris	nd	□Abrupt plant community ch		□Soil cl	haracteristic change
N/A□ Width of Waterbody - ⁻	Fop of Width	of Waterbody -	Toe of Slope	Width of Waterbo	odv - W	ater Edge to	Depth	of Water	:
Bank to Top of Bank:		e of Slope:		Water Edge:	,,		(Approx.)		-
<u>9.0</u> ft.		<u>2.0</u> ft.			f		N/A⊠		ft.
Sinuosity:		r velocity:		Bank height			Bank s	slope	
(check one)	(Approx			Right:	0.5	<i>t</i> i		Right	
		f	ps	Left:	3.5 _	_π.		Left	60 degrees
☐ Meanderi	ng N/A⊠]			4.0 _	ft.			80 degrees
Qualitative Attribu	ites								
Water Appearance: (check one)	[☑] No water □]Clear □Turl		neen ⊡Sur n surface scu		□Algal [mats	□Othe	r:	
	Bedrock 🗆 E	Boulder 🛛 Cobl	ble 🛛 Grav	el 🛛 Sand 🛛	⊠ Silt/ o	clay 🛛 Organic		Other:	
(check all that apply) % of Substrate:	%	_%	% <u>40</u> %	<u>6 15</u> %	<u>15_</u> %	<u> 10 </u> %		_%	
Width of Riparian Zon		ve Layers:							
50 ft-	(check all th Avg. DB	at apply) H of Dominants:	⊠ Trees	:		ngs/Shrubs: _in.	\boxtimes	Herbs	
N/A 🗆	(approx.)				2.0				
Dominant Bank Veget White pine, red ma		black gum, sł	nagbark hic	kory, Christmas	s fern,	, woodland se	edge,	violet	
Aquatic Habitats (ex: s	ubmerged or emerg	ed aquatic vegetation	on, overhanging	banks/roots, leaf pac	ks, large	submerged wood,	, riffles,	deep pool	s):
coarse woody debr	is, leaf packs								
Aquatic Organisms Of	oserved (list):								
none									
T&E Species Observed	d (list):								
none									
Disturbances (ex: livest	ock access, manure	e in waterbody, wast	e discharge pip	es):					
None apparent									
Tributary is: (check one)	⊠ Natural	Ar	rtificial, man-m	ade 🗆 Manipu	ulated				
Stream Quality ^a : (check one)	□ High	M	oderate	□ Low					

sbaa021

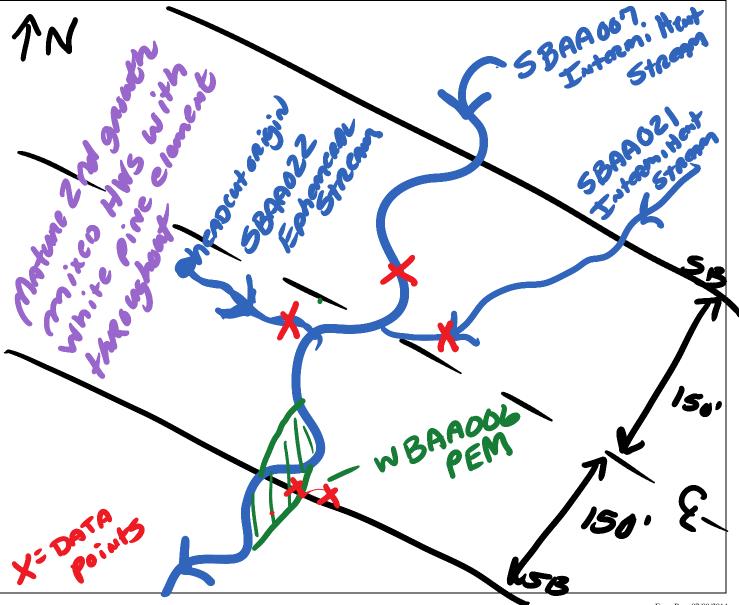
High Quality: Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance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

Upstream continues out of the survey corridor; Downstream flows into sbaa007 within the corridor at centerline.





sbaa021 facing southeast upstream



sbaa021 facing west downstream



sbaa021 facing north across

Survey Description	n								
Project Name:		Waterbody Na				aterbody ID:			Date:
Atlantic Coast Pipel	ine	UNT to Gibs	on Hollow		S	baa020			10/29/2016
State:	County:		Company:		Crew I	Member Initials:	I	Photos:	
Virginia	Bath		NRG - ER	Μ	GB, A	AS		3 phote	os
Tract Number(s):			Nearest Mile	epost:	1	Associated We	etland	ID(s):	
36-029			99.15			none			
Survey Type: (check one)	⊠Centerline	e □Re-F	Route	□ Access Road		□Other:			
Physical Attribute	S 🛛								
Stream Classification: (check one)	□ Ephemera	al 🛛 🖾 Inter	mittent	Perennial					
Waterbody Type:	•								
	River Str	eam 🗆 Dito	h 🗆 Ca	anal 🗌 Other	:				
ОНШМ	OHWM Indica						_	. .	
Width:ft	(check all that appl	<i>V)</i>	⊠ Clear lir on bank	ne 🗆 Shelvin	g	□Wrested vegetation	\boxtimes	Scouring	g ⊟Water staining
Height:	□Bent, r	natted, or missin	g 🗆 Wrack I	line ⊠Litter ar	nd	□Abrupt plant		□Soil cl	naracteristic change
<u>0.50</u> ft.	vegetatio	n		debris		community cha	ange		
Width of Waterbody - T Bank to Top of Bank:			Toe of Slope	Width of Waterb	ody - W		Depth Approx.)	of Water	
Bank to Top of Bank:	to Toe	of Slope:		Water Edge:		(*	Αρριοχ.)		
<u>10.0</u> _ft.	· _	<u>3.5 </u> ft.			ft		J/A⊠		ft.
Sinuosity:	Water	velocity:		Bank height			Bank s	lope	
(check one) Straight	(Approx.)			Right:				Right	:
		fp	S	Left:	2.5 _	_ft.		Left	80 degrees
□Meanderii	ng N/A⊠				7.0 _	ft.			60 degrees
Qualitative Attribu	tes								
Water Appearance: (check one)	No water □	Clear 🗆 Turb				0	Other	:	
Cub strate.			_	surface scu	-	mats)	
(check all that apply)	Bedrock 🗆 Bo	oulder 🛛 Cobb	le 🛛 Grav	el 🛛 Sand 🛛	⊠ Silt/ o	clay 🛛 Organic		Other:	
% of Substrate:	%	% <u>15</u> %	% <u>55</u> %	<u> </u>	<u> 10 </u> %	<u> 10 </u> %		%	
Width of Riparian Zone	Check all that		⊠ ⊤	5				I I a sete a	
40 ft⋅		of Dominants:	⊠ Trees 12.0			ngs/Shrubs: _in.	X	Herbs	
N/A 🗆	(approx.)								
Dominant Bank Vegeta northern red oak, w		nut hickory, w	hite pine, d	chestnut oak, w	/itch h	azel, panic gr	ass, v	violet, v	voodland sedge
Aquatic Habitats (ex: su	ubmerged or emerge	d aquatic vegetatio	n, overhanging	banks/roots, leaf pac	ks, large	submerged wood,	riffles, o	deep pool	s):
coarse woody debri		1 0	,	<i>,</i> 1	, 0	с ,			
Aquatic Organisms Ob	served (list):								
none									
T&E Species Observed	(list):								
none									
Disturbances (ex: livesto	ock access, manure i	n waterbody, waste	e discharge pipe	es):					
None apparent									
Tributary is: (check one)	⊠ Natural	□ Art	ificial, man-m	ade 🗌 Manip	ulated				
Stream Quality ^a : (check one)	🗆 High	⊠ Mo	oderate	□ Low	_		_	_	

