

Linear Waterbody Data Sheet

Survey Description				
Project Name: Southeast Reliability	Waterbody Name: Butterwood Creek	Waterbody ID: SDIM002	Date: 9/2/2014	
State: Virginia	County: Dinwiddie	Company: W&C	Crew Member Initials: SG, EB	Photos: 2751-2753, X U D
Tract Number(s): 12-113		Nearest Milepost: 244	Associated Wetland ID(s): WDIM001F AND WDIM001E	
Survey Type: <small>(check one)</small> <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:				
Physical Attributes				
Stream Classification: <small>(check one)</small> <input checked="" type="checkbox"/> Ephemeral <input type="checkbox"/> Intermittent <input type="checkbox"/> Perennial				
Waterbody Type: <small>(check one)</small> <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:				
OHWM Width: _2_ ft.	OHWM Indicator: <small>(check all that apply)</small> <input type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input type="checkbox"/> Scouring <input checked="" type="checkbox"/> Water staining			
Height: _0.2_ ft.	<input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input checked="" type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change			
N/A <input type="checkbox"/>				
Width of Waterbody - Top of Bank to Top of Bank: _3_ ft.	Width of Waterbody - Toe of Slope to Toe of Slope: _2_ ft.	Width of Waterbody - Water Edge to Water Edge: N/A <input checked="" type="checkbox"/> ___ ft.	Depth of Water: <small>(Approx.)</small> ___ ft.	
Sinuosity: <small>(check one)</small> <input type="checkbox"/> Straight <input checked="" type="checkbox"/> Meandering	Water velocity: <small>(Approx.)</small> ___ fps N/A <input checked="" type="checkbox"/>	Bank height Right: <u>0.3</u> ft. Left: <u>0.3</u> ft.	Bank slope Right: <u>80</u> degrees Left: <u>75</u> degrees	
Qualitative Attributes				
Water Appearance: <small>(check one)</small> <input checked="" type="checkbox"/> No water <input type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:				
Substrate: <small>(check all that apply)</small> <input type="checkbox"/> Bedrock <input type="checkbox"/> Boulder <input type="checkbox"/> Cobble <input type="checkbox"/> Gravel <input type="checkbox"/> Sand <input checked="" type="checkbox"/> Silt/ clay <input type="checkbox"/> Organic <input type="checkbox"/> Other:				
% 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.	Vegetative Layers: <small>(check all that apply)</small> <input checked="" type="checkbox"/> Trees: <input checked="" type="checkbox"/> Saplings/Shrubs: <input checked="" type="checkbox"/> Herbs			
N/A <input type="checkbox"/>	Avg. DBH of Dominants: <small>(approx.)</small> <u>10</u> in. <u>2</u> in.			
Dominant Bank Vegetation (list): RED MAPLE, SWEET GUM, TULIP TREE, CHESTNUT OAK, IRONWOOD, FLOWERING DOGWOOD, WHITE GRASS				
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): NA				
Aquatic Organisms Observed (list): NA				
T&E Species Observed (list): NA				
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): NA				
Tributary is: <small>(check one)</small> <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated				
Stream Quality ^a: <small>(check one)</small> <input type="checkbox"/> High <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Low				

Waterbody ID:
SDIM002

^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.

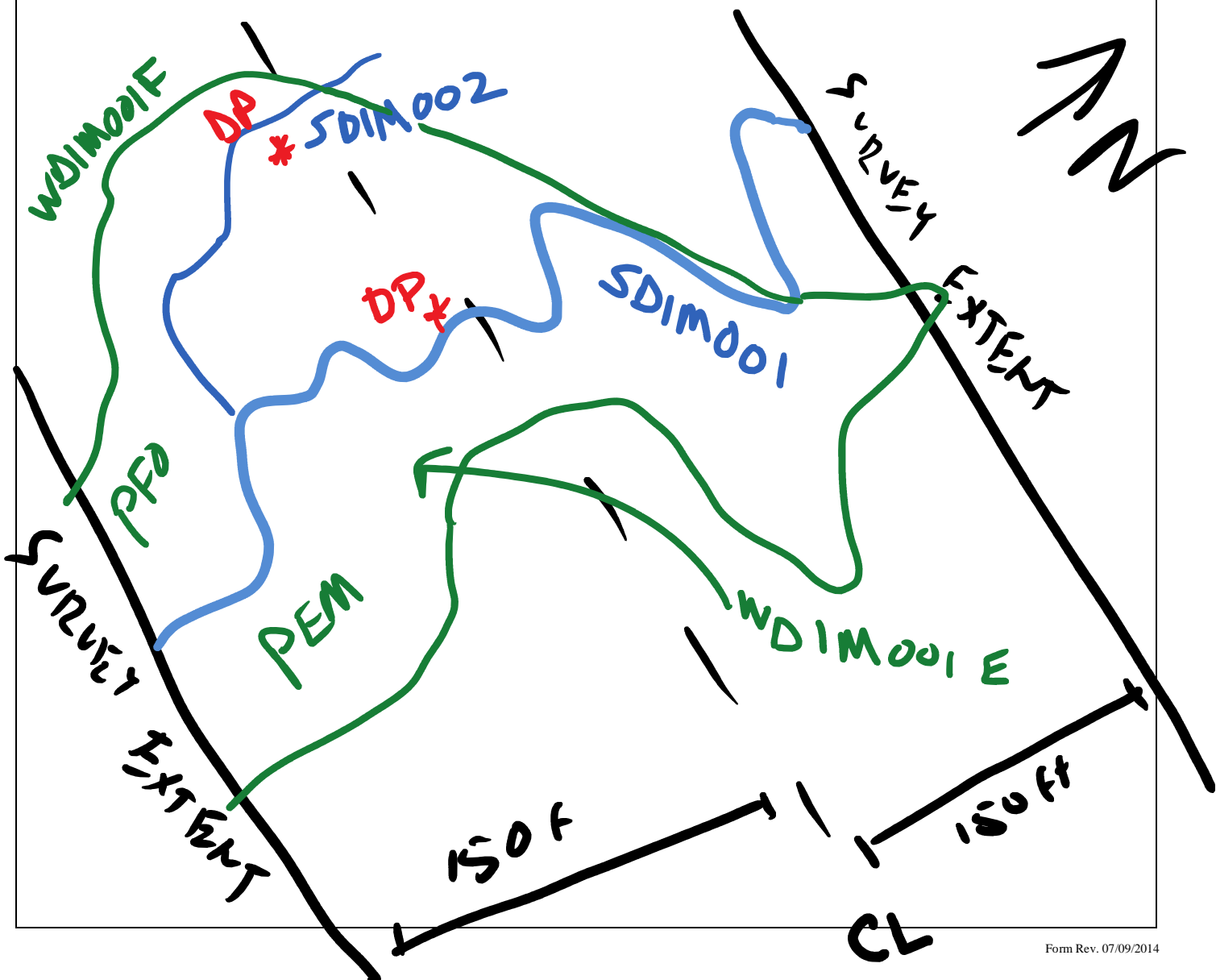
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate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

FLOW IS TO THE SOUTH AND TIES INTO SDIM001 IN THE ROW. OHWM AND BANK WIDTH WIDEN DOWNSTREAM.

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





Waterbody point sdim002 facing across



Waterbody point sdim002 facing upstream



Waterbody point sdim002 facing downstream

FLOWS FROM, Linear Waterbody Data Sheet

Survey Description				
Project Name: Southeast Reliability		Waterbody Name: Butterwood Creek		Waterbody ID: SDIM001
State: Virginia		County: Dinwiddie	Company: W&C	Crew Member Initials: SG, EB
Tract Number(s): 12-113		Nearest Milepost: 244		Photos: 2747-2749, X U D
Associated Wetland ID(s): WDIM001F AND WDIM001E				
Survey Type: <i>(check one)</i> <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:				
Physical Attributes				
Stream Classification: <i>(check one)</i> <input type="checkbox"/> Ephemeral <input type="checkbox"/> Intermittent <input checked="" type="checkbox"/> Perennial				
Waterbody Type: <i>(check one)</i> <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:				
OHWM Width: <u>4</u> ft. Height: <u>1</u> ft. N/A <input type="checkbox"/>		OHWM Indicator: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Clear line on bank <input checked="" type="checkbox"/> Shelving <input checked="" type="checkbox"/> Wrested vegetation <input checked="" type="checkbox"/> Scouring <input type="checkbox"/> Water staining <input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input checked="" type="checkbox"/> Litter and debris <input checked="" type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change		
Width of Waterbody - Top of Bank to Top of Bank: <u>5</u> ft.	Width of Waterbody - Toe of Slope to Toe of Slope: <u>4</u> ft.	Width of Waterbody - Water Edge to Water Edge: N/A <input type="checkbox"/> <u>2</u> ft.	Depth of Water: <i>(Approx.)</i> N/A <input type="checkbox"/> <u>0.3</u> ft.	
Sinuosity: <i>(check one)</i> <input type="checkbox"/> Straight <input checked="" type="checkbox"/> Meandering	Water velocity: <i>(Approx.)</i> <u>0.2</u> fps N/A <input type="checkbox"/>	Bank height Right: <u>2</u> ft. Left: <u>2</u> ft.	Bank slope Right: <u>80</u> degrees Left: <u>75</u> degrees	
Qualitative Attributes				
Water Appearance: <i>(check one)</i> <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:				
Substrate: <i>(check all that apply)</i> % of Substrate: <u>NA</u> % <u>NA</u> % <u>NA</u> % <u>20</u> % <u>80</u> % <u>NA</u> % <u>NA</u> % <u>NA</u> %				
Width of Riparian Zone: N/A <input type="checkbox"/> <u>>100</u> ft.	Vegetative Layers: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Trees: <input checked="" type="checkbox"/> Saplings/Shrubs: <input checked="" type="checkbox"/> Herbs Avg. DBH of Dominants: <i>(approx.)</i> <u>10</u> in. <u>2</u> in.			
Dominant Bank Vegetation <i>(list)</i> : RED MAPLE, SWEET GUM, TULIP TREE, CHESTNUT OAK, IRONWOOD, FLOWERING DOGWOOD, WHITE GRASS				
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): SMALL POOLS, OVERHANGING ROOTS/BANKS				
Aquatic Organisms Observed <i>(list)</i> : FISH, WATER BEETLES, FROGS				
T&E Species Observed <i>(list)</i> : NA				
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): NA				
Tributary is: <i>(check one)</i> <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated				
Stream Quality ^a : <i>(check one)</i> <input checked="" type="checkbox"/> High <input type="checkbox"/> Moderate <input type="checkbox"/> Low				

Waterbody ID:
SDIM001

^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.

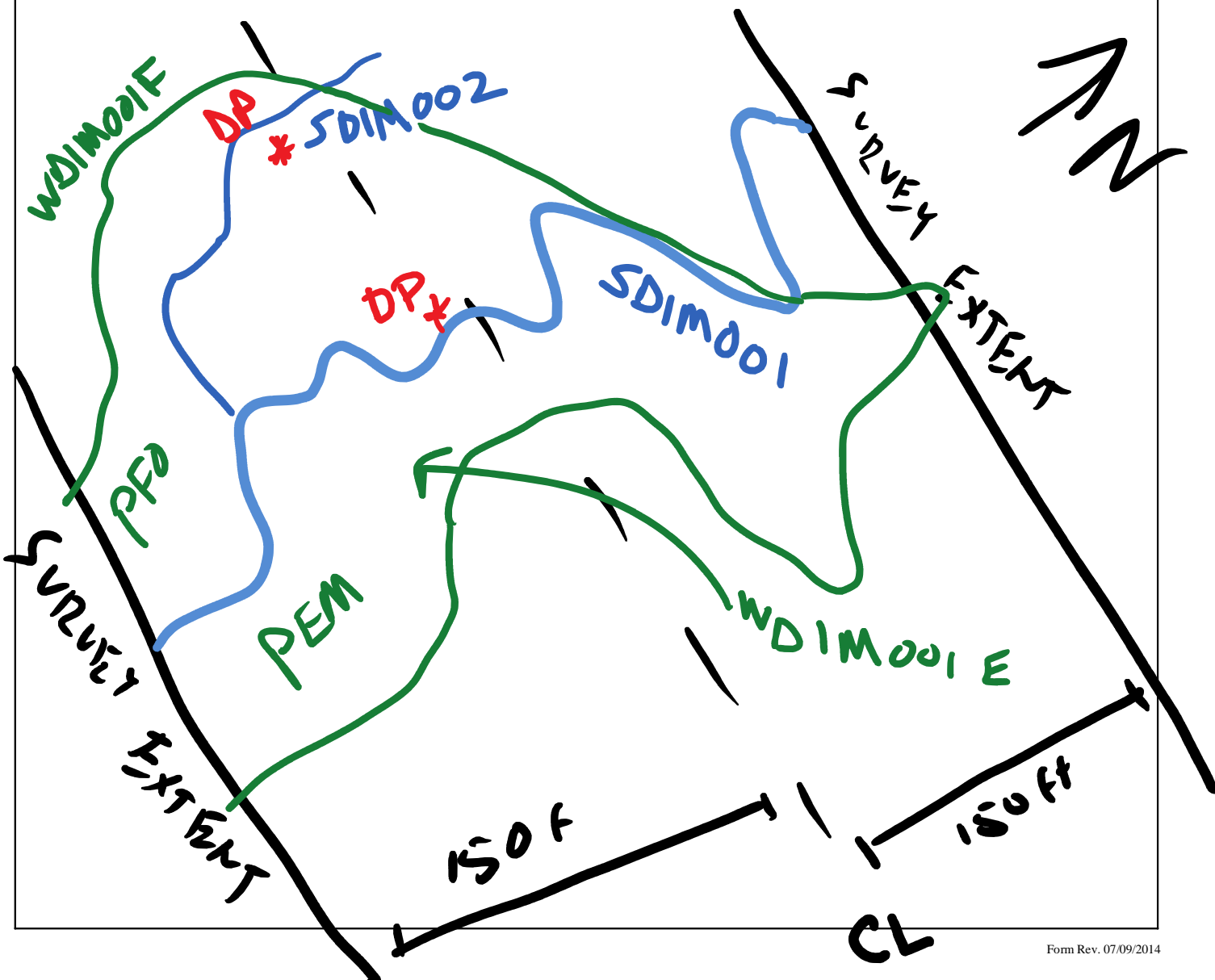
Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious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

FLOW IS TO THE SOUTH. CHARACTERISTICS ARE VARIABLE.

STREAM SDIM001 IS THE SPLITLINE BETWEEN WDIM001F AND WDIM001E.

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





Waterbody point sdim001 facing across



Waterbody point sdim001 facing upstream



Waterbody point sdim001 facing downstream

Linear Waterbody Data Sheet

Survey Description				
Project Name: Southeast Reliability	Waterbody Name: UNT TO Butterwood Creek	Waterbody ID: SDIM003	Date: 9/2/2014	
State: Virginia	County: Dinwiddie	Company: W&C	Crew Member Initials: SG, EB	Photos: 2728-2730, X U D
Tract Number(s): 13-002		Nearest Milepost: 245.3	Associated Wetland ID(s): WDIM003	
Survey Type: <small>(check one)</small> <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:				
Physical Attributes				
Stream Classification: <small>(check one)</small> <input type="checkbox"/> Ephemeral <input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> Perennial				
Waterbody Type: <small>(check one)</small> <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:				
OHWM Width: <u>2</u> ft. Height: <u>1</u> ft. N/A <input type="checkbox"/>	OHWM Indicator: <small>(check all that apply)</small> <input checked="" type="checkbox"/> Clear line on bank <input checked="" type="checkbox"/> Shelving <input checked="" type="checkbox"/> Wrested vegetation <input checked="" type="checkbox"/> Scouring <input type="checkbox"/> Water staining <input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change			
Width of Waterbody - Top of Bank to Top of Bank: <u>8</u> ft.	Width of Waterbody - Toe of Slope to Toe of Slope: <u>2</u> ft.	Width of Waterbody - Water Edge to Water Edge: N/A <input type="checkbox"/> <u>2</u> ft.	Depth of Water: <small>(Approx.)</small> N/A <input type="checkbox"/> <u>3</u> ft.	
Sinuosity: <small>(check one)</small> <input type="checkbox"/> Straight <input checked="" type="checkbox"/> Meandering	Water velocity: <small>(Approx.)</small> <u>0.1</u> fps N/A <input type="checkbox"/>	Bank height Right: <u>3</u> ft. Left: <u>3</u> ft.	Bank slope Right: <u>65</u> degrees Left: <u>70</u> degrees	
Qualitative Attributes				
Water Appearance: <small>(check one)</small> <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:				
Substrate: <small>(check all that apply)</small> % of Substrate: <u>NA</u> % <u>NA</u> % <u>NA</u> % <u>20</u> % <u>60</u> % <u>20</u> % <u>NA</u> % <u>NA</u> %				
Width of Riparian Zone: <u>>100</u> ft. N/A <input type="checkbox"/>	Vegetative Layers: <small>(check all that apply)</small> <input type="checkbox"/> Trees: <input type="checkbox"/> Saplings/Shrubs: <input checked="" type="checkbox"/> Herbs Avg. DBH of Dominants: <small>(approx.)</small> <u> </u> in. <u> </u> in.			
Dominant Bank Vegetation (list): UMBRELLA SEDGE, SMARTWEEDS, HORSE NETTLE, SPIKE RUSH, SOFT RUSH, DOG FENNEL				
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): OVERHANGING VEGETATION, SHRUB COVER, SHELVES				
Aquatic Organisms Observed (list): FISH				
T&E Species Observed (list): NA				
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): IMPACTS FROM CATTLE				
Tributary is: <small>(check one)</small> <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated				
Stream Quality ^a: <small>(check one)</small> <input type="checkbox"/> High <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Low				

Waterbody ID:
SDIM003

^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.

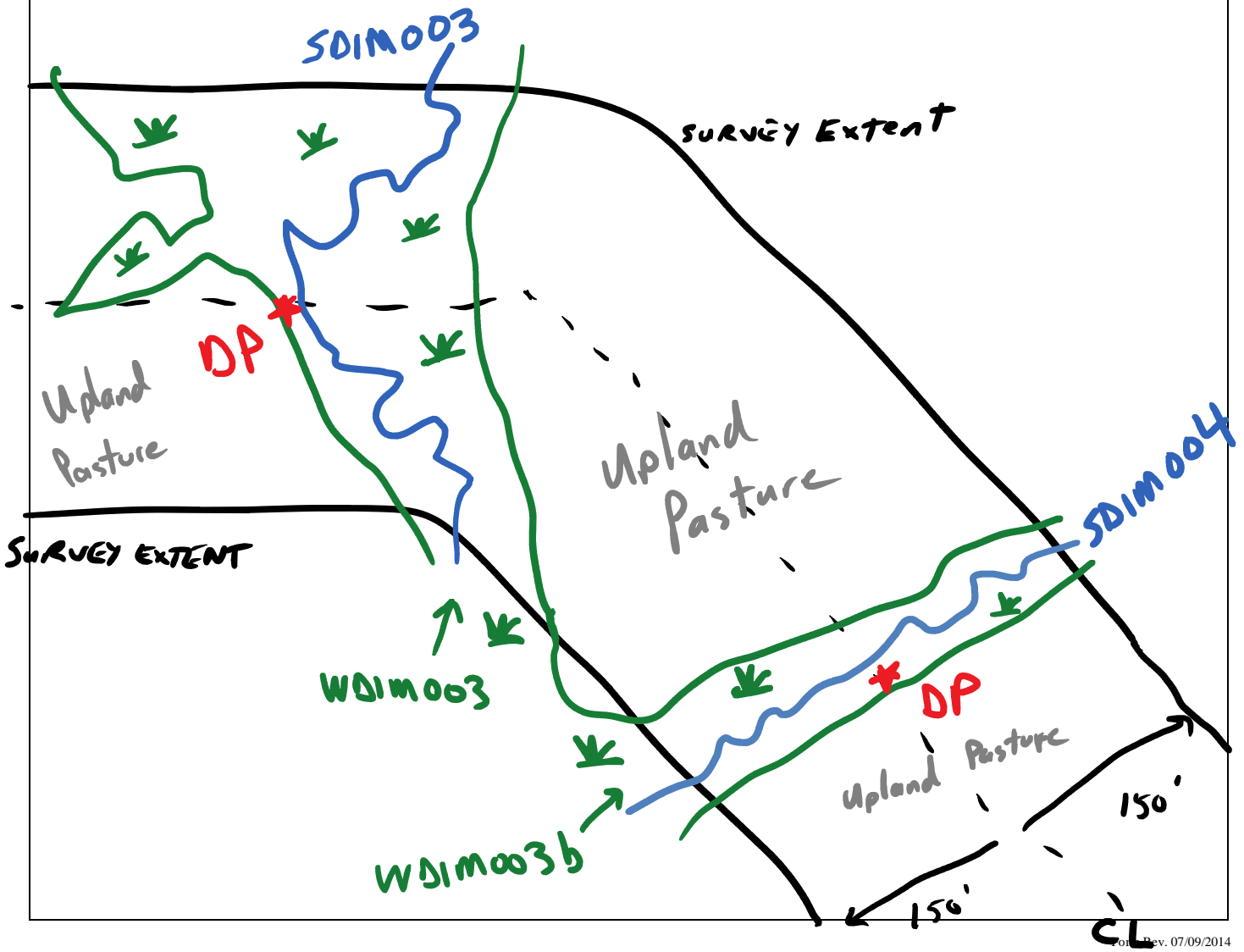
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate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

FLOW IS TO THE SOUTH AND TIES INTO SDIM004 OUTSIDE THE ROW. HEAVY IMPACT FROM LIVESTOCK. CHARACTERISTICS ARE HIGHLY VARIABLE.

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





Waterbody point sdim003 facing across



Waterbody point sdim003 facing upstream



Waterbody point sdim003 facing downstream

Linear Waterbody Data Sheet

Survey Description			
Project Name: Southeast Reliability		Waterbody Name: UNT TO Butterwood Creek	
Waterbody ID: SDIM004		Date: 9/2/2014	
State: Virginia	County: Dinwiddie	Company: W&C	Crew Member Initials: SG, EB
Photos: 2724-2726, X U D			
Tract Number(s): 13-002		Nearest Milepost: 245.36	Associated Wetland ID(s): WDIM003b
Survey Type: <i>(check one)</i> <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:			
Physical Attributes			
Stream Classification: <i>(check one)</i> <input type="checkbox"/> Ephemeral <input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> Perennial			
Waterbody Type: <i>(check one)</i> <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:			
OHWM Width: <u>1</u> ft. Height: <u>0.4</u> ft. N/A <input type="checkbox"/>		OHWM Indicator: <i>(check all that apply)</i> <input type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input checked="" type="checkbox"/> Wrested vegetation <input checked="" type="checkbox"/> Scouring <input checked="" type="checkbox"/> Water staining <input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change	
Width of Waterbody - Top of Bank to Top of Bank: <u>3</u> ft.	Width of Waterbody - Toe of Slope to Toe of Slope: <u>1</u> ft.	Width of Waterbody - Water Edge to Water Edge: N/A <input type="checkbox"/> <u>1</u> ft.	Depth of Water: <i>(Approx.)</i> N/A <input type="checkbox"/> <u>3</u> ft.
Sinuosity: <i>(check one)</i> <input type="checkbox"/> Straight <input checked="" type="checkbox"/> Meandering	Water velocity: <i>(Approx.)</i> <u>0.1</u> fps N/A <input type="checkbox"/>	Bank height Right: <u>1.5</u> ft. Left: <u>1.5</u> ft.	Bank slope Right: <u>65</u> degrees Left: <u>75</u> degrees
Qualitative Attributes			
Water Appearance: <i>(check one)</i> <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:			
Substrate: <i>(check all that apply)</i> % of Substrate: <u>NA</u> % <u>NA</u> % <u>NA</u> % <u>NA</u> % <u>15</u> % <u>65</u> % <u>20</u> % <u>NA</u> %			
Width of Riparian Zone: <u>>100</u> ft. N/A <input type="checkbox"/>	Vegetative Layers: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Trees: <u>10</u> in. <input checked="" type="checkbox"/> Saplings/Shrubs: <u>2</u> in. <input checked="" type="checkbox"/> Herbs		
Dominant Bank Vegetation <i>(list)</i> : BLACK WILLOW, BLACKBERRY, SMARTWEEDS, CAREX SPP., EUROPEAN OLIVE, JUNIPER, SOFT RUSH, DOG FENNEL			
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): OVERHANGING ROOTS, SHRUB COVER			
Aquatic Organisms Observed <i>(list)</i> : FISH, FROGS, WATER BEETLES			
T&E Species Observed <i>(list)</i> : NA			
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): IMPACTS FROM CATTLE			
Tributary is: <i>(check one)</i> <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated			
Stream Quality ^a : <i>(check one)</i> <input type="checkbox"/> High <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Low			

Waterbody ID:
SDIM004

^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.

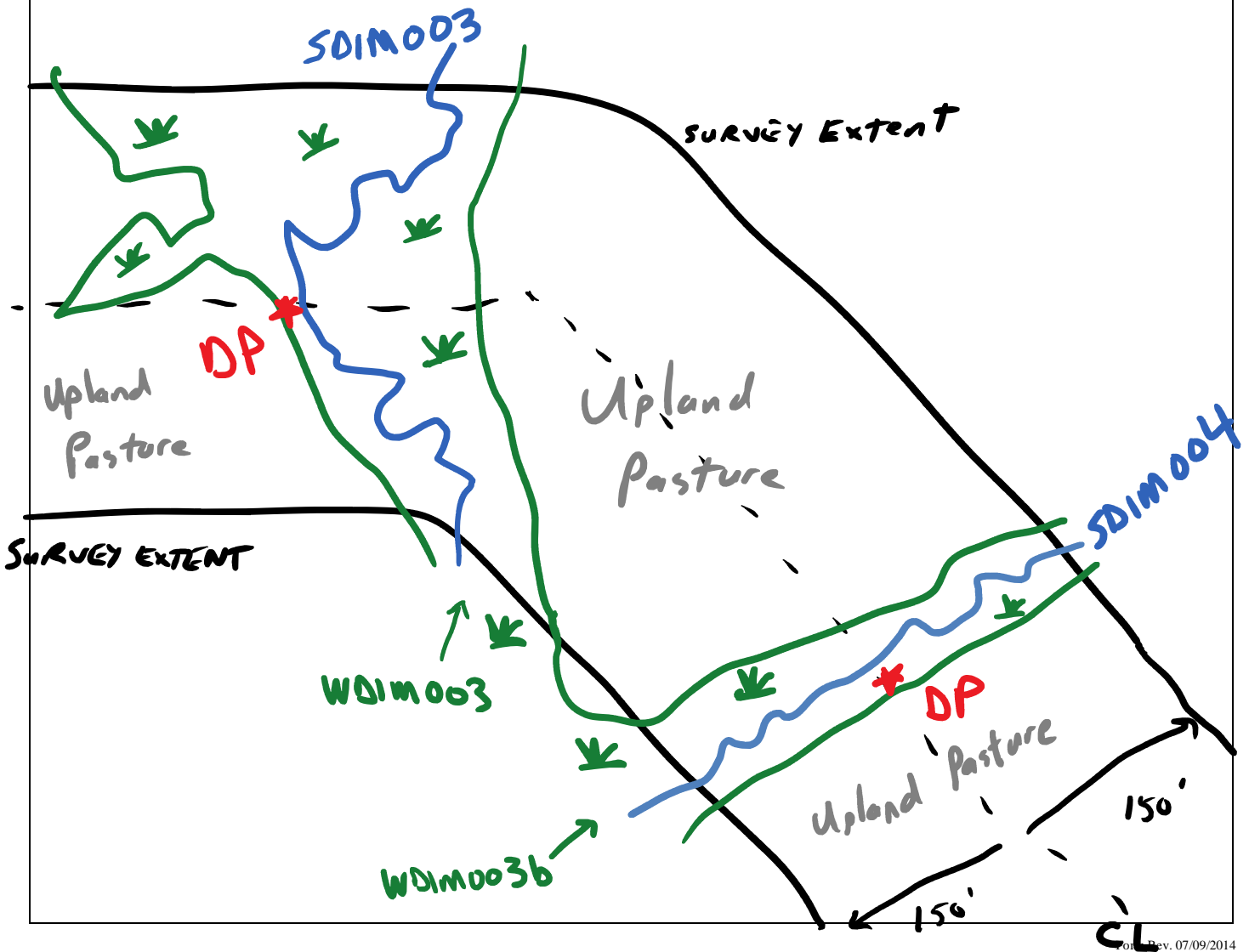
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate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

FLOW IS TO THE SOUTHWEST AND TIES INTO SDIM003 OUTSIDE THE ROW.

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





Waterbody point sdim004 facing across



Waterbody point sdim004 facing upstream



Waterbody point sdim004 facing downstream

Linear Waterbody Data Sheet

Survey Description				
Project Name: Atlantic Coast Pipeline		Waterbody Name: UNT TO Butterwood Creek		Waterbody ID: SDIM005
State: Virginia		County: Dinwiddie	Company: W&C	Crew Member Initials: SG, EB
Tract Number(s): 12-103		Nearest Milepost: 245.6	Associated Wetland ID(s): WDIM005f	
Survey Type: <i>(check one)</i> <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:				
Physical Attributes				
Stream Classification: <i>(check one)</i> <input type="checkbox"/> Ephemeral <input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> Perennial				
Waterbody Type: <i>(check one)</i> <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:				
OHWM Width: <u>6</u> ft. Height: <u>1</u> ft. N/A <input type="checkbox"/>		OHWM Indicator: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Clear line on bank <input checked="" type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input checked="" type="checkbox"/> Scouring <input type="checkbox"/> Water staining <input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input checked="" type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change		
Width of Waterbody - Top of Bank to Top of Bank: <u>10</u> ft.	Width of Waterbody - Toe of Slope to Toe of Slope: <u>6</u> ft.	Width of Waterbody - Water Edge to Water Edge: N/A <input type="checkbox"/> <u>2</u> ft.	Depth of Water: <i>(Approx.)</i> N/A <input type="checkbox"/> <u>0.1</u> ft.	
Sinuosity: <i>(check one)</i> <input type="checkbox"/> Straight <input checked="" type="checkbox"/> Meandering	Water velocity: <i>(Approx.)</i> <u>0.1</u> fps N/A <input type="checkbox"/>	Bank height Right: <u>4</u> ft. Left: <u>3</u> ft.	Bank slope Right: <u>65</u> degrees Left: <u>50</u> degrees	
Qualitative Attributes				
Water Appearance: <i>(check one)</i> <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:				
Substrate: <i>(check all that apply)</i> % of Substrate: <u>NA</u> % <u>NA</u> % <u>NA</u> % <u>10</u> % <u>90</u> % <u>NA</u> % <u>NA</u> % <u>NA</u> %				
Width of Riparian Zone: N/A <input type="checkbox"/> <u>>100</u> ft.	Vegetative Layers: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Trees: <u>10</u> in. <input checked="" type="checkbox"/> Saplings/Shrubs: <u>1</u> in. <input checked="" type="checkbox"/> Herbs			
Dominant Bank Vegetation <i>(list)</i> : TULIP TREE, RED MAPLE, POISON IVY, SWEET GUM, SPICE BUSH, HONEY SUCKLE				
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): OVERHANGING ROOTS				
Aquatic Organisms Observed <i>(list)</i> : FROGS, CRAYFISH				
T&E Species Observed <i>(list)</i> : NA				
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): NA				
Tributary is: <i>(check one)</i> <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated				
Stream Quality ^a : <i>(check one)</i> <input type="checkbox"/> High <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Low				

Waterbody ID:
SDIM005

^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.

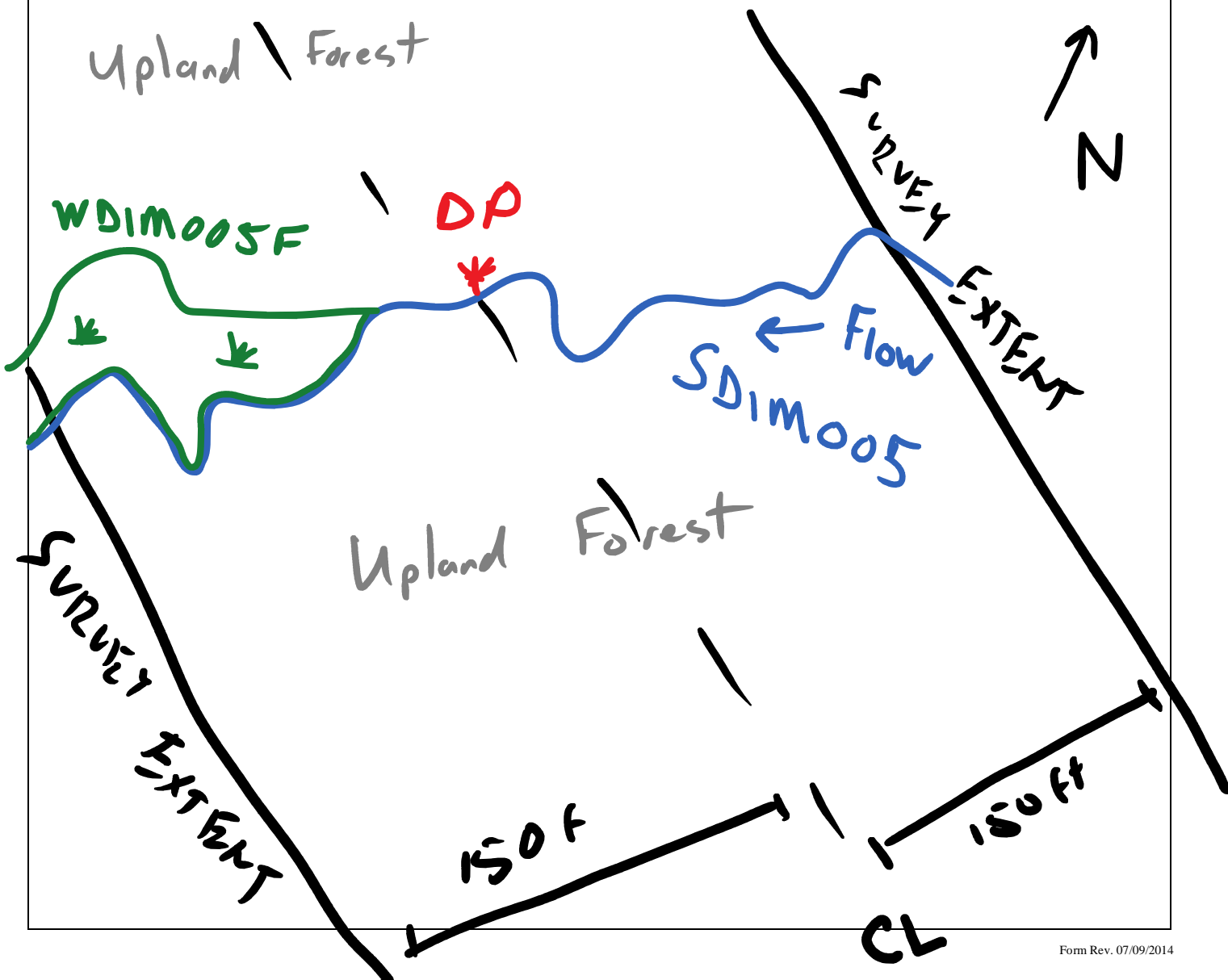
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate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

FLOW IS TO THE SOUTH. STREAM CHARACTERISTICS ARE VARIABLE.

