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ite =	(indicate on	attached map
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Provide the following information for the stream reach under assessment:
1. Applicant's name: Dominion 2. Evaluator's name: EST-K. Murphley
3. Date of evaluation: 4/27/16 4. Time of evaluation: 8r. 30 AM
5. Name of stream: UNT to Big Alligator Stamp 6. River basin: COPE FEDY
7. Approximate drainage area: 5 & CC 8. Stream order: 1
9. Length of reach evaluated: 508+ 10. County: Camperland
11. Site coordinates (if known): prefer in decimal degrees. 12. Subdivision name (if any): NR
Latitude (ex. 34.872312): 34,90839 Longitude (ex77.556611): -78,76019
Method location determined (circle): GPS Topo Sheet Onho (Aerial) Photo GIS Other GIS Other
14. Proposed channel work (if any): POPOSed Pipeline
15. Recent weather conditions: Sunna
16. Site conditions at time of visit: undi Starbed
17. Identify any special waterway classifications known:Section 10Tidal WatersEssential Fisheries Habitat
Trout WatersOutstanding Resource WatersNutrient Sensitive WatersWater Supply Watershed(I-IV)
18. Is there a pond or lake located upstream of the evaluation point? YES NO If yes, estimate the water surface area:
19. Does channel appear on USGS quad map? YES NO 20. Does channel appear on USDA Soil Survey? YES NO
21. Estimated watershed land use: 6 Residential 6 Commercial 6 Industrial 6 Agricultural
# (Tea-F Bank) SO % Forested % Cleared / Logged % Other ()
# (Top of Bank) 22. Bank full width: 684  23. Bank height (from bed to top of bank): 0-584
24. Channel slope down center of stream: Flat (0 to 2%)Gentle (2 to 4%)Moderate (4 to 10%)Steep (>10%)
25. Channel sinuosity:StraightOccasional bendsFrequent meanderVery sinuousBraided channel
Instructions for completion of worksheet (located on page 2): Begin by determining the most appropriate ecoregion based on location, terrain, vegetation, stream classification, etc. Every characteristic must be scored using the same ecoregion. Assign points to each characteristic within the range shown for the ecoregion. Page 3 provides a brief description of how to review the characteristics identified in the worksheet. Scores should reflect an overall assessment of the stream reach under evaluation. If a characteristic cannot be evaluated due to site or weather conditions, enter 0 in the scoring box and provide an explanation in the comment section. Where there are obvious changes in the character of a stream under review (e.g., the stream flows from a pasture into a forest), the stream may be divided into smaller reaches that display more continuity, and a separate form used to evaluate each reach. The total score assigned to a stream reach must range between 0 and 100, with a score of 100 representing a stream of the highest quality.
Total Score (from reverse): 37 Comments:
Evaluator's Signature Keen Murphey Date 4/27/16
This channel evaluation form is intended to be used only as a guide to assist landowners and environmental professionals in gathering the data required by the United States Army Corps of Engineers to make a preliminary assessment of stream

quality. The total score resulting from the completion of this form is subject to USACE approval and does not imply a particular mitigation ratio or requirement. Form subject to change - version 06 03. To Comment, please call 919-876-8441 x 26.

# - 3	CHARACTERISTICS	The second secon	ION POINT	And the R. A. Investigation Chapter St. Access 12	SCO
1	中华的大学的 医克克特氏 医克里特氏病 医克里特氏病 医多克特氏病 医眼样的 医克里特氏病 人名英国	Coastal	Piedmont	Mountain	
1	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0 – 5	0-4	0-5	2
2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0 – 6	0-5	0-5	2
3	(no buffer = 0; contiguous, wide buffer = max points)	0 – 6	0-4	0-5	4
4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	4
5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0=4	
6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	C
7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	
8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0 – 6	0-4	0-2	C
9	Channel sinuosity  (extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	
10	Sediment input (extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0-4	5
11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	
12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	
13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	1
14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0 - 4	0-5	
15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	6
16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0-6	
17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	
18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	
19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	
20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	
21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	
22	Presence of fish  (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	(
23	Evidence of wildlife use  (no evidence = 0; abundant evidence = max points)	0-6	0-5	0-5	
	Total Points Possible	100	100	100	

<sup>\*</sup> These characteristics are not assessed in coastal streams.

NC DWQ Stream Identification Form Version 4.11

scmp 051 Latitude: 34,90839 Date: 4/27/16 ACP Project/Site: Longitude: -78,76019 Evaluator: ESI-J, Howbour, K. Murphrey County: Camberland Other Cedar Cleek **Total Points:** Stream Determination (circle one) 16 Stream is at least intermittent Ephemeral Intermittent Perennial e.g. Quad Name: if ≥ 19 or perennial if ≥ 30\*

A. Geomorphology (Subtotal = 5.5)	Absent	Weak	Moderate	Strong		
1ª. Continuity of channel bed and bank	0	1	(2)	3		
2. Sinuosity of channel along thalweg	(0)	1	2	3		
In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	(1)	2	3		
Particle size of stream substrate	0_	1	(2)	3		
5. Active/relict floodplain	(6)	1	2	3		
6. Depositional bars or benches	0	1	2	3		
7. Recent alluvial deposits	(0)	1	2	3		
B. Headcuts	(0)	1	2	3		
9. Grade control	(0)	0.5	1	1.5		
10. Natural valley	0	(0.5)	1	1.5		
11. Second or greater order channel	No	$0 \neq 0$	Yes:	= 3		
artificial ditches are not rated; see discussions in manual						
B. Hydrology (Subtotal = 5,5)			_			
12. Presence of Baseflow	0	1	(2)	3		
13. Iron oxidizing bacteria	0	1	2	3		
14. Leaf litter	1.5	1	0.5	(0)		
15. Sediment on plants or debris	(0)	0.5	1	1.5		
16. Organic debris lines or piles	0	(0.5)	1	1.5		
17. Soil-based evidence of high water table?	No	No = 0 Yes = (3)				
C. Biology (Subtotal =5)		arana ara ara ara ara ara ara ara ara ar				
18. Fibrous roots in streambed	3	2	(1)	0		
19. Rooted upland plants in streambed	(3)	2	1	0		
20. Macrobenthos (note diversity and abundance)	(0)	1	2	3		
21. Aquatic Mollusks	(0)	1	2	3		
22. Fish	(0)	0.5	1	1.5		
23. Crayfish	(0)	0.5	1	1.5		
24. Amphibians	(0)	0.5	1	1.5		
25. Algae	0	0.5	1	1.5		
26. Wetland plants in streambed		FACW = 0.75;	OBL = 1.5 Other = 0	5)		
*perennial streams may also be identified using other method	ds. See p. 35 of manua	11.				
Notes: scy	mp 054					
	<u> </u>					
Sketch:  N  Scmp051		CL CHIVE	RT			
scmp051	Scmp 05					

OHUM Widta: 484 TOP of BONK Width; 68+



Waterbody data point scmp051 facing east upstream.



Waterbody data point scmp051 facing west downstream.



Waterbody data point scmp051 facing south across.

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Site	=	(indicate	on	attac	hed	map)
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Provide the following information for the stream reach unde	r assessment:
1. Applicant's name: Dominion	2. Evaluator's name: ESI-15, Murphyey
3. Date of evaluation: 4/27/16	4. Time of evaluation: 10:00A m
5. Name of stream: UNT to Big Aligator Swamp	6. River basin: Cape Fear
7. Approximate drainage area: 2 occes	8. Stream order:
9. Length of reach evaluated: 50 8+	10. County: Cumberland
11. Site coordinates (if known): prefer in decimal degrees.	12. Subdivision name (if any): NA
	Longitude (ex77.556611): <u>-78.76095</u>
Method location determined (circle): GPS Topo Sheet Ortho (A 13. Location of reach under evaluation (note nearby roads and lo	andmarks and attach map identifying stream(s) location):
Located South of Dudley Rd. in	Gamberland co. NC
14. Proposed channel work (if any): Proposed Pipelic	ne
15. Recent weather conditions: SKANAG	
16. Site conditions at time of visit: und Starbed	
17. Identify any special waterway classifications known:	Section 10Tidal WatersEssential Fisheries Habitat
	Nutrient Sensitive WatersWater Supply Watershed(1-IV)
	oint? YES (NO) If yes, estimate the water surface area:
19. Does channel appear on USGS quad map? YES NO	20. Does channel appear on USDA Soil Survey? YES NO
	% Commercial% Industrial 40% Agricultural
500 Forested	% Cleared / Logged% Other ()
* (Top of Bank) 22. Bankfull width: 5 & 4	23. Bank height (from bed to top of bank): 38+
	Gentle (2 to 4%)Moderate (4 to 10%)Steep (>10%)
	Frequent meanderVery sinuousBraided channel
Instructions for completion of worksheet (located on page location, terrain, vegetation, stream classification, etc. Every to each characteristic within the range shown for the econ characteristics identified in the worksheet. Scores should recharacteristic cannot be evaluated due to site or weather cor comment section. Where there are obvious changes in the characteristic cannot be evaluated due to site or weather cor comment section. Where there are obvious changes in the characteristic than the stream may be divided into smaller reaches	e 2): Begin by determining the most appropriate ecoregion based on characteristic must be scored using the same ecoregion. Assign points region. Page 3 provides a brief description of how to review the flect an overall assessment of the stream reach under evaluation. If a additions, enter 0 in the scoring box and provide an explanation in the paracter of a stream under review (e.g., the stream flows from a pasture that display more continuity, and a separate form used to evaluate each the between 0 and 100, with a score of 100 representing a stream of the
Total Score (from reverse): 37 Comme	nts:
Total Score (from reverse): Comme	
18 min Br. A	Date 4/27/16
Evaluator's Signature <u>Keurl Muserul</u> This channel evaluation form is intended to be used only gathering the data required by the United States Army	as a guide to assist landowners and environmental professionals in Corps of Engineers to make a preliminary assessment of stream

quality. The total score resulting from the completion of this form is subject to USACE approval and does not imply a particular mitigation ratio or requirement. Form subject to change - version 06 03. To Comment, please call 919-876-8441 x 26.

Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)  Evidence of past human alteration (extensive alteration = 0; no alteration = max points)  Riparian zone (no buffer = 0; contiguous, wide buffer = max points)  Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)  Groundwater discharge odischarge = 0; springs, seeps, wetlands, etc. = max points)  Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)  Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)  Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)  Channel sinuosity extensive channelization = 0; natural meander = max points)  Sediment input extensive deposition= 0; little or no sediment = max points)  Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)  Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5 0-6 0-6 0-5 0-3 0-4 0-5 0-6 0-5 0-5 0-5 0-5	Pledmont: 0-4 0-5 0-4 0-4 0-4 0-4 0-4 0-4 0-4 0-4 0-4 0-4	0-5 0-5 0-5 0-5 0-4 0-4 0-2 0-2 0-2 0-3 0-4 0-5 0-5	2 4 L C C C C L C L C L C L C L C L C L C
(no flow or saturation = 0; strong flow = max points)  Evidence of past human alteration (extensive alteration = 0; no alteration = max points)  Riparian zone (no buffer = 0; contiguous, wide buffer = max points)  Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)  Groundwater discharge odischarge = 0; springs, seeps, wetlands, etc. = max points)  Presence of adjacent floodplain (no floodplain = 0; extensive floodplain access (deeply entrenched = 0; frequent flooding = max points)  Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)  Channel sinuosity extensive channelization = 0; natural meander = max points)  Sediment input extensive deposition= 0; little or no sediment = max points)  Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)  Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-6 0-6 0-5 0-3 0-4 0-5 0-6 0-5 0-5	0-5 0-4 0-4 0-4 0-4 0-4 0-4 0-4 0-4	0-5 0-5 0-4 0-4 0-2 0-2 0-2 0-3 0-4 0-5	2
(extensive alteration = 0; no alteration = max points)  Riparian zone (no buffer = 0; contiguous, wide buffer = max points)  Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)  Groundwater discharge odischarge = 0; springs, seeps, wetlands, etc. = max points)  Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)  Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)  Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)  Channel sinuosity extensive channelization = 0; natural meander = max points)  Sediment input extensive deposition= 0; little or no sediment = max points)  Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)  Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-6 0-5 0-3 0-4 0-5 0-6 0-5 0-5 NA*	0-4 0-4 0-4 0-4 0-4 0-4 0-4 0-4	0-5 0-4 0-4 0-2 0-2 0-2 0-3 0-4 0-5	
Riparian zone  (no buffer = 0; contiguous, wide buffer = max points)  Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)  Groundwater discharge o discharge = 0; springs, seeps, wetlands, etc. = max points)  Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)  Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)  Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)  Channel sinuosity extensive channelization = 0; natural meander = max points)  Sediment input extensive deposition= 0; little or no sediment = max points)  Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)  Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5 0-3 0-4 0-5 0-6 0-5 0-5 NA*	0-4 0-4 0-4 0-4 0-4 0-4 0-4	0-4 0-4 0-2 0-2 0-2 0-3 0-4 0-5	(
Evidence of nutrient or chemical discharges  (extensive discharges = 0; no discharges = max points)  Groundwater discharge  o discharge = 0; springs, seeps, wetlands, etc. = max points)  Presence of adjacent floodplain  (no floodplain = 0; extensive floodplain = max points)  Entrenchment / floodplain access  (deeply entrenched = 0; frequent flooding = max points)  Presence of adjacent wetlands  (no wetlands = 0; large adjacent wetlands = max points)  Channel sinuosity  extensive channelization = 0; natural meander = max points)  Sediment input  extensive deposition= 0; little or no sediment = max points)  Size & diversity of channel bed substrate  (fine, homogenous = 0; large, diverse sizes = max points)  Evidence of channel incision or widening  (deeply incised = 0; stable bed & banks = max points)	0-3 0-4 0-5 0-6 0-5 0-5 NA*	0-4 0-4 0-4 0-4 0-4 0-4	0-4 0-2 0-2 0-2 0-3 0-4 0-5	(
Groundwater discharge of discharge = 0; springs, seeps, wetlands, etc. = max points)  Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)  Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)  Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)  Channel sinuosity extensive channelization = 0; natural meander = max points)  Sediment input extensive deposition= 0; little or no sediment = max points)  Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)  Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-4 0-5 0-6 0-5 0-5 NA*	0-4 0-4 0-4 0-4 0-4	0-2 0-2 0-2 0-3 0-4 0-5	(
Presence of adjacent floodplain  (no floodplain = 0; extensive floodplain = max points)  Entrenchment / floodplain access  (deeply entrenched = 0; frequent flooding = max points)  Presence of adjacent wetlands  (no wetlands = 0; large adjacent wetlands = max points)  Channel sinuosity  extensive channelization = 0; natural meander = max points)  Sediment input  extensive deposition= 0; little or no sediment = max points)  Size & diversity of channel bed substrate  (fine, homogenous = 0; large, diverse sizes = max points)  Evidence of channel incision or widening  (deeply incised = 0; stable bed & banks = max points)	0-5 0-6 0-5 0-5 NA*	0-4 0-4 0-4 0-4	0-2 0-2 0-3 0-4 0-5	(
Entrenchment / floodplain access  (deeply entrenched = 0; frequent flooding = max points)  Presence of adjacent wetlands  (no wetlands = 0; large adjacent wetlands = max points)  Channel sinuosity  extensive channelization = 0; natural meander = max points)  Sediment input  extensive deposition= 0; little or no sediment = max points)  Size & diversity of channel bed substrate  (fine, homogenous = 0; large, diverse sizes = max points)  Evidence of channel incision or widening  (deeply incised = 0; stable bed & banks = max points)	0-6 0-5 0-5 NA*	0-4 0-4 0-4 0-4	0-2 0-3 0-4 0-5	(
Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)  Channel sinuosity extensive channelization = 0; natural meander = max points)  Sediment input extensive deposition= 0; little or no sediment = max points)  Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)  Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5 0-5 NA*	0-4 0-4 0-4	0-3 0-4 0-5	
Channel sinuosity extensive channelization = 0; natural meander = max points)  Sediment input extensive deposition= 0; little or no sediment = max points)  Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)  Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5 NA*	0-4	0-4	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
Sediment input extensive deposition= 0; little or no sediment = max points) Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)  Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	NA*	0-4	0-5	L
Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)  Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	行业的基本的企业的基本的基本的企业。 1		# 15 - 15 7 PE A 1 1	-
Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	-
The state of the s				-
Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	1
Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	
Impact by agriculture, livestock, or timber production	0-5	0-4	0-5	1
Presence of riffle-pool/ripple-pool complexes	0-3	0-5	0-6	(
Habitat complexity	0-6	0-6	0-6	
Canopy coverage over streambed	0-5	0-5	0-5	
Substrate embeddedness	NA*	0-4	0-4	
Presence of stream invertebrates (see page 4)	0-4	0-5	0-5	
Presence of amphibians	0-4	0-4	0-4	
Presence of fish	0-4	0-4	0-4	
Evidence of wildlife use	0-6	0-5	0-5	
Total Points Possible	100	100	100	
1	(substantial impact =0; no evidence = max points)  Presence of riffle-pool/ripple-pool complexes no riffles/ripples or pools = 0; well-developed = max points)  Habitat complexity  ittle or no habitat = 0; frequent, varied habitats = max points)  Canopy coverage over streambed no shading vegetation = 0; continuous canopy = max points)  Substrate embeddedness  (deeply embedded = 0; loose structure = max)  Presence of stream invertebrates (see page 4)  (no evidence = 0; common, numerous types = max points)  Presence of amphibians  (no evidence = 0; common, numerous types = max points)  Presence of fish  (no evidence = 0; common, numerous types = max points)  Evidence of wildlife use  (no evidence = 0; abundant evidence = max points)	(substantial impact =0; no evidence = max points)  Presence of riffle-pool/ripple-pool complexes no riffles/ripples or pools = 0; well-developed = max points)  Habitat complexity  Canopy coverage over streambed no shading vegetation = 0; continuous canopy = max points)  Substrate embeddedness (deeply embedded = 0; loose structure = max)  Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)  Presence of amphibians (no evidence = 0; common, numerous types = max points)  Presence of fish (no evidence = 0; common, numerous types = max points)  Evidence of wildlife use (no evidence = 0; abundant evidence = max points)	(substantial impact = 0; no evidence = max points)  Presence of riffle-pool/ripple-pool complexes no riffles/ripples or pools = 0; well-developed = max points)  Habitat complexity  ittle or no habitat = 0; frequent, varied habitats = max points)  Canopy coverage over streambed no shading vegetation = 0; continuous canopy = max points)  Substrate embeddedness (deeply embedded = 0; loose structure = max)  Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)  Presence of amphibians (no evidence = 0; common, numerous types = max points)  Presence of fish (no evidence = 0; common, numerous types = max points)  Evidence of wildlife use (no evidence = 0; abundant evidence = max points)	(substantial impact =0; no evidence = max points)  Presence of riffle-pool/ripple-pool complexes no riffles/ripples or pools = 0; well-developed = max points)  Habitat complexity  Canopy coverage over streambed no shading vegetation = 0; continuous canopy = max points)  Substrate embeddedness (deeply embedded = 0; loose structure = max)  Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)  Presence of amphibians (no evidence = 0; common, numerous types = max points)  Presence of fish (no evidence = 0; common, numerous types = max points)  Evidence of wildlife use (no evidence = 0; abundant evidence = max points)

<sup>\*</sup> These characteristics are not assessed in coastal streams.

Strong

3

Moderate

(2)

NC DWQ Stream Identification Form Version 4.11

A. Geomorphology (Subtotal =

1<sup>a.</sup> Continuity of channel bed and bank

Date: 4/27/15	Project/Site: A < P	Latitude: 34, 90726
Evaluator: EST-J, HONDOWN, IS. NYWYPINEY		Longitude: -78.76095
Total Points: Stream is at least intermittent if $\geq$ 19 or perennial if $\geq$ 30*	Stream Determination (circle one) Ephemeral Intermittent Perennial	Other Ceday Cleek e.g. Quad Name:

Absent

0

Weak

1

Continuity of Charmer bed and bank	0	'	(2)	
2. Sinuosity of channel along thalweg	(0)	1	2	3
In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	2	3
4. Particle size of stream substrate	0	1	(2)	3
5. Active/relict floodplain	0	1	2	3
6. Depositional bars or benches	(0)	1	2	3
7. Recent alluvial deposits	(0)	1	2	3
3. Headcuts	0	1	2	3
9. Grade control	(0)	0.5	1	1.5
10. Natural valley	(i)	0.5	1	1.5
Second or greater order channel	No	€0)	Yes	= 3
artificial ditches are not rated; see discussions in manual				
3. Hydrology (Subtotal = 6.5)				
2. Presence of Baseflow	0	1	(2)	3
3. Iron oxidizing bacteria	(0)	1	2_	3
4. Leaf litter	1.5	1	(0.5)	0
15. Sediment on plants or debris	(0)	0.5	1	1.5
16. Organic debris lines or piles	0	0.5	(1)	1.5
7. Soil-based evidence of high water table?	No = 0		Yes €3	
C. Biology (Subtotal =5)				
8. Fibrous roots in streambed	3	(2)	1	0
9. Rooted upland plants in streambed	(3)	2	1	0
0. Macrobenthos (note diversity and abundance)	0	1	2	3
1. Aquatic Mollusks	(0)	1	2	3
22. Fish	(Q)	0.5	1	1.5
23. Crayfish	(0)	0.5	1	1.5
24. Amphibians	(0)	0.5	1	1.5
25. Algae	(0)	0.5	1	1.5
26. Wetland plants in streambed		FACW = 0.75; C	BL = 1.5 Other = 0	))
*perennial streams may also be identified using other method				
Notes: Semp	054			

Sketch:

OHWM width: 2 Ft. TOP of Bonk width: 5 Ft.



Waterbody data point scmp054 facing west upstream.



Waterbody data point scmp054 facing east downstream.



Site =	 indicate	on	attac	hed	map
Dite.	manette	011			2 -

scmp 053

STREAM QUALITY ASSESSMENT WORKSHEET
Provide the following information for the stream reach under assessment:
1. Applicant's name: Dominion 2. Evaluator's name: EST-K, Marphien
3. Date of evaluation: 4/27/16  4. Time of evaluation: 9:30AM
5. Name of stream: UNT to Big Alligator Swamp 6. River basin: CAPE FEON
7. Approximate drainage area: 2 BCN-ES 8. Stream order: 0
9. Length of reach evaluated: 5087 10. County: Cumberland
11. Site coordinates (if known): prefer in decimal degrees. 12. Subdivision name (if any): NA
Latitude (ex. 34.872312): 34,90739 Longitude (ex77.556611): -78,76134
Method location determined (circle): GPS Topo Sheet Ortho (Aerial) Photo/GIS Other GIS Other
LOCATED South of Dudley rd. in comberland co. NC.
14. Proposed channel work (if any): Proposed Pipeline
15. Recent weather conditions: SURNY
16. Site conditions at time of visit: Channelized ditch
17. Identify any special waterway classifications known:Section 10Tidal WatersEssential Fisheries Habitat
Trout WatersOutstanding Resource WatersNutrient Sensitive WatersWater Supply Watershed(I-IV)
18. Is there a pond or lake located upstream of the evaluation point? YES NO If yes, estimate the water surface area:
19. Does channel appear on USGS quad map? YES NO 20. Does channel appear on USDA Soil Survey? YES NO
21. Estimated watershed land use: O % Residential O Commercial Moleculary Management (1998) Agricultural
# (Top of Bank) 22. Bankfull width: 12 ft  23. Bank height (from bed to top of bank): 48+
24. Channel slope down center of stream:Flat (0 to 2%)Gentle (2 to 4%)Moderate (4 to 10%)Steep (>10%)
25. Channel sinuosity:StraightOccasional bendsFrequent meanderVery sinuousBraided channel
Instructions for completion of worksheet (located on page 2): Begin by determining the most appropriate ecoregion based or location, terrain, vegetation, stream classification, etc. Every characteristic must be scored using the same ecoregion. Assign point to each characteristic within the range shown for the ecoregion. Page 3 provides a brief description of how to review the characteristics identified in the worksheet. Scores should reflect an overall assessment of the stream reach under evaluation. If characteristic cannot be evaluated due to site or weather conditions, enter 0 in the scoring box and provide an explanation in the comment section. Where there are obvious changes in the character of a stream under review (e.g., the stream flows from a pastur into a forest), the stream may be divided into smaller reaches that display more continuity, and a separate form used to evaluate each. The total score assigned to a stream reach must range between 0 and 100, with a score of 100 representing a stream of the highest quality.
Total Score (from reverse): 40 Comments: Channelized ditch
4/27/11

Evaluator's Signature New Muff Mark Date 4/27/16

This channel evaluation form is intended to be used only as a guide to assist landowners and environmental professionals in gathering the data required by the United States Army Corps of Engineers to make a preliminary assessment of stream quality. The total score resulting from the completion of this form is subject to USACE approval and does not imply a particular mitigation ratio or requirement. Form subject to change - version 06 03. To Comment, please call 919-876-8441 x 26.

#	CHARACTERISTICS	ECOREG Coastal	ION POINT Piedmont	ACCOUNT ADDRESS ASSESSMENT AND ACCOUNT OF THE	SCOI
123 8	Presence of flow / persistent pools in stream	0 – 5	0-4	0-5	2
1	(no flow or saturation = 0; strong flow = max points)	0-5	0-4	0-3	3
2	Evidence of past human alteration	0-6	0-5	0-5	2
2	(extensive alteration = 0; no alteration = max points)		15. 17.8	1 1 1 1 1 1 1 1 1 1 1 1	
3	Riparian zone	0-6	0 - 4	0-5	1
3	(no buffer = 0; contiguous, wide buffer = max points)  Evidence of nutrient or chemical discharges				( )
4	(extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	4
	Groundwater discharge	0-3	0-4	0-4	()
5	(no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	
6	Presence of adjacent floodplain	0-4	0-4	0-2	0
0	(no floodplain = 0; extensive floodplain = max points)	. 4			
7	Entrenchment / floodplain access	0-5	0 - 4	0-2	2
	(deeply entrenched = 0; frequent flooding = max points)  Presence of adjacent wetlands			22.	_
8	(no wetlands = 0; large adjacent wetlands = max points)	0 – 6	0-4	0-2	
и .	Channel sinuosity	0-5	0-4	0-3	1
9	(extensive channelization = 0; natural meander = max points)	0-3	0-4	0-3	
10	Sediment input	0-5	0-4	0-4	4
10	(extensive deposition= 0; little or no sediment = max points)	Tric facilities	A VENT OF THE STATE OF	* * *	,
11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	
-	Evidence of channel incision or widening	The arrest of the man and		0.5	-
12	(deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	
1	Presence of major bank failures	0-5	0-5	0-5	H
13	(severe erosion = 0; no erosion, stable banks = max points)	0-3	0 5	-	
14	Root depth and density on banks	0-3	0-4	0-5	
14	(no visible roots = 0; dense roots throughout = max points)				1
15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	
-	Presence of riffle-pool/ripple-pool complexes	0.0	0.5	0.6	1
16	(no riffles/ripples or pools = 0; well-developed = max points)	0 – 3	0-5	0-6	
	Habitat complexity	0-6	0-6	0-6	2
17	(little or no habitat = 0; frequent, varied habitats = max points)	0-0	0 0	-	-
18	Canopy coverage over streambed	0-5	0-5	0-5	1
10	(no shading vegetation = 0; continuous canopy = max points)		w.	-	
19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	1 -
	Presence of stream invertebrates (see page 4)		0.5	0.5	
20	(no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	
-	Presence of amphibians	0-4	0-4	0-4	-
21	(no evidence = 0; common, numerous types = max points)	0-4	U-7		-
22	Presence of fish	0-4	0-4	0-4	
-22	(no evidence = 0; common, numerous types = max points)				-
23	Evidence of wildlife use	0-6	0-5	0-5	
1	(no evidence = 0; abundant evidence = max points)	C. V. C.	9 8466114-66		1 1.44
	Total Points Possible	100 "	100	100	
14 TO 18 TO 16 TO	아 있다는 아이들이 물리는 동물 사용을 살살살을 수 있는 것이 없다면 하십시간 사용을 받았다면 하시다. 그 사용을 받았다면 그 사용을 하는 것이 없는 것이 없는 것이 없는 것이다.	THE RESERVE OF THE PARTY OF THE			-

<sup>\*</sup> These characteristics are not assessed in coastal streams.

