

DEED REFERENCE(S) FOR NEW CONSERVATION EASEMENT:
D.B. 3275, PG(S). 988-992

MAP REFERENCE(S) FOR NEW CONSERVATION EASEMENT:
BK. 76, PAGES 373
BK. 76, PAGES 374

MAP REFERENCE(S):
BK. 52, PG. 180
BK. 57, PG. 183
BK. 73, PG. 219
BK. 76, PAGES 373-374

**CVS PLOTS COORDINATE TABLE
(COORDINATE AT THE PLOT ORIGIN ▲)**

CVS PLOT #	NORTHING	EASTING
1	777054.89	1883587.92
2	776886.79	1883804.10
3	777126.36	1883848.31
4	777145.13	1883714.62
5	777200.35	1883408.59
6	777368.29	1883191.34
7	777476.86	1883446.57
8	777702.69	1883766.69
9	777867.04	1883874.43
10	777537.33	1882968.39
11	777619.76	1882659.87
12	777864.59	1882455.68
13	778091.92	1882212.69
14	778550.12	1881902.08

**CONSERVATION EASEMENT
ACREAGE DATA:**

SECTION "A"	4.23 ACRES±
SECTION "B"	5.77 ACRES±
SECTION "C"	2.64 ACRES±
SECTION "D"	4.66 ACRES±

TOTAL CONSERVATION EASEMENT IS
17.30 ACRES± EXCLUDING ALL
EASEMENTS AND RIGHT-OF-WAYS BY
COORDINATE COMPUTATION

**CROSS-SECTIONS COORDINATE TABLE
(RIGHT SIDE OF X-SECTIONS
FACING UP-STREAM)**

X-SECTION #	NORTHING	EASTING
XS1	778722.85	1881711.36
XS2	778691.37	1881746.74
XS3	778644.06	1881782.65
XS4	778583.30	1881821.69
XS5	778564.07	1881843.58
XS6R	778447.24	1881863.90
XS7R	778388.61	1881866.01
XS8R	778319.10	1881874.48
XS9R	778272.82	1881935.20
XS10R	778210.22	1882002.45
XS11P	778205.23	1882065.04
XS12R	778176.12	1882101.00
XS13R	778153.84	1882171.69
XS14R	778135.35	1882240.87
XS15P	778104.90	1882286.90
XS16R	777921.72	1882421.91
XS17R	777870.44	1882484.53
XS18R	777831.25	1882551.71
XS19P	777765.26	1882598.25
XS20P	777622.97	1882679.11
XS21R	777588.39	1882753.12
XS22R	777572.35	1882789.89
XS23R	777547.36	1882835.99
XS24P	777543.02	1882897.48
XS25R	777525.65	1882933.38
XS26P	777460.18	1883071.76
XS27R	777429.32	1883114.20
XS28P	777341.45	1883148.53
XS29R	777278.42	1883221.00
XS30P	777221.99	1883351.43
XS31R	777166.53	1883419.41
XS32	777113.84	1883518.31
UT1A XS1	777098.54	1883479.80
UT1A XS2R	777043.90	1883474.46
UT1 XS1	777034.53	1883550.46
UT1 XS2R	776962.65	1883622.89
UT1 XS3R	776913.37	1883668.39
UT1 XS4R	776878.48	1883716.77
UT1 XS5R	776848.94	1883772.98
UT1 XS6R	776814.03	1883848.06
UT2 XS1R	777108.43	1883587.86
UT2 XS2R	777112.44	1883662.08
UT2 XS3P	777122.68	1883749.94
UT2 XS4R	777137.29	1883785.48
UT2 XS5R	777174.68	1883848.96
UT2 XS6R	777228.19	1883912.16
UT3 XS1R	777432.94	1883183.67
UT3 XS2P	777436.02	1883242.60
UT3 XS3R	777452.74	1883347.86
UT3 XS4P	777441.60	1883465.66
UT3 XS5R	777496.55	1883557.02
UT3 XS6R	777569.11	1883608.99
UT3 XS7P	777622.22	1883632.15
UT3 XS8R	777652.64	1883677.37
UT3 XS9R	777688.24	1883718.10
UT3 XS10P	777762.82	1883733.70
UT3 XS11R	777773.60	1883730.75
UT3 XS12R	777830.55	1883729.36
UT3 XS13P	777861.89	1883742.28
UT3 XS14R	777895.03	1883765.35

GENERAL NOTES:

- NOTE: NO ABSTRACT TITLE, NOR TITLE COMMITMENT, NOR RESULTS OF TITLE SEARCH WERE FURNISHED TO THE SURVEYOR. ALL DOCUMENTS OF RECORD REVIEWED ARE NOTED HEREON (SEE REFERENCES). THERE MAY EXIST OTHER DOCUMENTS OF RECORD THAT MAY AFFECT THIS SURVEYED PARCEL.
- NO HORIZONTAL CONTROL EXISTS WITHIN 2000 FT. ALL DISTANCES ARE GROUND HORIZONTAL DISTANCES AND ALL CROSS-SECTIONS HAVE ASSUMED ELEVATIONS.
- ONLY CONTROL POINT 110 HAS TRUE NORTH CAROLINA STATE PLANE COORDINATES. ALL OTHER COORDINATES ARE GROUND COORDINATES (NAD 83(2011))
- LAST OF CONSTRUCTION WAS APRIL 3, 2015 AND PLANTING WAS DONE ON APRIL 7, 2015. THIS INFORMATION WAS PROVIDED BY RESTORATION SYSTEMS, LLC.
- THE OPUS SOLUTION ON CONTROL POINT 110 WAS VERIFIED ON TWO SEPARATE DATES WITH A MINIMUM OBSERVATION TIME OF 120 MINUTES. THE NCSPC SHOWN ON CONTROL POINT 110 WAS OBTAINED FROM AN NGS OPUS SOLUTION. THIS OBSERVATION WAS STARTED ON 04/08/2014 14:18:00 AND ENDED ON 04/08/2014 17:40:00 USING A TOPCON HYPERLITE PLUS GPS UNIT. THE COMBINED FACTOR IS 0.99990949. THE DATUM IS NAD '83(2011). THE FOLLOWING BASE STATIONS WERE USED IN THE OPUS SOLUTION:

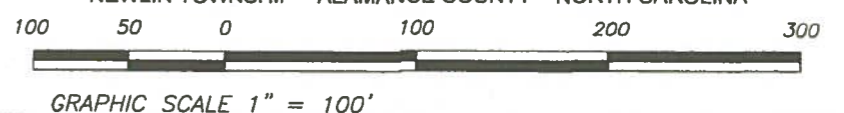
PID	DESIGNATION	LATITUDE (m)	LONGITUDE (m)
AM7024	SNFD SANFORD CORS ARP	N352824.677	W0790928.984
DL3891	NCJL JORDAN LAKE CORS ARP	N354652.496	W0790203.927
DG9328	DURH DURHAM COOP CORS ARP	N355946.129	W0785358.036

Vegetation Association	Piedmont Alluvial Forest		Dry-Mesic Oak-Hickory Forest		Marsh Treatment Wetland	
Area (acres)	2.00		14.4		0.5	
Species	# planted*	% of total	# planted*	% of total	# planted*	# planted*
River birch (Betula nigra)	100	7.14%	--	--	--	--
Ironwood (Carpinus caroliniana)	--	--	300	3.06%	--	--
Sugarberry (Celtis laevigata)	100	7.14%	--	--	--	--
Buttonbush (Cephalanthus occidentalis)	--	--	--	--	300	21.43%
Silky dogwood (Cornus amomum)	100	7.14%	--	--	800	57.14%
Persimmon (Diospyros virginiana)	--	--	500	5.10%	--	--
Green ash (Fraxinus pennsylvanica)	200	14.29%	--	--	--	--
Tulip poplar (Liriodendron tulipifera)	300	21.43%	3150	32.14%	--	--
Swamp Black gum (Nyssa biflora)	200	14.29%	--	--	--	--
Sycamore (Platanus occidentalis)	200	14.29%	--	--	--	--
Black gum (Nyssa sylvatica)	--	--	3150	32.14%	--	--
White oak (Quercus alba)	--	--	1600	16.33%	--	--
Cherrybark oak (Quercus pagoda)	200	14.29%	--	--	--	--
Northern red oak (Quercus rubra)	--	--	1100	11.22%	--	--
Elberry (Sambucus canadensis)	--	--	--	--	300	21.43%
TOTAL:	1,400	100.00%	9,800	100.00%	1,400	100.00%

(VEGETATION TABLE PROVIDED BY RESTORATION SYSTEMS, LLC)

Axiom Environmental
218 Snow Avenue
Raleigh, NC 27603
919-215-1693

SHEET 1
AS-BUILT SURVEY
FOR
THE STATE OF NORTH CAROLINA,
DIVISION OF MITIGATION SERVICES
DMS PROJECT ID# 96311
SPO FILE # 01-U
NC DMS CONTRACT# 5790
RFP# 16-005568
ABBEY LAMM STREAM
AND WETLAND RESTORATION SITE
NEWLIN TOWNSHIP ALAMANCE COUNTY NORTH CAROLINA



RESTORATION SYSTEMS, LLC
1101 HAYNES STREET
SUITE 211
RALEIGH, NC 27604

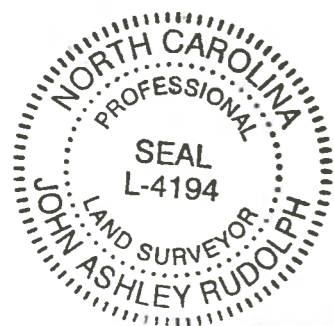
SURVEYORS CERTIFICATION(S)

Surveyor's disclaimer: No attempt was made to locate any cemeteries, wetlands, hazardous material sites, underground or aboveground utilities or any other features above, or below ground other than those shown.

I certify that the survey is of another category (as-built survey), such as the recombination of existing parcels, a court-ordered survey, or other exception to the definition of subdivision.

I certify that this plat does not meet G.S. 47-30 as amended.

I, John A. Rudolph, certify that this project was completed under my direct and responsible charge from an actual survey made under my supervision; that this As-built survey was performed at the 95 percent confidence level to meet Federal Geographic Data Committee Standards; that this survey was performed to meet the requirements for a topographic/planimetric survey to the accuracy of Class B and vertical accuracy when applicable to the Class B standard, and that the original data was obtained on March & April, 2015; that the survey was completed on April 20, 2015; and all coordinates are based on NC Grid 'NAD '83(2011) and all elevations are assumed elevations.



John A. Rudolph
Surveyor L-4194



DRAWN BY: FGR
DATE: 7/7/15
DWG. NO.: RSS104AB15
SURVEYED BY: J.A.R.



5888 U.S. Hwy. 70 East
Goldsboro, NC 27534
Tel.: (919) 751-0075
k2design@suddenlink.net

LEGEND:

- ISS - IRON STAKE SET
- ECM - EXISTING CONCRETE MARKER
- EIP - EXISTING IRON PIPE
- EN - EXISTING NAIL
- MNS - MAG NAIL SET
- EIS - EXISTING IRON STAKE
- EPP - EXISTING PUMP PIPE
- PPS - PUMP PIPE SET
- PTI - PINCHED TOP IRON PIPE
- NMC - NON-MONUMENTED CORNER
- R/W - RIGHT OF WAY
- EOP - EDGE OF PAVEMENT
- CPP - CORRUGATED PLASTIC PIPE
- CL - CENTERLINE
- UP - UTILITY POLE
- BK - BOOK
- D.B. - DEED BOOK
- PG. - PAGE

- No. 5 REBAR FLUSH WITH GRADE WITH AN ALUMINUM 3/4" CAP INSCRIBED: "STATE OF NORTH CAROLINA CONSERVATION EASEMENT"
- ▲ "FIXE" 3/8" BOLT SET IN ROCK OUTCROP

- CONSERVATION EASEMENT LINE
- - - TIE DOWN LINE
- - - RIGHT OF WAY LINE OR ADJOINER LINE

ACCESS EASEMENTS

- MONITORING REACH
- MODIFIED REACH
- LOG CROSS VANE
- LOG VANE
- ADDED LOG CROSS VANE
- ADDED LOG VANE
- CROSS-SECTION

- CVS PLOTS
- ORIGIN POINT ON CVS PLOTS
- NOT CONSTRUCTED
- MARSH TREATMENT
- GROUNDWATER GAUGE
- STREAM GAUGE
- PERMANENT STREAM CROSSING

- PHOTO TAKEN ON 4/17/15
- WETLAND ENHANCEMENT AREA
- WETLAND RESTORATION AREA

LINE DATA ALONG SECTION "A"		
LINE	BEARING	DISTANCE
L11	S01°35'21"W	504.26'
L12	S01°30'55"W	121.18'
L13	S71°13'51"W	69.28'
L14	N79°41'21"W	45.40'
L15	N06°17'19"W	85.35'
L16	N60°41'58"W	181.71'
L17	N43°11'17"W	154.17'
L18	S70°35'57"W	50.04'
L19	N59°35'19"W	76.73'
L20	N03°36'20"E	57.09'
L21	N40°08'34"E	169.46'
L22	N85°04'59"E	171.28'
L23	N59°19'50"E	251.26'
L24	N83°39'24"E	14.66'

LINE DATA ALONG SECTION "C"		
LINE	BEARING	DISTANCE
L49	N70°32'42"W	267.91'
L50	N54°06'19"W	119.87'
L51	N24°53'03"W	181.07'
L52	N57°19'47"W	156.89'
L53	N34°37'35"W	175.24'
L54	S70°14'26"E	123.82'
L55	S81°58'03"E	178.94'
L56	S34°59'34"E	215.35'
L57	S00°00'47"W	67.70'
L58	S69°57'50"E	213.03'
L59	S66°58'34"E	133.04'
L60	S35°10'43"W	142.72'

METADATA CORNER DESCRIPTIONS FOR CONSERVATION EASEMENT	
CORNER #	DESCRIPTION
(11) THRU (24)	No. 5 REBAR FLUSH WITH GRADE WITH AN ALUMINUM 3/4" CAP INSCRIBED: "STATE OF NORTH CAROLINA CONSERVATION EASEMENT"
(25)	"FIXE" 3/8" BOLT SET IN ROCK OUTCROP
(26) THRU (72)	No. 5 REBAR FLUSH WITH GRADE WITH AN ALUMINUM 3/4" CAP INSCRIBED: "STATE OF NORTH CAROLINA CONSERVATION EASEMENT"

METADATA CORNER DESCRIPTIONS FOR PROPERTY LINES & TIE DOWNS	
CORNER #	DESCRIPTION
(110)	No. 5 REBAR FLUSH WITH GRADE WITH PLASTIC CAP
(111)	1.0" O.D. IRON PIPE BENT FLUSH WITH GRADE
(112)	3/4" O.D. IRON PIPE FLUSH WITH GRADE
(113)	1.0" O.D. IRON PIPE BENT 0.3' ABOVE GRADE
(114)	1.0" O.D. IRON PIPE 0.2' ABOVE GRADE
(115)	1.0" O.D. IRON PIPE 0.1' ABOVE GRADE
(116)	3/4" O.D. IRON PIPE 1.0' ABOVE GRADE
(117)	ROCK, APPROXIMATELY 4" x 6"
(118)	1.0" O.D. IRON PIPE 0.6' ABOVE GRADE
(119)	3/4" O.D. IRON PIPE FLUSH WITH GRADE WITNESSED BY 36" OAK
(120) AND (121)	1.0" O.D. IRON PIPE 0.5' ABOVE GRADE
(122)	10" x 5" ROCK WITH "FIXE" BOLT
(124)	1.0" O.D. PINCHED TOP IRON PIPE 0.1' ABOVE GRADE
(125)	No. 5 REBAR FLUSH WITH GRADE
(126)	1.0" O.D. IRON PIPE 1.0' ABOVE GRADE
(127)	No. 5 REBAR FLUSH WITH GRADE

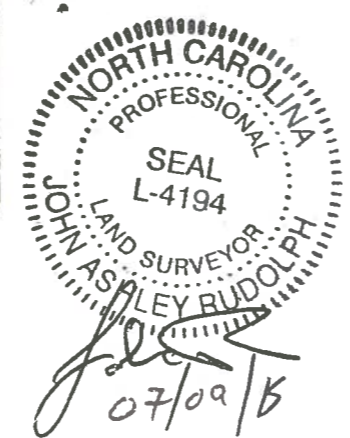
LINE DATA ALONG SECTION "B"		
LINE	BEARING	DISTANCE
L25	N58°53'57"W	209.94'
L26	N69°54'53"W	107.75'
L27	S87°59'21"W	37.01'
L28	N28°56'11"E	43.64'
L29	N18°59'00"W	122.99'
L30	N65°01'58"W	57.33'
L31	N35°10'43"E	137.99'
L32	S89°27'15"E	140.30'
L33	S86°17'48"E	235.39'
L34	N37°59'42"E	217.88'
L35	N22°35'49"E	203.07'
L36	N29°17'36"E	251.02'
L37	S63°55'16"E	175.40'
L38	S06°38'18"E	168.46'
L39	S88°50'47"W	164.02'
L40	S07°21'38"W	187.87'
L41	S40°57'51"W	287.95'
L42	S60°56'46"W	143.34'
L43	N80°21'27"W	103.21'
L44	S81°29'38"W	125.06'
L45	S15°04'01"W	18.90'
L46	S62°29'09"E	180.23'
L47	S55°10'48"E	108.23'
L48	S40°08'34"W	145.93'

LINE DATA ALONG SECTION "D"		
LINE	BEARING	DISTANCE
L61	N65°48'12"W	336.68'
L62	N03°44'59"W	204.67'
L63	N22°55'24"W	303.98'
L64	N07°38'26"E	69.38'
L65	S85°01'56"E	167.75'
L66	S41°17'34"E	216.62'
L67	S08°33'04"E	312.26'
L68	S67°18'21"E	419.22'
L69	S20°33'56"E	147.06'
L70	N81°58'03"W	30.92'
L71	N70°14'26"W	146.31'
L72	N78°21'50"W	200.86'

CONSERVATION EASEMENT ACREAGE DATA:	
SECTION "A"	4.23 ACRES±
SECTION "B"	5.77 ACRES±
SECTION "C"	2.64 ACRES±
SECTION "D"	4.66 ACRES±
TOTAL CONSERVATION EASEMENT IS 17.30 ACRES± EXCLUDING ALL EASEMENTS AND RIGHT-OF-WAYS BY COORDINATE COMPUTATION	

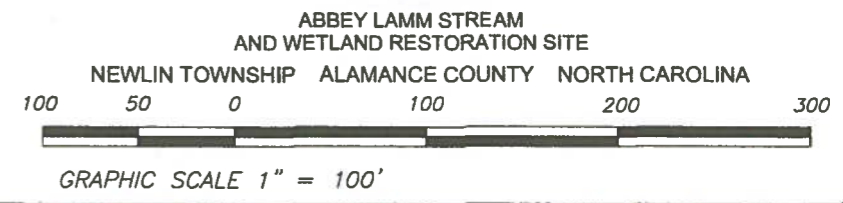
GROUND WATER GAUGES COORDINATE TABLE (APPROXIMATE CENTER ●)		
GW #	NORTHING	EASTING
1	776991.76	1883653.29
2	776887.90	1883800.68
3	777160.14	1883888.19
4	777136.69	1883816.26
5	777199.96	1883330.88
6	777250.40	1883245.92

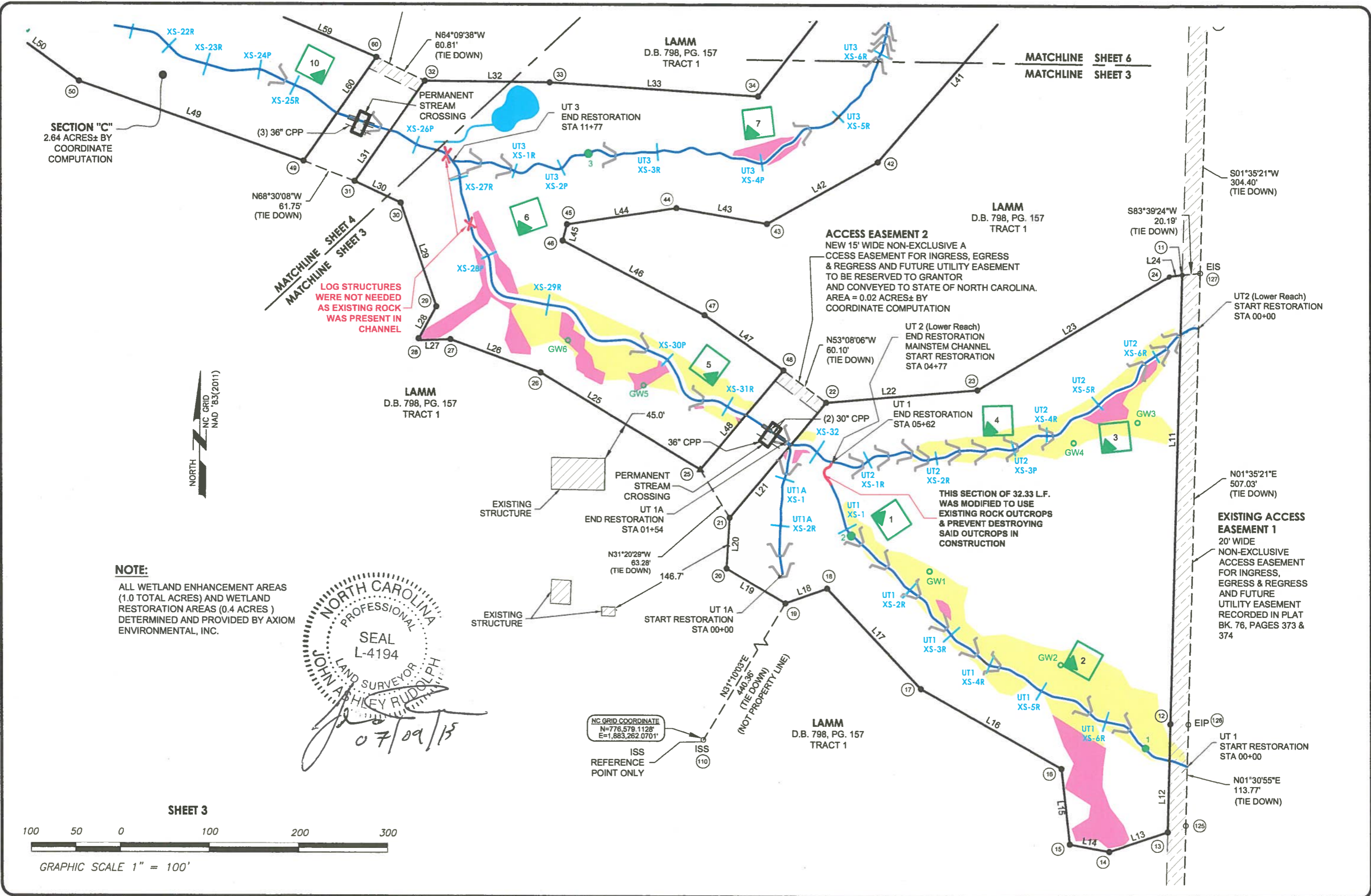
STREAM GAUGES COORDINATE TABLE (APPROXIMATE CENTER ●)		
CVS PLOT #	NORTHING	EASTING
1	776794.47	1883896.16
2	777031.80	1883564.71
3	777460.07	1883269.33



FEMA FLOOD STATEMENT:
 THE AREA REPRESENTED BY THIS PLAT IS NOT LOCATED IN A FLOOD HAZARD BOUNDARY ACCORDING TO FEMA MAP NUMBER(S) 3710878700J, ZONE(S): X DATED: SEPTEMBER 6, 2006.

SHEET 2
 AS-BUILT SURVEY
 FOR
THE STATE OF NORTH CAROLINA,
DIVISION OF MITIGATION SERVICES
DMS PROJECT ID# 96311
SPO FILE # 01-U
NC DMS CONTRACT# 5790
RFP# 16-005568





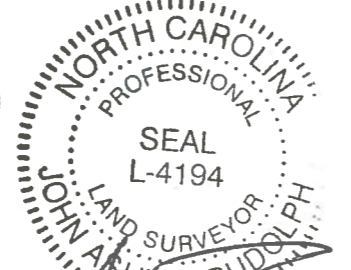
SECTION "C"
2.64 ACRES± BY
COORDINATE
COMPUTATION

MATCHLINE SHEET 4
MATCHLINE SHEET 3

LOG STRUCTURES
WERE NOT NEEDED
AS EXISTING ROCK
WAS PRESENT IN
CHANNEL



NOTE:
ALL WETLAND ENHANCEMENT AREAS
(1.0 TOTAL ACRES) AND WETLAND
RESTORATION AREAS (0.4 ACRES)
DETERMINED AND PROVIDED BY AXIOM
ENVIRONMENTAL, INC.



07/09/15

NC GRID COORDINATE
N=776,579.1128'
E=1,883,262.0701'

ISS
REFERENCE
POINT ONLY

SHEET 3



GRAPHIC SCALE 1" = 100'

MATCHLINE SHEET 6
MATCHLINE SHEET 3

S01°35'21"W
304.40'
(TIE DOWN)

S83°39'24"W
20.19'
(TIE DOWN)

UT2 (Lower Reach)
START RESTORATION
STA 00+00

N01°35'21"E
507.03'
(TIE DOWN)

**EXISTING ACCESS
EASEMENT 1**
20' WIDE
NON-EXCLUSIVE
ACCESS EASEMENT
FOR INGRESS,
EGRESS & REGRESS
AND FUTURE
UTILITY EASEMENT
RECORDED IN PLAT
BK. 76, PAGES 373 &
374

N01°30'55"E
113.77'
(TIE DOWN)

LAMM
D.B. 798, PG. 157
TRACT 1

LAMM
D.B. 798, PG. 157
TRACT 1

LAMM
D.B. 798, PG. 157
TRACT 1

LAMM
D.B. 798, PG. 157
TRACT 1

ACCESS EASEMENT 2
NEW 15' WIDE NON-EXCLUSIVE A
CESS EASEMENT FOR INGRESS, EGRESS
& REGRESS AND FUTURE UTILITY EASEMENT
TO BE RESERVED TO GRANTOR
AND CONVEYED TO STATE OF NORTH CAROLINA.
AREA = 0.02 ACRES± BY
COORDINATE COMPUTATION

UT 2 (Lower Reach)
END RESTORATION
MAINSTEM CHANNEL
START RESTORATION
STA 04+77

UT 1 END RESTORATION
STA 05+62

THIS SECTION OF 32.33 L.F.
WAS MODIFIED TO USE
EXISTING ROCK OUTCROPS
& PREVENT DESTROYING
SAID OUTCROPS IN
CONSTRUCTION

PERMANENT
STREAM
CROSSING

PERMANENT
STREAM
CROSSING

EXISTING
STRUCTURE

EXISTING
STRUCTURE

EXISTING
STRUCTURE

EXISTING
STRUCTURE

N64°09'38"W
60.81'
(TIE DOWN)

N68°30'08"W
61.75'
(TIE DOWN)

N53°08'06"W
60.10'
(TIE DOWN)

N31°20'29"W
83.28'
(TIE DOWN)

N31°10'03"E
140.38'
(TIE DOWN)
(NOT PROPERTY LINE)

N01°30'55"E
113.77'
(TIE DOWN)

N01°35'21"E
507.03'
(TIE DOWN)

UT 3
XS-1R

UT 3
XS-2P

UT 3
XS-3R

UT 3
XS-4P

UT 3
XS-5R

UT 2
XS-6R

UT 2
XS-5R

UT 2
XS-4R

UT 2
XS-3P

UT 1
XS-1R

UT 1
XS-2R

UT 1
XS-3R

UT 1
XS-4R

UT 1
XS-5R

UT 1
XS-6R

XS-22R

XS-23R

XS-24P

XS-25R

XS-26P

XS-27R

XS-28P

XS-29R

XS-30P

XS-31R

XS-32

UT1A
XS-1

UT1A
XS-2R

UT1
XS-1R

UT1
XS-2R

UT1
XS-3R

UT1
XS-4R

UT1
XS-5R

UT1
XS-6R

UT1
XS-6R

UT1
XS-6R

UT1
XS-6R

UT1
XS-6R

MATCHLINE SHEET 5
MATCHLINE SHEET 4

N62°19'41"W
229.69'
(TIE DOWN)

ACCESS EASEMENT 4
NEW 15' WIDE NON-EXCLUSIVE ACCESS EASEMENT FOR INGRESS, EGRESS & REGRESS AND FUTURE UTILITY EASEMENT TO BE RESERVED TO GRANTOR AND CONVEYED TO STATE OF NORTH CAROLINA. AREA = 0.05 ACRES± BY COORDINATE COMPUTATION

LAMM
D.B. 864, PG. 246
TRACT 1



20
BK. 52, PG. 180
LAMM
D.B. 864, PG. 246

PHOTO 1
(TAKEN ON 4-17-15)



MAIN CHANNEL END RESTORATION START ENHANCEMENT II
STA 16+31

SECTION "C"
2.64 ACRES± BY COORDINATE COMPUTATION

PHOTO 2
(TAKEN ON 4-17-15)



ACCESS EASEMENT 3
NEW 15' WIDE NON-EXCLUSIVE ACCESS EASEMENT FOR INGRESS, EGRESS & REGRESS AND FUTURE UTILITY EASEMENT TO BE RESERVED TO GRANTOR AND CONVEYED TO STATE OF NORTH CAROLINA. AREA = 0.02 ACRES± BY COORDINATE COMPUTATION

N64°09'38"W
60.81'
(TIE DOWN)

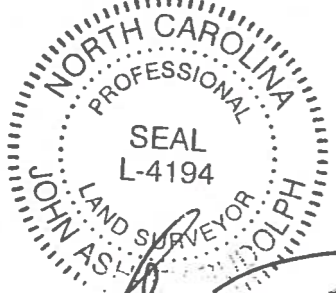
N68°30'08"W
61.75'
(TIE DOWN)

N64°09'38"W
60.81'
(TIE DOWN)

MATCHLINE SHEET 4
MATCHLINE SHEET 3

LOG STRUCTURES WERE NOT NEEDED AS EXISTING ROCK WAS PRESENT IN CHANNEL

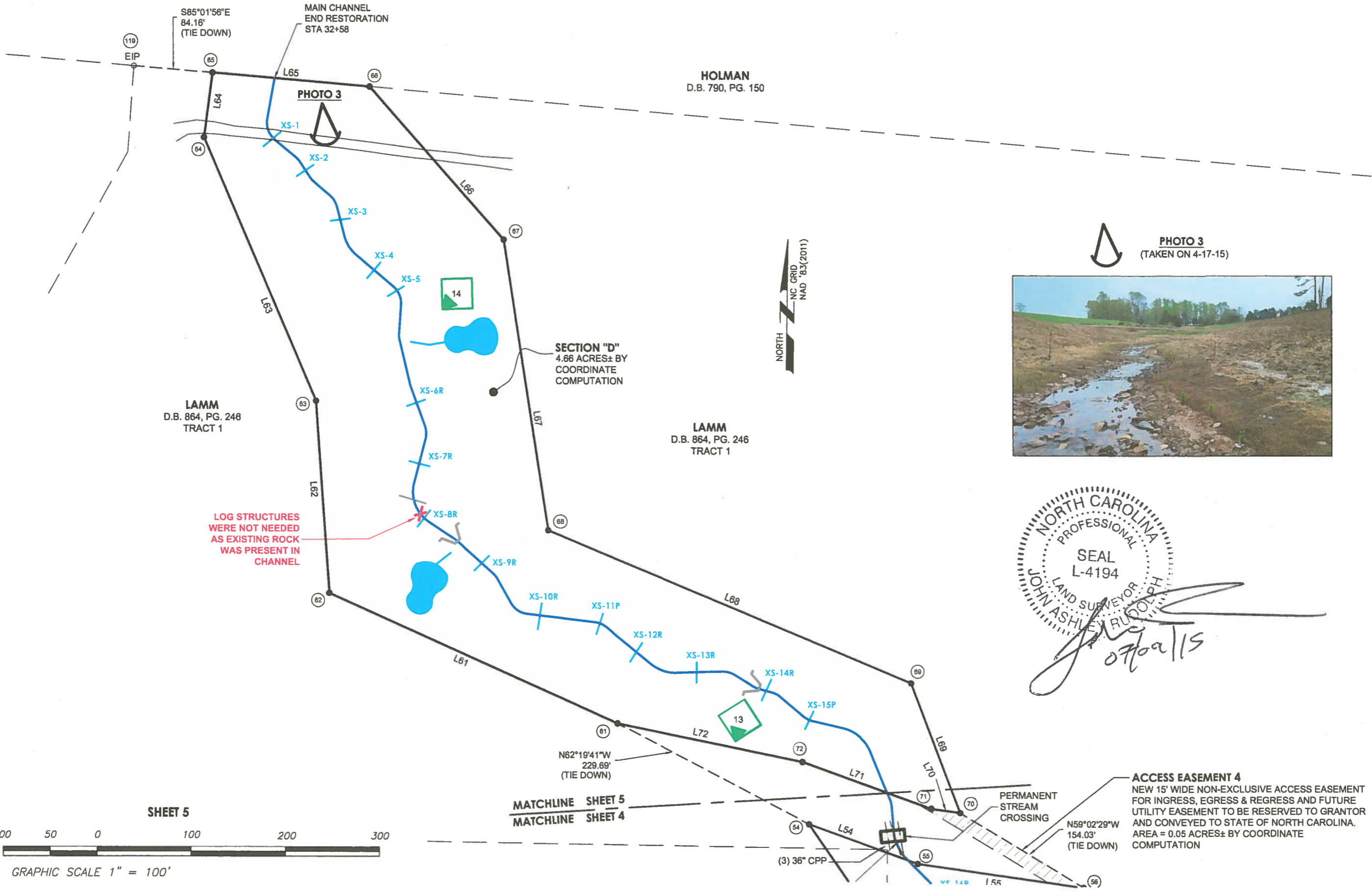
LAMM
D.B. 798, PG. 157
TRACT 1



SHEET 4



GRAPHIC SCALE 1" = 100'



S85°01'56"E
84.16'
(TIE DOWN)

MAIN CHANNEL
END RESTORATION
STA 32+58

HOLMAN
D.B. 790, PG. 150

LAMM
D.B. 864, PG. 246
TRACT 1

LAMM
D.B. 864, PG. 246
TRACT 1



SHEET 5



GRAPHIC SCALE 1" = 100'

MATCHLINE SHEET 5
MATCHLINE SHEET 4

N62°19'41"W
229.69'
(TIE DOWN)

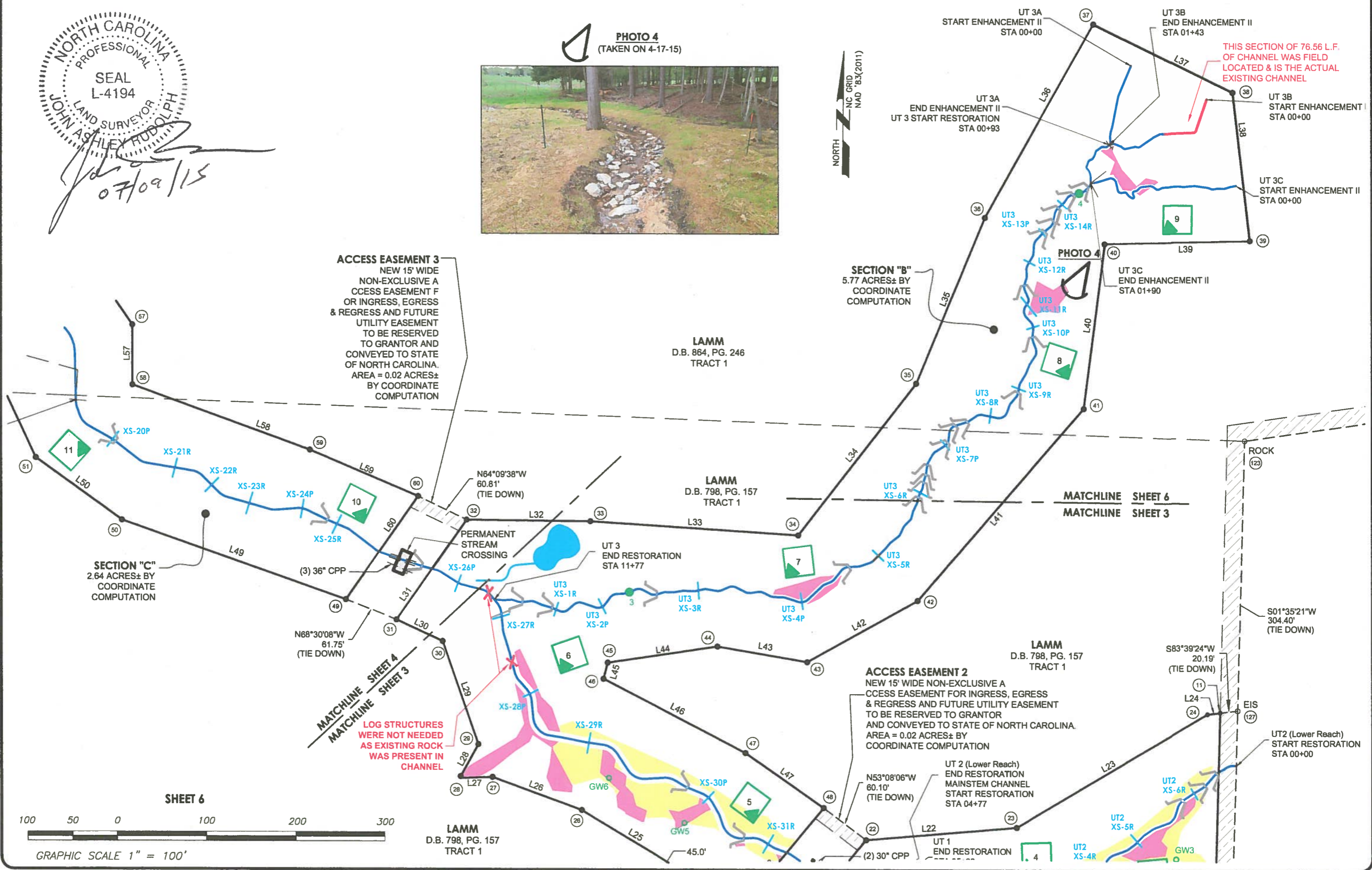
PERMANENT
STREAM
CROSSING
N59°02'29"W
154.03'
(TIE DOWN)