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





Waterbody point sdim005 facing across



Waterbody point sdim005 facing upstream



Waterbody point sdim005 facing downstream

Linear Waterbody Data Sheet

Survey Description				
Project Name: Atlantic Coast Pipeline		Waterbody Name: UNT TO Butterwood Creek		Waterbody ID: SDIM006
Date: 9/3/2014				
State: Virginia	County: Dinwiddie	Company: W&C	Crew Member Initials: SG, EB	Photos: 2780-2782, X U D
Tract Number(s): 13-005, 13-006		Nearest Milepost: 245.9	Associated Wetland ID(s): WDIM006f	
Survey Type: <i>(check one)</i> <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:				
Physical Attributes				
Stream Classification: <i>(check one)</i> <input checked="" type="checkbox"/> Ephemeral <input type="checkbox"/> Intermittent <input type="checkbox"/> Perennial				
Waterbody Type: <i>(check one)</i> <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:				
OHWM Width: <u>3</u> ft. Height: <u>0.5</u> ft. N/A <input type="checkbox"/>		OHWM Indicator: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Clear line on bank <input checked="" type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input checked="" type="checkbox"/> Scouring <input type="checkbox"/> Water staining <input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input checked="" type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change		
Width of Waterbody - Top of Bank to Top of Bank: <u>10</u> ft.	Width of Waterbody - Toe of Slope to Toe of Slope: <u>3</u> ft.	Width of Waterbody - Water Edge to Water Edge: N/A <input checked="" type="checkbox"/> <u> </u> ft.	Depth of Water: <i>(Approx.)</i> N/A <input checked="" type="checkbox"/> <u> </u> ft.	
Sinuosity: <i>(check one)</i> <input type="checkbox"/> Straight <input checked="" type="checkbox"/> Meandering	Water velocity: <i>(Approx.)</i> <u> </u> fps N/A <input checked="" type="checkbox"/>	Bank height Right: <u>3</u> ft. Left: <u>2</u> ft.	Bank slope Right: <u>50</u> degrees Left: <u>50</u> degrees	
Qualitative Attributes				
Water Appearance: <i>(check one)</i> <input checked="" type="checkbox"/> No water <input type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:				
Substrate: <i>(check all that apply)</i> <input type="checkbox"/> Bedrock <input type="checkbox"/> Boulder <input type="checkbox"/> Cobble <input checked="" type="checkbox"/> Gravel <input checked="" type="checkbox"/> Sand <input checked="" type="checkbox"/> Silt/ clay <input type="checkbox"/> Organic <input type="checkbox"/> Other: % of Substrate: <u>NA</u> % <u>NA</u> % <u>NA</u> % <u>5</u> % <u>90</u> % <u>5</u> % <u>NA</u> % <u>NA</u> %				
Width of Riparian Zone: N/A <input type="checkbox"/> <u>>100</u> ft.	Vegetative Layers: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Trees: <input checked="" type="checkbox"/> Saplings/Shrubs: <input checked="" type="checkbox"/> Herbs Avg. DBH of Dominants: <i>(approx.)</i> <u>10</u> in. <u>1</u> in.			
Dominant Bank Vegetation <i>(list)</i> : TULIP TREE, LOBLOLLY PINE, AMERICAN ELM, FLOWERINGDOGWOOD, POISON IVY, SWEET GUM, SPICE BUSH, HONEY SUCKLE, CHRISTMAS FERN.				
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): DOWNED WOOD				
Aquatic Organisms Observed <i>(list)</i> : FROGS				
T&E Species Observed <i>(list)</i> : NA				
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): NA				
Tributary is: <i>(check one)</i> <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated				
Stream Quality ^a : <i>(check one)</i> <input type="checkbox"/> High <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Low				

Waterbody ID:
SDIM006

^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.

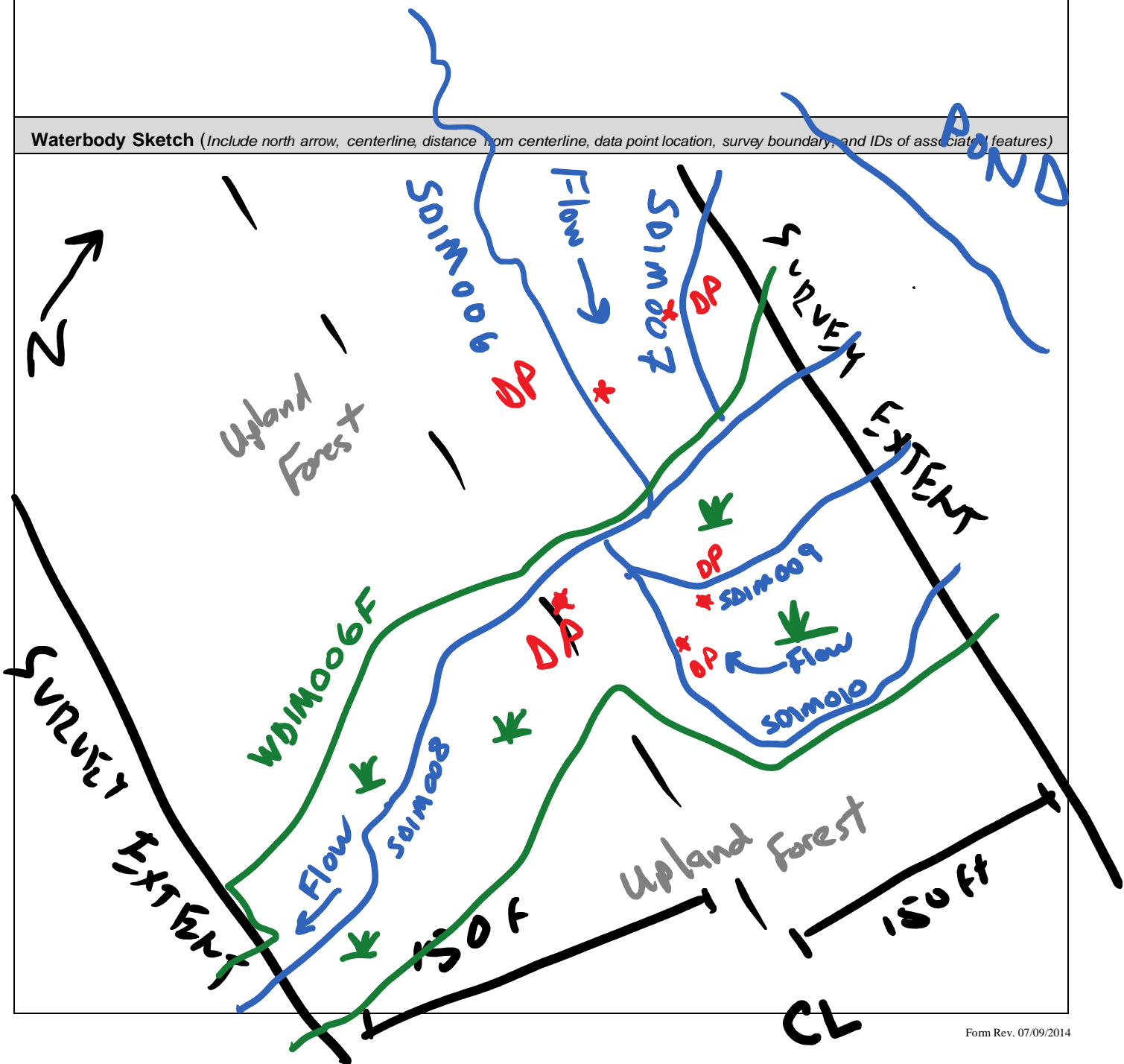
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate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

FLOW IS TO THE EAST-SOUTHEAST. STREAM CHARACTERISTICS ARE HIGHLY VARIABLE. SOME STANDING WATER NEAR HEADWATER.

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





Waterbody point sdim006 facing across



Waterbody point sdim006 facing upstream



Waterbody point sdim006 facing downstream

Linear Waterbody Data Sheet

Survey Description				
Project Name: Atlantic Coast Pipeline		Waterbody Name: UNT TO Butterwood Creek		Waterbody ID: SDIM007
State: Virginia		County: Dinwiddie	Company: W&C	Crew Member Initials: SG, EB
Tract Number(s): 13-005		Nearest Milepost: 245.9		Photos: 2776-2778, X U D
Associated Wetland ID(s): WDIM006f				
Survey Type: <i>(check one)</i> <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:				
Physical Attributes				
Stream Classification: <i>(check one)</i> <input checked="" type="checkbox"/> Ephemeral <input type="checkbox"/> Intermittent <input type="checkbox"/> Perennial				
Waterbody Type: <i>(check one)</i> <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:				
OHWM Width: 4 ft.		OHWM Indicator: <i>(check all that apply)</i>		
Height: 1 ft.		<input checked="" type="checkbox"/> Clear line on bank <input checked="" type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input checked="" type="checkbox"/> Scouring <input type="checkbox"/> Water staining <input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input checked="" type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change		
N/A <input type="checkbox"/>				
Width of Waterbody - Top of Bank to Top of Bank: 5 ft.		Width of Waterbody - Toe of Slope to Toe of Slope: 4 ft.		Depth of Water: <i>(Approx.)</i> ft.
		N/A <input checked="" type="checkbox"/>		N/A <input checked="" type="checkbox"/>
Sinuosity: <i>(check one)</i> <input type="checkbox"/> Straight <input checked="" type="checkbox"/> Meandering		Water velocity: <i>(Approx.)</i> _ fps N/A <input checked="" type="checkbox"/>		Bank height Right: 3 ft. Left: 3 ft.
				Bank slope Right: 85 degrees Left: 85 degrees
Qualitative Attributes				
Water Appearance: <i>(check one)</i> <input checked="" type="checkbox"/> No water <input type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:				
Substrate: <i>(check all that apply)</i> % of Substrate: NA % NA % NA % 5 % 85 % 10 % NA % NA %				
Width of Riparian Zone: N/A <input type="checkbox"/> >100 ft.		Vegetative Layers: <i>(check all that apply)</i> Avg. DBH of Dominants: <i>(approx.)</i> 10 in. 1 in.		
		<input checked="" type="checkbox"/> Trees: <input checked="" type="checkbox"/> Saplings/Shrubs: <input checked="" type="checkbox"/> Herbs		
Dominant Bank Vegetation <i>(list)</i> : TULIP TREE, LOBLOLLY PINE, AMERICAN ELM, FLOWERINGDOGWOOD, POISON IVY, SWEET GUM, SPICE BUSH, HONEY SUCKLE, CHRISTMAS FERN.				
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): NA				
Aquatic Organisms Observed <i>(list)</i> : NA				
T&E Species Observed <i>(list)</i> : NA				
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): NA				
Tributary is: <i>(check one)</i> <input type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input checked="" type="checkbox"/> Manipulated				
Stream Quality ^a : <i>(check one)</i> <input type="checkbox"/> High <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Low				

Waterbody ID:
SDIM007

^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.

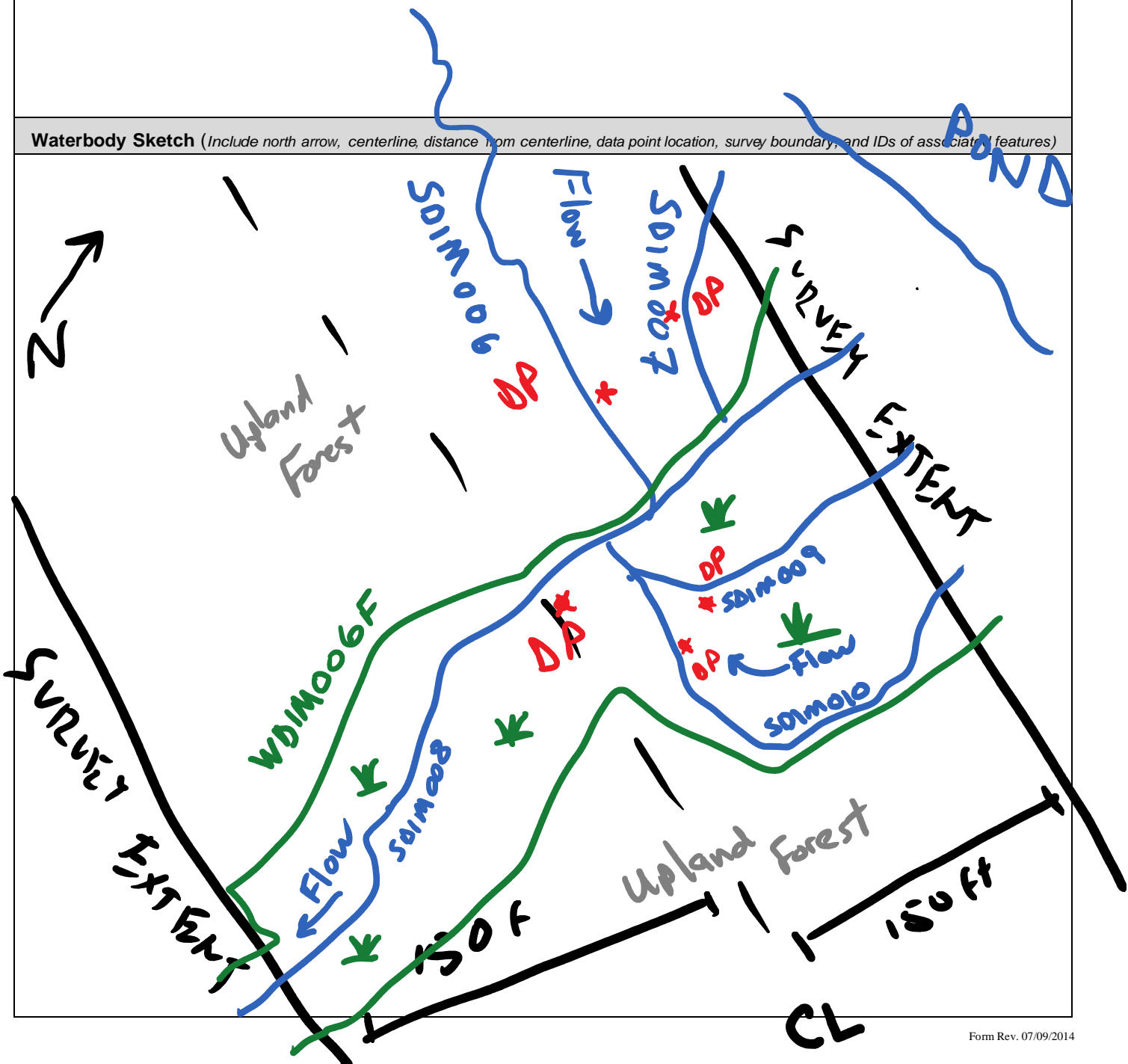
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate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

FLOW IS TO THE SOUTHEAST. STREAM CHARACTERISTICS ARE HIGHLY VARIABLE. STREAM APPEARS TO OGINATE FROM THE POND AREA. AREA NEAR THE NORTH ROW HAD A SEWAGE-LIKE ODOR. THE CHANNEL IS NARROW AND 5-6' DEEP IN THIS AREA AS WELL.

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





Waterbody point sdim007 facing across



Waterbody point sdim007 facing upstream



Waterbody point sdim007 facing downstream

Linear Waterbody Data Sheet

Survey Description				
Project Name: Atlantic Coast Pipeline		Waterbody Name: UNT TO Butterwood Creek		Waterbody ID: SDIM008
Date: 9/3/2014				
State: Virginia	County: Dinwiddie	Company: W&C	Crew Member Initials: SG, EB	Photos: 2784-2786, X U D
Tract Number(s): 13-005, 13-006, 13-007		Nearest Milepost: 245.92	Associated Wetland ID(s): WDIM006f	
Survey Type: <i>(check one)</i> <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:				
Physical Attributes				
Stream Classification: <i>(check one)</i> <input checked="" type="checkbox"/> Ephemeral <input type="checkbox"/> Intermittent <input type="checkbox"/> Perennial				
Waterbody Type: <i>(check one)</i> <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:				
OHWM Width: <u>5</u> ft. Height: <u>0.5</u> ft. N/A <input type="checkbox"/>		OHWM Indicator: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Clear line on bank <input checked="" type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input checked="" type="checkbox"/> Scouring <input type="checkbox"/> Water staining <input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change		
Width of Waterbody - Top of Bank to Top of Bank: <u>9</u> ft.	Width of Waterbody - Toe of Slope to Toe of Slope: <u>5</u> ft.	Width of Waterbody - Water Edge to Water Edge: N/A <input checked="" type="checkbox"/> <u> </u> ft.	Depth of Water: <i>(Approx.)</i> <u> </u> ft.	
Sinuosity: <i>(check one)</i> <input type="checkbox"/> Straight <input checked="" type="checkbox"/> Meandering	Water velocity: <i>(Approx.)</i> <u> </u> fps N/A <input checked="" type="checkbox"/>	Bank height Right: <u>3</u> ft. Left: <u>3</u> ft.	Bank slope Right: <u>85</u> degrees Left: <u>85</u> degrees	
Qualitative Attributes				
Water Appearance: <i>(check one)</i> <input checked="" type="checkbox"/> No water <input type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:				
Substrate: <i>(check all that apply)</i> <input type="checkbox"/> Bedrock <input type="checkbox"/> Boulder <input type="checkbox"/> Cobble <input checked="" type="checkbox"/> Gravel <input checked="" type="checkbox"/> Sand <input checked="" type="checkbox"/> Silt/ clay <input type="checkbox"/> Organic <input type="checkbox"/> Other: % of Substrate: <u>NA</u> % <u>NA</u> % <u>NA</u> % <u>40</u> % <u>50</u> % <u>10</u> % <u>NA</u> % <u>NA</u> %				
Width of Riparian Zone: <u>>100</u> ft. N/A <input type="checkbox"/>	Vegetative Layers: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Trees: <input checked="" type="checkbox"/> Saplings/Shrubs: <input checked="" type="checkbox"/> Herbs Avg. DBH of Dominants: <i>(approx.)</i> <u>10</u> in. <u>2</u> in.			
Dominant Bank Vegetation <i>(list)</i> : TULIP TREE, LOBLOLLY PINE, AMERICAN ELM, FLOWERINGDOGWOOD, POISON IVY, SWEET GUM, SPICE BUSH, HONEY SUCKLE, CHRISTMAS FERN.				
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): OVERHANGING ROOTS, PLUNGE POOL				
Aquatic Organisms Observed <i>(list)</i> : FROGS, CRAYFISH				
T&E Species Observed <i>(list)</i> : NA				
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): NA				
Tributary is: <i>(check one)</i> <input type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input checked="" type="checkbox"/> Manipulated				
Stream Quality ^a : <i>(check one)</i> <input type="checkbox"/> High <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Low				

Waterbody ID:
SDIM008

^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.

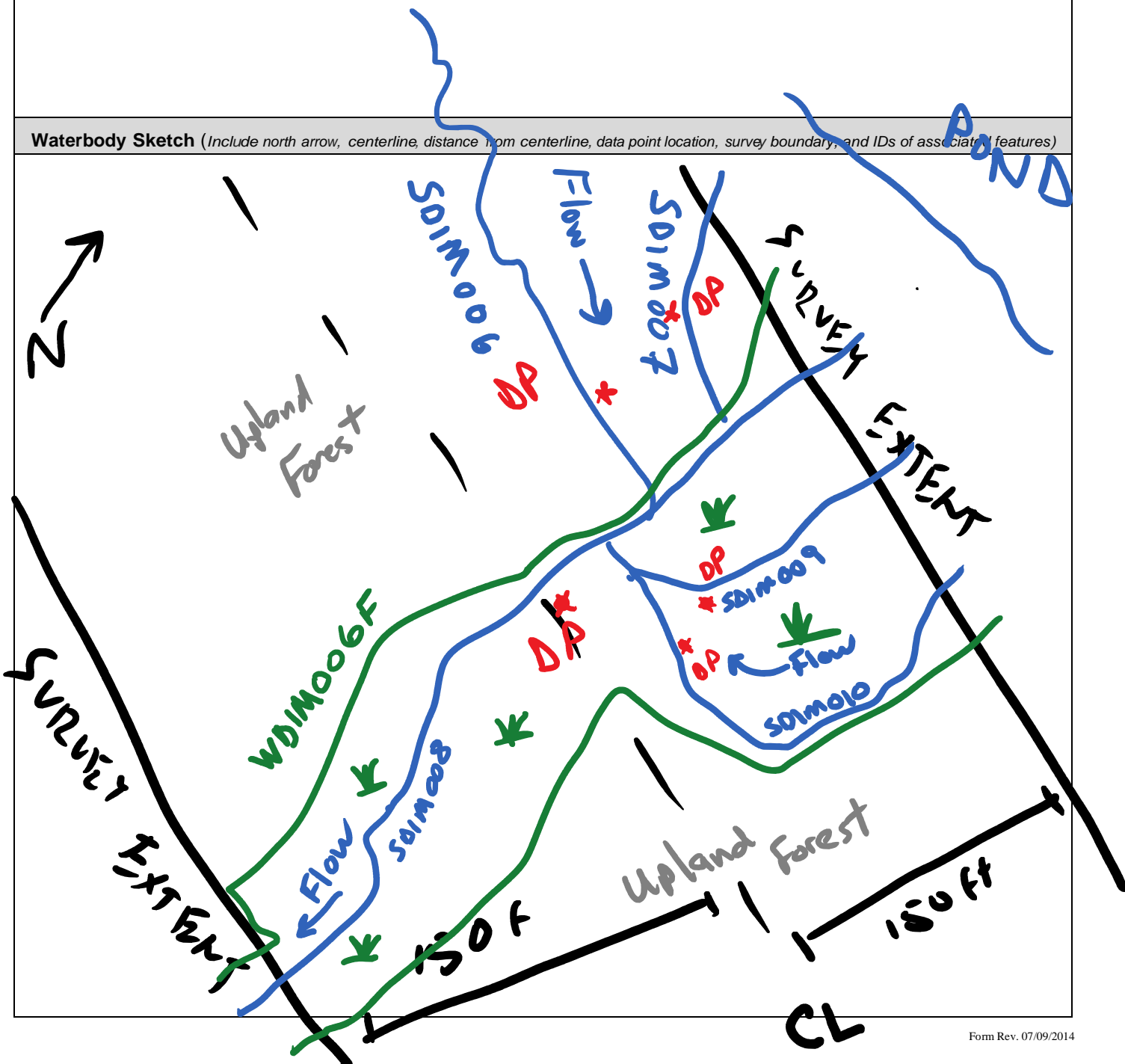
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate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

FLOW IS TO THE SOUTH. STREAM CHARACTERISTICS ARE VARIABLE, STREAM ORIGINATES FROM CULVERT IN LEVEE BELOW POND AT N ROW EDGE. PLUNGE POOL WITH APPROX. 1.5 FT OF WATER AT CULVERT.

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





Waterbody point sdim008 facing across



Waterbody point sdim008 facing upstream



Waterbody point sdim008 facing downstream

Linear Waterbody Data Sheet

Survey Description			
Project Name: Atlantic Coast Pipeline		Waterbody Name: UNT TO Butterwood Creek	
Waterbody ID: SDIM009		Date: 9/3/2014	
State: Virginia	County: Dinwiddie	Company: W&C	Crew Member Initials: SG, EB
Photos: 2788-2790, X U D			
Tract Number(s): 13-005, 13-006		Nearest Milepost: 245.92	Associated Wetland ID(s): WDIM006f
Survey Type: <i>(check one)</i> <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:			
Physical Attributes			
Stream Classification: <i>(check one)</i> <input checked="" type="checkbox"/> Ephemeral <input type="checkbox"/> Intermittent <input type="checkbox"/> Perennial			
Waterbody Type: <i>(check one)</i> <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:			
OHWM Width: <u>2</u> ft. Height: <u>0.3</u> ft. N/A <input type="checkbox"/>		OHWM Indicator: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input type="checkbox"/> Scouring <input checked="" type="checkbox"/> Water staining <input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change	
Width of Waterbody - Top of Bank to Top of Bank: <u>4</u> ft.	Width of Waterbody - Toe of Slope to Toe of Slope: <u>2</u> ft.	Width of Waterbody - Water Edge to Water Edge: N/A <input checked="" type="checkbox"/> <u> </u> ft.	Depth of Water: <i>(Approx.)</i> N/A <input checked="" type="checkbox"/> <u> </u> ft.
Sinuosity: <i>(check one)</i> <input checked="" type="checkbox"/> Straight <input type="checkbox"/> Meandering	Water velocity: <i>(Approx.)</i> <u> </u> fps N/A <input checked="" type="checkbox"/>	Bank height Right: <u>1</u> ft. Left: <u>1</u> ft.	Bank slope Right: <u>45</u> degrees Left: <u>45</u> degrees
Qualitative Attributes			
Water Appearance: <i>(check one)</i> <input checked="" type="checkbox"/> No water <input type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:			
Substrate: <i>(check all that apply)</i> % of Substrate: <u>NA</u> % <u>NA</u> % <u>NA</u> % <u>NA</u> % <u>10</u> % <u>90</u> % <u>NA</u> % <u>NA</u> %			
Width of Riparian Zone: N/A <input type="checkbox"/> <u>>100</u> ft.	Vegetative Layers: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Trees: <u>10</u> in. <input checked="" type="checkbox"/> Saplings/Shrubs: <u>2</u> in. <input checked="" type="checkbox"/> Herbs		
Dominant Bank Vegetation <i>(list)</i> : TULIP TREE, LOBLOLLY PINE, AMERICAN ELM, FLOWERINGDOGWOOD, POISON IVY, SWEET GUM, SPICE BUSH, HONEY SUCKLE, CHRISTMAS FERN.			
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): NA			
Aquatic Organisms Observed <i>(list)</i> : NA			
T&E Species Observed <i>(list)</i> : NA			
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): NA			
Tributary is: <i>(check one)</i> <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated			
Stream Quality ^a : <i>(check one)</i> <input type="checkbox"/> High <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Low			

Waterbody ID:
SDIM009

^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.

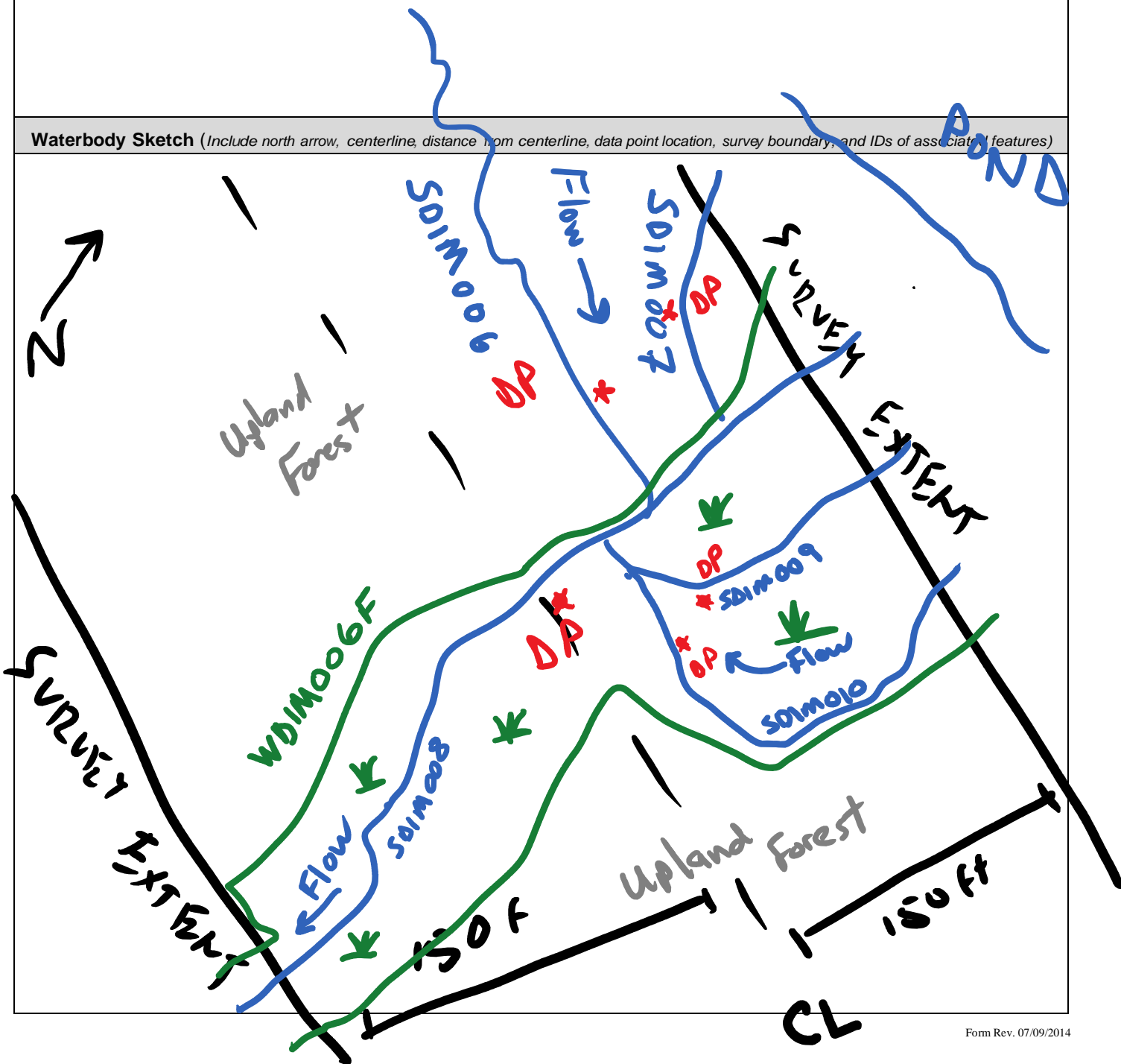
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate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

FLOW IS TO THE SOUTH AND CONNECTS WITH SDIM010 BEFORE IT FLOWS INTO SDIM008.

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





Waterbody point sdim009 facing across



Waterbody point sdim009 facing upstream



Waterbody point sdim009 facing downstream

Linear Waterbody Data Sheet

Survey Description			
Project Name: Atlantic Coast Pipeline		Waterbody Name: UNT TO Butterwood Creek	
Waterbody ID: SDIM010		Date: 9/3/2014	
State: Virginia	County: Dinwiddie	Company: W&C	Crew Member Initials: SG, EB
Photos: 2792-2794, X U D			
Tract Number(s): 13-006		Nearest Milepost: 245.92	Associated Wetland ID(s): WDIM006f
Survey Type: <i>(check one)</i> <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:			
Physical Attributes			
Stream Classification: <i>(check one)</i> <input checked="" type="checkbox"/> Ephemeral <input type="checkbox"/> Intermittent <input type="checkbox"/> Perennial			
Waterbody Type: <i>(check one)</i> <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:			
OHWM Width: <u>2</u> ft. Height: <u>0.5</u> ft. N/A <input type="checkbox"/>		OHWM Indicator: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input type="checkbox"/> Scouring <input checked="" type="checkbox"/> Water staining <input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change	
Width of Waterbody - Top of Bank to Top of Bank: <u>4</u> ft.	Width of Waterbody - Toe of Slope to Toe of Slope: <u>2</u> ft.	Width of Waterbody - Water Edge to Water Edge: N/A <input checked="" type="checkbox"/> ___ ft.	Depth of Water: <i>(Approx.)</i> N/A <input checked="" type="checkbox"/> ___ ft.
Sinuosity: <i>(check one)</i> <input type="checkbox"/> Straight <input checked="" type="checkbox"/> Meandering	Water velocity: <i>(Approx.)</i> ___ fps N/A <input checked="" type="checkbox"/>	Bank height Right: <u>1.5</u> ft. Left: <u>2.5</u> ft.	Bank slope Right: <u>45</u> degrees Left: <u>55</u> degrees
Qualitative Attributes			
Water Appearance: <i>(check one)</i> <input checked="" type="checkbox"/> No water <input type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:			
Substrate: <i>(check all that apply)</i> % of Substrate: <u>NA</u> % <u>NA</u> % <u>NA</u> % <u>NA</u> % <u>10</u> % <u>90</u> % <u>NA</u> % <u>NA</u> %			
Width of Riparian Zone: N/A <input type="checkbox"/> <u>>100</u> ft.	Vegetative Layers: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Trees: <u>10</u> in. <input checked="" type="checkbox"/> Saplings/Shrubs: <u>1</u> in. <input checked="" type="checkbox"/> Herbs		
Dominant Bank Vegetation <i>(list)</i> : TULIP TREE, LOBLOLLY PINE, AMERICAN ELM, FLOWERINGDOGWOOD, POISON IVY, SWEET GUM, SPICE BUSH, HONEY SUCKLE, CHRISTMAS FERN.			
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): NA			
Aquatic Organisms Observed <i>(list)</i> : NA			
T&E Species Observed <i>(list)</i> : NA			
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): NA			
Tributary is: <i>(check one)</i> <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated			
Stream Quality ^a : <i>(check one)</i> <input type="checkbox"/> High <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Low			

Waterbody ID:
SDIM010

^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.

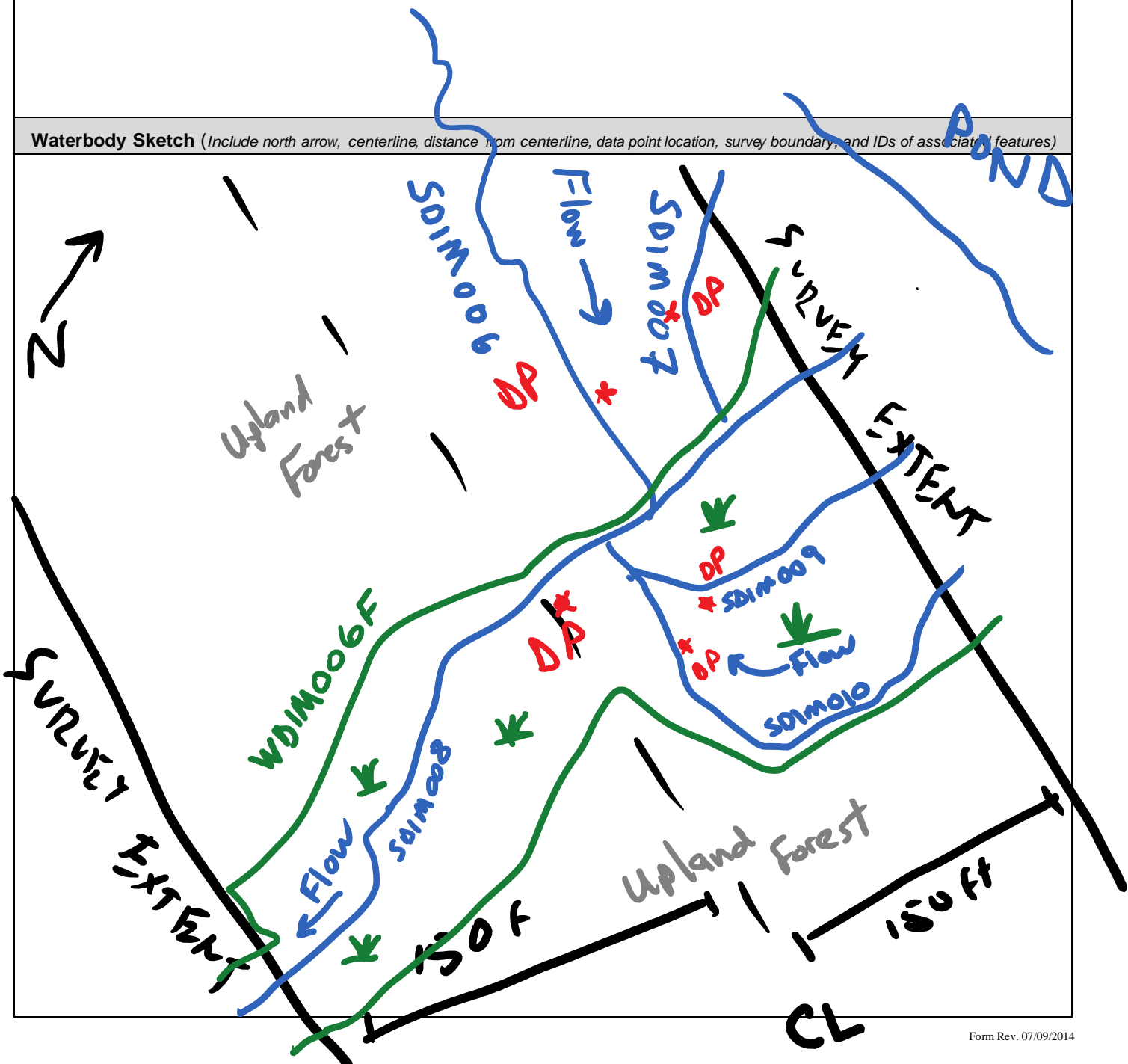
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate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

FLOW IS TO THE EAST-SOUTHEAST. STREAM CHARACTERISTICS ARE HIGHLY VARIABLE. FLOWS INTO SDIM008

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





Waterbody point sdim010 facing across



Waterbody point sdim010 facing upstream



Waterbody point sdim010 facing downstream

Linear Waterbody Data Sheet

Survey Description			
Project Name: Atlantic Coast Pipeline		Waterbody Name: UNT TO Butterwood Creek	
Waterbody ID: SDIM011		Date: 9/3/2014	
State: Virginia	County: Dinwiddie	Company: W&C	Crew Member Initials: SG, EB
Photos: 2821-2823, X U D			
Tract Number(s): 13-007		Nearest Milepost: 246.19	Associated Wetland ID(s): WDIM007f
Survey Type: <i>(check one)</i> <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:			
Physical Attributes			
Stream Classification: <i>(check one)</i> <input checked="" type="checkbox"/> Ephemeral <input type="checkbox"/> Intermittent <input type="checkbox"/> Perennial			
Waterbody Type: <i>(check one)</i> <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:			
OHWM Width: <u>2</u> ft. Height: <u>0.3</u> ft. N/A <input type="checkbox"/>		OHWM Indicator: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input checked="" type="checkbox"/> Scouring <input type="checkbox"/> Water staining <input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input checked="" type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change	
Width of Waterbody - Top of Bank to Top of Bank: <u>3</u> ft.	Width of Waterbody - Toe of Slope to Toe of Slope: <u>2</u> ft.	Width of Waterbody - Water Edge to Water Edge: N/A <input checked="" type="checkbox"/> <u> </u> ft.	Depth of Water: <i>(Approx.)</i> N/A <input checked="" type="checkbox"/> <u> </u> ft.
Sinuosity: <i>(check one)</i> <input type="checkbox"/> Straight <input checked="" type="checkbox"/> Meandering	Water velocity: <i>(Approx.)</i> <u> </u> fps N/A <input checked="" type="checkbox"/>	Bank height Right: <u>1</u> ft. Left: <u>1</u> ft.	Bank slope Right: <u>50</u> degrees Left: <u>65</u> degrees
Qualitative Attributes			
Water Appearance: <i>(check one)</i> <input checked="" type="checkbox"/> No water <input type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:			
Substrate: <i>(check all that apply)</i> % of Substrate: <u>NA</u> % <u>NA</u> % <u>NA</u> % <u>NA</u> % <u>85</u> % <u>10</u> % <u>5</u> % <u>NA</u> %			
Width of Riparian Zone: N/A <input type="checkbox"/> <u>>100</u> ft.	Vegetative Layers: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Trees: <u>8</u> in. <input checked="" type="checkbox"/> Saplings/Shrubs: <u>2</u> in. <input checked="" type="checkbox"/> Herbs		
Dominant Bank Vegetation <i>(list)</i> : LOBLOLLY PINE, RED MAPLE, SWEET GUM, IRONWOOD, WILLOW OAK, JACK & THE PULPITS, NEW YORK FERN,			
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): NA			
Aquatic Organisms Observed <i>(list)</i> : NA			
T&E Species Observed <i>(list)</i> : NA			
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): NA			
Tributary is: <i>(check one)</i> <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated			
Stream Quality ^a : <i>(check one)</i> <input type="checkbox"/> High <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Low			

Waterbody ID:
SDIM011

^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:

FLOW IS TO THE SOUTHWEST. STREAM CHARACTERISTICS ARE VARIABLE.