NC DWQ Stream Identification Form Version 4.11

Evaluator: EST-J, Harbour, K. Murphrey

Date: 4/27/16

scmp053 Latitude: 34,90739 Other Stream Determination (circle one)

Total Points: Stream is at least intermittent $19 \text{ or perennial if } \ge 30^{\bullet}$	Stream Determi Ephemeral Inte	nation (circle on rmittent Perenni	0) 011101	dar cleen
A. Geomorphology (Subtotal =)	Absent	Weak	Moderate	Strong
1ª Continuity of channel bed and bank		1	2	3
Sinuosity of channel along thalweg	0	1)	2	3
3. In-channel structure: ex. riffle-pool, step-pool,		(1)		
ripple-pool sequence	0	0	2	3
4. Particle size of stream substrate	0	1	2	(3')
5. Active/relict floodplain	0	1	2	3
6. Depositional bars or benches	(ó)	1	2	3
7. Recent alluvial deposits	0	1_	(2)	3
8. Headcuts	Q		2	3
9. Grade control	0	0.5	1	1.5
10. Natural valley	(ô)	0.5	1	1.5
11. Second or greater order channel	No	(0)	Yes	= 3
artificial ditches are not rated; see discussions in manual  B. Hydrology (Subtotal = 10 )				
12. Presence of Baseflow	0	1	2	(3)
13. Iron oxidizing bacteria	0_	1	(2)	3
14. Leaf litter	(1.5)	1	0.5	0
15. Sediment on plants or debris	(0)	0.5	1	1.5
16. Organic debris lines or piles	0	(0.5)	1	1.5
17. Soil-based evidence of high water table?		= 0	Yes	= 3
C. Biology (Subtotal =	~			
18. Fibrous roots in streambed	(3)	2	1	0
19. Rooted upland plants in streambed	(3)	2	1	0
20. Macrobenthos (note diversity and abundance)	(0)	1	2	3
21. Aquatic Mollusks	(0)	1_	2	3
22. Fish	Q	(0.5)	1	1.5
23. Crayfish	(0)	0.5	1	1.5
24. Amphibians	(0)	0.5	1	1.5
25. Algae	0	(0.5)	1	1.5
26. Wetland plants in streambed			OBL = 1.5) Other = 0	
*perennial streams may also be identified using other meth	ods. See p. 35 of manua			
Notes: SCMP 054				*****
Sketch:  OHWM WHA: 108+	Esour.			
OF OF BOOK WINTER! 126+	SENS			

Project/Site: ACP

County: Cumberland





Waterbody data point scmp053 facing south downstream.



USACE	4117-	
COULT	4110-	

DWO=	
11/4 (1 ==	

Site	=	(indicate	on	attached	map
	-				-

scmp052

## 100

### STREAM QUALITY ASSESSMENT WORKSHEET



Provide the following information for the stream reach under	er assessment:
1. Applicant's name: Dominion	2. Evaluator's name: ESI-K, MUSPhiley
3. Date of evaluation: 4/27/16	4. Time of evaluation: 9:00AM
5. Name of stream: 4NT to Big Alligator Suhrp	6. River basin: Cape Fear
7. Approximate drainage area: > 58 acres	8. Stream order:
9. Length of reach evaluated: 50 F+	10. County: Cumberland
11. Site coordinates (if known): preser in decimal degrees.	12. Subdivision name (if any): NA
	Longitude (ex77.556611): -78, 76(10
Method location determined (circle): GPS Topo Sheet Ortho (A  13. Location of reach under evaluation (note nearby roads and I  LOCATED SOUTH OF DUDING Rd.	andmarks and attach map identifying stream(s) location):
14. Proposed channel work (if any): Proposed Pipe	line
15. Recent weather conditions: SUNNY	
16. Site conditions at time of visit: Ditched channel	
17. Identify any special waterway classifications known:	Section 10Tidal WatersEssential Fisheries Habitat
	Nutrient Sensitive WatersWater Supply Watershed(l-lV)
18. Is there a pond or lake located upstream of the evaluation p	oint? YES NO If yes, estimate the water surface area:
19. Does channel appear on USGS quad map? YES NO	20. Does channel appear on USDA Soil Survey? (YES) NO
21. Estimated watershed land use: 10% Residential	% Commercial% Industrial% Agricultural
SO% Forested	% Commercial% Industrial% Agricultural% Cleared / Logged% Other ()  23. Bank height (from bed to top of bank): (08+
22. Bankfull width: 178+	23. Bank height (from bed to top of bank):
24. Channel slope down center of stream:Flat (0 to 2%)	Gentle (2 to 4%)Moderate (4 to 10%)Steep (>10%)
	Frequent meanderVery sinuousBraided channel
location, terrain, vegetation, stream classification, etc. Every to each characteristic within the range shown for the eco characteristics identified in the worksheet. Scores should re characteristic cannot be evaluated due to site or weather co comment section. Where there are obvious changes in the clinto a forest), the stream may be divided into smaller reaches reach. The total score assigned to a stream reach must ranghighest quality.	characteristic must be scored using the same ecoregion. Assign points oregion. Page 3 provides a brief description of how to review the effect an overall assessment of the stream reach under evaluation. If a inditions, enter 0 in the scoring box and provide an explanation in the character of a stream under review (e.g., the stream flows from a pasture is that display more continuity, and a separate form used to evaluate each the between 0 and 100, with a score of 100 representing a stream of the sents: Channelized ditch that has
Naturalized,	
Evaluator's Signature Keein Murchey	Date 4/27/16
This channel evaluation form is intended to be used only	y as a guide to assist landowners and environmental professionals in y Corps of Engineers to make a preliminary assessment of stream of this form is subject to USACE approval and does not imply a

particular mitigation ratio or requirement. Form subject to change - version 06 03. To Comment, please call 919-876-8441 x 26.

#	CHARACTERISTICS		ION POINT	ACCURAGE AND ADMINISTRATION OF THE PROPERTY OF THE PARTY	sco
##		Coastal	Piedmont	Mountain	
1	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0 – 5	0-4	0-5	
2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0 – 6	0-5	0-5	1
3	(no buffer = 0; contiguous, wide buffer = max points)	0 – 6	0-4	0-5	2
4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	6 0-4	0-4	5
5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	C
6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	$\mathcal{L}$
7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	0
8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0-6	0-4	0-2	C
9	Channel sinuosity  (extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	
10	Sediment input (extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0-4	1
11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	
12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	0
13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	-
14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	
15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	
16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0-6	0
17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	
18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	
19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	-
20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	
21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	
22	Presence of fish  (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	
23	Evidence of wildlife use  (no evidence = 0; abundant evidence = max points)	0-6	0-5	0-5	
	Total Points Possible	100	100	100	

<sup>\*</sup> These characteristics are not assessed in coastal streams.

scmp052

NC DWQ Stream Identification Form Version 4.11

Date: 4/27/16	Project/Site: A CP	Latitude: 34,90706		
Evaluator: EST-J. Harbour, K. Mulphey	County: Cumbelland	Longitude: -78.76110		
Total Points: Stream is at least intermittent if $\geq$ 19 or perennial if $\geq$ 30*	Stream Determination (circle one) Ephemeral Intermittent Perennial	Other Ceday Cleek e.g. Quad Name:		

A. Geomorphology (Subtotal = ( H )	Absent	Weak	Moderate	Strong
a. Continuity of channel bed and bank	0	1	2	(3)
. Sinuosity of channel along thalweg	0	(1)	2	3
In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	2	3
Particle size of stream substrate	0	1	2	3)
i. Active/relict floodplain	(2)	1	2	3
. Depositional bars or benches	(0)	1	2	3
. Recent alluvial deposits	(0)	1	2	3
B. Headcuts	0	(1)	2	3
). Grade control	0	(0.5)	1	1.5
Natural valley	0	(0.5)	1	1.5
Second or greater order channel	No	= 0	Yes =	(3)
artificial ditches are not rated; see discussions in manual  B. Hydrology (Subtotal = \( \sigma \)				
2. Presence of Baseflow	0	1	2	(3)
Iron oxidizing bacteria	(0)	1	2	3
4. Leaf litter	1.5	1	0.5	0
Sediment on plants or debris	(0)	0.5	1	1.5
Organic debris lines or piles	0	0.5	1	1.5
7. Soil-based evidence of high water table?		= 0	Yes	
C. Biology (Subtotal =9.5)	140		163	3)
8. Fibrous roots in streambed	(3)	2	1 1	0
9. Rooted upland plants in streambed	(3)	2	1	0
O. Macrobenthos (note diversity and abundance)	0	(1)	2	3
1. Aquatic Mollusks	(0)	1	2	3
2. Fish	0	0.5	1	1.5
3. Crayfish	(0)	0.5	1	1.5
4. Amphibians	(0)	0.5	1	1.5
5. Algae	0	(0.5)	1	1.5
6. Wetland plants in streambed		FACW = 0.75;	OBL = (1.5 )Other = 0	
*perennial streams may also be identified using other method	ls. See p. 35 of manual			
Notes: 5cmp054	· · ·			
	11			
HWM Width: 1584	TE 8	ماريس المعراض		
HWM Width: 1584	)			
OP OF BONK Width: 1784 V	)			



Waterbody data point scmp052 facing east upstream.



Waterbody data point scmp052 facing west downstream.



Waterbody data point scmp052 facing north across.

USACE	AID-
COMCE	AID-

DHO =	

Site	=	(indicate	on	attac		
					//2	-





Provide the following information for the	e stream reach und	er assessment:	
1. Applicant's name: Dominion		2. Evaluator's name: ESI-K. MUVPLIVEY	
3. Date of evaluation: 4/27/16		4. Time of evaluation: 11 SOAM	
5. Name of stream: MNT to Big Alli	GETOR SUTAR	6. River basin: Cape Fear	
7. Approximate drainage area: 2 acco	ës.	8. Stream order:	
9. Length of reach evaluated: 5081		10. County: Camberland	200 E
11. Site coordinates (if known): prefer in		12. Subdivision name (if any): NA	1926
Latitude (ex. 34.872312): 34.89715		Longitude (ex77.556611): -78.76783	
Method location determined (circle): GPS  13. Location of reach under evaluation (not)  10 (0)+10 MSA NOVAM 0	Topo Sheet Onho (a te nearby roads and F JOhnSon	Aerial) Photo/GIS Other GIS Other_landmarks and attach map identifying stream(s) location):	
14. Proposed channel work (if any): P(O)	rosed Pi	KELLVE	100
15. Recent weather conditions: Sun ?	9		
16. Site conditions at time of visit: Dite			1 7 2 2
		Section 10Tidal WatersEssential Fisheric	
		Nutrient Sensitive WatersWater Supply Watershed	
18. Is there a pond or lake located upstream	n of the evaluation p	point? YES NO If yes, estimate the water surface area:	
19. Does channel appear on USGS quad m	ap? YES NO	20. Does channel appear on USDA Soil Survey? YES (No	
21. Estimated watershed land use:		% Commercial% Industrial% Agric	
x = 50 1) 50		% Cleared / Logged% Other (	
* (Top of BANK) 22. Bankfull width: 136+		23. Bank height (from bed to top of bank): 671	
24. Channel slope down center of stream:	Flat (0 to 2%)	Gentle (2 to 4%)Moderate (4 to 10%)Steep	(>10%)
25. Channel sinuosity:Straight	Occasional bends	Frequent meanderVery sinuousBraided	l channel
location, terrain, vegetation, stream classito each characteristic within the range characteristics identified in the workshee characteristic cannot be evaluated due to comment section. Where there are obvious into a forest), the stream may be divided reach. The total score assigned to a stream	shown for the eccent. Scores should re- o site or weather co- ous changes in the c- into smaller reaches	ge 2): Begin by determining the most appropriate ecoregion characteristic must be scored using the same ecoregion. As pregion. Page 3 provides a brief description of how to reflect an overall assessment of the stream reach under evaluanditions, enter 0 in the scoring box and provide an explanatharacter of a stream under review (e.g., the stream flows from that display more continuity, and a separate form used to explanate between 0 and 100, with a score of 100 representing a stream	review the ation. If a ation in the mapasture aluate each
highest quality.			
Total Score (from reverse): 36	Comm	ents:	And I
			1421
	.0-	1 12-111	
Evaluator's Signature Keun Mu	wholf	Date 4/27/16	
This channel evaluation form is inten- gathering the data required by the U	ded to be used only United States Arm om the completion	y as a guide to assist landowners and environmental prof y Corps of Engineers to make a preliminary assessmen of this form is subject to USACE approval and does to change – version 06 03. To Commem. please call 919-876	t of stream

Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)  Evidence of past human alteration (extensive alteration = 0; no alteration = max points)  Riparian zone (no buffer = 0; contiguous, wide buffer = max points)  Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)  Groundwater discharge odischarge = 0; springs, seeps, wetlands, etc. = max points)  Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)  Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)  Presence of adjacent wetlands	0-5 0-6 0-6 0-5 0-3 0-4	0-4 0-5 0-4 0-4 0-4 0-4	Mountain; 0-5 0-5 0-5 0-4 0-4	30250
(no flow or saturation = 0; strong flow = max points)  Evidence of past human alteration (extensive alteration = 0; no alteration = max points)  Riparian zone (no buffer = 0; contiguous, wide buffer = max points)  Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)  Groundwater discharge o discharge = 0; springs, seeps, wetlands, etc. = max points)  Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)  Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)  Presence of adjacent wetlands	0-6 0-6 0-5 0-3 0-4	0-5 0-4 0-4 0-4	0-5 0-5 0-4	5
(extensive alteration = 0; no alteration = max points)  Riparian zone (no buffer = 0; contiguous, wide buffer = max points)  Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)  Groundwater discharge o discharge = 0; springs, seeps, wetlands, etc. = max points)  Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)  Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)  Presence of adjacent wetlands	0-6 0-5 0-3 0-4	0-4 0-4 0-4	0-5	5
(no buffer = 0; contiguous, wide buffer = max points)  Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)  Groundwater discharge  discharge = 0; springs, seeps, wetlands, etc. = max points)  Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)  Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)  Presence of adjacent wetlands	0-5 0-3 0-4	0-4	0-4	5
Evidence of nutrient or chemical discharges  (extensive discharges = 0; no discharges = max points)  Groundwater discharge  o discharge = 0; springs, seeps, wetlands, etc. = max points)  Presence of adjacent floodplain  (no floodplain = 0; extensive floodplain = max points)  Entrenchment / floodplain access  (deeply entrenched = 0; frequent flooding = max points)  Presence of adjacent wetlands	0-3	0-4	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Groundwater discharge  o discharge = 0; springs, seeps, wetlands, etc. = max points)  Presence of adjacent floodplain  (no floodplain = 0; extensive floodplain = max points)  Entrenchment / floodplain access  (deeply entrenched = 0; frequent flooding = max points)  Presence of adjacent wetlands	0-4		0-4	0
Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)  Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)  Presence of adjacent wetlands	2.0	0-4		
Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)  Presence of adjacent wetlands		1.5	0-2	0
Presence of adjacent wetlands	0-5	0-4	0-2	0
(no wetlands = 0; large adjacent wetlands = max points)	0 – 6	0-4	0-2	-
Channel sinuosity extensive channelization = 0; natural meander = max points)	0 – 5	0-4	0-3	0
Sediment input extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0-4	5
Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	processor
Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	L
Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	-
Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0 – 4	0-5	
Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	(
Presence of riffle-pool/ripple-pool complexes no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0-6	(
Habitat complexity little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	
Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	-
Substrate embeddedness	NA*	0-4	0-4	*****
Presence of stream invertebrates (see page 4)	0-4	0-5	0-5	
Presence of amphibians	0-4	0-4	0-4	
Presence of fish	0-4	0-4	0-4	
Evidence of wildlife use	0-6	0-5	0-5	
그는 사람이 되었다. 그는 사람들이 되었다면 하게 되었다면 하는 사람들이 되었다면 하는 것이 되었다.	100	100	100	
(1	(deeply embedded = 0; loose structure = max)  Presence of stream invertebrates (see page 4) no evidence = 0; common, numerous types = max points)  Presence of amphibians no evidence = 0; common, numerous types = max points)  Presence of fish no evidence = 0; common, numerous types = max points)  Evidence of wildlife use (no evidence = 0; abundant evidence = max points)  Total Points Possible	(deeply embedded = 0; loose structure = max)  Presence of stream invertebrates (see page 4)  no evidence = 0; common, numerous types = max points)  Presence of amphibians  no evidence = 0; common, numerous types = max points)  Presence of fish  no evidence = 0; common, numerous types = max points)  Evidence of wildlife use  (no evidence = 0; abundant evidence = max points)  Total Points Possible  100	(deeply embedded = 0; loose structure = max)Presence of stream invertebrates (see page 4)no evidence = 0; common, numerous types = max points) $0-4$ $0-5$ Presence of amphibiansno evidence = 0; common, numerous types = max points)Presence of fish $0-4$ $0-4$ no evidence = 0; common, numerous types = max points) $0-4$ $0-4$ Evidence of wildlife use(no evidence = 0; abundant evidence = max points) $0-6$ $0-5$ Total Points Possible	(deeply embedded = 0; loose structure = max)Presence of stream invertebrates (see page 4)no evidence = 0; common, numerous types = max points) $0-4$ $0-5$ $0-5$ Presence of amphibiansno evidence = 0; common, numerous types = max points)Presence of fish $0-4$ $0-4$ $0-4$ no evidence = 0; common, numerous types = max points) $0-4$ $0-4$ $0-4$ Evidence of wildlife use(no evidence = 0; abundant evidence = max points)

<sup>\*</sup> These characteristics are not assessed in coastal streams.

NC DWQ Stream Identification Form Version 4.11

scmp056

0

Date: 4/27/16	Project/Site: ACP	Latitude: 34, 89715
Evaluator: EST-J. Harrary, K murphley	County: Cambelland	Longitude: -78.76783
Total Points:  Stream is at least intermittent if ≥ 19 or perennial if ≥ 30*	Stream Determination (circle one) Ephemeral (intermittent Perennial	Other Cedar Creek e.g. Quad Name:

A. Geomorphology (Subtotal = $4$ , $5$ )	Absent	Weak	Moderate	Strong
1ª Continuity of channel bed and bank	0	1	2	3
Sinuosity of channel along thalweg	0	1	2	3
In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	①	2	3
4. Particle size of stream substrate	0	1	2	(3)
5. Active/relict floodplain	(0)	1	2	3
6. Depositional bars or benches	(0)	1	2	3
7. Recent alluvial deposits	(0)	1	2	3
8. Headcuts	(0)	1	2	3
9. Grade control	(0)	0.5	1	1.5
10. Natural valley	0	(0.5)	1	1.5
11. Second or greater order channel	No	<b>₹0</b> )	Yes	= 3
a artificial ditches are not rated; see discussions in manual				
B. Hydrology (Subtotal = 7, 5)				

B.	Hydrology	(Subtotal =	7,51	

12. Presence of Baseflow	0	1	(2)	3
13. Iron oxidizing bacteria	0	1	2	3
14. Leaf litter	(1.5)	1	0.5	0
15. Sediment on plants or debris	(0)	0.5	1	1.5
16. Organic debris lines or piles	(0)	0.5	1	_ 1.5
17. Soil-based evidence of high water table?	No	0 = 0	Yes	<b>≘</b> 3)

C. Biology (Subtotal =)		
18. Fibrous roots in streambed	(3)	2
19. Rooted upland plants in streambed	3	2
20 Massahanthas (note diversity and shundares)	(6)	- 1

19. Rooted upland plants in streambed	(3)	2	1 1	0	
20. Macrobenthos (note diversity and abundance)	(0)	1	2	3	
21. Aquatic Mollusks	(0)	1	2	3	
22. Fish	(0)	0.5	1	1.5	
23. Crayfish	(0)	0.5	1	1.5	
24. Amphibians	0	0.5	1	1.5	
25. Algae	0	(0.5)	1	1.5	
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 Other = 0				

\*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes:

--- TOSUNOS

OHWM WIGHT 108+

TOP OF BOOK WIGHT: 1381



Waterbody data point scmp056 facing northwest upstream.



Waterbody data point scmp056 facing southeast downstream.



Waterbody data point scmp056 facing west across.

HELCE	AIDA	
USACE	AIDH	-

DWQ#			
DWU			

Site #\_\_\_\_ (indicate on attached map)

scmo 028



### STREAM QUALITY ASSESSMENT WORKSHEET



Provide the following information for the stream reach und	
1. Applicant's name: Dominion	2. Evaluator's name: L. Roper
3. Date of evaluation: 4/6/11/6	4. Time of evaluation: 110 m
5. Name of stream: Untto Hair Canal	6. River basin: Cape Fear
7. Approximate drainage area: 50 ac	8. Stream order: (1)
9. Length of reach evaluated: 30 ft	10. County: Comberland
11. Site coordinates (if known): prefer in decimal degrees.	12. Subdivision name (if any): NONE
Latitude (ex. 34.872312): 34, 89 [3]	Longitude (ex77.556611): 78.77333
Method location determined (circle): GPS Topo Sheet Ortho ( 13. Location of reach under evaluation (note nearby roads and	landmarks and attach map identifying stream(s) location):
West of Dudley Rd and Jo	ohn son Kd
14. Proposed channel work (if any): TBD	
15. Recent weather conditions: COO   & dry	A
16. Site conditions at time of visit: Dower line	KOW
17. Identify any special waterway classifications known:	Section 10Tidal WatersEssential Fisheries Habitat
Trout WatersOutstanding Resource Waters	Nutrient Sensitive Waters Water Supply Watershed IV (I-IV)
18. Is there a pond or lake located upstream of the evaluation p	point? YES 100 If yes, estimate the water surface area:
19. Does channel appear on USGS quad map? YES NO	20. Does channel appear on USDA Soil Survey? YES NO
21. Estimated watershed land use:% Residential	% Commercial% Industrial% Agricultural
50% Forested	% Cleared / Logged% Other ()
22. Bankfull width: 8f+	23. Bank height (from bed to top of bank): 4++
	Gentle (2 to 4%)Moderate (4 to 10%)Steep (>10%)
25. Channel sinuosity:StraightOccasional bends	Frequent meanderVery sinuousBraided channel
location, terrain, vegetation, stream classification, etc. Every to each characteristic within the range shown for the eco characteristics identified in the worksheet. Scores should re characteristic cannot be evaluated due to site or weather cor comment section. Where there are obvious changes in the chinto a forest), the stream may be divided into smaller reaches reach. The total score assigned to a stream reach must range highest quality.	e 2): Begin by determining the most appropriate ecoregion based on characteristic must be scored using the same ecoregion. Assign points region. Page 3 provides a brief description of how to review the flect an overall assessment of the stream reach under evaluation. If a additions, enter 0 in the scoring box and provide an explanation in the paracter of a stream under review (e.g., the stream flows from a pasture that display more continuity, and a separate form used to evaluate each the between 0 and 100, with a score of 100 representing a stream of the latest the stream of the latest that the str
he pelen	ring at time of ste Visit.
Evaluator's Signature Control of the Channel evaluation form is intended to be used only	Date 4/6/16  As a guide to assist landowners and environmental professionals in Corps of Engineers to make a preliminary assessment of stream

1

quality. The total score resulting from the completion of this form is subject to USACE approval and does not imply a particular mitigation ratio or requirement. Form subject to change – version 06/03. To Comment, please call 919-876-8441 x 26.

#		CHADA CIPEDICTION	ECOREC	SCORE		
		CHARACTERISTICS	Coastal	Piedmont	Mountain	SCORE
*	1	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0 – 5	0-4	0-5	5
See Anna	2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0-6	0-5	0-5	1
	3	Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	0-6	0-4	0-5	1
	4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	3
AL	5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	0
FHYSICAL	6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	0
	7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	0
	8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0-6	0-4	0-2	0
	9	Channel sinuosity (extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	2
T T T T T T T T T T T T T T T T T T T	10	Sediment input (extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0-4	3
	11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	-
	12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	0
SIABILITY	13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	5
QV.	14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	1
2	15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	1
- Printer	16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0-6	0
BILAL	17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	1
HABI	18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	2
1	19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	-
	20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	0
BIOLUGY	21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	0
	22	Presence of fish (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	0
9	23	Evidence of wildlife use (no evidence = 0; abundant evidence = max points)	0-6	0-5	0-5	0
1000年		Total Points Possible	100	100	100	
1	674	TOTAL SCORE (also enter on f	irst page)			25

<sup>\*</sup> These characteristics are not assessed in coastal streams.

scmo 028 NC DWO Stream Identification Form Version 4.11 Latitude: 34, 89131 Project/Site: A Evaluator: L. Roper Longitude: -78.77333 County: Comperan Total Points: Other Stream Determination (circle one) Stream is at least intermittent creek Ephemeral Intermittent Perennia e.g. Quad Name: if ≥ 19 or perennial if ≥ 30\* Strong A. Geomorphology (Subtotal = 8.5) Weak Moderate Absent 3 1ª Continuity of channel bed and bank Canh 2 0 1 (2) 1 3 0 2. Sinuosity of channel along thalweg 3. In-channel structure: ex. riffle-pool, step-pool, 6 3 2 1 ripple-pool sequence 2 3 0) 1 4. Particle size of stream substrate 3 2 0 1 5. Active/relict floodplain 3 (0) 1 2 6. Depositional bars or benches 2 3 (O) 7. Recent alluvial deposits 2 3 (0) 1 8. Headcuts 1.5 0.5 1 (0) 9. Grade control 1 1.5 10. Natural valley 0 (0.5) 11. Second or greater order channel No = 0Yes = 3 artificial ditches are not rated; see discussions in manual B. Hydrology (Subtotal = 7,5 2 (3) 1 12. Presence of Baseflow 2 3 (0) 1 13. Iron oxidizing bacteria 0 0.5 1.5) 1 14. Leaf litter 1.5 (0) 0.5 1 15. Sediment on plants or debris 1.5 0.5 1 16. Organic debris lines or piles (0) Yes = 3 17. Soil-based evidence of high water table? No = 0C. Biology (Subtotal = 0 2 3) 18. Fibrous roots in streambed 0 (3) 2 1 19. Rooted upland plants in streambed 2 3 0 1 20. Macrobenthos (note diversity and abundance) 3 2 (0) 1 21. Aquatic Mollusks 1.5 22. Fish 0 0.5 1 1.5 (0) 0.5 1 23. Cravfish 1.5 0.5 1 (a) 24. Amphibians 1.5 0.5 25. Algae FACW = 0.75; OBL = 1.5 Other = 0 26. Wetland plants in streambed Mosed on width and depth of canal \*perennial streams may also be identified using other methods. See p. 35 of manual. during field visit Notes: Semo 028 was determined to be perennial canal maintenence reduces geomorphology evidence, historic aerial plots show presence of water canal depth prevented in stream search for previdence for agrace organisms. different seasons Sketch: # SCMODZB duta

Bonk width: 8ft

OHWM: 5ft



Waterbody data point scmo028 facing northwest upstream.



Waterbody data point scmo028 facing southeast downstream.



Waterbody data point scmo028 facing southwest across.