ACCESS EASEMENT 4
NEW 15' WIDE NON-EXCLUSIVE ACCESS EASEMENT
FOR INGRESS, EGRESS & REGRESS AND FUTURE
UTILITY EASEMENT TO BE RESERVED TO GRANTOR
AND CONVEYED TO STATE OF NORTH CAROLINA.
AREA = 0.05 ACRES± BY COORDINATE
COMPUTATION



07/09/15

PHOTO 4
(TAKEN ON 4-17-15)



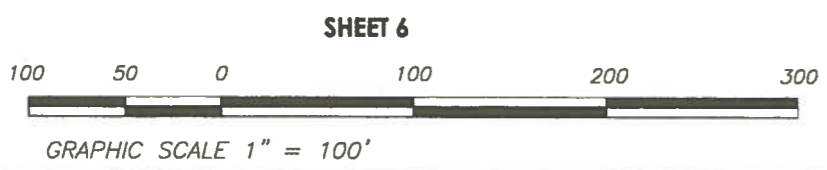
ACCESS EASEMENT 3
NEW 15' WIDE
NON-EXCLUSIVE ACCESS EASEMENT FOR INGRESS, EGRESS & REGRESS AND FUTURE UTILITY EASEMENT TO BE RESERVED TO GRANTOR AND CONVEYED TO STATE OF NORTH CAROLINA. AREA = 0.02 ACRES± BY COORDINATE COMPUTATION

SECTION "B"
5.77 ACRES± BY COORDINATE COMPUTATION

SECTION "C"
2.64 ACRES± BY COORDINATE COMPUTATION

LOG STRUCTURES WERE NOT NEEDED AS EXISTING ROCK WAS PRESENT IN CHANNEL

THIS SECTION OF 76.56 L.F. OF CHANNEL WAS FIELD LOCATED & IS THE ACTUAL EXISTING CHANNEL



SHEET 6

LAMM
D.B. 798, PG. 157
TRACT 1

LAMM
D.B. 864, PG. 246
TRACT 1

LAMM
D.B. 798, PG. 157
TRACT 1

LAMM
D.B. 798, PG. 157
TRACT 1

ACCESS EASEMENT 2
NEW 15' WIDE NON-EXCLUSIVE ACCESS EASEMENT FOR INGRESS, EGRESS & REGRESS AND FUTURE UTILITY EASEMENT TO BE RESERVED TO GRANTOR AND CONVEYED TO STATE OF NORTH CAROLINA. AREA = 0.02 ACRES± BY COORDINATE COMPUTATION

UT 2 (Lower Reach)
END RESTORATION
MAINSTEM CHANNEL
START RESTORATION
STA 04+77

UT 1
END RESTORATION

UT 3A
START ENHANCEMENT II
STA 00+00

UT 3A
END ENHANCEMENT II
UT 3 START RESTORATION
STA 00+93

UT 3B
END ENHANCEMENT II
STA 01+43

UT 3B
START ENHANCEMENT II
STA 00+00

UT 3C
START ENHANCEMENT II
STA 00+00

UT 3C
END ENHANCEMENT II
STA 01+90

UT 3
END RESTORATION
STA 11+77

S01°35'21"W
304.40'
(TIE DOWN)

S83°39'24"W
20.19'
(TIE DOWN)

N53°08'06"W
80.10'
(TIE DOWN)

N64°09'38"W
60.81'
(TIE DOWN)

N68°30'08"W
81.75'
(TIE DOWN)

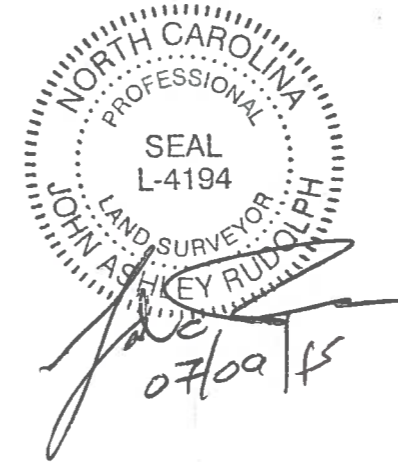
EIS

UT2 (Lower Reach)
START RESTORATION
STA 00+00

MATCHLINE SHEET 6
MATCHLINE SHEET 3

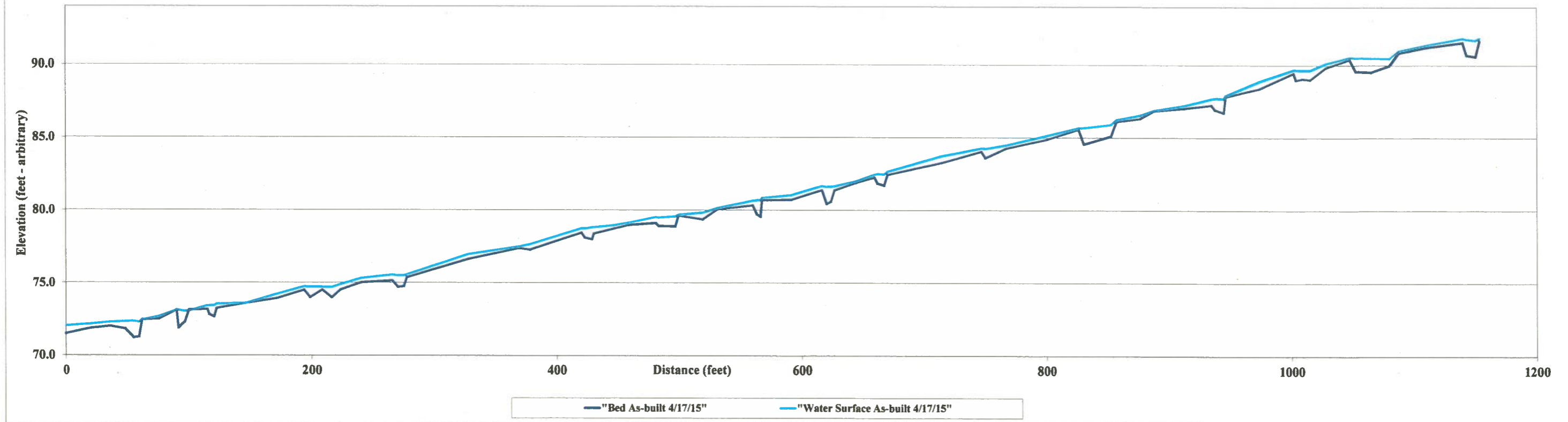
MATCHLINE SHEET 4
MATCHLINE SHEET 3

Project Name Lamm - As-built (2015) Profile											
Reach Main Lower											
Feature Profile											
Date 4/17/15											
Crew Perkinson, Gibbons											
2015 As-built Survey			2015 As-built Survey			2015 As-built Survey			2015 As-built Survey		
Station	Bed Elevation	Water Elevation	Station	Bed Elevation	Water Elevation	Station	Bed Elevation	Water Elevation	Station	Bed Elevation	Water Elevation
0.0	71.5	72.0	277.6	75.4	75.6	661.7	81.8	82.5	1064.7	89.5	90.5
20.0	71.9	72.1	327.9	76.6	77.0	667.2	81.7	82.5	1079.7	90.0	90.5
36.4	72.0	72.3	369.1	77.4	77.5	670.0	82.4	82.7	1087.4	90.9	91.0
48.2	71.8	72.3	377.7	77.3	77.6	713.7	83.3	83.7	1110.0	91.3	91.4
55.3	71.2	72.3	420.1	78.4	78.7	746.8	84.0	84.3	1139.5	91.6	91.9
59.7	71.3	72.3	422.9	78.1	78.7	750.0	83.6	84.2	1142.5	90.7	91.8
62.1	72.4	72.4	428.8	78.0	78.8	767.0	84.3	84.5	1150.0	90.6	91.7
75.8	72.5	72.7	430.1	78.4	78.8	800.2	84.9	85.1	1153.1	91.7	91.9
90.2	73.1	73.1	446.9	78.7	79.0	825.9	85.6	85.7			
91.8	71.9	73.1	458.6	79.0	79.1	830.4	84.6	85.7			
96.8	72.3	73.0	480.9	79.1	79.5	852.7	85.1	85.9			
100.3	73.1	73.1	483.2	78.9	79.5	857.1	86.1	86.2			
115.2	73.2	73.4	496.7	78.9	79.5	876.3	86.3	86.5			
116.6	72.8	73.4	499.4	79.6	79.7	887.8	86.8	86.9			
120.6	72.7	73.4	519.2	79.4	79.8	912.8	87.0	87.2			
122.5	73.2	73.5	531.2	80.1	80.1	934.5	87.3	87.7			
146.3	73.6	73.6	559.7	80.3	80.7	937.5	86.9	87.7			
171.9	73.9	74.2	563.0	79.7	80.7	944.6	86.7	87.7			
193.7	74.5	74.7	566.0	79.5	80.7	946.1	87.8	87.9			
198.7	74.0	74.7	567.2	80.7	80.8	973.8	88.4	88.9			
208.5	74.5	74.7	591.2	80.7	81.0	1001.4	89.5	89.7			
216.4	74.0	74.7	616.3	81.4	81.7	1003.5	89.0	89.7			
223.5	74.5	74.9	620.1	80.4	81.6	1008.6	89.1	89.6			
240.6	75.0	75.3	623.6	80.6	81.6	1015.1	89.0	89.7			
266.1	75.1	75.5	626.5	81.4	81.6	1027.6	89.8	90.1			
270.5	74.7	75.5	644.0	81.9	82.0	1047.1	90.4	90.5			
275.4	74.8	75.5	659.3	82.3	82.4	1052.3	89.6	90.5			

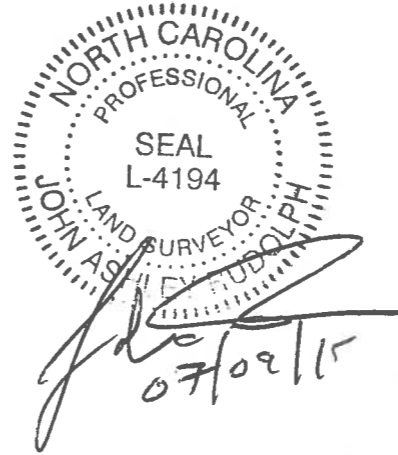


	As-built	As needed		
Avg. Water Surface Slope	0.0172			
Rifle Length	59			
Avg. Rifle Slope	0.0193			
Pool Length	18			

Lamm (Main Lower Reach) As-built Profile 2015

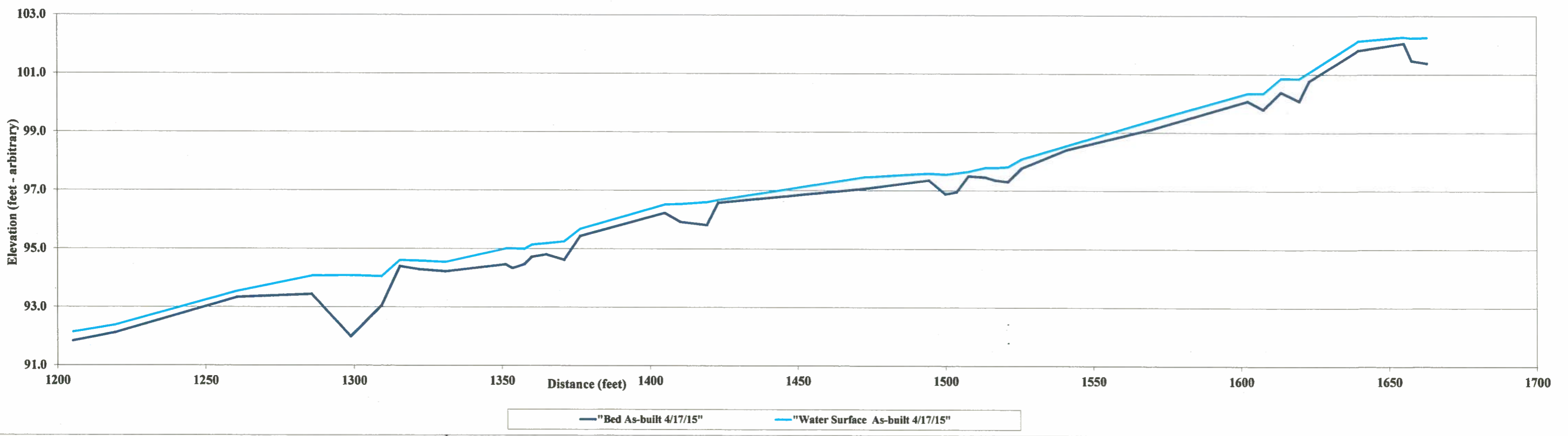


Project Name		Lamm - As-built (2015) Profile									
Reach		Main Lower (Woods)									
Feature		Profile									
Date		4/17/15									
Crew		Perkinson, Gibbons									
2015 As-built Survey			2015 As-built Survey			As needed			As needed		
Station	Bed Elevation	Water Elevation	Station	Bed Elevation	Water Elevation	Station	Bed Elevation	Water Elevation	Station	Bed Elevation	Water Elevation
1205.2	91.8	92.1	1521.2	97.3	97.8						
1219.4	92.1	92.4	1525.9	97.8	98.1						
1260.5	93.3	93.5	1540.9	98.4	98.5						
1285.7	93.4	94.1	1569.7	99.1	99.4						
1298.8	92.0	94.1	1602.4	100.1	100.4						
1309.3	93.1	94.0	1607.6	99.8	100.4						
1315.5	94.4	94.6	1613.6	100.4	100.9						
1322.0	94.3	94.6	1619.7	100.1	100.8						
1330.9	94.2	94.5	1623.1	100.8	101.1						
1351.2	94.5	95.0	1639.6	101.8	102.1						
1353.5	94.3	95.0	1654.9	102.1	102.3						
1357.5	94.5	95.0	1657.7	101.5	102.2						
1360.1	94.7	95.1	1662.8	101.4	102.3						
1365.0	94.8	95.2									
1371.0	94.6	95.2									
1376.4	95.4	95.7									
1405.0	96.2	96.5									
1410.4	95.9	96.5									
1419.3	95.8	96.6									
1423.2	96.6	96.7									
1472.5	97.1	97.5									
1494.3	97.4	97.6									
1500.0	96.9	97.6									
1503.7	97.0	97.6									
1507.8	97.5	97.7									
1513.5	97.5	97.8									
1516.9	97.4	97.8									

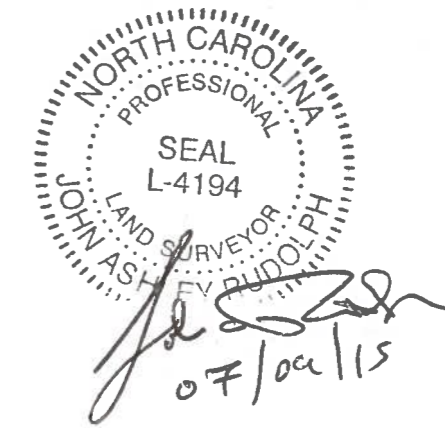


	As-built	As needed		
Avg. Water Surface Slope	0.0172			
Riffle Length	42			
Avg. Riffle Slope	0.0241			
Pool Length	14			

Lamm (Main Lower Reach Woods) As-built Profile 2015



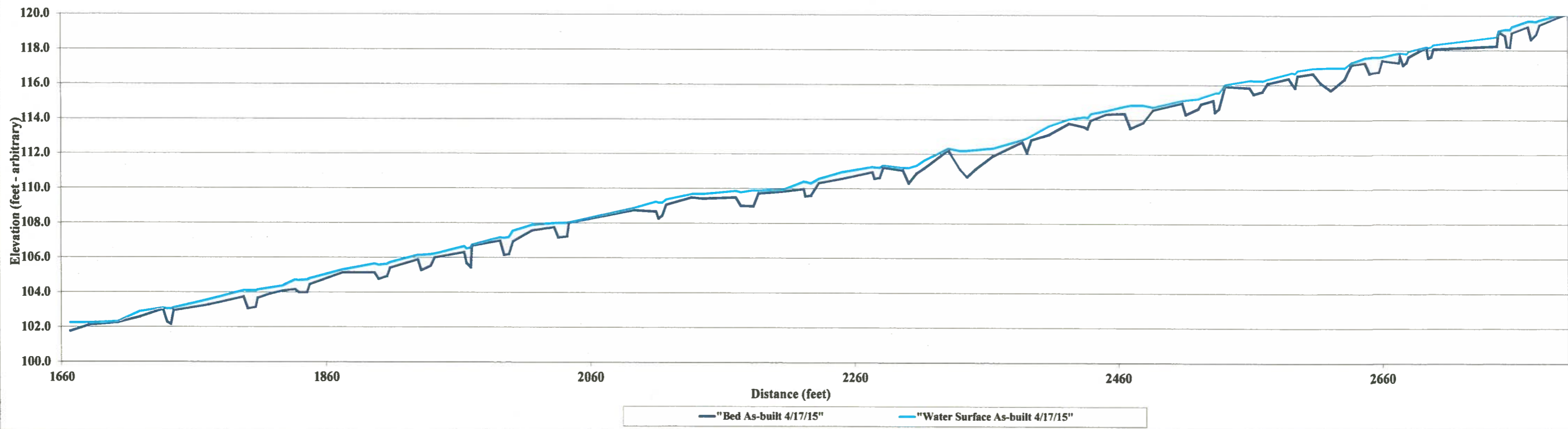
Project Name Lamm - As-built (2015) Profile
Reach Main Upper Reach
Feature Profile
Date 4/17/15
Crew Perkinson, Gibbons



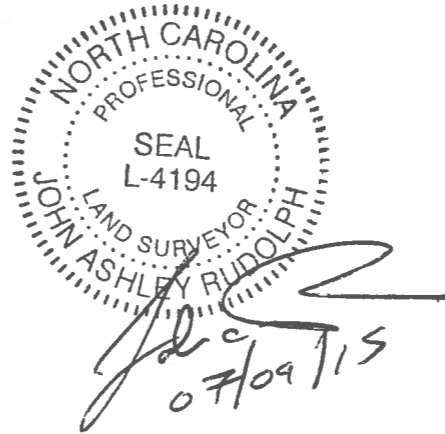
2015 As-built Survey			2015 As-built Survey			2015 As-built Survey			2015 As-built Survey			2015 As-built Survey		
Station	Bed Elevation	Water Elevation	Station	Bed Elevation	Water Elevation	Station	Bed Elevation	Water Elevation	Station	Bed Elevation	Water Elevation	Station	Bed Elevation	Water Elevation
1666.8	101.8	102.2	1942.2	106.0	106.2	2226.9	109.6	110.3	2486.5	114.6	114.7	2675.9	117.1	117.8
1681.3	102.1	102.2	1964.4	106.3	106.7	2233.0	110.3	110.6	2508.7	115.0	115.1	2678.5	117.3	117.8
1696.3	102.2	102.3	1966.2	105.7	106.5	2250.0	110.6	110.9	2511.4	114.3	115.1	2680.0	117.6	117.9
1703.0	102.3	102.3	1969.5	105.4	106.6	2273.5	111.0	111.3	2520.9	114.6	115.2	2693.6	118.2	118.2
1719.5	102.6	102.9	1970.4	106.7	106.7	2275.1	110.6	111.2	2523.0	114.9	115.3	2695.0	117.5	118.1
1737.2	103.0	103.1	1991.6	107.0	107.2	2279.1	110.6	111.2	2532.5	115.1	115.5	2697.3	117.6	118.2
1740.2	102.3	103.0	1994.6	106.2	107.1	2281.8	111.2	111.3	2533.6	114.4	115.5	2698.9	118.1	118.3
1743.1	102.1	103.0	1998.3	106.2	107.2	2296.7	111.1	111.2	2536.7	114.6	115.6	2746.8	118.2	118.8
1745.1	102.9	103.1	2001.4	106.9	107.5	2301.0	110.3	111.2	2541.2	115.9	116.0	2748.1	119.1	119.1
1771.1	103.3	103.6	2015.7	107.6	107.9	2307.0	110.9	111.3	2559.7	115.8	116.3	2752.9	118.8	119.2
1797.6	103.7	104.1	2032.5	107.8	108.0	2312.7	111.2	111.6	2562.8	115.5	116.2	2754.3	118.2	119.2
1800.9	103.1	104.1	2035.7	107.2	108.0	2331.1	112.2	112.3	2569.6	115.6	116.2	2756.8	118.2	119.2
1806.8	103.1	104.1	2042.2	107.2	108.0	2340.1	111.1	112.2	2573.4	116.1	116.3	2758.2	119.0	119.4
1808.2	103.7	104.1	2043.7	108.0	108.0	2345.2	110.7	112.2	2589.3	116.4	116.7	2770.2	119.4	119.7
1817.3	103.9	104.3	2092.7	108.7	108.9	2351.9	111.1	112.2	2591.5	116.1	116.7	2772.6	118.6	119.7
1826.8	104.1	104.4	2109.9	108.7	109.2	2365.0	111.9	112.3	2594.2	115.8	116.7	2776.6	118.9	119.7
1836.4	104.2	104.7	2111.7	108.3	109.2	2387.3	112.7	112.8	2596.0	116.5	116.8	2779.1	119.5	119.7
1839.6	104.0	104.7	2114.5	108.4	109.2	2390.9	112.1	112.9	2607.6	116.7	117.0	2793.7	119.9	120.0
1845.5	104.0	104.7	2117.6	109.1	109.4	2394.2	112.8	113.1	2613.5	116.1	117.0	2806.3	120.3	120.5
1847.5	104.5	104.8	2136.7	109.5	109.7	2407.4	113.1	113.6	2621.1	115.7	117.0			
1872.1	105.1	105.3	2145.5	109.4	109.7	2422.9	113.8	114.0	2631.5	116.3	117.0			
1896.5	105.1	105.7	2170.1	109.5	109.9	2434.2	113.6	114.2	2636.7	117.2	117.3			
1899.9	104.8	105.6	2173.9	109.0	109.8	2436.9	113.5	114.1	2646.8	117.3	117.6			
1906.3	104.9	105.6	2183.4	109.0	109.9	2439.3	114.0	114.3	2650.4	116.7	117.6			
1908.6	105.4	105.7	2187.2	109.7	109.9	2450.8	114.3	114.5	2657.4	116.7	117.6			
1929.5	105.9	106.2	2205.5	109.8	109.9	2464.9	114.3	114.8	2659.9	117.4	117.6			
1932.1	105.3	106.1	2221.5	110.0	110.4	2469.3	113.5	114.8	2672.6	117.3	117.8			
1939.1	105.5	106.2	2222.7	109.6	110.4	2478.9	113.8	114.8	2673.4	117.7	117.8			

	As-built	As needed		
Avg. Water Surface Slope	0.0157			
Riffle Length	26			
Avg. Riffle Slope	0.0186			
Pool Length	12			

Lamm (Main Upper Reach) As-built Profile 4/17/15

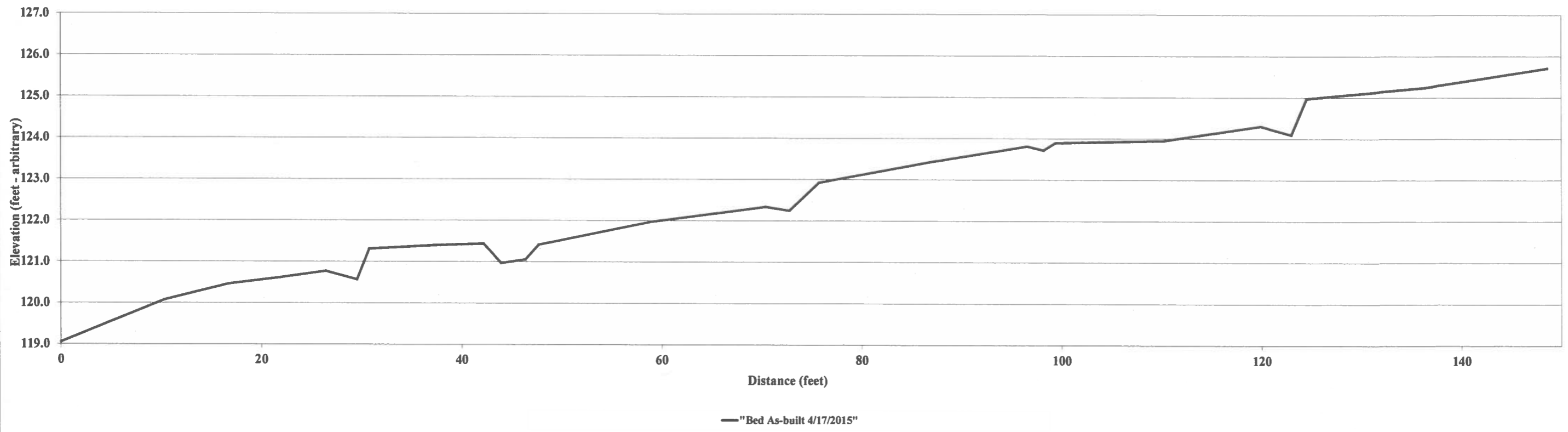


Project Name Lamm - As-built (2015) Profile											
Reach Tributary 1a											
Feature Profile											
Date 4/17/15											
Crew Perkinson, Gibbons											
2015 As-built Survey			As needed			As needed			As needed		
Station	Bed Elevation	Water Elevation	Station	Bed Elevation	Water Elevation	Station	Bed Elevation	Water Elevation	Station	Bed Elevation	Water Elevation
0.0	119.1										
10.3	120.1										
16.7	120.5										
21.8	120.6										
26.4	120.8										
29.5	120.6										
30.8	121.3										
37.4	121.4										
42.2	121.4										
43.9	121.0										
46.4	121.1										
47.7	121.4										
58.9	122.0										
70.4	122.3										
72.7	122.2										
75.7	122.9										
86.8	123.4										
96.6	123.8										
98.2	123.7										
99.4	123.9										
110.2	123.9										
119.9	124.3										
123.0	124.1										
124.5	125.0										
136.4	125.2										
148.6	125.7										

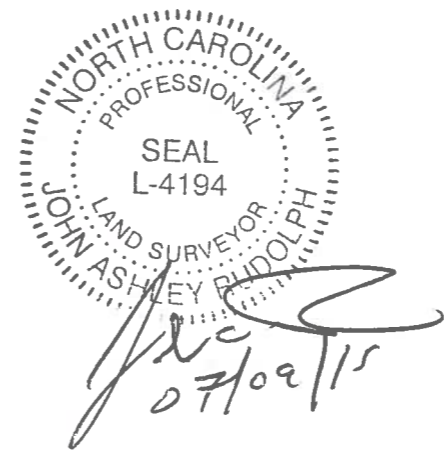


	As-built	As needed		
Avg. Water Surface Slope	NA			
Riffle Length	21			
Avg. Riffle Slope	NA			
Pool Length	5			

Lamm (UT 1a) As-built Profile 2015



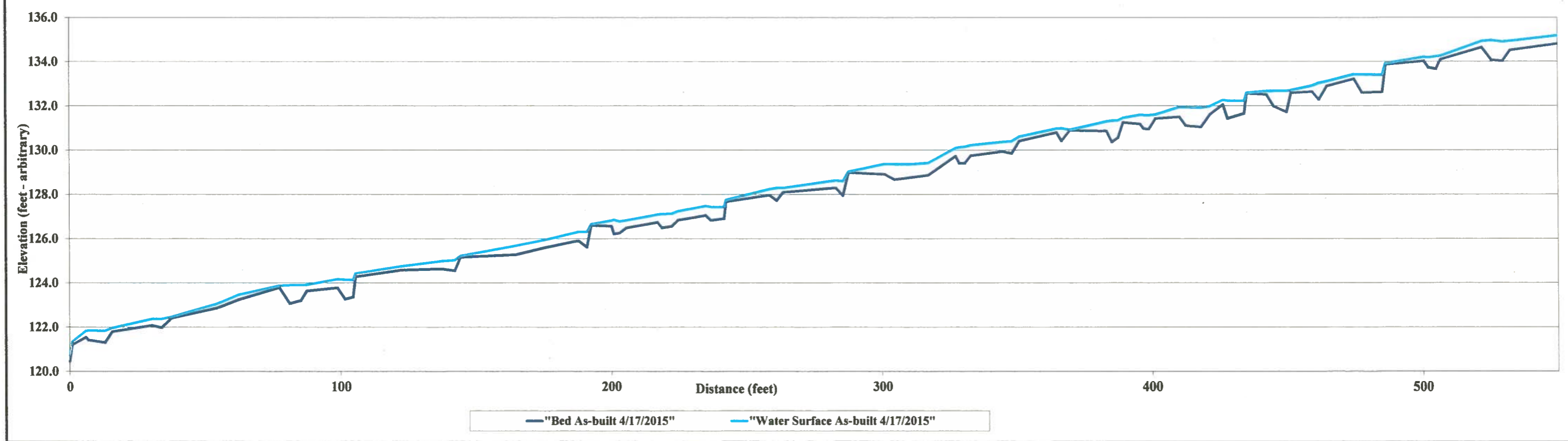
Project Name Lamm - As-built (2015) Profile
Reach Tributary 1
Feature Profile
Date 4/17/15
Crew Perkinson, Gibbons



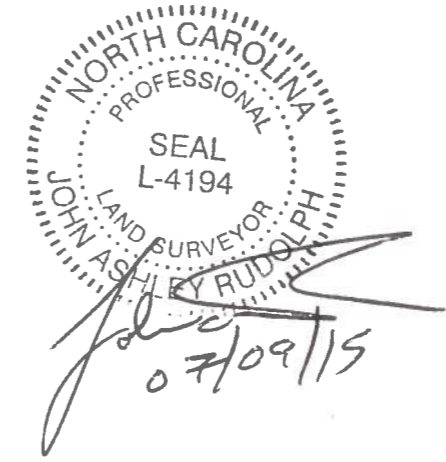
2015 As-built Survey			2015 As-built Survey			2015 As-built Survey			2015 As-built Survey		
Station	Bed Elevation	Water Elevation	Station	Bed Elevation	Water Elevation	Station	Bed Elevation	Water Elevation	Station	Bed Elevation	Water Elevation
0.0	120.5	120.7	192.5	126.6	126.7	344.7	129.9	130.4	461.8	132.3	133.0
0.9	121.2	121.3	200.1	126.6	126.8	348.1	129.8	130.4	464.7	132.9	133.1
5.9	121.5	121.8	201.0	126.2	126.8	350.9	130.4	130.6	474.7	133.2	133.4
6.9	121.4	121.9	203.0	126.3	126.8	364.7	130.8	131.0	477.7	132.6	133.4
13.0	121.3	121.8	205.5	126.5	126.8	366.6	130.4	131.0	485.1	132.6	133.4
15.7	121.8	122.0	217.1	126.7	127.1	369.7	130.9	130.9	486.3	133.9	133.9
30.4	122.1	122.4	218.8	126.5	127.1	383.3	130.9	131.3	500.6	134.0	134.2
33.9	122.0	122.4	222.3	126.6	127.1	385.2	130.4	131.3	502.3	133.7	134.2
37.7	122.4	122.5	224.7	126.8	127.2	387.5	130.6	131.3	505.2	133.7	134.2
54.3	122.9	123.1	235.0	127.1	127.5	389.3	131.3	131.5	506.8	134.1	134.3
62.5	123.2	123.5	236.9	126.8	127.4	395.6	131.2	131.6	522.1	134.6	134.9
77.3	123.8	123.9	241.8	126.9	127.4	396.9	131.0	131.6	525.6	134.1	135.0
81.1	123.1	123.9	242.5	127.7	127.8	398.9	130.9	131.6	529.7	134.0	134.9
85.3	123.2	123.9	258.4	128.0	128.2	401.3	131.4	131.6	532.5	134.5	134.9
87.5	123.6	123.9	261.1	127.7	128.3	410.1	131.5	131.9	558.9	135.0	135.3
98.8	123.8	124.2	263.4	128.1	128.3	412.5	131.1	131.9			
101.6	123.3	124.1	283.0	128.3	128.6	418.1	131.0	131.9			
104.6	123.4	124.1	285.7	127.9	128.6	421.6	131.6	132.0			
105.5	124.3	124.4	287.7	129.0	129.0	426.3	132.1	132.3			
122.6	124.6	124.8	301.1	128.9	129.4	428.0	131.4	132.2			
137.3	124.6	125.0	304.8	128.7	129.4	434.1	131.7	132.2			
142.2	124.5	125.0	310.3	128.8	129.4	435.0	132.6	132.6			
144.3	125.2	125.2	317.3	128.9	129.4	442.4	132.5	132.7			
164.8	125.3	125.7	327.4	129.7	130.1	445.1	132.0	132.7			
176.0	125.6	126.0	328.7	129.4	130.1	449.9	131.7	132.7			
187.8	125.9	126.3	330.8	129.4	130.2	451.5	132.6	132.7			
191.0	125.6	126.3	333.0	129.7	130.2	459.2	132.6	132.9			

	As-built	As needed	
Avg. Water Surface Slope	0.0256		
Riffle Length	15		
Avg. Riffle Slope	0.0298		
Pool Length	7		