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





Waterbody point sdim011 facing across



Waterbody point sdim011 facing upstream



Waterbody point sdim011 facing downstream

Linear Waterbody Data Sheet

Survey Description				
Project Name: Atlantic Coast Pipeline		Waterbody Name: UNT TO BUTTERWOOD CREEK		Waterbody ID: SDIM014
State: Virginia		County: Dinwiddie	Company: W&C	Crew Member Initials: SG, EB
Tract Number(s): 13-007		Nearest Milepost: 247.35		Photos: 2930, 2931, 2933 x, u, d
Associated Wetland ID(s): WDIM011F				
Survey Type: <i>(check one)</i> <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:				
Physical Attributes				
Stream Classification: <i>(check one)</i> <input type="checkbox"/> Ephemeral <input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> Perennial				
Waterbody Type: <i>(check one)</i> <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:				
OHWM Width: <u>2</u> ft. Height: <u>0.5</u> ft. N/A <input type="checkbox"/>		OHWM Indicator: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input checked="" type="checkbox"/> Scouring <input type="checkbox"/> Water staining <input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input checked="" type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change		
Width of Waterbody - Top of Bank to Top of Bank: <u>7</u> ft.		Width of Waterbody - Toe of Slope to Toe of Slope: <u>2</u> ft.		Width of Waterbody - Water Edge to Water Edge: N/A <input type="checkbox"/> <u>1.5</u> ft.
Depth of Water: <i>(Approx.)</i> N/A <input type="checkbox"/> <u>0.2</u> ft.				
Sinuosity: <i>(check one)</i> <input type="checkbox"/> Straight <input checked="" type="checkbox"/> Meandering		Water velocity: <i>(Approx.)</i> <u>0.1</u> fps N/A <input type="checkbox"/>		Bank height Right: <u>3.5</u> ft. Left: <u>2</u> ft.
Bank slope Right: <u>65</u> degrees Left: <u>80</u> degrees				
Qualitative Attributes				
Water Appearance: <i>(check one)</i> <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:				
Substrate: <i>(check all that apply)</i> % of Substrate: <u>NA</u> % <u>NA</u> % <u>NA</u> % <u>5</u> % <u>40</u> % <u>50</u> % <u>5</u> % <u>NA</u> %				
Width of Riparian Zone: <u>>100</u> ft. N/A <input type="checkbox"/>		Vegetative Layers: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Trees: <input checked="" type="checkbox"/> Saplings/Shrubs: <input checked="" type="checkbox"/> Herbs Avg. DBH of Dominants: <i>(approx.)</i> <u>6</u> in. <u>3</u> in.		
Dominant Bank Vegetation <i>(list)</i> : LOBLOLLY PINE, GREEN ASH, SWEET GUM, RED MAPLE, IRONWOOD, HOLLY, TULIP TREE, GREEN BRIAR, PEPPERBUSH, SENSITIVE FERN.				
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): DOWNED WOOD, OVERHANGING ROOTS AND VEGETATION				
Aquatic Organisms Observed <i>(list)</i> : CRAYFISH, FROGS				
T&E Species Observed <i>(list)</i> : NA				
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): NA				
Tributary is: <i>(check one)</i> <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated				
Stream Quality ^a : <i>(check one)</i> <input type="checkbox"/> High <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Low				

Waterbody ID:
SDIM014

^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.

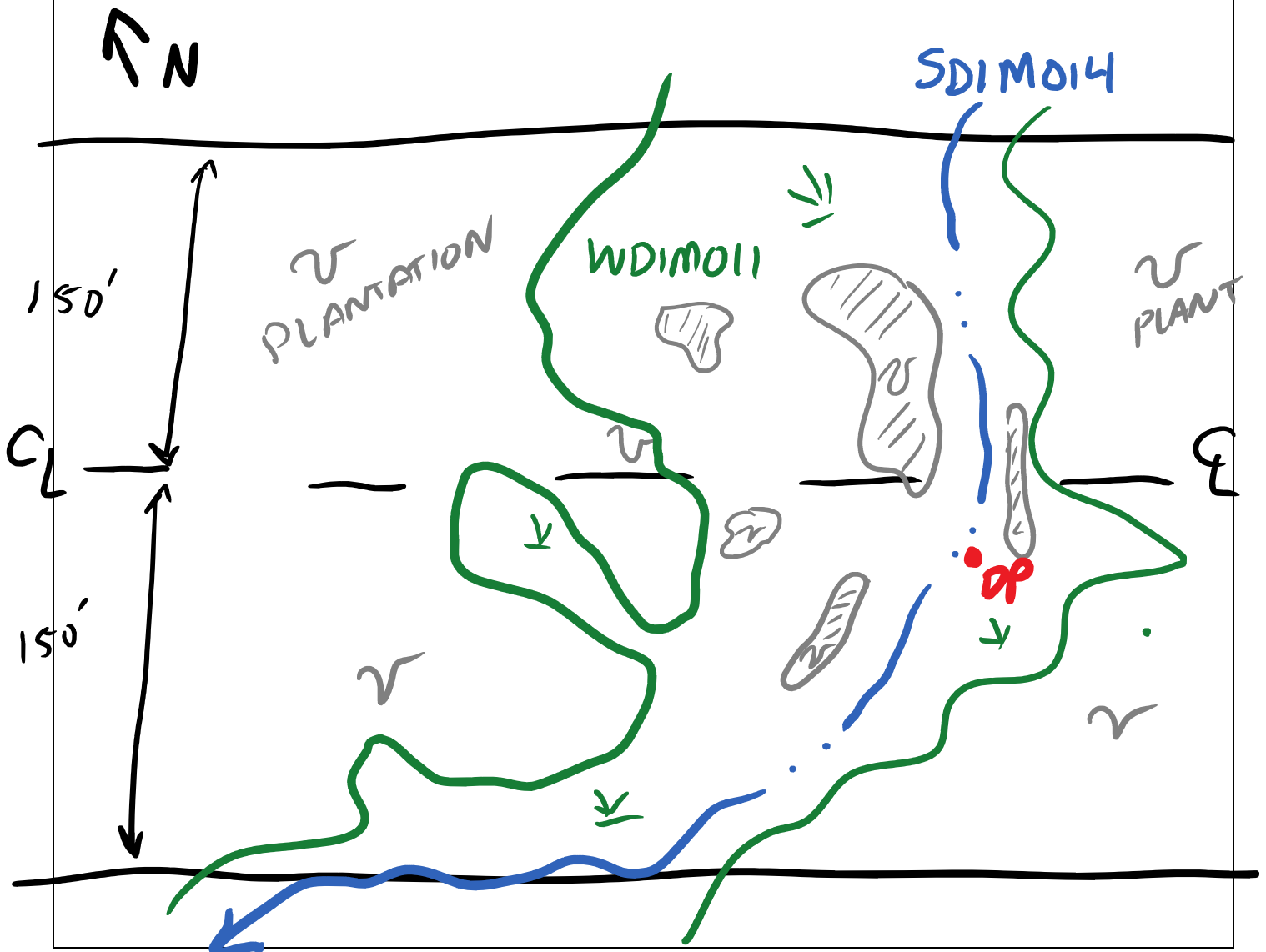
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate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

SMALL STREAM WITH FLOW TO SOUTH/SOUTHWEST. IDENTIFIED AS INTERMITTENT ON TOPO. ORIGINATES FROM HEADWATER WETLAND WDIM011. FLOW ON NORTH END FROM WETLAND DENDRITIC; BECOMES MORE CHANNELIZED JUST NORTH OF CENTERLINE. EXRTREMELY DENSE, BRIAR-FILLED UNDERSTORY.

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





Waterbody point sdim014 facing across



Waterbody point sdim014 facing upstream



Waterbody point sdim014 facing downstream

Linear Waterbody Data Sheet

Survey Description			
Project Name: Atlantic Coast Pipeline		Waterbody Name: UNT TO BUTTERWOOD CREEK	
Waterbody ID: SDIM013		Date: 9/4/2014	
State: Virginia	County: Dinwiddie	Company: W&C	Crew Member Initials: SG, EB
Photos: 2886-2888, X U D			
Tract Number(s): 13-010		Nearest Milepost: 246.9	Associated Wetland ID(s): WDIM010F
Survey Type: <i>(check one)</i> <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:			
Physical Attributes			
Stream Classification: <i>(check one)</i> <input type="checkbox"/> Ephemeral <input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> Perennial			
Waterbody Type: <i>(check one)</i> <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:			
OHWM Width: <u>3</u> ft. Height: <u>1</u> ft. N/A <input type="checkbox"/>		OHWM Indicator: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Clear line on bank <input checked="" type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input checked="" type="checkbox"/> Scouring <input type="checkbox"/> Water staining <input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input checked="" type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input checked="" type="checkbox"/> Soil characteristic change	
Width of Waterbody - Top of Bank to Top of Bank: <u>5</u> ft.	Width of Waterbody - Toe of Slope to Toe of Slope: <u>3</u> ft.	Width of Waterbody - Water Edge to Water Edge: N/A <input type="checkbox"/> <u>2</u> ft.	Depth of Water: <i>(Approx.)</i> N/A <input type="checkbox"/> <u>0.1</u> ft.
Sinuosity: <i>(check one)</i> <input type="checkbox"/> Straight <input checked="" type="checkbox"/> Meandering	Water velocity: <i>(Approx.)</i> <u>0.1</u> fps N/A <input type="checkbox"/>	Bank height Right: <u>2.5</u> ft. Left: <u>3</u> ft.	Bank slope Right: <u>85</u> degrees Left: <u>90</u> degrees
Qualitative Attributes			
Water Appearance: <i>(check one)</i> <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:			
Substrate: <i>(check all that apply)</i> % of Substrate: <u>NA</u> % <u>NA</u> % <u>NA</u> % <u>10</u> % <u>80</u> % <u>10</u> % <u>NA</u> % <u>NA</u> %			
Width of Riparian Zone: <u>>100</u> ft. N/A <input type="checkbox"/>		Vegetative Layers: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Trees: <input checked="" type="checkbox"/> Saplings/Shrubs: <input checked="" type="checkbox"/> Herbs Avg. DBH of Dominants: <i>(approx.)</i> <u>15</u> in. <u>2</u> in.	
Dominant Bank Vegetation <i>(list)</i> : AMERICA ELM, RED OAK, RED MAPLE, POISON IVY, XMAS FERN, IRONWOOD, TULIP TREE, OSTRICH FERN, STILT GRASS			
Aquatic Habitats <i>(ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools)</i> : UNDERCUT BANKS, OVERHANGING ROOTS AND VEGETATION, SOFT SANDY SEDIMENT,			
Aquatic Organisms Observed <i>(list)</i> : FISH, CRAYFISH, FROGS			
T&E Species Observed <i>(list)</i> : NA			
Disturbances <i>(ex: livestock access, manure in waterbody, waste discharge pipes)</i> : NA			
Tributary is: <i>(check one)</i> <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated			
Stream Quality ^a : <i>(check one)</i> <input type="checkbox"/> High <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Low			

Waterbody ID:

SDIM013

^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.

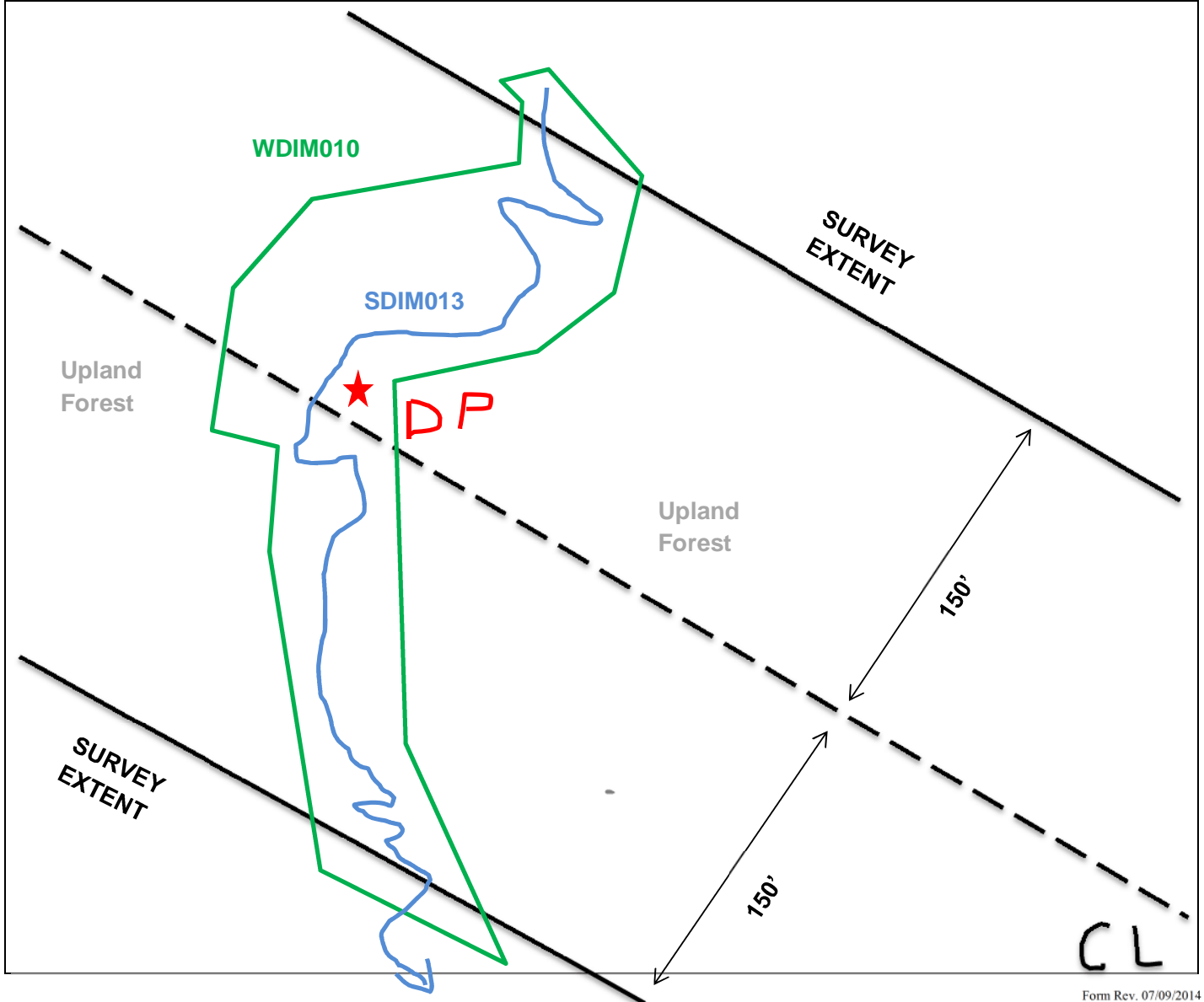
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate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

SMALL INTERMITTENT STREAM THAT FLOWS TO THE SOUTH. SIGNIFICANT EROSION AROUND TREES JUST SOUTH OF CENTERLINE.

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





Waterbody point sdim013 facing across



Waterbody point sdim013 facing upstream



Waterbody point sdim013 facing downstream

Linear Waterbody Data Sheet

Survey Description			
Project Name: Atlantic Coast Pipeline		Waterbody Name: UNT TO BUTTERWOOD CREEK	
Waterbody ID: SDIM012		Date: 9/4/2014	
State: Virginia	County: Dinwiddie	Company: W&C	Crew Member Initials: SG, EB
Photos: 2829-2831, X U D			
Tract Number(s): 13-010		Nearest Milepost: 247.17	Associated Wetland ID(s): WDIM008 & WDIM009
Survey Type: <i>(check one)</i> <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:			
Physical Attributes			
Stream Classification: <i>(check one)</i> <input type="checkbox"/> Ephemeral <input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> Perennial			
Waterbody Type: <i>(check one)</i> <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:			
OHWM Width: <u>4</u> ft. Height: <u>0.5</u> ft. N/A <input type="checkbox"/>		OHWM Indicator: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Clear line on bank <input checked="" type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input checked="" type="checkbox"/> Scouring <input type="checkbox"/> Water staining <input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input checked="" type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input checked="" type="checkbox"/> Soil characteristic change	
Width of Waterbody - Top of Bank to Top of Bank: <u>10</u> ft.	Width of Waterbody - Toe of Slope to Toe of Slope: <u>4</u> ft.	Width of Waterbody - Water Edge to Water Edge: N/A <input type="checkbox"/> <u>2</u> ft.	Depth of Water: <i>(Approx.)</i> N/A <input type="checkbox"/> <u>0.3</u> ft.
Sinuosity: <i>(check one)</i> <input type="checkbox"/> Straight <input checked="" type="checkbox"/> Meandering	Water velocity: <i>(Approx.)</i> <u>0.4</u> fps N/A <input type="checkbox"/>	Bank height Right: <u>2.5</u> ft. Left: <u>3</u> ft.	Bank slope Right: <u>50</u> degrees Left: <u>65</u> degrees
Qualitative Attributes			
Water Appearance: <i>(check one)</i> <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:			
Substrate: <i>(check all that apply)</i> % of Substrate: <u>NA</u> % <u>NA</u> % <u>NA</u> % <u>10</u> % <u>85</u> % <u>5</u> % <u>NA</u> % <u>NA</u> %			
Width of Riparian Zone: <u>>100</u> ft. N/A <input type="checkbox"/>	Vegetative Layers: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Trees: <input checked="" type="checkbox"/> Saplings/Shrubs: <input checked="" type="checkbox"/> Herbs Avg. DBH of Dominants: <i>(approx.)</i> <u>12</u> in. <u>2</u> in.		
Dominant Bank Vegetation <i>(list)</i> : AMERICA ELM, RED OAK RED MAPLE, POISON IVY, XMAS FERN, IRONWOOD, CORN,			
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): UNDERCUT BANKS, RIFFLE/POOL COMPLEX, SOFT SANDY SEDIMENT,			
Aquatic Organisms Observed <i>(list)</i> : FISH, CRAYFISH, WATER STRIDERS, FROGS			
T&E Species Observed <i>(list)</i> : NA			
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): NA			
Tributary is: <i>(check one)</i> <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated			
Stream Quality ^a : <i>(check one)</i> <input checked="" type="checkbox"/> High <input type="checkbox"/> Moderate <input type="checkbox"/> Low			

Waterbody ID:
SDIM012

^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.

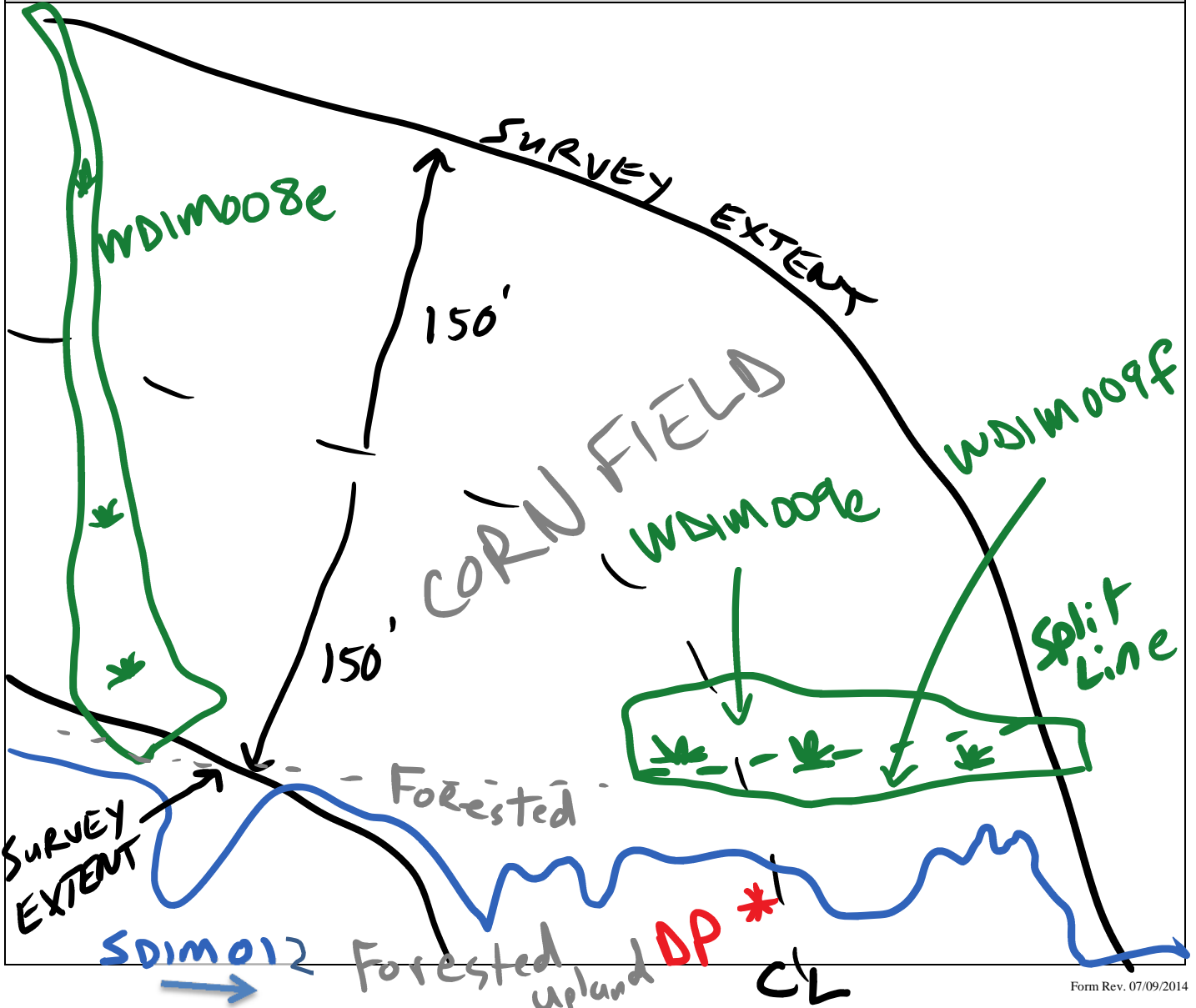
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate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

SMALL STREAM IDENTIFIED AS INTERMITTENT ON TOPO BUT APPEARS TO BE PERENNIAL. PORTION OF RIPARIAN ZONE IS USED AGRICULTURALLY.

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





Waterbody point sdim012 facing across



Waterbody point sdim012 facing upstream



Waterbody point sdim012 facing downstream

Linear Waterbody Data Sheet

Survey Description				
Project Name: ATLANTIC COAST PIPELINE		Waterbody Name: UNT TO BUTTERWOOD CREEK		Waterbody ID: SDIM015
State: Virginia		County: Dinwiddie	Company: W&C	Crew Member Initials: SG, EB
Tract Number(s): 13-011		Nearest Milepost: 247.25		Photos: 2947-2949, X U D
Associated Wetland ID(s): WDIM012f				
Survey Type: <i>(check one)</i> <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:				
Physical Attributes				
Stream Classification: <i>(check one)</i> <input checked="" type="checkbox"/> Ephemeral <input type="checkbox"/> Intermittent <input type="checkbox"/> Perennial				
Waterbody Type: <i>(check one)</i> <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:				
OHWM Width: <u>2</u> ft. Height: <u>0.3</u> ft. N/A <input type="checkbox"/>		OHWM Indicator: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input checked="" type="checkbox"/> Scouring <input checked="" type="checkbox"/> Water staining <input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input checked="" type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change		
Width of Waterbody - Top of Bank to Top of Bank: <u>2.5</u> ft.	Width of Waterbody - Toe of Slope to Toe of Slope: <u>2</u> ft.	Width of Waterbody - Water Edge to Water Edge: N/A <input type="checkbox"/> <u>1</u> ft.	Depth of Water: <i>(Approx.)</i> N/A <input type="checkbox"/> <u>0.1</u> ft.	
Sinuosity: <i>(check one)</i> <input checked="" type="checkbox"/> Straight <input type="checkbox"/> Meandering	Water velocity: <i>(Approx.)</i> <u>0.05</u> fps N/A <input type="checkbox"/>	Bank height Right: <u>0.5</u> ft. Left: <u>0.3</u> ft.	Bank slope Right: <u>45</u> degrees Left: <u>30</u> degrees	
Qualitative Attributes				
Water Appearance: <i>(check one)</i> <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:				
Substrate: <i>(check all that apply)</i> % of Substrate: <u>NA</u> % <u>NA</u> % <u>NA</u> % <u>NA</u> % <u>70</u> % <u>20</u> % <u>10</u> % <u>NA</u> %				
Width of Riparian Zone: <u>>100</u> ft. N/A <input type="checkbox"/>	Vegetative Layers: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Trees: <u>12</u> in. <input checked="" type="checkbox"/> Saplings/Shrubs: <u>1</u> in. <input checked="" type="checkbox"/> Herbs			
Dominant Bank Vegetation <i>(list)</i> : GREEN ASH, TULIP TREE, LOBLOLLY PINE, SWEET GUM, IRONWOOD, ROYAL FERN, SENSITIVE FERN, CHRISTMAS FERN.				
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): OVERHANGING VEGETATION				
Aquatic Organisms Observed <i>(list)</i> : FROGS, CRAYFISH				
T&E Species Observed <i>(list)</i> : NA				
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): NA				
Tributary is: <i>(check one)</i> <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated				
Stream Quality ^a : <i>(check one)</i> <input type="checkbox"/> High <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Low				

Waterbody ID:

SDIM015

^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.

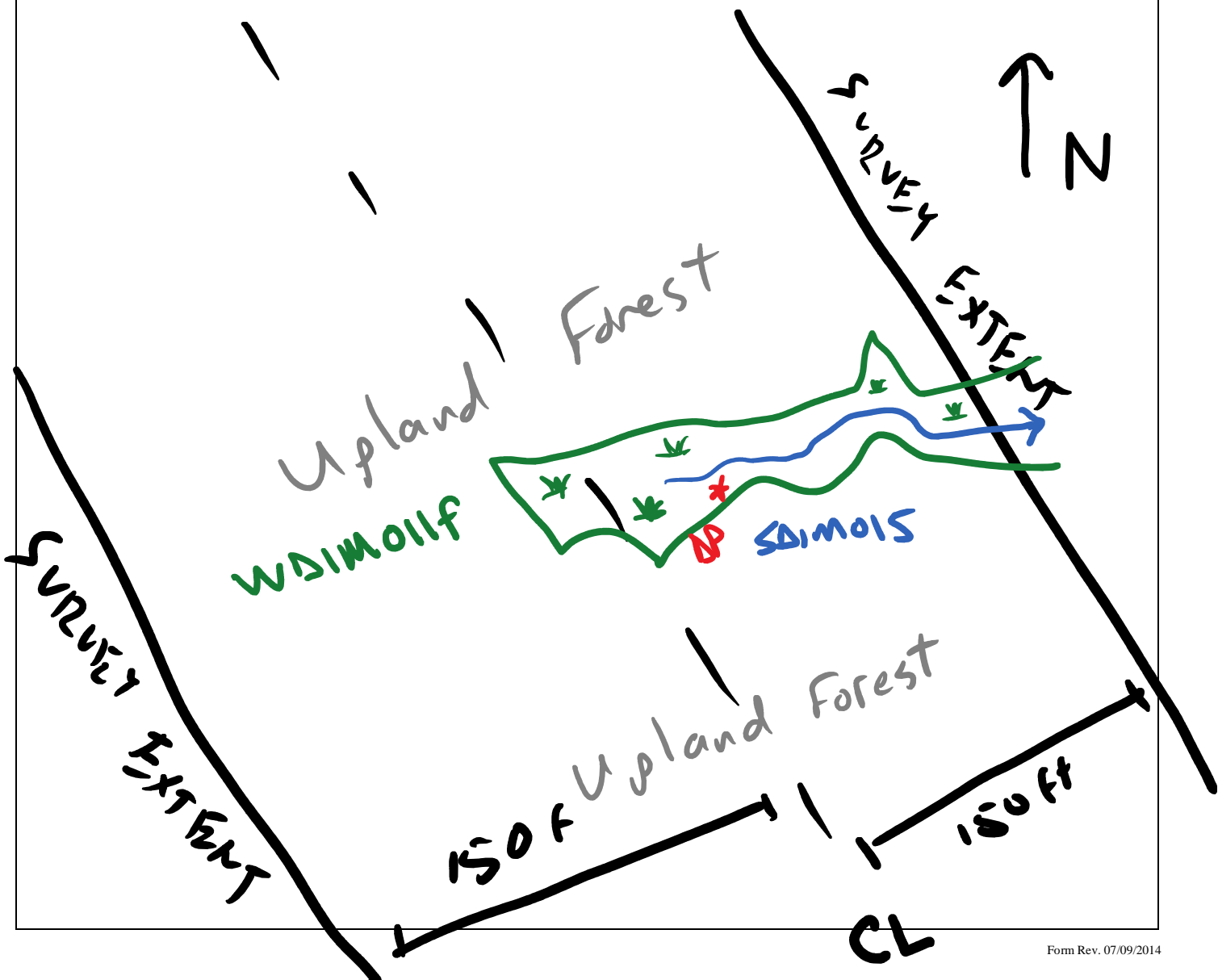
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate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

FLOW IS TO THE EAST. WETLAND HEADWATER. MINOR FLOW LIKELY FROM RAIN EVENT THE EVENING BEFORE (09-05-14). CHANNEL BECOMES MORE SANDY AS IT HEADS EAST.

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





Waterbody point sdim015 facing across



Waterbody point sdim015 facing upstream



Waterbody point sdim015 facing downstream

Linear Waterbody Data Sheet

Survey Description				
Project Name: Atlantic Coast Pipeline		Waterbody Name: UNT TO BUTTERWOOD CREEK		Waterbody ID: SDIM016
State: Virginia		County: Dinwiddie	Company: W&C	Crew Member Initials: SG, EB
Tract Number(s): 13-011, 13-012		Nearest Milepost: 247.35	Associated Wetland ID(s): NA	
Survey Type: <i>(check one)</i> <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:				
Physical Attributes				
Stream Classification: <i>(check one)</i> <input checked="" type="checkbox"/> Ephemeral <input type="checkbox"/> Intermittent <input type="checkbox"/> Perennial				
Waterbody Type: <i>(check one)</i> <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:				
OHWM Width: <u>2</u> ft. Height: <u>0.3</u> ft. N/A <input type="checkbox"/>		OHWM Indicator: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input checked="" type="checkbox"/> Scouring <input checked="" type="checkbox"/> Water staining <input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input checked="" type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change		
Width of Waterbody - Top of Bank to Top of Bank: <u>10</u> ft.	Width of Waterbody - Toe of Slope to Toe of Slope: <u>2</u> ft.	Width of Waterbody - Water Edge to Water Edge: N/A <input type="checkbox"/> <u>1</u> ft.	Depth of Water: <i>(Approx.)</i> N/A <input type="checkbox"/> <u>0.1</u> ft.	
Sinuosity: <i>(check one)</i> <input checked="" type="checkbox"/> Straight <input type="checkbox"/> Meandering	Water velocity: <i>(Approx.)</i> <u>0.1</u> fps N/A <input type="checkbox"/>	Bank height Right: <u>2</u> ft. Left: <u>5</u> ft.	Bank slope Right: <u>35</u> degrees Left: <u>80</u> degrees	
Qualitative Attributes				
Water Appearance: <i>(check one)</i> <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:				
Substrate: <i>(check all that apply)</i> % of Substrate: <u>NA</u> % <u>NA</u> % <u>NA</u> % <u>NA</u> % <u>65</u> % <u>30</u> % <u>5</u> % <u>NA</u> %				
Width of Riparian Zone: N/A <input type="checkbox"/> <u>>100</u> ft.	Vegetative Layers: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Trees: <u>14</u> in. <input checked="" type="checkbox"/> Saplings/Shrubs: <u>2</u> in. <input checked="" type="checkbox"/> Herbs			
Dominant Bank Vegetation <i>(list)</i> : AMERICAN BEECH, TULIP TREE, LOBLOLLY PINE, AMERICAN HOLLY, CHRISTMAS FERN,				
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): OVERHANGING VEGETATION, DOWNED WOOD				
Aquatic Organisms Observed <i>(list)</i> : FROGS, CRAYFISH				
T&E Species Observed <i>(list)</i> : NA				
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): NA				
Tributary is: <i>(check one)</i> <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated				
Stream Quality ^a : <i>(check one)</i> <input type="checkbox"/> High <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Low				

Waterbody ID:

SDIM016

^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.