5cm0 029





Provide the following information for the stream reach und	ler assessment:
1. Applicant's name: Dominion	2. Evaluator's name: LiRoper
3. Date of evaluation: 4/6/16	4. Time of evaluation: 12 pm
5. Name of stream: Hair Canal	6. River basin: Cape Fear
7. Approximate drainage area: 5,000 ac	8. Stream order: 2 nd
9. Length of reach evaluated: 40ft	10. County: Comberland
11. Site coordinates (if known): prefer in decimal degrees.	12. Subdivision name (if any): None
Latitude (ex. 34.872312): 34,89023	
Method location determined (circle): GPS Topo Sheet Ortho ( 13. Location of reach under evaluation (note nearby roads and Southwest of Dudley Rd and  14. Proposed channel work (if any): TBD	landmarks and attach map identifying stream(s) location):
15. Recent weather conditions: COOl & dry	
16. Site conditions at time of visit: Power line	Low
17. Identify any special waterway classifications known:	Section 10Tidal WatersEssential Fisheries Habitat Nutrient Sensitive WatersWater Supply Watershed(I-IV)
18. Is there a pond or lake located upstream of the evaluation p	point? (ES) NO If yes, estimate the water surface area: \ \(\alpha\cup \)
19. Does channel appear on USGS quad map? (ES) NO	20. Does channel appear on USDA Soil Survey? YES NO
21. Estimated watershed land use: 26% Residential	% Commercial% Industrial% Agricultural
	% Cleared / Logged% Other (
22. Bankfull width: 25 ft	23. Bank height (from bed to top of bank): 5 +
24. Channel slope down center of stream: Flat (0 to 2%)	Gentle (2 to 4%)Moderate (4 to 10%)Steep (>10%)
25. Channel sinuosity:StraightOccasional bends	Frequent meanderVery sinuousBraided channel
location, terrain, vegetation, stream classification, etc. Every to each characteristic within the range shown for the eco characteristics identified in the worksheet. Scores should re characteristic cannot be evaluated due to site or weather concomment section. Where there are obvious changes in the clinto a forest), the stream may be divided into smaller reaches reach. The total score assigned to a stream reach must rangular total stream and the stream reach must rangular total stream and the stream reach must rangular total stream reach must rangular t	the 2): Begin by determining the most appropriate ecoregion based or characteristic must be scored using the same ecoregion. Assign points region. Page 3 provides a brief description of how to review the flect an overall assessment of the stream reach under evaluation. If a notitions, enter 0 in the scoring box and provide an explanation in the naracter of a stream under review (e.g., the stream flows from a pasture that display more continuity, and a separate form used to evaluate each e between 0 and 100, with a score of 100 representing a stream of the
Total Score (from reverse): 37 Comme	nts: Chancelined feature determined
gathering the data required by the United States Army quality. The total score resulting from the completion	Date 4 10 10  as a guide to assist landowners and environmental professionals in  Corps of Engineers to make a preliminary assessment of stream  of this form is subject to USACE approval and does not imply  change - version 06/03. To Comment, please call 919-876-8441 x 26

Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)  Evidence of past human alteration (extensive alteration = 0; no alteration = max points)  Riparian zone (no buffer = 0; contiguous, wide buffer = max points)  Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)  Groundwater discharge no discharge = 0; springs, seeps, wetlands, etc. = max points)  Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)  Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5 0-6 0-6 0-5 0-3	0-4 0-5 0-4 0-4 0-4	Mountain 0-5 0-5 0-5 0-4	5 2 2
(no flow or saturation = 0; strong flow = max points)  Evidence of past human alteration (extensive alteration = 0; no alteration = max points)  Riparian zone (no buffer = 0; contiguous, wide buffer = max points)  Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)  Groundwater discharge no discharge = 0; springs, seeps, wetlands, etc. = max points)  Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)  Entrenchment / floodplain access	0-6 0-6 0-5 0-3	0-5 0-4 0-4	0-5 0-5 0-4	
(extensive alteration = 0; no alteration = max points)  Riparian zone (no buffer = 0; contiguous, wide buffer = max points)  Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)  Groundwater discharge no discharge = 0; springs, seeps, wetlands, etc. = max points)  Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)  Entrenchment / floodplain access	0-6 0-5 0-3	0-4	0-5 0-4	
(no buffer = 0; contiguous, wide buffer = max points)  Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)  Groundwater discharge no discharge = 0; springs, seeps, wetlands, etc. = max points)  Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)  Entrenchment / floodplain access	0-5 0-3	0-4	0-4	2
(extensive discharges = 0; no discharges = max points)  Groundwater discharge  o discharge = 0; springs, seeps, wetlands, etc. = max points)  Presence of adjacent floodplain  (no floodplain = 0; extensive floodplain = max points)  Entrenchment / floodplain access	0-3	E CHILDRE		4
no discharge = 0; springs, seeps, wetlands, etc. = max points)  Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)  Entrenchment / floodplain access	100	0-4	0.54	1
(no floodplain = 0; extensive floodplain = max points)  Entrenchment / floodplain access	0-4	1	0-4	-1
Entrenchment / floodplain access (deeply entrenched = 0: frequent flooding = max points)		0-4	0-2	1
	0-5	0-4	0-2	1
Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0-6	0-4	0-2	0
Channel sinuosity extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	1
Sediment input extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0 – 4	3
Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	_
Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	5
Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	5
Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	2
Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	
Presence of riffle-pool/ripple-pool complexes no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0-6	0
Habitat complexity ittle or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	1
Canopy coverage over streambed no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	2
Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	_
Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	0
Presence of amphibians	0-4	0-4	0-4	0
Presence of fish	0-4	0-4	0-4	0
Evidence of wildlife use	0-6	0-5	0-5	1
Total Points Possible	100	100	100	144
(	Presence of amphibians no evidence = 0; common, numerous types = max points)  Presence of fish no evidence = 0; common, numerous types = max points)  Evidence of wildlife use (no evidence = 0; abundant evidence = max points)  Total Points Possible	no evidence = 0; common, numerous types = max points)  Presence of amphibians no evidence = 0; common, numerous types = max points)  Presence of fish no evidence = 0; common, numerous types = max points)  Evidence of wildlife use (no evidence = 0; abundant evidence = max points) $0-4$ $0-4$	no evidence = 0; common, numerous types = max points)  Presence of amphibians no evidence = 0; common, numerous types = max points)  Presence of fish no evidence = 0; common, numerous types = max points)  Evidence of wildlife use (no evidence = 0; abundant evidence = max points)  Total Points Possible $0-4$ $0-4$ $0-4$ $0-5$ $0-6$ $0-5$	no evidence = 0; common, numerous types = max points)         Presence of amphibians $0-4$ $0-4$ $0-4$ no evidence = 0; common, numerous types = max points) $0-4$ $0-4$ $0-4$ Presence of fish no evidence = 0; common, numerous types = max points) $0-4$ $0-4$ $0-4$ Evidence of wildlife use (no evidence = 0; abundant evidence = max points) $0-6$ $0-5$ $0-5$ Total Points Possible $100$ $100$ $100$

<sup>\*</sup> These characteristics are not assessed in coastal streams.

NC DWQ Stream Identification Form Version 4.11 50moD29 Project/Site: A CP Latitude: 34. 89023 Date: 4/6/16 Evaluator: L. Roper Longitude: -78, 77447 County: Comberland **Total Points:** Stream Determination (circle one) Stream is at least intermittent Ephemeral Intermittent Perennial e.g. Quad Name: Creek if ≥ 19 or perennial if ≥ 30\* Weak Moderate Strong Absent A. Geomorphology (Subtotal = 10,5) (3) 2 1a. Continuity of channel bed and bank 0 1 (2) 3 1 2. Sinuosity of channel along thalweg 0 3. In-channel structure: ex. riffle-pool, step-pool, 0 3 1 2 ripple-pool sequence 2 3 1 0 4. Particle size of stream substrate 2 3 (1) 5. Active/relict floodplain 0 2 3 (0) 1 6. Depositional bars or benches 3 2 0 1 7. Recent alluvial deposits 2 3 8. Headcuts 0 1 1.5 0 0.5 1 9. Grade control 1.5 10. Natural valley 0.5 Yes = 3 No = 011. Second or greater order channel artificial ditches are not rated; see discussions in manual B. Hydrology (Subtotal = (3) 2 0 1 12. Presence of Baseflow 2 3 0 1 13. Iron oxidizing bacteria 0 1.5) 0.5 14. Leaf litter 0 1.5 (0.5)1 15. Sediment on plants or debris 1.5 0.5 0 16. Organic debris lines or piles No = 0Yes = 3 17. Soil-based evidence of high water table? C. Biology (Subtotal = 6,5 0 2 18. Fibrous roots in streambed 3 1 0 3 2 19. Rooted upland plants in streambed 2 3 0 1 20. Macrobenthos (note diversity and abundance) 3 2 21. Aquatic Mollusks 0 1 (0) 0.5 1 1.5 22. Fish 1 1.5 0.5 (0)23. Crayfish 1.5 1 0.5 24. Amphibians (O) 1.5 0 0.5 1 25. Algae FACW = 0.75; OBL = 1.5 Other = 0 26. Wetland plants in streambed pobased on width and depth of canal \*perennial streams may also be identified using other methods. See p. 35 of manual. during field visit Notes: 5cm0 ()29 was determined to gerennia death prevented in stream starch for aqualic canal maintenance reduces geomorphology evidence, canal organisms; historic aerial 5cm0 030 photos show presence of Sketch: water during different seasons

\* scm0029

data point

OHWM: 15 ft

Bank width: 25ft



Waterbody data point scmo029 facing northwest upstream.



Waterbody data point scmo029 facing southeast downstream.



Waterbody data point scmo029 facing southwest across.

=OH				

Site = \_\_\_ (indicate on attached map)



Total Score (from reverse):

# SCM roo3

STREAM QUALITY AS	SSESSMENT WORKSHEET
Provide the following information for the stream reach und	
1. Applicant's name: Dominion	2. Evaluator's name: FSI (WV, KM)
3. Date of evaluation: 5-5-16	4. Time of evaluation: 11:30 am
5. Name of stream: UT to Cape Fear River	6. River basin: Cape Fear
7. Approximate drainage area: 192 acres	8. Stream order: First
9. Length of reach evaluated: 40 feet	10. County: Camberland
11. Site coordinates (if known): prefer in decimal degrees.	12. Subdivision name (if any): none
Latitude (ex. 34.872312): 34.878600	_ Longitude (ex77.556611): <u>-78. 788526</u>
Method location determined (circle): GPS Topo Sheet Ortho ( 13. Location of reach under evaluation (note nearby roads and difched Stream east of SI	Aerial) Photo GIS Other GIS Other
14. Proposed channel work (if any): Proposed P	ipeline
15. Recent weather conditions: Rain, Windy	
16. Site conditions at time of visit: 1. +ched Stream	
	Nutrient Sensitive WatersWater Supply Watershed(1-IV)
18. Is there a pond or lake located upstream of the evaluation	
19. Does channel appear on USGS quad map? (YES) NO	20. Does channel appear on USDA Soil Survey? YES NO
	/5% Commercial% Industrial% Agricultural
7 (	23. Bank height (from bed to top of bank):
24. Channel slope down center of stream: Flat (0 to 2%)	Gentle (2 to 4%)Moderate (4 to 10%)Steep (>10%)
25. Channel sinuosity:StraightOccasional bends	Frequent meanderVery sinuousBraided channel
location, terrain, vegetation, stream classification, etc. Every to each characteristic within the range shown for the eccharacteristics identified in the worksheet. Scores should recharacteristic cannot be evaluated due to site or weather comment section. Where there are obvious changes in the cipto a forest), the stream may be divided into smaller reaches	ge 2): Begin by determining the most appropriate ecoregion based on characteristic must be scored using the same ecoregion. Assign points oregion. Page 3 provides a brief description of how to review the effect an overall assessment of the stream reach under evaluation. If a onditions, enter 0 in the scoring box and provide an explanation in the character of a stream under review (e.g., the stream flows from a pasture is that display more continuity, and a separate form used to evaluate each ge between 0 and 100, with a score of 100 representing a stream of the
1	

Date 5-5-16 Evaluator's Signature Wills. & Vaugh This channel evaluation form is intended to be used only as a guide to assist landowners and environmental professionals in

#-	CHARACTERISTICS	ECOREG Constal	ION POINT		SCOR
1	THE PARTY OF THE PROPERTY OF THE PARTY OF TH	Coastal	"		<b>新班达</b> 特别
1	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0-5	0-4	0-5	5
2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0-6	0-5	0-5	2
3	(no buffer = 0; contiguous, wide buffer = max points)	0-6	0-4	0-5	3
4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	5
5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	3
6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	2
7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	3
8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0-6	0-4	0-2	2
9	Channel sinuosity  (extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	1
10	Sediment input  (extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0-4	5
11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	-
12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	5
13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	5
14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	3
15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	4
16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0 – 3	0-5	0-6	2
17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	2
18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	4
19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	-
20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	3
21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	C
22	Presence of fish  (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	L
23	Evidence of wildlife use  (no evidence = 0; abundant evidence = max points)	0-6	0-5	0-5	2
	Total Points Possible	100	100	100	

<sup>\*</sup> These characteristics are not assessed in coastal streams.

NC DWQ Stream Identification Form Version 4.11

SCMr003

Date: 5-5-16	Project/Site: A		Latitude: 34	878600	
Evaluator: ESI (WV, KM)	County: Cum	berland	Longitude: 7	3.788526	
Total Points: Stream is at least intermittent $26$ if $\geq 19$ or perennial if $\geq 30^*$	Stream Determin	nation (circle one) rmittent Perennia	Other Cedar Creek e.g. Quad Name:		
A. Geomorphology (Subtotal =)	Absent	Weak	Moderate	Strong	
1ª Continuity of channel bed and bank Cona	0	1	2	3	
2. Sinuosity of channel along thalweg	6	1	2	3	
In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	6	2	3	
Particle size of stream substrate	0	1	2	(3)	
5. Active/relict floodplain	0	0	2	3	
Depositional bars or benches	0	0	2	3	
7. Recent alluvial deposits	0	1	2	3	
8. Headcuts	6	1	2	3	
9. Grade control	8	0.5	1	1.5	
10. Natural valley	0	0.5	1	1.5	
11. Second or greater order channel		= 0	Yes:		
a artificial ditches are not rated; see discussions in manual	No		165	- 3	
B. Hydrology (Subtotal = 10.5)					
12. Presence of Baseflow	0	1	2	3	
13. Iron oxidizing bacteria	0	1	2	3)	
14. Leaf litter	1.5	1	(0.5)	0	
15. Sediment on plants or debris	(0)	0.5	1	1.5	
16. Organic debris lines or piles	0	0.5	0	1.5	
17. Soil-based evidence of high water table?	No	= 0	Yes:		
C. Biology (Subtotal = 9.5)					
18. Fibrous roots in streambed	3	(2)	1	0	
19. Rooted upland plants in streambed	3	2	1	0	
20. Macrobenthos (note diversity and abundance)	0	1	(2)	3	
21. Aquatic Mollusks	6	1	2	3	
22. Fish	0	0.5	1 .	(1.5)	
23. Crayfish	6)	0.5	1	1.5	
24. Amphibians	0	(0.5)	1	1.5	
25. Algae	(0)	0.5	1	1.5	
26. Wetland plants in streambed		FACW = 0.75; OBI	L = 1.5) Other = 0		
*perennial streams may also be identified using other metr	nods. See p. 35 of manual				
Notes: determined to be perennic likely captures groundwater year-r		to presence of	macrobenthes	; large can	
Sketch:  Wonrooze  Wonrooze	cmrdà3				

OHUM: 25 Bank width: 40 Ft.



Waterbody data point scmr003 facing east upstream.



Waterbody data point scmr003 facing west downstream.



Waterbody data point scmr003 facing south across bank.

USACE AID#	
COMCE HILL	

DWO	#		

Site =\_\_\_ (indicate on attached map) SCMr 002





Provide the following information fo		ider assessment:
1. Applicant's name: Dominid	1	2. Evaluator's name: FSI-15, MUPhrey
3. Date of evaluation: 5/2/16		4. Time of evaluation: 10130AM
5. Name of stream; UNT +0 Cap	e Fear River	6. Riverbasin: Cape Fear
7. Approximate drainage area: 500	acres	8. Stream order:
9. Length of reach evaluated: 50	F+	10. County: Cumberland
11. Site coordinates (if known): prefe Latitude (ex. 34.872312): 34.87	er in decimal degrees.	12. Subdivision name (if any): NA  Longitude (ex77.556611): -78.79425
Method location determined (circle): GP  13. Location of reach under evaluation  10 coxed West of to	Topo Sheet Onho (note nearby roads an	d landmarks and attach map identifying stream(s) location):
14. Proposed channel work (if any):	wposed pipe	eline
15. Recent weather conditions: Sal	na	
16. Site conditions at time of visit:	and stourbed	
17. Identify any special waterway clas	sifications known:	Section 10Tidal WatersEssential Fisheries Habitat
Trout WatersOutstanding F	Resource Waters	Nutrient Sensitive WatersWater Supply Watershed(I-IV)
18. Is there a pond or lake located ups	tream of the evaluation	point? YES NO If yes, estimate the water surface area:
		20. Does channel appear on USDA Soil Survey? (YES) NO
21. Estimated watershed land use:	10% Residential	% Commercial% Industrial 20% Agricultural
1)	70% Forested	% Cleared / Logged% Other ()
* (Top of Bank) 22. Bankfull width: 1264		23. Bank height (from bed to top of bank): 554
24. Channel slope down center of stre	am:Flat (0 to 2%	Gentle (2 to 4%)Moderate (4 to 10%)Steep (>10%)
		Frequent meanderVery sinuousBraided channel
location, terrain, vegetation, stream of to each characteristic within the ra- characteristics identified in the work characteristic cannot be evaluated di- comment section. Where there are of into a forest), the stream may be divi- reach. The total score assigned to a highest quality.	lassification, etc. Eve inge shown for the e sheet. Scores should ue to site or weather obvious changes in the ided into smaller reach stream reach must ra	rage 2): Begin by determining the most appropriate ecoregion based on my characteristic must be scored using the same ecoregion. Assign points ecoregion. Page 3 provides a brief description of how to review the reflect an overall assessment of the stream reach under evaluation. If a conditions, enter 0 in the scoring box and provide an explanation in the character of a stream under review (e.g., the stream flows from a pasture less that display more continuity, and a separate form used to evaluate each unge between 0 and 100, with a score of 100 representing a stream of the ments:
aquatic vegetation	OHWM.	
Evaluator's Signature Keir	marsone	Date_ 5/2/16
This channel evaluation form is it gathering the data required by t	he United States Ar o from the completi	nly as a guide to assist landowners and environmental professionals in my Corps of Engineers to make a preliminary assessment of stream on of this form is subject to USACE approval and does not imply out to change - version 06 03. To Comment, please call 919-876-8441 x 26.

#-	CHARACTERISTICS	ECOREG Coastal	ION POINT	Mountain,	SCOR
net !	11. 中,11. 11. 11. 11. 11. 11. 11. 11. 11. 11.	Coastal	Piedmont	Niountains	THE STATE OF
1	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0-5	0 – 4	0-5	3
2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0 – 6	0 - 5	0-5	1
3	(no buffer = 0; contiguous, wide buffer = max points)	0-6	0-4	0-5	2
4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	5
5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0=4	1
6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	1
7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	0
8	Presence of adjacent wetlands (no wetlands = 0, large adjacent wetlands = max points)	0-6	0-4	0-2	2
9	Channel sinuosity (extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	0
10	Sediment input (extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0-4	4
11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	_
12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	5
13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	5
14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	2
15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	2
16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0 – 3	0-5	0-6	
17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	2
18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	2
19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	-
20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	
21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	12
22	Presence of fish  (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	
23	Evidence of wildlife use  (no evidence = 0; abundant evidence = max points)	0-6	0-5	0-5	1
	Total Points Possible	100 *	100	100	

<sup>\*</sup> These characteristics are not assessed in coastal streams.

Date: 5/2/16	Project/Site: A	CP	Latitude: 34	.87/88	
Evaluator: ESI-K, Markham, K, Murantey	County: cumberland		Longitude: -78.79429		
Total Points: Stream is at least intermittent if ≥ 19 or perennial if ≥ 30*		nation (circle one) mittent Perennial	Other Cedar Creek e.g. Quad Name:		
A. Geomorphology (Subtotal = 7.5)	Absent	Weak	Moderate	Strong	
1ª. Continuity of channel bed and bank dit Ch	0	1	2	3	
2. Sinuosity of channel along thalweg	0	(1)	2	3	
In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	0	2	3	
4. Particle size of stream substrate	0	1	2	(3)	
5. Active/relict floodplain	0	1	(2)	3	
6. Depositional bars or benches	(6)	1	2	3	
7. Recent alluvial deposits	0	1	2	3	
B. Headcuts	0	1	2	3	
9. Grade control	0	0.5	1	1.5	
10. Natural valley	0	(0.5)	1	1.5	
11. Second or greater order channel		(0.5) ≠ (0.5)	1 Yes		
11. Second or greater order channel  artificial ditches are not rated; see discussions in manual					
11. Second or greater order channel					
11. Second or greater order channel  artificial ditches are not rated; see discussions in manual  B. Hydrology (Subtotal =)  12. Presence of Baseflow	No	<b>₹</b> 0)	Yes	= 3	
11. Second or greater order channel  artificial ditches are not rated; see discussions in manual  B. Hydrology (Subtotal =)	0 0	1	Yes 2	= 3	
11. Second or greater order channel  artificial ditches are not rated; see discussions in manual B. Hydrology (Subtotal =	No No	1 1 1	2 2	3 3	
11. Second or greater order channel  artificial ditches are not rated; see discussions in manual B. Hydrology (Subtotal =	0 0 0 1.5	1 1	2 2 0.5	3 3 0	
11. Second or greater order channel  artificial ditches are not rated; see discussions in manual B. Hydrology (Subtotal =	0 0 0 1.5 0	1 1 1 0.5)	2 2 0.5	3 3 0 1.5 1.5	
11. Second or greater order channel  artificial ditches are not rated; see discussions in manual B. Hydrology (Subtotal =	0 0 0 1.5 0	1 1 1 (0.5) 0.5	2 2 0.5 1	3 3 0 1.5 1.5	
11. Second or greater order channel  artificial ditches are not rated; see discussions in manual B. Hydrology (Subtotal =	0 0 0 1.5 0	1 1 1 (0.5) 0.5	2 2 0.5 1	3 3 0 1.5 1.5	
11. Second or greater order channel  artificial ditches are not rated; see discussions in manual B. Hydrology (Subtotal =	0 0 1.5 0 0 No	1 1 1 (0.5) 0.5 = 0	2 2 0.5 1 Yes	3 3 0 1.5 1.5	
11. Second or greater order channel  artificial ditches are not rated; see discussions in manual B. Hydrology (Subtotal =	0 0 0 1.5 0 0 No	1 1 1 0.5 0.5 = 0	2 2 0.5 1 Yes	3 3 0 1.5 1.5 43	
11. Second or greater order channel  artificial ditches are not rated; see discussions in manual B. Hydrology (Subtotal =	0 0 1.5 0 0 No	1 1 1 0.5 0.5 = 0	2 0.5 1 (1) Yes	3 3 0 1.5 1.5 (3)	
11. Second or greater order channel  artificial ditches are not rated; see discussions in manual B. Hydrology (Subtotal =	0 0 1.5 0 No No No	1 1 1 (0.5) 0.5 = 0	2 0.5 1 1 1 1 2	3 3 0 1.5 1.5 (3)	
11. Second or greater order channel  artificial ditches are not rated; see discussions in manual B. Hydrology (Subtotal =	0 0 1.5 0 0 No No (3) (3) (3) (0)	1 1 1 (0.5) 0.5 = 0	2 0.5 1 1 1 2 2	3 3 0 1.5 1.5 3 0 0 0 3 3 1.5 1.5	
11. Second or greater order channel  artificial ditches are not rated; see discussions in manual B. Hydrology (Subtotal =	0 0 1.5 0 0 No No (3) (3) (3) (0) (0) (0)	1 1 1 (0.5) 0.5 = 0	2 0.5 1 1 1 2 2	3 3 0 1.5 1.5 3 0 0 0 3 3 3 1.5	
11. Second or greater order channel  artificial ditches are not rated; see discussions in manual B. Hydrology (Subtotal =	0 0 1.5 0 0 No No (3) (3) (0) (0)	1 1 1 0.5 0.5 = 0 2 2 2 (1) 1 0.5 0.5	2 0.5 1 1 2 2 2 1 1 1 1	3 3 0 1.5 1.5 1.5 3 3 1.5 1.5 (1.5)	

Sketch:

OHWM Width: TOP OF BANK Width: 12F+



Waterbody data point scmr002 facing northeast upstream.



Waterbody data point scmr002 facing southwest downstream.



Waterbody data point scmr002 facing northwest across bank.

77 (27.5)			
DH	0	=	

Site =	(indicate	on	anached	map
	50.00	_	201	





Provide the following information for the stream reach under assessment: 2. Evaluator's name: EST-ISMURPHREY 1. Applicant's name: Dominion 3. Date of evaluation: 5/2/16 4. Time of evaluation: O:OOAM 6. Riverbasin: Cape Fear 5. Name of stream: UNT to case Fear Rive 7. Approximate drainage area: O acres 8. Stream order: 9. Length of reach evaluated: SOF 11. Site coordinates (if known): prefer in decimal degrees. 12. Subdivision name (if any): NA 1.atitude (ex. 34.872312): 34, 87795 Longitude (ex. -77.556611): -78.79617 Method location determined (circle): GPS Topo Sheet Ortho (Aerial) Photo/GIS Other GIS Other 13. Location of reach under evaluation (note nearby roads and landmarks and attach map identifying stream(s) location):\_\_\_\_\_ of Tabor Church Rd 1 ocated WOST. 14. Proposed channel work (if any): Purosed Pipeline 15. Recent weather conditions: Sunny 16. Site conditions at time of visit: Und i Starbed Tidal Waters \_\_\_\_Essential Fisheries Habitat 17. Identify any special waterway classifications known: Section 10 \_\_\_Trout Waters \_\_\_Outstanding Resource Waters \_\_\_ Nutrient Sensitive Waters \_\_\_ Water Supply Watershed \_\_\_ (I-IV) 18. Is there a pond or lake located upstream of the evaluation point? YES (NO) If yes, estimate the water surface area:\_\_\_\_\_\_ 20. Does channel appear on USDA Soil Survey? YES (NO) 19. Does channel appear on USGS quad map? YES (NO) % Commercial % Industrial 20% Agricultural 21. Estimated watershed land use: (0% Residential 70% Forested \_\_\_% Cleared / Logged \_\_\_% Other (\_\_\_\_ \* (Top of Bank) 22. Bankfull width: 884 23. Bank height (from bed to top of bank): 24. Channel slope down center of stream: \_\_\_Flat (0 to 2%) \_\_\_\_Gentle (2 to 4%) \_\_\_\_Moderate (4 to 10%) \_\_\_\_Steep (>10%) 25. Channel sinuosity: VStraight Occasional bends Frequent meander Very sinuous Braided channel Instructions for completion of worksheet (located on page 2): Begin by determining the most appropriate ecoregion based on location, terrain, vegetation, stream classification, etc. Every characteristic must be scored using the same ecoregion. Assign points to each characteristic within the range shown for the ecoregion. Page 3 provides a brief description of how to review the characteristics identified in the worksheet. Scores should reflect an overall assessment of the stream reach under evaluation. If a characteristic cannot be evaluated due to site or weather conditions, enter 0 in the scoring box and provide an explanation in the comment section. Where there are obvious changes in the character of a stream under review (e.g., the stream flows from a pasture into a forest), the stream may be divided into smaller reaches that display more continuity, and a separate form used to evaluate each reach. The total score assigned to a stream reach must range between 0 and 100, with a score of 100 representing a stream of the highest quality. Total Score (from reverse): 39 Comments: Evaluator's Signature Meure Monthe This channel evaluation form is intended to be used only as a guide to assist landowners and environmental professionals in gathering the data required by the United States Army Corps of Engineers to make a preliminary assessment of stream quality. The total score resulting from the completion of this form is subject to USACE approval and does not imply a particular mitigation ratio or requirement. Form subject to change - version 06 03. To Comment, please call 919-876-8441 x 26.