Lamm (UT 1) As-built Profile 2015

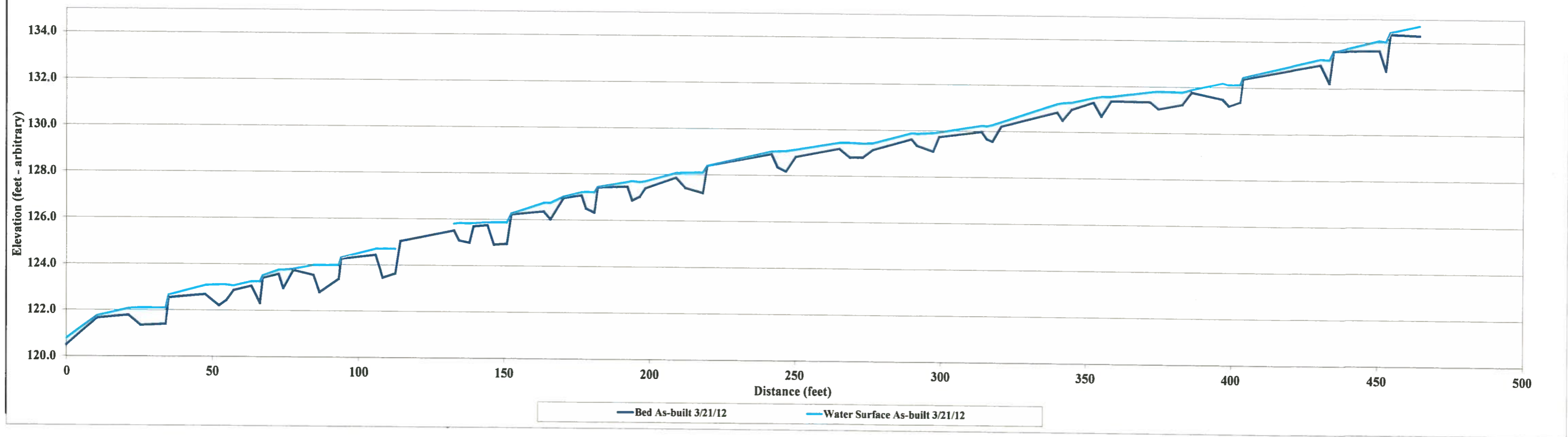


Project Name Lamm - As-built (2015) Profile											
Reach Tributary 2											
Feature Profile											
Date 4/17/15											
Crew Perkinson, Gibbons											
2015 As-built Survey			2015 As-built Survey			2015 As-built Survey			2015 As-built Survey		
Station	Bed Elevation	Water Elevation	Station	Bed Elevation	Water Elevation	Station	Bed Elevation	Water Elevation	Station	Bed Elevation	Water Elevation
0.0	120.5	120.8	139.5	125.7	125.8	276.6	129.1	129.4	452.6	132.8	134.0
10.5	121.6	121.7	144.3	125.7	125.9	289.8	129.6	129.9	454.0	134.3	134.4
21.2	121.8	122.1	146.5	124.9	125.9	291.7	129.3	129.9	464.1	134.3	134.7
25.4	121.3	122.1	151.0	125.0	125.9	297.3	129.1	129.9			
33.9	121.4	122.1	152.5	126.2	126.3	299.3	129.7	129.9			
35.0	122.5	122.7	163.6	126.4	126.7	314.0	130.0	130.2			
47.5	122.7	123.1	165.9	126.0	126.7	315.8	129.7	130.2			
52.3	122.2	123.1	170.4	127.0	127.0	317.7	129.6	130.3			
54.8	122.4	123.1	176.5	127.1	127.2	320.7	130.2	130.4			
57.4	122.9	123.1	178.0	126.5	127.2	339.9	130.8	131.2			
63.4	123.1	123.3	180.9	126.3	127.2	341.7	130.5	131.3			
66.3	122.3	123.2	182.2	127.4	127.4	344.8	131.0	131.3			
67.3	123.4	123.5	192.2	127.5	127.7	352.4	131.3	131.5			
72.7	123.6	123.8	193.8	126.9	127.7	355.1	130.7	131.5			
74.3	123.0	123.8	196.5	127.0	127.7	358.4	131.4	131.5			
77.7	123.8	123.8	198.4	127.4	127.7	371.8	131.3	131.8			
84.6	123.5	124.0	209.0	127.9	128.1	374.7	131.0	131.8			
86.6	122.8	124.0	212.2	127.4	128.1	382.8	131.2	131.8			
93.2	123.4	124.0	218.3	127.2	128.1	386.0	131.8	131.9			
94.0	124.3	124.3	219.8	128.4	128.4	396.6	131.5	132.2			
105.8	124.4	124.7	241.8	128.9	129.0	398.8	131.2	132.1			
108.3	123.4	124.7	243.8	128.4	129.0	402.8	131.4	132.1			
112.7	123.6	124.7	246.8	128.2	129.1	403.7	132.4	132.4			
114.4	125.0		250.1	128.8	129.1	430.2	133.0	133.3			
132.8	125.5	125.8	265.0	129.2	129.4	433.2	132.2	133.2			
134.6	125.1	125.8	268.7	128.8	129.4	434.6	133.6	133.6			
138.1	125.0	125.8	273.0	128.8	129.4	450.3	133.6	134.1			



	As-built	As needed		
Avg. Water Surface Slope	0.0301			
Riffle Length	12			
Avg. Riffle Slope	0.0294			
Pool Length	7.79			

Lamm (UT2) As-built Profile 2015

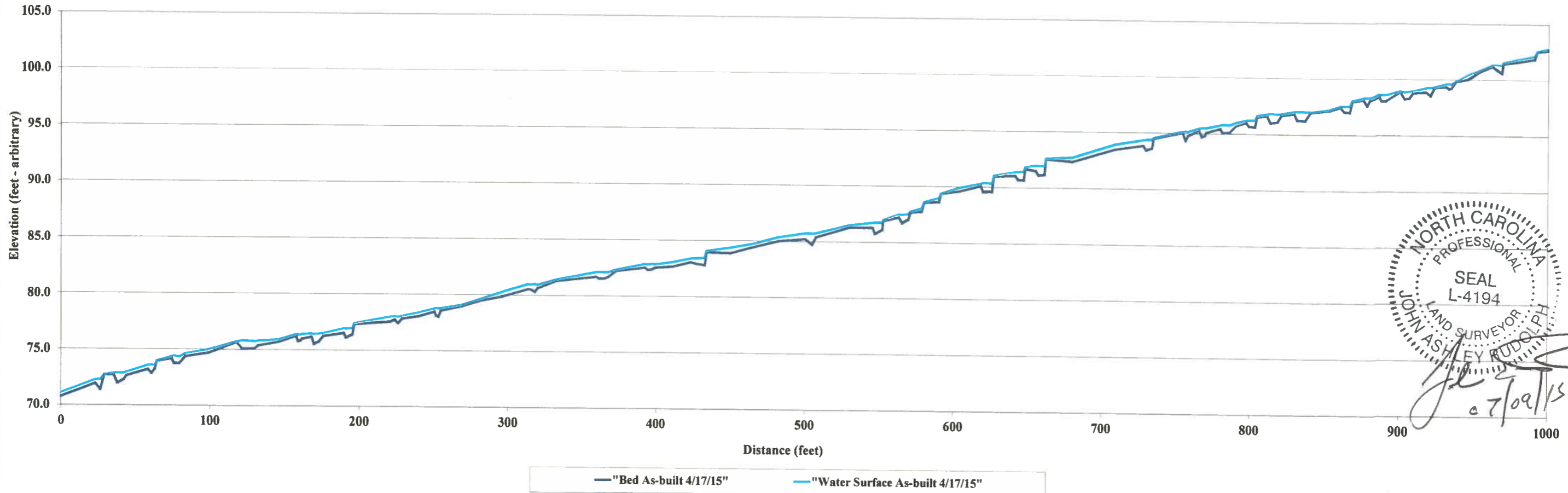


Project Name Lamm - As-built (2015) Profile
Reach UT 3
Feature Profile
Date 4/17/15
Crew Perkinson, Gibbons

2015 As-built Survey			2015 As-built Survey			2015 As-built Survey			2015 As-built Survey			2015 As-built Survey			2015 As-built Survey			2015 As-built Survey											
Station	Bed Elevation	Water Elevation	Station	Bed Elevation	Water Elevation	Station	Bed Elevation	Water Elevation	Station	Bed Elevation	Water Elevation	Station	Bed Elevation	Water Elevation	Station	Bed Elevation	Water Elevation	Station	Bed Elevation	Water Elevation	Station	Bed Elevation	Water Elevation	Station	Bed Elevation	Water Elevation	Station	Bed Elevation	Water Elevation
0.0	70.8	71.1	129.9	75.1	75.7	240.0	78.1	78.4	392.5	82.6	82.9	552.3	86.1	86.7	680.1	92.4	92.7	818.1	96.1	96.8	890.6	98.0	98.6						
23.0	71.9	72.2	132.4	75.4	75.8	250.6	78.5	78.7	394.3	82.4	82.8	552.8	86.9	87.0	708.5	93.5	93.9	820.9	96.7	96.8	900.5	98.9	98.9						
26.4	71.4	72.3	145.6	75.7	75.9	250.9	78.5	78.8	396.9	82.4	82.9	563.4	87.2	87.5	727.7	93.9	94.4	829.4	96.8	97.0	903.5	98.2	98.9						
28.9	72.7	72.7	157.7	76.2	76.4	251.9	78.1	78.8	399.3	82.5	82.9	565.5	86.7	87.5	729.7	93.5	94.4	831.4	96.3	97.0	906.6	98.3	98.9						
35.5	72.7	72.9	159.0	75.8	76.3	253.6	78.0	78.8	410.8	82.7	83.1	569.8	87.1	87.5	733.5	93.6	94.4	836.7	96.2	97.0	909.2	98.8	98.9						
37.9	72.0	72.8	160.6	75.8	76.3	255.4	78.6	78.8	423.3	83.1	83.4	571.2	87.7	87.7	734.6	94.5	94.6	840.5	97.0	97.0	918.1	98.8	99.2						
42.0	72.3	72.8	161.7	76.0	76.4	269.1	79.0	79.1	427.6	82.9	83.4	578.7	87.8	88.0	754.3	95.1	95.1	852.5	97.1	97.2	921.0	98.5	99.2						
43.9	72.6	72.9	168.2	76.2	76.4	281.5	79.5	79.6	432.9	82.8	83.4	580.4	88.6	88.6	756.3	94.4	95.2	860.3	97.4	97.5	923.6	99.2	99.3						
58.4	73.2	73.6	169.6	75.5	76.4	296.1	79.9	80.3	434.1	84.0	84.1	590.6	88.6	89.0	758.0	94.8	95.1	863.1	97.0	97.5	931.2	99.4	99.6						
60.8	72.8	73.6	172.8	75.7	76.4	313.8	80.6	81.0	450.0	83.9	84.4	591.9	89.4	89.4	765.3	95.3	95.4	866.8	97.0	97.5	933.4	99.2	99.6						
63.1	73.3	73.5	175.9	76.2	76.5	315.6	80.5	80.9	465.9	84.5	84.8	604.1	89.6	89.9	767.1	94.7	95.5	868.4	98.0	98.0	934.9	99.2	99.6						
64.4	74.0	74.0	189.7	76.5	76.9	318.3	80.3	81.0	482.1	85.0	85.4	618.6	90.1	90.3	769.3	94.8	95.5	875.8	98.1	98.3	937.8	99.8	99.8						
74.4	74.2	74.3	191.2	76.1	76.9	320.1	80.6	80.9	500.4	85.2	85.7	620.0	89.6	90.4	770.2	95.1	95.5	878.2	97.6	98.3	946.2	100.0	100.5						
76.0	73.7	74.4	195.6	76.4	76.9	332.8	81.3	81.4	502.0	85.0	85.7	626.2	89.6	90.3	779.6	95.5	95.7	880.2	98.1	98.3	953.7	100.7	100.9						
79.7	73.7	74.3	196.7	77.3	77.4	359.6	81.7	82.1	504.9	84.7	85.7	641.7	91.1	91.4	785.9	95.1	95.8	886.5	98.4	98.6	962.4	101.2	101.4						
83.7	74.4	74.6	220.8	77.6	78.0	361.4	81.5	82.1	507.6	85.4	85.7	643.5	90.7	91.4	790.2	95.7	96.0	887.9	98.0	98.6	963.3	100.9	101.4						
98.9	74.7	75.0	224.2	77.7	78.0	365.0	81.5	82.1	530.0	86.3	86.5	647.4	90.7	91.4	797.2	96.0	96.2	892.3	102.6	102.6	965.3	100.9	101.4						
118.0	75.6	75.7	226.3	77.4	78.0	367.7	81.7	82.1	545.7	86.3	86.7	648.4	91.7	91.8	799.0	95.7	96.2	896.8	98.0	98.6	968.9	100.6	101.3						
121.6	75.1	75.8	229.2	77.8	78.1	373.2	82.2	82.3	547.1	85.7	86.7	655.5	91.5	92.0	803.1	95.6	96.2	898.5	98.5	101.6	969.8	101.5	101.6						
												657.4	91.1	91.9	804.3	96.5	96.6	978.5	101.6	101.8	990.7	101.9	102.2						
												661.4	91.2	91.9	811.3	96.6	96.8	992.3	102.6	102.6	992.3	102.6	102.6						
												662.4	92.6	92.6	813.5	96.0	96.8	1010.5	102.8	103.1	993.3	102.6	102.6						

Avg. Water Surface Slope	0.0319	As-built	1011.7	102.5	103.2
Riffle Length	20.7		1014.3	102.3	103.2
Avg. Riffle Slope	0.0313		1015.3	103.4	103.5
Pool Length	7.4				

Lamm (UT3) As-built Profile 2015



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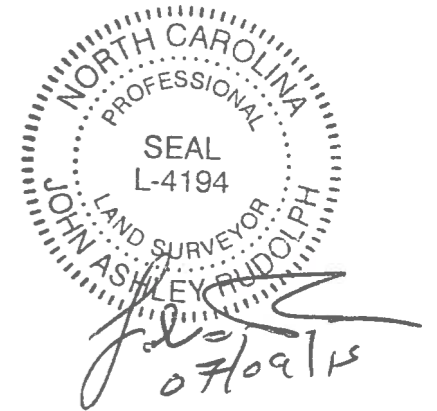
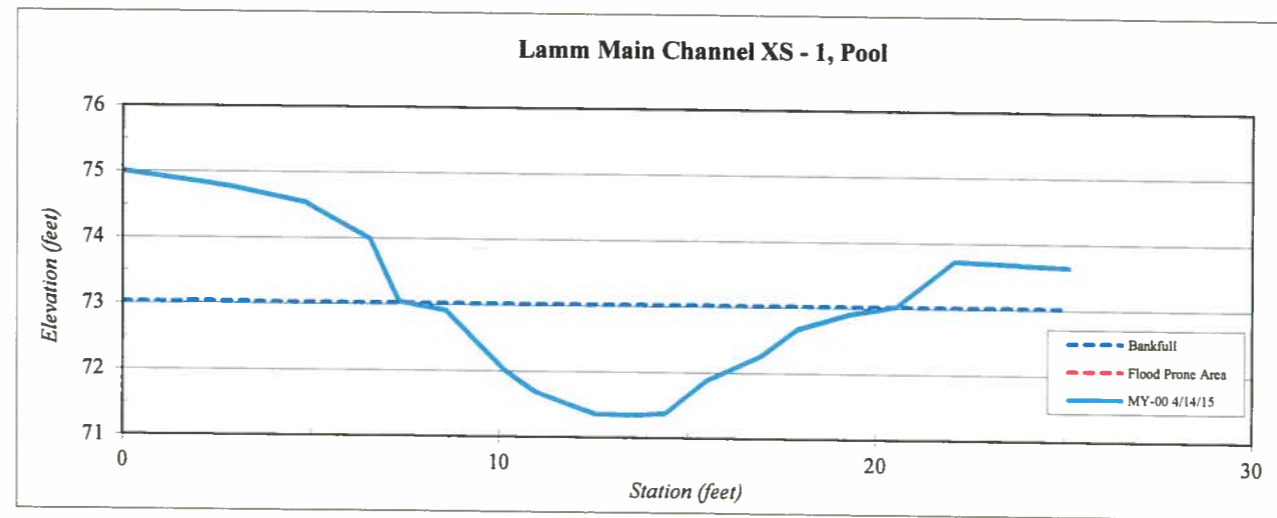
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	Main Channel XS - 1, Pool
Feature	Pool
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons

Station	Elevation
0.0	75.0
2.8	74.8
4.8	74.5
6.6	74.0
7.3	73.0
8.6	72.9
10.1	72.0
11.0	71.7
11.8	71.5
12.5	71.4
13.7	71.3
14.4	71.4
15.5	71.9
17.0	72.3
17.9	72.7
19.3	72.9
20.5	73.0
22.1	73.7
25.1	73.6

SUMMARY DATA	
Bankfull Elevation:	73.0
Bankfull Cross-Sectional Area:	11.2
Bankfull Width:	13.0
Flood Prone Area Elevation:	NA
Flood Prone Width:	NA
Max Depth at Bankfull:	1.7
Mean Depth at Bankfull:	0.9
W / D Ratio:	NA
Entrenchment Ratio:	NA
Bank Height Ratio:	1.0



Stream Type C/E



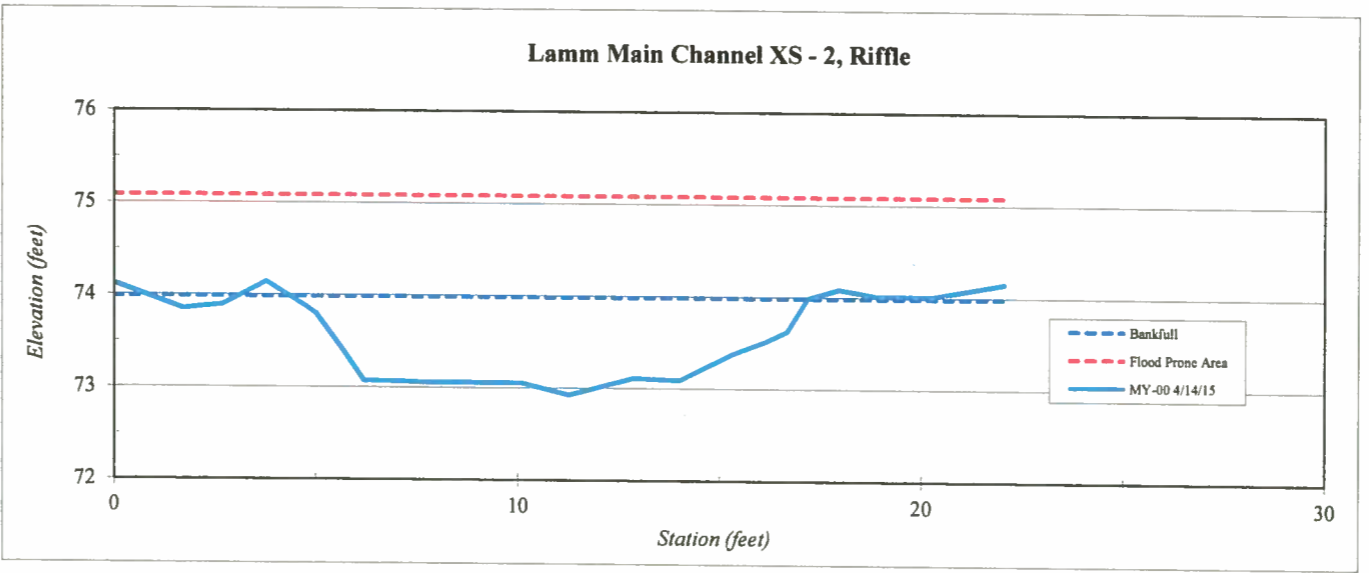
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	Main Channel XS - 2, Riffle
Feature	Riffle
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons

Station	Elevation
0.0	74.12
1.7	73.85
2.7	73.89
3.8	74.14
5.0	73.80
5.7	73.36
6.2	73.07
7.5	73.06
8.9	73.05
10.1	73.05
11.3	72.92
12.9	73.11
14.0	73.09
15.3	73.37
16.2	73.51
16.7	73.62
17.2	73.98
18.0	74.08
18.9	74.01
20.2	74.01
22.0	74.1

SUMMARY DATA	
Bankfull Elevation:	74.0
Bankfull Cross-Sectional Area:	9.7
Bankfull Width:	12.8
Flood Prone Area Elevation:	75.1
Flood Prone Width:	90.0
Max Depth at Bankfull:	1.1
Mean Depth at Bankfull:	0.8
W / D Ratio:	16.9
Entrenchment Ratio:	7.0
Bank Height Ratio:	1.0



Stream Type



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Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	Main Channel XS - 3, Riffle
Feature	Riffle
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons

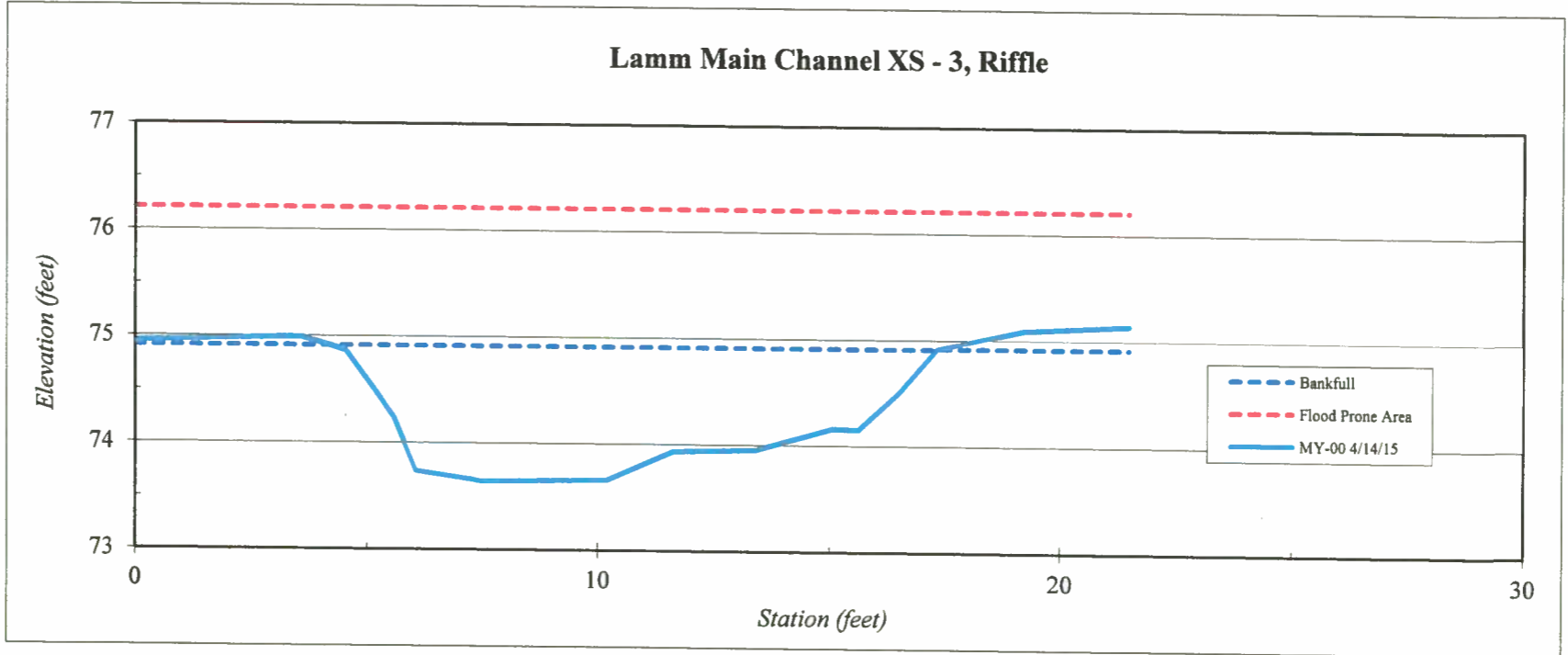


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Station	Elevation
0.0	74.95
2.2	74.98
3.6	74.99
4.5	74.87
5.6	74.24
6.1	73.74
7.5	73.64
10.2	73.66
11.6	73.93
13.4	73.96
15.1	74.16
15.6	74.15
16.5	74.51
17.3	74.91
19.2	75.09
21.5	75.14

SUMMARY DATA	
Bankfull Elevation:	74.9
Bankfull Cross-Sectional Area:	11.8
Bankfull Width:	13.1
Flood Prone Area Elevation:	76.2
Flood Prone Width:	90.0
Max Depth at Bankfull:	1.3
Mean Depth at Bankfull:	0.9
W / D Ratio:	14.5
Entrenchment Ratio:	6.9
Bank Height Ratio:	1.0

Stream Type C/E



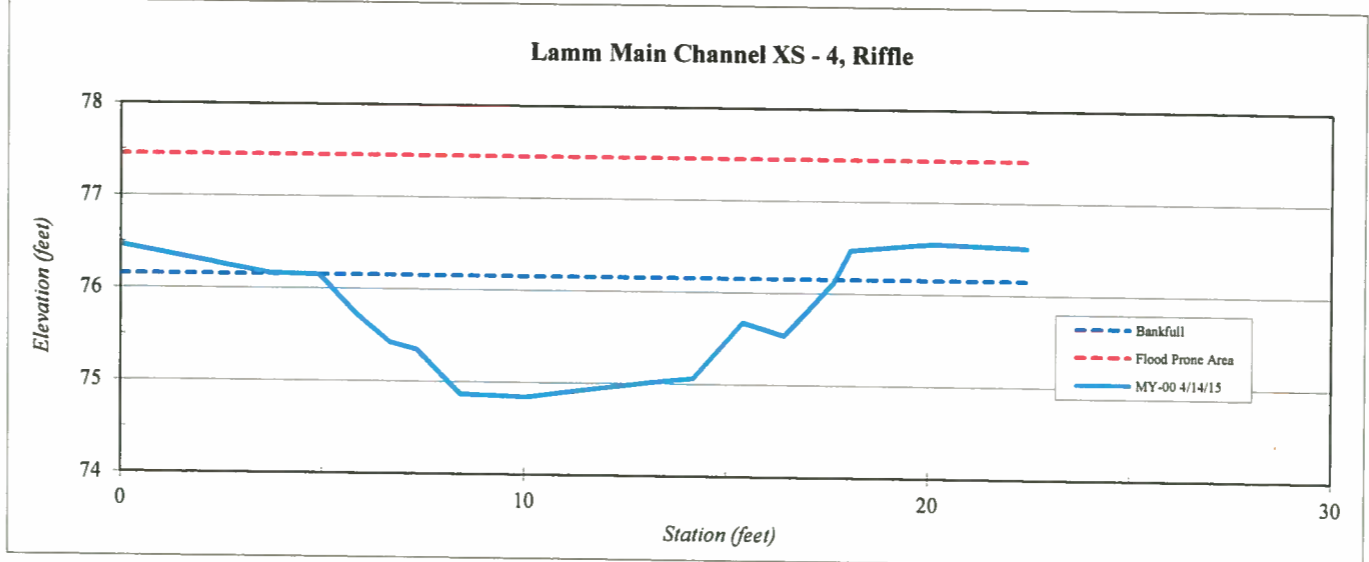
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	Main Channel XS - 4, Riffle
Feature	Riffle
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons



Station	Elevation
0.0	76.47
3.7	76.16
4.9	76.15
5.8	75.74
6.7	75.42
7.4	75.34
8.4	74.86
10.0	74.84
11.5	74.93
13.1	75.01
14.2	75.06
15.4	75.67
16.4	75.54
17.7	76.11
18.1	76.47
20.1	76.55
22.5	76.51

SUMMARY DATA	
Bankfull Elevation:	76.2
Bankfull Cross-Sectional Area:	11.3
Bankfull Width:	13.0
Flood Prone Area Elevation:	77.5
Flood Prone Width:	90.0
Max Depth at Bankfull:	1.3
Mean Depth at Bankfull:	0.9
W / D Ratio:	15.0
Entrenchment Ratio:	6.9
Bank Height Ratio:	1.0

Stream Type: C/E



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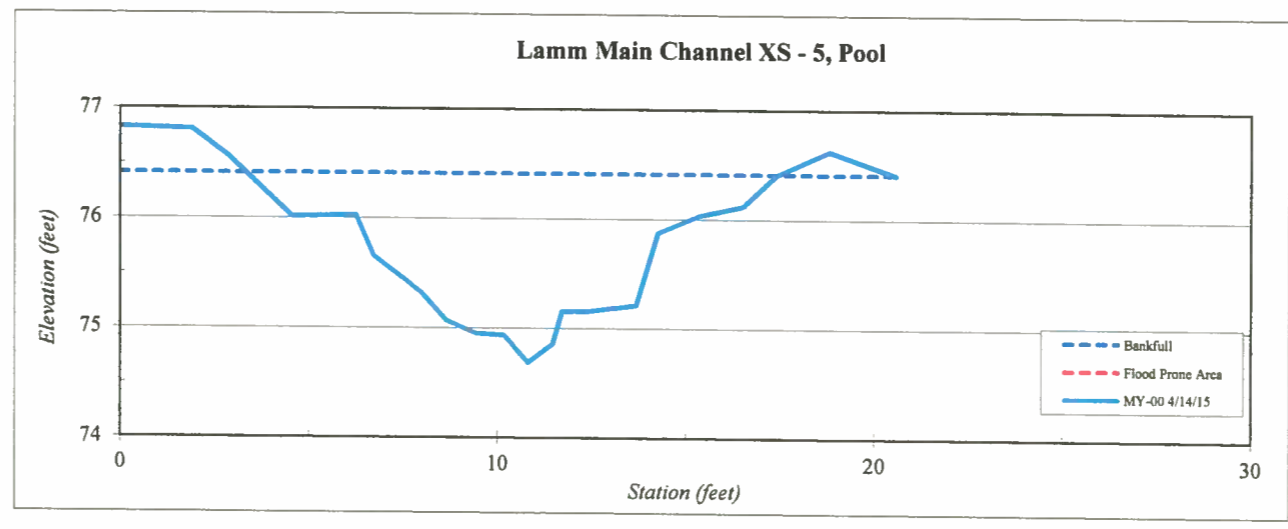
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	Main Channel XS - 5, Pool
Feature	Pool
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons

Station	Elevation
0.0	76.8
1.9	76.8
2.9	76.6
4.5	76.0
6.2	76.0
6.7	75.7
8.0	75.3
8.6	75.1
9.4	74.9
10.2	74.9
10.8	74.7
11.5	74.9
11.7	75.2
12.4	75.2
13.7	75.2
14.3	75.9
15.3	76.0
16.5	76.1
17.4	76.4
18.8	76.6
20.6	76.41

SUMMARY DATA	
Bankfull Elevation:	76.4
Bankfull Cross-Sectional Area:	11.8
Bankfull Width:	14.1
Flood Prone Area Elevation:	NA
Flood Prone Width:	NA
Max Depth at Bankfull:	1.7
Mean Depth at Bankfull:	0.8
W / D Ratio:	NA
Entrenchment Ratio:	NA
Bank Height Ratio:	1.0



Stream Type: C/E



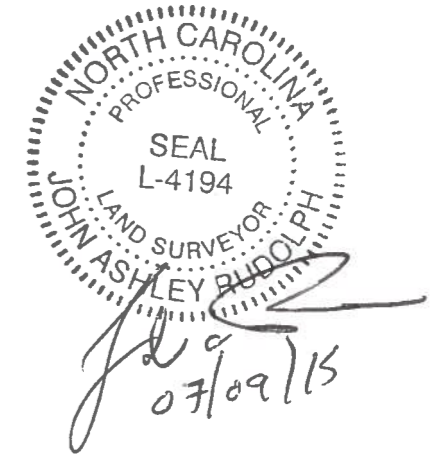
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Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	Main Channel XS - 6, Riffle
Feature	Riffle
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons

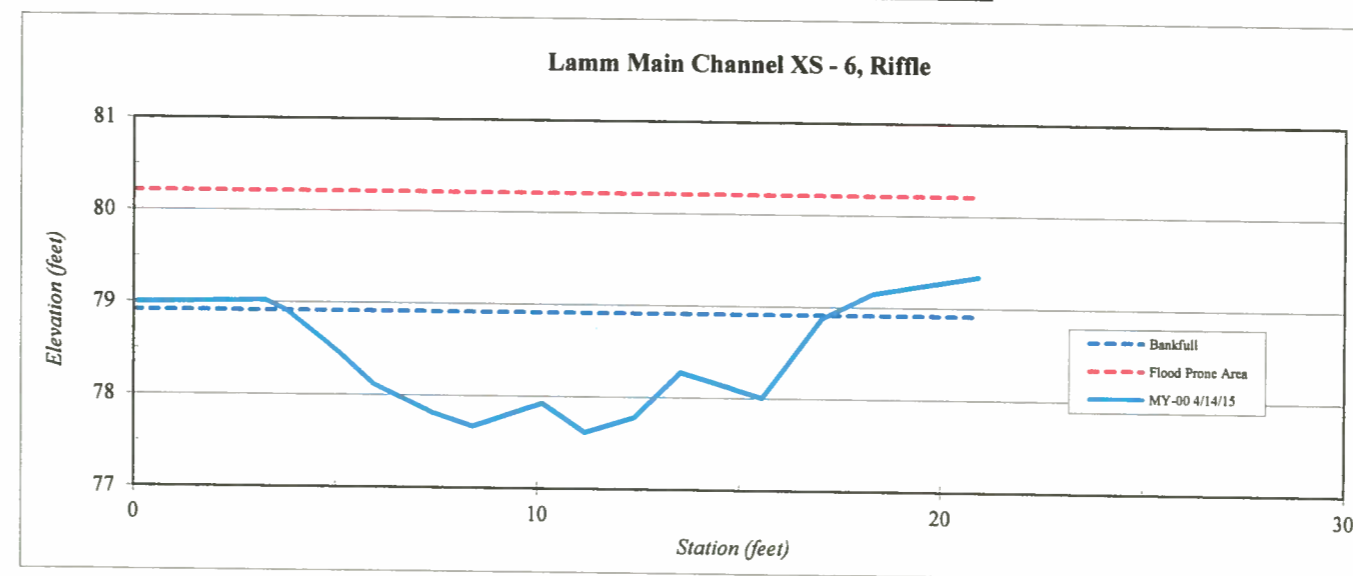


Station	Elevation
0.0	78.99
2.0	79.01
3.2	79.02
3.8	78.91
5.1	78.46
6.0	78.11
7.3	77.82
8.4	77.66
10.1	77.92
11.2	77.61
12.4	77.78
13.5	78.27
15.6	78.01
17.0	78.87
18.3	79.15
20.9	79.34

SUMMARY DATA	
Bankfull Elevation:	78.9
Bankfull Cross-Sectional Area:	11.3
Bankfull Width:	13.4
Flood Prone Area Elevation:	80.2
Flood Prone Width:	90.0
Max Depth at Bankfull:	1.3
Mean Depth at Bankfull:	0.8
W / D Ratio:	15.9
Entrenchment Ratio:	6.7
Bank Height Ratio:	1.0



Stream Type



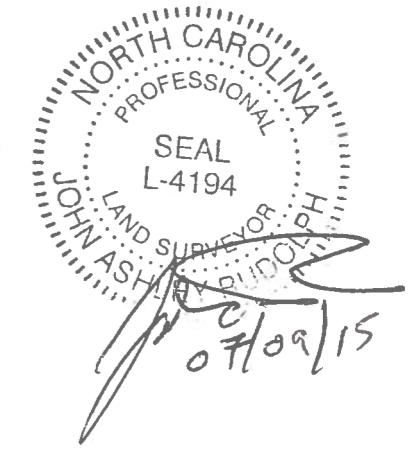
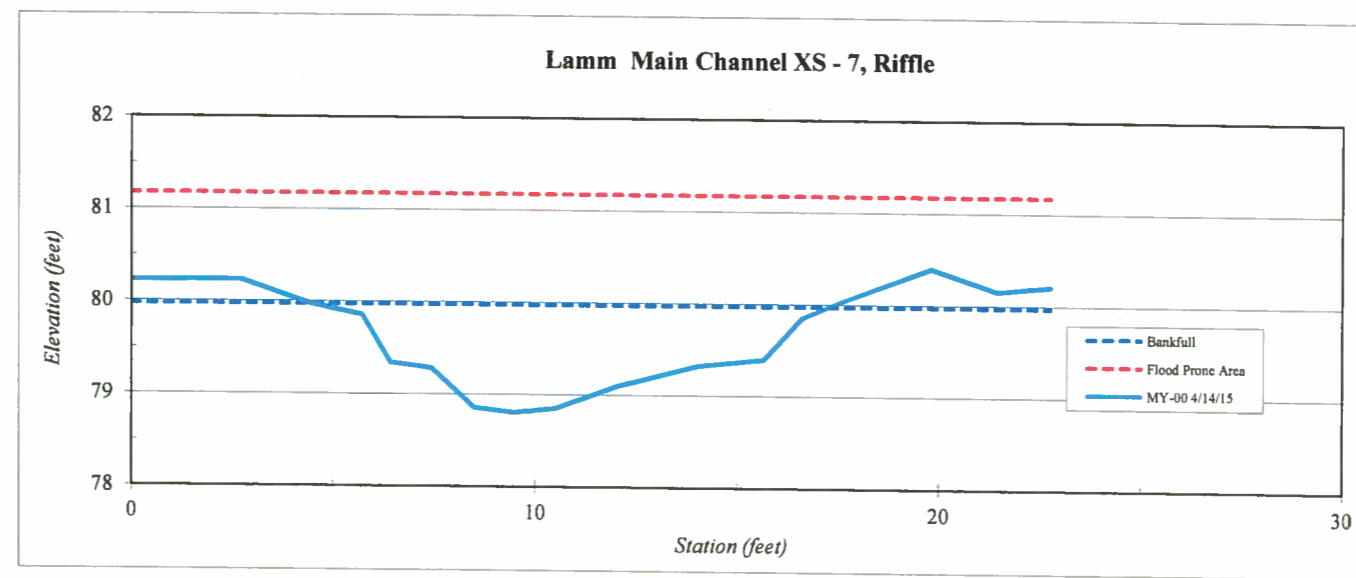
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	Main Channel XS - 7, Riffle
Feature	Riffle
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons

Station	Elevation
0.0	80.22
2.7	80.23
4.4	79.97
5.7	79.86
6.4	79.34
7.4	79.28
8.5	78.86
9.5	78.80
10.5	78.85
12.0	79.09
14.0	79.32
15.7	79.39
16.6	79.85
17.6	80.03
19.8	80.40
21.5	80.15
22.8	80.21

SUMMARY DATA	
Bankfull Elevation:	80.0
Bankfull Cross-Sectional Area:	8.7
Bankfull Width:	12.8
Flood Prone Area Elevation:	81.2
Flood Prone Width:	90.0
Max Depth at Bankfull:	1.2
Mean Depth at Bankfull:	0.7
W / D Ratio:	18.8
Entrenchment Ratio:	7.0
Bank Height Ratio:	1.0