sbaa020

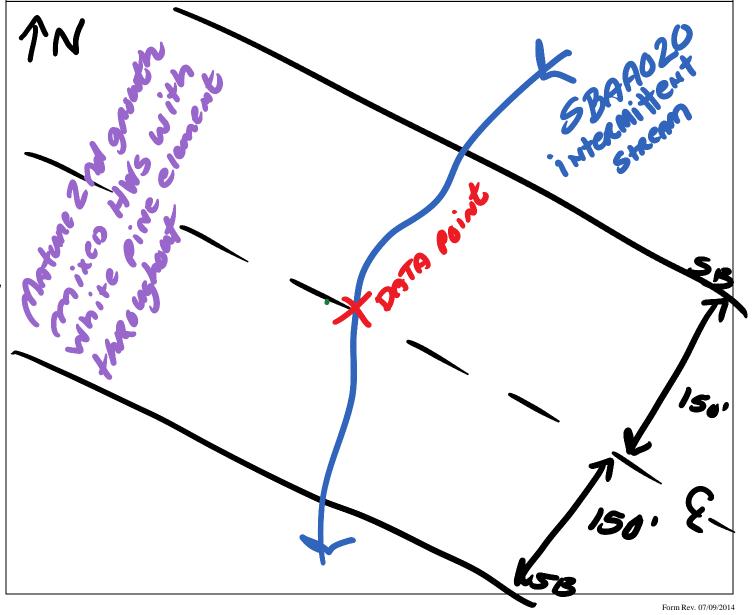
High Quality: Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance 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 the survey corridor in both directions. Weakly intermittent stream with poorly developed bed and banks in places. Flows into sbaa019 well outside the survey corridor.





sbaa020 facing northeast upstream



sbaa020 facing southwest downstream



sbaa020 facing northwest across

Survey Descriptio	n								
Project Name:		Waterbody Na				Vaterbody ID:		Dat	
Atlantic Coast Pipel	line	Gibson Hollo	W		s	baa019		10,	/29/2016
State:	County:		Company:		Crew I	Member Initials:	Pho	otos:	
Virginia	Bath		NRG - ER	М	GB, A	AS	3	photos	
Tract Number(s):			Nearest Mile	epost:		Associated We	tland ID(s):	
36-029			99.3			wbaa005			
Survey Type: (check one)	⊠Centerline	e □Re-F	Route	□ Access Road		□Other:			
Physical Attribute	S 🛛								
Stream Classification: (check one)	□ Ephemera	al 🗌 Inter	mittent	Perennial					
Waterbody Type:	-								
	River ⊠ Str	eam 🗆 Dito	h 🗆 C	anal 🗌 Other:					
онwм	OHWM Indica								
Width:9.0ft	(check all that apply	/)	☑ Clear lir on bank	ne 🗆 Shelvin	g	□Wrested vegetation	⊠Sc	ouring	□Water staining
Height:		natted, or missin	g 🛛 Wrack		nd	□ Abrupt plant		Soil char	acteristic change
	- vegetatio	'n		debris		community cha	nge		
Width of Waterbody - 1 Bank to Ton of Bank			Toe of Slope	Width of Waterb	ody - W	ater Edge to D	epth of N	Water:	
Bank to Top of Bank:	to loe	of Slope:		Water Edge:		(*	φρισκ.)		
<u>ft</u>	· _	<u>6.0</u> ft.			<u>5.0 </u> 1		/A□	0.	<u>50 _</u> ft.
Sinuosity:	Water	velocity:		Bank height			ank slop)e	
(check one)	(Approx.)			Right:			•	Right:	
		0.33	fps	Left:	2.0	_ft.		Left:	<u>35</u> degrees
⊠Meanderi	ng N/A□				3.0 _	ft.			<u>90 </u> degrees
Qualitative Attribu	ites								
Water Appearance: (check one)	[□] No water ⊠0	Clear □Turb	id ⊡Sh	neen 🗆 Sui	face	□Algal □	Other:		
			or	n surface scu	ım	mats			
Substrate:	Bedrock 🗆 Bo	oulder 🛛 Cobb	le 🛛 Grav	el 🛛 Sand 🛛	⊠ Silt/ o	clay 🛛 Organic	□ Othe	er:	
	10_%	% <u>40</u> %	% <u>30 %</u>	% <u>10 </u> % _	<u>10</u> %	<u> 15 </u> %		_%	
Width of Riparian Zone									
120 ft-	(check all that Avg. DBH	of Dominants:	⊠ Trees		•	ngs/Shrubs:	🛛 He	erbs	
N/A 🗆	(approx.)	er Bernhamer	12.0	in	1.5	in.			
Dominant Bank Vegeta	()								
northern red oak, w arass. deer tonaue Aquatic Habitats (ex: su	grass, mountai	in brome. aolo	den ragwoi	rt. wood aster. v	violet	-	•	-	Japanese stilt
coarse woody debr					ks, large	e submerged wood, i	illies, dee	p pools).	
Aquatic Organisms Ob	served (list):								
Water strides, cadd	isfly, crayfish								
T&E Species Observed	d (list):								
none									
Disturbances (ex: livest	ock access, manure i	n waterbody, waste	e discharge pipe	es):					
Dirt ATV road cross	sing – no culve	rt or bridge pr	resent						
Tributary is: (check one)	⊠ Natural	□ Art	ificial, man-m	nade 🗆 Manip	ulated				
Stream Quality ^a : (check one)	⊠ High		oderate	□ Low					

sbaa019

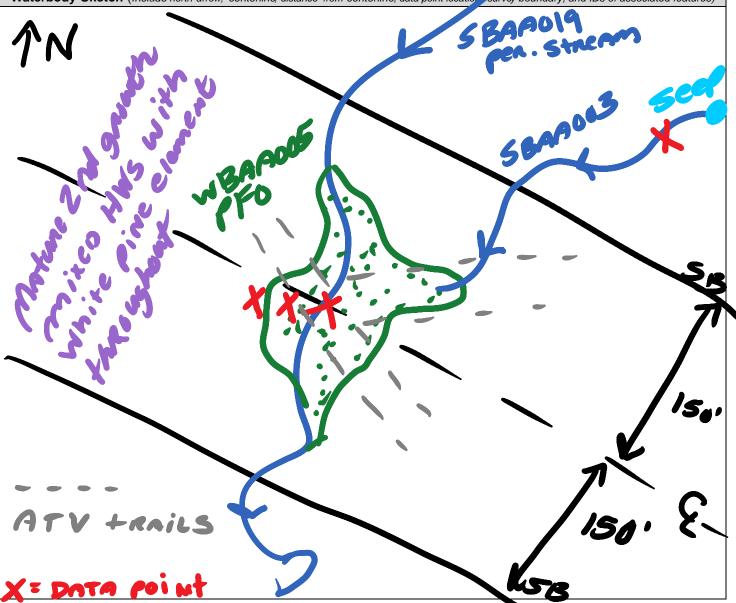
High Quality: Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance 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 the survey corridor in both directions. PFO wetland wbaa005 present on both sides of stream; sbaa003 flow enters steam via wbaa005; sbaa003 loses channel and ends within wetland.





