Survey Description	1							
Project Name:		Waterbody Na				Waterbody ID:		Date:
ATLANTIC COAST	PIPELINE	UNT TO LIC	KY CREEK		1	SBUL012		9/17/2014
State:	County:	•	Company:		Crew	Member Initials	s: Phot	os:
Virginia	Buckingham		W&C		WLN	И, RMS	100)-1280 TO 1283
Tract Number(s):	l .		Nearest Mile	post:	l	Associated W	etland ID(s):
09-060/061			195			NA		
Survey Type: (check one)	⊠Centerline	e □Re-F	Route	□ Access F	Road	□Other:		
Physical Attributes Stream Classification:	5							
(check one)	⊠Ephemera	al □Inter	mittent	□Perennia	al			
Waterbody Type: (check one)	River 🗵 Str	eam 🗆 Dito	:h □ Ca	nnal 🗆 C	Other:			
OHWM Width:	OHWM Indica (check all that apply		☐ Clear lin	e □Sh	elving	□Wrested vegetation	⊠Sco	uring □Water staining
Height: ft. N/A□	□Bent, r vegetatio	matted, or missin n	g ⊠Wrack lir	ne □Litt debri	er and s	□ Abrupt plar community ch		oil characteristic change
Width of Waterbody - T Bank to Top of Bank:		of Waterbody - of Slope:		Width of Wa		Water Edge to	Depth of W	/ater:
_4_ft.		<u>2_</u> ft.		N/A⊠	ft.		N/A⊠	ft.
Sinuosity: (check one) ☐Straight	Water (Approx.)	velocity:		Bank height Righ	nt: _ <u>1_</u> ft			ight: 30 degrees Left:
⊠Meanderir	ng N/A⊠			Le	ft			30 degrees
Qualitative Attribu	tes							
Water Appearance: (check one) ⊠	[]] No water □0	Clear □Turb		een [surface	□Surface scum	□Algal mats	□Other:	
	Bedrock □ Bo	oulder Cobb	le ⊠ Grave	el 🗆 Sand	⊠ Silt/	′ clay □ Organio	□ Other	
(check all that apply) % of Substrate:	<u>NA</u> % <u>NA</u>	%%	<u>5</u> %	<u>NA</u> %	<u>95</u> %	NA_%	<u>NA</u> %	
Width of Riparian Zone >100 ft N/A□	(check all that		[⊠] Trees: _12_in.		⊠ Sap _3_in.	lings/Shrubs:	⊠ Hei	tbs
Dominant Bank Vegeta LOBLOLLY PINE, H	,	ITE OAK, PO	PLAR, REI	O MAPLE,	CHRIST	MAS FERN, A	ATHYRIU	M
Aquatic Habitats (ex: su	bmerged or emerge	d aquatic vegetatio	n, overhanging l	oanks/roots, lea	af packs, larg	ge submerged wood	d, riffles, deep	pools):
Aquatic Organisms Ob NA	served (list):							
T&E Species Observed NA	(list):							
Disturbances (ex: liveston PLANTED PINE	ock access, manure i	n waterbody, waste	e discharge pipe	s):				
Tributary is: (check one)	⊠ Natural	□ Ari	ificial, man-ma	ade 🗆 M	anipulated			
Stream Quality ^a : (check one)	☐ High		derate	⊠ Lo				

Waterbody ID: SBUL012

^a 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:

DRY, HEADWATER EPHEMERAL STREAM

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



Waterbody point sbul012 facing West and downstream



Waterbody point sbul012 facing East and upstream



Waterbody point sbul012 facing North and across

Survey Description	1	_						
Project Name:		Waterbody Na				aterbody ID:		Date:
ATLANTIC COAST	PIPELINE	UNT TO PIT	MAN CREE	ΞK	S	BUL013		9/17/2014
State:	County:	1	Company:		Crew N	Member Initials	: Phot	os:
Virginia	Buckingham		W&C		WLM	, RMS	100)-1294 TO 1296
Tract Number(s):			Nearest Mile	post:		Associated W	etland ID(s):
09-067			196			NA		
Survey Type: (check one)	⊠Centerline	e □Re-F	Route	□Access Ro	ad	□Other:		
Physical Attributes Stream Classification:	5							
(check one)	Ephemera	al ⊠Inter	mittent	□Perennial				
Waterbody Type: (check one)	River ⊠ Str	eam 🗆 Dito	:h □ Ca	anal 🗆 Oth	er:			
OHWM Width:	OHWM Indica (check all that apply		☐ Clear lin	e □Shel\	ring	□Wrested vegetation	□Sco	uring ⊠Water staining
Height: ft. N/A□	□Bent, r vegetatio	matted, or missin on	g ⊠Wrack lir	ne ⊠Litter debris	and	□ Abrupt plan community ch		oil characteristic change
Width of Waterbody - T Bank to Top of Bank:		of Waterbody - of Slope:		Width of Wate Water Edge:	rbody - W	ater Edge to	Depth of W (Approx.)	ater:
_ <u>8</u> ft.		<u>3_</u> ft.		N/A⊠	ft.		N/A⊠	ft.
Sinuosity: (check one) ⊠ Straight	Water (Approx.)	velocity:		Bank height Right: Left:	_1_ft.			ight: 45_ degrees Left:
□Meanderir	ng N/A⊠			Leit.	<u>1</u> _ft.			45 degrees
Qualitative Attribu	tes							
Water Appearance: (check one)	[]] No water □0	Clear □Turb			Surface scum	□Algal l mats	□Other:	
	Bedrock □ Bo	oulder Cobb	le ⊠ Grave	el ⊠ Sand	⊠ Silt/ c	clay 🗆 Organic	: 🗆 Other	:
(check all that apply) % of Substrate:	NA_% NA_	% <u>NA</u> %	<u>5</u> %	<u>30</u> %	<u>65</u> %	<u>NA</u> %	<u>NA</u> %	
Width of Riparian Zone								
_>100_ft· N/A□	(check all that Avg. DBH (approx.)	of Dominants:	□ Trees: in.		⊠ Saplir _3_in.	ngs/Shrubs:	⊠ He	rbs
Dominant Bank Vegeta RUBUS, DOGWOO	,	.E, CHESTNI	JT OAK, SO	OURWOOD,	PINE, S	SUMAC, BRO	OOMSED	GE
Aquatic Habitats (ex: su SATURATED SANI			n, overhanging l	banks/roots, leaf p	acks, large	submerged wood	, riffles, deep	pools):
Aquatic Organisms Ob	served (list):							
T&E Species Observed	(list)•							
NA	(noy.							
Disturbances (ex: liveston CLEARCUT IN RIP.		n waterbody, waste	e discharge pipe	es):				
Tributary is: (check one)	⊠ Natural	□ Ar	ificial, man-ma	ade □ Man	ipulated			
Stream Quality ^a : (check one)	☐ High	⊠ Mo	oderate	⊠ Low				

Waterbody ID: SBUL013

Form Rev. 07/09/2014

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

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

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

Notes:

HEADWATER INTERMITTENT STREAM WITH LOGGING DEBRIS IN MANY LOCATIONS AND SKIDDER TRAIL ACROSS CHANNEL

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



Waterbody point sbul013 facing West and downstream



Waterbody point sbul013 facing East and upstream



Waterbody point sbul013 facing South and across

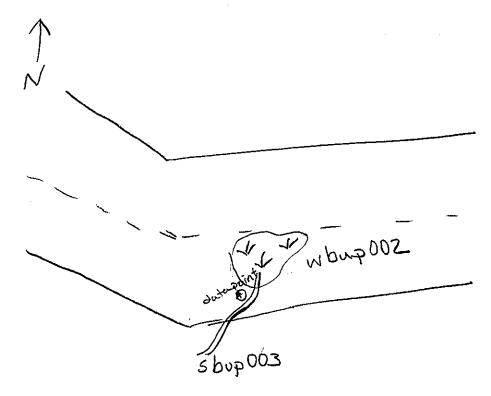
Linear Waterbody	Data Sneet		··		<u> </u>				
Survey Description									
Project Name:		Waterbody Nar	ne:	_		aterbody ID:	·	Di	ate:
ACY		471-	to Pitw	ion tree	0 8	56UP(10	3		5/28/15
State:	County/Parish:	•	Company:		Crew N	nitials:	P	hotos:	
VA	Buckin	gham	ESI		LK	2,RT	E	acing	E,W,S
Tract Number(s):			Nearest Milepo	st:	1	Associated We			
09-067			195(3	}b)	••	Mpn	p 0	02	
Survey Type: (check one)	□Centerline	Re-F	Route	☐Access Road	<u>.</u> ,	□Other:			
Physical Attributes Stream Classification:	Carlotte Commence					****			
(check one)	□Ephemera	ıl İ İnter	mittent	□Perennial					
Waterbody Type: (check one) □	River b Str	eam 🗆 Dito	ch 🛚 Cana	al □ Other	:				
OHWM Width: 3 ft.	OHWM Indicat (check all that appl)		X Clear line on bank	□Shelvin	g	□Wrested vegetation) Als	Scouring	□Water staining
Height: 1/2_ft.	□Bent, n vegetatio		ig □Wrack line	□Litter a debris	nd	□Abrupt plant community ch		⊒Soil cha	aracteristic change
Width of Waterbody - To Bank to Top of Bank:	op of Width of to Toe	of Waterbody - of Slope:	Toe of Slope W	/idth of Waterb /ater Edge:	ody - W		Depth o	f Water:	
<u>5</u> ft.	-	<u>3</u> ft.		- /A□	<u>\</u> f	ft.	N/A□		3_ft.
Sinuosity: (check one)	Water (Approx.)	velocity:	В	ank height			Bank sl		
□Straight	(Αρριοκ)	Z. Y	ips	Right:	3	ft.		Right:	96 degrees
V∭Meanderin	g N/A□			Left: —	<u>3</u>	_ft.		Left:	90_degrees
Qualitative Attribut	tes				:				
Water Appearance: (check one)	No water	, Clear □Turi			ırface :um	□Algal I	□Other:	:	_
	Bedrock 🗆 Be	oulder 🗆 Cob	ble 🔲 Gravel	X Sand	tX(Silt/o	clay 🗆 Organic	: 🗆 C	ther:	
(check all that apply) % of Substrate:	%	%	_%9	6 <u>70</u> %	30	%	6 <u> </u>	%	
Width of Riparian Zone	: Vegetativ	e Lavers:		 ·		<u> </u>			
50 ft.	(check all tha	•	人Trees:	-	/ /	ings/Shrubs: in.		Herbs VA-in.	
N/A 🗆	(approx)					_			<u> </u>
Dominant Bank Vegeta らかいんメ ィ	otondi-	folia, L	iguidan	ibar St	yra	citius, t	roly	51il	hum tichoides
Aquatic Habitats (ex: su	ibmerged or emerge	ed aquatic vegetati	on, overhanging b	anks/roots, leaf pa	cks, large	e submerged wood	t, riffles, o	deep pools	5):
overhang	ing 100	13/bar	145						
Aquatic Organisms ob		1							
none c	observe	id .							
T&E Species Observed		. 1							
_	bserve		"						
Disturbances (ex: livesto	\sim	in waterbody, was つんら十	ste discharge pipes	s):					
Tributary is: (check one)	Natural		Artificial, man-ma	ıde □ Mani	pulated				
Stream Quality *: (check one)	□ High		Moderate	□ Low					
L									

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 sbup003 facing east upstream.



Waterbody sbup003 facing west downstream.



Waterbody sbup003 facing south across bank.

