USACE AID# DWQ =	
STREAM QUALITY A	SCMP042 SSESSMENT WORKSHEET
Provide the following information for the stream reach und	er assessment:
1. Applicant's name: Dominion	2. Evaluator's name: J. HArbour
3. Date of evaluation: 3/29/16	4. Time of evaluation: 10 3D
5. Name of stream: UNT to Cape Fear River	6. River basin: Cape Fear
7. Approximate drainage area: 210 acres	8. Stream order: 15+
9. Length of reach evaluated: 100 Ft.	10. County: Cumberland
11. Site coordinates (if known): prefer in decimal degrees.	12. Subdivision name (if any): N/A
	Longitude (ex77.556611): ~) 8, 75 47
Method location determined (circle): GPS Topo Sheet Ortho (13. Location of reach under evaluation (note nearby roads and	Aerial) Photo/GIS Other GIS Other
South of Jackie Lee Rond	
14. Proposed channel work (if any): Proposed pipelin	ne
15. Recent weather conditions: snag ; rain in pre	vious 48 hours
16. Site conditions at time of visit: man-made ag	ditch in Field
17. Identify any special waterway classifications known:	
Trout WatersOutstanding Resource Waters	Nutrient Sensitive WatersWater Supply Watershed(1-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
	% Commercial% Industrial% Agricultural
0 % Forested	% Cleared / Logged% Other ()
* (Top of Bank) 8 ft.	$\boldsymbol{\ell}$
	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 re characteristic cannot be evaluated due to site or weather co comment section. Where there are obvious changes in the co into 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 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): 27 Comm	ents:
Evaluator's Signature Mar	Date 3/29/16
gathering the data required by the United States Arm guality. The total score resulting from the completion	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 to change – version 06 03. To Comment, please call 919-876-8441 x 26.

	out the completion of	ECOREG	ECOREGION POINT RANGE		
# 4	CHARACTERISTICS	Coastal	Piedmont	Mountain	SCOR
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	D
3	Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	0-6	0-4	0-5	ð
4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	2
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)
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	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	-
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	2
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	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	D
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	0
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	-1
	Total Points Possible	100	100	100	

Date: 3/29/16	Project/Site: A	CP	Latitude: 35,	14629
Evaluator: J. Harbour	County: Cum		Longitude: 78	
Total Points: Stream is at least intermittent コトフゴ f≥19 or perennial if≥30*	Stream Determi	Stream Determination (circle one) C Ephemeral Intermitten Perennial		Slocumb, NC
A. Geomorphology (Subtotal =3)	Absent	Weak	Moderate	Strong
1 ^a Continuity of channel bed and bank	0	1	2	3
2. Sinuosity of channel along thalweg		1	2	3
3. In-channel structure: ex. riffle-pool, step-pool,				
ripple-pool sequence	(e)	1	2	3
4. Particle size of stream substrate	0	(1)	2	3
5. Active/relict floodplain	0		2	3
5. Depositional bars or benches		1	2	3
7. Recent alluvial deposits		1	2	3
B. Headcuts	(0)	1	2	3
9. Grade control	0	0.5	1	1.5
10. Natural valley	0	(05)	1	1.5
11. Second or greater order channel	N	5=0)	Yes	= 3
artificial ditches are not rated; see discussions in manual				
B. Hydrology (Subtotal = 11)				_
12. Presence of Baseflow	0	1	2	(3)
Recent Managers and a second second decay and a second second second second second second second second second	0	1	(2)	3
13. Iron oxidizing bacteria 14. Leaf litter	(15)	1	0.5	0
	0	0.5	1	1.5
15. Sediment on plants or debris	0	0.5	D	1.5
16. Organic debris lines or piles 17. Soil-based evidence of high water table?		0.5 p = 0	Contraction of the local division of the loc	= 3
		5-0	100	
C. Biology (Subtotal = 1,75)		(2)	1	0
18. Fibrous roots in streambed	3	the second se	1	0
19. Rooted upland plants in streambed			2	3
20. Macrobenthos (note diversity and abundance)	0		2	3
21. Aquatic Mollusks		1		1.5
22. Fish	0	0.5	1	1.5
23. Crayfish	0	0.5	1	
24. Amphibians	0	0.5)		1.5
25. Algae	0	0.5	(1)	1.5
26. Wetland plants in streambed		FACW = (0.75;) OE	3L = 1.5 Other =	0
*perennial streams may also be identified using other met	hods. See p. 35 of manu	al.		
Notes: Man-made ditch				
n y sayan ing a sayan ang ang ang ang ang ang ang ang ang a	151	r		
Sketch:	Porte	/ / ·	7	
SET	/11 /	1.5	1	
1		/N		(
men war in the	dara V	/		
		1		
Semport	11/			
the second secon		<i>/</i>		
OHUM Width: 68+	/ /		13129435 (SEE	
	/ /			



Waterbody scmp042 facing east upstream.



Waterbody scmp042 facing west downstream.



Waterbody scmp042 facing south across bank.

	-	20		-		-	111
	5	٦.	$(\)$	1-	AI	1.1	-
<u> </u>	.37	٦.	<u> </u>	1	711	11	

DWQ=

Site = ____ (indicate on attached map) $scm\rho 041$

STREAM QUALITY A	SSESSMENT WORKSHEET
Provide the following information for the stream reach un	der assessment:
1. Applicant's name: Ace	2. Evaluator's name: ESI - J. Harbour, K. Murphrey
3. Date of evaluation: 3/29/16	4. Time of evaluation: 0915
5. Name of stream: UNT to Cape Fear River	
7. Approximate drainage area: lo acres	8. Stream order:
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
Latitude (ex. 34.872312): 35,14567	Longitude (ex77.556611): -78.75364
Method location determined (circle): GPS) Topo Sheet Ortho 13. Location of reach under evaluation (note nearby roads and South of Jackie Lee Road	(Aerial) Photo/GIS Other GIS Other d landmarks and attach map identifying stream(s) location):
14. Proposed channel work (if any): Proposed pipe	eline
15. Recent weather conditions: swary; rain in prev	ions 48 hours
16. Site conditions at time of visit: man-made ditch	on edge of ag field
17. Identify any special waterway classifications known:	Section 10Tidal WatersEssential Fisheries Habitat
Trout WatersOutstanding Resource Waters	_Nutrient Sensitive WatersWater Supply Watershed(1-1V)
	point? YES NO If yes, estimate the water surface area:
	20. Does channel appear on USDA Soil Survey? YES (NO)
	% Commercial% Industrial% Agricultural
	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 bends	Frequent meanderVery sinuousBraided channel
location, terrain, vegetation, stream classification, etc. Ever to each characteristic within the range shown for the ec- characteristics identified in the worksheet. Scores should characteristic cannot be evaluated due to site or weather of comment section. Where there are obvious changes in the into a forest), the stream may be divided into smaller reacher reach. The total score assigned to a stream reach must ran- highest quality.	age 2): Begin by determining the most appropriate ecoregion based on ry 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): 30 Comm	nents:
	PLA 2000 REP TA SOLUTION
Evaluator's Signature Keed Muther	2 Date 3/29/16

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 χ 26.

			ECOREGION POINT RANGE.		
#	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	2
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	2
4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	2
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	0
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	
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	-
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	4
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	
16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0-6	Ò
17	(little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	3
18	(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)	0-4	0-5	0-5	C
21	Presence of amphibians	0-4	0-4	0-4.	0
22	Presence of fish	0-4	0-4	0-4	0
21 22 23	Evidence of wildlife use	0-6	0-5	0-5	3
	Total Points Possible	100	100	100	

Date: 3/29/16	Project/Site: A	P	Latitude: 35	,14567
Evaluator: ESI-J. Harbour, K. mur Phrey	arbour, K. murphrey County: cumberland Longitude: -78.7536			8.75364
Total Points: Stream is at least intermittent 13.5 if \geq 19 or perennial if \geq 30*	Stream Determin Ephemeral Inter	nation (circle one) rmittent Perennial		Slocamb, NC
A. Geomorphology (Subtotal = 3.5)	Absent	Weak	Moderate	Strong
1 ^a Continuity of channel bed and bank ditch	0	1	2	3
2. Sinuosity of channel along thalweg	0	1	2	3
3. In-channel structure: ex. riffle-pool, step-pool,	6	1	2	3
ripple-pool sequence	<u> </u>			Alter Carden and
4. Particle size of stream substrate	0	1	Q	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	0=0	Yes	= 3
^a artificial ditches are not rated; see discussions in manual				
B. Hydrology (Subtotal = <u>5</u>)	1	0		
12. Presence of Baseflow	0	(1)	2	3
13. Iron oxidizing bacteria	(ò)	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; OE	$SL = 1.5$ Other \mp	0)
*perennial streams may also be identified using other methods	s. See p. 35 of manua	al.		
Notes: Rain in previous 48 hours	Contraction (1996)	a fan 14 an ei		and the second second
Sketch: N t scmp042	i. escripou	.(
C. H. M. C.		\		

scmp041

TOP OF BANK Witth: GEt



Waterbody scmp041 facing southwest upstream.



Waterbody scmp041 facing northeast downstream.

Photo Sheet 1 of 2



Waterbody scmp041 facing southeast across bank.

USACE AID≓ DWQ ≓	Site = (indicate on attached map)
STREAM QUALITY AS	SSESSMENT WORKSHEET
Provide the following information for the stream reach und	er assessment:
1. Applicant's name: Dominion	2. Evaluator's name: ESI (J. Harbour/K. Murphrey)
3. Date of evaluation: 3/29/16	4. Time of evaluation: 0830
5. Name of stream: UNT to Cape Fear River	6. River basin: Cope Fear
7. Approximate drainage area: 3,000 acres	8. Stream order: 1^{5+}
9. Length of reach evaluated: 400 FL.	10. County: Cumberland
11. Site coordinates (if known): prefer in decimal degrees.	
	Longitude (ex77.556611): -78.74985
Method location determined (circle): (De Topo Sheet Ortho (. 13. Location of reach under evaluation (note nearby roads and South of Jackie Lee Rood	Aerial) Photo/GIS Other GIS Other
14. Proposed channel work (if any): Proposed pipeli	he
15. Recent weather conditions: Shany; rain in pre	
16. Site conditions at time of visit: Field elge; chann	el un disharbed
17. Identify any special waterway classifications known:	Section 10Tidal WatersEssential Fisheries Habitat
Trout WatersOutstanding Resource Waters	Nutrient Sensitive WatersWater Supply Watershed(1-1V)
	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: 10 % Residential	% Commercial% Industrial% Agricultural
40% Forested	% Cleared / Logged% Other ()
* (Top of BAnk) 22. Bankfull width: 168+	
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 re characteristic cannot be evaluated due to site or weather co comment section. Where there are obvious changes in the c into 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 onditions, 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 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
Total Score (from reverse): 60 Comm	ents:
	a loo ha
Evaluator's Signature Keuro Multhing	Date 3/29/16
This channel evaluation form is intended to be used only	y as a guide to assist landowners and environmental professionals i y Corps of Engineers to make a preliminary assessment of stream

in am 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.

1

--_ _

4	CHARACTERISTICS	ECOREGION POINT RANGI					
#		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	4		
2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0 – б	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	3		
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	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	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	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	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	2		
17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	4		
18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	Ц		
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	17		
23	Evidence of wildlife use (no evidence = 0; abundant evidence = max points)	0-6	0-5	0-5	L		
	Total Points Possible	100	100	100			
	TOTAL SCORE (also enter on	Cutton	金融运动的主义	. The farmer was a	i r		

Project/Site: ACP Latitude: 35, 1419			1110
		Longitude: -78,7492	
Stream Determin Ephemeral Inter	nation (cir <u>cle one)</u> rmittent Perennial	Other 510 e.g. Quad Name:	Kumb, NC
Absent	Weak	Moderate	Strong
0	1	2	3
0	1	2	3
0	1	2	3
0	1	2	3)
\bigcirc	1	2	3
0	\bigcirc	2	3
0	\bigcirc	2	3
0	1	2	3
0	0.5	Ð	1.5
0	0.5	1	1.5
No	$\overline{0} = 0$	Yes	= 3
T			
and the second	1	2	3
0	1		3
1.5	COD. COL	0.5	0
0	0.5	1	1.5
0	0.5		1.5
No	0 = 0	Yes	=3)
~			1
	2		0
(3)			0
0			3
0	hanna han		3
0			1.5
	0.5	1	1.5
		1	1.5
			1.5
	the second se	L=1.5 Other	0
ds. See p. 35 of manua	al.		
-scmp040			
	County: Current Stream Determine Ephemeral Inter 0	County: Cumber lond Stream Determination (circle one) Ephemeral Intermittent Perennial 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 0.5 0 0.5 0 0.5 0 0.5 0 0.5 0 0.5 0 0.5 0 0.5 0 0.5 0 0.5 0 0.5 0 0.5 0 0.5 0 0.5 0 0.5 0 0.5 0 0.5 0 0.5 0 0.5	County: Cumberland Longitude: Stream Determination (circle one) Ephemeral Intermittent Perennial Other $\leq I_{cg}$ and Name: Absent Weak Moderate 0 1 2 0 1 2 0 1 2 0 1 2 0 1 2 0 1 2 0 1 2 0 1 2 0 1 2 0 1 2 0 1 2 0 1 2 0 0.5 1 0 0.5 1 0 0.5 1 0 0.5 1 0 0.5 1 0 0.5 1 0 0.5 1 0 0.5 1 0 0.5 1 0 0.5 1

OHWM width: 10 TOP OF BONK width: 1687



Waterbody scmp040 facing east upstream.



Waterbody scmp040 facing west downstream.

Photo Sheet 1 of 2



Waterbody scmp040 facing south across bank.

STREAM QUALITY ASSESSMENT WORKSHEETProvide the following information for the stream reach under assessment:1. Applicant's name: $Damoio$ 2. Evaluator's name:ESI (W , W 3. Date of evaluation: H -G-IG4. Time of evaluation:1:00 pm5. Name of stream: WNT to Gum Log Canal6. River basin:Cape Fear7. Approximate drainage area:230 acres8. Stream order:1**9. Length of reach evaluated:4010. County:Cumberlad11. Site coordinates (if known):prefer in decimal degrees.12. Subdivision name (if any):More13. Location determined (circle):GPSTopo SheetOntho (Aerial) Photo GISOther GISOther13. Location of reach under evaluation (note nearby roads and landmarks and attach map identifying streatFast ofT-95andWest ofBudGeddie Rd	ndicate on attached map)
1. Applicant's name: Dominion 2. Evaluator's name: ESI (W. V 3. Date of evaluation: 4. Time of evaluation: 1:00 pm 5. Name of stream: 4. Time of evaluation: 1:00 pm 6. River basin: Cape Fear 7. Approximate drainage area: 230 acres 8. Stream order: 1st 9. Length of reach evaluated: 40 10. County: Cumberlad 11. Site coordinates (if known): prefer in decimal degrees. 12. Subdivision name (if any): None 11. Site coordinates (if known): prefer in decimal degrees. 12. Subdivision name (if any): None 13. Location determined (circle): GPS Fopo Sheet Ortho (Aerial) Photo/GIS Other GIS 13. Location of reach under evaluation (note nearby roads and landmarks and attach map identifying stream	SCMP 100
 3. Date of evaluation: <u>1/6-16</u> 4. Time of evaluation: <u>1:00 pm</u> 5. Name of stream: <u>UNT to Gum Los Canol</u> 6. River basin: <u>Cape Fear</u> 6. River basin: <u>Cape Fear</u> 7. Approximate drainage area: <u>230 acres</u> 8. Stream order: <u>1st</u> 9. Length of reach evaluated: <u>40</u> 10. County: <u>Cumberlad</u> 11. Site coordinates (if known): prefer in decimal degrees. 12. Subdivision name (if any): <u>NONE</u> 13. Location of reach under evaluation (note nearby roads and landmarks and attach map identifying stream 	
 3. Date of evaluation: <u>1/6-16</u> 4. Time of evaluation: <u>1:00 pm</u> 5. Name of stream: <u>UNT to Gum Los Canol</u> 6. River basin: <u>Cape Fear</u> 6. River basin: <u>Cape Fear</u> 7. Approximate drainage area: <u>230 acres</u> 8. Stream order: <u>1st</u> 9. Length of reach evaluated: <u>40</u> 10. County: <u>Cumberlad</u> 11. Site coordinates (if known): prefer in decimal degrees. 12. Subdivision name (if any): <u>NONE</u> 13. Location of reach under evaluation (note nearby roads and landmarks and attach map identifying stream 	aughan)
7. Approximate drainage area: 230 acres 8. Stream order: 1st 9. Length of reach evaluated: 40 10. County: Cumberland 11. Site coordinates (if known): prefer in decimal degrees. 12. Subdivision name (if any): None 1. atitude (ex. 34.872312): 35.13571273 Longitude (ex77.556611): -78.736 Method location determined (circle): GPS Topo Sheet Ortho (Aerial) Photo GIS Other 13. Location of reach under evaluation (note nearby roads and landmarks and attach map identifying stream 0 0	•
7. Approximate drainage area: 230 acres 8. Stream order: 1st 9. Length of reach evaluated: 40 10. County: Cumberland 11. Site coordinates (if known): prefer in decimal degrees. 12. Subdivision name (if any): None 1. atitude (ex. 34.872312): 35.13571273 Longitude (ex77.556611): -78.736 Method location determined (circle): GPS Topo Sheet Ortho (Aerial) Photo GIS Other 13. Location of reach under evaluation (note nearby roads and landmarks and attach map identifying stream 0 0	and the second second second
9. Length of reach evaluated: 40 10. County: Cumberlad 11. Site coordinates (if known): prefer in decimal degrees. 12. Subdivision name (if any): None 1.aiiude (ex. 34.872312): 35.13571273 Longitude (ex77.556611): -78.736 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	
11. Site coordinates (if known): prefer in decimal degrees. 12. Subdivision name (if any):	
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	2
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	64406
East of I-95 and west of Bud Geddie Rd	
14. Proposed channel work (if any): Proposed pipeline	
15. Recent weather conditions: Cool, dry	
16. Site conditions at time of visit: Ditch between two fellow fields	
17. Identify any special waterway classifications known:Section 10Tidal Waters	Essential Fisheries Habitat
Trout WatersOutstanding Resource WatersNutrient Sensitive WatersWater Su	
18. Is there a pond or lake located upstream of the evaluation point? YES NO If yes, estimate the water	er 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 O% Industria	al 35 % Agricultural
GO% Forested <u>5%</u> Cleared / Logged <u>0%</u> Other (_	
* (Top of Bank) // 22. Bank full width: // 23. Bank height (from bed to top of bank)	k):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 bendsFrequent meanderVery sinuo	usBraided channel
Instructions for completion of worksheet (located on page 2): Begin by determining the most applocation, terrain, vegetation, stream classification, etc. Every characteristic must be scored using the satt to each characteristic within the range shown for the ecoregion. Page 3 provides a brief description characteristic cannot be evaluated due to site or weather conditions, enter 0 in the scoring box and p comment section. Where there are obvious changes in the character of a stream under review (e.g., the into a forest), the stream may be divided into smaller reaches that display more continuity, and a separa reach. The total score assigned to a stream reach must range between 0 and 100, with a score of 100 highest quality.	ine ecoregion. Assign points iption of how to review the reach under evaluation. If a provide an explanation in the e stream flows from a pastur- ate form used to evaluate each
Total Score (from reverse): 35 Comments:	
	7 16
Evaluator's Signature <u>Ulilles & Unuclea</u> Date <u>U-</u> This channel evaluation form is intended to be used only as a guide to assist landowners and en	vironmental professionals

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	CONTRACTOR OF THE REAL OF	10.00/-WATE-100/2014/1-Wate-101300/0911-10/-	ECOREGION POINT RANGE		
1	the state of the second s	Coastal	Piedmont	Mountain	SCOR	
1.41.00	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0-5	0-4	0-5	0	
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	Ø	
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	Ø	
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	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	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	a to	
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 hanks	0-3	0-4	0-5	2	
15	Impact by agriculture livestock, or timber production	0-5	0-4	0-5	2	
16	Presence of riffle-nool/ripple-pool complexes	0-3	0-5	0-6	0	
17	Habitat complexity	0 - 6	0-6	0-6	2	
1	Canony coverage over streambed	0-5	0-5	0-5	0	
19	Substrate embeddedness	NA*	0-4	0-4		
2	Presence of stream invertebrates (see page 4)	0-4	0-5	0-5	0	
2	Presence of amphibians	0-4	0-4	0-4	0	
2	Presence of fish	0-4	0-4	0-4	0	
2	Evidence of wildlife use	0-6	0-5	0-5	1	
	Total Points Possible	100	100	100		

Date: 4-6-16	Project/Site: ACP Latitude: 35.1			1357 1273	
Evaluator: ESI (R. Turnbull)	County: Cam	LA SEL MUMERTY AND CARDEN DEPARTMENTS	Longitude: -78. 73664400		
Total Points: Stream is at least intermittent 14.25 if ≥ 19 or perennial if $\geq 30^{\circ}$		nation (circle one) mittent Perennial	Other	Iame: Wade, NC	
A. Geomorphology (Subtotal = 4.5)	Absent	Weak	Moderate	Strong	
1ª Continuity of channel bed and bank ditch	0	1	2	3	
2. Sinuosity of channel along thalweg	0	Ð	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	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	Ô	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	6	-			
B. Hydrology (Subtotal =6)					
12. Presence of Baseflow	9	1	2	3	
13. Iron oxidizing bacteria	Q	1	2	3	
14. Leaf litter	15	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 = 3.75)					
18. Fibrous roots in streambed	3	2	1	0	
19. Rooted upland plants in streambed	3	2	Û	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	Q	0.5	1	1.5	
24. Amphibians	Ø	0.5	1	1.5	
25. Algae	\bigcirc	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 method	ods. See p. 35 of manua	l.			
Notes:					
Sketch:	8				

scmploo

OHWM-G Bank to Bank-II



Waterbody scmp100 facing northeast upstream.