sbaa019 facing north upstream



sbaa019 facing south downstream



sbaa019 facing east across

Survey Description	on										_	
Project Name:		Waterbo	•					aterbody ID:			Date:	
Atlantic Coast Pipeline		UNT to	Gibsor	h Hollow			sl	baa003			5/9/2016	j
State:	County:		С	ompany:			Crew I	Member Initials	: Pl	hotos:		
Virginia	Bath		Ν	RG-ERM	I		GB, S	SA, LC	3	B photo	os	
Tract Number(s):			N	earest Mile	epost:		1	Associated W	etland II	D(s):		
36-016 - GWNF			99	9.4				none				
Survey Type: (check one)	□Cent	erline	□Re-Ro	ute	□Ac	cess Road		□Other:				
Physical Attribut												
Stream Classification (check one)	Ephe	emeral	⊠Intermi	ittent	□Pe	rennial						
Waterbody Type: (check one)	River	Stream	Ditch	□ Ca	anal	□ Other	:					
OHWM Width: <u>3.0</u> ft.	OHWM Ir (check all the			□ Clear lin on bank	ie	□Shelvin	g	□Wrested vegetation	×S	Scouring		Vater ining
Height: ft. N/A□		ent, matted, or etation	missing	□Wrack lin	ne	⊠Litter ar debris	nd	□Abrupt plan community ch		∃Soil cł	naracteristi	ic change
Width of Waterbody - Bank to Top of Bank:		idth of Waterb Toe of Slope:		e of Slope	Width Water		ody - W	ater Edge to	Depth of (Approx.)	f Water	:	
<u>_6.0</u> ft.		<u>_2.0</u> ft.			N/A□		<u>1.5_</u> ft.		N/A□	_	<u>0.20</u> ft.	
Sinuosity:		ater velocity:			Bank h	eight			Bank slo	оре		
(check one)	(A)	pprox.)				Right:	4.0_ ft.			Right	<u>60</u> deg	
Maanda	ring		<u>15_</u> fps			Left:				Left	:	
□Meande	,	/A□					<u>3.0_</u> ft.				<u>65</u> deg	jrees
Analysis of Bank Sta There is no evidence			getation	, substrate	charad	teristics):	:					
Qualitative Attrib	utes											
Water Appearance:												
(check one)	□No water	⊠Clear	□Turbid	□Sh on	een surface	Su Sc≀		□Algal mats	□Other:			
Substrate: (check all that apply)	Bedrock	Boulder	Cobble	⊠ Grave	el 🛛	Sand [⊠ Silt/ c	ay 🛛 Organic	; □ Ot	her:		
% of Substrate:	_%	%	%	_ <u>35</u> _%	<u>20</u> %	<u>10 </u> %	<u>35</u> %	%%				
Width of Riparian Zor	ne: Vege	tative Layers:										
ft		all that apply) DBH of Domin	ante:	⊠ Trees:				ngs/Shrubs:	×F	lerbs		
N/A⊠	(approx		ants.	<u>11.0</u> ir	۱.	-	_ <u>2.0_</u> in		-			
Dominant Bank Vege Northern red oak,	white oak, w	vhite pine, re	ed mapl	e, hop ho	ornbea	m, ches	tnut oa	ak, hawthorn	e, viole	t, wild	oat gras	SS,
woodland sedge, v Aquatic Habitats (ex:	<u>NOOD rUSh</u> submerged or en	nerged aquatic ve	egetation, o	overhanging	banks/ro	ots, leaf pac	ks, large	submerged wood	, riffles, de	ep pools	5):	
Leaf packs, coarse	e woody deb	oris										
Aquatic Organisms C	bserved (list):											
none												
T&E Species Observe none	ed (list):											
Disturbances (ex: lives	stock access. ma	nure in waterbod	v, waste d	ischarge pipe	es):							
None apparent			, ,u	30 P.PC	- / -							
Tributary is:							ulate d					
	National	ural		cial, man-m	aue	Manip	ulated					

Waterbody ID: sbaa003

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:

Begins as outflow from seep pbaa002; flow alternates between primarily subterranean and primarily surface. Surrounding area is mature second growth mixed hardwoods. Seep and stream are just outside and then roughly parallel to the edge of survey corridor. There is an intermittent stream and a perennial stream associated with sbaa003; however they are over the GWNF boundary in a permission denied tract – 36-032.

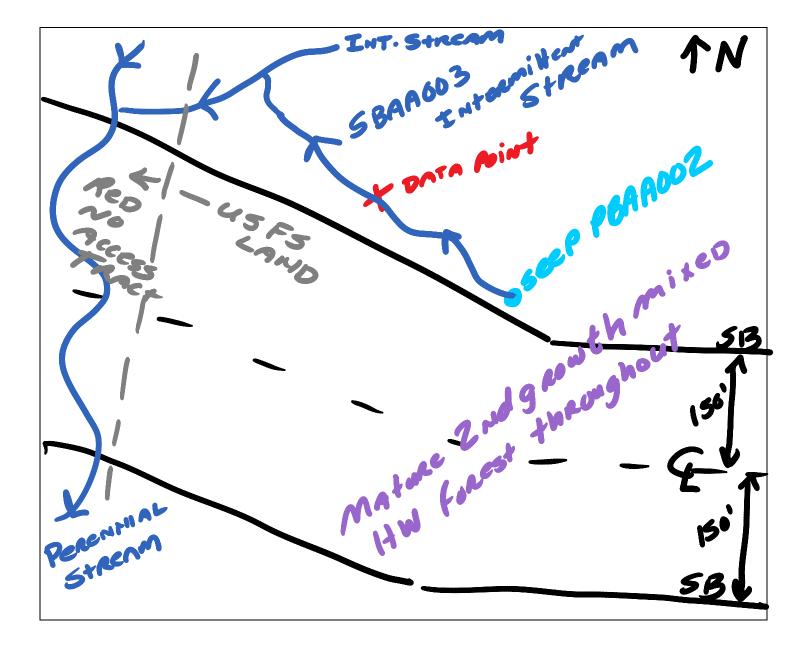
Waterbody Sketch (Include north arrow, centerline, distance from centerline, data point location, survey boundary, and IDs of associated features)

⊠ Moderate

Stream Quality ^a: (check one)