Survey Type: Goundy Farith: Waterbody Type: Goundy Farith: Waterbody Type: Goundy Farith: Goundy Farith: Fracing S, N, E Resocited Wettind ID(6): Mare Name: Milepost: Fracing S, N, E Resocited Wettind ID(6): Mare Name: Milepost: Fracing S, N, E Resocited Wettind ID(6): Mare Name: Milepost: Generatine Milepost: Generatine Milepost: Generatine Milepost: Generatine Milepost: Generatine Milepost: Generatine Milepost: Generatine Milepost: Mare Solution Mileston: Generatine Milepost: Milepost: Milepost: Milepost: Milepost: Milepost: Milepost: Generatine Milepost: Generatine Milepost: Generatine Milepost: Generatine Milepost: Generatine Milepost: Generatine Milepost: Generatine Milepost: Milepost: Milepost: Milepost: Milepost: Milepost: Milepost: Milepost: Milepost: Milepost: Milepost: Generatine Milepost: Generatine Milepost: Generatine Milepost: Generatine Milepost: Generatine Milepost: Generatine Milepost: Generatine Milepost: Generatine Milepost: Generatine Milepost: Milepost: Milepost: Milepost: Milepost: Milepost: Milepost: Milepost: Milepost: Generatine Milepost: Generatine Milepost: Generatine Milepost: Generatine Milepost: Generatine Milepost: Generatine Milepost: Generatine Milepost: Generatine Milepost: Generatine Milepost: Generatine Milepost: Milepost:	Linear Waterbody Data She	et	<u> </u>		
Stufe: A C P Stufe: OH BOULMING HAM BOULMING HAM EST Tract Number(s): OP - 074. AP Contentine	Make the first are seen to the	44	<u> </u>		
State: Y Boulding ham EST CountyParish: Company: LP FT Racing S, N, E Track Number (EST Nearest Milliepost LP FT Racing S, N, E Track Number (ST Nearest Milliepost LP FT Racing S, N, E Track Number (ST No Nearest Milliepost LP FT Racing S, N, E Track Number (ST No No No No No No No N	Project Name:	1 4		Waterbody ID:	
State: CountyPartait: ACT	HOWEDEN (recel	SOUPUUZ	5/2//18	
Tracet Number(s): OP - D7 4, A C OP - D7 4,	State: County/Parish		1		
Og - 074 AR Og - 074 A					
Cortecting Cortecting Cortecting Cortecting Cortecting Cortecting Cortecting Cortecting Cortecting Cortection Cor		1 •			
Physical Attributes Context case Constitution Survey Type: (check one)	rline VRe-Route	□Access Road	□Other:		
Stream Classification: Consection Continue Conti	Physical Attributes				
Waterbody Type: Conceived with Con	Stream Classification:		J		
Clear cline Clear Context Clear cline Clear clin	(check one) □Ephen	neral Intermittent	Perennial		
Width: \$\frac{\text{H}}{\text{eight}}\$ \frac{\text{Interval eight/y}}{\text{left}}\$ \frac{\text{Clear line}}{\text{on bark}}\$		Stream 🗆 Ditch 🗔 Ca	anal 🗆 Other:		
N/A	Width: (check all that	<i>apply)</i> ∑∭ Clear lìn	e □Shelving		Scouring Water staining
Width of Waterbody - Top of Bank top of Bank to Top of Bank to Top of Bank to Top of Bank to Top of Bank to Top of Bank to Top of Bank to Top of Bank to Top of Bank to Top of Bank to Top of Bank to Top of Bank to Top of Bank top of Bank to Top of Bank to Top of Bank to Top of Bank to Top of	ft. veget				□Soil characteristic change
Sinuosity: Sinuosity: Water velocity: Bank height Bank slope Right: 70 degrees	Width of Waterbody - Top of Wid		Width of Waterbody	- Water Edge to Depti	
Sinuosity: Water velocity: Bank height Right: TO degrees Left: TO Left: Left: Left: TO Left: L	Bank to Top of Bank: to 1	oe of Slope:	Water Edge:	(Approx	u)
Straight Straight	<u> </u>	<u>_</u> t.	N/A□		ft.
Straight			Bank height	Bank	slope
Qualitative Attributes Water Appearance: Check one)		1	Right: 4		- 111
Water Appearance: (check one)	Meandering N/A	 ,	Left: 4	r. ft.	Left: 77
Water Appearance: (check one)	Onelitativa Attailmean				
Check one)	<u> </u>	· · · · · · · · · · · · · · · · · · ·	r 1	•	
Coheck all that apply % of Substrate:	(check one) No water				er.
Width of Riparian Zone: Vegetative Layers: (check all that apply) ATrees: Loop ft. Ayg. DBH of Dominants: Ib in. Loop in. Ayg. DBH of Dominants: Ib in. Loop in. Loop ft. Ayg. DBH of Dominants: Ib in. Loop in. Lo	Substrate: 🗀 Bedrock 🗆	Boulder Cobble Grav	el ∭X Sand □ Si	ilt/ clay □ Organic □	Other:
DO ft. (check all that apply) Avg. DBH of Dominants: X Trees: X Saplings/Shrubs: X Herbs In. In. In. In. In. In. In.	The second of th	% <u>3D % 3D</u>	<u>, 40, </u>	%%	%
Avg. DBH of Dominants:	Width of Riparian Zone: Veget	ative Layers:			
Dominant Bank Vegetation (list): I fex opala, Pinus taeda, Poly stichum acrosticho ides Aquatic Habitats (ex. submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): eaf packs, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): Aquatic Organisms Observed (list): None observed	IVO ft. Avg. c	DBH of Dominants:	s: X Sa _in	aplings/Shrubs:in.	\ .
Thex opaca, Pinus taeda, Polystichum acrostichoides Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): Leaf packs, overhanging banks/roots Leaf packs, large submerged wood, riffles, deep pools): Aquatic Organisms Observed (list): None observed	Dominant Bank Vegetation (list):	·	 		
leaf packs, overhanging banks roots Aquatic Organisms Observed (list): None observed T&E Species Observed (list): None observed Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): LYDSS & SMAIL POWENTINE CASEMENT Tributary is: (check one) X Natural Artificial, man-made Manipulated Stream Quality *:	Itex opaca, P	inus taeda, f	oly stichum	acrostichoio	les
Aquatic Organisms Observed (list): NDNE DDSENVED T&E Species Observed (list): NDNE DDSENVED Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): LNDSS SMAIL POWENTINE CASEMENT Tributary is: (check one) X Natural Artificial, man-made Manipulated Stream Quality *:	1 1	<u> </u>			s, deep pools):
None observed T&E Species Observed (list): None observed Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): LYDSS & SMAIL POWENTINE EASEMENT Tributary is: (check one) X Natural Artificial, man-made Manipulated Stream Quality *:	1 ' - '		WILE 1100		
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): LYDSS & SMAIL POWENTINE EASEMENT Tributary is: (check one) X Natural Artificial, man-made Manipulated Stream Quality *:	1	red			
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): LYDSS & SMAIL POWENTINE EASEMENT Tributary is: (check one) X Natural Artificial, man-made Manipulated Stream Quality *:	T&E Species Observed (list):				
Tributary is: (check one) Stream Quality:		med.			
Tributary is: (check one) Natural □ Artificial, man-made □ Manipulated Stream Quality *:	Disturbances (ex: livestock access, ma				· · · · · · · · · · · · · · · · · · ·
(check one) Natural	Unosses smi	all powerling	ne euse	ement	
Stream Quality *:		ural ☐ Artificial, man-r	made ☐ Manipulat	ed	
(check one) Thinh M Madamta Dlaw	Stream Quality :	2/			

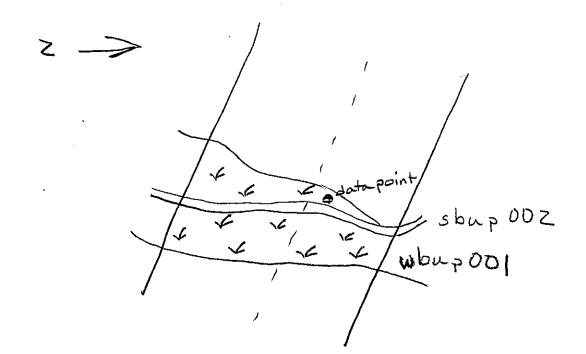
^a High Quality: Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance 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 sbup002 facing south upstream.



Waterbody sbup002 facing north downstream.



Waterbody sbup002 facing east across bank.

Linear waterbod	y Data Sneet	· · · · · · · · · · · · · · · · · · ·						,
Survey Description	<u>1</u>			/ <u>_</u>	·		<u> د </u>	
Project Name:		Waterbody Na		_	Waterbody ID:			te:
トトレト		4NT to	Hoeseb	IEN CLEOK	. sbup (10!		5/27/15
State:	County/Parish:		Company:		Crew Member Initia	als:	Photos:	
VA	Buckina	ham	E6I		LRIRT		Facing	5, E, W
Tract Number(s):)	Nearest Mile	post:	Associated	Wetland	iD(s):	
69-07	1.AR		195.7(7b)	non	و		
Survey Type: (check one)	□Centerline	Re-I	Route	☐Access Road	□Other:			
Physical Attributes Stream Classification:								6 24 26 36
(check one)	□Ephemera	al Dinte	rmittent	□Perennial				
Waterbody Type: (check one)	River Str	eam □ Dit	ch ☐ Ca	anal 🗆 Other:	·			
OHWM Width: 3 ft.	OHWM Indica (check all that appl	tor: ')	Clear lin	ie □Shelving	g □Wrested vegetation		□Scouring	□Water staining
Height:ft.	□Bent, r vegetatio	natted, or missir n	ng XWrack lin	ne □Litter ar debris	d □Abrupt p community		□Soil cha	racteristic change
Width of Waterbody - T			Toe of Slope		ody - Water Edge to		of Water:	
Bank to Top of Bank:	to loe	of Slope:		Water Edge:	3	(Арргох	·, /	1
ft.	-	ft.		N/A□ —	<u> </u>	N/A□	, <u> </u>	ft.
Sinuosity:		velocity:		Bank height		Bank	slope	
(check one)	(Approx)	/ \		Right:	Ч.		Right:	laD.
.,		<u> </u>	fps	Left:			Left:	degrees
Meanderi	ng N/A□			_	<u> </u>		_	<u>VU</u> degrees
Qualitative Attribu	tes							
Water Appearance: (check one)	No water)∑	Clear □Tur			rface □Algal um mats	□Oth	er:	
Substrate: E (check all that apply) % of Substrate:	Bedrock □ B	oulder 🗆 Cob	ble ໘Gravi _% <u>ID</u>	el 🛛 Sand _%	Silt/ clay □ Orga	anic 🗆	Other:	
Width of Riparian Zone	e; Vegetativ (check all tha	•	Trees	s: 1	Saplings/Shrubs:	· · · · · · · · · · · · · · · · · · ·	Herbs	
N/A 🗆	(approx.)	of Dominants:		_in	13_in.	-	<u>NA-</u> in.	
Dominant Bank Vegeta ACEC YVY	1	-iriod	endro	on tulip	ifera			
Aquatic Habitats (ex: s	ubmerged or emerge	ed aquatic vegetati	on, overhanging	banks/roots, leaf pad	cks, large submerged v	vood, riffle:	s, deep pools)	i.
Aquatic Organisms Ol	oserved (list):				. .		-	
none		red		٥				
T&E Species Observe	d (list):							
none 1	obsen	red			/			
Disturbances (ex: lives	tock access, manure	in waterbody, was	ste discharge pip	pes):	•			
toreste	<u>d</u> ed,	ge n	ear	clear	<u>cut</u>			
Tributary is: (check one)	Natura		Artificial, man-r	nade □ Manij	oulated			
Stream Quality *:								
(check one)	□ High)	Moderate	□ Low				

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)

v A

alata point Sbup 00)



Waterbody sbup001 facing east upstream.



Waterbody sbup001 facing west downstream.



Waterbody sbup001 facing south across bank.

Survey Description	n							
Project Name:		Waterbody Nar				aterbody ID:		Date:
ATLANTIC COAST	PIPELINE	UNT TO HO	RSEPEN C	REEK	S	BUL014		9/19/2014
State:	County:		Company:		Crew N	Member Initials	: Ph	otos:
Virginia	Buckingham		W&C		WLM	, RMS	10	00-1350 TO 1352
Tract Number(s):	1		Nearest Mile	post:		Associated W	etland ID	(s):
09-076			198			NA		
Survey Type: (check one)	⊠Centerline	e □Re-F	Route	□ Access Roa	ıd	□Other:		
Physical Attributes Stream Classification:	S							
(check one)	Ephemera	al ⊠Inter	mittent	□Perennial				
Waterbody Type: (check one)	River ⊠ Str	eam 🗆 Dito	h 🗆 Ca	anal 🗆 Othe	er:			
OHWM Width:	OHWM Indica (check all that apply		⊠ Clear lin on bank	e ⊠Shelvi	ng	⊠Wrested vegetation	□So	couring
Height: ft. N/A□	□Bent, r vegetatio	natted, or missin n	g □Wrack lir	ne □Litter : debris	and	☐ Abrupt plan community ch		Soil characteristic change
Width of Waterbody - T Bank to Top of Bank:		of Waterbody - ⁻		Width of Water Water Edge:	body - W	ater Edge to	Depth of (Approx.)	Water:
5_ ft.		3_ft.		N/A□	_2_ft.		N/A□	<u>0.2</u> ft.
Sinuosity: (check one) ⊠ Straight	Water (Approx.)	velocity:0.3fps		Bank height Right: Left:	_1_ft.		Bank slo	pe Right:30_ degrees Left:
□Meanderir	ng N/A□				_1_ft.			30 degrees
Qualitative Attribu	tes							
Water Appearance: (check one)	[]] No water ⊠0	Clear □Turb			urface cum	□Algal l	□Other:	
	Bedrock □ Bo	ulder 🗵 Cobb	le ⊠ Grave	el 🗆 Sand	⊠ Silt/ c	lay 🗆 Organic	⊃ Oth	er:
(check all that apply) % of Substrate:	<u>NA % NA </u>	% <u>15</u> %	<u>10</u> %	<u>NA</u> %	<u>75</u> %	<u>NA</u> %	<u>NA</u> %	6
Width of Riparian Zone >100 ft N/A□	(check all that		[⊠] Trees: _10_in.		⊠ Saplir _2_in.	ngs/Shrubs:	⊠ H	lerbs
Dominant Bank Vegeta PINE, RED MAPLE	. ,	AR, BLACK (CHERRY, C	EERTONGU	E, ATH	YRIUM, EUI	PATORI	UM SPP.
Aquatic Habitats (ex: su COBBLE, SMALL R					acks, large	submerged wood	I, riffles, dee	ep pools):
Aquatic Organisms Ob NA	served (list):							
T&E Species Observed NA	(list):							
Disturbances (ex: livesto LOGGING IN NEAF		•	e discharge pipe	es):				
Tributary is: (check one)	Natural	☐ Art	ificial, man-ma	ade □ Mani	pulated			
Stream Quality ^a : (check one)	☐ High	⊠ Mo	derate	□ Low				

Waterbody ID: SBUL014

Form Rev. 07/09/2014

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

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

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

Notes:

HEADWATER INTERMITTENT STREAM: DIVERSE FORB COMMUNITY ALONG STREAM: SEEPY STREAMBANKS

Waterbody Sketch (Include north arrow, centerline, distance from centerline, data point location, survey boundary, and IDs of associated features) Foreste 5BUL014 clearch



Waterbody data point sbul014 facing South and upstream



Waterbody data point sbul014 facing North and downstream



Waterbody data point sbul014 facing East and across

Survey Description	1							
Project Name:		Waterbody Na				aterbody ID:		Date:
ATLANTIC COAST	PIPELINE	UNT TO HO	RSEPEN C	REEK	S	BUL015		9/19/2014
State:	County:		Company:		Crew N	Member Initials	: P	Photos:
Virginia	Buckingham		W&C		WLM,	, RMS		100-1367 TO 1369
Tract Number(s):			Nearest Mile	post:		Associated W	etland I	D(s):
09-076			198			WBUL005		
Survey Type: (check one)	⊠Centerline	e □Re-F	Route	□Access Road	d	□Other:		
Physical Attributes Stream Classification:	5							
(check one)	□Ephemera	al □Inter	mittent	⊠Perennial				
Waterbody Type: (check one)	River ⊠ Str	eam 🗆 Dito	:h □ Ca	anal 🗆 Other	7			
OHWM Width: <u>6</u> ft.	OHWM Indica (check all that appl		⊠ Clear lin on bank	e ⊠Shelvir	ng	□Wrested vegetation		Scouring
Height: _1_ft. N/A□	⊠Bent, r vegetatio	matted, or missin on	g □Wrack liı	ne □Litter a debris	nd	☐ Abrupt plan community ch		⊠Soil characteristic change
Width of Waterbody - T Bank to Top of Bank:		of Waterbody -		Width of Waterb Water Edge:	ody - W	ater Edge to	Depth o	of Water:
_ <u>_11_f</u> t.		<u>6</u> ft.			_3_ft.		N/A□	<u>1.5</u> ft.
Sinuosity: (check one) ☐ Straight	Water (Approx.)	velocity:1_fps		Bank height Right: Left:	2.5_ft.		Bank sl	ope Right: 80 degrees Left:
⊠Meanderin	ng N/A□			20111	_1_ft.			10 degrees
Qualitative Attribu	tes							
Water Appearance: (check one)	[]] No water ⊠0	Clear □Turb	-		rface um	□Algal mats	□Other:	
(check all that apply)	Bedrock □ Bo	oulder ⊠ Cobb % <u>30</u> %	le ⊠ Grave		□ Silt/ c	lay ⊠ Organio	: □ O _NA	
Width of Riparian Zone								
>100 ft· N/A□	(check all that	•	⊠ Trees: _10_in.		⊠ Saplir _2_in.	ngs/Shrubs:		Herbs
Dominant Bank Vegeta BEECH, PINE, RED	• /	IYRIUM, CAR	REX, ASTE	R				
Aquatic Habitats (ex: su RIFFLES, POOLS,		, ,		•		· ·	, riffles, d	leep pools):
Aquatic Organisms Obs FISH, EPT	served (list):							
T&E Species Observed NA	(list):							
Disturbances (ex: liveston LOGGING IN NEAF		•	e discharge pipe	es):				
Tributary is: (check one)	Natural	□ Art	ificial, man-m	ade 🗆 Manip	ulated			
Stream Quality ^a : (check one)	⊠ High	□ Mc	oderate	□ Low				