Waterbody scmp100 facing southwest downstream.



Waterbody scmp100 facing southeast across bank.



Waterbody scmp100 facing northeast upstream on access road.



Waterbody scmp100 facing southwest downstream on access road.



Waterbody scmp100 facing southeast across bank on access road.

Open Waterbody Dat	a Sheet				
Survey Description					
Project Name:	Waterbody	Name:	Waterbody ID:	Manager 1	Date:
ACP	UNNN		ocmr O	hair the management	5/16/16
State: County		Company:	Crew Member Initial	s: Photos:	
NC Cu	nberland	EST	KWM, KSM	$n \mid S$	w,
Tract Number(s):		Nearest Milepost:	Associated We	tland ID(s):	11111111111111111111111111111111111111
22-085-A	1016	155	Г	VA	
Survey Type: check one)		Re-Route Access F	Road DOther:		
Physical Attributes					
Waterbody Type: (check one)		ake 🗆 Reservoir 🗆 Impound	ment 🗆 Oxbow 🗆 Otl	ner:	
Hydrologic Regime:	ermanently Flooded	Semipermanently Flooded	Seasonally Flooded	Tempora	arily Flooded
OHWM 0	OHWM Indicator:				
Height: 🔍 🏹	check all that apply)	⊡∕Ćlear line □S on bank	Shelving DWreste vegetatio		couring DWater staining
<u>ft</u> .	□Bent, matted, or r vegetation	missing 🗆 Wrack 🔤 L line deb		t plant □Soil ity change	characteristic change
Depth of Water:	Bank heig	ght (average):	Bank slope	(average):	
>3 ft.		<u> 75 ft.</u>		45	degrees
I/A□					
ANAL TRACK CLARGE CONTRACTOR	%%	Cobble 🗆 Gravel 🗆 Sand	b Silt/ clay □ Org. % 100%	anic 🗆 Othe	r. _%
Width of Riparian Zone:	Vegetative Layers: (check all that apply)	Trees:	Saplings/Shrubs:	Hert)S
<u>ft</u> .		()	2	./A	
	Avg. DBH of Dominan	ts: <u>10</u> in.	in.	MA	in.
Dominant Bank Vegetation					and the state of the state
		overhanging banks/roots, leaf packs, larg	Moram, Vi	tis ro	tand if oliva
Aquatic Habitats (ex: submerge	d or emerged aquatic vegetation,	overhanging banks/roots, leaf packs, larg	ge submerged wood, riffles, deep	pools, etc.):	
Deep Water	r, shallow	PUUIS, vege	tated Fla	t, woo	dy debris
Aquatic Organisms Observe	ed (list):	-11-5	20. 11 5-		
Amphibion e	995, Diving	beetles, mo	590.00 815	И	a lan harder
none obse					
Disturbances (ex: livestock ac NONE, Mor		waste discharge pipes):			
Waterbody is: (check one)	/	cial, man-made 🛛 Manipul	ated		
Waterbody Quality *: (check one)	□ High	te 🗆 Low	an a		

Waterbody ID:

Ocmr 002

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

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

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

Notes:

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

OCMR

CL

S.J

co)

Environmental Field Surveys Open Waterbody Photo Page



Open Waterbody ocmr002 facing south.



Open Waterbody ocmr002 facing west.

USACE AID# DWQ #	
STREAM QUALITY A	SCM2001
Provide the following information for the stream reach un	der assessment:
1. Applicant's name: Dominion	
3. Date of evaluation: 837016	4. Time of evaluation: 10:40
5. Name of stream: UNT to Bakers Swamp	6. River basin: Cape Fear
7. Approximate drainage area: 0.2 mi ²	8. Stream order: 1
9. Length of reach evaluated: 150 \$7.	C
11. Site coordinates (if known): prefer in decimal degrees.	12. Subdivision name (if any): NA
Latitude (ex. 34.872312): 35 110672	Longitude (ex77.556611): -78, 728977
Method location determined (circle): (GPS) Topo Sheet Orthod 13. Location of reach under evaluation (note nearby roads and South of Goldsboro Rd, M	(Aerial) Photo/GIS Other GIS Other landmarks and attach map identifying stream(s) location):
14. Proposed channel work (if any): TBD	
15. Recent weather conditions: RECENT RAIN	
16. Site conditions at time of visit: Ditch with st	anding water, no flow
	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
	% Commercial% Industrial% Agricultural
85 % Forested	5 % Cleared / Logged 10 % Other (Powerline corridor
22. Bankfull width: 7 ft	23. Bank height (from bed to top of bank): 2 P7
	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 re characteristic cannot be evaluated due to site or weather co comment section. Where there are obvious changes in the cl into 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 e between 0 and 100, with a score of 100 representing a stream of the
- 0	ents: Ditch with OHWM
Total Score (from reverse): 38 Comme	ents: Price with Off with
mat 1.4	Date_ 8/3/16
Evaluator's Signature <u>to the second</u> 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 quality. The total score resulting from the completion	Corps of Engineers to make a preliminary assessment of stream of this form is subject to USACE approval and does not imply a o change – version 06/03. To Comment, please call 919-876-8441 x 26.

ECOREGION POINT RANGE		
Piedmont	Mountain	SCORE
0-4	0-5	5
0-5	0-5	0
0-4	0-5	3
0-4	0-4	3
0-4	0-4	2
0-4	0-2	2
0-4	0-2	3
0-4	0-2	5
0-4	0-3	0
0-4	0-4	3
0-4	0 - 5	NA
0-4	0-5	2
0-5	0-5	2
0-4	0 - 5	0
0-4	0-5	0
0-5	0-6	0
0 - 6	0-6	1
0-5	0-5	3
0-4	0-4	NA
0-5	0-5	1
0-4	0-4	1
0-4	0-4	0
0-5	0-5	2
100	100	
in the second	100	100 100

scmq001

NC DWO Stream Identification Form Version 4.11

Date: 8/3/2016	Project/Site: $A \subset P$		Latitude: 35, 110672		
Evaluator: EST-M. Smith	County: Cum	bellond	Longitude: -7	8 72997	
Total Points: Stream is at least intermittent 22.5 if \geq 19 or perennial if \geq 30*	Stream Determin	nation (circle one) mittent (Perennial)	Other e.g. Quad Name:	Stedman	
A. Geomorphology (Subtotal = 4.0)	Absent	Weak	Moderate	Strong	
1 ^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	= 0	Yes	= 3	
^a artificial ditches are not rated; see discussions in manual B. Hydrology (Subtotal = 8.5)				in set in	
12. Presence of Baseflow	0	1	2	(3)	
	(0)	1	2	3	
13. Iron oxidizing bacteria 14. Leaf litter	1.5	Ð	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		
C. Biology (Subtotal = 10.0)					
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)	Ý I	2	3	
22. Fish	0	0.5	1	1.5	
23. Crayfish	0	(0.5)	1	1.5	
24. Amphibians	0	0.5	10	1.5	
25. Algae	(0)	0.5	1	1.5	
26. Wetland plants in streambed		FACW = 0.75; OB	L = 1.5 Other =		
*perennial streams may also be identified using other metho	ods. See p. 35 of manua	the second se			
Notes: Ditch w/OHWM; determined to be macrobusties			sence of		
Sketch:	VI.	* 5/2 +	winquel	1	
OHWM: 6Ft	1	A datapoint	School !!	N	
Bankwidth: 7ft old	171	{* +	Scrigool weigool		

powerline) Easement



Waterbody data point scmq001 facing southeast upstream.



Waterbody data point scmq001 facing northwest downstream.

Photo Sheet 1 of 2



Waterbody data point scmq001 facing southwest across bank.

USA	CE	AT	D4
USA	CE.	141	LIT.

DWQ #_

Site #____ (indicate on attached map)

Provide the following information for the stream reach und	ler assessment:
1. Applicant's name: Dominion	2. Evaluator's name: EST - M. Smith
3. Date of evaluation: 813116	4. Time of evaluation: 1/:20
5. Name of stream: UNT to Bakers Swamp	6. River basin: Cape Fear
7. Approximate drainage area: 0.2 m12	8. Stream order:
9. Length of reach evaluated: 150ff	10. County: Cumberland
11. Site coordinates (if known): prefer in decimal degrees.	12. Subdivision name (if any): NA
Latitude (ex. 34.872312): 35, 107611	Longitude (ex77.556611): -78.729.108
Method location determined (circle): (GPS) Topo Sheet Ortho (. 13. Location of reach under evaluation (note nearby roads and South of Goldsboro Rd, We	landmarks and attach map identifying stream(s) location):
14. Proposed channel work (if any): TBD	
15. Recent weather conditions: overcart, treg	untrain
16. Site conditions at time of visit: Ditch with	Standing Water, No flow.
	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	wint? 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	% Cleared / Logged 10 % Other (Powerline Corridor
	23. Bank height (from bed to top of bank): 2++
24. Channel slope down center of stream: K 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 econ 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 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.	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 maracter 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): 4/ Commen	nts: Ditch with OHWM

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.

1	5		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	0
	2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0-6	0-5	0-5	0
	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	4
Service Services	5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	2
ALC: N. THERE AND A DESCRIPTION	6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	3
Service - March	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	5
(area)	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	0
	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	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	0
2	15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	0
5.0.0	16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0 - 3	0-5	0-6	0
	17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	Ò
	18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	4
100	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	1
5	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	0
	23	Evidence of wildlife use (no evidence = 0; abundant evidence = max points)	0-6	0-5	0-5	4
		Total Points Possible	100	100	100	
10	and a second	TOTAL SCORE (also enter on f	irst nage)		and the n't	41

5cmq 003

Date: 8/3/16	Project/Site:	ACP	Latitude: 35.10761	
Evaluator: ESI-M.Smith	County: Cumberland		Longitude: - 78 . 7791	
Total Points: Stream is at least intermittent 22.5 f ≥ 19 or perennial if ≥ 30*	Stream Determin Ephemeral Inter	nation (circle one) mittent Perennial	Other e.g. Quad Name:	stedman
A. Geomorphology (Subtotal = 3.5)	Absent	Weak	Moderate	Strong
1 ^a Continuity of channel bed and bank NA	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	3
ripple-pool sequence	-			
4. Particle size of stream substrate	0	1	2	3
5. Active/relict floodplain	0	1	2	3
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	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	0	1	2	3
14. Leaf litter	1.5	0	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 = 10.5)	1			
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	0	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 methods	. See p. 35 of manua	l.		
			nial in field	based
on presence of macroben thos; large com	al likely captu	res groundwater	year-round	
Sketch: OHWM: 8ft Scraposz Bankwidth: 9ft	V Singlory	1 1	5	



Waterbody data point scmq003 facing east upstream.



Waterbody data point scmq003 facing west downstream.



Waterbody data point scmq003 facing southwest across bank.

USA	CE	A	ID	#
AL 1011				

DWQ#___

Site #____ (indicate on attached map)

STREAM QUALITY A	SSESSMENT WORKSHEET
Provide the following information for the stream reach und	der assessment:
1. Applicant's name: Dominion	2. Evaluator's name: ESI-M. Smith
3. Date of evaluation: 8/3/16	4. Time of evaluation: 1230
5. Name of stream: WT to Bakers Swamp	6. River basin: Cape Fear
7. Approximate drainage area: 0.2 m ²	8. Stream order:
9. Length of reach evaluated: 1500 Ft	
11. Site coordinates (if known): prefer in decimal degrees.	
Latitude (ex. 34.872312): 35.106182	Longitude (ex77.556611): -78.729887
Method location determined (circle): GPS Topo Sheet Ortho (13. Location of reach under evaluation (note nearby roads and South of Goldsboro Rd, Wes	landmarks and attach map identifying stream(s) location):
14. Proposed channel work (if any): TBD	
15. Recent weather conditions: Recent Rain	
16. Site conditions at time of visit: Ditch with 5te	anding water, Noflow
	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 😡	20. Does channel appear on USDA Soil Survey? YES NO
21. Estimated watershed land use:% Residential	% Commercial% Industrial% Agricultural
20% Forested	5 % Cleared / Logged 15 % Other (Powerline Corridor
22. Bankfull width: 5 f+	23. Bank height (from bed to top of bank): 4++
24. Channel slope down center of stream: KFlat (0 to 2%)	Gentle (2 to 4%)Moderate (4 to 10%)Steep (>10%)
25. Channel sinuosity: X Straight Occasional 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 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.	(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 nditions, enter 0 in the scoring box and provide an explanation in the maracter 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): 35 Comme	nts: Ditch with OHWM
Comme	nio,
Evaluator's Signature Mart	Date 8/3/16
This channel evaluation form is intended to be used only gathering the data required by the United States Army quality. The total score resulting from the completion	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 p change – version 06/03. To Comment, please call 919-876-8441 x 26.

STREAM QUALITY ASSESSMENT WORKSHEET

Same	CHARA CTERICTICS	ECOREC	SCODE		
#	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	0
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	3
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	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	5
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	NA
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
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	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	0
17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	1
17 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	NA
20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	T
21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	1
21	(no evidence = 0; common, numerous types = max points) (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)	0-6	0-5	0-5	3
	Total Points Possible	100	100	100	

* These characteristics are not assessed in coastal streams.

Scmq 002 NC DWQ Stream Identification Form Version 4.11 813/16 ACP Latitude: 7 Project/Site: Date: ESI-M, Smith County: Cumberland Longitude: Evaluator: **Total Points:** Stream Determination (circle one) Other Stream is at least intermittent Ephemeral Intermittent Perennial e.g. Quad Name: 25.5 if \geq 19 or perennial if \geq 30* A. Geomorphology (Subtotal = 5. O Strong Weak Moderate Absent 3 1^{a.} Continuity of channel bed and bank 0 2 NA 1 (0) 2 3 1 2. Sinuosity of channel along thalweg 3. In-channel structure: ex. riffle-pool, step-pool, 3 0 2 1 ripple-pool sequence 0 1 2 3 4. Particle size of stream substrate 1 2 3 0 5. Active/relict floodplain 3 0 1 2 6. Depositional bars or benches 0 1 2 3 7. Recent alluvial deposits 3 2 0 1 8. Headcuts 1.5 (1) 0.5 9. Grade control 0 1.5 (0)0.5 1 10. Natural valley No = 0) Yes = 311. Second or greater order channel artificial ditches are not rated; see discussions in manual 9.5 B. Hydrology (Subtotal = 3 0 1 2 12. Presence of Baseflow 2 3 6 1 13. Iron oxidizing bacteria 0 0.5 (1) 1.5 14. Leaf litter (1.5) 15. Sediment on plants or debris 0 0.5 1 0 0.5 (1) 1.5 16. Organic debris lines or piles No = 0Yes = 3) 17. Soil-based evidence of high water table? C. Biology (Subtotal = 11.0) 0 18. Fibrous roots in streambed 3) 2 1 (3) 2 1 0 19. Rooted upland plants in streambed 3 (1) 2 0 20. Macrobenthos (note diversity and abundance) 2 3 0 21. Aquatic Mollusks 1 1.5 0 (0.5) 1 22. Fish 1 1.5 0 0.5 23. Crayfish (D 1.5 0 0.5 24. Amphibians 1.5 0 0.5 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: Ditch w/ OHWM determined to be perennial in the field due to presence of mecrobenthes and fish V Sketch: oHWM: 4ft SLMGOOZ 1 WCmg001 N Jeng OU3 Bank width: 5ft 19004



Waterbody data point scmq002 facing north upstream.



Waterbody data point scmq002 facing south downstream.



Waterbody data point scmq002 facing southwest across bank.