11	CHARACTERISTICS	Control of the last of the las	ION POINT	ALCOHOLOGY AND ADMINISTRATION OF THE PROPERTY AND ADMINISTRATION OF THE PARTY AND ADMINISTRATI	SCOR
# 1		Coastal	Piedmont :	Mountain	
1	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0 – 5	0-4	0-5	2
2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0 - 6	0-5	0 – 5	/
3	Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	0-6	0-4	0-5	3
4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	6 0-4	0-4	5
5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	0
6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	<u>C</u>
7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0 – 5	0-4	0-2	C
8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0 – 6	0-4	0-2	(
9	Channel sinuosity (extensive channelization = 0; natural meander = max points)	0 – 5	0-4	0-3	C
10	Sediment input  (extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0-4	5
11	Size & diversity of channel bed substrate (fine, homogenous = 0, large, diverse sizes = max points)	NA*	0-4	0-5	
12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	L
13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	5
14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0 – 4	0-5	3
15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	0
16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0-6	1
17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	
18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	2
19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	-
20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	(
21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	C
22	Presence of fish  (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	0
23	Evidence of wildlife use	0-6	0-5	0-5	1
	Total Points Possible	: 100	100	100	

<sup>\*</sup> These characteristics are not assessed in coastal streams.

NC DWQ Stream Identification Form Version 4.11

Date: 5/2/16	Project/Site: ACP	Latitude: 34, 87795
Evaluator: ESI-15, MUPGIEM	County: Cambelland	Longitude: -78,79617
Total Points: Stream is at least intermittent if ≥ 19 or perennial if ≥ 30*	Stream Determination (circle one) Ephemeral Intermittent Perennial	Other Cedar Creeks e.g. Quad Name:

if $\geq$ 19 or perennial if $\geq$ 30*			,	
A. Geomorphology (Subtotal = 5, 5)	Absent	Weak	Moderate	Strong
1ª. Continuity of channel bed and bank dit Ch	0	1	2	3
Sinuosity of channel along thalweg	0	(1)	2	3
In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1)	2	3
Particle size of stream substrate	0	1	2	(3)
5. Active/relict floodplain	(0)	1	2	3
6. Depositional bars or benches	0	1	2	3
7. Recent alluvial deposits	0	1	2	3
8. Headcuts	(0)	1	2	3
9. Grade control	(0)	0.5	1	1.5
10. Natural valley	0	(0.5)	1	1.5
11. Second or greater order channel	No	<b>₹</b> 0 )	Yes:	= 3
a artificial ditches are not rated; see discussions in manual  B. Hydrology (Subtotal = <u></u> <u> </u>				
12. Presence of Baseflow	0	1	(2)	3
13. Iron oxidizing bacteria	0	1	(2)	3
14. Leaf litter	1.5	(1)	0.5	0
15. Sediment on plants or debris	(0)	0.5	1	1.5
16. Organic debris lines or piles	0	(0.5)	1	1.5

12. I reserve or paserior				Control of the second
13. Iron oxidizing bacteria	0	1,	(2)	3
14. Leaf litter	1.5	(1)	0.5	0
15. Sediment on plants or debris	(0)	0.5	1	1.5
16. Organic debris lines or piles	0	(0.5)	1	1.5
17. Soil-based evidence of high water table?	N	0 = 0	Yes	€3)
C. Biology (Subtotal =				,
18. Fibrous roots in streambed	(3)	2	1	0
19 Rooted unland plants in streamhed	(3)	2	1	0

10. I Ibious foots in streambed	1 0	-		•
19. Rooted upland plants in streambed	(3)	2	1	0
20. Macrobenthos (note diversity and abundance)	0	(1)	2	3
21. Aquatic Mollusks	(0)	1	2	3
22. Fish	(0)	0.5	1	1.5
23. Crayfish	(0)	0.5	1	1.5
24. Amphibians	(0)	0.5	1	1.5
25. Algae	(0)	0.5	1	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 Other € 0			
	THE RESERVE AND ADDRESS OF THE PARTY OF THE	THE RESIDENCE OF THE PERSON NAMED IN COLUMN 2 IS NOT THE OWNER.		

2 scmr 001

\*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes:

Sketch:

OHWM widta: 48+ TOP OF BONK Width: 88+



Waterbody data point scmr001 facing north upstream.



Waterbody data point scmr001 facing south downstream.



Waterbody data point scmr001 facing west across bank.

USACE	AID#	

-		0	11
D	W	U	77

Site if (illulcate oil attached like	Site #	(indicate of	on attached ma
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5cmp 048

# 191

## STREAM QUALITY ASSESSMENT WORKSHEET



(Commissional)	
Provide the following information for the stream reach un	요즘 가장 하나 있는 것이 하는 것이 하는 것이 하는 것이 없는 것이다.
1. Applicant's name: Daminion	2. Evaluator's name: ESI- J. Habour, K. Murphrey
3. Date of evaluation: 3/30/16	4. Time of evaluation: 1 PM
5. Name of stream: UNT to Cape Fear River	6. River basin: Cape Fear
7. Approximate drainage area: 120 acres	8. Stream order: 152
9. Length of reach evaluated: 300 Ft.	10. County: Cumberland
11. Site coordinates (if known): prefer in decimal degrees.	12. Subdivision name (if any): NA
Latitude (ex. 34.872312): 34. 87930	Longitude (ex77.556611); -78.80189
Method location determined (circle): GPS Topo Sheet Ortho (13. Location of reach under evaluation (note nearby roads and	
East of Matt Hair Road	AND AND COMPANY AND SOCIETY OF THE COMPANY OF THE C
14. Proposed channel work (if any): Proposed P: Pel	ine
15. Recent weather conditions: SUMMY	APROPERTY - SERVICES, Design of the Control of the
16. Site conditions at time of visit: Man-made ditch	; crosses existing powerline easement
	Section 10Tidal WatersEssential Fisheries Habitat
Trout WatersOutstanding Resource Waters	Nutrient Sensitive Waters Water Supply Watershed (I-IV)
18. Is there a pond or lake located upstream of the evaluation	point? YES NO If yes, estimate the water surface area:
19. Does channel appear on USGS quad map YES NO	20. Does channel appear on USDA Soil Survey? YES NO
21. Estimated watershed land use:% Residential	% Commercial% Industrial% Agricultural
90 % Forested	0 % Cleared / Logged% Other (
22. Bankfull width: 4 ft.	23. Bank height (from bed to top of bank): 3 ft.
24. Channel slope down center of stream: Flat (0 to 2%)	Gentle (2 to 4%)Moderate (4 to 10%)Steep (>10%)
25. Channel sinuosity:StraightOccasional bends	Frequent meanderVery sinuousBraided channel
location, terrain, vegetation, stream classification, etc. Every to each characteristic within the range shown for the eccharacteristics identified in the worksheet. Scores should recharacteristic cannot be evaluated due to site or weather cocomment section. Where there are obvious changes in the clinto a forest), the stream may be divided into smaller reaches	ge 2): Begin by determining the most appropriate ecoregion based on characteristic must be scored using the same ecoregion. Assign points pregion. Page 3 provides a brief description of how to review the effect an overall assessment of the stream reach under evaluation. If a anditions, enter 0 in the scoring box and provide an explanation in the character of a stream under review (e.g., the stream flows from a pasture that display more continuity, and a separate form used to evaluate each the between 0 and 100, with a score of 100 representing a stream of the
Total Score (from reverse): 38 Comme	ents: Starts AND Stops IN COVIDE
Evaluator's Signature Klein Muntines	Date 3/30/16
This channel evaluation form is intended to be used only	as a guide to assist landowners and environmental professionals in Corps of Engineers to make a preliminary assessment of stream

quality. The total score resulting from the completion of this form is subject to USACE approval and does not imply a particular mitigation ratio or requirement. Form subject to change – version 06/03. To Comment, please call 919-876-8441 x 26.

No.		CHADACTEDICTICS	ECOREC	ION POINT	RANGE	SCORI
	#	CHARACTERISTICS	Coastal	Piedmont	Mountain	SCORI
	1	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0-5	0-4	0-5	1
	2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0-6	0-5	0-5	5
	3	Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	0-6	0-4	0-5	4
	4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	4
	5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0 – 3	0-4	0-4	2
	6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	0
	7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	1 1
	8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0-6	0-4	0-2	3
1	9	Channel sinuosity (extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	0
2007	10	Sediment input (extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0-4	0
	11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	_
1	12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	3
and the state of the second special state of the state of	13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	3
	14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	2
1,475	15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	2
	16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0-6	0
	17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	2
distribution of the second	18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	4
P. Section	19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	-
2000	20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	0
Property of the Control of the Contr	21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	0
- Control	22	Presence of fish (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	0
0.00000	23	Evidence of wildlife use (no evidence = 0; abundant evidence = max points)	0-6	0-5	0-5	2
		Total Points Possible	100	100	100	
27.4		TOTAL SCORE (also enter on fi	rst page)	NAME OF	STATE OF THE STATE	35

<sup>\*</sup> These characteristics are not assessed in coastal streams.

NC DWQ Stream Identification Form Version 4.11

Scmp048 Latitude: 34, 87930 Project/Site: ACP Date: county: Cumberland Longitude: -78, 80189 Evaluator: ESI - J. Harbour, K. Murphrey Total Points: Stream is at least intermittent Other Stream Determination (circle one) 13.5

A. Geomorphology (Subtotal = 3.5)	Absent	Weak	Moderate	Strong
a. Continuity of channel bed and bank ditch	0	1	2	3
2. Sinuosity of channel along thalweg	0	(1)	2	3
In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	2	3
4. Particle size of stream substrate	0	1	(2)	3
5. Active/relict floodplain	0	1	2	3
6. Depositional bars or benches	(0)	1	2	3
7. Recent alluvial deposits	(0)	1	2	3
8. Headcuts	(0)	1	2	3
9. Grade control	0	0.5	1	1.5
10. Natural valley	0	0.5	1	1.5
11. Second or greater order channel	No	<del>=</del> 0)	Yes	= 3
artificial ditches are not rated; see discussions in manual				
B. Hydrology (Subtotal = 5)		as Mine Coupe	security many of the publication	
12. Presence of Baseflow	0	1) -	2	3
13. Iron oxidizing bacteria	(6)	1	2	3
14. Leaf litter	1.5	1	(0.5)	0
15. Sediment on plants or debris	(0)	0.5	1	1.5
16. Organic debris lines or piles	0	(0.5)	1	1.5
17. Soil-based evidence of high water table?	No	0 = 0	Yes	=3)
C. Biology (Subtotal = 5				
18. Fibrous roots in streambed	3	2	1	0
19. Rooted upland plants in streambed	(3)	2	1	0
20. Macrobenthos (note diversity and abundance)	(0)	1	2	3
21. Aquatic Mollusks	(0)	1	2	3
22. Fish	(0)	0.5	1	1.5
23. Crayfish	(0)	0.5	1	1.5
24. Amphibians	(0)	0.5	1	1.5
25. Algae	(0)	0.5	1	1.5
26. Wetland plants in streambed		FACW = 0.75;	OBL = 1.5 Other =	0)
*perennial streams may also be identified using other met	hods. See p. 35 of manua	ıl.		
Notes:				
Sketch:	7.1	-		
ww	10464	1		
	1/		110 TO 12 TO	

OHWM Width: 2 8+

TOP OF Bank Width: 45+



Waterbody scmp048 facing west upstream.



Waterbody scmp048 facing east downstream.



Waterbody scmp048 facing southeast across bank.

USACE	AID#	
USACE	AID#_	

DILLO		
DWO#		

Site	#	(indicate	on	attached	mai
one	17	(marcate	OII	attacheu	11114

scmp045



Provide the following information for the stream reach un	der assessment:
1. Applicant's name: Dominion	2. Evaluator's name: EST-J. Harbour, K. Multhrey
3. Date of evaluation: 3/30/16	4. Time of evaluation: 9:20AM
5. Name of stream: UNT to Cape Fear River	6. River basin: COPE FEON
7. Approximate drainage area: 300 acces	8. Stream order: 2nd
9. Length of reach evaluated: 50 64	10. County: Cumperion à
11. Site coordinates (if known): prefer in decimal degrees.	12. Subdivision name (if any): MA
Latitude (ex. 34.872312): 34, 87986	Longitude (ex77.556611): -78.80797
Method location determined (circle): GPS Topo Sheet Ortho  13. Location of reach under evaluation (note nearby roads and	
Between Matt Hair Road and Cape Fear	River
14. Proposed channel work (if any): Proposed Pipeli	ne
15. Recent weather conditions: SUANU	Philipping and the Experimental State of the Control of the Contro
16. Site conditions at time of visit: Stream crosses ex	isting power ( ne easement
17. Identify any special waterway classifications known:	Section 10Tidal WatersEssential Fisheries Habitat
Trout WatersOutstanding Resource Waters	_ Nutrient Sensitive WatersWater Supply Watershed(I-IV)
18. Is there a pond or lake located upstream of the evaluation	point? YES NO If yes, estimate the water surface area:
	20. Does channel appear on USDA Soil Survey? (YES) NO
21. Estimated watershed land use:% Residential	% Commercial% Agricultural% Agricultural
	76 % Cleared / Logged% Other (
22. Bankfull width: 14 &+	23. Bank height (from bed to top of bank):
24. Channel slope down center of stream:Flat (0 to 2%)	✓ Gentle (2 to 4%)Moderate (4 to 10%)Steep (>10%)
25. Channel sinuosity:StraightOccasional bends	Frequent meanderVery sinuousBraided channel
location, terrain, vegetation, stream classification, etc. Every to each characteristic within the range shown for the eccharacteristics identified in the worksheet. Scores should recharacteristic cannot be evaluated due to site or weather cocomment section. Where there are obvious changes in the cinto a forest), the stream may be divided into smaller reaches	ge 2): Begin by determining the most appropriate ecoregion based on characteristic must be scored using the same ecoregion. Assign points pregion. Page 3 provides a brief description of how to review the effect an overall assessment of the stream reach under evaluation. If a ponditions, enter 0 in the scoring box and provide an explanation in the character of a stream under review (e.g., the stream flows from a pasture as that display more continuity, and a separate form used to evaluate each ge between 0 and 100, with a score of 100 representing a stream of the

Date 3/30/16 Evaluator's Signature Kelly Muther

This channel evaluation form is intended to be used only as a guide to assist landowners and environmental professionals in gathering the data required by the United States Army Corps of Engineers to make a preliminary assessment of stream quality. The total score resulting from the completion of this form is subject to USACE approval and does not imply a particular mitigation ratio or requirement. Form subject to change - version 06/03. To Comment, please call 919-876-8441 x 26.

	CHADA CEDICALCO		ECOREGION POINT RANGE		
#	CHARACTERISTICS	Coastal	Piedmont	Mountain	SCORE
1	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0 – 5	0-4	0-5	4
2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0-6	0-5	0-5	4
3	Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	0-6	0-4	0-5	4
4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	4
5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	0
5 6 7	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	1
7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	2
8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0-6	0-4	0-2	0
9	Channel sinuosity (extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	2
10	Sediment input (extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0-4	3
11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	-
12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	3
12 13 14	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	4
14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	
15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	3
16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0-6	18180 × 32
17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	4
17 18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	3
19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	
20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	
21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	0
21	Presence of fish (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	0
23	Evidence of wildlife use (no evidence = 0; abundant evidence = max points)	0-6	0-5	0-5	4
la sal	Total Points Possible	100	100	100	
	TOTAL SCORE (also enter on fi	rst page)			48

<sup>\*</sup> These characteristics are not assessed in coastal streams.

Project/Site: A			
		Latitude: 34.8798 Longitude: -78.807	
County: Cum	berland		
Stream Determin Ephemeral Inter	nation (circle one) mittent (Perennial	Other Ced e.g. Quad Name:	er Creek, NC
Absent	Weak	Moderate	Strong
			(3)
			3
0	1	2	3
0	1	2	(3)
	(1)	2	3
	1	2	3
100			3
300			3
			1.5
		200	1.5
110			
Print Colonia China and Print Colonia Colonia Colonia			
0	1	2	(3)
0	(1)	2	3
1.5		0.5	0
		1	1.5
0	0.5		1.5
No	= 0	Yes	€3)
(3)	2	1	0
(3)	2	1	0
0	(1)	2	3
(0)	Ĭ I	2	3
0	0.5	1	1.5
(0)	0.5	1	1.5
0	0.5	1	1.5
0	0.5)	1	1.5
	FACW = 0.75) OB	L = 1.5 Other = 1	Ď.
ds. See p. 35 of manua			
15	—Matt Hair (	Road	
	Stream Determine Ephemeral Inter	Stream Determination (circle one)   Ephemeral Intermittent   Perennial	Stream Determination (circle one)



Waterbody scmp045 facing northeast upstream.



Waterbody scmp045 facing southwest downstream.



Waterbody scmp045 facing east across bank.

USACE	AID#	
A - A A	2 8 8 8-7	

DWQ	#		

Site #	(indicate	on	attach	ned map
		5	cmp	046





D. I. d. f. H. in information for the street reach up	donassesment
Provide the following information for the stream reach un	2. Evaluator's name: ESI - J. Harbow, K. Murphrey
1. Applicant's name: Dominion	4. Time of evaluation: 10:15 AM
3. Date of evaluation: 3/30/16	: >
5. Name of stream: UNT to Cape Fear River	6. River basin: Cape Fear  8. Stream order: 2nd
7. Approximate drainage area: 1,800 acres	
9. Length of reach evaluated: 300 Ft.	10. County: Cumberland
11. Site coordinates (if known): prefer in decimal degrees.	12. Subdivision name (if any): N/A
- BUNG HERBERT STOP HER HOUSE HERBERT STOP HER BUNG HER BUNG HER BUNG HERBERT HERBE	Longitude (ex77.556611): -78,81162
Method location determined (circle): GPS Topo Sheet Ortho  13. Location of reach under evaluation (note nearby roads and	landmarks and attach map identifying stream(s) location):
Between Matt Hair Road and Cape Few	River
14. Proposed channel work (if any): Proposed pipelin	C C
15. Recent weather conditions: Sunny	Others many and stream and assess of the more reason. The
16. Site conditions at time of visit: stream crosses en	3 thy powerline easement
	Section 10Tidal WatersEssential Fisheries Habitat
Trout WatersOutstanding Resource Waters	Nutrient Sensitive WatersWater Supply Watershed(I-IV)
18. Is there a pond or lake located upstream of the evaluation	
19. Does channel appear on USGS quad map? YES NO	20. Does channel appear on USDA Soil Survey? YES NO
	% Commercial% Agricultural% Agricultural
	26 % Cleared / Logged % Other (
22. Bankfull width: 7 F+	
	Gentle (2 to 4%)Steep (>10%)
	Frequent meanderVery sinuousBraided channel
location, terrain, vegetation, stream classification, etc. Every to each characteristic within the range shown for the ecc characteristics identified in the worksheet. Scores should recharacteristic cannot be evaluated due to site or weather co comment section. Where there are obvious changes in the clinto a forest), the stream may be divided into smaller reaches	characteristic must be scored using the same ecoregion. Assign points oregion. Page 3 provides a brief description of how to review the effect an overall assessment of the stream reach under evaluation. If a nditions, enter 0 in the scoring box and provide an explanation in the haracter of a stream under review (e.g., the stream flows from a pasture that display more continuity, and a separate form used to evaluate each the between 0 and 100, with a score of 100 representing a stream of the ents:
Main merella a ell	Date 3/30/16
Evaluator's Signature 7000 Jimbro	Date 3/30//6

This channel evaluation form is intended to be used only as a guide to assist landowners and environmental professionals in gathering the data required by the United States Army Corps of Engineers to make a preliminary assessment of stream quality. The total score resulting from the completion of this form is subject to USACE approval and does not imply a particular mitigation ratio or requirement. Form subject to change – version 06/03. To Comment, please call 919-876-8441 x 26.

		CHADACTEDISTICS		ECOREGION POINT RANGE		
	#	CHARACTERISTICS	Coastal	Piedmont	Mountain	SCORE
	1	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0-5	0-4	0-5	5
700000	2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0-6	0-5	0-5	4
	3	Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	0-6	0-4	0-5	3
	4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	4
74	5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	2
LITSICAL	6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	2
	7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	2
	8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0-6	0-4	0-2	3
	9	Channel sinuosity (extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	4
2000	10	Sediment input (extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0-4	2
	11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	1,018
The second	12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	3
STABILITY	13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	3
ADI	14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	1
2	15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	4
in Selection of	16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0-6	3
BIIAI	17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	4
HABI	18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	2
	19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	THE ROOM
	20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	2
3	21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	0
BIOLOGY	22	Presence of fish (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	0
9	23	Evidence of wildlife use (no evidence = 0; abundant evidence = max points)	0-6	0-5	0-5	4
	71 1 86	Total Points Possible	100	100	100	
47.4		TOTAL SCORE (also enter on fi	rst page)			57

<sup>\*</sup> These characteristics are not assessed in coastal streams.

scmp 046

Project/Site: ACP Latitude: 34.88021
184 County: Camberland Longitude: -78.81162
Stream Determination (circle one) Ephemeral Intermittent Perennial  Other Codor Creck, NC e.g. Quad Name:
Absent Weak Moderate Strong
0 1 2 3
0 1 2 3
0 1 2 3
0 1 2 3
0 1 2 3
(0) 1 2 3
0 1 2 3
0 0 2 3
0 0.5 1 1.5
0 0.5 1 1.5
No = 0 Yes =(3)
nual
0 1 2 3
0 1 2 3
(1.5) 1 0.5 0
0 0,5 1 1.5
0 0.5 (1) 1.5
No = 0 Yes = 3
3 2 1 0
3 2 1 0
0 (1) 2 3
(0) 1 2 3
(0) 0.5 1 1.5
(0) 0.5 1 1.5
0 0.5 1 1.5
0.5 1 1.5
FACW = 0.75; OBL = 1.5 Other = 0
r methods. See p. 35 of manual.
смр046

OHWM Width: 6 TOP OF BONE WIDTH: 7 F+



Waterbody scmp046 facing northwest upstream.



Waterbody scmp046 facing east downstream.



Waterbody scmp046 facing northeast across bank.

USACE AID#	DWQ #		Site # (indicat	e on attached map)
STRE	EAM QUALITY A	ASSESSMENT WO	RKSHEET	
Provide the following information	for the stream reach un			
1. Applicant's name: Dominion		2. Evaluator's name: \(\sigma\)	HArbour	
3. Date of evaluation: 3/30/16	- AND -	4. Time of evaluation: 1		
5. Name of stream: UNT to Cape	Fear River	6. River basin: Cape	Fear	
7. Approximate drainage area: 3		8. Stream order: 2nd		
9. Length of reach evaluated: 5	0 "	10. County: Cumber	eland	
11. Site coordinates (if known): p	refer in decimal degrees.	12. Subdivision name (if		
Latitude (ex. 34.872312): 34,880	64	Longitude (ex77.556611)	- 78.81453	
Method location determined (circle):  13. Location of reach under evaluat  East side of Cape Fear	ion (note nearby roads and	(Aerial) hoto/GIS Other GI Handmarks and attach map	S Otheridentifying stream(s) lo	ocation):
14. Proposed channel work (if any):	Proposet pipeline		SE AT IN FEMALES	17
15. Recent weather conditions:	Clear, Sunny		eta goli, e zaspa	
16. Site conditions at time of visit:_	channel crosses	existing powerline	e easement	
17. Identify any special waterway c	lassifications known:	Section 10Tida	l WatersEsser	ntial Fisheries Habitat
Trout WatersOutstandin	g Resource Waters	_ Nutrient Sensitive Waters	Water Supply W	atershed TT(I-IV)
18. Is there a pond or lake located u	pstream of the evaluation	point? YES NO If yes, e	stimate the water surfa	ce area:
19. Does channel appear on USGS	quad map? YES NO	20. Does channel appear	on USDA Soil Survey	? YES NO
21. Estimated watershed land use:	% Residential	% Commercial	5 % Industrial	% Agricultural
	75 % Forested	26 % Cleared / Logged	% Other (	
22. Bankfull width: 65 ft. e	estimated (flooded)	23. Bank height (from be	ed to top of bank):	5 ft.
24. Channel slope down center of st	ream: Flat (0 to 2%)	Gentle (2 to 4%)	_Moderate (4 to 10%)	Steep (>10%)
25 Channel sinussity: Straigh	t Vocasional bends	Frequent meander	Very sinuous	Braided channel

I 1

2

2 2

Instructions for completion of worksheet (located on page 2): Begin by determining the most appropriate ecoregion based on location, terrain, vegetation, stream classification, etc. Every characteristic must be scored using the same ecoregion. Assign points to each characteristic within the range shown for the ecoregion. Page 3 provides a brief description of how to review the characteristics identified in the worksheet. Scores should reflect an overall assessment of the stream reach under evaluation. If a characteristic cannot be evaluated due to site or weather conditions, enter 0 in the scoring box and provide an explanation in the comment section. Where there are obvious changes in the character of a stream under review (e.g., the stream flows from a pasture into a forest), the stream may be divided into smaller reaches that display more continuity, and a separate form used to evaluate each reach. The total score assigned to a stream reach must range between 0 and 100, with a score of 100 representing a stream of the highest quality.

Total Score (from reverse): Comments:

Evaluator's Signature \_ < This channel evaluation form is intended to be used only as a guide to assist landowners and environmental professionals in

gathering the data required by the United States Army Corps of Engineers to make a preliminary assessment of stream quality. The total score resulting from the completion of this form is subject to USACE approval and does not imply a particular mitigation ratio or requirement. Form subject to change - version 06/03. To Comment, please call 919-876-8441 x 26.

			ECOREG	ECOREGION POINT RANGE		
	#	CHARACTERISTICS	Coastal	Piedmont	Mountain	SCORE
	1	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0-5	0-4	0-5	5
	2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0-6	0-5	0-5	4
	3	Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	0-6	0-4	0-5	5
	4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	3
AL	5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	3
PHYSICAL	6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	3
	7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	3
	8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0-6	0-4	0-2	3
	9	Channel sinuosity (extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	2
	10	Sediment input (extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0-4	2
	11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	-
Year	12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	4
SIABILITY	13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	3
IAB	14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	3
2	15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	4
S. D. Spiles	16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0-6	0
А	17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	4
HABITAL	18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	4
1	19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	No.
/	20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	1
BIOLOGY	21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	1.
	22	Presence of fish  (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	2
H	23	Evidence of wildlife use (no evidence = 0; abundant evidence = max points)	0-6	0-5	0-5	4
10000		Total Points Possible	100	100	100	
		Total Points Possible  TOTAL SCORE (also enter on fi		1	00	00 100

<sup>\*</sup> These characteristics are not assessed in coastal streams.

