



Upland data point wcuk018_u soil sample

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: SERP City/County: COMBERLAND Sampling Date: 08/27/2014
 Applicant/Owner: DOMINION State: VA Sampling Point: WCUK082.W
 Investigator(s): J. SWETZER Section, Township, Range: NA
 Landform (hillslope, terrace, etc.): STREAM BANKS Local relief (concave, convex, none): NA Slope (%): 1-3
 Subregion (LRR or MLRA): LRRF Lat: 37.360584815 Long: 78.371584467 Datum: NAD1983
 Soil Map Unit Name: ~~APPALACHIAN SANDY LOAM, 2 TO 7% SLOPE~~ NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: <u>POINT ESTABLISHED IN STREAM SIDE WETLAND CAUSED BY ALTERATION OF FLOW DUE TO PASTURE ROAD AND UNDERLIZED CULVERTS. ALL 3 CRITERIA MET.</u> <u>PHOTOS: 103 - 0213 TO 0215 (SOIL, N, S)</u>	

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)

Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u>NA</u> Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>12</u> Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
NA

Remarks: HYDROLOGY CRITERIA MET.

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: W0010182_w

Tree Stratum (Plot size: 5'R)

	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>NA</u>			
2.			
3.			
4.			
5.			
6.			

_____ = Total Cover

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Sapling Stratum (Plot size: 5'R)

	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>NA</u>			
2.			
3.			
4.			
5.			
6.			

_____ = Total Cover

Prevalence Index worksheet:

Total % Cover of: _____ Multiply by:

OBL species _____ x 1 = _____

FACW species _____ x 2 = _____

FAC species _____ x 3 = _____

FACU species _____ x 4 = _____

UPL species _____ x 5 = _____

Column Totals: _____ (A) _____ (B)

Prevalence Index = B/A = _____

Shrub Stratum (Plot size: 5'R)

	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>SALIX NIGRA</u>	<u>5</u>	<u>Y</u>	<u>OBL</u>
2.			
3.			
4.			
5.			
6.			

5 = Total Cover

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0¹

___ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Herb Stratum (Plot size: 5'R)

	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>IMPATIENS CAPENSIS</u>	<u>80</u>	<u>Y</u>	<u>FAW</u>
2. <u>BOEHMERIA CYLINDRICA</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>
3. <u>MICROSTEGIUM VEMINEUM</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			

140 = Total Cover

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Woody Vine Stratum (Plot size: 5'R)

	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>NA</u>			
2.			
3.			
4.			
5.			

_____ = Total Cover

50% of total cover: 70 20% of total cover: 28

Hydrophytic Vegetation Present? Yes No _____

Remarks: (Include photo numbers here or on a separate sheet.)
SMALL PLOT SIZE DUE TO SIZE OF WETLAND. CRITERIA MET.

SOIL

Sampling Point: WCVK018e_w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 4/1	60	7.5YR 4/6	30	C	PL	FINE SANDY LOAM	
			2.5Y 6/2	10	D	M	COARSE SAND	
4-18	2.5Y 4/1	50	-	-	-	-	FINE SANDY LOAM	} STRATIFIED LAYERS
	2.5Y 6/2	40	7.5YR 4/6	10	C	M	COARSE LOAMY SAND	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10) (LRR N)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)

- Dark Surface (S7)
- Polyvalue Below Surface (S8) (MLRA 147, 148)
- Thin Dark Surface (S9) (MLRA 147, 148)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- Umbric Surface (F13) (MLRA 136, 122)
- Piedmont Floodplain Soils (F19) (MLRA 148)
- Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (MLRA 147)
- Coast Prairie Redox (A16) (MLRA 147, 148)
- Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

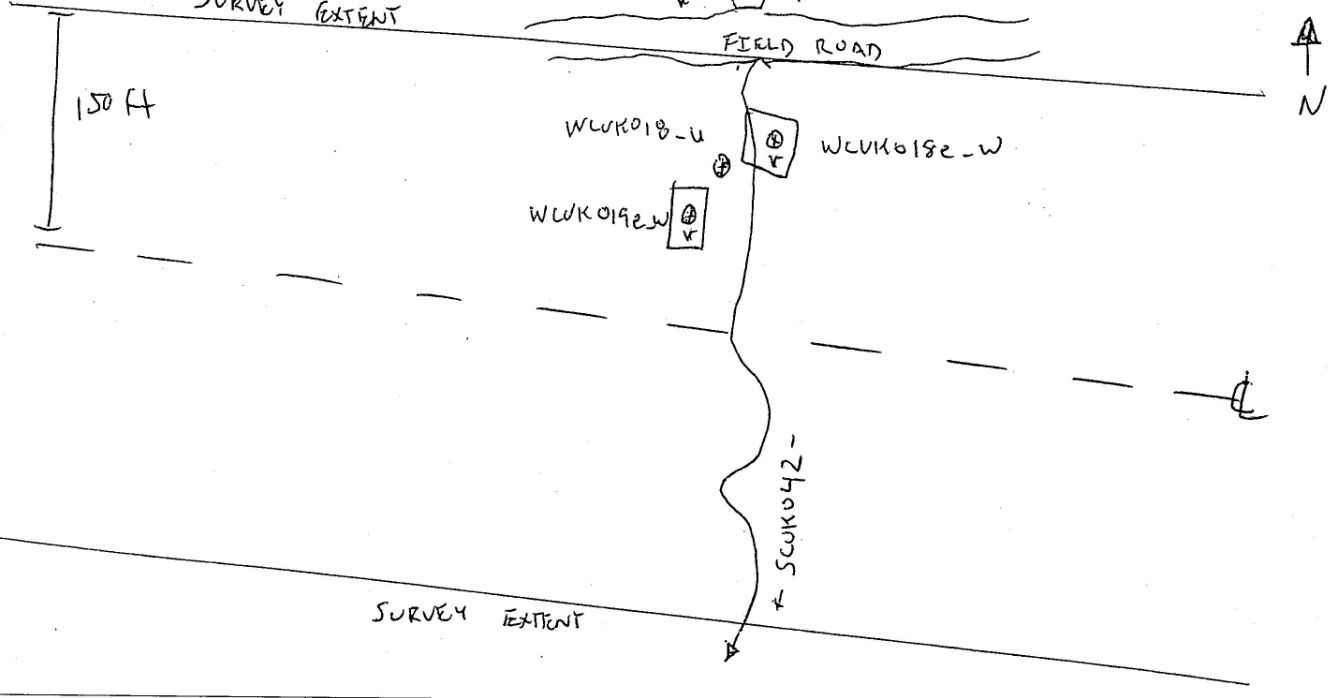
³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: NA
 Depth (inches): NA

Hydric Soil Present? Yes No

Remarks:





Wetland data point wcul018e_w facing North



Wetland data point wcul018e_w facing South



Wetland data point wcuk018e_w soil sample

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: SERP City/County: CUMBERLAND Sampling Date: 08/27/2014
 Applicant/Owner: DOMINION State: VA Sampling Point: WCUK018_U
 Investigator(s): J. SWEITZER, B. GRIFFITH Section, Township, Range: NA
 Landform (hillslope, terrace, etc.): TERRACE Local relief (concave, convex, none): CONVEX Slope (%): 0
 Subregion (LRR or MLRA): LRR P Lat: 37.360530590 Long: 78.371630535 Datum: NAD1983
 Soil Map Unit Name: PAULET-WATERBEE COMPLEX, 15 TO 25 % SLOPES NWI classification: NA
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Remarks: <u>PLOT LIES BETWEEN WCUK018 AND WCUK019. SHARED UPLAND PLOT.</u> <u>PHOTO 100-0216 TO 100-0218</u>	

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u>-</u> Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u>-</u> Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u>-</u>	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: <u>NA</u>	
Remarks: <u>NO INDICATORS OF WETLAND HYDROLOGY OBSERVED.</u>	

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: WC1K018-U

Tree Stratum (Plot size: <u>30'R</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>LIRIODENDRON TULIPIFERA</u>	<u>35</u>	<u>Y</u>	<u>FACU</u>
2. <u>LIQUIDAMBAR STYRACIFLUA</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>
3. <u>ACER RUBRUM</u>	<u>10</u>	<u>N</u>	<u>FAC</u>
4. <u>CARYA CORDIFORMIS</u>	<u>10</u>	<u>N</u>	<u>FAC</u>
5. _____	_____	_____	_____
6. _____	_____	_____	_____

75 = Total Cover

50% of total cover: 37 20% of total cover: 15

Sapling Stratum (Plot size: <u>15'R</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>CARYA CORDIFORMIS</u>	<u>15</u>	<u>Y</u>	<u>FAC</u>
2. <u>ACER RUBRUM</u>	<u>15</u>	<u>Y</u>	<u>FAC</u>
3. <u>LIQUIDAMBAR STYRACIFLUA</u>	<u>10</u>	<u>Y</u>	<u>FAC</u>
4. <u>QUERCUS RUBRA</u>	<u>5</u>	<u>N</u>	<u>FACU</u>
5. _____	_____	_____	_____
6. _____	_____	_____	_____

45 = Total Cover

50% of total cover: 23 20% of total cover: 9

Shrub Stratum (Plot size: <u>15'R</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>LIRIODENDRON TULIPIFERA</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>
2. <u>CARYA CORDIFORMIS</u>	<u>10</u>	<u>Y</u>	<u>FAC</u>
3. <u>LIQUIDAMBAR STYRACIFLUA</u>	<u>10</u>	<u>Y</u>	<u>FAC</u>
4. <u>QUERCUS FALCATA</u>	<u>5</u>	<u>N</u>	<u>FACU</u>
5. <u>CORNUS FLORIDA</u>	<u>5</u>	<u>N</u>	<u>FACU</u>
6. _____	_____	_____	_____

40 = Total Cover

50% of total cover: 20 20% of total cover: 8

Herb Stratum (Plot size: <u>5'R</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>MICROSTEGIUM VIMINUM</u>	<u>60</u>	<u>Y</u>	<u>FAC</u>
2. <u>DICHTANTHELIUM CLANDESTINUM</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>
3. <u>DESMODIUM glabellum</u>	<u>20</u>	<u>Y</u>	<u>UPL</u>
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____

100 = Total Cover

50% of total cover: 50 20% of total cover: 20

Woody Vine Stratum (Plot size: <u>30'R</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>LONICERA JAPONICA</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____

30 = Total Cover

50% of total cover: 15 20% of total cover: 6

Dominance Test worksheet:	
Number of Dominant Species That Are OBL, FACW, or FAC:	<u>8</u> (A)
Total Number of Dominant Species Across All Strata:	<u>11</u> (B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>73</u> (A/B)

Prevalence Index worksheet:	
Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____	(A) _____ (B) _____
Prevalence Index = B/A = _____	

- Hydrophytic Vegetation Indicators:**
- ___ 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is >50%
 - ___ 3 - Prevalence Index is ≤3.0¹
 - ___ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - ___ Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No _____

Remarks: (Include photo numbers here or on a separate sheet.)

PLOT MEET DOMINANCE TEST FOR HYDROPHYTIC VEGETATION

SOIL

Sampling Point: WCUK018_u

Profile Description: (Describe to the depth needed to document the Indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-11	7.5Y 4/3	100	—	—	—	—	Sandy loam	
11-18	7.5Y 4/3	99	10YR 5/1	1	D	M	Sandy loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Dark Surface (S7)	<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148)	<input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 147, 148)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 136, 147)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2 cm Muck (A10) (LRR N)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122)	
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)	
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):
 Type: NA
 Depth (inches): NA

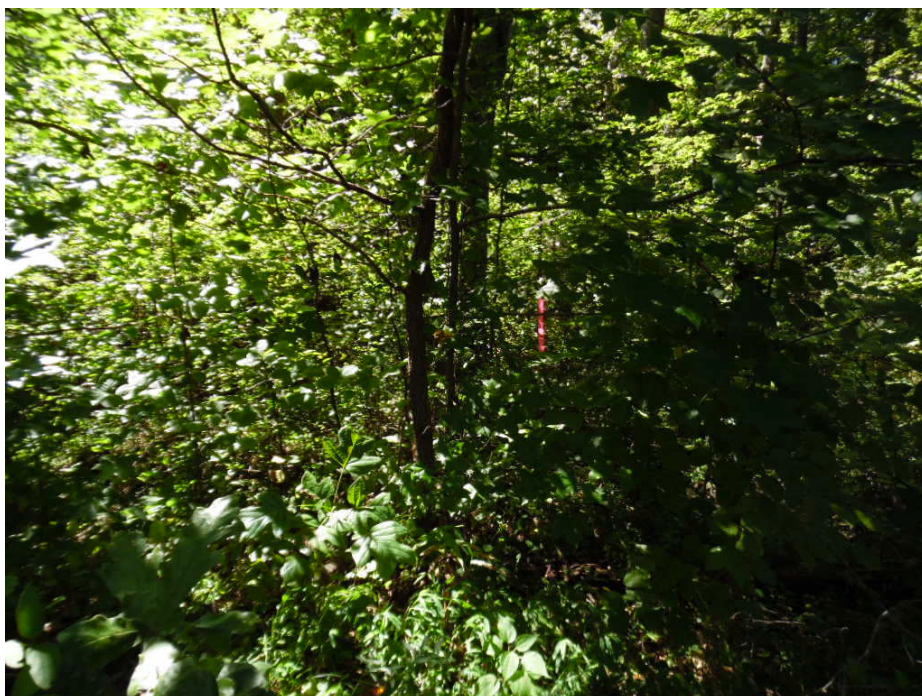
Hydric Soil Present? Yes No

Remarks:
 NO INDICATORS OF WETLAND SOILS OBSERVED

SEE SKETCH ON WCUK018_u DATA FORM



Upland data point wcuk018_u facing North



Upland data point wcuk018_u facing South



Upland data point wcuk018_u soil sample

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: SE Reliability Project City/County: NA/Cumberland Sampling Date: 08/5/2014
 Applicant/Owner: Dominion Transmission State: VA Sampling Point: WCUK013 F-W
 Investigator(s): W. Medina, J. Dean Section, Township, Range: NA
 Landform (hillslope, terrace, etc.): bottomland Local relief (concave, convex, none): concave Slope (%): 1-2
 Subregion (LRR or MLRA): LRR P Lat: 37.344115109 Long: -78.343061369 Datum: NAD 1983
 Soil Map Unit Name: Chenopoda and Monacan soils 0 to 2% slopes freq. flooded NWI classification: PFO1C
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: <u>This area is a forested wetland system that abuts SCUK023 on upline/downline sides. Some relict disturbance from ford crossing nearby Green Creek observed. All 3 criteria met. Area is a wetland.</u> <u>PHOTOS #100-0522 to 0526 Soils, N,E,S,W (w/in camera)</u>	

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Foundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u>NA</u> Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u>NA</u> Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u>NA</u>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: <u>NA</u>	
Remarks: <u>Hydrology criteria met.</u>	

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: WCUK013F-W

Tree Stratum (Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Platanus occidentalis</u>	<u>20</u>		<u>FACW</u>
2. <u>Acer rubrum</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>
3. <u>Quercus alba</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>
4. <u>Liquidambar styraciflua</u>	<u>10</u>		<u>FAC</u>
5. <u>Asimina triloba</u>	<u>5</u>		<u>FAC</u>
6. <u>Vimus americana</u>	<u>40</u>	<u>Y</u>	<u>FACW</u>

135 = Total Cover
 50% of total cover: 67.5 20% of total cover: 27

Sapling Stratum (Plot size: <u>15 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Quercus velutina</u>	<u>15</u>	<u>Y</u>	<u>NI</u>
2. <u>Asimina triloba</u>	<u>5</u>		<u>FAC</u>
3. <u>Fraxinus pennsylvanica</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>
4.			
5.			
6.			