USACE AID#	DWQ #	Site # (in	dicate on attached map)
STREAD	M QUALITY A	SSESSMENT WORKSHEET	
Provide the following information for		er assessment:	
1. Applicant's name: Domini	on	2. Evaluator's name: EST - M. S	mith
3. Date of evaluation: 8/3/16		4. Time of evaluation: 1200	
5. Name of stream; UNT + Bakers	Swamp	6. River basin: Cape Fear	
7. Approximate drainage area: 0.	2 m; 2	8. Stream order:	
9. Length of reach evaluated: 150	<i>f</i> +	10. County: Cumberland	
11. Site coordinates (if known): prefe		12, Subdivision name (if any): NA	
		Longitude (ex77.556611): -78.	729346
Method location determined (circle): GPS 13. Location of reach under evaluation	Topo Sheet Ortho (, (note nearby roads and	Aerial) Photo/GIS Other GIS Other andmarks and attach map identifying stream wort of $Hay field Re$	(s) location):
14. Proposed channel work (if any):	TBD		
15. Recent weather conditions: Re	cent Rain		
16. Site conditions at time of visit:	oitch with	Standing water, Nof	low
		_Section 10Tidal Waters	
Trout WatersOutstanding Re	esource Waters	Nutrient Sensitive WatersWater Supp	bly Watershed(I-IV)
18. Is there a pond or lake located upstr	eam of the evaluation p	oint? YES NO If yes, estimate the water	surface area:
19. Does channel appear on USGS quad	i map? YES NO	20. Does channel appear on USDA Soil Su	rvey? YES D
21. Estimated watershed land use:	% Residential	% Commercial% Industrial	% Agricultural
9	6 % Forested	% Cleared / Logged 10% Other (Pa	owerline corridon
22. Bankfull width: 9++		% Cleared / Logged 10 % Other (Pa 23. Bank height (from bed to top of bank):	944
24. Channel slope down center of stream	n: <u>X</u> Flat (0 to 2%)	Gentle (2 to 4%)Moderate (4 to	10%)Steep (>10%)
25. Channel sinuosity: X Straight	Occasional bends	Frequent meanderVery sinuous	Braided channel
location, terrain, vegetation, stream cla to each characteristic within the rang characteristics identified in the worksh characteristic cannot be evaluated due comment section. Where there are obv into a forest), the stream may be divide	ssification, etc. Every ge shown for the econ eet. Scores should ref to site or weather con vious changes in the ch ed into smaller reaches tream reach must range	2): Begin by determining the most appro- characteristic must be scored using the same egion. Page 3 provides a brief descripti lect an overall assessment of the stream rea- ditions, enter 0 in the scoring box and pro- aracter of a stream under review (e.g., the st hat display more continuity, and a separate between 0 and 100, with a score of 100 re-	e ecoregion. Assign points on of how to review the ach under evaluation. If a vide an explanation in the tream flows from a pasture form used to evaluate each presenting a stream of the
Total Score (from reverse): 28	Comme	ts: Ditch with OHI	NM
	Commen		
Francis Simology Mrs	SA	Date_ 8 /2	3/16
gathering the data required by the quality. The total score resulting f	United States Army rom the completion of	as a guide to assist landowners and envir Corps of Engineers to make a prelimina f this form is subject to USACE approv change – version 06/03. To Comment, plea	onmental professionals in ary assessment of stream val and does not imply a

ECOREGION POINT RANGE SCORE # CHARACTERISTICS Coastal Mountain Piedmont Presence of flow / persistent pools in stream 0 - 53 0 - 50 - 41 (no flow or saturation = 0; strong flow = max points) Evidence of past human alteration 0 0 - 50 - 50 - 62 (extensive alteration = 0; no alteration = max points) Riparian zone 0 - 60 - 40 - 52 3 (no buffer = 0; contiguous, wide buffer = max points) Evidence of nutrient or chemical discharges 3 0 - 50 - 40 - 44 (extensive discharges = 0; no discharges = max points) Groundwater discharge 0 - 40 - 42 0 - 35 PHYSICAL (no discharge = 0; springs, seeps, wetlands, etc. = max points) Presence of adjacent floodplain 0 - 40 6 0 - 40 - 2(no floodplain = 0; extensive floodplain = max points) Entrenchment / floodplain access 0 - 20 - 50 - 40 7 (deeply entrenched = 0; frequent flooding = max points) Presence of adjacent wetlands 0 - 40 - 25 0 - 68 (no wetlands = 0; large adjacent wetlands = max points) **Channel sinuosity** 0 - 30 - 40 9 0 - 5(extensive channelization = 0; natural meander = max points) Sediment input 0 - 50 - 40 - 43 10 (extensive deposition= 0; little or no sediment = max points) Size & diversity of channel bed substrate NA 0 - 40 - 5NA* 11 (fine, homogenous = 0; large, diverse sizes = max points) Evidence of channel incision or widening 0 - 40 - 512 0 - 5D (deeply incised = 0; stable bed & banks = max points) STABILITY Presence of major bank failures 0 - 50 - 50 - 52 13 (severe erosion = 0; no erosion, stable banks = max points) Root depth and density on banks 0 - 40 - 50 - 30 14 (no visible roots = 0; dense roots throughout = max points) Impact by agriculture, livestock, or timber production 0 - 40 - 50 15 0 - 5(substantial impact =0; no evidence = max points) Presence of riffle-pool/ripple-pool complexes 0 - 30 - 50 - 60 16 (no riffles/ripples or pools = 0; well-developed = max points) HABITAT Habitat complexity 1 0 - 60 - 60 - 617 (little or no habitat = 0; frequent, varied habitats = max points) Canopy coverage over streambed 2 0 - 50 - 50 - 518 (no shading vegetation = 0; continuous canopy = max points) Substrate embeddedness NA* 0 - 40 - 4NA 19 (deeply embedded = 0; loose structure = max) Presence of stream invertebrates (see page 4) 0 - 50 - 50 - 420 (no evidence = 0; common, numerous types = max points) BIOLOGY Presence of amphibians 1 0 - 40 - 40 - 421 (no evidence = 0; common, numerous types = max points) Presence of fish 0 - 40 - 40 - 40 22 (no evidence = 0; common, numerous types = max points) Evidence of wildlife use 3 0 - 50 - 50 - 623 (no evidence = 0; abundant evidence = max points) 100 100 100 **Total Points Possible** 28 TOTAL SCORE (also enter on first page)

STREAM QUALITY ASSESSMENT WORKSHEET

* These characteristics are not assessed in coastal streams.

5 cmq 004

NC DWQ Stream Identification Form Version 4.11

Project/Site:	ACP	Latitude: 35	105 814		
County: Cur	nberland	Longitude: -	18.729346		
Stream Determin Ephemeral Inter	Stream Determination (circle one) Other Ephemeral Intermittent Perennial e.g. Qua				
Absent	Weak	Moderate	Strong		
0	1	2	3		
0	1	2	3		
0	1	2	3		
0	1	2	3		
0	1	2	3		
	1	2	3		
0	1	2	3		
(0)	1	2	3		
0	0.5	1	1.5		
0	0.5	1	1.5		
No	=(0)	Yes	= 3		
0	1	2	3		
			3		
			0		
			(1.5)		
			1.5		
			and the second sec		
	-		<u> </u>		
3	2	1	0		
			0		
			3		
			3		
			1.5		
			1.5		
			1.5		
		1	1.5		
		= 15) Other = (
ade Soo e 35 of manua		L (1.5) Other - 1	,		
be perennial	M THERE AND TO				
	16 .				
icmq002	datapoint /	Scriquoy	2		
Access Roi	AD				
	County: Cur Stream Determin Ephemeral Inter Absent 0 0 0 0 0 0 0 0 0 0 0 0 0	County: Cumber land Stream Determination (circle one) Ephemeral Intermittent Perennial 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 0.5 <td>County: Cumber land Longitude: Stream Determination (circle one) Ephemeral Intermittent Perennial Other $\leq l_{eg}$ ($quad Name$: Absent Weak Moderate 0 1 2 0 1 2 0 1 2 0 1 2 0 1 2 0 1 2 0 1 2 0 1 2 0 1 2 0 1 2 0 1 2 0 1 2 0 1 2 0 0.5 1 0 0.5 1 0 0.5 1 0 0.5 1 0 0.5 1 0 0.5 1 0 0.5 1 0 0.5 1 0 0.5 1</td>	County: Cumber land Longitude: Stream Determination (circle one) Ephemeral Intermittent Perennial Other $\leq l_{eg}$ ($quad Name$: Absent Weak Moderate 0 1 2 0 1 2 0 1 2 0 1 2 0 1 2 0 1 2 0 1 2 0 1 2 0 1 2 0 1 2 0 1 2 0 1 2 0 1 2 0 0.5 1 0 0.5 1 0 0.5 1 0 0.5 1 0 0.5 1 0 0.5 1 0 0.5 1 0 0.5 1 0 0.5 1		



Waterbody data point scmq004 facing east upstream.



Waterbody data point scmq004 facing west downstream.

Photo Sheet 1 of 2



Waterbody data point scmq004 facing southwest across bank.

USACE AID# DWQ #_	
STREAM QUALITY A	SCMD 058 ASSESSMENT WORKSHEET
Provide the following information for the stream reach un	
1. Applicant's name: Dominion	2. Evaluator's name: ESI (W. Vaughan)
3. Date of evaluation: <u>S = 17 - 16</u>	4. Time of evaluation: 11:30 am
5. Name of stream: WIT to Big Creek	6. River basin: Cape Fear
7. Approximate drainage area: 50 acres	8. Stream order: <u>1</u> s+
9. Length of reach evaluated: 25 ft	10. County: Cumberland
11. Site coordinates (if known): prefer in decimal degrees.	12. Subdivision name (if any): NONC
Latitude (ex. 34.872312): 35, 105792	
	d landmarks and attach map identifying stream(s) location):
West of James Dail Rd and	
14. Proposed channel work (if any): Proposed pipel	
15. Recent weather conditions: Calm, Cloudy	
16. Site conditions at time of visit: Ditch across	
17. Identify any special waterway classifications known:	Section 10Tidal WatersEssential Fisheries Habitat
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
	<u>/0</u> % Cleared / Logged% Other ()
22. Bankfull width: 10++	23. Bank height (from bed to top of bank): 5ft
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 r characteristic cannot be evaluated due to site or weather co- comment section. Where there are obvious changes in the co- into a forest), the stream may be divided into smaller reacher	ge 2): Begin by determining the most appropriate ecoregion based on y characteristic must be scored using the same ecoregion. Assign points oregion. Page 3 provides a brief description of how to review the reflect 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 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): 46 Comm	ents:

Evaluator's Signature <u>Willow E. Maughan</u> Date <u>5-17-16</u> 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	coope		
#	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	1
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	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	4
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	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	2
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	0
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	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	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	

STREAM QUALITY ASSESSMENT WORKSHEET

* These characteristics are not assessed in coastal streams.

scmp058

Date: 5-17-16	Project/Site: A	CP	Latitude: 35.	105792	
Evaluator: ESI (W. Vareghan)	County: Cur	nberland	Longitude: 78 729535 Other e.g. Quad Name:		
Total Points: Stream is at least intermittent $f \ge 19$ or perennial if $\ge 30^*$	Stream Determir Ephemeral Inter	nation (circle one) mittent (Perennial)			
A. Geomorphology (Subtotal = <u>3</u>)	Absent	Weak	Moderate	Strong	
1ª 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 	6	1	2	3	
4. Particle size of stream substrate	0	Ð	2	3	
5. Active/relict floodplain	0	Ð	2	3	
5. Depositional bars or benches	0	1	2	3	
7. Recent alluvial deposits	0	1	2	3	
B. Headcuts	D	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	Ø	1	2	3	
14. Leaf litter	(1.5)	1	0.5	0	
15. Sediment on plants or debris	Ø	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	Û	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	Ø	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: Determined to be perannial in			Macrobenthos	r. ditch	
has strong baseflow and oppears to cop				7	
Sketch:	0		11		
Powerline		-	68 68		
cl			Scmpose 20	マラ	

OHWM WILL ! 85+ Bank width : loct



Waterbody data point scmp058 facing west upstream.



Waterbody data point scmp058 facing east downstream.



Waterbody data point scmp058 facing south across.

Open Waterbody Data Sheet

Survey Description							
Project Name:	, m	Waterbody Nar	ne:	and for a second second of	Waterbody ID:	Date:	
ACP		UNNO	MED PON	D	ocmpOC	The second second second of the second	16
periodent and after the Court of the State of the	County:	C	ompany:	Cre	w Member Initials:	Photos:	
NC	Cumberla	and the production of the state of the local	ESI	A 1 200 200	LR, RT	NW,N,N	15
Tract Number(s):		Ne	earest Milepost:		Associated Wetland	방법에 가장 감독을 통입했다. 이가 전 여러 집에 가지?	
22-08:	T- A037		138.5	5	NF	1	
Survey Type: (check one)	□Centerlin	ne DRe-	Route 🗆	Access Road	□Other:		4.16
Physical Attribute	95						
Waterbody Type: (check one)	k Pond 🛛 Natura	al Pond 🛛 Lake	🗆 Reservoir 🛛	Impoundment	Oxbow DOther:		
Hydrologic Regime:	Permanently	Flooded 🗆 S	emipermanently F	looded 🛛 Se	asonally Flooded] Temporarily Floode	d
OHWM Height: 0,5 m	OHWM Ind (check all that a		⊡ Clear line on bank	□Shelving	g ⊡Wrested vegetation	□Scouring	⊵ Water staining
above water	level Ben vegeta	t, matted, or mis ation	sing EWrack line	□Litter an debris	d DAbrupt plar community ch	nt □Soil characterisi nange	ic change
Depth of Water:		Bank height	(average):		Bank slope (ave	erage):	A CONTRACTOR
4	ft.		_ <u>1_ft</u>			60 degrees	
N/A□							
Substrate: (check all that apply) % of Substrate:	Bedrock DE	Boulder □ Cob	ble 🗆 Gravel		Śił/ clay 🕑 Organic	□ Other:	N.
Width of Riparian Zor			Trees:			Herbs	Arrental Co
<u>30 ft</u> .	(check all tha	t apply)	I Trees:		Saplings/Shrubs:		
N/A□	Avg. DBH (approx.)	l of Dominants:	<u> 10 in</u> .		jn.	<u>N/A_</u> in.	
Dominant Bank Vege	tation (list):		States and States				W-Lo Now
Pinns tacde,	Acer rubr	um. Fercue	, Juncus	effusus			
Aquatic Habitats (ex.)					And the second design of the	, etc.):	tel es gri
Leaf packs, 5	그는 아이들이 한 것 같아요. 그가						
Aquatic Organisms C	and the second se				and the second sec	n arte de la Cha Recenter de la Cha	
Minnows							
T&E Species Observe	ed (list):		$f(x_i) = f(x_i)$				
None							
Disturbances (ex: live	stock access, manur	e in waterbody, was	ste discharge pipes);				
Livestock acce	55						
Waterbody is: (check one)	🗆 Natura	al 🛛 Artificial	, man-made □] Manipulated			
Waterbody Quality * (check one)	🗆 High	Moderate	Low				

Waterbody ID:

Ocmp 009

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

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

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

Notes:

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

$\leftarrow N$				
wernf	,05]	Trans	1	
- vicinity				
+ + + +		P00		
) oumpris	/	
* /) ocmp009 * dota point	/	Descent and a second



Open Waterbody ocmp009 facing north.



Open Waterbody ocmp009 facing northeast.



Open Waterbody ocmp009 facing northwest.

Open Waterbody Data Sheet

Survey Description					
Project Name:	Waterbody	lame:	W	aterbody ID:	Date:
ACP	Pa	ond		ocmr 001	5/12/16
State: Coun		Company:			Photos:
NC	Cumberland	ESI	KW	M, KSM	S,W
Haci Numper(s).		Nearest Milepost:	As	ssociated Wetland	D(s):
22-085-A052	22-085-A053	141.4		wcmfo	05
Survey Type: (check one)	□Centerline 之	Re-Route	Access Road	Other:	
Physical Attributes					
Waterbody Type:					
(check one)	id 🗆 Natural Pond 🗆 La		mpoundment LI C	Jxbow 🗆 Other:	
Hydrologic Regime: 💢	Permanently Flooded] Semipermanently Flo	ooded 🗆 Seaso	nally Flooded	Temporarily Flooded
онwм	OHWM Indicator:			□Wrested	□Scouring □Water
Height:	(check all that apply)	Clear line on bank	□Shelving	vegetation	staining
Height: <u>NA</u> ft.			Litter and		□Soil characteristic change
	Bent, matted, or n vegetation	line	debris	community cha	이 그 것은 것이 안전했던 가지 아이지 않는 것을 얻는 것이 같이 많이 가지 않는 것이 가지 않는 것이 하는 것이 없다. 나는 것이 많이 나는 것이 없다.
Depth of Water:	Bank heid	ht (average):		Bank slope (aver	age):
> 3 ft.	Buiking				60 degrees
N/AD		ft.	oter	-	
ANNO MARCELLAR DE LA CARA	Carety Prof.	A CARLES AND A CARL		1	
Qualitative Attributes Water Appearance:		ter a construction			
(check one)	water ⊠Clear ⊡	Turbid □Sheen on surface	□Surface scum	□Algal □0 mats	Other:
Substrate: Be (check all that apply)				/ clay 🛛 Organic	Other:
% of Substrate:	_%%	%%	90 % 10	%%	%
Width of Riparian Zone:	Vegetative Layers:				
>10D ft.	(check all that apply)	Trees:	Sapl	lings/Shrubs:	(Herbs
<u> </u>	Avg. DBH of Dominant	ts:in.		in	NA in.
N/AD	(approx.)				
Dominant Bank Vegetation	n (list):		Eastein	III Alium	
Agrostis sp,	(list): Rubus avgutus,	Eriocaulon	cupatorium	Capitin Rona of	
Aquatic Habitats (ex: submer					etc.):
	deeper center,				
Largemouth Bas	ved (list): is, dragonflies, a	damselflies, k	oue gill		
T&E Species Observed (lis None	st):				
Disturbances (ex: livestock a	access, manure in waterbody,	waste discharge pipes):			
in powerline	ROW				
Waterbody is:					
(check one)	🗆 Natural 🛛 🖾 Artific	cial, man-made 🛛 🗆	Manipulated		
Waterbody Quality * :		1			
(check one)	□ High DK Modera	te 🗆 Low			

Waterbody ID:

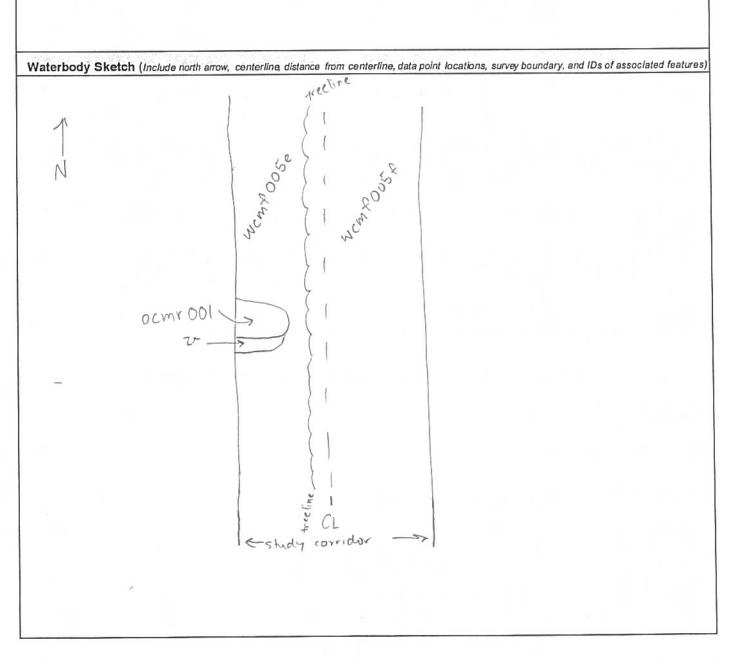
OCMr OOI

 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:



Environmental Field Surveys Open Waterbody Photo Page



Open waterbody data point ocmr001 facing south.



Open waterbody data point ocmr001 facing west.