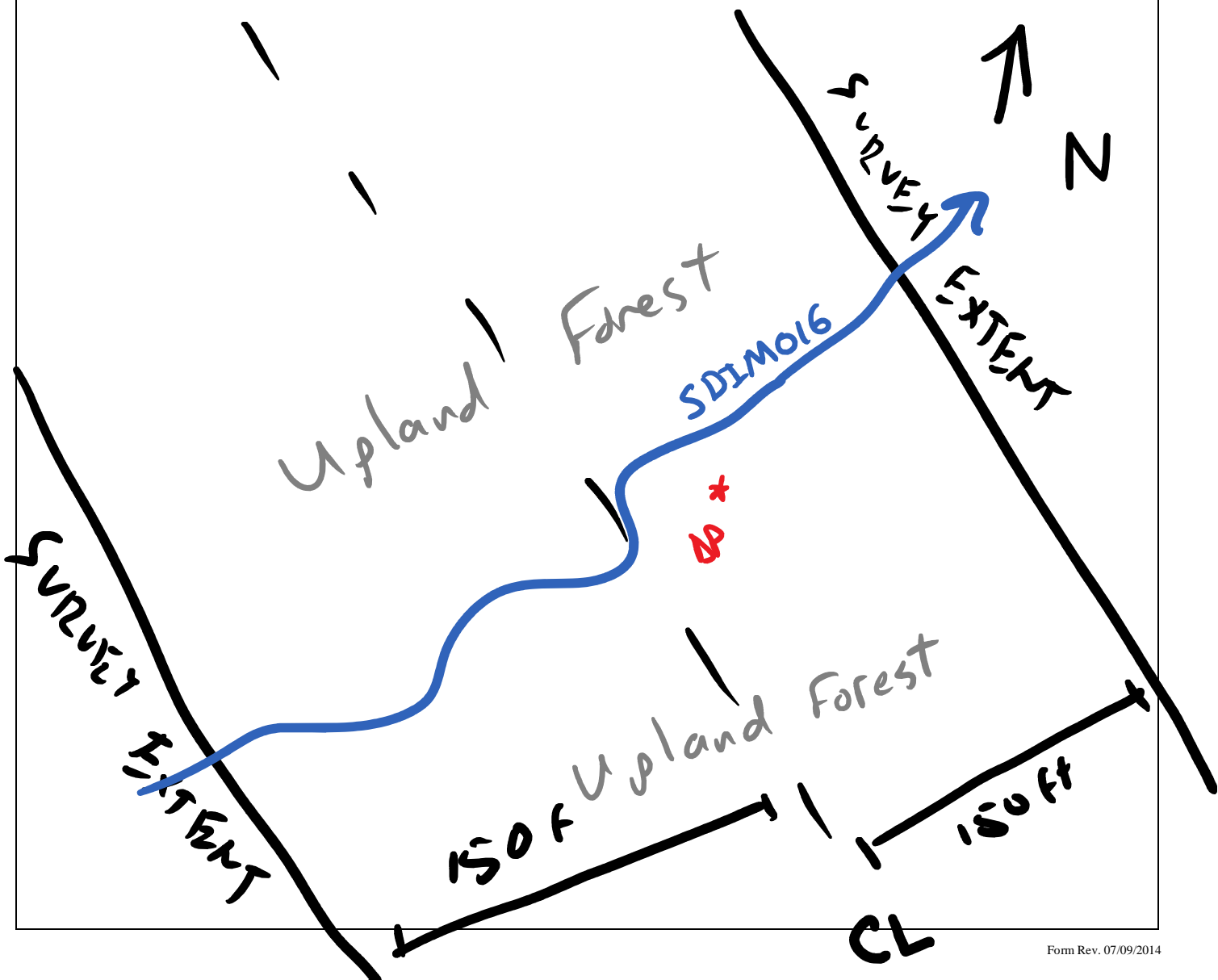
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate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

STREAM IN OPEN UPPER CANOPY/DENSE MID-TORY PINE PLANTATION. FLOW IS TO THE EAST. MINOR FLOW LIKELY FROM RAIN EVENT THE EVENING BEFORE (09-05-14), ALTHOUGH A POSSIBLE SEEP ALONG STREAMBANK APPROX 100 FT EAST OF CENTERLINE MAY PROVIDE SOME CONTINUOUS FLOW. WATER FLOW SUB-SURFACE IN SEVERAL LOCATIONS. CHANNEL ALTERED 75 FT EAST OF CENTERLINE BY MAJOR TREE BLOWDOWN ALONG CHANNEL BANK.

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





Waterbody point sdim016 facing across



Waterbody point sdim016 facing upstream



Waterbody point sdim016 facing downstream

Linear Waterbody Data Sheet

Survey Description			
Project Name: Atlantic Coast Pipeline		Waterbody Name: UNT TO BUTTERWOOD CREEK	
Waterbody ID: SDIM017		Date: 9/6/2014	
State: Virginia	County: Dinwiddie	Company: W&C	Crew Member Initials: SG, EB
Photos: 2968-2970, X U D			
Tract Number(s): 13-013		Nearest Milepost: 247.36	Associated Wetland ID(s): WDIM013f
Survey Type: <i>(check one)</i> <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:			
Physical Attributes			
Stream Classification: <i>(check one)</i> <input checked="" type="checkbox"/> Ephemeral <input type="checkbox"/> Intermittent <input type="checkbox"/> Perennial			
Waterbody Type: <i>(check one)</i> <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:			
OHWM Width: <u>2</u> ft. Height: <u>0.3</u> ft. N/A <input type="checkbox"/>		OHWM Indicator: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input checked="" type="checkbox"/> Scouring <input checked="" type="checkbox"/> Water staining <input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input checked="" type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change	
Width of Waterbody - Top of Bank to Top of Bank: <u>6</u> ft.	Width of Waterbody - Toe of Slope to Toe of Slope: <u>2</u> ft.	Width of Waterbody - Water Edge to Water Edge: <u>0.5</u> ft. N/A <input type="checkbox"/>	Depth of Water: <i>(Approx.)</i> <u>0.1</u> ft. N/A <input type="checkbox"/>
Sinuosity: <i>(check one)</i> <input type="checkbox"/> Straight <input checked="" type="checkbox"/> Meandering	Water velocity: <i>(Approx.)</i> <u>0.1</u> fps N/A <input type="checkbox"/>	Bank height Right: <u>4</u> ft. Left: <u>3</u> ft.	Bank slope Right: <u>60</u> degrees Left: <u>70</u> degrees
Qualitative Attributes			
Water Appearance: <i>(check one)</i> <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:			
Substrate: <i>(check all that apply)</i> % of Substrate: <u>NA</u> % <u>NA</u> % <u>NA</u> % <u>NA</u> % <u>65</u> % <u>25</u> % <u>10</u> % <u>NA</u> %			
Width of Riparian Zone: <u>>100</u> ft. N/A <input type="checkbox"/>	Vegetative Layers: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Trees: <u>9</u> in. <input checked="" type="checkbox"/> Saplings/Shrubs: <u>2</u> in. <input checked="" type="checkbox"/> Herbs		
Dominant Bank Vegetation <i>(list)</i> : AMERICAN BEECH, TULIP TREE, IRONWOOD, AMERICAN HOLLY, CHRISTMAS FERN,			
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): OVERHANGING BANKS/ROOTS, DOWNED WOOD			
Aquatic Organisms Observed <i>(list)</i> : FROGS, CRAYFISH			
T&E Species Observed <i>(list)</i> : NA			
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): NA			
Tributary is: <i>(check one)</i> <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated			
Stream Quality ^a : <i>(check one)</i> <input type="checkbox"/> High <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Low			

Waterbody ID:
SDIM017

^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.

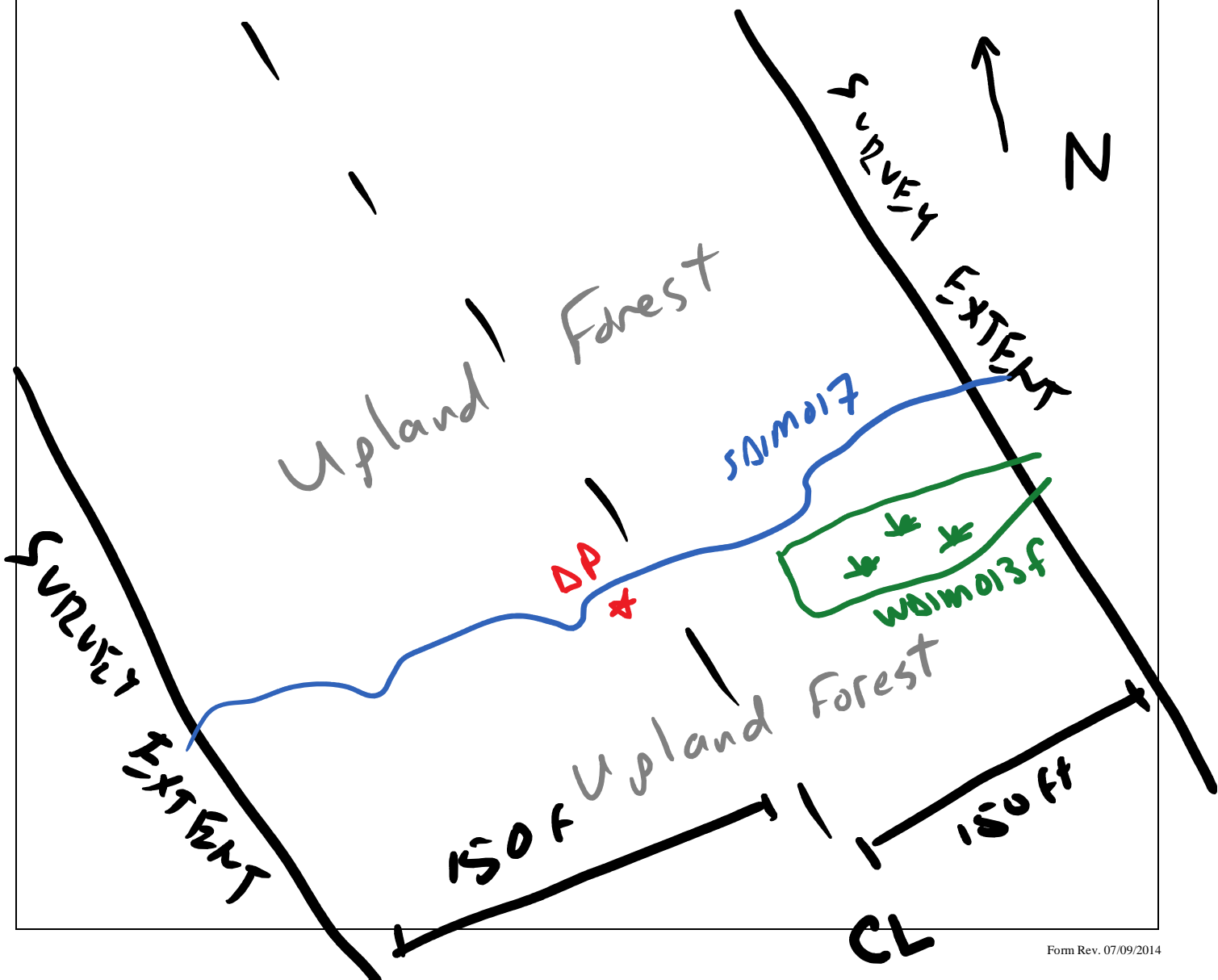
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate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

FLOW IS TO THE EAST. VERY MINOR WATER FLOW UPSTREAM FROM WDIM013f LIKELY FROM RAIN EVENT THE EVENING BEFORE (09-05-14), ALTHOUGH A POSSIBLE SEEP ALONG STREAMBANK NORTH OF WDIM013F AND SOUTH OF CENTERLINE MAY PROVIDE SOME CONTINUOUS FLOW. WATER FLOW SUB-SURFACE IN A FEW LOCATIONS.

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





Waterbody point sdim017 facing across



Waterbody point sdim017 facing upstream



Waterbody point sdim017 facing downstream

Linear Waterbody Data Sheet

Survey Description			
Project Name: Atlantic Coast Pipeline		Waterbody Name: UNT TO BUTTERWOOD CREEK	
Waterbody ID: SDIM018		Date: 9/6/2014	
State: Virginia	County: Dinwiddie	Company: W&C	Crew Member Initials: SG, EB
Photos: 3017-3019, X U D			
Tract Number(s): 13-013		Nearest Milepost: 247.62	Associated Wetland ID(s): WDIM015f
Survey Type: <i>(check one)</i> <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:			
Physical Attributes			
Stream Classification: <i>(check one)</i> <input checked="" type="checkbox"/> Ephemeral <input type="checkbox"/> Intermittent <input type="checkbox"/> Perennial			
Waterbody Type: <i>(check one)</i> <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:			
OHWM Width: <u>2</u> ft. Height: <u>0.3</u> ft. N/A <input type="checkbox"/>		OHWM Indicator: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input checked="" type="checkbox"/> Scouring <input checked="" type="checkbox"/> Water staining <input checked="" type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input checked="" type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change	
Width of Waterbody - Top of Bank to Top of Bank: <u>4</u> ft.	Width of Waterbody - Toe of Slope to Toe of Slope: <u>2</u> ft.	Width of Waterbody - Water Edge to Water Edge: <u>0</u> ft. N/A <input checked="" type="checkbox"/>	Depth of Water: <i>(Approx.)</i> <u>0</u> ft. N/A <input checked="" type="checkbox"/>
Sinuosity: <i>(check one)</i> <input type="checkbox"/> Straight <input checked="" type="checkbox"/> Meandering	Water velocity: <i>(Approx.)</i> <u>0</u> fps N/A <input checked="" type="checkbox"/>	Bank height Right: <u>2</u> ft. Left: <u>2</u> ft.	Bank slope Right: <u>80</u> degrees Left: <u>80</u> degrees
Qualitative Attributes			
Water Appearance: <i>(check one)</i> <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:			
Substrate: <i>(check all that apply)</i> % of Substrate: <u>NA</u> % <u>NA</u> % <u>NA</u> % <u>NA</u> % <u>90</u> % <u>10</u> % <u> </u> % <u>NA</u> %			
Width of Riparian Zone: <u>>100</u> ft. N/A <input type="checkbox"/>	Vegetative Layers: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Trees: <u>12</u> in. <input checked="" type="checkbox"/> Saplings/Shrubs: <u>2</u> in. <input checked="" type="checkbox"/> Herbs		
Dominant Bank Vegetation <i>(list)</i> : AMERICAN BEECH, LOBLOLLY PINE, WHITE OAK, RED OAK, PAW-PAW, RED MAPLE, TULIP TREE, IRONWOOD, AMERICAN HOLLY, CHRISTMAS FERN, GREEN BRIAR			
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): OVERHANGING BANKS/ROOTS, DOWNED WOOD			
Aquatic Organisms Observed <i>(list)</i> : CRAYFISH			
T&E Species Observed <i>(list)</i> : NA			
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): NA			
Tributary is: <i>(check one)</i> <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated			
Stream Quality ^a : <i>(check one)</i> <input type="checkbox"/> High <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Low			

Waterbody ID:
SDIM018

^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.

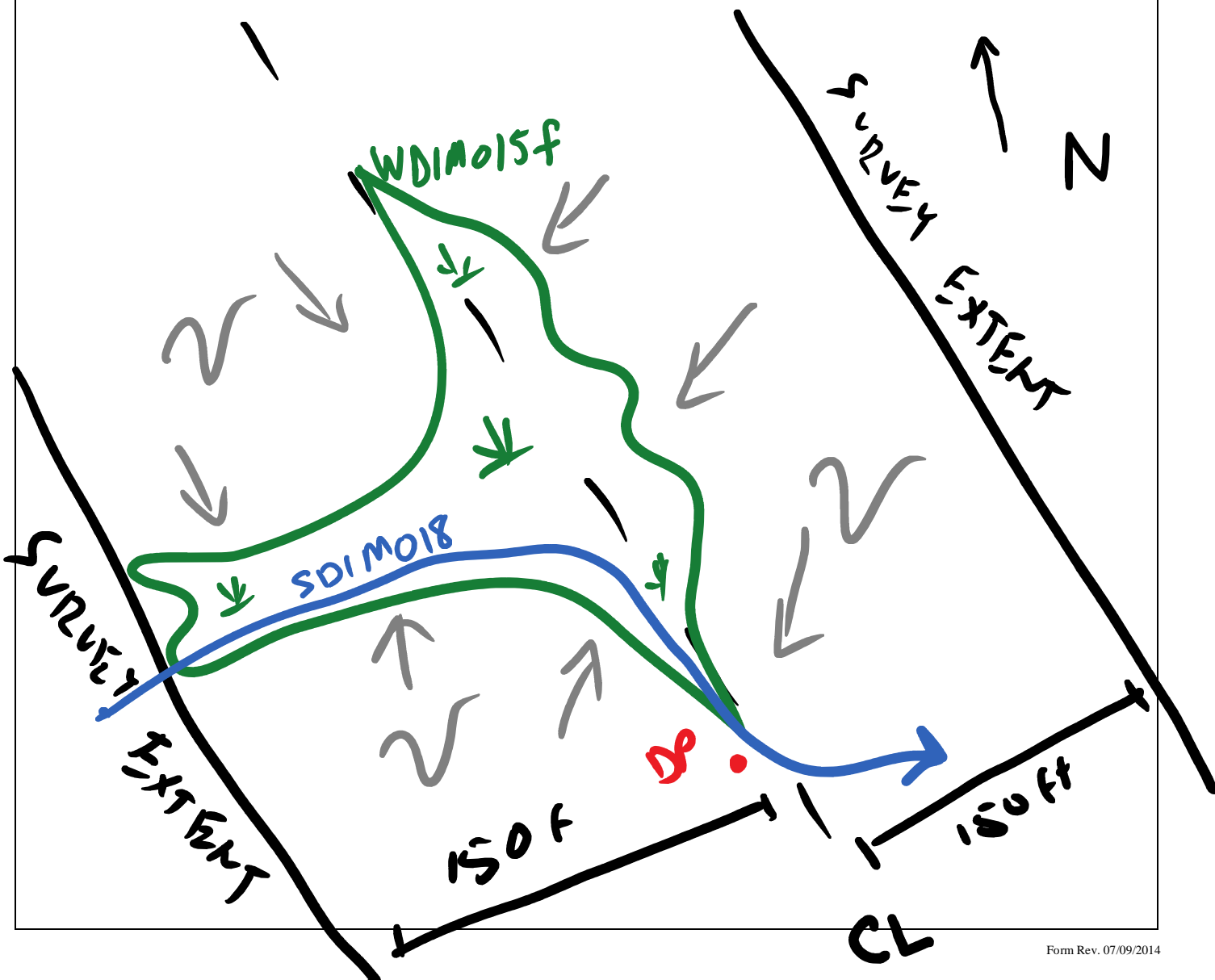
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate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

IN AEEA OF TWO CONVERGING SMALL RAVINES. FLOW IS TO THE SOUTH. SMALL AREAS OF STANDING WATER LIKELY FROM RAIN EVENT THE EVENING BEFORE (09-05-14); NO FLOW. CHANNEL SUB-SURFACE IN A FEW LOCATIONS.

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





Waterbody point sdim018 facing across



Waterbody point sdim018 facing upstream



Waterbody point sdim018 facing downstream

Linear Waterbody Data Sheet

Survey Description			
Project Name: Atlantic Coast Pipeline		Waterbody Name: UNT	
Waterbody ID: SDIM019		Date: 9/9/2014	
State: Virginia	County: Dinwiddie	Company: W&C	Crew Member Initials: SG, EB
Tract Number(s): 13-013		Nearest Milepost: 248.2	Associated Wetland ID(s): WDIM016f
Survey Type: <i>(check one)</i> <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:			
Physical Attributes			
Stream Classification: <i>(check one)</i> <input checked="" type="checkbox"/> Ephemeral <input type="checkbox"/> Intermittent <input type="checkbox"/> Perennial			
Waterbody Type: <i>(check one)</i> <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:			
OHWM Width: <u>2</u> ft.		OHWM Indicator: <i>(check all that apply)</i>	
OHWM Height: <u>0.3</u> ft.		<input checked="" type="checkbox"/> Clear line on bank <input checked="" type="checkbox"/> Shelving <input checked="" type="checkbox"/> Wrested vegetation <input checked="" type="checkbox"/> Scouring <input checked="" type="checkbox"/> Water staining	
N/A <input type="checkbox"/>		<input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input checked="" type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change	
Width of Waterbody - Top of Bank to Top of Bank: <u>3</u> ft.	Width of Waterbody - Toe of Slope to Toe of Slope: <u>2</u> ft.	Width of Waterbody - Water Edge to Water Edge: <u>0</u> ft.	Depth of Water: <i>(Approx.)</i> N/A <input checked="" type="checkbox"/> <u>0</u> ft.
Sinuosity: <i>(check one)</i> <input type="checkbox"/> Straight <input checked="" type="checkbox"/> Meandering	Water velocity: <i>(Approx.)</i> <u>0</u> fps	Bank height Right: <u>0.5</u> ft. Left: <u>0.5</u> ft.	Bank slope Right: <u>60</u> degrees Left: <u>60</u> degrees
N/A <input checked="" type="checkbox"/>			
Qualitative Attributes			
Water Appearance: <i>(check one)</i> <input checked="" type="checkbox"/> No water <input type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:			
Substrate: <i>(check all that apply)</i>			
% of Substrate: <u>NA</u> % <u>NA</u> % <u>NA</u> % <u>NA</u> % <u>65</u> % <u>30</u> % <u>5</u> % <u>NA</u> %			
Width of Riparian Zone: <u>>100</u> ft.		Vegetative Layers: <i>(check all that apply)</i>	
N/A <input type="checkbox"/>		<input checked="" type="checkbox"/> Trees: <u>7</u> in. <input checked="" type="checkbox"/> Saplings/Shrubs: <u>2</u> in. <input checked="" type="checkbox"/> Herbs	
Avg. DBH of Dominants: <i>(approx.)</i>			
Dominant Bank Vegetation <i>(list)</i> : WHITE OAK, RED OAK, SWEET GUM, RED MAPLE, FLOWERING DOGWOOD, SEDGES, SPHAGNUM,			
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): NA			
Aquatic Organisms Observed <i>(list)</i> : NA			
T&E Species Observed <i>(list)</i> : NA			
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): NA			
Tributary is: <i>(check one)</i> <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated			
Stream Quality ³ : <i>(check one)</i> <input type="checkbox"/> High <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Low			

Waterbody ID:

SDIM019

^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.

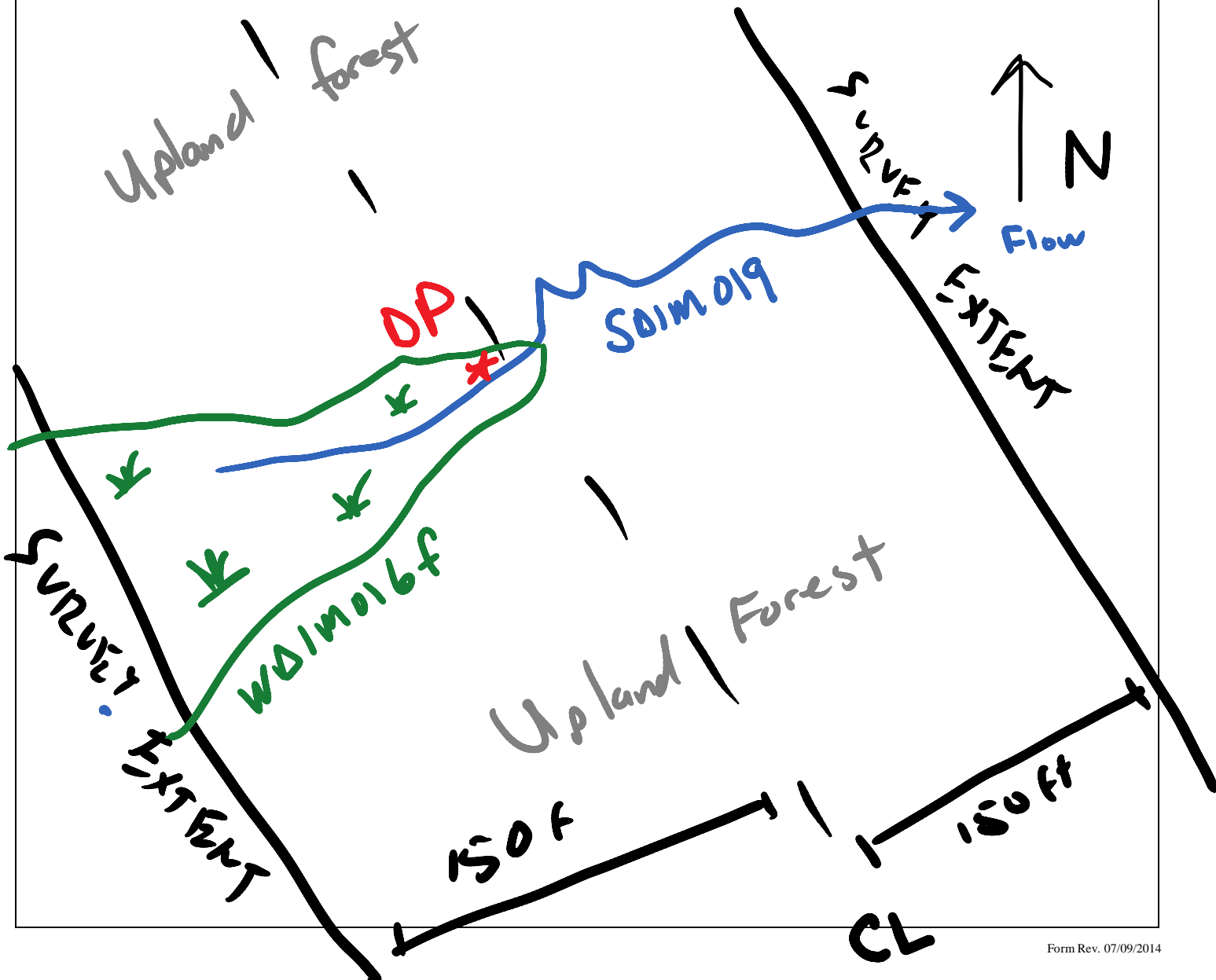
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate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

FLOW IS TO THE EAST-NORTHEAST FROM A HEADWATER WETLAND WDIM016. DENDRITIC DRAINAGE FORMS A CHANNEL IN THE WETLAND. THE CHANNEL BECOMES DEEPER AND BANK WIDTH BECOMES MUCH WIDER (UP TO ~20') APPROXIMATELY 40' EAST/DOWNSTREAM OF CENTERLINE. SHELVING WITH WETLAND VEGETATION IS LOCATED TYPICALLY WHERE THE BANK WIDTH WIDENS.

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





Waterbody point sdim019 facing Southwest and upstream



Waterbody point sdim019 facing Northeast and downstream



Waterbody point sdim019 facing Southeast and
across

Linear Waterbody Data Sheet

Survey Description			
Project Name: Atlantic Coast Pipeline		Waterbody Name: UNT to Butterwood Creek	
Waterbody ID: SDIM020		Date: 9/9/2014	
State: Virginia	County: Dinwiddie	Company: W&C	Crew Member Initials: SG, EB
Photos: 3056-3058, X U D			
Tract Number(s): 13-014		Nearest Milepost: 248.67	Associated Wetland ID(s): WDIM018f
Survey Type: <i>(check one)</i> <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:			
Physical Attributes			
Stream Classification: <i>(check one)</i> <input checked="" type="checkbox"/> Ephemeral <input type="checkbox"/> Intermittent <input type="checkbox"/> Perennial			
Waterbody Type: <i>(check one)</i> <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:			
OHWM Width: <u>2</u> ft. Height: <u>0.1</u> ft. N/A <input type="checkbox"/>		OHWM Indicator: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input checked="" type="checkbox"/> Scouring <input checked="" type="checkbox"/> Water staining <input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input checked="" type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change	
Width of Waterbody - Top of Bank to Top of Bank: <u>2.5</u> ft.	Width of Waterbody - Toe of Slope to Toe of Slope: <u>2</u> ft.	Width of Waterbody - Water Edge to Water Edge: <u>1</u> ft. N/A <input type="checkbox"/>	Depth of Water: <i>(Approx.)</i> <u>0.1</u> ft. N/A <input type="checkbox"/>
Sinuosity: <i>(check one)</i> <input type="checkbox"/> Straight <input checked="" type="checkbox"/> Meandering	Water velocity: <i>(Approx.)</i> <u>0.1</u> fps N/A <input type="checkbox"/>	Bank height Right: <u>0.2</u> ft. Left: <u>0.2</u> ft.	Bank slope Right: <u>25</u> degrees Left: <u>25</u> degrees
Qualitative Attributes			
Water Appearance: <i>(check one)</i> <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:			
Substrate: <i>(check all that apply)</i> % of Substrate: <u>NA</u> % <u>NA</u> % <u>NA</u> % <u>NA</u> % <u>30</u> % <u>50</u> % <u>20</u> % <u>NA</u> %			
Width of Riparian Zone: <u>>100</u> ft. N/A <input type="checkbox"/>	Vegetative Layers: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Trees: <u>6</u> in. <input checked="" type="checkbox"/> Saplings/Shrubs: <u>2</u> in. <input checked="" type="checkbox"/> Herbs		
Dominant Bank Vegetation <i>(list)</i> : BROOKSIDE ALDER, RED MAPLE, WILLOW, FALSE NETTLE, JEWEL WEED, SWEET GUM, TULIP TREE, LOBLOLLY PINE, HOLLY			
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): NA			
Aquatic Organisms Observed <i>(list)</i> : FROGS, CRAYFISH			
T&E Species Observed <i>(list)</i> : NA			
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): NA			
Tributary is: <i>(check one)</i> <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated			
Stream Quality ^a : <i>(check one)</i> <input type="checkbox"/> High <input type="checkbox"/> Moderate <input checked="" type="checkbox"/> Low			

Waterbody ID:

SDIM020

^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.

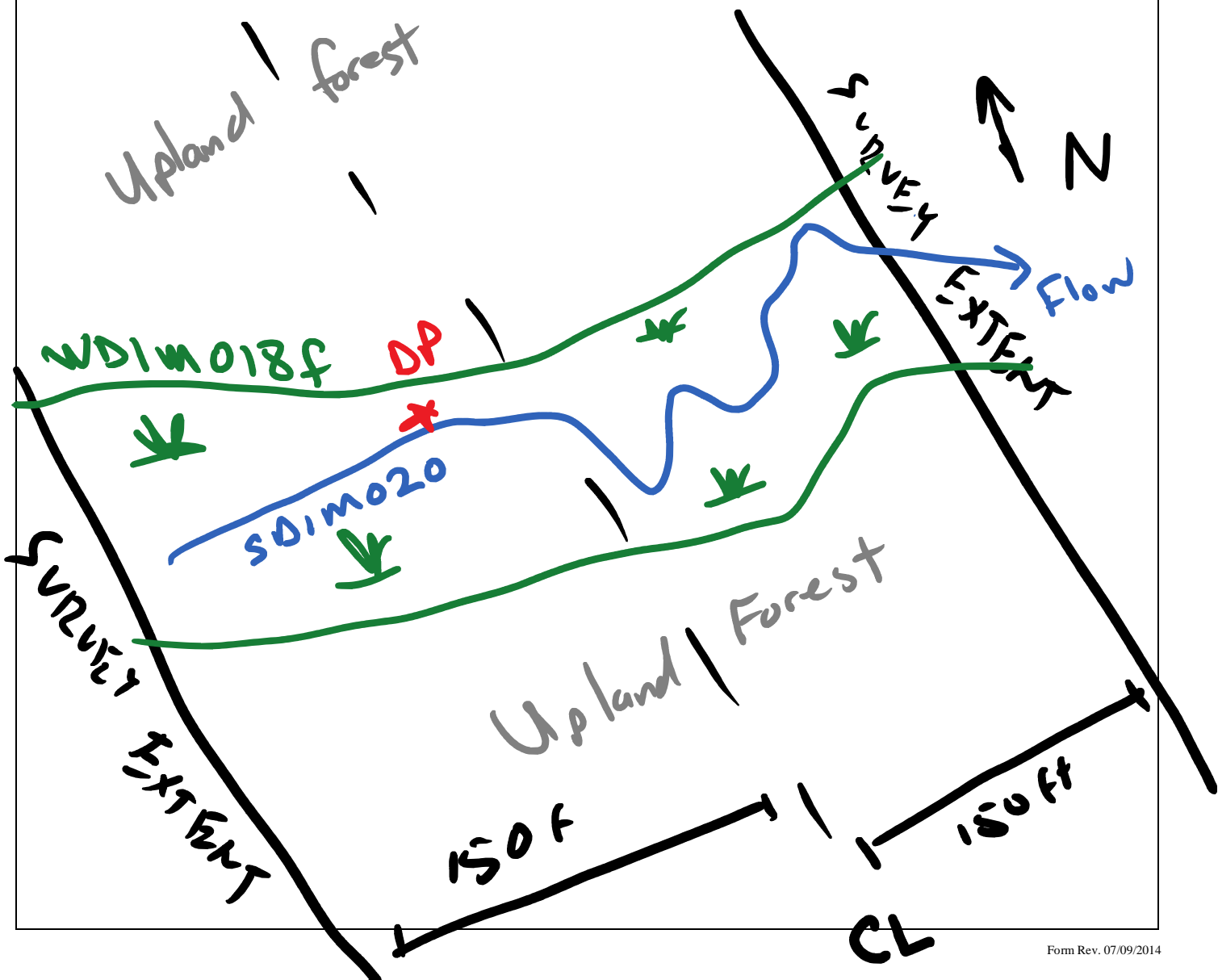
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate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

FLOW IS TO THE EAST. STREAM CHARACTERISTICS ARE VARIABLE AND DIMINISH TOWARDS THE HEADWATER.

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





Waterbody point sdim020 facing West and upstream



Waterbody point sdim020 facing East and downstream



Waterbody point sdim020 facing South and across

Linear Waterbody Data Sheet

Survey Description			
Project Name: Atlantic Coast Pipeline		Waterbody Name: UNT to Butterwood Creek	
Waterbody ID: SDIM021		Date: 9/9/2014	
State: Virginia	County: Dinwiddie	Company: W&C	Crew Member Initials: SG, EB
Photos: 3056-3058, X U D			
Tract Number(s): 13-014		Nearest Milepost: 248.84	Associated Wetland ID(s): WDIM019f
Survey Type: <i>(check one)</i> <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:			
Physical Attributes			
Stream Classification: <i>(check one)</i> <input type="checkbox"/> Ephemeral <input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> Perennial			
Waterbody Type: <i>(check one)</i> <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:			
OHWM Width: <u>2</u> ft. Height: <u>0.5</u> ft. N/A <input type="checkbox"/>		OHWM Indicator: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Clear line on bank <input checked="" type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input checked="" type="checkbox"/> Scouring <input type="checkbox"/> Water staining <input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input checked="" type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change	
Width of Waterbody - Top of Bank to Top of Bank: <u>4</u> ft.	Width of Waterbody - Toe of Slope to Toe of Slope: <u>2</u> ft.	Width of Waterbody - Water Edge to Water Edge: <u>1.5</u> ft. N/A <input type="checkbox"/>	Depth of Water: <i>(Approx.)</i> <u>0.3</u> ft. N/A <input type="checkbox"/>
Sinuosity: <i>(check one)</i> <input type="checkbox"/> Straight <input checked="" type="checkbox"/> Meandering	Water velocity: <i>(Approx.)</i> <u>0.1</u> fps N/A <input type="checkbox"/>	Bank height Right: <u>2</u> ft. Left: <u>2</u> ft.	Bank slope Right: <u>80</u> degrees Left: <u>80</u> degrees
Qualitative Attributes			
Water Appearance: <i>(check one)</i> <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:			
Substrate: <i>(check all that apply)</i> % of Substrate: <u>NA</u> % <u>NA</u> % <u>NA</u> % <u>NA</u> % <u>95</u> % <u>5</u> % <u>NA</u> % <u>NA</u> %			
Width of Riparian Zone: <u>>100</u> ft. N/A <input type="checkbox"/>	Vegetative Layers: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Trees: <u>9</u> in. <input checked="" type="checkbox"/> Saplings/Shrubs: <u>2</u> in. <input checked="" type="checkbox"/> Herbs		
Dominant Bank Vegetation <i>(list)</i> : BROOKSIDE ALDER, RED MAPLE, FALSE NETTLE, JEWEL WEED, SWEET GUM, TULIP TREE, LOBLOLLY PINE, HOLLY			
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): OVERHANGING BANKS & ROOTS, SOME DEEPER POOLS, VEGETATION COVER,			
Aquatic Organisms Observed <i>(list)</i> : CRAYFISH, WATER STRIDERS, FISH			
T&E Species Observed <i>(list)</i> : NA			
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): NA			
Tributary is: <i>(check one)</i> <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated			
Stream Quality ^a : <i>(check one)</i> <input type="checkbox"/> High <input checked="" type="checkbox"/> Moderate <input checked="" type="checkbox"/> Low			

Waterbody ID:
SDIM021

^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.