Waterbody ID: SBUL015

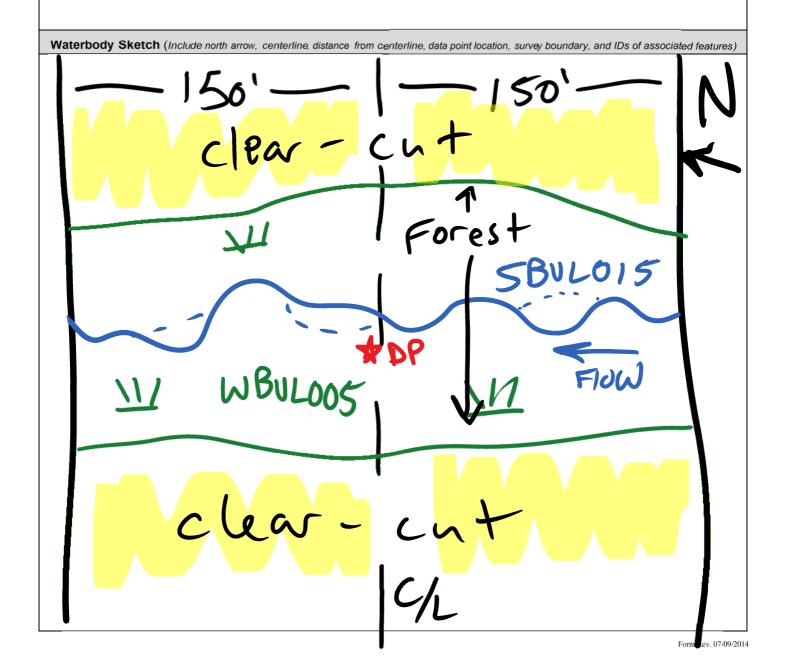
^a **High Quality:** Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance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

HIGH QUALITY PERENNIAL STREAM; SOME BRAIDING AND SEEPAGE AREAS; DIVERSE FORB COMMUNITY





Waterbody data point sbul015 facing South and upstream



Waterbody data point sbul015 facing North and downstream



Waterbody data point sbul015 facing East and across

Survey Description	n							
Project Name:		Waterbody Nai				aterbody ID:		Date:
ATLANTIC COAST	PIPELINE	UNT to Willis	River		S	BUL004		9/9/2014
State:	County:	1	Company:		Crew N	lember Initials	: Phot	tos:
Virginia	Buckingham		W&C		WLM	, RMS	100)-1072 TO 1074
Tract Number(s):			Nearest Mile	post:		Associated W	etland ID(s):
09-080			199			NA		
Survey Type: (check one)	⊠Centerline	e □Re-F	Route	□Access Roa	ad	□Other:		
Physical Attributes Stream Classification:	S							
(check one)	⊠Ephemera	al □Inter	mittent	□Perennial				
Waterbody Type: (check one)	River ⊠ Str	ream 🗆 Dito	h □ Ca	anal 🗆 Oth	er:			
OHWM Width: 2 ft.	OHWM Indica (check all that apply		☐ Clear line	e □Shelv	ing	⊠Wrested vegetation	⊠Sco	uring □Water staining
Height: ft. N/A□	⊠Bent, r vegetatio	matted, or missin on	g ⊠Wrack lir	ne ⊠Litter debris	and	☐ Abrupt plan community ch		oil characteristic change
Width of Waterbody - T Bank to Top of Bank:		of Waterbody - of Slope:	Toe of Slope	Width of Water Water Edge:	body - W	ater Edge to	Depth of W (Approx.)	/ater:
_4_ft.		ft.			f	t.	N/A⊠	ft.
Sinuosity: (check one) ☐Straight	Water (Approx.)			Bank height Right:	<u>2_</u> ft.			ight:50_ degrees Left:
⊠Meanderin	ng N/A⊠			Lore	<u>2</u> ft.			50 degrees
Qualitative Attribu	tes							
Water Appearance: (check one)	[]] No water □0	Clear □Turb			Surface	□Algal mats	□Other:	
	Bedrock □ Bo	oulder Cobb	le 🗆 Grave	el 🗆 Sand	⊠ Silt/ c	lay 🗆 Organic	: 🗆 Othei	r:
(check all that apply) % of Substrate:	<u>NA </u> % <u>NA </u>	% <u>NA</u> %	<u>NA</u> %	<u>NA</u> %	<u>100</u> %	<u>NA</u> %	<u>NA</u> %	
Width of Riparian Zone								
_>100_ft N/A□	(check all that Avg. DBH (approx.)	of Dominants:	⊠ Trees: _12_in.		⊠ Saplir _2_in.	ngs/Shrubs:	⊠ He	rbs
Dominant Bank Vegeta RED MAPLE, CEDA	• •	D, SMILAX						
Aquatic Habitats (ex: su	bmerged or emerge	d aquatic vegetatio	n, overhanging b	panks/roots, leaf p	acks, large	submerged wood	, riffles, deep	pools):
Aquatic Organisms Ob	served (list):							
NA								
T&E Species Observed	(list):							
Disturbances (ex: livesto	ock access, manure i	in waterbody, waste	e discharge pipe	s):				
Tributary is: (check one)	Natural	□ Art	ificial, man-ma	ade □ Man	ipulated			
Stream Quality ^a : (check one)	☐ High	□ Mc	derate	⊠ Low				

Waterbody	ID
SBUL004	

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

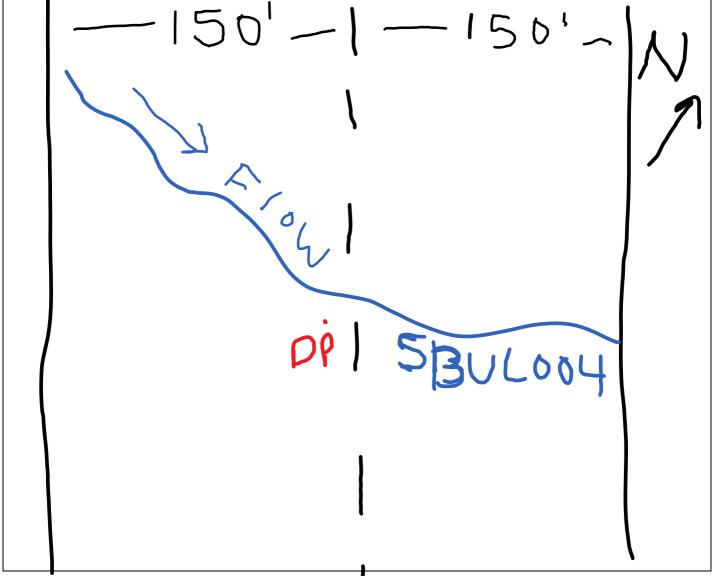
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate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

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

Notes:

HEADWATER EPHEMERAL

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





Waterbody point sbul004 facing West and upstream



Waterbody point sbul004 facing Northeast and downstream



Waterbody point sbul004 facing North and across

Survey Description	1							T-
Project Name:		Waterbody Nai				aterbody ID:		Date:
Atlantic Coast Pipeli	ne	UNT to Willis	River		sl	oul003		9/8/2014
State:	County:		Company:		Crew N	Member Initials	: P	Photos:
_	Buckingham		W&C		RS, V			100-1063 to 1065
Tract Number(s):			Nearest Mile	epost:		Associated W	etland l	D(s):
09-082 and 083			199			wbul002f		
Survey Type: (check one)	⊠Centerline	□Re-F	Route	□Access Road	<u> </u>	□Other:		
Physical Attributes Stream Classification:	3							
(check one)	□Ephemera	ıl □Inter	mittent	⊠Perennial				
Waterbody Type: (check one)	River ⊠ Str	eam 🗆 Dito	:h □ Ca	anal 🗆 Other	·			
OHWM Width: <u>8</u> ft.	OHWM Indicat (check all that apply		⊠ Clear lir on bank	ne ⊠Shelvin	g	⊠Wrested vegetation	\boxtimes :	Scouring
Height: _1_ft. N/A□	⊠Bent, n vegetatio	natted, or missin n	g ⊠Wrack li	ne ⊠Litter ar debris	nd	☐ Abrupt plan community ch		□Soil characteristic change
Width of Waterbody - T Bank to Top of Bank:		of Waterbody - of Slope:	Toe of Slope	Width of Waterb	ody - W	ater Edge to	Depth o	of Water:
_ <u>10_</u> ft.	_	_ <mark>7_</mark> ft.		N/A□	<u>6</u> ft.		N/A□	<u>0.5-2.5</u> ft.
Sinuosity: (check one) ☐Straight	(Approx.)	/elocity: 1.5fps	ı	Bank height Right: Left:	_3_ft.		Bank sl	ope Right:85_ degrees Left:
⊠Meanderin	14//.			_	<u>2.75_</u> ft			_70_ degrees
Qualitative Attribut	tes							
Water Appearance: (check one)	No water ⊠C	Clear □Turb	-		rface um	□Algal [mats	□Other:	
(check all that apply)	Bedrock □ Bo		le ⊠ Grave	el ⊠ Sand □ _65_%	⊠ Silt/ c	elay □ Organic <u>NA</u> %	□ O _NA	
Width of Riparian Zone >100 ft N/A□	(check all that		⊠ Trees. _6_in.		⊠ Saplir _2_in.	ngs/Shrubs:	×	Herbs
Dominant Bank Vegeta	tion (list):							
Sycamore, red map	e, black gum,	microstegium	ı, jewelwee	ed, st. johnswor	rt, fern	S		
Aquatic Habitats (ex: su	bmerged or emerged	l aquatic vegetatio	n, overhanging	banks/roots, leaf pac	ks, large	submerged wood	, riffles, d	leep pools):
Deep pools, riffles, I								
Aquatic Organisms Obs	served (list):							
Water striders, minn	ows, frogs, sto	nefly, mayfly, l	peetle					
T&E Species Observed	(list):							
none								
Disturbances (ex: livesto	ck access, manure i	n waterbody, waste	discharge pipe	es):				
none								
Tributary is: (check one)		□ Art	ificial, man-m	ade 🗆 Manip	ulated			
Stream Quality ^a : (check one)	⊠ High	Mc	oderate	□ Low				

Waterbody	ID
sbul003	

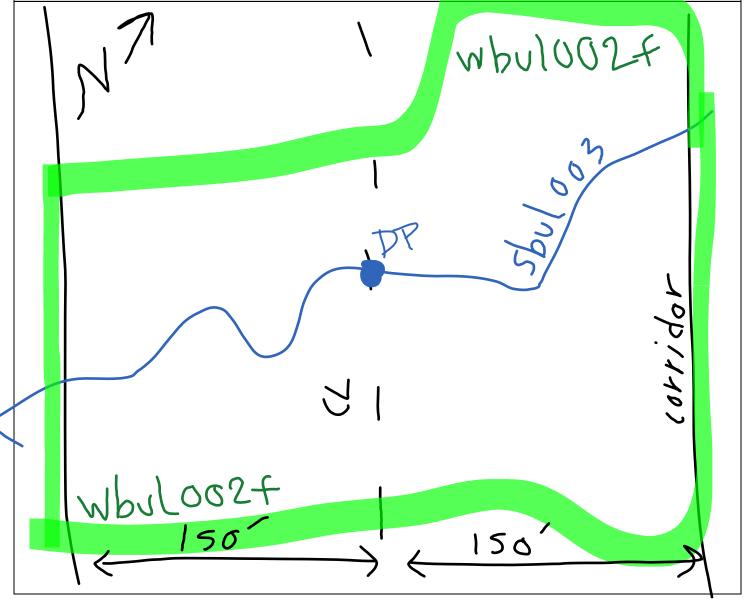
^a High Quality: Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance 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 data point sbul003 facing northeast, upstream



Waterbody data point sbul003 facing southwest, downstream



Waterbody data point sbul003 facing across

Survey Description	า							
Project Name:		Waterbody Nai	ne:		w	aterbody ID:		Date:
Southeast Reliability	/	UNT to Willis	River		st	oul002		9/8/2014
State:	County:		Company:		Crew N	lember Initials	: Photo	s:
	Buckingham		W&C		RS, W			1035 to 1037
Tract Number(s):			Nearest Mile	post:		Associated W	etland ID(s):	
09-083 Survey Type:			199			wbul001		
(check one)	⊠Centerline	Re-F	Route	□Access Road		□Other:		
Physical Attributes Stream Classification:	3							
(check one)	Ephemera	ıl □Inter	mittent	⊠Perennial				
Waterbody Type: (check one)	River Str	eam 🗆 Dito	ch □ Ca	anal 🗆 Other:				
OHWM Width: _4_ft.	OHWM Indica (check all that apply		⊠ Clear lin on bank	e ⊠Shelvin	g	⊠Wrested vegetation	⊠Scou	ring □Water staining
Height: 1_ft. N/A□	□Bent, n vegetatio	natted, or missin n	g ⊠Wrack lii	ne ⊠Litter ar debris	nd	□Abrupt plan community ch		I characteristic change
Width of Waterbody - T Bank to Top of Bank:		of Waterbody - of Slope:	Toe of Slope	Width of Waterbo	ody - W		Depth of Wa	ter:
<u>8</u> ft.		<u>4_</u> ft.			<u>3</u> _ft.		N/A□	<u>0.5</u> ft.
Sinuosity: (check one) ☐Straight	Water (Approx.)	velocity:0-2fps	;	Bank height Right:	_3_ft.		Bank slope Rig	nht:60_ degrees
⊠Meanderir	ng N/A□				<u>3</u> ft.		_	45_ degrees
Qualitative Attribu	tes							
Water Appearance: (check one)	No water ⊠0	Clear □Turb	-	een □Sur surface scu		□Algal [mats	□Other:	
(check all that apply)	Bedrock ⊠ Bo	ulder ⊠ Cobb 15_%	le ⊠ Grave		⊠ Silt/ c 35_%	lay □ Organic <u>NA</u> %	Other:	
Width of Riparian Zone								
_>100_ft· N/A□	(check all that Avg. DBH (approx.)	apply) of Dominants:	⊠ Trees: _ <u>12</u> _in.		☑ Saplin <u>3</u> in.	ngs/Shrubs:	⊠ Herb	S
Dominant Bank Vegeta Maple poplar sweet	, ,							
Aquatic Habitats (ex: su Riffle/pool, woody d					ks, large	submerged wood,	, riffles, deep p	ools):
Aquatic Organisms Ob	served (list):							
T&E Species Observed	(list):							
none								
Disturbances (ex: livesto	ock access, manure i	n waterbody, waste	e discharge pipe	s):				
none								
Tributary is: (check one)	⊠ Natural	Ari	ificial, man-m	ade 🗆 Manipı	ulated			
Stream Quality ^a : (check one)	⊠ High		oderate	□ Low				

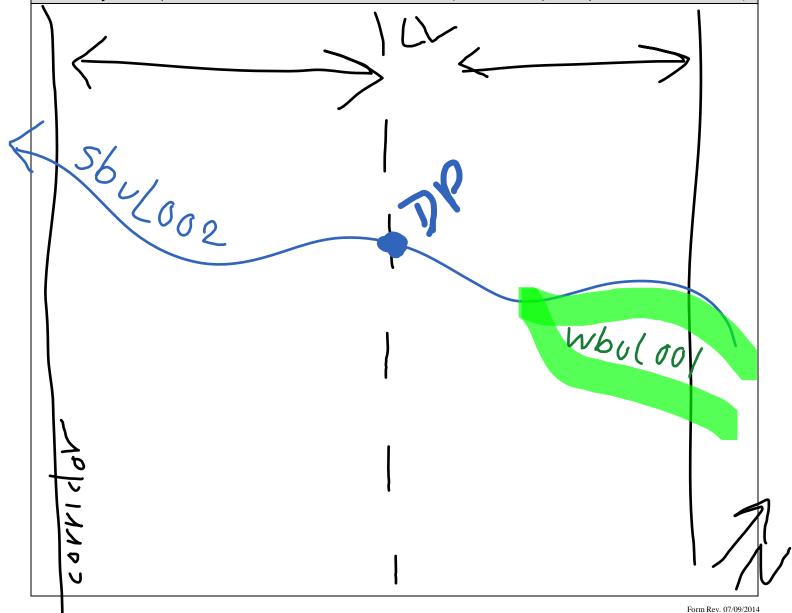
Waterbody	ID:
sbul002	

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:

Good quality headwater perennial stream.