NC DWO Stream Identification Form Version 4.11

Date: 3/30/16	Project/Site: ACP	Latitude: 34, 88064
Evaluator: ESI-J. Harbour, K. Mulehren	, county: Cumberland	Longitude: -78.81453
Total Points: Stream is at least intermittent if $\geq$ 19 or perennial if $\geq$ 30*	Stream Determination (circle one) Ephemeral Intermittent (Perennial)	Other Cedar Creek, NC e.g. Quad Name:

A. Geomorphology (Subtotal = 13.5)	Absent	Weak	Moderate	Strong
1ª. Continuity of channel bed and bank	0	1	2	3
2. Sinuosity of channel along thalweg	0	(1)	2	3
In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	2	3
4. Particle size of stream substrate	0	1	2	(3)
5. Active/relict floodplain	0	0	2	3
6. Depositional bars or benches	(0)	1	2	3
7. Recent alluvial deposits	(0)	1	2	3
8. Headcuts	(0)	1	2	3
9. Grade control	0	0.5	(1)	1.5
10. Natural valley	0	0.5	(1)	1.5
11. Second or greater order channel	No	= 0	Yes	=(3)
A us to the total and the second	and the second s		and the same of th	

artificial ditches are not rated; see discussions in manual

B. Hydrology (Subtotal = _ ろ, つ _ )			al a diezezenbytenko	
12. Presence of Baseflow	0	1	2	(3)
13. Iron oxidizing bacteria	(0)	1	2	3
14. Leaf litter	(1.5)	1	0.5	0
15. Sediment on plants or debris	0	0.5	1	1.5
16. Organic debris lines or piles	0	0.5	(1)	1.5
17. Soil-based evidence of high water table?	No = 0		Yes =(3	
C. Biology (Subtotal = 8 )				

C. Biology (Subtotal = 8 )					
18. Fibrous roots in streambed	(3.)	2	1	0	
19. Rooted upland plants in streambed	(3)	2	1	0	
20. Macrobenthos (note diversity and abundance)	0	(1)	2	3	
21. Aquatic Mollusks	0	1	2	3	
22. Fish	0	0.5	(I)	1.5	
23. Crayfish	0	0.5	1	1.5	
24. Amphibians	(0)	0.5	1	1.5	
25. Algae	(0)	0.5	1	1.5	
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 Other $\neq 0$				

\*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes:

Sketch:

con school & date ch

OHWM width: 60 (est.) - flooded TOP OF Benk width: 65ft



Waterbody scmp047 facing east upstream (3/30/2016).



Waterbody scmp047 facing west downstream (3/30/2016).



Waterbody scmp047 facing north across bank (3/30/2016).



Waterbody data point scmp047 facing north upstream (9/19/2016).



Waterbody data point scmp047 facing south downstream (9/19/2016).



Waterbody data point scmp047 facing east across bank (9/19/2016).

	10	11
DW	0	77

ite	#	(indicate	on	attached	mar
		Condition to the Party			



11 1 2 1 1 1	ASSESSMENT WORKSHEET
Provide the following information for the stream reach un	der assessment: 50m0 026
1. Applicant's name: Dominion	2. Evaluator's name: L. Roper
3. Date of evaluation: 415/16	4. Time of evaluation: 12 gn
5. Name of stream: Cape Fear Piver	6. River basin: Cope Fear
7. Approximate drainage area: > 100 sq. miles	8. Stream order: > 3°
9. Length of reach evaluated: 100ft	10. County: <u>Cumberland</u>
11. Site coordinates (if known): prefer in decimal degrees.	12. Subdivision name (if any): NONE
Latitude (ex. 34.872312): 34, 8 8051	Longitude (ex77.556611): 78.81640
Method location determined (circle): GPS Topo Sheet Ortho (13. Location of reach under evaluation (note nearby roads and	
East of Marsh Rd, South of Horse-	tail Rd at cape Fear River
14. Proposed channel work (if any): TBD	
15. Recent weather conditions: Cool & dry	
16. Site conditions at time of visit: forested, por	
	Section 10Tidal WatersEssential Fisheries Habitat
	Nutrient Sensitive WatersWater Supply Watershed(I-IV)
	point? YES NO If yes, estimate the water surface area: > 1,000 ac
19. Does channel appear on USGS quad map? YES NO	20. Does channel appear on USDA Soil Survey? YES NO
21. Estimated watershed land use:% Residential	% Commercial% Industrial% Agricultural
22. Bankfull width: 335 ft.	% Cleared / Logged 600% Other ( VIV of all
	Gentle (2 to 4%)Moderate (4 to 10%)Steep (>10%)
	Frequent meanderVery sinuousBraided channel
location, terrain, vegetation, stream classification, etc. Every to each characteristic within the range shown for the ecc characteristics identified in the worksheet. Scores should recharacteristic cannot be evaluated due to site or weather co comment section. Where there are obvious changes in the clinto a forest), the stream may be divided into smaller reaches	ge 2): Begin by determining the most appropriate ecoregion based on characteristic must be scored using the same ecoregion. Assign points pregion. Page 3 provides a brief description of how to review the effect an overall assessment of the stream reach under evaluation. If a anditions, enter 0 in the scoring box and provide an explanation in the character of a stream under review (e.g., the stream flows from a pasture at that display more continuity, and a separate form used to evaluate each the between 0 and 100, with a score of 100 representing a stream of the
Total Score (from reverse): 73 Comme	ents:
0 -	
1 1 1 1 1	Dans 41-111

Evaluator's Signature Date 7/5/16

This channel evaluation form is intended to be used only as a guide to assist landowners and environmental professionals in gathering the data required by the United States Army Corps of Engineers to make a preliminary assessment of stream quality. The total score resulting from the completion of this form is subject to USACE approval and does not imply a particular mitigation ratio or requirement. Form subject to change - version 06/03. To Comment, please call 919-876-8441 x 26.

CHADACTERICTICS	ECOREGION POINT RANGE		RANGE	SCORE	
# CHARACTERISTICS		Piedmont	Mountain	SCORI	
Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0 – 5	0-4	0-5	5	
Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0-6	0-5	0-5	5	
Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	0-6	0-4	0-5	5	
Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	3	
Groundwater discharge o discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	2	
Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	4	
Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	5	
Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0-6	0-4	0-2	4	
Channel sinuosity extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	5	
Sediment input extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0-4	4	
Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5		
Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	5	
Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	5	
Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	3	
Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	3	
Presence of riffle-pool/ripple-pool complexes no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0-6	2	
Habitat complexity ittle or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	4	
Canopy coverage over streambed no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	3	
Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	-	
Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	0	
Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	0	
Presence of fish (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	2	
Evidence of wildlife use (no evidence = 0; abundant evidence = max points)	0-6	0-5	0-5	5	
Total Points Possible	100	100	100		
13.10	Evidence of wildlife use p evidence = 0; abundant evidence = max points)  Total Points Possible	Evidence = 0; common, numerous types = max points)  Evidence of wildlife use  o evidence = 0; abundant evidence = max points)  0-6	Fidence = 0; common, numerous types = max points)  Evidence of wildlife use $0-6$ evidence = 0; abundant evidence = max points)  Total Points Possible  100  100	Fidence = 0; common, numerous types = max points)  Evidence of wildlife use $0-6$ Devidence = 0; abundant evidence = max points)  Total Points Possible  100  100	

<sup>\*</sup> These characteristics are not assessed in coastal streams.

scmo026 NC DWQ Stream Identification Form Version 4.11 Latitude: 34,88651 Project/Site: ALP Date: 4/5/16 county: Comberlan Longitude: \_ Evaluator: / **Total Points:** Stream Determination (circle one)
Ephemeral Intermittent (Perennial) Other Stream is at least intermittent Creek e.g. Quad Name: if ≥ 19 or perennial if ≥ 30\* Moderate Strong Weak A. Geomorphology (Subtotal = Absent 0 1 2 3 1ª Continuity of channel bed and bank 2 (3) 2. Sinuosity of channel along thalweg 0 1 3. In-channel structure: ex. riffle-pool, step-pool, (2) 3 0 1 ripple-pool sequence (3) 2 0 1 4. Particle size of stream substrate 0 1 2 (3) 5. Active/relict floodplain 2 3 0 1 6. Depositional bars or benches 2 3 0 1 7. Recent alluvial deposits 2 3 0) 1 8. Headcuts 1 1.5 0.5 9. Grade control 0 1 1.5 0.5 10. Natural valley No = 0Yes = 3 11. Second or greater order channel artificial ditches are not rated; see discussions in manual B. Hydrology (Subtotal = 9.5 )

B. Hydrology (Subtotal =)	1 0 1	4	2	(3)
12. Presence of Baseflow	0		2	(3)
13. Iron oxidizing bacteria	(0)	1	2	3
14. Leaf litter	1.5	1	0.5	0
15. Sediment on plants or debris	0	0.5	0	1.5
16. Organic debris lines or piles	0	0.5	(1)	1.5
17. Soil-based evidence of high water table?	No = 0 Yes =			=3)
C. Biology (Subtotal =)			,	
18. Fibrous roots in streambed	(3)	2	1	0
19. Rooted upland plants in streambed	3	2	1	0
20. Macrobenthos (note diversity and abundance)	0	1	2	3
21. Aquatic Mollusks	0	1	2	3
22. Fish	0	0.5	1	1.5
23. Crayfish	0	0.5	1	1.5
24. Amphibians	0	0.5	1	1.5
25. Algae	(0)	0.5	1_	1.5
26. Wetland plants in streambed	FACW = 0.75; OBL = 1.5 Other = 0			0)

\*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes: Cape Fear River

Sketch:

- / x scmoO26 deta point

Bank width: 335

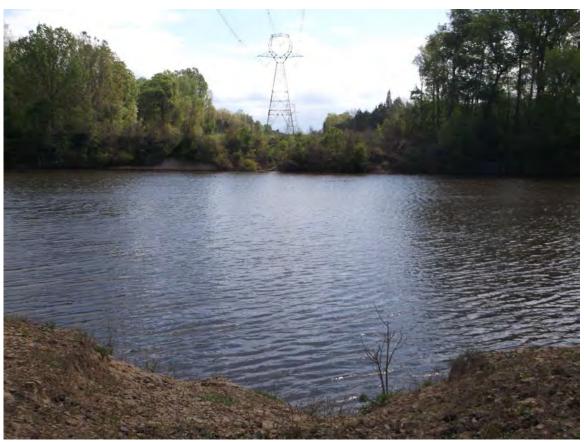
OHW M: 333



Waterbody data point scmo026 facing north upstream.



Waterbody data point scmo026 facing south downstream.



Waterbody data point scmo026 facing east across.





Provide the following information for the stream reach und	der assessment: 5CmD DZ7
1. Applicant's name: Dominion	2. Evaluator's name: L. Roper
3. Date of evaluation: 4/5/16	4. Time of evaluation: 12 pm
5. Name of stream: UT to Cape Fear	6. River basin: Cape Fear
7. Approximate drainage area: 50 ac	8. Stream order:
9. Length of reach evaluated: 20 ft	10. County: Cumberland
11. Site coordinates (if known): prefer in decimal degrees.	12. Subdivision name (if any): NOVE
Latitude (ex. 34.872312): 34. 88067	Longitude (ex77.556611): -78.81654
Method location determined (circle) GPS Topo Sheet Ortho ( 13. Location of reach under evaluation (note nearby roads and  East of Marsh Rd, south of Horset	landmarks and attach map identifying stream(s) location):
14. Proposed channel work (if any): TBD	
15. Recent weather conditions: COOl & dry	islanda war - bijiki - bir kiriki autoloh - bijikini am
16. Site conditions at time of visit: forested, pol	perline ROW, COLD OLLERS
	Section 10Tidal WatersEssential Fisheries Habitat
	Nutrient Sensitive WatersWater Supply Watershed(I-IV)
18. Is there a pond or lake located upstream of the evaluation p	네트리아 이렇게 되어 하지만 승규는 이번 이번 회원에 가지 아이가 아름다면서 그 사이를 되어 하고 있다면 나는 이번 때문에 다른 사람이 되었다.
19. Does channel appear on USGS quad map? YES (NO)	
	% Commercial% Industrial 30 % Agricultural
	% Cleared / Logged% Other (
22. Bankfull width:	23. Bank height (from bed to top of bank):
	Gentle (2 to 4%)Moderate (4 to 10%)Steep (>10%)
	Frequent meanderVery sinuousBraided channel
Instructions for completion of worksheet (located on pag location, terrain, vegetation, stream classification, etc. Every to each characteristic within the range shown for the eco characteristics identified in the worksheet. Scores should re characteristic cannot be evaluated due to site or weather con comment section. Where there are obvious changes in the ch into a forest), the stream may be divided into smaller reaches reach. The total score assigned to a stream reach must range highest quality.	characteristic must be scored using the same ecoregion. Assign points region. Page 3 provides a brief description of how to review the flect an overall assessment of the stream reach under evaluation. If a nditions, enter 0 in the scoring box and provide an explanation in the naracter of a stream under review (e.g., the stream flows from a pasture that display more continuity, and a separate form used to evaluate each e between 0 and 100, with a score of 100 representing a stream of the
Total Score (from reverse): 50 Comme	nts:
A DILLON DO	Date 4/5/16
gathering the data required by the United States Army quality. The total score resulting from the completion	Date

	# CHARACTERISTICS		ECOREGION POINT RANGE			SCORE	
			Coastal	Piedmont	Mountain	SCORE	
	1	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0 – 5	0-4	0-5	5	
	2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0-6	0-5	0-5	4	
	3	Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	0-6	0-4	0-5	3	
	4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	3	
G distance discharge		0-3	0-4	0-4	3		
PHYSICAL	6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2		
HA	7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	3	
	8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0-6	0-4	0-2	3	
	9	Channel sinuosity (extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	50 180,00	
	10	Sediment input (extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0-4	2	
	11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	2140 mills	
1.0%	12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	3	
STABILITY	13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	4	
ABI	14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	2	
S	15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	2	
To State of	16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0-6	10.20	
SIIAI	17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	3	
HABI	18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	4	
	19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	185 production	
	20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	6	
BIOLOGY	21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	0	
0	22	Presence of fish  (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	D	
В	23	Evidence of wildlife use  (no evidence = 0; abundant evidence = max points)	0-6	0-5	0-5	3	
		Total Points Possible	100	100	100		
		TOTAL SCORE (also enter on f	irst page)			50	

<sup>\*</sup> These characteristics are not assessed in coastal streams.

scmo DZ7 NC DWQ Stream Identification Form Version 4.11 Latitude: 34, 88067 Project/Site: ACP County: Comberland Evaluator: [ Total Points: Stream is at least intermittent Stream Determination (circle one)
Ephemeral Intermittent Perennial

e.g. Quad Name: 23

1 1 1 1 1 0.5 0.5	2 2 2 2 2 2 2 2 2	3 3 3 3 3
1 1 0.5	2 2 2 2 2 2 2	3 3 3
1 1 1 0.5	2 2 2 2	3
1 1 1 0.5	2 2 2	3
1 1 1 0.5	2 2 2	3
1 1 0.5	2 2	
1 0.5	2	
0.5		3
0.5		3
0.5	1	1.5
	1	1.5
lo = 0)	Yes:	= 3
1	2	(3)
1	2	3
1	0.5	0
	0.3	1.5
0.5	1 -	1.5
No = 0	Yes	
10 = 0	(163	-
T 6		
2	1	0
2	1	
1 1	2	3
1	2	3
0.5	1	1.5
0.5	1	1.5
	1	1.5
	1	1.5
FACW = 0.75;	OBL = 1.5 Other =	رو
ual.		
in	0.5 0.5	0.5 1 0.5 1 FACW = 0.75; OBL = 1.5 Other =

Bunk width: 6' OHWM: 6'



Waterbody data point scmo027 facing west upstream.



Waterbody data point scmo027 facing east downstream.



Waterbody data point scmo027 facing northeast across.





Provide the following information for the stream reach un	der assessment:
1. Applicant's name: Dominion	2. Evaluator's name: ESI-16. MURAVEY
3. Date of evaluation: 5/6/16	4. Time of evaluation: \\(\sigma\)AM
5. Name of stream: UNT to cape Feor River	6. River basin: Cape Fear
7. Approximate drainage area: 10 ocres	8. Stream order:
9. Length of reach evaluated: SOF+	10. County: comberiard
11. Site coordinates (if known): prefer in decimal degrees.	12. Subdivision name (if any): NA
Latitude (ex. 34.872312): 34.88113	Longitude (ex77.556611): -78.81798
Method location determined (circle): (GPS) Topo Sheet Ortho	(Aerial) Photo/GIS Other GIS Otherd landmarks and attach map identifying stream(s) location):
14. Proposed channel work (if any): POPOSED Pipel	ine
15. Recent weather conditions: SUNCY	
16. Site conditions at time of visit: Und iskurbed	
17. Identify any special waterway classifications known:	Section 10Tidal WatersEssential Fisheries Habitat
Trout WatersOutstanding Resource Waters	Nutrient Sensitive WatersWater Supply Watershed(I-IV)
18. Is there a pond or lake located upstream of the evaluation	point? YES (NO) If yes, estimate the water surface area:
19. Does channel appear on USGS quad map? YES NO	20. Does channel appear on USDA Soil Survey? YES NO
21. Estimated watershed land use: (O % Residential	% Commercial% Industrial 20% Agricultural
70 % Forested	% Cleared / Logged% Other ()
* (Top of Bank) 22. Bankfull width: $\lambda \delta +$	% Cleared / Logged% Other ()  23. Bank height (from bed to top of bank): 18+
24. Channel slope down center of stream:Flat (0 to 2%	Gentle (2 to 4%)Moderate (4 to 10%)Steep (>10%)
25. Channel sinuosity:StraightOccasional bends	Frequent meanderVery sinuousBraided channel
location, terrain, vegetation, stream classification, etc. Eve to each characteristic within the range shown for the e characteristics identified in the worksheet. Scores should characteristic cannot be evaluated due to site or weather comment section. Where there are obvious changes in the into a forest), the stream may be divided into smaller reach	age 2): Begin by determining the most appropriate ecoregion based on my characteristic must be scored using the same ecoregion. Assign points coregion. Page 3 provides a brief description of how to review the reflect an overall assessment of the stream reach under evaluation. If a conditions, enter 0 in the scoring box and provide an explanation in the character of a stream under review (e.g., the stream flows from a pasture less that display more continuity, and a separate form used to evaluate each ange between 0 and 100, with a score of 100 representing a stream of the
7. T	ments:
Total Score (from reverse): Com	ments.
gathering the data required by the United States Ar	my Corps of Engineers to make a preliminary assessment of streat on of this form is subject to USACE approval and does not imply
particular mitigation ratio or requirement. Form subje-	ct to change – version 06 03. To Comment, please call 919-876-8441 $ imes$ 26

H	CHARACTERISTICS	7.744.4	ION POINT	CONTRACTOR CONTRACTOR CONTRACTOR OF THE CONTRACT	SCOR
17		Coastal	Piedmont	Mountain	<b>国政士</b> 的
1	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0 – 5	0-4	0-5	2
2	2 Evidence of past human alteration (extensive alteration = 0; no alteration = max points)		0-5	0-5	4
3	Rinarian zone		0-4	0-5	4
4	Evidence of nutrient or chemical discharges		0-4	0-4	5
5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	\
6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	1
7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0 – 5	0-4	0-2	2
8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0 – 6	0-4	0-2	}
9	Channel sinuosity  (extensive channelization = 0; natural meander = max points)	0 – 5	0-4	0-3	3
10	Sediment input (extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0-4	3
11	Size & diversity of channel bed substrate (fine, homogenous = 0, large, diverse sizes = max points)	NA*	0-4	0-5	
12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	
13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	3
14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0 – 4	0-5	C
15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	
16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0-6	1
17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	1
18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	5
19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	-
20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	C
21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	C
22	Presence of fish  (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	(
23	Evidence of wildlife use  (no evidence = 0; abundant evidence = max points)	0-6	0-5	0-5	
	Total Points Possible	100	100	100	

<sup>\*</sup> These characteristics are not assessed in coastal streams.

NC DWQ Stream Identification Form Version 4.11

Longitude: Other Cedar Stream Determination (circle one)

e.g. Quad Name:

A. Geomorphology (Subtotal = 1015)	Absent	Weak	Moderate	Strong
1ª Continuity of channel bed and bank	0	1	(2)	3
2. Sinuosity of channel along thalweg	0	1	(2)	3
In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	2	3
Particle size of stream substrate	0	(1)	2	3
5. Active/relict floodplain	0_	9	2	3
Depositional bars or benches	(6)	1	2	3
7. Recent alluvial deposits	(0)	1_	2	3
8. Headcuts	O	1	2	3
9. Grade control	0	0.5	1	1.5
10. Natural valley	0	0.5	1	(1.5)
11. Second or greater order channel	No	(0)	Yes	= 3

Project/Site: ACP

County: camberland

Ephemeral Intermittent Perennial

a artificial ditches are not rated; see discussions in manual

B. Hydrology	(Subtotal =	1,5)

Evaluator: EST-K, MUIPEREY

**Total Points:** 

Stream is at least intermittent

if ≥ 19 or perennial if ≥ 30\*

12. Presence of Baseflow	0	1	2	3
13. Iron oxidizing bacteria	(0)	1	2	3
14. Leaf litter	1.5	(1)	0.5	0
15. Sediment on plants or debris	0	(0.5)	1	1.5
16. Organic debris lines or piles	0	0.5	(1)	1.5
17. Soil-based evidence of high water table?	No	0 = 0	Yes	€3)

C. Biology (Subtotal = 5)				
18. Fibrous roots in streambed	.3	(2)	1	0
19. Rooted upland plants in streambed	(3)	2	1	0
20. Macrobenthos (note diversity and abundance)	0	1	2	3
21. Aquatic Mollusks	0	1	2	3
22. Fish	(0)	0.5	1 '	1.5
23. Crayfish	(0)	0.5	1	1.5
24. Amphibians	(0)	0.5	1	1.5
25. Algae	(0)	0.5	1	1.5
26. Wetland plants in streambed		FACW = 0.75; C	BL = 1.5 Other =/	6)

\*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes:

Sketch:

wem 0 022

OHWM width: 18+

TOP OF BENKWIGHT: 28+



Waterbody data point scmr004 facing northwest upstream.



Waterbody data point scmr004 facing southeast across bank.

USACE	AID#		
LUGITE	TILDE		

DWO	##			

site #	(indicate	on	attached	map)



# Site #\_\_\_\_ (indication of the stream QUALITY ASSESSMENT WORKSHEET

Provide the following information for the stream reach und	
1. Applicant's name: Dominion	2. Evaluator's name: Li Roper
3. Date of evaluation: 4151 Cape Fear River	4. Time of evaluation: 110m
5. Name of stream: LINE to LEGIAN LYCEL	6. River basin: Cape Fear
7. Approximate drainage area: >100ac	8. Stream order:   S+
9. Length of reach evaluated: 30 ft	10. County: Comberland
11. Site coordinates (if known): prefer in decimal degrees.	12. Subdivision name (if any): NONE
Latitude (ex. 34.872312): 34, 87977	Longitude (ex77.556611): 78.82333
Method location determined (circle): GPS Topo Sheet Ortho ( 13. Location of reach under evaluation (note nearby roads and	landmarks and attach map identifying stream(s) location):
East of Marsh Rd, North of Ch	neraw st.
14. Proposed channel work (if any): TBD	
15. Recent weather conditions: COD   of dry	2513
16. Site conditions at time of visit: ditched blue	eline auross powerline ROW
17. Identify any special waterway classifications known:	Section 10Tidal WatersEssential Fisheries Habitat
Trout WatersOutstanding Resource Waters	Nutrient Sensitive WatersWater Supply Watershed(I-IV)
18. Is there a pond or lake located upstream of the evaluation p	point? YES NO If yes, estimate the water surface area:
19. Does channel appear on USGS quad map? YES NO	20. Does channel appear on USDA Soil Survey? (ES) NO
21. Estimated watershed land use: 20% Residential	% Commercial% Industrial 30 % Agricultural
50% Forested	% Cleared / Logged% Other (
22. Bankfull width: 12	23. Bank height (from bed to top of bank): 5
24. Channel slope down center of stream:Flat (0 to 2%)	Gentle (2 to 4%)Moderate (4 to 10%)Steep (>10%)
25. Channel sinuosity:StraightOccasional bends	Frequent meanderVery sinuousBraided channel
location, terrain, vegetation, stream classification, etc. Every to each characteristic within the range shown for the eco characteristics identified in the worksheet. Scores should re characteristic cannot be evaluated due to site or weather concomment section. Where there are obvious changes in the chinto a forest), the stream may be divided into smaller reaches	ge 2): Begin by determining the most appropriate ecoregion based on characteristic must be scored using the same ecoregion. Assign points region. Page 3 provides a brief description of how to review the effect an overall assessment of the stream reach under evaluation. If a nditions, enter 0 in the scoring box and provide an explanation in the haracter of a stream under review (e.g., the stream flows from a pasture that display more continuity, and a separate form used to evaluate each the between 0 and 100, with a score of 100 representing a stream of the
Total Score (from reverse): 43 Comme	nts:
gathering the data required by the United States Army	as v guide to assist landowners and environmental professionals in Corps of Engineers to make a preliminary assessment of stream of this form is subject to USACE approval and does not imply a
quanty. The total score resulting from the completion	ochange – version 06/03. To Comment, please call 919-876-8441 x 26.

			ECOREGION POINT RANGE		
#	CHARACTERISTICS	Coastal	Piedmont	Mountain	SCORE
1	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0-5	0-4	0-5	5
2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0-6	0-5	0-5	2
3	Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	0-6	0-4	0-5	3
4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	3
5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	2
5 6 7	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	
7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	1
8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0 – 6	0-4	0-2	2
9	Channel sinuosity (extensive channelization = 0; natural meander = max points)	0 – 5	0-4	0-3	2
10	Sediment input  (extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0-4	3
11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	_
12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0 – 5	4
12 13 14	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0 – 5	3
14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	1
15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	2
16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0-6	1
16 17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	3
18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	2
19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	_
20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	0
21 22	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	0
22	Presence of fish (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	0
23	Evidence of wildlife use (no evidence = 0; abundant evidence = max points)	0-6	0-5	0-5	3
	Total Points Possible	100	100	100	
	TOTAL SCORE (also enter on f	irst page)			4

<sup>\*</sup> These characteristics are not assessed in coastal streams.

sumo 024 NC DWO Stream Identification Form Version 4.11 Date: 4/5/16 Project/Site: ALP Latitude: 34, 87977 County: Comberland Longitude: -78.82333 Evaluator: L, KOPEr **Total Points:** Other Stream Determination (circle one) 30 Stream is at least intermittent COCOR Ephemeral Intermittent Perennial e.g. Quad Name: if ≥ 19 or perennial if ≥ 30\* Moderate Strong Weak Absent (3) 1a. Continuity of channel bed and bank 0 0 1 2 3 2. Sinuosity of channel along thalweg (2) 3. In-channel structure: ex. riffle-pool, step-pool, 3 0 1 ripple-pool sequence (2) 3 4. Particle size of stream substrate 0 1 0 0 2 3 5. Active/relict floodplain 3 0 6. Depositional bars or benches 1 0 3 2 7. Recent alluvial deposits 0 2 3 (0) 8. Headcuts 0.5 1 1.5 0 9. Grade control 1.5 0 1 (0.5) 10. Natural valley Yes = 3 No = 0 11. Second or greater order channel artificial ditches are not rated; see discussions in manual B. Hydrology (Subtotal = \_ 2 (3) 12. Presence of Baseflow 1 2 3 13. Iron oxidizing bacteria 0 (.5) 0.5 14. Leaf litter 0.5 1.5 15. Sediment on plants or debris 0 (1) 1.5 0 0.5 16. Organic debris lines or piles No = 0Yes = 3 17. Soil-based evidence of high water table? C. Biology (Subtotal = 2 0 (3) 1 18. Fibrous roots in streambed 0 1 2 19. Rooted upland plants in streambed 3) 3 07 1 2 20. Macrobenthos (note diversity and abundance) 2 3 (0) 1 21. Aquatic Mollusks 1.5 1 0.5 (0) 22. Fish 1.5 0.5 1 0 23. Crayfish (0) 0.5 1 1.5 24. Amphibians 0.5 1.5 0 25. Algae FACW = 0.75; OBL = 1.5 Other = 0 26. Wetland plants in streambed \*perennial streams may also be identified using other methods. See p. 35 of manual. Notes: Sketch:

Bank width: 12'
OHWM: 10'



Waterbody data point scmo024 facing north upstream.