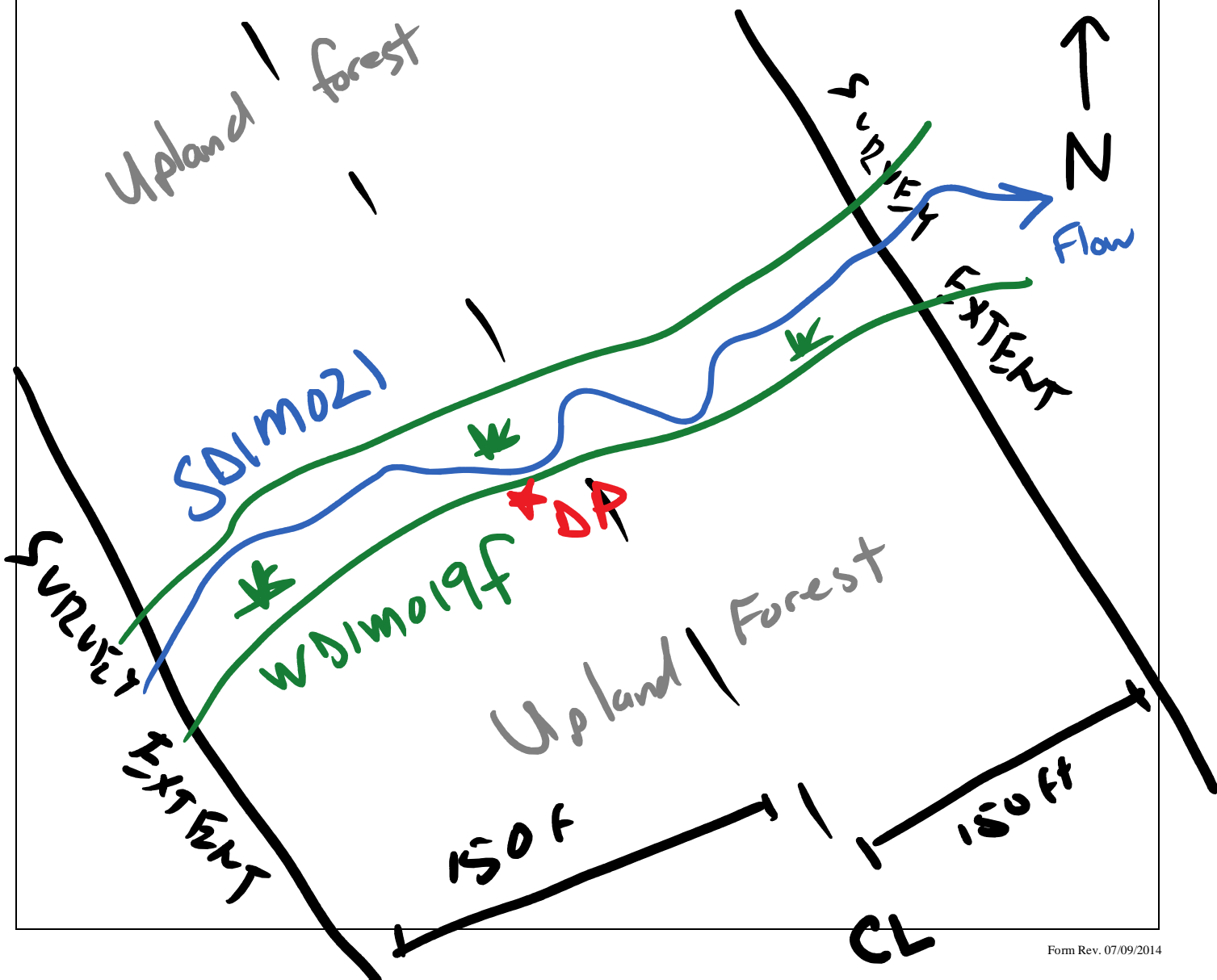
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate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

FLOW IS TO THE NORTHEAST.

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





Waterbody point sdim021 facing Southwest and upstream



Waterbody point sdim021 facing Northeast and downstream



Waterbody point sdim021 facing Northwest and
across

Linear Waterbody Data Sheet

Survey Description			
Project Name: Atlantic Coast Pipeline		Waterbody Name: UNT to Butterwood Creek	
Waterbody ID: Sdic016		Date: 2/5/2016	
State: Virginia	County: Dinwiddie	Company: NRG	Crew Member Initials: CR, SH
Photos: 3			
Tract Number(s): 13-014-A001		Nearest Milepost: 254	Associated Wetland ID(s): Wdic013
Survey Type: <i>(check one)</i> <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:			
Physical Attributes			
Stream Classification: <i>(check one)</i> <input type="checkbox"/> Ephemeral <input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> Perennial			
Waterbody Type: <i>(check one)</i> <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:			
OHWM Width: 6 ft.		OHWM Indicator: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input type="checkbox"/> Scouring <input type="checkbox"/> Water staining	
OHWM Height: 0.5 ft.		<input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input checked="" type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change	
N/A <input type="checkbox"/>			
Width of Waterbody - Top of Bank to Top of Bank: 12 ft.	Width of Waterbody - Toe of Slope to Toe of Slope: 2 ft.	Width of Waterbody - Water Edge to Water Edge: 4 ft.	Depth of Water: <i>(Approx.)</i> 0.2 ft.
N/A <input type="checkbox"/>		N/A <input type="checkbox"/>	
Sinuosity: <i>(check one)</i> <input checked="" type="checkbox"/> Straight <input type="checkbox"/> Meandering		Water velocity: <i>(Approx.)</i> 1 fps	
N/A <input type="checkbox"/>		N/A <input type="checkbox"/>	
		Bank height Right: 4 ft. Left: 4 ft.	
		Bank slope Right: 80 degrees Left: 90 degrees	
Qualitative Attributes			
Water Appearance: <i>(check one)</i> <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:			
Substrate: <i>(check all that apply)</i> <input type="checkbox"/> Bedrock <input type="checkbox"/> Boulder <input type="checkbox"/> Cobble <input type="checkbox"/> Gravel <input checked="" type="checkbox"/> Sand <input checked="" type="checkbox"/> Silt/ clay <input type="checkbox"/> Organic <input type="checkbox"/> Other:			
% of Substrate: _____% _____% _____% _____% 90% 10% _____% _____%			
Width of Riparian Zone: 30 ft.		Vegetative Layers: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Trees: <input checked="" type="checkbox"/> Saplings/Shrubs: <input checked="" type="checkbox"/> Herbs	
N/A <input type="checkbox"/>		Avg. DBH of Dominants: <i>(approx.)</i> 12 in. 2 in.	
Dominant Bank Vegetation <i>(list)</i> : Sweet-gum, loblolly pine, southern red oak, red maple, Japanese honeysuckle, American holly, Christmas fern, greenbrier			
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): Leaf packs			
Aquatic Organisms Observed <i>(list)</i> : None			
T&E Species Observed <i>(list)</i> : None			
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): None			
Tributary is: <i>(check one)</i> <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated			
Stream Quality ³ : <i>(check one)</i> <input type="checkbox"/> High <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Low			

Waterbody ID:

Sdic016

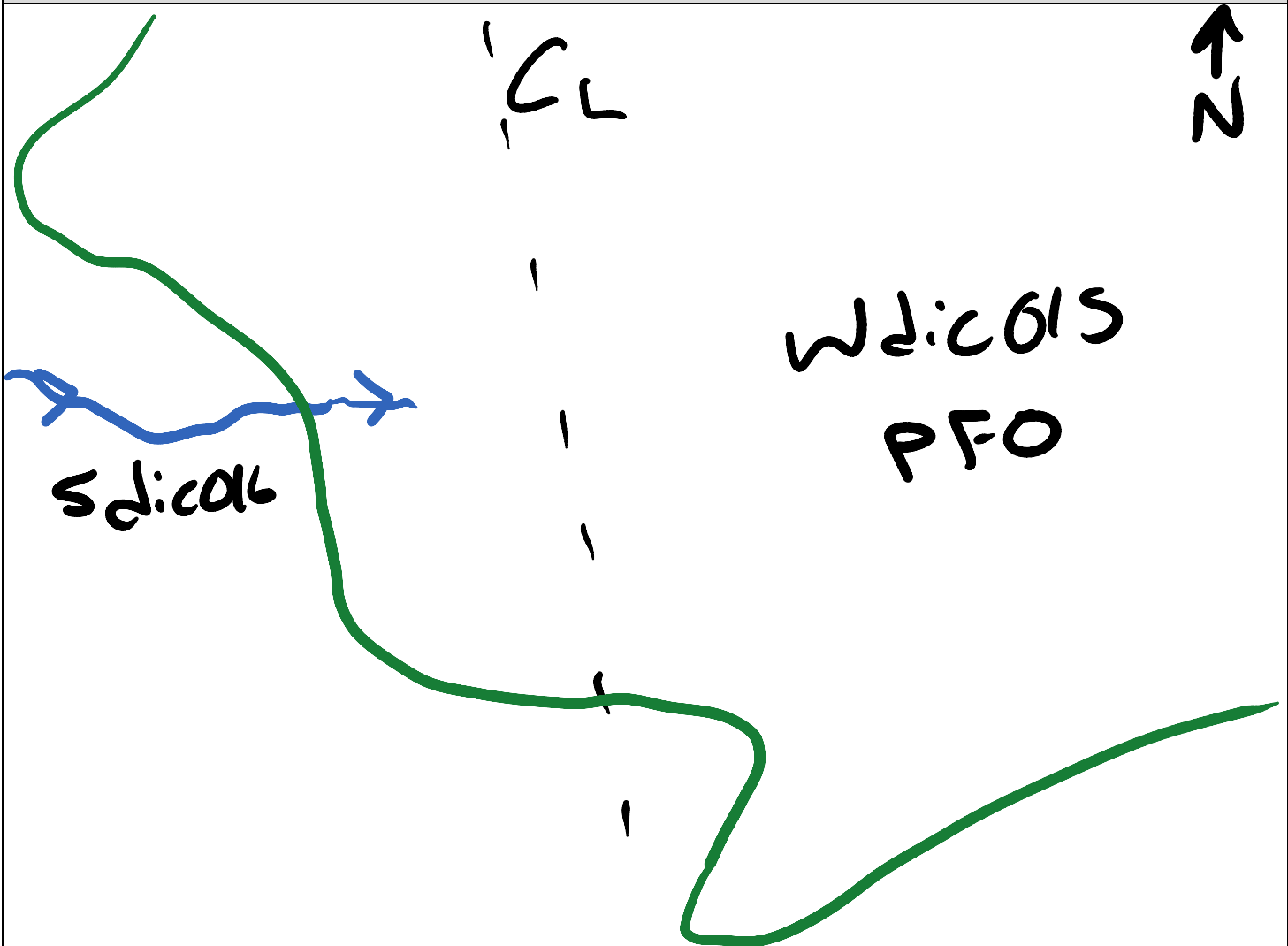
^a **High Quality:** Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance 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 SDIC016 facing south upstream



Waterbody SDIC016 facing north downstream



Waterbody SDIC016 facing east across

Linear Waterbody Data Sheet

Survey Description			
Project Name: Southeast Reliability		Waterbody Name: UNT to Butterwood Creek	
Waterbody ID: Sdic015		Date: 2/4/2016	
State: Virginia	County: Dinwiddie	Company: NRG	Crew Member Initials: CR, SH
Photos: 3			
Tract Number(s): 13-019		Nearest Milepost: 254	Associated Wetland ID(s): Wdic011 & wdic012
Survey Type: <i>(check one)</i> <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:			
Physical Attributes			
Stream Classification: <i>(check one)</i> <input type="checkbox"/> Ephemeral <input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> Perennial			
Waterbody Type: <i>(check one)</i> <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:			
OHWM Width: _ 3 _ ft.		OHWM Indicator: <i>(check all that apply)</i>	
Height: _ 0.5 _ ft.		<input checked="" type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input type="checkbox"/> Scouring <input type="checkbox"/> Water staining	
N/A <input type="checkbox"/>		<input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input checked="" type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change	
Width of Waterbody - Top of Bank to Top of Bank: _ 12 _ ft.	Width of Waterbody - Toe of Slope to Toe of Slope: _ 1 _ ft.	Width of Waterbody - Water Edge to Water Edge: N/A <input type="checkbox"/> _ 2 _ ft.	Depth of Water: <i>(Approx.)</i> N/A <input type="checkbox"/> _ 0.3 _ ft.
Sinuosity: <i>(check one)</i> <input type="checkbox"/> Straight <input checked="" type="checkbox"/> Meandering	Water velocity: <i>(Approx.)</i> _ 1 _ fps N/A <input type="checkbox"/>	Bank height Right: _ 6 _ ft. Left: _ 6 _ ft.	Bank slope Right: _ 70 _ degrees Left: _ 70 _ degrees
Qualitative Attributes			
Water Appearance: <i>(check one)</i> <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:			
Substrate: <i>(check all that apply)</i>			
% of Substrate: _____ % _____ % _____ % _____ % <u>90</u> % <u>10</u> % _____ % _____ %			
Width of Riparian Zone: _ 30 _ ft. N/A <input type="checkbox"/>	Vegetative Layers: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Trees: <input checked="" type="checkbox"/> Saplings/Shrubs: <input checked="" type="checkbox"/> Herbs		
Avg. DBH of Dominants: <i>(approx.)</i> _ 12 _ in. _ 2 _ in.			
Dominant Bank Vegetation <i>(list)</i> : Sweet-gum, loblolly pine, southern red oak, red maple, Japanese honeysuckle, American holly, Christmas fern, greenbrier			
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): Leaf packs, overhanging roots/banks, downed woody debris			
Aquatic Organisms Observed <i>(list)</i> : None			
T&E Species Observed <i>(list)</i> : None			
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): None			
Tributary is: <i>(check one)</i> <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated			
Stream Quality ³ : <i>(check one)</i> <input type="checkbox"/> High <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Low			

Waterbody ID:

Sdic015

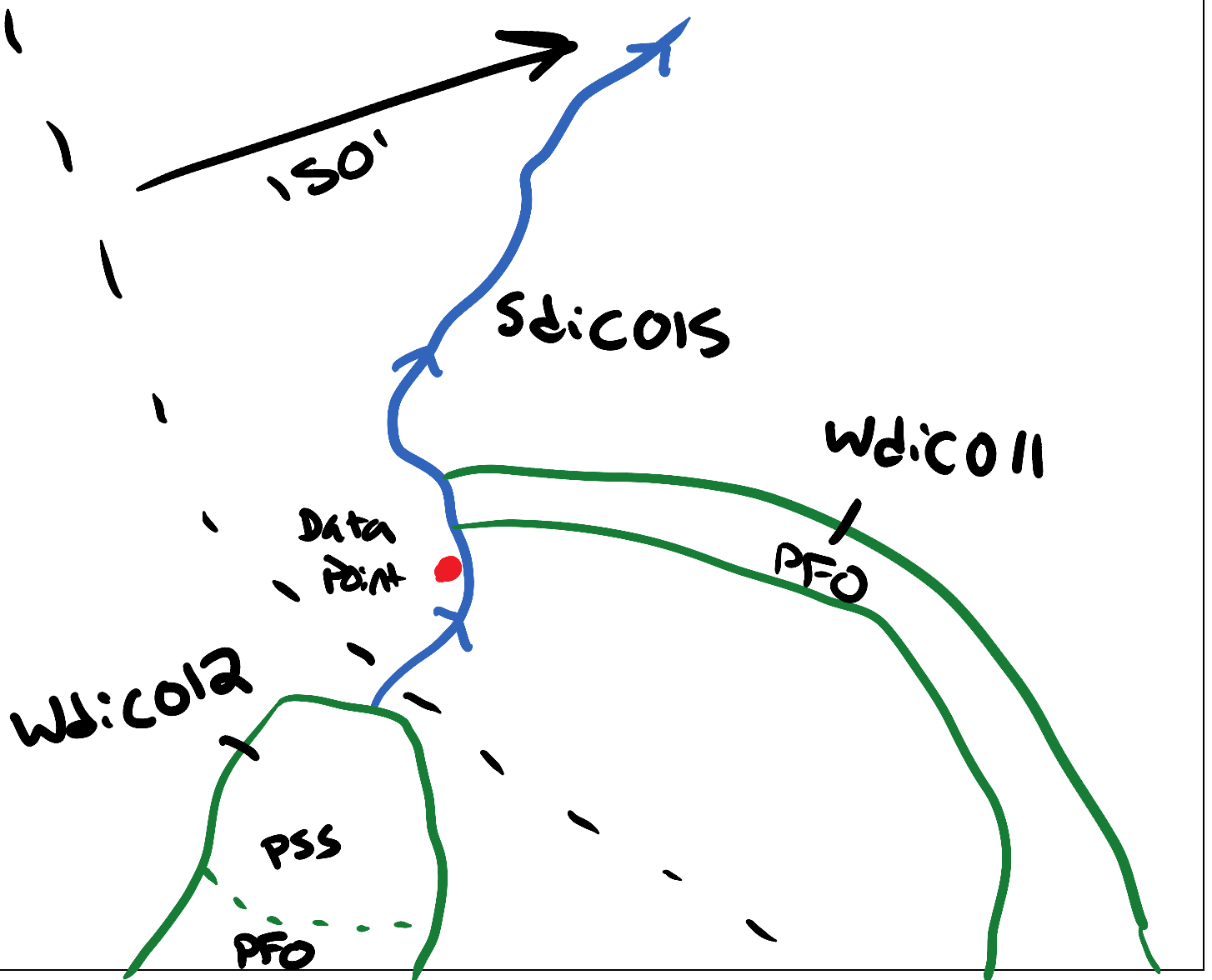
^a **High Quality:** Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance 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 SDIC015 facing southwest upstream



Waterbody SDIC015 facing north downstream



Waterbody SDIC015 facing east across

Linear Waterbody Data Sheet

Survey Description			
Project Name: Southeast Reliability		Waterbody Name: UNT to Butterwood Creek	
Waterbody ID: Sdic013		Date: 2/4/2016	
State: Virginia	County: Dinwiddie	Company: NRG	Crew Member Initials: CR, SH
Photos: 3			
Tract Number(s): 13-019		Nearest Milepost: 254	Associated Wetland ID(s): Wdic010
Survey Type: <i>(check one)</i> <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:			
Physical Attributes			
Stream Classification: <i>(check one)</i> <input type="checkbox"/> Ephemeral <input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> Perennial			
Waterbody Type: <i>(check one)</i> <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:			
OHWM Width: _ 3 _ ft.		OHWM Indicator: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input type="checkbox"/> Scouring <input type="checkbox"/> Water staining	
Height: _ 0.5 _ ft.		<input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input checked="" type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change	
N/A <input type="checkbox"/>			
Width of Waterbody - Top of Bank to Top of Bank: _ 15 _ ft.	Width of Waterbody - Toe of Slope to Toe of Slope: _ 1 _ ft.	Width of Waterbody - Water Edge to Water Edge: N/A <input type="checkbox"/> _ 3 _ ft.	Depth of Water: <i>(Approx.)</i> N/A <input type="checkbox"/> _ 0.4 _ ft.
Sinuosity: <i>(check one)</i> <input type="checkbox"/> Straight <input checked="" type="checkbox"/> Meandering	Water velocity: <i>(Approx.)</i> _ 1.5 _ fps N/A <input type="checkbox"/>	Bank height Right: _ 12 _ ft. Left: _ 12 _ ft.	Bank slope Right: _ 90 _ degrees Left: _ 80 _ degrees
Qualitative Attributes			
Water Appearance: <i>(check one)</i> <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:			
Substrate: <i>(check all that apply)</i> <input type="checkbox"/> Bedrock <input type="checkbox"/> Boulder <input type="checkbox"/> Cobble <input type="checkbox"/> Gravel <input checked="" type="checkbox"/> Sand <input type="checkbox"/> Silt/ clay <input type="checkbox"/> Organic <input type="checkbox"/> Other:			
% of Substrate: _____ % _____ % _____ % _____ % <u>100</u> % _____ % _____ %			
Width of Riparian Zone: _ 20 _ ft. N/A <input type="checkbox"/>	Vegetative Layers: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Trees: <input checked="" type="checkbox"/> Saplings/Shrubs: <input checked="" type="checkbox"/> Herbs		
	Avg. DBH of Dominants: <i>(approx.)</i> _ 10 _ in. _ 2 _ in.		
Dominant Bank Vegetation <i>(list)</i> : Sweet-gum, loblolly pine, southern red oak, red maple, Japanese honeysuckle, American holly, Christmas fern, greenbrier			
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): Leaf packs			
Aquatic Organisms Observed <i>(list)</i> : None			
T&E Species Observed <i>(list)</i> : None			
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): Flows out of culvert under dam road			
Tributary is: <i>(check one)</i> <input type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input checked="" type="checkbox"/> Manipulated			
Stream Quality ³ : <i>(check one)</i> <input type="checkbox"/> High <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Low			

Waterbody ID:

Sdic013

^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.

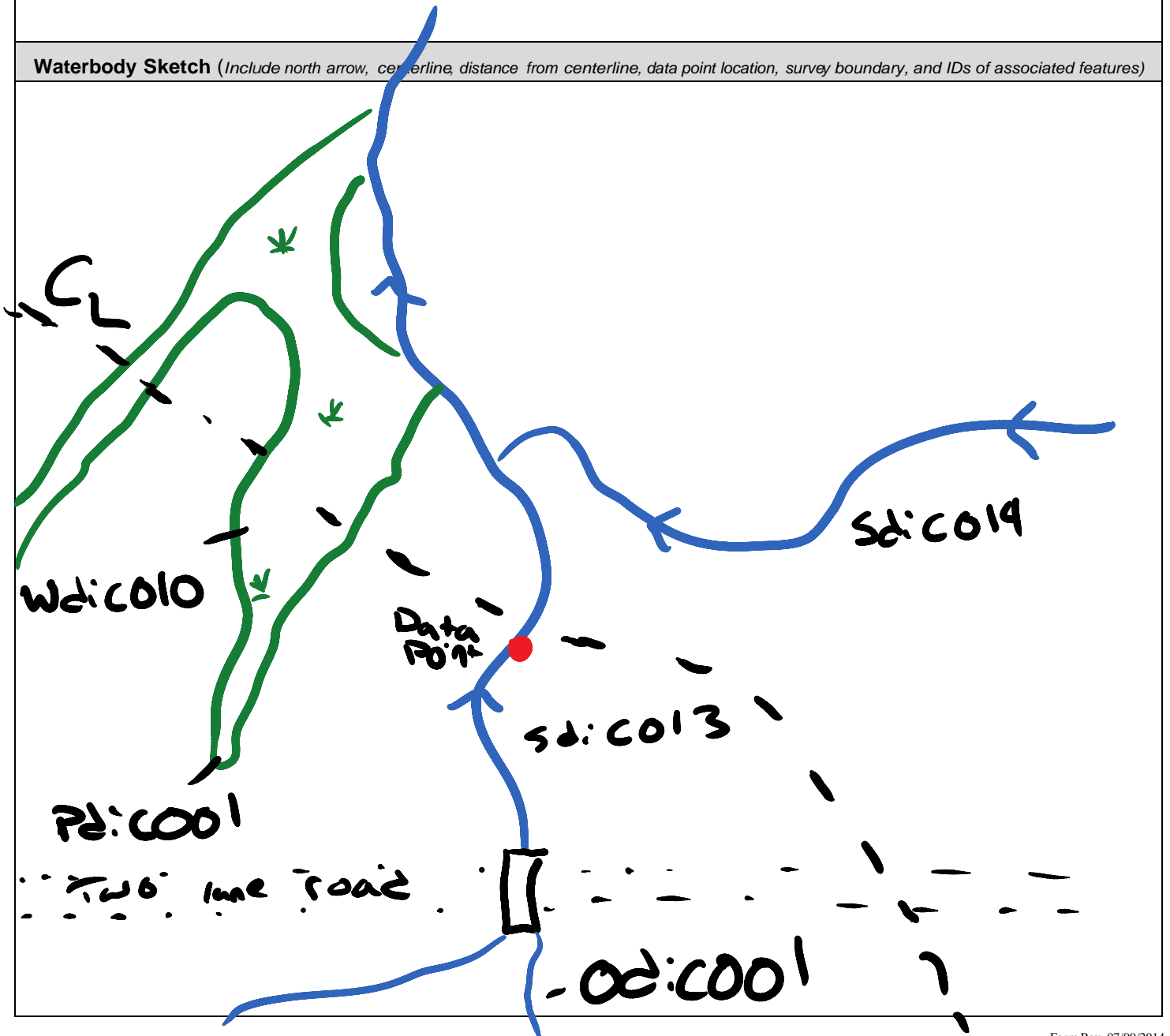
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate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

Banks are heavily downcut and under cut with few stabilizing roots. High erosion potential and much of the stream contain high amount of sedimentation

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





Waterbody SDIC013 facing south upstream



Waterbody SDIC013 facing north downstream



Waterbody SDIC013 facing west across

Linear Waterbody Data Sheet

Survey Description			
Project Name: Atlantic Coast Pipeline		Waterbody Name: UNT to Butterwood Creek	
Waterbody ID: Sdic014		Date: 2/4/2016	
State: Virginia	County: Dinwiddie	Company: NRG	Crew Member Initials: CR, SH
Photos: 3			
Tract Number(s): 13-019		Nearest Milepost: 254	Associated Wetland ID(s): Wdic010
Survey Type: <small>(check one)</small> <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:			
Physical Attributes			
Stream Classification: <small>(check one)</small> <input type="checkbox"/> Ephemeral <input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> Perennial			
Waterbody Type: <small>(check one)</small> <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:			
OHWM Width: _ 3 _ ft.		OHWM Indicator: <small>(check all that apply)</small> <input checked="" type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input type="checkbox"/> Scouring <input type="checkbox"/> Water staining	
Height: _ 0.3 _ ft.		<input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input checked="" type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change	
N/A <input type="checkbox"/>			
Width of Waterbody - Top of Bank to Top of Bank: _ 12 _ ft.	Width of Waterbody - Toe of Slope to Toe of Slope: _ 1 _ ft.	Width of Waterbody - Water Edge to Water Edge: N/A <input type="checkbox"/> _ 2 _ ft.	Depth of Water: <small>(Approx.)</small> N/A <input type="checkbox"/> _ 0.2 _ ft.
Sinuosity: <small>(check one)</small> <input type="checkbox"/> Straight <input checked="" type="checkbox"/> Meandering	Water velocity: <small>(Approx.)</small> _ 1 _ fps N/A <input type="checkbox"/>	Bank height Right: _ 6 _ ft. Left: _ 4 _ ft.	Bank slope Right: _ 80 _ degrees Left: _ 60 _ degrees
Qualitative Attributes			
Water Appearance: <small>(check one)</small> <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:			
Substrate: <small>(check all that apply)</small> <input type="checkbox"/> Bedrock <input type="checkbox"/> Boulder <input type="checkbox"/> Cobble <input type="checkbox"/> Gravel <input checked="" type="checkbox"/> Sand <input checked="" type="checkbox"/> Silt/ clay <input type="checkbox"/> Organic <input type="checkbox"/> Other:			
% of Substrate: _____ % _____ % _____ % _____ % <u>90</u> % <u>10</u> % _____ % _____ %			
Width of Riparian Zone: _ 20 _ ft. N/A <input type="checkbox"/>		Vegetative Layers: <small>(check all that apply)</small> <input checked="" type="checkbox"/> Trees: <input checked="" type="checkbox"/> Saplings/Shrubs: <input checked="" type="checkbox"/> Herbs	
		Avg. DBH of Dominants: <small>(approx.)</small> <u>14</u> in. <u>2</u> in.	
Dominant Bank Vegetation <small>(list)</small> : Sweet-gum, loblolly pine, southern red oak, red maple, Japanese honeysuckle, American holly, Christmas fern, greenbrier			
Aquatic Habitats <small>(ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools)</small> : Leaf packs			
Aquatic Organisms Observed <small>(list)</small> : None			
T&E Species Observed <small>(list)</small> : None			
Disturbances <small>(ex: livestock access, manure in waterbody, waste discharge pipes)</small> : None			
Tributary is: <small>(check one)</small> <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated			
Stream Quality ³ : <small>(check one)</small> <input type="checkbox"/> High <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Low			

Waterbody ID:

Sdic014

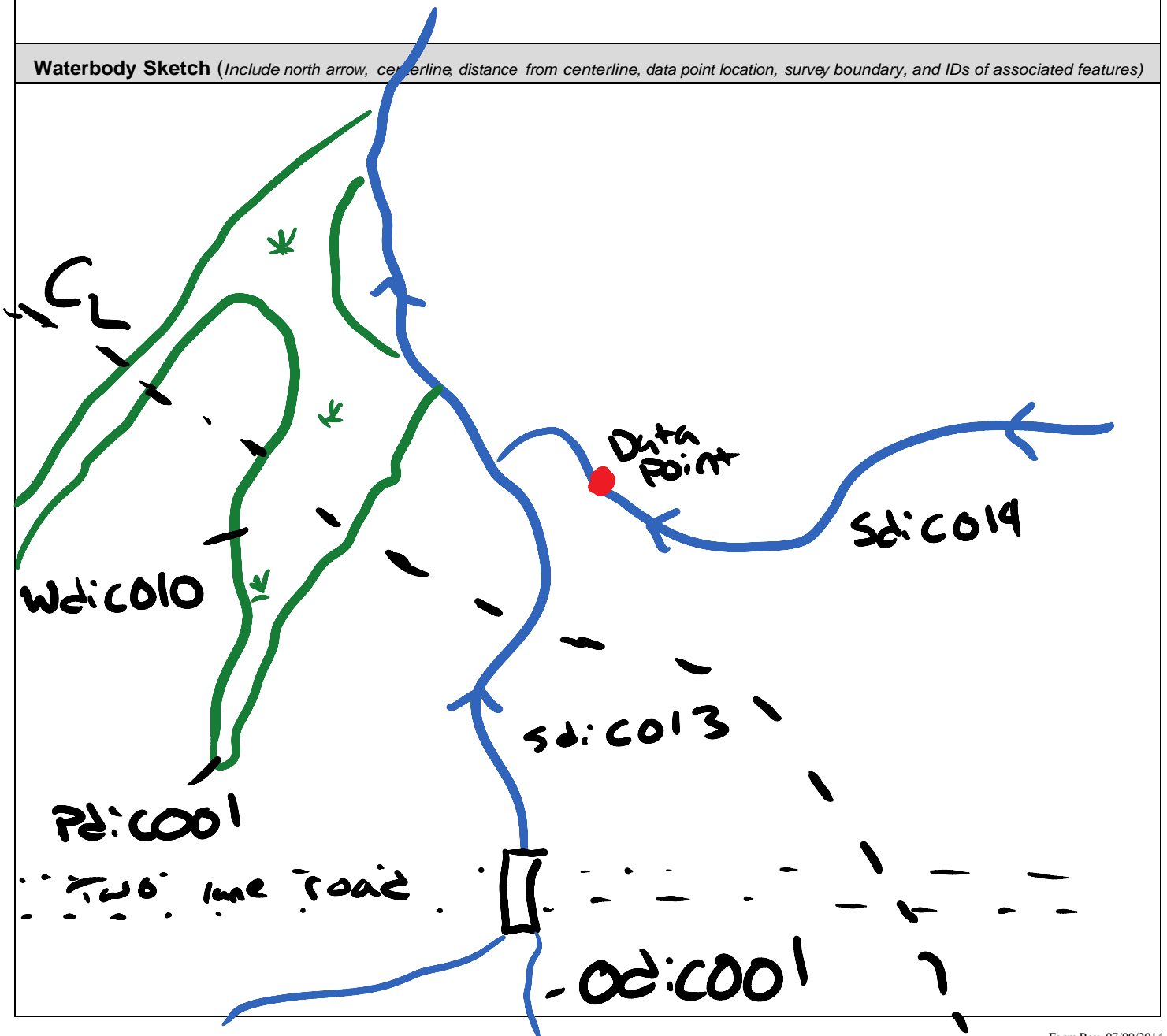
^a **High Quality:** Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance 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 SDIC014 facing east upstream



Waterbody SDIC014 facing northwest downstream



Waterbody SDIC014 facing north across

Open Waterbody Data Sheet

Survey Description				
Project Name: Southeast Reliability		Waterbody Name: pond		Waterbody ID: Odic001
Date: 2/4/2016				
State: Virginia	County: Dinwiddie	Company: NRG	Crew Member Initials: CR, SH	Photos: 3
Tract Number(s): 13-019-A001;13-019		Nearest Milepost:		Associated Wetland ID(s):
Survey Type: <small>(check one)</small> <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:				
Physical Attributes				
Waterbody Type: <small>(check one)</small> <input type="checkbox"/> Stock Pond <input type="checkbox"/> Natural Pond <input type="checkbox"/> Lake <input type="checkbox"/> Reservoir <input type="checkbox"/> Impoundment <input type="checkbox"/> Oxbow <input checked="" type="checkbox"/> Other: Recreation pond				
Hydrologic Regime: <input checked="" type="checkbox"/> Permanently Flooded <input type="checkbox"/> Semipermanently Flooded <input type="checkbox"/> Seasonally Flooded <input type="checkbox"/> Temporarily Flooded				
OHWM Height: _____ ft.		OHWM Indicator: <small>(check all that apply)</small>		
		<input type="checkbox"/> Clear line on bank	<input type="checkbox"/> Shelving	<input type="checkbox"/> Wrested vegetation
		<input type="checkbox"/> Scouring	<input type="checkbox"/> Water staining	
		<input type="checkbox"/> Bent, matted, or missing vegetation	<input type="checkbox"/> Wrack line	<input type="checkbox"/> Litter and debris
		<input type="checkbox"/> Abrupt plant community change	<input type="checkbox"/> Soil characteristic change	
Depth of Water: N/A <input type="checkbox"/> <u>20</u> ft.		Bank height (average): <u>28</u> ft.		Bank slope (average): <u>60</u> degrees
Qualitative Attributes				
Water Appearance: <small>(check one)</small> <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:				
Substrate: <small>(check all that apply)</small> <input type="checkbox"/> Bedrock <input type="checkbox"/> Boulder <input type="checkbox"/> Cobble <input type="checkbox"/> Gravel <input checked="" type="checkbox"/> Sand <input checked="" type="checkbox"/> Silt/ clay <input type="checkbox"/> Organic <input type="checkbox"/> Other:				
% of Substrate: _____% _____% _____% _____% <u>80</u> % <u>20</u> % _____% _____%				
Width of Riparian Zone: N/A <input checked="" type="checkbox"/> _____ ft.		Vegetative Layers: <small>(check all that apply)</small>		
		<input checked="" type="checkbox"/> Trees:	<input checked="" type="checkbox"/> Saplings/Shrubs:	<input checked="" type="checkbox"/> Herbs
		Avg. DBH of Dominants: <small>(approx.)</small> <u>10</u> in. <u>2</u> in.		
Dominant Bank Vegetation <i>(list)</i> : Sycamore, loblolly pine, American holly				
Aquatic Habitats <small>(ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools, etc.)</small> : Submerged and emergent vegetation, large pool				
Aquatic Organisms Observed <i>(list)</i> : None				
T&E Species Observed <i>(list)</i> : None				
Disturbances <small>(ex: livestock access, manure in waterbody, waste discharge pipes)</small> : None				
Waterbody is: <small>(check one)</small> <input type="checkbox"/> Natural <input checked="" type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated				
Waterbody Quality ^a : <small>(check one)</small> <input type="checkbox"/> High <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Low				

Waterbody ID:

Odic001

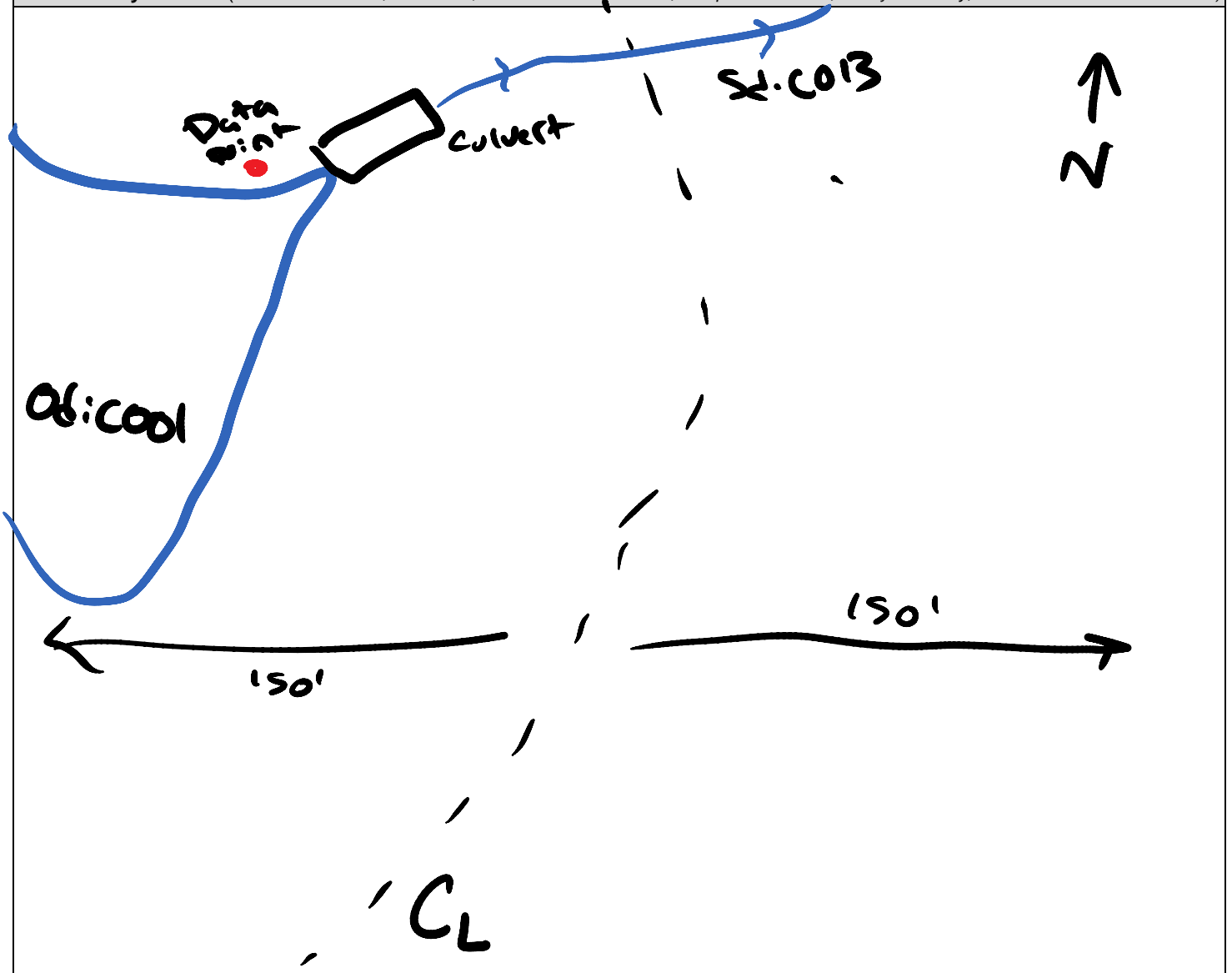
^a **High Quality:** Natural, natural bank vegetation around entire waterbody; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man.