Stream Type: C/E



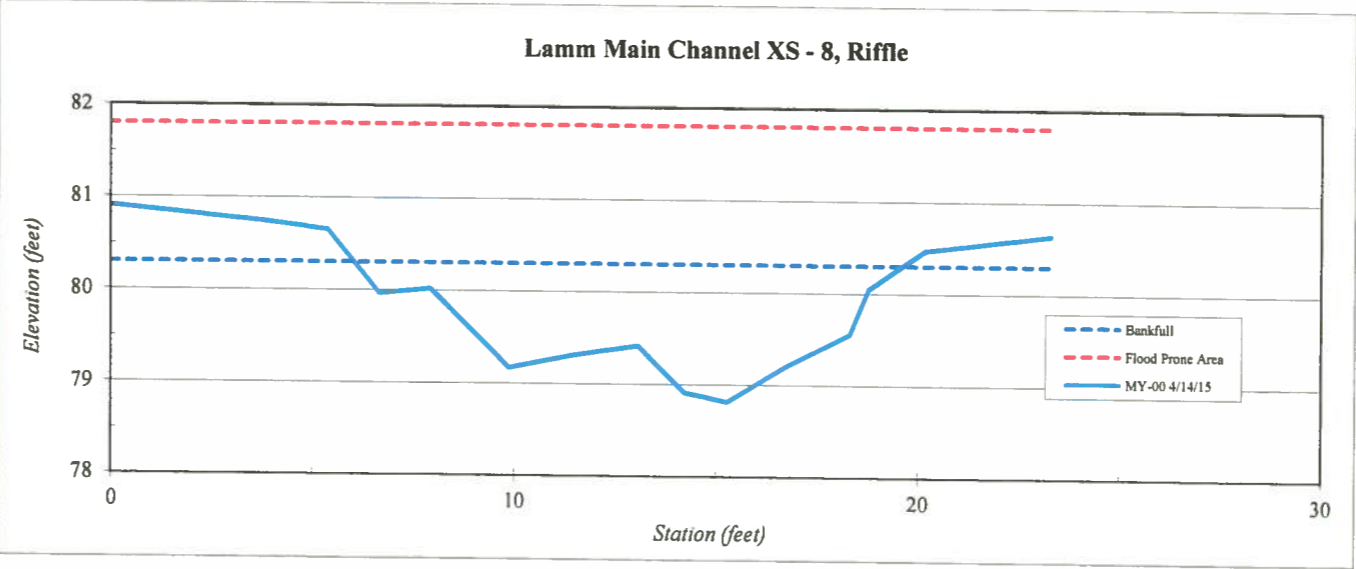
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	Main Channel XS - 8, Riffle
Feature	Riffle
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons

Station	Elevation
0.0	80.91
3.8	80.74
5.4	80.65
6.7	79.96
7.9	80.02
9.9	79.17
11.4	79.31
13.1	79.41
14.2	78.91
15.3	78.81
16.7	79.20
18.3	79.55
18.8	80.05
20.2	80.47
23.3	80.63

SUMMARY DATA	
Bankfull Elevation:	80.3
Bankfull Cross-Sectional Area:	11.6
Bankfull Width:	13.6
Flood Prone Area Elevation:	81.8
Flood Prone Width:	90.0
Max Depth at Bankfull:	1.5
Mean Depth at Bankfull:	0.9
W / D Ratio:	15.9
Entrenchment Ratio:	6.6
Bank Height Ratio:	1.0



Stream Type C/E



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[Signature]
 07/09/15

Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	Main Channel XS - 9, Riffle
Feature	Riffle
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons

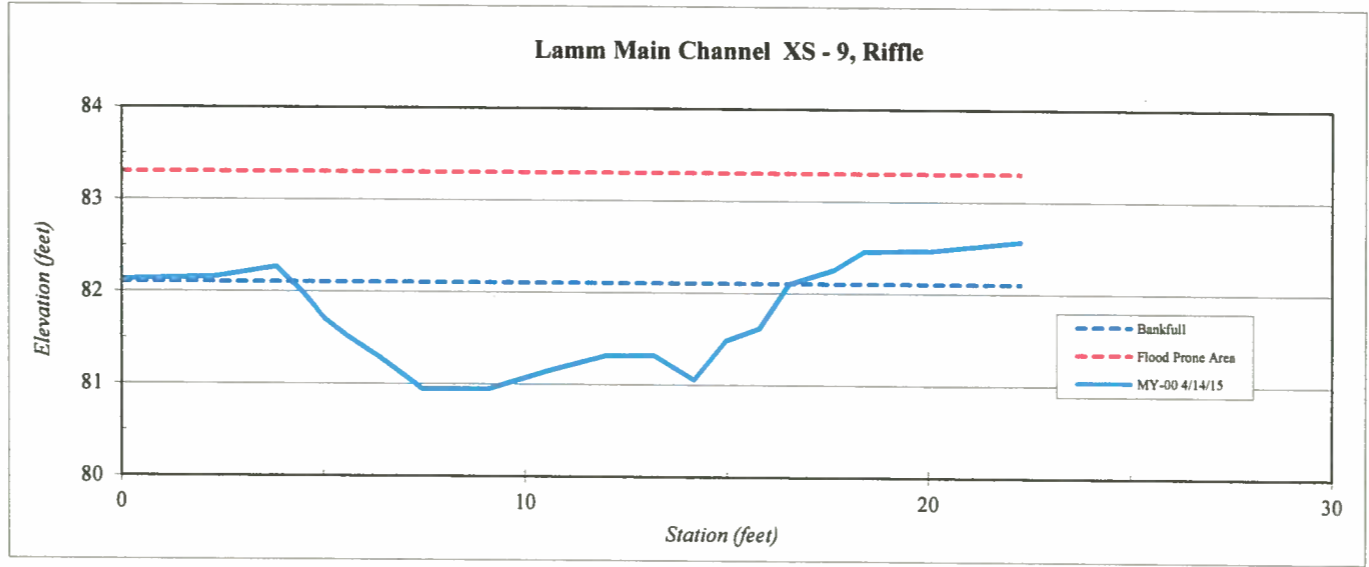
Station	Elevation
0.0	82.13
2.3	82.15
3.8	82.27
4.5	81.99
5.0	81.70
5.6	81.51
6.4	81.29
7.4	80.95
9.1	80.95
10.6	81.15
12.0	81.31
13.2	81.32
14.2	81.05
15.0	81.48
15.8	81.61
16.5	82.10
17.7	82.26
18.4	82.45
20.1	82.47
22.3	82.57

SUMMARY DATA	
Bankfull Elevation:	82.1
Bankfull Cross-Sectional Area:	9.8
Bankfull Width:	12.3
Flood Prone Area Elevation:	83.3
Flood Prone Width:	90.0
Max Depth at Bankfull:	1.2
Mean Depth at Bankfull:	0.8
W / D Ratio:	15.4
Entrenchment Ratio:	7.3
Bank Height Ratio:	1.0



Stream Type | C/E

NORTH CAROLINA
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LAND SURVEYOR
JOHN ASHLEY RUDOLPH
John Ashley Rudolph
07/09/15



Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	Main Channel XS - 10, Riffle
Feature	Riffle
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons



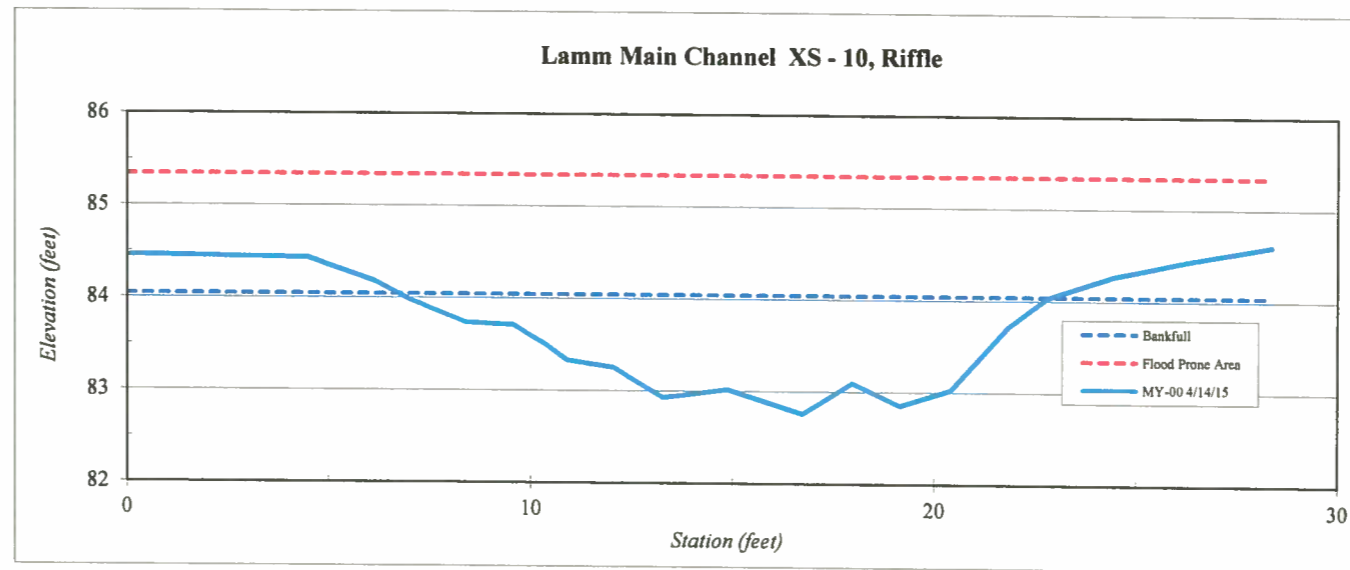
Station	Elevation
0.0	84.46
4.5	84.43
6.1	84.18
7.0	83.97
8.4	83.73
9.6	83.71
10.3	83.50
10.9	83.33
12.0	83.25
13.3	82.93
14.9	83.02
16.7	82.76
18.0	83.09
19.2	82.85
20.4	83.03
21.8	83.71
22.8	84.04
24.4	84.26
26.2	84.43
28.4	84.60

SUMMARY DATA	
Bankfull Elevation:	84.0
Bankfull Cross-Sectional Area:	12.4
Bankfull Width:	16.1
Flood Prone Area Elevation:	85.3
Flood Prone Width:	90.0
Max Depth at Bankfull:	1.3
Mean Depth at Bankfull:	0.8
W / D Ratio:	20.9
Entrenchment Ratio:	5.6
Bank Height Ratio:	1.0

Stream Type	C/E
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Lamm Main Channel XS - 10, Riffle



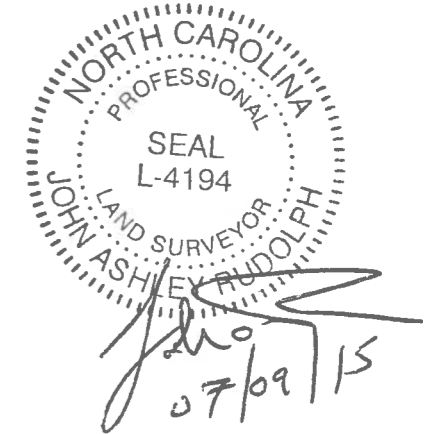
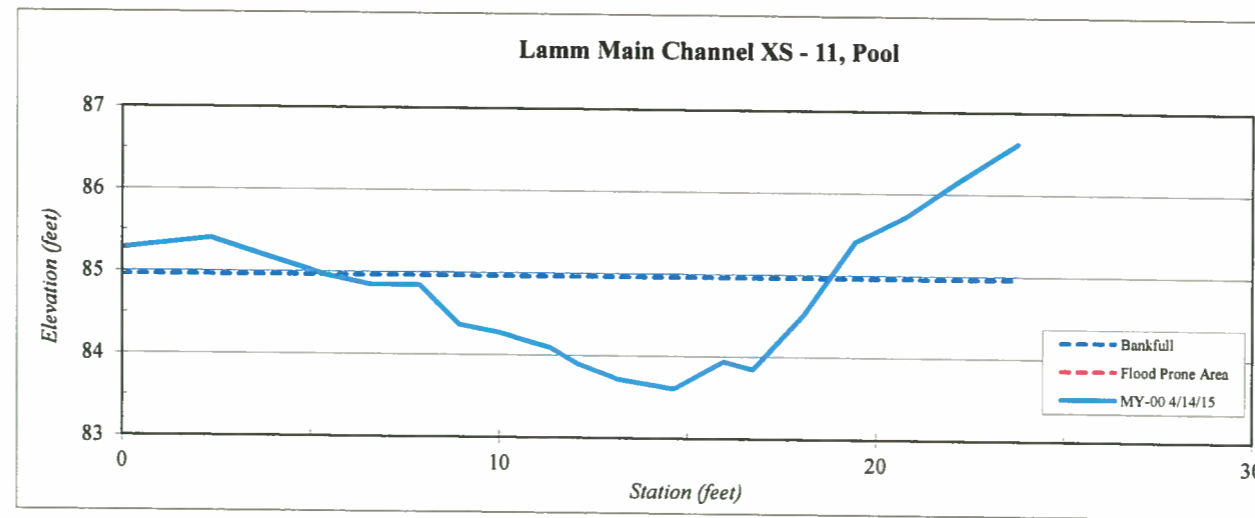
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	Main Channel XS - 11, Pool
Feature	Pool
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons

Station	Elevation
0.0	85.3
2.4	85.4
3.7	85.2
5.4	85.0
6.6	84.8
7.9	84.8
8.9	84.4
10.0	84.3
11.4	84.1
12.1	83.9
13.1	83.7
14.6	83.6
16.0	83.9
16.7	83.8
18.1	84.5
19.4	85.4
20.8	85.7
22.2	86.2
23.8	86.6

SUMMARY DATA	
Bankfull Elevation:	85.0
Bankfull Cross-Sectional Area:	9.8
Bankfull Width:	13.4
Flood Prone Area Elevation:	NA
Flood Prone Width:	NA
Max Depth at Bankfull:	1.4
Mean Depth at Bankfull:	0.7
W / D Ratio:	NA
Entrenchment Ratio:	NA
Bank Height Ratio:	1.0



Stream Type C/E



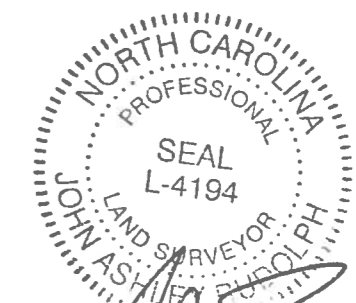
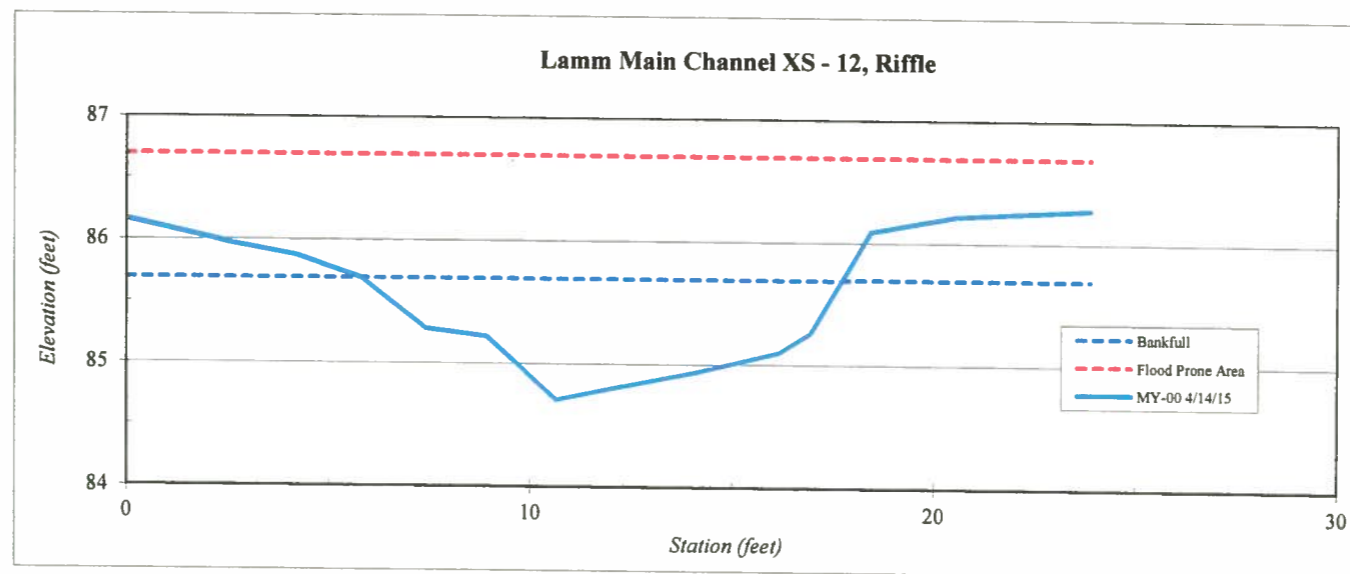
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	Main Channel XS - 12, Riffle
Feature	Riffle
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons



Station	Elevation
0.0	86.16
2.5	85.97
4.2	85.87
5.8	85.69
7.4	85.28
8.9	85.22
10.7	84.71
12.4	84.82
14.1	84.94
16.2	85.10
16.9	85.26
18.4	86.09
20.6	86.22
23.9	86.27

SUMMARY DATA	
Bankfull Elevation:	85.7
Bankfull Cross-Sectional Area:	7.2
Bankfull Width:	11.9
Flood Prone Area Elevation:	86.7
Flood Prone Width:	90.0
Max Depth at Bankfull:	1.0
Mean Depth at Bankfull:	0.6
W / D Ratio:	19.7
Entrenchment Ratio:	7.6
Bank Height Ratio:	1.0

Stream Type:



John Ashley
07/09/15

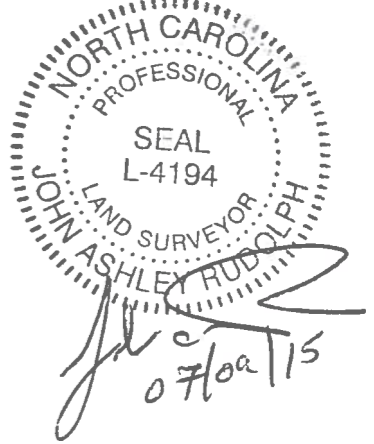
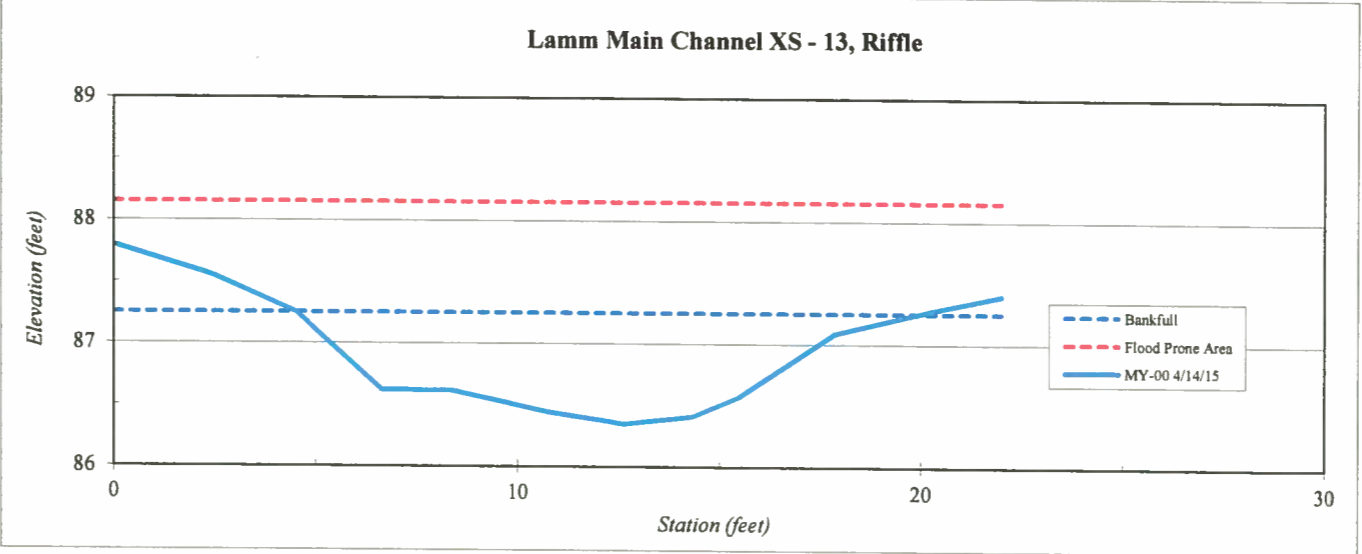
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	Main Channel XS - 13, Riffle
Feature	Riffle
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons

Station	Elevation
0.0	87.80
2.5	87.54
4.5	87.25
6.6	86.62
8.4	86.62
10.8	86.44
12.6	86.35
14.3	86.41
15.5	86.57
17.9	87.09
20.2	87.27
22.0	87.40

SUMMARY DATA	
Bankfull Elevation:	87.3
Bankfull Cross-Sectional Area:	8.6
Bankfull Width:	15.4
Flood Prone Area Elevation:	88.2
Flood Prone Width:	90.0
Max Depth at Bankfull:	0.9
Mean Depth at Bankfull:	0.6
W / D Ratio:	27.6
Entrenchment Ratio:	5.8
Bank Height Ratio:	1.0



Stream Type C



Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	Main Channel XS - 14, Riffle
Feature	Riffle
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons

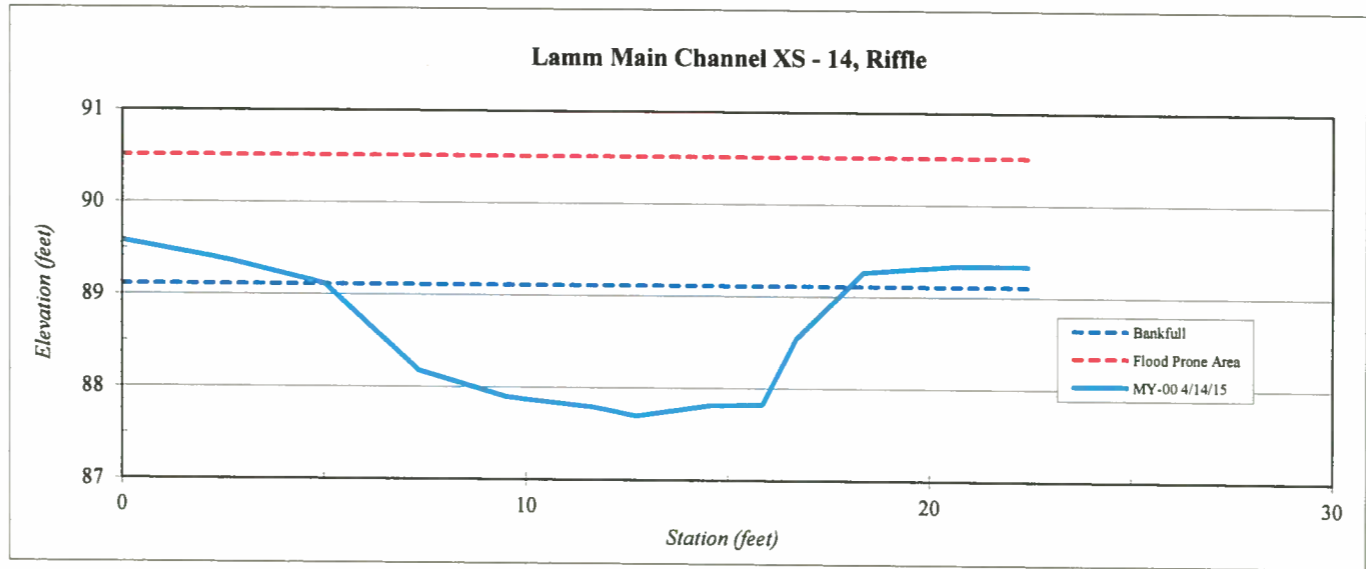
Station	Elevation
0.0	89.58
2.7	89.37
5.0	89.11
7.3	88.18
9.5	87.89
11.6	87.79
12.7	87.69
14.6	87.81
15.9	87.82
16.7	88.54
18.4	89.26
20.6	89.33
22.4	89.33

SUMMARY DATA	
Bankfull Elevation:	89.1
Bankfull Cross-Sectional Area:	12.9
Bankfull Width:	13.0
Flood Prone Area Elevation:	90.5
Flood Prone Width:	90.0
Max Depth at Bankfull:	1.4
Mean Depth at Bankfull:	1.0
W / D Ratio:	13.1
Entrenchment Ratio:	6.9
Bank Height Ratio:	1.0



Stream Type C/E

NORTH CAROLINA
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 L-4194
 LAND SURVEYOR
 JOHN ASHLEY P. ROLPH
John Ashley
 07/09/15



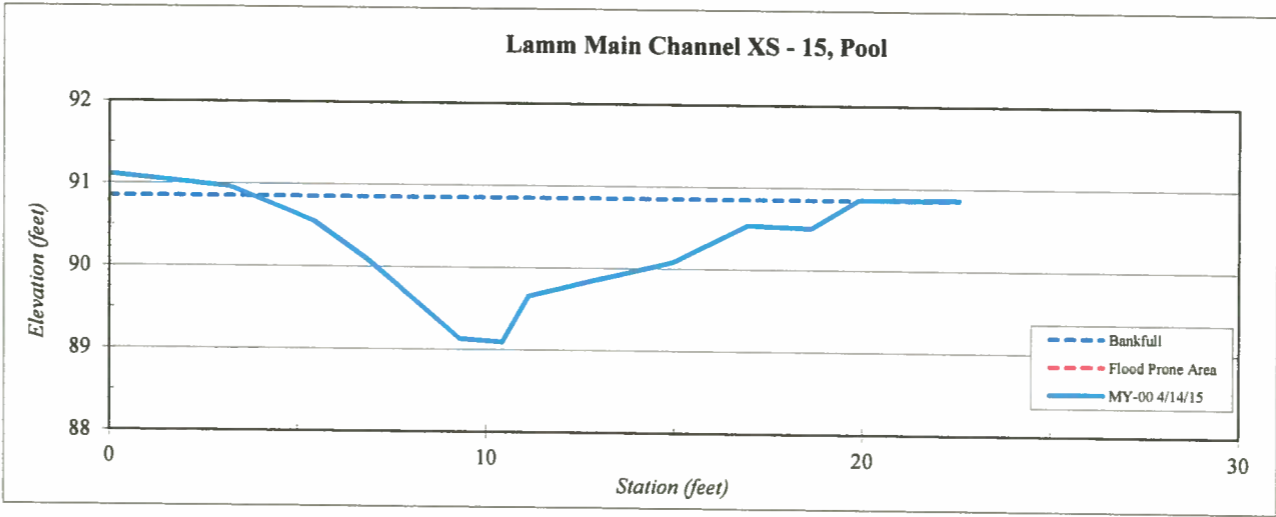
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	Main Channel XS - 15, Pool
Feature	Pool
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons

Station	Elevation
0.0	91.1
3.2	91.0
5.4	90.5
6.8	90.1
8.2	89.6
9.3	89.1
10.4	89.1
11.1	89.7
13.2	89.9
15.0	90.1
17.0	90.5
18.6	90.5
19.9	90.9
22.6	90.9

SUMMARY DATA	
Bankfull Elevation:	90.9
Bankfull Cross-Sectional Area:	12.7
Bankfull Width:	16.1
Flood Prone Area Elevation:	NA
Flood Prone Width:	NA
Max Depth at Bankfull:	1.8
Mean Depth at Bankfull:	0.8
W / D Ratio:	NA
Entrenchment Ratio:	NA
Bank Height Ratio:	1.0



Stream Type C/E



NORTH CAROLINA
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John Ashley Rudolph
07/09/15

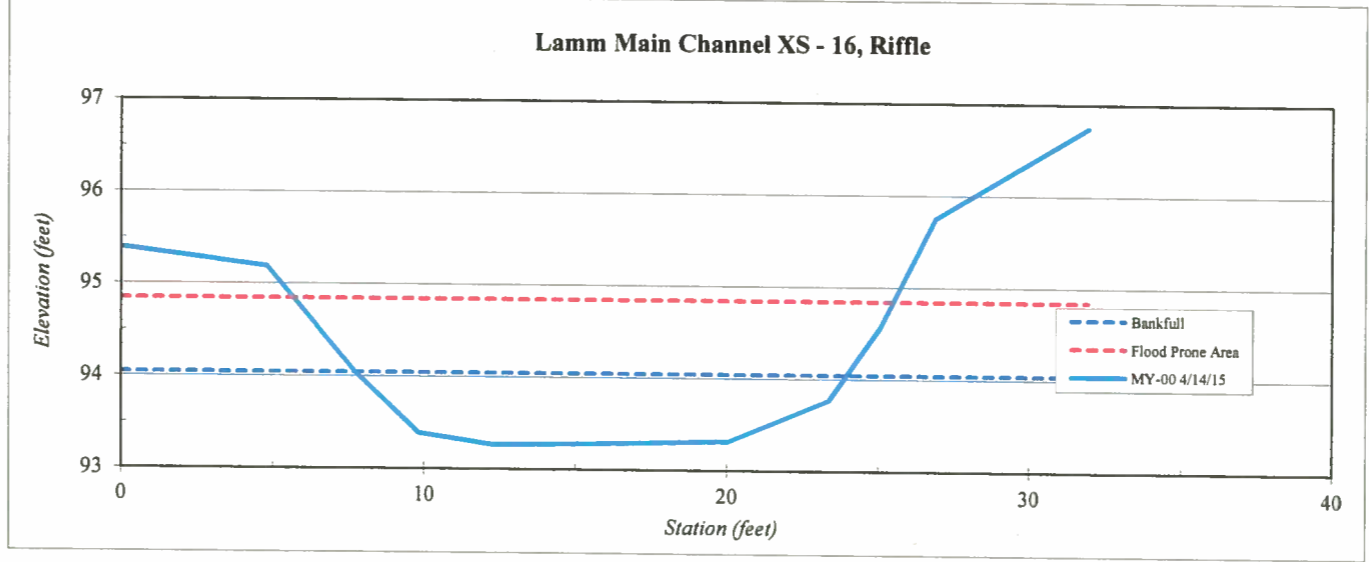
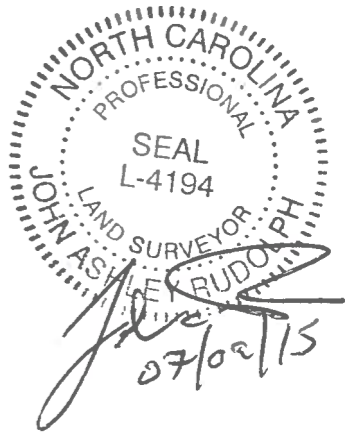
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	Main Channel XS - 16, Riffle
Feature	Riffle
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons



Station	Elevation
0.0	95.39
4.8	95.19
7.7	94.04
9.8	93.39
12.3	93.26
15.7	93.28
20.1	93.31
23.4	93.77
25.1	94.56
26.9	95.75
29.5	96.27
31.9	96.74

SUMMARY DATA	
Bankfull Elevation:	94.0
Bankfull Cross-Sectional Area:	10.1
Bankfull Width:	16.2
Flood Prone Area Elevation:	94.8
Flood Prone Width:	20.0
Max Depth at Bankfull:	0.8
Mean Depth at Bankfull:	0.6
W / D Ratio:	26.0
Entrenchment Ratio:	1.2
Bank Height Ratio:	1.0

Stream Type C



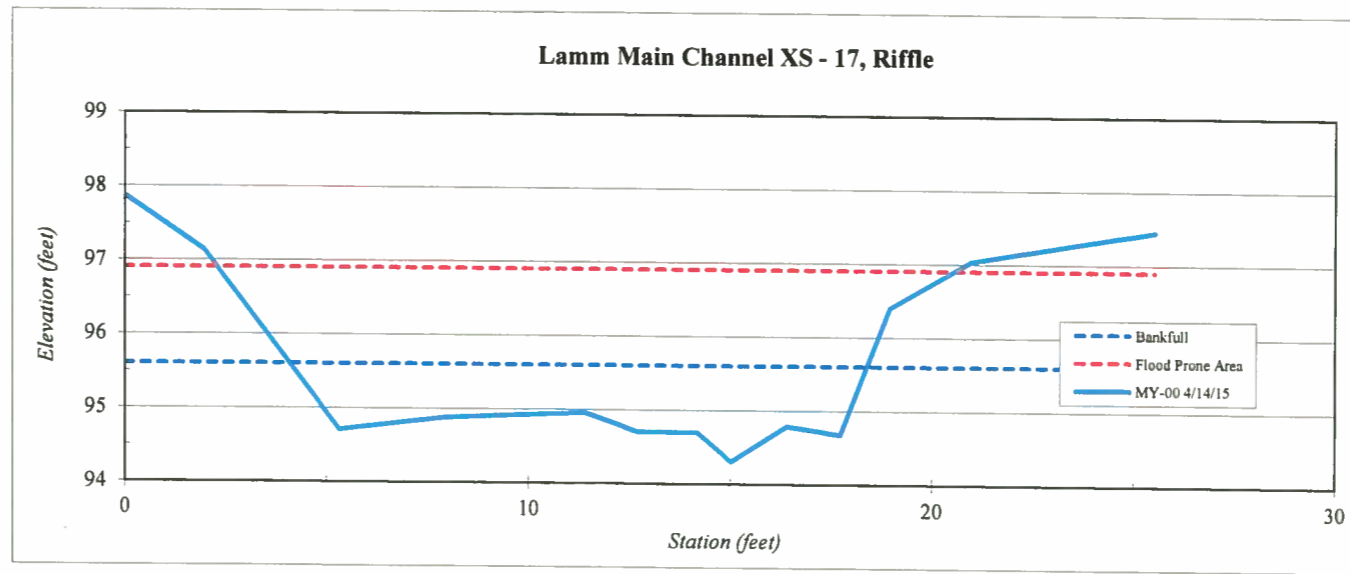
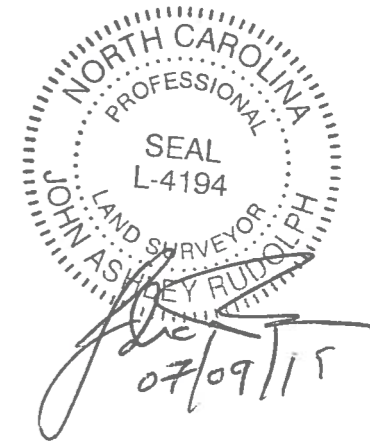
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	Main Channel XS - 17, Riffle
Feature	Riffle
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons

Station	Elevation
0.0	97.87
2.0	97.13
5.3	94.71
7.9	94.88
11.4	94.96
12.7	94.70
14.2	94.70
15.0	94.30
16.4	94.79
17.7	94.67
19.0	96.40
21.0	97.03
23.4	97.25
25.5	97.45

SUMMARY DATA	
Bankfull Elevation:	95.6
Bankfull Cross-Sectional Area:	11.2
Bankfull Width:	14.3
Flood Prone Area Elevation:	96.9
Flood Prone Width:	19.0
Max Depth at Bankfull:	1.3
Mean Depth at Bankfull:	0.8
W / D Ratio:	18.3
Entrenchment Ratio:	1.3
Bank Height Ratio:	1.0



Stream Type C/E



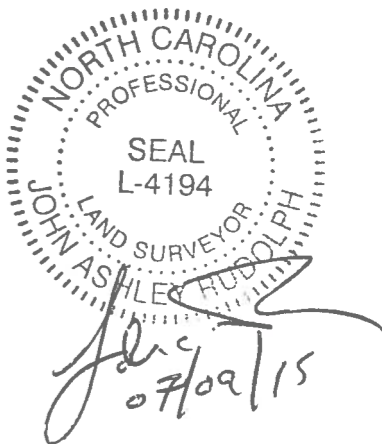
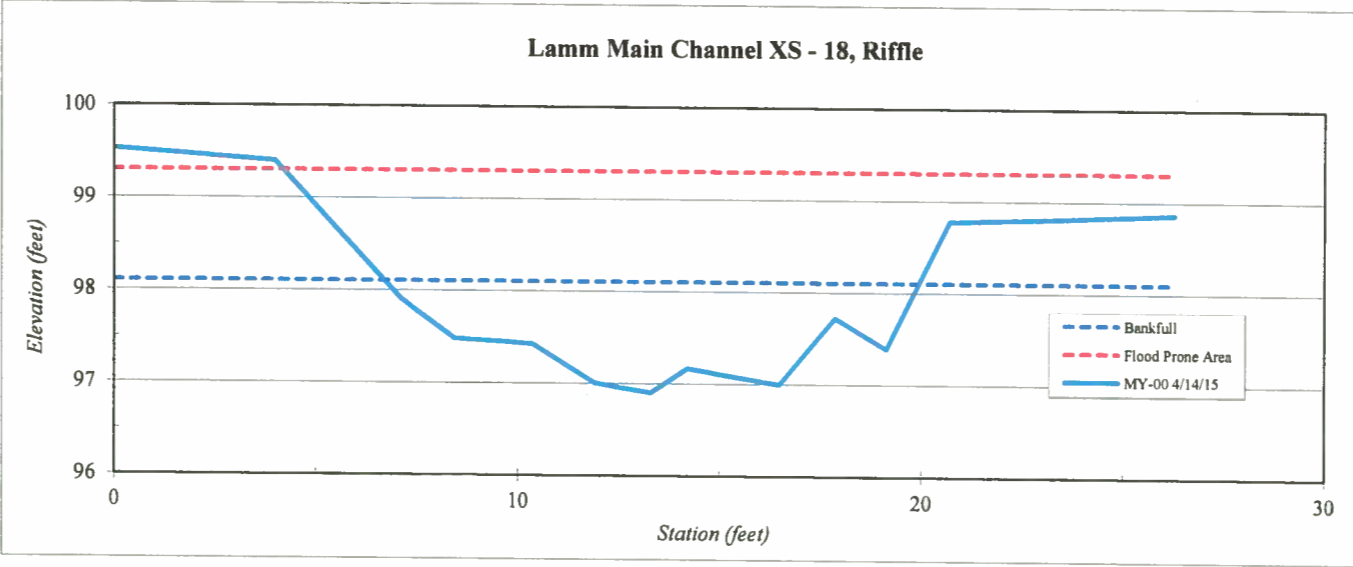
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	Main Channel XS - 18, Riffle
Feature	Riffle
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons

Station	Elevation
0.0	99.53
4.0	99.40
7.1	97.91
8.4	97.48
10.4	97.43
11.9	97.00
13.3	96.90
14.2	97.16
16.5	96.99
17.9	97.72
19.1	97.39
20.7	98.77
23.5	98.81
26.3	98.86

SUMMARY DATA	
Bankfull Elevation:	98.1
Bankfull Cross-Sectional Area:	10.1
Bankfull Width:	13.2
Flood Prone Area Elevation:	99.3
Flood Prone Width:	31.0
Max Depth at Bankfull:	1.2
Mean Depth at Bankfull:	0.8
W / D Ratio:	17.3
Entrenchment Ratio:	2.3
Bank Height Ratio:	1.0



Stream Type: C/E



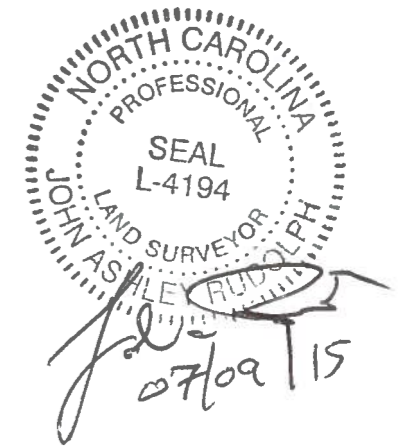
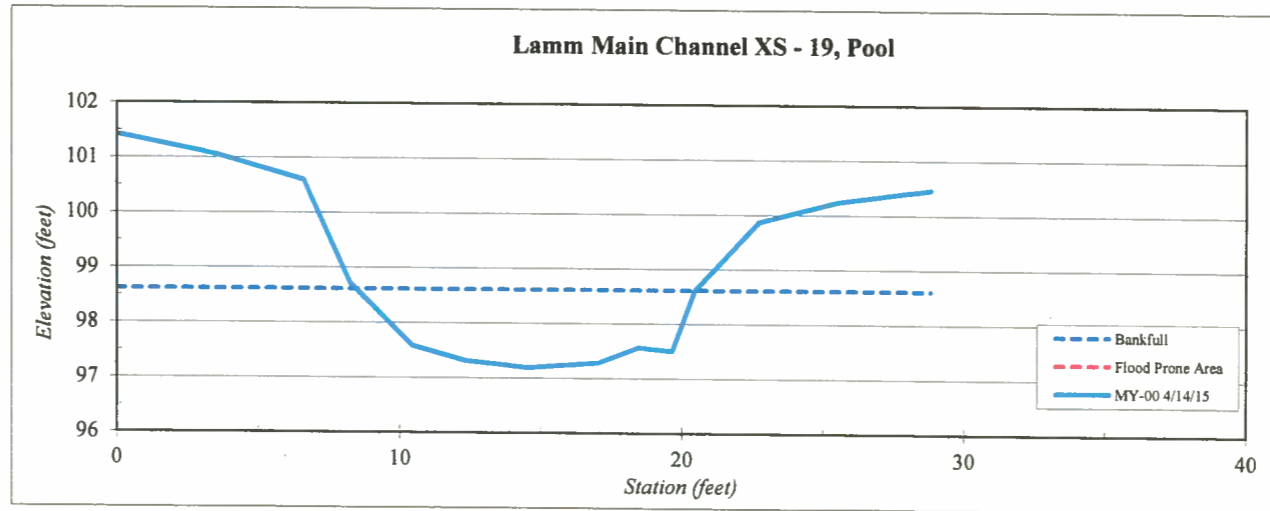
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	Main Channel XS - 19, Pool
Feature	Pool
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons



Station	Elevation
0.0	101.4
3.5	101.1
6.6	100.6
8.3	98.7
10.4	97.6
12.3	97.3
14.6	97.2
17.1	97.3
18.5	97.6
19.7	97.5
20.5	98.6
22.7	99.9
25.5	100.2
28.8	100.5

SUMMARY DATA	
Bankfull Elevation:	98.6
Bankfull Cross-Sectional Area:	13.1
Bankfull Width:	12.0
Flood Prone Area Elevation:	NA
Flood Prone Width:	NA
Max Depth at Bankfull:	1.4
Mean Depth at Bankfull:	1.1
W / D Ratio:	NA
Entrenchment Ratio:	NA
Bank Height Ratio:	1.0

Stream Type C/E



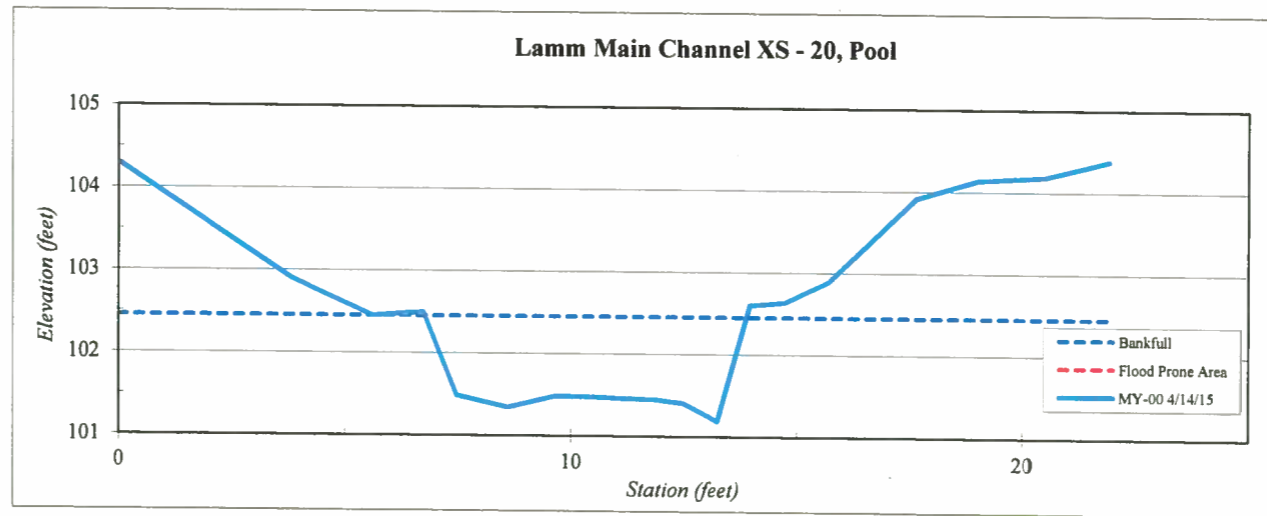
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	Main Channel XS - 20, Pool
Feature	Pool
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons

Station	Elevation
0.0	104.3
3.8	102.9
5.6	102.5
6.7	102.5
7.5	101.5
8.6	101.3
9.7	101.5
10.3	101.5
11.9	101.4
12.5	101.4
13.2	101.2
14.0	102.6
14.7	102.6
15.7	102.9
16.8	103.5
17.6	103.9
19.0	104.1
20.5	104.2
21.9	104.4

SUMMARY DATA	
Bankfull Elevation:	102.5
Bankfull Cross-Sectional Area:	6.7
Bankfull Width:	7.1
Flood Prone Area Elevation:	NA
Flood Prone Width:	NA
Max Depth at Bankfull:	1.3
Mean Depth at Bankfull:	0.9
W / D Ratio:	NA
Entrenchment Ratio:	NA
Bank Height Ratio:	1.0



Stream Type C/E



NORTH CAROLINA
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07/09/15

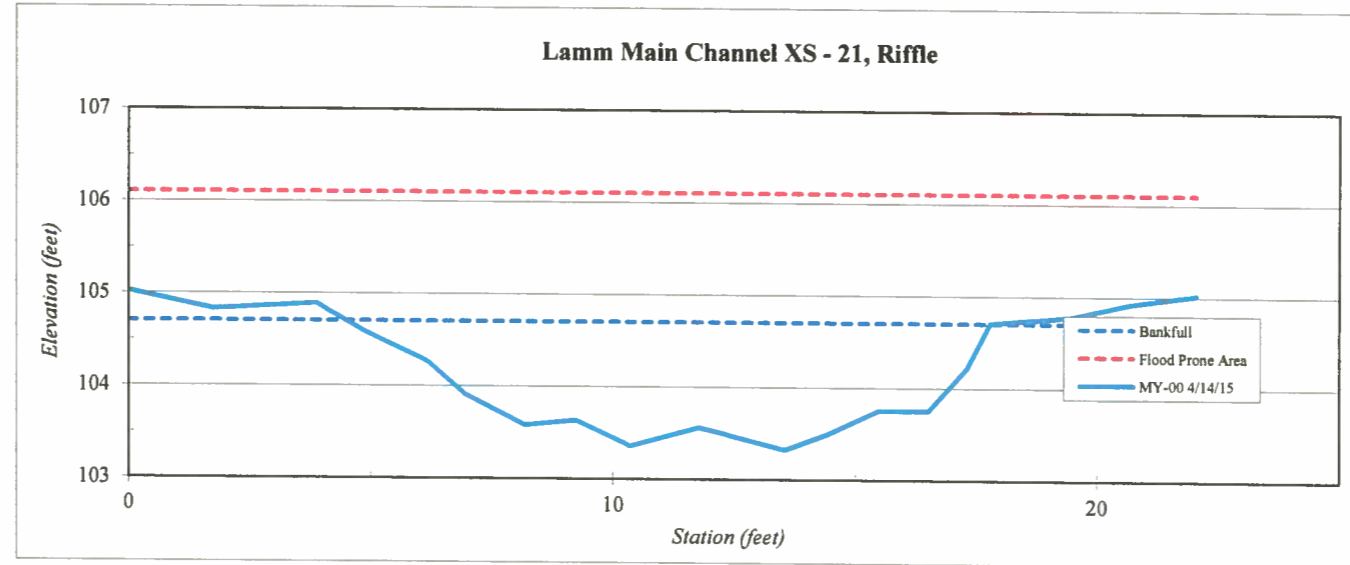
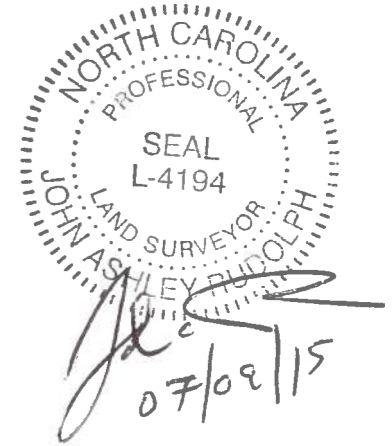
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	Main Channel XS - 21, Riffle
Feature	Riffle
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons



Station	Elevation
0.0	105.02
1.7	104.83
3.9	104.89
4.9	104.58
6.2	104.26
6.9	103.91
8.2	103.58
9.2	103.63
10.4	103.36
11.8	103.56
12.3	103.49
13.5	103.32
14.4	103.49
15.5	103.75
16.5	103.75
17.3	104.21
17.8	104.70
19.5	104.78
20.7	104.92
22.1	105.02

SUMMARY DATA	
Bankfull Elevation:	104.7
Bankfull Cross-Sectional Area:	12.5
Bankfull Width:	13.3
Flood Prone Area Elevation:	106.1
Flood Prone Width:	90.0
Max Depth at Bankfull:	1.4
Mean Depth at Bankfull:	0.9
W / D Ratio:	16.9
Entrenchment Ratio:	7.0
Bank Height Ratio:	1.0

Stream Type C/E



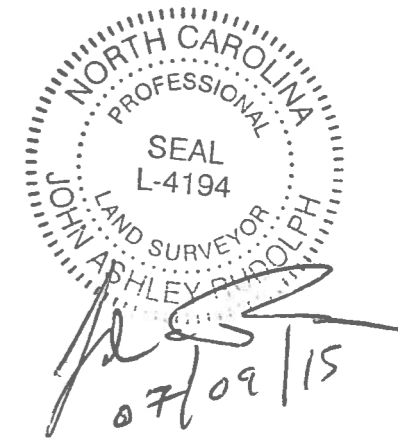
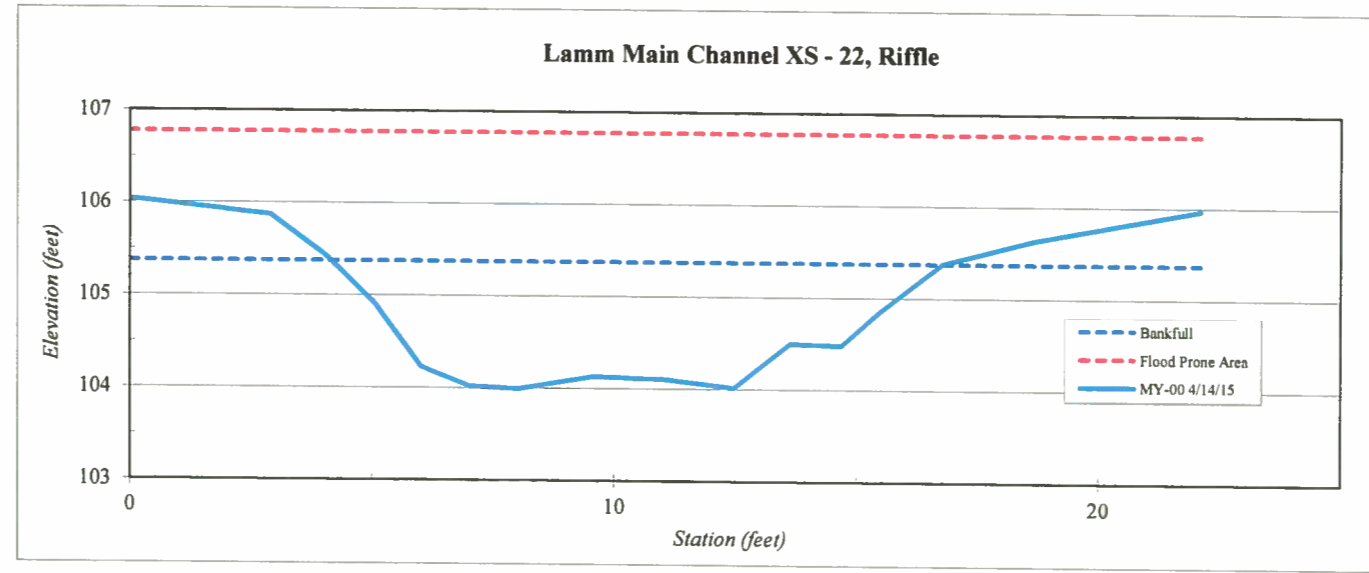
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	Main Channel XS - 22, Riffle
Feature	Riffle
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons



Station	Elevation
0.0	106.03
2.9	105.87
4.1	105.40
5.0	104.91
6.0	104.22
7.0	104.02
8.0	103.99
9.6	104.13
11.0	104.10
12.5	104.01
13.6	104.50
14.7	104.48
15.5	104.86
16.8	105.37
18.7	105.64
22.1	105.96

SUMMARY DATA	
Bankfull Elevation:	105.4
Bankfull Cross-Sectional Area:	12.5
Bankfull Width:	12.6
Flood Prone Area Elevation:	106.8
Flood Prone Width:	90.0
Max Depth at Bankfull:	1.4
Mean Depth at Bankfull:	1.0
W / D Ratio:	12.7
Entrenchment Ratio:	7.1
Bank Height Ratio:	1.0

Stream Type C/E



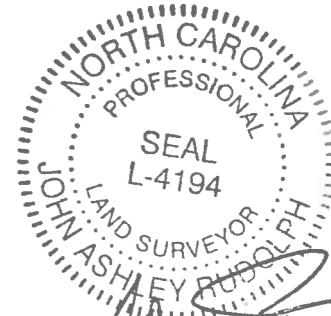
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	Main Channel XS - 23, Riffle
Feature	Riffle
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons



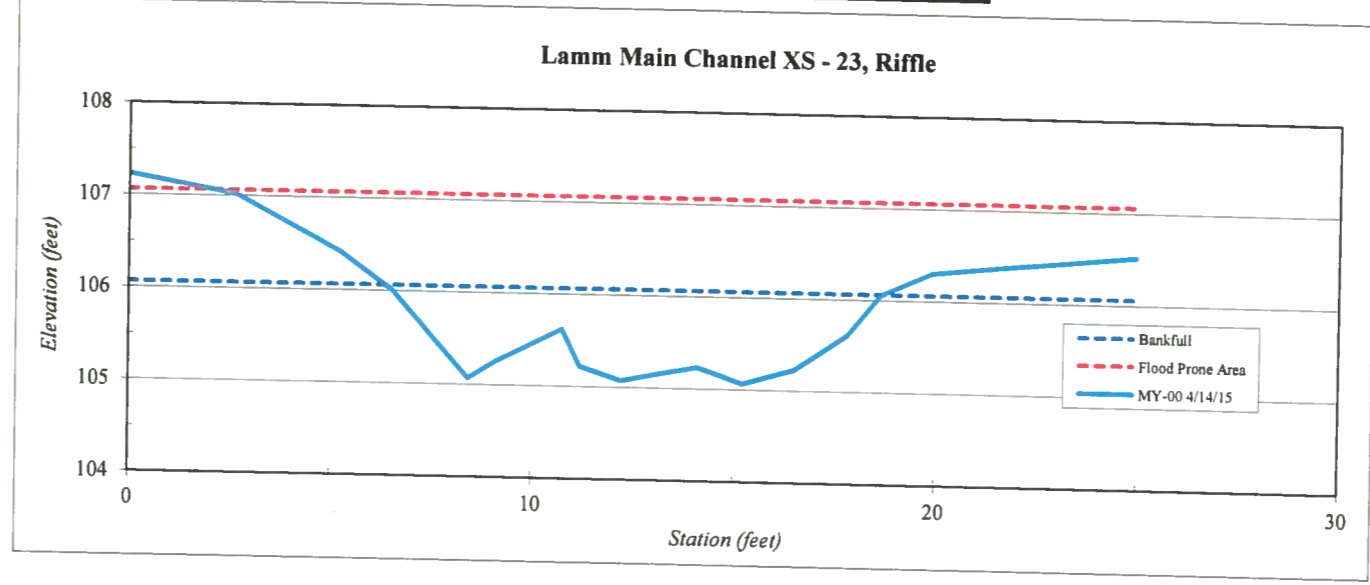
Station	Elevation
0.0	107.23
2.6	107.02
5.2	106.41
6.5	106.01
8.4	105.07
9.1	105.26
10.7	105.62
11.2	105.22
12.2	105.07
13.2	105.16
14.1	105.23
15.2	105.06
16.5	105.22
17.8	105.61
18.6	106.06
19.9	106.30
21.6	106.37
25.0	106.52

SUMMARY DATA	
Bankfull Elevation:	106.1
Bankfull Cross-Sectional Area:	8.8
Bankfull Width:	12.3
Flood Prone Area Elevation:	107.1
Flood Prone Width:	90.0
Max Depth at Bankfull:	1.0
Mean Depth at Bankfull:	0.7
W / D Ratio:	17.2
Entrenchment Ratio:	7.3
Bank Height Ratio:	1.0

Stream Type C/E



John Ashley Rudolph
07/09/15



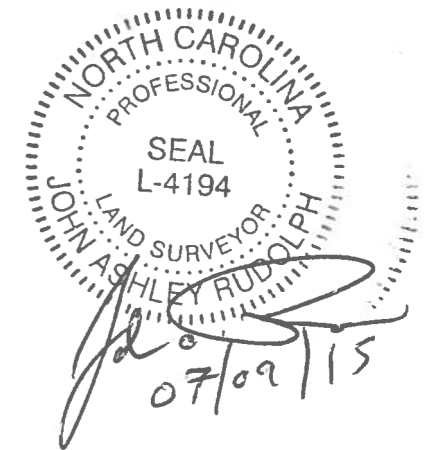
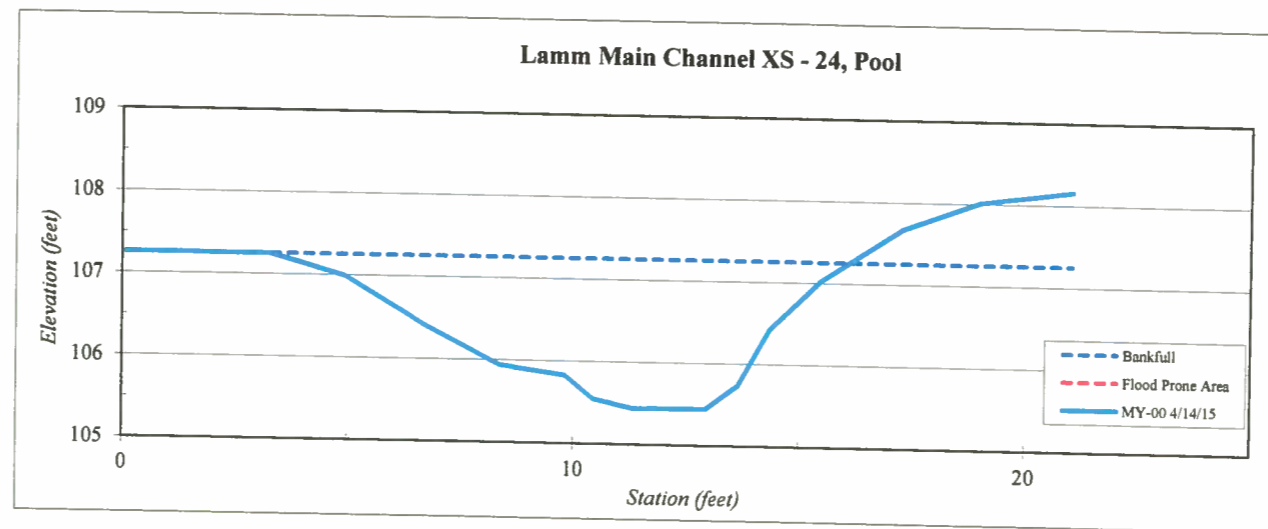
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	Main Channel XS - 24, Pool
Feature	Pool
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons

Station	Elevation
0.0	107.3
3.3	107.2
4.9	107.0
6.7	106.4
8.4	105.9
9.8	105.8
10.4	105.5
11.4	105.4
12.0	105.4
12.9	105.4
13.7	105.7
14.4	106.4
15.5	107.0
17.3	107.7
19.0	108.0
21.0	108.2

SUMMARY DATA	
Bankfull Elevation:	107.3
Bankfull Cross-Sectional Area:	13.1
Bankfull Width:	12.8
Flood Prone Area Elevation:	NA
Flood Prone Width:	NA
Max Depth at Bankfull:	1.8
Mean Depth at Bankfull:	1.0
W / D Ratio:	NA
Entrenchment Ratio:	NA
Bank Height Ratio:	1.0



Stream Type



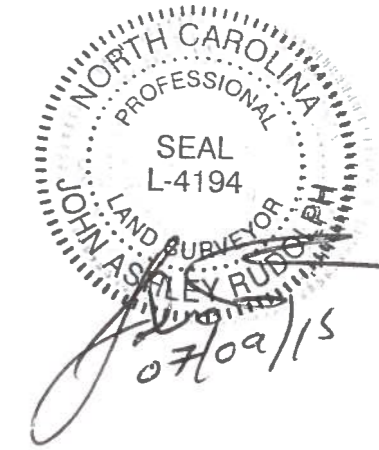
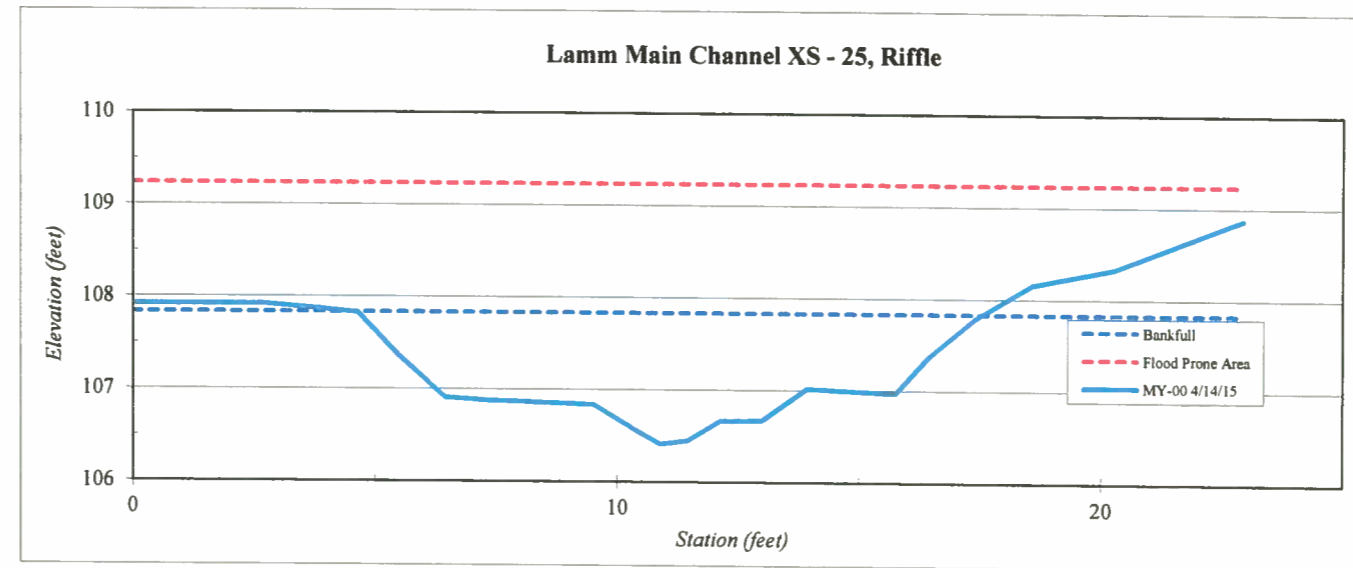
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	Main Channel XS - 25, Riffle
Feature	Riffle
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons

Station	Elevation
0.0	107.91
2.8	107.91
4.6	107.83
5.5	107.36
6.5	106.91
7.3	106.87
7.9	106.86
9.5	106.83
10.1	106.64
10.9	106.41
11.5	106.45
12.1	106.66
13.0	106.67
13.9	107.01
15.8	106.97
16.4	107.37
17.4	107.79
18.6	108.15
20.3	108.33
22.9	108.87

SUMMARY DATA	
Bankfull Elevation:	107.8
Bankfull Cross-Sectional Area:	11.3
Bankfull Width:	13.0
Flood Prone Area Elevation:	109.2
Flood Prone Width:	90.0
Max Depth at Bankfull:	1.4
Mean Depth at Bankfull:	0.9
W / D Ratio:	15.0
Entrenchment Ratio:	6.9
Bank Height Ratio:	1.0



Stream Type C/E



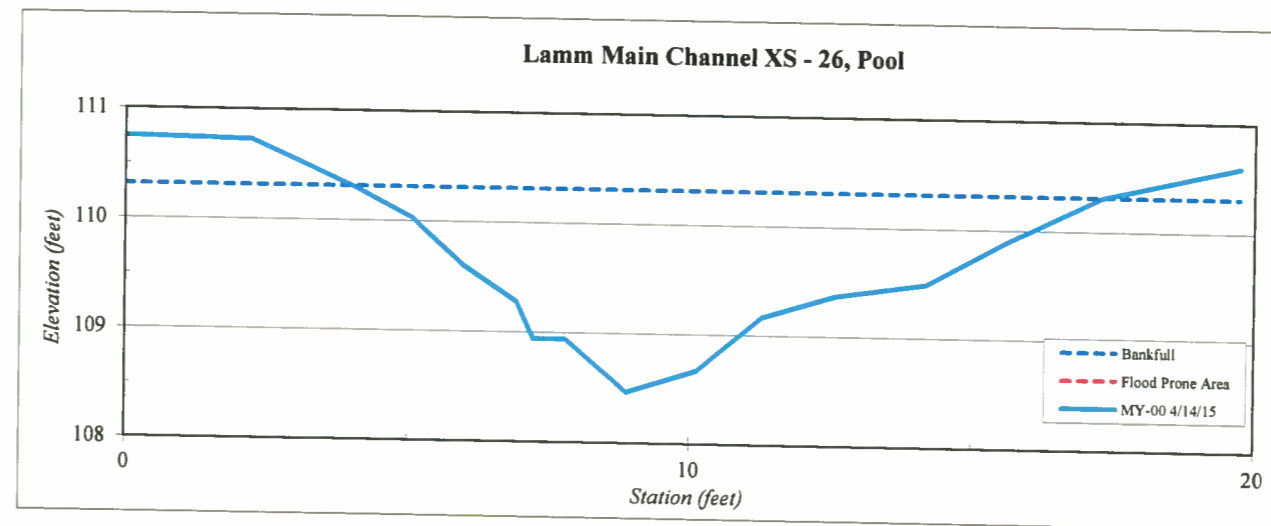
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	Main Channel XS - 26, Pool
Feature	Pool
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons



Stream Type: C/E

Station	Elevation
0.0	110.7
2.2	110.7
4.1	110.3
5.1	110.0
6.0	109.6
6.9	109.3
7.2	108.9
7.8	108.9
8.9	108.5
10.1	108.7
11.3	109.2
12.6	109.4
14.2	109.5
15.6	109.9
17.3	110.3
19.7	110.6

SUMMARY DATA	
Bankfull Elevation:	110.3
Bankfull Cross-Sectional Area:	12.1
Bankfull Width:	13.3
Flood Prone Area Elevation:	NA
Flood Prone Width:	NA
Max Depth at Bankfull:	1.8
Mean Depth at Bankfull:	0.9
W / D Ratio:	NA
Entrenchment Ratio:	NA
Bank Height Ratio:	1.0



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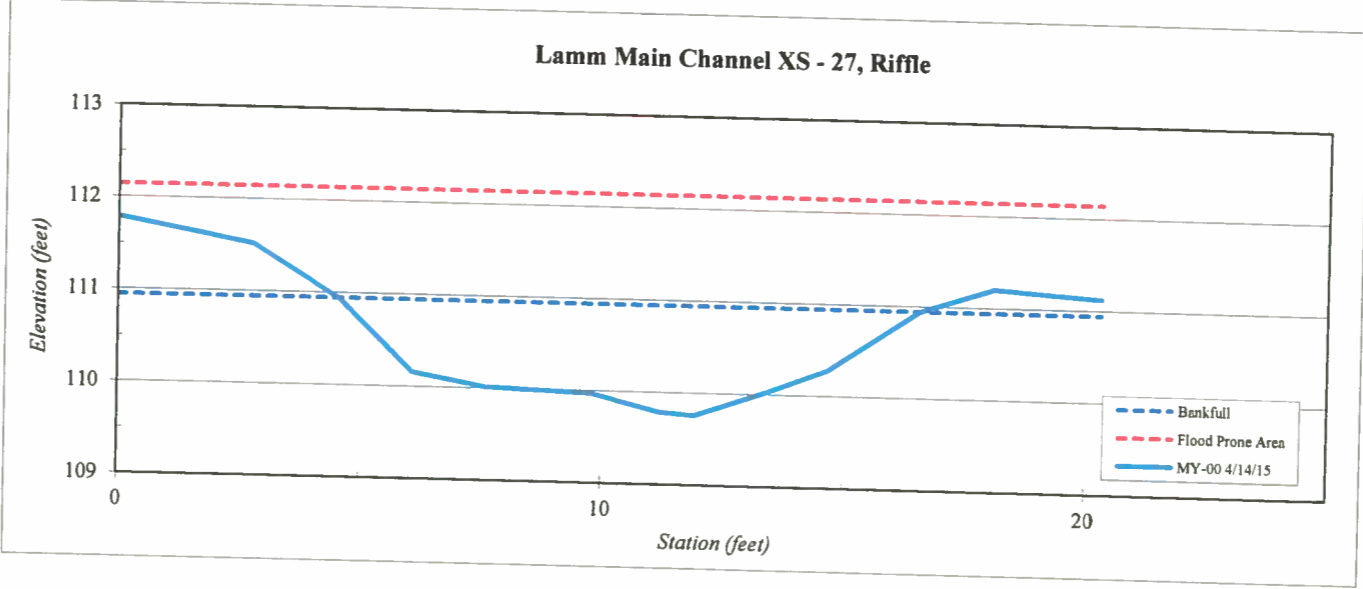
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	Main Channel XS - 27, Riffle
Feature	Riffle
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons

Station	Elevation
0.0	111.78
2.8	111.51
4.6	110.94
6.1	110.16
7.6	110.01
9.8	109.97
11.2	109.78
11.9	109.75
13.5	110.03
14.7	110.27
16.6	110.94
18.1	111.20
20.3	111.12

SUMMARY DATA	
Bankfull Elevation:	110.9
Bankfull Cross-Sectional Area:	9.5
Bankfull Width:	12.0
Flood Prone Area Elevation:	112.1
Flood Prone Width:	90.0
Max Depth at Bankfull:	1.2
Mean Depth at Bankfull:	0.8
W / D Ratio:	15.2
Entrenchment Ratio:	7.5
Bank Height Ratio:	1.0



Stream Type C/E



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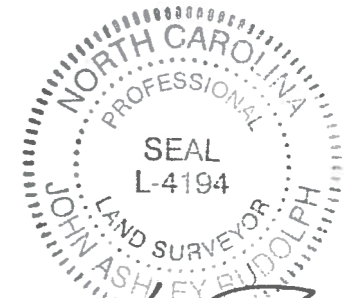
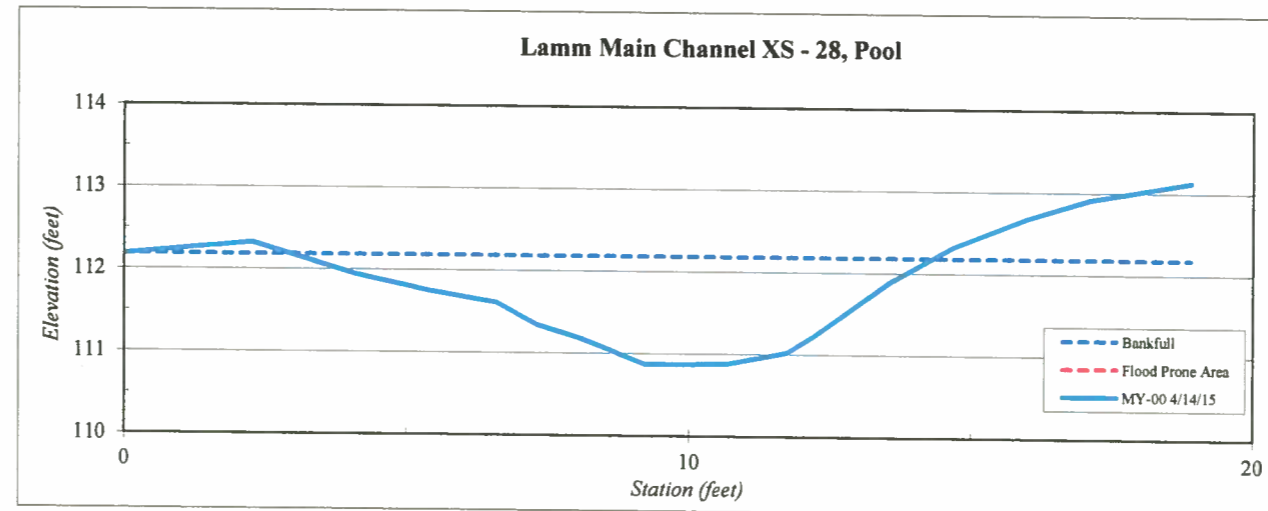
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	Main Channel XS - 28, Pool
Feature	Pool
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons

Station	Elevation
0.0	112.2
2.3	112.3
4.1	111.9
5.4	111.7
6.6	111.6
7.3	111.3
8.1	111.2
9.2	110.9
9.9	110.9
10.7	110.9
11.7	111.0
12.2	111.2
13.6	111.9
14.7	112.3
16.0	112.7
17.1	112.9
18.9	113.1

SUMMARY DATA	
Bankfull Elevation:	112.2
Bankfull Cross-Sectional Area:	8.4
Bankfull Width:	11.4
Flood Prone Area Elevation:	NA
Flood Prone Width:	NA
Max Depth at Bankfull:	1.3
Mean Depth at Bankfull:	0.7
W / D Ratio:	NA
Entrenchment Ratio:	NA
Bank Height Ratio:	1.0



Stream Type



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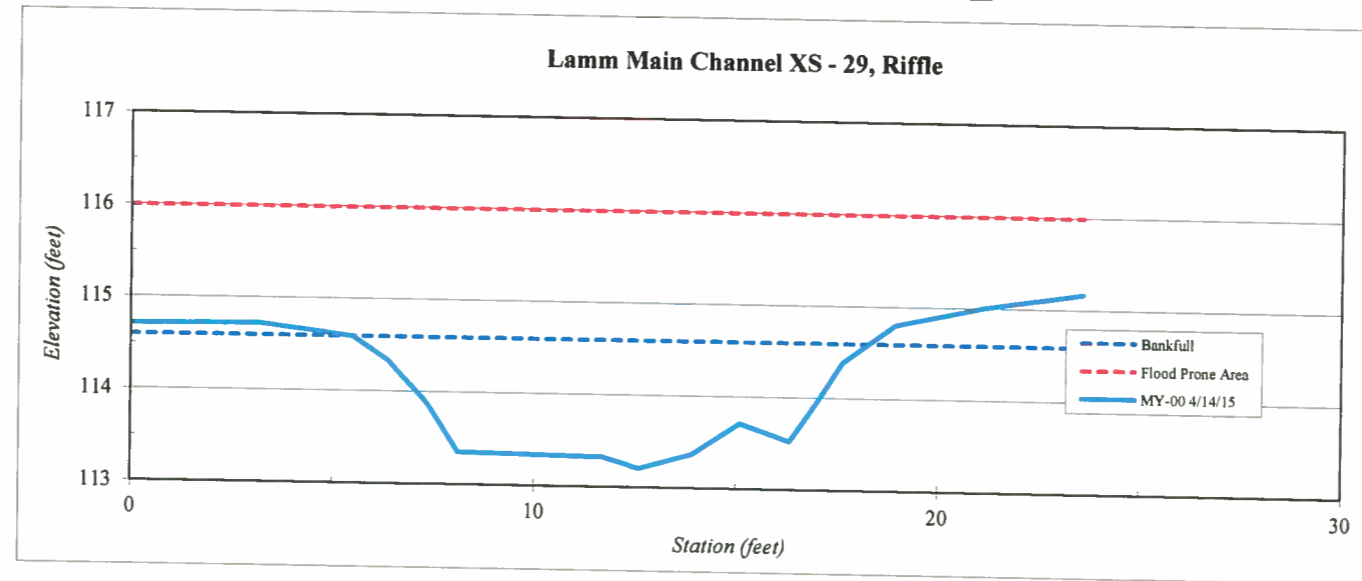
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	Main Channel XS - 29, Riffle
Feature	Riffle
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons

Station	Elevation
0.0	114.71
3.2	114.72
5.5	114.59
6.4	114.34
7.4	113.86
8.1	113.35
9.9	113.34
11.7	113.32
12.6	113.20
13.9	113.36
15.1	113.71
16.3	113.52
17.0	113.97
17.6	114.38
18.9	114.80
21.1	115.00
23.6	115.16

SUMMARY DATA	
Bankfull Elevation:	114.6
Bankfull Cross-Sectional Area:	12.1
Bankfull Width:	12.8
Flood Prone Area Elevation:	116.0
Flood Prone Width:	90.0
Max Depth at Bankfull:	1.4
Mean Depth at Bankfull:	0.9
W / D Ratio:	13.5
Entrenchment Ratio:	7.0
Bank Height Ratio:	1.0



Stream Type	C/E
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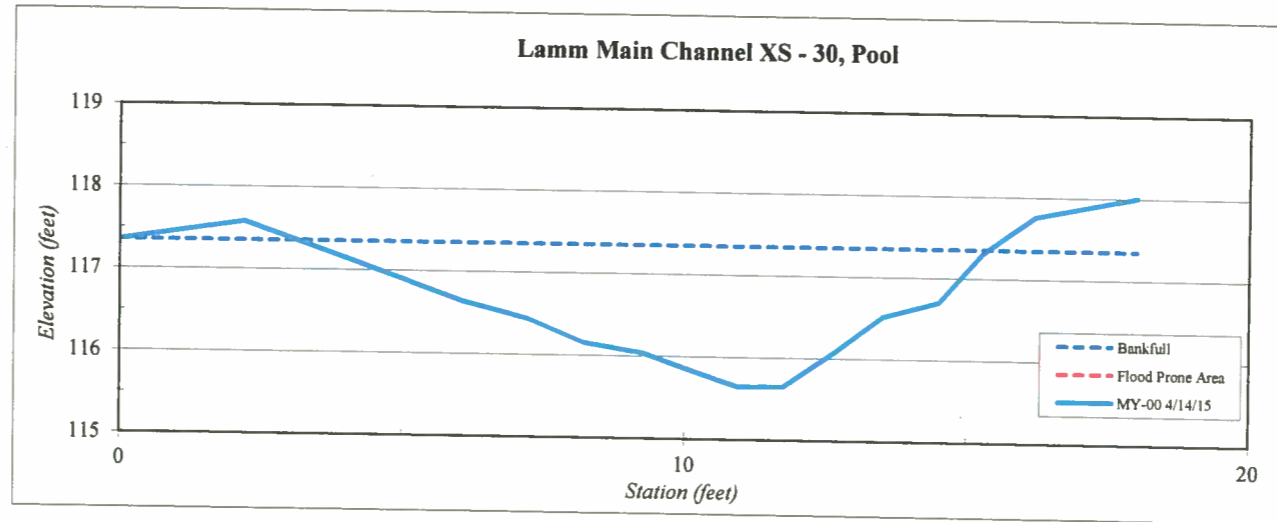
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	Main Channel XS - 30, Pool
Feature	Pool
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons

Station	Elevation
0.0	117.3
2.2	117.6
4.1	117.1
6.1	116.6
7.2	116.4
8.2	116.2
9.3	116.0
10.3	115.8
11.0	115.6
11.8	115.6
12.7	116.1
13.5	116.5
14.5	116.7
15.3	117.3
16.2	117.8
18.0	118.0

SUMMARY DATA	
Bankfull Elevation:	117.4
Bankfull Cross-Sectional Area:	11.5
Bankfull Width:	12.3
Flood Prone Area Elevation:	NA
Flood Prone Width:	NA
Max Depth at Bankfull:	1.7
Mean Depth at Bankfull:	0.9
W / D Ratio:	NA
Entrenchment Ratio:	NA
Bank Height Ratio:	1.0



Stream Type C/E



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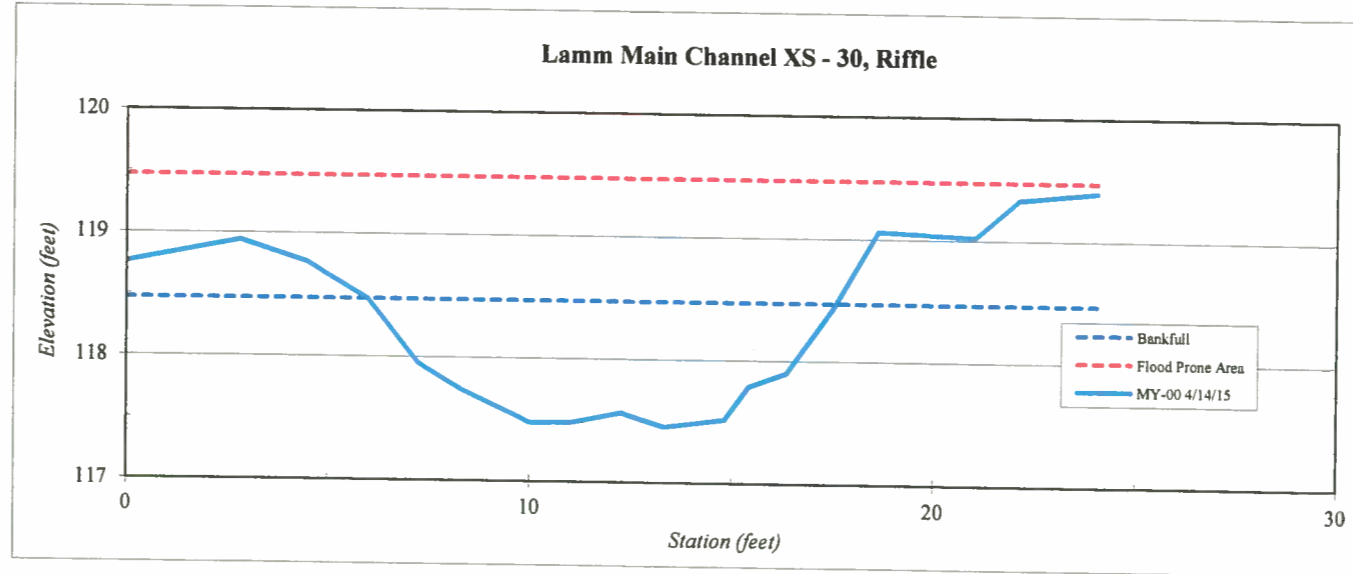
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	Main Channel XS - 30, Riffle
Feature	Riffle
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons

Station	Elevation
0.0	118.76
2.8	118.94
4.5	118.77
6.0	118.47
7.2	117.95
8.3	117.74
10.0	117.48
11.0	117.48
12.3	117.56
13.3	117.45
14.8	117.51
15.4	117.79
16.4	117.90
17.5	118.44
18.6	119.06
21.0	119.02
22.1	119.33
24.0	119.39

SUMMARY DATA	
Bankfull Elevation:	118.5
Bankfull Cross-Sectional Area:	8.6
Bankfull Width:	11.6
Flood Prone Area Elevation:	119.5
Flood Prone Width:	90.0
Max Depth at Bankfull:	1.0
Mean Depth at Bankfull:	0.7
W / D Ratio:	15.6
Entrenchment Ratio:	7.8
Bank Height Ratio:	1.0



Stream Type	C/E
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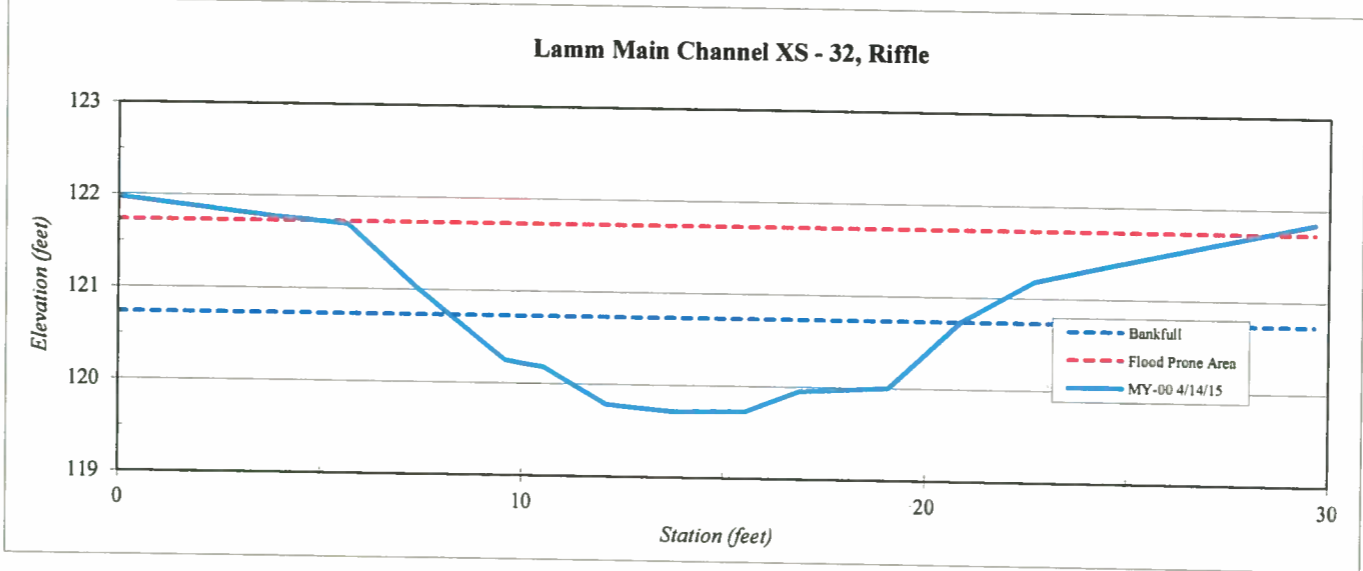
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	Main Channel XS - 32, Riffle
Feature	Riffle
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons



Station	Elevation
0.0	121.97
3.8	121.77
5.7	121.70
7.3	121.04
9.6	120.24
10.5	120.18
12.1	119.78
13.8	119.71
15.6	119.73
16.9	119.95
19.1	120.00
20.9	120.73
22.7	121.18
24.9	121.39
29.6	121.84

SUMMARY DATA	
Bankfull Elevation:	120.7
Bankfull Cross-Sectional Area:	9.0
Bankfull Width:	12.7
Flood Prone Area Elevation:	121.7
Flood Prone Width:	25.0
Max Depth at Bankfull:	1.0
Mean Depth at Bankfull:	0.7
W / D Ratio:	17.9
Entrenchment Ratio:	2.0
Bank Height Ratio:	1.0

Stream Type C/E



Professional Seal of John Ashley Rudolph, North Carolina Land Surveyor, License L-4194. Includes a handwritten signature and date 07/13/15.

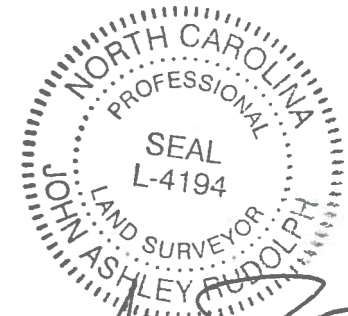
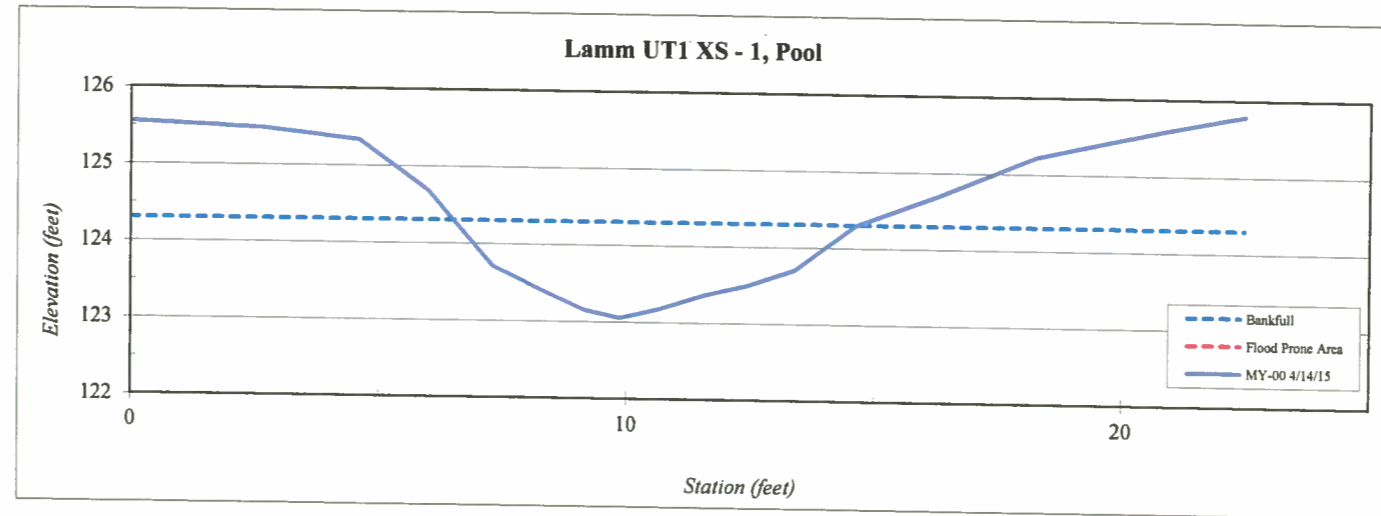
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	UT 1 XS - 1, Pool
Feature	Pool
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons

Station	Elevation
0.0	125.6
2.7	125.5
4.6	125.3
6.0	124.7
7.3	123.7
8.4	123.4
9.2	123.1
9.9	123.0
10.7	123.2
11.5	123.4
12.4	123.5
13.4	123.7
14.6	124.3
16.3	124.7
18.3	125.2
20.8	125.6
22.5	125.8

SUMMARY DATA	
Bankfull Elevation:	124.3
Bankfull Cross-Sectional Area:	6.4
Bankfull Width:	8.1
Flood Prone Area Elevation:	NA
Flood Prone Width:	NA
Max Depth at Bankfull:	1.3
Mean Depth at Bankfull:	0.8
W / D Ratio:	NA
Entrenchment Ratio:	NA
Bank Height Ratio:	1.0



Stream Type C/E



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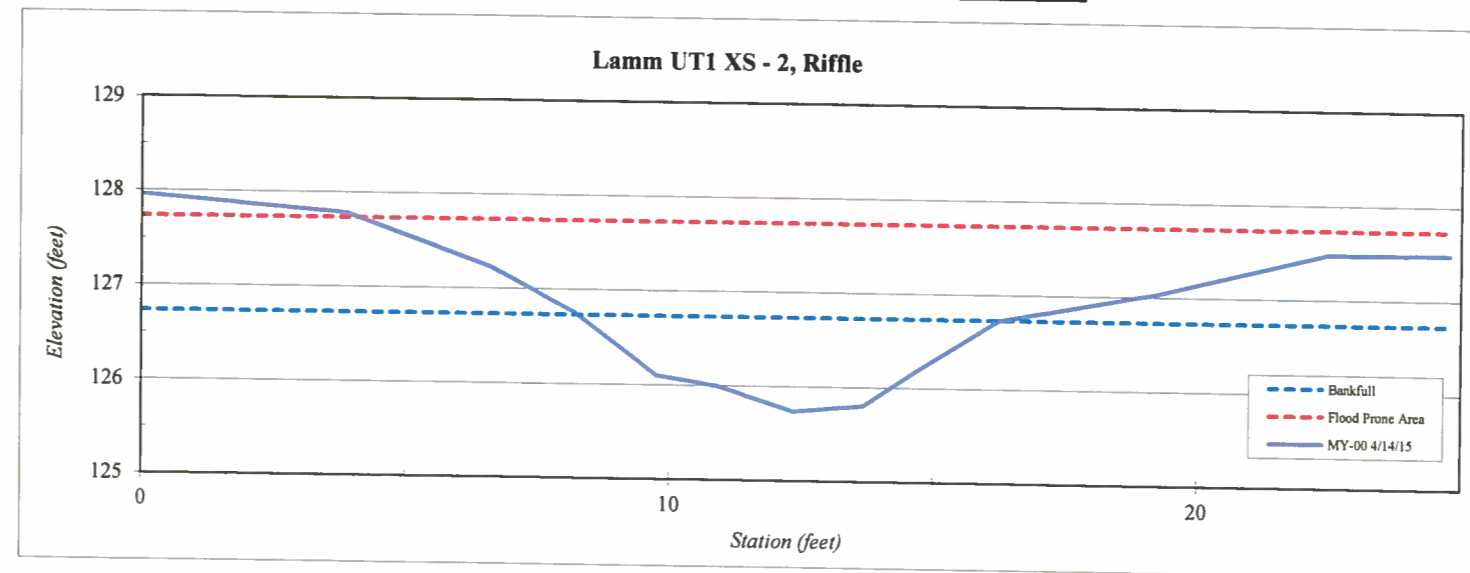
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	UT 1 XS - 2, Riffle
Feature	Riffle
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons



Station	Elevation
0.0	127.96
3.9	127.78
6.6	127.22
8.2	126.76
9.8	126.10
10.9	125.99
12.4	125.73
13.7	125.80
14.7	126.20
16.2	126.72
19.3	127.04
22.5	127.47
24.8	127.49

SUMMARY DATA	
Bankfull Elevation:	126.7
Bankfull Cross-Sectional Area:	5.0
Bankfull Width:	8.0
Flood Prone Area Elevation:	127.7
Flood Prone Width:	50.0
Max Depth at Bankfull:	1.0
Mean Depth at Bankfull:	0.6
W / D Ratio:	13.0
Entrenchment Ratio:	6.2
Bank Height Ratio:	1.0

Stream Type	C/E
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Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	UT 1 XS - 3, Riffle
Feature	Riffle
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons



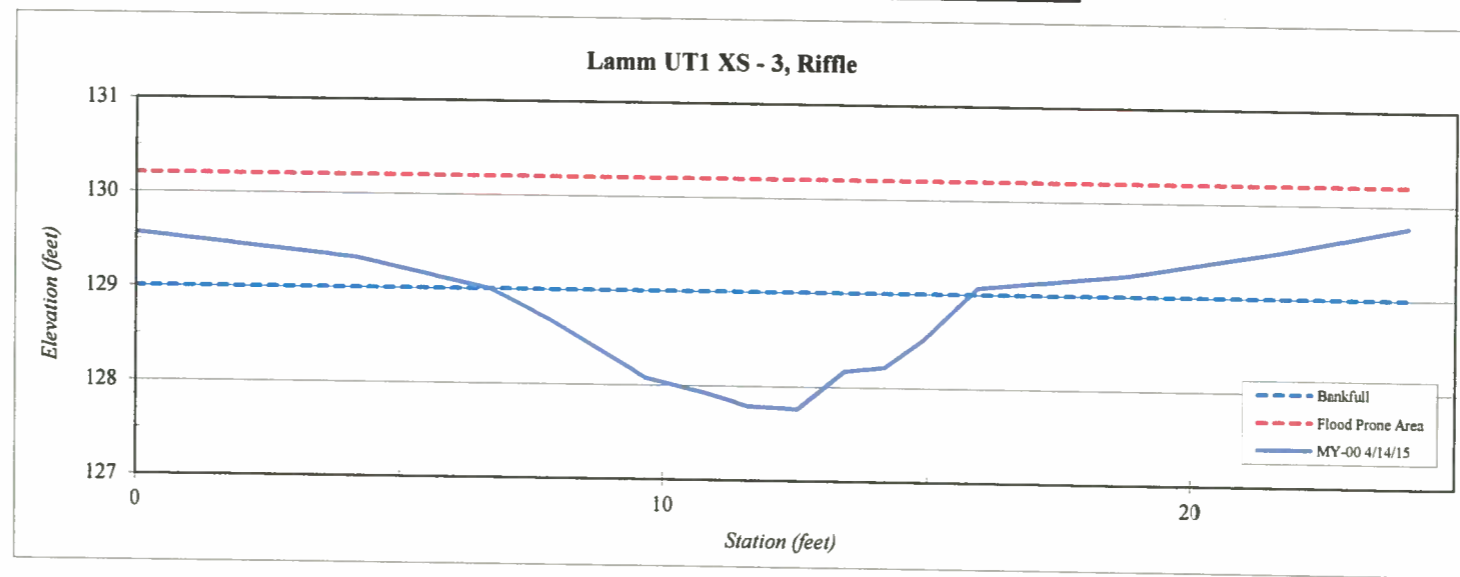
Stream Type C/E

Station	Elevation
0.0	129.57
4.2	129.32
6.7	129.00
7.8	128.68
9.7	128.07
10.8	127.92
11.6	127.79
12.5	127.76
13.4	128.17
14.2	128.21
14.9	128.51
15.9	129.07
18.8	129.22
21.8	129.50
24.1	129.76

SUMMARY DATA	
Bankfull Elevation:	129.0
Bankfull Cross-Sectional Area:	6.7
Bankfull Width:	9.1
Flood Prone Area Elevation:	130.2
Flood Prone Width:	50.0
Max Depth at Bankfull:	1.2
Mean Depth at Bankfull:	0.7
W / D Ratio:	12.4
Entrenchment Ratio:	5.5
Bank Height Ratio:	1.0



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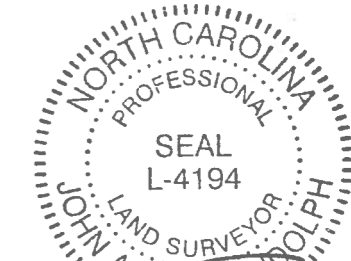
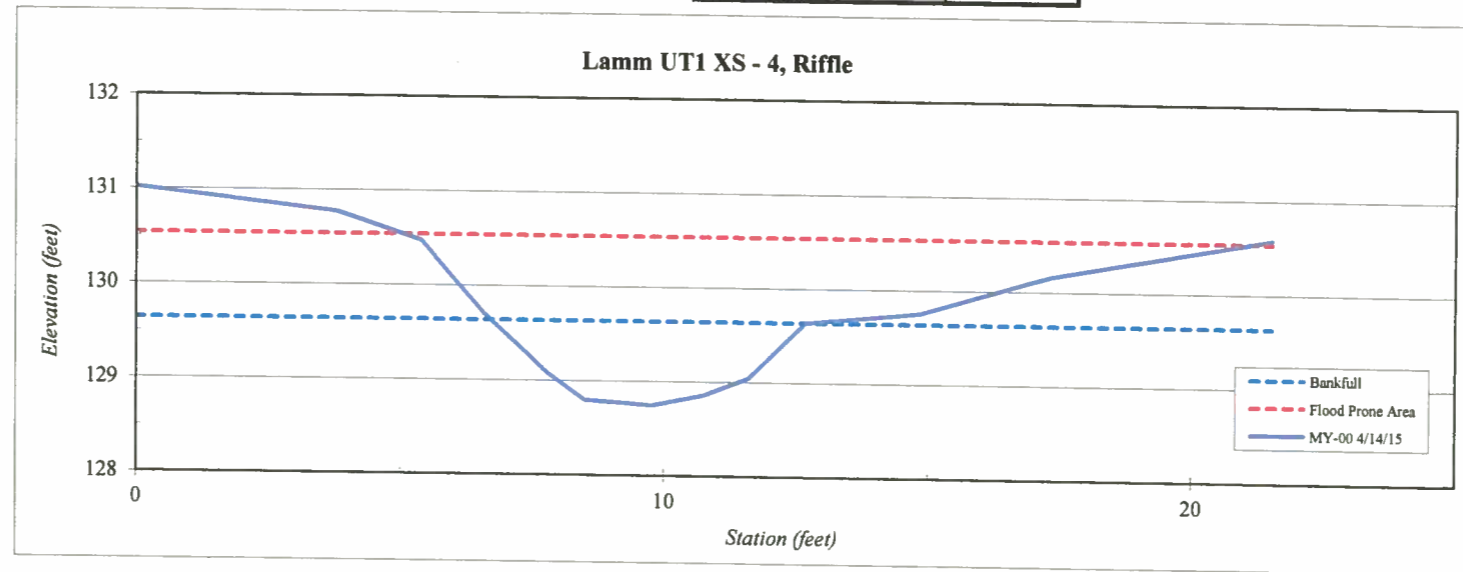
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	UT 1 XS - 4, Riffle
Feature	Riffle
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons



Station	Elevation
0.0	131.02
3.8	130.77
5.4	130.47
6.6	129.71
7.8	129.07
8.5	128.80
9.8	128.74
10.8	128.86
11.6	129.04
12.7	129.63
14.9	129.75
17.3	130.16
21.5	130.57

SUMMARY DATA	
Bankfull Elevation:	129.6
Bankfull Cross-Sectional Area:	3.6
Bankfull Width:	6.0
Flood Prone Area Elevation:	130.5
Flood Prone Width:	50.0
Max Depth at Bankfull:	0.9
Mean Depth at Bankfull:	0.6
W/ D Ratio:	10.0
Entrenchment Ratio:	8.3
Bank Height Ratio:	1.0

Stream Type C/E



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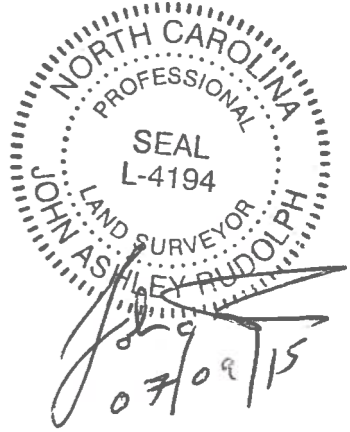
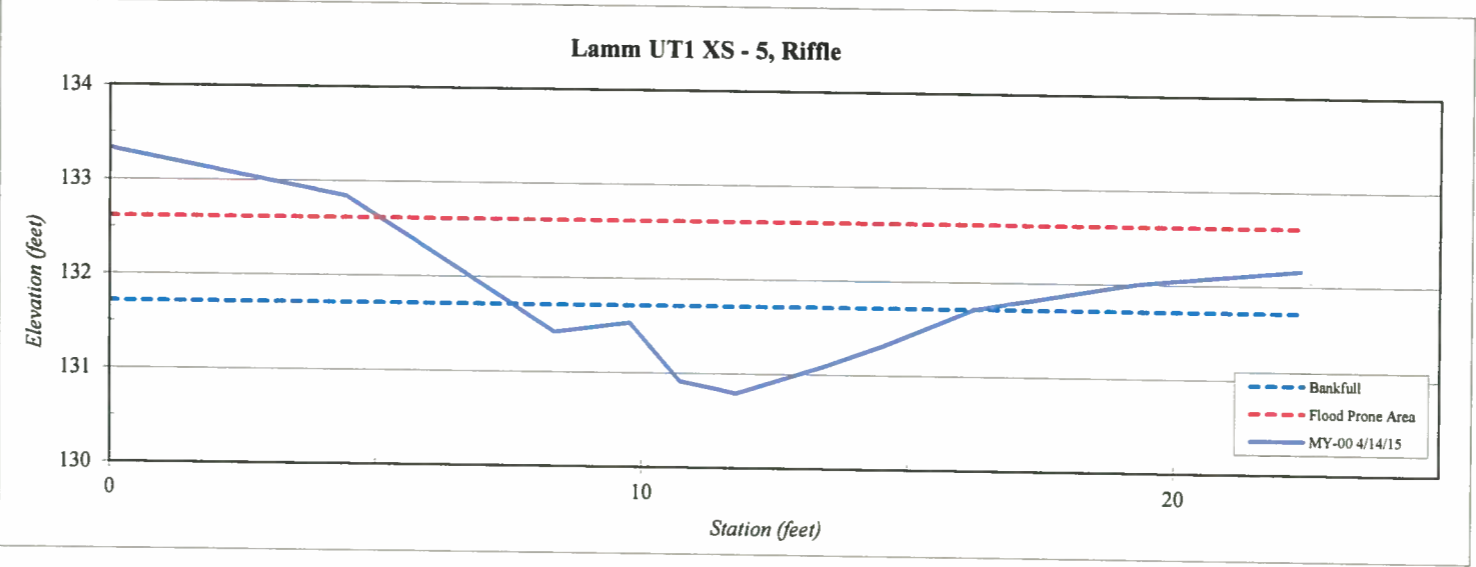
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	UT 1 XS - 5, Riffle
Feature	Riffle
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons



Station	Elevation
0.0	133.33
4.4	132.84
6.2	132.22
8.4	131.42
9.8	131.53
10.7	130.91
11.8	130.79
13.3	131.07
14.5	131.31
16.3	131.71
19.3	132.00
22.4	132.16

SUMMARY DATA	
Bankfull Elevation:	131.7
Bankfull Cross-Sectional Area:	4.0
Bankfull Width:	8.7
Flood Prone Area Elevation:	132.6
Flood Prone Width:	50.0
Max Depth at Bankfull:	0.9
Mean Depth at Bankfull:	0.5
W / D Ratio:	18.9
Entrenchment Ratio:	5.7
Bank Height Ratio:	1.0

Stream Type: C/E



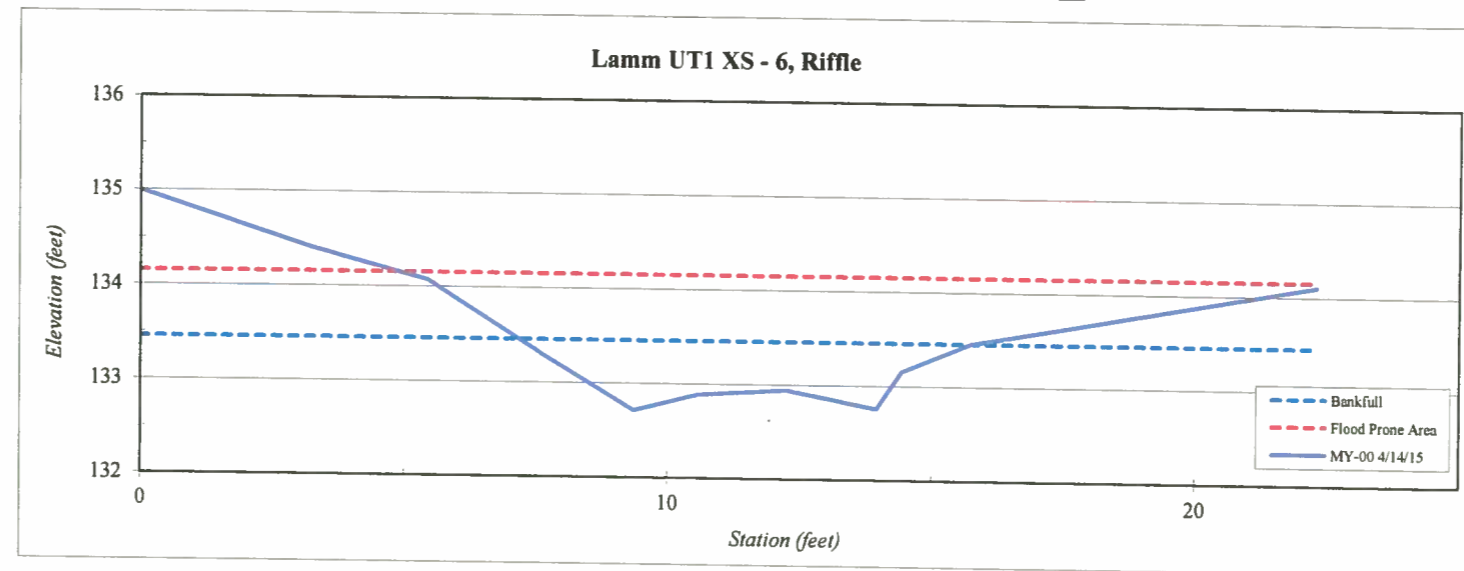
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	UT 1 XS - 6, Riffle
Feature	Riffle
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons

Station	Elevation
0.0	135.00
3.3	134.40
5.4	134.07
7.6	133.30
9.4	132.71
10.6	132.88
12.3	132.94
14.0	132.75
14.4	133.15
15.7	133.45
17.7	133.64
22.3	134.10

SUMMARY DATA	
Bankfull Elevation:	133.5
Bankfull Cross-Sectional Area:	4.0
Bankfull Width:	8.6
Flood Prone Area Elevation:	134.2
Flood Prone Width:	50.0
Max Depth at Bankfull:	0.7
Mean Depth at Bankfull:	0.5
W / D Ratio:	18.5
Entrenchment Ratio:	5.8
Bank Height Ratio:	1.0