Photo Sheet 1 of 1

Open Waterbody Data Sheet										
Survey Description										
Project Name:		Waterbody N	/aterbody Name:		V	Waterbody ID:		Date:		
Atlantic Coast Pipe		Unnamed	pond			C	Dcme020		4/7/2010	6
•		Company	/:				Photos:			
	Cumberland		NRG		C	CG, S		1-3		
Tract Number(s):			Nearest N	Milepost:		Δ	ssociated Wetland	ID(s):		
Contractor yard 10) primary		NA			1	none			
Survey Type: (check one)		e 🗆 F	Re-Route		Access Road	b	⊠Other: Contra	ctor yard		
Physical Attribut	es									
Waterbody Type:	ck Pond 🛛 Natural	Pond 🗆 La	ike □ Re	servoir 🗆 I	mpoundmer	nt 🗆	Oxbow			
Hydrologic Regime:	□ Permanently	Flooded 🗵	Semiperi	manently Flo	ooded 🗆	Seaso	onally Flooded \Box	Temporaril	y Flooded	ł
онwм	OHWM Indi									
Height:	(check all that ap	oply)		l Clear line h bank	□Shelv	/ing	□Wrested vegetation	□Scou	iring	□Water staining
<u> </u>	□Bent vegeta	, matted, or m tion	nissing □ lin	Wrack e	□Litter debris	and	□Abrupt plant community cha		aracteristi	c change
Depth of Water:		Bank heig	ht (averag	je):			Bank slope (avera	ige):		
N/A 🗆 🚺	_ft.			<u>2</u> ft.			_6	<u>60</u> degree	S	
Qualitative Attrib	utes									
Water Appearance: (check one)	□No water □	Clear ⊠1	Turbid	□Sheen on surface		ırface า	□Algal □C mats	Other:		
Substrate: (check all that apply)	Bedrock Bo	oulder 🗆 C	obble 🗆	Gravel	⊠ Sand	⊠ Silt	t/ clay 🛛 Organic	Other:		
% of Substrate:	_%	%	%	_%	<u>90_</u> %	10 9	%%	0	6	
Width of Riparian Zor	ne: Vegetative (check all that	•		Trees:] Sap	lings/Shrubs:	⊠ Hert	os	
ft. N/A⊠	-	of Dominant	s:	in.	-		in.			
Dominant Bank Vege	(approx.)									
Lamp rush, dog fe										
Aquatic Habitats (ex: s	submerged or emerged aq	uatic vegetation, o	overhanging b	anks/roots, leaf	packs, large sub	merged	wood, riffles, deep pools, et	c.) :		
none										
Aquatic Organisms Observed (list):										
Insects, tadpoles										
T&E Species Observed (list):										
none										
Disturbances (ex: livestock access, manure in waterbody, waste discharge pipes):										
Ag runoff, road rur	noff, no outlet									
Waterbody is: (check one)	□ Natural	\boxtimes	Artificial, I	man-made	🗆 Manip	oulated	d			
Waterbody Quality ^a : (check one)	□ High		Moderate		Low					

Waterbody ID:

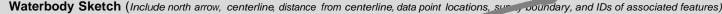
Ocme020

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:



ADODNS	URIJEY AREA PANEO T	$\langle N \rangle$
	cmed20 INPLANTED AG GJELD	
Por l	REST DF 36E SURVEYED CON YNRD	JIONSLY



Open waterbody ocme020 facing south



Open waterbody ocme020 facing north



Open waterbody ocme020 facing west

USACE AID= DWQ =	Site = (indicate on attached map)
STREAM QUALITY A	SCMC005
Provide the following information for the stream reach und	der assessment:
1. Applicant's name: Dominion	2. Evaluator's name: EST-K. Markhom, K. Murphvey
3. Date of evaluation: 5/12/16	4. Time of evaluation: 12:00 PM
5. Name of stream: UNT to Buck Creek	6. River basin: Cape Fear
7. Approximate drainage area: <u>30</u> Bickels	8. Stream order:
9. Length of reach evaluated: 508+	10. County: Cumberland
11. Site coordinates (if known): prefer in decimal degrees.	12. Subdivision name (if any): NA
Latitude (ex. 34.872312): 35.03368	Longitude (ex77.556611): -78. 73792
Method location determined (circle): GPS) Topo Sheet Onho 13. Location of reach under evaluation (note nearby roads and LOCATED NORTH OF NC 24	(Aerial) Photo GIS Other GIS Other d landmarks and attach map identifying stream(s) location):
14. Proposed channel work (if any): PNPOSed Pi	ipeline
15. Recent weather conditions: SUNAY	
16. Site conditions at time of visit: Man-made dite	h
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:
19. Does channel appear on USGS quad map? YES NO	
21. Estimated watershed land use: 20% Residential	<u>%</u> Commercial <u>%</u> Industrial <u>3</u> Agricultural
50% Forested	
24. Channel slope down center of stream:Flat (0 to 2%)	
25 Channel singerity: Straight Occasional bends	Frequent meanderVery sinuousBraided channel
Instructions for completion of worksheet (located on pa location, terrain, vegetation, stream classification, etc. Even to each characteristic within the range shown for the etc characteristics identified in the worksheet. Scores should characteristic cannot be evaluated due to site or weather of comment section. Where there are obvious changes in the into a forest), the stream may be divided into smaller reach reach. The total score assigned to a stream reach must ran highest quality.	age 2): Begin by determining the most appropriate ecoregion based on ry 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 inge between 0 and 100, with a score of 100 representing a stream of the ments: Notucalized ditch
	- 1
Evaluator's Signature Key Murchner	Date 5/12/16
This channel evaluation form is intended to be used or gathering the data required by the United States Arn cupling. The total score resulting from the completion	aly 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 a cuto change – version 06 03. To Comment, please call 919-876-8441 \times 26.

1

·**

scmr \$\$5

STREAM QUALITY ASSESSMENT WORKSHEET

ir l	CILLDACTEDISTICS	ECOREGION POINT RANGE SC			
#	CHARACTERISTICS	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	3
2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0 - 6	0 - 5	0-5	
3	(no buffer = 0; contiguous, wide buffer = max points)	0-6	0-4	0 - 5 $0 - 4$ $0 - 4$	6
4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4		0
5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	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	
8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0 - 6	0-4	0-2	5
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 0-5	0-4	0-5	3
13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)		0-5	0-5	3
14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	31.
15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	timber production 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	2
17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	R
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)	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	0-4	0-4	0-4	1
23	Evidence of wildlife use	0-6	0-5	0-5	N
	Total Points Possible	100	100	100	

* These characteristics are not assessed in coastal streams.

scmr 005

NC DWQ Stream Identification Form Version 4.11

Date: 5/12/16	Project/Site: A	CP	Latitude: 35, 03388		
Evaluator: ESI-K.Marisham, K.Murghrey	County: CUM	nberland	Longitude: -78.7379;		
Total Points:Stream is at least intermittent $if \ge 19$ or perennial if $\ge 30^*$		nation (circle one) mittent Perennial	Other Vander e.g. Quad Name:		
A. Geomorphology (Subtotal =)	Absent	Weak	Moderate	Strong	
1 ^a Continuity of channel bed and bank di+CM	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		2	3	
4. Particle size of stream substrate	0 "	1	(2)	3	
5. Active/relict floodplain	0	()	2	3	
6. Depositional bars or benches	(0)	1	2	3	
7. Recent alluvial deposits	0	1	(2)	3	
8. Headcuts	\bigcirc	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) ≠ (0)	Yes	= 3	
^a artificial ditches are not rated; see discussions in manual B. Hydrology (Subtotal = 9.5)		π.			
Dirijurologj (oubtolai	0	4	2	(3)	
12. Presence of Baseflow		1	2	-	
13. Iron oxidizing bacteria	0	<u>(</u>)	2	3	
14. Leaf litter	1.5		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 = 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	۵	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.	See p. 35 of manua	1.			
Notes: Naturalized ditch					
	φ\$5		5		

OHWM Width: 48+ TOP OF BOOK: 78+



Waterbody scmr005 facing southwest upstream.



Waterbody scmr005 facing northeast downstream.



Waterbody scmr005 facing southeast across bank.

DWQ =_____

Site = ____ (indicate on attached map) SCMR PP6

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. Mulphrey	7
3. Date of evaluation: 5/12/16 4. Time of evaluation: 12: 30PM	
5. Name of stream: UNT to BUCK CREEK 6. River basin: Cafe Feor	
7. Approximate drainage area: 20 occes 8. Stream order: 0	
9. Length of reach evaluated: 50 8+ 10. County: Camberland	
11. Site coordinates (if known): prefer in decimal degrees. 12. Subdivision name (if any): NA	
Latitude (ex. 34.872312): 35, 03059 Longitude (ex77.556611): -78.7382	5
Method location determined (circle): GPS Topo Sheet Onho (Aerial) Photo GIS Other GIS Other 13. Location of reach under evaluation (note nearby roads and landmarks and attach map identifying stream(s) loca LOCATED NORTH OF NC 24 in Comberland CO, NC	tion):
14. Proposed channel work (if any): Proposed Difeline	
15. Recent weather conditions: Sunny	
16. Site conditions at time of visit: Man-made ditch	
17. Identify any special waterway classifications known:Section 10Tidal WatersEssenti	al Fisheries Habitat
Trout WatersOutstanding Resource WatersNutrient Sensitive WatersWater Supply Water	ershed(I-IV)
18. Is there a pond or lake located upstream of the evaluation point? YES NOIf yes, estimate the water surface	
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: 20% Residential% Commercial% Industrial 30	
* (Top of Bank) 50% Forested % Cleared / Logged % Other () F)
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 sinuous	Braided channel
Instructions for completion of worksheet (located on page 2): Begin by determining the most appropriate location, terrain, vegetation, stream classification, etc. Every characteristic must be scored using the same ecore to each characteristic within the range shown for the ecoregion. Page 3 provides a brief description of characteristic identified in the worksheet. Scores should reflect an overall assessment of the stream reach un characteristic cannot be evaluated due to site or weather conditions, enter 0 in the scoring box and provide a comment section. Where there are obvious changes in the character of a stream under review (e.g., the stream into a forest), the stream may be divided into smaller reaches that display more continuity, and a separate form to reach. The total score assigned to a stream reach must range between 0 and 100, with a score of 100 representighest quality.	bow to review the ader evaluation. If a m explanation in the flows from a pasture used to evaluate each
Total Score (from reverse): Comments:	
Evaluator's Signature Kein Mrr Phren Date 5/12/16	2
This channel evaluation form is intended to be used only as a guide to assist landowners and environme gathering the data required by the United States Army Corps of Engineers to make a preliminary a	intal 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.

STREAM QUALITY ASSESSMENT WORKSHEET SCOV OP6

#	CHARACTERISTICS	Coastal	ION POINT Piedmont		SCOR	
HEALE .	Presence of flow / persistent pools in stream	**************************************	1 No. of Conceptual Street, products of the	A CONTRACTOR OF STREET, ST.		
1	(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	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)	Evidence of nutrient or chemical discharges		0-4	4	
5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0 -4	0-4	١	
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	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)	0-4	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	5	
14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	pot depth and density on banks 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	5	
16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	Presence of riffle-pool/ripple-pool complexes		0-6		
17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	Habitat complexity $0-6$		0-6	2	
18	(no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	(7)	
19			0-4	0-4	_	
20	(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	Ċ		
21	Presence of amphibians	0-4	0-4 0-4			
22	Presence of fish	0-4	0-4	0-4	C	
21 22 23	Evidence of wildlife use	0-6	0-5	0-5	0	
	Total Points Possible	100	100	100		

* These characteristics are not assessed in coastal streams.

SCMR \$\$6 NC DWO Stream Identification Form Version 4.11 Latitude: 35.03057 5/12/16 Project/Site: ACP Date: Longitude: _78,73825 Evaluator:ESJ-K, Markham, K. MURPhrey County: camberlond Other Vonder **Total Points:** Stream Determination (circle one) Stream is at least intermittent Ephemeral Intermittent Perennial e.g. Quad Name: if \geq 19 or perennial if \geq 30* Absent Weak Moderate Strong A. Geomorphology (Subtotal = 1^a. Continuity of channel bed and bank ditch 0 2 3 1 0 (1) 2 2. Sinuosity of channel along thalweg 3 3. In-channel structure: ex. riffle-pool, step-pool, (0) 2 1 3 ripple-pool sequence 0 1 (2) 3 4. Particle size of stream substrate 5. Active/relict floodplain 0) 1 2 3 Ò 2 3 6. Depositional bars or benches 1 7. Recent alluvial deposits 0 1 2 3 2 3 8. Headcuts 0) 1 (0) 0.5 1.5 9. Grade control 1 10. Natural valley 0 0.5 1 1.5 11. Second or greater order channel No = 0 Yes = 3^a 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 2 3 1 1 0.5 0 14. Leaf litter 1.5 15. Sediment on plants or debris O) 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 = (n.5) 2 18. Fibrous roots in streambed 3 1 0 19. Rooted upland plants in streambed 3 1 0 2 20. Macrobenthos (note diversity and abundance) 0 2 3 1 2 (0)1 3 21. Aquatic Mollusks 22. Fish 0 0.5 1.5 1 23. Crayfish 0) 0.5 1 1.5 0) 0.5 1 1.5 24. Amphibians 1.5 0) 0.5 25. Algae 1 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. present Notes: Murdianna, woodwardia Sketch: WEAR OU 6 scmr DOG origin OHWM Width: 38+

TOP OF BOAK: 11 FT



Waterbody scmr006 facing southeast upstream.



Waterbody scmr006 facing northwest downstream.



Waterbody scmr006 facing southwest across bank.

Open Waterbody Data Sheet

Survey Descriptio	on					
Project Name:		Waterbody Na	ame:		Waterbody ID:	Date:
ACP	Sugar and		amed Pono		OCMODD3	011
State: NC	County: Combe		ESI		w Member Initials: $R_1 S B$	Photos: W, N
Tract Number(s):			Vearest Milepost:		Associated Wetland	ID(s):
22-085	- A 06	- All All All All All All All All All Al	142,2	-	NH	
Survey Type: (check one)	Centerline		e-Route □A	ccess Road	Other:	
Physical Attribute	s					
Waterbody Type: (check one)	k Pond 🛛 Natural	Pond 🗆 Lak	e 🗆 Reservoir 🗆 In	npoundment [□ Oxbow □ Other:	
Hydrologic Regime:	Rermanently	Flooded 🗆	Semipermanently Flo	oded 🗆 Sea	asonally Flooded	Temporarily Flooded
OHWM Height: <u>3</u> ft.	OHWM India (check all that ap		Clear line on bank	□Shelving	□Wrested vegetation	□Scouring □Water staining
it.	DaBent vegeta		ssing □Wrack line	□Litter and debris	d □Abrupt plant community cha	□Soil characteristic change Inge
Depth of Water:		Bank heigh	t (average):		Bank slope (aver	age):
3	ft.		<u> </u>		_	<u>70</u> degrees
N/A 🗆					Ma com los lostors	
Qualitative Attrib	utes					
Water Appearance: (check one)	No water	Clear 🗆 Tu	urbid □Sheen on surface	⊡Surfac scum	ce □Algal □C mats	Other:
Substrate: (check all that apply)	Bedrock 🗆 Bo	oulder 🗆 Co			Silt/ clay	Other:
% of Substrate:	%	_%	_%%	60% 9	0%%	%
Width of Riparian Zon	e: Vegetative (check all that		Trees:	j≰ s	aplings/Shrubs:	🕅 Herbs
<u>ft</u> ·	Avg. DBH	of Dominants	in.		in.	NA_in.
N/A	(approx.)					<u>········</u> ····
Dominant Bank Veget		1000	2		and the second	
Acer rul Aquatic Habitats (ex s	prum, F	Indroz	ogon vir	ginicos	5	
Aquatic Habitats (ex: s	ubmerged or emerged aq	uatic vegetation, ov	erhanging banks/roots, leaf p	acks, large submerg	ged wood, riffles, deep pools, e	tc.):
vegetated	edges .	deeper	waters			
Aquatic Organisms O	• ,					
	observe	d				
T&E Species Observe いりいし	d (list):					N
Disturbances (ex: lives Ag. field		in waterbody, wa	ste discharge pipes):			
Waterbody is: (check one)	Natural	Artificia	l, man-made 🛛 🗆 M	lanipulated		
Waterbody Quality * : (check one)	🗆 High	□ Moderate	Low			

Waterbody ID: 0cm0003 High Quality: Natural, natural bank vegetation around entire waterbody; banks stable and protected by roots; water color is clear to tea-colored; no barriers to fish movement; many fish cover types available; diverse and stable aquatic habitat; no disturbance by livestock or man. Moderate Quality: Altered by rip-rap; natural vegetation extends 1/3-1/2 of the active channel width on each side; filtering function or bank vegetation only moderately compromised; banks moderately unstable; water color is cloudy, submerged objects covered with greenish film; moderate odor; minor barriers to fish movement; fair aquatic habitat; minimum disturbance by livestock or man. Low Quality: Rip rap and channelization excessive; natural vegetation less than 1/3 of the active channel width on each side; lack of regeneration; filtering function severely compromised; banks unstable (eroding); water color is muddy and turbid; obvious pollutants (algal mats, surface scum, surface sheen); heavy odor; severe barriers to fish movement; little to no aquatic habitat; severe disturbance from livestock or man. Notes: Waterbody Sketch (Include north arrow, centerline, distance from centerline, data point locations, survey boundary, and IDs of associated features) E-N wcmb027 ocmoDO3



Open waterbody data point ocmo003 facing north.



Open waterbody data point ocmo003 facing west.

Photo Sheet 1 of 1

USACE AID#	DWQ =		e = (indicate on attached map)
STF.	REAM QUALITY AS	SSESSMENT WORK	SHEET
Provide the following informati	ion for the stream reach und	er assessment:	
1. Applicant's name: Domin		2. Evaluator's name: L. Ro	per
3. Date of evaluation: 4/18	116	4. Time of evaluation: 90-r	
5. Name of stream: UNT to	Sandy Creek	6. River basin: Cape F	ear
7. Approximate drainage area:		8. Stream order: 0	
9. Length of reach evaluated:		10. County: Comberla	and
11. Site coordinates (if known):		12. Subdivision name (if any)	none
Latitude (ex. 34.872312): 35,07	2167	Longitude (ex77.556611);	78,73943
Method location determined (circle): 13. Location of reach under evaluation of Clinto	uation (note nearby roads and n Rd in powe	landmarks and attach map ident	Other
14. Proposed channel work (if an		ipeline	
15. Recent weather conditions:	warm & dry		
16. Site conditions at time of vis			
17. Identify any special waterway		Section 10Tidal Wa	
			Water Supply Watershed(I-IV)
and the second	0		ate the water surface area:
19. Does channel appear on USC			JSDA Soil Survey? YES (NO)
21. Estimated watershed land us			% Industrial <u>60</u> % Agricultural
* (Top of Bank) 22. Bankfull width: 6 f	• ·		% Other ()
	-+		
			oderate (4 to 10%)Steep (>10%)
			Very sinuousBraided channel
location, terrain, vegetation, str- to each characteristic within the characteristics identified in the characteristic cannot be evalual comment section. Where there into a forest), the stream may be reach. The total score assigned highest quality.	eam classification, etc. Every the range shown for the ecc worksheet. Scores should re- ted due to site or weather co- are obvious changes in the co- be divided into smaller reaches d to a stream reach must rang	characteristic must be scored to pregion. Page 3 provides a b effect an overall assessment of inditions, enter 0 in the scoring haracter of a stream under revie is that display more continuity, a	he most appropriate ecoregion based on using the same ecoregion. Assign points orief description of how to review the the stream reach under evaluation. If a g box and provide an explanation in the ew (e.g., the stream flows from a pasture ind a separate form used to evaluate each core of 100 representing a stream of the
Total Score (from reverse):_	<u>33</u> Comm	ents:	Ne analisana (11 186
0		1	
gathering the data required quality. The total score res	by the United States Arm sulting from the completion	as a guide to assist landown Corps of Engineers to mal of this form is subject to U	te <u>4/18/16</u> ers and environmental professionals in se a preliminary assessment of stream SACE approval and does not imply a Comment. please call 919-876-8441 x 26.
		1	

	CILLD & CTUDIOTION	Provide and the second second second second second	ION POINT	RANGE	SCORI
#*	CHARACTERISTICS	Coastal	Piedmont	Mountain,	SCOR
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	١
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
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	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	D
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	
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	C
16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0-6	C
17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	١
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	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	6
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	

NC DWQ Stream	Identification	Form	Version 4.11	scmol	5
---------------	----------------	------	--------------	-------	---

Date: 4/18/10	Project/Site: ACP	Latitude: 35,02167
Evaluator: L, Roper, S. Bryan	County: Comberland	Longitude: -78,73943
Total Points: Stream is at least intermittent if \geq 19 or perennial if \geq 30*	Stream Determination (circle one)	Other Stedman e.g. Quad Name:

A. Geomorphology (Subtotal =)	Absent	Weak	Moderate	Strong
1ª Continuity of channel bed and bank d, tch	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	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	0.5	1	1.5
10. Natural valley	0	0.5	1	1.5
11. Second or greater order channel	NG	= 0)	Yes	= 3
^a artificial ditches are not rated; see discussions in manual B. Hydrology (Subtotal = $_{7,5}$)	G			
12. Presence of Baseflow	0	1	2	3
13. Iron oxidizing bacteria	R	1	2	3
14. Leaf litter	1.5	1	0.5	0
15. Sediment on plants or debris	0	0.5	1	1.5
		0.5	1 1	1.5
16. Organic debris lines or piles	(0)	0.0		
16. Organic debris lines or piles17. Soil-based evidence of high water table?		= 0	Yes	= 3
17. Soil-based evidence of high water table?			Yes	-8
17. Soil-based evidence of high water table? C. Biology (Subtotal =)			Yes 1	0
17. Soil-based evidence of high water table? C. Biology (Subtotal =) 18. Fibrous roots in streambed	No	= 0		-
17. Soil-based evidence of high water table? C. Biology (Subtotal =) 18. Fibrous roots in streambed 19. Rooted upland plants in streambed	(3)	= 0	1	0
17. Soil-based evidence of high water table? C. Biology (Subtotal =) 18. Fibrous roots in streambed	(3) (3)	= 0 2 2	1	0
 17. Soil-based evidence of high water table? C. Biology (Subtotal =) 18. Fibrous roots in streambed 19. Rooted upland plants in streambed 20. Macrobenthos (note diversity and abundance) 21. Aquatic Mollusks 	(3) (3) (0)	= 0 2 2 1	1 1 2	0 0 3
 17. Soil-based evidence of high water table? C. Biology (Subtotal =) 18. Fibrous roots in streambed 19. Rooted upland plants in streambed 20. Macrobenthos (note diversity and abundance) 	No (3) (3) (0) (0) (0) (0) (0) (0) (0) (0	= 0 2 2 1 1	1 1 2 2	0 0 3 3
 17. Soil-based evidence of high water table? C. Biology (Subtotal = <u>9</u>) 18. Fibrous roots in streambed 19. Rooted upland plants in streambed 20. Macrobenthos (note diversity and abundance) 21. Aquatic Mollusks 22. Fish 	(3) (3) (3) (0) (0)	= 0 2 1 1 0.5 0.5 0.5	1 1 2 2	0 0 3 3 1.5
 17. Soil-based evidence of high water table? C. Biology (Subtotal = <u>9</u>) 18. Fibrous roots in streambed 19. Rooted upland plants in streambed 20. Macrobenthos (note diversity and abundance) 21. Aquatic Mollusks 22. Fish 23. Crayfish 	No (3) (3) (0) (0) (0) (0) (0) (0) (0) (0	= 0 2 2 1 1 0.5 0.5 0.5 0.5	1 1 2 2 1 1	0 0 3 1.5 1.5 1.5 1.5 1.5

Sketch: to point Scmob31 1

N OHWM: 4ft Bankw: Jth: 6ft



Waterbody data point scmo031 facing southeast upstream.