Waterbody data point sbul002 facing east, upstream



Waterbody data point sbul002 facing west, downstream



Waterbody data point sbul002 facing, across

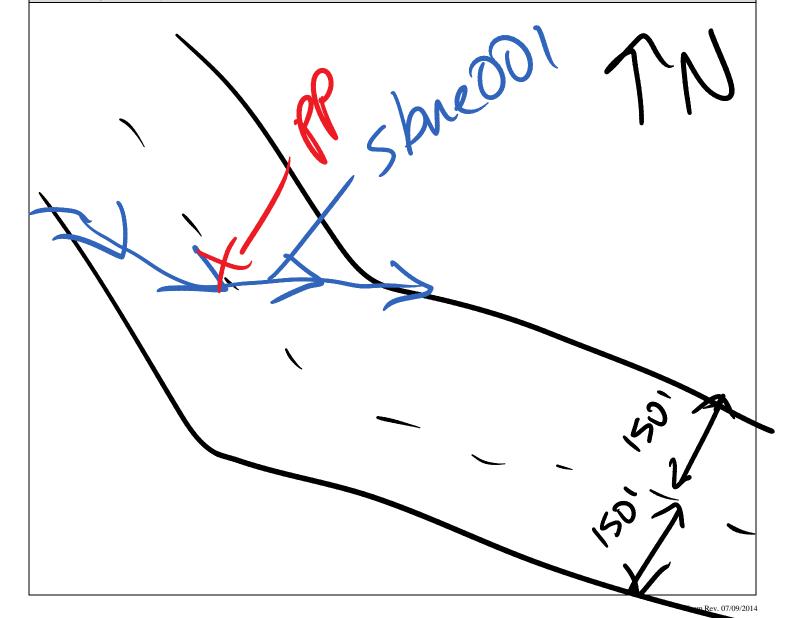
Survey Description	1							
Project Name:		Waterbody Nar	ne:		W	aterbody ID:		Date:
Atlantic Coast Pipeli	ne	UNT to Willis	River		SI	bue001		2/23/2016
State:	County:		Company:		Crew N	Member Initials	Photo	s:
	Buckingham		NRG		CG, A		1-3	
Tract Number(s):			Nearest Mile	epost:		Associated W	etland ID(s):	
09-086			204.2			none		
Survey Type: (check one)	□Centerline	e ⊠Re-F	Route	□Access Road		□Other:		
Physical Attributes Stream Classification:	<u> </u>							
(check one)	□Ephemera	al ⊠Inter	mittent	□Perennial				
Waterbody Type: (check one)	River 🗵 Str	eam 🗆 Dito	ch □ Ca	anal 🗆 Other:				
OHWM Width:	OHWM Indica (check all that apply		☐ Clear lir	ie □Shelving	g	□Wrested vegetation	⊠Scoul	ring □Water staining
Height: _1_ft. N/A□	⊠Bent, r vegetatio	natted, or missin n	g □Wrack li	ne □Litter ar debris	nd	⊠ Abrupt plan community ch		I characteristic change
Width of Waterbody - T Bank to Top of Bank:		of Waterbody - of Slope:	Toe of Slope	Width of Waterbo	ody - W		Depth of Wa	ter:
		<u>2</u> ft.			<u>2</u> ft.		N/A□	<u>0.5_</u> ft.
Sinuosity: (check one) □ Straight ⊠ Meanderir	(Арргох.)	velocity:		Bank height Right: Left:	3_ft.			yht:30degrees eft:
	11/7				_4_ft.			_75_ degrees
Qualitative Attributed Water Appearance:	tes							
	No water □0	Clear ⊠Turb	-	een □Sur surface scu		□Algal [mats	□Other:	
Substrate: (check all that apply) % of Substrate:	Bedrock	oulder Cobb	le ⊠ Grave % <u>20</u> %		⊠ Silt/ c 40_%	lay □ Organic %	☐ Other:	6
Width of Riparian Zone 10 ft N/A□	(check all that	•	⊠ Trees: _ <u>5</u> _in.		☑ Saplin _1_in.	ngs/Shrubs:	⊠ Herb	s
Dominant Bank Vegeta Fern, maple, greenb								
Aquatic Habitats (ex: su Large woody debris	bmerged or emerged	d aquatic vegetation	n, overhanging	banks/roots, leaf pacl	ks, large	submerged wood,	riffles, deep p	ools):
Aquatic Organisms Ob	served (list):							
T&E Species Observed none	(list):							
Disturbances (ex: livesto	ck access. manure i	n waterbody waste	e discharge nine	es):				
none				,				
Tributary is: (check one)	Natural	□ Art	ificial, man-m	ade 🗆 Manipu	ulated			
Stream Quality ^a : (check one)	⊠ High		oderate	□ Low				

Waterbody	ID:
Shue001	

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:





SBUE001 facing west upstream



SBUE001 facing east downstream



SBUE001 facing south across

Survey Description	n							
Project Name:		Waterbody Nar				aterbody ID:		Date:
ATLANTIC COAST PIPE	ELINE	UNT TO WIL	LIS RIVER		S	BUL005		9/9/2014
State:	County:	4	Company:		Crew N	Member Initials	: Ph	otos:
Virginia	Buckingham		W&C		WLM	, RMS	10	00-1079 TO 1081
Tract Number(s):	•		Nearest Mile	post:		Associated W	etland ID	(s):
09- 088 and 09-086			200			NA		
Survey Type: (check one)	⊠Centerline	e □Re-F	Route	□Access Roa	d	□Other:		
Physical Attribute Stream Classification:	s							
(check one)	⊠Ephemera	al □Inter	mittent	□Perennial				
Waterbody Type: (check one)	River ⊠ Str	ream 🗆 Dito	h □ Ca	nal 🗆 Othe	r:			
OHWM Width: 2_ft.	OHWM Indica (check all that appl		⊠ Clear line on bank	e □Shelvi	ng	□Wrested vegetation	⊠So	couring □Water staining
Height: 0.5 ft. N/A□	⊠Bent, r vegetatio	matted, or missin on	g ⊠Wrack lin	ne ⊠Litter a debris	and	☐ Abrupt plan community ch		Soil characteristic change
Width of Waterbody - T Bank to Top of Bank:		of Waterbody - 7 of Slope:		Width of Waterl Water Edge:	oody - W	ater Edge to	Depth of (Approx.)	Water:
_4 ft.		_2_ft.			f	t.	N/A⊠	ft.
Sinuosity: (check one) ☐Straight	Water (Approx.)	velocity: fp		Bank height Right: Left:	_1_ft.		Bank slo	pe Right:55_ degrees Left:
⊠Meanderii	ng N/A⊠			Loit.	_1_ft.			<u>55</u> degrees
Qualitative Attribu	ites							
Water Appearance: (check one)	[☑] No water □0	Clear □Turb	-		urface cum	□Algal mats	□Other:	
	☐ Bedrock ⊠ Bo	oulder 🗵 Cobb	le ⊠ Grave	l □ Sand	⊠ Silt/ c	lay 🗆 Organic	: 🗆 Oth	ner:
(check all that apply) % of Substrate:	<u>5</u> %	<u>5</u> %	<u>10</u> %	<u>NA</u> %	<u>80</u> %	<u>NA</u> %	<u>NA</u> %	%
Width of Riparian Zone	Vegetative		⊠ Т		□ 0	/Oh h	S 7.1.1	lauka
<u>>100 ft</u> ⋅ N/A□	,	of Dominants:	⊠ Trees: _ <u>14</u> _in.		Sapıır _3_in.	ngs/Shrubs:	⊠ H	lerbs
Dominant Bank Vegeta WHITE OAK, WHIT	,	PAW, DOGW	OOD,BLAC	K HAW, CHF	RISTMA	AS FERN		
Aquatic Habitats (ex: su	ubmerged or emerge	d aquatic vegetation	n, overhanging b	panks/roots, leaf pa	cks, large	submerged wood	, riffles, dee	ep pools):
Aquatic Organisms Ob	served (list):							
NA NA	sol ved (noi).							
T&E Species Observed NA	l (list):							
Disturbances (ex: livesto	ock access, manure i	in waterbody, waste	discharge pipe	s):				
Tributary is: (check one)	⊠ Natural	☐ Art	ificial, man-ma	ade □ Manip	oulated			
Stream Quality ^a : (check one)	☐ High	□ Mo	derate	⊠ Low				

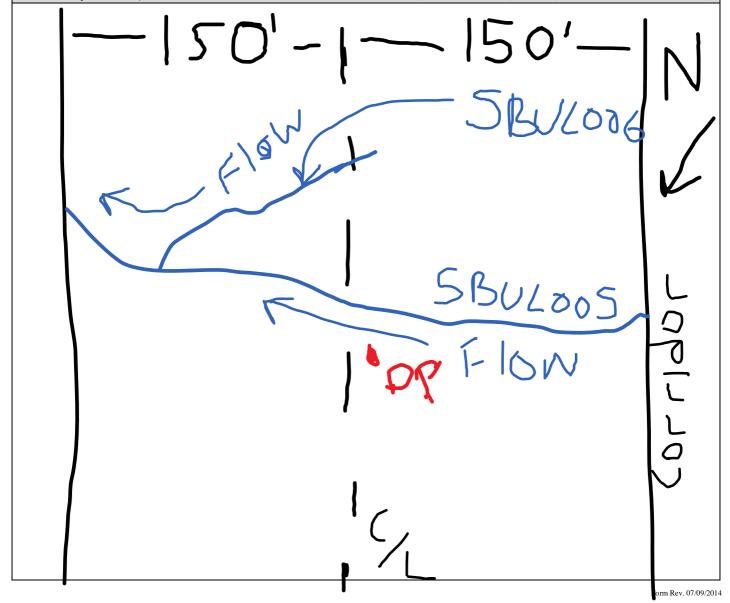
Waterbo	dy ID
SBUI 0	05

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

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

Notes:

HEADWATER EPHEMERAL





Waterbody point sbul005 facing South and upstream



Waterbody point sbul005 facing North and downstream



Waterbody point sbul005 facing East and across

Survey Descriptio	n							
Project Name:		Waterbody Nar				aterbody ID:		Date:
ATLANTIC COAST PIPE	ELINE	UNT TO WIL	LIS RIVER		S	BUL006		9/9/2014
State:	County:		Company:		Crew N	Member Initials	: Ph	otos:
Virginia	Buckingham		W&C		WLM,	, RMS		00-1082 TO 1084
Tract Number(s):			Nearest Mile	post:		Associated W	etland ID	(s):
09-088			200			NA		
Survey Type: (check one)	⊠Centerline	e □Re-F	Route	□Access Road	d	□Other:		
Physical Attribute Stream Classification:	s							
(check one)	⊠Ephemera	al □Inter	mittent	□Perennial				
Waterbody Type: (check one)	River ⊠ Str	eam 🗆 Ditc	h □ Ca	ınal 🗆 Othe	r:			
OHWM Width:	OHWM Indica (check all that apply		⊠ Clear line	e □Shelvir	ng	⊠Wrested vegetation	⊠Sc	couring
Height: ft. N/A□	⊠Bent, r vegetatio	natted, or missin n	g ⊠Wrack lir	ne ⊠Litter a debris	nd	☐ Abrupt plan community ch		Soil characteristic change
Width of Waterbody - 1 Bank to Top of Bank:		of Waterbody - 7 of Slope:		Width of Waterb Water Edge:	ody - W	ater Edge to	Depth of (Approx.)	Water:
_ <u>3_f</u> t.		ft.		 N/A⊠	f		N/A⊠	ft.
Sinuosity: (check one) ☐Straight	Water (Approx.)	velocity: fp		Bank height Right: Left:	_1_ft.		Bank sloր	pe Right: <u>55</u> _ degrees Left:
⊠Meanderi	ng N/A⊠			Lort.	_1_ft.			_55_ degrees
Qualitative Attribu	ites							
Water Appearance: (check one)	[☑] No water □0	Clear □Turb	-		ırface um	□Algal l	□Other:	
	☐ Bedrock ⊠ Bo	ulder 🗵 Cobb	le ⊠ Grave	l □ Sand	⊠ Silt/ c	lay 🗆 Organic	□ Oth	er:
(check all that apply) % of Substrate:	<u>NA</u> % <u>5</u> %	<u>35</u> %	<u>10</u> %	<u>NA</u> %	<u>50</u> %	<u>NA</u> %	<u>NA_</u> %	6
Width of Riparian Zone >100 ft⋅ N/A□	(check all that		⊠ Trees: _14_in.		⊠ Saplir _3_in.	ngs/Shrubs:	⊠H	lerbs
Dominant Bank Vegeta	ntion (list):							
WHITE OAK, WHIT	E ASH, CEDA	R, DOGWOC	D,BLACK (CHERRY, CH	RISTM	IAS FERN, A	DIANT	JM
Aquatic Habitats (ex: so NA	ubmerged or emerge	d aquatic vegetation	n, overhanging t	oanks/roots, leaf pa	cks, large	submerged wood	, riffles, dee	ep pools):
Aquatic Organisms Ob NA	served (list):							
T&E Species Observed	l (list):							
Disturbances (ex: livesto	ock access, manure i	n waterbody, waste	e discharge pipe	s):				
Tributary is: (check one)	⊠ Natural	□ Art	ificial, man-ma	ade 🗆 Manip	oulated			
Stream Quality ^a : (check one)	☐ High		derate	⊠ Low				

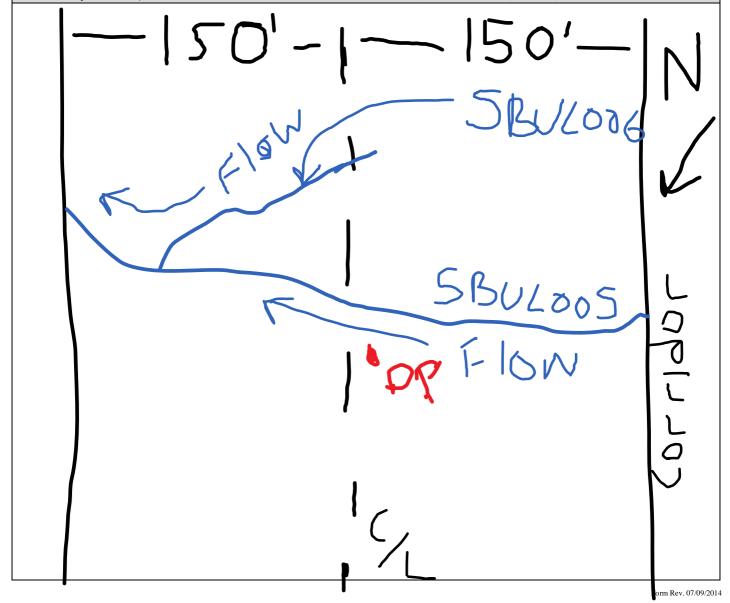
Waterbody	ID
SBUI 006	

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

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

Notes:

HEADWATER EPHEMERAL





Waterbody point sbul006 facing South and upstream



Waterbody point sbul006 facing North and downstream



Waterbody point sbul006 facing East and across

Survey Description	1							
Project Name:		Waterbody Nar	ne:		W	aterbody ID:		Date:
ATLANTIC COAST PIPE	LINE	UNT TO WIL				BUL007		9/9/2014
State:	County:		Company:		Crew N	lember Initials	: Pho	tos:
	Buckingham		W&C		WLM,			0-1085 to 1087
Tract Number(s):			Nearest Mile	epost:		Associated W	etland ID(s	s):
09-089 Survey Type:			200			NA		
(check one)	⊠Centerline	e □Re-F	Route	□Access Road		□Other:		
Physical Attributes Stream Classification:	S							
(check one)	Ephemera	al □Inter	mittent	⊠Perennial				
Waterbody Type: (check one)	River 🛭 Stı	ream 🗆 Dito	:h □ Ca	anal 🗆 Other:				
OHWM Width:	OHWM Indica (check all that appl		⊠ Clear lin	ne ⊠Shelvinç	9	⊠Wrested vegetation	□Sco	ouring
Height: 1.5_ft. N/A□	⊠Bent, r vegetatio	matted, or missin on	g □Wrack lii	ne □Litter an debris	ıd	☐ Abrupt plan community ch		oil characteristic change
Width of Waterbody - T Bank to Top of Bank:	op of Width	of Waterbody - ⁻ of Slope:	Toe of Slope	Width of Waterbo	ody - W	ater Edge to	Depth of W	/ater:
ft.		<u>8</u> ft.			<u>6</u> ft.		N/A□	<u>0.75</u> ft.
Sinuosity: (check one) ⊠Straight	Water (Approx.)	velocity: 	:	Bank height Right: Left:	<u>5_</u> ft.		Bank slope R	e Light: 85_ degrees Left:
□Meanderir	ng N/A□				<u>7_</u> ft.			80 degrees
Qualitative Attribu	tes							
Water Appearance: (check one)	No water ⊠0	Clear □Turb	-	een □Sur surface scu		□Algal mats	□Other:	
	Bedrock ⊠ Bo	oulder 🗵 Cobb	le 🛭 Grave	el 🗆 Sand 🗆	☐ Silt/ cl	lay Organic	□ Othe	r:
(check all that apply) % of Substrate:1	<u>10 % 10 9</u>	% <u>30</u> %	<u>50</u> %	<u>N/A</u> %	<u>N/A</u> %	<u>N/A</u> %	<u>N/A</u> %	
Width of Riparian Zone			57 -			(0)		
_>100 ft· N/A□	(check all that Avg. DBH (approx.)	of Dominants:	⊠ Trees: _ <u>14</u> _in.		Saplin _3_in.	igs/Shrubs:	⊠ He	rbs
Dominant Bank Vegeta	. ,							
WHITE OAK, POPL								
Aquatic Habitats (ex: su RIFFLE/POOL COM		· -		•	_	submerged wood	, riffles, deep	pools):
Aquatic Organisms Ob FISH, CRAYFISH, (, ,	NS. WATER	STRIDERS	 S				
T&E Species Observed								
NA	(not):							
Disturbances (ex: livesto	ock access, manure	in waterbody, waste	e discharge pipe	es):				
Tributary is: (check one)	⊠ Natural	□ Art	ificial, man-m	ade 🗆 Manipu	ulated			
Stream Quality ^a : (check one)	⊠ High		derate	□ Low				

Waterbody	ID:
SBUL007	

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:

HIGH QUALITY PERENNIAL STREAM



Waterbody point sbul007 facing North and upstream



Waterbody point sbul007 facing South and downstream



Waterbody point sbul007 facing West and across

Survey Description	1							
Project Name:		Waterbody Nar				Waterbody ID:		Date:
ATLANTIC COAST	PIPELINE	UNT TO WIL	LIS RIVER			SBUL008		9/10/2014
State:	County:	•	Company:		Crev	w Member Initials	: Pho	tos:
Virginia	Buckingham		W&C		WL	M, RMS	10	0-1093 TO 1095
Tract Number(s):			Nearest Mile	post:	"	Associated W	etland ID(s):
09-089			200			NA		
Survey Type: (check one)	⊠Centerline	e □Re-F	Route	□ Access I	Road	□Other:		
Physical Attributes Stream Classification:	5							
(check one)	Ephemera	al ⊠Inter	mittent	□Perennia	ıl			
Waterbody Type: (check one)	River Str	ream Ditc	h 🗆 Ca	ınal 🗆 C	Other:			
OHWM Width: _5_ft.	OHWM Indica (check all that appl		⊠ Clear line on bank	e ⊠Sh	elving	⊠Wrested vegetation	□Sco	ouring □Water staining
Height: 1_ft. N/A□	□Bent, r vegetatio	matted, or missin on	g □Wrack lir	ne □Lit debri	er and s	□ Abrupt plar community ch		Soil characteristic change
Width of Waterbody - T Bank to Top of Bank:		of Waterbody - 7 of Slope:	Toe of Slope	Width of Wa	terbody -	Water Edge to	Depth of V	Vater:
_20_ft.		<u>5</u> ft.		N/A⊠		ft.	N/A⊠	ft.
Sinuosity: (check one) ☐Straight	Water (Approx.)		os	Bank height Rigl	nt: 10	ft.	Bank slop F	e Right: 55_ degrees _Left:
⊠Meanderir	ng N/A⊠			Le	7_f	ft.		45 degrees
Qualitative Attribu	tes							
Water Appearance: (check one)	[]] No water □0	Clear □Turb	-	een surface	□Surface scum	□Algal mats	□Other:	
	Bedrock ⊠ Bo	oulder 🗵 Cobb	le 🗵 Grave	l □ Sand	⊠ Silt	t/ clay 🛚 Organio	□ Othe	er:
(check all that apply) % of Substrate: 1	<u>0</u> % <u>5</u> %	60_%	20_%	<u>NA</u> %	<u>5</u> %	<u>NA</u> %	<u>NA</u> %	
Width of Riparian Zone >100 ft N/A□	(check all that Avg. DBH (approx.)		[⊠] Trees: _14_in.		⊠ Sap _3_in	olings/Shrubs: n.	⊠ He	erbs
Dominant Bank Vegeta BEECH, PINE, IRO	• ,	CAMORE, CH	RISTMAS I	FERN				
Aquatic Habitats (ex: su	bmerged or emerge	d aquatic vegetation	n, overhanging b	oanks/roots, lea	af packs, lar	ge submerged wood	l, riffles, deep	pools):
Aquatic Organisms Ob NA	served (list):							
T&E Species Observed NA	(list):							
Disturbances (ex: livesto	ock access, manure i	in waterbody, waste	e discharge pipe	s):				
Tributary is: (check one)	⊠ Natural	□ Art	ificial, man-ma	ade 🗆 M	anipulated	t		
Stream Quality ^a : (check one)	☐ High		derate	⊠ Lo	ow			

Waterbody ID: SBUL008

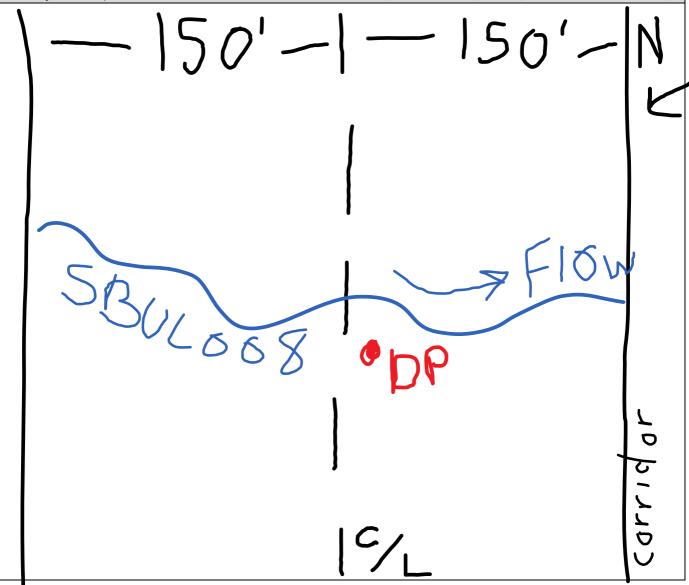
^a **High Quality:** Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance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

DRY INTERMITTENT STREAM





Waterbody point sbul008 facing North and upstream



Waterbody point sbul008 facing South and downstream



Waterbody point sbul008 facing East and across

Curvey Decemention								
Survey Description Project Name:	1	Waterbody Nar	ne:		w	aterbody ID:		Date:
ATLANTIC COAST	PIPELINE	WILLIS RIVE				BUL009		9/10/2014
State:	County:		Company:		Crew N	lember Initials	: F	Photos:
Virginia	Buckingham		W&C		WLM,	RMS		100-1096 TO 1098
Tract Number(s):			Nearest Mile	post:		Associated W	etland	ID(s):
09-095 and 094			201			NA		
Survey Type: (check one)	⊠Centerline	□Re-F	Route	□Access Road		□Other:		
Physical Attributes	S							
Stream Classification: (check one)	□Ephemera	ıl □Inter	mittent	⊠Perennial				
Waterbody Type: (check one)	IRiver □ Stro	eam 🗆 Ditc	h □ Ca	anal 🗆 Other:				
OHWM Width: 30 ft.	OHWM Indicat (check all that apply		⊠ Clear lin	e ⊠Shelvin	g	□Wrested vegetation		Scouring
Height: _3_ft. N/A□	□Bent, n vegetatio	natted, or missing	g ⊠Wrack lir	ne □Litter ar debris	nd	☐ Abrupt plan community ch		⊠Soil characteristic change
Width of Waterbody - T Bank to Top of Bank:		of Waterbody - 7 of Slope:	Toe of Slope	Width of Waterbo	ody - W		Depth (of Water:
_36_ft.	_	30_ft.		 N/A□	<u>30</u> ft.		N/A□	<u>2.5</u> ft.
Sinuosity: (check one) ⊠Straight	Water (Approx.)	velocity: 0.8fps		Bank height Right: Left:	<u>10_</u> ft.		Bank s	lope Right:
□Meanderir	ng N/A□			_	<u>10_</u> ft.			_70_ degrees
Qualitative Attribu	tes							
Water Appearance: (check one)	[]] No water ⊠C	Clear □Turb		een □Sur surface scu		□Algal [mats	□Other	:
(check all that apply)	Bedrock □ Bo		le ⊠ Grave		⊠ Silt/ c 15_%	lay □ Organic <u>NA</u> %	□ O <u>NA</u>	ther: _%
Width of Riparian Zone >100 ft N/A□	(check all that		[⊠] Trees: _12_in.		⊠ Saplin _ <u>3</u> _in.	ngs/Shrubs:		Herbs
Dominant Bank Vegeta RIVER BIRCH, SYC	• /	NWOOD, QU	ERCUS SI	PP., RUBUS, F	PAW P	AW, RIVER	OATS	3
Aquatic Habitats (ex: su POOLS, SOFT SAN		=		•	_	=	, riffles, c	deep pools):
Aquatic Organisms Ob WATER STRIDERS		PTERANS						
T&E Species Observed NA								
Disturbances (ex: livesto	ock access, manure in	n waterbody, waste	discharge pipe	ss):				
Tributary is: (check one)	⊠ Natural	☐ Art	ificial, man-m	ade 🗆 Manipu	ulated			
Stream Quality ^a : (check one)	☐ High	⊠ Mo	derate	□ Low				

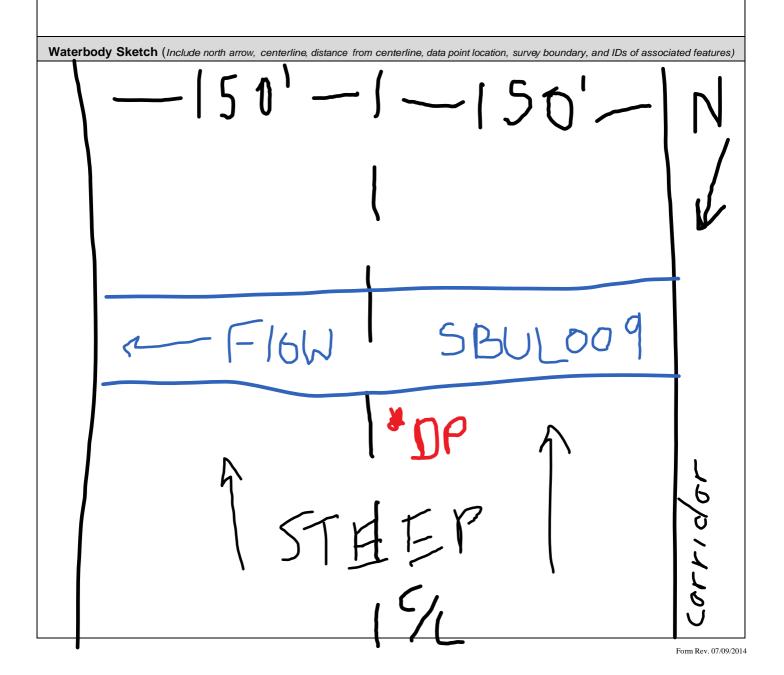
Waterbody	ID:
SBUI 009	

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

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

Notes:

LARGE PERENNIAL RIVER: DEEP POOLS: MANY MIGRATORY BIRDS OBSREVED





Waterbody point sbul009 facing South and downstream



Waterbody point sbul009 facing North and upstream



Waterbody point sbul009 facing East and across

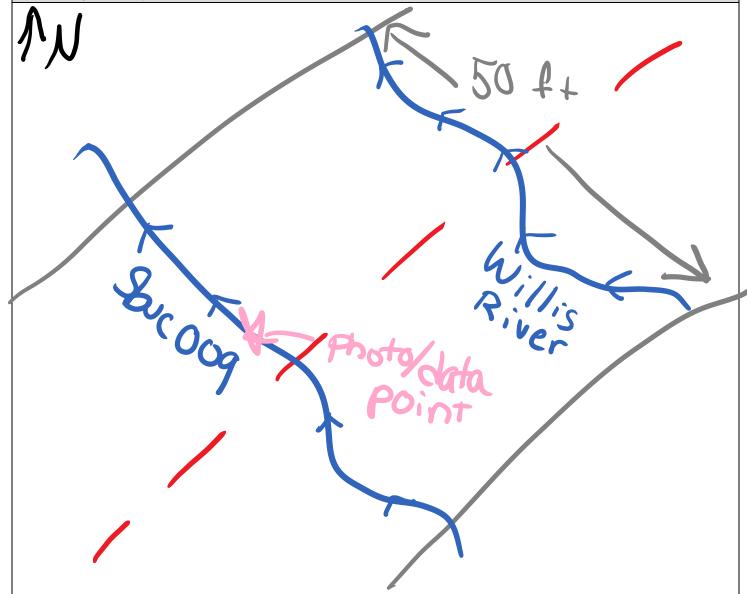
Survey Descriptio	n							
Project Name:		Waterbody Name:				aterbody ID:	Date:	
Atlantic Coast Pipel	ine	Willis River			SI	BUC009	1/15/2015	
State:	County:		Company:		Crew N	Member Initials	Photos	:: ::
Virginia	Buckingham		NRG		CR, A			0009_001-003
Tract Number(s):			Nearest Mile	epost:		Associated W	etland ID(s):	
09-095			202.2			None		
Survey Type: (check one)	□Centerline	e □Re-F	Route	⊠Access Road		□Other:		
Physical Attribute Stream Classification:	s							
(check one)	Ephemera	al □Inter	mittent	⊠Perennial				
Waterbody Type: (check one)	〗River □ Str	eam 🗆 Dito	:h □ Ca	anal 🗆 Other:	:			
OHWM Width:	OHWM Indica (check all that apply		⊠ Clear lin	e □Shelvin	g	□Wrested vegetation	⊠Scouri	ng □Water staining
Height: 5_ft. N/A□	⊠Bent, r vegetatio	natted, or missin	g □Wrack lii	ne □Litter ar debris	nd	☐ Abrupt plant community ch		characteristic change
Width of Waterbody - 1 Bank to Top of Bank:		of Waterbody - ⁻ of Slope:	Toe of Slope	Width of Waterbo Water Edge:	ody - W		Depth of Wat (Approx.)	er:
_ <u>50_</u> ft.	-	<u>8</u> ft.			<u>22_</u> ft.		N/A□	_3_ft.
Sinuosity: (check one) ☐Straight	Water (Approx.)	velocity: 1.5fps		Bank height Right: Left:	<u>15_</u> ft.		Bank slope Rigl Le	nt: _80_ degrees
⊠Meanderii	ng N/A□				<u>20_</u> ft.			90 degrees
Qualitative Attribu	tes							
Water Appearance: (check one)	[]] No water □0	Clear ⊠Turb	-	een □Sur surface scu		□Algal [mats	□Other:	
(check all that apply)	Bedrock □ Bo		le ⊠ Grave % <u>40</u> %	el ⊠ Sand □ 		lay □ Organic %%	□ Other:	
Width of Riparian Zone 50 ft N/A□	(check all that		[⊠] Trees: _ <u>12</u> _in.		☑ Saplin _2_in.	ngs/Shrubs:	⊠ Herbs	
Dominant Bank Vegeta White Oak, Japane	• •	e, Christmas	Fern, Smila	ax, Red Maple,	Easte	er Red Cedar	, Sycamore	2
Aquatic Habitats (ex: su Overhanging roots,								
Aquatic Organisms Ob None	served (list):							
T&E Species Observed None	l (list):							
Disturbances (ex: livesto	ock access, manure i	n waterbody, waste	e discharge pipe	es):				
Tributary is: (check one)	⊠ Natural	□ Art	ificial, man-m	ade □ Manipu	ulated			
Stream Quality ^a : (check one)	☐ High	⊠ Mo	derate	□ Low				

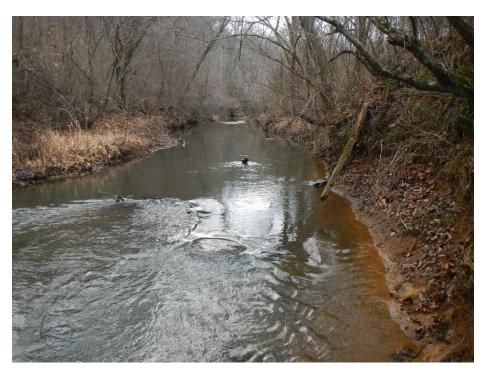
Waterbody	ID:
SBUC009	

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 SBUC009 facing upstream



Waterbody SBUC009 facing downstream



Waterbody SBUC009 facing across

Survey Description	1							
Project Name:		Waterbody Nar	ne:		W	aterbody ID:		Date:
ATLANTIC COAST	PIPELINE	UNT TO WIL	LIS RIVER			BUL010		9/10/2014
State:	County:		Company:		Crew N	lember Initials	: Pł	notos:
_	Buckingham		W&C		WLM,			00-1099 TO 1101
Tract Number(s):			Nearest Mile	epost:		Associated W	etland IE	O(s):
09-094			201			Wbul003		
Survey Type: (check one)	⊠Centerline	e □Re-F	Route	□ Access Road		□Other:		
Physical Attributes Stream Classification:	3							
(check one)	Ephemera	al ⊠Inter	mittent	□Perennial				
Waterbody Type: (check one)	River 🛭 Str	ream Ditc	h 🗆 Ca	anal 🗆 Other:				
OHWM Width:	OHWM Indica (check all that appl		⊠ Clear lin	ne ⊠Shelvinç	g	⊠Wrested vegetation	□S	couring
Height: 	□Bent, r vegetatio	matted, or missing	g □Wrack lii	ne □Litter an debris	nd	☐ Abrupt plan community ch		Soil characteristic change
Width of Waterbody - T Bank to Top of Bank:		of Waterbody - 7 of Slope:	Toe of Slope	Width of Waterbo	ody - W		Depth of (Approx.)	Water:
_ <u>4_</u> ft.		<u>3</u> ft.			<u>2</u> _ft.		N/A□	<u>0.2</u> ft.
Sinuosity: (check one)	Water (Approx.)	velocity: 0.1 fps		Bank height Right: Left:	<u>2_</u> ft.		Bank slo	ppe Right: 35 degrees Left:
⊠Meanderir	ng N/A□				<u>2</u> ft.			30 degrees
Qualitative Attribut	tes							
Water Appearance: (check one)	No water ⊠0	Clear □Turb	-	een □Sur surface scu		□Algal [mats	□Other:	
Substrate:	Bedrock □ Bo	oulder 🗵 Cobb	le ⊠ Grave	el 🗵 Sand 🗈	⊠ Silt/ c	lay 🗆 Organic	: 🗆 Oth	ner:
	<u>N/A</u> % <u>N/A</u>	_% <u>20</u> %	<u>70</u> %	<u>8</u> %	2 %	<u>N/A</u> %	N/A	<u>%</u>
Width of Riparian Zone	(check all that Avg. DBH		[⊠] Trees: _ <u>12</u> _in.		☑ Saplin <u>3</u> in.	ngs/Shrubs:	⊠ F	Herbs
N/A□ Dominant Bank Vegeta	(approx.)							
RED MAPLE, CEDA	` '	ALNUT, SPIC	EBUSH, L	YCOPODIUM				
Aquatic Habitats (ex: su COBBLE-GRAVEL,					ks, large	submerged wood	, riffles, de	ep pools):
Aquatic Organisms Ob	served (list):							
T&E Species Observed	(list):							
Disturbances (ex: livesto	ock access, manure i	in waterbody, waste	e discharge pipe	es):				
Tributary is: (check one)	Natural	□ Art	ificial, man-m	ade 🗆 Manipu	ulated			
Stream Quality ^a : (check one)	⊠ High		derate	□ Low				

Waterbody ID: SBUL010

Form Rev. 07/09/2014

^a 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:

GOOD QUALITY HEADWATER INTERMITTENT STREAM



Waterbody point sbul010 facing Southeast and upstream



Waterbody point sbul010 facing Northwest and downstream



Waterbody point sbul010 facing East and across

Survey Description	n							
Project Name:		Waterbody Nar				aterbody ID:		Date:
ATLANTIC COAST	PIPELINE	UNT TO WIL	LIS RIVER	C	S	BUL011		9/10/2014
State:	County:	•	Company:		Crew N	Member Initials	: Р	hotos:
Virginia	Buckingham		W&C		WLM,	, RMS	1	100-1103 TO 1105
Tract Number(s):			Nearest Mile	post:		Associated W	etland II	D(s):
09-094			201			NA		
Survey Type: (check one)	⊠Centerline	e □Re-F	Route	□Access Road	i	□Other:		
Physical Attributes Stream Classification:	s							
(check one)	Ephemera	al ⊠Inter	mittent	□Perennial				
Waterbody Type: (check one)	River ⊠ Str	eam □ Ditc	h □ Ca	anal 🗆 Other	:			
OHWM Width:	OHWM Indica (check all that apply		⊠ Clear lin on bank	e ⊠Shelvir	ıg	□Wrested vegetation		Scouring ⊠Water staining
Height: ft. N/A□	□Bent, r vegetatio	matted, or missing	g □Wrack lir	ne ⊠Litter a debris	nd	☐ Abrupt plan community ch		⊠ Soil characteristic change
Width of Waterbody - T Bank to Top of Bank:		of Waterbody - 7 of Slope:		Width of Waterb Water Edge:	ody - W	ater Edge to	Depth o	f Water:
_ <u>4</u> ft.		<u>2_</u> ft.			_1_ft.		N/A□	<u>0.1</u> ft.
Sinuosity: (check one) ⊠ Straight	Water (Approx.)	velocity: 0.1fps		Bank height Right: Left:	_2_ft.		Bank slo	ope Right: 30 degrees Left:
□Meanderir	ng N/A□			Loit.	_2_ft.			30 degrees
Qualitative Attribu	tes							
Water Appearance: (check one)	[]] No water ⊠0	Clear □Turb	-		rface um	□Algal [mats	□Other:	
	Bedrock □ Bo	oulder Cobb	le 🛭 Grave	el 🛭 Sand	⊠ Silt/ c	lay 🛭 Organic	: 🗆 Ot	ther:
(check all that apply) % of Substrate:	<u>NA </u> % <u>NA </u>	% <u>NA</u> %	<u>15</u> %	<u>50</u> %	<u>15_</u> %	<u>20</u> %	NA	_%
Width of Riparian Zone >100 ft N/A□	(check all that		[⊠] Trees: _12_in.		⊠ Saplir _3_in.	ngs/Shrubs:		Herbs
Dominant Bank Vegeta RED MAPLE, CEDA	• /	ALNUT, SPIC	EBUSH, L`	YCOPODIUM,	CARE	ΞX		
Aquatic Habitats (ex: su GRAVEL, MUCKY S				•	cks, large	submerged wood	, riffles, de	eep pools):
Aquatic Organisms Ob EPT	served (list):							
T&E Species Observed NA	(list):							
Disturbances (ex: livesto	ock access, manure i	n waterbody, waste	e discharge pipe	es):				
Tributary is: (check one)	Natural	□ Art	ificial, man-ma	ade 🗆 Manip	ulated			
Stream Quality ^a : (check one)	⊠ High		derate	□ Low				

Form Rev. 07/09/2014

^a 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.

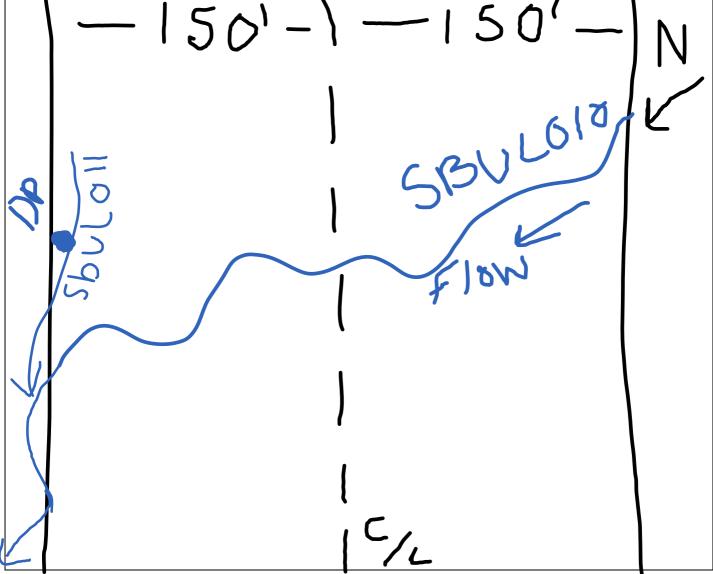
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate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

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





Waterbody point sbul011 facing East and upstream



Waterbody point sbul011 facing West and downstream



Waterbody point sbul011 facing North and across

Survey Description	1							
Project Name:		Waterbody Nai			W	aterbody ID:		Date:
Southeast Reliability		Unnamed Tr	ibutary to V	Villis River		BUK041		8/15/2014
State:	County:		Company:		Crew N	Member Initial	Photos:	
ū	Buckingham			D & CURRAN	JD, SG			326 to 2328 x,u,d
Tract Number(s):			Nearest Mile	post:		Associated W	etland ID	
09-100			201					
Survey Type: (check one)	⊠Centerline	e □Re-F	Route	□ Access Road	d	□Other:		
Physical Attribute Stream Classification:								
(check one)	⊠Ephemera	al □Inter	mittent	□Perennial				
Waterbody Type:	River 🗵 Str	eam 🗆 Dito	:h □ Ca	anal	r:			
OHWM Width:	OHWM Indica (check all that apply			e □Shelvir	ng	□Wrested vegetation	⊠Scourin	g □Water staining
Height: ft. N/A□	□Bent, r vegetatio	matted, or missin on	g □Wrack lii	ne ⊠Litter a debris	ınd	⊠ Abrupt plan community ch		haracteristic change
Width of Waterbody - T Bank to Top of Bank:		of Waterbody - of Slope:	Toe of Slope	Width of Waterk Water Edge:	ody - W	ater Edge to	Depth of Wate (Approx.)	r:
15 ft.		3_ft.		N/A⊠	_ft.		N/A⊠	ft.
Sinuosity:	Water	velocity:		Bank height			Bank slope	
(check one) ⊠ Straight	(Approx.)			Right:			Right	t:
		_fps		Left:	<u>8</u> ft.		Lef	<u>75</u> degrees
□Meanderir	ng N/A⊠				<u>8</u> ft.			75 degrees
Qualitative Attribu	tes							
Water Appearance:	No water □0	Clear □Turb			ırface	9	□Other:	
Substrate:	Bedrock □ Bo	oulder Cobb			cum ⊠ Silt/ c	mats clay ⊠ Organio	c □ Other:	
(check all that apply)NA % of Substrate: NA	<u>NA</u> %	% <u>NA</u> %	NA %		<u>20_</u> %	<u>80</u> %	<u>NA</u> %	
Width of Riparian Zone	: Vegetative	e Layers:						
	(check all that		⊠ Trees: <u>6</u> in.		⊠ Saplir 3_in.	ngs/Shrubs:	⊠ Herbs	
Dominant Bank Vegeta YOUNG TULIP TRE	tion (list EE, SYCAMOF	RE, WILLOW,	RED MAP	LE, SASAFR <i>A</i>	AS, SU	MAC, BLAC	KBERRY, P	OKEWEED
Aquatic Habitats (ex: su	bmerged or emerge	d aquatic vegetatio	n, overhanging l	banks/roots, leaf pa	cks, large	submerged wood	, riffles, deep pool	(s):
Aquatic Organisms Ob NA	served (list):							
T&E Species Observed	(list):							
NA								
Disturbances (ex: livesto	ock access, manure i	n waterbody, waste	e discharge pipe	es):				
Tributary is: (check one)	Natural	□ Art	ificial, man-m	ade 🗆 Manip	oulated			
Stream Quality ^a : (check one)	☐ High	□ Mc	oderate	⊠ Low				

Waterbody	ID
SBUK041	

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

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

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

Notes:

EPHEMERAL STREAM FLOWING SOUTHEAST ALONG COORIDOR EDGE. FEATURE MORE CHARACTERISTIC OF INTERMITTENT STREAM OFF ROW. DEEP V-SHAPED GULLY WITH FEATURE ORIGINATES IN FIELD.

