Linear Waterbody Data Sheet

Survey Description

Project Name:	Waterbody Name:	Waterbody ID:	Date:
Atlantic Coast Pipeline	UNT to Warwick Run	shia407	5/3/2016

State:	County:	Company:	Crew Member Initials:	Photos:
Virginia	Highland	NRG - ERM	GB, SA	5 photos

Tract Number(s):	Nearest Milepost:	Associated Wetland ID(s):
06-001-B001 - GWNF	84.85	None

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: 20.0 ft.

Height: 1.5 ft. N/A☐

OHWM Indicator: *(check all that apply)*
☒ Clear line on bank ☐Shelving ☐Wrested vegetation ☒Scouring ☐Water staining
☐Bent, matted, or missing vegetation ☒Wrack line ☒Litter and debris ☐Abrupt plant community change ☐Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:	Width of Waterbody - Toe of Slope to Toe of Slope:	Width of Waterbody - Water Edge to Water Edge:	Depth of Water: *(Approx.)*
28.0 ft.	10.0 ft.	16.0 ft. N/A☐	0.75 ft. N/A☐

Sinuosity: *(check one)*	Water velocity: *(Approx.)*	Bank height	Bank slope
☒Straight ☐Meandering	1.5 fps N/A☐	Right: 4.5 ft. Left: 5.0 ft.	Right: 75 degrees Left: 70 degrees

Analysis of Bank Stability (i.e. root structure, vegetation, substrate characteristics):

Banks show signs of instability in places evidenced by loose rocks and soils; this would be considered normal for a moderately steep gradient stream

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: ____% 10 % 50 % 25 % 10 % ____% 5 % ____%

Width of Riparian Zone: 175 ft. N/A☐

Vegetative Layers: *(check all that apply)* ☒ Trees: ☒ Saplings/Shrubs: ☒ Herbs

Avg. DBH of Dominants: *(approx.)* 14.0 in. 1.0 in. _

Dominant Bank Vegetation *(list)*:

Hemlock, white pine, sugar maple, green ash, basswood, sweet birch, yellow poplar, hydrangea, striped maple, Dutchman's pipe, Christmas fern, violet, wood aster, blackberry, wood fern

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):

Riffles, scattered pools, woody debris, wrack piles

Aquatic Organisms Observed *(list)*:

Water striders, invertebrates, minnows, crayfish

T&E Species Observed *(list)*:

none

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

None apparent

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

Waterbody ID:
shia407

[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.

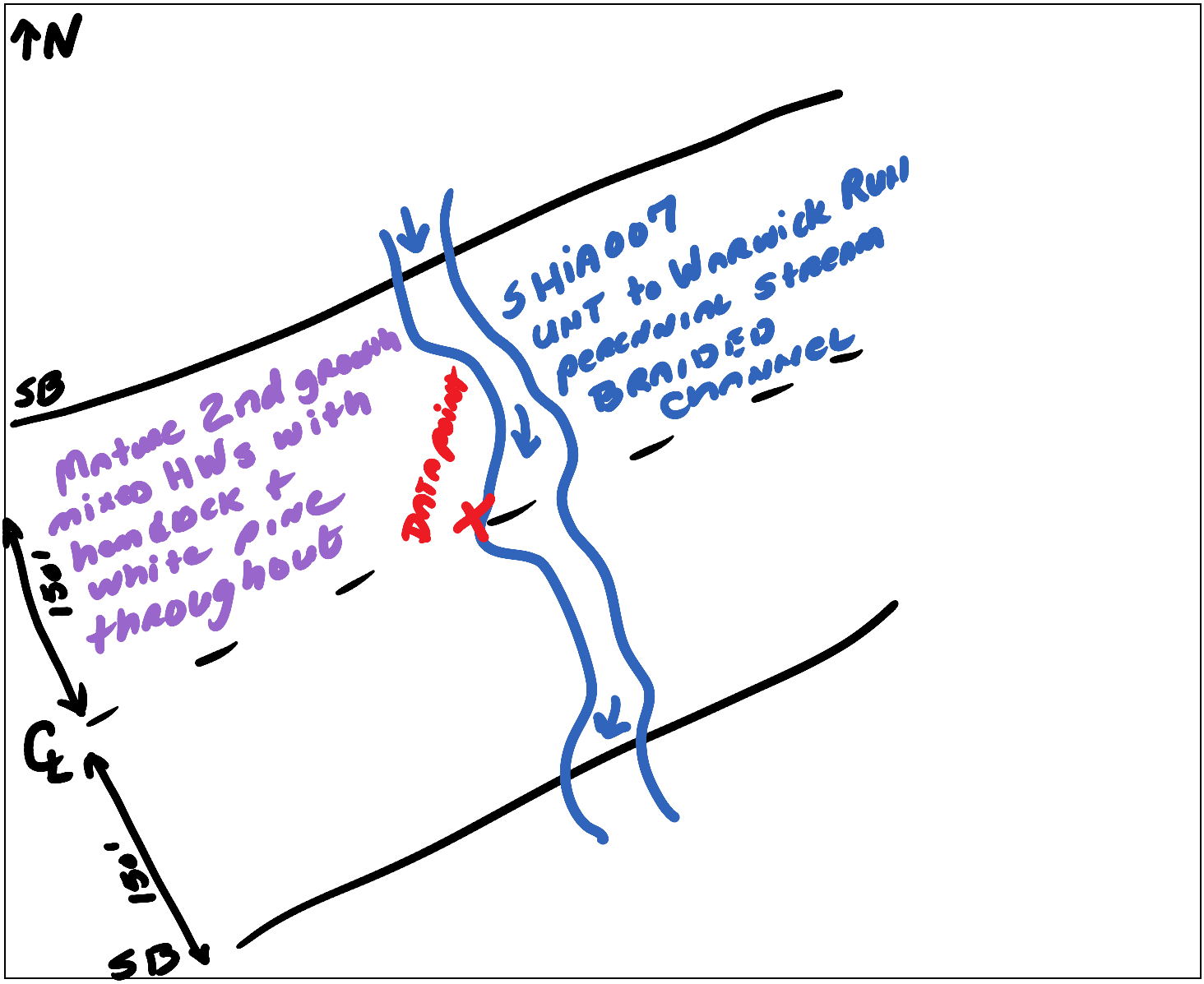
Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious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

Continues out of corridor in both directions; channel is braided – OHWM added for braids; bank to bank outermost to outermost. Stream is of a moderately steep gradient with bed dominated by cobble. Mature second growth mixed hardwoods with hemlock and white pine; canopy sparse in places due to hemlock and white pine mortality.

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

Stream Quality [a] **:** *(check one)* ☒ High ☐ Moderate ☐ Low


↑N
SB
Mature 2nd growth mixed HWs with hemlock & white pine throughout
150'
℄
150'
SD
Intermittent
SHIA007
UNT to Warwick Run
perennial stream
BRAIDED
CHANNEL

Waterbody SHIA407 facing north upstream

Waterbody SHIA407 facing south downstream

Waterbody SHIA407 facing west across

Linear Waterbody Data Sheet

Survey Description

Project Name:	Waterbody Name:	Waterbody ID:	Date:
Atlantic Coast Pipeline	UNT to Warwick Run	shia410	5/7/2016

State:	County:	Company:	Crew Member Initials:	Photos:
Virginia	Highland	NRG-ERM	GB, SA	5

Tract Number(s):	Nearest Milepost:	Associated Wetland ID(s):
06-001-B001-GWNF	85.1	No associated wetlands

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: 12 ft.

Height: 1 ft. N/A☐

OHWM Indicator: *(check all that apply)*
☒ Clear line on bank ☐Shelving ☐Wrested vegetation ☒Scouring ☐Water staining
☐Bent, matted, or missing vegetation ☐Wrack line ☒Litter and debris ☐Abrupt plant community change ☐Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:	Width of Waterbody - Toe of Slope to Toe of Slope:	Width of Waterbody - Water Edge to Water Edge:	Depth of Water: *(Approx.)*
18 ft.	8 ft.	9 ft. N/A☐	0.5 ft. N/A☐

Sinuosity: *(check one)*	Water velocity: *(Approx.)*	Bank height	Bank slope
☐Straight ☒Meandering	2 fps N/A☐	Right: 4 ft. Left: 5 ft.	Right: 80 degrees Left: 70 degrees

Analysis of Bank Stability (i.e. root structure, vegetation, substrate characteristics):

Evidence of bank instability in the form of loose rocks and soil; to be expected on high gradient streams

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: ____% ____% 60 % 25 % 10 % ____% 5 % _%

Width of Riparian Zone: 100 ft. N/A☐

Vegetative Layers: *(check all that apply)* ☒ Trees: ☒ Saplings/Shrubs: ☒ Herbs

Avg. DBH of Dominants: *(approx.)* 14 in. 1.5 in. _

Dominant Bank Vegetation *(list)*:

Hemlock, white pine, sugar maple, yellow poplar, shagbark hickory, striped maple, witch hazel, cornflower, Christmas fern, Bellport, gree ash, violet, wood nettle

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):

Small pools, coarse woody debris, scattered leaf packs

Aquatic Organisms Observed *(list)*:

Invertebrates, crayfish

T&E Species Observed *(list)*:

none

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

none

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

Waterbody ID:
shia410

[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.

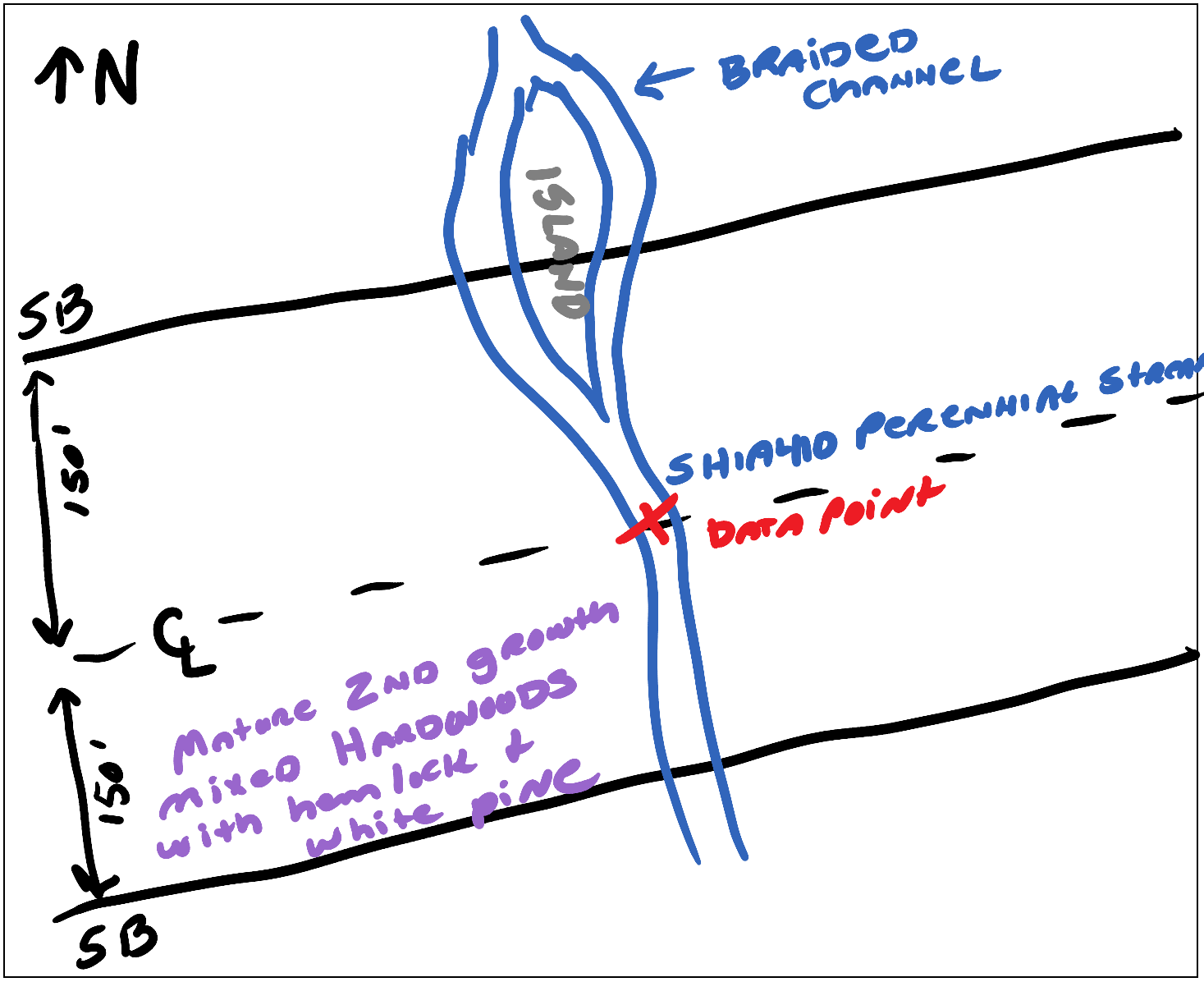
Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious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

UNT to Warwick Run; stream continues out of the corridor in both directions. The channel is braided upstream of centerline; high gradient stream with flashy high flows. Bank instability in the form of loose rocks and soil, exposed roots present and to be expected.

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

Stream Quality [a] **:** *(check one)*	☒ High	☐ Moderate	☐ Low


↑N
BRAIDED CHANNEL
ISLAND
SB
150'
SHIALD PERENNIAL STREAM
DATA POINT
℄
Mature 2ND growth mixed HARDWOODS with hemlock & white pine
150'
SB

Waterbody SHIA410 facing north upstream

Waterbody SHIA410 facing south downstream

Waterbody SHIA410 facing east across

Linear Waterbody Data Sheet

Survey Description

Project Name:	Waterbody Name:	Waterbody ID:	Date:
Atlantic Coast Pipeline	UNT to Warwick Run	shia411	6/10/2016

State:	County:	Company:	Crew Member Initials:	Photos:
Virginia	Highland	NRG/ERM	GB, KO	5 photos

Tract Number(s):	Nearest Milepost:	Associated Wetland ID(s):
access road 06-001-B001.AR1	85.1	whia409

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: 14.0 ft.

Height: 1.25 ft. N/A☐

OHWM Indicator: *(check all that apply)*
☒ Clear line on bank ☐Shelving ☐Wrested vegetation ☒Scouring ☐Water staining
☐Bent, matted, or missing vegetation ☒Wrack line ☒Litter and debris ☐Abrupt plant community change ☐Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:	Width of Waterbody - Toe of Slope to Toe of Slope:	Width of Waterbody - Water Edge to Water Edge:	Depth of Water: *(Approx.)*
20.0 ft.	12.0 ft.	12.0 ft. N/A☐	0.40 ft. N/A☐

Sinuosity: *(check one)*	Water velocity: *(Approx.)*	Bank height	Bank slope
☒Straight ☒Meandering	1.0 fps N/A☐	Right: 4.5 ft. Left: 3.5 ft.	Right: 85 degrees Left: 80 degrees

Analysis of Bank Stability (i.e. root structure, vegetation, substrate characteristics):

Banks show signs of instability in the form of loose rock/soil and exposed roots; consider normal for stream with moderately steep gradient

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:	____%	____%	50 %	35 %	5 %	5 %	5 %	____%

Width of Riparian Zone: 80 ft. N/A☐

Vegetative Layers: *(check all that apply)* ☒ Trees: ☒ Saplings/Shrubs: ☒ Herbs

Avg. DBH of Dominants: *(approx.)* 12.0 in. 1.5 in.

Dominant Bank Vegetation *(list)*:

Sugar maple, white oak, black locust, basswood, ironwood, hydrangea, hickory, autumn olive, blackberry, poison ivy, Virginia creeper, grape, Dutchman's pipe, wood nettle, foamflower, wood aster, violet, buttercup

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):

Leaf packs, scattered pools, coarse woody debris, wrack piles

Aquatic Organisms Observed *(list)*:

Caddisfly, mayfly, minnow, scud

T&E Species Observed *(list)*:

none

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

Ford crossing for decommissioned dirt road; no culvert or bridge; vehicle traffic is historic – 20 years or more.

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

Waterbody ID:
shia411

[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.

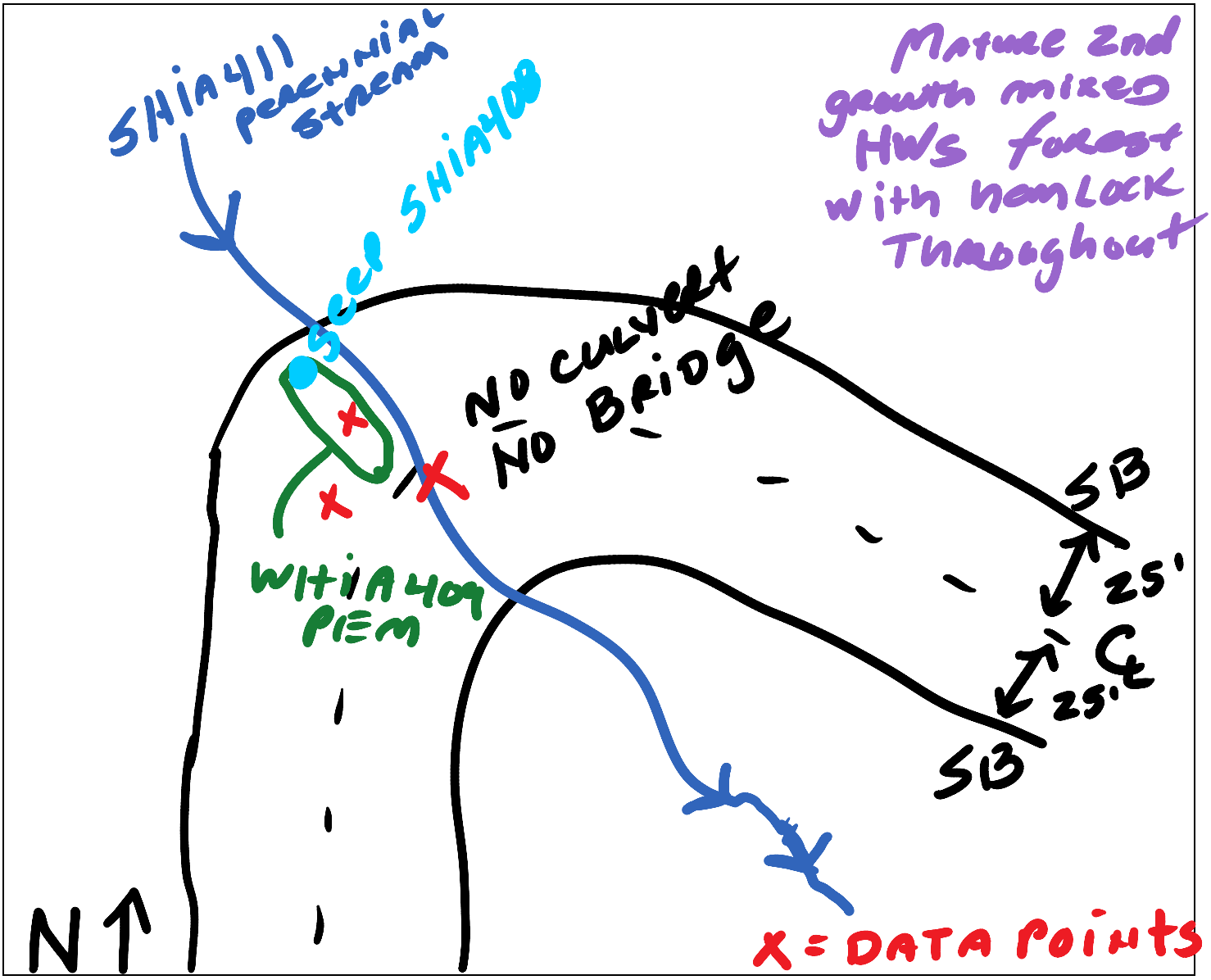
Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious 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 continues out of access road corridor in both directions; moderately steep gradient stream; no culvert or bridge present; road is decommissioned with no vehicular traffic in over 20 years; saturated PEM seep wetland located in adjacent historic overflow channel; mature second growth mixed hardwood forest.

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

Stream Quality [a] **:** *(check one)* ☒ High ☐ Moderate ☐ Low


SHIA411 PERENNIAL STREAM
SEE SHIA408
Mature 2nd growth mixed HWs forest with hemlock throughout
NO CULVERT
NO BRIDGE
WITHIA409 PEM
SB
25'
℄
25'
SB
N
X = DATA POINTS

Waterbody SHIA411 facing north upstream

Waterbody SHIA411 facing south downstream

Waterbody SHIA411 scouring facing west across

Linear Waterbody Data Sheet

Survey Description

Project Name:	Waterbody Name:	Waterbody ID:	Date:
Atlantic Coast Pipeline	UNT to Lick Draft	shia409	5/7/2016

State:	County:	Company:	Crew Member Initials:	Photos:
Virginia	Highland	NRG- ERM	GB, SA, AS	5 Photos

Tract Number(s):	Nearest Milepost:	Associated Wetland ID(s):
06-001-B001 - GWNF	85.4	whia407; whia408

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: 15. ft.

Height: 1.25 ft. N/A☐

OHWM Indicator: *(check all that apply)*
☒ Clear line on bank ☐Shelving ☐Wrested vegetation ☒Scouring ☐Water staining
☐Bent, matted, or missing vegetation ☒Wrack line ☐Litter and debris ☐Abrupt plant community change ☐Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:	Width of Waterbody - Toe of Slope to Toe of Slope:	Width of Waterbody - Water Edge to Water Edge:	Depth of Water: *(Approx.)*
25.0 ft.	11.0 ft.	13.0 ft. N/A☐	0.75 ft. N/A☐

Sinuosity: *(check one)*	Water velocity: *(Approx.)*	Bank height	Bank slope
☒Straight ☐Meandering	2.0 fps N/A☐	Right: 5.0 ft. Left: 4.5 ft.	Right: 60 degrees Left: 70 degrees

Analysis of Bank Stability (i.e. root structure, vegetation, substrate characteristics):

Banks exhibit instability in places in the form of loose rock/soil and exposed roots; would consider normal for stream of this gradient with flashy high flows

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: ____% 5 % 50 % 30 % 10 % ____% 5 % ____%

Width of Riparian Zone: 150 ft. N/A☐

Vegetative Layers: *(check all that apply)* ☒ Trees: ☒ Saplings/Shrubs: ☒ Herbs

Avg. DBH of Dominants: *(approx.)* 13.0 in. 1.0 in. _

Dominant Bank Vegetation *(list)*:

Northern red oak, red maple, sugar maple, hemlock, white oak, yellow poplar, sweet birch, hydrangea, witch hazel, ironwood, wood nettle, starwort, violet, Christmas fern, wood fern

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):

Isolated step pools, occasional leaf packs, woody debris, overhanging roots, riffles

Aquatic Organisms Observed *(list)*:

Invertebrates, salamander, crayfish

T&E Species Observed *(list)*:

none

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

None apparent

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

Waterbody ID:
shia409

[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.

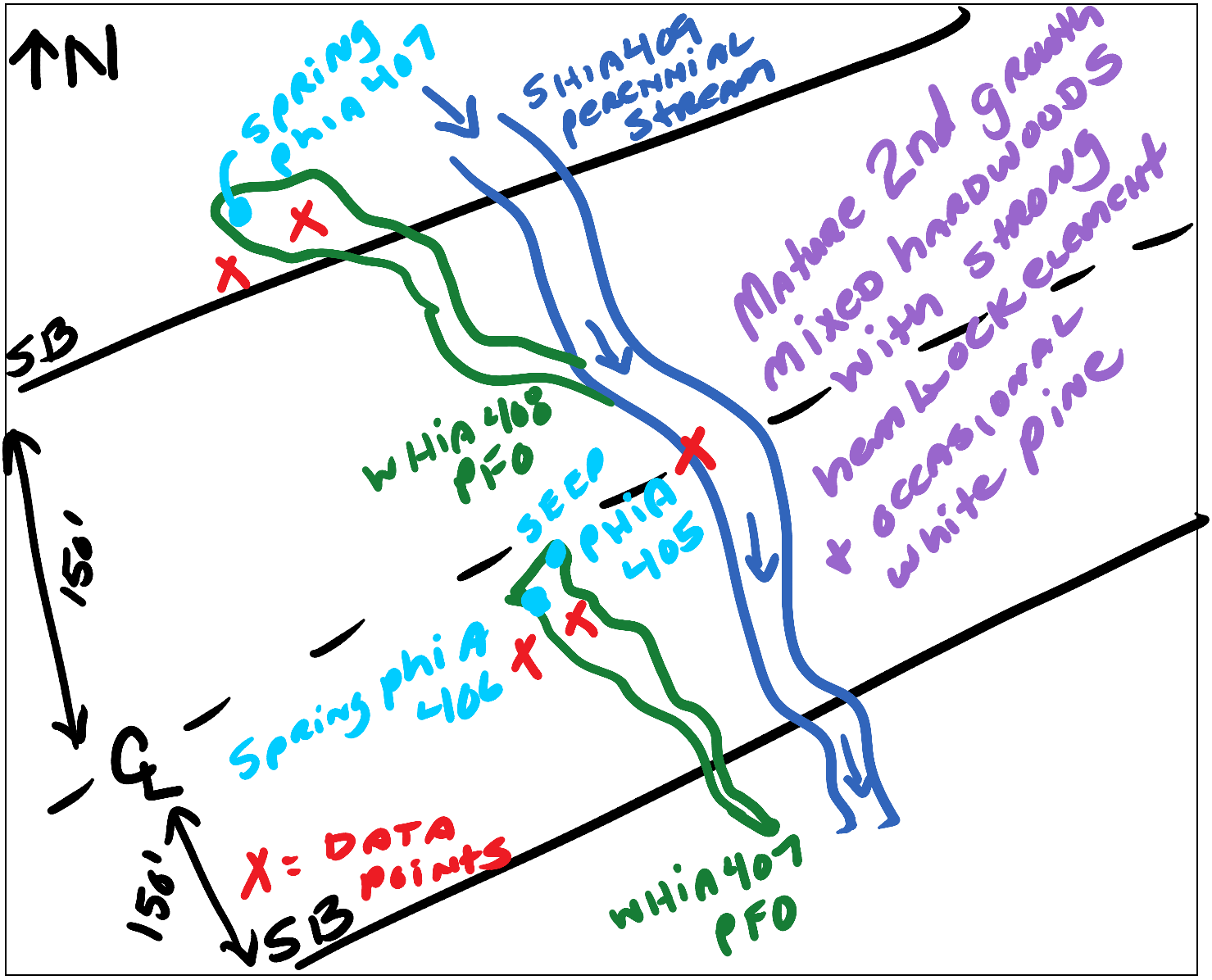
Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious 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 continues out of corridor in both directions; moderately steep gradient mountain stream with flashy high flows – as a result bank instability is present in places in the form of loose rock/soil and exposed roots. Saturated PFO seep wetlands whia407 & whia408 are located in swales along toe of slope above stream; whia407 receives hydrology from seep phia405 & spring phia406 – outflow from this feature has subterranean connection to stream outside corridor; whia408 receives hydrology from spring phia407 – outflow from this feature has direct surface connection to stream within the corridor.

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

Stream Quality [a] **:** *(check one)*	☒ High	☐ Moderate	☐ Low


N
SPRING PHIA 407
SHIA409 PERENNIAL STREAM
Mature 2nd growth mixed hardwoods with strong hemlock element + occasional white pine
SB
WHIA 408 PFO
SEEP PHIA 405
Spring phi A 406
150'
150'
X = DATA POINTS
SB
WHIA407 PFO

Waterbody SHIA409 facing north upstream

Waterbody SHIA409 facing south downstream

Waterbody SHIA409 facing east across

Linear Waterbody Data Sheet

Survey Description

Project Name:	Waterbody Name:	Waterbody ID:	Date:
Atlantic Coast Pipeline	Lick Draft	shia408	5/4/2016

State:	County:	Company:	Crew Member Initials:	Photos:
Virginia	Highland	NRG - ERM	GB, SA	5 photos

Tract Number(s):	Nearest Milepost:	Associated Wetland ID(s):
06-001-B001 - GWNF	85.5	whia406

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: 15.0 ft.

Height: 1.5 ft. N/A☐

OHWM Indicator: *(check all that apply)*
☒ Clear line on bank ☒Shelving ☐Wrested vegetation ☒Scouring ☐Water staining
☐Bent, matted, or missing vegetation ☒Wrack line ☒Litter and debris ☐Abrupt plant community change ☐Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:	Width of Waterbody - Toe of Slope to Toe of Slope:	Width of Waterbody - Water Edge to Water Edge:	Depth of Water: *(Approx.)*
20.0 ft.	10.0 ft.	13.0 ft. N/A☐	0.75 ft. N/A☐

Sinuosity: *(check one)*	Water velocity: *(Approx.)*	Bank height	Bank slope
☐Straight ☒Meandering	1.5 fps N/A☐	Right: 5.0 ft. Left: 5.0 ft.	Right: 75 degrees Left: 85 degrees

Analysis of Bank Stability (i.e. root structure, vegetation, substrate characteristics):

Banks exhibit instability in places; loose soil and rocks, exposed roots; normal for higher gradient streams

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: ____% 10 % 60 % 15 % 10 % ____% 5 % ____%

Width of Riparian Zone: 100 ft. N/A☐

Vegetative Layers: *(check all that apply)* ☒ Trees: ☒ Saplings/Shrubs: ☒ Herbs

Avg. DBH of Dominants: *(approx.)* 14.0 in. 1.5 in. _

Dominant Bank Vegetation *(list)*:

Hemlock, yellow poplar, white pine, shagbark hickory, sugar maple, red maple, striped maple, sweet birch, witch hazel, mountain laurel, wood aster, violet, hay scented fern, miter box, trillium, wood fern

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):

Coarse woody debris, scattered small pools, overhanging roots, riffles

Aquatic Organisms Observed *(list)*:

Minnows, invertebrates, water striders, frog

T&E Species Observed *(list)*:

none

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

Old road bed on west side of stream

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

Waterbody ID:
shia408

[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.

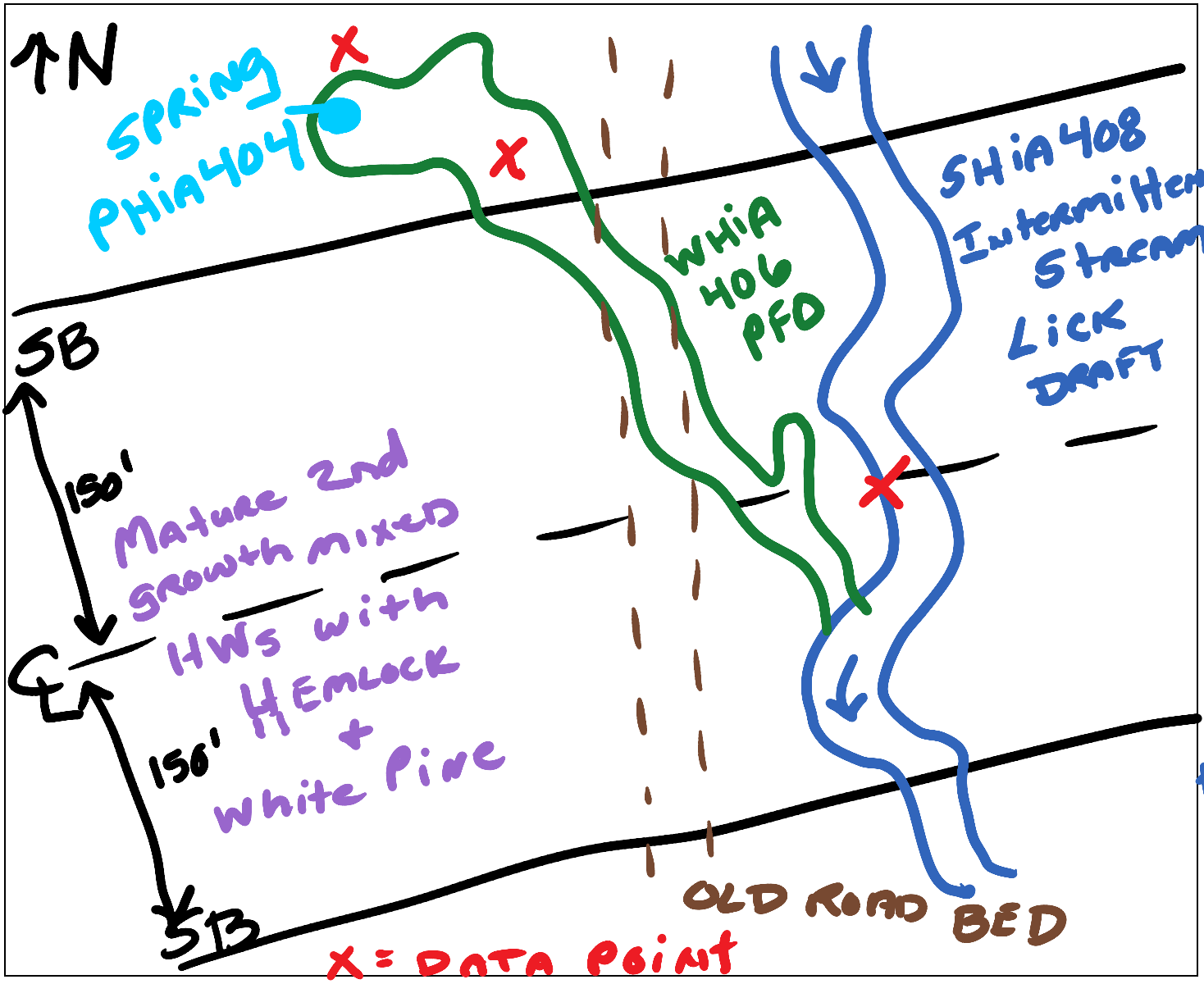
Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious 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 continues out of corridor in both directions; moderately steep gradient stream showing signs of bank instability in places as evidenced by loose rock/soil and exposed roots – consider normal for a stream of this gradient; paralleled by an old road bed on west side; spring fed PFO wetland whia406 has direct hydrologic connection; flows through mature second growth mixed hardwoods with white pine and hemlock. There is a proposed access road on east side; no road exists on that side of stream.