30 = Total Cover
 50% of total cover: 15 20% of total cover: 6

Shrub Stratum (Plot size: <u>15 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Juniperus virginiana</u>	<u>2</u>		<u>FACW</u>
2. <u>Asimina triloba</u>	<u>5</u>	<u>Y</u>	<u>FAC</u>
3. <u>Quercus velutina</u>	<u>5</u>	<u>Y</u>	<u>NI</u>
4. <u>Lindera benzoin</u>	<u>5</u>	<u>Y</u>	<u>FAC</u>
5. <u>Carpinus caroliniana</u>	<u>5</u>	<u>Y</u>	<u>FAC</u>
6.			

22 = Total Cover
 50% of total cover: 11 20% of total cover: 4.4

Herb Stratum (Plot size: <u>10 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Juncus effusus</u>	<u>35</u>	<u>Y</u>	<u>FACW</u>
2. <u>Dichanthelium clandestinum</u>	<u>2</u>		<u>FAC</u>
3. <u>Microstegium vimineum</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>
4. <u>Mimulus ringens</u>	<u>5</u>		<u>OBL</u>
5. <u>Carex lurida</u>	<u>40</u>	<u>Y</u>	<u>OBL</u>
6. <u>Glyceria striata</u>	<u>10</u>		<u>OBL</u>
7. <u>Panicum pensylvanicum</u>	<u>5</u>		<u>FACW</u>
8. <u>Boehmeria cylindrica</u>	<u>5</u>		<u>FACW</u>
9. <u>Lobelia inflata</u>	<u>2</u>		<u>FACW</u>
10.			
11.			

134 = Total Cover
 50% of total cover: 67 20% of total cover: 26.8

Woody Vine Stratum (Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Vitis rotundifolia</u>	<u>5</u>	<u>Y</u>	<u>FAC</u>
2.			
3.			
4.			
5.			

5 = Total Cover
 50% of total cover: 2.5 20% of total cover: 1

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 10 (A)

Total Number of Dominant Species Across All Strata: 13 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 77% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>55</u>	x 1 = <u>55</u>
FACW species <u>115</u>	x 2 = <u>230</u>
FAC species <u>102</u>	x 3 = <u>306</u>
FACU species <u>34</u>	x 4 = <u>136</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>306</u> (A)	<u>727</u> (B)

Prevalence Index = B/A = 2.38

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is >50%
 - 3 - Prevalence Index is ≤3.0¹
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (Include photo numbers here or on a separate sheet.)
Hydrophytic Vegetation criteria met

SOIL

Sampling Point: INCUKO13F_W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-7	10YR 4/1	70	7.5YR 5/8	15	C	PL	Sandy clay loam	
			5YR 4/6	15	C	PL		
7-16	10YR 4/1	60	-	-	-	-	Sandy clay loam	Mixed Matrix
	10YR 6/1	40	-	-	-	-		
16-20	10YR 6/3	50	-	-	-	-	sandy clay loam	Mixed Matrix
	10YR 5/2	50	-	-	-	-		

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10) (LRR N)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)

- Dark Surface (S7)
- Polyvalue Below Surface (S8) (MLRA 147, 148)
- Thin Dark Surface (S9) (MLRA 147, 148)
- Gamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- Umbric Surface (F13) (MLRA 136, 122)
- Piedmont Floodplain Soils (F19) (MLRA 148)
- Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (MLRA 147)
- Coast Prairie Redox (A16) (MLRA 147, 148)
- Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: NA
 Depth (inches): NA

Hydric Soil Present? Yes No

Remarks:

Hydric soils criteria is met.



Wetland data point wcuk013f_w facing North



Wetland data point wcuk013f_w facing East



Wetland data point wcuk013f_w soil sample

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: SE Reliability Project City/County: NA/Cumberland Sampling Date: 08/05/2014
 Applicant/Owner: Dominion Transmission State: VA Sampling Point: WCUK013-U
 Investigator(s): W. Medlin, J. Dean Section, Township, Range: NA
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 5
 Subregion (LRR or MLRA): LRR P Lat: 37.344085826 Long: -78.342884308 Datum: NAD 1983
 Soil Map Unit Name: Chewacla and Monacan soils 0 to 2% slopes freq. Flooded NWI classification: Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: <u>This area is an upland hillslope riparian forest adjacent to clearcut. All 3 criteria are not met. Area is not a wetland.</u>	
PHOTOS #100-0527 to 0531 soils, N, E, S, W (WLM camera)	

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), If available:
NA

Remarks: Hydrology criteria is not met.

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point WCUK03-U

Tree Stratum (Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Fagus grandifolia</u>	<u>90</u>	<u>Y</u>	<u>FACU</u>
2. <u>Quercus alba</u>	<u>70</u>	<u>Y</u>	<u>FACU</u>
3. <u>Pinus echinata</u>	<u>20</u>		<u>NI</u>
4. <u>Quercus falcata</u>	<u>50</u>	<u>Y</u>	<u>FACU</u>
5.			
6.			

240 = Total Cover

50% of total cover: 120 20% of total cover: 48

Sapling Stratum (Plot size: <u>15 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Juniperus virginiana</u>	<u>15</u>	<u>Y</u>	<u>FACU</u>
2. <u>Liquidambar styraciflua</u>	<u>25</u>	<u>Y</u>	<u>FAC</u>
3.			
4.			
5.			
6.			

40 = Total Cover

50% of total cover: 20 20% of total cover: 8

Shrub Stratum (Plot size: <u>15 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Juniperus virginiana</u>	<u>5</u>	<u>Y</u>	<u>FACU</u>
2.			
3.			
4.			
5.			
6.			

5 = Total Cover

50% of total cover: 2.5 20% of total cover: 1

Herb Stratum (Plot size: <u>10 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Carex sp.</u> <u>w/m</u>	<u>2</u>		
2. <u>Dichanthelium laxiflorum</u>	<u>2</u>	<u>Y</u>	<u>FACU</u>
3. <u>Vaccinium angustifolium</u>	<u>5</u>	<u>Y</u>	<u>FACU</u>
4. <u>Liquidambar styraciflua</u>	<u>2</u>	<u>Y</u>	<u>FAC</u>
5.			
6.			
7.			
8.			
9.			
10.			
11.			

9.1 = Total Cover

50% of total cover: 4.5 20% of total cover: 1.8

Woody Vine Stratum (Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>NA</u>			
2.			
3.			
4.			
5.			

0 = Total Cover

50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 22% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>27</u>	x 3 = <u>81</u>
FACU species <u>239</u>	x 4 = <u>956</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>266</u> (A)	<u>1037</u> (B)

Prevalence Index = B/A = 3.90

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is >50%
 - 3 - Prevalence Index is $\leq 3.0^1$
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (Include photo numbers here or on a separate sheet.)
Herbaceous layer is sparse, Hydrophytic vegetation criteria is not met.

SOIL

Sampling Point. WCUK013-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	10YR 6/3	100	---	---	---	---	Fine sandy loam	Some organic duff
5-16	10YR 7/6	90	10YR 5/8	10	C	M	FSL	
16-20	10YR 7/6	80	10YR 5/8	20	C	M	Fine sandy loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Dark Surface (S7)	<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148)	<input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 147, 148)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 136, 147)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2 cm Muck (A10) (LRR N)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122)	
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)	
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: NA

Depth (inches): NA

Hydric Soil Present? Yes No

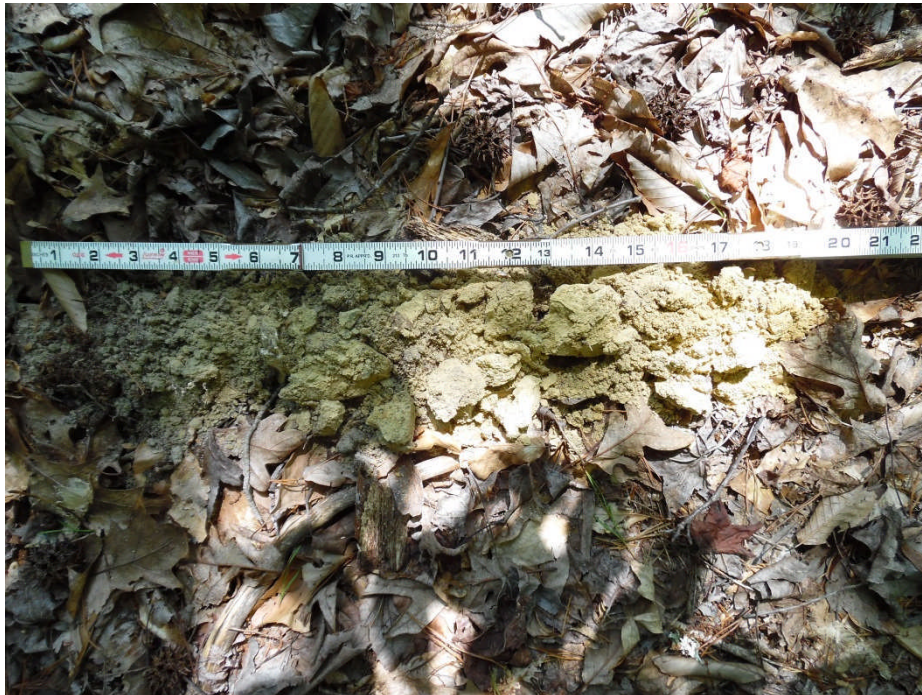
Remarks: Hydric soils criteria is not met.



Upland data point wcuk013_u facing East



Upland data point wcuk013_u facing South



Upland data point wcuk013_u soil sample

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: SE Reliability Project City/County: NA/Cumberland Sampling Date: 08/05/2014
 Applicant/Owner: Dominion Transmission State: VA Sampling Point: WCUK0125-W
 Investigator(s): W. Medlin, J. Deane Section, Township, Range: NA
 Landform (hillslope, terrace, etc.): Seepage slope Local relief (concave, convex, none): Concave Slope (%): 2-4
 Subregion (LRR or MLRA): LRR P Lat: 37.343956962 Long: -78.342317329 Datum: NAD 1983
 Soil Map Unit Name: Poindexter-Wedowee complex, 7 to 15% slopes NWI classification: PSS
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: <u>This area is a scrub-shrub hillside seepage wetland that is VERY dense w/ undergrowth. Delineation of this feature required extra time due to thick vegetation. groundwater appears perched due to clay aquitard. All 3 criteria met. Area is a wetland.</u> <u>PHOTOS 100-0509 to 0513</u> <u>Soils, N, E, S, W (w/ camera)</u>	

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) <input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input checked="" type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0-3</u> Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: <u>NA</u>	
Remarks: <u>Hydrology criteria met.</u>	

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: WCUK0125_W

Tree Stratum (Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>NA</u>			
2.			
3.			
4.			
5.			
6.			
_____ = Total Cover			
50% of total cover: _____ 20% of total cover: _____			

Sapling Stratum (Plot size: <u>15 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>NA</u>			
2.			
3.			
4.			
5.			
6.			
_____ = Total Cover			
50% of total cover: _____ 20% of total cover: _____			

Shrub Stratum (Plot size: <u>15 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Salix nigra</u>	<u>30</u>	<u>Y</u>	<u>OBL</u>
2. <u>Rubus arvensis</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>
3. <u>Liriodendron tulipifera</u>	<u>15</u>		<u>FACU</u>
4. <u>Carpinus caroliniana</u>	<u>5</u>		<u>FAC</u>
5.			
6.			
_____ = Total Cover			
50% of total cover: <u>40</u> 20% of total cover: <u>16</u>			

Herb Stratum (Plot size: <u>10 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Juncus effusus</u>	<u>45</u>	<u>Y</u>	<u>FACW</u>
2. <u>Mimulus ringens</u>	<u>5</u>		<u>OBL</u>
3. <u>Carex lurida</u>	<u>35</u>	<u>Y</u>	<u>OBL</u>
4. <u>Boehmeria cylindrica</u>	<u>10</u>		<u>FACW</u>
5. <u>Salix nigra</u>	<u>15</u>		<u>OBL</u>
6.			
7.			
8.			
9.			
10.			
11.			
_____ = Total Cover			
50% of total cover: <u>55</u> 20% of total cover: <u>22</u>			

Woody Vine Stratum (Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Lonicera japonica</u>	<u>10</u>	<u>Y</u>	<u>FAC</u>
2.			
3.			
4.			
5.			
_____ = Total Cover			
50% of total cover: <u>5</u> 20% of total cover: <u>2</u>			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>70</u>	x 1 = <u>70</u>
FACW species <u>55</u>	x 2 = <u>110</u>
FAC species <u>45</u>	x 3 = <u>135</u>
FACU species <u>15</u>	x 4 = <u>60</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>185</u> (A)	<u>375</u> (B)

Prevalence Index = B/A = 2.03

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is >50%
 - 3 - Prevalence Index is ≤3.0¹
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present?