Waterbody data point scmo031 facing northwest downstream.



Waterbody data point scmo031 facing northeast across.

USACE AID# DWQ #	Site = (indicate on attached map)
STREAM QUALITY A	SCM0032 SSESSMENT WORKSHEET
Provide the following information for the stream reach und	er assessment:
1. Applicant's name: Dominion	2. Evaluator's name: L, foper
3. Date of evaluation: 4/18/16	4. Time of evaluation: 10m
5. Name of stream: UNT to Sandy Creek	6. River basin: Cape Fear
7. Approximate drainage area: 50 ac	8. Stream order: 0
9. Length of reach evaluated: $40f+$	10. County: Cumberland
11. Site coordinates (if known): prefer in decimal degrees.	12. Subdivision name (if any): NON E
	Longitude (ex77.556611): -78.73957
Method location determined (circle): Topo Sheet Ortho (13. Location of reach under evaluation (note nearby roads and	Aerial) Photo/GIS Other GIS Other landmarks and attach map identifying stream(s) location):
South of Clinton Rd in power	erline ROW
14. Proposed channel work (if any): Proposed	
15. Recent weather conditions: warm & dry	
16. Site conditions at time of visit: ag. fieldedg	l
17. Identify any special waterway classifications known:	Section 10Tidal WatersEssential Fisheries Habitat
Trout WatersOutstanding Resource Waters	Nutrient Sensitive WatersWater Supply Watershed(1-1V)
18. Is there a pond or lake located upstream of the evaluation	point? YES O 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% Agricultural
+ (France Real) 40% Forested	% Cleared / Logged% Other () 23. Bank height (from bed to top of bank):3 ft
	Gentle (2 to 4%)Moderate (4 to 10%)Steep (>10%)
25. Channel sinuosity: Straight Occasional bends	Frequent meanderVery sinuousBraided channel
Instructions for completion of worksheet (located on par- location, terrain, vegetation, stream classification, etc. Every to each characteristic within the range shown for the ecc 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 co- into a forest), the stream may be divided into smaller reacher reach. The total score assigned to a stream reach must rang- highest quality.	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
Total Score (from reverse): 25 Comm	ents:
Evaluator's Signature framer f	open Date 4/18/16
This channel evaluation form is intended to be used onl gathering the data required by the United States Arm quality. The total score resulting from the completion	y as a guide to assist landowners and environmental professionals in by Corps of Engineers to make a preliminary assessment of stream of this form is subject to USACE approval and does not imply to change – version 06 03. To Comment, please call 919-876-8441 x 26

ĴÍ.	CHARACTERISTICS	Construction of the second second second	ON POINT		SCORE
#		Coastal	Piedmont	Mountain	and the s
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	0
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	2
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	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	P
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
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	1
15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	C
16	Presence of riffle-nool/rinnle-pool complexes	0-3	0-5	0-6	1
17	Habitat complexity	0-6	0-6	0-6	2
18	Canony coverage over streamhed	0-5	0-5	0-5	2
19	Substrate embeddedness	NA*	0-4	0-4	-
20	Presence of stream invertebrates (see page 4)	0-4	0-5	0-5	0
2	Presence of amphibians	0-4	0-4	0-4	C
2	Presence of fish	0-4	0-4	0-4	O
2	Evidence of wildlife use	0-6	0-5	0-5	2
行業	Total Points Possible	100	100	100	

NC DWQ Stream Identification Form	Version 4.11	SLMOD3	2	
Date: 4/18/16	Project/Site: A		Latitude: 35	,02010
Evaluator: L, FOPEr	County: Cum	berland	Longitude: -78,73957	
Total Points:Stream is at least intermittentif \geq 19 or perennial if \geq 30°	Stream Determin Ephemeral Inter	nation (circle one) mittent Perennial	Other St e.g. Quad Name:	Nambe
A George Halow (Gebeel 2)	Absent	Weak	Moderate	Strong
A. Geomorphology (Subtotal =)		1	2	3
1ª Continuity of channel bed and bank dituh	0	0	2	3
 Sinuosity of channel along thalweg In-channel structure: ex. riffle-pool, step-pool, 		0	NAMES OF TAXABLE PARTY.	
ripple-pool sequence	0	0	2	3
4. Particle size of stream substrate	00	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
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 artificial ditches are not rated; see discussions in manual		2		
B. Hydrology (Subtotal = 7,5)				
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?		= 0	Yes	= 3)
C. Biology (Subtotal = 7.5)			~	
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)	6	1	2	3
21. Aquatic Mollusks	0	1	2	3
22. Fish	0	0.5	1	1.5
23. Crayfish	Ø	0.5	1	1.5
24. Amphibians	Ø	0.5	1	1.5
25. Algae	<u> </u>	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 method	ls. See p. 35 of manua	the second se	-	
Notes:				
	1 1			
Sketch:	* point			
	* point	0		
	50	m_0032		
$\Lambda \longrightarrow \mathbb{R}^{1}$				
		no 033		
N Scmoor	12			
		all shares and		
21111144:31				
OHWM: 3 Ft Bank width: 6 Ft				
Bank width : 6ft				



Waterbody data point scmo032 facing southeast upstream.



Waterbody data point scmo032 facing northwest downstream.



Waterbody data point scmo032 facing southwest across.

USACE AID≓ DWQ ≓	Site = (indicate on attached map)
STREAM QUALITY A	SCM0 033 SSESSMENT WORKSHEET
Provide the following information for the stream reach und	der assessment:
1. Applicant's name: Dominion	
3. Date of evaluation: 4/18/16	4. Time of evaluation: 11 Am
5. Name of stream: UNT to Sandy Creek	6. Riverbasin: Cape Fear
7. Approximate drainage area: 50 ac	8. Stream order: D
9. Length of reach evaluated: 40-f+	10. County: Cumberland
11. Site coordinates (if known): prefer in decimal degrees.	12. Subdivision name (if any): NONE
	Longitude (ex77.556611): -78, 73993
Method location determined (circle): (PS) Topo Sheet Onho 13. Location of reach under evaluation (note nearby roads and South of Clinton Rd in Po	(Aerial) Photo/GIS Other GIS Other landmarks and attach map identifying stream(s) location): owerline ROW
14. Proposed channel work (if any): Proposed pip	eline
15. Recent weather conditions: Warm & dry	
16. Site conditions at time of visit: <u>powerline</u> R	ow, ag. field
	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 1 Jryes, estimate the water surface area:
19. Does channel appear on USGS quad map? YES 10	20. Does channel appear on USDA Soil Survey? YES (NO)
21. Estimated watershed land use:% Residential	% Commercial% Industrial 60 % Agricultural
	% Cleared / Logged % Other ()
22. Bankfull width:	23. Bank height (from bed to top of bank): 3 ff
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 ec- characteristics identified in the worksheet. Scores should re- characteristic cannot be evaluated due to site or weather or comment section. Where there are obvious changes in the into a forest), the stream may be divided into smaller reacher reach. The total score assigned to a stream reach must ran- highest quality.	ge 2): Begin by determining the most appropriate ecoregion based on y characteristic must be scored using the same ecoregion. Assign points progion. Page 3 provides a brief description of how to review the reflect 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 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): 25 Comm	ients:
Evaluator's Signature Jaune	Pasa guide to assist landowners and environmental professionals in
gathering the data required by the United States Arn quality. The total score resulting from the completion	As a guide to assist landowners and environmental professionals in by Corps of Engineers to make a preliminary assessment of stream n of this form is subject to USACE approval and does not imply a to change – version 06 03. To Comment, please call 919-876-8441 x 26.

1

ir -	CHARACTERISTICS	a manual series of the series	ION POINT	AND REAL PROPERTY AND ADDRESS OF THE	SCORI
#	CHARACIERISTICS	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	0
3	Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	0 - 6	0-4	0-5	б
4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	2
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	6
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	
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	6
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	
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	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	C
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	(no evidence = 0; common, numerous (ypes = max points) Evidence of wildlife use (no evidence = 0; abundant evidence = max points)	0-6	0-5	0-5	2
	Total Points Possible	100	100	100	

NC DWQ Stream Identification Form	Version 4.11	SCM0D33		
Date: 4/18/16	Project/Site: A	-CP	Latitude: 35	
Evaluator: L. Roper	County: Con	nberland		
Total Points:Stream is at least intermittentif \geq 19 or perennial if \geq 30*	Stream Determin Ephemeral Inte	nation (circle one) rmittent Perennial	Other e.g. Quad Name:	Stedman
A. Geomorphology (Subtotal =)	Absent	Weak	Moderate	Strong
1 ^a Continuity of channel bed and bank dith	0	1	2	3
2. Sinuosity of channel along thalweg	Ø	1	2	3
3. In-channel structure: ex. riffle-pool, step-pool,			STATE CONTRACTOR	3
ripple-pool sequence	6	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	Ø	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 = 0	Yes	= 3
^a artificial ditches are not rated; see discussions in manual	-			
B. Hydrology (Subtotal = 7,5)			and have been	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	Ø	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 = 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	Ð	1	2	3
22. Fish	Ð	0.5	1	1.5
23. Crayfish	Q	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 method	ds. See p. 35 of manua	al.		
Notes:				
Sketch: 1 + + + + + + + + + + + + + + + + + + +	±	scmoD32		

Bank width: 6 ft



Waterbody data point scmo033 facing east upstream.



Waterbody data point scmo033 facing west downstream.



Waterbody data point scmo033 facing north across.

USACE AID# DWQ #	Site = (indicate on attached map)
	5cm0034
STREAM QUALITY A	SSESSMENT WORKSHEET
Provide the following information for the stream reach und	ler assessment:
1. Applicant's name: Dominion	2. Evaluator's name: L. Roper
3. Date of evaluation: 4/18/16	4. Time of evaluation: 12pm
5. Name of stream: UNT to Sandy Creek	6. Riverbasin: Cape Fear
7. Approximate drainage area: 50 a.c.	8. Stream order: O
9. Length of reach evaluated: $30 ft$	10. County: Comberland
11. Site coordinates (if known): prefer in decimal degrees.	12. Subdivision name (if any):
Latitude (ex. 34.872312): 35.017605	Longitude (ex77.556611): -78,73992
Method location determined (circle): PS Topo Sheet Oriho (13. Location of reach under evaluation (note nearby roads and	landmarks and attach map identifying stream(s) location):
South of clinton Rd in powe	
14. Proposed channel work (if any): Proposed p	ripeline
15. Recent weather conditions: warm & dry	
16. Site conditions at time of visit: maintained p	rowerline ROW, Ag. field ditch
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:% Residential	<u>%</u> Commercial <u>%</u> Industrial <u>40</u> % Agricultural
(For CP, 1) God Forested	% Cleared / Logged% Other ()
* (Top of Bank) 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 bends	Frequent meanderVery sinuousBraided channel
location, terrain, vegetation, stream classification, etc. Ever to each characteristic within the range shown for the ec- characteristics identified in the worksheet. Scores should a characteristic cannot be evaluated due to site or weather c comment section. Where there are obvious changes in the into a forest), the stream may be divided into smaller reache	ge 2): Begin by determining the most appropriate ecoregion based on y characteristic must be scored using the same ecoregion. Assign points foregion. Page 3 provides a brief description of how to review the reflect 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 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): 36 Comm	ients:
Evaluator's Signature Laune	gper Date 4/18/16
This channel evaluation form is intended to be used on gathering the data required by the United States Arm quality. The total score resulting from the completio	It as a guide to assist landowners and environmental professionals in my Corps of Engineers to make a preliminary assessment of stream n of this form is subject to USACE approval and does not imply a t to change – version 06 03. To Comment. please call 919-876-8441 x 26.

	CILLDACTEDISTICS	A CARLENAL AND A REPORT OF A REAL PROPERTY AND A R	ION POINT	AND DESCRIPTION OF ADDRESS OF ADD	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	5	
2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0 - 6	0-5	0-5	0	
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	3	
5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	a	
6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	D	
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	3	
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	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	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	1	
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	1	
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	C	
21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	C	
22	Presence of fish	0-4	0-4	0-4	C	
23	Evidence of wildlife use (no evidence = 0; abundant evidence = max points)	0-6	0-5	0-5	10	
	Total Points Possible	100	100	100		

SLMOD 34 NC DWQ Stream Identification Form Version 4.11 Latitude: 35.017605 Date: 4118116 Project/Site: ALP County: Cumberland Evaluator: L, Roper Longitude: -78.73992 **Total Points:** Other Stream Determination (circle one) 16.5 MAN Stream is at least intermittent e.g. Quad Name: Ephemeral Intermittent Perennial if \geq 19 or perennial if \geq 30* 2 Moderate Absent Weak Strong A. Geomorphology (Subtotal = 2 3 1^a. Continuity of channel bed and bank 0 1 ditch 6 2 3 0 2. Sinuosity of channel along thalweg 3. In-channel structure: ex. riffle-pool, step-pool, 2 3 1 0 ripple-pool sequence 2 3 (0) 1 4. Particle size of stream substrate 2 3 0 5. Active/relict floodplain 1 G 1 2 3 6. Depositional bars or benches 2 3 6 1 7. Recent alluvial deposits 0 2 3 8. Headcuts 1 1.5 0 0.5 1 9. Grade control 1 1.5 10. Natural valley (0) 0.5 No = 0 Yes = 3 11. Second or greater order channel ^a artificial ditches are not rated; see discussions in manual 8 B. Hydrology (Subtotal = 2 3 1 12. Presence of Baseflow 0 0 1 2 3 13. Iron oxidizing bacteria 0 0.5 14. Leaf litter 1.5 1 1.5 0 0.5 1 15. Sediment on plants or debris 0.5 1 1.5 16. Organic debris lines or piles 0 Yes = 3 No = 017. Soil-based evidence of high water table? C. Biology (Subtotal = 6.5 0 18. Fibrous roots in streambed (3) 2 1 3 2 1 0 19. Rooted upland plants in streambed 2 3 0) 1 20. Macrobenthos (note diversity and abundance) 2 3 0 21. Aquatic Mollusks 1 1.5 22. Fish 0 0.5 1 D 0.5 1 1.5 23. Crayfish 1 1.5 0 0.5 24. Amphibians 1.5 25. Algae 0 0.5 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. Notes: + doto point scmolly Sketch:

OHWM: 4 FF

Bank width: 6ft



Waterbody data point scmo034 facing northeast upstream.



Waterbody data point scmo034 facing southwest downstream.



Waterbody data point scmo034 facing south across.