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

Stream Quality [a] **:** *(check one)* ☒ High ☐ Moderate ☐ Low


↑N
SPRING PHIA404
X
X
WHIA 406 PFD
SHIA408 Intermitten Stream
LICK DRAFT
SB
150'
Mature 2nd Growth mixed HWs with HEMLOCK + White Pine
150'
SB
OLD ROAD BED
X = DATA POINT

Waterbody SHIA408 facing north upstream

Waterbody SHIA408 facing south downstream

Waterbody SHIA408 facing east across

Linear Waterbody Data Sheet

Survey Description

Project Name:	Waterbody Name:	Waterbody ID:	Date:
Atlantic Coast Pipeline	UNT to Muddy Run	sbaa008	7/1/2016

State:	County:	Company:	Crew Member Initials:	Photos:
Virginia	Bath	NRG/ERM	GB, KO	3 photos

Tract Number(s):	Nearest Milepost:	Associated Wetland ID(s):
36-016 – GWNF; access road 36-014.AR2	93.6	none

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: 2.0 ft.

Height: 0.50 ft. N/A☐

OHWM Indicator: *(check all that apply)*
☒ Clear line on bank ☐Shelving ☐Wrested vegetation ☒Scouring ☐Water staining
☐Bent, matted, or missing vegetation ☐Wrack line ☒Litter and debris ☐Abrupt plant community change ☐Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:	Width of Waterbody - Toe of Slope to Toe of Slope:	Width of Waterbody - Water Edge to Water Edge:	Depth of Water: *(Approx.)*
10.0 ft.	1.0 ft.	1.5 ft. N/A☐	0.25 ft. N/A☐

Sinuosity: *(check one)*	Water velocity: *(Approx.)*	Bank height	Bank slope
☒Straight ☐Meandering	1.0 fps N/A☐	Right: 6.0 ft. Left: 2.5 ft.	Right: 55 degrees Left: 60 degrees

Analysis of Bank Stability (i.e. root structure, vegetation, substrate characteristics):

Banks are road cut and road base

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:	____%	____%	10 %	30 %	25 %	25 %	10 %	____%

Width of Riparian Zone: ____ ft. N/A☒

Vegetative Layers: *(check all that apply)* ☒ Trees: ☒ Saplings/Shrubs: ☒ Herbs

Avg. DBH of Dominants: *(approx.)* 14.0 in. 1.5 in. _

Dominant Bank Vegetation *(list)*:

Chestnut oak, sweet birch, yellow poplar, black locust, red maple, mountain laurel, minniebush, colts foot, Japanese stilt grass, crown vetch, milkweed, Christmas fern

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):

Leaf packs

Aquatic Organisms Observed *(list)*:

caddisfly

T&E Species Observed *(list)*:

none

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

Culvert crossing for existing road, confined to ditch upstream of culvert

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

Waterbody ID:
sbaa008

[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.

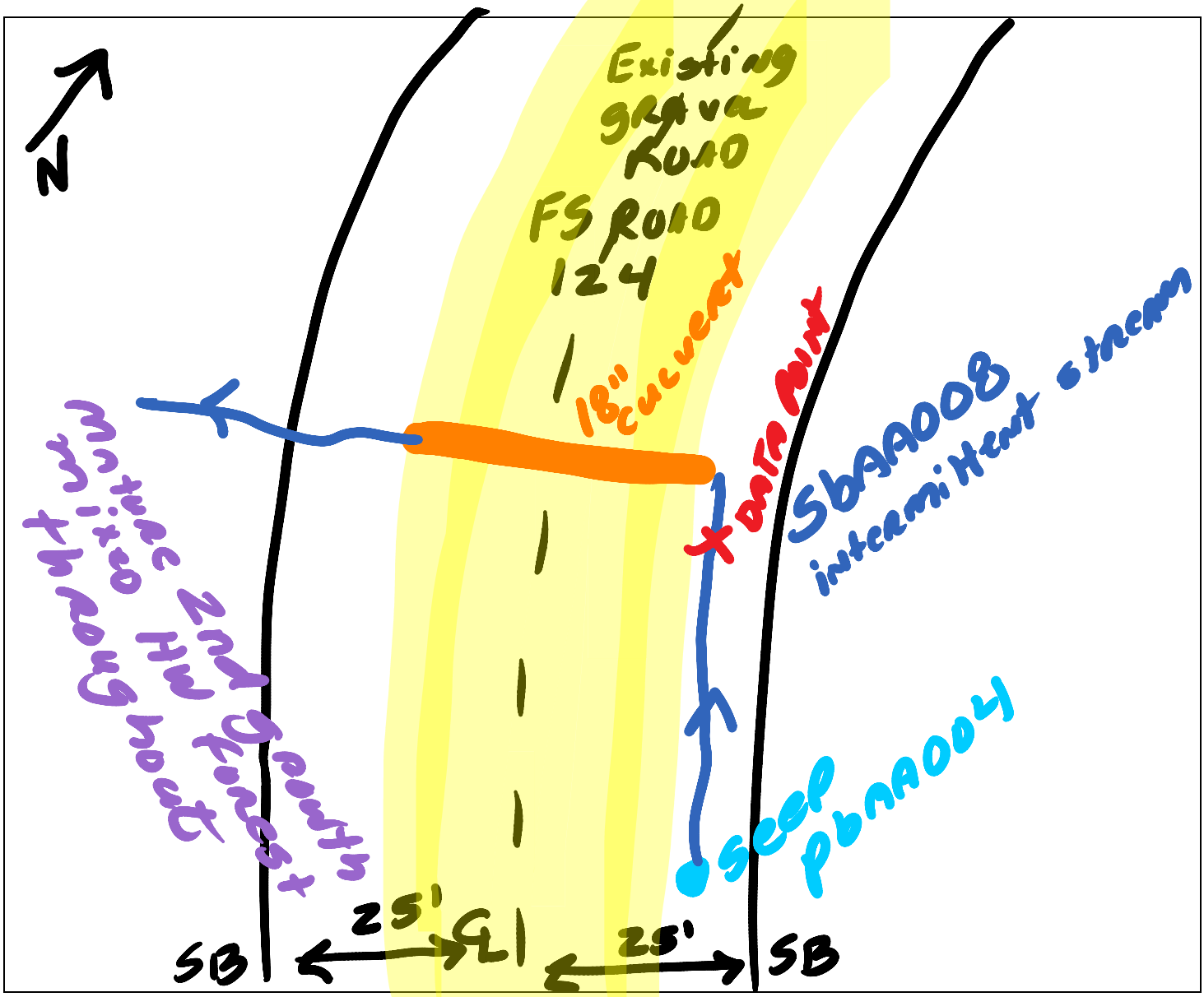
Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious 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 within ditch at road cut seep pbaa004; passes under existing gravel road via 18" corrugated metal culvert; downstream continues out of access road survey corridor where flow becomes subterranean. Mature second growth mixed hardwood forest.

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

Stream Quality [a]:
(check one) ☐ High ☒ Moderate ☐ Low


N
Existing gravel road
FS Road 124
18" culvert
data point
Sbaaoob intermittent stream
Mature to old growth 2nd growth forest
seep pbnaoby
25'
CL
25'
SB
SB

Waterbody SBAA008 facing south upstream

Waterbody SBAA008 facing north downstream

Waterbody SBAA008 facing east across

Linear Waterbody Data Sheet

Survey Description

Project Name:	Waterbody Name:	Waterbody ID:	Date:
Atlantic Coast Pipeline	UNT to Muddy Run	sbaa009	7/1/2016

State:	County:	Company:	Crew Member Initials:	Photos:
Virginia	Bath	NRG/ERM	GB, KO	3 photos

Tract Number(s):	Nearest Milepost:	Associated Wetland ID(s):
36-016 – GWNF; access road 36-014.AR2	93.6	none

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: 2.0 ft.

Height: 0.50 ft. N/A☐

OHWM Indicator: *(check all that apply)*
☒ Clear line on bank ☐Shelving ☐Wrested vegetation ☒Scouring ☐Water staining
☐Bent, matted, or missing vegetation ☐Wrack line ☒Litter and debris ☐Abrupt plant community change ☐Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:	Width of Waterbody - Toe of Slope to Toe of Slope:	Width of Waterbody - Water Edge to Water Edge:	Depth of Water: *(Approx.)*
6.0 ft.	1.0 ft.	1.5 ft. N/A☐	0.25 ft. N/A☐

Sinuosity: *(check one)*	Water velocity: *(Approx.)*	Bank height	Bank slope
☒Straight ☐Meandering	0.75 fps N/A☐	Right: 3.5 ft. Left: 2.0 ft.	Right: 60 degrees Left: 60 degrees

Analysis of Bank Stability (i.e. root structure, vegetation, substrate characteristics):

Banks are road cut and road base

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:	____%	____%	10 %	35 %	30 %	15 %	10 %	____%

Width of Riparian Zone: ____ ft. N/A☒

Vegetative Layers: *(check all that apply)* ☒ Trees: ☒ Saplings/Shrubs: ☒ Herbs

Avg. DBH of Dominants: *(approx.)* 13.0 in. 1.0 in. _

Dominant Bank Vegetation *(list)*:

Northern red oak, white oak, sugar maple, black gum, striped male, scarlet oak, black locust, blackberry, Christmas fern, golden ragwort, bush clover, white snakeroot, jewel weed, colts foot

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):

Leaf packs

Aquatic Organisms Observed *(list)*:

caddisfly

T&E Species Observed *(list)*:

none

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

Culvert crossing for existing road, confined to ditch upstream of culvert

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

Waterbody ID:
sbaa009

[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.

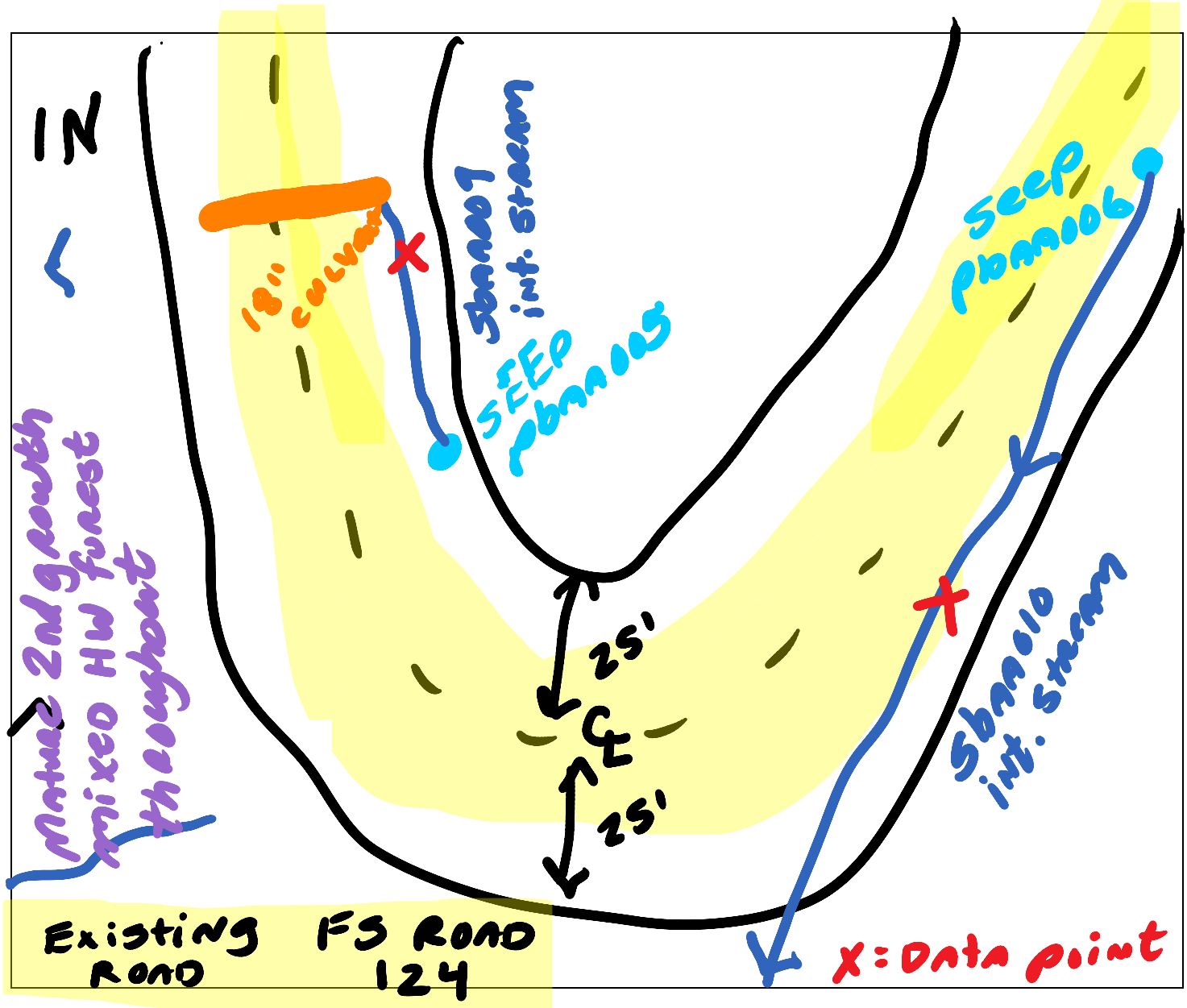
Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious 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 within ditch at road cut seep pbaa005; passes under existing gravel road via 18" corrugated metal culvert; downstream continues out of access road survey corridor where flow becomes subterranean. Mature second growth mixed hardwood forest.

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

Stream Quality [a]:
(check one) ☐ High ☒ Moderate ☐ Low


IN
18" culvert
Stream 7 int. stream
SEEP plan 105
Seep plan 106
25'
CL
25'
Mature 2nd growth mixed HW forest throughout
Stream 10 int. stream
Existing Road
FS Road 124
X: Data point

Waterbody SBAA009 facing southwest upstream

Waterbody SBAA009 facing northeast downstream

Waterbody SBAA009 facing southeast across

Linear Waterbody Data Sheet

Survey Description

Project Name:	Waterbody Name:	Waterbody ID:	Date:
Atlantic Coast Pipeline	UNT to Muddy Run	sbaa010	7/1/2016

State:	County:	Company:	Crew Member Initials:	Photos:
Virginia	Bath	NRG/ERM	GB, KO	3 photos

Tract Number(s):	Nearest Milepost:	Associated Wetland ID(s):
36-016 – GWNF; access road 36-014.AR2	93.6	none

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: 2.0 ft.

Height: 0.50 ft. N/A☐

OHWM Indicator: *(check all that apply)*
☒ Clear line on bank ☐Shelving ☐Wrested vegetation ☒Scouring ☐Water staining
☐Bent, matted, or missing vegetation ☐Wrack line ☒Litter and debris ☐Abrupt plant community change ☐Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:	Width of Waterbody - Toe of Slope to Toe of Slope:	Width of Waterbody - Water Edge to Water Edge:	Depth of Water: *(Approx.)*
10.0 ft.	1.5 ft.	1.5 ft. N/A☐	0.25 ft. N/A☐

Sinuosity: *(check one)*	Water velocity: *(Approx.)*	Bank height	Bank slope
☒Straight ☐Meandering	0.75 fps N/A☐	Right: 1.5 ft. Left: 8.0 ft.	Right: 60 degrees Left: 50 degrees

Analysis of Bank Stability (i.e. root structure, vegetation, substrate characteristics):

Banks are road cut and road base

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:	____%	____%	20 %	40 %	20 %	10 %	10 %	____%

Width of Riparian Zone: ____ ft. N/A☒

Vegetative Layers: *(check all that apply)* ☒ Trees: ☒ Saplings/Shrubs: ☒ Herbs

Avg. DBH of Dominants: *(approx.)* 13.0 in. 1.0 in. _

Dominant Bank Vegetation *(list)*:

Northern red oak, white oak, sugar maple, black gum, striped male, scarlet oak, black locust, blackberry, Christmas fern, golden ragwort, bush clover, white snakeroot, jewel weed, colts foot

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):

Leaf packs

Aquatic Organisms Observed *(list)*:

caddisfly

T&E Species Observed *(list)*:

none

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

Confined to ditch along existing road

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

Waterbody ID:
sbaa010

[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.

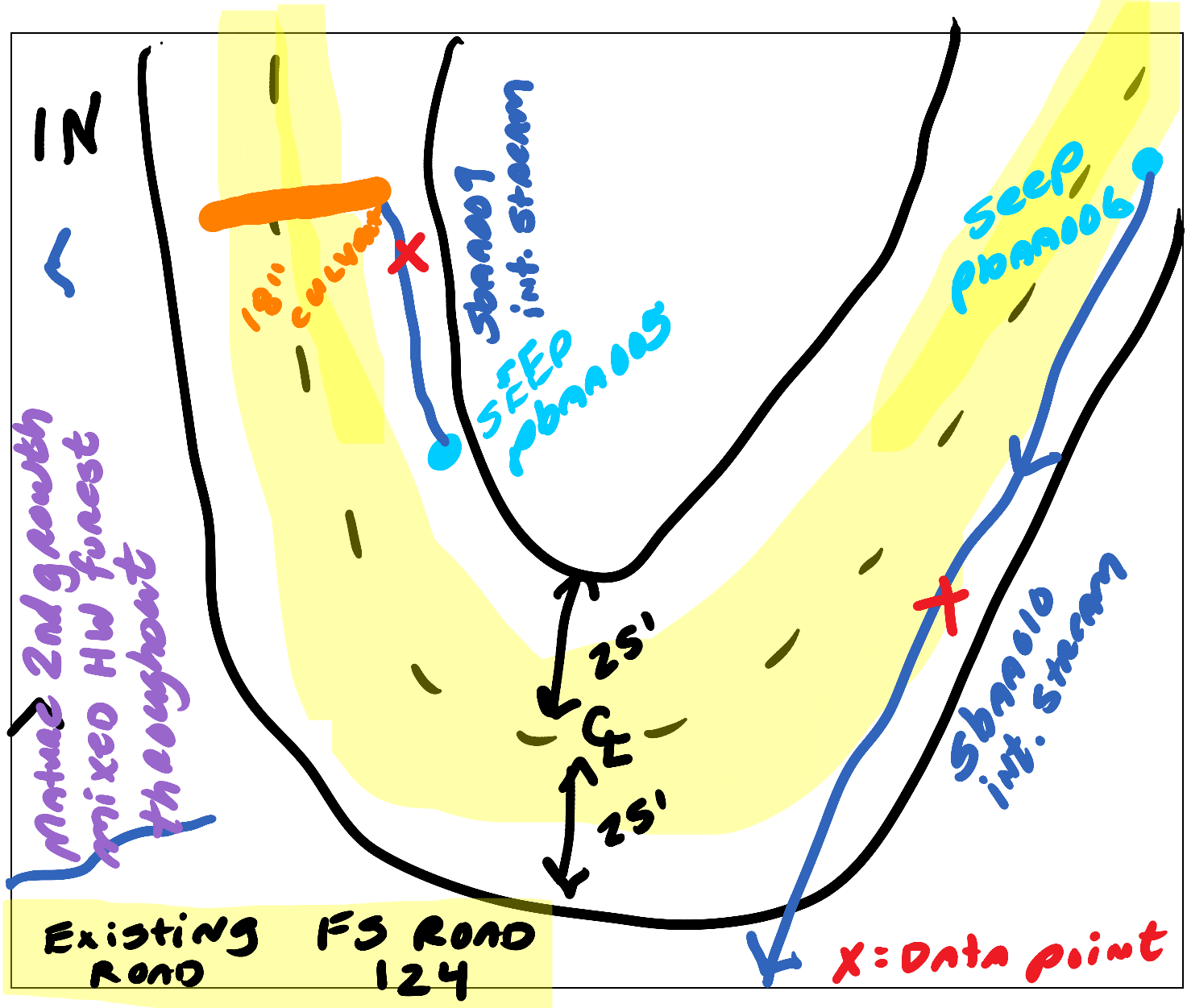
Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious 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 within ditch at nick point seep pbaa006; does not cross road; downstream continues out of access road survey corridor where flow becomes subterranean. Mature second growth mixed hardwood forest.

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

Stream Quality [a]:
(check one) ☐ High ☒ Moderate ☐ Low


IN
18" culvert
Stream 7 int. stream
SEEP plan 105
Seep plan 106
Mature 2nd growth mixed HW forest throughout
25'
CL
25'
Stream 10 int. stream
Existing Road
FS Road 124
X: Data point

Waterbody SBAA010 facing northeast upstream

Waterbody SBAA010 facing southwest downstream

Waterbody SBAA010 facing southeast across

Linear Waterbody Data Sheet

Survey Description

Project Name:	Waterbody Name:	Waterbody ID:	Date:
Atlantic Coast Pipeline	UNT to Muddy Run	sbaa011	7/1/2016

State:	County:	Company:	Crew Member Initials:	Photos:
Virginia	Bath	NRG/ERM	GB, KO	3 photos

Tract Number(s):	Nearest Milepost:	Associated Wetland ID(s):
36-016 – GWNF; access road 36-014.AR2	93.6	none

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: 2.0 ft.

Height: 0.50 ft. N/A☐

OHWM Indicator: *(check all that apply)* ☒ Clear line on bank ☐Shelving ☐Wrested vegetation ☒Scouring ☐Water staining ☐Bent, matted, or missing vegetation ☐Wrack line ☒Litter and debris ☐Abrupt plant community change ☐Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:	Width of Waterbody - Toe of Slope to Toe of Slope:	Width of Waterbody - Water Edge to Water Edge:	Depth of Water: *(Approx.)*
10.0 ft.	1.5 ft.	1.5 ft. N/A☐	0.25 ft. N/A☐

Sinuosity: *(check one)*	Water velocity: *(Approx.)*	Bank height	Bank slope
☒Straight ☐Meandering	0.50 fps N/A☐	Right: 10.0 ft. Left: 3.0 ft.	Right: 75 degrees Left: 45 degrees

Analysis of Bank Stability (i.e. root structure, vegetation, substrate characteristics):

Banks are road cut and road base

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:	____%	____%	5 %	25 %	35 %	20 %	15 %	____%

Width of Riparian Zone: ____ ft. N/A☒

Vegetative Layers: *(check all that apply)* ☒ Trees: ☒ Saplings/Shrubs: ☒ Herbs

Avg. DBH of Dominants: *(approx.)* 10.0 in. 1.5 in. _

Dominant Bank Vegetation *(list)*:

Northern red oak, hickory, sweet birch, sugar maple, black cherry, scarlet oak, black locust, garlic mustard, Japanese stilt grass, jewel weed, white snake root, New York fern, violet, blackberry

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):

Leaf packs, emergent vegetation

Aquatic Organisms Observed *(list)*:

caddisfly

T&E Species Observed *(list)*:

none

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

Culvert crossing for existing road, confined to ditch upstream of culvert

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

Waterbody ID:
sbaa011

[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.

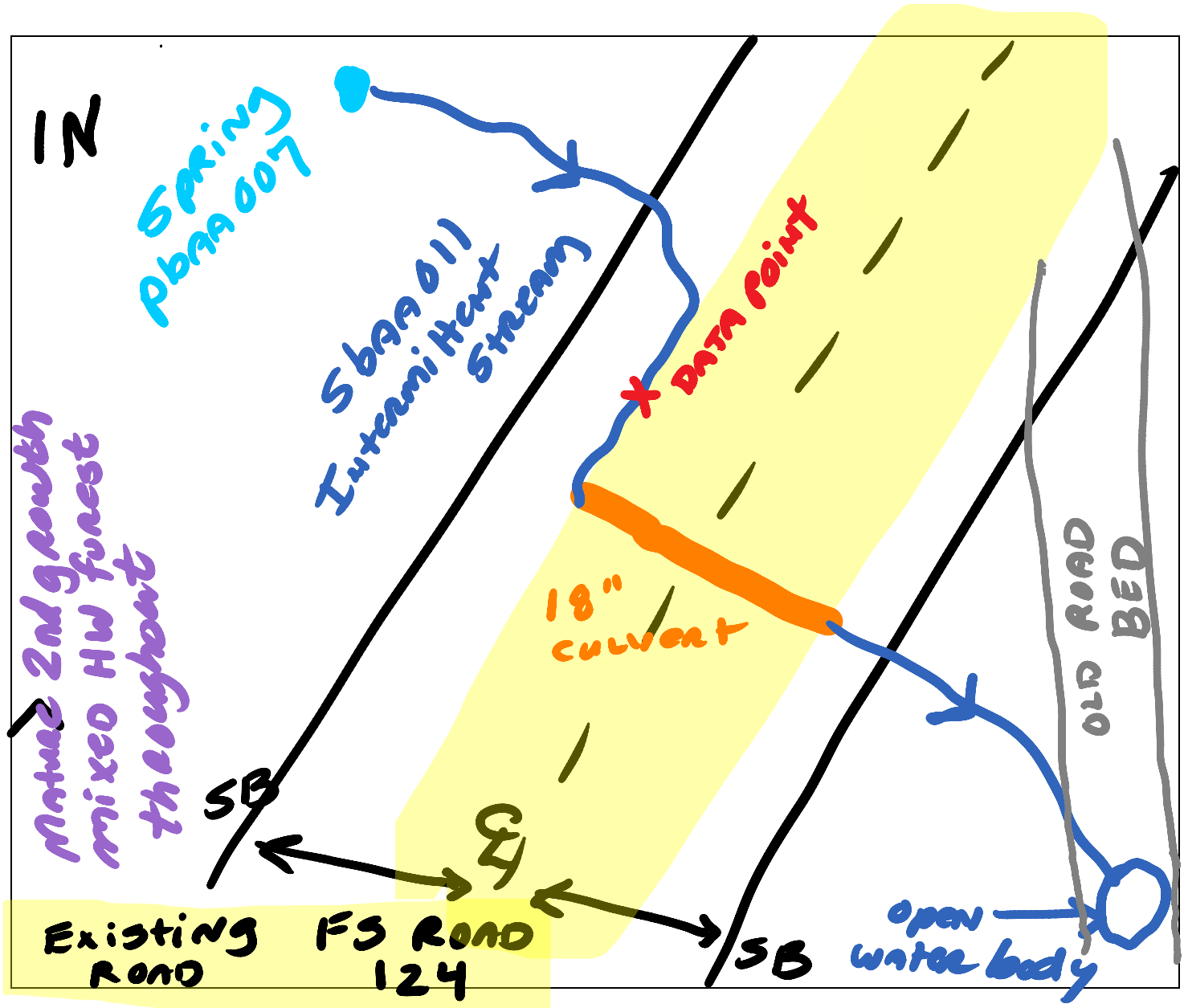
Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious 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 well outside proposed access road survey corridor on a rocky slope at spring pbaa007; follows ditch along existing road for 120 feet before passing under existing gravel road via 18" corrugated metal culvert; downstream continues out of access road survey corridor where most flow becomes subterranean; remaining flow enters a small, excavated and bermed open water body approximately 12 feet in diameter on a decommissioned road bed outside survey corridor. Mature second growth mixed hardwood forest.

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

Stream Quality [a]:
(check one) ☐ High ☒ Moderate ☐ Low


IN
Spring
Sbag 011
Intermittent
Stream
DATA Point
18"
culvert
OLD ROAD
BED
SB
SB
Existing
ROAD
FS ROAD
124
open
water body

Waterbody SBAA011 facing northeast upstream

Waterbody SBAA011 facing southeast downstream

Waterbody SBAA011 facing southeast across

Linear Waterbody Data Sheet

Survey Description

Project Name:	Waterbody Name:	Waterbody ID:	Date:
Atlantic Coast Pipeline	Laurel Run	sbaa004	6/21/2016

State:	County:	Company:	Crew Member Initials:	Photos:
Virginia	Bath	NRG/ERM	GB, KO	3 photos

Tract Number(s):	Nearest Milepost:	Associated Wetland ID(s):
36-016 - GWNF	94.1	none

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: 7.0 ft.

Height: 1.0 ft. N/A☐

OHWM Indicator: *(check all that apply)*
☒ Clear line on bank ☐Shelving ☐Wrested vegetation ☒Scouring ☐Water staining
☐Bent, matted, or missing vegetation ☒Wrack line ☒Litter and debris ☐Abrupt plant community change ☐Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:	Width of Waterbody - Toe of Slope to Toe of Slope:	Width of Waterbody - Water Edge to Water Edge:	Depth of Water: *(Approx.)*
12.0 ft.	4.0 ft.	6.0 ft. N/A☐	0.50 ft. N/A☐

Sinuosity: *(check one)*	Water velocity: *(Approx.)*	Bank height	Bank slope
☐Straight ☒Meandering	0.75 fps N/A☐	Right: 3.0 ft. Left: 2.5 ft.	Right: 70 degrees Left: 60 degrees

Analysis of Bank Stability (i.e. root structure, vegetation, substrate characteristics):

Banks appear stable for a stream of moderate gradient; small undercut areas on outside of bends considered normal.

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:	____%	____%	55 %	25 %	10 %	5 %	5 %	____%

Width of Riparian Zone: 60 ft. N/A☐

Vegetative Layers: *(check all that apply)* ☒ Trees: ☒ Saplings/Shrubs: ☒ Herbs

Avg. DBH of Dominants: *(approx.)* 12.0 in. 1.5 in. _

Dominant Bank Vegetation *(list)*:

White oak, black gum, scarlet oak, chestnut oak, sassafras, sweet birch, white pine, witch hazel, mountain laurel, rhododendron, wood fern, Indian cucumber root, violet, Christmas fern

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):

Leaf packs, scattered small pools, overhanging roots, woody debris, wrack piles

Aquatic Organisms Observed *(list)*:

Invertebrates – caddisfly, cranefly, mayfly; crayfish

T&E Species Observed *(list)*:

none

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

None recent; there is a very old road bed on the west side that has grown completely shut

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

Waterbody ID:
sbaa004

[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.

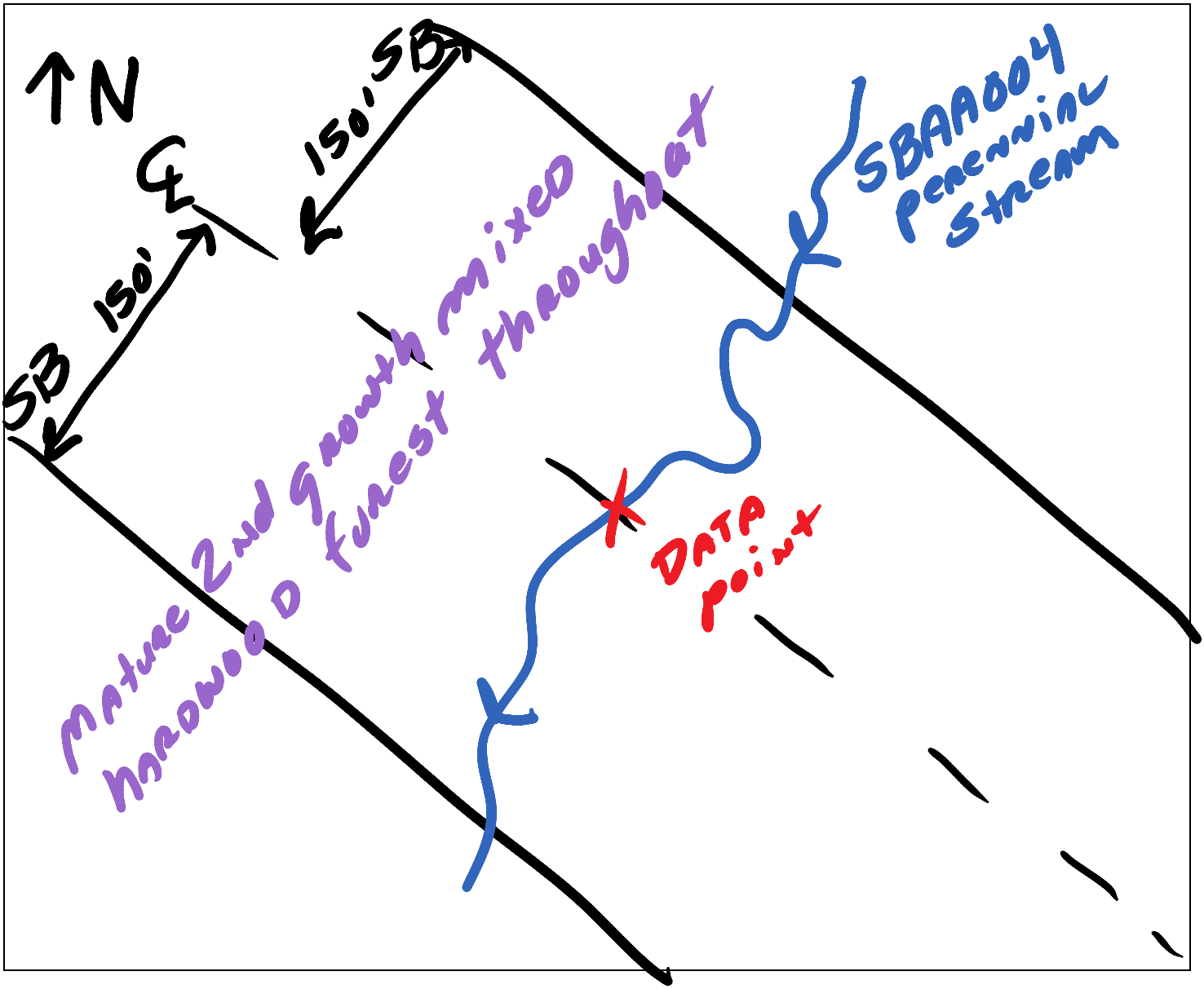
Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious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

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

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

Stream Quality [a] **:** *(check one)* ☒ High ☐ Moderate ☐ Low


N
150' SB
CL
150'
SB
Mature 2nd growth mixed hardwood forest throughout
SBAA004 Perennial Stream
DATA point

Waterbody sbaa004 facing southwest downstream

Waterbody sbaa004 facing northeast upstream

Waterbody sbaa004 facing northwest across

Open Waterbody Data Sheet

Survey Description

Project Name:	Waterbody Name:	Waterbody ID:	Date:
Atlantic Coast Pipeline	Unnamed Pond	obaa003	10/27/2016

State:	County:	Company:	Crew Member Initials:	Photos:
Virginia	Bath	NRG/ERM	GB, AS	3 photos

Tract Number(s):	Nearest Milepost:	Associated Wetland ID(s):
36-016 - GWNF	96.3	none

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

Physical Attributes

Waterbody Type: *(check one)* ☐Stock Pond ☐ Natural Pond ☐ Lake ☐ Reservoir ☒ Impoundment ☐ Oxbow ☐ Other:

Hydrologic Regime: ☐ Permanently Flooded ☒ Semipermanently Flooded ☐ Seasonally Flooded ☐ Temporarily Flooded

OHWM

Height: 3.0 ft.