Waterbody data point scmo024 facing south downstream.



scm0 025





Provide the following information for the stream reach under	r assessment:
1. Applicant's name: Dominion	2. Evaluator's name: LIROPET
3. Date of evaluation: 4/5/16	4. Time of evaluation: 11 avn
5. Name of stream: UNT to Cape Fear	6. River basin: Cape Fear
7. Approximate drainage area: 50 a C	8. Stream order:
9. Length of reach evaluated: 20 ft	10. County: Comber land
11. Site coordinates (if known): prefer in decimal degrees.  Latitude (ex. 34.872312): 34, 88003	12. Subdivision name (if any):
17. Identify any special waterway classifications known: Trout WatersOutstanding Resource Waters1  18. Is there a pond or lake located upstream of the evaluation polynome.  19. Does channel appear on USGS quad map? YES NO	Section 10
네가 () [1] 가지 내가 하게 살아가 되게 되게 되게 하는 그 때문에 가는 이렇게 되었다면 하는 생각을 다 없다.	% Cleared / Logged% Other (
22. Bankfull width: 5 ft	23. Bank height (from bed to top of bank): 3 ft
24. Channel slope down center of stream: Flat (0 to 2%)	Gentle (2 to 4%)Moderate (4 to 10%)Steep (>10%)
25. Channel sinuosity:StraightOccasional bends _	Frequent meanderVery sinuousBraided channel
location, terrain, vegetation, stream classification, etc. Every control to each characteristic within the range shown for the ecore characteristics identified in the worksheet. Scores should reflicheracteristic cannot be evaluated due to site or weather concomment section. Where there are obvious changes in the chainto a forest), the stream may be divided into smaller reaches the reach. The total score assigned to a stream reach must range highest quality.	2): Begin by determining the most appropriate ecoregion based on haracteristic must be scored using the same ecoregion. Assign points gion. Page 3 provides a brief description of how to review the ect an overall assessment of the stream reach under evaluation. If a litions, enter 0 in the scoring box and provide an explanation in the racter of a stream under review (e.g., the stream flows from a pasture nat display more continuity, and a separate form used to evaluate each between 0 and 100, with a score of 100 representing a stream of the
Total Score (from reverse): 50 Commen	S:
	AND THE RESERVE OF THE PROPERTY OF THE PROPERT
gathering the data required by the United States Army (quality. The total score resulting from the completion of	Date 4/5/6 s aguide to assist landowners and environmental professionals in Corps of Engineers to make a preliminary assessment of stream this form is subject to USACE approval and does not imply a change – version 06/03. To Comment, please call 919-876-8441 x 26.

		CHADACTEDICTICS		ECOREGION POINT RANGE		
	#	CHARACTERISTICS	Coastal	Piedmont	Mountain	SCORE
	1	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0-5	0-4	0-5	5
	2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0-6	0-5	0-5	4
	3	Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	0-6	0-4	0-5	3
	4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	3
7	5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	100
LUISICAL	6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	
	7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	3
	8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0-6	0-4	0-2	1
	9	Channel sinuosity (extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	122
	10	Sediment input (extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0-4	3
	11	Size & diversity of channel bed substrate  (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	7/10 1 H 10 10 H 10 H 10 H 10 H 10 H 10 H
	12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	3
STABILLIT	13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	4
T T	14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	3
2	15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	4
Delegae.	16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0-6	
E I	17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	3
HABITAL	18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	4
	19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	-
	20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	0
BIOLOGY	21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	0
	22	Presence of fish  (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	0
В	23	Evidence of wildlife use  (no evidence = 0; abundant evidence = max points)	0-6	0-5	0-5	3
		Total Points Possible	100	100	100	
		TOTAL SCORE (also enter on f	irst page)			50

<sup>\*</sup> These characteristics are not assessed in coastal streams.

5cm0025 NC DWQ Stream Identification Form Version 4.11 Latitude: 34,88003 Project/Site: Date: County: Comberlar oper Longitude: -78,82344 Evaluator: **Total Points:** Other 20.75 Stream Determination (circle one) Stream is at least intermittent e.g. Quad Name: Creek Ephemeral Intermittent Perennial if ≥ 19 or perennial if ≥ 30\* A. Geomorphology (Subtotal = 4.5) Weak Moderate Strong Absent 1a. Continuity of channel bed and bank 0 1 2 3 1 2 3 2. Sinuosity of channel along thalweg 0 3. In-channel structure: ex. riffle-pool, step-pool, 1 2 3 0 ripple-pool sequence 4. Particle size of stream substrate 0 1 2 3 3 5. Active/relict floodplain 0 1 2 2 3 0 6. Depositional bars or benches 1 3 0 1 2 7. Recent alluvial deposits 2 3 8. Headcuts D) 1 1.5 0 0/50 1 9. Grade control 0 0.5 1 1.5 10. Natural valley Yes = 3 11. Second or greater order channel No = 0 artificial ditches are not rated; see discussions in manual B. Hydrology (Subtotal = 12. Presence of Baseflow 0 1 2 3 2 3 13. Iron oxidizing bacteria 0 (1.5) 0.5 0 14. Leaf litter 0.5 1.5 15. Sediment on plants or debris 0 0 0 1.5 0.5 16. Organic debris lines or piles Yes = 3 17. Soil-based evidence of high water table? No = 0C. Biology (Subtotal = 1,75 0 18. Fibrous roots in streambed 2 1 2 0 19. Rooted upland plants in streambed 3 1 3 M 2 1 20. Macrobenthos (note diversity and abundance) 3 2 0 1 21. Aquatic Mollusks 0.5 1 1.5 0 22. Fish 1.5 0 0.5 1 23. Crayfish 0.5 1.5 1 24. Amphibians 0 0.5 1.5 25. Algae (0) 1 FACW = 0.75: OBL = 1.5 Other = 0 26. Wetland plants in streambed \*perennial streams may also be identified using other methods. See p. 35 of manual.

Sketch:

Notes:

Scmolzy tovious somo D23

Bankwidth:5'



Waterbody data point scmo025 facing north upstream.



Waterbody data point scmo025 facing south downstream.



Waterbody data point scmo025 facing east across.





Provide the following information for the stream reach un	der assessment:
1. Applicant's name: Dominion	2. Evaluator's name: Li Roper
3. Date of evaluation: 4/5/16	4. Time of evaluation: 10 am
5. Name of stream: UNT to Constens	6. River basin: Cape Fear
7. Approximate drainage area: 50 ac	8. Stream order:
9. Length of reach evaluated: 30 ft	10. County: Comberland
11. Site coordinates (if known): prefer in decimal degrees.	12. Subdivision name (if any): NDN-C
Latitude (ex. 34.872312): 34, 87916	Longitude (ex77.556611): -78,82491
Method location determined (circle): GPS Topo Sheet Ontho 13. Location of reach under evaluation (note nearby roads and 500th of Marsh Rd, north	landmarks and attach map identifying stream(s) location):
14. Proposed channel work (if any): TBD	
15. Recent weather conditions: COO   4 dry	2 )
16. Site conditions at time of visit: ditch acro	ss powerline ROW
17. Identify any special waterway classifications known:	Section 10Tidal WatersEssential Fisheries Habitat
Trout WatersOutstanding Resource Waters	Water Supply Watershed(I-IV)
18. Is there a pond or lake located upstream of the evaluation	point? YES NO If yes, estimate the water surface area:
19. Does channel appear on USGS quad map? YES	20. Does channel appear on USDA Soil Survey? YES
21. Estimated watershed land use: 20% Residential	% Commercial% Industrial 30% Agricultural
50% Forested	% Cleared / Logged% Other (
22. Bankfull width: 7 ft	23. Bank height (from bed to top of bank): 3 ++
24. Channel slope down center of stream:Flat (0 to 2%)	Gentle (2 to 4%)Moderate (4 to 10%)Steep (>10%)
25. Channel sinuosity:StraightOccasional bends	Frequent meanderVery sinuousBraided channel
location, terrain, vegetation, stream classification, etc. Every to each characteristic within the range shown for the ecc characteristics identified in the worksheet. Scores should recharacteristic cannot be evaluated due to site or weather co comment section. Where there are obvious changes in the clinto a forest), the stream may be divided into smaller reaches	ge 2): Begin by determining the most appropriate ecoregion based or characteristic must be scored using the same ecoregion. Assign points pregion. Page 3 provides a brief description of how to review the effect an overall assessment of the stream reach under evaluation. If a nditions, enter 0 in the scoring box and provide an explanation in the haracter of a stream under review (e.g., the stream flows from a pasture that display more continuity, and a separate form used to evaluate each the between 0 and 100, with a score of 100 representing a stream of the
Total Score (from reverse): 28 Commo	ents: Ditch
Evaluator's Signature form is intended to be used only gathering the data required by the United States Army	Date 4/5/16 as a guide to assist landowners and environmental professionals in Corps of Engineers to make a preliminary assessment of stream
quality. The total score resulting from the completion	of this form is subject to USACE approval and does not imply a change – version 06/03. To Comment, please call 919-876-8441 x 26.

CHARACTERISTICS		ECOREGION POINT RANGE		
CTERISTICS	Coastal	Piedmont	Mountain	SCOR
persistent pools in stream = 0; strong flow = max points)	0-5	0-4	0-5	5
past human alteration = 0; no alteration = max points)	0-6	0-5	0-5	1
parian zone lous, wide buffer = max points)	0-6	0-4	0-5	1
ent or chemical discharges = 0; no discharges = max points)	0-5	0-4	0-4	3
lwater discharge , seeps, wetlands, etc. = max points)	0-3	0-4	0-4	
adjacent floodplain ensive floodplain = max points)	0-4	0-4	0-2	-1
ent / floodplain access grequent flooding = max points)	0-5	0-4	0-2	1
f adjacent wetlands adjacent wetlands = max points)	0-6	0-4	0-2	1
nnel sinuosity = 0; natural meander = max points)	0-5	0-4	0-3	-1
liment input little or no sediment = max points)	0-5	0-4	0-4	2
of channel bed substrate large, diverse sizes = max points)	NA*	0-4	0-5	-
nnel incision or widening able bed & banks = max points)	0-5	0-4	0-5	1
major bank failures rosion, stable banks = max points)	0-5	0-5	0-5	3
and density on banks use roots throughout = max points)	0-3	0-4	0-5	
livestock, or timber production =0; no evidence = max points)	0-5	0-4	0-5	1
pool/ripple-pool complexes s = 0; well-developed = max points)	0-3	0-5	0-6	1
itat complexity equent, varied habitats = max points)	0-6	0-6	0-6	1
erage over streambed 0; continuous canopy = max points)	0-5	0-5	0-5	1
te embeddedness 1 = 0; loose structure = max)	NA*	0-4	0-4	
m invertebrates (see page 4) non, numerous types = max points)	0-4	0-5	0-5	0
ce of amphibians non, numerous types = max points)	0-4	0-4	0-4	0
esence of fish non, numerous types = max points)	0-4	0-4	0-4	0
nce of wildlife use bundant evidence = max points)	0-6	0-5	0-5	2
ts Possible	100	100	100	
T(		AL SCORE (also enter on first page)	AL SCORE (also enter on first page)	AL SCORE (also enter on first page)

<sup>\*</sup> These characteristics are not assessed in coastal streams.

NC DWQ Stream Identification Form Version 4.11

Date: 4/5/16	Project/Site: ACP	Latitude: 34,87916
Evaluator: L. Roper	county: Cumberland	Longitude: -78.82491
Total Points: Stream is at least intermittent if ≥ 19 or perennial if ≥ 30*	Stream Determination (circle one) Ephemeral Intermittent Perennial	Other Cedar e.g. Quad Name: Creek

Stream is at least intermittent if ≥ 19 or perennial if ≥ 30*		mation (circle one) mittent Perennial	Other e.g. Quad Name:	Creek
A. Geomorphology (Subtotal = 4.5)	Absent	Weak	Moderate	Strong
1ª Continuity of channel bed and bank ditch	0	1	2	3
Sinuosity of channel along thalweg	0	0	2	3
In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	0	2	3
Particle size of stream substrate	0	1	2	3
5. Active/relict floodplain	0	0	2	3
6. Depositional bars or benches	0	1	2	3
7. Recent alluvial deposits	0	1	2	3
8. Headcuts	0	11	2	3
9. Grade control	0	0.5	1	1.5
10. Natural valley	0	0.5	1	1.5
11. Second or greater order channel	No	=0	Yes = 3	
artificial ditches are not rated; see discussions in manual B. Hydrology (Subtotal = 8.5)				
12. Presence of Baseflow	0	1	2	3
13. Iron oxidizing bacteria	Ø	1	2	3
14. Leaf litter	1.5	1	0.5	0
15. Sediment on plants or debris	0	0.5	1	1.5
16. Organic debris lines or piles	0	0.5	1	1.5
17. Soil-based evidence of high water table?	No	= 0	Yes	=3)
C. Biology (Subtotal = 7.75)				
18. Fibrous roots in streambed	3	2	1	0
19. Rooted upland plants in streambed	(3)	2	1	0
20. Macrobenthos (note diversity and abundance)	0	1	2	3
21. Aquatic Mollusks	0	1	2	3
00 Fi-L	(0)	0.5	1	1 5

18. Fibrous roots in streambed	3	2	1	0
19. Rooted upland plants in streambed	(3)	2	1	0
20. Macrobenthos (note diversity and abundance)	(0)	1	2	3
21. Aquatic Mollusks	(5)	1	2	3
22. Fish	(0)	0.5	1	1.5
23. Crayfish	(0)	0.5	1	1.5
24. Amphibians	0	(0.5)	1	1.5
25. Algae	0	0.5	1	1.5
26. Wetland plants in streambed		FACW = 0.75, C	BL = 1.5 Other =	0

\*perennial streams may also be identified using other methods. See p. 35 of manual.

Notes:

Sketch:

SLMODZY BYTO'SE CURRY

54m0023

bank width: 7'

Scmo D 25

OHWM: 3"



Waterbody data point scmo023 facing west upstream.



Waterbody data point scmo023 facing east downstream.



Waterbody data point scmo023 facing north across.





Provide the following information for the stream reach und	der assessment:
1. Applicant's name: Dominion	2. Evaluator's name: L. Roper, L. Johnson
3. Date of evaluation: 7/22/16	4. Time of evaluation: 10:30 AM
5. Name of stream: UNT to Cape Feer Piver	6. River basin: Cape Fear
7. Approximate drainage area: 320 ac	8. Stream order:
9. Length of reach evaluated: 20F+	10. County: Crmberland
11. Site coordinates (if known): prefer in decimal degrees.	12. Subdivision name (if any): None
Latitude (ex. 34.872312): 34 187752	Longitude (ex77.556611): -78.83112
Method location determined (circle): GP Topo Sheet Ortho ( 13. Location of reach under evaluation (note nearby roads and	
East of Marsh Rd, South of Cherau	st.
14. Proposed channel work (if any): TBD	
15. Recent weather conditions: Scattered Huun	Levstorms within 48 hours
16. Site conditions at time of visit: Fovestel road e	dge, culverted under road
	Section 10Tidal WatersEssential Fisheries Habitat
Trout WatersOutstanding Resource Waters	Nutrient Sensitive Waters Water Supply Watershed (1-IV)
18. Is there a pond or lake located upstream of the evaluation p	point? YES NO If yes, estimate the water surface area: \ \ac_
19. Does channel appear on USGS quad map? YES NO	20. Does channel appear on USDA Soil Survey? YES NO
21. Estimated watershed land use: 10% Residential	% Commercial% Industrial% Agricultural
70 % Forested	% Cleared / Logged% Other (
22. Bankfull width: 4 F+	23. Bank height (from bed to top of bank): L ++
이 교육이 어떻게 하는데 사이를 이 때문에 보겠다. 이 없는데 이번에 사용에 반아가 되었다면 하고 있는데 이번에 가지 않는데 이번에 가지 않는데 나를 다 했다.	Gentle (2 to 4%)Moderate (4 to 10%)Steep (>10%)
25. Channel sinuosity:StraightOccasional bends	Frequent meanderVery sinuousBraided channel
location, terrain, vegetation, stream classification, etc. Every to each characteristic within the range shown for the eco characteristics identified in the worksheet. Scores should re characteristic cannot be evaluated due to site or weather cor comment section. Where there are obvious changes in the chinto a forest), the stream may be divided into smaller reaches reach. The total score assigned to a stream reach must range highest quality.	e 2): Begin by determining the most appropriate ecoregion based or characteristic must be scored using the same ecoregion. Assign point region. Page 3 provides a brief description of how to review the flect an overall assessment of the stream reach under evaluation. If anditions, enter 0 in the scoring box and provide an explanation in the paracter of a stream under review (e.g., the stream flows from a pasture that display more continuity, and a separate form used to evaluate each between 0 and 100, with a score of 100 representing a stream of the
Total Score (from reverse): 48 Comme	nts:
Evaluator's Signature Law	Date 7/22/16
gathering the data required by the United States Wrmky	as a guide to assist landowners and environmental professionals in Corps of Engineers to make a preliminary assessment of stream of this form is subject to USACE approval and does not imply a change – version 06/03. To Comment, please call 919-876-8441 x 26

		CHADACTEDISTICS	ECOREGION POINT RANGE			SCORE	
	#	CHARACTERISTICS	Coastal	Piedmont	Mountain	SCORE	
	1	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0 – 5	0-4	0-5	5	
S. S	2	Evidence of past human alteration  (extensive alteration = 0; no alteration = max points)		0-5	0-5	2	
	3	Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	0-6	0-4	0-5	2	
	4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	2	
AL	5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	0	
FRYSICAL	6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2		
	7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2		
	8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0-6	0-4	0-2	0	
	9	Channel sinuosity (extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	3	
360,46340	10	Sediment input (extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0-4	3	
	11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	10000	
	12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	4	
SIADILLI	13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	4	
Q V	14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	3	
2	15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	3	
P. P. S. Mar	16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0-6	2	
DITAI	17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	3	
HAD	18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	4	
10 miles	19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	-	
	20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	0	
5	21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	3	
BIOLOGY	22	Presence of fish (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	0	
1	23	Evidence of wildlife use (no evidence = 0; abundant evidence = max points)	0-6	0-5	0-5	3	
Section 1		Total Points Possible	100	100	100		
1		TOTAL SCORE (also enter on fi	irst page)			48	

<sup>\*</sup> These characteristics are not assessed in coastal streams.

Date: 7/22/16	Project/Site: A	CP	Latitude: 34	.87752	
Evaluator: Roper, Johnson	County: CUMO	County: Cumberland		78.8311	
Total Points: Stream is at least intermittent if ≥ 19 or perennial if ≥ 30*	Stream Determination (circle one) Ephemera Intermittent Perennial		Other (Edar Creek		
A. Geomorphology (Subtotal = 12.5)	Absent	Weak	Moderate	Strong	
1ª. Continuity of channel bed and bank	0	1	2	The second secon	
2. Sinuosity of channel along thalweg	0	1	(2)	3	
3. In-channel structure: ex. riffle-pool, step-pool,	0	1	2	3	
ripple-pool sequence	0	4		2	
4. Particle size of stream substrate	0	1	2	3	
5. Active/relict floodplain	0	3	2	3	
6. Depositional bars or benches	0		2	3	
7. Recent alluvial deposits		1	2	3	
8. Headcuts	0	1	2	3	
9. Grade control	0	0.5	1	1.5	
10. Natural valley	0		<b>(1)</b>	1.5	
11. Second or greater order channel	No	=0	Yes :	= 3	
artificial ditches are not rated; see discussions in manual					
B. Hydrology (Subtotal = 8,5)					
12. Presence of Baseflow	0	1	2	(3)	
13. Iron oxidizing bacteria	0	1	2	3	
14. Leaf litter	(1.5)	1	0.5	0	
15. Sediment on plants or debris	0	0.5	1	1.5	
16. Organic debris lines or piles	0	0.5	1 _	1.5	
17. Soil-based evidence of high water table?	No	= 0	(Yes:	= 3)	
C. Biology (Subtotal = 7					
18. Fibrous roots in streambed	((3))	2	1	0	
19. Rooted upland plants in streambed	(3)	2	1	0	
20. Macrobenthos (note diversity and abundance)	(0)	1	2	3	
21. Aquatic Mollusks	(0)	1	2	3	
22. Fish	0	0.5	1	1.5	
23. Crayfish	0	0.5	1	1.5	
24. Amphibians	Q	0.5	1	1.5	
25. Algae	(0)	0.5	1	1.5	
26. Wetland plants in streambed		FACW = 0.75; OBI	_ = 1.5 Other = 0		
*perennial streams may also be identified using other metr	nods. See p. 35 of manual				
Notes: culverted at road					
Sketch:					
/4/					
100					
11	olvert				

OWMH-HAT Scmo040 Bank With-HAT



Waterbody data point scmo40 facing southeast upstream.





Waterbody data point scmo040 facing southwest across bank.

TICACE	ATTO		
USACE	AIDE		A 157 No. 11 TO

DUICIT		
DWO=		

Site =	(indicate	on	attached	map
	2003	1-		





Provide the following information for the st	am reach under assessment:	564077
1. Applicant's name: Dominion		name: ESI (W. Vaughan, L. Roper)
3. Date of evaluation: 4-26-16	4. Time of eval	luation: 9.30 am
5. Name of stream: 4NT to CAPE F		Cape Fear
7. Approximate drainage area: 256 acre	8. Stream order	r: 1st
9. Length of reach evaluated: 20 ft		Cumberland
11. Site coordinates (if known): prefer in dec	al degrees. 12. Subdivision	n name (if any): None
Latitude (ex. 34.872312): 3H. 8773419	Longitude (ex.	-77.556611): <u>-78.834139</u>
Method location determined (circle): GPS To 13. Location of reach under evaluation (note)	rby roads and landmarks and at	ttach map identifying stream(s) location):
Powerline easement north	of Pikeville et o	and west of Marsh Rd
14. Proposed channel work (if any): Proc	sed pipeline	OF BORNES AND RESERVED AND DEC. 1
15. Recent weather conditions: Clear,		
16. Site conditions at time of visit: Pow		LINE CONTROL OF THE PARTY OF TH
17. Identify any special waterway classification	known:Section 10	Tidal WatersEssential Fisheries Habitat
		ive Waters Water Supply Watershed V (1-1V)
18. Is there a pond or lake located upstream of	he evaluation point? YES NO	If yes, estimate the water surface area:
		nnel appear on USDA Soil Survey? (ES) NO
21. Estimated watershed land use: 10%	esidential% Commerc	cial% Industrial% Agricultural
75%	rested <u>5</u> % Cleared /	Logged% Other () tht (from bed to top of bank):2
22. Bankfull width: 2 P+	23. Bank heig	tht (from bed to top of bank):
		o 4%)Moderate (4 to 10%)Steep (>10%)
25. Channel sinuosity;StraightO	sional bends Frequent m	neanderVery sinuousBraided channel
location, terrain, vegetation, stream classific to each characteristic within the range sh characteristics identified in the worksheet. characteristic cannot be evaluated due to s comment section. Where there are obvious into a forest), the stream may be divided int reach. The total score assigned to a stream highest quality.	on, etc. Every characteristic in on for the ecoregion. Page 3 cores should reflect an overall or weather conditions, enter 0 langes in the character of a stream smaller reaches that display mo	determining the most appropriate ecoregion based on nust be scored using the same ecoregion. Assign points 3 provides a brief description of how to review the assessment of the stream reach under evaluation. If a 0 in the scoring box and provide an explanation in the eam under review (e.g., the stream flows from a pasture one continuity, and a separate form used to evaluate each d 100, with a score of 100 representing a stream of the
Total Score (from reverse): 69	Comments:	Bank the second to the second
		CENTRE CONTROL OF THE PROPERTY
		<b>2</b> 数据 47 - 26 数 43 2
gathering the data required by the Uni	d States Army Corps of Engine completion of this form is	Date 4/27/6 assist landowners and environmental professionals in gineers to make a preliminary assessment of stream is subject to USACE approval and does not imply a sion 06 03. To Comment, please call 919-876-8441 x 26.

ш	CHARACTERISTICS	ECOREGION POINT RANGE			SCOR	
#		Coastal	Piedmont	Mountain	(Math	
1	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0-5	0-4	0-5	5	
2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0 – 6	0-5	0-5	4	
3	(no buffer = 0; contiguous, wide buffer = max points)	0-6	0-4	0-5	6	
4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	5	
5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	3	
6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	4	
7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	3	
8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0-6	0-4	0-2	6	
9	Channel sinuosity  (extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	3	
10	Sediment input  (extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0-4	5	
11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5		
12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	L	
13	Presence of major bank failures  (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	3	
14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0 – 4	0-5	3	
15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	1	
16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0 – 3	0-5	0-6	(4)	
17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	3	
18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5		
19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4		
20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	7	
21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	(	
22	Presence of fish  (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	(	
23	Evidence of wildlife use  (no evidence = 0; abundant evidence = max points)	0-6	0-5	0-5		
	Total Points Possible	100	100	100		

<sup>\*</sup> These characteristics are not assessed in coastal streams.

NC DWQ Stream Identification Form Version 4.11

Scm0036

Latitude: 34.8773419

Evaluator: ESI (W. Vaushan, L. Roper)	County: Camberland		Longitude: 78.834139		
Total Points: Stream is at least intermittent if ≥ 19 or perennial if ≥ 30*		nation (circle one) mittent Perennia	Other CEUNA e.g. Quad Name: CREEK		
A. Geomorphology (Subtotal = 1 )	Absent	Weak	Moderate	Strong	
1ª. Continuity of channel bed and bank	0	1	2	3	
2. Sinuosity of channel along thalweg	0	1	2	3	
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	2	3	
4. Particle size of stream substrate	0	0	2	3	
5. Active/relict floodplain	0	1	2	3	
6. Depositional bars or benches	0	1	2	3	
7. Recent alluvial deposits	(6)	1	2	3	
8. Headcuts	0	1	2	3	
9. Grade control	0	0.5	Φ	1.5	
10. Natural valley	0	0.5	1	1.5	
11. Second or greater order channel	(No	= 0	Yes	= 3	
artificial ditches are not rated; see discussions in manual					
B. Hydrology (Subtotal =)	1 - 1		-		
12. Presence of Baseflow	0	1	2	3	
13. Iron oxidizing bacteria	0	1	2	3	
14. Leaf litter	(1.5)	1	0.5	0	
15. Sediment on plants or debris	0	0.5		1.5	
16. Organic debris lines or piles	0	(0.5)	1 _	1.5	
17. Soil-based evidence of high water table?	No	= 0	Yes	= 3)	
C. Biology (Subtotal = $7$ )					
18. Fibrous roots in streambed	3	2	1	0	
19. Rooted upland plants in streambed	(3)	2	1	0	
20. Macrobenthos (note diversity and abundance)	0	1	2	3	
21. Aquatic Mollusks	0	1	2	3	
22. Fish	(0)	0.5	1	1.5	
23. Crayfish	(0)	0.5	1	1.5	
24. Amphibians	(0)	0.5	1	1.5	
25. Algae	(0)	0.5	1	1.5	
26. Wetland plants in streambed		FACW = 0.75; OB	L = 1.5 Other =	0)	
*perennial streams may also be identified using other meth	ods. See p. 35 of manua				
Notes:	William William				
Notes.					
Sketch:	wemo 033 4	Calvet	V		

OHUM: 2 Bank Wedth: 2



Waterbody data point scmo036 facing north upstream.