High

□ Low





Waterbody SBAA003 facing south upstream



Waterbody SBAA003 facing north downstream



Waterbody SBAA003 facing east across

Survey Description	on								
Project Name:		Waterbody N		. .		Vaterbody ID:		Date:	
Atlantic Coast Pipe	eline	UNT to Wh	ite Sulphur S	Spring	S	baz003		6/	(16/2016
State:	County:		Company:		Crew I	Member Initials	:	Photos:	
Virginia	Bath		ERM		SS			1-3	
Tract Number(s):			Nearest Mile	epost:		Associated W	etland	ID(s):	
36-040			100.5			None			
Survey Type: (check one)		ne ⊡Re	e-Route	⊠Access Road		□Other:			
Physical Attribute									
Stream Classification: (check one)	: ⊠Epheme	ral □Int	ermittent	Perennial					
Waterbody Type:	•								
	□River ⊠ S	tream 🗌 D	itch 🗆 C	anal 🗌 Other:	:				
ОНШМ	OHWM Indic						_		
Width: _ <u>1_ft</u> .	(check all that app	oly)	⊠ Clear liı on bank	ne 🗆 Shelvin	g	□Wrested vegetation		Scouring	□Water staining
Height:		matted, or miss	ing ⊡Wrack li		nd	□Abrupt plan		□Soil cha	aracteristic change
ft. N/A□	vegetati	ion		debris		community ch	ange		
Width of Waterbody -			- Toe of Slope	Width of Waterb	ody - W	ater Edge to	Depth (Approx.)	of Water:	
Bank to Top of Bank:	to I O	e of Slope:		Water Edge:			(Approx.)		
<u>_3 ft</u> .		<u>2</u> ft.		N/A⊠	ft.		N/A⊠	-	ft.
Sinuosity:	Water	r velocity:		Bank height			Bank s	lope	
(check one) Straight	(Approx			Right:				Right:	
Bottaight		fp:	3	Left:	<u>1_</u> ft.			Left:	45 degrees
□Meander	ing N/A⊠			Leit.	<u>1_</u> ft.				45 degrees
Qualitative Attrib	utes								
Water Appearance: (check one)	$^{\boxtimes}$ No water \Box]Clear □Tu	ırbid ⊡Sł	neen 🗆 Sui	rface	□Algal [□Other		
, , , , , , , , , , , , , , , , , , ,				surface scu		mats			
Substrate: [(check all that apply)	Bedrock B	Boulder 🛛 Co	bble 🛛 🖾 Grav	el 🛛 Sand 🛛	□ Silt/ o	clay 🛛 Organic		Other:	
% of Substrate:	%	%%	<u> 90 </u> %	<u> 10 </u> %	_%	%		%	
Width of Riparian Zon	e: Vegetativ	ve Layers:							
-	(check all the		⊠ Trees			ngs/Shrubs:	\boxtimes	Herbs	
_ <u>250+ ft</u> ⊷ N/A□	(approx.)	H of Dominants	<u>4</u> in.	-	in.				
Dominant Bank Veget	ation (list):								
Pinus strobes, Que	ercus alba, Ace	er rubrum							
Aquatic Habitats (ex: s	submerged or emerge	ed aquatic vegeta	tion, overhanging	banks/roots, leaf pac	ks, large	submerged wood,	, riffles,	deep pools):	
None									
Aquatic Organisms O	bserved (list):								
None									
T&E Species Observe	d (list):								
None									
Disturbances (ex: lives	tock access, manure	in waterbody, wa	ste discharge pip	es):					
None									
Tributary is: (check one)	⊠ Natural		Artificial, man-m	nade 🗆 Manip	ulated				
Stream Quality ^a : (check one)	□ High		Moderate	⊠ Low					

sbaz003

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 a small ephemeral stream that is culverted across the access road.





Waterbody sbaz003 facing north upstream



Waterbody sbaz003 facing south downstream



Waterbody sbaz003 facing west across

Linear	Waterbody	y Data Shee
--------	-----------	-------------

Survey Description	n							
Project Name:		Waterbody Na			w	aterbody ID:		Date:
Atlantic Coast Pipel	ine	White Sulph	ur Spring B	ranch	sł	baa002		4/27/2016
State:	County:		Company:		Crew M	Member Initials:	Photos:	
Virginia	Bath		NRG - ER	Μ	GB, S	SH, SS	3 phot	tos
Tract Number(s):			Nearest Mile	epost:		Associated Wetl	and ID(s):	
36-041.3; 36-041.5			100.65			wbaa002		
Survey Type: (check one)	⊠Centerline	□Re-F	Route	□Access Road		□Other:		
Physical Attributes	S 🛛							
Stream Classification: (check one)	Ephemera	l ⊡Inter	mittent	⊠Perennial				
Waterbody Type: (check one)	River Str	eam 🗆 Dito	ch □Ca	anal 🗌 Other:	:			
OHWM Width:	OHWM Indicat (check all that apply		⊠ Clear lir on bank	ne 🗆 Shelvin	g	□Wrested vegetation	⊠Scourin	g ⊟Water staining
Height:		natted, or missin			nd	□Abrupt plant		characteristic change
<u> </u>	vegetatio	n		debris		community chan	ge	
Width of Waterbody - T Bank to Top of Bank:		of Waterbody - ` of Slope:	Toe of Slope	Width of Waterbo Water Edge:	ody - W		pth of Wate	r:
		<u>_14.0 _</u> ft.			15.0 _	ft.	A□ —	<u>0.75 _</u> ft.
Sinuosity:	Water	velocity:		N/A□ Bank height			nk slope	
(check one)	(Approx.)	·	fps	Right:	4.0 _		Righ	50 degrees
□Meanderir	ng N/A□			Left:	4.0 _	ft.	Lef	t: <u>60</u> degrees
Qualitative Attribu	tes							
Water Appearance: (check one)	No water ⊠C	Clear □Turb		leen ⊡Sui surface scu		□Algal □C mats	Other:	
Substrate:	Bedrock 🗆 Bo	ulder 🛛 Cobb	ole 🛛 Grave	el 🛛 Sand 🛛	□ Silt/ c	lay 🛛 Organic	Other:	
(check all that apply) % of Substrate:	%%	60 <u>60</u>	% <u>25</u> %	<u> 10 % </u>		_% <u>5</u> %	%	
Width of Riparian Zone						(O)		
<u>100 ft</u> - N/A□	(check all that Avg. DBH (approx.)	of Dominants:	⊠ Trees <u>10.0</u>	: ⊵ in	⊴ Saplir <u>1.5</u>	ngs/Shrubs: in.	⊠ Herbs	
Dominant Bank Vegeta	tion (list):							
White oak, shagbar	k hickory, white	e pine, sugar	maple, mu	ltiflora rose, flo	wering	g dogwood, wo	odland se	dge, trout lily
Aquatic Habitats (ex: su	ubmerged or emerged	l aquatic vegetatio	n, overhanging	banks/roots, leaf pac	ks, large	submerged wood, rif	fles, deep poo	ls):
Coarse woody debr	is, pools, riffles	s, leaf packs						
Aquatic Organisms Ob	. ,							
Invertebrates, minne	ows, bullfrog, v	vater striders						
T&E Species Observed	(list):							
none								
Disturbances (ex: livesto None apparent	ock access, manure i	n waterbody, waste	e discharge pipe	es)				
Tributary is: (check one)	⊠ Natural	□ Ari	tificial, man-m	ade 🗌 Manipi	ulated			
Stream Quality ^a : (check one)	⊠ High		oderate	□ Low				

sbaa002

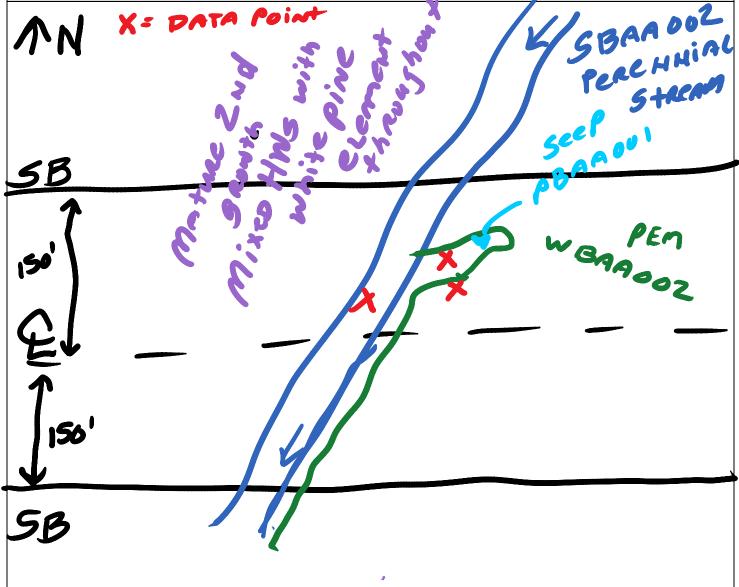
High Quality: Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance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

Stream continues out of corridor in both directions; PEM wetland wbaa002 abuts stream.