OHWM Indicator: *(check all that apply)*

☒ Clear line on bank ☐Shelving ☐Wrested vegetation ☐Scouring ☐Water staining

☐Bent, matted, or missing vegetation ☐Wrack line ☐Litter and debris ☐Abrupt plant community change ☐Soil characteristic change

Depth of Water:	Bank height (average):	Bank slope (average):
2.0 ft. N/A☐	5.0 ft.	70 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:							
	%	%	%	%	20 %	60 %	20 %	%

Width of Riparian Zone: _____ ft. N/A☒

Vegetative Layers: *(check all that apply)* ☒ Trees: ☒ Saplings/Shrubs: ☒ Herbs

Avg. DBH of Dominants: *(approx.)* 14.0 in. 1.0 in.

Dominant Bank Vegetation *(list)*:

Scarlet oak, sugar maple, red maple, black gum, witch hazel, huckleberry, Minnie bush, blueberry, yellow poplar, zigzag goldenrod, rough leaf goldenrod, mountain laurel, spotted wintergreen

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools, etc.):

Pool, coarse woody debris

Aquatic Organisms Observed *(list)*:

none

T&E Species Observed *(list)*:

none

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

None observed

Waterbody is: *(check one)* ☐ Natural ☒ Artificial, man-made ☐ Manipulated

Waterbody Quality [a]**:** *(check one)* ☐ High ☒ Moderate ☐ Low

Waterbody ID:
obaa003

[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.

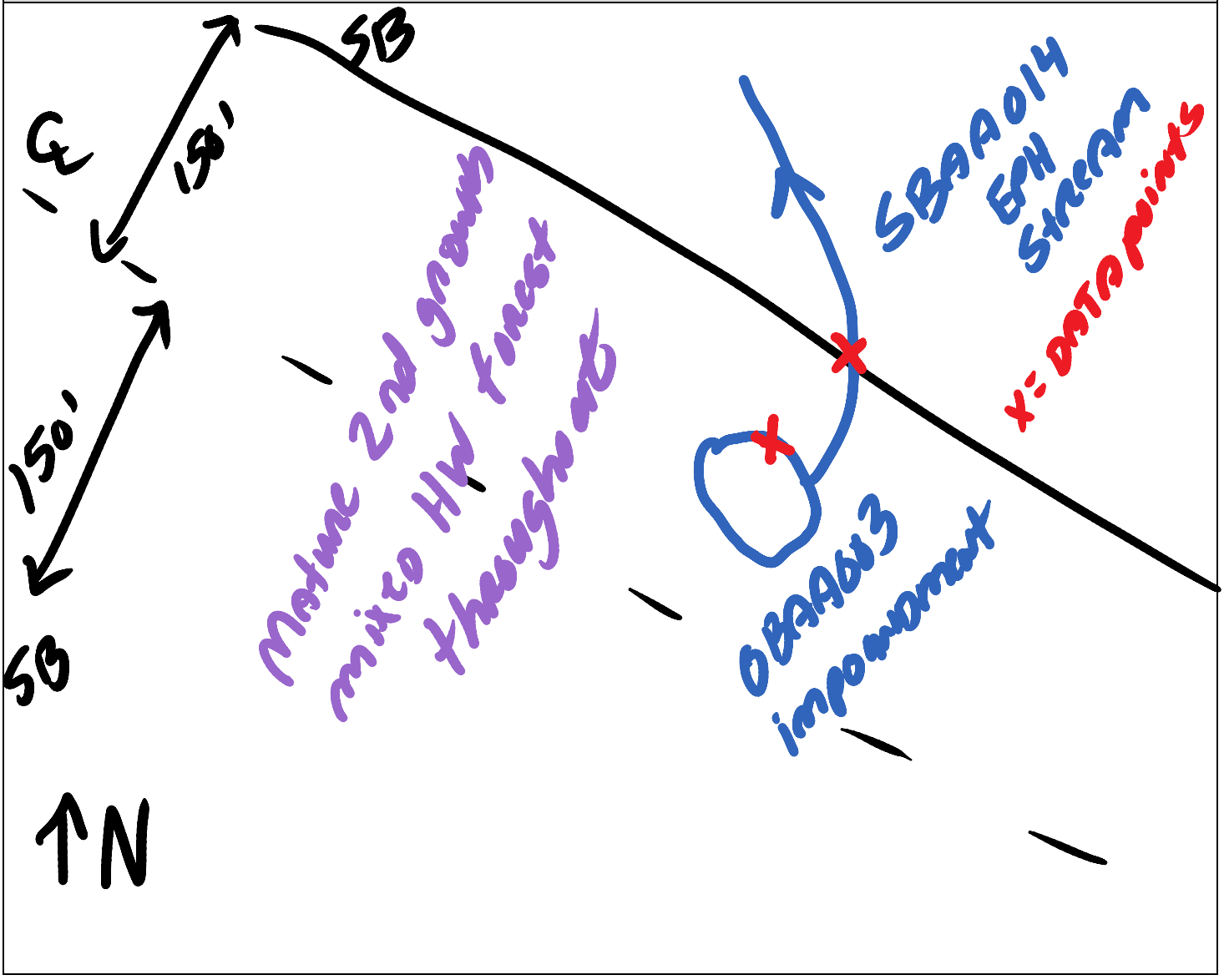
Moderate Quality: Altered by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or bank vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers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

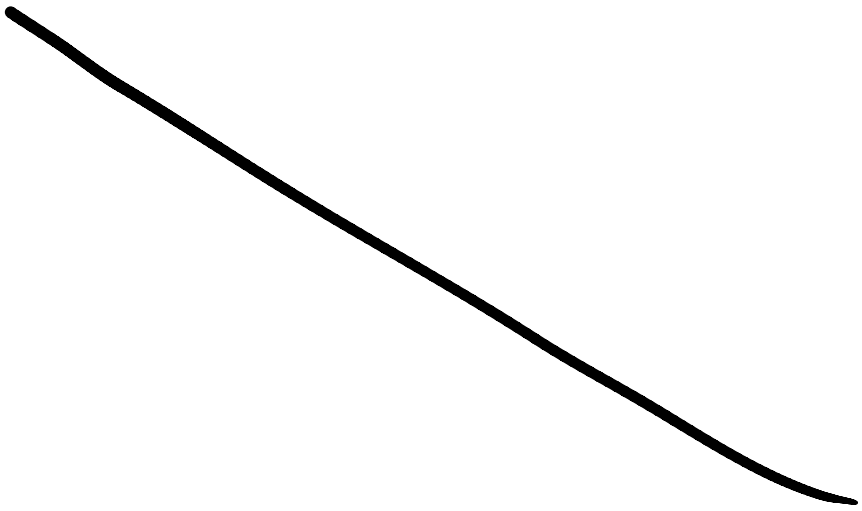
Low Quality: Rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface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

Notes:

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

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





obaa003 facing southeast

obaa003 facing southwest

obaa003 facing northwest

Linear Waterbody Data Sheet

Survey Description

Project Name:	Waterbody Name:	Waterbody ID:	Date:
Atlantic Coast Pipeline	Campbell Run	sbaa014	10/27/2016

State:	County:	Company:	Crew Member Initials:	Photos:
Virginia	Bath	NRG/ERM	GB, AS	3 photos

Tract Number(s):	Nearest Milepost:	Associated Wetland ID(s):
36-016. GWNF	96.3	none

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: 2.0 ft.

Height: 0.5 ft. N/A☐

OHWM Indicator: *(check all that apply)* ☐ Clear line on bank ☐Shelving ☐Wrested vegetation ☒Scouring ☐Water staining ☐Bent, matted, or missing vegetation ☐Wrack line ☒Litter and debris ☐Abrupt plant community change ☐Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:	Width of Waterbody - Toe of Slope to Toe of Slope:	Width of Waterbody - Water Edge to Water Edge:	Depth of Water: *(Approx.)*
5.0 ft.	1.0 ft.	_____ft. N/A☒	_____ft. N/A☒

Sinuosity: *(check one)*	Water velocity: *(Approx.)*	Bank height	Bank slope
☒Straight ☐Meandering	_____fps N/A☒	Right: 2.5 ft. Left: 3.0 ft.	Right: 40 degrees Left: 60 degrees

Analysis of Bank Stability (i.e. root structure, vegetation, substrate characteristics):

No evidence of bank instability observed

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:	____%	____%	30 %	10 %	15 %	25 %	20 %	____%

Width of Riparian Zone: _____ft. N/A☒

Vegetative Layers: *(check all that apply)* ☒ Trees: ☒ Saplings/Shrubs: ☒ Herbs

Avg. DBH of Dominants: *(approx.)* 14.0 in. 1.0 in. _____in.

Dominant Bank Vegetation *(list)*:

Scarlet oak, sugar maple, red maple, black gum, witch hazel, huckleberry, Minnie bush, blueberry, yellow poplar, zigzag goldenrod, rough leaf goldenrod, mountain laurel, spotted wintergreen

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):

Leaf packs

Aquatic Organisms Observed *(list)*:

none

T&E Species Observed *(list)*:

none

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

none

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

Waterbody ID:
sbaa014

[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.

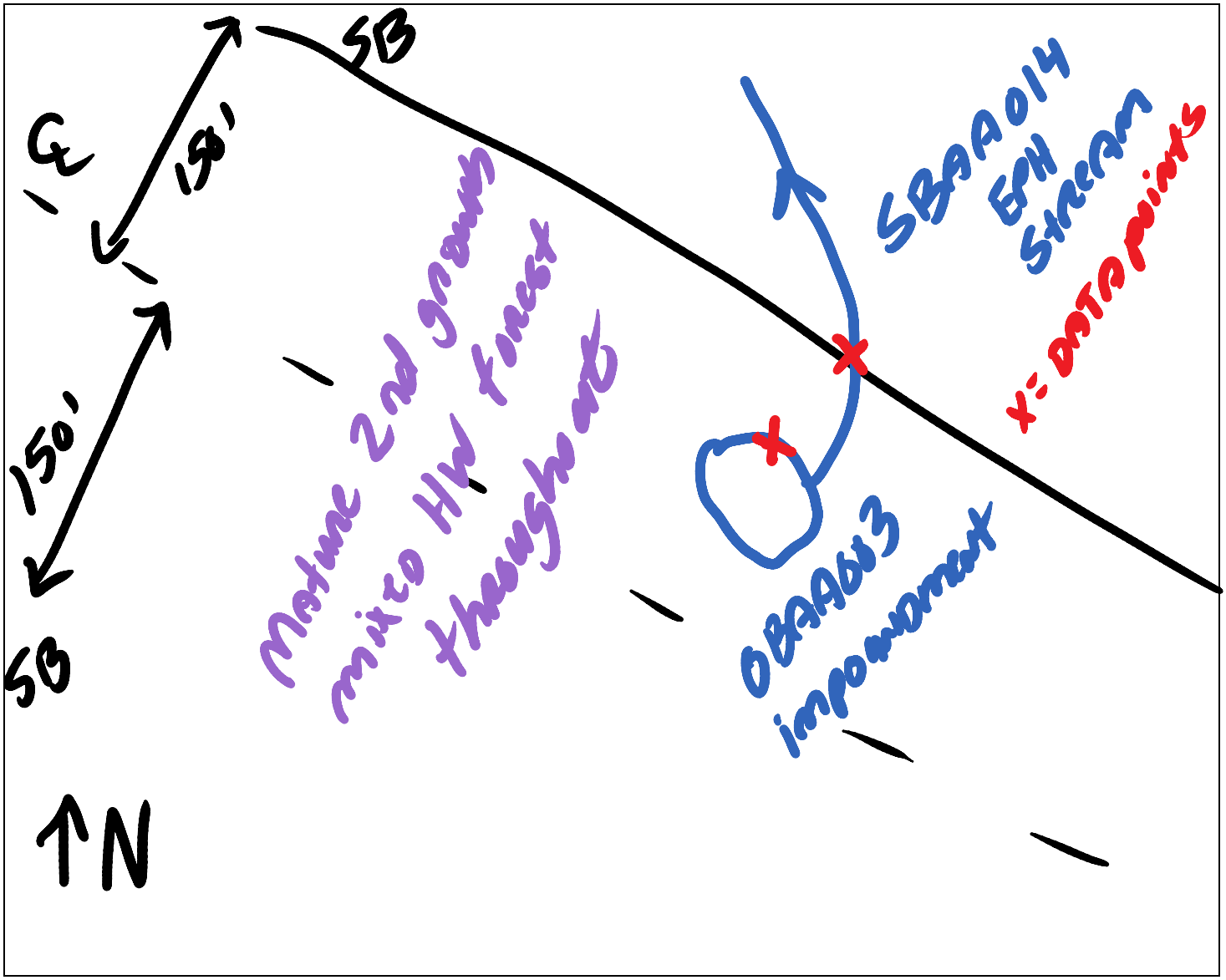
Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious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

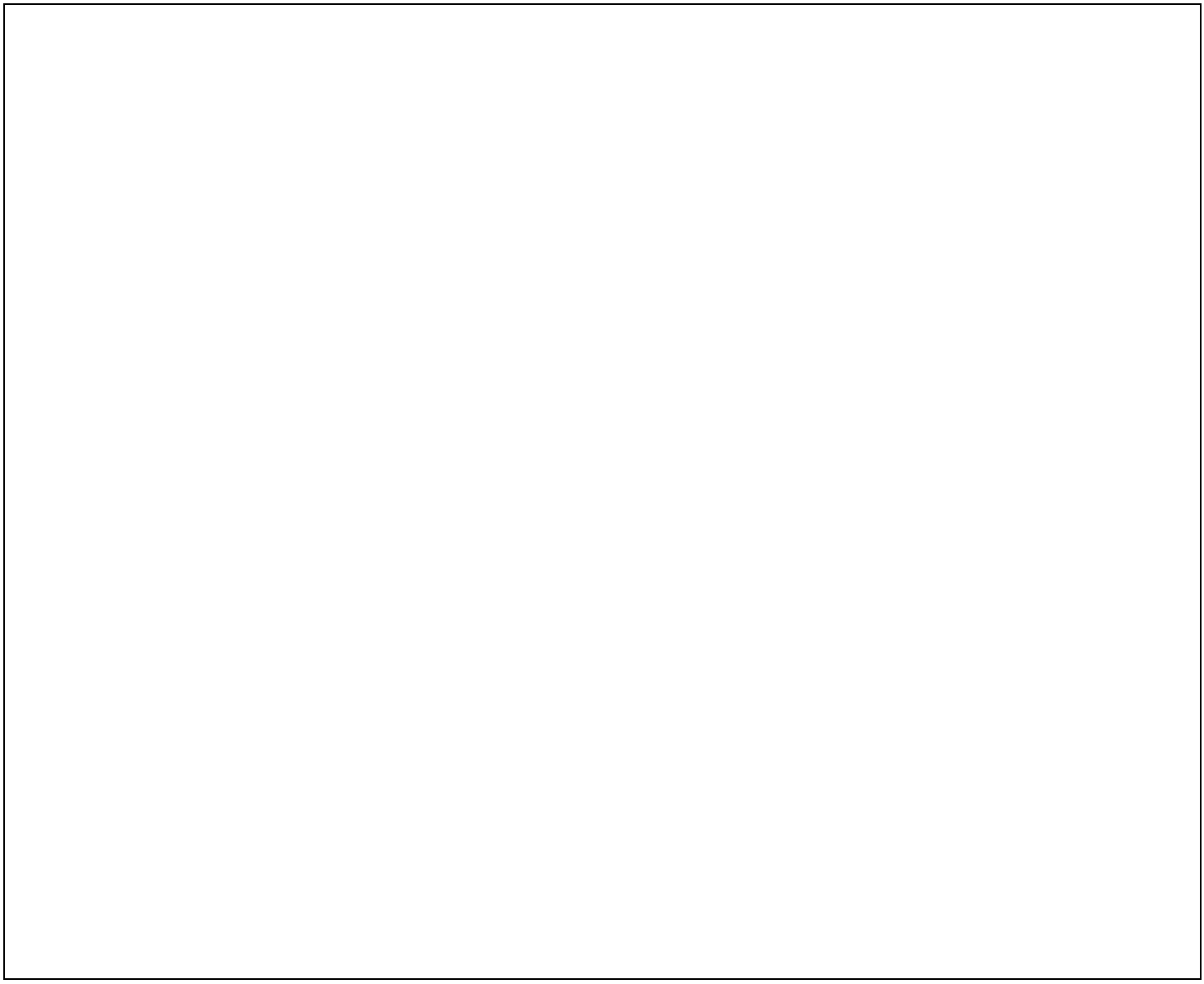
Notes:

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

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

Stream Quality [a]**:** *(check one)* ☐ High ☒ Moderate ☐ Low


SB
℄
150'
150'
SB
Mature 2nd growth mixed HW forest throughout
SBAA014 EPH stream
X= DATA points
OBAA013 improvement
↑N



sbaa014 facing west upstream

sbaa014 facing east downstream

sbaa014 facing north across

Open Waterbody Data Sheet

Survey Description

Project Name:	Waterbody Name:	Waterbody ID:	Date:
Atlantic Coast Pipeline	Unnamed Pond	obaa001	6/25/2016

State:	County:	Company:	Crew Member Initials:	Photos:
Virginia	Bath	NRG/ERM	GB, KO	1 Photo

Tract Number(s):	Nearest Milepost:	Associated Wetland ID(s):
36-016 – GWNF; access road 36-016.AR1	96.5	none

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

Physical Attributes

Waterbody Type: *(check one)* ☐Stock Pond ☐ Natural Pond ☐ Lake ☐ Reservoir ☒ Impoundment ☐ Oxbow ☐ Other:

Hydrologic Regime: ☐ Permanently Flooded ☒ Semipermanently Flooded ☐ Seasonally Flooded ☐ Temporarily Flooded

OHWM

Height: 2.0 ft.

OHWM Indicator: *(check all that apply)*

☒ Clear line on bank ☐Shelving ☐Wrested vegetation ☐Scouring ☐Water staining

☐Bent, matted, or missing vegetation ☐Wrack line ☐Litter and debris ☒Abrupt plant community change ☐Soil characteristic change

Depth of Water:	Bank height (average):	Bank slope (average):
1.5 ft. N/A☐	3.5 ft.	70 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: ____% ____% ____% ____% 30 % 40 % 30 % ____%

Width of Riparian Zone: ____ft. N/A☒

Vegetative Layers: *(check all that apply)* ☒ Trees: ☒ Saplings/Shrubs: ☒ Herbs

Avg. DBH of Dominants: *(approx.)* 12.0 in. 1.75 in.

Dominant Bank Vegetation *(list)*:

Scarlet oak, sweet birch, chestnut oak, yellow poplar, black locust, grape, red maple, blackberry, fleabane, Japanese stilt grass, white snakeroot, Virginia creeper

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools, etc.):

pool

Aquatic Organisms Observed *(list)*:

Tadpoles, salamander

T&E Species Observed *(list)*:

none

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

Sediment run-off from adjacent road

Waterbody is: *(check one)* ☐ Natural ☒ Artificial, man-made ☐ Manipulated

Waterbody Quality [a]**:** *(check one)* ☐ High ☒ Moderate ☐ Low

Waterbody ID:
obaa001

[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.

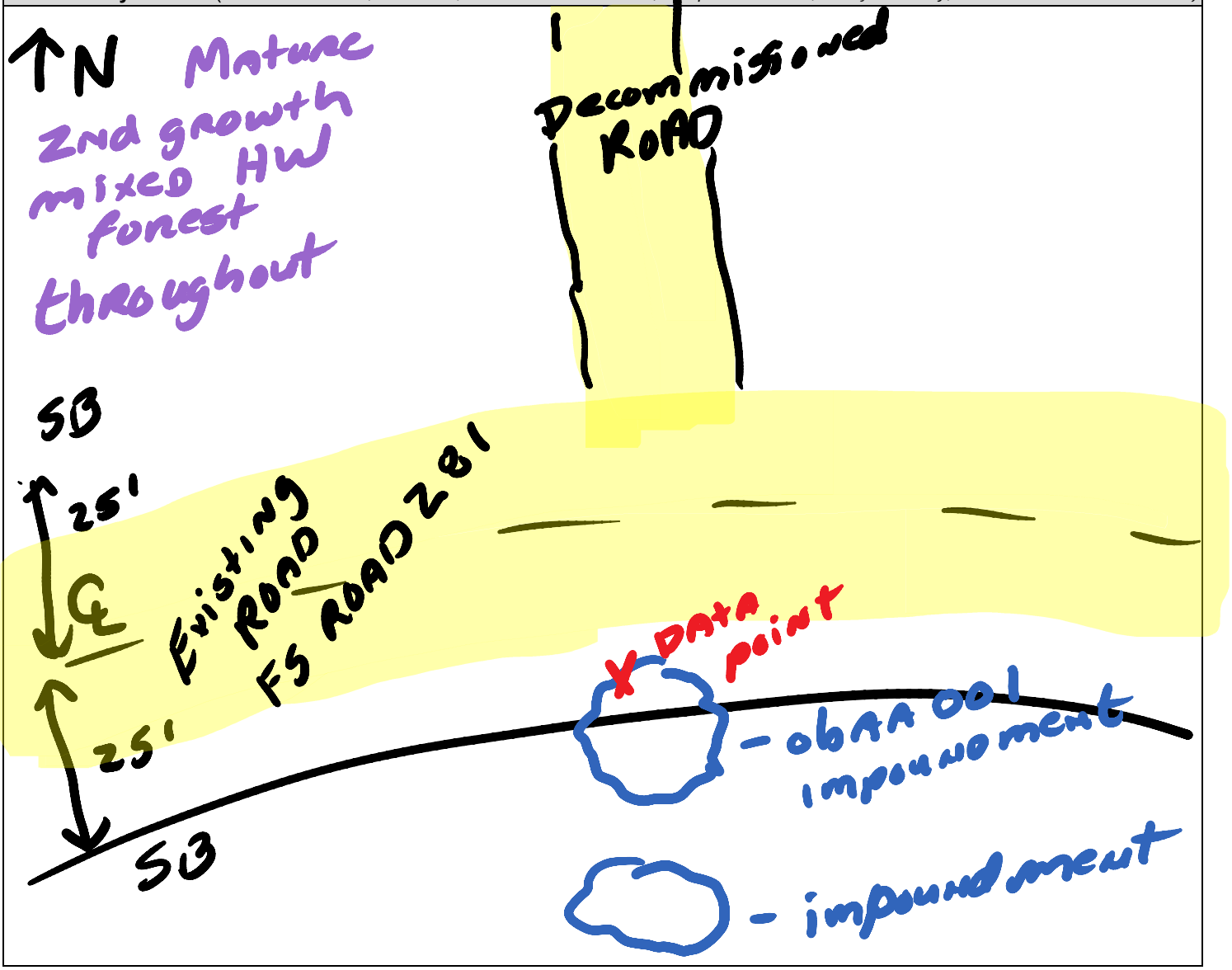
Moderate Quality: Altered by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or bank vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers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

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

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



Open waterbody OBAA001 facing south

Linear Waterbody Data Sheet

Survey Description

Project Name:	Waterbody Name:	Waterbody ID:	Date:
Atlantic Coast Pipeline	UNT to Cowpasture River	sbaa005	6/24/2016

State:	County:	Company:	Crew Member Initials:	Photos:
Virginia	Bath	NRG/ERM	GB, KO	3 Photos

Tract Number(s):	Nearest Milepost:	Associated Wetland ID(s):
36-016 - GWNF	98.3	None

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: 11.0 ft.

Height: 1.5 ft.

N/A☐

OHWM Indicator: *(check all that apply)*

☒ Clear line on bank ☐Shelving ☐Wrested vegetation ☒Scouring ☐Water staining

☐Bent, matted, or missing vegetation ☒Wrack line ☐Litter and debris ☐Abrupt plant community change ☐Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:	Width of Waterbody - Toe of Slope to Toe of Slope:	Width of Waterbody - Water Edge to Water Edge:	Depth of Water: *(Approx.)*
20.0 ft.	6.5 ft.	10.0 ft. N/A☐	1.25 ft. N/A☐

Sinuosity: *(check one)*	Water velocity: *(Approx.)*	Bank height	Bank slope
☒Straight ☐Meandering	1.25 fps N/A☐	Right: 5.0 ft. Left: 10.0 ft.	Right: 60 degrees Left: 70 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:	20 %	10 %	30 %	30 %	10 %	%	%	%

Width of Riparian Zone: 50 ft. N/A☐

Vegetative Layers: *(check all that apply)* ☒ Trees: ☒ Saplings/Shrubs: ☒ Herbs

Avg. DBH of Dominants: *(approx.)* 12.0 in. 1.5 in.

Dominant Bank Vegetation *(list)*:

White oak, sugar maple, white pine, chestnut oak, pignut hickory, black gum, red maple, witch hazel, blackhaw, huckleberry, grape, cinquefoil, panic grass, wild rye, violet, woodland sedge

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):

Step pools, coarse woody debris, wrack piles

Aquatic Organisms Observed *(list)*:

Invertebrates – mayfly, caddisfly; crayfish

T&E Species Observed *(list)*:

none

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

None apparent

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

Stream Quality [a]**:** *(check one)* ☒ High ☐ Moderate ☐ Low

Waterbody ID:
sbaa005

[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.

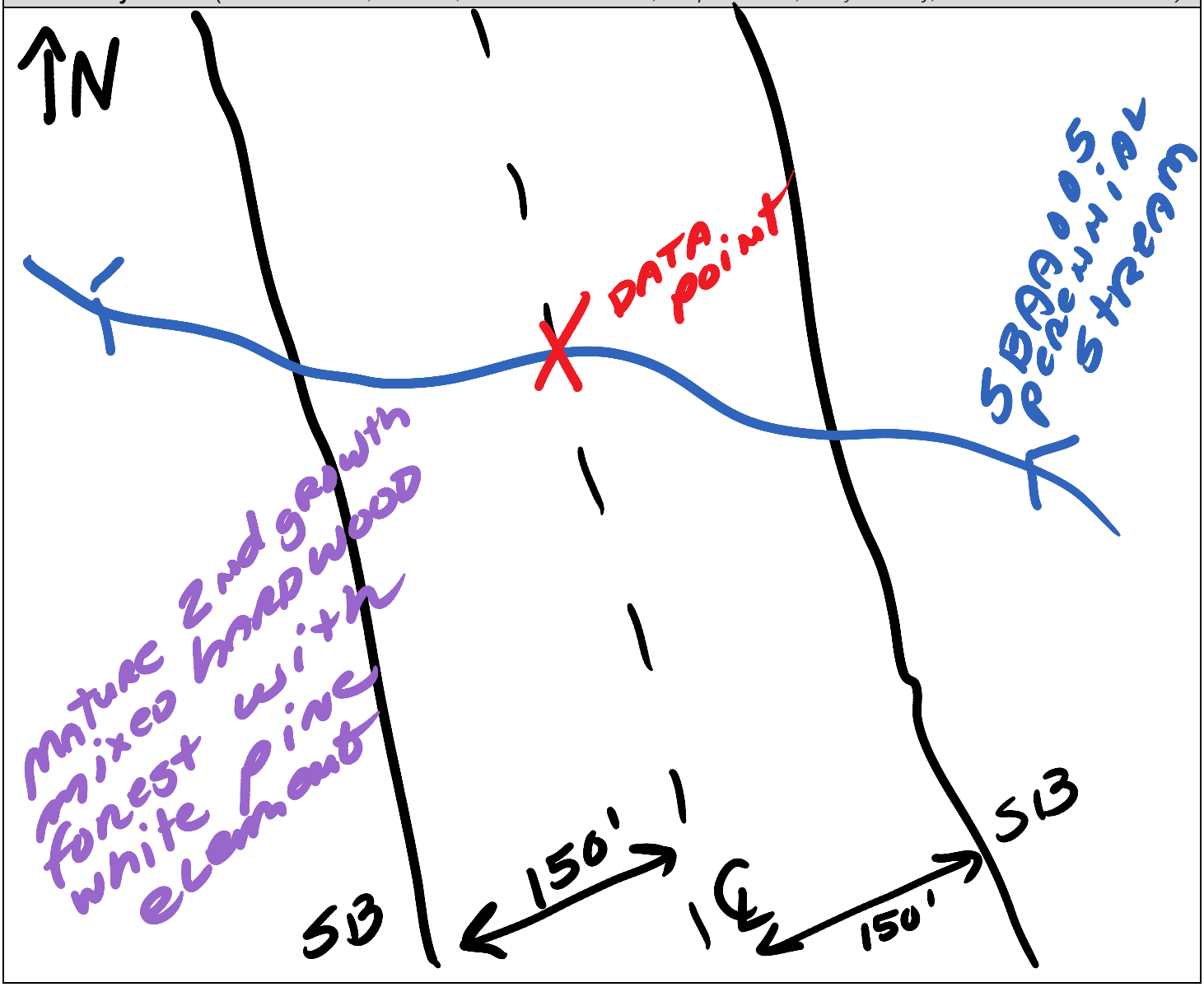
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate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

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

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



Waterbody SBAA005 facing east upstream

Waterbody SBAA005 facing northwest downstream

Waterbody SBAA005 facing north across

Linear Waterbody Data Sheet

Survey Description

Project Name:	Waterbody Name:	Waterbody ID:	Date:
Atlantic Coast Pipeline	UNT to Cowpasture River	sbaa006	6/24/2016

State:	County:	Company:	Crew Member Initials:	Photos:
Virginia	Bath	NRG/ERM	GB, KO	3 photos

Tract Number(s):	Nearest Milepost:	Associated Wetland ID(s):
36-016 - GWNF	98.9	None

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: 4.0 ft.

Height: 0.50 ft. N/A☐

OHWM Indicator: *(check all that apply)*
☐ Clear line on bank ☐Shelving ☒Wrested vegetation ☒Scouring ☐Water staining
☐Bent, matted, or missing vegetation ☐Wrack line ☒Litter and debris ☐Abrupt plant community change ☐Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:	Width of Waterbody - Toe of Slope to Toe of Slope:	Width of Waterbody - Water Edge to Water Edge:	Depth of Water: *(Approx.)*
12.0 ft.	3.5 ft.	3.5 ft. N/A☐	0.25 ft. N/A☐

Sinuosity: *(check one)*	Water velocity: *(Approx.)*	Bank height	Bank slope
☒Straight ☐Meandering	0.75 fps N/A☐	Right: 6.0 ft. Left: 6.0 ft.	Right: 75 degrees Left: 60 degrees

Analysis of Bank Stability (i.e. root structure, vegetation, substrate characteristics):
No evidence of bank instability observed

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: ____% ____% 10 % 40 % 30 % 10 % 10 % ____%

Width of Riparian Zone: ____ ft. N/A☒

Vegetative Layers: *(check all that apply)* ☒ Trees: ☒ Saplings/Shrubs: ☒ Herbs
Avg. DBH of Dominants: *(approx.)* 13.0 in. 1.75 in.

Dominant Bank Vegetation *(list)*:
White oak, black gum, shagbark hickory, northern red oak, pignut hickory, white pine, sugar maple, witch hazel, huckleberry, panic grass, wood rush, cinquefoil, woodland sedge, violet, wild yams, spotted wintergreen

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):
Leaf packs, coarse woody debris

Aquatic Organisms Observed *(list)*:
none

T&E Species Observed *(list)*:
none

Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes):
None apparent

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

Waterbody ID:
sbaa006

[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.