Yes No

Remarks: (Include photo numbers here or on a separate sheet.)
Hydrophytic vegetation criteria met.

SOIL

Sampling Point: WCUK012S_W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-1	10YR 2/2	100	-	-	-	-	Muck	
1-12	10YR 5/1	100	-	-	-	-	sandy loam	
12-20	10YR 5/1	95	10YR 6/6	5	C	M	clay	dense layer

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

- Hydric Soil Indicators:**
- Histosol (A1)
 - Histic Epipedon (A2)
 - Black Histic (A3)
 - Hydrogen Sulfide (A4)
 - Stratified Layers (A5)
 - 2 cm Muck (A10) (LRR N)
 - Depleted Below Dark Surface (A11)
 - Thick Dark Surface (A12)
 - Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
 - Sandy Gleyed Matrix (S4)
 - Sandy Redox (S5)
 - Stripped Matrix (S6)
 - Dark Surface (S7)
 - Polyvalue Below Surface (S8) (MLRA 147, 148)
 - Thin Dark Surface (S9) (MLRA 147, 148)
 - Loamy Gleyed Matrix (F2)
 - Depleted Matrix (F3)
 - Redox Dark Surface (F6)
 - Depleted Dark Surface (F7)
 - Redox Depressions (F8)
 - Iron-Manganese Masses (F12) (LRR N, MLRA 136)
 - Umbric Surface (F13) (MLRA 136, 122)
 - Piedmont Floodplain Soils (F19) (MLRA 148)
 - Red Parent Material (F21) (MLRA 127, 147)
- Indicators for Problematic Hydric Soils³:**
- 2 cm Muck (A10) (MLRA 147)
 - Coast Prairie Redox (A16) (MLRA 147, 148)
 - Piedmont Floodplain Soils (F19) (MLRA 136, 147)
 - Very Shallow Dark Surface (TF12)
 - Other (Explain in Remarks)
- ³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: clay

Depth (inches): 12 inches

Hydric Soil Present? Yes No

Remarks: Hydric soils criteria met. At 12" of depth, a dense clay aquitard was encountered. This layer was not totally impermeable, but nonetheless is perching water.



Wetland data point wcul012s_w facing North



Wetland data point wcul012s_w facing East



Wetland data point wcuk012s_w soil sample

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: SE Reliability Project City/County: NA/Cumberland Sampling Date: 08/05/2014
 Applicant/Owner: Dominion Transmission State: VA Sampling Point: WCUK012-W
 Investigator(s): W. Medlin, J. Dean Section, Township, Range: NA
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): Convex Slope (%): 4-6
 Subregion (LRR or MLRA): LRR P Lat: 37.343972829 Long: -78.342532076 Datum: NAD 83
 Soil Map Unit Name: Poindexter - Wedowee complex, 7 to 15% slopes NWI classification: Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: <u>This area is an upland hillslope that has been clearcut in the last 10-15 years. Area is dense w/ shrubs, young trees. All 3 criteria are not met. Area is not a wetland.</u> <u>PHOTOS 100-0514 to 0518 soils, N,E,S,W (WLM camera)</u>	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: <u>NA</u>	
Remarks: <u>Hydrology criteria is not met.</u>	

VEGETATION (Five Strata) - Use scientific names of plants.

Sampling Point: WCUK012-U

Tree Stratum (Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>NA</u>			
2.			
3.			
4.			
5.			
6.			
_____ = Total Cover			
50% of total cover: _____ 20% of total cover: _____			

Sapling Stratum (Plot size: <u>15 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>NA</u>			
2. <u>Nyssa sylvatica</u>			
3.			
4.			
5.			
6.			
_____ = Total Cover			
50% of total cover: _____ 20% of total cover: _____			

Shrub Stratum (Plot size: <u>15 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Nyssa sylvatica</u>	<u>40</u>	<u>Y</u>	<u>FAC</u>
2. <u>Quercus velutina</u>	<u>30</u>	<u>Y</u>	<u>NI/FACU</u>
3. <u>Prunus serotina</u>	<u>15</u>		<u>FACU</u>
4. <u>Quercus alba</u>	<u>30</u>	<u>Y</u>	<u>FACU</u>
5. <u>Carya tomentosa</u>	<u>25</u>		<u>NI</u>
6. <u>Liriodendron tulipifera</u>	<u>15</u>		<u>FACU</u>
7. <u>Pinus taeda</u>	<u>20</u>		<u>FAC</u>
<u>175</u> = Total Cover			
50% of total cover: <u>87.5</u> 20% of total cover: <u>35</u>			

Herb Stratum (Plot size: <u>10 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Juniperus virginiana</u>	<u>10</u>	<u>Y</u>	<u>FACU</u>
2. <u>Erigeron americanus</u>	<u>5</u>		<u>FAC</u>
3. <u>Quercus alba</u>	<u>15</u>	<u>Y</u>	<u>FACU</u>
4. <u>Polystichum acrostichoides</u>	<u>5</u>		<u>FACU</u>
5.			
6.			
7.			
8.			
9.			
10.			
11.			
<u>35</u> = Total Cover			
50% of total cover: <u>17.5</u> 20% of total cover: <u>7</u>			

Woody Vine Stratum (Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Parthenocissus quinquefolia</u>	<u>15</u>	<u>Y</u>	<u>FACU</u>
2. <u>Lonicera japonica</u>	<u>15</u>	<u>Y</u>	<u>FAC</u>
3.			
4.			
5.			
<u>30</u> = Total Cover			
50% of total cover: <u>15</u> 20% of total cover: <u>6</u>			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 29% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species <u>0</u>	x 1 =	<u>0</u>
FACW species <u>0</u>	x 2 =	<u>0</u>
FAC species <u>66</u>	x 3 =	<u>180</u>
FACU species <u>105</u>	x 4 =	<u>420</u>
UPL species <u>0</u>	x 5 =	<u>0</u>
Column Totals: <u>165</u> (A)		<u>600</u> (B)
Prevalence Index = B/A = <u>3.64</u>		

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is >50%
 - 3 - Prevalence Index is $\leq 3.0^1$
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling - Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb - All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine - All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (Include photo numbers here or on a separate sheet.)
Hydrophytic Vegetation criteria is not met.

SOIL

Sampling Point WCUK012-U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-11	10YR 4/3	100	---	-	-	-	sandy loam	some gravel
11-20	10YR 7/6	95	10YR 5/8	5	C	M	sandy clay loam	gravel

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Dark Surface (S7)	<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148)	<input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 147, 148)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 136, 147)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2 cm Muck (A10) (LRR N)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122)	
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)	
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: NA

Depth (inches): NA

Hydric Soil Present? Yes No

Remarks: Hydric soils criteria is not met.



Upland data point wcuk012_u facing East



Upland data point wcuk012_u facing South



Upland data point wcuk012_u soil sample

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: SE Reliability Project City/County: NA/Cumberland Sampling Date: 08/04/2014
 Applicant/Owner: Dominion Transmission State: VA Sampling Point: WCUK011F-W
 Investigator(s): W. Medlin, J. Dean Section, Township, Range: NA
 Landform (hillslope, terrace, etc.): bottomland drain Local relief (concave, convex, none): concave Slope (%): 1-2
 Subregion (LRR or MLRA): LRR P Lat: 37.337999512 Long: -78.336265047 Datum: NAD 1983
 Soil Map Unit Name: Poindexter-Wedowee complex, 15 to 25 % slopes NWI classification: PFO1C
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: <u>This area is a forested wetland drainage that is situated within a trough/gully feature and has abrupt boundaries w/ adjacent upland HW forest, wetland abuts stream SCUK020 (intermittent). All 3 criteria met. Area is a wetland.</u> <u>PHOTOS #100 - 0475 to 0479 soils, N, E, S, W (WEM camera)</u>	

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input checked="" type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input checked="" type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u>NA</u> Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u>NA</u> Saturation Present? (includes capillary fringe) Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: <u>NA</u>	
Remarks: <u>Hydrology criteria met.</u>	

SOIL

Sampling Point: WCUR01F-W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 4/3	85	7.5YR 5/8	15	C	M/PL	Sandy loam	Some organic content
4-15	10YR 5/1	70	5YR 4/6	30	C	PL	Sandy loam	
15-20	10YR 6/1	80	5YR 4/6	20	C	PL	Sandy clay loam	oxidized root channels

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10) (LRR N)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)

- Dark Surface (S7)
- Polyvalue Below Surface (S8) (MLRA 147, 148)
- Thin Dark Surface (S9) (MLRA 147, 148)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- Umbric Surface (F13) (MLRA 136, 122)
- Piedmont Floodplain Soils (F19) (MLRA 148)
- Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (MLRA 147)
- Coast Prairie Redox (A16) (MLRA 147, 148)
- Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: NA
Depth (inches): NA

Hydric Soil Present? Yes No

Remarks: Hydric soils criteria is met.



Wetland data point wcuk011f_w facing South



Wetland data point wcuk011f_w facing West



Wetland data point wcuk011f_w soil sample

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: SE Reliability Project City/County: NA/Cumberland Sampling Date: 08/04/2014
 Applicant/Owner: Dominion Transmission State: VA Sampling Point: WCUK011-U
 Investigator(s): W. Medlin, J. Dean Section, Township, Range: NA
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 3-6
 Subregion (LRR or MLRA): LRR P Lat: 37.338047241 Long: -78.336156618 Datum: NAD 1983
 Soil Map Unit Name: Poindexter - Wedowee complex, 15 to 25% slopes NWI classification: Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: <u>This area is on upland hillslope in a HW forest w/ mature trees. Several upland gully features are nearby. All 3 criteria are not met. Area is not a wetland.</u> <u>PHOTOS #100 - 0480 to 0484 soils, N,E,S,W (WLM camera)</u>	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (Inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (Inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (Inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: <u>NA</u>	
Remarks: <u>Hydrology criteria is not met.</u>	

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: WCUK011-U

Tree Stratum (Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Quercus alba</i>	25	Y	FACU
2. <i>Quercus rubra</i>	20		FACU
3. <i>Fagus grandifolia</i>	30	Y	FACU
4. <i>Carya tomentosa</i>	15		NI
5. <i>Liquidambar styraciflua</i>	40	Y	FAC
6. <i>Acer rubrum</i>	15		FAC
7.			
<u>145</u> = Total Cover			
Sapling Stratum (Plot size: <u>15 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Nyssa sylvatica</i>	15	Y	FAC
2. <i>Celtis occidentalis</i>	5		FACU
3. <i>Fagus grandifolia</i>	45	Y	FACU
4.			
5.			
6.			
7.			
<u>65</u> = Total Cover			
Shrub Stratum (Plot size: <u>15 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Fagus grandifolia</i>	30	Y	FACU
2. <i>Liquidambar styraciflua</i>	10		FAC
3. <i>Cornus florida</i>	20	Y	FACU
4. <i>Juniperus virginiana</i>	5		FACU
5. <i>Quercus falcata</i>	2		FACU
6. <i>Acer rubrum</i>	15		FAC
7. <i>Viburnum prunifolium</i>	5		
<u>88</u> = Total Cover			
Herb Stratum (Plot size: <u>10 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Rubus argutus</i>	20	Y	FACU
2. <i>Elymus virginicus</i>	5		FACW
3. <i>Euonymus americanus</i>	5		FAC
4. <i>Quercus alba</i>	10		FACU
5. <i>Quercus falcata</i>	5		FACU
6. <i>Polystichum acrostichoides</i>	5		FACU
7. <i>Cornus florida</i>	15	Y	FACU
8.			
9.			
10.			
11.			
12.			
<u>65</u> = Total Cover			
Woody Vine Stratum (Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Parthenocissus quinquefolia</i>	15	Y	FACU
2. <i>Lonicera japonica</i>	40	Y	FAC
3.			
4.			
5.			
<u>55</u> = Total Cover			

Dominance Test worksheet:	
Number of Dominant Species That Are OBL, FACW, or FAC:	<u>3</u> (A)
Total Number of Dominant Species Across All Strata:	<u>11</u> (B)
Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>27%</u> (A/B)
Prevalence Index worksheet:	
Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>5</u>	x 2 = <u>10</u>
FAC species <u>125</u>	x 3 = <u>375</u>
FACU species <u>252</u>	x 4 = <u>1008</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals:	<u>382</u> (A) <u>1393</u> (B)
Prevalence Index = B/A = <u>3.65</u>	
Hydrophytic Vegetation Indicators:	
<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation	
<input type="checkbox"/> 2 - Dominance Test is >50%	
<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹	
<input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)	
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
Definitions of Five Vegetation Strata:	
Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).	
Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.	
Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.	
Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.	
Woody vine – All woody vines, regardless of height.	
Hydrophytic Vegetation Present?	Yes _____ No <input checked="" type="checkbox"/>

Remarks: (Include photo numbers here or on a separate sheet.)

Hydrophytic vegetation criteria is not met.