Waterbody sbaa002 facing northeast upstream



Waterbody sbaa002 facing southwest downstream



Waterbody sbaa002 facing northwest across

Survey Descriptio	n							
Project Name:		Waterbody Na	ne:		v	Vaterbody ID:		Date:
Atlantic Coast Pipel	line	Stuart Run		s	baa001		4/27/2016	
State:	County:		Company:		Crew	Member Initials:	Photo	s:
Virginia	Bath		NRG - ER	Μ	GB, S	SH, SS	3 ph	iotos
Tract Number(s):			Nearest Mile	epost:		Associated We	tland ID(s)	
36-042			100.7			wbaa001		
Survey Type: (check one)	⊠Centerline	e □Re-F	Route	□ Access Road		□Other:		
Physical Attribute	S 🛛							
Stream Classification: (check one)	Ephemera	al 🗆 Inter	mittent	Perennial				
Waterbody Type:								
(check one)	River Str	eam 🗌 Dito	h □Ca	anal 🗌 Other:	:			
онwм	OHWM Indica							
Width:	(check all that apply ft.	()	⊠ Clear lir on bank	ne 🗆 Shelvin	g	□Wrested vegetation	⊠Scou	ring □Water staining
Height:	⊟Bent, n	natted, or missin	g 🛛 Wrack	line ⊠Litter ar	nd	□ Abrupt plant		il characteristic change
<u>2.0</u> ft. N/A□	vegetatio	n		debris		community cha	nge	
Width of Waterbody - 1 Bank to Top of Bank:		of Waterbody - ⁻ of Slope:	Toe of Slope	Width of Waterbe Water Edge:	ody - W	Vater Edge to	epth of Wa	iter:
		•					(pp/0x.)	10 #
<u>40.0</u> ft	· _	<u>20.0 </u> ft.			25.0 _		/A□	<u>1.0 </u> ft.
Sinuosity:		velocity:		Bank height		В	ank slope	
(check one)	(Approx.)			Right:	F 0	4	Riç	ght:
		<u> </u>	ps	Left:	5.0 _		L	<u>90</u> _degrees _eft:
	ng N/A□				5.0 _	_ft.		<u>45</u> degrees
Qualitative Attribu	tes							
Water Appearance: (check one)	[]] No water ⊠0	Clear □Turb		neen ⊡Sui i surface sci		□Algal □ mats	Other:	
	Bedrock 🗆 Bo	ulder 🛛 Cobb	le 🛛 Grave	el 🛛 Sand 🛛	□ Silt/ o	clay 🛛 Organic	□ Other:	
(check all that apply) % of Substrate:	%%	% <u>70</u> %	% <u>15</u> %	<u> </u>		_% <u>5</u> %	%	6
Width of Riparian Zone	e: Vegetative	e Layers:						
120 ft-	(check all that	apply) of Dominants:	⊠ Trees			ngs/Shrubs:	⊠ Herb	IS
N/A 🗆	(approx.)	or Dominants.	10.0	in	1.5	in.		
Dominant Bank Vegeta								
White oak, shagbar	•		•					C · ·
Aquatic Habitats (ex: su					ks, large	e submerged wood, i	riffles, deep p	ools):
Coarse woody deb	ris, pools, riffles	s, overhangin	g roots/bar	nks				
Aquatic Organisms Ob	• •							
Invertebrates, minn	ows, water strie	ders						
T&E Species Observed	l (list):							
none								
Disturbances (ex: liveste		-	e discharge pipe	es):				
Pasture adjacent bu	ut cattle exclud	ed via fence						
Tributary is: (check one)	⊠ Natural	□ Ari	ificial, man-m	ade 🗆 Manip	ulated			
Stream Quality ^a : (check one)	⊠ High		oderate	□ Low				

sbaa001

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.

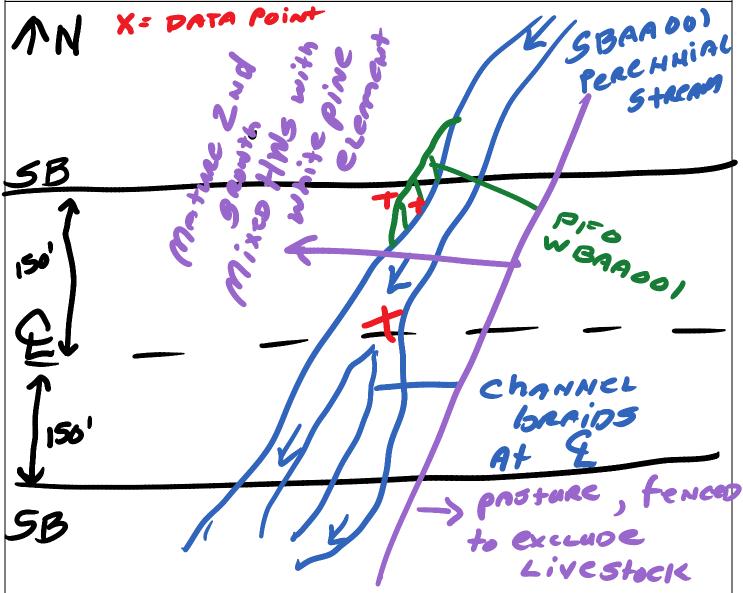
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate 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:

Stream continues out of corridor in both directions; PFO wetland wbaa001 abuts stream; stream channel is braided downstream of center line.