Stream Type C/E



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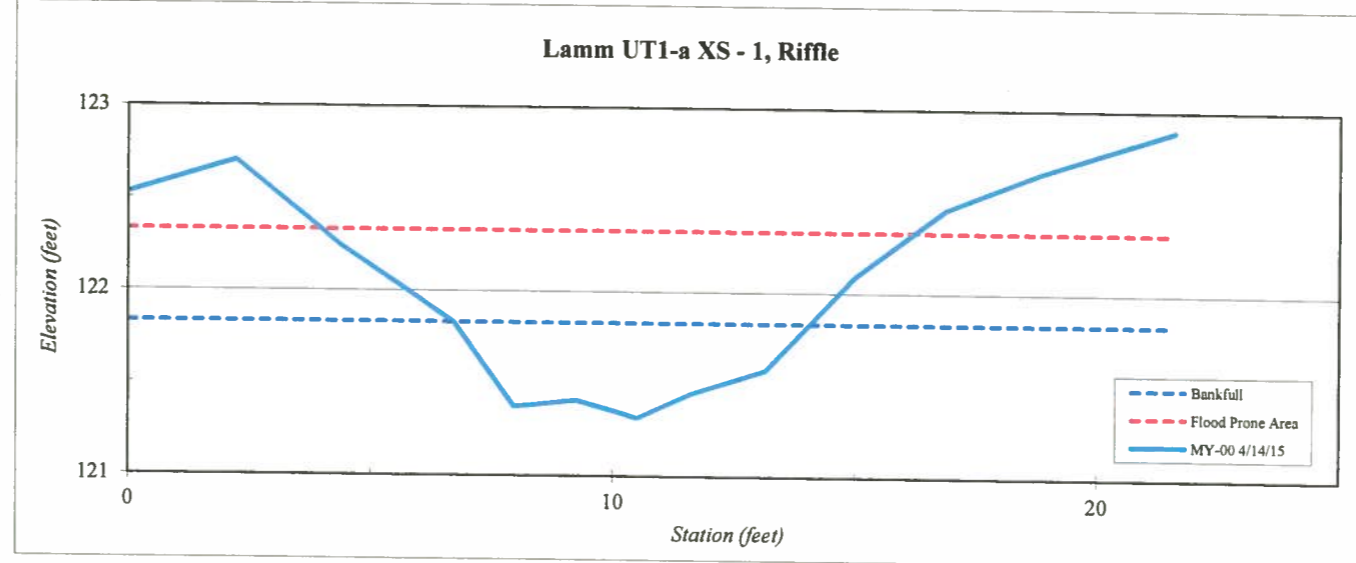
Site	Abbey Lamm
Watershed	Cape Fear, 0303002
XS ID	UT 1a XS - 1, Riffle
Feature	Riffle
Date	4/14/2015
Field Crew	Perkinson, Gibbons



Station	Elevation
0.0	122.53
2.2	122.70
4.4	122.24
6.7	121.83
8.0	121.37
9.2	121.41
10.5	121.32
11.6	121.45
13.2	121.58
15.0	122.09
16.9	122.45
18.8	122.65
21.6	122.89

SUMMARY DATA	
Bankfull Elevation:	121.8
Bankfull Cross-Sectional Area:	2.5
Bankfull Width:	7.4
Flood Prone Area Elevation:	122.3
Flood Prone Width:	50.0
Max Depth at Bankfull:	0.5
Mean Depth at Bankfull:	0.3
W / D Ratio:	21.3
Entrenchment Ratio:	6.8
Bank Height Ratio:	1.0

Stream Type



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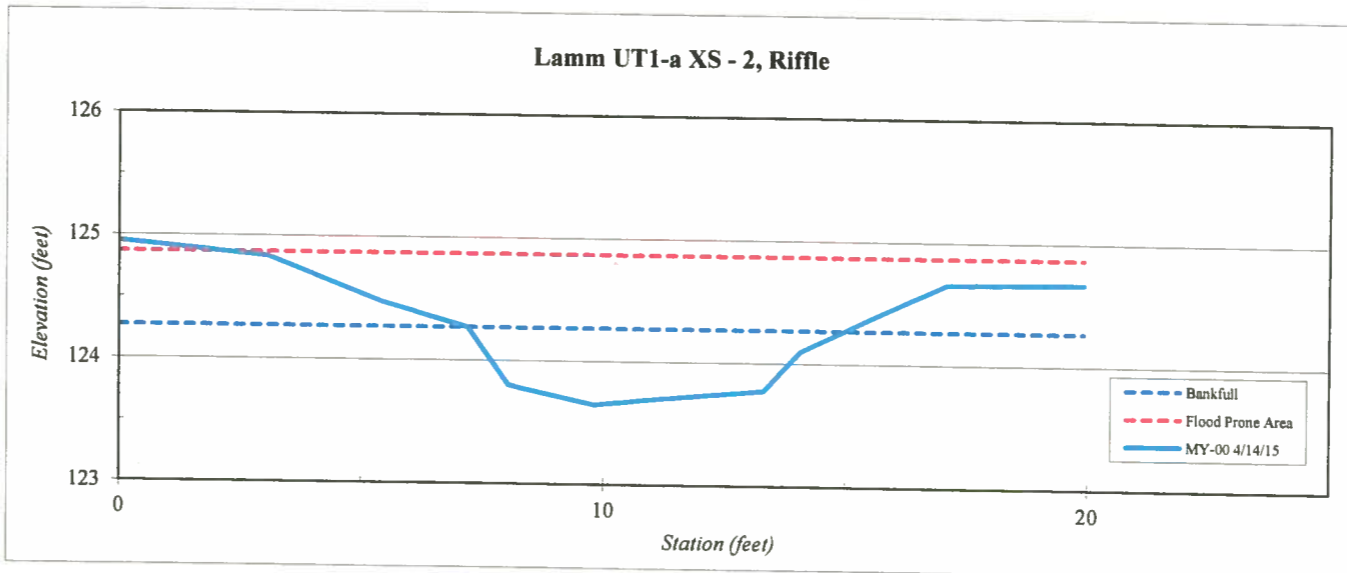
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	UT 1a XS - 2, Riffle
Feature	Riffle
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons



Station	Elevation
0.0	124.95
3.1	124.83
5.4	124.47
7.2	124.27
8.0	123.80
9.8	123.65
10.9	123.69
13.3	123.77
14.1	124.10
15.7	124.40
17.1	124.66
19.9	124.67

SUMMARY DATA	
Bankfull Elevation:	124.3
Bankfull Cross-Sectional Area:	3.4
Bankfull Width:	7.8
Flood Prone Area Elevation:	124.9
Flood Prone Width:	50.0
Max Depth at Bankfull:	0.6
Mean Depth at Bankfull:	0.4
W / D Ratio:	17.6
Entrenchment Ratio:	6.4
Bank Height Ratio:	1.0

Stream Type C/E



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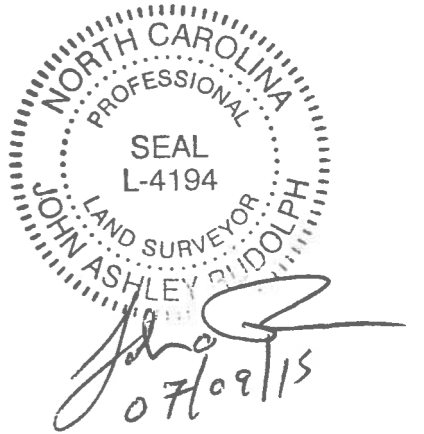
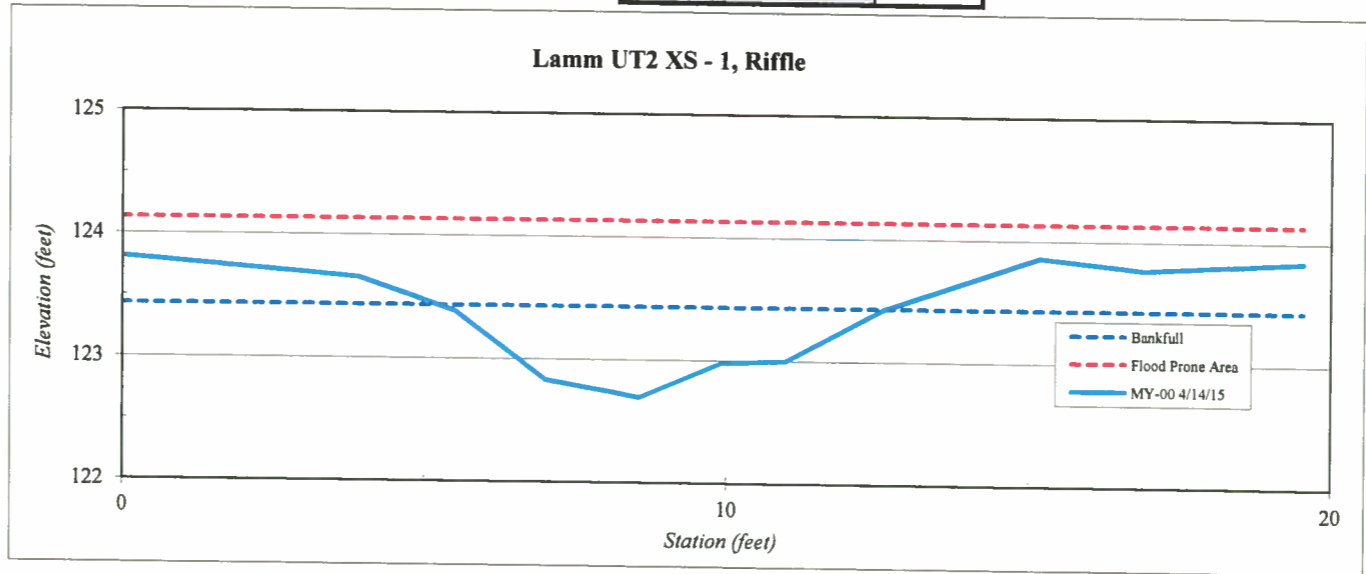
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	UT 2 XS - 1, Riffle
Feature	Riffle
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons

Station	Elevation
0.0	123.81
3.9	123.65
5.5	123.39
7.0	122.83
8.6	122.69
9.9	122.98
11.0	123.00
12.6	123.42
15.2	123.86
16.9	123.77
19.5	123.84

SUMMARY DATA	
Bankfull Elevation:	123.4
Bankfull Cross-Sectional Area:	3.2
Bankfull Width:	7.4
Flood Prone Area Elevation:	124.1
Flood Prone Width:	50.0
Max Depth at Bankfull:	0.7
Mean Depth at Bankfull:	0.4
W / D Ratio:	17.1
Entrenchment Ratio:	6.8
Bank Height Ratio:	1.0



Stream Type C/E



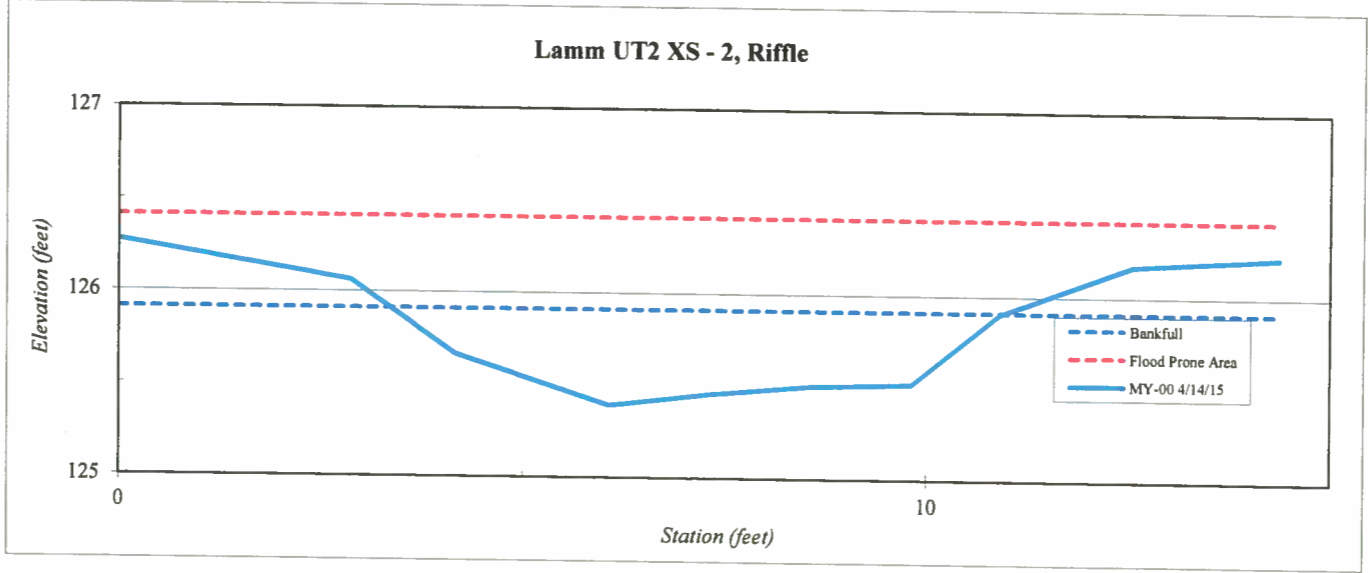
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	UT 2 XS - 2, Riffle
Feature	Riffle
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons



Station	Elevation
0.0	126.27
2.9	126.06
4.2	125.66
6.1	125.39
7.4	125.46
8.5	125.50
9.8	125.52
10.9	125.90
12.6	126.17
14.4	126.22

SUMMARY DATA	
Bankfull Elevation:	125.9
Bankfull Cross-Sectional Area:	2.7
Bankfull Width:	7.6
Flood Prone Area Elevation:	126.4
Flood Prone Width:	50.0
Max Depth at Bankfull:	0.5
Mean Depth at Bankfull:	0.4
W / D Ratio:	21.4
Entrenchment Ratio:	6.6
Bank Height Ratio:	1.0

Stream Type	C
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NORTH CAROLINA
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(Signature)
 07/09/15

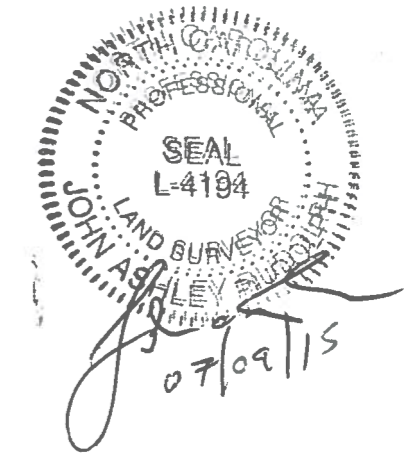
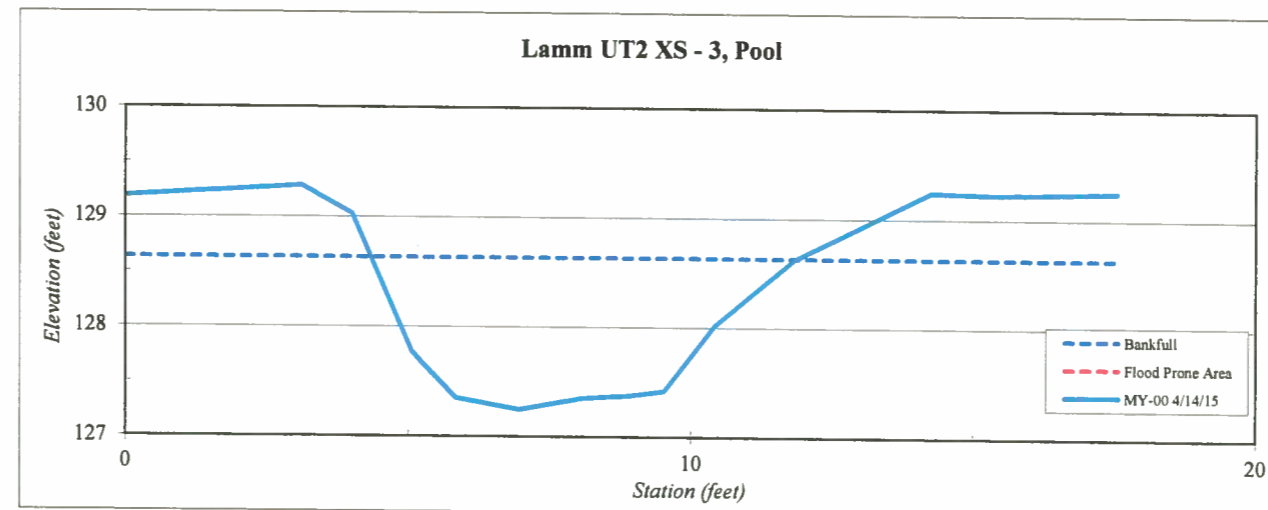
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	UT 2 XS - 3, Pool
Feature	Pool
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons

Station	Elevation
0.0	129.2
3.1	129.3
4.0	129.0
5.1	127.8
5.8	127.4
7.0	127.2
8.1	127.4
8.9	127.4
9.5	127.4
10.4	128.0
11.8	128.6
13.3	129.0
14.3	129.2
15.5	129.2
17.5	129.2

SUMMARY DATA	
Bankfull Elevation:	128.6
Bankfull Cross-Sectional Area:	7.2
Bankfull Width:	7.5
Flood Prone Area Elevation:	NA
Flood Prone Width:	NA
Max Depth at Bankfull:	1.4
Mean Depth at Bankfull:	1.0
W / D Ratio:	NA
Entrenchment Ratio:	NA
Bank Height Ratio:	1.0



Stream Type C/E



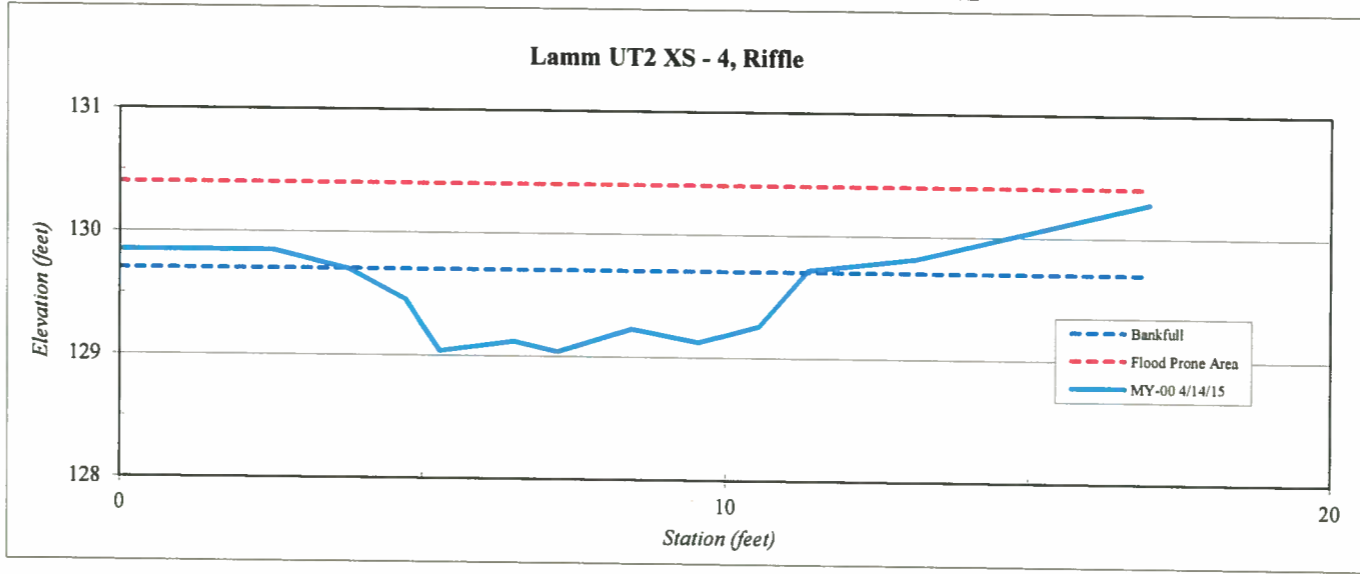
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	UT 2 XS - 4, Riffle
Feature	Riffle
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons



Station	Elevation
0.0	129.85
2.5	129.85
3.8	129.70
4.7	129.45
5.3	129.04
6.5	129.12
7.2	129.04
8.5	129.23
9.6	129.12
10.6	129.26
11.4	129.71
13.1	129.81
17.0	130.28

SUMMARY DATA	
Bankfull Elevation:	129.7
Bankfull Cross-Sectional Area:	3.6
Bankfull Width:	7.6
Flood Prone Area Elevation:	130.4
Flood Prone Width:	50.0
Max Depth at Bankfull:	0.7
Mean Depth at Bankfull:	0.5
W / D Ratio:	16.0
Entrenchment Ratio:	6.6
Bank Height Ratio:	1.0

Stream Type



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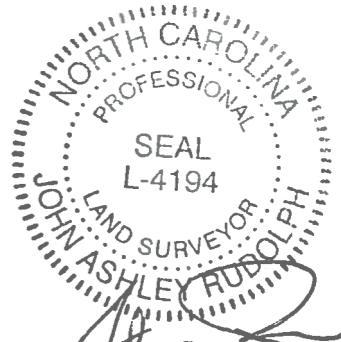
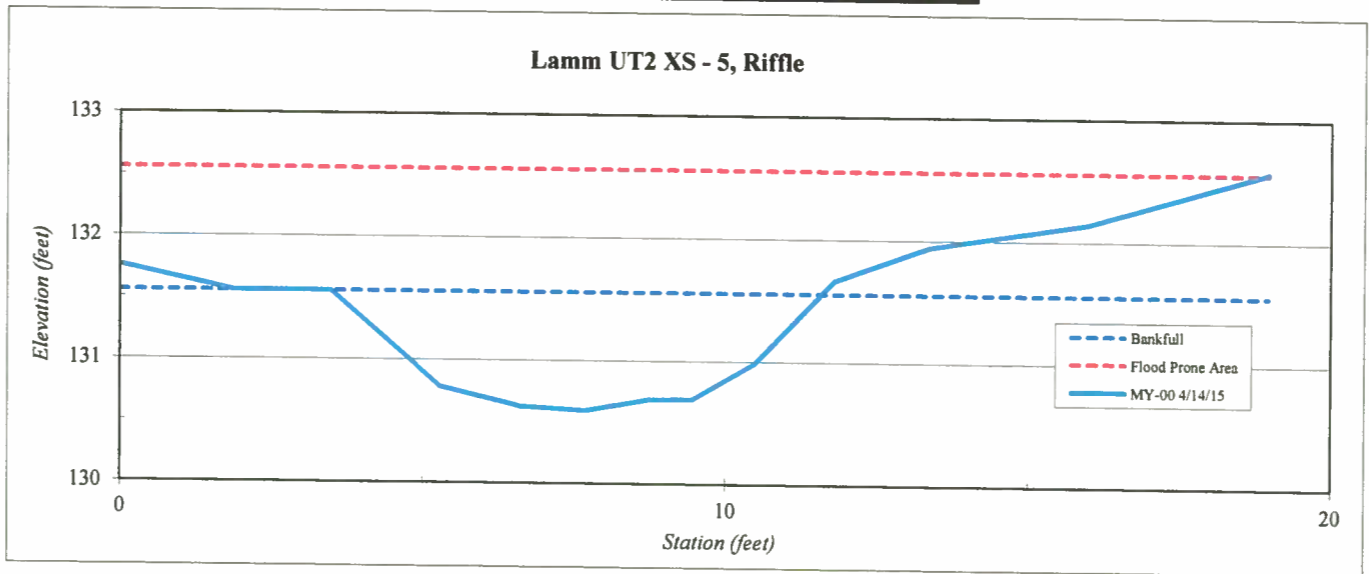
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	UT 2 XS - 5, Riffle
Feature	Riffle
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons



Station	Elevation
0.0	131.76
1.9	131.55
3.5	131.55
5.3	130.78
6.6	130.62
7.7	130.59
8.7	130.68
9.5	130.69
10.5	130.98
11.8	131.66
13.4	131.94
16.0	132.14
19.0	132.57

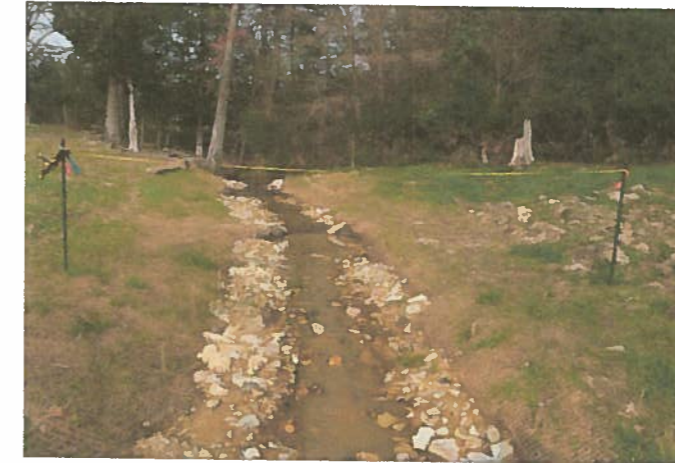
SUMMARY DATA	
Bankfull Elevation:	131.6
Bankfull Cross-Sectional Area:	5.5
Bankfull Width:	9.7
Flood Prone Area Elevation:	132.6
Flood Prone Width:	50.0
Max Depth at Bankfull:	1.0
Mean Depth at Bankfull:	0.6
W / D Ratio:	17.1
Entrenchment Ratio:	5.2
Bank Height Ratio:	1.0

Stream Type C/E



John
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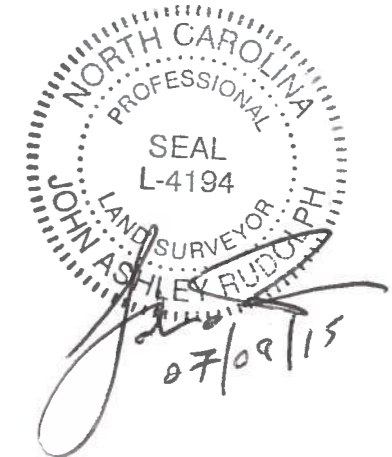
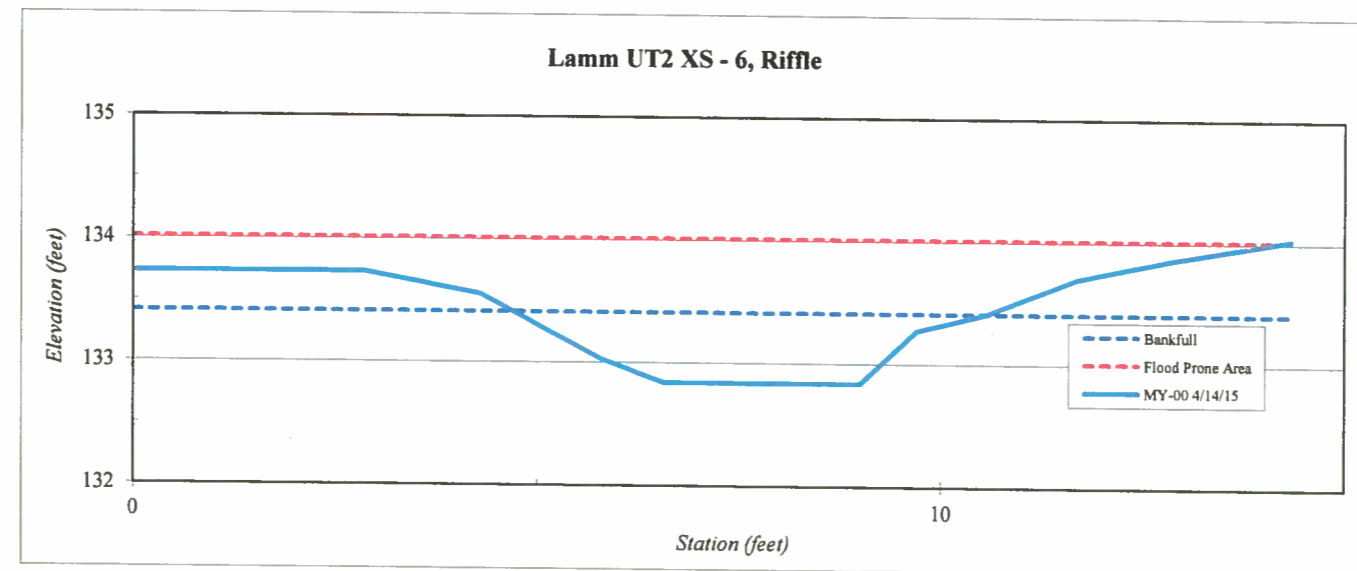
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	UT 2 XS - 6, Riffle
Feature	Riffle
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons



Station	Elevation
0.0	133.73
2.9	133.73
4.3	133.55
5.8	133.03
6.6	132.84
7.5	132.84
9.0	132.84
9.7	133.27
10.6	133.41
11.7	133.70
12.9	133.86
14.3	134.03

SUMMARY DATA	
Bankfull Elevation:	133.4
Bankfull Cross-Sectional Area:	2.3
Bankfull Width:	5.9
Flood Prone Area Elevation:	134.0
Flood Prone Width:	50.0
Max Depth at Bankfull:	0.6
Mean Depth at Bankfull:	0.4
W / D Ratio:	15.1
Entrenchment Ratio:	8.5
Bank Height Ratio:	1.0

Stream Type: C/E



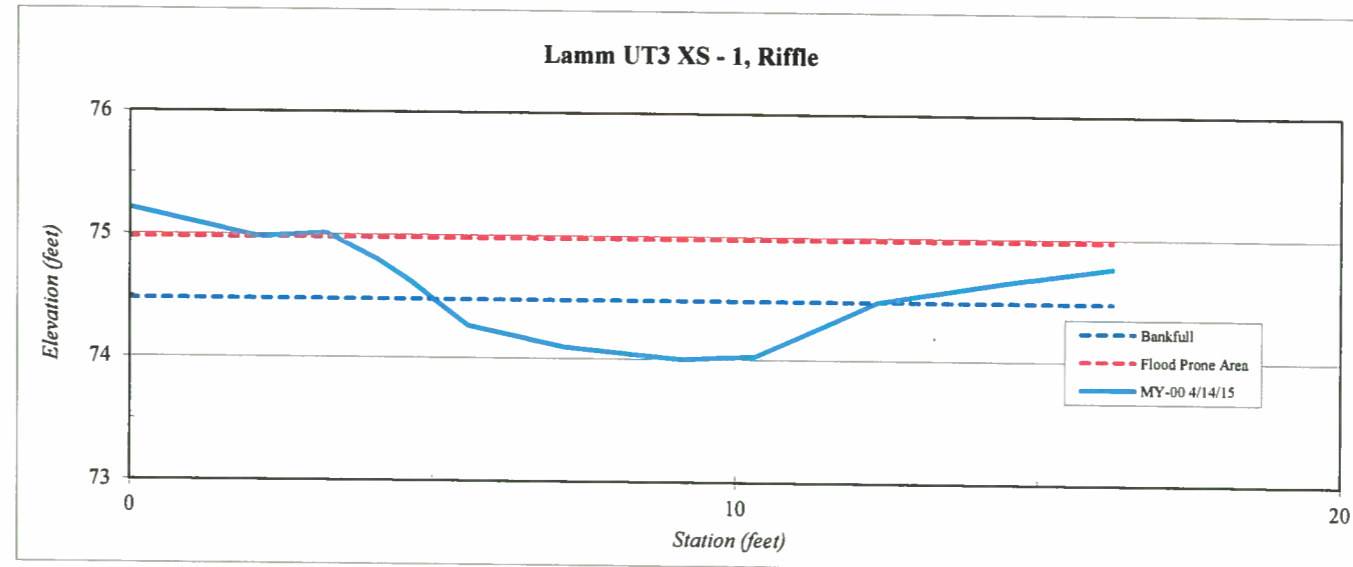
Site	Abbey Lamm
Watershed	Cape Fear, 0303002
XS ID	UT 3 XS - 1, Riffle
Feature	Riffle
Date	4/14/2015
Field Crew	Perkinson, Gibbons



Station	Elevation
0.0	75.21
2.1	74.98
3.2	75.01
4.1	74.79
4.6	74.62
5.6	74.26
7.2	74.09
8.2	74.04
9.1	74.00
10.3	74.03
11.4	74.26
12.3	74.47
14.5	74.64
16.2	74.76

SUMMARY DATA	
Bankfull Elevation:	74.5
Bankfull Cross-Sectional Area:	2.4
Bankfull Width:	7.3
Flood Prone Area Elevation:	75.0
Flood Prone Width:	50.0
Max Depth at Bankfull:	0.5
Mean Depth at Bankfull:	0.3
W / D Ratio:	22.6
Entrenchment Ratio:	6.8
Bank Height Ratio:	1.0

Stream Type: C



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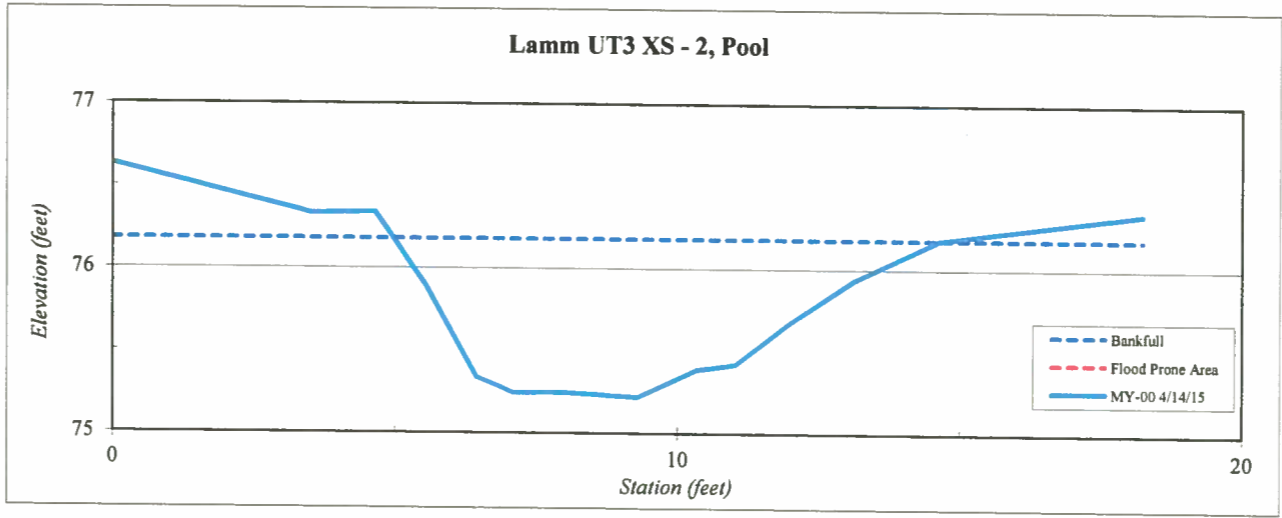
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	UT 3 XS - 2, Pool
Feature	Pool
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons

Station	Elevation
0.0	76.6
3.5	76.3
4.7	76.3
5.5	75.9
6.4	75.3
7.1	75.2
7.9	75.2
9.3	75.2
10.3	75.4
11.0	75.4
12.0	75.7
13.1	75.9
14.6	76.2
18.2	76.3

SUMMARY DATA	
Bankfull Elevation:	76.2
Bankfull Cross-Sectional Area:	5.9
Bankfull Width:	9.7
Flood Prone Area Elevation:	NA
Flood Prone Width:	NA
Max Depth at Bankfull:	1.0
Mean Depth at Bankfull:	0.6
W / D Ratio:	NA
Entrenchment Ratio:	NA
Bank Height Ratio:	1.0



Stream Type C/E



John Ashley Rudolph
07/09/15

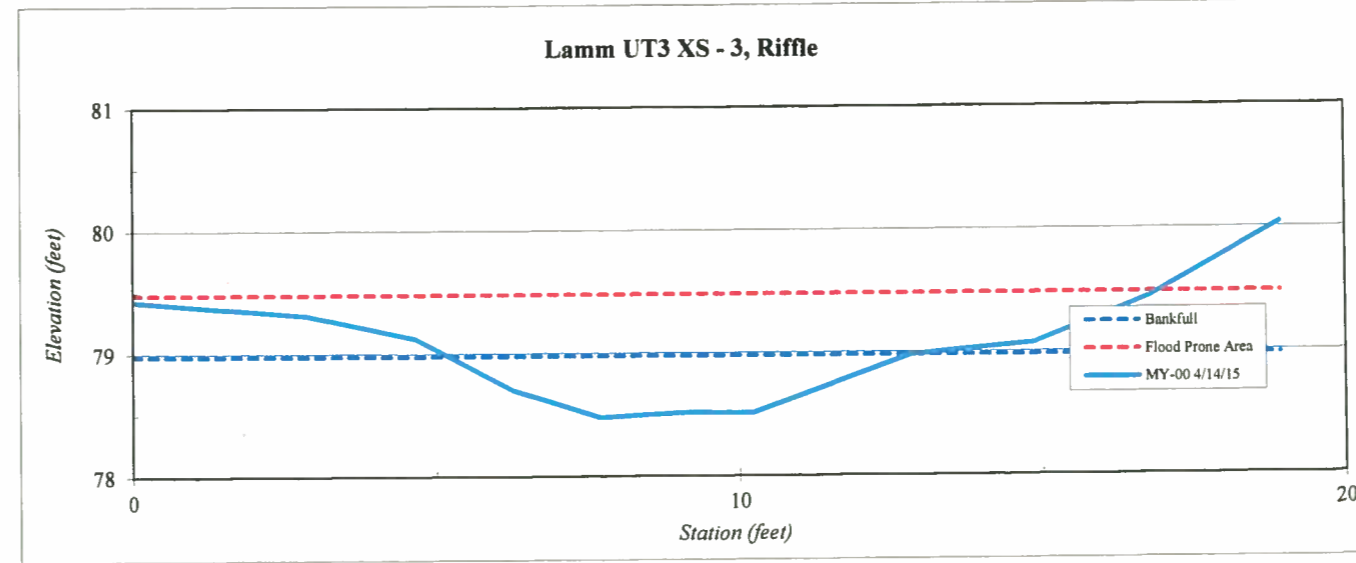
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	UT 3 XS - 3, Riffle
Feature	Riffle
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons



Station	Elevation
0.0	79.42
2.9	79.31
4.7	79.12
6.3	78.70
7.7	78.48
9.2	78.52
10.2	78.51
12.8	78.98
14.9	79.07
16.8	79.44
18.9	80.03

SUMMARY DATA	
Bankfull Elevation:	79.0
Bankfull Cross-Sectional Area:	2.5
Bankfull Width:	7.6
Flood Prone Area Elevation:	79.5
Flood Prone Width:	50.0
Max Depth at Bankfull:	0.5
Mean Depth at Bankfull:	0.3
W/D Ratio:	23.1
Entrenchment Ratio:	6.6
Bank Height Ratio:	1.0

Stream Type C



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John Rudolph
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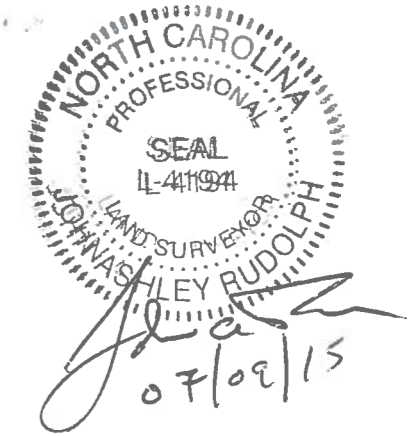
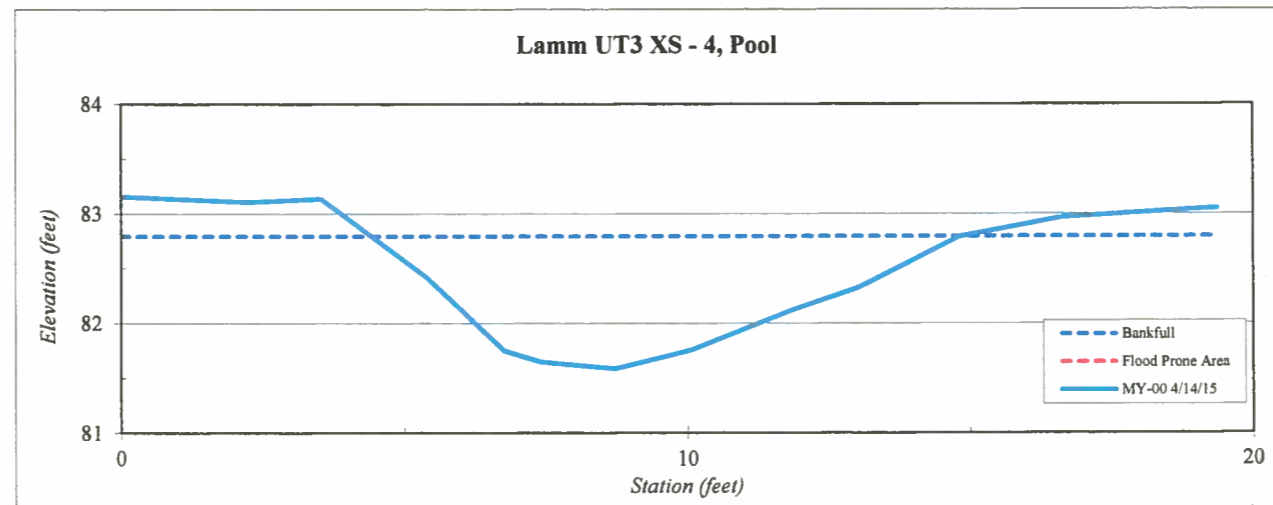
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	UT 3 XS - 4, Pool
Feature	Pool
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons



Station	Elevation
0.0	83.2
2.2	83.1
3.5	83.1
5.4	82.4
6.8	81.7
7.4	81.6
8.7	81.6
9.5	81.7
10.1	81.8
11.9	82.1
13.0	82.3
14.8	82.8
16.7	83.0
19.4	83.0

SUMMARY DATA	
Bankfull Elevation:	82.8
Bankfull Cross-Sectional Area:	7.5
Bankfull Width:	10.4
Flood Prone Area Elevation:	NA
Flood Prone Width:	NA
Max Depth at Bankfull:	1.2
Mean Depth at Bankfull:	0.7
W / D Ratio:	NA
Entrenchment Ratio:	NA
Bank Height Ratio:	1.0

Stream Type: C/E



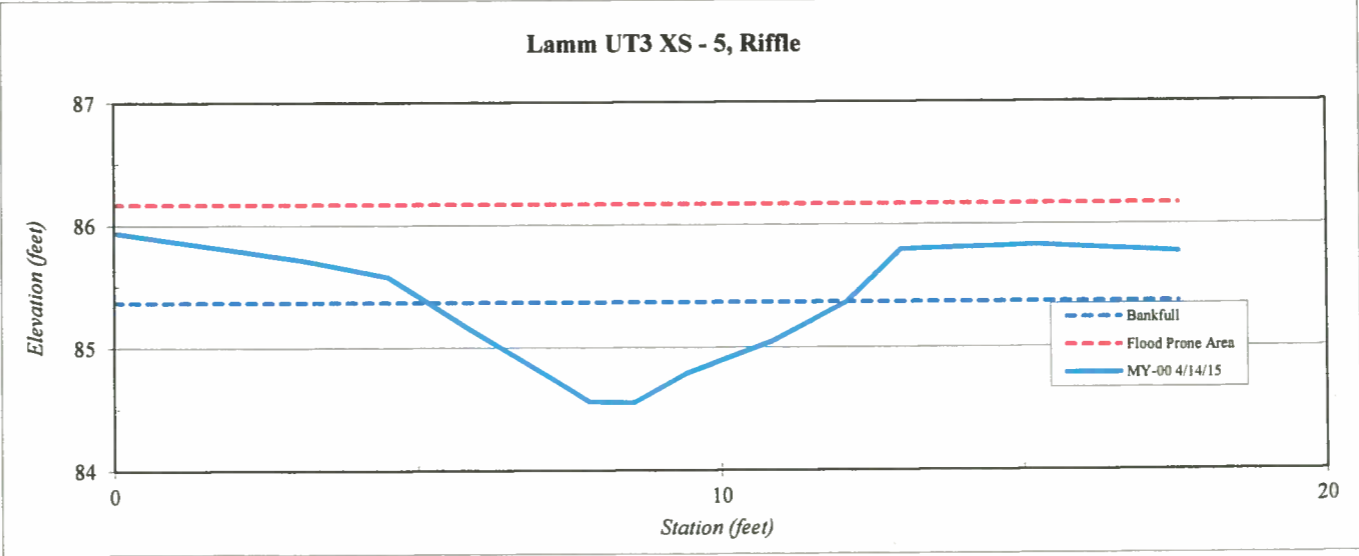
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	UT 3 XS - 5, Riffle
Feature	Riffle
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons

Station	Elevation
0.0	85.94
3.1	85.72
4.5	85.58
5.8	85.17
7.5	84.66
7.8	84.56
8.6	84.55
9.4	84.79
10.8	85.05
12.1	85.37
13.0	85.79
15.2	85.83
17.6	85.77

SUMMARY DATA	
Bankfull Elevation:	85.4
Bankfull Cross-Sectional Area:	3.1
Bankfull Width:	6.9
Flood Prone Area Elevation:	86.2
Flood Prone Width:	50.0
Max Depth at Bankfull:	0.8
Mean Depth at Bankfull:	0.4
W / D Ratio:	15.4
Entrenchment Ratio:	7.2
Bank Height Ratio:	1.0



Stream Type C/E



John A. Rudolph
07/09/15

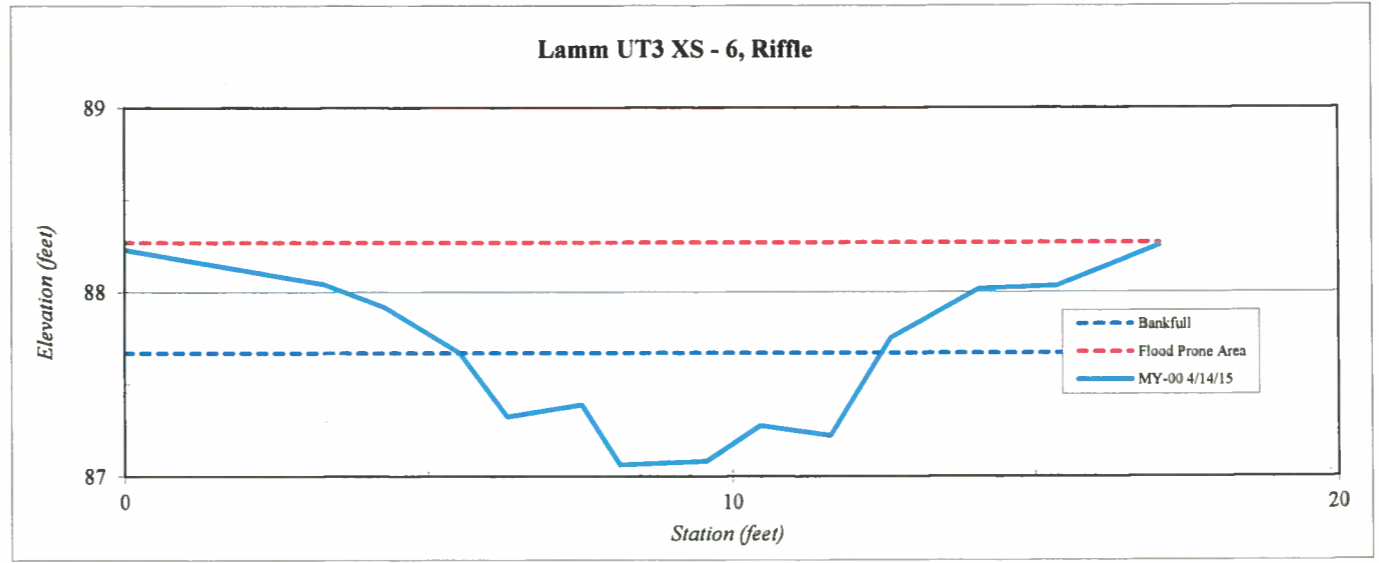
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	UT 3 XS - 6, Riffle
Feature	Riffle
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons

Station	Elevation
0.0	88.23
3.3	88.04
4.3	87.91
5.5	87.67
6.3	87.32
7.5	87.39
8.1	87.06
9.6	87.08
10.5	87.27
11.6	87.22
12.6	87.75
14.1	88.02
15.4	88.03
17.1	88.25

SUMMARY DATA	
Bankfull Elevation:	87.7
Bankfull Cross-Sectional Area:	2.8
Bankfull Width:	6.9
Flood Prone Area Elevation:	88.3
Flood Prone Width:	50.0
Max Depth at Bankfull:	0.6
Mean Depth at Bankfull:	0.4
W / D Ratio:	17.0
Entrenchment Ratio:	7.2
Bank Height Ratio:	1.0



Stream Type C/E



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John Ashvey Rudolph
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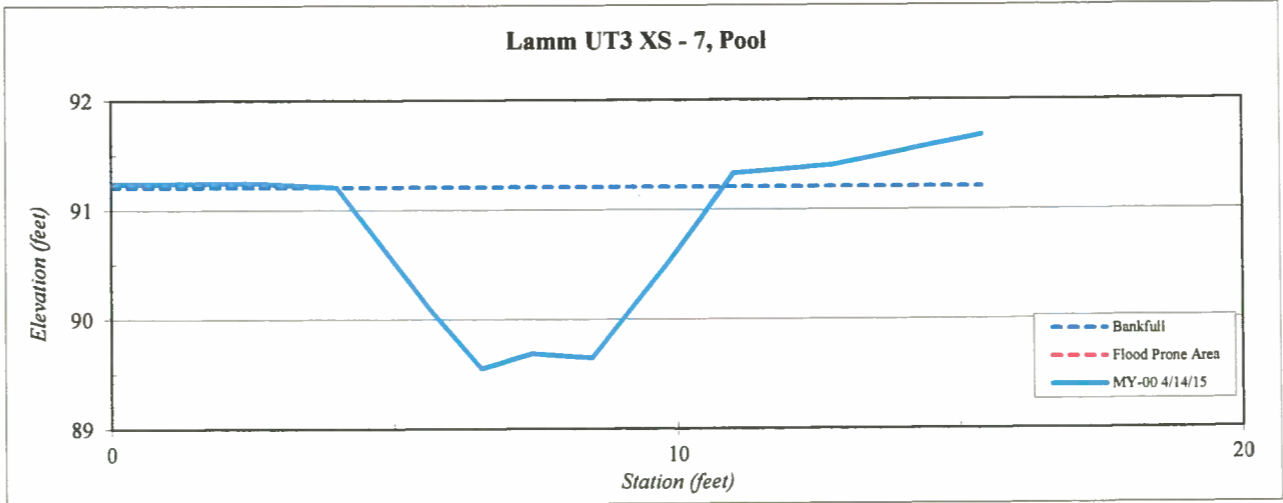
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	UT 3 XS - 7, Pool
Feature	Pool
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons



Station	Elevation
0.0	91.2
2.5	91.2
4.0	91.2
5.6	90.1
6.5	89.5
7.4	89.7
8.5	89.6
9.8	90.5
11.0	91.3
12.8	91.4
15.4	91.7

SUMMARY DATA	
Bankfull Elevation:	91.2
Bankfull Cross-Sectional Area:	7.1
Bankfull Width:	6.8
Flood Prone Area Elevation:	NA
Flood Prone Width:	NA
Max Depth at Bankfull:	1.2
Mean Depth at Bankfull:	1.0
W / D Ratio:	NA
Entrenchment Ratio:	NA
Bank Height Ratio:	1.0

Stream Type C/E



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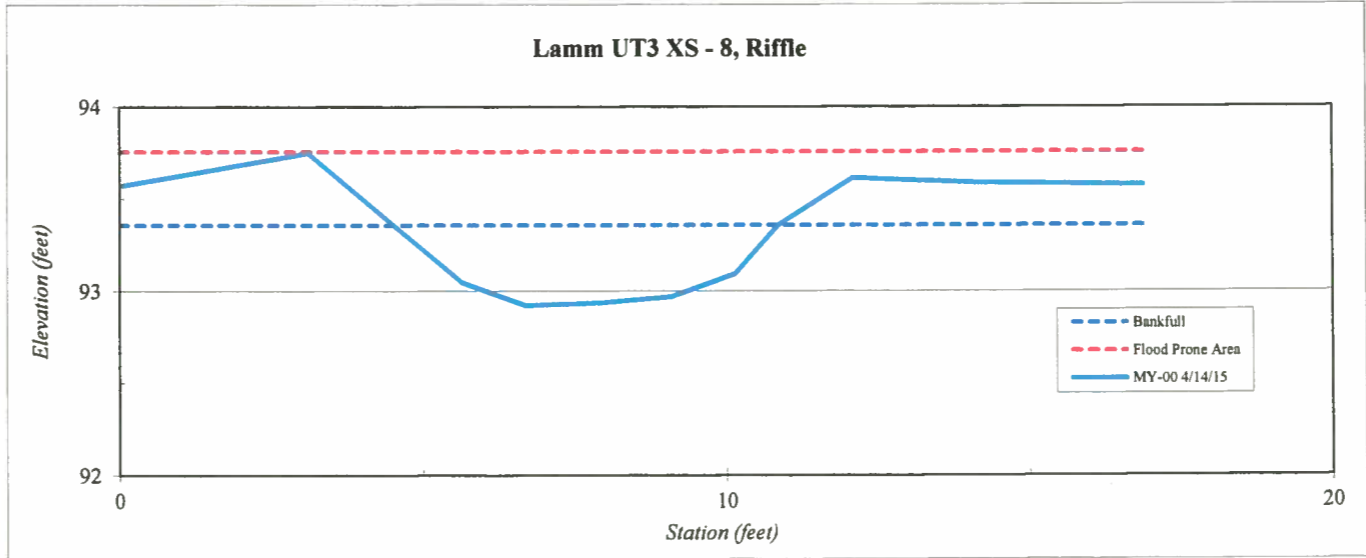
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	UT 3 XS - 8, Riffle
Feature	Riffle
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons



Station	Elevation
0.0	93.57
3.1	93.75
4.5	93.36
5.6	93.05
6.7	92.92
8.0	92.94
9.1	92.97
10.2	93.09
10.9	93.35
12.1	93.61
14.1	93.59
16.9	93.57

SUMMARY DATA	
Bankfull Elevation:	93.4
Bankfull Cross-Sectional Area:	2.0
Bankfull Width:	6.3
Flood Prone Area Elevation:	93.8
Flood Prone Width:	50.0
Max Depth at Bankfull:	0.4
Mean Depth at Bankfull:	0.3
W / D Ratio:	19.8
Entrenchment Ratio:	7.9
Bank Height Ratio:	1.0

Stream Type	C/E
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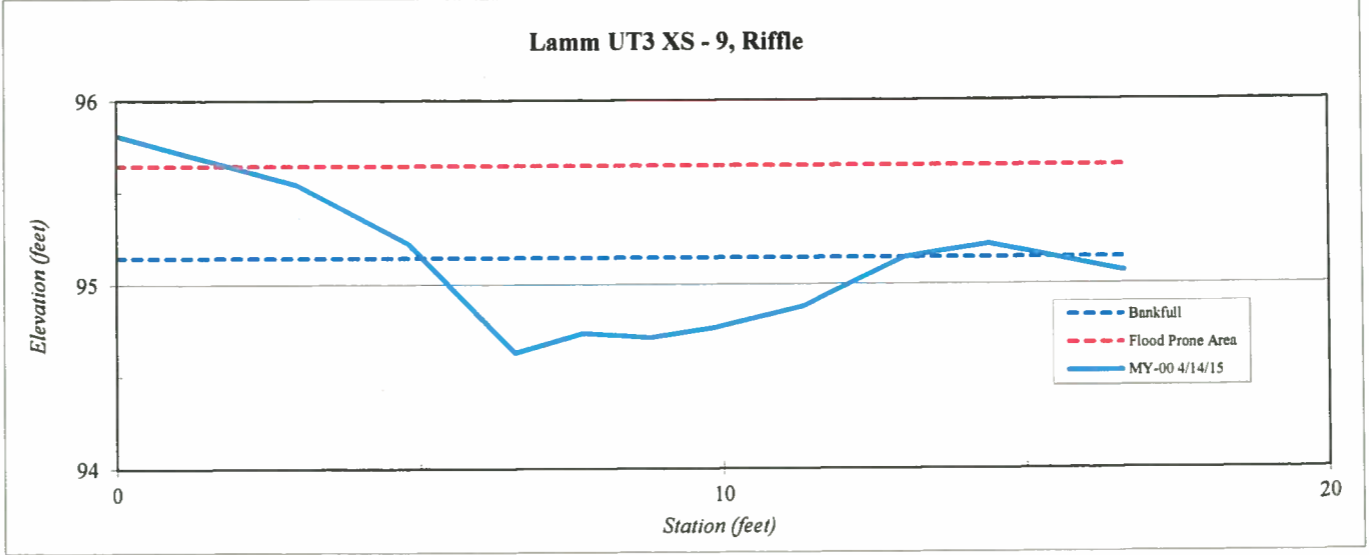
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	UT 3 XS - 9, Riffle
Feature	Riffle
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons



Station	Elevation
0.0	95.81
3.0	95.54
4.8	95.22
6.6	94.63
7.7	94.73
8.8	94.71
9.9	94.77
11.3	94.88
13.0	95.14
14.4	95.21
16.6	95.07

SUMMARY DATA	
Bankfull Elevation:	95.1
Bankfull Cross-Sectional Area:	2.5
Bankfull Width:	7.9
Flood Prone Area Elevation:	95.6
Flood Prone Width:	50.0
Max Depth at Bankfull:	0.5
Mean Depth at Bankfull:	0.3
W / D Ratio:	25.0
Entrenchment Ratio:	6.3
Bank Height Ratio:	1.0

Stream Type C



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John
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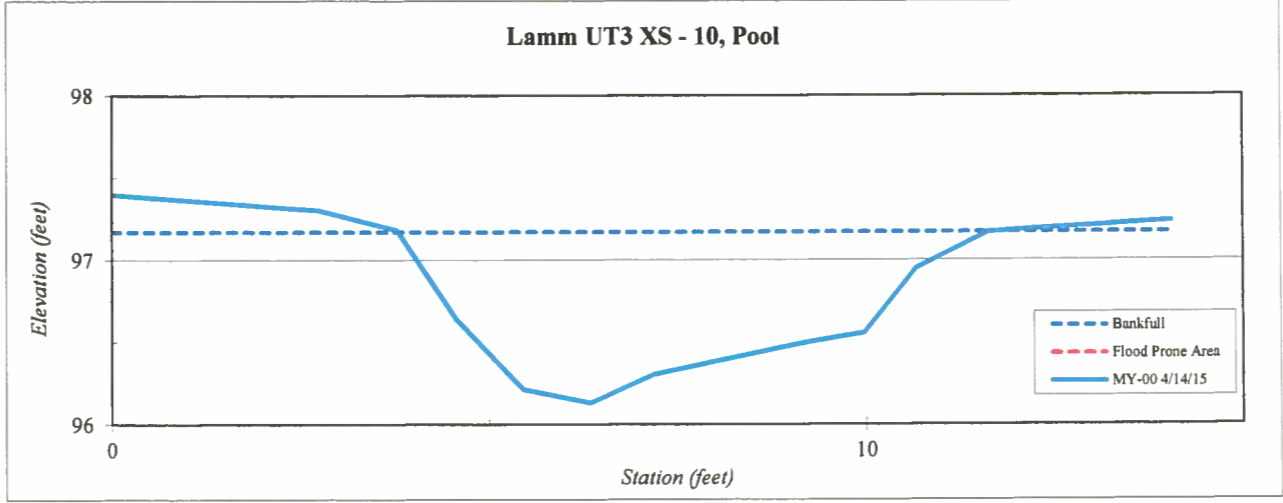
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	UT 3 XS - 10, Pool
Feature	Pool
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons

Station	Elevation
0.0	97.4
2.7	97.3
3.8	97.2
4.6	96.6
5.4	96.2
6.3	96.1
7.2	96.3
8.2	96.4
9.1	96.5
10.0	96.6
10.7	96.9
11.6	97.2
14.1	97.2

SUMMARY DATA	
Bankfull Elevation:	97.2
Bankfull Cross-Sectional Area:	5.0
Bankfull Width:	7.8
Flood Prone Area Elevation:	NA
Flood Prone Width:	NA
Max Depth at Bankfull:	1.0
Mean Depth at Bankfull:	0.6
W / D Ratio:	NA
Entrenchment Ratio:	NA
Bank Height Ratio:	1.0



Stream Type: C/E



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[Signature]
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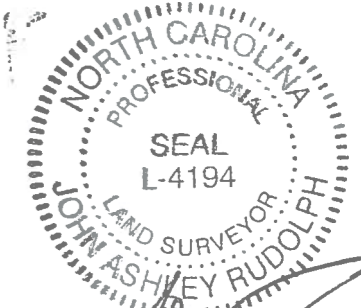
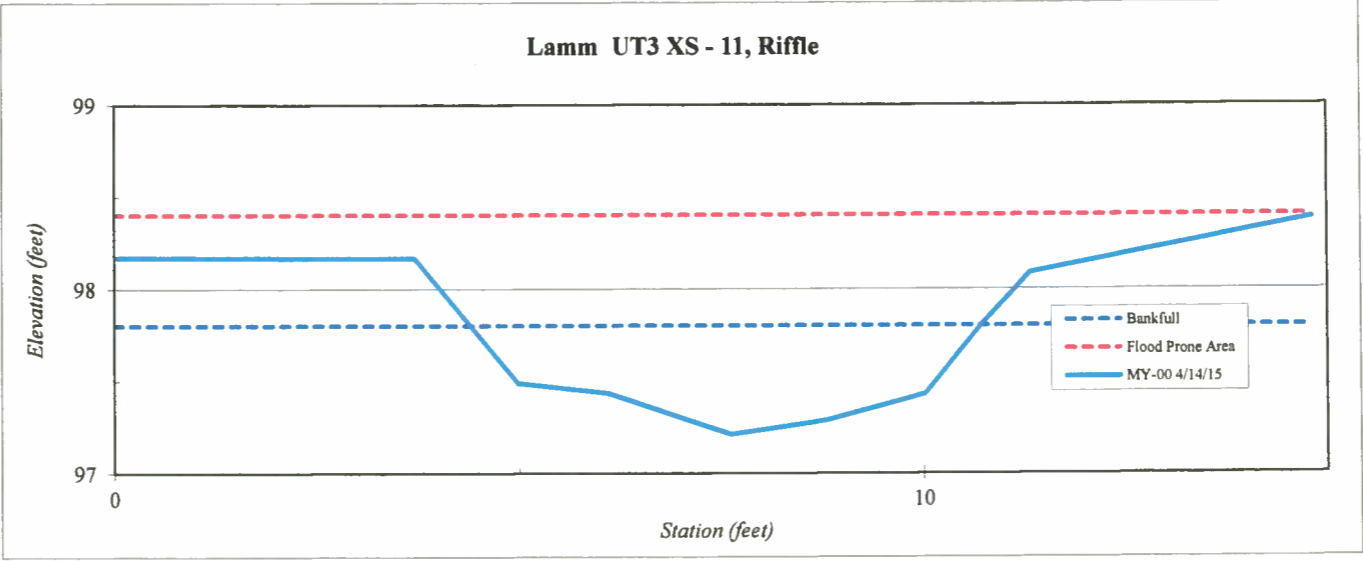
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	UT 3 XS - 11, Riffle
Feature	Riffle
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons



Station	Elevation
0.0	98.17
3.0	98.17
3.7	98.17
5.0	97.49
6.1	97.43
7.6	97.21
8.8	97.29
10.0	97.43
10.7	97.80
11.3	98.09
14.8	98.38

SUMMARY DATA	
Bankfull Elevation:	97.8
Bankfull Cross-Sectional Area:	2.5
Bankfull Width:	6.3
Flood Prone Area Elevation:	98.4
Flood Prone Width:	50.0
Max Depth at Bankfull:	0.6
Mean Depth at Bankfull:	0.4
W / D Ratio:	15.9
Entrenchment Ratio:	7.9
Bank Height Ratio:	1.0

Stream Type: C/E



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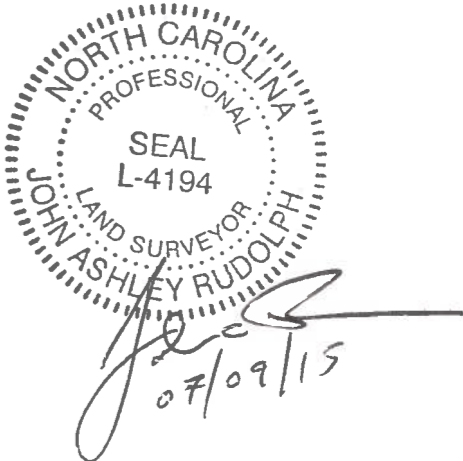
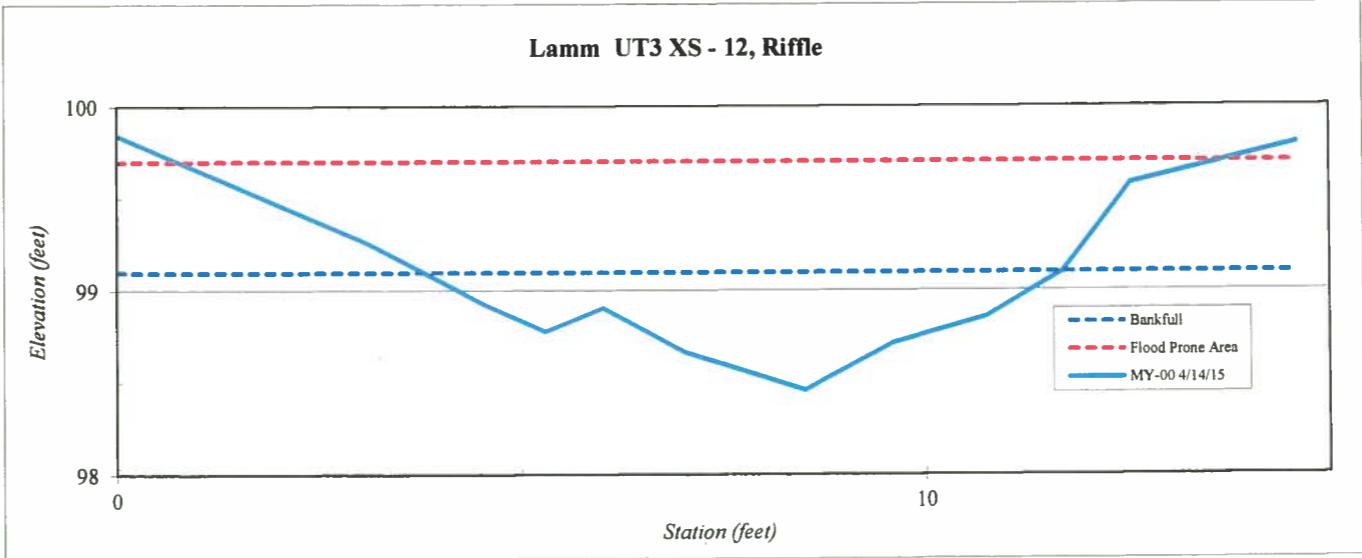
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	UT 3 XS - 12, Riffle
Feature	Riffle
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons



Station	Elevation
0.0	99.84
3.1	99.25
4.5	98.92
5.3	98.78
6.0	98.90
7.0	98.66
7.5	98.60
8.5	98.46
9.6	98.71
10.7	98.85
11.7	99.10
12.5	99.57
14.6	99.79

SUMMARY DATA	
Bankfull Elevation:	99.1
Bankfull Cross-Sectional Area:	2.6
Bankfull Width:	7.9
Flood Prone Area Elevation:	99.7
Flood Prone Width:	50.0
Max Depth at Bankfull:	0.6
Mean Depth at Bankfull:	0.3
W / D Ratio:	24.0
Entrenchment Ratio:	6.3
Bank Height Ratio:	1.0

Stream Type C



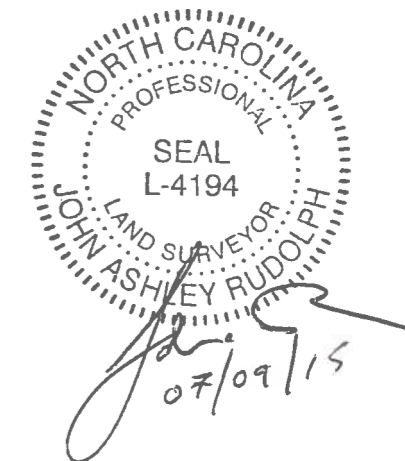
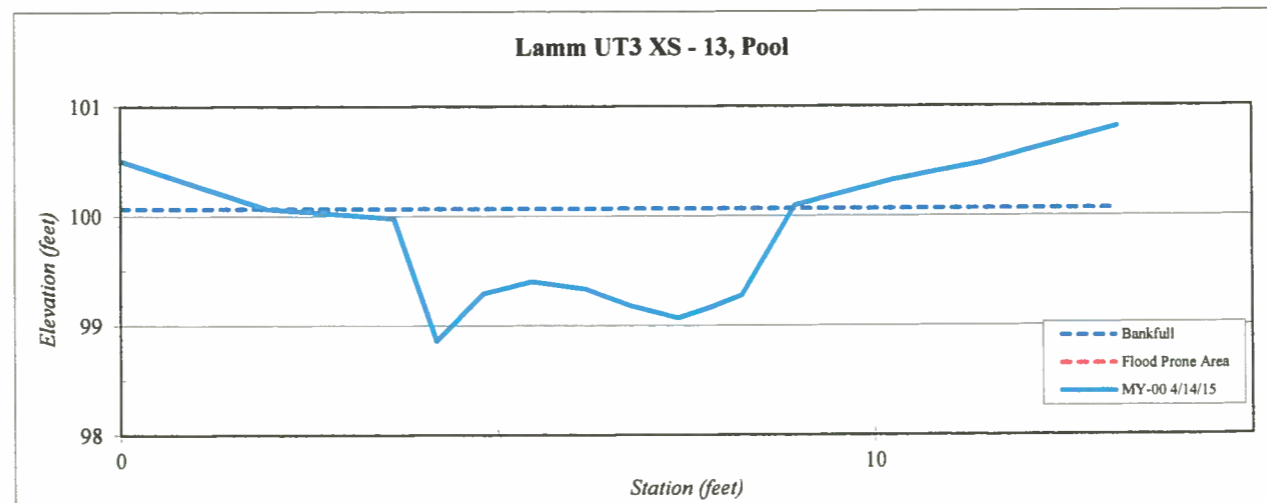
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	UT 3 XS - 13, Pool
Feature	Pool
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons

Station	Elevation
0.0	100.5
1.9	100.1
3.6	100.0
4.2	98.9
4.8	99.3
5.5	99.4
6.2	99.3
6.8	99.2
7.4	99.1
7.8	99.2
8.2	99.3
8.9	100.1
10.2	100.3
11.4	100.5
13.2	100.8

SUMMARY DATA	
Bankfull Elevation:	100.1
Bankfull Cross-Sectional Area:	4.1
Bankfull Width:	7.0
Flood Prone Area Elevation:	NA
Flood Prone Width:	NA
Max Depth at Bankfull:	1.2
Mean Depth at Bankfull:	0.6
W / D Ratio:	NA
Entrenchment Ratio:	NA
Bank Height Ratio:	1.0



Stream Type



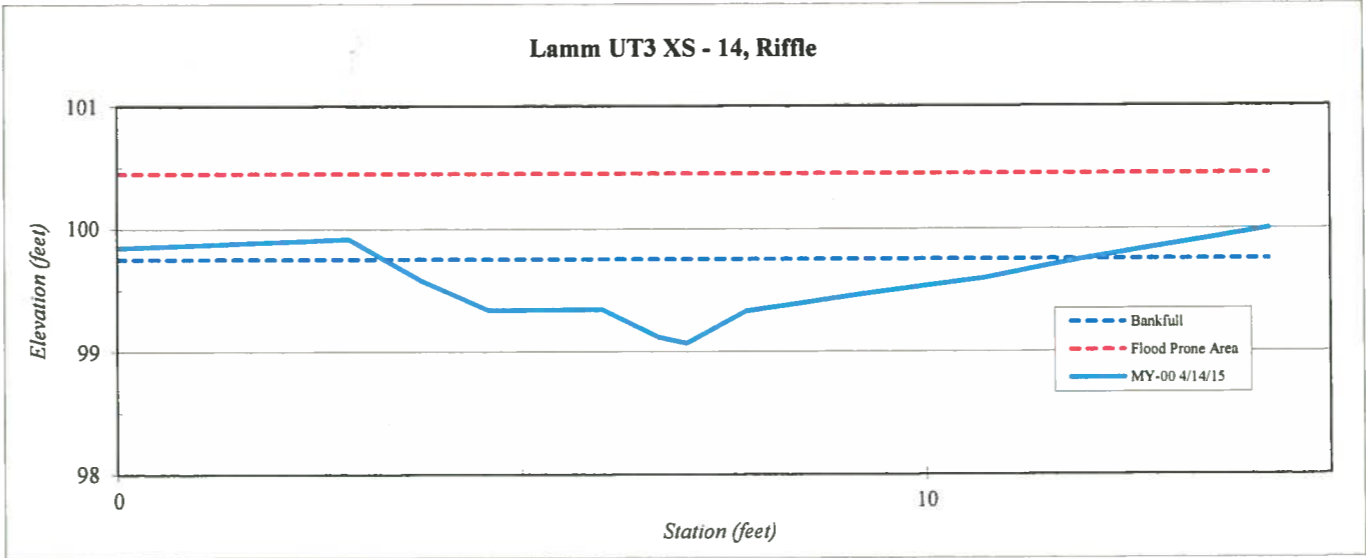
Site	Abbey Lamm
Watershed:	Cape Fear, 0303002
XS ID	UT 3 XS - 14, Riffle
Feature	Riffle
Date:	4/14/2015
Field Crew:	Perkinson, Gibbons



Station	Elevation
0.0	99.84
2.9	99.92
3.8	99.58
4.6	99.34
6.0	99.34
6.7	99.12
7.0	99.07
7.8	99.33
9.4	99.48
10.7	99.59
11.9	99.75
14.2	100.00

SUMMARY DATA	
Bankfull Elevation:	99.8
Bankfull Cross-Sectional Area:	2.8
Bankfull Width:	8.6
Flood Prone Area Elevation:	100.5
Flood Prone Width:	50.0
Max Depth at Bankfull:	0.7
Mean Depth at Bankfull:	0.3
W / D Ratio:	26.4
Entrenchment Ratio:	5.8
Bank Height Ratio:	1.0

Stream Type



NORTH CAROLINA
PROFESSIONAL
SEAL
L-4194
LAND SURVEYOR
JOHN ASHLEY RUDOLPH
[Signature]
07/09/15