Upland data point wcuk011_u facing South



Upland data point wcuk011_u facing West



Upland data point wcuk011_u soil sample

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Atlantic Coast Pipeline City/County: Cumberland Sampling Date: 10/24/2014
 Applicant/Owner: Dominion State: VA Sampling Point: wcua002f_w
 Investigator(s): GB, TP Section, Township, Range: No PLSS in this area
 Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): microtopography Slope (%): 1
 Subregion (LRR or MLRA): P Lat: 37.33451172 Long: -78.33810652 Datum: WGS 1984
 Soil Map Unit Name: Chewacla and Monacan soils, 0 to 2 percent slopes, frequently flooded NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Wetland data point taken for a saturated to temporarily flooded PFO wetland on the floodplain of scua011 - Green Creek. The floodplain area is a mosaic of hummocks, depressions and drainage patterns against the fill placed for existing logging road - proposed access road 33.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input checked="" type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>14</u> Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>9</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: wcua002f_w

	Absolute % Cover	Dominant Species?	Indicator Status																																																							
Tree Stratum (Plot size: <u>30</u>)																																																										
1. <u>Betula nigra</u>	<u>25</u>	Yes	FACW	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>9</u> (A) Total Number of Dominant Species Across All Strata: <u>9</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																																																						
2. <u>Platanus occidentalis</u>	<u>20</u>	Yes	FACW																																																							
3. <u>Salix nigra</u>	<u>10</u>	No	OBL																																																							
4. <u>Acer negundo</u>	<u>5</u>	No	FAC																																																							
5. _____																																																										
6. _____																																																										
7. _____																																																										
$\frac{60}{30} = \text{Total Cover}$ 50% of total cover: <u>30</u> 20% of total cover: <u>12</u>				Prevalence Index worksheet: <table style="width:100%; border:none;"> <tr> <td style="text-align:right;">Total % Cover of:</td> <td style="text-align:center;"><u>28</u></td> <td style="text-align:right;">Multiply by:</td> <td style="text-align:center;"><u>1</u></td> <td style="text-align:center;">=</td> <td style="text-align:center;"><u>28</u></td> </tr> <tr> <td>OBL species</td> <td style="text-align:center;"><u>28</u></td> <td>x</td> <td style="text-align:center;"><u>1</u></td> <td>=</td> <td style="text-align:center;"><u>28</u></td> </tr> <tr> <td>FACW species</td> <td style="text-align:center;"><u>79</u></td> <td>x</td> <td style="text-align:center;"><u>2</u></td> <td>=</td> <td style="text-align:center;"><u>158</u></td> </tr> <tr> <td>FAC species</td> <td style="text-align:center;"><u>58</u></td> <td>x</td> <td style="text-align:center;"><u>3</u></td> <td>=</td> <td style="text-align:center;"><u>174</u></td> </tr> <tr> <td>FACU species</td> <td style="text-align:center;"><u>0</u></td> <td>x</td> <td style="text-align:center;"><u>4</u></td> <td>=</td> <td style="text-align:center;"><u>0</u></td> </tr> <tr> <td>UPL species</td> <td style="text-align:center;"><u>0</u></td> <td>x</td> <td style="text-align:center;"><u>5</u></td> <td>=</td> <td style="text-align:center;"><u>0</u></td> </tr> <tr> <td>Column Totals:</td> <td style="text-align:center;"><u>165</u></td> <td></td> <td></td> <td></td> <td style="text-align:center;"><u>360</u></td> </tr> <tr> <td colspan="2"></td> <td>(A)</td> <td></td> <td></td> <td>(B)</td> </tr> <tr> <td colspan="6" style="text-align:center;">Prevalence Index = B/A = <u>2.18</u></td> </tr> </table>	Total % Cover of:	<u>28</u>	Multiply by:	<u>1</u>	=	<u>28</u>	OBL species	<u>28</u>	x	<u>1</u>	=	<u>28</u>	FACW species	<u>79</u>	x	<u>2</u>	=	<u>158</u>	FAC species	<u>58</u>	x	<u>3</u>	=	<u>174</u>	FACU species	<u>0</u>	x	<u>4</u>	=	<u>0</u>	UPL species	<u>0</u>	x	<u>5</u>	=	<u>0</u>	Column Totals:	<u>165</u>				<u>360</u>			(A)			(B)	Prevalence Index = B/A = <u>2.18</u>					
Total % Cover of:	<u>28</u>	Multiply by:	<u>1</u>		=	<u>28</u>																																																				
OBL species	<u>28</u>	x	<u>1</u>		=	<u>28</u>																																																				
FACW species	<u>79</u>	x	<u>2</u>		=	<u>158</u>																																																				
FAC species	<u>58</u>	x	<u>3</u>		=	<u>174</u>																																																				
FACU species	<u>0</u>	x	<u>4</u>		=	<u>0</u>																																																				
UPL species	<u>0</u>	x	<u>5</u>		=	<u>0</u>																																																				
Column Totals:	<u>165</u>					<u>360</u>																																																				
		(A)				(B)																																																				
Prevalence Index = B/A = <u>2.18</u>																																																										
Sapling/Shrub Stratum (Plot size: <u>15</u>)																																																										
1. <u>Lindera benzoin</u>	<u>25</u>	Yes	FAC	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is $\leq 3.0^1$ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)																																																						
2. <u>Alnus serrulata</u>	<u>15</u>	Yes	OBL																																																							
3. <u>Acer negundo</u>	<u>5</u>	No	FAC																																																							
4. <u>Fraxinus pennsylvanica</u>	<u>5</u>	No	FACW																																																							
5. _____																																																										
6. _____																																																										
7. _____																																																										
8. _____																																																										
9. _____																																																										
$\frac{50}{25} = \text{Total Cover}$ 50% of total cover: <u>25</u> 20% of total cover: <u>10</u>					Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.																																																					
Herb Stratum (Plot size: <u>5</u>)																																																										
1. <u>Carex comosa</u>	<u>3</u>	Yes	OBL	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																																																						
2. <u>Boehmeria cylindrica</u>	<u>2</u>	Yes	FACW																																																							
3. <u>Elymus virginicus</u>	<u>2</u>	Yes	FACW																																																							
4. _____																																																										
5. _____																																																										
6. _____																																																										
7. _____																																																										
8. _____																																																										
9. _____																																																										
10. _____																																																										
$\frac{7}{3.5} = \text{Total Cover}$ 50% of total cover: <u>3.5</u> 20% of total cover: <u>1.4</u>																																																										
Woody Vine Stratum (Plot size: <u>30</u>)																																																										
1. <u>Vitis riparia</u>	<u>25</u>	Yes	FACW																																																							
2. <u>Lonicera japonica</u>	<u>15</u>	Yes	FAC																																																							
3. <u>Smilax rotundifolia</u>	<u>8</u>	No	FAC																																																							
4. _____																																																										
5. _____																																																										
$\frac{48}{24} = \text{Total Cover}$ 50% of total cover: <u>24</u> 20% of total cover: <u>9.6</u>																																																										

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: wcua002f_w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	7.5YR 4/2	70	7.5YR 4/6	30	C	PL/M	SICL	
12-20	7.5YR 4/1	90	7.5YR 4/6	10	C	PL/M	CL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils³:	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Dark Surface (S7)	<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148)	<input type="checkbox"/> Coast Prairie Redox (A16)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)	<input type="checkbox"/> (MLRA 147, 148)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Piedmont Floodplain Soils (F19)	
<input type="checkbox"/> Stratified Layers (A5)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> (MLRA 136, 147)	
<input type="checkbox"/> 2 cm Muck (A10) (LRR N)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)		
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122)		
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)		
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147)		

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed): Type: <u>none</u> Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____
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Remarks:



Photo 1
Wetland data point WCUA002f_w facing southwest



Photo 2
Wetland data point WCUA002f_w facing northeast

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Atlantic Coast Pipeline City/County: Cumberland Sampling Date: 10/24/2014
 Applicant/Owner: Dominion State: VA Sampling Point: wcua002_u
 Investigator(s): GB, TP Section, Township, Range: No PLSS in this area
 Landform (hillslope, terrace, etc.): hummock Local relief (concave, convex, none): microtopography Slope (%): 3
 Subregion (LRR or MLRA): P Lat: 37.33456757 Long: -78.33799163 Datum: WGS 1984
 Soil Map Unit Name: Chewacla and Monacan soils, 0 to 2 percent slopes, frequently flooded NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Upland data point taken on floodplain hummock for a saturated to temporarily flooded PFO wetland located on floodplain of Green Creek	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
--	--

Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
--	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: wcua002_u

	Absolute % Cover	Dominant Species?	Indicator Status																																	
Tree Stratum (Plot size: <u>30</u>)																																				
1. <u>Liriodendron tulipifera</u>	<u>25</u>	Yes	FACU	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>83.33333333</u> (A/B)																																
2. <u>Betula nigra</u>	<u>20</u>	Yes	FACW																																	
3. <u>Acer negundo</u>	<u>5</u>	No	FAC																																	
4. <u>Liquidambar styraciflua</u>	<u>5</u>	No	FAC																																	
5. _____																																				
6. _____																																				
7. _____																																				
$\frac{55}{100} = \text{Total Cover}$ 50% of total cover: <u>27.5</u> 20% of total cover: <u>11</u>				Prevalence Index worksheet: <table style="width:100%; border:none;"> <tr> <td style="text-align:right;">Total % Cover of:</td> <td style="text-align:center;"><u>4</u></td> <td style="text-align:right;">Multiply by:</td> <td style="text-align:center;"><u>4</u></td> </tr> <tr> <td>OBL species</td> <td style="text-align:center;"><u>4</u></td> <td>x 1 =</td> <td style="text-align:center;"><u>4</u></td> </tr> <tr> <td>FACW species</td> <td style="text-align:center;"><u>30</u></td> <td>x 2 =</td> <td style="text-align:center;"><u>60</u></td> </tr> <tr> <td>FAC species</td> <td style="text-align:center;"><u>98</u></td> <td>x 3 =</td> <td style="text-align:center;"><u>294</u></td> </tr> <tr> <td>FACU species</td> <td style="text-align:center;"><u>25</u></td> <td>x 4 =</td> <td style="text-align:center;"><u>100</u></td> </tr> <tr> <td>UPL species</td> <td style="text-align:center;"><u>0</u></td> <td>x 5 =</td> <td style="text-align:center;"><u>0</u></td> </tr> <tr> <td>Column Totals:</td> <td style="text-align:center;"><u>157</u> (A)</td> <td></td> <td style="text-align:center;"><u>458</u> (B)</td> </tr> <tr> <td colspan="4" style="text-align:center;">Prevalence Index = B/A = <u>2.91</u></td> </tr> </table>	Total % Cover of:	<u>4</u>	Multiply by:	<u>4</u>	OBL species	<u>4</u>	x 1 =	<u>4</u>	FACW species	<u>30</u>	x 2 =	<u>60</u>	FAC species	<u>98</u>	x 3 =	<u>294</u>	FACU species	<u>25</u>	x 4 =	<u>100</u>	UPL species	<u>0</u>	x 5 =	<u>0</u>	Column Totals:	<u>157</u> (A)		<u>458</u> (B)	Prevalence Index = B/A = <u>2.91</u>			
Total % Cover of:	<u>4</u>	Multiply by:	<u>4</u>																																	
OBL species	<u>4</u>	x 1 =	<u>4</u>																																	
FACW species	<u>30</u>	x 2 =	<u>60</u>																																	
FAC species	<u>98</u>	x 3 =	<u>294</u>																																	
FACU species	<u>25</u>	x 4 =	<u>100</u>																																	
UPL species	<u>0</u>	x 5 =	<u>0</u>																																	
Column Totals:	<u>157</u> (A)		<u>458</u> (B)																																	
Prevalence Index = B/A = <u>2.91</u>																																				
Sapling/Shrub Stratum (Plot size: <u>15</u>)																																				
1. <u>Lindera benzoin</u>	<u>25</u>	Yes	FAC	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is $\leq 3.0^1$ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																																
2. <u>Acer negundo</u>	<u>10</u>	Yes	FAC																																	
3. <u>Betula nigra</u>	<u>6</u>	No	FACW																																	
4. <u>Salix nigra</u>	<u>4</u>	No	OBL																																	
5. _____																																				
6. _____																																				
7. _____																																				
8. _____																																				
9. _____																																				
$\frac{45}{100} = \text{Total Cover}$ 50% of total cover: <u>22.5</u> 20% of total cover: <u>9</u>																																				
Herb Stratum (Plot size: <u>5</u>)																																				
1. <u>Microstegium vimineum</u>	<u>15</u>	Yes	FAC	Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																																
2. <u>Boehmeria cylindrica</u>	<u>4</u>	No	FACW																																	
3. <u>Verbesina alternifolia</u>	<u>3</u>	No	FAC																																	
4. _____																																				
5. _____																																				
6. _____																																				
7. _____																																				
8. _____																																				
9. _____																																				
10. _____																																				
11. _____																																				
$\frac{22}{100} = \text{Total Cover}$ 50% of total cover: <u>11</u> 20% of total cover: <u>4.4</u>																																				
Woody Vine Stratum (Plot size: <u>30</u>)																																				
1. <u>Lonicera japonica</u>	<u>25</u>	Yes	FAC																																	
2. <u>Campsis radicans</u>	<u>5</u>	No	FAC																																	
3. <u>Toxicodendron radicans</u>	<u>5</u>	No	FAC																																	
4. _____																																				
5. _____																																				
$\frac{35}{100} = \text{Total Cover}$ 50% of total cover: <u>17.5</u> 20% of total cover: <u>7</u>																																				
Remarks: (Include photo numbers here or on a separate sheet.)																																				

SOIL

Sampling Point: wcua002_u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	7.5YR 3/3	100					SL	
8-20	7.5YR 4/3	100					SL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils ³ :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Dark Surface (S7)	<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148)	<input type="checkbox"/> Coast Prairie Redox (A16)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)	<input type="checkbox"/> (MLRA 147, 148)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Piedmont Floodplain Soils (F19)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> (MLRA 136, 147)	
<input type="checkbox"/> 2 cm Muck (A10) (LRR N)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)		
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122)		
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)		
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147)		

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed): Type: <u>none</u> Depth (inches): _____	Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/>
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Remarks:



Photo 1
Upland data point WCUA002_u facing southwest



Photo 2
Upland data point WCUA002_u facing northeast

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Southeast Reliability Project City/County: NA/Cumberland Sampling Date: 7/31/2014
 Applicant/Owner: Dominion Transmission State: VA Sampling Point: wcuk008f_w
 Investigator(s): W. Medlin, J. Sweitzer, J. Dean Section, Township, Range: NA
 Landform (hillslope, terrace, etc.): floodplain depression Local relief (concave, convex, none): concave Slope (%): 0-1
 Subregion (LRR or MLRA): LRR P Lat: 37.330413516 Long: -78.324659658 Datum: NAD 83
 Soil Map Unit Name: Chewacla and Monacan soils, 0 to 2% slopes, frequently flooded NWI classification: PFO1A
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: This area is Piedmont floodplain depression that actively receives flooding and groundwater input (seasonally). All 3 criteria met. Area is a wetland. Photos #100-0360 to 0364(WLM camera)	

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one is required; check all that apply)</u></p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<p><u>Secondary Indicators (minimum of two required)</u></p> <input checked="" type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<p>Field Observations:</p> Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	Wetland H: drolog: Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: NA	
Remarks: Hydrology criteria met.	

VEGETATION Five Strata Use scientific names of plants.