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



Form Rev. 07/09/2014



Waterbody sbaa001 facing northeast upstream



Waterbody sbaa001 facing southwest downstream



Waterbody sbaa001 facing southeast across

Linear Waterbod	y Data Sheet	£				No. of the local day			
Survey Description	n	And a los	a strange	at a Price	a second	Īw	/aterbody ID:		Date:
Project Name:		Waterbod			-		sbar Ol	0_0	3-30-16
ACP	Star Halling	ut	to St	The second s	Run			And the South of the South of the	Construction of the second states and
State:	County/Parish:			pany:		CONTRACTOR OF	Member Initials		
VA	Bath		E	EST		KIN	N, WV	Contraction and Contraction of the	, NW, NE
Tract Number(s):			1310-132000 - Unio 12609	est Milepo			Associated W		
	36 - 049		/	00.8	3		No	ne	
Survey Type: (check one)	Centerline	<u> </u>	Re-Route	Contrart Cel	Access Road	1 7 2 3 3 9 9 9 9	Dother:	·····································	SS ARE NO REAL
Physical Attribute	5	27.53.4		12.00	"我很多多问题"的"好"	1210230	Mestary She		
Stream Classification: (check one)	□Ephemera	11 C	Intermitter	nt	Perennial				
Waterbody Type: (check one)]River 🗆 Str	eam C	Ditch	🗆 Cana	I Other	:			
OHWM Width: 3 ft.	OHWM Indica (check all that apply			Clear line bank	□ Shelvin	g	©Wrested vegetation	□Scourir	staining
Height: 0.2 ft.	□Bent, r vegetatio	natted, or n	nissing 🗹	Wrack line	ELitter and debris	nd	CAbrupt plan community ch		characteristic change
N/AD Width of Waterbody - 1	op of Width	of Waterbo	ody - Toe o	f Slope W	idth of Waterb	ody - W	ater Edge to	Depth of Wate (Approx.)	ər:
Bank to Top of Bank:	to Toe	of Slope:		w	ater Edge:			March Charles	0.2 #
Ö ft.		2 ft.				3	ft.	N/A	<u>v</u>
		1	Section of	A CONTRACT OF A	AD ank height			Bank slope	the second states of the second
Sinuosity: (check one)	(Approx.)	velocity:		P	Right	1		Righ	
₪Straight	And a state	C	5_fps			statustication of the statustical state	ft.	Le	ft:
□Meanderi					Left:	3	ft.		10 degrees
	AND A REAL PROPERTY OF		Anatolice	and the second		VP CON	and the second second		的是非常不能的
Qualitative Attribu Water Appearance:	tes	1	States & Longer	A A CHARTER AND A CHARTER	6 16 16 7 16 17 28 10 18 T 4	opper-lawes			AND A ADDE AND A
(check one)	No water	Clear [Turbid	Shee on su	and the second sec	urface um	□Algal mats	□Other:	
(check all that apply)	Q	oulder 🗆	Cobble %	□ Gravel %		20		c □ Other:	
% of Substrate: _	%		70 .	70					and an and the second
Width of Riparian Zon	e: Vegetativ (check all that			Trees:		Sapli	ings/Shrubs:	Herbs	
20 ft		of Domin		6 in		2		NA	in.
N/ACI Dominant Bank Veget	(approx.)								
 Material characteries weblies with the city of the balance of the city of the		1.1	Ð	2	<i>C</i> 1				
Platanu Aquatic Habitats (ex s	ubmarried or emerge	d aquatic vé	detation, ove	mult rhanging ba	iflore. nks/roots, leaf pa	cks, larg	e submerged woo	d, riffles, deep po	ols):
1 Million and the result of the second state of the second stat									
Submerges Aquatic Organisms O	Vegetation	n, lea	+ pack	s, ril	tles		(CONTRACTOR DUTIES	
)		
Cadd.s	d (list):								
none								a dia tana	
Disturbances (ex lives		in waterbody	y, waste disc	harge pipes)	:				
Tributary is: (check one)	Natural		Artificia	l, man-mao	le D'Manij	pulated			
Stream Quality *:	- Hatara		Modera		Low		Turner In.		
and the set of the set of the set of		and the second			Shart offer a the support widek hard do as	and we wanted the	PROPERTY AND INCOMENDATION OF THE PARTY OF T	UNCOMPOSITION OF THE	

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Waterbody ID: 5bar 010-P 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 mais, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man. Notes: Waterbody Sketch (Include north arrow, centerline, distance from centerline, data point location, survey boundary, and IDs of associated features) culvert -P DO sharolo-A 0201 culvert = break between ephemeral and perennial e 1 Dar 0 D. õ P

Form Rev. 05/16/2014



Waterbody data point sbar010_p facing southeast upstream.



Waterbody data point sbar010_p facing northwest downstream.

Photo Sheet 1 of 4



Linear Waterbod	y Data Sheet				20 (20 HERE)	Charles and a star	AND HER REAL	MELLINE DE CO
Survey Descriptio	n	and Red Sol	a shirt and	C. S. Arcas de	har	aterbody ID:		Date:
Project Name:		Waterbody Na	1		2247135138 - Abbi	CONTRACTOR OF CONTRACTOR		3-31-16
ACP		unt	to s	tuart rur	A 11 11 26 10 10 10 10 10 10 10 10 10 10 10 10 10	sbarolo		and the state of the second second second
State:	County/Parish:		Company:		 rectisation/kitch 	Nember Initials:	Photos	
VA	Bath	1	ESI		Contraction of the second	. WV	CONSIST: Marchart & DO	N,N
Tract Number(s):			Nearest Mile	epost		Associated We		
36-049	1		100.	8		No	ne	
Survey Type:		1				Other:	and the second	
(check one)	Centerline	ØRe-F	Route	CAccess Road	CINER AND			
Physical Attribute					8.94 (250.2		S Colored Colored Street	Apple 25 July and a ready of the second
Stream Classification: (check one)	Ephemera	I 🗆 Inter	mittent	□Perennial				
Waterbody Type: (check one)	River Str	eam 🗆 Dito	ch □C	anal 🗆 Other	:			
OHWM Width:ft.	OHWM Indical (check all that apply		Clear lin on bank	ne 🗆 Shelvin	g	□Wrested vegetation	□Scourir	ng 🗆 Water staining
Height:ft.	□Bent, n vegetatio	natted, or missin n	ig ⊡Wrack li	ne DLitter a debris	nd	CIAbrupt plant community cha	inge	characteristic change
N/AA Width of Waterbody - 1 Bank to Top of Bank:	Top of Width of to Toe	of Waterbody - of Slope:	Toe of Slope	Width of Waterb Water Edge:	ody - W	ater Edge to	epth of Wate Approx.)	er:
ft.	-	ft.		N/ABE -	fi	r	NAX	ft.
Sinuosity:		velocity:		Bank height		E	Bank slope	at: 1
(check one)	(Approx.)			Right	L	ft.	Righ	12 45 degrees
	1		ps	Left:	1	Salar and the	Le	ft: 45 degrees
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Qualitative Attribu	ites				125.4	E 15 62 5 5 1 1 1 1 1 1	and the second	
Water Appearance: (check one)	No water	Clear 🗆 Turt		Provide state a state of the st	urface	□Algal C mats	Other:	
	Bedrock Bo	ulder E Cobl	ole E Grav	el 🗆 Sand	Silt/ c	lay 🗆 Organic	Other:	
(check all that apply)		1	% /	and the state of the second second second	98		%	
% of Substrate: _	%	_%		/0				
Width of Riparian Zon	e: Vegetative	CONTRACTOR AND	Tree		C Sanlir	ngs/Shrubs:	Herbs	
35 tt.	NO TO THE REPORT OF THE PARTY OF THE	of Dominants:	12			_in.	NA	in.
	(approx.)		real Transford					Contract of the spectrum of
Dominant Bank Veget					1	1		
Carya ovata	, Quercas	alba, P.	nus str	obus, Fest	uca	rubra wood	riffles, deep po	ools):
Aquatic Habitats (ex s	submerged or emerge	d aquatic végetatio	on, overhanging	banks/roots, lear pa	cks, large	Submerged wood		
none					Sec. 3	Section and the		
Aquatic Organisms O	bserved (list):							
nor	ne						Section Con	and the second second second
T&E Species Observe	ed (list):					and the second		
n	one							
Disturbances (ex. lives	bock access, manure	in waterbody, was	te discharge pip	es):			1	
run ac	ross main	stained	lawn	and along	roa	dside,	culvert	
Tributary is: (check one)	Natural		rtificial, man-r	/				
Stream Quality *:				/				
(check one)	High		loderate	Low		A STATE AND A STATE OF	in the second to	