Waterbody Sketch (Include north arrow, centerline, distance from centerline, data point location, survey boundary, and IDs of associated features) SB4KU4



Waterbody point sbuk041 facing East and across



Waterbody point sbuk041 facing North and upstream



Waterbody point sbuk041 facing South and downstream

Survey Description	1							
Project Name:		Waterbody Na			W	aterbody ID:		Date:
Southeast Reliability	/	Unnamed Tr	ibutary to V	Villis River	S	BUK042		8/15/2014
State:	County:		Company:		Crew N	Member Initial	Photos	:
	Buckingham		WOODAR	D & CURRAN	JD, SG	ì	IMG 2	330 to 2332 x,u,d
Tract Number(s):			Nearest Mile	epost:		Associated W	etland ID	
09-100			201			INA .		
Survey Type: (check one)	⊠Centerline	e □Re-F	Route	□Access Road	t	□Other:		
Physical Attribute Stream Classification:								
(check one)	□Ephemer	al ⊠Inter	rmittent	□Perennial				
Waterbody Type: (check one)	River Sti	ream 🗆 Dito	ch 🗆 Ca	anal 🗆 Other	r:			
OHWM Width:	OHWM Indica		□ Clear lir	ne □Shelvir	ng	□Wrested	⊠Scouri	
_4_ft. Height:			on bank	51.		vegetation		staining
1_ft. N/A□	vegetation		Ü	debris		☐ Abrupt plan community ch		characteristic change
Width of Waterbody - T Bank to Top of Bank:		of Waterbody - of Slope:	Toe of Slope	Width of Waterb Water Edge:	ody - W	ater Edge to	Depth of Wat (Approx.)	er:
<u>6</u> ft.	-	<u>4</u> ft.		N/A□	<u>0.5</u> ft.		N/A□	<u>0.2</u> ft.
Sinuosity:		velocity:		Bank height			Bank slope	
(check one) ⊠Straight	(Approx.,)		Right:			Rigi	
		<u>0.1_</u> fps		Left:	<u>6</u> ft.		Le	70 degrees
□Meanderin	ng N/A□			25.1.	<u>4</u> ft.			_85_ degrees
Qualitative Attribut	tes			•				
Water Appearance: (check one)	No water ⊠	Clear □Turb	oid □Sh	ieen □Su	ırface	□Algal	□Other:	
					um	mats		
Substrate: X (check all that apply)NA	Bedrock ⊠ Bo	oulder ⊠ Cobb	ole ⊠ Grave	el □ Sand	□ Silt/ c	lay 🗆 Organic	□ Other:	
% of Substrate: 15	<u>20</u> %	% <u>50</u> %	<u>15</u> %	<u>NA</u> %	<u>NA</u> %	<u>NA</u> %	<u>NA</u> %	
Width of Riparian Zone	: Vegetativ		⊠ Trees	• [⊠ Sanlir	ngs/Shrubs:	⊠ Herbs	
<u>100_ft</u> - N/A□	l'	of Dominants:	<u>8</u> in.		3_in.	193/0111403.	⊠ Ficios	
Dominant Bank Vegeta BLACK WALNUT, S CHRISTMAS FERN	SYCAMORE, I	BLACKJACK ENBRIAR	OAK, RED	BUD, TULIP T	TREE,	SPICEBUSH	H, DEER TO	NGUE,
Aquatic Habitats (ex: su	<u> </u>		n, overhanging	banks/roots, leaf pac	cks, large	submerged wood	, riffles, deep po	ols):
NA								
Aquatic Organisms Ob	oserved (list):							
NA Disturbances (ex: livesto	ock access manure	in waterbody waste	e discharge pine	39):				
NA	, , , , , , , , , , , , , , , , , , , ,	,,	g- p-p	,-				
Disturbances (ex: livesto	ck access, manure	in waterbody, waste	e discharge pipe	es):				
NA								
Tributary is: (check one)	⊠ Natural	□ Ar	tificial, man-m	ade 🗆 Manip	ulated			
Stream Quality a: (check one)	☐ High	□ Mo	oderate	⊠ Low				

^a **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 IN CUTOVER AREA WITH FEW LARGE TREES, MOSTLY YOUNG GROWTH. CROSSES ROW, TIES INTO SBUK043. HIGH GRADIENT, SPORADIC AERAS OF FLOW. ORIGINATES FROM SIDE OF BANK AT SUBSURFACE SEEP OR SPRING.

Waterbody Sketch (Include north arrow, centerline, distance from centerline, data point location, survey boundary, and IDs of associated features) BUK042 SURVEY CORRIDOR BUKOL Form Rev. 07/09/2014



Waterbody point sbuk042 facing South and across



Waterbody point sbuk042 facing West and upstream



Waterbody point sbuk042 facing East and downstream

	<i>j</i> =	_						
Survey Description Project Name:	n	Matarbady Na			lsa	latarha du ID.		Deter
*		Waterbody Na		Villia Divor		aterbody ID:		Date:
Southeast Reliability	y	Unnamed Tr	ibutary to v	VIIIIS RIVER		BUK043		8/15/2014
State:	County:		Company:		Crew N	Member Initial	Pho	otos:
Virginia	Buckingham		WOODAR	D & CURRAN	JD, SG)	IM	G 2334 to 2336 x,u,d
Tract Number(s):			Nearest Mile	post:		Associated W	etland ID	
09-100			201			NA .		
Survey Type: (check one)	⊠Centerline	e □Re-l	Route	□Access Road	I	□Other:		
Physical Attribute								
Stream Classification: (check one)	□Ephemera	al □Inter	rmittent	⊠Perennial				
Waterbody Type: (check one)	River 🗵 Str	ream Dito	ch 🗆 Ca	anal 🗆 Other	:			
OHWM Width:	OHWM Indica (check all that appl			e ⊠Shelvin	ıg	⊠Wrested	⊠Sc	ouring ⊠Water
<u>8</u> ft.			on bank			vegetation		staining
Height: 2 ft. N/A	□Bent, r vegetatio	matted, or missin on	ıg □Wrack liı	ne ⊠Litter ai debris	nd	☐ Abrupt plan community ch		Soil characteristic change
Width of Waterbody - T Bank to Top of Bank:		of Waterbody - of Slope:	Toe of Slope	Width of Waterb Water Edge:	ody - W	ater Edge to	Depth of \((Approx.)	Vater:
<u>15</u> ft.		<u>8</u> ft.		N/A□	<u>3_</u> ft.		N/A□	<u>0.3</u> ft.
Sinuosity:		velocity:		Bank height			Bank slop	е
(check one) ☐Straight	(Approx.)			Right:	<u>3</u> ft.		F	Right: <u>85</u> degrees
		0.1_fps		Left:				Left:
⊠Meanderir	ng N/A□				<u>6</u> ft.			<u>75</u> degrees
Qualitative Attribu	tes							
Water Appearance: (check one)	[]] No water ⊠0	Clear □Turb			rface um	□Algal mats	□Other:	
	Bedrock ⊠ Bo	oulder ⊠ Cobb	ole ⊠ Grave	el ⊠ Sand I	⊠ Silt/ c	lay 🗆 Organic	: 🗆 Othe	er:
(check all that apply)NA % of Substrate: 10	<u>5</u> %	<u>40</u> %	<u>30</u> %	<u>5</u> %	<u>10</u> %	<u>NA</u> %	<u>NA</u> %	
Width of Riparian Zone								
	(check all that Avg. DBH (approx.)	of Dominants:	⊠ Trees: <u>8</u> in.		⊠ Saplir _3_in.	ngs/Shrubs:	⊠ H€	erbs
Dominant Bank Vegeta BLACK WALNUT, S CHRISTMAS FERN	SYCAMORE, E	BLACKJACK ENBRIAR	OAK, RED	BUD, TULIP T	REE,	SPICEBUSH	l, DEER	TONGUE,
Aquatic Habitats (ex: su			n, overhanging	banks/roots, leaf pac	ks, large	submerged wood	, riffles, deep	o pools):
RIFFLES, RUNS, P		HANGING BA	ANKS, LAR	GE WOODY D	EBRIS	S		
Aquatic Organisms Ob FISH, FROGS, WA		2						
T&E Species Observed	(list):							
NA								
Disturbances (ex: livesto	ock access, manure i	in waterbody, waste	e discharge pipe	es):				
Tributary is:								
(check one)	Natural	□ Ar	tificial, man-m	ade 🗆 Manip	ulated			
Stream Quality ^a : (check one)	⊠ High		oderate	□ Low				

Waterbody	ID
SBUK043	

^a **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:

PERRENIAL STREAM IN CUTOVER AREA WITH FEW LARGE TREES, MOSTLY YOUNG GROWTH. CROSSES ROW, TIES INTO SBUK042. LOW GRADIENT, HIGH AMOUNT OF WOODY DEBRIS, SOME POOLS

Waterbody Sketch (Include north arrow, centerline, distance from centerline, data point location, survey boundary, and IDs of associated features) S BUKO 42 SURVEY CORRIDOR SBUKOU Form Rev. 07/09/2014



Waterbody point sbuk043 facing South and across



Waterbody point sbuk043 facing West and upstream



Waterbody point sbuk043 facing East and downstream

Survey Description Project Name:	1	Waterbady No.	mai		10/	lotorhody ID:	Te.	Date:
		Waterbody Na		Millia Dissa		aterbody ID:		
Southeast Reliability	/	Unnamed Tr	ibutary to v	VIIIIS RIVER	S	BUK044	ľ	3/15/2014
State:	County:	•	Company:		Crew N	lember Initial	Photos:	
Virginia	Buckingham		WOODAR	D & CURRAN	JD, SG	ì	IMG 23	42 to 2344 x,u,d
Tract Number(s):			Nearest Mile	epost:	•	Associated W	etland ID	
09-101			201			NA		
Survey Type: (check one)	⊠Centerline	e □Re-F	Route	□ Access Road	d	□Other:		
Physical Attribute								
Stream Classification: (check one)	Ephemera	al ⊠Intor	mittent	□Perennial				
,	— Epitemera	ai Airitei	millent					
Waterbody Type: (check one)	River □ Str	eam □ Dito	ch □ Ca	anal ⊠ Othe	r:			
OHWM	OHWM Indica							
Width: 4_ft.	(check all that appl	y)	☐ Clear lin on bank	ne □Shelvir	ng	⊠Wrested vegetation	⊠Scouring	⊠Water staining
Height: 0.3 ft. N/A□	⊠Bent, r vegetatio	matted, or missin on	g □Wrack lii	ne □Litter a debris	nd	☐ Abrupt plan community ch		naracteristic change
Width of Waterbody - T	op of Width	of Waterbody -	Toe of Slope	Width of Waterb	ody - W	ater Edge to	Depth of Water	:
Bank to Top of Bank:		of Slope:	-	Water Edge:	-	_	(Approx.)	
<u>15</u> ft.		<u>4_</u> ft.		N/A□	<u>3</u> ft.		N/A⊠	<u>0.3</u> ft.
Sinuosity:	Water	velocity:		Bank height			Bank slope	
(check one)	(Approx.)			Right:			Right:	
		<u>0.1_f</u> ps		1.44.	<u>3</u> ft.			45 degrees
⊠Meanderir	ng N/A⊠			Left:	<u>2</u> ft.		Left	: _ <u>25_</u> degrees
Qualitative Attribu								
Water Appearance:	162							
	No water ⊠0	Clear □Turb	-		ırface :um	□Algal mats	□Other:	
	Bedrock ⊠ Bo	oulder ⊠ Cobb	ole ⊠ Grave	el 🛭 Sand	⊠ Silt/ c	lay 🛭 Organic	Other:	
(check all that apply)NA % of Substrate: 5	% <u>5</u> %	<u>10</u> %	<u>30</u> %	<u>15</u> %	<u>15</u> %	<u>20</u> %	<u>NA</u> %	
Width of Riparian Zone	: Vegetative	e Lavers						
Width of Riparian Zone	(check all that		⊠ Trees:	:	⊠ Saplir	ngs/Shrubs:		
<u>100_ft</u> - N/A□	Avg. DBH (approx.)	of Dominants:	<u>35</u> in.		<u>3</u> in.			
Dominant Bank Vegeta RED OAK, RED MA GREENBRIAR	tion (list APLE, IRONW	OOD, TULIP	TREE, SPI	CEBUSH, DE	ER TO	NGUE, CHR	RISTMAS FEF	RN, JEWELWEED
Aquatic Habitats (ex: su	bmerged or emerge	d aquatic vegetatio	n, overhanging	banks/roots, leaf pag	cks. large	submerged wood	. riffles, deep pools):
NA		1	,		, 9-	g	,	,-
Aquatic Organisms Ob NA	served (list):							
T&E Species Observed	(list):							
NA								
Disturbances (ex: livesto	ock access, manure i	in waterbody, waste	e discharge pipe	es):				
NA		•	2					
Tributary is: (check one)	⊠ Natural	□ Ar	ificial, man-m	ade 🗆 Manip	oulated			
Stream Quality ^a : (check one)	☐ High	□ Mo	oderate	⊠ Low				

^a 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/SEEP ORIGINATES FROM HILLSIDE, IN CUTOVER AREA WITH FEW LARGE TREES (EXCEPT A 52-INCH RED OAK LOCATED 12 FT TO WEST OF STREAM), MOSTLY YOUNG GROWTH. TIES INTO SBUK043. LOW GRADIENT, SEEP, HIGH AMOUNT OF EMERGENT VEGETATION IN UPPER REACHES.