Waterbody data point scmo036 facing south downstream.



NC DWQ Stream Identification Form Version 4.11

Date: 6-10-16	Project/Site: ACP	Latitude: 34.874 2868	
Evaluator: EST (WV)	County: Cumberland	Longitude: 78.856442	
Total Points: Stream is at least intermittent if ≥ 19 or perennial if ≥ 30*	Stream Determination (circle one) Ephemeral Intermittent Perennia	Other e.g. Quad Name: DUNKT	

A. Geomorphology (Subtotal = 14.5)	Absent	Weak	Moderate	Strong
1ª Continuity of channel bed and bank	. 0	1	(2)	. (3)
2. Sinuosity of channel along thalweg	0	(1)	2	3
In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	①	2	3
Particle size of stream substrate	0	(1)	2	3
5. Active/relict floodplain	0	1	2	3
6. Depositional bars or benches	0	0	2	3
7. Recent alluvial deposits	0	1	2	1, 3
B. Headcuts	0	1	2	3
9. Grade control	0	0.5	1	1.5
10. Natural valley	0	0.5	0	1.5
11. Second or greater order channel	No	= 0	Yes:	= 3 )
artificial ditches are not rated; see discussions in manual  B. Hydrology (Subtotal =)				6.5
12. Presence of Baseflow	0	1	2	3
13. Iron oxidizing bacteria	6	1	2	3
14. Leaf litter	1.5	7	0.5	0
15. Sediment on plants or debris	0	0.5	1	1.5
16. Organic debris lines or piles	0	(0.5)	1	1.5
17. Soil-based evidence of high water table?	No	= 0	Yes:	
C. Biology (Subtotal = 9 )		1114+1	9	
18. Fibrous roots in streambed	(3)	2	1	0
19. Rooted upland plants in streambed	(3)	2	1	0
20. Macrobenthos (note diversity and abundance)	0	(D)	2	3
21. Aquatic Mollusks	0	1	2	3
22. Fish	0	0.5	1	1.5
23. Crayfish	0	0.5	1	1.5
24. Amphibians	0	0.5	1	1.5
25. Algae	0	(0.5)	1.	1.5
26. Wetland plants in streambed			OBL = 1.5 Other = 0	
*perennial streams may also be identified using other method:	See p. 35 of manual			- 10
Notes: determined to be perennial				
entre de la companya		115cmp059		1. 1
Sketch: —	11 V	1 1		NT
	- War 015 4	1	CL	
)	· + · 1'	/4 /		

OHUM width: 9 ft Bank width: 10





Provide the following information for the stream reach un	der assessment:
I. Applicant's name: Dominion	2. Evaluator's name: Will Vaughan
3. Date of evaluation: 6-10-16	4. Time of evaluation: 10:30 am
5. Name of stream: Longs Branch	6. River basin: Cape Fear
7. Approximate drainage area: 1817 acres	8. Stream order: 2nd
9. Length of reach evaluated: 40 F4	10. County: Cumberland
11. Site coordinates (if known): prefer in decimal degrees.	12. Subdivision name (if any): None
Latitude (ex. 34.872312): 34.8742686	Longitude (ex -77.556611): -78.856442
Method location determined (circle): GPS Topo Sheet Ortho:  13. Location of reach under evaluation (note nearby roads and  East of Yarborough Rd and West	landmarks and attach map identifying stream(s) location):
14. Proposed channel work (if any): proposed pipeline	
15. Recent weather conditions: \[ \ta_{\alpha} \]	
16. Site conditions at time of visit: Percanial Stream	a existing powerline consement
17. Identify any special waterway classifications known:	Section 10Tidal WatersEssential Fisheries Habitat
Trout WatersOutstanding Resource Waters	Nutrient Sensitive Waters Water Supply Watershed W(1-IV)
18. Is there a pond or lake located upstream of the evaluation	point? YES 1 If yes, estimate the water surface area: 11 AA
19. Does channel appear on USGS quad map? YES NO	20. Does channel appear on USDA Soil Survey? VES NO
21. Estimated watershed land use: 15% Residential	% Commercial% Industrial 30 % Agricultural
	% Cleared / Logged% Other ()
22. Bankfull width: 10 F4	23. Bank height (from bed to top of bank): 2 ft
아이는 그는 이 아이들은 아이들이 아니는	Gentle (2 to 4%)Moderate (4 to 10%)Steep (>10%)
25. Channel sinuosity:StraightOccasional bends	Frequent meanderVery sinuousBraided channel
location, terrain, vegetation, stream classification, etc. Every to each characteristic within the range shown for the ecc characteristics identified in the worksheet. Scores should recharacteristic cannot be evaluated due to site or weather co-comment section. Where there are obvious changes in the clinto a forest), the stream may be divided into smaller reaches	ge 2): Begin by determining the most appropriate ecoregion based on characteristic must be scored using the same ecoregion. Assign points oregion. Page 3 provides a brief description of how to review the effect an overall assessment of the stream reach under evaluation. If a nditions, enter 0 in the scoring box and provide an explanation in the haracter of a stream under review (e.g., the stream flows from a pasture that display more continuity, and a separate form used to evaluate each the between 0 and 100, with a score of 100 representing a stream of the enter.
Evaluator's Signature William E. Vaugh	Date_ 6-10-16
This channel evaluation form is intended to be used only gathering the data required by the United States Army	as a guide to assist landowners and environmental professionals in Corps of Engineers to make a preliminary assessment of stream of this form is subject to USACE approval and does not imply a

particular mitigation ratio or requirement. Form subject to change - version 06 03. To Comment, please call 919-876-8441 x 26.

ш		CHARACTERISTICS	ECOREGION POINT RANGE			SCORE	
	#	CHARACTERISTICS	Coastal	Piedmont	Mountain	SCORE	
	1	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0-5	0-4	0 – 5	5	
	2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0-6	0-5	0-5	3	
	3	Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	0-6	0-4	0-5	4	
	4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	5	
	5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	3	
	6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	4	
7	7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	5	
	8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0-6	0-4	0-2	6	
	9	Channel sinuosity (extensive channelization = 0; natural meander = max points)	0 – 5	0-4	0 – 3	3	
	10	Sediment input (extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0 – 4	3	
	11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	-	
	12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	4	
	13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0 – 5	0-5	0 – 5	4	
	14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	3	
	15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	5	
	16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0 – 6	1	
	17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	3	
	18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	4	
	19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	_	
	20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	0	
	21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	0	
	22	Presence of fish  (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	0	
	23	Evidence of wildlife use  (no evidence = 0; abundant evidence = max points)	0-6	0-5	0-5	0	
		Total Points Possible	100	100	100		
100		TOTAL SCORE (also enter on fi	irst page)		et a profes	65	

<sup>\*</sup> These characteristics are not assessed in coastal streams.



Waterbody data point scmp059 facing northeast upstream.



Waterbody data point scmp059 facing southwest downstream.



Waterbody data point scmp059 facing east across bank.

NC DWQ Stream Identification Form Version 4.11

Date: 4/6/16	Project/Site: ACP	Latitude: 34.87697401
Evaluator: ESI (W. Vaughan)	County: Cumberland	Longitude: -78. 87196582
Total Points:  Stream is at least intermittent if ≥ 19 or perennial if ≥ 30*	Stream Determination (circle one)	Other e.g. Quad Name: Duart, NC

Stream is at least intermittent if ≥ 19 or perennial if ≥ 30*	Ephemeral Inter	rmittent Perenni	e.g. Quad Name:	Duart, No
A. Geomorphology (Subtotal = 15 )	Absent	Weak	Moderate	Strong
1ª Continuity of channel bed and bank	0	1	(2)	3
Sinuosity of channel along thalweg	0	1	3	3
3. In-channel structure: ex. riffle-pool, step-pool,	0		2	3
ripple-pool sequence	0	1		
Particle size of stream substrate	0	1	2	3
Active/relict floodplain	0	1	2	3
Depositional bars or benches	0	1	(2)	3
7. Recent alluvial deposits	0	(1)	2	3
8. Headcuts	0	1	2	3
9. Grade control	0	0.5	1	1.5
10. Natural valley	0	0.5	1	(1.5)
11. Second or greater order channel	No	=0)	Yes	= 3
artificial ditches are not rated; see discussions in manual				
B. Hydrology (Subtotal =)				
12. Presence of Baseflow	0	1	2	(3)
13. Iron oxidizing bacteria	0	1	2	3
14. Leaf litter	(1,5)	1	0.5	0
15. Sediment on plants or debris	0	0.5	1	1.5
16. Organic debris lines or piles	0	0.5	1	1.5
17. Soil-based evidence of high water table?	No	0 = 0	Yes	= 3
C. Biology (Subtotal = 6 )				
18. Fibrous roots in streambed	3	(2)	1	0
19. Rooted upland plants in streambed	. 3	(2)	1	0
20. Macrobenthos (note diversity and abundance)	0	0	2	3
21. Aquatic Mollusks	G	1	2	3
22. Fish	0	(0.5)	1	1.5
23. Crayfish	0	0.5	1	1.5
24. Amphibians	0	0.5	1	1.5
25. Algae	0	0.5	1	1.5
26. Wetland plants in streambed	0		OBL = 1.5 Other =	
*perennial streams may also be identified using other me	thods. See n. 35 of manus		1.5) 51161	
	ulous, dee p, so of manua	21.		
Notes:				
Sketch:	w.cmp047	_	(	L
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USACE AID=	DWQ =

Site = \_\_\_ (indicate on attached map) scmp 050

STREAM QUALITY A	SSESSMENT WORKSHEET
Provide the following information for the stream reach und	ler assessment:
1. Applicant's name: Domason	2. Evaluator's name: EST (W. Unughas)
3. Date of evaluation: 4/6/16	4. Time of evaluation: 1:40 PM
5. Name of stream: UNT to Swans Creek	6. River basin: Cape Fear
7. Approximate drainage area: 90	8. Stream order: O
9. Length of reach evaluated: 30 f+	10. County: Cumberland
11. Site coordinates (if known): prefer in decimal degrees.	12. Subdivision name (if any): None
Latitude (ex. 34.872312): 34.87.09.240.1	Longitude (ex77.556611): - 78.87196582
Method location determined (circle): GPS Topo Sheet Ortho ( 13. Location of reach under evaluation (note nearby roads and	Aerial) Photo/GIS Other GIS Other
West of the intersection of Yarborough R	d and Odom Rd; East of Fire Dept Rd
14. Proposed channel work (if any): Proposed pipel	ine
15. Recent weather conditions: Cool, dry	
16. Site conditions at time of visit: Thream is with in ex	Isting powerful exsensent
17. Identify any special waterway classifications known:	Section 10Tidal WatersEssential Fisheries Habitat
	Nutrient Sensitive WatersWater Supply Watershed(I-IV)
18. Is there a pond or lake located upstream of the evaluation	point? (YES) NO If yes, estimate the water surface area: 9 acres
19. Does channel appear on USGS quad map? YES NO	20. Does channel appear on USDA Soil Survey? YES NO
21. Estimated watershed land use: 5% Residential	O% Commercial O% Industrial 50% Agricultural
40 % Forested	5 % Cleared / Logged 0 % Other ()
* (Top of Bank) 22. Bankfull width: 2 ft	23. Bank height (from bed to top of bank):   ft
24. Channel slope down center of stream:Flat (0 to 2%)	Gentle (2 to 4%)Moderate (4 to 10%)Steep (>10%)
25. Channel sinuosity:StraightOccasional bends	Frequent meanderVery sinuousBraided channel
location, terrain, vegetation, stream classification, etc. Every to each characteristic within the range shown for the eccharacteristics identified in the worksheet. Scores should recharacteristic cannot be evaluated due to site or weather of comment section. Where there are obvious changes in the cinto a forest), the stream may be divided into smaller reaches	ge 2): Begin by determining the most appropriate ecoregion based on a characteristic must be scored using the same ecoregion. Assign points oregion. Page 3 provides a brief description of how to review the effect an overall assessment of the stream reach under evaluation. If a conditions, enter 0 in the scoring box and provide an explanation in the character of a stream under review (e.g., the stream flows from a pasture s that display more continuity, and a separate form used to evaluate each ge between 0 and 100, with a score of 100 representing a stream of the
Total Score (from reverse): 64 Comm	ents:
1	120

Date 4/8/16 Evaluator's Signature Usellia & Variate Date 4/B/16

This channel evaluation form is intended to be used only as a guide to assist landowners and environmental professionals in gathering the data required by the United States Army Corps of Engineers to make a preliminary assessment of stream quality. The total score resulting from the completion of this form is subject to USACE approval and does not imply a particular mitigation ratio or requirement. Form subject to change - version 06 03. To Comment, please call 919-876-8441 x 26.

11	CHARACTERISTICS	ECOREGION POINT RANGE			Company of the Compan	
# 1	THE CHIEF SEACH LEE WELLS TO SEE THE	Coastal	Piedmont	Mountain	MRS HE	
1	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0-5	0-4	0-5	5	
2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0 – 6	0-5	0-5	4	
3	(no buffer = 0; contiguous, wide buffer = max points)	0-6	0-4	0-5	4	
4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0 - 4	5	
5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0=4	3	
6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	4	
7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	4	
8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0-6	0-4	0-2	6	
9	Channel sinuosity  (extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	4	
10	Sediment input  (extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0-4	3	
11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	-	
12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	3	
13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	3	
14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	2	
15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	3	
16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0-6	1	
17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	12	
18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	2	
19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	7	
20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	3	
21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	0	
22	Presence of fish  (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	2	
23	Evidence of wildlife use  (no evidence = 0; abundant evidence = max points)	0-6	0-5	0-5	1	
	Total Points Possible	100	100	100		

<sup>\*</sup> These characteristics are not assessed in coastal streams.



Waterbody scmp050 facing southwest upstream.



Waterbody scmp050 facing east downstream.



Waterbody scmp050 facing south across bank.

NC DWQ Stream Identification Form Version 4.11

Date: 4/6/16	Project/Site: ACP	Latitude: 34.87091203	
Evaluator: ESI (R. Turnbull)	County: Cumberland	Longitude: -78.8724609	
Total Points: Stream is at least intermittent if ≥ 19 or perennial if ≥ 30*	Stream Determination (circle one) Ephemeral Intermittent Perennial	Other e.g. Quad Name: Duart, NC	

A. Geomorphology (Subtotal = 11.5)	Absent	Weak	Moderate	Strong
1ª Continuity of channel bed and bank	0	1	(2)	3
2. Sinuosity of channel along thalweg	0	P	2	3
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	2	3
Particle size of stream substrate	0	0	2	3
5. Active/relict floodplain	0	1	2	(3)
6. Depositional bars or benches	0	1	2	3
7. Recent alluvial deposits	(0)	1	2	3
8. Headcuts	0	1	2	3
9. Grade control	0	0.5	1	1.5
10. Natural valley	0	0.5	1	15
11. Second or greater order channel	No	0 = 0	Yes	= 3
artificial ditches are not rated; see discussions in manual				
B. Hydrology (Subtotal = 9. )				
12. Presence of Baseflow	0	1	2	3
13. Iron oxidizing bacteria	9	1	2	3
14. Leaf litter	1.5	1	0.5	0
15. Sediment on plants or debris	0	0.5	1	1.5
16. Organic debris lines or piles	0	0.5	1	1.5
17. Soil-based evidence of high water table?	No	0 = 0	Yes	= 3
C. Biology (Subtotal = 3)				
18. Fibrous roots in streambed	3	2	1	0
19. Rooted upland plants in streambed	3	2	1	0
20. Macrobenthos (note diversity and abundance)	0	1	2	3
21. Aquatic Mollusks	0	1	2	3
22. Fish	0	0.5	1	1.5
23. Crayfish	0	0.5	1	1.5
24. Amphibians	0	0.5	1	1.5
25. Algae	0	(0.5)	1	1.5
26. Wetland plants in streambed		FACW = 0.75;	OBL = 1.5 Other =	0
*perennial streams may also be identified using other method	ods. See p. 35 of manua	al.		
Notes: Stream determined to be perente				
	-			0.000 C
Sketch:	wemp047.			
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BALLTOBINE: 4

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JSAÇE AID⊭	DWO =	Site ≠	(indicate on attached map
		semp	049

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100		1
	C	C

Provide the following information for the stream reach und	
1. Applicant's name: Dominion	
3. Date of evaluation: 4/6/2016	4. Time of evaluation: 1:30 PM
5. Name of stream: UNT to Swans Creek	6. River basin: Cape Fear
7. Approximate drainage area: 204	8. Stream order:   S+
9. Length of reach evaluated: 30 F+	10. County: Cumberland
11 Site coordinates (if known): prefer in decimal degrees.	12. Subdivision name (if any): None
Latitude (ex. 34.872312): 34.87091203	Longitude (ex77.556611): 78.87245090
Method location determined (circle): GPS Topo Sheet Office 13. Location of reach under evaluation (note nearby roads and	l landmarks and attach map identifying stream(s) location):
West of the intersection of Karborough Rd as	nd Odom Rd; East of Fire Dept Rd
	he may a feet the second the seco
15. Recent weather conditions: Coul dry	TENNET THE CONTROL OF THE PARTY OF THE STATE
16. Site conditions at time of visit: Streem is within ma	intained powerline easement
17. Identify any special waterway classifications known:	Section 10Tidal WatersEssential Fisheries Habitat
	Nutrient Sensitive WatersWater Supply Watershed(l-lV)
18. Is there a pond or lake located upstream of the evaluation	point? (YES) NO If yes, estimate the water surface area: 9 acree
19. Does channel appear on USGS quad map? YES NO	20. Does channel appear on USDA Soil Survey? YES NO
21. Estimated watershed land use:% Residential	% Commercial% Industrial% Agricultural
<u>45</u> % Forested	5 % Cleared / Logged % Other ()  23. Bank height (from bed to top of bank):   ft.
22. Bankfull width: 4 Pr.	23. Bank height (from bed to top of bank):   Ft.
24. Channel slope down center of stream:Flat (0 to 2%)	Gentle (2 to 4%)Moderate (4 to 10%)Steep (>10%)
25. Channel sinuosity:StraightOccasional bends	Frequent meanderVery sinuousBraided channel
location, terrain, vegetation, stream classification, etc. Ever to each characteristic within the range shown for the eccharacteristics identified in the worksheet. Scores should a characteristic cannot be evaluated due to site or weather comment section. Where there are obvious changes in the into a forest), the stream may be divided into smaller reachereach. The total score assigned to a stream reach must ran highest quality.	age 2): Begin by determining the most appropriate ecoregion based on y characteristic must be scored using the same ecoregion. Assign points coregion. Page 3 provides a brief description of how to review the reflect an overall assessment of the stream reach under evaluation. If a conditions, enter 0 in the scoring box and provide an explanation in the character of a stream under review (e.g., the stream flows from a pasture es that display more continuity, and a separate form used to evaluate each age between 0 and 100, with a score of 100 representing a stream of the
Total Score (from reverse): 66 Comm	ments: DETERMINED to be policy in the
	Field; Fish plasent
The second secon	
Evaluator's Signature Willia & Vange	Date 4-8-16
This channel evaluation form is intended to be used on	ly as a guide to assist landowners and environmental professionals in
gathering the data required by the United States Arm	my Corps of Engineers to make a preliminary assessment of street

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#	CHARACTERISTICS 15,		ION POINT		SCOR
# 2		Coastal	Piedmont	Mountain	
1	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0-5	0-4	0-5	5
2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0 – 6	0-5	0-5	4
3	Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	0-6	0-4	0-5	4
4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	5
5	(no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0=4	3
6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	4
7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	5
8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0-6	0-4	0-2	6
9	Channel sinuosity (extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	4
10	Sediment input  (extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0-4	
11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	
12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	3
13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	3
14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	
15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	laka -
16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0-6	
17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	
18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	
19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	
20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	
21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	
22	Presence of fish	0-4	0-4	0-4	
23	Evidence of wildlife use	0-6	0-5	0-5	
	Total Points Possible	100	100	100	
in dia	TOTAL SCORE (also enter on	c it	The Explanation	14 fille keit	(

<sup>\*</sup> These characteristics are not assessed in coastal streams.



Waterbody scmp049 facing west upstream.



Waterbody scmp049 facing east downstream.



Waterbody scmp049 facing south across bank.

		Sc	mg 007
USACE AID#	DWQ #	Site #	(indicate on attached map)





Provide the following information for the stream reach unc	ler assessment:
1. Applicant's name: Dom wich	2. Evaluator's name: 3. GAY
3. Date of evaluation: 16 Sept 2014	4. Time of evaluation: 3:20
5. Name of stream: UNT To Kirks Mill Creek	6. River basin: CAPE FEAR
7. Approximate drainage area: 500 Acres	8. Stream order: \4 45
9. Length of reach evaluated: 50 Feet	10. County: Comberland
11. Site coordinates (if known): prefer in decimal degrees.	12. Subdivision name (if any): NA
Latitude (ex. 34.872312): 34°51′59.073"	Longitude (ex77.556611): 78° 53 \ 14.971 \
Method location determined (circle): GPS Topo Sheet Ortho (	Aerial) Photo/GIS Other GIS Other landmarks and attach map identifying stream(s) location):
14. Proposed channel work (if any): Pone	
15. Recent weather conditions: No∈ mol	
16. Site conditions at time of visit:	
17. Identify any special waterway classifications known:	Section 10Tidal WatersEssential Fisheries Habitat
Trout WatersOutstanding Resource Waters	Nutrient Sensitive Waters Water Supply Watershed (I-IV)
18. Is there a pond or lake located upstream of the evaluation p	oint? YES (NØ If yes, estimate the water surface area:
19. Does channel appear on USGS quad map? YES (NO)	20. Does channel appear on USDA Soil Survey? YES NO
21. Estimated watershed land use: 5% Residential	% Commercial% Industrial <u></u> % Agricultural
∑% Forested	% Cleared / Logged% Other (
22. Bankfull width:	23. Bank height (from bed to top of bank): <u>fo</u>
24. Channel slope down center of stream: Flat (0 to 2%)	Gentle (2 to 4%)Moderate (4 to 10%)Steep (>10%)
	Frequent meanderVery sinuousBraided channel
to each characteristic within the range shown for the ecor characteristics identified in the worksheet. Scores should ref characteristic cannot be evaluated due to site or weather con comment section. Where there are obvious changes in the characteristic cannot be evaluated due to site or weather con the characteristic cannot be evaluated due to site or weather con comment section. Where there are obvious changes in the characteristic cannot be evaluated due to site or weather con comment section.	e 2): Begin by determining the most appropriate ecoregion based on characteristic must be scored using the same ecoregion. Assign points region. Page 3 provides a brief description of how to review the flect an overall assessment of the stream reach under evaluation. If a ditions, enter 0 in the scoring box and provide an explanation in the aracter of a stream under review (e.g., the stream flows from a pasture that display more continuity, and a separate form used to evaluate each between 0 and 100, with a score of 100 representing a stream of the
Total Score (from reverse): Commen	ıts:
Evaluator's Signature	Date 16 Sept 2014
gathering the data required by the United States Army quality. The total score resulting from the completion o	Date 16 Sapt Zoich is a guide to assist landowners and environmental professionals in Corps of Engineers to make a preliminary assessment of stream of this form is subject to USACE approval and does not imply a change – version 06/03. To Comment, please call 919-876-8441 x 26.

#	CHARACTERISTICS	ECOREGION POINT RANGE			
- 1		Coastal	Piedmont	Mountain	SCORE
1	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0-5	0-4	0-5	4
2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0-6	0-5	0-5	Ó
3	Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	0-6	0-4	0-5	0
4	Evidence of nutrient or chemical discharges  (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	1
5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	1
5 6 7	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	0
7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	0
8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0-6	0-4	0-2	6
9	Channel sinuosity (extensive channelization = 0; natural meander = max points)	0-5	0 – 4	0-3	0
10	Sediment input (extensive deposition= 0; little or no sediment = max points)	0 – 5	0 – 4	0-4	3
11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	NA
12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0 – 5	0-4	0-5	0
13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	
14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	3
15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	0
16 17 18	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0 – 3	0-5	0-6	j
17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	ŀ
18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	0
19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	M
20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	1
21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	0
22	Presence of fish (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	0
23	Evidence of wildlife use (no evidence = 0; abundant evidence = max points)	0-6	0-5	0-5	3
	Total Points Possible	100	100	100	10 Teles
	TOTAL SCORE (also enter on fir	st page)	100 C (100 C)		19

<sup>\*</sup> These characteristics are not assessed in coastal streams.

NC DWQ Stream Identification Form Version 4.11 2014 Latitude: 34515 Project/Site: Evaluator: County: Cumbesland Total Points: Stream Determination (circle one) Other UNT to Kirks Mill Creek Stream is at least intermittent Ephemeral Intermittent Perennial if ≥ 19 or perennial if ≥ 30\* e.g. Quad Name; A. Geomorphology (Subtotal = Absent Weak Moderate Strong 1<sup>a.</sup> Continuity of channel bed and bank NA 0 3 2. Sinuosity of channel along thalweg 0 (T) 2 3 3. In-channel structure: ex. riffle-pool, step-pool, 0 (1) 2 ripple-pool sequence 3 4. Particle size of stream substrate 0 (1) 2 3 5. Active/relict floodplain 6) 2 3 6. Depositional bars or benches (O 2 3 7. Recent alluvial deposits Õ 1 2 3 8. Headcuts Õ 2 3 9. Grade control 6 0.5 1 1.5 10. Natural valley (ô) 0.5 1.5 11. Second or greater order channel Yes = 3<sup>a</sup> artificial ditches are not rated; see discussions in manual B. Hydrology (Subtotal = 12. Presence of Baseflow 0 1 2 3, 13. Iron oxidizing bacteria 0 (T) 2 14. Leaf litter 1.5 0.5 0 15. Sediment on plants or debris O 0.5 1 1.5 16. Organic debris lines or piles (0) 1.5 17. Soil-based evidence of high water table? No = 0Yes = 3C. Biology (Subtotal = 18. Fibrous roots in streambed 2 0 19. Rooted upland plants in streambed 3 2 0 20. Macrobenthos (note diversity and abundance) Ő 2 3 21. Aquatic Mollusks (0) 2 3 22. Fish 761 0.5 1.5 23. Crayfish Ő 0.5 7 1.5 24. Amphibians (0) 0.5 1.5 25. Algae 0.5 1.5 26. Wetland plants in streambed FACW = 0.75; OBL = 1.5 Other = 0 \*perennial streams may also be identified using other methods. See p. 35 of manual Notes: Sketch:

Powerline

# scmg002



scmg002 facing upstream



scmg002 facing downstream

# scmg002



scmg02 cross stream

THE RESIDENCE OF THE PROPERTY		Scmgool
USACE AID#	DWO#	Site # (indicate on attached map)
CONTRACTOR OF THE CONTRACTOR O	Commission of the Commission o	(





Provide the following information for the stream reach und	er assessment:
1. Applicant's name: Dominion	2. Evaluator's name: J. Gay
3. Date of evaluation: 16 Sept 2014	4. Time of evaluation: 14 26
5. Name of stream: UNT TO KIEKS Mill Creek	6. River basin: Care Feas
7. Approximate drainage area: 100 Acres	8. Stream order: 2 nc
9. Length of reach evaluated: 100	10. County: Cumberland
11. Site coordinates (if known): prefer in decimal degrees.	12. Subdivision name (if any): N A
Latitude (ex. 34.872312): 34°51′57.740″	Longitude (ex77.556611): 78°53' (6.207"
Method location determined (circle): GPS Topo Sheet Ortho (A  13. Location of reach under evaluation (note nearby roads and I  Approximately 2,500 feet Northw	andmarks and attach map identifying stream(s) location):
14. Proposed channel work (if any): Nowe	
15. Recent weather conditions: Noc ma	
16. Site conditions at time of visit: Sunny	
•	Section 10Tidal WatersEssential Fisheries Habitat
	Nutrient Sensitive WatersWater Supply Watershed(I-IV)
	oint? YES (NO) If yes, estimate the water surface area:
19. Does channel appear on USGS quad map? (YES) NO	20. Does channel appear on USDA Soil Survey? YES NO
21. Estimated watershed land use: 5 % Residential	% Commercial % Industrial % Agricultural
_5 % Forested	% Cleared / Logged % Other (
22. Bankfull width:	23. Bank height (from bed to top of bank):
24. Channel slope down center of stream:Flat (0 to 2%)	Gentle (2 to 4%)Moderate (4 to 10%)Steep (>10%)
	Frequent meanderVery sinuousBraided channel
to each characteristic within the range shown for the ecore characteristics identified in the worksheet. Scores should refl characteristic cannot be evaluated due to site or weather concomment section. Where there are obvious changes in the chainto a forest), the stream may be divided into smaller reaches the reach. The total score assigned to a stream reach must range highest quality.	2): Begin by determining the most appropriate ecoregion based on haracteristic must be scored using the same ecoregion. Assign points egion. Page 3 provides a brief description of how to review the ect an overall assessment of the stream reach under evaluation. If a litions, enter 0 in the scoring box and provide an explanation in the racter of a stream under review (e.g., the stream flows from a pasture nat display more continuity, and a separate form used to evaluate each between 0 and 100, with a score of 100 representing a stream of the
Total Score (from reverse): 25 Commen	ts:
Evaluator's Signature // /	Date 16 Sept 2014 s a guide to assist landowners and environmental professionals in
gathering the data required by the United States Army (quality. The total score resulting from the completion of	s a guide to assist landowners and environmental professionals in Corps of Engineers to make a preliminary assessment of stream this form is subject to USACE approval and does not imply a change – version 06/03. To Comment, please call 919-876-8441 x 26.