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

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

Notes:

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





Open waterbody ODIC001 facing south



Open waterbody ODIC001 facing west

Linear Waterbody Data Sheet

Survey Description			
Project Name: Southeast Reliability		Waterbody Name: UNT to Butterwood Creek	
Waterbody ID: Sdic012		Date: 2/3/2016	
State: Virginia	County: Dinwiddie	Company: NRG	Crew Member Initials: CR, SH
Photos: 3			
Tract Number(s): 13-019-A001		Nearest Milepost: 254	Associated Wetland ID(s): Wdic007; wdic008
Survey Type: <i>(check one)</i> <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:			
Physical Attributes			
Stream Classification: <i>(check one)</i> <input type="checkbox"/> Ephemeral <input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> Perennial			
Waterbody Type: <i>(check one)</i> <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:			
OHWM Width: 5 ft.		OHWM Indicator: <i>(check all that apply)</i>	
Height: 0.5 ft.		<input checked="" type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input type="checkbox"/> Scouring <input type="checkbox"/> Water staining	
N/A <input type="checkbox"/>		<input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input checked="" type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change	
Width of Waterbody - Top of Bank to Top of Bank: 10 ft.	Width of Waterbody - Toe of Slope to Toe of Slope: 2 ft.	Width of Waterbody - Water Edge to Water Edge: 4 ft.	Depth of Water: <i>(Approx.)</i> 0.3 ft.
Sinuosity: <i>(check one)</i> <input type="checkbox"/> Straight <input checked="" type="checkbox"/> Meandering		Water velocity: <i>(Approx.)</i> 0.3 fps	Bank height Right: 3 ft. Left: 3 ft.
N/A <input type="checkbox"/>		Bank slope Right: 60 degrees Left: 60 degrees	
Qualitative Attributes			
Water Appearance: <i>(check one)</i> <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:			
Substrate: <i>(check all that apply)</i>			
% of Substrate: _____% _____% _____% _____% 80% 20% _____% _____%			
Width of Riparian Zone: 20 ft.		Vegetative Layers: <i>(check all that apply)</i>	
N/A <input type="checkbox"/>		<input checked="" type="checkbox"/> Trees: <input checked="" type="checkbox"/> Saplings/Shrubs: <input checked="" type="checkbox"/> Herbs	
Avg. DBH of Dominants: <i>(approx.)</i>		10 in. 2 in.	
Dominant Bank Vegetation <i>(list)</i> : Loblolly pine, sweet-gum, white oak, American holly, sycamore			
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): Leaf packs			
Aquatic Organisms Observed <i>(list)</i> : None			
T&E Species Observed <i>(list)</i> : None			
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): Stream receives water from White Oak road and runs through a powerline right of way			
Tributary is: <i>(check one)</i> <input type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input checked="" type="checkbox"/> Manipulated			
Stream Quality ³ : <i>(check one)</i> <input type="checkbox"/> High <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Low			

Waterbody ID:

Sdic012

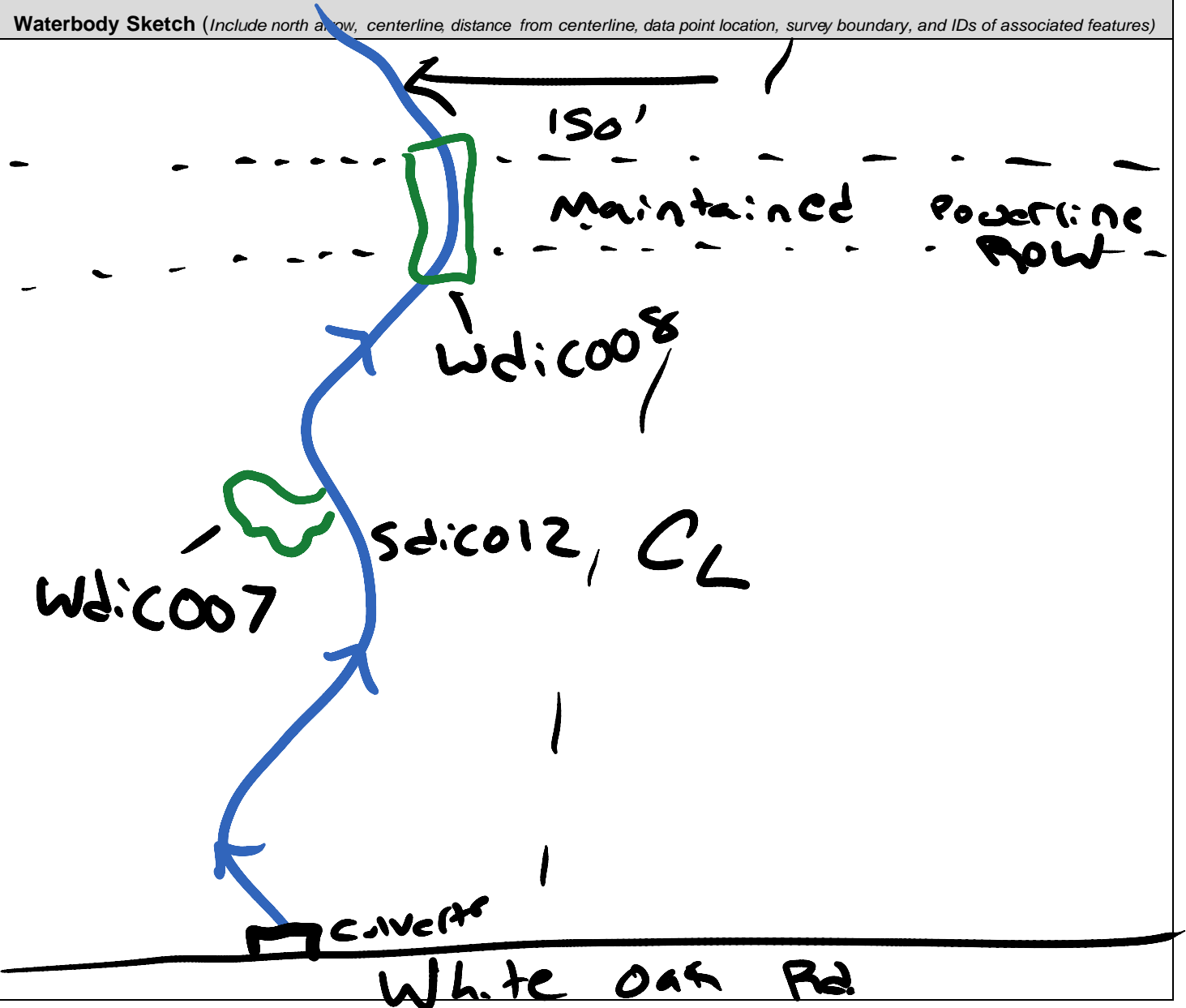
^a **High Quality:** Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance 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 SDIC012 facing southwest upstream



Waterbody SDIC012 facing northeast downstream



Waterbody SDIC012 facing northwest across

Linear Waterbody Data Sheet

Survey Description			
Project Name: Atlantic Coast Pipeline		Waterbody Name: UNT to Buttonwood Creek	
Waterbody ID: SDIB003		Date: 11/11/2014	
State: Virginia	County: Dinwiddie	Company: NRG	Crew Member Initials: TP, SP
Photos: 3			
Tract Number(s): 13-019-A004		Nearest Milepost: 252.0	Associated Wetland ID(s): none
Survey Type: <i>(check one)</i> <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:			
Physical Attributes			
Stream Classification: <i>(check one)</i> <input type="checkbox"/> Ephemeral <input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> Perennial			
Waterbody Type: <i>(check one)</i> <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:			
OHWM Width: 3.0 ft.		OHWM Indicator: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input type="checkbox"/> Scouring <input type="checkbox"/> Water staining	
OHWM Height: 0.75 ft.		<input checked="" type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change	
N/A <input type="checkbox"/>			
Width of Waterbody - Top of Bank to Top of Bank: 6.0 ft.	Width of Waterbody - Toe of Slope to Toe of Slope: 1.5 ft.	Width of Waterbody - Water Edge to Water Edge: 2.0 ft.	Depth of Water: <i>(Approx.)</i> 0.25 ft.
N/A <input type="checkbox"/>		N/A <input type="checkbox"/>	
Sinuosity: <i>(check one)</i> <input type="checkbox"/> Straight <input checked="" type="checkbox"/> Meandering		Water velocity: <i>(Approx.)</i> 1.0 fps	Bank height: Right: 5.0 ft. Left: 5.0 ft.
N/A <input type="checkbox"/>		N/A <input type="checkbox"/>	
Bank slope: Right: 90 degrees Left: 90 degrees			
Qualitative Attributes			
Water Appearance: <i>(check one)</i> <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:			
Substrate: <i>(check all that apply)</i> <input type="checkbox"/> Bedrock <input type="checkbox"/> Boulder <input type="checkbox"/> Cobble <input type="checkbox"/> Gravel <input checked="" type="checkbox"/> Sand <input checked="" type="checkbox"/> Silt/ clay <input type="checkbox"/> Organic <input type="checkbox"/> Other:			
% of Substrate: _____% _____% _____% _____% 40% 60% _____% _____%			
Width of Riparian Zone: >50 ft.		Vegetative Layers: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Trees: <input checked="" type="checkbox"/> Saplings/Shrubs: <input type="checkbox"/> Herbs	
N/A <input type="checkbox"/>		Avg. DBH of Dominants: <i>(approx.)</i> 12 in. 2.0 in.	
Dominant Bank Vegetation <i>(list)</i> : Red maple, white oak, sweetgum, red cedar, sourwood, American holly, Christmas fern			
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): A few roots and pools, leaf packs, debris piles			
Aquatic Organisms Observed <i>(list)</i> : frogs			
T&E Species Observed <i>(list)</i> : none			
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): None noted			
Tributary is: <i>(check one)</i> <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated			
Stream Quality ³ : <i>(check one)</i> <input type="checkbox"/> High <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Low			

Waterbody ID:

SDIB003

^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.

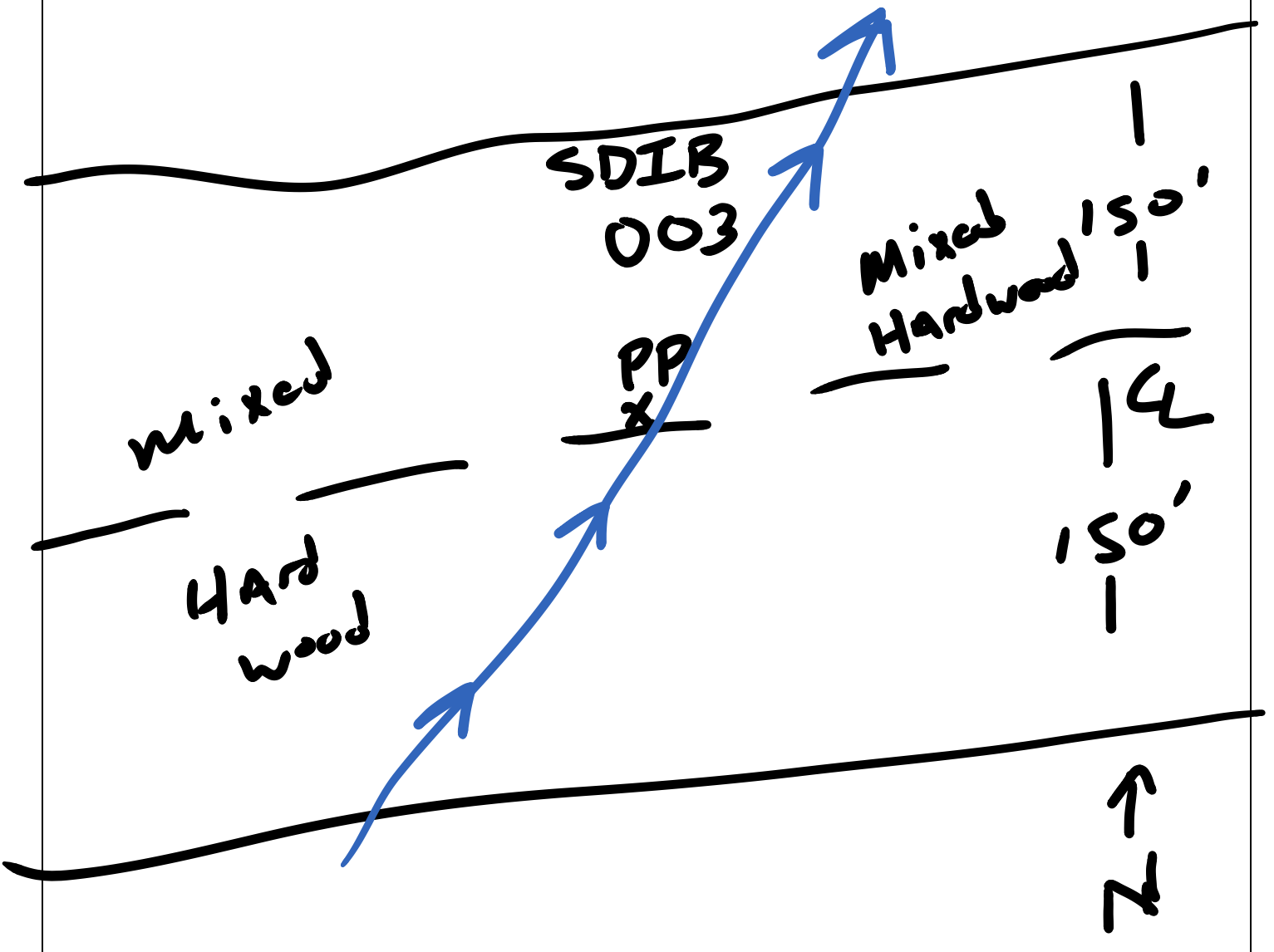
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate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

Stream is slightly to moderately incised, has good grade control, noted sediment transport and benches, also observed nick points, leaf packs, and iron oxidizing bacteria. Saw some evidence of bank failures.

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





Waterbody SDIB003 facing northeast upstream



Waterbody SDIB003 facing south downstream



Waterbody SDIB003 facing southeast across

Linear Waterbody Data Sheet

Survey Description			
Project Name: Atlantic Coast Pipeline		Waterbody Name: UNT to Buttonwood Creek	
Waterbody ID: SDIB002		Date: 11/11/2014	
State: Virginia	County: Dinwiddie	Company: NRG	Crew Member Initials: TP, SP
Photos: 3			
Tract Number(s): 13-019-A004		Nearest Milepost: 252.01	Associated Wetland ID(s): none
Survey Type: <i>(check one)</i> <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:			
Physical Attributes			
Stream Classification: <i>(check one)</i> <input type="checkbox"/> Ephemeral <input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> Perennial			
Waterbody Type: <i>(check one)</i> <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:			
OHWM Width: 2.0 ft.		OHWM Indicator: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input type="checkbox"/> Scouring <input type="checkbox"/> Water staining	
OHWM Height: 0.5 ft.		<input checked="" type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change	
N/A <input type="checkbox"/>			
Width of Waterbody - Top of Bank to Top of Bank: 5.0 ft.	Width of Waterbody - Toe of Slope to Toe of Slope: 1.5 ft.	Width of Waterbody - Water Edge to Water Edge: 2.0 ft.	Depth of Water: <i>(Approx.)</i> 0.25 ft.
N/A <input type="checkbox"/>		N/A <input type="checkbox"/>	
Sinuosity: <i>(check one)</i> <input type="checkbox"/> Straight <input checked="" type="checkbox"/> Meandering		Water velocity: <i>(Approx.)</i> 0 fps	Bank height: Right: 4.0 ft. Left: 4.0 ft.
N/A <input type="checkbox"/>		Bank slope: Right: 90 degrees Left: 90 degrees	
Qualitative Attributes			
Water Appearance: <i>(check one)</i> <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:			
Substrate: <i>(check all that apply)</i> <input type="checkbox"/> Bedrock <input type="checkbox"/> Boulder <input type="checkbox"/> Cobble <input type="checkbox"/> Gravel <input checked="" type="checkbox"/> Sand <input checked="" type="checkbox"/> Silt/ clay <input type="checkbox"/> Organic <input type="checkbox"/> Other:			
% of Substrate: _____% _____% _____% _____% 40% 60% _____% _____%			
Width of Riparian Zone: N/A <input type="checkbox"/> >50 ft.		Vegetative Layers: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Trees: <input checked="" type="checkbox"/> Saplings/Shrubs: <input type="checkbox"/> Herbs	
N/A <input type="checkbox"/>		Avg. DBH of Dominants: <i>(approx.)</i> 12 in. 2.0 in.	
Dominant Bank Vegetation <i>(list)</i> : Red maple, white oak, Northern red oak, sweet gum, willow oak, American holly, Christmas fern			
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): A few roots and pools, leaf packs			
Aquatic Organisms Observed <i>(list)</i> : none			
T&E Species Observed <i>(list)</i> : none			
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): None noted			
Tributary is: <i>(check one)</i> <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated			
Stream Quality ³ : <i>(check one)</i> <input type="checkbox"/> High <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Low			

Waterbody ID:

SDIB002

^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.

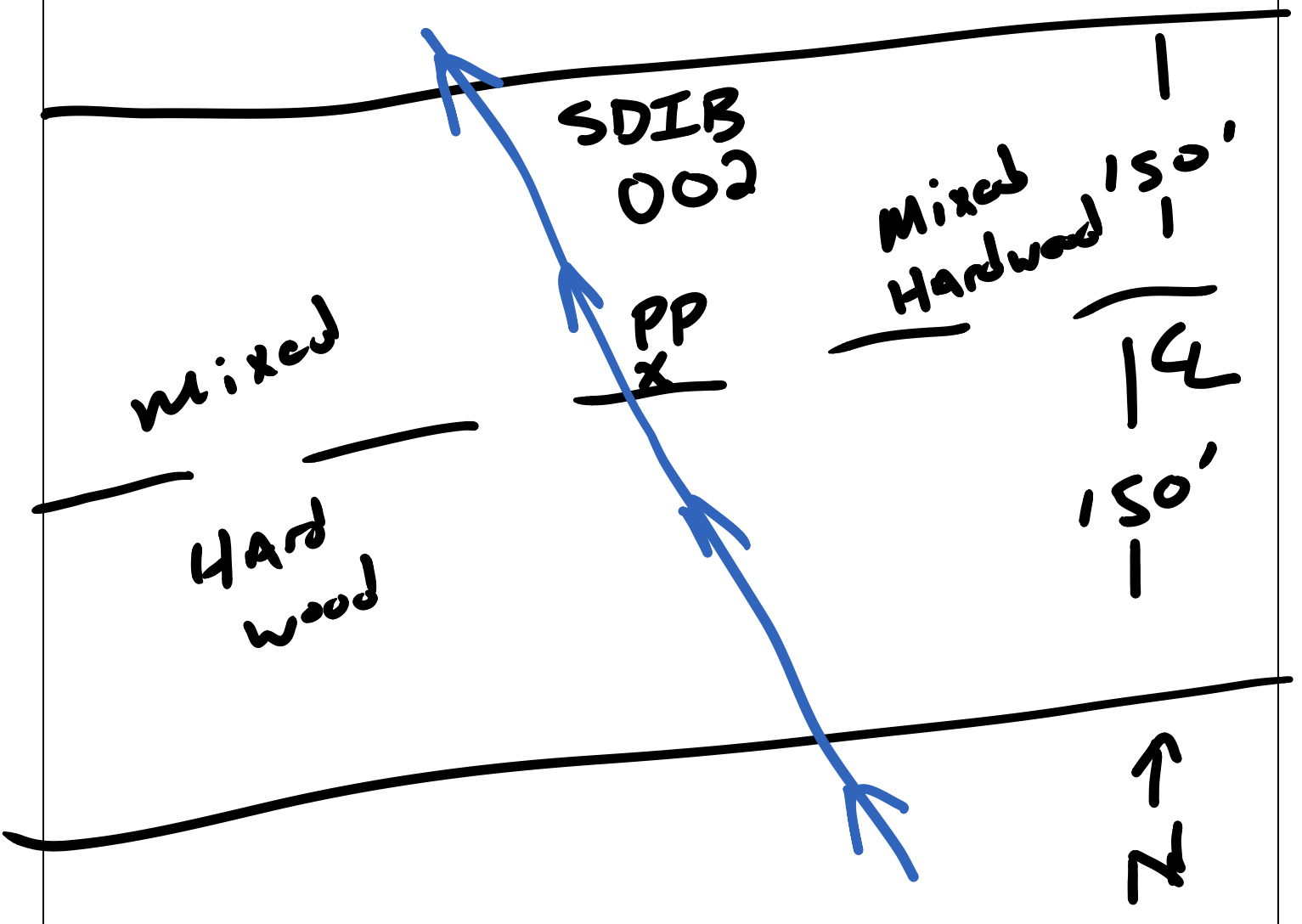
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate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

Although water is present in stream, it is only located in shallow pools, there is not flowing water at this time. Stream is slightly incised, has good grade control, noted sediment transport and benches, also observed nick points and leaf packs.

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





Waterbody SDIB002 facing west upstream



Waterbody SDIB002 facing northwest downstream



Waterbody SDIB002 facing northeast across

Linear Waterbody Data Sheet

Survey Description			
Project Name: Atlantic Coast Pipeline		Waterbody Name: UNT to Beaver Pond Creek	
Waterbody ID: SDIB001		Date: 11/10/2014	
State: Virginia	County: Dinwiddie	Company: NRG	Crew Member Initials: TP, SP
Photos: 001-003			
Tract Number(s): Unlabeled tract and 13-019-A007		Nearest Milepost: 253	Associated Wetland ID(s): WDIB001
Survey Type: <i>(check one)</i> <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:			
Physical Attributes			
Stream Classification: <i>(check one)</i> <input type="checkbox"/> Ephemeral <input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> Perennial			
Waterbody Type: <i>(check one)</i> <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:			
OHWM Width: 2.0 ft.		OHWM Indicator: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input type="checkbox"/> Scouring <input type="checkbox"/> Water staining	
OHWM Height: 0.25 ft.		<input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change	
N/A <input type="checkbox"/>			
Width of Waterbody - Top of Bank to Top of Bank: 3 ft.	Width of Waterbody - Toe of Slope to Toe of Slope: 1.0 ft.	Width of Waterbody - Water Edge to Water Edge: 1.5 ft.	Depth of Water: <i>(Approx.)</i> 0.1 ft.
N/A <input type="checkbox"/>		N/A <input type="checkbox"/>	
Sinuosity: <i>(check one)</i> <input type="checkbox"/> Straight <input checked="" type="checkbox"/> Meandering		Water velocity: <i>(Approx.)</i> 0.25 fps	Bank height: Right: 3.0 ft. Left: 3.0 ft.
N/A <input type="checkbox"/>		Bank slope: Right: 90 degrees Left: 90 degrees	
Qualitative Attributes			
Water Appearance: <i>(check one)</i> <input type="checkbox"/> No water <input type="checkbox"/> Clear <input checked="" type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:			
Substrate: <i>(check all that apply)</i> <input type="checkbox"/> Bedrock <input type="checkbox"/> Boulder <input type="checkbox"/> Cobble <input type="checkbox"/> Gravel <input checked="" type="checkbox"/> Sand <input checked="" type="checkbox"/> Silt/ clay <input type="checkbox"/> Organic <input type="checkbox"/> Other:			
% of Substrate: _____% _____% _____% _____% 50% 50% _____% _____%			
Width of Riparian Zone: 40 ft.		Vegetative Layers: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Trees: <input checked="" type="checkbox"/> Saplings/Shrubs: <input type="checkbox"/> Herbs	
N/A <input type="checkbox"/>		Avg. DBH of Dominants: <i>(approx.)</i> 10 in. 2.0 in.	
Dominant Bank Vegetation <i>(list)</i> : Blackgum, tulip poplar, red maple, sweetgum, sweet bay, green brier			
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): A few roots along bank			
Aquatic Organisms Observed <i>(list)</i> : none			
T&E Species Observed <i>(list)</i> : none			
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): Tract timbered approximately 15-20 years ago, they did leave 30' SMZ			
Tributary is: <i>(check one)</i> <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated			
Stream Quality ³ : <i>(check one)</i> <input type="checkbox"/> High <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Low			

Waterbody ID:

SDIB001

^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.

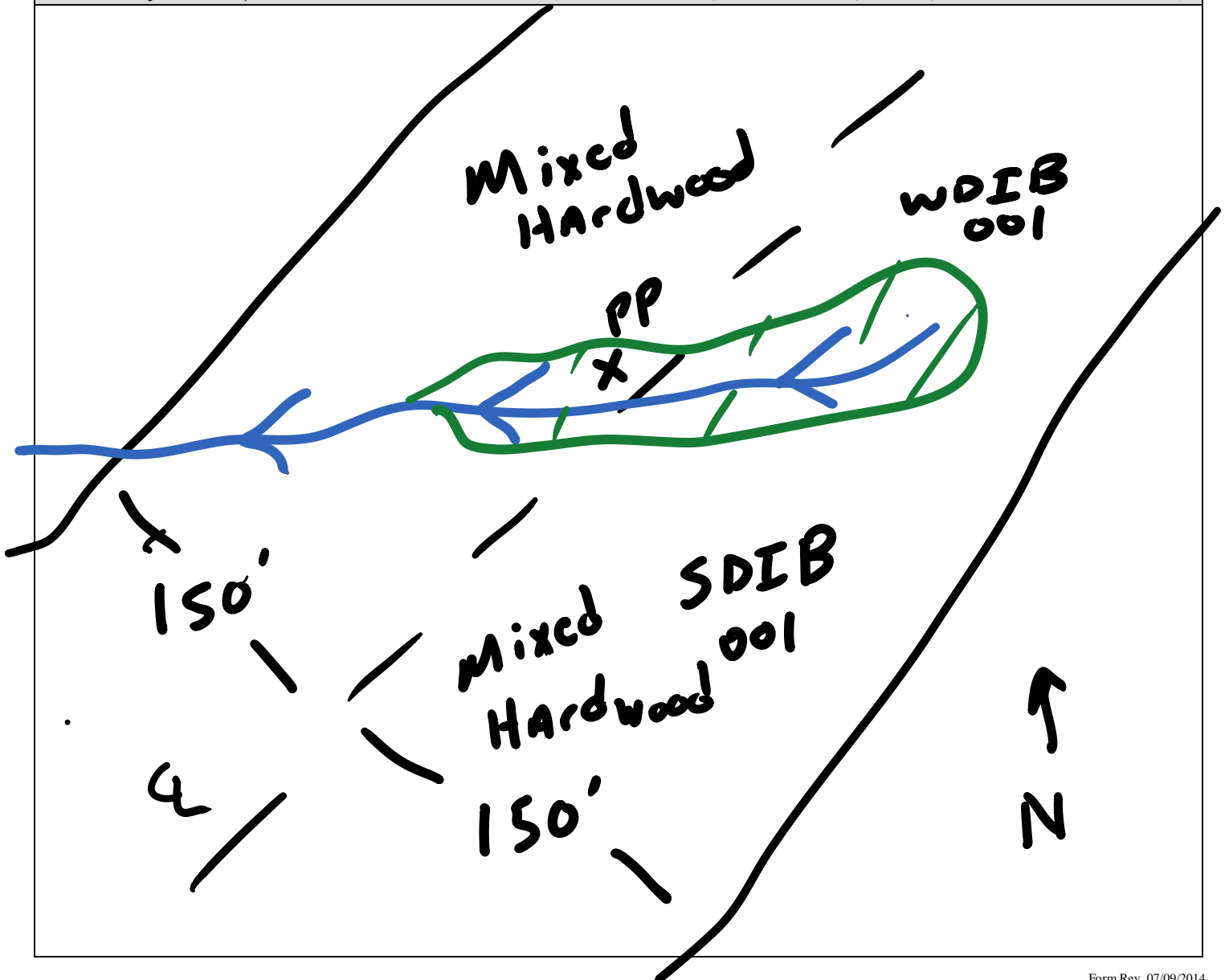
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate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

Stream originates in corridor. Slightly incised at origin, deeply eroded at downstream edge of corridor. Moderate meanders, evidence of sediment transport. Moderate grade control.

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





Waterbody SDIB001 facing east upstream



Waterbody SDIB001 facing west downstream



Waterbody SDIB001 facing south across

Linear Waterbody Data Sheet

Survey Description				
Project Name: ATLANTIC COAST PIPELINE		Waterbody Name: BEAVER POND CREEK		Waterbody ID: SDIL001
State: Virginia		County: Dinwiddie	Company: W&C	Crew Member Initials: WLM, RMS
Tract Number(s): 13-030		Nearest Milepost: 253		Photos: 100-1297 TO 1299
Associated Wetland ID(s): WDIL001				
Survey Type: <i>(check one)</i> <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:				
Physical Attributes				
Stream Classification: <i>(check one)</i> <input type="checkbox"/> Ephemeral <input type="checkbox"/> Intermittent <input checked="" type="checkbox"/> Perennial				
Waterbody Type: <i>(check one)</i> <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:				
OHWM Width: <u>7</u> ft. Height: <u>1</u> ft. N/A <input type="checkbox"/>		OHWM Indicator: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Clear line on bank <input checked="" type="checkbox"/> Shelving <input checked="" type="checkbox"/> Wrested vegetation <input type="checkbox"/> Scouring <input type="checkbox"/> Water staining <input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input checked="" type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input checked="" type="checkbox"/> Soil characteristic change		
Width of Waterbody - Top of Bank to Top of Bank: <u>24</u> ft.		Width of Waterbody - Toe of Slope to Toe of Slope: <u>7</u> ft.		Width of Waterbody - Water Edge to Water Edge: N/A <input type="checkbox"/> <u>3</u> ft.
Depth of Water: <i>(Approx.)</i> N/A <input type="checkbox"/> <u>0.3</u> ft.				
Sinuosity: <i>(check one)</i> <input type="checkbox"/> Straight <input checked="" type="checkbox"/> Meandering		Water velocity: <i>(Approx.)</i> <u>0.5</u> fps N/A <input type="checkbox"/>		Bank height Right: <u>7</u> ft. Left: <u>4</u> ft.
Bank slope Right: <u>35</u> degrees Left: <u>85</u> degrees				
Qualitative Attributes				
Water Appearance: <i>(check one)</i> <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:				
Substrate: <i>(check all that apply)</i> % of Substrate: <u>NA</u> % <u>NA</u> % <u>NA</u> % <u>20</u> % <u>70</u> % <u>10</u> % <u>NA</u> % <u>NA</u> %				
Width of Riparian Zone: <u>>100</u> ft. N/A <input type="checkbox"/>		Vegetative Layers: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Trees: <u>14</u> in. <input checked="" type="checkbox"/> Saplings/Shrubs: <u>3</u> in. <input checked="" type="checkbox"/> Herbs		
Avg. DBH of Dominants: <i>(approx.)</i>				
Dominant Bank Vegetation <i>(list)</i> : POPLAR, IRONWOOD, DOGWOOD, RED MAPLE, VIBURNUM, PINE, CHRISTMAS FERN, BIDENS				
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): SOFT SANDY SEDIMENT, SMALL RIFFLES, UNDERCUT BANKS, OVERHANGING VEG, CPOM				
Aquatic Organisms Observed <i>(list)</i> : COLEOPTERANS, EPT				
T&E Species Observed <i>(list)</i> : NA				
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): NA				
Tributary is: <i>(check one)</i> <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated				
Stream Quality ^a : <i>(check one)</i> <input type="checkbox"/> High <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Low				

Waterbody ID:

SDIL001

^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.