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			Waterbody ID: Sbar 010- e
 High Quality: Natural ch roots, water color is clear disturbance by livestock of 	ar to tea-co	ral vegetation extends at least one or two active channel widths on each ored; no barriers to fish movement; many fish cover types available; div	side: banks stable and protected by
Moderate Quality: Altere or riparian vegetation on	ed channel e ly moderate	videnced by rip-rap; natural vegetation extends 1/3-1/2 of the active channe y compromised; banks moderately unstable; water color is cloudy, subme fish movement; fair aquatic habitat; minimum disturbance by livestock or n	arged objects covered with greenish
width on each side; lack o	of regenerati	n cutting or widening; rip rap and channelization excessive; natural vegetation on; filtering function severely compromised; banks unstable (eroding); wate surface sheen); heavy odor; severe barriers to fish movement; little to no	r color is muddy and turbid: obvious
Notes:			
	11 2.12 2.25		
Waterbody Sketch (In	clude north	arrow, centerline, distance from centerline, data point location, survey bound	lary, and IDs of associated features)
			7
culvert	*	5	1
21	dp	8	
		the sbar 010-p	and the second se
			perennial
<u></u>	load	Acat.	
	Loc	Property Area to between Pure	
		DP o	
	1-1		
	1		and the second second
Real managements	2		Acres and a second second

Form Rev. 05/16/2014



Waterbody data point sbar010_e facing east upstream.



Waterbody data point sbar010_e facing west downstream.

Photo Sheet 3 of 4



Waterbody data point sbar010_e facing north across bank.

Linear Waterbody Data Sheet		10.00 A 10.00 A 10.00 A 10.00			
Survey Description		and the second of	Waterbody ID:		Date:
Project Name:	Waterbody Name:	-	sbar 0	10_2	3-30-16
ACP	Ut to Stuar	the second data in the second data and the second second data and the second data and	Salar and the second second	the spectrum is a second se	And the second of the second of the
State: County/Parish:	Company		Crew Member Initial		
VA Bath	ES.	Ľ	KM, WV	HID THE MILENCE. I REMOVE SUPPORT	, NW, NE
Tract Number(s):	Nearest N	이렇게 아름다 사망하게 가지 않는 것 같아요. 그는 것 같아요. 것이는 아내	Associated V		
36-049	100	2.8	N	me	
Survey Type: (check one)	Re-Route	□Access Road	ElOther:		107/2007/2007/00
Physical Attributes			A CHARGE STREET		
Stream Classification: (check one)	I DIntermittent	Perennial			
Waterbody Type: (check one) □ River □ Stre	eam 🗹 Ditch 🗆	Canal D Other			
OHWM OHWM Indicat Width: 3 ft.			g 🛛 🖓 Wrested vegetation	□Scourin	staining
Q. L ft. vegetation	natted, or missing EWrac	k line ELitter ar debris	nd DAbrupt pla community c		characteristic change
N/ACI Width of Waterbody - Top of Width of	of Waterbody - Toe of Sic	pe Width of Waterb	ody - Water Edge to	Depth of Wate (Approx.)	er:
Bank to Top of Bank: to Toe	of Slope:	Water Edge:		A CONTRACTOR OF A	0.2 #
<u>Ö</u> ft	2_ft.		<u>3_ft.</u>	N/A	<u>~, ~</u> , .
		N/A Bank height		Bank slope	
(Approx.)	velocity:	Right		Righ	
⊠Straight	G fps		<u> </u>	Le	ft: degrees
		Left:	<u>3</u> _{ft.}		<u>/O</u> degrees
A DESCRIPTION OF THE PARTY OF T	No. Constanting of the				王王王王王王 王
Qualitative Attributes Water Appearance:	and the second sec	CALLER STRATE		Follow	Radia - Collection and
(check one) INo water IC	Clear 🗆 Turbid 🗆	Sheen ESu on surface sc	and the state of the second	COther:	
Substrate: Geneck all that apply) Substrate: Substra			PSilt/ clay □ Organ	ic Other:	
% of Substrate:%%	<u></u> %%	7070 .	/A		
Width of Riparian Zone: Vegetative	e Layers:			⊡ Herbs	
20 ft. Avg. DBH	of Dominants:	States and the second	Z Saplings/Shrubs:	NA	n. ·
N/A (approx.)				A STATE OF A MEMORY POINT	
Dominant Bank Vegetation (list):					
Platanus accide Aquatic Habitats (ex submerged or emerged	stalis, Rosa n	nultiflora	Service and the	- I silles deep po	de):
Aquatic Habitats (ex submerged or emerger	d aquatic végetation, overhang	ing banks/roots, leaf pag	cks, large submerged wo	ou, miles, ueep po	
Submerged Vegetation Aquatic Organisms Observed (list):	1 leaforchs	riffles	Section and the		
Aquatic Organisme Observed (list):	paces j	and the second second second	(and a second second second	
Aqualic Organisms Orserveu hay.			1		
			A share in a same second second second	Contract of an ended of the state of the	and the second
Cadd.s Fly T&E Species Observed (list):					
Cadd.s fly T&E Species Observed (list):	in waterbody, waste discharge	pipes):			
Cadd.s fly T&E Species Observed (list): MOne Disturbances (ex. livesbock access, manure l	In waterbody, waste discharge	pipes):			
Cadd.sfly T&E Species Observed (list): Mone Disturbances (ex. livesbock access, manure l	in waterbody, waste discharge	1	pulated		

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Waterbody ID: 5bar 010-P 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 mais, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man. Notes: Waterbody Sketch (Include north arrow, centerline, distance from centerline, data point location, survey boundary, and IDs of associated features) culvert -P DO sharolo-A 0201 culvert = break between ephemeral and perennial e 1 Dar 0 D. õ P

Form Rev. 05/16/2014



Waterbody data point sbar010_p facing southeast upstream.



Waterbody data point sbar010_p facing northwest downstream.