1   Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)   0-5   0-4   0-5   2	#	CHARACTERISTICS	ECOREGION POINT RANGE			
1   Presence of flow / persistent pools in stream (inc flow or saturation = 0; storing flow = max points)		Section 1997 and 1997		The State of the S	ACTION COMMON DATE ON DESCRIPTION OF THE PROPERTY OF THE PROPE	SCORE
2   Evidence of past human alteration   0, no alteration = max points   0 - 6   0 - 5   0 - 5   0	1	(no flow or saturation = 0; strong flow = max points)	0 – 5			2
Constitute	2	Evidence of past human alteration  (extensive alteration = 0; no alteration = max points)	0-6	0-5	0-5	
Votable   Cextensive discharges   Cextensive floodplain   Cextensive floodpl	3	(no buffer = 0; contiguous, wide buffer = max points)	0-6	0-4	0-5	Z
S	4	Evidence of nutrient or chemical discharges  (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	2
Root depth and density on banks   15   16   17   18   18   18   19   19   19   19   19	<b>5</b> 5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0 – 4	
Root depth and density on banks   15   16   17   18   18   18   19   19   19   19   19	6	Presence of adjacent floodplain  (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	0
(no wetlands = 0; large adjacent wetlands = max points)	5 2	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	0
Cextensive channelization = 0; natural meander = max points   0-5	8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0-6	0-4	0-2	0
10	9	Channel sinuosity (extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	0
11   Size & diversity of channel bed substrate   NA*   0-4   0-5   NA     12   Evidence of channel incision or widening   (deeply incised = 0; stable bed & banks = max points)   0-5   0-4   0-5   3     13   Presence of major bank failures   (severe erosion = 0; no erosion, stable banks = max points)   0-5   0-5   0-5   0-5     14   Root depth and density on banks   (no visible roots = 0; dense roots throughout = max points)   0-3   0-4   0-5   0-5     15   Impact by agriculture, livestock, or timber production   (substantial impact = 0; no evidence = max points)   0-5   0-4   0-5   0-5     16   Presence of riffle-pool/ripple-pool complexes   (no riffles/ripples or pools = 0; well-developed = max points)   0-3   0-5   0-6   0-6     17   (little or no habitat = 0; frequent, varied habitats = max points)   0-6   0-6   0-6   0-6     18   Canopy coverage over streambed   (no shading vegetation = 0; continuous canopy = max points)   0-5   0-5   0-5     19   Substrate embeddedness   (deeply embedded = 0; loose structure = max)   NA*   0-4   0-4   NA     20   Presence of stream invertebrates (see page 4)   (no evidence = 0; common, numerous types = max points)   0-4   0-5   0-5   0-5     21   Presence of stream invertebrates (see page 4)   (no evidence = 0; common, numerous types = max points)   0-4   0-4   0-4     22   Presence of fish   (no evidence = 0; common, numerous types = max points)   0-4   0-4   0-4     22   Presence of siblatina embeddednese   (no evidence = 0; common, numerous types = max points)   0-4   0-4   0-4     23   Evidence of wildlife use   (no evidence = 0; abundant evidence = max points)   0-6   0-5   0-5   0-5   0-5   0-5     24   Total Paints Parallal	10	Sediment input  (extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0 – 4	2
12   Evidence of channel incision or widening   0-5   0-4   0-5   3	11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	NA
15	12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0 – 5	
15	13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	
15   Impact by agriculture, investock, or timber production (substantial impact =0; no evidence = max points)   0-5   0-4   0-5     16   Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)   0-3   0-5   0-6     17     Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)   0-6   0-6   0-6     18     Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)   0-5   0-5   0-5     19     Substrate embeddedness (deeply embedded = 0; loose structure = max)   NA*   0-4   0-4     20     Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)   0-4   0-5   0-5     21     Presence of amphibians (no evidence = 0; common, numerous types = max points)   0-4   0-4   0-4     22     Presence of fish (no evidence = 0; common, numerous types = max points)   0-4   0-4   0-4     23     Evidence of wildlife use (no evidence = 0; abundant evidence = max points)   0-6   0-5   0-5     Total Print Parallal	14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	1
17	15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	0
17	888 F. S.	(no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0-6	***************************************
Substrate embeddedness (deeply embedded = 0; loose structure = max)  Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)  Presence of amphibians (no evidence = 0; common, numerous types = max points)  Presence of fish (no evidence = 0; common, numerous types = max points)  Presence of fish (no evidence = 0; common, numerous types = max points)  Evidence of wildlife use (no evidence = 0; abundant evidence = max points)  Testal Prints Provided  NA*  0-4 0-5 0-5 / 0-4 0-4 0-4 0-5 0-5 0-5 0-5 0-5 0-5 0-5 0-5	17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	1
Substrate embeddedness (deeply embedded = 0; loose structure = max)  Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)  Presence of amphibians (no evidence = 0; common, numerous types = max points)  Presence of fish (no evidence = 0; common, numerous types = max points)  Presence of fish (no evidence = 0; common, numerous types = max points)  Evidence of wildlife use (no evidence = 0; abundant evidence = max points)  Total Paints Parallal	18	(no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	Z
Comparison of the property o	19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	NA
Presence of amphibians (no evidence = 0; common, numerous types = max points)  Presence of fish (no evidence = 0; common, numerous types = max points)  Evidence of wildlife use (no evidence = 0; abundant evidence = max points)  Total Points Parallal	900 P	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	1
23 Evidence of wildlife use (no evidence = 0; abundant evidence = max points)  Total Points Provided  Total Points	21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	1
23 Evidence of wildlife use (no evidence = 0; abundant evidence = max points)  Total Points Provided  Total Points	22	Presence of fish (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	0
Total Points Possible 100 100 100		Evidence of wildlife use	0-6	0-5	0-5	3
		Total Points Possible	100	100	100	

<sup>\*</sup> These characteristics are not assessed in coastal streams.

NC DWQ Stream Identification Form Version 4.11 Date: Project/Site: ACP Latitude: 3451 57.740 Evaluator: County: Combecland Longitude: 78°53′ 16. 207 **Total Points:** Stream Determination (circle one) Other UNT to Kirks Mill Creek Stream is at least intermittent Ephemeral (Intermittent) Perennial e.g. Quad Name: if ≥ 19 or perennial if ≥ 30\* A. Geomorphology (Subtotal = Absent Weak Moderate Strong 1<sup>a.</sup> Continuity of channel bed and bank 0 1 2 3 2. Sinuosity of channel along thalweg 0 (1) 2 3 3. In-channel structure: ex. riffle-pool, step-pool, 0 (1) 2 ripple-pool sequence 3 4. Particle size of stream substrate 0 1) 2 3 5. Active/relict floodplain (O) 2 3 6. Depositional bars or benches (0) 1 2 3 7. Recent alluvial deposits 0 1 2 3 8. Headcuts **(0**) 2 3 9. Grade control õ 0.5 1 1.5 10. Natural valley 0 0.5 1 1.5 11. Second or greater order channel CNO \$10 Yes = 3 <sup>a</sup> artificial ditches are not rated; see discussions in manual B. Hydrology (Subtotal = 12. Presence of Baseflow 0 2 3 13. Iron oxidizing bacteria 0 (1) 2 3 14. Leaf litter 1.5 1 0.5 0 15. Sediment on plants or debris 0 0.5 1 1.5 16. Organic debris lines or piles 0 0.5 1 1.5 17. Soil-based evidence of high water table? No = 0Yes = 3 C. Biology (Subtotal = 18. Fibrous roots in streambed 1 0 19. Rooted upland plants in streambed (3) 1 0 20. Macrobenthos (note diversity and abundance) (1) 0 2 3 21. Aquatic Mollusks Ō, 2 3 22. Fish €.0 1 1.5 23. Crayfish 0.5 0) 1 1.5 24. Amphibians ŏ 0.5 1 1.5 25. Algae Ó 0.5 1.5 26. Wetland plants in streambed FACW = 0.75; OBL = 1.5 Other = 0 \*perennial streams may also be identified using other methods. See p. 35 of manual. Notes: Sketch:

# scmg001



scmg001 facing upstream



scmg001 facing downstream

# scmg001



scmg001 cross stream

				SCAEOOL
USACE AID#	DWQ #		Site #	(indicate on attached map)
	STREAM QUALITY A	SSESSMENT WOI	RKSHE	ET
<ol> <li>Applicant's name:</li> <li>Date of evaluation:</li> <li>Name of stream:</li> <li>Approximate drainage</li> <li>Length of reach evaluation:</li> <li>Site coordinates (if k</li> <li>Latitude (ex. 34.872312):</li> <li>Method location determined</li> </ol>	area:  nown): prefer in decimal degrees.  34.7622  d (circle): GPS Topo Sheet Ortho (	2. Evaluator's name:  4. Time of evaluation:  6. River basin:  8. Stream order:  10. County:  12. Subdivision name (if a  Longitude (ex77.556611):  Aerial) Photo/GIS Other GIS	Cap  (a)  (a)  (b)  Other	78.8975
<ul><li>13. Location of reach un</li><li>14. Proposed channel wo</li><li>15. Recent weather cond</li></ul>	der evaluation (note nearby roads and ork (if any):itions:	landmarks and attach map id	entifying s	
17. Identify any special v	ne of visit: ( \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	Nutrient Sensitive Waters	Water	Supply Watershed(I-IV)
<ul><li>19. Does channel appear</li><li>21. Estimated watershed</li><li>22. Bankfull width:</li></ul>	land use:% Residential% Forested	% Cleared / Logged	% Indus % Other	oil Survey? YES NO strial% Agricultural r ( pank):
24. Channel slope down	center of stream:Flat (0 to 2%)  StraightOccasional bends	Gentle (2 to 4%)	_Moderate	(4 to 10%)Steep (>10%)
Instructions for complete location, terrain, vegetate to each characteristic veharacteristic identified characteristic cannot be comment section. When into a forest), the stream	etion of worksheet (located on pagion, stream classification, etc. Every within the range shown for the ecol in the worksheet. Scores should re evaluated due to site or weather core there are obvious changes in the chamay be divided into smaller reaches assigned to a stream reach must range	e 2): Begin by determining characteristic must be scored region. Page 3 provides a flect an overall assessment of a ditions, enter 0 in the scoridaracter of a stream under rethat display more continuity	the most d using the brief des of the streating box an view (e.g., , and a sep	appropriate ecoregion based on same ecoregion. Assign points cription of how to review the m reach under evaluation. If a d provide an explanation in the the stream flows from a pasture arate form used to evaluate each

Evaluator's Signature Date // 2 / 2 / 6

This channel evaluation form is intended to be used only as a guide to assist landowners and environmental professionals in gathering the data required by the United States Army Corps of Engineers to make a preliminary assessment of stream quality. The total score resulting from the completion of this form is subject to USACE approval and does not imply a particular mitigation ratio or requirement. Form subject to change – version 06/03. To Comment, please call 919-876-8441 x 26.

Comments:

Total Score (from reverse):

# NC Division of Water Quality –Methodology for Identification of Intermittent and Perennial Streams and Their Origins v. 4.11

NC DWQ Stream Identification Form	Version 4.11		SCW6	002
Date: 127/2014	Project/Site:			
Evaluator: Colh Coentry	County: Curr	berland	Longitude:	78.8975
Total Points:  Stream is at least intermittent  if ≥ 19 or perennial if ≥ 30*		nation (circle one) ermittent Perennial	Other e.g. Quad Name	:
A. Geomorphology (Subtotal = 10 )	Absent	Weak	Moderate	Strong
1 <sup>a.</sup> Continuity of channel bed and bank	0	1	2	(3)
Sinuosity of channel along thalweg	0	(1)	2	3
In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence	0	1	2	3
Particle size of stream substrate	0	(1)	2	3
5. Active/relict floodplain		1	2	3
6. Depositional bars or benches	(0)	1	2	3
7. Recent alluvial deposits	0	1	2	3
8. Headcuts	(0)	1	2	3
9. Grade control	0	0.5	(1)	1.5
10. Natural valley	0	0.5	1	1.5
11. Second or greater order channel	N	o = 0	⟨Yes	= 3
artificial ditches are not rated; see discussions in manual				
B. Hydrology (Subtotal =)				
12. Presence of Baseflow	0	1	2	(3)
13. Iron oxidizing bacteria		1	2	3
14. Leaf litter	(1.5)	1	0.5	0
15. Sediment on plants or debris	0	(0.5)	1	1.5
16. Organic debris lines or piles	(0)	0.5	1	1.5
17. Soil-based evidence of high water table?		o = 0	Yes	Contraction of the Contraction o
C. Biology (Subtotal =)				
18. Fibrous roots in streambed	3	2	1	0
19. Rooted upland plants in streambed	(3)	2	1	0
20. Macrobenthos (note diversity and abundance)	(0)	1	2	3
21. Aguatic Mollusks	1 0	1	2	3
22. Fish	(6)	0.5	1	1.5
23. Crayfish	(6)	0.5	1	1.5
24. Amphibians	(6)	0.5	1	1.5
25. Algae	(0)	0.5	1	1.5
26. Wetland plants in streambed		FACW = 0.75; OB	L = 1.5 Other =	0)
*perennial streams may also be identified using other methods	s. See p. 35 of manua	al.	The second secon	
Notes: Timing of surveys is not conc	Pucive to to	ndhy aquatre	อาๆจกเชิงเร	
Sketch:				

	#	CHADACTEDICTICS	ECOREGION POINT RANGE			CORE
	H .	CHARACTERISTICS	Coastal	Piedmont	Mountain	SCORE
	1	Presence of flow / persistent pools in stream	0-5	0-4	0-5	24
T		(no flow or saturation = 0; strong flow = max points)		200		1
	2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0-6	0-5	0 – 5	3
		Riparian zone		0 – 4	0-5	<i>*</i>
	3	(no buffer = 0; contiguous, wide buffer = max points)	0-6			3
	4	Evidence of nutrient or chemical discharges	0-5	0-4	0-4	3
	•	(extensive discharges = 0; no discharges = max points)	0 3	, , , , , , , , , , , , , , , , , , ,	V 7	
	5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	12
⊍ੈ		Presence of adjacent floodplain				
<b>2</b>	6	(no floodplain = 0; extensive floodplain = max points)	0 – 4	0 – 4	0-2	
PHYSICAL	7	Entrenchment / floodplain access	0-5	0-4	0-2	
	,	(deeply entrenched = 0; frequent flooding = max points)	0-3	0-4	0-2	
	8	Presence of adjacent wetlands	0-6	0-4	0-2	5
		(no wetlands = 0; large adjacent wetlands = max points)  Channel sinuosity		15-25-2		<u> </u>
	9	(extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	1
	10	Sediment input	0.5	0.4		•-)
	10	(extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0-4	5
	11	Size & diversity of channel bed substrate	NA*	0-4	0-5	
		(fine, homogenous = 0; large, diverse sizes = max points)			9 5	
	12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	1
	13 14 15	Presence of major bank failures		2		
		(severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	3
9		Root depth and density on banks	0-3	0-4	0-5	i
STABILIT		(no visible roots = 0; dense roots throughout = max points)	0 3	V 7	0-5	
<b>9</b> 2		Impact by agriculture, livestock, or timber production	0-5	0 – 4	0-5	3
	16	(substantial impact =0; no evidence = max points)  Presence of riffle-pool/ripple-pool complexes				
-		(no riffles/ripples or pools = 0; well-developed = max points)	0 – 3	0-5	0-6	1
W	17	Habitat complexity	0-6	0-6	0-6	11
		(little or no habitat = 0; frequent, varied habitats = max points)	0-0	0-0	0-0	
HABITAT		Canopy coverage over streambed	0-5	0-5	0-5	14
Ħ		(no shading vegetation = 0; continuous canopy = max points)  Substrate embeddedness				
	19	(deeply embedded = 0; loose structure = max)	NA*	0-4	0 – 4	
	20	Presence of stream invertebrates (see page 4)	0 4	0.5	0 5	
7	20	(no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	
2	21	Presence of amphibians	0 – 4	0-4	0-4	0
BIOLOGY		(no evidence = 0; common, numerous types = max points)  Presence of fish	0-4			
	22	(no evidence = 0; common, numerous types = max points)		0-4	0-4	(()
	23	Evidence of wildlife use	0.7	0.5	0.5	41
	23	(no evidence = 0; abundant evidence = max points)	0 – 6	0 – 5	0 – 5	All
		Total Points Possible	100	100	100	
					L	1, 1
		TOTAL SCORE (also enter on fi	rst page)			146
			Control of the Contro	The state of the s	terrina na digentifica y decembro della cultura della Significa	1 00

<sup>\*</sup> These characteristics are not assessed in coastal streams.



Waterbody SCME002 facing northwest upstream



Waterbody SCME002 facing southeast downstream



Waterbody SCME002 facing northeast across

A VICE A PROPERTY OF THE PROPE			
USACE AID#	DWO #		
OBJUCE AID#	DWQ #	Site #	(indicate on attached map)
			. (





STREAM QUALITY ASSESSMENT WORKSHEET
Provide the following information for the stream reach under assessment:
1. Applicant's name: Downing 2. Evaluator's name: DOWEST
3. Date of evaluation: 9-16-14 Kirks 4. Time of evaluation: 10:45
5. Name of stream: Unnamed from the Mill Geek basin: Cape Feigh
7. Approximate drainage area: 750 acres 8. Stream order: 15th
9. Length of reach evaluated: 100 ft 10. County: Cumber   m
11. Site coordinates (if known): prefer in decimal degrees.  12. Subdivision name (if any):
Latitude (ex. 34.872312): 34 51" 40.175" Longitude (ex77.556611): 78 54' 1.431"
Method location determined (circle): GPS Topo Sheet Ortho (Aerial) Photo/GIS Other GIS Other
14. Proposed channel work (if any):
15. Recent weather conditions: Mainle Ans two showers
16. Site conditions at time of visit: Normal
17. Identify any special waterway classifications known: NA Section 10 NA Tidal Waters NA Essential Fisheries Habita
Trout Waters MOUtstanding Resource Waters MN Nutrient Sensitive Waters Water Supply Watershed MM (I-IV)
18. Is there a pond or lake located upstream of the evaluation point? YES (NO) If yes, estimate the water surface area:
19. Does channel appear on USGS quad map? YES NO 20. Does channel appear on USDA Soil Survey? YES NO
21. Estimated watershed land use:  % Residential
TO% Forested% Cleared / Logged% Other (
22. Bankfull width: 23. Bank height (from bed to top of bank):
24. Channel slope down center of stream:Flat (0 to 2%)Gentle (2 to 4%)Moderate (4 to 10%)Steep (>10%)
25. Channel sinuosity:StraightOccasional bendsFrequent meanderVery sinuousBraided channel
Instructions for completion of worksheet (located on page 2): Begin by determining the most appropriate ecoregion based of location, terrain, vegetation, stream classification, etc. Every characteristic must be scored using the same ecoregion. Assign point to each characteristic within the range shown for the ecoregion. Page 3 provides a brief description of how to review the characteristics identified in the worksheet. Scores should reflect an overall assessment of the stream reach under evaluation. If a characteristic cannot be evaluated due to site or weather conditions, enter 0 in the scoring box and provide an explanation in the comment section. Where there are obvious changes in the character of a stream under review (e.g., the stream flows from a pasture into a forest), the stream may be divided into smaller reaches that display more continuity, and a separate form used to evaluate each reach. The total score assigned to a stream reach must range between 0 and 100, with a score of 100 representing a stream of the highest quality.
Total Score (from reverse): 25 Comments: Man made ditch on edge of
Townstore from reverse)
Evaluator's Signature Date 9-16-14
This channel evaluation form is intended to be used only as a guide to assist landowners and environmental professionals in gathering the data required by the United States Army Corps of Engineers to make a preliminary assessment of stream quality. The total score resulting from the completion of this form is subject to USACE approval and does not imply a

particular mitigation ratio or requirement. Form subject to change – version 06/03. To Comment, please call 919-876-8441 x 26.

#		CHARACTERICTICS	ECOREGION POINT RANGE			
	77	CHARACTERISTICS	Coastal	Piedmont	Mountain	SCORE
	1	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0-5	0-4	0-5	
	2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0-6	0-5	0-5	
	3	Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	0-6	0 – 4	0-5	2
	4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0 – 4	2
AL.	5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	1
PHYSICAL	6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	l
	7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	2
	8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0-6	0-4	0-2	2
	9	Channel sinuosity (extensive channelization = 0; natural meander = max points)	0 – 5	0-4	0-3	0
	10	Sediment input (extensive deposition= 0; little or no sediment = max points)	0 – 5	0-4	0-4	
	11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	WX
45	12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	2
	13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0 – 5	0-5	2
STABILITY	14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0 – 4	0 – 5	ĺ
2	15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0 – 5	0-4	0-5	2
886888	16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0-6	0
HABITAT	17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	ŀ
HAB	18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	3
	19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	WH
6000385 FAV	20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	0
	21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	0
	22	Presence of fish (no evidence = 0; common, numerous types = max points)	0-4	0 – 4	0-4	0
80 Marie 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	23	Evidence of wildlife use (no evidence = 0; abundant evidence = max points)	0 – 6	0-5	0 – 5	
		Total Points Possible	100	100	100	
		TOTAL SCORE (also enter on fir	rst page)		State of	25

<sup>\*</sup> These characteristics are not assessed in coastal streams.

NC DWQ Stream Identification Form Version 4.11 9-16-14 Latitude: 34 51 40.175" Date: Project/Site: Evaluator: ADWEST Longitude: 78 54' 1.431" County: **Total Points:** Stream Determination (circle one) OtherUNT to Kirks Mill Creek Stream is at least intermittent **Ephemeral Intermittent Perennial** if ≥ 19 or perennial if ≥ 30\* e.g. Quad Name: A. Geomorphology (Subtotal = Absent Weak Moderate Strong 1<sup>a.</sup> Continuity of channel bed and bank ((2) 3 2. Sinuosity of channel along thalweg 0 1 2 3 3. In-channel structure: ex. riffle-pool, step-pool, o, 2 3 ripple-pool sequence 4. Particle size of stream substrate 0 2 3 5. Active/relict floodplain 1/ 2 3 6. Depositional bars or benches 0 2 3 7. Recent alluvial deposits 2 3 8. Headcuts 0 2 3 9. Grade control 0 1 1.5 10. Natural valley ( o 1 1.5 11. Second or greater order channel No = 0Yes = 3 a artificial ditches are not rated; see discussions in manual B. Hydrology (Subtotal = \_ 12. Presence of Baseflow 0 2 3 13. Iron oxidizing bacteria 0 3 14. Leaf litter 1.5 0.5 0 15. Sediment on plants or debris 0 0.5 1.5 16. Organic debris lines or piles 0 1.5 17. Soil-based evidence of high water table? No = 0Yes = 3 C. Biology (Subtotal = 18. Fibrous roots in streambed 19. Rooted upland plants in streambed 3 0 20. Macrobenthos (note diversity and abundance) Q 1 2 3 21. Aquatic Mollusks 0 1 2 3 22. Fish Q. 0.5 1.5 23. Crayfish 0.5 0 1.5 1 24. Amphibians 0.5 1 1.5 25. Algae 0.5 1.5 26. Wetland plants in streambed FACW = 0.75; OBL = 1.5 Other = 0 \*perennial streams may also be identified using other methods. See p. 35 of manual. Notes: Sketch: < FLOW

### scmh001



Waterbody scmh001 facing upstream



Waterbody scmh001 facing downstream

### scmh001



Waterbody scmh001 facing upline cross stream

**Open Waterbody Data Sheet** Survey Description Project Name: Waterbody Name: Waterbody ID: Unnamed Southeastern Reliability OCMHOD State: County: Company: Crew Member Initials: Photos: DDINEST Tract Number(s): Nearest Milepost: Associated Wetland ID(s): WCMH002 CM HCC Survey Type: (check one) □Centerline □Re-Route □Access Road □Other: Physical Attributes Hydrologic Regime: Permanently Flooded ☐ Semipermanently Flooded ☐ Seasonally Flooded ☐ Temporarily Flooded OHWM **OHWM Indicator:** Clear line check all that apply ☐ Shelving □Wrested □Water □ Scouring vegetation staining □Bent, matted, or missing □Wrack □Litter and □ Abrupt plant □ Soil characteristic change vegetation debris community change Depth of Water: Bank height (average): Bank slope (average) degrees N/A 🗆 **Qualitative Attributes** Water Appearance: Turbid □No water □Clear □Sheen □Surface □Algal □Other: on surface scum mats Substrate: ☐ Bedrock ☐ Boulder Sand ☐ Cobble (check all that apply) % of Substrate: % Width of Riparian Zone: Vegetative Layers: Saplings/Shrubs: (check all that apply) M Herbs Avg. DBH of Dominants: N/A 🗆 (approx.) Dominant Bank Vegetation (list): Prunus seritina Aquatic Habitats (ex: submerged or emerged aquatic vegetation, overhanging banks/roots, leaf packs, large submerged wood, riffles, deep pools, etc.): T&E Species Observed (list): Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes): Waterbody is: (check one) □ Natural Artificial, man-made ☐ Manipulated Waterbody Quality a: X Low (check one) ☐ High ☐ Moderate

Waterbody ID:			);		
0	6	m	H	00	1

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

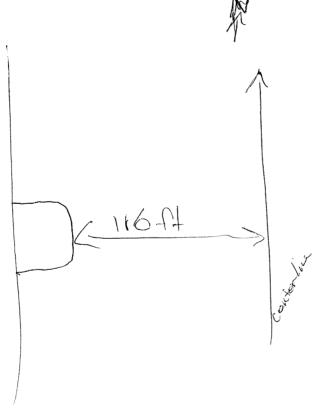
**Moderate Quality:** Altered by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or bank vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor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

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

Notes:

Man-made borrowpif-naturalized

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



#### ocmh001



Open water data point ocmh001 facing west



Open water data point ocmh001 facing north