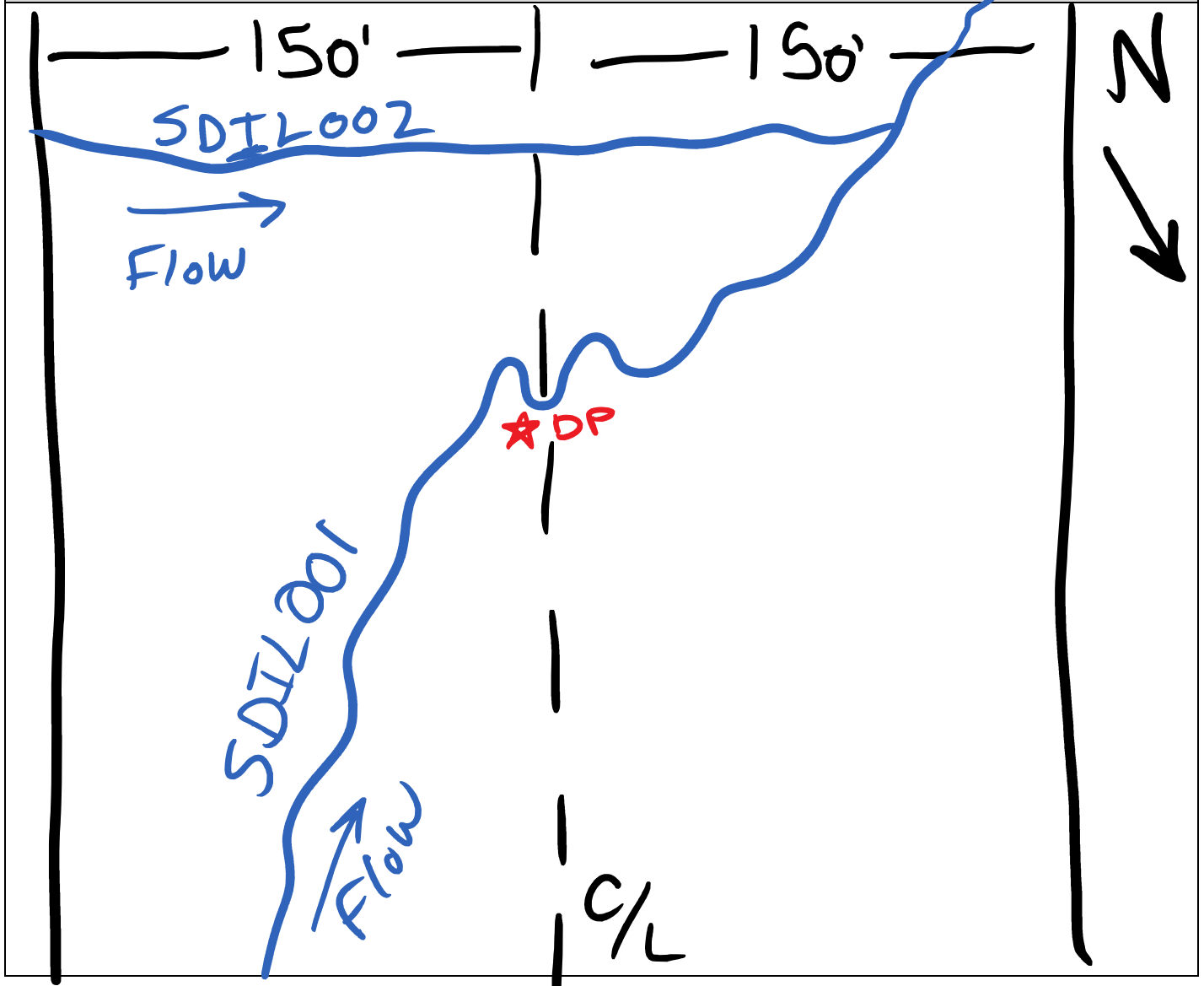
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate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

STABLE PERENNIAL STREAM

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





Waterbody data point sdil001 facing North and upstream



Waterbody data point sdil001 facing South and downstream



Waterbody data point sdil001 facing East and across

Linear Waterbody Data Sheet

Survey Description			
Project Name: Atlantic Coast Pipeline		Waterbody Name: UNT to Beaver Pond Creek	
Waterbody ID: Sdic011		Date: 12/14/2015	
State: Virginia	County: Dinwiddie	Company: NRG	Crew Member Initials: CR, SA
Photos: 1-3			
Tract Number(s): 13-019-A013		Nearest Milepost: 256.5	Associated Wetland ID(s): Wdic006
Survey Type: <i>(check one)</i> <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:			
Physical Attributes			
Stream Classification: <i>(check one)</i> <input type="checkbox"/> Ephemeral <input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> Perennial			
Waterbody Type: <i>(check one)</i> <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:			
OHWM Width: _ 5 _ ft.		OHWM Indicator: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input type="checkbox"/> Scouring <input type="checkbox"/> Water staining	
Height: _ 0.8 _ ft.		<input checked="" type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input checked="" type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change	
N/A <input type="checkbox"/>			
Width of Waterbody - Top of Bank to Top of Bank: _ 12 _ ft.	Width of Waterbody - Toe of Slope to Toe of Slope: _ 1 _ ft.	Width of Waterbody - Water Edge to Water Edge: N/A <input type="checkbox"/> _ 4 _ ft.	Depth of Water: <i>(Approx.)</i> N/A <input type="checkbox"/> _ 0.3 _ ft.
Sinuosity: <i>(check one)</i> <input type="checkbox"/> Straight <input checked="" type="checkbox"/> Meandering	Water velocity: <i>(Approx.)</i> _ 1 _ fps N/A <input type="checkbox"/>	Bank height Right: _ 4 _ ft. Left: _ 6 _ ft.	Bank slope Right: _ 90 _ degrees Left: _ 70 _ degrees
Qualitative Attributes			
Water Appearance: <i>(check one)</i> <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:			
Substrate: <i>(check all that apply)</i> % of Substrate: _____ % _____ % _____ % <u>30</u> % <u>50</u> % <u>20</u> % _____ % _____ %			
Width of Riparian Zone: _ 20 _ ft. N/A <input type="checkbox"/>		Vegetative Layers: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Trees: <input checked="" type="checkbox"/> Saplings/Shrubs: <input checked="" type="checkbox"/> Herbs Avg. DBH of Dominants: <i>(approx.)</i> _ 10 _ in. _ 2 _ in.	
Dominant Bank Vegetation <i>(list)</i> : Sweet-gum, red oak, American beech, American holly, Japanese honeysuckle, christmas fern, white oak			
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): Overhanging roots/banks, leaf packs			
Aquatic Organisms Observed <i>(list)</i> : None			
T&E Species Observed <i>(list)</i> : None			
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): None			
Tributary is: <i>(check one)</i> <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated			
Stream Quality ³ : <i>(check one)</i> <input type="checkbox"/> High <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Low			

Waterbody ID:

Sdic011

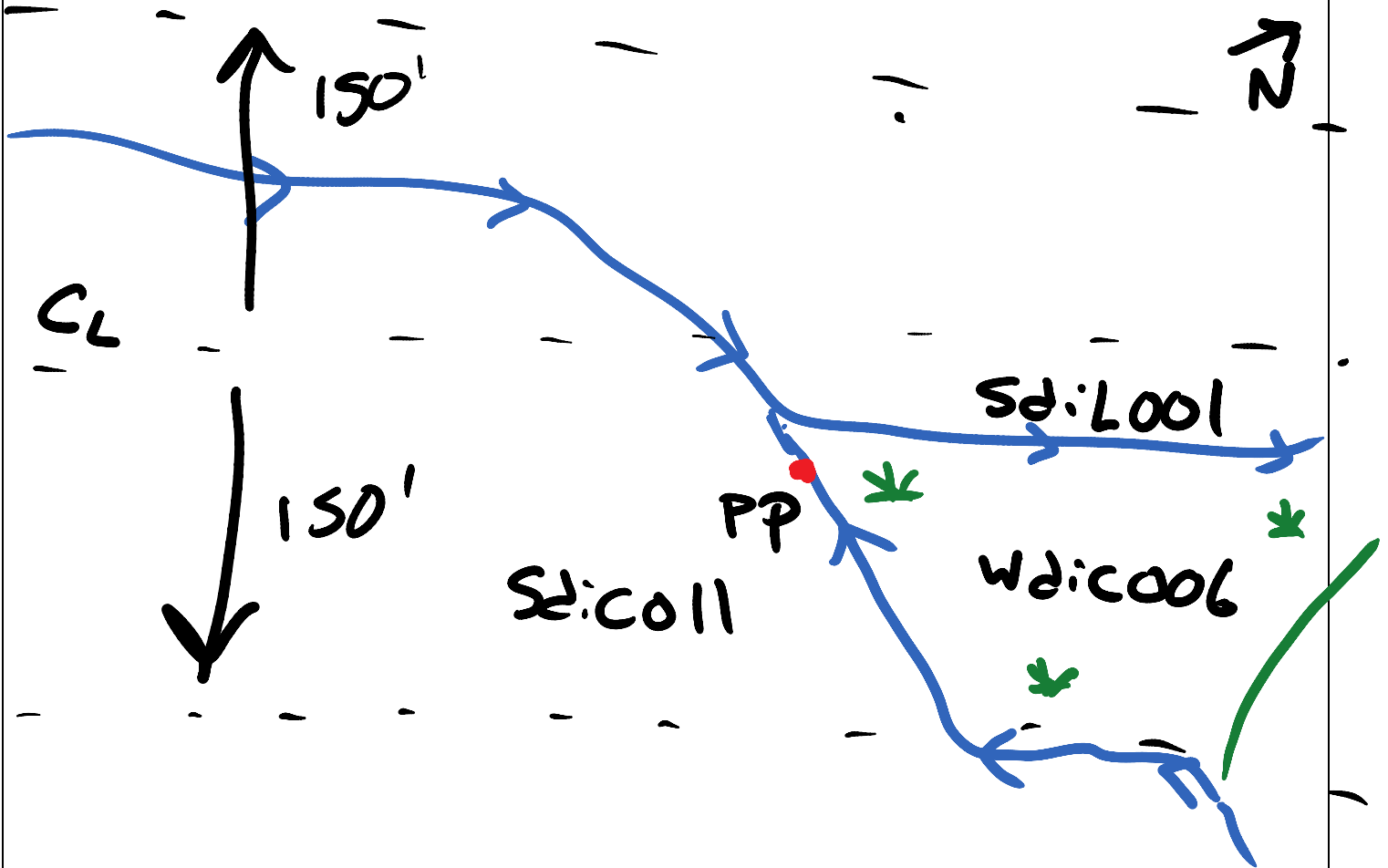
^a **High Quality:** Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance 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 SDIC011 facing east upstream



Waterbody SDIC011 facing west downstream



Waterbody SDIC011 facing north across

Linear Waterbody Data Sheet

Survey Description			
Project Name: Atlantic Coast Pipeline		Waterbody Name: UNT to Beaver Pond Creek	
Waterbody ID: Sdic010		Date: 12/14/2015	
State: Virginia	County: Dinwiddie	Company: NRG	Crew Member Initials: CR, SA
Photos: 1-3			
Tract Number(s): 13-019-A013, 5		Nearest Milepost: 256.5	Associated Wetland ID(s): Wdic004
Survey Type: <i>(check one)</i> <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:			
Physical Attributes			
Stream Classification: <i>(check one)</i> <input type="checkbox"/> Ephemeral <input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> Perennial			
Waterbody Type: <i>(check one)</i> <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:			
OHWM Width: _ 5 _ ft.		OHWM Indicator: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input type="checkbox"/> Scouring <input type="checkbox"/> Water staining	
Height: _ 1 _ ft.		<input checked="" type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input checked="" type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change	
N/A <input type="checkbox"/>			
Width of Waterbody - Top of Bank to Top of Bank: _ 12 _ ft.	Width of Waterbody - Toe of Slope to Toe of Slope: _ 1 _ ft.	Width of Waterbody - Water Edge to Water Edge: N/A <input type="checkbox"/> _ 4 _ ft.	Depth of Water: <i>(Approx.)</i> N/A <input type="checkbox"/> _ .5 _ ft.
Sinuosity: <i>(check one)</i> <input type="checkbox"/> Straight <input checked="" type="checkbox"/> Meandering	Water velocity: <i>(Approx.)</i> _ 1 _ fps N/A <input type="checkbox"/>	Bank height Right: _ 5 _ ft. Left: _ 5 _ ft.	Bank slope Right: _ 70 _ degrees Left: _ 90 _ degrees
Qualitative Attributes			
Water Appearance: <i>(check one)</i> <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:			
Substrate: <i>(check all that apply)</i> % of Substrate: _____ % _____ % _____ % _____ % <u>20</u> % <u>60</u> % <u>20</u> % _____ %			
Width of Riparian Zone: _ 20 _ ft. N/A <input type="checkbox"/>		Vegetative Layers: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Trees: <input checked="" type="checkbox"/> Saplings/Shrubs: <input checked="" type="checkbox"/> Herbs Avg. DBH of Dominants: <i>(approx.)</i> _ 16 _ in. _ 2 _ in.	
Dominant Bank Vegetation <i>(list)</i> : Sweet-gum, red oak, American beech, American holly, Japanese honeysuckle, christmas fern, sycamore			
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): pool, leaf packs			
Aquatic Organisms Observed <i>(list)</i> : Water striders			
T&E Species Observed <i>(list)</i> : None			
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): None			
Tributary is: <i>(check one)</i> <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated			
Stream Quality ³ : <i>(check one)</i> <input type="checkbox"/> High <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Low			

Waterbody ID:

Sdic010

^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 SDIC010 facing southeast upstream



Waterbody SDIC010 facing northwest downstream



Waterbody SDIC010 facing southwest across

Linear Waterbody Data Sheet

Survey Description			
Project Name: Atlantic Coast Pipeline		Waterbody Name: UNT to Beaver Pond Creek	
Waterbody ID: Sdic009		Date: 12/14/2015	
State: Virginia	County: Dinwiddie	Company: NRG	Crew Member Initials: CR, SA
Photos: 1-3			
Tract Number(s): 13-019-A014		Nearest Milepost: 256.5	Associated Wetland ID(s): None
Survey Type: <small>(check one)</small> <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:			
Physical Attributes			
Stream Classification: <small>(check one)</small> <input type="checkbox"/> Ephemeral <input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> Perennial			
Waterbody Type: <small>(check one)</small> <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:			
OHWM Width: _ 4 _ ft.		OHWM Indicator: <small>(check all that apply)</small> <input checked="" type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input type="checkbox"/> Scouring <input type="checkbox"/> Water staining	
OHWM Height: _ 1 _ ft.		<input checked="" type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input checked="" type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change	
N/A <input type="checkbox"/>			
Width of Waterbody - Top of Bank to Top of Bank: _ 10 _ ft.	Width of Waterbody - Toe of Slope to Toe of Slope: _ 1 _ ft.	Width of Waterbody - Water Edge to Water Edge: N/A <input type="checkbox"/> _ 3 _ ft.	Depth of Water: <small>(Approx.)</small> N/A <input type="checkbox"/> _ .5 _ ft.
Sinuosity: <small>(check one)</small> <input type="checkbox"/> Straight <input checked="" type="checkbox"/> Meandering	Water velocity: <small>(Approx.)</small> _ 1 _ fps N/A <input type="checkbox"/>	Bank height Right: _ 4 _ ft. Left: _ 5 _ ft.	Bank slope Right: _ 70 _ degrees Left: _ 70 _ degrees
Qualitative Attributes			
Water Appearance: <small>(check one)</small> <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:			
Substrate: <small>(check all that apply)</small> <input type="checkbox"/> Bedrock <input type="checkbox"/> Boulder <input type="checkbox"/> Cobble <input checked="" type="checkbox"/> Gravel <input checked="" type="checkbox"/> Sand <input checked="" type="checkbox"/> Silt/ clay <input type="checkbox"/> Organic <input type="checkbox"/> Other:			
% of Substrate: _____ % _____ % _____ % <u>10</u> % <u>50</u> % <u>40</u> % _____ % _____ %			
Width of Riparian Zone: N/A <input type="checkbox"/> _ 20 _ ft.	Vegetative Layers: <small>(check all that apply)</small> <input checked="" type="checkbox"/> Trees: <input checked="" type="checkbox"/> Saplings/Shrubs: <input checked="" type="checkbox"/> Herbs		
Avg. DBH of Dominants: <small>(approx.)</small> _ 10 _ in. _ 2 _ in.			
Dominant Bank Vegetation <small>(list)</small> : Sweet-gum, red oak, red maple, American beech, American holly, Japanese honeysuckle, christmas fern, sycamore			
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): Riffle and pool, leaf packs			
Aquatic Organisms Observed <small>(list)</small> : None			
T&E Species Observed <small>(list)</small> : None			
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): None			
Tributary is: <small>(check one)</small> <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated			
Stream Quality ³ : <small>(check one)</small> <input type="checkbox"/> High <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Low			

Waterbody ID:

Sdic009

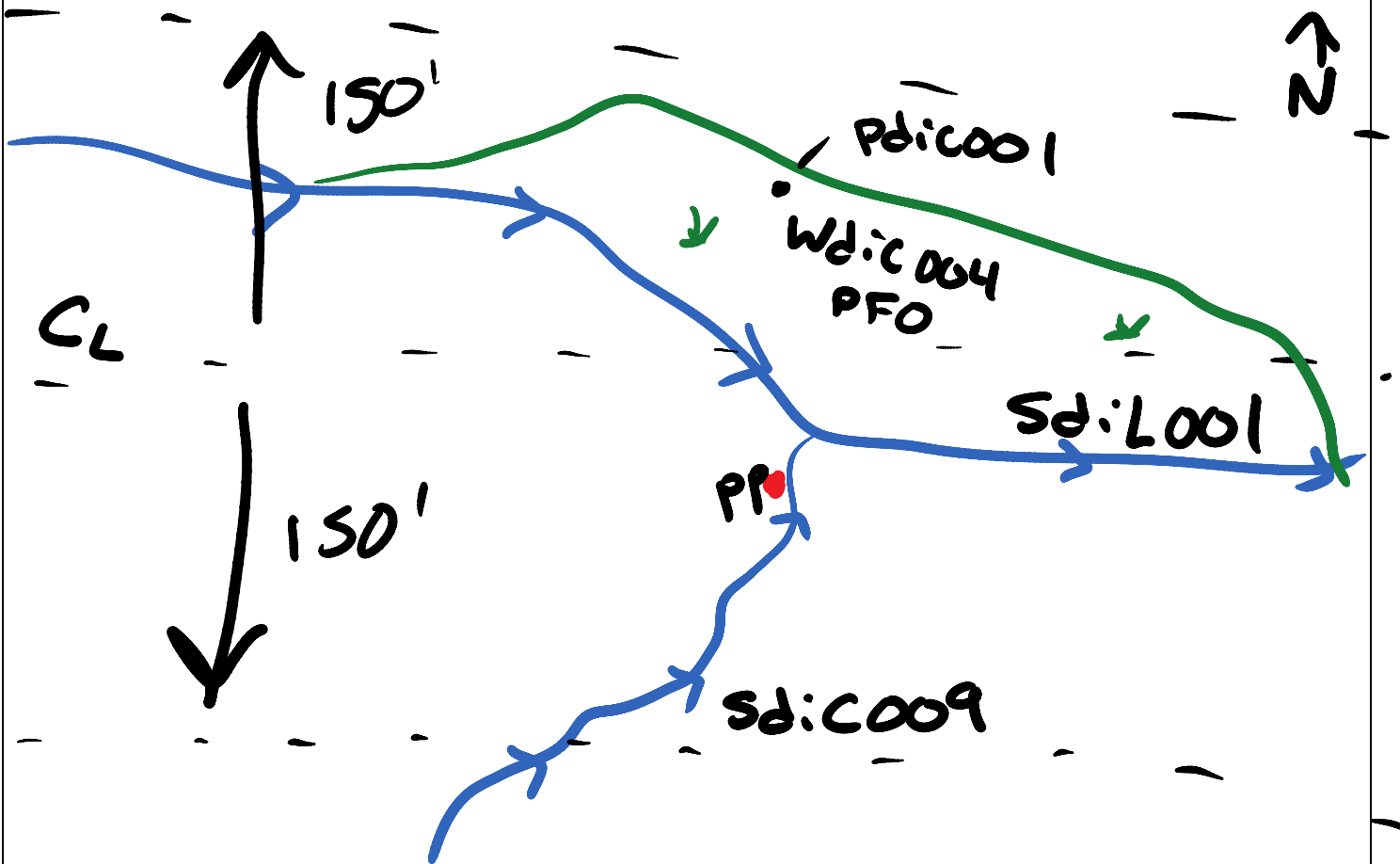
^a **High Quality:** Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance 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 SDIC009 facing north upstream



Waterbody SDIC009 facing south downstream



Waterbody SDIC009 facing east across

Linear Waterbody Data Sheet

Survey Description			
Project Name: ACP		Waterbody Name: Up to Beaver Pond Creek	
Waterbody ID: Sdio017		Date: 3-16-16	
State: VA	County/Parish: Dinwiddie	Company: ESI	Crew Member Initials: LR, WV
Photos: S, N, E			
Tract Number(s): 13-019-A017		Nearest Milepost: 256.8	Associated Wetland ID(s): wdio030
Survey Type: (check one) <input type="checkbox"/> Centerline <input checked="" type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:			
Physical Attributes			
Stream Classification: (check one) <input type="checkbox"/> Ephemeral <input type="checkbox"/> Intermittent <input checked="" type="checkbox"/> Perennial			
Waterbody Type: (check one) <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:			
OHWM Width: 3 ft. Height: 1 ft. N/A <input type="checkbox"/>		OHWM Indicator: (check all that apply) <input checked="" type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input checked="" type="checkbox"/> Wrested vegetation <input type="checkbox"/> Scouring <input type="checkbox"/> Water staining <input checked="" type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change	
Width of Waterbody - Top of Bank to Top of Bank: 6 ft.	Width of Waterbody - Toe of Slope to Toe of Slope: 3 ft.	Width of Waterbody - Water Edge to Water Edge: 3 ft. N/A <input type="checkbox"/>	Depth of Water: (Approx.) > 1 ft. N/A <input type="checkbox"/>
Sinuosity: (check one) <input type="checkbox"/> Straight <input checked="" type="checkbox"/> Meandering	Water velocity: (Approx.) > 1 fps N/A <input type="checkbox"/>	Bank height Right: 3 ft. Left: 3 ft.	Bank slope Right: 75 degrees Left: 75 degrees
Qualitative Attributes			
Water Appearance: (check one) <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:			
Substrate: (check all that apply) <input type="checkbox"/> Bedrock <input type="checkbox"/> Boulder <input type="checkbox"/> Cobble <input checked="" type="checkbox"/> Gravel <input checked="" type="checkbox"/> Sand <input type="checkbox"/> Silt/clay <input type="checkbox"/> Organic <input type="checkbox"/> Other: % of Substrate: _____% _____% _____% 15% 85% _____% _____% _____%			
Width of Riparian Zone: 50 ft. N/A <input type="checkbox"/>	Vegetative Layers: (check all that apply) <input checked="" type="checkbox"/> Trees: 7 in. <input checked="" type="checkbox"/> Saplings/Shrubs: 2 in. <input checked="" type="checkbox"/> Herbs: _____ in. Avg. DBH of Dominants: (approx.)		
Dominant Bank Vegetation (list): Liquidambar styraciflua, Pinus taeda, Carpinus caroliniana, Polystichum acrostichoides			
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): Submerged vegetation, overhanging banks, riffles, deep pools			
Aquatic Organisms Observed (list): Fish, frogs			
T&E Species Observed (list): None observed			
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): none			
Tributary Is: (check one) <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated			
Stream Quality *: (check one) <input type="checkbox"/> High <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Low			

Waterbody ID:

Sdio017

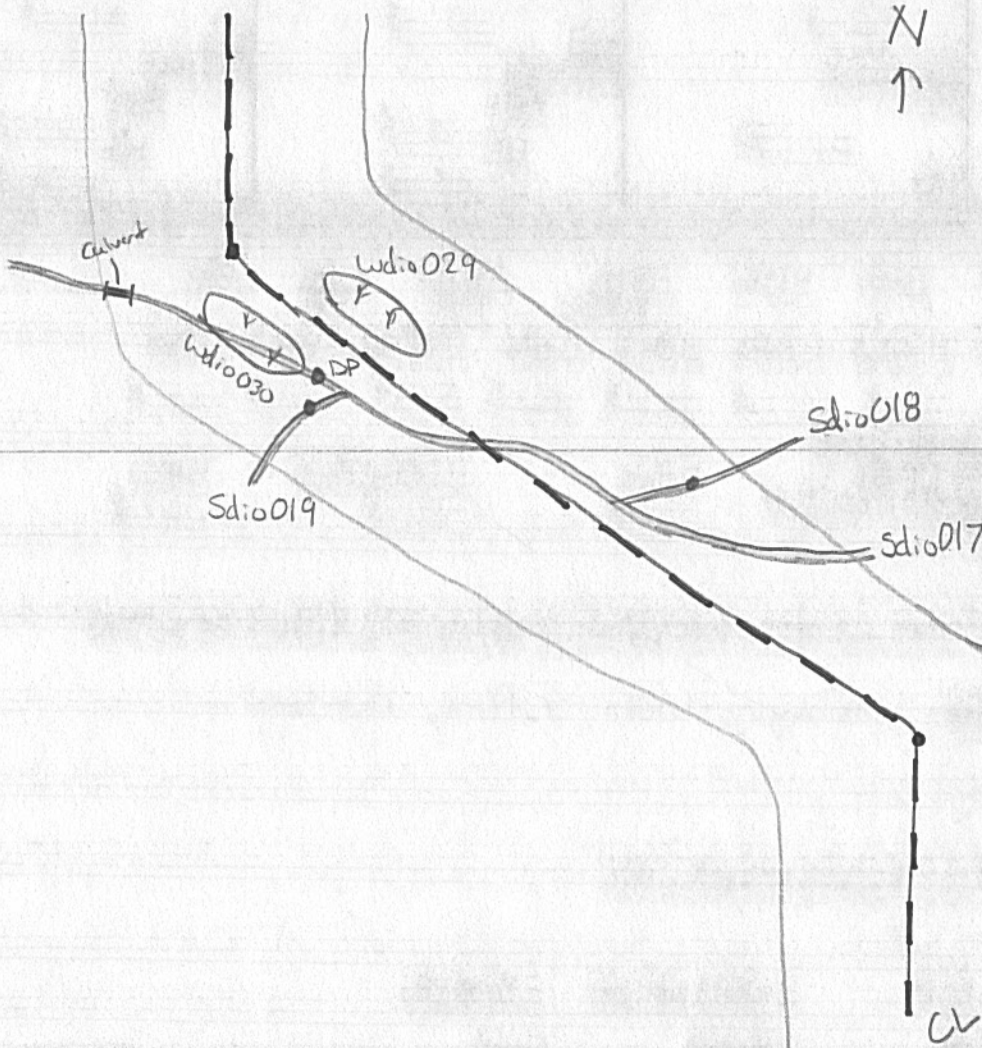
• **High Quality:** Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance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



Environmental Field Surveys
Waterbody Photo Page



Waterbody data point sdio017 facing south upstream.



Waterbody data point sdio017 facing north downstream.

Environmental Field Surveys
Waterbody Photo Page



Waterbody data point sdio017 facing east across.

Linear Waterbody Data Sheet

Survey Description			
Project Name: ACP	Waterbody Name: UNT to Beaver Pond Creek	Waterbody ID: Sd:0019	Date: 3-16-16
State: VA	County/Parish: Dinwiddie	Company: ESI	Crew Member Initials: LR, WV
Tract Number(s): 13-019-A017		Nearest Milepost: 256.8	Photos: Facing W, E, S
Associated Wetland ID(s): NA			

Survey Type: (check one) Centerline Re-Route Access Road Other:

Physical Attributes

Stream Classification: (check one) Ephemeral Intermittent Perennial

Waterbody Type: (check one) River Stream Ditch Canal Other:

OHWM Width: <u>3</u> ft. Height: <u>1</u> ft. N/A <input type="checkbox"/>	OHWM Indicator: (check all that apply)	<input checked="" type="checkbox"/> Clear line on bank	<input type="checkbox"/> Shelving	<input checked="" type="checkbox"/> Wrested vegetation	<input type="checkbox"/> Scouring	<input type="checkbox"/> Water staining
	<input type="checkbox"/> Bent, matted, or missing vegetation	<input type="checkbox"/> Wrack line	<input checked="" type="checkbox"/> Litter and debris	<input type="checkbox"/> Abrupt plant community change	<input type="checkbox"/> Soil characteristic change	

Width of Waterbody - Top of Bank to Top of Bank: <u>6</u> ft.	Width of Waterbody - Toe of Slope to Toe of Slope: <u>1</u> ft.	Width of Waterbody - Water Edge to Water Edge: <u>1</u> ft. N/A <input type="checkbox"/>	Depth of Water: (Approx.) <u><0.5</u> ft. N/A <input type="checkbox"/>
---	---	---	--

Sinuosity: (check one) <input type="checkbox"/> Straight <input checked="" type="checkbox"/> Meandering	Water velocity: (Approx.) <u><1</u> fps N/A <input type="checkbox"/>	Bank height Right: <u>1</u> ft. Left: <u>1</u> ft.	Bank slope Right: <u>80</u> degrees Left: <u>80</u> degrees
---	--	---	--

Qualitative Attributes

Water Appearance: (check one) No water Clear Turbid Sheen on surface Surface scum Algal mats Other:

Substrate: (check all that apply) Bedrock Boulder Cobble Gravel Sand Silt/clay Organic Other:
% of Substrate: _____% _____% _____% _____% 80% 20% _____% _____%

Width of Riparian Zone: <u>20</u> ft. N/A <input type="checkbox"/>	Vegetative Layers: (check all that apply)	<input checked="" type="checkbox"/> Trees: Avg. DBH of Dominants: <u>8</u> in.	<input checked="" type="checkbox"/> Saplings/Shrubs: <u>3</u> in.	<input checked="" type="checkbox"/> Herbs: <u>NA</u> in.
---	---	--	---	--

Dominant Bank Vegetation (list):
Liquidambar styraciflua, Fagus grandifolia, Pinus taeda, Ilex opaca

Aquatic Habitats (ex: submerged or emergent aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):
none

Aquatic Organisms Observed (list):
none observed

T&E Species Observed (list):
none observed

Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes):
logging activity

Tributary is: (check one) Natural Artificial, man-made Manipulated

Stream Quality: (check one) High Moderate Low

Waterbody ID:

Sd:0019

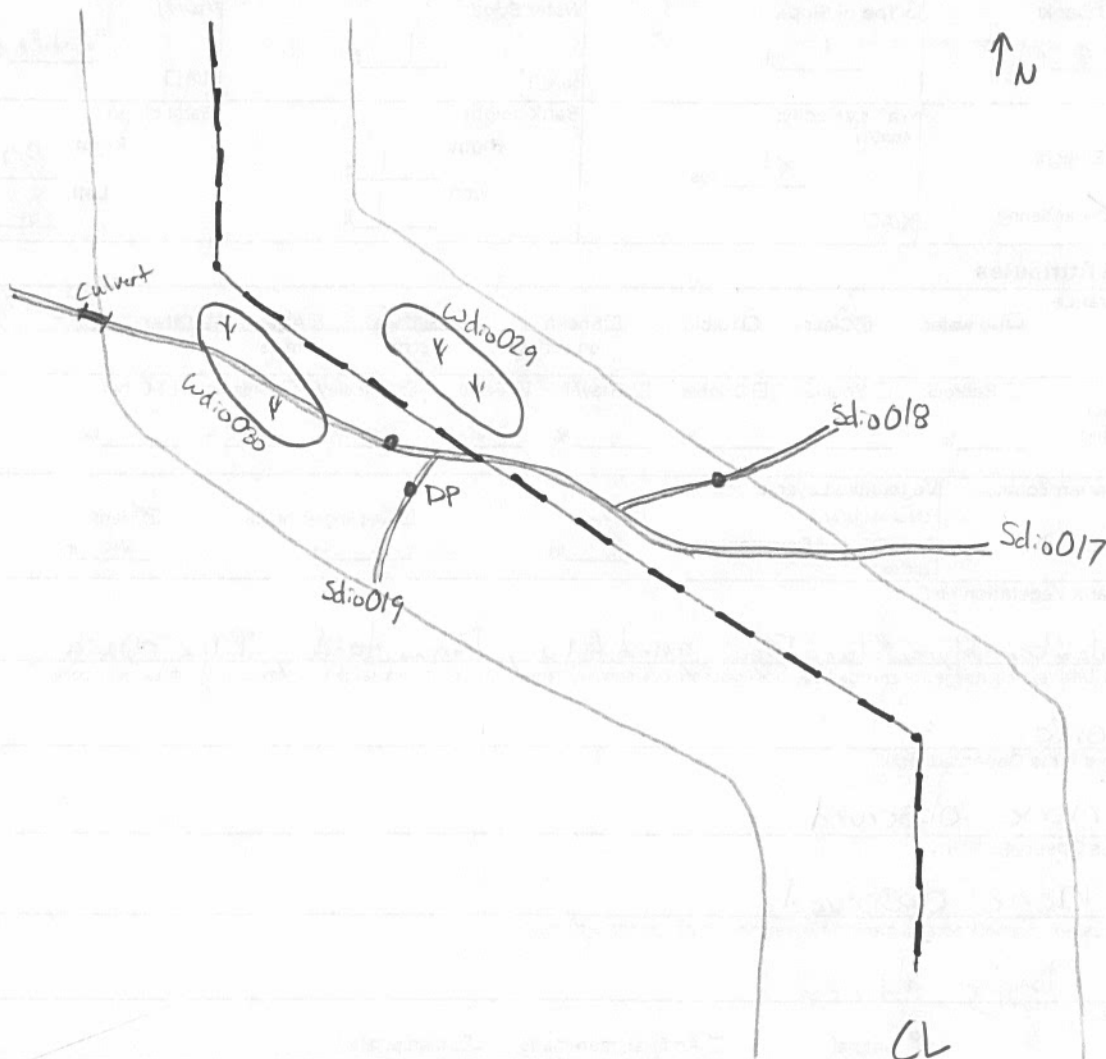
High Quality: Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance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



Environmental Field Surveys
Waterbody Photo Page



Waterbody data point sdio019 facing west upstream.



Waterbody data point sdio019 facing east downstream.

Environmental Field Surveys
Waterbody Photo Page



Waterbody data point sdio019 facing south across.

Linear Waterbody Data Sheet

Survey Description				
Project Name: <u>ACP</u>		Waterbody Name: <u>UNT to Beaver Pond Creek</u>		Waterbody ID: <u>Sdio018</u>
Date: <u>3-16-16</u>				
State: <u>VA</u>	County/Parish: <u>Dinwiddie</u>	Company: <u>ESI</u>	Crew Member Initials: <u>LR, WV</u>	Photos: <u>Facing E, W, S</u>
Tract Number(s): <u>13-019-A017</u>		Nearest Milepost: <u>256.8</u>	Associated Wetland ID(s): <u>- NA</u>	
Survey Type: <small>(check one)</small>				
<input type="checkbox"/> Centerline <input checked="" type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:				
Physical Attributes				
Stream Classification: <small>(check one)</small>				
<input type="checkbox"/> Ephemeral <input type="checkbox"/> Intermittent <input checked="" type="checkbox"/> Perennial				
Waterbody Type: <small>(check one)</small>				
<input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:				
OHWM Width: <u>3</u> ft.		OHWM Indicator: <small>(check all that apply)</small>		
Height: <u>1</u> ft.		<input checked="" type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input checked="" type="checkbox"/> Wrested vegetation <input type="checkbox"/> Scouring <input type="checkbox"/> Water staining		
N/A <input type="checkbox"/>		<input checked="" type="checkbox"/> Bent, matted, or missing vegetation <input checked="" type="checkbox"/> Wrack line <input type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change		
Width of Waterbody - Top of Bank to Top of Bank: <u>6</u> ft.		Width of Waterbody - Toe of Slope to Toe of Slope: <u>3</u> ft.		Depth of Water: <small>(Approx.)</small> <u>0.5</u> ft.
Width of Waterbody - Water Edge to Water Edge: <u>2</u> ft.		N/A <input type="checkbox"/>		
Sinuosity: <small>(check one)</small>		Water velocity: <small>(Approx.)</small>		Bank height
<input type="checkbox"/> Straight <input checked="" type="checkbox"/> Meandering		<u>< 1</u> fps N/A <input type="checkbox"/>		Right: <u>3</u> ft. Left: <u>3</u> ft.
Bank slope				
Right: <u>70</u> degrees Left: <u>70</u> degrees				
Qualitative Attributes				
Water Appearance: <small>(check one)</small>				
<input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:				
Substrate: <small>(check all that apply)</small>				
<input type="checkbox"/> Bedrock <input type="checkbox"/> Boulder <input type="checkbox"/> Cobble <input type="checkbox"/> Gravel <input checked="" type="checkbox"/> Sand <input type="checkbox"/> Silt/ clay <input type="checkbox"/> Organic <input type="checkbox"/> Other:				
% of Substrate: _____% _____% _____% _____% <u>100</u> % _____% _____%				
Width of Riparian Zone: <u>20</u> ft.		Vegetative Layers: <small>(check all that apply)</small>		
N/A <input type="checkbox"/>		Avg. DBH of Dominants: <small>(approx.)</small>		
		<input checked="" type="checkbox"/> Trees: <u>10</u> in. <input checked="" type="checkbox"/> Saplings/Shrubs: <u>1</u> in. <input checked="" type="checkbox"/> Herbs: <u>NA</u> in.		
Dominant Bank Vegetation (list): <u>Polystichum acrostichoides, Ilex opaca, Smilax rotundifolia</u>				
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): <u>aquatic vegetation, overhanging banks, leaf packs</u>				
Aquatic Organisms Observed (list): <u>Fish, Frogs</u>				
T&E Species Observed (list): <u>none observed</u>				
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): <u>none</u>				
Tributary is: <small>(check one)</small>				
<input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated				
Stream Quality *: <small>(check one)</small>				
<input type="checkbox"/> High <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Low				

Environmental Field Surveys
Waterbody Photo Page



Waterbody data point sdio018 facing east upstream.