Photo Sheet 1 of 4



Linear Waterbod	y Data Sheet				20 (20 HERE)	Charles and a star	AND HER REAL	MELLINE DE CO
Survey Descriptio	n	and Red Sol	a hard a hard	C. S. Arcas de	har	aterbody ID:		Date:
Project Name:		Waterbody Na	1		2247135138 - A281	CONTRACTOR OF CONTRACTOR		3-31-16
ACP		unt	to s	tuart rur	A 11 11 26 10 10 10 10 10 10 10 10 10 10 10 10 10	sbarolo		and the state of the second second second
State:	County/Parish:		Company:		 rectisation/kitch 	Nember Initials:	Photos	
VA	Bath	1	ESI		Contraction of the second	. WV	CONSIST: Marchart & DO	N,N
Tract Number(s):			Nearest Mile	epost		Associated We		
36-049	1		100.	8		No	ne	
Survey Type:		1				Other:	and the second	
(check one)	Centerline	ØRe-F	Route	CAccess Road	CINER AND			
Physical Attribute					8.94 (250.2		S Colored Colored Street	Apple 25 July and a ready of the second
Stream Classification: (check one)	Ephemera	I 🗆 Inter	mittent	□Perennial				
Waterbody Type: (check one)	River Str	eam 🗆 Dito	ch □C	anal 🗆 Other	:			
OHWM Width:ft.	OHWM Indical (check all that apply		Clear lin on bank	ne 🗆 Shelvin	g	□Wrested vegetation	□Scourir	ng 🗆 Water staining
Height:ft.	□Bent, n vegetatio	natted, or missin n	ig ⊡Wrack li	ne DLitter a debris	nd	CIAbrupt plant community cha	inge	characteristic change
N/AA Width of Waterbody - 1 Bank to Top of Bank:	Top of Width of to Toe	of Waterbody - of Slope:	Toe of Slope	Width of Waterb Water Edge:	ody - W	ater Edge to	epth of Wate Approx.)	er:
ft.	-	ft.		N/ABE -	fi	r	NAX	ft.
Sinuosity:		velocity:		Bank height		E	Bank slope	at: 1
(check one)	(Approx.)			Right	L	ft.	Righ	12 45 degrees
	1		ps	Left:	1	Salar and the	Le	ft: 45 degrees
□Meanderi	ing N/A2			-		R.	COLORING PROVIDED	
Qualitative Attribu	ites				125.4	E 15 62 5 5 1 1 1 1 1 1	and the second	
Water Appearance: (check one)	No water	Clear 🗆 Turt		A restaurable in the second	urface	□Algal C mats	Other:	
	Bedrock Bo	ulder E Cobl	ole E Grav	el 🗆 Sand	Silt/ c	lay 🗆 Organic	Other:	
(check all that apply)		1	% /	and the state of the second second second	98		%	
% of Substrate: _	%	_%		/0				
Width of Riparian Zon	e: Vegetative	CONTRACTOR AND	Tree		C Sanlir	ngs/Shrubs:	Herbs	
35 tt.	NO TO THE REPORT OF THE PARTY OF THE	of Dominants:	12			_in.	NA	in.
	(approx.)		real Transford					Contract of the spectrum of
Dominant Bank Veget					1	1		
Carya ovata	, Quercas	alba, P.	nus str	obus, Fest	uca	rubra wood	riffles, deep po	ools):
Aquatic Habitats (ex s	submerged or emerge	d aquatic végetatio	on, overhanging	banks/roots, lear pa	cks, large	Submerged wood		
none					Sec. 3.	Section and the		
Aquatic Organisms O	bserved (list):							
nor	ne						Sector Con	and the second second second
T&E Species Observe	ed (list):					and the second		
n	one							
Disturbances (ex. lives	bock access, manure	in waterbody, was	te discharge pip	es):			1	
run ac	ross main	stained	lawn	and along	roa	dside,	culvert	
Tributary is: (check one)	Natural		rtificial, man-r	/				
Stream Quality *:				/				
(check one)	High		loderate	Low		A STATE AND A STATE OF	in the second to	

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			Waterbody ID: Sbar 010- e
 High Quality: Natural ch roots, water color is clear disturbance by livestock of 	ar to tea-co	ral vegetation extends at least one or two active channel widths on each ored; no barriers to fish movement; many fish cover types available; div	side: banks stable and protected by
Moderate Quality: Altere or riparian vegetation on	ed channel e ly moderate	videnced by rip-rap; natural vegetation extends 1/3-1/2 of the active channe y compromised; banks moderately unstable; water color is cloudy, subme fish movement; fair aquatic habitat; minimum disturbance by livestock or n	arged objects covered with greenish
width on each side; lack o	of regenerati	n cutting or widening; rip rap and channelization excessive; natural vegetation on; filtering function severely compromised; banks unstable (eroding); wate surface sheen); heavy odor; severe barriers to fish movement; little to no	r color is muddy and turbid: obvious
Notes:			
	11 2.12 2.25		
Waterbody Sketch (In	clude north	arrow, centerline, distance from centerline, data point location, survey bound	lary, and IDs of associated features)
			7
culvert	*	5	1
21	dp	8	
		the sbar 010-p	and the second se
			perennial
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	Loc	Property Area to between Pure	
		DP o	
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	1		and the second second
Real managements	2		Acres and a second second

Form Rev. 05/16/2014



Waterbody data point sbar010_e facing east upstream.



Waterbody data point sbar010_e facing west downstream.

Photo Sheet 3 of 4



Waterbody data point sbar010_e facing north across bank.

Open Waterbody Data Sheet

Survey Descrip	otion						
Project Name:		Waterbody Nam	ne:		Waterbody ID:	Date:	
ACP		YNNA	med PUNC	5	obar 001	3-30	0-16
State:	County:		mpany:		Member Initials:	Photos:	
AV	Bath		FSI	K	M, WV	SNW	
Fract Number(s):		Ne	arest Milepost:		Associated Wetland	ID(s):	7.46
36-01	49	na anti-anti-a	101		none		
Survey Type: (check one)	Centerlin		Route DA	ccess Road	□Other:		
Physical Attrib	utes						
Waterbody Type:	1			en euroden ent	Orbow D Othor		
(check one)	Stock Pond D Natura			npounament L		leas and faile and a	
lydrologic Regim	e:	Flooded 🗆 S	emipermanently Floo	oded 🗆 Sea	isonally Flooded	l Temporarily Flooded	
Height: > 4	OHWM Indi (check all that a		Clear line on bank	□Shelving	□Wrested vegetation	□Scouring	□Water staining
and permanent	_π. □Ben vegeta	t, matted, or miss ation	sing □Wrack line	□Litter and debris	d ⊟Abrupt plan community ch	t □Soil characteristic ange	c change
Depth of Water:		Bank height	(average):	and and states	Bank slope (ave	rage):	
	>1/_ft.		<u>ft</u> .			30 degrees	
N/A□					Sel Change and Serve		Si Mada
Substrate: (check all that apply) % of Substrate:	□ Bedrock □ E	Boulder 🗆 Cob	ble 🗆 Gravel [Silt/ clay	□ Other:	
Width of Riparian		AND A REAL PROPERTY AND A REAL	Trees:	Re	aplings/Shrubs:	1 Herbs	
5	(check all tha ft			<u> </u>	apings/oritubs.		
N/A□		of Dominants:	_12 _{in.}		in.	NA in.	
Dominant Bank V	(approx.) egetation (list):						
			~	1			
Acer rub	(ex: submerged or emerged a	s strobus	Carya Bi	nata	ced wood, riffles, deep pools,	etc.):	
	것 같은 생활하는 것 같은 것 같아요.						
aquatic	- vegetation ns Observed (list):	, leaf pr	acles		Andreas and a state of the stat		
				1			
Slucgi	erved (list):	alamander	s, leeche	s, large	mouth pass		
						-	
The Charles and the second second second	none					1	
Disturbances (ex:	livestock access, manur	e in waterbody, wa	ste discharge pipes):				
	icial Dond	stiel in the			S. Duff Street	Sec. Sec.	
Waterbody is: (check one)	Natura		l, man-made 🛛 🛛	Manipulated			
				mainpulateu			
Waterbody Qualit (check one)	ty*: □ High	Moderate	Low				
	- High		LILUW				

3bar 001 High Quality: Natural, natural bank vegetation around entire waterbody; banks stable and protected by roots; water color is clear to tea-colored; no 3 barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man. Moderate Quality: Altered by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or bank 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: 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: Waterbody Sketch (Include north arrow, centerline, distance from centerline, data point locations, survey boundary, and IDs of associated features) Sbaroly 09 Sbarol Bog DP Woor ook 0/005001 Y 560,013 608 Slow 0 3

Waterbody ID:

Environmental Field Surveys Open Water Point Photo Page



Open Waterbody obar001 facing south.



Open Waterbody obar001 facing northwest.

Photo Sheet 1 of 1