Sampling Point: wcuk008f_w

Tree Stratum (Plot size: 30ft)

	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Fraxinus pennsylvanica</u>	<u>40</u>	<u>Y</u>	<u>FACW</u>
2. <u>Ulmus americana</u>	<u>80</u>	<u>Y</u>	<u>FACW</u>
3. <u>Betula nigra</u>	<u>40</u>	<u>Y</u>	<u>FACW</u>
4. <u>Salix nigra</u>	<u>20</u>		<u>OBL</u>
5. _____			
6. _____			
	<u>180</u>	= Total Cover	
	50% of total cover: <u>90</u>	20% of total cover: <u>36</u>	

Sapling Stratum (Plot size: 15ft)

	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>NA</u>			
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			
		= Total Cover	
	50% of total cover: _____	20% of total cover: _____	

Shrub Stratum (Plot size: 15ft)

	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Lindera benzoin</u>	<u>15</u>	<u>Y</u>	<u>FAC</u>
2. <u>Acer negundo</u>	<u>5</u>		<u>FAC</u>
3. <u>Rubus arvensis</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>
4. _____			
5. _____			
6. _____			
	<u>40</u>	= Total Cover	
	50% of total cover: <u>20</u>	20% of total cover: <u>8</u>	

Herb Stratum (Plot size: 10ft)

	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Anemone virginiana</u>	<u>5</u>		<u>FACU</u>
2. <u>Microstegium vimineum</u>	<u>80</u>	<u>Y</u>	<u>FAC</u>
3. <u>Peltandra virginica</u>	<u>2</u>		<u>OBL</u>
4. <u>Lobelia cardinalis</u>	<u>5</u>		<u>FACW</u>
5. <u>Acer negundo</u>	<u>5</u>		<u>FAC</u>
6. _____			
7. _____			
8. _____			
9. _____			
10. _____			
11. _____			
	<u>97</u>	= Total Cover	
	50% of total cover: <u>48.5</u>	20% of total cover: <u>19.4</u>	

Woody Vine Stratum (Plot size: 30ft)

	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Toxicodendron radicans</u>	<u>15</u>	<u>Y</u>	<u>FAC</u>
2. _____			
3. _____			
4. _____			
5. _____			
	<u>15</u>	= Total Cover	
	50% of total cover: <u>7.5</u>	20% of total cover: <u>3</u>	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>22</u>	x 1 = <u>22</u>
FACW species <u>165</u>	x 2 = <u>330</u>
FAC species <u>140</u>	x 3 = <u>420</u>
FACU species <u>5</u>	x 4 = <u>20</u>
UPL species _____	x 5 = _____
Column Totals: <u>332</u> (A)	<u>792</u> (B)
Prevalence Index = B/A = <u>2.39</u>	

- H: droph: tic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is >50%
 - 3 - Prevalence Index is ≤3.0¹
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Wood: vine – All woody vines, regardless of height.

H: droph: tic Vegetation Present?

Yes No

Remarks: (Include photo numbers here or on a separate sheet.)
 Vegetation criteria met.

SOIL

Sampling Point: wcuk008f_w

Profile Description: Describe to the depth needed to document the indicator or confirm the absence of indicators.>

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	7.5YR 4/3	80	5YR 4/6	20	C	PL	Clay loam	
6-18	7.5YR 5/2	70	5YR 5/8	15	C	PL	Clay loam	Mixed matrix
			5YR 4/6	15	C	PL		Mixed matrix
18-24	10YR 5/1	75	5YR 5/8	25	C	PL	Clay loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

H: dric Soil Indicators:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Dark Surface (S7)	<input type="checkbox"/> 2 cm Muck (A10) -MLRA 147>
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Polyvalue Below Surface (S8) -MLRA 147, 148>	<input type="checkbox"/> Coast Prairie Redox (A16)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Thin Dark Surface (S9) -MLRA 147, 148>	<input type="checkbox"/> -MLRA 147, 148>
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Piedmont Floodplain Soils (F19)
<input type="checkbox"/> Stratified Layers (A5)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> -MLRA 136, 147>
<input type="checkbox"/> 2 cm Muck (A10) -LRR N>	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1) -LRR N, MLRA 147, 148>	<input type="checkbox"/> Iron-Manganese Masses (F12) -LRR N, MLRA 136>	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Umbric Surface (F13) -MLRA 136, 122>	
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) -MLRA 148>	
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (F21) -MLRA 127, 147>	

Indicators for Problematic H: dric Soils³:

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer if observed:

Type: NA

Depth (inches): _____

H: dric Soil Present? Yes No

Remarks: Hydric soils criteria met.

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Dominion Southeast Reliability Project City/County: Cumberland Sampling Date: 07/31/2014
 Applicant/Owner: Dominion Transmission State: VA Sampling Point: wcuk008_u
 Investigator(s): J. Sweitzer, W. Medlin Section, Township, Range: NA
 Landform (hillslope, terrace, etc.): Floodplain terrace Local relief (concave, convex, none): none Slope (%): 0-
 Subregion (LRR or MLRA): LRR P Lat: 37.331302157 Long: 78.325275258 Datum: NAD 1983
 Soil Map Unit Name: Chewacla and Monacan soils, 0 to 2 percent slopes, frequently flooded NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Photos 104-4695 to 4699 Soils, N, S, E, W (J. Sweitzer Camera) Upland plot established on a floodplain terrace.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: NA	
Remarks: No indicators of wetland hydrology.	

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: wcuk008_u

<u>Tree Stratum</u> (Plot size: <u>30 ft R</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Liquidambar styraciflua</u>	70	Y	FAC	
2. <u>Acer rubrum</u>	30	Y	FAC	
3. <u>Fraxinus pennsylvanica</u>	30	Y	FACW	
4. _____				
5. _____				
6. _____				
7. _____				
130 = Total Cover				
50% of total cover: <u>65</u>		20% of total cover: <u>26</u>		
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15 ft R</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Lindera benzoin</u>	60	Y	FAC	
2. <u>Celtis occidentalis</u>	20	Y	FACU	
3. <u>Liriodendron tulipifera</u>	10	N	FAC	
4. <u>Carpinus caroliniana</u>	10	N	FACU	
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
100 = Total Cover				
50% of total cover: <u>50</u>		20% of total cover: <u>20</u>		
<u>Herb Stratum</u> (Plot size: <u>5 FT R</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Microstegium vimineum</u>	50	Y	FAC	
2. <u>Rubus argutus</u>	15	Y	FACU	
3. <u>Fragaria virginiana</u>	5	N	FACU	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
70 = Total Cover				
50% of total cover: <u>35</u>		20% of total cover: <u>14</u>		
<u>Woody Vine Stratum</u> (Plot size: <u>30 Ft R</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Campsis radicans</u>	5	N	FAC	
2. <u>Toxicodendron radicans</u>	20	Y	FAC	
3. <u>Parthenocissus quinquefolia</u>	5	N	FAC	
4. _____				
5. _____				
30 = Total Cover				
50% of total cover: <u>15</u>		20% of total cover: <u>6</u>		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 71 (A/B)

Prevalence Index worksheet:

Total % Cover of: _____ Multiply by:

OBL species _____ x 1 = _____

FACW species _____ x 2 = _____

FAC species _____ x 3 = _____

FACU species _____ x 4 = _____

UPL species _____ x 5 = _____

Column Totals: _____ (A) _____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤3.0¹

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes No

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation passes dominance test. Vegetation consists of typical well drained piedmont floodplain species.

SOIL

Sampling Point: wcuk008_u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	10YR 5/4	70	10YR 5/2	10	D	M	Silt Loam	NA
0-10	NA	NA	7.5YR 4/6	20	C	M	Silt Loam	NA
10-20	10YR 5/4	70	7.5YR 5/8	2	C	M	Silt Loam	Mottles
10-20	NA	NA	5YR 4/6	18	C	M	Silt Loam	Mottles

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:	Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Coast Prairie Redox (A16)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> (MLRA 147, 148)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Piedmont Floodplain Soils (F19)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> (MLRA 136, 147)
<input type="checkbox"/> 2 cm Muck (A10) (LRR N)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Thick Dark Surface (A12)	
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	
<input type="checkbox"/> Sandy Redox (S5)	
<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Dark Surface (S7)	
<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148)	
<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)	
<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136)	
<input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122)	
<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)	
<input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed): Type: <u>NA</u> Depth (inches): <u>NA</u>	Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Remarks:
 No indicators of hydric soils observed due to high chroma matrix to 20".



Wetland data point wcul008f_w facing North



Wetland data point wcul008f_w facing East



Upland data point wcuk008_u facing North



Upland data point wcuk008_u facing South



Wetland data point wcuk008f_w soil sample



Upland data point wcuk008_u soil sample

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Southeast Reliability Project City/County: NA/Cumberland Sampling Date: 07/31/14
 Applicant/Owner: Dominion Transmission State: VA Sampling Point: wcuk010e_w
 Investigator(s): W. Medlin, J. Sweitzer, J. Dean Section, Township, Range: NA
 Landform (hillslope, terrace, etc.): historic impoundment Local relief (concave, convex, none): concave Slope (%): NA
 Subregion (LRR or MLRA): LRR P Lat: 37.330413516 Long: -78.324659658 Datum: NAD 1983
 Soil Map Unit Name: Watery sandy loam 15 to 25 percent slopes NWI classification: PEM1C
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: This area is a historic impoundment/pond that has been breached and has filled in with sediment enough to create a freshwater marsh. All three criteria are met. Area is a wetland. *Photos 100-0376 to 0380 (WLM camera)	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>6</u> Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> Saturation Present? (includes capillary fringe) Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: <u>NA</u>	
Remarks: Hydrology criteria is met.	

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: wcuk010e_w

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: <u>30 ft radius</u>)				
1. <u>NA</u>				
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
	_____ = Total Cover			
	50% of total cover: _____		20% of total cover: _____	
Sapling Stratum (Plot size: <u>15 ft radius</u>)				
1. <u>NA</u>				
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
	_____ = Total Cover			
	50% of total cover: _____		20% of total cover: _____	
Shrub Stratum (Plot size: <u>15 ft radius</u>)				
1. <u>NA</u>				
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
	_____ = Total Cover			
	50% of total cover: _____		20% of total cover: _____	
Herb Stratum (Plot size: <u>10 ft radius</u>)				
1. <u>Persicaria sagittatum</u>	<u>50</u>	<u>Y</u>	<u>OBL</u>	
2. <u>Microstegium vimineum</u>	<u>60</u>	<u>Y</u>	<u>FAC</u>	
3. <u>Glyceria striata</u>	<u>45</u>	<u>Y</u>	<u>OBL</u>	
4. <u>Impatiens capensis</u>	<u>15</u>		<u>FACW</u>	
5. <u>Lycopus americanus</u>	<u>5</u>		<u>OBL</u>	
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
	<u>175</u> = Total Cover			
	50% of total cover: <u>87.5</u>		20% of total cover: <u>35</u>	
Woody Vine Stratum (Plot size: <u>30 ft radius</u>)				
1. <u>NA</u>				
2. _____				
3. _____				
4. _____				
5. _____				
	_____ = Total Cover			
	50% of total cover: _____		20% of total cover: _____	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:
OBL species	<u>100</u>	x 1 = <u>100</u>
FACW species	<u>15</u>	x 2 = <u>30</u>
FAC species	<u>60</u>	x 3 = <u>180</u>
FACU species	<u>0</u>	x 4 = <u>0</u>
UPL species	<u>0</u>	x 5 = <u>0</u>
Column Totals:	<u>175</u> (A)	<u>310</u> (B)

Prevalence Index = B/A = 1.77

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤3.0¹

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (Include photo numbers here or on a separate sheet.)

Hydrophytic vegetation criteria is met.

SOIL

Sampling Point: wcuk010e_w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 4/1	65	5YR 4/6	35	C	PL	SCL	SCL - sandy clay loam; mica
6-10	10YR 4/1	85	5YR 4/6	15	C	PL	SCL	
10-20	2.5Y 3/1	100					SL	SL - sandy loam

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10) (LRR N)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)

- Dark Surface (S7)
- Polyvalue Below Surface (S8) (MLRA 147, 148)
- Thin Dark Surface (S9) (MLRA 147, 148)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- Umbric Surface (F13) (MLRA 136, 122)
- Piedmont Floodplain Soils (F19) (MLRA 148)
- Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (MLRA 147)
- Coast Prairie Redox (A16) (MLRA 147, 148)
- Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: bedrock
 Depth (inches): 20

Hydric Soil Present? Yes No

Remarks: Hydric soils criteria is met. At 20 inches depth, a bedrock layer was encountered.



Wetland data point wcul010e_w facing South



Wetland data point wcul010e_w facing West

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Dominion Southeast Reliability Project City/County: Cumberland Sampling Date: 07/31/2014
 Applicant/Owner: Dominion Transmission State: VA Sampling Point: wcuk010_u
 Investigator(s): J. Sweitzer, W. Medlin Section, Township, Range: NA
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 10-15
 Subregion (LRR or MLRA): LRR P Lat: 37.330374852 Long: 78.324504719 Datum: NAD 1983
 Soil Map Unit Name: Wateree sandy loam, 15 to 25 percent slopes NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Photos 104-4704 to 4708 Soils, N, S, E, W (J. Sweitzer Camera) Upland point established on a hillslope. This site was historic disturbed and a cattle water pond was created by impounding a stream. All three criteria not met. Area is not a wetland.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
--	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
 NA

Remarks:
 No indicators of wetland hydrology.

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: wcuk010_u

<u>Tree Stratum</u> (Plot size: <u>30 ft R</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Quercus rubra</u>	40	Y	FACU	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33</u> (A/B)
2. <u>Fagus grandifolia</u>	40	Y	FACU	
3. <u>Liriodendron tulipifera</u>	10	N	FACU	
4. <u>Juniperus virginiana</u>	10	N	FACU	
5. <u>Fraxinus pennsylvanica</u>	10	N	FACW	
6. <u>Juglans Nigra</u>	10	N	FACU	
7. <u>Liquidambar styraciflua</u>	10	N	FAC	
130 = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
50% of total cover: <u>65</u>		20% of total cover: <u>26</u>		
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15 ft R</u>)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
1. <u>NA</u>	NA	NA	NA	
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
_____ = Total Cover				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
50% of total cover: _____		20% of total cover: _____		
<u>Herb Stratum</u> (Plot size: <u>5 FT R</u>)				Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
1. <u>Microstegium vimineum</u>	80	Y	FAC	
2. <u>Persicaria maculosa</u>	10	N	FACW	
3. <u>Boehmeria cylindrica</u>	10	N	FACW	
4. <u>Acer negundo</u>	5	N	FACW	
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
105 = Total Cover				Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>
50% of total cover: <u>53</u>		20% of total cover: <u>21</u>		
<u>Woody Vine Stratum</u> (Plot size: <u>30 Ft R</u>)				
1. <u>Toxicodendron radicans</u>	2	Y	FAC	
2. _____				
3. _____				
4. _____				
5. _____				
2 = Total Cover				
50% of total cover: <u>1</u>		20% of total cover: <u>1</u>		
Remarks: (Include photo numbers here or on a separate sheet.) Vegetation fails dominance test.				