Waterbody Sketch (Include north arrow, centerline, distance from centerline, data point location, survey boundary, and IDs of associated features) SURVEY CORRIDOR Form Rev. 07/09/2014



Waterbody point sbuk044 facing North and across



Waterbody point sbuk044 facing West and upstream



Waterbody point sbuk044 facing East and downstream

Survey Description Project Name:	n	Waterbody Na	mo:		lw.	aterbody ID:		Date:
Southeast Reliability	У	Unnamed Tr		Villis River		BUK045		8/15/2014
State:	County:		Company:		Crew N	Member Initial	Pho	otos:
Virginia	Buckingham		WOODAR	D & CURRAN	JD, SG	•	IM	G 2347 to 2349 x,u,d
Tract Number(s):			Nearest Mile	epost:		Associated W	etland ID	
09-100			201			INA		
Survey Type: (check one)	⊠Centerline	e □Re-I	Route	□ Access Road	i	□Other:		
Physical Attribute Stream Classification:								
(check one)	□Ephemera	al □Inte	mittent	⊠Perennial				
Waterbody Type:	River ⊠ Str	ream 🗆 Dito	ch 🗆 Ca	anal 🗆 Other	:			
OHWM Width:	OHWM Indica (check all that appl		☐ Clear lin	ne ⊠Shelvin	ıg	□Wrested vegetation	⊠Sc	ouring ⊠Water staining
Height: 1_ft. N/A□	⊠Bent, r vegetatio	matted, or missir on	ig □Wrack lii	ne ⊠Litter a debris	nd	□ Abrupt plan community ch		Soil characteristic change
Width of Waterbody - T Bank to Top of Bank:		of Waterbody -	Toe of Slope	Width of Waterb Water Edge:	ody - W	ater Edge to	Depth of (Approx.)	Water:
		4_ft.		N/A□	<u>3_</u> ft.		N/A□	<u>0.4</u> ft.
Sinuosity:		velocity:		Bank height			Bank slop	ре
(check one) ⊠Straight	(Approx.)			Right:	0.11			Right:
		<u>0.1_</u> fps		Left:	<u>2</u> ft.			<u>80</u> degrees Left:
□Meanderir	ng N/A□				<u>7</u> ft.			45 degrees
Qualitative Attribu	tes							
Water Appearance: (check one)	[]] No water ⊠0	Clear □Turb	-		rface um	□Algal mats	□Other:	
	Bedrock 🗆 Bo	oulder Cobb	ole ⊠ Grave	el ⊠ Sand	⊠ Silt/ c	lay 🛭 Organio	: Oth	er:
(check all that apply)NA % of Substrate: N	<u>NA</u> 9	% <u>NA</u> %	<u>15</u> %	20 %	<u>40</u> %	<u>25</u> %	<u>NA</u> %	
Width of Riparian Zone	: Vegetative	,	ПТ		V 0	/Ob b	<u> </u>	
_ <u>100_ft</u> - N/A□	Avg. DBH (approx.)	of Dominants:	□ Trees: in.		∆ Sapıır _4_in.	ngs/Shrubs:	⊠ H	eros
Dominant Bank Vegeta RED MAPLE, TULII GREENBRIAR		ER, WILLOW	, VIRGINIA	PINE, JUNIPE	ERUS,	VIRGINIA P	UNE, H	ONEYSUCKLE,
Aquatic Habitats (ex: su OVERHANGING BA				·	-	=		
Aquatic Organisms Ob FISH, FROGS, WATER								
T&E Species Observed NA	(list):							
Disturbances (ex: liveston NA	ock access, manure	in waterbody, wasto	e discharge pipe	es):				
Tributary is:		□ Ar	tificial, man-m	ade □ Manip	ulated			
Stream Quality ^a : (check one)	⊠ High	□ Mo	oderate	□ Low				

Form Rev. 07/09/2014

^a **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:

PERRENIAL STREAM EXTENDING FROM POND/MAPPED PEM WETLAND OFF ROW TO WEST. IN CUTOVER AREA, ALL YOUNG GROWTH. CROSSES ROW. LOW GRADIENT, FLOW TO NORTHEAST. SHELVES AND BARS IN CHANNEL DOMINATED BY EMERGENT VEGETATION.SBUK046 TUES INTO THIS FEATURE OFF ROW.

Waterbody Sketch (Include north arrow, centerline, distance from centerline, data point location, survey boundary, and IDs of associated features) SBUKOUS V URVEY JK046



Waterbody point sbuk045 facing North and across



Waterbody point sbuk045 facing West and upstream



Waterbody point sbuk045 facing East and downstream

Survey Description	n							
Project Name:		Waterbody Nai	ne:		w	aterbody ID:		Date:
Southeast Reliability		Unnamed Tr	ibutary to V	Villis River		BUK046		8/15/2014
State:	County:		Company:		Crew N	Member Initial	Photos:	
•	Buckingham			D & CURRAN	JD, SG			351 to 2353 x,u,d
Tract Number(s):			Nearest Mile	epost:		Associated W	etland ID	
09-100			202			NA .		
Survey Type: (check one)	⊠Centerline	e □Re-F	Route	□ Access Road	d	□Other:		
Physical Attribute Stream Classification:								
(check one)	□Ephemera	al ⊠Inter	mittent	□Perennial				
Waterbody Type:	River ⊠ Str	ream Dito	h □ Ca	anal 🗆 Other	r:			
OHWM Width:	OHWM Indica (check all that appl		☐ Clear lin	ne ⊠Shelvin	ng	⊠Wrested vegetation	⊠Scourin	g ⊠Water staining
Height: 	⊠Bent, r vegetatio	matted, or missin on	g □Wrack liı	ne ⊠Litter a debris	nd	☐ Abrupt plan community ch		haracteristic change
Width of Waterbody - T Bank to Top of Bank:		of Waterbody - of Slope:	Toe of Slope	Width of Waterb Water Edge:	ody - W	ater Edge to	Depth of Wate (Approx.)	r:
_ <u>4</u> ft.		3_ft.		N/A□	<u>2</u> ft.		N/A□	<u>0.3</u> ft.
Sinuosity:	Water	velocity:		Bank height			Bank slope	
(check one) ⊠ Straight	(Approx.))		Right:			Right	:
		<u>0.1_</u> fps		Left:	<u> </u>		Lef	_ <u>25_</u> degrees
□Meanderir	ng N/A□				<u>1.5</u> ft.		201	_ <u>45_</u> degrees
Qualitative Attribu	tes							
Water Appearance:	[]] No water ⊠0	Clear □Turb			ırface	U	□Other:	
Substrate:	Bedrock □ Bo	oulder □ Cobb			um ⊠ Silt/ c	mats lay ⊠ Organic	: ☐ Other:	
(check all that apply)NA	<u> NA</u> 9		5 <u>%</u>		<u>45_</u> %	35 %	NA_%	
Width of Riparian Zone	: Vegetative	e Lavers:						
	(check all that		□ Trees: in.	: [⊠ Saplir _4_in.	ngs/Shrubs:	⊠ Herbs	
Dominant Bank Vegeta RED MAPLE, TULII GREENBRIAR		ER, WILLOW,	VIRGINIA	PINE, JUNIPE	ERUS,	VIRGINIA P	UNE, HONE	YSUCKLE,
Aquatic Habitats (ex: su	ubmerged or emerge	d aquatic vegetation	n, overhanging l	banks/roots, leaf pac	cks, large	submerged wood	, riffles, deep pool	s):
Aquatic Organisms Ob	oserved (list):							
NA								
T&E Species Observed	(list):							
NA								
Disturbances (ex: livesto	ock access, manure i	n waterbody, waste	discharge pipe	es):				
Tributary is:	Natural	□ Art	ificial, man-m	ade 🗆 Manip	ulated			
Stream Quality ^a : (check one)	☐ High	⊠ Mo	derate	□ Low				

Form Rev. 07/09/2014

^a **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 FLOWING TO WEST. IN CUTOVER AREA, ALL YOUNG GROWTH. CROSSES ROW. LOW GRADIENT, SHELVES AND BARS IN CHANNEL DOMINATED BY EMERGENT VEGETATION. TIES INTO SBUK045.

OVER 3 FT OF SEDIMET IN SOME AREAS OF STREAM BASE.

Waterbody Sketch (Include north arrow, centerline, distance from centerline, data point location, survey boundary, and IDs of associated features) 5BU12045 BUKO46



Waterbody point sbuk046 facing North and across



Waterbody point sbuk046 facing West and upstream



Waterbody point sbuk046 facing East and downstream

Nysical Attributes Iream Classification:	inear Waterbod	y Data Sheet				·		
ACP UNT to Willis River Sup 016 8/7/IS Buckingham ESI Research Milepost: Associated Welfand (Dig): NNA Associated Welfand (Dig): NNA NNA NNA NNA NNA NNA NNA N		n	harashadu Alam			hatata da a dec	ID:	Detail
ate: CountyParish: Company: Crew Member Initiate: Protys. F. act Number(e): Nearest Milepost: Associated Wetland (Dis): NA act Number(e): Nearest Milepost: Associated Wetland (Dis): NA act Number(e): Cremerine Re-Route Associated Wetland (Re-Route) Associated Wetland	•		ł.		O:un=	_		1 4 1
Nearest Milepost: Associated Wetland ID(s): NA		lo						8/ ///5
Nearest Milepost: Associated Wetland ID(s): NA		l _					itiais:	Photos:
Contestine Con		Buckingha						
The property of the property o	• •				•	Associat		
Middle of Substrate: Bedrock Boolder Brown Bank slope Bank				10	అా.క			ND
Tributary is: Carea Care	urvey Type: heck one)	Centerline	e ⊟Re-F	Route	□Access Road	□Other:		
Tributary is: Carea Care	hysical Attribute	s	- 44			,		. .
Canal Other: Cana	tream Classification:	_						
Month Mont	·	□Ephemer	al ⊡Inter ———	mittent ————	⊡Perennial	·- · · · · · · · · · · · · · · · · · ·		
Width of Waterbody - Top of ank to Top of Stope: Depth of Water Edge: Depth of Water	heck one)	⊐River ⊑ Stı	ream 🛚 Dito	ch 🗆 Ca	anal 🛭 Other	:		
Accordance Wegetation Wegetation Wegetative of Slope Width of Waterbody - Water Edge to Depth of Water Copposity Male Top of Slope Water Edge: The water Edge Top of Slope Water Edge: Top of Slope Top of Slope Water Edge: Top of Slope Top of Slope Water Edge: Top of Slope	Λ			Clear lin	ne □Shelvin	g DW/resi Vegetati	ted on	
Width of Waterbody - Top of Bank: Depth of Water Edge: Water Edge: Depth of Water Maprox. ft.				ng ⊟Wrack li				
12 ft. 6 ft. N/A 7 ft. N/A ft. Inuosity: Water velocity: Bank height Right: 5 ft. Left: 70 degrees Left: 3 ft. Left: 70 degrees Left: 70 de	Width of Waterbody -			Toe of Slope	Width of Waterb	ody - Water Edg		
inuosity: Straight Water velocity: Bank height Right: St. Left: 3 t. Left: 10 degrees	_	to Toe	of Slope:		water Edge:	-7	(Appro	j.
Straight Water velocity: Bank height Right: 5 ft. Left: 3 ft. Left:	ft.		ft.		N/A 🗆	ft.	N/AI	
Straight	inuosity:	Water	velocity:		<u> </u>			
Left: 3 ft. Left: 70 degrees	check one) Straight	(Approx	. 1		Right:	5.		Right: (6
Qualitative Attributes Vater Appearance:	⊡ Meander	ing N/A		fps	Left:	<u></u>		Left: 74
Nater Appearance:	Ouglitativa Attrib	utor						<u> </u>
on surface scum mats Substrate:	Water Appearance:				<u> </u>			
Midth of Riparian Zone: Wegetative Layers: Check all that apply) Wegetative Layers: Wegetative L	(check one)	□No water ፲	Klear □Tur					her:
Midth of Riparian Zone: Vegetative Layers: Check all that apply) With a populative Layers: Check all that apply) Avg. DBH of Dominants: 10 in. 1 in. N/A in.		☐ Bedrock ☐ E			vel 🗹 Sand	☐ Silt/ clay ☐ 0	Organic (☐ Other:
Check all that apply) Avg. DBH of Dominants: ID in. I in. N/A in.	% of Substrate:	%	<u>_% _60</u>	_% <u>30</u>	10 %	%	% _	%
Check all that apply) Avg. DBH of Dominants: ID in. I in. N/A in.	Width of Riparian Zor	ne: Vegetati	ve Lavers:					
Dominant Bank Vegetation (list): Ace rubrum, Polystichum acrostichoides, Lonicera japonica Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/rooks, leaf packs, large submerged wood, nifles, deep pools): Pools, leaf packs, overhanging banks Aquatic Organisms Observed (list): Crey fish, frogs T&E Species Observed (list): none Disturbances (ex: livestock access manure in waterbody waste discharge pipes): none Tributary is: (check one) Natural		(check all th	aat apply)		es:	Saplings/Shru	ibs:	
Dominant Bank Vegetation (list): Accerrubrum, Polystichum acrostichoides, Lonicera japonica Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/toots, leaf packs, large submerged wood, riffles, deep pools): Pools, leaf packs, overhanging banks Aquatic Organisms Observed (list): Crey fish, frogs T&E Species Observed (list): none Disturbances (ex: livestock access manure in waterbody waste discharge pipes): none Tributary is: (check one) Natural Artificial, man-made Manipulated Stream Quality*:		I	H of Dominants	: <u>10</u>	in.	in.		<u>~/A_</u> in.
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): Pools, leaf packs, overhanging banks Aquatic Organisms Observed (list): Cray fish, frogs T&E Species Observed (list): none Disturbances (ex: livestock access manure in waterbody waste discharge pipes): none Tributary is: (check one) Natural Artificial, man-made Manipulated Stream Quality*:	Dominant Bank Vege	tation (list):					·	
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): Pools, leaf packs, overhanging banks Aquatic Organisms Observed (list): Cray fish, frogs T&E Species Observed (list): none Disturbances (ex: livestock access manure in waterbody waste discharge pipes): none Tributary is: (check one) Natural Artificial, man-made Manipulated Stream Quality*:	Acerrubrum	Polystich	um acros	tichoide:	s, Lonicer	i japonici	٩	
Aquatic Organisms Observed (list): Cray fish frogs T&E Species Observed (list): none Disturbances (ex: livestock access manure in waterbody waste discharge pipes): none Tributary is: (check one) Natural Artificial, man-made Manipulated						-		les, deep pools):
Aquatic Organisms Observed (list): Cray fish frogs T&E Species Observed (list): none Disturbances (ex: livestock access manure in waterbody waste discharge pipes): none Tributary is: (check one) Natural Artificial, man-made Manipulated	Pools leaf pa	cks overhau	iging bank	:5				
Cray fish, frogs T&E Species Observed (list): none Disturbances (ex: livestock access manure in waterbody waste discharge pipes): none Tributary is: (check one) Natural Artificial, man-made Manipulated	,		<i>J</i>					
Disturbances (ex: livestock access manure in waterbody waste discharge pipes): None Tributary is: (check one) Natural Artificial, man-made Manipulated Stream Quality 2:		, , ,						
Tributary is: (check one) □ Natural □ Artificial, man-made □ Manipulated Stream Quality ² :	-	red (list):						
Tributary is: (check one) □ Natural □ Artificial, man-made □ Manipulated Stream Quality ² :	Disturbances (ex: livi	estock access manu	re in waterbody wa	este discharge p	pipes):	· <u> </u>		
(check one) □ Natural □ Artificial, man-made □ Manipulated Stream Quality ² :	none							
	, -	1 Natur	al 🗓	Artificial, man	ı-made □ Ma	nipulated		
	•	Diah		Moderato	□ Lav	,		

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.

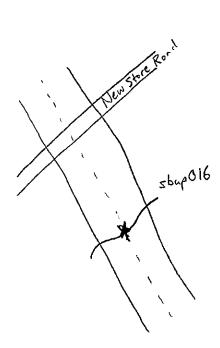
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate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

7



Environmental Field Surveys Waterbody Photo Page



Waterbody sbup016 facing southwest upstream.



Waterbody sbup016 facing northeast downstream.