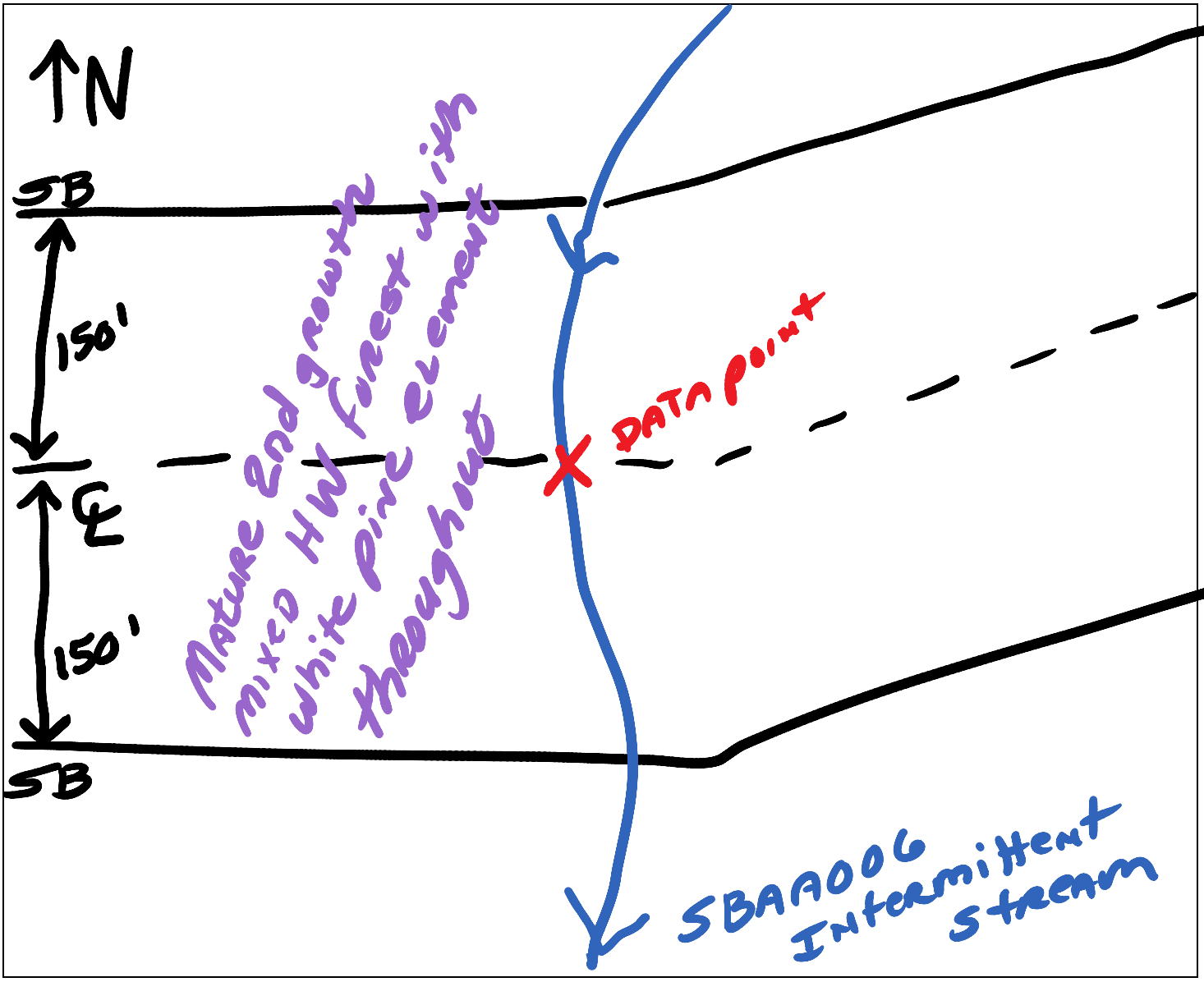
Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious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

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

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

Stream Quality [a] **:** *(check one)*	☒ High	☐ Moderate	☐ Low


N
SB
150'
CL
150'
SB
Mature end growth mixed HW forest with white pine element throughout
DATA POINT
SBAA006 Intermittent stream

Waterbody SBAA006 facing north upstream

Waterbody SBAA006 facing south downstream

Waterbody SBAA006 facing west across

Linear Waterbody Data Sheet

Survey Description

Project Name:	Waterbody Name:	Waterbody ID:	Date:
Atlantic Coast Pipeline	UNT to Cowpasture River	sbaa007	6/24/2016

State:	County:	Company:	Crew Member Initials:	Photos:
Virginia	Bath	NRG/ERM	GB, KO	5 photos

Tract Number(s):	Nearest Milepost:	Associated Wetland ID(s):
36-016 – GWNF; red tract polygon with 36-029 – 36-0 labels within polygon	98.95	Maybe within no access tract

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: 9.0 ft.

Height: 1.25 ft. N/A☐

OHWM Indicator: *(check all that apply)*
☒ Clear line on bank ☐Shelving ☒Wrested vegetation ☒Scouring ☐Water staining
☐Bent, matted, or missing vegetation ☒Wrack line ☒Litter and debris ☐Abrupt plant community change ☐Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:	Width of Waterbody - Toe of Slope to Toe of Slope:	Width of Waterbody - Water Edge to Water Edge:	Depth of Water: *(Approx.)*
20.0 ft.	4.5 ft.	6.5 ft. N/A☐	0.75 ft. N/A☐

Sinuosity: *(check one)*	Water velocity: *(Approx.)*	Bank height	Bank slope
☐Straight ☒Meandering	1.0 fps N/A☐	**Right:** 10.0 ft. **Left:** 3.0 ft.	**Right:** 70 degrees **Left:** 90 degrees

Analysis of Bank Stability (i.e. root structure, vegetation, substrate characteristics):

Banks exhibit undercutting on outside of meanders; slope slumping off in places above bank; see photos.

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: ____% ____% 10 % 60 % 15 % 15 % ___% _____%

Width of Riparian Zone: 150 ft. N/A☐

Vegetative Layers: *(check all that apply)* ☒ Trees: ☒ Saplings/Shrubs: ☒ Herbs

Avg. DBH of Dominants: *(approx.)* 13.0 in. 1.75 in.

Dominant Bank Vegetation *(list)*:

White oak, black gum, shagbark hickory, northern red oak, pignut hickory, white pine, sugar maple, witch hazel, blackhaw, panic grass, wood rush, woodland sedge, wing stem, Japanese stilt grass, golden ragwort

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):

Leaf packs, coarse woody debris, overhanging roots, pools, riffles

Aquatic Organisms Observed *(list)*:

Water striders, caddisfly, crayfish

T&E Species Observed *(list)*:

none

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

None apparent

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

Waterbody ID:
sbaa007

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

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

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

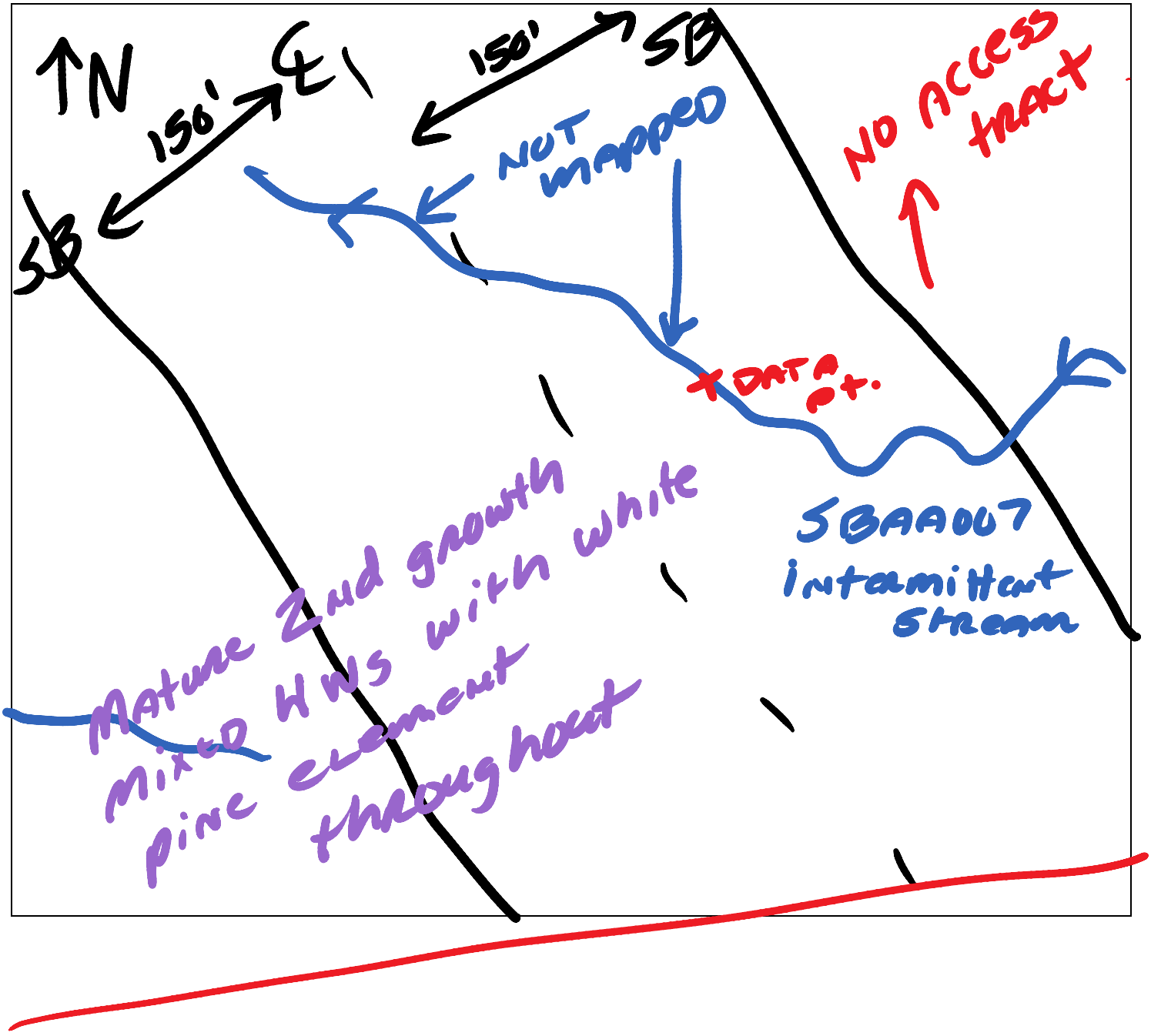
Notes:

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

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

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

Stream Quality [a] **:** *(check one)* ☒ High ☐ Moderate ☐ Low


N
150'
150'
SB
SB
NOT MAPPED
NO ACCESS TRACT
DATA PT.
SBAA007
intermittent stream
Mature 2nd growth
Mixed HWS with white
pine element
throughout

Waterbody SBAA007 facing north upstream

Waterbody SBAA007 facing south downstream

Waterbody SBAA007 facing west across

Linear Waterbody Data Sheet

Survey Description

Project Name:	Waterbody Name:	Waterbody ID:	Date:
Atlantic Coast Pipeline	UNT to Gibson Hollow	sbaa003	5/9/2016

State:	County:	Company:	Crew Member Initials:	Photos:
Virginia	Bath	NRG-ERM	GB, SA, LC	3 photos

Tract Number(s):	Nearest Milepost:	Associated Wetland ID(s):
36-016 - GWNF	99.4	none

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: 3.0 ft.

Height: 0.33 ft. N/A☐

OHWM Indicator: *(check all that apply)*
☐ Clear line on bank ☐Shelving ☐Wrested vegetation ☒Scouring ☐Water staining
☐Bent, matted, or missing vegetation ☐Wrack line ☒Litter and debris ☐Abrupt plant community change ☐Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:	Width of Waterbody - Toe of Slope to Toe of Slope:	Width of Waterbody - Water Edge to Water Edge:	Depth of Water: *(Approx.)*
6.0 ft.	2.0 ft.	1.5 ft. N/A☐	0.20 ft. N/A☐

Sinuosity: *(check one)*	Water velocity: *(Approx.)*	Bank height	Bank slope
☒Straight ☐Meandering	0.15 fps N/A☐	Right: 4.0 ft. Left: 3.0 ft.	Right: 60 degrees Left: 65 degrees

Analysis of Bank Stability (i.e. root structure, vegetation, substrate characteristics):

There is no evidence of bank instability.

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: ____% ____% ____% 35 % 20 % 10 % 35 % ____%

Width of Riparian Zone: ____ ft. N/A☒

Vegetative Layers: *(check all that apply)* ☒ Trees: ☒ Saplings/Shrubs: ☒ Herbs

Avg. DBH of Dominants: *(approx.)* 11.0 in. 2.0 in. _

Dominant Bank Vegetation *(list)*:

Northern red oak, white oak, white pine, red maple, hop hornbeam, chestnut oak, hawthorne, violet, wild oat grass, woodland sedge, wood rush

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):

Leaf packs, coarse woody debris

Aquatic Organisms Observed *(list)*:

none

T&E Species Observed *(list)*:

none

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

None apparent

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

Waterbody ID:
sbaa003

[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.

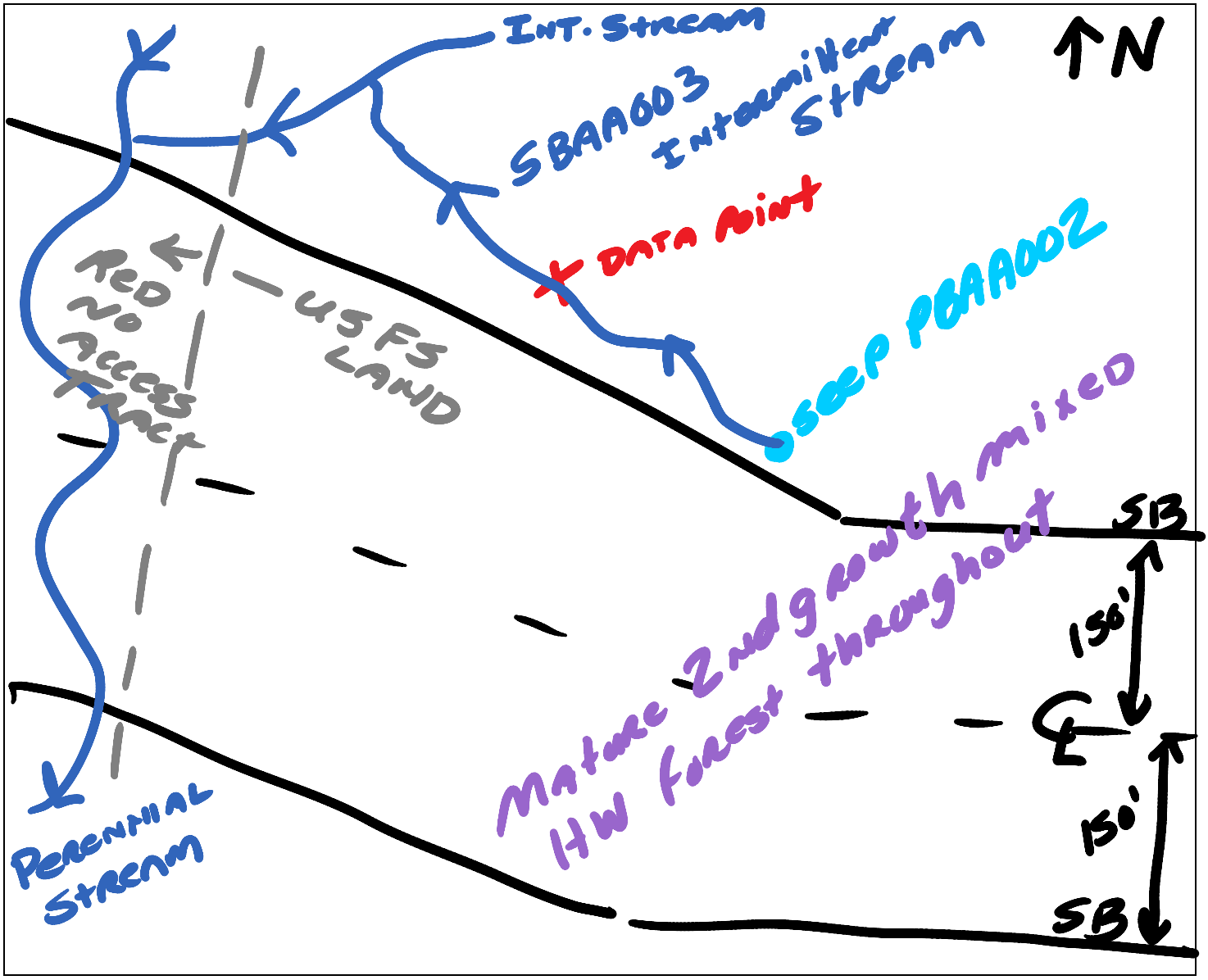
Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious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

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

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

Stream Quality [a] **:** *(check one)* ☐ High ☒ Moderate ☐ Low


INT. STREAM
SBAA003
INTERMITTENT STREAM
N
DATA POINT
SBAA002
RED NO ACCESS TRACT
USFS LAND
Mature 2nd growth mixed HW forest throughout
SB
150'
150'
SB
PERENNIAL STREAM

Waterbody SBAA003 facing south upstream

Waterbody SBAA003 facing north downstream

Waterbody SBAA003 facing east across

Linear Waterbody Data Sheet

Survey Description

Project Name:	Waterbody Name:	Waterbody ID:	Date:
Atlantic Coast Pipeline	Gibson Hollow	sbaa019	10/29/2016

State:	County:	Company:	Crew Member Initials:	Photos:
Virginia	Bath	NRG - ERM	GB, AS	3 photos

Tract Number(s):	Nearest Milepost:	Associated Wetland ID(s):
36-029	99.3	wbaa005

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: 9.0 ft.

Height: 1.25 ft. N/A☐

OHWM Indicator: *(check all that apply)*
☒ Clear line on bank ☐Shelving ☐Wrested vegetation ☒Scouring ☐Water staining
☐Bent, matted, or missing vegetation ☒ Wrack line ☒Litter and debris ☐Abrupt plant community change ☐Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:	Width of Waterbody - Toe of Slope to Toe of Slope:	Width of Waterbody - Water Edge to Water Edge:	Depth of Water: *(Approx.)*
15.0 ft.	6.0 ft.	5.0 ft. N/A☐	0.50 ft. N/A☐

Sinuosity: *(check one)*	Water velocity: *(Approx.)*	Bank height	Bank slope
☐Straight ☒Meandering	0.33 fps N/A☐	Right: 2.0 ft. Left: 3.0 ft.	Right: 35 degrees Left: 90 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:	10 %	%	40 %	30 %	10 %	10 %	15 %	%

Width of Riparian Zone: 120 ft. N/A☐

Vegetative Layers: *(check all that apply)* ☒ Trees: ☒ Saplings/Shrubs: ☒ Herbs

Avg. DBH of Dominants: *(approx.)* 12.0 in. 1.5 in.

Dominant Bank Vegetation *(list)*:

northern red oak, white oak, hop hornbeam, red maple, black gum, white pine, shagbark hickory, wild rye, Japanese stilt grass, deer tongue grass, mountain brome, golden ragwort, wood aster, violet

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):

coarse woody debris, leaf packs, pools, scattered emergent vegetation

Aquatic Organisms Observed *(list)*:

Water strides, caddisfly, crayfish

T&E Species Observed *(list)*:

none

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

Dirt ATV road crossing – no culvert or bridge present

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

Stream Quality [a]**:** *(check one)* ☒ High ☐ Moderate ☐ Low

Waterbody ID:
sbaa019

[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.

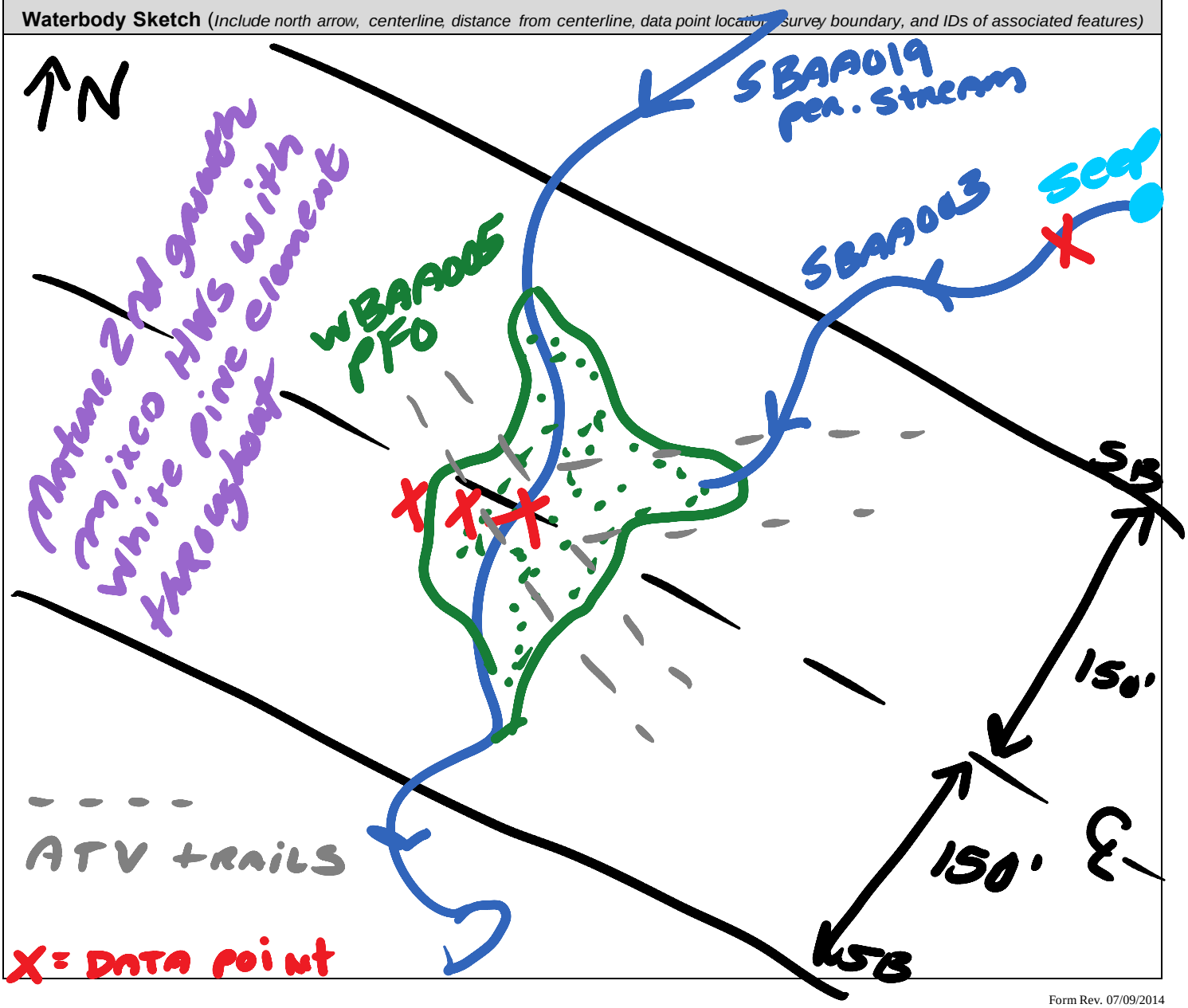
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate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

Continues out of the survey corridor in both directions. PFO wetland wbaa005 present on both sides of stream; sbaa003 flow enters steam via wbaa005; sbaa003 loses channel and ends within wetland.

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



sbaa019 facing north upstream

sbaa019 facing south downstream

sbaa019 facing east across

Linear Waterbody Data Sheet

Survey Description

Project Name:	Waterbody Name:	Waterbody ID:	Date:
Atlantic Coast Pipeline	Barn Lick Branch	SAUA436	9/27/2016

State:	County:	Company:	Crew Member	Photos:
Virginia	Augusta	NRG	Initials: GB, SA	01-03

Tract Number(s):	Nearest Milepost:	Associated Wetland ID(s):
07-001-A008	111.25	WAUB102

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: 8.0 ft.

Height: 1.0 ft. N/A☐

OHWM Indicator: *(check all that apply)* ☒ Clear line on bank ☐Shelving ☐Wrested vegetation ☒Scouring ☐Water staining ☐Bent, matted, or missing vegetation ☐Wrack line ☒Litter and debris ☐Abrupt plant community change ☐Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:	Width of Waterbody - Toe of Slope to Toe of Slope:	Width of Waterbody - Water Edge to Water Edge:	Depth of Water: *(Approx.)*
10 ft.	3.0 ft.	6.0 ft. N/A☐	0.5 ft. N/A☐

Sinuosity: *(check one)*	Water velocity: *(Approx.)*	Bank height	Bank slope
☐Straight ☒Meandering	1.5 fps N/A☐	Right: 3.5 ft. Left: 2 ft.	Right: 90 degrees Left: 80 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:	%	%	5 %	25 %	40 %	30 %	%	%

Width of Riparian Zone: >70 ft. N/A☐

Vegetative Layers: *(check all that apply)* ☒ Trees: ☒ Saplings/Shrubs: ☐ Herbs

Avg. DBH of Dominants: *(approx.)* 10 in. 2 in.

Dominant Bank Vegetation *(list)*:

White oak, white pine, musclewood

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):

Cobble, roots along bank, debris pile

Aquatic Organisms Observed *(list)*:

None

T&E Species Observed *(list)*:

none

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

Selectively logged

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

Stream Quality [a]**:** *(check one)* ☐ High ☒ Moderate ☐ Low

Waterbody ID:
SAUA436

[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.

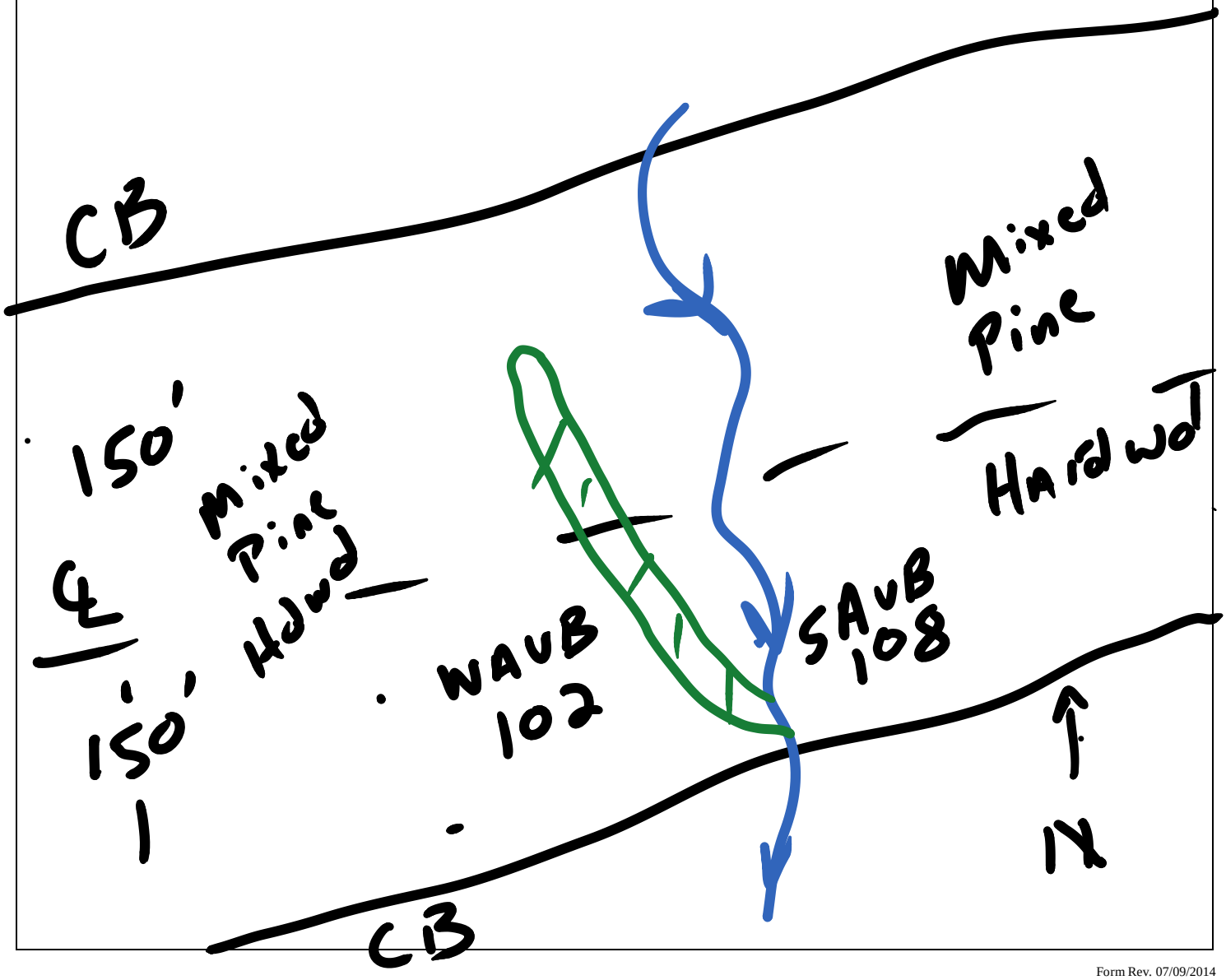
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate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

Strong sinuosity, weak riffle pool, strong grade control, well developed bars and benches, debris piles. Banks undercut and unstable on outside of bends. Previously named saub108.

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



Waterbody SAUA436 facing north upstream

Waterbody SAUA436 facing west across

Waterbody SAUA436 facing south downstream

Updated Waterbody ID: saua435

Linear Waterbody Data Sheet

Survey Description

Project Name:	Waterbody Name:	Waterbody ID:	Date:
ACP	Braley Branch	saup003.i	9/27/16 19 Aug 2015

State:	County/Parish:	Company:	Crew Member Initials:	Photos:
VA	Augusta	ESI ERM	KWM, CSM GB, AS	N, S, E

Tract Number(s):	Nearest Milepost:	Associated Wetland ID(s):
07-001-A010, 07-001-A009	116.5	None

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: 14 ft. Height: 2.0 ft. N/A☐

OHWM Indicator: (check all that apply) ☒ Clear line on bank ☒ Shelving ☒ Wrested vegetation ☐ Scouring ☐ Water staining ☐ Bent, matted, or missing vegetation ☐ Wrack line ☐ Litter and debris ☐ Abrupt plant community change ☒ Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:	Width of Waterbody - Toe of Slope to Toe of Slope:	Width of Waterbody - Water Edge to Water Edge:	Depth of Water: (Approx.)
24 ft.	8 ft.	N/A☒ ____ ft.	N/A☒ ____ ft.

Sinuosity: (check one)	Water velocity: (Approx.)	Bank height	Bank slope
☐ Straight ☒ Meandering	____ fps N/A☒	Right: 4 ft. Left: 5.0 ft.	Right: 80 35 degrees Left: 30 90 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: ____% ____% 50 % 40 % ____% 10 % ____% ____%

Width of Riparian Zone: 100 ft. N/A☐

Vegetative Layers: (check all that apply) ☒ Trees: ☒ Saplings/Shrubs: ☒ Herbs

Avg. DBH of Dominants: (approx.) 5 in. 2 in. N/A in.

Dominant Bank Vegetation (list): Acer rubrum, Acer saccharum, Hamamelis virginiana, Microstegium vimineum, Lonicera japonica

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools): Pools, intermittent flow, woody debris, root mats

Aquatic Organisms Observed (list): None minnows, water striders, stonefly, water penny

T&E Species Observed (list): None

Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): excessive cobble and gravel bar in stream Paralleled by existing road and wire fencing wrapped around cobble to limit bank erosion on outside of bend. Banks are severely undercut and unstable in outside bends.

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

Stream Quality*: (check one) ☐ High X ☐ Moderate ☒ Low

Waterbody ID: saup003 i

- **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.

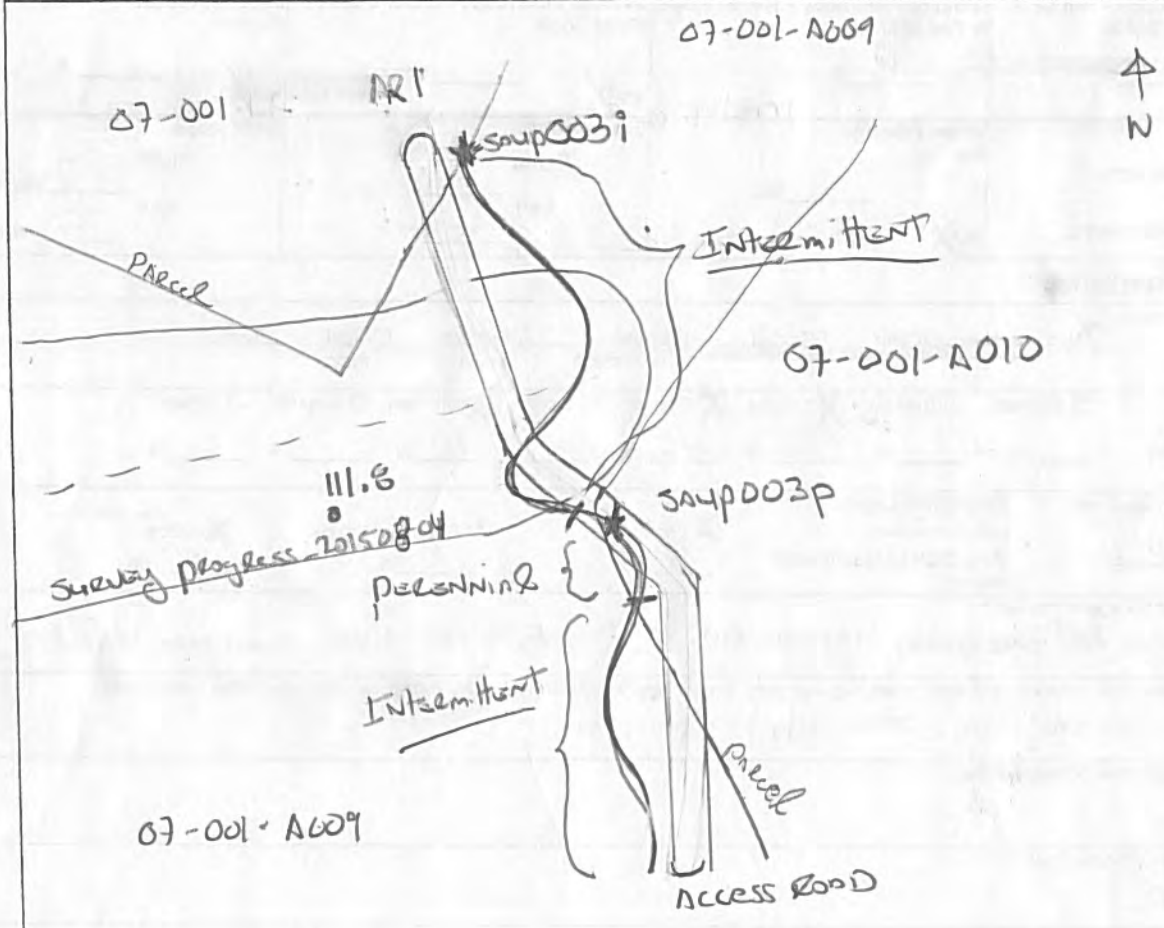
  Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate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

changed ID from saup003i to saua435

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



Waterbody saua435 facing north upstream.