SOIL

Sampling Point: wcuk010_u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-14	7.5YR 3/4	100	NA	NA	NA	NA	sandy clay loam w/ gravel	
14-18	5YR 3/4	100	NA	NA	NA	NA	sandy clay loam w/ gravel	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils³:	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Dark Surface (S7)	<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148)	<input type="checkbox"/> Coast Prairie Redox (A16)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)	<input type="checkbox"/> (MLRA 147, 148)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Piedmont Floodplain Soils (F19)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> (MLRA 136, 147)	
<input type="checkbox"/> 2 cm Muck (A10) (LRR N)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)		
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122)		
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)		
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147)		

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed): Type: <u>NA</u> Depth (inches): <u>NA</u>	Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Remarks:
 No indicators of hydric soils observed due to high chroma matrix to 20".



Upland data point wcuk010_u facing North



Upland data point wcuk010_u facing South



Wetland data point wcuk010e_w soil sample



Upland data point wcuk010_u soil sample

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Southeast Reliability Project City/County: NA/Cumberland Sampling Date: 07/31/14
 Applicant/Owner: Dominion Transmission State: VA Sampling Point: wcuk009f_w
 Investigator(s): W. Medlin, J. Sweitzer, J. Dean Section, Township, Range: NA
 Landform (hillslope, terrace, etc.): bottomland Local relief (concave, convex, none): concave Slope (%): 0-2
 Subregion (LRR or MLRA): LRR P Lat: 37.330981862 Long: -78.324017295 Datum: NAD 1983
 Soil Map Unit Name: Chewacla and Monacan soils, 0 to 2 percent slopes, freq. flooded NWI classification: PFO1C
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: This area is a bottomland hardwood forest with several small streams flowing through it and seasonal saturation/flooding for long duration. The boundary with the adjacent upland is abrupt. All three criteria are met. Area is a wetland. *Photos 100-0371 to 0375 (WLM camera)	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> <input checked="" type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: NA	
Remarks: Hydrology criteria is met.	

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: wcuk009f_w

Tree Stratum (Plot size: <u>30 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Liquidambar styraciflua</u>	<u>40</u>	<u>Y</u>	<u>FAC</u>
2. <u>Fraxinus pennsylvanica</u>	<u>60</u>	<u>Y</u>	<u>FACW</u>
3. <u>Ulmus americana</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>
4. <u>Liriodendron tulipifera</u>	<u>15</u>		<u>FACU</u>
5. _____			
6. _____			
	<u>145</u> = Total Cover		
	50% of total cover: <u>72.5</u>	20% of total cover: <u>29</u>	

Sapling Stratum (Plot size: <u>15 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Acer negundo</u>	<u>40</u>	<u>Y</u>	<u>FAC</u>
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			
	<u>40</u> = Total Cover		
	50% of total cover: <u>20</u>	20% of total cover: <u>8</u>	

Shrub Stratum (Plot size: <u>15 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Acer negundo</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>
2. <u>Lindera benzoin</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>
3. <u>Ilex decidua</u>	<u>15</u>		<u>FACW</u>
4. <u>Carpinus caroliniana</u>	<u>15</u>		<u>FAC</u>
5. _____			
6. _____			
	<u>90</u> = Total Cover		
	50% of total cover: <u>45</u>	20% of total cover: <u>18</u>	

Herb Stratum (Plot size: <u>10 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Microstegium vimineum</u>	<u>50</u>	<u>Y</u>	<u>FAC</u>
2. <u>Anemone virginiana</u>	<u>10</u>		<u>FACU</u>
3. <u>Boehmeria cylindrica</u>	<u>5</u>		<u>FACW</u>
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			
9. _____			
10. _____			
11. _____			
	<u>65</u> = Total Cover		
	50% of total cover: <u>32.5</u>	20% of total cover: <u>13</u>	

Woody Vine Stratum (Plot size: <u>15 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Toxicodendron radicans</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>
2. <u>Parthenocissus quinquefolia</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>
3. _____			
4. _____			
5. _____			
	<u>50</u> = Total Cover		
	50% of total cover: <u>25</u>	20% of total cover: <u>10</u>	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 8 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 89 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>110</u>	x 2 = <u>220</u>
FAC species <u>235</u>	x 3 = <u>705</u>
FACU species <u>45</u>	x 4 = <u>180</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>390</u> (A)	<u>1105</u> (B)

Prevalence Index = B/A = 2.83

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is >50%
 - 3 - Prevalence Index is $\leq 3.0^1$
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present?

Yes No

Remarks: (Include photo numbers here or on a separate sheet.)
 Hydrophytic vegetation criteria is met.

SOIL

Sampling Point: wcuk009f_w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	10YR 4/2	60	7.5YR 4/6	40	C	PL	silty clay	
12-20	7.5YR 5/2	70	5YR 4/6	30	C	PL	silty clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10) (LRR N)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)

- Dark Surface (S7)
- Polyvalue Below Surface (S8) (MLRA 147, 148)
- Thin Dark Surface (S9) (MLRA 147, 148)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- Umbric Surface (F13) (MLRA 136, 122)
- Piedmont Floodplain Soils (F19) (MLRA 148)
- Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (MLRA 147)
- Coast Prairie Redox (A16) (MLRA 147, 148)
- Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: NA
 Depth (inches): NA

Hydric Soil Present? Yes No

Remarks: Hydric soils criteria is met.



Wetland data point wcuk009f_w facing North



Wetland data point wcuk009f_w facing East

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Dominion Southeast Reliability Project City/County: Cumberland Sampling Date: 07/31/2014
 Applicant/Owner: Dominion Transmission State: VA Sampling Point: wcuk009_u
 Investigator(s): J. Sweitzer, W. Medlin Section, Township, Range: NA
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 5-10
 Subregion (LRR or MLRA): LRR P Lat: 37.330877956 Long: 78.323958326 Datum: NAD 1983
 Soil Map Unit Name: Chewacla and Monacan soils, 0 to 2 percent slopes, frequently flooded NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Photos 104-4700 to 4703 Soils, N, S, E, W (J. Sweitzer Camera) Upland point established on a hillslope leading to a floodplain/toe-of-slope wetland.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: NA	
Remarks: No indicators of wetland hydrology.	

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: wcuk009_u

<u>Tree Stratum</u> (Plot size: <u>30 ft R</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Fagus grandifolia</u>	70	Y	FACU	
2. <u>Liriodendron tulipifera</u>	40	Y	FACU	
3. <u>Quercus rubra</u>	20	N	FACU	
4. <u>Carya sp.</u>	20	N	NI	
5. _____				
6. _____				
7. _____				
130 = Total Cover				
50% of total cover: <u>65</u>		20% of total cover: <u>26</u>		
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15 ft R</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Asimina triloba</u>	30	Y	FAC	
2. <u>Fagus grandifolia</u>	5	N	FACU	
3. <u>Carpinus caroliniana</u>	20	N	FACU	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
55 = Total Cover				
50% of total cover: <u>28</u>		20% of total cover: <u>11</u>		
<u>Herb Stratum</u> (Plot size: <u>5 FT R</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Polystichum acrostichoides</u>	10	Y	FACU	
2. <u>Amphicarpaea bracteata</u>	5	Y	FAC	
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
15 = Total Cover				
50% of total cover: <u>8</u>		20% of total cover: <u>3</u>		
<u>Woody Vine Stratum</u> (Plot size: <u>30 Ft R</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Lonicera japonica</u>	5	Y	FAC	
2. <u>Smilax bona-nox</u>	5	Y	FACU	
3. _____				
4. _____				
5. _____				
30 = Total Cover				
50% of total cover: <u>15</u>		20% of total cover: <u>6</u>		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of: _____ Multiply by:

OBL species _____ x 1 = _____

FACW species _____ x 2 = _____

FAC species _____ x 3 = _____

FACU species _____ x 4 = _____

UPL species _____ x 5 = _____

Column Totals: _____ (A) _____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤3.0¹

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks: (Include photo numbers here or on a separate sheet.)

Vegetation fails dominance test.

SOIL

Sampling Point: wcuk009_u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-13	10YR 3/1	50	NA	NA	NA	NA	sandy Loam	w/ gravel and organic
0-13	10YR 5/6	50	NA	NA	NA	NA	sandy Loam	w/ gravel
13-18	10YR 4/6	70	NA	NA	NA	NA	sandy Loam	w/ gravel
13-18	10YR 3/1	30	NA	NA	NA	NA	sandy Loam	w/ gravel and organic

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils³:	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Dark Surface (S7)	<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148)	<input type="checkbox"/> Coast Prairie Redox (A16)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)	<input type="checkbox"/> Piedmont Floodplain Soils (F19)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> 2 cm Muck (A10) (LRR N)	<input type="checkbox"/> Redox Dark Surface (F6)		
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)		
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122)		
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)		
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147)		

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed): Type: <u>NA</u> Depth (inches): <u>NA</u>	Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
---	---

Remarks:
 No indicators of hydric soils observed due to high chroma matrix to 20".



Upland data point wcul009_u facing West



Upland data point wcul009_u facing South



Wetland data point wcuk009f_w soil sample



Upland data point wcuk009_u soil sample

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Atlantic Coast Pipeline City/County: Cumberland County Sampling Date: 9/28/2015
 Applicant/Owner: DOMINION State: VA Sampling Point: wcuc100e_w
 Investigator(s): Team C Section, Township, Range: No PLSS in this area
 Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): concave Slope (%): 1
 Subregion (LRR or MLRA): P Lat: 37.32687961 Long: -78.31914515 Datum: WGS 1984
 Soil Map Unit Name: Dogue fine sandy loam, 2 to 7 percent slopes, rarely flooded NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: wcuc100e_w

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: <u>30</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>0</u>		20% of total cover: <u>0</u>		
Sapling/Shrub Stratum (Plot size: <u>15</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>0</u>		20% of total cover: <u>0</u>		
Herb Stratum (Plot size: <u>5</u>)				
1. <i>Echinochloa crus-galli</i>	60	Yes	FAC	
2. <i>Setaria pumila</i>	20	Yes	FAC	
3. <i>Trifolium pratense</i>	15	No	FACU	
4. <i>Trifolium hybridum</i>	15	No	FACU	
5. <i>Persicaria hydropiper</i>	7	No	OBL	
6. <i>Rumex crispus</i>	5	No	FAC	
7. <i>Mentha arvensis</i>	5	No	FACW	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>63.5</u>		20% of total cover: <u>25.4</u>		
Woody Vine Stratum (Plot size: <u>30</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>0</u>		20% of total cover: <u>0</u>		
Remarks: (Include photo numbers here or on a separate sheet.)				

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of: _____	Multiply by: _____
OBL species <u>7</u>	x 1 = <u>7</u>
FACW species <u>5</u>	x 2 = <u>10</u>
FAC species <u>85</u>	x 3 = <u>255</u>
FACU species <u>30</u>	x 4 = <u>120</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>127</u> (A)	<u>392</u> (B)

Prevalence Index = B/A = 3.08

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤3.0¹

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes No

SOIL

Sampling Point: wcuc100e_w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10 YR 3/1	95	5 YR 3/4	5	C	PL	SCL	
8-18	10 YR 5/1	98	10 YR 4/6	2	C	PL/M	SL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:	Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Coast Prairie Redox (A16)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> (MLRA 147, 148)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Piedmont Floodplain Soils (F19)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> (MLRA 136, 147)
<input type="checkbox"/> 2 cm Muck (A10) (LRR N)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Thick Dark Surface (A12)	
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	
<input type="checkbox"/> Sandy Redox (S5)	
<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Dark Surface (S7)	
<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148)	
<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)	
<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input checked="" type="checkbox"/> Depleted Matrix (F3)	
<input checked="" type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136)	
<input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122)	
<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)	
<input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____
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Remarks:



Photo 1
Wetland data point WCUC100e_w facing northeast



Photo 2
Wetland data point WCUC100e_w facing southwest

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Atlantic Coast Pipeline City/County: Cumberland County Sampling Date: 9/28/2015
 Applicant/Owner: DOMINION State: VA Sampling Point: wcuc100_u
 Investigator(s): Team C Section, Township, Range: No PLSS in this area
 Landform (hillslope, terrace, etc.): slight rise Local relief (concave, convex, none): none Slope (%): 6
 Subregion (LRR or MLRA): P Lat: 37.32703587 Long: -78.31905334 Datum: WGS 1984
 Soil Map Unit Name: Dogue fine sandy loam, 2 to 7 percent slopes, rarely flooded NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: No hydrologic indicators present	
Remarks:	

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: wcuc100_u

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: <u>30</u>)				Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
_____ = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				
Sapling/Shrub Stratum (Plot size: <u>15</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
_____ = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				
Herb Stratum (Plot size: <u>5</u>)				
1. <i>Setaria pumila</i>	90	Yes	FAC	
2. <i>Trifolium pratense</i>	15	No	FACU	
3. <i>Trifolium hybridum</i>	15	No	FACU	
4. <i>Ambrosia artemisiifolia</i>	5	No	FACU	
5. <i>Cichorium intybus</i>	5	No	FACU	
6. <i>Taraxacum officinale</i>	5	No	FACU	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover 50% of total cover: <u>67.5</u> 20% of total cover: <u>27</u>				
Woody Vine Stratum (Plot size: <u>30</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover 50% of total cover: <u>0</u> 20% of total cover: <u>0</u>				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks: (Include photo numbers here or on a separate sheet.)				