USACE AID≓ DWQ ≓	Site = (indicate on attached map)
A share a second s	Scmo 035
STREAM QUALITY A	SSESSMENT WORKSHEET
Provide the following information for the stream reach und	ler assessment:
1. Applicant's name: Dominion	2. Evaluator's name: Li Roper
3. Date of evaluation: 4/18/16	4. Time of evaluation: 12pm
5. Name of stream: Sandy Creek	6. River basin: Cape Fear
7. Approximate drainage area: 1400 ac	8. Stream order: 2 hd
9. Length of reach evaluated: <u>40 f f</u>	10. County: Cumberland
11. Site coordinates (if known): prefer in decimal degrees.	12. Subdivision name (if any): NONC
Latitude (ex. 34.872312): 35.01439	Longitude (ex77.556611): -78,74059
Method location determined (circle): GPS Topo Sheet Oriho (13. Location of reach under evaluation (note nearby roads and South of Clinton Rd in power	landmarks and attach map identifying stream(s) location):
14. Proposed channel work (if any): Proposed pi	peline
15 Pecent weather conditions: 424 Km + m	
16. Site conditions at time of visit: powerline to	W, ag. field edge
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? FES NO	20. Does channel appear on USDA Soil Survey? YES NO
	% Commercial% Industrial% Agricultural
40 % Forested	% Cleared / Logged% Other ()
* (Top of Bank) 22. Bankfull width: 10 ft	23. Bank height (from bed to top of bank): 4 ft
	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 ec- characteristics identified in the worksheet. Scores should r characteristic cannot be evaluated due to site or weather co- comment section. Where there are obvious changes in the o- into a forest), the stream may be divided into smaller reacher reach. The total score assigned to a stream reach must ran highest quality.	ge 2): Begin by determining the most appropriate ecoregion based on y characteristic must be scored using the same ecoregion. Assign points oregion. Page 3 provides a brief description of how to review the reflect 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
Total Score (from reverse): 45 Comm	Ents: DETERMINED to be DERENAR IN HE F54 PRESENT
Fredd;	H54 PRESENT
Evaluator's Signature Found	Japer Date 4/18/16
This channel evaluation form is intended to be used on gathering the data required by the United States Arn quality. The total score resulting from the completion	by as a guide to assist landowners and environmental professionals in ny Corps of Engineers to make a preliminary assessment of stream n of this form is subject to USACE approval and does not imply a to change – version 06 03. To Comment, please call 919-876-8441 x 26.

and the second		CHARACTERISTICS	ECOREG	RANGE	SCORE	
1	がた	CHARACTERISTICS	Coastal	Piedmont	Mountain,	SCORI
]	proof M.	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0-5	0-4	0-5	5
2	2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0 – 6	0 - 5	0-5	1
1	3	Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	0 - 6	0-4	0-5	2
4	4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	3
Sec. T	5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	1
1	6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	2
2.4%	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
Sat Sa	9	Channel sinuosity (extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	3
1	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	5
477.4	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	1
	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	0
	17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	2
1.10	18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	3
and the second second	19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	-
1.1.1.1	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
1	22	Presence of fish (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	2
	23	Evidence = 0; common, numerous (spes - max points) Evidence of wildlife use (no evidence = 0; abundant evidence = max points)	0-6	0-5	0-5	2
町		Total Points Possible	100	100	100	

Date: 4/18/16	n Version 4.11 Project/Site: A	CP	Latitude: 35	,01439
Evaluator: L. Roper	County: Com	berlan	Longitude: -	78.740
Total Points:Stream is at least intermittent $f \ge 19$ or perennial if $\ge 30^*$		nation (circle one mittent Perenni		hambs
A. Geomorphology (Subtotal = 10)	Absent	Weak	Moderate	Strong
^a 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,		1	2	3
ripple-pool sequence	0	Area and the set and	and the second sec	1
4. Particle size of stream substrate	0	0	2	3
5. Active/relict floodplain	0	1	2	3
Depositional bars or benches	(\mathbf{O})	1	2	3
7. Recent alluvial deposits	0	\bigcirc	2	3
3. Headcuts	0	1	2	3
9. Grade control	O	0.5	1	1.5
10. Natural valley	\overline{O}	0.5	1	1.5
11. Second or greater order channel	No	0 = 0	Yes	=3)
artificial ditches are not rated; see discussions in manual B. Hydrology (Subtotal = \underline{Q})				
12. Presence of Baseflow	0	1	2	(3)
and high the one of the polyhop concerning the first of the second second second second second second second se	a second second second second second	1	2	3
13. Iron oxidizing bacteria	(1.5)	1	0.5	0
14. Leaf litter	0	0.5	1	1.5
15. Sediment on plants or debris	0	0.5	1	1.5
16. Organic debris liñes or piles		0.5 = 0	Yes	
17. Soil-based evidence of high water table?	140)=0	1 100	
C. Biology (Subtotal = 3.5)		0	1 1	0
18. Fibrous roots in streambed	(3)	2	1	0
19. Rooted upland plants in streambed	3	2	2	3
20. Macrobenthos (note diversity and abundance)	0	1		3
21. Aquatic Mollusks	0	1	2	1.5
22. Fish	0	0.5	0	1.5
23. Crayfish	0	0.5	1	
24. Amphibians	0	0.5	1	1.5
25. Algae	0	0.5		
26. Wetland plants in streambed		and the second se	OBL = 1.5 Other =	
*perennial streams may also be identified using other meth		al.		<u></u>
Notes: Determined to be p	erenniqu	in field		
Sketch:	point			

OHWM: 6ft Bank width: 10ft



Waterbody data point scmo035 facing north upstream.



Waterbody data point scmo035 facing south downstream.



Waterbody data point scmo035 facing west across.

Date: 9128116	Project/Site: ACP		Latitude: 35	.01133		
Evaluator: ESI-L. Roper	County: Curr	berland	Longitude: -78, 74123			
Total Points: Stream is at least intermittent $19,5$	Stream Determin	mation (circle one) rmitten) Perennial				
A. Geomorphology (Subtotal =)	Absent	Weak	Moderate	Strong		
1 ^ª Continuity of channel bed and bank diftch	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	3		
ripple-pool sequence	O	CLICH INVESTIGATION	100 M			
4. Particle size of stream substrate	\bigcirc	1	2	3		
5. Active/relict floodplain	02	1	2	3		
6. Depositional bars or benches	2	1	2	3		
7. Recent alluvial deposits	(Q)	1	2	3		
B. Headcuts	0	1	2	3		
9. Grade control	Q	0.5	1	1.5 **		
10. Natural valley	0	0.5	1	1.5		
11. Second or greater order channel	No	0 = 0	Yes	= 3		
artificial ditches are not rated; see discussions in manual						
B. Hydrology (Subtotal = <u>8</u>)						
12. Presence of Baseflow	0	1	2	3		
3. Iron oxidizing bacteria	\mathbf{O}	1	2	3		
14. Leaf litter	(1.5)	1	0.5	0		
15. Sediment on plants or debris		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 = 7,5)			9	-		
18. Fibrous roots in streambed	3	2	1	0		
19. Rooted upland plants in streambed	Ð	2	1	0		
20. Macrobenthos (note diversity and abundance)	O	1	2	3		
21. Aquatic Mollusks	0	1	2	3		
22. Fish	Ó	0.5	1	1.5		
23. Crayfish	Ø	0.5	1	1.5		
24. Amphibians	. 0	0.5		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.				
Notes:	12.12			7154		
				1999		
Sketch:	attapoint we	fOOZ mfOlO fbDz		٥		
N N I ScorfoD3						

Bank: 5ft OHWM: 4ft

USACE AID# DWQ #	Site # (indicate on attached map)
	scmf002
STREAM QUALITY A	SSESSMENT WORKSHEET
Provide the following information for the stream reach un	
1. Applicant's name: Dominion	2. Evaluator's name: EST - Koper
3. Date of evaluation: 912.8/16	4. Time of evaluation: <u>930 cm</u>
5. Name of stream: UT to Sandy Creek	6. River basin: Cape Fear
7. Approximate drainage area: 100 4 ac.	8. Stream order: 2nd
9. Length of reach evaluated: <u>30ft</u>	10. County: Comberland
11. Site coordinates (if known): prefer in decimal degrees.	12. Subdivision name (if any): None
Latitude (ex. 34.872312): 35.01133	Longitude (ex77.556611): -78.74123
Method location determined (circle): SPS Topo Sheet Ortho 13. Location of reach under evaluation (note nearby roads and	landmarks and attach map identifying stream(s) location):
South of NC-24, East of Old Vand	er Rd.
14. Proposed channel work (if any): TBP	
15. Recent weather conditions: Scattered show	vers within 48 hrs.
16. Site conditions at time of visit: main tain Pote	verline RDW, forested edge
17. Identify any special waterway classifications known:	Section 10Tidal WatersEssential Fisheries Habitat
Trout WatersOutstanding Resource Waters	Nutrient Sensitive WatersWater Supply Watershed(I-IV)
	point? YES 10 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 4D % Agricultural
60_% Forested	% Cleared / Logged% Other (23. Bank height (from bed to top of bank): 3 f+
22. Bankfull width: 5ff	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 re characteristic cannot be evaluated due to site or weather co comment section. Where there are obvious changes in the cl into a forest), the stream may be divided into smaller reaches reach. The total score assigned to a stream reach must rang highest quality.	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 be between 0 and 100, with a score of 100 representing a stream of the
Total Score (from reverse): 25 Comme	ents:
A	
gathering the data required by the United States Army quality. The total score resulting from the completion	Date <u>9/28/16</u> 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 o change – version 06/03. To Comment, please call 919-876-8441 x 26.

		CHAD & CTEDISTICS		ION POINT	RANGE	SCORE	
1040-	#	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	D	
and the second	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	3	
AL	5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	Sec. Such	
PHVSICAL	6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	0	
Hd	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	1	
	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	2	
Support of the	11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	-	
Y	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	5	
STABILITY	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	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	0	
BITAT	17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	1	
HAB	18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0 – 5	0-5	0-5	1	
	19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	-	
V	20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	0	
90	21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	1	
BIOLOGY	22	Presence of fish (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	0	
I.	23	Evidence of wildlife use (no evidence = 0; abundant evidence = max points)	0-6	0-5	0-5	2	
States		Total Points Possible	100	100	100		
		TOTAL SCORE (also enter on f	irst page)			25	



Waterbody scmf002 facing southwest upstream.



Waterbody scmf002 facing northeast downstream.



Waterbody scmf002 facing north across bank.

Date: 9128/16	Project/Site: ACP		Latitude: 35	.01075		
Evaluator: ESI-L. Roper	County: Cur	nberland	and the second se	Longitude: -78.74129		
Total Points: Stream is at least intermittent $ 9$ if ≥ 19 or perennial if $\geq 30^*$	Stream Determination (circle one) Ephemeral Intermittent Perennial		Other Stedman			
A. Geomorphology (Subtotal = <u>3</u>)	Absent	Weak	Moderate	Strong		
1 ^a Continuity of channel bed and bank ditch	0	1	2	3		
2. Sinuosity of channel along thalweg	0	12	2	3		
3. In-channel structure: ex. riffle-pool, step-pool,	6	1	2	3		
ripple-pool sequence	Ó	1		2		
4. Particle size of stream substrate	0	1	2	3		
5. Active/relict floodplain	0	1	2	3		
Depositional bars or benches	\bigcirc	1	2	3		
7. Recent alluvial deposits	0	1	2	3		
3. Headcuts	(0)	1	2	3		
9. Grade control		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	0			Beer Starter		
B. Hydrology (Subtotal = <u>8,5</u>)				E Shasa		
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 =)	CONTRACTOR OF STREET	2000	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	-		
18. Fibrous roots in streambed	3	0	1	0		
19. Rooted upland plants in streambed	3	2	1	0		
20. Macrobenthos (note diversity and abundance)	6	1	2	3		
21. Aquatic Mollusks	0	1	2	3		
22. Fish	0	0.5	1	1.5		
23. Crayfish	Ø	0.5	1	1.5		
24. Amphibians	0	0.5	Ð	1.5		
	0	0.5	- 1	1.5		
25. Algae	0	FACW = 0.75; QE	1 = 15 Other =			
26. Wetland plants in streambed *perennial streams may also be identified using other method	de See n 35 of manue					
	13. 000 p. 00 01 manue	n.				
Notes:						
	TIA	Scmf002				
Sketch:	- data					
	Pour	0				
		= SLMFOQ3				

Bank: 6ft OHWM: SFJ

USACE AID# DWQ #	Site # (indicate on attached map)
STREAM QUALITY A	Schf 003 SSESSMENT WORKSHEET
Provide the following information for the stream reach und	ler assessment:
1. Applicant's name: Dowinion	2. Evaluator's name: ESI-Roper
3. Date of evaluation: 9128/16	4. Time of evaluation: 10 am
5. Name of stream: 4NT to Sandy Creek	6. River basin: Cope Fear
7. Approximate drainage area: 200+ ac	8. Stream order:
9. Length of reach evaluated: 30ft	10. County: Comberland
11. Site coordinates (if known): prefer in decimal degrees.	12. Subdivision name (if any): none
Latitude (ex. 34.872312): 35, D1075	Longitude (ex77.556611): -78,74129
Method location determined (circle): Topo Sheet Ortho (13. Location of reach under evaluation (note nearby roads and South of NC-24, East of 0	landmarks and attach map identifying stream(s) location):
14. Proposed channel work (if any): TBD	
15. Recent weather conditions: SLattered show	Jers within 48 hrs.
16. Site conditions at time of visit: maintained p	owerline ROW, forested edge
17. Identify any special waterway classifications known:	
Trout WatersOutstanding Resource Waters	Nutrient Sensitive WatersWater Supply Watershed(I-IV)
18. Is there a pond or lake located upstream of the evaluation p	wint? 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?
21. Estimated watershed land use:% Residential	% Commercial% Industrial <u>4D</u> % Agricultural
	% Cleared / Logged% Other (
22. Bankfull width: 6ff	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 econ 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 ch- into a forest), 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 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): 25 Commen	nts:
gathering the data required by the United States Army quality. The total score resulting from the completion of	Date <u>9/28/16</u> 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 o change – version 06/03. To Comment, please call 919-876-8441 x 26.
	1

100	CHARACTERISTICS		ECOREC	ECOREGION POINT RANGE		
19.24	#	CHARACTERISTICS	Coastal	Piedmont	Mountain	SCORE
でしてい	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	0
	3	Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	0 - 6	0-4	0-5	0
A STATE	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	1
PHYSICAL	6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	0
HA	7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	D
	8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0-6	0-4	0-2	1
たちという	9	Channel sinuosity (extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3)
and the second	10	Sediment input (extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0-4	2
and the second sec	11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0 - 5	
Yada	12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	6
STABILITY	13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	5
LAB	14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	2
2	15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	D
and the second	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
SULAL	17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6)
HAB	18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5)
A State of the	19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	-
Y and	20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	0
500	21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	1
BIOLOGY	22	Presence of fish (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	D
T. C. S.	23	Evidence of wildlife use (no evidence = 0; abundant evidence = max points)	0-6	0-5	0-5	2
A STATE OF		Total Points Possible	100	100	100	
A PARTY		TOTAL SCORE (also enter on f	irst page)		计计学	25



Waterbody scmf003 facing west upstream.



Waterbody scmf003 facing east downstream.



Waterbody scmf003 facing north across bank.

USACE AID#	DWQ #		Site # (indicate	on attached map)
STREAM QU	JALITY ASSES	SSMENT WO	the set of the set of the set of the set of the	
Provide the following information for the str			DI	
. Applicant's name: Dominion	2. Ev	aluator's name: ES	I-L.Roper	
Date of evaluation: 9/16/16		me of evaluation:	Dam	
Name of stream: UNT to Cedar C	reek 6. Ri	ver basin: Cape	Fear	
. Approximate drainage area: 40 a.c.	8. St	ream order: D	A general second	and the state of t
. Length of reach evaluated: <u>30f+</u>	. 10. 0	County: Cumbe	erland	
1. Site coordinates (if known): prefer in decir	nal degrees. 12. S	Subdivision name (if	any): none	
atitude (ex. 34.872312): 34.98636	Lon	gitude (ex77.556611):	-78.74196	in the second second
Acthod location determined (circle): (PS) Topo 3. Location of reach under evaluation (hote ne North of NC-210, East	arby roads and landma	arks and attach map i	dentifying stream(s) loca	
4. Proposed channel work (if any): TBP				And the second sec
5. Recent weather conditions: Warm	a dry			<u> 44. (* 1913)</u>
6. Site conditions at time of visit: main-	tained por	vertine e	asement	
7. Identify any special waterway classification	s known:Sect	ion 10Tidal	WatersEssent	al Fisheries Habitat
Trout WatersOutstanding Resource	Waters Nutrie	nt Sensitive Waters	Water Supply Wa	tershed(1-IV)
8. Is there a pond or lake located upstream of t	he evaluation point?	YES NO If yes, es	timate the water surface	area:
9. Does channel appear on USGS quad map?	YES (NO) 20. I	Does channel appear	on USDA Soil Survey?	YES NO
1. Estimated watershed land use: 10 % Re	esidential%	Commercial _	% Industrial Z	<u>)</u> % Agricultural
<u>70</u> % Fo	orested%	Cleared / Logged	% Other ()
2. Bankfull width: 6F4	23.1	Bank height (from be	d to top of bank):	SH
4. Channel slope down center of stream:	Flat (0 to 2%)Ge	entle (2 to 4%)	_Moderate (4 to 10%)	Steep (>10%)
5. Channel sinuosity:StraightOcca		equent meander	Very sinuous	Braided channel
Instructions for completion of worksheet (In location, terrain, vegetation, stream classification to each characteristic within the range show characteristics identified in the worksheet. So characteristic cannot be evaluated due to site comment section. Where there are obvious ch into a forest), the stream may be divided into s reach. The total score assigned to a stream re highest quality.	on, etc. Every charac in for the ecoregion. Fores should reflect ar or weather conditions anges in the character maller reaches that dis	Page 3 provides overall assessment s, enter 0 in the scor of a stream under re splay more continuity	a using the same ecore a brief description of of the stream reach un- ing box and provide an eview (e.g., the stream f , and a separate form u	gion. Assign points how to review the der evaluation. If a n explanation in the lows from a pasture sed to evaluate each
Total Score (from reverse): 19	Comments:			
		Der sole sole		
	and together a second			
Evaluator's Signature <u>for</u> the Control of the Signature <u>for</u> the Signature <u>for</u> the Signature	States Army Corps e completion of this	de to assist landov of Engineers to m form is subject to	ake a preliminary as USACE approval and	tal professionals in sessment of stream d does not imply a
	. i			

1.5.4	1	OH AD A COEDICELOS	ECOREGION POINT RANGE		FRANGE	CONTRACTOR OF A LCC FILLY	
	#	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	3	
	2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0-6	0-5	0-5	0	
	3	Riparian zone (no buffer = 0; contiguous, wide buffer = max points)	0-6	0-4	0-5	D	
1.000	4	Evidence of nutrient or chemical discharges (extensive discharges = 0; no discharges = max points)	0-5	0-4	0-4	4100	
1. 16.10	5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	D	
25. 24	6	Presence of adjacent floodplain (no floodplain = 0; extensive floodplain = max points)	0-4	0-4	0-2	0	
No.	7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	D	
Sec. 1	8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0 - 6	0-4	0-2	0	
Sec. 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	3	
100 M	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	
	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		
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	0	
	17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0-6	0-6	2	
Section of	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		
	20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	0	
1.1.1	21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4		
	22	(no evidence = 0; common, numerous types = max points) (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	C	
	23	Evidence of wildlife use (no evidence = 0; abundant evidence = max points)	0-6	0-5	0-5	0	
1.4.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1		Total Points Possible	100	100	100		
11	1.45	TOTAL SCORE (also enter on f	irst nage)	的复数制制		19	

Total Points: $17, 25$ Stream is at least intermittent if ≥ 19 or perennial if $\geq 30^{\circ}$ $17, 25$ Stream is at least intermittent if ≥ 19 or perennial if $\geq 30^{\circ}$ A. Geomorphology (Subtotal = 2.5) 1° Continuity of channel bed and bank diften $17, 25$ 1 ^a Continuity of channel bed and bank diften $17, 25$ 10° 2. Sinuosity of channel along thalweg $3.$ In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence $4.$ Particle size of stream substrate 5. Active/relict floodplain $6.$ Depositional bars or benches	Absent 0 0 0 0 0 0 0 0 0	berland nation (circle one) mittent Perennial Weak 1 1 1	Latitude: 34, Longitude: -7 Other /- e.g. Quad Name: Moderate 2 2	B.74196 Autryville Strong 3
Total Points: $7, 75$ Stream is at least intermittent if ≥ 19 or perennial if $\geq 30^{\circ}$ $7, 75$ Stream is at least intermittent if ≥ 19 or perennial if $\geq 30^{\circ}$ A. Geomorphology (Subtotal = 2.5) 1° Continuity of channel bed and bank diften 1° Continuity of channel bed and bank diften 2. Sinuosity of channel along thalweg $3.$ In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence $4.$ Particle size of stream substrate 5. Active/relict floodplain $6.$ Depositional bars or benches	Absent 0 0 0 0 0	Weak	Other /- e.g. Quad Name: Moderate 2	Strong 3
1 ^{a.} Continuity of channel bed and bank J. t.c.n 2. Sinuosity of channel along thalweg 3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence 4. Particle size of stream substrate 5. Active/relict floodplain 6. Depositional bars or benches	0 0 0 0	1	2	3
1 ^{a.} Continuity of channel bed and bank J. t.c.n 2. Sinuosity of channel along thalweg 3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence 4. Particle size of stream substrate 5. Active/relict floodplain 6. Depositional bars or benches	0	1		
2. Sinuosity of channel along thalweg 3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence 4. Particle size of stream substrate 5. Active/relict floodplain 6. Depositional bars or benches	0		2	
3. In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence 4. Particle size of stream substrate 5. Active/relict floodplain 6. Depositional bars or benches	0	1		3
4. Particle size of stream substrate 5. Active/relict floodplain 6. Depositional bars or benches			2	3
5. Active/relict floodplain 6. Depositional bars or benches	0	Ð	2	3
Constitution of the second secon		1	2	3
	0	Ø	2	3
	0	1	2	3
8. Headcuts	0	1	2	3
9. Grade control	0	0.5	1	1.5
		0.5	1	1.5
10. Natural valley 11. Second or greater order channel	and the second s	=0	Yes	and the second se
^a artificial ditches are not rated; see discussions in manual	CNO	-0	105	5
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?	THE RELEASE OF THE PARTY OF	= 0	Yes:	= 3
C. Biology (Subtotal = $7,25$)		-		
18. Fibrous roots in streambed	3	2	1	0
	3	2	1	0
19. Rooted upland plants in streambed 20. Macrobenthos (note diversity and abundance)	0	1	2	3
20. Macrobentnos (note diversity and abundance) 21. Aquatic Mollusks	8	1	2	3
	0	0.5	1	1.5
22. Fish		0.5	1	1.5
23. Crayfish	0	0.5	1	1.5
24. Amphibians		0.5	(1)	1.5
25. Algae	0	0.5 FACW = 0.75; OB		
26. Wetland plants in streambed	05.4	the second se	L = 1.5 Uther = 0	J
*perennial streams may also be identified using other methods. Se	e p. 35 of manua			
Notes;				
Notes:		.f001		

OHWM: 3ff Bank: 6ft



Waterbody data point scmf001 facing northeast upstream.