Waterbody saua435 facing south downstream.

Waterbody saua435 facing east across bank.

Linear Waterbody Data Sheet

Survey Description

Project Name:	Waterbody Name:	Waterbody ID:	Date:
Atlantic Coast Pipeline	Dowell's Draft	SAUA416	9/20/2016

State:	County:	Company:	Crew Member Initials:	Photos:
Virginia	Augusta	NRG	GB, AS	SAUA416_001-004

Tract Number(s):	Nearest Milepost:	Associated Wetland ID(s):
07-001	112	WAUC002

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: 16 ft.

Height: 2 ft. N/A☐

OHWM Indicator: *(check all that apply)*
☒ Clear line on bank ☐Shelving ☐Wrested vegetation ☐Scouring ☐Water staining
☐Bent, matted, or missing vegetation ☐Wrack line ☐Litter and debris ☐Abrupt plant community change ☐Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:	Width of Waterbody - Toe of Slope to Toe of Slope:	Width of Waterbody - Water Edge to Water Edge:	Depth of Water: *(Approx.)*
18 ft.	12 ft.	15 ft. N/A☐	0.8 ft. N/A☐

Sinuosity: *(check one)*	Water velocity: *(Approx.)*	Bank height	Bank slope
☐Straight ☒Meandering	2 fps N/A☐	Right: 4 ft. Left: 4 ft.	Right: 70 degrees Left: 70 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:	%	%	60 %	40 %	%	%	%	%

Width of Riparian Zone: 90 ft. N/A☐

Vegetative Layers: *(check all that apply)* ☒ Trees: ☒ Saplings/Shrubs: ☒ Herbs

Avg. DBH of Dominants: *(approx.)* 14 in. 2 in.

Dominant Bank Vegetation *(list)*:
Eastern Hemlock, White Pine, White Oak, Violet, Red Maple, Christmas Fern

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):
Riffles and pools, downed logs in bed, Over hanging banks and roots

Aquatic Organisms Observed *(list)*:
None

T&E Species Observed *(list)*:
None

Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes):
Access road with a four foot diameter culvert

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

Stream Quality [a]: *(check one)* ☐ High ☒ Moderate ☐ Low

Waterbody ID:
SAUA416

[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.

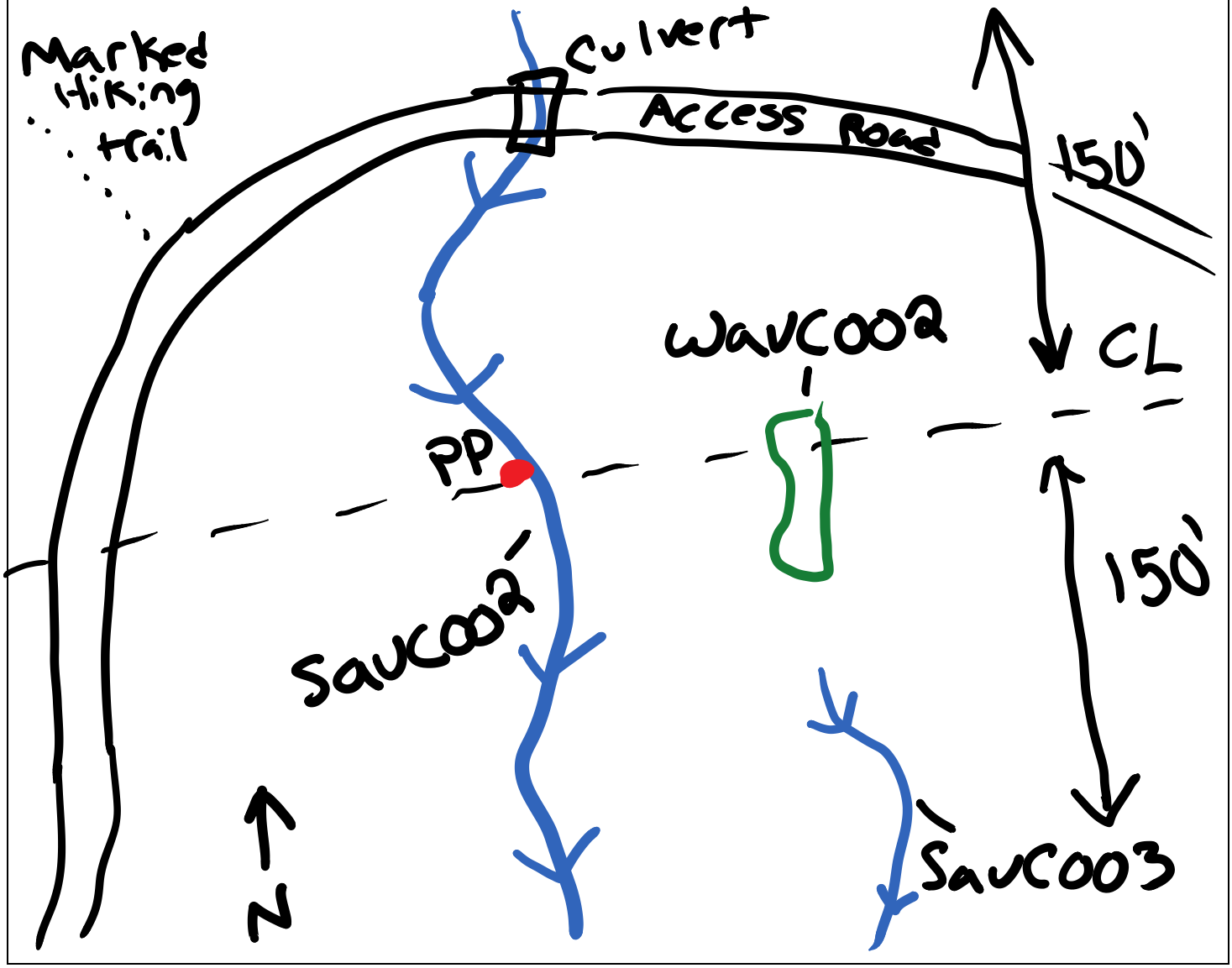
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate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

former sauc002 is now saua416

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



Waterbody SAUA416 facing west upstream

Waterbody SAUA416 facing east downstream

Waterbody SAUA416 facing south across

Waterbody saua416 facing north upstream - culvert

Linear Waterbody Data Sheet

Survey Description

Project Name:	Waterbody Name:	Waterbody ID:	Date:
Atlantic Coast Pipeline	UNT to Dowell's Draft	SAUA417	9/20/2016

State:	County:	Company:	Crew Member Initials:	Photos:
Virginia	Augusta	NRG	GB, AS	SAUA417_001-003

Tract Number(s):	Nearest Milepost:	Associated Wetland ID(s):
07-001	112	WAUC002

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: 6 ft.

Height: 0.5 ft. N/A☐

OHWM Indicator: *(check all that apply)* ☐ Clear line on bank ☐Shelving ☐Wrested vegetation ☐Scouring ☐Water staining ☒Bent, matted, or missing vegetation ☐Wrack line ☐Litter and debris ☐Abrupt plant community change ☐Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:	Width of Waterbody - Toe of Slope to Toe of Slope:	Width of Waterbody - Water Edge to Water Edge:	Depth of Water: *(Approx.)*
6 ft.	3 ft.	6 ft. N/A☐	0.3 ft. N/A☐

Sinuosity: *(check one)*	Water velocity: *(Approx.)*	Bank height	Bank slope
☐Straight ☒Meandering	0.5 fps N/A☐	Right: 4 ft. Left: 10 ft.	Right: 60 degrees Left: 70 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:	%	%	5 %	5 %	10 %	80 %	%	%

Width of Riparian Zone: ft. N/A☒

Vegetative Layers: *(check all that apply)* ☒ Trees: ☒ Saplings/Shrubs: ☒ Herbs

Avg. DBH of Dominants: *(approx.)* 12 in. 2 in.

Dominant Bank Vegetation *(list)*:

Christmas Fern, White Pine, Easter Hemlock, White Oak

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):

None

Aquatic Organisms Observed *(list)*:

None

T&E Species Observed *(list)*:

None

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

None

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

Stream Quality [a]**:** *(check one)* ☐ High ☒ Moderate ☐ Low

Waterbody ID:
SAUA417

[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.

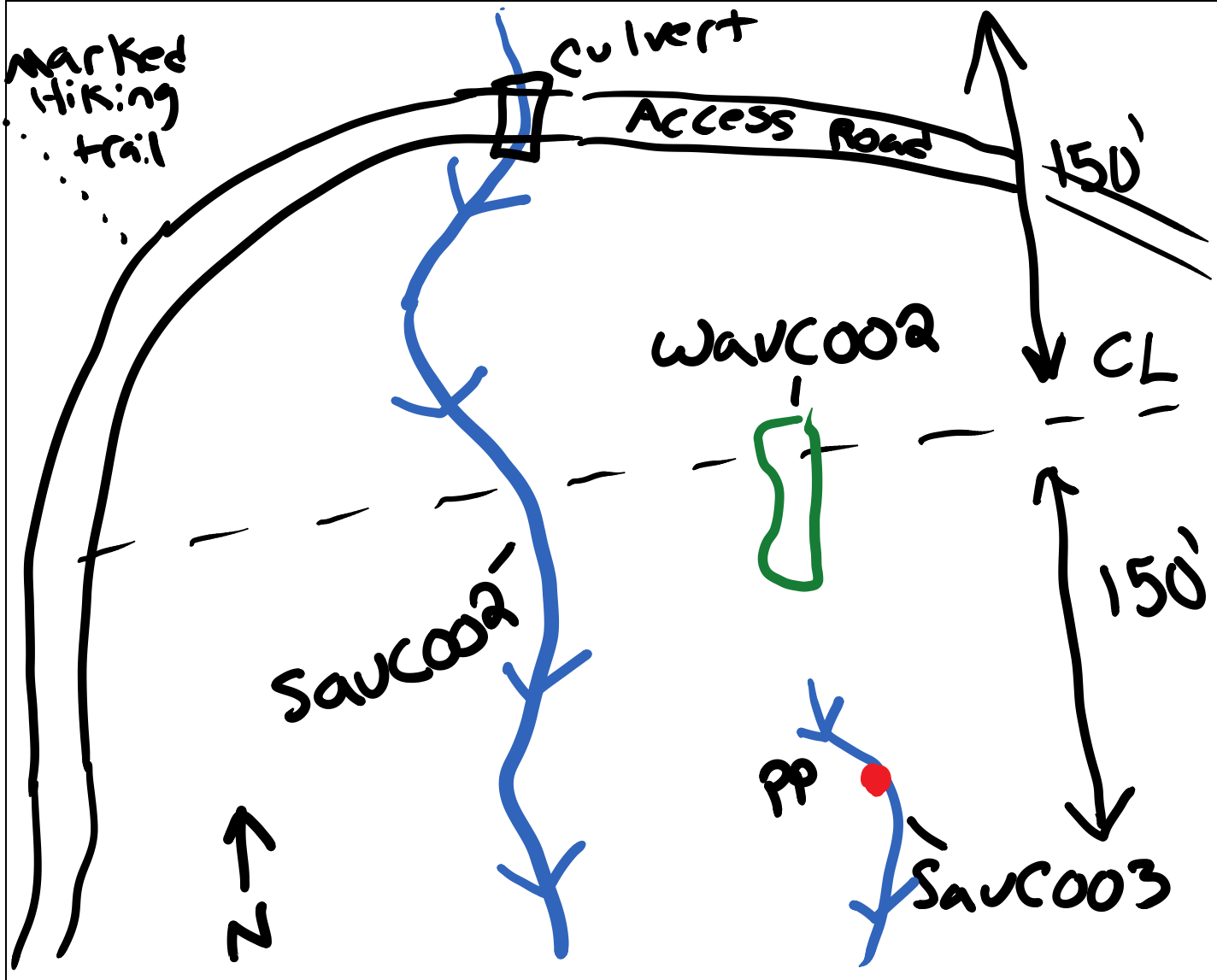
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate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

saua417 was previously named sauc003.

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



Waterbody SAUA417 facing north upstream

Waterbody SAUA417 facing south downstream

Waterbody SAUA417 facing east across

Linear Waterbody Data Sheet

Survey Description

Project Name:	Waterbody Name:	Waterbody ID:	Date:
Atlantic Coast Pipeline	UNT to Dowell's Draft	SAUA418	9/20/2016

State:	County:	Company:	Crew Member Initials:	Photos:
Virginia	Augusta	ERM	GB, AS	SAUA418_001-003

Tract Number(s):	Nearest Milepost:	Associated Wetland ID(s):
07-001	112	None

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: 8 ft.

Height: 1 ft. N/A☐

OHWM Indicator: *(check all that apply)* ☒ Clear line on bank ☐Shelving ☐Wrested vegetation ☐Scouring ☐Water staining ☒Bent, matted, or missing vegetation ☐Wrack line ☐Litter and debris ☐Abrupt plant community change ☐Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:	Width of Waterbody - Toe of Slope to Toe of Slope:	Width of Waterbody - Water Edge to Water Edge:	Depth of Water: *(Approx.)*
12 ft.	3 ft.	8 ft. N/A☐	0.8 ft. N/A☐

Sinuosity: *(check one)*	Water velocity: *(Approx.)*	Bank height	Bank slope
☐Straight ☒Meandering	1.5 fps N/A☐	Right: 4 ft. Left: 3 ft.	Right: 70 degrees Left: 75 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 %	%	%	15 %	5 %	%	%	%

Width of Riparian Zone: 30 ft. N/A☐

Vegetative Layers: *(check all that apply)* ☒ Trees: ☒ Saplings/Shrubs: ☒ Herbs

Avg. DBH of Dominants: *(approx.)* 12 in. 2 in.

Dominant Bank Vegetation *(list)*:

White Pine, White Oak, Red Maple, Common Smilax, May-apple, Christmas fern, bedstraw

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):

Riffles and pools

Aquatic Organisms Observed *(list)*:

None

T&E Species Observed *(list)*:

None

Disturbances (ex: livestock access, manure in waterbody, waste discharge

Stream runs through a culvert under an access road down stream

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

Stream Quality [a]: *(check one)* ☐ High ☒ Moderate ☐ Low

Waterbody ID:
SAUA418

[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.

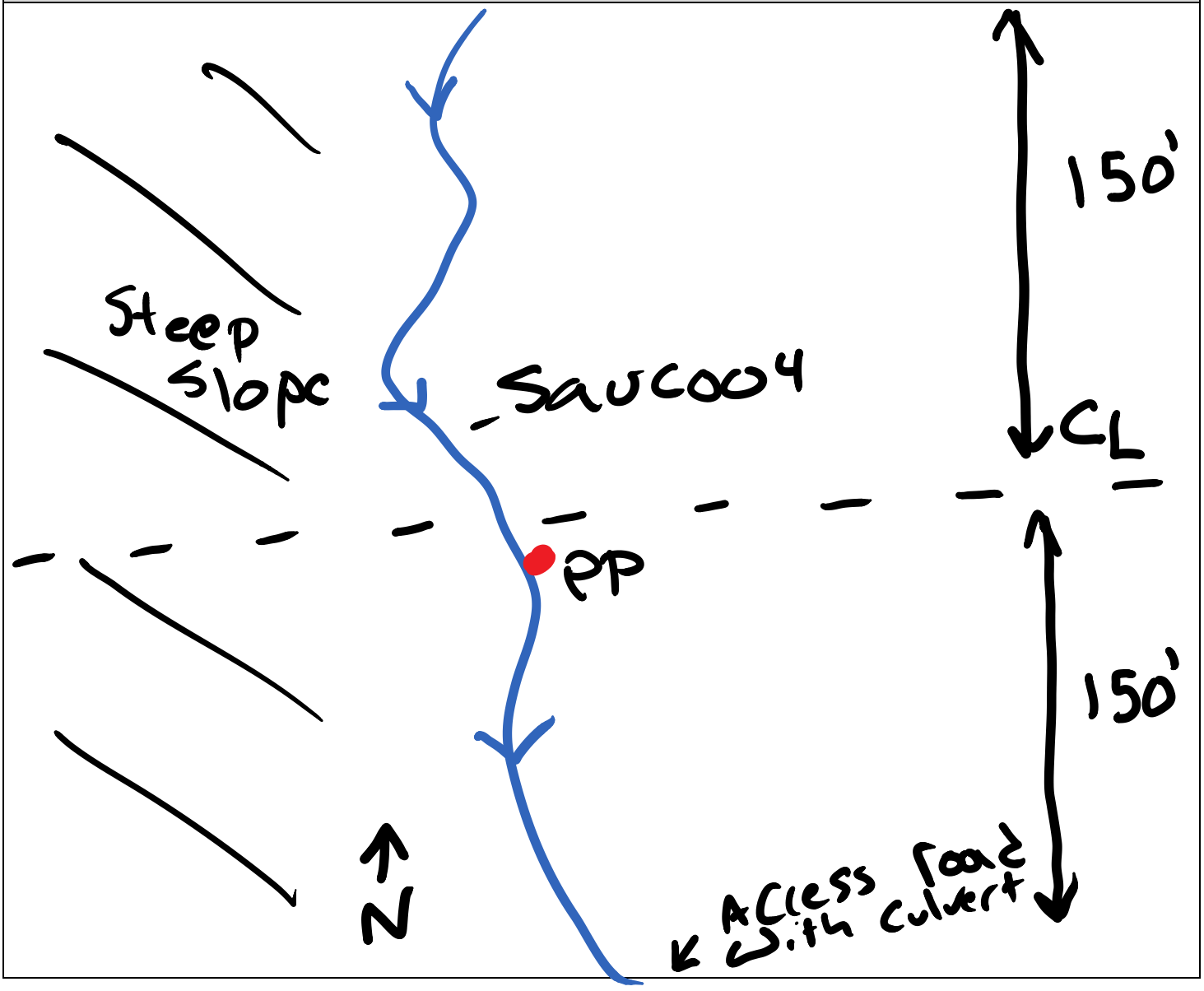
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate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

saua418 was previously named sauc004.

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



Waterbody SAUA418 facing north upstream

Waterbody SAUA418 facing south downstream

Waterbody SAUA418 facing west across

Waterbody saua418 facing south - culvert

Linear Waterbody Data Sheet

Survey Description

Project Name:	Waterbody Name:	Waterbody ID:	Date:
Atlantic Coast Pipeline	East Branch Dowell's Draft	SAUA420	9/20/2016

State:	County:	Company:	Crew Member Initials:	Photos:
Virginia	Augusta	NRG	GB, AS	01-03

Tract Number(s):	Nearest Milepost:	Associated Wetland ID(s):
07-001	117.3	none

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: 10.0 ft.

Height: 1.5 ft. N/A☐

OHWM Indicator: *(check all that apply)*
☒ Clear line on bank ☒Shelving ☐Wrested vegetation ☒Scouring ☐Water staining
☐Bent, matted, or missing vegetation ☐Wrack line ☒Litter and debris ☐Abrupt plant community change ☐Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:	Width of Waterbody - Toe of Slope to Toe of Slope:	Width of Waterbody - Water Edge to Water Edge:	Depth of Water: *(Approx.)*
12 ft.	3.0 ft.	6.0 ft. N/A☐	0.5 ft. N/A☐

Sinuosity: *(check one)*	Water velocity: *(Approx.)*	Bank height	Bank slope
☐Straight ☒Meandering	1.5 fps N/A☐	Right: 4 ft. Left: 4 ft.	Right: 85 degrees Left: 85 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:	____%	____%	30 %	35 %	25 %	10 %	____%	____%

Width of Riparian Zone: >50 ft. N/A☐

Vegetative Layers: *(check all that apply)* ☒ Trees: ☒ Saplings/Shrubs: ☐ Herbs

Avg. DBH of Dominants: *(approx.)* 13 in. 2 in.

Dominant Bank Vegetation *(list)*:
White oak, sugar maple, musclewood

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):
Cobble, roots along bank, debris pile

Aquatic Organisms Observed *(list)*:
Mayfly, caddis fly

T&E Species Observed *(list)*:
none

Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes):
Logging road, no culvert

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

Stream Quality [a]**:** *(check one)* ☐ High ☒ Moderate ☐ Low

Waterbody ID:
SAUA420

[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.

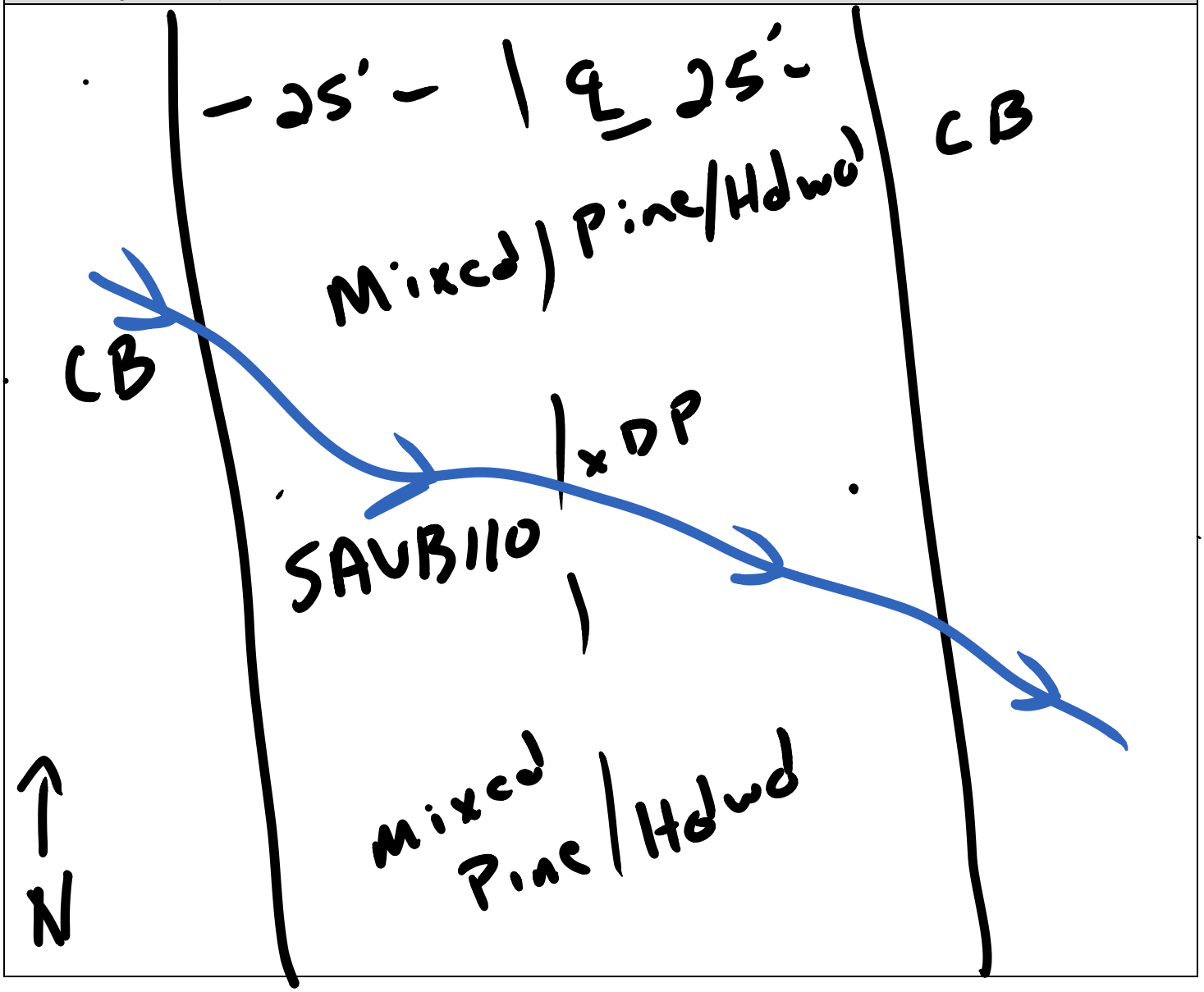
Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious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

Moderate sinuosity, moderate riffle pool, strong grade control, well developed bars and benches, debris piles.

SAUA420 previously named SAUB110

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



Waterbody SAUA420 facing east upstream

Waterbody SAUA420 facing north across

Waterbody SAUA420 facing west downstream

Linear Waterbody Data Sheet

Survey Description

Project Name:	Waterbody Name:	Waterbody ID:	Date:
Atlantic Coast Pipeline	UNT to Dowell's Draft	SAUA419	9/20/2016

State:	County:	Company:	Crew Member Initials:	Photos:
Virginia	Augusta	ERM	GB, AS	SAUA419_001-003

Tract Number(s):	Nearest Milepost:	Associated Wetland ID(s):
07-001	113	None

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: 7 ft.

Height: 1.5 ft. N/A☐

OHWM Indicator: *(check all that apply)*
☒ Clear line on bank ☐Shelving ☐Wrested vegetation ☐Scouring ☐Water staining
☐Bent, matted, or missing vegetation ☐Wrack line ☐Litter and debris ☐Abrupt plant community change ☐Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:	Width of Waterbody - Toe of Slope to Toe of Slope:	Width of Waterbody - Water Edge to Water Edge:	Depth of Water: *(Approx.)*
15 ft.	3 ft.	5 ft. N/A☐	1 ft. N/A☐

Sinuosity: *(check one)*	Water velocity: *(Approx.)*	Bank height	Bank slope
☐Straight ☒Meandering	1 fps N/A☐	Right: 5 ft. Left: 10 ft.	Right: 60 degrees Left: 75 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:	%	%	20 %	40 %	40 %	%	%	%

Width of Riparian Zone: 20 ft. N/A☐

Vegetative Layers: *(check all that apply)* ☒ Trees: ☒ Saplings/Shrubs: ☒ Herbs

Avg. DBH of Dominants: *(approx.)* 12 in. 2 in.

Dominant Bank Vegetation *(list)*:
White Pine, White Oak, Red Maple, Post Oak, Mountain Laurel, River Oats, Poison Ivy

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):
Riffles and Pools, leaf packs

Aquatic Organisms Observed *(list)*:
None

T&E Species Observed *(list)*:
None

Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes):
None

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

Stream Quality [a]: *(check one)* ☐ High ☒ Moderate ☐ Low

Waterbody ID:
SAUA419

[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.

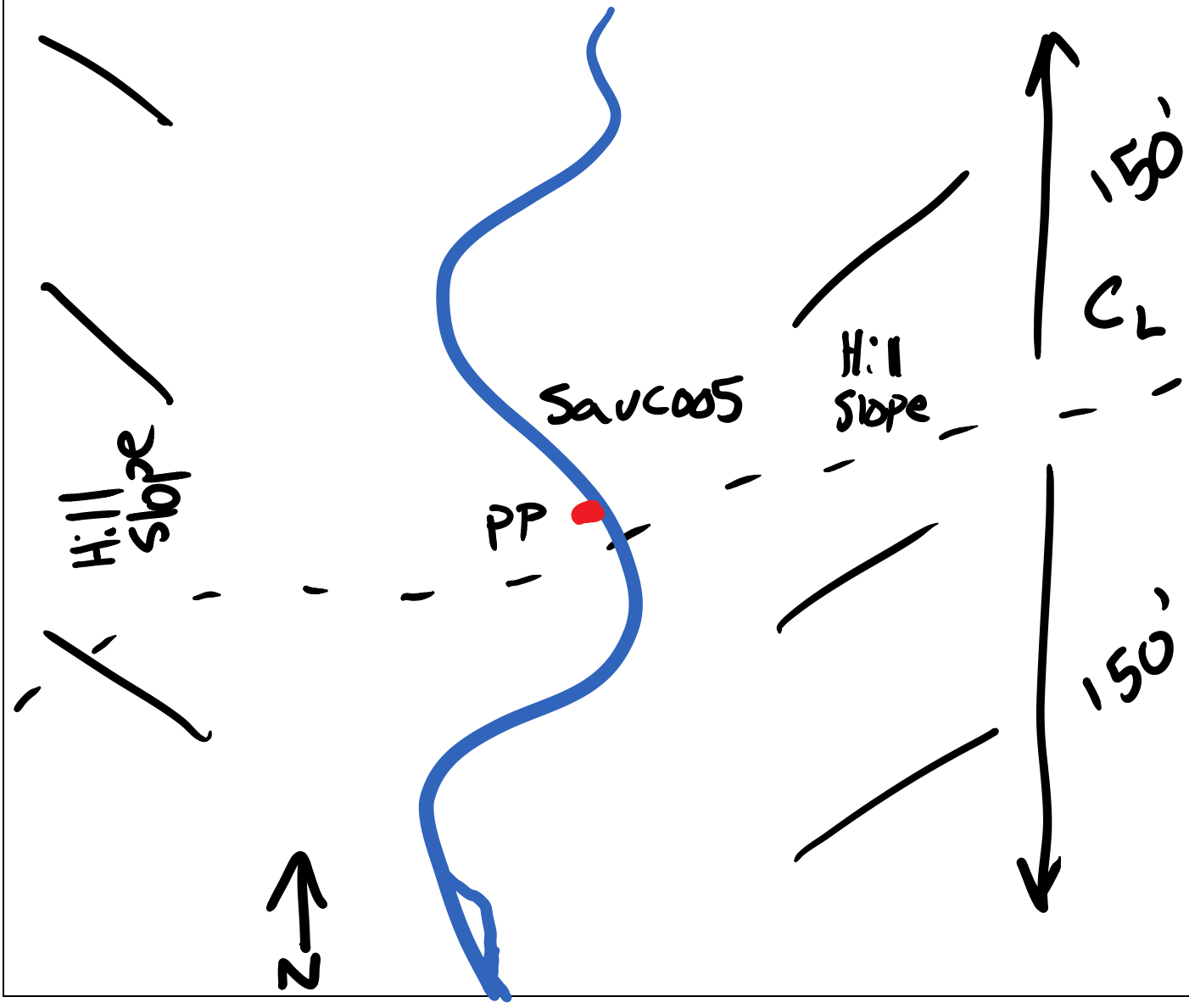
Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious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

saua419 was previously named sauc005

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



Waterbody SAUA419 facing north upstream

Waterbody SAUA419 facing south downstream

Waterbody SAUA419 facing east across

Waterbody saua419 headcut

Linear Waterbody Data Sheet

Survey Description

Project Name:	Waterbody Name:	Waterbody ID:	Date:
Atlantic Coast Pipeline	Buckhorn Creek	SAUA427e	9/23/2016

State:	County:	Company:	Crew Member Initials:	Photos:
Virginia	Augusta	ERM	GB, AS	SAUA427e_001-003

Tract Number(s):	Nearest	Associated Wetland ID(s):
07-001	Milepost: 120.2	None

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: 2 ft.

Height: 0.5 ft.

N/A☐

OHWM Indicator: *(check all that apply)*

☐ Clear line on bank ☐Shelving ☐Wrested vegetation ☐Scouring ☐Water staining

☐Bent, matted, or missing vegetation ☐Wrack line ☐Litter and debris ☐Abrupt plant community change ☐Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:	Width of Waterbody - Toe of Slope to Toe of Slope:	Width of Waterbody - Water Edge to Water Edge:	Depth of Water: *(Approx.)*
15 ft.	1 ft.	___ft. N/A☒	___ft. N/A☒

Sinuosity: *(check one)*	Water velocity: *(Approx.)*	Bank height	Bank slope
☐Straight ☒Meandering	___fps N/A☒	Right: 8 ft. Left: 4 ft.	Right: 70 degrees Left: 40 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:	___%	10 %	80 %	10 %	__%	___%	___%	___%

Width of Riparian Zone: 150 ft. N/A☐

Vegetative Layers: *(check all that apply)* ☒ Trees: ☒ Saplings/Shrubs: ☒ Herbs

Avg. DBH of Dominants: *(approx.)* 12 in. 2 in.

Dominant Bank Vegetation *(list)*:

White Oak, White Pine, American Hornbeam, Red Maple, May-Apple, Violet, Smilax

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):

None

Aquatic Organisms Observed *(list)*:

None

T&E Species Observed *(list)*:

None

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

None

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

Stream Quality [a]**:** *(check one)* ☐ High ☒ Moderate ☐ Low

Waterbody ID:
SAUA427e

[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.