Waterbody data point sdio018 facing west downstream.

Environmental Field Surveys
Waterbody Photo Page



Waterbody data point sdio018 facing south across.

Linear Waterbody Data Sheet

Survey Description				
Project Name: Atlantic Coast Pipeline		Waterbody Name: Beaver Pond Creek		Waterbody ID: SDIC001
Date: 11/7/2014				
State: Virginia	County: Dinwiddie	Company: NRG	Crew Member Initials: CR, CG, EH	Photos: 3
Tract Number(s): 13-036-A001; 13-036-A002; 13-038		Nearest Milepost: 256.3	Associated Wetland ID(s): WDIC001	
Survey Type: <i>(check one)</i> <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:				
Physical Attributes				
Stream Classification: <i>(check one)</i> <input type="checkbox"/> Ephemeral <input type="checkbox"/> Intermittent <input checked="" type="checkbox"/> Perennial				
Waterbody Type: <i>(check one)</i> <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:				
OHWM Width: 4 ft.		OHWM Indicator: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input type="checkbox"/> Scouring <input type="checkbox"/> Water staining		
OHWM Height: 1.5 ft		<input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change		
N/A <input type="checkbox"/>				
Width of Waterbody - Top of Bank to Top of Bank: 7 ft.	Width of Waterbody - Toe of Slope to Toe of Slope: 1 ft.	Width of Waterbody - Water Edge to Water Edge: 3 ft.	Depth of Water: <i>(Approx.)</i> 1 ft.	
N/A <input type="checkbox"/>		N/A <input type="checkbox"/>		
Sinuosity: <i>(check one)</i> <input type="checkbox"/> Straight <input checked="" type="checkbox"/> Meandering		Water velocity: <i>(Approx.)</i> 1 fps		Bank slope Right: 70 degrees Left: 70 degrees
N/A <input type="checkbox"/>		N/A <input type="checkbox"/>		
Qualitative Attributes				
Water Appearance: <i>(check one)</i> <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:				
Substrate: <i>(check all that apply)</i> <input type="checkbox"/> Bedrock <input type="checkbox"/> Boulder <input type="checkbox"/> Cobble <input type="checkbox"/> Gravel <input checked="" type="checkbox"/> Sand <input checked="" type="checkbox"/> Silt/ clay <input type="checkbox"/> Organic <input type="checkbox"/> Other:				
% of Substrate: _____% _____% _____% _____% 90% 10% _____% _____%				
Width of Riparian Zone: _____ ft.		Vegetative Layers: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Trees: <input checked="" type="checkbox"/> Saplings/Shrubs: <input type="checkbox"/> Herbs		
N/A <input checked="" type="checkbox"/>		Avg. DBH of Dominants: <i>(approx.)</i> 6 in. 2 in.		
Dominant Bank Vegetation <i>(list)</i> : Red Maple, Hazel Alder, Winterberry, Arrowwood, Violet				
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): Overhanging roots, leaf packs				
Aquatic Organisms Observed <i>(list)</i> : Salamanders, frogs, crayfish burrows				
T&E Species Observed <i>(list)</i> : None				
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): None				
Tributary is: <i>(check one)</i> <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated				
Stream Quality ^a : <i>(check one)</i> <input type="checkbox"/> High <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Low				

Waterbody ID:

SDIC001

^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.

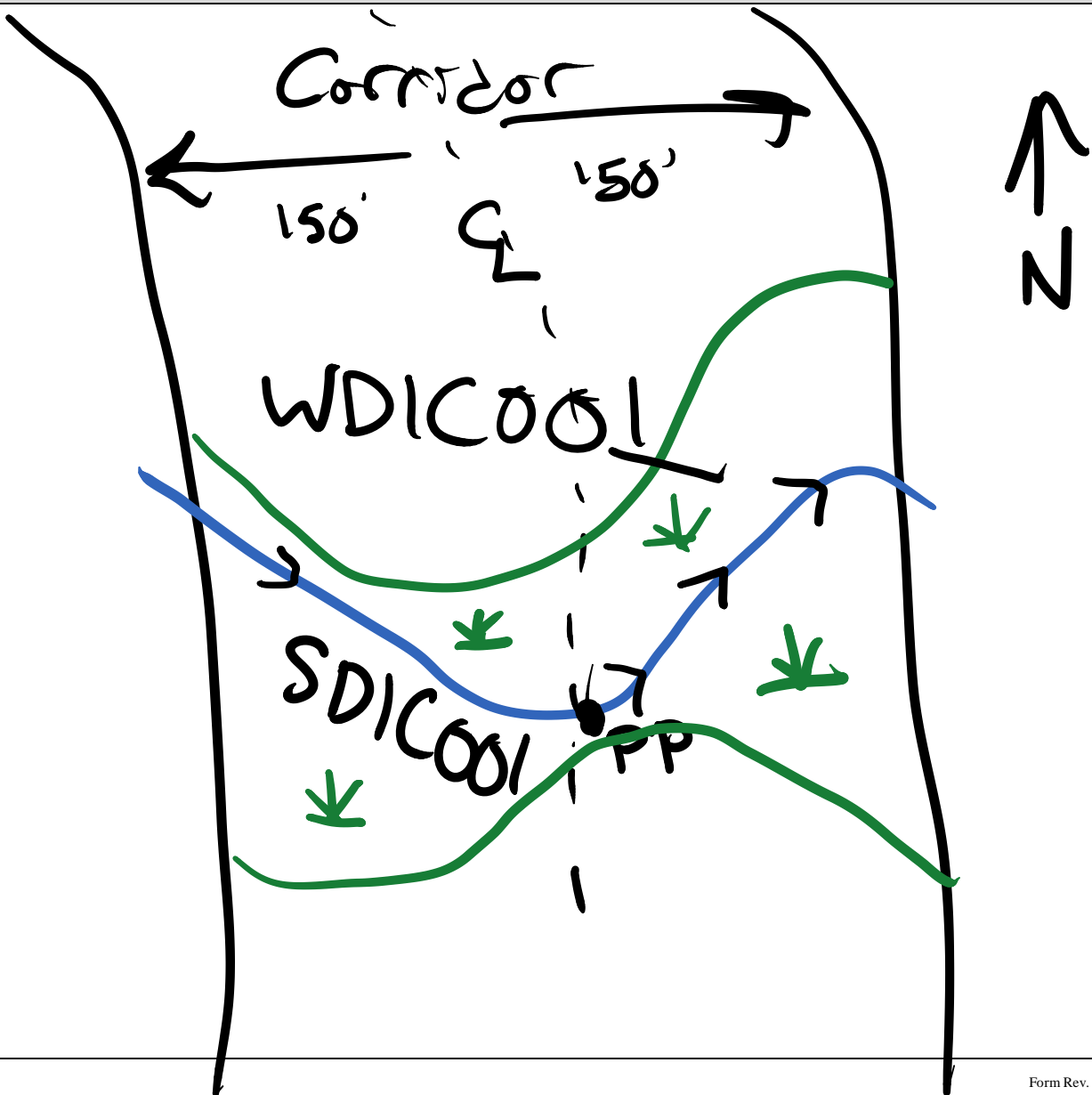
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate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

Beaver Pond Creek is associated with a PFO wetland. Crayfish burrows were observed on the banks.

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





SDIC001 facing west upstream



SDIC001 facing east downstream



SDIC001 facing south across

Linear Waterbody Data Sheet

Survey Description			
Project Name: Atlantic Coast Pipeline		Waterbody Name: UNT to Beaver Pond Creek	
Waterbody ID: sdia400		Date: 4/30/2016	
State: Virginia	County: Dinwiddie	Company: NRG - ERM	Crew Member Initials: GB, CG
Photos: 3 photos			
Tract Number(s): 13-038		Nearest Milepost: 259.4	Associated Wetland ID(s): wdia400
Survey Type: <i>(check one)</i> <input checked="" type="checkbox"/> Centerline <input type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:			
Physical Attributes <input checked="" type="checkbox"/>			
Stream Classification: <i>(check one)</i> <input type="checkbox"/> Ephemeral <input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> Perennial			
Waterbody Type: <i>(check one)</i> <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:			
OHWM Width: _____ ft. Height: _____ ft. N/A <input type="checkbox"/>		OHWM Indicator: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input checked="" type="checkbox"/> Scouring <input type="checkbox"/> Water staining <input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change	
Width of Waterbody - Top of Bank to Top of Bank: _____ ft.	Width of Waterbody - Toe of Slope to Toe of Slope: _____ ft.	Width of Waterbody - Water Edge to Water Edge: N/A <input type="checkbox"/> _____ ft.	Depth of Water: <i>(Approx.)</i> N/A <input type="checkbox"/> _____
Sinuosity: <i>(check one)</i> <input type="checkbox"/> Straight <input checked="" type="checkbox"/> Meandering	Water velocity: <i>(Approx.)</i> _____ fps N/A <input type="checkbox"/>	Bank height Right: _____ ft. Left: _____ ft.	Bank slope Right: _____ degrees Left: _____
Qualitative Attributes			
Water Appearance: <i>(check one)</i> <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:			
Substrate: <i>(check all that apply)</i> % of Substrate: _____% _____% _____% <u>5</u> % <u>50</u> <u>30</u> % <u>15</u> % _____%			
Width of Riparian N/A <input type="checkbox"/> <u>40</u> ft.	Vegetative Layers: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Trees: <input checked="" type="checkbox"/> Saplings/Shrubs: <input checked="" type="checkbox"/> Herbs Avg. DBH of Dominants: <i>(approx.)</i> <u>10.0</u> in. <u>1.0</u> in.		
Dominant Bank Vegetation <i>(list)</i> : Sycamore, sweetgum, hackberry, yellow poplar, red elm, ironwood, spicebush, hazelnut, chickweed, Christmas fern, violet, bedstraw, Virginia creeper, greenbrier, poison ivy			
Aquatic Habitats <i>(ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools)</i> : Leaf packs, woody debris, overhanging roots			
Aquatic Organisms Observed <i>(list)</i> : frog			
T&E Species Observed <i>(list)</i> : none			
Disturbances <i>(ex: livestock access, manure in waterbody, waste discharge pipes)</i> : Clear cut to the west			
Tributary is: <i>(check one)</i> <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated			
Stream Quality ³ : <i>(check one)</i> <input type="checkbox"/> High <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Low			

Waterbody ID:

sdia400

^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.

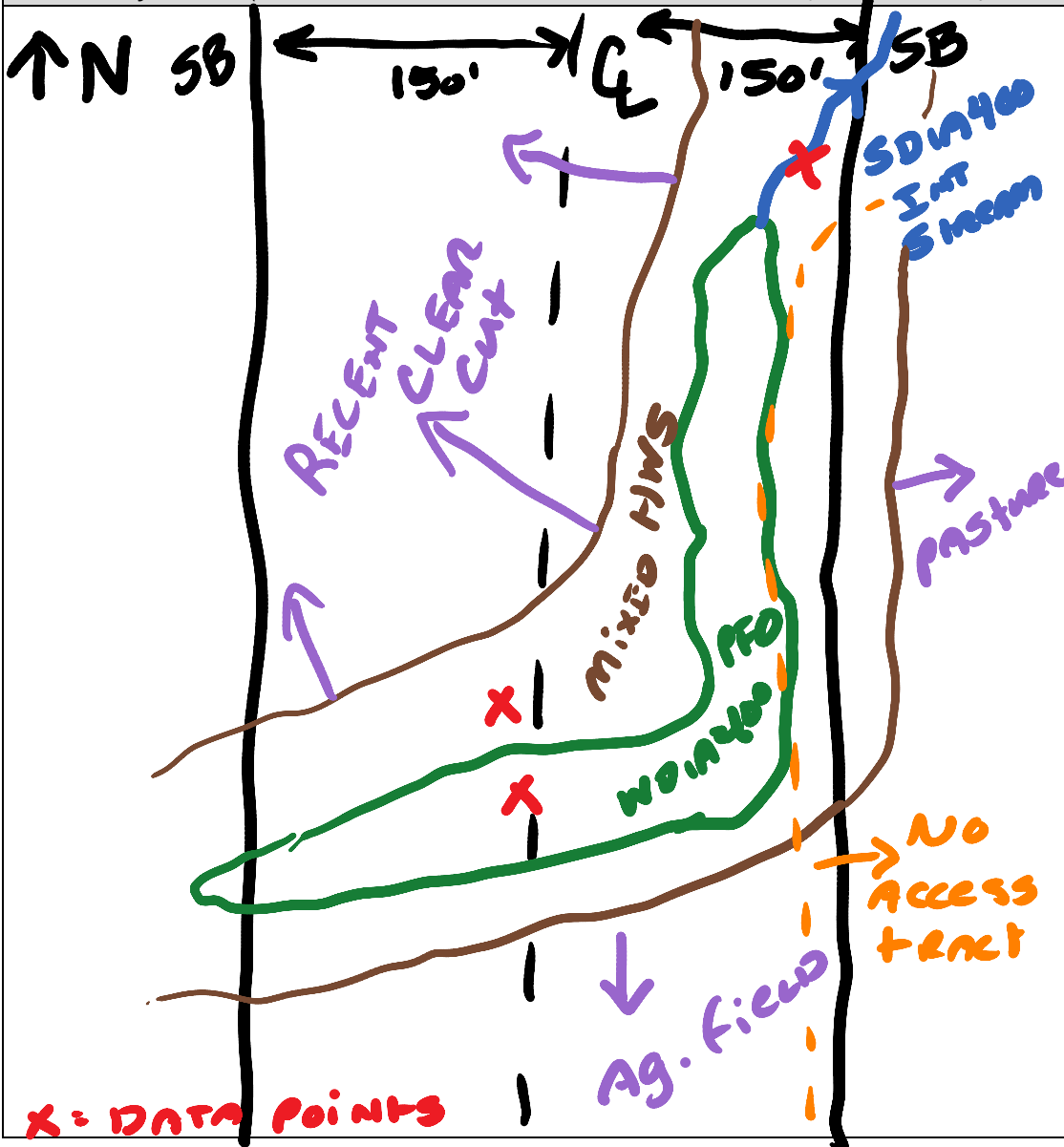
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate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

Stream begins at a headcut within corridor at the edge of PFO wetland wdia400; downstream continues out of corridor; recent clear cut to the west.

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





Waterbody SDIA400 facing south upstream



Waterbody SDIA400 facing north downstream



Waterbody SDIA400 facing east across

Linear Waterbody Data Sheet

Survey Description			
Project Name: ACP	Waterbody Name: UNT to Nottoway River	Waterbody ID: SD10D13	Date: 12/8/15
State: VA	County/Parish: DINWIDDIE	Company: ESI.	Crew Member Initials: L-R, S-I.
Tract Number(s): 13-033		Nearest Milepost: 260	Photos: Facing N, S, W
Associated Wetland ID(s): NA			
Survey Type: (check one) <input type="checkbox"/> Centerline <input checked="" type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:			
Physical Attributes			
Stream Classification: (check one) <input type="checkbox"/> Ephemeral <input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> Perennial			
Waterbody Type: (check one) <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:			
OHWM Width: <u>3</u> ft. Height: <u>0.5</u> ft. N/A <input type="checkbox"/>	OHWM Indicator: (check all that apply) <input checked="" type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input type="checkbox"/> Scouring <input type="checkbox"/> Water staining <input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change		
Width of Waterbody - Top of Bank to Top of Bank: <u>6</u> ft.	Width of Waterbody - Toe of Slope to Toe of Slope: <u>2</u> ft.	Width of Waterbody - Water Edge to Water Edge: N/A <input type="checkbox"/> <u>1</u> ft.	Depth of Water: (Approx.) N/A <input type="checkbox"/> <u>0.5</u> ft.
Sinuosity: (check one) <input type="checkbox"/> Straight <input checked="" type="checkbox"/> Meandering	Water velocity: (Approx.) <u>0</u> fps N/A <input type="checkbox"/>	Bank height Right: <u>3</u> ft. Left: <u>3</u> ft.	Bank slope Right: <u>45</u> degrees Left: <u>45</u> degrees
Qualitative Attributes			
Water Appearance: (check one) <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:			
Substrate: (check all that apply) <input type="checkbox"/> Bedrock <input type="checkbox"/> Boulder <input type="checkbox"/> Cobble <input type="checkbox"/> Gravel <input checked="" type="checkbox"/> Sand <input checked="" type="checkbox"/> Silt/clay <input type="checkbox"/> Organic <input type="checkbox"/> Other:			
% of Substrate: _____% _____% _____% _____% <u>70</u> % <u>30</u> % _____% _____%			
Width of Riparian Zone: N/A <input type="checkbox"/> <u>20</u> ft.	Vegetative Layers: (check all that apply) <input checked="" type="checkbox"/> Trees: <u>7</u> in. <input checked="" type="checkbox"/> Saplings/Shrubs: <u>2</u> in. <input checked="" type="checkbox"/> Herbs: <u>NA</u> in.		
Dominant Bank Vegetation (list): <i>Ilex opaca, Quercus falcata, Fagus grandifolia, Liquidambar styraciflua</i>			
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): <i>leaf packs, intermittent waters</i>			
Aquatic Organisms Observed (list): <i>NONE</i>			
T&E Species Observed (list): <i>NONE</i>			
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): <i>NONE</i>			
Tributary is: (check one) <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated			
Stream Quality*: (check one) <input type="checkbox"/> High <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Low			

Waterbody ID:

sd10013

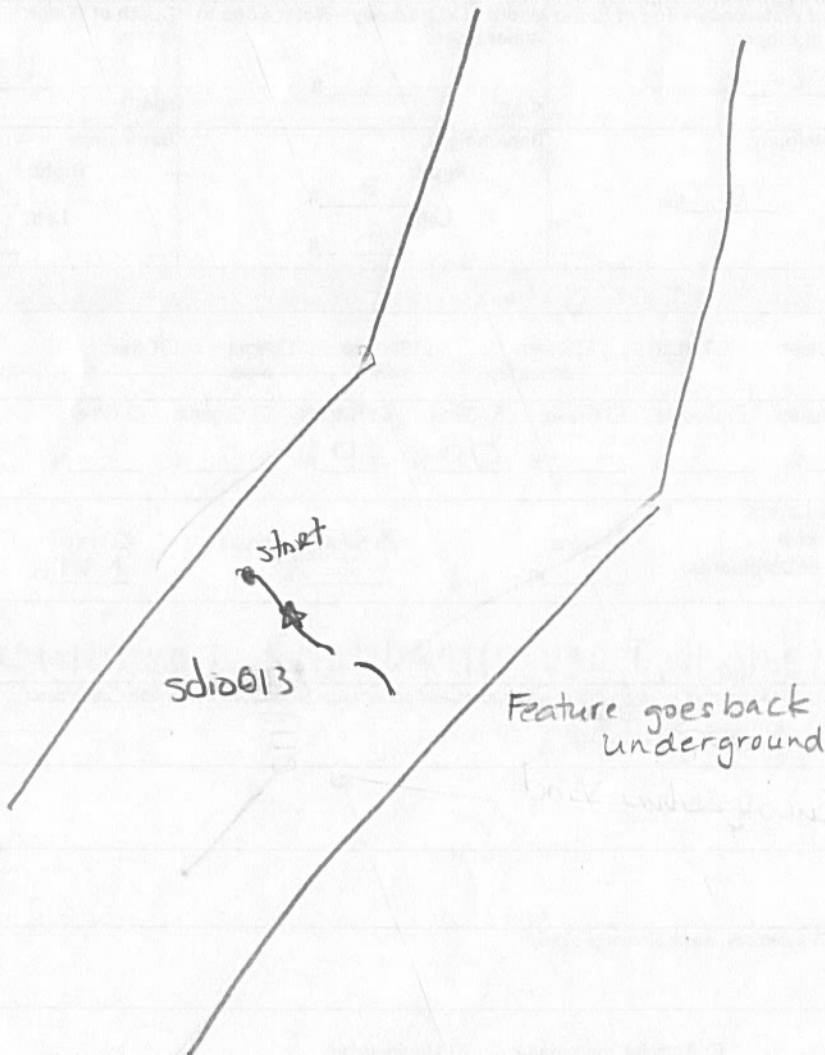
▪ **High Quality:** Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance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



Environmental Field Surveys
Waterbody Photo Page



Waterbody sdio013 facing north upstream.



Waterbody sdio013 facing south downstream.

Environmental Field Surveys
Waterbody Photo Page



Waterbody sdio013 facing west across bank.

Linear Waterbody Data Sheet

Survey Description			
Project Name: Atlantic Coast Pipeline		Waterbody Name: UNT to Tommeheton Creek	
Waterbody ID: SDIC008		Date: 12/3/2014	
State: Virginia	County: Dinwiddie	Company: NRG	Crew Member Initials: CR, AS
Photos: SDIC008_001-003			
Tract Number(s): 13-041		Nearest Milepost: 257.3	Associated Wetland ID(s): None
Survey Type: <i>(check one)</i> <input type="checkbox"/> Centerline <input checked="" type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:			
Physical Attributes			
Stream Classification: <i>(check one)</i> <input type="checkbox"/> Ephemeral <input checked="" type="checkbox"/> Intermittent <input type="checkbox"/> Perennial			
Waterbody Type: <i>(check one)</i> <input type="checkbox"/> River <input checked="" type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:			
OHWM Width: 4.0 ft.		OHWM Indicator: <i>(check all that apply)</i>	
Height: 0.5 ft.		<input checked="" type="checkbox"/> Clear line on bank <input type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input type="checkbox"/> Scouring <input type="checkbox"/> Water staining	
N/A <input type="checkbox"/>		<input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change	
Width of Waterbody - Top of Bank to Top of Bank: 9 ft.	Width of Waterbody - Toe of Slope to Toe of Slope: 1 ft.	Width of Waterbody - Water Edge to Water Edge: 3 ft.	Depth of Water: <i>(Approx.)</i> 0.2 ft.
Sinuosity: <i>(check one)</i> <input type="checkbox"/> Straight <input checked="" type="checkbox"/> Meandering		Water velocity: <i>(Approx.)</i> 0.3 fps	Bank height: Right: 2.5 ft. Left: 2 ft.
N/A <input type="checkbox"/>		Bank slope: Right: 50 degrees Left: 60 degrees	
Qualitative Attributes			
Water Appearance: <i>(check one)</i> <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:			
Substrate: <i>(check all that apply)</i>			
% of Substrate: _____% _____% _____% _____% 60% 30% 10% _____%			
Width of Riparian Zone: _____ ft.	Vegetative Layers: <i>(check all that apply)</i>		
N/A <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Trees: <input checked="" type="checkbox"/> Saplings/Shrubs: <input checked="" type="checkbox"/> Herbs		
Avg. DBH of Dominants: <i>(approx.)</i> 12 in. 2 in.			
Dominant Bank Vegetation <i>(list)</i> : Sycamore, Musclewood, American Holly, White Oak, Japanese Honeysuckle, Shumard Oak, Red Maple			
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): Overhanging roots and leaf packs			
Aquatic Organisms Observed <i>(list)</i> : None			
T&E Species Observed <i>(list)</i> : None			
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): None			
Tributary is: <i>(check one)</i> <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated			
Stream Quality ^a : <i>(check one)</i> <input type="checkbox"/> High <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Low			

Waterbody ID:

SDIC008

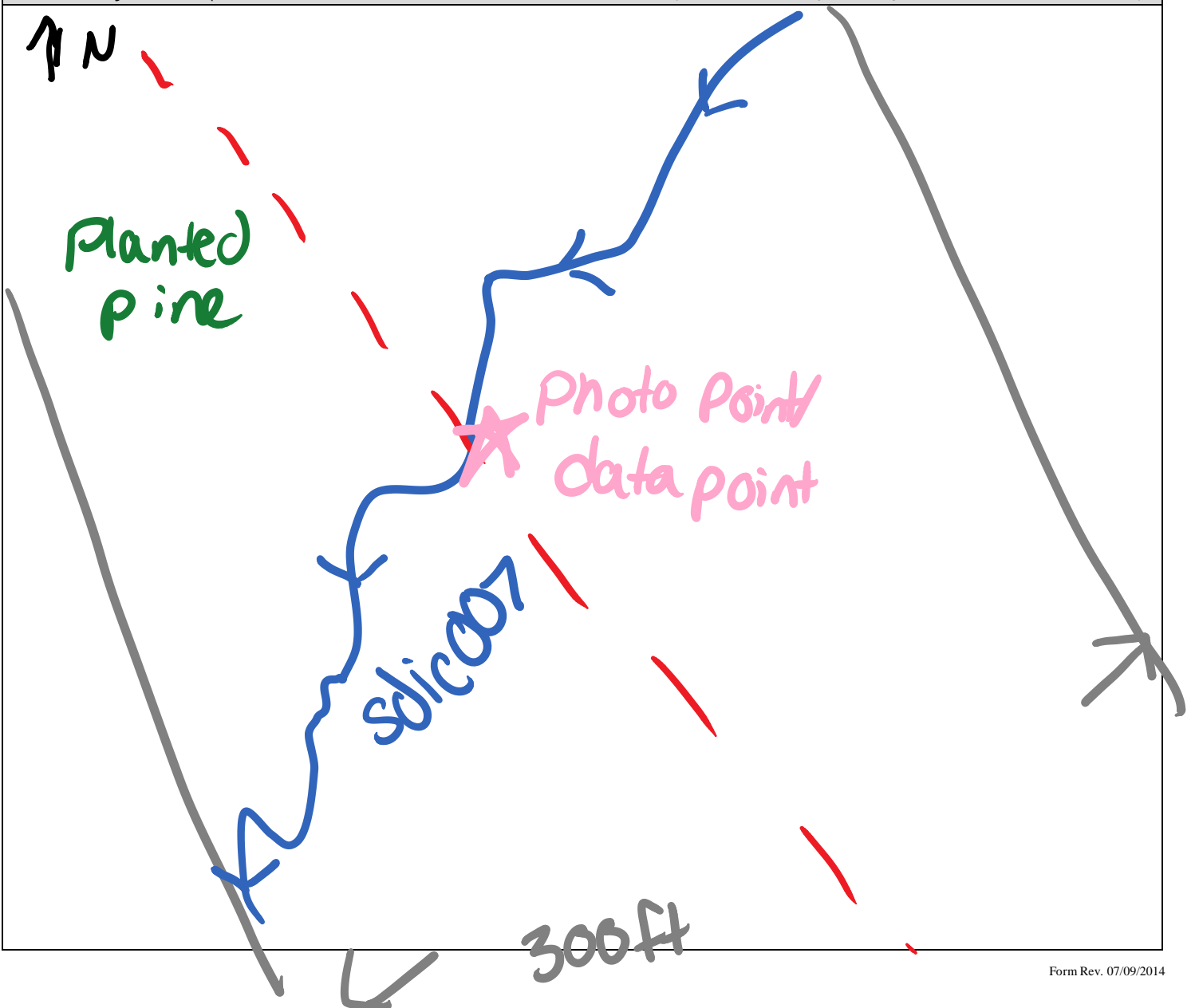
^a **High Quality:** Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance 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 SDIC008 facing upstream



Waterbody SDIC008 facing downstream



Waterbody SDIC008 facing across

Linear Waterbody Data Sheet

Survey Description			
Project Name: Atlantic Coast Pipeline		Waterbody Name: Nottoway River	
Waterbody ID: SDIC007		Date: 12/2/2014	
State: Virginia	County: Dinwiddie	Company: NRG	Crew Member Initials: CR, AS
Photos: SDIC007_001-003			
Tract Number(s): 13-041; unknown tract between 13-041 and 14-001		Nearest Milepost: 257.7	Associated Wetland ID(s): None
Survey Type: <i>(check one)</i> <input type="checkbox"/> Centerline <input checked="" type="checkbox"/> Re-Route <input type="checkbox"/> Access Road <input type="checkbox"/> Other:			
Physical Attributes			
Stream Classification: <i>(check one)</i> <input type="checkbox"/> Ephemeral <input type="checkbox"/> Intermittent <input checked="" type="checkbox"/> Perennial			
Waterbody Type: <i>(check one)</i> <input checked="" type="checkbox"/> River <input type="checkbox"/> Stream <input type="checkbox"/> Ditch <input type="checkbox"/> Canal <input type="checkbox"/> Other:			
OHWM Width: _55_ ft.		OHWM Indicator: <i>(check all that apply)</i>	
Height: _6_ ft.		<input checked="" type="checkbox"/> Clear line on bank <input checked="" type="checkbox"/> Shelving <input type="checkbox"/> Wrested vegetation <input type="checkbox"/> Scouring <input type="checkbox"/> Water staining	
N/A <input type="checkbox"/>		<input type="checkbox"/> Bent, matted, or missing vegetation <input type="checkbox"/> Wrack line <input type="checkbox"/> Litter and debris <input type="checkbox"/> Abrupt plant community change <input type="checkbox"/> Soil characteristic change	
Width of Waterbody - Top of Bank to Top of Bank: _75_ ft.	Width of Waterbody - Toe of Slope to Toe of Slope: _45_ ft.	Width of Waterbody - Water Edge to Water Edge: N/A <input type="checkbox"/> _53_ ft.	Depth of Water: <i>(Approx.)</i> N/A <input type="checkbox"/> _3.5_ ft.
Sinuosity: <i>(check one)</i> <input checked="" type="checkbox"/> Straight <input type="checkbox"/> Meandering	Water velocity: <i>(Approx.)</i> _1_ fps N/A <input type="checkbox"/>	Bank height Right: _16_ ft. Left: _20_ ft.	Bank slope Right: _80_ degrees Left: _80_ degrees
Qualitative Attributes			
Water Appearance: <i>(check one)</i> <input type="checkbox"/> No water <input checked="" type="checkbox"/> Clear <input type="checkbox"/> Turbid <input type="checkbox"/> Sheen on surface <input type="checkbox"/> Surface scum <input type="checkbox"/> Algal mats <input type="checkbox"/> Other:			
Substrate: <i>(check all that apply)</i>			
% of Substrate: _____% _____% _____% _____% <u>60</u> % <u>40</u> % _____% _____%			
Width of Riparian Zone: _100_ ft. N/A <input type="checkbox"/>	Vegetative Layers: <i>(check all that apply)</i> <input checked="" type="checkbox"/> Trees: <input checked="" type="checkbox"/> Saplings/Shrubs: <input checked="" type="checkbox"/> Herbs		
Avg. DBH of Dominants: <i>(approx.)</i> <u>12</u> in. <u>2</u> in.			
Dominant Bank Vegetation <i>(list)</i> : Sycamore, Musclewood, Loblolly Pine, Red Maple, and Japanese Honeysuckle			
Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): Riffles and large submerged wood (8-12in diameter)			
Aquatic Organisms Observed <i>(list)</i> : None			
T&E Species Observed <i>(list)</i> : None			
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): A bridge from the paved Gills Bridge Road runs over the river just outside of the corridor upstream.			
Tributary is: <i>(check one)</i> <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Artificial, man-made <input type="checkbox"/> Manipulated			
Stream Quality ^a : <i>(check one)</i> <input type="checkbox"/> High <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Low			

Waterbody ID:

SDIC007

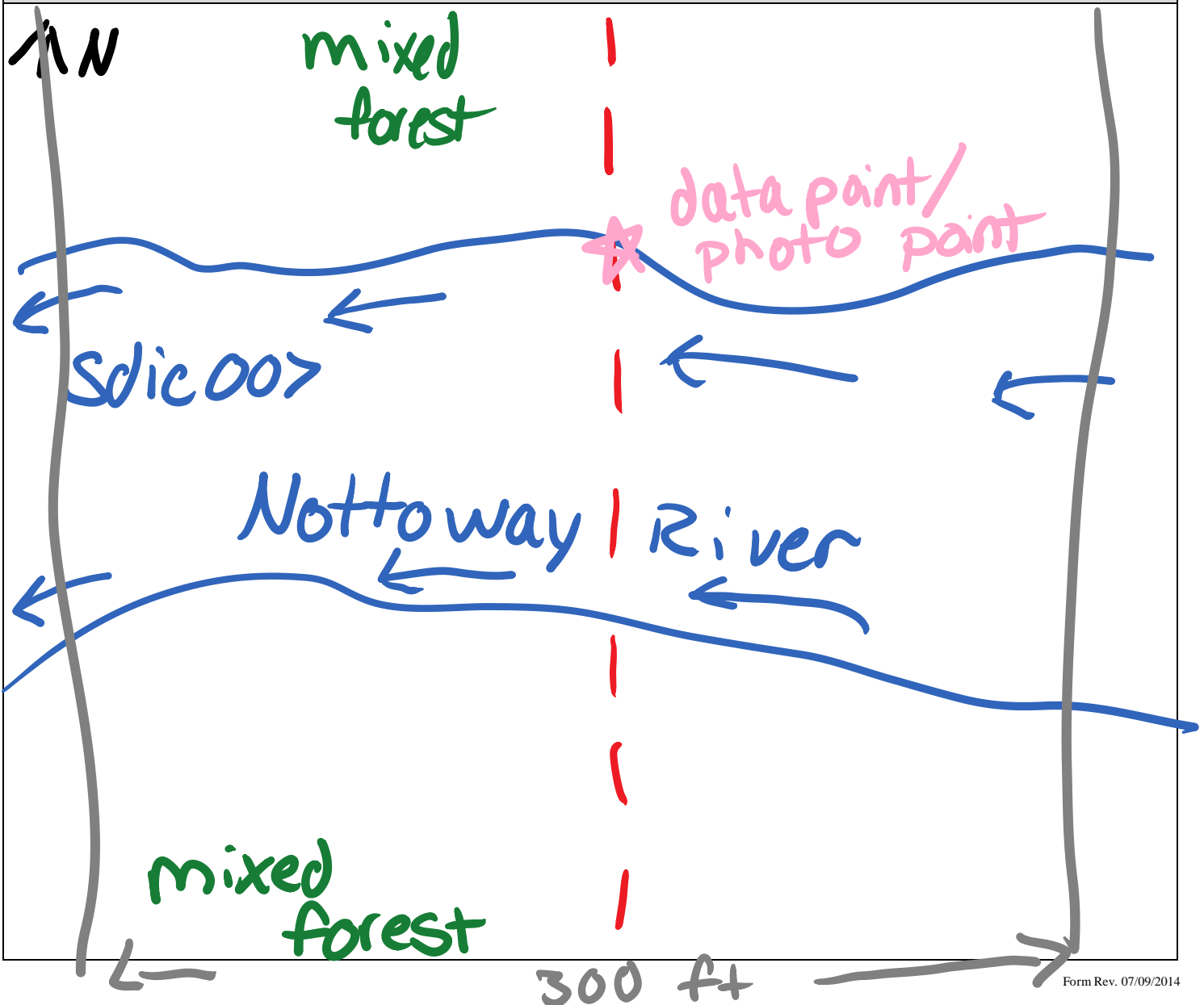
^a **High Quality:** Natural channel, natural vegetation extends at least one or two active channel widths on each side; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance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

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Notes:

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





Waterbody SDIC007 facing upstream



Waterbody SDIC007 facing downstream



Waterbody SDIC007 facing across