Waterbody data point scmf001 facing southwest downstream.



Waterbody data point scmf001 facing southeast across bank.

DWQ=

Site = ____ (indicate on attached map) Scmp OUU

Applicant's name: Doninion	2 Evaluation of FSLEST MANALAS MULTENEED
	2. Evaluator's name: ESI-J. Harbar, 15. Muraney
. Date of evaluation: 3/29/16	4. Time of evaluation: (1 30PM
Name of stream: UNT to Cedor Creek	6. River basin: CAPE FEAR
. Approximate drainage area: 20 acres	8. Stream order:
Length of reach evaluated: 50F+	10. County: Cumberland
1. Site coordinates (if known): prefer in decimal degrees. atitude (ex. 34.872312): 34.96703	12. Subdivision name (if any): NA Longitude (ex77.556611): -78.73970
Aethod location determined (circle): GPS) Topo Sheet Orth 3. Location of reach under evaluation (note nearby roads an North of Stedman Cedar Creek Road.	nd landmarks and attach map identifying stream(s) location):
4. Proposed channel work (if any): Proposed Pipe	line
5. Recent weather conditions: Rain Within Pas	st 48 hrs
6. Site conditions at time of visit: Man-made ditth	in existing powerline easement
7. Identify any special waterway classifications known:	Section 10Tidal WatersEssential Fisheries Habitat
Trout WatersOutstanding Resource Waters	Nutrient Sensitive WatersWater Supply Watershed(1-1V)
8. Is there a pond or lake located upstream of the evaluatio	n point? YES 10 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% Agricultural
(D% Forested	<u>40</u> % Cleared / Logged% Other ()
* (Top of Bank) 22. Bankfull width: 6F+	23. Bank height (from bed to top of bank): 364
24. Channel slope down center of stream:Flat (0 to 2%	6)Gentle (2 to 4%)Moderate (4 to 10%)Steep (>10%)
25. Channel sinuosity: <u>Straight</u> Occasional bend	sFrequent meanderVery sinuousBraided channel
location, terrain, vegetation, stream classification, etc. Eve to each characteristic within the range shown for the 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 reaction.	bage 2): Begin by determining the most appropriate ecoregion based on ery characteristic must be scored using the same ecoregion. Assign points ecoregion. Page 3 provides a brief description of how to review the I 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 e character of a stream under review (e.g., the stream flows from a pasture hes 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
Total Score (from reverse): 23 Com	iments:

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.

1

	CILLD & OTED ISTICS	ECOREGION POINT RANGE			SCORE	
#	CHARACTERISTICS	Coastal	Piedmont	Mountain	SCOR	
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	1	
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	3	
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	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	0	
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		
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	4	
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	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	C	
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	0	
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	-	
22	Presence of fish	0-4	0-4	0-4	(
23	(no evidence = 0; common, numerous (ypes = max points) Evidence of wildlife use (no evidence = 0; abundant evidence = max points)	0-6	0-5	0-5	12	
	Total Points Possible	100	100	100		

SCMp044

NC DWQ Stream Identification Form Version 4.11

Date: 3/29/16	Project/Site: ACP	Latitude: 34.96703
Evaluator: EST-J, Harbour, K. Murphrey	County: Cumberland	Longitude: -78.73970
Total Points:Stream is at least intermittentif \geq 19 or perennial if \geq 30*	Stream Determination (circle one) Ephemeral Intermittent Perennial	Other Audry/ille, NC e.g. Quad Name:

A. Geomorphology (Subtotal = 4, 5)	Absent	Weak	Moderate	Strong	
1ª 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	G	2	3	
8. Headcuts	Q	1	2	3	
9. Grade control		0.5	1	1.5	
10. Natural valley	0	0.5	1	1.5	
11. Second or greater order channel	No	p'=0/	Yes = 3		
B. Hydrology (Subtotal = 6,5) 12. Presence of Baseflow	0	(1)	2	3	
12. Presence of Baseflow	0	(1)	2	3	
13. Iron oxidizing bacteria	0	\bigcirc	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	o = 0	Yes	=(3)	
C. Biology (Subtotal =)		And the second second			
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	$(\overline{0})$	1	2	3	
22. Fish	(0)	0.5	1	1.5	
23. Crayfish	(o)	0.5	1	1.5	
		(AND AND AN	4 -	

0

0

0.5

0.5

1

1

1.5

(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: Rain in previous 48 hours

24. Amphibians

25. Algae

.scmp044 4 CL Sketch: date -scmp043 pt. *

OHWM width: 484

TOP OF BONK Width: 65+



Waterbody scmp044 facing north upstream.



Waterbody scmp044 facing south downstream.

Photo Sheet 1 of 2



Waterbody scmp044 facing west across bank.

USACE AID# DWQ =	Site = (indicate on attached map)
STREAM QUALITY AS	SSESSMENT WORKSHEET
Provide the following information for the stream reach und	er assessment:
1. Applicant's name: ACP	2. Evaluator's name: ESI - J. Harbour, K. Murphrey
3. Date of evaluation: 3/29/16	4. Time of evaluation: 12:45 PM
5. Name of stream: UNT to Cedar Creek	6. River basin: Cape Feer
7. Approximate drainage area: 60 acres	8. Stream order:
9. Length of reach evaluated: 800 Pt.	10. County: Cumberland
11. Site coordinates (if known): prefer in decimal degrees.	12. Subdivision name (if any):/A
Latitude (ex. 34.872312): 34,96622	Longitude (ex77.556611): -78.73943
Method location determined (circle): GPS Topo Sheet Ortho (. 13. Location of reach under evaluation (note nearby roads and North of Stedman Cedar Creek Road	Aerial) Photo/GIS Other GIS Other landmarks and attach map identifying stream(s) location):
	ihe
15. Recent weather conditions: sunny; rail in pre	vious 48 hours
16. Site conditions at time of visit: channelized stre	an in existing powerline easement
17. Identify any special waterway classifications known:	Section 10Tidal WatersEssential Fisheries Habitat
	Nutrient Sensitive WatersWater Supply Watershed(1-1V)
18. Is there a pond or lake located upstream of the evaluation p	point? YES NO If yes, estimate the water surface area:
	20. Does channel appear on USDA Soil Survey? (YES) NO
80 % Forested	/ Cleared / Logged% Other ()
* (Top of Bank) 22. Bankfull width: 8F+	% Commercial % Industrial % Agricultural % Cleared / Logged % Other () 23. Bank height (from bed to top of bank): % f+
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 re characteristic cannot be evaluated due to site or weather co comment section. Where there are obvious changes in the c into 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 haracter 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): 27 Comm	ents:
Evaluator's Signature Much nurpence	Date 3/29/16 y as a guide to assist landowners and environmental professionals i

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.

	CIT I D I CITEDI CITICE	P TRUE AND A P AND A P A P A P A P A P A P A P A P A P A	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	4
2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0 - 6	0 – 5	0-5	0
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	2
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	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	1
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	
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	2
15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	C
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	3
18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	2
19	(ho shading vegetition of commercial 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	C
23	Evidence = 0; abundant evidence = max points)	0-6	0-5	0-5	2
1	Total Points Possible	100	100	100	

Date: 3/29/16	Project/Site:	cP	Latitude: 34	.96622
Evaluator: ESI-J, Harbour, 15, Murphrey	County: Cum		Longitude: -	78.73943
Total Points: Stream is at least intermittent 33.25 $f \ge 19$ or perennial if $\ge 30^{\circ}$	Stream Determin Ephemeral Inter	ation (circle one) mittent Perennial	Other An e.g. Quad Name:	tryville, NC
A. Geomorphology (Subtotal =)	Absent	Weak	Moderate	Strong
1 ^ª Continuity of channel bed and bank	0	1	2	3
2. Sinuosity of channel along thalweg	0		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	G
5. Active/relict floodplain	(0)	1	2	3
6. Depositional bars or benches	(0)	1	2	3
7. Recent alluvial deposits	0	0	2	3
B. Headcuts	0	1	D	3
9. Grade control	(0)	0.5	1	1.5
10. Natural valley	6	0.5	1	1.5
11. Second or greater order channel	No	= 0	Yes	5
artificial ditches are not rated; see discussions in manual				
B. Hydrology (Subtotal = 9.5)			La disellar and	-
12. Presence of Baseflow	0	1	2	3
13. Iron oxidizing bacteria	0	Ð	2	3
14. Leaf litter	(15)	(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 = 9.75)				
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
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	0	1.5
26. Wetland plants in streambed		FACW = (0.75;) OB	L = 1.5 Other =	0
*perennial streams may also be identified using other method	s. See p. 35 of manua	l.		St
Notes: Channelized stream				
Sketch: N dah pt. x	scmp044	=-scmp043		

OHWM Width: 6 TOP OF BONK Width: 85t



Waterbody scmp043 facing east upstream.



Waterbody scmp043 facing west downstream.

Photo Sheet 1 of 2



Waterbody scmp043 facing south across bank.

USACE AID#	DWQ #		Site # (indicate of	on attached map)
			scmo 039	
STREA	M QUALITY AS	SSESSMENT WO		
Provide the following information for	r the stream reach und	er assessment:		
1. Applicant's name: Dominior)	2. Evaluator's name: L.	Loper	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1
3. Date of evaluation: 4/28/10		4. Time of evaluation:		
5. Name of stream: LINT to C		6. River basin: Cape	Fear	
7. Approximate drainage area: 22		8. Stream order: 0		
9. Length of reach evaluated: <u>30</u>	ft	10. County: Cumb	erland	
11. Site coordinates (if known): prefe		12. Subdivision name (if	any): none	
Latitude (ex. 34.872312): 34.96220	and a second	_ Longitude (ex77.556611)	the second second second second second second second second	2
Method location determined (circle): GPS 13. Location of reach under evaluation	Topo Sheet Ortho (A (note nearby roads and I	arial) Photo/GIS Other Gl andmarks and attach map	S Other identifying stream(s) loca	ition):
North of Stedman Ce	edar Creek R	d near Bogie	2 Island Ro	3
14. Proposed channel work (if any): P		1.		
15. Recent weather conditions: WA	rm + dry	horamote, capit video	Maria Maria Maria	
16. Site conditions at time of visit: pr		g. field	and the second	
17. Identify any special waterway classi		0	l WatersEssenti	al Fisheries Habitat
Trout WatersOutstanding Re	esource Waters	Nutrient Sensitive Waters	Water Supply Wat	ershed(l-IV)
18. Is there a pond or lake located upstr	eam of the evaluation po	oint? YES NO If yes, e	estimate the water surface	area:
19. Does channel appear on USGS quad	2		on USDA Soil Survey?	5
21. Estimated watershed land use:	-	% Commercial	% Industrial	_% Agricultural
		% Cleared / Logged	90% Other (pasti	ure
22. Bankfull width: 4 FF	<u>1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -</u>		ed to top of bank):	01
24. Channel slope down center of stream	n:Flat (0 to 2%)	Gentle (2 to 4%)		
25. Channel sinuosity:Straight	Occasional bends	Frequent meander	Very sinuous	_Braided channel
Instructions for completion of works location, terrain, vegetation, stream cla to each characteristic within the rang characteristics identified in the worksh characteristic cannot be evaluated due comment section. Where there are obv into a forest), the stream may be divide reach. The total score assigned to a st highest quality.	ssification, etc. Every c ge shown for the ecore eet. Scores should refl to site or weather cond vious changes in the cha ed into smaller reaches the tream reach must range	characteristic must be score egion. Page 3 provides ect an overall assessment ditions, enter 0 in the score racter of a stream under r hat display more continuit between 0 and 100, with	red using the same ecoreg a brief description of 1 of the stream reach und bring box and provide an review (e.g., the stream fl ty, and a separate form us a score of 100 represent	gion. Assign points how to review the ler evaluation. If a explanation in the lows from a pasture sed to evaluate each
Total Score (from reverse): 38	Commen	ts:		<u> 1996.</u>
			Contraction of the	
/			1110 0111	
Evaluator's Signature <u>form</u> is inter gathering the data required by the quality. The total score resulting f	United States Army	Corps of Engineers to r	nake a preliminary ass	essment of stream
particular mitigation ratio or require	ment. Form subject to	change – version 06/03. T	To Comment, please call	919-876-8441 x 26.

	No.		ECOREC	TION POINT	RANGE	cooper
な法法	#	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	3
1000000	2	Evidence of past human alteration (extensive alteration = 0; no alteration = max points)	0-6	0-5	0-5	and a s
The second	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
aparter denormente anter	5	Groundwater discharge (no discharge = 0; springs, seeps, wetlands, etc. = max points)	0-3	0-4	0-4	2
and the second	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
All and a second second	8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0-6	0-4	0-2	3
10 10 10 10 10 10 10 10 10 10 10 10 10 1	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
He for the state	11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	
Transference of	12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	5
and the second	13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	5
diversity to the local	14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0-4	0-5	2
Contraction of the	15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0-5	D
「「「「「「」」」」」」」」」」」」」」」」」」」」」」」」」」」」」」」	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	0
(New South State Strength	18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	2
Strenge au	19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	-
14. 15 miles	20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	6
and the state of t	21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	2
Contraction of the	22	Presence of fish (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	6
日本のないたい	23	Evidence of wildlife use (no evidence = 0; abundant evidence = max points)	0-6	0-5	0-5	1
の部に行いたの		Total Points Possible	100	100	100	
- ALLAN		TOTAL SCORE (also enter on fi	rst page)			38

Date: 4-28-16	Project/Site: A	CP	Latitude: 349.62291 Longitude: 78.739272		
Evaluator: L. Roper, W. Vaughan	County: Com	berland			
Fotal Points: U Stream is at least intermittent 19 f ≥ 19 or perennial if ≥ 30* 19	Stream Determin Ephemeral Inter	nation (circle one) mittent Perennial	Other Aut e.g. Quad Name:		
A. Geomorphology (Subtotal = 3.5)	Absent	Weak	Moderate	Strong	
^a . Continuity of channel bed and bank dictch	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 	Ô	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	
B. Headcuts	0	1	2	3	
9. Grade control	0)	0.5	1	1.5	
0. Natural valley	0	(0.5)	1	1.5	
1. Second or greater order channel	No	= 0	Yes	= 3	
artificial ditches are not rated; see discussions in manual B. Hydrology (Subtotal =)				3	
2. Presence of Baseflow	0	1	2	and the second second second second	
 Iron oxidizing bacteria 	0	1	3	3	
14. Leaf litter	1.5	٦	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	
17. Soil-based evidence of high water table?	No	= 0	Yes	= 3	
C. Biology (Subtotal = 7.5)			<u>A</u>		
 Fibrous roots in streambed 	3	2	1	0	
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	0	1.5	
25. Algae	0	0.5	0	1.5	
26. Wetland plants in streambed		FACW = 0.75; OE	L = 1.5 Other =	0	
*perennial streams may also be identified using other method	ds. See p. 35 of manua	I			
Notes:					
Sketch: wimoU34 + + + + + + + + + + + + + + + + + + +	- scm	0039			

OHWM=2 Ff. Bank=4 ff.



Waterbody data point scmo039 facing north upstream.



Waterbody data point scmo039 facing south downstream.



Waterbody data point scmo039 facing east across.

U	S	A	C	E	AI	D	Į.
			-				÷

DWQ ⊭____

Site #_____ (indicate on attached map)

	scm0038
STREAM QUALITY A	SSESSMENT WORKSHEET
Provide the following information for the stream reach und	er assessment:
1. Applicant's name: Dominion	2. Evaluator's name: Likoper
3. Date of evaluation: 4/2.8/16	4. Time of evaluation: 10am
5. Name of stream: 4NT to CEDAR Greak	6. River basin: Cape Fear
7. Approximate drainage area: 7000 6.c.	8. Stream order: O
9. Length of reach evaluated: 40 ft	10. County: Cumber land
11. Site coordinates (if known): prefer in decimal degrees.	12. Subdivision name (if any): NDNC
Latitude (ex. 34.872312): 34.961428	Longitude (ex77.556611): -78.739284
	Aerial) Photo/GIS Other GIS Other landmarks and attach map identifying stream(s) location):
North of Stedman Cedar Cree	k Rd near Bogie Island Rd
14. Proposed channel work (if any): Proposed p	ipeline
15. Recent weather conditions: Warm + dry	
16. Site conditions at time of visit: posture 2 a	g. field edge
	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	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 30% Agricultural
0 % Forested	% Cleared / Logged% Other ()
22. Bankfull width: 10 ft	23. Bank height (from bed to top of bank): 5ff
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 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 cha- into a forest), the stream may be divided into smaller reaches to	2): Begin by determining the most appropriate ecoregion based on characteristic must be scored using the same ecoregion. Assign points egion. Page 3 provides a brief description of how to review the lect 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): 39 Commer	is; determined to be persioned in the Reld;
- CHodaely	119.
	111 - 6 111
Evaluator's Signature Adult	Date 4/28/16 as a guide to assist landowners and environmental professionals in
This channel evaluation form is intended to be used only a	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	f 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.

	10			ECOREGION POINT RANGE		
	#	CHARACTERISTICS	Coastal	Piedmont	Mountain	SCORE
2	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
and which the	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	4
10210	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	1
and the second	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	5
	13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	5
Transferrance	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	2
Sur Sur	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	2
	18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0-5	0-5	2
日本人の	19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	-
111 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	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	3
		Total Points Possible	100	100	100	15
2010		TOTAL SCORE (also enter on fi	rst page)	1998年1月		30

5cm0038

3

3

3

3

3

3

3

3

1.5

1.5

(3)

0

1.5

1.5

0

0

3

3

1.5

1.5

1.5

1.5

Latitude: 34 96/4/28 Project/Site: ACP Date: 4-28-16 Longitude: 78, 739284 County: Cumberland Evaluator: W. Vaughan Other Autryville **Total Points:** Stream Determination (circle one) 26 Stream is at least intermittent Ephemeral Intermittent Perennial e.g. Quad Name if ≥ 19 or perennial if ≥ 30* A. Geomorphology (Subtotal = 6.5 Strong Weak Moderate Absent 1ª Continuity of channel bed and bank (2) 0 1 1 0 2 2. Sinuosity of channel along thalweg 3. In-channel structure: ex. riffle-pool, step-pool, 2 O 0 ripple-pool sequence 0 0 2 4. Particle size of stream substrate 2 0 (1) 5. Active/relict floodplain 2 0 6. Depositional bars or benches 1 0 1 2 7. Recent alluvial deposits 2 \bigcirc 1 8. Headcuts 0.5 0 1 9. Grade control 0 0.5 1 10. Natural valley 11. Second or greater order channel No=0Yes = 3 a artificial ditches are not rated; see discussions in manual 11-B. Hydrology (Subtotal = (3) 2 0 1 12. Presence of Baseflow 2 0 1 13. Iron oxidizing bacteria 0.5 (1.5) 1 14. Leaf litter $(\mathbf{0})$ 0.5 1 15. Sediment on plants or debris (0.5) 1 16. Organic debris lines or piles 0 (Yes = 3) 17. Soil-based evidence of high water table? No = 0C. Biology (Subtotal = 8.5 (2) 18. Fibrous roots in streambed 3 1 3 1 2 19. Rooted upland plants in streambed (0)2 1 20. Macrobenthos (note diversity and abundance) 0 2 1 21. Aquatic Mollusks 0 0.5 1 22. Fish 23. Crayfish 0 0.5 1 1 0 0.5 24. Amphibians 1 0.5 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: determined to be perennel in field; large channelized stream that appears to capture ground water 4000- Four 42 Sketch: SCMOD39 CORDS

NC DWO Stream Identification Form Version 4.11

OLUM= 4 Ft. Bank = 10 Ft.