Prevalence Index worksheet:		
Total % Cover of:	Multiply by:	
OBL species <u>0</u>	x 1 =	<u>0</u>
FACW species <u>0</u>	x 2 =	<u>0</u>
FAC species <u>90</u>	x 3 =	<u>270</u>
FACU species <u>45</u>	x 4 =	<u>180</u>
UPL species <u>0</u>	x 5 =	<u>0</u>
Column Totals: <u>135</u> (A)		<u>450</u> (B)
Prevalence Index = B/A = <u>3.33</u>		

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is >50%
 - 3 - Prevalence Index is ≤3.0¹
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.



Photo 1
Upland data point WCUC100_u facing east



Photo 2
Upland data point WCUC100_u facing north

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Southeast Reliability Project City/County: NA/Cumberland Sampling Date: 7/30/2014
 Applicant/Owner: Dominion Transmission State: Va Sampling Point: wcuk007e_w
 Investigator(s): W.Medlin, J. Sweitzer, J. Dean Section, Township, Range: NA
 Landform (hillslope, terrace, etc.): headwater drainage Local relief (concave, convex, none): concave Slope (%): 0-3
 Subregion (LRR or MLRA): LRR P Lat: 37.326841002 Long: -78.315687863 Datum: NAD 83
 Soil Map Unit Name: Doque, fine sandy loam, 2 to 7% slopes, rarely flooded NWI classification: PEM1C
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: This is a headwater drainage in an agricultural field. Area has been mowed. All 3 criteria met. Area is a wetland. Photos #100-0347 to 0351	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required: check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input checked="" type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input type="checkbox"/>
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
NA

Remarks:
 Hydrology criteria met.

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: wcuk007e_w

<u>Tree Stratum</u> (Plot size: <u>30ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>NA</u>				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
4. _____				
5. _____				
6. _____				
_____ = Total Cover				Prevalence Index worksheet:
50% of total cover: _____ 20% of total cover: _____				Total % Cover of: _____ Multiply by: _____
<u>Sapling Stratum</u> (Plot size: <u>15ft</u>)				OBL species <u>25</u> x 1 = <u>25</u>
1. <u>NA</u>				FACW species <u>80</u> x 2 = <u>160</u>
2. _____				FAC species <u>5</u> x 3 = <u>15</u>
3. _____				FACU species <u>2</u> x 4 = <u>8</u>
4. _____				UPL species _____ x 5 = _____
5. _____				Column Totals: <u>112</u> (A) <u>208</u> (B)
6. _____				Prevalence Index = B/A = <u>1.85</u>
_____ = Total Cover				Hydrophytic Vegetation Indicators:
50% of total cover: _____ 20% of total cover: _____				<input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
<u>Shrub Stratum</u> (Plot size: <u>15ft</u>)				<input checked="" type="checkbox"/> 2 - Dominance Test is >50%
1. <u>NA</u>				<input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹
2. _____				<input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
3. _____				<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
4. _____				¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
5. _____				Definitions of Five Vegetation Strata:
6. _____				Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).
_____ = Total Cover				Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.
50% of total cover: _____ 20% of total cover: _____				Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.
<u>Herb Stratum</u> (Plot size: <u>10ft</u>)				Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.
1. <u>Juncus effusus</u>	<u>80</u>	<u>y</u>	<u>FACW</u>	Woody vine – All woody vines, regardless of height.
2. <u>Carex lupulina</u>	<u>20</u>		<u>OBL</u>	
3. <u>Carex frankii</u>	<u>5</u>		<u>OBL</u>	
4. <u>Dichabthelium clandestium</u>	<u>5</u>		<u>FAC</u>	
5. <u>Apocynum cannabinum</u>	<u>2</u>		<u>FACU</u>	
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
_____ = Total Cover				
50% of total cover: <u>56</u> 20% of total cover: <u>22.4</u>				
<u>Woody Vine Stratum</u> (Plot size: <u>15ft</u>)				
1. <u>NA</u>				
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				
50% of total cover: _____ 20% of total cover: _____				
Remarks: (Include photo numbers here or on a separate sheet.)				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydrophytic vegetation criteria met.				

SOIL

Sampling Point: wcuk007e_w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 4/3	60	10YR 5/8	40	c	PL	clay loam	
6-14	10YR 6/1	60	10YR 5/8	40	c	PL	clay	
14-20	10YR 7/1	80	7.5YR 5/8	20	c	PL	clay	dense

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10) (LRR N)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)

- Dark Surface (S7)
- Polyvalue Below Surface (S8) (MLRA 147, 148)
- Thin Dark Surface (S9) (MLRA 147, 148)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- Umbric Surface (F13) (MLRA 136, 122)
- Piedmont Floodplain Soils (F19) (MLRA 148)
- Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (MLRA 147)
- Coast Prairie Redox (A16) (MLRA 147, 148)
- Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: dense clay
 Depth (inches): 20"-22"

Hydric Soil Present? Yes No

Remarks: Hydric soils criteria met.



Wetland data point wcuk007e_w facing East



Wetland data point wcuk007e_w facing West

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Southeastern Reliability Project City/County: Cumberland Sampling Date: 07/30/2014
 Applicant/Owner: Dominion Transmission State: VA Sampling Point: wcuk007_u
 Investigator(s): J. Sweitzer, W. Medlin Section, Township, Range: NA
 Landform (hillslope, terrace, etc.): Top of Swale Local relief (concave, convex, none): none Slope (%): 0-2
 Subregion (LRR or MLRA): LRR P Lat: 37.326895402 Long: 78.315743721 Datum: NAD 1983
 Soil Map Unit Name: Dogue fine sandy loam, 2 to 7 percent slopes, rarely flooded NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Photos 104-4663 to 4667 Soils, N, S, E, W (J. Sweitzer Camera) Upland plot established at the top of a swale in and agricultural field. All three criteria not met. Area is not a wetland.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: NA	
Remarks: No indicators of wetland hydrology.	

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: wcuk007_u

<u>Tree Stratum</u> (Plot size: <u>30 ft R</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
50% of total cover: _____ 20% of total cover: _____				
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15 ft R</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: _____ 20% of total cover: _____				
<u>Herb Stratum</u> (Plot size: <u>5 FT R</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Solanum carolinense</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
2. <u>Ambrosia artemisifolia</u>	<u>60</u>	<u>Y</u>	<u>FACU</u>	
3. <u>Triticum aestivum (stems only - planted cover crop)</u>	<u>50</u>	<u>Y</u>	<u>NI</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>58</u> 20% of total cover: <u>23</u>				
<u>Woody Vine Stratum</u> (Plot size: <u>30 Ft R</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Campsis radicans</u>	<u>5</u>	<u>Y</u>	<u>FAC</u>	Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>3</u> 20% of total cover: <u>1</u>				
Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>				

Remarks: (Include photo numbers here or on a separate sheet.)
 Vegetation fails dominance test and hydrophytic vegetation criteria is not met. Vegetation was recently mowed making it difficult to identify plants. Plot located on edge of fallow soybean field and wetland swale.

SOIL

Sampling Point: wcuk007_u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	2.5Y 5/4	100	NA	NA	NA	NA	sandy Loam	NA
16-20	2.5Y 6/3	80	10YR 6/8	20	C	M	clay Loam	NA

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Dark Surface (S7)	<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148)	<input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 147, 148)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 136, 147)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> 2 cm Muck (A10) (LRR N)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136)	
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122)	
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)	
	<input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed): Type: <u>NA</u> Depth (inches): <u>NA</u>	Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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Remarks:
 No indicators of hydric soils observed. Soils compacted and likely regularly cultivated.



Upland data point wcuk007_u facing North



Upland data point wcuk007_u facing East



Wetland data point wcuk007e_w soil sample



Upland data point wcuk007_u soil sample

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Southeast Reliability Project City/County: NA/Cumberland Sampling Date: 07/30/14
 Applicant/Owner: Dominion Transmission State: VA Sampling Point: wcuk006e_w1
 Investigator(s): W. Medlin, J. Sweitzer, J. Dean Section, Township, Range: NA
 Landform (hillslope, terrace, etc.): floodplain depression Local relief (concave, convex, none): concave Slope (%): NA
 Subregion (LRR or MLRA): LRR P Lat: 37.324070835 Long: -78.310250338 Datum: NAD 1983
 Soil Map Unit Name: Chewacla and Monacan soils, 0 to 2 percent slopes, freq. flooded NWI classification: PEM1C
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Remarks: This area is a large piedmont floodplain depression area with multiple low pockets of hydrophytes. The area is ditched and also has drainage swales, but wetland hydrology has not been effectively removed. The area is grazed by cattle. The corresponding upland data point for this feature is wcuk006_u . All three criteria are met. Area is a wetland. *Photos 100-0338 to 0342 (WLM camera)			

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one is required; check all that apply)</u></p> <table style="width:100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> True Aquatic Plants (B14)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Iron Deposits (B5)		<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Aquatic Fauna (B13)		<p><u>Secondary Indicators (minimum of two required)</u></p> <table style="width:100%;"> <tr><td><input checked="" type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td></tr> <tr><td><input checked="" type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input checked="" type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input checked="" type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input checked="" type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input checked="" type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	<input checked="" type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> True Aquatic Plants (B14)																																		
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)																																		
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)																																		
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Presence of Reduced Iron (C4)																																		
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)																																		
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<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Other (Explain in Remarks)																																		
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<input type="checkbox"/> Microtopographic Relief (D4)																																			
<input checked="" type="checkbox"/> FAC-Neutral Test (D5)																																			
<p>Field Observations:</p> <p>Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____</p> <p>Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____</p> <p>Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)</p>	<p>Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>																																		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: NA																																			
Remarks: Hydrology criteria is met.																																			

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: wcuk006e_w1

Tree Stratum (Plot size: 30 ft radius)

	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>NA</u>			
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			
_____ = Total Cover			
50% of total cover: _____ 20% of total cover: _____			

Sapling Stratum (Plot size: 15 ft radius)

	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>NA</u>			
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			
_____ = Total Cover			
50% of total cover: _____ 20% of total cover: _____			

Shrub Stratum (Plot size: 15 ft radius)

	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>NA</u>			
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			
_____ = Total Cover			
50% of total cover: _____ 20% of total cover: _____			

Herb Stratum (Plot size: 10 ft radius)

	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Eleocharis obtusa</u>	<u>40</u>	<u>Y</u>	<u>OBL</u>
2. <u>Persicaria pensylvanica</u>	<u>70</u>	<u>Y</u>	<u>FACW</u>
3. <u>Carex lupulina</u>	<u>20</u>		<u>OBL</u>
4. <u>Schedonorus arundinaceus</u>	<u>5</u>		<u>FACU</u>
5. <u>Poa pratensis</u>	<u>10</u>		<u>FACU</u>
6. _____			
7. _____			
8. _____			
9. _____			
10. _____			
11. _____			
_____ = Total Cover			
50% of total cover: <u>72.5</u> 20% of total cover: <u>29</u>			

Woody Vine Stratum (Plot size: 15 ft radius)

	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>NA</u>			
2. _____			
3. _____			
4. _____			
5. _____			
_____ = Total Cover			
50% of total cover: _____ 20% of total cover: _____			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>60</u>	x 1 = <u>60</u>
FACW species <u>70</u>	x 2 = <u>140</u>
FAC species <u>0</u>	x 3 = <u>0</u>
FACU species <u>15</u>	x 4 = <u>60</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>145</u> (A)	<u>260</u> (B)

Prevalence Index = B/A = 1.79

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is >50%
 - 3 - Prevalence Index is $\leq 3.0^1$
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present?

Yes No

Remarks: (Include photo numbers here or on a separate sheet.)
 Hydrophytic vegetation criteria is met.

SOIL

Sampling Point: wcuk006e_w1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-18	7.5YR 5/1	70	7.5YR 5/8	30	C	PL	clay	very dense and compacted

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10) (LRR N)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)

- Dark Surface (S7)
- Polyvalue Below Surface (S8) (MLRA 147, 148)
- Thin Dark Surface (S9) (MLRA 147, 148)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- Umbric Surface (F13) (MLRA 136, 122)
- Piedmont Floodplain Soils (F19) (MLRA 148)
- Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (MLRA 147)
- Coast Prairie Redox (A16) (MLRA 147, 148)
- Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: NA
 Depth (inches): NA

Hydric Soil Present? Yes No

Remarks: Hydric soils criteria is met.



Wetland data point wcuk006e_w1 facing Northwest



Wetland data point wcuk006e_w1 facing Northeast



Wetland data point wcuk006e_w1 soil sample

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Dominion Southeast Reliability Project City/County: Cumberland Sampling Date: 07/30/2014
 Applicant/Owner: Dominion State: VA Sampling Point: wcuk006e_w2
 Investigator(s): J. Sweitzer, R. Sheridan Section, Township, Range: NA
 Landform (hillslope, terrace, etc.): Ditch Local relief (concave, convex, none): concave Slope (%): 0
 Subregion (LRR or MLRA): LRR P Lat: 37.324557004 Long: 78.310355129 Datum: NAD 1983
 Soil Map Unit Name: Wehadkee sandy loam, 0 to 2 percent slopes, frequently flooded NWI classification: PEM1K

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Remarks: Photos 104-4660 soil, 4661 N, 4662 S (J. Sweitzer Camera) The corresponding upland data point for this feature is wcuk006_u (see data package for wcuk006e_w1). Wetland point located in ditch through cattle pasture.		

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Saturation (A3) <input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input checked="" type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input checked="" type="checkbox"/> Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>4</u> Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u> Saturation Present? (includes capillary fringe) Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>0</u>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: NA	
Remarks: Several primary and secondary indicators of wetland hydrology present. Gambusia fish observed in ditch. Ditch receives water from Appomattox River during flood events and surface water from surrounding uplands during rain events.	