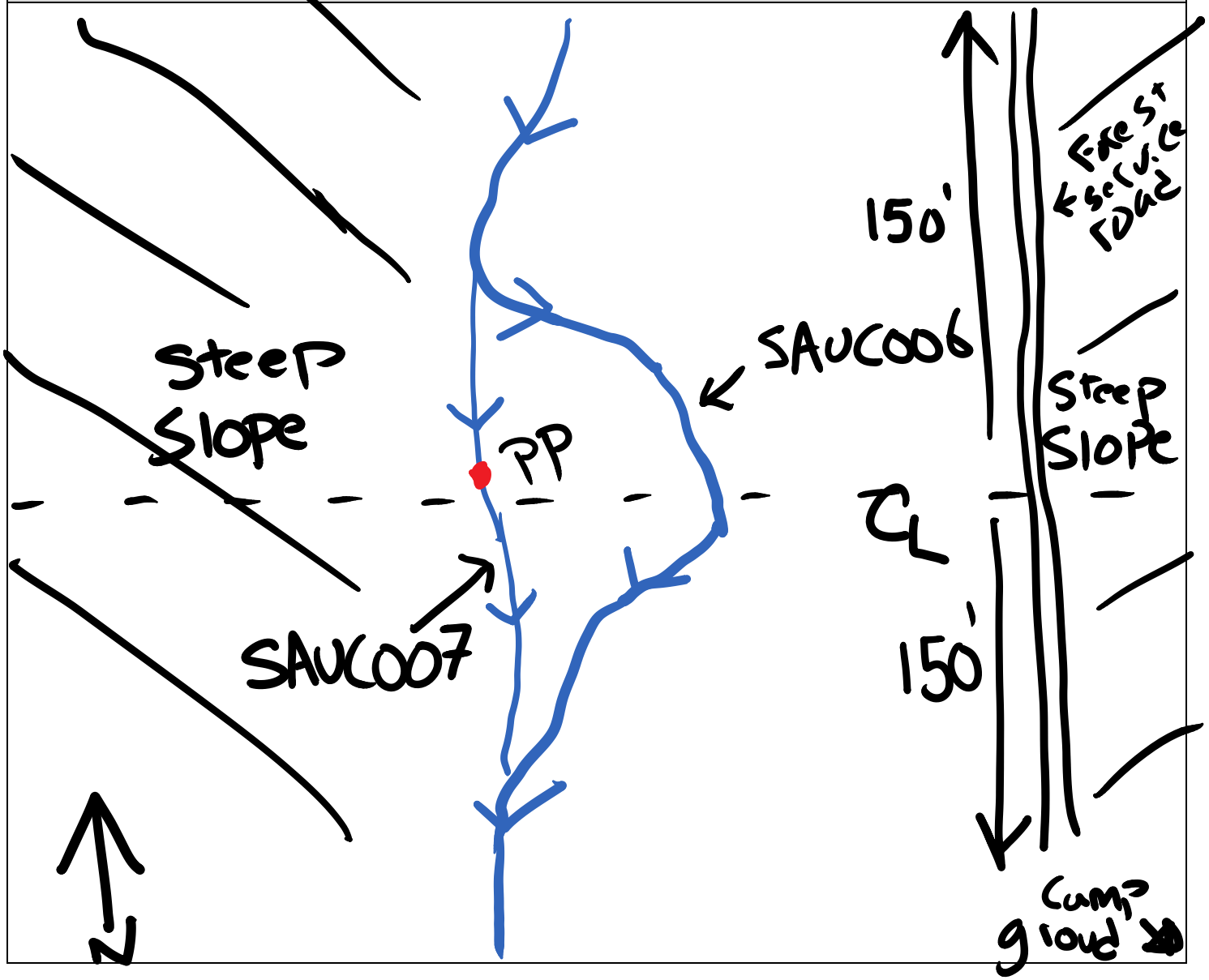
Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious 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 receives runoff from the nearby hillslope and from White Oak draft during flood events. Due to the high cobble content the OHWM is obscured.

saua427e was previously named sauc007.

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



Waterbody SAUA427e facing north upstream

Waterbody SAUA427e facing south downstream

Waterbody SAUA427e facing west across

Linear Waterbody Data Sheet

Survey Description

Project Name:	Waterbody Name:	Waterbody ID:	Date:
Atlantic Coast Pipeline	Buckhorn Creek	SAUA427p	9/23/2016

State:	County:	Company:	Crew Member Initials:	Photos:
Virginia	Augusta	ERM	GB, AS	SAUA427p_001-003

Tract Number(s):	Nearest Milepost:	Associated Wetland ID(s):
07-001	120.2	None

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: 20 ft.

Height: 2.5 ft. N/A☐

OHWM Indicator: *(check all that apply)*
☒ Clear line on bank ☐Shelving ☐Wrested vegetation ☐Scouring ☐Water staining
☒Bent, matted, or missing vegetation ☐Wrack line ☐Litter and debris ☐Abrupt plant community change ☒Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:	Width of Waterbody - Toe of Slope to Toe of Slope:	Width of Waterbody - Water Edge to Water Edge:	Depth of Water: *(Approx.)*
25 ft.	8 ft.	10 ft. N/A☐	1 ft. N/A☐

Sinuosity: *(check one)*	Water velocity: *(Approx.)*	Bank height	Bank slope
☐Straight ☒Meandering	1.5 fps N/A☐	Right: 3.5 ft. Left: 5.5 ft.	Right: 30 degrees Left: 90 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:	%	%	60 %	30 %	10 %	%	%	%

Width of Riparian Zone: 150 ft. N/A☐

Vegetative Layers: *(check all that apply)* ☒ Trees: ☒ Saplings/Shrubs: ☒ Herbs

Avg. DBH of Dominants: *(approx.)* 10 in. 2 in.

Dominant Bank Vegetation *(list)*:
White Oak, White Pine, Sycamore, Red Maple, May-Apple, Violet, Smilax

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):
Deep pools and riffles, over hanging banks and roots, downed logs in stream bed, Strong grade control

Aquatic Organisms Observed *(list)*:
None

T&E Species Observed *(list)*:
None

Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes):
None

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

Stream Quality [a]**:** *(check one)* ☒ High ☐ Moderate ☐ Low

Waterbody ID:
SAUA427p

[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.

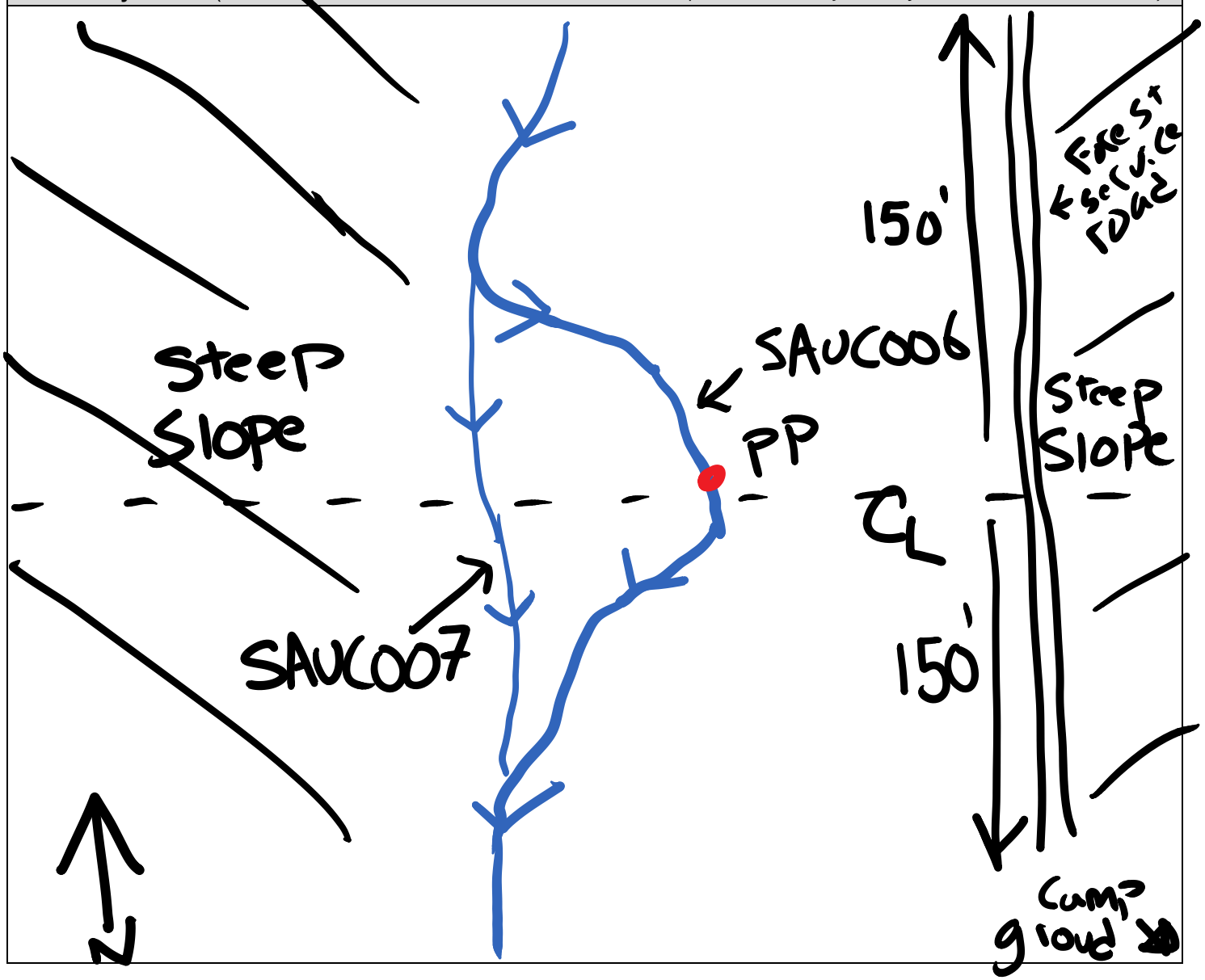
Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious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

saua427p was previously named sauc006

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



Waterbody SAUA427p facing east upstream

Waterbody SAUA427p facing west downstream

Waterbody SAUA427p facing south across

Linear Waterbody Data Sheet

Survey Description

Project Name:	Waterbody Name:	Waterbody ID:	Date:
Atlantic Coast Pipeline	UNT to Buckhorn Creek	SAUA426	9/23/2016

State:	County:	Company:	Crew Member Initials:	Photos:
Virginia	Augusta	ERM	GB, AS	01-03

Tract Number(s):	Nearest Milepost:	Associated Wetland ID(s):
07-001- AR466A	120.2	none

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: 10.0 ft.

Height: 2.0 ft.

N/A☐

OHWM Indicator: *(check all that apply)*

☒ Clear line on bank ☒Shelving ☐Wrested vegetation ☒Scouring ☐Water staining

☐Bent, matted, or missing vegetation ☐Wrack line ☒Litter and debris ☐Abrupt plant community change ☐Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:	Width of Waterbody - Toe of Slope to Toe of Slope:	Width of Waterbody - Water Edge to Water Edge:	Depth of Water: *(Approx.)*
15 ft.	5.0 ft.	8.0 ft. N/A☐	0.5 ft. N/A☐

Sinuosity: *(check one)*	Water velocity: *(Approx.)*	Bank height	Bank slope
☐Straight ☒Meandering	1.5 fps N/A☐	Right: 6 ft. Left: 6 ft.	Right: 85 degrees Left: 85 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:	%	%	45 %	30 %	15 %	10 %	%	%

Width of Riparian Zone: >80 ft. N/A☐

Vegetative Layers: *(check all that apply)* ☒ Trees: ☒ Saplings/Shrubs: ☐ Herbs

Avg. DBH of Dominants: *(approx.)* 10 in. 2 in.

Dominant Bank Vegetation *(list)*:

Northern red oak, sugar maple, Eastern hemlock, white pine, mountain laurel

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):

Cobble, roots along bank, debris pile

Aquatic Organisms Observed *(list)*:

Mayfly, caddis fly, stonefly

T&E Species Observed *(list)*:

none

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

Logging road, no culvert

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

Stream Quality [a]**:** *(check one)* ☐ High ☒ Moderate ☐ Low

Waterbody ID:
SAUA426

[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.

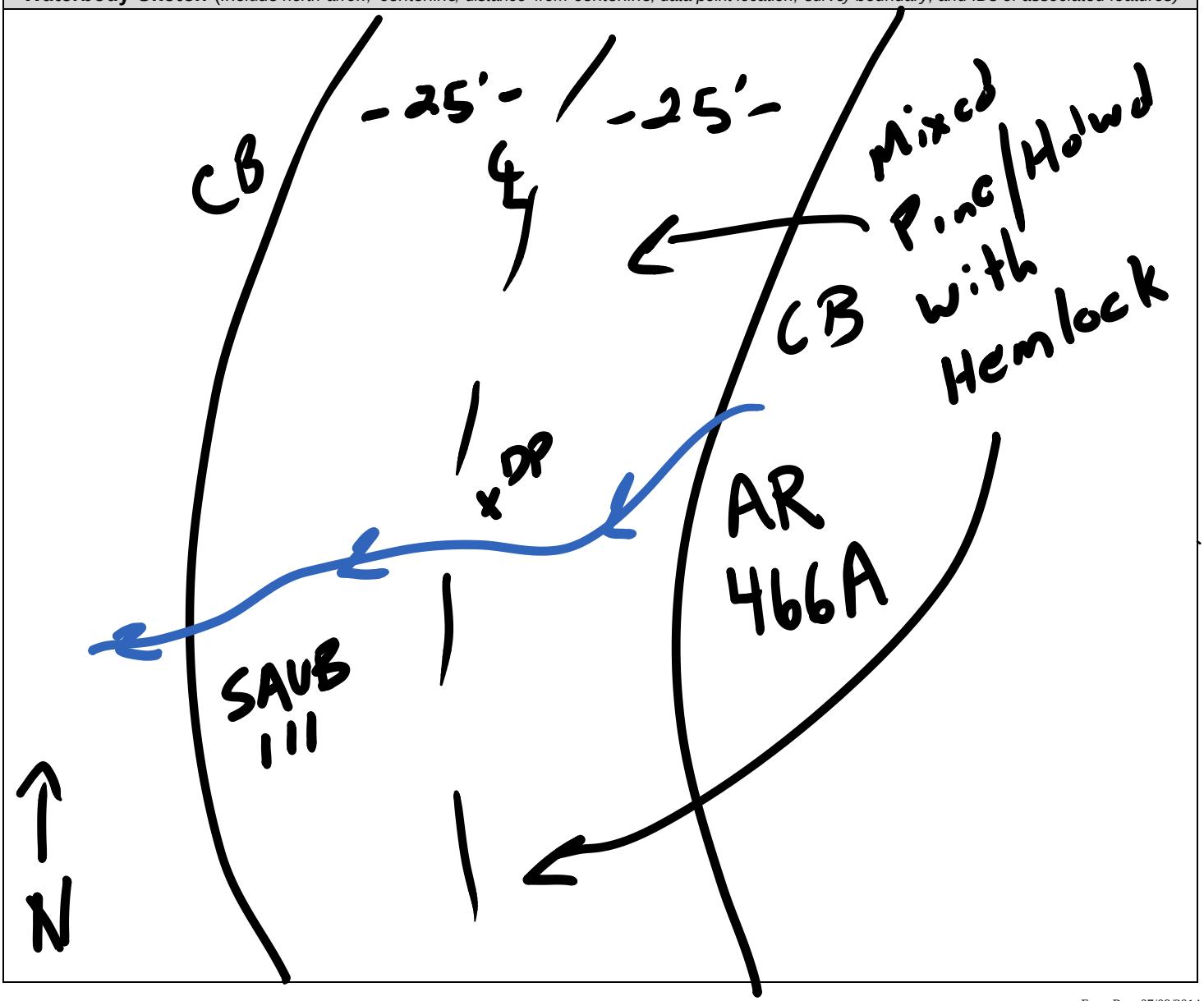
Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious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

Moderate sinuosity, weak to moderate riffle pool, strong grade control, moderate bars and benches, debris piles.

saua426 previously named saub111

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



Waterbody SAUA426 facing southwest upstream

Waterbody SAUA426 facing northwest across

Waterbody SAUA426 facing northeast downstream

Linear Waterbody Data Sheet

Survey Description

Project Name:	Waterbody Name:	Waterbody ID:	Date:
Atlantic Coast Pipeline	UNT to Buckhorn Creek	SAUA424	9/23/2016

State:	County:	Company:	Crew Member	Photos:
Virginia	Augusta	ERM	Initials: GB, AS	01-03

Tract Number(s):	Nearest	Associated Wetland ID(s):
07-001- AR466	Milepost: 120.2	none

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: 20.0 ft.

Height: 3.0 ft.

N/A☐

OHWM Indicator: *(check all that apply)*

☒ Clear line on bank ☒Shelving ☐Wrested vegetation ☒Scouring ☐Water staining

☐Bent, matted, or missing vegetation ☐Wrack line ☒Litter and debris ☐Abrupt plant community change ☐Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:	Width of Waterbody - Toe of Slope to Toe of Slope:	Width of Waterbody - Water Edge to Water Edge:	Depth of Water: *(Approx.)*
27 ft.	10.0 ft.	15.0 ft. N/A☐	1.0 ft. N/A☐

Sinuosity: *(check one)*	Water velocity: *(Approx.)*	Bank height	Bank slope
☐Straight ☒Meandering	2.0 fps N/A☐	Right: 6 ft. Left: 5 ft.	Right: 85 degrees Left: 88 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:	%	10 %	40 %	40 %	5 %	5 %	%	%

Width of Riparian Zone: 125 ft. N/A☐

Vegetative Layers: *(check all that apply)* ☒ Trees: ☒ Saplings/Shrubs: ☐ Herbs

Avg. DBH of Dominants: *(approx.)* 10 in. 2 in.

Dominant Bank Vegetation *(list)*:

Northern red oak, sugar maple, chestnut oak, white pine, mountain laurel

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):

Cobble, roots along bank, debris pile

Aquatic Organisms Observed *(list)*:

Mayfly, caddis fly, stonefly

T&E Species Observed *(list)*:

none

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

Forest service road along left bank

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

Stream Quality [a]**:** *(check one)* ☐ High ☒ Moderate ☐ Low

Waterbody ID:
SAUA424

[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.

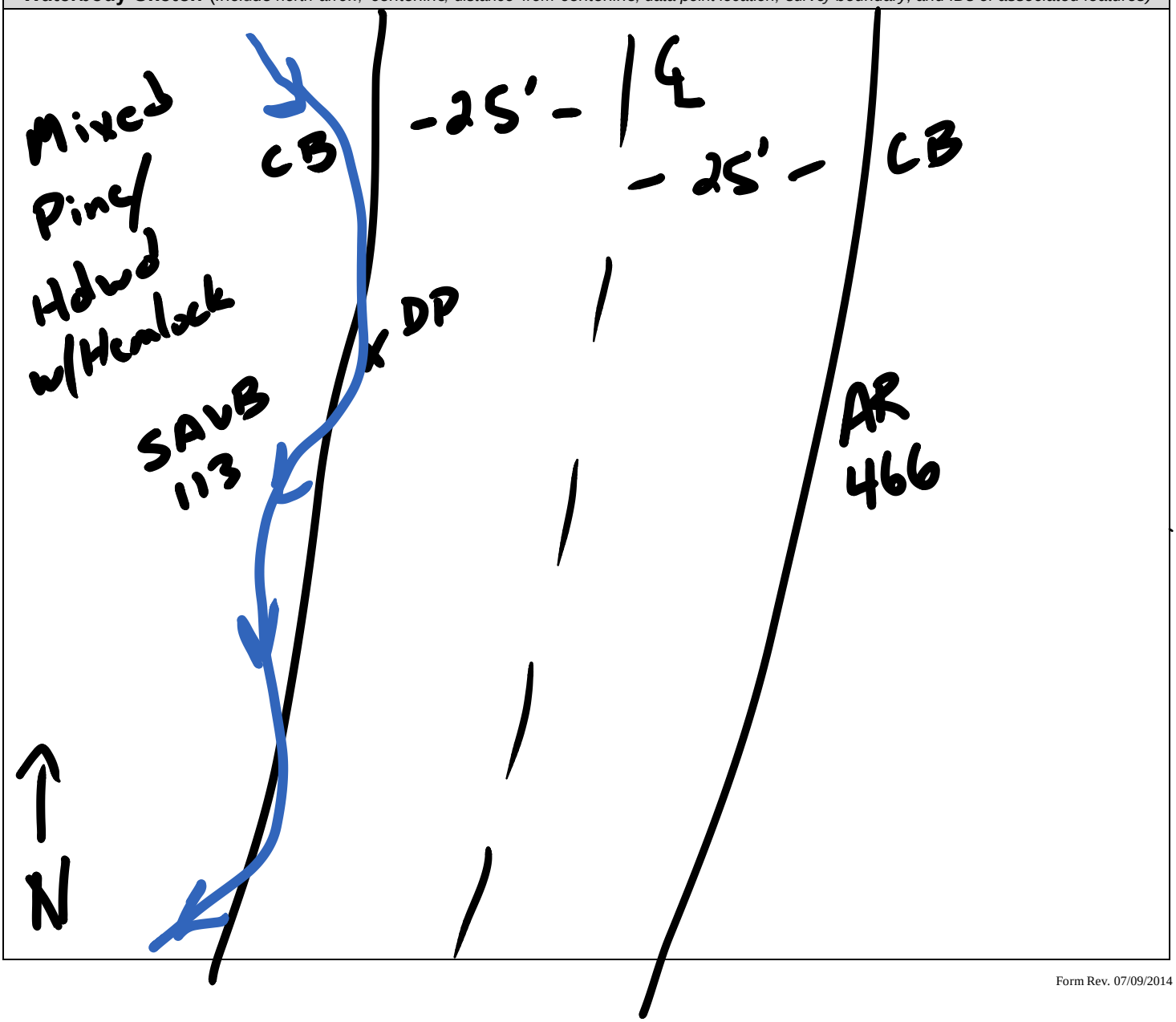
Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious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

Moderate sinuosity, weak to moderate riffle pool, strong grade control, strong bars and benches, debris piles.

saua424 previously named saub113

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



Waterbody SAUA424 facing north upstream

Waterbody SAUA424 facing west across

Waterbody SAUA424 facing south downstream

Linear Waterbody Data Sheet

Survey Description

Project Name:	Waterbody Name:	Waterbody ID:	Date:
Atlantic Coast Pipeline	UNT to Buckhorn Creek	SAUA425	9/23/2016

State:	County:	Company:	Crew Member Initials:	Photos:
Virginia	Augusta	ERM	GB, AS	01-03

Tract Number(s):	Nearest Milepost:	Associated Wetland ID(s):
07-001- AR466A	120.2	none

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: 1.0 ft.

Height: 0.2 ft. N/A☐

OHWM Indicator: *(check all that apply)* ☐ Clear line on bank ☐Shelving ☐Wrested vegetation ☒Scouring ☐Water staining ☐Bent, matted, or missing vegetation ☐Wrack line ☒Litter and debris ☐Abrupt plant community change ☐Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:	Width of Waterbody - Toe of Slope to Toe of Slope:	Width of Waterbody - Water Edge to Water Edge:	Depth of Water: *(Approx.)*
2 ft.	0.5 ft.	.0 ft. N/A☒	0 ft. N/A☒

Sinuosity: *(check one)*	Water velocity: *(Approx.)*	Bank height	Bank slope
☐Straight ☒Meandering	___fps N/A☒	Right: 2 ft. Left: 2 ft.	Right: 85 degrees Left: 85 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:	____%	____%	10 %	30 %	10 %	50 %	____%	____%

Width of Riparian Zone: > ft. N/A☒

Vegetative Layers: *(check all that apply)* ☒ Trees: ☒ Saplings/Shrubs: ☐ Herbs

Avg. DBH of Dominants: *(approx.)* 6 in. 2 in.

Dominant Bank Vegetation *(list)*:

Northern red oak, sugar maple, white oak, mountain laurel

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):

none

Aquatic Organisms Observed *(list)*:

none

T&E Species Observed *(list)*:

none

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

Logging road, no culvert, timbered

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

Stream Quality [a]**:** *(check one)* ☐ High ☒ Moderate ☐ Low

Waterbody ID:
SAUA425

[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.

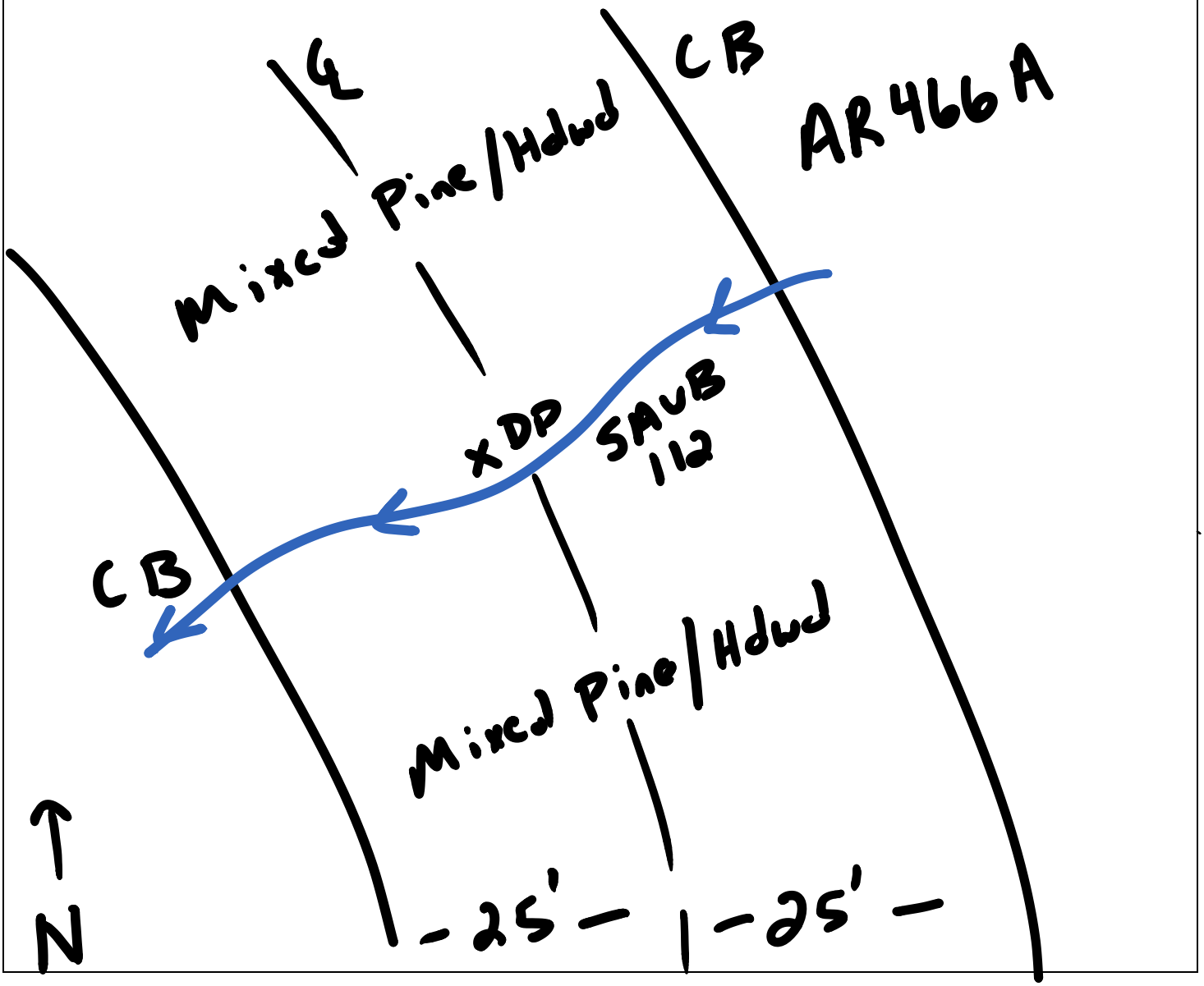
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate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

Weak sinuosity, leaf letter and fibrous roots present in channel, weak to absent ordinary high water mark, lacked hydric soils.

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



Waterbody SAUA425 facing north upstream

Waterbody SAUA425 facing east across

Waterbody SAUA425 facing south downstream

Linear Waterbody Data Sheet

Survey Description

Project Name:	Waterbody Name:	Waterbody ID:	Date:
Atlantic Coast Pipeline	UNT to Buckhorn Creek	SAUA428	9/23/2016

State:	County:	Company:	Crew Member Initials:	Photos:
Virginia	Augusta	ERM	GB, AS	SAUA428_001-003

Tract Number(s):	Nearest Milepost:	Associated Wetland ID(s):
07-001	120.4	None

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: 15 ft.

Height: 3 ft. N/A☐

OHWM Indicator: *(check all that apply)*
☒ Clear line on bank ☐Shelving ☐Wrested vegetation ☒Scouring ☐Water staining
☒Bent, matted, or missing vegetation ☐Wrack line ☒Litter and debris ☐Abrupt plant community change ☐Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:	Width of Waterbody - Toe of Slope to Toe of Slope:	Width of Waterbody - Water Edge to Water Edge:	Depth of Water: *(Approx.)*
25 ft.	6 ft.	10 ft. N/A☐	1 ft. N/A☐

Sinuosity: *(check one)*	Water velocity: *(Approx.)*	Bank height	Bank slope
☐Straight ☒Meandering	1 fps N/A☐	Right: 5 ft. Left: 6 ft.	Right: 40 degrees Left: 90 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:	%	10%	50 %	35 %	5 %	%	%	%

Width of Riparian Zone: 100 ft. N/A☐

Vegetative Layers: *(check all that apply)* ☒ Trees: ☒ Saplings/Shrubs: ☒ Herbs

Avg. DBH of Dominants: *(approx.)* 14 in. 2 in.

Dominant Bank Vegetation *(list)*:
Red Oak, White Pine, American Hornbeam, Striped Maple, Violet, Christmas fern, multiflora rose, wintergreen

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):
Deep pools and riffles, over hanging banks and roots, downed logs in stream bed

Aquatic Organisms Observed *(list)*:
None

T&E Species Observed *(list)*:
None

Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes):
None

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

Stream Quality [a]**:** *(check one)* ☒ High ☐ Moderate ☐ Low

Waterbody ID:
SAUA428

[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.

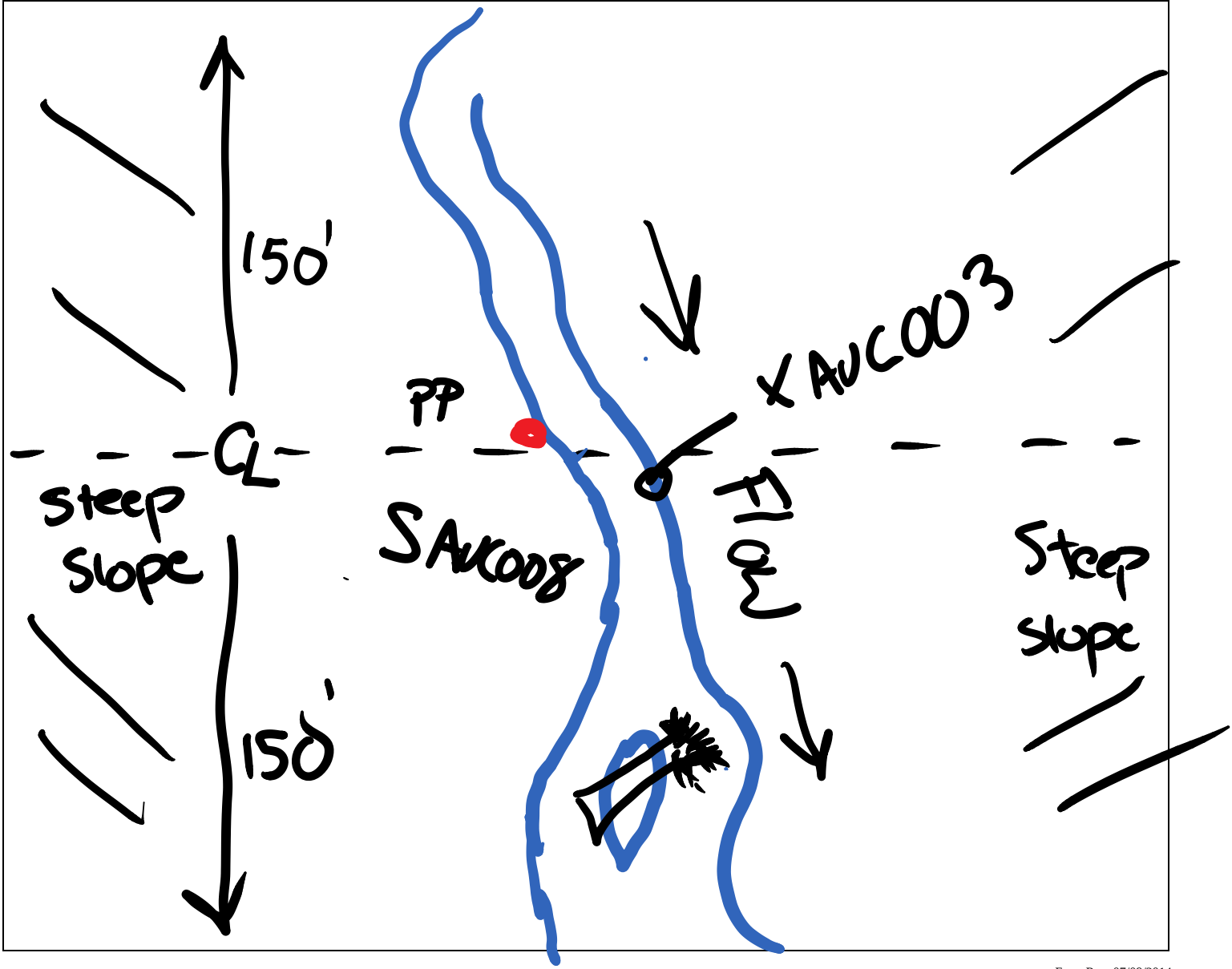
Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious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

saua428 previously named sauc008

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



Waterbody SAUA428 facing north upstream

Waterbody SAUA428 facing south downstream

Waterbody SAUA428 facing east across

Linear Waterbody Data Sheet

Survey Description

Project Name:	Waterbody Name:	Waterbody ID:	Date:
Atlantic Coast Pipeline	UNT to Stoutameyer Branch	SAUA429	9/23/2016

State:	County:	Company:	Crew Member	Photos:
Virginia	Augusta	ERM	Initials: GB, AS	SAUA429_001-003

Tract Number(s):	Nearest Milepost:	Associated Wetland ID(s):
07-001	120.55	None

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: 3 ft.