Waterbody data point scmo038 facing east upstream.



Waterbody data point scmo038 facing west downstream.



Waterbody data point scmo038 facing north across.

USACE AID#	DWO #		Site # (indicate on attached map)
COACE AID			scmo 020
ST ST	REAM QUALITY A	SSESSMENT WO	
Provide the following informa	ation for the stream reach un		
1. Applicant's name: Dom	inion	2. Evaluator's name: L	Koper
3. Date of evaluation: 4-4-		4. Time of evaluation:	
5. Name of stream: UNT-	to cedar Creek	6. River basin: Cap	e Fear
7. Approximate drainage area:_	50 ac		
9. Length of reach evaluated:	40 ft	10. County: Cumber	land
11. Site coordinates (if known)	: prefer in decimal degrees.	12. Subdivision name (i	fany):
Latitude (ex. 34.872312): 34.9	15919	Longitude (ex77.556611	:-78.73897
	aluation (note nearby roads and	landmarks and attach map	identifying stream(s) location): Cedar Creek Rd
14. Proposed channel work (if a	-0-		
15. Recent weather conditions:			
16. Site conditions at time of vi			
			al WatersEssential Fisheries Habitat
			Water Supply Watershed(I-IV)
			estimate the water surface area:
	\sim		r on USDA Soil Survey? YES NO
			% Industrial ZO% Agricultural
	80 % Forested	% Cleared / Logged	% Other (
			ed to top of bank): 3 f+
	/		Moderate (4 to 10%)Steep (>10%)
25. Channel sinuosity:Str	raight / Occasional bends	Frequent meander	Very sinuousBraided channel
location, terrain, vegetation, str to each characteristic within characteristics identified in the characteristic cannot be evalua comment section. Where there into a forest), the stream may be	ream classification, etc. Every the range shown for the eco e worksheet. Scores should re ated due to site or weather con e are obvious changes in the cl be divided into smaller reaches	characteristic must be sco region. Page 3 provides flect an overall assessmen nditions, enter 0 in the sco naracter of a stream under that display more continui	ing the most appropriate ecoregion based on red using the same ecoregion. Assign points is a brief description of how to review the it of the stream reach under evaluation. If a oring box and provide an explanation in the review (e.g., the stream flows from a pasture ity, and a separate form used to evaluate each in a score of 100 representing a stream of the
Total Score (from reverse):	<u>28</u> Comme	nts: Ditch t	EATURE, OHWM present
gathering the data required quality. The total score res	by the United States Army sulting from the completion	Corps of Engineers to of this form is subject t	Date <u>4/5//6</u> owners and environmental professionals in make a preliminary assessment of stream o USACE approval and does not imply a To Comment, please call 919-876-8441 x 26.

	CITY D & COMPANY CO	ECOREGION POINT RANGE			scone	
#	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	3	
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	
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	1	
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	1	
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	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	1	
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	0	
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	1	
	Total Points Possible	100	100	100		
	TOTAL SCORE (also enter on f	irst page)			2	

Date: 4-4-16	Project/Site: A	CP	Latitude: 34,	15919	
Evaluator: L. Loper	County: Cum		Longitude: -78.7389		
Total Points: Stream is at least intermittent 19.5 $f \ge 19$ or perennial if $\ge 30^{\circ}$	Stream Determin Ephemeral	nation (circle one) mittent Perennial	Other Autryville		
A. Geomorphology (Subtotal = 2_)	Absent	Weak	Moderate	Strong	
1 ^a Continuity of channel bed and bank d; t-ch	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)	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	0	0.5	1	1.5	
11. Second or greater order channel	No	0=0	Yes	= 3	
artificial ditches are not rated; see discussions in manual	C				
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		1.5	
17. Soil-based evidence of high water table?	No	0 = 0	Yes	= 3	
C. Biology (Subtotal = 7.5)					
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; OB	L = 1.5) Other =	0	
*perennial streams may also be identified using other method	ods. See p. 35 of manua	al.			
Notes:	F	ITUL FEATURE			
Sketch:		scmoDZI			

Top of Back width = 5ft OHWM = 3ft



Waterbody scmo020 facing east upstream.



Waterbody scmo020 facing west downstream.



Waterbody scmo020 facing south across bank.

USACE AID#	DWQ #	Site # (indicate on attached map)
		scmo 021
STREAM QU	ALITY ASSESS	MENT WORKSHEET
Provide the following information for the stre		
1. Applicant's name: Dominion	2. Evalu	ator's name: L. Roper, W. Vaughan
3. Date of evaluation: <u>4-4-16</u>	4. Time	of evaluation: 10:30 am
5. Name of stream: UNT to Cedar	Creek 6. River	basin: Cope Fear
7. Approximate drainage area: 50 o		n order: D
9. Length of reach evaluated: 40 ft	10. Cou	nty: Comberland
11. Site coordinates (if known): prefer in decim	al degrees. 12. Subo	division name (if any):
Latitude (ex. 34.872312): 34.95839	Longitu	de (ex77.556611): -78. 73884
Method location determined (circle): GPS Topo 13. Location of reach under evaluation (note nea		to/GIS Other GIS Other
South of Bogie Island R	d near ster	Iman Cedar Creek Rd
14. Proposed channel work (if any): TBD		
15. Recent weather conditions: dry, cool	and setting and	The second s
16. Site conditions at time of visit: 0.9 d	itch in pov	verline ROW
17. Identify any special waterway classifications	known:Section	10Tidal WatersEssential Fisheries Habitat
Trout WatersOutstanding Resource V	Waters Nutrient S	Sensitive WatersWater Supply Watershed(I-IV)
18. Is there a pond or lake located upstream of the	ne evaluation point? YE	S 1 If yes, estimate the water surface area:
19. Does channel appear on USGS quad map?	YES NO 20. Does	s channel appear on USDA Soil Survey? YES 😡
21. Estimated watershed land use:% Re		mmercial% Industrial 20% Agricultural
<u>80</u> % For	rested% Cle	ared / Logged% Other (
22. Bankfull width: 4 ft	23. Banl	k height (from bed to top of bank): $2 f+$
24. Channel slope down center of stream:	lat (0 to 2%)Gentle	e (2 to 4%)Moderate (4 to 10%)Steep (>10%)
25. Channel sinuosity:StraightOccas	sional bendsFrequ	ent meanderVery sinuousBraided channel
location, terrain, vegetation, stream classification to each characteristic within the range shown characteristics identified in the worksheet. Sco- characteristic cannot be evaluated due to site of comment section. Where there are obvious char into a forest), the stream may be divided into sr	on, etc. Every characteris n for the ecoregion. P ores should reflect an ov or weather conditions, er anges in the character of naller reaches that displa	in by determining the most appropriate ecoregion based on stic must be scored using the same ecoregion. Assign points lage 3 provides a brief description of how to review the erall assessment of the stream reach under evaluation. If a nter 0 in the scoring box and provide an explanation in the a stream under review (e.g., the stream flows from a pasture y more continuity, and a separate form used to evaluate each 0 and 100, with a score of 100 representing a stream of the
Total Score (from reverse): <u>32</u>	Comments: Di	tch.
gathering the data required by the United quality. The total score resulting from the	States Army Corps of completion of this for	Date <u>4/4/16</u> to assist landowners and environmental professionals in Engineers to make a preliminary assessment of stream m is subject to USACE approval and does not imply a version 06/03. To Comment, please call 919-876-8441 x 26.

		CILLE ACTEDICTION	ECOREGION POINT RANGE			SCORE	
Contraction of the	#	CHARACTERISTICS	Coastal	Piedmont	Mountain	SCORE	
the second	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		
and the second	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	
	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	1	
	8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0-6	0-4	0-2	1	
10.10	9	Channel sinuosity (extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	0	
and the second	10	Sediment input (extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0-4	3	
at the second	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	1	
2	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	0	
	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	1	
「日本の	19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4		
111 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	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	
and the second second	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		
		Total Points Possible	100	100	100		
and a second		TOTAL SCORE (also enter on f	irst page)	全国(制造)	Start Rent	37	

NC DWQ Stream Identification Form	Version 4.11		Schol	921		
Date: 4 14116	Project/Site: A	CP	Latitude: 34,	95839		
Evaluator: L. Roper, W. Vaughan	County: Corr	nberland	Longitude:	18.73884		
Total Points:Stream is at least intermittentif \geq 19 or perennial if \geq 30*17.25	Stream Determin Ephemeral Inter	nation (circle one) rmittent Perennial		e.g. Quad Name: Autry Ville		
A. Geomorphology (Subtotal =)	Absent	Weak	Moderate	Strong		
1ª. Continuity of channel bed and bank difec	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 	6	1	2	3		
4. Particle size of stream substrate	0	1	2	3		
5. Active/relict floodplain	0	Ø	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=0	Yes	= 3		
^a artificial ditches are not rated; see discussions in manual	5		NEXT AND SHOP			
B. Hydrology (Subtotal = 8,5)						
12. Presence of Baseflow	0	1	2	3		
13. Iron oxidizing bacteria	Q	1	2	3		
14. Leaf litter	(.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	o = 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)	8	1	2	3		
21. Aquatic Mollusks	Ø	1	2	3		
22. Fish	0	0.5	1	1.5		
23. Crayfish	0	0.5	1	1.5		
24. Amphibians	Ø	0.5	1	1.5		
25. Algae	0	0.5	A	1.5		
26. Wetland plants in streambed		FACW = 0.75; OE	L = 1.5 Other =	0		
*perennial streams may also be identified using other method	s. See p. 35 of manua	al.				
Notes:						
				Contraction of the		
Sketch: Construction			+ 1			
SLMODZO		0	13/3	\square		
SCHOOL			3 34	11		
	alaan aasaanaa aasaa		- 11-	-//		
	* data Scmol	point	C			
	Scmoo	21				
Top of Back width = 41						
OHWM=2						



Waterbody scmo021 facing north upstream.



Waterbody scmo021 facing south downstream.



Waterbody scmo021 facing east across bank.

USACE AID#	DWQ #	, Site # (indic	ate on attached map)
COACE MDA	2	Scmo 022	
STREAM QUA	ALITY ASSESSN	IENT WORKSHEET	
Provide the following information for the stream		0	
1. Applicant's name: Dominion	2. Evaluat	tor's name: Likoper, W.	Vaughan
3. Date of evaluation: 4-4-16		fevaluation: 12pm	0
5. Name of stream: UNTTO Cedar (freek 6. River b	asin: Cape Fear	River
7. Approximate drainage area: 50 ac	8. Stream	order: D	Carlo and an and a state of the
9. Length of reach evaluated: <u>40 f</u>	10. Count	y: Cumberland	
11. Site coordinates (if known): prefer in decima	al degrees. 12. Subdiv	vision name (if any): NDNC	2
Latitude (ex. 34.872312): 34.95227	Longitude	e (ex77.556611): -78.739	335
Method location determined (circle) GPS) Topo S 13. Location of reach under evaluation (note near South of intersection	rby roads and landmarks a	nd attach map identifying stream(s)	location):
	of pogic 1	SINTIC FO DATIO 2	<u>no unicen cecca</u>
14. Proposed channel work (if any): TBP	Contraction of the second		and a later
15. Recent weather conditions: <u>Cool</u> , <u>dry</u> 16. Site conditions at time of visit: <u>Og</u> <u>di</u>	tch in Don	ecline ROW	
17. Identify any special waterway classifications			ential Fisheries Habitat
Trout WatersOutstanding Resource W		nsitive WatersWater Supply	
18. Is there a pond or lake located upstream of th		\cap	
19. Does channel appear on USGS quad map?	\cap	channel appear on USDA Soil Surve	\cap
 21. Estimated watershed land use:% Res 		mercial% Industrial	
21. Estimated watershed land use. 80% For		red / Logged% Other (
22. Bankfull width: <u>6 ft</u>		height (from bed to top of bank):	
24. Channel slope down center of stream:		(2 to 4%)Moderate (4 to 10%)	
25. Channel sinuosity:StraightOccasi			
Instructions for completion of worksheet (loc			
location, terrain, vegetation, stream classification to each characteristic within the range shown characteristics identified in the worksheet. Sco characteristic cannot be evaluated due to site o comment section. Where there are obvious char into a forest), the stream may be divided into sm reach. The total score assigned to a stream reach highest quality.	n, etc. Every characteristi a for the ecoregion. Pag- ores should reflect an over or weather conditions, entu- nges in the character of a haller reaches that display ch must range between 0	ic must be scored using the same ec ge 3 provides a brief description rall assessment of the stream reach er 0 in the scoring box and provid stream under review (e.g., the strea more continuity, and a separate for and 100, with a score of 100 repre	coregion. Assign points of how to review the under evaluation. If a le an explanation in the am flows from a pasture m used to evaluate each
Total Score (from reverse):7	Comments:_ Dite	6	
	0		
Evaluator's Signature	u Rope	7 Date 4/4/1	0
This channel evaluation form is intended to I gathering the data required by the United S quality. The total score resulting from the particular mitigation ratio or requirement. Fo	be used only as a guide t States Army Corps of E completion of this form	to assist landowners and environ Engineers to make a preliminary 1 is subject to USACE approval	mental professionals in assessment of stream and does not imply a

				ECOREGION POINT RANGE		
	#	CHARACTERISTICS	Coastal	Piedmont	Mountain	SCORE
and the second	1	Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0-5	0-4	0-5	3
New Con	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	1
LUISICAL	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	2
	8	Presence of adjacent wetlands (no wetlands = 0; large adjacent wetlands = max points)	0-6	0-4	0-2	0
Contraction of the	9	Channel sinuosity (extensive channelization = 0; natural meander = max points)	0-5	0-4	0-3	1
100000	10	Sediment input (extensive deposition= 0; little or no sediment = max points)	0-5	0-4	0-4	2
ALC: NOT	11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	NA*	0-4	0-5	-
A STATE	12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	2
STABILITY	13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0-5	0-5	0-5	5
AB	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	
- MARY -	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
ITAL	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	1
- Maria	19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	-
10 m	20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	0
BIULUGY	21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	0
IUL	22	Presence of fish (no evidence = 0; common, numerous types = max points)	0-4	0-4	0-4	0
Э	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	
		TOTAL SCORE (also enter on f	irst nage)	the state	Straphe et	27

Date: 4-4-16	Project/Site:	FCP	Latitude: 34, 95227			
Evaluator: L. Roper, W. Vaughan		nberland	Longitude: -78 72836			
Total Points: Stream is at least intermittent if ≥ 19 or perennial if $\geq 30^{\circ}$	Stream Determi	nation (circle one) rmittent Perennial	Other e.g. Quad Name: Autoy ville			
A. Geomorphology (Subtotal =)	Absent	Weak	Moderate	Strong		
1 ^a Continuity of channel bed and bank ditch	0	1	2	3		
2. Sinuosity of channel along thalweg	0		2	3		
 In-channel structure: ex. riffle-pool, step-pool, ripple-pool sequence 	0	1	2	3		
4. Particle size of stream substrate	(9)	1	2	3		
5. Active/relict floodplain	Ô	1	2	3		
6. Depositional bars or benches	0	1	2	3		
7. Recent alluvial deposits	0	1	2	3		
8. Headcuts	Q	1	2	3		
9. Grade control	Q	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 artificial ditches are not rated; see discussions in manual B. Hydrology (Subtotal = 7.5)						
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	Ô	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	s. See p. 35 of manua	al.				
Notes:						
Sketch:		ScmoD22 dute point				

Bank width = G OHWM = 2



Waterbody scmo022 facing southeast upstream.



Waterbody scmo022 facing northwest downstream.



Waterbody scmo022 facing southwest across bank.

Open Waterbody Data Sheet

Survey Description	n					
Project Name: Waterbody Name:				Waterbody ID:	Date:	
ACP	ACP Unnamed Pond		nd	000000	4 4119116	
State:	County:	Company:	Cr	ew Member Initials:	Photos:	
NG	Comberlan	d ESI	1	-K,SB	NIW	
Tract Number(s):		Nearest Milepost		Associated Wetlan	d ID(s):	
22-085-A123		149.	149.8		NA	
Survey Type: (check one)	□Centerline	Re-Route	□Access Road	□Other:		
Physical Attribute	25					
Waterbody Type:	k Pond 🛛 Natural Pond 🗆					
		Lake Diffeservoir				
Hydrologic Regime:	Permanently Flooded	□ Semipermanent	y Flooded 🛛 🗆 S	easonally Flooded	□ Temporarily Flooded	
OHWM Height:	OHWM Indicator: (check all that apply)	Clear li on bank	ne 🗆 Shelvir	ng DWrested vegetation	□Scouring □Water staining	
<u></u> ft.	Bent, matted, vegetation	or missing □Wrack line	□Litter a debris	nd DAbrupt pla community c	nt □Soil characteristic change hange	
Depth of Water:	Bank h	eight (average):		Bank slope (av	erage):	
3	ft.	_4_	ft.	N. C. S. S. M	50 degrees	
N/A□			Sa Shekalari			
	□No water	Turbid She on sur Cobble Grave	face scum	mats (Silt/ clay □ Organic		
% of Substrate:	%%	%	<u>80 </u>	20%%	%	
Width of Riparian Zor ft N/A)D	e: Vegetative Layers: (check all that apply) Avg. DBH of Domin (approx.)	□ Trees: ants:ir		Saplings/Shrubs: in.	₩ Herbs <u>NA</u> in.	
Dominant Bank Vege	tation (list):					
Arundinar	ia gigante	ea, Androj	pogon vi	rginicus,		
Aquatic Habitats (ex s	submerged or emerged aquatic vegeta	tion, overhanging banks/roots	s, leaf packs, large subm	9	s, etc.):	
and the second	edges, deep	5				
Aquatic Organisms C						
none of	A PARTY AND A COMPANY AND A PARTY AND					
T&E Species Observe	ed (list):					
none	and the state of the state	Second States and States and	Margare Margare	the state of the second		
Powerlin	stock access, manure in waterbo & RDW	dy, waste discharge pipe	s):			
Waterbody is: (check one)	□ Natural 🕅 A	rtificial, man-made	Manipulated			
Waterbody Quality * : (check one)	/ \	~				

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.

Waterbody ID:

ocmoDD4

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

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

Notes: Waterbody Sketch (Include north arrow, centerline, distance from centerline, data point locations, survey boundary, and IDs of associated features) N + doto point ocmo004



Open waterbody data point ocmo004 facing north.



Open waterbody data point ocmo004 facing west.

Photo Sheet 1 of 1