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: wcuk006e_w2

<u>Tree Stratum</u> (Plot size: <u>30 ft R</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
50% of total cover: _____		20% of total cover: _____		
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15 ft R</u>)				
1. <u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
_____ = Total Cover				Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
50% of total cover: _____		20% of total cover: _____		
<u>Herb Stratum</u> (Plot size: <u>5 Ft R</u>)				
1. <u>Juncus effusus</u>	<u>40</u>	<u>Y</u>	<u>OBL</u>	
2. <u>Scirpus cyperinus</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>	
3. <u>Eleocharis sp.</u>	<u>5</u>	<u>N</u>	<u>NI</u>	
4. <u>Glyceria striata</u>	<u>5</u>	<u>N</u>	<u>OBL</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: <u>40</u>		20% of total cover: <u>16</u>		
<u>Woody Vine Stratum</u> (Plot size: <u>30 Ft R</u>)				
1. <u>NA</u>	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
50% of total cover: _____		20% of total cover: _____		
Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.				
Remarks: (Include photo numbers here or on a separate sheet.) Vegetation passes rapid test for hydrophytic vegetation. Vegetation is somewhat impacted by cattle grazing in ditch.				
Hydrophytic Vegetation Present?			Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	



Wetland data point wcul006e_w2 facing West



Wetland data point wcul006e_w2 facing East



Wetland data point wcuk006e_w2 soil sample

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Southeast Reliability Project City/County: NA/Cumberland Sampling Date: 07/30/14
 Applicant/Owner: Dominion Transmission State: VA Sampling Point: wcuk006_u
 Investigator(s): W. Medlin, J. Sweitzer, J. Dean Section, Township, Range: NA
 Landform (hillslope, terrace, etc.): floodplain terrace Local relief (concave, convex, none): flat Slope (%): NA
 Subregion (LRR or MLRA): LRR P Lat: 37.324242328 Long: -78.310448948 Datum: NAD 1983
 Soil Map Unit Name: Chewacla and Monacan soils, 0 to 2 percent slopes, freq. flooded NWI classification: Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Remarks: This area is an upland terrace pastureland in the floodplain of the Appomattox River situated between a linear ditch and a depression. The area is actively grazed by cattle. This upland data point corresponds to both wcuk006e_w1 and wcuk006e_w2. None of the three criteria is met. Area is not a wetland. *Photos 100-0338 to 0342 (WLM camera)			

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p><u>Primary Indicators (minimum of one is required; check all that apply)</u></p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<p><u>Secondary Indicators (minimum of two required)</u></p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
<p>Field Observations:</p> Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: NA	
Remarks: Hydrology criteria is not met.	

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: wcuk006_u

Tree Stratum (Plot size: 30 ft radius)

	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>NA</u>			
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			

_____ = Total Cover
 50% of total cover: _____ 20% of total cover: _____

Sapling Stratum (Plot size: 15 ft radius)

	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>NA</u>			
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			

_____ = Total Cover
 50% of total cover: _____ 20% of total cover: _____

Shrub Stratum (Plot size: 15 ft radius)

	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>NA</u>			
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			

_____ = Total Cover
 50% of total cover: _____ 20% of total cover: _____

Herb Stratum (Plot size: 10 ft radius)

	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Festuca arundinacea</u>	<u>70</u>	<u>Y</u>	<u>FACU</u>
2. <u>Solanum carolinense</u>	<u>10</u>		<u>FACU</u>
3. <u>Poa pratensis</u>	<u>70</u>	<u>Y</u>	<u>FACU</u>
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			
9. _____			
10. _____			
11. _____			

_____ = Total Cover
 50% of total cover: 75 20% of total cover: 30

Woody Vine Stratum (Plot size: 15 ft radius)

	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			

_____ = Total Cover
 50% of total cover: _____ 20% of total cover: _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of: _____ Multiply by:

OBL species _____ x 1 = _____

FACW species _____ x 2 = _____

FAC species _____ x 3 = _____

FACU species _____ x 4 = _____

UPL species _____ x 5 = _____

Column Totals: _____ (A) _____ (B)

Prevalence Index = B/A = _____

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is >50%
 - 3 - Prevalence Index is $\leq 3.0^1$
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No

Remarks: (Include photo numbers here or on a separate sheet.)
 Hydrophytic vegetation criteria is not met.

SOIL

Sampling Point: wcuk006_u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-11	7.5YR 4/4	90	7.5YR 5/6	10	C	M	clay	
11-17	10YR 4/4	70	7.5YR 5/8	30	C	M	clay	
17-20	10YR 5/3	75	10YR 5/6	25	C	M	clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10) (LRR N)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)

- Dark Surface (S7)
- Polyvalue Below Surface (S8) (MLRA 147, 148)
- Thin Dark Surface (S9) (MLRA 147, 148)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Iron-Manganese Masses (F12) (LRR N, MLRA 136)
- Umbric Surface (F13) (MLRA 136, 122)
- Piedmont Floodplain Soils (F19) (MLRA 148)
- Red Parent Material (F21) (MLRA 127, 147)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (MLRA 147)
- Coast Prairie Redox (A16) (MLRA 147, 148)
- Piedmont Floodplain Soils (F19) (MLRA 136, 147)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: NA
 Depth (inches): NA

Hydric Soil Present? Yes No

Remarks: Hydric soils criteria is not met.



Upland data point wcuk006_u facing Northwest



Upland data point wcuk006_u facing Northeast



Upland data point wcuk006_u soil sample

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Southeast Reliability Project City/County: NA/Cumberland Sampling Date: 07/30/14
 Applicant/Owner: Dominion Transmission State: VA Sampling Point: wcuk005e_w
 Investigator(s): W. Medlin, J. Sweitzer, J. Dean Section, Township, Range: NA
 Landform (hillslope, terrace, etc.): floodplain depression Local relief (concave, convex, none): concave Slope (%): NA
 Subregion (LRR or MLRA): LRR P Lat: 37.321986591 Long: -78.306577615 Datum: NAD 1983
 Soil Map Unit Name: Riverview and Tuckahoe soils, 0 to 2% slopes occasionally flooded NWI classification: PEM1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Remarks:			
This area is an emergent floodplain depression that appears to hold water frequently for long duration. The area is grazed and trampled by cattle. All three criteria are met. Area is a wetland.			
*Photos 100-0328 to 0332 (WLM camera)			

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one is required; check all that apply)</p> <table style="width:100%;"> <tr> <td><input type="checkbox"/> Surface Water (A1)</td> <td><input type="checkbox"/> True Aquatic Plants (B14)</td> </tr> <tr> <td><input type="checkbox"/> High Water Table (A2)</td> <td><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</td> </tr> <tr> <td><input type="checkbox"/> Saturation (A3)</td> <td><input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)</td> </tr> <tr> <td><input type="checkbox"/> Water Marks (B1)</td> <td><input type="checkbox"/> Presence of Reduced Iron (C4)</td> </tr> <tr> <td><input type="checkbox"/> Sediment Deposits (B2)</td> <td><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</td> </tr> <tr> <td><input type="checkbox"/> Drift Deposits (B3)</td> <td><input type="checkbox"/> Thin Muck Surface (C7)</td> </tr> <tr> <td><input type="checkbox"/> Algal Mat or Crust (B4)</td> <td><input type="checkbox"/> Other (Explain in Remarks)</td> </tr> <tr> <td><input type="checkbox"/> Iron Deposits (B5)</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Water-Stained Leaves (B9)</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Aquatic Fauna (B13)</td> <td></td> </tr> </table>	<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Iron Deposits (B5)		<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Aquatic Fauna (B13)		<p>Secondary Indicators (minimum of two required)</p> <table style="width:100%;"> <tr><td><input checked="" type="checkbox"/> Surface Soil Cracks (B6)</td></tr> <tr><td><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</td></tr> <tr><td><input type="checkbox"/> Drainage Patterns (B10)</td></tr> <tr><td><input type="checkbox"/> Moss Trim Lines (B16)</td></tr> <tr><td><input type="checkbox"/> Dry-Season Water Table (C2)</td></tr> <tr><td><input type="checkbox"/> Crayfish Burrows (C8)</td></tr> <tr><td><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</td></tr> <tr><td><input type="checkbox"/> Stunted or Stressed Plants (D1)</td></tr> <tr><td><input checked="" type="checkbox"/> Geomorphic Position (D2)</td></tr> <tr><td><input checked="" type="checkbox"/> Shallow Aquitard (D3)</td></tr> <tr><td><input type="checkbox"/> Microtopographic Relief (D4)</td></tr> <tr><td><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</td></tr> </table>	<input checked="" type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Drainage Patterns (B10)	<input type="checkbox"/> Moss Trim Lines (B16)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Crayfish Burrows (C8)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	<input checked="" type="checkbox"/> Shallow Aquitard (D3)	<input type="checkbox"/> Microtopographic Relief (D4)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
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<p>Field Observations:</p> <p>Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____</p> <p>Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____</p> <p>Saturation Present? (includes capillary fringe) Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____</p>	<p>Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>																																		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:																																			
NA																																			
Remarks:																																			
Hydrology criteria is met.																																			

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: wcuk005e w

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: <u>30 ft radius</u>)					
1. <u>NA</u>				Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)	
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
_____ = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species <u>60</u> x 1 = <u>60</u> FACW species <u>70</u> x 2 = <u>140</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>15</u> x 4 = <u>60</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>145</u> (A) <u>260</u> (B) Prevalence Index = B/A = <u>1.79</u>	
50% of total cover: _____ 20% of total cover: _____					
Sapling Stratum (Plot size: <u>15 ft radius</u>)					
1. <u>NA</u>					
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
_____ = Total Cover				Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is $\leq 3.0^1$ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)	
50% of total cover: _____ 20% of total cover: _____					
Shrub Stratum (Plot size: <u>15 ft radius</u>)					
1. <u>NA</u>					
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
_____ = Total Cover				Definitions of Five Vegetation Strata: Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub – Woody plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height. Woody vine – All woody vines, regardless of height.	
50% of total cover: _____ 20% of total cover: _____					
Herb Stratum (Plot size: <u>10 ft radius</u>)					
1. <u>Eleocharis obtusa</u>	<u>40</u>	<u>Y</u>	<u>OBL</u>		
2. <u>Persicaria pensylvanica</u>	<u>70</u>	<u>Y</u>	<u>FACW</u>		
3. <u>Xanthium strumarium</u>	<u>10</u>		<u>FAC</u>		
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
11. _____					
<u>120</u> = Total Cover				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
50% of total cover: <u>60</u> 20% of total cover: <u>24</u>					
Woody Vine Stratum (Plot size: <u>15 ft radius</u>)					
1. <u>NA</u>					
2. _____					
3. _____					
4. _____					
5. _____					
_____ = Total Cover					
50% of total cover: _____ 20% of total cover: _____					
Remarks: (Include photo numbers here or on a separate sheet.)					
Hydrophytic vegetation criteria is met. Vegetation grazed by cattle.					

SOIL

Sampling Point: wcuk005e_w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	10YR 5/1	85	7.5YR 5/8	15	C	PL	clay	dense
10-20	10YR 5/2	70	7.5YR 4/6	30	C	PL	clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) (LRR N) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) (LRR N, MLRA 147, 148) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Dark Surface (S7) <input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148) <input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136) <input type="checkbox"/> Umbric Surface (F13) (MLRA 136, 122) <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148) <input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147)		Indicators for Problematic Hydric Soils³: <input type="checkbox"/> 2 cm Muck (A10) (MLRA 147) <input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 147, 148) <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 136, 147) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)	
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³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed): Type: <u>NA</u> Depth (inches): <u>NA</u>	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Remarks: Hydric soils criteria is met. Very dense and compacted clay layer holds surface water.



Wetland data point wcuk005e_w facing Northwest



Wetland data point wcuk005e_w facing Northeast



Wetland data point wcuk005e_w soil sample

WETLAND DETERMINATION DATA FORM – Eastern Mountains and Piedmont Region

Project/Site: Dominion Southeast Reliability Project City/County: Cumberland Sampling Date: 07/30/2014
 Applicant/Owner: Dominion Transmission State: VA Sampling Point: wcuk005_u
 Investigator(s): J. Sweitzer, W. Medlin Section, Township, Range: NA
 Landform (hillslope, terrace, etc.): Stream bank/Natural Levee Local relief (concave, convex, none): none Slope (%): 0-2
 Subregion (LRR or MLRA): LRR P Lat: 37.321876586 Long: 78.306440708 Datum: NAD 1983
 Soil Map Unit Name: Riverview and Tuckahoe soils, 0 to 2 percent slopes, occasionally flooded NWI classification: Upland
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: Photos 104-4655 to 4659 Soils, N, S, E, W (J. Sweitzer Camera) Upland plot established on a natural levee on the NW side of the Appomattox River.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: NA	
Remarks: No indicators of wetland hydrology.	

VEGETATION (Four Strata) – Use scientific names of plants.

Sampling Point: wcuk005_u

	Absolute % Cover	Dominant Species?	Indicator Status		
Tree Stratum (Plot size: <u>30 ft R</u>)					
1. <u>Liquidambar styraciflua</u>	20	Y	FAC	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>25</u> (A/B)	
2. <u>Carya tomentosa</u>	10	Y	NL		
3. <u>Carya cordiformis</u>	10	Y	FACU		
4. <u>Ulmus rubra</u>	5	N	FAC		
5. _____					
6. _____					
7. _____					
_____ = Total Cover 50% of total cover: <u>23</u> 20% of total cover: <u>19</u>				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____	
Sapling/Shrub Stratum (Plot size: <u>15 ft R</u>)					
1. <u>NA</u>	NA	NA	NA		
2. _____					
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
_____ = Total Cover 50% of total cover: _____ 20% of total cover: _____				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)	
Herb Stratum (Plot size: <u>5 FT R</u>)					
1. <u>Poa pratensis</u>	20	Y	FACU		
2. <u>Schedonorus arundinaceus</u>	80	Y	FACU		
3. _____					
4. _____					
5. _____					
6. _____					
7. _____					
8. _____					
9. _____					
10. _____					
11. _____					
_____ = Total Cover 50% of total cover: <u>50</u> 20% of total cover: <u>20</u>				Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vine – All woody vines greater than 3.28 ft in height.	
Woody Vine Stratum (Plot size: <u>30 Ft R</u>)					
1. <u>NA</u>	NA	NA	NA		
2. _____					
3. _____					
4. _____					
5. _____					
_____ = Total Cover 50% of total cover: _____ 20% of total cover: _____					Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>
Remarks: (Include photo numbers here or on a separate sheet.) Vegetation fails dominance test and hydrophytic vegetation criteria is not met. Cattle grazing has impacted herbaceous vegetation making it difficult to identify plants. Plot located on edge of forested riparian zone/open pasture between depressional wetland and Appomattox River					



Upland data point wcuk005_u facing East



Upland data point wcuk005_u facing Southwest



Upland data point wcuk005_u soil sample