Height: 0.5 ft. N/A☐

OHWM Indicator: *(check all that apply)*
☒ Clear line on bank ☐Shelving ☐Wrested vegetation ☐Scouring ☐Water staining
☒Bent, matted, or missing vegetation ☐Wrack line ☐Litter and debris ☐Abrupt plant community change ☐Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:	Width of Waterbody - Toe of Slope to Toe of Slope:	Width of Waterbody - Water Edge to Water Edge:	Depth of Water: *(Approx.)*
10 ft.	1 ft.	1 ft. N/A☐	0.2 ft. N/A☐

Sinuosity: *(check one)*	Water velocity: *(Approx.)*	Bank height	Bank slope
☒Straight ☐Meandering	0.5 fps N/A☐	Right: 3 ft. Left: 4 ft.	Right: 50 degrees Left: 50 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:	%	%	%	5 %	20 %	75 %	%	%

Width of Riparian Zone: ft. N/A☒

Vegetative Layers: *(check all that apply)* ☒ Trees: ☒ Saplings/Shrubs: ☒ Herbs

Avg. DBH of Dominants: *(approx.)* 8 in. 2 in.

Dominant Bank Vegetation *(list)*:
White Oak, Chestnut Oak, Red Maple, American Hornbeam

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

Aquatic Organisms Observed *(list)*:
None

T&E Species Observed *(list)*:
None

Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes):
None

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

Stream Quality [a]: *(check one)* ☐ High ☒ Moderate ☐ Low

Waterbody ID:
SAUA429

[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.

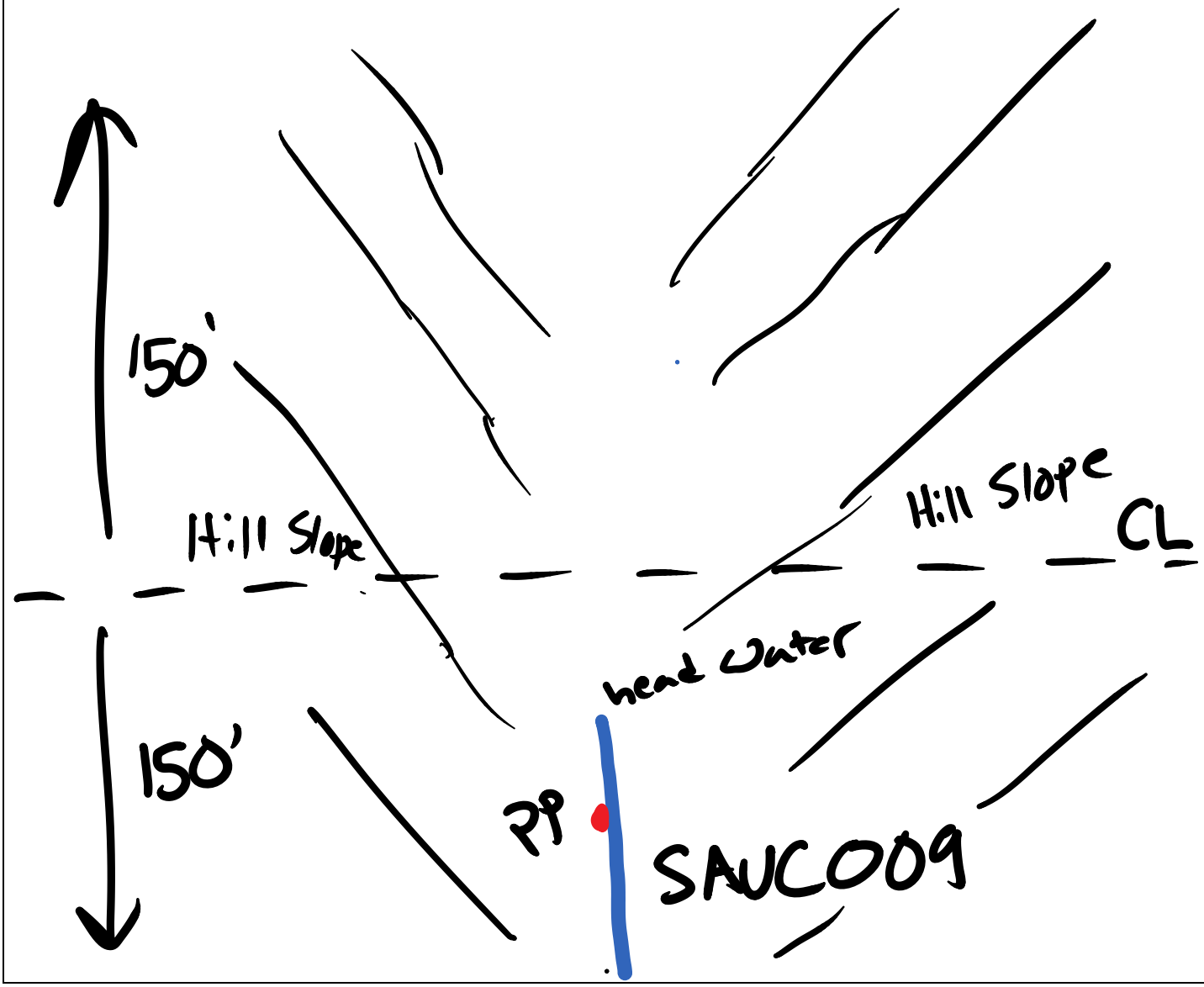
Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious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

saua429 previously name sauc009

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



Waterbody SAUA429 facing north upstream

Waterbody SAUA429 facing south downstream

Waterbody SAUA429 facing east across

Linear Waterbody Data Sheet

Survey Description

Project Name:	Waterbody Name:	Waterbody ID:	Date:
Atlantic Coast Pipeline	UNT to Jennings Branch	SAUA421	9/20/2016

State:	County:	Company:	Crew Member Initials:	Photos:
Virginia	Augusta	NRG	CR, SA	SAUA421_001-003

Tract Number(s):	Nearest Milepost:	Associated Wetland ID(s):
07-001	122.45	None

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: 3 ft.

Height: 0.5 ft. N/A☐

OHWM Indicator: *(check all that apply)*
☒ Clear line on bank ☐Shelving ☐Wrested vegetation ☐Scouring ☐Water staining
☐Bent, matted, or missing vegetation ☐Wrack line ☐Litter and debris ☐Abrupt plant community change ☐Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:	Width of Waterbody - Toe of Slope to Toe of Slope:	Width of Waterbody - Water Edge to Water Edge:	Depth of Water: *(Approx.)*
15 ft.	1 ft.	2 ft. N/A☐	0.3 ft. N/A☐

Sinuosity: *(check one)*	Water velocity: *(Approx.)*	Bank height	Bank slope
☐Straight ☒Meandering	0.5 fps N/A☐	Right: 4 ft. Left: 3 ft.	Right: 50 degrees Left: 30 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:	%	%	%	30 %	70 %	%	%	%

Width of Riparian Zone: ft. N/A☒

Vegetative Layers: *(check all that apply)* ☒ Trees: ☒ Saplings/Shrubs: ☒ Herbs

Avg. DBH of Dominants: *(approx.)* 14 in. 2 in.

Dominant Bank Vegetation *(list)*:
White pine, mountain laurel, common smilax, dogwood, sphagnum

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):
Leaf packs

Aquatic Organisms Observed *(list)*:
None

T&E Species Observed *(list)*:
None

Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes):
None

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

Stream Quality [a]: *(check one)* ☒ High ☐ Moderate ☐ Low

Waterbody ID:
SAUA421

[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.

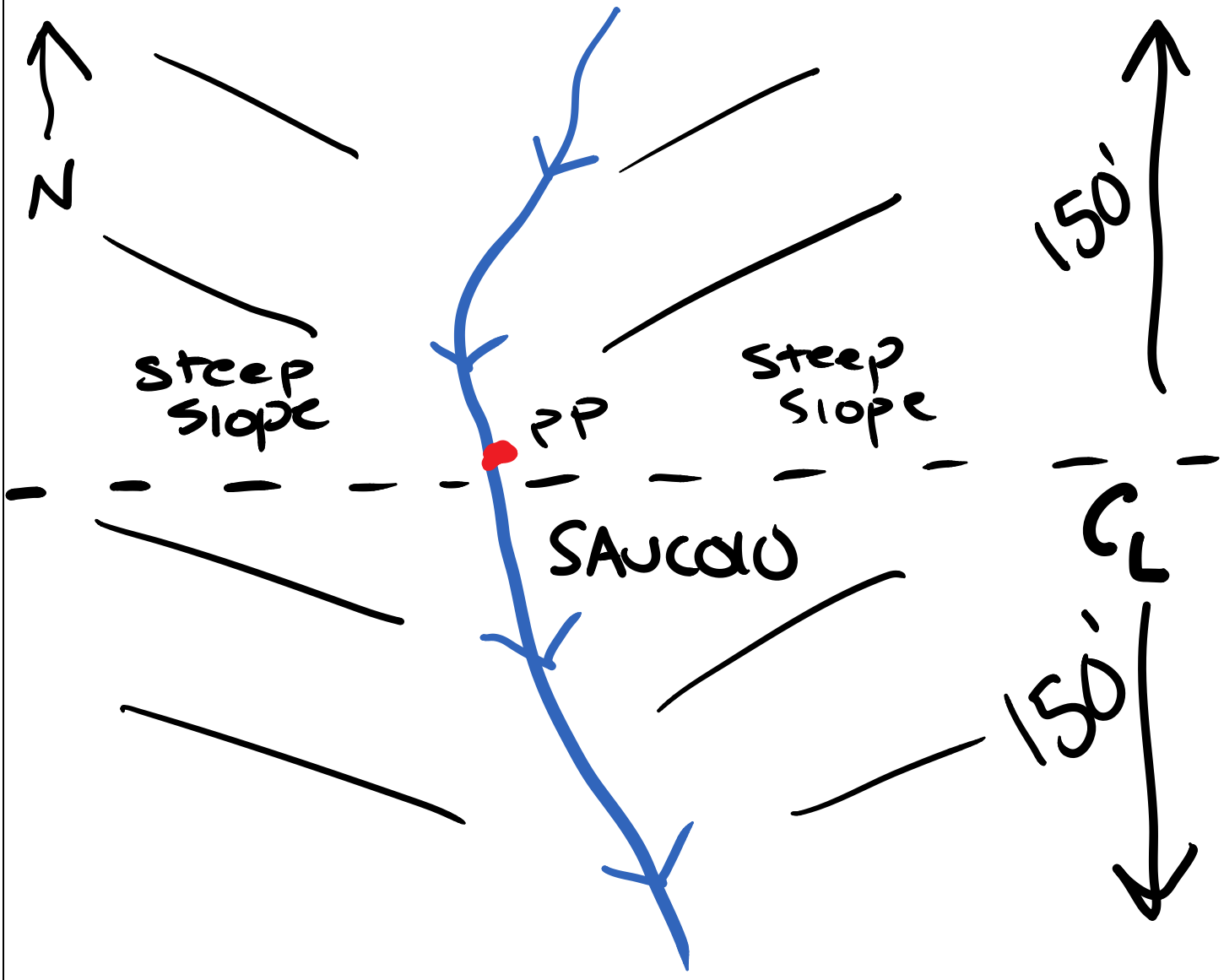
Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious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

saua421 previously named sauc010

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



Waterbody SAUA421 facing northeast upstream

Waterbody SAUA421 facing southwest downstream

Waterbody SAUA421 facing east across

Linear Waterbody Data Sheet

Survey Description

Project Name:	Waterbody Name:	Waterbody ID:	Date:
Atlantic Coast Pipeline	UNT to Jennings Branch	SAUA422	9/20/2016

State:	County:	Company:	Crew Member Initials:	Photos:
Virginia	Augusta	ERM	GB, AS	SAUA422_001-003

Tract Number(s):	Nearest Milepost:	Associated Wetland ID(s):
07-001	118.1	None

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: 4 ft.

Height: 0.8 ft. N/A☐

OHWM Indicator: *(check all that apply)*
☒ Clear line on bank ☐Shelving ☐Wrested vegetation ☐Scouring ☐Water staining
☐Bent, matted, or missing vegetation ☐Wrack line ☐Litter and debris ☐Abrupt plant community change ☐Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:	Width of Waterbody - Toe of Slope to Toe of Slope:	Width of Waterbody - Water Edge to Water Edge:	Depth of Water: *(Approx.)*
15 ft.	2 ft.	3 ft. N/A☐	0.5 ft. N/A☐

Sinuosity: *(check one)*	Water velocity: *(Approx.)*	Bank height	Bank slope
☐Straight ☒Meandering	1 fps N/A☐	Right: 3 ft. Left: 4 ft.	Right: 30 degrees Left: 70 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:	5 %	%	20 %	55 %	20 %	%	%	%

Width of Riparian Zone: 10 ft. N/A☐

Vegetative Layers: *(check all that apply)* ☒ Trees: ☒ Saplings/Shrubs: ☒ Herbs

Avg. DBH of Dominants: *(approx.)* 12 in. 2 in.

Dominant Bank Vegetation *(list)*:
White pine, mountain laurel, chestnut oak, scarlet oak, lowbush blueberry, pasture rose

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):
Leaf packs, downed logs, overhanging roots

Aquatic Organisms Observed *(list)*:
None

T&E Species Observed *(list)*:
None

Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes):
None

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

Stream Quality [a]: *(check one)* ☒ High ☐ Moderate ☐ Low

Waterbody ID:
SAUA422

[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.

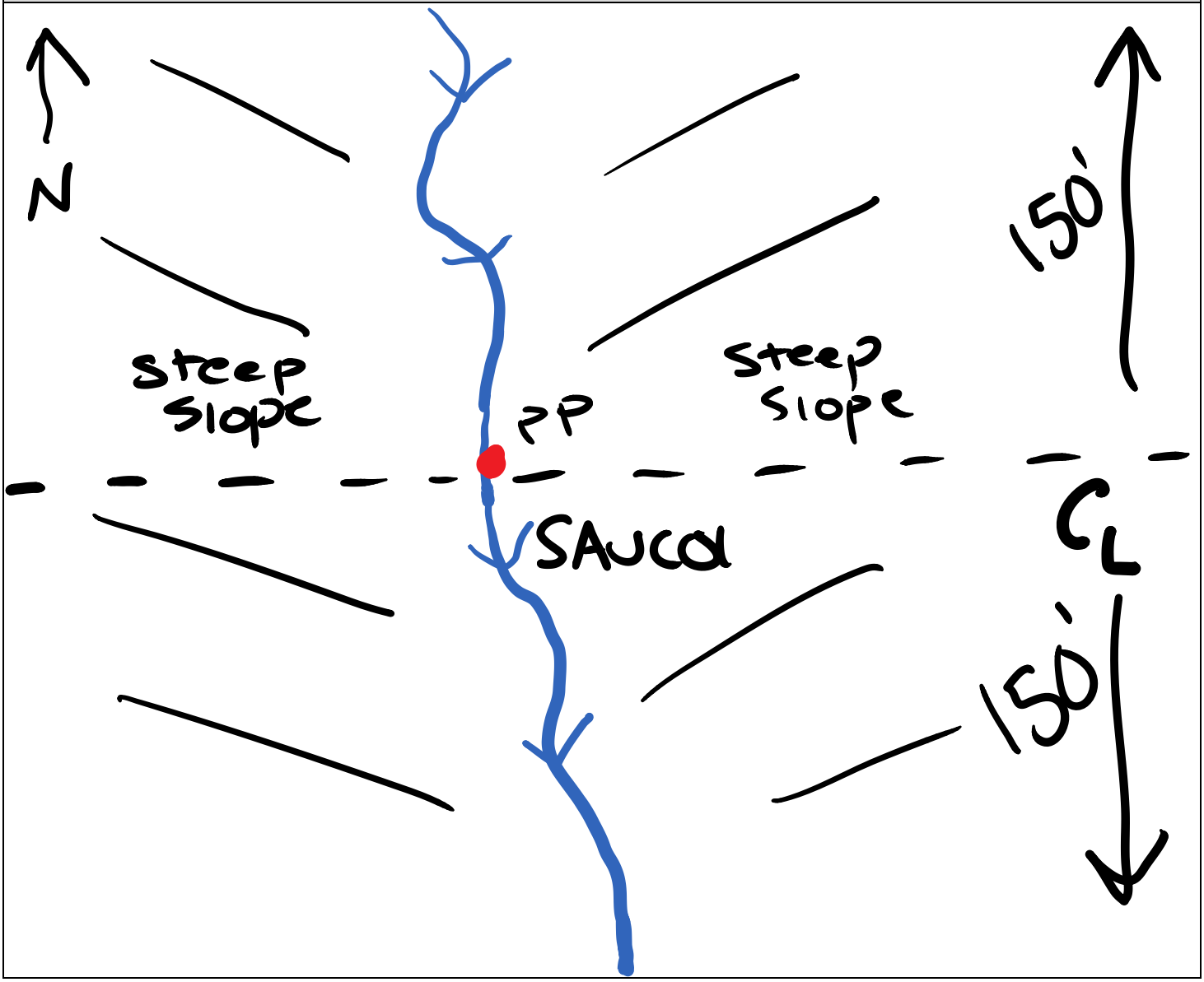
Moderate Quality: Altered channel evidenced by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or riparian vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate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

saua422 previously named sauc011

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



Waterbody SAUA422 facing east upstream

Waterbody SAUA422 facing west downstream

Waterbody SAUA422 facing south across

Linear Waterbody Data Sheet

Survey Description

Project Name:	Waterbody Name:	Waterbody ID:	Date:
Atlantic Coast Pipeline	UNT to Jennings Branch	SAUA423	9/20/2016

State:	County:	Company:	Crew Member	Photos:
Virginia	Augusta	ERM	Initials: GB, AS	SAUA423_001-003

Tract Number(s):	Nearest	Associated Wetland ID(s):
07-001	Milepost: 123.0	None

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: 3 ft.

Height: 0.5 ft. N/A☐

OHWM Indicator: *(check all that apply)*
☒ Clear line on bank ☐Shelving ☐Wrested vegetation ☐Scouring ☐Water staining
☐Bent, matted, or missing vegetation ☐Wrack line ☐Litter and debris ☐Abrupt plant community change ☐Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:	Width of Waterbody - Toe of Slope to Toe of Slope:	Width of Waterbody - Water Edge to Water Edge:	Depth of Water: *(Approx.)*
8 ft.	1 ft.	2 ft. N/A☐	0.2 ft. N/A☐

Sinuosity: *(check one)*	Water velocity: *(Approx.)*	Bank height	Bank slope
☐Straight ☒Meandering	0.3 fps N/A☐	Right: 3 ft. Left: 5 ft.	Right: 40 degrees Left: 60 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:	%	10 %	%	0 %	20 %	70 %	%	%

Width of Riparian Zone: ft. N/A☒

Vegetative Layers: *(check all that apply)* ☒ Trees: ☒ Saplings/Shrubs: ☒ Herbs

Avg. DBH of Dominants: *(approx.)* 22 in. 2 in.

Dominant Bank Vegetation *(list)*:
Red oak, post oak, blackberry, red maple, common blue violet

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):
Leaf packs

Aquatic Organisms Observed *(list)*:
None

T&E Species Observed *(list)*:
None

Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes):
None

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

Stream Quality [a]: *(check one)* ☒ High ☐ Moderate ☐ Low

Waterbody ID:
SAUA423

[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.

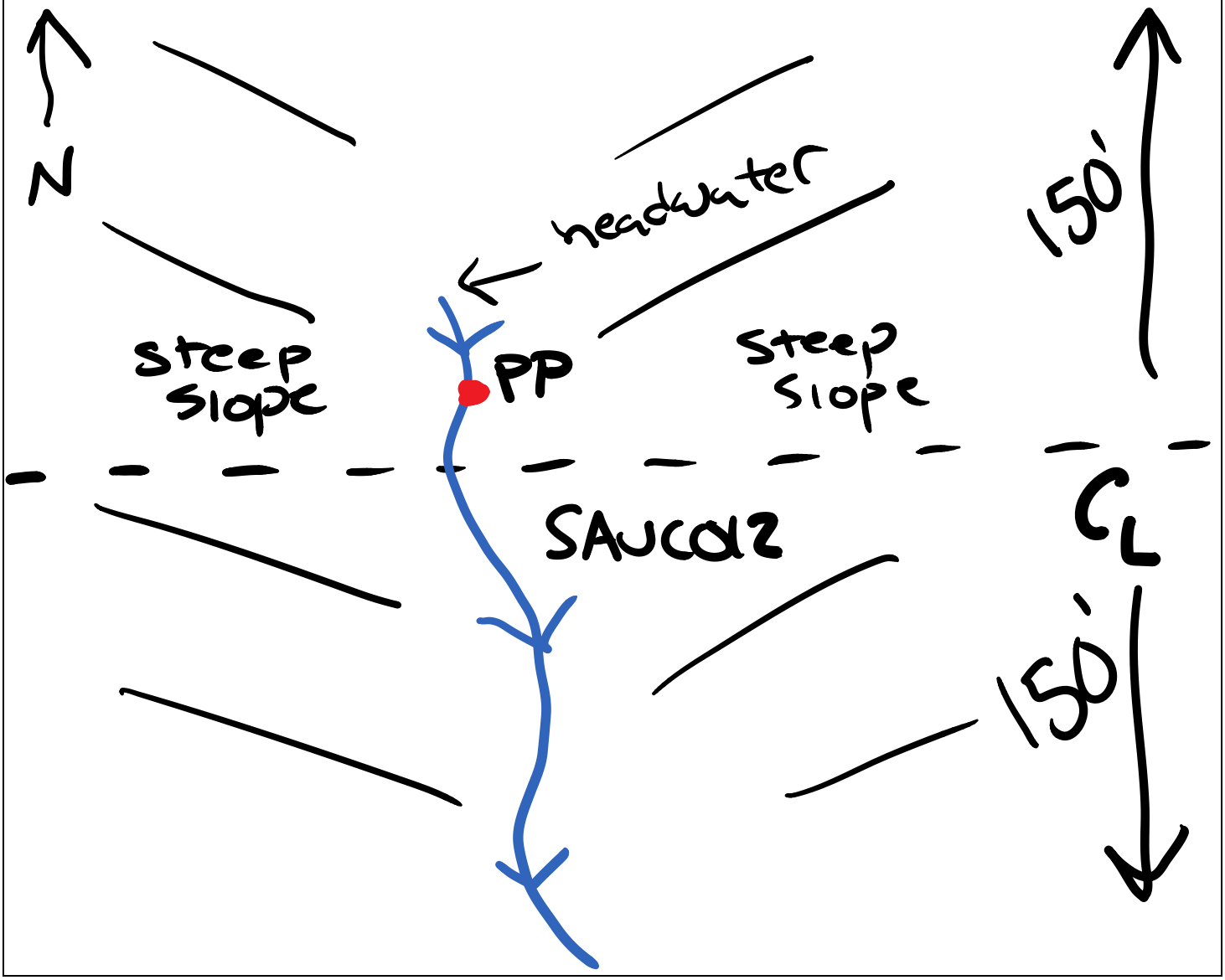
Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious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

saua423 was previously named sauc012

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



Waterbody SAUA423 facing southeast upstream

Waterbody SAUA423 facing northwest downstream

Waterbody SAUA423 facing southwest across

Linear Waterbody Data Sheet

Survey Description

Project Name:	Waterbody Name:	Waterbody ID:	Date:
Atlantic Coast Pipeline	UNT to Back Creek	saua072	1/14/2016

State:	County:	Company:	Crew Member Initials:	Photos:
Virginia	Augusta	NRG	GB, SA	3 photos

Tract Number(s):	Nearest Milepost:	Associated Wetland ID(s):
07-001.AR1	154.2	none

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: 3.0 ft.

Height: 0.50 ft. N/A☐

OHWM Indicator: *(check all that apply)*
☐ Clear line on bank ☐Shelving ☐Wrested vegetation ☒Scouring ☐Water staining
☐Bent, matted, or missing vegetation ☐Wrack line ☒Litter and debris ☐Abrupt plant community change ☐Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:	Width of Waterbody - Toe of Slope to Toe of Slope:	Width of Waterbody - Water Edge to Water Edge:	Depth of Water: *(Approx.)*
10.0 ft.	2.5 ft.	2.0 ft. N/A☐	0.20 ft. N/A☐

Sinuosity: *(check one)*	Water velocity: *(Approx.)*	Bank height	Bank slope
☒Straight ☐Meandering	0.25 fps N/A☐	Right: 2.0 ft. Left: 2.5 ft.	Right: 65 degrees Left: 50 degrees

Analysis of Bank Stability and Soil Erosion Potential (i.e. root structure, vegetation, substrate characteristics):
No bank instability observed, banks not well developed in certain areas.

Analysis of Above Bank Steep Slope Stability:
Slopes are variable, ranging from gentle to moderate (10-30%); no signs of instability observed.

Qualitative Attributes

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

Water Quality:
Total Dissolved Solids (TDS): 10.0 mg/L Turbidity: 1.97 NTU Nitrogen: 0.00 mg/L Phosphorous: 0.02 mg/L
Conductivity: 11.3 µS/cm Temperature: 8.31 °C Dissolved Oxygen (D.O): 10.29 mg/L pH: 6.15

Last Rain Event: *(check one)* ☒ Over 48 hours ago ☐ Within Last 48 hours ☐ Within Last 24 hours ☐ Currently raining

Width of Riparian Zone: _____ ft. N/A☒

Vegetative Layers: *(check all that apply)* ☒ Trees: ☒ Saplings/Shrubs: ☒ Herbs
Avg. DBH of Dominants: *(approx.)* 10.0 in. 1.0 in.

Dominant Bank Vegetation *(list)*:
Yellow popular, chestnut oak, black cherry, northern red oak, dogwood, mountain laurel, huckleberry, greenbrier, Christmas fern

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):
Leaf packs, small pools, woody debris

Aquatic Organisms Observed *(list)*:
none

T&E Species Observed *(list)*:
none

Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes):
None apparent

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

Waterbody ID:
saua072

[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.

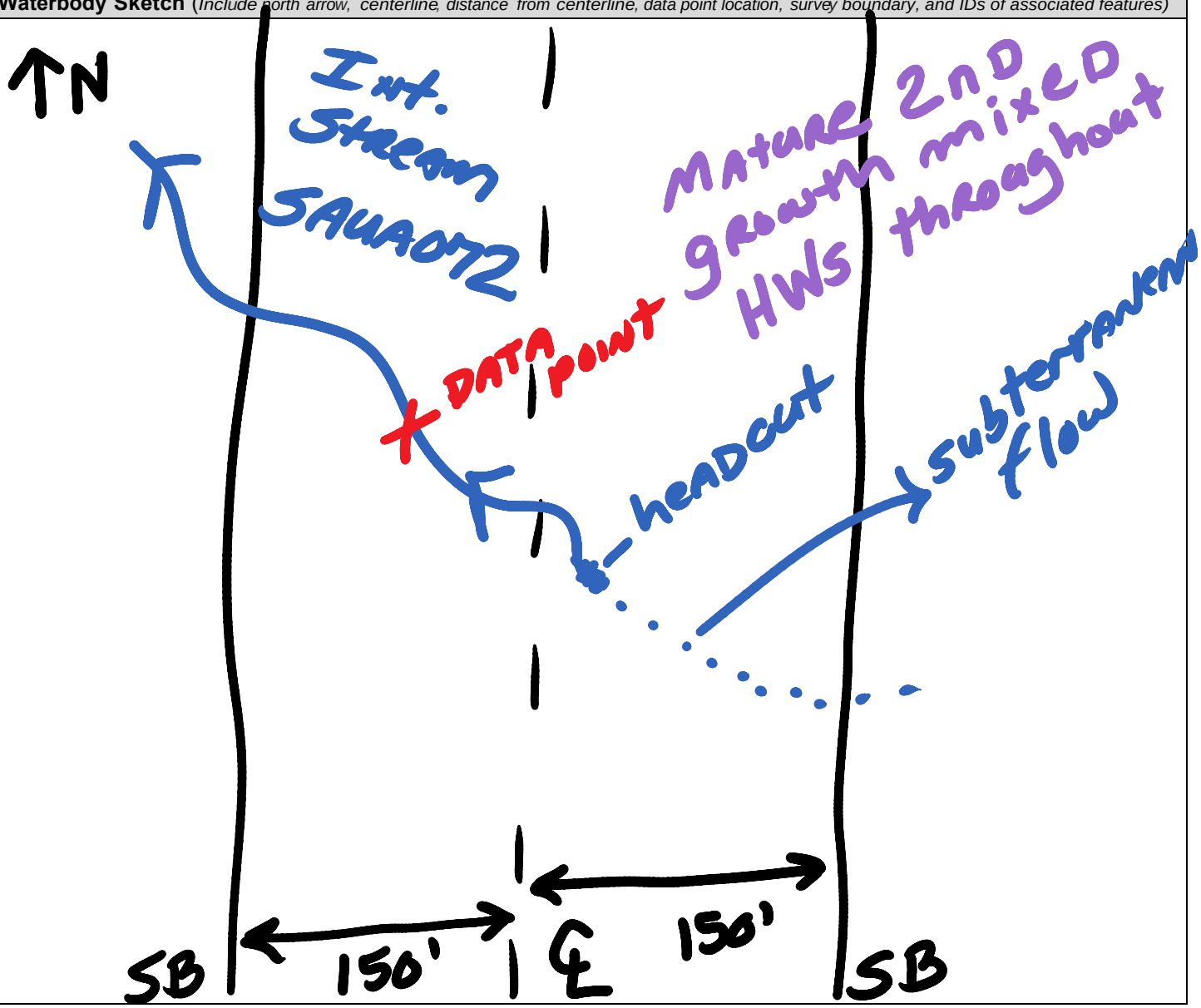
Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious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

Stream Quality [a]: *(check one)* ☒ High ☐ Moderate ☐ Low

Notes:

Stream begins at small head cut within a draw near centerline where subterranean flow comes to surface, downstream continues out of corridor, flow is subterranean in places along mapped course.

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



Waterbody SAUA072 facing south upstream

Waterbody SAUA072 facing north downstream

Waterbody SAUA072 facing east across

Linear Waterbody Data Sheet

Survey Description

Project Name:	Waterbody Name:	Waterbody ID:	Date:
Atlantic Coast Pipeline	UNT to Back Creek	Saua434	9/24/2016

State:	County:	Company:	Crew Member Initials:	Photos:
Virginia	Augusta	ERM	GB, AS	1-3

Tract Number(s):	Nearest Milepost:	Associated Wetland ID(s):
07-001.AR	155.45	None

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: 8 ft.

Height: 1 ft. N/A☐

OHWM Indicator: *(check all that apply)*
☒ Clear line on bank ☐Shelving ☐Wrested vegetation ☒Scouring ☐Water staining
☐Bent, matted, or missing vegetation ☒Wrack line ☒Litter and debris ☐Abrupt plant community change ☐Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:	Width of Waterbody - Toe of Slope to Toe of Slope:	Width of Waterbody - Water Edge to Water Edge:	Depth of Water: *(Approx.)*
12 ft.	2 ft.	5 ft. N/A☐	0.5 ft. N/A☐

Sinuosity: *(check one)*	Water velocity: *(Approx.)*	Bank height	Bank slope
☐Straight ☒Meandering	0.2 fps N/A☐	Right: 5 ft. Left: 2 ft.	Right: 90 degrees Left: 60 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:	%	5%	40 %	35 %	10 %	5 %	5 %	%

Width of Riparian Zone: 50 ft. N/A☐

Vegetative Layers: *(check all that apply)* ☒ Trees: ☒ Saplings/Shrubs: ☒ Herbs

Avg. DBH of Dominants: *(approx.)* 12 in. 2 in.

Dominant Bank Vegetation *(list)*:
Red oak, witch hazel, tulip-tree, falsenettle, Japanese stiltgrass

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):
Leaf Packs, overhanging banks/roots, downed coarse woody debris, pools

Aquatic Organisms Observed *(list)*:
Crayfish, minnows, frogs, caddisfly larvae, stonefly nymphs

T&E Species Observed *(list)*:
None

Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes):
None

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

Stream Quality [a]**:** *(check one)* ☒ High ☒ Moderate ☐ Low

Waterbody ID:
Saua434

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

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

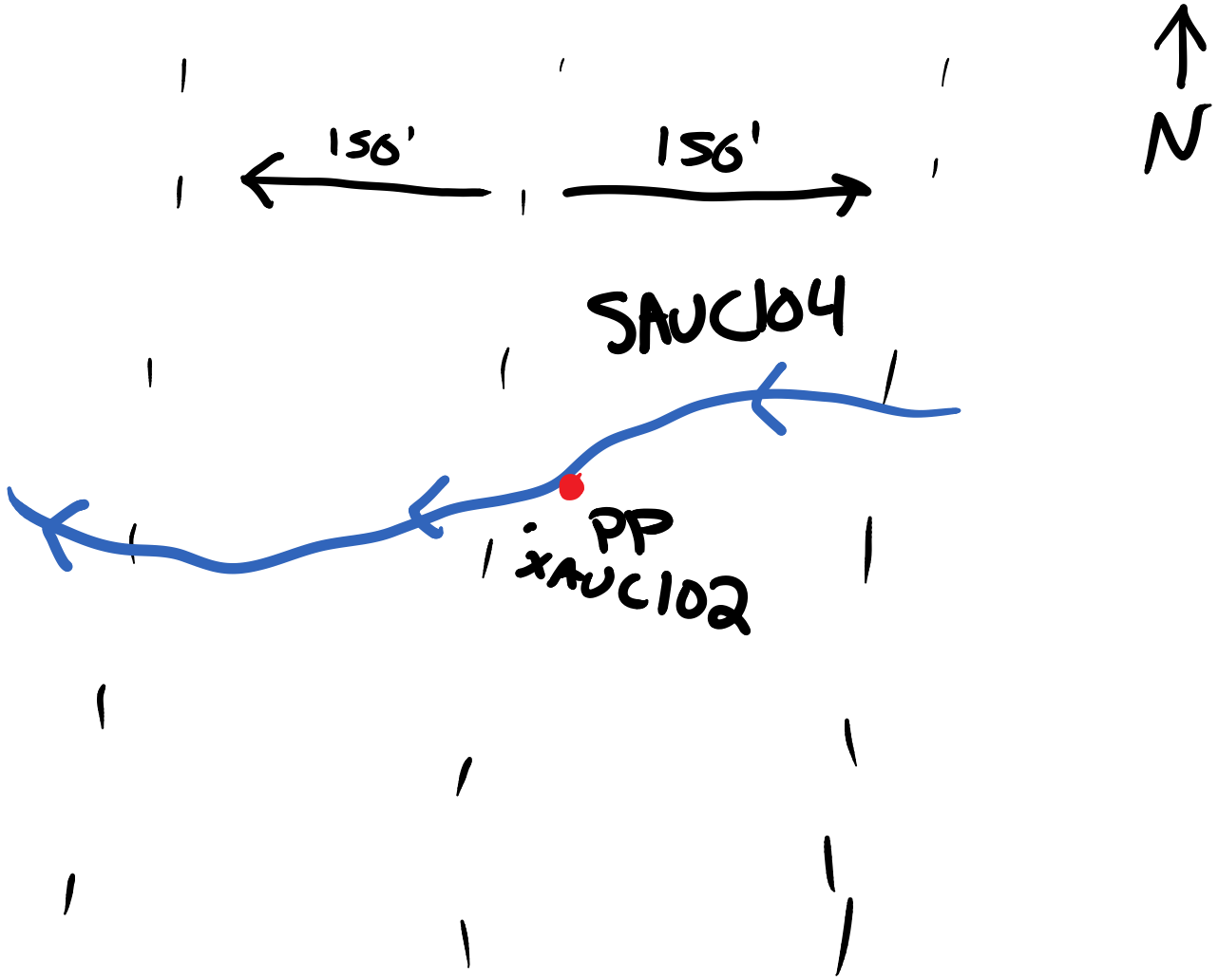
Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious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

Notes:

Intermittent stream mapped on NHD. Stream is strongly intermittent with deep pools with minnows in them. Fringe wetland present for part of the stream.

saua434 was previously named sauc104

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



Waterbody SAUA434 facing northeast upstream

Waterbody SAUA434 facing southwest downstream

Waterbody SAUA434 facing northwest across

Linear Waterbody Data Sheet

Survey Description

Project Name:	Waterbody Name:	Waterbody ID:	Date:
Atlantic Coast Pipeline	UNT to Back Creek	saua071	1/12/2016

State:	County:	Company:	Crew Member Initials:	Photos:
Virginia	Augusta	NRG	GB, SA	3 photos

Tract Number(s):	Nearest Milepost:	Associated Wetland ID(s):
07-001.AR	154.5	none

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: 3.0 ft.

Height: 0.75 ft. N/A☐

OHWM Indicator: *(check all that apply)*
☒ Clear line on bank ☐Shelving ☐Wrested vegetation ☒Scouring ☐Water staining
☐Bent, matted, or missing vegetation ☐Wrack line ☒Litter and debris ☐Abrupt plant community change ☐Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:	Width of Waterbody - Toe of Slope to Toe of Slope:	Width of Waterbody - Water Edge to Water Edge:	Depth of Water: *(Approx.)*
10.0 ft.	2.0 ft.	2.5 ft. N/A☐	0.40 ft. N/A☐

Sinuosity: *(check one)*	Water velocity: *(Approx.)*	Bank height	Bank slope
☐Straight ☒Meandering	1.0 fps N/A☐	Right: 6.0 ft. Left: 4.5 ft.	Right: 75 degrees Left: 45 degrees

Analysis of Bank Stability and Soil Erosion Potential (i.e. root structure, vegetation, substrate characteristics):
Banks appear stable, little exposed roots or soil, litter layer nearly continuous

Analysis of Above Bank Steep Slope Stability:
Slopes above banks appear stable, gentle to moderate (10-25%)

Qualitative Attributes

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

Water Quality:
Total Dissolved Solids (TDS): 9.0 mg/L Turbidity: 0.32 NTU Nitrogen: 0.0 mg/L Phosphorous: 0.03 mg/L
Conductivity: 8.6 µS/cm Temperature: 5.65 °C Dissolved Oxygen (D.O): 11.4 mg/L pH: 6.91

Last Rain Event: *(check one)* ☒ Over 48 hours ago ☐ Within Last 48 hours ☐ Within Last 24 hours ☐ Currently raining

Width of Riparian Zone: 30 ft. N/A☐

Vegetative Layers: *(check all that apply)* ☒ Trees: ☒ Saplings/Shrubs: ☒ Herbs

Avg. DBH of Dominants: *(approx.)* 10.0 in. 0.75 in.

Dominant Bank Vegetation *(list)*:
White oak, red oak, chestnut oak, sweet birch, dogwood, mountain laurel, Christmas fern

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):
Small pools, leaf packs

Aquatic Organisms Observed *(list)*:
invertebrates

T&E Species Observed *(list)*:
none

Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes):
None apparent

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

Waterbody ID:
saua071

[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.

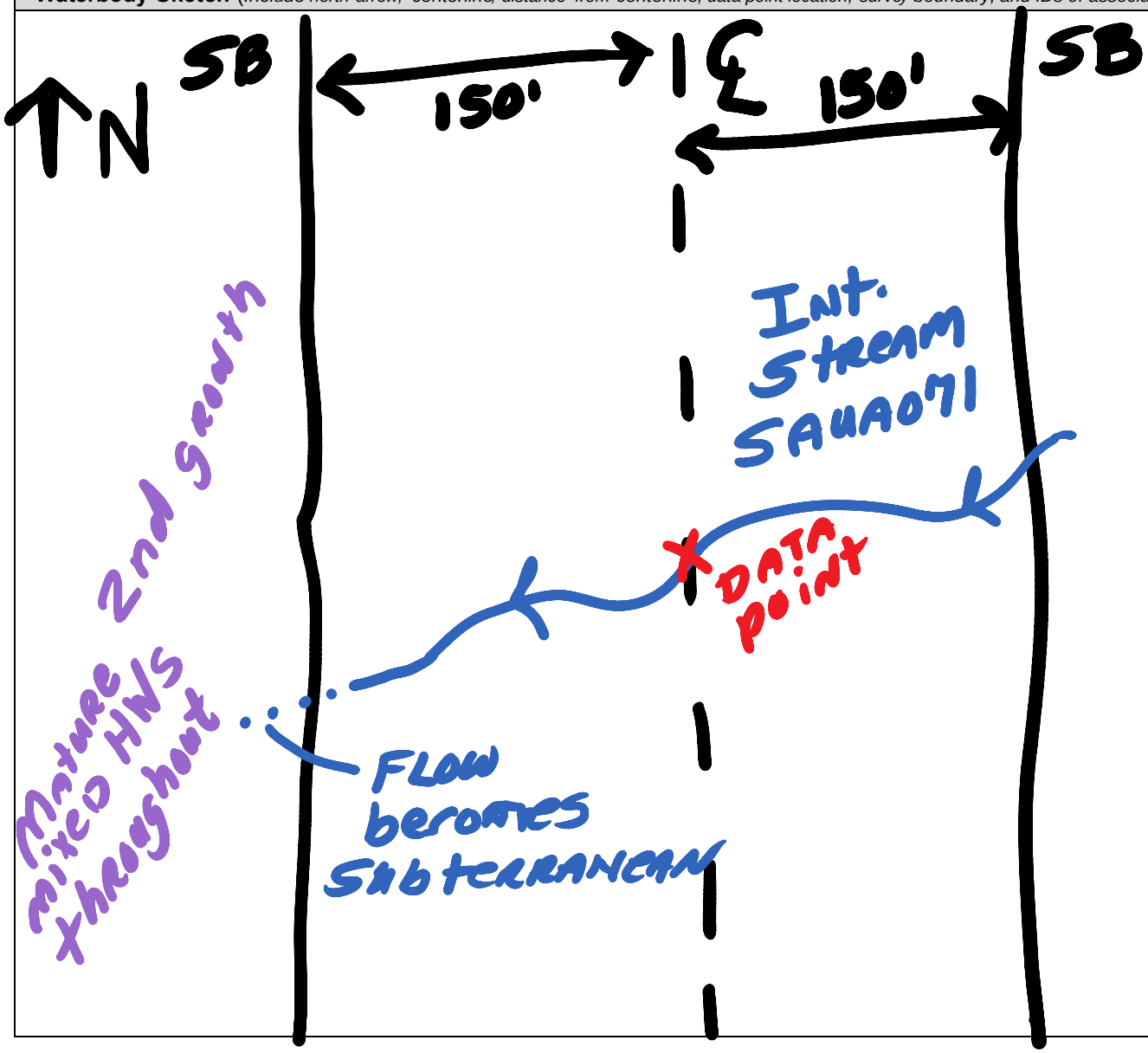
Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious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

Stream Quality [a] **:** *(check one)* ☒ High ☐ Moderate ☐ Low

Notes:

Upstream continues out of corridor, loses bed/bank/OHWM near western edge of corridor in a rocky flat where flow becomes subterranean.

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



Waterbody SAUA071 facing east upstream

Waterbody SAUA071 facing west downstream

Waterbody SAUA071 facing north across

Linear Waterbody Data Sheet

Survey Description

Project Name:	Waterbody Name:	Waterbody ID:	Date:
Atlantic Coast Pipeline	UNT to Back Creek	Saua433	9/24/2016

State:	County:	Company:	Crew Member Initials:	Photos:
Virginia	Augusta	NRG	GB, AS	1-3

Tract Number(s):	Nearest Milepost:	Associated Wetland ID(s):
07-001.AR	120.2	None

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: 10 ft.

Height: 0.5 ft. N/A☐

OHWM Indicator: *(check all that apply)*
☒ Clear line on bank ☐Shelving ☐Wrested vegetation ☐Scouring ☐Water staining
☐Bent, matted, or missing vegetation ☒Wrack line ☒Litter and debris ☐Abrupt plant community change ☐Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:	Width of Waterbody - Toe of Slope to Toe of Slope:	Width of Waterbody - Water Edge to Water Edge:	Depth of Water: *(Approx.)*
14 ft.	2 ft.	___ft. N/A☒	___ft. N/A☒

Sinuosity: *(check one)*	Water velocity: *(Approx.)*	Bank height	Bank slope
☐Straight ☒Meandering	___fps N/A☒	Right: 3.5 ft. Left: 3.5 ft.	Right: 70 degrees Left: 60 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:	____%	10 %	45 %	35 %	5 %	____%	5 %	____%

Width of Riparian Zone: n/a ft. N/A☐

Vegetative Layers: *(check all that apply)* ☒ Trees: ☒ Saplings/Shrubs: ☒ Herbs

Avg. DBH of Dominants: *(approx.)* 12 in. 2 in.

Dominant Bank Vegetation *(list)*:
Red maple, white pine, American beech, chestnut oak, red oak, Spicebush, common greenbrier

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):
Leaf Packs, overhanging banks, downed coarse woody debris, pools

Aquatic Organisms Observed *(list)*:
None

T&E Species Observed *(list)*:
None

Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes):
None

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

Stream Quality [a]: *(check one)* ☐ High ☒ Moderate ☐ Low

Waterbody ID:
Saua433

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

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

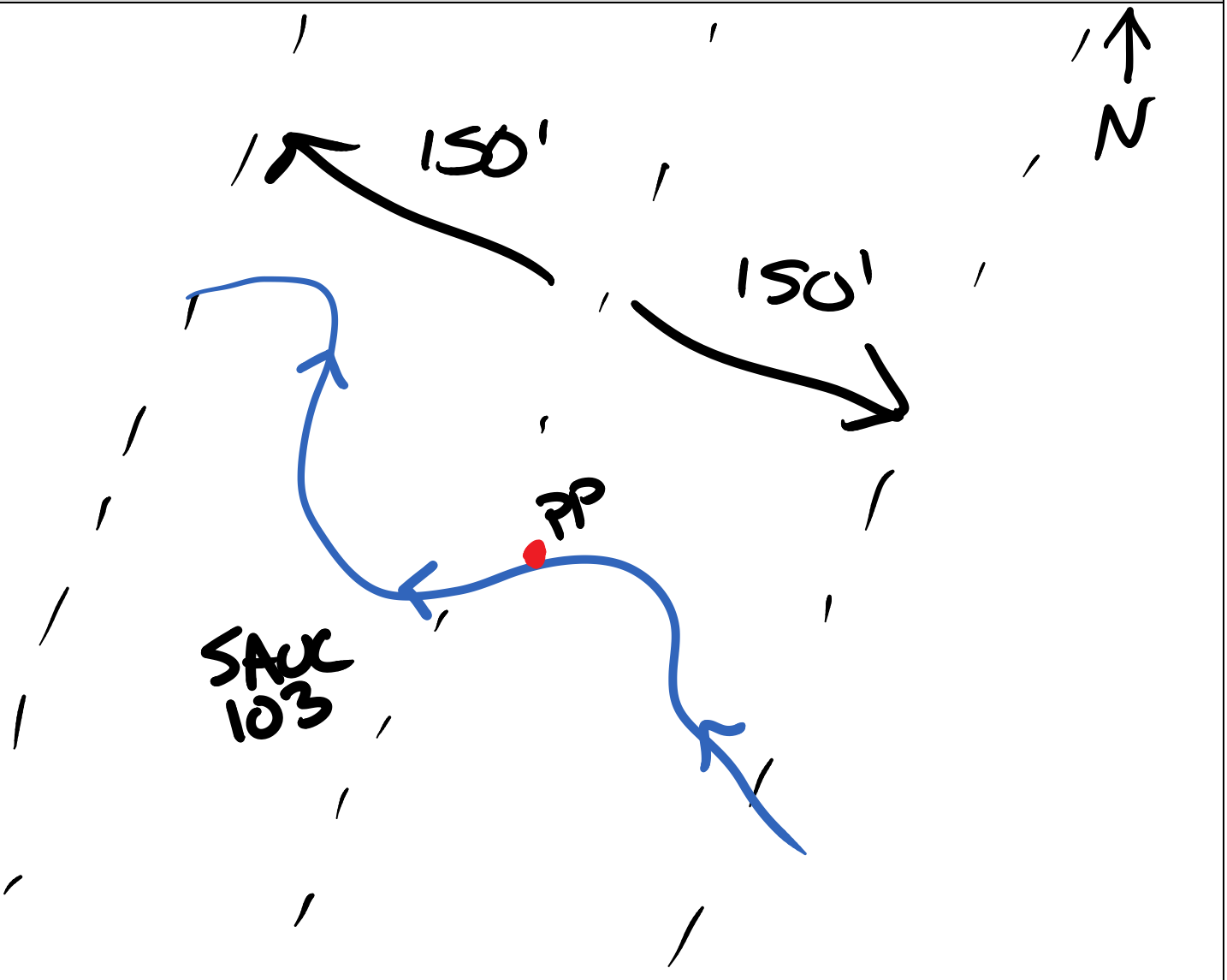
Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious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

Notes:

intermittent stream mapped on NHD

saua433 was previously named sauc103

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



Waterbody SAUA433 facing southeast upstream

Waterbody SAUA433 facing northwest downstream

Waterbody SAUA433 facing northeast across

Linear Waterbody Data Sheet

Survey Description

Project Name:	Waterbody Name:	Waterbody ID:	Date:
Atlantic Coast Pipeline	UNT to Back Creek	Saua432	9/24/2016

State:	County:	Company:	Crew Member Initials:	Photos:
Virginia	Augusta	ERM	GB, AS	1-3

Tract Number(s):	Nearest Milepost:	Associated Wetland ID(s):
07-001.AR	155	None

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: 4 ft.

Height: 0.3 ft. N/A☐

OHWM Indicator: *(check all that apply)* ☐ Clear line on bank ☐Shelving ☐Wrested vegetation ☐Scouring ☐Water staining ☐Bent, matted, or missing vegetation ☐Wrack line ☒Litter and debris ☐Abrupt plant community change ☐Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:	Width of Waterbody - Toe of Slope to Toe of Slope:	Width of Waterbody - Water Edge to Water Edge:	Depth of Water: *(Approx.)*
10 ft.	1 ft.	_____ ft. N/A☒	_____ ft. N/A☒

Sinuosity: *(check one)*	Water velocity: *(Approx.)*	Bank height	Bank slope
☐Straight ☒Meandering	_____ fps N/A☒	Right: 1.5 ft. Left: 2.5 ft.	Right: 70 degrees Left: 70 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:	____%	____%	20 %	70 %	10 %	____%	____%	____%

Width of Riparian Zone: _____ ft. N/A☒

Vegetative Layers: *(check all that apply)* ☒ Trees: ☒ Saplings/Shrubs: ☒ Herbs

Avg. DBH of Dominants: *(approx.)* 12 in. 2 in.

Dominant Bank Vegetation *(list)*:

American beech, red oak, red maple, American hog peanut, witch hazel, cucumber tree, common greenbrier, hackberry

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):

Leaf Packs

Aquatic Organisms Observed *(list)*:

None

T&E Species Observed *(list)*:

None

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

None

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

Stream Quality [a]**:** *(check one)* ☐ High ☒ Moderate ☐ Low

Waterbody ID:
Saua432

[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.

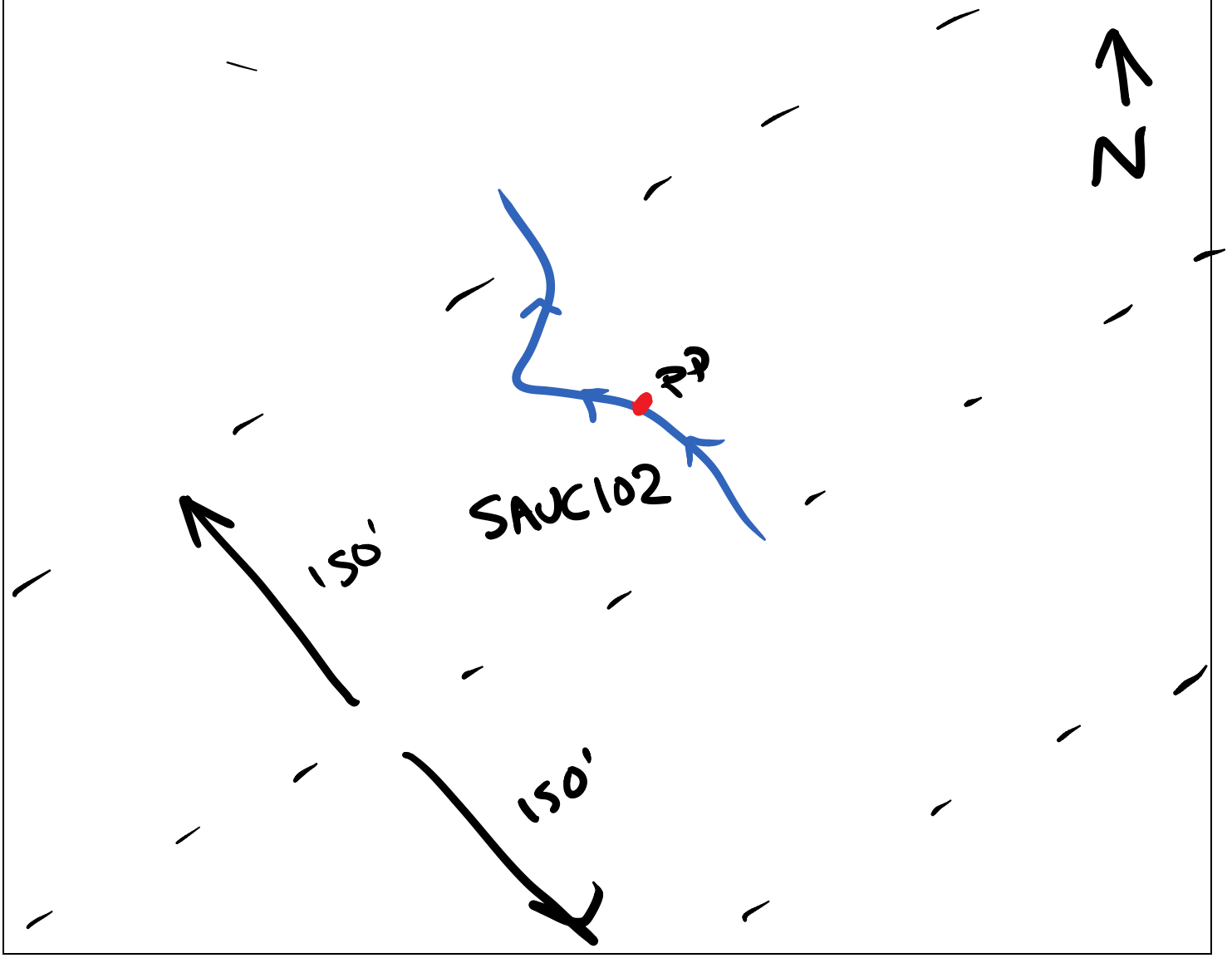
Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious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

Channel may be weakly ephemeral. There are a few FACU plants growing in the bed of the channel, numerous fibrous roots, and leaf piles found throughout the stream.

sauc102 previously named saua432

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



Waterbody SAUA432 facing east upstream

Waterbody SAUA432 facing west downstream

Waterbody SAUA432 facing south across

Linear Waterbody Data Sheet

Survey Description

Project Name:	Waterbody Name:	Waterbody ID:	Date:
Atlantic Coast Pipeline	UNT to Back Creek	Saua431	9/24/2016

State:	County:	Company:	Crew Member Initials:	Photos:
Virginia	Augusta	NRG	GB, AS	1-3

Tract Number(s):	Nearest Milepost:	Associated Wetland ID(s):
07-001.AR	155	None

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: 2 ft.

Height: 0.3 ft. N/A☐

OHWM Indicator: *(check all that apply)*
☒ Clear line on bank ☐Shelving ☐Wrested vegetation ☐Scouring ☐Water staining
☐Bent, matted, or missing vegetation ☐Wrack line ☒Litter and debris ☐Abrupt plant community change ☐Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:	Width of Waterbody - Toe of Slope to Toe of Slope:	Width of Waterbody - Water Edge to Water Edge:	Depth of Water: *(Approx.)*
8 ft.	1 ft.	1 ft. N/A☐	0.05 ft. N/A☐

Sinuosity: *(check one)*	Water velocity: *(Approx.)*	Bank height	Bank slope
☐Straight ☒Meandering	0.2 fps N/A☐	Right: 2 ft. Left: 2.5 ft.	Right: 50 degrees Left: 70 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:	%	%	5 %	70 %	15 %	%	10 %	%

Width of Riparian Zone: n/a ft. N/A☐

Vegetative Layers: *(check all that apply)* ☒ Trees: ☒ Saplings/Shrubs: ☒ Herbs

Avg. DBH of Dominants: *(approx.)* 14 in. 2 in.

Dominant Bank Vegetation *(list)*:
Tulip-tree, American beech, red oak, red maple, common greenbrier, sassafras

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):
Leaf Packs, overhanging banks

Aquatic Organisms Observed *(list)*:
Caddisfly larvae, stonefly nymph

T&E Species Observed *(list)*:
None

Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes):
None

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

Stream Quality [a]: *(check one)* ☐ High ☒ Moderate ☐ Low

Waterbody ID:
Saua431

[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.

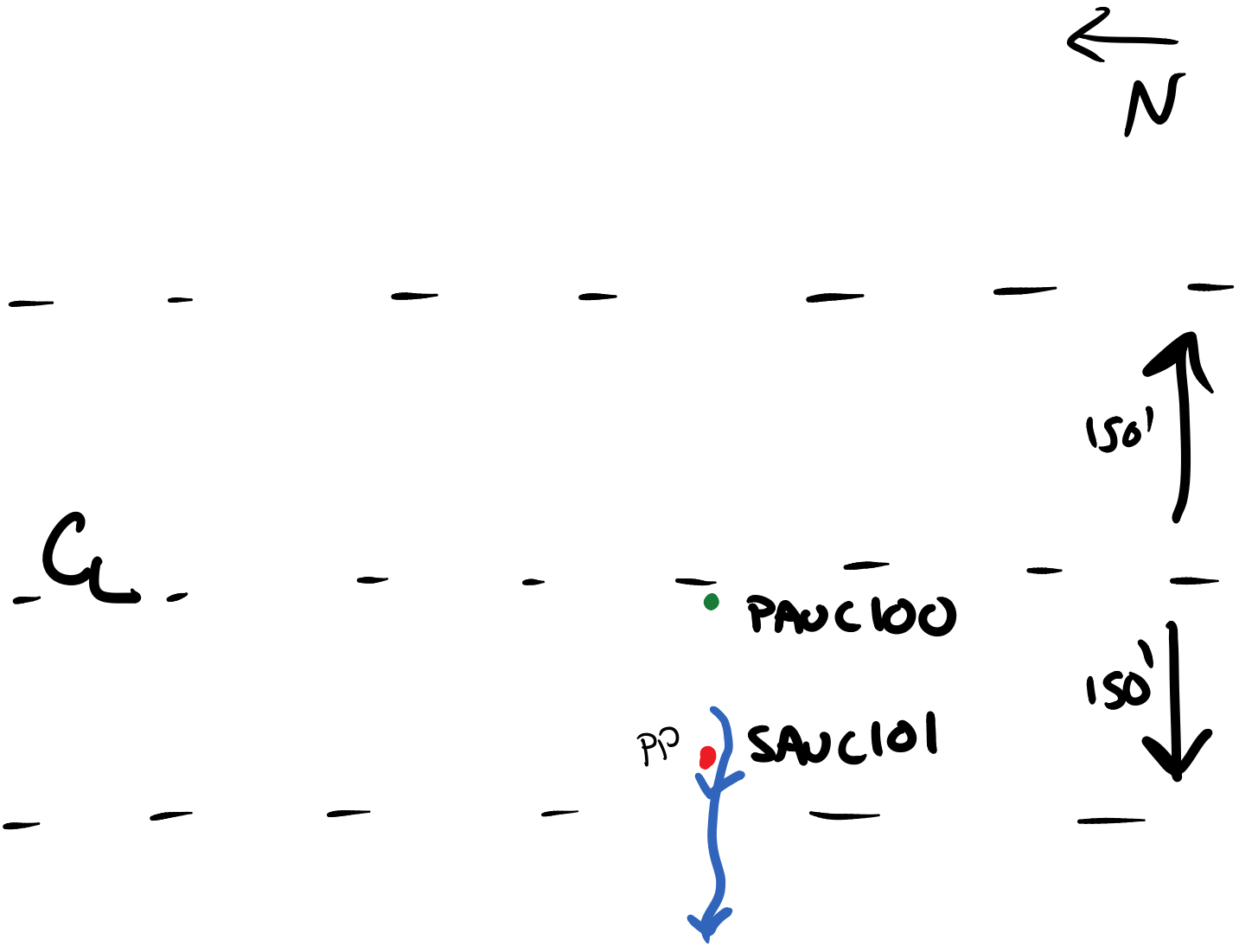
Low Quality: Channel is actively down cutting or widening; rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious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

Seep fed intermittent stream

saua431 previously named sauc101

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



Waterbody SAUA431 facing southeast upstream

Waterbody SAUA431 facing northwest downstream

Waterbody SAUA431 facing southwest across

Linear Waterbody Data Sheet

Survey Description

Project Name:	Waterbody Name:	Waterbody ID:	Date:
Atlantic Coast Pipeline	UNT to Back Creek	Saua430	9/24/2016

State:	County:	Company:	Crew Member Initials:	Photos:
Virginia	Augusta	ERM	GB, AS	1-3

Tract Number(s):	Nearest Milepost:	Associated Wetland ID(s):
07-001.AR; 07-058-E049	155.1	None

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: 4 ft.

Height: 0.3 ft. N/A☐

OHWM Indicator: *(check all that apply)*
☒ Clear line on bank ☐Shelving ☐Wrested vegetation ☐Scouring ☐Water staining
☐Bent, matted, or missing vegetation ☐Wrack line ☒Litter and debris ☐Abrupt plant community change ☐Soil characteristic change

Width of Waterbody - Top of Bank to Top of Bank:	Width of Waterbody - Toe of Slope to Toe of Slope:	Width of Waterbody - Water Edge to Water Edge:	Depth of Water: *(Approx.)*
8 ft.	1 ft.	_____ ft. N/A☒	_____ ft. N/A☒

Sinuosity: *(check one)*	Water velocity: *(Approx.)*	Bank height	Bank slope
☐Straight ☒Meandering	_____ fps N/A☒	Right: 1.5 ft. Left: 1.5 ft.	Right: 70 degrees Left: 70 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:	____%	____%	15 %	75 %	10 %	____%	____%	____%

Width of Riparian Zone: _____ ft. N/A☒

Vegetative Layers: *(check all that apply)* ☒ Trees: ☒ Saplings/Shrubs: ☒ Herbs

Avg. DBH of Dominants: *(approx.)* 12 in. 2 in.

Dominant Bank Vegetation *(list)*:
Tulip-tree, American beech, red oak, red maple, Japanese stiltgrass, American hog peanut

Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools):
Leaf Packs

Aquatic Organisms Observed *(list)*:
None

T&E Species Observed *(list)*:
None

Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes):
None

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

Stream Quality [a]: *(check one)* ☐ High ☒ Moderate ☐ Low

Waterbody ID:
saua430

[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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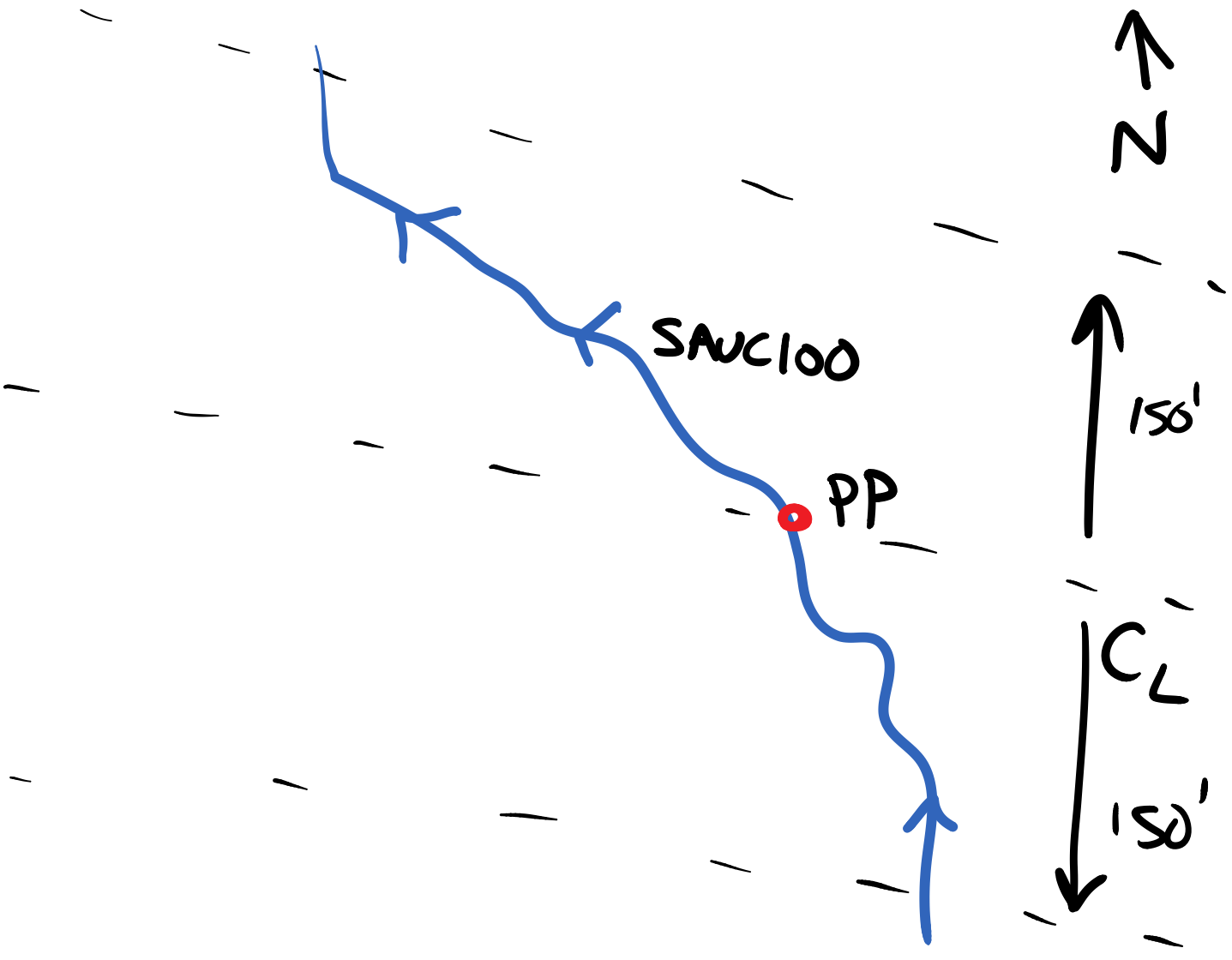
Notes:

Channel may be weakly ephemeral. There are a few FACU plants growing in the bed of the channel, numerous fibrous roots, and leaf piles found throughout the stream

saua430 previously named sauc100

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



Waterbody SAUA430 facing east upstream

Waterbody SAUA430 facing west downstream

Waterbody SAUA430 facing north across